

# **NRC**

# **Rules and Regulations**

**Title 10 – Chapter I**  
**Code of Federal Regulations**  
**Parts 50–199**

**STATEMENTS OF CONSIDERATION**  
**PRIOR TO JANUARY 1, 1987**



**Volume II**

**UNITED STATES NUCLEAR REGULATORY COMMISSION**

# **Rules and Regulations**



Title 10 – Chapter 1  
CODE of FEDERAL REGULATIONS

**Volume II**

**STATEMENTS OF CONSIDERATION  
PRIOR TO JANUARY 1, 1987  
PARTS 50–199**

Division of Freedom of Information  
and Publications Services

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



## PREFACE

The Division of Freedom of Information and Publications Services, Office of Administration, distributed a reprint of the "basic book" of the NRC Rules and Regulations in March 1989. This edition of the NRC Rules and Regulations monthly supplement program contained all codified text of 10 CFR effective through November 30, 1988, including the 72 supplements that comprised the publication as of October 31, 1988, plus the supplement for November 1988.

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

The Statements of Consideration for final rules published prior to January 1, 1989, in this bound, two-volume set 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 November 1988 recompilation.

Statements of Consideration since January 1, 1987, are included in the monthly supplements and will continue to be included in future supplements.

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.

# UNITED STATES NUCLEAR REGULATORY COMMISSION

## RULES and REGULATIONS

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

# PART 50

## DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

### STATEMENTS OF CONSIDERATION

21 FR 355  
Published 1/19/56  
Effective 2/18/56

Effective 30 days after publication in the *FEDERAL REGISTER*, Part 50, 10 CFR, "Control of Facilities for the Production of Fissionable Material," is hereby amended to read as follows:

25 FR 1072  
Published 2/6/60  
Effective 3/7/60

The following amendments implement subsection 182b and 189a of the Atomic Energy Act of 1954, as amended, by incorporating in 10 CFR Part 50 a definition of "testing facility" and the statutory requirement of review by the Advisory Committee on Reactor Safeguards and formal hearings on license applications for power and test reactors.

Notice of proposed issuance of these amendments was published in the *FEDERAL REGISTER* on March 28, 1959 (24 F.R. 2449).

Effective 30 days after publication in the *FEDERAL REGISTER*, 10 CFR Part 50 is hereby amended as follows:

25 FR 8712  
Published 9/9/60  
Effective 10/9/60

On February 11, 1960, the Commission issued for public comment proposed amendments to Part 50 of the Commission's rules and regulations. These proposed amendments provided for (1) clarification of work permitted or prohibited with respect to any production or utilization facility prior to the issuance of a construction permit; (2) revision of the criteria for issuance of provisional construction permits; and (3) 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 in cases 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 the 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. The comments received by the Commission with respect to these proposed rules have been considered by the Commission and are on file in the Public Document Room. Some modifications have been made on the basis of these comments.

The amendments, published below, relate to items (1) and (3) above.

Pursuant to the Administrative Procedure Act, notice is hereby given that the following amendments are adopted to be effective thirty (30) days after publication thereof in the *FEDERAL REGISTER*.

26 FR 4989  
Published 6/6/61  
Effective 6/6/61

*Statement of considerations.* The Atomic Energy Act of 1954, as amended, defines "production facility" as "(1) any equipment or device, determined by rule of the Commission to be capable of the production of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public . . ." (section 111.). Pursuant to this provision, the Commission has by rule defined a "production facility", among other things, as "any facility designed or used for the processing of irradiated materials containing special nuclear material, except laboratory scale facilities designed or used for experimental or analytical purposes only." (Section 50.2(a)(3).)

Under this definition, facilities which are designed or used for the processing of irradiated fuel elements are subject to the licensing requirements of Part 50, including, among others, the issuance of a construction permit prior to construction, issuance of operators' licenses, showing of financial protection and execution of a Price-Anderson indemnification agreement. If material containing special nuclear material has been irradiated, the Part 50 requirements are presently applicable regardless of the length or type of irradiation or content or activity of fission products. On the other hand, facilities used for the processing of unirradiated fuel elements are not subject to Part 50 requirements, but are licensed pursuant to Part 70, Special Nuclear Material, Part 40, Licensing of Source Material, and Part 30, Licensing of Byproduct Material.

The Commission has concluded that irradiated materials which contain such small amounts of fission products and have such low levels of fission product activity that no additional radiological safety precautions are required beyond those necessary in connection with the processing of unirradiated materials should be treated similarly to unirradiated materials from a licensing standpoint. Accordingly, the amendment set forth below is intended to exempt the processing of slightly irradiated uranium

from the licensing requirements of Part 50. Such processing would still be subject to the requirements of Part 30, Licensing of Byproduct Material and Part 70, Special Nuclear Material.

The limits on concentration and activity specified in the amendment are based upon analysis and calculations described in "AEC Analysis of Appropriate Limits for Exemption," a document which is on file in the AEC's Public Document Room, 1717 H Street NW., Washington 25, D.C. A copy of this document may be obtained at the AEC's Public Document Room or upon request addressed to the Atomic Energy Commission, Washington 25, D.C., Attention: Director, Division of Licensing and Regulation.

The specified limits for concentrations and quantities of induced radioactivity are very low. It is possible that higher concentrations and quantities would not present hazards appreciably greater than those associated with the processing of unirradiated uranium. The specified limits have been selected so as to exempt from the Part 50 regulations only materials with such low concentrations and activities of fission products, including plutonium, that safety equipment, personnel and procedures adequate for unirradiated uranium are obviously sufficient.

The amendment would have the effect of exempting from Part 50 the processing of many fuel elements used in critical facilities, if cooled for an appropriate period of time prior to processing. For example, the activity of a fuel element irradiated in a critical facility operated at 50 watts for 40 days would decrease below the exempted amount after approximately 180 days' cooling time. On the other hand, fuel elements used in research, test or power reactors for any reasonable period of time would require extremely long cooling times to decrease to exempted levels. For example, assuming a reactor containing 4 kg of uranium 235, a fuel element irradiated at 10 kilowatts for 30 days would require cooling for approximately 30 years.

The amended regulation will relieve Engelhard Industries, Inc., from Part 50 licensing requirements for proposed processing at their Newark, N.J., plant of 24 slightly irradiated MTR-type fuel and control elements being returned by the Netherlands Government. Since these elements were used in a reactor for only one week and have been in storage for three years, the content of fission products and level of activity fall within the limits prescribed in the amended regulation. The proposed activities are described in Engelhard Industries, Inc., Application for Exemption, dated January 5, 1961, a copy of which is on file in the AEC's Public Document Room.

Inasmuch as this amendment is intended to relieve from, rather than to

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Impose, restrictions under regulations currently in effect and will not adversely affect the public health and safety, the Commission has found that general notice of proposed rule-making and public procedure thereon are unnecessary and good cause exists why this amendment should be made effective upon publication in the FEDERAL REGISTER.

It may be noted that the amendment set forth below excludes from the definition of "production facility" only facilities used for the processing of slightly irradiated uranium. Public comments are invited with respect to (1) the concentrations of fission products, including plutonium, specified in the amendment with respect to irradiated uranium; (2) possible adoption of exceptions with respect to other irradiated materials containing special nuclear materials; and (3) proposed concentrations of fission products for such additional irradiated materials. Such public comments should be submitted within sixty (60) days of the publication of this amendment in the FEDERAL REGISTER and should be addressed to the Secretary, United States Atomic Energy Commission, Washington 25, D.C.

Notice is hereby given that effective upon the publication in the FEDERAL REGISTER, 10 CFR Part 50, Licensing of Production and Utilization Facilities, is amended by revising § 50.2(a) (3) to read as follows:

26 FR 9546  
Published 10/10/61  
Effective 10/10/61

On May 9, 1961, the Commission published for public comment proposed amendments to 10 CFR Part 50 which would provide procedures for the transfer of licenses; the enforcement of creditors' rights against licensed facilities; and the surrender and termination of licenses. The amendments would also grant consent to the creation of mortgages or other liens upon licensed facilities. The comments received by the Commission with respect to the proposed amendments have been considered by the Commission and are on file in the Commission's Public Document Room.

Certain clarifying changes have been made in the language of § 50.82 of the amendments as published on May 9, 1961, in the notice of proposed rule making. The changes in language do not significantly modify the purpose or effect of the amendments as originally published.

Pursuant to the Administrative Procedure Act, notice is hereby given that the following amendments to Title 10, Chapter I, Part 50, Code of Federal Regulations, entitled "Licensing of Production and Utilization Facilities," are adopted to be effective upon publication in the FEDERAL REGISTER:

27 FR 12915  
Published 12/29/62  
Effective 1/28/63

On March 15, 1962 the Commission published in the FEDERAL REGISTER (27 F.R. 2479) a proposed amendment to § 50.35 designed to identify the principal elements of the safety determination which the Commission makes when it issues a provisional construction permit.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendment within sixty days after publication of the notice in the FEDERAL REGISTER. No comments were received.

Notice is hereby given that pursuant to the Administrative Procedure Act and the Atomic Energy Act of 1954, as amended, the following rule is adopted to be effective thirty days after publication in the FEDERAL REGISTER.

28 FR 3196  
Published 4/3/63  
Effective 6/2/63

On October 12, 1961, the Atomic Energy Commission published in the FEDERAL REGISTER a notice of proposed rule making to revise Parts 50 and 115 to include therein provisions for the designation of individuals to be responsible for directing the licensed activities of licensed operators and the requirement that individuals so designated be licensed as supervisory operators pursuant to Part 55. Requirements covering the presence or availability of supervisory operators were also included.

The Commission has received many comments from interested persons and organizations. As a consequence, the proposed amendments have been rewritten with incorporation of a number of these suggestions. The principal changes from the proposed amendments are as follows:

1. The proposed term "supervisory operator" has been changed throughout to "senior operator". The main reason for this change is to avoid any implication that the Commission, in granting such a license, is expressing an opinion on whether the holder of the license is part of, or eligible for a management group.

2. A definition of "controls" has been added as paragraph (t) in § 50.2 and as paragraph (m) in § 115.3. This addition is to conform with the definition in Part 55.

3. Section 50.54(j) has been redesignated as § 50.54(n) and a new § 50.54(j) has been added. The corresponding change in Part 115 is redesignation of § 115.42(h) as § 115.42(l) and addition of a new § 115.42(h). This change states that apparatus and mechanisms other than controls, the operation of which may affect the reactivity or power level of the facility shall be manipulated only with the knowledge and consent of a licensed operator of senior operator.

4. Sections 50.54(m) and 115.42(k) have been revised to better describe the conditions during which the presence of a senior operator is required.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendments to 10 CFR Parts 50 and 115 are published as a document subject to codification to be effective 60 days after publication in the FEDERAL REGISTER.

31 FR 4668  
Published 3/19/66  
Effective 3/19/66

### Miscellaneous Amendments

See Part 20 Statements of Consideration.

32 FR 3090  
Published 2/21/67  
Effective 3/4/67

### Elimination of Statement of Reasons for Surrender of License

The Atomic Energy Commission has adopted an amendment of § 50.82(a) of 10 CFR Part 50, "Licensing of Production and Utilization Facilities," which eliminates the requirement of that section that a licensee who proposes to surrender his facility license, dismantle the facility, and dispose of its component parts provide, in his application to the Commission for a surrender, a statement of reasons.

The general language of § 50.82 furnishes sufficient authority to require a "statement of reasons" in the unlikely event that it might be required to protect the common defense and security and the public health and safety. Therefore, the requirement of such a statement from all applicants is unnecessary.

Because this amendment relates to a minor, nonsubstantive matter, notice of proposed rule making and public procedure thereon are unnecessary, and good cause exists to make the amendment effective upon publication in the FEDERAL REGISTER.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, as amended, the following amendment of 10 CFR Part 50 is published as a document subject to codification to be effective upon the date of its publication in the FEDERAL REGISTER.

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32 FR 13445  
Published 9/26/67  
Effective 10/26/67

### Exclusion of Attacks and Destructive Acts by Enemies of the U.S. in Issuance of Facility Licenses

On February 11, 1967, the Atomic Energy Commission published a notice of proposed rule making in the *FEDERAL REGISTER* (32 F.R. 2821) proposing amendment of 10 CFR Parts 50 and 115 by the addition of new §§ 50.13 and 115.9 to those parts. Comments were invited to be submitted within 30 days after publication. An amendment to that notice of proposed rule making was published on April 5, 1967 (32 F.R. 5562); comments on the amended notice were invited to be submitted within 30 days after publication.

After careful consideration of the comments received on both the first notice of proposed rule making and the amended notice and other factors involved, the Commission has adopted the amendments set forth below, which are the same as those published for comment on April 5, 1967, except for an editorial change in § 115.9. The amendments codify the Commission's practice of not requiring applicants for licenses to construct and operate production and utilization facilities to provide for design features or other measures for the specific purpose of protection against (1) the effects of attacks and destructive acts, including sabotage, directed against the facility by an enemy of the United States, or (2) the use or deployment of weapons incident to U.S. defense activities.

The protection of the United States against hostile enemy acts is a responsibility of the nation's defense establishment and of the various agencies having internal security functions. The power reactors which the Commission licenses are, of course, equipped with numerous features intended to assure the safety of plant employees and the public. The massive containment and other procedures and systems for rapid shutdown of the facility included in these features could serve a useful purpose in protection against the effects of enemy attacks and destructive acts, although that is not their specific purpose. One factor underlying the Commission's practice in this connection has been a recognition that reactor design features to protect against the full range of the modern arsenal of weapons are simply not practicable and that the defense and internal security capabilities of this country constitute, of necessity, the basic "safeguards" as respects possible hostile acts by an enemy of the United States.

The circumstances which compel this recognition are not, of course, unique as regards a nuclear facility; they apply also to other structures which play vital roles within our complex industrial economy. The risk of enemy attack or sabotage against such structures, like the risk of all other hostile attacks which might be directed against this country, is a risk that is shared by the nation as a whole.

Furthermore, assessment of whether, at some time during the life of a facility, another nation actually would use force against that particular facility, the nature of such force and whether that enemy nation would be capable of employing the postulated force against our defense and internal security capabilities are matters which are speculative in the extreme. Moreover, examination into the above matters, apart from their extremely speculative nature, would involve information singularly sensitive from the standpoint of both our national defense and our diplomatic relations.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, as amended, the following amendments of Title 10, Chapter I, Code of Federal Regulations, Parts 50 and 115, are published as a document subject to codification, to be effective 30 days after publication in the *FEDERAL REGISTER*.

33 FR 2381  
Published 3/1/68  
Effective 3/1/68

### License and Authorization Required

On August 3, 1967, the Atomic Energy Commission published in the *FEDERAL REGISTER* (32 F.R. 11278) proposed amendments to its regulations, 10 CFR Part 50, Licensing of Production and Utilization Facilities, and 10 CFR Part 115, Procedures for Review of Certain Nuclear Reactors Exempted from Licensing Requirements, which would specifically permit the driving of piles prior to issuance of a construction permit or construction authorization.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice or proposed rule making in the *FEDERAL REGISTER*.

After consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments. The text of the amendments set forth below is identical with the text of the proposed amendments published on August 3, 1967.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, as amended, the following amendments to 10 CFR Parts 50 and 115 are published as a document subject to codification, to be effective 30 days after publication in the *FEDERAL REGISTER*.

33 FR 8587  
Published 6/12/68  
Effective 7/12/68

### Miscellaneous Amendments to Chapter

See Part 2 Statements of Consideration.

33 FR 9704  
Published 7/4/68  
Effective 9/2/68  
Comment Period expires 9/2/68 (Appendix C)

### Financial Qualifications

On June 13, 1967, the Commission published for comment in the *FEDERAL REGISTER* (32 F.R. 8423) proposed amendments to its regulations, "Licensing of Production and Utilization Facilities," 10 CFR Part 50, which would provide further guidance as to what information would be required to establish financial qualifications for a facility construction permit and for an operating license. The proposed amendments were accompanied by "A Guide for the Financial Data and Related Information Required To Establish Financial Qualifications for Facility Construction and Operating Licenses," designated proposed Appendix C to Part 50. All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. The Commission withdrew the proposed guide, Appendix C to Part 50, on July 22, 1967 (32 F.R. 10816).

After careful consideration of the comments received and other factors involved, the Commission has adopted the amendments set forth below which, except for Appendix C, are the same as those set out in the notice of proposed rule making.

Section 182a of the Atomic Energy Act of 1954, as amended, provides, among other things, that each application for a license shall state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the financial qualifications of the applicant as the Commission may deem appropriate for the license. The Act and the Commission's regulations reflect that the fundamental purpose of the financial qualifications provision of that section is the protection of the public health and safety and the common defense and security.

Although the Commission's safety determinations required for the issuance of facility licenses are based upon extensive and detailed technical review, an applicant's financial qualifications can also contribute to his ability to meet his responsibilities on safety matters. The amendment to § 50.33(f) of Part 50 set forth below provides further guidance as to what information is required to establish the financial qualifications of an applicant for a facility construction permit or an operating license. The amendment to § 50.71 provides for the filing of the annual financial reports, including the certified financial statements, of facility licensees with the Commission. The requirements of the amendments for a showing of availability of funds to cover the cost of operating the facility for a

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period of at least 5 years and for the filing of annual financial reports, and those pertaining to newly formed entities, apply only to applicants for licenses for production or utilization facilities of types described in § 50.21(b) or § 50.22 of Part 50, and testing facilities as defined in § 50.2(r), Part 50.

A guide intended to aid applicants in satisfying the requirements of § 50.33(f) with respect to the preparation and submission of information sufficient to demonstrate the financial ability of the applicant to carry out the particular activity for which the permit or license is sought is set out in Appendix C, "A Guide for the Financial Data and Related Information Required to Establish Financial Qualifications for Facility Construction Permits and Operating Licenses." Much of the detail appearing in the guide published for comment on June 13, 1967, and later withdrawn, has been eliminated.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification, to be effective 60 days after publication in the FEDERAL REGISTER. The provisions of the amendments will be used as interim guidance pending effectiveness, to the extent that they are not inconsistent with the present regulations in 10 CFR Part 50. The Commission invites all interested persons who desire to submit written comments or suggestions regarding Appendix C of Part 50, "A Guide for the Financial Data and Related Information Required to Establish Financial Qualifications for Facility Construction Permits and Operating Licenses," to send them to the Secretary, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Branch, within 60 days after publication of this notice in the FEDERAL REGISTER. Consideration will be given such submission with the view to possible amendments of Appendix C. Copies of comments received may be examined at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

33 FR 10923  
Published 8/1/68  
Effective 10/1/68

*License Fees for Facility Licenses and Materials Licenses*

See Part 170 Statements of Consideration.

33 FR 18610  
Published 12/17/68  
Effective 1/16/69

### Technical Specifications for Facility Licenses; Safety Analysis Reports

On August 16, 1966, the Atomic Energy Commission published in the FEDERAL REGISTER (31 F.R. 10891) for public comment proposed amendments to 10 CFR Part 50 which would (1) establish a revised system of technical specifications which focuses attention on items more directly related to public safety, (2) provide for systematic documentation of the technical and operational bases for specifications, and (3) provide guidance as to the content of preliminary safety analysis reports and safety analysis reports required of applicants for permits to construct, and licenses to operate, production or utilization facilities.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 120 days after publication of the notice of proposed rule making in the FEDERAL REGISTER. After careful consideration of the comments received and other factors involved, the Commission has adopted the amendments set forth below which, except as noted, are the same as those set out in the notice of proposed rule making.

Licenses to operate utilization or production facilities include "technical specifications" in accordance with section 182 of the Atomic Energy Act of 1954, as amended (the Act). Technical specifications set forth the specific characteristics of the facility and the conditions for its operation that are required to provide adequate protection for the health and safety of the public. The technical specifications are a part of the license, and cannot be changed without prior Commission approval.<sup>1</sup>

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.

Section 50.34 has been amended to add a new paragraph (a) which explicitly requires the applicant to submit a preliminary safety analysis report at the construction permit stage and defines the information required at that time. The preliminary safety analysis report will emphasize the principal safety features of the facility and their relation to the site.

<sup>1</sup> Experience has shown that the degree of detail contained in technical specifications prepared in accordance with present § 50.36 and Appendix A, which has been deleted by this rule making action, is not necessary for purposes of public safety.

The requirement for a preliminary safety analysis report is intended to provide early and adequate information which is expected to expedite the processing of construction permit applications by reducing the time consuming exchanges between the applicant and the AEC staff required to fill information gaps. The identification of probable subjects for technical specifications in the preliminary safety analysis report is expected to minimize burdensome design changes at the operating license stage resulting from design deficiencies in relation to technical specification requirements.

With respect to final safety analysis reports, § 50.34 has been further revised to emphasize the need for analysis and evaluation, and to indicate more definitively what information the Commission requires. As amended, § 50.34 requires that the report include information describing the facility, an explanation of the design bases and limits on facility operation, and evaluations to show that safety functions will be accomplished.

Under § 50.36 as revised, with the filing of an application for an operating license, the applicant is required to propose for Commission review and approval, and the license will include, technical specifications derived from the analysis and evaluation presented in the safety analysis report. The technical specifications for nuclear reactors fall into five general categories, which are defined in § 50.36(c): (1) Safety limits and limiting safety system settings, (2) limiting conditions for operation, (3) surveillance requirements, (4) design features, and (5) administrative controls. For each of the specifications other than those covering administrative controls, the applicant is required to provide a summary of the technical bases for the specifications.

The analysis and evaluation of the facility required under § 50.34 must provide (1) the necessary information from which technical specifications will be selected, and (2) the detailed bases for the specifications derived. Since Appendix A to Part 50 no longer serves a useful function, the Appendix and references to it in § 50.36 have been deleted.

Section 50.59 has been revised to (1) clarify the requirement for records of changes made by a licensee, (2) redefine the term "unreviewed safety question" and (3) make referral of proposed changes to the Advisory Committee on Reactor Safeguards (ACRS) permissive rather than mandatory. Paragraph (e) of § 50.59 presently requires the Commission to refer to the ACRS requests for changes, tests or experiments or for changes in technical specifications for facilities of a type described in § 50.21(b) or § 50.22, or a testing facility, which present significant hazards considerations not described in or implicit in the safety analysis report. Under the amended rule, such referral is not mandatory.

Several changes have been incorporated in the amendments as adopted as a result of comments and further Commission consideration.

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In § 50.2, the definition of "design bases" has been revised. Changes have been made in § 50.34 to better define the extent of the safety analysis and to emphasize the reasons for early and thorough consideration of technical specifications. New subparagraphs relating to quality control, research and development, and site evaluation factors have been added.

Several changes have been made in § 50.36(d), which has been redesignated § 50.36(c). The categories of technical specifications to be included in an operating license would be applicable only to nuclear reactors.

Safety system settings having significant safety functions have been included in the requirements of § 50.36(c) (1) (ii). The word "limiting" has been substituted for the words "minimum" and "maximum" in describing safety system settings and conditions for operations. Subparagraph (4) has been revised to emphasize that the Commission's interest is in only those design features whose alteration or modification might affect safety.

Section 50.59(b) has been modified to reflect the Commission's primary interest in assuring that changes, tests or experiments have been responsibly reviewed and evaluated. Certain editorial and corrective changes from the proposed amendments have also been made in §§ 50.34, 50.36 and 50.59.

Some consideration is also being given to further amendments to Part 50 to specify the circumstances under which the modification of a facility or facility design may be required by the Commission, or authorized by the Commission at the request of a licensee.

Since the amendments place increased emphasis on analysis and evaluation of a facility, in order to provide a sound basis for each technical specification, the preparation of technical specifications by the applicant requires a carefully prepared safety analysis report. A "Guide for the Organization and Contents of Safety Analysis Reports for Nuclear Reactors" has been prepared. In addition, a "Guide to Content of Technical Specifications for Nuclear Reactors," has been prepared for use with the revised system of technical specifications.<sup>2</sup> These documents are available for inspection at the Commission's Public Document Room, 1717 H Street NW., Washington, D.C., and copies may be obtained by addressing a request to the Director, Division of Reactor Licensing, U.S. Atomic Energy Commission, Washington, D.C. 20545. Technical specifications in accordance with the revised system have been prepared for several reactor facilities for which operating licenses have recently been issued, and copies of these are also available for inspection at the Commission's Public Document Room.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification, to be effective 30 days after publication in the FEDERAL REGISTER.

<sup>2</sup> Guides for preparation of safety analysis reports and technical specifications for chemical processing facilities are being developed.

34 FR 6036  
Published 4/3/69  
Effective 5/3/69

*Miscellaneous Amendments to Chapter*

See Part 2 Statements of Consideration.

34 FR 6769  
Published 4/23/69  
Effective 5/23/69

### Consideration of Ultimate Power Level for Power Reactors

On February 14, 1967, the Atomic Energy Commission published in the FEDERAL REGISTER (32 F.R. 2851) a proposed amendment to § 50.34 of 10 CFR Part 50, "Licensing of Production and Utilization Facilities", which would require an applicant for a facility construction permit to include, in the preliminary safety analysis report, an analysis and evaluation of the major systems and components of the facility which bear significantly on the acceptability of the site under the site evaluation factors identified in 10 CFR Part 100, assuming that the facility will be operated at the ultimate power level which is contemplated by the applicant. All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the FEDERAL REGISTER. Upon consideration of the comments received and other factors involved, the Commission has adopted the amendment set out below, which is identical with the proposed amendment published February 14, 1967, except for a few minor changes to conform to the amendments of § 50.34 published in the FEDERAL REGISTER on December 17, 1963 (33 F.R. 18610).

In recent years, many applications for construction permits for power reactors have set forth two figures for operating power levels. The lower figure, that guaranteed to the utility by the manufacturer, is the one supported by the specific design data and analysis set forth in the application. The higher figure is the one expected to be achieved ultimately, but for which justification depends upon experience gained and data developed during operations at the lower power level. Some applications contain no supporting data for the higher figure and merely reference it as a projection which would be the subject of an application for license amendment after the initial operation of the facility had demonstrated its capability to operate safely at the higher power. Other applications extrapolate data from the lower design values to form the bases for the design capacity of the engineered safeguards and other components at the higher level. Because of the absence of adequate data to support operation at the higher capacity, the Commission's finding that there is reasonable assurance that the proposed facility can be constructed and operated at the proposed site without endangering public health and safety has necessarily been limited to operation at the lower power level, and that level is specified in the construction permit which is then issued.

The amendment of § 50.34 of Part 50 which follows requires an applicant for a facility construction permit to include, in the preliminary safety analysis report an analysis and evaluation of the major structures, systems and components of the facility which bear significantly on the acceptability of the site under the site evaluation factors identified in 10 CFR Part 100, assuming that the facility will be operated at the ultimate power level which is contemplated by the applicant. The amendment thus permits evaluation of all major systems and components at the construction permit stage, to the extent permitted by available information.

The power level specified in the construction permit would depend upon the adequacy of the information which the applicant is then able to provide.

Under present technology, it is expected that the power level designated initially in a construction permit will normally be the lower figure. The amendment, however, will not prejudice future requests for increases in power level, whether because of changes in technology or for other reasons.

The amendment in no way changes the nature of the Commission review of each facility at the operating license stage. This review assures that, irrespective of the power level specified in the construction permit, no license will be issued authorizing operation at that power level, or any other, until the applicant has demonstrated that the final design of the facility provides reasonable assurance that the health and safety of the public will not be endangered by operation of the facility.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment of Title 10, Chapter I, Code of Federal Regulations, Part 50 is published as a document subject to codification to be effective 30 days after publication in the FEDERAL REGISTER.

35 FR 5317  
Published 3/31/70  
Effective 4/30/70

See Part 2 Statements of Consideration.

35 FR 6644  
Published 4/25/70  
Effective 4/30/70

See Part 2 Statements of Consideration.

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35 FR 10498  
Published 6/27/70  
Effective 7/27/70

### Quality Assurance Criteria for Nuclear Power Plants

On April 17, 1969, the Atomic Energy Commission published in the *FEDERAL REGISTER* (34 F.R. 6599) for public comment proposed amendments to 10 CFR 50 "Licensing of Production and Utilization Facilities," which would add an appendix B, "Quality Assurance Criteria for Nuclear Power Plants."

All interested persons were invited to submit comments or suggestions in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. After careful consideration of the comments received in response to the notice of proposed rule making and other factors involved, the Commission has decided to adopt the amendments in the form set out below. The amendments, as adopted, reflect a number of the comments. The principal changes from the proposed amendments are as follows:

1. Section 50.34(a)(7) now requires that a description and evaluation of the quality assurance program be included in the preliminary safety analysis report. For clarification, the term, "evaluation" has been deleted and a sentence has been added to require that the description of the quality assurance program shall indicate how the applicable requirements of appendix B will be satisfied. For consistency, a similar statement has been added to § 50.34(b)(6)(ii) with regard to the controls to assure safe operation.

2. Section III of appendix B, "Design Control," has been revised to (a) require provisions to assure that appropriate quality standards are included in design documents and that deviations from such standards are controlled; (b) require that measures be established for the selection and review for suitability of application of materials, parts, equipment, and processes; (c) indicate that design control measures may include means of verifying or checking the adequacy of design other than the performance of design reviews, such as the use of alternate or simplified calculational methods, or the performance of a suitable testing program; and (d) require that design changes be subject to design control measures commensurate with those applied to the original design.

3. The last sentence in section IV of appendix B, "Procurement Document Control," has been modified to recognize that all sections of the quality assurance criteria may not be applicable to all contractors or subcontractors.

4. Section V of appendix B, "Instructions, Procedures, and Drawings," has been revised to make clear that the criteria for determining that important operations have been satisfactorily accomplished need not be duplicated on more than one design document.

5. Section VII, "Control of Purchased Material, Equipment, and Services," has been expanded to require that documentary evidence that material and equipment conform to the procurement

requirements shall be available at the nuclear power plantsite prior to installation or use of the material and equipment. The word "all" in the first sentence of this section has been deleted so that a scope broader than that to which appendix B applies will not be inferred.

6. In section VIII, "Identification and Control of Material, Parts, and Components," the second sentence has been revised to eliminate any implication that traceability of material is, in all cases, required.

7. Section X, "Inspection," has been revised (a) to eliminate the implication that in-process inspection and mandatory inspection hold points are, in all cases, required and (b) to indicate that the inspection program shall be established and executed by or for the organization performing the inspected activity, and that the inspection shall be performed by individuals other than those who performed the activity being inspected.

8. In section XIV of appendix B, "Inspection, Test, and Operating Status," the requirement for marking nonconforming items has been deleted to eliminate duplication with the requirements of section XV. The section has also been revised to indicate that tagging valves and switches is one way to identify the operating status, but not necessarily the only way.

9. In section XVI, "Corrective Action," to preclude the necessity of corrective action measures for those conditions adverse to quality which are rarely completely eliminated, such as all weld defects prior to initial inspection, the requirement that the cause be determined and corrected to preclude repetition has been changed to apply to significant conditions adverse to quality.

10. In section XVIII, "Audits," to avoid the implication that personnel performing audits should be qualified to specific requirements, the term "appropriately qualified personnel" has been changed to "appropriately trained personnel."

Editorial changes have also been made. The amendments set forth below establish quality assurance requirements for the design, construction, and operation of those structures, systems, and components of nuclear powerplants that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The pertinent provisions of these requirements apply to all activities which affect the safety-related functions of such structures, systems, and components.

The quality assurance requirements established by these criteria are intended to assure that:

(a) Applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions.

(b) Systems and components fabricated and tested in manufacturers' facilities conform to the specifications, drawings, procedures, and instructions.

(c) Structures, systems, and compo-

nents constructed and tested at the nuclear powerplant site conform to the specifications, drawings, procedures, and instructions.

(d) Succeeding activities, such as operating, testing, refueling, repairing, maintaining, and modifying nuclear powerplants, are conducted in accordance with quality assurance practices consistent with those employed during design and construction. In addition to the requirement that operating activities be conducted in accordance with these quality assurance practices, there are other requirements which must be suitably developed and observed to assure safe operation; for example, technical specifications, schedules of maintenance and refueling, fuel management programs, and programs for operator training and qualification.

The quality assurance criteria are intended to assist applicants for nuclear powerplant licenses (1) to comply with § 50.34(a)(7) of Part 50, which requires inclusion in the preliminary safety analysis report of a description of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility, and (2) in the development of managerial and administrative controls to be used to assure safe operation, as required by § 50.34(b)(6)(ii).

The criteria will also be used for guidance in evaluating the adequacy of the quality assurance programs in use by holders of construction permits and operating licenses.

The development of the criteria has taken into account cooperative Atomic Energy Commission-industry efforts on quality assurance requirements, the experience accumulated in designing, constructing, and operating licensed nuclear powerplants and Commission-owned reactors, and the quality assurance programs required for work under the cognizance of the Department of Defense and the National Aeronautics and Space Administration.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification, to be effective 30 days after publication in the *FEDERAL REGISTER*.

35 FR 17530  
Published 11/14/70  
Effective 2/12/71

### Siting of Fuel Reprocessing Plants and Related Waste Management Facilities

On June 3, 1969, the Atomic Energy Commission published in the *FEDERAL REGISTER* (34 F.R. 8712), and invited public comment on, a proposed statement of policy, in the form of an appendix to 10 CFR Part 50, concerning the siting of fuel reprocessing plants and related waste management facilities. The function of reprocessing plants is to recover valuable unused nuclear fuel



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from fuel elements removed from reactors when the elements have reached the end of their useful lives. In addition to the unused fuel, the elements contain radioactive fission products generated during reactor operation. They emerge from the chemical reprocessing as liquid or solid wastes which must be safely disposed of.

The proposed statement of policy dealt principally with (1) the question as to whether the safety problems and characteristics associated with operation or with the decommissioned status of a licensed fuel reprocessing plant require, from the standpoint of the public health and safety, that these plants be located on land owned and controlled by the Federal Government; and (2) the question of ultimate disposal of high-level radioactive fission product wastes generated at these plants. The Commission has concluded that public health and safety considerations relating to fuel reprocessing plants do not require that such facilities be located on land owned and controlled by the Federal Government. Such plants, including the facilities for the temporary storage of high-level radioactive wastes, may be located on privately owned property. This conclusion was based on (1) the availability of technology for solidifying the high-level waste in forms suitable for safe transport to and disposal at a Federal repository specially selected and designed for permanent removal of such radioactive wastes from the biosphere, and (2) a recognition that fuel reprocessing plants can be so designed that radiologically significant contaminants may be removed or otherwise satisfactorily disposed of when the plant is retired from operational service.

The proposed appendix to 10 CFR Part 50 would state, among other things, that the high-activity liquid wastes generated in a fuel reprocessing plant must be converted to an AEC-approved solid form and transferred to a Federal waste repository. The liquid waste could be stored at the fuel reprocessing plant as long as 5 years before conversion to solid form. Shipment to a Federal repository would not be required until 10 years after generation of the liquid waste. The proposed appendix would also provide that reprocessing plants must be designed to facilitate decontamination and removal of all significant radioactive wastes in the event a plant is retired from operational status. License applicants would be required to furnish information on financial qualifications to provide for the removal and disposal of radioactive wastes in accordance with the Commission's existing regulations.

Interested persons were invited to submit comments and suggestions for consideration in connection with the proposed statement of policy within 60 days after publication in the *FEDERAL REGISTER*. The comment period was later extended to September 15, 1969.

Upon consideration of the comments received and other factors involved, the Commission has adopted the statement of policy which follows. The statement is the same as that published for comment on June 3, 1969, except as noted

below.

Of primary concern in developing a policy for the siting of fuel reprocessing plants is the need to restrict, in the interest of public health and safety, the quantities and mobility of the high-level radioactive wastes stored onsite at fuel reprocessing plants. During the past 15 years the Commission has been carrying out research and development programs aimed at developing a method for effectively and permanently removing these wastes from man's biological environment. These programs have also been designed to reduce the possibility of the inadvertent release of such wastes to the environment.

The major emphasis in these programs has been directed toward the conversion of liquid wastes into solid forms suitable for interim onsite storage, safe transport and disposal in selected deep geologic formations. These general concepts were initially suggested in 1955 by the Committee on Radioactive Waste Disposal of the National Academy of Science-National Research Council. The concepts have been supported by successor committees of the Academy. In the interim the technical feasibility of both waste solidification and solid waste disposal in deep geologic formations has been demonstrated. On June 17, 1970, the Commission announced the tentative selection of a site near Lyons, Kans., for the location of a demonstration repository. Authorization and appropriations for construction of the repository will be sought in the fiscal year 1972 budget. It is anticipated that this storage facility—constructed in a deep, bedded-salt formation—will be designated as the initial Federal repository for solid radioactive wastes.

As stated in the Commission's June 17th announcement, bedded salt for long-term storage of radioactive wastes is particularly attractive. It is widespread and abundant; it has good structural properties; it is relatively inexpensive to mine; its thermal properties are better than those of most other rock types; and it occurs generally in areas of low seismicity. Most importantly, salt deposits are free of circulating ground waters and completely isolated from underground aquifers by essentially impermeable rock formations. Furthermore, this situation tends to be preserved because any fractures which might develop are readily healed by plastic deformation of the salt.

There is no indication that alternative technologies, suitable for power reactor fuels, will be available in the foreseeable future. However, should alternate technology become available, and should it appear to be equivalent to or an improvement over that specified in the policy adopted by the Commission, it will be evaluated and given appropriate consideration.

The Commission is continuing to evaluate the feasibility of storage of high-level liquid radioactive wastes from its production facilities at Savannah River, S.C., and Hanford, Wash., in underground caverns beneath these sites. The over 80 million gallons of high-level wastes now stored in tanks at these in-

stallations constitute over 95 percent by volume of all high-level wastes in this country. However, such wastes differ materially in radioactivity level, heat output and chemical composition from wastes produced by licensed fuel reprocessing plants planned or under construction. For example, the Savannah River and Hanford wastes have been chemically neutralized, contain large volumes of nonfission product materials, and have heat and radioactivity outputs many times lower than the licensed plant wastes. Most of the Savannah River and Hanford wastes were generated as the result of operations to meet defense needs.

There are a number of unique considerations and incentives for the Commission's decision to support research and development on long-term storage in underground caverns beneath these Savannah River and Hanford sites. These include: The large volume of the Savannah River and Hanford wastes; the relatively low heat output of these wastes as compared with those from licensed reprocessing plants; and the tremendous estimated cost and related problems of solidifying and shipping these wastes offsite. This research and development program is being performed in phases. In the interim both Savannah River and Hanford are immobilizing their tank-stored liquid wastes by evaporating them to salt cakes in the existing tanks. Before any decision is made to store wastes in underground caverns a substantial amount of exploration work will be necessary to assure that the wastes will be isolated from the biosphere for centuries. The research and development program at Savannah River to date, and further exploratory drilling and mining to determine the suitability of the bedrock under the site, are expected to cost about \$14 million. Such a research and development program is a necessary prerequisite to a decision to construct a facility solely for Savannah River wastes. Nevertheless, because of the large volume of wastes already in existence at that site, long-term storage of the waste in caverns mined in the bedrock offers the potential of significant cost savings as compared to the alternative of solidification and storage offsite. However, it is doubtful that bedrock storage of liquid wastes would be attractive for licensed reprocessing plants. Specifically, the high cost of the research and development program that would be required to prove out the bedrock at each location, the uncertainty and associated delay until the site is accepted, and the high estimated costs of constructing each such disposal facility, support this conclusion.

At this time there is only one licensed fuel reprocessing plant in operation; consequently the industry does not have a significant volume of existing stored liquid wastes. Planners of new reprocessing plants have available to them proven AEC-developed processes designed to generate relatively small volumes of acid wastes and to reduce these wastes to acceptable solid forms. Recent AEC studies (e.g., ORNL-4451, "Siting of Fuel Reprocessing Plants and Waste Management Facilities") indicate the esti-



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mated cost of solidification and shipment of wastes from licensed reprocessing plants to Federal repositories for storage will not have a significant impact on the nuclear power industry.

The Commission does not now regard storage of liquid high-level wastes in tanks as constituting an acceptable method of long-term storage. Commission experience with its tank storage of liquid high-level wastes is extensive and while tank design, construction and maintenance have improved, the fact remains that tanks can deteriorate and leak and that wastes in liquid form offer a much more serious potential for dispersal in the environment in the event of an accident no matter how unlikely such an accident may be, and present far more difficulty for recovery and decontamination than solidified wastes. Tank storage requires extensive surveillance, and often requires mechanical cooling apparatus to be functioning continuously. Over periods of centuries one cannot assure the continuity of surveillance and care which tank storage requires.

Some period of in-tank storage of liquid wastes at the reprocessing plant-site may be required for cooling purposes depending upon the solidification process to be used. However, the requirement to solidify such wastes, within 5 years of their generation, into a form suitable for off-site shipment and long-term storage will assure that liquid wastes do not accumulate on-site in large quantities.

The Commission has given careful consideration to the safety considerations associated with the transport of solid radioactive wastes to a Federal repository. The technology and experience resulting from the transportation of irradiated fuel elements over the last 20 years provide a firm basis for developing safe, reliable systems for shipping solidified high-level radioactive wastes. Shipments of solidified radioactive wastes carried out in accordance with regulations of the AEC and the Department of Transportation should not endanger the health and safety of the public.

As noted, the policy includes a 5-year limit on interim liquid storage of high-level wastes. The policy would also require that the waste be transferred, in solid form, to a Federal repository no later than 10 years following separation of the fission products from the irradiated fuel. These inventory restrictions would be imposed in the interest of minimizing any potential hazard to the public health and safety and of assuring that shipments of a Federal repository are made on a timely basis. The Commission believes that these inventory limitations are reasonable from the standpoint of waste management economics. While a penalty may be incurred in terms of Federal repository space utilization if wastes are placed in a repository at an age under 6 to 8 years, there appears to be little economic incentive to defer placement in the repository of wastes aged more than 10 years. This conclusion takes into account the cost and maintenance of interim solid-storage facilities.

Some concern has been expressed that

required solidification of high-level wastes will render unavailable a potentially valuable resource in that these wastes represent a unique source of radionuclides which are useful in various applications, such as compact heat and power sources. However, under the Commission policy, the permissible 5-year inventory of liquid wastes will provide a ready supply of feed material for an isotope recovery facility, and the separated byproducts will not be subject to the inventory limitations. Furthermore, the quantity of isotopes generated in the production of nuclear power will continue to expand rapidly in the foreseeable future; thus, the isotope production in any given year will represent a significant fraction of the total quantity then available.

Interest has been expressed regarding that aspect of the policy which provides that disposal of high-level radioactive fission product waste would not be permitted on any land other than that owned and controlled by the Federal Government. It has been urged that the Commission permit the establishment of repositories for such wastes on State-owned land with operation under AEC licenses. The Commission has considered these suggestions but believes at this time that high-level waste repositories should be under Federal ownership and responsibility. The Commission wishes to emphasize, however, that adoption of this policy will not preclude consideration of State participation in federally owned repositories or in high-level waste management activities at some time in the future.

The health and safety of the public, both of the present and future generations, requires that any permanent repository for high-level radioactive wastes provide complete isolation of the wastes from man's biological environment. The Commission believes that Federal ownership of and responsibility for the proposed Lyons, Kans., repository will provide the most productive and timely means of demonstrating that such repositories can be operated without endangering the health and safety of the public.

Paragraph 2 of the proposed policy published for comment on June 3, 1969: *Provided*, That "High-level liquid radioactive wastes in excess of this authorized inventory must be converted to an AEC-approved solid form." Paragraph 2 has been revised to specify the forms of solidified high-level radioactive wastes considered by the Commission to be acceptable for receipt and disposal at a Federal repository. The specifications have been developed with the view of providing maximum flexibility to licensees in producing solid forms which would satisfy the safety requirements associated with onsite interim storage, transportation, and Federal repository operations.

Data are presently available which will permit independent development of unit costs for all waste management operations involved in complying with the policy other than repository charges.

Following congressional authorization and the completion of the detailed repository design a firm schedule of

repository charges will be developed and published by the Commission. For interim guidance the previously cited ORNL report identifies the bases upon which such charges may be developed and provides preliminary estimates. For example, the cost for disposal of a container of waste may be determined as the product of the cost per unit of floor area of the mine and the area that is required to provide for sufficient dissipation of heat from the container. In addition, there would likely be a minimum charge for handling. Of course, all such charges would be subject to adjustment as experience is gained in the operation of the repository.

One of the elements of the policy is that fuel reprocessing plants be designed to facilitate decontamination and removal of all significant radioactive wastes at the time the facility is permanently decommissioned. Viewed from the perspective that each generation is trustee of the environment for succeeding generations, the Commission considers that the public interest requires that a high degree of decontamination capability be included in such facilities and that any residual radioactive contamination after decommissioning be sufficiently low as not to represent a hazard to the public health and safety. Specific requirements for decontamination and decommissioning of fuel reprocessing facilities will be developed in consultation with competent groups. Public comment will be invited before such rules are made effective.

The proposed policy statement, as previously published, also included provisions, designated as paragraphs 6 and 7 of the policy, which related to the disposal of radioactive hulls and other solid wastes resulting from operation of fuel reprocessing plants. Since publication of the proposed policy the Commission has undertaken studies in connection with the ultimate disposal of wastes contaminated with plutonium or other transuranium nuclides. The Commission anticipates that these studies may result in amendments to its regulations identifying certain radioactive materials deemed unsuitable for disposal at licensed, privately operated land burial facilities. Public comment will be invited on such proposed amendments. Any Commission rules on eventual disposal of such wastes will be rules of general applicability to all licensees. Accordingly, paragraphs 6 and 7 have been deleted.

The Commission staff plans to convene a conference of interested industry representatives prior to the expiration of the 60-day comment period for the purpose of assuring a full discussion and exchange of views regarding the policy statement. The date and place of the conference will be announced at an early date.

The text of the statement of policy set out below is the same as that published for comment on June 3, 1969, except for minor editorial changes and (1) the redesignation of the appendix as Appendix F of 10 CFR Part 50; (2) the revision of the definition of "high-level liquid radioactive wastes" in paragraph 1 of the appendix to clarify its

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application to fuel reprocessing systems other than solvent extraction; (3) the revision of paragraph 2 of the appendix to include a specification of AEC-approved solid form; (4) the inclusion of a statement in paragraph 4 of the appendix to indicate that the decontamination to be required upon decommissioning will be the subject of criteria which the Commission will develop in consultation with competent groups; (5) the deletion of the previously proposed paragraphs 6 and 7 of the appendix, dealing with ultimate disposal of miscellaneous solid wastes generated at fuel reprocessing facilities, in view of current AEC studies which the Commission anticipates may result in proposed amendments to its regulations identifying certain radioactive materials deemed unsuitable for disposal onsite or at licensed, privately owned land burial facilities; and (6) the inclusion in the appendix of a new paragraph 6 providing that with respect to fuel reprocessing plants already licensed, the licenses will be appropriately conditioned to carry out the purposes of the policy stated above.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to 10 CFR Part 50 is published as a document subject to codification, to be effective 90 days after publication in the FEDERAL REGISTER. The Commission invites all interested persons who desire to submit written comments or suggestions in connection with the amendment to send them to the Secretary, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Branch, within 60 days after publication of this notice in the FEDERAL REGISTER. Consideration will be given such submissions with the view to possible amendments. Copies of comments received may be examined at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

35 FR 18385  
Published 12/3/70  
Effective 1/2/71

### Control of Releases of Radioactivity to the Environment

*Statement of considerations.* On April 1, 1970, the Atomic Energy Commission published in the FEDERAL REGISTER (35 F.R. 5414) proposed amendments to 10 CFR Parts 20 and 50 of its regulations which would: (a) Improve the framework in Part 20 for assuring that reasonable efforts are made by all Commission licensees to continue to keep exposures to radiation, and releases of radioactivity in effluents as low as practicable, and (b) specify in Part 50 design and operating requirements to minimize quantities of radioactivity released in gaseous and liquid effluents from light-water-cooled nuclear power reactors. Interested persons were invited to submit written comments and suggestions for

consideration within 60 days after publication of the notice of proposed rule making in the FEDERAL REGISTER. After consideration of the comments and other factors involved, the Commission has adopted the proposed amendments with certain modifications discussed below.

The scope of the amendments to Part 50 has been expanded to include all nuclear power reactors rather than light-water-cooled power reactors only. The Commission is giving further consideration to appropriate amendments to its regulations to specify design and operating requirements to minimize radiation exposures from radioactivity released in effluents from other types of production and utilization facilities such as fuel reprocessing plants.

Several comments noted that at the time the application for a permit to construct a nuclear power reactor is submitted design has not progressed to the point where specific equipment to be installed for control of gaseous and liquid effluents can be described in detail. Accordingly, proposed § 50.34a (a) and (b) have been modified to require only a description of the preliminary design of equipment to be installed.

Some comments suggested that "curie quantities of radionuclides" required to be estimated in the application for a construction permit in proposed § 50.34a (b) (2) could be construed to mean either the total quantity of each potential radionuclide or the total number of curies of all radionuclides combined. This provision has been modified to require that an estimate of the quantity of each of the principal radionuclides expected to be released annually to unrestricted areas be included in each application for a permit to construct a nuclear power reactor. Section 50.34a (c) has been changed to require a description of the equipment and procedures for the control of effluents and for the maintenance and use of equipment installed in radioactive waste treatment systems, and revised estimates of the releases and exposures which would be expected if significantly different from those given in the application for a construction permit.

Section 50.36a (a) (2) has been revised to allow 60 days, rather than the proposed 30 days, after January 1 and July 1 of each year for filing reports by power reactor licensees on releases of radioactive materials in effluents. The provision of the proposed subparagraph that, if quantities of radioactive materials released during the reporting period are unusual for normal reactor operations, including expected operational occurrences, the report shall cover this specifically, has been modified to substitute the words "significantly above design objectives" for "unusual for normal reactor operations". A number of comments suggested that this subparagraph be more specific with respect to the information that will be required by the Commission to enable it to estimate exposures to the public resulting from effluent releases. The Commission has developed and will publish in the near future specific details as to the information that must be included in the 6-month reports, required

by the technical specifications in power reactor licenses, including the format for reporting the information. This information, including estimates of exposures to the public resulting from releases of radioactive materials in effluents from nuclear powerplants, will be published by the Commission on a systematic basis so that it will be readily available to all interested persons.

A substantial number of comments were received regarding the interpretation of various terms used in the proposed amendments such as "every reasonable effort" and "as low as practicable" and suggesting that the Commission develop more definitive criteria for keeping releases of radioactivity in nuclear power reactor effluents as low as practicable. Definition of factors that will be taken into account in determining that radioactivity in effluents is "as low as practicable" has been added to the amendments. The Commission recognizes the desirability of developing more definitive guidance in connection with these amendments, and is initiating discussions with the nuclear power industry and other competent groups to achieve this goal.

*Basis for AEC standards.* Releases of radioactive materials in effluents by Commission licensees are regulated under the provisions of 10 CFR 20.106 which apply to all uses of byproduct, source, and special nuclear material licensed by the Commission. These provisions are based on radiation protection guides recommended by the Federal Radiation Council (FRC) and approved by the President. The Commission maintains close consultation, and will continue to consult, with the National Council on Radiation Protection and Measurements, and the International Commission on Radiological Protection.

Since 1959 official guidance for control of exposures to radiation has been provided to Federal agencies through recommendations of the FRC, approved by the President. The FRC was established in 1959 by Executive order and by an amendment to the Atomic Energy Act of 1954 (42 U.S.C. 2021(h)). The FRC is directed to advise the President "... with respect to radiation matters, directly or indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards and in the establishment and execution of programs of cooperation with States." The basic recommendations of the FRC are generally consistent with those of the National Council on Radiation Protection and Measurements (NCRP) and the International Commission on Radiological Protection (ICRP). The FRC recommendations include a radiation protection guide for the genetic exposure of the entire population at a level not quite twice the average natural background radiation level and for a whole body exposure of individuals in the population at a level about five times the average natural background radiation. The guides are set well below the level at which detectable biological effects from exposure to radiation are expected to occur. The FRC states in Report No. 1 dated May 13, 1960, that the guides give appropriate consideration to the requirements of

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health protection and the beneficial uses of radiation and atomic energy.

**Guidance on low radiation doses.** The FRC added to the numerical guidance on maximum limits the further guidance that "every effort should be made to encourage the maintenance of radiation doses as far below this guide as practicable". Similar statements are also included in NCRP and ICRP recommendations.

The Commission has always subscribed to the general principle that, within radiation protection guides, radiation exposures to the public should be kept as low as practicable. This general principle has been a central one in the field of radiation protection for many years. Current reviews of reactor licensing applications include reviews of provisions to limit and control radioactive effluents from the plants.

Experience has shown that licensees have generally kept exposures to radiation and releases of radioactivity in effluents to levels well below the Part 20 limits. Specifically, experience with licensed nuclear power reactors to date shows that radioactivity in water and air effluents has been kept at low levels—for the most part small percentages of the limits specified in 10 CFR Part 20. Resultant exposures to the public living in the immediate vicinity of operating power reactors have usually been small percentages of FRC guides. The Commission believes that, in general, the releases of radioactivity in effluents from the nuclear power reactors now in operation have been within ranges that may be considered "as low as practicable." The Commission also believes that, as a result of advances in reactor technology, further reduction of those releases can be achieved. The results to date are attributable, in part, to steps to assure the integrity of the nuclear fuel, to the design of waste treatment systems to control and contain radioactivity, and to procedures and methods to limit releases of radioactive material to unrestricted areas in effluent water and air. The AEC's total regulatory program includes not only the standards and limits in 10 CFR Part 20, but other regulations as well, various restrictions on plant design and restrictions on operation included in individual operating licenses.

**Control of exposures from several different sources.** The Commission expects that releases of radioactive material in effluents from nuclear power reactors under the present system of regulation will continue to be low. At the same time, the Commission recognizes that there will be a marked increase in the number and size of nuclear power reactors in operation in the future, and that other activities that contribute radiation exposure to the public can be expected to increase.

**Design objectives for nuclear power reactors.** The amendments to Part 50 set out below are intended to give appropriate regulatory effect, with respect to radioactivity in effluents from nuclear power reactors, to the guidance of the FRC that radiation doses should be kept as far below the radiation protection guides as practicable. As in the past, an application for a permit to construct a

nuclear power reactor will be required to include a description of the preliminary design of equipment to be installed to maintain control over radioactive materials in effluents during normal reactor operations, including expected operational occurrences. In addition, in the case of an application filed on or after the effective date of the amendments, the application will be required to identify the design objectives, and the means to be employed, for keeping levels of radioactive material released in effluents as low as practicable. As in current practice the Commission will review the proposed design of the reactor, including the waste treatment equipment and the description of procedures for the maintenance and use of the equipment, to determine whether the required design objectives are met.

Each license authorizing operation of a nuclear power reactor will include technical specifications which require adherence to operating procedures for control of effluents and the maintenance and use of equipment installed in the waste treatment system, and the submission of semiannual reports containing information on quantities of radioactive material released. If quantities released during the reporting period are significantly above design objectives, the licensee will be required to cover this specifically in its report. The effluent release data submitted by licensees will be compiled by the Commission and made available to the public. The Commission will review in its inspection and enforcement program the effectiveness of the maintenance and operating procedures used by licensees in meeting the objective of minimizing, to the extent practicable, the quantities of radioactivity released in air and water effluents.

On the basis of existing technology and past operating experience the Commission expects that nuclear power reactor waste treatment systems designed and operated in accordance with the requirements set forth in the following amendments to Part 50 will help to assure that releases from nuclear power reactors will generally not exceed small percentages of the annual maximum limits specified in Part 20 and in license conditions, and that radiation exposures to the public resulting from the normal operations of nuclear power reactors will not exceed small percentages of exposures from natural background radiation.

**Need for flexibility of operation.** It is necessary that nuclear power reactors designed for generation of electricity have a very high degree of reliability. Operating flexibility is necessary to take into account some variation in the small quantities of radioactivity, as a result of expected operational occurrences, which may temporarily result in levels of radioactive effluents in excess of the low levels normally released, but still within the limits specified in § 20.106 of Part 20 and the operating license.

**Monitoring.** The Commission will continue to evaluate exposures to the public from releases of radioactivity in effluents from nuclear power reactors. Reactor licensees are presently required to carry out monitoring programs designed not only to determine levels of radioac-

tivity in effluents released from the plant but also to detect significant increases in levels of radioactivity in the environment. The licensee is required to report these data to the Commission on a periodic basis. In addition, the Commission, the U.S. Public Health Service and several States carry out environmental surveillance programs. These programs are designed to detect and evaluate increases in environmental levels that may be significant to human exposure. The Atomic Energy Commission in cooperation with other participating agencies as appropriate will systematically publish these data so that they will be available to all interested persons.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 20 and 50, are published as a document subject to codification, to be effective thirty (30) days after publication in the *FEDERAL REGISTER*. The Commission invites all interested persons who desire to submit written comments or suggestions in connection with the amendments to send them to the Secretary of the Commission, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Branch, within 60 days after publication of this notice in the *FEDERAL REGISTER*. Consideration will be given such submission with the view to possible further amendments. Copies of comments received may be examined at the Commission's Public Document Room at 1717 H Street NW, Washington, DC.

35 FR 19567  
Published 12/24/70  
Effective 1/23/71

### Plans for Coping With Emergencies

On May 21, 1970, the Atomic Energy Commission published in the *FEDERAL REGISTER* (35 F.R. 7818) for public comment proposed amendments to 10 CFR Part 50 "Licensing of Production and Utilization Facilities" which would amend § 50.34 "Contents of applications: technical information," and add a new Appendix E, "Emergency Plans for Production and Utilization Facilities." The proposed amendments would require the submission of certain information pertaining to licensee's emergency plans to the Commission in applications for facility operating licenses and of more general information in applications for facility construction permits.

All interested persons were invited to submit comments or suggestions in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*.

After careful consideration of all of the comments received the Commission has decided to adopt the amendments in the form set out below. The amendments have been revised to reflect some of the comments received. The substantive changes from the amendments published for comment are:

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1. Appendix E, section II-B as published for comment would require a description in the preliminary safety analysis report of contracts and arrangements made or to be made with local, State and Federal governmental agencies with responsibility for coping with emergencies. Comments from agencies with this responsibility indicated that identification of the principal agencies should also be made in the preliminary safety analysis report. A statement has been added to section II-B to require identification of these principal agencies. A similar change has been made to section IV-D.

Sections II and IV of Appendix E have been revised to clarify that the licensee, at the time of an accident requiring off-site response, is responsible for notifying those persons or agencies who have legal authority and responsibility for such a response.

Editorial changes have also been made.

The "Guide To the Preparation of Emergency Plans for Production and Utilization Facilities" as referenced in 10 CFR Part 50, Appendix E was developed by the AEC to assist applicants in developing suitable emergency plans and is available for inspection at the Commission's Public Document Room, 1717 H Street NW. Copies may be obtained by addressing a request to the Director, Division of Reactor Licensing or Director, Division of Materials Licensing, U.S. Atomic Energy Commission, Washington, D.C. 20545.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification, to be effective 30 days after publication in the *FEDERAL REGISTER*.

35 FR 19655  
Published 12/29/70  
Effective 12/29/70

### Miscellaneous Amendments

See Part 2 Statements of Consideration.

36 FR 3255  
Published 2/20/71  
Effective 5/21/71

### General Design Criteria for Nuclear Power Plants

The Atomic Energy Commission has adopted an amendment to its regulations, 10 CFR Part 50, "Licensing of Production and Utilization Facilities," which adds an Appendix A, "General Design Criteria for Nuclear Power Plants."

Section 50.34(a) of Part 50 requires that each application for a construction permit include the preliminary design of the facility. The following information is specified for inclusion as part of the preliminary design of the facility:

(i) The principal design criteria for the facility

(ii) The design bases and the relation of the design bases to the principal design criteria

(iii) Information relative to materials of construction, general arrangement, and the approximate dimensions, sufficient to provide reasonable assurance that the final design will conform to the design bases with adequate margin for safety.

The "General Design Criteria for Nuclear Power Plants" added as Appendix A to Part 50 establish the minimum requirements for the principal design criteria for water-cooled nuclear power plants similar in design and location to plants, for which construction permits have been issued by the Commission. They also provide guidance in establishing the principal design criteria for other types of nuclear power plants. Principal design criteria established by an applicant and accepted by the Commission will be incorporated by reference in the construction permit. In considering the issuance of an operating license under Part 50, the Commission will require assurance that these criteria have been satisfied in the detailed design and construction of the facility and that any changes in such criteria are justified.

A proposed Appendix A, "General Design Criteria for Nuclear Power Plant Construction Permits" to 10 CFR Part 50 was published in the *FEDERAL REGISTER* (32 F.R. 10213) on July 11, 1967. The comments and suggestions received in response to the notice of proposed rule making and subsequent developments in the technology and in the licensing process have been considered in developing the revised criteria which follow.

The revised criteria establish minimum requirements for water-cooled nuclear power plants similar in design and location to plants for which construction permits have been issued by the Commission, whereas the previously proposed criteria would have provided guidance for applicants for construction permits for all types of nuclear power plants. The revised criteria have been reduced to 55 in number, include definitions of important terms, and have been rearranged to increase their usefulness in the licensing process. Additional criteria describing specific requirements on matters covered in more general terms in the previously proposed criteria have been added to the criteria. The Categories A and B used to characterize the amount of information needed in Safety Analysis Reports concerning each criterion have been deleted since additional guidance on the amount and detail of information required to be submitted by applicants for facility licenses at the construction permit stage is now included in § 50.34 of Part 50. The term "engineered safety features" has been eliminated from the revised criteria and the requirements for "engineered safety features" incorporated in the criteria for individual systems.

Further revisions of these General Design Criteria are to be expected. In the course of the development of the revised criteria, important safety considerations were identified, but specific requirements related to some of these considerations have not as yet been sufficiently developed and uniformly applied in the licensing process to warrant their inclusion in the criteria at this time. Their omission does not relieve any applicant from considering these matters in the design of a specific facility and satisfying the necessary safety requirements. These matters include:

(i) Consideration of the need to design against single failures of passive components in fluid systems important to safety.

(ii) Consideration of redundancy and diversity requirements for fluid systems important to safety. A "system" could consist of a number of subsystems each of which is separately capable of performing the specified system safety function. The minimum acceptable redundancy and diversity of subsystems and components within a subsystem and the required interconnection and independence of the subsystems have not yet been developed or defined.

(iii) Consideration of the type, size, and orientation of possible breaks in the components of the reactor coolant pressure boundary in determining design requirements to suitably protect against postulated loss of coolant accidents.

(iv) Consideration of the possibility of systematic, nonrandom, concurrent failures of redundant elements in the design of the protection systems and reactivity control systems.

In addition, the Commission is giving consideration to the need for development of criteria relating to protection against industrial sabotage and protection against common mode failures in systems, other than the protection and reactivity control systems, that are important to safety and have extremely high reliability requirements.

It is expected that these criteria will be augmented or changed when specific requirements related to these and other considerations are suitably identified and developed.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to 10 CFR Part 50 is published as a document subject to codification to be effective 90 days after publication in the *FEDERAL REGISTER*. The Commission invites all interested persons who desire to submit written comments or suggestions in connection with the amendment to send them to the Secretary, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Branch, within 45 days after publication of this notice in the *FEDERAL REGISTER*. Such submissions will be given consideration with the view to possible further amendments. Copies of comments may be examined in the Commission's Public Document Room at 1717 H Street NW., Washington, DC.

36 FR 4861  
Published 3/13/71  
Effective 3/13/71

### Availability of Guides

The Atomic Energy Commission has adopted an amendment of 10 CFR Part 50 which adds to § 50.34(b)(6) (iii) the information that the Commission has developed documents entitled "Guide for the Planning of Preoperational Testing Programs" and "Guide for the Planning of Initial Startup Programs" to help applicants for facility operating licenses establish adequate plans for such programs. That subdivision requires an applicant for a license to operate a production or utilization facility to include in the Final Safety Analysis Report, the plans for preoperational testing and initial operations.

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Because this amendment relates to a minor, nonsubstantive matter, the Commission has found that good cause exists for omitting notice of proposed rule making and public procedure thereon as unnecessary, and for making the amendment effective upon publication in the *FEDERAL REGISTER*.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5, of the United States Code, the following amendment of 10 CFR Part 50 is published as a document subject to codification to be effective upon publication in the *FEDERAL REGISTER* (3-13-71).

36 FR 5411  
Published 3/23/71  
Effective 3/23/71

### Siting of Fuel Reprocessing Plants and Related Waste Management Facilities

On November 14, 1970, the Atomic Energy Commission published in the *FEDERAL REGISTER* (35 F.R. 17530), to be effective 90 days after publication, a statement of policy, in the form of a new Appendix F to 10 CFR Part 50, concerning the siting of reactor fuel reprocessing plants and related waste management facilities. The statement of policy dealt, among other things, with the question of ultimate disposal of high-level liquid radioactive fission product wastes generated in the operation of licensed fuel reprocessing plants. The policy requires that such wastes be solidified by the fuel reprocessor and transferred to a Federal repository for disposal and perpetual surveillance.

Paragraph 6 of the statement of policy provided that "With respect to fuel reprocessing plants already licensed, the licenses will be appropriately conditioned to carry out the purposes of the policy stated above." The only fuel reprocessing plant presently licensed by the Commission for operation is located at West Valley, N.Y., about 30 miles south of Buffalo, on land owned by the State of New York. The plant has been operated since 1966 by Nuclear Fuel Services, Inc. (NFS). The high-level liquid radioactive wastes generated at the NFS plant are stored underground in steel tanks which are covered by about 8 feet of soil.

In a letter to the Commission dated January 7, 1971, NFS requested that the Commission consider—in addition to solidification and offsite shipment—three alternative methods for long-term storage or disposal. These alternatives are: (1) Continued storage of the wastes in liquid form with possible transfer of the property from New York State to the United States after closing of the plant; (2) solidification of the wastes in existing tanks with appropriate conditions concerning time of solidification, permanent marking after solidification, and such other measures as may be necessary to protect the public health and safety; and (3) conversion of the wastes to AEC-approved solid form and burial thereof, with appropriate safeguards, in the silty till at West Valley, or in the underlying shales.

The Commission agrees that the matter of ultimate disposal of existing high-level liquid wastes at the West Valley facility

presents complex technical problems which may require considerable time for study and resolution. Pending ultimate disposal, the present storage method will continue to provide reasonable assurance that the health and safety of the public will be protected.

In view of the foregoing considerations, the Commission has amended paragraph 6 of the statement of policy (1) to indicate that its application to existing wastes will be the subject of a further rule making proceeding, and (2) to provide more specificity regarding its application to future high-level wastes generated at the NFS facility.

Inasmuch as the amendment is clarifying in nature the Commission has found that good cause exists for omitting notice of proposed rule making and public procedure thereon as unnecessary and for making the amendment effective without the customary 30-day notice.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to 10 CFR Part 50 is published as a document subject to codification, to be effective upon publication in the *FEDERAL REGISTER* (3-23-71).

36 FR 11423  
Published 6/12/71  
Effective 7/12/71

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### PART 115—PROCEDURES FOR REVIEW OF CERTAIN NUCLEAR REACTORS EXEMPTED FROM LICENSING REQUIREMENTS

##### Codes and Standards for Nuclear Power Plants

On November 25, 1969, the Atomic Energy Commission published in the *FEDERAL REGISTER* (34 F.R. 18822) proposed amendments of its regulations in 10 CFR Part 50, "Licensing of Production and Utilization Facilities," and 10 CFR Part 115, "Procedures for Review of Certain Nuclear Reactors Exempted from Licensing Requirements," which would establish minimum quality standards for the design, fabrication, erection, construction, testing, and inspection of certain systems and components of boiling and pressurized water-cooled nuclear power reactor plants by requiring conformance with appropriate editions of published industry codes and standards.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. Upon consideration of the comments received and other factors involved, the Commission has adopted the amendments set out below. These amendments have been changed substantially to reflect consideration of the comments received and to minimize interference with the established equipment procurement practices of the nuclear power industry. Some of the more significant changes from the proposed rule are:

a. The rule as rewritten requires that the determination of which code revisions are applicable be based on component order date rather than

construction permit date. To prevent abuse of this provision and to minimize the use of outdated codes, the revised rule requires compliance with more recent codes than those in effect on the order date if the components are ordered more than a specified number of months before issuance of the construction permit.

b. The rule has been changed to make its provisions apply to future code revisions on the date they become effective unless the Commission has published a notice in the *FEDERAL REGISTER* that compliance with such requirements or any part thereof is unacceptable or unnecessary.

c. The definition of reactor coolant pressure boundary has been revised.

d. The date for compliance with the more recent industry codes has been changed from April 1, 1970, to January 1, 1971.

The Commission believes these changes adopted will eliminate most of the concerns expressed, will help to simplify and stabilize the facility licensing process, and will provide an equivalent increase in protection of the health and safety of the public to that which would be provided in the proposed rule.

Criterion 1 of the "General Design Criteria for Nuclear Power Plants" (Appendix A of Part 50) requires that structures, systems, and components of nuclear powerplants which are important to safety be designed, fabricated, erected, and tested to quality standards that reflect the importance of the safety functions to be performed. It has been generally recognized that, for boiling and pressurized water-cooled reactors, pressure vessels, piping, pumps, and valves which are part of the reactor coolant pressure boundary should, as a minimum, be designed, fabricated, inspected, and tested in accordance with the requirements of the applicable American Society of Mechanical Engineers (ASME) codes in effect at the time the equipment is purchased, and that protection systems (electrical and mechanical sensors and associated circuitry) should, as a minimum, be designed to meet the criteria developed by the Institute of Electrical and Electronics Engineers (IEEE).

Because of the safety significance of uniform early compliance by the nuclear industry with the requirements of these ASME and IEEE codes and published code revisions, the Commission has adopted the following amendments to Parts 50 and 115, which require that certain components and systems of water-cooled reactors important to safety comply with these codes and appropriate revisions to the codes at the earliest feasible time. However, use of the ASME Code N-symbol is not required and inspection and survey systems other than those specified by ASME may be used if they provide an acceptable level of quality and safety. AEC quality assurance requirements are set forth in Appendix B to Part 50. The inspection and survey systems required by the amendments which follow may be used in partial fulfillment of these requirements to the extent that they are shown by the description of the quality assurance program required by § 50.34(a) (7) to satisfy the applicable requirements of Appendix B.



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In cases where compliance with specified code requirements, or portions thereof, would result in hardships or unusual difficulties without a compensating increase in the level of safety, the Commission may grant exemptions under § 50.55a(b)(1). Section 50.55a(b)(2) provides a basis for the authorization of alternatives to the requirements of the specified codes and standards if it can be shown that an acceptable level of safety and quality will be provided.

The Commission considers that a significant improvement in the level of quality in design, fabrication, and testing of systems and components important to safety of water-cooled reactors will be afforded by compliance with the requirements of more recent versions of the codes than those specified in the amendments, or portions thereof, and encourages such compliance whenever practicable, regardless of the date of purchase of equipment or the provisions of these amendments.

Compliance with the provisions of the amendments and the referenced codes is intended to insure a basic, sound quality level. It may be that the special safety significance of a particular system or component will call for supplementary measures. If analysis of the system shows that such is the case, appropriate supplementary measures are expected to be adopted by applicants and licensees, or will be required by the Commission.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 50 and 115 are published as a document subject to codification to be effective 30 days after publication in the FEDERAL REGISTER.

36 FR 16894  
Published 8/26/71  
Effective 9/25/71

### Civil Penalties

See Part 2 Statements of Consideration.

36 FR 18301  
Published 9/11/71  
Effective 10/11/71

### Quality Assurance Criteria for Fuel Reprocessing Plants

On April 10, 1971, the Commission published in the FEDERAL REGISTER (36 F.R. 6903) proposed amendments to its regulation, 10 CFR Part 50, "Licensing of Production and Utilization Facilities," which would require applicants for a license to construct or operate a fuel reprocessing plant to comply with the quality assurance requirements of appendix B to Part 50, "Quality Assurance Criteria for Nuclear Power Plants."

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within sixty (60) days after publication of the notice in the FEDERAL REGISTER. After

careful consideration of the material received in response to the notice of proposed rule making and other factors involved, the Commission has adopted the proposed amendments. The text of the amendments set out below is identical with the text of the proposed amendments published April 10, 1971.

Fuel reprocessing plants include structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The purpose of the amendments is to provide explicit quality assurance requirements for the design, construction, and operation of those structures, systems, and components by making appendix B applicable to fuel reprocessing plants. The requirements of appendix B will apply to all activities during the design, construction, and operating phases of the fuel reprocessing plants which affect the safety-related functions of such structures, systems, and components.

The quality assurance requirements established by these criteria are intended to assure that:

(a) Applicable regulatory requirements and the design bases, as defined in § 50.2 and as specified in the license application, for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions.

(b) Systems and components fabricated and tested in manufacturers' facilities conform to these specifications, drawings, procedures, and instructions.

(c) Structures, systems, and components constructed and tested at the facility conform to these specifications, drawings, procedures, and instructions.

(d) Succeeding activities, such as operating, testing, repairing, maintaining, and modifying, are conducted in accordance with quality assurance practices consistent with those employed during design and construction.

These criteria will also be used for guidance in evaluating the adequacy of the quality assurance programs in use by existing holders of construction permits and operating licenses for fuel reprocessing plants.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50, are published as a document subject to codification effective thirty (30) days after publication in the FEDERAL REGISTER.

36 FR 21579  
Published 11/11/71  
Effective 11/11/71

### Implementation of the National Environmental Policy Act of 1969

On September 9, 1971, the Atomic Energy Commission published in the FEDERAL REGISTER (36 F.R. 18071) a revision of Appendix D of its regulation in 10 CFR Part 50, effective on publication. Revised Appendix D as published is an interim statement of Commission policy and pro-

cedure for the implementation of the National Environmental Policy Act of 1969 (NEPA) in accordance with the decision of the U.S. Court of Appeals for the District of Columbia Circuit in "Calvert Cliffs Coordinating Committee, Inc., et al. v. United States Atomic Energy Commission, et al.," Nos. 24,839 and 24,871. The procedures in Appendix D apply to licensing proceedings for nuclear power reactors; testing facilities; fuel reprocessing plants; and other production and utilization facilities whose construction or operation may be determined by the Commission to have a significant impact on the environment. The procedures also apply to proceedings involving certain specified activities subject to materials licensing.

The Commission adopted certain minor amendments to revised Appendix D, published in the FEDERAL REGISTER on September 30, 1971.

The Commission has adopted additional amendments to revised Appendix D that clarify the intent of the Commission with respect to proceedings subject to section D.

In section 4, Procedures Applicable to Pending Hearings or Proceedings to be Noticed in the Near Future, paragraph 1 has been amended to make the provisions of paragraphs 1 and 2 of that section applicable to proceedings in which hearings are pending as of September 9, 1971, or in which a draft or final detailed statement of environmental considerations prepared by the Director of Regulation or his designee has been circulated prior to said date, in the case of an application for a construction permit, or in which a notice of opportunity for hearing on the application has been issued prior to October 31, 1971, in the case of an application for an operating license. A conforming amendment has been made to section C.1 of Appendix D.

Paragraph 3 of section D of Appendix D has been amended to make clear that, in cases where a notice of opportunity for hearing on an operating license application was issued prior to October 31, 1971, and no hearing has been requested, the environmental review procedures set out in section A of Appendix D, will, with respect to such proceedings, be subject to the limitation that comments will be requested, and must be received, within 30 days from Federal agencies, State and local officials and interested persons on environmental reports and draft detailed statements. This change conforms paragraph 3 of section D to paragraph 1 of section D in this respect.

Because these amendments relate solely to correction and clarification, the Commission has found that good cause exists for omitting notice of proposed rule making and public procedure thereon as unnecessary. The Commission has also found that since the amendments correct and clarify previous amendments which have already become effective, good cause exists for making the amendments effective without the customary 30 day notice.

Accordingly, pursuant to the National Environmental Policy Act of 1969, the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50, are published as a document subject to codification to be effective upon publication in the FEDERAL REGISTER (11-11-71)

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37 FR 5745  
Published 3/21/72  
Effective 3/21/72

### PROHIBITION OF SITE PREPARATION AND RELATED ACTIVITIES

On December 1, 1971, the Atomic Energy Commission published in the *FEDERAL REGISTER* (36 F.R. 22848) proposed amendments to its regulations in 10 CFR Parts 30, 40, 50, and 70, which would redefine the "commencement of construction," as that term is applied to production or utilization facilities subject to Appendix D of Part 50, and would provide for Commission environmental review prior to "commencement of construction" (as that term would be defined under these amendments) of plants and facilities in which activities will be conducted which are subject to the materials licensing requirements of Parts 30, 40, and 70 and to Appendix D of Part 50.

Interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. After consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments with certain modifications, in the form set forth below.

Significant differences from the amendments published for comment are:

(1) With respect to specified facilities subject to materials licensing, additional amendments to Parts 30, 40, and 70 have been adopted to provide for Commission authorization by specific exemption, upon consideration and balancing of certain specified environmental factors, for the continuation of site preparation and construction activities begun prior to the effective date of these amendments, and for the conduct of such activities to be undertaken after that date. Activities authorized under the exemption provisions would have to be conducted in such a manner as to minimize their environmental impact.

(2) Section 70.21 has been amended to conform the time for filing an application for a license to possess and use special nuclear material in a plutonium processing and fuel fabrication plant before commencement of construction of the plant to that required of other materials license applications under these amendments (9 months).

The amendments to Part 50 redefine the "commencement of construction" as that term is applied to production or utilization facilities subject to Appendix D of Part 50 (i.e., nuclear power reactors, testing facilities, fuel reprocessing plants, and such other production or utilization facilities determined by the Commission to have a significant impact on the environment). "Commencement of construction" is defined to include any clearing of land, excavation or other substantial action that would adversely affect the natural environment of a site and construction of nonnuclear facilities (such as turbogenerators and turbine

buildings), but would not include (1) changes desirable for the temporary use of the land for public recreational uses, necessary borings to determine foundation conditions, or other preconstruction monitoring to establish background information related to the suitability of the site or to the protection of environmental values; or (2) procurement or manufacture of components of the facility. Among the activities that continue to be permitted prior to the issuance of a construction permit are geologic, seismic, hydrologic, and meteorologic investigations and such clearing and building of roads and physical structures as are reasonably necessary, and in general conformity with the standard practices of the industry, for the purpose of determining site suitability and for preconstruction environmental monitoring. It is expected that such activities will be conducted in a manner which will keep their environmental impact to a minimum. For example, appropriate erosion control measures should be employed; roads should be located to minimize or reduce environmental impact; and the natural vegetation should be disturbed only to the extent reasonably necessary to enable safe and proper conduct of the foregoing activities. These same general principles also apply with respect to activities deemed desirable for the purpose of making the land temporarily available for public recreational purposes.

In view of the fact that persons may have already begun activities that were permitted pursuant to § 50.10(b) prior to the adoption of these amendments, but which are now prohibited by these amendments, provision has been made whereby the Commission may authorize continuation of those activities upon consideration and balancing of certain specified environmental factors. During the review period and following, if continuation is authorized, such activities are to be conducted so as to minimize or reduce their environmental impact. In making this relief generally available only to those persons who have commenced actual site preparation activities prior to the effective date of these amendments, the Commission realizes that in individual cases, particularly those instances where plants are in an advanced stage of development, but where no site preparation work has yet been started, undue hardship may be incurred. In those situations, relief may be sought by requesting a specific exemption under § 50.12. Although it is expected that specific exemptions will be used only sparingly for this purpose, appropriate relief may be granted in particular cases where the facts so warrant and a favorable determination can be made with respect to the specified environmental considerations listed in the new § 50.12(b).

Section 50.12 has also been amended to require persons presently authorized, under specific exemptions, to conduct certain activities prior to the issuance of a construction permit for a facility subject to Appendix D to Part 50 to show cause why, with reference to specified environmental considerations, the exemptions should not be revoked. As noted earlier, in the event that any exemption under § 50.12 is issued after the

effective date of these amendments, it will be only after appropriate conclusions with respect to the specified environmental considerations listed in the new § 50.12(b) have been reached. In addition, any activities conducted under any exemption are to be carried out in such a way as to minimize or reduce their environmental impact.

Amendments to Parts 30, 40, and 70 of the Commission's regulations in Title 10 of the Code of Federal Regulations provide for Commission environmental review prior to commencement of construction of plants and facilities in which activities subject to materials licensing requirements and to Appendix D of Part 50 will be conducted. "Commencement of construction" is defined in the same manner as for facility license cases.

A provision similar in some respects to that contained in the new § 50.10(d) has been added to Parts 30, 40, and 70, so that Commission authorization may be obtained for continuation of activities already begun, but which are now, in effect, precluded by these amendments until the environmental review is complete. Appropriate clarification has been included in footnotes to §§ 30.11(a), 40.14(a), and 70.14(a) to indicate that those persons who have not effected commencement of construction with respect to proposed facilities as of the effective date of these amendments may also seek this exemptive form of relief. It is expected, however, that specific exemptions will be used only sparingly in such cases. Any site preparation or construction activities authorized to be carried out under the amendments to Parts 30, 40, and 70 must be conducted in such a manner as to minimize or reduce their environmental impact.

Applications for the following types of materials licenses are presently subject to the foregoing requirements: (a) Licenses for possession and use of special nuclear materials for processing and fuel fabrication, scrap recovery and conversion of uranium hexafluoride; (b) Licenses for possession and use of source material for uranium milling and production of uranium hexafluoride; and (c) licenses authorizing commercial radioactive waste disposal by land burial.

In order to assure that an opportunity is provided for full consideration of environmental effects before site preparation is begun, these amendments require that applications for such materials licenses be filed at least nine months prior to commencement of construction of plants or facilities in which the licensed activities will be conducted. The amendments also add, as a condition of issuance of such licenses, that before construction of such plants and facilities may be commenced, the Director of Regulation must reach a favorable conclusion with respect to environmental considerations after completion of the environmental review required by Appendix D to 10 CFR Part 50.

As stated in the notice of proposed rule making published in the *FEDERAL REGISTER* on December 1, 1971, the Commission considers these amendments to be consistent with the direction of the Congress, as expressed in section 102 of the National Environmental Policy Act

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of 1969, that, to the fullest extent possible, the policies, regulations and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in that Act. Since site preparation constitutes a key point, from the standpoint of environmental impact, in connection with the licensing of nuclear facilities and materials, these amendments will facilitate consideration and balancing of a broader range of realistic alternatives and provide a more significant mechanism for protecting the environment during the earlier stages of a project for which a facility or materials license is being sought.

The Commission has found that because of the provisions in §§ 30.11(b), 40.14(b), 50.10(d), and 70.14(b), advance notice of the amendments would be contrary to the public interest in that such notice might tend to defeat their purpose; therefore, good cause exists for making the amendments effective without the customary 30-day notice. Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 30, 40, 50, and 70 are published as a document subject to codification to be effective upon publication in the FEDERAL REGISTER (3-21-72).

37 FR 6459  
Published 3/30/72  
Effective 4/29/72

### Reporting of Deficiencies in Design and Construction of Nuclear Powerplants

On July 27, 1970, the Atomic Energy Commission published in the FEDERAL REGISTER (35 F.R. 12076) for public comment proposed amendments to 10 CFR Parts 50 and 115, "Licensing of Production and Utilization Facilities" and "Procedures for Review of Certain Nuclear Reactors Exempted from Licensing Requirements," which would establish uniform requirements for reporting deficiencies occurring during nuclear powerplant design and construction.

All interested persons were invited to submit comments or suggestions in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the FEDERAL REGISTER. After careful consideration of the comments received in response to the notice of proposed rule making and other factors involved, the Commission has adopted the amendments in the form set out below. The amendments, as adopted, reflect a number of the comments received on the notice of proposed rule making.

In summary, the comments on the proposed rule were: (1) The extensive use of many adjectives and phrases, such

as "significant," "not indicative of," "minor," "magnitude," "extensive," "frequently occurring," etc., leads to ambiguity and vagueness; (2) the provision requiring that no remedial action shall be taken until the Commission has been notified of the deficiency is not necessary, is burdensome, and represents a possible unnecessary loss of time and money to the permit holder or his contractors; and (3) the rule itself is unnecessary, since existing quality assurance programs require maintenance of records of the deficiencies and these are available to the Commission.

With respect to the last comments, the Commission believes that the rule is necessary, so that the AEC staff will have prompt notification of the deficiency and timely information on which to base an evaluation of the potential safety consequences of the deficiency and determine if further regulatory action is required. Some changes have been made which are intended to resolve some of the problems indicated regarding clarity and ambiguity. Other significant changes from the proposed rule are:

a. Examples of deficiencies have been eliminated, since these made the reporting requirements appear more complex than was actually intended.

b. The rule has been modified to permit construction to continue subject to the risk of subsequent disapproval by the Commission.

Among other requirements in the Commission's "Quality Assurance Criteria for Nuclear Power Plants," Appendix B to 10 CFR Part 50, Criterion XVI "Corrective Action" requires that significant conditions adverse to quality be reported to appropriate levels of licensee management. The following amendment to § 50.55 of 10 CFR Part 50 requires the holder of a construction permit for a nuclear powerplant to report the more important of these deficiencies to the Commission.

It is not the intent of the Commission to require reporting of trivial matters. Notification is required, however, of significant deficiencies in design and construction. The holder of a permit for construction of a nuclear powerplant is required to notify the Commission of each deficiency found in the processes of design, manufacture, fabrication, installation, construction, testing, and inspection which, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear powerplant at any time throughout the expected lifetime of the plant, and which represents either (1) a significant breakdown in any portion of the quality assurance program, (2) a significant deficiency in final designs approved and released for construction, (3) a significant deficiency in the construction of or significant damage to a structure, system, or component requiring corrective action involving extensive effort, or (4) a significant deviation from performance specifications requiring corrective action involving extensive effort.

A similar amendment to § 115.43 of 10 CFR Part 115, "Procedures for Review of

Certain Nuclear Reactors Exempted from Licensing Requirements," has also been adopted.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR Parts 50 and 115 are published as a document subject to codification to be effective 30 days after publication in the FEDERAL REGISTER.

37 FR 15127  
Published 7/28/72  
Effective 8/27/72

### Restructuring of Facility License Application Review and Hearing Processes

See Part 2 Statements of Consideration.

37 FR 17021  
Published 8/24/72  
Effective 8/24/72

### Codes and Standards for Nuclear Powerplants

On June 12, 1971, the Atomic Energy Commission published in the FEDERAL REGISTER (36 F.R. 11423) amendments to 10 CFR Parts 50 and 115 which added new §§ 50.55a and 115.43a to establish minimum quality standards for the design, fabrication, erection, construction, testing, and inspection of certain systems and components of boiling and pressurized water-cooled nuclear powerplants by requiring conformance with appropriate editions of specified published industry codes and standards. Sections 50.55a and 115.43a as adopted permitted conformance with the requirements of editions of the specified Codes, Code Cases, and Addenda which become effective after the date of component order, unless the Commission has published a notice in the FEDERAL REGISTER that compliance with such requirements is unacceptable for such components.

The Commission has adopted amendments to §§ 50.55a and 115.43a which, in referencing the editions of Codes, Code Cases, and Addenda whose requirements must be met, include only the editions of Codes, Code Cases, and Addenda through 1971 or the winter 1971 addenda, as appropriate. These amendments are considered necessary for compliance with sections 552 and 553 of title 5 of the United States Code and the regulations of the Office of the Federal Register pertaining to incorporation by reference (1 CFR Part 20).

As new or amended editions of applicable Codes, Code Cases, or Addenda are issued, the Commission will review them and amend the provisions of §§ 50.55a and 115.43a as appropriate.

Since the amendments to §§ 50.55a and 115.43a are necessary to comply with sections 552 and 553 of title 5 of the United States Code and 1 CFR Part 20, the Commission has found that good cause exists for omitting notice of proposed rule making and public procedure



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thereon as unnecessary and impracticable and for making the amendments effective upon publication in the FEDERAL REGISTER without the customary 30-day notice.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Parts 50 and 115 are published as a document subject to codification to be effective upon publication in the FEDERAL REGISTER (8-24-72).

38 FR 3955  
Published 2/9/73  
Effective 3/11/73

### Information Requested by Attorney General for Antitrust Review of Facility License Applications

Pursuant to section 105c(4) of the Atomic Energy Act of 1954, as amended, the Attorney General has requested that applicants for certain facility licenses under the Act submit specified information for the purpose of the prelicensing antitrust advice by the Attorney General pursuant to section 105c(1) of the Act.

On April 20, 1972, the Atomic Energy Commission published in the FEDERAL REGISTER proposed amendments to 10 CFR Part 50, Licensing of Production and Utilization Facilities, which would describe and provide appropriate references to the information requested by the Attorney General (37 FR 7810). Interested persons were invited to submit written comments or suggestions for consideration in connection with the proposed amendments within 30 days after publication of the notice of proposed rule making in the FEDERAL REGISTER.

The comments received were furnished to the Department of Justice for its views thereon since the information called for in the FEDERAL REGISTER was pursuant to the request of the Attorney General. By letter dated June 16, 1972, the Department of Justice advised the Commission that, after consideration of the comments, the Department still deems that information it had requested is appropriate for the prelicensing antitrust advice furnished by the Department pursuant to section 105c(1) of the Act. Accordingly, the Department of Justice requested the Atomic Energy Commission to obtain the information in the manner and form set out in the FEDERAL REGISTER.

By letter dated May 18, 1972, the Assistant Attorney General, antitrust, requested that item 12 of "II. Required information" of the proposed "Appendix L—Information requested by the Attorney General for antitrust review of facility license applications" be modified to include the following sentence, "Also state separately the most recently estimated cost of the subject unit(s)." The additional sentence does not constitute a substantial change and is consistent with the intent of the proposed amendments.

In light of all of the foregoing, the Commission has determined to adopt the amendments in the form set forth below.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification, to be effective March 11, 1973.

38 FR 4385  
Published 2/14/73  
Effective 3/16/73

### Reactor Containment Leakage Testing for Water-Cooled Power Reactors

On August 27, 1971, the Atomic Energy Commission published in the FEDERAL REGISTER (36 FR 17053) a proposed amendment to its regulations in 10 CFR Part 50 which would specify the minimum containment leakage test requirements for water-cooled power reactors.

Interested parties were invited to submit written comments and suggestions for consideration in connection with the proposed amendment within 60 days after publication in the FEDERAL REGISTER. Upon consideration of the comments received, and other factors involved, the Commission has adopted the proposed amendment, with certain modifications in the form set forth below.

Significant differences from the amendment published for comment are: (1) Modification of procedures governing containment inspection and leak detection surveys, as a prerequisite to conducting formal leakage tests, and clarification of the basis for reporting pretest leakage values to the Commission, (2) establishment of criteria for deferring certain safety-related systems from regularly scheduled Type A containment leakage tests, (3) incorporation by reference of the recently-issued American National Standard for leakage rate testing of containment structures for nuclear reactors into the regulation, (4) inclusion of nitrogen gas as a suitable testing medium for testing the leaktightness of valves, and (5) inclusion of water-leakage test and acceptance criteria for containment isolation valves which are sealed against containment atmosphere leakage during a design basis accident condition by means of a seal-water system. In addition, editorial and format changes were made.

With regard to item (1) above, the rule set forth below requires the licensee to identify specifically those components whose initial poor leak-tightness performance precluded completion of a Type A containment leakage test and to report this information to the Commission. The proposed rule would not have required the reporting of such information unless attempts to reduce the leakage rate of poor leak-tight components failed to meet minimum leak-tightness acceptance criteria. Thus, components which required frequent adjustments or repair in order to meet allowable leakage limits will be identified and the specific reductions in leakage rate values,

resulting from such adjustments, will be reported to the Commission. The identification of such components will provide the AEC with a sounder basis for judging whether or not containment leakage rates could have been exceeded in the unlikely event a design basis accident were to occur. In addition, such identification may provide insight into the frequency and kinds of adjustments being made to components to meet the minimum acceptable leakage limits and a basis for either establishing a more frequent containment leakage test schedule, or modifying or replacing components.

With regard to item (2) above, the rule set forth below specifies criteria by which the licensee may for certain safety-related systems temporarily dispense with drainage and venting to containment atmosphere during Type A containment leakage tests. The proposed rule had specified that all systems which would connect directly with the containment atmosphere and would become an extension of the containment boundary should be vented to containment. Strict compliance with this rule would have required removing certain safety-related systems from service for the duration of the test and would limit the performance of the overall integrated containment leakage tests to those times when there would be no fuel in the reactor. This procedure is considered to be unnecessarily conservative.

The inclusion of all safety-related systems in the overall integrated containment leakage test can be accomplished while the reactor is fueled, and in a state of potential criticality, by maintaining the minimum number of safety-related systems in an operable state until all systems are tested. Another option is to periodically test the containment isolation valves in these safety-related systems in accordance with the rule set forth below. This would also assure that the requisite level of plant safety will be provided during the containment leakage test program without compromising the requirements for including all systems which penetrate the containment boundary in the leakage test.

The proposed rule required the use of test methods described in proposed American Nuclear Society Standard ANS 7.60 by referencing a portion of the proposed standard. On March 16, 1972, the American National Standards Institute approved ANS 7.60 and officially issued it for use as ANSI N45.4-1972, American National Standard, "Leakage Rate Testing of Containment Structures for Nuclear Reactors." The standard has been reviewed for compatibility with the proposed rule and it was concluded that incorporation of the requirements of ANSI N45.4-1972 by reference would enhance the quality of containment leak testing. Accordingly, the rule set forth below now specifies that the Type A containment leakage tests shall be conducted in accordance with the provisions of ANSI N45.4-1972.

The proposed rule limited the leakage testing medium for reactor containment isolation valves to air, which is widely used in the containment leakage testing program. However, the use of nitrogen gas for valve leakage testing is also tech-

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nically satisfactory. Accordingly, the rule set forth below specifies that either air or nitrogen may be used as the testing medium in the conduct of the valve leakage tests.

The rule set forth below expands upon the requirement contained in the proposed rule for testing valves, sealed with water from a seal-water system, by including minimum water test pressure and test acceptance criteria.

The proposed rule required that the valves be subjected to a seal-water system operability test to establish that the valves could be satisfactorily pressurized with seal-water. There was no requirement to measure the rate at which water leaked past the valve. It had been assumed that the seal-water inventory would be adequate to seal the valves against outleakage of containment atmosphere during the design basis accident condition. However, the lack of a specific water inventory criterion against which actual valve leakage rates would be measured, could result in an inadequate supply of seal-water for valve sealing with attendant loss of the containment isolation function. Accordingly, a provision has been incorporated into the rule set forth below which requires that the valve leakage rate shall not exceed the seal-water inventory, on the assumption that the seal-water system will be pressurized for 30 days at 110 percent of the calculated peak containment internal pressure related to the design basis accident. With the inclusion of this requirement, the requirements for conducting only a seal-water system operability test were eliminated.

Containment is provided for water-cooled power reactors to prevent uncontrolled releases of radioactive materials to the environment if the barriers provided by the fuel cladding and reactor coolant pressure boundary should be breached. Testing the reactor containment for leakage helps to assure that:

(a) Leakage of the primary reactor containment and associated systems is held within allowable leakage rate limits as specified in the technical specifications or associated bases of the license;

(b) Periodic surveillance is performed to assure proper maintenance and leak repair during the life of the containment; and

(c) The containment will continue to perform its function throughout the life of the plant.

The amendment which follows provides uniform requirements for containment leakage testing. It specifies the minimum requirements for periodic verification by tests of the leak-tight integrity of the primary reactor containment and associated systems for water-cooled power reactors, and the acceptance criteria for such tests.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 50, is published as a document subject to codification to be effective on March 16, 1973.

38 FR 5997  
Published 3/6/73

### Reactor Containment Leakage Testing for Water-Cooled Power Reactors

#### Correction

In FR Doc. 73-2786 appearing at page 4385 in the issue of Wednesday, February 14, 1973, the following changes should be made:

38 FR 11445  
Published 5/8/73  
Effective 6/8/73

### Licensing of Facilities Used for Industrial or Commercial Purposes

On October 15, 1971, the Atomic Energy Commission published in the FEDERAL REGISTER (36 FR 20051) proposed amendments to 10 CFR part 50 of its regulations which would define the circumstances under which research and development and training reactors will be considered to be used "substantially for industrial or commercial purposes", and thus licensable by the Commission under section 103 of the Atomic Energy Act of 1954, as amended (the Act). Interested persons were invited to submit written comments and suggestions for consideration within 60 days after publication of the notice of proposed rulemaking in the FEDERAL REGISTER. No comments were received. The Commission has adopted the amendments in the form set out in the notice of proposed rulemaking.

Public Law 91-560, enacted on December 19, 1970, amended the Act by, among other things, eliminating the requirement that the Commission make "a finding in writing that any type of utilization or production facility has been sufficiently developed to be of practical value for industrial or commercial purposes" before the Commission may issue commercial licenses under section 103 of the Act for such facilities. Under section 102 of the Act, as amended by Public Law 91-560, utilization or production facilities must, with certain exceptions, be licensed under section 103. Applications for licenses under section 103 are subject to the preliminary antitrust review provisions of section 105, to the mandatory hearing requirements of section 189, and to the requirements for review by the Advisory Committee on Reactor Safeguards in section 182.

The legislative history of Public Law 91-560 indicates that the principal purpose of the legislation was to subject new applications for production and utilization facilities formerly licensed under section 104b. of the Act as research and development facilities—power reactors and fuel reprocessing plants—to licensing under section 103. The legislative history also shows that the Congress was aware that some applications for facilities to be licensed under section 104c. as research reactors might also be considered "for industrial or commercial purposes" if such reactors had such a purpose to a significant extent [S. Rept. No. 91-1247, 91st Cong.,

2d Sess., at 28 (1970)]. Such facilities might include, for example, research reactors that are used to produce radioisotopes for sale or that are used for neutron radiography on a commercial basis.

The amendments to § 50.22 of part 50 which follow categorize as a facility "for industrial or commercial purposes" a facility designed or used so that more than 50 percent of the annual cost of owning and operating the facility is devoted to the production of materials, products, or energy for sale or commercial distribution, or for the sale of services, other than research and development or education or training. Under this construction, a license issued to a nonprofit educational institution for a facility for education or training purposes only would continue to be licensed under section 104c. of the Act, since the licensed operation would not be devoted to production of goods or services for sale or commercial distribution.

It is recognized that some adjustment may be needed in the license fees payable by holders of licenses that presently fall within the "research reactor" category in 10 CFR part 170, Fees for Facilities and Materials Licenses Under the Atomic Energy Act of 1954, as amended. Such adjustments and related changes in 10 CFR part 170 will be considered by the Commission as part of its continuing consideration of the license fees assessed against Commission licensees.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to title 10, chapter 1, Code of Federal Regulations, part 50 are subject as a document subject to codification to be effective June 8, 1973.

38 FR 19012  
Published 7/17/73  
Effective 8/16/73

### Fracture Toughness and Surveillance Program Requirements

On July 3, 1971 the Atomic Energy Commission published in the FEDERAL REGISTER (36 FR 12697) proposed amendments to its regulations in 10 CFR Part 50 which would add new appendices entitled, "Appendix G, Fracture Toughness Requirements," and "Appendix H, Reactor Vessel Material Surveillance Program Requirements."

Interested persons were invited to submit written comments within 60 days. Upon consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments with certain modifications in the form set forth below.

Significant differences in Appendix G from the amendments published for comment are:

(1) Terminology was changed to be consistent with that of the ASME Code.<sup>1</sup>

<sup>1</sup> American Society of Mechanical Engineers Boiler and Pressure Vessel Code, section III, "Rules for the Construction of Nuclear Power Plant Components," 1971 Edition, and addenda through the Winter, 1972 Addenda.  
<sup>2</sup> American Society for Testing and Materials.

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(2) The method of combining the results of the Charpy and dropweight tests to get a combined measure of toughness was changed.

The proposed rule would have required characterization of the fracture toughness of the ferritic materials in the reactor coolant pressure boundary in terms of the temperature dependence of two quantities: (a) Energy absorbed in Charpy V-notch impact tests (ASTM<sup>1</sup> Standard A-370) and (b) the nil-ductility transition (NDT) temperature obtained from dropweight tests (ASTM Standard E-208). Charpy tests were to be run at appropriate temperatures to characterize the transition from fully ductile, "upper shelf," behavior to low-energy, "brittle," behavior. To obtain a toughness characterization that depended on both types of tests, the "Charpy curve" was to be adjusted upward on the temperature scale to make the 15 ft. lb. level correspond to the NDT temperature from the dropweight tests.

These amendments continue the requirement contained in the proposed rule that fracture toughness be measured by the Charpy test and the dropweight test. However, to reflect comments urging consistency with the ASME Code, fracture toughness of the material is characterized by its reference temperature,  $RT_{NDT}$ . This temperature is the higher value of the NDT temperature from the dropweight test or the temperature that is 60° F below the temperature at which Charpy test data meet a specified toughness level (50 ft. lbs. and 35 mils lateral expansion).

(3) The concept of a lowest pressurization temperature given in the proposed rule was changed to a concept based on fracture mechanics that allows a continuous buildup of pressure as a function of temperature and wall thickness.

The proposed rule would have required a "thickness correction" whereby the Charpy curve was to be shifted up the temperature scale 7°F per inch of material thickness. The thickness correction would have been added to the shift required for consistency between the two types of toughness tests to obtain a curve of "adjusted fracture energy" versus temperature. Fracture control would have been achieved by requiring the "lowest pressurization temperature" at which system pressure could exceed 25 percent of normal operating pressure, or at which the rate of temperature change could exceed 50°F/hr., to be the temperature at which the adjusted fracture energy exceeded a certain level, which was higher for thick material than for thin.

Many of the comments questioned the validity of the dependence placed on the Charpy test by the proposed rule. The thickness correction was considered excessive for thick sections and inadequate for thin sections. Other comments asked that the rules treat stresses more quantitatively to take account of the operators' ability to control pressure and rate of temperature change and the designers' ability to calculate pressure and thermal stresses. Specifically, they urged the adoption of the approach that now appears in the 1972 Summer Addenda to the ASME Code. The proposed rules were

also revised to reflect these comments. As required by these amendments, fracture control is achieved by requiring that stress in the pressure boundary be limited as a function of the metal temperature relative to the reference temperature,  $RT_{NDT}$ , and as a function of material thickness according to the " $K_{IR}$  curve" given in the ASME Code. Taken from fracture mechanics, the term "stress intensity factor" ( $K$ ) defines a quantity that is proportional to the product of gross stress and the square root of crack depth, and includes factors to account for crack shape and for the manner of loading. Critical values of  $K$ , determined from tests in which precracked specimens are loaded to failure, are a convenient measure of fracture toughness, because differences in crack size and shape and differences in manner of loading between specimen and component can be treated quantitatively. The  $K_{IR}$  curve in the ASME Code gives allowable values of fracture toughness as a function of temperature relative to  $RT_{NDT}$ . The curve is based on data obtained from tests of large specimens in the HSST<sup>2</sup> program. Rather than require the estimation of maximum expected flaw size, these amendments require that in areas of the reactor vessel remote from discontinuities, the assumed flaw size be proportional to wall thickness. Thus, from the value of  $K_{IR}$  at a given temperature, allowable stress values are obtained that are inversely proportional to the square root of wall thickness.

(4) Fracture control procedures described in paragraph (3), above, are supplemented in these amendments by a requirement that whenever the core is critical, the metal temperature of the reactor vessel shall exceed specified values dependent on the concurrent stress level.

(5) The Charpy V-notch upper-shelf energy requirements for beltline region materials was set at 75 ft. lbs. for all cases, without distinction as to the predicted amount of irradiation damage.

(6) Fracture toughness requirements for the various components of the pressure boundary were separated to reflect comments suggesting that the rules fit the anticipated severity of service to which the component might be subjected.

(7) The definition of "beltline region of the reactor vessel" was broadened to include more shell material above and below the core.

Significant differences in Appendix H from the amendments published for comment are:

(1) Terminology was changed to be consistent with that of Appendix G and the ASME Code. In particular, the adjustment for irradiation effects is described in these amendments as an adjustment of the reference temperature,  $RT_{NDT}$ , and the amount of temperature shift is determined by a slightly different treatment of the Charpy data than that given in the proposed amendment.

(2) Provision was made for accelerated irradiation capsules and for modification of capsule withdrawn schedules based on results of tests of specimens that received the accelerated irradiation.

(3) A general provision for an integrated surveillance program was substituted for the specific requirements given in the proposed rule. It appeared from comments that it would be impractical to meet the requirements of the proposed rule for commonality of multiple reactors.

Appendices G and H are intended to implement General Design Criterion 31, "Fracture Prevention of Reactor Coolant Pressure Boundary," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," to the extent described below. The margin of safety against brittle fracture will be controlled more quantitatively by these amendments than by the proposed rule, particularly with regard to specific guidelines for the treatment of heatup and cooldown conditions. Appendices G and H track the language of the ASME Code and have adopted certain of its requirements but also include several key supplemental requirements. For the vessel beltline, inservice requirements are based on the reference temperature as adjusted to account for irradiation damage. There is also an additional fracture toughness requirement in the form of shelf energy values from the Charpy curve for the material in its unirradiated condition.

Although the requirements of Appendices G and H become effective on August 16, 1973, the Commission recognizes that there may be an interim period when, for plants now under construction, the method of compliance with certain provisions may be determined on a case-by-case basis. For example, if the test data needed to establish certain fracture control requirements are not available because they were not required at the time material sampling was done, estimated values that are appropriately conservative may be acceptable.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50, are published as a document subject to codification to be effective on August 16, 1973.

<sup>1</sup> Heavy Section Steel Technology Program, conducted at Oak Ridge National Laboratory.

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38 FR 22221  
Published 8/17/73  
Effective 9/17/73

### Requalification Requirements for Operating Personnel of Production and Utilization Facilities

On June 14, 1972, the Atomic Energy Commission published in the *FEDERAL REGISTER* (37 FR 11785) for public comment proposed amendments to 10 CFR Part 55, Operators' Licenses, which would (1) provide for the use of requalification programs for operating personnel as a condition of license renewal and (2) establish minimum requirements for requalification programs for production and utilization facility operators and senior operators.

All interested persons were invited to submit comments or suggestions in connection with the proposed amendments within 60 days after publication of the notice of proposed rulemaking in the *FEDERAL REGISTER*. After careful consideration of the comments received in response to the notice of proposed rulemaking and other factors involved, the Commission has decided to adopt the amendments in the form set out below. The amendments as adopted reflect the suggestions in a number of the comments. The principal changes from the proposed amendments are as follows:

1. A new § 50.34(b) (8) has been added which requires that each application for a license to operate a facility include a description and plans for implementation of an operator requalification program which, as a minimum, meets the requirements of Appendix A of Part 55.\*

2. A new § 50.54(i-1) has been added which:

a. Clarifies that Appendix A of Part 55 is applicable to requalification programs for operators and senior operators of all production and utilization facilities;

b. Specifies that within three months after issuance of an operating license the facility licensee shall have in operation an operator requalification program;

c. Provides that, notwithstanding the provisions of § 50.59, the licensee shall not, except as specifically authorized by the Commission, make a change in an approved operator requalification program by which the scope, time allotted for the program or frequency in conducting different parts of the program is decreased; and

d. Requires holders of operating licenses in effect on the effective date of these amendments to submit an operator requalification program for Commission approval and concurrently implement that program within three months after the effective date of the amendments.

3. Section 55.31 has been revised to require a licensee, who has not, for any reason, been actively performing the functions of an operator or a senior operator for a period of four months or longer, to demonstrate to the Commission that his knowledge and understanding of facility operation and administration are satisfactory before resuming his

licensed duties as an operator or a senior operator.

4. Section 55.33 has been revised to permit the submission to the Commission in an application for license renewal filed within two years after the effective date of these amendments a statement as to partial completion of a requalification program in cases where an operator has not completed the entire program at the time of license renewal because of the time necessary for the facility licensee to implement the requalification program prescribed in the amendments. The operator will be required to submit a statement covering those portions of the requalification program which have been completed as of the date of the application.

5. A new Section 1 entitled, "Schedule," has been added to Appendix A and existing Sections 1 through 5 of Appendix A have been renumbered 2 through 6, respectively. New Section 1 requires the requalification program to be conducted for a continuous period not to exceed two years and upon conclusion to be promptly followed by successive requalification programs.

6. Section 2 of Appendix A entitled, "Lectures", has been revised to:

a. Permit the use of an annual written examination given to each operator or senior operator to form the basis for the lecture series. Only areas where improved knowledge is required of an operator need be covered in the lecture series;

b. Permit the use of training aids such as films and videotapes; and

c. Encourage individual study on the part of each operator, but provide that a requalification program based solely upon the use of films, videotapes and individual study is not an acceptable substitute for a lecture series.

7. Section 3 of Appendix A entitled, "On-the-Job Training," has been revised to:

a. Permit the substitution of control manipulations which demonstrate skill, and/or familiarity with plant control systems to satisfy the requirements that an operator manipulate the plant controls;

b. Require that for reactors, the plant control manipulations consist of at least 10 reactivity control manipulations in any combination of reactor startups, reactor shutdowns or other control manipulations which demonstrate skill and/or familiarity with reactivity control systems; and

c. Permit the required control manipulations to be performed on plant simulators which reproduce the general operating characteristics of the facility involved and which have arrangements and controls similar to that of the facility. This modification is intended to allow the use of simulators which are similar to but not identical to the controls of the production or utilization facility to which the requalification program applies.

8. Section 4 of Appendix A entitled, "Evaluation," has been revised to:

a. Permit the use of annual written examinations to form the basis for the formal lecture series coverage for each operator or senior operator;

b. Require that if a plant simulator is used in the evaluation portion of the requalification program, it accurately reproduce the operating characteristics of the facility involved and closely parallel the arrangement of instrumentation and controls of the facility; and

c. Require each licensed operator and senior operator to participate in an accelerated requalification program where evaluation of performance clearly indicates the need.

9. Section 5 of Appendix A entitled, "Records", has been revised to better specify the content of records to be maintained to document each licensed operator's and senior operator's participation in the requalification program.

10. Section 6 of Appendix A entitled, "Alternative Training Programs," has been revised to require Commission approval of alternative requalification programs conducted by persons other than the facility licensee.

11. A new Section 7 entitled "Applicability to Research and Test Reactors and Non-Reactor Facilities" has been added to:

a. Clarify the applicability of the requirements of Appendix A with regard to research and test reactors and non-reactor facilities, such as fuel reprocessing plants, and

b. Require that significant deviations from the provisions of Appendix A of Part 55 in a proposed requalification program for such facilities be justified when the program is submitted to the Commission for approval.

12. Minor editorial changes have also been made to 10 CFR Part 55.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 50 and 55 are published as a document subject to codification to be effective on September 17, 1973.

38 FR 30251  
Published 11/2/73  
Effective 12/3/73

### Standardization of Design; Licenses to Manufacture Nuclear Power Reactors; Miscellaneous Amendments

See Part 2 Statements of Consideration.

38 FR 31279  
Published 11/13/73

### Seismic and Geologic Siting Criteria

See Part 100 Statements of Consideration.

39 FR 1001  
Published 1/4/74  
Effective 2/4/74

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### Acceptance Criteria for Emergency Core Cooling Systems for Light Water-Cooled Nuclear Power Reactors

On November 30, 1971, the Atomic Energy Commission published in the *FEDERAL REGISTER* (36 FR 22774) a notice scheduling a legislative-type public rule-making hearing on January 27, 1972, before a hearing board consisting of Nathaniel H. Goodrich, Esq., Chairman, Dr. Lawrence R. Quarles, and Dr. John H. Buck, concerning its interim statement of policy establishing acceptance criteria for emergency core cooling systems for light water-cooled nuclear power reactors, published June 29, 1971 (36 FR 12247). Amendments to the interim criteria were published in the *FEDERAL REGISTER* on December 18, 1971 (36 FR 24082) in a notice that stated that the amendments would also be considered at the rulemaking hearing.

Participation in the rulemaking hearing was extensive. The primary participants included the Commission Regulatory Staff, four reactor manufacturers, a consolidated group of electric utility companies, and the Consolidated National Intervenor (CNI), a group of about 60 organizations and individuals. In addition, three states, the Lloyd Harbor Study Group, and several individuals participated to a lesser degree. The hearings lasted a total of 125 days and generated a record of more than 22,000 pages of transcript and thousands of pages of written direct testimony and exhibits. Oral argument from the seven principal participants was heard by the Commission on October 9, 1973.

In implementation of the National Environmental Policy Act of 1969 (Pub. L. 91-190), a Draft Environmental Statement concerning the proposed rulemaking was forwarded to the Council on Environmental Quality on December 6, 1972, and circulated for comment to participants in the hearing and interested Federal Agencies on December 7, 1972. Notice of public availability of the Statement and an invitation for comment was also published in the *FEDERAL REGISTER* at that time. Comments on the Draft Statement were received and a Final Environmental Statement was published on May 9, 1973.

The Commission noted in the Interim Policy Statement:

Protection against a highly unlikely loss-of-coolant accident has long been an essential part of the defense-in-depth concept used by the nuclear power industry and the AEC to assure the safety of nuclear power plants. In this concept, the primary assurance of safety is accident prevention by correctly designing, constructing, and operating the reactor. Extensive and systematic quality assurance practices are required and applied at every step to achieve this primary assurance of safety. Nevertheless, deviations from expected behavior are postulated to occur, and protective systems are installed to take corrective action as required in such events. Notwithstanding all this, the occurrence of serious accidents is postulated, in spite of the fact that they are highly unlikely, and engineered safety features are installed to mitigate the consequences of these unlikely events. The loss-of-coolant accident is such a postulated improbable accident; the emergency core cooling system is one of the engineered safety features installed to mitigate its consequences.

The Commission has adopted new regulations, set forth below, dealing with the effectiveness of ECCS. In a 140 page opinion issued on December 28, 1973, the Commission discussed the changes from the interim acceptance criteria and the technical reason for them. Copies of this opinion are available for inspection and copying at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C.

The principal changes from the Interim Policy Statement are as follows. The old criterion number one, specifying that the temperature of the zircaloy cladding should not exceed 2300°F, is replaced by two criteria, lowering the allowed peak zircaloy temperature to 2200°F and providing a limit on the maximum allowed local oxidation. The other three criteria of the IAC are retained, with some modification of the wording. These three criteria limit the hydrogen generation from metal-water reactions, require maintenance of a coolable core geometry, and provide for long-term cooling of the quenched core.

The most important effect of the changes in the required features of the evaluation models is that swelling and bursting of the cladding must now be taken into consideration when they are calculated to occur, and that the maximum temperature and oxidation criteria must be applied to the region of clad swelling or bursting when the maximum temperature and oxidation are calculated to occur there. Another important change is the requirement that, in the steady state operation just before the postulated accident, the thermal conductance of the gap between the fuel pellets and the cladding should be calculated taking into consideration any increase in gap dimensions resulting from such phenomena as fuel densification, and should also consider the effects of the presence of fission gases. When these effects are taken into consideration a higher stored energy may be calculated. Other changes in the evaluation models are mostly in the direction of replacing previous broad conservative assumptions with more detailed calculations where new experimental information is available or where better calculational methods have been developed.

The wording of the definition of a loss-of-coolant accident has been modified to conform to its long-accepted usage, limiting it to breaks in pipes. The new regulations also require a more complete documentation of the evaluation models that are used.

The Commission believes that the implementation of the new regulations will ensure an adequate margin of performance of the ECCS should a design basis LOCA ever occur. This margin is provided by conservative features of the evaluation models and by the criteria themselves. Some of the major points that contribute to the conservative nature of the evaluations and the criteria are as follows:

(1) *Stored heat.* The assumption of 102 percent of maximum power, highest allowed peaking factor, and highest estimated thermal resistance between the UO<sub>2</sub> and the cladding provides a calculated stored heat that is possible but unlikely to occur at the time of a hypothetical accident. While not neces-

sarily a margin over the extreme condition, it represents at least an assumption that an accident happens at a time which is not typical

(2) *Blow-down.* The calculation of the heat transfer during blowdown is made in a very conservative manner. There is evidence that more of the stored heat would be removed than calculated, although there is not yet an accepted way of calculating the heat transfer more accurately. It is probable that this represents a conservatism of several hundred degrees F. In stored energy after blowdown, most of which can reasonably be expected to carry over to a reduction in the calculated peak temperature of the zircaloy cladding.

(3) *Rate of heat generation.* It is assumed that the heat generation rate from the decay of fission products is 20 percent greater than the proposed ANS standard. This represents an upper limit to the degree of uncertainty. The assumption that the fission product level is that resulting from operation at 102 percent of rated power for an infinite time represents an improbable situation, with a conservatism that is probably in the range of 5 to 15 percent. The use of the Baker-Just equation for calculating the heat generation from the steam oxidation of zircaloy should also provide some conservatism, but the factor is uncertain.

(4) *The peak temperature criterion.* The limitation of the peak calculated temperature of the cladding to 2200°F and the stipulation that this criterion be applied to the hottest region of the hottest fuel rod provide a substantial degree of conservatism. They ensure that the core would suffer very little damage in the accident.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50, are published as a document subject to codification to be effective on February 4, 1974.

39 FR 4871  
Published 2/8/74  
Effective 2/8/74

### Exemption for Facilities Processing Irradiated Materials Containing Limited Quantities of Special Nuclear Material

Subsection 11 v. of the Atomic Energy Act of 1954, as amended, defines "production facility," as "(1) any equipment or device determined by rule of the Commission to be capable of the production of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public; . . ."

The Atomic Energy Commission has by rule defined a "production facility," as, among other things, any facility designed or used for the processing of irradiated materials containing special nuclear material except laboratory scale facilities designed or used for experimental or analytical purposes, facilities which process slightly irradiated uranium containing relatively small amounts of fission products and low levels of fission product activity, and facilities licensed under Parts 30 and 70, or equivalent regula-



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tions of an Agreement State, in which irradiated material is processed on a batch basis for the separation of selected fission products and where not more than 15 grams of special nuclear material constitute a process batch. (10 CFR 50.2(a)(3)(iii)).

By letter dated June 15, 1973, PRM-50-7, General Electric Company, Vallejos Nuclear Center, Pleasanton, California, petitioned the Commission to amend the exception to the definition of "production facility" set out in § 50.2(a)(3)(iii). The exception in § 50.2(a)(3)(iii) applies to facilities in which processing of irradiated materials containing special nuclear material is conducted pursuant to a license issued under Parts 30 and 70 of the Commission's regulations, or equivalent regulations of an Agreement State, which authorizes the processing of irradiated special nuclear material on a batch basis for the separation of selected fission products and limits the process batch to "not more than 15 grams of special nuclear material." The petitioner requested that the process batch limit be changed to "not more than 100 grams of special nuclear material."

The Commission has concluded that the relatively modest increase, up to 100 grams, in the batch sizes of special nuclear material, specifically uranium enriched in the isotope 235, would not alter, materially, the radiation hazards involved for this type of operation and that no additional safety precautions are required beyond those imposed by Commission licensing and regulation of the use of the byproduct and special nuclear material under 10 CFR Parts 30 and 70 or equivalent regulations of an Agreement State. Accordingly, the Commission has adopted the amendment set out below which changes the batch limit in § 50.2(a)(3)(iii) to "not more than 100 grams of uranium enriched in the isotope 235 and not more than 15 grams of any other special nuclear material." Inasmuch as the amendment set forth below is of a minor nature, good cause exists for omitting notice of proposed rule making and public procedure thereon as unnecessary.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to 10 CFR Part 50, is published as a document subject to codification.

39 FR 5773  
Published 2/15/74  
Effective 3/18/74

### Codes and Standards for Nuclear Power Plants

On November 6, 1973, the Atomic Energy Commission published in the FEDERAL REGISTER (38 FR 30564) proposed amendments to its regulations, 10 CFR Part 50, "Licensing of Production and Utilization Facilities," and 10 CFR Part 115, "Procedures for Review of Certain Nuclear Reactors Exempted from Licensing Requirements," which would incorporate by reference new addenda to specified published industry codes.

The proposed amendments to § 50.55a and § 115.43 would provide that the editions of referenced addenda whose requirements must be met include only

those addenda through the Summer 1973 Addenda as appropriate. Minor editorial changes to update references in §§ 50.55a and 115.43a were also included.

Interested persons were invited to submit written comments within 30 days. No comments were received. The Commission has adopted the proposed amendments without modification.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 50 and 115 are published as a document subject to codification, to be effective on March 18, 1974.

39 FR 10554  
Published 3/21/74  
Effective 4/22/74

### Amendments and Change Procedures for Facility Licenses and Authorizations

On August 24, 1973, the Atomic Energy Commission published in the FEDERAL REGISTER (38 FR 22796) proposed amendments to its regulations in 10 CFR Part 50, Licensing of Production and Utilization Facilities, and 10 CFR Part 115, Procedures for Review of Certain Nuclear Reactors Exempted from Licensing Requirements, which would simplify the procedural process for AEC authorization of changes in production and utilization facilities and technical specifications relating to such facilities. The proposed amendments to Part 50 would continue to permit facility licensees, pursuant to § 50.59 of Part 50, to make changes in the facility and perform tests and experiments not described in the safety analysis report without prior Commission approval unless the change, test or experiment involves an unreviewed safety question or a change in the technical specifications. For proposed changes, tests or experiments which involve an unreviewed safety question or a change in technical specifications, an amendment to the operating license would be required, pursuant to § 50.90. With respect to an application for amendment of a license which involves a significant hazards consideration, the Commission would act upon the application for amendment after giving notice of its proposed action, as required by section 189 of the Atomic Energy Act of 1954, as amended and § 2.105 of 10 CFR Part 2. Notice of issuance of an amendment which did not involve a significant hazards consideration would be published in the FEDERAL REGISTER pursuant to § 2.106 of 10 CFR Part 2.

After consideration of the comments received and other factors involved, the Commission has adopted the amendments as published for comment.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to 10 CFR Parts 50 and 115 are published as a document subject to codification.

39 FR 13258  
Published 4/12/74

### Amendments and Change Procedures for Facility Licenses and Authorizations; Correction

In FR Doc. 74-6550, published March 21, 1974, at 39 FR 10554, paragraph 3 is corrected to read as follows:

39 FR 14506  
Published 4/24/74  
Effective 4/24/74

### Pre-Construction Permit Activities

On February 5, 1974, the Atomic Energy Commission published in the FEDERAL REGISTER (39 FR 4582) proposed amendments to its regulations, 10 CFR Part 2, Rules of Practice, and 10 CFR Part 50, Licensing of Production and Utilization Facilities, which would provide for a procedure different from that set forth in § 50.12(a) of the Commission's present regulations in 10 CFR Part 50 whereby site preparation and excavation and certain other on-site activities could be undertaken prior to issuance of a construction permit for a nuclear power reactor. Interested persons were invited to submit comments within 30 days following publication, and a number of comments were received.

After consideration of the comments received, and other factors involved, the Commission has adopted the amendments in the form set out below. The significant differences from the amendments published for comment are the following: (1) Whichever part of the application and material to accompany the application is filed first must include the general information required by § 50.33 and the technical information required by § 50.34(a)(1) of 10 CFR Part 50 in addition to the license fee and restricted data agreement as required under the proposed amendments. (2) In response to several comments, the amendments adopted provide that separate hearings and decisions on issues covered by Appendix D of Part 50 of the Commission's regulations and site suitability need not be held and issued if the parties agree otherwise or the rights of any party would be prejudiced thereby. Also, unless the parties agree otherwise or the rights of any party would be prejudiced, any separate hearing on issues covered by Appendix D of Part 50 and site suitability must be commenced no later than 30 days after issuance by the regulatory staff of its final environmental impact statement. (3) A provision has been added to § 2.761a of 10 CFR Part 2 in response to a comment to make it clear that the section does not preclude separate hearings and decisions on other particular issues. (4) In response to several comments the term "site exploration" has been deleted from § 50.10(e)(1) of 10 CFR Part 50 to avoid a possible conflict with § 50.10(c)(1). (5) The amendment to § 50.12 of 10 CFR Part 50 has been deleted as unnecessary in light of the Commission's policy of granting exemptions from § 50.10(c) sparingly and only in cases of undue hardship. (6) The definition of "commencement of construction" in 10 CFR 50.10(c) has

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been clarified and simplified by deleting the reference to "nonnuclear facilities." The Commission believes that on-site construction of "nonnuclear facilities" would constitute "substantial action that would adversely affect the natural environment of a site" and that specific reference to "nonnuclear facilities" is unnecessary to effectuate the purposes of the prohibition. (7) The scope of work that may be routinely authorized under § 50.10(e)(1) has been clarified and limited to exclude the driving of piles and installation of foundation walls and slabs for structures, systems, and components subject to Appendix B to 10 CFR Part 50 (Quality Assurance Criteria). Provision has been made for consideration by atomic safety and licensing boards of the safety-related aspects of site suitability as a prerequisite to routine authorizations and § 2.101 (a) of 10 CFR Part 2 has been modified to assure filing of the necessary data. Additional on-site work could be authorized by a supplemental authorization under appropriate circumstances but only after a determination by the hearing board that there were no unresolved safety issues relating to the additional work that would constitute good cause for withholding authorization. The changes described in (7) above have been adopted by the Commission to ensure that there would be full public participation with respect to the review of site suitability issues which are related to both environment and safety, and other safety issues directly related to any on-site work on safety related structures, systems and components that may be authorized beyond excavation, prior to grant of any authorization to conduct on-site work.

The limitation of the scope of work that would be authorized is also responsive to one of the comments which suggested that the Commission should not allow any on-site work related to radiological safety matters prior to a hearing and decision on those matters. The Atomic Energy Act of 1954, as amended, does not by its terms prohibit commencement of construction of a nuclear facility prior to receipt of a construction permit, although the Act does provide that a permit authorizing construction of the facility must be obtained. The Commission is thus authorized to apply its technical expertise and develop a practical administrative interpretation of the Act as a whole in determining at what point in time a construction permit must be obtained. Prior to the enactment of the National Environmental Policy Act of 1969 (NEPA) and the amendments to § 50.10 adopted by the Commission on March 21, 1972 (37 FR 5745), site excavation for safety-related structures was generally permitted to be undertaken by applicants without any prior Commission review. The essential distinction between the past situation and the present one is that NEPA now applies to certain Commission actions. However, this essential difference is accommodated in the amendments by the requirement that there be a full NEPA review and hearing on NEPA issues covered by the Commission's NEPA regulations prior to authorizing any on-site work otherwise generally prohibited by § 50.10 (c). The approach in the instant rule, with its provisions for full review of and public participation on relevant issues and limitation of allowable work so

as to include excavation for safety-related structures but not installation of safety-related structures (structures subject to the Commission's "Quality Assurance Criteria") except upon consideration by the atomic safety and licensing board of specified additional safety matters, is consistent with the Commission's past practice as described above. The Commission believes that this approach reflects a reasonable approach toward timely decisionmaking within the framework of the present Act.

Under the instant rule, the hearing on site suitability issues prior to grant of an authorization under § 50.10(e)(1) would be confined to whether, based upon the available information and review to date, there is reasonable assurance that the proposed site is a suitable location for a nuclear power reactor of the general size and type proposed from the standpoint of radiological health and safety considerations under the Act and the Commission's rules and regulations promulgated pursuant thereto. It should be noted in this respect that the amendments specifically provide that any activities undertaken would be entirely at the risk of the applicant and, except for the hearing and decision on safety issues described above, the grant of authorization would have no bearing on the issuance of a construction permit with respect to the requirements of the Atomic Energy Act of 1954, as amended, and rules, regulations, or orders promulgated pursuant thereto. Thus, while the conduct of some of the on-site activities may produce information that would have a bearing on the Commission's radiological safety review, any grant of authorization to conduct on-site activities could not serve to prejudice the outcome of the radiological safety review itself.

The rules adopted herein would not preclude the presiding officer from reopening the NEPA and limited safety hearing after grant of authorization under § 50.10(e) to consider new information upon motion by an interested party or on its own initiative. In the event the presiding officer determined that the record should be reopened, the resolution of any issues that may be raised regarding whether the outstanding authorization should continue in effect would be governed by principles similar to those that apply in the case of reopened proceedings on licenses and permits. Of course, nothing in the instant amendments would preclude the presiding officer from declining to make a favorable initial decision on NEPA and the limited safety issues immediately effective at the outset, or preclude the Commission or Atomic Safety and Licensing Appeal Board on review pursuant to 10 CFR 2.730 and 2.787(b), or 2.762, from staying the effectiveness of the initial decision, and thereby in effect stay any issuance of an authorization to conduct on-site work that could otherwise have been issued pursuant to an immediately effective initial decision on these issues. It should also be clear that sufficient information regarding the proposed plant is required to be included in the applicant's environmental report and the record of the NEPA hearing in order to conduct a reasonable cost-benefit analysis as required by NEPA.

A number of comments suggested that the Commission should adopt a more liberal policy regarding granting of exemptions from § 50.10(c) pursuant to § 50.-

12(a). The Commission has rejected this suggestion and will continue the present policy of granting such exemptions sparingly and only in cases of undue hardship. A number of comments also suggested that the provisions in § 50.10(e) requiring a full NEPA review and hearing prior to grant of authorization were unnecessary and would unduly delay plant construction. The Commission believes, however, that such provisions, which facilitate public participation and ensure appropriate consideration of NEPA matters, are in the public interest and should be retained in the rule.

Consideration of the instant amendments arises at a time of deep national concern over energy sources and supply—a concern which the Commission fully shares. The amendments should reduce the time required to bring on line nuclear power plants which satisfy all environmental and safety requirements. Pursuant to the Atomic Energy Act of 1954 as amended, NEPA, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 2 and 50 are published as a document subject to codification. Because of the public interest in removing unnecessary obstacles to the construction of power plants needed to meet the nation's energy needs, and the fact that the amendments are of a procedural nature, the Commission has found that good cause exists for making the amendments effective without the customary 30-day notice.

39 FR 24626  
Published 7/5/74  
Effective 8/5/74

### Technical Specifications for Fuel Reprocessing Plants

On May 2, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 10815) for public comment proposed amendments to 10 CFR Part 50 which would specify categories of technical specifications for licenses for fuel reprocessing plants. Technical specifications set forth the specific characteristics of the facility and the conditions for its operation that are required to provide protection for the health and safety of the public.

Categories for technical specifications applicable to nuclear reactor licenses were added to § 50.36 of Part 50 by an amendment to that section published on December 7, 1968. Appropriate categories for technical specifications applicable to fuel reprocessing plants licenses had not at that time been developed. The proposed amendments would add categories of technical specifications for fuel reprocessing plants to § 50.36 by specific provisions in categories (1) "Safety limits, limiting safety system settings, and limiting control settings" and (2) "Limiting conditions for operation." Categories (3) "Surveillance requirements", (4) "Design features," and (5) "Administrative controls" do not require amendment to be applicable to fuel reprocessing plants.

In addition to the changes in § 50.36 to cover fuel reprocessing plants specifically, a number of minor editorial and clarifying changes were proposed.

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All interested persons were invited to submit comments or suggestions in connection with the proposed amendments on or before September 7, 1974. After careful consideration of the comments received and other factors involved the Commission has adopted the amendments in the form set out below. The amendments as adopted reflect, in part, the suggestions made in the comments. The changes from the proposed amendments are as follows:

1. Section 50.36(c)(1)(i)(B) of the proposed rule has been clarified to indicate "Guide to Content of Technical Specifications for Fuel Reprocessing Plants."

Concurrently with the publication of this amendment the Commission is making available to the public its "Environmental Impact Appraisal of Amendment to 10 CFR Part 50 Technical Specifications for Fuel Reprocessing Plants." Copies of the "Environmental Impact Appraisal of Amendment to 10 CFR Part 50 Technical Specifications for Fuel Reprocessing Plants" may be obtained by writing the U.S. Atomic Energy Commission, Washington, D.C. 20585, Attention: Director of Regulatory Standards.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

39 FR 26279  
Published 7/18/74  
Effective 8/19/74

*Environmental Protection; Licensing and Regulatory Policy and Procedures*

See Part 51 Statements of Consideration.

39 FR 27121  
Published 7/25/74  
Effective 7/25/74

### MISCELLANEOUS AMENDMENTS TO CHAPTER

Notice is hereby given of the amendment of the Atomic Energy Commission's regulations in 10 CFR Parts 20, 50, and 70.

The amendments of Part 20 correct a reference to § 20.106 which appears in § 20.301 and make minor corrections in Appendix B and Appendix D.

The amendments of Part 50 correct a number of words and make an editorial change in § 50.46.

The amendment of Part 70 corrects a reference to § 73.41(c) which appears in § 70.22(g).

Because these amendments relate solely to corrections and minor matters, good cause exists for omitting notice of proposed rule making, and public procedure thereon, as unnecessary, and for making the amendments effective July 25, 1974.

Pursuant to the Atomic Energy Act of 1954, as amended and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 20, 50, and 70, are published as a document subject to codification.

39 FR 34394  
Published 9/25/74  
Effective 10/25/74

### Information Requested by Attorney General for Antitrust Review of Facility License Applications

On April 25, 1974, the Atomic Energy Commission published in the *FEDERAL REGISTER* (39 FR 14613) proposed amendments of 10 CFR Part 2, Rules of Practice and 10 CFR Part 50, Licensing of Production and Utilization Facilities, which would provide for early submission to the Commission of copies of information requested by the Attorney General for the conduct of his antitrust review and rendering of advice to the Commission with respect to certain facility license applications.

Under the proposed amendments, applicants for class 103 construction permits would be required to file the required document "Information Requested by the Attorney General for Antitrust Review" at least nine months but not more than thirty-six months prior to the date that any other part of the construction permit application is filed. In addition, under the proposed amendments Question 9 of Appendix L of Part 50 would be amended to require the applicant to provide mailing addresses for non-affiliated listed electric utility systems with peak loads smaller than the applicant's which now serve either at wholesale or retail adjacent to areas served by the applicant.

The early filing of antitrust information was intended to permit the Attorney General and the Commission to complete the antitrust review process, including antitrust hearings where necessary, concurrently with other licensing reviews.

Interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments by May 28, 1974. After consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments with one significant change. Several commenters pointed out that applicants whose applications were filed between the effective date of the amendments and nine months after the effective date would be required to wait nine months after filing antitrust information to file the rest of the application even though the entire application had been prepared. In order to resolve this problem, § 50.33a(b) and (c) have been changed to require nine-months' prior submission of antitrust information only in the case of a construction permit applied for after nine months after the effective date of the amendments. Persons applying for construction permits before that time are required to submit the antitrust information as soon as possible.

It should be noted that Part 50 contains a provision (§ 50.12) that authorizes the Commission to grant exemptions from Part 50 requirements, including § 50.33a, as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code,

the following amendments of Title 10 of the Code of Federal Regulations, Chapter I, Parts 2 and 50, are published as a document subject to codification.

40 FR 3210C  
Published 1/20/75  
Effective 2/19/75

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Quality Assurance Criteria—Permissible Organizational Relationships

On April 19, 1974, the Atomic Energy Commission published in the *FEDERAL REGISTER* (39 FR 13974) for public comment a proposed amendment to 10 CFR Part 50, Appendix E, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." The purpose of the amendment is to clarify the intent of Criterion I, "Organization," with regard to permissible organizational relationships. All interested persons were invited to submit comments or suggestions in connection with the proposed amendment by June 3, 1974.

The proposed amendment was proposed as a result of the questions raised by the decision of the Atomic Safety and Licensing Appeal Board in *Commonwealth Edison Co. (LaSalle County Nuclear Station Units 1 and 2)* ALAB-153, RAI 73-10, 821 (October 19, 1973) and *Consumers Power (Midland)* ALAB-147, RAI 73-9, 636 (September 18, 1973), (reconsideration denied, ALAB-152, RAI 73-10, 816 (October 5, 1973)). These questions concerned the organizational relationships where personnel performing a quality assurance function reported to a field project manager or superintendent who was concerned with only the single project to which he was then assigned and had cost and schedule responsibility for that project.

Appendix B establishes quality assurance requirements for the design, construction, and operation of those structures, systems, and components of nuclear power plants and fuel reprocessing plants that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The pertinent provisions of Appendix B apply to all activities which affect the safety-related functions of such structures, systems, and components.

The intent of the quality assurance criteria provided in Appendix B to 10 CFR Part 50 is to require that all activities affecting the safety-related functions of nuclear facility structures, systems, and components be accomplished in a systematic and controlled manner so that there is a high degree of assurance that these activities are performed correctly. Appendix B, in addition to requiring that these activities be performed in a systematic and controlled manner such as by requiring that the activities be prescribed and accomplished in accordance with written instructions or procedures, also requires additional assurance of quality to be provided by verification of the correct performance of these activities by means such as checking, reviewing, inspecting, testing, and auditing. Execution of a quality assurance program which complies with Appendix B thus involves both the performers; e.g., designer, welder, power plant operator, and those persons and organizations accomplishing quality as-



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insurance functions; e.g., design reviewer, inspector, or tester.

One of the matters with which Criterion I deals is the organizational relationship of the persons and organizations which are assigned the quality assurance functions of (1) assuring that the quality assurance program is established and executed and (2) verifying that an activity has been correctly performed. Criterion I now requires that such persons and organizations shall have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. The intent of these organizational requirements is to assure that those persons and organizations performing quality assurance functions have the required degree of freedom from other organizational responsibilities, such as cost and scheduling, which could conflict with their quality assurance functions.

It was recognized in establishing the organizational requirements in Criterion I that the degree of separation or independence of the persons and organizations performing quality assurance functions can affect their ability to carry out these functions. While it is desirable from one point of view to have persons and organizations performing quality assurance functions completely separated, organizationally, from individuals who have significant responsibility for performance of the work (including but not limited to cost and schedule responsibility), that same separation may in some instances hinder the quality assurance persons and organizations in performing their functions. The greater the independence or separation, for example, the more difficult it may be in some instances to maintain lines of communication in identifying quality problems and initiating corrective action. A number of variables affect the establishment of a quality assurance organization that will be consistent with Criterion I. The variables include, but are not limited to, the size of the organization, its organizational structure, the type of activity being performed, and the location or locations where the work is being performed.

Guidance as to implementation of a quality assurance program that includes the concepts embodied in the amendment set forth below is contained in the following publications:<sup>1</sup>

1. Guidance on Quality Assurance Requirements During Design and Procurement Phase of Nuclear Power Plants, WASH-1283, Revision 1, dated May 24, 1974;
2. Guidance on Quality Assurance Requirements During the Construction Phase of Nuclear Power Plants, WASH-1309, dated May 10, 1974; and
3. Guidance on Quality Assurance Requirements During the Operations Phase of Nuclear Power Plants, WASH-1284, dated October 26, 1973.

The comments on the notice of proposed rule making, in general, supported the concept that the Commission should be flexible in determining acceptability of licensee proposed organizational approaches to quality assurance provided that the licensee explicitly establishes

and delineates the functional relationships that are a part of his quality assurance program.

Additionally, comments stated that Criterion I did not clearly state that the execution of the quality assurance program involved both the performers who achieve the quality objectives and the verifiers who assure that the required quality objectives have been attained. As a result of valid criticisms in this regard, Criterion I has been revised to indicate that activities affecting the safety-related functions include both the performing functions and the quality assurance functions. Criterion I has also been revised to include a requirement for establishment and delineation in writing of the authority and duties of those responsible for attaining quality objectives as well as those performing quality assurance functions.

Comments also recommended clarification of the phrases "quality assurance functions" and "directing and managing the quality assurance program." Clarification has been accomplished by defining quality assurance functions as (a) assuring that an appropriate quality assurance program is established and effectively executed, and (b) verifying that activities affecting the safety-related functions have been correctly performed. Since the execution of the quality assurance program involves both the performers and the verifiers, the phrase "directing and managing the quality assurance program," which appears in the last sentence, has been changed to "assuring effective execution of any portion of the quality assurance program."

Comments also recommended clarification of the last sentence of the proposed rule to eliminate the implication that only one individual may be responsible for the quality assurance program at a given location. As a result of this comment, a change has been made to permit the situation where, at a location; e.g., construction site or engineering and procurement building, there may be more than one individual responsible for assuring effective execution of different portions of the program. It should be recognized, however, that overall control must be provided to assure that these different portions of the program are coordinated and consistent with the overall program requirements.

Comments also requested elimination of the phrase "pressures of production" in describing the authority and organizational freedom required for the verification function. Since it was not intended that this phrase be limited to facets of manufacturing or fabrication; e.g., machining or welding, that phrase has been deleted. The revision now states the broader meaning intended; i.e., sufficient independence from cost and scheduling when opposed to safety considerations. In this broader sense, the thought encompasses such activities as design and procurement.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment to Title 10,

Chapter I, Code of Federal Regulations, Part 50, Appendix B, is published as a document subject to codification.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

Energy Reorganization Act; Revisions to Chapter I to Reflect Organizational and Procedural Changes

See Part 2 Statements of Consideration.

40 FR 19439  
Published 5/5/75  
Effective 6/4/75

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents

In the matter of Rulemaking Hearing Numerical Guides for design objectives and limiting conditions for operation to meet the criterion "as low as practicable" for radioactive material in light-water-cooled nuclear power reactor effluents; Opinion of the commission, Chapter I, Summary and Statement of considerations.

**Background.** The Nuclear Regulatory Commission herewith announces its decision in the rulemaking proceeding concerning numerical guides for design objectives and limiting conditions for operation to meet the criterion "as low as practicable" for radioactive material in light-water-cooled nuclear power reactor effluents.

On December 3, 1970, the Atomic Energy Commission published in the *FEDERAL REGISTER* (35 FR 18385), new §§ 50.34a and 50.36a in Part 50 of its regulations, specifying design and operating requirements for nuclear power reactors to keep levels of radioactivity in effluents "as low as practicable." The amendments provided qualitative guidance, but not numerical criteria, for determining when design objectives and operations meet the specified requirements. The Commission noted in the Statement of Considerations accompanying the amendments the desirability of developing more definitive guidance. The rule we announce today does that, setting forth criteria which, if met, provide one acceptable method of establishing compliance with the "as low as practicable" requirement of §§ 50.34a and 50.36a.

On June 9, 1971, the Atomic Energy Commission published in the *FEDERAL REGISTER* (36 FR 11113) for public comment proposed amendments to 10 CFR Part 50 which would supplement §§ 50.34a and 50.36a with a new Appendix I. The Proposed Appendix provided numerical guides for design objectives and technical specification requirements for limiting conditions for operation for light-water-cooled nuclear power reactors.

<sup>1</sup> The licensing and related regulatory functions of the Atomic Energy Commission have been transferred to this Commission, Energy Reorganization Act of 1974, section 201(f), 88 Stat. 1243.

<sup>1</sup> These documents are available for inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C., and copies may be obtained from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22151.

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A subsequent notice, published on November 30, 1971 (36 FR 2275), announced a public rulemaking hearing on the proposed amendments. The hearing began on January 20, 1972, before a Hearing Board consisting of Algie A. Wells, Esq., Chairman, Dr. John C. Geyer, and Dr. Walter H. Jordan. The primary participants in the rulemaking hearing included the Commission's Regulatory Staff, a consolidated utility group, the Consolidated National Intervenor, General Electric Company, and the State of Minnesota. In addition, 18 persons or organizations, including the Environmental Protection Agency, made limited appearances.

The hearing was suspended in May of 1972 pending preparation of an Environmental Impact Statement concerning the proposed rulemaking in implementation of the National Environmental Policy Act of 1969. A Draft Environmental Statement was forwarded to the Council on Environmental Quality on January 15, 1973, and circulated for comment to interested Federal agencies and members of the public, including the hearing participants. Notice of public availability of the Statement and an invitation for comment were published in the *FEDERAL REGISTER*. Comments on the Draft Environmental Statement were received, and a Final Environmental Statement was issued on July 26, 1973. In November 1973, the public hearing was resumed for consideration of the Environmental Statement. The evidentiary hearing was concluded on December 6, 1973, concluding statements of position were filed, and the entire record was forwarded to the Commission for decision. The proceeding covered some 25 days of hearings, 4172 pages of hearing transcript, and thousands of pages of prepared written direct testimony and exhibits. Oral arguments were heard by the Atomic Energy Commission on June 6, 1974.

As the record developed during this rulemaking shows, there is a general consensus concerning the need to define "as low as practicable" with numerical criteria. The major issues of controversy involved the feasibility of achieving the proposed numerical criteria and the cost of compliance with and the perceived benefits of the criteria. The Nuclear Regulatory Commission has carefully considered the entire record and the views of those who participated in the rulemaking hearing in reaching the decision announced herein.\*

It should be emphasized that the Appendix I guides as here adopted by the Commission are not radiation protection standards. The numerical guides of Appendix I which we announce today are a quantitative expression of the meaning of the requirement that radioactive material in effluents released to unrestricted areas from light-water-cooled nuclear power reactors be kept "as low as practi-

cable."

The Commission's radiation protection standards, which are based on recommendations of the Federal Radiation Council (FRC) as approved by the President, are contained in 10 CFR Part 20, "Standards for Protection Against Radiation," and remain unchanged by this Commission decision. As in the case of parallel recommendations of the National Council on Radiation Protection and Measurements (NCRP) and the International Commission on Radiological Protection (ICRP), these FRC standards which have been previously adopted give appropriate consideration to the overall requirements of health protection and the beneficial use of radiation and atomic energy. The Commission believes that the record clearly indicates that any biological effects that might occur at the low levels of these standards have such low probability of occurrence that they would escape detection by present-day methods of observation and measurement.

The Commission fully subscribes to the general principle that, within established radiation protection guides, radiation exposures to the public should be kept "as low as practicable." This precept has been a central one in the field of radiation protection for many years. The term "as low as practicable" is defined in the Commission's regulations (10 CFR 50.34a(a)) to mean "as low as is practicably achievable taking into account the state of technology, and the economics of improvements in relation to the benefits to the public health and safety and in relation to the utilization of atomic energy in the public interest."

We note that during the pendency of this rulemaking the International Commission on Radiological Protection, in ICRP Publication No. 22, has replaced the phrase "as low as practicable" with "as low as is reasonably achievable" in its recommendation on dose limitation. Its recommendation has also been expanded to identify two specific considerations—economic and social—that are to be taken into account in determining a level of exposure that may be considered "as low as is reasonably achievable." Other considerations, such as ethical ones, are

\* Under the President's Reorganization Plan No. 3 of 1970, the Environmental Protection Agency (EPA) is responsible for establishing generally applicable environmental radiation standards for the protection of the general environment from radioactive materials. The Nuclear Regulatory Commission is responsible for implementation and enforcement of EPA's generally applicable environmental standards. If the design objectives and operating limits established in this decision should prove to be incompatible with any generally applicable standard hereafter established by EPA, these objectives and limits will be modified as necessary.

The radiation protection guides established by the FRC for individual members of the public are 500 millirems per year to the total body and bone marrow and 1500 millirems per year to the thyroid and bone. The guide for average dose to the population is 5 rems in 30 years to the gonads (an annual average dose of 170 millirems per person averaged over the population). These guides and recommendations apply to exposures from all sources other than medical procedures and natural background.

The FRC provides no specific radiation protection guides with respect to other organs of the body. The ICRP recommends annual dose limits of 500 millirems to the total body, gonads, and red bone marrow; 3000 millirems to the skin, bone, and thyroid, except 1500 millirems to the thyroid of children up to 16 years of age; and 1500 millirems to other single organs.

not excluded by this wording and may indeed be considered to be included by the adjective "social." The ICRP has clearly stated that the changed terminology does not reflect a change in the objectives of dose limitation, but rather a choice of language which "more closely describes its intentions." See ICRP Publication 22, paragraphs 6, 7, and 20.

We endorse this attempt to make this basic concept of radiation protection more understandable. We are today directing the Commission's Staff to prepare and issue for public comment a proposed rule that substitutes the currently accepted phrasing—"as low as is reasonably achievable"—for the older, less precise terminology in the many places throughout our regulations and regulatory guides where it appears. The numerical values of Appendix I quantifying "as low as practicable", will not, of course, be affected by the forthcoming change in terminology.

The principal changes from the proposed amendments published in the *FEDERAL REGISTER* on June 9, 1971, are as follows:

1. *Liquid effluents.* The design objectives in the proposed rule for radioactive material in liquid effluents were based on: (a) An annual release of not more than 5 curies, except tritium, from each reactor, (b) specified concentration limits on tritium and other radioactive materials released to the environment, and (c) a provision for increasing or decreasing the design-objective quantities and concentrations for specific sites subject to keeping annual doses to the total body or any organ of an individual in an unrestricted area to not more than 5 millirems for all reactors on a site. The design objective in Appendix I as adopted limits the total radioactivity released from each light-water-cooled nuclear power reactor to a level that limits the annual dose or dose commitment from liquid effluents from that reactor for any individual in an unrestricted area from all pathways of exposure to not more than 3 millirems to the total body and 10 millirems to any organ.

The adopted design-objective guides contain no numerically specified limits upon quantities of radioactive material to be released since the record shows that such limits have little if any independent significance. Protection of future users of the near environs of the reactor is provided by the additional requirement that all augments with a favorable cost-benefit balance be included in the radwaste system and by the provision that the estimation of exposure be made with respect to such potential land and water use and food pathways as could actually exist during the term of plant operation.

2. *Gaseous effluents.* The principal difference in the design objective in the Appendix adopted by the Commission dealing with external dose from radioactive material in gaseous effluents is the separate treatment of total-body dose and skin dose. The proposed design objective limited both the annual total-body and the annual skin dose from all reactors on a site to 5 millirems, whereas the new design objective incorporates an annual total-body dose limit from gaseous effluents of 5 millirems per light-water reactor and increases the annual dose limit to the skin to not more than 15 millirems per light-water reactor. The design-objective annual dose to the skin has been increased from 5 millirems to

\* Some of the parties to this proceeding sent unsolicited letters to individual members of the Commission, expressing views on the subject matter of this rulemaking. These communications, not a part of the hearing record, have been placed in the public document room and served upon all parties in the manner described in 10 CFR 2.780(b), and have not been considered in reaching the decision announced today.

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15 millirems on the basis of evidence in the Final Environmental Statement and the hearing record showing that it is not technically practicable to design and operate a light-water-cooled nuclear power reactor with a limit on the annual skin dose from beta radiation of not more than 5 millirems.\* It is noted by way of comparison that an annual dose to the skin of 15 millirems is one-half of one percent of the radiation dose limit for a member of the public recommended by the International Commission on Radiological Protection.

3. *Radioactive iodine and particulate matter.* The proposed design objective for radioactive iodine and radioactive material in particulate form released in gaseous effluents was expressed as a limit on the average concentrations of radioiodines and radioactive material in particulate form at or beyond the site boundary. The proposed concentration values were designed to limit the annual dose to the thyroid or other organs from all reactors on a site to not more than 5 millirems. The design objective in the new Appendix I is expressed as the annual quantity of radioactive iodine and radioactive material released which limits the annual dose or dose commitment to any organ, including the thyroid, of any individual in an unrestricted area from all pathways of exposure to not more than 15 millirems per year per light-water-cooled nuclear power reactor. In determining the annual dose or dose commitment, the applicant or licensee may evaluate the portion due to intake of radioactive material via the food pathways at the locations where the food pathways actually exist. The design-objective annual dose for radioactive iodine has been increased from 5 to 15 millirems on the basis of evidence developed in the hearing which showed that the previous design-objective annual dose of 5 millirems per year for doses to the thyroid from the milk pathway was not practicable.

4. *Cost-benefit requirements.* In addition to the numerical design-objective guides described in paragraphs 1, 2, and 3 above, our decision requires that the applicant include in the radwaste systems all items of reasonably demonstrated technology that, when added to the system sequentially and in order of diminishing cost-benefit return, can with a favorable cost-benefit ratio effect reduction in dose to the population reasonably expected to be within 50 miles of the reactor. The definition of as low as practicable (10 CFR 50.34a(a)) includes consideration of "... the economics of improvements in relation to the benefits to the public health and safety ...". We find support in the record for the application of a cost-benefit analysis as a part of the process for

determination of the radwaste systems to be used. Such a cost-benefit analysis requires that both the costs of and the benefits from reduction in dose levels to the population be expressed in commensurate units, and it seems sound that these commensurate units be units of money. Accordingly, to accomplish the cost-benefit balancing, it is necessary that the worth of the decrease of a man-rem and man-thyroid-rem or some essentially equivalent quantities in dose to the population be assigned monetary values.

The record, in our view, does not provide an adequate basis to choose a specific dollar value for the worth of decreasing the population dose by a man-rem or a man-thyroid-rem. Published values for the worth of a man-rem were shown in the record to range from about \$10 to \$980. No similar values for worth of a man-thyroid-rem are presented. One of the hearing participants chose \$1000 per man-rem and \$393 per man-thyroid-rem. This choice for worth of a man-rem simply reflected a value slightly more conservative than the highest previously published value and implied no independent assessment of the worth of either entity. We, therefore, recognize that there is no consensus in this record or otherwise regarding proper value for worth of a man-rem and even less information upon which to base the choice of a proper value for worth of a man-thyroid-rem.

Moreover, we also recognize that selection of such values is difficult since it involves, in addition to actuarial considerations that are commonly reduced to financial terms, aesthetic, moral, and human values that are difficult to quantify. At the same time we believe that meaningful cost-benefit balances are an essential part of the considerations of the as low as practicable concept for control of insult to the population from radioactive effluents, and for that matter, from other pollutants.

We propose, therefore, at the earliest practicable date to conduct a rulemaking hearing to establish appropriate monetary values for the worth of reduction of radiation doses to the population. We are aware that the National Academy of Sciences—National Research Council Advisory Committee on Biological Effects of Ionizing Radiation is currently studying and developing methodologies for benefit-risk-cost analysis for activities involving radiation exposure. It is possible that information on monetary values for the worth of reduction of radiation dose, as well as useful methodology, may be provided by this study. When such appropriate values (or some other equivalent quantified, and as yet unspecified, criteria) are available, we shall consider them for incorporation in Appendix I.

Meanwhile, and purely as an interim measure, we believe that we can accept the conservative value of \$1,000 per total-body man-rem for these cost-benefit evaluations. Since we realize that the ultimately accepted value may well prove to be less than this, we should leave it open to demonstration in individual cases that a lower figure should be used if the applicant chooses to and can make that demonstration. It is also clear to us that arguments can be made that the worth of reduction in thyroid dosage should have a smaller value than that for a total-body man-rem. Since the record can offer no clear guidance in this re-

gard, we have accepted, purely as an interim measure, \$1000 per man-thyroid-rem as the value to be used in the cost-benefit evaluations. This figure is subject to individual case demonstration of a lower value, as indicated above, since interim measure, \$1,000 per man-thyroid-rem value will be lower.

In summary, we have decided that, pending completion of the further rulemaking to establish better values (or suitable equivalent criteria), the cost-benefit balances required by section II, paragraph D of Appendix I, shall be accomplished using the value of \$1000 per total-body man-rem and \$1000 per man-thyroid-rem, or such lesser values as may be demonstrated by the applicant to be suitable in a particular case.

We intend that radwaste augmentations necessary to satisfy the limits (of section II, paragraphs A, B, and C of Appendix I) on maximum dosages to individuals will be required in all cases. Additional radwaste augmentations will be required when, and only when, it can be shown that, where each is added sequentially and in order of diminishing cost-benefit return, the sum of its annualized cost of installation, its annual operating cost, and a reasonable allowance for its maintenance is less than the annual worth of the decreases in total-body man-rem and in man-thyroid-rem which the augment can achieve for the population within 50 miles of the reactor.

5. *Per Site vs. Per Reactor.* From the foregoing it is clear that the Commission's policy is to minimize the radiation exposure of human beings from the effluents of light-water-cooled nuclear power reactors. We have chosen to express the design objectives on a per light-water-cooled nuclear power reactor basis rather than on a site basis, as was originally proposed. While no site limits are being adopted, it is expected that the dose commitment from multi light-water-cooled reactor sites should be less than the product of the number of reactors proposed for a site and the per-reactor design-objective guides because there are economies of scale due to the use of common radwaste systems for multi-reactor sites which are capable of reducing exposures. Moreover, we note that the matter of overall environmental impact of nuclear sites is a topic to be specifically addressed in the energy-center study mandated by the Energy Reorganization Act of 1974.

6. *Licensee and Commission action.* Revisions have been made in the guides for limiting conditions for operation with respect to when appropriate action must be taken to reduce release rates of radioactive material. The proposed action levels provided that, if rates of release of quantities and concentrations in effluents actually experienced over any calendar quarter indicate that annual rates of release were likely to exceed 2 times the design objectives, the licensee should take corrective action. If such annual rates were likely to exceed a range of 4 to 8 times the design objectives, the Commission would take appropriate action to ensure that the release rates were reduced.

The provisions adopted require the licensee to initiate action if the average dose rate offsite during any calendar quarter from materials discharged to the atmosphere exceeds 10 millirems whole body per year or 30 millirems to the skin and any organ per year, or if the average dose rate offsite during any

\*The dose rates specified in the rule of 10 millirads per year for gamma radiation and 20 millirads per year for beta radiation are to be based on calculated annual air doses. These calculated annual air doses would normally be considered to meet the objective of limiting doses to individuals in unrestricted areas to not more than 5 millirems to the total body or 15 millirems to the skin. Provisions are made to increase or decrease the annual dose rate if, for a particular site, there are special circumstances where the specified dose rates should be adjusted to limit the exposure of an individual in an unrestricted area to 5 millirems total body exposure or 15 millirems to the skin.

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calendar quarter from liquid effluents exceeds 6 millirems whole body per year or 20 millirems to the skin and any organ per year.

Existing Commission regulations (10 CFR 50.36a) have recognized the need for licensees to be permitted flexibility of operation compatible with considerations of health and safety to ensure that the public is provided a dependable source of power even under unusual operating conditions that may temporarily result in releases higher than the numerical guides for design objectives. Some flexibility of operation is believed to be essential and warranted in view of the restrictive nature of the Appendix I guides and the fact that, even with this flexibility, it can be ensured that the average population exposure will still be a small fraction of doses from natural background radiation. The Commission notes, however, that, in using this operational flexibility under temporary or short-term unusual operating conditions, the licensee must continue to exert his best efforts to keep levels of radioactive material in effluents within the numerical guides for design objectives.

In order to provide assurance that releases of radioactive materials are known, the Commission has expanded the surveillance and monitoring program beyond current requirements for licensees to report on the quantities of the principal radionuclides released to unrestricted areas. It is expected that this expanded monitoring program will be used by licensees as a basis for initiating prompt and effective corrective action towards ensuring that the actual offsite exposures per reactor are compatible with the design objectives as adopted.

These guides will continue to provide operating flexibility and at the same time ensure a positive system of control by a graded scale of action first by the licensee and second by the Commission, if the need arises, to reduce the release of radioactive material should the rates of release actually experienced substantially exceed the design objectives.

**7. Implementation.** The proposed Appendix I was silent on the method for implementation of the numerical guides. The Commission believes, however, that Appendix I should guide the Commission Staff and other interested persons in the use of appropriate calculational procedures for applying the numerical guides for design objectives. Consequently, the provision adopted states that compliance with the guides on design objectives shall be demonstrated by calculational procedures based on models and data that will not substantially underestimate the actual exposure of an individual through appropriate pathways, all uncertainties being considered together.

Quantitative measurement of radioactive materials released in effluents from licensed light-water-cooled nuclear power reactors is required by 10 CFR 50.36a. This requirement is made more specific by Appendix I and reflects the desirability of the use of the best available experimental data as well as calculational models in order to achieve increased accuracy and realism. Strong incentives already exist for improving the calculational models used in establishing design objectives in view of the economic penalty associated with needless overdesign for conservatism. Actual measurements and surveillance pro-

grams can provide data for improving these models. It is recognized, however, that measurements of environmental exposures and quantities of radioactive materials in the environs are complicated by the very low concentrations that are encountered, compared to background, and by the fact that there are a number of variables in both time and space that affect concentration. Thus, the correlation of the best measurements with the best calculations is tedious and difficult. However, since calculational procedures must be employed in implementing the design-objective guides of Appendix I, the Commission has adopted an implementation policy that encourages the improvement of calculation models and the use of the best data available.

The foregoing "Summary and Statement of Considerations" has briefly summarized the technical context of the issues presented and outlined the changes made in Appendix I from the form in which it was originally proposed. The text of Appendix I as adopted follows in Chapter II of this Opinion. The three following chapters of text set forth the record bases for the changes in greatly expanded detail. These supplemental explanatory chapters (III through V), because of their length, will not be published in the FEDERAL REGISTER with the text of Appendix I and the Summary and Statement of Considerations, but will be published in the April issue of Nuclear Regulatory Commission Issuances.<sup>6</sup> Single copies of this volume may be purchased at a cost of \$4.00 from the USERDA Technical Information Center, P.O. Box 62, Oak Ridge, Tennessee, 37830. Copies of the complete Opinion are also available for inspection and copying in the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. 20555.

Pursuant to the Atomic Energy Act of 1954, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50, are published as a document subject to codification to be effective on June 4, 1975.

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### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Application of Cost-Benefit Analysis Requirements of Appendix I to Certain Nuclear Power Plants

The Nuclear Regulatory Commission has adopted amendments to Appendix I of 10 CFR Part 50. Appendix I sets forth numerical guides for design objectives and limiting conditions for operation to meet the criterion "as low as practicable" for radioactive material in light-water-cooled nuclear power reactor effluents. The amendments provide persons who have filed applications for construction permits for light-water-cooled nuclear power reactors which were docketed on or after January 2,

<sup>6</sup> Copies of the complete five-chapter Opinion of the Commission have been filed with the original document submitted for publication in the FEDERAL REGISTER, and may be examined by members of the public at the Office of the Federal Register.

1971, and prior to June 4, 1976, the option of dispensing with the cost-benefit analysis required by Paragraph II.D of Appendix I if the proposed or installed radwaste systems and equipment satisfy the Guides on Design Objectives for Light-Water-Cooled Nuclear Power Reactors proposed by the regulatory staff in the rulemaking proceeding on Appendix I (Docket-RM-50-2).

Paragraph II.D requires each applicant for a permit to construct a light-water-cooled nuclear power reactor to submit a cost-benefit analysis of additional radwaste systems and equipment that could reduce the radiation dose to the population reasonably expected to be within 50 miles of the reactor. In this cost-benefit analysis, the values \$1000 per total body man-rem and \$1000 per man-thyroid-rem (or such lesser values as may be demonstrated to be suitable in a particular case) are required to be used. The requirements of Paragraph II.D embody an approach somewhat different from the proposed Appendix I published for comment on June 9, 1971 (36 FR 11113).

After a lengthy Appendix I rulemaking proceeding initiated in 1971 which was conducted by the former Atomic Energy Commission, the Nuclear Regulatory Commission, which was assigned the responsibility of carrying out the licensing and related regulatory functions of the Atomic Energy Commission by the Energy Reorganization Act of 1974 (effective January 19, 1975), adopted on May 5, 1975, a new Appendix I to Part 50 (40 FR 19439).

Appendix I provides numerical guides for design objectives and limiting conditions for operation for light-water-cooled nuclear power reactors to keep radioactivity in effluents as low as practicable. All Commission licensees are required by 10 CFR Part 20 to make every reasonable effort to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as far below Part 20 limits as practicable. The definition of "as low as practicable" in both 10 CFR §§ 20.3(c) and 50.34a(a) includes consideration of the economics of improvements in relation to the public health and safety.

Appendix I as adopted by the Commission provides in Section II—in addition to design objectives for annual doses for any individual in an unrestricted area from both liquid and gaseous effluents, including radioactive iodine and radioactive material in particulate form—a further requirement that the applicant include in the radwaste system all items of reasonably demonstrated technology that, when added to the system sequentially and in order of diminishing cost-benefit ratio, effect reductions in dose to the population reasonably expected to be within 50 miles of the reactor. As an interim measure and until establishment and adoption of better values (or other appropriate criteria), the values \$1000 per total body man-rem and \$1000 per man-thyroid-rem (or such lesser values as may be demonstrated to be suitable in a particular case) are to be used in this cost-benefit analysis. A rule-making hearing is planned at the earliest practicable date to establish more appropriate monetary values for the worth of reduction of radiation doses to the population.

The design objectives proposed by the

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staff in the rulemaking proceeding on Appendix I included specifications on the total radioactivity released (5 curie/per year reactor for liquid effluents, excluding tritium and dissolved gases; and 1 curie/per year per reactor of radioiodine-131) and a 5 millirem limitation on the annual whole body dose to individuals at or beyond the site boundary from all pathways of exposure. Because the former criterion used by the staff that each plant meet those design objectives has led to the proposed or actual installation of radwaste systems and equipment that reduce to low levels the total activity in effluent releases or expected effluent releases from such plants, the application of the \$1000 per man-rem criterion specified in Paragraph II.D of Appendix I to these or similarly designed plants is unlikely to result in radwaste equipment augmentation.

Cost-benefit analyses by the NRC staff of applications for construction permits for light-water-cooled nuclear power reactors filed and reviewed since 1971 in accordance with those design objectives show that for boiling water reactors, additional radwaste equipment cannot be added for less than \$1000/man-rem. Therefore, in general, boiling water reactors that have radwaste systems and equipment that meet those proposed design objectives will meet the requirements of Section II.D of Appendix I. Similar cost-benefit analyses have shown that pressurized water reactors whose radwaste systems have been evaluated and found acceptable under those design objectives also meet the requirements of Section II.D of Appendix I.

Basic assumptions used in these analyses were: (1) iodine-131 in gaseous releases was the only release considered, since this is the dominant factor in the cost-benefit analyses; (2) boiling water reactor condenser offgas and pressurized water reactor waste gas treatment systems were considered to be augmented in order to meet the individual dose guidelines proposed by the staff in the Appendix I rulemaking proceeding; (3) a release of 1 curie of iodine-131 results in a population exposure of 100 man-rem. The assumption that iodine-131 in gaseous releases is the dominant factor is based on the results of staff evaluations, reported in draft and final environmental impact statements, of proposed light-water-cooled nuclear power reactors for which applications for construction permits were docketed since 1971. The total body man-rem associated with noble gas and liquid releases for radwaste systems and equipment found acceptable under the design objectives proposed by the staff were small, i.e., less than 10 man-rem for the annual noble gas releases and less than 5 man-rem for the annual liquid releases in almost all cases. As a consequence, it can reasonably be concluded that reduction of population dose by augmentation of the noble gas and liquid radwaste treatment systems was not likely to be achieved without exceeding the \$1000/man-rem criterion.

**A. Boiling Water Reactor Cost-Benefit Analyses.** Sources of radioiodine releases in boiling water reactors are:

1. Reactor building vent.

2. Auxiliary building vent.
3. Radwaste building vent.
4. Turbine building vent.
5. Turbine gland seal condenser exhaust.
6. Main condenser vacuum pump.
7. Condenser air ejector exhaust.

The last source was assumed to be treated such that the iodine-131 release is negligible compared with the other sources.

Additional radwaste equipment considered included: charcoal adsorbers for building ventilation exhaust (Sources 1, 2, 3, 6) and equipment for clean sealing steam for the turbine gland seal exhaust and for sealing valve stems in the steam system (Sources 4, 5). The charcoal adsorbers reduce the iodine-131 release to approximately 10% of the expected release without the filters. The turbine gland seal condenser exhaust releases can be reduced to negligible levels by the use of clean steam. Releases from the turbine building vent can be reduced approximately 80% by using clean steam on valves, 2.5-in. and larger, in the turbine building.

The cost of the additional equipment is greater than the benefit of reduced population exposure (at \$1000/man-rem) in all cases. Accordingly, such additional equipment for boiling water reactors would not be justified according to the criterion of Section II.D of Appendix I.

**B. Pressurized Water Reactor Cost-Benefit Analyses.** Sources of iodine-131 releases in pressurized water considered were:

1. Containment.
2. Auxiliary building vent.
3. Turbine building vent.
4. Condenser air ejector exhaust.
5. Blowdown flash tank vent.

Reduction in released activity can be achieved with charcoal adsorbers (Sources 1, 2, 4), with clean sealing steam for valves (Source 3), and by installation of a piped blowdown flash tank vent to the main condenser or feedwater heater (Source 5). As with boiling water reactors, charcoal adsorbers can reduce the activity approximately 90 per cent. Clean sealing steam effects an 80% reduction in releases. The blowdown flash tank vent source can be eliminated by routing the release to the main condenser or feedwater heater.

With respect to the pressurized water reactor containment as a source of effluent release, the estimated cost of charcoal adsorbers was based upon a plant having a low volume purge system in the initial design stage. Charcoal adsorbers cannot be installed in plants which have a high volume purge system for less than \$1000/man-rem. Most pressurized water reactors for which license applications have been docketed after January 2, 1971, fall into this latter category. Those which have a low volume purge system are located on sites where the reduction in population exposure is less than 100 man-rem per curie of iodine-131, so that the cost of installation of charcoal adsorbers is greater than \$1000/man-rem.

Based on the foregoing, there is no need, on a cost-benefit basis, to apply the requirements of Paragraph II.D of Appendix I of Part 50 to those light-water-cooled nuclear power reactors having

radwaste systems and equipment determined to be acceptable under the proposed staff design objectives. Accordingly, Paragraph II.D of Appendix I has been amended to specify that persons who have filed applications for construction permits for light-water-cooled power reactors which were docketed on or after January 2, 1971, and prior to June 4, 1976, need not comply with the cost-benefit requirements of that paragraph if the radwaste systems and equipment described in the preliminary or final safety analysis report and amendments thereto satisfy the design objectives proposed by the staff in the Appendix I rulemaking proceeding.

Because the amendments will result in no appreciable change in the population exposure from the affected plants than would result if the amendments were not promulgated, the Commission has found that notice of proposed rulemaking and public procedure thereon are unnecessary. Since the amendments relieve from restrictions imposed under regulations currently in effect, they may, pursuant to 5 U.S.C. 553, become effective immediately.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 and sections 552 and 553 of Title 5 of the United States Codes, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50, are published as a document subject to codification.

40 FR 58847  
Published 12/19/75  
Effective 1/19/76

### PART 20—STANDARDS FOR PROTECTION AGAINST RADIATION PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Change of Terminology for "As Low As Practicable" Limits

On May 5, 1975, the Nuclear Regulatory Commission published in the *FEDERAL REGISTER* its decision in the rule making proceeding concerning numerical guides for design objectives and limiting conditions for operation to meet the criterion "as low as practicable" for radioactive material in light-water-cooled nuclear power reactor effluents, including amendments of 10 CFR Part 50 which became effective June 4, 1975.

In its decision, the Commission noted that during the pendency of the rule making, the International Commission on Radiological Protection, in ICRP Publication No. 22 has replaced the phrase "as low as practicable" with "as low as is reasonably achievable" in its recommendation on dose limitation. The Commission, in its decision, endorsed the attempt to make this basic concept of radiation protection more understandable and directed the staff to prepare and issue for public comment a proposed rule that would substitute the currently accepted phrasing "as low as is reasonably achievable" for the older, less precise terminology where it appears in the



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regulations.

In accordance with the Commission's directive the staff prepared proposed amendments of 10 CFR Parts 20 and 50 which would substitute the term "as low as is reasonably achievable" for the term "as low as practicable."

The notice of proposed rule making was published in the *FEDERAL REGISTER* on August 6, 1975 (40 FR 33029) inviting public comments by October 6, 1975.

Only one comment was received. The commenter expressed the view that some confusion and problems of practical application would result from the words "other societal and socioeconomic considerations" in the proposed amendments of §§ 20.1(c) and 50.34a(a). The commenter indicated that questions would be raised as to whether the quoted words are within the regulatory and statutory public health and safety concepts and whether the words really add anything to the regulations.

It is the Commission's view that the words "other societal and socioeconomic considerations" are consistent with the recommendation on dose limitation of the International Commission on Radiological Protection in ICRP Publication No. 22, serve to clarify the term "as low as is reasonably achievable", and should be included in the amendments.

Notice is hereby given that the proposed amendments are adopted without change and are set forth below.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 20 and 50 set forth below are published as a document subject to codification.

organization Act of 1974<sup>1</sup> was enacted into law. This Act provided for the abolition of the Atomic Energy Commission. Section 201 of this Act provided for the establishment of a Nuclear Regulatory Commission and a transfer to this new Commission of all the licensing and related regulatory functions of the Atomic Energy Commission. In addition, section 301 of the Act provided that any proceedings pending before the AEC at the time of its abolition shall, to the extent that such proceedings relate to functions transferred by the Act, be continued.

Upon consideration of the comments received and other factors involved, the Nuclear Regulatory Commission has adopted the proposed amendments with certain modifications in the form set forth below. These amendments have been changed substantially in § 50.55a(g), "Inservice Inspection Requirements", to provide consistency in design requirements and to minimize interference with the established equipment procurement practices and inservice examination practices of the nuclear power industry. Some of the more significant changes to § 50.55a(g) from the proposed rule are:

a. The effective rule requires that an operating license for a utilization facility be subject to the conditions specified in § 50.55a(g), "Inservice Inspection Requirements."

b. To eliminate the misconception that the design of components needs to be continually modified and to provide a consistency between the design requirements for inspectability and the design requirements for construction, the provision on design requirements for inspectability of components has been changed to refer to the same code edition which is applied to the construction of such components.

c. The rule specifies inservice inspection requirements which apply to utilization facilities whose construction permits were issued prior to January 1, 1971.

d. Provisions in the rule for continued updating of requirements for inservice inspection to achieve compliance with more recent editions of the referenced code have been simplified and permit examination and testing programs to be updated at intervals of 40- and 20-months, respectively.

e. The rule specifies actions to be taken by a licensee when a revised inservice inspection program for a facility conflicts with the technical specifications or when a requirement of a subsequent edition of the referenced code is deemed impractical by the licensee and is not included in the inservice inspection program.

f. A provision has been added to the rule that the Commission may either (1) exempt the licensee from certain requirements determined to be inequitable and for which compliance may result in an undue burden without providing a significant increase in safety or (2) require the licensee to follow an augmented program when the Commission deems that

additional assurance of structural reliability is necessary.

The Commission believes these changes adopted will facilitate the orderly application of new inservice inspection requirements in Section XI of the ASME Code which are incorporated by reference to operating nuclear power plants without causing significant modifications to the plant or an intolerable impact on the inservice inspection program. Also the Commission believes these changes adopted will provide an equivalent increase in the protection of the health and safety of the public to that which would be provided by the proposed rule.

The amendments to § 50.55a set forth below which the Commission has adopted include the following:

a. References to published codes and addenda whose requirements must be met were changed to include Addenda through the Winter 1973 Addenda.

b. For a utilization facility for which a construction permit is issued on or after July 1, 1974 the rule requires that the determination of which code revision applies to a component be based on the docket date of the application for a construction permit rather than the date of issuance of the construction permit. This change should permit a more accurate assessment by the applicant of the code edition and addenda that will be in effect at the time components are ordered and thereby facilitate his procurement of long lead time components which are ordered well in advance of the construction permit date.

c. The rule modifies inservice inspection requirements applicable to components of nuclear power plants throughout the service life of the facility. Examination and testing requirements that become effective in new editions and addenda of Section XI of the ASME Code and are incorporated by reference in § 50.55a would become applicable to all operating plants to the degree practical. The Commission will review such code changes with respect to impact on the existing operating facilities prior to incorporating by reference any new editions and addenda of Section XI.

The amendments to Appendix G conform the referenced edition and addenda of the ASME Code in that Appendix to those specified by § 50.55a(b), including the periodic amendments and also clarify the upper-shelf energy requirements for beltline materials.

Other amendments delete references to obsolete documents and correct typographical errors.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

41 FR 6256  
Published 2/12/76  
Effective 3/15/76

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Codes and Standards for Nuclear Power Plants and Technical Information

On September 30, 1974, the Atomic Energy Commission published in the *FEDERAL REGISTER* (39 FR 35180) proposed amendments to its regulations, 10 CFR Part 50, "Licensing of Production and Utilization Facilities," which would modify the basis for establishing which revisions of referenced codes and standards should be applied to the construction and operation of certain components of water-cooled nuclear power plants. Also the proposed amendments would incorporate by reference new addenda to the referenced codes and standards, delete obsolete references, correct typographical errors and make minor changes to Appendix G of Part 50. Interested persons were invited to submit written comments for consideration in connection with the proposed amendments by October 30, 1974.

On October 11, 1974 the Energy Re-

<sup>1</sup> Pub. L. 93-438 (88 Stat. 1233).

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41 FR 15832  
Published 4/15/76  
Effective 5/17/76

### CONSTRUCTION PERMIT OR OPERATING LICENSE

#### Initial Treatment of Application

On September 25, 1974, the Atomic Energy Commission published in the **FEDERAL REGISTER** (39 FR 34423) proposed amendments of 10 CFR Parts 2, 50, and 51 which were procedural changes pertaining to the initial treatment of an application for a construction permit or facility operating license. Under the proposed procedure a tendered application would be initially reviewed by the staff for completeness. If the application is determined to be complete and acceptable for processing the applicant would be so informed and requested to (a) submit additional copies of the application and environmental report and (b) make direct distribution of additional copies of the documents to Federal, state and local officials.

In accordance with the Energy Reorganization Act of 1974, Pub. L. 93-438, the Nuclear Regulatory Commission which was established January 19, 1975, assumed the licensing and related regulatory functions of the former Atomic Energy Commission.

After consideration of the comments received and other factors involved, the Nuclear Regulatory Commission has adopted the proposed amendments. The text of the rule set forth below is the same as the text of the proposed rule except for the following:

(a) Proposed § 2.101(a)(3)(iii) would have required the applicant to make direct distribution of additional copies of the application and environmental report to Federal and State officials, and other interested persons in accordance with written instructions furnished to the applicant by the staff. A sentence has been added to § 2.101(a)(3)(iii) that "Such written instructions will be furnished as soon as practicable after all or any part of the application, or environmental report, is tendered".

(b) Paragraph 2.101(a)(3)(iii) would have required that the copies of the application and environmental report submitted to the staff and distributed by the applicant be completely assembled documents, identified by docket number. Language has been added that "Subsequently distributed amendments to applications, however, may include revised pages to previous submittals and, in such cases, the recipients will be responsible for inserting the revised pages".

(c) A sentence has been added also to § 2.101(a)(4) that "Distribution of the additional copies shall be deemed to be complete as of the time the copies are deposited in the mail or with a carrier prepaid for delivery to the designated addressees".

(d) Changes to § 2.101(a)(5) have been made to conform with the amendments of § 2.101(a) published on September 25, 1974 (39 FR 34394) to allow applicants to submit the information re-

quired by Part 50 in three parts.

(e) Paragraph 50.30(c)(1)(i) has been changed to specify that 30 copies of the safety analysis report and 10 copies of the general information shall be retained by the applicant for direct distribution, or submitted upon request, in accordance with instructions by the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards, as appropriate. The proposed rule did not indicate the number of copies to be retained for this purpose. Additional copies may be required for applications having a unique design or with unusual or multiple sites.

(f) Section 51.40 currently requires that applicants covered by § 51.5(a) submit a total of 200 copies of the environmental report. This number has been reduced to a total of 150 copies. Paragraph 51.40(b) requires that applicants for a license to construct and operate a production or utilization facility (including amendments to such applications) shall submit 41 copies of the environmental report and retain an additional 109 copies to be submitted upon request or distributed in accordance with written instructions issued by the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards, as appropriate. The number of copies of the environmental report to be submitted with a petition for rule making has been reduced from 80 to 50 copies. Conforming amendments have been made to §§ 51.20(f) and 51.21.

One commenter noted the significant cost, handling, and storage problems involved when dealing with page copy of safety analysis reports and environmental reports, and suggested that the Commission change its requirements to permit most of the required copies of reports to be submitted in microform. The staff has underway a study to determine the feasibility of adopting a computerized automatic retrieval system using microform, and this suggestion will be considered in the conduct of that study.

Noting that § 2.101(a)(5) provided that docketing can be accomplished if one part of the application is complete, a commenter questioned whether the procedure for direct distribution would apply where one part of the application would be complete. It is the intent of the rule that the provision for direct distribution apply to each part of the application which is complete.

It was also suggested that copies be made available on a purchase basis to the interested individuals concerned. The copies to be distributed in accordance with instructions by the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards are limited to Federal, State, and local officials and the public through the Technical Information Center, and it would not be appropriate to charge for such copies.

A number of commenters objected to the revised procedure as an unwarranted shift of the administrative support function from the staff to the applicant.

The revised procedure would result in some savings to the Commission and

some additional costs to the applicants. Aside from these considerations, it is the Commission's view that the revised procedure is a step in the right direction of removing the NRC from the business of serving as a distribution center for applicants' documents. Further, the revised procedure is more efficient than the present procedure since the majority of copies of applications and amendments received by the NRC are repackaged and distributed outside the NRC. Direct distribution by the applicant of the additional copies of the application and environmental report would result in recipients outside the NRC receiving the documents from 8 to 10 days earlier than under the present procedure.

One commenter expressed the view that a tendered application should be formally docketed at the time the staff determines it is complete and acceptable. The Commission considers, however, that the application should not be formally docketed until the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards, as appropriate, has received the required copies of the application and environmental report since a full review of these documents by the technical staff cannot begin until the required number of copies are received.

The amendments set forth below amend Parts 2 and 50 with respect to the initial treatment of an application for a construction permit, or operating license, for a production or utilization facility, or an application for amendment of a construction permit or operating license. If it is determined that the tendered application, including any environmental report required by Part 51 of the Commission's regulations, is complete and acceptable for processing, the applicant will be informed of this determination and requested to (a) submit to the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards, as appropriate, additional copies of the application and environmental report and (b) make direct distribution of additional copies of the documents to Federal, State, and local officials in accordance with requirements of the Commission's regulations and written instructions furnished by the staff.

The application and environmental report will be formally docketed upon receipt by the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards of the required copies of the application and environmental report. Within ten (10) days after docketing the applicant must provide an affidavit that distribution of the additional copies to Federal, State and local officials has been completed in accordance with regulatory requirements and instructions by the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards. Distribution of the additional copies of the application and environmental report shall be deemed to be complete as of the time the copies are deposited in the mail or with a carrier prepaid for delivery to the designated addressees.

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Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, as amended, the following amendments of Title 10, Chapter I, Code of Federal Regulations, Parts 2, 50, and 51 are published as a document subject to codification.

41 FR 16445  
Published 4/19/76  
Effective 4/19/76

*Miscellaneous Changes to Chapter*

See Part 20 Statements of Consideration.

41 FR 18300  
Published 5/3/76  
Effective 6/2/76

*Preservation of Records*

See Part 20 Statements of Consideration.

41 FR 23931  
Published 6/14/76  
Effective 6/14/76

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Codes and Standards for Nuclear Power Plants

On February 12, 1976, the Nuclear Regulatory Commission published in the FEDERAL REGISTER (41 FR 6256) amendments of the Commission's regulation 10 CFR Part 50, which, among other changes, modify the inservice inspection requirements applicable to components and systems of nuclear power reactors through the service life of the facility.

The prefatory language of § 50.55a published on February 12, 1976 states that "each operating license for a utilization facility shall be subject to the conditions in paragraph (g) \* \* \*". The code incorporated by reference in paragraph (g) applies solely to boiling and pressurized water-cooled nuclear power facilities. It appears that use of the overly broad term "utilization facility" in the prefatory language can be construed to apply the ASME Code to facilities not presently covered by it. It was not intended that § 50.55a expand the applicability of section XI of the ASME Code to facilities other than those power reactors to which this Code applies.

Accordingly, the Commission is issuing clarifying amendments to the prefatory language of § 50.55a and to § 50.55a (g) to clarify this intent.

Inasmuch as the amendments set forth below are of a minor nature, good cause exists for omitting notice of proposed rule making, and public procedure thereon, as unnecessary, and for making the amendments effective June 14, 1976.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

41 FR 31521  
Published 7/29/76  
Effective 7/29/76

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Number of Copies of Amendments to Safety Analysis Report

Section 50.30(c)(1)(i) of 10 CFR Part 50 provides that each application for a license to construct and operate a production or utilization facility (including amendments to such applications) should include three signed originals and a specified number of copies. With respect to copies of the safety analysis report, § 50.30(c)(1)(i) requires that 40 copies be submitted to the NRC staff and 30 copies be retained by the applicant for distribution in accordance with the written instructions of the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards, as appropriate.

An initial submission of 40 copies of the safety analysis report is adequate for staff review since it is practicable to break a set of each safety analysis report into sections so that more than one staff member may work concurrently with a single SAR. It is not feasible, however, in most instances to divide an amendment to the SAR so that it may be reviewed concurrently by more than one staff member. In many instances, the staff must reproduce additional copies of the amendments.

Accordingly, the Commission is increasing the number of copies of amendments to the safety analysis report which must be submitted to the staff from 40 to 60 copies. This increase in the number of copies to be submitted will materially contribute to the expeditious review of the amendments to the SAR.

Because this amendment relates solely to minor procedural matters, notice of proposed rule making and public procedure thereon are unnecessary and good cause exists to make the amendment effective on July 27, 1976.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to Title 10, Code of Federal Regulations, Part 50 is published as a document subject to codification.

42 FR 20138  
Published 4/18/77  
Effective 4/18/77

*Corrective and Minor Amendments to Chapter*

See Part 0 Statements of Consideration.

42 FR 22882  
Published 5/5/77  
Effective 6/6/77

### PART 2—RULES OF PRACTICE

#### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

##### Early Site Reviews and Limited Work Authorizations

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final Rule.

**SUMMARY:** The rule which follows establishes procedures for the early review of site suitability issues both separate from and in conjunction with the initiation of proceedings for the issuance of permits authorizing the construction of nuclear power and test reactors. These procedures would permit an applicant for a construction permit to obtain resolution of important site-related issues which may prove dispositive of an application to construct a facility at a particular site well in advance of any substantial commitment of resources. By permitting early review and providing a measure of certainty in this important area, these procedures are expected to increase the effectiveness of the licensing process in resolving legitimate public concerns and to enhance the effectiveness of the nuclear facility planning process.

**EFFECTIVE DATE:** June 6, 1977.

**FOR FURTHER INFORMATION CONTACT:**

Mr. Martin G. Malsch, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, phone 301-492-7203 and Mr. Malcolm L. Ernst, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, phone 301-492-8016.

#### SUPPLEMENTARY INFORMATION:

##### BACKGROUND

On April 22, 1976, the U.S. Nuclear Regulatory Commission published in the FEDERAL REGISTER (41 FR 16835-16839) for public comment proposed amendments to its regulations in 10 CFR Parts 2 and 50 which would provide procedures designed to encourage and facilitate early consideration of site suitability issues associated with nuclear power reactors and other large utilization and production facilities and would extend the so-called "limited work authorization" concept to include production facilities such as commercial isotopic enrichment plants, fuel reprocessing plants and test-



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ing reactors. Interested persons were invited to submit written comments for consideration in connection with the proposed amendments by July 15, 1976 (41 FR 27805, July 1, 1976). Upon consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments with certain modifications as set forth below.

### CHANGES FROM THE PROPOSED RULE

The effective rules follow the basic approach suggested in the proposed regulations and establish procedures for the early review of issues of site suitability both separate from and in conjunction with the initiation of proceedings for the issuance of permits authorizing the construction of certain utilization facilities. These procedures are in accord with the Commission's present statutory authority. They permit any person, including States and other entities, to request a review of site suitability issues, but do not provide for issuance of a partial decision by an atomic safety and licensing board on those issues unless the request for review was made in the context of a construction permit proceeding initiated by a person proposing to construct a nuclear facility. The significant changes from the proposed rule are:

(1) The facilities covered by the effective rule include utilization facilities for which an environmental impact statement must be prepared prior to issuance of a construction permit and which are of the type specified in 10 CFR § 50.21 (b) (2) or (3) or 50.22 (nuclear power reactors) or are testing facilities. After consideration, the Commission decided not to extend the effective rule on early review of site suitability issues or extend the limited work authorization concept to production facilities such as nuclear fuel reprocessing plants or other facilities of the type specified in § 50.21 because this would be premature and unnecessary.

(2) The proposed rule has been modified to provide that an early partial decision on site suitability issues may only be reopened based on significant new information. The provision in the proposed rule that such an early decision could also be reopened for "good cause" has been deleted as duplicative and unnecessary.

(3) To eliminate needless argument on such matters as the content of a "full" site approval and the relation between site and design issues, the effective rule eliminates the references to and attempts to distinguish between full and partial site approvals in the proposed rule. Related to this, the final sentence in § 2.604(b) of the proposed rule which would have provided that a partial decision on all site suitability issues shall serve as the decision on general site suitability issues required by § 50.10(e) (2)(ii) has been deleted. Whether an early partial decision would serve as the decision on general site suitability issues would depend on the nature and scope of the decision and would be decided during the limited work authorization review and decision process.

(4) The provisions in paragraph 4 of Appendix Q of the proposed rule relating to the binding effect of staff site ap-

provals on later staff reviews have been revised to more clearly reflect the intent of the proposed rule that the staff's testimony on site suitability issues before an Atomic Safety and Licensing Board need not coincide with a previous review under Appendix Q where there is good reason for the difference in light of the provisions that the staff review under Appendix Q does not in any way limit the authority of the Atomic Safety and Licensing Board, Atomic Safety and Licensing Appeal Board, or the Commission.

(5) In order to provide added assurance that early reviews of site suitability issues will yield useful results proportionate to the resources that must be expended in the review, the proposed rule has been revised (§ 2.605 and paragraph 7. of Appendix Q) to include several additional grounds on which the Commission, upon its own initiative or on motion of a party, may decide not to initiate an early review. These criteria reflect the present Commission practice regarding initiation of separate hearings on site suitability issues (See Potomac Electric Power Company (Douglas Point Nuclear Generating Station, Units 1 and 2) ALAB-277, 1 NRC 539 at 547 (1975)). The criteria include such public interest considerations as the degree of likelihood that early findings on site suitability issues will retain their validity in later reviews and the possible effect on the public interest and interested parties of early, but not necessarily conclusive, resolution of site suitability issues. In addition, the criterion in the proposed rule designed to avoid prejudicing later NEPA reviews has been retained, and a new criterion has been added to accommodate possible objections to the early review of site suitability issues by cognizant state or local government agencies in particular cases. Finally, the effective rule provides that only one review of site suitability issues could be conducted prior to the full NEPA construction permit review.

(6) A provision has been added for soliciting the views of NEPA commenting agencies on the initiation of an early review of site suitability issues.

(7) Other minor or clarifying changes were made to:

Define more exactly the period of time during which a partial decision on site suitability matters is effective;

Provide more specific guidance concerning the time for filing and content of the respective parts of a construction permit application;

Obtain information concerning alternative sites, the applicant's site selection process and the applicant's plans for ultimate development of the site;

Clarify that no limited work authorization or construction permit can be issued without completion of the full NEPA review.

These changes are described more fully below in the detailed explanation of the effective rules.

### EXPLANATION OF THE EFFECTIVE RULES

Under the amendments to 10 CFR Part 2, applicants for construction permits may request early review, hearing

and partial decision on specific site suitability issues as much as five years in advance of the submittal of the remaining portions of their construction permit applications. The effective regulations contain a schedule which specifies when the several parts of a construction permit application are to be filed and the procedures governing acceptance review and formal docketing of these submittals. Absent a finding by the Commission, the Atomic Safety and Licensing Appeal Board, or the Atomic Safety and Licensing Board that there exists significant new information that substantially affects the conclusions of the partial decision on site suitability issues and necessitates reopening the hearing record, the regulations provide that a partial decision on site suitability issues shall remain in effect either for a period of five years or, where the applicant has made timely submittal of the remainder of his application, until the conclusion of the pending construction permit proceeding. The effective rule provides that the Commission may, upon good cause shown, extend the five year period during which a partial decision shall remain in effect for an additional reasonable period of time, not to exceed one year. The effective rule also provides that any partial decision on a site suitability issue or issues shall be incorporated in the decision regarding issuance of a construction permit to the extent that it serves as a basis for the decision on a specific site suitability issue or issues.

Within the last year or so, a number of utilities have found it necessary, for various economic and financial reasons, to cancel or postpone plans for the construction of nuclear power plants. It is the Commission's intent that the procedures for early review, hearing and partial decision of site suitability issues provided in these regulations for construction permit applicants shall be available to all qualified construction permit applicants, including applicants who did not request early review of site suitability issues at the time of their initial application but who later decide, following postponement of the target date for actual construction of the facility, that this procedure would be advantageous. All such requests must be accompanied by the information prescribed in the effective rule, and will be subject to the same acceptance review. The requirements in the effective rule for filing the remaining parts of the construction permit application must also be followed.

Persons who do not seek a permit to construct a facility may use the procedures in new Appendix Q to 10 CFR Part 50. Under these procedures, interested persons, including States, may request a Commission staff review of site suitability issues at any time. This review, which does not involve a public hearing, culminates in the issuance of a staff site report which identifies the location of the site, states the site suitability issues reviewed, explains the nature and scope of the review and states the conclusions of the staff regarding the issues reviewed and the reasons for those conclusions. The procedures in

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Appendix Q require the Commission staff to publish a notice of availability of its report in the Federal Register and to place copies of the report in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C., and in local public document rooms located near the site identified in the report. The Commission staff is also required to send a copy of the report to the Governor or other appropriate official of the State in which the site is located, and to the chief executive of the municipality in which the site is located, or if the site is not located in a municipality, to the chief executive of the county.

Although Appendix Q explicitly states that issuance of a staff site report does not constitute a commitment on the part of the Commission to issue a permit or a license or to permit site work to go forward pursuant to a limited work authorization (10 CFR § 50.10(e)) and does not affect in any way the authority of the Commission, appeal board, or licensing boards in any proceedings conducted pursuant to 10 CFR Part 2, Subparts F<sup>1</sup> and G, Appendix Q permits applicants for construction permits to reference previously issued Staff Site Reports in their applications. Consistent with Subpart F, the staff would reexamine the conclusions of its early review of site suitability issues, contained in the Staff Site Report, under Appendix Q after five years. Before that time, the conclusions of the Report would only be reexamined if there were good reason for doing so.

The regulations contain certain requirements which the Commission considers essential in order to assure that the procedures for early review of site suitability issues contribute effectively to and are meaningfully integrated into the licensing process. These requirements provide mechanisms which should enable the Commission (1) to reach a viable accommodation between the need to make licensing decisions on the most up-to-date information available and the need to curtail repetitive consideration of previously decided issues, (2) to avoid prejudicing the conclusions of any later review of NEPA (National Environmental Policy Act of 1969) issues regarding alternative siting, (3) to assure that early review of site suitability issues will yield results proportionate to the resources that must be expended in the review, and will not undermine the ability of interested citizens groups and other persons to participate effectively in the site review process, and (4) to consider the views of cognizant state and local agencies with regulatory authority over the proposed site and plant.

These requirements, which are applicable to all requests for early review of site suitability issues, whether submitted by applicants for construction permits or others, prescribe the kind of information which must be supplied in order for the Commission to consider a request for

early review of site suitability issues, and specify criteria on which the Commission may base its refusal to perform such a review.

For example, applicants for construction permits who seek early review of site suitability issues are required by § 2.101(a-1)(1) to submit proposed findings, together with a supporting statement, on the issues of site suitability submitted for review, and to provide information on a range of postulated facility design and operation parameters sufficient to enable the Commission to perform the requested review. Applicants for construction permits are also required by §§ 2.101(a-1)(1) and 2.603(b)(1) to submit descriptions of their site selection process which explain the extent to which that process involves the consideration of alternative sites and the relationship between that process and the application for early review of site suitability issues. Applicants are also required to provide a brief description of their long-range plans for ultimate development of the site. Section 2.605 of the regulations provides that the Commission, on its own initiative or on motion of any party to the proceeding, may decline to initiate an early hearing or render an early partial decision on any issue or issues of site suitability in connection with a construction permit application in cases where no partial decision on the relative merits under Part 61 of the proposed site and alternative sites is requested, upon determination that there is a reasonable likelihood that further review would identify one or more preferable alternative sites and the partial decision on one or more site suitability issues would lead to an irreversible and irretrievable commitment of resources prior to the submittal of the remainder of the required information that would prejudice the later review and decision on such alternative sites. By requiring applicants to furnish information concerning their site selection process as part of their request for early review and by providing for the findings described above, the Commission expects to avoid significant premature commitments of resources to sites which may prove unacceptable when compared with alternative sites.

Section 2.605 of the regulations also provides that the Commission may decline to initiate an early review or render an early partial decision in cases where an early partial decision on any issue or issues of site suitability would not be in the public interest considering (a) the degree of likelihood that any early findings on those issues would retain their validity in later reviews, (b) the objections, if any, of cognizant state or local government agencies to the conduct of an early review on those issues, and (c) the possible effect on the public interest and the parties of having an early, if not necessarily conclusive, resolution of those issues. In this regard, the views of appropriate Federal, State, and local agencies would be considered in connection with the initiation of any early site review. Finally only one review of site suitability issues (either under Subpart F of 10 CFR Part 2 or Appendix

Q to 10 CFR Part 50) could be conducted with regard to a particular site prior to the full NEPA construction permit review.

The Commission staff will follow criteria similar to those in § 2.605 in deciding whether to prepare and issue a Staff Site Report in response to a request submitted pursuant to Appendix Q.

Many of the comments favoring adoption of the rule considered its capacity to yield final dispositive decisions crucial to its success. Several commentators suggested that approved sites be "grandfathered" to insulate them from new regulatory requirements imposed during the period the approval is effective. The Commission recognizes the importance of finality in its decisions and has endeavored to assure this in substantial measure by providing that partial decisions on site suitability issues will remain effective for five years or until the conclusion of the construction permit proceeding, by specifying criteria for reopening site suitability decisions, and by providing that partial decisions and Staff Site Reports be as detailed and explicit as possible. The stature of a partial decision on site suitability issues is emphasized in the effective rule by providing that the partial decision shall be incorporated in the decision regarding issuance of a construction permit to the extent that the partial decision serves as the basis for deciding a specific site suitability issue or issues.

Moreover, at the same time, the Commission also recognizes the need to assure that up-to-date information of significance in both the health and safety and the environmental areas is appropriately factored into the Commission's licensing decisions. Consequently, the effective rule does not automatically immunize previously reviewed sites from new regulatory requirements. Whether later adopted regulatory requirements will be imposed on a previously reviewed site (i.e., constitute significant new information that substantially affects the prior conclusions) will be decided based on the content of the new requirements.

Several commentators suggested the adoption of more stringent standards for reopening decisions, such as, for example, the showing of a need to provide substantial additional protection for the public health and safety or the common defense and security, the finding required in 10 CFR § 50.109 to justify backfitting requirements. The Commission believes that the standard enunciated in the proposed rule and largely retained in the effective rule will prove effective both in bringing significant new information to the attention of the Commission and in preserving, to the fullest extent possible, the advantages, from the standpoint of certainty, which are expected to result from early review, hearing and partial decision on site suitability issues.

The effective rule eliminates references to and attempts to distinguish between full and partial site approvals to eliminate needless argument regarding the content of a "full" site approval and the relation between site and design

<sup>1</sup> Subpart F provides for early review of site suitability issues in connection with construction permit applications.

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issues. Any effective partial decision on one or more site suitability issues could still serve as the finding of general site suitability called for by 10 CFR 50.10 (e) (2) (ii) depending on the nature and scope of the decision. While the effective rule would allow completion of all or part of the National Environmental Policy Act of 1969 (NEPA) environmental impact statement at an earlier point in time than would be the case if no early site review were conducted, in no case could a limited work authorization or construction permit be granted without a full NEPA environmental impact statement. The rule does not permit any "gaps" in the environmental impact statement.

It is anticipated that environmental concerns will play an important role in the consideration and resolution of site suitability issues. Applicants for construction permits who request early review of environmental site suitability issues will be expected to furnish information concerning the issues addressed, and the Commission staff will conduct its own assessment and review following procedures that are consistent with the review procedures prescribed in NEPA for environmental impact statements. The effective regulation permits a similar procedure to be followed in connection with an Appendix Q review. Since the scope of the NEPA review will depend in any given instance on the nature and scope of the site suitability issues submitted for review, the effective rule does not delineate general requirements for environmental review. The Commission expects that the details of this review will be handled on a case-by-case basis. With respect to its responsibilities under the National Historic Preservation Act of 1966, as amended (16 U.S.C.A. 470 et seq.) and the Archaeological and Historic Preservation Act of 1974 (Pub. L. 93-291, 16 U.S.C.A. 469-469c), the Commission expects that any concerns relating to the preservation of historical, archaeological, architectural or cultural resources which may arise during early review of site suitability issues will be handled in a similar manner.

One of the comments suggested that the rule explicitly provide for joint hearings and increased coordination with the states. The Commission believes that duplicative environmental assessments should be avoided to the extent practicable and that the coordination of federal and state facility siting and environmental reviews should be encouraged.

At the same time, the Commission is of the opinion that, at least in the immediate future, this objective can best be achieved on a case-by-case basis. Accordingly, no specific provisions respecting joint hearings have been included in the effective rule.

The proposed rule would have amended 10 CFR 50.10(e) to extend the Commission's authority to issue limited work authorizations to applicants seeking permits to construct production facilities such as commercial isotopic enrichment plants and reprocessing plants,

and testing reactors. After further consideration of this matter, this provision has been eliminated in the effective rule as premature and unnecessary.

In order to provide additional guidance to persons who seek early review of site suitability issues in accordance with the provisions of the effective rule, the Commission staff is simultaneously issuing a report entitled "Early Site Reviews for Nuclear Power Facilities" (NUREG-0180) which describes procedures to be followed by construction permit applicants and others and delineates the nature and scope of some of the more significant areas of technical review. Copies of NUREG-0180 are available for inspection by the public at the NRC's Public Document Room at 1717 H Street, NW., Washington, D.C., and at the NRC's Local Public Document Rooms. Copies of NUREG-0180 may also be purchased from The National Technical Information Service, Springfield, Virginia 22161.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 2 and 50 are published as a document subject to codification.

42 FR 43385

Published 8/29/77

Effective 8/29/77

*Revocation or Modification of Certain Reporting Requirements*

See Part 140 Statements of Consideration.

43 FR 6915

Published 2/17/78

Effective 5/3/78

*Export and Import of Nuclear Facilities and Materials*

See Part 110 Statements of Considerations.

43 FR 11962

Published 3/23/78

Effective 6/6/78

*Licensee Safeguards Contingency Plans*

See Part 73 Statements of Consideration.

43 FR 18538

Published 5/1/78

Effective 5/1/78

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Minor and Clarifying Amendments

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Commission's "Licensing of Production and Utilization Facilities" is hereby amended. The amendments make changes relating to the service of copies of an updated application for a license to construct a production or utilization facility so as to reflect the current practice regarding the NRC officers who are to receive copies of such updated applications. The amendments also provide clarifying language as to when the application should be updated, and substitute clarifying language regarding the service of copies of any subsequent amendments to the application.

EFFECTIVE DATE: May 1, 1978.

FOR FURTHER INFORMATION  
CONTACT:

Royal J. Voegell, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301-492-7437.

SUPPLEMENTARY INFORMATION: 10 CFR 50.30(c)(2) presently provides that an applicant for a license to construct a production or utilization facility who has updated its application shall, upon notification of the appointment of an atomic safety and licensing board to conduct the public hearing required by the Atomic Energy Act for the issuance of a construction permit, serve copies of such updated application on each atomic safety and licensing board member and alternate, the Chairman of the Atomic Safety and Licensing Board Panel, the Office of the Secretary, and the Director of Nuclear Reactor Regulation or the director of Nuclear Material Safety and Safeguards. The current NRC practice is to not require serving copies on the Office of the Secretary, the Chairman of the Atomic Safety and Licensing Board Panel, the Director of Nuclear Reactor Regulation or the Director of Nuclear Material Safety and Safeguards. Applicants are, however, requested to serve a copy on the Atomic Safety and Licensing Appeal Panel. In order to reflect the current practice, the present amendments delete the language designating the NRC officers who are to be served copies of the updated application, and provide instead that copies shall be served as directed by the atomic safety and licensing board appointed to conduct the public hearing on the application. In addition, the amendments provide that the applicant shall serve a copy on the Atomic Safety and Licensing Appeal Panel, and that at the time the application is offered into evidence at the public hearing on the application, the applicant shall provide sufficient updated copies so that one may be served by the Office of the Secretary upon the Atomic Safety and Licensing Appeal Panel. The amendments also provide clarifying language as to when the application is to be updated by providing that the applicant shall

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update its application when notified to do so by the atomic safety and licensing board appointed to conduct the public hearing on the application. The amendments also substitute clarifying language regarding the service of copies of any subsequent amendments to the application.

Because these amendments relate solely to minor matters, it has been found that good cause exists for omitting notice of proposed rule making, and public procedure thereon, as unnecessary, and for making the amendments effective upon publication in the *FEDERAL REGISTER* (May 1, 1978).

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

43 FR 34764

Published 8/7/78

Effective 9/6/78

### PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Maintaining Integrity of Structures, Systems, and Components Important to Safety During Construction at Multiunit Sites

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require that, for multiunit sites, applicants for construction permits and operating licenses take proper precautions to assure the integrity of structures, systems, and components important to the safety of the operating unit or units during all construction activities. The amendments are being made in response to a petition for rulemaking filed by the Business and Professional People for the Public Interest. A notice of proposed rulemaking inviting public comments was published in the *FEDERAL REGISTER* on July 14, 1977. The effect of the amendments will be to formalize and clarify specific requirements as they apply to multiunit sites and to codify existing licensing practice. The rule would apply to applications received 6 months after the effective date of the rule.

**EFFECTIVE DATE:** September 6, 1978.

**FOR FURTHER INFORMATION CONTACT:**

Mr. Morton R. Fleishman, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301-443-5921.

**SUPPLEMENTARY INFORMATION:** By mailgram dated March 24, 1975, the Business and Professional People for the Public Interest (BPI), David Dinsmore Comey, director of environmental research, requested that the Nuclear Regulatory Commission (NRC) amend its regulation, 10 CFR part 50, to require licensees to shut down operating units of nuclear power units at multiunit facilities during periods when work on a unit under construction could compromise the integrity of the engineered safety features of an operating unit or units. As a basis for the petition, the petitioners referred to the fire which occurred on March 22, 1975, in the electrical cabling at TVA's Browns Ferry Nuclear Station.

A notice of the filing of a petition for rulemaking was published in the *FEDERAL REGISTER* on May 9, 1975 (40 FR 20371). Three sets of comments were received regarding the petition. All recommended denial of the petition on the general basis that the existing regulations provided the Commission with measures to deal with such situations as the petitioners had stated.

The Commission reviewed the applicable portions of the regulations as well as the manner in which the NRC staff conducts its licensing reviews and concluded that, while the present regulations and staff procedures during licensing reviews do provide a basis for effective action to be taken relative to safety at multiunit sites, the importance of the safety issues raised warranted amending the regulations to add specific requirements in this area. As a result, on July 14, 1977, the Commission published in the *FEDERAL REGISTER* (42 FR 36268) a notice of proposed rulemaking inviting written suggestions or comments on the proposed rule by August 29, 1977. The purpose of the proposed amendments was to formalize and clarify the specific requirements as they apply to multiunit sites and to explicitly state where and how the information developed should be presented.

Four persons submitted comments regarding the proposed amendments. Copies of the comments received may be examined in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C. Generally, comments either were similar to the comments received after publication of the notice of the petition for rulemaking or were similar to questions that were raised internally among the Commission's staff during the preparation of the proposed rule. For example, one of the commenters wanted to apply the rule to general maintenance and repair activities as well as construction activities. This was considered during the proposed rule phase and it was concluded that the existing regulations clearly covered such other activities. Another commenter suggested that it would be

more appropriate to provide guidance on the subject in a regulatory guide. This question was also previously considered and it was decided that, since the regulations did not specifically address multiunit sites, they should be appropriately amended.

Another commenter questioned the practicality of requiring applicants for construction permits to identify potential hazards and recommended that the rule be restated to elicit how the construction activities will be controlled to assure the integrity of the operating reactor. Since the applicant for the construction permit for the new unit may not necessarily be the same as the licensee of the operating plant, the applicant might have no control over the operating plant. For this reason, the Commission thinks it would be more desirable to divide the responsibilities under the rule between the applicant for the new unit and the licensee for the existing unit. Further detailed guidance relative to specific safety items will be provided by appropriately revising Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants."

Another commenter felt that the present regulations were adequate and need not be amended. This option was also previously considered but the NRC believed that although the existing regulations do provide a basis for action, they do not explicitly cover construction at multiunit sites and thus should be clarified.

As previously indicated, no significant new adverse comments or significant questions have been received as a result of the notice of proposed rulemaking. Accordingly, after consideration of the comments that were received and other factors, the Commission has adopted the proposed amendments to part 50 without change as set forth below.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR part 50 are published as a document subject to codification.

43 FR 49775

Published 10/25/78

Effective 10/25/78

### PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Revocation of Certain Reporting Requirements

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

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**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulation "Domestic Licensing of Production and Utilization Facilities" to revoke two reporting requirements on antitrust information and to revoke a requirement for retention of 25 copies of the antitrust report during the antitrust review. These requirements are no longer needed.

**EFFECTIVE DATE:** October 25, 1978.

**FOR FURTHER INFORMATION CONTACT:**

Gerald L. Hutton, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301-492-7086.

**SUPPLEMENTARY INFORMATION:** Paragraph (c) of § 50.33a requires that any person who applies for a construction permit for a nuclear power reactor prior to July 28, 1975, shall submit the document titled "Information Requested by the Attorney General for Antitrust Review" as soon as possible. This paragraph (c) is being revoked on the basis that all antitrust reports required by paragraph (c) have been submitted.

Section 50.55b requires antitrust reports as a condition of certain construction permits and operating licenses. Section 50.55b is being revoked on the basis that all antitrust reports that may be required as a condition of the construction permits or operating licenses specified in § 50.55b have been submitted.

The last sentence of the introduction of appendix L of 10 CFR Part 50 requires the applicant to retain not less than 25 additional copies of the document titled "Information Requested by the Attorney General for Antitrust Review," to be available as needed during the antitrust review. Experience to date indicates that the 25 additional copies are not needed in the event of an antitrust hearing. Accordingly, this requirement is being revoked as unnecessary.

Because these amendments relate solely to minor matters, good cause exists for omitting notice of proposed rulemaking, and public procedure thereon, as unnecessary. Since the amendments are of a relieving nature and do not impose obligations on persons other than the Nuclear Regulatory Commission, the Commission has found that good cause exists for making the amendments effective immediately without the customary 30-day notice.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

43 FR 50162  
Published 10/27/78  
Effective 11/27/78

### PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

#### Standards for Combustible Gas Control Systems

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to clarify the Commission's position on its general design criterion regarding the Containment Design Basis and to provide a new section specifying the standards for combustible gas control systems.

**EFFECTIVE DATE:** November 27, 1978.

**FOR FURTHER INFORMATION CONTACT:**

James A. Norberg, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301-443-5921.

**SUPPLEMENTARY INFORMATION:** On October 21, 1978, the Nuclear Regulatory Commission (NRC), published the notice of proposed rulemaking in the *FEDERAL REGISTER* (41 FR 46167). Interested persons were invited to comment on the proposed rule by December 23, 1978. The notice concerned proposed amendments to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to require the applicant or licensee to show that during the time period immediately following a postulated loss-of-coolant accident (LOCA) but prior to effective operation of the combustible gas control system, either: (1) An uncontrolled hydrogen-oxygen recombination would not take place in the containment; or (2) the plant could withstand the consequences of uncontrolled hydrogen-oxygen recombination without loss of safety function. If neither of these conditions can be shown, the containment shall be provided with an inerted atmosphere in order to provide protection against hydrogen burning and explosions during this time period. Standards for combustible gas control systems also were included in the proposed amendments.

It should be noted that under either the proposed rule or the final rule (1) inerting of containment will not likely be required for plants with small containment volume (Mark I and II Boiling Water Reactors) if the licensee or applicant can show that the calculated metal-water reaction will be well within the acceptance criteria for emergency core cooling systems and (2) inerting of containment will not likely be needed for plants with large containment volume (Pressurized Water Reactors and Mark III Boiling Water Reactors) as long as ECCS acceptance criteria are met. The NRC staff has estimated that for all except

two of the plants currently operating or under construction inerting containment would not be needed under this rule.

Fifteen interested persons submitted comments regarding the proposed amendments. The letters generally included numerous specific comments, but the most frequent comments could be roughly divided into three categories:

1. This inerting rule poses risks to plant personnel safety, reduces the number of unscheduled visual inspections, and increases plant operating cost.

2. The rule is too conservative in defining the amount of metal-water reaction.

3. The containment air dilution system requirement of the rule should be clarified and the manner in which the NRC will implement the rule should be clarified.

Copies of the comments may be examined in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C. 20555. A summary of the NRC's response to these comments is presented below.

1. The risks to plant personnel and reduced inspection capability associated with inerting the containment were carefully considered and discussed in the notice of proposed rulemaking. The NRC concluded that the risk to plant personnel of an inerted plant would be small provided that special procedures and personnel safety precautions are taken. The NRC also concluded that, on the inspection issue, inerting does not necessarily cause a reduction in the number of unscheduled visual inspections. Even assuming that a reduction in the number of unscheduled visual inspections does occur, such reduction does not adversely affect the protection of public health and safety since an adequate program of scheduled inspections can be maintained to insure safe operation of the plant. The NRC position on additional cost associated with requiring inerting is that the cost associated with inerting and de-inerting activities would be insignificant.

2. The NRC agrees that the proposed rule contains conservatism, but disagrees that the rule is too conservative in defining the amount of metal-water reaction that must be assumed. It should be noted that in the proposed rule the amount of metal-water reaction assumed to occur after a LOCA is 5 times the amount calculated in accordance with § 50.46 or is the amount that would result from cladding surfaces surrounding the fuel to a depth of 0.00023 inch (0.0058 mm), whichever amount is greater. Therefore, the amount of metal-water reaction assumed in the proposed rule is less conservative for certain plants when compared with the 5 percent previously assumed by NRC. The detailed technical discussion for making this revision was presented in the notice of proposed rulemaking (41 FR 46167). In short, the factor of 5 or 0.00023-inch (0.0058 mm) depth number is based on an engineering judgment that this method provides a sufficient margin for the purpose of containment design. It is assumed for

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conservatism that the emergency core cooling does not fail completely but that its performance is degraded to such an extent that a small fraction of the core becomes overheated. This could be caused by conservatively assuming the existence of a hot-spot effect of assumed coolant flow starvation resulting from (1) delivery of less-than-planned cooling to a localized area and (2) local flow blockage that might be associated with excessive fuel deformation, partial core support failure, etc. While such conditions are not assumed to lead to core meltdown, they are assumed to result in additional hydrogen production above that calculated by Appendix K, "ECCS Evaluational Models."

Currently NRC conducts several Loss-of-Coolant Accident/Emergency Core Cooling System (LOCA/ECCS) experimental verification and code development programs that have the potential for establishing the amount of conservatism in metal-water reaction. Pending further progress on the present LOCA/ECCS programs, the NRC has concluded at this time that no further consideration need be given to this matter.

3. Comments regarding clarification of the rule have been incorporated in the final rule but have not significantly changed the position expressed by the NRC in the proposed rule.

One commenter opposed adoption of the rule. This commenter believed that the change was unnecessary, because General Design Criteria 41, 42, 43, and 50 of Appendix A to 10 CFR Part 50 impose the requirements for combustible gas control, and revised Regulatory Guide 1.7,<sup>1</sup> "Control of Combustible Gas Concentrations in Containment Following a Loss-of-Coolant Accident," will provide adequate criteria and guidelines for combustible gas control systems. However, the NRC believes that the change is necessary because (1) General Design Criterion 41 states that containment atmosphere cleanup systems must be provided as necessary, but it is not specific in defining the types of cleanup systems (e.g., a combustible gas control system), (2) the method and basis for the calculation of hydrogen after a LOCA should be established, (3) the degraded ECCS operation is subject to many different interpretations if not specifically defined, (4) publishing a final rule would resolve a complex technical issue that was raised on interting by the Atomic Safety and Licensing Appeal Board during the Vermont Yankee licensing proceeding, and (5) the rule has set forth limits of domain within which potential hydrogen explosion is possible as a result of degradation, but not total failure, of

emergency core cooling functioning. The rule would thus provide guidance to future designers, who could design their plants to avoid the range of hydrogen concentrations that could have potential for explosion.

Assumptions acceptable to the NRC staff for evaluating and designing a combustible gas control system are presented in Revision 2 of Regulatory Guide 1.7. Regulatory Guide 1.7 (originally Safety Guide 7) was published in March 1971. Revision 1 to this guide was published in September 1976. After consideration of the comments received on the guide, Revision 2 to this guide is now being published.

Revision 2 to Regulatory Guide 1.7 is essentially the same as in Revision 1 with minor clarifying changes. Some concerns were raised in the guide about the meaning of partial burning of hydrogen in the containment. For hydrogen concentrations in the range of 4 to 6 volume percent, partial burning of the hydrogen above 4 volume percent may occur. However, in this range of 4 to 6 volume percent, the rate of flame propagation is less than the rate of rise of the flammable mixture. Therefore, the flame can propagate upward, but not horizontally or downward. In this case, only a fraction of hydrogen will burn in the containment, and complete combustion will not occur until the hydrogen concentration is increased above 6 volume percent.

Interested persons were invited to submit written comments by December 20, 1976, for consideration in connection with the proposed amendments. After consideration of the comments received and other factors involved, the Commission has adopted the amendments as set forth below.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to title 10, chapter I, Code of Federal Regulations, part 50, are published as a document subject to codification.

44 FR 47918

Published 8/16/79

Effective 9/17/79

### 10 CFR Parts 50 and 70

#### Licensing of Production and Utilization Facilities; Facilities and Access for Resident Inspection

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require power reactor licensees and construction permit holders and selected fuel facility licensees to provide (1) on site, rent-free, exclusive use of office space and (2) immediate access to Commission inspection

personnel. The rule is needed in order to facilitate implementation of a revised inspection program which was initiated in mid-1978. As a part of the revised program, the Commission is placing resident inspectors on site at selected nuclear power reactor construction sites, at selected power reactor sites in test and routine operations and at selected fuel facilities to observe and review licensee construction, operations, radiological safety, safeguards and environmental protection activities.

**EFFECTIVE DATE:** September 17, 1979.

**FOR FURTHER INFORMATION CONTACT:** Mr. Edward L. Jordan, Assistant Director for Technical Programs, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Phone No. 301-492-8180.

**SUPPLEMENTARY INFORMATION:** On May 9, 1978, the Nuclear Regulatory Commission published in the Federal Register (43 FR 19860) a proposed amendment to its regulations, 10 CFR 50 Licensing of Production and Utilization Facilities and Part 70 Special Nuclear Material, which would implement authority of Section 161(o) of the Atomic Energy Act of 1954, as amended, and of the Energy Reorganization Act of 1974, as amended, in order to facilitate the on site resident inspection portion of its revised inspection program.

Interested persons were invited to submit written comments for consideration in connection with the proposed amendment by June 23, 1978. The comments which were received addressed three principal concerns: licensees should not be forced to provide rent-free space; the proposed space requirement was excessive and arbitrary; and inspector access provisions should be the same as for a regular plant employee.

In mid-1978, the Commission initiated a revised inspection program which includes the use of on site resident inspectors. Pursuant to Section 161(o) of the Atomic Energy Act of 1954, as amended, the Commission intends to place NRC resident inspectors on site at selected nuclear power reactor construction sites and at selected power reactor sites in test and in routine operation. Eventually the Commission expects to place full-time resident inspectors at all operating power reactors, at power reactors in later stages of construction and at selected fuel cycle facilities where nuclear reactor fuel is fabricated or processed. The resident inspector will observe and review licensee operations, construction safety, safeguards and environmental

<sup>1</sup>Copies of the Revision 2 to Regulatory Guide 1.7 may be obtained by written request to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Technical Information and Document Control.



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protection activities to determine whether they are adequate, conducted properly and at the required frequency. Other regionally or headquarters based NRC personnel will continue to provide technical support and management review as required for the inspection program.

In order to facilitate the performance of the resident inspection program it is necessary that office space be provided to selected Commission personnel. The regulation as adopted requires that the licensee provide on-site, rent-free, exclusive office space upon the request of the Director, Office of Inspection and Enforcement. This requirement is not unique in that other federal departments and agencies have continuous inspection programs that require those subject to their regulations to furnish appropriate facilities to the inspectors.

Sufficient space is required in order to accommodate a full-time inspector, a part-time secretary and transient NRC personnel. The suggested space is 250 square feet but the rule does not specify an exact area. The space provided is expected to be commensurate with space normally provided to licensee employees. For sites with more than one power reactor unit or fuel facility it may be necessary to assign more than one resident inspector. If additional resident inspectors are assigned to a site, additional space will be requested.

In order to assure that the resident inspector or regionally based inspectors are afforded the opportunity to conduct unfettered reviews of work in progress it is necessary and the regulation requires, that properly identified inspectors be provided immediate access to the facility (the same as regular licensee employees). The inspectors afforded such access will be provided by the licensee that site-specific radiological safety and security information necessary for their safety, security, and radiological protection and will conform to all facility safety and security requirements.

A briefing on site-specific radiological protection practices, security and emergency response actions is appropriate and sufficient for unescorted access to other than vital areas, radiation areas and areas contaminated with radioactive material, for those NRC personnel who infrequently visit a site. As a result of the comments on the proposed rule the Commission reexamined the legal basis for the requirement that licensees provide office space and determined that the requirement is neither an arbitrary use of the Commission's regulatory power nor an unreasonable burden on the licensee.

As a result of the concerns expressed

in the comments over excessive space requirements, the Commission has changed the proposed area requirement to guidance, with the condition that the space provided shall be commensurate with other office facilities at the site. Acceptability of the space is in the authority of the Director, Office of Inspection and Enforcement.

As a result of comments on the proposed rule, the provision for access by inspectors likely to conduct inspections at a specific facility has been reworded to emphasize that unfettered access for inspectors who are likely to inspect a specific facility, will be equivalent to that for a regular plant employee. Inspectors likely to inspect are those who are expected to conduct several inspections at the specific facility during a given year.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Parts 50 and 70 are published as a document subject to codification.

44 FR 55328

Published 9/26/79

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### 10 CFR Part 50

#### Domestic Licensing of Production and Utilization Facilities; Fracture Toughness Requirements for Nuclear Power Reactors

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations specifying fracture toughness and material surveillance program requirements for nuclear reactors to permit greater flexibility in meeting certain of these requirements and to simplify others by substituting references to National Standards that have already been incorporated by reference into the NRC's Regulations.

**EFFECTIVE DATE:** October 26, 1979.

**FOR FURTHER INFORMATION CONTACT:** Dr. P. N. Randall, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-443-5997.

**SUPPLEMENTARY INFORMATION:** On March 28, 1979, the Nuclear Regulatory Commission published in the Federal Register (44 FR 18513) proposed

amendments to its regulations, 10 CFR Part 50, "Licensing of Production and Utilization Facilities," which would amend Appendix G, "Fracture Toughness Requirements," with regard to material toughness requirements for bolts, and would amend Appendix H, "Reactor Vessel Material Surveillance Program Requirements," with regard to the location and method of attachment of surveillance capsule holders in the reactor vessel. Interested persons were invited to submit written comments by May 14, 1979. There were four adverse comments. All of them opposed adoption of the proposed rule on the grounds that the accident at Three Mile Island Unit 2 on March 28, 1979 had demonstrated that there should be no relaxation of regulatory requirements. None of the comments addressed the specific technical issues covered by the proposed rule. In response to these comments, the Commission has no reason to believe that the investigation of that accident will raise any question about these technical issues. Furthermore, the Commission believes that the proposed amendments will not reduce present safety margins. Therefore, after consideration of the comments, the Commission has adopted the amendments to Appendices G and H, 10 CFR Part 50, described below. The language of the amendments is unchanged from that of the proposed rule.

In Appendix G to 10 CFR Part 50, paragraph IV.A.4 contains requirements for the material toughness of bolts that are very similar to present ASME Code requirements. Paragraph IV.A.4 is deleted, and paragraph IV.A.3 is revised to add language requiring compliance with the pertinent ASME Code requirements for bolts. As an additional revision of paragraph IV.A.3, the requirements for piping, pumps and valves are clarified by referencing a different paragraph in the ASME Code than is presently referenced. This newly-referenced paragraph contains the specific fracture toughness requirements of those components.

In Appendix H to 10 CFR Part 50, paragraph II.C.2 is revised in two respects. The prohibition against attachment of surveillance capsules to the vessel wall is deleted because, for some vessel designs, the advantages of attachment to the wall (fewer problems in achieving the desired lead factor and the structural integrity of the capsule holder) outweigh the disadvantage of concern for vessel integrity. Language is added to require that, if capsule holders are attached to the vessel wall, the attachments must meet ASME Code requirements for construction and inspection of permanent structural attachments to reactor vessels.

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The fixed limits on lead factor (the ratio of neutron flux at the capsule to the maximum flux at the vessel inner wall) of greater than 1 but less than 3 are deleted. Enforcement of the present requirement would require modification of certain designs that have satisfactorily met all surveillance and structural requirements in service. Safety concerns are satisfied by retention of the general requirement on lead factor.

Copies of the abstract of comments and staff response, and copies of the value/impact analysis supporting the rule, are available for public inspection at the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C. Single copies may be obtained on request from the Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20550, Attention: P. N. Randall.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553, title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification.

44 FR 57911

Published 10/9/79

Effective 11/1/79

### 10 CFR Part 50

#### Domestic Licensing of Production and Utilization Facilities; Codes and Standards for Nuclear Powerplants

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulation, "Codes and Standards," to incorporate by reference a new edition and addenda of a national code that provides rules for the construction of nuclear powerplant components. This amendment provides for the use of updated methods in nuclear powerplant construction.

**EFFECTIVE DATE:** November 1, 1979.

**FOR FURTHER INFORMATION CONTACT:** Mr. A. Taboada, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301-443-5999).

**SUPPLEMENTARY INFORMATION:** On December 18, 1978, the Nuclear Regulatory Commission published in the Federal Register (43 FR 58825) a proposed amendment to its regulations, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to

incorporate by reference new addenda to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The proposed amendment to 10 CFR 50.55a would incorporate by reference the Winter 1977 addenda and the Summer 1978 addenda to Section III of the ASME Boiler and Pressure Vessel Code and also contains minor and editorial changes.

The 1977 Edition of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME Code and Section XI addenda since the Summer 1975 Addenda have been evaluated by the staff and are being referenced with modifications in a separate amendment to the regulations.

The proposed amendments also included minor and editorial changes to 10 CFR 50.55a to make references to Section III in the regulations consistent with changes to Section III in the Winter 1977 Addenda. These changes in Section III of the ASME Code relate to the method for determining the edition and addenda applicable to components of the reactor coolant pressure boundary. The code presently provides that components meet the requirements of editions or addenda in effect on the date of purchase order of the components. Since the issuance of the Winter 1977 addenda, the code rules for selecting the applicable edition and addenda are more flexible. Under these rules, the licensee may establish the date of the code edition and addenda to be applied to a component. These dates may be the same for all components of a nuclear powerplant to accommodate standardization, but in no case may the dates be earlier than three years prior to the docket date for the application for the nuclear powerplant construction permit. These rules also permit more current code editions and addenda to be used. The proposed amendment would modify § 50.55a to be consistent with these changes in the code but would retain some restrictions in the regulations on the use of editions and addenda issued prior to the Winter 1972 Addenda.

Interested persons were invited to submit written comments for consideration in connection with the proposed amendment by January 17, 1979. Four letters were received in response to the notice of proposed rulemaking. In general the letters supported the proposed amendment and did not contain substantive negative comments. However, several suggestions for changes to the proposed amendment were made. Three of the letters suggested that the second sentence of proposed paragraph (b)(1) is ambiguous and should be clarified or deleted. This sentence states that "the

edition and addenda selected for Section III for a given component also establishes a requirement that the identical edition or addenda be applicable to all other sections of the ASME Code used for the construction of the components".

The Commission agrees that the sentence in question is ambiguous and does not adequately describe, as intended, the code position on applicability of other sections of the code referenced in Section III. As written, the proposed rule could be interpreted to prohibit the use of newer editions and addenda of referenced sections and to require unnecessary additional welding qualification tests; interpretations not intended. The intent of this sentence was simply to describe the code position on the subject. Since the ASME Code has recently published an amplification of their position in Volume 3 of their publication, "Interpretations" (111-1-78-50) dated 1978, the sentence in question is not needed and has been deleted in the notice of rulemaking.

In the fourth letter received, the suggestion was made that footnote 5, which describes the code provisions for implementation of Section III, be amended to allow for retroactive implementation of paragraph NCA-1140 of Section III of the ASME Code which governs code edition and addenda applicability. These provisions permit new components of nuclear power plants to be constructed to an edition or addenda, to be determined by the owner of the plant, retroactive to the Winter 1977 Addenda. Footnote 5 was not revised because the Commission considers the ASME Code provisions and footnote 5 which cover this point to be adequate and appropriate. Using these rules, the principle of standardization may be applied to new construction but limited to editions and addenda since Winter 1977.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10 Chapter 1, Code of Federal Regulations, Part 50, are published as a document subject to codification.

44 FR 57912

Published 10/9/79

Effective 11/1/79

### 10 CFR Part 50

#### Domestic Licensing of Production and Utilization Facilities; Codes and Standards for Nuclear Powerplants

## PART 50 • STATEMENTS OF CONSIDERATION

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulation, "Codes and Standards," to incorporate by reference a new edition and addenda of a national code that provides rules for the inservice inspection of nuclear power plant components. This amendment provides for the use of updated methods in nuclear power plant inspection.

**EFFECTIVE DATE:** November 1, 1979.

**FOR FURTHER INFORMATION CONTACT:** Mr. A. Taboada, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301-443-5997).

**SUPPLEMENTARY INFORMATION:** On January 18, 1979, the Nuclear Regulatory Commission published in the Federal Register (44 FR 3719) a proposed amendment to its regulations, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to incorporate by reference new addenda to a referenced section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The amendment to 10 CFR 50.55a would incorporate by reference the 1977 Edition and addenda through the Summer 1978 Addenda to Section XI, "Inservice Inspection of Nuclear Power Plant Components," of the ASME Code with modifications.

The 1977 Edition of Section XI and addenda issued from Winter 1975 Addenda through the Winter 1977 Addenda, which had not been incorporated by reference in § 50.55a, contain several major changes to the code which, if incorporated into the NRC's regulations, would significantly reduce the examination requirements of inservice inspection programs presently required by the Commission for the reactor coolant pressure boundary and for systems required for safe shutdown of the reactor. It was the determination of the Commission that this edition and these addenda would be acceptable for incorporation by reference into the regulations only with appropriate modifications to retain those requirements considered necessary for an acceptable inservice inspection program.

In this regard, the Summer 1978 Addenda provide such modifications to Section XI of the ASME Code. Examination requirements removed from the code by the Winter 1975 Addenda through the Winter 1977 Addenda, but still required by the regulations, have either been restored or been superseded by provisions considered to be improvements.

In light of the changes in the Summer 1978 Addenda, the Commission is amending § 50.55a to incorporate by reference the 1977 Edition of Section XI of the ASME Code and Addenda through the Summer 1978 Addenda. Certain limitations and modifications to Section XI of the Code are included in the amendment to address the applicability of specific editions and addenda and to provide for flexibility and consistency in the implementation of the Code. The limitations and modifications include the following:

1. The applicability of certain code addenda to Section XI of the ASME Code is qualified to assure that appropriate inservice examination requirements are included in inservice inspection programs for nuclear facilities. These requirements were removed from Section XI of the Code in the Winter 1975 Addenda and have either been restored or have been superseded by acceptable alternatives in the Summer 1978 Addenda. The amendment, in effect, requires the application of the Summer 1978 Addenda to those inservice inspection programs that apply editions and addenda of Section XI from the Winter 1975 Addenda through the Winter 1977 Addenda.

2. The amendment provides Alternatives to the Code requirements for determining the extent and frequency of inservice inspection of pipe welds. Operating facilities and facilities in the construction stages with inservice inspection programs (facilities with applications for construction permits docketed prior to July 1, 1978) may apply the Summer 1975 Addenda in lieu of later Addenda for determining the examination program for Code Class 1 and Code Class 2 pipe welds. Only code addenda incorporated by reference in § 50.55a may be used by facility licensees for inspection programs, and the Summer 1975 Addenda are the last addenda so incorporated prior to this amendment. By applying this option, operating facilities with ongoing inservice inspection programs would have continuity in the extent and frequency of examinations for pipe welds. The amendment also provides for the use of the Summer 1975 Addenda for establishing the pipe welds to be examined in the Residual Heat Removal System, the Emergency Core Cooling System, and the Containment Heat Removal System pending the development of new code provisions with sampling plans for these systems.

3. Provisions added to article IWB-2000 of Section XI of the ASME Code by the Winter 1975 Addenda contained, for the first time, requirements for inservice

inspection of steam generator tubing. However, it has been the practice of the Commission to include detailed provisions for the inservice inspection of steam generator tubing in the technical specifications for a specific reactor. The potential for conflicting requirements would exist if these code requirements were incorporated by reference into the regulations without appropriate modifications. Since the provisions in the technical specifications approved by the Commission are, in general, more complete and more current, the amendment requires that where differences between the code requirements in article IWB-2000 and the technical specifications for a particular reactor exist, the inservice inspection program for steam generator tubing shall be governed by the requirements in the technical specifications.

In addition to incorporation by reference the new ASME Code edition and addenda with modifications, the Commission has made several minor and clarifying amendments to § 50.55a. These include a change in the time interval for revising programs for inservice examination of components and for testing pumps and valves to make this interval consistent with the inservice inspection interval in Section XI of the ASME Code. The interval for revising inservice inspection programs for operating plants is extended from 40 and 20 months to 120 months. Such a change makes the regulation more practical to implement and saves time and effort for both the NRC and the licensee without an increased risk to the public health and safety. Extending the period for revising the program is not considered a significant relaxation of safety requirements since Section XI is a relatively mature code and new code changes generally deal with practical considerations of implementation or the application of new developments. New code changes do not normally modify the safety aspects of the code. Further, as stated in § 50.55a, the Commission may impose new code requirements at any time if safety considerations so dictate.

Interested persons were invited to submit to the Commission written comments on the proposed amendments for its consideration. Four letters with comments were received in response. In general, the letters supported the proposed amendment. No substantive negative comments were made. However, the letters did include requests for clarification of specific provisions of the proposed amendments. The proposed provisions in question have been clarified in the amendment.

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Copies of the comments along with the comment analysis supporting this amendment are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. Single copies of the comments and comment analysis may be obtained upon request from A. Taboada, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Part 50 of the Code of Federal Regulations are published as a document subject to codification.

44 FR 60715  
Published 10/22/79  
Effective 10/22/79

*Licensing of Production and Utilization Facilities; Antitrust Review Procedures*

See Part 2 Statements of Consideration.

45 FR 13434  
Published 2/29/80  
Effective 2/29/80

*Immediate Reporting of Significant Events at Operating Nuclear Power Reactors*

See Part 20. Statements of Consideration.

45FR14199  
Published 3/5/80  
Effective 3/5/80

*Minor and Clarifying Amendments*

See Part 1 Statements of Consideration

45 FR 18905  
Published 3/24/80  
Effective 3/24/80

*Deletion of reference to Panama Canal Zone; Minor Amendments*

See Part 4 Statements of Consideration

45 FR 30614  
Published 5/9/80  
Effective 7/22/80

### 10 CFR Part 50

#### Periodic Updating of Final Safety Analysis Reports

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require each person licensed to operate a nuclear power reactor to submit periodically to the Commission revised pages for its Final Safety Analysis Report (FSAR). These revised pages will indicate changes which have been made to reflect information and analyses submitted to the Commission or prepared as a result of Commission requirement. The amendment is being made to provide an updated reference document to be used in recurring safety analyses performed by the licensee, the Commission, and other interested parties.

**EFFECTIVE DATE:** July 22, 1980.

**Note.**—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for such review as may be appropriate under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of this rule becomes effective, unless advised to the contrary, accordingly, reflects inclusion of the 45-day period which that statute allows for such review (44 U.S.C. 3512(c)(2)).

**FOR FURTHER INFORMATION CONTACT:** Mr. Morton R. Fleishman, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301-443-5921.

**SUPPLEMENTARY INFORMATION:** On November 8, 1976, the Nuclear Regulatory Commission published in the *Federal Register* (41 FR 49123) a notice of proposed rule making inviting written suggestions or comments on the proposed rule by December 23, 1976. A notice of correction and extension of comment period was published in the *Federal Register* on December 27, 1976 (41 FR 56204) in which the comment period was extended to January 26, 1977. The notices concerned proposed amendments to 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to require each applicant for, or holder of, a power reactor operating license which would be or was issued after January 1, 1963 to submit periodically to the Commission revised pages for its Final Safety Analysis Report (FSAR). These revised pages would indicate changes made in the facility or the procedures for its

operation and any analyses affected by these changes. Thirty-one persons submitted comments regarding the proposed amendments. The commenters could be roughly divided into three groups with seventeen supporting the rule with comments, eleven opposed to the rule, and three neutral. Copies of the comments received may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

The substantive areas of comment can be categorized generally as follows:

1. Clarification of Rule
2. Applicability of Rule
3. Content of FSAR
4. Scope of Rule
5. Timing of Submittals
6. Relation of Rule to Other Rules and Reports
7. Legal Status of Updated FSAR
8. Cost/Benefit of Rule

In response to the comments received, the Commission is modifying the rule to (a) extend its applicability to all power reactors licensed to operate, (b) exclude applicants for operating licenses, (c) clarify the wording of the rule, (d) reduce its impact on power reactor licensees by relaxing some of the time requirements, and (e) require the initial revision to be a complete FSAR.

When the proposed rule was published for public comment, its applicability was limited to those plants licensed after January 1, 1963 in order to exempt five (5) older facilities. The Commission believed that it would not be feasible for these licensees to implement the rule because there is no integrated document comparable to an FSAR for their facilities. Since publication of the proposed rule, the Commission has initiated a program in which the NRC staff is making a systematic safety evaluation of eleven (11) nuclear power facilities licensed for operation before 1972. The purpose of this systematic evaluation program (SEP) is to determine and document the degree to which the eleven (11) facilities meet current licensing requirements for new plants. Of the five (5) plants licensed prior to January 1, 1963 that are still licensed to operate, three (3) are included in the SEP. The remaining two (2) plants,<sup>1</sup> which presently are shut down, will be subject to the provisions of the rule as long as their licenses authorize operation.

The licensees participating in the SEP probably will be requested to supply a considerable amount of information during the program. Requiring them, in addition, to update their FSARs could prove to be excessively burdensome and could result in duplication of reports.

<sup>1</sup> The two facilities are Indian Point Unit No. 1 and Humboldt Bay Unit No. 3.

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The information generated during the program and the manner in which it is collated will result in a completed FSAR at the conclusion of the program. For these reasons licensees of facilities being subjected by the NRC to a systematic evaluation program will not be required to comply with the provisions of this rule until they are notified by letter by the NRC's Director of the Office of Nuclear Reactor Regulation that, for their particular facility, the program has been completed. Because of the considerations just mentioned, that part of the proposed rule which limited the applicability to facilities licensed after January 1, 1963 has been deleted and the rule will apply to all power reactors licensed to operate.

The FSAR required to be updated by the rule is the original FSAR submitted as part of the application for the operating license. It would not include the subsequent supplements and amendments to the FSAR or the license that may have been submitted either in response to NRC questions or on the applicant's or licensee's own initiative following the original submittal. These various supplements and amendments must be appropriately incorporated into the original FSAR to create a single, complete and integral document. The initial revision to be filed should contain those pages from the originally submitted FSAR that are still applicable plus new replacement pages that appropriately incorporate the effects of supplements, amendments and other changes that have been made. This will result in a single, complete document being filed, that can then serve as the baseline for future changes.

Commenters have asked about the proper format to be used when making the FSAR submittal. Since the format of the FSAR is not covered by regulation, the rule does not specify a particular format. The NRC staff has provided guidance for the preparation of FSARs in Regulatory Guide 1.70, Revision 2, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants." However, many FSARs were developed prior to any specific guidance on format. The format to be used for the FSAR revisions is the option of the licensee, but the Commission expects that the format will probably be the same as the format of the original FSAR. No analyses other than those already prepared or submitted pursuant to NRC requirements (either originally with the application, or as part of the operating license review process, or as required by § 50.59 or other NRC requirement, or to support license amendments) are required to be performed by the licensee because of this rule. However, analyses existing in the FSAR which are known

to be inaccurate or in error as a result of new analyses performed by the licensee pursuant to NRC requirements, would have to be revised. Specialized studies provided in the FSAR, such as on volcanic hazards or quality assurance, should include the latest information that has been developed in response to NRC requirements. New analyses (i.e., analyses not previously included in FSAR) which were required during consideration of unreviewed safety questions,<sup>2</sup> technical specification changes, or other licensing questions, may be incorporated as appendices or otherwise appropriately inserted within the FSAR.

Program type material that is referenced by the FSAR, such as the Quality Assurance Program or the Emergency Plan, should be referenced accurately. If such material has been revised or amended, the latest revision should be referenced. A description of physical changes to the facility should be included in the update after the changes have been approved for use and are operable. The level of detail to be maintained in the updated FSAR should be at least the same as originally provided. Minor differences between actual and projected population figures or other such changes in the site environment need not be reported unless the conclusions of safety analyses relative to public health and safety are affected and the licensee has prepared new analyses as a result of NRC requirements.

Commenters have questioned the relation of the proposed FSAR updating requirements to other reporting requirements such as the Annual Operating Report and § 50.59(b) reporting. It is not the Commission's intention to require submittal of duplicative reports. The Commission is eliminating the requirement for the Annual Operating Report. This will reduce significantly the reporting burden of licensees. There has been no requirement that § 50.59(b) reporting be part of the licensee's Annual Operating Report. This information generally has been included in the Annual Operating Report as a convenience, but it could have been submitted separately and the licensee still would have complied with § 50.59(b) which merely requires reporting "annually or at such shorter

<sup>2</sup> As defined in § 50.59(a)(2), "A proposed change, test, or experiment shall be deemed to involve an unreviewed safety question (i) if the probability of occurrence or the consequence of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; or (ii) if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or (iii) if the margin of safety as defined in the basis for any technical specification is reduced."

intervals as may be specified in the license." Furthermore, the report required under § 50.59(b) is only "a brief description of such changes, tests, and experiments, including a summary of the safety evaluation of each." The § 50.59(b) reporting may not be detailed sufficiently to be considered adequate to fulfill the FSAR updating requirement. The degree of detail required for updating the FSAR will be generally greater than a "brief description" and a "summary of the safety evaluation." However, there is nothing that precludes submitting the § 50.59(b) report along with the FSAR update submittal and thus satisfy § 50.59(b) along with § 50.71(e). Parts of the FSAR submittal may be referenced by the § 50.59(b) report.

Several commenters have raised legal questions concerning the proposed rule, including questions relative to the purpose of the rule, the implication concerning re-reviews, the status of completed hearings, and prior license approvals. The rule is only a reporting requirement to insure that an updated FSAR will be available. Submittal of updated FSAR pages does not constitute a licensing action but is only intended to provide information. It is not intended for the purpose of re-reviewing plants. Matters which have been considered previously during hearings will not be reconsidered as a result of the FSAR submittals. Thus, for example, approvals of license amendments and technical specification changes are independent of the FSAR updating process and once approved would not be subject to further consideration simply because the FSAR is updated. This, of course, does not preclude the reevaluation of previous positions based on new information or new considerations. The material submitted may be reviewed by the NRC staff but will not be formally approved. The new pages will be accepted as representing the licensee's position at the time of submittal and will be utilized in any subsequent reviews or NRC staff activities concerning that facility.

After consideration of the comments that were received and other factors, the Commission has adopted the amendment to Part 50 as set forth below.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of title 5 of the United States Code, the following amendment to 10 CFR Part 50 is published as a document subject to codification.

## PART 50 • STATEMENTS OF CONSIDERATION

45 FR 50705

Published 7/31/80

Effective 7/31/80

Effective Date 12/24/80 \*

*Safeguards on Nuclear Material-  
Implementation of US/IAEA Agreement*

See Part 75 Statements of Consideration.

45 FR 55402

Published 8/19/80

Effective 11/3/80

### 10 CFR Parts 50 and 70

#### Emergency Planning

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is upgrading its emergency planning regulations in order to assure that adequate protective measures can and will be taken in the event of a radiological emergency. Nuclear power plants and certain other licensed facilities are required to submit their emergency plans, together with the emergency response plans of State and local governments, to the Commission. The Commission and the Federal Energy Management Agency will review the plans for adequacy. The amendment also extends emergency planning considerations to "Emergency Planning Zones", and makes additional clarifications.

**EFFECTIVE DATE:** November 3, 1980.

**Note.**—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for review of the reporting requirements in the rule, pursuant to the Federal Reports Act, as amended (44 U.S.C. 3512). The date on which the reporting requirements of the rule become effective includes a 45-day period, which the statute allows for Comptroller General review (44 U.S.C. 3512(c)(2)).

**FOR FURTHER INFORMATION CONTACT:** Mr. Michael T. Jamgochian, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (telephone: 301-443-5966).

**SUPPLEMENTARY INFORMATION:** On September 19, 1979 and on December 19, 1979, the Commission published for public comment (44 FR 54308 and 44 FR 75167) proposed amendments to its emergency planning regulations for

production and utilization facilities. Extensive comments were received, all of which were evaluated and considered in developing the final rule. The comments received and the staff's evaluation is contained in NUREG-0684. In addition, the NRC conducted four Regional Workshops to solicit comments; these comments are available in NUREG/CP-0011 (April 1980).<sup>1</sup>

The final regulation contains the following elements:

1. In order to continue operations or to receive an operating license an applicant/licensee will be required to submit its emergency plans, as well as State and local governmental emergency response plans, to NRC. The NRC will then make a finding as to whether the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The NRC will base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented and on the NRC assessment as to whether the licensee's/applicant's emergency plans are adequate and capable of being implemented. These issues may be raised in NRC operating license hearings, but a FEMA finding will constitute a rebuttable presumption on the question of adequacy.

2. Emergency planning considerations will be extended to "Emergency Planning Zones."

3. Detailed emergency plan implementing procedures of licensees/applicants will be required to be submitted to NRC for review, and

4. Requirements in 10 CFR Part 50, Appendix E are clarified and upgraded.

#### Background

In June 1979, the Nuclear Regulatory Commission began a formal reconsideration of the role of emergency planning in ensuring the continued protection of the public health and safety in areas around nuclear power facilities. The Commission began this reconsideration in recognition of the need for more effective emergency planning and in response to the TMI accident and to reports issued by responsible offices of government and the NRC's Congressional oversight committees.

On December 19, 1979, the Nuclear

<sup>1</sup> Copies of NUREG documents are available at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. 20555. Copies may be purchased from the Government Printing Office. Information on current prices may be obtained by writing the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Publications Sales Manager.

Regulatory Commission published in the *Federal Register* (44 FR 75167) proposed amendments to 10 CFR Part 50 and Appendix E to Part 50 of its regulations. Publication of these final rule changes in the *Federal Register* is not only related to the December 19, 1979 proposed rule changes but also incorporates the proposed changes to 10 CFR Parts 50 and 70 (44 FR 54308) published on September 19, 1979. Interested persons were invited to submit written comments/suggestions in connection with the proposed amendments within 60 days after publication in the *Federal Register*. During this comment period (in January 1980) the Commission conducted four regional workshops with State and local officials, utility representatives, and the public to discuss the feasibility of the various portions of the proposed amendments, their impact, and the procedures proposed for complying with their provisions. The NRC used the information from these workshops along with the public comment letters to develop the final rule (more than 200 comment letters and the points made in two petitions for rulemaking were also considered).

In addition to the above, on June 25, 1980, the Commission was briefed by three panels of public commenters on the rule, one each comprised of representatives from the industry, State and local governments, and public interest groups. Each panel raised important concerns regarding the final rule. On July 3, 1980, the Commission was briefed by its staff in response to these panels, including several modifications to the proposed final rules. 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 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. However, the transcripts have not been reviewed for accuracy and, therefore, are only an informal record of the matters discussed.

After evaluating all public comment letters received and all the information obtained during the workshops as well as additional reports such as the Presidential Commission and the NRC Special Inquiry Group Reports, the Commission has decided to publish the final rule changes described below.

\* Amended 45 FR 84967



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### Description of Final Rule Changes

The Commission has decided to adopt a version of the proposed rules similar to alternative A described in Sections 50.47 and 50.54 in the *Federal Register* Notice dated December 19, 1979 (44 FR 75167), as modified in light of comments. These rules are consistent with the approach outlined by FEMA and NRC in a Memorandum of Understanding (45 FR 5847, January 24, 1980). No new operating license will be granted unless the NRC can make a favorable finding that the integration of onsite and offsite emergency planning provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. In the case of an operating reactor, if it is determined that there are such deficiencies that a favorable NRC finding is not warranted and if the deficiencies are not corrected within 4 months of that determination, the Commission will determine expeditiously whether the reactor should be shut down or whether some other enforcement action is appropriate, pursuant to procedures provided for in 10 CFR 2.200-2.206. In any case where the Commission believes that the public health, safety, or interest so requires, the plant will be required to shut down immediately (10 CFR 2.202(f), see 5 U.S.C. 558(c)).

The standards that the NRC will use in making its determinations under these rules are set forth in the final regulation. Wherever possible, these standards may blend with other emergency planning procedures for nonnuclear emergencies presently in existence. The standards are a restatement of basic NRC and now joint NRC-FEMA guidance to licensees and to State and local governments. See NUREG-0654; FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants for Interim Use and Comment," (January 1980). In deciding whether to permit reactor operation in the face of some deficiencies, the Commission will examine among other factors whether the deficiencies are significant for the reactor in question, whether adequate interim compensatory actions have been or will be taken promptly, or whether other compelling reasons exist for reactor operation. In determining the sufficiency of "adequate interim compensatory actions" under this rule, the Commission will examine State plans, local plans, and licensee plans to determine whether features of one plan can compensate for deficiencies in another plan so that the level of protection for the public health and safety is adequate. This interpretation is consistent with the provisions of the NRC Authorization Act

for fiscal year 1980, Pub. L. 96-295.

The regulation contains the following three major changes from past practices:

1. In order to continue operations or to receive an operating license, an applicant/licensee will be required to submit its emergency plans, as well as State and local governmental emergency response plans, to NRC. The NRC will then make a finding as to whether the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

The NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented and on the NRC assessment as to whether the applicant's/licensee's emergency plans are adequate and capable of being implemented. In any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on the question of adequacy. Specifically:

- a. An operating license will not be issued unless a favorable NRC overall finding can be made.
- b. After April 1, 1981, an operating plant may be required to shut down if it is determined that there are deficiencies such that a favorable NRC finding cannot be made or is no longer warranted and the deficiencies are not corrected within 4 months of that determination.

2. Emergency planning considerations must be extended to "Emergency Planning Zones," and

3. Detailed emergency planning implementing procedures of both licensees and applicants for operating licenses must be submitted to NRC for review.

In addition, the Commission is revising 10 CFR Part 50, Appendix E, "Emergency Plans for Production and Utilization Facilities," in order to clarify, expand, and upgrade the Commission's emergency planning regulations. Sections of Appendix E that are expanded include:

1. Specification of "Emergency Action Levels" (Sections IV.B and C)

2. Dissemination to the public of basic emergency planning information (Section IV.D)

3. Provisions for the State and local governmental authorities to have a capability for rapid notification of the public during a serious reactor emergency, with a design objective of completing the initial notification within 15 minutes after notification by the licensee (Section IV.D)

4. A licensee onsite technical support center and a licensee near site

emergency operations facility (Section IV.E)

5. Provisions for redundant communications systems (Section IV.E)

6. Requirement for specialized training (Section IV.F)

7. Provisions for up-to-date plan maintenance (Section IV.G)

Applicants for a construction permit would be required to submit more information as required in the new Section II of Appendix E.

### Rationale for the Final Rules

The Commission's final rules are based on the significance of adequate emergency planning and preparedness to ensure adequate protection of the public health and safety. It is clear, based on the various official reports described in the proposed rules (44 FR 75169) and the public record compiled in this rulemaking, 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. As the Commission reacted to the accident at Three Mile Island, it became 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. The accident also showed clearly that onsite conditions and actions, even if they do not cause significant offsite radiological consequences, will affect the way the various State and local entities react to protect the public from any dangers associated with the accident. In order to discharge effectively its statutory responsibilities, the Commission must know that proper means and procedures will be in place to assess the course of an accident and its potential severity, that NRC and other appropriate authorities and the public will be notified promptly, and that adequate protective actions in response to actual or anticipated conditions can and will be taken.

The Commission's organic statutes provide it with a unique degree of discretion in the execution of agency functions. *Siegel v. AEC*, 400 F.2d 778, 783 (D.C. Cir. 1968), see *Westinghouse Electric Corp. v. NRC*, 598 F.2d 759, 771 & n.47 (3d Cir. 1979). "Both the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974 confer broad regulatory functions on the Commission and specifically authorize it to promulgate rules and regulations it deems necessary to fulfill its responsibilities under the Acts, 42 U.S.C. § 2201(p)." *Public Service Co. of New Hampshire v. NRC*, 582 F.2d 77, 82 (1st Cir.), cert. denied, 439 U.S. 1046 (1978). See 42 U.S.C. 2133(a). As the Supreme

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Court stated almost 20 years ago, the Atomic Energy Act "clearly contemplates that the Commission shall by regulation set forth what the public safety requirements are as a prerequisite to the issuance of any license or permit under the Act," *Power Reactor Development Co. v. International Union of Electrical Radio Machine Workers*, 367 U.S. 396, 404 (1961). Finally, it is also clear that "Congress, when it enacted [42 U.S.C. 2236] . . . , must have envisioned that licensing standards, especially in the areas of health and safety regulation, would vary over time as more was learned about the hazards of generating nuclear energy. Insofar as those standards became more demanding, Congress surely would have wanted the new standards, if the Commission deemed it appropriate, to apply to those nuclear facilities already licensed," *Ft. Pierce Utilities Authority v. United States*, 606 F.2d 986, 996 (D.C. Cir. 1979).

In response to and guided by the various reports and public comments, as well as its own determination on the significance of emergency preparedness, the Commission has therefore concluded that adequate emergency preparedness is an essential aspect in the protection of the public health and safety. The Commission recognizes 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 or effect from the means already available under existing law to prohibit reactor operation, such as zoning and land-use laws, certification of public convenience and necessity, State financial and rate considerations (10 CFR 50.33(f)), and Federal environmental laws. The Commission notes, however, that such considerations generally relate to a one-time decision on siting, whereas this rule requires a periodic renewal of State and local commitments to emergency preparedness. Relative to applying this rule in actual practice, however, the Commission need not shut down a facility until all factors have been thoroughly examined. The Commission believes, based on the record created by the public workshops, that State and local officials as partners in this undertaking will endeavor to provide fully for public protection.

### Summary of Comments on Major Issues

The Commission appreciates the extensive public comments on this important rule. In addition to the record

of the workshops, the NRC has received over 200 comment letters on the proposed rule changes. The following major issues have been raised in the comments received.

#### *Issue A: NRC Review and Concurrence in State and Local Radiological Plans*

1. FEMA is best suited to assess the adequacy of State and local radiological emergency planning and preparedness and report any adverse findings to NRC for assessment of the licensing consequences of those findings.

2. The proposed rule fails to provide objective standards for NRC concurrence, reconcurrence, and withdrawal of concurrence.

3. In the absence of additional statutory authority, the proposed rule frustrates Congressional intent to preempt State and local government veto power over nuclear power plant operation.

4. Procedures and standards for adjudication of emergency planning disputes are not adequately specified in the proposed rule.

#### *Issue B: Emergency Planning Zones (EPZs)*

1. Regulatory basis for imposition of the Emergency Planning Zone concept should be expressly stated in the regulation.

2. Provisions regarding the plume exposure pathway EPZ should provide a maximum planning distance of 10 miles.

3. References to NUREG-0396 should be deleted to avoid disputes over its meaning in licensing proceedings.

#### *Issue C: Alternative A and B (in 50.47 and 50.54)*

1. Neither alternative is necessary because the Commission has sufficient authority to order a plant shut down for safety reasons and should be prepared to exercise that authority only on a case-by-case basis and when a particular situation warrants such action.

2. No case has been made by the Commission for the need for automatic shutdown, as would be required in alternative B, and certainly no other NRC regulations exist that would require such action based on a concept as amorphous as "concurrence in State and local emergency plans."

3. The idea that the Commission might grant an exemption to the rules that would permit continued operation (under alternative B) has little significance, primarily because 10 CFR Part 50.12(a) already permits the granting of exemptions.

4. The process and procedures for obtaining such exemptions are not defined, nor is there any policy indication that would indicate the

Commission's disposition to grant such exemptions.

5. The Commission, in developing this aspect of the proposed rule, must consider its own history. There was time when regulation was characterized by the leaders of the agency by simple and very appropriate expressions. The process was to be "effective and efficient." The application of regulatory authority was to be "firm, but fair." Regardless of the outcome of the "concurrence" issue, the Commission must appreciate that alternative B is not fair. It is not effective regulation.

#### *Issue D: Public Education*

Only information required to inform the public about what to do in the event of a radiological emergency need be disseminated. There should be flexibility, in any particular case, as to who will be ultimately responsible for disseminating such information.

#### *Issue E: Legal Authority*

1. A few commenters felt that NRC had no authority to promulgate a rule as the one proposed.

2. Other comments were the nature that NRC has statutory authority only inside the limits of the plant site.

3. Some commenters suggested that NRC and FEMA should seek additional legislation to compel State and local governments to have emergency plans, if that is what is necessary.

#### *Issue F: Schedule for Implementation*

The schedule for implementing the proposed rule was considered to be unrealistic and in some cases in conflict with various State schedules already in existence. A sampling of the comments on the implementation schedule follows:

1. The 180 days in the schedule is an insufficient amount of time to accomplish tasks of this magnitude; the Federal government does not work with such speed. States are bureaucracies also; there is no reason to assume they can work faster. It took years of working with States to get the plans that are presently concurred in. It is just insufficient time for new concurrences and review. Also, to get a job done within that time frame means a hurried job, rather than an acceptable and meaningful plan.

2. The time provided is inadequate for States to acquire the hardware needed. States must go out for competitive bids just as the Federal government does. Between processing and accepting a bid and actual delivery of equipment, it may take a year to get the hardware. The State budgets years ahead; therefore, if a State or local government needs more money, it may have to go to the

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legislature. This is a time-consuming public process that may not fit the Federal schedule.

3. NRC and FEMA could not review 70 or more plans and provide concurrence by January 1, 1981. The Federal government moves slowly. Commenters did not think that NRC and FEMA can review all the plans within the time frame scheduled. If the Federal government cannot meet its schedule, why or how should the States?

4. Funding could not be appropriated by State and local governments before the deadline. It was suggested that the Commission use H. Rept. #96-413, "Emergency Planning U.S. Nuclear Power Plants: Nuclear Regulatory Commission Oversight," for the time frame rather than that in the proposed rule or use a sliding-scale time frame since States are at various stages of completing their emergency plans.

### *Issue G: Impact of Proposed Rule*

1. The proposed regulations were considered by some commenters as unfair to utilities because it was felt they place the utilities in the political and financial role that FEMA should be assuming. NRC is seen as in effect giving State and local governments veto over the operation of nuclear plants. It was questioned whether this was an intent of the rule. In addition, it was felt that utilities, their customers, and their shareholders should not be penalized by a shutdown (with a resulting financial burden) because of alleged deficiencies or lack of cooperation by State and local officials.

2. It was suggested that NRC's Office of Inspection and Enforcement conduct the reviews of the State and local governmental emergency response plans in order to ensure prompt, effective, and consistent implementation of the proposed regulations.

3. One commenter noted that the public should be made aware of the issue of intermediate and long-term impacts of plant shutdowns. Specifically, people should be informed of the possibility of "brownouts," cost increases to the consumer due to securing alternative energy sources, and the health and safety factors associated with those alternative sources.

### *Issue H: Public Notification*

1. Ultimate responsibility for public notification of a radiological emergency must be placed on State and local government.

2. The "fifteen minute" public notification rule is without scientific justification, fails to differentiate between areas close in and further away from the site, and ignores the technical

difficulties associated with such a requirement.

### *Issue I: Emergency Action Levels*

Applicants, in cooperation with State and local governmental authorities, should be permitted the necessary flexibility to develop emergency action level criteria appropriate for the facility in question, subject to NRC approval. Inflexible NRC emergency action level standards are not necessary.

### *Issue J: Training*

1. Mandatory provision for training local service personnel and local news media persons is outside of NRC's jurisdiction and is not necessary to protect the public health and safety.

2. Public participation in drills or critiques thereof should not be required.

3. The provision regarding formal critiques should be clarified to mean the licensee is responsible for developing and conducting such critiques.

4. Definitive performance criteria for evaluation of drills should be developed by the licensee, subject to NRC approval.

### *Issue K: Implementing Procedures*

NRC review of implementing procedures is only necessary to apprise the NRC staff of the details of the plans for use by the NRC during the course of an actual emergency.

### *Issue L: Funding*

1. Nuclear facilities, although located in one governmental tax jurisdiction and taxed by that jurisdiction, affect other jurisdictions that must bear immediate and long-term planning costs without having access to taxes from the facility.

2. As the radius of planning requirements becomes greater, few facilities are the concern of a single county. The planning radius often encompasses county lines, State lines, and in some instances, international boundaries.

3. As new regulations are generated to oversee the nuclear industry and old ones expanded, there is an immediate need to address fixed nuclear facility planning at all levels of government, beginning at the lowest and going to the highest. All levels of government need access to immediate additional funds to upgrade their response capability.

4. It is well understood that the consumer ultimately must pay the price for planning, regardless of the level in government at which costs are incurred. It becomes a matter of how the consumer will be taxed, who will administer the tax receipts, and what is the most effective manner in which to address the problem.

5. The basis for effective offsite response capabilities is a sound emergency preparedness program. Federal support (funding and technical assistance) for the development of State and local offsite capabilities should be incorporated into FEMA's preparedness program for all emergencies.

### *Issue M: General*

The States support Federal oversight and guidance in the development of offsite response capabilities. However, many States feel the confusion and uncertainty in planning requirements following Three Mile Island is not a proper environment in which to develop effective capabilities nor does it serve the best interests of their citizens. The development of effective nuclear facility incident response capabilities will require close coordination and cooperation among responsible Federal agencies, State government, and the nuclear industry. An orderly and comprehensive approach to this effort makes it necessary that onsite responsibilities be clearly associated with NRC and the nuclear industry while deferring offsite responsibilities to State government with appropriate FEMA oversight and assistance.

In addition to these comments, two petitions for rulemaking were filed in reference to the proposed rule. These were treated as public comments rather than petitions and were considered in developing the final rule.

The Commission has placed the planning objectives from NUREG-0654; FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants for Interim Use and Comment," January 1980, into the final regulations. Comments received concerning NUREG-0654 were available in developing the final regulation. The Commission notes that the planning objectives in NUREG-0654 were largely drawn from NUREG-75/111, "Guide and Checklist for Development and Evaluation of State and Local Government Radiological Emergency Response Plans in Support of Fixed Nuclear Facilities," (December 1, 1974) and Supplement 1 thereto dated March 15, 1977, which have been in use for some time.

The approximately 60 public comment letters received on NUREG-0654 were not critical of the proposed planning objectives. The Commission also notes that at the May 1, 1980 ACRS meeting, the Atomic Industrial Forum representative encouraged the use of the planning objectives from NUREG-0654 in the final regulations in order to

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reduce ambiguity and provide specificity to the final regulation.

Based on the above, the Commission has decided to modify the proposed rule changes in the areas discussed in paragraphs I through X below.

### I. FEMA/NRC Relationship

In issuing this rule, NRC recognizes the significant responsibilities assigned to FEMA, by Executive Order 12148 on July 15, 1979, to coordinate the emergency planning functions of executive agencies. In view of FEMA's new role, NRC agreed on September 11, 1979, that FEMA should henceforth chair the Federal Interagency Central Coordinating Committee for Radiological Emergency Response Planning and Preparedness (FICCC). On December 7, 1979, the President issued a directive assigning FEMA lead responsibility for offsite emergency preparedness around nuclear facilities. The NRC and FEMA immediately initiated negotiations for a Memorandum of Understanding (MOU) that lays out the agencies' roles and provides for a smooth transfer of responsibilities. It is recognized that the MOU, which became effective January 14, 1980, supersedes some aspects of previous agreements. Specifically, the MOU identifies FEMA responsibilities with respect to emergency preparedness as they relate to NRC as the following:

1. To make findings and determinations as to whether State and local emergency plans are adequate.
2. To verify that State and local emergency plans are capable of being implemented (e.g., adequacy and maintenance of procedures, training, resources, staffing levels and qualification, and equipment).
3. To assume responsibility for emergency preparedness training of State and local officials.
4. To develop and issue an updated series of interagency assignments that delineate respective agency capabilities and responsibilities and define procedures for coordination and direction for emergency planning and response.

Specifically, the NRC responsibilities for emergency preparedness identified in the MOU are:

1. To assess licensee emergency plans for adequacy.
2. To verify that licensee emergency plans are adequately implemented (e.g., adequacy and maintenance of procedures, training, resources, staffing levels and qualifications, and equipment).
3. To review the FEMA findings and determinations on the adequacy and

capability of implementation of State and local plans.

4. To make decisions with regard to the overall state of emergency preparedness (i.e., integration of the licensee's emergency preparedness as determined by the NRC and of the State/local governments as determined by FEMA and reviewed by NRC) and issuance of operating licenses or shutdown of operating reactors.

In addition, FEMA has prepared a proposed rule regarding "Review and Approval of State Radiological Emergency Plans and Preparedness" (44 FR 42342, dated June 24, 1980). According to the proposed FEMA rule, FEMA will approve State and local emergency plans and preparedness, where appropriate, based upon its findings and determinations with respect to the adequacy of State and local plans and the capabilities of State and local governments to effectively implement these plans and preparedness measures. These findings and determinations will be provided to the NRC for use in its licensing process.

### II. Emergency Planning Zone Concept

The Commission notes that the regulatory basis for adoption of the Emergency Planning Zone (EPZ) concept is the Commission's decision to have a conservative emergency planning policy in addition to the conservatism inherent in the defense-in-depth philosophy. This policy was endorsed by the Commission in a policy statement published on October 23, 1979 (44 FR 61123). At that time the Commission stated that two Emergency Planning Zones (EPZs) should be established around each light-water nuclear power plant. The EPZ for airborne exposure has a radius of about 10 miles; the EPZ for contaminated food and water has a radius of about 50 miles. Predetermined protective action plans are needed for the EPZs. The exact size and shape of each EPZ will be decided by emergency planning officials after they consider the specific conditions at each site. These distances are considered large enough to provide a response base that would support activity outside the planning zone should this ever be needed.

### III. Position on Planning Basis for Small Light-Water Reactors and Ft. St. Vrain

The Commission has concluded that the operators of small light-water-cooled power reactors (less than 250 MWt) and the Ft. St. Vrain gas-cooled reactor may establish smaller planning zones which will be evaluated on a case-by-case basis. This conclusion is based on the lower potential hazard from these facilities (lower radionuclide inventory

and longer times to release significant amounts of activity in many scenarios). Guidance regarding the radionuclides to be considered in planning is set forth in NUREG-0396; EPA 520/1-78-016, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light-Water Nuclear Power Plants," December 1978.

### IV. Rationale for Alternatives Chosen

In a few areas of the proposed rule, the Commission identified two alternatives that it was considering. Many public comments were received on these alternatives; based on due consideration of all comments received as well as the discussions presented during the workshops, the Commission has determined which of each pair of alternatives to retain in the final rule.

In Sections 50.47 and 50.54 (s) and (t), the alternatives dealt with conditioning the issuance of an operating license or continued operation of a nuclear power plant on the existence of State and local government emergency response plans concurred in by NRC.\* The basic difference between alternatives A and B in these sections was that, under alternative A, the proposed rule would require a determination by NRC on issuing a license, or permitting continued operation of plants in those cases where relevant State and local emergency response plans had not received NRC concurrence. Denial of a license or shutdown of a reactor would not follow automatically in every case. Under alternative B, shutdown of the reactor would be required automatically if the appropriate State and local emergency response plans had not received NRC concurrence within the prescribed time periods unless an exemption is granted.

After consideration of the public record and on the recommendation of its staff, the Commission has chosen a text for Sections 50.47 and 50.54 (s) and (t) that is similar to, but less restrictive than, alternative A in the proposed rule. Rather than providing for the shutdown of the reactor as the only enforcement action and prescribing specific preconditions for the shutdown remedy, the final rule makes clear that for emergency planning rules, like all other rules, reactor shutdown as outlined in the rule is but one of a number of possible enforcement actions and many factors should be considered in determining whether it is an appropriate action in a given case. This Commission choice is consistent with most of the comments received from State and local

\* See Section V for a discussion concerning "concurrence."

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governments and is consistent with the provisions of Section 109 of the NRC fiscal year 1980 Authorization Act. Alternative B was seen by some of the commenters as potentially causing unnecessarily harsh economic and social consequences to State and local governments, utilities, and the public.

State and local governments that are directly involved in implementing planning objectives of the rule strongly favor alternative A since it provides for a cooperative effort with State and local governments to reflect their concerns and desires in these rules. This choice is responsive to that effort. In addition, the industry strongly supported alternative A as being the more workable of the two alternatives.

In Appendix E, Sections IIC and III, alternative A would require an applicant/licensee to outline "corrective measures to prevent damage to onsite and offsite property," as well as protective measures for the public. Alternative B addresses only protective measures for the public health and safety. The Commission has chosen alternative B because public health and safety should take clear precedence over actions to protect property. Measures to protect property can be taken on an ad hoc basis as resources become available after an accident.

In Appendix E, under Training, alternative A would provide for a joint licensee, Federal, State, and local government exercise every 3 years, whereas alternative B would provide for these exercises to be performed every 5 years at each site. The Commission has chosen alternative B because the Commission is satisfied that the provision that these exercises be performed every 5 years for each site will allow for an adequate level of preparedness among Federal emergency response agencies. In addition, under these regulations, each licensee is required to exercise annually with local governmental authorities. Furthermore, Federal emergency response agencies may have difficulty supporting exercises every 3 years for all of the nuclear facilities that would be required to comply with these rule changes.

### V. Definition of Plan Approval Process

The term "concurrence" has been deleted from the proposed regulations and replaced with reference to the actual procedure and standards that NRC and FEMA have agreed upon and are implementing. According to the agreed upon procedure, FEMA will make a finding and determination as to the adequacy of State and local government emergency response plans. The NRC will determine the adequacy of

the licensee emergency response plans. After these two determinations have been made, NRC will make a finding in the licensing process as to the overall and integrated state of preparedness.

It was pointed out to the Commission at the workshops and in public comment letters that the term "concurrence" was confusing and ambiguous. Also, there was a great deal of misunderstanding with the use of the term because, in the past, the obtaining of NRC "concurrence" in State emergency response plans was voluntary on behalf of the States and not a regulatory requirement in the licensing process. Previously too, "concurrence" was statewide rather than site-specific.

### VI. Fifteen-Minute Notification

The requirement for the capability for notification of the public within 15 minutes after the State/local authorities have been notified by the licensee has been expanded and clarified. It also has been removed as a footnote and placed in the body of Appendix E. The implementation schedule for this requirement has been extended to July 1, 1981. This extension of time has been adopted because most State and local governments identified to the Commission the difficulty in procuring hardware, contracting for installation, and developing procedures for operating the systems used to implement this requirement.

The Commission is aware that various commenters, largely from the industry, have objected to the nature of the 15-minute notification requirement, indicating that it may be both arbitrary and unworkable.

Among the possible alternatives to this requirement are a longer notification time, a notification time that varies with distance from the facility, or no specified time. In determining what that criterion should be, a line must be drawn somewhere, and the Commission believes that providing as much time as practicable for the taking of protective action is in the interest of public health and safety. The Commission recognizes that this requirement may present a significant financial impact and that the technical basis for this requirement is not without dispute. Moreover, there may never be an accident requiring using the 15-minute notification capability. However, the essential rationale behind emergency planning is to provide additional assurance for the public protection even during such an unexpected event. The 15-minute notification capability requirement is wholly consistent with that rationale.

The Commission recognizes that no single accident scenario should form the

basis for choice of notification capability requirements for offsite authorities and for the public. Emergency plans must be developed that will have the flexibility to ensure response to a wide spectrum of accidents. This wide spectrum of potential accidents also reflects on the appropriate use of the offsite notification capability. The use of this notification capability will range from immediate notification of the public (within 15 minutes) to listen to predesignated radio and television stations, to the more likely events where there is substantial time available for the State and local governmental officials to make a judgment whether or not to activate the public notification system.

Any accident involving severe fuel degradation or core melt that results in significant inventories of fission products in the containment would warrant immediate public notification and consideration, based on the particular circumstances, of appropriate protective action because of the potential for leakage of the containment building. In addition, the warning time available for the public to take action may be substantially less than the total time between the original initiating event and the time at which significant radioactive releases take place. Specification of particular times as design objectives for notification of offsite authorities and the public are a means of ensuring that a system will be in place with the capability to notify the public to seek further information by listening to predesignated radio or television stations. The Commission recognizes that not every individual would necessarily be reached by the actual operation of such a system under all conditions of system use. However, the Commission believes that provision of a general alerting system will significantly improve the capability for taking protective actions in the event of an emergency. The reduction of notification times from the several hours required for street-by-street notification to minutes will significantly increase the options available as protective actions under severe accident conditions. These actions could include staying indoors in the case of a release that has already occurred or a precautionary evacuation in the case of a potential release thought to be a few hours away. Accidents that do not result in core melt may also cause relatively quick releases for which protective actions, at least for the public in the immediate plant vicinity, are desirable.

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Some comments received on the proposed rule advocated the use of a staged notification system with quick notification required only near the plant. The Commission believes that the capability for quick notification within the entire plume exposure emergency planning zone should be provided but recognizes that some planners may wish to have the option of selectively actuating part of the system during an actual response. Planners should carefully consider the impact of the added decisions that offsite authorities would need to make and the desirability of establishing an official communication link to all residents in the plume exposure emergency planning zone when determining whether to plan for a staged notification capability.

### VII. Effective Date of Rules and Other Guidance

Prior to the publication of these amendments, two guidance documents were published for public comment and interim use. These are NUREG-0610, "Draft Emergency Action Level Guidelines for Nuclear Power Plants," (September 1979) and NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants for Interim Use and Comment," (January 1980). It is expected that versions of these documents, revised on the basis of public comments received, will be issued to assist in defining acceptable levels of preparedness to meet this final regulation. In the interim, these documents should continue to be used as guidance.

### VIII. Hearing Procedures Used in Implementation of These Regulations

Should the NRC believe that the overall state of emergency preparedness at and around a licensed facility is such that there is some question whether a facility should be permitted to continue to operate, the Commission may issue an order to the licensee to show cause, pursuant to 10 CFR 2.202, why the plant should not be shut down. This issue may arise, for example, if NRC finds a significant deficiency in a licensee plan or in the overall state of emergency preparedness.

If the NRC decides to issue an order to show cause, it will provide the licensee the opportunity to demonstrate to the Commission's satisfaction, for example, that the alleged deficiencies are not significant for the reactor in question, whether adequate interim compensating actions have been or will be taken promptly, or whether other compelling

reasons exist for reactor operation. Finally, pursuant to 10 CFR 2.202(f), the Commission may, in appropriate circumstances, make the order immediately effective, which could result in immediate plant shutdown subject to a later hearing.

### IX. Funding

In view of the requirements in these rule changes regarding the actions to be taken in the event State and local government planning and preparedness are or become inadequate, a utility may have an incentive, based on its own self interest as well as its responsibility to provide power, to assist in providing manpower, items of equipment, or other resources that the State and local governments may need but are themselves unable to provide. The Commission believes that in view of the President's Statement of December 7, 1979, giving FEMA the lead role in offsite planning and preparedness, the question of whether the NRC should or could require a utility to contribute to the expenses incurred by State and local governments in upgrading and maintaining their emergency planning and preparedness (and if it is to be required, the mechanics for doing so) is beyond the scope of the present rule change. It should be noted, however, that any direct funding of State or local governments solely for emergency preparedness purposes by the Federal government would come through FEMA.

### X. Exercises

On an annual basis, all commercial nuclear power facilities will be required by NRC to exercise their plans; these exercises should involve exercising the appropriate local government plans in support of these facilities. The State may choose to limit its participation in exercises at facilities other than the facility (site) chosen for the annual exercise(s) of the State plan.

Each State and appropriate local government shall annually conduct an exercise jointly with a commercial nuclear power facility. However, States with more than one facility (site) shall schedule exercises such that each individual facility (site) is exercised in conjunction with the State and appropriate local government plans not less than once every 3 years for sites with the plume exposure pathway EPZ partially or wholly within the State, and not less than once every 5 years for sites with the ingestion exposure pathway EPZ partially or wholly within the State. The State shall choose, on a rotational basis, the site(s) at which the required annual exercise(s) is to be conducted; priority shall be given to new facilities

seeking an operating license from NRC that have not had an exercise involving the State plan at that facility site.

The Commission has determined under the criteria in 10 CFR Part 51 that an environmental impact statement for the amendments to 10 CFR Part 50 and Appendix E thereof is not required. This determination is based on "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). Comments on the "Draft Negative Declaration; Finding of No Significant Impact" (45 FR 3913, January 21, 1980) were considered in the preparation of NUREG-0685.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 50 and 70, are published as a document subject to codification.

45 FR 62789

Published 9/22/80

Effective 10/22/80

### 10 CFR Part 50

#### Domestic Licensing of Production and Utilization Facilities; Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending the portion of one of its regulations that provides requirements for leak testing of containment building air locks in order to permit greater flexibility for such testing in the case of frequent use of the air locks.

**EFFECTIVE DATE:** October 22, 1980.

**FOR FURTHER INFORMATION CONTACT:** E. G. Arndt, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-443-5997).

**SUPPLEMENTARY INFORMATION:** On January, 11, 1980, the Nuclear Regulatory Commission published in the *Federal Register* (45 FR 2330) a proposed amendment to its regulation 10 CFR Part 50, "Licensing of Production and Utilization Facilities" which would amend Appendix J, "Primary Reactor



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Containment Leakage Testing for Water-Cooled Reactors," with regard to Type B-testing requirements. Interested persons were invited to submit written comments by February 25, 1980. Three sets of comments were received. After consideration of the comments received and other factors involved, the Commission has adopted the amendment to Appendix J, 10 CFR Part 50, as published for public comment.

Copies of the comments, an abstract of comments containing staff responses, and the value/impact analysis supporting the rule, are available for public inspection at the Commission's Public Document Room at 1717 H Street, NW., Washington, DC. Single copies may be obtained on request from the Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: E. G. Arndt.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553, title 5 of the United States Code, the following amendment to 10 CFR Part 50 is published as a document subject to codification.

45 FR 76602

Published 11/19/80

Effective 2/19/81

Effective 2/17/81 \*

### 10 CFR Part 50

#### Fire Protection Program for Operating Nuclear Power Plants

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require certain provisions for fire protection in operating nuclear power plants. This action is being taken to upgrade fire protection at nuclear power plants licensed to operate prior to January 1, 1979, by requiring resolution of certain contested generic issues in fire protection safety evaluation reports.

**EFFECTIVE DATE:** February 19, 1981.

**Note.**—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for review as may be appropriate under the Federal Reports Act, as amended (44 U.S.C. 3512). The date on which the reporting requirement of this rule becomes effective, unless advised to the contrary, reflects inclusion of the 45-day period that statute allows for such review (44 U.S.C. 3512(c)(2)).

**FOR FURTHER INFORMATION CONTACT:** David P. Notley, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, phone 301-443-5921 or Robert L. Ferguson, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, phone 301-492-7096.

**SUPPLEMENTARY INFORMATION:** On May 29, 1980, the Nuclear Regulatory Commission published in the *Federal Register* (45 FR 36082) a notice of proposed rulemaking inviting written suggestions or comments on the proposed rule by June 30, 1980. The notice concerned proposed amendments to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," which would require certain minimum provisions for fire protection in nuclear power plants operating prior to January 1, 1979. Fifty-one comment letters were received regarding the proposed amendments. A number of comments pertained to specific requirements in the proposed Appendix R, and these will be dealt with below. However, there were three substantive contentions which were raised by many of the commenters. These three comments are summarized as follows:

1. Most commenters stated that the 30 day comment period was too short to permit adequate detailed response and that the comment period should have been extended.

The Commission does not agree. The NRC has been developing fire protection requirements since 1975. The NRC published comprehensive fire protection guidelines, Branch Technical Position BTP APCSB 9.5-1, and its Appendix A in 1976. Licensees have compared their fire protection programs against these guidelines and have discussed their deviations from these guidelines with the NRC staff for the past four years during the NRC's fire protection reviews of operating reactors. A Safety Evaluation Report and, in most cases, supplements to the Safety Evaluation Report, have been issued for each operating reactor. These reports describe fire protection alternatives that have been proposed by the licensee and found acceptable by the staff as well as unresolved fire protection issues remaining between the staff and the licensee. Proposed Appendix R provided the Commission's requirements for resolving those issues. Thus, it concerns only a limited number of issues derived from the use of the earlier guides. The Commission believes that a 30-day comment period was adequate under these circumstances.

2. Many licensees questioned the need for backfitting all the requirements of Appendix R. They commented that they

\*Amended 45 FR 79409

had previously complied with staff fire protection recommendations in "good faith" and have committed to or completed certain modifications. They contend that the staff has properly determined that these modifications provide at least the level of fire protection described by the guidance contained in Appendix A to Branch Technical Position BTP APCSB 9.5-1. They also contend that these modifications provide a level of protection at least equivalent to that contained in the proposed rule. They express the concern that the proposed rule was written in such specific language that fire protection issues that were thought closed would be reopened and new, but not necessarily better, modifications would be required. These modifications could be accomplished only by the expenditure of considerable engineering, design, and construction effort and at great undue expense. The commenters request that the requirements in the proposed rule be rewritten to specify only the general requirements of what needs to be accomplished.

These comments raise three related issues. The first relates to the need for specific requirements. The general requirements relating to fire protection are already set forth in General Design Criterion 3 of Appendix A to 10 CFR Part 50 and in the NRC guidance documents. These general provisions gave rise to a number of disputes over whether specific methods adequately accomplished the intended goal. The proposed rule is intended to provide sufficient specific guidance to ensure satisfactory resolution of these issues. Thus, reverting to generalized guidance would not accomplish the intended purpose of the proposed rule.

The second issue involved some instances in which the specific wording used resulted in unnecessary and unintended restrictions. For example, the proposed rule called for a "fresh water" supply. For firefighting purposes, brackish water is satisfactory and a "fresh" water supply is unnecessary. Similarly, the proposed rule called for an "underground" yard fire main loop. Often portions of a fire main loop run above ground in and as they enter structures. The Commission had not intended to prohibit running portions of a fire main loop above ground. Other similar changes are discussed in Section III, "Specific Requirements," of this preamble.

The third issue relates to imposition of requirements on plants with presently installed or with existing commitments to install fire protection features previously determined by the staff to satisfy the guidance of Appendix A to BTP APCSB 9.5-1. The Commission

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generally agrees that, except for three sections that will be back fitted, Appendix R should not be retroactively applied to features that have been previously approved by the NRC staff as satisfying the provisions of Appendix A to BTP APCSB 9.5-1.

The NRC staff had intended, in its original proposal for Appendix R, that the requirements be applicable only for the resolution of unresolved disputed fire protection features. Thus, the staff had not intended the provisions of Appendix R to require modification of previously approved features. This was not clearly described in the proposed rule as published for comment. In fact, the Supplementary Information published with the proposed rule explicitly indicated that "[a]ll licensees will be expected to meet the requirements of this rule, in its effective form, including whatever changes result from public comments."

In determining whether the specific requirements of Appendix R should be imposed on licensees with presently installed or existing commitments to install fire protection features previously determined to satisfy Appendix A to Branch Technical Position BTP APCSB 9.5-1, it is important to recognize that Appendix R addresses only a portion of the specific items contained in the more comprehensive document, Branch Technical Position BTP APCSB 9.5-1 and its Appendix A. Appendix A to BTP APCSB 9.5-1 has been the basic fire protection guidance used by the staff in their fire protection reviews conducted for all operating plants during the past several years. For many plants, licensees proposed systems and features that satisfactorily achieved the fire protection criteria set forth in Appendix A to BTP APCSB 9.5-1 and began to promptly implement such features and systems.

Satisfactory features and systems are already in place and in operation in many plants. There is a reasonable degree of uniformity among most of these approved features for all facilities since they were reviewed against the same criteria of Appendix A to BTP APCSB 9.5-1. In general, the features previously approved by the NRC staff in its reviews of fire protection using the criteria of Appendix A to BTP APCSB 9.5-1 provide an equivalent level of fire protection safety to that provided under the specific provisions of Appendix R. Thus, the further benefit that might be provided by requiring that previously approved features be modified to conform to the specific language set forth in Appendix R is outweighed by the overall benefit of the early implementation of such previously approved features, which in many cases are currently being installed.

Nevertheless, as a result of its continuing review of fire protection

matters, the NRC staff has indicated to the Commission that there are requirements in three sections in which the protection afforded by Appendix R over and above that previously accepted, may be desirable. The Commission has decided that these requirements should be retroactively applied to all facilities. This decision is not meant to reflect adversely on previous licensee or staff evaluations; rather its purpose is to take fully into account the increased knowledge and experience developed on fire protection matters over the last several years.

The first of these sections is related to fire protection features for ensuring that systems and associated circuits used to achieve and maintain safe shutdown are free from fire damage. Appendix A to BTP APCSB 9.51 permits a combination of fire-retardant coatings and fire detection and suppression systems without specifying a physical separation distance to protection redundant systems (Appendix A, D.1(2)), and such arrangements were accepted in some early fire protection reviews. As a result of some separate effects tests, the staff changed its position on this configuration, and subsequent plans have been required to provide additional protection in the form of fire barriers or substantial physical separation for safe shutdown systems. No credit for such coatings as fire barriers is allowed by Section III.G of Appendix R. Appendix A to Branch Technical Position BTP APCSB 9.5.1 and the proposed Appendix R recognized that there were plant-unique configurations that required fire protection features that are not identical to those listed in Section III.G of Appendix R. For these cases, fire protection features were developed by the licensee and described in a fire hazards analysis. Some of these arrangements were accepted by the staff as providing equivalent protection to the requirements of Section III.G to Appendix R.

Requirements that account for all of the parameters that are important to fire protection and consistent with safety requirements for all plant-unique configurations have not been developed. In light of the experience gained in fire protection evaluations over the past four years, the Commission believes that the licensees should reexamine those previously approved configurations of fire protection that do not meet the requirements as specified in Section III.G to Appendix R. Based on this reexamination the licensee must either meet the requirements of Section III.G of Appendix R or apply for an exemption that justifies alternatives by a fire hazard analysis. However, based on

present information, the Commission does not expect to be able to approve exemptions for fire-retardant coatings used as fire barriers.

The second relates to emergency lighting. Section III.J of Appendix R calls for 8-hour emergency lighting, whereas in some cases less than 8-hour emergency lighting has been accepted as satisfying Appendix A to BTP APCSB 9.5-1. While an adequate level of safety may be provided by less than an 8-hour supply, an 8-hour system would provide added protection and would generally involve only a small cost. The Commission therefore believes that licensees should upgrade the previously approved facilities to satisfy the 8-hour lighting requirement of Appendix R.

The third relates to protection against fires in noninerted containments involving reactor coolant pump lubrication oil (Section III.O of Appendix R). The proposed rule permitted either an oil collection system or a fire suppression system. The staff has also accepted an automatic fire suppression system as an acceptable method of fire protection for this application. The Commission has concluded that fire suppression systems do not give adequate protection for fires that may be induced by seismic events. The Commission therefore believes that previously approved suppression systems should be replaced with oil collection systems that can withstand seismic events.

The technical basis on which these three sections are based are further discussed in Section III, "Specific Requirements," of this preamble.

3. Most commenters stated that the implementation schedule contained in the proposed rule is impossible to meet for any of the operating plants. The commenters further stated that if the implementation schedule in the effective rule is the same as that in the proposed rule, the Commission must be prepared to either shutdown each operating nuclear power plant, or process exemption requests.

The commenters then concluded that the implementation schedule should be rewritten to allow an adequate time period for compliance. The proposed rule stated that "all fire protection and modifications identified by the staff as necessary to satisfy Criterion 3 of Appendix A to this part, whether contained in Appendix R to this part or in other staff fire protection guidance (except for alternate or dedicated shutdown capability) shall be completed by November 1, 1980 unless, for good cause shown, the Commission approves an extension," (proposed paragraph 50.48 1.(c)). The Commission went on to

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state its intention in the Statement of Consideration to the rule that "... no plant would be allowed to continue to operate after November 1, 1980, or beyond an extended date approved by the Commission, unless all modifications (except for alternate or dedicated shutdown capability) have been implemented."

The Commission has reconsidered the implementation schedule and has determined that it should be modified for the following reasons:

- After reviewing the comments and the information developed as a result of completion of fire reviews over the past 6 months, the staff has informed the Commission that the date of November 1, 1980, is not possible because the effective date of the rule will be after that date.

- The staff has informed the Commission that it would expect virtually all licensees to request exemptions if the new implementation dates do not provide an appropriate period of time for complying with the requirements of Appendix R. The time and manpower resources needed by the licensees to prepare such requests and by the staff to formulate recommendations on these requests is not warranted from the standpoint of timely fire protection improvement.

- The revised implementation schedule provides a careful balance of these considerations, calling for the remaining fire protection modifications to be implemented and installed on a phased schedule that is as prompt as can be reasonably achieved.

The revised schedules distinguish between requirements imposed for the first time on the licensee by Appendix R and those requirements already imposed in license conditions or Technical Specifications issued prior to the effective date of the rule. For requirements imposed by Appendix R, including the items "backfit" to all plants, the schedule provides a reasonable time after publication of the rule for completion of required modifications. For requirements already imposed by license conditions providing for implementation after November 1, 1980, the Commission has reviewed these schedules and has found that in some instances the allotted time for completion of the required modifications may be excessive. Thus, for fire protection features other than those covered by Appendix R, although the Commission has extended the compliance dates beyond the November 1, 1980, date in the proposed rule, the Commission has added a requirement that limits the compliance schedule in existing licenses if such schedules extend beyond what we now believe should have been a reasonable schedule

initially. Relief from such limitation may be granted by the Director of Nuclear Reactor Regulation upon a showing that there is good cause for extending such date and that public health and safety is not adversely affected by such extension.

It should also be noted that for licensees whose license conditions imposed a schedule with a compliance date of November 1, 1980, or other date prior to the effective date of § 50.48, the Commission has suspended such compliance dates by promulgating on October 29, 1980, a temporary rule § 50.48 (45 FR 71569), which will be superseded by this rule.

To better understand the nature of the public comments received and the staff's resolution of these comments, the following section will consider each section of Appendix R to this part. In Section III, we provide a summary of the Technical Basis for each requirement, followed by a summary of the public comments and a statement of the staff's disposition of those comments.

### *Section I. Introduction and Scope*

This section has been revised as a result of comments to include a discussion of the importance of safe shutdown capability and the distinction between requirements for "safety-related" equipment and equipment needed for "safe shutdown."

### *Section II. General Requirements*

This section has been substantially rewritten as a result of comments to provide a concise summary of general requirements. The specific requirements were consolidated with the appropriate parts of Section III, "Specific Requirements," except that the credit given for 50-foot separation has been dropped.

### *Section III. Specific Requirements*

The requirements in this rule are based upon principles long accepted within that portion of American industry that has been classified by their insurance carriers as "Improved Risk" or "Highly Protected Risk". In each of these cases, the Commission has decided that the overall interest of public safety is best served by establishing some conservative level of fire protection and ensuring that level of compliance exists at all plants. The following is a list of the specific technical bases and resolution of public comments for each of the specific requirements in Appendix R.

**A. Water Supplies for Fire Suppression Systems Technical Basis.** One of the basic fire protection requirements for a modern industrial site in the United States is a separate water distribution system for fire

protection with dual water supplies. Duplicate water supplies are required to ensure uninterrupted fire suppression capability allowing for single failures and periodic maintenance and repair of vital portions of the systems. Duplicate water supplies may consist of separate suctions for fire pumps from a large body of water such as lake, river, or pond or from two water storage tanks.

For nuclear power plants, the distribution system is required to consist of a loop around the plant with suitable valves for isolating portions of the system for maintenance or repair without interrupting the water supply to the various fire suppression systems in the plant. Thus, with dual supplies and a loop concept, an adequate water supply can be ensured to each manual or automatic water suppression system throughout the plant.

An ensured minimum volume of water is set aside and dedicated for fire protection uses to be available at all times regardless of other simultaneous water uses in the plant. This water volume is dedicated for fire service by means of separate storage tanks or separate pump suctions from a large body of water. When common tankage is employed for fire service needs and other water services, the fire pump suctions must be at the bottom of the tank and other water supply suctions must be located at a higher level to ensure that the minimum dedicated water volume is set aside for fire protection needs. Administrative controls by themselves, such as locked valves to ensure adequate water supply for fire fighting needs, are deemed unacceptable at nuclear power plants.

### *Comment Resolution*

Many commenters stated that we were being too restrictive by stipulating an underground yard fire main loop and fresh water supplies. Our intent was only that a yard fire main loop be furnished. We have deleted the specification for an underground loop since special conditions may dictate that part of the loop be above ground or inside safety-related buildings. Such arrangements are acceptable.

With regard to the specification for a fresh water supply, the staff was attempting to avoid potential plant problems that are not associated with fire protection. From a fire protection standpoint, salt or brackish water is acceptable for fire suppression provided the fire protection system is designed and maintained for salt or brackish water. The requirement for fresh water supplies is therefore dropped. Other operational problems unrelated to fire protection that may result from the use of salt or brackish water for fire suppression activities are outside the

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scope of this regulation.

Several commenters took issue with the requirement for two separate redundant suction, stating that some plants use a single large intake structure on a lake or a river for all water requirements. The requirement for separate intake structures was not intended and the rule has been clarified.

Several comments called for deleting the requirements for dedicated tanks or use of vertical standpipe for other water services when storage tanks are used for combined service-water/fire-water uses, on the basis that this is overly restrictive and other ways are available to ensure a dedicated supply such as weirs, suction location, etc. Two separate but related issues are involved here. The first is the requirement for dedicated water storage tanks for fire fighting purposes. The suggestion that the requirement for dedicated tanks be deleted was rejected for the reasons stated in the preceding Technical Basis.

The other point deals with ensuring minimum water storage capacity for fire suppression activities when storage tanks are used for combined service-water/fire-water uses. The term "vertical standpipe for other water service" simply means that the suction for other water uses in common storage tanks will be located sufficiently high to ensure the minimum water volume needs for fire suppression activities. If the commenters were assuming that "vertical standpipe" referred only to pipes inside the tank, this is not the case. In fact a standpipe exterior to the storage tank is more desirable since any leakage would be immediately evident. On an internal standpipe a leak in the pipe could actually allow depletion of the water otherwise to be reserved for fire uses. The rule has been clarified to allow physical alternatives for water supply dedication but to preclude exclusive use of administrative controls for this purpose.

Some commenters objected to the requirement that other water systems used as a backup water supply for fire protection should be permanently connected to the fire main system and suggested that it would be sufficient to provide a water supply capable of being connected to the fire main system within ten minutes of the loss of normal water supply or pumps. The rule does not address backup water supplies. The requirement means that, if another water system is used as one of the redundant water supplies, it must satisfy all of the requirements of the fire protection water supplies. Additional backup supplies need not meet these requirements.

One commenter asked why only a two-hour water supply is required when

the Browns Ferry Fire lasted well over two hours. All of the investigations of the Browns Ferry Fire clearly show that if water had been used immediately, the fire would have been extinguished much earlier. Indeed once the manual fire fighting activities were started with the use of only one fire hose stream, the fire was extinguished within one-half hour. The staff would find unacceptable any condition in which a postulated fire that could threaten safe shutdown capability could not be controlled and extinguished within two hours with any combination of manual and automatic fire suppression activities. Therefore, a two-hour water supply is considered adequate. It should also be noted that this minimum dedicated water volume is based on maximum flow rates. Since most fires are controlled and extinguished with much smaller flow rates, this requirement realistically represents a dedicated water volume far in excess of two hours.

### *B. Sectional Isolation Valves.*

*C. Hydrant Isolation Valves*  
*Technical Basis.* These two requirements are similar and can be treated together. Proper valving is required to isolate portions of the water distribution system for maintenance or repair without interrupting the water supply to manual or automatic fire suppression systems inside the plant. Valves are similarly required to permit isolation of outside yard hydrants from the water distribution system for maintenance or repair without interrupting water supply to fire suppression systems inside the plant. Visually indicating valves such as post indicator valves are preferred so that the position of the valve can be readily determined. However, key-operated valves (commonly known as curb valves) are acceptable for these purposes where plant-specific conditions warrant their use.

*B. Section Control Valves—Comment Resolution.* Many commenters stated that the requirement for "approved visually indicating" sectional control valves was overly restrictive, unnecessary, and not specific with respect to who should give the approval. The Commission has accepted this suggestion; the rule now requires that sectional control valves shall be provided to isolate portions of the fire main for maintenance or repair without shutting off the entire system. Post indicator or key-operated valves are mentioned as two examples of acceptable valves.

*C. Hydrant Block Valves—Comment Resolution.* A number of commenters made suggestions for rewording this section. This section has been clarified to state the requirement for capability to

isolate hydrants from the fire main without disrupting the water supply to automatic or manual fire suppression systems in any area containing or presenting a fire hazard to safety-related or safe shutdown equipment.

One commenter suggested that this requirement be dropped in its entirety since it "is a new requirement which has not been subjected to the peer review process." This suggestion was rejected on the basis that Appendix A to BTP APCSB 9.5-1 contains the following sentence: "The lateral to each hydrant from the yard main should be controlled by a visually indicating or key-operated (curb) valve," and there was an opportunity to comment on this document.

*D. Manual Fire Suppression Technical Basis.* Considerable reliance is placed on automatic fire suppression systems throughout a nuclear power plant. However, manual fire fighting activities often can control and extinguish slowly developing fires before an automatic fire suppression system is actuated. In addition, fires that are controlled or extinguished by automatic systems require a certain amount of manual response. Also, some areas of the plant do not warrant the installation of automatic fire suppression systems. Manual response is the only fire suppression available for these areas; thus, it is important that manual fire fighting capability be present in all areas of the plant, and that standpipe and hose stations be located throughout the plant. The standpipe and hose stations are to be located so that at least one effective hose stream can be brought to bear at any location in the plant containing or presenting a hazard to structures, systems, or components important to safety. They are to be supplied from the fire water supply system except for those inside containment, which may be connected to other reliable water supplies if a separate penetration into containment cannot be made for fire water service needs.

### *Comment Resolution*

Several commenters suggested adding a sentence reading "Standpipe and hose stations are not required if sufficient justification can be provided that adequate fire protection features have been provided to account for a given fire area." This suggestion was rejected. The staff has taken the position that the minimum requirements are that at least one effective hose stream that will be able to reach any location that contains or could present an exposure fire hazard to the safety-related equipment. The Commission concluded that no analyses can identify hazards so carefully that this minimum requirement can be

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further reduced.

**E. Hydrostatic Hose Test Technical Basis.** Fire hoses should be hydrostatically tested periodically to ensure that they will not rupture during use. The requirement for a minimum test pressure of 300 psi comes from NFPA 1962-1979 (National Fire Protection Association Standard for Care, Use and Maintenance of Fire Hose Including Connections and Nozzles, 1979 Edition of NFPA 1962), a nationally recognized consensus standard. This standard contains other guidance for the use and care of fire hose that most industries find useful.

### *Comment Resolution*

Many commenters pointed out the erroneous usage of the term "service pressure" rather than "operating pressure" in this requirement. The intended meaning for this requirement is that all hoses would be tested at a pressure greater than the maximum pressure found in the fire protection water distribution systems. The correct terminology is "operating pressure." The rule has been so changed. In addition, the staff added a specific minimum test pressure requirement of 300 psi to meet the NFPA standard.

One commenter also pointed out that hoses should be inspected for mildew, rot, cuts, or other damage. Although this is a valid comment, it is not an unresolved issue with any licensee so it need not be covered by this rule. In addition, such inspections are already being performed in accordance with the plant's Technical Specifications.

**F. Automatic Fire Detection Technical Basis.** The requirement that automatic fire detection systems be installed in all areas that contain safe shutdown or safety-related systems or components follows generally accepted fire protection practice. Installation of such fire detection capability is independent of any requirements for automatic or manual fire suppression capability in an area. The purpose of these detection systems is to give early warning of fire conditions in an area so that the fire brigade can initiate prompt actions to minimize fire damage within the plant.

### *Comment Resolution*

Many commenters suggested that the words "automatic fire detection capability" be substituted for "automatic fire detection systems" on the basis that, as worded, the requirements are too limiting. They stated that an automatic sprinkler system with appropriate alarm check valves and central alarm features provides acceptable detection/alarms capability. Several commenters claimed

that a separate detection system is not needed in areas covered by sprinkler systems equipped with fusible link sprinkler heads. A fusible link has a time delay before it actuates. However, more importantly, a smoldering localized fire that could do damage may not generate enough heat to melt the fusible link. While we do not disagree that the alarm from an automatic fire suppression system serves as notification that a fire exists, we concluded that the minimum requirement for a separate fire detection system in all such areas should be retained. The fire hazards analysis may call for a separate suppression system, but this would be in addition to the fire detection system.

**G. Protection of Safe Shutdown Capability Technical Basis.** The objective for the protection of safe shutdown capability is to ensure that at least one means of achieving and maintaining safe shutdown conditions will remain available during and after any postulated fire in the plant. Because it is not possible to predict the specific conditions under which fires may occur and propagate, the design basis protective features are specified rather than the design basis fire. Three different means for protecting the safe shutdown capability outside of containment are acceptable. The first means is separation of redundant safe shutdown trains and associated circuits by means of 3-hour fire rated barriers. The second means is a combination of separation of redundant safe shutdown trains and associated circuits by a 1-hour fire rated barrier and automatic fire suppression and detection capability for both redundant trains. The third means, which may be used only when redundant trains and associated circuits are separated by 20 feet or more of clear space, requires automatic fire suppression and detection systems in the area. An alternative or dedicated safe shutdown capability independent of the fire area is required if fire protection for safe shutdown capability cannot be provided as outlined above. For cables and equipment needed for safe shutdown located inside of noninerted containments, a lesser degree of fire protection is permitted because transient exposure fires are less likely inside containment during plant operation. Section III.M, "Fire Barriers," discusses the technical basis for the 3-hour barrier, and Section III.L, "Alternative and Dedicated Shutdown Capability," discusses the technical basis for safe shutdown capability.

### *Comment Resolution*

Many commenters suggested that the first paragraph be changed slightly and

the rest of this section deleted. The basis for their contention is that the rule should state simply the requirement to protect cables or equipment of systems necessary for safe shutdown of the plant and leave specific implementation details in some other type of document.

We have modified this section by removing the listing of considerations, deleting Table I, and revising the wording to provide clarification.

### *H. Fire Brigade.*

**I. Fire Brigade Training Technical Basis.** Most modern industrial plants with replacement cost values approaching those of a modern nuclear powered electric generating station have a full-time fully equipped fire department, including motorized fire apparatus. Because of the reduced severity of fire hazards in a nuclear generating station as compared to a manufacturing plant, the Commission believes that it is not necessary to mandate a fully staffed fire department. However, manual fire response capability is required at a nuclear plant and a properly equipped and fully trained fire brigade will satisfy this need. The Commission has determined that a brigade of five persons constitutes the minimum size sufficient to perform the actions that may be required by the brigade during the fire and to provide some margin for unanticipated events.<sup>1</sup> Similarly, the training requirements listed are considered the minimum needed to ensure that the fire brigade will be able to function effectively during a fire emergency.

The proposed rule required emergency breathing apparatus without specifying the number of such pieces of apparatus. The rule has been modified to specify the personnel for whom such apparatus is to be provided and to specify reserve air requirements.

**H. Fire Brigade—Comment Resolution.** Many commenters suggested changing this requirement to a simple statement that a trained and equipped, nominal size, site fire brigade of five persons be provided on each shift unless a lesser number is justified. This recommended change was rejected by the Commission for the reasons stated in the Technical Basis.

Some commenters objected to the exclusion of the shift supervisor from the fire brigade. The commenters felt that the shift supervisor should go to the fire and provide the benefit of his expertise and authority. The rule would not prevent this. However, the shift supervisor may have to go elsewhere during the course of a fire that adversely

<sup>1</sup> This is discussed at length in the NRC staff's "Evaluation of Minimum Fire Brigade Shift Size", dated June 8, 1979; copies are available from David P. Notley, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

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affects plant operation. The fire brigade leader must stay with the fire brigade and be assigned no other responsibilities during a fire emergency, therefore, the shift supervisor must be excluded from membership on the fire brigade.

**I. Fire Brigade Training—Comment Resolution.** Many commenters have stated that NRC used unnecessary detail in spelling out specific requirements for classroom instruction, fire fighting practice, and fire drills. Some commenters felt that these requirements were more detailed than anything the Commission has published with regard to operator training. The Commission here points out that most of the investigations of the TMI accident identified inadequately trained operators as an important factor and that work is now being done in this area. The fact is not that the training requirements spelled out here for the fire brigade members are excessive when compared to training requirements for reactor operators, but that fire brigade training is further along in development, and training parameters that are essential to a comprehensive program have been identified.

**J. Emergency Lighting Technical Basis.** Emergency lighting is required in all nuclear power plants. Battery-powered lights with capacities of 1½ to 2 hours is usually sufficient for emergency egress. However, the postfire emergency lighting requirements in a nuclear power plant are of a different kind. The need is for lighting that aids the access to equipment and components that must be manually operated by plant personnel to effect safe plant shutdown during plant emergencies. Because such activities may extend over a considerable period of time both during and after the fire, it is prudent to provide 8-hour battery emergency lighting capability to allow sufficient time for normal lighting to be restored with a margin for unanticipated events.

### *Comment Resolution*

Many commenters stated that the requirement for emergency lighting is overly restrictive in three specifics: first, that emergency lighting is unnecessary in many of the designated areas; second, that the requirement for sealed beam or fluorescent units is overly restrictive; third, that the requirement for individual 8-hour battery power supply is excessive. Three commenters recommended a 2-hour battery power supply; five commenters recommended a plant-specific power supply; and one commenter recommended that there be no permanent installation.

These suggestions have been accepted in part. Lighting units with 8-hour

battery supplies are to be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto. The reasoning behind the requirement for an 8-hour battery power supply is that there can be a great deal of other activity during a fire emergency and operators involved in safe plant shutdown should not also have to be concerned with lighting in the area. The small cost differential between 2-hour supply and the substantial additional protection afforded by the 8-hour supply does not warrant reducing this requirement. The Commission has decided to require an 8-hour battery power supply in all areas needed for operation of safe shutdown equipment and in access and egress routes.

**K. Administrative Controls Technical Basis.** The fire protection program uses administrative controls for fire prevention and prefire planning. The items listed in this section are generally accepted within the fire protection community as minimum requirements for an effective administration of the fire protection program. Controls are placed on the storage and use of combustible materials to reduce the fire loading in safety-related areas and on ignition sources to avoid careless operations. Procedures are used to control actions to be taken by individuals who discover a fire and by the fire brigade for the development of preplanned fire fighting strategies and actual fire fighting techniques.

### *Comment Resolution*

Many commenters stated that this requirement was much too detailed for a regulation. Some stated that the requirements should apply only to those areas having safe shutdown equipment. Other commenters stated that a simple statement that administrative procedures should be established to control the various fire hazards throughout the plant was sufficient, and that the details could be spelled out in a regulatory guide or some other similar document.

Minor changes have been made in the wording of this requirement for clarification.

### **L. Alternative and Dedicated Shutdown Capability.**

**Technical Basis.** In some locations (such as the cable spreading room) within operating nuclear power plants, it is not always possible or practicable to protect redundant safe shutdown systems against adverse effects of fire or fire suppression activities only through the use of fire protection features because the redundant safe shutdown systems in a given fire area are too close to each other. Alternative shutdown capability has usually been required to

be independent of the control room, cable spreading room, switchgear rooms and cable riser areas because redundant systems in these areas are not adequately separated. When plant modifications to provide alternative shutdown systems are extensive, a dedicated system that is essentially a minimum capability safe shutdown train and is independent of those already existing may be provided. This minimum capability is required to maintain the process variables within those values predicted for a loss of offsite power. The case of loss of offsite power is assumed because fires in certain circumstances (e.g., electrical distribution systems) could cause or be related to such a loss. Fire damage to cold shutdown capability is limited to damage that can be repaired within 72 hours to provide a margin in achieving cold shutdown conditions. Consideration is given to associated circuits because most plants were not designed with this concept in mind. Should either the alternative or dedicated capability be required to function because of a fire, it must not be disabled by fire damage to associated circuits. Also, this capability does not have to meet the single failure criterion because it is only one of several levels of defense. Seismic Category I criteria is not imposed because fires that would require the installation of alternative or dedicated shutdown capability are not seismically induced.

### *Comment Resolution*

Many of the commenters stated that this requirement exceeded the scope of Appendix R by defining alternative shutdown requirements. They stated that the time requirements are excessive and should be dropped. They also contend that this regulation does not take into account the many plant reviews being conducted under the Systematic Evaluation Program (SEP).

It is generally understood that cold shutdown is the ultimate safe shutdown condition and that, for each fire area, different means may be used and may be necessary to achieve cold shutdown. Because a fire in certain areas at some plants would have the capability of disabling systems required to achieve both hot and cold shutdown, it is necessary to specify the minimum capability and time requirement for each condition necessary to achieve safe shutdown. We agree that evaluations being made under the Systematic Evaluation Program (SEP) may also call for alternative or dedicated shutdown capability for reasons other than fire protection. For example, seismic, flooding, or emergency core cooling requirements resulting from the SEP may require additional modifications. Each licensee should be aware of the status of



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the SEP so that the requirements resulting from SEP can be effectively integrated with those relating to fire protection to the extent possible. However, the Commission has decided that the modifications required to complete the fire protection program should not be deferred until the SEP review is completed.

### *M. Fire Barriers.*

**Technical Basis.** The best fire protection for redundant trains of safe shutdown systems is separation by unpierced fire barriers—walls and ceiling-floor assemblies. Because these barriers are passive fire protection features, they are inherently reliable provided they are properly installed and maintained. Fire barriers have been used successfully for many years to subdivide large potential fire losses into smaller, more acceptable risks. Even fire barriers with openings have successfully interrupted the progress of many fires provided the openings were properly protected by fire doors or other acceptable means.

Fire barriers are "rated" for fire resistance by being exposed to a "standard test fire". This standard test fire is defined by the American Society for Testing and Materials in ASTM E-119, "Standard for Fire Resistance of Building Materials." Fire barriers are commonly rated as having a fire resistance of from 1 to 8 hours. Most "Improved Risk" or "Highly Protected Risk" (as classified by insurance carriers) industrial properties in the United States require fire barriers to have a resistance rating of 2 to 4 hours.

While a nuclear power plant has a low fire load, the potential consequences of fire are serious. Therefore, the Commission has selected 3 hours \* as an acceptable minimum fire resistance rating for fire barriers separating redundant trains for safe shutdown systems. This will give ample time for automatic and manual fire suppression activities to control any potential fire and for safe shutdown activities to properly control the reactor. Many operating plants, or plants that are already built but that are not yet operating, have both trains of safe shutdown equipment located in close proximity and a single fire could damage or destroy the functional capability of both redundant trains. If specific plant conditions preclude the installation of a 3-hour fire barrier to separate the redundant trains, a 1-hour fire barrier and automatic fire suppression system for each redundant train will be considered the equivalent of 3-hour barrier.

If the 1-hour fire barrier and automatic fire suppression for each redundant train cannot be provided because of plant-specific conditions, alternative or dedicated shutdowns capability will be

required to ensure safe shutdown capability. The use of a 1-hour barrier in conjunction with automatic fire suppression and detection capability for each redundant train of safe shutdown equipment is based on the following considerations. Automatic suppression is required to ensure prompt, effective application of suppressant to a fire that could endanger safe shutdown capability. The activation of an automatic fire detection or suppression system does not occur until sufficient smoke or heat has been developed by the fire. Therefore, the Commission is requiring a 1-hour barrier to ensure that fire damage will be limited to one train until the fire is extinguished.

These requirements have now been incorporated in Section III.G, "Fire Protection of Safety Functions."

### *Comment Resolution*

Several commenters made a number of suggestions of an editorial nature. One suggestion was to add "or unless other fire protection features have been provided to ensure equivalent protection" in the first paragraph, where three-hour rated fire barriers were stipulated unless a lower rating was justified by the fire hazards analysis. The Commission feels that this adds nothing in the way of clarification and the suggestion was not adopted. The second paragraph requires that structural steel forming a part of or supporting any fire barrier have a fire resistance equivalent to that required of the barrier. An example was given of metal lath and plaster covering as being one means of providing equivalent protection. Several commenters stated that they thought this was too narrow and would be interpreted by some people as the only acceptable method permitted. Since the example seemed to be confusing, a decision has been made to eliminate it. Other comments to the effect that the requirement was excessively restrictive with regard to fire barrier penetrations, including fire doors and their associated frames and hardware, and ventilation systems have been acted upon by the staff and the requirement, as it had affected these items, was deleted.

### *N. Fire Barrier Cable Penetration Seal Qualification.*

**Technical Basis.** Unpierced fire barriers offer the best protection for separating redundant trains of safety-related or safe shutdown equipment. However, these barriers must be pierced for both control and power cables. These penetrations must be sealed to achieve a degree of fire resistance equivalent to that required of the barrier that is pierced. ASTM Standard E-119 is

the national consensus standard used for testing and rating these cable penetration seals. Since the cables conduct the heat through the barrier, and since the cable insulation is combustible, the acceptance criteria of the ASTM Standard E-119 relating to temperature on the unexposed side must be appropriately modified.

### *Comment Resolution*

Some commenters suggested that this entire section be deleted and replaced with the following two sentences: "Penetration seals shall provide the equivalent protection which is required of the fire barrier. Evaluation of the penetration seals based upon a design review and relevant test data or qualification tests may be made." The commenters felt that sufficient test data are available to permit evaluation of design requirements without full-scale mockup testing and that many of the items spelled out in the regulation, such as the water hose stream test, were too detailed and did not belong in the regulation. The Commission has reconsidered this issue and revised the rule to (a) require the use of noncombustible materials only in the construction of fire barrier penetration seals, (b) require fire barrier penetration seals to be qualified by test; and (c) require such tests to satisfy certain acceptance criteria.

### *O. Fire Doors.*

**Technical Basis.** Door openings in fire walls constitute another breach that must be protected. Fire doors that have been tested and rated for certain fire exposures are installed to protect these openings. Fire doors frequently fail to protect the openings in which they are installed because they are not fully closed. Various methods are available to licensees to ensure that fire doors are in proper operating condition and that they will be closed during a fire. These options are listed in Appendix R.

### *Comment Resolution*

Many commenters stated that this requirement is too detailed and should be deleted. Minor editorial changes have been made in order to more clearly state the requirements.

### *P. Reactor Coolant Pump Lubrication System.*

**Technical Basis.** Each reactor coolant pump motor assembly typically contains 140 to 220 gallons of lube oil. Oil leaking from some portions of the lube oil system may come in contact with surfaces that are hot enough to ignite the oil. The resulting fire could be large, and access to the fire would be delayed because of the time required to enter the containment. Containment air temperature

\*Correction 46 FR 44734

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would increase, severe localized environments would develop in the area of the fire, and a large amount of smoke would be generated. These conditions could affect operability of safety-related equipment inside containment.

Therefore, an oil collection system is necessary to confine any oil discharged due to leakage or failure of the lubrication system and to prevent it from becoming a fire hazard by draining it to a safe location. These occurrences could be random or could be seismically induced because the existing lube oil system piping and oil collection systems may not be designed to withstand a design basis seismic event.

Appendix A to BTP APCSB 9.5-1 states that for operating plants, "postulated fires or fire protection system failures need not be considered concurrent with other plant accidents or the most severe natural phenomena." The basis for that statement is two fold. First, nuclear power plants are massive structures, and essential services are designed to withstand earthquakes and other natural phenomena. Second, the history of many fires associated with recent earthquakes have been evaluated. These evaluations showed that such fires usually are due to failure of piping or tanks of flammable gasses or liquids such as municipal natural gas distribution systems or gasoline storage and/or dispensing stations. Where such potential fire hazards exist in nuclear power plants (e.g., hydrogen for generator cooling, or oil fuel for the emergency diesel generator or station space heating boilers) they are designed and installed to withstand the damaging effects of various natural phenomena, and other special fire protection features are provided as necessary. However, General Design Criterion 2 *Design Bases for Protection Against Natural Phenomena* requires that structures, systems, and components important to safety be designed to withstand the effects of earthquakes without loss of capability to perform their safety function. Regulatory Guide 1.29, "Seismic Design Classification," describes an acceptable method for identifying and classifying those features of light-water-cooled nuclear power plants that should be designed to withstand the effects of the Safe Shutdown Earthquake. In this guide, paragraph C.1 applies to systems that are required to remain functional to ensure heat removal capability; paragraph C.2 applies to systems that do not have to remain functional for that purpose, but whose failure could reduce the functioning of those systems covered by paragraph C.1. The reactor coolant

pump oil collection system is covered by paragraph C.2 because its function is required to protect safety-related systems rather than to perform a safety function. Because the failure of the oil collection system for a seismically induced oil fire should not prevent a safety-related system from performing its safety function (Regulatory Guide 1.29, "Seismic Design Classification," paragraph C.2), the oil collection system should be designed, engineered, and installed so that its failure will not lead to a fire affecting safety-related equipment as a result of an earthquake.

The proposed rule permitted two alternatives—an oil collection system or an automatic fire suppression system. We have deleted the alternative of the suppression system because unacceptable damage may result to the safety-related systems from the burning of oil before the suppression system is actuated and because the fire water supply system is not designed to withstand seismic events. In addition, these pumps are located within the biological shield inside containment, therefore, timely fire brigade action would be difficult if the suppression system malfunctions. Further, if the suppression system becomes inoperable during operation, a fire watch or patrol cannot enter the area during operation.

### *Comment Resolution*

A number of commenters suggested that this section is too detailed and should be substantially modified. This requirement was changed to delete the option of protecting the reactor coolant pump lubrication system with an automatic fire suppression system. We have modified the rule to indicate that the requirement that the oil collection system be designed to provide reasonable assurance that it will withstand the Safe Shutdown Earthquake can be met by satisfying paragraph C.2. of Regulatory Guide 1.29, "Seismic Design Classification," as described above.

### *Q. Associated Circuits.*

*Technical Basis.* When considering the consequences of a fire in a given fire area during the evaluation of safe shutdown capabilities of a plant, the staff must be able to conclude that one train of equipment that can be used immediately to bring the reactor to a hot shutdown condition remains unaffected by that fire. The staff must also be able to conclude that damage to one train of equipment used for achieving cold shutdown will be limited so that the equipment can be returned to an operable condition within 72 hours. (See Technical Basis for Section III.G, "Protection of Safe Shutdown

Capability.") In the fire hazards analysis for a plant, the equipment relied upon to perform both functions must be identified for each fire area. It follows that any associated non-safety circuits in the fire area that could adversely affect the identified shutdown equipment by feeding back potentially disabling conditions (e.g., hot shorts or shorts to ground) to the power supplies or control circuits of that equipment must also be evaluated. Of course such disabling conditions must be prevented to provide assurance that the identified safe shutdown equipment will function as designed. These requirements have now been incorporated in Section III.L, "Alternative and Dedicated Shutdown Capability."

### *Comment Resolution*

Many commenters stated that this requirement should be deleted because many older plant designs did not consider associated circuits and this is, therefore, a new design requirement. The commenters felt that the analysis that will be required to satisfy this requirement will be both long and complicated and the requirement should therefore be deleted.

The Commission rejected these suggestions for the following reasons.

1. Virtually all of the fire protection modifications made to date have been required to correct deficiencies that resulted from lack of consideration of certain specific items during initial design and construction.

2. The Browns Ferry fire showed the necessity of divisional separation of the associated circuit of the control cables to prevent the disabling of safety systems by a single fire. This has been discussed with licensees during evaluations of alternative and dedicated shutdown capability and is necessary to ensure that safe shutdown systems will be able to function properly in the event of fire.

3. The staff considers incomplete any fire hazard analysis that does not consider the effects of fire damage to circuits that are associated with safe shutdown systems.

As indicated above, as a result of the comments received on this issue, it is unclear that associated circuits have in fact been adequately considered by licensees in their reviews using the guidance of Appendix A to BTP APCSB 9.5-1. To ensure that the associated circuits are considered, all operating nuclear power plants will be required to meet the requirements of Section III.G of Appendix R.

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### *General Comments Resolution:*

Several commenters contended that Commission regulations mandate that an adjudicatory hearing be conducted prior to a final decision. One commenter labeled the regulation an "order" within the meaning of the Administrative Procedure Act (5 U.S.C. 551(6)) (APA) and asserted that 10 CFR 2.204 of the Commission's regulations, "Order for Modification of License," applies to this rulemaking proceeding.

The Commission disagrees with these comments. A "rule" is defined in the APA to mean "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement \* \* \* or prescribe law or policy \* \* \*" (5 U.S.C. 551(4)). The agency action questioned here is clearly one that treats similarly situated licensees equally and that prescribes future conduct or requirements. For those licensees who have not already provided an equivalent level of fire protection, certain specific fire protection features are required. Various of these requirements would apply to approximately 40 facilities. The commenter's characterization of the rule as an order, along with the assertion that 10 CFR 2.204 mandates a hearing before the rule becomes final is incorrect. On its face, that regulation (which does grant a hearing right) applies only to Commission orders that modify a license.<sup>2</sup> It does not apply to requirements promulgated through a rulemaking action conducted in accordance with the requirements of applicable law.

Several commenters contended that the environmental impact had not been adequately addressed. One commenter, citing the requirements in Section III.A of Appendix R for two water supplies and two separate redundant sections as examples of requirements involving environmental issues, contended that the Commission relied upon its staff's "unsupported determination that, pursuant to 10 CFR § 51.5(d), an environmental impact statement, appraisal, or negative declaration is not required." The Commission has considered Section III.A and has further considered the remaining requirements of Appendix R and remains convinced that the regulations are not substantive and are insignificant from the standpoint of environmental impact.

One commenter suggested that all plants be required to install dedicated

shutdown capability. The Commission does not agree. We believe that the Commission's overall fire protection program involving extensive plant-specific fire protection modifications that are based on guidance set forth in Branch Technical Position BTP APCSB 9.5-1 and its Appendix A and the specific requirements of Appendix R to resolve disputed issues provide adequate fire protection.

One commenter stated that the ambiguity of the proposed regulation with regard to critical items requires that it be renoticed. The commenter referenced three portions of the proposed Appendix R as examples of such ambiguity. They were Section III.G, Section III.N, and Section III.Q. We have reviewed these examples.

In reference to the first example, the commenter stated that the first paragraph of Section III.G identifies alternative shutdown capability as an optional protective feature and that paragraph III.G.2.c then identifies alternative shutdown capability as a minimum fire protection feature. We do not agree with this statement. The first paragraph of Section III.G identifies alternative shutdown capability as one option in a combination of fire protection features for a specific fire area. Paragraph III.G.3 indicates when this option should be used.

In reference to the second example, the commenter stated that Section III.N requires a pressure differential across the test specimen during the testing of fire barrier penetration seals but fails to define the pressure differential. This comment is incorrect. The pressure differential called for by the proposed provision was the maximum pressure differential that the barrier would experience in the specific plant installation. In any event, the requirement for pressure differential during such testing has been deleted since only noncombustible material is now being used for such seals.

In reference to the third example, the commenter stated that Section III.Q is totally lacking in definition. We do not agree. Footnote 6 references Regulatory Guide 1.75 and IEEE Std 384-1974. The latter document is a commonly used industry standard that defines associated circuits and provides guidance for ensuring that such circuits do not compromise the independence of the shutdown circuits they are associated with.

Based on the above examples and our review of the other provisions of the proposed rule, we do not believe that the rule as proposed was ambiguous so as to require renoticing. Moreover, it should be noted that, based on other

comments received on the proposed regulations, other commenters demonstrated a thorough understanding of the proposed requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50, are published as a document subject to codification.

45 FR 76968

Published 11/21/80

Effective 2/4/81

*Criteria and Procedures  
for Determining Eligibility  
for Access to or Control  
Over Special Nuclear Material*

See Part 11 Statements of Consideration

46 FR 20153

Published 5/4/81

Effective 5/4/81

10 CFR Part 50

**Codes and Standards for Nuclear Power Plants**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to incorporate by reference new addenda of the ASME Boiler and Pressure Vessel Code. The sections of the ASME Code being incorporated provide rules for the construction of nuclear power plant components and specify requirements for inservice inspection of those components. Adoption of these amendments permits the use of improved methods for construction and inservice inspection of nuclear power plants.

**EFFECTIVE DATES:** May 4, 1981.

**FOR FURTHER INFORMATION CONTACT:**

Mr. E. Baker, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Phone 301-443-5999.

**SUPPLEMENTARY INFORMATION:** On December 31, 1980, the Nuclear Regulatory Commission published in the *Federal Register* (45 FR 86500) proposed amendments to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The proposed amendments revised § 50.55a to incorporate by reference the

<sup>2</sup> It should also be noted that § 2.204 is codified in Subpart B of 10 CFR Part 2. The scope of Subpart B is specifically limited to "cases initiated by the staff \* \* \* to impose requirements by order on a licensee" (10 CFR 2.200(a)). (Emphasis supplied.)

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Winter 1978 Addenda and the Summer 1979 Addenda to Section III, Division 1, "Rules for the Construction of Nuclear Power Plant Components," of the ASME Boiler and Pressure Vessel Code and Section XI, "Inservise Inspection of Nuclear Power Plant Components," of the ASME Code.

Interested person were invited to submit written comments for consideration in connection with the proposed amendment by February 17, 1981. No comments were received. The Commission has adopted the proposed amendment with a minor editorial revision to accommodate the incorporation by reference of the ASME Code.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50 are published as a document subject to codification.

46 FR 28838

Published 5/29/81

Effective 5/29/81

### 10 CFR Part 50

#### Emergency Planning; Correction.

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; correction.

**SUMMARY:** The Commission is making two minor corrections to its emergency planning rules that appeared in the *Federal Register* of Tuesday, August 19, 1980 [45 FR 55402]. The two corrections are designed to bring the language of the rule into conformity with the Commission's intent.

**EFFECTIVE DATE:** May 29, 1981.

**FOR FURTHER INFORMATION CONTACT:** Mark E. Chopko, Attorney, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, 202-634-3224.

**SUPPLEMENTARY INFORMATION:** In approving the text of the final rules on emergency planning on July 23, 1980, the Commission gave considerable attention to whether the overall standard to be used in judging emergency preparedness should be "whether the state of onsite and offsite emergency preparedness provides reasonable assurance that appropriate protective measures can and will be taken in the event of a radiological emergency" or some other standard. See SECY-80-275, Encl. B at 1, Vol. 14 of Administrative Record of

Emergency Planning Rulemaking (PR-50 (44 FR 75167)) [emphasis added]. After extensive debate, the Commission settled upon "adequate" instead of "appropriate." The final rule, with two inadvertent exceptions, reflects that change. 45 FR 55402 (August 19, 1980), Transcript of July 23, 1980 Meeting, 20-48 (Vol. 9 of Record, *supra*). As the record makes clear, the Commission specifically intended in its public deliberations that the word "appropriate" was to be changed accordingly, especially in the rules. *Id.* at 47-48, 123-124. Indeed, the Supplementary Information uses the intended formulation "adequate protective measures" with respect to both new licenses and operating facilities in describing the final rules. 45 FR at 55403. However, one passage in 10 CFR 50.54(s)(2) [45 FR at 55410] and one passage in Appendix E, § III [45 FR at 55411] had been inadvertently overlooked in editing the final rule for publication last July. These minor corrections will conform the passages noted to the Commission's intent by replacing "appropriate" with "adequate" in the phrase "reasonable assurance that . . . protective measures can and will be taken" in 10 CFR 50.54 and making a similar change in Appendix E, § III.

Because the change is of a minor nature to conform the rules to the Commission's intent as stated in the public record of the rulemaking and does not signal any change in the standards applied under the rule or any other change in NRC practice, the Commission finds good cause to publish the rule without advance notice and public comment thereon as unnecessary. For the same reasons, these corrections shall be effective as a final rule upon publication in the *Federal Register*.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50, are published as documents subject to codification.

46 FR 44734

Published 9/8/81

Effective 9/8/81

### 10 CFR Part 50

#### Fire Protection Rule; Corrections

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule, corrections.

**SUMMARY:** In a final rule regarding fire protection published in the *Federal Register* on November 19, 1980, the Commission added a new § 50.48 and Appendix R to 10 CFR Part 50. Several errors appeared in that notice requiring correction. This notice corrects the errors and republishes the corrected text of affected sections.

**EFFECTIVE DATE:** September 8, 1981.

#### FOR FURTHER INFORMATION CONTACT:

David P. Notley, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, phone 301-443-5946.

**SUPPLEMENTARY INFORMATION:** In a final rule published in the *Federal Register* on November 19, 1980 (45 FR 76602), the Commission added a new fire protection rule to its power reactor safety regulations. The rule was in two parts, a new § 50.48 in 10 CFR Part 50, and a new Appendix R to 10 CFR Part 50. The *Federal Register* notice announcing this rule contained several nonsubstantive errors requiring correction, including an apparent duplication of § 50.48 resulting from an earlier notice. This notice effects the required corrections.

46 FR 51718

Published 10/22/81

Effective 10/22/81 for Sections 2.744(a), 2.790(d)(1), 73.2(jj) and (ll), and 73.21(a), (b) and (c)(1). All remaining sections will be effective on 1/20/82.

*Protection of Unclassified Safeguards Information*

See Part 73 Statements of Consideration

46 FR 58484

Published 12/2/81

Effective 1/4/82

### 10 CFR Part 50

#### Interim Requirements Related to Hydrogen Control

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require inerted containment atmospheres, and additionally, both hydrogen recombiner capability to reduce the likelihood of venting radioactive gases following an accident and the provision of high point vents in the primary coolant system. The inerting requirement applies only to boiling water nuclear power reactors with either Mark I or Mark II type containments; the requirement for

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hydrogen recombiner capability applies to light-water nuclear power reactors that rely upon purge/repressurization systems as the primary means of hydrogen control; the requirement for the provision of high point vents applies to all light-water nuclear power reactors.

**EFFECTIVE DATE:** January 4, 1982.

**FOR FURTHER INFORMATION CONTACT:** Morton R. Fleishman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301-443-5981.

**SUPPLEMENTARY INFORMATION:** On October 2, 1980, the Nuclear Regulatory Commission published in the *Federal Register* (45 FR 65466) a notice of proposed rulemaking on "Interim Requirements Related to Hydrogen Control and Certain Degraded Core Considerations" (Interim Rule) inviting written comments or suggestions on the proposed rule by November 3, 1980. The notice concerned proposed amendments to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to improve hydrogen management in light-water reactor facilities and to provide specific design and other requirements to mitigate the consequences of accidents resulting in a degraded reactor core.

Thirty-five persons submitted comments regarding the proposed amendments. Although the comment period was scheduled to expire on November 3, 1980, comments received subsequent to that date have been considered, with the latest comment letter being dated February 9, 1981. The comments are part of the public record and may be examined and copied in the Commission's Public Document Room at 1717 M Street NW., Washington, D.C. A summary of the comments along with a comment analysis and a value/impact assessment are also available for inspection and copying in the Public Document Room.

These comments have been carefully reviewed and evaluated during preparation of this final rule. The final rule contains revisions to the proposed rule that reflect these comments. The commenters were about equally divided between those in favor of and those opposed to publishing the interim amendments. Whether or not the commenter favored publishing a final rule, additional detailed comments were generally provided on specific aspects of the proposed amendments.

The NRC's Office of Nuclear Reactor Regulation sent a letter on September 5, 1980 to all nuclear power plant licensees, applicants and construction permit holders providing a "Preliminary Clarification of the TMI Action Plan Requirements." This was followed by a

series of four regional meetings, noticed by publication in the *Federal Register* on September 12, 1980 (45 FR 60508) and held during the week of September 22, 1980, in order to provide a more detailed explanation of the requirements and to obtain industry comments. Based on the discussions at the meetings and other comments received, the NRC revised the requirements and notified the applicants, licensees and construction permit holders to this effect by a letter dated October 31, 1980. The letter and revised requirements are included in NUREG-0736, "Clarification of TMI Action Plan Requirements."<sup>1</sup>

On May 13, 1981, the Commission published in the *Federal Register* (46 FR 26491) a notice of proposed rulemaking which proposed licensing requirements for pending operating license applications (OL Rule). The proposed OL Rule was based upon the requirements described in NUREG-0737 and includes, among others, many of the requirements originally included in the proposed Interim Rule published in October 1980.

Items originally proposed in the Interim Rule were:

1. Inerting of Mark I and II boiling water reactors (BWRs).
2. Design analyses for Mark III BWRs and pressurized water reactors (PWRs).
3. Dedicated hydrogen control penetrations.
4. Hydrogen recombiner capability.
5. High point vents
6. Post-accident protection of safety equipment and areas
7. In-plant iodine instrumentation
8. Post-accident sampling
9. Leakage integrity outside containment
10. Accident monitoring instrumentation
11. Detection of inadequate core cooling
12. Training to mitigate degraded core accidents

Of the above list, all except items 1, 2 and 4 were included in the proposed OL Rule and have been appropriately revised to reflect the comments received during the comment period on the proposed Interim Rule. Hence, those items included in the OL Rule have been deleted from this Interim Rule except for item 5 (High point vents). Item 5, while previously included in the OL Rule was felt to be primarily hydrogen related and thus more appropriately included in this Interim Rule. Those public comments received pertaining to the remaining OL Rule items will not be discussed here.

<sup>1</sup>Copies of this report may be obtained from GPO Sales Program, Division of Technical Information and Document Control, U.S.C. Nuclear Regulatory Commission, Washington, D.C. 20555.

All of the public comments may be examined and copied in the Commission's Public Document Room along with the response to the comments (SECY 81-245, "Interim Amendments to 10 CFR Part 50 Related to Hydrogen Control and Certain Degraded Core Considerations").

The final Interim Rule contains revisions to the proposed Interim Rule that reflect all of the applicable comments including those (a) given in response to the notice of proposed rulemaking, and (b) generated during the regional meetings and in response to the clarification letters of September 5, 1980, and October 31, 1980.

Before discussing the comments and the specific revisions resulting from the comments, it should be noted that, while § 50.44 has applied only to light-water nuclear power with zircaloy fuel cladding, the new amendments in the Interim Rule are not as limited and apply to light-water nuclear power reactors with either stainless steel or zircaloy fuel cladding. The Commission will be considering further modification of § 50.44 during the long-term rulemaking effort relative to consideration of degraded or melted cores in safety regulation. Part of this long-term rulemaking will involve a thorough reevaluation of hydrogen generation and control. In the interim, the Commission wishes to leave in place the existing provisions of § 50.44 because of the requirements for dealing with design basis accidents. These include, for example, requiring:

1. The capability for measuring hydrogen concentrations in containment.
2. The capability for ensuring a mixed atmosphere in containment.
3. The capability for controlling combustible gas concentrations in containment following a postulated LOCA.
4. The capability to deal with hydrogen from radiolytic decomposition of the reactor coolant and the corrosion of metals. (These have release characteristics that differ from those associated with metal-water reaction.)
5. That the combustible gas control systems conform with the general requirements of Criteria 41, 42 and 43 of Appendix A of 10 CFR Part 50.

Several commenters have expressed concern that the various rulemakings currently being pursued by NRC should be integrated, i.e., safety goal, degraded core considerations, minimum engineered safety features, siting and emergency planning. The NRC shares this concern. On October 15, 1980, the Executive Director for Operations established a Degraded Cooling Steering Group to coordinate degraded cooling

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and related rules. This group has completed its work and prepared a plan to ensure future integration of these activities.

Numerous commenters have questioned many of the implementation dates specified in the rule, indicating that they cannot be met for a variety of reasons, such as procurement lead time, need for the design studies, availability of acceptable equipment, etc. The staff agrees with these comments and has made appropriate changes to the implementation dates.

### **Inerting of Mark I and II BWRs [§ 50.44(c)(3)(i)]**

Some commenters, particularly those associated with Mark I boiling water reactors (BWRs), questioned the advisability of requiring inerting of containments and suggested that other hydrogen control options be permitted. This issue has been extensively reviewed and discussed among the Commission, NRC staff and industry participants. Numerous reports and letters have been written and many meetings held in order to thoroughly air the issue. Considering the information previously developed, the Commission continues to believe that it would be prudent, pending completion of the long term rulemaking on degraded core cooling, to require that all Mark I and II BWR containments be provided with an inerted atmosphere during normal operations. However, one utility (Vermont Yankee) has recently expressed a renewed interest in providing a hydrogen control system, other than preinerting, for its facility. Two possible options, post-accident inerting and a deliberate ignition system, could be considered for the Mark I containment of this facility. The Commission has not received any specific proposal or analyses for either of these hydrogen control systems. Thus, it is concluded that, absent any proposed and justified alternative, preinerting is required for Mark I BWRs. If Vermont Yankee (or others) propose an alternative system backed up by suitable tests and analyses, the Commission will review it. If found acceptable, the alternative systems would be permitted, either by subsequent amendment or exemption to this section.

The proposed rule's deadline for installation of inerting systems has been extended to account for delay in publication of a final rule. The rule has also been changed to clarify that the paragraph applies only to Mark I and II BWRs.

### **Hydrogen Recombiner Capability [§ 50.44(c)(3)(ii)]**

Several commenters have

recommended that the proposed § 50.44(c)(3)(ii) be modified to allow the use of alternate means of hydrogen control, such as internal recombiners, rather than to restrict the rule to external recombiners. The proposed rule was not intended to preclude this alternative. In fact, if internal recombiners were present before or will be installed in the future, this section of the rule would not apply since purge/repressurization systems would not be the primary means for combustible gas control. This section of the rule only applies to facilities that rely upon purge/repressurization systems as the primary means of controlling combustible gases following a LOCA. Based on existing § 50.44, all facilities must have either internal or external recombiners or purge/repressurization systems for controlling combustible gases following a LOCA. For those BWRs which are inerted and which rely upon purge/repressurization for combustible gas control, the intent of the rule is to require that they be provided with either internal recombiners or the capability to install external recombiners.

It should also be noted that this section of the rule does not require actual installation of external recombiners; rather, it requires only the capability for installation. To avoid confusion, the rule has been clarified to indicate that internal recombiners are an acceptable alternative to the installation of external recombiner capability.

### **High Point Vents in Reactor Coolant System [§ 50.44(c)(3)(iii)]**

A number of commenters have remarked that there is no justification for applying the single failure criterion to the design of the high point vents. Furthermore, it has been suggested that the negative aspects of the high point vents have not been adequately considered and that, in fact, the vents may increase the risk to the public.

In response to these comments, the single failure criterion requirement has been deleted; however, one aspect of the criterion has been retained, namely, that a single failure within the power and control parts of the reactor coolant vent system should not prevent isolation of the entire vent system when required. Also a sentence has been added to require that the use of the high point vents not "aggravate the challenge to the containment or the course of the accident." Finally, the Interim Rule has been revised to relax the implementation date, in response to comments received at regional meetings with industry in September 1980.

### **Regulatory Flexibility Act**

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 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.

Accordingly, notice is hereby given that, pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of Title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification.

46 FR 63031

Published 12/30/81

Effective 12/30/81

### **10 CFR Part 50**

### **Emergency Planning and Preparedness for Production and Utilization Facilities**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is making two changes to its emergency planning regulations. The change to 10 CFR Part 50, Appendix E delays the date by which prompt public notification systems must be operational around all nuclear power plants. The change to § 50.54 clarifies the language of the rule to conform with the Commission's intent at the time of promulgation.

**EFFECTIVE DATE:** December 30, 1981.

**FOR FURTHER INFORMATION CONTACT:** Michael T. Jamgochian, Human Factors Branch, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (telephone 301-443-5942).

### **SUPPLEMENTARY INFORMATION:**

#### **I. The Amendment to 10 CFR Part 50, Appendix E**

On August 19, 1980, the NRC published a revised emergency planning regulation which became effective on November 3, 1980. The rule required licensees to demonstrate, among other things, by July 1, 1981:

"that administrative and physical means



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have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The design objective shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes."

On August 11, 1981, the Commission discussed possible actions because licensees failed to comply with the July 1, 1981 requirement contained in 10 CFR 50.47(b)(5) and 10 CFR 50, Appendix E, Section IV.D.3. The licensees' failure to meet the July 1, 1981 date was attributed to unforeseen difficulties and uncertainties surrounding the design, procurement and installation of the prompt notification systems.

At the August 11, 1981 meeting, the Commission approved publication of a proposed rule change which would provide an extension of the July 1, 1981 date to February 1, 1982. (See 46 FR 46587). That Federal Register notice requested public comment during a 30-day period ending October 21, 1981.

To date, comments have been received from four NRC licensees, five individuals or organizations in the nuclear industry, one from the general public, three from environmental organizations, one from a mass transit system director, and one from a State governor. The comments received from the general public and from the environmental organizations were against delaying the implementation date to February 1982. The letters from the other commenters generally agree with extending the implementation date along with additional suggestions.

One suggested modification to the proposed rule change, which has been accepted and included in these final amendments, is not to eliminate the four-month period for correction of any deficiencies identified during the initial testing of the prompt notification system. The Commission now believes that the elimination of this four-month period would be inconsistent with the need to perform a reasonable test of the system and make any needed changes as indicated by the test results. The enclosed effective regulation incorporates this concept. The installation date, however, remains February 1, 1982, and any licensee not completing the installation by that date would be subject to enforcement action.

After evaluating all public comment letters received, the Commission has decided to publish, as immediately effective, a final rule change to 10 CFR Part 50, Appendix E which will delay the implementation date for the prompt public notification systems from July 1, 1981 to February 1, 1982.

This decision is based on a recognition that emergency plans and preparedness have significantly improved within the last year at and around every nuclear power plant site. This significant improvement has been confirmed by NRC teams who have visited a number of plant sites to evaluate the licensees' compliance with the upgraded emergency planning regulations of August 1980. In addition, the Federal Emergency Management Agency (FEMA) and the NRC have monitored numerous nuclear emergency exercises involving State and local governments and the licensees, and again have witnessed a significant improvement on onsite and offsite emergency preparedness.

The decision to delay the implementation date is also based on the recognition that there exist customary warning systems (police, radio, telephone) which are viewed as sufficiently effective in many postulated accident scenarios. In view of the above, the Commission finds that there exists sufficient reason to believe that appropriate protective measures can and will be taken for the protection of the health and safety of the public in the event of a radiological emergency during the extended time period for compliance.

### II. The Amendment to 10 CFR 50.54

Additionally, 10 CFR 50.54(s)(2), currently requires that,

"For operating power reactors, the licensee, State, and local emergency response plans shall be implemented by April 1, 1981, except as provided in Section IV.D.3 of Appendix E of this part. If after April 1, 1981, the NRC 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."

It has come to the Commission's attention that because this section of the regulation was written as one paragraph, it can be interpreted to mean that the four-month period for the correction of emergency preparedness deficiencies does not apply to "Section IV.D.3 of Appendix E."

This is a misinterpretation of the Commission's intent, which was that the four-month period is to apply to any deficiencies identified in the emergency plans. The Commission is therefore modifying § 50.54(s)(2) to more clearly reflect that intent. The four-month period provided in § 50.54(s)(2), will not apply to any licensee for the installation and initial test of the public notification system by February 1, 1982. If a licensee is not in compliance with this requirement for installation and testing by February 1, 1982, the Commission will consider taking appropriate enforcement actions promptly at that time. In determining appropriate enforcement action to initiate, the Commission will take into account, among other factors, the demonstrated diligence of the licensee in attempting to fulfill the prompt public notification capability requirement. The Commission will consider whether the licensee has kept the NRC informed of the steps that it has taken, when those steps were taken and any significant problems encountered, and the updated timetable which the licensee expects will be met in achieving full compliance with the prompt public notification capability requirements. The four-month period will, however, apply to correction of deficiencies identified during the initial test of the prompt public notification systems as well as those deficiencies discovered thereafter.

Because the amendment to § 50.54(s)(2) is interpretative and of a minor nature, simply resolving an ambiguity in the rules to the Commission's intended meaning at the time of promulgation, the Commission finds good cause to dispense with advance notice and opportunity for public comment thereon as unnecessary. For this reason, this change shall be effective as a final rule on December 30, 1981.

Likewise, the Commission is publishing the final amendments to 10 CFR Part 50, Appendix E (extending the implementation date for the installation of a prompt public notification system) as effective immediately upon publication, pursuant to 5 U.S.C. 553(d)(1), since the rule is expected to relieve the obligation of certain licensees with respect to the present July 1, 1981 deadline for operational public notification systems. In that regard, the Commission notes that the final rule, when effective, will be applied to ongoing licensing proceedings now pending and to issues or contentions therein. *Union of Concerned Scientists v. AEC*, 499 F. 2d 1069 (D.C. Cir. 1974).

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### Regulatory Flexibility Act Statement

Pursuant to the Regulatory Flexibility Act of 1980, Pub. L. 96-354, the NRC has determined: (1) That the delaying of the implementation date for the prompt public notification systems will not have a significant economic impact on a substantial number of small entities, pursuant to the Regulatory Flexibility Act of 1980, section 605(b) and (2) that the rule change to § 50.54(s)(2) is not subject to the provisions of the Regulatory Flexibility Act of 1980, because the Commission has determined pursuant to 5 U.S.C. 553 that a notice of proposed rulemaking for § 50.54 (s)(2) need not be issued and that the rule may be promulgated in final form and become effective on December 30, 1981.

### Paperwork Reduction Act Statement

Pursuant to the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511), the NRC has made a determination that this final rule does not impose new recordkeeping, information collection, or reporting requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as documents subject to codification:

46 FR 63033

Published 12/30/81

Effective 12/30/81

### 10 CFR Part 50

#### Reporting, Recordkeeping, and Application Requirements; Approval

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations on the domestic licensing of production and utilization facilities to indicate Office of Management and Budget approval of the information collection requirements contained in the regulations. This action is required by the Paperwork Reduction Act of 1980.

**EFFECTIVE DATE:** December 30, 1981.

**FOR FURTHER INFORMATION CONTACT:** Steve Scott, Chief, Document Management Branch, Division of Technical Information and Document Control, Office of Administration, Telephone: (301) 492-8585.

**SUPPLEMENTARY INFORMATION:** The Paperwork Reduction Act of 1980 (Pub. L. 96-511; 44 U.S.C. Chapter 35) transferred the responsibility for approving the information collection requirements imposed by the Nuclear Regulatory Commission (NRC) on the public from the General Accounting Office (GAO) to the Office of Management and Budget (OMB). The Act requires that each existing information collection requirement be reapproved by OMB as existing GAO clearances expire. This requirement applies to the application, recordkeeping, and reporting requirements contained in NRC regulations.

On October 30, 1981, the NRC obtained OMB reapproval for the information collection requirements contained in 10 CFR Part 50. This amendment adds a new § 50.8 to Part 50 setting out the OMB approval number, the expiration date of the current approval, and a list of sections within Part 50 that contain an approved information collection requirement. This amendment also removes the note concerning the expired GAO clearance that follows § 50.110.

Because this is a nonsubstantive amendment dealing with a minor procedural matter, good cause exists for finding that the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) are unnecessary and for making the amendment effective December 30, 1981.

Under 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 following amendments to 10 CFR Part 50 are published as a document subject to codification.

46 FR 63208

Published 12/31/81

Effective 2/1/82

### 10 CFR Part 50

#### Codes and Standards for Nuclear Power Plants; ASME Boiler and Pressure Vessel Code; Incorporation by Reference

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to incorporate by reference new addenda of the ASME Boiler and Pressure Vessel Code. The sections of the ASME Code being incorporated provide rules for the construction of nuclear power plant

components and specify requirements for inservice inspection of those components. Adoption of these amendments will permit the use of improved methods for construction and inservice inspection of nuclear power plants.

**EFFECTIVE DATE:** February 1, 1982.

**FOR FURTHER INFORMATION CONTACT:** Mr. E. Baker, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-5892.

**SUPPLEMENTARY INFORMATION:** On July 27, 1981 the Nuclear Regulatory Commission published in the Federal Register (46 FR 38374) proposed amendments to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The proposed amendments revised § 50.55a to incorporate by reference the Winter 1979 Addenda, 1980 Edition, Summer 1980 Addenda, and the Winter 1980 Addenda of section III and the Winter 1979 Addenda, the 1980 Edition, and the Winter 1980 Addenda to section XI of the ASME Boiler and Pressure Vessel Code.

The incorporation of the new edition and addenda does not change any of the previous supplementary requirements included in the regulation. Until the ASME Code adds current requirements for inspecting the residual heat removal and emergency core cooling systems, the regulation will continue to require that these systems be inspected to the provisions cited in § 50.55a(b)(2)(iv).

One comment was received on the proposed rule. It recommended that § 50.55a(b)(2)(i) be revised to reflect the updated incorporation by reference of the ASME Boiler and Pressure Vessel Code, as stated in § 50.55a(b)(2). The reason given for recommending the revision was that § 50.55a(b)(2)(i) was being interpreted as prohibiting the use of addenda that were published and incorporated subsequent to the Summer 1978 Addenda to the 1977 Edition of the code.

As a result of the comment the title and the body of § 50.55a(b)(2)(i) were editorially revised to clarify them.

Some of the changes effected in the addenda which are incorporated through the adoption of the amendments are:

1. Section XI requires that a system hydrostatic test be performed after all inservice repairs and replacements to Class 1 systems and components.
2. Section III requires that there be some method of remotely monitoring the position of pressure relief devices.
3. Both sections III and XI allow the practical exam, required for Nondestructive Examination (NDE)

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qualification, to be given by the American Society for Nondestructive Testing (ASNT) rather than the employer.

4. Section III requires that licensees meet the requirements of the national standard, ANSI/ASME N626.3-1979 "Qualification and Duties of Personnel Engaged in ASME Boiler and Pressure Vessel Code, Section III, Divisions 1 and 2, Certifying Activities."

Interested persons were invited to submit written comments for consideration in connection with the proposed amendment by September 10, 1981. One editorial comment was received and the paragraphs addressing the effective edition and addenda of the ASME Code were added to the preamble in response to the comment. The Commission has adopted the proposed amendment with a minor editorial revision to accommodate the incorporation by reference of the ASME Code.

### Paperwork Reduction Act Statement

The recordkeeping requirements contained in this Regulation have been approved by the Office of Management and Budget; OMB approval No. 3150-0011.

### 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.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50 are published as a document subject to codification.

47 FR 2286  
Published 1/15/82  
Effective 1/15/82

*Licensing Requirements for Pending  
Construction Permit and  
Manufacturing License Applications*

See Part 2 Statements of Consideration

47 FR 4497  
Published 2/1/82

### 10 CFR Part 50

#### Licensing Requirements for Pending Construction Permit and Manufacturing License Applications

##### Corrections

In FR Doc. 82-1174 appearing on page 2286, in the issue of Friday, January 15, 1982, make the following changes:

1. On page 2301, third column, § 50.34(f), fifth and sixth lines, delete "(insert effective date of amendment)" and insert "(February 16, 1982)"; and in the seventh line, "(b)(1)" should read "(f)(1)".

2. On page 2302, first column, § 50.34(f), fifth line, "(b)" should read "(f)"; third column, § 50.34(f)(1)(xii), fourth line, "(b)" should read "(f)"; and the third line of § 50.34(f)(1)(xii)(B), "(b)" should read "(f)".

3. On page 2303, second column, § 50.34(f)(2)(x), eleventh line, insert the following after "testing": "under ATWS conditions need".

4. On page 2304, third column, § 50.34(f)(3)(v), eighteenth line from the top, insert "(B)" in front of "(1)".

47 FR 11651  
Published 3/18/82  
Effective 5/17/82

Correction 47 FR 15569

### 10 CFR Part 50

#### Rule To Require Applicants To Evaluate Differences From the Standard Review Plan

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is issuing a rule that will require future applicants for operating licenses, construction permits, manufacturing licenses, and preliminary or final design approvals for standard plants to identify and evaluate differences from the acceptance criteria of the applicable revision of the Standard Review Plan (SRP) as part of the technical information to be submitted as part of an application. The SRP was originally issued in 1975 as NUREG-75/087; it describes an acceptable basis and criteria for conclusions presented in a staff Safety Evaluation Report (SER) for an

application. The most recent revision to the SRP was issued in September 1981. The purpose of this rule is to improve the efficiency and effectiveness of NRC safety reviews.

**EFFECTIVE DATE:** May 17, 1982.

**ADDRESS:** Copies of the rule and related background material are available for inspection at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C. Single copies may be obtained on request from the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Document Control.

**FOR FURTHER INFORMATION CONTACT:** Robert L. Tedesco, Assistant Director for Licensing, Division of Licensing, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (301) 492-7425.

**SUPPLEMENTARY INFORMATION:** On October 9, 1980, the NRC published in the Federal Register (45 FR 67099) a Notice of Proposed Rulemaking that would require all commercial nuclear power plant licensees and applicants to document and evaluate differences from the Standard Review Plan (SRP). Interested persons were invited to submit written comments to the Secretary of the Commission by November 24, 1980. Numerous comments were received. After consideration of the comments and other factors involved, the Commission has amended the requirements as published for public comment by limiting their applicability to nuclear power plant applications docketed after the effective date of the rule.

The majority of the comments on the proposed rule (1) questioned the time permitted to comply with the requirements of the rule in consideration of the significant short-term impact on engineering resources, (2) questioned the applicability of the requirements to operating reactors, and (3) questioned why pending applications for construction permits should be subject to significantly different documentation requirements that similarly situated pending applications for operating licenses.

To allow further consideration of these comments, the Commission has decided to exclude operating reactors and pending applications for operating licenses from the requirements of the rule, at this time. The pending operating license applicants have proceeded far enough in the licensing process that the application of the rule at this time could delay licensing decisions. Further, excluding the operating reactors and pending operating license applicants will significantly reduce the impact on available short-term engineering resources. In addition, the Commission

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had decided to exclude pending applications for construction permits and manufacturing licenses docketed prior to the effective date of the rule, since the evaluation required of these applications could add significantly to the length of their licensing process while the evaluation could be performed later at the operating license review stage without this disadvantage. The Commission is also clarifying that the requirements of the rule are explicitly applicable to new applications for preliminary and final design approvals of standard plants and that applicants for these approvals must evaluate their application against the SRP. In the proposed rule, such requirements for standard plant applications were implicit in that it was proposed to include all CP and OL applications (including those referencing standard plant approvals) within the scope of the rule. The Commission has decided that the requirements for standard plants should be explicit to avoid any misunderstanding on this point.

In adopting this rule, the Commission wishes to make it clear that it does not intend to elevate the status of the SRP to that of a regulation. The SRP is not a regulation and compliance with it is not required. The SRP acceptance criteria are intended by the staff to provide one way, but not necessarily the only way, of complying with the Commission's regulations. The purpose of this rule is to require applicants to identify differences from the SRP acceptance criteria and to evaluate how the proposed alternatives to the SRP criteria provide an acceptable method of complying with the Commission's regulations. This will lead to improved efficiency and effectiveness of NRC safety reviews.

The Commission will publish for public comment any guidance documents the staff intends to use to implement the rule.

### *Paperwork Reduction Act Review*

The rule will be submitted to the Office of Management and Budget for clearance of the application requirements as required by the Paperwork Reduction Act (P.O. 98-511). The SFF-83, "Request for Clearance," Supporting Statement, and related documentation submitted to OMB will be available for public inspection and copying in the NRC Public Document Room at 1717 H Street NW., Washington, D.C. 20555.

Pursuant to the Atomic Energy Action of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Section 552 and 553, Title 5 of the United States Code, the following rule is published for codification.

47 FR 13750  
Published 3/31/82  
Effective Date - See Part 2

*Elimination of Review of Financial Qualifications of Electric Utilities in Licensing Hearings For Nuclear Power Plants*

See Part 2 Statements of Consideration

47 FR 15569  
Published 4/12/82

### 10 CFR Part 50

#### Rule to Require Applicants to Evaluate Differences From the Standard Review Plan; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; correction.

**SUMMARY:** On March 18, 1982, the Commission published in the Federal Register (47 FR 11651) a final rule to require certain applicants and licensees under 10 CFR Part 50 to evaluate differences from the Standard Review Plan (SRP). That document contained errors which are corrected by this document.

**FOR FURTHER INFORMATION CONTACT:** John D. Philips, Chief, Rules and Procedures Branch, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone: (301) 492-7086

**SUPPLEMENTARY INFORMATION:** In FR Doc. 82-7425, appearing at 47 FR 11651, March 18, 1982, make the following corrections on page 11652:

1. Amendatory instruction number 1 and the authority citation for 10 CFR Part 50 are corrected to read as follows:
  1. The authority citation for Part 50 is revised to read as follows:

Authority: Secs. 103, 104, 161, 162, 163, 168, 68 Stat. 936, 937, 948, 953, 954, 955, 956, as amended (42 U.S.C. 2133, 2134, 2201, 2232, 2233, 2239); secs. 201, 202, 208, 68 Stat. 1243, 1244, 1246 (42 U.S.C. 5841, 5842, 5846), unless otherwise noted.

Sec. 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Secs. 50.80-50.81 also issued under sec. 194, 68 Stat. 954, as amended (42 U.S.C. 2234). Secs. 50.100-50.102 issued under sec. 196, 68 Stat. 955 (42 U.S.C. 2236).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273), §§ 50.10 (a), (b), and (c), 50.44, 50.48, 50.49, 50.54, and 50.80(a) are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); §§ 50.10 (b) and (c) and 50.54 are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§ 50.55(e), 50.59(b), 50.70, 50.71, 50.72, and 50.78 are issued under sec. 161o, 68 Stat. 950,

as amended (42 U.S.C. 2201(o)).

2. In amendatory instruction number 2 and in new paragraph § 50.34(f), the paragraph letter designation is corrected to read § 50.34(g).

47 FR 19512  
Published 5/6/82  
Effective 5/6/82

### 10 CFR Part 50

#### Emergency Planning and Preparedness for Research and Test Reactors: Extension of Submittal Dates

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations in order to: (1) Increase the thermal power level threshold for the submittal of emergency plans from 500 kilowatts thermal to 2 megawatts thermal, (2) Extend the submission date for emergency plans for those facilities having power levels of 2 megawatts and above to four months after the effective date of the rule and (3) Require all research and test reactors below 2 megawatts thermal to submit emergency plans by November 3, 1982. The increase in thermal power level threshold for the submittal of emergency plans more accurately reflects the power level at which the potential for any significant offsite consequences exist. The effect of the final amendment would be that affected licensees are provided sufficient time to prepare upgraded emergency plans.

**EFFECTIVE DATE:** May 6, 1982.

**FOR FURTHER INFORMATION CONTACT:** Kenneth E. Perkins, Acting Chief, Incident Response and Development Branch, Division of Emergency Preparedness, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Telephone: 301-492-7361).

**SUPPLEMENTARY INFORMATION:**

<sup>1</sup> The power levels described here refer to steady-state power levels.

## PART 50 • STATEMENTS OF CONSIDERATION

### **I. Amendments to 10 CFR Part 50 and Appendix E to Part 50**

On August 19, 1980, the Nuclear Regulatory Commission published in the *Federal Register* (45 FR 55402), amendments to its regulations concerning the upgrading of emergency planning and preparedness. The effective date for these regulations was November 3, 1980.

Among other things, the revised regulations required each licensee authorized to possess and/or operate a research or test reactor facility with power levels greater than or equal to 500 KW thermal, under licenses of the type specified in 10 CFR 50.21(c), to submit emergency plans to the Director of Nuclear Reactor Regulation for approval within one year from the effective date of the rule, i.e. by November 3, 1981. A similar requirement for such reactors with power levels less than 500 KW thermal requires emergency plan submittals by November 3, 1982.

### **II. The Amendment to 10 CFR 50.54(r)**

The NRC staff evaluated the capabilities of the 24 licensees operating at 500 KW thermal or above to submit revised emergency plans by November 3, 1981 which would meet all of the requirements in the emergency planning and preparedness regulations. See 10 CFR 50.54(r), (q) and Appendix E to Part 50.

These 24 licensees were not able to submit emergency plans fully complying with 10 CFR Part 50 requirements by November 3, 1981. This inability to meet the November 3, 1981 date for submitting emergency plans is attributed to the delay in development of revised guidance criteria for the preparation of emergency plans for research and test reactors that are consistent with the amended regulations.

On December 31, 1981, a proposed rule was published in the *Federal Register* (46 FR 63315), for those research and test reactor licensees required to submit emergency plans by November 3, 1981. The proposed rule would have (1) increased the thermal power level threshold for the submittal of emergency plans from 500 kilowatts thermal to 2 megawatts thermal, (2) extended the submission date for emergency plans for those facilities having power levels of 2 megawatts and above, to four months after the effective date of this rule and (3) required all research and test reactors below 2 megawatts thermal to submit emergency plans by November 3, 1982.

On January 11, 1982, a copy of the *Federal Register* notice was sent to all nonpower reactor licensees to alert them of the proposed rulemaking and provide adequate time for comments. On January 25, 1982, and information letter

was transmitted to all research and test reactor licensees by the Office of Nuclear Reactor Regulation. This letter further alerted licensees of the proposed rulemaking and provided additional information on the current status of guidance criteria for use in the development of acceptable radiological emergency response plans for their facilities.

The *Federal Register* notice of proposed rulemaking invited public comment during a 30-day period ending February 1, 1982. Four comments were received from NRC licensees on the proposed amendment. Two fully supported the proposed rule, and the other two, although generally favorable, were primarily concerned about the schedule for upgraded guidance criteria and suggested that the submittal date for emergency plans be one year from the publication date of upgraded guidance criteria.

The January 25, 1982 letter provided the status of the guidance criteria. Two guidance documents were referenced in this letter. DRAFT II, dated November 29, 1982, of the revision to American National Standard ANSI/ANS-15.16-1978, "Emergency Planning for Research Reactors", was published in January 1982 for interim use and comment. Revision 1 to Regulatory Guide 2.6, "Emergency Planning for Research and Test Reactors", which endorses ANSI/ANS-15.16 was published in March 1982 for comment.

Because of the time required for regulatory guide approval procedures, this document probably will not become final before June or July. Therefore, the staff will issue a generic letter to all research and test reactor licensees requesting that they use Revision 1 to Regulatory Guide 2.6 (for comment) and ANSI/ANS-15.16 to meet the requirement of this final rule by September 7, 1982. With regard to the two commenters' (who are in the less than 2 megawatt category) request to extend the date to one year from the publication date of the guidance, the staff considers that the extension by a full year from the original date they were to submit emergency plans is sufficient time for preparation.

While compliance by affected licensees with the November 3, 1981 date for submittal of emergency plans has been delayed, the Commission considers that the state of emergency preparedness has significantly improved within the last year at research and test reactor facilities. This improvement has been confirmed by licensee participation and exchange of information in the development of guidance criteria for preparation and evaluation of radiological emergency response plans

for research and test reactors. In addition, all research and test reactor licensees (65 total) presently have emergency plans prepared pursuant to 10 CFR Part 50 prior to the Commission's adoption of the upgraded emergency planning regulations in 1980.

Credible accidents for research and test reactors have been evaluated by the Commission and are discussed in the proposed amendment which was published in the *Federal Register* (46 FR 63315), on December 31, 1981. The Commission concluded that the power level threshold of 2 megawatts thermal more accurately reflects the power level at which the potential for any significant offsite consequences exist. Based on this and the above information, the Commission finds that there exists sufficient reason to believe that appropriate protective measures can and will be taken to assure protection of the health and safety of the public in the event of a radiological emergency. This amendment is effective on publication because it "relieves a restriction" under Section 551(d)(1) Administrative Procedure Act.

### **Paperwork Reduction Act Statement**

Pursuant to the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511), the NRC has made a determination that this final rule does not impose new nor impact existing information collection requirements.

### **Regulatory Flexibility Certification**

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the NRC certifies that this rule will not have a significant economic impact on a substantial number of small entities. The final rule concerns and extension of the date for research and test reactor licensees to submit emergency plans complying with 10 CFR Part 50, Appendix E, to the Nuclear Regulatory Commission for approval. Accordingly, there is no significant economic impact on a substantial number of small entities, under the Regulatory Flexibility Act of 1980.

### **List of Subjects in 10 CFR Part 50**

Antitrust, Classified Information, Fire Prevention, Intergovernmental Relations, Nuclear Power Plants and Reactors, Penalty, Radiation Protection, Reactor Siting Criteria, Reporting Requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to 10 CFR Part 50 is published as a document subject to codification.

## PART 50 • STATEMENTS OF CONSIDERATION

47 FR 28363  
Published 6/30/82  
Effective 6/30/82

### 10 CFR Part 50

#### Environmental Qualification of Electric Equipment

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** In a Memorandum and Order issued on May 23, 1980, the Nuclear Regulatory Commission (NRC) directed that all operating plants complete the environmental qualification of safety related electric equipment no later than June 30, 1982. Also, as specified in the Memorandum and Order, the NRC proposed rules to codify the Commission standards in this area. The proposed rules contained a new implementation schedule which would supersede the June 30 deadline in the technical specifications when the proposed rules are adopted as final. The Commission had expected to publish final rules by June 30, however this has not proved possible. Therefore, the Commission finds it necessary to suspend the June 30 deadline now contained in the technical specifications or license conditions pending publication of final rules.

**EFFECTIVE DATE:** June 30, 1982.

**FOR FURTHER INFORMATION CONTACT:** Satish K. Aggarwal, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, phone 301-443-5945.

**SUPPLEMENTARY INFORMATION:** On May 23, 1980, the Commission issued a Memorandum and Order in the Matter of the Petition for Emergency and Remedial Action, CLI-80-21, 11 NRC 707. In that Order, the Commission directed that all operating plants complete the qualification of safety-related electric equipment pursuant to the Division of Operating Reactors (DOR) Guidelines and NUREG-0588 no later than June 30, 1982, and stated that this requirement would be incorporated into the technical specifications for each operating plant. This was accomplished by a series of plant-specific orders issued by the Director of Nuclear Reactor Regulation. For plants receiving operating licenses after these orders had been issued, the deadline was placed in a license condition.

In the May 23 Memorandum and Order, the Commission also requested that the staff engage in rulemaking to codify the Commission's standards in this area. A notice of proposed rulemaking was published in the Federal Register on January 20, 1982 (47 FR 2876). The proposed rule contained a

new implementation schedule which would supersede the June 30 deadline in the technical specifications or license conditions of operating plants. In addition, the proposed rule included a requirement that licensees of operating plants submit justification for continued operation while qualification efforts are still underway, but it was noted that, if these plant-specific justifications were voluntarily submitted and evaluated by the staff prior to publication of a final rule, this requirement would be deleted. The Commission expected to be able to publish the final rule prior to the June 30 deadline. This has not proved possible. Although Commission action on the final rule is nearly complete, publication will be delayed somewhat beyond June 30. It is therefore necessary to suspend the deadline now contained in technical specifications or license conditions pending publication of the final rule.

The Commission is today promulgating an interim 10 CFR 50.49 which will be superseded by the final rule bearing the same section number. The interim rule suspends the deadline now contained in technical specifications or license conditions pending publication of the final rule, the implementation schedule of which will be immediately effective. Although licensees will be operating under no deadline for a short period of time, the Commission expects that licensee efforts to meet the requirements of CLI-80-21 will continue without interruption.

The Commission has received, and the staff has evaluated, each operating plant licensee's justification for continued operation. On the bases of these analyses, the Commission has determined that continued operation of these plants pending completion of the equipment qualification program, will not present undue risk to the public health and safety. The state of environmental qualification at operating plants is much improved since imposition of the June 30 deadline, though much work remains, and the Commission finds that no public purpose would be served by placing licensees in jeopardy of enforcement actions for the brief interim period between June 30 and publication of the final rule which will establish a new schedule.

This rule may be made immediately effective upon publication in the Federal Register, pursuant to section 553(d)(1) of the Administrative Procedure Act, because it "relieves a restriction" previously imposed upon licensees of operating nuclear power plants. Furthermore, the Commission is dispensing with public notice and comment in promulgating this rule in final form. The Commission had

intended to promulgate a final rule by June 30, 1982. However, because the Commission will be unable to promulgate a final rule by that date, and because licensees should not be placed in jeopardy of enforcement action pending promulgation of a revised schedule for implementation of equipment qualification requirements, the Commission finds good cause to dispense with notice and comment. In addition, the Commission has already solicited comments on the proposed rule's schedule delaying implementation beyond June 30 and the final rule will contain a schedule of this type.

#### 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 upon a substantial number of small entities. The rule affects only operating nuclear power plant licensees, which do not fall within the definition of a small business as defined in the Small Business Act, 15 U.S.C. 632, or as defined in the Small Business Size Standards, 13 CFR Part 21. Paperwork Reduction Act Statement

Pursuant to the Paperwork Reduction Act of 1980, Pub. L. 96-511, the Commission has determined that this rule does not impose new recordkeeping, information collection, or reporting requirements.

#### List of Subjects in 10 CFR Part 50

Nuclear power plants and reactors.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 50, is published as a document subject to codification.



## PART 50 • STATEMENTS OF CONSIDERATION

47 FR 30232  
Published 7/13/82  
Effective 7/13/82

### 10 CFR Part 50

#### Emergency Planning and Preparedness

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to clarify: (1) That emergency preparedness exercises are part of the preoperational inspection and thus required prior to operation above 5% of rated power, but not for a Licensing Board, Appeal Board, or Commission licensing decision; and (2) that for issuance of operating licenses authorizing only fuel loading and low power operation (up to 5% of rated power), no NRC or Federal Emergency Management Agency (FEMA) review, findings and determinations concerning the state or adequacy of offsite emergency preparedness shall be necessary.

**EFFECTIVE DATE:** July 13, 1982.

**FOR FURTHER INFORMATION CONTACT:** Michael T. Jamgochian, Human Factors Branch, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-5942.

**SUPPLEMENTARY INFORMATION:** On December 15, 1981, the Commission published in the Federal Register two proposed rule changes (46 FR 61132 and 46 FR 61134). The proposed rule change in 46 FR 61134 was considered by the Commission as clarifying in nature. It proposed that 10 CFR 50.47(a)(1) be modified to clarify that the findings on emergency planning required prior to license issuance are predictive in nature and need not reflect the actual state of preparedness at the time the finding is made. The amendment to 10 CFR 50.47(a)(2) was proposed to emphasize the predictive nature of the review and to provide that licensing decisions need not include the results of an exercise. The Commission noted that preparedness connotes the actual state of implementation, is important during the life of the plant, and should be treated as an operational inspection matter. The proposed rule change would require that a full-scale exercise be conducted before operation above 5% of rated power and periodically thereafter.

The proposed rule change in 46 FR 61132 provided that in order to grant a low power license, only a finding as to the adequacy of onsite emergency planning and preparedness is required; that is, neither FEMA nor NRC must have evaluated the adequacy and

capability of offsite preparedness organizations and plans prior to issuance of a low power license. While the proposed rule would eliminate the need to have any NRC or FEMA review, findings, or determinations on the adequacy of offsite agencies' emergency planning and preparedness, the NRC review of the licensees' onsite response mechanism would necessarily include aspects of some offsite elements: Communications, notification, assistance agreements with local law enforcement, fire protection, and medical organizations, and the like. Some examples, but not an exclusive list, where review of an applicant's emergency plan would involve aspects of some offsite elements may be found in pertinent portions of 10 CFR 50.47(b) (3), (5), (6), (9), and (12).

Extensive comments were received, all of which were evaluated and considered in developing the final rule.

#### Summary of Public Comments

The Commission received 40 letters commenting on the 46 FR 61134 proposed rule change and 66 letters commenting on the 46 FR 61132 proposed rule change. Many letters commented on both issues within the same letter. For 46 FR 61134, 27 letters opposed the rule change while 11 letters favored the rule change. In 46 FR 61132, 43 letters opposed the rule change, while 18 letters favored the rule change. For both rule changes, commenters favoring the rule changes were typically utilities, legal firms and consulting firms representing utilities, and one State health department. Commenters opposing the rule changes included private citizens, local elected officials from New Hampshire and Suffolk County, New York, an Assistant Attorney General of Massachusetts, an Assistant Attorney General of New Hampshire, and representatives of various public groups.

All of the significant comments favoring the rule changes basically reiterated the Commission's rationale for promulgation of the proposed rule changes that was put forth in the Federal Register Notices, 46 FR 61134 and 46 FR 61132.

The following major issues against changing the regulations were raised in specific comments received. These major issues reflect the areas of concern of many commenters.

**Issue 1:** The NRC's credibility was so undermined by the handling of the TMI accident that the Commission should take pains to avoid even the appearance of relaxing safety standards. By relaxing the current emergency preparedness regulations, far more than the prestige of the agency or the Commissioners is at stake; indeed, it is believed that the

credibility of NRC is a vital component of emergency preparedness. If another serious accident were to occur, many lives may be saved if people have enough faith in the dedication and truthfulness of the NRC. As things stand, substantial segments of the population are still alienated and cynical in their feelings about the agency to interfere seriously with the workability of any plans for managing an emergency.

**Commission Response:** When the Commission published the upgraded emergency preparedness regulations in August 1980, the subject of low power operating licenses was not addressed. At that time the Commission did not differentiate as to what emergency planning requirements would be applicable to the period of fuel loading and low power testing. The Commission has now focused on the risks associated with this level of operation and has chosen a level of emergency preparedness appropriate to assure the health and safety of the public at the stage. In doing so, the Commission does not alter the high standards applicable to the review of emergency preparedness at full power.

**Issue 2:** During low power testing there are higher risks due to unfamiliarity of the plant operators with their particular plant and due to undiscovered design and construction defects.

**Commission Response:** The Commission agrees that there may be slightly higher risks due to the plant operators having less experience with the plant at this stage and with a

potential for undiscovered design and construction defects. However, in the Commission's view, this risk is significantly outweighed by several other factors. 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 the 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. Weighing all risks involved, the

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Commission has determined that the degree of emergency preparedness necessary to provide adequate protection of the public health and safety is significantly less than that required for full-power operation.<sup>1</sup>

**Issue 3:** The rule changes would eliminate public participation in the review and assessment of exercises before a licensing board.

**Commission Response:** While it is true that the rule changes will have the likely effect of limiting litigation of the success of exercises in licensing hearings, it is the Commission's view that such assessments are not necessary to make the kind of predictive finding on emergency planning called for by the regulations prior to license issuance. The substantive emergency planning issues now being litigated in license hearings are largely focused on the 16 planning standards found in 10 CFR 50.47(b). These planning standards are unchanged by the rule changes and do not, in themselves, require a successful exercise. Thus the Commission does not regard the exclusion of the exercise generally from the Licensing Board process as affecting in any fundamental way the manner of public participation on precensuring emergency planning issues. Finally, the rule changes do not preclude public observation of and participation in the exercises themselves (to the extent consistent with the rules and policies of the Commission and the objectives of the exercise) and in the review and assessment critique meetings held after the exercise. The rule changes clarify that the emergency preparedness exercises are not required for a Licensing Board, Appeal Board, or Commission licensing decision. Exercises will still be required before actual power above 5% and commercial operation. The conduct of full-scale exercises early enough in the licensing process to permit the outcome of the exercises to be fully litigated at the hearing is premature. Such 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. The Commission believes that, while the actual exercise is not an issue in a hearing under these rules (except to the extent that an outline for the exercise may be involved), the exercise will be held

before full power and all significant deficiencies will be properly addressed.

**Issue 4:** These rule changes would undermine public confidence in the adequacy of emergency planning, safe operation of the plant, and the licensing process.

**Commission Response:** As the Commission noted in the Federal Register notice which announced the upgraded emergency planning regulations on August 19, 1980 (45 FR 55403) that "The [TMI] accident also showed clearly that onsite conditions and actions, even if they do not cause significant offsite radiological consequences, will affect the way the various State and local entities react to protect the public from any dangers associated with the accident. In order to discharge effectively its statutory responsibilities, the Commission must know that proper means and procedures will be in place to assess the course of an accident and its potential severity, that NRC and other appropriate authorities and the public will be notified promptly, and that adequate protective actions in response to actual or anticipated conditions can and will be taken."

Given that no change is envisioned in the caliber of reviews for full-power licenses, and indeed, more resources in theory would be available, the Commission believes that the final rule changes announced herein do not change this responsibility or diminish in any respect the protection of the public health and safety. While the Commission understands the feelings expressed by these commenters, the Commission wants to state its continued commitment to the adequacy of emergency planning, safe operation of the plant, and in an efficient licensing process. These rule changes should not be cause for concern about this commitment.

**Issue 5:** Unlike some of the more technical issues, emergency planning is a subject upon which the average citizen is knowledgeable and can make a valuable contribution to the licensing proceedings. This is an important opportunity for public participation. Eliminating this consideration from licensing decisions in effect removes this vital experimental evidence from public scrutiny.

**Commission Response:** The proposed rule does not eliminate any important substantive aspect of emergency planning from the operating license hearings. Whether an applicant satisfies the requirements of 50.47(a) and 50.47(b) is still an issue that may be raised and litigated in those hearings. In cases where such issues are raised, applicants' and State and local jurisdictions' emergency plans should be available for

examination in the hearing process prior to the issuance of an operating license. In addition, an outline of an exercise should also be available in order to assure that the requirement for the conduct of exercises (10 CFR Part 50, Appendix E, Section IV) can or will be met. Moreover, if the actual conduct of an exercise should identify fundamental defects in the way that the emergency plan is conceived such that it calls into question whether the requirements of 10 CFR 50.47 can or will be met, a party to a license proceeding may seek to reopen a concluded hearing or file a petition for action pursuant to 10 CFR 2.206 as appropriate. This is distinct from deficiencies identified by an exercise which only reflect the actual state of emergency preparedness on a particular day in question but which do not represent some basic flaw in emergency planning. Finally, it should be recalled that the full-scale exercises themselves involve participation by local and State governments. Both the NRC and FEMA attempt to make sure that all local and regional concerns expressed by representatives of these governments are fully addressed, and that any deficiencies brought to light are remedied before a full-power license is issued. The underlying feelings expressed by these comments, however, are addressed in the Commission Responses to Issues 3 and 4.

**Issue 6:** The public knowledge that no offsite protection exists could cause chaos in the event of an incident during fuel loading or low power testing.

**Commission Response:** Prior to issuing an operating license authorizing low-power testing and fuel loading, the NRC will review the following offsite elements of the applicant's emergency plan:

(a) Section 50.47(b)(3). Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

(b) Section 50.47(b)(5). Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

(c) Section 50.47(b)(6). Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

<sup>1</sup> The level of risk associated with low-power operation has been estimated by the staff in several recent operating license cases: Diablo Canyon, Docket Nos. 275-OL, 323-OL, San Onofre, Docket Nos. 361-OL, 382-OL, and LaSalle, Docket Nos. 373-OL, 374-OL. In each case the Safety Evaluation Report concluded that low-power risk is several orders of magnitude less than full-power risk. These findings support the general conclusion in the text that a number of factors associated with low-power operation imply greatly reduced risk compare with full power.

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(d) Section 50.47(b)(8). Adequate emergency facilities and equipment to support the emergency response are provided and maintained.<sup>2</sup>

(e) Section 50.47(b)(9). Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

(f) Section 50.47(b)(12). Arrangements are made for medical services for contaminated injured individuals.

(g) Section 50.47(b)(15). Radiological emergency response training is provided to those who may be called on to assist in an emergency.<sup>3</sup>

Knowing that the above elements of the applicants emergency plan have been reviewed by NRC should assure the public that, for low-power testing and fuel loading, adequate protective measures could and would be taken in the event of an accident.

**Issue 7:** The rule changes are fundamentally not in the best interest of the public health and safety but obviously in the interest of the utilities.

**Commission Response:** As explained in previous Responses, the Commission is convinced that the rule changes will not compromise the health and safety of the public. The Commission considers that the rule changes provide flexibility in its licensing procedures, thereby meeting its obligation to the public to conduct its business in a timely and efficient manner. This obligation includes the establishment of an efficient licensing process, while not adversely affecting the public health and safety.

**Issue 8:** The proposed rule changes contradict previous TMI policy statements.

**Commission Response:** In developing the upgraded emergency preparedness regulations (45 FR 55402 dated August 19, 1980) one of the policy statements that the Commission made was "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 [and] as the Commission reacted to the accident at Three Mile Island, it became 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."

This rulemaking will in no way deviate from previous policy statements but in fact will add flexibility and efficiency to the licensing process.

**Issue 9:** Include § 50.47(b)(8) and § 50.47(b)(15) in evaluating the

coordination of offsite and onsite emergency preparedness. These elements require that:

(a)(8) Adequate emergency facilities and equipment to support the emergency response are provided and maintained, and

(b)(15) Radiological emergency response training is provided to those who may be called on to assist in an emergency.

**Commission Response:** The Commission agrees with this comment. See Commission Response to Issue #6.

**Issue 10:** The rule changes effectively exclude the public from the decisionmaking process on a matter of primary public concern, and create apprehension in the public mind as to whether "preparedness" will be a reality even after a full-scale exercise before operation above 5% of rated power. The public is unlikely to be granted a special hearing, before full-power operation is granted a utility, in order to assess the actual state of preparedness.

**Commission Response:** It is true that special hearings will not, in a typical case, be held following the full-scale exercise. The public should recognize that the Commission does not intend to authorize the issuance of a full-power operating license if there has been a full-scale exercise which raises serious and significant deficiencies which have not been compensated for and which go to the fundamental nature of the emergency plan itself. Such a deficiency calls into question whether reasonable assurance may be found that public health and safety will be adequately protected in a radiological emergency. However, some deficiencies may be found that only reflect the actual state of preparedness which may be easily remedied; these types of deficiencies should not delay licensing action. See 10 CFR 50.47(c).

**Issue 11:** No rationale sustains the requirement of offsite emergency preparedness for small research reactors possessing a fission product inventory equivalent to that generated up to 5% by a large reactor while eliminating offsite emergency preparedness for the large reactor.

**Commission Response:** Although research reactors present an inherently smaller risk than power reactors, they do not possess the accident mitigation features (e.g., large containments) required for power reactors. In addition, research reactors are often located in high population density areas. It is therefore prudent to have an offsite emergency plan for these reactors.

**Summary:** The Commission has evaluated all public comments, and has also fully considered the risks of operating a nuclear power reactor at low power. The risks of operating a

power reactor at low power are significantly lower than the risks of operating at full power because: 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; and 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. In the worst case, the additional time available (at least 10 hours), even for a postulated low likelihood sequence which eventually results 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. On balance, the Commission has concluded that the rule changes are technically justifiable and will enhance the efficiency of the licensing process, without adversely affecting the public health and safety and therefore should be promulgated.

### Commissioner Gilinsky's Separate Opinion

I disapprove both parts of the proposed amendment.

One part of the rule provides that no NRC or FEMA findings whatsoever concerning the state or adequacy of offsite emergency preparedness shall be necessary prior to issuance of a low power license. As I stated in my disapproval of the proposed rule, there should be some offsite preparedness, especially if there is to be an extended period of low power operation. Moreover, emergency preparedness for full power should not be a hurried, last-minute affair. Some of the steps required for full-power should already be in place at the low power stage.

The other part of the rule excludes consideration of emergency exercises in an operating license proceeding, thereby eliminating an opportunity for public participation in this phase of decisionmaking. The exercises never completely follow the plan. And this area happens to be one in which the nuclear plant's neighbors have special competence, greater in some respects than that of NRC or FEMA. Their comments can be particularly useful. These need not be presented in formal hearings but we should have some means to receive and consider them. I would have modified the final rule to provide for such a brief comment period before NRC issuance of an operating license.

<sup>2</sup> Added in response to public comment.

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I would also note that the Simpson Report shows that FEMA findings will cause delays in only 2 plants: Shoreham and Byron 1. These delays are based on the applicants' construction dates. If NRC estimates are used, this amendment would have no effect on the dates for issuing operating licenses.

### Commissioner Ahearn's Additional Views

In response to Commissioner Gilinsky's comment that "the rule provides that no NRC of FEMA findings whatsoever concerning the state or adequacy of offsite emergency preparedness shall be necessary prior to issuance of a low power license," I would note "the NRC review of the licensees' onsite response mechanism would necessarily include aspects of some offsite elements: communications, notification, assistance agreements with local law enforcement, fire protection, and medical organizations, and the like" (Statement of considerations for this rule at 2).

With respect to his other point concerning consideration in the operating license proceeding, (1) it is important to hold the exercise close to completion of the plant since the operating personnel will then be on site and be able to learn from the experience, and the exercise will be more realistic since hardware and procedures will be closer to completion; and (2) there are public meetings after each drill and the state, local government and other emergency people do participate in these meetings and do provide comments and criticism.

### National Environmental Policy Act Consideration

Pursuant to 10 CFR 51.5(d)(3) of the Commission's regulations, an environmental impact appraisal need not be prepared in connection with the subject final amendment because there is no substantive or significant environmental impact.

### 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. The proposed rule changes concern a clarification of the elements and findings necessary for the issuance of an operating license for nuclear power plants licensed pursuant to Section 103 and 104b of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2133, 2134b. 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 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. Accordingly, there is no significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act of 1980.

### Paperwork Reduction Act Statement

Pursuant to the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511), the NRC has made a preliminary determination that these rule changes do not impose new recordkeeping, information collection, or reporting requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 552 and 553 of title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 is published as a document subject to codification. These rules are made immediately effective because restrictions on applicants are being relieved.

### List of Subjects in 10 CFR Part 50

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

47 FR 30452  
Published 7/14/82  
Effective 10/12/82

*Protection of Employees Who  
Provide Information*

See Part 19 Statements of Consideration

47 FR 30459  
Published 7/14/82  
Effective 8/13/82

### 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 Summer 1981 Addenda of the ASME Boiler and Pressure Vessel Code. The sections of the ASME Code being incorporated provide rules for the construction of nuclear power plant components. Adoption of these amendments will permit the use of improved methods for construction.

**EFFECTIVE DATE:** August 13, 1982.

**FOR FURTHER INFORMATION CONTACT:** Mr. E. Baker, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-5892.

**SUPPLEMENTARY INFORMATION:** On February 3, 1982 the Nuclear Regulatory Commission published in the Federal Register (47 FR 5010) proposed amendments to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The proposed amendments revised § 50.55a to incorporate by reference the Summer 1981 Addenda to Section III of the ASME Boiler and Pressure Vessel Code.

Some of the changes effected in the addenda which are incorporated through the adoption of the amendments are:

1. Article NCA-3000 of Section III was revised to add a requirement that N, NA, and NPT certificate holders be responsible for documentation of the review and approval of materials used by them and the preparation, accumulation, control, and protection of required records while in their custody. Also, the owner must review the materials documentation to verify that the Code Edition, Addenda, and Code Cases used satisfy NCA-1140 and are acceptable to the regulatory and enforcement authorities.

2. Article NCA-8000 of Section III was revised editorially to make it easier to read and understand. Also, two new provisions, NCA-8240(b) and NCA-8430, were added. NCA-8240(b) describes the provisions that must be met if a name plate is to be removed from an item which has been installed in a nuclear power plant system. NCA-8430 describes alternatives for compiling the Code Data Reports so that they can be traced from the Data Report Form.

3. Article NB-3500 of Section III was revised to remove the nomenclatures, "normal duty valve," "severe duty valve," "standard valve," and "expected cycle," but there were no technical changes associated with dropping these nomenclatures.

4. Article NB-6000 was given an extensive editorial rewrite which mainly reorganized the paragraphs into a more comprehensive form. Also added were a subarticle on special test procedures and a subparagraph allowing the hydrostatic testing of pump and valve subassemblies.

Interested persons were invited to submit written comments for consideration in connection with the proposed amendment by May 5, 1982. One information/editorial comment on the supplementary information section of the proposed rule was received but no significant comments were received.

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The necessary editorial corrections were made. The Commission has adopted the proposed amendment with a minor editorial revision to accommodate the incorporation by reference of the ASME Code.

### Paperwork Reduction Act Statement

The recordkeeping requirements contained in this Regulation have been approved by the Office of Management and Budget; OMB approval No: 3150-0011.

### 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.

### List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Intergovernmental relations, Nuclear Power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50 are published as a document subject to codification.

47 FR 31674  
Published 7/22/82  
Effective 7/22/82

### 10 CFR Part 50

#### Communications Procedures; Clarifying Amendment

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to inform applicants and licensees that prior to submitting any communications in microform, they shall obtain specifications and copy requirements from the Nuclear Regulatory Commission. These amendments are issued as the result of a recommendation to clarify the requirements for submission of documents by licensees to allow and encourage use of microform. It was anticipated that the use of microform would result in the reducing of the volume of paper copies submitted to the NRC as well as relieving the burden of on the licensees of submitting large numbers of paper copies.

**EFFECTIVE DATE:** July 22, 1982.

#### FOR FURTHER INFORMATION CONTACT:

Steve Scott, Chief, Document Management Branch, Division of Technical Information and Document Control, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-8585.

**SUPPLEMENTARY INFORMATION:** In February 1979, as part of a survey of the NRC's Public Document Room activities, the Office of Inspector and Auditor recommended that the Executive Director for Operations consider clarifying the requirements for submission of documents by licensees to allow and encourage use of microform. It was anticipated that the use of microform would result in reducing the volume of paper copies submitted to the NRC as well as relieving the burden on the licensees of submitting large numbers of paper copies. A canvass of licensees, conducted by the Nuclear Records Management Association, revealed that they favored the option of submitting required material on microform. Therefore, the NRC is issuing this rule to provide instructions so that licensees can obtain guidance on how to submit microforms.

Because this is a nonsubstantive amendment dealing with minor

procedural matters, good cause exists for finding that the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) are unnecessary and for making the amendment effective July 22, 1982.

### List of Subjects in 10 CFR Part 50

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

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment to Title 10, Chapter 1, Code of Federal Regulations, Part 50, is published as a document subject to codification.

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47 FR 55203  
Published 12/8/82  
Effective 12/1/82

### 10 CFR Part 50

#### Regional Licensing Program; Fort St. Vrain Nuclear Generating Station

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The NRC is amending its regulations concerning the domestic licensing of utilization facilities to provide information concerning the further implementation of NRC's regional licensing program. This amendment states that authority and responsibility for implementing selected parts of NRC's nuclear reactor licensing program pertaining solely to the Fort St. Vrain Nuclear Generating Station have been assigned and delegated to the Regional Administrator of Region IV and specifies where communications and applications relating to that facility should be sent. The amendment is necessary to inform the licensee and the public of current NRC practice and organization.

**EFFECTIVE DATE:** December 1, 1982.

**FOR FURTHER INFORMATION CONTACT:** Darrell G. Eisenhut, Director, Division of Licensing, Office of Nuclear Reactor Regulations, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone: (301) 492-7672.

**SUPPLEMENTARY INFORMATION:** The Commission is conducting a regionalization program involving certain licensing activities pertaining to nuclear reactors. Fort St. Vrain Nuclear Generating Station (Utility Licensee: Public Service Company of Colorado, License No. DPR-34, Docket No. 50-287) has been selected as the first nuclear reactor for which implementation of selected licensing activities will be transferred to a region. The responsible region is Region IV, U.S. Nuclear Regulatory Commission, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76011. The general delegation of authority for the Regional Administrators is described in NRC Manual Chapter 0128. Pursuant to the general delegation of authority, the Executive Director for Operations and the Director of Nuclear Reactor Regulation assigned certain licensing responsibilities with respect to the Fort St. Vrain Nuclear Generating Station to the Regional Administrator of Region IV. Copies of the delegations of authority have been placed in the Commission's public document rooms at 1717 H Street, NW., Washington, D.C., at the Region IV

Office, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas, and at the Greeley Public Library, City Complex Building, Greeley, Colorado 80631, the local public document room for the Fort St. Vrain Nuclear Generating Station, where they are available for inspection and copying by the public.

The revised regulations, 10 CFR 50.4, are intended to inform licensees and the public of current NRC practices and organization. As amended, § 50.4 states that inquiries concerning NRC regulation of the Fort St. Vrain Nuclear Generating Station and certain types of communications and reports pertaining to that facility should be sent to the Region IV Office and specifies the proper address. The amendment does not change the requirements for direct communication between the licensee and Region IV. Changes to other affected parts of the Commission's regulations, such as Part 2, will be made in the near future.

Since this amendment is nonsubstantive and relates to matters of agency organization and procedure, the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) do not apply and good cause exists for making the amendment effective on December 1, 1982.

#### Paperwork Reduction Act Statement

This rule contains no new or amended requirements for record keeping, reporting, plans or procedures, applications or any other type of information collection.

#### List of Subjects in 10 CFR Part 50

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

Under 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 following amendment to 10 CFR Part 50 is published as a document subject to codification.

47 FR 57670  
Published 12/28/82  
Effective 12/28/82

### 10 CFR part 50

#### Filing of Copies of Changes to Emergency Plans and Procedures

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory

Commission is amending its regulations to reduce the number of copies of changes to nuclear power plant emergency plans and procedures. The total number of copies to be submitted will be reduced from 13 to 3. The Commission has determined that 3 copies will be sufficient for processing purposes. These amendments will reduce the regulatory burden on the affected licensees.

**DATE:** The effective date of this rule will be December 28, 1982.

**FOR FURTHER INFORMATION CONTACT:** Kenneth E. Perkins, Chief, Incident Response Branch, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (Telephone 301-492-7361).

**SUPPLEMENTARY INFORMATION:** On August 19, 1980, the Nuclear Regulatory Commission published in the Federal Register (45 FR 55402) amendments to its regulations for the upgrading of emergency planning and preparedness. The effective date for those regulations was November 3, 1980.

In those regulations, § 50.54(q) required licensees to furnish three copies of changes to the emergency plan and emergency plan implementing procedures to NRC Regional Administrators and ten copies to the Director, Office of Nuclear Reactor Regulation. The amendment contained in this notice reduces to 3 the total number of copies the licensee is required to submit (one copy to be sent to the appropriate Regional Administrator and two copies to NRC Headquarters).

Because these amendments relate solely to procedural matters, the Commission has found that good cause exists for omitting notice of proposed rulemaking and public procedure thereon, as unnecessary. Since the amendment relieves licensees from restrictions under regulations currently in effect, it is effective upon publication.

#### Paperwork Reduction Act Statement

The information collection requirements contained in this regulation have been approved by the Office of Management and Budget; OMB approval No. 3150-0011.

#### List of Subjects in 10 CFR Part 50

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

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.



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48 FR 1026  
Published 1/10/83  
Effective 3/11/83

### 10 CFR Part 50

#### Reporting of Changes to the Quality Assurance Program

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require each holder of a nuclear power plant or fuel reprocessing plant construction permit or operating license (1) to inform the Commission in writing of quality assurance program changes that affect the description of the quality assurance program described or referenced in its Safety Analysis Report and accepted by the Commission, and (2) to clarify the requirement concerning implementation of the accepted quality assurance program. In the past, existing regulations did not specifically include a requirement that changes to the accepted quality assurance program be reported and some licensees changed their quality assurance programs without informing the Commission. This resulted in some unacceptable quality assurance programs. The amendments will assure that when licensees and construction permit holders reduce their commitments in their quality assurance program descriptions accepted by the Commission, they submit the changes to the Commission and receive its approval before implementing the changes.

**EFFECTIVE DATE:** March 11, 1983.

**FOR FURTHER INFORMATION CONTACT:** William L. Belke, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 492-4512.

**SUPPLEMENTARY INFORMATION:** The quality assurance (QA) requirements of 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," constitute a cornerstone of the Commission's "defense-in-depth" concept for ensuring safe operation of nuclear power plants and fuel reprocessing plants.

Because of the importance of the QA program as a management tool to attain objectives important to nuclear safety, the NRC staff conducts extensive reviews during the licensing process to ensure that the applicant's QA program description satisfies 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." Once the NRC staff has accepted it, the QA program description becomes a principal inspection and enforcement tool in

ensuring that the permit holder or licensee is in compliance with all NRC quality assurance requirements for protecting the public health and safety.

As indicated in 10 CFR 50.34(a)(7), "Contents applications; technical information," the Preliminary Safety Analysis Report (PSAR) must include "a description of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility." Similarly, § 50.34(b)(6)(ii) requires that the Final Safety Analysis Report (FSAR) describe "managerial and administrative controls to be used to assure safe operation" and that it "include a discussion of how the applicable requirements of Appendix B [Quality Assurance Criteria] will be satisfied." The QA programs described in the Safety Analysis Reports are intended to represent the QA programs actually being applied in practice.

Because existing regulations do not specifically include a requirement that changes to the accepted QA program be reported to the Commission, some licensees have been changing their QA programs without informing the Commission. In a few cases this has resulted in QA programs which were not acceptable to the NRC staff and which did not conform to all aspects of the NRC regulations. The primary concern with the current situation is that unreported changes to the QA program might diminish the scope of the program permitting significant deficiencies to arise in the design, fabrication, construction, or operation of the facility. This could result in increased risk to the public health and safety.

The final amendments require that nuclear power plant and fuel reprocessing plant construction permit holders and licensees implement the accepted QA program described or referenced in the Safety Analysis Report, provide a current description of the program as it is implemented, and submit all changes to the accepted program description (as required by 10 CFR 50.34(a)(7) or 50.34(b)(6)(ii)) to the NRC for review.

Although NRC presently reviews QA topical report program descriptions of the licensee's or construction permit holder's principal contractors (architect-engineer, nuclear steam supply system vendor, constructor, and construction manager when other than the constructor) submitted to it, the requirements of Appendix B of 10 CFR Part 50 clearly state that the licensee or permit holder has responsibility for the establishment and execution of the QA program. Therefore, commensurate with the requirements of Appendix B of 10

CFR Part 50, licensees and construction permit holders must ensure that their principal contractors' QA program description changes are reported to NRC in writing. In addition, when subcontractors make significant changes that amount to changes in the construction permit holder's or licensee's QA program or in the principal contractor's QA program, the NRC is to be notified in writing.

Licensees must submit to the NRC at least annually (under 10 CFR 50.71), and permit holders within 90 days, those changes to the QA program description that do not reduce the commitments in the program description previously accepted by the NRC. In all cases, licensees and permit holders making changes to the QA program description that do reduce the commitments, must submit the changes to NRC and receive NRC approval before implementing the changes.

The Commission will evaluate submitted changes to determine if the revised QA program description is in accord with the Commission's QA requirements in Appendix B of 10 CFR Part 50 and Safety Analysis Report QA program description commitments previously accepted by the NRC. The Commission normally will inform the construction permit holder, licensee, or QA topical report organization within 60 days of receipt of the change about the result of this evaluation commensurate with the 10 CFR 50.71 annual reporting requirement for licensees or 90-day reporting requirement for permit holders. Licensees, permit holders or QA topical report organizations submitting changes requiring NRC approval before implementation will also normally be informed of the results of the evaluation within 60 days.

#### Discussion of Comments

On July 2, 1981, the NRC published in the Federal Register (48 FR 34595) proposed amendments to 10 CFR 50.34 and 50.55 for reporting of changes to QA programs. Numerous comments were received, all of which were evaluated in developing the final rule. The following discussion highlights the major issues that were raised by the commenters and their resolution (the comments received, and a fuller discussion of their resolution—are available for review in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C. 20555).

One commenter recommended that the rule be revised to clarify that licensees may make changes to a previously submitted QA program description provided the change does

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not decrease the scope of the program or effectiveness of the program's controls.

To preclude potential confusion or misinterpretation of the terms "scope" or "effectiveness," §§ 50.54 and 50.55 of the rule have been revised to require licensees to submit to the NRC at least annually (under 10 CFR 50.71), and permit holders within 90 days, those changes to the quality assurance program description that do not reduce the commitments in the program description previously accepted by the NRC. In all cases, changes to the Safety Analysis Report quality assurance program description that do reduce those commitments must be submitted to NRC and receive NRC approval before implementation.

Some commenters suggested that the 10 CFR 50.54 and 50.55 rule changes should be consolidated into section II of Appendix B to 10 CFR Part 50 and that the existing regulations in §§ 50.34, 50.59, and 50.71 be allowed to satisfy the intent of the rule's reporting requirements.

No changes to the rule were made in response to these comments. The Commission believes that to consolidate the § 50.54 and § 50.55 rule changes or to rely on the existing reporting requirements of §§ 50.34, 50.59, or § 50.71 would leave a regulatory gap because there would be no requirement for the reporting of QA program changes as a condition of the construction permit or operating license.

10 CFR 50.71 now requires the submittal of all changes necessary to reflect information and analyses submitted to the Commission by the licensee (or prepared by the licensee pursuant to Commission requirements) since the submission of the original Final Safety Analysis Report (FSAR) or, as appropriate, the last updated FSAR. The updated FSAR is to be revised to include the effects of: All changes made in the facility or procedures as described in the FSAR; all safety evaluations performed by the licensee either in support of requested license amendments or in support of conclusions that changes did not involve an unreviewed safety question; and all analyses of new safety issues performed by or on behalf of the licensee at the Commission's request. The updated information is to be appropriately located within the FSAR.

Under 10 CFR 50.71, it would be acceptable to submit annual revisions to the QA program for plants already licensed for operation, provided the changes do not reduce the commitments in the program description. However, if a licensee does make changes to the QA program description that reduce the

commitments in the program description, these changes must be submitted to NRC and receive NRC approval before implementation.

In accordance with the Commission's licensing review policies, the acceptance criterion in effect since issuance of Revision 1 of the Standard Review Plan in early 1979 applies to new applications for construction permits and operating licenses and to the periodic review of QA topical reports. It is not applicable to all permit holders and to all operating plant licensees whose construction permits or operating license applications were reviewed before 1979, nor is such a commitment, once made, subject to the full range of enforcement options. This lack of enforceability exists because current regulations do not specifically include a requirement that changes to the QA program that affect the description of the QA program in the Safety Analysis Report be submitted to the NRC for review. Additionally, other than in footnote 1 to Appendix B of 10 CFR Part 50, there is no explicit requirement that the accepted QA program be implemented as a condition of the construction permit or license.

One commenter suggested that the proposed amendment to 10 CFR 50.55 be modified to be consistent with the advance notice of proposed rulemaking published December 11, 1980 (45 FR 81602), dealing with design and other changes in nuclear power plant facilities after issuance of a construction permit.

The amendment to § 50.55 will precede the amendment noted above being developed through the advance notice of proposed rulemaking. However, the Commission will act to assure consistency between the two with respect to facility QA program description reporting requirements.

One commenter recommended that the final rule be applicable to fuel reprocessing plants.

The Commission has accepted this suggestion in order that it be commensurate with the intent and requirements of Appendix B to 10 CFR Part 50. The rule has been revised to state that it is applicable to fuel reprocessing plants.

Several commenters suggested that the final rule be applicable to QA topical report descriptions accepted by NRC from a licensee's or construction permit holder's prime contractors.

Although NRC presently reviews QA topical reports submitted to it, the requirements of Appendix B of 10 CFR Part 50 clearly state that the licensee or permit holder has responsibility for the establishment and execution of the QA program. Thus, commensurate with the requirements of Appendix B of 10 CFR

Part 50, licensees and construction permit holders must ensure that their principal contractors' (architect-engineer, nuclear steam supply system vendor, constructor, and construction manager when other than the constructor) QA program description changes are reported to NRC in writing. In addition, when subcontractors make significant changes that amount to changes in the construction permit holder's or licensee's QA program or in the principal contractor's QA program, NRC must be notified in writing. This should not impose a heavy burden on a licensee or construction permit holder because, if a change has been made to a QA topical report description by a licensee's or construction permit holder's principal contractor and submitted to NRC by the principal contractor together with an explanation of the reasons for the change, the licensee or construction permit holder need only notify NRC that the referenced principal contractor's QA topical report has been changed and submitted to NRC by the principal contractor and need not forward a letter explaining the change.

It was also suggested that NRC Resident Inspectors be allowed to review QA program changes in order to determine whether the program has been weakened.

Because of the Resident Inspectors' diversified and demanding workloads, the Commission believes that its best interests would be expeditiously served by having reviews of QA program description changes performed in designated NRC Regional Offices or Office of Inspection and Enforcement, as necessary and appropriate.

It was also suggested that QA program description changes should be reviewed by the NRC's Office of Nuclear Reactor Regulation (Quality Assurance Branch) in lieu of the NRC Regional Offices, since licensees initially obtain approval of their quality assurance program descriptions from that NRC unit.

The Commission has not accepted this suggestion. The Commission will develop internal review procedures to ensure that QA program description changes will be reviewed by the NRC office possessing the necessary QA expertise and resources. In all cases, copies of all QA program description changes will be provided to the appropriate NRC Regional Office, appropriate NRC Resident Inspector, and NRC Office of Inspection and Enforcement for their review and to solicit their input regarding the changes.

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Finally, several commenters suggested that the rule be clarified to avoid the specific misinterpretation that written evaluations could be required for every revision of QA implementing methods and procedures, and for changes that correct spelling, punctuation, or items that are editorial in nature.

The rule has been revised to clarify the requirement for written evaluations. Generally, changes to quality assurance program implementing procedures, instructions, methods, and other documents do not require evaluations or submittal to NRC. Only when these changes involve a change to the QA program as described in the Safety Analysis Report would NRC have to be notified and would a forwarding letter have to be submitted. This forwarding letter will provide the basis for a Commission determination concerning compliance with the criteria in Appendix B of 10 CFR Part 50. Consequently, all affected pages of the Safety Analysis Report that describe the quality assurance program must be submitted to NRC in order to ensure that the copy of the quality assurance program description retained by NRC remains current.

### Paperwork Reduction Act

The application, reporting, and recordkeeping requirements contained in this Regulation have been approved by the Office of Management and Budget; OMB approval No: 3150-0011.

### Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 805(b), the Commission hereby 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 nuclear power plants and fuel reprocessing 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. No small entity commented that the proposed rule would affect it.

### List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, 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 sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

➤ 48 FR 2729  
Published 1/21/83  
Effective 2/22/83

### 10 CFR Part 50

#### Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations applicable to nuclear power plants to clarify and strengthen the criteria for environmental qualification of electric equipment important to safety. Specific qualification methods currently contained in national standards, regulatory guides, and certain NRC publications for equipment qualification have been given different interpretations and have not had the legal force of an agency regulation. This amendment codifies the environmental qualification methods and criteria that meet the Commission's requirements in this area.

**EFFECTIVE DATE:** February 22, 1983.

**FOR FURTHER INFORMATION CONTACT:** Satish K. Aggarwal, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-5946.

#### SUPPLEMENTARY INFORMATION:

##### Previous Notice

On January 20, 1982, NRC published in the Federal Register a notice of proposed rulemaking on environmental qualification of electric equipment for nuclear power plants (47 FR 2876). The comment period expired March 22, 1982. A total of 69 comment letters raising 10 major issues were received by April 6, 1982. An additional 10 comment letters were received by April 21, 1982, but no new issues were raised. The major issues are discussed below.

##### Nature and Scope of the Rulemaking

Nuclear power plant equipment important to safety must be able to perform its safety functions throughout its installed life. This requirement is embodied in General Design Criteria 1, 2, 4, and 23 of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"; in Criterion III, "Design Control," and Criterion XI, "Test

Control," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50; and in paragraph 50.55a(h) of 10 CFR Part 50, which incorporates by reference IEEE 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations." This requirement is applicable to equipment located inside as well as outside the containment.

The NRC has used a variety of methods to ensure that these general requirements are met for electric equipment important to safety. Prior to 1971, qualification was based on the fact that the electric components were of high industrial quality. For nuclear plants licensed to operate after 1971, qualification was judged on the basis of IEEE 323-1971. For plants whose Safety Evaluation Reports for construction permits were issued since July 1, 1974, the Commission has used Regulatory Guide 1.89, "Qualification of Class 1E Equipment for Light-Water-Cooled Nuclear Power Plants," which endorses IEEE 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," subject to supplementary provisions.

Currently, the Commission has under way a program to reevaluate the qualification of electric equipment in all operating nuclear power plants. As a part of this program, more definitive criteria for environmental qualification of electric equipment important to safety have been developed by the NRC. A document entitled "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors" (DOR Guidelines) was issued in November 1979. In addition, the NRC has issued NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment," which contains two sets of criteria: the first for plants originally reviewed in accordance with IEEE 323-1971 and the second for plants reviewed in accordance with IEEE 323-1974.

By its Memorandum and Order CLI-80-21 dated May 23, 1980, the Commission directed the staff to proceed with a rulemaking on environmental qualification of safety-related equipment and to address the question of backfit. The commission also directed that the DOR Guidelines and NUREG-0588 form the basis for the

<sup>1</sup>Incorporation by reference approved by the Director of the Office of Federal Register on January 1, 1982. Copies may be obtained from the Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, N.Y. 10017.

<sup>2</sup>Copies may be obtained from the Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, N.Y. 10017.

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requirements licensees and applicants must meet until the rulemaking has been completed. This rule is based on the DOR Guidelines and NUREG-0588. The Commission recognizes the qualification efforts of the industry as a result of CLI-80-21. Therefore, the rule provides that requalification of electric equipment will not be required by applicants for and holders of operating licenses for nuclear power plants previously required by NRC to qualify equipment in accordance with DOR Guidelines or NUREG-0588 (Category I or II). Category I requirements of NUREG-0588, which supplement the recommendations of and apply to equipment qualified in accordance with IEEE 323-1974, apply to nuclear power plants for which the construction permit safety evaluation report was issued after July 1, 1974. Category II requirements, which supplement the recommendations of and apply to equipment qualified in accordance with IEEE 323-1971, apply to nuclear power plants for which the construction permit safety evaluation report was issued prior to July 1, 1974.

In CLI-80-21, the Commission stated that unless there were sound reasons to the contrary, replacement parts should be qualified to the standards set forth in Category I of NUREG-0588 or IEEE 323-1974. The Commission reaffirms that position in this rulemaking. Such qualification constitutes compliance with the provisions of paragraph 50.49(1). The Commission's position is designed to promote the policy of upgrading the environmental qualification and reliability of installed electric equipment. Situations may arise, however, in which such upgrading will not be feasible or compatible with overall plant safety. Licensee must review each situation on a case-by-case basis to determine that "sound reasons to the contrary" do exist to justify an exception from upgrading. Examples of acceptable "sound reasons to the contrary" will be included in Regulatory Guide 1.89.

The dates specified in this rule for completion of environmental qualification of electric equipment important to safety apply to all licensees and applicants and supersede any date previously imposed. No changes to licenses or technical specifications are necessary to reflect these new completion dates.

The scope of the final rule covers that portion of equipment important to safety commonly referred to as "safety-related" (which the Commission interprets as essentially "Class 1E" equipment defined in IEEE 323-1974), and nonsafety-related electric equipment whose failure under postulated environmental conditions could prevent the satisfactory

accomplishment of required safety functions by safety-related equipment. Safety-related structures, systems, and components are those that are relied upon to remain functional during and following design basis events to ensure (i) the integrity of the reactor coolant pressure boundary, (ii) the capability to shut down the reactor and maintain it in a safe shutdown condition, and (iii) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guidelines of 10 CFR Part 100. Design basis events are defined as conditions of normal operation, including anticipated operational occurrences; design basis accidents; external events; and natural phenomena for which the plant must be designed to ensure functions (i) through (iii) above. Also covered in the scope of the final rule is certain postaccident 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."

Included in the final rule are specific technical requirements pertaining to (a) qualification parameters, (b) qualification methods, and (c) documentation. Qualification parameters include temperature, pressure, humidity, radiation, chemicals, and submergence. Qualification methods include (a) testing as the principal means of qualification and (b) analysis in combination with partial type test data or operating experience. The final rule requires that the qualification program include synergistic effects, radiation, environmental conditions and margin considerations. Also, a record of qualification must be maintained. Proposed Revision 1 to Regulatory Guide 1.89, which has been issued for public comment, describes methods acceptable to the NRC for meeting the provisions of this rule and includes a list of typical equipment covered by it. Revision 1 to Regulatory Guide 1.89 will be issued after resolution of public comments.

NRC will generally not accept analysis alone in lieu of testing. Experience has shown that qualification of equipment without test data may not be adequate to demonstrate functional operability during design basis event conditions. Paragraph 50.49(f) provides four methods for qualification. Testing will be preferred. To ensure integrity of a testing program, the Commission expects that the same piece of equipment will be used throughout the complete test sequence.

The final rule requires that each

holder of an operating license provide a list of electric equipment important to safety within the scope of this rule previously qualified based on testing, analysis, or a combination thereof, and a list of equipment that has not been qualified. These lists and the schedule for completion of qualification of electric equipment must be submitted by May 20, 1983.

The general requirements for seismic and dynamic qualification for electric equipment are contained in the General Design Criteria and are not included within the scope of this rule. Further guidance is provided in Regulatory Guide 1.100, "Seismic Qualification of Electric Equipment for Nuclear Power Plants," (Revision 1) and NUREG-0800, "Standard Review Plan." NRC is considering future rulemaking concerning requirements for the environmental qualification of electric equipment important to safety and the requirements for seismic and dynamic qualification of electric equipment.

### Comments On The Proposed Rule

The Commission received and considered the comments on the proposed rule contained in the 69 letters received from the public by April 6, 1982. Copies of those letters and a staff response to each comment are available for public inspection and copying for a fee at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

The major issues raised by the comments and NRC staff responses are as follows:

#### (1) *Seismic and Dynamic Qualification—Paragraph 50.49(c)*

**Issue:** Seismic and dynamic qualifications are an integral part of environmental qualification. It is therefore inappropriate to codify these requirements separately.

**Response:** Electric equipment at operating nuclear power plants was generally qualified for environmental and seismic stresses separately, i.e., by using separate prototypes for environmental and seismic qualification tests. The Commission has decided, after considerable deliberation, to pursue the issue of seismic and dynamic qualification separately at a future date. A future seismic rule may not require retesting for environmental stresses because a single prototype was not used during the original qualification. Also, the Commission has concluded that protection of electric equipment important to safety against other natural phenomena and external events should not be within the scope of this rule.

#### (2) *Scope—Cold Shutdown Requirement—Paragraph 50.49(b)*

**Issue:** The rule introduces a new

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requirement to qualify "equipment needed to complete one path of achieving and maintaining a cold shutdown condition." A change of this magnitude, at this advanced stage of the industry's qualification effort, most certainly introduces significant new costs and obligations with no demonstrated improvement in safety.

**Response:** Regulatory requirements in effect at the time of licensing of the majority of operating reactors did not require that all electric equipment and systems necessary to bring the reactor to cold shutdown be classified as safety related. However, electric equipment and systems necessary to shut down the reactor and maintain it in a safe shutdown condition are required to be classified as safety related and therefore are covered by the rule.

The Commission is currently studying the requirements for shutdown decay heat removal under Unresolved Safety Issue (USI) A-45. The overall purpose of A-45 is to evaluate the adequacy of current licensing requirements to ensure that failure to remove shutdown decay heat does not pose an unacceptable risk. Under A-45 a comprehensive and consistent set of shutdown cooling requirements for existing and future plants is being developed. The final technical resolution of A-45 is presently scheduled for October 1984.

The Commission believes it would be premature at this time to impose the requirement to environmentally qualify electric equipment and systems necessary to achieve and maintain cold shutdown prior to the final resolution of A-45. Therefore, this requirement is not included in the final rule.

### *(3) Scope—Equipment in a Mild Environment—Paragraph 50.49(b)*

**Issue:** The rule makes no distinction between equipment located in a harsh or mild environment. The stresses for equipment in a mild environment are less severe than for those in a harsh environment.

**Response:** The final rule does not cover the electric equipment located in a mild environment. The Commission has concluded that the general quality and surveillance requirements applicable to electric equipment as a result of other Commission regulations, including 10 CFR Part 50, Appendix B (see for example, Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," Revision 3) are sufficient to ensure adequate performance of electric equipment important to safety located in mild environments. Since it has been concluded that no further environmental qualification requirements are needed for such equipment provided they fully satisfy all other applicable regulations,

the Commission has determined that no additional requirements are necessary with respect to electric equipment important to safety located in mild environments in order for licensees to satisfy, with respect to such equipment, existing license conditions or technical specifications calling for qualification of safety-related electric equipment in accordance with DOR Guidelines or NUREG-0588.

### *(4) Scope—Previous Qualification Efforts—Paragraph 50.49(b)*

**Issue:** The rule does not recognize that plants have completed qualification of equipment to the DOR Guidelines or NUREG-0588. Without such recognition, industry efforts, manpower, and billions of dollars will go down the drain.

**Response:** The final rule has been expanded to alleviate this concern. See Paragraph 50.49(k).

### *(5) Humidity—Paragraph 50.49(e)(2)*

**Issue:** The effects of time-dependent variations of relative humidity during normal operation cannot be considered for all equipment. There are no detailed standards for how this type of testing should be performed.

**Response:** The Commission agrees. Humidity variation during normal operation are difficult to predict. It has not been demonstrated that the time-dependent variation in humidity will produce any differences in degradation of electric equipment. The words "Time-dependent variation of relative" have been deleted from Paragraph 50.49(e)(2).

### *(6) Aging—Paragraph 50.49(e)(5)*

**Issue:** The requirement that ongoing qualifications be done using "prototype equipment naturally aged" is overly restrictive. Use of accelerated aging to define a qualified life is not technically feasible.

**Response:** Preconditioning by accelerated aging is technically feasible for simple electric equipment for plant life and for complex electric equipment for a shorter designated life. The Commission recognizes that state-of-art technology will be utilized in any aging program. Reference to qualified life has been deleted from paragraph 50.49(e)(5).

### *(7) Margins—Paragraph 50.49(e)(8)*

**Issue:** The margins applied in addition to known conservatisms lead to excessive stress that could lead to failures of equipment in unrealistic qualification tests.

**Response:** The Commission agrees. This requirement could have caused excessive margins. The paragraph has been modified to recognize conservatisms that can be qualified.

### *(8) Analysis and partial test data—Paragraph 50.49(f)(4)*

**Issue:** If partial type test data that adequately support the analytical assumptions and conclusions are available, their analysis should be allowed to extrapolate or interpolate these results for equipment, regardless of purchase date.

**Response:** The Commission agrees. Reference to "purchase date" has been deleted.

### *(9) Requirement for a central file—Paragraph 50.49(j)*

**Issue:** The requirement for a central file should be deleted since it is not cost effective and has no safety benefit.

**Response:** The Commission agrees. This requirement has been subject to different interpretations. A record of qualification must be maintained in an "auditable form" but not necessarily in a central file for the entire period during which the covered item is installed in a nuclear power plant. Recordkeeping requirement of 10 CFR Part Appendix B must be met. Certain records can be kept at the vendor's shop.

### *(10) Justification of continued operation for operating plants.*

**Issue:** The requirement to submit justification for the continued operation of operating plants should be deleted since this information has been previously submitted to NRC.

**Response:** This requirement has been satisfactorily met and Paragraph 50.49(j) of the proposed rule has been deleted in its entirety from the final rule.

In addition, Paragraph 50.49(g) of the proposed rule has been deleted from the final rule since it is too prescriptive. It will be included in Regulatory Guide 1.89.

**Effective Date:** This rule replaces the "interim rule" published in the Federal Register on June 30, 1982 (47 FR 28363). The "interim rule" suspended environmental qualification deadlines contained in license conditions or technical specifications of operating plants. On the effective date of this rule (see above), the "interim rule" is superseded and the schedule for environmental qualification contained in this rule takes effect for all plants.

### **Paperwork Reduction Act**

The final rule contains information collection requirements that have been approved by the Office of Management and Budget; OMB approval number is 3150-0011.

### **Regulatory Flexibility Statement**

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

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economic impact on a substantial number of small entities. This final rule affects the method of qualification of electric equipment by utilities. Utilities do not fall within the definition of a small business found in Section 3 of the Small Business Act, 15 U.S.C. 632.

In addition, utilities are required by the Commission's Memorandum and Order CLI-80-21, dated May 23, 1980, to meet the requirements contained in the DOR "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors," (November 1979) and NUREC-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment," which form the basis of this rule.

Consequently, this rule codifies existing requirements and imposes no new costs or obligations on utilities.

### List of Subjects in 10 CFR Part 50

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

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of title 5 of the United States Code, 10 CFR Part 50 is amended.

48 FR 5532

Published 2/7/83

Effective 3/9/83

### 10 CFR Part 50

#### Codes and Standards for Nuclear Power Plants; Winter 1981 Addenda

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to incorporate by reference the Winter 1981 Addenda of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The sections of the ASME Code being incorporated provide rules for the construction of nuclear power plant components and specify requirements for inservice inspection of those components. Adoption of these amendments will permit the use of improved methods for construction and inservice inspection of nuclear power plants.

**DATE:** Effective March 9, 1983.

**FOR FURTHER INFORMATION CONTACT:** Mr. E. T. Baker, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-5892.

**SUPPLEMENTARY INFORMATION:** On July 29, 1982, the Nuclear Regulatory Commission published in the Federal Register (47 FR 32725) proposed amendments to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The proposed amendments revised § 50.55a to incorporate by reference the Winter 1981 Addenda to Section III, Division 1, "Rules for the Construction of Nuclear Power Plant Components," and Section XI, Division 1, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME Boiler and Pressure Vessel Code.

Some of the changes effected in the addenda which are incorporated by this rule are:

1. Article NCA-9000, "Glossary," was added to Section III. This provides standard definitions for terms used in Section III.

2. Paragraph IWB-2413, "Inspection Program for Steam Generator Tubing," of Section XI was revised. The ASME Boiler and Pressure Vessel Code has deferred its requirements for the examination of steam generator tubing to the requirements contained in the NRC plant Technical Specifications.

3. Paragraph IWB-3112 of Section XI was revised to make the acceptance standards of Section III and the preservice acceptance standards of Section XI more compatible. Paragraph IWB-3112 permits flaws that are identified as construction flaws to be evaluated according to Articles NB-2500 and NB-5300, provided that the flaws were detected during the inspections conducted during construction and were recorded. If the preservice examination indicates the flaws exceed the requirements of Articles NB-2500, NB-5300, and Table IWB-3410-1, the component will be considered unacceptable for service.

4. Subsection IWE, "Requirements for Class MC Components of Light-Water Cooled Power Plants," was added to Section XI by these addenda. However, 10 CFR § 50.55a presently only incorporates 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 Code addenda, the requirements of Subsection IWE are not imposed upon Commission licensees by this amendment. The applicability of Subsection IWE will be considered separately.

Interested persons were invited to submit written comments for consideration in connection with the proposed amendment by September 27, 1982. No comments were received. The

Commission is adopting the proposed amendment with a minor editorial revision to accommodate the incorporation by reference of the ASME Code.

### Paperwork Reduction Act Statement

Pursuant to the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511), the NRC has made a determination that this proposed rule does not impose new or impact existing information collection requirements.

### 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.

### 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 requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50 are published as a document subject to codification.



48 FR 5886

Published 2/9/83

Effective 2/9/83

Correction published 2/28/83 48 FR 8256

### 10 CFR Parts 50 and 70

#### Regional Licensing Reviews

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The NRC is amending its regulations to require licensees to



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submit reports of plan changes which do not decrease safeguards effectiveness to NRC regional offices. This action is being taken as part of the implementation of the NRC regional licensing program under which responsibility for certain categories of action has been delegated to Regional Administrators. The amendments are necessary to inform current or prospective licensees of current NRC practice and organization.

**EFFECTIVE DATE:** February 9, 1983.

**FOR FURTHER INFORMATION CONTACT:** Martin Levy, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC, Telephone: (301) 427-4024.

**SUPPLEMENTARY INFORMATION:** The Nuclear Regulatory Commission is amending its regulations concerning the reviews of reactor security and contingency plan changes, transportation physical protection plan changes, and special nuclear material facility security, contingency and material control and accounting program changes where the plan or program changes do not decrease effectiveness. These amendments are being made to reflect current NRC practices and assigned responsibilities under the NRC regional licensing program. The revised provisions, 10 CFR 50.54(p), and 70.32 (c), (d), (e), and (g), specify that notification as to changes to certain security and contingency plans and material control and accounting programs in Regions I and II be sent to the cognizant regional office commencing February 9, 1983. As of October 1, 1983, notification as to changes in certain security and contingency plans and material control and accounting programs in all regions will be sent to the cognizant regional offices. With respect to the specific actions delegated to the Regional Administrators, the revisions to the regulations are intended to state exactly which functions are now assigned to the Regional Administrators as their total responsibility under the Commission's regionalization program and when these responsibilities will become effective.

The basic delegation of authority for the Regional Administrators is contained in NRC Manual Chapter 0122. The general delegation requires supplementation, however, as specific functions are transferred to the Regional Offices. The amendments contained herein meet the requirement for such supplementation.

The changes to 10 CFR 50.54(p) and 70.32 (c), (d), (e), and (g) are nonsubstantive amendments. They simply change the entity to which certain notices are sent and the dates that the change becomes effective.

Since the amendments relate to minor

matters of agency organization and procedure, notice of proposed rulemaking and public procedure thereon are unnecessary under 5 U.S.C. 553. For the same reason good cause exists for making the amendments effective upon publication in the Federal Register without the customary thirty day notice.

### Paperwork Reduction Act Statement

The information collection requirements contained in this regulation have been approved under OMB clearance numbers 3150-0011, 3150-0009.

### List of Subjects

#### 10 CFR Part 50

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

#### 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.

Pursuant to 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 following amendments to 10 CFR Parts 50 and 70, are published as a document subject to codification.

48 FR 8256

Published 2/28/83

#### 10 CFR Parts 50 and 70

### Regional Licensing Reviews

#### Correction

In FR Doc. 83-3328 beginning on page 5886 in the issue of Wednesday, February 9, 1983, make the following corrections.

On page 5887, first column, § 70.32 (c)(1), eighth line from the bottom, "discribed" should read "described"; second column, paragraph (d), sixth line, "\$ 80.22(g)" should read "\$ 70.22(g)"; third column, paragraph (g), eighth line, "licensees" should read "licensee"; and in the sixth line from the bottom, "70.30(g)" should read "73.30(g)".

➤ 48 FR 13966

Published 4/1/83.

Effective 6/1/83

#### 10 CFR Part 50

### Applicability of License, Conditions and Technical Specifications in an Emergency

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to clarify that all Part 50 licensees may take reasonable action that departs from a license condition or technical specification in an emergency when this action is immediately needed to protect the public health and safety. The rule is being issued because NRC regulations currently do not permit deviations from license conditions or technical specifications under any conditions. Emergency situations can arise, though, during which a license condition or a technical specification could prevent necessary protective action by the licensee. The rule allows this action to be taken in emergency circumstances.

**EFFECTIVE DATE:** June 1, 1983.

**FOR FURTHER INFORMATION CONTACT:** Charles M. Trammell III, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Telephone: 301-492-7389).

**SUPPLEMENTARY INFORMATION:** The rule clarifies the regulations in 10 CFR Part 50 by providing that a licensee may take reasonable action that departs from a license condition or a technical specification in an emergency when such action is immediately needed to protect the public health and safety.

At present, NRC regulations do not permit deviations from license conditions or technical specifications under any circumstances. Emergencies can arise, though, during which compliance with a license condition or a technical specification could prevent necessary action by a licensee to protect the public health and safety. Licensees are understandably reluctant to take actions contrary to their licenses. Absolute compliance with the license in emergencies can be a barrier to effective protective action by a licensee.

Technical specifications contain a wide range of operating limitations and requirements concerning actions to be taken if certain systems fail and if certain parameters are exceeded. The bulk of technical specifications are devoted to keeping the plant parameters within safe bounds and keeping safety

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equipment operable during normal operation. However, technical specifications also require the implementation of a wide range of operating procedures which go into great detail as to actions to be taken in the course of operation to maintain facility safety. These procedures are based on the various conditions—normal, transient and accident conditions—analyzed as part of the licensing process. Nevertheless, unanticipated circumstances can occur during the course of emergencies. These circumstances may call for responses different from any considered during the course of licensing—e.g., the need to isolate the accumulators to prevent nitrogen injection to the core while there was still substantial pressure in the primary system was unforeseen in the licensing process before TMI-2; thus, the technical specifications prohibited this action. Special circumstances requiring a deviation from license requirements are not necessarily limited to transients or accidents not analyzed in the licensing process. Special circumstances can arise during emergencies involving multiple equipment failure or coincident accidents where plant emergency procedures could be in conflict, or not applicable to the circumstances. In addition, an accident can take a course different from that visualized when the emergency procedure was written, thus requiring a protective response at variance with a procedure required to be followed by the licensee. Also, performance of routine surveillance testing, which might fall due during an emergency, could either divert the attention of the operating crew from the emergency or cause the loss of equipment needed for proper protective action.

Technical specifications or license conditions can be amended by NRC, and the rule is not intended to apply in circumstances where time allows this process to be followed. The rule would apply only to those emergency situations where action by the licensee is required immediately to protect the public health and safety—action which may be contrary to a technical specification or a license condition.

It is the intent of the rule to allow deviations from license requirements only in the special circumstances described. It is not intended that licensees be allowed to deviate from procedures and other license requirements where these are applicable.

For these reasons, the Commission believes that there should be a specific provision in the Commission's rules

clearly indicating that a licensee may take reasonable action that departs from a license condition or technical specification in an emergency when such action is immediately needed to protect the public health and safety.

The rule also requires a licensee, under § 50.72, to notify the NRC Operations Center by telephone of emergency circumstances requiring it to take any action that departs from a license condition or a technical specification. When time permits, the notification is made before the protective action is taken; otherwise, it is made as soon as possible thereafter. The impact of this reporting requirement on licensees is expected to be negligible.

The rule follows the recommendation in NUREG-0616, "Report of Special Review Group, Office of Inspection and Enforcement on Lesson Learned from Three Mile Island"<sup>1</sup> the NRC establish and announce a firm policy regarding the applicability of the license under emergency circumstances, with certain exceptions discussed below.

(a) The rule does not require that departure from a license condition or technical specification have the concurrence of the most senior licensee and NRC personnel available at the time before the departure.

While the Commission certainly does not disagree with the general concept that the most senior licensee personnel available at the time should be involved, the rule specifies that such action shall be approved by a licensed senior operator as a minimum and does not go into further detail as to which additional persons should be involved if time permits or which persons should be involved under other circumstances. The persons responsible for safe operation of the facility are already identified in the facility license and implementing procedures.

(b) The rule does not require the concurrence of NRC personnel. Receiving the "concurrence" or "approval" of NRC personnel would amount to a license amendment using procedures contrary to those existing for amendments. The rule specifically applies to emergency situations where immediate action is needed and time is not available for a license amendment. Requiring the concurrence of NRC personnel available at the time tends to shift the burden of safety from the licensee to NRC—contrary to the rule's intent. It could also shift the burden to NRC personnel on site who may be unqualified to concur in a proposed licensee action.

<sup>1</sup>NUREG-0616 is available for inspection and copying for a fee at NRC Public Document Room, 1717 H Street, NW., Washington, D.C. Copies may be purchased through the NRC/GPO Sales Program by using a GPO Deposit Account, MasterCard or Visa by calling the NRC/GPO Sales Office on (301) 482-0630 or by sending a check or money order payable to Superintendent of Documents to: Sales Manager 06A, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Purchase orders are acceptable from Federal, state, and local government offices only.

The rule was published as a proposed rule in the Federal Register on August 18, 1982 (47 FR 35996). A sixty-day comment period expired on October 16, 1982.

A total of thirty-seven responses were received, representing thirty-nine organizations or persons. Respondees included: licensees of power reactors (24), individuals (5), research reactor licensees (2), nuclear steam system suppliers (2), professional organizations (2); and one response each from: a law firm, a State, a labor union, and an architectural-engineering firm. Copies of comments received by the Commission in response to the notice of proposed rulemaking may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C. (file PR-50, 47 FR 35996).

The vast majority of the commenters (thirty-seven) were in favor of the rule. Many expressed enthusiastic support. Only two commenters believed that the rule should not be adopted. Eight commenters believed the rule should be issued as proposed. However, as a result of comments received by others, some changes have been made, as discussed below.

One commenter pointed out the similarity between the proposed rule and the so-called "General Prudential Rule" contained in both the International Regulations for Preventing Collisions at Sea, 1972, and the Inland Navigational Rules Act of 1960. The rule is identical in each and states:

In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from those rules necessary to avoid immediate danger. (Rule 2(b)).

The commenter added that a Commanding Officer (of a naval ship) is permitted to deviate from written rules to the extent necessary to save his ship, and that there is ample precedent for the proposed NRC rule.

It is also very similar to a rule of the Federal Aviation Administration (FAA) governing the operation of aircraft, 14 CFR 91.3, which states that "[i]n an emergency requiring immediate action, the pilot in command may deviate from any rule . . . to the extent necessary to meet that emergency. Each pilot in command who deviates from a rule . . . shall, upon the request of the Administrator, send a written report of that deviation to the Administrator."

The Commission had both the General Prudential Rule and the FAA rule in mind when it framed the proposed NRC rule. Further, it is clear that Congress

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believes that licensees have authority to take whatever action is necessary to respond to emergencies involving an imminent threat to public health and safety. H.R. Rep. No. 97-884, 97th Cong., 2d Sess. 38 (1982). The rule codifies and clarifies this authority.

In addition to seeking the usual public comment as to any aspects of the proposed rule, the Federal Register Notice of the proposed rule stated:

The proposed rule does not provide significant guidance to Part 50 licensees for identifying those situations in which deviations from license conditions or technical specifications are allowable. In addition, the proposed rule and the supplementary information does not contain standards to be used by the NRC staff in determining whether to take enforcement action against Part 50 licensees who deviate from license conditions or technical specifications in these types of situations. The Commission particularly solicits comments on these two areas.

Thirty-four comments were received in response to this request, and most were strongly opposed to the Commission providing additional deviation guidance or enforcement standards.

As for deviation guidance, one comment, which was opposed to such, was typical: "[w]e do not believe that it is feasible to provide detailed guidance as to when deviations are permissible. The whole purpose of the proposed amendments is to provide flexibility in situations that cannot be anticipated. Any effort to provide more detailed standards is likely to defeat that purpose by unintentionally excluding a situation in which a deviation is necessary or appropriate."

The Commission agrees with this comment, and feels that any attempt to define in more detail the precise circumstances under which a deviation is permissible is bound to exclude a circumstance where deviation might be entirely appropriate. Whereas the conditions under which a deviation is allowed are not described at length, nevertheless, the deviation criteria are quite specific: the licensee must be faced with an emergency situation in which compliance with the license is posing a barrier to effective protective action and rapid protective action is needed.

Based on the foregoing and public comments received, no changes have been made to the rule with respect to the conditions under which the rule may be invoked.

In response to the Commission's request for comments on the need for enforcement standards, most commenters stated that the matter of enforcement should be based on the

specific circumstances surrounding the event, and that enforcement standards would be difficult to frame for the unusual circumstances under which the rule might be used. One commenter pointed out that enforcement standards would tend to limit actions that could or could not be taken, and thereby serve to provide deviation guidance which most felt was inappropriate (discussed above).

The Commission has concluded that enforcement standards, as such, are not needed. The Commission agrees that providing such standards would tend to define the circumstances under which the rule could be used (deviation guidance). As discussed above, this has been judged to be undesirable.

The rule does, however, contain implicit enforcement guidance. The NRC would review a licensee's use of the rule to determine answers to the following types of questions.

a. Did the licensee have to act immediately to avert possible adverse consequences to the public health and safety?

b. Was adequate or equivalent protective action that is consistent with the license immediately apparent?

c. Was the action reasonable? Based on information available at the time did it serve to protect the public health and safety? Did the licensee deviate from its license only to the extent necessary to meet the emergency?

d. Was there time for an amendment of the license to be approved by NRC?

Answers to these questions should be adequate to determine if the rule had been violated. Specific enforcement action would have to depend on the specific circumstances.

Ten persons made comments to the effect that overly critical reviews or overzealous enforcement action following the use of the rule would cause licensees to hesitate to use the rule. The Commission agrees with these comments. The Commission recognizes that a licensee will need to exercise judgment in applying the rule, and in its after-the-fact review, it may not agree in every instance with the licensee's actions. However, enforcement action for a violation of the rule will not be taken unless a licensee's action was unreasonable considering all the relevant circumstances having to do with the emergency.

The Federal Register Notice for the proposed rule contained additional comments of Commissioner Gilinsky, in which he stated:

I believe the decision to operate outside the Technical Specifications should be made by a senior reactor operator since I understand that reactor operators are not trained or

tested on both the basis and importance of the Technical Specifications. I would be interested in receiving comments on this issue.

Nineteen comments were received in response to this request and most all agreed that such a decision should be made, as a minimum, by a licensed senior operator. Those opposed expressed the opinion that such concurrence should not be mandatory or that higher concurrences should be obtained if possible.

A minor clarifying change to the rule has been made in response to these comments and another which stated that the rule was confusing because the first paragraph of the proposed rule discussed *licensees* and the second discussed *operators*. The second paragraph now reads: "Licensee action permitted by paragraph (x) of this section shall be approved, as a minimum, by a licensed senior operator." This change makes it clear that if a licensee takes emergency action allowed by paragraph (x), such action must be approved by, at least, a licensed senior operator acting for the licensee. Under the provision, any licensed senior operator (licensed for the unit involved) would be sufficient. However, as one commenter pointed out, more senior licensee personnel would probably be available. If so, the decision to depart from the license in an emergency would pass to them (as higher authorities in the chain of command). If, however, an emergency requiring prompt action should occur on a back shift, no licensee representative higher in the chain of command is likely to be available. To require other approvals could serve to defeat the purpose of the rule.

One commenter stated that the rule should provide for deviations from the NRC regulations as well as license conditions and technical specifications. This was intended, and the language of numerous comments indicated that this was understood. Each license issued is subject to all applicable rules, regulations and orders of the Commission. This is stated in the license itself and also in 10 CFR 50.54(h) as a condition of the license. Therefore, the rule does apply to NRC rules, regulations and orders as well.

Three comments were received regarding the applicability of the rule in situations where damage to the facility or injury to personnel might be involved. For the reasons discussed above, the rule does not contain explicit deviation guidance or examples. Nevertheless, the threat of injury to personnel would be an appropriate example. As for invoking the rule to prevent damage to the facility

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or machinery, it would depend on the specific circumstances of the emergency. The rule does not apply to machinery or the facility, *per se*, but would apply if such damage is tied to a possible adverse effect on public health and safety.

One commenter suggested that the Commission emphasize the permissive nature of the rule by explaining that its use is totally discretionary, that licensees need not invoke it even in an emergency, and that failure to invoke the rule would not constitute a violation of NRC requirements for which an enforcement action may be brought. This comment was not accepted. Whereas the language of the rule is permissive in nature, licensees are responsible for operating their facilities in such a manner as to protect the public health and safety. If, in an emergency, protective action is needed (and no action consistent with the license that can provide adequate or equivalent protection is immediately apparent) the licensee would be obliged to take the protective action that deviates from the license. Viewed in this sense, use of the rule is not optional.

One commenter suggested that the provisions of the rule be placed in the facility operating license indicating that Technical Specifications are not intended to prevent a licensee from undertaking, during the course of emergency conditions, any action necessary to protect public health and safety. No changes to the rule have been made in response to this comment. First, as stated above, the rule applies not only to technical specifications, but any NRC requirement, e.g., regulations, rules, license conditions, or technical specifications. Second, it is not necessary to place the statement into the operating license itself, since it is being published as a rule in § 50.54, "Conditions of licenses." By so doing, the rule applies to all operating licensees.

A commenter suggested that a policy statement to the same safe effect would be better than a rule. This was not accepted, since the Commission believes that it would be inappropriate to issue a policy statement in conflict with a rule.

Only two commenters were not in favor of the rule. One comment stated that the rule would be abused. The Commission disagrees with this comment, noting that several safeguards have been built into the rule to prevent this. First, licensees must notify the NRC by telephone when the rule is used. Second, the NRC may require written statements from a licensee concerning its actions after use of the rule. One commenter agreed that these provisions

provided adequate safeguards against abuse.

Two commenters suggested that written notice to the Commission of use of the rule should be mandatory. It is highly likely that a written report would be required since most violations of the license or technical specifications do require a written report. To the extent that the Commission's information needs related to the event are not met, the Commission would require additional information, as provided for in the rule. A mandatory written report is therefore not deemed essential.

One commenter stated that the reporting requirement "When time permits, the notification (of the use of the rule) shall be made before the protective action is taken \* \* \*" was inconsistent with the use of the term "immediately needed" language of the rule, and implied that a prior report should not be required at all. In response, the Commission notes that all power reactors have dedicated telephones connected directly to the NRC Operations Center at all times, and, under most circumstances under which the rule might need to be used, the licensee would be in contact with the NRC Operations Center anyway. Therefore, most emergency situations would allow time to make a prior notification to the NRC, considering the ease and speed that it could be done. Second, while the term "immediately" as used in the rule is not defined, it could involve a period of hours as the emergency develops, and certainly a period of time that is too short to permit NRC approval of a change to the license before the action must be taken (as stated earlier). Therefore, there is not necessarily an inconsistency between the prior report and the timing of the need for action. If, however, there is no time for a prior report, it is not required.

One commenter stated that the rule constituted an admission that NRC rules and licenses are not adequate; another stated that the rule shows that NRC rules have become unwieldy. The Commission does not agree with these comments, and believes the issuance of the rule will result in increased protection to the public health and safety. Any attempt to define NRC requirements to cover all conceivable circumstances, as discussed earlier, is bound to fail, and would result in unwieldy regulations.

One comment noted an apparent inconsistency between the rule (which admits that unanticipated circumstances can occur during the course of emergencies that may call for responses different from any considered during the

course of licensing) and the admissibility of intervenor contentions that are denied litigation at a hearing on the basis that such scenarios are incredible or so unlikely as to be barred from litigation.

The Commission, in issuing this rule, takes no position whatever as to the merit of any contention involving emergency circumstances that could be postulated at a nuclear facility. Rather, the rule assumes that special circumstances have occurred which makes use of the rule necessary to protect the public health and safety.

A commenter suggested that use of the rule be tied to the "general emergency" emergency classification, i.e., that the rule should apply only when a general emergency has been declared by the licensee. This comment was not accepted. Emergencies can develop rapidly. Use of the rule should not be encumbered by administrative prerequisites.

A commenter proposed that a large fee—up to one million dollars—be charged for use of the rule. The thrust of the comment was to ensure that violation of NRC requirements be carefully considered. Another suggested holding hearings after the emergency to determine justifications for use of the rule and to see if other actions could have been taken. As stated earlier, the Commission believes that the rule contains adequate safeguards. Therefore these comments were not adopted.

Finally, a commenter suggested that an evaluation be made of each instance in which a deviation was made to prevent possible future need for similar deviations. The Commission will review each use of the rule both to confirm that the intent of the rule was satisfied and also to analyze the circumstances leading to the emergency to see what permanent corrective action may be appropriate.

### Regulatory Analysis

The Commission has prepared a regulatory analysis for this regulation. The analysis examines the costs and benefits of the rule as 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, D.C. Single copies of the analysis may be obtained from Charles M. Trammell III, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C., 20555, Telephone (301) 492-7389.

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### Paperwork Reduction Act Statement

The information collection requirements contained in this regulation have been approved by the Office of Management and Budget; OMB approval No. 3150-0011.

### Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that these regulations will not, if promulgated, have a significant economic impact on a substantial number of small entities. These regulations affect licensees that own and operate nuclear utilization facilities licensed under sections 103 and 104 of the Atomic Energy Act of 1954, as amended. The amendment serves to clarify the applicability of license conditions and technical specifications in an emergency. The clarification would be incorporated as a condition of the respective operating licenses, and would require no action on the part of licensees. Accordingly, there is no new, significant economic impact on these licensees; nor do these licensees 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 13 CFR Part 121.

### List of Subjects in 10 CFR Part 50

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

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

48 FR 14864

Published 4/6/83

Effective Date: 5/6/83.

The Commission specifically requests comments on this interim final rule by 5/6/83. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

### 10 CFR Part 50

#### Standards for Determining Whether License Amendments Involve No Significant Hazards Considerations

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Interim final rule.

**SUMMARY:** Pursuant to Public Law 97-415, NRC is amending its regulations to specify standards for determining whether requested amendments to operating licenses for certain nuclear power reactors and testing facilities involve no significant hazards considerations. These standards will help NRC in its evaluations of these requests. Research reactors are not covered. However, the Commission is reviewing the extent to which and the way such standards should be applied to research reactors.

**EFFECTIVE DATE:** May 6, 1983. The Commission specifically requests comments on this interim final rule by May 6, 1983. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

**ADDRESSES:** Written comments should be sent to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Copies of the documents discussed in this notice and of the comments received on the proposed rule and interim final rules may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

**FOR FURTHER INFORMATION CONTACT:** Thomas F. Dorian, Esq., Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone: (301) 492-8890.

#### SUPPLEMENTARY INFORMATION:

##### Introduction

Pursuant to Public Law 97-415, NRC must promulgate, within 90 days of enactment, regulations which establish (a) standards for determining whether an amendment to an operating license involves no significant hazards considerations, (b) criteria for providing or, in emergency situations, for dispensing with prior notice and reasonable opportunity for public comment on any such determination, and (c) procedures for consultation on any such determination with the State in which the facility involved is located.

Proposed regulations to specify standards for determining whether amendments to operating licenses or construction permits for facilities licensed under §§ 50.21(b) or 50.22 (including testing facilities) involve no

significant hazards considerations (item (a) above) were published for comment in the Federal Register by the Commission on March 28, 1980 (45 FR 20491). Since the Commission rarely issues amendments to construction permits and has never issued a construction permit amendment involving a significant hazards consideration, it has decided not to apply these standards to amendments to construction permits and to handle these case-by-case. This is in keeping with the legislation which applies only to operating license amendments. Additionally, these standards will not now be applied to research reactors. The Commission is currently reviewing whether and how it should apply these or similar standards to research reactors. In sum, the interim final rule will amend Part 50 of the Commission's regulations to establish standards for determining whether an amendment to an operating license involves no significant hazards consideration.

The rule takes account not only of the new legislation but also the public comments received on the proposed rule. For the sake of clarity, affected prior legislation as well as the Commission's regulations and practice are discussed as background information.

Simultaneously with the promulgation of these standards in § 50.92, the Commission is publishing an interim final rule which contains criteria for providing or, in emergency situations, for dispensing with prior notice and reasonable opportunity for and public comment on a determination about whether an amendment to an operating license involves a significant hazards consideration (item (b) above). This rule also specifies procedures for consultation on any such a determination with the State in which the facility involved is located (item (c) above). The rule appears separately in the Federal Register.

These regulations are issued as final, though in interim form, and comments will be considered on them. They will become effective 30 days after publication in the Federal Register. Accordingly, interested persons who wish to comment are encouraged to do so at the earliest possible time, but not later than 30 days after publication, to permit the fullest consideration of their views.

#### Background

##### A. Affected Legislation, Regulations and Procedures

When the Atomic Energy Act of 1954 (Act) was adopted in 1954, it contained no provision which required a public

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hearing on issuance of a construction permit or operating license for a nuclear power reactor in the absence of a request from an interested person. In 1957, the Act was amended to require that mandatory hearings be held before issuance of both a construction permit and an operating license for power reactors and certain other facilities. Public Law 85-256 (71 Stat. 578) amending § 189a. of the Act.

The 1957 amendments to the Act were interpreted by the Commission as requiring a "mandatory hearing" before issuance of amendments to construction permits and operating licenses. *See, e.g.,* Hearing Before the Subcommittee on Legislation, Joint Committee on Atomic Energy, 87th Cong., 2d. Sess. (April 17, 1962), at 6. Partially in response to the administrative rigidity and cumbersome procedures which this interpretation forced upon the Commission (*see, Joint Committee on Atomic Energy Staff Study, "Improving the AEC Regulatory Process", March 1961, at 49-50*), section 189a. of the Act was amended in 1962 to eliminate the requirement for a mandatory public hearing except upon the application for a construction permit for a power or testing facility. As stated in the report of the Joint Committee on Atomic Energy which recommended the amendments:

Accordingly, this section will eliminate the requirements for a mandatory hearing, except upon the application for a construction permit for a power or testing facility. Under this plan, the issuance of amendments to such construction permits, and the issuance of operating licenses and amendments to such construction permits, and the issuance of operating licenses and amendments to operating licenses, would be only after a 30-day public notice and an offer of hearing. In the absence of a request for a hearing, issuance of an amendment to a construction permit, or issuance of an operating license, or an amendment to an operating license, would be possible without formal proceedings, but on the public record. It will also be possible for the Commission to dispense with the 30-day notice requirement where the application presents no significant hazards consideration. This criterion is presently being applied by the Commission under the terms of AEC Regulations 50.59. H. Rep. No. 1966, 87th Cong., 2d. Sess., at 8.

Thus, according to the 1962 amendments, a mandatory public hearing would no longer be required before issuance of an amendment to a construction permit or operating license and a thirty-day prior public notice would be required only if the proposed amendment involved a "significant hazards consideration." In sum, section 189a. of the Act, now provides that, upon thirty-days' notice published in the Federal Register, the Commission may issue an operating license, or an amendment to an operating license, or an amendment to a construction permit,

for a facility licensed under sections 103 or 104b. of the Act, or for a testing facility licensed under section 104c., without a public hearing if no hearing is requested by any interested person. Section 189a. also permits the Commission to dispense with such thirty-days' notice and Federal Register publication with respect to the issuance of an amendment to a construction permit or an amendment to an operating license upon a determination by the Commission that the amendment involves no significant hazards consideration. These provisions have been incorporated into §§ 2.105, 2.106, 50.58(a) and (b) and 50.91 of the Commission's regulations.

The regulations provide for prior notice of a "proposed action" on an application for an amendment when a determination is made that there is a significant hazards consideration and provide an opportunity for interested members of the public to request a hearing. *See* §§ 2.105(a)(3) and 50.91. Hence, if a requested license amendment is found to involve a significant hazards consideration, the amendment would not be issued until after any required hearing is completed or after expiration of the notice period. In addition, § 50.58(b) further explains the Commission's hearing and notice procedures, as follows:

The Commission will hold a hearing after at least 30 days notice and publication once in the Federal Register on each application for a construction permit for a production or utilization facility which is of a type described in § 50.21(b) or § 50.22 or which is a testing facility. When a construction permit has been issued for such a facility following the holding of a public hearing and an application is made for an operating license or for an amendment to a construction permit or operating license, the Commission may hold a hearing after at least 30 days notice and publication once in the Federal Register or, in the absence of a request therefor by any person whose interest may be affected, may issue an operating license or an amendment to a construction permit or operating license without a hearing, upon 30 days notice and publication once in the Federal Register of its intent to do so. If the Commission finds that no significant hazards consideration is presented by an application for an amendment to a construction permit or operating license, it may dispense with such notice and publication and may issue the amendment.

Thus, it is very important to note that a determination that a proposed license amendment does or does not present a "significant hazards consideration" has involved the hearing and attendant notice requirements. Consequently, under its present rules the Commission has generally coupled its determination about whether it should provide a hearing before issuing an amendment with its determination about whether it should issue a prior notice, and the central factor in both determinations

has been the determination about "no significant hazards consideration." It has been charged that in practice this has meant that the staff has sometimes coupled the decision about the merits of an amendment to the decision about when it should notice the amendment, *i.e.*, whether it should give prior notice or post notice. Additionally, there has been some concern that the Act and the regulations have not defined the term "significant hazards consideration" and that they have not established criteria for determining when a proposed amendment involves a "significant hazards consideration." Section 50.59 does set forth criteria for determining when a proposed change, test or experiment involves an "unreviewed safety question," but it is clear that not every such question involves a "significant hazards consideration." In any event, the Commission's practice with regard to license amendments involving no significant hazards consideration (unless, as a matter of discretion, prior notice was given) was to issue the amendment and then publish in the Federal Register a notice of issuance. *See* § 2.106. In such a case, interested members of the public who wished to object to the amendment and request a hearing could do so, but a request for a hearing did not, by itself, suspend the effectiveness of the amendment. Thus, both the notice and hearing, if one were requested, have occurred after the amendment was issued.

It is very important to bear in mind that there is not intrinsic safety significance to the "no significant hazards consideration" standard. Whether or not an action requires prior notice, no license and no amendment may be issued unless the Commission concludes that it provides reasonable assurance that the public health and safety will not be endangered and that the action will not be inimical to the common defense and security or to the health and safety of the public. *See, e.g.,* § 50.57(a). Also, whether or not an amendment entails prior notice, no amendment to any license may be issued unless it conforms to all applicable Commission safety standards. Thus, the "no significant hazard consideration" standard has been a procedural standard only, governing whether public notice of a proposed action must be provided, before the action is taken by the Commission. In short, the "no significant hazards consideration" standards has been a notice standard and has had no substantive safety significance, other than that attributable to the process of prior notice to the public and reasonable opportunity for a hearing.

*B. The Sholly Decision and the New Legislation*



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The Commission's practice of not providing an opportunity for a prior hearing on a license amendment not involving significant hazards considerations was held to be improper in *Sholly v. NRC*, 651 F.2d 780 (1980), rehearing denied, 792 F.2d 792 (1980), cert granted 101 S. Ct. 3004 (1981) (*Sholly*). In that case the U.S. Court of Appeals for the District of Columbia Circuit ruled that, under section 189a of the Act, NRC must hold a prior hearing before an amendment to an operating license for a nuclear power plant can become effective, if there has been a request for hearing (or an expression of interest in the subject matter of the proposed amendment which is sufficient to constitute a request for a hearing). A prior hearing, said the Court, is required even when NRC has made a finding that a proposed amendment involves no significant hazards consideration and has determined to dispense with prior notice in the Federal Register. At the request of the Commission and the Department of Justice, the Supreme Court agreed to review the Court of Appeals' interpretation of section 189a of the Act. The Supreme Court has remanded the case to the Court of Appeals with instructions to vacate it if it is moot and, if it is not, to reconsider its decision in light of the new legislation.

The Court of Appeals' decision did not involve and has no effect upon the Commission's authority to order immediately effective amendments, without prior notice or hearing, when the public health, safety, or interest so requires. See, Administrative Procedure Act, Section 9(b), 5, U.S.C. § 558(c), section 161 of the Atomic Energy Act, and 10 CFR 2.202(f) and 2.204. Similarly, the Court did not alter existing law with regard to the Commission's pleading requirements, which are designed to enable the Commission to determine whether a person requesting a hearing is, in fact, an "interested person" within the meaning of section 189a.—that is, whether the person has demonstrated standing and identified one or more issues to be litigated. See, *BPI v. Atomic Energy Commission*, 502 F.2d 424, 428 (D.C. Cir. 1974), where the Court stated that, "Under its procedural regulations it is not unreasonable for the Commission to require that the prospective intervenor first specify the basis for this request for a hearing."

However, the Commission believed that legislation was needed to change the result reached by the Court in *Sholly* because of the implications of the requirement that the Commission grant a requested hearing before it could issue a license amendment involving no significant hazards consideration. The commission believes that, since most

requested license amendments involving no significant hazard consideration are routine in nature, prior hearing on such amendments could result in unwarranted disruption or delay in the operations of nuclear plants and could impose regulatory burdens upon it and the nuclear industry that are not related to significant safety matters. Subsequently, on March 11, 1981, the Commission submitted proposed legislation to Congress (Introduced as S. 912) that would expressly authorize it to issue a license amendment before holding a hearing requested by an interested person, when it has made a determination that no significant hazards consideration is involved in the amendment.

After the House and Senate conferees considered two similar bills, H.R. 2330 and S. 1207, they agreed on a unified version (See Conf. Rep. No. 97-884, 97th Cong. 2d. Sess. (1982)) and passed Public Law 97-115. Specifically section 12(a) of that law amends section 189a of the Act by adding the following with respect to license amendments involving no significant hazard consideration:

(2)(A) The Commission may issue and make immediately effective any amendment to an operating license, upon a determination by the Commission that such amendment involves no significant hazards consideration, notwithstanding the pendency before the Commission of a request for a hearing from any person. Such amendment may be issued and made immediately effective in advance of the holding and completion of any required hearing. In determining under this section whether such amendment involves no significant hazards consideration, the Commission shall consult with the State in which the facility involved is located. In all other respects such amendment shall meet the requirements of this Act.

(B) The amendment shall periodically (but not less frequently than once every thirty days) publish notice of any amendments issued, or proposed to be issued, as provided in subparagraph (A). Each such notice shall include all amendments issued, or proposed to be issued, since the date of publication of the last such periodic notice. Such notice shall, with respect to each amendment or proposed amendment (i) identify the facility involved; and (ii) provide a brief description of such amendment. Nothing in this subsection shall be construed to delay effective date of any amendment.

(C) The Commission shall, during the ninety-day period following the effective date of this paragraph, promulgate regulations establishing (i) standards for determining whether any amendment to an operating license involves no significant hazards consideration; (ii) criteria for providing or, in emergency situations, dispensing with prior notice and reasonable opportunity for public comment on any such determination, which criteria shall take into account the exigency of the need for the amendment involved; and (iii) procedures for consultation on any such determination with the State in which the facility involved is located."

Section 12(b) of that law specifies

that:

(b) The authority of the Nuclear Regulatory Commission, under the provisions of the amendment made by subsection (a), to issue and to make immediately effective any amendment to an operating license shall take effect upon the promulgation by the Commission of the regulations required in such provisions.

Thus, as noted above, the legislation authorizes NRC to issue and make immediately effective an amendment to an operating license upon a determination that the amendment involves no significant hazards consideration, even though NRC has before it a request for a hearing from an interested person. At the same time, however, the legislative history makes it clear that Congress expects NRC to exercise its authority only in the case of amendments not involving significant safety questions. The Conference Report states:

The conference agreement maintains the requirement of the current section 189a. of the Atomic Energy Act that a hearing on the license amendment be held upon the request of any person whose interest may be affected. The agreement simply authorizes the Commission, in those cases where the amendment involved poses no significant hazards consideration, to issue the license amendment and allow it to take effect before this hearing is held or completed. The conferees intend that the Commission will use this authority carefully, applying it only to those license amendments which pose no significant hazards consideration. *Id.*, at 37.

In this regard, the Senate stressed:

Its strong desire to preserve for the public a meaningful right to participate in decisions regarding the commercial use of nuclear power. Thus, the provision does not dispense with the requirement for a hearing, and the NRC, if requested [by an interested person], must conduct a hearing after the license amendment takes effect. S. Rep. No. 97-113, 97th Cong., 1st Sess. at 14 (1981).

It should be also noted, in light of the previous discussion about the coupling of the decision on the merits of an amendment with the decision about when to notice the amendment, that Section 12 of Public Law 97-415, by providing for prior public notice and comment, in effect uncouples the determination about prior versus post notice from the determination about whether to issue an amendment.

In sum, the Commission is promulgating as an interim final rule the proposed standards in § 50.92 for determining whether an amendment to an operating license involves no significant hazards consideration, and it is publishing separately an interim final rule to establish (a) procedures for noticing operating license amendment requests for an opportunity for a hearing, (b) criteria for providing or, in emergency situations, dispensing with prior notice and reasonable opportunity for public comment on any proposed

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determination on no significant hazards consideration, and (c) procedures for consulting with the requisite State on any such determination.

### **Interim Final Rule on Standards for Determining Whether an Amendment to an Operating License Involves No Significant Hazards Considerations and Examples of Amendments That Are Considered Likely or Not Likely To Involve Significant Hazards Considerations**

#### **A. Petition and Proposed Rule**

The Commission's interim final rule on standards for determining whether an amendment involves no significant hazards consideration completes its actions on the notice of proposed rulemaking (discussed above), which was issued in response to a petition for rulemaking (PRM 50-17) submitted by letter to the Secretary of the Commission on May 7, 1978, Mr. Robert Lowenstein. For the reasons discussed below, the petition is denied. However, the Commission is promulgating standards, as intended by the petitioner, though not the standards petitioned for. (PRM-50-17 was published for comment in the Federal Register on June 14, 1978 (41 FR 24006)). The staff's recommendations on this petition are in SECY-79-860 (December 13, 1979). The notice of proposed rulemaking was published in the Federal Register on March 28, 1980 (45 FR 20491). The staff's recommendations on the interim final rule are in SECY-81-366, 81-366A, 83-16, 83-16A and 83-16B. (These documents are available for examination in the Commission's Public Document Room at 1717 H Street, N.W. Washington, D.C.)

The petitioner requested that 10 CFR Part 50 of the Commission's regulations be amended with respect to the procedures for issuance of amendments to operating licenses for production and utilization facilities. The petitioner's proposed amendments to the regulations would have required that the staff take into consideration (in determining whether a proposed amendment to an operating license involves no significant hazards consideration) whether operation of the plant under the proposed license amendment would (1) substantially increase the consequences of a major credible reactor accident or (2) decrease the margins of safety substantially below those previously evaluated for the plant and below those approved for existing licenses. Further, the petitioner proposed that, if the staff reaches a negative conclusion about both of these standards, the proposed amendment must be considered not to involve a significant hazards consideration.

In issuing the proposed rule, the

Commission sought to improve the licensing process by specifying in the regulations standards on the meaning of no significant hazards consideration. These standards would have applied to amendments to operating licenses, as requested by the petition for rulemaking, and also to construction permits, to whatever extent considered appropriate. As mentioned before, the Commission now believes that these standards should not be applied to amendments to construction permits, not only because construction permits do not normally involve a significant hazards consideration but also because such amendments are very rare; the proposed rule has been modified accordingly. Additionally, the Commission is reviewing the extent to which and the way standards should be applied to research reactors. The Commission will handle case-by-case any amendments requested for construction permits or for research reactors with respect to the issue of significant hazards considerations.

In the statement of considerations which accompanied the proposed rule, the Commission explained that it did not agree with the petitioner's proposed standards because of the limitation to "major credible reactor accidents" and the failure to include accidents of a type different from those previously evaluated.

During the past several years the Commission's staff has been guided, in reaching its determinations with respect to no significant hazards consideration, by standards very similar to those now described in this interim final rule as well as by examples of amendments likely to involve, and not likely to involve, significant hazards considerations. These have proven useful to the staff, and the Commission employed them in developing the proposed rule. The notice of proposed rulemaking contained standards proposed by the Commission to be incorporated into Part 50, and the statement of considerations contained examples of amendments to an operating license that are considered likely and not likely to involve a significant hazards consideration. The examples were samples of precedents with which the staff was familiar; they were representative of certain kinds of circumstances; however, they did not cover the entire range of possibilities; nor did they cover every facet of a particular situation. Therefore, they had to be used together with standards in determining whether or not a proposed amendment involved significant hazards considerations.

The three standards proposed in the notice of proposed rulemaking were whether the license amendment would:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of an accident of a type different from any evaluated previously, or (3) involve a significant reduction in a margin of safety.

Before responding to the specific comments on the proposed rule, it should be noted again that it was structured so that the three standards would have been used to decide not only whether the Commission would publish prior notice of an amendment request (as opposed to notice after the amendment was issued) but also to decide whether to grant an opportunity for hearing before issuance of the amendment (as opposed to granting the opportunity after issuance). As explained before, the standards were not meant to be used to make the ultimate decision about whether to issue an amendment—that final decision is a public health and safety judgment on the merits, not to be confused with the decisions on notice and reasonable opportunity for a hearing.

As a result of the legislation, under the final rule the three standards would no longer be used to make a determination about whether or not to issue prior notice of an amendment request. As fully described in the separate Federal Register notice mentioned before, the Commission has formulated separate notice and State consultation procedures that will provide in all (except emergency and some exigent) situations prior notice of amendment requests. The standards and the examples will usually be limited to a proposed determination and, when a hearing request is received, to a final determination about whether or not significant hazards considerations are involved in connection with an amendment and, therefore, whether or not to offer an opportunity for a hearing before an amendment is issued. The decision about whether or not to issue an amendment is meant to remain one that, as a separate matter, is based on public health and safety.

#### **B. Comments on the Proposed Rule**

1. *General.* Nine persons submitted comments on the petition for rulemaking and nine persons submitted comments on the proposed amendments. The comments on the petition are in SECY-79-860. The comments on the proposed rule are in SECY file PR-2, 50 (45 FR 20491). A summary of the comments and initially-proposed responses to the comments are in SECY-81-366, available for examination at the Commission's Public Document Room. In light of the legislation, the Commission has decided to make its approach more precise (as described

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below) and has, therefore, revised its response to the comments. The new response is found in SECY-83-18A and 83-18B.

One of the commenters stated that all three standards are unclear and useless in that they imply a level of detailed review of amendment applications far beyond what the staff normally performs. It is the Commission's considered judgment that the standards have been and will continue to be useful in making the necessary reviews. Moreover, the Commission believes that the standards when used together with the examples will enable it to make the requisite decisions. In this regard, it should be noted that Congress was more than aware of the Commission's standards and proposed their expeditious promulgation. For example, Senate Report No. 97-113, cited above, stated:

• • • The Committee notes that the Commission has already issued for public comment rules including standards for determining whether an amendment involves no significant hazards consideration. The Committee believes that the Commission should be able to build upon this past effort, and it expects the Commission to act expeditiously in promulgating the required standards within the time specified in section 301 (i.e., within 90 days after enactment). *Id.* at 15.

Similarly, the House noted:

The committee amendment provides the Commission with the authority to issue and make immediate effective amendments to licenses prior to the conduct or completion of any hearing required by section 189(a) when it determines that the amendment involves no significant hazards consideration. However, the authority of the Commission to do so is discretionary, and does not negate the requirement imposed by the Sholly decision that such a hearing, upon request, be subsequently held. *Moreover, the Committee's action is in light of the fact that the Commission has already issued for public comment rules including standards for determining whether an amendment involves no significant hazards considerations. The Commission also has a long line of case-by-case precedents under which it has established criteria for such determinations.*

• • • H. Rep No. 97-22 (Part 2), 97th Cong., 1st Sess., at 28 (1981) (Emphasis added).

A number of commenters recommended, in regard to the second criterion in the proposed rule, that a threshold level for accident consequences (for example, the limits in 10 CFR Part 100) be established to eliminate insignificant types of accidents from being given prior notice. This comment was not accepted. Setting a threshold level for accident consequences could eliminate a group of amendments with respect to accidents which have not been previously evaluated or which, if previously

evaluated, may turn out after further evaluation to have more severe consequences than previously evaluated.

It is possible, for example, that there may be a class of license amendments sought by a licensee which, while designed to improve or increase safety may, on balance, involve a significant hazards consideration because they result in operation of a reactor with a reduced safety margin due to other factors or problems (i.e., the net effect is a reduction in safety of some significance). Such amendments typically are also proposed by a licensee as an interim or final resolution of some significant safety issue that was not raised or resolved before issuance of the operating license—and, based on an evaluation of the new safety issue, they may result in a reduction of a safety margin believed to have been present when the license was issued. In this instance, the presence of the new safety issue in the review of the proposed amendment, at least arguably, could prevent a finding of no significant hazards consideration, even though the issue would ultimately be satisfactorily resolved by the issuance of the amendment. Accordingly, the Commission added to the list of examples considered likely to involve a significant hazards consideration a new example (vii).

When the legislation described before was being considered, the Senate Committee on Environment and Public Works commented upon the Commission's proposed rule before it reported S. 1207. It stated:

The Committee recognizes that reasonable persons may differ on whether a license amendment involves a significant hazards consideration. Therefore, the Committee expects the Commission to develop and promulgate standards that, to the maximum extent practicable, draw a clear distinction between license amendments that involve a significant hazards consideration and those that involve no significant hazards consideration. The Committee anticipates, for example, that consistent with prior practice, the Commission's standards would not permit a "no significant hazards consideration" determination for license amendments to permit reracking of spent fuel pools. *Id.*, at 15.

The Commission agrees with the committee "that reasonable persons may differ on whether a license amendment involves a significant hazards consideration" and it has tried "to develop and promulgate standards that, to the maximum extent practicable, draw a clear distinction between license amendments that involve a significant hazards consideration and those that involve no significant hazards consideration." The Commission believes that the standards coupled with

the examples help draw as clear a distinction as practicable. It has decided not to include the examples in the text of the rule in addition to the original standards, but, rather, to keep them as guidelines under the standards for the use of the Office of Nuclear Reactor Regulation.

The Commission wishes licensees to note that when they consider license amendments outside the examples, the Commission may need additional time for its determination on no significant hazards considerations; thus, they should factor this information into their schedules for developing and implementing such changes to facility design and operation.

The interim final rule thus goes a long way toward meeting the intent of the legislation. In this regard, the Conference Report stated:

The conferees also expect the Commission, in promulgating the regulations required by the new subsection (2)(C)(i) of section 188a of the Atomic Energy Act, to establish standards that to the extent practicable draw a clear distinction between license amendments that involve a significant hazards consideration and those amendments that involve no such consideration. These standards should not require the NRC staff to prejudge the merits of the issues raised by a proposed license amendment. Rather, they should only require the staff to identify those issues and determine whether they involve significant health, safety or environmental consideration. These standards should be capable of being applied with ease and certainty, and should ensure that the NRC staff does not resolve doubtful or borderline cases with a finding of no significant hazards consideration. Conf. Rep. No. 97-884, 97th Cong., 2d Sess., at 37 (1982).

It should be noted that the Commission has attempted to draft standards that are as useful and as clear as possible, and it has tried to formulate examples that will help in the application of the standards. These final standards are the product of a long deliberative process. As will be recalled, standards were submitted by a petition for rulemaking in 1976 for the Commission's consideration. The standards and examples are as clear and certain as the Commission can make them—and, to repeat the Conference Report, "should ensure that the NRC staff does not resolve doubtful or borderline cases with a finding of no significant hazards consideration." The Commission welcomes suggestions from the public to make them clearer and more precise, recognizing, in the Senate Committee's words, "that reasonable persons may differ on whether a license amendment involves a significant hazards consideration."

With respect to the Conference Committee's statement, quoted above,

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that the "standards should not require the NRC staff to prejudge the merits of the issues raised by a proposed license amendment," as will be recalled, it has been the Commission's general practice to couple the determination about prior versus post notice with the determination about provision of a prior hearing versus a hearing after issuance of the amendment; thus, occasionally, the issue of prior versus post notice was seen by some as including a judgment on the merits of issuance of an amendment. Consequently one commenter suggested that application of the criteria with respect to prior notice in many instances will necessarily require the resolution of substantial factual questions which largely overlap the issues which bear on the merits of the license amendment. The implication of the comment was that the Commission at the prior notice stage could lock itself into a decision on the merits. Conversely, the commenter stated that the staff, in using the no significant hazards consideration standards, was reluctant to give prior notice of amendments because its determination about the notice might be viewed as constituting a negative connotation on the merits.

In any event, the legislation has made these comments moot by requiring separation of the criteria used for providing or dispensing with public notice and comment on no significant hazards consideration determinations from the standards used to make a determination about no significant hazards consideration. Under the legislation, the Commission's criteria for public notice and comment would not be the same as its standards on the determination about no significant hazards consideration. In fact, the Commission will normally provide prior notice (for public comment and for an opportunity for a hearing) for each operating license amendment request. (The Commission's criteria on public notice and comment are discussed in the separate Federal Register notice noted before.) Additionally, the Commission believes that use of these standards and examples will help it reach sound decisions about the issues of significant versus no significant hazard considerations and that their use would not prejudge the merits of a decision.

It holds this belief because the standards and the examples are merely screening devices for a decision about whether to hold a hearing before as opposed to after an amendment is issued and cannot be said to prejudge the Commission's final decision to issue or deny the amendment request. As explained above, that decision is a separate one, based on separate public health and safety findings.

**2. Reracking of Spent Fuel Pools.** The Commission has been providing prior notice and opportunity for prior hearing on requests for amendments involving reracking of spent fuel pools. The Commission is not prepared to say that a reracking of a spent fuel storage pool will necessarily involve a significant hazards consideration. Nevertheless, as shown by the legislative history of Public Law 97-415, section 12(a), the Congress was aware of the Commission's practice and statements were made by members of both Houses, before passage of that law, that these members thought the practice would be continued. The report on the Senate side has been quoted above; the discussion in the House is found at 127 *Cong. Record* at H 8158, Nov. 5, 1981.

The Commission is not including reracking in the list of examples that will be considered likely to involve a significant hazard consideration, because a significant hazards consideration finding is a technical matter which has been assigned to the Commission. However, in view of the expressions of Congressional understanding, the Commission feels that the matter deserves further study. Accordingly, the staff has been directed to prepare by August 1, 1983, a report (1) which reviews NRC experience to date with respect to spent fuel pool expansion reviews, and (2) which provides a technical judgment on the basis which a spent fuel pool expansion amendment may or may not pose a significant hazards consideration. Upon receipt and review of this report the Commission will revisit this part of the rule.

During the interim, the Commission will make a finding on the question of no significant hazards consideration for each reracking application, on a case-by-case basis, giving full consideration to the technical circumstances of the case, using the standards in § 50.92 of the rule. It is not the intent of the Commission to make a no significant hazards consideration finding for reracking based on unproven technology. However, where reracking technology has been well developed and demonstrated and where the Commission determines on a technical basis that reracking involves no significant hazards, the Commission should not be precluded from making such a finding. If the Commission determines that a particular reracking involves significant hazards considerations, it will provide an opportunity for a prior hearing, as explained in the separate Federal Register notice.

Additionally, it should be noted that under section 134 of the Nuclear Waste Policy Act of 1982, an interested party may request a "hybrid" hearing in

connection with reracking, and may participate in such a hearing, if one is held. The Commission will publish in the near future a Federal Register notice describing this type of hearing with respect to expansions of spent fuel storage capacity and other matters concerning spent fuel.

### 3. Amendments Involving Irreversible Consequences

#### The Conference Report stated:

The conferees intend that in determining whether a proposed license amendment involves no significant hazards consideration, the Commission should be especially sensitive to the issue posed by license amendments that have irreversible consequences (such as those permitting an increase in the amount of effluents or radiation emitted from a facility or allowing a facility to operate for a period of time without full safety protections). In those cases, issuing the order in advance of a hearing would, as a practical matter, foreclose the public's right to have its views considered. In addition, the licensing board would often be unable to order any substantial relief as a result of an after-the-fact hearing. Accordingly, the conferees intend the Commission be sensitive to those license amendments which involve such irreversible consequences. (Emphasis added.) *Id.*, at 37-38.

This statement was explained in a colloquy between Senators Simpson and Domenici, as follows:

Mr. Domenici. In the statement of managers, I direct attention to a paragraph in section 12, the so-called Sholly provision, wherein it is stated that in applying the authority which that provision grants the NRC "should be especially sensitive to the issue posed by license amendments that have irreversible consequences." Is that paragraph in general, or specifically, the words "irreversible consequences" intended to impose restrictions on the Commission's use of that authority beyond the provisions of the statutory language? Can the Senator clarify that, please?

Mr. Simpson. I shall. It is not the intention of the managers that the paragraph in general, nor the words "irreversible consequences," provide any restriction on the Commission's use of that authority beyond the statutory provision in section 189a. Under that provision, the only determination which the Commission must make is that its action does not involve a significant hazard. In that context, "irreversibility" is only one of the many considerations which we would expect the Commission to consider. It is the determination of hazard which is important, not whether the action is irreversible. Clearly, there are many irreversible actions which would not pose a hazard. Thus where the Commission determines that no significant hazard is involved, no further consideration need be given to the irreversibility of that action.

Mr. Domenici. I thank the Senator for the clarification. That is consistent with my readings of the language . . . 134 *Cong. Rec.* (Part II) at S. 13056 (daily ed. Oct. 1, 1982).

The statement was further explained in a colloquy between Senators Mitchell and Hart, as follows:

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Mr. Mitchell. The portion of the statement of managers discussing section 12 of the report, the so-called Sholly provision, stresses that in determining whether a proposed amendment to a facility operating license involves no significant hazards consideration, the Commission "should be especially sensitive . . . to license amendments that have irreversible consequences." Is my understanding correct that the statement means the Commission should take special care in evaluating, for possible hazardous considerations, amendments that involve irreversible consequences?

Mr. Hart. The Senator's understanding is correct. As you know, this provision seeks to overrule the holding of the U.S. Court of Appeals for the District of Columbia in *Sholly* against Nuclear Regulatory Commission. That case involved the venting of radioactive krypton gas from the damaged Three Mile Island Unit 2 reactor—an irreversible action.

As in this case, once the Commission has approved a license amendment, and it has gone into effect, it could prove impossible to correct any oversights of fact or errors of judgment. Therefore, the Commission has an obligation, when assessing the health or safety implications of an amendment having irreversible consequences, to insure that only those amendments that clearly raise no significant hazards issues will take effect prior to a public hearing. *Id.* (Part III), at S. 13292.

In light of the Conference Report and colloquies quoted above, the Commission wishes to note that it will make sure "that only those amendments that clearly raise no significant hazards issues will take effect prior to a public hearing." It will do this by providing in § 50.92 of the rule that it will review proposed amendments with a view as to whether they involve irreversible consequences. In this regard, example (iii) makes clear that an amendment which allows a plant to operate at full power during which one or more safety systems are not operable would be treated in the same way as other examples considered likely to involve a significant hazards consideration in that it is likely to meet the criteria in § 50.92 of the rule.

Finally, it is once again important to note that the examples do not cover all possible examples and may not be representative of all possible concerns. As new information is developed, the Commission will refine these examples and add new examples, in keeping with the standards in § 50.92 of the interim final rule—and, if necessary, it will tighten the standards themselves.

The Commission has left the proposed rule intact to the extent that the rule states standards with respect to the meaning of "no significant hazards consideration." The standards in the interim final rule are substantially identical to those in the proposed rule, though the attendant language in new § 50.92 as well as in § 50.58 has been revised to make the determination easier to use and understand. To

supplement the standards that are being incorporated into the Commission's regulations, the guidance embodied in the examples will be referenced in the procedures of the Office of Nuclear Reactor Regulation, a copy of which will be placed in the Commission's Public Document Room.

### Examples of Amendments That Are Considered Likely To Involve Significant Hazards Considerations Are Listed Below

Unless the specific circumstances of a license amendment request, when measured against the standards in § 50.92, lead to a contrary conclusion, then, pursuant to the procedures in § 50.91, a proposed amendment to an operating license for a facility licensed under § 50.21(b) or § 50.22 or for a testing facility will likely be found to involve significant hazards considerations, if operation of the facility in accordance with the proposed amendment involves one or more of the following:

(i) A significant relaxation of the criteria used to establish safety limits.

(ii) A significant relaxation of the bases for limiting safety system settings or limiting conditions for operation.

(iii) A significant relaxation in limiting conditions for operation not accompanied by compensatory changes, conditions, or actions that maintain a commensurate level of safety (such as allowing a plant to operate at full power during a period in which one or more safety systems are not operable).

(iv) Renewal of an operating license.

(v) For a nuclear power plant, an increase in authorized maximum core power level.

(vi) A change to technical specifications or other NRC approval involving a significant unreviewed safety question.

(vii) A change in plant operation designed to improve safety but which, due to other factors, in fact allows plant operation with safety margins significantly reduced from those believed to have been present when the license was issued.

### Examples of Amendments That Are Considered Not Likely To Involve Significant Hazards Considerations Are Listed Below

Unless the specific circumstances of a license amendment request, when measured against the standards in § 50.92, lead to a contrary conclusion then, pursuant to the procedures in § 50.91, a proposed amendment to an operating license for a facility licensed under § 50.21(b) or § 50.22 or for a testing facility will likely be found to involve no significant hazards considerations, if operation of the facility in accordance with the proposed amendment involves only one or more of the following:

(i) A purely administrative change to technical specifications: for example, a change to achieve consistency throughout the technical specifications, correction of an error, or a change in nomenclature.

(ii) A change that constitutes an additional limitation, restriction, or control not presently included in the technical specifications: for example, a more stringent surveillance requirement.

(iii) For a nuclear power reactor, a change resulting from a nuclear reactor core reloading, if no fuel assemblies significantly different from those found previously acceptable to the NRC for a previous core at the facility in question are involved. This assumes that no significant changes are made to the acceptance criteria for the technical specifications, that the analytical methods used to demonstrate conformance with the technical specifications and regulations are not significantly changed, and that NRC has previously found such methods acceptable.

(iv) A relief granted upon demonstration of acceptable operation from an operating restriction that was imposed because acceptable operation was not yet demonstrated. This assumes that the operating restriction and the criteria to be applied to a request for relief have been established in a prior review and that it is justified in a satisfactory way that the criteria have been met.

(v) Upon satisfactory completion of construction in connection with an operating facility, a relief granted from an operating restriction that was imposed because the construction was not yet completed satisfactorily. This is intended to involve only restrictions where it is justified that construction has been completed satisfactorily.

(vi) A change which either may result in some increase to the probability or consequences of a previously-analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system or component specified in the Standard Review Plan: for example, a change resulting from the application of a small refinement of a previously used calculational model or design method.

(vii) A change to make a license conform to changes in the regulations, where the license change results in very minor changes to facility operations clearly in keeping with the regulations.

(viii) A change to a license to reflect a minor adjustment in ownership shares among co-owners already shown in the license.



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### Paperwork Reduction Act Statement

This final rule contains no new or amended requirements for record keeping, reporting, plans or procedures, applications or any other type of information collection.

### Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 606(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 and testing facilities. 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.

### Regulatory Analysis

The Commission has prepared a regulatory analysis on these amendments, assessing the costs and benefits and resource impacts. It may be examined at the address indicated above.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter I, Code of Federal Regulations, 10 CFR Part 50, are published as a document subject to codification.

### List of Subjects in 10 CFR Part 50

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

The views of Chairman Palladino and Commissioners Ahern, Gillinsky and Asselstine follow.

Dated at Washington, D.C. this 4th day of April, 1983.

For the Nuclear Regulatory Commission.

Samuel J. Chlik,

Secretary for the Commission.

### Chairman Palladino's Additional Views

In my opinion the Commission's decision on reracking represents its best technical judgment at this time on the generic no-significant-hazards question. That is, the Commission cannot say that reracking, as a general matter, would or would not involve a significant hazards consideration. The technical considerations of reracking

proposals can vary significantly from one to another.

It was this latter fact, as well as the statements made in the Congress on reracking, that caused me to vote for the staff to study the technical basis for judgments about the hazards considerations presented by particular reracking applications.

I also believe that we may have cleared up one of the Congressional concerns about reracking by stating that it is not our intent to make a no-significant-hazards-consideration finding for reracking based on unproven technology.

### Additional Comments of Commissioner Ahern

There have been several complaints that the criteria for determining when an amendment involves significant hazards considerations are unclear or difficult to apply. For example, in the current notice the Commission notes that a commenter on the proposed rule stated the standards are "unclear and useless in that they imply a level of detailed review of amendment applications far beyond what the staff normally performs."<sup>1</sup> However, these criticisms must be considered in context.

In May 1976 a petition for rulemaking was filed which requested that criteria be specified for determining when an amendment involved no significant hazards considerations.<sup>2</sup> The petition was published for comment in 1976.<sup>3</sup> The Commission received few comments, primarily supporting or opposing criteria which had been proposed in the petition. The discussion focused on underlying philosophical/legal issues rather than specific alternative criteria.

The rulemaking then lay dormant for several years. In late 1979 the Commission addressed the matter and agreed to issue a proposed rule for public comment. The proposed rule was published March 1980.<sup>4</sup> As the Commission explained in that notice:

During the past several years, the Staff has been guided in reaching its findings with respect to "no significant hazards consideration" by staff criteria and examples of amendments likely to involve, and not likely to involve, significant hazards considerations. These criteria and examples have been promulgated within the Staff and have proven useful to the Staff. The Commission believes it would be useful to consider incorporating these criteria into the Commission's regulations for use in determining whether a proposed amendment to an operating license or to a construction permit of any production or utilization facility

involves no significant hazards consideration.<sup>5</sup>

With respect to the criticism that the criteria are unclear, we have not received much assistance in developing clearer criteria despite having obtained two rounds of comment over the last seven years. For example, in the comments on the proposed rule mentioned above, NRDC and UCS simply argued: "The NRC should promulgate a rule holding that prior notice and opportunity for hearing should be provided for construction permit and operating licenses amendments in all cases except those involving no significant previously-unreviewed safety issues."<sup>6</sup> In addition, the debate has often become confused by differing assumptions and philosophies that are not usually clearly identified. For example, the NRDC/UCS implication of a detailed level of review arises largely because of an implicit assumption that the criteria are intended to require a merits type review. In fact, what the staff has always done, and what I believe we had in mind, was to make a preliminary judgment.

Basically, we have done the best we can. I would be willing to address any specific alternatives. However, after dealing with this for a number of years, I believe we must move ahead with what we have.

Commissioner Gillinsky's Separate Views on the Interim Final Rule Regarding Standards for Determining Whether License Amendments Involve No Significant Hazards Considerations (Amendments to 10 CFR Part 50)

April 4, 1983.

Standing by themselves, the standards which are set forth in the rule are so general that they offer no real guidance to the NRC staff. In a prior version of the rule, the Commission included, in the rule itself, some very useful examples of which amendments do and do not involve a significant hazards consideration. In the final version, these examples have been downgraded to the preamble of the rule where they will be of little or no legal consequence and where, as a practical matter, they will be inaccessible to anyone but the NRC historian. This diminishes the value of the rule so much that I can no longer approve it.

The earlier version of the rule placed amendments authorizing substantial spent fuel pool expansions in the significant hazards consideration category. The Commission should have retained this categorization which is consistent with the terms of the rule. Moreover, the Commission should not have ignored the strong public and Congressional views which have been expressed on this point, most recently by

<sup>1</sup>Id. at 20462.

<sup>2</sup>Id. At 11. 10 CFR 30.50 deems actions to be an "unreviewed safety question":

"(i) if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; or (ii) if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created; or (iii) if the margin of safety as defined in the basis for any technical specification is reduced."

NRDC/UCS did not propose an alternate definition to be used with their proposal. It is interesting to note the substantial similarity to the significant hazards consideration test.

<sup>3</sup>This refers to: "Comments by the Natural Resources Defense Council and the Union of Concerned Scientists on Proposed amendments to 10 CFR Parts 2 and 50: No Significant Hazards Consideration" at 8 (May 23, 1980) [comment 3, PR-250 (48 FR 20461)].

<sup>4</sup>The petition was filed May 7, 1976 by Mr. Robert Lowenstein on behalf of Boston Edison Company, Florida Power and Light Company, and Iowa Power Company.

<sup>5</sup>41 FR 24008 (June 14, 1976).

<sup>6</sup>45 FR 20491 (March 28, 1980).



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Senators Simpson, Hart, and Mitchell. I am in agreement with Commissioner Asseltine's analysis of the legislative record underlying this provision.

### Additional Views of Commissioner Asseltine

I strongly disagree with the Commission majority's decision to permit the use of the "Sholly amendment" authority contained in section 12 of Public Law 97-415, the NRC Authorization Act for fiscal years 1982 and 1983, for license amendments for the reracking of a spent fuel pool.

The Commission majority's interim final rule would change the Commission's longstanding and consistent policy of requiring that any requested hearing on a license amendment for the reracking of a spent fuel pool be completed prior to granting the license amendment. Although the Commission has considered and approved a large number of spent fuel pool reracking amendments in the past, it has never used the no significant hazards consideration provisions in section 189 a. of the Atomic Energy Act of 1954 as a basis for approving the amendment before the completion of a requested hearing.

It is clear to me from the legislative history of section 12 of Public Law 97-415 that the Congress did not intend that the authority granted by section 12 should be used to approve reracking amendments prior to the completion of any requested hearing. The Sholly amendment was first included in the NRC authorization bill for fiscal years 1982 and 1983 by the Senate Committee on Environment and Public Works. The report of that Committee on the bill (Senate Report 97-113) makes it abundantly clear that the Committee did not intend the Sholly amendment to be used by the Commission to approve reracking amendments in advance of the completion of a requested hearing. Although the report of the Conference Committee on the bill did not repeat this admonition, there is no evidence to indicate a contrary view by the House-Senate conferees on the bill or by the two House Committees that considered the legislation.

Moreover, I believe that the use of the Sholly amendment authority to approve reracking amendments before the completion of any required hearing goes far beyond the justification offered by the Commission when it requested the Sholly amendment. In requesting the enactment of the Sholly amendment, the Commission described in some detail the situations in which it foresaw the need for this authority. The Commission emphasized the need for a large number of unforeseen and unanticipated changes to the detailed technical specifications in the operating licenses for nuclear powerplants that arise each year through such activities as refueling of the plant. The Commission argued that the need to hold a hearing on each of these changes, if one is requested, would be burdensome to the Commission and could disrupt the operation of a number of plants. In order to avoid this problem, the Commission asked the Congress to reinstate the authority that the Commission had exercised in similar situations since 1962. A reracking amendment is substantially different from the situations described by the Commission in requesting the Sholly amendment, because the need for reracking can be anticipated, because reracking

involves a substantial physical modification to the plant and because of the significance attached to reracking by State and local officials and by the public.

Finally, I believe that there are strong public policy reasons for continuing the Commission's past practice of completing hearings on reracking amendment proposals before approving the amendment. These public policy reasons include the strong interest and concern on the part of State and local governments and the public regarding reracking proposals and the extent to which proceeding with reracking in advance of the hearing may prejudice the later consideration of other alternatives to the proposed reracking plan.

For these reasons, as a matter of policy, I would not permit the use of the Sholly amendment authority to approve reracking amendments prior to the completion of any requested hearing. I would therefore have added a provision to the Commission's interim final rule that would have required, as a policy matter, the completion of any requested hearing on a spent fuel pool reracking amendment before Commission approval of the amendment.

➤ 48 FR 14873

Published 4/6/83

Effective date: 5/6/83.

The Commission invites comments on this interim final rule by 5/6/83. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

### 10 CFR Parts 2 and 50

#### Notice and State Consultation

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Interim final rule.

**SUMMARY:** Pursuant to Public Law 97-415, NRC is amending its regulations (1) to provide procedures under which normally it would give prior notice of opportunity for a hearing on applications it receives to amend operating licenses for nuclear power reactors and testing facilities (research reactors are not covered) and prior notice and reasonable opportunity for public comment on proposed determinations about whether these amendments involve no significant hazards considerations, (2) to specify criteria for dispensing with such prior notice and reasonable opportunity for

public comment in emergency situations, and (3) to furnish procedures for consultation on any such determinations with the State in which the facility involved is located. These procedures will normally provide the public and the States with prior notice of NRC's determinations involving no significant hazards considerations and with an opportunity to comment on its actions.

**DATE:** Effective date: May 6, 1983. The Commission invites comments on this interim final rule by May 6, 1983. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

**ADDRESSES:** Written comments should be sent to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Copies of comments received on the amendments as well as on the Regulatory Analysis proposed in connection with the amendments may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

**FOR FURTHER INFORMATION CONTACT:** Thomas F. Dorian, Esq., Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone: (301) 492-8690.

#### SUPPLEMENTARY INFORMATION:

##### Introduction

Public Law 97-415, signed on January 4, 1983, among other things, directs NRC to promulgate regulations which establish (a) standards for determining whether an amendment to an operating license involves no significant hazards consideration, (b) criteria for providing or, in emergency situations, dispensing with prior notice and public comment on any such determination; and (c) procedures for consulting on such a determination with the State in which the facility involved is located. See Conf. Rep. No. 97-884, 97th Cong., 2d Sess. (1982). The legislation also authorizes NRC to issue and make immediately effective an amendment to a license, upon a determination that the amendment involves no significant hazards consideration (even though NRC has before it a request for a hearing by an interested person) and in advance of the holding and completion of any required hearing. This rulemaking and request for comments responds to the statutory directive that NRC expeditiously promulgate regulations on items (b) and (c) above. NRC is also publishing separately in the Federal Register interim final regulations on item (a) above.

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These regulations are issued, as final though in interim form, and comments will be considered on them. They will become effective 30 days after publication in the Federal Register. Accordingly, interested persons who wish to comment are encouraged to do so at the earliest possible time, but not later than 30 days after publication, to permit the fullest consideration of their views.

### Background

#### A. Affected Legislation, Regulations and Procedures

When the Atomic Energy Act of 1954 (Act) was adopted in 1954, it contained no provision which required a public hearing on issuance of a construction permit or operating license for a nuclear power reactor in the absence of a request from an interested person. In 1957, the Act was amended to require that mandatory hearings be held before issuance of both a construction permit and an operating license for power reactors and certain other facilities. Public Law 85-258 (71 Stat. 576) amending section 189a. of the Act.

The 1957 amendments to the Act were interpreted by the Commission as requiring a "mandatory hearing" before issuance of amendments to construction permits and operating licenses. *See, e.g.,* Hearing Before the Subcommittee on Legislation, Joint Committee on Atomic Energy, 87th Cong., 2d. Sess. (April 17, 1962), at 6.) Partially in response to the administrative rigidity and cumbersome procedures which this interpretation forced upon the Commission (*see, Joint Committee on Atomic Energy Staff Study, "Improving the AEC Regulatory Process", March 1961, pp. 49-50*), section 189a. of the Act was amended in 1962 to eliminate the requirement for a mandatory public hearing except upon the application for a construction permit for a power or testing facility. As stated in the report of the Joint Committee on Atomic Energy which recommended the amendments:

Accordingly, this section will eliminate the requirements for a mandatory hearing, except upon the application for a construction permit for a power or testing facility. Under this plan, the issuance of amendments to such construction permits, and the issuance of operating licenses and amendments to such construction permits, and the issuance of operating licenses and amendments to operating licenses, would be only after a 30-day public notice and an offer of hearing. In the absence of a request for a hearing, issuance of an amendment to a construction permit, or issuance of an operating license, or an amendment to an operating license, would be possible without formal proceedings, but

on the public record. It will also be possible for the Commission to dispense with the 30-day notice requirement where the application presents no significant hazards consideration. This criterion is presently being applied by the Commission under the terms of AEC Regulations 50.59. House Report No. 1966, 87th Cong., 2d. Sess., p. 8.

Thus, according to the 1962 amendments, a mandatory public hearing would no longer be required before issuance of an amendment to a construction permit or operating license and a thirty-day prior public notice would be required only if the proposed amendment involved a "significant hazards consideration." In sum, section 189a. of the Act, now provides that, upon thirty-days' notice published in the Federal Register, the Commission may issue an operating license, or an amendment to an operating license, or an amendment to a construction permit, for a facility licensed under sections 103 or 104b. of the Act, or for a testing facility licensed under section 104c., without a public hearing if no hearing is requested by any interested person. Section 189a. also permits the Commission to dispense with such thirty-days' notice and Federal Register publication with respect to the issuance of an amendment to a construction permit or an amendment to an operating license upon a determination by the Commission that the amendment involves no significant hazards consideration. These provisions have been incorporated into §§ 2.105, 2.106, 50.58(a) and (b) and 50.91 of the Commission's regulations.

The regulations provide for prior notice of a "proposed action" on an application for an amendment when a determination is made that there is a significant hazards consideration and provide an opportunity for interested members of the public to request a hearing. *See* §§ 2.105(a)(3) and 50.91. Hence, if a requested license amendment is found to involve a significant hazards consideration, the amendment would not be issued until after any required hearing is completed or after expiration of the notice period. In addition § 50.58(b) further explains the Commission's hearing and notice procedures, as follows:

The Commission will hold a hearing after at least 30 days notice and publication once in the Federal Register on each application for a construction permit for a production or utilization facility which is of a type described in § 50.21(b) or § 50.22 or which is a testing facility. When a construction permit has been issued for such a facility following the holding of a public hearing and an application is made for an operating license or for an amendment to a construction permit

or operating license, the Commission may hold a hearing after at least 30 days notice and publication once in the Federal Register or, in the absence of a request therefor by any person whose interest may be affected, may issue an operating license or an amendment to a construction permit or operating license without a hearing, upon 30 days notice and publication once in the Federal Register of its intent to do so. If the Commission finds that no significant hazards consideration is presented by an application for an amendment to a construction permit or operating license, it may dispense with such notice and publication and may issue the amendment.

The Commission's practice with regard to license amendments involving no significant hazards consideration (unless, as a matter of discretion, prior notice was given) was to issue the amendment and then publish in the Federal Register a "notice of issuance." *See* § 2.106. In such a case, interested members of the public who wished to object to the amendment and request a hearing could do so, but a request for a hearing did not, by itself, suspend the effectiveness of the amendment. Thus, both the notice and hearing, if one were requested, occurred after the amendment was issued.

It is important to bear in mind that there is no intrinsic safety significance to the "no significant hazards consideration" standard. Whether or not an action requires prior notice, no license and no amendment may be issued unless the Commission concludes that it provides reasonable assurance that the public health and safety will not be endangered and that the action will not be inimical to the common defense and security or to the health and safety of the public. *See, e.g.,* § 50.57(a). Also, whether or not an amendment entails prior notice, no amendment to any license may be issued unless it conforms to all applicable Commission safety standards. Thus, the "no significant hazards consideration" standard has been a procedural standard only, governing whether public notice of a proposed action must be provided, before the action is taken by the Commission. In short, the "no significant hazards consideration" standard has been a notice standard and has had no substantive safety significance, other than that attributable to the process of prior notice to the public to the public and reasonable opportunity for a hearing.

#### B. The Sholly Decision and the New Legislation

The Commission's practice of not providing an opportunity for a prior hearing on a license amendment not involving significant hazards considerations was held to be improper in *Sholly v. NRC*, 6512 F.2d 780 (1980), rehearing denied, 651 F.2d 792 (1980), cert. granted 101 S.Ct. 3004 (1981) (*Sholly*). In that case the U.S. Court of

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Appeals for the District of Columbia Circuit ruled that, under section 189a. of the Act, NRC must hold a prior hearing before an amendment to an operating license for a nuclear power plant can become effective, if there has been a request for hearing (or an expression of interest in the subject matter of the proposed amendment which is sufficient to constitute a request for a hearing). A prior hearing, said the Court, is required even when NRC has made a finding that a proposed amendment involves no significant hazards consideration and has determined to dispense with prior notice in the Federal Register. At the request of the Commission and the Department of Justice, the Supreme Court agreed to review the Court of Appeals' interpretation of section 189a. of the Act. The Supreme Court has remanded the case to the Court of Appeals with instructions to vacate it if it is moot and, if it is not, to reconsider it in light of the new legislation.

The Court of Appeals' decision did not involve and has no effect upon the Commission's authority to order immediately effective amendments, without prior notice or hearing, when the public health, safety, or interest so requires. See, Administrative Procedure Act, section 9(b), 5 U.S.C. 558(c), section 161 of the Atomic Energy Act, and 10 CFR 2.202(f) and 2.204. Similarly, the Court did not alter existing law with regard to the Commission's pleading requirements, which are designed to enable the Commission to determine whether a person requesting a hearing is, in fact, an "interested person" within the meaning of section 189a.—that is, whether the person has demonstrated standing and identified one or more issues to be litigated. See, *BPI v. Atomic Energy Commission*, 502 F.2d 424, 428 (D.C. Cir. 1974), where the Court stated that, "Under its procedural regulations it is not unreasonable for the Commission to require that the prospective intervenor first specify the basis for his request for a hearing."

However, the Commission believed that legislation was needed to change the result reached by the Court in *Sholly* because of the implications of the requirement that the Commission grant a requested hearing before it could issue a license amendment involving no significant hazards consideration. The Commission believes that, since most requested license amendments involving no significant hazards consideration are routine in nature, hearings on such amendments could result in disruption or delay in the operations of nuclear powerplants and could impose regulatory burdens upon it and the

nuclear industry that are not related to significant safety matters. Subsequently, on March 11, 1981, the Commission submitted proposed legislation to Congress (introduced as S. 912) that would expressly authorize it to issue a license amendment before holding a hearing requested by an interested person, when it has made a determination that no significant hazards consideration is involved in the amendment.

After the House and Senate conferees considered two similar bills, H.R. 2330 and S. 1207, they agreed on a unified version (see Conf. Rep. No. 97-884, 97th Cong. 2d. Sess. (1982)) and passed Pub. L. 97-414. Specifically, section 12(a) of that law amends section 189a. of the Act by adding the following with respect to license amendments involving no significant hazards considerations:

(2)(A) The Commission may issue and make immediately effective any amendment to an operating license, upon a determination by the Commission that such amendment involves no significant hazards consideration, notwithstanding the pendency before the Commission of a request for a hearing from any person. Such amendment may be issued and made immediately effective in advance of the holding and completion of any required hearing. In determining under this section whether such amendment involves no significant hazards consideration, the Commission shall consult with the State in which the facility involved is located. In all other respects such amendment shall meet the requirements of this Act.

(B) The Commission shall periodically (but not less frequently than once every thirty days) publish notice of any amendments issued, or proposed to be issued, as provided in subparagraph (A). Each such notice shall include all amendments issued, or proposed to be issued, since the date of publication of the last such periodic notice. Such notice shall, with respect to each amendment or proposed amendment (i) identify the facility involved; and (ii) provide a brief description of such amendment. Nothing in this subsection shall be construed to delay the effective date of any amendment.

(C) The Commission shall, during the ninety-day period following the effective date of this paragraph, promulgate regulations establishing (i) standards for determining whether any amendment to an operating license involves no significant hazards consideration; (ii) criteria for providing or, in emergency situations, dispensing with prior notice and reasonable opportunity for public comment on any such determination, which criteria shall take into account the exigency of the need for the amendment involved; and (iii) procedures for consultation on any such determination with the State in which the facility involved is located.

Section 12(b) of that law specifies that:

(b) The authority of the Nuclear Regulatory Commission, under the provisions of the

amendment made by subsection (a), to issue and to make immediately effective any amendment to an operating license shall take effect upon the promulgation by the Commission of the regulations required in such provisions.

Thus, as noted above, the legislation authorizes NRC to issue and make immediately effective an amendment to an operating license upon a determination that the amendment involves no significant hazards consideration, even though NRC has before it a request for a hearing from an interested person. At the same time, however, the legislative history makes it clear that Congress expects NRC to exercise its authority only in the case of amendments not involving significant safety questions. The Conference Report states:

The conference agreement maintains the requirement of the current section 189a. of the Atomic Energy Act that a hearing on the license amendment be held upon the request of any person whose interest may be affected. The agreement simply authorizes the Commission, in those cases where the amendment involved poses no significant hazards consideration, to issue the license amendment and allow it to take effect before this hearing is held or completed. The conferees intend that the Commission will use this authority carefully, applying it only to those license amendments which pose no significant hazards consideration. *Id.*, at 37.

In this regard, the Senate stressed:

Its strong desire to preserve for the public a meaningful right to participate in decisions regarding the commercial use of nuclear power. Thus, the provision does not dispense with the requirement for a hearing, and the NRC, if requested (by an interested person), must conduct a hearing after the license amendment takes effect. See S. Rep. No. 97-113, 97th Cong., 1st Sess., at 14 (1981).

The public notice provision was explained by the Conference Report as follows:

The conferees note that the purpose of requiring prior notice and an opportunity for public comment before a license amendment may take effect, as provided in subsection (2)(C)(ii) for all but emergency situations, is to allow at least a minimum level of citizen input into the threshold question of whether the proposed license amendment involves significant health or safety issues. While this subsection of the conference agreement preserves for the Commission substantial flexibility to tailor the notice and comment procedures to the exigency of the need for the license amendment, the conferees expect the content, placement and timing of the notice to be reasonably calculated to allow residents of the area surrounding the facility an adequate opportunity to formulate and submit reasoned comments.

The requirement in subsection 2(C)(ii) that the Commission promulgate criteria for providing or dispensing with prior notice and

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public comment on a proposed determination that a license amendment involves no significant hazards consideration reflects the conferees' intent that, wherever practicable, the Commission should publish prior notice of, and provide for prior public comment on, such a proposed determination.

In the context of subsection (2)(C)(ii), the conferees understand the term "emergency situations" to encompass only those rare cases in which immediate action is necessary to prevent the shutdown or derating of an operating commercial reactor . . . The Commission's regulations should insure that the "Emergency situations" exception under section 12 of the conference agreement will not apply if the licensee has failed to apply for the license amendment in a timely fashion. In other words, the licensee should not be able to take advantage of the emergency itself. To prevent abuses of this provision, the conferees expect the Commission to independently assess the licensee's reasons for failure to file an application sufficiently in advance of the threatened closure or derating of the facility. Conf. Rep. No. 97-884, 97th Cong., 2d Sess., at 38 (1982).

### *C. Notice for Public Comment and for Opportunity for a Hearing.*

The Commission has decided to adopt the notice procedures and criteria contemplated by the legislation with respect to determinations about no significant hazards consideration. In addition it has decided to combine the notices for public comment on no significant hazards considerations with the notices for opportunity for a hearing, thereby, normally providing both prior notice of opportunity for a hearing and prior notice for public comment of requests it receives to amend operating licenses of facilities described in § 50.21(b) or § 50.22 or of testing facilities.

With respect to opportunity for a hearing, the Commission would amend § 2.105 to specify that it could normally issue in the Federal Register at least monthly a list of "notice of proposed actions" on requests for amendments to operating licenses. These monthly notices would provide an opportunity to request a hearing within thirty days. The Commission would also retain the option of issuing individual notices, as it sees fit. If the Commission does not receive any request for a hearing on an amendment within the notice period, it would take the proposed action when it has completed its review and made the necessary findings. If it receives such a request, it would act under a new § 50.91, which describes the procedures and criteria the Commission would use to act on applications for amendments to operating licenses involving no significant hazards considerations. (The interim final rule on "Standards for

Determining Whether License Amendments Involve No Significant Hazards Considerations," published separately in the Federal Register, redesignated the present § 50.91 as § 50.92.)

To implement the main theme of the legislation, under new § 50.91 the Commission would combine a notice of opportunity for a hearing with a notice for public comment on any proposed determination on no significant hazards consideration. Additionally, new § 50.91 would permit the Commission to make an amendment immediately effective in advance of the holding and completion of any required hearing where it has determined that no significant hazards consideration is involved. Thus, § 50.91 would build upon amended § 2.105, providing details for the system of Federal Register notices. For instance, exceptions would be made for emergency situations, where no prior notices (for opportunity for a hearing and for public comment) might be issued, assuming no significant hazards considerations are involved. In sum, this system would add a "notice for public comment" under § 50.91 to the present system of "notice of proposed action" under § 2.105 and "notice of issuance" under § 2.108. Under this new system, the Commission would require an applicant requesting an amendment to its operating license (1) to provide its appraisal on the issue of significant hazards, using the standards in § 50.92 and the examples discussed in the separate Federal Register notice, and (2), if it involves the emergency or exigency provisions, to address the features on which the Commission must make its findings. (Both points will be discussed later.)

When the Commission receives the amendment request, as described below, it would first decide whether there is an emergency or an exigency. If there is no emergency, it would then make a preliminary decision, called a "proposed determination," about whether the amendment involves no significant hazards consideration—normally, this would be done before completion of the safety analysis (also called safety evaluation). In this determination, it might accept the applicant's appraisal in whole or in part or it might reject the applicant's appraisal but, nonetheless, reach the same conclusion.

At this stage, if the Commission decides that no significant hazards consideration is involved, it could issue an individual Federal Register notice or list this amendment in its monthly publication in the Federal Register. This monthly publication would not only list

amendment requests received for which the Commission is publishing notice under § 2.105. It would also provide a reasonable opportunity for public comment by listing this and all amendment requests received since the last such monthly notice, and, like an individual notice, (a) providing a brief description of the amendment and of the facility involved, (b) noting the proposed no significant hazards consideration determination, (c) soliciting public comment on the determination, and (d) providing for a 30-day comment period.

While it is awaiting public comment, the Commission would proceed with the safety analysis. In this context, the Commission wishes to note that, though the substance of the public comments could be litigated in a hearing, when one is held, neither it nor its Boards will entertain hearing requests on its actions with respect to these comments. It believes that this is in keeping with the legislation which states that public comment cannot delay the effective date of an amendment.

After the public comment period, the Commission would review the comments, consider the safety analysis, and reach its final decision on the amendment request. If it decides that no significant hazards consideration is involved, it would publish an individual "notice of issuance" under § 2.108 or publish the notice of issuance in its system of monthly Federal Register notices, and thus close the public record. Note that the Commission would not make and publish a final determination on no significant hazards consideration because such a determination is needed only if a hearing request is received and the Commission decides to make the amendment immediately effective and to provide a hearing after issuance rather than before.

If it receives a hearing request during the comment period and the Commission has decided that no significant hazards consideration is involved, it would prepare a "final determination" on that issue, make the requisite safety and public health findings, and proceed to issue the amendment. The hearing request would be treated the same way as in previous Commission practice, that is, by providing any requisite hearing after the amendment has been issued. As explained before, the legislation permits the Commission to make an amendment immediately effective, notwithstanding the pendency before it of a request for a hearing from any person (even one that meets the provisions for intervention in § 2.714), in advance of the holding and completion of any required hearing.

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where it has determined that no significant hazards consideration is involved. The Commission wishes to state in this regard that any question about its staff's determinations on the issue of significant versus no significant hazards consideration that may be raised in any hearing on the amendment will not stay the effective date of the amendment.

The Commission believes that the procedure just described would be its usual way of handling license amendments, because most of these do not involve emergency or exigent situations and do not entail a determination that significant hazards consideration is involved. These three situations and other unusual ones could arise though.

Returning to the initial receipt of an application, if the Commission receives an amendment request and then determines that a significant hazards consideration is involved, it would handle this request in the same way it does now, by issuing an individual notice of proposed action and providing an opportunity for a hearing under § 2.105. The only change in its present procedure would be that it could notify the public of the final disposition of the amendment by noting its issuance or denial in the monthly Federal Register notice instead of in an individual notice.

Another possibility might be that the Commission receives an amendment request and finds an emergency situation, where failure to act in a timely way would result in derating or shutdown of a nuclear power plant. In this case, also discussed later in connection with State consultation, it may proceed to issue the license amendment, if it determines, among other things, that no significant hazards consideration is involved. In this circumstance, the Commission might not necessarily be able to provide for prior notice for opportunity for a hearing or for prior notice for public comment and might therefore use its present procedure, publishing an individual notice of issuance under § 2.106 (which provides an opportunity for a hearing after the amendment is issued.) Additionally, the Commission's monthly Federal Register notice system would note the Commission's action on the amendment request and, thereby, provide an opportunity for public comment. In connection with emergency requests, the Commission expects its licensees to apply for license amendments in a timely fashion. It will decline to dispense with notice and comment on the no significant hazards consideration determination, if it

determines that the applicant has failed to make a timely application for the amendment in order to create the emergency and to take advantage of the emergency provision. Whenever a threatened closure or derating is involved, the Commission expects the applicant to explain to it why this emergency situation has occurred and why the applicant could not avoid it; the Commission will assess the applicant's reasons for failure to file an application sufficiently in advance of that event.

Still another possibility might be that the Commission receives an amendment request and finds an exigency, that is, a situation other than an emergency where swift action is necessary. The legislation, quoted above, states that the Commission should establish criteria which "take into account the exigency of the need for the amendment." The Conference Report, quoted above, points out that "the conference agreement preserves for the Commission substantial flexibility to tailor the notice and comment procedures to the exigency of the need for the license amendment" and that "the conferees expect the content, placement and timing of the notice to be reasonably calculated to allow residents of the area surrounding the facility an adequate opportunity to formulate and submit reasoned comments."

The Commission believes that extraordinary situations may arise, short of an emergency, where a licensee and the Commission must act quickly and where time does not permit the Commission to publish a Federal Register notice soliciting public comment or to provide 30 days ordinarily allowed for public comment. For instance, such a circumstance may arise where a licensee, while shutdown for a short time, wishes to add some component clearly more reliable than one presently installed or wishes to use a different method of testing some system and that method is clearly better than one provided for in its Technical Specifications. In either case, the licensee may have to request an amendment, and, if the Commission determines, among other things, that no significant hazards consideration is involved, it may wish to grant the request before the licensee starts the plant up and the opportunity to improve the plant is lost.

In circumstances such as the two just described, the Commission may use media other than the Federal Register, for example, a local newspaper published near the licensee's facility, widely read by the residents in the area surrounding the facility, to inform the

public of the licensee's amendment request. In these instances, the Commission will provide the public a reasonable opportunity to comment on the proposed no significant hazards determination. To ensure that the comments are received on time, the Commission may also set up in such a situation a toll-free hotline, allowing the public to telephone their comments to NRC on the amendment request. It should be noted that this method of prior notice for public comment will be in addition to the routine notice of the amendment in the monthly Federal Register compilation or to any individual notice of hearing that may be published; it will not affect the time available to exercise one's opportunity to request a hearing, though it may provide that opportunity only after the amendment has been issued, when the Commission has determined that no significant hazards consideration is involved.

The Commission will use these procedures sparingly and wants to make sure that its licensees will not take advantage of these procedures. Therefore, it will use criteria, somewhat similar to the ones it will use with respect to emergency situations, to decide whether it will shorten the comment period and change the type of notice normally provided. Consequently, in connection with requests indicating an exigency, the Commission expects its licensees to apply for license amendments in a timely fashion. It will not change its normal notice and public comment practices where it determines that the licensee has failed to use its best efforts to make a timely application for the amendment in order to create the exigency and to take advantage of the exigency provision. Whenever a licensee wants to use this provision, it will have to explain to the Commission the reason for the exigency and why the licensee cannot avoid it; the Commission will assess the licensee's reasons for failure to file an application sufficiently in advance of its proposed action or for its inability to take the action at some later time.

Another different circumstance may also present itself to the Commission. For instance, it could receive an amendment request with respect to which it finds that it is in the public interest to offer an opportunity for a prior hearing. In this case, it would use its present individual notice procedure and notify the public about the final disposition of the amendment in a notice of issuance or denial in its monthly Federal Register notice, instead of in an individual notice.

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It should also be noted that these procedures only apply to license applications. The Commission may, under existing §§ 2.202(f) and 2.204, make a determination that the public health, safety, or interest requires it to order an amendment without prior notice for public comment or opportunity for a hearing. In this case, the Commission would follow its present procedure and publish an individual notice of issuance in the Federal Register and provide for an opportunity for a hearing on the order.

This new system would change only the Commission's noticing practices; it would not alter the Commission's hearing practices. The Commission has attempted to provide noticing procedures that are administratively simple, involve the least cost, do not entail undue delay, and allow a reasonable opportunity for public comment; nevertheless, they are quite burdensome and involve significant resource impacts and timing delays for the Commission and for licensees requesting amendments. Licensees would be able to reduce these delays, under the proposed procedures, by providing to the Commission their appraisals on the issue of significant hazards. There might also be other ways to make the noticing procedures simpler and to assure that the opportunity for public comment is not curtailed. The Commission is therefore particularly interested in comments addressing the workability of its proposed noticing procedures.

Finally, with respect to amendment requests received before the interim final rule takes effect, the Commission proposes to keep its present procedures and not provide notice for public comment on amendments requested on which the Commission has not acted before the effective date of the interim final rule.

### *D. State Consultation*

As noted above, Public Law 97-415 requires the Commission to consult with the State in which the facility involved is located and to promulgate regulations which prescribe procedures for such consultation on a determination that an amendment to an operating license involves no significant hazards consideration. The Conference Report, cited earlier, stated that the conferees expect that the procedures for State consultation would include the following elements:

- (1) The State would be notified of a licensee's request for an amendment;
- (2) The State would be advised of the NRC's evaluation of the amendment request;

(3) The NRC's proposed determination on whether the license amendment involves no significant hazards consideration would be discussed with the State and the NRC's reasons for making that determination would be explained to the State;

(4) The NRC would listen to and consider any comments provided by the State official designated to consult with the NRC; and

(5) The NRC would make a good faith attempt to consult with the State prior to issuing the license amendment.

At the same time, however, the procedures for State consultation would not:

(1) Give the State a right to veto the proposed NRC determination;

(2) Give the State a right to a hearing on the NRC determination before the amendment becomes effective;

(3) Give the State the right to insist upon a postponement of the NRC determination or issuance of the amendment; or

(4) Alter present provisions of law that reserve to the NRC exclusive responsibility for setting and enforcing radiological health and safety requirements for nuclear power plants.

In requiring the NRC to exercise good faith in consulting with a State in determining whether a license amendment involves no significant hazards consideration, the conferees recognize that a very limited number of truly exceptional cases may arise when the NRC, despite its good faith efforts, cannot contact a responsible State official for purposes of prior consultation. Inability to consult with a responsible State official following good faith attempts should not prevent the NRC from making effective a license amendment involving no significant hazards consideration, if the NRC deems it necessary to avoid the shut-down or derating of a power plant. *Id.*, at 33.

The Commission believes that the law and its legislative history are quite specific. Accordingly, it proposes to adopt the elements described in the Conference Report quoted above in those cases where it makes a proposed determination on no significant hazards consideration. Normally, the State consultation procedures would work as follows. To make the State consultation process simpler and speedier, the Commission would require an applicant requesting an amendment to send a copy of its appraisal on the question of no significant hazards to the State in which the facility involved is located. (The NRC is compiling a list of State officials who have been designated to consult with it on amendment requests involving no significant hazards considerations; it intends to make this list available to all its licensees with facilities covered by § 50.21(b) or § 50.22 or with testing facilities.)

The Commission would send its Federal Register notice, or other notice in case of exigent circumstances, containing its proposed determination to

the State official designated to consult with it together with a request to that person to contact the Commission if there is any disagreement or concern about its proposed determination. If it does not hear from the State in a timely manner, it will consider that the State has no interest in its determination—in this regard, the Commission intends to make available to the designated State officials a list of its Project Managers and other personnel whom it has designated to consult with these officials—but, nevertheless, before it issues the amendment, it will telephone the appropriate State official for the purpose of consultation.

In an emergency situation, the Commission would do its best to consult with the State, before it makes a final determination about no significant hazards consideration, by simply telephoning the appropriate State official before it issues an amendment.

Finally, the Commission wishes to note two points in connection with the legislative history. First, though the Commission intends to give careful consideration to the comments provided to it by the affected State on the question of no significant hazards consideration, the State comments are advisory to the Commission; the Commission remains responsible for making the final administrative decision on the question. Second, State consultation does not alter present provisions of law that reserve to the Commission exclusive responsibility for setting and enforcing radiological health and safety requirements for nuclear power plants.

### *Paperwork Reduction Act Statement*

This rule contains a new reporting requirement which the Office of Management and Budget approved under OMB No. 3150-0011 for the Commission's use through April 30, 1985.

### *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 rule affects only the licensing and operation of nuclear power plants and testing facilities. 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.



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comments, the staff has amended the proposed rule, as discussed in the following section.

### Comments on the Proposed Rule

The Commission received twenty-seven letters commenting on the proposed rule. Copies of those letters and an analysis of the comments are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street, NW, Washington, DC.

### Implementation Schedule

A large number of the comments received stated that the implementation schedule for this rule is too ambitious. The long lead time necessary to acquire, train and license operators may make it very difficult to meet a near-term requirement to increase the number of operators required during operation. Additionally, several comments suggested that one means of easing the manpower problem would be to allow the second senior operator to replace the shift technical advisor. In a related effort, the Commission has under consideration a draft policy statement which would allow the functions of a senior operator and a shift technical advisor to be merged. In order to allow time to acquire, train, and license the required number of operators, the implementation date for the rule has been delayed one year, to January 1, 1984. All licensees of nuclear power units will be expected to meet these staffing requirements by January 1, 1984.

Licensees that believe they cannot meet this deadline must submit a request for an extension by October 1, 1983, to the Director of the Office of Nuclear Reactor Regulation. In that request they should address the following criteria:

1. Whether the licensee is firmly committed to hire and train the necessary number of operators. This criterion will be used to assure that a real and continuing effort will be made to meet the intent of the rule.
2. Whether the licensee has set a reasonable target date by which it would meet the requirements. This criterion will assure that the upgraded staffing requirements will be met as quickly as possible, rather than delayed simply because the option was there.
3. Whether the licensee has an active recruitment program to hire the necessary numbers of operators. This criterion will be used to indicate whether or not the licensees have realistically considered the effects of attrition.
4. Whether the licensee has an adequate training program to assure that it has well-trained operators readily available. This criterion will be used to

assess the estimates of the percentage of candidates that can be reasonably expected to become licensed and to ensure that the operators who control the unit while in a reduced staffing capacity are adequately trained.

5. Whether implementation of the rule would adversely affect the licensee's training program, overtime practices, number of shifts, or length of shift. This criterion will be used to assess the possible negative effect on safety of requiring increased staffing levels if this increase is made at the expense of excessive overtime, the training program, or the number of shifts available.

This request will be reviewed in accordance with the provisions of 10 CFR 50.54 by the Director of the Office of the Nuclear Reactor Regulation using the criteria listed above and any other information which is considered to be pertinent to the request. If the licensee demonstrates good cause for the request, the implementation date will be extended for that unit.

### Exemptions From the Substantive Provisions of the Rule

Licensees that wish to be exempted from the substantive requirements of the rule must submit a request in accordance with the provisions of 10 CFR 50.12 and adequately justify reduced staffing levels based on plant size, lack of complexity, or other unique factors. If the licensee demonstrates good cause for the request, it will be granted.

### Justification for the Provisions of the Rule

Several commentators stated that the NRC had not provided adequate justification of the need for codifying the proposed staffing requirements and that the comment period should be extended until the staff develops a technical basis which demonstrates an increase in safety as a result of implementation of the rule. While an empirical data base which specifies the exact number and qualifications of licensed operators needed on shift at nuclear power plants does not exist, the basis described below is considered sufficient to warrant these increased staffing requirements pending confirmation by research programs which are planned or are currently underway.

The Commission notes, in this regard, that although these staffing levels have been Commission policy for several years, they have not previously been codified through rulemaking because of a belief that the industry recognized the importance of adequate, competent staffing and would voluntarily implement these staffing levels. However, that assumption has been proven false in several cases. The

Commission has therefore decided that to protect the health and safety of the public, it is necessary to adopt this rule to guarantee that all plants have an adequate number of licensed operators and senior operators available on shift. The changes made to the existing requirements and the bases for them are:

(a) A shift supervisor with a senior operator's license shall be on site at all times that any unit is loaded with fuel. The presence of this individual will assure that a technically competent supervisor will be present on each shift to direct the overall operation of the plant. A situation can arise at any time that requires the presence of someone with knowledge of the facility's technical specifications and the conditions and limitations in the facility license. Under current NRC requirements, senior operators are examined in more depth and more areas concerning a unit's conditions, limitations, and specifications than a reactor operator or unlicensed manager. In addition, a senior operator normally has more operational experience, further enhancing the senior operator's ability to respond to any situation that may occur. The absence of this knowledge on site, where it is readily available, could possibly create a hazardous condition. This person is required to be on site at all times that any unit is loaded with fuel, rather than just when a unit is being operated because the conditions and limitations in the facility's license and in the facility's technical specifications continue to apply.

(b) A senior operator shall be present at all times in the control room from which a unit is being operated. A senior operator's technical expertise is required in the control room in addition to a reactor operator's technical expertise because of the differences in their training programs and experience. A senior operator typically has greater operating experience than a reactor operator. Also, a senior operator is trained and examined in seven areas that are not required for a reactor operator. These areas are conditions and limitations in a facility license, design and operating limitations in the technical specifications, certain radiation hazards, coolant chemistry, procedures and limitations involved in core alterations and rod programming, fuel handling facilities and procedures, and procedures and equipment available for handling and disposal of radioactive materials. More detailed knowledge in some of these areas would be helpful to the operators in the control room in the event of an emergency. In addition, a senior operator's knowledge and analytic abilities in heat transfer and fluid flow are tested in more depth than a reactor operator's knowledge and

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by the Director, Office of Nuclear Reactor Regulation, as provided in paragraph I.B.3. of Appendix H. The primary purposes of the requirement—timely reporting of test results and notification of any problems—are accomplished as well by the provisions of the final rule.

Copies of the abstract of comments and the staff's response, which gives a point-by-point discussion of each issue raised by the commenters, and copies of the value-impact analysis supporting the rule are available for public inspection and copying for a fee at the Commission's Public Document Room at 1717 H Street NW., Washington, DC. Single copies may be obtained by written request to the Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: P. N. Randall.

### Regulatory Analysis

The Commission has prepared a regulatory analysis for this regulation. The analysis examines the costs and benefits of the rule as 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 P. N. Randall, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (301) 443-5903.

### Paperwork Reduction Act Statement

The reporting and recordkeeping requirements contained in this regulation have been approved by the Office of Management and Budget, OMB approval No. 3150-0011.

### Regulatory Flexibility Statement

In accordance with Section 605(b) of 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 primarily the utilities that own light water nuclear power reactors, and the vendors of those reactors, none of which meet the definition of "small entities" set forth in Section 601(3) of 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.

### List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Fire prevention, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor

siting criteria, Reporting and recordkeeping requirements.

### PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification.

48 FR 31611

Published 7/11/83

Effective 1/1/84

### 10 CFR Part 50

#### Licensed Operator Staffing at Nuclear Power Units

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require licensees of nuclear power units to provide a minimum number of licensed operators and senior operators on shift at all times to respond to normal and emergency conditions. These requirements will further assure the protection of the health and safety of the public by allowing the senior operator in charge the flexibility to move about the facility as needed while assuring that a senior operator is continuously present in the control room during unit operation.

**EFFECTIVE DATE:** January 1, 1984.

**FOR FURTHER INFORMATION CONTACT:** James Norberg, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-443-5863, or Clare Goodman, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-4894.

#### SUPPLEMENTARY INFORMATION:

##### Background

In the aftermath of the Three Mile Island (TMI) accident, a number of studies and investigations conducted by the NRC, the industry, and others recommended changes in the numbers, qualifications, and organization of nuclear power plant personnel.<sup>1</sup> The

<sup>1</sup> The recommendations of the investigating groups are collected in NUREG-0490, "NRC Action

"NRC Action Plan Developed as a Result of the TMI-2 Accident" (NUREG-0660), Item I.A.1.3, adopted these recommendations and "Clarification of TMI Action Plan Requirements" (NUREG-0737) was issued to provide interim shift staffing criteria to all licensees of operating units, all applicants for operating licenses, and all holders of construction permits. NUREG-0737 criteria include the provisions that: (a) A shift supervisor with a senior operator's license shall be on site at all times that a nuclear power unit is loaded with fuel; (b) a licensed senior operator shall be in the control room from which a unit is being operated; (c) an individual who holds a senior operator license shall supervise core alterations; and (d) one or more control room operators shall be assigned on shift for each fueled unit depending on the number of units being operated from the control room.

These criteria have been used for licenses issued after the accident at Three Mile Island, and all licensees of operating nuclear power units are aware of the NRC's staffing criteria provided by NUREG-0737. To ensure that all operating nuclear power units are adequately staffed with licensed personnel, the amendment will apply these NUREG-0737 criteria to all operating nuclear power units. The staffing criteria of NUREG-0737 and the current technical specifications for nuclear power units call for more licensed operators than are required by current NRC regulations. Under current NRC regulations it is only necessary to have a licensed senior operator present at the facility or readily available on call during operation, and an operator or senior operator must be present at the controls at all times during operation.

#### Proposed Rule

On August 30, 1982, the NRC published a proposed rule in the Federal Register (47 FR 38135) that would require all licensees of nuclear power units to provide a minimum number of licensed operators and senior operators on shift and a person with a senior operator license in the control room at all times that the unit is being operated. Interested persons, applicants, and licensees were invited to submit written comments to the Secretary of the Commission. After consideration of the

Plan Developed as a Result of the TMI-2 Accident." NUREG-0660, in Appendix E, discusses the availability of the reports prepared by the various organizations. NUREG 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. Copies of NUREG documents may be obtained from: the GPO Sales Program, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, DC 20555 and the National Technical Information Service, Springfield, VA 22161.

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and the operator or senior operator at the controls) shall be in the control room during operation and that an operator or senior operator shall be present at the controls at any time a unit is loaded with fuel. (See § 50.54(m)(2)(iii).)

(6) The requirement for core alterations to be supervised by a senior operator has been revised to allow core alterations to be supervised by a senior operator or a senior operator whose license is limited to fuel handling. (See § 50.54(m)(2)(iv).)

### Paperwork Reduction Act Statement

The information collection requirements contained in this final rule impact nine or fewer entities and, therefore, are not subject to Office of Management and Budget clearance as required by 44 U.S.C. 3501, et seq.

### 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 the staffing requirements of facilities 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 out in regulations issued by the Small Business Administration in 13 CFR Part 121.

### Regulatory Analysis

The Commission has prepared a regulatory analysis of 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, 1717 H Street, NW, Washington, DC. Single copies of the analysis may be obtained from Clare Goodman, U.S. Nuclear Regulatory Commission, Washington, DC 20555, 492-4894.

### List of Subjects in 10 CFR Part 50

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

## PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

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 following amendments to 10 CFR Part 50 are published as a document subject to codification.

48 FR 33850

Published 7/28/83

Effective 1/1/84

Licensee Event Report System

See Part 20 Statements of Consideration

➤ 48 FR 39039

Published 8/29/83

Effective 1/1/84

### 10 CFR Part 50

#### Immediate Notification Requirements of Significant Events At Operating Nuclear Power Reactors

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations which require timely and accurate information from licensees following significant events at commercial nuclear power plants. Experience with existing requirements and public comments on a proposed revision of the rule indicate that the existing regulation should be amended to clarify reporting criteria and to require early reports only on those matters of value to the exercise of the Commission's responsibilities. The amended regulation will clarify the list of reportable events and provide the Commission with more useful reports regarding the safety of operating nuclear power plants.

**EFFECTIVE DATE:** January 1, 1984.

**FOR FURTHER INFORMATION CONTACT:** Eric W. Weiss, Office of Inspection and Enforcement, U.S. Nuclear Regulatory

Commission, Washington, D.C. 20555; Telephone (301) 492-4973.

### SUPPLEMENTARY INFORMATION:

#### I. Background

On February 29, 1980, the Commission amended its regulations without prior notice and comment to require timely and accurate licensee reporting of information following significant events at operating nuclear power reactors (45 FR 13434). The purpose of the rule was to provide the Commission with immediate reporting of twelve types of significant events where immediate Commission action to protect the public health and safety may be required or where the Commission needs accurate and timely information to respond to heightened public concern. Although the rule was made immediately effective, comments were solicited. Many commenters believed the rule was in some respects either vague and ambiguous or overly broad.

After obtaining experience with notifications required by the rule, the Commission published in the Federal Register a notice of proposed rulemaking on December 21, 1981 (46 FR 61894) and invited public comment. The proposal was made to meet two objectives: change 10 CFR 50.54 to implement Section 201 of the NRC's 1980 Fiscal Year Authorization Act and change 10 CFR 50.72 to more clearly specify the significant events requiring licensees to immediately notify NRC.

The problems and issues which this rulemaking addresses and the solutions that it provides can be summarized in five broad areas:

#### 1. Authorization Act for FY80

Section 201 of the Nuclear Regulatory Commission Authorization Act for Fiscal Year 1980 (Pub. L. 96-295) provides:

(a) Section 103 of the Atomic Energy Act of 1954 is amended by adding at the end thereof the following new subsections: f. Each license issued for a utilization facility under this section or section 104b, shall require as a condition thereof that in case of any accident which could result in an unplanned release of quantities of fission products in excess of allowable limits for normal operation established by the Commission, the licensee shall immediately so notify the Commission. Violation of the condition prescribed by this subsection may, in the Commission's discretion, constitute grounds for license revocation. In accordance with section 187 of this Act, the Commission shall promptly amend each license for a utilization facility issued under this section or section 104b, which is in effect on the date of enactment of this subsection to include the provisions required under this subsection.

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analytic abilities. Individuals with this knowledge have a better basis to provide a broader viewpoint and, therefore, should be available in the control room of an operating nuclear power plant at all times.

The requirement for a senior operator's continuous presence in the control room would assure that: (1) A person is available who can provide the oversight function of the supervisor so that the probability of correctly detecting abnormal events early enough to mitigate potential adverse consequences might be increased; (2) the senior operator in the control room is aware of plant conditions prior to and resulting from an abnormal event so that the senior operator will be able to use extra experience, training and knowledge to act promptly to mitigate that event; and (3) the reactor operator is able to direct attention to performing the immediate actions necessary to mitigate that event rather than having to brief the senior operator about the background of that event if that person were absent from the control room. It cannot be foreseen how quickly accidents will develop; having a senior operator in the control room at the initiation of any incident, rather than several minutes later if the senior operator is simply on site, could alleviate potentially serious consequence of foreseeable accidents. The presence of a senior operator, with increased experience and training, will also increase the probability of correctly detecting abnormal events and human error early enough to mitigate potential consequences of any accident. The Commission finds that these considerations are sufficient to justify imposition of the requirement that a senior operator be present at all times in the control room from which a unit is being operated.

Also, the additional senior operator is required in order to avoid limiting the shift supervisor's freedom to move about the plant as needed during normal and emergency situations. A senior operator may have to use knowledge and training to act outside the control room to mitigate the consequences of any accident and to deal with such items as technical communications regarding operations or emergency responses or to supervise at the site of the emergency within the plant. Another individual licensed as a senior operator is also necessary to provide routine relief for the senior operator in the control room should it be necessary to leave the control room for any reason. Finally, it is not envisioned that any individual senior operator assigned to the control room will be prevented from periodically touring the plant.

It must also be noted that the rule

does not define "control room." Since some control rooms are defined so that a senior operator can be within the confines of the control room but not have direct and prompt access to information on current plant conditions, some additional clarification is necessary. The senior operator in the control room is expected to normally spend most of the time in that portion of the control room where there is direct and prompt access to information on current plant conditions and where the operator at the controls can be supervised. As duties may necessitate, the senior operator is to have the flexibility to periodically move to other parts of the control room. However, the senior operator should remain, at all times, in a position to provide prompt assistance to the reactor operators when requested. Additionally, this means that the senior operator must either (1) be in sight of or in the audible range of the reactor operators at the controls, or (2) be in the audible range of the control room annunciators. This is necessary so that the senior operator's training and knowledge will be immediately available as needed. The staff plans to amend Regulatory Guide 1.114, "Guidance on Being an Operator at the Controls of a Nuclear Power Plant," to include more detailed guidance on this subject.

(c) Core alterations shall be supervised by an individual who holds a senior operator license or a senior operator license limited to fuel handling for that unit. This requirement is based on the need for the presence during core alteration of a person whose training exceeds the minimum requirements for a reactor operator in the areas of: conditions and limitations in the facility license, the facility's technical specifications, procedures and limitations involved in core alterations, and fuel handling facilities and procedures. The presence of a person trained in these areas is necessary to assure that core alterations are conducted safely and do not endanger those working on the alterations. This training can be achieved by either successfully completing the requirements for a senior operator license, or by completing those portions of the requirements for a senior operator license which are applicable to core alterations.

(d) Each unit shall have one licensed operator at the controls at all times in addition to the requirement for a senior operator in the control room, and operating units shall have an additional licensed operator assigned to the unit. The requirement that an operator be at the controls is consistent with existing NRC regulations and will assure that plant instrumentation is continuously

monitored and that controls are properly manipulated. The requirement for an additional licensed operator for operating units is necessary so that a qualified individual will be able to provide relief for the operator at the controls. The senior operator in the control room cannot be relied on for such relief under the rule because having the senior operator perform the functions of a reactor operator, even for a limited time, would result in loss of the oversight function of the supervisor which might decrease the probability of correctly detecting abnormal events early enough to mitigate potential adverse consequences. If the senior operator in the control room was without a second licensed individual to monitor plant instrumentation and manipulate controls, the senior operator might not be able to oversee and observe other relevant plant conditions. The additional licensed operator is also needed to assure that a licensed operator is available to perform other duties, such as conducting valve line-up checks, taking routine tours, investigating problem areas, and providing assistance during emergencies. It is necessary to have a licensed operator available for these tasks because the training that is provided to operators gives greater assurance that problems will be discovered and mitigated quickly. **Substantive Changes to the Proposed Rule**

Based on the comments received, the following substantive changes have been incorporated into the final rule:

(1) The implementation date for the rule was revised from January 1, 1983 to January 1, 1984. (See § 50.54(m)(2) and (m)(3).)

(2) The points selected for the transition from "not operating" to "operating" were changed to be consistent with the operating mode definitions in the standard technical specifications and the phrase "For the purpose of this table . . ." was added to ensure that this footnote is not used as a definition of "operating" in other sections of title 10. (See § 50.54(m)(2)(i) footnote (2).)

(3) The rule was changed to allow for temporary deviations from the required minimum staffing levels to provide for unexpected situations such as illness of an operator during a shift. (See § 50.54(m)(2)(i) footnote (1).)

(4) The rule has been changed to state clearly that a senior operator with responsibility for overall plant operation shall be on site at all times that a nuclear unit is loaded with fuel. (See § 50.54(m)(2)(ii).)

(5) The rule has been changed to state clearly that a minimum of two operators (the senior operator in the control room

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### *Immediate Shutdown (Final Rule § 50.72(b)(1)(i))*

Several commenters objected to the use of the term, "immediate shutdown," saying that Technical Specifications do not use such a term.

The term is used in some but not all Technical Specifications. Consequently, the Commission has revised the reporting criterion in question. The final rule requires a report upon the initiation of any nuclear power plant shutdown required by Technical Specifications.

### *Plant Operating and Emergency Procedures (Final Rule § 50.72(b)(1)(ii))*

Several commenters said that the reporting criteria should not make reference to plant operating and emergency procedures because:

a. It would take operators too long to decide whether a plant condition was covered by the procedures,

b. The procedures cover events that are not of concern to the NRC, and

c. The procedures vary from plant to plant.

While the plant operating personnel should be familiar with plant procedures, it is true that procedures vary from plant to plant and cover events other than those which compromise plant safety. However, the wording of the reporting criteria has been modified (§ 50.72(b)(1)(ii) in the final rule) to narrow the reportable events to those that significantly compromise plant safety.

Notwithstanding the fact that the procedures vary from plant to plant, the Commission has found that this criterion results in notifications indicative of serious events. The narrower, more specific wording will make it possible for plant operating personnel to identify reportable events under their specific operating procedures.

### *Building Evacuation (Final Rule § 50.72(b)(1)(iii))*

Ten commenters said that the proposed § 50.72(b)(6)(iii) regarding "any accidental, unplanned or uncontrolled release resulting in evacuation of a building" was unclear and counterproductive in that it could cause reluctance to evacuate a building. Many of these commenters stated that the reporting of in-plant releases of radioactivity that require evacuation of individual rooms was inconsistent with the general thrust of the rule to require reporting of significant events. They noted that minor spills, small gaseous waste releases, or the disturbance of contaminated particulate matter (e.g., dust) may all require the temporary evacuation of individual rooms until the

airborne concentrations decrease or until respiratory protection devices are utilized. They noted that these events are fairly common and should not be reportable unless the required evacuation affects the entire facility or a major part of it.

The Commission agrees. The wording of this criterion has been changed to include only those events which significantly hamper the ability of site personnel in performance of duties necessary for safe operation.

One commenter was concerned that events occurring on land owned by the utility adjacent to its plant might be reportable. This is not the intent of this reporting requirement. The NRC is concerned with the safety of plant and personnel on the utility's site and not with non-nuclear activities on land adjacent to the plant.

### *Explicit Threats (Final Rule § 50.72(b)(1)(vi))*

A few commenters said that the intent of the term, "explicitly threatens," was unclear. Those commenting wondered what level of threat was involved. The term, "explicitly threatens," has been deleted from the final rule. Instead, the final rule refers to "any event that poses an actual threat to the safety of the nuclear power plant" (§ 50.72(b)(1)(vi)) and gives examples so that it is clear the Commission is interested in real or actual threats as opposed to threats without credibility.

### *Notification Timing (Final Rule § 50.72(b)(2))*

The commenters generally had two points to make regarding the timing of reports to the NRC. First, the comments supported notification of the NRC after appropriate State or local agencies have been notified. Second, two commenters requested a new four-to six-hour report category for events not warranting a report with one hour.

Allowing more time for reporting some non-Emergency events would lessen the impact of reporting on the individuals responsible for maintaining the plant in a safe condition. Limiting the extension of the deadline to four hours ensures that the report is made when the information is fresh in the minds of those involved and that it is more likely to be made by those involved rather than by others on a later shift.

Other, more significant non-Emergency events and all declarations of an Emergency must continue to be reported within one hour. The one-hour deadline is necessary if the Commission is to fulfill its responsibilities during and following the most serious events

occurring at operating nuclear power plants. A deadline shorter than one hour was not adopted because the Commission does not want to interfere with the operator's ability to deal with an accident or transient in the first few critical minutes.

Therefore, based on these comments and its experience, the NRC has established a "four-hour report," as was suggested.

### *Reactor Scrams (Final Rule § 50.72(b)(2)(iii))*

Several commenters said that reactor scrams, particularly those scrams below power operation, should not require notification of the NRC within one hour.

In response to these comments, the Commission had changed the reporting deadline to four hours. However, the Commission does not regard reactor scrams as "non-events," as stated in some letters of comment. Information related to reactor scrams has been useful in identifying safety-related problems. The Commission agrees that four hours is an appropriate deadline for this reporting requirement because these events are not as important to immediate safety as are some other events.

### *Radioactive Release Threshold (Final Rule § 50.72(b)(2)(iv))*

Several commenters said that the threshold of 25% of allowable limits for radioactive releases was too low for one-hour reporting.

Based upon these comments and its experience, the Commission has changed the threshold of reporting to those releases exceeding two times Part 20 concentrations when averaged over a period of one hour. This will eliminate reports of releases that represent negligible risk to the public.

The Commission has found that low level radioactive releases below two times Part 20 concentrations do not, in themselves, warrant immediate radiological response.

This paragraph requires the reporting of those events that cause an unplanned or uncontrolled release of a significant amount of radioactive material to offsite areas. Unplanned releases should occur infrequently; however, when they occur, at least moderate defects have occurred in the safety design or operational control established to avoid their occurrence and, therefore, these events should be reported.

### *Personnel Radioactive Contamination (Final Rule § 50.72(b)(2)(v))*

Several commenters objected to the use of vague terms such as "extensive

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Accordingly, this rulemaking includes an amendment to 10 CFR 50.54 that would add an appropriate notification requirement as a condition in the operating license of each nuclear utilization facility licensed under section 103 or 104b. of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2133, 2134b. These facilities generally are the commercial nuclear power facilities which produce electricity for public consumption. Research and test reactors are not subject to the license condition as they are licensed under section 104a. or 104c. of the Act. Under the amendment to 10 CFR 50.54, licensees falling under sections 103 or 104b. would be required, as a condition of their respective operating licenses, to notify the NRC immediately of events specified in 10 CFR 50.72.

### 2. Unnecessary Reports

Several categories of reports required by § 50.72 are not useful to the NRC. Among these categories are reports of: worker injury, small radioactive releases, and minor security problems. For example, reports are presently required if a worker onsite experience chest pains or another illness not related to radiation and is sent to a hospital for evaluation; or if the vent stack monitor moves upward a few percent yet radiation levels remain 100,000 times below technical specification limits; or if the security computer malfunctions for a few minutes.

This rulemaking eliminates such reporting requirements from § 50.72 and in general clarifies and narrows the scope of reporting. However, revision of Part 73 of the Commission's regulations is necessary to resolve all problems with security reports.

### 3. Terminology, Phrasing, and Reporting Thresholds

The various sections of 10 CFR 50 have different phrasing, terminology, and thresholds in the reporting criteria. Even when no different meaning is intended a change in wording can cause confusion.

This rulemaking has been carefully written to use terminology, phrasing, and reporting thresholds that are either identical to or similar to those in § 50.73, whenever possible. Other conforming amendments to Parts 20, 41, 73, and in § 50.55 and Appendix E of Part 50 are under development.

As a parallel activity to the preparation of § 50.72, on July 26, 1983, the Commission has published a Licensee Event Report (LER) Rule (§ 50.73) which requires licensees for operating nuclear power plants to

prepare detailed written reports for certain events (48 FR 33850).

### 4. Coordination with Licensee's Emergency Plan

The current scheme for licensee's emergency plans includes four Emergency Classes. When the licensee declares one of the four Emergency Classes, it must report this to the Commission as required by § 50.72. The lowest of the four Emergency Classes, Notification of Unusual Event, has resulted in unnecessary emergency declarations. Events that fall within the Unusual Event class have been neither emergencies in themselves nor precursors of more serious events that are emergencies.

Although changes to the definition of the Emergency Classes are not being made in this rulemaking, a new reporting scheme that would ultimately eliminate "Unusual Event" as an Emergency Class requiring notification can be adopted consistent with this rule. A proposed rulemaking which would redefine the Emergency Classes in § 50.47 is in preparation and may soon be published for public comment. This final rulemaking makes possible the elimination of "Unusual Event" as an emergency class without further amendment of § 50.72 by including in the category of non-emergencies the subcategory of "one-hour reports."

### 5. Vague or Ambiguous Reporting Criteria

The reporting criteria in § 50.72 have been revised in order to clarify their scope and intent. The criteria were revised for the proposed rule and in response to public comment. The "Analysis of Comments" portion of this Federal Register notice describes in more detail specific examples of changes in wording intended to eliminate vagueness or ambiguity.

### II. Analysis of Comments

Twenty letters of comment were received in response to the Federal Register notice published on December 21, 1981 (48 FR 61894).<sup>1</sup> Of the twenty letters of comment received, the vast majority (15 of 20) were from utilities owning or operating nuclear power plants. This Federal Register notice described the proposed revision of 10 CFR 50.72, "Notification of Significant Events," and 10 CFR 50.54, "Conditions of Licenses." A discussion of the more significant comments follows:

<sup>1</sup> Copies of these documents are available for public inspection and copying for a fee in the NRC Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555.

### Conditions of Licenses (§ 50.54)

A few commenters said that the "Commission already has the ability to enforce its regulations and does not need to incorporate the items as now proposed into conditions of license."

The Commission has decided to promulgate the proposed revision of § 50.54, "Conditions of Licenses," in order to satisfy the intent of Congress as expressed in Section 201 of the Nuclear Regulatory Commission Authorization Act for Fiscal Year 1980. This Act and its relationship to § 50.54 are discussed in detail in the Federal Register notice for the proposed rule (48 FR 61894).

### Coordination With Other Reporting Requirements (Final Rule § 50.72)

Seven commenters said that the NRC should coordinate the requirements of 10 CFR 50.72 with other rules, with NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Plants," and with Regulatory Guide 1.18, "Reporting of Operating Information . . ." Many of these letters identified overlap, duplication, and inconsistency among NRC's reporting requirements.

The Commission is making a concerted effort to ensure consistent and coordinated reporting requirements. The requirements contained in the revision of 10 CFR 50.72 are being coordinated with revision of § 50.73, § 50.55(e), Appendix E of Part 50, § 20.402, § 73.71, and Part 21.

### Citing 10 CFR 50.72 as a Basis for Notification (Final Rule § 50.72(a)(4))

A few commenters objected to citing § 50.72 as a basis when making a telephone notification. The letters of comment questioned the purpose, legal effect, and burden on the licensee.

The Commission does not believe that it is an unnecessary burden for a licensee to know and identify the basis for a telephone notification required by § 50.72. There have been many occasions when a licensee could not tell the NRC whether the telephone notification was being made in accordance with Technical Specifications, 10 CFR 50.72, some other requirement, or was just a courtesy call. Unless the licensee can identify the nature of the report, it is difficult for the NRC to know what significance the licensee attaches to the report, and it becomes more difficult for the NRC to respond quickly and properly to the event.



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### Regulatory Analysis

The Commission has prepared a Regulatory Analysis on these amendments, assessing the costs and benefits and resource impacts. It may be examined at the address indicated above.

General notice of proposed rulemaking is not required for this interim final rule because the amendments by their nature concern rules of agency procedure and practice. Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendments to 10 CFR Parts 2 and 50 are published as a document subject to codification.

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

48 FR 16649

Published 4/19/83

#### 10 CFR Part 50

### Standards for Determining Whether License Amendments Involve No Significant Hazards Considerations

#### Correction

In FR Doc. 83-9052 beginning on page 14864 in the issue of Wednesday, April 6, 1983, make the following correction on page 14871: In the second column, 19th line from the bottom of the page, insert "and" between "comment" and "may".

➤ 48 FR 24008

Published 5/27/83

Effective 7/26/83

#### 10 CFR Part 50

### Fracture Toughness Requirements for Light-Water Nuclear Power Reactors

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations which specify fracture toughness requirements for light-water nuclear power reactors and its requirements for reactor vessel material surveillance programs. The amendments clarify the applicability of these requirements to all plants, modify certain requirements, and shorten and simplify these regulations by more extensively incorporating by reference appropriate National Standards.

**EFFECTIVE DATE:** July 26, 1983.

**FOR FURTHER INFORMATION CONTACT:**

Dr. P. N. Randall, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (301) 443-5903.

**SUPPLEMENTARY INFORMATION:**

On November 14, 1980 the Nuclear Regulatory Commission published in the Federal Register (45 FR 75536) proposed amendments to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," which would amend Appendix G, "Fracture Toughness Requirements," and Appendix H, "Reactor Vessel Material Surveillance Program Requirements." These amendments comprised a proposed general revision of Appendices G and H designed to update them after seven years of use and to make them more consistent with current technology and pertinent National Standards. Interested persons were invited to submit written comment by January 13, 1981. Thirteen letters of comment were received. All were from utilities or vendors and addressed the application of specific requirements contained in the proposed rule. There were no adverse general comments or objections to the proposed revisions. A brief summary of the more significant comments and the staff responses follows:

The most significant technical question, which affects pressure-temperature limits for all plants, concerned a new requirement for fracture control at structural discontinuities, contained in paragraph IV.A.2 of Appendix G. The critical locations are the closure flange regions of the reactor vessel where bending stress is introduced during boltup. The

requirement in the proposed rule was that the temperature at the highly stressed region be at least 150°F above the reference temperature of the material whenever pressure exceeded 20 percent of the preoperational system hydrostatic test pressure. Commenters felt this was overly restrictive, and cited certain hardships caused during hydrotests and normal heatup and cooldown operations. In response to the comments, the requirement has been revised to provide a separate, lower temperature requirement for hydrotest conditions than for normal operation, consistent with the margins of safety specified in the ASME Code. In addition, the temperature requirement for normal operation was reduced slightly based on further analysis of boltup conditions. Thus, in the final rule, the proposed requirement of 150°F (above the reference temperature of the material) was revised to 90°F for hydrotest and 120°F for normal operation. This requirement will affect principally those plants where radiation damage to the beltline region is low, and the pressure-temperature limits are thus more likely to be controlled by the closure flange regions.

Paragraph IV.A.4. of Appendix G was expanded to specify that the quantity "RT<sub>NDT</sub> + 60°F" referred to the adjusted reference temperature of the reactor vessel material in the region that was controlling the pressure-temperature limits (beltline or closure flange regions) following the analysis required by paragraph IV.A.2.

The requirements concerning thermal annealing of reactor vessels, given in paragraphs IV.B. and V.D. of Appendix G, represent no basic change from those published in 1973. However, the recent investigation of pressurized thermal shock effects prompted some studies of annealing to identify and resolve possible engineering difficulties. If the results show that changes should be made in paragraph IV.B. or V.D., a further amendment to Appendix G will be issued.

Minor changes in wording were made in several paragraphs, and footnotes were added to clarify the meaning of two paragraphs.

A number of comments addressed the reporting requirements for surveillance reports, paragraphs III.A. and III.C. of Appendix H. Based on commenters suggestions, the Commission has revised the proposed requirement that surveillance reports be submitted within 90 days after completion of testing to require submittal of these reports within 1 year of capsule withdrawal unless an extension is granted. This change, simplifies implementation of the requirement, because capsule withdrawal schedules must be approved

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onsite contamination" and "readily removed" in one of the reporting criteria of the proposed rule.

Based on this comment, new criteria have been prepared that use more specific terms. For example, one new criterion requires reporting of "Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment." Experience with telephone notifications made to the NRC Operations Center suggests that this new criterion will be easily understood.

### III. Paragraph-by-Paragraph Explanation of the Rule

*Paragraph 50.72(a)* reflects some consolidation of language that was repeated in various subparagraphs of the proposed rule. In general, the intent and scope of this paragraph do not reflect any change from the proposed rule.

Several titles were added to this and subsequent sections. For example, paragraph 50.72(b) is titled "Non-Emergency Events" and it has two subparagraphs: (b)(1), titled, "One-Hour Reports" and (b)(2), "Four-Hour Reports." The events which have a one-hour deadline are those having the potential to escalate to an Emergency Class. The four-hour deadline is explained in the analysis of paragraph (b)(2).

*Paragraph 50.72(b)(1)(i)(A)* requires reporting of "The initiation of any nuclear plant shutdown required by Technical Specifications." Although the intent and scope have not changed, the change in wording between the proposed and final rule is intended to clarify that prompt notification is required once a shutdown is initiated.

In response to public comment, the term "immediate shutdown" that was used in the proposed rule is not used in the final rule. The term was vague and unfamiliar to those licensees who did not have Technical Specifications using the term.

This reporting requirement is intended to capture those events for which Technical Specifications require the initiation of reactor shutdown. This will provide the NRC with early warning of safety significant conditions serious enough to warrant shutdown of the plant.

*Paragraph 50.72(b)(1)(i)(B)* was added to be consistent with existing requirements in § 50.54(x) and the existing § 50.72(c) as published in the Federal Register on April 1, 1983 (48 FR 13968) which require the licensee to notify the NRC Operations Center by telephone when the licensee departs

from a license condition or technical specification.

*Paragraph 50.72(b)(1)(ii)*, encompassing events previously classified as Unusual Events and some events captured by proposed § 50.72(b)(1) was added to provide for consistent, coordinated reporting requirements between this rule and 10 CFR 50.73 which has a similar provision. Public comment suggested that there should be similarity of terminology, phrasing, and reporting thresholds between § 50.72 and § 50.73. The intent of this paragraph is to capture those events where the plant, including its principal safety barriers, was seriously degraded or in an unanalyzed condition. For example, small voids in systems designed to remove heat from the reactor core which have been previously shown through analysis not to be safety significant need not be reported. However, the accumulation of voids that could inhibit the ability to adequately remove heat from the reactor core, particularly under natural circulation conditions, would constitute an unanalyzed condition and would be reportable. In addition, voiding in instrument lines that results in an erroneous indication causing the operator to misunderstand the true condition of the plant is also an unanalyzed condition and should be reported.

The Commission recognizes that the licensee may use engineering judgment and experience to determine whether an unanalyzed condition existed. It is not intended that this paragraph apply to minor variations in individual parameters, or to problems concerning single pieces of equipment. For example, at any time, one or more safety-related components may be out of service due to testing, maintenance, or a fault that has not yet been repaired. Any trivial single failure or minor error in performing surveillance tests could produce a situation in which two or more often unrelated, safety-grade components are out-of-service. Technically, this is an unanalyzed condition. However, these events should be reported only if they involve functionally related components or if they significantly compromise plant safety. When applying engineering judgement, and there is a doubt regarding whether to report or not, the Commission's policy is that licensees should make the report.

Finally, this paragraph also includes material (e.g., metallurgical or chemical) problems that cause abnormal degradation of the principal safety barriers (i.e., the fuel cladding, reactor coolant system pressure boundary, or

the containment). Examples of this type of situation include:

(a) Fuel cladding failures in the reactor, or in the storage pool, that exceed expected values, or that are unique or widespread, or that are caused by unexpected factors, and would involve a release of significant quantities of fission products.

(b) Cracks and breaks in the piping or reactor vessel (steel or prestressed concrete) or major components in the primary coolant circuit that have safety relevance (steam generators, reactor coolant pumps, valves, etc.).

(c) Significant welding or material defects in the primary coolant system.

(d) Serious temperature or pressure transients.

(e) Loss of relief and/or safety valve functions during operation.

(f) Loss of containment function or integrity including:

(i) Containment leakage rates exceeding the authorized limits.

(ii) Loss of containment isolation valve function during tests or operation.

(iii) Loss of main steam isolation valve function during test or operation.

or  
(iv) Loss of containment cooling capability.

*Paragraph 50.72(b)(1)(iii)*, encompassing a portion of proposed 50.72(b)(2), was reworded to correspond to a similar provision of 10 CFR 50.73(a)(2)(iii). Making the requirements of 10 CFR 50.72 and 50.73 similar in language increases the clarity of these rules and minimizes confusion.

The paragraph has also been reworded to make it clear that it applies only to acts of nature (e.g., tornadoes) and external hazards (e.g., railroad tank car explosion). References to acts of sabotage have been removed, since these are covered by § 73.71. In addition, threats to personnel from internal hazards (e.g., radioactivity releases) that hamper personnel in the performance of necessary duties are now covered by paragraph 50.72(b)(1)(vi). This paragraph covers those events involving an actual threat to the plant from an external condition or natural phenomenon, and where the threat or damage challenges the ability of the plant to continue to operate in a safe manner (including the orderly shutdown and maintenance of shutdown conditions). The licensee should decide if a phenomenon or condition actually threatens the plant. For example, a minor brush fire in a remote area of the site that is quickly controlled by fire fighting personnel and, as a result, did not present a threat to the plant should not be reported. However, a major forest fire, large-scale

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flood, or major earthquake that presents a clear threat to the plant should be reported. As another example, an industrial or transportation accident which occurs near the site, creating a plant safety concern, should be reported.

*Paragraph 50.72(b)(1)(iv).* encompassing events previously classified as Unusual Events, requires the reporting of those events that result in either automatic or manual actuation of the ECCS or would have resulted in activation of the ECCS if some component had not failed or an operator action had not been taken.

For example, if a valid ECCS signal were generated by plant conditions, and the operator were to put all ECCS pumps in pull-to-lock, though no ECCS discharge occurred, the event would be reportable.

A "valid signal" refers to the actual plant conditions or parameters satisfying the requirements for ECCS initiation. Excluded from this reporting requirement would be those instances where instrument drift, spurious signals, human error, or other invalid signals caused actuation of the ECCS. However, such events may be reportable under other sections of the Commission's regulations based upon other details; in particular, paragraph 50.72(b)(2)(ii) requires a report within four hours if an Engineered Safety Feature (ESF) is actuated.

Experience with notifications made pursuant to § 50.72 has shown that events involving ECCS discharge to the vessel are generally more serious than ESF actuations without discharge to the vessel. Based on this experience, the Commission has made this reporting criterion a "One-Hour Report."

*Paragraph 50.72(b)(1)(v).* encompassing events previously classified as Unusual Events, covers those events that would impair a licensee's ability to deal with an accident or emergency. Notifying the NRC of these events may permit the NRC to take some compensating measures and to more completely assess the consequences of such a loss should it occur during an accident or emergency.

Examples of events that this criterion is intended to cover are those in which any of the following are not available:

1. Safety parameter display system (SPDS).
2. Emergency Response Facilities (ERF's).
3. Emergency communications facilities and equipment including the Emergency Notification system (ENS).
4. Public prompt Notification System including sirens.

5. Plant monitors necessary for accident assessment.

*Paragraph 50.72(b)(1)(vi).* encompassing some portions of the proposed §§ 50.72(b)(2) and (6), has been revised to add the phrase, "including fires, toxic gas releases, or radioactive releases." This addition covers the "evacuation" portion of paragraph 50.72(b)(6)(iii) of the proposed rule. This change in wording for the final rule was made in response to public comments discussed above.

While paragraph 50.72(b)(1)(iii) of the final rule primarily captures acts of nature, paragraph 50.72(b)(1)(vi) captures other events, particularly acts by personnel. The Commission believes this arrangement of the reporting criteria in the final rule lends itself to more precise interpretation and is consistent with those public comments that requested closer coordination between the reporting requirements in this rule and other portions of the Commission's regulations.

This provision requires reporting of events, particularly those caused by acts of personnel, which endanger the safety of the plant or interfere with personnel in performance of duties necessary for safe plant operations.

The licensee must exercise some judgment in reporting under this section. For example, a small fire on site that did not endanger any plant equipment and that did not and could not reasonably be expected to endanger the plant, is not reportable.

*Paragraph 50.72(b)(1) of the proposed rule was split into § 50.72(b)(1)(ii) and § 50.72(b)(2)(i) in the final rule in order to permit some type of reports to be made within four hours instead of one hour because these reports have less safety significance. In terms of their combined effect, the overall intent and scope of these paragraphs have not changed from those in the proposed rule. Since the types of events intended to be captured by this reporting requirement are similar to § 50.72(b)(1)(ii), except that the reactor is shut down, the reader should refer to the explanation of § 50.72(b)(1)(ii) for more details on intent.*

*Paragraph 50.72(b)(2)* Although the reporting criteria contained in the subparagraphs of § 50.72(b)(2) were in the proposed rule, in response to public comment the Commission established this "Non-Emergency" category for those events with slightly less urgency and less safety significance that may be reported within four hours instead of one hour.

The Commission wants to obtain such reports from personnel who were on shift at the time of the event, when this

is possible, because these personnel will have a better knowledge of the circumstances associated with the event. Reports made within four hours of the event should make this possible while not imposing the more rigid one hour requirements.

*The reporting requirement in paragraph 50.72(b)(2)(i) is similar to a requirement in § 50.73. Moreover, except for referring to a shutdown reactor, this reporting requirement is also similar to the "One-Hour Report" in § 50.72(b)(1)(ii). However this paragraph applies to a reactor in shutdown condition. Events within this requirement have less urgency and can be reported within four hours as a "Non-Emergency."*

*Paragraph 50.72(b)(2)(ii) (proposed 50.72(b)(5)) is made a "Non-Emergency" in response to public comment, because the Commission agrees that the covered events generally have slightly less urgency and safety significance than those events included in the "One-Hour Reports."*

The intent and scope of this reporting requirement have not changed from the proposed rule. This paragraph is intended to capture events during which an ESF actuates, either manually or automatically, or fails to actuate. ESFs are provided to mitigate the consequences of the event; therefore, (1) they should work properly when called upon and (2) they should not be challenged unnecessarily. The Commission is interested both in events where an ESF was needed to mitigate the consequences of the event (whether or not the equipment performed properly) and events where an ESF operated unnecessarily.

"Actuation" of multichannel ESF Actuation Systems is defined as actuation of enough channels to complete the minimum actuation logic. Therefore, single channel actuations, whether caused by failures or otherwise, are not reportable if they do not complete the minimum actuation logic.

Operation of an ESF as part of a planned test or operational evolution need not be reported. However, if during the test or evolution the ESF actuates in a way that is not part of the planned procedure, that actuation should be reported. For example, if the normal reactor shutdown procedure requires that the control rods be inserted by a manual reactor trip, the reactor trip need not be reported. However, if conditions develop during the shutdown that require an automatic reactor trip, such a reactor trip should be reported. The fact that the safety

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analysis assumes that an ESF will actuate automatically during an event does not eliminate the need to report that actuation. Actuations that need not be reported are those initiated for reasons other than to mitigate the consequences of an event (e.g., at the discretion of the licensee as part of a planned procedure).

*Paragraph 50.72(b)(2)(iii)* (proposed 50.72(b)(4)) has been revised and simplified.

The words "any instance of personal error, equipment failure, or discovery of design or procedural inadequacies" that appeared in the proposed rule have been replaced by the words "event or condition." This simplification in language is intended to clarify what was a confusing phrase to many of those who commented on the proposed rule. Also in response to public comment, this reporting requirement is a "Non-Emergency" to be reported within four hours instead of within one hour.

This paragraph is based on the assumption that safety-related systems and structures are intended to mitigate the consequences of an accident. While paragraph 50.72(b)(2)(ii) applies to actual demands for actuation of an ESF, paragraph 50.72(b)(2)(iii) covers an event where a safety system could have failed to perform its intended function because of one or more personnel errors, including procedure violations; equipment failures; or design, analysis, fabrication, construction, or procedural deficiencies. The event should be reported regardless of the situation or condition that caused the structure or system to be unavailable.

This reporting requirement is similar to one contained in § 50.73, thus reflecting public comment identifying the need for closer coordination of reporting requirements between § 50.72 and § 50.73.

This paragraph includes those safety systems designed to mitigate the consequences of an accident (e.g., containment isolation, emergency filtration). Hence, minor operational events such as valve packing leaks, which could be considered a lack of control of radioactive material, should not be reported under this paragraph. System leaks or other similar events may, however, be reportable under other paragraphs.

This paragraph does not include those cases where a system or component is removed from service as part of a planned evolution, in accordance with an approved procedure, and in accordance with the plant's Technical Specifications. For example, if the licensee removes part of a system from

service to perform maintenance, and the Technical Specifications permit the resulting configuration, and the system or component is returned to service within the time limit specified in the Technical Specifications, the action need not be reported under this paragraph. However, if, while the component is out of service, the licensee identifies a condition that could have prevented the system from performing its intended function (e.g., the licensee finds a set of relays that is wired incorrectly), that condition must be reported.

It should be noted that there are a limited number of single-train systems that perform safety functions (e.g., the High Pressure Coolant Injection System in BWRs). For such systems, loss of the single train would prevent the fulfillment of the safety function of that system and, therefore, must be reported even though the plant Technical Specifications may allow such a condition to exist for a specified length of time. Also, if a potentially serious human error is made that could have prevented fulfillment of a safety function, but recovery factors resulted in the error being corrected, the error is still reportable.

The Commission recognizes that the application of this and other paragraphs of this section involves a technical judgment by licensees. In this case, a technical judgment must be made whether a failure or operator action that disabled one train of a safety system could have, but did not, affect a redundant train. If so, this would constitute an event that "could have prevented" the fulfillment of a safety function, and, accordingly, must be reported.

If a component fails by an apparently random mechanism, it may or may not be reportable if the functionally redundant component could fail by the same mechanism. To be reportable, it is necessary that the failure constitute a condition where there is reasonable doubt that the functionally redundant train or channel would remain operational until it completed its safety function or is repaired. For example, if a pump fails because of improper lubrication, there is a reasonable expectation that the functionally redundant pump, which was also improperly lubricated, would have also failed before it completed its safety function, then the failure is reportable and the potential failure of the functionally redundant pump must be reported.

Interaction between systems, particularly a safety system and a non-safety system, is also included in this

criterion. For example, the Commission is increasingly concerned about the effect of a loss or degradation of what had been assumed to be nonessential inputs to safety systems. Therefore, this paragraph also includes those cases where a service (e.g., heating, ventilation, and cooling) or input (e.g., compressed air) which is necessary for reliable or long-term operation of a safety system is lost or degraded. Such loss or degradation is reportable, if the proper fulfillment of the safety function is not or can not be assured. Failures that affect inputs or services to systems that have no safety function need not be reported.

Finally, the Commission recognizes that the licensee has to decide when personnel actions *could* have prevented fulfillment of a safety function. For example, when an individual improperly operates or maintains a component, that person might conceivably have made the same error for all of the functionally redundant components (e.g., if an individual incorrectly calibrates one bistable amplifier in the Reactor Protection System, that person could conceivably incorrectly calibrate all bistable amplifiers). However, for an event to be reportable it is necessary that the actions actually affect or involve components in more than one train or channel of a safety system, and the result of the actions must be undesirable from the perspective of protecting the health and safety of the public. The components can be functionally redundant (e.g., two pumps in different trains) or not functionally redundant (e.g., the operator correctly stops a pump in Train "A" and, instead of shutting the pump discharge valve in Train "A," he mistakenly shuts the pump discharge valve in Train "B").

*Paragraphs 50.72(b)(2)(iv)* (proposed 50.72(b)(8)) has been changed to clarify the requirement to report releases of radioactive material. The paragraph is similar to § 20.403 but places a lower threshold for reporting events at commercial power reactors. The lower threshold is based on the significance of the breakdown of the licensee's program necessary to have a release of this size, rather than on the significance of the impact of the actual release. The existing licensee radioactive material effluent release monitoring programs and their associated assessment capabilities are sufficient to satisfy the intent of 50.72(b)(2)(iv).

Based upon public comment and a reevaluation by the Commission staff, the reporting threshold has been changed from "25%" in the proposed rule to "2 times" in the final rule and has

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been reclassified as a "Non-Emergency" to be reported within four hours instead of within 1 hour.

Also this reporting requirement has been changed to make a more uniform requirement by referring to specific release criteria instead of referring only to Technical Specifications that may vary somewhat among facilities.

This reporting requirement is intended to capture those events that may lead to an accident situation where significant amounts of radioactive material could be released from the facility. Unplanned releases should occur infrequently; however, if they occur at the levels specified, at least moderate defects have occurred in the safety design or operational control established to avoid their occurrence and, therefore, such events should be reported.

Normal operating limits for radioactive effluent releases are based on the limits of 10 CFR Part 20 which establishes maximum annual average concentration in unrestricted areas. This reporting requirement addresses concentrations averaged over a one hour period and represents less than 0.1% of the annual quantities of radioactive materials permitted to be released by 10 CFR Part 20.

*Paragraph 50.72(b)(2)(v)* (proposed rule 50.72(b)(7)) has three changes. The first eliminates the phrase "occurring onsite" because it is implied by the scope of the rule. The second replaces "injury involving radiation" with "radioactively contaminated person." This change was made because of the difficulty in defining injury due to radiation, and more importantly, because 10 CFR Part 20 captures events involving radiation exposure.

The third change, in response to public comment, was to make this reporting requirement a four-hour notification, instead of one-hour notification. This change was made because these events have slightly less safety significance than those required to be reported within one hour.

*Paragraph 50.72(b)(2)(vi)* (not in proposed rule) besides covering some events such as release of radioactively contaminated tools or equipment to the public that may warrant NRC attention, also covers those events that would not otherwise warrant NRC attention except for the interest of the news media, other government agencies, or the public. In terms of its effect on licensees, this is not a new reporting requirement because the threshold for reporting injuries and radioactive release was much lower under the proposed rule. This criterion will capture those events previously reported under other criteria when such events require the NRC to

respond because of media or public attention.

*Paragraph 50.72(c)* (proposed 50.72(c)) has remained essentially unchanged from the proposed rule, except for addition of the title "Followup Notification" and some renumbering.

This paragraph is intended to provide the NRC with timely notification when an event becomes more serious or additional information or new analyses clarify an event.

This paragraph also permits the NRC to maintain a continuous communications channel because of the need for continuing follow-up information or because of telecommunications problems.

### IV. Regulatory Analysis

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the Rule as 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, D.C. Single copies of the analysis may be obtained from Eric W. Weiss, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone (301) 492-4973.

### V. Paperwork Reduction Act Statement

The information collection requirements contained in this final rule have been approved by the Office of Management and Budget pursuant to the Paperwork Reduction Act, Pub. L. 96-511 (clearance number 3150-0011).

### VI. 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 will not have a significant economic impact on a substantial number of small entities. This final rule affects electric utilities that are dominant in their respective service areas and that own and operate nuclear utilization facilities licensed under sections 103 and 104b. of the Atomic Energy Act of 1954, as amended. The amendments clarify and modify presently existing notification requirements. Accordingly, there is no new, significant economic impact on these licensees, nor do the affected licensees fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or within the Small Business Size Standards set forth 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.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50 are published as a document subject to codification.

➤ 48 FR 40882

Published 9/12/83

### 10 CFR Part 50

#### Immediate Notification Requirements of Significant Events At Operating Nuclear Power Reactors

##### Correction

In FR Doc. 83-23802 beginning on page 39039 in the issue of Monday, August 29, 1983, make the following corrections to § 50.72 on page 39046:

1. In the second line of (a)(1) insert the words "licensee licensed" between the words "reactor" and "under".

2. In the second line of (a)(1)(ii) the word "ths" should read "this".

3. In the fourth line of (a)(2) the word "commerial" should read "commercial".

4. In the third and sixth lines of (b)(1)(ii) the word "powerplant" should read "power plant".

5. In the first line of (b)(1)(ii)(A) the word "a" should read "an".

6. In the fourth line of (b)(1)(iii) the word "power-plant" should read "power plant".

7. In the third and sixth lines of (b)(1)(vi) the word "powerplant" should read "power plant". Also in the sixth line of that paragraph the word "nuclear" should read "nuclear".

8. In the fifth line of (b)(2)(i) the word "powerplant" should read "power plant".

9. In the second line of (b)(2)(ii) the word "an" should read "any".

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48 FR 46489  
Published 10/13/83  
Effective 11/14/83

### *Temporary Operating Licenses*

See Part 2 Statement of Consideration

48 FR 50878  
Published 11/4/83  
Effective 12/7/83

### 10 CFR Part 50

#### **Codes and Standards for Nuclear Power Plants; Summer 1982 Addenda**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to incorporate by reference the Summer 1982 Addenda of the American Society of Mechanical Engineers (ASME) Boiler Pressure Vessel Code. The sections of the ASME Code being incorporated provide rules for the construction on nuclear power plant components. Adoption of these amendments will permit the use of improved methods for construction of nuclear power plants.

**DATES:** effective date: December 7, 1983.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of December 7, 1983.

**FOR FURTHER INFORMATION CONTACT:** Ms. N. J. Miegel, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 443-7880.

**SUPPLEMENTARY INFORMATION:** On December 22, 1982 the Nuclear Regulatory Commission published in the Federal Register proposed amendments to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The proposed amendment would revise § 50.55a to incorporate by reference the Summer 1982 Addenda to Section III, Division 1, "Rules for the Construction of Nuclear Power Plant Components," of the ASME Boiler and Pressure Vessel Code.

The incorporation of the new Addenda does not change any of the previous supplementary requirements included in the regulation.

Some of the changes effected in the addenda that are incorporated by this rule follow:

1. The foreword of all sections of the Code was revised regarding interpretations of the Code to restrict the authority to issue such

interpretations to the American Society of Mechanical Engineers. Previously, paragraph thirteen of the foreword had permitted the National Board of Boiler and Pressure Vessel Inspectors to issue interpretations of the ASME Boiler and Pressure Vessel Code.

2. Paragraph NCA-8230(b) was revised to delete the requirement that the location of the nameplate for component supports be shown on the support drawing.

3. Code Case N-100, "Pressure Relief Valve Design," was adopted into the body of the Code as paragraph NB-3590. The Code Case will be annulled when the Summer 1982 Addenda become effective.

4. Paragraph NB-5520 was revised to update the reference to the American Society for Nondestructive Testing (ASNT) standard SNT-TC-1A, from the 1975 to the 1980 Edition. It was also revised to clearly state that even if an outside agency or ASNT provided the qualification examinations, the employer is still responsible for certifying its own personnel.

Interested persons were invited to submit written comments for consideration in connection with the proposed amendment by February 22, 1983. One comment was received on the proposed rule. The Summer 1982 Addenda invoke the June 1980 Edition of Recommended Practice No. SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing," in paragraph NB-5520 in lieu of the 1975 Edition of SNT-TC-1A which was previously invoked. The commenter objected to updating the edition of SNT-TC-1A referenced by the Code because the commenter was of the opinion that the 1980 Edition of SNT-TC-1A no longer requires Level III individuals to demonstrate their ability to perform the examinations for which they are being qualified. A detailed comparison of the 1975 and 1980 Editions of SNT-TC-1A reveals that although the requirements for qualifications of Level III individuals were changed, neither edition specifically requires a demonstration of the individual's ability to perform the examination. No changes to the rule were made in response to the comment.

The NRC staff is currently working with a committee of industry representatives that is developing an improved requirements document for the qualification and certification of nondestructive examination personnel. Additionally, the staff is involved in a study of the qualification and certification of various quality assurance and quality control personnel that includes consideration of nondestructive examination personnel. At this time, the staff has not concluded that hands-on practical examinations for Level III nondestructive examination

personnel are warranted, and finds that the provisions of the June 1980 Edition of SNT-TC-1A are acceptable for Section III Code activities, pending the development of any new requirements.

In addition to the public comment, there was a concern raised by the NRC staff on the change in the 1980 Edition of SNT-TC-1A to the use of the word "should" in numerous places in the standard where the word "shall" had been used in the past. The concern centered around whether or not the change in language resulted in a change in the enforceability of the provisions of SNT-TC-1A. Because of the staff's concern, an inquiry, NI 83-033, was submitted to the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code Committee, asking for an interpretation of the Code's endorsement of SNT-TC-1A. The response to the inquiry was that regardless of the language used in SNT-TC-1A, the Code's endorsement of SNT-TC-1A makes the provisions of SNT-TC-1A mandatory for Code activities.

#### **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 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 of 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.

#### **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.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50 are published as a document subject to codification.



## PART 50 • STATEMENTS OF CONSIDERATION

48 FR 57477

Published 12/30/83

### 10 CFR Part 50

#### Codes and Standards for Nuclear Power Plants; Summer 1982 Addenda; Correction

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; correction.

**SUMMARY:** This document corrects the authority citation for the final rule, Codes and Standards for Nuclear Power, Plants, Summer 1982 Addenda, published in the Federal Register on November 4, 1983.

**FOR FURTHER INFORMATION CONTACT:** John Philips, Rules and Procedures Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-7086.

**SUPPLEMENTARY INFORMATION:** The authority citation for 10 CFR Part 50 published on page 50879 on November 4, 1983, is corrected.

For the Nuclear regulatory Commission.  
William J. Dircks,  
Executive Director for Operations.

systems and that clarify existing regulations by removing obsolete provisions no longer applicable. This action establishes enforceable requirements to replace previous guidance. In addition, the amendments will ensure appropriate use of the referenced code and clarify NRC application requirements.

**EFFECTIVE DATE:** May 14, 1984.

**FOR FURTHER INFORMATION CONTACT:** Mr. A. Taboada, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 443-7903.

**SUPPLEMENTARY INFORMATION:** On April 13, 1982, the Nuclear Regulatory Commission published in the Federal Register (47 FR 15801) proposed amendments to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," which would amend § 50.55a, "Codes and Standards." The proposed amendments constituted a general revision of § 50.55a designed to update NRC requirements after 10 years of experience and make them more consistent with pertinent national standards. More specifically, the proposed amendments would have (a) added specific references to parts of Section III of the ASME Boiler and Pressure Vessel Code which apply to the construction of Classes 2 and 3 components, (b) deleted obsolete references and provisions, and (c) simplified the procedure for authorizing alternatives to certain NRC requirements.

Interested persons were invited to submit written comments by June 14, 1982. Twelve letters of comment were received. Of these, seven commentors supported, in general, the main provision of the proposed amendments to add specific references to additional parts of the ASME Code. One commentor disagreed. Another commentor objected to deleting the exemption from the code requirement for applying the Code N Symbol. Most of the adverse comments dealt with the application of specific requirements. A brief summary of the more significant adverse comments and staff responses follows.

Eight of the commentors objected to the proposed provisions that applied to the classification of components used for determining which part of the ASME Code should apply. Three of the eight replies came directly from the American Nuclear Society (ANS) Standards Committee and contained detailed objections to the classification provisions and recommended that the rule apply the classification systems developed by ANS as set out in the draft standards ANS 51.1 and ANS 52.1. Five of the eight commentors endorsed the

letters sent by ANS.

To resolve the question of component classification, the staff met on September 15, 1982, with representatives of ANS and other interested organizations and discussed in detail the existing NRC and industry practices for classification of safety-related components and related problems. Those persons attending the meeting agreed that classification is more appropriately a subject for a regulatory guide than for a regulation since classifications are frequently plant specific and involve so many variables that regulatory controls need to be more flexible. As a result, the NRC has revised the final rule to eliminate detailed classification of components. Instead, general guidance has been added for establishing the classifications. Further, the NRC staff has agreed to evaluate the ANS classification systems for referencing in a Regulatory Guide.

A copy of the comments received on the proposed rule and an abstract of the comments which gives the staff response to each issue raised by the commentors is available for public inspection and copying for a fee at the Commission's Public Document Room at 1717 H Street NW., Washington, DC. Single copies may be obtained by written request to the Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: A. Taboada.

#### Rulemaking Background

Commission policy, stated in General Design Criterion 1, "Quality Standards and Records" (10 CFR Part 50, Appendix A) and in § 50.55a, prescribes that structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed. In this regard, on June 12, 1971 (36 FR 11423), the Commission incorporated by reference in § 50.55a several codes published by the American Society of Mechanical Engineers (ASME) to be applied to the construction of components of the reactor coolant pressure boundary of water-cooled nuclear power reactors. Section III of the ASME Boiler and Pressure Vessel Code, applicable at that time only to nuclear vessels, was incorporated by reference to establish standards for vessels. Other ASME codes (described below) of more general application were incorporated by reference to establish standards for piping, pumps, and valves.

Subsequently, the ASME Boiler and Pressure Vessel Code Committee expanded Section III of the Code to apply to other nuclear power plant components (including piping, pumps,

### ➤ 49 FR 9352

Published 3/12/84

Effective: Upon approval of OMB or 6/7/84.

*Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments*

See Part 51 Statements of Consideration

### ➤ 49 FR 9711

Published 3/15/84

Effective 5/14/84

### 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 which incorporate by reference national codes and standards for the construction of nuclear power plant components. The amendments increase specific references to the ASME Boiler and Pressure Vessel Code to include subsections that provide rules for the construction of certain safety

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and valves) in addition to nuclear vessels. The expansion included many of the appropriate provisions from the more general codes incorporated by reference in § 50.55a on June 12, 1971.

On February 12, 1976 (41 FR 6256), the Commission amended § 50.55a to make the expanded Section III effective code for piping, pumps, and valves of the reactor coolant pressure boundary for water-cooled nuclear plants for which construction permits were issued on or after July 1, 1974. The amendment limited use of the more general codes to plants for which construction permits were issued before July 1, 1974.

Section III of the Code is regularly updated by ASME in new editions and addenda to include new developments and to reflect experience with the use of the Code. Those parts of the new editions and addenda that pertain to the reactor coolant pressure boundary are reviewed by the Commission staff and, if acceptable, are incorporated by reference in § 50.55a. Although not specifically included in the regulations, the remaining parts of Section III that pertain to other systems are also reviewed by the Commission staff and, if acceptable, are used in the evaluation of specific license applications. Several parts of Section III that apply to Class 2 and 3 components have been used as guidance in this manner for approximately 10 years and are referenced in Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants."

Presently, other parts of the ASME Nuclear Code (Section III) cover metal containments, component supports, core support structures and concrete vessels. It is the intent of the Commission to incorporate by reference specific parts of the ASME Nuclear Code after appropriate evaluations and as adequate experience with use of each part of the Code confirms its acceptability.

### *Substance of the Final Rule*

Now that experience has shown additional parts of Section III of the ASME Boiler and Pressure Vessel Code to be adequate for use on a general basis, the Commission is adding specific references to these additional parts in § 50.55a. These additions include the requirements for Class 2 Components, which are found in Subsections NC and NCA of the Code, and the requirements of Class 3 Components, which are found in Subsections ND and NCA of the Code.

To clarify the requirements of § 50.55a, the Commission is also deleting obsolete incorporations by reference of general codes which are superseded by Section III of the ASME Code. However,

any previous acceptance of general codes by the Commission for nuclear plants for which construction permits were issued prior to these deletions will continue to be in effect, and deletion of these Codes from § 50.55a should not be construed otherwise. The Codes being deleted include:

(a) For piping of the Reactor Coolant Pressure Boundary—

- American Standard Code for Pressure Piping, ASA B31.1
- USA Standard Code for Pressure Piping, USAS B31.1.0
- USA Standard for Nuclear Power Piping, USAS B31.7
- ASA B31.1 Code Cases N7, N9 and N10

(b) For pumps of the Reactor Coolant Pressure Boundary—

- Draft ASME Code for Pumps and Valves for Nuclear Power
- ASA B31.1 Code Cases N7, N9, and N10

(c) For valves of the Reactor Coolant Pressure Boundary—

- American Standard Code for Pressure Piping ASA B31.1
- USA Standard Code for Pressure Piping USAS B31.1.0
- Draft ASME Code for Pumps and Valves for Nuclear Power
- ASA B31.1 Code Cases N2, N7, N9 and N10

The Commission is also making two procedural changes in the amendment to § 50.55a. One change deals with the need for NRC authorization for a proposed alternative to requirements in the regulation. The amendment clarifies the existing regulation by providing that the Director of the Office of Nuclear Reactor Regulation may authorize alternatives to the requirements in § 50.55a after demonstration by the applicant that (a) the proposed alternative would provide an acceptable level of quality and safety or (b) compliance with specific requirements would result in a hardship or unusual difficulty without a compensating increase in the level of quality or safety.

The other procedural change deletes the obsolete provision of paragraph (a) that exempts nuclear components constructed to ASME Code rules from the Code requirement that the Code N-symbol stamp be applied to these components. This exemption was initiated when there was no provision for foreign suppliers to comply with the administrative enforcement aspect of the Code. Previously, foreign suppliers, fully qualified in other respects, could not be issued a Code N-symbol stamp to apply to components and, hence, would have been excluded from supplying components for domestic nuclear plants.

This situation has been changed and foreign suppliers may now be issued Code N-symbol stamps.

### **Regulatory Analysis**

The Commission has prepared a regulatory analysis for this regulation. The analysis examines the costs and benefits of the rule as 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, D.C. Single copies of the analysis may be obtained from A. Taboada, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (301) 443-7903.

### **Paperwork Reduction Act Statement**

The application, reporting and recordkeeping requirements contained in this proposed regulation have been approved by the Office of Management and Budget; OMB approval No. 3151-0011.

### **Regulatory Flexibility Statement**

This rule (§ 50.55a) requires that certain nuclear power plant components be constructed to the nuclear section of the ASME Boiler and Pressure Vessel Code, the standard used by the nuclear industry to comply with the NRC General Design Criteria and Quality Assurance Criteria. To attest that a component has been found to meet all of the specified Code requirements, the ASME Code requires that the component be stamped with a Code N-Stamp issued to manufacturers qualified through an ASME accreditation survey. The ASME Code also calls for specific inspections and verifications of records by an independent Authorized Inspection Agency (AIA) established by a legal authority (state or municipality). This amendment to § 50.55a expands the applicability of the ASME Code and removes obsolete provisions and the exemption, previously in the rule, that the Code N Symbol Stamp need not be applied.

The direct cost incurred by a small manufacturer as a result of this amendment will vary depending on the circumstances. An estimated 550 manufacturers, approximately 10% of which may be small manufacturers, are already certified as N-Stamp holders by ASME, and it is assumed that they would not incur new costs. An ASME accreditation survey (i.e., audit and evaluation) costs a manufacturer an average of \$9000 and recurs at 3 year intervals. The cost for Authorized Inspection Agency services is approximately \$250 per day per inspector plus expenses. This service for a small manufacturer would typically include two (one-day) audits per year

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and three inspection visits per order but would vary depending on the complexity of the components being manufactured.

On this basis, the direct cost for a small manufacturer to maintain code accreditation and provide the required third party (AIA) inspection is estimated to be as high as \$3500 per year assuming that the cost of inspection visits are applied to the price of the component. For multiorders the cost per order for accreditation would be less.

Approximately 30 new firms per year, some of which are expected to be small firms, apply for ASME accreditation to be N stamp holders. For these firms, particularly if new to the nuclear field, additional indirect costs may be incurred in establishing and maintaining an ASME certified shop. Such indirect costs might result from complying with, for example, code requirements for qualifying welders, establishing specific quality control programs, and maintaining appropriate procedures and records. However, since Appendices A and B of 10 CFR Part 50 already require quality standards and a quality assurance program that parallels the ASME Code requirements, and in fact, the ASME Code has become the NRC and industry standard for compliance with these appendices, the costs associated with meeting requirements of Appendices A and B are estimated to be substantially equivalent to the cost of meeting ASME Code requirements. Therefore, the NRC estimates that no major additional cost would be incurred as a result of this rule, by a small manufacturing shop providing nuclear quality products.

The NRC requested comments on the economic impact of this rule on small businesses in the proposed amendment. No comments were received from small businesses. However, two operating utilities commented that this rule would, in effect, preclude the occasional purchase of spare parts or renewal parts from some small shops who probably would not find it economically feasible to establish and maintain an ASME certified shop. NRC estimates that the number of small shops so affected would be few and would not constitute a substantial number of the small businesses involved in nuclear component construction. Further, the rule contains a provision to permit alternatives to specific ASME Code requirements, in case of hardships, that would, in effect, permit the use of such uncertified shops if an equivalent level of quality and safety were provided.

Thus, in accordance with the Regulatory Flexibility Act, 5 U.S.C.

605(b), the NRC hereby certifies that this rule will not have a significant economic impact upon a substantial number of small entities.

### 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.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of Title 5 of the United States Code, the following amendments to 10 CFR Part 50 are published as a document subject to codification.

49 FR 10657

Published 3/22/84

### 10 CFR Part 50

#### Codes and Standards for Nuclear Power Plants

##### Correction

In FR Doc. 84-6953 beginning on page 9711 of the issue Thursday, March 15, 1984, make the following corrections:

1. On page 9713, third column, in the first line of § 50.55a (a)(2), "System" should be "Systems".

2. On page 9714, second column, in § 50.55a (c)(4) and (d)(1), replace the parenthetical expression with "May 14, 1984".

3. On the same page, third column, in the fourth line of footnote 9 to § 50.55a, "50.349b)" should be "50.34(b)".

49 FR 19623

Published 5/9/84

Effective 5/9/84

##### Information Collection Requirements; Display of OMB Control Numbers

#### See Part 0 Statements of Consideration

49 FR 24512

Published 6/14/84

Effective 6/7/84

##### Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments

#### See Part 2 Statements of Consideration

49 FR 26036

Published 6/26/84

Effective 7/26/84

### 10 CFR Part 50

#### Reduction of Risk from Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to require improvements in the design and operation of light-water-cooled nuclear power plants to reduce the likelihood of failure of the reactor protection system to shut down the reactor (scram) following anticipated transients and to mitigate the consequences of anticipated transients without scram (ATWS) event. The final rule requires the installation of certain equipment in nuclear power plants. It also encourages the development of a reliability assurance program for the reactor trip system on a voluntary basis. This will significantly reduce the risk of nuclear power plant operation.

**EFFECTIVE DATE:** July 26, 1984.

##### FOR FURTHER INFORMATION CONTACT:

David W. Pyatt, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 443-7631.

##### SUPPLEMENTARY INFORMATION:

An anticipated transient without scram (ATWS) is an expected operational transient (such as a loss of feedwater, loss of condenser vacuum, or loss of offsite power to the reactor) which is accompanied by a failure of the reactor trip system (RTS), a part of the protection system, to shut down the reactor. The reactor trip system consists of those power sources, sensors, initiation circuits, logic matrices, bypasses, interlocks, racks, panels and control boards, and actuation and actuated devices that are required to initiate reactor shutdown; this includes circuit breakers, the control rods and control rod mechanisms. That portion of the RTS exclusive of the control rods and control rod mechanisms is here referred to as the scram system. ATWS accidents are a cause of concern because under certain postulated conditions they could lead to severe core damage and release of radioactivity to the environment. The ATWS question involves safe shutdown of the reactor during a transient, if there is a failure of the RTS. There have been precursors to an ATWS; the latest was a failure of the automatic portion of the RTS at the Salem 1 nuclear generating station on February 25, 1983. In that incident, manual shutdown was accomplished after 30 seconds, and no core damage or release of radioactivity occurred.

On November 24, 1981, the Commission invited comments on three

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alternative proposed rules relating to ATWS (46 FR 57521). Each of the three alternative proposed rules had the objective of reduction of risk from ATWS and each featured a different approach to achieve that objective. One alternative (the Staff Rule) emphasized individual reactor evaluation to identify needed improvements. The second alternative (the Hendrie Rule) emphasized reliability assurance and would have also required certain hardware modifications. The third alternative, proposed by the Utility Group on ATWS in petition for rulemaking PRM 50-29, prescribed specific changes that were keyed to the type of reactor and its manufacturer.

Thirty-nine public comments were received at or close to the April 23, 1982 deadline for submission of comments. An additional comment was received on June 24, 1982. Copies of the comments may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C. The following organizations and individuals provided comments:

1. F. I. Lewis, Philadelphia, Pennsylvania (private citizen)
2. S. L. Hiatt, Mentor, Ohio (private citizen)
3. Washington Public Power Supply System (WPPSS)
4. Standardized Nuclear Unit Power Plant System (SNUPPS)
5. South Carolina Electric and Gas Company (South Carolina)
6. General Electric Company (GE)
7. Duke Power Company (Duke)
8. Atomic Industrial Forum (AIF)
9. Detroit Edison (DE)
10. Mississippi Power and Light Company (MP&L)
11. Texas Utilities Generating Company (TUGG)
12. Commonwealth Edison Company
13. Combustion Engineering, Incorporated (CE)
14. The Utility Group on ATWS, representing 22 utilities
15. Combustion Engineering Owners Group
16. Houston Lighting and Power (HL&P)
17. Portland General Electric Company (PGEC)
18. GPU Nuclear (GPU)
19. Babcock and Wilcox Company (B&W)
20. Ebasco Services, Incorporated (Ebasco)
21. Public Service Electric and Gas Company (PSE&G)
22. Carolina Power and Light Company (CP&L), first comment
23. Stone and Webster Engineering Corporation (S&W)
24. Florida Power Corporation (FPL)
25. Gulf States Utilities Company (Gulf)
26. Duquesne Light Company
27. Wisconsin Public Service Corporation (WPSC)
28. Pacific Gas and Electric Company (PG&E)
29. Tennessee Valley Authority (TVA)
30. Pennsylvania Power and Light Company (PP&L)
31. Virginia Electric and Power Company (VEPCO)
32. Arkansas Power and Light Company (AP&L)
33. Alabama Power Company (Alabama)

34. Wisconsin Electric Power Company (WEPC)
35. Power Authority of the State of New York (PASNY)
36. Yankee Atomic Electric Company (Yankee)
37. Public Service Company of Indiana (Indiana)
38. Northeast Utilities Service Company (NUSCO)
39. Carolina Power and Light Company (CP&L), second comment
40. American Electric Power Service Corporation (received June 24, 1982)

Following are members of the Utility Group on ATWS, the petitioner in the PRM-50-29.

Arkansas Power and Light Company  
Boston Edison Company  
Connecticut Yankee Power Company  
The Detroit Edison Company  
Florida Power Corporation  
Gulf States Utilities Company  
Maine Yankee Atomic Power Company  
Northeast Nuclear Energy Company  
Pacific Gas and Electric Company  
Public Service Electric and Gas Co.  
Washington Public Power Supply System  
Baltimore Gas and Electric Company  
Commonwealth Edison Company  
Consumers Power Company  
Duke Power Company  
Florida Power and Light Company  
Long Island Lighting Company  
Nebraska Public Power District  
Omaha Public Power District  
Pennsylvania Power and Light Company  
Vermont Yankee Nuclear Power Corp.

The breakdown by preference among commenters for the three alternative proposed rule approaches is as follows:

### *Support "Utility Rule" (PRM-50-29)*

WPPSS  
DE  
Commonwealth Edison  
The Utility Group on ATWS  
HL&P  
Ebasco  
PSE&G  
FPL  
Gulf  
PP&L  
Yankee

*Support "Hendrie Rule"* (Most support for this option is tentative with many reservations.)

South Carolina  
Duquesne  
CP&L, first comment (could also be considered a "No Rule" choice)  
WPSC  
VEPCO  
S&W

### *Favor No Rule*

SNUPPS  
GE  
Duke  
AIF  
MP&L  
TUGG  
CE

CE Owners Group  
PGEC  
GPU  
B&W  
PG&E  
AP&L  
Alabama  
WEPC  
Indiana  
CP&L, second comment  
NUSCO  
American Electric

The Staff Rule option was favored by Ms. S. L. Hiatt who commented that it was the most stringent of the three proposals, but that it would be better to return to the implementation of specific hardware changes than to require evaluation models. Commenters TVA and PASNY stated a preference for "Alternative 2A" of NUREG-0460<sup>1</sup>, Vol. 4, which is very similar to the Utility Rule. The comments from Mr. M. I. Lewis did not favor any of the alternatives, but he pointed out limitations of both NRC-proposed rules (limitations of modeling) and felt that the Commission was not fully addressing ATWS.

Most of the utility commenters preferred that the Commission promulgate no rule on ATWS. However, many commenters chose either the Utility Rule or the Hendrie Rule as the more favorable of the alternatives presented (including some commenters within the Utility Group). The No Rule category described above includes those who felt that the risks from ATWS are already sufficiently low, plus those who recommended combining the ATWS rulemaking with other Commission activities such as the Severe Accident Program or the development of a Safety Goal.

The comments provided by the Utility Group on ATWS consisted of a three volume technical report which includes a review and evaluation of past NRC and industry studies, a generic but substantial probabilistic risk assessment of the issue for each NRCSS vendor, and a value-impact analysis of all three proposed rules. The conclusions are:

1. The Staff and Hendrie Rules fail the value-impact test.

2. Only the Utility Rule is consistent with current NRC policies.

3. The record and notice for the Staff and Hendrie Rules are inadequate.

In order to resolve the ATWS rule issue, it was necessary for the NRC staff to evaluate the Utility Group report. This was done by a technical assistance contract.

A report which provided a critique of the Utility Group comments was prepared by Energy Incorporated

<sup>1</sup> A free single copy of NUREG-0460, Vol. 4, to the extent of supply, may be requested for public comment by writing to the Publication Services Section, Document Management Branch, Division of Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

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through Sandia National Laboratories and may be examined at the Commission's Public Document Room (PDR) at 1717 H Street, Washington, D.C. Also, a summary of 39 public comments, as well as a plan to resolve the ATWS rule, is available in SECY-82-275 at the PDR.

As proposed in SECY-82-275 and the Commission briefing on July 13, 1982, a Task Force and Steering Group of NRC personnel from several offices was formed to consider the following alternatives:

1. Promulgation of no ATWS rule or including ATWS under the Severe Accident Program;
2. Adoption of the proposed or a modified version of the Utility Group Rule (PRM-50-29);
3. Adoption of the Staff Rule or a modification of it; or
4. Adoption of those portions of the Hendrie Rule for which there exists a technical basis.

The Commission has given careful consideration to all the comments and is now publishing a final rule. This final rule uses in part the same approach that is used in the Utility Group's petition for rulemaking. Prescribed changes, keyed to the reactor's type and manufacturer, are set out in the final rule. The costs and values of these changes and of other considered changes are discussed in a document on file in the Commission's Public Document Room, entitled "Recommendations of the ATWS Task Force."

### Summary of Staff, Hendrie, and Utility Rules

The Staff Rule (46 FR 57521) would have resolved ATWS by establishing performance criteria (e.g., there would be analyses to verify that Service Level C of the ASME Boiler and Pressure Vessel Code would not be exceeded, fuel integrity would be maintained, there would be no excessive radioactivity release, the containment would not fail, and long-term shutdown and cooling would be assured). The Hendrie Rule (46 FR 57521), while using much of the same information base as the Staff Rule, proposed to resolve ATWS by establishing a reliability assurance program for systems that prevent or mitigate ATWS accidents and prescribing certain hardware modifications which would allow for: (1) Automatically tripping recirculation pump of a BWR under conditions indicative of an ATWS; (2) automatically actuating the standby liquid control system (SLCS) for BWRs; (3) providing a reliable scram discharge volume for BWRs; (4) providing for the prompt, automatic initiation of the auxiliary feedwater system for conditions indicative of an ATWS; and (5) assuring that the instruments

necessary for the diagnosis of and recovery from ATWS accident sequences will not be disabled. Finally, the Utility Rule proposed specific design modifications for each reactor manufacturer. It contained proposals that: (a) all Westinghouse reactors have initiation of the auxiliary feedwater system and turbine trip diverse from the reactor protection system; (b) all Combustion Engineering and Babcock and Wilcox reactors have diverse initiation of auxiliary feedwater and turbine trip (similar to Westinghouse) and a diverse scram system; and (c) existing boiling water reactors manufactured by General Electric have (1) a means to trip the recirculation pumps upon receipt of a signal indicative of an ATWS, (2) a diverse scram system, and (3) a modification of the scram discharge volume. Also, new (three years after the rule becomes effective) General Electric plants would have a standby liquid control system increased to 86 gpm and all reactor licensees would institute training for operators.

### Basis for Final Rule as Promulgated by the Commission

The vast majority of the commenters felt that the approach of the Staff Rule was too open-ended in terms of costs to resolve ATWS (e.g., the analyses could be very costly and time consuming). The Hendrie Rule was found difficult to interpret by most commenters. The ATWS Steering Group opted to evaluate generic plants, in a fashion similar to the Utility Group approach, and define the various fixes and estimate the reduction in probability for ATWS sequences as each additional requirement was added. This would then give a value (reduction in risk) that could be compared to the impact (cost in dollars) of each incremental requirement. There are large uncertainties in these analyses, and the detailed results of the analyses can be found in the report entitled "Recommendations of the ATWS Task Force" (discussed above). A brief discussion of the final rule's provisions, including value/impact evaluations, is given next:

#### *Diverse and Independent Auxiliary Feedwater Initiation and Turbine Trip for PWRs: § 50.62(c)(1)*

This was proposed by the Utility Group on ATWS. It consists of equipment to trip the turbine and initiate auxiliary feedwater independent of the reactor trip system. It has the acronym AMSAC, which stands for Auxiliary (or ATWS) Mitigating Systems Actuation Circuitry. It has a highly favorable value/impact for Westinghouse plants<sup>2</sup> and a marginally favorable

<sup>2</sup>The installation of a diverse scram system significantly affects the value/impact of AMSAC.

value/impact for Combustion Engineering and Babcock and Wilcox plants. Since it has the potential for a spurious trip of the reactor which reduces its value/impact, it should be designed to minimize these trips.

#### *Diverse Scram System: 50.62 (c)(2) and (c)(3)*

This was proposed by the Utility Group on ATWS for General Electric, Combustion Engineering, and Babcock and Wilcox plants. It has a favorable value/impact from the Staff's analysis. However, the principal reasons for requiring the feature are to assure emphasis on accident prevention and to obtain the resultant decrease in potential common cause failure paths in the trip system. It also has the potential for a spurious trip of the reactor; therefore, it should be designed to minimize spurious trips. For General Electric plants, installation may extend by one or two days the downtime during a refueling outage.

A diverse scram system for Westinghouse plants was not a recommendation of the Utility Group on ATWS and was not a clear requirement of the Staff Rule or the Hendrie Rule; although the Utility Group on ATWS interpreted the Staff Rule to include it. The system does, however, have a marginally favorable value/impact for Westinghouse plants, assures emphasis on accident prevention, and results in a minimization of the potential for common cause failure paths. To assure full opportunity for public comment, the requirement for a diverse scram system for Westinghouse plants will be published separately as a proposed rule.

#### *Increased Standby Liquid Control System (SLCS): § 50.62(c)(4)*

The SLCS is a system for injecting boric acid water into the reactor primary coolant system. The neutron absorption by the boron causes shutdown of the reactor. Addition of this system was proposed by the Utility Group on ATWS for new plants (those receiving an operating license three years after the effective date of the final rule). The Commission believes that, with the use of the Emergency Procedure Guidelines proposed by the BWR Owners Group and General Electric that are being implemented at operating BWRs, increasing the SLCS capacity for operating plants may insure an intact containment for isolation transients, although there is uncertainty in containment failure modes. Because of the vulnerability of BWR containments to ATWS sequences, the Commission has determined that this enhanced mitigation feature is warranted. The high pressure portion of the ECCS of BWR/5 and BWR/6 licensees (HPSC) is injected into spray spargers in the core exit plenum. For these plants, the

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preferred location for the injection of the borated water from the SLCS is the HPCS line just external to the reactor vessel instead of the standpipe at the core inlet plenum. A similar location is preferred for those BWR/4 licensees with HPCI injection into spargers in the core exit plenum. This injection location provides significant improvement in mixing of the borated water, particularly under low vessel water level conditions such as encountered when the EPGs are followed. This injection location is also preferred, since it could prevent local power increases and possible power excursions during the recovery phase of an ATWS when cold unborated ECCS water could be added above the core. Some BWR/5 and BWR/6 licensees already have this injection location and have designed the SLCS accordingly.

### *Automatic Recirculation Pump Trip for BWRs: § 50.62(c)(5)*

Recirculation pump trip (RPT) was proposed as a rule requirement by the Utility Group on ATWS. This safety feature will result in a reduction of reactor power from 100 percent to about 30 percent following a transient (and failure to scram) within a minute or so. This proposed requirement has already been implemented on all operational BWRs in response to a show cause order dated February 21, 1980. The BWR owners generally agree that this is a necessary requirement, and it is being included in the final rule for completeness.

### *Automatic Initiation of Standby Liquid Control System*

One of the alternatives considered by the Task Force was an automatically initiated standby liquid control system with a capacity of greater than 88 gpm (such as 150-200 gpm). This would have resulted in a considerable risk reduction (about a factor of seven) after the ARI is installed for operating plants. Unfortunately, the cost to do this (based on information supplied by the Utility Group on ATWS) is on the order of \$24 million per plant and is significantly impacted by the costs of downtime from an inadvertent trip which would inject boron into the reactor water and by the costs of downtime for installation in existing plants. The value/impact does not favor this alternative for existing plants.

New plants (those which will receive construction permits after the effective date of this rule) will be required to have equipment for automatic initiation of the SLCS. Most of those plants already have been designed for this feature. Also, other plants that have been designed and built to include this feature must utilize the feature. The equipment for automatic SLCS actuation should be designed to perform its

function in a reliable manner and to provide high reliability against spurious actuation.

### *Adding Extra Safety Valves or Burnable Poisons*

One of the alternatives considered by the Task Force was adding more safety valves to plants manufactured by Combustion Engineering (CE) and Babcock and Wilcox (B&W). This would reduce the peak pressure in the reactor vessel and yield a higher probability of the plant surviving an ATWS with no core damage. The peak overpressure could also be reduced by modifying the core behavior (the fraction of the time the moderator temperature coefficient is unfavorable) by adding burnable poisons. The Utility Group on ATWS estimated that installing larger valve capacity could cost up to \$10 million per plant. A large fraction of this cost is the downtime for installation of the valves. While the probability of ATWS can be reduced about a factor of three or more, the value/impact is unfavorable for this alternative for existing plants. These plants all have large dry containments and will be most able to mitigate the radiological consequences from an ATWS. This rule does not cover enhanced pressure relief capacity for new CE and B&W plants. However, the Commission expects that this issue would be addressed during the NRC's design review of any specific new plant or standard plant application.

### *Need for all Control Rods to be Inserted for PWRs*

By using soluble boron for burnup and xenon control, PWRs normally operate at or near 100 percent power with control rods nearly out (except for some Babcock and Wilcox "rodged" reactors which keep one bank inserted for xenon control). Thus, nearly all rods are available to participate in a scram.

Insertion of only about 20 percent (approximately 10) of the control rods is needed to achieve hot, zero power provided that the inserted rods are suitably uniformly distributed. What is important is the uniform spacing of the rods. In installing a diverse scram system, the licensee can allow for partial scram failures if it is demonstrated that the rod insertion pattern is sufficiently uniformly spaced such that a hot, zero power is achieved.

### *Considerations Regarding Reliability Assurance*

As a result of the failure of the Salem Unit 1 reactor to scram automatically on February 25, 1983, the NRC conducted an investigation of the events (see NUREG-0977, "NRC Fact-finding Task Force Report on the ATWS Events at Salem Nuclear Generating Station, Unit

1, on February 25, 1983"<sup>3</sup>). One of the principal findings was the lack of adequate attention being paid to the reliability of the reactor trip system. The Salem Generic Issues Task Force recommended to the Commission that a reliability assurance program be included in the final ATWS rule (NUREG-1000, Volume 1, "Generic Implications of ATWS Events at the Salem Nuclear Power Plant"<sup>4</sup>). While this rule does not require such a program, the Commission urges the voluntary development of a reliability assurance program for the RTS.

The reliability assurance program should have the following elements:

1. An analysis of the challenges to and failure modes of the RTS system, considering independent failures quantitatively and common cause failures qualitatively. An estimate of the challenge rate and the reliability of the RTS should be a part of the analysis.
2. A numerical performance standard for the RTS challenges and the RTS unavailability to use as an aid in the initial and continuing evaluation of the adequacy of the system.
3. A process of evaluating plant-specific and industry-wide operating experience to provide feedback to assess whether the RTS is performing reliably enough.
4. Procedures within quality assurance programs to ensure that the RTS performs satisfactorily in service from a reliability perspective. The frequency of challenges to the RTS should be as low as practicable.

A pivotal aspect of the ATWS issue is the reliability of the reactor trip system (RTS), including the control rods, and the difficulty associated with assessing the impact of common cause failures on the availability of the system to function when required. All RTS systems are designed for high availability, yet ATWS precursors at Kahl and Browns Ferry 3, and the ATWS event at Salem 1 did occur and were the result of common cause failures of the RTS. The Kahl and Brown Ferry 3 incidents were described in the Federal Register notice containing the proposed rules which was published on November 24, 1981 (46 FR 57521). The Salem 1 incident occurred after the proposed rules were published.

An analysis of the RTS should be performed using existing methodologies for quantitative evaluation of system reliability (e.g., unavailability). A fault tree and qualitative common cause failure analysis should be performed to identify the potential important faults of

<sup>3</sup>Copies of NUREG-0977 and 1000 may be purchased by calling (301) 492-9530 or by writing to the Publication Services Section, Document Management Branch, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; or purchased from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.



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the RTS. Examples of quantitative analysis for the RTS are: WASH-1400 (the Reactor Safety Study) <sup>4</sup>, the Indian Point Probabilistic Safety Study <sup>5</sup>, the Zion Probabilistic Safety Study <sup>6</sup>, and other probabilistic safety studies performed by industry at their own initiative or at the request of the Commission. There are an estimated 15-20 probabilistic studies of plants that have been performed or are being performed, although some of these do not include detailed RTS analyses.

Additional methodological guidance is given in the PRA Procedures Guide, NUREG/CR-2300 <sup>6</sup>, January 1983. This Guide was developed jointly by the Commission, the American Nuclear Society and the Institute of Electrical and Electronic Engineers.

Each licensee should establish a goal or benchmark to assess the performance of the trip system. The Commission and the industry have had considerable disagreement about the "correct" or "appropriate" value of RTS unavailability. It would be more fruitful for each licensee to have a benchmark for comparison as the plant operates and generates new data. The treatment of common cause failures will be analyzed in a qualitative fashion to determine if there are any significant failure modes previously unidentified. The cost of doing this can be minimized by forming or using existing owners groups, since there is much commonality in RTS designs.

Each licensee, as part of the RTS unavailability analysis, should examine its maintenance, surveillance, and testing requirements. The testing frequency would be examined to determine if testing is done too often or not often enough. The type of testing, e.g., completeness and sequencing of component verification for operability, would be thoroughly reviewed. The nature and frequency of maintenance, e.g., lubrication, cleaning, calibration, dimensional verification, physical movement, would be reviewed. Recordkeeping procedures should be reviewed.

The Commission believes that a reliability assurance program for the reactor trip systems should be developed and implemented, with clear

objective of providing additional assurance that the desired high reliability of the RTS is indeed achieved and maintained. Operating experience in the United States appears to demonstrate, in some instances, that implementation of Appendix A (particularly General Design Criterion 21) and Appendix B to 10 CFR Part 50, and other NRC regulatory requirements may not have yielded the degree of reliability that is possible to achieve with available technology in a cost-effective manner. One reason for this failure might be that a reliability standard has not been sufficiently developed nor quantitatively set down in procedures. Another reason might be a failure to understand fully the dominant role played by common cause failures.

The techniques for a reliability assurance program are in existence. They have been applied in an orderly, structured fashion in defense and aerospace applications since at least the 1960s. However, details of its application to a commercial nuclear power plant have not been worked out. Therefore, it is strongly recommended that the development of a voluntary reliability assurance program, limited to the reactor trip system, be performed jointly by the NRC and industry, appropriately coordinated with INPO, EPRI, and the various owners groups. If this program is not voluntarily implemented in an effective manner, the Commission will reconsider the question of rulemaking in this area.

The development of industry programs on a voluntary basis has precedence in the evaluation of operating data for commercial nuclear power plants. The industry has developed the Nuclear Plant Reliability Data (NPRD) System as a voluntary program for the reporting of reliability data. The NPRD system is now undergoing a program of substantial improvement under INPO direction with close NRC interest. Even while such improvement is underway, the NPRD system is a valuable element of a reliability assurance program.

### Challenges to Safety Systems

This rule concerns itself with mitigating systems which are intended to reduce the challenge to plant safety systems due to a low probability ATWS event. However, the Commission has concluded that a reduction in the frequency of challenges to plant safety systems should be a prime goal of each licensee, and the Commission believes that ATWS risk reductions can also be achieved by reducing the much larger frequency of transients which call for the reactor protection system to operate. Challenges to the reactor protection

system may arise from such things as: Unreliable components, inadequate post-trip reviews, testing, and tolerance of inadequate or degraded control systems. Operating experience in Japan indicates a transient frequency that is substantially less than in the United States. Utilities have categorized transients for over ten years but have not specifically instituted a program to reduce them. While not specifically required by this rule, the Commission urges licensees to analyze challenges to the plant safety systems, particularly the reactor trip system, so as to determine where improvements can be made.

### Considerations Regarding System and Equipment Criteria

The Commission places a high premium on hardware, operating practices and maintenance practices which will reduce the frequency of challenges to plant safety systems. Therefore equipment required by this rule should be of sufficient quality and reliability so as to perform its intended function while at the same time minimizing the potential for transients, e.g., inadvertent scrams, which challenge other safety systems.

The additional equipment required by this amendment to implement diversity for auxiliary feedwater system initiation, turbine trip, recirculation pump trip, and reactor trip, while required to be reliable, will not have to meet all of the stringent requirements normally applied to safety-related equipment. The equipment required by this amendment is for the purpose of reducing the probability of unacceptable consequences following anticipated operational occurrences. Since the combination of an anticipated operational occurrence, failure of the existing reactor trip system, and a seismic event or an event which results in significant plant physical damage has a low probability, seismic qualification and physical separation criteria need not be applied to the equipment required by this rule. In view of the redundancy provided in existing reactor trip systems, the equipment required by this amendment does not have to be redundant within itself.

The amendment is to require diversity to those portions of existing reactor trip systems, where only minimal diversity is currently provided. The logic circuits and actuation devices (e.g., circuit breakers on pressurized water reactors) in existing reactor trip systems utilize redundant, but in general identical, components and thus are subject to potential common cause failures. Existing reactor trip systems, however, measure a variety of plant parameters and utilize a variety of sensor types. Common cause failures in the diverse sensors of existing reactor trip systems are considered sufficiently unlikely that

<sup>4</sup> Microfilm copies are available for purchase from the Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

<sup>5</sup> These may be examined at the NRC Public Document Room, 1717 H Street, NW., Washington, D.C. 20555.

<sup>6</sup> Copies of this NUREG may be purchased by calling (301) 492-9530 or by writing to the Publication Services Section, Document Management Branch, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; or purchased from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

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additional sensor diversity is not necessary. Even though sensor diversity is not necessary, it is desirable that sensors in the existing reactor trip system not be used to provide the signals for the diverse equipment required by this amendment. Use of the same sensor for the existing reactor trip system and the diverse equipment would result in interconnections between the two systems that are difficult to analyze and which could increase the potential for common cause failures affecting both systems. Since the sensors for the equipment required by this amendment do not have to be safety related, there should be considerable flexibility for using existing sensors without using reactor trip system sensors. However, there may be some cases where the use of less than safety-related sensors would result in increased risk from frequent safety system challenges or where it would not be cost effective to use sensors separate from those in the existing reactor trip system. This is particularly the case where not using sensors in the existing reactor trip system would result in the need to install a new sensor connected to the reactor coolant system. This could result in significant radiation doses to personnel making the modifications. Another case would be where installation of additional containment penetrations would be required. In cases where existing protection system sensors are used to provide signals to the diverse equipment, particular emphasis should be placed on the design of the method used to isolate the signal from the existing protection system to minimize the potential for adverse electrical interactions.

The equipment required by this amendment must be implemented such that it does not degrade the existing protection system. This is to be accomplished by making the diverse equipment electrically independent to the extent practicable from the existing protection system and by insuring that the existing protection system will continue to meet all applicable safety-related criteria after installation of the diverse equipment.

The following table illustrates the system specifications that the staff would find acceptable for the diverse scram and mitigating systems. The staff will publish this guidance in a Regulatory Guide or Standard Review Plan revision which will also cover testing, maintenance, and surveillance. Additionally, the staff will issue explicit QA guidance for the non-safety related equipment in the form of a generic letter. The generic letter will specify which requirements of the following sections of

Appendix B are to be applied to non-safety related equipment: (1) Instructions, procedures, and drawings. (2) document control. (3) inspection. (4) test control. (5) control of measuring and testing equipment. (6) inspection, test, and operating status. (7) corrective action. and (8) quality assurance records.

### Exemptions

Some of the older operating nuclear power plants (e.g., those licensed to operate prior to August 22, 1969) may be granted an exemption from these amendments if they can demonstrate that their risk from ATWS is sufficiently low. Factors important to this demonstration could be power level, unique design features that could prevent or mitigate the consequences of an ATWS, remaining plant lifetime, or remote siting.

## GUIDANCE REGARDING SYSTEM AND EQUIPMENT SPECIFICATIONS

System Guidance	Diverse Reactor Trip System	Mitigating Systems (Recirculation Pump Trip and Automatic SLCS actuation for BWRs: Auxiliary Feedwater Actuation and Turbine Trip for PWRs)*
Safety Related (IEEE-279)	Not required, but the implementation must be such that the existing protection system continues to meet all applicable safety related criteria.	Not required, but the implementation must be such that the existing protection system continues to meet all applicable safety related criteria.
Redundancy	Not required.	Not required.

\* Existing recirculation pump trip equipment installed in BWRs in accordance with previous staff requirements for the mitigation of anticipated transients without scram need not be modified.

System Guidance	Diverse Reactor Trip System	Mitigating Systems (Recirculation Pump Trip and Automatic SLCS actuation for BWRs: Auxiliary Feedwater Actuation and Turbine Trip for PWRs)*
Diversity from existing Reactor Trip System	Equipment diversity to the extent reasonable and practicable to minimize the potential for common cause failures is required from the sensors to, and including the components used to interrupt control rod power or vent the scram air header. Circuit breakers from different manufacturers alone is not sufficient to provide the required diversity for interruption of control rod power. The sensors need not be of a diverse design or manufacturer. Existing protection system instrument-sensing lines may be used. Sensors and instruments-sensing lines should be selected such that adverse interactions with existing control systems are avoided.	Equipment diversity to the extent reasonable and practicable to minimize the potential for common cause failures is required from the sensors to, but not including, the final actuation device--e.g., existing circuit breakers may be used for auxiliary feedwater initiation. The sensors need not be of a diverse design or manufacturer. Existing protection system instrument-sensing lines may be used. Sensors and instrument-sensing lines should be selected such that adverse interactions with existing control systems are avoided.
Electrical Independence from existing Reactor Trip System	Required from sensor output to the final actuation device at which point non-safety related circuits must be isolated from safety related circuits.	Required from sensor output to the final actuation device at which point non-safety related circuits must be isolated from safety related circuits.

System Guidance	Diverse Reactor Trip System	Mitigating Systems (Recirculation Pump Trip and Automatic SLCS actuation for BWRs: Auxiliary Feedwater Actuation and Turbine Trip for PWRs)*
Physical Separation from existing Reactor Trip System	Not required, unless redundant divisions and channels in the existing reactor trip system are not physically separated. The implementation must be such that separation criteria applied to the existing protection system are not violated.	Not required, unless redundant divisions and channels in the existing reactor trip system are not physically separated. The implementation must be such that separation criteria applied to the exist- ing protection system are not violated.
Environmental Qualification	For anticipated operational occurrences only, not for accidents.	For anticipated operational occurrences only, not for accidents.
Seismic Qualification	Not required.	Not required.
Quality Assurance for Test, Maintenance, and Surveillance	Explicit guidance will be issued in a letter.	Explicit guidance will be issued in a letter.
Safety-Related (IE) Power Supply	Not required, but must be capable of performing safety functions with loss of offsite power. Logic and actuation device power must be from an instrument power supply independent from the power supplies for the existing reactor trip system. Existing RTS sensor and instrument channel power supplies may be used provided the possibility of common mode failure is prevented.	Not required, but must be capable of performing safety functions with loss of offsite power. Logic power must be from an instrument power supply inde- pendent from the power supplies for the existing reactor trip system. Existing RTS sensor and instrument channel power supplies may be used provided the possibility of common mode failure is prevented.
Testability at Power	Required.	Required.

System Guidance	Diverse Reactor Trip System	Mitigating Systems (Recirculation Pump Trip and Automatic SLCS actuation for BWRs: Auxiliary Feedwater Actuation and Turbine Trip for PWRs)*
Inadvertent Actuation	The design should be such that the frequency of inadvertent reactor trips and challenges to other safety systems is minimized.	The design should be such that the frequency of inadvertent actu- ation and challenges to other safety systems is minimized.

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With the promulgation of this final ATWS rule, the Commission has completed action on PRM-50-29. The petitioner's requests have been granted in part through the incorporation of requirements into the final rule which address the following issues: (1) (For GE BWRs) (a) recirculation pump trip following an event indicative of an ATWS, and (b) independent, redundant and diverse electrical initiation of scram following an event indicative of an ATWS; (2) (For CE and B&W PWRs) automatic initiation of auxiliary feedwater independent of the reactor protection system; and (3) (For Westinghouse PWRs) automatic initiation of turbine trip and auxiliary feedwater independent of the reactor protection system. The petitioner's request for promulgation of specific provisions *within the context of an ATWS rulemaking* for the following systems are hereby denied: (1) (For GE BWRs) a scram discharge volume system [this provision was not included in the final ATWS rule because licensees already have installed or are installing this system]; and (2) (For CE and B&W PWRs) an alternate means to shut down the reactor that is diverse from and redundant to the electrical portion of the reactor protection system *up to but not including the trip breakers* [the final ATWS rule includes a requirement for the installation of an alternate shut-down system which *must include the trip breakers*].

### Additional View of Commissioner Assestine

While I approve this rule, I would have required automation of the Standby Liquid Control System (SLCS) for all boiling water reactors. In addition, while I approve the elements of the final rule dealing with future reactors, I am not satisfied that sufficient attention has been given to future reactors. It appears that significant additional reductions in the ATWS risk can be achieved without incurring insurmountable economic costs if such measures are considered during the design phase. I believe this rule should not be taken as a barrier to further consideration of measures for future reactors that can reduce ATWS risk below that achieved by this rule.

### Additional Views of Commissioner Roberts

In addition to specifying measures to reduce the risk from ATWS events, the Statement of Considerations which accompanies this rule directs licensees to "volunteer" to implement a reliability assurance program for the Reactor Trip System.

The Reactor Trip System is one of the most important safety systems at commercial nuclear power plants.

However, it is only one of many safety-related systems which must be closely monitored and carefully maintained to ensure a plant's safety and reliability. It is my view that a more logical approach to reliability assurance would be to consider such a program embracing those several safety systems which experience and analyses show could be significantly improved by such a program. This program should be reviewed separately from the ATWS rulemaking effort.

Furthermore, the Commission should not call upon the industry to implement complicated and costly reliability assurance programs until it more thoroughly analyzes the concept and until it provides specific guidance.

### Regulatory Analysis

The Commission has prepared a regulatory analysis for this regulation. The analysis examines the costs and benefits of the rule as 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, D.C. Single copies of the analysis may be obtained from David W. Pyatt, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-7631.

### 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

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that the rule will not have a significant economic impact on a substantial number of small entities. This rule 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 13 CFR Part 121.

### List of Subjects in 10 CFR Part 50

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

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy

Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment to 10 CFR Part 50 is published as a document subject to codification.

➤ 49 FR 27733  
Published 7/6/84  
Effective 8/6/84

### 10 CFR Part 50

#### Emergency Planning and Preparedness

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to relax the frequency of participation by State and local governmental authorities in emergency preparedness exercises at nuclear power reactor sites. This relaxation reflects experience gained in observing and evaluating over 150 emergency preparedness exercises since 1980.

**EFFECTIVE DATE:** August 6, 1984.

**FOR FURTHER INFORMATION CONTACT:** Michael T. Jamgochian, Accident Source Term Program Office, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 443-7815.

**SUPPLEMENTARY INFORMATION:** On July 21, 1983, the Commission published in the Federal Register a proposed rule relating to emergency preparedness exercises (48 FR 33307). The proposed rule retained the presently required annual, full-participation exercise with a proviso that, if all major elements in the emergency plan are performed in a satisfactory manner during the annual exercise, FEMA may recommend and the NRC may find that another exercise with State and local government participation is not required for up to 2 years. The proposed rule did not relax in any manner the annual requirement for onsite exercises that each licensee is required to conduct which include exercising the control room, technical support center, and emergency operation facility functions.

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Immediately after the Commission approved publication of the proposed rule, the Director of FEMA wrote to NRC Chairman Palladino, urging the Commission to "... adopt biennial exercise frequency language \* \* \* in 10 CFR Part 50, Appendix E to assure consistency in the regulations.

FEMA's final regulation, 44 CFR 350, published in the Federal Register on September 28, 1983 (48 FR 44332), reduced State and local participation in emergency preparedness exercises to a frequency of once every 2 years. The FEMA final rule is not consistent with the position taken by the Commission in the NRC proposed rule (an annual frequency with a specific NRC finding necessary for relaxation). This difference was a source of some concern to both agencies and to some of the commenters on the NRC proposed rule. The FEMA regulation requires that a State within the plume exposure pathway EPZ fully participate in an exercise every 2 years with no requirement on the return frequency at a specific site. Typically, therefore, a State with two sites might be expected to fully participate in an exercise at a specific site at least every 4 years, a State with three sites, every 6 years; four sites, every 8 years; five sites, every 10 years, etc. Whereas, the enclosed NRC rule change stipulates that a State within the plume exposure pathway EPZ fully participate in an exercise every 2 years with a return frequency of at least once every 7 years at a specific site. Both rules require a multi-site State, when not fully participating in an exercise at a specific site, to partially participate every 2 years at that specific site in order to support the participation of the appropriate local governments.

The Commission has selected a return frequency of 7 years because presently no State has more than 7 operating and/or planned reactors and States with that number of sites or less would not be required to exercise in a full participation mode more often than about once a year.

### Public Comments

The NRC proposed rule was published in the Federal Register with a 60-day comment period on July 21, 1983 (48 FR 33307). Seventy-one comment letters were received and evaluated by the NRC staff.

Those commenters (55) favoring relaxing the frequency of State and local governmental participation in emergency preparedness exercises were utilities, consulting firms representing utilities, two State Governors, State and local governmental agencies, FEMA and private citizens.

Those commenters (14) opposing relaxing the frequency of State and local

governmental participation in emergency preparedness exercises were an information service, environmental groups, a State Governor, State and local governmental agencies, EPA and private citizens.

The comments raised several significant issues, to which the Commission responds as follows:

### Issue No. 1

Should the Commission adopt a biennial exercise frequency for State and local government participation with a proviso for remedial exercises for the correction of serious deficiencies rather than the exercise frequency contained in the proposed rule?

**Discussion:** This issue was addressed by many State and local governmental comment letters whose concerns are generally characterized by the following quote from the FEMA comment letter:

The NRC proposal will be difficult to administer. For example, objective criteria will need to be developed for use in determining whether State and local governments have performed in a satisfactory enough manner to warrant an exemption from the succeeding year's exercise. It will be difficult to apply such criteria to the satisfaction of State and local governments. The NRC proposal would create complex situations such as what to do if some jurisdictions perform in an unsatisfactory manner and the others in a satisfactory manner. Would all jurisdictions have to exercise the next year or only the unsatisfactory ones? If only the unsatisfactory ones, an unworkable condition would result wherein some jurisdictions would be on annual and others on biennial frequency. Inequities would result. Further, the time involved for evaluating exercise results, including getting commitments from State and local governments to take corrective actions, has proved time consuming in the past. If we add time for the NRC to make a finding after FEMA's recommendation, a good portion of a year could be consumed. This would cause uncertainty and instability in State and local governments, which should be avoided.

**Commission Response:** The Commission recognizes the implementation difficulties with the proposed NRC approach (annual frequency with a finding to relax). This was pointed out by the NRC emergency preparedness regional inspectors, a majority of the comment letters, the general thrust in two petitions for rulemaking,<sup>1</sup> and the ACRS.

### Issue No. 2

Will less frequent exercises result in making personnel and equipment less effective or reliable and therefore

<sup>1</sup> On March 17, 1982, the Commission received a petition for rulemaking (PRM-50-33) from National Emergency Management Association. On August 30, 1982, the Commission received a petition for rulemaking (PRM-50-34) from the Adjutant General of the State of South Carolina. The general thrust of both petitions urged the relaxation of the frequency of emergency preparedness exercises.

reduce the level of safety?

**Discussion:** A few commenters, primarily citizens and governmental organizations, addressed this issue by pointing out that State and local emergency response organizations must frequently respond to various natural and man-made emergencies. This continuum of real life emergencies exercises personnel, equipment, communication networks and organizational structures on a frequent basis.

The following quote from a comment letter summarizes this concern:

While an emergency situation at a nuclear power plant may call for some procedures that are different from those used under other emergency situations, many of the response and evacuation measures will be similar, if not identical. A myriad of major and minor emergencies demand the maintenance of a force of personnel trained in these procedures. By responding to other emergency situations such as chemical spills, the emergency response personnel will be rehearsing many of the procedures they would use in the event of an emergency situation at a nuclear power plant. Some examples of these procedures would include notification of appropriate local authorities, establishing communication links between local, regional and state emergency response personnel, and evacuating or finding shelter for the affected population.

**Commission Response:** Because emergency response personnel at the State and local government level continuously respond to actual emergencies, the Commission does not consider that relaxing the frequency of State and local government participation in emergency preparedness exercises would adversely affect the health and safety of the public.

A provision has been added in the final rule to permit State or local government participation in the licensee's annual exercise. 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 final rule requires the licensee to provide for State or local government participation if they indicate such a desire.

### Issue No. 3

Will the deletion of NUREG-0654\* as a footnote adversely affect the interface between offsite emergency plans and the licensee's emergency plans?

**Discussion:** The proposed rule included a provision to delete references

\*Copies of these documents are available at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. 20555. Copies of these documents may be purchased from the Government Printing Office. Information on current prices may be obtained by writing the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Attention: Publications Sales Manager.



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to NUREG-0654 throughout the regulations. NUREG-0654 provides specific criteria for the evaluation of the standards in § 50.47 and is titled, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Plants." A few commenters, primarily a utility and a state governmental official, felt that the deletion of the NUREG-0654 footnote in the regulations would preclude its use by reviewers in determining the adequacy of emergency preparedness.

**Commission Response:** The delegation of a reference to NUREG-0654 will not affect its use as a guidance document for emergency planning. In the 1980 rulemaking, the Commission included this reference as a means of formally approving the use of NUREG-0654. See 45 FR 55402, 55408 (August 19, 1980). NUREG-0654 is endorsed by Regulatory Guide 1.101,<sup>3</sup> and will continue to be used by reviewers in evaluating the adequacy of emergency preparedness at nuclear power reactor sites.

### Issue No. 4

Do adequate procedures exist for NRC and FEMA to evaluate whether major elements are performed satisfactorily during an exercise?

**Discussion:** Many commenters, primarily State and local governmental authorities as well as utilities, pointed out that there is a need for uniform evaluation of exercise performance.

**Commission Response:** The Commission concurs with the commenters. In order to provide for uniform evaluation of emergency preparedness exercises, FEMA has developed and now uses a document titled "Procedural Policy on Radiological Emergency Preparedness Plan Reviews, Exercise Observations and Evaluations and Interim Findings."<sup>4</sup> These procedures were forwarded to the FEMA regions for use on August 5, 1983.

Having considered all comments received, experience gained since 1980, input from emergency preparedness regional inspectors, the general thrust of two petitions for rulemaking, and ACRS comments, the Commission has concluded that the requirements for frequency of participation by State and local governmental authorities in emergency preparedness exercises around nuclear power reactors should be relaxed. The Commission therefore is promulgating a final rule which:

1. Continues to require licensees to conduct an annual onsite emergency preparedness exercise,
2. Requires that State and local governments participate in emergency preparedness exercises every 2 years with a provision for remedial exercises to assure that deficiencies are corrected,

3. 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,

4. Requires licensees to provide an opportunity for State and local government participation in the licensees annual emergency preparedness exercise, and

5. Requires FEMA to determine the need for and extent of remedial exercises.

The final rule is not totally consistent with FEMA's final regulation (44 CFR 350). This inconsistency lies in the area of return frequency for multiple-site states as previously discussed. The FEMA position on return frequency is a significant departure from the NRC's proposed regulation (48 FR 33307) dated July 21, 1983. The Commission believes that more study is needed before deletion of the return frequency requirement can be justified.

The Commission is adopting a biennial exercise frequency for State and local government participation with a proviso for remedial exercises to assure the correction of serious deficiencies. These changes to the emergency preparedness regulations are being made because:

- a. Experience in observing and evaluating over 150 exercises has shown that a disproportionate amount of Federal, State and local government and licensee resources are being expended in order to conduct and evaluate annual emergency preparedness exercises. As a result of the substantial expenditure of resources for these exercises, fewer resources are available to establish and maintain the essential day-to-day upgraded state of emergency preparedness.

- b. State and local governments respond to a variety of actual emergencies on a continuing basis, thus frequently exercising their emergency preparedness capabilities.

- c. The flexibility provided for in a biennial frequency will be an incentive for State and local governments to perform in a satisfactory manner in order to avoid conducting remedial exercises.

And lastly, the Commission notes that FEMA has had almost 3 years of experience with evaluating State and local government radiological emergency planning and preparedness. With few exceptions, this experience has revealed a significant increase in the level of State and local government radiological preparedness as demonstrated in joint exercises. FEMA

<sup>3</sup> Guidance for determining the need for, and extent of, remedial exercises is being developed.

has evaluated approximately 150 exercises. In only five instances did FEMA determine that State and local governments did not demonstrate adequate preparedness. The Commission believes that this enhanced level of preparedness should be recognized by allowing State and local governments to exercise jointly with utilities on a biennial frequency.

On March 17, 1982, the Commission received a petition for rulemaking (PRM-50-33) from National Emergency Management Association. On August 30, 1982, the Commission received a petition for rulemaking (PRM-50-34) from the Adjutant General of the State of South Carolina. The petition from the National Emergency Management Association requested the NRC to relax the frequency of full participation by State and local governments in emergency preparedness exercises from annually to biennially. The petition from South Carolina requested that the NRC reduce the frequency with which local governments must participate in a full scale emergency preparedness exercise.

The promulgation of this final rule relaxes the frequency of full participation by State and local governments in emergency preparedness exercises from annually to biennially. This rule completes NRC action by granting both petitions for rulemaking.

### 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 reducing the frequency of full participation of State and local governments in emergency preparedness exercises from annually to biennially.

The alternative approaches that were considered in this rulemaking proceedings were:

1. To retain the annual full participation exercise with a provision to enable relaxation to every 2 years.
2. To incorporate by reference into the NRC's regulations, the FEMA regulations governing the frequency of full participation of State and local governments in emergency preparedness exercises.

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3. To relax the frequency of full participation of State and local governments in emergency preparedness exercises from annually to biennially.

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

Because FEMA is directly involved in the evaluation of offsite emergency preparedness exercises and is affected by the promulgation of these amendments, the NRC consulted extensively with FEMA during the development of this rule.

### Paperwork Reduction Act Statement

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 of this regulation. The analysis examines the costs and benefits of the rule as 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, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 443-7615.

### Regulatory Flexibility Certification

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, if promulgated, have a significant economic impact on a substantial number of small entities. The final rule clarifies certain elements and findings necessary for the issuance of an operating license for a nuclear power plant licensed pursuant to sections 103 and 104b of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2133, 2134b. The electric utility companies which own and operate nuclear power plants are dominant in their service areas and do not fall within the definition of a small business found 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. Accordingly, there is no significant economic impact on a substantial number of small entities under 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.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 50 is published as a document subject to codification.

➤ 49 FR 34658  
Published 8/31/84

### 10 CFR Parts 50 and 51

#### Waste Confidence Decision

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final Waste Confidence Decision.

**SUMMARY:** The Nuclear Regulatory Commission initiated a rulemaking proceeding on October 25, 1979 to assess generically the degree of assurance now available that radioactive waste can be safely disposed of, to determine when such disposal of off-site storage will be available, and to determine whether radioactive wastes can be safely stored on-site past the expiration of existing facility licenses until off-site disposal or storage is available. This proceeding became known as the "Waste Confidence Rulemaking" and was conducted partially in response to a remand by the U.S. Court of Appeals for the D.C. Circuit. *State of Minnesota v. NRC*, 602 F.2d 412 (1979). The Commission also stated that in the event it determined that on-site storage of spent fuel would be necessary or appropriate after the expiration of facility licenses, it would propose a rule addressing the environmental and safety implications of such storage.

The Commission's decision is summarized in the following findings:

(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.

(2) The Commission finds reasonable assurance that one or more mined geologic repositories for commercial high-level radioactive waste and spent fuel will be available by the years 2007-09, 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 such reactor and generated up to that time.

(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 radioactive waste and spent fuel.

(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 licenses at that reactor's spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations.

(5) The Commission finds reasonable assurance that safe independent onsite or offset spent fuel storage will be made available if such storage capacity is needed.

In keeping with its commitment to issue a rule providing procedures for considering environmental effects of extended onsite storage of spent fuel in licensing proceedings, the Commission is issuing, elsewhere in this issue, final amendments to 10 CFR Parts 50 and 51. **FOR FURTHER INFORMATION CONTACT:** Dennis Rathbun or Clyde Jupiter, Office of Policy Evaluation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (202) 634-3295, or Sheldon Trubatch, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; telephone (202) 634-3224.

### The Commission's Decision

*In the Matter of RULEMAKING on the Storage and Disposal of Nuclear Waste (Waste Confidence Rulemaking)*  
[PR-50, -51 (44 FR 61372)]

August 22, 1984.

#### Contents

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#### Decision

##### 1.0 Introduction

##### 1.1 Initiation of the Waste Confidence Rulemaking Proceeding

In response to the remand of the U.S. Court of Appeals for the District of Columbia Circuit (*State of Minnesota v. NRC*, 602 F.2d 412 (1979)), and as a continuation of previous proceedings conducted in this area by NRC (44 FR 61372), the Commission initiated a generic rulemaking proceeding on October 25, 1979. In its Notice of Proposed Rulemaking, the Commission stated that the "purpose of this proceeding is solely to assess generically the degree of assurance now available that radioactive waste can be safely disposed of, to determine when such disposal or off-site storage will be available, and to determine whether radioactive wastes can be safely stored on-site past the expiration of existing facility licenses until off-site disposal or storage is available." The Commission

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also stated that in the event it determined that on-site storage of spent fuel would be necessary or appropriate after the expiration of facility licenses, it would propose a rule addressing the environmental and safety implications of such storage. The Commission recognized that the scope of this generic proceeding would be broader than the Court's instruction, which required the Commission to address the questions of whether off-site storage for spent fuel would be available by the expiration of reactor operating licenses and if not, whether spent fuel could continue to be safely stored on-site (44 FR 61373).

However, the Commission believed that the primary public concern was whether nuclear waste could be disposed of safely rather than with an off-site solution to the storage problem per se. Moreover, as stated in the *Federal Register* Notice of October 25, 1979, the Commission committed itself to reassess its basis for reasonable assurance that methods of safe permanent disposal of high level waste would be available when they are needed. In conducting that reassessment, the Commission noted that it would "draw upon the record compiled in the Commission's recently concluded rulemaking on the environmental impacts of the nuclear fuel cycle (44 FR 45362-45374 [August 2, 1979])" (44 FR 61373).

The Department of Energy (DOE), as the lead agency on nuclear waste management filed its statement of position (PS) on April 15, 1980. Statements of position were filed by 30 participants by June 9, 1980, and were followed by cross statements (CS) from 21 of the participants by August 11, 1980.

### 1.2 Establishment of the Working Group

On May 28, 1980, the Commission directed the staff to form a Working Group to advise the Commission on the adequacy of the record to be compiled in this proceeding, to review the participants' submissions and identify issues in controversy and any areas in which additional information would be needed. The Working Group submitted a report to the Commission on January 29, 1981. The report summarized the record, identified key issues and controversies, and commented on the adequacy of the record for considering the key issues. The participants were invited to submit comments on the adequacy of the Working Group's summary of the record and its identification and description of the issues. Such comments were made by 20 participants by March 5, 1981.

### 1.3 Commission's Order for Oral Presentations

The Commission found additional limited proceedings to be useful to allow the participants to state their basic

positions directly to the Commissioners and to enable the Commissioners to discuss specific issues with them. In addition, the Commission invited comment on the following policy developments: (1) the Administration's announcement<sup>1</sup> of a policy favoring commercial reprocessing of spent fuel and instructing the Secretary of Energy to proceed swiftly toward deployment of a means of storing and disposing of commercial high-level radioactive waste, and (2) the submission of information to the Presiding Officer in this proceeding by DOE on March 27, 1981, concerning the DOE decision to "discontinue [its] efforts to provide federal government-owned or controlled away-from-reactor (AFR) [spent fuel] storage facilities." The participants were asked to comment on the significance to the proceeding of issues, particularly institutional concerns, resulting from these policy developments and to comment on the merits of DOE's new projection of spent fuel storage requirements and on the technical and practical feasibility of DOE's suggested alternative storage methods.

To implement the additional limited proceedings, the Commission consolidated the participants into the following identifiable groups: (a) federal government, (b) state and local participants, (c) industry, and (d) public interest groups (Second Prehearing Memorandum and Order, November 6, 1981). Prehearing statements (PHS) were provided by the consolidated groups, as well as by individual participants. The oral arguments were presented to the Commissioners on January 11, 1982.

The extensive record, comprised of all written and oral submissions provides the primary basis for the Commission's decision regarding the safe storage and disposal of spent fuel and nuclear waste. However, while the Commission was preparing this Waste Confidence decision, the Nuclear Waste Policy Act of 1982 (NWPA) was enacted. The Commission found that this Act had a significant bearing on the Commission's decision, and the Commission has considered the NWPA in reaching its conclusions. The Commission believes that the NWPA had its most significant impact in narrowing the uncertainties surrounding institutional issues. Moreover, although the NWPA is intrinsically incapable of resolving technical issues, it will establish the necessary programs, milestones, and funding mechanisms to enable their resolution in the years ahead.

The Commission's preliminary decision in the Waste Confidence proceeding was served on the consolidated participants on May 17, 1983. However, the parties to this proceeding had not yet had an

<sup>1</sup> Presidential Nuclear Policy Statement, October 9, 1981.

opportunity to comment on what implications, if any, the NWPA had on the Commission's decision. Further, the Commission's discussion of the safety of dry storage of spent nuclear fuel, in its preliminary decision, relied substantially on material not yet in the record. Therefore, the preliminary decision was issued as a draft decision. The Commission requested the consolidated groupings of participants to comment on either or both of these issues. In addition, the Commission found that onsite storage after license expiration might be necessary or appropriate, and therefore, in accordance with its notice initiating this proceeding, it proposed a rule to establish how the environmental effects of extended onsite storage would be considered in licensing proceedings (48 FR 22730, May 20, 1983), as amendments to 10 CFR Parts 50 and 51.

Subsequently, in response to public comments on the proposed amendments to 10 CFR Part 51, the Commission reopened the comment period to address the environmental aspects of the fourth finding of the Commission's Waste Confidence decision, on which the proposed amendment to Part 51 is based (48 FR 50746, November 3, 1983). Public comments were requested on: (1) The environmental aspects of the fourth finding—that the Commission has reasonable assurance that, if necessary, spent fuel can be stored without significant environmental effects for at least 30 years beyond the expiration of reactor operating licenses at reactor spent fuel storage basins, or at either onsite or offsite independent spent fuel storage installations; (2) the determination that there are no significant non-radiological consequences which could adversely affect the environment if spent fuel is stored beyond the expiration of operating licenses either at reactors or at independent spent fuel storage installations; and (3) the implications of comments on items (1) and (2) above for the proposed amendment to 10 CFR Part 51.

After reviewing these additional comments, the Commission found no reason to modify its fourth finding or the supporting determination.

The analysis of comments, together with the Commission's response is summarized in the Addendum to the Commission's decision.

The Commission notes that two relevant developments have occurred subsequent to the closing of the record in the Waste Confidence proceeding. They are the publication of DOE's draft Mission Plan for the Civilian Radioactive Waste Management Program (April, 1984) and the Commission's concurrence in DOE's General Guidelines for Recommendation of Sites for Nuclear Waste Repositories

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(July 3, 1984). These developments are a matter of public record, and in the case of the Commission's concurrence was the conclusion of a separate public proceeding. The Commission has considered the effects of these developments on its previously announced decision in this proceeding and determined that these developments do not substantially modify the Commission's previous conclusions.

The decision is summarized as five Commission findings in Section 2.0. The detailed rationale for these findings, including references to the record developed in this proceeding, is contained in the Appendix to this document. The Commission considers these five findings to be a response to the mandate of the U.S. Court of Appeals for the District of Columbia Circuit and, in addition, a generic determination that there is reasonable assurance that radioactive waste can and will be safely stored and disposed of in a timely manner.

In keeping with its commitment to issue a rule providing procedures for considering environmental effects of extended onsite storage of spent fuel in licensing proceedings, final amendments to 10 CFR Parts 50 and 51 are being issued simultaneously with this decision.

### 2.0 Commission Findings<sup>2</sup>

(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.

(2) The Commission finds reasonable assurance that one or more mined geologic repositories for commercial high-level radioactive waste and spent fuel will be available by the years 2007-09, 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 such reactor and generated up to that time.

(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 radioactive waste and spent fuel.

<sup>2</sup> All findings by the Commission in this proceeding are limited to the storage and disposal of high-level radioactive waste and spent fuel generated by nuclear power reactors required to be licensed under sections 103 or 104 b of the Atomic Energy Act of 1954 (42 U.S.C. 2133 and 2134(b)), and to facilities intended for such storage or disposal. The Commission's findings in this proceeding do not address the storage and disposal of high-level radioactive waste or spent fuel resulting from atomic energy defense activities, research and development activities of the Department of Energy, or both. This is consistent with the Nuclear Waste Policy Act of 1982, section 8(c).

(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.

(5) The Commission finds reasonable assurance that safe independent onsite or offsite spent fuel storage will be made available if such storage capacity is needed.

### 3.0 Future Actions by the Commission

The Commission's Waste Confidence decision is unavoidably in the nature of a prediction. While the Commission believes for the reasons set out in the decision that it can, with reasonable assurance, reach favorable conclusions of confidence, the Commission recognizes that the possibility of significant unexpected events remains open. Consequently, the Commission will 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.

### 4.0 For Further Information Contact

Dennis Rathbun or Clyde Jupiter, Office of Policy Evaluation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (202) 634-3295, or Sheldon Trubatch, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; telephone (202) 634-3224.

Dated at Washington, D.C. this 22nd day of August, 1984. Commissioner Zech did not participate in this action.

For the Nuclear Regulatory Commission.  
Samuel J. Chilk,  
Secretary of the Commission.

### Addendum to the Commission's Waste Confidence Decision

#### Introduction

On May 17, 1983, the Commission issued its proposed decision in the Waste Confidence proceeding, and asked the consolidated groups of participants to comment on two aspects of the decision: the implications of the Nuclear Waste Policy Act (NWPA) for the decision and the Commission's discussion of the safety of dry storage of spent nuclear fuel, which relied substantially on material not in the record. The analysis of these comments is subdivided into several issue categories and presented, with NRC's responses, in Part I below. The membership of the consolidated groups responding to the Commission's request

as well as the abbreviations used to identify the groups are provided in Section 3 of Part I.

Subsequently, in response to public comments on the Commission's proposed amendment to 10 CFR Part 51 (48 FR 22730, May 20, 1983), the Commission reopened (48 FR 50746, November 3, 1983) the comment period to address the environmental aspects of the fourth finding of the Commission's proposed Waste Confidence decision on which the proposed amendment to Part 51 is based. Public comments were requested on: (1) The environmental aspects of the fourth finding—that the Commission has reasonable assurance that, if necessary, spent fuel can be stored without significant environmental effects for at least 30 years beyond the expiration of reactor operating licenses at reactor spent fuel storage basins, or at either onsite or offsite independent spent fuel storage installations; (2) the determination that there are no significant non-radiological consequences which could adversely affect the environment if spent fuel is stored beyond the expiration of operating licenses either at reactors or at independent spent fuel storage installations; and (3) the implications of comments on items (1) and (2) above for the proposed amendment to 10 CFR Part 51. The analysis of public comments and NRC's responses are presented in Part II of this document. The list of respondents to this reopened comment period and the abbreviations used to identify them are given in Section 4 of Part II.

The Commission notes that two relevant developments have occurred subsequent to the closing of the record in the Waste Confidence proceeding. They are the publication of DOE's draft Mission Plan of the Civilian Radioactive Waste Management Program (April, 1984) and the Commission's concurrence in DOE's General Guidelines for Recommendation of Sites for Nuclear Waste Repositories (July 3, 1984). These developments are a matter of public record, and in the case of the Commission's concurrence was the conclusion of a separate public proceeding. The Commission has considered the effects of these developments on its previously announced decision in this proceeding and determined that these developments do not substantially modify the Commission's previous conclusions.

### Part I. Analysis of the Consolidated Groups' Comments on the Commission's Waste Confidence Decision and NRC Responses

#### 1. Effect of the Nuclear Waste Policy Act on the Commission's Decision

##### A. General

##### (1) Summary of Comments. The

Consolidated Industry Group agreed with the Commission's view that the NWPA contains provisions pertinent to all of the major elements relevant to mined geologic disposal of high level radioactive wastes (Industry, p. 3). The Industry Group called attention to the comprehensive nature of the NWPA which authorizes DOE to undertake steps leading to the construction, operation and maintenance of a deep geologic test and evaluation facility; requires DOE to prepare a waste management mission plan; establishes a prescribed schedule for repository siting, construction and operation; defines the decision-making roles of affected states and Indian tribes in repository site-selection and evaluation; provides for the continuity of Federal management of the nuclear waste program and continued funding; and facilitates the establishment of an overall integrated spent fuel and waste management system. The Industry Group suggested that these features of the Act should increase the Commission's confidence that waste can and will be disposed of safely. The Group pointed out that the Act also contains special procedures to facilitate the licensing of spent fuel storage capacity expansion and transshipments; directs DOE research, development and cooperation with utilities in developing dry storage and rod compaction; and provides for federally supplied interim storage capacity to supplement that of industry (Industry, pp. 4-8).

The Industry Group believed that the NWPA's enactment—in and of itself—provides a sound basis for confidence that institutional difficulties can and will continue to be resolved. At the same time, Industry stated that the NWPA's enactment was not essential for the Commission to reach an affirmative decision in this proceeding (Industry, p. 9).

In contrast, the Consolidated Public Interest Group (CPIG) believed that the NWPA provides an insufficient basis for the Commission's decision in this proceeding with respect to the availability or timing of a nuclear waste repository. The CPIG contended that the NWPA contains many areas of ambiguity, and gave as examples:

(i) Section 114(a) of the NWPA requires DOE to make a recommendation to the President for the first repository site, accompanied by the preliminary comments by the Commission concerning the suitability of three alternative candidate sites for licensing under 10 CFR Part 60. DOE interprets this section to require such preliminary comments *before* site characterization begins . . . . The Commission staff interprets that section . . . to require a judgment of suitability under 10 CFR Part 60 *after* site characterization has occurred.

(ii) DOE originally interpreted Sec. 112(f) to

permit continuation of ongoing site characterization at Hanford before completion of the DOE siting guidelines. DOE now concedes that such site characterization work must await completion of an environmental assessment prepared in accordance with final DOE siting guidelines (CPIG, pp. 2-3).

(2) *NRC Response.* The Commission has considered the effect of enactment of the Nuclear Waste Policy Act of 1982 and concludes that the Act provides support for timely resolution of technical uncertainties and reduces uncertainties in the institutional arrangements for the participation of affected states and Indian tribes in the siting and development of repositories and in the long-term management, direction and funding of the repository program. The bases for the Commission's conclusion are set forth in the decision and will not be repeated here. The passage of the Act provides evidence of a strong national commitment to the solution of the radioactive waste management problem.

The Commission recognizes the possibility of differing interpretations regarding the implementation of the NWPA. With respect to CPIG's discussion of Section 114(a), the Commission is unaware of any differences between DOE and NRC in the interpretation of this section of the Act. We note that DOE's recommendation of a repository site to the President would necessarily be made after DOE's preliminary determination that three sites are suitable for development. DOE and NRC now agree that the preliminary determination of site suitability for the alternative sites should be made following site characterization (Commission's Final Decision on the U.S. Department of Energy's General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories [July 3, 1984]).

Concerning Section 112(f), DOE has continued site characterization at Hanford during formulation of the siting guidelines; in accordance with the views of the states and environmental groups, DOE has deferred drilling of the exploratory shaft pending the completion of the guidelines, submission of the site characterization plan to NRC and preparation of an environmental assessment of site characterization activities.

#### B. Technical Aspects

(1) *Summary of Comments.* The Consolidated Industry Group believed that the Act contained provisions pertinent to all of the major elements relevant to disposal (Industry, p. 3). The Consolidated Public Interest Group, on the other hand, contended that the NWPA did not resolve technical uncertainties concerning repository development and safety (CPIG, p. 5).

The Consolidated State Group did not believe that the NWPA supported a finding of confidence because it failed to resolve technical questions and merely set target dates for deciding on the site of the first waste repository. The State Group noted that if technical problems are not resolved by the dates proposed by Congress, the milestone dates will have to be postponed. The State Group contended too that, although the Act authorizes DOE to conduct research on unresolved technical issues, the research could uncover additional problems (States, p. 2). However, DOE pointed out that the NWPA provides for a focused, integrated and extensive research and development program for the deep geologic disposal of high-level waste and spent fuel. DOE believed that Sec. 215 of the Act enhances confidence in the timely availability of disposal facilities by authorizing a research facility to develop and demonstrate a program for waste disposal. DOE also stated that the schedule for a Test and Evaluation Facility would require the *in situ* testing described in Sec. 217 of the Act to begin not later than May 6, 1990, thus allowing for research and development results to be incorporated in the repository which is scheduled to open in 1998 (DOE, pp. 11, 12).

(2) *NRC Response.* As the record of this proceeding shows, there are no known technical problems that would make safe waste disposal impossible. Clearly, further engineering development and site-specific evaluations will be required before a repository can be constructed. The Commission did not propose to rely on the NWPA as the basis for resolving technical uncertainties. Rather, the Commission found that the NWPA provides a framework for facilitating the solution of the remaining technical issues. Title II of the Act authorizes DOE to undertake steps leading to the construction, operation and maintenance of a deep geologic test and evaluation facility and to conduct the necessary research and development as well as to establish a demonstration program. The schedule set forth in the Act is consistent with the objective of assuring repository operation within the time period discussed in the Waste Confidence decision. The "Mission Plan" which is required by the Act will provide an effective management tool for assuring that the many technical activities are properly coordinated and that results of research and development projects are available when needed.

#### C. Institutional Aspects

(1) *Summary of Comments.* The Consolidated State Group believed that the NWPA failed to resolve institutional questions. The States argued that their cooperation cannot be assumed in the

event that the general public in the vicinity of a proposed site is opposed to the location. Further, the States contended that, if a site is vetoed by a host state or Indian tribe, there is no assurance that Congress will vote to override the veto. Moreover, if the veto is overridden, a legal challenge is likely and the outcome is uncertain (States, p. 3).

The Consolidated Public Interest Group also believed that the NWPAA has not significantly reduced institutional uncertainties regarding participation and objections of affected states and Indian tribes. As examples of institutional difficulties, CFIG pointed out that state officials and Indian tribes still have concerns regarding the adequacy of time to monitor and comment upon agency proposals, the lack of agency response to their concerns, and inadequate funding to support their full participation. Further, CFIG noted that the Act (Sec. 115) provides states and Indian tribes with strong new authority to veto the siting of a repository within their borders (CFIG, p. 5).

DOE, on the other hand, believed that Sections 116 and 117 of the NWPAA will reduce Federal-state institutional uncertainties (DOE p. 9).

(2) *NRC Response.* It would be unrealistic to expect that the NWPAA will resolve all institutional issues. However, it does provide specific statutory procedures and arrangements for accomplishing such resolution. The right of affected states and Indian tribes to disapprove a site designation under the NWPAA might create uncertainty in gaining the needed approvals. Nevertheless, the NWPAA's establishment of a detailed process for state and tribal participation in the development of repositories and for the resolution of disputes should minimize the potential for substantial disruption of plans and schedules. The Commission does not expect that the NWPAA can eliminate all disagreement about development of waste repositories. However, in providing for information exchange, financial and technical assistance to affected groups, and meaningful participation of affected states and tribes in the decision-making process, the Act should minimize the potential for direct confrontations and disputes.

#### D. Funding Aspects

(1) *Summary of Comments.* The Consolidated Industry Group expressed its general belief that the NWPAA assures adequate funding for interim storage and disposal of radioactive waste (Industry, pp. 6, 7). Similarly, DOE believed that the funding mechanism provided by the NWPAA should largely remove uncertainties in assuring adequate resources to complete the program (DOE, pp. 10, 11). On the other hand, the

Consolidated States Group contended that, since the law can be changed at any time, the NWPAA assures neither an adequate level of funding nor a prolonged Congressional commitment (States, p. 4).

(2) *NRC Response.* The Commission believes that the general approach prescribed by the NWPAA is to operate DOE's radioactive waste program on a full cost recovery basis. It seems clear that Congress intended to establish a long-term program for waste management and disposal, with built-in reviews and adjustments of funding as necessary to meet changing requirements. In this regard, the Act provides that DOE must annually review the amount of the established fees to determine whether collection of the fees will provide sufficient revenues to offset the expected costs. In the event DOE determines that the revenues being collected are less than the amount needed to recover costs, DOE must propose to Congress an adjustment to the fees to ensure full cost recovery. The Act also provides that, if at any time, the monies available in the waste fund are insufficient to support DOE's nuclear waste program, DOE will have the authority to borrow from the Treasury. The Commission believes that long-term funding provisions of the Act will ensure adequate financial support for DOE's nuclear waste program for FY 1984 and beyond.

The Commission believes that uncertainties regarding the adequacy of financial management of the nuclear waste program have also been reduced by the NWPAA requirement that an Office of Civilian Radioactive Waste Management be established within the Department of Energy. This Office is to be headed by a Director, appointed by the President with Senate confirmation, who will report directly to the Secretary of Energy. Further, the Act stipulates that an annual comprehensive report of the activities and expenditures of the Office will be submitted to Congress and that an annual audit of the Office will be conducted by the Comptroller General, who will report the results to Congress.

Some concern has been expressed that the Congress may amend the funding provisions of the NWPAA and thereby undermine the financial stability of the Federal radioactive waste management program. Commenters have not provided any basis for this belief. The Commission considers this possibility to be most unlikely. It is reasonable to assume that the long-range public health and safety and political concerns which motivated the Congress over the past several years to pass the NWPAA will continue to motivate the Congress in considering amendments to the NWPAA.

#### E. Schedule

(1) *Summary of Comments.* DOE contended that the NWPAA provides additional assurance that a repository will be available by 1998. As the basis for this belief, DOE stated that sections 111 through 125 of the NWPAA provide specific schedules and reporting requirements for the timely siting, development, construction, and operation by 1998 of a repository for high level waste and spent fuel (DOE, p. 6). DOE believed that these schedules and reporting requirements will ensure that deadlines are met. The Commission notes that DOE recognizes that there has been a delay of about 1-year in its schedule for meeting early milestones such as publication of its siting guidelines; nevertheless, DOE continues to maintain that its date for completion of repository development will be met (DOE Draft Mission Plan for the Civilian Radioactive Waste Management Program, April 1984).

The Consolidated Public Interest Group, however, did not believe that the provision of specific dates in the NWPAA gives assurance that they will be met. CFIG cited, for example, the delay in preparing DOE's site selection guidelines, which were due by June 1983, and were expected to be delayed further (CFIG, p. 4).

Further, the CFIG contended that a date for the availability of a repository is not certain since both the President and the NRC have explicit authority to reject any or all site proposals that are submitted to them (CFIG, p. 4). Also, CFIG believed that the legislation contemplates the possibility of delay beyond statutory deadlines and NWPAA's legislative history indicates that the timing of repository availability remains uncertain (CFIG, p. 5).

(2) *NRC Response.* One of the primary purposes of the NWPAA is "to establish a schedule for the siting, construction, and operation of repositories that will provide reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository." (Sec. 111(b)(1)). The Commission believes this purpose will be achieved.

As the Commission noted in the proposed decision, the Congress would not be able to legislate the schedules for the accomplishment of fundamental technical breakthroughs if it believed that such breakthroughs were necessary. They are not necessary. Rather, it is the Commission's judgment that the remaining uncertainties can be resolved by the planned step-by-step evaluation and development based on ongoing site studies and research programs. The Commission believes the Act provides means for resolution of



those institutional and technical issues most likely to delay repository development, both because it provides an assured source of funding and other significant institutional arrangements, and because it provides detailed procedures for maintaining progress, coordinating activities and rectifying weaknesses.

The Commission believes that the milestones established by the Act are generally consistent with the schedules presented by DOE in the Waste Confidence proceeding and that those milestones are generally reasonable. Achievement of the scheduled first date of repository operation is further supported by other provisions of the Act which specify means for resolution of issues most likely to delay repository completion. One of the earlier milestones—publication of DOE's general guidelines for the recommendation of sites for a repository—was about a year behind schedule and the Commission was concerned that this delay could result in corresponding delays in DOE's nomination of at least five sites for characterization work. However, DOE has indicated in its draft Mission Plan (April, 1984) that the subsequent milestones have been scheduled to provide completion of the first repository by 1998. The Commission believes that the timely attainment of a repository does not require DOE's program schedule to adhere strictly to the milestones set out in the NWPAs over the approximately 15 year duration of the repository development program. Delays in some milestones as well as advances in others can be expected.

The Commission has no evidence that delays of a year or so in meeting any of the milestones set forth in the NWPAs would delay the repository availability date by more than a few years beyond the 1998 date specified in the NWPAs. The Commission found reasonable assurance that a repository would be available by 2007–09, a decade later than that specified in the NWPAs, and a date which allows for considerable slippage in the DOE schedule. The Act also requires that any Federal agency that determines that it cannot comply with the repository development schedule in the Act must notify both the Secretary of Energy and Congress, provide reasons for its inability to meet the deadlines, and submit recommendations for mitigating the delay. The Commission notes that the Act also clarifies how the requirements of the National Environmental Policy Act are to be met. These provisions of the Act, as well as the provisions for research, development and demonstration efforts regarding waste disposal, increase the prospects for having the first repository in operation not later than the first few years of the next century.

The repository development schedule may have to accommodate such contingencies as vetoes of proposed repository sites, prolonged public hearings, protracted litigation, possible project reorientation, or delay in promulgation of siting guidelines. The schedule now incorporated into the Act allows substantial time for these possibilities.

## 2. Discussion of the Safety of Dry Storage

### A. Summary of Comments

DOE believed that the availability of dry storage techniques provides further reasonable assurance of the ability to safely store nuclear wastes at least 30 years beyond the expiration of reactor operating licenses. DOE stated that the citations quoted in the Commission's rationale are reliable and representative of the literature in the area, and that the Commission's technical judgment on dry storage conforms with DOE's experience and is accurate and correct (DOE, p. 16). The Consolidated Industry Group also stated that the pertinent points in the Commission's discussion appear to be adequately supported with appropriate references (Industry, pp. 10, 11).

In further support of the safety of dry storage, DOE cited the following:

- Extensive world-wide experience shows that dry fuel handling and storage is safe and efficient. Irradiated fuel has been handled, shipped, and safely stored under dry conditions since the mid-1940's. All types of irradiated fuel have been handled dry at hot cells, where a variety of phenomena have been observed in detail. The passive nature of most dry storage concepts contributes to the safety of interim storage by not requiring active cooling systems involving moving parts (DOE, p. 16).
- Regarding specific experience, DOE stated that a reactor fuel has been successfully stored in dry vaults licensed under Part 50 at the Hallam sodium-cooled graphite research reactor in Nebraska and the Fort St. Vrain HTGR prototype facility in Colorado. In addition, dry storage of zircaloy-clad fuel has been successfully conducted in drywells and in air-cooled vaults at DOE's Nevada Test Site. There is favorable foreign experience with dry storage at Wylfa, Wales in Great Britain, at Whitesell in Canada, in the Federal Republic of Germany, in France where vault dry storage of vitrified waste is routine, and in Japan, where a dry storage vault has been recently constructed (DOE, p. 17).
- To date, all dry storage tests have indicated satisfactory storage of zircaloy-clad fuel without cladding failure over the temperature range of 100 degrees C to 570 degrees C, in inert atmospheres. Existing data

which support the conclusion that spent fuel can be stored safely in an inert atmosphere for at least 30 years is being augmented by additional ongoing research (DOE, pp. 17, 18).

None of the consolidated groups of participants offered comments which were critical of the Commission's discussion of the safety of dry storage.

### B. NRC Response

The Commission is confident that dry storage installations can provide continued safe storage of spent fuel at reactor sites for at least 30 years after expiration of the reactor operating licenses.

### 3. List of Respondents

#### Consolidated Participants as Respondents to the Commission's Waste Confidence Decision

1. Department of Energy (DOE)
2. Consolidated States Representative <sup>1</sup> (States)
3. Consolidated Public Interest Representative <sup>2</sup> (CPIR)
4. Consolidated Industry Representative <sup>3</sup> (Industry)

## PART II: Commission Consideration of Additional Comments on Its Fourth Finding

### 1. Introduction

On November 3, 1983, the Commission reopened the comment period in this proceeding to receive comments on: (1)

<sup>1</sup>The Consolidated States Group consists of the Attorney General of the State of New York, Minnesota (by its Attorney General and the Minnesota Pollution Control Agency), Ohio, South Carolina and Wisconsin. The remaining participants previously consolidated in the States Group have not joined in these comments.

<sup>2</sup>The Consolidated Public Interest Group is represented here by the Natural Resources Defense Council, Inc., the New England Coalition on Nuclear Pollution, the Sierra Club, the Environmental Coalition on Nuclear Power, Wisconsin's Environmental Decade, Mississippians Against Disposal, Safe Haven, Ltd., John O'Neill, Jr., and Marvin Lewis.

<sup>3</sup>The Consolidated Industry Group is represented by: American Institute of Chemical Engineers; American Nuclear Society; Association of Engineering Geologists; Atomic Industrial Forum; Bechtel National; Consumers Power; General Electric; Neighbors for the Environment; Scientists and Engineers for Secure Energy; Tennessee Valley Authority; the Utilities Group (Niagara Mohawk Power Corporation, Omaha Public Power District, Power Authority of the State of New York, and Public Service Company of Indiana, Inc.); and the Utility Nuclear Waste Management Group—Edison Electric Institute. In order to emphasize the independent nature of its participation, the American Nuclear Society has chosen to proceed separately. ANS continues to protest its assignment to the Consolidated Industry Group and has offered separate comments on the Commission's Waste Confidence decision. Since only the consolidated groups of participants were invited to comment on the proposed decision, the ANS's separate comments are not discussed here. Further, TVA, as a Federal agency, wishes to stress the independent nature of its participation.

The environmental aspects of its fourth finding—that it has reasonable assurance that, if necessary, spent fuel can be stored without significant environmental effects for at least 30 years beyond the expiration of reactor operating licenses at reactor spent fuel storage basins, or at either onsite or offsite independent spent fuel storage installations; (2) the determination that there are no significant non-radiological consequences which could adversely affect the environment if spent fuel is stored beyond the expiration of operating licenses either at reactors or at independent spent fuel storage installations; and (3) implications of comments on items (1) and (2) above for the proposed amendment to 10 CFR Part 51 (48 FR 50746).

The Commission has considered those comments and, for the reasons discussed below, finds no reason to substantively modify its fourth finding or other related aspects of its decision in this proceeding. The Commission has, however, made revisions in its fourth finding to clarify its original intent.

Thirteen comments were received. Seven commenters identified various reasons which they believed argued against the finding.<sup>4</sup> Six commenters supported the finding.<sup>5</sup> In addition to the issues on which the Commission specifically requested comments, some commenters raised additional issues regarding the Commission's compliance with the National Environmental Policy Act (NEPA).

## 2. Environmental Aspects of Extended Storage of Spent Fuel

### A. Radiological Consequences of Spent Fuel Storage

The Commission's proposed fourth finding stated:

The Commission finds reasonable assurance that, if necessary, spent fuel can be stored safely without significant environmental effects for at least 30 years beyond the expiration of reactor operating licenses at reactor spent fuel storage basins, or at either onsite or offsite independent spent fuel storage installations.

The public was invited to submit additional comments on the environmental aspects of this finding. Those comments, and the Commission's responses to them, are set out below.

The State of Minnesota ("Minnesota"), through its Attorney General, and the Sierra Club believe that an event at the spent fuel pool for Prairie Island Nuclear Generating

Station ("Prairie Island") indicates that irradiated spent fuel assemblies are degrading rapidly with time. In December 1981, during a fuel transfer operation at Prairie Island, the top nozzle assembly separated from the remainder of a spent fuel assembly due to stress corrosion cracking of the spent fuel assembly while it was in the spent fuel pool. Minnesota and the Sierra Club acknowledge that this separation was an isolated event; over 5,000 similar spent fuel assemblies have been moved successfully at other plants. These commenters also acknowledge that television examination showed no corrosion cracking of similarly designed fuel assemblies at other nuclear power plants: Zion, Trojan, Kewanee and Point Beach. They also acknowledge that even though the water contaminant contributing to stress corrosion cracking has never been identified, the possibility that it may have been sulfates has led the Commission to suggest that Prairie Island monitor the sulfate levels of its spent fuel pool.

However, the Sierra Club contended<sup>6</sup> that the NRC staff essentially ignored the opinion of Mr. Earl J. Brown, an NRC engineer, that sulfate contamination is a generic problem at Pressurized Water Reactors (PWRs). The Sierra Club also believes that television inspection of spent fuel assemblies in spent fuel pools cannot reveal the initial signs of stress corrosion cracking. For these reasons, the Sierra Club and Minnesota believe that there is no assurance that spent fuel can be stored safely in spent fuel pools for 30 years after reactor shut down or for 60 years after irradiation.

The NRC investigated the Prairie Island event and found it to be an isolated event without generic impact. The staff also concluded that if a fuel assembly were to drop due to top nozzle failures, such an event would not lead to a criticality hazard in a spent fuel pool and that such an accident would result in radiation levels at the site boundary well within the limits in 10 CFR Part 100. The NRC Staff Assessment Report ("SAR") and associated memoranda, although already publicly available in the Commission's Public Document Room, have been added to the docket of this proceeding. That SAR concluded that the event was caused by intergranular stress-corrosion cracking due to an unidentified corrodant temporarily present in the spent fuel pool.

<sup>6</sup>Sierra Club also stated that the staff did not consider an Oak Ridge report (ORNL-3684, Nov. 1964) which identified water vapor as contributing to corrosion of the type of steel used in spent fuel assemblies. That report is not germane to light water reactor fuel because it addressed the sensitization of stainless steel in a high temperature gas cooled reactor environment, which is very different from the environment of a light water reactor. Refer to the discussion in Sec. 2.4A of the Appendix to the Commission's decision.

As for the Sierra Club's specific comments, the staff recognized that sulfate contamination was suspected to have contributed to the corrosion and recommended that licensees administratively control sulfate level concentrations in spent fuel pools. Such monitoring had been recommended by Mr. Brown as the only action that should be taken in response to the incident. Although Mr. Brown stated that in his opinion the event was a "potential" generic issue for PWRs, subsequent staff investigation revealed that the event was an isolated incident. The staff also considered the properties of the steel used in the spent fuel assemblies and acknowledged that they could have contributed to the event. However, the absence of any similar events for 5,000 other spent fuel assemblies indicated that the type of steel was not critical. Accordingly, the Commission finds no basis for reconsidering the Safety Assessment Report's finding that the Prairie Island event was an isolated incident and recommendation that sulfate control was an adequate response, or for altering its conclusion concerning the potential environmental impacts of stored spent fuel.

Wisconsin, Safe Haven, Ltd. and NRDC contended that the environmental effects of extended spent fuel storage are site specific and should be considered on a case-by-case basis.<sup>7</sup> Safe Haven believes that the individuality of each plant and its environmental surroundings necessitate separate evaluations of extended storage of spent fuel, but identified no site-specific factors which would result in significant environmental impacts. NRDC listed some site specific factors: geology, hydrology, seismicity, ecological factors and individual proposals for spent fuel management and storage. However, NRDC did not suggest how these factors could lead to significant site-specific environmental impacts that would preclude the Commission from making a generic finding. Similarly, Wisconsin listed as relevant factors proximity to population centers, highways, geologic faults, dams, flood plains or shorelines affected by erosion, but offered no suggestion of how these factors could affect the Commission's generic determination. For example, there has been no discussion of why the Commission's seismic design requirements, though site specific, are not generically adequate to assure that spent fuel can be stored for

<sup>4</sup>Department of Law of the State of New York, Marvin Lewis, Sierra Club, Safe Haven, Ltd., Attorney General of the State of Minnesota, Department of Justice of the State of Wisconsin and Natural Resources Defense Council, Inc.

<sup>5</sup>Scientists and Engineers for Secure Energy, Inc., American Institute of Chemical Engineers, American Nuclear Society, Utility Nuclear Waste Management Group—Edison Electric Institute, and U.S. Department of Energy.

<sup>7</sup>Safe Haven also suggested that a full environmental and safety review should accompany any utility's proposed plans submitted pursuant to 10 CFR 50 (§ 50.54(a)) for extended storage of spent fuel. The Commission will treat its review of any such utility proposal in accordance with the established procedures for considering any application for a license amendment.

up to 30 more years in a spent fuel pool designed to withstand the largest expected earthquake at each reactor site. Mr. Marvin Lewis contended that the fourth finding had no basis because the Commission had little or no experience with storing spent fuel for 30 years or with storing fuel that could be up to 70 years old. Mr. Lewis also asserted that the pyrophoricity of the zircaloy tubes containing spent fuel for 30 years presents and unknown fire danger. This comment is based on a private communication to Mr. Lewis regarding the condition of the spent fuel at Three Mile Island, Unit 2. By the terms of that letter, any fire danger associated with pyrophoricity of zircaloy arises from the accident conditions at TMI-2. NRC has previously studied the effects of loss of water from pools on the temperature of stored spent fuel (NUREG/CR-0649, "Spent Fuel Heatup Following Loss of Water During Storage" [March, 1979]). While this study noted that oxidation could become self-sustaining for temperatures in the neighborhood of 850-950° C (NUREG/CR-0649, page 13), the study shows that such oxidation can only occur for extreme temperature conditions and for spent fuel that has been stored for a relatively brief storage period. In order for rapid oxidation to occur, the age of the spent fuel (30,000 MWD/MT burnup) would have to be in the range of less than 10 days to less than two years, depending on the density at which it is stored (see page 55, Figure 17 of NUREG/CR-0649). Moreover, one must assume a continuing oxygen supply adequate to sustain the oxidation. Any damaged spent fuel such as that from TMI-2, would be canned to avoid particulate loss and would have already aged several years. Neither the heat load leading to temperatures capable of initiating rapid oxidation nor the presence of an adequate supply of oxygen to sustain a pyrophoric reaction would seem to be present in any storage configuration or under conditions that would receive NRC approval. While it is correct that spent fuel has not been stored for over 30 years, the record shows that utilities have successfully stored spent fuel for over 20 years, and that there are no known physical processes which would indicate that it is impractical to extrapolate that experience to make predictions about the behavior of spent fuel for 70 years of storage.

The Utility Nuclear Waste Management Group—Edison Electric Institute and the U.S. Department of Energy referred to several documents in the record which show that the relatively low energy content of spent fuel and the relatively benign static environment of spent fuel storage render

insignificant the radiologic impacts arising from extended storage of spent fuel. As discussed in more detail below, these documents also show that there are no significant non-radiologic environmental impacts arising from such extended storage. Under these circumstances, the Commission finds that it has sufficient experience with spent fuel storage to predict spent fuel behavior during 70 years of storage and to find that such storage will not result in significant environment effects.

#### B. Non-Radiological Consequences of Spent Fuel Storage

The Commission's fourth finding rested in part on the Commission's determination that there are no significant non-radiological consequences due to the extended storage of spent fuel which could adversely affect the environment. The public was invited to comment also on this finding and to provide a detailed discussion of any such environmental impacts. Mr. Marvin Lewis asserted that the continuous storage of spent fuel under water for 30 years or more requires unprecedented institutional guarantees. He also noted that there had been no consideration of financial, economic and security implications of storage for 30 or more years. Mr. Lewis did not expand upon these assertions to explain how they would result in significant non-radiological environmental consequences. In any event, the more than twenty years of experience with storing spent fuel demonstrates that storage of spent fuel for 30 years or more does not require unprecedented institutional guarantees or raise unique questions regarding finances, economics or the security of extended spent fuel storage. Further, the Commission will require all reactor licensees, 5 years before expiration of their operating license to provide a plan for managing the spent fuel prior to disposal. Moreover, the record documents referred to by UNWGM-EEI, DOE and AIF show that there are no significant non-radiological environmental impacts associated with the extended storage of spent fuels. The amount of heat given off by spent fuel decreases with time as the fuel ages and decays radioactively. No additional land needs to be devoted to storage facilities because reactor sites have adequate space for additional spent fuel pools or dry storage installations. The additional energy and water needed to maintain spent fuel storage is also environmentally insignificant. No commentator has challenged these assessments of environmental impacts and the Commission has no reason to question their validity. Under these circumstances, the Commission has no reason to reassess its prior

determination that extended storage of spent fuel will present no significant non-radiological consequences which could adversely affect the environment.

#### 3. Commission Compliance With NEPA

Several participants challenged the Commission's compliance with NEPA. The States of New York ("New York") and Wisconsin contend that since its inception, this proceeding has focused on the availability and safety of spent fuel storage, and has been conducted outside the scope of NEPA. New York supports this contention with the following quote from the First Prehearing Conference Order (February 1, 1980):

This rulemaking proceeding does not involve a major federal action having a significant impact on the environment, and consequently an environmental impact statement is not required by NEPA . . .

New York asserts that this statement caused the participants not to consider NEPA in their filings. Accordingly, New York believes that the Commission cannot now transform the Waste Confidence Proceeding into a NEPA proceeding. In New York's view, joined by the Natural Resources Defense Council, Inc. ("NEDC"), NEPA required the Commission to prepare an environmental impact statement ("EIS") or environmental assessment to consider the environmental impacts of spent-fuel storage at reactor sites beyond the expiration dates of reactor licenses. The Utility Nuclear Waste Management Group-Edison Electric Institute ("UNWGM-EEI") believes that it has been clear from the outset of this proceeding that the Commission intended to develop environmental regulations appropriate to the issues considered here. UNWGM-EEI cites several factors in support of its position: (1) this proceeding was the direct outgrowth of a NEPA case, *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979); (2) the Notice of Proposed Rulemaking explicitly stated a Commission intent to deal with environmental aspects of spent fuel storage; (3) the proceeding was docketed under Part 51, the Commission's regulations implementing NEPA; (4) the Commission stated that it would draw on the record of the rulemaking on environmental impact of the nuclear fuel cycle (Table S-3) and included in the NRC Data Bank for this proceeding sources of information on the environmental impacts of spent fuel storage; and (5) several participants included in their statements information pertaining to the environmental impacts of spent fuel storage.

The Commission believes that from the very beginning of this proceeding, participants were on notice that environmental aspects of spent fuel storage were under consideration. The notice initiating this proceeding stated,

## in pertinent part:

If the Commission finds reasonable assurance that safe, off-site disposal for radioactive wastes from licensed facilities will be available prior to expiration of the facilities' licenses, it will promulgate a final rule providing that the *environmental and safety implications of continued on-site storage after the termination of licenses* need not be considered in individual licensing proceedings. In the event the Commission determines that on-site storage after license expiration may be necessary or appropriate, it will issue a proposed rule providing *how that question will be addressed*.

Based on the material received in this proceeding and on any other relevant information properly available to it, the Commission will publish a proposed or final rule in the Federal Register. Any such final rule will be effective thirty days after publication.

44 FR 61372, 61273-61374 (1979). (Emphasis supplied).

It is clear from this notice that if the Commission found that onsite storage after termination of reactor operating licenses would be necessary or appropriate, then it would propose a rule for dealing with the question of environmental and safety implications of continued onsite storage. New York's reference to the statement in the First Prehearing Conference Order is inapposite. That statement addressed the issue of whether a decision in this proceeding would be a proposal for major federal action having significant impact on the environment so as to require an EIS. The Presiding Officer found that the decision itself would not require an EIS. His decision in no way implied a change in the scope of the proceeding as announced in the notice initiating it.

There is also nothing about the Commission's fourth finding which requires an EIS. Neither New York nor NRDC has explained how this finding is a major federal action having a significant impact on the human environment. The finding provides a basis for a rule that provides that environmental impacts from extended storage of spent fuel are so insignificant as not to be required to be included in an impact statement. The validity of such a rule depends on the procedures used to promulgate it and the record supporting it. An EIS is not required because such a rule itself has no environmental impacts, significant or otherwise.\* To require an EIS here would be essentially to require an EIS to show that no EIS is required. Clearly such a result would be incorrect. Accordingly, the Commission finds that NEPA does not require an EIS to support the fourth finding.

\*See, for example, *Natural Resources Defense Council, Inc., v. U.S. Nuclear Regulatory Commission*, 547 F.2d 633, 653, n. 57 (D.C. Cir. 1976), reversed on other grounds, sub nom. *Vermont Yankee Nuclear Power Corp. v. NRC*, 435 U.S. 519 (1978).

## 4. List of Respondents

Respondents to the Commission's November 3, 1983 Order (48 FR 50746) To Reopen the Period for Limited Comment on the Environmental Aspects of the Commission's Fourth Finding in the Waste Confidence Proceeding

1. Attorney General of the State of New York (N.Y.)
2. Marvin Lewis (Lewis)
3. Sierra Club Radioactive Waste Campaign (Sierra)
4. Scientists and Engineers for Secure Energy, Inc. (SE2)
5. Safe Haven, Ltd. (S.H.)
6. American Institute of Chemical Engineers (AICE)
7. Atomic Industrial Forum, Inc. (AIF)
8. Utility Nuclear Waste Management Group—Edison Electric Institute (UNWGMG-EEI)
9. Natural Resources Defense Council, Inc. (NRDC)
10. Attorney General of the State of Wisconsin (Wis.)
11. U.S. Department of Energy (DOE)
12. American Nuclear Society (ANS)
13. Attorney General of the State of Minnesota (Minn.)

**Appendix—Rationale for Commission Findings in the Matter of the Waste Confidence Proceeding**

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Reference Notation

## 1.0 Introduction

The rationale for the five Commission findings resulting from the Waste Confidence proceeding is summarized below. This rationale is based principally on the record of the proceeding which includes participants' position statements, cross-statements, pre-hearing and oral statements (in the discussion below, the participants are identified by the citations defined in the Reference Notation at the end of this document). The Commission also relied on the provisions of the Nuclear Waste Policy Act of 1982 (NWPA), and other substantive material not originally included in the record relating to the discussion of the safety of dry storage of spent nuclear fuel in the Commission's Fourth Finding; the NWPA and the dry storage material have now been incorporated into the record along with the relevant comments of participants in this proceeding.

The Commission notes that two relevant developments have occurred subsequent to the closing of the record in the Waste Confidence proceeding. They are the publication of DOE's draft Mission Plan for the Civilian Radioactive Waste Management Program (April, 1984) and the Commission's concurrence in DOE's General Guidelines for Recommendation of Sites for Nuclear Waste Repositories (July 3, 1984). These developments are a matter of public record, and in the case of the Commission's concurrence was the conclusion of a separate public proceeding. The Commission has considered the effects of these developments on its previously announced decision in this proceeding and determined that these developments do not substantially modify the Commission's previous conclusions.

## 2.0 Rationale for Commission Findings

## 2.1 First Commission Finding

*The Commission finds reasonable assurance that safe disposal of radioactive waste and spent fuel in a mined geologic repository is technically feasible.*

The Commission finds that safe disposal of high-level radioactive waste and spent fuel is technically possible and that it is achievable using existing technology. Although a repository has not yet been constructed and its safety and environmental acceptability demonstrated, no fundamental breakthrough in science or technology is needed to implement a successful waste disposal program. Those participants who questioned the availability of a repository did not contend that fundamental scientific breakthroughs were required, but questioned whether

technical problems could be resolved in a timely manner. The record supports the conclusion that the safe disposal of high level radioactive waste and spent nuclear fuel from licensed facilities can be accomplished.

The Department of Energy's (DOE) position is that disposal in mined geologic repositories can meet the goal of providing safe and effective isolation of radionuclides from the environment (DOE PHS pp. 2, 4; Tr. p. 11). A number of participants stated that waste containment and isolation from the biosphere are scientifically feasible (USGS PS p. 4; NRDC PS p. 9; UNWMC-EEI PS, Doc. 1 p. 22, Doc. II p. II-6; Consolidated Industry Group Tr. p. 10; Consolidated States Group Tr. p. 98). This view is consistent with the conclusions of the *Report to the American Physical Society by the Study Group on Nuclear Fuel Cycles and Waste Management* (Rev. Mod. Phys., Vol. 50, No. 1, Pt. II, p. S6, Jan. 1980) and the *Report to the President of the Interagency Review Group on Nuclear Waste Management* (Final Report, March, 1979, p. 38).

The conclusion that safe radioactive waste disposal is technically feasible is based on consideration of the basic features of repository design and the problems to be solved in developing the final design. A mined geologic repository for disposal of high-level radioactive waste, as developed during the past three decades, will be based on application of the multi-barrier approach for isolation of radionuclides. The high-level radioactive waste or spent fuel is to be contained in a sealed package and any leakage from the package is to be retarded from migrating to the biosphere by engineered barriers. These engineered barriers include backfilling and sealing of the drifts and shafts of the mined repository. We believe that the isolation capability and long-term stability of the geologic setting provide a final barrier to migration to the biosphere.

The selection of a suitable geologic setting is one of the key technical problems which DOE must solve. Other problems include development of waste packages that can contain the waste until the fission product hazard is greatly reduced and engineered barriers that can effectively retard migration of radionuclides out of the repository. The Commission recognizes that these three problems are not only the ones which DOE's program must solve, but they are critical components of the multi-barrier approach for nuclear waste isolation. Much of the discussion in this proceeding has focused on these problems. We have reviewed each of these issues and have concluded that they do not present an insoluble problem which will prevent safe disposal of radioactive waste and spent

fuel.

#### A. The Identification of Acceptable Sites

There is general agreement among the participants that the period during which the wastes must be isolated from the biosphere is at least several millenia and that such prolonged isolation can be achieved in a deep mined repository provided the geologic setting is suitable. The geologic setting is the "final" isolating barrier. If the waste package and engineered barriers fail to perform as expected, the geologic barrier must prevent harmful quantities of radioactive materials from entering the human environment.

The Commission believes that technically acceptable sites exist and can be identified. In many locations in the continental United States there are geologic media potentially suitable for a waste repository. These media occur in large, relatively homogeneous and unfaulted formations and have properties (e.g., mechanical strength, thermal stability, impermeability to water which qualify them as potential host rocks for radioactive wastes. The potential host rocks include those being investigated by DOE—that is, domed salt, bedded salt, tuff, basalt, granite, and shale (DOE PS pp. II-70 to II-80). Thousands of square miles of the United States are underlain with formations containing extensive masses of such potential host rocks. Moreover, more than one-half of the United States is underlain with rock that has been stable against significant deformation and disruption for over ten million years. The potential sites being investigated by DOE are in regions of relative tectonic stability (USGS PS pp. 19, 23, 24, 25, 26, 28; Tr. p. 236).

Host rock suitability and formation stability are not the only relevant technical factors to be considered in repository site selection. Geohydrologic conditions—particularly the absence of significant groundwater flow from the repository to the biosphere—must be favorable for effective isolation of the wastes (USGS PS p. 11). DOE's investigations reveal that the hydrologic characteristics of a major portion of the sites underlain with stable formations of potential host rock appear to be suitable for repository location (Tr. p. 236; DOE PS p. II-77).

These general conclusions about the extent of potential repository sites are based on the results of DOE's site exploration program (DOE PS Appendix B) and the extensive body of earth-sciences information available at the United States Geological Survey—the Federal agency principally concerned with earth-sciences issues and, under a DOE-USGS Memorandum of Understanding, a primary source of geologic, hydrologic and mineral resource data for the National Waste

Terminal Storage program (USGS PS p. 2 and Appendix A; DOE PS p. III-44).

DOE's site exploration efforts are focused on four host rocks (domed salt, bedded salt, basalt, and tuff) in six regions (Gulf Interior, Paradox Basin, Permian Basin, Salina Basin, DOE Hanford Site, DOE Nevada Test Site) (DOE PS Appendix B). Although investigations of granite sites in the U.S. have been limited, DOE is developing data on the potential of granite as a host rock in collaboration with foreign investigators. A Swedish-American cooperative program (DOE's Lawrence Berkeley Laboratory is the U.S. principal in the program) has involved a series of *in situ* tests in a granite formation conducted at the Stripa mine in Sweden. The investigations included determinations of thermally induced stresses and deformations in the granite-rock mass. Another cooperative study at Studsvik in Sweden involved experiments in nuclide migration in fractured subsurface crystalline rocks (DOE PS p. II-258).

Some participants objected to the fact that most of DOE's site exploration involved federally-owned or -controlled areas, arguing that this would result in ignoring sites that were technically better (NRDC PS p. 17; Tr. p. 206). This objection, apparently based on the assumption that Federal lands investigated were limited in area and geologic diversity, is not supported by the record. The Federal lands being investigated by DOE are extensive and geologically diverse; moreover, they are more readily accessible to DOE and some of them, such as Nevada Test Site, have been previously subjected to extensive geologic assessment. These latter factors are significant advantages (DOE PS Appendix B; UNWMC-EEI CS p. IV. B-4). Although, as the United States Geological Survey pointed out, there may be advantages from a purely earth-science viewpoint in examining all parts of the country for their potential as repositories, time and resource limitations require that site exploration efforts be concentrated in limited regions fairly early so that detailed site-specific characterization efforts can be undertaken in a timely way (USGS PS p. 17).

A specific site has not yet been identified as technically acceptable, and investigations of potential sites have shown some to be unsuitable. This does not necessarily mean that DOE's site selection program will be unsuccessful in identifying technically acceptable sites. The elimination of some sites is to be expected in a pursuit of the site selection program and is not, as some participants implied, an indication that suitable sites cannot ultimately be found.

Although the record of this proceeding

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does not show that DOE has progressed far enough in site characterization to confirm the existence of an acceptable site, the record does indicate that DOE's site characterization and selection program is technically sound. The data obtained in each stage of the screening process are analyzed and compared against criteria that must be satisfied for adequate performance of the total isolation system. 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 (DOE PS pp. III-8 to III-24; CS p. II-140). As discussed above, DOE's site screening efforts have concentrated on a diverse set of potentially suitable geologic media and are directed to an examination of large areas of the country on both federally-owned and non-federal lands (USGS PS p. 17).

The technology for site identification is particularly well-advanced (UNWMC-EEI PS p. III-A-b79). The record describes numerous site characterization techniques, both remote sensing and *in-situ*, which are being used to evaluate sites (DOE PS pp. II-84 to II-103). The location and demonstration of acceptability of repository sites are problems which can be solved by the investigative and analytical methods now available (AEG PS p. 1). Site selection criteria are being refined (DOE PS pp. II-80 to II-83; 48 FR 5671, February 7, 1983) and the technology exists for site characterization (DOE PS pp. II-84 to II-103). Areas have been found where most natural geologic and hydrologic processes operate at rates favorable to long-term containment in a mined repository (DOE PS p. II-128; Consolidated Industry Group PHS p. 9).

The Commission recognizes that there are gaps in the current state of knowledge about potential repository sites and geologic media, and about geochemical processes which affect radionuclide migration (e.g., CEC PS pp. 17, 54; NRDC PS pp. 18, 50, 64; NY pp. 38, 80; USGS CS pp. 5, 6). The gaps include a lack of a detailed understanding of such relevant processes as sorption of radionuclide-bearing molecules by the geologic media, leaching of the wastes by groundwater, and radionuclide migration through subsurface formations. Some participants contend that these gaps and uncertainties in knowledge make it difficult to predict on the basis of any effort less than a detailed on-site investigation whether a candidate repository site will be technically suitable (e.g., NRDC PS pp. 18, 50, 53; ECNP PS pp. 3, 4; NECNP PS pp. 20, 21, 22).

The Commission recognizes that

detailed site characterization is necessary to confirm that a proposed site is indeed suitable. The Commission does not believe, however, that all uncertainties must be resolved as a pre-condition to repository development. The performance of a repository may be bounded by using conservative values for controlling parameters, such as waste form solubility, ground water travel time and retardation of radionuclides. Furthermore, bounding analyses can be useful to take residual gaps in knowledge and uncertainties into account. If it can be established that a repository can perform its isolation function using established, conservative values for the controlling parameters, then it is not necessary to resolve uncertainties in the range of value these parameters may exhibit (DOE CS pp. II-83, II-84, II-130, III-9, III-12).

The statements of those participants who are pessimistic about timely accomplishment of disposal tend to assign equal importance to all areas of uncertainty. Hence, they contain few attempts to assess the consequences of gaps in knowledge or to project the benefits of expected results from ongoing research and development efforts. It is the Commission's belief that the waste isolation system elements are adequately understood so that major unforeseen surprises in results of research and development are highly unlikely. This view is supported by USGS (USGS CS pp. 1-2).

A further concern of some participants is that, even if DOE were to identify a potentially acceptable repository site, the *in-situ* testing required to determine acceptability would breach the integrity of the candidate site (NY PS pp. 59, 63-65). If, for example, boreholes essential to characterize a potential site result in penetration of aquifers which are not amenable to effective sealing, this might make the site unacceptable (DOE PS pp. II-161 to II-164). However, no persuasive evidence was presented in the record to support the position that *in-situ* tests for site characterization work are likely to compromise the integrity of candidate sites. The Commission believes that *in-situ* tests can be successfully accomplished without adversely affecting site integrity for the following reasons. Many non-destructive remote sensing methods are available for determining site characteristics. Further, boreholes can be located in shafts or pillars of the future repository to minimize the possibility of leakage through them.

As discussed later, borehole sealing methods are expected to be adequate. The number of boreholes necessary to adequately characterize a site can be minimized by careful planning and by use of remote sensing methods in

conjunction with the drilling program (DOE PS pp. II-84 to II-103, II-181). Finally, the Commission believes that if a site is found to be sufficiently sensitive to the testing program so that its integrity would be destroyed, then that site would necessarily be found unacceptable.

In summary, the Commission believes that technically acceptable sites for disposal of radioactive waste and spent fuel exist and can be found. There are a number of suitable host rock type to select from; many areas are underlain with massive, stable formations containing these host rocks; the areas being investigated by DOE contain such rock formations; and the uncertainties in knowledge of the earth and material sciences relevant to the identification of an acceptable repository site are not fundamental uncertainties that would prevent the identification of technically acceptable sites. Further, *in-situ* testing required to characterize a candidate site would not necessarily compromise its integrity.

### B. The Development of Effective Waste Packages

1. *Waste Package Considerations.* An important technical aspect of safe waste disposal is to assure that the waste form and the balance of the waste package, including the primary container and ancillary enclosures, are capable of containing the radioactivity for a time sufficient for the hazard from fission-product activity to be significantly reduced (e.g., DOE PS p. II-8). Decay heat, groundwater and nuclear radiation could cause the waste package components to interact with each other or with the host rock materials in such a way as to degrade the ability of the package to contain the radionuclides. These items are discussed below.

To assure long-term containment, DOE's conceptual design of a waste package is based on a defense-in-depth approach and involves a number of components including spent fuel, stabilizer (or filler), waste canister, overpack, and an emplacement hole sleeve. The stabilizer is intended to improve heat transfer from the spent fuel, to provide mechanical resistance to possible canister collapse caused by lithostatic pressure, and to act as a corrosion-resistant barrier between the spent fuel and the canister. Selection of canister overpack and emplacement hole sleeve materials will be based on tests of their chemical and physical integrity at various temperatures and levels of radiation and under various conditions of groundwater chemistry, as well as tests of their compatibility with each other and with the host rock materials under repository conditions. The canister, overpack, and sleeve should constitute relatively impermeable elements of the waste package. A variety of candidate materials is being considered for these



elements. The various waste package components are to be combined in a conservative design that will compensate for the overall technical uncertainties in containment capability. The requirement for retrievability during some specified period after emplacement places conditions (e.g., ruggedness) on waste package design which are added factors to be considered in its development (DOE PS p. II-129 to II-152, II-282).

It is apparent from the foregoing that the development of an effective waste package depends on obtaining engineering data on those materials that appear to be promising candidates for package components. DOE is studying over 28 candidate materials for canisters and overpack (DOE PS p. II-143). The DOE evaluation program indicates that many of these materials are promising. For example, iron alloys have demonstrated long term durability (DOE PS p. II-144, Reference 383), and titanium alloys and nickel alloys show high resistance to corrosion (DOE PS p. II-144, Refs. 315, 338, 342). Ceramics are resistant to chemical degradation and have many other desirable properties (DOE PS p. II-145, Refs. 337, 347, 348 and 349). Preliminary analysis indicates that mild steel canisters with an appropriate backfill material would be a feasible waste package for either a salt or hard rock repository. For more demanding requirements, such as brine applications, the alloys of titanium, zirconium or nickel appear to represent alternate choices (DOE PS p. II-150, Refs. 337, 382). The DOE program also includes experimental studies of the release of radioisotopes from spent fuel exposed to simulated repository conditions (e.g., salt brine and fresh water with varying dissolved oxygen content). The studies are being conducted under temperature and pressure conditions that bound and exceed repository conditions (DOE PS pp. II-139 to II-141).

Not all participants were optimistic about waste package development. One participant asserted that in spite of DOE's efforts to develop a package that would remain inert and stable under repository conditions, none had yet been found and the DOE program would not succeed in finding one (NRDC PS p. 46). Other participants pointed to the limits of present knowledge, particularly about the leaching of radioisotopes from spent fuel in a groundwater environment, and concluded that it is not possible to select a waste form which will prevent radioisotopes from migrating to the biosphere (e.g., CEC PS p. 51). They also pointed out that chemical and physical properties of spent fuel varied widely and depended on burnup, location within the reactor core, age, and physical integrity; design of a system of

barriers to accommodate this heterogeneity within the context of a given geohydrologic environment would be a major undertaking (NY PS p. 83).

The Commission recognizes the difficulties which must be overcome in developing a suitable waste package. A large body of experimental data must be accumulated and applied to a variety of candidate arrangements of waste package components. Suitably conservative assumptions must be postulated to define the repository conditions. Data from experiments of relatively short duration have to be used to predict behavior for much longer periods. It is common practice in materials research to perform short-duration experiments under physical or chemical conditions much more severe than those expected for the longer duration and, from known fundamental properties of the materials under investigation, to extrapolate the experimental data to predict long-term behavior. Conservatism can usually be assured by making the experimental conditions sufficiently severe.

The complex composition of the mixture of radionuclides in fission products and their basic chemical properties are known and have been the subject of investigation for more than three decades. The large body of published data on fission product chemistry and experience with fission product mixtures should provide considerable support for predicting the behavior of spent fuel and high-level radioactive waste in waste package designs.<sup>1</sup> The Commission, therefore, concludes that the chemical and physical properties of spent nuclear fuel and high-level radioactive waste can be sufficiently understood to permit the design of a suitable waste package.

The Commission also concludes that the DOE program is capable of developing a suitable waste package which can be disposed of in a mined geologic repository. This conclusion is based upon the large number of candidate materials being considered by DOE, the detailed evaluation of these materials to be conducted as part of the DOE program and the results of DOE's preliminary analysis of candidate materials, as described above (see Sec. 2.1(b)(1)). The Commission's conclusion that the development of a suitable waste package is technically feasible is also consistent with other material in the record. For example, a study sponsored

<sup>1</sup>Published compilations of such data, although not specifically included in the record of this proceeding, are well known to the nuclear science and engineering community. Examples are the three volumes of the National Nuclear Energy Series, "Radiological Studies: The Fission Products," by C. D. Coryell and N. Sugarman, McGraw-Hill, 1951; "Reactor Handbook," Second Edition, Vol. II, Fuel Reprocessing, edited by S.M. Stoller and R.B. Richards, Interscience Publishers, Inc., New York, 1961).

by the National Academy of Sciences (NAS) concluded that no insurmountable technical obstacles were foreseen to preclude safe disposal of nuclear wastes in geologic formations (UNWMC-EEI PS Doc. 2 p. II-6). The United States Geological Survey stated that a long-lived canister is within the capability of materials science technology to be achieved in the same time frame as repository site identification, qualification and development (USGS PS p. 11). The National Research Council, after reviewing the Swedish waste disposal work (DOE PS p. II-335 Ref. 380), concluded that the Swedish waste package could contain the radionuclides in spent fuel rods for hundreds of thousands of years (DOE CS p. II-98).

**2. Effect of Reprocessing on Waste Form and Waste Package.** The waste form itself (spent fuel or other high-level waste) serves as the first barrier to radionuclide release and thus supplements the containment capability of the other components of the waste package as well as the repository's natural isolation capability. Throughout this proceeding it has been assumed that the waste form would be spent fuel discharged from light water reactors, with mechanical disassembly for volume reduction and packaging in a canister as the only potential modifications. The relevant properties of the spent fuel (irradiated uranium dioxide pellets and zircaloy cladding) are known. DOE's program has been directed toward providing data to determine the behavior of spent fuel as a waste package component under repository conditions. In its Position Statement DOE stated that the "representative case" to be considered in this proceeding is the disposal and storage of spent fuel from commercial reactors and that this does not foreclose "other approaches, such as the reprocessing of spent fuel and solidification of resultant nuclear wastes" (DOE PS p. I-2).

On August 27, 1981 the National Resources Defense Council filed a Motion for Judgment requesting a prompt ruling that, on the basis of the present record, there is not reasonable assurance that off-site storage or disposal will be available by the year 2007-09. NRDC stated that, because the present Administration<sup>2</sup> had changed Federal policy towards commercial reprocessing of spent fuel (reprocessing was deferred "indefinitely" in April 1977 by the previous Administration), the disposal of spent fuel would be contrary to the present Administration's policy, and thus spent fuel was no longer a valid "reference waste form" for this

<sup>2</sup>The NRDC statement was based on DOE testimony before a Congressional committee. The President's Nuclear Policy Statement of October 8, 1981 confirmed the DOE testimony.

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proceeding. As a consequence, according to NRDC, DOE schedules and timetables, which were based on spent fuel storage and disposal, were irrelevant. The NRDC view was challenged by DOE as well as by seven participants representing utilities and the nuclear industry. The Commission took note of the NRDC filings and the responsive filings by other participants, considering them part of the record, and in its November 6, 1981 Second Prehearing Memorandum and Order asked the participants to address the significance of commercial reprocessing to the Commission's decision in the waste confidence proceeding. In response, the participants addressed this change in government policy in their prehearing statements filed in December 1981.

In response to those who argued that the change of reprocessing policy invalidated DOE's position, DOE stated that the program for development of the technology is not dependent on the waste form. Moreover, DOE pointed out that the purpose of this proceeding—"to determine whether there is at least one safe method of disposal or storage for high-level radioactive waste" is not changed by this Administration's support of reprocessing of spent fuel (DOE PHS pp. 2-3). Some participants who agreed with DOE commented that spent fuel disposal involves greater difficulty than disposal of solidified reprocessing waste because of its higher radioactivity and less easily handled form; in addition, they asserted that the removal of the uranium and most actinides by reprocessing would ease the requirements for safe long-term storage and simplify the waste disposal problem (UNWGMG-EEI PHS p. 18; SE2 PHS p. 4). Others contended that spent fuel is a more difficult waste form because heat dissipation and packaging problems involved in disposal appear to be more severe than in disposal of solidified reprocessing waste (AIF PHS p. 8; ANS PHS p. 5).

The Commission recognizes that the proceeding has been primarily concerned with storage and disposal of spent fuel. However, the Commission does not believe that the possibility of future reprocessing, and the potential need to dispose of high-level radioactive waste resulting from reprocessing, significantly alters the technical feasibility or the schedule for developing a mined geologic repository and the design of its multiple barriers.

With regard to technical feasibility, the effect of spent fuel reprocessing on the commercial radioactive waste disposal problem is not a new consideration. The disposal of waste from reprocessing spent fuel has been studied for a longer time than the disposal of spent fuel. Until 1977, the commercial waste management program

was directed primarily toward disposal of waste from spent fuel reprocessing, and those efforts have continued. A variety of waste forms has been studied (DOE PS pp. II-153 to II-160). Thus, considerable information is already available on the technical feasibility of developing a suitable waste form for reprocessed high-level radioactive waste. In fact, there is evidence that the disposal of reprocessed high-level waste may pose fewer technical challenges than the disposal of spent fuel (Tr. p. 29). Moreover, commercial reprocessing of spent fuel cannot be undertaken in this country in the absence of a full NRC licensing review. That review will consider, among other things, the waste form to be produced by the reprocessing method and its implications for waste disposal. Unless the Commission determines that commercial reprocessing and management of its products assure adequate protection to the public health and safety and the common defense and security, spent fuel will continue to be the predominant commercial waste form available for disposal in a repository.

With regard to the impact on DOE's repository schedule, the Commission recognizes that DOE's waste package development program will eventually be affected to some extent by the nature of the waste form under development. However, the direction taken in research and evaluation of materials being conducted in the DOE program is expected to produce results which would be relevant to the waste package design, regardless of which waste form is used (DOE PS pp. II-141 to II-152, CS pp. II-96 to II-100). Moreover, the choice of waste form will not significantly affect other elements of the DOE repository program. The storage and disposal of reprocessed waste would involve substantially the same problems as those being addressed for spent fuel, and a change in waste form would not alter the site-selection program or the program for development of suitable engineered barriers (DOE PHS p. 3). Thus, DOE's program is proceeding on a basis that would permit the disposal of either high-level waste or spent fuel. This approach is consistent with the recommendations of the Interagency Review Group in its March 1979 report to the President (IRG Final Report, p. 73) and with the direction in the Nuclear Waste Policy Act of 1982 (Sec. 111(a)(2)). Finally, as noted above, any decision to permit the commercial reprocessing of spent fuel will include consideration of the reprocessed waste form and its implications for waste disposal. For these reasons, the Commission concludes that the possibility of commercial reprocessing does not substantially alter the technical feasibility of, or the schedule for, developing a suitable waste package.

The Commission concludes that the basic knowledge of spent fuel and high-level waste and its behavior in a repository environment, together with DOE's ongoing development and testing program, are sufficient to provide assurance that a waste package can be developed that will provide adequate containment until the potential hazard from the fission product activity is sufficiently reduced.

### C. The Development of Effective Engineered Barriers for Isolating Wastes From the Biosphere

**1. Backfill Materials.** In DOE's conceptual design, one engineered barrier consists of backfill materials for filling voids between canister, overpack, sleeve and host rock. The materials are chosen to retard radionuclide migration. The task is to design and test barrier materials which will be effective for very long periods of time. Candidate materials include bentonite, zeolites, iron, calcium or magnesium oxide, tetracycline, anhydrite, apatite, peat, gypsum, alumina, carbon, calcium chloride, crushed host rock, and others (DOE PS p. II-147). Host rock or other materials would also be used to backfill drifts and shafts within the repository.

The California Department of Conservation (CDC) contends that repository shaft and borehole backfill material performance may be degraded as a result of increased temperature and other factors (CDC PS pp. 19-22). However, the expected temperature rise in the shaft backfill material will be only about 10 Fahrenheit degrees, and will cause no significant degradation of the shaft backfill material (DOE, PS p. II-347 Ref. 527 NUREG/CR 0495). Other participants believe that there is inadequate information to permit development of long-lived engineered barriers that will effectively contain high-level radioactive wastes (NRDC PS pp. 18, 32; I11 PS pp. 3-4; NECNP PS p. 18). CDC further contends that at this time, no information appears to have been developed that specifies the best type of backfill material to be used in particular geologic media (CDC PS pp. 19-22). However, the choice of backfill must take into account the rock media at the selected site as well as the waste package material. Thus, the backfill cannot be selected until a repository site has been selected. The NWTSP program has as its objective, providing information on a practical range of options for backfill materials. Although a considerable amount of work remains to be done, an active research and development program on backfill materials is underway (DOE PS p. II-147). Further, that program is providing information to evaluate the backfill material options, as well as to establish a basis for selection of a suitable material for the geologic media being

considered. The Commission believes that this approach provides an adequate basis for concluding that effective backfill materials will be identified in a timely fashion.

In the National Waste Terminal Storage program a wide range of candidate backfill materials have been and are continuing to be evaluated (DOE PS II-129 to II-152). The DOE studies include measurements of the appropriate properties of backfill material including nuclide sorption capacities, capability to prevent or delay ground water flow, thermal conductivity, mechanical strength, swelling, plastic flow and methods of backfill emplacement. Data on available candidate materials show significant radionuclide sorption capabilities and sorptive properties can be maintained at elevated temperature and in the presence of radiation (DOE CS pp. II-98, II-99). Analyses indicate that several of the materials could provide adequate performance characteristics (DOE PS, Part II, Ref. 339, 340, 346, 372, 374, 376). As an example of the development of effective engineered barriers, the results of Swedish studies on radionuclide release in a repository were cited. The studies showed that a bentonite clay backfill, in conjunction with a thick copper canister (with spent fuel inside) could prevent the release of radionuclides to the host rock in the presence of granitic ground water for thousands to hundreds of thousands of years. In the Swedish experiments, the clay barrier provided sorptive properties which were predicted to delay the breakthrough of various radionuclides for thousands of years and also served to chemically condition the ground water, reducing its corrosive effect on the canister (DOE PS pp. II-145, II-148). The use of certain clays to retard the transport of radionuclides released by the waste package is applicable to repository designs here in this country. While DOE has not proposed using thick copper canisters as employed in the Swedish studies, this example of a durable combination of waste package and backfill material which was demonstrated to be effective in isolating radionuclides for very long times, indicates that the basic approach is reasonable. The use of clays, combined with other appropriate materials, could provide an effective means for radionuclide retardation and corrosion control.

In sum, the Commission believes that DOE's ongoing developmental studies reported in this proceeding (DOE PS pp. II-129 to II-152) are technically sound and provide a basis for reasonable assurance that engineered barriers can be developed to isolate or retard radioactive material released by the waste package.

**2. Borehole and Shaft Sealants.** A major factor in repository performance is the effective sealing of boreholes and shafts during repository closure operations. All penetrations provide potential pathways for radionuclides to reach the biosphere or for ground water to enter the repository. The penetrations must be sealed for an extended period of time. Further, the geology and hydrology at a particular site, as well as the expected temperature and pressure conditions during repository lifetime, must be understood in order to make a proper choice of the borehole and shaft sealing materials and to develop effective borehole and shaft seals.

Some participants concluded that current information concerning the technology for the sealing of the boreholes and shafts is inadequate. They also questioned the capability of the DOE program to develop sufficient information to allow effective seal design (CDC PS pp. 19-22; NRDC PS p. 5). The views of several participants who expressed concern about sealing were reflected in the comments of CDC. The Commission's response to each of the points raised by CDC on borehole and shaft sealing issues is discussed below.

CDC indicated that since long-term effects of heat and radiation on seal materials were not a factor in past oil and gas borehole sealing experience, such experience is not applicable to repository sealing.<sup>3</sup> However, at distances of more than several feet from waste canisters employed in a repository, radiation exposures are small and the temperature rise at seals in the shafts and boreholes is insignificant for sealing purposes (DOE CS II-108).

CDC also believes that the tests of cement seals with epoxy resins in bedded salt deposits discussed by DOE are insufficient to provide assurance of seal stability over a period of 10,000 years, especially when the effects of higher temperature and radiation are not included. As noted above, temperature and radiation effects on seals are expected to be negligible.

While these tests may not provide conclusive proof of performance for 10,000 years, they are expected to provide useful information for seal development.

CDC states that the results of field tests described by DOE as continuing over the next few years will not be completed in time to contribute to seal design criteria which are to be completed in 1982. However, the final

<sup>3</sup>The Commission notes that the extensive oil and gas borehole sealing experience has not been concerned with very long-term sealing. Therefore, DOE's sealing research and development must provide a basis to extend that experience for the development of long-term seals for a repository.

<sup>4</sup>DOE has published "Schematic Designs for Penetration Seals For a Reference Repository In Bedded Salt," ONWI-405, November, 1982.

seal design for the selected site is scheduled for two years after a site is selected (DOE PS p. II-184). Testing up to that date is expected to be useful in designing an effective seal.

CDC questioned whether tests of waste package system component interactions with the surrounding media in bedded salt described by DOE will be completed in time for location of a repository. However, the Commission finds no basis for this assertion in the record. The DOE program appears to be adequately addressing this issue. Studies are in progress to characterize further the interactions between candidate backfill-getter materials and waste container alloys. These studies include investigations of dry rock salt/metal interactions and high intensity radiation/salt/brine/metal interactions. (DOE PS p. II-149, II-150).

CDC asserts that DOE has not discussed designing backfill material and penetration seals to allow for safe reentry if retrieval should become necessary. However, the provision to retrieve high-level waste and spent fuel for a number of years after the repository is filled has been addressed by DOE (DOE PS pp. II-280 to II-283). Although it has not yet been established whether backfilling and sealing will be conducted before repository closure, these operations may be reserved until a final decision for closure is made. In any event, CDC provides no basis for concluding that providing for retrievability will necessarily create any major difficulties for the design of backfill material and penetration seals.

According to one participant, "There is no established way to seal a repository so as to prevent radionuclide release to the biosphere for the necessary period of time. DOE has termed the sealing problem a 'key unknown' but there is no consensus that the technology which is currently anticipated will provide adequate seals for even a few decades" (Consolidated States Group PHS p. 8). Other participants maintained that seals must perform as well as the host rock in preventing radionuclide migration (NRDC PS p. 55). The DOE position is that the seal should provide a barrier with sufficient integrity to ensure acceptable consequences and sealing adequacy should be determined only on a site-specific basis (DOE CS p. II-106). DOE asserted that its program will successfully resolve remaining uncertainties in repository sealing technology (DOE CS pp. II-106 to II-109).

DOE has been studying cement-based borehole plugging and has examined use of grout materials for application to the Waste Isolation Pilot Plant (WIPP) and other potential repository sites. Earth-melting technology for plugging in salt and use of compacted natural earth

materials are also being investigated (DOE PS p. II-183, CS p. 106-109). There is a considerable body of experience in sealing subsurface formations in the oil, gas, and other mineral extraction industries. However, related industrial experience and requirements for sealing a repository differ in one important respect: repository sealing must be effective for a very long time while most other sealing applications are for relatively short time periods (DOE PS p. II-182). Future DOE effort will be needed to verify borehole seal performance and durability for each candidate medium. An important aspect of DOE's work is to determine the rate of degradation of seal performance as a function of time. DOE plans to determine seal performance specifications for a particular site on the basis of calculated predictions of radionuclide release and transport to the accessible environment (DOE PS p. II-182). These predictions are expected to indicate that a site whose characteristics for waste isolation are clearly superior may not require sealing performance specifications as stringent as those for a less favorable site.

Based upon the extensive experience with shaft and borehole sealing in other industries and DOE's detailed program for evaluating the long-term performance of seals, the Commission believes that there is a reasonable basis to expect that long-term effective borehole and shaft seals can be developed.

#### D. Summary of Views on the Technical Feasibility of Safe Waste Disposal

The Commission notes that participants in the Waste Confidence Rulemaking proceeding have generally agreed there are no known fundamental technical problems which would make safe waste disposal impossible. Where they differ is the extent to which the technical problems of disposal technology and siting have already been solved and the capability of DOE to solve them, and particularly to solve them by 2007-09 or by the expiration date of reactor operating licenses (e.g., NY PS p. 3; NECNP PS p. 171; Minn PS pp. 13-20 of Enclosure).

The Commission believes that the record provides a basis for reasonable assurance that the key technical problems can be solved. Technically acceptable sites exist and can be found among the various types of geologic media and locations under investigation by DOE. Currently developed geophysical methods for site evaluation appear capable of adequately characterizing the site, and the residual uncertainties in earth sciences data do not seem to be an insurmountable impediment. Further, the Commission believes that the multi-barrier approach

to waste package design is sound and that package development is being adequately addressed by DOE. DOE's development work on backfill materials and sealants provides a reasonable basis to expect that backfill materials and long-term seals can be developed. Reprocessing of spent fuel would only become a licensed commercial activity if disposal of reprocessing waste in a mined repository would be established as technically feasible. While the Commission recognizes that more engineering development and site-specific work on disposal technology will have to be conducted before a waste repository can be constructed and operated, the Commission concludes that it is technically feasible to safely dispose of high-level radioactive waste and spent fuel in a mined geologic repository.

#### 2.2 Second Commission Finding

*The Commission finds reasonable assurance that one or more mined geologic repositories for commercial high-level radioactive waste and spent fuel will be available by the years 2007-09, and that sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.*

While the record of the proceeding supports a finding that disposal is technically achievable, the Federal government has, in the past, made inadequate progress in developing sound waste management policies and programs. The Commission notes that DOE has stated in its April 1984 draft Mission Plan that the first repository will begin operations in 1998, and that the second will start up in 2004. However, it is recognized that both technical and institutional issues contribute to uncertainties concerning DOE's ability to complete one or more mined geologic repositories for high-level radioactive waste by those dates. The technical issues concern DOE's ability to find technically acceptable sites in a timely fashion and the timely development of waste forms, packages, and engineered barriers. The institutional issues concern primarily Federal-state relations and the management and funding of the Federal program.

The Commission has considered the effect of enactment of the Nuclear Waste Policy Act of 1982 and concludes that the Act helps to reduce these scheduling and institutional concerns. The Act provides support for timely resolution of technical uncertainties by: (1) Establishing specific milestones for all the key tasks; (2) coordinating the activities of all the involved Federal agencies; (3) providing for time

schedules and a mission plan for the accomplishment of the tasks; and (4) providing a mechanism for monitoring progress, for identifying failures to meet the schedules and the milestones, and for adjusting the future elements of the program in the event that such failures occur. In order to further enhance the resolution of technical uncertainties regarding rock thermal-geomechanics the Act provides for the establishment of a Test and Evaluation facility to carry out *in-situ* studies of rock at repository depth. The Act also reduces uncertainties in the institutional arrangements for the participation of affected states in the siting and development of repositories and in the long-term management, direction and funding of the repository program. The Commission's assessment of both the technical and institutional factors is discussed below.

#### A. Technical Uncertainties

The ability to construct and operate a mined geologic repository that will provide for the safe disposal of high-level radioactive waste and spent fuel by the years 2007-09 has been challenged by several participants. In addition to the institutional issues which must be resolved, interrelated technical problems have to be solved in a coordinated and timely fashion. The Department of Energy is confident the technical problems can be solved as scheduled in the National Waste Terminal Storage Program plans (DOE PS p. III-86, CS p. III-13; DOE draft Mission Plan, April 1984). Other participants conclude that because of unresolved technical problems, DOE's schedule cannot be met (e.g., Consolidated Public Interest Group PHS pp. 2-7; Consolidated State Group PHS pp. 1-13). For convenience, we consider the technical controversy in two categories: (a) finding technically acceptable sites in a timely fashion, and (b) the timely development of waste packages and engineered barriers.

1. *Finding Technically Acceptable Sites in a Timely Fashion.* To assure the adequacy of a candidate site requires extensive onsite investigations including drilling or excavating, as well as analyses and technical evaluations. Although DOE has not yet begun subsurface site characterization to enable identification of an acceptable site, the record does indicate that DOE's site screening and selection 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.

DOE is investigating four geologic media at a number of sites: domed salt (Gulf Interior Region); bedded salt (Paradox Basin, Permian Basin, Salina Basin); basalt (DOE's Hanford Site), and

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volcanic tuff (DOE's Nevada Test Site). Investigations in a fifth media (granite) are planned, but sites have not yet been determined (DOE PS Appendix B). Exploratory shaft excavation at three sites in different geologic media was to begin for basalt in April, 1983, for volcanic tuff in October, 1983, and for salt in December, 1983 (Tr. pp. 241-242). However, the Nuclear Waste Policy Act of 1982 (NWPA) imposed new conditions which made it necessary to revise this schedule. The NWPA specified that DOE had to prepare environmental assessments for each of five nominated sites, from which three sites would be recommended to the President for characterization. DOE's preparation of environmental assessments and recommendation of three sites were to be accomplished in keeping with the provisions of the repository siting guidelines required by the NWPA. The Commission's concurrence in DOE's siting guidelines on July 3, 1984, enables DOE to proceed to nominate and recommend repository sites for characterization. DOE has recently published a revised schedule for site selection milestones in its April, 1984 draft Mission Plan. As described in its Mission Plan, the current status of DOE's site selection schedule calls for the issuance of environmental assessments for five nominated sites and the recommendation of three of those sites for characterization by December, 1984. DOE's schedule for work in the various geologic media is summarized below.

**Salt:** Resolution of the identified key screening issues in FY 1984 is expected to permit nomination of a candidate salt dome site in December, 1984. DOE is still choosing from among several salt domes in the Gulf Coast interior region (Tr. pp. 243-244; DOE Draft Mission Plan, April, 1984). For bedded salt, primary effort has been focused on the Palo Duro Basin in Texas, the Paradox Basin in Utah, and the Permian Basin, particularly the Delaware basin in the Los Medanos area, the site considered for the proposed WIPP. The Bureau of Land Management issued the report "Environmental Assessment of DOE Proposed Location and Baseline Studies in the Paradox Basin, Utah-Final" UT-060-51-2-11, in July, 1982. Each of the seven potentially acceptable salt sites has been evaluated for environmental conditions, and a site characterization plan is expected to be issued for salt in September, 1985. DOE will start land access and permitting activities for salt after negotiating agreements with affected states and Indian tribes (DOE Draft Mission Plan, April, 1984).

**Basalt:** The basalt formations at the Hanford reservation in the center of the Pasco basin (Columbia Plateau, central Washington) are prime candidates for

repository sites. DOE expects to issue a site characterization plan for basalt in January, 1985 and start drilling for the exploratory shaft in March, 1985 (DOE Draft Mission Plan, April 1984).

**Volcanic Tuff:** The Nevada Test Site offers several suitable candidates for waste repository siting. The primary focus is welded tuff on Yucca Mountain, where DOE has begun a program of drilling and geophysical evaluation. DOE expects to issue site characterization plan for tuff in March, 1985 and begin shaft work in September 1985 (DOE Draft Mission Plan, April 1984).

**Granite:** Granite and other crystalline rock media are being considered for the second repository (DOE Draft Mission Plan, April 1984). DOE has conducted only limited investigations of granite at the Nevada Test Site (DOE PS pp. B-66, B-72), but is developing data on the potential of granite as a repository medium in collaboration with Swedish investigators (DOE PS p. II-258). This project has already produced a large amount of rock thermal-mechanics data at repository depth for use in repository designs in granite media in this county (DOE PS pp. II-258 to II-260).

As indicated in our discussion of technical feasibility, the identification of technically acceptable sites is a key problem and the date of successful solution of this problem is a critical milestone in the repository program. Those participants who believe DOE could not meet its site selection schedule asserted that determination of the acceptability of proposed repository sites requires information that will not be available when needed. They maintained that DOE's knowledge is seriously incomplete with respect to all of the potential sites considered to date. Further, they asserted that because new information could disqualify any of the potential sites, as it did at the Palestine dome, there is, as yet, no basis for reasonable assurance that an acceptable repository site will be available in the time period under consideration (NRDC PS p. 44; NECNP PS p. 24). The Commission recognizes that if the DOE program were further along, e.g., in the middle of exploratory shaft work, there would be much more site-specific information available (including the results of *in-situ* tests) and a firmer basis for assessing whether DOE's revised schedule can be met. However, the Commission can make a reasonable prediction with the information now before it.

Underlying the pessimism of some participants is apparently a belief that DOE's past record in solving technical problems undermines the possibility of finding confidence in DOE's ability to solve the waste disposal problems in a timely way. The Commission acknowledges that in the past the waste

programs of DOE and its predecessor organizations have experienced difficulty in making timely progress toward a solution of the nuclear waste problem. However, the Commission need not rely on this past record in making its confidence determination. The DOE program is now adequately addressing the issues yet to be resolved in identifying an acceptable site and DOE's schedule is a reasonable one (see the discussion in Section 2.2 B.4 of this document). The qualifications and professional experience of the many scientists and engineers on the overview committees and peer review groups who advise and consult on the DOE program should provide confidence in DOE's efforts (DOE CS Appendix D). The support of the USGS in the earth sciences field (USGS PS Appendix A) clearly contributes to confidence that the technical problems associated with identifying an acceptable repository site will be solved. As noted before, no fundamental technical breakthroughs are necessary. Rather, completing the program is a matter of step-by-step evaluation and development based on ongoing site studies and research programs.

The Commission believes that the enactment of the Nuclear Waste Policy Act of 1982 provides impetus to that program and helps ensure that it will be completed on a schedule consistent with the Commission's findings. The Nuclear Waste Policy Act establishes a detailed step-by-step plan for developing a waste repository. The Act directs DOE to prepare a comprehensive Mission Plan which will establish programmatic milestones for research, development, technology demonstration and systems integration. The Act also requires the various Federal agencies involved in the program to coordinate their activities. Involved agencies must report their progress, or lack thereof, to Congress, explain any slip in schedule and set a new schedule for activities. Thus, the Act provides a framework and schedule for developing a repository.

The schedule set forth in the Act calls for the identification of adequate sites in time to meet the final decision date on construction authorization by the NRC and well before the time at which such action would be necessary to assure repository operation within the time period discussed in this decision. The time between sinking of an exploratory shaft and the completion of site characterization contemplated by the Act (Sec. 112, 114) is 26 months, with an extension to 38 months under certain conditions; the DOE schedule for these activities is generally compatible with this schedule (see Section 2.2 B.4 below).

The Nuclear Waste Policy Act also puts in place procedures (Sec. 115, 116, 117, 118, 119) which the Commission

believes will help to resolve potential institutional problems that might affect the schedule for site selection. These are discussed in detail hereafter. The Commission believes that the provisions of the Act should also provide resources (Sec. 302, 303) to adequately fund the site selection and characterization work.

Given all of these considerations, the Commission concludes that there is reasonable assurance that technical uncertainties—unsolved technical problems and information gaps—will be removed in time for DOE to meet its proposed schedule. DOE's program is adequate and its schedule is reasonable. The Act provides a greater degree of confidence than existed previously that site selection will proceed within the general time frame that DOE has described in its position statement.

**2. Timely Development of Waste Packages and Engineered Barriers.** Some participants have expressed strong reservations concerning DOE's ability to develop waste forms, packages, and engineered barriers in a timely fashion. The DOE technical effort to solve problems was characterized as only just being defined in many significant areas, including the prevention of corrosion of waste canisters (NRDC PS p. 18). Other participants contended that: the design and evaluation studies of penetration seals and backfill material might not be completed soon enough to meet the goal of achieving an operational repository by 1997 to 2006; the long-term effects of heat and radiation on the integrity of the seal materials are not known; tests of cement seals with epoxy resin in bedded salt deposits are insufficient to assure stability of such seals over a period of 10,000 years; and field tests of liquid permeability during a period of three months cannot provide confidence concerning the stability of seals during a period of 10,000 years. Participants also contended that no information had yet been provided which specified the type of backfill material most suitable for specific geological media and capable of withstanding thermal stress (CDC PS pp. 19-22).

Although technical problems associated with the development of waste packages and engineered barriers could delay DOE's schedule, DOE believes that the uncertainties surrounding the waste package would be resolved or bounded as a result of implementation of its program (DOE PS p. II-160, CS p. II-96). The DOE Waste Package Program Plan (ONWI-96) which was issued in August 1980, updated in June 1981 (NWTS-96) and updated further in DOE's April, 1984 Draft Mission Plan, sets forth details of DOE's program. Waste package performance criteria will be developed in the near future. Final action on the

criteria will be contingent upon the final issuance of NRC's technical criteria (10 CFR Part 60, Subpart E), the publication of the relevant regulatory guides on waste packages, and the ONWI-33 series of criteria documents, i.e., the reports DOE/NWTS-33 (1), (2), (3), "NWTS Program Criteria For Mined Geologic Disposal of Nuclear Wastes."

Earlier, DOE had planned to complete the waste package preliminary designs for salt in September 1982, for basalt in June 1985, for tuff in June 1984, for granite in September 1984, and for argillaceous rock in December 1984, and to establish a baseline for waste form specifications by June 1983 (ONWI-96). According to DOE's April, 1984 draft Mission Plan, the current reference canister material for basalt is carbon steel. Alternative materials include an iron-chromium-molybdenum alloy, copper and a copper-nickel alloy. On the basis of preliminary corrosion test results, carbon steel has also been selected as the reference canister material for salt. The titanium alloy Tricore 12 has been designated as an alternative material. Type 304L stainless steel has been identified as the reference container material for tuff; other austenitic stainless steels, Inconel and copper are alternatives. Waste package conceptual designs have been developed for basalt, salt, and tuff. (The conceptual design for tuff is based on saturated conditions; a conceptual design for the unsaturated zone will be available in late FY 84 [DOE draft Mission Plan, April 1984]).

Tests with spent fuel and borosilicate glass have been initiated under site-specific conditions for basalt, salt, and tuff. Preliminary waste acceptance requirements have been developed for basalt and salt. In addition, for salt media, interim waste acceptance requirements for borosilicate glass and draft waste acceptance requirements for spent fuel were prepared in FY 83. Preliminary requirements for tuff will be prepared in FY 84. DOE intends to submit the baseline waste form specifications developed during the conceptual design studies for acceptance by NRC. The specifications will be subjected to configuration control for application throughout the waste processing and disposal program.

According to the DOE Draft Mission Plan the complete waste package performance model will be verified and validated by September 1989. Further, the program plan calls for completion of the waste package final design that takes into account the selected site environmental conditions, after completion of in-situ testing in FY 89 and FY 90. Packing material is included in the reference waste package only for basalt. The reference packing material for basalt is a mixture of crushed basalt

and sodium-bentonite clay. Ongoing physical property testing of reference packing material is expected to be completed in FY 87 and ongoing radionuclide sorption, solubility, and diffusion testing are to be completed by September, 1989.

Some participants' statements are pessimistic assessments based on the fact that the DOE program has not yet reached the critical milestones—e.g., establishment of waste form specifications, completion of waste package preliminary designs, verification of a waste package performance model, and qualification of barrier materials. However, the Commission believes that these technical problems will be solved without delaying a repository schedule. DOE has put in place an extensive nuclear waste research program that addresses each of these technical problems. Research results already reported on waste form packaging and barrier materials indicate that these research efforts, although not yet completed, can reasonably be expected to provide solutions to those problems when those solutions are needed to meet the DOE schedule. (DOE PS pp. II-129 to II-197, CS pp. II-83 to II-100).

The Commission's positive assessment is strengthened by provisions in the Nuclear Waste Policy Act of 1982. Title II of the Act authorizes DOE to undertake steps leading to the construction, operation and maintenance of a deep geologic test and evaluation facility and to establish a focused and integrated research, development and demonstration program. In the area of waste package design, the Act directs that DOE's Mission Plan identify a process for solidifying high-level radioactive waste or packaging spent fuel with an analysis of the data to support selection of the solidification process or packaging technique. The Act calls for a schedule for implementing such a plan and for an aggressive research and development program to provide a high-integrity disposal package at a reasonable price (Sec. 301(a)(8)). The Commission notes that DOE's published Draft Mission Plan (April, 1984) addresses these issues in detail. Congressional authorization of those programs, together with the assurance of necessary funding, provides the Commission additional confidence that the required research work will be done in a timely manner.

The Commission also notes that the programs to solve the major technical problems relating to the timely development of waste forms, waste packages, and engineered barriers can proceed in parallel. Because the waste repository must be designed as a system, the problems are interrelated; however, the relationships are such that



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solving one problem need not await the solution of another. DOE could proceed for a number of years on waste package development before making a decision on the form of the waste, without affecting the repository availability schedule.

### B. Institutional Uncertainties

The principal institutional issues that affect the schedule for availability of a mined geologic repository include: measures for dealing with Federal-state disputes; an assured funding mechanism that will be sufficient over time to cover the period for developing a repository; an organizational capability for managing the high-level waste program, whether this be DOE or a successor organization; and a firm schedule and establishment of responsibilities which will lead to repository development in a reasonable period of time. Each of these is discussed in turn.

1. *Measures for Dealing with Federal-State-Local Concerns.* The President and Congress have recognized the need to involve state and local governments in the decision-making process and have taken steps, including enactment of the Nuclear Waste Policy Act of 1982, to establish an institutional framework to accomplish this end. DOE pointed out that Presidents Carter and Reagan have considered state involvement in site selection an important aspect of the high-level radioactive waste disposal program. President Carter, in his message to Congress, directed "the Secretary of Energy to provide financial and technical assistance to States and other jurisdictions to facilitate full participation of State and local government in review and licensing proceedings." He committed the Federal Government to work with state, tribal and local governments in the siting of high-level waste repositories. Within a framework of "consultation and concurrence," a host state would have a continuing role in Federal decision-making involving the siting, design and construction of a high-level waste repository (DOE CS pp. II-11, 13-14). President Reagan's statement of October 8, 1981 similarly instructed DOE to work closely with industry and state governments in developing methods of storing and disposing of commercial high-level waste.

Although industry groups believed that DOE had made substantial progress in cooperating with state and local authorities by encouraging their direct participation in planning and preliminary site selection activities (UNWMC-EEI CS pp. V-27, V-28), states and environmental groups were skeptical that the mechanisms proposed by DOE for incorporating state and local views (e.g., consultation and concurrence) would work satisfactorily.

Many states asserted a lack of confidence in DOE's claims that it would be able to gain agreement from states by persuasive measures (e.g. Ohio PS p. 5; NY PS p. 74; Wis PS Kelly p. 5) and noted that information sharing was inadequate to reduce or overcome a state's resistance to a repository (e.g., NY PS p. 74; NRDC PS p. 69). The states also believed that DOE had underestimated potential state and local opposition to the siting of a repository (CEC PS p. 27, Ohio PS p. 12) and that consultation and concurrence must include a mechanism for resolving intergovernmental disputes (Vt PS p. 3). Other participants argued that many states had already imposed bans on waste disposal (NECNP PS p. 32) and that DOE had presented no means for resolving state nonconcurrence (NRDC PS p. 69). Still others claimed that the state's role in the site selection process must be specifically defined (Del PS p. 6); but the DOE had provided no basis for optimism that this could be done (NECNP PS p. 69). Some participants suggested that local opposition to waste repositories could be overcome by providing financial compensation to nearby communities (AICHE PS p. 6) but that DOE had not adequately considered compensation to host communities for socioeconomic impacts (Ohio PS p. 14).

The recently-enacted Nuclear Waste Policy Act of 1982 defines the roles of the states and Indian tribes in repository site selection, and thereby reduces some of the uncertainties in settling disputes between the Federal government and affected states and Indian tribes. By providing for information exchange, for financial and technical assistance, and for processes of consultation, cooperation, negotiation and binding written agreement, the Act should help to minimize the potential for more formal objections and confrontations.

Specifically, the Act requires DOE to identify the states with one or more potentially acceptable sites for a repository and to notify the governing bodies of the affected states or Indian tribes of those sites (Sec. 116(a)). The Act establishes detailed procedures for consultation with the states and Indian tribes regarding repository sites selection (Sec. 117). DOE, NRC and other agencies involved in the construction, operation, or regulation of any aspect of a repository in a state must provide to the state and to any affected Indian tribe, timely and complete information regarding plans made with respect to the site characterization, development, design, licensing, construction, operation, regulation, or decommissioning of such a repository (Sec. 117(a)(1)). If DOE fails to provide such information requested by the state or affected Indian tribe in a timely manner, it must cease operations

at the site (Sec. 117(a)(2)). The Act also provides that DOE must consult and cooperate (Sec. 117(b)) with the affected states and Indian tribes and must enter into a binding written agreement (Sec. 117(c)) setting forth the procedures under which information transfer, consultation and cooperation is to be conducted.

Following consultation with affected states and Indian tribes, the Secretary of Energy is to recommend to the President three sites suitable for characterization as candidates for selection as the first and second repositories (by July 1, 1985 and July 1, 1989 respectively) (Sec. 112(b), (B), (C)). The President must then submit to Congress his recommendation of sites qualified for construction authorization for a first and second repository (no later than March 31, 1987 and March 31, 1990 respectively) (Sec. 114(a)(2)(A)). Following submission by the President of a recommended site to Congress, the Governor or legislature of the state, or the Indian tribe in which such site is located may disapprove the site designation and submit (within 60 days) a notice of disapproval to Congress (Sec. 116(b)(2)). The site is disapproved unless Congress passes a joint resolution within 90 days to override the state or Indian tribe disapproval (Sec. 115 (c)). The Commission recognizes that the latter provision may create uncertainty in gaining the needed approvals of repository sites from the affected states or Indian tribes. Nevertheless, the Commission believes that, on balance, this Congressional action to establish a detailed process for state and tribal involvement in the development of repositories will reduce overall uncertainties by encouraging Federal-state cooperation and by limiting the potential for formal state or Indian tribe objections that could lead to disruption of project plans and schedules. This conclusion is consistent with the views expressed by state participants in this proceeding that a mechanism for state participation, including the resolution of state objections and nonconcurrences, is necessary for state cooperation and for progress in repository development (Tr. pp. 117, 119, 120). Further, the Act fixes the point in time at which a state may raise formal objections. Once that time has passed, this should reduce uncertainties at later stages.

The Act stipulates that DOE will reimburse costs incurred by affected states and Indian tribes in participating in the activities identified above. The Act provides that the Secretary of Energy shall make financial grants (Secs. 116, 118) to each state or affected Indian tribe notified by DOE that a potentially acceptable repository site exists within its jurisdiction. These grants are made to enable the state or affected Indian tribe to participate in the

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review and approval activities required by the Act (Secs. 116, 117), or authorized by written agreement entered into with DOE. Further, DOE is to make financial grants (Secs. 116, 118) to each state or affected Indian tribe where a candidate site for a repository is approved, to enable the state or Indian tribe to conduct the following activities: (a) Review activities taken for purposes of determining impacts of such a repository, (b) develop a request for impact assistance, (c) engage in site monitoring, testing or evaluation, (d) provide information to its residents, and (e) request information. In addition, the Act specifies that financial assistance will be provided to mitigate any economic, social, public health and safety, or environmental impacts of the development of a repository. The Act also provides that state and local government units shall receive payments equal to the amount they would receive from taxing such site characterization and repository development activities in the same manner that they tax other real property and industrial activities (Sec. 116). By providing a tangible benefit to those localities or Indian reservations where repository sites are being investigated, this provision should address one concern frequently expressed by state and tribal organizations, and may result in a more willing acceptance of a repository site.

In sum, the Commission believes that the provisions of the Nuclear Waste Policy Act of 1982 reduce uncertainties regarding the role of affected states and Indian tribes in repository site selection and evaluation, and minimize the potential for direct confrontation between the Federal government and the states or tribal organizations with respect to the disposal of commercial high-level waste and spent fuel. By reducing these uncertainties, the Act should help minimize the potential that differences between the Federal government and states or Indian tribes will substantially disrupt or delay the repository program. Further, as discussed previously in this Section, the decision-making process set up by the Act provides a detailed, step-by-step approach which builds in regulatory involvement. This should also provide confidence to states and Indian tribes that the program will proceed on a technically sound and acceptable basis.

**2. Continuity of the Management of the Waste Program.** The Commission recognizes that the waste disposal program involves activities conducted over a period of decades. Thus, there is a need for long-term stability of management and organization. The Commission's Second Prehearing Memorandum and Order of November 6, 1981, sought comments on the

implications of the possible dismantling of the DOE and assignment of its functions to other Federal agencies. In response, DOE stated: "The ability of the Federal Government to implement the waste isolation program would not be affected by the President's September 24, 1981 proposal to dismantle DOE. As demonstrated by his Nuclear Policy Statement of October 8, 1981 . . . the President is committed to the swift deployment of means of storing and disposing of commercial high-level nuclear waste. Thus, some governmental unit will continue the program aggressively if DOE is dismantled" (DOE PHS p. 8). The DOE statement was amplified by the Deputy Secretary of Energy in the oral presentations on January 11, 1982: ". . . as far as the reorganization is concerned, the plan is not, I think, to do away with the activities of the Department of Energy. The plan, as it has been announced so far, is to in fact merge the activities, in particular, these activities into the Department of Commerce. And we do not visualize at this time any significant changes in the way in which the program relating to waste management would be altered, either technically or from a management point of view" (Tr. p. 13).

The nuclear industry participants agreed with DOE's view on this question (Consolidated Industry Group PHS p. 18; AIF PHS p. 7; SE2 PHS p. 6; ANS PHS p. 8, UG p. 2). However, state participants and intervenor groups disputed the DOE view. They saw the potential dismantlement of DOE as leading to further delay in resolution of the radioactive waste disposal problem and asserted that DOE's possible abolition made representations regarding the future success of its waste program useless (Consolidated State Group PHS, pp. 2, 9; Minn PHS pp. 6-8).

The Commission does not believe that the Administration's proposal to transfer the activities of the Department of Energy to the Department of Commerce introduces substantial new uncertainties regarding the continuity of Federal management of the nuclear waste program. As the Department of Energy stated, the Administration's proposal, if adopted, would simply transfer the nuclear waste program functions from one Federal agency to another. Moreover, Congressional action is needed to adopt the Administration's proposal. Yet, in the three years since the Administration's proposal to dismantle DOE was made, there has been no discernible action by the Congress to proceed with adoption of the proposal. Because the Congress has not taken action toward adoption of the Administration's proposal, and because the proposal, even if adopted, would consist of only a transfer of the program

from one agency to another, the Commission does not believe that the Administration's proposal constitutes a significant source of management uncertainty for the nuclear waste program.

The Commission believes that residual uncertainties regarding the continuity of Federal management of the nuclear waste program have also been reduced by the Nuclear Waste Policy Act of 1982. The Act provides for the establishment of an Office of Civilian Radioactive Waste Management within the Department of Energy. This Office is to be headed by a Director appointed by the President, with Senate confirmation, who will report directly to the Secretary of Energy (Sec. 304). Further, the Act raises the activities of this Office to a high level of visibility and accountability by stipulating that an annual comprehensive report of the activities and expenditures of the Office will be submitted to Congress and that an annual audit of the Office will be conducted by the Comptroller General, who will report the results to Congress. The Act also requires two additional elements that provide added assurance of continuity: a "Mission Plan" and a schedule of activities for DOE. The Mission Plan is a detailed and comprehensive report which is intended to provide "an informational basis sufficient to permit informed decisions to be made in carrying out the repository program and the research, development, and demonstration programs required under this Act." The Secretary of Energy has already submitted a draft Mission Plan to the states, the affected Indian tribes, the Commission and appropriate government agencies for their comments; after revising the plan, DOE must submit it to the appropriate Congressional committees (Sec. 301 (a) and (b)). The schedule of DOE's activities in conducting this program was discussed in Section 2.2 A.1 above. Taken together, the provisions of the Nuclear Waste Policy Act establish a detailed management framework for the conduct of the repository program that should help ensure both sound management and continuity—whether the responsibility for the repository program is retained in DOE or is transferred to another Federal agency.

**3. Continued Funding of the Nuclear Waste Management Program.** There is general agreement among all participants that the program to develop a mined geologic repository for nuclear wastes will require more than a decade of effort at a total cost of several billion dollars. A steady source of funding will be needed to assure the timely success of the program. DOE pointed out that it would request an adequate level of funding for the National Waste Terminal Storage (NWTS) Program as stated in

the Department's Position Statement (DOE CS p. II-30). In addition, DOE stated that Congress' commitment to the commercial waste disposal program was demonstrated by the continuous increase in the level of funding since 1976. The funding level was increased by more than a factor of 10 between 1976 and 1980 (DOE CS p. II-30). Some participants disagreed with DOE's optimism concerning the future availability of funds and pointed out the competing priorities for Federal funds could deprive DOE of the necessary resources (CDC PS p. 7; Lewis PS p. 9; NRDC PS p. 28; Tr. p. 203).

Congress passed a continuing resolution for FY 1983 funding of DOE's nuclear waste program at the level of \$259.4 million. This is about \$10 million more than DOE's earlier FY 1983 request of \$249 million. Additionally, the Nuclear Waste Policy Act authorizes the Secretary of Energy to enter into contracts and collect a fee of 1 mill per kilowatt-hour of electricity generated by nuclear reactors in return for the Federal government's acceptance of title, subsequent transportation, and disposal of high-level radioactive waste or spent fuel (Sec. 302(a)(2)). In order to be able to use a Federal repository, the Act required the generator or owner of such waste or spent fuel to enter into a contract by June 30, 1983 or the date on which generation is commenced or title is taken, whichever occurs later (Sec. 302(b)(2)). The Commission must require the negotiation of such contracts as a precondition to the issuance or renewal of a license (Sec. 302(b)(1)(B)). The Commission notes that all such contracts have been executed. DOE testified in the January 11, 1982 hearing that it expected the funds collected under such a program would allow support of the DOE waste program at an initial level of \$185 million. Under the program subsequently adopted by the Congress, these funds are to be placed into a nuclear waste fund to support DOE's repository program. The general approach prescribed by the Act is to operate DOE's nuclear waste program on a full cost recovery basis. In this regard, the Act provides that DOE must annually review the amount of the fees established to evaluate whether collection of the fees will provide sufficient revenues to offset the costs expected. In the event DOE determines that the revenues being collected are less than the amount needed in order to recover the costs, DOE must propose to Congress an adjustment to the fee to insure full cost recovery. The Act also provides (Sec. 302(e)(5)) that, if at any time, the monies available in the Waste Fund are insufficient to support DOE's nuclear waste program, DOE will have the authority to borrow from the Treasury. The Commission believes that the long-term funding provisions of the

Act should provide adequate financial support for DOE's nuclear waste program.

4. *DOE's Schedule for Repository Development.* The DOE reference schedule described in its April, 1984 draft Mission Plan establishes the earliest date of repository availability as 1998 and delineates the logic and the period of activities that are deemed achievable under current program assumptions. While DOE acknowledges that contingency time is required in the schedule to accommodate such factors as institutional uncertainties, public hearings, or possible project reorientation, it believes that an appropriate amount of time has, in fact, been allowed in the reference schedule. Under the reference schedule, DOE expects that disposal facilities will be operational in 1998 (DOE draft Mission Plan, April 1984). DOE's updated repository development schedule specifies the critical milestones prior to commencing construction of the first repository as:

March 1985 (basalt), September 1985 (tuff), — (silt).	Commencement of exploratory shaft work* at three sites (three different media: salt, basalt and tuff). **
August 1990 .....	Submission of application for authorization to construct the first repository.
August 1993 .....	Construction authorization for the first repository.

\* Including borehole drilling.

\*\* An October, 1982 update of this information indicated that a pilot borehole was started in September 1982 for an exploratory shaft in tuff at the Nevada Test Site. In May 1982, DOE initiated work on surface preparation, construction of drilling pads and support buildings for the drilling operation at the BWIP basalt site. In January 1982, a borehole was begun at a point 300 feet from the BWIP planned exploratory shaft location to provide data for planning the shaft excavation. No exploratory shaft work has begun at the Paradox Basin bedded salt site. As noted in the siting discussion under the Second Commission Finding, the Nuclear Waste Policy Act of 1982 requires DOE to complete certain actions before site characterization. These include issuance of siting guidelines concurred in by NRC, preparation of environmental assessments, notification of state and affected Indian tribes where sites are located, and holding of public hearings in the vicinity of each site.

The Commission concurred in DOE's repository siting guidelines on July 3, 1984, enabling DOE to proceed to complete the other site selection tasks. The Commission notes that DOE's draft Mission Plan (April 1984) anticipated the completion of the siting guidelines by Mid-Summer 1984 and DOE revised its site selection schedule accordingly. Final environmental assessments for five nominated sites (including salt, basalt and tuff media) are to be completed in December 1984, at which time three of the five sites will be recommended for characterization.

NRC's construction authorization (under 10 CFR Part 60) would mark the end of the site selection process.

Some participants believe that DOE cannot have a waste disposal facility available by 2007. These participants concluded that DOE's slow progress in the past suggests that DOE may be unable to solve the many problems that will arise in the future and that DOE's schedule for repository development is unduly optimistic (e.g., Minn. PS p. 8; Ill. PS p. 2; OCTLA PS pp. 8-9; CDC PS p. 7).

One of the primary purposes of the recently enacted Nuclear Waste Policy Act of 1982 is "to establish a schedule for the siting, construction, and operation of repositories that will

provide reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository." (Sec. 111(b)(1)). The Commission recognizes that, if fundamental technical breakthroughs were necessary, it would not be possible for Congress to legislate their solution or specify schedules for their accomplishment. However, as discussed previously, such breakthroughs are not necessary. Rather, the remaining uncertainties are reflected in the need for step-by-step evaluation and development based on ongoing site studies and research programs. The Commission believes the Act provides means for resolution of those institutional and technical issues most likely to delay repository development, both because it provides an assured source of funding and other significant institutional arrangements, and because it provides detailed procedures for maintaining progress, coordinating activities and rectifying weaknesses. For these reasons, the Commission believes that the selection and characterization of suitable sites and the construction of repositories will be accomplished within the general time frame established by the Act, or within a few years thereafter.

The provisions of the Nuclear Waste Policy Act of 1982 that establish schedules for repository development are elaborate and allow for various contingencies. A number of steps are involved before NRC considers authorization of construction. DOE is to nominate five sites it believes suitable for site characterization for possible repository development (Sec. 112(b)). DOE is to recommend for site characterization three candidate sites to the President (Sec. 112(b)(1)(B)); the President is to recommend one of the characterized sites to the Congress (Sec. 114(a)(2)(A)); the affected state or Indian tribe is given an opportunity to submit a notice of disapproval to the Congress (Secs. 115(b), (116)(b)(2), 118(a)); the Congress may overturn a state or Indian tribe's disapproval of the site by passing a resolution of approval (Sec. 115(c)); and, if Congress approves or no notice of disapproval is submitted by a state or Indian tribe, then DOE is to apply for construction authorization (Sec. 114(b)).

DOE's revised reference schedule (DOE draft Mission Plan, April 1984) states that the application for repository construction authorization will be submitted to the Commission in August 1990. Under the terms of the Act the Commission is expected to reach a decision within 3 years of the application date, or by August 1993 (Sec. 114) (under certain conditions, extension

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by 1 year would be permitted). If the NRC decision is favorable, the repository would be constructed and begin operation, according to DOE's "reference schedule," in January 1998. Earlier dates can be achieved if the Presidential review time is reduced, if DOE promptly files the construction authorization application, if NRC provides a construction authorization in less than 3 years, or if DOE constructs the repository in a shorter period than provided in its estimated schedule. However, it is prudent to assume that such a contraction of the schedule will not be realized.

The Nuclear Waste Policy Act of 1982 establishes "not later than January 31, 1998" as the date when DOE is to begin disposal of high-level radioactive waste or spent fuel (Sec. 302(a)(5)(B)). This is consistent with the current dates of the DOE schedules discussed above and with the detailed step-by-step milestones established by the Act. The schedule established by the Act would assure the operation of the first repository well before the years 2007-2009, i.e., the period of concern in the present proceeding.

Despite the delays in DOE's earlier milestones, the Commission believes that the program established by the Act is generally consistent with the schedule presented by DOE in this proceeding and that DOE's milestones are generally both realistic and achievable. Achievement of the scheduled first date of repository operation is further assured by other provisions of the Act which specify means for resolution of those institutional and technical issues most likely to delay repository completion. In addition to those provisions discussed previously, the Commission notes that the Act clarifies how the requirements of the National Environmental Policy Act are to be met (e.g., Secs. 113 (c), (d); 114 (a), (f); 119(a); 121(c)). The Act also requires that any Federal agency determining that it cannot comply with the repository decision schedule in the Act must notify both the Secretary of Energy and Congress, explaining the reasons for its inability to meet the deadlines. The agency must also submit recommendations for mitigating the delay (Sec. 114(e)(2)). These provisions of the Act, as well as those that support the technical program—the provisions for research, development, and demonstration efforts regarding waste disposal (Title II of the Act), increase the prospects for having the first repository in operation not later than the first few years of the next century.

The Commission also finds reasonable assurance that sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of commercial high-level radioactive

waste and spent fuel generated up to that time. The Nuclear Waste Policy Act of 1982 establishes Federal responsibility and a clearly defined Federal policy for the disposal of such waste and spent fuel and creates a Nuclear Waste Fund to implement Federal policy. The Act establishes as a matter of national policy that this responsibility is a continuing one, and provides means for the Secretary of Energy to examine periodically the adequacy of resources to accomplish this end.

The Commission notes that as of September 30, 1982, the generating capacity of all commercial nuclear power plants in the U.S. with operating licenses or construction permits was 131 electrical gigawatts (GWe) and the capacity of those under construction permit review was about 5 GWe (NUREG-0871, Vol 1, No. 4, p. 2, 8). DOE, in its letter of March 27, 1981 to the presiding officer of this proceeding, provided an estimate of 180 GWe for the capacity of operating LWRs in the year 2000. This value is significantly lower than the value (276 GWe) presented in DOE's 1980 position statement (DOE PS p. V-4) and lower than that (202 GWe) presented in the NRC's Generic Environmental Impact Statement on spent fuel handling and storage (NUREG-0575, Vol. 1, p. 2-4). The validity of the latter predictions has been affected by the cancellations of a number of proposed units during the past two years. The DOE 1981 estimate of 180 GWe in the year 2000 appears to be a reasonable estimate of the likely installed capacity at that time. On this basis, during the 40 years of operation of each plant, using as a realistic assumption a 60 percent capacity factor, the electrical energy generation would be about 4300 GWe-years. Assuming 38 metric tons of heavy metal (MTHM) is discharged for each gigawatt-year (IRG Final Report p. D-8; NUREG-0575, Vol. 1 p. 2-4) the total discharged spent fuel from these plants would likely be about 160,000 metric tons. The capacity of each proposed repository will depend on such factors as the thermal loading limit in waste emplacement, space limitations within the host rock, nuclear power generation capacity in the region to be serviced by the repository, and economy of scale considerations (DOE PS pp. III-70 to 79; IRG Final Report p. D-21). In its cross statement DOE's estimate that three to six repositories might be needed was based on the assumption that nuclear power generation capacity grows to 250 GWe by the year 2000 and remains at that level until 2040 (DOE CS p. II-53). The representative characteristics of each repository used by DOE were 2000 acres and a 40 to 100 kW/acre loading, corresponding to a repository capacity of about 70,000 to 170,000 metric tons of uranium,

respectively (DOE PS p. III-76). Reflecting the reduction in nuclear power projections, DOE estimated in the January 1982 hearing that the ultimate reactor capacity would be about 200 GWe (Tr. p. 236). DOE then assumed a repository capacity of 100,000 metric tons and concluded that "between two and three" repositories would be needed (Tr. p. 237). To accommodate the 160,000 metric tons we have assumed, two repositories each with 100,000 metric tons capacity would appear to be sufficient.

Repository completion and operation at three-year intervals would result in having adequate capacity about three years after initial operation of the first repository (DOE PS p. III-86). As noted earlier, emplacement of spent fuel in the first repository should begin not later than the first few years of the next century. Thus, if the first repository begins to receive spent fuel in the year 2005, the second may begin operation as early as 2008, in which case all spent fuel would be emplaced by about 2026, assuming DOE's estimated receiving rates (DOE PS p. III-71) and operation of each repository as completed. Because the rate of waste emplacement during the first five years of operation would be about 1800 metric tons per year (DOE PS p. III-71), only 5400 metric tons would be emplaced in the first repository by the time the second began operation. This would satisfy the requirements of Section 114(d) of the Nuclear Waste Policy Act, i.e., the prohibition of emplacement of more than 70,000 metric tons in the first licensed repository before the second repository is in operation. If the DOE estimated emplacement rates (which would increase to 6000 metric tons/year after the first five years) are realized, it will take about 15 years to emplace 70,000 metric tons in the first repository.

For the foregoing reasons, the Commission finds reasonable assurance that one or more mined geologic repositories for commercial high-level radioactive waste and spent fuel will be available by the years 2007-09, and that sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of commercial high-level radioactive waste and spent fuel originating in such reactor and generated up to that time.

### 2.3 Third Commission 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 radioactive waste and spent fuel.*

Nuclear power plants whose operating licenses expire after the years

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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 (ISFSI). 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 (see discussion in Section 2.4).

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.

To assure the continuity of safe management of spent fuel, the Commission, in a separate action, is preparing an amendment to 10 CFR Part 50 which would require licensees of

operating nuclear power reactors to submit, no later than 5 years before expiration of the reactor operating license, written notification to the Commission, for its review and approval, of the actions which the licensee will take to manage and provide funding for the management of all irradiated fuel at the reactor site following expiration of the reactor operating license, until ultimate disposal of the spent fuel in a repository. The licensee's notification will be required to specify how the licensee will fund the financial costs of extended storage or other disposition of spent fuel. It is possible for the funding of the storage to be provided by an internal reserve fund or special assessment during that 5-year period to cover the costs of storage of the spent fuel after the expiration of the reactor operating license. The storage costs are not large relative to power generation costs. A representative figure is \$1-million/year for storage of spent fuel in reactor basins beyond the operating license expiration [Addendum 2 to "Technology, Safety and Costs of Decommissioning a Reference BWR Power Station," NUREG/CR 0130 (July 1983); Addendum 1 to Technology, Safety and Costs of Decommissioning a Reference PWR Power Station," NUREG/CR 0672 (July 1983)].

Additional assurance that the conditions necessary for safe storage will be maintained until disposal facilities are available is provided by the Commission's authority to require continued safe management of the spent fuel past the operating license expiration or termination (10 CFR 50.82). If a utility should have technical problems in continuing its commitment to maintain safe storage of its spent fuel, NRC as the cognizant regulatory agency would intervene and the utility would be required to assure safe storage. If a licensee fails financially, or otherwise must cease its operations, the cognizant state public utility commission would be likely to require an orderly transfer to another entity. The successor would take over the licensee's facilities and, provided the conditions for transfer of licenses prescribed in NRC regulations (10 CFR 50.80) were met by the succeeding entity, operation of the original licensee's facilities would be permitted to continue. Moreover, an orderly transfer to a successor organization would be mandatory to protect the substantial capital investment. Further, the Commission believes that the possibility of a need for Federal action to take over stored spent fuel from a defunct utility or from a utility that lacked technical competence to assure safe storage is remote, but the authority for such action exists (sections 186c and 188 of the Atomic Energy Act of 1954, as amended; 42 U.S.C. 2236, 2238).

Interim storage capacity may be required for plants whose operating licenses expire or are terminated before sufficient repository capacity is available. As discussed in the rationale for the fifth finding, the Nuclear Waste Policy Act of 1982 includes a number of provisions to assure the availability of interim storage capacity for spent fuel during the period before repository operation (Secs. 131 through 137). Provisions are made for Federal government supplied interim storage capacity (up to 1900 metric tons) for civilian power reactors whose owners cannot reasonably provide adequate storage capacity.

In all cases where the interim storage is at a licensee's site, safe management will be assured by compliance with NRC regulations and specific license conditions. Where DOE provides the interim storage capacity, except in the use of existing capacity at Government-owned facilities, DOE is to "comply with any applicable requirements for licensing or authorization" (Sec. 135(a)(4)). If existing federally-owned storage facilities are used, NRC is required to determine "that such use will adequately protect the public health and safety" (Sec. 135(a)(1)). These provisions of the Act would assure that spent fuel will be managed in a safe manner until repository capacity is available. Facilities for reprocessing high-level waste, should any be constructed or become operational before a repository is available, would be licensed under 10 CFR Part 50, and solidification and interim storage of high level waste would be provided for at such facilities. For the foregoing reasons, the Commission finds reasonable assurance that high-level waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available for its safe disposal.

### 2.4 Fourth Commission 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 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.*

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 storage 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. Each of these issues is discussed separately below, in light of the information provided by the participants in this proceeding, and NRC experience in regulating storage of spent fuel.

#### A. Long-Term Integrity of Spent Fuel Under Water Pool Storage Conditions

The Commission finds that the cladding which encases spent fuel is highly resistant to failure under pool storage conditions. As noted by DOE in its Position Statement, there are up to 18 years of continuous storage experience for zircaloy-clad fuel and 12 years continuous storage experience for stainless-clad fuel (DOE PS p. IV-73). Corrosion studies of irradiated fuel at 20 reactor pools in the United States suggest that there is no detectable degradation of zircaloy cladding. Data from corrosion studies of spent fuel stored in Canadian pools also support this finding (A.B. Johnson, Jr., "Behavior of Spent Nuclear Fuel in Water Pool Storage," (UC-70) Battelle Pacific Northwest Laboratories (BNWL-2256, September, 1977) pp. 10-11, 17).

The long-term integrity of spent fuel in storage pools, which has been confirmed by observation and analysis, was cited by industry participants (e.g.,

Consolidated Industry Group: PHS pp. 3-8; UNWMG-EEI PS Doc. 4, p. 8; UG p. 2). No degradation has been observed in commercial power reactor fuel stored in onsite pools in the United States. Extrapolation of corrosion data suggests that only a few hundredths of a percent of clad thickness would be corroded after 100 years (A.B. Johnson, Jr., "Utility Spent Fuel Storage Experience," PNL-SA-6863, presented at the American Nuclear Society's Executive Conference on Spent Fuel Policy and its Implications, Buford, Georgia (April 2-5, 1978). The American Nuclear Society cited a study (G. Vesterbend and T. Olsson, BNWL-TR-320, May 1978, English Translation of RB78-29), which concluded that degradation mechanisms such as general corrosion, local corrosion, stress corrosion, hydrogen embrittlement, and delayed hydrogen cracking are not expected to produce degradation to any significant extent for 50 years (ANS PS p. 34).

Canadian experience, including occasional examination during 17 years of storage, has indicated no evidence of significant corrosion or other chemical degradation. Even where the uranium oxide pellets were exposed to pool water as a result of prior damage of the fuel assembly, the pellets have been inert to pool water, an observation also confirmed by laboratory studies ("Canadian Experience with Wet and Dry Storage Concepts," presented at the American Nuclear Society's Executive Conference on Spent Fuel Policy and its Implications, Buford, Georgia (April 2-5, 1978)). Another Canadian study concluded that "50 to 100 years under water should not significantly affect their [spent fuel bundles] integrity" (Walker, J.F., "The Long-Term Storage of Irradiated CANDU Fuel Under Water," AECL-6313 Whiteshell Nuclear Research Establishment, January 1979). This appraisal was based on findings such as no deterioration by corrosion or mechanical damage during 16 years of storage in water, no release of fission products from the uranium dioxide matrix during 11 years of storage in water, and no fission-product induced stress corrosion cracking anticipated during water storage at temperatures below 100°C (Hunt C.E.L., J.C. Wood and A.S. Bain, "Long-Term Storage of Fuel in Water" AECL-6577, Chalk River Nuclear Laboratories, June 1979).

The ability of spent fuel to withstand extended water basin storage is also supported by metallurgical examination of Canadian zircaloy clad fuel after 11 years of pool storage, metallurgical examination of zircaloy clad PWR and BWR high burn-up fuel after five and six years in pool storage, and return of Canadian fuel bundles to a reactor after 10 years of pool storage. Periodic hot cell examination of high burn-up PWR and BWR bundles over 6 years of pool storage at the WAK Fuel Reprocessing

Plant in Germany has also confirmed that spent fuel maintains integrity under pool storage conditions. Other countries having favorable experience with pool storage of zircaloy-clad spent fuel include: the United Kingdom, 13 years; Belgium, 12 years; Japan, 11 years; Norway, 11 years; West Germany, 9 years; and Sweden, 7 years (op. cit., A. B. Johnson, Jr., p. 7). Programs of monitoring spent fuel storage are being conducted in Canada, the United Kingdom and the Federal Republic of Germany (DOE PS pp. IV-59 to IV-61; UNWMG-EEI PS Doc. 4, p. 23).

The only fuel failures which have occurred in spent fuel pools involved types of fuel and failure mechanisms not found at U.S. commercial reactor facilities, e.g., degradation of zircaloy-clad metallic uranium fuel from the Hanford N-Reactor as a result of cladding damage in the fuel discharge system. The system differs from the fuel discharge systems of commercial reactors. Moreover, metallic uranium fuel is not used in commercial power reactors. NRDC cited some conclusions drawn by Mr. Justice Parker regarding his lack of confidence in long-term storage of spent fuel, based on the Windscale Inquiry in Great Britain in 1978, which involved stainless-steel-clad gas-cooled reactor fuel (NRDC PS p. 92). This is not pertinent to pool storage of commercial spent fuel since the high temperature conditions in a gas-cooled reactor which can cause sensitization of the cladding are not experienced by fuel in boiling or pressurized water reactors (op. cit., A.B. Johnson, Jr., pp. 17-18).

Some participants did not agree that there is an adequate basis for confidence in safe extended-term spent fuel storage. Although agreeing with the extent of experience cited by DOE and other participants, the Natural Resources Defense Council, for example, stressed that more experience is needed before one can be confident of safe extended storage. NRDC considered the length of storage experience cited by DOE as insufficient to establish that spent fuel can be stored safely for periods well in excess of 40 years (NRDC PS pp. 88-92). A similar position was taken by the State of Minnesota (Minn PHS pp. 8-9). NRDC referred to the problem of the long-term storage of spent fuel reported in the Windscale Inquiry Report by the Hon. Mr. Justice Parker, Vol. 1, pp. 29-30. However, the conclusion quoted from the report, when taken in context, refers only to irradiated fuel from AGR (advanced gas-cooled) nuclear power plants. As noted earlier, the conditions to which the fuel cladding is exposed in gas-cooled reactors differs from those in U.S. commercial light water reactors. Moreover, the cladding of AGR fuel is identified as stainless steel in the Windscale Inquiry Report. Only two



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commercial LWR nuclear power plants operating in the U.S. today use stainless steel clad. Most U.S. nuclear fuel is zircaloy clad, and reactor operators have not seen evidence of degradation of LWR spent fuel, either zircaloy or stainless steel clad, in storage pools (*Nuclear Technology*, "Spent Fuel Storage Experience," A.B. Johnson, Jr., p. 171, Vol. 43, Mid-April 1979). Further, as stated earlier, cladding degradation caused by stainless steel sensitization in an AGR high temperature environment is not pertinent to the lower temperature environment of LWR's. Therefore, the problem of long-term storage of spent fuel reported in the Windscale Inquiry is not relevant to U.S. spent fuel.

After expiration of a reactor operating license, the fuel storage pools at the reactor site would be licensed under 10 CFR Part 72. The requirements of 10 CFR Part 72 provide for operation under conditions involving a careful control of pool water chemistry to minimize corrosion. The required monitoring of the pool water would provide an early warning of any problems with defective cladding, so that corrective actions may be taken. Experience indicates that, under licensed storage conditions, significant releases of radioactivity are highly unlikely. The Commission is confident that the regulations now in place will assure adequate protection of the public health and safety and the environment during the period when the spent fuel is in storage ("Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel," NUREG-0575, August 1979: Vol. 1, pp. ES-12, 4-10 to 4-17).

Although confidence that spent fuel will maintain its integrity during storage for an additional 30 years beyond the facility's license expiration date involves an extrapolation of experience by a factor of two or three in time, the extrapolation is made for conditions in which corrosion mechanisms are well understood. Technical studies cited above support the conclusion that corrosion would have a negligible effect during several decades of extended pool storage. The Commission finds that this extrapolation is reasonable and is consistent with standard engineering practice.

### B. Structure and Component Safety for Extended Facility Operation For Storage of Spent Fuel in Water Pools

Questions were raised concerning the adequacy of structural materials and components of spent fuel storage basins to function effectively during periods that are double those assumed in the base design. This concern was expressed in connection with the possible necessity for longer storage times if permanent disposal is not available by the year 2006 (Del PS p. 4).

The experience at the General Electric Company Morris Operation in Illinois, where a mechanical failure caused contaminated water to leak into the environment, was cited as an example of an unforeseen failure that could jeopardize the safety of spent fuel storage (NECNP PS p. 65). A generic problem regarding pipe cracks in borated water systems at PWR plants was also cited as evidence of uncertainty that long-term interim storage would be safely accomplished without modification and fuel shuffling (NECNP PS p. 64). The Commission notes that the latter problem was discussed in detail in the Atomic Safety and Licensing Board Notification, "Pipe Cracks in Stagnant Borated Water Systems at PWRs" dated August 14, 1979, in the ASLB consideration of a proposed licensing amendment to permit modification of a spent fuel storage pool [11 NRC 245 (1980)]. The Notification referred to by NECNP indicated that cracks had occurred in safety-related type-304 stainless steel piping systems which contained stagnant borated water. Apparently, the cracking was attributable to stress corrosion caused by the residual welding stresses in heat-affected zones. The NRC staff review found that such cracking was not directly related to spent fuel pool modifications, and that necessary repairs could be readily made. The staff concluded that cracks in low-pressure spent fuel cooling system do not have safety significance.

Extensive experience with storage pool operation has demonstrated the ability of pool components to withstand the operating environment (DOE CS pp. II-145 to II-148). In the relatively few cases of equipment failure, pool operators have been able to repair the equipment or replace defective components promptly (UNWMG-EEI PS Doc. 4, p. 25; UG p. 2). The Commission finds no reason why spent fuel storage basins would not be capable of performing their cooling and storage functions for a number of years past the design-basis period of 40 years if they are properly maintained.

As one participant pointed out, "... the pool structure as well as the racks are designed to withstand extreme physical conditions set forth in NRC licensing requirements. These include seismic, hydrologic, meteorological and structural requirements" (UNWMG-EEI PS Doc. 4 p. 25; UG p. 2). The design requirements are set forth in 10 CFR Parts 50 and 72. The design-basis siting conditions for storage pools at reactor sites are those of the reactor itself. Siting conditions are reviewed by the NRC staff, the Advisory Committee on Reactor Safeguards and the Atomic Safety and Licensing Board at the construction permit stage and then

reviewed again in connection with the issuance of the facility's operating license. In issuing a power reactor operating license, the Commission is, in effect, expressing its confidence that the design-basis siting conditions will not be exceeded during the 40-year license period. If pool storage facilities were used to store spent fuel after expiration of reactor operating licenses, the utilities would be able, as part of their continuing maintenance of storage facilities, to replace defective components in a timely way, if needed, so as to avoid any safety problems. Some participants (e.g., NECNP PS pp. 63-63; Minn PHS pp. 8-9; and Del PS p. 4), do not place the same weight which the Commission does on experience at spent fuel storage facilities and on studies cited by DOE and certain others which support the argument that the structural integrity of these basins can be readily maintained (DOE CS pp. II-145, III-13; UNWMG-EEI PS Doc. 4 p. 19). The disagreements appear to center largely on the extent to which present experience may be relied upon as a basis for predicting the safety of spent fuel storage over a period two or three times the design period.

The degradation mechanisms involved in spent fuel pool storage are well understood. The resulting changes in fuel cladding and pool systems and components are gradual and thus provide sufficient time for the identification and development of remedial action without subjecting plant personnel or the public to significant risk. The fuel storage racks are designed to maintain their integrity for many decades; if they fail in any way, they may be replaced. There are a number of routine and radiologically safe methods for maintenance at spent fuel storage basins to ensure their continued effective performance. These include replacing racks or other components, or moving spent fuel to another storage facility. The Commission finds that the extensive operating experience with many storage pools adequately supports predictions of long-term integrity of storage basins.

The Commission concludes that the experience with spent fuel storage provides an adequate basis for confidence in the continued safe storage of spent fuel in water pools either at or away from a reactor site for at least 30 years after expiration of the plant's license.

### C. Safety of Dry Storage of Spent Fuel

While the record of this proceeding has focussed on water pool storage, the Commission notes that dry storage of spent fuel has also been addressed to a limited extent (e.g., DOE PS pp. IV-12 to IV-22 and IV-63 CS p. II-147, PHS p. 9; UNWMG-PS Doc 4 pp. 16-17 and CS pp. III-6-7; Tr. pp. 69-72). The NRC's

regulation 10 CFR Part 72 specifically covers dry storage of spent fuel (Section 72.2(c)), and experience with dry storage was a subject of public comment in the rulemaking ("Analysis of Comments on 10 CFR Part 72," NUREG-0587, pp. II-12 to II-13). NRC reports, the "Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel" (NUREG-0575) and "Dry Storage of Spent Nuclear Fuel, A Preliminary Survey of Existing Technology and Experience" (NUREG/CR-1223) which have been referenced in this proceeding, examined potential environmental impacts and experience with interim dry storage of spent fuel. The GEIS (Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel, NUREG-0575, Vol. 1, p. 8-2, August 1979) contained the conclusion that the use of alternative dry passive storage techniques for aged fuel, now being investigated by the Department of Energy, appears to be as feasible and environmentally acceptable as storage of spent fuel in water basins. Prior to the adoption of Part 72, dry storage of irradiated fuel had been licensed under Part 50 at the Hallam sodium graphite reactor. Dry storage is also presently licensed under Part 50 at the Ft. St. Vrain high temperature gas reactor.

Although the number of years of experience with dry storage systems is less than that with water pool storage, the understanding of some of the material degradation processes experienced in water pool storage should be applicable to dry storage. As discussed below, dry storage involves a simpler technology than that represented by water basin storage systems.<sup>5</sup> Water basin storage relies upon active systems such as pumps, renewable filters, and cooling systems to maintain safe storage. Favorable water chemistry must also be maintained to retard corrosion. On the other hand, dry storage reduces reliance upon active systems and does not need water which together with impurities may corrode spent fuel cladding. With convective circulation of an inert atmosphere in a sealed dry system, there is little opportunity for corrosion.<sup>6</sup> For these reasons, the Commission believes that safe dry storage should be achievable without undue difficulty. New dry storage experience with light water reactor (LWR) fuel is becoming

available for examination, and the evaluations discussed below suggest that the favorable results of up to almost two decades of dry storage experience with non-LWR spent fuel can also be obtained for LWR spent fuel in adequately designed dry storage installations.

A recent review of dry storage experience by A.B. Johnson, Jr., et al. in "Behavior of Spent Nuclear Fuel and Storage Components in Dry Interim Storage" (PNL-4189, August 1982), provides an update of dry storage activities, particularly with respect to zircaloy-clad spent fuel. In this report, (pp. 18-24) the experimental data base for non-zircaloy-clad spent fuel, including stainless steel clad fuel and the data base for zircaloy-clad fuel are discussed. Tests conducted to verify the integrity of zircaloy cladding have not indicated any degradation in dry storage (p. 27). In summary, the report states (pp. 44-45):

Operating information is available from fueled dry well, silo, vault, and metal cask storage facilities. Maximum operational histories are:

	All fuel	Zircaloy-clad fuel
Dry wells .....	Up to 18 years...	Up to 3 to 4 years.
Vaults .....	Up to 18 years...	Up to 1 year.
Silos .....	Up to 7 years...	Up to 7 years.
Metal casks .....		< 1 year.

All times related to 1982.

Operational history with interim storage in metal casks is minimal; however, there is extensive experience with metal shipping casks. In addition, metal storage casks have been designed and tested, and cask tests with irradiated fuel are currently under way in the Federal Republic of Germany and are planned in Switzerland and the United States. The integrity of zircaloy-clad fuel in a given demonstration test is relevant to predicting fuel behavior in other dry storage concepts under similar conditions.

Information on experience with dry cask storage in other countries is also becoming available. K. Einfeld and J. Fleisch's paper, "Fuel Storage in the Federal Republic of Germany" discussed the results of dry storage research on spent fuel in an inert atmosphere. They note on page 3 of their report:

Several tests have been conducted to verify the integrity of LWR spent fuel cladding in dry storage. To date none of the integrity tests has indicated that the cladding is degrading during long-term storage. Even under conditions more severe than in the casks, the fuel shows no cladding failures. From the tests listed in Table II it can be concluded that dry storage under cask conditions even with starting temperatures to 400° C is not expected to cause cladding failures over the interim storage period.

Einfeld and Fleisch continue, in their report (pp. 3-4) to comment on the

successful demonstration of cask storage:

A technical scale demonstration program with a fuel CASTOR cask is underway in the FRG since March 1982. The 16 assemblies which are subject to that program originate from the Wurgassen boiling water reactor. They resided in the core during 4 cycles of operation, burning up to about 27.8 GWD/t U.

The general objectives of the demonstration with a fully instrumented cask and fuel bundles are the verification of cask design parameters, the operational experience in cask handling and the expansion of the data base on fuel performance. Fig. 2 shows a schematic drawing of the cask design and the axial thermocouple locations.

The operational experiences and corresponding test data confirm the assumptions made about the cask concept and the cask loading and handling procedure. In addition, the technology data base for operating an interim storage plant could be expanded.

- In-pool loading of a large storage cask and specific cask handling has been successfully demonstrated.
- The passive heat transfer capabilities of the cask and fuel cladding integrity have been verified. The maximum local fuel rod temperatures for fuel with about one year decay time were within the expected range.
- The total radiation shielding characteristics (<10 mrem/h) are verified in practice" (references deleted).

The authors conclude:

The realization of the transport/storage cask concept, which is well under way in the Federal Republic of Germany, will provide sufficient interim spent fuel storage capacity with the facilities planned or under construction. Dry interim storage is a proven technology and thus it constitutes an essential step in closing the backend of the nuclear fuel cycle.

R.J. Steffens and J.B. Wright's paper<sup>7</sup>, "Drywell Storage Potential," discussed drywell storage experience with pressurized water reactor spent fuel at the Nevada Test site. On page 6 of the paper, the authors note:

Another drywell performance assessment method being employed during the demonstration storage period is that of periodically monitoring the storage canister atmosphere for fission products, specifically krypton-85 gas. Samples drawn to date have shown no detectable concentrations of this product after approximately 3 years of storage, indicating a maintenance of the fuel cladding integrity.

A third paper presented at the same Topical Meeting, by E.R. Gilbert and A.B. Johnson, Jr., "Assessment of the Light-Water Reactor Fuel Inventory for Dry Storage," focuses on dry spent fuel storage with respect to an acceptable temperature range for storage in air.

<sup>7</sup>Proceedings of the American Nuclear Society's Topical Meeting on Options for Spent Fuel Storage, in Savannah, Georgia, September 28 through 29, 1982.

<sup>5</sup>See, for example, K. Einfeld and J. Fleisch, "Fuel Storage in the Federal Republic of Germany;" and R.J. Steffens and J.B. Wright, "Westinghouse Advanced Energy Systems Division," Proceedings of the American Nuclear Society's Topical Meeting on Options for Spent Fuel Storage, in Savannah, Georgia, September 28 through 29, 1982; also A.B. Johnson, Jr., E.R. Gilbert, and R.J. Guenther, "Behavior of Spent Nuclear Fuel and Storage System Components in Dry Interim Storage," PNL-4189, August 1982.

<sup>6</sup>K. Einfeld and J. Fleisch, *Ibid.*, p. 3.

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They conclude on page 8 of their report:

Dry storage demonstrations now in progress suggest that by 1986 a major fraction of the U.S. PWR spent fuel inventory that was placed in water storage before 1981 can be stored in dry storage facilities below 150 to 200 °C.

The LWR fuel inventory offers good prospects that the thermal characteristics of consolidated fuel will be acceptable for dry storage by proper selection of fuel.

Dry storage of LWR fuel with defective cladding may be tolerable in inert cover gases or at temperatures below the threshold for significant oxidation in oxidizing cover gases. The range of acceptable storage temperatures is being investigated.

With respect to dry storage of spent fuel, the Commission notes the summary statement from A.B. Johnson, Jr., et al., "Behavior of Spent Nuclear Fuel and Storage Components in Dry Interim Storage" (PNL-4189), page xvii:

Operational problems in vaults and dry wells have been minor after up to 18 yr. of operation (in 1982); and 7 yr of silo experience suggests that decades of satisfactory operation can be expected. Demonstration tests with irradiated fuel in metal storage casks are just beginning, but metal shipping casks with mild steel chambers have been used since the mid-1940s. Metal storage/shipping casks have successfully survived fire, drop, and crash tests.

Thus, with respect to the storage of spent fuel under dry conditions at storage installations located either at reactor sites or away from reactor sites, the Commission believes that current dry-storage technology is capable of providing safe storage for spent nuclear fuel. The modular character of dry storage installations enhances the ability to perform maintenance or to correct mechanical defects, if any should occur. The Commission is confident that its regulations will assure adequate protection of the public health and safety and the environment during the period when the spent fuel is in storage.

The Commission notes that section 211(2)(B) of the Nuclear Waste Policy Act authorizes the Secretary of Energy to carry out research on, and to develop facilities to demonstrate, dry storage of spent nuclear fuel. Although this provision indicates a judgment on the part of the Congress that additional research and demonstration is needed on the dry storage of spent fuel, the Commission believes the information discussed above 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

environment and the public health and safety than storage of spent fuel in water pools.

The technical studies cited above support the conclusion that corrosion would have a negligible effect during several decades of extended dry storage. The Commission's confidence in the safety of dry storage is based on an understanding of the material degradation processes, rather than merely on extrapolation of storage experience—together with the recognition that dry storage systems are simpler and more readily maintained. For these reasons, the Commission is confident that dry storage installations can provide continued safe storage of spent fuel at reactor sites for at least 30 years after expiration of the plant's license.

### D. Potential Risks of Accidents and Acts of Sabotage at Spent Fuel Storage Facilities

The Commission finds that the risks of major accidents at spent fuel storage pools resulting in off-site consequences are remote because of the secure and stable character of the spent fuel in the storage pool environment, and the absence of reactive phenomena—"driving forces"—which may result in dispersal of radioactive material. Reactor storage pools and independent spent fuel storage installations have been designed to safely withstand accidents caused either by natural or man-made phenomena. Even remote natural risks such as earthquakes and tornados and the risks of human error such as in handling or storing spent fuel are addressed in the design and operational activities of storage facilities and in NRC's licensing reviews thereof under its regulations. Under 10 CFR Parts 50 and 72, spent fuel is stored in facilities structurally designed to withstand accidents and external hazards, such as those cited above, and to preclude radiation and radioactive material emissions from spent fuel that would significantly endanger the public health and safety. In order to preclude the possibility of criticality under normal or accident conditions, the spent fuel is stored in racks designed to maintain safe geometric configurations under seismic conditions. The spent fuel itself consists of solid ceramic pellets which are encapsulated in metal clad rods held in gridded assemblies and stored underwater in reinforced concrete structures or in sealed dry storage installations such as concrete dry wells, vaults and silos or massive metal casks. The properties of the spent fuel (which in extended storage has decayed to the point where individual fuel assemblies have a heat generation rate of several hundred watts or less) and of the benign storage environment result in spent fuel storage being an activity with very little potential for

adversely affecting the environment and the public health and safety. While any system employing high technology is subject to some equipment breakdowns or accidents, water pool storage facilities have operated with few serious problems (DOE PS at IV-56 to IV-57; UNWMC-EEL PS Doc. 4 p. 28). In these cases, the events at spent-fuel pools have been manageable on a timely basis. Similarly, dry storage of spent fuel, as discussed in Section C above, appears to be at least as safe as water pool storage. A discussion of risks related to spent fuel storage is provided below.

Comments from participants on the subject of accidents and their potential consequences at spent-fuel storage facilities included a description of nonspecific references to numerous "accidents" in spent-fuel storage facilities, a discussion of cases of leaks and inadvertent releases of contaminated storage pool water, and a suggestion that waste storage should be physically separated from reactor operation to reduce the risk of damage to the storage facility in the event of a reactor accident, and vice versa (NY PS pp. 102-107; OCTLA PS p. 12). The State of New York, in its discussion of possible accidents at spent-fuel storage pools, cited reports of an accident in the Soviet Union that is believed to have involved reprocessing plant wastes stored in tanks at a waste storage facility (NY PS pp. 107-108). The situation, as reconstructed from limited data, cannot be compared to the storage of ceramic fuel in metal cladding, placed in water storage pools. The issue raised, therefore, is not relevant to this proceeding. The need for continued management of pool storage facilities over an extended time period was considered by some participants as creating a potential hazard because of the increased possibility of human errors or mismanagement (NRDC PS pp. 89-90). The State of New York characterized the Three Mile Island reactor accident as caused by multiple technical and human failures, and postulated that such failures are possible at storage facilities, and would result in serious off-site consequences (NY PS p. 107).

These observations do not appear to take account of the numerous safety analyses that have been made of water pool storage and of alternative long-term storage methods which have demonstrated storage to be both safe and environmentally acceptable. Of course, the possibility of human error cannot be completely eliminated. However, Commission regulations (e.g., 10 CFR Part 55; 10 CFR Part 72, Subpart I) include explicit requirements for operator training, the use of written procedures for all safety-related operations and functions in the plant, and certification or licensing of

operators, with the objective of minimizing the opportunity for human error. Unlike the accident at the Three Mile Island reactor, human error at a spent fuel storage installation does not have the capability to create a major radiological hazard to the public. The absence of high temperature and pressure conditions that would provide a driving force essentially eliminates the likelihood that an operator error would lead to a major release of radioactivity (DOE CS pp. II-156 to 158). In addition, features incorporated in storage facilities are designed to mitigate the consequences of accidents caused by human error or otherwise (DOE PS IV-34).

The possibility of terrorist attacks on nuclear facilities was advanced as an argument against the acceptability of extended interim storage of spent fuel (NRDC PS p. 90). The intentional sabotage of a storage pool facility is possible, and NRC continues to implement actions to further improve security at such facilities. The consequences would be limited by the realities that, except for some gaseous fission products, the radioactive content of spent fuel is in the form of solid ceramic material encapsulated in high-integrity metal cladding and stored underwater in a reinforced concrete structure. Under these conditions, the radioactive content of spent fuel is relatively invulnerable to dispersal to the environment (Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel, NUREG-0575, Vol. 1.). Similarly, dry storage of spent fuel in dry wells, vaults, silos and metal casks is also relatively invulnerable to sabotage and natural disruptive forces, because of the weight and size of the sealed, protective enclosures which may include 100-ton steel casks, large concrete lined near-surface caissons and surface concrete silos (NUREG/CR-1223, p. IV-C-2).

#### E. Summary

In summary, the Commission finds that spent fuel can be stored safely at independent spent fuel storage installations or at reactor sites for at least 30 years beyond the expiration of reactor operating licenses. This finding is based on extensive experience and on many factors that are not site-specific. These factors include the substantial capability of the fuel cladding to maintain its integrity under storage conditions, a capability verified in extensive technical studies and experience; the extreme thermal and chemical stability of the fuel form, enriched uranium oxide pellets; the long-term capability of spent fuel storage facilities to dissipate spent fuel heat and retain any radioactive material leakage; and the relatively straightforward

techniques and procedures for repairing spent fuel storage structures, replacing defective components or equipment, or undertaking other remedial actions to assure containment of radioactivity (A.B. Johnson, Jr., "Behavior of Spent Nuclear Fuel in Water Pool Storage", (UC-70) Battelle Pacific Northwest Laboratories (BNWL-2256, September 1977)). These factors contribute to the assurance that spent fuel can be stored for extended periods without significant impact on the public health and safety and the environment. Moreover, any storage of spent fuel at independent spent fuel storage installations or reactor sites beyond the operating license expiration will be subject to licensing and regulatory control to assure that operation of the storage facilities does not result in significant impacts to the public health and safety.

For the reasons discussed previously (Sections 2.4 A through D above), the Commission also concludes, from the record of this proceeding, that storage of spent fuel either at or away from a reactor site for 30 years beyond the operating license expiration would not result in a significant impact to the environment or an adverse effect on the public health and safety. The Commission's findings are also supported by NRC's experience in more than 80 individual safety evaluations of spent fuel storage facilities conducted in recent years. The record indicates that significant releases of radioactivity from spent fuel under licensed storage conditions are highly unlikely. This is primarily attributable to the resistance of the spent fuel to corrosive mechanisms and the absence of any conditions that would result in offsite dispersal of radioactive material. The Commission concludes that the possibility of a major accident or sabotage with off-site radiological impacts at a spent-fuel storage facility is extremely remote because of the characteristics of spent-fuel storage. These include the inherent properties of the spent fuel itself, the benign nature of the water pool or dry storage environment, and the absence of any conditions that would provide a driving force for dispersal of radioactive material. Moreover, 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. The non-radiological environmental impacts associated with site preparation and construction of storage facilities are, and will continue to be, considered by the NRC at the time applications are received to construct these facilities, which are licensed under NRC's regulations in either 10 CFR Part 50 for reactors or 10 CFR Part 72 for

independent spent fuel storage facilities. The procedure to be followed in implementing the Commission's generic determination is the subject of rulemaking which the Commission has conducted.

#### 2.5 Fifth Commission Finding

*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.*

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 (Tr. pp. 157-158). 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 (DOE PS p. I-11; DOE CS p. II-66).

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,

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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 (Tr. pp. 157-159). 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.

In Subtitle B of the Act, "Interim Storage Program," Congress found that owners and operators of civilian power reactors "have the primary responsibility for providing interim storage of spent nuclear fuel from such reactors" by maximizing the use of existing storage facilities onsite and by timely additions of new onsite storage capacity. The Federal government is responsible for encouraging and expediting the effective use of existing storage facilities and the addition of new storage capacity as needed. In the event that the operators cannot reasonably provide adequate storage capacity to assure the continued operation of such reactors, the Federal government will assume responsibility for providing interim storage capacity for up to 1900 metric tons of spent fuel (Sec. 131(a)). Such interim storage capacity is to be provided by the use of available capacity at one or more Federal facilities, the acquisition of any modular or mobile storage equipment including spent fuel storage racks, and/or the construction of new storage capacity at any reactor site (Sec. 135(a)(1)).

The Nuclear Waste Policy Act authorizes the Secretary of Energy to enter into contracts with generators or owners of spent fuel to provide for storage capacity in the amount provided in the Act (Sec. 136(a)(1)). However, such contracts may be authorized only if the NRC determines that the reactor owner or operator cannot reasonably provide adequate and timely storage capacity and is pursuing licensed alternatives to the use of Federal storage capacity (Sec. 135(b)).<sup>8</sup> Further, any spent fuel stored in the "interim storage

program" is to be removed from the storage site on facility "as soon as practicable" but in no event later than 3 years following the availability of a repository or monitored retrievable storage facility (Sec. 135(e)). The Act establishes an "Interim Storage Fund" for use in activities related to the development of interim storage facilities, including the transportation of spent fuel and impact assistance to state and local governments (Sec. 136(d)).

In addition to providing for interim storage capacity, Congress found that "the long-term storage of high level radioactive waste or spent nuclear fuel in monitored retrievable storage facilities is an option for providing safe and reliable management of such waste or spent fuel." By June 1, 1985, the Secretary of Energy must complete a detailed study of the need for, and feasibility of, such a facility and submit to Congress a proposal for the construction of one or more such facilities. The Act also directs the Secretary of Energy to establish a demonstration program, in cooperation with the private sector, for the dry storage of spent nuclear fuel at reactor sites and provide consultative and technical assistance on a cost-sharing basis to assist utilities lacking interim storage capacity to obtain the construction, authorization and appropriate license from the NRC. Such assistance may include the establishment of a research and development program for the dry storage of no more than 300 metric tons of spent fuel at federally-owned facilities (Sec. 218, (a)(b)(c)).

The Commission's confidence that independent on-site and/or off-site storage capacity for spent fuel will be available as needed is further supported by the strong likelihood that only a portion of the total spent fuel generated will require storage outside of reactor storage basins (DOE PS pp. V-3 to V-13). Estimates of the amount of spent fuel requiring storage away from reactors have declined significantly over the duration of this proceeding (DOE March 27, 1981 letter from O. Brown II, DOE Office of General Counsel, to M. Miller NRC, Presiding Officer in this proceeding).

DOE reported that cumulative spent fuel discharges, previously estimated as 100,000 metric tons of uranium (MTU), dropped to 72,000 MTU through the year 2000. Projected requirements for additional spent fuel storage capacity begin in 1986 (instead of 1981) and increase to 9500 MTU per year by 1997. Earlier projections indicated a need for 16,000 MTU per year for additional storage capacity in 1997.<sup>9</sup> DOE pointed out that additional storage requirements

could be satisfied in a number of ways, including: (a) Use of private existing AFR storage facilities; (b) construction of new water basins at reactor facilities or away from reactor facilities by private industry or the utilities; (c) transshipment of spent fuel between reactors operated by different utilities; (d) disassembly of spent fuel and storage of spent fuel rods in canisters; and (e) dry storage at reactor sites.

Subsequently, DOE published new estimates for additional spent fuel storage capacity ("Spent Fuel Storage Requirements", DOE/RL-82-1, June, 1982). These estimates show a maximum required away-from-reactor (AFR) storage capacity of 8610 metric tons uranium of spent fuel in the year 1997. This is a decline from DOE's previously published planning-base case. The information in Table 1 below is excerpted from DOE/RL-83-1 and provides a range of projections of additional storage capacity needs. The first column is a projection of storage capacity needed over and above the currently existing and planned storage capacity. The second column provides projected values of additional storage capacity needed if maximum re-racking is conducted at existing or planned reactor basin storage pools. The storage capacity needs shown in the second column are somewhat smaller than in the first column. A further decrease in additional needed storage capacity is shown in the third column, which takes into account the possibility of transshipment of fuel from one reactor basin to another basin owned by the same utility. The projected values of needed storage capacity in the first and third columns provide a range of upper and lower bound values, respectively. The most likely outcome expected by DOE corresponds to the values in the second column. This was formerly known as the planning base case and is now termed the reference case. All projections shown in the table assume the maintenance of a full core reserve. The magnitude of need for additional spent fuel storage capacity projected by DOE has continued to decline, even though DOE has not assumed the use of newly developed technology, such as fuel rod consolidation.

The cumulative amount of spent fuel to be disposed of in the year 2000 is expected to be 58,000 metric tons of uranium [Spent Fuel Storage Requirements (Update of DOE/RL-82-1) DOE/RL-83-1, published January, 1983]. The additional required storage capacity of 13,000 metric tons of uranium projected in the second column for the year 2000 is less than 25% of the total quantity of spent fuel projected to be in storage. It is expected that additional storage will be provided at the reactor site, with some smaller portion to be moved offsite.

<sup>8</sup> Accordingly, the Commission has published proposed "Criteria and Procedures for Determining the Adequacy of Available Spent Nuclear Fuel Storage Capacity," 10 CFR Part 53 (48 FR 19382, April 29, 1983).

<sup>9</sup> DOE's planning-base studies assume maximum basin re-racking at reactors and the maintenance of full-core reserve in reactor basins.

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**TABLE 1.—ADDITIONAL CUMULATIVE SPENT FUEL STORAGE REQUIREMENTS, OVER AND ABOVE CURRENT AND PLANNED STORAGE AT REACTOR STORAGE BASINS (METRIC TONS OF URANIUM)<sup>1</sup>**

	No change in current or planned storage capacity	Use maximum racking of current and planned storage capacity	Maximum racking plus transshipment
Year:			
1982	0	0	0
1983	0	0	0
1984	13	13	0
1985	13	13	0
1986	110	110	3
1988	550	490	80
1990	1,500	1,360	310
1995	5,610	5,080	3,000
2000	14,760	13,080	10,370

<sup>1</sup> Spent Fuel Storage Requirements (Update of DOE/RL-62-1) DOE/RL-63-1, published January, 1983.

In response to the Commission's Second Prehearing Memorandum and Order (Nov. 8, 1981) the participants commented on the significance to the proceeding of issues resulting from the DOE policy change on spent fuel storage. The utilities generally limited their written responses to a restatement of the safety of interim storage and an affirmation of the technical and practical feasibility of the alternatives to Federal AFR storage facilities. An implied commitment by industry to implement AFR storage if necessary using one of the several feasible spent fuel storage alternatives is evident from the responses of the utilities, the nuclear industry, and associated groups (i.e., Tr. p. 159).

Based upon the foregoing, the Commission has, then, reasonable assurance that safe independent onsite or offsite spent fuel storage will be available if needed. The technology is demonstrated and the licensing procedures in place. The Nuclear Waste Policy Act establishes a national policy on interim storage of spent fuel and provides for contingency Federal storage capacity to augment that provided by industry. Further, the amount of fuel which may have to be stored in independent spent fuel storage facilities is less than was originally thought.

## Reference Notation

The following abbreviations have been used for the reference citations in the Appendix:

PS Position Statement

CS Cross-Statement

PHS Pre-Hearing Statement

Tr. Transaction\* of January 11, 1982 public meeting with the Commissioners

Participants have been identified by

\*The Commission considers this transcript to be part of the administrative record in this rulemaking. However, the transcript has not been reviewed for accuracy by the Commission on the participants, and therefore is only an informal record of the matters discussed.

the following citations:

## Citation and Participant

AICHE—American Institute of Chemical Engineers  
ANS—American Nuclear Society  
AEG—Association of Engineering Geologists  
AIF—Atomic Industrial Forum, Inc.  
—Bechtel National, Inc.  
CDC—California Department of Conservation  
CEC—California Energy Commission  
CPC—Consumers Power Company  
Del—State of Delaware  
DOE—U.S. Department of Energy  
ECNP—Environmental Coalition on Nuclear Power  
GE—General Electric Company  
Ill—State of Illinois (PS includes Roy affidavit)  
Lewis—Marvin I. Lewis  
Lochstat—Dr. William A. Lochstat  
Minn—State of Minnesota  
MAD—Mississippians Against Disposal  
NECN—New England Coalition on Nuclear Pollution  
NIE—Neighbors for the Environment (PS includes papers by Dornisfe, Rae, and Strahl)  
NRDC—Natural Resources Defense Council, Inc.  
NY—State of New York  
OCTLA—Ocean County and Township of Lower Alloway Creek  
Ohio—State of Ohio  
SC—State of South Carolina  
SE2—Scientists and Engineers for Secure Energy, Connecticut Chapter  
SHL—Safe Haven, Ltd.  
SMP—Sensible Main Power, Inc.  
TVA—Tennessee Valley Authority  
UNWMC—EEL—Utility Nuclear Waste Management Group—Edison Electric Institute  
USGS—United States Geological Survey  
Vt—State of Vermont  
Wis—State of Wisconsin (PS includes comments by Deese, Mudrey, Kelly, and Leverance)  
UG—The Utilities Group (Niagara Mohawk Power Corp., Omaha Public Power District, Power Authority of the State of New York, and Public Service Company of Indiana, Inc.)

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## 10 CFR Parts 50 and 51

## Requirements for Licensee Actions Regarding the Disposition of Spent Fuel Upon Expiration of Reactor Operating Licenses

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to incorporate the following provisions: (1) The Commission 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 reactor operating licenses. Accordingly, no discussion of any environmental impact of spent fuel storage for the period following expiration of the license or amendment applied for, is required in connection with the issuance or amendment of an operating license for a nuclear reactor or in connection with the issuance of an initial license or an amendment to an initial license for an independent spent fuel storage installation. (2) Operating nuclear power reactor licensees are required no later than 5 years before expiration of the reactor operating license, to submit for NRC review and approval, their plans for managing spent fuel at their site until the spent fuel is transferred to the Department of Energy for disposal.

**EFFECTIVE DATE:** November 29, 1984.

**FOR FURTHER INFORMATION CONTACT:** Dennis Rathbun or Clyde Jupiter, Office of Policy Evaluation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (202) 634-3295, or Sheldon Trubatch, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (202) 634-3224.

## SUPPLEMENTARY INFORMATION:

### Background

By a Notice of Proposed Rulemaking dated October 25, 1979 (44 FR 61372), the Nuclear Regulatory Commission ("Commission" or "NRC") began a generic rulemaking 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 will be available, and whether such wastes can be safely stored until they are safely disposed of." This proceeding became known as the "Waste Confidence" rulemaking proceeding, and was conducted partially in response to a remand by the United States Court of Appeals for the D.C. Circuit. *State of Minnesota v. NRC*, 602 F.2d 412 (1979). *State of Minnesota* involved a challenge to license amendments to permit the expansion of spent fuel pool storage capacities at two nuclear power plants. It was contended that uncertainty regarding ultimate disposal of commercial nuclear wastes required the Commission to consider the safety and environmental implications of storing spent fuel in the pools for an indefinite period following expiration of the plants' operating licenses. The Commission had excluded consideration of such long-term onsite storage from the license amendment proceedings, relying on its earlier finding (42 FR 34391, July 5, 1977) that safe permanent disposal of reactor wastes would be available when needed.

The Court of Appeals agreed with the Commission that, in accordance with the "rule of reason" implicit in the



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National Environmental Policy Act (NEPA), impacts of extended on-site storage of spent fuel need not be considered in licensing proceedings unless such storage was reasonably foreseeable and not merely a theoretical possibility. The Court held, however, that the Commission's statement of reasonable confidence in the timely availability of waste disposal solutions was "not the product of a rulemaking record devoted expressly to considering the question" and furthermore did not address the particular problem whether disposal solutions would be available before the expiration of plant operating licenses. *Id.* at 417. Accordingly, the D.C. Circuit remanded to the Commission for determination "whether there is reasonable assurance that an off-site 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 stored safely at the site beyond those dates." *Id.* at 418. The Court noted that "the breadth of the questions involved and the fact that the ultimate determination can never rise above a prediction suggest that the determination may be a kind of legislative judgment for which rulemaking would suffice." *Id.* at 417. The Court agreed that the Commission "may proceed in these matters by generic determinations." *Id.* at 419. *Accord, Potomac Alliance v. NRC*, 682 F.2d 1030 (D.C. Cir. 1982).

### Amendment to Part 51

Elsewhere in this issue, the Commission announced the conclusions it reached in the Waste Confidence rulemaking proceeding. The Commission found that there is 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 may expire without being renewed or some reactors may be permanently shut down prior to this period. Since independent spent fuel storage installations have not yet been

extensively developed, there is then a probability that some onsite spent fuel storage after license expiration may be necessary or appropriate. In addition, the Commission also realizes that some spent fuel may be stored in existing or new storage installations for some period beyond 2007-2009.

The Commission hereby adopts a rule 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. This rule has the effect of continuing the Commission's practice, employed in the proceedings reviewed in *State of Minnesota*, of limiting

considerations of environmental impacts of spent fuel storage in licensing proceedings to the period of the license in question and not requiring the NRC staff or the applicant to address the impacts of extended storage past expiration of the license applied for. The rule relies on the Commission's generic determination in the Waste Confidence proceeding that the licensed storage of spent fuel for 30 years beyond the reactor operating license expiration either at or away from the reactor site is feasible, safe, and would not result in a significant impact on the environment. For the reasons discussed in the Waste Confidence decision, the Commission believes there is reasonable assurance that adequate disposal facilities will become available during this 30-year period. Thus, there is no reasonable probability that storage will be unavoidable past the 30-year period in which the Commission has determined that storage impacts will be insignificant.

The same safety and environmental considerations apply to fuel storage installations licensed under Part 72 as for storage in reactor basins. Accordingly, in licensing actions involving (a) the storage of spent fuel in new or existing facilities, or (b) the expansion of storage capacity at existing facilities, the NRC will continue to require consideration of reasonably foreseeable safety and environmental impacts of spent fuel storage only for the period of the license applied for. The amendment to 10 CFR Part 51 confirms that the environmental impacts of spent fuel storage in reactor facility storage pools or independent spent fuel storage installations for the period following expiration of the reactor or installation storage license or amendment applied for need not be addressed in any environmental report, impact statement, impact assessment, or other analysis prepared in connection with the reactor operating license or amendment to the operating license, or initial license for an independent spent fuel storage installation, or amendment thereto.

The Commission's conclusions with respect to safety and environmental impacts of extended storage beyond expiration of current operating licenses are supported by the record in NRC's Waste Confidence proceeding and by NRC's experience in more than 80 individual safety and environmental evaluations conducted in storage licensing proceedings. The record of the Waste Confidence proceeding indicates that significant release of radioactivity from spent fuel under licensed storage conditions is highly unlikely because of the resistance of the spent fuel cladding to corrosive mechanisms and the absence of any conditions that would provide a driving force for dispersal of radioactive material. The non-

radiological environmental impacts associated with site preparation and construction of storage facilities are and will continue to be considered by the NRC at the time applications are received to construct these facilities, which are licensed under NRC's regulations in either 10 CFR Part 50 for reactors or 10 Part 72 for independent spent fuel storage installations. There are no significant additional non-radiological impacts which could adversely affect the environment for storage past the expiration of operating licenses at reactors and independent spent fuel storage installations.

The amendments to Part 51 published here include § 51.23 (a), (b) and (c) as well as conforming amendments in §§ 51.30(b), 51.53 (a) and (b), 51.61, 51.80, 51.95 and 51.97. Paragraph 51.23(a) is a restatement of a final generic Commission determination (elsewhere in this issue) based on the Waste Confidence rulemaking proceeding, while § 51.23 (b) and (c) establish the procedures for implementing that generic determination in individual licensing cases.

### Amendment to Part 50

The Commission is also adopting an amendment to 10 CFR Part 50 as set forth here, concerning the management of spent fuel from nuclear power reactors whose operating licenses may expire prior to the availability of a repository. The procedures established by this amendment are intended to confirm that there will be adequate lead time for whatever actions may be needed at individual reactor sites to assure that the management of spent fuel following the expiration of the reactor operating license will be accomplished in a safe and environmentally acceptable manner.

The Commission amends § 50.54 to establish requirements that the licensee for an operating nuclear power plant reactor shall no later than 5 years prior to expiration of the reactor operating license submit plans for NRC review and approval of the actions which the licensee proposes for management of all irradiated fuel at the reactor upon expiration of its operating license. No specific course of action is required of the licensee by the NRC. Licensee actions could include, but are not necessarily limited to, continued storage of spent fuel in the reactor spent fuel storage basin, storage in an independent spent fuel storage installation (refer to 10 CFR 72.3(m)) located at the reactor site or at another site; transshipment to and storage of the fuel at another operating reactor site in that reactor's basin; reprocessing of the fuel if it appears that licensed reprocessing facilities will be available; or disposal of the fuel in a repository. The proposed licensee actions must be consistent with NRC requirements for licensed

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possession of irradiated or spent fuel (as defined in § 72.3(v)) and must be capable of being authorized by the NRC and implemented by the licensee on a timely basis. The licensee's plans must specify how the financial costs of extended storage or other disposition of spent fuel will be funded. Further, the licensee's plans must describe the proposed disposition of all irradiated fuel from the reactor. The licensee shall notify the NRC of any significant changes to these plans; changes are not precluded provided that the licensee maintains the capability to manage the spent fuel safely.

The Commission notes that extended storage of spent fuel at a reactor beyond the expiration date of the operating license will require an amendment to the Part 50 license to cover possession only of the reactor and spent fuel under the requisite provisions of Parts 30, 50 and 70, or an authorization pursuant to Part 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation" (ISFSI). This rulemaking does not alter the requirements and provisions of Parts 51 and 72 with respect to the performance of environmental reviews of the impacts of spent fuel storage in an independent spent fuel storage installation or extended storage in a reactor spent fuel pool. This means that the NRC staff will continue to perform environmental reviews before issuing a license under 10 CFR Part 72 or an amendment for extended storage under 10 CFR Part 50. Notice of the receipt of a license application for storage of spent fuel pursuant to Part 72 will be published in the Federal Register.

### Related Commission Actions

On March 13, 1978, the NRC published an Advance Notice of Proposed Rulemaking indicating that the NRC was reevaluating its decommissioning policy and considering amending its regulations to provide more specific guidance on decommissioning of nuclear facilities (43 FR 10370). In January 1981, NRC published a "Draft Generic Environmental Impact Statement on Decommissioning Nuclear Facilities" (NUREG-0586). Proposed amendments to 10 CFR Parts 30, 40, 50, 51, 70, and 72 are being prepared by the NRC staff for Commission consideration. The proposed amendments for decommissioning would allow unrestricted use of a reactor or independent spent fuel storage installation site and would permit termination of the license. However, the storage of irradiated fuel either in a reactor basin or in an independent spent fuel storage installation would require restricted access and management of the storage facility to protect public health and safety. Thus, any continued storage

of spent fuel beyond expiration of an operating license would be licensed under either Parts 50 or 72 and could preclude final decommissioning of the site.

### Analysis of Public Comment

#### 1. Introduction

Proposed amendments to 10 CFR Parts 50 and 51, related to the Commission's Waste Confidence decision, were published in the *Federal Register* (48 FR 22730) for public comment on May 20, 1983. Section 50.54(aa) (formerly identified as § 50.54(x)) proposed to require licensees to submit no later than 5 years before expiration of reactor operating licenses a plan for post-operation management of spent fuel which is onsite at the time of license expiration. Section 51.23(a) (formerly identified as § 51.5(e)(1)) proposed a restatement of the Commission's generic determination in the Waste Confidence decision that no significant environmental impacts will result from onsite or offsite storage of spent fuel up to 30 years after reactor operating license expiration, that there is reasonable assurance that a repository will be available by 2007-2009, and that sufficient repository capacity will be available within 30 years beyond license expiration to dispose of reactor waste and spent fuel. Section 51.23(b) (formerly identified as § 51.5(e)(2)) proposed that the environmental impacts of potential extended spent fuel storage (i.e., storage beyond the period of an existing or initial license) need not be addressed in connection with a reactor operating license or the license for an independent spent fuel storage installation.

Comments were received from 21 respondents to the May 20, 1983 request. In addition to substantive comments discussed below, some commenters questioned: (1) The adequacy of the opportunity to comment on the Commission's fourth finding and supporting documentation; (2) the Commission's compliance with NEPA. In response, the Commission reopened the comment period (48 FR 50746, November 3, 1983). These later comments represent expanded discussions of procedural and environmental issues raised in the May 20, 1983 comment period and the Commission's responses to them are set out in the companion Waste Confidence decision published concurrently with this document. For the reasons discussed there, the Commission found no basis to modify its fourth finding or the related supporting documentation. The participants are identified by the abbreviated citations defined in Section 5 below.

#### 2. Proposed Provisions of 10 CFR 50.54(bb)

##### a. Timely Submission of Spent Fuel Management Plans

(1) *Summary of Comments.* The proposed rule would require each reactor licensee to submit, no later than 5 years before expiration of the operating license, written notification to the Commission describing the licensee's program for post-operational management of all irradiated fuel which is at the reactor at the time of expiration of the operating license, pending ultimate disposal of the irradiated fuel in a repository.

Some respondents agreed with the proposed notification date (Tol. Ed., UNWGM-EEI p. 3; MP&L). Others believed that the submittal of notification only 5 years before expiration of the reactor operating license was too late; rather, they would require utilities with operating reactors to submit spent fuel management plans within six months of issuance of this rule. For new reactors, these latter respondents advocated submission of plans prior to issuance of an operating license (UCS p. 2; NECNP p. 1; Hiatt) or even sooner (CNPP p. 1). Still others agreed that early planning was essential but did not recommend specific timing for submittal of plans (Wis. p. 2; ISAS p. 1; WED, EPI pp. 1, 2).

Among the reasons advanced for recommending an earlier planning requirement were the following: Industry's alleged record of reluctance to accept its responsibilities for spent fuel storage (Hiatt; ISAS p. 1; EPI p. 1); five years before license expiration the utility's primary concerns would be the massive inventory of spent fuel on hand, possible financial constraints as a result of reduction in the rate base, and the need to concentrate on newer and more long-term generating facilities (UCS, p. 2). UCS remarked that the requirement to submit a management plan near the end of the license term implied NRC might be willing to permit development of onsite semi-permanent storage facilities (UCS p. 2). Other respondents pointed out that earlier planning for spent fuel management is needed because the reactor may be shut down prior to the license expiration date; some plants may be shut down prematurely as a result of accidents or inability to meet newer regulatory requirements, and others may be shut down because of premature aging, steam generator or primary system degradation, or unacceptable severe accident risks (ISAS p. 1; EPI pp. 1, 2). One respondent recommended that the NRC require utilities to prepare spent fuel management plans every 5 years (EPI p. 3).

The Utility Decommissioning Group stated that consideration of premature shutdown due to accidents or other

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conditions was speculative and irrelevant to the Commission's proposed rule (UDG p. 7). An industry representative commented that the requirement to verify submittals for NRC authorizations was inappropriate since some authorizations would not be needed as early as five years before operating license expiration; an alternative schedule for seeking such authorizations was suggested (AIF, p. 7). Finally, one respondent stated that licensee plans should only address spent fuel management up to the time when the material and title are delivered to DOE for disposal (SE2 p. 4).

(2) *NRC Response.* The Commission believes that the choice of five years prior to operating license expiration represents a reasonable timeframe for licensees to submit their spent fuel management plans.

Delaying a request for such plans until the license expiration is imminent would not permit the timely implementation of alternative actions in the event deficiencies in the plans are identified by the Commission. Time is needed to ensure that the proposed plans are consistent with the licensee's long range plans, such as decommissioning, and that the plans meet whatever requirements are involved in the transfer of title to spent fuel to the Secretary of Energy for disposal in a repository.

On the other hand, the Commission believes that a requirement for a licensee to develop spent fuel management plans a decade or two before license expiration would be unnecessarily restrictive and could even be counterproductive. Such premature plans would be likely to undergo several revisions to accommodate to changing circumstances and their usefulness would be questionable.

Premature shutdown or termination of a reactor's license which results in an unanticipated need for interim storage or disposal arrangements is not expected to be a generic problem. The Commission will consider the consequences of premature termination of operation, should such an event occur, on a case-by-case basis. Even if a reactor shuts down prematurely, it will still be required to comply with license requirements.

Premature shutdown of a reactor could not pose a problem for storage of spent fuel, because intermediate or long-term demands on the spent fuel storage facilities at a shutdown reactor (whether shut down prematurely or because of operating license expiration) will be limited by termination of spent fuel production. Any short-term need for storage would be related to the desirability of maintaining a full core reserve, which is not a safety issue.

AIF's concern that it may be inappropriate for a licensee to apply for

all necessary NRC authorizations five years before license expiration has been taken into account by changing the third sentence of the proposed § 50.54(bb) to read "Where implementation of such actions require NRC authorizations, the licensee shall verify in the notification that submittals for such actions have been *or will be* made to NRC and shall identify them." (Emphasis added.)

Under the terms of the Nuclear Waste Policy Act of 1982, the Secretary of Energy will take title to spent fuel at a licensee's facility and transport the spent fuel to a repository for ultimate disposal. Because of this, each licensee's spent fuel management plans need only consider actions to be taken until the time of spent fuel transfer to the Secretary of Energy, rather than until the time of ultimate disposal. The final words of the first sentence of the proposed § 50.54(bb) have been revised to read ". . . until title to the irradiated fuel and possession of the fuel is transferred to the Secretary of Energy for its ultimate disposal in a repository." (Emphasis added.)

### b. Plans for Funding Spent Fuel Management

(1) *Summary of Comments.* The proposed rule would require a licensee's notification to include plans for financing the management of all irradiated fuel upon expiration of the reactor operating license until the ultimate disposal of the fuel in a repository.

Some respondents believed that the funding for spent fuel management should be considered together with funding for decommissioning (e.g., UDG pp. 5-7; UNWMG-EEL, p. 5; Tol Ed; AIF p. 8). They contended that, if funding for spent fuel management were to be addressed separately from decommissioning, the Commission should recognize that utilities generally would be permitted by the rate-making authorities to recover costs associated with extended fuel storage (UDG p. 6; AIF pp. 7, 8). Moreover, since each utility will have to demonstrate to NRC its ability to finance decommissioning—which will involve far greater costs than the maintenance and monitoring of spent fuel storage—the funding required for post-operating license spent fuel management will be assured (UDG pp. 5-7; AIF pp. 7, 8). Others believe that the funding required for post-OL management of spent fuel would be assured because the utilities are financially responsible (UDG pp. 5-7; AIF pp. 7, 8); still others contended that if a utility operates a reactor, it should be required to have adequate funding set aside now to manage the spent fuel (UCS p. 3). On the other hand, some respondents expressed the view that, when the notification of plans is due, a utility might not wish to spend or even retain the funds required for spent fuel

management (CNPP p. 1), e.g., Turkey Point. (FUSE p. 2).

(2) *NRC Response.* Following termination of reactor operation, actions to manage irradiated fuel stored on the plant site or to provide for its removal would include activities taken prior to and subsequent to decommissioning. In all cases after operating license termination, continued spent fuel storage at the nuclear power plant site would be subject to licensing under 10 CFR Part 50 or 72.

The suggestion that funding for decommissioning and spent fuel management be considered together would appear to offer no significant advantage. The costs of each are readily separable. Moreover, it is possible that rate-making authorities will treat cost recovery for decommissioning differently from costs of extended spent fuel storage, in which case separation of costs would be necessary. In addition, the scheduling of spent fuel storage and disposal is likely to depend primarily on factors not directly related to decommissioning such as irradiated fuel age, status of disposal facilities and availability of spent fuel transport casks. The Commission also notes that all reactor licensees have contracted with DOE for disposal of their spent fuel; further, any new reactor operating license will require that the licensee have a contract in place with DOE for disposal of all spent fuel generated.

### c. Meaning of "Approval" of Plans for Spent Fuel Management

(1) *Summary of Comments.* The proposed 10 CFR 50.54(bb) provides for Commission "review and approval" of the licensee's spent fuel management plans. One respondent noted that there is no indication whether the NRC "approval" would take the form of an order or a license amendment and recommended that the concept of "approval" be eliminated from the rule (AIF pp. 6, 7). Others characterized formal approval as unnecessary (UDG p. 7) and burdensome (UNWMG-EEL, pp. 3-5; Tol Ed.), or as creating "a new layer of approvals" (SE2 p. 3). It was suggested that the NRC staff review the plans, alert licensees to any deficiencies, and undertake formal approval only when action is taken to implement the plan through license amendments or other regulatory actions (AIF pp. 6, 7; UNWMG-EEL p. 4).

(2) *NRC Response.* The Commission's review of each licensee's plans for management and ultimate disposal of all irradiated fuel at the reactor following operating license expiration is intended to assure that each licensee has made adequate advance preparations, including allowance for contingencies, for managing spent fuel in a manner which provides adequate protection of the public health and safety and the environment until it is transferred to the

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Secretary of Energy for disposal. Because the plans would be developed at least five years prior to operating license expiration, they would be based on the utility's forecast of its future situation. Some utilities may have sufficient uncertainty in their forecasts to preclude an early firm commitment to details of a program for management of spent fuel after operating license expiration. Accordingly, the Commission will consider the notification to be submitted under § 50.54(bb) as a formal expression of intent. The notification is part of an information gathering process which is more specific, but similar in nature to the provisions of § 50.54(f), which states:

The licensee will at any time before expiration of the license, upon request of the Commission submit written statements, signed under oath or affirmation, to enable the Commission to determine whether or not the license should be modified, suspended or revoked.

The provisions of § 50.54(bb) may be used by the Commission in determining if it needs to take any further action. The Commission's review will focus on the identification of discrepancies or omissions and its "approval" will signify that, based on the information available at the time of filing the notification, the licensee's plans are sound and will provide adequate protection of the public health and safety and the environment. Between the time the Commission indicates its preliminary approval of the plans and the date of expiration of the operating license, the licensee may propose for Commission consideration modifications or supplementation of its plans. In this way, prior to license expiration, the licensee will have developed a course of action which the Commission has approved as satisfying the regulatory requirements for safety and environmental protection. The plan would then, at license expiration and termination of reactor operation, become part of the conditions of an amended Part 50 license for a shut down reactor facility, or a Part 72 license for storage of spent nuclear fuel following termination of reactor operation.

In order to clarify the Commission's intent that the Commission's approval of the licensee's plans for spent fuel management is not a final approval, the word "preliminary" has been inserted before "approval" in the first sentence of the proposed § 50.54(bb) and the following sentence is inserted after the first sentence: "Final Commission review will be undertaken as part of the proceeding for continued licensing under Part 50 or Part 72."

### d. Relationship of Extended Spent Fuel Storage to Decommissioning

(1) *Summary of Comments.* In view of the potential juxtaposition of actions to

implement spent fuel management plans addressed in § 50.54(bb) and decommissioning plans, some respondents urged that promulgation of the former be considered in the decommissioning rulemaking (UDG pp. 3-8) or coordinated with the decommissioning requirements (UDG pp. 5-7; UNWMC-EEI p. 5; EPI p. 2; AIF pp. 5, 8; Pilalis p. 2; MSS p. 2). The concerns were that the two rules (§ 50.54(bb) and decommissioning) might be conflicting or duplicative with respect to site access, preferred decommissioning mode, and financing (Pilalis p. 1; AIF pp. 5, 8). The record of the decommissioning rulemaking was cited as providing support for the Commission's determination that the environmental and safety implications of extended storage of spent fuel need not be considered in licensing proceedings (AIF pp. 3, 4; UDG p. 5).

(2) *NRC Response.* Here again, the Commission considers the decommissioning process as a set of actions separate from those discussed in § 50.54(bb). To delay issuance of a rule for extended spent fuel storage in order to combine it with the decommissioning rule which is being developed would serve no useful purpose. The safety and environmental implications of the two processes differ significantly. Specifically, decommissioning involves many more complex considerations than post-OL spent fuel management plans. Although the two activities may overlap in time, they are so different that combining the associated regulatory requirements into a single rulemaking would have no apparent advantage.

Although there is a potential for overlap between the plans submitted in the § 50.54(bb) notification and the decommissioning plans, the overlap is most likely to be limited to scheduling aspects, e.g., situations where the presence of spent fuel in the reactor storage pool must be taken into account when considering decommissioning options. The Commission does not consider the potential for conflict from such overlapping activities to be sufficient to delay the present rulemaking until decommissioning regulations are in place. Clearly the utility must decide which decommissioning option it wishes to choose before operating license expiration. The utility's spent fuel management plans submitted in response to § 50.54(bb) and its choice of decommissioning options, should be consistent. Such consistency may be achieved by modifying either the decommissioning plan, the spent fuel management plan, or both.

### 3. Miscellaneous Comments

#### a. Recognition of Yakima Indian Rights

(1) *Summary of Comments.* The Yakimas stated that their sovereign

rights cannot be properly protected by generalized rulemaking and that Federal rules must be based upon recognition of their treaty rights (YIN p. 2). They also contended that environmental impact analyses for siting nuclear waste storage and disposal facilities are based on value systems not related to those of affected Indian tribes (YIN, Enclosure 2). The Yakimas believe that environmental impact studies have consistently failed to look beyond the Judaeo-Christian socio-economic heritage and as a result there have been repeated nuisance violations of the sovereign rights guaranteed to the Yakimas by the Treaty of 1855 (YIN p. 2 of Attachment 2).

(2) *NRC Response.* This final rule does not concern repository siting, or the extended storage of spent fuel at any reactor located within the tribal lands. Siting will be considered under procedures laid out by the Nuclear Waste Policy Act (NWPA), DOE siting guidelines, and NRC regulations for high-level waste disposal (10 CFR Part 80). All of these recognize Indian rights in the siting of waste repositories and provide for participation by affected Indian tribes.

#### b. Extended Length of Time for Storage

(1) *Summary of Comments.* The Environmental Policy Institute states that the Commission may not assume that plants will be able to dispose of fuel in a repository on a schedule reflecting OL termination because the NWPA carries a presumption that significant repository capacity will be taken up by defense waste; moreover, section 135(e) of the NWPA requires that spent fuel in interim Federal storage must be moved within three years of the availability of permanent disposal of storage facilities. Furthermore, EPI notes that DOE proposes in its contracts to give priority to the oldest fuel (EPI pp. 2, 3). Pilalis adds that the contracts give priority to fuel from permanently shutdown reactors.

(2) *NRC Response.* The Commission notes that the various categories (e.g., wastes from commercial or defense activities) of high-level waste and spent fuel are addressed in the NWPA in a manner which assures that they will be dealt with or managed and disposed of with appropriate priorities. The NWPA mandates a Mission Plan from the Secretary of DOE (section 301(a)), which includes:

... an estimate of (A) the total repository capacity required to safely accommodate the disposal of all high-level radioactive waste and spent nuclear fuel expected to be generated through December 31, 2020, in the event that no commercial reprocessing of spent nuclear fuel occurs, as well as the repository capacity that will be required if such reprocessing does occur, (B) the number and type of repositories required to be

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constructed to provide such disposal capacity; (C) a schedule for the construction of such repositories; and (D) an estimate of the period during which each repository listed in such schedule will be accepting high-level radioactive waste or spent nuclear fuel for disposal; (section 301(a)(9)).

Thus the intention of the NWSA is to provide adequate repository capacity on a timely basis for all high-level radioactive waste and spent fuel and to take into account the various priorities for disposal established by the Act itself. The Commission notes in its Waste Confidence decision (elsewhere in this issue) that:

... sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of commercial high-level radioactive waste and spent fuel generated up to that time. The Nuclear Waste Policy Act of 1982 establishes Federal responsibility and a clearly defined Federal policy for the disposal of such waste and spent fuel and creates a Nuclear Waste Fund to implement Federal policy. The Act establishes as a matter of national policy that this responsibility is a continuing one, and provides means for the Secretary of Energy to examine periodically the adequacy of resources to accomplish this end (Appendix to the Commission's decision [section 2.2B4]).

In any event, the Commission does not assume, as EPI contends, that plants will be able to dispose of spent fuel in a repository on a schedule corresponding to OL termination. The Commission's second finding states (in part) that sufficient repository capacity will be available within 30 years beyond OL termination. The priority that DOE proposes to follow in its contracts for acceptance of the oldest spent fuel does not affect this situation.

#### 4. Non-Substantive Revisions in the Amendment to 10 CFR Part 51.

Non-substantive revisions were made in the amendment to Part 51 for clarification and to conform to the recently published (49 FR 9352, March 12, 1984, effective June 7, 1984, 49 FR 24512, June 14, 1984) general revision of 10 CFR Part 51 and related conforming amendments implementing CEQ NEPA regulations.

#### 5. Listing of Participants

**Respondents to the May 20, 1983 Invitation for Public Comment (48 FR 22730) on the Proposed Amendments to 10 CFR Parts 50 and 51, "Requirements for Licensee Actions Regarding the Disposition of Spent Fuel Upon Expiration of the Reactor's Operating License"**

1. New York Attorney General (NY Atty. Gen.)
2. Floridians United for Safe Energy (FUSE)
3. Toledo Edison Company (Tol. Ed.)
4. Environmental Policy Institute (EPI)
5. Utility Decommissioning Group

(UDG)

6. Atomic Industrial Forum, Inc. (AIF)
7. Utility Nuclear Waste Management Group and the Edison Electric Institute (UNWMG—EEI)
8. Wisconsin (Wis.)
9. Middle South Services, Inc. (MSS)
10. Coalition for Nuclear Power Postponement (CNPP)
11. Union of Concerned Scientists (UCS)
12. Indiana Sassafras Audubon Society (ISAS)
13. Yakima Indian Nation (YIN)
14. Wisconsin Environmental Decade (WED)
15. Labros E. Pilalis (Pilalis)
16. New England Coalition on Nuclear Pollution, Inc. (NECNP)
17. Scientists and Engineers for Secure Energy, Inc. (SE2)
18. Susan L. Hiatt (Hiatt)
19. Mississippi Power and Light Co. (MP&L)
20. Department of Energy (DOE)
21. Consolidated Public Interest Representative (CPIR)

**Respondents to the Commission's November 3, 1983 Order (48 FR 50746) To Reopen the Period for Limited Comment on the Environmental Aspects of the Commission's Fourth Finding in the Waste Confidence Proceeding**

1. Attorney General of the State of New York (N.Y.)
2. Marvin Lewis (Lewis)
3. Sierra Club Radioactive Waste Campaign (Sierra)
4. Scientists and Engineers for Secure Energy, Inc. (SE2)
5. Safe Haven, Ltd. (S.H.)
6. American Institute of Chemical Engineers (AIChE)
7. Atomic Industrial Forum, Inc. (AIF)
8. Utility Nuclear Waste Management Group—Edison Electric Institute (UNWMG—EEI)
9. Natural Resources Defense Council, Inc. (NRDC)
10. Attorney General of the State of Wisconsin (Wis.)
11. U.S. Department of Energy (DOE)
12. American Nuclear Society (ANS)
13. Attorney General of the State of Minnesota (Minn.)

#### Environmental Impact

This final rule amends 10 CFR Part 51 of the Commission's regulations to incorporate the generic determination made by the Commission at the conclusion of the Waste Confidence rulemaking proceeding that for at least 30 years beyond the expiration of reactor operating licenses no significant environmental impacts will result from the storage of spent fuel in reactor facility storage pools or independent spent fuel storage installations located

at reactor or away-from-reactor sites. The detailed environmental analysis on which the generic determination was based can be found in the record at that proceeding published elsewhere in this issue. This rulemaking action formally incorporating the generic determination in the Commission's regulations has no separate independent environmental impact.

The other amendments to Parts 50 and 51 of the Commission's regulations set out in the final rule contain procedures which relate to the submission and review of applications for licenses, license amendments and other forms of permission. The final rule specifies notification procedures applicable to licensee proposals for the management of irradiated fuel following expiration of a reactor operating license and the types of environmental information required to be submitted or addressed in connection with an application for a license or license amendment to store spent fuel at a nuclear power reactor or at an independent spent fuel storage installation after the reactor operating license has expired. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(3). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

#### 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 3150-0021).

#### 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. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants are dominant in their service areas and 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

##### 10 CFR Part 50

Antitrust, Classified information, Fire prevention, incorporation by reference, Intergovernmental relations, Nuclear

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power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and record keeping requirements.

### 10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, 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, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Parts 50 and 51.

49 FR 35747  
Published 9/12/84  
Effective 9/12/84

*Elimination of Review of Financial Qualifications of Electric Utilities in Operating License Review and Hearings for Nuclear Power Plants*

See Part 2 Statements of Consideration

49 FR 36631  
Published 9/19/84  
Effective 10/12/84

*Elimination of Review of Financial Qualifications of Electric Utilities in Operating License Review and Hearings for Nuclear Power Plants*

See Part 2 Statements of Consideration

49 FR 38534  
Published 10/1/84

*Elimination of Review of Financial Qualifications of Electric Utilities in Operating License Review and Hearings for Nuclear Power Plants*

See Part 2 Statements of Consideration

49 FR 42693  
Published 10/24/84

### 10 CFR Parts 50 and 51

#### Waste Confidence Decision

##### Correction

In FR Doc. 84-23182 beginning on page 34658 in the issue of Friday, August 31, 1984, make the following corrections:

1. On page 34663, column one, thirteenth line from the top, "his" should read "this".

2. On page 34667, column three, fifth

line from the bottom, "investors" should read "investigators".

3. On page 34670, column one, paragraph designated as 2, line ten, "processing" should read "proceeding".

4. On page 34678, column three, first complete paragraph, line eighteen, "of the Congress" should read "to the Congress".

5. On page 34682, column three, first complete paragraph, line eight, "detective" should read "defective"; also in the second paragraph, line fourteen, "or" should read "on".

49 FR 42693  
Published 10/24/84

### 10 CFR Parts 50 and 51

#### Requirements For Licensee Actions Regarding the Disposition of Spent Fuel Upon Expiration of Reactor Operating Licenses

##### Correction

In FR Doc. 84-23183 beginning on page 34688 in the issue of Friday, August 31, 1984, make the following corrections:

1. On the same page, column three, first complete paragraph, line fifteen, "extensive by" should read "extensively".

2. On page 34689, column one, line three from the bottom, "so" should read "no".

3. On page 34690, column two, paragraph designated as (1), line ten, "exporation" should read "expiration".

➤ 49 FR 45571  
Published 11/19/84  
Effective: 11/19/84

### 10 CFR Part 50

#### Environmental Qualification of Electric Equipment; Removal of June 30, 1982 Deadline

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** In response to a ruling by the U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit"), the Commission published on March 7, 1984, a proposed rule deleting from power plant operating licenses a June 30, 1982, deadline for environmental qualification of electric equipment imposed by previous Commission order. After considering public comments received, the Commission is adopting the proposed rule as a final rule with a

minor modification.<sup>1</sup> Licensees of operating power plants will therefore be expected to meet the schedule for environmental qualification set out in 10 CFR 50.49(g).

**EFFECTIVE DATE:** November 19, 1984.

**FOR FURTHER INFORMATION CONTACT:** William M. Shields, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone: (301) 492-8893.

#### **SUPPLEMENTARY INFORMATION:**

##### **I. Background**

Events leading up to this rulemaking were summarized in the notice of proposed rulemaking, 49 FR 8445 (March 7, 1984), and in the Commission's Policy Statement issued that same day, 49 FR 8422. In the notice of proposed rulemaking the Commission stated the issue presented to be: "Whether the deadline of June 30, 1982, shall be deleted from every operating license in which it appears, leaving the compliance schedule for completing the environmental qualification of safety-related electric equipment set by 10 CFR 50.49."<sup>2</sup> The Commission also set forth in the notice of proposed rulemaking a special procedure whereby plant-specific comments would be referred to the staff for review and consideration of possible enforcement action. The Commission noted that it would consider any generic implications

<sup>1</sup> The Commission voted on September 4, 1984 to adopt the rule and an accompanying Statement of Consideration subject to the addition of separate views. Immediately thereafter, the Union of Concerned Scientists ("UCS") petitioned the Commission to reconsider its adoption of this rule. Under these circumstances, the Commission determined to review its action and to defer publication of the Statement of Consideration. While the Commission's review was pending, the D.C. Circuit directed the Commission to provide the Court a copy of the Final Rule and Statement of Consideration.

The Commission's review did not reveal any reasons for modifying the rule as adopted. Accordingly, UCS's petition is denied for the reasons stated in this modified Statement of Consideration which supplants the Statement of September 4, 1984. The Commission has forwarded a copy of this modified statement to the D.C. Circuit.

<sup>2</sup> Section 50.49(g) provides as follows:

(g) Each holder of an operating license issued prior to February 22, 1983, shall, by May 20, 1983 identify the electric equipment important to safety within the scope of this section already qualified and submit a schedule for either the qualification to the provisions of this section or for the replacement of the remaining electric equipment important to safety within the scope of this section. This schedule must establish a goal of final environmental qualification of the electric equipment within the scope of this section by the end of the second refueling outage after March 31, 1982 or by March 31, 1985, whichever is earlier. The Director of the Office of Nuclear Reactor Regulation may grant requests for extensions of this deadline to a date no later than November 30, 1985, for specific pieces of equipment if these requests are filed on a timely basis and demonstrate good cause for the extension, such as procurement lead time, test complications, and installation problems. In exceptional cases, the Commission itself may consider and grant extensions beyond November 30, 1985 for completion of environmental qualification.



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resulting from review of plant-specific comments in deciding whether to delete the deadline for all plants. On August 7, 1984, in response to requests by some commenters, the Commission extended the comment period to August 13, 1984. (49 FR 31432).

### II. Public Comments

Twenty-two comments were received on the proposed rule. Nine favored adoption of the rule, twelve opposed the rule, and one comment discussed seismic issues not germane to the rulemaking. Of the nine comments favoring the rule, six were submitted by utility owners of power reactors, one by a law firm representing two such utilities, one by an individual, and one by the Nuclear Utility Group on Environmental Qualification, representing numerous power plant licensees. Of the twelve comments opposing the rule, five were filed by individuals, four by intervenor groups, one by the Harvard Law School Environmental Law Society, one by the Union of Concerned Scientists, and one by the State of Maine. The comment related to seismic matters was filed by an attorney representing Georgians Against Nuclear Energy.

Most of the comments pro and con were relatively succinct and stated arguments addressed by the Commission in its policy statement. Those favoring deletion of the deadline pointed to the fact that the task of environmental qualification of all safety-related electric equipment in nuclear power plants has proven to be a much more difficult and extensive task than was originally thought. These commenters noted that great progress had been made, both prior to and following the previous deadline, and that the schedule in 10 CFR 50.49 is a realistic approach to completing the program at all facilities. Those opposing deletion of the deadline were generally dissatisfied with progress to date, and in some cases urged retention of the deadline as a reminder that environmental qualification had not been completed on the schedule originally set by the Commission. These commenters did not generally urge that plants be shut down to complete the effort, but did feel that deletion of the deadline would encourage utilities to further delay environmental qualification. Three comments focused on equipment qualification at specific facilities.

The Union of Concerned Scientists filed a lengthy comment in which the following major points are raised. Commission responses follow each point.

1. The Atomic Energy Act requires the Commission to consider all comments bearing on whether issuance of the

proposed license amendments would be inimical to the public health and safety.

*Commission Response.* The gravamen of this contention is that the Commission should not have stated, in the notice of proposed rulemaking, that the plant-specific comments would be treated via 10 CFR 2.206, because this tantamount to excluding evidence relevant to the rulemaking.

The Commission was quite clear in the notice of proposed rulemaking that comments which had a bearing only on a single facility were to be treated under 10 CFR 2.206 because the proposed rule was intended to lift an industry-wide deadline "set for purposes not directly related to safety." 49 FR 8445. However, the Commission also stated "that a number of comments, each raising issues about particular plants, would in the aggregate have a bearing on the Commission's proposal to eliminate the June 30, 1982, deadline." *Id.* The procedure outlined for staff review of plant-specific comments concluded as follows: "In deciding whether to make final the proposed elimination of the June 30, 1982 deadline, the Commission will consider the generic implications of the Director's preliminary judgments." *Id.* Thus, the Commission intended that all comments, both general and plant-specific, would be considered relevant to the final decision.

2. The stated basis for the proposed rule distorts the history of the environmental qualification issue and ignores the distinction between regulation and enforcement.

*Commission Response.* UCS argues that the Commission's characterization, in the notice of proposed rulemaking, that the June 30, 1982 deadline was not a "substantive safety standard" is erroneous. The Commission's position on this issue was set out at length in the notice of proposed rulemaking and accompanying Policy Statement, and has not changed. The June 30, 1982 deadline is not a substantive safety standard by which the safe operation of individual facilities was to be measured.

3. The rulemaking record cannot support the license amendments.

*Commission Response.* UCS contends that the rulemaking record is poorly organized, incomplete, and taken as a whole insufficient to support the issuance of a rule. UCS' position is that the rulemaking cannot be completed until licensee documentation has been received (as a result of recent staff-license meetings) and all final Safety Evaluation Reports been written, because "the Commission cannot amend reactor licenses . . . without making a safety finding for each operating plant."

On the matter of the state of the record itself, the Commission and its staff have attempted to provide for public inspection all available material considered by the NRC. Several

commenters requested and received specific records for individual facilities. The Commission believes that any interested person could have reviewed any documentation available for one or more plants within the comment period provided. Staff assistance was available whenever requested to locate specific data or to sort out complex files.

As for the substantial number of technical documents provided by licensees directly to the Franklin Research Center (FRC) for its review, but not provided to the NRC staff, the Commission believes that there was no legal requirement to make that documentation available for comment in this rulemaking. The technical documents relied on by the FRC were not necessary to the Commission's determination of the issue in this rulemaking, were not consulted by the Commission, and were therefore not part of the rulemaking record. The issue in this rulemaking was whether the June 30, 1982 deadline should be retained because either licensees were not diligently pursuing environmental qualification or because there were generic safety problems. The Technical Evaluation Reports ("TER") by the FRC, which are a part of the record, provided adequate documentation for resolving these issues. These TERs were based on the FRC's review of the technical documentation supplied to it by licensees. The identification of this technical documentation by FRC, together with the FRC's conclusions about the status of environmental qualification at the facilities being reviewed, was sufficient in itself to support the Commission's conclusion that licensees were diligently pursuing environmental qualification.

The TERs also evaluated the technical documentation and were the primary documents for the NRC staff's preparation of Safety Evaluation Reports ("SER"), also in the rulemaking record, which formed the basis for the Director of Nuclear Reactor Regulation's report to the Commission that there are no generic safety issues involving environmental qualification. Thus, the public had available to it all the material relied on by the NRC in resolving the issue presented by this rulemaking.

The issue of whether a plant-specific safety finding is involved for each facility has been discussed. The Commission has stated its position that the generic deadline was not a safety standard for each facility, and thus removing the deadline by rule does not require plant-specific findings.

4. There is no rational basis for the safety finding that is required to support the proposed license amendments.

*Commission Response.* In support of this argument, UCS restates many of the technical issues which were reviewed in

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the Commission's Policy Statement. In UCS' view, the documentation supporting qualification of some equipment is inadequate and does not support continued operation of the facility. UCS also argues that the NRC review of qualification data has been insufficiently detailed to reach valid conclusions about the safety of the facilities.

UCS misreads the court's decision in *UCS v. NRC*, 711 F.2d 370 (D.C. Cir. 1983) to support its contention that plant specific safety findings are required to support deletion of the deadline. The court did not say that any such finding was actually necessary before the deadline could be deleted. Rather, the court found that because in its view the Commission had apparently made a generic safety finding to support the Interim Rule, the Commission had to provide an opportunity to comment on that alleged safety finding.

The Commission has now explained that it does not rely on plant-specific safety findings in the present rule. Nothing in *UCS v. NRC* requires such findings. Plant-specific safety findings are not required for these proposed license amendments because these amendments do not have the effect of authorizing any plant operation not previously authorized, after full consideration for safety, when the facility licenses were issued. As explained above, the deadline was not set as a safety matter or as a cutoff date beyond which reactors could no longer operate if all of their equipment was not qualified. Rather, the purpose of the deadline was to urge licensee compliance with the environmental qualification program. Accordingly, those proposed license amendments do not involve the technical issues associated with the qualification status of various pieces of equipment at nuclear power plants. The justifications for continued operation are relevant to the deadline only to the extent that they reveal whether licensees have considered the effects of deficiencies in a timely manner. The Commission's review of the record shows that licensees have been actively attaining compliance with the environmental qualification requirements. Thus, the purpose of the deadline has been achieved. If there are individual instances of safety problems, the Commission has adequate enforcement tools, including shutdown orders, to deal with such problems. Thus, deletion of the deadline does not affect public health and safety.

Furthermore, the Commission's staff is reviewing the qualification program at every operating facility and has also examined qualification data for many

specific pieces of equipment. Where problems or deficiencies are identified, corrective action by the licensee is required. In some cases, a justification for continued operation (JCO) may be requested within a short time if facility operation is contemplated before the deficiency can be corrected. The proper remedy for any person disagreeing with the Commission's position on any given facility is to seek enforcement action via 10 CFR 2.206. One such petition has been received, filed by UCS, in regard to the emergency feedwater system at Three Mile Island Unit 1. The Commission's staff has reviewed the petitioner's allegation and found that the emergency feedwater system at Three Mile Island Unit 1 is environmentally qualified in accordance with 10 CFR 50.49. Therefore, the petition was denied.

UCS also alleged qualification deficiencies in four dockets, namely, Three Mile Island Unit 1, Kewaunee, San Onofre Unit 1, and Haddam Neck. These allegations will be dealt with in Section IV below.

### III. Response To FUSE Comment And UCS Petition

One commenter, Floridians United For Safe Energy (FUSE), was highly critical of the Commission's prior actions on environmental qualification and requested that the Commission take 14 listed actions to correct the alleged deficiencies. These 14 actions are identical to those requested by the Union of Concerned Scientists (UCS) in a petition filed with the Commission of February 7, 1984. The Commission had decided that the first five of the 14 requested actions are relevant to this rulemaking, and accordingly, those issues will be stated and responded to below. The remaining nine issues have been dealt with separately as described in a letter to UCS.

**Request 1.** Direct the Staff to obtain immediately (within 10 days) from each nuclear power plant licensee and license applicant a report documenting the use of each deficient component listed in the UCS petition, and a detailed justification for continued operation pending qualification of the equipment. (The equipment listed was: solenoid valves, Barksdale pressure switches, Static-O-Ring pressure switches, IIT-Barton transmitters, Limitorque valve operators, Anaconda flexible conduit, Rockwell hydrogen recombiners, and O'Brien Electric Penetration Assembly, Model K Connectors.)

**Commission Response.** All of the above equipment highlighted by UCS have already been the subject of NRC Office of Inspection and Enforcement Information Notices. Licensees were required by 10 CFR 50.49 to identify all equipment remaining to be qualified, including the items cited by UCS where

applicable, and to establish a schedule for qualification (which might involve analysis, testing or replacement) within the confines of § 50.49(g). If a licensee identifies unqualified equipment previously thought to be qualified, or overlooked in prior reviews, the licensee is required by § 50.49(h) to notify the Commission within 60 days if additional time may be needed to complete qualification.

Following receipt of the 10 CFR 50.49 submittals, the staff scheduled meetings with each licensee to discuss all remaining open issues regarding environmental qualification, and to identify the information necessary to issue a final safety evaluation report on environmental qualification for each facility. These meetings have been completed and the staff is now preparing an SER for each facility. Licensee approaches for resolving environmental qualification deficiencies include replacing equipment, performing additional testing and/or analysis, assembling additional qualification documentation, installing radiation shielding, and relocating equipment. Whenever equipment is identified which is not qualified for its application, the licensee has been required immediately to provide a justification for continued operation, if a justification had not been previously submitted. In a few cases where it appeared that licensee efforts had not been adequate, the staff has conducted an audit of licensee files and has made clear what steps need to be taken to demonstrate compliance with the Commission's environmental qualification requirements.

The Commission believes that this approach, which places the burden on licensees to complete environmental qualification on a reasonable schedule, is preferable to the ad hoc program proposed by UCS that could lead to delay in completion of the program at individual plants. In this area as in all other areas of NRC jurisdiction, the Commission relies on its licensees to carry out the regulatory requirements in a responsible manner, subject to NRC review and audit, and backed up by inspection and enforcement.

**Request 2.** Direct the staff to review this information within two weeks and make an independent determination as to whether there is justification for continued operation pending qualification of the equipment.

**Commission Response.** Even if the Commission were to receive all of the data covered by Request #1, the simple result implied by Request 2, i.e., to determine whether continued operation is or is not justifiable, would not obtain. As to each individual piece of equipment, at least the following steps must be carried out:

1. How is the item being used in the plant? For how long is it needed in an

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accident situation? Does it provide a critical function or indication, or is it in the "like to have" category? Is it backed up by other pieces of equipment?

2. What environment will the item of equipment see in each of a number of accident scenarios? Will it see a harsh environment in accidents for which it is needed or desired? Can it provide its function prior to being overwhelmed by environmental conditions?

3. What do the test data show concerning the item? Is it unqualified only in respect to one parameter or several? By what margin is it unqualified? Has it failed in every test, or has it passed some and failed some? Is the test data reliable or is there reason to question its validity?

4. If the item is clearly unqualified in its application, what risk is represented by continued operation? Can compensating measures such as procedures or valve alignments, etc., be used until a qualified piece of equipment can be installed? When will a qualified item be available, and when could it be installed?

The answers to these questions are not immediately obvious from a cursory review of a few documents. In each case the expertise of a number of persons experienced in a variety of disciplines must be called upon. Additional data may be needed which may or may not be immediately available. A site visit might be necessary to gain a clear picture of the item's use, location, configuration, and importance to plant operations. Arguments may arise over the interpretation of test data.

In short, UCS has greatly oversimplified the process of environmental qualification of safety-related electric equipment in nuclear power plants as a straightforward one, where answers immediately turn out yes or no. If the matter were that simple, the Commission and its licensees would not have been struggling for some five years to complete the program. In many cases environmental qualification efforts are at the edge of modern technology and material science. Tests must be carried out under conditions which are difficult to create in the laboratory, and arguments arise over whether simulated conditions accurately represent the environment of a nuclear accident. Finally, reasonable disagreements can arise over the need for a piece of equipment, the environment it will see in an accident, the probability of that accident occurring over a brief period of time, and the consequences of equipment failure.

The Commission believes the phased but expeditious program mandated by 10 CFR 50.49 should continue. Where the staff feels that licensee efforts fall short of an acceptable level, action will be taken. Where information indicates that

a serious, immediate safety hazard exists at a particular facility, prompt corrective action will be required including plant shutdown where necessary.

*Request 3.* Direct the staff at the conclusion of this review to order those plants for which adequate justification is not present to cease operation until the equipment in question is qualified or replaced.

*Commission Response.* As stated, if the Commission determines that plant operation is not justified with certain unqualified equipment, plant shutdown will be ordered. However, the Commission relies on licensees and its inspection program to report serious safety matters requiring immediate action.

*Request 4.* Provide a process for expeditious public comment on the Staff's determination and supporting submittals.

*Commission Response.* Whenever a licensee is requested to provide a justification for continued operation, the documentation is provided on the docket of that facility and is therefore available for public inspection. If any person believes that staff's acceptance of the licensee's position is in error, that person may request licensing action pursuant to 10 CFR 2.206.

*Request 5.* Commission may modify or affirm the Staff's action, taking into consideration public comments it has received.

*Commission Response.* If licensing action is sought on an individual facility pursuant to 10 CFR 2.206, the Commission has discretion under its rules to review the decision of the office director. See 10 CFR 2.208(c)(1).

### IV. Plant Specific Comments

Four comments were filed which allege equipment qualification deficiencies at specific plants:

TMI, Kewaunee, San Onofre 1, Haddam Neck—UCS  
Maine Yankee—Attorney General, State of Maine<sup>3</sup>  
Pilgrim, Seabrook —John F. Dougherty  
Point Beach—Wisconsin's Environmental Decade

These comments have been reviewed by the NRC staff as provided in the notice of proposed rulemaking. The Director of Nuclear Reactor Regulation has found that the comments do not

<sup>3</sup> The State of Maine's comment also contains legal arguments which are responded to above in connection with the UCS comment and petition, and which the Commission has previously addressed in the notice of proposed rulemaking and accompanying policy statement issued March 7, 1984.

<sup>4</sup> Mr. Dougherty's comment regarding Seabrook did not deal with specific qualification deficiencies, but referred only to the licensee's financial difficulties. For this reason, Seabrook will not be discussed further below and will not be the subject of § 2.206 treatment.

raise generic issues relevant to this rulemaking and has therefore recommended that these comments be treated according to 10 CFR 2.206. The Commission has agreed with this recommendation. The Director will review these comments according to the procedures specified in that regulation, and will take licensing action as he decides appropriate, if any. The status of environmental qualification at these facilities is set out below for information.

### TMI-1

In response to the UCS 2.206 petition noted above, the staff has reviewed and evaluated the licensee's environmental qualification (EQ) program. Specifically, the qualification status of the emergency feedwater (EFW) system and electrical equipment associated with this system was assessed against the Commission's requirements and found to be in compliance. (DD-84-22).

As part of this effort, the staff met with the licensee and performed several audits of the licensee's EQ files. In response to the staff's findings during these audits, the licensee made substantial improvements in the EQ documentation for the EFW System and associated electrical equipment. The licensee is in the process of reviewing its EQ documentation for all other electrical equipment required to be qualified. The staff will audit the licensee's EQ documentation for several items of equipment other than the EFW system to ensure that the licensee's program complies with the Commission's requirements as set forth in 10 CFR 50.49.

### Kewaunee

The staff has completed its Safety Evaluation Report for Kewaunee, and has concluded as follows:

1. Wisconsin Public Service's electrical equipment environmental qualification program complies with the requirements of 10 CFR 50.49.

2. The proposed resolutions for each of the environmental deficiencies identified in the February 2, 1983 SER and FRC TER are acceptable. There are no longer any outstanding justifications for continued operation for this facility.

### San Onofre 1

This plant is currently not operating. The staff met with the licensee on December 20, 1983 to discuss resolution of the TER deficiencies. In order to ensure compliance with the Commission's requirements, this facility's EQ files were audited by the staff on October 2-4, 1984. Prior to return to service, the licensee is required to submit justifications for continued

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operation for all equipment which is within the scope of 10 CFR 50.49 and not fully qualified.

### *Haddam Neck*

The staff met with the licensee on April 10, 1984 to discuss the resolution of the TER deficiencies. During that meeting, the licensee informed the staff that the temperature elements, cited by USC as having deficient JCO, will be replaced with qualified elements by March 31, 1985 in accordance with an extension granted by the NRC staff. (The staff had previously reviewed and accepted the JCO for these elements.)

In regard to the in-core thermocouples cited by USC, the licensee stated during the April 10 meeting that these devices are now fully qualified and thus a JCO is no longer required. Upon receipt of a final submittal from the licensee documenting the results of the April 10 meeting, the staff will prepare an SER reporting its evaluation, and will schedule a later audit of the licensee's EQ files to confirm compliance with the Commission's requirements.

### *Maine Yankee*

The staff met with the licensee on April 4, 1984. The licensee's final submittal was dated May 31, 1984. The staff is now reviewing this submittal.

### *Pilgrim*

The staff met with the licensee on May 22, 1984. The licensee made two submittals dated July 9, 1984 and August 3, 1984. The staff is now reviewing these submittals.

### *Point Beach Units 1 and 2*

The staff has completed its Safety Evaluation Reports for both of these units. As to each unit the staff has concluded:

1. Wisconsin Electric's electrical equipment environmental qualification program complies with the requirements of 10 CFR 50.49.

2. The proposed resolution of each of the environmental qualification deficiencies identified in the December 22, 1982 SER and FRC TER are acceptable.

3. Continued operation until completion of the licensee's environmental qualification program will not present undue risk to the public health and safety.

The licensee's qualification files will be audited at a later date to confirm that all of the Commission's requirements have been met.

### **V. Decision on Final Rule**

The Commission has reviewed the comments and does not find in them convincing arguments in favor of retaining the license condition deadlines. The Commission agrees with

commenters who expressed impatience at the length of time which has already been devoted to the effort of achieving full qualification of safety-related equipment in nuclear power plants. The program has taken much longer than expected, and has involved difficulties and complexity not foreseen at the time the 1982 date was inserted in operating licenses.

However, the Commission believes that the approach most likely to accomplish completion of the program in the most expeditious and thorough fashion is that contained in 10 CFR 50.49. Under this program environmental qualification should be complete in calendar year 1985. The staff continues to monitor licensees' progress closely, and the Commission itself will maintain an active role in supervision of the program. For the present the Commission is satisfied that progress is adequate and that retention of the 1982 deadline on a generic basis would serve no purpose. Enforcement action will be taken on individual plants if circumstances warrant.\*

The Commission is therefore adopting as a final rule the removal of the June 30, 1982, deadline from power plant operating licenses. In response to one of the public comments, which noted that some licensees may have license condition deadlines other than June 30, 1982, the proposed rule is being modified

\*In his separate views Commissioner Asselstine disavows his previous agreement with the Notice of Proposed Rulemaking and the Commission's Policy Statement. The Commission believes that this rulemaking record does not support such a change in position. In its Policy Statement, the Commission agreed that because the June 30, 1982 deadline was not intended as a cut-off date for operation, the establishment of that deadline did not contain an implicit judgment that operation beyond that date would require a safety finding. As the Commission's Policy Statement made clear, this rulemaking was conducted solely to respond to the remand in *UCS v. NRC*, 711 F.2d 370 (D.C. Cir. 1983) and should not be taken as an indication that the Commission had changed its mind to now believe that the 1982 deadline had plant-specific safety significance.

Nor does Commissioner Asselstine's reason for wanting to retain the deadline contradict the Commission's position. He states that "the Commission should retain [the deadline] as an effective enforcement tool to assure continued diligence by licensees in carrying out an effective equipment qualification program." Putting aside the issue of whether the Commission could even rely on this deadline as a basis for initiating enforcement actions at this late date, it is clear that Commissioner Asselstine would not use the deadline to enforce safety deficiencies, but would use it only for the purposes for which it was intended, i.e., to assure licensee diligence in completing the environmental qualification. Thus, Commissioner Asselstine's reason for wanting to retain the deadline is not based on a difference over its intended use, but really on whether the record shows that the reasoning for imposing the deadline has been met. For the reasons given above, the Commission had found that the deadline accomplished its purpose: As a general matter, licensees are diligently pursuing effective environmental qualification programs. The fact that one facility, Three Mile Island, Unit 1 required additional prodding, prodding which the NRC staff reported as being successful, does not undercut the validity of this generic finding.

slightly by the addition of the words underlined: "... that the schedule in this paragraph supersedes the June 30, 1982, deadline, or any other previously imposed date, for environmental qualification of electric equipment contained in certain nuclear power operating licenses." Because the rule relieves a restriction, it is effective upon publication in the Federal Register pursuant to 5 U.S.C. 553(d)(1).

### **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 impact on a substantial number of small entities. The rule affects only licensees of nuclear power plants. These companies 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 the regulations of the Small Business Administration, 10 CFR Part 121.

### **Paperwork Reduction Act Statement**

This rule contains no information collection requirements subject to the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq.

### **Environmental Impact Statement**

The promulgation of this rule would not result in any activity affecting the environment. The rule relates to the schedule for compliance with a rule and as such is procedural in nature for the purposes of environmental analysis. Accordingly, the categorical exclusion in 10 CFR 51.22(c)(3) applies and no environmental assessment need be prepared.

### **List of Subjects in 10 CFR Part 50**

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

### **Commissioner Asselstine's Comments on the Notice of Final Rulemaking Regarding the Removal of the June 20, 1982 Deadline From Operating Licenses for Environmental Qualification of Electrical Equipment**

I cannot agree with the Commission's final rule to remove the June 30, 1982 deadline from nuclear powerplant operating licenses for the environmental qualification of electrical equipment. The Commission's final rule fails to provide the safety justification needed to remove the June 30, 1982 deadline from plant operating licenses and is not adequately supported by the record of this rulemaking. Moreover, commenters were not afforded a fair opportunity to comment on some of the information

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that formed the basis for the NRC staff's safety judgments that plants without properly qualified electrical equipment can operate safely until ongoing equipment qualification efforts are completed. For these reasons, I conclude that the Commission should not remove the June 30, 1982 deadline from plant operating licenses at this time.

Implicit in the Commission's decision to impose a deadline for qualification of equipment is a safety judgment by the Commission that extended operation of nuclear plants without properly qualified equipment does not provide an adequate level of protection to the public health and safety. The June 30, 1982 deadline was intended to motivate licensees to pursue effective equipment qualification programs with due diligence, thereby correcting a widespread licensee recalcitrance in properly qualifying safety-related equipment. The Commission also set the deadline to ensure that safety related equipment was qualified within a reasonable period of time—two years.

In deciding to remove the June 30, 1982 deadline from operating licenses, the Commission has concluded: (1) That the purpose of motivating licensees to pursue effective equipment qualification programs with due diligence has been achieved; (2) that extended operation of the plants beyond the June 30, 1982 deadline without fully qualified electrical equipment will not pose an undue risk to the public health and safety; and (3) that there is no generic equipment qualification problem common to many plants, such that a generic solution such as the June 30, 1982 deadline should be retained. More than two years after the expiration of the June 30, 1982 deadline, it appears that the Commission does not have an adequate factual basis for any of these conclusions.

I originally agreed with the course the Commission takes in its rulemaking and with the issuance of a new equipment qualification rule and policy statement. However, my agreement was based on assurances from the NRC staff that licensees were diligently pursuing adequate qualification programs and that the NRC was conducting an in-depth review of the information provided by licensees to support their justifications for continued operation (JCO's) or findings of qualification. Upon detailed examination it appears that these assurances were optimistic at best.

At the time the Commission issued this rule in proposed form, the staff advised the Commission that all licensees were cooperating in pursuing effective environmental qualification programs. See, Transcript of January 6, 1984 Commission meeting, p. 118. Yet, the record of this rulemaking disclosed

several instances within the past few months in which licensees have failed to pursue effective equipment qualification efforts with due diligence. See, Union of Concerned Scientists' comments, pp. 22, 48-66. Many of these instances were confirmed by the NRC staff during the Commission meeting to consider this final rule. See, Transcript of September 4, 1984 Commission meeting, pp. 32-35, 64-68. Moreover, in those instances in which the Commission now argues that the environmental qualification deficiencies at specific plants identified by commenters have been corrected, the description of how those deficiencies have been corrected is so general as to be meaningless. This is hardly surprising since the first version of the proposed final rule submitted to the Commission in August failed to address *any* of the plant-specific deficiencies identified by commenters on the proposed rule. Given the evidence of continuing instances of licensee recalcitrance and the hurried and superficial reviews of the plant-specific deficiencies identified by commenters on the proposed rule, there is no basis in this rulemaking record for concluding that all licensees are now pursuing effective environmental qualification programs with due diligence.

Nor is there a basis for the Commission's conclusion that continued operation of nuclear plants presents no undue risk to the public health and safety. Although the staff assures us that there has been improvement in recent months, to date a considerable amount of safety-related equipment still has not been shown to be properly qualified. See, Transcript of September 4, 1984 Commission meeting, pp. 71-72. Justifications for continued operation (JCO's) for virtually all plants were submitted by the licensees in 1981. Reviews of these JCO's by the NRC staff and its contractors have repeatedly identified errors requiring further justifications. Further, even in the case of the more recent JCO's, the staff's inquiry has largely accepted the assertions made by the licensee that its equipment is qualified, and except in a very limited number of cases, the staff has not performed the detailed examination of supporting documentation needed to verify independently that either the equipment is properly qualified or that there is an adequate justification for continued operation. See, Transcript of September 4, 1984 Commission meeting, pp. 69-72. Nor is there any reason to believe that an in-depth examination of the licensee's documentation will occur any time in the near future. In the very few cases where staff has begun such in-depth reviews the evidence indicates

that licensee efforts have been inadequate. Thus, because there has been no in-depth review by the NRC, there is no reason to conclude, as the majority does, that there is indeed no generic problem with equipment. Rather, UCS's comments suggest that there may be generic problems with certain equipment, and the Commission has not adequately explained why the equipment identified indicates no generic problem.

Thus, the evidence indicates that all licensees are not diligently pursuing effective equipment qualification programs. The evidence also indicates that independent verification of the licensees' JCO's or assertions of qualification will not occur any time soon, and certainly not before the Commission's new deadline in 10 CFR 50.49 (March 31, 1985). Given this indeterminate state of affairs, the Commission lacks reasonable assurance that there will not in fact be extended operation of these plants with equipment unqualified to perform its safety related functions. Instead of eliminating the deadline, the Commission should retain it as an effective enforcement tool to assure diligence by licensees in carrying out an effective equipment qualification program.

Finally, it is clear that commenters were not afforded a fair opportunity to comment on the technical information that formed the basis for the licensees' assertions that equipment is properly qualified or for the JCO's. The Union of Concerned Scientists, for example, details a number of instances in which this information was not included in the rulemaking record. See, UCS comments, pp. 27-30, and UCS letter to Commission dated September 5, 1984. The absence of this information effectively denied commenters a fair opportunity to comment on the staff's judgments on equipment qualification and the JCO's.

The Commission majority explains that it was not legally required to make documents relied upon by Franklin Research Center (FRC) available for comment in this rulemaking. The majority explains that this documentation was not necessary to the Commission's determination of the issue in this rulemaking and that the staff's Technical Evaluation Reports (TER's) provided adequate justification for concluding that licensees are diligently pursuing environmental qualification and that there are no generic safety problems so that the June 30, 1982 deadline ought to be retained. The Commission's explanation misses the point. The Commission may have relied upon the FRC reviews in making its conclusions, but FRC in conducting the reviews upon which the Commission relies must have relied in turn upon the

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documentation the Commission now says is not relevant to the rulemaking. Had the Commission itself conducted reviews of this documentation instead of contracting out to FRC the underlying documentation for the Commission's decision surely would have to be available for comment. The mere identification of information without providing an opportunity to inspect that information and challenge the bases for FRC's and staff's conclusions hardly amounts to a fair opportunity to comment.

For all of these reasons I cannot concur in the Commission's action. I would retain the June 30, 1982 deadline to be used as an enforcement tool to ensure that licensees have effective environmental qualification programs. Further, the Commission ought to be more diligent in conducting in-depth reviews of licensee documentation so that plants do not continue to operate for extended periods of time with the state of their equipment basically indeterminate.

49 FR 47823

Published 12/7/84

Effective 12/7/84

*Minor Correcting Amendments*

See Part 1 Statements of Consideration

➤ 50 FR 3498

Published 1/25/85

Effective 2/25/85

### 10 CFR Part 50

#### Hydrogen Control Requirements

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to improve hydrogen control capability for boiling water reactors with MARK III containments and for pressurized water reactors with ice condenser containments. The amendments require improved hydrogen control systems that can handle large amounts of hydrogen during and following an accident. For those of the above reactors not relying upon an inerted atmosphere for hydrogen control, the rule requires that certain systems and components be able to function during and following hydrogen burning. The rule also requires affected licensees to submit analyses to the Commission in support of the previous two requirements. The rule is needed to

improve the capability of the indicated types of nuclear power reactors to withstand the effects of a large amount of hydrogen generation and release to containment from an accident, as occurred at Three Mile Island. The new requirements will result in greater assurance that nuclear power reactor containments and safety systems and components will continue to function properly so that reactors can be safely shut down following a Three Mile Island-type of accident.

**EFFECTIVE DATE:** February 25, 1985.

**FOR FURTHER INFORMATION CONTACT:** Morton R. Fleishman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-443-7616.

#### SUPPLEMENTARY INFORMATION:

##### Background

The Commission has taken numerous actions to correct the design and operational limitations that were revealed by the accident at Three Mile Island, Unit 2 (TMI-2), which resulted in a severely damaged or degraded reactor core, in a concomitant release of radioactive material to the primary coolant system, and in a fuel cladding-water reaction causing the generation of a large amount of hydrogen. Included in these actions are several rulemaking proceedings intended to improve the hydrogen control capability of light-water nuclear power reactors.

On December 23, 1981, the Commission published in the *Federal Register* (46 FR 62281) a notice of proposed rulemaking on "Interim Requirements Related to Hydrogen Control," inviting written comments or suggestions on the proposed rule by February 22, 1982. A notice extending the comment period for an extra 45 days to April 8, 1982, including editorial corrections, was published in the *Federal Register* on February 25, 1982 (47 FR 8203). The notice concerned proposed amendments to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," which would have required that:

a. Each boiling water reactor (BWR) with a Mark III type containment and each pressurized water reactor (PWR) with an ice condenser type containment be provided with a hydrogen control system capable of handling an amount of hydrogen equivalent to that which would be generated if there were at least a 75 percent fuel cladding-water reaction without loss of containment integrity;

b. Each boiling water reactor and each pressurized water reactor that does not

rely on an inerted atmosphere for hydrogen control be provided with safety systems needed to establish and maintain safe cold shutdown and maintain containment integrity that can function after the burning of substantial amounts of hydrogen; and

c. Analyses be performed for the reactor categories mentioned above to justify the hydrogen control systems selected and to assure containment structural integrity and survivability of needed safety systems during a hydrogen burn.

It should be noted that the proposed rule was not part of the separate, long-term rulemaking on degraded or melted cores (the "severe accident rulemaking") for which an advance notice of proposed rulemaking was published on October 2, 1980 (45 FR 65474) and which was the subject of the "Proposed Commission Policy Statement on Severe Accidents and Related Views on Nuclear Reactor Regulation," published in the *Federal Register* on April 23, 1983 (48 FR 16014).

#### General Comments

Twenty-eight persons submitted comments regarding the proposed amendments. The comments and the SECY paper noted above are part of the public record and may be examined and copied, for a fee, in the Commission's Public Document Room at 1717 H Street, NW., Washington, DC. A summary of the comments and a comment analysis are also available for inspection and copying, for a fee, in the Public Document Room.

The comments received have been carefully reviewed and evaluated during preparation of this final rule. The final rule contains revisions to the proposed rule that reflect consideration of these comments. The commenters generally provided many specific comments on all aspects of the proposed amendments. The following discussion represents a distillation of the more significant comments.

Numerous commenters suggested that the implementation of the Hydrogen Control Rule should be deferred until the severe accident rulemaking (see above) when applicable research and probabilistic risk analyses (PRAs) will be completed. The Commission agrees with these comments relative to PWRs with large, dry containments. Dry containment designs have a greater inherent capability to accommodate large quantities of hydrogen because of their high design pressure and large volume; therefore, for these designs the Commission believes that rulemaking with regard to hydrogen control can be safely deferred pending completion of NRC- and industry-sponsored research



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which includes studying the effects of hydrogen burning at higher concentration to determine effects on equipment survivability. Furthermore, with regard to systems and components that must be able to function during and following hydrogen burning, the fact that TMI-2 was shut down and maintained in a shutdown condition indicates that such systems and components did generally perform their functions following the burn event. In addition, design improvements that have been implemented as a result of NRC

➤ directives have served to reduce the likelihood of a degraded core accident.

With regard to BWRs with Mark III containments and PWRs with ice condenser containments, the Commission believes that these containments can safely accommodate the burning in a single event of the hydrogen from about a 25 percent metal-water reaction.<sup>1</sup> However, since the TMI-2 accident showed that a 45-50 percent metal-water reaction was possible, the Commission believes that it is necessary to enhance the hydrogen control capability for reactors with these types of containments and that new regulations are required to ensure that the proper design features are incorporated. Adoption of the final rule will also formalize Commission regulatory decisions currently being applied on a case-by-case basis in individual licensing proceedings and will provide the needed basis for regulatory actions that cover licensing and continued operation of the affected plants.

Several commenters stated that the 75 percent metal-water reaction required to be assumed for design and analysis is unreasonably high based on evaluation of the TMI-2 accident and analyses of recoverable degraded core accidents.<sup>2</sup>

<sup>1</sup> The basis for this belief is contained in SECY 80-107, "Proposed Interim Hydrogen Control Requirements for Small Containments," February 22, 1980, which is available for inspection and copying for a fee at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C.

<sup>2</sup> See the following studies, available for inspection at the Commission's Public Document Room at 1717 H Street, NW, Washington, D.C. Also NUREG and NUREG/CR publications may be purchased from the NRC/CPO Sales Program by calling (301) 492-4538.

➤ NUREG/CR-2540, "A Method for the Analysis of Hydrogen and Steam Releases to Containment During Degraded Core Cooling Accidents," February 1982

NUREG/CR-1219, "Analysis of the Three Mile Island Accident and Alternative Sequences," January 1980.

"Report on Hydrogen Control Accident Scenarios, Hydrogen Generation Rates and Equipment Requirements," Rev. 1, July 1982—Submitted by the BWR/6 MARK III Hydrogen Control Owners Group.

The 75 percent metal-water reaction chosen by the Commission is greater than that which occurred during the TMI-2 accident; however, the primary intent of the rule is to require containment designs that can accommodate accident sequences in which hydrogen combustion poses a significant threat to containment integrity. Consequently, the Commission believes it is prudent to specify a value sufficiently greater than that which was estimated to have occurred at TMI-2 so that there will be an appropriate margin of safety.

➤ The Commission feels confident that the 75 percent value is representative of a limiting case degraded core accident (beyond which a core melt is expected to occur under all circumstances). Finally, the Commission sees no significant benefit in reducing the metal-water reaction to a level such as 50 percent for those plants having Mark III and ice condenser containments since the basic design of the heretofore chosen igniter system would not change.

A number of commenters recommended that the requirement for a hydrogen control system be revised to permit licensees the option of demonstrating analytically that additional hydrogen control systems are not necessary because of intrinsic design capabilities that reduce the likelihood of hydrogen generation. While it is true that design features to reduce hydrogen generation are necessary and desirable, the Commission still believes that, in order to cope with unexpected events, there should be a solution to the hydrogen issue that involves design features that ensure containment integrity, even if a large amount of hydrogen is generated. Thus, while measures to prevent the generation of large amounts of hydrogen are necessary and desirable, the Commission believes that it is also necessary, depending upon containment design, to provide measures to mitigate the effects of large amounts of hydrogen.

Some commenters indicated that, since the primary function of the containment is to prevent excessive radiation dose to the public, the rule should be modified to preclude the loss of containment function rather than to preclude the loss of containment integrity. The Commission appreciates the fact that some nuclear plants are designed with a multi-building, multi-barrier concept that is intended to prevent the leakage of radiation by diverse methods such as filtering and scrubbing mechanisms, plate-out

mechanisms, and containment sprays. However, the Commission's safety philosophy remains the same; namely, the containment should be designed to remain intact following a recoverable degraded core accident in order to provide additional assurance that excessive radiation will not be released. In other words, the Commission reaffirms its policy that the prevention of excessive radiation dose to the public can best be assured by maintaining a leak tight containment and that this, in turn, can be provided by assuring that there is structural integrity with margin.

Some commenters stated that the criterion for containment structural integrity is unnecessarily restrictive. They stated that it should not be limited to the provisions of the ASME Boiler and Pressure Vessel Code, but should permit the use of other methods such as realistic analyses using actual material properties. The Commission agrees with this comment and has modified the rule in this regard. Section 50.44(c)(3)(iv) has been changed to indicate that "containment structural integrity must be demonstrated by use of an analytical technique that has been accepted by the NRC staff." The rule includes two alternative methods as examples but does not preclude other methods that may be shown to be acceptable to the Commission. Finite element analysis would be acceptable for use with the methods considered.

➤ It was suggested by some commenters that the rule should address only non-inerted, small-volume, low-pressure containments and should not impose requirements for the remaining containments since, for these containments, it would provide, at best, insignificant improvements in safety. The Commission agrees for the reasons indicated above; therefore, as indicated previously, it has revised the rule to apply only to Mark III BWRs and ice condenser PWRs.

A number of commenters stated that the rule ignores those post-TMI suggested improvements which have been implemented and which reduce the likelihood of a degraded core accident. In the case of PWRs with large dry containments, as discussed above, the Commission believes that the post-TMI improvements, along with the inherent strength of the containments, have indeed provided sufficient safety to permit the delay of any additional rulemaking until completion of ongoing research programs.

➤ It has been recommended that in view of the small probability of occurrence of local detonations as a result of various design features, the rule should permit licensees the option of demonstrating that local detonations cannot occur in lieu of evaluating the effects of local detonations. The Commission agrees and has modified paragraphs

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50.44(c)(3)(v) and (vi) of the rule appropriately.

Many commenters indicated that they believe the requirement that systems and components that can function after a hydrogen burn be provided for "safe cold shutdown" is unnecessary and is inconsistent with the licensing basis for most operating plants which requires only "safe shutdown". Those commenters felt that the safe shutdown criterion should not be an issue with regard to hydrogen control, but that it should be considered in another forum. Because of the fact that a degraded core accident is less likely than a design basis accident, the Commission agrees that the requirement for cold shutdown may be overly conservative. The licensing basis for most plants is, in fact, just safe shutdown. The reference to cold shutdown has been deleted from the rule; but the Commission notes that the issue of safe shutdown versus safe cold shutdown has not yet been resolved. The issue is expected to be addressed within the context of the resolution of Unresolved Safety Issue (USI) A-45, "Shutdown Decay Heat Removal Requirements," which is the subject of current NRC staff effort.

Several commenters have suggested that the implementation schedules should be made more realistic so that design changes logically follow after the required analyses are completed. The Commission agrees. The greatest relief, of course, has come by deferring implementation of the rule for PWRs with large dry containments. However, the rule has also been revised to specify that each applicant and licensee subject to the rule shall propose a schedule, to the Commission, for meeting the requirements. A final schedule for implementing the requirements shall be established by the NRC staff either in accord with a previously approved integrated scheduling system or by accounting for the relative safety priorities and required licensing actions of each case. For those applicants about to receive an operating license the hydrogen control system must be installed and operational prior to operation of the reactor in excess of 5 percent power; however, a completed final supporting analysis may be delayed provided a preliminary analysis has been provided and found acceptable by the NRC staff. Furthermore, if the NRC staff has previously determined for similar plants referenced in this rulemaking that similar hydrogen control systems are acceptable, they may, until the preliminary analysis is completed, also find the hydrogen control system acceptable.

Some commenters noted that in the Supplementary Information accompanying the proposed rule it was stated that the selection of the hydrogen control system should be supported by comparative analysis of alternative systems to show their relative advantages and disadvantages. They stated that this guidance is inconsistent with Commission practice and is unnecessary. They felt that the only requirements should be a demonstration that the selected system is suitable for its intended application.

The Commission agrees that this guidance was inconsistent with Commission practice in the case of operating reactors and reactors for which operating licenses are about to be issued in the near-term. In the final rule, § 50.44(c)(3)(vi) has been modified to delete the implication that comparative analyses are required and to indicate that the analysis is intended to support the design of the hydrogen control system that is selected. Comparative analyses of alternative systems are not required.

### Hydrogen Control Systems [§ 50.44(c)(3)(iv)]

As originally proposed, applicants and licensees with boiling water reactor (BWR) facilities with Mark III type containments and pressurized water reactor (PWR) facilities with ice condenser type containments, for which construction permits were issued prior to March 28, 1979, are required to install hydrogen control systems capable of accommodating an amount of hydrogen equivalent to that generated from the reaction of 75 percent of the fuel cladding (surrounding the active fuel region), with water, without loss of containment integrity. The particular type of hydrogen control system to be selected is left to the discretion of the applicant or licensee; however, the NRC must find it acceptable based upon suitable programs of experiment and analysis. The design of the selected system must be supported by the analyses which are to be submitted as part of the analyses required under § 50.44(c)(3)(vi). The system that is proposed and approved must safely accommodate large amounts of hydrogen, and operation of the system, either intentionally or inadvertently, must not further aggravate the course of an accident or endanger the plant during normal operations. As discussed previously, the amount of hydrogen to be assumed in the design of the hydrogen control system is that amount generated when 75 percent of the fuel

cladding surrounding the active fuel region reacts with water.

As discussed above, the limited method proposed to demonstrate containment structural integrity has been expanded. Containment structural integrity may now be demonstrated by use of an analytical technique that has been accepted by the NRC staff. For example, finite element analysis is one acceptable technique for use with the methods considered. One of the acceptable methods is the use of the applicable ASME Boiler and Pressure Vessel Code. However, the Commission will accept other methods, provided that convincing evidence is presented regarding their suitability.

Other changes from the proposed rule are the relaxation of the implementation schedule to one that has been mutually agreed upon by the licensee and the NRC staff, and the elimination of the word "cold" in the phrase "safe cold shutdown."

### Systems and Components [§ 50.44(c)(3)(v)]

At the time the proposed rule was issued for comment, the Commission indicated that it was considering a two-step approach to address "qualification" (as defined below) of those systems and components that must be able to function during and after a hydrogen burn. For the reasons explained below, the Commission did not choose this two-step approach. As the proposed first step, there would have been a demonstration that these systems and components could "survive" the hydrogen burn and continue to be able to perform their safety function. This step would not have entailed that these systems and components actually be qualified pursuant to NRC's qualification program. The proposed second step would have entailed the actual "qualification" of these systems and components. The conceptual differences between systems and components demonstrated to be "survivable" and systems and components demonstrated to be "qualified" were also described.

The Commission specifically sought comments on the use of the two-step approach for defining standards, on the "survivability" and "qualification" approaches themselves, and on proposals for implementation schedules. There were numerous comments in response to this request. The overwhelming reaction was that the two-step approach to reaching a survivability determination is unwarranted and will unnecessarily escalate the costs to industry. Many commenters felt that a straightforward

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survivability approach would be appropriate provided reasonable guidelines are specified. In view of the smaller likelihood of a degraded core accident as compared to a design basis accident, which has been reduced further by post-TMI improvements, the Commission has decided to forego the two-step approach previously described. The Commission now believes, in view of the recent issuance of 10 CFR 50.49, "Environmental Qualification of Electrical Equipment Important to Safety," that there is no significant difference between demonstrating survivability and demonstrating qualification. Paragraph (f) of § 50.49 describes several methods, one of which must be used, for qualifying electrical equipment important to safety. For example, for those licensees which have already demonstrated survivability, as described in the Supplementary Information of the notice of proposed rulemaking for this rule on hydrogen control requirements (46 FR 62281, Dec. 23, 1981), the qualification methods described in paragraph (f)(2) and (f)(4) of § 50.49 could be used to show that the systems and components have been qualified. In this regard, the margins considered adequate for a degraded core accident are less than those considered adequate for a design-basis accident due to the lower probability of occurrence of a degraded core accident.

The Commission now views "qualification" as the generation and maintenance of evidence using tests and analyses to assure that systems and components will operate on demand to meet system performance requirements. In the case of a hydrogen burn environment, this means that there must be adequate evidence that systems and components necessary to establish and maintain safe shutdown and to maintain containment integrity are capable of performing their functions during and after exposure to the environmental conditions created by the postulated accident, including the burning of hydrogen. Qualification may be demonstrated in a manner acceptable to the Commission using a combined approach of analysis and testing. Thus, an acceptable thermal analysis would have to be performed for the containment in order to determine the thermal response of the components during a hydrogen burn. This thermal response should then be compared to the thermal response the components had during their qualification testing. The licensee should then demonstrate that the qualification thermal response envelopes the thermal response during a hydrogen burn. Selected tests should also be performed at predicted hydrogen

burn conditions (or, other tests previously performed may be referenced if demonstrated to be applicable) to reasonably assure the Commission that the systems and components are qualified to perform their functions during and following a hydrogen burn. The demonstrations of survivability accepted by the staff for Sequoyah and McGuire without more testing, analysis or documentation are equivalent to demonstrations of qualification for a hydrogen burn event, and the staff does not require any other submittal from the licensees except for the previously identified confirmatory items.

Paragraph 50.44(c)(3)(v) applies to those Mark III BWRs and ice condenser PWRs that do not have an inerted containment atmosphere for hydrogen control. At present, this includes all Mark III BWRs and ice condenser PWRs, since no applicant or licensee has as yet elected to use the inerting option for these plants. The systems and components that must be qualified for a hydrogen burn are those needed (a) to shut down the reactor and bring it to and maintain it in a safe shutdown condition, and (b) to prevent loss of containment integrity. These systems and components can be further categorized as follows:

- a. Systems and components mitigating the consequences of the accident;
- b. Systems and components needed for maintaining integrity of the containment pressure boundary;
- c. Systems and components needed for maintaining the core in a safe condition; and
- d. Systems and components needed for monitoring the course of the accident.

As discussed previously, these systems and components are described as bringing the reactor to "safe shutdown" rather than "safe cold shutdown." Furthermore, the schedule for implementation has been changed to one that has been mutually agreed upon by the licensee and the NRC staff. Finally, the rule has been revised to indicate that the environmental conditions to be assumed for a hydrogen burn do not have to include the effect of local detonations if it is shown to the Commission's satisfaction that local detonations are unlikely to occur.

### Analyses [§ 50.44(c)(3)(vi)]

In the proposed rule, the Commission included a description of three different approaches concerning the supplementary guidance to be provided for performing the required analyses for the design of the hydrogen control system. These were (a) analyses of

different accident scenarios, (b) analyses of a single accident scenario with variation of key parameters, and (c) analyses using an "envelope of time histories of hydrogen and steam release rates" to be supplied by the Commission. The Commission requested comments concerning which of the approaches was preferred as well as suggestions regarding improvements or other alternatives.

There was no preponderance of comments leaning toward a particular approach; however, the first two approaches appeared to have greater support. Furthermore, many commenters felt that there should be flexibility in the approach to be used in the selection of the accident scenarios. It was also suggested that the accident scenarios should be considered in order of importance using PRA techniques.

Based on the comments received and in consideration of the improved calculational data base now available, the Commission has decided to adopt the second approach; applicants and licensees need not use the first or third approaches.

In the selected approach, a base sequence will be identified by the licensee or applicant based on the hydrogen threat to containment integrity. Key aspects of this sequence should then be parametrically varied by the licensee or applicant in determining the acceptability of the containment response. This will provide a wider range of parameters than that of the selected base sequence alone. The acceptability of the analyses used in this approach depends on the selection and range of the parameters being varied. A range must be chosen which includes the effects of recovery from the degraded condition. It is expected that each applicant or licensee will review its analytical approach with the NRC staff and arrive at a mutually agreeable method for performing the analyses.

As an example, in the recent Sequoyah case<sup>2</sup>, the applicant based its initial analysis on an accident sequence involving a small break LOCA followed by loss of ECCS (S<sub>2</sub>D), with a typical average hydrogen release rate of about 20 pounds per minute, which the NRC staff considered to be representative of the accident. However, several concerns remained open. Among these were the possibilities that: (1) Other scenarios might present schedules of steam and

<sup>2</sup>NUREG-0011, Supplement No. 6, "Safety Evaluation Report Related to the Operation of Sequoyah Nuclear Plant, Units 1 and 2," November 1982. Available for inspection at the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

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hydrogen release not covered by the analysis chosen; (2) steam inerting might occur at some time during the sequence allowing large concentrations of hydrogen to develop; (3) the recovery period might produce an exceptionally large burst of steam or hydrogen; and (4) hydrogen might be released after the loss of the ice heat sink.

In the Sequoyah case, the applicant broadened the studies to include higher rates of steam and hydrogen release and release after the ice melted. The broadened calculations included hydrogen releases rates as high as 6 lb. per second under representative steam conditions, with and without ice. It was shown that a representative selection of scenarios would be bounded by the broadened release rates, including an intermediate break LOCA with loss of ECC (S<sub>1</sub>D), a small break LOCA with loss of containment heat removal (S<sub>2</sub>G), a transient loss of main feedwater and loss of all AC power (T<sub>1</sub>B<sub>2</sub>), and a transient loss of main feedwater, loss of auxiliary feedwater and loss of the ECC (T<sub>1</sub>LD). The staff concluded that the coverage of these additional scenarios was sufficient to assure that the hydrogen associated with a representative group of degraded core situations could be managed acceptably using the ignition systems.

As another example, in the McGuire case<sup>\*</sup>, hydrogen release rates up to 4.3 lb. per second under representative steam conditions were considered and the S<sub>2</sub>D releases were analyzed with and without ice. The results were considered acceptable by the staff.

The staff has accepted ac-powered igniters without requiring a backup power supply in the two examples cited above. This judgment was based upon the staff's perception that the incremental risk reduction associated with provision of the igniter system backup power supply did not warrant the additional cost at these particular facilities. Provision of a backup power supply is not required by this rule.

It is apparent that applicants and licensees with conceptually different reactors may have to address other scenarios. The appropriate details for Mark III BWRs, for example, are currently being worked out through interaction between the NRC staff and applicants.

Previously approved generic or reference analyses may be employed in lieu of plant specific analyses where the

generic analyses can be shown to be applicable. It is believed that the adoption of the above approach will eliminate the need for repetitive calculation of accident scenarios.

### Dissenting Views of Commissioner Asselstine

I vote to approve publication of the Commission's final hydrogen control rule on December 10, 1984, and I continue to support the version of the rule that was approved unanimously by the Commission on that date. However, I cannot support the Commission's final rule being published today because of a significant substantive change in the rule that was made by my colleagues at the eleventh hour.

The change adopted by the Commission majority adds the following new sentence to the implementation provisions of § 50.44(c)(3)(vii)(B) of the rule:

However, the record in this rulemaking shows that such preliminary analyses are not necessary for a staff determination that a plant is safe to operate at full power if the staff has determined for similar plants, referenced in this notice of rulemaking, that similar systems provide a satisfactory basis for a decision to support operation at full power until the preliminary analyses have been completed.

Under this provision, so long as the license applicant's plant is similar to the Sequoyah and McGuire plants (the two ice condenser pressurized water reactor plants referenced in this notice of rulemaking with staff-approved hydrogen control systems) and uses a hydrogen control system similar to the igniter systems used in those two plants, the applicant need not submit, and the NRC staff need not approve, a preliminary analysis of the adequacy of the hydrogen control system prior to the full-power operation of the plant. The practical effect of this new sentence is to deny intervenors in some nuclear powerplant operating license proceedings the opportunity for a hearing on the adequacy of the hydrogen control measures and analyses supporting interim operation of these plants. The immediate purpose of this change is to bolster the Commission's litigation position concerning the handling of hydrogen control issues in one such proceeding—the operating license proceeding for the Catawba plant—the only plant to which this sentence appears to apply.

There are two problems with the Commission majority's actions that lead me to disapprove the revised rule. First, members of the public were not afforded a fair opportunity to comment

on the option of using the Commission's final hydrogen control rule as means to eliminate the opportunity to litigate the adequacy of hydrogen control systems and analyses in individual nuclear powerplant operating license proceedings. The Commission's proposed rule published for comment on December 23, 1981 would not have affected the opportunity of intervenors to obtain a hearing on the adequacy of hydrogen control systems and analyses to support interim plant operation, and neither the Commission's proposed rule nor the accompanying supplementary information made any mention of this possibility. To the contrary, the supplementary information on the proposed rule, although stating the Commission's general conclusion that there is sufficient information available to warrant interim approval of deliberate ignition systems for ice condenser plants, emphasized the need for individual licensees to demonstrate certain plant-specific elements, including the ability of essential equipment to continue to function during and after a hydrogen burn. Moreover, the supplementary information clearly recognized that the adequacy of hydrogen control systems for certain types of plants (those with ice condenser and Mark III containments) is a significant safety issue affecting full-power operation of these plants. Thus, the proposed rule when read together with the Commission's contemporaneous practice of allowing case-by-case adjudication of hydrogen control issues clearly did not put anyone on notice that the Commission might use the rule to prohibit litigation of this issue in proceedings. The Commission, then, effectively denied members of the public the opportunity to comment on this significant aspect of the final rule.

Second, it is inappropriate for the Commission to use this rulemaking in an effort to bolster its litigation position in the Catawba operating license proceeding. The Commission's interest in using this rulemaking proceeding to restrict the case-by-case litigation of hydrogen control issues only developed after the Commission became aware of a potential litigation problem in the Catawba operating license proceeding caused by the Licensing Board's refusal to allow intervenors to litigate the adequacy of the Catawba hydrogen control system and analyses supporting interim operation of the plant. The Commission is again tailoring a generic rulemaking to solve a case-specific litigation problem. Further, this last-minute effort to provide another basis for rejecting the intervenor's hydrogen

<sup>\*</sup>NUREG-0422, Supplement No. 7, "Safety Evaluation Report Related to Operation of McGuire Nuclear Station Units 1 and 2," May 1983. Available for inspection at the Commission's Public Document Room at 1717 H Street, NW, Washington, D.C.

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control contentions in the *Catawba* case is inappropriate and unseemly, and represents still another example of the Commission's hostility to public participants in our licensing proceedings. For the foregoing reasons, I cannot support the revised rule being published by the Commission today.

Apart from these concerns, there are two other deficiencies in the final rule that I would have corrected. However, these two further deficiencies would not have led me to disapprove the rule. First, the rule is limited to boiling water reactors with Mark III containments and pressurized water reactors with ice condenser containments, and fails to include pressurized water reactors with large dry containments. For the reasons set forth below, I believe that the portions of the rule dealing with equipment survivability and containment integrity should apply to pressurized water reactors with large dry containments as well.

This rule establishes a 75 percent metal-water reactor level as the prudent standard to be assumed for the design and analysis of hydrogen control systems that are necessary to ensure no undue risk to the public health and safety. A fundamental element in setting the 75 percent metal-water reaction limit is the assumption that sufficient equipment will survive a hydrogen burn or detonation to arrest the course of the accident and thereby prevent a degraded core accident from proceeding to an accident involving melting of the reactor core—an accident that could involve the generation of much more hydrogen than would be associated with a 75 percent metal-water reaction. In addition, the rule adopts as a principal objective maintaining a leak tight containment following a hydrogen burn or detonation.

At the same time, the rule recognizes that a hydrogen burn or detonation in the containment could damage equipment, cables or penetrations in a manner that would impair or eliminate the capability to arrest the accident or that would result in the loss of containment integrity. For this reason, the rule requires in § 50.44(c)(3)(v) that licensees for plants covered by the rule demonstrate that equipment needed to establish and maintain safe shutdown and to maintain containment integrity will survive a hydrogen burn.

These concerns regarding the survivability of equipment, cables and penetrations following a hydrogen burn apply with equal force to pressurized water reactors with large dry containments. The systems and components necessary to establish and

maintain safe shutdown capability and containment integrity for reactor designs in large dry containments are essentially the same as those systems and components in the plants with ice condenser containments. Similarly, the potential for the generation of hydrogen from a 75 percent metal-water reaction is essentially the same in plants with large dry and ice condenser containments. In addition, the systems and components in plants with large dry containments are at least as susceptible to damage from a hydrogen burn produced in a 75 percent metal-water reaction as are the systems and components in plants with ice condenser containments. In fact, given that large dry containments will have no required hydrogen control system to cope with large quantities of hydrogen, higher concentrations of hydrogen can be formed in large dry containments before a random event ignites the hydrogen than would be the case for plants with ice condenser containments and a hydrogen control system. Thus, the environmental conditions in large dry containments could be more challenging than those in the plants with ice condenser containments.

For these reasons, I would have applied the equipment survivability and containment integrity provisions of § 50.44(c)(3)(v) to pressurized water reactors with large dry containments as well. Additional research may well be useful in confirming the accuracy of licensees' analyses on equipment survivability and containment penetration performance, but this ongoing research should not serve as an excuse for delaying the imposition of the equipment survivability and containment integrity requirements of the rule for plants with large dry containments.

Second, I would have revised the rule to specify that the hydrogen control systems required by the rule be automatically initiated based upon plant parameters deemed acceptable by the NRC staff. This change would have eliminated the need to rely on operator action to activate the hydrogen control system.

### Chairman Palladino's Statement on Hydrogen Control Rulemaking

I have the following comments regarding the dissenting views of Commissioner Asselstine:

#### Notice of Proposed Rulemaking

One of the purposes of rulemaking is to address and resolve issues so that they are not the subject of litigation in

particular licensing cases unless the final rule provides for that result.

With respect to the hydrogen control rule, the Commission stated in the Notice of Proposed Rulemaking, "The Commission concludes, based on available information, that the issues are sufficiently resolved to warrant interim approval of deliberate ignition systems for ice condenser plants." The rulemaking notice also made reference to the deliberate ignition systems installed at the Sequoyah and McGuire plants.

Regarding the *Catawba* operating license proceeding, the intervenors were placed on actual notice on at least two occasions of the hydrogen control rulemaking. On the first occasion—March 5, 1982—the Licensing Board, in ruling on pending petitions for intervention, declined to admit contentions because the issue they addressed was being considered in the hydrogen control rulemaking. The second occasion came on December 1, 1982 in a second Licensing Board ruling on contentions, where the Board stated that the hydrogen control rulemaking directly addressed the intervenors' hydrogen concerns.

I do not believe that issues which have been addressed in the hydrogen control rulemaking should be the subject of case-specific litigation.

#### Coverage of the Rule

Two specific technical concerns raised by Commissioner Asselstine were: (1) the rule fails to include pressurized water reactors (PWR's) with large dry containments, and (2) the rule failed to require that hydrogen control systems be automatically initiated. These were specifically addressed during the rulemaking process.

The scope of the rule was limited to include non-inerted boiling water reactors (BWR) III and ice condenser PWR designs and to specifically exclude inerted BWR I and BWR II designs and large containment PWR designs. Regarding inclusion of large dry PWR containment designs, the need for additional regulation is being deferred to the time of these severe accident rulemaking decision since hydrogen control is not considered to be an immediate safety concern.

Regarding the need for automation, the advantages and disadvantages of manual vs automatic actuation of the distributed igniter systems were evaluated as part of the rulemaking, and manual actuation was concluded to be acceptable.

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### Regulatory Analysis

The Commission has prepared a regulatory analysis for this regulation. The analysis examines the costs and benefits of the rule as 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, N.W., Washington, D.C. Single copies of the analysis may be obtained from Morton R. Fleishman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-7616.

### Paperwork Reduction Act

This final rule imposes 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 Act

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 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.

### 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, and Reporting and recordkeeping requirements.

50 FR 5567  
Published 2/11/85

### 10 CFR Part 50

#### Hydrogen Control Requirements

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; correction.

**SUMMARY:** In a Federal Register document published on January 25, 1985 (50 FR 3498), the U.S. Nuclear Regulatory Commission (NRC) amended its regulations to improve hydrogen control capability for boiling water reactors with MARK III containments

and for pressurized water reactors with ice condenser containments. This notice contained a number of typographical errors which are corrected below.

**FOR FURTHER INFORMATION CONTACT:** Morton R. Fleishman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-443-7616.

**SUPPLEMENTARY INFORMATION:** Corrections are made to the following pages:

1. On page 3499, column two, line 15, "reduced" is corrected to read "reduce".

2. On page 3499, column two, paragraph two of footnote two, line one, "NUREG/CR2540" is corrected to read "NUREG/CR-2540".

3. On page 3499, column three, line 15, the sentence which reads "The Commission feels confident that there will be an appropriate margin of safety." is removed.

4. On page 3500, column one, second full paragraph which begins "It was suggested by some commenters . . .", line four after the first word "containments", add "and should not impose requirements for the remaining containments" before the word "since".

5. On page 3500, column one, last paragraph, line six, after the word "detonations", add "cannot occur in lieu of evaluating the effects of local detonations."

6. On page 3500, column two, second full paragraph which begins "Several commenters have . . .", line seven, "deferring" is corrected to read "deferring" and in the same paragraph on line 18, "intergrated" is corrected to read "integrated".

7. On page 3500, column three, 11 lines from the bottom of the column, the word "safety" is corrected to read "safely".

8. On page 3502, column three, line nine of Commissioner Asselstine's Dissenting Views, the word "substantive" is corrected to read "substantive".

9. On page 3502, column three, four lines from the bottom of the column, the word "Commission's" is corrected to read "Commission".

10. On page 3504, column one, 11 lines from the bottom of the column, the word "seven" is corrected to read "severe".

11. On page 3504, column two, line six of the List of Subjects, add "and recordkeeping" after the word "Reporting" and before the word "requirements".

### PART 50—[CORRECTED]

#### § 50.44 [Corrected]

12. On page 3505, column two, line 13 of § 50.44(c)(3)(v)(A), the word "maintain" is corrected to read "maintain".

13. On page 3505, column two, line five of § 50.44(c)(3)(vi)(B)(1), the word "metalwater" is corrected to read "metal-water".

14. On page 3505, column three, line 11 of § 50.44(c)(3)(vi)(B)(5)(i), the word "Section" is corrected to read "section".

15. On page 3505, column three, lines two and three of § 50.44(c)(3)(vii)(B), the words "the effective date of this section" are replaced by "February 25, 1985".

Dated at Washington, DC, this 5th day of February 1985.

For the Nuclear Regulatory Commission,  
Samuel J. Chilk,  
Secretary of the Commission.

➤ 50 FR 18852  
Published 5/3/85  
Effective 10/12/84

*Elimination of Review of Financial Qualifications of Electric Utilities in Operating License Review and Hearings for Nuclear Power Plants; Correction*

See Part 2 Statements of Consideration

➤ 50 FR 19323  
Published 5/8/85  
Effective 5/8/85

### 10 CFR Part 50

#### Emergency Planning and Preparedness

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** In response to a decision by the United States Court of Appeals for the District of Columbia Circuit, the Nuclear Regulatory Commission is revising its emergency planning and preparedness regulations for nuclear power reactors. The decision requires that the NRC remove the provision stating that emergency preparedness exercises are not required for any initial licensing decision.

**EFFECTIVE DATE:** May 8, 1985.

**FOR FURTHER INFORMATION CONTACT:** Theresa W. Hajost, Attorney, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; Telephone: (202) 634-1493.

**SUPPLEMENTARY INFORMATION:** In *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984), the U.S. Court of Appeals for the District of Columbia Circuit vacated the NRC's 1982 amendment (47 FR 30232, July 13, 1982) to its emergency planning and preparedness regulations, 10 CFR 50.47(a)(2) (1984), which stated that emergency preparedness exercises were part of the operational inspection process and thus were not required for any initial licensing hearing or decision.



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The court held that "Congress did not grant the Commission discretion to remove so material an issue as the results of offsite emergency preparedness from required section 189(a) hearings." 735 F. 2d at 1451. On January 7, 1985, the Supreme Court denied a petition for *certiorari* filed by several Utility-Intervenors in the case, and on January 30, 1985, the Court of Appeals formally vacated the 1982 amendment.

The basic effect of the court's decision and of the rule change which follows is that the results of pre-licensing emergency preparedness exercises may be subject to litigation before the Licensing Board. The revision does not change the general predictive nature of the Commission's findings on emergency planning and preparedness issues.

Because the D.C. Circuit held that the Commission did not have the statutory authority to promulgate the 1982 amendment, it is unnecessary to provide notice and an opportunity to comment on this revision, which should be viewed as an outgrowth of the 1982 rulemaking proceeding. For the same reason the Commission finds good cause for making the revision effective on publication in the Federal Register. The revision is an administrative change to conform the text of 10 CFR 50.47(a)(2) to the result in the case.

The court specifically focused on the last sentence added to 10 CFR 50.47(a)(2) by the 1982 Amendment. Thus, this sentence is being deleted from 10 CFR 50.47(a)(2).

### Paperwork Reduction Act Statement

This revised 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.*).

### Environmental Impact: Categorical Exclusion

The NRC has determined that this revised regulation 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 revised regulation. Moreover, 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 50.47(a)(2) as hereby revised.

### List of Subjects in 10 CFR Part 2

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 section 553 of Title 5 of the United States Code, the NRC is adopting the following revisions to 10 CFR Part 50.

➤ 50 FR 29937  
Published 7/23/85  
Effective 7/23/85

### 10 CFR Part 50

#### Analysis of Potential 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: (1) Establish a screening criterion related to the fracture resistance of pressurized water reactor (PWR) vessels during pressurized thermal shock (PTS) events; (2) require analyses and schedule for implementation of flux reduction programs that are reasonably practicable to avoid exceeding the screening criterion; and (3) require detailed safety evaluations to be performed before plant operation beyond the screening criterion will be considered. These amendments are intended to produce an improvement in the safety of PWR vessels by identifying those corrective actions that may be required to prevent or mitigate potential PTS events.

**EFFECTIVE DATE:** July 23, 1985.

**FOR FURTHER INFORMATION CONTACT:** Roy Woods, Division of Safety Technology, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-4714.

#### SUPPLEMENTARY INFORMATION.

#### Background

Transients and accidents can be postulated to occur in pressurized water reactors (PWRs) that result in severe

overcooling (thermal shock) of the reactor vessel, concurrent with high pressure. In these pressurized thermal shock (PTS) events, rapid cooling of the reactor vessel internal surface causes a temperature distribution across the reactor vessel wall. This temperature distribution produces a thermal stress on the reactor vessel with a maximum tensile stress at the inside surface of the vessel. The magnitude of the thermal stress varies with the rate of change of temperature, and with time during the transient, and its effect is compounded by coincident pressure stresses.

Severe reactor system overcooling events with pressurization of the reactor vessel (PTS events) are postulated to result from a variety of causes. These include system transients, some of which are initiated by instrumentation and control system malfunctions (including stuck open valves in either the primary or secondary system), and postulated accidents such as small break loss-of-coolant accidents, main steam line breaks, and feedwater line breaks.

As long as the fracture resistance of the reactor vessel material is relatively high, these events are not expected to cause vessel failure. However, the fracture resistance of the reactor vessel material decreases with the integrated exposure to fast neutrons during the life of a nuclear power plant. The rate of decrease is dependent on the chemical composition of the vessel wall and weld materials. If the fracture resistance of the vessel has been reduced sufficiently by neutron irradiation, severe PTS events could cause small flaws that might exist near the inner surface to propagate into the vessel wall. The assumed initial flaw might be enlarged into a crack through the vessel wall of sufficient extent to threaten vessel integrity and, therefore, core cooling capability.

The toughness state of reactor vessel materials can be characterized by a "reference temperature for nil ductility transition" ( $RT_{NDT}$ ). At normal operating temperatures, vessel materials are quite tough and resistant to crack propagation. As the temperature decreases, the metal gradually loses toughness over a temperature range of about 100 °F.  $RT_{NDT}$  is a measure of the temperature range at which this toughness transition occurs. Its value depends on the specific material in the vessel wall and the integrated neutron irradiation received by the vessel. These effects are determined by destructive tests of material specimens. Correlations, based on tests of 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 when the vessel is subjected to overcooling events.

The PTS issue is a concern only for PWRs. Boiling water reactors (BWRs) operate with a large portion of water inventory inside the pressure vessel at saturated conditions. Any sudden cooling will condense steam and result in a pressure decrease. Simultaneous conditions of high pressure and low temperature are considered to be improbable. Most BWRs also receive lower integrated fast neutron flux at the vessel inner wall, resulting in smaller  $RT_{NDT}$  shifts. BWRs are designed with a thinner-walled vessel, resulting in lower thermal stress intensities for postulated cracks.

On the basis of studies of severe overcooling events that have occurred, generic calculations of postulated PTS events that could occur, and vessel integrity calculations, the NRC staff has concluded that a value of  $RT_{NDT}$  can be selected so that the risk from PTS events for reactor vessels with smaller  $RT_{NDT}$  values is acceptable. (The risk for vessels with higher values of  $RT_{NDT}$  might also be shown to be acceptable, but the demonstration would require detailed plant-specific evaluations and possibly modifications to existing equipment, systems, and procedures.) The staff recommended that a value for  $RT_{NDT}$  be established as a screening criterion that would determine the need for, and timing of, further plant-specific evaluations.

The staff's approach to selection of the  $RT_{NDT}$  screening criterion is described in detail in SECY-82-485.<sup>1</sup> In summary, the approach was to use a deterministic fracture mechanics algorithm to calculate the value of  $RT_{NDT}$  for which assumed pre-existing flaws in the reactor vessel would be predicted to initiate (grow deeper into the vessel wall) assuming occurrence of one of the severe overcooling events that have been experienced in U.S. PWRs. These "critical" values of  $RT_{NDT}$  were related to the expected frequency of the experienced severe overcooling events based on a limited data base, consisting of eight events in 350 reactor-years.

In addition, the staff considered a wide spectrum of postulated overcooling

events that could occur. These events were grouped into categories, estimates were made of their expected frequency, and stylized characterizations of the temperature and pressure time-histories were developed for each event category. The estimates presented in detail in SECY-82-485 are based on a generic study of Westinghouse-designed PWR systems, and are considered also to be generally representative of PWR systems designed by Combustion Engineering. Because there are some significant differences between those designs and PWRs designed by Babcock & Wilcox that affect the characteristics and estimated frequencies of PTS events, information was also developed for the Babcock & Wilcox designs. This information is described in detail in Enclosure C to SECY-83-288 (July 15, 1983).<sup>2</sup> It was concluded that the PTS risk for B&W plants is not significantly different from that of other PWRs. A probabilistic treatment of the fracture mechanics calculations was developed to gain insight into the sensitivity of the fracture mechanics calculations to uncertainties in the various input parameters. By combining the estimated frequencies of postulated events with the probabilistic fracture mechanics results, some estimates of the probability of vessel failure resulting from PTS events were developed. These estimates were used by the staff to better understand the residual risks inherent in the use of the screening criterion approach for further evaluations and resolution of the PTS issue.

On the basis of these studies, the NRC staff concluded the PWR reactor pressure vessels with conservatively calculated values of  $RT_{NDT}$  less than 270 °F for plate material and axial welds, and less than 300 °F for circumferential welds, present an acceptably low risk of vessel failure from PTS events.

#### Proposed Rule

On February 7, 1984, the Commission published a proposed rule in the Federal Register (49 FR 4498) that would: (1) Establish an  $RT_{NDT}$  screening criterion; (2) require licensees to submit present and projected values of  $RT_{NDT}$ ; (3) require early analysis and implementation of such fast neutron flux reduction programs as are reasonably practicable to avoid reaching the screening criterion; and (4) require plant-specific PTS safety analyses before a plant is within three calendar years of reaching the screening criterion, including analyses of alternatives to minimize the PTS problem. After consideration of the public comments received, the Commission has modified the proposed

rule as discussed in the following section.

#### Comments on Proposed Rule

The Commission received twenty-two letters commenting on the proposed rule. Copies of those letters are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street, Washington, DC. Fourteen letters were from utilities (or from attorneys representing utilities), three from PWR Nuclear Steam Supply System manufacturers, one from an architect/engineering firm, and one from a group representing the nuclear industry. The remaining three letters were from members of the public, two of the three being from the same individual. There were a total of 181 individual comments, which are discussed by subject below.

#### Commission Approval To Exceed Screening Criterion

**Comment:** Eleven commenters agreed with the intended use of an  $RT_{NDT}$  screening criterion to determine if and when further safety analyses would be required, but expressed concern that by requiring Commission approval of these analyses before operation beyond the criterion, the proposed rule in fact established the  $RT_{NDT}$  values as operating limits. They recommended that the rule should be amended to allow continued operation unless the Commission specifically disapproves the required safety analyses.

**Response:** The Commission affirms that the purpose of the PTS screening criterion is to determine whether and when further plant-specific safety analyses are required. Its acceptability for that purpose is based on the Commission's judgment that the generic PTS studies already performed by the industry and the NRC staff provide reasonable assurance that operation of PWR pressure vessels with  $RT_{NDT}$  values below the screening criterion does not result in undue risk to the public health and safety because of the potential for PTS events. However, the existing generic studies do not in themselves provide this assurance for operation of individual pressure vessels with higher  $RT_{NDT}$  values, i.e., with lower fracture resistance. The Commission has concluded that detailed plant-specific analyses are required to provide this assurance. For those cases (expected to be relatively few) where licensees determine that the screening criterion will be exceeded before the end of the desired service life of the vessel, and who nevertheless wish to continue operation, the licensees clearly have a responsibility to provide the necessary basis for assuring the protection of the public health and safety prior to operation beyond the screening

<sup>1</sup>  $RT_{NDT}$  decreases with depth from the inside surface of an irradiated vessel's wall. This decrease is accounted for in vessel integrity analyses. As used in this document and in the screening criteria,  $RT_{NDT}$  is the peak value at the inside surface of the vessel.

<sup>2</sup> Copies of this document are available for public inspection and copying at the Public Document Room at 1717 H Street, NW, Washington, DC 20555.

<sup>3</sup> Copies of this document are available for public inspection and copying at the Public Document Room at 1717 H Street, NW, Washington, DC 20555.

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criterion. The Commission's responsibility is to review the licensee's submittals and reach a decision on whether continued operation is acceptable. The Commission recognizes that a timely decision on its part is essential to avoid placing an unfair and unacceptable economic penalty on the licensee, but has concluded that the requirement for prior Commission approval in the proposed rule is appropriate and consistent with its statutory responsibilities.

**Comment:** Eight commenters also recommended that if the required safety analysis are not accepted by the Commission, then the proposed rule requirement that any further request must be based on "modifications to equipment, systems and operation of the facility in addition to those previously proposed . . ." should be changed so that re-analyses based upon better methods or new information would also be acceptable.

**Response:** The Commission agrees that further analyses based upon better methods or new information should be an allowable alternative if the original required safety analyses were not approved by the Commission. The final rule (§ 50.61(b)(6)) has been changed to reflect this alternative.

### *Reference Temperature Definition and Calculational Method*

**Comment:** Nine of the commenters noted that since the proposed rule prescribes a specific conservative method for calculation of  $RT_{MDT}$  for use as a screening criterion, there is a potential inconsistency with the term  $RT_{MDT}$  as used elsewhere (e.g., in the ASME Code and in Appendix G to 10 CFR Part 50). The commenters recommended that  $RT_{MDT}$  be defined the same as in these other documents, or that the results of the prescribed calculation (for purposes of the PTS rule) be given a different designation.

**Response:** The final rule has been changed to define the reference temperature used for comparison with the screening criterion, and calculated as prescribed by § 50.61(b) of the rule as "reference temperature for pressurized thermal shock" ( $RT_{PTS}$ ).

**Comment:** The commenters also recommended that the values for copper and nickel content and fluence in Equations 1 and 2 of § 50.61(b) be described as "best estimate" values and that the "Margin" term to be added to Equations 1 and 2 be defined as covering uncertainties in those quantities as well as the uncertainties in initial  $RT_{MDT}$  value and in the calculational procedure for  $RT_{PTS}$ .

**Response:** This change has been made in the final rule.

**Comment:** One of the commenters

requested that the definition of "Reactor Vessel Beltline" in the proposed rule be made the same as that given in Appendix G to 10 CFR Part 50.

**Response:** The Commission notes that the definition is the same as that given in the latest revision of Appendix G that was published in the Federal Register May 27, 1983 (48 FR 24008).

### *Use of Other Reference Temperature Correlations and Probabilistic Fracture Mechanics*

**Comment:** Nine commenters responded that the rule should clearly state that alternative means of calculating  $RT_{MDT}$  (other than those specified in the rule) are acceptable for use in the analyses required by the rule to show acceptability of operation above the screening criterion values. One commenter requested that use of surveillance data be allowed in evaluating the reference temperature.

Seven commenters requested that it should also be made clear within the rule that the use of probabilistic fracture mechanics (PFM) techniques are acceptable in establishing PTS-related risk when performing these analyses. Five commenters also suggested that it should be acceptable to use other  $RT_{MDT}$  (now called  $RT_{PTS}$ ) correlations to show that a plant is below the  $RT_{PTS}$  screening criterion and hence that no analyses are required.

**Response:** The Commission clearly intends that licensees be free to provide any information relevant in performing the rule-required analyses to justify continued operation of the plant. This includes other  $RT_{MDT}$  correlations, surveillance data, and PFM techniques. The wording of the rule in paragraph 50.61(b)(4) has been changed to reflect this intent.

However, the final rule does not permit use of other  $RT_{PTS}$  correlations or surveillance data in determining whether or not a reactor vessel exceeds the screening criterion. The screening criterion was selected taking many uncertainties into account, including the perceived conservatism of the prescribed method for calculating  $RT_{PTS}$ .

### *Reporting of Changes in Reference Temperature Projections*

**Comment:** Three commenters responded that the requirement to report new projected values of Reference Temperature when significant changes occur is unnecessary. They believe that the reporting requirements of Appendix G to 10 CFR Part 50 are adequate. One commenter suggested requiring re-reporting only if the changes would indicate that the screening  $RT_{PTS}$  would be exceeded before the expiration of the operating license.

**Response:** The Commission must be

informed early of any trends in  $RT_{PTS}$  changes, to allow adequate time for any necessary actions leading to implementation of corrective actions at any plant. Therefore, the Commission continues to believe that the reporting requirement as written in the proposed rule is necessary, and has not changed the reporting requirement in the final rule.

### *Alternatives to Flux Reduction*

**Comment:** Sixteen commenters responded that, for those plants projected to exceed the screening criterion, the bias toward flux reduction as the "preferred" corrective action should be eliminated, and that other options should be allowed, including early analyses to justify actions other than flux reductions.

**Response:** The rule does not preclude options other than flux reduction measures. The implementation schedule for flux reduction options may include consideration of other options proposed by the licensee provided those other options are thoroughly justified by the licensee on a time schedule that will allow Commission review and acceptance before the efficacy of flux reduction is precluded by the passage of time.

### *Guidance of Plant-Specific Analysis*

**Comment:** Thirteen commenters responded that the guidance and acceptance criteria for the analyses required by the rule should be provided with the rule, or the rule should be delayed until they can be provided.

**Response:** The Commission believes that the rule addresses an important safety issue and should be promulgated without delay. The development of the guidance and acceptance criteria involves performance by the staff and its contractors of analyses of the type to be required later from some licensees. The performance of the analyses requires several sequential steps which cannot be significantly shortened, and the insights to be gained from these analyses are necessary before the staff can draft its guidance. Therefore, the Commission believes that the best course of action is to promulgate the rule now and provide the guidance and acceptance criteria in late 1985 or early 1986. This will be at least a decade before any licensee will need to begin performing the analyses for submittal three years before exceeding the  $RT_{PTS}$  criteria, based on the Commission's current understanding of the flux levels at all PWRs. In order to avoid difficulty for any licensee where this expectation is not fulfilled, the Commission has changed the final rule to require licensees to submit the required analyses three years before the plant is projected to exceed the screening

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criterion, or one year after issuance of the guidance and acceptance criteria, whichever is later.

If a licensee elects to perform analyses to justify alternatives to flux reduction prior to issuance of the final guidance and acceptance criteria, the staff will provide on request its best current judgement of what analyses are likely to be acceptable and what level of safety will be required.

### *Timing of Required Plant-Specific Analyses*

The Commission invited public comments regarding whether the detailed analyses should be required five years prior to exceeding the screening criterion, instead of the three years in the proposed rule.

**Comment:** Eleven commenters responded with ten of the eleven stating that three years is preferable. The eleventh comment stated that a five year requirement would be useful to the extent that it would lead to earlier Commission reaction and a longer lead time for implementation, but also noted that "unless the NRC reaction is timely, the advantage will be lost."

**Response:** The Commission believes that three years allows adequate time for review and implementation of any necessary corrective actions. Therefore, the three year requirement has been retained in the final rule.

### *Necessity of PTS Rule*

**Comment:** One commenter responded that the rule is not necessary and that its purpose could be accomplished with a generic letter or plant-specific action, since the lead plants have already been identified.

**Response:** The Commission evaluated alternatives to rulemaking prior to publication of the proposed rule. Plant-specific information is needed to determine whether or not corrective actions are needed, in sufficient time to allow implementation before PTS risk exceeds acceptable levels. The Commission believes a rule is the appropriate means to accomplish the above for all plants that may require action.

### *Adequacy of Bases for Proposed Rule*

Comments were received from two individuals that expressed general concerns regarding the Commission's bases for the proposed rule. These individuals' various contentions are briefly noted below with the Commission's response.

#### *Comments:*

- (1) Flux measurements and/or calculations are uncertain.
- (2) Basis and assumptions of PTS rule are incorrect.
- (3) There are other causes of

embrittlement that are not considered by the PTS rule.

- (4) Coupons used to monitor vessel steel embrittlement are not representative of the vessel material.
- (5) PRA techniques are inadequate.

**Response:** When the NRC staff performed the studies upon which the PTS rule is based, it was recognized that there were many uncertainties involved in determination of risk due to PTS. The uncertainties were taken into account when the screening criterion was selected, allowing a conservative margin for safety and time for implementation of identified corrective actions before an acceptable level of safety is exceeded. The probabilistic risk analysis (PRA) and deterministic methods used and conclusions reached that risk is acceptable for vessels with  $RT_{PTS}$  below the screening criterion are discussed in SECY-82-465, SECY-83-288, and in the Federal Register Notice of Proposed Rulemaking (February 7, 1984).

#### *Comment:*

(6) The ability to detect cracks greater than  $\frac{1}{4}$ -inch in depth, and the "leak before break" principle, are relied upon in the resolution of Unresolved Safety Issue A-11, Reactor Vessel Materials Toughness.

**Response:** This comment is not relevant to the bases for the PTS rule since the existence of a non-detected, non-leaking crack was conservatively assumed in the PTS analyses.

#### *Comment:*

(7) The rule should apply to BWR's.

**Response:** The Commission does not believe that PTS is a significant safety concern for BWRs, and believes that the PTS rule should not be applied to BWRs. The several technical reasons for this (low probability of the event, lesser embrittlement due to shielding from larger amounts of water, and lower stress intensity due to a thinner vessel) are explained in the staff testimony given at the licensing board hearing for Limerick in response to contentions by the same commentator.

#### *Comments:*

(8) The bases for the PTS rule come mostly from operating reactor data.

(9) The screening criterion in the PTS rule is not based on observed precursors.

**Response:** As explained in SECY-82-465, the PTS rule is based both on a study of PTS precursors that have actually occurred, and on analytical studies of more severe events that have not actually occurred.

#### *Comments:*

(10) Generic analyses used without verification for specific plants.

\* Limerick Licensing Board. Order dated November 13, 1983. Memorandum and Order Granting Applicant's Motion for Summary Disposition of Contention I-82. Docket Nos. 50-352-OL and 50-353-OL.

(11) Link between Control System Interactions and Pressurized Thermal Shock not properly included.

**Response:** The PTS rule establishes a screening criterion, with a conservative margin to allow for uncertainties, below which the Commission has concluded that PTS risk is acceptable for any PWR. The rule also requires that plant-specific analyses be performed to identify any necessary corrective actions, well before the screening criterion is exceeded. Those required analyses will be plant-specific and will be required to include items such as control system interactions.

#### *Comment:*

(12) The Commission's analyses had to assume the existence of flaws.

**Response:** This is correct. If no flaw exists, then there is no PTS problem. Therefore, the Commission's analysis made the conservative assumption of the existence of a flaw, the depth of which was chosen, for each analysis, to maximize the likelihood of vessel failure.

#### *Comment:*

(13) B&W reactors are more susceptible to PTS-related failure.

**Response:** Based on staff analysis, reported in Enclosure C to SECY-83-288, the Commission concluded that the PTS risk for B&W plants is not significantly different from that for other PWRs.

#### *Comment:*

(14) Pump seal failures are not accounted for.

**Response:** Pump seal failure is one postulated cause of a small Loss of Coolant Accident (LOCA) and was accounted for in the analyses on which the PTS rule is based.

#### *Comment:*

(15) Missiles might penetrate containment during a PTS event.

**Response:** The analysis on which the PTS rule is based assumes that vessel failure and core melt is a serious safety threat and must be avoided with or without containment failure. Those analyses did not quantify the probability of containment failure. However, the screening criterion was set at a value sufficiently low to account for the perceived small probability that a PTS event might fail containment. The Commission's long-term studies of PTS include analyzing the possibility of containment failure, and it is expected that the analyses required by the PTS rule will also require each licensee to perform such evaluations before the screening criteria specified are exceeded.

#### *Comment:*

(16) Fuel maneuvers to lower the fluence invite licensee cheating.

**Response:** The type of "maneuvers" performed to lower fluence to the critical welds are not the day-to-day maneuvers evidently envisioned by the commentator. These "maneuvers" involve

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selection of a particular pattern for arranging various types of fuel with various burnups in the core. This is done every year to 18 effective full power months when the core is reloaded, and is thoroughly verified by multiple checks. The flux reduction accomplished is also verified both experimentally and analytically, and will be reviewed by the Commission.

### *Comment:*

(17) Fracture mechanics calculations do not have an experimental basis. The largest vessel ever tested was  $\frac{1}{4}$ th-scale, and it "burst at  $\frac{1}{3}$ rd the pressure calculated using fracture mechanics considerations."

*Response:* The experimental and analytical bases for the Commission's fracture mechanics methods are thoroughly documented (for example, in SECY-82-465) and are generally accepted in the engineering community as adequately conservative. A recent  $\frac{1}{4}$ th-scale vessel test, the first such vessel subjected to pressure and thermal stress, failed at a stress very close to the predicted stress.<sup>3</sup>

### *Comments on Supplementary Information Section of Notice of Proposed Rulemaking*

Several comments were received that relate to the Supplementary Information section of the February 7, 1983 Federal Register Notice. These comments are discussed below.

### *Number of Reactors Expected to Remain in Below RT<sub>PTS</sub> Criterion*

*Comments:* Several commenters took issue with the possible implication of a statement made that most PWRs will exceed the RT<sub>PTS</sub> criterion.

*Response:* The Commission agrees that the implication is incorrect, and notes that it currently projects that the majority of plants are not expected to exceed the criterion before the expiration of the operating license.

### *Conservatism of Rule*

*Comment:* Eight of the commenters responded to the statement by Commissioners Asselstine and Gilinsky in the Supplementary Information section that numerous conservative factors, unconservative factors, and unknown factors in the PTS analyses need to be considered appropriately in the acceptance criteria being developed by the staff, and that a suitable margin of safety should be retained throughout the service life of the facility. The commenters felt that in light of recent work by Oak Ridge National Laboratory, Electric Power Research Institute, etc., the staff has adequately

considered all factors and the statement is unwarranted.

*Response:* The Commission believes that although considerable knowledge has been gained about PTS in the past two years, the previous statement by Commissioners Asselstine and Gilinsky remains valid.

### *Consideration of Possible License Extension*

*Comment:* Several commenters viewed the statement in the Supplementary Information section regarding licensee consideration of the possibility of future license extension requests when evaluating flux reduction options, as premature, and recommended deletion.

*Response:* The rule does not explicitly require this consideration, but the Commission continues to believe that the potential for license extensions is a factor that licensees should consider.

### *Preferred Risk Reduction Actions*

*Comment:* Several commenters recommended deletion of a statement in the Supplementary Information section that in the analysis of modifications in support of operation beyond the screening criterion, "[m]odifications to equipment or systems are preferable to reliance on procedure modifications."

*Response:* Since the statement could be interpreted as prejudging a regulatory decision, it has not been included in the Supplementary Information section of this rule.

### *Thermal Annealing Requirement in Appendix G to 10 CFR Part 50*

*Comment:* Sixteen comments were received in response to the Commission's request for public comment on the merits of eliminating the thermal annealing requirements of 10 CFR Part 50, Appendix G (Fracture Toughness Requirements) paragraph IV.B., which states:

"Reactor vessels for which the predicted value of upper-shelf energy at end of life is below 50 ft-lb off for which the predicted value of adjusted reference temperature at end of life exceeds 200 °F (93 °C) must be designed to permit a thermal annealing treatment at a sufficiently high temperature to recover material toughness properties of ferritic materials of the reactor vessel belline."

All of the commenters said this requirement was too restrictive and should be deleted. The most-cited reason was that annealing is only one of the possible actions and deletion would provide desirable flexibility to demonstrate acceptably low risk. None of the commenters said it was a

hardship to design to permit annealing, although one wrote, "As a practical matter, it is impossible to design for a process that has not been technically developed." On the other hand, eight of the commenters urged that deletion "... should not in any way imply that a utility is prevented from using the thermal annealing process as an option to increase safety margin."

*Response:* The Commission accepts the comment that to require design for annealing if radiation damage is expected to be significant is too restrictive. The decision to anneal is largely an economic one, which should be left to the licensee. Paragraph IV.B was intended to alert applicants that annealing might someday need to be considered, to require that it be considered in the design phase if a significant level of radiation damage is expected, and to define that level. Yet, it appears that there have been few, if any, actual design features added to accommodate annealing. Other maintenance, inspection and repair operations place similar requirements on clearances and radiological hazards. Vessel expansion at the nozzles is not expected to exceed that experienced in operation at the design temperature (650 °F). The extra features on the surveillance program are referred to briefly in ASTM E 185, which is referenced in Appendix H to 10 CFR Part 50. Thus, it can be concluded that this paragraph has had little impact on the design of plants. Third, the 200 °F RT<sub>PTS</sub>/50 ft-lb criteria have been misinterpreted in the past to mean that operation beyond those limits is unsafe, which is not true. For these reasons, the Commission is planning a separate rulemaking action to delete paragraph IV.B. of Appendix G, 10 CFR Part 50. The annealing alternative will remain in the regulation, as given in paragraph V.D. of Appendix G.

### *Fracture Mechanics Methodology To Be Used for Plant-Specific Analysis*

*Comment:* One telephone comment was received regarding a perception that the Commission would encourage or require development and use of the newest fracture mechanics techniques for the required plant-specific PTS analyses.

*Response:* It is anticipated that the forthcoming staff guidance on the preparation of plant-specific PTS analyses will specify that the deterministic fracture mechanics techniques underlying the algorithms in the probabilistic fracture mechanics evaluations be conservative, standard methodologies that have been in use for some time. It is not the intent of the

<sup>3</sup>Heavy Section Steel Technology Program, Semiannual Program Report, NUREG/CR-3744 Vol. 1, C.E. Pugle. Copies are available for public inspection and copying at the Public Document Room at 1717 H. Street, Washington, D.C. 20553.

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Commission to require use of new methods that would "break new ground", such as those which account for elastic-plastic deformation.

### Explanation of the Rule Requirements

Paragraph (b)(2) of § 50.61 establishes an  $RT_{PTS}$ -based screening criterion, and presents the conservative method chosen by the staff for the calculation of the  $RT_{PTS}$  for the purpose of comparison with the screening criterion. The basis for selection of this method is presented in Appendix E of Enclosure A to SECY 82-465. Since the acceptability of the screening criterion was based on generic studies, and since the purpose of the criterion is to provide a defined and consistent threshold for initiating the submittal of plant-specific analyses, the rule § 50.61(b)(1) requires each licensee to assess the current and projected values of  $RT_{PTS}$  using the methodology described in paragraph (b)(2) of the rule. Although the Commission expects that alternative methods of determining  $RT_{PTS}$  may be justified for use in plant-specific evaluations of PTS events in the future, the rule requires that the prescribed conservative method for calculating  $RT_{PTS}$  be used to determine when the plant-specific evaluations must be performed.

Applicants for operating licenses are required to provide projected values of  $RT_{PTS}$  as part of the final safety analysis report as provided in the amendment to paragraph (b) of § 50.34, "Contents of Applications: Technical Information."

On the basis of information currently available, it appears that the  $RT_{PTS}$  of most reactor vessels will remain below the screening criterion throughout the service life. For other reactor vessels, fuel management programs could be instituted that would result in core configurations reducing neutron flux at critical locations, thereby slowing the increase of  $RT_{PTS}$  so that the screening criterion would not be exceeded. The Commission recognizes that further refinements in materials information, analyses of PTS event frequencies and scenarios, and plant-specific analyses of alternative measures to reduce PTS risk may provide a basis for the acceptability of continued operation with  $RT_{PTS}$  values in excess of the screening criterion. The preparation and review of such analyses and determination of their acceptability will require substantial time. However, the effectiveness of flux reduction programs depends on early implementation. The Commission has determined that reasonably practicable flux reduction programs should be implemented promptly where needed to maintain

reactor vessel  $RT_{PTS}$  below the screening criterion, without awaiting possible plant-specific determinations that higher values of  $RT_{PTS}$  are acceptable. Therefore, the rule § 50.61(b)(3) requires licensees with pressure vessels for which the reference temperature is projected to exceed the screening criterion before the expiration date of the operating license to submit an analysis of such flux reduction programs as are reasonably practicable to avoid exceeding the screening criterion, and a schedule for implementation of such programs. The NRC staff will review these submittals to confirm that reasonably practicable programs have been, or will be, implemented.

At the time of this submittal, or at a later time, licensees may submit additional plant-specific analyses to justify (by new information, improved analyses or evaluations of alternative measures) operation with less restrictive flux reduction programs in the future. The proposed schedule for implementation of any needed flux reduction program may reflect appropriately the possibility of such justification. However, it is the Commission's intent that the effectiveness of flux reduction programs that are needed to avoid, or to delay, reaching the screening criterion, and that are reasonably practicable, should not be reduced by delay in implementation, pending review of these analyses. The Commission expects that in evaluating the need for flux reduction programs, each licensee will consider the possibility that, in the future, the licensee may wish to seek approval of a license amendment to extend the expiration date of the license. Since consideration of protection against PTS events would be a factor in the Commission's decision on such a request, licensees should consider flux reduction programs that would prevent reaching the screening criterion by the end of the anticipated service life of the facility.

When a licensee determines, and the Commission agrees, that reasonably practicable flux reduction measures have been or will be implemented, and that the vessel  $RT_{PTS}$  is still projected to exceed the screening criterion before expiration of the operating license then the rule (§ 50.61(b)(4)) requires the submittal of a plant-specific safety analysis. The analysis must include an assessment of the vessel fracture mechanics properties for the remainder of vessel life, including effects on PTS risk of possible changes in fuel loading patterns affecting the neutron flux at the vessel wall. The analysis must also

include a quantitative assessment of the PTS risk due to operation of the particular plant. It must identify potential event sequences that contribute significantly to PTS risk. It must consider both the expected frequency of these event sequences and the conditional probability of vessel failure and subsequent core melt, given the occurrence of these event sequences, and identify what, if any, modifications to equipment, systems and operation are necessary to prevent potential failure of the reactor vessel as a result of postulated PTS events, if continued operation beyond the screening criterion is allowed. Finally, the analysis must estimate the effects of recommended corrective actions on PTS risk and must justify, partly on the basis of risk analysis, operation at  $RT_{PTS}$  values above the screening criterion after completion of corrective or mitigative actions.

The plant-specific analysis must be submitted substantially in advance of the projected time at which the screening criterion would be exceeded, to allow time for Commission review of the analysis and licensee implementation of any proposed modifications well in advance of reaching the screening criterion. It is the Commission's intent that the staff perform a timely review of these analyses so that decisions, regarding any necessary corrective actions, are made with allowance for sufficient time to implement corrective actions before the screening criterion is exceeded.

Section 50.61(b)(5) of the rule provides for Commission review of these analyses. The Commission must approve the analysis before the plant may operate at  $RT_{PTS}$  values above the screening criterion.

The staff is developing additional guidance on the content of the required plant-specific analysis and on the acceptance criteria the staff will use in reviewing the analysis. The staff expects this guidance to be available long before any licensee will be required to start such an analysis (based on estimated rates of  $RT_{PTS}$  increase and recent information regarding the efficacy of flux reduction techniques planned at several plants with high  $RT_{PTS}$  values). The rule requires submittal of the plant-specific analysis at least three years before the screening criterion would be exceeded or one year after staff issuance of the guidance and acceptance criteria regarding those analyses, whichever is later. No plant-specific analysis performed in response to the requirement of § 50.61(b)(4) should be started before issuance of this



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additional staff guidance. However, should a licensee decide to perform a plant-specific PTS safety analysis as part of its response to § 50.61(b)(3) in support of alternatives to, or implementation schedules for, flux reduction measures, the staff will meet, upon request, with the licensee to provide its best current guidance for such analysis.

Paragraph (b)(6) of § 50.61 provides that if the Commission concludes that the plant-specific analysis, including any plant modifications proposed, does not provide a basis for approval of operation at values of  $RT_{PTS}$  in excess of the PTS screening criterion for a given facility, then that facility may not be operated beyond the criterion unless the licensee requests and receives Commission approval based on additional modifications or new factors that would reduce the potential for failure of the reactor vessel due to PTS events.

### 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) (ii) and (iii). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

### 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 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 the definition of "small entities" as set forth in the Regulatory Flexibility Act of the Small Business Size Standards in regulations issued by the Small Business Administration at 13 CFR Part 121.

### 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 for this regulation. The analysis examines the costs and benefits of the rule as 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 20555. Single copies of the analysis may be obtained from Mr. Karl Kniel, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-7359.

### 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 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, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 50.

➤ 50 FR 34085  
Published 8/23/85  
Effective 8/23/85

*Minor Clarifying Amendment;  
Definitions*

See Part 1 Statements of Consideration

➤ 50 FR 38097  
Published 9/20/85  
Effective 10/21/85

*Revision of Backfitting Process for  
Power Reactors*

See Part 2 Statements of Consideration

➤ 50 FR 38970  
Published 9/26/85  
Effective 10/28/85

### 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 1982 Addenda, Summer 1983 Addenda, Winter 1983 Addenda, Summer 1984 Addenda and

1983 Edition of Section III, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), and the Winter 1982 Addenda, Summer 1983 Addenda, and 1983 Edition of Section XI, Division 1, of the ASME Code. The sections of the ASME Code being incorporated 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:** October 28, 1985. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of October 28, 1985.

**FOR FURTHER INFORMATION CONTACT:** Mr. G. C. Millman, Division of Engineering Technology, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 443-7862.

**SUPPLEMENTARY INFORMATION:** On May 17, 1985, the Nuclear Regulatory Commission published in the Federal Register (50 CFR 20574) a proposed amendment to its regulation, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to update existing references to specific editions and addenda of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), to make editorial corrections to the existing rule; to simplify the language of the rule; and to delete two obsolete provisions.

This amendment revises § 50.55a to incorporate by reference all editions through the 1983 Edition and all addenda through the Summer 1984 Addenda that modify Division 1 rules of Section III, "Rules for the Construction of Nuclear Plant Components," and all editions through the 1983 Edition and all addenda through the Summer 1983 Addenda that modify Division 1 rules of Section XI, "Rules for the Inservice Inspection of Nuclear Power Plant Components," of the ASME Code. The Summer 1983 Addenda for Section XI does not include technical requirements related to Division 1, but is included in the reference to prevent the confusion that might occur with a lack of continuity in the addenda references.

Editorial revisions are included in this amendment to correct certain existing footnote and paragraph references that are inconsistent with the last amendment (49 FR 9711) this rule and to simplify the language. These editorial revisions are contained entirely in § 50.55a(g).

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For facilities whose operating licenses were issued prior to March 1, 1976, this rule provided the effective date for implementing the inservice inspection requirements and for defining the effective edition and addenda of the Code for the start of the next one-third of a 120-month inspection interval after September 1, 1976. Since this one-third of an inspection interval has already been completed for all applicable facilities, § 50.55a(g)(4)(iii) which addresses the implementation of that inspection is unnecessary and is deleted by this amendment.

Power reactors for which a notice of hearing on an application for a provisional construction permit or a construction permit had been published on or before December 31, 1970, were permitted to use the rules for construction permits prior to January 1, 1971. This amendment deletes § 50.55a(i) which covers this provision because it is no longer necessary. Section 50.55a(c)(4) provides that for these and other facilities that received a construction permit prior to May 14, 1984, the applicable Code Edition and Addenda for a component of the reactor coolant pressure boundary continue to be that Code Edition and Addenda that were required by Commission regulations for the component at the time of issuance of the construction permit.

Interested persons were invited to submit written comments for consideration in connection with the proposed amendments and the draft regulatory analysis by July 16, 1985. No adverse comments or significant questions were received in response to the notice of proposed rulemaking.

### 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 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, 1717 H St. NW., Washington, DC. Single copies of the analysis may be obtained from Mr. G.C. Millman, Division of Engineering Technology, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC, 20555. Telephone (301) 443-7862.

### Paperwork Reduction Act Statement

This final rule incorporates by reference information collection requirements that were reviewed by the Office of Management and Budget. The OMB approval number is 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 prevention, 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.

50 FR 41128  
Published 10/9/85  
Effective 10/4/85

### 10 CFR Part 50

#### Regional Licensing Program; Fort St. Vrain Nuclear Generating Station

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending Part 50 of its regulations concerning the domestic licensing of utilization facilities to provide information concerning the NRC's regional licensing program. This amendment states that authority and responsibility for implementing NRC's nuclear reactor licensing program pertaining to the Fort St. Vrain Nuclear Generating Station will be carried out by the Director of Nuclear Reactor Regulation and specifies where communications and applications relating to that facility should be sent. The amendment is necessary to inform the licensee and the public of current NRC practice and organization.

**EFFECTIVE DATE:** October 4, 1985.

### FOR FURTHER INFORMATION CONTACT:

Hugh L. Thompson, Jr., Director, Division of Licensing, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone (301) 492-9595.

### SUPPLEMENTARY INFORMATION:

The Commission has completed a pilot regionalization program to demonstrate that specific reactor licensing activities can be effectively accomplished in NRC regional offices. Since December 1, 1982, certain licensing activities for the Fort St. Vrain Nuclear Generating Station (Utility Licensee: Public Service Company of Colorado, License No. DPR-34; Docket No. 50-267) have been carried out by NRC's Region IV (RIV) as part of the pilot regionalization program. However, regionalization of the reactor licensing function will not occur in the near future. Consequently, all licensing responsibilities for the Fort St. Vrain Nuclear Generating Station should be returned to the Office of Nuclear Reactor Regulation. The delegation of authority to the Regional Administrator of NRC's Region IV will be rescinded effective October 4, 1985. Copies of the memorandum effecting the recentralization of Fort St. Vrain licensing responsibilities have been placed in the Commission's Public Document Rooms at 1717 H Street, NW., Washington, DC, at the RIV Office, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas, and at the Greeley Public Library, City Complex Building, Greeley, Colorado 80631 (the local public document room for the Fort St. Vrain Nuclear Generating Station) where they are available for inspection and copying by the public.

This amendment to 10 CFR 50.4, is necessary to inform licensees and the public of current NRC practices and organization. As amended, § 50.4 requires that inquiries concerning NRC regulation of all types of production and utilization facilities, including the Fort St. Vrain Nuclear Generating Station, be sent to the Director of Nuclear Reactor Regulation and specifies the proper address. The amendment deletes "paragraph" (c) and references to paragraph (c). The amendment does not change the requirements for direct communication between the licensee and RIV. Since this amendment is nonsubstantive and relates to matters of agency organization and procedure, the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) do not apply and good cause exists for making the amendment effective on October 4, 1985.

**Environmental Impact: Categorical Exclusion**

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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 Officer of Management and Budget approval number 3105-0011.

### 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.

50 FR 50764  
Published 12/12/85  
Effective 1/13/86

### 10 CFR Part 50

#### Specific Exemptions; Clarification of Standards

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to clarify the standards that will be applied when it considers whether to grant exemptions from the requirements codified in 10 CFR Part 50.

**EFFECTIVE DATE:** January 13, 1986.

**FOR FURTHER INFORMATION CONTACT:** F.X. Cameron, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-8689.

#### SUPPLEMENTARY INFORMATION:

##### I. Background

On April 26, 1985, the Commission issued a proposed rule modifying the criteria for granting exemptions from the requirements of 10 CFR Part 50 for the licensing of production and utilization facilities. 50 FR 16506. Section 50.12(a) of Chapter I, Title 10, the Code of Federal Regulations provides that the Commission may grant exemptions from

the regulations in Part 50 that it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. Traditionally, this authority has been delegated by the Commission to its staff which determines whether exemptions are needed and justified. The Commission believes that it is not possible for its regulations to predict and accommodate every conceivable circumstance. Consequently, it has historically provided mechanisms to grant exemptions where application of the regulation would not serve the public interest and no undue risk to the public health and safety would occur as a result of not requiring literal adherence to a particular requirement.

In reviewing § 50.12(a) requests for exemptions, the NRC staff ("staff") has considered whether any undue risk would result from the granting of a particular exemption. This determination was, in general, based on a qualitative engineering analysis of the purpose of the regulatory requirement and consideration of the methods specified in the specific regulation for achieving the regulatory purpose. The staff compared the proposed method of compliance to ensure that the regulatory purpose was satisfied and that the method to be used in a particular case was, under the particular circumstances before the staff, appropriate and technically sound for accomplishing the regulatory purpose. In recent years when probabilistic quantitative assessment techniques have been available, these techniques, along with engineering judgment, have been used to ensure that the exemption involved was acceptable from a safety standpoint. In summary, the staff would evaluate an exemption request to determine if there was a justifiable reason for the proposed exemption and, in addition, whether adequate protection of the public health and safety would be maintained if the exemption were granted.

As noted in the Supplementary Information to the proposed rule, several recent adjudicatory proceedings reviewed by the Commission, had made it evident that it would be desirable to attempt to state clearly the circumstances for which the Commission believes that exemptions are warranted for the guidance of applicants, licensees, the staff, and the public. For example, the Commission's recent decision on an exemption request for the Shoreham nuclear power plant,<sup>1</sup> represented a departure from past staff practice in the exemption area. In

<sup>1</sup> In the Matter of Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), CLI-84-8, 18 NRC 1154, (May 18, 1984) (hereinafter "Shoreham").

Shoreham, the Commission requested the applicant, in addressing the determinations to be made under the 10 CFR § 50.12(a) exemption criteria, to include a discussion of:

1. The 'exigent circumstances' that favor the granting of an exemption under 10 CFR 50.12(a) should it be able to demonstrate that, in spite of its noncompliance with GDC 17, the health and safety of the public would be protected.

2. Its basis for concluding that, at the power levels for which it seeks authorization to operate, operation would be as safe under the conditions proposed by it, as operation would have been with a fully qualified onsite A/C power source.

In the context of exemptions related to plant operations, these determinations regarding "exigent circumstances" and "as safe as" are not explicitly stated in 10 CFR 50.12(a). Although the Commission specified that Shoreham was only to apply to the particular circumstances of that case, it also directed the development of this rulemaking to codify appropriate exemption standards. The proposed rule was an attempt to fashion a comprehensive, consistent, practicable, and appropriate framework for reviewing exemption requests, based on past staff practice and on the Commission's concerns, as evidenced in the Shoreham decision and related discussions.

The Commission expects the intent of its regulations to be met and normally this requires conforming to the regulations as stated. There are circumstances, however, where on balance it would not be equitable or in the public interest to require literal adherence to regulations particularly where a particular requirement applied to a specific plant would not result in an improvement in overall safety or a reduction in risk to the public.

The objective of this rulemaking is to identify the criteria to apply in such circumstances and to provide a means for considering these circumstances so that consistent regulatory decisions can be made concerning exemptions to Commission regulations.

The Commission's exemption authority is exercised consistent with the Administrative Procedure Act's requirements for informal rulemaking, i.e. the regulatory policy for a particular rule is developed through the rulemaking process without expecting a need for large numbers of exemptions. Therefore, the Commission will exercise its discretion to limit exemptions in any particular area if the "exceptions" to the rule threaten to erode the rule itself. The Commission is also aware that exemptions can serve as warning signals that a particular rule may need

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to be revised and can serve as a supplement to traditional evaluation mechanisms in identifying areas in need of revision.

### II. The Proposed Rule

The proposed rule retained the existing criteria of § 50.12(a) in a slightly modified form, as general standards for the granting of exemptions. Under proposed § 50.12(a)(1), the Commission could grant exemptions which:

are authorized by law, will not present an undue risk to the public health and safety, are consistent with the common defense and security, and are in the public interest.

In a departure from the text of the existing rule, the proposed rule would have required a finding that the exemption will not "present an undue risk to the public health and safety" and would be "consistent with the common defense and security." These standards provide an explicit recognition of traditional staff practice in evaluating the safety implications of a particular exemption.

As is currently required by § 50.12(a), the proposed rule would have also required that the exemption be in the "public interest." However, the Commission explicitly stated that the public interest determination would consist of a consideration of the special circumstances that justify the exemption. This determination would be confined to the consideration of the equities of the situation, similar to those cited in the *Shoreham* decision, including the stage of the facility's life, any financial or economic hardships, any unusual difficulties in complying with the regulation, any internal inconsistencies in the regulation, the applicant's good faith effort to comply with the regulation from which the exemption is sought, the public interest in adherence to the Commission's regulations, and the safety issues involved.

In addition to the general standards of proposed § 50.12(a)(1) the Commission proposed to add a new § 50.12(a)(2), which would require that a particular condition exists before an exemption could be granted. The Commission stated that these conditions represent situations in which it would be reasonable to grant an exemption, provided that the general standards of § 50.12(a)(1) are also met. The conditions were selected on the basis of exemption criteria that have been noted by the courts with approval (special circumstances, hardship, equity, more effective implementation of overall policy, circumstances substantially different from those considered in the rulemaking proceeding) and on the basis of examples from past Commission exemption practice for which the

circumstances underlying the exemption appeared to be relevant and appropriate for exemption relief. The Commission emphasized that the conditions in proposed § 50.12(a)(2) constitute a specific application of either the safety criterion or the public interest criterion stated in the general standards of proposed § 50.12(a)(1). Although an exemption request could satisfy one of the conditions in proposed § 50.12(a)(2), the general criteria in proposed § 50.12(a)(1) would also need to be satisfied.

Proposed § 50.12(a)(2) would have required that one of the following be satisfied before an exemption could be granted:

(i) Application of the regulation in the particular circumstances would be in conflict with other rules of the Commission; or

(ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or

(iii) Alternative or compensatory means exist to achieve the underlying purpose of the regulation; or

(iv) The exemption would result in an overall benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption; or

(v) Application of the regulation would result in treatment of the particular applicant or licensee in a manner substantially different than other similarly situated applicants or licensees; or

(vi) The exemption would provide only temporary relief from the applicable regulation; or

(vii) There is present any other material circumstance not considered when the regulation was adopted.

The Commission directed the staff to use existing staff practice, pre-*Shoreham*, in evaluating exemptions, pending the effective date of this rulemaking. Commissioner Asselstine requested comments on the following proposed rule as an alternative to that proposed by the Commission:

#### *Section 50.12 Specific Exemptions*

(a)(1) The Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of the regulations in this part.

(2) The Commission will not consider granting an exemption unless special circumstances are present. Special circumstances are present whenever:

(i) Compliance with the regulations would be inconsistent with some other Commission requirement;

(ii) compliance with the regulation would decrease overall facility safety; or

would not achieve or not be necessary to achieve the purpose of the regulation;

(iii) compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated;

(iv) a compliance issue is raised late in the licensing review that cannot be fully resolved in a timely fashion despite good faith efforts;

(v) compliance would result in applicant or licensee being treated in a manner significantly different from others similarly situated; or

(vi) there is present any other material circumstance not considered when the regulation was adopted.

(3) No exemption will be granted unless the Commission finds that it would be authorized by law and would be in accord with the common defense and security, and that there would be no undue risk to the health and safety of the public.

### III. Public Comments

The Commission received seventeen comments on the proposed rule. Sixteen of these were from the nuclear industry, comprised of electric utilities, law firms representing electric utilities, architect engineers, and a trade association. One comment was submitted by the law firm of Harmon & Weiss, representing the Union of Concerned Scientists (UCS). The industry comments were generally supportive of the Commission's objective in attempting to clarify its exemption policy. However, industry commenters did recommend revision of selected details of this proposed clarification. They also expressed both favorable and unfavorable comments on the specific provisions of Commissioner Asselstine's proposal, noting that in many respects there did not seem to be any substantial differences between the two versions. The comments submitted on behalf of the UCS focused exclusively on the Commission's basic authority to grant exemptions, and requested that the Commission withdraw the proposed rule as being outside of the Commission's authority. The discussion of the comments has been organized into the following segments—

A. The extent of the Commission's authority in the exemptions area.

B. The "no undue risk" and "common defense and security" standards of proposed § 50.129(a)(1).

C. The "public interest" standard of proposed § 50.12(a)(1).

D. The "special circumstances" criteria of proposed § 50.12(a)(2).

E. Temporary noncompliances.

F. Relationship to other Commission regulatory actions.

G. Policy statement versus rule.

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### *A. The Extent of the Commission's Authority in the Exemptions Area*

The UCS requested that the Commission withdraw the proposed rule because, among other reasons, the Commission does not have the statutory authority to grant any exemptions from its regulations. The UCS cites the Supreme Court in *E.I. duPont de Nemours & Co. v. Train*, 430 U.S. 112, 97 S.Ct. 965 (1977), for the proposition that the authority of an administrative agency to issue exemptions must be granted by Congress, either through the specific language of the enabling statute or its legislative history. According to UCS, because the Atomic Energy Act and its legislative history contain no specific provisions allowing the Commission to grant exemptions from its regulations, the "Commission lacks the grounds to establish rules for exemptions from its regulations." As evidence for this proposition UCS cites section 103b(2) of the Atomic Energy Act which states that the Commission shall issue production or utilization licenses to persons who—

... are equipped to observe and who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may by rule establish. 42 U.S.C. 2133(b)(2).

In addition, no variance from the above requirement can be found in Section 161h of the Atomic Energy Act, 42 U.S.C. 2201(h), characterized by UCS as the provision that "governs consideration of license applications."

As the Commission stated in the Supplementary Information to the proposed rule, the authority of an administrative agency to provide for exemptions from its regulations is well-established. In *United States v. Allegheny-Ludlum Steel*, 406 U.S. 742 (1972), the Supreme Court recognized the authority of an agency to establish exemption to address peculiar factual situations. As stated by the Court—

It is well-established that an agency's authority to proceed in a complex area \* \* \* by means of rules of general application entails a concomitant authority to provide exemptions procedures in order to allow for special circumstances. *Id.* at 755.

In a case involving regulations of the Federal Communications Commission, the United States Court of Appeals for the District of Columbia Circuit emphasized that "a system where regulations are maintained inflexibly without any procedure for waiver poses legal difficulties" because the power of an agency to promulgate general regulations in the public interest "does not relieve it of an obligation to seek out the 'public interest' in particular individualized situations." *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir.

1969). The court noted further that—

[t]he agency's discretion to proceed in difficult areas through general rules is intimately linked to the existence of a safety valve procedure for consideration of an application for exception based on special circumstances. *Id.*

Furthermore, as noted by the the Court of Appeals for the District of Columbia Circuit, and contrary to the thrust of the USC comment,—

Certain limited grounds for the creation of exemptions are inherent in the administrative process, and their unavailability under a statutory scheme should not be presumed, save in the face of the most unambiguous demonstration of congressional intent to foreclose them. *Alabama Power Co. v. Costle*, 636 F.2d 323, 357 (D.C. Cir. 1979).

The Supreme Court decision cited by UCS, *E.I. duPont de Nemours & Co. v. Train*, *supra*, was based on the Court's interpretation of the specific statutory scheme embodied in the Federal Water Pollution Control Act Amendments of 1972 (FWPCA). Unlike the instant rulemaking, *duPont* involved the issue of granting exemptions from a specific statutory obligation, rather than exemptions from regulations designed to implement a general statutory obligation, for example, the Commission's responsibility to ensure adequate protection of the public health and safety. The Court noted that Section 306 of the FWPCA, which directs the EPA to establish national standards of performance for new sources, contains no provision for exceptions from the standards for individual plants. On the contrary, Section 306(e) expressly makes it unlawful to operate a new source in violation of the applicable standard of performance after its effective date. Consequently, the Court concluded that EPA did not have the authority to issue variances for individual plants unable to comply with the national standards of performance promulgated by EPA for the discharge of pollutants from "new sources" (as opposed to "existing sources"). The Court's conclusion was based on the clear congressional intent that the new source standards should be absolute prohibitions. As the Court noted—

... A variance provision would be inappropriate in a standard that was intended to ensure national uniformity and "maximum feasible control of new sources." *Supra* at 138.

Notably, from the standpoint of the UCS assertion that a statute must explicitly provide for the authority to issue exemptions, the Court did find that EPA had the authority to issue individual variances from the effluent limitations required to be applied by July 1, 1977, for existing sources, despite the failure of the FWPCA to explicitly provide for such variances.

In regard to the provisions of the Atomic Energy Act cited by UCS, the Commission cannot find any evidence in the general licensing standards of section 103b(2) that Congress intended to prohibit the Commission from issuing exemptions in limited circumstances. Furthermore, it is unclear what relevance the UCS citation of Section 161h has to the matter of exemptions. Section 161h authorizes the Commission to—

Consider in a single application one or more of the activities for which a license is required by this Act, combine in a single license one or more of such activities, and permit the applicant or licensee to incorporate by reference pertinent information already filed with the Commission. 42 U.S.C. 2201(h).

The Commission believes that its exemption policy, part of the Commission's regulations since 1956, is within its statutory authority. As noted above, the unavailability of exemptions should not be presumed except in the face of "the most unambiguous demonstration of Congressional intent to foreclose them." *Alabama Power*, *supra*. Nothing in the Atomic Energy Act prohibits the Commission from providing for exemptions, and Section 161p. of the Atomic Energy Act authorizes the Commission to—

Make, promulgate, issue, recind, and amend such rules and regulations as may be necessary to carry out the purposes of this Act. 42 U.S.C. 2201(p).

On a related issue, UCS asserts that, even if the Commission does have the statutory authority to grant exemptions from its regulations, the Commission may not consider economic factors in granting an exemption. Therefore, any of the proposed criteria that address economic considerations must be deleted. According to UCS this would include the public interest criterion in proposed § 50.12(a)(1), the specific condition in § 50.12(a)(2)(v) where application of the regulation would result in treatment of the particular applicant or licensee in a manner substantially different than other similarly situated applicants or licensees, and the specific condition in § 50.12(a)(2)(vi) where the exemption would provide only temporary relief from the applicable regulation. Citing *Power Reactor Development Corporation v. International Union of Electrical, Radio, and Machine Workers*, 367 U.S. 413 (1961), and *Porter County Chapter of Izaak Walton League v. NRC*, 606 F.2d 1363 (D.C. Cir. 1979), UCS asserts that "[t]he courts have made it clear that the Commission may not consider the cost of meeting its safety requirements in making decisions whether to allow the operation of nuclear power plants." Applying this proposition to the area of exemptions,

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UCS concluded that "[t]he Commission may not rely on economic issues in order to change an operating license to permit operation at less than the same assurance of safety as provided by compliance with the regulations."

The Commission believes that judicial precedent and long-standing Commission practice confirm that, within the confines of carrying out its paramount responsibility to protect public health and safety, it may consider economic factors in its decision making. The Commission's regulatory mandate is couched in terms of "adequate protection of the public health and safety," 42 U.S.C. 2232. The courts have held that absolute safety or zero risk is not required, and have interpreted the Atomic Energy Act to confer considerable discretion on the Commission to determine what level of protection is adequate.<sup>2</sup> Consequently, the basic standard is inherently broad and general, rather than precise. As long as a Commission decision adheres to the primary "adequate protection" standard, the decision can legitimately take into account cost considerations.

In regard to the judicial decisions cited by the commenter, the *Power Reactor Development Corporation*, *supra*, concerned the validity of the two-step licensing process. A majority of the U.S. Supreme Court held in that context that the Commission is absolutely denied any authority to consider the enormous investment (sunk costs) made during construction in making the definitive safety findings for purposes of operation. The case did not concern the general question of whether costs could otherwise be considered in licensing and regulatory decisions. This conclusion is also applicable to *Porter County*, *supra*.

Finally, the Commission would emphasize that § 50.12(a)(1) of the proposed rule requires a safety finding that the exemption will not present an undue risk to the public health and safety and is in accord with the common defense and security. It is only after these statutorily based findings have been made that the Commission may then consider whether the *additional* requirements for the grant of an exemption have been met, some of which include economic considerations.

### *B. The No Undue Risk and Common Defense and Security Standards of Proposed § 50.12(a)(1)*

UCS also challenges the "no undue risk" standard of the proposed rule on the basis that it lowers the existing safety standard for granting exemptions. However, the existing safety standard that the commenter refers to is the "as

safe as" standard that was controlling in the Commission's *Shoreham* decision, rather than the existing requirement of § 50.12 that the exemption will not "endanger life or property." UCS argues that "there is no acceptable lower safety standard" than the "as safe as" standard employed by the Commission in *Shoreham*. This argument is based on the proposition that "the regulations establish the minimal requirements for safe operation of a nuclear power plant \* \* \* they do not eliminate all risks from nuclear power plant operation, but are intended to provide a reasonable assurance of safety." According to the UCS, the Commission may not "retreat" from the levels of protection established in its regulations. Granting an exemption based on anything other than a standard that demonstrates an equivalent assurance of safe operation would degrade the safety of a nuclear power plant because the license would have been issued based on compliance with the regulations, and the exemption would allow the reactor to operate in noncompliance based on some lower standard.

As emphasized in the Supplementary Information to the proposed rule, the Commission's *Shoreham* decision is intended to only apply to the particular circumstances of that case. 50 FR 16506, 16508. Consequently, it is not appropriate to characterize the "as safe as" standard applied in *Shoreham* as the "existing safety standard." As also noted in the Supplementary Information to the proposed rule, the "no undue risk" standard of proposed § 50.12(a)(1) is an explicit recognition of, not only traditional staff practice in evaluating the safety implications of a particular exemption, but of the statutory findings required by section 182 of the Atomic Energy Act. 50 FR 16506, 16508. The 10 CFR 50.12(a) exemption provision was originally added to the Commission's regulations in 1956 and has a long history of implementation. 21 FR 355, January 19, 1956. The staff evaluates an exemption request to determine if there is a justifiable reason for the proposed exemption and, in addition, whether adequate protection of the public health and safety would be maintained if the exemption were granted. Contrary to what UCS suggests, the grant of an exemption does not lower the existing safety standard for granting exemptions, but rather explicitly reaffirms the existing safety standard. This safety standard represents the statutory requirements of section 182 of the Atomic Energy Act for "adequate protection to the health and safety of the public." 42 U.S.C. 2232.

In regard to the UCS assertion that the Commission's regulations establish the minimum requirements for providing

adequate protection of the public health and safety, the Commission believes that, while it is true that compliance with all NRC regulations provides reasonable assurance of adequate protection of the public health and safety, the converse is not correct, that failure to comply with one regulation or another is an indication of the absence of adequate protection, at least in a situation where the Commission has reviewed the noncompliance and found that it does not pose an "undue risk" to the public health and safety.

Two industry commenters, Northeast Utilities, and Bishop, Liberman, Cook, Purcell & Reynolds, representing several utilities, requested that the Supplementary Information to the final rule reiterate that the "no undue risk" standard includes the consideration of compensatory measures, length of time of the exemption, and the power level involved. As the Commission noted in the Supplementary Information to the proposed rule, it is anticipated that the staff review of the safety significance of the requested exemption will take into account the type of plant operation contemplated (fuel loading, low power testing, power ascension, or full power operation), the length of time that the exemption would be in effect, the existence of compensatory measures, and other safety factors.

One industry commenter, Baltimore Gas & Electric, requested that the Commission include some discussion of the criterion in proposed § 50.12(a)(1) that the exemption would be "consistent with the common defense and security." The commenter also noted that the wording of the current § 50.12(a)(1), that the exemption would "not endanger \* \* \* the common defense and security \* \* \*," may be easier to apply.

In response, the Commission does not intend for the change in wording in the proposed rule on the security finding to change the nature of that standard. The proposed rule would include the statutory safety and security findings, based on section 182 of the Atomic Energy Act for "adequate protection to the health and safety of the public" and "accord with the common defense and security." 42 U.S.C. 2232. This is in contrast to the language in the existing rule to the effect that the exemption must "not endanger life or property or the common defense and security." The "not endanger" language in the current rule was never intended to embody any special standards for exemptions that differed from the statutory standards that licensing must provide adequate protection to the health and safety of the public and be in accord with the common defense and security. For an example of how the "common defense and security" standard has been applied in the context of an exemption request, see *In the Matter of Long Island*

<sup>2</sup> See, for example *Siegel v. AEC*, 400 F.2d 778 (D.C. Cir. 1968); *Nader v. Ray*, 383 F. Supp. 946 (D.C.D.C. 1973).



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*Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-84-45, 20 NRC 1343, 1400 (October 29, 1984).*

### *C. The "Public Interest" Standard of Proposed § 50.12(a)(1)*

A number of comments from the industry addressed the "public interest" standard of proposed § 50.12(a)(1). Two of these commenters, Duke Power Company, and Bishop, Liberman, Cook, Purcell & Reynolds, recommended that the "public interest" standard of § 50.12(a)(1) would be more appropriately termed a "balancing of the equities" or "special circumstances" standard. These two commenters noted that in the Supplementary Information to the proposed rule, the Commission stated that "the public interest determination will consist of a consideration of the special circumstances that justify the exemption," and that the "determination will be confined to the equities of the situation." 50 FR 16508. Both commenters believed that the "special circumstances/balancing of equities" standard is consistent with the NRC staff practice in granting of exemptions and gives the staff the necessary flexibility to evaluate the full range of potential requests. Therefore, they recommended deletion of the "public interest" standard in proposed § 50.12(a)(1). A third industry commenter, Northeast Utilities, also endorsed the idea that a "special circumstances" standard is more appropriate than a "public interest" standard because it is more in keeping with traditional staff practice. Baltimore Gas & Electric stated that, on this issue, it preferred Commissioner Asselstine's version because that version deleted the "public interest" standard. This commenter believes that the "public interest" standard is too subjective, and no supporting guidance was given for its interpretation.

Both Duke Power and Bishop, Liberman, Cook, Purcell & Reynolds suggested that the use of the broad "public interest" language in proposed § 50.12(a)(1) could also "cloud" the application of the "special circumstances" standard, citing the Commission's *Shoreham* decision where the traditional public interest test was expanded to include a requirement of "exigent circumstances." These commenters recommended that the Commission refine the language of the proposed regulation to explicitly define the type of assessment involved in evaluating exemption requests, i.e. "public interest" or "special circumstances" stated as an equitable

balancing test, and include a list of factors to be considered in applying this test. Somewhat in contrast, the Atomic Industrial Forum (AIF) believed that the Commission had selected the correct general standards. Furthermore, the AIF noted that the "special circumstances" standard in § 50.12(a)(2) of Commissioner Asselstine's proposal, 50 FR 16509, appears to be unnecessary because the Commission intends to grant exemptions only in special circumstances. Another industry commenter, GPU Nuclear, criticized Commissioner Asselstine's proposal for deleting the "public interest" standard, although no further explanation was offered as a basis for this criticism.

On a related issue, Duke Power Company and Bishop, Liberman, Cook, Purcell & Reynolds, asserted that the situations in proposed § 50.12(a)(2), in which it would be reasonable to grant an exemption, "gives the regulation a slightly illogical structure." This results from the specific situations of proposed § 50.12(a)(2) being used to define and limit the general standards. According to these commenters, it would be advisable to state the special circumstances standard in terms of a definition, rather than by the limiting examples of proposed § 50.12(a)(2). In addition, they suggested that the list of factors to be considered under the "public interest" standard of proposed § 50.12(a)(1) would in many respects parallel the specific situations of proposed § 50.12(a)(2). Therefore, § 50.12(a)(2) is unnecessary, and also deprives the Commission of needed flexibility in considering exemption requests. However, these commenters requested that, if the Commission does adopt the approach set forth in proposed § 50.12(a)(2), § 50.12(a)(2)(vii) be retained to provide for unanticipated circumstances. Another industry commenter, GPU Nuclear stated that the addition of the specific situations in proposed § 50.2(a)(12) does not provide any clarity to the exemption criteria, and merely adds more requirements. This commenter also criticized the Commission's proposal generally for not stating any more clearly than the existing rule the circumstances for which an exemption would be warranted.

Boston Edison stated that the prescriptive content of the proposed rule was too narrow and imposed more stringent standards than the NRC staff had used in the past. Northeast Utilities believed that the seven criteria in proposed § 50.12(a)(2) appear to encompass most of the relevant bases which might be advanced in support of

an exemption request, and endorsed the general approach of Commissioner Asselstine, which they characterized as "adopting two general standards for exemptions rather than prescribing specific criteria to be met." The commenter further noted that the specific list of special circumstances in Commissioner Asselstine's proposed § 50.12(a)(2) was too narrow and didn't reflect all the possible factors which should be considered. Another industry commenter, Yankee Atomic, found Commissioner Asselstine's "special circumstances" attractive in that it identifies "safe harbor" special circumstances without excluding any other circumstances.

Yankee Atomic further suggested that the specific conditions of proposed § 50.12(a)(2) and the equitable factors cited in the Commission's *Shoreham* decision, be consolidated under the "public interest" standard in proposed § 50.12(a)(1). Explicitly listing these factors in the text of the regulation would, according to this commenter, provide more guidance on interpreting the "public interest" standard. The commenter also noted that this would be a way of more clearly indicating that the proposed rule was not intended to substantially alter existing staff practice in the exemptions area.

After careful consideration of the public comments, and further evaluation of the proposed rule, the Commission has decided to delete the public interest standard of proposed § 50.12(a)(1). As the commenters noted, the public interest determination consists of the consideration of the special circumstances that justify the exemption. Therefore, "special circumstances" is a more appropriate terminology for this standard. In addition, the Commission is concerned that the framework of the proposed rule could be somewhat awkward to implement and could result in inefficiency and confusion. In addition to meeting the general "no undue risk" and "public interest" standards of proposed § 50.12(a)(1), proposed § 50.12(a)(2) requires that one of several specific conditions exist before an exemption may be granted. These conditions represent specific applications of the general "public interest" or "no undue risk" standards in proposed § 50.12(a)(1). This presents the potential problem of determining the extent to which the analysis and conclusions on the specific conditions of proposed § 50.12(a)(2) will be applicable in determining whether the proposed § 50.12(a)(1) standards have been met, particularly whether any further

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analysis is necessary at all on the general standard to which the specific situation applies. Although the Commission believes that the framework of the proposed rule could be implemented, the Commission desires to fashion the clearest and most efficient implementation process possible. Because the factors that would be considered in determining whether the "public interest" standard has been met, would in large part, also be considered under the "special circumstances" standard in § 50.12(a)(2) of the final rule, the deletion of the public interest standard will provide a clear framework for implementation of the exemption rule without sacrificing any substantive policy considerations. The deletion of the "public interest" standard in proposed § 50.12(a)(1) reflects a conclusion that an exemption would always be in the public interest, if special circumstances are present, and the safety and security findings of § 50.12(a)(1) are made. However, the Commission believes that the "public interest" concept is still an appropriate consideration for determining whether the general special circumstances criterion in § 50.12(a)(2)(vi) has been met, and has added it to the final rule. The Commission emphasizes that a finding of "special circumstances" only defines the situations where exemptions will be considered. Even if special circumstances are present, no exemption will be granted unless the findings of § 50.12(a)(1) can be made.

As noted above, several of the commenters recommended a general "special circumstances" standard, rather than a standard that is defined by specific criteria. Although the Commission has the flexibility to consider unanticipated circumstances in the exemptions area, it desires to establish a predictable and consistent exemption policy. The most effective way to accomplish these objectives is to establish standards. Consequently, the Commission is employing the specific conditions of proposed § 50.12(a)(2) as the criteria for the "special circumstances" standard in § 50.12(a)(2) of the final rule. As discussed more fully below, the Commission has modified some of the provisions of proposed § 50.12(a)(2) in response to the public comments. However, the final rule does retain the criterion in proposed § 50.12(A)(2)(vii) to retain the flexibility for the Commission itself to deal with unanticipated circumstances. The Commission believes that the "special circumstances" criteria in the final rule do not simply add more requirements, but do in fact, add clarity to the

exemptions process and provide additional guidance to licensees and the public on when exemptions may be appropriate. In response to the suggestion by Yankee Atomic that the proposed rule is not intended to substantially alter the Commission's exemption policy, the Commission would agree that the final rule does rely substantially on existing staff practice in the exemptions area. However, the final rule is also an attempt to strengthen the Commission's exemption policy by establishing more definitive standards, and by providing for a more systematic and formal analysis of exemption requests. Finally, the Commission would most emphatically disagree with the assertion made by the UCS that the special circumstances in proposed § 50.12(a)(2) are "conditions so vaguely described or so unremarkable as to invite widespread abuse of the provision." As stated in the Supplementary Information to the proposed rule, the courts have cited several broad rationales that are permissible for an agency to employ in granting exemptions. 50 FR 18507. For example, the D.C. Circuit in *Wait Radio v. FCC* noted that—

The agency may not act out of unbridled discretion or whim in granting waivers any more than in any other aspect of its regulatory function. 418 F.2d 1153, 1157 (D.C. Cir. 1969).

However, the D.C. Circuit found that an exemption or waiver provision could legitimately take into account considerations of "hardship, equity, or more effective implementation of overall policy." *Supra* at 1159. Certainly, the Commission's attempt, in this rulemaking, to clarify its exemption standards and to establish more definitive criteria, is not an exercise of "unbridled discretion" as asserted by UCS. The criteria of the final rule are the types of considerations that would be consistent with those cited above in *Wait Radio* and other judicial decisions.

### *D. The "Special Circumstances" Criteria in Proposed § 50.12(a)(2)*

A number of commenters addressed the specific conditions in proposed § 50.12(a)(2). As noted above, these specific conditions now form the basis for the "special circumstances" standard in § 50.12(a)(2) of the final rule. On a general matter, Stone & Webster Engineering and GPU Nuclear recommended that, to the extent they are not already incorporated, the equities cited in the Commission's *Shoreham* decision should be incorporated into proposed § 50.12(a)(2). The equities cited in *Shoreham* were the

stage of the facility's life, any financial or economic hardships, any internal inconsistencies in the regulation, the applicants good faith effort to comply with the regulation from which an exemption is sought, the public interest in adherence to the Commission's regulations, and the safety significance of the issues involved. *Id.* at 1156.

The Commission believes that most of these equities were already reflected in the specific conditions set forth in proposed § 50.12(a)(2) (i) through (vi), or could be considered under the broader category established in proposed § 50.12(a)(2)(vii), and consequently would be considered under the "special circumstances" standard in § 50.12(a)(2) of the final rule.

The law firm of LeBoeuf, Lamb, Leiby & MacRae, representing several utilities, requested that the Commission adopt Commissioner Asselstine's version of proposed § 50.12(a)(2)(i). This version would recognize inconsistencies between the regulation from which an exemption was sought and "other Commission requirements," emphasis added, as a special circumstance, rather than the Commission's version which only recognizes inconsistencies "with other rules." Emphasis added. The commenter suggested that the Commission expand proposed § 50.12(a)(2)(i) to include inconsistencies with "other rules and requirements." Yankee Atomic recommended that proposed § 50.12(a)(2)(i) be revised to include inconsistencies with "other rules of the Commission, with the staff's interpretation of other rules or requirements, or with other law." The rationale for this revision is that "in many cases the Commission's rules are not detailed enough to cover all situations, and the staff is subsequently called upon to use a reasonable amount of guarded discretion in interpreting rules."

The Commission agrees that proposed § 50.12(a)(2)(i) should be revised to recognize that exemptions from a regulation may be necessary because of conflicts with Commission requirements generally, and not only because of conflicts with Commission regulations. Therefore, the Commission has revised § 50.12(a)(2)(i) in the final rule as follows—

§ 50.12(a)(2)(i)—application of the regulation in the particular circumstances would be in conflict with other rules or requirements of the Commission.

However, as explained more fully below, this modification only addresses situations where an exemption from the regulations is being made considered and does not include situations where

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relief is sought from license conditions or amendments. The Commission believes that the above revision also accommodates the primary substance of the suggestion made by Yankee Atomic. However, the focus of § 50.12(a)(2)(i) is on inconsistencies between the regulation from which an exemption is sought and other Commission rules and requirements, and not "other law" in general. Although the commenter did not provide any examples of potential inconsistencies with "other law", if such a special circumstance does occur, the Commission could address it under § 50.12(a)(2)(vi) of the final rule which provides for "any other material circumstance not considered when the regulation was adopted." In addition, the Commission does not believe it necessary to include, as suggested by Yankee Atomic, inconsistencies with "staff interpretations of \* \* \* rules or requirements" because these would seem to be an integral part of, and reflection of, the Commission's regulations and other requirements.

Proposed § 50.12(a)(2)(ii) established a special circumstance where—

Application of the regulation . . . would not serve the underlying purpose of the rule, or is not necessary to achieve the underlying purpose of the rule.

Yankee Atomic suggested that the Commission revise this provision to include situations where application of the regulation would result in "a less effective implementation of overall policy." According to the commenter, this revision would capture "some of the language from *Wait Radio* and would lessen the harshness of the criteria." The commenter further noted that this revision would involve a balancing based on whether overall policy is more or less effectively implemented. According to the commenter, without this change, proposed § 50.12(a)(2)(ii) might result in denying an exemption if only some insignificant portion of the underlying purpose would be served.

The relationship between the suggested "implementation of overall policy" and the substance of proposed § 50.12(a)(2)(ii) which addresses the underlying purpose of a particular regulation is less than clear. From one perspective, the purpose of a rule does serve to implement overall policy, and consequently, the existing text of this provision would already address the commenter's concern. For another perspective, if the commenter is referring to some broader policy, then the use of proposed § 50.12(a)(2)(iv), which addresses situations where the exemption would result in benefit to the

public health and safety, would seem more appropriate. The Commission would also note that one of the objectives of the total exemption policy set forth in this final rule is to establish criteria that would allow more effective implementation of the overall policy of efficient and effective nuclear safety regulation.

Proposed Section 50.12(a)(2)(iii) establishes a special circumstance when—

Alternative or compensatory means exist to achieve the underlying purpose of the regulation.

UCS asserted that this provision<sup>3</sup> would "violate" the Commission's policy in 10 CFR 2.758(a) of the Commission's regulations which prohibit challenges to Commission rules. Consequently, the commenter asserts, "[e]ach exemption proceeding could be a forum for relitigation of the purpose of the rule and the acceptable means of achieving that purpose." This would waste agency resources and eliminate all consistency and reliability from the Commission's regulatory process. However, an industry commenter, Northeast Utilities, was supportive of this provision because it provides explicit recognition that generic regulations cannot consider all the relevant factors for a particular plant and that, in some cases, detailed plant requirements are inappropriate either because they would not, on a given plant, achieve the intended end result of the regulation, or because there are alternative and possible more effective means for achieving the underlying purpose of the regulation.

In considering these comments, it was apparent that the existence of alternative or compensatory measures is also an appropriate consideration in making the "no undue risk" determination of § 50.12(a)(1). Originally, the specific situations of § 50.12(a)(2) were examples of either the no undue risk standard or the public interest standard in proposed § 50.12(a)(1), and therefore it was appropriate to include "alternative or compensatory measures" as a special condition under proposed § 50.12(a)(2). With the change in focus in the final rule to "special circumstances", alternative or compensatory measures are no longer

<sup>3</sup> UCS consistently referred to the provisions of proposed § 50.12(a)(2) as "Section 40.12(b)." (Emphasis added.) The Commission assumed that the commenter was referring to proposed § 50.12(a)(2). 10 CFR 50.12(b) establishes a separate exemption procedure to permit the carrying out of construction activities prior to the issuance of a construction permit. As noted in the proposed rule, the § 50.12(b) procedures are not of concern here and are left undisturbed by this rulemaking. 50 FR 16507.

necessary for consideration as a separate special circumstance, and the Commission has deleted this provision from § 50.12(a)(2) of the final rule. However, alternative means of compliance may be considered in evaluating the special circumstances factors in § 50.12(a)(2)(ii) of the final rule. The detailed requirements of each safety regulation in 10 CFR Part 50 reflect a rulemaking judgment that satisfaction of those detailed requirements is the only way to achieve the specific purpose of the regulation without imposing unnecessary hardship or creating unforeseen conflicts. However, in any particular case this could prove to be incorrect, and the exemption process would permit licensees or applicants to offer alternative ways of achieving the purpose of the regulation without other undesirable effects. The Commission does not believe that this limited application will eliminate consistency and reliability from the regulatory process. In regard to the UCS statement that consideration of alternative mechanisms would violate the Commission's policy in 10 CFR 2.758, the change in focus in the final rule to "special circumstances" makes it consistent with the considerations the Commission expects parties to address in adjudications involving 10 CFR 2.758.

Proposed § 50.12(a)(2)(iv) establishes a special circumstances when—

The exemption would result in an overall benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption.

UCS stated that this provision, as well as proposed § 50.12(a)(2)(ii) of Commissioner Asselstine's version, would allow an applicant or licensee to compensate for the decrease in safety caused by an exemption by increasing safety in some other part of a plant's design or operation. According to UCS, this would ignore the principle of "defense in depth." UCS characterized this principle by stating that "[e]ach of the Commission's safety regulations ha[s] a purpose in providing a reasonable assurance of safe operation of a nuclear power plant." According to the commenter, the Commission cannot license a plant based on some "overall" finding of reasonable assurance, but must resolve the safety issues raised by noncompliance with each individual standard. UCS cited *In the Matter of Vermont Yankee Power Corporation* (Vermont Yankee Nuclear Power Station), ALAB-138, 3 AEC 520, 529 (1973) in support of the above arguments.

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While compliance with all NRC regulations provides reasonable assurance of adequate protection of the public health and safety, the converse is not correct, that failure to comply with one regulation or another is an indication of the absence of adequate protection, at least in a situation where the Commission has reviewed the noncompliance and found that it does not pose an "undue risk" to the public health and safety. Furthermore, the Commission has never defined the concept of "defense-in-depth" to preclude the granting of an exemption from a regulation as long as the applicable exemption criteria are met. In fact, the Commission has recognized that its regulations may provide for the possibility of exemptions when an appropriately high level of safety is in fact achieved and the public interest is served. See, *In the Matter of Consumers Power Company* (Big Rock Point Nuclear Power Station), CLI-76-8, 3 NRC 598, 600 (1976). The Appeal Board decision cited by the commenter, *Vermont Yankee, supra*, concerned the correctness of a Licensing Board decision allowing continued plant operation pending the outcome of an operating license proceeding that had been reopened to consider one safety issue. In affirming the Licensing Board decision, the Appeal Board did state that "reactors may not be licensed unless they comply with all applicable standards," *id.* at 529, and that—

It cannot be argued that, even though the reactor does not comply with the criteria, it should receive an unrestricted full-power, full-term license on the ground that there is reasonable assurance that it can operate without adversely affecting the public health and safety. *Id.*

However, no exemption request was involved in this case, and the above statements of the Appeal Board were not made in the context of applying the exemption criteria embodied in the Commission's regulations. Rather, the issue in *Vermont Yankee* was whether the licensee had complied with a particular regulation. Furthermore, the Appeal Board, with a slight modification, upheld the Licensing Board's decision to allow continued operation. In summary, the Commission believes that the effect of an exemption on total facility safety is appropriate for consideration as a special circumstance.

Three comments addressed proposed § 50.12(a)(2)(vii) which establishes a general category of special circumstances for—

Any other material circumstance not considered when the regulation was adopted. If such condition is relied on exclusively for

satisfying paragraph (a)(2) of this section, the exemption shall not be granted until the Executive Director for Operations has consulted with the Commission.

Duke Power requested that some guidance be contained in the Supplementary Information to the final rule on the extent of the consultation process between the Executive Director for Operations (EDO) and the Commission. The consultation anticipated by this provision would consist of submitting the proposed staff action on an exemption request, which is based solely on this provision, to the Commission for determination of whether the particular fact situation constitutes a special circumstance within the meaning of this provision. If the Commission makes an affirmative finding on this issue, the staff will then determine if the other standards of § 50.12(a) are met, and act accordingly on the exemption request.

Two other commenters, Baltimore Gas & Electric, Yankee Atomic Electric Company, addressed the substance of this provision. Baltimore Gas & Electric requested that the provision be expanded to allow the introduction of any other material information which could support the exemption request and to include the evaluation of factors which had been considered when the regulation was adopted but may not have received the level of consideration necessary. To implement this suggestion, Baltimore Gas & Electric recommended the following wording—

There is present any other material circumstance which clearly supports the request for exemption or which may not have been fully considered in the context of the requested exemption when the regulation was adopted.

In a similar vein, Yankee Atomic recommended that this provision be revised to allow the consideration of material circumstances not *carefully* considered when the regulation was adopted or any other material circumstances which are substantially different from those which had been carefully considered in the rulemaking proceeding. According to this commenter, this revision would allow the Commission to consider the "novel proposal" rationale of *Industrial Broadcasting Co. v. FCC*, 437 F.2d 680 (D.C. Cir. 1970). Without such a revision, "a utility which presents a novel proposal might be denied an exemption on the grounds that the circumstance was somewhat although not fully considered." The commenter further stated that such a revision is particularly important to operators of nuclear power plants like Yankee

Atomic, whose plants "have an overall good safety record, are of small size, and are remote from population centers." According to the commenter, it is these operators who are most likely to seek exemptions based on "novel proposals."

In response, the Commission does not deem it advisable to include the consideration of whether a material circumstance was "fully" or "carefully" considered in the text of the final rule. Enough judgment and difficulty is already involved in determining whether the particular fact situation constitutes a "material circumstance not considered when the regulation was adopted," without trying to determine whether it was "fully" or "carefully" considered. However, in making a determination under § 50.12(a)(2)(vi) of the final rule (redesignated from § 50.12(a)(2)(vii) of the proposed rule), the Commission anticipates that it will of necessity have to consider the extent to, and manner in which, the circumstances were considered in the rulemaking proceeding in order to determine whether this special circumstance is present. In addition, the Commission does not believe it necessary to include in this provision such consideration as "any other material circumstance" or "any other material circumstances which are substantially different from those which had been carefully considered in the rulemaking proceeding." Such considerations would seem to already be covered under either the other special circumstances in § 50.12(a)(2) or under the criterion in § 50.12(a)(2)(vi) of the final rule for "any other material circumstance not considered when the regulation was adopted." Finally, in response to the Yankee Atomic comment on "novel proposals," the Commission does not believe that the "special circumstances" criteria of § 50.12(a)(2) would preclude consideration of such a proposal.

A number of industry commenters, LeBoeuf, Lamb, Leiby & MacRae, Baltimore Gas & Electric, Isham, Lincoln & Beale (representing Commonwealth Edison), and Yankee Atomic recommended that the special circumstances criteria include the consideration of undue hardship or excessive costs. Such a provision would be similar to § 50.12(a)(2)(iii) in Commissioner Asselstine's version which established a special circumstance whenever—

Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by other similarly situated.

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These commenters recommended that, although financial hardships would be considered under the "public interest" standard of proposed § 50.12(a)(1), it should also constitute a "special circumstance" under proposed § 50.12(a)(2). This recommendation is based on the fact that undue hardship or excessive costs have traditionally formed the basis for exemptions granted by the Commission, by administrative agencies in general, and are clearly contemplated by the judicial decisions on the permissible scope of agency exemption criteria.

The Commission agrees that undue hardship or excessive costs would constitute an appropriate "special circumstance," particularly in light of the deletion of the "public interest" standard in proposed § 50.12(a)(1). The final rule has been revised accordingly. Because the "undue hardship or excessive costs" criterion would now cover the situations contemplated in proposed § 50.12(a)(2)(v) on the treatment of the licensee or applicant in a manner substantially different than similarly situated applicants or licensees, the Commission has deleted this provision from the final rule.

One commenter, Stone & Webster Engineering Corporation, recommended that the Commission adopt § 50.12(a)(2)(iv) of Commissioner Asselstine's proposal, which established a special circumstance whenever—

A compliance issue is raised late in the licensing review that cannot be fully resolved in a timely fashion despite good faith efforts.

According to the commenter, "[t]his is a significant and not infrequent circumstance, e.g., a new rule, and should be incorporated in the proposed rule." Another commenter, LeBoeuf, Lamb, Leiby & MacRae, was critical of this provision in Commissioner Asselstine's version, because it provided only a very limited recognition of the need for schedular exemptions. According to this commenter, Commissioner Asselstine's § 50.12(a)(2)(iv) is limited to "compliance issues" "raised late in the licensing review," which the commenter characterized as "undefined and ambiguous terms." Finally, the commenter noted that Commissioner Asselstine's finding would be conditioned upon "good faith efforts." The commenter did not feel that any of these limitations had any apparent relationship to the public health and safety, but "appear simply to be roadblocks to the timely issuance of operating licenses." A third commenter, Isham, Lincoln & Beale, stated that

§ 50.12(a)(2)(iv) of Commissioner Asselstine's version recognizes a real and substantial problem often faced by licensees. However, this commenter believed that the solution to the problem is to recognize that a compliance issue raised relatively late in the NRC license review process may result in undue hardship and excessive cost. The implications of this comment would seem to be that compliance issues raised late in the licensing review could be addressed under the special circumstance of "undue hardship or excessive cost."

The Commission does not see the need to include § 50.12(a)(2)(iv) of Commissioner Asselstine's proposal in the special circumstances criteria of the final rule. Proposed § 50.12(a)(2)(vi) (redesignated as § 50.12(a)(2)(v) in the final rule), which establishes a special circumstance for cases where the exemption would provide only temporary relief from the applicable regulation, adequately covers these situations. Alternatively, the Commission agrees with the commenter who suggested that such situations might also be covered by the special circumstance for undue hardship or excessive cost.

Two commenters, Bishop, Liberman, Cook, Purcell & Reynolds, and Northeast Utilities, addressed the possibility of including such factors as compliance with plant performance design objectives established in safety goals or in the integrated plant safety review concept as special circumstances. Specifically, Northeast Utilities recommended that the following text be included as § 50.12(a)(2)(viii)—

It is demonstrated to the satisfaction of the Commission through an integrated plant safety review that compliance with the regulation should not be required for the particular facility.

The commenter suggested that the Commission's Integrated Safety Assessment Program (ISAP) would support such a special circumstance. The commenter cited the Commission Paper on ISAP indicating that following the review of existing regulatory requirements at a particular plant, "the subsequent integrated assessment process would likely cause some of the deferred NRC requirements to be modified or deleted on a plant-specific basis." U.S. Nuclear Regulatory Commission, "Integrated Safety Assessment Program," SECY-84-133 (March 23, 1984)<sup>4</sup>. The commenter

implied that these modifications or deletions would be accomplished through the Commission's exemption process.

The commenter also noted that a similar special circumstance could be established for the safety goal concept. Bishop, Liberman, Cook, Purcell & Reynolds elaborated on this idea by suggesting that a plant-specific exemption could be justified based on a quantitative assessment of overall power plant design and the potential risks to public health and safety. As an example, the commenter offered the situation where an assessment of plant design may demonstrate that regulatory compliance is unnecessary to satisfactorily protect public health and safety from undue risk. This conclusion could be based upon a showing that there would be no undue risk, because the risk of reactor core damage as a result of a particular noncompliance will not exceed the plant performance design objectives established in safety goals.

The Commission recognizes that implementation of a safety goal program, and the ISAP program, may demonstrate compliance with the "no undue risk" portion of the exemption equation. The Commission would also note that ISAP is still at the pilot-program stage, and that the Commission has not yet established the final safety goal implementation program. In regard to ISAP, the Commission believes that, at this stage of the process, it is more appropriate to implement the results of the ISAP program within the specific framework of ISAP, rather than through the Commission's general exemptions policy. Any adjustments necessary to ISAP to reflect the revision of the Commission's exemption policy will have to be considered in the context of that program. In regard to the safety goal, the Commission has noted that the safety goals are a supplement to, but do not supplant, the regulations. Therefore, although the safety goals can assist in the review of exemption requests, they should not, in and of themselves constitute a special circumstance.

Two industry commenters, Northeast Utilities and Bishop, Liberman, Cook, Purcell & Reynolds, urged the Commission to include a provision in the specific situations of proposed § 50.12(a)(2) for an exemption where generic regulations impose a backfit that is not justified on a plant-specific basis. The rationale for this proposal is that although a new regulation may be justified under the Commission's backfit procedures on a generic basis, there may be individual plants where the backfit standard is not met. These plants should

<sup>4</sup> Documents referenced in this notice are available for inspection or copying for a fee at the NRC's Public Document Room at 1717 H Street, NW., Washington, DC.

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be entitled to an exemption from the applicable regulation.

The Commission does not believe that it is appropriate or advisable to establish a special circumstance specifically directed at the backfit standard. The Commission has addressed this issue in the final rule on backfitting, 50 FR 38097, 38101, September 20, 1985, and further discussion here is unnecessary.

### *E. Temporary Noncompliances*

Virtually all of the industry commenters objected to the Commission's intention to end the practice of granting temporary noncompliances for near-term operating plants. As noted in the Supplementary Information to the proposed rule, for a typical power reactor under operating license review, the NRC staff normally would recognize that while the plant was ready for low power operation, power ascension or even initial full power operation, the plant might not fully comply with each and every NRC regulation. In these circumstances, "noncompliances" were typically dealt with by license conditions requiring compliance before proceeding to a particular power level or by a particular time. The effect on safety of such "temporary noncompliances" was evaluated by the staff and discussed in the staff safety evaluation report. In situations where the noncompliance would be corrected in a relatively short time and did not prevent a finding of adequate safety, the staff would condition the operating license so that the requirements must be met at a later time or before a particular power plant level was reached. However, the staff did not expressly consider or grant an exemption under § 50.12(a) for these temporary noncompliances. In the Supplementary Information to the proposed rule, the Commission noted its intent to eliminate the practice of allowing a licensee to defer compliance without expressly granting an exemption under § 50.12(a).

The industry comments on this proposal can best be summarized in the following excerpt from the Bishop, Liberman, Cook, Purcell & Reyonlds comment letter—

There is no particular language in the proposed rule, however, which would specifically mandate this change in practice. Moreover, as a practical matter, we do not believe the change is necessary or desirable. Where compliance with a regulation for low power operation makes no technical sense, or presents no undue risk, an exemption request should not be necessary. A certain amount of flexibility should be assumed in the regulations, i.e., compliance should not be

required for a level of operation for which the regulation has no effect or serves no purpose. The traditional license condition approach avoids unnecessary exemption paper work and prevents potential licensing delays which could result from non-compliances which are a relatively normal part of the evolution of the plant. Moreover, because the Staff has used the "no undue risk" in establishing acceptable license conditions, the license conditions provide the same level of public protection as would exemptions.

Duke Power offered its experience in the licensing of its Catawba 1 Unit to illustrate the potential problems of requiring all temporary noncompliances to be evaluated under the exemption criteria rather than being dealt with as license conditions. Duke Power asserted that the approach used in Catawba, of requiring a specific exemption from each regulatory provision for which compliance was lacking, did not make technical sense and delayed fuel load for approximately two weeks.

The industry commenters questioned why the Commission did not even mention that the practice of granting "temporary noncompliances" has explicit regulatory support in 10 CFR 50.57(b). This regulation provides that—

[e]ach operating license will include appropriate provisions with respect to any uncompleted items of construction and such limitations and conditions as are required to assure that operation during the period of completion of such items will not endanger public health and safety.

The Atomic Industrial Forum asserted that nothing in the proposed rule modifies § 50.57(b), and the AIF interprets the proposed rule as permitting the staff to proceed under § 50.57(b) without the need to obtain a § 50.12(a) exemption.

The Commission's rationale for ending the past practice of granting temporary noncompliances through license conditions is twofold—to ensure that all exemptions from the regulations are formally and systematically evaluated and documented, and to ensure that relief from the regulations is based on clear regulatory authority. Contrary to what has been suggested by the commenters, the Commission has not relied on 10 CFR 50.57(b) in issuing "noncompliances," and in fact, the regulatory authority for this practice had been unspecified. In contrast, the use of § 50.12(a), in all cases where compliance with the regulations cannot be had, will provide clear regulatory authority for exemption relief. Although the literal wording of § 50.57(b), read apart from the other provisions of 10 CFR 50.57, would seem to support the commenters' interpretation, the Commission has not used § 50.57(b) in this manner, and the

history of the provision and its relationship to the other parts of 10 CFR 50.57, would indicate that it cannot be used in the manner suggested by the commenters. The predecessor to the current § 50.57(b) was the provisional operating license provisions originally promulgated as 10 CFR 50.57 (a) through (e), establishing the criteria and procedures for the issuance of a provisional operating license. 25 FR 8712, Sept. 9, 1960. The provisional operating license was established to allow an orderly and expeditious transition from a construction permit to an operating license in cases where—

- The evidence would not support a finding of completion of construction, or
- Where it was desirable to obtain further experience before issuing the full operating license.

Specifically, the provisional operating license was used to allow fuel loading and low power testing to take place before the issuance of the full operating license. In order to ensure that the public health and safety were protected during the term of the provisional operating license, § 50.57(c), the corresponding provision to § 50.57(b) in the existing rule, authorized the Commission to include in the provisional operating license—

... Appropriate provisions with respect to any uncompleted items of construction or other matters covered by provisional findings.

These provisional findings, set forth in § 50.57(a) addressed the following issues—

- Construction of the facility has proceeded and there is reasonable assurance that the facility will be completed in conformity with the construction permit and the Commission's regulations.
- Reasonable assurance exists that activities authorized by the provisional operating license can be conducted without endangering public health and safety and that such activities can be conducted in compliance with the regulations.
- The applicant is technically and financially qualified.
- Proof of financial protection was furnished.
- There is reasonable assurance that the facility will be ready for initial loading with nuclear fuel within 90 days from the date of issuance of the provisional operating license.

In 1970, § 50.57 was amended to eliminate the provisional operating license, to establish the standards for the issuance of a full-term operating license currently in § 50.57(a), and to provide for the imposition of license



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conditions currently in § 50.57(b). 35 FR 5317, March 31, 1970. In promulgating this rule, the Commission stated that the requirements for the issuance of a full operating license were "largely the same" as those which had been required for a provisional operating license. Because the findings were largely the same, the Commission did not believe that there was a need for a provisional operating license. Significantly, although utility commenters on the proposed rule had requested the Commission to state that the provisional operating license and full operating license requirements were the same, the Commission did not agree with the industry interpretation. One respect in which the standards are different is that for the issuance of a full operating license, § 50.57(a) now requires that "construction of the facility has been substantially completed", rather than the provisional operating license finding that "construction of the facility has proceeded, and there is reasonable assurance that the facility will be completed." In promulgating the new rule, the Commission also retained the provision which authorized the Commission to include appropriate provisions in the operating license with respect to any uncompleted items of construction to assure that operation during the period of the completion of such items will not endanger public health and safety. The Commission was merely retaining a provision, similar to that in the provisional operating license procedures, which would allow the imposition of conditions on the full operating license for any uncompleted items of construction. However, all of the findings of § 50.57(a) must have been made, including substantial completion of construction, before § 50.57(b) would be applicable. The provisions of § 50.57(b) must be read in conjunction with the provisions of § 50.57(a). Finally, shortly after the promulgation of the current §§ 50.57(a) and 50.57(b), the Commission promulgated the present version of § 50.57(c) to allow for low power operation. 36 FR 888, May 14, 1971. The interpretation urged by the commenters, would also not be consistent with the promulgation of § 50.57(c).

In order to use an approach consistent with existing regulatory authority, and to ensure a documented and systematic consideration of exemption requests, the Commission will permit temporary noncompliance if appropriate under §§ 50.12(a) or 50.57(b). Any schedular exemptions for near-term operating licenses must be accompanied by the formal findings required by 10 CFR 50.12(a). However, for these near-term

operating licenses, the Commission will continue to provide schedular relief under 10 CFR 50.57(b) through temporary noncompliances for any uncompleted construction activities remaining, provided that the Commission can find, pursuant to 10 CFR 50.57(a), that construction is substantially complete.<sup>5</sup> This is within the scope and intent of 10 CFR 50.57(b). Both the schedular exemptions and the schedular relief for near-term operating licenses will be documented by license conditions and addressed in the Safety Evaluation Report. No revision of the regulatory text has been made to implement these changes because the Commission is merely affirming what is required by the existing regulations. Finally, the Commission would note that it is not unsympathetic to the need of flexibility in applying its regulations at lower power levels. The Commission staff is currently evaluating a rulemaking that would provide for such flexibility.

### *F. Relationship to Other Commission Regulatory Actions*

Stone & Webster Engineering Corporation noted that a large number of Commission regulations are "criteria oriented without specifying a means to accomplish the underlying intent of the regulation." The commenter requested that the Commission not interpret the exemption rule to require exemptions when a "... non-standard method is used as an alternative means of compliance other than that specified in guidance documents." On a related issue, Duke Power and Isham, Lincoln & Beale, specifically addressed the issue of regulatory guidance. Both commenters criticized the staff practice of requiring a license applicant to request exemptions from NRC "requirements" contained in the Standard Review Plan, regulatory guides, or other guidance documents. Isham, Lincoln & Beale believed this to be an inappropriate and unnecessary use of the exemption requirements because the failure to meet these "requirements" often is a result of a change in NRC staff interpretation and not a change in the underlying regulation.

The Commission recognizes that some Commission regulations are broadly framed and susceptible of various

methods of compliance. Compliance with the regulations is guided by the use of regulatory guides, branch technical positions, and the standard review plan. Such guidance, however, does not have the force and effect of a regulation. The Commission also recognizes that acceptable methods of compliance may change over time based on staff and licensee experience. If what Stone & Webster referred to as a "non-standard" alternative method of compliance is outside the scope of previous interpretations on acceptable methods of compliance, or the method currently acceptable to the staff, an exemption from the regulation may or may not be required. Under the existing regulatory framework, an applicant or licensee may demonstrate that an alternative method of satisfying the regulation is acceptable. Failing such a demonstration, an exemption would be necessary. The revisions to the exemption provisions which are the subject to this rulemaking would not change this regulatory framework.

Stone & Webster Engineering stated that the proposed rule only applies to 10 CFR Part 50 and also noted that an Appeal Board decision in the Shoreham proceeding held that an exemption request to 10 CFR Part 50 did not constitute an exemption request to 10 CFR Part 73. In the *Matter of Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-800, 21 NRC 386 (February 21, 1985). This commenter recommended that the Commission consider the need for "similar and consistent language throughout its regulations." In response, the Commission agrees that exemptions from the provisions of each part of the regulations must be evaluated and granted under the exemption provisions contained in that part. Therefore, a request for a Part 73 or a Part 20 exemption would have to be evaluated under § 73.5 or § 20.501, respectively. The Commission has considered the need to revise other parts of its regulations to correspond to the criteria in § 50.12(a). Because the majority of exemption situations arise in the context of the 10 CFR Part 50 requirements, the Commission has determined that revisions to other parts of the regulations are not necessary at this time.

On a related point, the relationship between the general exemption criteria in § 50.12(a) and other provisions in Part 50 that contain specific exemption criteria or alternative methods of compliance, the Commission would emphasize that § 50.12(a) is the exemption provision that applies

<sup>5</sup> A schedular exemption is granted under § 50.12(a) for those items of temporary noncompliance which would prevent the NRC from finding that construction is substantially complete under § 50.57(a). Schedular relief is granted under § 50.57(b) for those minor items of temporary noncompliance remaining after the NRC has made a finding that construction is substantially complete under § 50.57(a).

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generally to the provisions of 10 CFR Part 50. If another regulation in Part 50 provides for specific exemption relief, or for alternative methods of compliance, the criteria of the specific regulation are the appropriate considerations. If the exemption criteria in the specific regulation are met, the rule has been complied with, and no exemption under § 50.12(a) is necessary. It is only in those cases where the specific exemption or alternative compliance criteria cannot be satisfied, that the application of the general criteria in § 50.12(a) will be appropriate. If the specific exemption criteria, or the alternative methods of compliance, can be satisfied, there is no need to also satisfy the criteria of § 50.12(a).

The AIF requested clarification on the relationship of the proposed rule to the Sholly amendment process, and to the "living schedule" concept. Public Service Gas & Electric also requested information relevant to the Sholly process. Georgia Power requested clarification on the relationship of the exemptions rule to requirements, which the commenter characterized as licensee "commitments", often made by a licensee to perform a particular activity, such as modification of facilities during a particular period or prior to a particular date.

The final rule applies solely to exemptions from the Commission's regulations. It does not apply to relief from license conditions or amendments, technical specifications, or other licensee "commitments." The "living schedule" involves the application of a plant-specific license requirement, and therefore, is not covered by the exemptions rule.

### G. Policy Statement Versus Rule

GPU Nuclear suggested that the Commission, as an alternative to the proposed rule, may want to issue a policy statement that provides guidance on interpretation of the "public interest" standard. In issuing the proposed rule, the Commission did consider the use of a Policy Statement to clarify the exemption process. The Commission rejected this approach, believing that rulemaking would be the more appropriate approach for formalizing the exemption process.

### IV. The Final Rule

Section 50.12(a)(1). Section 50.12(a)(1) of the final rule authorizes the Commission to grant exemptions which—

are authorized by law, will not present an undue risk to the public health and safety,

and are consistent with the common defense and security.

As in the existing rule, an exemption must be "authorized by law." Apart from the very fact of granting the exemption relief itself, the granting of the exemption cannot be in violation of other applicable laws, such as the Atomic Energy Act or the National Environmental Policy Act.

In a departure from the text of the existing rule, the final rule requires a finding that the exemption will not "present an undue risk to the public health and safety" and would be "consistent with the common defense and security." These standards provide an explicit recognition of traditional staff practice in evaluating the safety implications of a particular exemption. As noted above, it is anticipated that the evaluation of "no undue risk" will consider such factors as the type of plant operation contemplated (fuel loading, low power testing, power ascension, or full power operation), the length of time that the exemption would be in effect, the existence of alternative means of compliance or compensatory measures, and other safety factors. The Commission believes that the "not endanger" language in the current rule was never intended to embody any special standards for exemptions that differed from the statutory standards that licensing must provide adequate protection to the health and safety of the public and be in accord with the common defense and security. The "no undue risk" standard of the final rule is a refinement of the statutory standard that reflects current staff practice in the exemptions area.

As discussed earlier, the "public interest" standard of the proposed rule has been deleted.

Section 50.12(a)(2). Section 50.12(a)(2) of the final rule provides that the Commission will not consider granting an exemption unless special circumstances are present. Special circumstances are present whenever—

(i) Application of the regulation in the particular circumstances would be in conflict with other rules or requirements of the Commission; or

(ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or

(iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated;

(iv) The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption; or

(v) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation; or

(vi) There is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption.

These circumstances represent situations in which the Commission believes it would be reasonable to grant an exemption, provided that the general standards of § 50.12(a)(1) are also met. The circumstances were selected on the basis of exemption criteria that have been noted by the courts with approval (hardship, equity, more effective implementation of overall policy, circumstances substantially different from those considered in the rulemaking proceeding) and on the basis of examples from past Commission exemption practice where the circumstances underlying the exemption appeared to be relevant and appropriate for exemption relief. The Commission's objective in adding 50.12(a)(2) is to impose limits on the type of exemption requests that can be granted, and thereby reaffirm and strengthen the existing NRC policy and practice of evaluating and granting exemptions in a judicious and discriminating manner.

Section 50.12(a)(2)(i) would address those situations where application of a regulation in a particular circumstance would be in conflict with other rules or requirements of the Commission. This provision is designed for those situations where an applicant or licensee would be in the anomalous position of satisfying two or more conflicting requirements.

Section 50.12(a)(2)(ii) would address those situations where application of the regulations in the particular circumstance is not necessary to achieve, or would not serve, the underlying purpose of the rule. This would include those situations considered in requests for exemptions under 10 CFR 2.758(b), where circumstances peculiar to that case, as opposed to any alleged generic inadequacy of the regulation, may result in the frustration of the underlying purpose of the rule. For example, *see, In the Matter of Pacific Gas and Electric Company* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-653, 16 NRC 55 (1981); *In the Matter of Metropolitan Edison Company* (Three

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Mile Island Nuclear Station, Unit No. 1), CLI-80-16, 11 NRC 874 (1980); *In the Matter of Duke Power Company* (Catawba Nuclear Station, Units 1 and 2), CLI-75-9, 2 NRC 180 (1975). It must be understood here that the underlying purpose of the rule should be something more specific than achieving adequate safety protection. Otherwise all of the safety requirements in 10 CFR Part 50 become subject to open litigation, and the exemption process becomes open ended. Rather, the specific objective of the regulation must be ascertained from the rule itself or the underlying rulemaking proceeding (for example, the specific purpose of 10 CFR § 50.46 would be assuring a coolable core during and after postulated loss-of-coolant accidents).

Section 50.12(a)(2)(iii) addresses those situations where compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated. This is intended to provide equitable treatment to applicants or licensees who, because of some unusual circumstance, are affected in a manner different than that of other similarly situated licensees or applicants. For example, see *In the Matter of Duke Power Company* (Catawba Nuclear Station, Units 1 and 2), CLI-75-9, 2 NRC 180 (1975).

Section 50.12(a)(2)(iv) would address situations where the exemption would result in benefit to health and safety that compensates for any decrease in safety that may result from the grant of the exemption.

Section 50.12(a)(2)(v) establishes a condition where the exemption would provide only temporary relief from the applicable regulation. This would cover the so-called "scheduler" exemptions where the relief sought is limited to a specific amount of time or until a specific event occurs.

The applicant's good faith efforts to comply with the required schedule would be one of the factors considered in determining whether this special circumstance exists.

Section 50.12(a)(2)(vi) establishes a category of any other material circumstances not considered when the regulation was adopted. Although the Commission believes that the conditions in §§ 50.12(a)(2)(i) through 50.12(a)(2)(v) will cover most requests in which an exemption could reasonably be granted, § 50.12(a)(2)(vi) recognizes that there may be circumstances, which could not have been foreseen in developing the conditions in § 50.12(a)(2)(i) through

50.12(a)(2)(v), in which it would be equitable to provide relief from the regulations. In these cases, after documentation of the material circumstances not considered when the regulation was adopted, a determination that the exemption would be in the public interest, and meeting the general criteria, including "no undue risk, in § 50.12(a)(1), an exemption could issue. However, this provision would also require the Executive Director for Operations to consult with the Commission before the exemption could be granted.

The Commission notes that because the criteria in § 50.12(a)(2) will now include consideration of hardships or unusual difficulties, as well as the level of safety, it is deleting the provision from existing § 50.12(a) on additional requirements for exemptions from the fracture toughness requirements of 10 CFR Part 50, Appendices G and H. A corresponding deletion has been made to 10 CFR 50.60(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 significantly affecting the quality of the human environment. Therefore the Commission has determined that it will not prepare an environmental impact statement for this action. The final rule modifies that criteria and procedures for the consideration of exemption requests under 10 CFR Part 50. The adoption of such criteria and procedures does not have an environmental impact in and of itself. The potential environmental impact of a specific exemption will be evaluated, as appropriate, in the context of the specific request for an exemption. The environmental assessment and finding of no significant impact on which this determination is based have been incorporated into the regulatory analysis for this rulemaking. The availability of the regulatory analysis/environmental assessment is noted under *Regulatory Analysis, infra*. No other related environmental documents are relevant to this determination.

### Paperwork Reduction Act

This final rule does not contain a new or amended information collection requirement subject to 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 final rule. The analysis examines the costs and benefits of the alternatives, as well as the environmental assessment, considered by the Commission. 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: F.X. Cameron, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-8689.

### 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 upon a substantial number of small entities. The final rule primarily affects commercial power reactor licensees and license applicants, none of whom constitute a "small entity."

### 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.

51 FR 6514  
Published 2/25/86  
Effective 3/27/86

### 10 CFR Part 50

#### Limiting the Use of Highly Enriched Uranium in Domestically Licensed Research and Test Reactors

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to limit the use of highly enriched uranium (HEU) fuel in domestically licensed research and test reactors (non-power reactors). The amendments generally would require that newly licensed non-power reactors use low enriched uranium (LEU) fuel and, contingent on Federal Government funding for conversion-related costs, that licensees of existing non-power reactors replace HEU fuel with LEU fuel.

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acceptable to the Commission. The amendments are intended to promote the common defense and security by reducing the risk of theft or diversion of HEU fuel used in non-power reactors and the consequences to public health, safety and the environment from such theft or diversion. The reduction in use of HEU should encourage similar action by foreign operators of non-power reactors and, thereby, reduce the amount of HEU fuel in international use.

**EFFECTIVE DATE:** March 27, 1986.

**FOR FURTHER INFORMATION CONTACT:** F. P. Gillespie, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 443-7906.

### **SUPPLEMENTARY INFORMATION:**

#### **Contents**

- I. Background
- II. Response to Public Comments on the Proposed Rule
- III. Revisions to the Proposed Rule

#### **I. Background**

On July 6, 1984 (49 FR 27769), the Commission published a proposed rule which would implement Commission policy (expressed in 47 FR 37007, dated August 24, 1982) to reduce, to the maximum extent possible, the use of highly enriched uranium (HEU) in domestic and foreign research and test reactors (non-power reactors). The proposed rule was intended to implement this policy by generally requiring newly licensed non-power reactors to use low enriched uranium (LEU) fuel and licensees of existing non-power reactors to replace HEU fuel with LEU fuel when available. Use of LEU fuel rather than HEU fuel reduces the possibility that fuel from non-power reactors would be diverted or stolen for the ultimate purpose of making "Weapons-usable" material.

In the supplementary information accompanying the publication of the proposed rule, the Commission acknowledged its concerns about the costs of conversion to its licensees, including costs attendant to the licensing process. The Commission, therefore, invited comments on (1) the extent that economics of conversions should influence its actions and (2) the approach of using "generic envelopes" of safety limits (explained below) and limiting conditions of operation to facilitate conversion safety reviews. Both of these issues were addressed in many comment letters, and the final rule includes provisions which the Commission believes respond in a reasonable and prudent manner to the legitimate concerns about these subjects.

#### **II. Responses to Public Comments on the Proposed Rule**

Over 150 comment letters were received from members of Congress, public interest groups, members of the research and test reactor community, special interest groups, the Departments of Energy (DOE) and State, the Arms Control and Disarmament Agency, and individual members of the public. The extensive comments on this proposal were separated into nine categories. (1) International Significance of NRC-Mandated Conversion; (2) Value/Impacts of Proposed Conversion; (3) Technical Feasibility and Safety Issues; (4) Licensing Issues Attendant to Conversion; (5) Funding for Proposed Conversions; (6) Risk of Theft or Diversion of HEU Fuel; (7) Evaluation of the Threat of Theft or Diversion of HEU—Adequacy of Security; (8) Implementation Options and Alternatives; and (9) Miscellaneous Comments.

Three categories of comments were most relevant to the underlying basis for the changes incorporated into the final rule. These were Category 4—Licensing Issues Attendant to Conversion; Category 5—Funding for Proposed Conversions; and Category 8—Implementation Options and Alternatives. Two other categories were considered to be most relevant to the decision to promulgate final rule. These were Category 1—International Significance of NRC-Mandated Conversions and Category 6—Risk of Theft or Diversion of HEU Fuel. The Commission's positions on the topics addressed in these five categories of comments are summarized below. Copies of all public comments and the complete Commission staff responses are available for inspection and copying for a fee at the NRC Public Document Room, 1717 H Street NW, Washington, DC 20555. Single copies are available without charge from the contact person.

#### *Funding for Proposed Conversions*

In publishing the proposed rule for public comments, the Commission indicated in the Supplementary information section that it shares the licensees' expressed views that conversion costs should largely or entirely be financed by the Federal Government. Currently, the Federal Government, through the DOE, is providing funding for the Reduced Enrichment for Research and Test Reactor (RERTR) and other fuel research programs. The objective of these programs is to develop and demonstrate non-power reactor fuels which can be operated safely and will allow substitution of LEU for HEU fuel in such reactors. These programs have been successful to date, and their continued success is expected to result in technological developments which could lead to a significant reduction of HEU

inventories both in the United States and abroad.

It was recognized that additional operational and support costs associated with physical replacement of HEU fuel with LEU fuel would be incurred in the domestic conversion of licensed facilities. A number of commenters stated that the NRC statement on costs did not constitute a firm commitment for funding expensive fuel changes and did not specify what costs would or would not be covered. Cost of transportation (both of new and old fuel), costs caused by the differences in fuel cycles for LEU and HEU fuels, and costs associated with insurance, disposal, licensing support and potential litigation were specifically identified by commenters. It was also pointed out that the proposed rule did not establish a vital link between Federal funding and implementation, that is, it did not make clear whether or not implementation could be delayed if Federal funding did not materialize. One comment letter discussed the apparently conflicting views of NRC and DOE on conversion funding, especially for "lifetime cores," and questioned Congressional willingness to provide funding. Resolution of the funding question was considered necessary before issuance of a final rule.

Many commenters supporting the proposed rule implied that economics should not be used as a reason to avoid the changeover. Comments from two members of Congress indicated their belief that Congress would continue to provide funding for development of reduced enrichment fuels and would defray the cost of their use in university research reactors. Others also stated their belief that funding for conversion would be provided by Congress.

After reviewing these comments, the Commission is of the view that conversion costs of *all* domestic non-power reactors directed to convert should be financed fully by the Federal Government. The domestic conversion actions it has proposed are based on the determination that the residual risks of theft or diversion of HEU fuel from non-power reactors could be further reduced in a cost/effective manner and that these actions are consistent with the U.S. policy of setting an example to encourage conversion by foreign users of HEU in non-power reactors. Full Federal financing would also permit the Commission to meet the dictates of section 104c. of the Atomic Energy Act of 1954, as amended. Such financing would allow the Commission to impose only the minimum amount of regulation on non-power reactor licensees to fulfill its obligations under this Act to promote the common defense and security and to protect the health and safety of the public and will permit the continued

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conduct of widespread and diverse research and development activities by these licensees.

As noted in the background material accompanying publication of the proposed rule, DOE historically has provided significant support to research and test reactor programs. In fact, fuel for university reactors is currently supplied and paid for by DOE (i.e., U.S. taxpayers) and "loaned" to the universities. It is anticipated that the funding necessary for conversion activities for both university and other licensees could be provided through DOE or another Federal agency. The Commission has requested that Congress appropriate the necessary funding to cover licensees' conversion-related costs.

To reflect its determinations and views with respect to the funding issue, the Commission has added the following features to the final rule. First, in the definitions in § 50.2, the Commission sets forth its views on elements to be considered in determining the Federal Government's obligations to provide funding for conversion-related activities. That funding could include, but is not necessarily limited or extend to (1) costs attendant to the procurement of LEU fuel; (2) costs attendant to "lost HEU fuel value" (i.e., residual value of HEU fuel being used by commercial licensees); (3) licensee cost attendant to operations necessary to replace HEU fuel with LEU fuel; (4) reasonable lost revenue costs attendant to (a) facility shutdowns necessary to accomplish the conversion process, and (b) the difference in fuel cycle costs, such as more frequent refueling resulting from the use of LEU fuel rather than HEU fuel; (5) costs attendant to both transportation of HEU fuel from and LEU fuel to the licensed facility undergoing conversion; (6) reasonable costs attendant to preparing analyses and presenting documentation required by the final rule or necessary to obtain NRC approval for the conversion process; and (7) reasonable costs associated with safeguarding HEU fuel being replaced in the process of conversion until it has been transferred to an appropriate facility. Final determination of conversion costs under the provisions of this rule and certification thereof to the Commission shall rest with the Department of Energy or other agency responsible for disbursing conversion funds, in consultation with the licensee.

Second, the paragraph on implementation, § 50.64(c), has been modified to require licensees to submit proposals for conversion which would include a certification from DOE or other appropriate Federal agency that Federal Government funding for

conversion is available. Only if the certification is obtained would a licensee be required to include a schedule for conversion in the required proposal. If Federal Government funding for conversion cannot be certified, the proposal's contents may be limited to a statement of this fact; however, the licensee would be required to resubmit a proposal for conversion at 12-month intervals thereafter, until certification is obtained. This provision applies to all non-power reactor licensees.

Finally, under the provisions of § 170.11(b)(1), the Commission hereby grants to non-power reactor licensees a one-time exemption from application fees, license fees, amendment fees, renewal fees, approval fees and inspection fees associated solely with the conversion processes required by § 50.64. Aside from inspection fees, the exemption for the other fees would apply to four commercial licensees affected by § 50.64 (the other facilities are already exempt under § 170.11(a) (4), (5), and (9)). The exemption of inspection fees would apply to 26 licensees, and is expected to be limited to any single non-routine safety inspection performed by NRC following a facility's conversion to assure that a licensee is complying with its stated or approved conversion plans and operations.

Through these provisions, the Commission believes that the costs of conversion to its licensees can be virtually eliminated.

### *Implementation Options and Alternatives*

A large fraction of the comment letters focused on the implementation features of the proposed rule. Two views held by commenters supporting the proposed rule were that a specific deadline should be imposed on conversion actions and that the conversion exemptions, under the proposed rule's unique purpose provisions, should be eliminated or tightened. In counter-point, several commenters stated that, since it is at present uncertain what fuel would be acceptable to the Commission, the issues of funding and for license amendments should be resolved before any final rule is issued.

As to the deadline issue, the Commission has determined that establishing a specific deadline for conversion actions is not generally justified. This is in keeping with the Commission's view that funding for conversions should be available, that HEU to LEU fuel conversion addresses the potential reduction of the residual risk posed by the use of HEU fuel at licensed non-power reactors and thus does not require a specific deadline, and

that domestic conversions are intended to be put on solid footing by setting a strong, resolute and sensible example, consistent with U.S. national policy, to encourage foreign operators of non-power reactors to convert to the use of LEU fuel. The Commission, however, does want to initiate the overall conversion process at the earliest possible date, and, therefore, has provided in § 50.64 for 12 months for the initial submission by affected licensees of their conversion proposals. To further assist licensees and the DOE, a definition of fuel acceptable to the Commission has been added to § 50.2. The Commission believes that, for several non-power reactors, fuels can be made available which would be capable of meeting this definition.

Turning to the issue of conversion exemptions which could be granted under the unique purpose provisions of the proposed rule, the Commission believes that these exemptions are needed under section 104c. of the Atomic Energy Act to permit the continued conduct of widespread and diverse research and development; however, the definition of unique purpose in § 50.2 has been expanded to define more precisely the nature and purpose of the experiment, program, or commercial activity necessitating the use of HEU fuel.

The funding issue has been addressed already and the amendment issue is discussed later with respect to § 50.64. The remaining issue in this subgroup of implementation options involves the question of licensing uncertainties (i.e., the possibility that licensees may become involved in protracted adjudicatory hearings as a result of their conversion activities). This issue is addressed in the following section.

### *Licensing Issues Attendant to Conversion*

In the supplementary information section of the proposed rule, the Commission stated that it is considering the development of "generic envelopes" of safety limits for several types of non-power reactors. The Commission believed that these envelopes could be developed by (1) defining the licensing needs for various classes of reactors (e.g., for both normal operating conditions and potential accident scenarios); (2) reviewing the domestic and foreign data available through the RERTR and other fuel development and demonstration programs; and (3) assessing the feasibility of generic safety evaluation of safety analysis reports. The development of these generic envelopes could facilitate safety reviews attendant to the HEU/LEU fuel conversion process. Comments were invited on this approach and many were

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received from both supporters and opponents of the proposed rule. These comments can be divided into two general classes.

One class argued that conversion would require, in almost all cases, either a reactor "relicensing" (or new operating license) or a licensing amendment. The possibility of implementing conversion under § 50.59 without amendment was generally considered unrealistic. Concerns were expressed that this "relicensing" or license amendment process could lead to extensive licensing hearings brought about by intervenors and that costs related to such hearings could exceed the hardware costs of conversion. Some of these commenters cited the recent shutdown of the UCLA reactors as a pertinent example. Many commenters, including several involved with the operation of non-power reactors at universities, indicated that they could not afford to engage in litigation against determined opponents and that even the perception of uncertainties about such litigation could influence decisions on continued reactor operation.

Following this line of argument, a few commenters recommended that the NRC undertake a rulemaking proceeding on the issue of generic licensing and that any changeover be contingent on a finding that safe operation of a non-power reactor would not be affected significantly by a conversion from HEU to LEU fuel. It was also suggested that the requirement in the proposed rule regarding the acquisition (or fabrication) of additional HEU fuel should be contingent on completion of the license changes necessary to accommodate use of LEU fuel. The potential need for the rule to provide, in any conversion process, for stepwise refueling to keep the reactor within present 10 CFR Part 73 requirements was also identified.

The other class of comments presented an opposite viewpoint, arguing that, even if conversion requires a license amendment, challengers can raise questions only on the narrowest of matters relevant to the subject of the amendment. Further, many commenters in this class opposed the idea of generic envelopes of safety limits for several types of non-power reactors, although some of them recognized the need for generic safety analysis of fuels. These commenters stated that if there are any questions about the safety of reactors due to conversion, the public should be allowed to address these safety questions in a public hearing. Others emphasized that safety margins should increase or remain equal to those currently approved by the NRC and that a license amendment should be required if margins are reduced. On the other hand, several commenters noted that

interventions against the amendments required to accomplish conversion would be unlikely but that, indeed, failure to convert could lead to intervention in license renewal and license amendment proceedings.

The Commission has decided to forego, at least for the near term, any "generic envelope" safety rulemaking. While this rule resolves all issues as to need for conversion to LEU, it does not provide any generic resolution for any safety issues that may arise, in individual cases, in connection with changes in the license, facility or procedures made necessary by the conversion to a different fuel type from HEU to LEU.

After receipt of a licensee proposal for implementation of the conversion to LEU, NRC staff will conduct an appropriate evaluation for both implementation of the rule and for assuring the protection of the public health and safety in connection with any licensee-proposed changes in the license, facility, and procedures made necessary by the conversion. After the NRC staff evaluation, an appropriate enforcement order will be issued directing both the conversion and any necessary changes in the license, facility and procedures. It is expected that in most cases, if not all, that enforcement order will be in the form of an order to modify the license under 10 CFR 2.204.

In the event that any interested person should, in accordance with section 189a. of the Atomic Energy Act, request a hearing on the enforcement order, NRC staff will participate fully in the proceeding and will have the burden of defending the order. Thus, in the event a hearing is requested, the licensee need not participate in the hearing and may therefore avoid litigative expenses associated with the conversion and hearing. The Commission believes that this NRC staff role is consistent with the general policy that the costs of conversion to LEU should, to the maximum practical extent, be borne by the Federal Government.

### *International Significance of NRC-Mandated Conversions*

The Commission's view on the international and nonproliferation significance of the proposed domestic conversions was reflected in the Policy Statement of August 1982 (47 FR 37007, dated August 24, 1982). The Commission discussed in this Statement its interest in reducing, to the maximum extent possible, the use of HEU in domestic research and test reactors and, thereby, encouraging conversion by foreign reactor operators. To assist in accomplishing this policy goal, the Commission made two commitments: First, to provide full support for DOE's RERTR program; and second, as part of

the policy to strongly encourage conversion by foreign operators, to take steps to encourage similar action by U.S. non-power reactor operators. Subsequently, the Commission considered the proposed rule to limit the use of HEU fuel in domestic non-power reactors as such a step.

As to international and nonproliferation implications, the State Department stated that the proposed action could have some marginal effect on future negotiations with foreign non-power reactor operators regarding the need and timing for converting their own reactors. It also suggested to the NRC that converting some reactors might impose an undue technical or economic penalty. The Commission has responded to this comment by closely coupling conversion to Federal Government funding of conversion-related activities. Through this action, the Commission believes it has brought the criteria for the domestic conversion program in line with the no undue economic penalty criterion suggested by the Executive Branch for foreign non-power reactor operators. The Commission also recognizes that the development and demonstration of acceptable LEU replacement fuel and the conversion of larger DOE facilities can have a significant influence on foreign non-power reactor operators.

The proposed rule implied that HEU fuel at all licensed non-power reactors, whether in a facility's inventory or in transit, has relatively equal proliferation significance. The State Department view is that no significant nonproliferation benefits are associated with conversion of "lifetime core" reactors, i.e., those reactors that were designed and built to operate over their entire life with the initial fuel load. Currently, 16 of 26 (originally 20 of 31) licensed facilities potentially affected by the final rule can be characterized as having lifetime cores. The Commission concludes that conversion of domestic non-power reactors will promote the common defense and security by reducing the risk of theft or diversion of HEU fuel at these reactors and the consequences to public health, safety and environment from such theft or diversion. Additionally, domestic conversions should generally encourage, in a symbolic way, conversions of foreign non-power reactors.

### *Risk of Theft or Diversion of HEU Fuel*

Although the proposed rule to limit the use of HEU in non-power reactors was based primarily on international policy and nonproliferation considerations, the comments necessitated a reexamination of the "values" and "impacts" associated with further reductions in the domestic risk of



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theft or diversion of HEU fuel from NRC-licensed non-power reactors. This reexamination is summarized here. The complete responses to public comments are available from the NRC Public Document Room, under the title, "Limiting the Use of Highly Enriched Uranium in Domestic Research and Test Reactors, Responses to Public Comments," July 22, 1985. As stated above and explained below, the Commission concludes that the final rule is based on domestic common defense and security and public health and safety considerations as well as on international and nonproliferation considerations.

In assessing the "value" of conversions in terms of residual risk reduction, the conservatisms in the current operating assumption of the likelihood of clandestine fission explosive (CFE) fabrication must be considered. Specifically, consideration must be given not only to the level of security provided, but also to: (1) The threat; (2) the ability of the intelligence community to give advance warning of a developing event or a planned malevolent act in sufficient time to implement additional countermeasures; (3) the deterrent value of irradiated fuel; (4) the length of time it would take to remove fresh or irradiated fuel from a facility (irradiated fuel would normally take longer); (5) the likelihood that an adversary would successfully process either fresh or irradiated fuel to obtain material which potentially could be used to construct a nuclear explosive device, and the time and resources required (processing of irradiated fuel is significantly more difficult); (6) the ability to find and retrieve nuclear material, if stolen (irradiated fuel would be easier to find); (7) the conservatism built into the 5-kilogram formula quantity for U-235—see generally §§ 73.1(a) and 73.2(bb) (the presence of fission products would increase the conservatism of this number); and (8) the likelihood that an adversary could successfully construct a nuclear explosive device (the presence of fission products would make this more difficult). All of these factors have an impact on the assessment of the likelihood that an adversary could construct a CFE through diversion or theft of HEU fuel from non-power reactors. To complete the evaluation of risk, the range of consequences has been considered in the event of a successful theft or diversion of any quantity of HEU fuel from licensed non-power reactors. The resultant reduction of risks can be balanced against the incurred costs. As explained above, the costs of conversion for all affected licensees includes a quantifiable component, currently estimated as \$12–16 million. In

addition, nonquantifiable costs have been identified, including any licensing cost associated with potential hearings and potential losses in functional capabilities at affected facilities. As discussed above, virtually all costs will be borne by the Federal Government. The Commission also believes, based on comments received on the proposed rule, that promulgation of this final rule will involve a benefit to licensees. The Commission's conclusion, based on the cost/benefit evaluation, is to proceed with promulgation of this final rule, in order to fulfill its obligations under the Atomic Energy Act to promote the common defense and security and to protect the health and safety of the public, as well as to permit the continued conduct of widespread and diverse research and development.

### III. Revisions to the Proposed Rule

#### 1. Section 50.2—Formerly § 50.64(h) of the Proposed Rule

This section has been expanded to include definitions of "Federal Government funding for conversion," "Fuel acceptable to the Commission," and several other definitions identified in § 50.64(b) of the proposed rule. These definitions have not been included in § 50.2 for easy and consistent reference. The first definition was necessary to couple conversion actions by licensees to the funds necessary to accomplish the conversion process. The second definition was needed to indicate that those non-power reactors meeting the unique purpose provision of the rule must use HEU fuel of enrichment as close to 20% as is available and acceptable to the Commission.

In addition, the unique purpose definition, stated in § 50.64(b)(5)(1) of the proposed rule, has been expanded to define more precisely the specific experiment, program or commercial activity that justifies continued use of HEU fuel. The change is also intended to limit consideration of activities to those having merit for research purposes, and not because they may have some economic benefit. The Commission itself will make the final decision on any conversion requirement based upon a finding of unique purpose.

#### Section 50.64(b)—Formerly § 50.64(c) of the Proposed Rule

The changes to § 50.64(c), now § 50.64(b), include minor word changes in § 50.64(b) (1) and (2) and two clarifications in § 50.64(b)(2). The proposed rule would not have allowed a licensee to acquire additional HEU fuel if LEU fuel acceptable to the Commission for that reactor were available. Since a few of the affected non-power reactors refuel frequently enough to require "lead times" for fuel

acquisition, the wording could have caused an unnecessary shutdown of these facilities until acceptable LEU fuel was available for use in the reactor. The background statement to the proposed rule indicated that the conversion schedule could include consideration of reactor usage which could apply to these situations. To clarify the final rule's intent, § 50.64(b)(2)(1) has been modified so that a licensee is required not to initiate acquisition of additional HEU fuel if LEU fuel acceptable to the Commission is available.

The change in § 50.64(b)(3) is intended to limit the scope of use of HEU fuel while allowing the use of fuel that is acceptable to the Commission but is slightly different from that needed to meet the strict definition of LEU weight percent of U-235. Such fuel might be required, in isolated instances, because of non-power reactor's core geometry and conditions for operation. However, the Commission wishes to see all licensees go to fuel as close to 20% enrichment as possible.

#### 4. Section 50.64(c)—Formerly § 50.64(d) of the Proposed Rule

The changes in § 50.64(c)(2)(i) and the inclusion of § 50.64(c)(2)(ii) have been made to couple implementation of the rule to the availability of Federal Government funding in order to cover the costs of conversion.

### 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 that, therefore, an environmental impact statement is not required. Basically, the rule places limitations on the use of HEU fuel in domestic research and test reactors. In so doing, the risk of theft or diversion of HEU will be reduced. Neither the safe operation, nor any routine release of radioactivity from the affected reactors will be changed in any significant manner. 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 F.P. Gillespie, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 443-7936.

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### Paperwork Reduction Act Statement

The 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 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 20555. Single copies of the analysis may be obtained from F.P. Gillespie, Office of Nuclear Regulatory Research, Nuclear Regulatory Commission, Washington, DC 20555, (301) 443-7936.

### 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. This rule affects nonpower reactor licensees that own and operate 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 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.

### Separate Views

Chairman Palladino supports Federal funding for all conversion. However, in the event that no Federal funds are provided, the view of Chairman Palladino is that no conversion should be required. The Chairman also believes that, in the event that Federal funds are provided for university reactors but not for commercial non-power reactors, then the latter should still be required to convert to LEU, notwithstanding the lack of Federal funds.

Commissioner Asselstine believes that the conversion of commercial non-power reactors should not be contingent upon federal funding. The Federal government historically has provided significant support to university research and test reactor programs. In fact, it was this longstanding relationship with the university non-power reactors, coupled with the concern on the part of the university reactor operators of excessive costs and protracted litigation, which led the Commission to support federal funding for conversion. There was never any discussion on the part of the Commission of how requiring conversions of the commercial non-power reactors would create a severe financial hardship for the commercial concerns. Commissioner Asselstine believes that if federal funds are not provided for the conversion of commercial non-power reactors, then the rule should require these licensees to convert to LEU notwithstanding the lack of federal funding. He believes that it is most unfortunate that the Commission has created a loophole in its rule whereby these commercial non-power reactors will never be required to convert to LEU if Federal funding is not provided.

Dated at Washington, DC this 20th day of February, 1986.

For the Nuclear Regulatory Commission,  
Samuel J. Chilk,  
Secretary of the Commission.

51 FR 7744  
Published 3/6/86  
Effective 5/5/86

*Final Procedures and Standards on No  
Significant Hazards Considerations*

See Part 2 Statements of Consideration

51 FR 12502  
Published 4/11/86  
Effective 5/12/86

### 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 modifying General Design Criterion 4 (GDC-4) of Appendix A, 10 CFR Part 50 to allow use of leak-before-break technology for excluding from the design basis the dynamic effects of postulated ruptures in primary coolant loop piping in pressurized water reactors (PWRs). The

new technology reflects an engineering advance which allows simultaneously an increase in safety, reduced worker radiation exposures and lower construction and maintenance costs. Implementation will permit the removal of pipe whip restraints and jet impingement barriers as well as other related changes in operating plants, plants under construction and future plant designs. Containment design, emergency core cooling and environmental qualification requirements are not influenced by this modification.

**EFFECTIVE DATE:** May 12, 1986.

**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:** On July 1, 1985, the Commission published a proposed amendment to General Design Criterion 4 of Appendix A, 10 CFR Part 50 relating to dynamic effects resulting from postulated pipe ruptures in primary coolant loop piping in pressurized water reactors. (50 FR 27006) The proposed rule was based on investigations performed by industry and by the NRC as well as the staff findings in the resolution of Unresolved Safety Issue (USI) A-2. Future rulemaking was discussed in which application of the new technical approach would be extended to all reactor piping in all reactor types at some later date provided adequate technical justification can be supplied for each new application. The new technical approach depends on advanced fracture mechanics and includes investigations of potential indirect failure mechanisms which could lead to pipe rupture. Acceptable technical procedures and criteria are defined at length in NUREG-1061, Volume 3, dated November 1984, and entitled "Report of the U.S. Nuclear Regulatory Commission Piping Review Committee, Evaluation of Potential for Pipe Breaks."

The proposed rule permitted a 60-day comment period. Twenty-four written comments were received from utilities, reactor vendors, architect-engineering firms, an intervenor, and industry groups representing as many as twenty-six utilities. Twenty-three of the written comments endorsed either the rule or the intent of the rule. The intervenor, alleging erroneous leak rate estimations,

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opposed the rule. A compilation of the seven issues raised as a result of public comment, the accompanying Commission response and one additional issue raised as a result of oral comments made during an ACRS subcommittee meeting on May 23, 1985 follow:

**Issue 1.** The rule should be expanded to include piping in PWRs other than the primary coolant loop piping, and in addition, should cover piping in boiling water reactors (BWRs).

**Commission Response:** The Commission plans to publish in 1986 a broader proposed amendment to GDC-4 which would include all piping in all light water reactors (LWRs), as well as piping in gas and metal cooled reactors. The two-step approach was adopted because safety and economic benefits could immediately be obtained by an amendment limited to the primary coolant loops of PWRs. Sufficient technical information had been developed to justify application of leak-before-break technology to PWR primary coolant loop piping, and the decision was made to prepare a limited scope rule addressing the case which could be defended by the existing evidence.

**Issue 2.** The supplementary information to the rule should state that the amendment permits redesign of PWR primary coolant loop heavy component supports to reflect the exclusion of dynamic effects resulting from postulated pipe ruptures in primary coolant loops of PWRs.

**Commission Response:** This comment is accepted. The first sentence of the Scope of Rulemaking section in the proposed rule stated that (among other things) the dynamic effects of pipe rupture include "pipe break reaction forces". Because heavy components support design is determined, in part, by the imposed reaction forces, the elimination of postulated pipe rupture dynamic effects thus allows for a redesign of these supports. Supports, of course, must be able to withstand all remaining loads, including those due to the safe shutdown earthquake, with an acceptable margin of safety.

The Scope of Rulemaking section in the proposed rule also stated that:

Current design margins in the primary coolant loop heavy component supports are to be maintained. Existing heavy components supports designed for the dynamic effects of pipe ruptures and seismic events are not affected. New plants will be designed with supports which have margins comparable and equivalent to those margins now present.

The intent of these three statements was to insure that component supports would still be designed with a margin of

safety. The second sentence inadvertently became a discussion of the supports themselves rather than margins associated with the supports. The corrected statement is "Margins in existing heavy component supports designed for the dynamic effects of pipe rupture and seismic events are not affected." If the loads are revised by elimination of postulated pipe ruptures, the supports can be redesigned accordingly without affecting margins. Prohibiting heavy component support redesign would go beyond the guidance provided by the Advisory Committee on Reactor Safeguards (ACRS) that "Any relaxation of requirements to cope with double-ended guillotine break should be preceded by vigorous reexamination of the integrity of heavy component supports under all design conditions." The ACRS guidance has been interpreted to mean that heavy component supports must have adequate margins such that their failure will not be the cause of pipe rupture in primary coolant loop piping of PWRs.

The concern with heavy component support integrity stems from studies performed under subcontract to Lawrence Livermore National Laboratory (LLNL) which indicated that heavy component support failures during earthquakes were the dominant mechanism for causing a double-ended pipe rupture in primary coolant loop piping. However, as reported in Volume 1 of NUREG/CR-3660, "Probability of Pipe Failure in the Reactor Coolant Loops of Westinghouse PWR Plants", dated July 1985, and Volume 1 of NUREG/CR-3663, "Probability of Pipe Failure in the Reactor Coolant Loops of Combustion Engineering PWR Plants", dated January 1985 (each prepared by Lawrence Livermore National Laboratory) only extremely large decreases in heavy component support seismic capacity have a significant impact on the probability of pipe ruptures in primary coolant loop piping. As a consequence, the Commission has decided that redesign of heavy component supports can be accepted so long as reliability and adequate margins under each required design and service load condition is achieved.

For operating plants, it is expected that a majority of heavy component support redesigns may involve elimination or decrease in load rating of existing snubbers in one or more support load paths. Redesign means the necessary reanalysis of supports and associated calculation of margins (excluding the dynamic effects of postulated pipe breaks as one of the required imposed loads) together with the physical modification of support

configuration and hardware. In such redesigns, the licensee must demonstrate improved overall system performance and reliability when the existing component support loads paths are compared with those proposed. Utilities undertaking heavy component support redesign should also consider the use of independent design and fabrication verification procedures to minimize the potential for design and construction errors.

Plants under construction will be treated in the same manner as operating plants. For future plants, heavy component supports would be designed under faulted condition loads to the specified allowable stress limits, with the dynamic effects of postulated large diameter pipe breaks excluded.

In the context of this issue, the term "heavy component" means the reactor pressure vessel, the steam generators, the pressurizer and the reactor coolant pumps. However, with respect to the pressurizer, the pressurizer surge line and other piping directly connected to the pressurizer are still postulated to rupture for design purposes, under the limitations of this rule.

**Issue 3.** The rule should be extended to relax pipe rupture requirements for containment design, emergency core cooling system performance and environmental qualification of electrical and mechanical equipment.

**Commission Response:** The Commission acknowledges that this rulemaking will introduce an inconsistency into the design basis by excluding only the dynamic effects of postulated double-ended pipe ruptures in PWR primary coolant loops while retaining this postulated accident for emergency core cooling systems, containments and environmental qualification. The present view is that insufficient technical information is available for applying leak-before-break technology to other aspects of facility design. Further studies must be conducted to develop suitable replacement criteria for the PWR primary coolant loop double-ended pipe rupture if this accident is no longer required for containment design, emergency core cooling or environmental qualification. For the present, the proposed rule allows the removal of plant hardware which it is believed negatively affects plant performance, while not affecting emergency core cooling systems, containments, and environmental qualification of mechanical and electrical equipment.

**Issue 4.** The supplementary information to the rule should indicate

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what analyses are needed to take advantage of the relaxation of requirements associated with dynamic effects of postulated pipe ruptures in the primary coolant loops of PWRs. Also, the acceptance criteria used in evaluating these analyses should be defined, particularly with regard to what would qualify as an "extremely low probability" of pipe rupture.

**Commission Response:** Acceptable analytical procedures and criteria to take advantage of this rule are outlined in NUREG-1061, Volume 3, dated November 1984 and entitled "Report of the U.S. Nuclear Regulatory Commission Piping Review Committee, Evaluation of Potential for Pipe Breaks." Plant unique analyses are required to take advantage of this final rule. Licensees and applicants can rely on vendor calculated envelopes to demonstrate that their plants meet NRC requirements. Additionally, it must be shown that appropriate leakage detection devices are installed, and that any modifications as discussed in Issue 2 are clearly defined. After final publication of this rule, value/impact analyses would no longer be required as they were only necessary to justify exemptions from the original GDC-4 before this final rule is published. NRC acceptance criteria are illustrated in the Safety Evaluation Report prepared for near-term-operating-license applicants (for example, see those prepared for Vogtle or Catawba) and published in response to their exemption requests related to PWR primary coolant loop piping.

The definition of "extremely low probability" of pipe rupture is given as of the order of  $10^{-6}$  per reactor year for PWR primary coolant loop piping when all pipe rupture locations are considered. This is consistent with past NRC decisions relating to other postulated events. This value, which includes the probability of an initiating event occurring (such as an earthquake, abnormal transient or an accident), conforms with the implicit design goal of components and structures that are engineered on a deterministic basis. Research performed at Lawrence Livermore National Laboratory confirmed that the three major U.S. vendors of pressurized water reactors meet this requirement.

Industry criteria for applying leak-before-break to piping are in the proposal stage (see ANS-58.2, "Design Basis for Protection of Light Water Nuclear Power Plants Against Effects of Postulated Pipe Rupture"). These proposed criteria have not been formally accepted by the industry nor the

Commission. However, NRC staff are participating in this activity.

**Issue 5.** The supplementary information to the rule should state that modifications of the licensed configuration of operating plants by the removal of pipe whip restraints and jet impingement shields may or may not involve an unreviewed safety question. Also, the rule should indicate that modifications consisting of removal of pipe whip restraints and jet impingement shields may not require license amendments.

**Commission Response:** These comments are accepted. The discussion in the proposed rule was confusing on this matter. The guidance below should be followed in the licensing context.

Modifications of the licensed plant design of operating plants may involve an unreviewed safety question under 10 CFR 50.59. Where it is determined that an unreviewed safety question is involved, licensees of operating plants desiring to make modifications should submit a license amendment for NRC approval in accordance with revised General Design Criterion 4. The license amendment may also include provisions for an augmented leakage detection system. A simple removal of pipe whip restraints and jet impingement barriers would not involve an unreviewed safety question. However, changing support load path designs would involve an unreviewed safety question.

Applicants for operating licenses seeking to modify design features to take advantage of the rule are required to reflect the revised design in an amendment to the pending FSAR. If the design change modifies design criteria set forth in the PSAR, an amendment to the applicable construction permit may also be necessary. The amendment to the FSAR, and the application for amendment of the construction permit if necessary, may include provisions for augmented leakage detection.

**Issue 6.** Installed leakage detection systems at some plants may be adequate, and upgrading or improvements may not be needed.

**Commission Response:** This comment is accepted. The proposed rule notice stated: "The license amendment *shall* also include provisions for an augmented leakage detection system. . . ." The revised text relating to this matter is given in the Commission Response to Issue 5. Leak detection systems are discussed in Volume 3 of NUREG-1061 "Report of the U.S. Nuclear Regulatory Commission Piping Review Committee, Evaluation of Potential for Pipe Break", November 1984.

**Issue 7.** Leak-before-break technology depends on erroneous leak rate measurements and therefore cannot be applied to the reactor coolant system.

**Commission Response:** The NRC staff recognizes that the measurement or determination of leakage rates from a pressurized system involves uncertainties. For this reason, one criterion for application of leak-before-break is that postulated flaw sizes be large enough so that the leakage is about ten times the leak detection capability, and that this flaw be stable even if earthquake loads are applied to the pipe in addition to the normal operating loads. This margin of a factor of ten is more than ample to account for uncertainties in both leakage rate calculations and leak detection capabilities.

Additional sensitivity studies reported by Lawrence Livermore National Laboratory in NUREG/CR-2189, dated September 1981, entitled "Probability of Pipe Fracture in the Primary Coolant Loop of a PWR Plant" indicate that even in the absence of leak detection, the probability of pipe ruptures in PWR primary coolant loop piping is sufficiently low to warrant exclusion of these events from the design basis.

For these reasons, the Commission has determined that this issue is not sufficient basis to invalidate leak-before-break technology in PWR primary coolant loop piping.

### Comment of the Advisory Committee on Reactor Safeguards (ACRS)

The ACRS orally requested an explicit definition of "primary coolant loop piping in pressurized water reactors" to clarify exactly the scope of affected piping. The term "primary coolant loop piping in pressurized water reactors" means the large diameter, thick walled piping directly connecting the reactor pressure vessel, the steam generators and the reactor coolant pumps. No branch piping from the above defined piping is considered part of the primary coolant loop piping in pressurized water reactors.

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

### Availability of Documents

1. Copies of NUREG-1061, Volume 3, NUREG/CR-3660, NUREG/CR-3663 and NUREG/CR-2189 may be purchased by calling (202) 275-2060 or (202) 275-2171 or by writing to the Superintendent of

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Documents, U.S. Government Printing Office, Post Office Box 37082, Washington, DC 20013-7082, or purchased from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

2. ANS-58.2, "Design Basis for Protection of Light Water Nuclear Power Plants Against Effects of Postulated Pipe Rupture," is available from The American Nuclear Society, 555 North Kensington Avenue, La Grange Park, Illinois 60525.

3. ACRS Letter to William J. Dircks, NRC Executive Director of Operations, dated June 14, 1983, dealing with fracture mechanics, is available in the NRC Public Document Room.

### **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. Although certain existing plant hardware may not be reinstalled after removal for inspection, this will not alter the environmental impact of the licensed activities. 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.

### **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 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. 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.

### **Backfit Rule**

This amendment is not subject to the analysis requirements of 10 CFR 50.109(a)(3) because it does not require any modifications of existing facilities or procedures. The rule only permits licensees to exercise an option not previously available. Information relevant to the factors found in 10 CFR 50.109(c) may nevertheless be found in the Regulatory Analysis referenced above.

### **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.

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. 553, the NRC is adopting the following amendments to 10 CFR Part 50.

51 FR 27817  
Published 8/4/86  
Effective 9/3/86

*Miscellaneous Amendments  
Concerning Physical Protection of  
Nuclear Power Plants*

See Part 73 Statements of Consideration

➤ 51 FR 40303  
Published 11/6/86  
Effective 1/5/87

### **10 CFR Parts 50 and 51**

#### **Domestic Licensing of Production and Utilization Facilities; Communications Procedures Amendments**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations that establish the procedures

for submitting correspondence, reports, applications, or other written communications pertaining to the domestic licensing of production and utilization facilities. The amendments indicate the correct mailing address for delivery of the communications and specify the number of copies required to facilitate action by the NRC. The proposed amendments will resolve a number of problems that have developed during the past several years regarding the submission of applications and reports. In addition to clarifying the procedures, these amendments will result in a reduction in reproduction and postage costs for the affected licensees.  
**EFFECTIVE DATE:** January 5, 1987.

**FOR FURTHER INFORMATION CONTACT:** Steve Scott, Information and Records Management Branch, Division of Technical Information and Document Control, Office of Administration, Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-8585.

**SUPPLEMENTARY INFORMATION:** Because of varying and sometimes conflicting requirements for the submittal of information by applicants and licensees, confusion has arisen with regard to copy requirements and proper submittal procedures. In an effort to clarify these matters, the NRC issued Regulatory Guide 10.1 (Revision 4) "Compilation of Reporting Requirements for Persons Subject to NRC Regulations" and on August 8, 1982 the Director, Division of Licensing, Office of Nuclear Reactor Regulation, issued Generic Letter 82-14 "Submittal of Documents to the Nuclear Regulatory Commission." While these efforts at clarification resolved much of the confusion, these guidance documents contain outdated information and in many cases conflict with requirements in regulations or individual licenses. Therefore, the NRC is issuing this rule to specify copy requirements and provide mailing instructions. The rule also clarifies the current requirement in § 50.30 for making an updated copy of the application available at an appropriate office near the site for inspection by the public.

This rule supersedes all existing requirements and guidance with respect to the number of copies and mailing procedures. The Commission's guidance documents dealing with communications procedures will be revised to conform with the rule. Licensees whose technical specifications contain conflicting submittal directions are authorized by this rule to delete the conflicting directions by pen-and-ink changes to their technical specifications. The Commission does not expect formal applications for amendment of license to result from this rulemaking.

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This rule codifies NRC actions to reduce copy requirements. With few exceptions, copy requirements for licensee reports and applications are reduced to three. By reducing the number of copies transmitted to the Commission, the rule will result in reduced reproduction and postage costs for licensees.

Undesignated paragraphs in the amended text have been designated and obsolete titles of NRC personnel have been updated to reflect current NRC titles.

### Proposed Rule

On March 26, 1985, the Commission published a proposed rule in the Federal Register (50 FR 11884) that would: (1) Clarify and standardize, to the extent practical, the procedures for making Part 50 submittals to the NRC; (2) reduce overall the number of copies of Part 50 submittals that applicants and licensees are required to send to the Commission; and (3) facilitate the flow of written communications from the affected licensees to NRC staff by eliminating the need for NRC to re-transmit Part 50 submittals between NRC Headquarters and the Regional Offices. After consideration of the public comments received, the Commission has modified the proposed rule as discussed in the following section. In addition, conforming amendments to 10 CFR Part 51 have been included to eliminate conflicting submittal directions.

### Comments on Proposed Rule

The Commission received fifteen letters commenting on the proposed rule. Copies of those letters are available for public inspection and copying for a fee at the NRC Public Document Room, 1717 H Street NW., Washington, DC. Thirteen letters were from utilities, one from a major nuclear vendor and one from a national organization representing non-power nuclear reactors. There was a total of 53 individual comments that are discussed by subject below.

### Copy Requirements

**Comments:** Eight commenters responded that the rule should go further in reducing the number of copies of submittals required by the Commission. The commenters recommended that NRC reduce the requirements for the following types of submittals: (1) Applications for license amendments; (2) various descriptive material, such as analyses of hydrogen control systems, analyses to ensure safe plant operation pending completion of equipment qualification, information demonstrating compliance with requirements for reduction of risk from anticipated transients without scram (ATWS) events, and information

concerning modification of structures, systems or components of a facility; and (3) submittals required of non-power nuclear reactors.

**Response:** The Commission is reducing its copy requirements as suggested by the commenters. The Commission found that in many cases NRC did not fully utilize copies of the submittals named by the commenters when multiple copies were furnished by licensees. As a result, the copy requirements for the submittals named by the commenters were reduced to avoid unnecessary copying and postage costs for licensees.

### Citation of Regulatory Requirement

**Comment:** Eight commenters addressed the section of the proposed rule that requires applicants and licensees to cite in the upper right corner of the first page of each Part 50 submittal, the specific regulation requiring the submission of the communication. The comments ranged from supportive to strongly opposed. Several commenters stated that a single submittal may be governed by several regulations. In addition, many licensee communications are in direct response to NRC requests for information, such as generic letters, inspection and enforcement bulletins, and Commission orders. For these responses, identifying the governing regulation would be burdensome to the licensee and a subjective decision open to interpretation.

**Response:** The Commission has revised this section to make citing the governing regulation on the upper right corner of the first page of the submittal a recommendation rather than a requirement for licensees and applicants. Standardizing the method of citing the regulation governing a submittal will help NRC administrative staff quickly and accurately sort (for distribution purposes) the large volume of correspondence, reports, applications, etc., received at NRC. The quick and proper handling of submittals that results from citing the basis for the submittal is in the best interest of the respondent as well as the NRC. However, as the commenters have pointed out, establishing this procedure as a requirement can cause various interpretive problems for licensees and the Commission has revised the rule accordingly.

### Apparent Conflict in Proposed Rule

**Comment:** Three commenters responded that the proposed rule contained conflicting directions for submitting information concerning the modification of structures, systems, or components of a facility pursuant to § 50.109. This submittal type is listed in both § 50.4(b)(1) and § 50.4(b)(2). These

sections have different copy requirements.

**Response:** The conflicting language in the proposed rule was the result of a drafting error. In the final rule, format changes were made that removed the sections containing the conflicting language noted by the commenters.

### Additional Submittal Types for Inclusion in Rule

**Comment:** Three commenters recommended that the rule be modified to add several types of submittals. Two of these commenters cumulatively suggested expanding the coverage of the rule to 10 CFR Parts 2, 20, 21, 55, 70, and 73. The one other commenter suggested providing general guidance on submittal procedures for the types of written communications that are not specifically mentioned in the regulations, but frequently occur in the communication process with applicants and licensees.

**Response:** The Commission is presently working to standardize the communication procedures in the other parts of Title 10. However, those efforts will be reflected in different rulemakings and are beyond the scope of this particular rule. In response to the third commenter, language was added to § 50.4(b)(1) to identify types of written communications made pursuant to 10 CFR Part 50, not specifically mentioned in the regulations.

### Waiver of Fee for License Amendments Resulting from Rule

**Comment:** Three commenters responded that applications for amendment of license technical specifications, which may result from promulgation of the rule, should not be subject to fees since they only address administrative matters.

**Response:** Since the rule does address only administrative matters and it clearly supersedes any conflicting submittal directions which may be found in an individual licensee's technical specifications or license conditions, licensees are not required to submit formal applications to amend their licenses to conform with the revised communications procedures. The Commission authorizes 10 CFR Part 50 licensees to delete any conflicting submittal requirements from their licenses or technical specifications by pen-and-ink changes. The Office of Inspection and Enforcement, through the NRC inspectors, will work with individual licensees to see that their procedures are updated.

### Address Requirements

**Comment:** Three comments were made regarding the change in the address requirements contained in the proposed rule. Two commenters



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questioned whether communications would actually be addressed to the Document Control Desk or whether they would be addressed to the current NRC recipient and *mailed* to the Document Control Desk. The third commenter asked why other NRC organizations, such as the Office of Inspection and Enforcement, were not identified to receive separately mailed copies.

**Response:** The address requirements in the rule specify that the signed original of 10 CFR Part 50 communications must be addressed to the "U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555." The purpose of this rule is to establish one primary addressee for 10 CFR Part 50 submittals. Applicants and licensees will no longer be required to determine which NRC organization is the correct primary or secondary recipient. Nonetheless, it is required that *copies* of submittals be sent to the appropriate Regional Office and NRC Resident Inspector. No other NRC organizations were identified in the rule as recipients because the NRC internal distribution system will service them.

### *Elevation of Administrative Matters to Regulatory Requirements*

**Comments:** Two commenters responded that the administrative requirements such as those contained in the rule (i.e. address requirements, distribution requirements, forms of communication, and delivery of communications) would be more appropriately issued in a guidance document (e.g. a regulatory guide or a generic letter) rather than placed in the regulations. One commenter stated that it would be too cumbersome to change the regulations every time NRC's administrative needs change. The other commenter considered the proposed rule to be divergent from the directives of the Atomic Energy Act of 1954 because administrative matters, such as photocopying, do not impact the health and safety of the public and as such should not be managed by rule, regulation or order. The commenter also felt that the rule is diametrically opposed to the spirit of the Paperwork Reduction Act of 1980 since licensees will have to develop strict procedures to assure compliance with administrative guidelines that have been elevated to regulatory requirements.

**Response:** The Commission recognizes its responsibilities to minimize the number of administrative requirements placed in the regulations. It is also understood that administrative requirements are usually minor in nature when viewed within the full scope of NRC's programs for protecting the public

health and safety. However, some administrative requirements are necessary to effectively implement these programs and therefore must be based in regulation. During the development of this rulemaking, compliance with the intent of the Paperwork Reduction Act of 1980, i.e. minimizing the Federal paperwork burden for individuals, small businesses, State and local governments and other persons, was a prime consideration. Based on a determination of actual NRC needs, the Commission, through this rulemaking, is reducing the administrative burden placed on licensees especially with respect to copying requirements. The Commission has also, in response to commenters' concerns, revised the final rule to make citing the governing regulation on the upper right corner of the first page of the submittal, a recommendation rather than a requirement for applicants and licensees.

The administrative requirements which are contained in the rule are similar to those requirements which were previously found in 10 CFR Part 50. This rule has compiled and to a great extent standardized those earlier requirements. The Commission has determined that the Communications rule will actually *reduce* burden on licensees and is in full compliance with the Atomic Energy Act and Paperwork Reduction Act.

### *Clarify Subsection of Rule Regarding Reports Pursuant to § 50.71(b)*

**Comment:** Two commenters recommended that § 50.4(b)(2)(xviii) of the proposed rule be clarified to better define what types of reports are covered by this subsection.

**Response:** Section 50.4(b)(2)(xviii) of the proposed rule was removed from the final rule. However, in response to the commenter's suggestion language was added to § 50.4(b)(1) to specifically identify additional types of written communications covered by the rulemaking.

### *Distribution Requirements to Resident Inspector*

**Comment:** Two commenters responded that the Commission should clarify what is meant by the requirement to send one copy of certain 10 CFR Part 50 submittals to the "appropriate NRC Resident Inspector, if applicable."

**Response:** The Commission intends that licensees and applicants, with NRC Resident Inspectors stationed onsite, send copies of certain 10 CFR Part 50 submittals to the Resident Inspector. This has been clarified in the final rule.

### *Procedures for Proprietary Information*

**Comment:** One commenter recommended that special procedures be established to protect submittals

containing proprietary information. The commenter suggested that proprietary information, along with the appropriate application for withholding from public disclosure, be submitted to the responsible NRC management person and a copy (minus the proprietary information) sent to the Document Control Desk.

**Response:** NRC's internal document control procedures provide specifically for the proper handling and distribution of proprietary information. Currently, the Document Control Desk is responsible for receiving and disseminating proprietary 10 CFR Part 50 submittals sent to NRC Headquarters. Adopting the commenter's suggestion to send proprietary information directly to the responsible NRC management person would unnecessarily impede NRC's dissemination process and would not improve NRC control of proprietary information. Licensees and applicants who wish to have proprietary information withheld from public disclosure should submit the information in accordance with 10 CFR 2.790. When submitted, the proprietary information should be clearly identified and accompanied by a request containing detailed reasons and justifications that the proprietary information be withheld from public disclosure. A nonproprietary summary describing the general content of the proprietary information should also be provided.

### *Submission to Project Manager*

**Comment:** One commenter suggested that it would speed up the processing of submittals if the NRC licensing project manager was specified as the primary addressee with a copy or copies sent to the Document Control Desk. The commenter stated that this method of addressing communications is encouraged in Generic Letter 82-30 "Filings Relating to 10 CFR Part 50 Production and Utilization Facilities" dated December 28, 1982.

**Response:** In actual practice, the Document Control Desk is the direct recipient of all 10 CFR Part 50 submittals mailed to NRC Headquarters. This includes those submittals addressed in the manner described in Generic Letter 82-30. This rule designates the Document Control Desk as the official addressee so that (1) the regulations more accurately reflect NRC's internal procedures and (2) correspondence procedures are made simpler for applicants and licensees. It is true that some licensees have arranged or have been requested to mail informal or courtesy copies directly to key NRC personnel and this practice will likely continue after issuance of the communications rule. However,

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licensees should note that in general, courtesy copies are not regarded by NRC as substitutes for formal submittals.

### *Clarify Submittal Due Dates*

**Comment:** One commenter recommended that the rule formally clarify how submittal due dates are adjusted should the date occur on a weekend or holiday.

**Response:** Provisions for adjusting due dates were added to the rule in § 50.4 paragraph (d).

### *Implementation Schedule*

**Comment:** One commenter recommended that the rule include an implementation schedule in view of the extensive changes to internal procedures and technical specifications that will be needed to implement the new requirements.

**Response:** The effective date of the rule is 60 days after publication in the *Federal Register*. This will allow those affected by the rule sufficient time to revise their internal procedures accordingly. As mentioned in a response to a previous comment, it will not be necessary for licensees to formally apply for changes to their technical specifications. Instead, the Commission authorizes licensees to make pen-and-ink changes to correct conflicting procedures in individual licenses and technical specifications.

### *Submittals in Media Other Than Paper*

**Comment:** One commenter objected to the provision requiring applicants and licensees to contact the Division of Technical Information and Document Control before making submittals in other than paper form. The commenter stated that this requirement would unnecessarily impede the timely flow of information to the NRC.

**Response:** The Commission recognizes the need to keep the flow of information to the NRC as timely as is reasonably achievable. This is the primary reason the rule contains provisions for submissions in alternative media. The requirement to contact the Division of Technical Information and Document Control before making alternative media submissions is included to ensure that a submittal is in a form usable by NRC, i.e., compatible with NRC equipment.

### *Exemptions to the Copy Requirements*

**Comment:** Two commenters recommended modifying the provisions in the rule regarding requests for exemptions to the copy requirements. One commenter objected to the requirement for specific exemption under 10 CFR 50.12 in order to submit other than the number of copies

specified in the proposed rule. The commenter questioned whether the Commission really wants to tie up the exemption process with such trivial matters. The other commenter suggested that the rule include provisions allowing licensees to negotiate copy requirements with the NRC project manager. The commenter states that this would codify an existing desirable practice.

**Response:** The Commission has modified the section to allow licensees to request case specific exceptions to the communications procedures through the NRC's Division of Technical Information and Document Control.

### *Determination of Receipt Date*

**Comment:** One commenter recommended that the rule be changed to specifically state that the NRC Document Control Desk is the official NRC organization responsible for determining whether submittals have been filed within the required time period.

**Response:** For the past several years, the Document Control Desk has served as the receipt point for 10 CFR Part 50 submittals mailed to NRC Headquarters. After submittals are received, they are entered, or accessioned, in the NRC's document control system. It is at this point that 10 CFR Part 50 submittals are generally regarded as being formally filed with NRC Headquarters. This practice will continue under the provisions of the revised communications procedures. In parallel with NRC Headquarters, the Regional Offices serve as the official receipt determination point for 10 CFR submittals mailed to them.

### *Drafting Changes*

**Comment:** There were numerous other comments that suggested minor editorial changes in the rule.

**Response:** These suggestions were evaluated in light of the revised structure of the rule and changes were made when they improved the 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 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. 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 Steve Scott, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone 301-492-8585.

### *Regulatory Flexibility Certification Statement*

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 upon a substantial number of small entities. This rule amends 10 CFR 50 by specifying submittal procedures which facilitate NRC processing. This rule affects nuclear generating facilities by reducing the overall regulatory burden of reproducing and transmitting submittals to the Commission. Therefore, it is not expected to have a significant economic impact on any licensee.

### *Application of Backfit Rule*

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to the final rule. The final rule is purely administrative in nature, and therefore does not result in the "modification of or addition to systems, structures, components, or design of a facility . . . or the procedures or organization required to design, construct, or operate a facility. . ." See 10 CFR 50.109(a)(1).

### *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 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 Parts 50 and 51.

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51 FR 47206  
Published 12/31/86  
Effective 12/31/86

### 10 CFR Part 50

#### Domestic Licensing of Production and Utilization Facilities: Minor Corrective Amendment

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations to correct information that was inadvertently omitted in a section of 10 CFR Part 50 when an amendment in a final rule published in November 1986 superseded an amendment to the same section that was published in a final rule in August 1986. This amendment is necessary to inform the public of the correct wording of this affected section.

**EFFECTIVE DATE:** December 31, 1986.

**FOR FURTHER INFORMATION CONTACT:**

Michael T. Lesar, Acting Chief, Rules and Procedures Branch, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-7086.

**SUPPLEMENTARY INFORMATION:** On August 4, 1986, a final rule entitled "Miscellaneous Amendments Concerning Physical Protection of Nuclear Power Plants" was published in the Federal Register (51 FR 27817). One of the amendments revised § 50.54(p) in its entirety, breaking the lengthy paragraph into three shorter paragraphs that included a direct and indirect reference to the "guard training and qualification plan" in (p)(1) and (p)(2), and gave specific instructions for the mailing of a report to the NRC Regional Offices and Headquarters in (p)(2).

Subsequently, a second final rule entitled "Domestic Licensing of Production and Utilization Facilities: Communications Procedures Amendments" was published on November 6, 1986 (51 FR 49003). Section 50.54(p) was also amended by this final rule, and the references to the guard training and qualification plan were omitted. The references to the Regional Offices and Headquarters with regard to the mailing of the report were also omitted. However, it was the intent of the second final rule to establish new procedures for submitting correspondence, reports, applications, etc.; therefore, that omission was deliberate. The mechanism used to indicate submittal information is the phrase in (p)(2) that reads "as specified in § 50.4".

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)). Delaying the effective date of this rule would be contrary to the public interest because the affected licensees would not have complete information regarding changes to certain types of plans that would require a report to the NRC. Therefore, the rule is effective on publication in the Federal Register.

#### Environmental Impact—Categorical Exclusion

The NRC 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 3150-0011.

#### 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.

UNITED STATES NUCLEAR REGULATORY COMMISSION  
RULES and REGULATIONS

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

**PART  
51**

**LICENSING AND REGULATORY POLICY AND PROCEDURES  
FOR ENVIRONMENTAL PROTECTION**

**STATEMENTS OF CONSIDERATION**

39 FR 26279  
Published 7/18/74  
Effective 8/19/74

**ENVIRONMENTAL PROTECTION  
Licensing and Regulatory Policy and  
Procedures**

On November 1, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 30203) proposed amendments to 10 CFR Parts 2, 30, 40, 50, and 70 of its regulations, and a proposed new Part 51 to be entitled "Licensing and Regulatory Policy and Procedures for Environmental Protection."

The proposed regulations were intended to implement the revised Guidelines of the Council on Environmental Quality published in the *FEDERAL REGISTER* on August 1, 1973, pertaining to preparation of environmental impact statements pursuant to the National Environmental Policy Act of 1969 (NEPA), 83 Stat. 852. The proposed regulations would place all of the Commission's policy and procedures implementing the Act with respect to the Commission's licensing and regulatory program, previously set forth in Appendix D of 10 CFR Part 50, into a new Part 51, which would apply to rule making as well as licensing of production and utilization facilities and nuclear materials.

Interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments by December 17, 1973. After consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments with certain modifications. The more significant ones are described below.

(1) Issuance of facility manufacturing licenses for nuclear power reactors and construction permits or operating licenses for isotopic enrichment plants have been added to the categories of actions for which an environmental impact statement will be prepared by the Commission in § 51.5(a). The category of "full-power, full-term operating licenses" for which an impact statement is required has been changed to "full-power or design-build." Appropriate additions to other sections to reflect the above additions have been made.

(2) In the category of amendments of

materials licenses in § 51.5(b)(4) for which an environmental impact statement may be prepared, the criterion of "a significant increase in the amount of materials authorized to be used" has been changed to "a significant increase in the potential for accidental releases".

(3) The category of substantive and significant amendments to specified AEC regulations in § 51.5(b)(6) for which an environmental impact statement may be prepared has been qualified to refer to substantive and significant amendments from the standpoint of environmental impact. Amendments to 10 CFR Parts 30 and 40 concerning exemption of products containing byproduct material or source material have been added to the categories of actions for which an environmental impact statement will be prepared in § 51.5(a).

(4) Appropriate references to the Council on Environmental Quality's Guidelines on Preparation of Environmental Impact Statements, 40 CFR Part 1500, have been added with regard to preparation of AEC environmental impact statements.

(5) Provision has been made for routine distribution of draft environmental impact statements to appropriate environmental organizations and to all parties to the proceeding if the draft statement is prepared for a licensing action.

Part 51 also incorporates the recently published changes to Appendix D of Part 50 dealing with the environmental effects of the uranium fuel cycle (39 FR 14188), and appropriate conforming amendments have been made in 10 CFR Parts 2 and 50 relating to the issuance of limited work authorizations (39 FR 14506).

Part 51 does not affect the status of the proposed Annex to Appendix D to Part 50 regarding the discussion of accidents in environmental reports published by the Commission for comment on December 1, 1971. The proposed Annex is still under consideration by the Commission.

Pursuant to the Atomic Energy Act of 1954, as amended, the National Environmental Policy Act of 1969, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10 of the Code of Federal Regulations, Chapter 1, are published as a document subject to codification.

40 FR 1005  
Published 1/6/75  
Effective 2/5/75

**PART 51—LICENSING AND REGULATORY  
POLICY AND PROCEDURES FOR EN-  
VIRONMENTAL PROTECTION**

**Environmental Effects of Transportation  
of Radioactive Materials to and From  
Nuclear Power Plants**

On February 5, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* a notice of consideration of an amendment to Appendix D, Interim Statement of General Policy and Procedure: Implementation of the National Environmental Policy Act, 10 CFR Part 50, Licensing of Production and Utilization Facilities, (38 FR 3334). The amendment proposed would supplement the Commission's rules for implementing section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA). The proposed amendment addressed the question of consideration of environmental effects associated with the transportation of nuclear fuel and wastes in individual cost-benefit analyses for light-water-cooled nuclear power reactors. An Atomic Safety and Licensing Appeal Board had earlier held that such effects should be considered.<sup>1</sup> The proposed amendment would allow applicants in their environmental reports, and the Commission in its detailed environmental statements, to account for the environmental effects of transportation of fuel and waste by using specified numeric values contained in an appended Summary Table.

The proposed amendment has been adopted by the Commission in the form set out below. Since the time of publication of the Notice of Proposed Rule Making in this proceeding, the Commission has promulgated a new 10 CFR Part 51, Licensing and Regulatory Policy and Procedures for Environmental Protection, (39 FR 26279), which replaces and supersedes Appendix D to 10 CFR Part 50. In view of this, the rule set out below is in the form of an amendment to 10 CFR Part 51 rather than in the form of the originally proposed amendment to Appendix D to 10 CFR Part 50. To the extent that this rule differs from the Appeal Board decisions in *Vermont Yankee, supra*, those decisions have no further precedential significance.

<sup>1</sup> *Vermont Yankee Nuclear Power Corporation (Vermont Yankee Nuclear Power Station)*, ALAB-56, ALAB-73 (June 6, 1972 and October 11, 1972).

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In conjunction with publication of the proposed amendment, the Commission, by notice published in the *FEDERAL REGISTER* on February 5, 1973 (38 FR 3334), announced the availability for comment of the "Environmental Survey of Transportation of Radioactive Materials to and from Nuclear Power Plants" (WASH-1238), dated December 1972 and prepared by the Commission's Regulatory Staff. The Environmental Survey, which serves as a primary data base for the amendment, considers and assesses the contribution of environmental effects from transportation of fuel and solid wastes for a "typical" light-water-cooled nuclear power reactor. The Survey also contains an analysis of the probabilities of occurrences of transportation accidents, the expected consequences of such accidents, and an analysis of the potential radiation exposures to transportation workers and the general public under normal conditions of transport. The document was not intended to serve, however, as a detailed analysis of alternatives and costs and benefits as they relate to the transportation aspects of the uranium fuel cycle. Nor was the purpose of this proceeding to undertake a full environmental review of transportation of fuel and waste. The purpose of this proceeding was to determine certain elements to be factored into impact statements in particular licensing proceedings. As in the rulemaking proceeding on the Environmental Effects of the Uranium Fuel Cycle (39 FR 14188, April 22, 1974), this proceeding addresses a procedural question involving the implementation of NEPA's requirement for cost-benefit analyses in impact studies. For this reason, no environmental impact statement has been prepared in connection with the rule adopted herein.

The Commission notes that transportation of mixed oxide fuel and waste to and from light-water reactors will be considered separately in the generic environmental impact statement currently being prepared in connection with use of that type of fuel in light-water reactors. In addition, a number of other studies are currently being conducted which relate to the transportation of radioactive materials, including reactor fuels and waste. These studies include, among others, (i) a surveillance program of cargo handlers and loading crews to determine the exposure of personnel involved in handling radioactive materials; (ii) a joint AEC-Department of Transportation program to simplify regulations to assure adequate training of shipper and carrier personnel and to encourage development of industry standards on transportation of radioactive materials; and (iii) development of guides for state and local authorities on responsibilities and procedures for handling emergency situations. Any pertinent results of these studies and other ongoing studies will be reflected in a revised Environmental Survey, when such a revision is determined to be necessary.

In the notice of proposed rule making, all interested persons were invited to submit written comments and suggestions in connection with the proposed

amendment and the Environmental Survey within 60 days after publication of the notices in the *FEDERAL REGISTER*. In addition, an informal rule making hearing was held on April 2, 1974 in Washington, D.C. to permit interested members of the public to present written and oral views on the Environmental Survey and the approach to consideration of the environmental effects associated with the transportation of fuel and waste.

In setting forth the procedural format which was to be followed in the informal rule making hearing, the Commission specified, among other things, that since the hearing would be part of a rule making rather than an adjudicatory proceeding, the provisions of Subpart G, "Rules of General Applicability," of Part 2 of the Commission's Rules of Practice would not be applicable and, therefore, such procedural features as discovery and cross-examination would not be utilized.

It was provided, however, that the participants in the hearing would be subject to questioning by the presiding hearing board and that at the conclusion of the hearing, the record was to be held open for a period of 30 days, during which time any person could file supplemental written comments deemed appropriate in light of the hearing record. The notice further provided that after the expiration of the 30-day period, the presiding hearing board, without rendering any decision or making any recommendation, was to forward the hearing transcript to the Commission together with an identification of issues raised at the hearing.

Written comments were received from 26 individuals and organizations including Federal and State agencies, industry, public utilities, environmental and citizens groups, and private citizens. Participants in the informal rule making hearing included the Commission's Regulatory Staff; the Environmental Protection Agency; the Atomic Industrial Forum; the Consolidated Utility Group; and Mr. Richard Sandler representing Mr. Ralph Nader, Friends of the Earth, and the Consolidated National Intervenors.

In its Report to the Commission by the Fuel and Waste Transportation Rule Making Hearing Board, submitted on September 26, 1973, the presiding hearing board identified seven areas in which it believed issues were raised either at the hearing itself or by the written comments filed both before and after the public hearing.

The first area in which an issue was identified concerns the adequacy of the rule making procedures employed and the nature of the participation by interested persons and organizations. One participant, Mr. Richard Sandler, argued that for any rule making hearing dealing with the environmental effects of transportation of fuel and waste on a generic basis to be legally valid, the hearing must incorporate the same procedural features used in individual production and utilization facility licensing adjudicatory proceedings, including the rights of discovery and cross-examination.

The Commission considered a similar challenge to the legal validity of the rule making proceeding on the Environmental Effects of the Uranium Fuel Cycle cited above. The Commission concluded

there, as it does here, that adjudicatory procedures were not warranted. Each participant was given all the time he requested for his oral presentation and was afforded full opportunity to submit information and data for the record. No testimony offered was excluded from the record. All documents, including the Survey, were available to the parties several weeks before the hearing. In addition, each participant was invited to submit to the hearing board relevant questions for the Regulatory Staff and/or other participants.

The second area in which issues were identified by the presiding hearing board concerns the technical adequacy of the Environmental Survey. The board noted that there had been a number of comments from a variety of sources on such matters as: (i) the choice of population distribution and exposure time parameters used in estimating exposure dose (man-rem) value, (ii) the operation and testing of shipping containers and the effects of accidents on members of the public, (iii) testing and possible failure of fuel rods, and (iv) the assumptions and methods employed in analyzing input data and calculating critical parameters.

With respect to the choice of population distribution and exposure time parameter, the Staff indicated that it chose "average" estimates. Although one could postulate a situation wherein a larger (than "average") number of persons would be exposed to radiation for a longer time period, the radiation exposure of that larger group would still be only a very small fraction of the 3 man-rem per year shown in the rule as the total exposure to the general public for transportation. Thus, since use of parameters exceeding "average" estimates would still not exceed the 3 man-rem value for normal transportation exposure, the Staff's selection of average estimates was appropriate.

With respect to the operation and testing of packages used in the shipment of fuels and wastes to and from nuclear reactors and the effects of accidents on members of the public, the Commission's regulations in 10 CFR Part 71 impose specific requirements on shippers: (i) to demonstrate the adequacy of their packages by tests or engineering analysis at the design stage; (ii) to perform careful quality assurance control during package fabrication; (iii) to exercise close supervision over the loading and closing of packages; and (iv) to perform adequate maintenance and testing to assure that levels of containment, shielding, and effectiveness of the package are maintained throughout its useful life. More important, Part 71 requires that package designs be reviewed and approved by the Commission and prescribes specific package standards which must be met during design and construction. These standards include standards for hypothetical accident conditions such as a 20 foot free drop onto an essentially unyielding surface, a 40 inch drop onto a penetrating bar, exposure to a temperature of 1,475°F for 30 minutes, and immersion under at least 3 feet of water for a period of not less than 8 hours. Generally, these hypothetical accident conditions are designed to qualify a package to withstand the actual conditions which might be encountered in severe transportation accidents.

\* The guides will include responsibilities of State and local law enforcement authorities coordinating with AEC personnel in emergency situations.

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Although these packaging standards and criteria establish the threshold for package failure, analysis of test results cited in the Environmental Survey show that some designs will withstand stresses well above test conditions. ("Special Tests for Plutonium Shipping Containers—6m, SP5795, and L-10," L. F. Stravinsk SC-DR-72 0597, September, 1972. In these tests, shipping containers survived impact tests from a height of 270 feet, puncture tests from a height of 12.5 feet, and fire tests at 1800°F for 1 hour.) In addition, where packages are to be used in the shipment of larger quantities of special nuclear material (e.g., casks used in the shipment of irradiated fuel), the Commission's Directorate of Regulatory Operations makes observations during the fabrication of the package and reviews records of quality assurance and fabrication, use, and maintenance records to assure that the package is fabricated and used in accordance with the approved design specifications.

With respect to the effect of accidents on members of the public, the Survey contains an extensive discussion of accident severity categories, together with the accident probabilities for those categories for truck, rail, and barge per vehicle mile. Accident consequences for many of the more severe categories of accidents are analyzed, including accidents with probabilities so low as to be considered incredible. Although accidents even more serious than those analyzed in the Environmental Survey could be postulated, the Survey shows that their probability is even more remote and that, therefore, a detailed analysis of their consequences is unnecessary to describe adequately the risks to the general public.

Fuel rod failure, which is a major factor in determining radiation exposures resulting from severe accidents, was assessed in the Survey in the reported results of actual drop tests carried out on fresh fuel rods. In these tests, fuel rods were dropped from a height of 30 feet on to an unyielding surface. Results showed no leakage from the rods after being dropped on their end, side, and corners. Preliminary results reported by applicants submitting designs of shipping containers for transporting irradiated fuel indicate major damage to fuel elements may occur only under conditions of high impact forces or relatively high temperatures, i.e., above 1250°F. In calculating doses from releases under accident conditions in the Survey, the Staff assumed that up to 50 percent of the irradiated fuel rods failed. The basis for this assumption is the Staff's prediction that at 1250°F, 50 percent of the fuel rods in an irradiated fuel cask will perforate. For greater than a 50 percent failure rate, a much higher temperature for a longer period of time would be required. Such circumstances appear to be beyond the realm of possibility. An increase in fuel rod failure over and above the 50 percent assumed by the Staff might result in some increase in resultant doses, but since increased fuel rod failure affects only the accident case where there has been a breach of the irradiated fuel cask, and the probability of an accident causing such a breach is already so low, changes in the fuel rod failure rate would have little effect on the risk. Thus, the assumptions used by the Staff are sufficiently conservative. In

the light of present knowledge that further assessment of fuel rod failure is unnecessary.

The hearing record indicates that the assumptions and methods used in analyzing the environmental effects set forth in the Survey were critically examined by industry, the general public, and particularly the Environmental Protection Agency. EPA initially took exception to Summary Table values for cumulative dose estimates for transportation workers and members of the general public because it had arrived at different conclusions concerning the probable exposure of persons to radiation due to transportation using the same data the Staff had used. EPA also recommended that the radiation dose values in the Summary Table be enlarged to encompass the majority of the nuclear reactor data analyzed rather than only 50 percent of the data, as was the case with the proposed values in the Summary Table.

At the hearing board's suggestion, the Regulatory Staff and the EPA met to re-examine their data and discuss their differences. Subsequent to that meeting, the Regulatory Staff submitted a letter to the Board and the other participants which explained that some of the differences in radiation dose estimates were due to differing interpretations of input data, some to differences in presentation, and some due to differences in assumed values for uncertain parameters. Although there was not complete agreement, the hearing board noted that the differences in calculated values were deemed by the Staff and EPA to be close enough to consider the discrepancy resolved. In addition, the Staff responded to the EPA recommendation for enlarging the values in the Summary Table to encompass a majority of data analyzed by increasing the values from 3 man-rem to 4 man-rem for transport workers and from 2 man-rem to 3 man-rem for members of the general public. These revised values would exceed the cumulative doses calculated for 90 percent of the 84 nuclear reactors for which specific analysis of the environmental impact of transportation had been made. It should be noted that these values in the rule are not reflected in the Environmental Survey. The Survey contains the detailed method of analysis for assessing the environmental impact of transportation of fuel and waste to and from a typical light-water reactor. The 3 and 4 man-rem values in the rule reflect the application of this methodology to 84 reactors at 53 different sites. Although the derivation of these values was explained by the Regulatory Staff during the course of the rule-making proceeding, the Staff intends to issue in the near future a supplement to the Survey outlining in detail the derivation of these impact values.

The Commission agrees with the Board concerning resolution of the Staff-EPA differences. The Commission has also accepted the Staff's recommendation to enlarge the cumulative dose values in the proposed rule and has revised the rule accordingly. It is anticipated, of course, that additional data and methods of analysis will be developed. At such time as these data and

methods become available, the Commission will undertake a re-evaluation of the environmental impact and, where significant changes are indicated, will make appropriate changes in the Environmental Survey and, where necessary, the Summary Table of environmental impact.

A third area in which issues were identified by the hearing board relates to the scope of coverage of the amendment and the questions which were raised as to how and when it should be applied. In its supplemental comments, the Staff recommended that language be added to the proposed rule to make clear when and how the rule is to be applied and what criteria are to be used in determining whether a given case is or is not within the scope of the rule. In view of the question which had been raised over the amendment's scope, the Commission has incorporated clarifying language similar to that proposed by the Staff in the amendment set forth below. However, the Staff's recommended language relating to the general procedures to be followed for transportation falling outside the scope of the rule has not been included in the effective rule. Regardless of the methodology used for assessing the environmental effects of such transportation—be it that contained in the Survey or otherwise—any assessment will be subject to separate consideration in individual licensing cases if it covers transportation of a type which is outside the scope of the rule. Consequently, the Commission sees no need to spell out either general or specific procedures in this rule for covering transportation outside its scope.

The Commission is cognizant of the fact that there may occasionally arise a situation where transportation of fuel and waste for a particular reactor falls within the scope of the rule, but the transportation involves distances, population exposures, accident probabilities, or other factors which are much greater than those discussed and analyzed in the Survey or which are not accounted for in the Survey. In such an instance, parties to a reactor licensing proceeding have available to them the provisions of 10 CFR § 2.758 which provides, in part, that the Commission, upon a showing of special circumstances such as those mentioned above, may waive the application of a rule in a particular proceeding.

It should be noted that transportation of fuel and waste by air was not analyzed in the Environmental Survey and is outside the scope of this rule. Air transportation was not covered in the Survey primarily because fuel and wastes are currently not shipped to and from reactors via air owing to cost and space limitations. Should air shipments be contemplated in the future for fuel and/or wastes to or from a particular reactor, the environmental impact of such transportation would be subject to separate consideration in the individual reactor licensing proceeding. While the Commission is cognizant of the fact that there have been incidents aboard passenger aircraft involving improperly sealed containers which resulted in radiation exposures to passengers, these incidents did not involve shipments of reactor fuel or



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wastes to or from nuclear reactors.

It should also be noted that sabotage and diversion of shipments of fuel and waste to and from reactors are not covered in the Environmental Survey and are not accounted for in the values contained in the Summary Table. The environmental effects of sabotage and diversion, therefore, are beyond the scope of the rule and are subject to appropriate separate consideration in individual reactor licensing proceedings. The Commission has promulgated regulations in 10 CFR Part 73 for safeguarding shipments of special nuclear material. It is actively pursuing the subject and has underway a number of studies which may ultimately culminate in separate rule making proceedings on the various aspects of sabotage and diversion in transportation. These studies include (i) development of a specially designed vehicle for transporting special nuclear material; (ii) expansion of secure communications systems; and (iii) an assessment of radiation effects of dispersion which might result from sabotage of special nuclear material shipments in transit.

A fourth area in which issues were identified concerns whether a substantial revision of the Survey and proposed amendment should be undertaken prior to issuance of the final amendment in light of the comments received. If such revisions are undertaken, the question then arises as to whether the Administrative Procedure Act requires reopening the proceeding and, if so, whether the proceeding should take the form of the original proceeding or some other form. The Commission believes that the existing Survey provides an adequate data base for the promulgation of the regulation set forth below. The changes in the cumulative dose values of the Summary Table are in response to EPA's comments and the Staff's recommendation. As noted earlier, the Staff intends to issue a supplement to the Survey explaining the derivation of these values. In addition, the Commission does not believe that incorporation of a clarifying scope provision into the amendment set forth below requires further public proceedings since this revision is clarifying in nature and reflects comments received during the course of the proceeding. Thus, since the Commission sees no present need for further rulemaking, there is no occasion to consider either reopening the proceeding or determining what form it should take.

A fifth area in which an issue was identified concerns the inter-relationship between the rulemaking proceeding on transportation and the rulemaking proceeding on the environmental effects of the uranium fuel cycle, a matter which we specifically addressed in the Notice of Proposed Rulemaking issued in this proceeding on February 8, 1973. The question raised was whether, because of this inter-relationship, the two proceedings should be combined to avoid conflict or duplication. While this suggestion has some merit, it is apparent that consolidation would have unnecessarily delayed publication of an effective regulation relating to the environmental effects of the uranium fuel cycle. In any event,

both the fuel cycle rule and this rule have been appropriately conformed as amendments to 10 CFR Part 51, and, in this manner, any potential for conflict or duplication has been eliminated.

The sixth area in which an issue was identified concerns whether any provision should be made for exempting or limiting the applicability of the final amendment insofar as pending licensing cases are concerned.

Since the environmental impact of transportation of fuel and waste is currently considered in individual proceedings on a case-by-case basis, the Commission believes that these cases can be expedited if given the benefit of the transportation rule. Accordingly, compliance with the new rule will be required upon the effective date.

A seventh area in which the Board identified an issue concerns suggestions made by many of the participants for revision and reexamination of the Environmental Survey at periodic intervals. While the Commission agrees with the suggestions that the Survey be re-examined from time to time to accommodate new technology and information, it does not believe it necessary or advisable to impose any specific time limit. As in the uranium fuel cycle proceeding, our view is that revision should be based on development of new methodologies and information for assessing the environmental impact associated with transportation, and not on any arbitrary or fixed time period.

The presiding hearing board also identified a number of miscellaneous items. One item concerns the Staff's position that since the overall environmental impact resulting from transportation is small, there is no need to search for alternative methods of reducing the impact still further. The question raised by the hearing board for Commission consideration is whether this position satisfies the principle of "as low as practicable" exposures. The Commission does not believe this proceeding is an appropriate one for considering whether or not the Staff's position with respect to transportation of fuel and wastes satisfies the "as low as practicable" requirement of 10 CFR Part 20. As indicated earlier, the purpose of this proceeding is to quantify the associated environmental impact of transportation of fuel and wastes under an existing set of circumstances. While the concept of "as low as practicable" must be considered in individual reactor licensing cases, it is not a concept which is applicable or appropriate to this proceeding. Of course, nuclear technology is not static. As improvements in packaging are developed, they will be reflected in the Commission's requirements.

Another of the Board's suggestions for Commission consideration concerns requiring the Environmental Survey to include the Summary Table together with an indication of which parts of the Survey provide the basis for each part of the Table.

As discussed earlier, the Survey provides a methodology for analyzing and assessing the environmental effects associated with the transportation of nuclear fuels and waste and contains envi-

ronmental impact values for a "model" light-water reactor. The impact values contained in the Summary Table represent the application of that methodology to 84 reactors either under construction or in operation at 53 different sites. Impact values were derived for each individual reactor and values encompassing 90 percent of the 84 reactors studied were then calculated for insertion into the Rule. In view of the fact that the Staff intends to issue a Supplement to the Survey showing how these values were derived, the Commission believes that this matter has been resolved.

Finally, the Board mentioned three matters raised by comments of the participants which the Staff contended were beyond the scope of the proceeding. These were: (i) regulatory standards for packaging covered by other Commission regulations; (ii) methods of transportation, types of fuel, and materials not covered by the Survey; and (iii) transportation from other than a single nuclear power reactor (i.e., transportation from 1000 reactors as opposed to a single "model" reactor). While these matters may be of interest, the Commission agrees with the Staff's position that they are beyond the scope of this proceeding.

The purpose of this proceeding was not to consider the adequacy or inadequacy of the Commission's regulations governing packaging of nuclear material and wastes found in 10 CFR Part 71, but rather, in part, was to assess the environmental impact of transportation of fuel and waste packaged in accordance with those regulations. Likewise, the purpose of this proceeding was not to assess or speculate as to the environmental impact of differing modes of transportation or differing types of fuel, but rather was to assess the environmental impact associated with currently used methods of transportation of fuel and waste. As to transportation from 1000 reactors as opposed to a single "model" reactor, the purpose of this proceeding was to develop environmental impact values for transportation of fuel and waste that could be factored into cost-benefit analyses for individual reactors, not to assess the cumulative environmental impact of transportation of fuel and wastes for all reactors contemplated to be in operation at some future date.

On the basis of the foregoing, the record of the rulemaking hearing, consideration of the comments received, and other factors involved, the Commission has adopted the amendment set forth below. The amendment is in substance essentially the same as the amendment proposed in the notice of proposed rulemaking published February 5, 1973 (38 FR 3334) except for the addition of a scope definition, and changes in certain values to reflect EPA comments and clarifying and editorial changes to make it conform with the format of 10 CFR Part 51.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to 10 CFR Part 51 is published as a document subject to codification.

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40 FR 31953  
Published 7/28/75  
Effective 7/28/75

### PART 51—LICENSING AND REGULATORY POLICY AND PROCEDURES FOR ENVIRONMENTAL PROTECTION

#### Amendments of Table S-3 and Summary Table S-4

Table S-3—Summary of environmental considerations for uranium fuel cycle, of 10 CFR Part 51 contains a typographical error which was carried over from the original Table S-3 in the "Environmental Survey of the Uranium Fuel Cycle." The amendments set forth below correct the words now reading "Thermal (billions)" in the first column of Table S-3 to read "Effluents—Thermal (billions of Btu):".

The Commission's Office of Standards Development has prepared "NUREG-75/038, Environmental Survey of Transportation of Radioactive Materials to and from Nuclear Power Plants Supplement I" dated April 1975 which presents the data and identifies the methods used in deriving the values in Summary Table S-4—Environmental Impact of Transportation of Fuel and Waste to and from One Light-Water-Cooled Nuclear Power Reactor. The amendments of 10 CFR Part 51 set forth below amend footnote 1 of Summary Table S-4 to reflect the availability of "NUREG-75/038" which may be obtained from the National Technical Information Service, Springfield, Virginia 22161. A copy of "NUREG-75/038" is available for inspection and copying at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C.

The amendments also correct the line in the body of Summary Table S-4 beginning with "Transportation workers" to show that the range of doses is 0.01 to 300 millirem rather than 0.0 to 300 millirem.

Because these amendments relate solely to corrections and minor matters, the Commission has found that good cause exists for omitting notice of proposed rule making, and public procedure thereon, as unnecessary, and for making the amendments effective on July 28, 1975.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 51, are published as a document subject to codification.

41 FR 15832  
Published 4/15/76  
Effective 5/17/76

Construction Permit or Operating License;  
Initial Treatment of Application

See Part 50 Statements of Consideration.

42 FR 34276  
Published 7/5/77  
Effective 8/4/77

### PART 51—LICENSING AND REGULATORY POLICY AND PROCEDURES FOR ENVIRONMENTAL PROTECTION

#### Environmental Reports by Certain Applicants for Licenses

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final Rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulation

"Licensing and Regulatory Policy and Procedures for Environmental Protection" to require that 15 copies of the environmental reports applicable to materials licenses be submitted to the NRC and that an additional 85 copies of the environmental report be retained by the applicant for distribution to Federal, State and local officials in accordance with written instructions issued by the Director of Nuclear Material Safety and Safeguards. The amendments reduce the number of copies of environmental reports applicable to materials licenses from 150 to 100 copies. The amendments will materially expedite the distribution of environmental reports by eliminating duplicate handling of them by the applicant and the NRC staff, and will alleviate problems of the NRC staff with regard to the receipt, storage, assembly, and remailing of large volumes of environmental reports.

DATE: This rule becomes effective on August 4, 1977.

FOR FURTHER INFORMATION CONTACT:

Gerald L. Hutton, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (phone (301) 492-7211).

SUPPLEMENTARY INFORMATION: On March 3, 1977, the Commission published in the FEDERAL REGISTER (42 FR 12186) for comment proposed amendments of 10 CFR 51.40 which would reduce the number of copies of environmental reports applicable to Parts 30, 40, and 70 licenses from 150 to 100 copies.

The amendment of § 51.40 also would require that 15 copies of the environmental reports applicable to Parts 30, 40, and 70 licenses be submitted to the NRC and that an additional 85 copies of the environmental report be retained by the applicant for distribution to Federal, State, and local officials in accordance with written instructions issued by the Director of Nuclear Material Safety and Safeguards.

Only one comment was received in response to the notice of proposed rule making. The commenter concurred with the adoption of the proposed amendment, but also suggested that a reasonable time limit be added for applicant's storage of copies of the reports in order to alleviate storage, assembly, and document control problems by applicants. It is the Commission's view that the suggested time limit for storage of copies of

the reports is unnecessary. Of the 85 copies of the report to be retained by the applicant, 60 to 65 copies will be distributed initially in accordance with written instructions by the Director of Nuclear Material Safety and Safeguards. Retention or disposition of the 20 to 25 copies of the environmental report which remain following issuance of the Final Environmental Statement and the licensing action requested by the applicant will be a matter of written instructions to the applicant by the Director of Nuclear Material Safety and Safeguards.

Direct distribution by the applicant of the additional copies of the environmental report will materially expedite the distribution of such copies by eliminating duplicate handling of them by the applicant and the NRC staff. This procedure also will alleviate problems of the NRC staff with regard to the receipt, storage, assembly, and remailing of large volumes of environmental reports.

The text of the rule set forth below is identical with the text of the proposed amendments published on March 3, 1977.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 51, are published as a document subject to codification.

43 FR 7209  
Published 2/21/78  
Effective 2/21/78

### PART 2—RULES OF PRACTICE

### PART 51—LICENSING AND REGULATORY POLICY AND PROCEDURES FOR ENVIRONMENTAL PROTECTION

#### Distribution of Environmental Impact Statements

AGENCY: Nuclear Regulatory Commission.

ACTION: Effective rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations relating to the distribution of environmental impact statements to reflect the transfer to the Environmental Protection Agency from the Council on Environmental Quality of certain responsibilities for the receipt and filing of such statements and to change certain statutory citations to make them conform to the citations provided for by present law.

EFFECTIVE DATE: February 21, 1978.

FOR FURTHER INFORMATION CONTACT:

Bennett L. Harless, Division of Site Safety and Environmental Analysis, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone: 301-492-8421.

SUPPLEMENTARY INFORMATION: Pursuant to the President's reorganization plan for the Executive Office of

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the President (Reorganization Plan No. 1 of 1977, July 15, 1977) the functions of the Council on Environmental Quality (CEQ) relating to the receipt and filing of environmental impact statements were transferred to the Environmental Protection Agency (EPA). Effective December 5, 1977, Federal agencies, including NRC, are required to deliver five (5) copies of all draft, final, or supplemental environmental impact statements filed pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969 directly to the Environmental Protection Agency and to discontinue sending such statements to the Council on Environmental Quality (42 FR 62183). The following amendments to 10 CFR part 51 of the Commission's regulations entitled "Licensing and Regulatory Policy and Procedures for Environmental Protection," implement this change.

Paragraph 2.104(b)(3)(i) of 10 CFR Part 2, and §§ V(f)(3), VI(c)(1)(v), VI(c)(3)(i), and VIII(b)(7) of Appendix A of Part 2, and §§ 51.20(a)(5) and 51.52(c)(1) of 10 CFR Part 51 cite "section 102(2)(D)" of the National Environmental Policy Act (NEPA). Public Law 94-83, 89 Stat. 424 (42 U.S.C. 4332), amended NEPA so as to redesignate section 102(2)(D) as section 102(2)(E). The following amendments change the citations to conform them to the redesignation.

Since these amendments relate solely to minor procedural matters, notice of proposed rulemaking and public procedure thereon are unnecessary and good cause exists to make the amendments effective on February 21, 1978.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 2 and 51, are published as a document subject to codification.

43 FR 6915  
Published 2/17/78  
Effective 5/3/78

*Export and Import of Nuclear Facilities and Materials*

See Part 110 Statements of Considerations.

43 FR 46292  
Published 10/6/78  
Effective 11/6/78

### PART 2—RULES OF PRACTICE FOR DOMESTIC LICENSING PROCEEDINGS

### PART 51—LICENSING AND REGULATORY POLICY AND PROCEDURES FOR ENVIRONMENTAL PROTECTION

#### Distribution of Applications and Environmental Statements to Local Officials

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to provide for notice to the chief executives of the appropriate alternative municipalities or counties which have been identified in the application or environmental report as alternative sites for nuclear facilities or activities. The notice will include a brief description of, and other pertinent information regarding, the site and facility proposed or alternatively listed. The notice will include a statement that if a request is received from the appropriate chief executive of the alternative site, a copy of the application or environmental report, and any changes to such documents which affect the alternative site location, will be transmitted to the executive who makes the request. This amendment will assure that local officials of communities which are preferred or alternative sites for nuclear facilities are notified at the same time the initial application or environmental report is submitted to the Commission.

EFFECTIVE DATE: November 6, 1978.

#### FOR FURTHER INFORMATION CONTACT:

Gerald L. Hutton, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-492-7086.

SUPPLEMENTARY INFORMATION: By letter dated July 7, 1976, the township of Lower Alloways Creek, N.J., filed with the Nuclear Regulatory Commission a petition for rulemaking to amend 10 CFR 2.101 and 10 CFR 51.24 of the Commission's regulations.

In response to the petition for rulemaking PRM-51-2 the Commission published a notice of proposed rulemaking in the FEDERAL REGISTER on January 17, 1977 (42 FR 3178) to amend 10 CFR Parts 2 and 51.

The proposed amendment of § 2.101 set out in the January 17, 1977 notice would add a provision to paragraph (a)(3)(ii) that the applicant will also be requested to serve a copy of the ten-

dered application and/or environmental report on the chief executives of the appropriate municipalities or counties which have been identified in the application or environmental report as alternative sites.

The proposed amendment of § 2.101 would add a provision to paragraph (b) which pertains to applications for licenses for receipt of waste radioactive material from other persons for the purpose of commercial disposal by the waste disposal licensee, that the applicant will also serve a copy of the application and environmental report, as appropriate, on the chief executives of the appropriate alternative municipalities or counties which have been identified in the application or environmental report as alternative sites.

The proposed amendment of § 51.24 would revise paragraph (c)(4) to provide that if the draft environmental impact statement is for a licensing action, copies of the draft statement and the applicant's environmental report will be provided to all parties to the licensing proceeding and the chief executives of all municipalities or counties which are identified in the draft statement as either preferred or alternative sites for the proposed facility or activity.

Six letters of comment were received on the petition for rulemaking and the notice of proposed rulemaking.

One commenter opposed the proposed rule, contending that jurisdictional officials and the public are aware of proposed projects even before the filing of an application; that the filing of applications with jurisdictional officials at alternative sites could have adverse impacts on local planning and land values; and that filing of the application would only serve to cause infighting between jurisdictions, possibly resulting in delays in the licensing process.

Although officials and the public may be aware of preferred sites before the filing of an application there is no assurance under present procedures that all officials with jurisdiction over alternative sites will know that a site in their area is under consideration or that the relative merits of such a site may have been the subject of dispute at hearings held in a different locale. The Commission is not convinced that furnishing such information to officials over alternative sites would have adverse impacts on local planning and land values, or cause jurisdictional conflicts resulting in licensing delays.

Three commenters opposed the proposed amendments on the grounds that they would require the service of voluminous and expensive documents upon individuals who have no real interest in receiving them, thereby placing an unjustified burden on applicants and municipal and county offi-

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cials, without corresponding benefits to the public, the licensing process, or the municipalities or counties considered as alternative sites. These commenters suggested, however, that if some action is desired in this area, a more reasonable approach would be to notify the chief executives of municipalities or counties which have been designated as an alternative site in the application or environmental report of the availability of the documents. To the extent that such officials are interested, they could request copies of the documents.

It is the Commission's view that local officials of all of the communities or counties involved should be informed of the plans for a facility or a commercial waste disposal service or activity at the time the application or environmental report is submitted to the Commission. The Commission has concluded, however, that this objective can be accomplished in accordance with the alternative approach suggested by the three commenters noted in the preceding paragraph. Accordingly, the amendments set forth below have been revised to provide for notice to the chief executives of sites which have been identified in the application or environmental report as alternative sites. The notice will include a brief description of the proposed site and facility, the location of the site and facility proposed or alternatively listed, and will include a statement that if a request is received from the appropriate chief executive of the alternative site, a copy of the application or environmental report, and any changes to such documents which affect the alternative site location, will be transmitted to the executive who makes the request. A sentence has been added to §§ 2.101(a)(3)(ii) and 2.101(b) that an applicant in complying with those paragraphs should not make public distribution of those parts of the application subject to § 2.790(d); that is, information which identifies a licensee's or applicant's procedures for safeguarding licensed special nuclear material or detailed security measures for the physical protection of a licensed facility or plant in which licensed special nuclear material is possessed or used. A sentence has been added also that the applicant shall submit to the Director of Nuclear Reactor Regulation or Director of Nuclear Material Safety and Safeguards, as appropriate, an affidavit that service of the notice of availability of the application and environmental report has been completed along with a list of names and addresses of those executives upon whom the notice was served.

One firm commented favorably upon the proposed rule and suggested that local public document rooms be set up

in the region of the alternative sites for displaying to the public the environmental report, draft environmental impact statement, and any other documents affecting the alternate sites. The Commission agrees that it may be desirable to establish a local public document room, or a mini-LPDR, in the region of the alternative sites in some cases. The Commission does not consider, however, that this should be done routinely. A determination will be made on a case-by-case basis after a survey of the public interest in the area of the alternative site.

One commenter encouraged the adoption of the proposed rule, but suggested that applications for amendments to existing licenses as well as new nuclear facilities and waste management facilities should be included, and notification and service of an application upon the appropriate governor or designated State government official should be included as well as municipal and county government. The suggestion regarding applications for amendments to existing licenses is outside the scope of this amendment inasmuch as the site would have been determined when the license was issued. The Commission's regulations already provide for distribution of applications and environmental reports to appropriate State officials.

The commenter also suggested that a provision for an early notice of intent to file and application be considered. It is the Commission's view that the present regulation, as amended below, provides for early notice to officials of alternative sites and notice of intent to file and application would not serve a useful purpose.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 2 and 51 are published as a document subject to codification.

44 FR 45362  
Published 8/12/79  
Effective 9/4/79

### 10 CFR Part 51

#### Licensing and Regulatory Policy and Procedures for Environmental Protection; Uranium Fuel Cycle Impacts From Spent Fuel Reprocessing and Radioactive Waste Management

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Promulgation of a final fuel cycle rule.

**SUMMARY:** The Commission promulgated on March 14, 1977 an interim rule identifying the environmental impact values for the uranium fuel cycle, which

are to be included in environmental reports and environmental impact statements for individual light water nuclear power reactors. After an extensive proceeding focused on the nuclear waste management and fuel reprocessing parts of the fuel cycle, the Commission now promulgates a final rule which sets out revised impact values. The rule also specifies fuel-cycle-related subjects that are to be considered in individual licensing proceedings as part of the environmental cost-benefit analysis for a power reactor. The Commission notes its intention to conduct a further supplementary rulemaking to adopt as part of the rule an explanatory narrative addressing the environmental significance of the impact values tabulated in the final rule. A general update of the rule with respect to all aspects of the uranium fuel cycle is also in progress.

**EFFECTIVE DATE:** September 4, 1979.

**FOR FURTHER INFORMATION CONTACT:** E. Leo Slaggie, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC, 20555, phone 202-634-3224.

**SUPPLEMENTARY INFORMATION:** This notice announces the outcome of a final rulemaking by the Nuclear Regulatory Commission regarding the environmental effects of spent fuel reprocessing and radioactive waste management in the light water power reactor uranium fuel cycle. The rule adopted herein replaces an interim rule which identifies fuel cycle environmental impact values to be included in environmental reports and environmental impact statements for individual light water power reactors. The interim rule, 10 CFR 51.20(e) ("Table S-3", as revised), was published on March 14, 1977 (42 FR 13803) to be effective for 18 months and was extended several times, the final extension being to the effective date of this rule.

This final rulemaking concludes a proceeding which began on May 26, 1977 with a notice that a rulemaking hearing would be held to consider whether the interim rule should be made permanent or, if it should be altered, in what respects. 42 FR 26987. The Hearing Board took extensive written and oral testimony from more than twenty participants. On August 31, 1978 the Board submitted to the Commission a detailed summary of the evidentiary record, followed on October 26, 1978 by its Conclusions and Recommendations.

After studying the Hearing Board's recommendation and receiving written and oral presentations by rulemaking participants, the Commission has adopted as a final rule the modified Table S-3 recommended by the Hearing

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Board. The impact values in this table differ only slightly from the values in the interim rule. With two exceptions, these values will be taken as the basis for evaluating in individual light water power reactor licensing proceedings, pursuant to requirements of the National Environmental Policy Act (NEPA), the contribution of uranium fuel cycle activities<sup>1</sup> to the environmental costs of licensing the reactor in question. The exceptions are radon releases, presently omitted from the interim rule (43 FR 15613, April 14, 1978), and technetium-99 releases from reprocessing and waste management activities, as discussed later in this notice. Appropriate values for these releases are open for consideration in individual proceedings.

Promulgation of the revised table is not the sole outcome of this rulemaking. The rulemaking record makes clear that effluent release values, standing alone, do not meaningfully convey the environmental significance of uranium fuel cycle activities. The focus of interest and the ultimate measure of impact for radioactive releases are the resulting radiological dose commitments and associated health effects. To convey in understandable terms the significance of releases in the Table, the Hearing Board recommended that the modified Table be accompanied by an explanatory narrative promulgated as part of the rule. The recommended narrative would also address important fuel cycle impacts now outside the scope of the Table, including socioeconomic and cumulative impacts, where these are appropriate for generic treatment. The Commission has directed the NRC staff to prepare by October 1 such a narrative, as described in more detail later in this notice. The narrative will be submitted for public comment in a further rulemaking.

Pending adoption of an explanatory narrative as part of the fuel cycle rule, the use of Table S-3 in individual proceedings must be accompanied by supplementary presentations. Accordingly, the Commission has directed the NRC staff to continue presenting in individual proceedings an evaluation of dose commitments and health effects from fuel cycle releases. In addition, the staff will address

<sup>1</sup> The fuel cycle activities addressed by the rule include uranium mining and milling, the production of uranium hexafluoride, isotopic enrichment, fuel fabrication, spent fuel storage and disposal, reprocessing of irradiated fuel, transportation of radioactive materials and management of low-level wastes and high-level wastes. The rulemaking proceeding concluded here dealt only with impacts of reprocessing and waste management and associated transportation, the so-called "back-end" of the fuel cycle. The impacts of transportation of cold fuel to the reactor and irradiated fuel and spent radioactive wastes lie outside the scope of the rule and are treated separately in the Commission's regulations. See 10 CFR 51.20(g).

economic, socioeconomic, and possible cumulative impacts of fuel cycle activities and such other impacts of the fuel cycle as may reasonably appear to have a significance for individual reactor licensing sufficient to warrant attention for NEPA purposes. These matters remain open for litigation in individual proceedings. The present rulemaking settles only the question of fuel cycle release values with the exceptions noted above, and such other numerical data that appear explicitly in the Table.

In response to a recent decision by the United States Court of Appeals for the District of Columbia Circuit, *State of Minnesota v. NRC*, Nos. 78-1269 and 78-2032 (May 23, 1979), the Commission intends to conduct a generic proceeding which will consider the most recent evidence regarding the likelihood that nuclear waste can be safely disposed of and when that, or some other off-site storage solution, can be accomplished. That new generic waste disposal proceeding will be separate and different in scope and purpose from further fuel cycle rulemakings dealing with an S-3 narrative and general update of S-3, but will in part review and update the conclusions regarding waste disposal which have been reached in the present rulemaking. If available, the record compiled in the new generic waste disposal proceeding can be considered in, and made a part of the record in, the general update of S-3.

The background of this proceeding and the reasons underlying the Commission's decision are explained in the material which follows.

### I. Need For a Fuel Cycle Rule in Power Reactor Licensing

The National Environmental Policy Act of 1969 (NEPA) requires that the Commission look closely at the environmental impact of a proposed nuclear power reactor before it may license the construction or operation of the facility. To comply with NEPA the Commission has adopted licensing and regulatory procedures presently set out in 10 CFR Part 51. Under these rules the environmental analysis in a power reactor licensing proceeding must include a cost-benefit analysis which, among other things, considers and balances the adverse environmental impacts of the nuclear plant against the expected environmental, economic, technical, and other benefits.

The environmental impact of operating a nuclear power reactor is not limited to effects specific to the plant itself, such as site alterations due to plant construction or the release of

reactor effluents. The environment will also be affected by the fuel cycle activities necessary to support plant operation. Since operation of a nuclear plant involves a commitment to prepare fuel and dispose of spent fuel and waste, the environmental impacts considered in the NEPA analysis for a power reactor should include contributions from uranium fuel cycle activities.<sup>2</sup>

Evaluating these contributions necessarily involves a wide-ranging inquiry and a certain amount of speculation. Fuel cycle facilities serve many reactors, and there is no way to ascertain with certainty which facility now in existence or to be operated in the future will contribute fuel to a given nuclear power reactor or will receive its irradiated fuel or wastes. Thus the fuel for a particular reactor cannot be identified at the start of the fuel cycle and traced through the various steps to final disposal. Instead, the fuel cycle impacts for a particular reactor must be estimated hypothetically, for example by apportioning the impacts of representative fuel cycle facilities to the number of reactors served. Determining these facility impacts also involves uncertainties, particularly for the back end of the cycle. For example, reprocessing of spent fuel, if it is done, would take place at newly designed facilities, not yet operational. Thus impacts based on previous reprocessing experience using outdated technology are not in the Commission's judgment representative of future impacts. For waste disposal many proposals have been put forth, but the method or methods which will finally be used are as yet unselected. A reasonable approach for determining waste disposal impacts is to focus on a system which seems likely to be deployed and to estimate its impacts conservatively, based on the best available information and analysis.

A study of fuel cycle impact thus involves difficult generic analysis and prediction well outside the normal scope of facility-specific subjects dealt with by a reactor licensing board. This does not mean that the subject can be ignored or deferred until the fuel cycle facilities themselves come up for licensing.<sup>3</sup> It does mean that in reactor licensing fuel cycle impacts should be treated where possible by generic rulemaking rather than case-by-case adjudication.

<sup>2</sup> Activities comprising the nuclear fuel cycle are listed in note 1, above.

<sup>3</sup> The court of appeals for the D.C. Circuit has specifically rejected such an approach and held that "absent effective generic proceedings to consider these issues, they must be dealt with in individual licensing proceedings." *NRDC v. NRC*, 547 F. 2d 883, 841 (1976), *rev'd on other grounds sub nom. Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519 (1978).

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The Commission's interim fuel cycle rule, 10 CFR 51.20(e), requires that the environmental costs to be considered in a power reactor licensing proceeding shall include contributions from uranium fuel cycle activities as set forth in a table ("Table S-3, Summary of environmental considerations for uranium fuel cycle"). The adequacy of this interim rule, insofar as waste management and reprocessing impacts are concerned, was the original focus of the present rulemaking, as the background discussion in the section to follow indicates. As the rulemaking progressed, however, participants submitted a substantial amount of public comment and testimony addressing matters not dealt with by the interim rule, including economic and socioeconomic impacts, numerical uncertainties in the estimates, and long-term dose commitments and health effects. This implicit broadening of the rulemaking's scope called attention to problems which must be addressed in a further rulemaking, but also indicated there may be confusion regarding the proper objective of a fuel cycle rule.

The rule aimed at in this proceeding has a limited purpose. It applies only to environmental cost-benefit balances for power reactors and is in no way intended to be a tool for choosing among alternative uranium fuel cycle technologies. Although the rule should reflect as accurate an assessment as reasonably possible of uranium fuel cycle impacts, the rule clearly does not need the detail or the precision of an environmental analysis for licensing fuel cycle facilities themselves. A reasonable degree of uncertainty is unavoidable and is acceptable, given that basic decisions have not yet been made regarding reprocessing and the technology of waste disposal.

The rule need not be comprehensive in scope to be a useful and valid exercise of rulemaking authority. A record is not yet available to support a comprehensive rule dealing with all generic aspects of fuel cycle impacts relevant to reactor licensing, but the Commission is free to adopt a narrower rule that for the present leaves some of these matters for consideration in individual proceedings. The table of impacts adopted as a final rule in this proceeding serves as an important first step in this consideration, relieving adjudicatory boards from the need to determine those numerical impacts of the uranium fuel cycle which have been extensively considered in generic rulemaking. Ultimately, however, the impacts of the releases and not the

releases themselves dictate the standards the Commission must set. Therefore, use of the table in individual licensing will not foreclose discussion of the significance of those impacts or other important aspects of the fuel cycle not addressed by the table. This point

needs emphasis in view of the background of the Commission's original S-3 rule, which at least initially was apparently interpreted as cutting off further discussion of fuel cycle impacts.

### II. Background of the Fuel Cycle Rulemaking

#### 1. Promulgation and Application of the Original Fuel Cycle Rule, "Table S-3"

In a Notice of Proposed Rulemaking published November 15, 1972 (37 FR 24191) the Atomic Energy Commission (AEC) announced a proceeding "that would specifically deal with the question of consideration of environmental effects associated with the uranium fuel cycle in the individual cost-benefit analysis for light water cooled nuclear power reactors." As a basis for this consideration the Commission's staff had published a report entitled "Environmental Survey of the Nuclear Fuel Cycle," dated November 6, 1972.<sup>4</sup> Citing the Environmental Survey, the Notice set out two proposed alternatives for public comment and consideration at an informal hearing. Under one alternative, no consideration of fuel cycle impacts (apart from facility-specific effects of transporting cold fuel to the reactor and spent fuel and radioactive wastes from the reactor) would be required in individual proceedings, on the grounds that these impacts as analyzed in the Environmental Survey were sufficiently small not to affect significantly the cost-benefit balance for an individual reactor. Under the second alternative, impact values for fuel cycle costs of licensing a power reactor would be taken in individual licensing proceedings as set forth in Table S-3 of the Environmental Survey.<sup>5</sup>

Written comments were submitted by more than forty individuals and organizations. The hearing took place February 1 and 2, 1973 before the three-person hearing board, following legislative-type procedures announced

<sup>4</sup> A revised version of this Environmental Survey was published in April 1974 as WASH-1248.

<sup>5</sup> The tabulated impacts in Table S-3 included acres of land committed to fuel cycle activities, amount of water discharged by such activities, fossil fuel consumption, and chemical and radiological effluents, the latter in curies, all normalized to the annual fuel requirement for a model 1000 MWe light-water reactor. Notations accompanying the tabulated values included a few radiological doses in man-rem, but no estimates are given of human health effects caused by fuel cycle radiological effluents. The Environmental Survey did not give quantitative estimates of health effects.

by the Commission in a supplemental notice (38 FR 49).

Following the hearing and supplementary written submissions by participants, the board on July 6, 1973 presented to the Commission a 24-page report which identified the major issues at the proceeding but, in accordance with the Commission's direction, made no recommendation.

After consideration of the comments and the hearing record, the AEC on April 22, 1974 (39 FR 14188), adopted the second alternative, under which "the environmental effect associated with the uranium fuel cycle, albeit small, would be factored into individual cost-benefit analyses in the form of numerical values," as set out in Table S-3, with minor revisions to reflect corrections or changes suggested by the hearing record. The Commission noted its view that the values in the table reflected "substantial conservatism" and found it to be a "fact that the environmental effects of the uranium fuel cycle have been shown to be relatively insignificant." The Commission concluded accordingly that there was no need to apply the rule retrospectively.

The Commission stated that it preferred to adopt Table S-3, rather than the alternative of declaring by rule that fuel cycle impacts are not significant for reactor licensing, because in conformance with other regulations the table "quantifies, to the fullest extent practicable, the environmental effects of the uranium fuel cycle in individual cost-benefit analyses." Cf. 10 CFR 51.20(b), 51.23(c). Consistent with the Commission's view at that time that Table S-3 represented a full quantitative account of fuel cycle contributions, the text of the rule stated that in applicants' environmental reports and Commission impact statements in individual licensing proceedings this contribution "shall be as set forth in ... Table S-3 ... No further discussion of such environmental effects shall be required."

The Commission notice promulgating the rule did not specifically mention health effects, socioeconomic impacts, or cumulative impacts, either to require or preclude their discussions, although it might fairly be concluded that the notice's repeated observation that fuel cycle effects were "insignificant" amounted to a Commission judgment implicit in the rule that no discussion of these effects was formally required. The Commission's regulatory staff applied the rule in practice as allowing fuel cycle impacts to be addressed in reactor licensing proceedings solely by the formal act of displaying Table S-3 in impact statements, with no further discussion. In particular, impact statements prepared by the staff did not



analyze fuel cycle impacts in terms of health effects which might be caused by the radioactive releases tabulated in the rule and did not discuss socioeconomic or cumulative impacts.

Almost three years after the rule became effective, the Commission's Atomic Safety and Licensing Appeal Board issued a decision implying that discussion of fuel cycle health effects was desirable when the comparison between the proposed nuclear plant and an alternative coal plant was an issue in the licensing proceeding. *In the Matter of Tennessee Valley Authority* (Hartsville Nuclear Units), 5 NRC 92, 103 (1977). As part of its response to the Hartsville decision, the regulatory staff sought and received permission from reactor licensing boards to introduce evidence of the public health consequences of the nuclear fuel cycle compared with the coal fuel cycle. Cf. *In the Matter of Public Service Company of Indiana, Inc.* (Marble Hill Nuclear Generating Station), 7 NRC 179, 187 (1978). As the rule required, health effects in the staff's submissions were based on the tabulated radioactive release values in 10 CFR 51.20(e).<sup>6</sup> By this time, however, the original Table S-3 had been replaced by the amended table in the interim rule as a result of legal developments discussed next.

## 2. The Vermont Yankee Decision

On a petition to review the adequacy of the fuel cycle rulemaking proceedings, the United States Court of Appeals for the District of Columbia Circuit on July 21, 1976 set aside those portions of the rule pertaining to waste management and spent fuel reprocessing. *Natural Resources Defense Council v. NRC*, 547 F. 2d 633, rev'd sub nom. *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519 (1978). After first holding that fuel cycle impacts must be

addressed in reactor licensing,<sup>7</sup> either by an effective rule or in the adjudicatory proceeding, the court found the rulemaking record insufficient to support the waste management and reprocessing parts of the rule because the procedures afforded during the hearing were inadequate, at least as applied by the hearing board.<sup>8</sup> The court saw the significance of Table S-3 as an expression "in numerical terms [of] the conclusion that the environmental effects of the fuel cycle, including waste disposal, are insubstantial." *Id.* at 646. With regard to reprocessing and waste disposal, "the focal points for this appeal," the court found that the Environmental Survey failed to provide "detailed explanation and support" for this conclusion and that testimony presented at the hearing did not fill the gap. The court noted that "[t]he only discussion of high level waste disposal techniques was supplied by a 20-page statement by [AEC witness] Dr. Frank K. Pittman," which the court criticized for its "conclusory quality." *Id.* at 645, 651. The court found that the procedures employed at the hearing failed to expose this statement to any "probing of its underlying analysis," *id.*, and concluded that the Commission had been arbitrary and capricious to adopt a rule "cutting off consideration of waste disposal issues and reprocessing issues in licensing proceedings based on the cursory development of the facts . . . in this [rulemaking] proceeding." The court vacated those portions of the rule and remanded to the Commission.

<sup>7</sup>The court of appeals consolidated the petition to review the fuel cycle rule with a petition to review an Appeal Board holding in the Vermont Yankee Nuclear Power Station licensing proceeding that environmental impacts of reprocessing or waste disposal need not be considered in individual reactor licensing proceedings. *In the Matter of Vermont Yankee Nuclear Power Corp.*, 4 AEC 930 (June 6, 1972). The court of appeals rejected the Appeal Board's decision and held that reprocessing and waste disposal issues must be dealt with either by an effective rule or in individual licensing proceedings. The Supreme Court did not disturb this holding when it later reversed the court of appeals. The Supreme Court noted that the Commission "acted well within its statutory authority" in requiring that fuel cycle impacts be considered in reactor licensing proceedings. *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 539 (1978). The Commission in promulgating the fuel cycle rule had stated that the Appeal Board's Vermont Yankee decisions had no further precedential significance insofar as they differed from the rule. 39 Fed. Reg. 14188.

<sup>8</sup>Interpreters of the opinion have differed over the relative weight which the court of appeals in reaching its decision attached to procedural inadequacies and to insufficiency of the record. The Supreme Court was persuaded that the "ineluctable mandate of the court's decision is that the procedures afforded during the hearings were inadequate." 435 U.S. 519, 542. The Supreme Court reversed the court of appeals on this procedural question and remanded for consideration whether the evidentiary record supported the rule. The court of appeals has held in abeyance its decision on the remand, pending completion of the Commission's final rulemaking.

In important respects, however, the court of appeals approved the Commission's overall approach to the fuel cycle rulemaking. The court rejected the argument that a fuel cycle rule is itself a major Federal action requiring an impact statement. The court found it sufficient that a NEPA impact statement is prepared when Table S-3 is incorporated into a proposal to license an individual reactor. The court also saw no necessity for a "plenary consideration of alternatives" in evaluating waste disposal impacts for the purposes of the rule, "provided a sufficiently conservative and credible assessment of a particular waste disposal method is used." *Id.* at 653, note 57.

## 3. Promulgation of the Interim Rule

In response to the *NRDC v. NRC* decision and a related decision, *Aeschliman v. NRC*, 547 F. 2d 622 (D.C. Cir. 1976), the Commission on August 16, 1976 issued a General Statement of Policy (GSP) (41 FR 34707) announcing an intention to reopen the fuel cycle rulemaking proceeding to supplement the existing record on waste management and reprocessing impacts and to determine whether or not the rule should be amended. The Commission directed the NRC staff to prepare on an expedited basis a revised and well-documented environmental survey as the basis for an interim rule on waste management and reprocessing impacts. The General Statement of Policy also directed that no new full-power operating licenses, construction permits, or limited work authorizations should issue, pending the conclusion of a notice-and-comment interim rulemaking. With regard to licenses already issued, the Commission indicated that, if requests for a show cause order based on fuel cycle grounds were received, licensing boards would be assigned to determine whether the licenses in question should be continued, modified, or suspended pending adoption of an interim rule.

The revised environmental survey, NUREG-0116—Supplement 1 to WASH-1248, was completed in early October, 1976, and on October 18 the Commission published a notice soliciting public comment on the survey and a proposed interim rule. (41 FR 45849). Comments received in response to that notice and the Commission's responses to those comments were later published in March 1977 as NUREG-0216, Supplement 2 to WASH-1248.

On November 11, 1976 the Commission announced that licensing could resume on a conditional basis (41 FR 49898). As factors in this decision the Commission noted that (1) the court of appeals had stayed its mandate, leaving

<sup>6</sup>The Commission announced on April 14, 1978 an amendment to the fuel cycle rule which removed the release value for radon from the table and left radon impacts open for litigation in individual proceedings. 43 Fed. Reg. 15813. Subsequent to this amendment, the staff has been free to introduce evidence of radon-related health effects not based on Table S-3 release values. This notice also confirmed that the rule does not address health effects and does not preclude discussion of health effects in individual proceedings. The notice amended the second sentence of the rule to read: "No further discussion of the environmental effects addressed by the Table shall be required."

Mr. Marvin Lewis, one of the participants in this rulemaking, petitioned the Commission to "vacate" Table S-3 in its entirety, citing as grounds asserted severe health effects from radon releases. The Commission has denied this petition, noting that radon releases are no longer addressed by the table.

the S-3 rule formally in effect but conditioning new licenses on the outcome of petitions by licensees for Supreme Court review of the court's decision,<sup>9</sup> and (2) NUREG-0116 provided significant support for the conclusion that waste management and reprocessing impacts are slight, so that the interim rule, when promulgated, would not be likely to produce results in reactor licensing different from the original rule. The Commission also suspended show cause proceedings on fuel cycle grounds against light water reactor licensees. The Commission directed that new licenses could be issued only if a separate analysis determined that use of the impacts in the proposed interim rule would not tilt the cost-benefit balance against the reactor.

On March 19, 1977 the Commission promulgated the interim rule (42 FR 13803) to be effective for eighteen months, subject to extension for good cause. 10 CFR 51.20(e). In support of the interim rule the Commission noted that the two environmental supplements, NUREG-0116 and NUREG-0218, provided a "sufficient informational basis for the interim rule . . ." The Commission acknowledged that "there are gaps in the information needed for a detailed assessment of waste management and disposal technology" but found that "the costs of not proceeding outweigh the risks of proceeding by interim rule," given that within a relatively short period the issues would be more thoroughly discussed in the final rulemaking proceeding. The Commission terminated show cause proceedings initiated pursuant to the General Statement of Policy, noting that "the values in the interim rule are not sufficiently different from the values in the original Table S-3 to warrant revocation or suspension on cost-benefit grounds [of previously issued licenses]."<sup>10</sup> 43 FR 43806.

<sup>9</sup>The Supreme Court's subsequent grant of certiorari automatically continued the stay of mandate pending completion of Supreme Court Action. The Supreme Court's remand and subsequent action by the court of appeals have left unresolved for the present the question whether the waste management and reprocessing portions of the original S-3 rule were legally sufficient. See note 8.

<sup>10</sup>Subsequently the Commission directed the Appeal Board to consider for the ten facilities affected by the terminated show cause proceedings "the particularized factual data essential to making a determination of the incremental effect, if any, that the use of the values in the interim rule would have on the NEPA cost-benefit balances for the particular facilities involved." 5 NRC 717, 7173 (1977). The Appeal Board found that fuel cycle impacts did not tilt the cost-benefit balance against any of the facilities in question, 6 NRC 25, 28-30, 6 NRC 33, 102-104, 6 NRC 206, 208 (1977), and concluded: "The effects assigned by the interim rule to the uranium fuel cycle are . . . extremely small (as the Commission itself has suggested). This being so, they could not possibly serve to call for the abandonment of any particular nuclear facility unless the cost-benefit balance for that facility was otherwise in virtual equipoise." 6 NRC at 104.

#### 4. Initiation of the Present Rulemaking

Following promulgation of the interim rule, the Commission published a notice of hearing which initiated a final rulemaking. 42 FR 26987 (May 28, 1977). The procedures announced in the notice were the same as those applied in the original hearing, except that specific provision was made for the Hearing Board to entertain suggestions from participants regarding questions which the Board should direct to witnesses or other participants.<sup>11</sup> The subject of the hearing was "confined to the environmental effects of spent fuel reprocessing and radioactive waste management in the light water power reactor uranium fuel cycle, and to the question whether the outcome of the interim rulemaking should be made permanent for future use, or if it should be altered, in what respects."<sup>12</sup> Both NUREG-0116 and NUREG-0218 were specified for inclusion in the hearing record. The fuel cycle was to be taken to include alternatively (1) no reprocessing of spent fuel, or (2) reprocessing of spent fuel for purposes other than recycle of plutonium, with follow-on interim and/or long-term storage or disposal of plutonium and wastes from reprocessing, with plutonium either separated from or included with the wastes.<sup>13</sup>

The following parties participated in this reopened proceeding: the staff of NRC; the Environmental Protection Agency; the Department of Interior; the U.S. Geological Survey; the States of California (California Energy Resources Conservation and Development Commission), Delaware, Maryland, Ohio, Wisconsin and New York; Baltimore Gas and Electric Co., *et al.* (a group of 16 utilities); Commonwealth Edison Co., *et al.* (a group of 8 utilities); the Tennessee Valley Authority; the Allied-General Nuclear Services Co.; Exxon Nuclear Company; Westinghouse Electric Corporation; the Atomic Industrial Forum; the Natural Resources Defense Council; the Pacific Legal

<sup>11</sup>On January 28, 1978 the Commission modified the procedures to allow participants to cross-examine witnesses on specific factual issues at the close of the legislative-type hearings, where it could be demonstrated with particularity that the procedure was necessary to prepare a record adequate for a sound decision. No cross-examination in fact occurred. After a special hearing to consider requests, the Board found that the requisite demonstrations had not been made.

<sup>12</sup>With regard to fuel cycle impacts not within the scope of the hearing, the notice observed that the staff had begun a general update which was expected to lead to a separate rulemaking proceeding. A proposed outline for this "update of WASH-1248" was announced by the staff on September 7, 1978. 43 Fed. Reg. 39801.

<sup>13</sup>The impacts from reprocessing, waste management and transportation of wastes given in the interim rule are maximized for either of the two fuel cycles considered (no reprocessing and reprocessing only to recover uranium). See note 1 to Table S-3, 10 CFR 51.20 (1978).

Foundation; Environmentalists, Inc.; the Sierra Club; the Union of Concerned Scientists; Mr. Marvin Lewis; and Dr. Chauncey Kepford.

At a prehearing conference held on July 28, 1977 the Hearing Board provided for the submission of written direct testimony by the participants, written questions and answers based on that testimony and follow-up questions, all prior to the start of the oral hearings. These hearings began on January 16, 1978 and concluded in March 1978 after ten days of testimony. During the hearings, in response to a petition by the State of New York, the Board expanded the scope of the proceeding to consider the economic feasibility of the model facilities on which the proposed Table S-3 values were based. The Board conducted all of the questioning during the oral hearings.

The Board compiled an extensive evidentiary record, including the staff's NUREG-0116 and NUREG-0218, the staff's testimony on the economic feasibility of its model facilities, the direct testimony of participants exceeding 1,100 pages, two rounds of written questions propounded by participants and several hundred pages of responses, more than 1,200 pages of transcript of oral hearings, written rebuttal testimony of the parties, and final concluding statements of the parties, filed June 26, 1978.

On August 31, 1978 the Hearing Board submitted a 137-page report to the Commission which summarized this record and outlined the significant issues raised by the participants. Also, responding to the Commission's request for the Board's views, the Board submitted on October 26, 1978 its Conclusions and Recommendations. The Board recommended that the Commission adopt as a final rule a modified Table S-3 proposed by the NRC staff, in which the majority of entries were unchanged from those in the interim rule. The Board also recommended that a "brief explanatory narrative" be adopted as part of the rule, which among other things would interpret the significance of the tabulated impacts in terms of environmental dose commitments. The Board's recommendations identified several aspects of the rule which in the Board's view should be improved upon during the general update of the fuel cycle rule.<sup>14</sup>

Shortly before the Board's recommendations were issued, the Commission announced that it would receive participants' written statements commenting on the rulemaking record and the Hearing Board's recommendations. Nine participants

<sup>14</sup>See note 12 above.

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submitted comments, including the NRC staff.<sup>15</sup> Several participants argued that the record did not support adoption of the modified Table S-3. New York State asserted that the record showed the model facilities on which the table was based were not economically feasible. Other opponents of the table argued that the tabulated impact values did not adequately reflect underlying uncertainties revealed by the record. In particular, they questioned basing reprocessing impacts on model facilities rather than past operating experience. The omission of technetium-99 releases from the table was also criticized. Several parties who opposed adopting the table stressed that dose commitments and health effects, economic and socioeconomic impacts, and cumulative impacts were not addressed by the table and were required for an adequate description of fuel cycle environmental impacts. These participants generally supported preparation of an explanatory narrative but urged a broader scope than the one proposed by the Board.

Other participants supported the Board's recommendation for adoption of the modified Table S-3 but questioned the need for an explanatory narrative. They pointed to procedural problems of providing adequate notice before a narrative could be incorporated as part of the rule. Some parties concluded, on the grounds that the D.C. Circuit had not criticized the portions of the original S-3 rule dealing with the front-end of the fuel cycle, that there was no legal requirement for a narrative or for consideration of fuel cycle environmental questions outside the scope of the original Table S-3.

The NRC staff favored adoption of the modified Table S-3 as a final rule but preferred that an explanatory narrative be deferred for preparation as part of the general update. The staff noted that explanatory material subject to litigation in individual licensing proceedings is presently introduced to accompany the use of Table S-3 in such proceedings and recommended that this practice continue.

On January 19, 1979 the Commission heard oral presentations from the commenters. These presentations provided a valuable elaboration of the parties' views but did not change the basic positions stated in the written comments. The Commission accepted brief supplemental written submissions following the oral presentations and then closed the record of this proceeding.

<sup>15</sup> The nine commenters were Mr. Marvin Lewis, the Natural Resources Defense Council, the Sierra Club, the State of New York, the States of Ohio and Wisconsin, Baltimore Gas and Electric, et al., Commonwealth Edison, et al., the Tennessee Valley Authority, and the NRC staff.

as of January 23, 1979.

### III. Final Rulemaking

#### 1. Adoption of the modified Table S-3

The Commission has found that except for technetium-99 releases the record supports adoption of the modified Table S-3 as a final rule, as recommended by the Hearing Board. The participants' comments and the Board's recommendations have made clear that the Table is not free of flaws, but for the reasons discussed below the Commission believes that these will not significantly impair the Table's usefulness as the starting point for considering fuel cycle impacts in individual reactor licensing proceedings.

To begin with, there can be little doubt that this rulemaking has been adequate from a procedural standpoint. The Supreme Court's *Vermont Yankee* decision confirmed that informal agency rulemaking is procedurally sufficient when the notice-and-comment requirements of the Administrative Procedure Act, 5 U.S.C. 553, are met. 435 U.S. 419 (1978). The fuel cycle rulemaking not only afforded these basic notice-and-comment procedures but also provided extensive additional written and oral procedures, including several not offered by the hearing board in the original S-3 rulemaking. A few participants expressed the view that the record might have been improved, had the Board exercised its discretion to permit cross-examination, but no one has argued that the record is legally deficient from a procedural standpoint.

As noted earlier, however, several comments to the Commission questioned whether the record provides sufficient evidence to support the numbers in the modified Table. The general thrust of these comments was that the model facilities analyzed by the staff were for one reason or another unacceptable as a basis for determining fuel cycle impacts. The Commission believes that the substance of these comments has been adequately addressed by the Hearing Board in the discussion supporting its recommendations. Conclusions and Recommendations of the Hearing Board, Docket RM-50-3. The issues of greatest importance or special concern to commenters are reviewed in the following subsections.

a. *Economic Feasibility.* The proposed rule clearly would be open to serious question if the model facilities on which the values in Table S-3 are based would be prohibitively expensive to build and operate. In response to the Board's request for evidence on economic feasibility, viewed in this narrow sense, the staff submitted cost estimates based on material from the GESMO

proceeding.<sup>16</sup> From these estimates the Hearing Board found per-reactor costs of reprocessing and waste management to be on the order of ten percent of the total costs for building and operating an individual reactor. The Board concluded that such costs were not prohibitive. Recommendations, page 58.

Comments by the State of New York challenged the Board's conclusion that establishing fuel cycle costs at a few percent of total generating costs sufficed to demonstrate economic feasibility.<sup>17</sup> New York cited testimony by its own witnesses asserting that the economics of nuclear power are precarious and that back-end fuel cycle costs will tip this doubtful balance against the nuclear option. This evidence, New York concluded, "mandates a finding of economic infeasibility of the back end of the uranium fuel cycle."

The Commission believes New York missed the distinction between the broad issue of nuclear power economics and the much narrower question of economic feasibility of specific models for waste management and reprocessing. Whether nuclear power is good business is not an issue in this rulemaking. The fuel cycle rule will be used only when someone has decided, rightly, or wrongly, that nuclear power is sufficiently viable economically to warrant applying for a reactor license. Once the reactor has operated, back-end fuel cycle activities must be carried out, whatever the cost. This rulemaking addressed the environmental impact of those activities based on methods and facilities which could on technological grounds reasonably be employed. The economic feasibility question, correctly identified by the Hearing Board, is simply whether these methods might be so outlandishly expensive that there will be a "major incentive for reducing [costs] at the expense of increasing the radioactive effluents above the values \* \* \* in Table S-3." Recommendations,

<sup>16</sup> Generic Environmental Statement on the Use of Recycle Plutonium in Mixed Oxide Fuels in Light Water Cooled Reactors, NUREG-0002, August 1978.

<sup>17</sup> Also, during the hearing and in a separate motion filed before the Commission on December 18, 1978, New York, together with Wisconsin and Ohio, urged that dollar value impacts should be brought within the scope of the S-3 proceeding. The matter of dollar value economic impacts is separate from the issue of economic feasibility. The Commission made clear earlier in an order issued February 9, 1978, Docket RM-50-3, that this rulemaking "was not intended to encompass a full economic analysis leading to inclusion of economic costs in the uranium fuel cycle rule." The Order left open the possibility that the detailed economic costs of the fuel cycle might be dealt with in a later generic rulemaking. The Commission will refer the States' motion to the staff for treatment as a petition for rulemaking pursuant to 10 CFR 2.202. To the extent that fuel cycle dollar value impacts are relevant to the cost-benefit balance for a reactor they may at present be considered in individual licensing proceedings.

page 58. The Commission believes that the fuel cycle cost estimates arrived at by the Hearing Board took adequate account of matters in controversy and provided a reasonable basis for the Board's conclusion that the staff's models are economically feasible in the sense described above.<sup>18</sup>

*b. Waste Management and Disposal.* In determining the impacts associated with waste management and disposal the staff assumed that high-level waste (or reactor spent fuel treated as waste) would be stored in interim facilities (water basins and retrievable surface storage facilities) for about twenty years and then disposed of by burial in a bedded salt geologic repository.<sup>19</sup> The staff's interim storage model was not seriously questioned at the hearing. The technology for storing spent fuel elements under water in pools is well established; radioactive releases to the environment have in practice been extremely small and may be expected to remain small, even if pool storage is protracted by delays in establishing disposal facilities. The Commission concludes that the staff analysis of interim storage impacts was reasonable. In any case, the values in Table S-3

<sup>18</sup> The Board's cost estimates took into account New York's vigorous objection to the staff's use of a 10 percent discount rate. The Board computed a range of estimated fuel cycle costs based on return on investment of 2 and 6 percent, suggested by New York as more realistic, and based its judgment on an overall cost estimate large enough to include the upper limit of the range. The Board also noted its view that costs of decommissioning a power reactor, a matter of controversy at the hearing, are facility-specific and should be considered in individual reactor proceedings rather than included among the costs of the fuel cycle activities which are the subject of the generic rule. The Commission finds the Board's reasoning correct on this point and confirms that reactor decommissioning costs are not relevant to this rulemaking.

<sup>19</sup> The program of interim storage followed by geologic disposal is in broad outline the same waste management model considered in the original fuel cycle rulemaking, but the record developed in the present proceeding is far more extensive, particularly with respect to disposal. Dr. Pittman's testimony at the original rulemaking in 1973 consisted largely of a description of a proposed retrievable surface storage facility for continuously monitored interim storage. Concerning ultimate disposal without further surveillance, Dr. Pittman noted that a major effort was underway to determine whether disposal in bedded salt was acceptable, but he did not describe the concept in any detail. In contrast, NUREG-0118, Section 4.4, provides a 30-page quantitative discussion of disposal of long-lived wastes in a bedded salt repository, with citations to many relevant technical documents prepared since 1973. The bedded salt concept was discussed extensively in written and oral testimony at the hearing. For example, the Board's oral examination of witnesses from the United States Geological Survey regarding the characteristics of salt beds as a repository medium occupies 37 pages of the hearing transcript, Tr. 699 ff. Docket RM-50-3. In addition, the present state of knowledge regarding nuclear waste disposal and its impacts has been extensively detailed in the Report to the President by the Interagency Review Group on Nuclear Waste Management ("IRG Report"), TID-29442 (March 1979) and the draft Subgroup Report on Alternative Strategies for the Isolation of Nuclear Waste, TID-28818 (Draft), October 1978.

would not be significantly affected by any reasonably foreseeable variations from the time periods and models for interim storage assumed by the staff.

Analysis of waste disposal necessarily involves greater uncertainty than interim storage because disposal technology has not yet been selected. Consistent with the court of appeals' ruling that it suffices to assess one credible waste disposal method, rather than the full spectrum of alternatives, NUREG-0116 chose to analyze "deep emplacement in a stable geologic medium (bedded salt) under the continental U.S." The staff concluded that this technology "has the greatest amount of substantive information available from which to summarize environmental impacts" and would be "reasonably representative of impacts that would result from any appropriately designed geological emplacement." NUREG-0116, page 2-9.

The waste repository impacts of greatest concern are radioactive effluents which might escape to the biosphere during the thousands of years which must elapse before radioactivity in the waste has dropped to an insignificant level. For spent fuel disposal the staff made the conservative assumption that fission-product gases in the spent fuel, including all tritium, krypton-85, carbon-14, and iodine-129, would be released during handling and emplacement of the waste prior to sealing of the repository.<sup>20</sup> This

assumption reflects the possibility that the spent fuel storage canisters and the fuel rod cladding will be corroded by the salt during the period the repository is open (roughly 6 to 20 years), and volatile materials in the fuel will escape to the environment. The staff assumed, however, that after the repository is sealed there would be no further release of radioactive materials to the environment.<sup>21</sup>

With regard to this assumption of complete repository integrity, the Hearing Board identified as the major

<sup>20</sup> The numbers in Table S-3 reflect this assumed complete release. In the alternative that spent fuel is reprocessed rather than disposed of directly, the staff's reprocessing model assumed complete release of tritium, krypton-85, and carbon-14 but provided for capture of most of the iodine-129. The value for iodine-129 that appears in Table S-3 is for total release.

<sup>21</sup> NUREG-0118 states (pages 2-10, 2-11): "Long term impacts will be nonexistent if the repository performs as expected and maintains the wastes in isolation. The rationale . . . follows a simple line: since the [bedded salt] formation has been demonstrably undisturbed for many millions of years, there is reason to believe that it will remain undisturbed into the future, even though mildly modified by placing the wastes into it." Supplementing this basic rationale, Section 4.4 of NUREG-0118 provides a detailed review of reasons for believing that a bedded salt disposal system, suitably selected, will prevent significant releases for the full period needed for waste detoxification.

concern the question "whether water might enter, dissolve the radioactive materials, and transport them to the biosphere." The staff assumed such transport would not occur, for reasons summarized by the Board as "in part based on the fact that the salt in which the waste would be buried would have existed for millions of years free of water except for a small amount of entrapped brine, and could be expected to continue to so exist. The location would be one of low seismic and volcanic activity and with few resources important to man, so the probability of intrusion by nature or by humans would be small. Salt is plastic and would tend to heal some types of intrusions. Furthermore, if water were to reach the repository and dissolve the waste, natural barriers provided by media surrounding the salt would slow the rate of transport so that most of the radioactivity would decay before it would reach the biosphere."

Conclusions and Recommendations of the Hearing Board, Docket RM-50-3, page 34.

The Commission finds that these characteristics of a bedded-salt repository afford a reasonable basis for the staff's conclusion that the repository can maintain its integrity, provided that sites meeting the selection criteria can in fact be found and developed. On this key issue the evidence in the record is tentative but favorable. At the hearing a witness for the U.S. Geological Survey testified that he believed it possible to find sites for repositories that would give the low release rates estimated by the staff. Transcript at 729. Although no specific location has yet been identified as meeting the criteria, the widespread distribution of salt deposits favors the view that suitable sites can be found.<sup>22</sup> Such general evidence, coupled with the absence of any strong argument that a site cannot be found, probably affords as strong a record as can be made on the issue until a specific site has been thoroughly investigated and found to be suitable.<sup>23</sup>

For these reasons and based on this record it is the Commission's judgment that a suitable bedded-salt repository site or its equivalent will be found, but the Commission notes and agrees with the Interagency Review Group on Waste Management that areas of uncertainty

<sup>22</sup> NUREG-0118 notes that salt deposits have been found in 24 of the 50 States. Sec. 4.4.1.2.

<sup>23</sup> In view of the often-cited experience at Lyons, Kansas, it is worth mentioning that the failure of a particular site to meet selection criteria, though discouraging, cannot of itself disprove the feasibility of the bedded-salt repository concept. At Lyons, Kansas, an initially promising site later proved unsuitable because of previously undiscovered bore holes and adjacent mining operations that compromised the integrity of the site. These problems were specific to the site rather than inherent in the concept.

remain regarding both the likelihood of finding a site and the probability that it will perform as expected.<sup>24</sup> The Commission's judgment in this regard is limited to the purposes for which this proceeding was brought—namely to specify for NEPA purposes the environmental impacts to be considered in individual licensing proceedings as part of the environmental cost-benefit analysis for a power reactor. It is in no way intended to be a judgment for choosing among alternative technologies for waste disposal. That kind of judgment is in the first instance to be made by the Department of Energy and will be subject to further review in a Commission licensing proceeding when a particular proposal comes before us. Nor is the Commission making judgments in this proceeding as to the likelihood of waste disposal being accomplished safely. That issue has been addressed separately by the Commission.<sup>25</sup>

Furthermore, the Commission intends in the near future to conduct a generic proceeding to reassess the outlook for the availability of safe waste disposal methods in light of new data and recent developments in the Federal waste

management program.<sup>26</sup>

In view of the uncertainties noted regarding waste disposal, the question then arises whether these uncertainties can or should be reflected explicitly in the fuel cycle rule. The Commission has concluded that the rule should not be so modified. On the individual reactor licensing level, where the proceedings deal with fuel cycle issues, only peripherally, the Commission sees no advantage in having licensing boards repeatedly weigh for themselves the effect of uncertainties on the selection of fuel cycle impacts for use in cost-benefit balancing. This is a generic question properly dealt with in this rulemaking as part of choosing what impact values should go into the fuel cycle rule. The Commission concludes, having noted that uncertainties exist, that for the limited purpose of the fuel cycle rule it is reasonable to base impacts on the assumption which the Commission believes the probabilities favor, *i.e.*, that bedded-salt repository sites can be found which will provide effective isolation of radioactive waste from the biosphere.<sup>27</sup>

Assuming an initially suitable site is found, the Board noted that particular concern had been expressed regarding the possibility that heat released by radioactive decays in the waste might alter conditions in the salt so as to give access to water and promote migration of the waste. As the Board points out in its recommendations, however, the average temperature rises in the salt will depend on the density of waste

emplacement. Increasing the amount of land committed to the repository reduces this density and may be expected to be an effective measure for meeting concerns about temperature effects. During the proceeding the staff proposed a modification to Table S-3 raising the acreage committed to waste disposal. This modification is included in the table adopted as the final rule.

Even allowing for some eventual leakage of water into the repository, information in the record indicates that transport of materials out of the repository area would take tens of thousands of years. The only apparent natural mechanisms cited which might reasonably cause major releases involved very low probability catastrophic events such as a large meteor strike on the repository or formation of new geologic faulting intersecting the area. Releases through accidental intrusion by man remain possible but in the Commission's view unlikely since casual intrusions should be virtually impossible and sites should be selected in areas offering little incentive for deliberate intrusion in search of natural resources. Given the staff's assumption that volatile fission products are totally released before the repository is sealed, the Commission finds that taking post-sealing releases as zero does not significantly reduce the overall conservatism of the table.

In summary, the Commission concludes, based on the above considerations and the more detailed analysis given in the Board's recommendations, that the staff's model for assessing impacts of waste disposal is reasonable and adequate for the purposes of the fuel cycle rule.

**c. Reprocessing.** The reprocessing alternative considered in this proceeding involved reprocessing of spent fuel for purposes other than recycle of plutonium.<sup>28</sup> In considering this alternative, the Commission expresses no view on the likelihood that

<sup>24</sup>These residual uncertainties were noted in the Report to the President by the Interagency Review Group on Waste Management, TID-29442, March 1979, which was discussed in draft form at the January 19, 1979 oral presentation. Responding to comments on the feasibility of waste disposal in mined repositories, the IRG report states on page 42: "No scientific or technical reason is known that would prevent identifying a site that is suitable for a repository provided that the systems view is utilized vigorously to evaluate the suitability of sites and designs, and in minimizing the influence of future human activities. A suitable site is one at which a repository would meet predetermined criteria and would provide a high degree of assurance that radioactive waste can be successfully isolated from the biosphere for periods of thousands of years. For periods beyond a few thousand years, our capability to assess the performance of the repository diminishes and the degree of assurance is therefore reduced. The feasibility of safely disposing of high level waste in mined repositories can only be assessed on the basis of specific investigations at and determinations of suitability at particular sites. . . . [E]ven at the time of decommissioning some uncertainty about repository performance will still exist." The Commission believes the IRG Report's view that suitable sites can be identified but that uncertainty about repository performance cannot be entirely eliminated is consistent with the record compiled in the fuel cycle rulemaking.

<sup>25</sup>42 Fed. Reg. 34391, July 5, 1977. See also *Natural Resources Defense Council v. NRC*, 582 F. 2d 166 (2d Cir. 1978).

<sup>26</sup>The immediate occasion for this proceeding is the D.C. Circuit's remand to the Commission of *State of Minnesota v. NRC*, Nos. 78-1269 and 78-2032 (May 23, 1979) to consider whether there is reasonable assurance that an off-site storage solution for nuclear wastes will be available by the years 2007-09, the expiration dates for licenses of certain nuclear plants where the Commission has granted permits to expand on-site spent fuel capacities and if not, whether there is reasonable assurance that the fuel can be stored safely at the site beyond those dates. A continuing reassessment of the Commission's views on waste disposal is part of the commitment which the Commission has made to Congress. The final IRG report, which was available to the fuel cycle rulemaking participants only at the close of the rulemaking and only in draft form, will be part of the new information which the Commission will consider in its reassessment. The Commission will announce at a later date the specific procedures to be adopted for this proceeding and its precise scope.

<sup>27</sup>Even if, contrary to the evidence in the record and the Commission's expectation, bedded-salt repositories should ultimately be found not adequate, the strong incentive to develop sound waste disposal methods and the major effort now directed to this goal make it likely that a means of effective isolation will be found among the many geologic disposal techniques being considered. The IRG Report (see note 24 above) notes on page 3 that "increased levels of support . . . and broader range of disciplines involved have led to a greatly increased accumulation of knowledge within the [waste management] program. The current rate of growth of knowledge is very large."

<sup>28</sup>On December 23, 1977, in response to President Carter's nuclear non-proliferation policy, the Commission terminated proceedings on pending or future plutonium recycle-related license applications and halted proceedings on the Generic Environmental Statement on Mixed Oxide Fuel (GESMO) to determine under what condition uranium and plutonium might be recycled from spent light water reactor fuel and fabricated into fresh mixed oxide fuel on a wide scale. In the Matter of Mixed Oxide Fuel, 6 NRC 661 (1977). See also 7 NRC 711 (1978).

such reprocessing will take place.<sup>29</sup> Under this alternative the staff assumed that spent fuel after 160 days cooling at the reactor would be shipped to a model reprocessing facility, where the uranium, plutonium, and fission products would be separated by the Purex solvent extraction process into three liquid fractions. The uranium would be converted to uranium hexafluoride for recycling at an enrichment plant. The plutonium, still containing about five percent of the fission products to deter diversion, would be converted to plutonium oxide and packaged for disposal in a Federal waste repository. The high-level liquid waste (HLLW), containing the bulk of the fission products, would be stored up to five years in tanks and then calcined and formed into glass for repository disposal.

No significant question was raised at the hearing regarding the staff's choice of processes, but considerable controversy arose concerning the staff's assumption that the performance of the model facility would show a significant improvement over previous commercial reprocessing experience. The only commercial experience in the United States with reprocessing spent uranium oxide fuel from light water reactors was obtained at the Nuclear Fuel Services plant (NFS) in West Valley, New York. This relatively small plant, which is no longer in operation, had the capacity to process on the order of one metric ton of spent fuel per day but in practice achieved a capacity factor of only 0.33 as compared with an expected 0.8. A high level of radioactive effluent releases was experienced during the NFS operation.

The staff based its reprocessing impact estimates on performance predictions for future facilities rather than on the NFS operation. The staff's model reprocessing facility is intended to be representative of the as-yet-unoperated Allied Gulf Nuclear Service Plant at Barnwell, South Carolina, built with a capacity of 5 metric tons/day, and Exxon Nuclear's proposed Nuclear Fuel Recovery and Recycling Center, designed for an ultimate capacity of 7 metric tons/day. The staff assumed that

<sup>29</sup> The Commission's instructions to the S-3 Board of January 26, 1978 (Commissioner Gilinsky dissenting) noted that "Although the 'once-through' fuel cycle is currently the reference case for United States policymaking purposes, the possibility of some form of reprocessing for waste management purposes is not excluded and therefore the Commission decided that this alternative should be included as well. The Commission paid particular attention to the fact that the spent fuel processing surveyed in this proceeding would treat plutonium solely as a waste product and would not make plutonium available in a form suitable for use as reactor fuel. The Commission emphasized that its refusal to cut back the scope of the fuel cycle rulemaking is not to be allowed to convert this rulemaking into a CESMO proceeding."

the model facility would operate with a capacity factor of 0.8 and would reprocess spent fuel from 57 model reactors.<sup>30</sup> The staff assumed that effluent control measures proposed for the model facility would achieve for several radioactive effluents a degree of decontamination greatly exceeding that demonstrated at NFS.<sup>31</sup>

The Hearing Board found that equipment was presently available or reasonably likely to be developed that would enable operation of a reprocessing facility on the scale assumed by the staff. The Board noted that design improvements intended to overcome operational difficulties experienced at NFS have been incorporated in Barnwell and that in any case no problems identified in the record appeared too difficult for solution by sound engineering and additional experience. The Board found that the capacity factor of 0.8 assumed by the staff was probably too optimistic but that a factor of 0.7 was likely to be achieved. Even with this lower capacity factor, the Board found that because the staff had probably overestimated the amount of spent fuel discharged annually per reactor the staff's model facility would still be able to reprocess spent fuel from 57 reactors, as assumed. In any event, the Board observed, radioactive releases and natural gas consumption, which are the major reprocessing impact contributions to Table S-3, are primarily dependent on the amount of spent fuel processed per reference reactor year and are not much affected by reprocessing plant size or capacity factor.

With regard to radioactive effluents from reprocessing plants, the Board found that the impact values "are reasonable and in most instances are overestimates of the impacts that would actually occur." Recommendations at 17. The Board noted that the staff assumed spent fuel would be reprocessed after 160 days decay, while in all likelihood any spent fuel actually reprocessed in the foreseeable future will probably have been stored five years or more following removal from the reactor. In this period iodine-131 (8-day half-life) will have decayed away, ruthenium-106 (368-day half-life) will be reduced by a factor of about 30, and tritium and krypton-85 will be reduced by a factor of 1.3 or more.

The Board observed that the control

<sup>30</sup> As of March 1979 there were seventy light water power reactors licensed to operate in the United States.

<sup>31</sup> These include ruthenium-106, strontium-90, cesium-137, plutonium and other transuranic nuclides. The staff assumed decontamination factors on the order of 10<sup>6</sup>. Decontamination factors of about 10<sup>6</sup> were measured at NFS for ruthenium, strontium, and cesium. See Recommendations at 22.

measures which the staff relied on to achieve decontamination factors greatly superior to NFS experience "have not been operated in the combinations proposed, and some have been tested only in the laboratory."

Recommendations at 20. Nevertheless the Board found these tests sufficiently convincing to support the staff's conclusion that the assumed decontamination factors can be achieved and probably surpassed. The low decontamination factors at NFS were, in the Board's view, largely caused by faulty design and perhaps faulty operation. The Board concluded that the staff had probably overestimated the amounts of ruthenium, non-volatile fission products and transuranic nuclides likely to be released during normal operation of a model reprocessing facility.<sup>32</sup>

In its comments to the Commission, the Sierra Club stressed its view that reprocessing impacts (including occupational exposures) should be based on the NFS historical experience rather than on "idealized hypothetical facilities," or alternatively that the table should be amended to include two sets of reprocessing estimates, one based on historical experience and the other on model facilities. The Sierra Club also called attention to the omission of technetium-99 releases from Table S-3 and argued that these releases would be significant.<sup>33</sup>

The Commission does not accept the view that historical experience should be the definitive measure for reprocessing impacts. The Commission finds that the staff and the Board were reasonable in recommending that reprocessing impact estimates take account of expected technological improvements, especially where most if not all of those improvements are not simply "hypothetical" but are already designed, constructed, and installed in an existing facility (Barnwell). As the

<sup>32</sup> With regard to volatile radionuclides, as noted previously (see note 20), the staff assumed all tritium, krypton-85, and carbon-14 in spent fuel would be released, either in reprocessing or during the operating phase of a waste disposal repository. The Board found the release values for krypton-85 and tritium to be overestimates and the carbon-14 emission value of 24 curies to be "reasonable." The Board found that the staff had also overestimated iodine-129 releases from reprocessing, but this estimate is of no consequence since the iodine-129 value in Table S-3 is based on total releases from spent fuel during waste repository operation.

<sup>33</sup> Technetium-99 is a relatively volatile radionuclide with a half-life of 213,000 years. The Hearing Board found that the assumption that all iodine-129 is released "tends to compensate" for the neglect of technetium. The Board concluded also that technetium releases could probably be contained at least as well as ruthenium releases, which in the Board's view the staff had overestimated. The Board recommended that technetium release impacts be considered explicitly as part of the general update.



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comments pointed out, Barnwell has not operated, and there is always uncertainty whether untested facilities will work as well as planned. But even if one agrees with the observation made in several of the comments that in nuclear technology things almost never work as well as planned, it would seem that reasonable allowance for this factor is included within the staff's many conservatisms and overestimates of releases noted by the Hearing Board.

Furthermore, the Commission does not believe that including in the table a separate set of impact estimates based on NFS experience would illuminate the uncertainty issue. NFS impacts are not likely to be a meaningful measure, even as a limiting case. It is clear from the general dissatisfaction with the NFS facility that further commercial reprocessing ventures will not be attempted unless their proponents have sound reason to expect much better performance, including reduced occupational exposure.<sup>34</sup>

Accordingly, the Commission concludes, as in the matter of waste disposal uncertainties, that uncertainties in reprocessing impacts should be resolved within this rulemaking by adopting tabulated impacts based on model facilities using technology most likely to be employed. Except for technetium-99 releases, the Commission has therefore found that the modified Table S-3 provides an adequate treatment of reprocessing impacts. It appears from the record that technetium releases from the fuel cycle will occur but are not included in the table. The Commission believes that Table S-3 should be supplemented during the general update by inclusion of an appropriate value for technetium releases. Pending this supplementation, both the magnitude and the environmental significance of technetium releases from back end fuel cycle activities may be considered in individual reactor licensing proceedings which have not been noticed for hearing on environmental matters prior to the effective date of this final rule. In view of the Hearing Board's conclusion that the conservative assumption of complete release of iodine-129 tends to compensate for the omission of

technetium from Table S-3, the Commission finds it unnecessary to reopen closed proceedings or to disturb consideration of environmental issues in presently pending proceedings to provide for consideration of technetium-99 releases.

### 2. *The Explanatory Narrative.*

As the comments indicate, this rulemaking grew well beyond a narrow inquiry into the evidentiary basis supporting the numbers tabulated in the interim rule. The broader perspective taken by the participants and the Hearing Board has helped clarify many aspects of fuel cycle environmental impacts not covered by Table S-3 which need to be addressed, at least conceptually, in a comprehensive fuel cycle rule. Until such a rule is developed important generic fuel cycle issues must continue to be litigated in individual reactor licensing proceedings. These issues include—but are not necessarily limited to—environmental dose commitments and health effects from fuel cycle releases, fuel cycle socioeconomic impacts, and possible cumulative impacts. Pending further treatment by rulemaking, the NRC staff is directed to address these matters in the environmental analysis accompanying a proposal to issue a limited work authorization, construction permit, or operating license for a power reactor.

The Commission has accepted the Hearing Board's recommendation that an explanatory narrative which addresses these subjects should be prepared and adopted as part of the fuel cycle rule. Although such a narrative is not legally required, provided an adequate description of fuel cycle impacts is given in individual proceedings, the same reasons which favor treatment of fuel cycle impacts by generic rulemaking also favor evaluating the significance of those impacts by rulemaking, rather than by repeated adjudication. The Commission agrees, however, that adoption of a narrative by rulemaking will require adequate notice and opportunity for public comment and therefore cannot be done without a further proceeding. Since the narrative must address important basic issues in arriving at a method for evaluating the

significance of fuel cycle impacts,<sup>35</sup> the Commission has determined that such a proceeding should begin promptly.

The Commission has directed the staff to prepare by October 1, 1979, a draft narrative for the Commission's review prior to issuance for public comment.

Pursuant to 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 sections 552 and 553 of Title 5 of the United States Code, the following amendment to 10 CFR Part 51 is published as a document subject to codification, to be effective on September 4, 1979.

### Separate Views of Commissioner Bradford on S-3

I

I am concurring in the latest version of the S-3 table with the understanding that it is to be extensively supplemented. Today's decision does improve somewhat on the present interim version. However, it remains a document with four weaknesses that will have to be improved through the promised narrative and update proceeding. The weaknesses are the zero release repository judgment, the reprocessing scenario, the procedural underpinning, and the absence of a clear statement of the health effects and time commitments involved. Additionally, I do not agree with the ambiguous and pointless restriction on the litigation of the technetium issue and would prefer to handle it as was agreed to by four Commissioners on May 3, 1979.

I can concur in the "zero release" number only because it is better founded than the same figure in the present interim version, and because, as the Commission states, this assumption does not appear to affect the S-3 table's overall conservatism. Nonetheless, there are uncertainties here, and the Board's summary of the record has not done them justice. The forthcoming narrative will, in my view, need to address this subject.

<sup>34</sup> Among these issues is the question of the time period over which dose commitments from long-lived radioactive effluents should be evaluated. The court of appeals observed with regard to waste disposal that: "[T]he toxic life of the waste under discussion far exceeds the life of the plant being licensed. The environmental effects to be considered are those flowing from reprocessing and passive storage for the full detoxification period." 547 F. 2d 638, note 12. The analysis required by NEPA is, of course, subject to a rule of reason. See *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 551 (1978); *NRDC v. Morton*, 459 F. 2d 827, 837 (D.C. Cir. 1972). How dose commitment evaluations over extended periods of time might be performed and what their significance might be are subjects which the Commission expects an explanatory narrative would address.

<sup>35</sup> See for example, Transcript, p. 729. The Commission improves upon the Board's understatement in its Footnote 24, p. 40. However, the IRG report itself at that point contains a dissenting view from members who felt that insufficient attention was given to "significant gaps and uncertainties in our current technical understanding."

<sup>34</sup> Thus the NFS facility is not representative of "existing technology" in the sense of an ongoing activity which will continue at a present level of impact until technical breakthroughs occur. The court of appeals' comment, 547 F. 2d 638, note 13, noted by the Sierra Club, that it might be desirable to have alternative impact estimates, one "based only on existing technology" and another which takes account of anticipated developments, does not in the Commission's view apply to the reprocessing situation as it now exists. The court of appeals also stated that it had "no occasion in this case to decide whether a court could ever require such a procedure." *Id.*

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Furthermore, I think that the Commission goes too far in terming its assumption that a "bedded salt repository or its equivalent will be found" to be a "judgment." I think that little more can be said by a prudent regulatory agency at this time in the face of this record and the general uncertainty than that the direction of current federal programs makes a bedded salt repository a responsible working assumption for NEPA purposes. That is really all that I think the staff testimony supports.<sup>2</sup>

More seriously, I continue to disassociate myself from the optimistic assessment of the waste management program cited by the majority that is in 42 Fed. Reg. 34391.<sup>3</sup> In July 1977, the Commission reached a sweeping conclusion on the sufficiency of what then passed for a waste management program without benefit even of a notice and comment proceeding, never mind a formal review. For this Statement of Considerations to reference that denial of a requested rulemaking as an expression of a Commission view on the safety of a waste repository proceeding is procedural farce of a low order. It should not be done here, especially in light of the commitment to a new generic proceeding.

As to reprocessing, I have concluded that Commissioner Gilinsky was in many respects correct in his dissenting views from our January 26, 1978 Memorandum on the scope of this rulemaking. Nevertheless, the record has now been built on what may be an unlikely case, and it seems to me the Commission's decision so circumscribes it that the worst harms foreseen by Commissioner Gilinsky cannot result from any responsible reading of the current Statement of Considerations.

### II

By memorandum of January 26, 1978, to the Fuel Cycle Rulemaking Hearing Board, the Commission ordered that the Board entertain requests for cross-examination of particular witnesses on specific factual issues where a showing could be made with particularity that this procedure was necessary for an adequate record. While the Commission left the decisions on cross-examination to the sole discretion of the Hearing Board, it expected that the Hearing Board would apply the procedures "in a sensitive and careful fashion so as to assure the ventilation and consideration of waste management issues called for in *NRDC v. NRC*, 547 F.2d 633 (D.C. Cir. 1976)." I dissented from the extraordinary discretion delegated to the Board and the restrictive criteria for cross-examination.

The Board was neither sensitive nor careful in its decision to deny all cross-examination. Rather than assuring the ventilation and consideration of waste management and disposal issues, the Board stifled full exploration of crucial and difficult subjects even when the staff, to its credit, did not object.

The denial of cross-examination on two particular issues serves to illustrate the consequences. The Sierra Club sought to cross-examine several witnesses on the release of technetium from the waste

management and disposal fuel cycle facilities. The Board denied the request in general terms,<sup>4</sup> stating that many of the matters were not involved in this proceeding or not in serious dispute. Moreover, the Board said its review indicated that each subject was "fully ventilated" through other procedures. The Commission's finding on technetium rejects these conclusions of the Board. The Commission found that technetium releases should be included in Table S-3. However, because there was not sufficient evidence in the record to derive a release figure, the Commission ordered that the issue be litigable in individual proceedings. Thus the Commission, contrary to the Board, viewed the release of technetium both as being insufficiently serious dispute and so inadequately ventilated as to require further litigation.

By avoiding a full record on technetium, the Board has shown the futility of the Commission's procedural shortcut. As I noted in my January 26, 1978 dissent, the delays caused by withholding cross-examination can far exceed the "delays" inherent in cross-examination. The issue of technetium release now may be litigated in every individual licensing proceeding. Instead of being cross-examined once, staff witnesses are potentially subject to cross-examination in many proceedings, with licensing boards, the Appeal Board, and possibly the Commission reviewing the record of each case.

The Board also refused to allow cross-examination regarding the uncertainties of bedded salt as a waste medium. This refusal was particularly unfortunate since, as noted by the petitioner for cross-examination, it came immediately after the DOE Task Force on Nuclear Waste Management stated it was "aware of scientific issues concerning the adequacy of salt as suitable geologic medium for emplacement of concentrated waste exhibiting high surface temperatures." (Report of Task Force for Review of Nuclear Waste Management, U.S. DOE at 9, February 1978).

One of the issues on which NRDC requested cross-examination was the staff's lack of analysis of media other than salt. Now, without this inquiry, the Commission makes a "judgment" that an "equivalent" to a bedded salt repository will be found. This statement rests on some statements from the IRG Report, issued after the hearing was over.<sup>5</sup> Thus the Commission has, through the dubious procedural device of its "irrevocable delegation," treated a subordinate board like a distant and separate part of the government and has thereby cost itself any chance to correct the weakness of the record.

In refusing to permit cross-examination on waste disposal, the Board has kept perfect the past record of the Commission's obsessive need not to know about the uncertainties regarding its waste disposal assumptions. While continuing to express "confidence" that the wastes can and will be disposed of safely and while judging that a bedded salt repository or its equivalent will

be found which will have a zero release after it is sealed, the Commission has never allowed a proceeding to take place where witnesses supporting these views could be cross-examined.

While this approach has been found by courts not to be inconsistent with Congressional intent, it is inconsistent with an accurate appraisal of the consequences of new licensing actions. I would rather that this agency had looked less for the legally acceptable minimum procedures and more for a process that gave the Commission and ultimately the public the most accurate possible conception of the environmental commitments being made on its behalf.

### Separate Views of Commissioner Gilinsky on Final Adoption of the S-3 Rule

In February the Commission decided to go forward with a final table of nuclear fuel cycle environmental impacts (S-3) without waiting for the narrative explanation which it directed the NRC staff to prepare to accompany the table. Without such an explanation of the effluent release values in terms of radiological dose commitments and associated health effects, there is not much use a licensing board can make of the table in deciding whether or not to approve a license. The new table is in fact almost identical to the interim table in use now. The major effect of adopting a final rule now without an explanatory narrative is to relieve pressure for the narrative's preparation. To avoid this result I earlier urged the Commission to hold up promulgation of a final rule until the narrative is available and approved by the Commission.

At issue is each reactor's share of effluent releases from the operation of the overall nuclear fuel cycle. But the table values do not depend on the characteristics of the specific powerplant that is the subject of a licensing proceeding—they do not distinguish among reactors. As a consequence, it is virtually inconceivable that the table would affect the outcome of any such a licensing proceeding before one of our boards. A finding that the reactor's share of the fuel cycle effluents outweighs the benefits of the plant in terms of the electric power it delivers is tantamount to a conclusion that no reactor should be licensed.<sup>1</sup> As a practical matter, such a finding, reaching the very core of NRC decisionmaking could—and should—come only from the Commission itself. If there is doubt about the outcome of this question the Commission should address it directly. By not addressing it and by dealing instead with the fuel cycle environmental impacts in reactor licensing proceedings by handing the licensing boards a table of effluent releases the Commission is in effect saying that these impacts should not affect the outcome. That may in fact be the right conclusion; but if it is, the Commission should state it clearly and not hide behind a table of numbers.

There is another reason for my disagreement with the Commission's action in approving the final rule. I would not adopt

<sup>4</sup>Memorandum and Order, May 4, 1978.

<sup>5</sup>Report to the President by the Interagency Review Group on Waste Management, TID-29442, March 1979.

<sup>2</sup>Transcript, p. 534, 575.

<sup>3</sup>Memorandum and Order, p. 41.

<sup>1</sup>The notion that the fuel cycle effluents add to one side of the "NEPA balance" and thus might tip it in some cases and not in others is naive.

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at least one of the values in the table—the zero expected release from a high level waste repository. I am concerned that the Commission's expressed confidence in the perfect long term operation of such a waste depository may be misplaced, especially in view of its being based on a general examination by the Board in this proceeding of the bedded salt repository concept.

In this regard, I note that the D.C. Circuit Court of Appeals in *Minnesota v. NRC* has remanded to the Commission the question of whether there is reasonable assurance that wastes can be disposed of safely and at what point in time disposal can reasonably be effected. I think that the generic proceeding which the Commission plans to conduct in response to the D.C. Circuit's decision will give us an appropriate vehicle for a thorough-going evaluation of the problems involved in the government's commitment to a waste disposal solution and the likelihood that such a program is not only feasible but is also on course.

No such repository has yet operated. The prospective constructors of such a repository have not yet agreed on a design or even chosen a geologic medium. It seems anomalous, at this stage, for the regulators to express more confidence on this score than the repository designers and builders themselves have expressed.

I would add two brief comments. I previously argued that there was no need to include in this analysis an option for reprocessing, especially the contrived reprocessing mode which was considered in this hearing. The inclusion of this option has indeed complicated and lengthened the proceeding.

Also, I have come to agree with Commissioner Bradford that the Commission should not have delegated to the S-3 Hearing Board the discretion to make final determinations on whether or not to allow cross-examination on issues arising in the course of the proceeding.

45 FR 74693

Published 11/12/80

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*Licensing Requirements for the Storage of Spent Fuel in an Independent Fuel Spent Storage Installation*

See Part 72 Statements of Consideration

46 FR 13971

Published 2/25/81

Effective 3/27/81

*Disposal of High-Level Radioactive Wastes in Geologic Repositories: Licensing Procedures*

See Part 60 Statements of Consideration

46 FR 28630

Published 5/28/81

Effective 6/29/81\*

### 10 CFR Part 51

#### Alternative Site Issues in Operating License Proceedings

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations in 10 CFR Part 51, "Licensing and Regulatory Policy and Procedures for Environmental Protection," to provide that, for National Environmental Policy Act (NEPA) purposes, alternative sites will not be considered in operating license reviews for nuclear power plants and need not be addressed by operating license applicants in their environmental reports submitted to the NRC at the operating license stage. After review of public comment the Commission has concluded that by the time the operating license application has been submitted to the NRC staff for review, the alternative of siting the nuclear power plant elsewhere is no longer likely to be a reasonable alternative for the purposes of NEPA.

**EFFECTIVE DATE:** June 25, 1981.

**FOR FURTHER INFORMATION CONTACT:** Bruce A. Berson, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (301) 492-7678.

**SUPPLEMENTARY INFORMATION:** On April 9, 1980, the Nuclear Regulatory Commission published in the *Federal Register* (45 FR 24168) a proposed amendment to its regulations, 10 CFR Part 51, "Licensing and Regulatory Policy and Procedures for Environmental Protection," to provide procedures and performance criteria for the review of alternative sites for nuclear power plants under the National Environmental Policy Act of 1969 (NEPA). The proposed rule specified (1) information requirements for applying for an alternative site review by the Commission, (2) the timing of Commission review, (3) the region of interest to be considered in selecting sites, (4) criteria for the selection of sites, (5) criteria for comparing a proposed site with alternative sites, and (6) requirements for reopening an alternative site decision. Minor conforming amendments to 10 CFR Parts 2 and 50, "Rules of Practice for Domestic Licensing Proceedings" and "Domestic Licensing of Production and Utilization Facilities," respectively, were also

\* Correction 46 FR 29457

proposed. Interested persons were invited to submit written comments on the proposed amendments by June 9, 1980.

Twenty-seven letters of public comment were received on the proposed amendments. The Commission has carefully considered the comments regarding the proposed requirements for reopening the alternative site question after a favorable decision at the construction permit or early site review stage (Item 6 above) and has decided to take final action on this issue, insofar as it relates to operating license (OL) proceedings, while the staff continues working on the other issues raised in the notice of proposed rulemaking. For the reasons discussed below, the Commission has determined that alternative site issues decided by the Commission and its adjudicatory tribunals (Atomic Safety and Licensing Boards and Atomic Safety and Licensing Appeal Boards) as part of construction permit (CP) or early site review proceedings may not be reopened at the operating license stage.<sup>1</sup> The proposed rule has been revised accordingly. In addition, a minor conforming amendment to 10 CFR 51.21 makes clear that applicants for operating licenses need not address alternative sites in environmental reports submitted to the NRC at the operating license stage.

Paragraph VIII.1 of the proposed Appendix A to 10 CFR Part 51 provided that "[A] reopening and reconsideration of the alternative site decision after a final limited work authorization or construction permit will be permitted only upon a reasonable showing that there exists significant new information that could substantially affect the earlier decision."<sup>2</sup> The rationale and discussion supporting this aspect of the proposed rule provided that:

At some point after issuance of the CP, the alternative of siting the nuclear power plant elsewhere likely will no longer be a reasonable alternative for the purposes of NEPA. That is, there is a point where comparative forward costs and the temporal proximity to the provision of needed (or desirably

<sup>1</sup> The Commission will address the standards for reopening the alternative site issue prior to the OL stage when it considers the remainder of the proposed rule.

<sup>2</sup> 45 FR 24177, column 3 (April 9, 1980). The remainder of proposed paragraph VIII.1 and paragraph VIII.2 address questions pertaining to the treatment of the costs of delay and of moving to another site. Proposed paragraph VIII.3 pertains to the procedures applicable when two sites within a region have received a favorable NRC decision on alternative sites. These particular issues are inextricably interwoven with other aspects of the proposed rule. The Commission will consider these questions when the remainder of the rule is before it. Hence, the Commission expresses no view on the merits of these issues at this time.

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substitutable) power so favor the partially constructed site that, there likely is no real possibility that the nonsafety-related considerations at an alternative site would be obviously superior to the proposed site. At that point, the reconsideration of alternative sites likely would not be required, unless the proposed site has been judged unsuitable for some safety or environmental reason.

Of the twenty-seven commenters, six, all representing the nuclear industry, addressed this particular aspect of the proposed rule in their letters. Two commenters recommend that the proposed rule be clarified to provide that the "new information" required to support a reopening of the alternative site decision should be limited to new information pertinent to the proposed site and not include information relating to an alternative site. Two other commenters called for more explicit guidance as to what constitutes "a reasonable showing that there exists significant new information that could substantially affect the initial decision." One of these commenters recommends that the alternative site issue should be reopened only when there is *definite* evidence showing there exists significant new information. The fifth and sixth commenters also call for more stringent criteria for reopening the inquiry. The fifth commenter recommends that the criteria in 10 CFR 2.606(b)(2) for reopening a partial initial decision on site suitability issues be followed and the sixth commenter would prohibit reopening unless the person seeking reopening makes a *prima facie* case, based upon new information, that the previously approved site is unsuitable.

The Commission agrees with the general thrust of these comments, and, indeed, now believes it clear that once the operating license stage has been reached, the alternative site question should not be an issue. This conclusion is grounded in the rationale and basis supporting the proposed rule, i.e., that at some point after issuance of the CP, the alternative of siting the nuclear power plant elsewhere is no longer likely to be a reasonable alternative for the purpose of NEPA.<sup>3</sup> The Commission believes that this point has clearly been reached, if not passed, by the time the OL application has been submitted to the NRC staff for review. Typically, an operating license application is

submitted to the NRC staff within 3 years of the estimated construction completion date. Construction is usually about 35-65 percent complete at this time (depending upon the number of units to be built at the site) and a corresponding portion of the total construction costs have already been incurred. Major construction related environmental impacts have already occurred at the site and by the time the staff has completed its review of the application and the operating license hearings begin,<sup>4</sup> the plant will be even further along. Given this factual background, the Commission cannot readily conceive of a situation where new information concerning the proposed site could be of such significance as to tilt the cost-benefit balance in favor of an alternative site. (In any event, 10 CFR 2.758 of the Commission's regulations would permit an exception to or waiver of the rule in particular cases if special circumstances are shown.)

These practical considerations have also met the test of experience. Since 1972 the Commission has commenced or completed more than 50 operating license proceedings. During this time, neither the Commission nor its adjudicatory tribunals have been called upon to resolve in an OL proceeding an issue regarding alternative sites and the Commission is unaware that any party to an OL proceeding has even raised the issue as a possible contention; no contentions on alternative sites are now pending before the Commission or its licensing boards in on-going operating license proceedings.

Since the Commission finds that new information at the operating license stage is very unlikely to upset the prior conclusions concerning alternative sites, the Commission finds it appropriate, for the reasons stated above, to resolve this issue through rulemaking. Accordingly, the Commission is revising the proposed rule to preclude consideration of alternative site issues in operating license proceedings.<sup>5</sup> The standards for

<sup>4</sup> Hearings are not required at the operating license stage unless the license applicant or a person whose interest may be affected by the proceeding requests a hearing. In recent years, hearings have usually been requested.

<sup>5</sup> Promulgation of this final rule does not affect the Commission's earlier denial of a petition for rulemaking, PRM-51-4, submitted by Boston Edison Company, et al. See 45 FR 10492 (February 15, 1980). That petition would have excluded consideration of such matters as need for the plant, need for power, alternative sites, and alternative energy sources at the operating license stage. The denial of the petition was grounded largely on the petitioners' erroneous assumption concerning the scope of an operating license safety review. However, the Commission specifically noted in the denial that it was considering proposed rules on alternative site issues (the proposed rule under discussion here) and that as a result of the rulemaking might limit the scope of alternative site reviews in OL proceedings if as a practical matter there can be no significant

reopening the alternative site issue at an earlier stage of the Commission's adjudicatory process will be considered when action on the remainder of the proposed rule is taken. In addition, a minor conforming amendment to 10 CFR 51.21 makes clear that applicants for operating licenses need not address alternate sites in environmental reports submitted to the NRC at the operating license stage. Application of the revised rule to operating license proceedings may be waived only in accordance with the procedures set forth in 10 CFR 2.758 of the regulations, "Consideration of Commission rules and regulations in adjudicatory proceedings."

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 51, are published as a document subject to codification.

47 FR 12940

Published 3/26/82

Effective 4/26/82

### 10 CFR Part 51

#### Need for Power and Alternative Energy Issues in Operating License Proceedings

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations in 10 CFR Part 51, "Licensing and Regulatory Policy and Procedures for Environmental Protection," to provide that, for National Environmental Policy Act (NEPA) purposes, need for power and alternative energy source issues will not be considered in operating license proceedings for nuclear power plants. In addition, these issues need not be addressed by operating license applicants in environmental reports to the NRC, nor by the staff in environmental impact statements (EIS), in operating license proceedings. The purpose of these amendments is to avoid unnecessary consideration of issues that are not likely to tilt the cost-benefit balance. This rule affects applicants for operating licenses for nuclear power plants.

**EFFECTIVE DATE:** April 26, 1982.

**FOR FURTHER INFORMATION CONTACT:** Darrel A. Nash, Office of State Programs, U.S. Nuclear Regulatory

new information as to alternative sites at the OL stage.

<sup>3</sup> Judicial precedent makes clear that NEPA requires agency decisionmakers to only consider reasonable alternatives. *Friends of the Earth v. Coleman*, 513 F. 2d 295 (9th Cir. 1975); *Natural Resources Defense Council v. Morton*, 458 F. 2d 827 (D.C. Cir. 1972). This "rule of reason" has been recognized by the Commission. See *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 540 (1977).

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Commission, Washington, D.C. 20555.  
Telephone: (301) 492-9882.

### SUPPLEMENTARY INFORMATION:

#### Background of the Rule

On August 3, 1981, the Commission published in the Federal Register (46 FR 39440) for public comment, proposed amendments to 10 CFR Part 51 of its regulations. As discussed in the statement of considerations which accompanied the proposed rule, the purpose of these amendments is to avoid unnecessary consideration of issues that are not likely to tilt the cost-benefit balance by effectively eliminating need for power and alternative energy source issues from consideration at the operating license stage. In accordance with the Commission's NEPA responsibilities, the need for power and alternative energy sources are resolved in the construction permit proceeding. The Commission stated its tentative conclusion that while there is no diminution of the importance of these issues at the construction permit stage, the situation is such that at the time of the operating license proceeding the plant would be needed to either meet increased energy needs or replace older less economical generating capacity and that no viable alternatives to the completed nuclear plant are likely to exist which could tip the NEPA cost-benefit balance against issuance of the operating license. Past experience has shown this to be the case. In addition, this conclusion is unlikely to change even if an alternative is shown to be marginally environmentally superior in comparison to operation of a nuclear facility because of the economic advantage which operation of nuclear power plants has over available fossil generating plants. An exception to the rule would be made if, in a particular case, special circumstances are shown in accordance with 10 CFR 2.758 of the Commission's regulations.

Comments were invited particularly on the following issues:

(1) Whether two articles, one by Amory and Hunter Lovins and the other by Amory Lovins, Hunter Lovins, and Leonard Ross, correctly state that a mixture of conservation and alternative sources would usually cost less than operating a nuclear plant, and therefore a newly completed nuclear plant should be written off; and

(2) Whether the rule, if adopted, should be applied to ongoing licensing proceedings.

Fifty-three letters of public comment were received on the proposed rule. Twenty-nine commenters supported the proposed rule change, and twenty-four were opposed. There were a few

relatively minor modifications proposed for the promulgation of the final rule. The more significant comments and the Commission responses are given below.

#### Comments and Responses

**Comment**—Eight commenters, all of whom favored the rule change, expressed views on the articles by Lovins and Ross which state that conservation plus other energy forms usually result in lower cost than operation of a nuclear plant.\* The comments were directed to various aspects of these articles which in the commenters' views contain errors and omissions. Significant deficiencies mentioned were that the analysis is far from complete, it contains questionable costs figures, fails to discuss the rate at which conservation and alternative energy sources could be employed, fails to discuss the institutional measures that might be necessary to implement these changes, and fails to discuss the environmental consequences and societal costs of these actions. Some commenters stated that the approach in these articles would require coercion of utilities or final customers to achieve the energy use mix advocated. Mr. Amory Lovins was a commenter on the proposed rule and reiterated the conclusions stated in the two articles. He stated that the details of his argument had not been worked out, but that his engineering/economic analyses made him confident this finding would be supported.

**Response**—The Commission has evaluated these comments and further reviewed the two articles. The Commission does not necessarily agree with the varied comments on these articles. However, the Commission finds the articles lack sufficient analysis and documentation to support the arguments made. Moreover, the Commission is not aware of any other reliable and documented information which confirms that the Lovins-Ross conclusions are valid. On the other hand substantial information exists, such as that cited in the Supplementary Information of the proposed rule, which shows that nuclear plants are lower cost to operate than fossil plants.\* If conservation lowers demand, then utility companies take the most expensive operating plants off-line first. Thus a completed nuclear plant

\* Amory and Hunter Lovins, *Energy/War: Breaking the Nuclear Link*, Friends of the Earth, 1980, pp. 48-49 and footnotes 109-111, and Amory B. Lovins, L. Hunter Lovins, and Leonard Ross, "Nuclear Power and Nuclear Bombs", *Foreign Affairs* 58-1137-77, (Summer, 1980).

\* See *Steam-Electric Plant Construction Cost & Annual Production Expenses—1978*, December 1980, DOE/EIA-0033(78); *Draft Environmental Statement Relating to the Operation of Grand Gulf Nuclear Station Units 1 and 2*, NUREG-0777, May 1981, pp. 2-1 to 3-1; *Cost & Quality of Fuels for Electric Utility Plants—December 1980*, DOE/EIA-0075(80/12).

would be used as a substitute for less economical generating capacity. Therefore, the Commission concludes that studies such as those cited in the proposed rule should be relied on to reach conclusions on comparative energy costs, rather than the Lovins-Ross articles.

**Comments**—Ten commenters addressed the issue of whether the rule change, if adopted, should apply to ongoing licensing proceedings then pending and to issues or contentions therein. Three commenters who opposed the rule commented that changing conditions since the CP should warrant not making the rule applicable to pending OL proceedings. The commenters who favor the proposed rule made comments which can be summarized as arguing that the reasons for eliminating the review at the OL stage were no less valid for ongoing cases than for future proceedings.

**Response**—The Commission believes that there is no compelling reason why pending operating license proceedings should be treated differently than future proceedings. Since need for power and alternative energy source issues were considered at the CP stage for all pending OL proceedings, in the absence of special circumstances, there is no more reason to believe that these issues would tip the NEPA cost-benefit balance against issuance of the operating license in pending cases than in future cases. Accordingly, the rule, when effective, will apply to pending operating license proceedings.

**Comments**—Three comments were made on the provision allowing need for power and alternative energy sources to be raised under 10 CFR 2.758. An example of how § 2.758 could be used to raise need for power and alternative energy source issues was given in the Supplementary Information to the proposed rule: "... special circumstances could exist if for example, it could be shown that nuclear plant operations would entail unexpected and significant adverse environmental impacts or that an environmentally and economically superior alternative existed." The commenters stated that the requirements for raising these issues under § 2.758 as written in the Supplementary Information should be modified because they believe the example would defeat the purpose of the rulemaking by making it as easy to require these issues to be treated as is the case under current rules.

**Response**—The Commission does not agree. Section 2.758(c) requires the petitioning party to make a prima facie showing that application of the regulation to a particular aspect of the proceeding would not serve the purposes for which the rule was

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adopted. This is a much stricter standard than the current requirements for raising need for power and alternative energy sources in OL proceedings.

**Comments**—Four commenters noted that no mention was made of whether need for power and alternative energy sources needed to be addressed in NRC's operating license environmental impact statements (EIS's). The expressed concern was that silence on these issues may be interpreted to mean that they must still be treated in EIS's.

**Response**—The Commission does not intend that these issues be reexamined in every environmental impact statement prepared at the operating license stage. Accordingly, to avoid possible confusion, the final rule has a conforming change to generally exclude treatment of these issues in the EIS by modifying § 51.23. However, in very unusual cases, such as where it appears that an alternative exists that is clearly and substantially environmentally superior, the Commission would be obligated under NEPA to address these issues in its environmental impact statement. In such cases the Commission would address the issues in the environmental impact statement and would require the license applicant to address these issues in its environmental report as well. Accordingly, §§ 51.21 and 51.23 have been revised to make clear that while discussion of need for power and alternative energy source issues is generally not needed in environmental statements and reports at the operating license stage, discussion may be required by the Commission. The purpose of this change is to give the Commission the same latitude to consider environmental issues in special circumstances where no hearing is involved or before a hearing as it has under § 2.758 where a hearing is involved.

**Comments**—The Natural Resources Defense Council, Inc. (NRDC) stated that the proposed rule is legally impermissible under NEPA. NRDC's belief that the proposed rule is legally impermissible under NEPA is grounded on its assertion that the Commission's interpretation of *Calvert Cliffs Coordinating Committee, Inc. v. A.E.C.*, 449 F.2d 1109 (D.C. Cir. 1971) and *Union of Concerned Scientists v. A.E.C.*, 499 F.2d 1069 (D.C. Cir. 1974) in the Supplementary Information which accompanied the proposed rule is overly broad. In addition, NRDC asserts the rule does not comply with the Commission's duty under NEPA to consider alternatives at the operating license stage.

**Response**—The Commission disagrees and continues to believe that those

cases support the proposition that NEPA does not require the Commission to duplicate at the operating license stage its review of alternatives absent new information or new developments. This is made clear in *Union of Concerned Scientists* wherein the Court explicitly stated "we expressly said in that opinion (referring to *Calvert Cliffs*) that full NEPA consideration need not be duplicated absent new information or new developments, at the operating license stage." \* *UCS* at 1079. Alternative energy source issues receive and will continue to receive extensive consideration at the CP stage. However, judicial precedent makes clear that NEPA requires agency decisionmakers to only consider reasonable alternatives. *Friends of the Earth v. Coleman*, 513 F.2d 295 (9th Cir. 1975); *Natural Resources Defense Council v. Morton*, 458 F.2d 827 (D.C. Cir. 1972). Moreover, it is well settled that environmental issues need not be continually relitigated in individual adjudicatory proceedings, but may be resolved on a generic basis through rulemaking without violating NEPA. See *Ecology Action v. A.E.C.*, 492 F.2d 998, 1002 (2nd Cir. 1974), *Union of Concerned Scientists v. A.E.C.*, 499 F.2d 1069 (D.C. Cir. 1974) and *Natural Resources Defense Council v. N.R.C.*, 547 F.2d 633, 641 (D.C. Cir. 1976), *rev'd on other grounds and remanded sub nom. Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519 (1978). This rule, in the absence of a showing of special circumstances, resolves need for power and alternative energy source issues in OL proceedings on a generic basis. Accordingly, the Commission believes that the rule complies with the requirements in NEPA.

**Comment**—Four commenters noted that the proposed rule change did not mention the elimination of alternative site analysis at the OL stage, even though this has already been eliminated by rule change (46 FR 28630).

**Response**—The omission in the proposed rule of the language in 10 CFR 51.21 which eliminates the consideration of alternative sites at the OL stage has been reflected in the final rule. In addition, a reference to the elimination of consideration of alternative sites in environmental impact statements has been added to § 51.23(e). 10 CFR 51.53(b) which eliminates consideration of alternative sites at the OL hearing process is already a part of the Commission's rules.

\* See also 40 CFR § 1508.28 of the NEPA regulations of the Council of Environmental Quality. That regulation encourages agencies to "tier" environmental impact statements when it "helps the lead agency to focus on the issues ripe for decision and exclude from consideration issues already decided." \* \* \* (emphasis added). This comment was also made by one of the commenters.

**Comments**—Three commenters who favored the rule change stated that Atomic Safety and Licensing Boards may be able to initiate consideration of need for power and alternative energy sources, (*sua sponte*) even though parties to the proceeding may not.

**Response**—The Commission does not believe that it is necessary to prohibit licensing boards from bringing up issues on their own initiative, since 10 CFR 2.760a limits this action to serious safety, environmental or common defense and security matters.

**Comments**—Seventeen of the commenters who were opposed to the rule change stated generally that changed conditions between the time of the construction permit proceeding (CP) and the operating license proceeding (OL) such as increased costs, lower demand, new information, and new technologies warranted a consideration of these issues at the OL stage and a new determination made on need for power and alternative energy sources.

**Response**—While it is true that certain factors may change between the CP and the OL proceeding, the notice of proposed rulemaking sets forth why it is unlikely that these changes would tip the NEPA cost-benefit balance against issuance of the operating license. As more fully set forth in the notice, experience shows that completed nuclear power plants are used to their maximum availability and that there has never been a finding in a Commission OL proceeding that a viable environmentally superior alternative to operation of the nuclear facility exists. The Commission expects this to be true for the foreseeable future and hence, in the absence of a showing of special circumstances, consideration of these issues in individual OL proceedings is not necessary.

### Regulatory Flexibility Statement

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. The rule eliminates certain reporting requirements for owners of nuclear power plants licensed pursuant to sections 103 and 104b of the Atomic Energy Act, as amended, 42 U.S.C. 2133, 2134b. Owners of nuclear power plants are not within the definition of small business found 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.

Accordingly, the Commission is amending its regulations in 10 CFR Part 51 to provide that need for power and alternative energy source issues will not



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be considered in operating license proceedings for nuclear power plants and need not be addressed by operating license applicants in environmental reports submitted to the NRC nor by the staff in environmental impact statements (EIS's), at the operating license stage. An exception to or waiver of the rule will be permitted in particular cases if special circumstances are shown in accordance with 10 CFR 2.758 of the Commission's regulations, "Consideration of Commission rules and regulations in adjudicatory proceedings." The rule will be applied to ongoing licensing proceedings then pending on its effective date and to issues or contentions therein.

Pursuant to the Atomic Energy Act of 1954, as amended, the National Environmental Policy Act, of 1969, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of Title 5 of the United States Code, notice is hereby given of the adoption of the following amendments to 10 CFR Part 51.

47 FR 57446

Published 12/27/82

Effective dates:

10 CFR 20.311 of Part 20 effective date is 12/27/83; 10 CFR Part 61 and all other changes effective 1/26/83.

*Licensing Requirements for Land Disposal of Radioactive Waste.*

See Part 61 Statements of Consideration

➤ 49 FR 9352

Published 3/12/84

Effective: Upon approval of the information collection requirements by the OMB or 6/7/84.

10 CFR Parts 2, 30, 40, 50, 51, 61, 70, 72, and 110

**Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is revising Part 51 of its

regulations to implement 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. Related conforming amendments are being made to Parts 2, 30, 40, 50, 61, 70, and 110. This rule reflects the Commission's policy to develop regulations to take account of the regulations of the Council on Environmental Quality (CEQ) implementing the procedural provisions of NEPA voluntarily, subject to certain conditions.

**EFFECTIVE DATE:** Upon approval of the information collection requirements by the Office of Management and Budget or June 7, 1984, whichever is later. NRC will announce the date of approval of information collection requirements by OMB in a future document.

**FOR FURTHER INFORMATION CONTACT:** Jane R. Mapes, Senior Regulations Attorney, Regulations Division, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone: (301) 492-8695.

**SUPPLEMENTARY INFORMATION:** On March 3, 1980, the Nuclear Regulatory Commission published in the *Federal Register* (45 FR 13739-13766) a proposed revision of 10 CFR Part 51 and related conforming amendments to 10 CFR Parts 2, 30, 40, 50, 61, 70, and 110 of its regulations. Interested persons were invited to submit written comments and suggestions on the proposed amendments during the sixty day comment period which expired May 2, 1980. Comments were also solicited on several provisions of the CEQ regulations which the Commission had identified as requiring further study before implementing regulations could be prepared.

In addition to the preliminary views of the Council on Environmental Quality as set out in CEQ's letters of September 26, 1979 and October 29, 1979 which were published in Appendix B to the proposed rule, the Commission received twenty-one letters of comment, expressing the views of interested Federal agencies, state and local governments, industry, including electric utilities, vendors and architect-engineers, professional organizations and individual members of the public. The letters contained more than 100 individual comments and in some instances represented the views of several commenters. Comments were also received from interested members of the NRC staff.

As requested in the Commission's notice of proposed rulemaking, several commenters expressed views on the following sections of the CEQ regulations: 40 CFR 1502.14(b), 1502.22(a) and (b) and 1508.18. A brief

description of each of these provisions, accompanied by a summary of the relevant comments and a statement of the Commission's present views on the issues raised, is set out below. The views of the commenters are fully set out in the individual letters of comment and in a subject matter compendium which has been placed with the letters in the Commission's Public Document Room at 1717 H Street, N.W., Washington, D.C. where they are available for inspection and copying. Since the topics addressed by §§ 1502.14(b) and 1502.22(a) of CEQ's regulations are interrelated, these sections will be discussed together.

By way of preface, the Commission restates its view that, as a matter of law, the NRC as an independent regulatory agency can be bound by CEQ's NEPA regulations only insofar as those regulations are procedural or ministerial in nature. NRC is not bound by those portions of CEQ's NEPA regulations which have a substantive impact on the way in which the Commission performs its regulatory functions.

### Consideration of Alternatives

1. *40 CFR 1502.14(b).* This section provides that the environmental impact statement "[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits."

In addition to the Council on Environmental Quality, eleven commenters responded to the Commission's request for views on this provision of the CEQ regulations. Of these eleven commenters, four provided brief statements expressing general support for 40 CFR 1502.14(b). Seven commenters voiced the opinion that § 1502.14(b) does not accurately reflect the statutory mandate of NEPA with respect to the consideration of alternatives. Relying on judicial decisions handed down since the enactment of NEPA, these commenters stated that consideration of alternatives in an environmental impact statement is subject to a rule of reason, that neither the number of alternatives considered nor the amount of information furnished concerning each alternative need be exhaustive. According to the commenters, consideration need only be given to *reasonable alternatives* to the proposed federal action; the detail and amount of information furnished concerning the environmental consequences of each of those alternatives, including the proposed action, need only be sufficient to permit the decisionmaking agency to make a reasoned choice among those alternatives so far as environmental consequences are concerned. The commenters noted that the courts have recognized that Federal agencies have a

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responsibility to reach meaningful decisions respecting environmental consequences if the objectives of NEPA are to be achieved. The commenters pointed out, however, that although the courts have taken a close look at the adequacy of the information on which those decisions are based, the courts have not required agencies, under the rule of reason, to supply or obtain more detailed information when the information needed for a meaningful decision is adequate.

2. 40 CFR 1502.22(c). This section provides that "[i]f the information relevant to adverse impacts is essential to a reasoned choice among alternatives and is not known and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement."

Seven commenters, including the Council on Environmental Quality, submitted views on 40 CFR 1502.22(a). Two commenters expressed general agreement with the CEQ position that the standard set forth in 40 CFR 1502.22(a) merely restates existing NEPA law, is subject to a rule of reason, and therefore should be adopted by the Commission. One of these commenters also expressed concern that failure to obtain the requisite information as mandated by 40 CFR 1502.22(a) would preclude the Commission from carrying out its NEPA responsibilities to make a rigorous comparison of the proposed action with available alternatives.

Several commenters expressed the view that the standard imposed by 40 CFR 1502.22(a) should not be automatically applied in every case because it would place "a burden on the NRC in preparing an EIS that is not required by NEPA." These commenters noted that "NEPA cannot be read as a requirement that complete information concerning the environmental impact of a project must be obtained before action may be taken," and that this CEQ provision could have the practical effect of "requir[ing] that the EIS not be used as a decision-making document, i.e., does not satisfy the mandate of NEPA, until all 'relevant' information is available so long as the costs of obtaining such information are not 'exorbitant'."

One commenter emphasized the importance of care and restraint in determining when costly information is essential to a reasoned choice among alternatives. The commenter suggested that requests for data involving large costs should "be justified on the basis that the magnitude of the benefits to be derived from the information clearly exceed the costs associated with obtaining and analyzing this information \* \* \*" and that requirements for data involving large costs "should be limited to matters that speak to the basic

license ability [*sic* licensability] of the preferred site/plant combination."

Several commenters stated that NEPA does not require that all relevant information regarding the adverse impact of alternatives, including information which is not readily available because it is expensive or otherwise difficult to obtain, be known before a decision is reached. According to these commenters, NEPA merely requires that the decisionmaker be informed of any uncertain or unknown environmental effects. In each case, responsibility for evaluating the sufficiency of the information rests with the decisionmaker who must determine first, whether it is possible to make a reasoned decision on the basis of the information provided, and second, whether in the absence of adequate information, more information should be obtained or a decision should be made not to proceed with the proposed action. In the opinion of the commenters, strict application of the standard in 40 CFR 1502.22(a) would not only eliminate this element of flexibility in agency decisionmaking, it would also lengthen the time needed to complete NRC environmental reviews. The commenters expressed the view that application of the rule is unlikely to result in better decisionmaking and could have a severe and detrimental effect on the ability of the NRC, as an independent regulatory agency, to carry out its substantive licensing and related regulatory functions in a responsible and objective manner.

The primary mission of the Nuclear Regulatory Commission is to regulate civilian nuclear energy activities to ensure that they are conducted in a manner which will protect the public from the standpoint of radiological health and safety, maintain national security, comply with the antitrust laws and, since the passage of the National Environmental Policy Act of 1969, protect the environment. Charged with carrying out the licensing and related regulatory functions of the former Atomic Energy Commission,<sup>1</sup> the NRC has no authority to encourage and promote the development of atomic energy for peaceful purposes. Nor does it bear any responsibility for the development or regulation of other energy sources.

Within this framework, the possible actions which the Commission itself may take are limited. Their scope is determined in the first instance by the nature of the application or petition presented to the Commission for action. So far as Commission action is concerned, the available alternatives

<sup>1</sup> The Atomic Energy Act of 1954, as amended, Pub. L. 83-703, as amended, 42 U.S.C. 2011 et seq.; the Energy Reorganization Act of 1974, as amended, Pub. L. 93-438, as amended, 88 Stat. 1233-1254, *see especially* 42 U.S.C. 5841 et seq.

are to grant the application, grant the application subject to certain conditions, or deny the application, either with or without prejudice. Although the Commission has an obligation to determine the accuracy and relevance of the safety-related and environmental information presented and to perform the requisite safety and environmental analyses, the Commission has no power to compel an applicant to come forward or to require an applicant, once having come forward, to prepare and submit a totally different proposal, for example to construct and build a different type of nuclear power reactor pursuant to detailed specifications furnished by the Commission on a site identified by the Commission but not chosen by the applicant. As an independent regulatory agency, the NRC does not select sites or designs or participate with the applicant in selecting proposed sites or designs.

In preparing this revision of 10 CFR Part 51 in final form, the Commission has reviewed its regulatory experience under NEPA, both from the standpoint of the kinds of alternatives which are considered in making environmentally sound regulatory decisions and the kinds and amounts of information needed to evaluate the comparative merits of those alternatives. In the usual case, these alternatives include the alternative of no action (denial of the application) and reasonable alternatives outside the jurisdiction of the NRC.

The types of alternative actions which the Commission itself is able to take reflect the Commission's functional role—the role of an independent regulatory agency authorized to perform quasi-judicial and quasi-legislative functions. The decisions which the Commission is required to make in carrying out its responsibilities as an independent regulatory agency play an equally important role in determining whether, from the standpoint of NEPA, all reasonable alternatives have received substantial treatment and whether the information submitted with respect to each alternative is sufficiently detailed. In developing these regulations, the Commission has tried to ensure that, at the respective points of decision, sufficient information will be available for meaningful consideration and comparison of a reasonable spectrum of alternatives, leading, in turn, to a reasoned decision. The Commission believes that the provisions of subpart A of Part 51 are consistent with the standard in 40 CFR 1502.14(b), that alternatives selected for detailed consideration be accorded substantial treatment. The Commission is also of the opinion that the way in which the NRC conducts its environmental reviews implements this standard in a responsible and meaningful manner. This includes the practice of handling generic matters (for example, those

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which are common to all power reactor licensing proceedings and which may relate to environmental as well as safety issues) in generic rulemaking proceedings and generic environmental impact statements. Generic environmental issues which have received this kind of analysis and review need not be accorded the same kind of detailed consideration as that given to issues arising solely in the context of a specific licensing proceeding.

The Commission intends to follow the standard in 40 CFR 1502.22(a), though it notes that implementation of § 1502.22(a) may present substantive issues, specifically whether information which is not known is (a) relevant to adverse impacts, (b) essential to a reasoned choice among alternatives, and (c) obtainable at a cost which is not exorbitant. Based upon its past experience, the Commission believes that it will seldom, if ever, be called upon to determine whether the cost of obtaining unknown information deemed relevant to adverse impacts and essential to a reasoned choice among alternatives is or is not exorbitant. In the unlikely event that the issue is presented, the Commission reserves the right to resolve the matter in a manner which is consistent with the Commission's responsibilities as an independent regulatory agency.

As illustrated in the following description of the manner in which NRC considers alternatives in connection with its environmental review of license applications for nuclear power plants, the amount of detailed information needed to make a reasoned decision on each of the many issues presented varies substantially among issues but is in each case commensurate with the nature of the issue addressed. With respect to most issues, with the possible exception of those relating to radiological matters, information need not be presented in the same degree of detail as that furnished in support of the applicant's proposal. In the review of alternative sites, for example, the Commission has found that reconnaissance-level information is adequate to assure that these alternatives are accorded substantial treatment.

### Consideration of Alternatives in NRC Environmental Review and Analysis of License Applications for Nuclear Power Plants

In the customary NRC environmental review, detailed descriptions are prepared of the proposed plant, of the site on which the plant is proposed to be located, of the need for the plant, and of the environmental impacts likely to result from construction of the plant and from station operation. The following

alternatives to the project are then addressed:

1. *Alternative energy sources and systems*, including alternatives which do not require new generating capacity and alternatives which do require new generating capacity. The former include such alternatives as power purchases, reactivation of retired plants, extension of the service life of existing plants and conservation measures. The latter include other alternative energy sources uniquely available to the applicant. In each case, consideration is given to the following types of energy sources: solar and wind, geothermal, petroleum liquids, natural gas, hydrodynamic, advanced nuclear, municipal solid wastes, biomass and coal. After the available alternative energy sources have been identified, they are categorized as competitive or non-competitive.

The amount and type of information needed to make a determination that a particular energy source is not available, or that a particular energy source, although available, is not competitive, is less extensive than that required to evaluate the comparative advantages and disadvantages from the standpoint of the environment between the proposed plant which is the subject of the license application and an alternative energy source which is both available and competitive. Once it is readily apparent that an alternative is non-competitive, either because of its technological status or lack of availability, the only data and information required with respect to that alternative is that needed to explain why the alternative is no longer being considered. Similarly, it is possible to reach a meaningful decision on the issues presented at subsequent levels of review (for example, classification of alternatives as environmentally preferable, environmentally equivalent, or environmentally inferior to the applicant's proposed plant, and comparison of the applicant's proposed plant with environmentally preferable or environmentally equivalent alternatives) without insisting that the amount and type of information presented respecting the alternative energy source be as extensive and detailed as that provided concerning the facility sought to be licensed.

2. *Alternative sites*. The Commission uses a two-stage decision standard to assure that adequate consideration has been given to alternative locations for constructing power generation facilities to meet the demonstrated need. The first part of this standard requires that the applicant submit a slate of alternative sites which are "among the best that could reasonably be found" inside a region in which it is reasonable to construct a plant to meet the projected

need for power. The second part of the standard requires that the proposed site be approved only if no obviously superior alternative site has been identified.

The reason for considering alternative sites is that many environmental impacts can be avoided or significantly reduced through proper selection of the location for a new generating facility. These significant impacts which can be avoided or reduced are also readily detected at the planning stage of a power plant. For this reason alternative site reviews are encouraged as early as possible in the process of licensing a power plant and the use of reconnaissance-level information for making the comparative analyses is urged. The use of reconnaissance-level information to identify potentially significant environmental impacts has been extensively used and while it may not be possible to optimize design or make detailed impact predictions based on such information it is still sufficient to make decisions at the pre-design stage to determine which site should be chosen. It is highly unlikely that detailed examination of the site selected would reveal a significant environmental impact that had escaped the reconnaissance-level investigations. Based on its past experience, the Commission has found reconnaissance-level information adequate for informed environmental decisionmaking on alternative sites.

3. *Alternative plant systems*. These systems include alternative heat dissipation systems, alternative circulating water systems and alternative non-radioactive-waste-treatment systems.

Several levels of review, each requiring differing amounts and types of information, are used in evaluating alternatives to the heat dissipation systems and circulating water systems of the proposed plant. An initial screening is performed to eliminate alternative systems or system components which are obviously unsuitable for use at the proposed site, or are obviously incompatible with the types of systems expected to be used in the proposed plant. The remaining alternatives are screened again for the purpose of identifying those which are environmentally preferable, environmentally equivalent or environmentally inferior to the systems which the applicant is proposing to use in the proposed plant. The baseline systems against which the alternative systems are compared are those proposed by the applicant with any verified mitigation schemes to limit adverse impacts. The information needed to make this determination varies among alternatives and from case to case according to the type and

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magnitude of the anticipated environmental impact. Only limited information, sufficient to justify the reasons given, is needed concerning alternatives which are rejected. Considerably more information is needed to compare the proposed systems with the environmentally preferable alternative.

### 4. Alternative Transmission systems.

These alternatives include alternative transmission corridor routes, alternative system designs and alternative construction and maintenance practices.

The consideration given to these alternatives is similar to that given to the preceding types of alternatives. As in those cases, the amount and type of information needed concerning a particular alternative is highly variable depending for the most part on the nature and level of the environmental evaluation and review. Thus, far more detail is required to make a rigorous comparison between an environmentally preferable alternative and the applicant's proposal than is needed to determine which alternatives are environmentally preferable, environmentally inferior or environmentally equivalent to the applicant's proposal or to screen out alternatives which, for varying reasons, will not be considered.<sup>2</sup>

The courts have consistently held that the test of an agency's NEPA obligation to consider alternatives is subject to a rule of reason.<sup>3</sup> In overturning a holding of the Court of Appeals that rejection of an alternative, in this case energy conservation, on the basis of a threshold test was capricious and arbitrary, the United States Supreme Court stated:

"... The term 'alternatives' is not self-defining. To make an impact statement something more than an exercise in frivolous boilerplate the concept of alternatives must be bounded by some notion of feasibility. As the Court of Appeals for the District of Columbia Circuit has itself recognized:

"There is reason for concluding that NEPA was not meant to require detailed discussion of the environmental effects of 'alternatives' put forward in comments when these effects cannot be readily ascertained and the alternatives are deemed only remote and speculative possibilities, in view of basic changes required in statutes and policies of other agencies—making them available, if at all, only after protracted debate and litigation not meaningfully compatible with the time-frame of the needs to which the underlying proposal is addressed." *Natural Resources Defense Council, v. Morton*, 148 U.S. App. D.C. 5, 15-16, 458 F. 2d 827, 837-838 (1972).

<sup>2</sup> The review of alternatives is limited to alternatives that are applicable to and compatible with the proposed plant, the applicant's service area and the regional transmission network, alternatives that are not prohibited by local, state or federal regulations, and alternatives that can be judged as practical from a technical standpoint with respect to the proposed dates of plant operation.

<sup>3</sup> *Natural Resources Defense Council, Inc. v. Morton*, 458 F. 2d 827 at 834, 837 (U.S. App. D.C. 1972).

See also *Life of the Land v. Brinegar*, 485 F. 2d 460 (CA9 1973), cert. denied, 416 U.S. 861 (1974). Common sense also teaches us that the "detailed statement of alternatives" cannot be found wanting simply because the agency failed to include every alternative device and thought conceivable by the mind of man. Time and resources are simply too limited to hold that an impact statement fails because the agency failed to ferret out every possible alternative, regardless of how uncommon or unknown that alternative may have been at the time the project was approved \* \* \*

*Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519 at 551 (1978). Accord: *Seacoast Anti-Pollution League v. Nuclear Regulatory Commission*, 598 F. 2d 1221 at 1223 (1st Cir. 1979).

In *Sierra Club v. Morton*, 510 F. 2d 813 at 820 (5th Cir. 1975), the Court of Appeals stated:

"... The courts have approached their review of claims that congressionally specified detail of environmental effects was lacking in an EIS with a view that Congress did not intend to mandate perfection, or intend 'for an impact statement to document every particle of knowledge that an agency might compile in considering the proposed action.' (Footnotes omitted.)

In *Cady v. Morton*, 527 F. 2d 786 at 796 (1975), the Court of Appeals for the Ninth Circuit concluded that "the fact that the EIS concedes that certain environmental effects are not known \* \* \* does not necessarily undermine the adequacy of the statement \* \* \*". The court reasoned:

Neither section 102(2) (B) or (C) [42 U.S.C. § 4332 (2) (B) or (C)] can be read as a requirement that complete information concerning the environmental impact of a project must be obtained before action may be taken. If we were to impose a requirement that an impact statement can never be prepared until all relevant environmental effects were known, it is doubtful that any project could ever be initiated. *Jicarilla Apache Tribe of Indians v. Morton*, 471 F. 2d 1275, 1280 (9th Cir. 1973).

With respect to the requisite level of detailed information, "the courts have held that the detail required \* \* \* is that necessary to establish that an agency in good faith objectivity has taken a sufficient look at the environmental consequences of a proposed action and at alternatives to that action." "Information has been considered sufficient if it permits a reasoned choice to be made among different courses of action and if it provides enough detail to enable those who did not have a part in compiling the information to understand and consider meaningfully the pertinent environmental influences involved.

### The consideration to be given

"An agency's information-gathering obligations, like an agency's other NEPA obligations are necessarily bounded by a rule of reason. *State of Alaska v. Andrus*, 580 F.2d 465 at 472-473 (D.C. Cir. 1978).

*Save Our Sycamore v. Metropolitan Atlanta, Etc.*, 578 F.2d 573 at 576 (5th Cir. 1978).

alternatives is discussed in the opinion of the Atomic Safety and Licensing Appeal Board in ALAB-531 (In the Matter of Portland General Electric Company, et al., Trojan Nuclear Plant, Docket No. 50-344, 9 NRC 263 (1979)).

In that case, which involved an amendment to an operating license for a facility for which a full NEPA review had already been conducted, the Appeal board affirmed the ruling of the Licensing Board that an environmental impact statement need not be prepared in connection with an amendment to the operating license for the Trojan nuclear facility which amendment would permit the expansion of the capacity of the facility's spent fuel storage pool by replacing the existing storage racks which provided space for 280 fuel assemblies with new storage racks which would provide space for 651 fuel assemblies. The conclusion of the Licensing Board was based on a finding that the environmental impacts associated with the expansion of the capacity of the spent fuel pool were local in character and insignificant in extent.<sup>7</sup> For this same reason, the Licensing Board also declined to consider alternatives to pool capacity expansion, reasoning that " \* \* \* if the environmental effects of the proposed action are negligible, the impacts of any alternatives perform must be equal or greater \* \* \*" and citing "*Sierra Club v. Morton*, 510 F. 2d 813, 825 (5th Cir. 1975) for the proposition that alternatives which would occasion similar or greater harm need not be evaluated. 8 NRC at 454." \*

The Appeal Board endorsed this view, stating:

As we read it, the NEPA mandate that alternatives to the proposed licensing action be explored and evaluated does not come into play in such circumstances—in short, there is no obligation to search out possible alternatives to a course which itself will not either harm the environment or bring into serious question the manner in which this country's resources are being expended. 9 NRC 263 at 266.

The Appeal Board also concluded that:

"... The staff and Licensing Board properly confined themselves to an identification and appraisal of those environmental effects directly attributable to the expansion of the capacity of the Trojan pool. Because pending or past licensing

"In evaluating this decision of the Appeal Board, it is important to keep the factual context in which it was rendered clearly in mind. The action under consideration was an amendment to an operating license. Prior to issuance of the operating license, a full NEPA review, including consideration of alternatives, was conducted. NEPA does not require that the same ground be replowed:

"[T]he evidence establishes without contradiction that the process of installing the new racks in that pool and the operation of the pool with its expanded capacity will neither (1) entail more than negligible environmental impacts; nor (2) involve the commitment of available resources respecting which there are unresolved conflicts \* \* \* (footnotes omitted)." 9 NRC 263 at 268.

<sup>9</sup> NRC 263 at 265.

actions affecting the capacity of other spent fuel pools could not either enlarge the magnitude or alter the nature of those effects there was thus no occasion to take into account any such actions in determining the license application at bar. 9 NRC 263 at 268.

As indicated in the preceding discussion, the Commission's general approach to the consideration of alternatives from the standpoint of NEPA is closely tailored to the nature and scope of the Commission's licensing and related regulatory functions, including the fact that the Commission's role in protecting the radiological health and safety of the public is a limited one, confined primarily to granting applications with or without conditions or denying applications, and does not include authority to undertake developmental programs. At the same time, the Commission and the NRC staff have made a concerted effort to make sure that this approach is implemented in such a way that the basic NEPA requirement that an agency in good faith objectivity take a hard look at the environmental consequences of a proposed action and at the alternatives to that action,<sup>9</sup> is fully satisfied. From the standpoint of the Commission's basic functions, the Commission is of the opinion that this approach, which has been followed in revised Part 51, is both best suited to achieving the objectives of NEPA and consistent with the provisions of NEPA as interpreted by the courts in light of the rule of reason.

#### Worst Case Analysis

3. 40 CFR 1502.22(b). This section provides that "[i]f the information relevant to adverse impacts is essential to a reasoned choice among alternatives and is not known and the overall costs of obtaining it are exorbitant or (2) the information relevant to adverse impacts is important to the decision and the means to obtain it are not known (e.g., the means for obtaining it are beyond the state of the art) the agency shall weigh the need for the action against the risk and severity of possible adverse impacts were the action to proceed in the face of uncertainty. If the agency proceeds, it shall include a worst case analysis and an indication of the probability or improbability of its occurrence."

Section 1502.22(b) summarizes the environmental decisionmaking process and identifies the points at which agencies must make decisions when information is not known. Thus, each agency must decide for itself whether the information which is not known is relevant to adverse impacts and if relevant, whether the information is important to the decision. The agency

must also decide whether it wishes to proceed with the action in the absence of needed information. Up to this point, the Commission has no difficulty with the provisions of § 1502.22(b). The problem lies in the final sentence which states that "[i]f the agency proceeds [with the action], it shall include a worst case analysis and an indication of the probability or improbability of its occurrence." By thus specifying what information the agency must consider in order to achieve the NEPA policy goal of minimizing adverse impacts and in order to make a reasoned decision among alternatives, § 1502.22(b) becomes, in essence, a substantive requirement rather than a procedural regulation. As stated earlier, it is the Commission's view that NRC is not bound by those portions of CEQ's NEPA regulations which have a substantive impact on the way in which the Commission performs its regulatory functions. As discussed in the following paragraphs, the Commission has articulated its interim policy regarding Nuclear Power Plant Accident Considerations under NEPA (45 FR 40101-40104, June 13, 1980).

The courts have held that the nature and form of environmental analysis required in any given case are matters left to the discretion of the agency involved. *Alaska v. Andrus*, 580 F.2d 465, 480 (D.C. Cir. 1978). This must be particularly true where determinations respecting the nature and form of that environmental analysis involve consideration of complex technical questions particularly within the competence of the agency to evaluate. In these circumstances, the judgment of the NRC as the agency with the requisite technical expertise should govern.

Since December 1, 1971, when the former Atomic Energy Commission published a proposed Annex to Appendix D of 10 CFR Part 50 (36 FR 22851) containing certain standardized assumptions to be used by applicants in discussing accidents in environmental reports, both the AEC and the NRC, its successor agency, have been actively concerned with the problem of how the consequences of nuclear power plant accidents should be evaluated, both from the standpoint of safety and from the standpoint of their environmental impact. This continuing concern led to the publication of the Reactor Safety Study (WASH-1400) in draft form in August 1974 and final form in October 1975, followed by the publication in September 1978 of the "Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission," NUREG/CR-0400. On January 18, 1979, the Commission issued a policy statement on the Reactor Safety Study in light of the Risk Assessment Review Group Report. In this policy statement,

the Commission accepted the findings of the Review Group on the achievements and limitations of the Reactor Safety Study. The accident on March 28, 1979 at Three Mile Island, Unit 2, emphasized the need for a change of policy on how to analyze and evaluate the environmental consequences of accidents.

On June 13, 1980, the Commission responded to this need by publishing a Statement of Interim Policy (45 FR 40101-40104) containing guidance, to be effective immediately, on the treatment to be accorded nuclear power plant accidents in environmental impact statements prepared pursuant to section 102(2)(C) of NEPA. In issuing the interim guidance, the Commission noted that its "experience with past NEPA reviews of accidents [conducted in accordance with the set of standardized assumptions contained in the former proposed Annex to Appendix D of 10 CFR Part 50, now withdrawn] and the TMI accident clearly leads us to believe that a change is needed \* \* \*." The Commission also stated that " \* \* \* pending completion of rulemaking activities in the areas of emergency planning,<sup>10</sup> siting criteria, and design and operational safety [including rulemaking relating to degraded core cooling and core melt accidents] all of which involve considerations of serious accident potential, the Commission finds it essential to improve its procedures for describing and disclosing to the public the basis for arriving at conclusions regarding the environmental risks due to accidents at nuclear power plants \* \* \*."

It is the Commission's expectation that this guidance,<sup>11</sup> will remain in effect until such time as the Commission is able to continue the rulemaking proceeding initiated December 1, 1971, for the purpose of codifying the Commission's position on the treatment of accident risks under NEPA. Because of the number and importance of other safety-related matters which are relevant to accidents and their consequences and which must first be addressed in separate rulemaking proceedings, it is the Commission's considered opinion that it would be premature at this time to attempt to codify the guidance and formally incorporate it into the Commission's regulations. As indicated in the

<sup>10</sup> On August 19, 1980, the Commission published a final rule, to be effective November 3, 1980, upgrading its emergency planning regulations (45 FR 55402-55413.)

<sup>11</sup> The Commission's prior position as set out in the former proposed Annex to Appendix D of 10 CFR Part 50 has consistently been upheld by the courts. See: *Carolina Environmental Study Group v. United States*, 510 F.2d 798 at 799 (1975); *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519 at 551 (1978); *Hodder v. NRC*, 13 ERC 1711 (1978), cert. denied, 13 ERC 1713 (1979).

<sup>9</sup> *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827 (U.S. App. D.C. 1972).

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guidance, the Commission expects the experience gained under the Statement of Interim Policy and the close study given to significant safety-related issues in connection with the Commission's ongoing activities, including rulemaking, to make existing and future nuclear power plants safer, to play an important and formative role in determining to scope and content of future NRC regulations dealing with the treatment of accident risks under NEPA.

As formulated in the Statement of Interim Policy, the Commission guidance on how accident considerations are to be handled in future NEPA reviews, states, in part, that—

It is the position of the Commission that its Environmental Impact Statements, pursuant to \* \* \* [NEPA] shall include a reasoned consideration of the environmental risks (impacts) attributable to accidents at the particular facility or facilities within the scope of each such statement. In the analysis and discussion of such risks, approximately equal attention shall be given to the probability of occurrence of releases and to the probability of occurrence of the environmental consequences of those releases. Releases refer to radiation and/or radioactive materials entering environmental exposure pathways, including air, water, and ground water.

Events or accident sequences that lead to releases shall include but not be limited to those that can reasonably be expected to occur. In-plant accident sequences that can lead to a spectrum of releases shall be discussed and shall include sequences that can result in inadequate cooling of reactor fuel and to melting of the reactor core. The extent to which events arising from causes external to the plant which are considered possible contributors to the risk associated with the particular plant shall also be discussed \* \* \*

The environmental consequences of releases whose probability of occurrence has been estimated shall also be discussed in probabilistic terms. Such consequences shall be characterized in terms of potential radiological exposures to individuals, to population groups, and where applicable, to biota. Health and safety risks that may be associated with exposures to people shall be discussed in a manner that fairly reflects the current state of knowledge regarding such risks. Socioeconomic impacts that might be associated with emergency measures during or following an accident should also be discussed. The environmental risk of accidents should also be compared to and contrasted with radiological risks associated with normal and anticipated operational releases.

In promulgating this interim guidance, the Commission is aware that there are and will likely remain for some time to come many uncertainties in the application of risk assessment methods, and it expects that its Environmental Impact Statements will identify major uncertainties in its probabilistic estimates. On the other hand the Commission believes that the state of the art is sufficiently advanced that a beginning should now be made in the use of these methodologies in the regulatory process, and that such use will represent a constructive and rational forward step in the discharge of its responsibilities.

Applied consistently, in accordance with its terms, the Commission's Statement of Interim Policy on Nuclear Power Plant Accident Considerations under NEPA can be expected to have a broad and pervasive impact. Under the provisions in 40 CFR 1502.22(b), an agency need only undertake the preparation of a worst case analysis, including an indication of the probability or improbability of its occurrence, when information relevant to adverse impacts is essential to a reasoned choice among alternatives is not known and cannot be obtained and the agency has decided to take the action despite the demonstrable absence of information. In these circumstances, which are limited to those in which the uncertainty of the requisite information base is recognized, the worst case analysis serves as a counterweight which the agency is required to place in the balance to assure that the need for the action which the agency is, in fact, planning to take is properly weighed against the risk and severity of possible adverse impacts. In accordance with the intent and the guidance contained in the Commission's Statement of Interim Policy, the NRC staff will initiate treatments of accident considerations in its ongoing NEPA reviews of nuclear power plants, i.e., for any proceeding at a licensing stage where a Final Environmental Impact Statement has not yet been issued. In addition, all Environmental Reports submitted by applicants for construction permits and for operating licenses on or after July 1, 1980, should also include a discussion of the environmental risks associated with accidents that follows this interim guidance.

Although the Commission's Statement of Interim Policy addresses accidents at nuclear power plants, the general principles and objectives enunciated in the Interim Statement and quoted in part in this preamble are readily applicable to and equally appropriate for other types of NRC licensing and regulatory actions for which the NRC staff has determined to prepare an environmental impact statement. (See § 51.20(b), which describes types of actions, in addition to actions relating to nuclear power reactors, for which environmental impact statements will be prepared.) In considering the environmental risks attributable to accidents which might occur in connection with these types of NRC licensing and regulatory actions, the NRC staff will follow the principles in the Statement of Interim Policy as a matter of general guidance.

On March 25, 1980, the staff of the Council on Environmental Quality submitted a copy of the Environmental Law Institute's report entitled "NRC's Environmental Analysis of Nuclear Accidents: Is It Adequate?" dated

February 4, 1980, and a copy of a letter dated March 20, 1980, from CEQ Chairman Gus Speth to NRC Chairman John Ahearne for NRC consideration as a Council comment on the Commission's proposed revision of 10 CFR Part 51 as published in the *Federal Register* on March 3, 1980. Both the letter and the report were highly critical of NRC's past practices with respect to the environmental analysis of possible nuclear accidents under NEPA. The CEQ letter characterized NRC treatment of potential accidents and their environmental impacts in environmental impact statements as " \* \* \* largely perfunctory, remarkably standardized, and uninformative to the public \* \* \* " despite "the broad diversity of size, design, and location of the nuclear reactors licensed by the Commission over the years, \* \* \* " Noting that the typical NRC environmental impact statement "does not consider or analyze the possibility of a major accident even though it is these 'Class 9' accidents which have the potential for greatest environmental harm and which have led to the greatest public concern \* \* \* " CEQ identified the policy contained in the proposed Annex to Appendix D of 10 CFR Part 50 as published for comment in December 1971 as the culprit primarily responsible for the problem.

In its Statement of Interim Policy, the Commission has formally withdrawn the proposed Annex to Appendix D of 10 CFR Part 50 and stated that as of June 13, 1980, the effective date of the Statement of Policy, the Annex shall not be used by applicants or by the NRC staff. The reasons given for the withdrawal, which reflect many of the concerns voiced by CEQ, are:

1. The Annex proscribes consideration of the kinds of accidents (Class 9) that, according to the Reactor Safety Study, dominate the accident risk.
2. The definition of Class 9 accidents in the Annex is not sufficiently precise to warrant its further use in Commission policy, rules, and regulations, nor as a decision criterion in agency practice.
3. The Annex's prescription of assumptions to be used in the analysis of the environmental consequences of accidents does not contribute to objective consideration.
4. The Annex does not give adequate consideration to the detailed treatment of measures taken to prevent and to mitigate the consequences of accidents in the safety review of each application.

In order to make doubly clear that Class 9 accidents would now be considered in environmental impact statements, the Commission stated:

\* \* \* Environmental Impact Statements shall include considerations of the site-specific environmental impacts attributable to accident sequences that lead to releases of radiation and/or radioactive materials.



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including sequences that can result in inadequate cooling of reactor fuel and to melting of the reactor core [Class 9 accidents]. In this regard, attention shall be given both to the probability of occurrence of such releases and to the environmental consequences of such releases \* \* \*

The Commission also indicated that under the new interim policy, the treatment of accident considerations "will take into account significant site- and plant-specific features, [and] will result in more detailed discussions of accident risks than in previous environmental statements, particularly for those related to conventional light water plants at land-based sites."

In its letter of March 20, 1980, CEQ stated:

We also encourage the Commission to consider preparing supplemental accident analyses for plants currently licensed for operation, particularly for those located near high population centers and those with unique features suggesting higher risk \* \* \*

The following excerpts from the Commission's Statement of Interim Policy are relevant to this concern:

It is the intent of the Commission in issuing this Statement of Interim Policy that the staff will initiate treatments of accident considerations, in accordance with the foregoing guidance, in its ongoing NEPA reviews, i.e., for any proceeding at a licensing stage where a Final Environmental Impact Statement has not yet been issued \* \* \* it is also the intent of the Commission that the staff take steps to identify additional cases that might warrant early consideration of either additional features or other actions which would prevent or mitigate the consequences of serious accidents. Cases for such consideration are those for which a Final Environmental Statement has already been issued at the Construction Permit stage but for which the Operating License review stage has not yet been reached. In carrying out this directive, the staff should consider relevant site features, including population density, associated with accident risk in comparison to such features at presently operating plants. Staff should also consider the likelihood that substantive changes in plant design features which may compensate further for adverse site features may be more easily incorporated in plants when construction has not yet progressed very far.

In addition to CEQ, eight other commenters expressed views on the provisions of 40 CFR 1502.22(b) relating to worst case analysis. Three commenters, the States of Georgia and Illinois and the County of Suffolk, New York, expressed broad support for the CEQ position. As the previous discussion illustrates, the Commission, in its Statement of Interim Policy on Nuclear Power Plant Accident Considerations, has responded affirmatively to these concerns.

Five commenters, relying on existing case law holding that an environmental impact statement need not discuss remote and highly speculative

consequences or events whose occurrence is extremely improbable, and that the consideration to be given to environmental risks incident to reasonable alternative courses of action is subject to a rule of reason, expressed the view that the provisions of the CEQ regulations relating to worst case analysis (40 CFR 1502.22(b)) are not mandated by the statutory provisions of the National Environmental Policy Act of 1969, as amended. One of these commenters expressed the view that the " \* \* \* future treatment of Class 9 accidents in environmental impact statements is a complicated question that, in our opinion, requires more detailed consideration than is possible in the present notice-and-comment rulemaking." The Commission's action of June 13, 1980 promulgating policy guidance on the treatment to be accorded accidents in environmental impact statements and inviting comments thereon responds directly to this concern.

### Major Federal Action

4. 40 CFR 1508.18. This section defines "Major Federal action" to include, *inter alia*, "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." In inviting comments and suggestions on this section, the Commission specifically noted that § 1508.18 does not appear to address the question whether an environmental assessment or environmental impact statement is required when the Commission denies a petition for rulemaking under 10 CFR 2.802.

Six commenters expressed views on § 1508.18, two supporting and one opposing the definition, with the remainder offering general comments of an explanatory nature. In its preliminary comments, CEQ encouraged the Commission to adhere to the definition of "major federal action" set forth in § 1508.18, noting that in some cases, a denial of a petition for rulemaking involves consideration of certain generic issues which warrant NEPA review.

Although § 1508.18 classifies reviewable failures to act as actions, § 1508.18 does not classify every action of this type as a major Federal action requiring preparation of an environmental impact statement. Similarly, although denials of petitions for rulemaking fall within this broad class of Federal actions, not all denials of rulemaking petitions are major Federal actions for which an environmental impact statement must be prepared. Since it is not possible to forecast with any degree of certainty the entire range of situations in which

environmental review would be appropriate, the Commission has decided, after careful review of the pertinent statutes and case law, that with respect to denials of petitions for rulemaking, the Commission accepts the CEQ definition, and thus does not categorically exclude denials of petitions for rulemaking from environmental review.

In reaching this conclusion, the Commission recognized that there may, in fact, be situations, such as those presented by petitions which address substantive matters on which the Commission does not have an existing policy, where the denial of a petition for rulemaking constitutes a major Federal action warranting scrutiny under NEPA. In such cases, which are expected to be few in number, the Commission fully intends to undertake the requisite environmental analysis to determine whether to prepare an environmental impact statement. On the other hand, it appears that there are certain situations where the action of the Commission in denying a petition for rulemaking need not be subject to environmental review. Where, for instance, the action of the agency in denying the petition is not reviewable in either an administrative or judicial tribunal, 40 CFR 1508.18 clearly excludes such action from the definition of "major federal action." Likewise, where the petition relates to a section of the regulations categorically excluded from NEPA analysis (see § 51.22(c) (1), (2) and (3)), the action of the agency in denying such a petition need not be subjected to scrutiny under NEPA. And finally, where the petition raises an issue or issues considered and resolved by the Commission in some earlier action, the Commission need not retrace its earlier steps and prepare another environmental impact statement or environmental assessment prior to denying the petition. In this later situation, the Commission, in denying such a petition for rulemaking, is merely reaffirming its previous policy decision. Accordingly, there is no requirement that an environmental impact statement or environmental assessment be prepared. These examples—the list is by no means exhaustive—illustrate some of the situations where the action of the Commission in denying a petition for rulemaking does not fall within the ambit of NEPA.

### Response to Comments on and Changes to Specific Provisions of the Proposed Rule

Although the basic structure of revised Part 51 is essentially the same as that of the proposed rule, some provisions of the proposed rule have been revised. In addition, certain minor editorial and clarifying changes have been made. The principal differences

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between the proposed revision of Part 51 as published for comment on March 3, 1980 and the text of Part 51 as adopted and promulgated by the Commission in final form are identified and discussed below in the order in which they appear in the regulation.

Several commenters noted that the proposed regulations failed to specify how the Commission's responsibilities under other environmental laws, such as, for example, the National Historic Preservation Act of 1966, the Wild and Scenic Rivers Act, the Endangered Species Act of 1973 and the Coastal Zone Management Act of 1972, would be accommodated. As explained in the preamble to the proposed rule, new subparts will be added to Part 51 as necessary to incorporate any additional regulations which may be required to implement provisions of other environmental laws. To the extent practicable, the Commission intends that its responsibilities under other environmental laws be coordinated with its NEPA procedures.

### *Section 51.10 Purpose and scope of subpart; Application of regulations of Council on Environmental Quality.*

The first paragraph of § 51.10(b) of the proposed rule which identified certain provisions of the CEQ regulations to which the Commission intended to devote further study has been revised. The revision affirmatively recognizes the Commission's continuing obligation to conduct its domestic licensing and related regulatory functions in a manner which is both receptive to environmental concerns and consistent with the Commission's responsibility as an independent regulatory agency for protecting the radiological health and safety of the public. No change has been made in those provisions of § 51.10(b) which reserve the Commission's right to act independently (see § 51.10(b) (1), (2) and (3) which relate respectively to the examination of future interpretations or changes in the CEQ regulations, the preparation of independent environmental impact statements and the right to make final decisions.)

Three commenters suggested that the proposed rule be revised to provide more specific guidance on the limitations imposed on NRC's environmental review authority by section 511(c)(2) of the Federal Water Pollution Control Act. Several sections have been added to revised Part 51 to clarify NRC's licensing and NEPA responsibilities with respect to water quality.

The Commission has amended § 51.10(c) to reflect the conclusion of the Atomic Safety and Licensing Appeal Board<sup>12</sup> that Federal responsibility for

regulating nonradiological pollutant discharges into aquatic bodies rests with the Environmental Protection Agency.

Consistent with the Appeal Board decisions, the Commission has also amended § 51.22(c) to exclude from the NEPA process as a categorical exclusion amendments to permits and licenses deleting from those permits and licenses any limiting conditions of operation or monitoring requirements based on or applicable to any matter subject to the provisions of the Federal Water Pollution Control Act (Category 17). The NRC will rely on agencies with authority under the Federal Water Pollution Control Act to determine the need for and, accordingly, to impose requirements for any mitigative actions necessary to protect the aquatic segment of the environment from the impacts of nonradiological pollutant discharges resulting from station construction and operation. Further, NRC will rely on those agencies to prescribe monitoring as necessary to document actual effects of station operation.

One caveat deserves mention. The Commission does not intend these revisions to 10 CFR Part 51 to be interpreted to mean that NRC no longer has any operational responsibility with respect to the aquatic environment. In connection with its independent responsibilities under other statutes, the NRC may indeed be required to consider matters relating to the aquatic

December 27, 1978; *Carolina Power and Light Company* (H. B. Robinson, Unit No. 2) ALAB-569, 10 NRC 557, October 31, 1979.

\* \* \* Suffice it to recall that in *Yellow Creek*, after an exhaustive analysis of the Water Act's legislative history (8 NRC at 708-12), we explained that it provided the following lessons (*id.* at 712-13):

"The first is that the spread of Federal responsibility for water quality standards and pollution control among the various licensing agencies, which resulted from the reading given NEPA by the *Calvert Cliffs* court, has been curtailed. That responsibility is shifted to EPA as its exclusive province. The second is that the mandate to acquire 'expertise' in developing, setting, and enforcing effluent limitations and water quality standards is also given to EPA; federal licensing agencies are to rely on that agency when such matters are involved and not develop duplicate expertise on their own. Third, those agencies are not to 'second-guess' EPA by undertaking independent analyses and setting their own standards in this area. And, finally, given the pointed Congressional comments cited, NRC, as statutory successor to the AEC, is unmistakably bound by those strictures.

"To be sure, in deciding whether to license specific projects, each agency must continue to weigh any resulting degradation of water quality in its NEPA cost-benefit balance. Section 511(c)(2) does not change this obligation. Rather, its intent is to limit those agencies' NEPA roles to that balancing, leaving the substantive regulation of water pollution in EPA's hands."

On the basis of this analysis, we held squarely "that NRC may not undercut EPA by undertaking its own analyses and reaching its own conclusions on water quality issues already decided by EPA." 8 NRC at 715 \* \* \*

\* \* \* events teach that the staff and Boards can best expend their limited resources by concentrating on those questions which only this Commission can handle, rather than by duplicating

environment. Under the provisions of the Endangered Species Act of 1973, for example, the NRC is obliged to consider listed species and endangered habitats, many of which are associated with the aquatic environment.

The Commission is not unmindful of the fact that under certain provisions of the Federal Water Pollution Control Act, such as sections 401(a)(2) and 401(d), NRC licenses, like licenses issued by other Federal agencies, are subject to conditions deemed imposed by the Federal Water Pollution Control Act as a matter of law. In order to accord explicit recognition to these statutory requirements and at the same time to obviate the need to undertake a series of time-consuming actions to amend specific licenses to incorporate conditions imposed by statute which may be subject to frequent change by certifying States, the Commission is amending § 50.54 of its regulations to make clear that NRC licenses issued under 10 CFR Part 50 are subject to all conditions deemed imposed by the Federal Water Pollution Control Act as a matter of law, whether or not those conditions are stated in the license.

Although the Commission is precluded from including in facility permits and licenses any conditions of its own relating to nonradiological discharges of pollutants to receiving waters, it does have an independent responsibility under NEPA to factor all significant impacts into its overall cost-benefit balance and to consider alternatives to the proposed action which are available for reducing adverse effects. These impacts include any degradation of water quality which may exist even

the efforts of a sister agency in a field peculiarly within that agency's competence. This is fully consistent with statutory mandates, for Congress stressed in the amended Water Act that it was to be implemented in a way that would avoid "needless duplication."<sup>14</sup>

"33 U.S.C. 1251(f), which reads as follows: It is the national policy that to the maximum extent possible the procedures utilized for implementing this Act shall encourage the drastic minimization of paperwork and interagency decision procedures, and the best use of available manpower and funds, so as to prevent needless duplication and unnecessary delays at all levels of government.

In sum, Congress has designated EPA the Federal guardian of the quality of the nation's waters. That agency's decisions may turn out to be wrong in particular cases. But the remedy—as the Licensing Board properly appreciated—is not for us to substitute our judgment for EPA's. We are bound to take EPA's considered decisions at face value, and simply to factor them into our cost-benefit balance. The Board below acted correctly in doing so. ALAB-569, 10 NRC 557 at 560-562.

In ALAB-515 (8 NRC 702 at 714), the Appeal Board stated that "we read that interagency agreement (the NRC-EPA Second Memorandum of Understanding) as adopting the position we do here." The Board also stated: "We think the NRC Policy Statement means exactly what it says, in committing this agency [NRC] not to impose different monitoring requirements where EPA has acted. That reading is consistent with the legislative history of the Water Act; to allow inconsistent requirements would not be."

<sup>12</sup> *Tennessee Valley Authority* (Yellow Creek Nuclear Plant, Units 1 and 2) ALAB-515, 8 NRC 702.

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though water quality permits and certifications issued pursuant to the FWPCA have been fully complied with. In making that balance, as discussed in two NRC decisions,<sup>13</sup> the NRC may accept and use without independent inquiry the determinations made by EPA or the permitting authority concerning the magnitude of the aquatic environmental impacts. In order to satisfy its NEPA obligations and complete the overall cost-benefit balance in those instances where no assessment of aquatic impacts is available, the NRC must determine the magnitude of the potential aquatic impacts. The NRC may either do this on its own or in conjunction with the permitting authority and other agencies having relevant expertise. The NRC recognizes, however, that in carrying out these NEPA responsibilities, it has no authority to rely on limitations or monitoring requirements which are different from those imposed by EPA or the permitting authority pursuant to the Federal Water Pollution Control Act.

The Commission views its responsibilities under NEPA as including the responsibility for keeping informed of the environmental effects of its licensing actions. For effects involving degradation of the aquatic environment, the reporting requirements of NPDES permits issued pursuant to the Federal Water Pollution Control Act will be generally relied upon to alert the NRC to potential problems. In addition, the Commission will continue its practice of including conditions in its licenses to assure that it is kept knowledgeable about other environmental matters involving its licensees. This practice is consistent with the CEQ regulations which obligate agencies to adopt monitoring and enforcement programs where appropriate (40 CFR 1505.2(c)). The CEQ regulations also provide that the lead agency shall "include appropriate conditions in grants, permits or other approvals" (40 CFR 1505.3(a)), and provide mitigation and monitoring information to cooperating agencies and the public upon request (40 CFR 1505.3(c) and (d)).

In the opinion of the Commission, this well-established practice should be appropriately reflected in the regulations. Accordingly, the Commission is amending Part 50 of this chapter to add a new § 50.36b which provides that each operating license for a utilization or production facility may include environmental conditions. These environmental conditions may include

procedures for reporting and keeping records of environmental data, and conditions and monitoring requirements for the protection of the non-aquatic environment. They will be drafted in a manner which recognizes that the regulation of nonradiological pollutant discharges to aquatic bodies lies with the appropriate NPDES permitting agency. Environmental conditions will be derived from information contained in the applicant's environmental report as analyzed and evaluated in the NRC record of decision. The Commission may also include additional environmental conditions as appropriate. A conforming amendment has been made to § 51.50.

Section 51.10(d), which relates to enforcement actions, has been revised to make clear that section 102(2) of NEPA does not apply to denials of requests for action submitted pursuant to 10 CFR 2.206. (See 40 CFR 1508.18(a).)

### *Section 51.12 Application of subpart to ongoing environmental work.*

Several commenters requested additional guidance on the extent to which the revised regulations would apply to ongoing environmental work, and identified certain ambiguities in the text of § 51.12 of the proposed regulations. In order to avoid undue delays in the review of applications for construction permits and operating licenses for nuclear power plants, one commenter suggested that the revised regulations not be made applicable to environmental reports completed within 180 days after the effective date of the revised regulations or to environmental impact statements completed within 90 days after that effective date. Although the Commission has decided not to adopt this particular suggestion, it recognizes that practical problems are likely to arise while the new regulations are being phased in and the necessary adjustments are being made in the conduct of NRC's environmental activities to accommodate the new procedures. Sections 51.12 (a) and (b) have been revised to reflect these concerns.

In adopting revised Part 51 in final form, the Commission directed that the revised regulations not go into effect until the information collection requirements have been approved by the Office of Management and Budget (OMB) or 75 days after the date of publication in the *Federal Register*, whichever is later. This grace period should enable applicants, the NRC staff and any other interested persons, to make a more orderly transition from the old to the new procedures. A new § 51.17 has been added and reserved for OMB approval.

Consistent with the intent of the CEQ regulations, the Commission does not intend revised Part 51 to be applied to

ongoing environmental activities in a manner which will require completed environmental work or completed portions of environmental work to be redone solely by reason of the adoption and promulgation of these revised procedures. Instead, the Commission expects the revised regulations to be applied to ongoing environmental work to the extent practicable and in accordance with a rule of reason. The extent to which the provisions of the revised regulations are applicable to environmental work in progress will depend in each case on how far and how satisfactorily that work has progressed. For example, if work on a draft or final environmental impact statement is nearing completion on the date the revised regulations become effective, the Commission would not expect the staff to initiate a scoping process. On the other hand, the Commission would not dissuade the staff from initiating a scoping process, even though the time established in the revised regulations for the initiation of scoping had passed, if the ongoing environmental work was at a stage where scoping might still be useful.

At the present time, the Commission has pending before it a number of applications for licenses to operate nuclear power reactors which are in various stages of environmental and safety review. In each case, the draft environmental impact statement for the construction permit for the facility was filed with the Environmental Protection Agency prior to July 30, 1979, the effective date of the CEQ regulations. In the majority of these cases, however, the draft environmental impact statement for the operating license has either not been filed or was filed on or after that date. The Commission does not intend revised Part 51 to be applied in such a way that environmental work relating to the issuance of operating licenses for these facilities will be considered to be exempt from the provisions of revised Part 51 simply because the draft environmental impact statements on the construction permits for these facilities were filed with EPA prior to the effective date of the CEQ regulations.

In accordance with § 51.12(b) of the revised regulations, the new procedures will be fully applicable to all environmental reports filed by applicants on or after the effective date of revised Part 51, and to all environmental work undertaken by the NRC staff following a determination by the staff pursuant to § 51.25 to prepare an environmental impact statement or an environmental assessment, if the determination was made on or after the effective date of revised Part 51.

The Commission's primary concern, under both the old and the revised versions of Part 51, is to satisfy its NEPA

<sup>13</sup> *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-366, 5 NRC 39, 46-58 (1977), affirmed CL-77-8, 5 NRC 503, 508-09 (1977); see also CL-78-1, 7 NRC 1, 24-26 (1978); *Carolina Power & Light Co.* (H. B. Robinson, Unit No. 2), ALAB-569, 10 NRC 557, 560-563 (1979).

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obligations in an environmentally responsible manner. To this end, § 51.41 of revised Part 51, like § 51.5(c)(3) of the Commission's former regulations, authorizes the Commission to require applicants to furnish additional environmental information whenever such information may be needed. One cannot automatically conclude that because an environmental report has been filed or an environmental assessment or environmental impact statement has been completed, that no more environmental data or analysis will be required. Irrespective of the procedures which may or may not have been followed, completed environmental reports, assessments or impact statements which may have been found to be deficient will, of necessity, have to be supplemented or redone. By the same token, it should not be necessary to redo environmental reports, assessments, impact statements or other environmental work of high quality solely because of the adoption of these revised procedures.

### *Section 51.13 Emergencies.*

Section 51.13 has been revised to make clear that in taking actions subject to this section the Commission will consult with the Council on Environmental Quality about appropriate alternative NEPA arrangements as soon as feasible. Insofar as practicable, the Commission will endeavor to consult with the Council on Environmental Quality before taking the action. Since § 51.13 applies to emergency circumstances in which the need for prompt action may make prior consultation impractical, it is the Commission's intent that the provision requiring that "the Commission will consult with the Council as soon as feasible" be understood to include consultation with CEQ which occurs after the Commission has taken the emergency action. The emergency circumstances to which § 51.13 applies include situations in which the hazards of radiation are likely to become more severe unless immediate mitigative or remedial actions are taken.

### *Section 51.15 Time schedules.*

Section 51.15 has been revised to reflect more accurately the respective responsibilities of the NRC staff, the licensing and appeal boards and the Commission for the conduct of licensing proceedings. The revision is consistent with the views expressed by the Atomic Safety and Licensing Appeal Board in ALAB-489, *In the Matter of Offshore Power Systems* (Floating Nuclear Power Plants) 8 NRC 194 at 201-208 (1978) that, absent Commission direction to the contrary, the licensing boards do not have the authority to control the NRC Staff's independent NEPA review or to

dictate the schedule for completion of that review.<sup>14</sup>

### *Section 51.16 Proprietary information.*

A new § 51.16 has been added to make clear that any proprietary information, whether submitted by applicants, petitioners for rulemaking, commenters, or other persons subject to the provisions of subpart A of revised Part 51, will be handled in accordance with established Commission procedures as specified in 10 CFR 2.790. Although the Commission believes that it will seldom be necessary to consider proprietary information in the review and evaluation of environmental matters, § 51.16 has been added so that the requisite procedures will be in place should the need arise.

### *Sections 51.20 and 51.21 Criteria for and identification of licensing and regulatory actions requiring environmental impact statements and environmental assessments.*

Several commenters took issue with the types of actions identified by the Commission as requiring either environmental impact statements or environmental assessments. One major concern was that actions which were perceived as having a significant environmental impact might not be accorded adequate environmental review. Another concern was that the reference in § 51.20(a)(2) to the Commission's discretionary authority to

prepare environmental impact statements was ambiguous and unnecessary. The Commission has given careful consideration to these comments and has looked closely at §§ 51.20 and 51.21 to determine what, if any, changes might be made to alleviate these concerns.

At the outset, the Commission wishes to make clear that it fully accepts its responsibilities under NEPA for the preparation and issuance of environmental impact statements on all major Commission actions which significantly affect the quality of the human environment. The Commission also recognizes that it has a continuing obligation to conduct its licensing and related regulatory functions in an environmentally responsible manner. In preparing these revised regulations, the Commission has tried to structure its NEPA process to assure that these responsibilities will be effectively carried out.

Within the broad spectrum of Commission actions subject to subpart A of revised Part 51, only those types of actions which have been determined by rule to be categorical exclusions are excluded from the NEPA process. The remaining types of actions are subject to NEPA review, requiring either an environmental impact statement or an environmental assessment leading in turn to a finding of no significant impact or to a decision to prepare an environmental impact statement. Under this scheme, an environmental assessment need not be made if the Commission has already decided to prepare an environmental impact statement. This two-step process (preparation of an environmental assessment followed by preparation of an environmental impact statement) need only be followed when it is unclear at the outset whether preparation of an environmental impact statement for the action in question is justified.

This general scheme is reflected in §§ 51.20, 51.21 and 51.22 of the Commission's regulations which specify the criteria for determining which types of actions require environmental impact statements, or environmental assessments, or which qualify as categorical exclusions. Section 51.21, which relates to environmental assessments, provides that environmental assessments are to be prepared for all licensing and regulatory actions except those covered by categorical exclusions or those for which environmental impact statements are being written.

Section 51.20(a) of the Commission's regulations provides that an environmental impact statement will be prepared whenever a proposed Commission action is determined to be a major Federal action significantly

<sup>14</sup> ALAB-489, the Appeal Board was asked to consider the question "(1) may the Board fix a deadline by which the staff must prepare and file its environmental impact statement?" The Appeal Board answered this question with "a qualified yes: The Licensing Board may direct the staff to publish its environmental documents by specific dates if, after affording the parties—including the staff—opportunity to be heard on the matter, it finds that no further delay is justified. In the present case, however, the decision to fix a firm date for filing the documents demanded does not rest on any such finding." (8 NRC 194 at 208.) The Appeal Board explained these qualifications more fully in the following excerpt from the opinion:

"One thing the Board may do is ascertain why the staff document in question has not been forthcoming. Certainly if it is to conduct the hearing in accordance with responsibilities assigned to it, the Board must at a minimum be entitled to look behind the staff's explanation for delay in submitting the environmental statement. If the staff can provide adequate assurance that it is acting as quickly and reasonably as the circumstances permit—and we emphasize the word *reasonably*—then the Board can ask no more and should reschedule the filing date accordingly.

"Where the Board finds, however, that the staff cannot demonstrate a reasonable cause for its delay, the Board may issue a ruling (with appropriate findings supported by the record) noting the staff's unjustified failure to meet a publication schedule. It may then either proceed to hear other matters or, if there be none, suspend the proceeding until the staff files the necessary documents. In either situation the Board, on its own motion or on that of one of the parties, may refer the ruling to us. See 10 CFR 2.730(f). We would hear such referrals expeditiously; and, were we to agree with the Board, we would certify the matter to the Commission. Its authority to rectify the situation is undoubted." (8 NRC 194 at 207, footnotes omitted.)

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affecting the quality of human environment. Section 51.20(a) and (b)(13) also provides that the Commission may prepare an environmental impact statement in connection with other types of proposed actions (e.g., actions normally eligible for categorical exclusion or actions for which a finding of no significant impact would normally be prepared), when the Commission determines, in the exercise of its discretion, that it is advisable to do so. It is not possible to predict how, often or under what circumstances the Commission might wish to exercise this discretion. However, there are likely to be at least a few occasions on which actions, which in normal circumstances might qualify for a categorical exclusion or only result in a finding of no significant impact following the completion of an environmental assessment, would, because of unique, unusual or controversial circumstances, require extensive environmental review. In order to make clear that its NEPA responsibilities will be fully honored in connection with these actions, the Commission has retained § 51.20(a)(2) in the text of the regulations. Complementary provisions have been included in §§ 51.21 and 51.22(b).

Section 51.20(b) of revised Part 51 lists the principal types of actions which require environmental impact statements. Although the list is intended to be reasonably complete, it is not exclusive in the sense that environmental impact statements are to be prepared on the actions listed and no others. Actions which have been subject to an environmental assessment or which appear to be eligible for a categorical exclusion but involve unique, unusual or controversial environmental concerns may also require environmental impact statements.

The types of actions subject to § 51.21 cover a wide spectrum. Although § 51.21(b) of the proposed rule listed some of the more representative types of actions likely to be found in this class, the Commission has decided, after considering the comments, that, instead of trying to refine the descriptions of the actions listed or to prepare a more comprehensive list, the better approach would be to define the boundaries of the class, thus making clear to all concerned that preparation of an environmental assessment would be required for all licensing and regulatory actions subject to subpart A of 10 CFR Part 51 except those requiring an environmental impact statement or those eligible for categorical exclusion.

### *Sections 51.26–51.29 Scoping.*

Comments on the provisions of the regulations implementing the scoping

process ran the gamut from general approval to opposing concerns that the regulations are overly structured or that more detailed scoping procedures should be provided. Except for a few minor revisions needed to conform the scoping procedure more closely to NRC licensing practices, the Commission has decided, after careful consideration of these comments, to promulgate these sections of the regulations as originally proposed. Until the NRC has obtained more experience in the conduct of the scoping process, it is difficult to judge whether the scoping procedures contained in the regulations are overly formalized or insufficiently detailed. In the opinion of the Commission, any additional changes in the regulations at this time would be premature.

The Commission is satisfied that its scoping procedures as promulgated comply with CEQ's requirements. Sections 51.26–51.29 of the revised regulations closely track those sections of the CEQ regulations which relate to the scoping process, specifically 40 CFR 1501.1(d), 1501.4(d), 1501.7 and 1508.22.

The scoping process provided in subpart A of revised Part 51 is intended to be informal in nature. Consistent with this approach, the regulations permit but do not require that a public scoping meeting be held. In accordance with § 51.26(b), the decision to call a public scoping meeting in any given instance is at the discretion of the NRC staff. If the NRC staff determines that there is no need to hold a public scoping meeting, participation in the scoping process may be limited to the submission of written comments.

Section 51.28(a) (§ 51.29(a) of the proposed regulations) identifies six classes of persons who must be invited to participate in the scoping process. Section 51.28(b) provides that the NRC staff, at its discretion, may also invite other persons as appropriate. Participants take part in the scoping process by invitation and their role is merely advisory. Decisions respecting the scope of an environmental impact statement are the sole responsibility of the NRC. Section 51.28(c) specifically states that "[p]articipation in the scoping process for an environmental impact statement does not entitle the participant to become a party to the proceeding to which the environmental impact statement relates. Participation in an adjudicatory proceeding is governed by the procedures in 10 CFR 2.714 and 2.715. Participation in a rulemaking proceeding in which the Commission has decided to have a hearing is governed by the provisions in the notice of hearing."

The objectives of the scoping process, which only applies to environmental impact statements, are set out in detail in § 51.29 of the revised regulations. The

principal purpose of that process is to define the proposed action which is the subject of the environmental impact statement, determine the scope of the statement and identify those issues which are to be analyzed in depth and those which can be eliminated from detailed study.

While acknowledging the value of the scoping process, several commenters pointed out that it was of limited usefulness to applicants because decisions respecting the scope and the issues to be addressed in an environmental impact statement were made after most of the applicant's environmental studies had been completed. In consequence, at the conclusion of the scoping process, an applicant might find both that previously collected environmental data was unneeded and that extensive amounts of new environmental information must be provided. The observations of the commenters are not without merit. At the same time, the problem cannot be entirely alleviated.

The time frame within which the scoping process may be scheduled is subject to certain recognized limits. Under NEPA, the need to prepare an environmental impact statement depends on the likelihood and the nature of a federal action. In the case of a regulatory agency like the NRC, the occasion for federal action, such as the issuance of a license to construct or operate a nuclear power reactor, does not arise until after a request for the action has been presented. Under these circumstances, the date of receipt of a license application marks the earliest possible date on which the scoping process could be commenced. However, it is usually not practicable to initiate the scoping process on that date since NRC staff and other interested persons must first have an opportunity to become familiar with the application and the environmental issues which it presents.

To limit the point in time at which the scoping process may be formally initiated does not mean that an applicant must be deprived of all assistance and guidance. Even though the conclusions and determinations which may be reached in a particular scoping process cannot be fully predicted in advance, some useful guidance can be provided. Section 51.40 of the revised regulations encourages applicants to consult with the NRC staff on environmental matters. Recognizing applicants' needs for guidance on the scope, relative significance and type of treatment to be accorded issues to be considered in environmental impact statements on federal actions with which they are concerned, the Commission has revised § 51.40(b)(2) of the regulations to make clear that applicants may seek guidance from the

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NRC staff on matters subject to the scoping process.

### *Section 51.33 Draft finding of no significant impact.*

Section 51.33 gives the NRC staff discretionary authority to prepare a draft finding of no significant impact and issue the draft finding for public comment. This provision provides a mechanism which the NRC staff may use, should it wish to do so, to obtain public comment on whether a final finding of no significant impact or an environmental impact statement should be prepared and issued. Section 51.33(b) describes certain circumstances in which the preparation of a draft finding of no significant impact may be appropriate. These circumstances include those in which preparation of a draft finding will further the purposes of NEPA. The NRC staff is not required, however, to use this discretionary procedure.

### *Section 51.45 Environmental Report and Section 51.71 Draft Environmental Impact Statement—Contents.*

One commenter noted that the term "cost-benefit analysis" used in §§ 51.20 (b), (c) and (e), 51.23 and 51.26(a) of the Commission's former regulations was not retained in the proposed revision of 10 CFR Part 51 and requested an explanation. The change in terminology from the specific expression "cost-benefit analysis," which denotes a quantitative analysis expressed in monetary terms, to the generic term "analysis," which is intended to include an analysis, evaluation and balancing of important qualitative factors as well as a quantitative cost-benefit analysis, reflects in part the shift in emphasis in the CEQ regulations towards a greater awareness of the quality of the environment and the importance of giving full consideration to unquantified environmental impacts, values, and amenities. This change in emphasis is highlighted in 40 CFR 1502.23 which states that the preparation of a cost-benefit analysis is optional and provides that monetary cost-benefit analyses are not to be included in the main text of environmental impact statements but are either to be incorporated by reference or appended to the statement as an aid in evaluating environmental consequences. Section 1502.23 also states that "For purposes of complying with the Act [NEPA], the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations . . ."

The Commission chose to use the generic term "analysis" because it encompasses all aspects of an environmental analysis, qualitative as well as quantitative. In changing the

terminology from "cost-benefit analysis" to "analysis," the Commission did not intend to convey the impression that cost-benefit analyses of quantifiable environmental impacts are no longer required. Sections 51.45(c) and 51.71(d) both provide that "[t]he analysis will, to the fullest extent practicable, quantify the various factors considered." Instead, the Commission intended to make clear that a comprehensive environmental analysis should include the consideration and balancing of qualitative as well as quantitative impacts.

Several commenters requested an explanation of the provisions in §§ 51.45(b) (1) and (3) directing that the environmental impacts of the proposed action be discussed in proportion to their significance and that, to the extent practicable, the environmental impacts of the proposal and the alternatives be presented in comparative form. The commenters expressed concern that these directives would necessitate the preparation of unduly detailed and lengthy analyses on matters which could be adequately dealt with in a more concise manner.

The sentence in § 51.45(b)(1) which reads "Impacts shall be discussed in proportion to their significance," is identical to the first sentence of § 1502.2(b) of the CEQ regulations which provides the following further explanation:

There shall be only brief discussion of other than significant issues. As in a finding of no significant impact, there should be only enough discussion to show why more study is not warranted.

The sentence in § 51.45(b)(3) which reads "To the extent practicable, the environmental impacts of the proposal and the alternatives should be presented in comparative form," is drawn from § 1502.14 of the CEQ regulations.

Section 1502.14, entitled "Alternatives including the proposed action," states in pertinent part:

This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (§ 1502.15) and the Environmental Consequences (§ 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall:

(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

(b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.

In the opinion of the Commission these

provisions should not necessitate the preparation of unduly detailed or lengthy analyses.

Members of the NRC staff indicated that implementation of the provision in § 51.71(b) that the draft environmental impact statement "include consideration of major points of view expressed on the environmental impacts of the proposed action and the alternatives, . . ." presented certain practical problems in that these major points of view cannot always be adequately identified and evaluated until after the comments on the draft environmental impact statement have been received. For example, when an application for a permit to construct a nuclear power reactor is received, it is customary for the NRC staff to evaluate the environmental information submitted by the applicant. On the basis of this independent evaluation and analysis, the NRC staff then prepares and issues a draft environmental impact statement for public comment. The draft environmental impact statement is circulated to interested state and federal agencies and made available to members of the public. Until comments on the draft statement have been received and analyzed, it is not possible to determine whether all major points of view have been considered. In each case, however, the issue is resolved by the time the final environmental impact statement is completed and issued. In order to accommodate this concern, § 51.71(b) has been revised to make clear that major points of view will be considered in the draft environmental impact statement to the extent sufficient information is available.

### *Section 51.51 Uranium Fuel Cycle Environmental Data—Table S-3.*

On August 2, 1979, the Commission promulgated a final fuel cycle rule which sets out revised environmental impact values for the nuclear waste management and fuel reprocessing parts of the uranium fuel cycle to be included in environmental reports and environmental impact statements for individual light-water nuclear power reactors (44 FR 45362-45374, August 2, 1979; correction notice, 44 FR 56312, October 1, 1979.) The rule, which amended Part 51 of the Commission's existing regulations, became effective September 4, 1979. On June 6, 1983, in response to a series of legal challenges, the U.S. Supreme Court issued a unanimous decision upholding all three versions (original, interim and final) of the S-3 rule (*Baltimore Gas and Electric Co., et al. v. NRDC*, 51 U.S.L.W. 4678.) Accordingly, the Commission is incorporating the text of the effective S-3 rule in revised Part 51 (See §§ 51.51, 51.71(d) and 51.75.) Although the Commission has found it necessary to



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make certain minor conforming amendments so that the rule will be consistent with the revised format of Part 51, no changes have been made in the substantive provisions of the S-3 rule.

### *Section 51.53 Supplement to Environmental Report—Operating License Stage.*

### *Section 51.95 Supplement to final environmental impact statement—Operating License.*

Several commenters noted that § 51.53 of the proposed revised regulations, unlike § 51.21 of the Commission's former regulations, does not authorize an applicant engaged in preparing an environmental report in connection with an application for an operating license for a facility to incorporate by reference information contained in the environmental report or the final environmental impact statement prepared in connection with the construction permit for that facility. The Commission did not intend to eliminate this authority; accordingly, § 51.53 has been revised. A similar change has been made in § 51.95, Supplement to final environmental impact statement—Operating license, to authorize the NRC staff to incorporate by reference in a supplement relating to an operating license for a facility any information contained in the final environmental impact statement or in the record of decision prepared in connection with the construction permit for that facility.

Sections 51.53 and 51.95 have also been revised to make clear that the requirements to prepare supplements to the environmental report and the final environmental impact statement on the construction permit for a facility in connection with the issuance of an operating license for that facility are not requirements to repeat at the operating license stage the full-scale environmental review of the facility performed at the construction permit stage. The sole function of these supplements is to update the prior environmental review. Thus the supplements need only address matters which differ from or reflect significant new information concerning matters discussed in the Applicant's Environmental Report—Construction Permit Stage or in the NRC's final environmental impact statement on the construction permit.

### *Section 51.92 Supplement to final environmental impact statement.*

Section 51.92 has been revised to make clear that the NRC staff will prepare a supplement to a final environmental impact statement for a proposed action if that action has not been taken and if there are substantial changes in the proposed action that are

relevant to environmental concerns, or if there are significant new circumstances or information which are relevant to environmental concerns and bear on the proposed action or its impacts.

### *Section 51.73 Request for comments on draft environmental impact statement.*

### *Section 51.100 Timing of Commission action.*

Consistent with § 1506.10(c) of CEQ's regulations (40 CFR 1506.10(c)) § 51.73, "Request for comments on draft environmental impact statement," prescribes a minimum comment period of 45 days and specifies that the comment period is to be calculated from the date on which the Environmental Protection Agency's weekly notice announcing the filing of draft and final environmental impact statements is published in the Federal Register. Revised Part 51 also provides that the comment periods for supplements to draft and final environmental impact statements are to begin on the dates on which the EPA notices announcing the availability of those supplements are published in the Federal Register (see, for example, §§ 51.73, 51.92, 51.95, of revised 10 CFR Part 51.)

Subject to certain exceptions, § 51.100(a) prohibits the Commission from making a decision or issuing a record of decision on a proposed action for which an environmental impact statement is required until the later of the following dates: ninety days after publication by the Environmental Protection Agency of a Federal Register notice stating that the draft environmental impact statement has been filed with EPA, or thirty days after publication by the Environmental Protection Agency of a Federal Register notice stating that the final environmental impact statement has been filed with EPA.

Several commenters expressed concern that reliance on EPA's publication dates instead of NRC's publication dates would result in confusion and delay. These commenters urged that the Federal Register publication date of the applicable NRC notice be used in calculating the requisite time periods for submitting comments or taking NRC actions.

Since its establishment on January 19, 1975, the NRC, in common with other Federal agencies, has followed the customary and uniform practice of calculating the expiration date of an environmental impact statement comment period and the date of the minimum period for review of an environmental impact statement from the date on which the EPA notice<sup>16</sup> listing the specific environmental impact

<sup>16</sup> Prior to December 5, 1977, these notices were published by CEQ.

statement was published in the Federal Register. This arrangement has not caused any uncertainty or confusion. In accordance with EPA practice, all draft and final environmental impact statements received by EPA prior to noon on a given Friday are routinely listed in the EPA notice of availability published in the Federal Register on the following Friday. Similarly, all draft and final statements received by EPA after noon on a given Friday are listed in the Federal Register notice published by EPA two weeks later. The date on which the EPA notice is published in the Federal Register is the date from which the minimum periods of review for all environmental impact statements listed in the notice, including any NRC environmental impact statements listed, are calculated. Because the publication schedule for EPA notices is firmly fixed and the time when an environmental impact statement is filed with EPA is known to the filing agency, the date on which a comment period begins or from which the 90 day or 30 day review period is to be calculated can be known with certainty. This NRC practice is well established, has not resulted in confusion and uncertainty, and is consistent with the provisions of the CEQ regulations. Accordingly, the changes suggested by the commenters have not been adopted.

### *Section 51.104 NRC proceedings using public hearings; Consideration of environmental impact statement.*

Section 51.104 has been extensively revised to reflect current NRC practice respecting the consideration of environmental issues in licensing hearings. In accordance with accepted practice, § 51.104 provides that the NRC staff may not place a final environmental impact statement in evidence in a proceeding or present the NRC staff position on environmental issues until after the final environmental impact statement has been filed with the Environmental Protection Agency, furnished to commenting agencies and made available to the public. Section 51.104 also provides that in those proceedings in which the NRC staff has determined that no environmental impact statement need be prepared for the proposed action, any party to the proceeding may take a position and offer evidence on those aspects of the proposed action which are within the scope of NEPA and subpart A of 10 CFR Part 51. The opportunity accorded parties to present evidence on environmental issues is subject to the Commission's Rules of Practice, for example, as set out for formal adjudications in Subpart G of 10 CFR Part 2, and to any specific procedural constraints which may be placed on the scope of a particular hearing in order to

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manage the hearing efficiently. For example, in a hearing limited solely to the consideration of antitrust issues, presentation of evidence on environmental matters would be inappropriate. In order to acknowledge the Commission's authority to control the conduct of its licensing hearings in a positive way, § 51.104(b) has been revised by adding the words "unless the Commission orders otherwise."

### *Section 51.106 Public hearings in proceedings for issuance of operating licenses.*

Section 51.106 incorporates the provisions of former § 51.53, which relates to operating license hearings, into revised Part 51. Although § 51.106 was not included in the proposed rule, the Commission did not intend to revoke this regulation which was promulgated in 1974 and amended in 1981 in accordance with the customary notice and comment procedure.

### **Conforming Amendments**

Following enactment of the Nuclear Waste Policy Act of 1982, Pub. L. 97-425, January 7, 1983, 96 Stat. 2201-2263, the Commission initiated a review of the licensing procedures in 10 CFR Part 60, "Disposal of High-Level Radioactive Wastes in Geologic Repositories: Licensing Procedures," to determine what changes may be necessary and appropriate. As part of that review, the Commission will also determine whether conforming changes to other parts of the regulations, including Part 51, are needed. In view of these circumstances, conforming amendments to 10 CFR Part 60 are not being promulgated at this time in connection with this final rule. In the interim, pending completion of this review, a minor conforming amendment has been made to 10 CFR 2.101(f).

### **Categorical Exclusions**

In the proposed rule, as published March 3, 1980, the Commission requested comments on the classes of actions proposed to be excluded from the NEPA process as categorical exclusions and suggestions on types of actions for which additional categorical exclusions might be established. One commenter recommended that the Commission define with greater specificity the "special circumstances" (see § 51.22(b) of the proposed rule) under which an environmental assessment or an environmental impact statement would be prepared for an action which otherwise would be categorically excluded from the NEPA process. Ten commenters submitted comments on one or more of the categorical exclusions contained in the proposed rule. These comments focused

on categorical exclusions 4, 9, 10, 11, 12, 13, portions of categorical exclusion 14, and 15. Three commenters suggested additional types of actions for inclusion in the rule as categorical exclusions. Brief descriptions of these comments and the Commission's responses follow. The text of each categorical exclusion is reproduced below as it appeared in the proposed rule. The bracketed reference identifies the section of the final rule in which the category is listed.

### *Section 51.22(b)*

One commenter recommended that the Commission define with greater specificity the "special circumstances" in proposed § 51.22(b) which the Commission may invoke to require an environmental assessment or environmental impact statement for actions otherwise categorically excluded. The commenter also urged the Commission to provide notice and opportunity for affected parties to present their views before a decision is made to invoke the special circumstance exception.

The Commission disagrees with the commenter. The Commission may wish, as a matter of discretion, to have the benefit of an environmental assessment or an environmental impact statement in considering the desirability of a proposed course of action, even though, as a strict legal matter, neither may be required. A major purpose of proposed § 51.22(b) is to preserve this necessary flexibility. In addition, it is impossible to identify in advance the precise situations which might move the Commission in the future to determine that special circumstances exist. Therefore, the term "special circumstances" has not been further defined. For similar reasons, the Commission has decided not to require the use of notice and comment procedures in determining when to prepare an environmental assessment or an environmental impact statement on an action which except for special circumstances would be eligible for categorical exclusion. Although there may be occasions when the Commission will wish to seek comment from affected persons or the public at large before making a finding of special circumstances, the Commission believes that its responsibilities for protecting the public health and safety and giving appropriate consideration to environmental values will be best served if it retains the flexibility and authority to direct its staff to prepare environmental assessments or environmental impact statements very early in the decisionmaking process. However, a notice of intent to prepare an environmental impact statement will be published pursuant to §§ 51.26 and 51.116.

### *Section 51.22(c)*

**Proposed Category 4.**—Entrance into or amendment, suspension, or revocation of an agreement with a State pursuant to section 274 of the Atomic Energy Act of 1954, as amended, providing for assumption by the State and discontinuance by the Commission of certain regulatory authority of the Commission. [§ 51.22(c)(4)]

The only substantive comments received concerning this categorical exclusion were those contained in the letter of October 29, 1979 from CEQ staff counsel to the Executive Legal Director of NRC.<sup>16</sup> The author of this letter concludes that insofar as Category 4 would "exclude new agreements and amendments to agreements with States, pursuant to Section 274 of the Atomic Energy Act of 1954, from review in environmental impact statements or environmental assessments \* \* \* [the] Council cannot endorse this categorical exclusion as written." Except for the comments of the Department of Natural Resources of the State of Georgia, which expressed general support for CEQ's views, including the views contained in the October 29, 1979 letter from CEQ published in Appendix B<sup>17</sup> to the proposed rule, no other comments were received on proposed categorical exclusion 4.

Proposed categorical exclusion 4 addresses a limited and highly specific type of federal action. The main thrust of the CEQ staff comment is that the NRC action of entering into or amending a section 274 Federal-State Agreement should remain subject to the NEPA process because subsequent regulatory actions which the State is permitted to take by virtue of the agreement are similar to regulatory actions which would have been taken by NRC in the absence of an agreement and which would, because of their status as Federal actions, clearly be subject to NEPA. The CEQ comment does not address the question of how licensing and regulatory actions taken by the State during the life of a section 274 agreement are to be evaluated in an environmental impact statement or in an environmental assessment prepared at the time of entrance into the agreement on the limited Federal action of entrance into the agreement when information on the kind and number of State regulatory actions to be taken during the period the agreement is in effect cannot be known and in consequence the environmental effects of those actions cannot be ascertained. CEQ's analysis, which is founded on the premise that the State is acting as an agent for the Federal government and is exercising delegated Federal powers, does not recognize the

<sup>16</sup> 45 FR 13739 at 13766, March 3, 1980.

<sup>17</sup> *Id.*

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clear line of separation established by the agreement between Federal and state actions.<sup>18</sup>

The Federal-State agreement authorized by section 274 of the Atomic Energy Act of 1954, as amended, does not constitute a delegation or transfer of Federal authority to the States. Instead, the Agreement specifies the conditions under which the States may exercise their own sovereign authority. Under the provisions of a section 274 agreement, the NRC's regulatory authority over source, byproduct and special nuclear material, conferred upon it by the Atomic Energy Act of 1954, as amended, is discontinued, thereby enabling the States, in the exercise of their inherent police powers to protect the public health and safety of their citizens, to assume regulatory authority over those materials. Under this arrangement, except as expressly provided under 10 CFR Part 150, once a state has assumed regulatory responsibility under a section 274 agreement, the NRC is precluded from exercising direct regulatory control over individual state licensees. Under section 274j of the Act, the Commission retains certain residual powers which permit the Commission to terminate or suspend all or part of a State agreement and reassert its own licensing and regulatory authority if it finds that " \* \* \* (1) such termination or suspension is required to protect the public health and safety, or (2) the State has not complied with one or more of the requirements of this section [§ 274]." In aid of this residual authority, section 274j also provides that the Commission " \* \* \* shall periodically review such agreements and actions taken by the States under the agreements to ensure compliance with the provisions of this section [§ 274] \* \* \*."

As indicated previously, any attempt, on the occasion of entrance into a Federal-State agreement, to obtain useful information on the environmental impact of subsequent State regulatory actions which might be taken during the period the agreement remains in force, is likely to yield disappointing and speculative results. Except for matters relating to uranium mills and mill tailings for which the Uranium Mill Tailings Radiation Control Act of 1978, Pub. L. 95-604, November 8, 1978, has made special provision, many of the licensing and regulatory actions which might be taken by States under a section 274 agreement are unlikely to have any

significant environmental effect. In many instances, the state regulatory actions will be similar to federal actions for which the Commission has established a categorical exclusion in § 51.22(c) of revised Part 51. In the case of other state actions, the only significant environmental effects will be those caused by the radioactive properties of the regulated materials. With respect to those types of actions, the environmental impact attributable to the Federal action of entering into a section 274 agreement should also be minimal because the statutory requirements governing § 274 agreements provide assurance that so far as radiological hazards are concerned the States will regulate the materials covered by the agreements in a manner similar to the way in which the materials were regulated by NRC.

Congress enacted the Federal-State Amendment to the Atomic Energy Act in 1959. Ten years later the National Environmental Policy Act of 1969 became law. The law is clear that "NEPA does not repeal by implication any other statute \* \* \*" <sup>19</sup> and that NEPA's policies and goals "are supplementary to those set forth in existing authorizations of Federal agencies" and should not "in any way affect the specific statutory obligations of any Federal agency."<sup>20</sup> Accordingly, NEPA does not alter the meaning of section 274 and the clear line which it establishes between state and federal actions.

As enacted, NEPA only applies to major federal actions significantly affecting the human environment. To use Section 274 of the Atomic Energy Act of 1954, as amended, as a vehicle for extending NEPA to state actions and thereby broadening the scope of NEPA would be tantamount to giving the Commission the power to override the clear intent of Congress. Except to the extent that Congress has required states to consider the environmental impacts of uranium milling activities and mill tailings,<sup>21</sup> Congress has declined to extend NEPA to the states. Absent action by the Congress broadening the scope of NEPA, there is no sound basis in law for extending the NEPA process to actions taken by states in the exercise of their police powers in accordance with the terms of a section 274 Federal-State agreement.

<sup>18</sup> *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519 at 548, citing *Aberdeen & Rockfish R. Co. v. SCRAP*, 422 U.S. 288, 318 (1975). see also *United States v. SCRAP*, 412 U.S. 689, 694 (1973).

<sup>19</sup> *United States v. SCRAP*, 412 U.S. 689, 694 (1973); see also *Aberdeen & Rockfish R. Co. v. SCRAP*, 422 U.S. 288 (1975); *Flint Ridge Development Co. v. Scenic Rivers Assoc.*, 426 U.S. 776 (1976).

<sup>21</sup> *Uranium Mill Tailings Radiation Control Act of 1978*, Pub. L. 95-604, November 8, 1978, Sec. 204, 92 Stat. 3021 at 3036-3038, 42 U.S.C. 2021.

**Proposed Category 9.**—Issuance of an amendment to a permit or license for a reactor pursuant to Part 50 of this chapter, which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in Part 20 of this chapter, or which changes an inspection or a surveillance requirement, provided that (i) the amendment does not involve any significant hazards consideration, (ii) there is no change in the types or amounts of any effluents that may be released offsite, and (iii) there is no associated increase in individual or cumulative occupational radiation exposure. [§ 51.22(c)(9)]

The comment on this categorical exclusion is discussed in conjunction with a similar comment on Category 11.

**Proposed Category 10.**—Issuance of an amendment to a permit or license pursuant to Parts 30, 40, 50, or 70 of this chapter which (i) changes insurance and/or indemnity requirements, or (ii) changes recordkeeping, reporting, or administrative procedures or requirements. [§ 51.22(c)(10)]

One commenter suggested that changes in insurance or indemnity requirements could have a direct impact on certain activities and hence should not be categorically excluded. The commenter provided no further elaboration of his position. The Commission recognized in its discussion and finding supporting this exclusion in the proposed rule that to the extent the financial arrangements of licensees may be affected by changes in insurance and/or indemnity requirements, economic and social consequences will result. However, the Commission viewed, and continues to view, as extremely remote the possibility that the environmental impact of licensed activities would be altered by changes in insurance and/or indemnity requirements; such changes would not authorize construction or operation of licensed activities or effect changes in the permitted types or amounts of radiological effluents. Moreover, if unusual or unique circumstances are found to exist, the Commission has discretion under § 51.22(b) to conduct an environmental review. The Commission is retaining this categorical exclusion. However, the Commission has revised the description of Category 10, to make clear that changes in surety requirements are included within the scope of the exclusion.

**Proposed Category 11.**—Issuance of amendments to licenses for fuel cycle plants and radioactive waste disposal sites as identified in §§ 51.20(b) or 51.21(b) of this subpart which are administrative, organizational, or procedural in nature, or which result in a change in process operations or

<sup>19</sup> In *Natural Resources Defense Council v. NRC* (C.A.D.C. No. 77-1570, per curiam Order, January 6, 1978), the U.S. Court of Appeals for the District of Columbia Circuit held that an Agreement State is not a federal agent or delegate under 42 U.S.C. 2021, that an Agreement State licensing action is not a "Federal action" for purposes of NEPA, and that NRC involvement with Agreement States is not federal action subject to NEPA. See, also *Northern States Power Company v. Minnesota*, 447 F.2d 1143, 1146-50 (8th Cir. 1971), affirmed 405 U.S. 1035 (1972).

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equipment, provided that (i) there is no increase in the types or amounts of effluents that may be released offsite, (ii) there is no associated increase in individual or cumulative occupational radiation exposure, (iii) there is no significant construction impact, and (iv) there is no increase in the potential for or consequences from radiological accidents. [§ 51.22(c)(11)]

One commenter, while not objecting to the substance of the exclusion of some types of changes in process operation or equipment, recommended the addition on two further limitations on the scope of the exclusion. The first limitation would require that there be no potential for an accident of a different type than evaluated previously. The Commission views this limitation as unnecessary because the proposed rule already encompasses this concern and is even broader in that consequences of postulated accidents will also be examined. Specifically, proposed § 51.22(c)(11) would exclude a change in process operations or equipment only if, among other things, there is no increase in the *potential for or consequences* from radiological accidents (emphasis added). Hence, if a proposed change raises a credible possibility of a radiological accident(s) different from those previously evaluated, then the accident potential as well as the consequences will be examined.

The second suggested limitation would require that there be no reduction in the margin of safety of any feature. The Commission does not accept this recommendation because it is overbroad. The recommendation is overbroad because it would apply to "any feature," including, if read literally, devices having no relationship to protection of environmental values or radiological health or safety. Moreover, the recommendation does not recognize the possibility that a slight reduction in a conservative margin of safety of a particular feature may result, without jeopardizing in any way the public health and safety, in a net increase in the overall safety of the facility by allowing quicker response times, higher flow rates, more accurate readouts, etc., in other features of the facility.

Another commenter recommended that the scope of categorical exclusions 9 and 11 be enlarged to permit exclusion so long as there is no *significant* increase in the types or amounts of effluents or exposure to radiation (emphasis added). The proposed rule permits exclusion only if there is no increase. The commenter based his suggestion on the language of proposed § 51.21(b)(2) which would require an environmental assessment only when there is a significant increase in effluents or exposures. The Commission accepts the recommendation in part and

has amended categorical exclusions 9 and 11 by adding the word "significant" in each proviso of each exclusion where the word does not already appear. This change is consistent with the definition of categorical exclusion which speaks in terms of significant impacts. See § 51.14(a)(1).

**Proposed Category 12.**—Issuance of an amendment to a license pursuant to Parts 50 and 70 of this chapter relating solely to safeguards matters (i.e., protection against sabotage or loss or diversion of special nuclear material) or issuance of an approval of a safeguards plan submitted pursuant to Parts 50, 70, and 73 of this chapter, provided that the amendment or approval does not involve any significant construction impacts. [§ 51.22(c)(12)]

Two commenters objected to the Commission's proposed categorical exclusion of certain license amendments relating to safeguards and physical security plans. Both commenters believe that the excluded actions can have a significant effect on the environment. One commenter interpreted the exclusion as excluding *all* actions relating to safeguards and physical security which do not involve significant construction impacts.

The Commission believes that the commenters read the exclusion more broadly than intended. As the discussion and finding supporting the proposed exclusion explains, the excluded license amendments are needed to implement new safeguards regulations in license provisions and permit modifications to licensee safeguards programs established under existing requirements. The discussion and finding describe the general types of amendments within the scope of the exclusion; they are largely of a minor procedural nature. Substantive and significant amendments to the regulations from the standpoint of environmental impact do not fall within the exclusion. These actions are subject to the environmental review requirements of §§ 51.20 or 51.21. Some clarifying changes have been made in the description of this categorical exclusion.

**Proposed Category 13.**—Approval of package designs for the delivery of licensed materials to a carrier for transportation. [§ 51.22(c)(13)]

Two commenters objected to the categorical exclusion of package design approvals (§ 51.22(c)(13)). Both commenters essentially argue that there are instances when the Commission's actions regarding transportation are potentially so significant that full NEPA review is essential. The Commission believes the commenters misconstrue the scope of this exclusion by reading it too broadly. As explained in the discussion and finding supporting the proposed exclusion of package design

approvals, certificates of compliance approving package designs for packages to be used in the transportation of radioactive materials are issued upon demonstration that the package designs meet applicable performance standards contained in Part 71 of the Commission's regulations. Although it is expected that packages manufactured in accordance with approved designs will be used to transport radioactive materials, the certificates of compliance do not authorize the actual transportation of those materials. Furthermore, at the time a certificate approving a package design is issued, no specific information is available on the number of packages that will be manufactured or the manner in which they will be used.

The Commission has previously considered the impacts of the actual transportation of radioactive materials in packages meeting the performance standards of 10 CFR Part 71 in a generic environmental impact statement (Final Environmental Statement on the Transportation of Radioactive Materials by Air and Other Modes, NUREG-0170, December, 1977) and has concluded that such impacts are small. Since this generic environmental impact statement was issued, there has been no relaxation in the performance standards which the Commission uses in acting on requests for package approvals. Under these circumstances, there is no need for nor any useful purpose to be served by requiring a second NEPA review in connection with the issuance of individual package design approvals. Accordingly, the Commission has retained this categorical exclusion.

**Proposed Category 14.**—Issuance, amendment, or renewal of the following types of materials licenses issued pursuant to 10 CFR Parts 30, 40, or 70:

- (i) Distribution of devices and products containing radioactive material to general licensees and persons exempt from licensing.
- (ii) Medical licenses.
- (iii) Nuclear pharmacies.
- (iv) Teletherapy licenses.
- (v) Licenses to academic institutions for educational purposes.
- (vi) Industrial radiography.
- (vii) Acceptance of packaged radioactive wastes from others for transfer to licensed land burial facilities.
- (viii) Irradiators (dry storage—self-contained).
- (ix) Irradiators (wet storage—panoramic).
- (x) Gauging devices, analytical instruments, and other devices utilizing sealed sources.
- (xi) Source material licenses for fabrication of the products specified in 10 CFR 40.13, fabrication of military munitions, and laboratory use for research and development.
- (xii) Well logging.
- (xiii) Research and development

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licenses involving less than ten curies of radioactive material.

[§ 51.22(c)(14)(i)-(xvi)—The descriptions and order of some subcategories have been changed.]

A number of comments were received on this categorical exclusion. One commenter suggested that this section should be revised to make clear that generic or programmatic impact statements are not excluded. This comment misconstrues the purpose of and the findings necessary to support a categorical exclusion. By definition, a categorical exclusion means a category of actions "which do not individually or cumulatively have a significant effect on the human environment \* \* \*." See 10 CFR 51.14(a)(1). A generic impact statement on a proposed action having no significant environmental impact is not required under NEPA and would serve only to divert scarce agency resources from more pressing business.

A number of comments were received on specific subcategories of exclusions within this section. Two commenters suggested that the exclusion of materials licenses issued to academic institutions for educational purposes (§ 51.22(c)(14)(v)) be clarified to make clear that licenses for nuclear reactors at such institutions are not excluded. The Commission agrees with the commenters that the exclusion is not intended to cover licenses to construct and operate nuclear reactors at academic institutions. Those licenses are issued under Part 50 of the Commission's regulations. Since this categorical exclusion explicitly applies only to "materials licenses issued pursuant to 10 CFR Parts 30, 31, 32, 33, 34, 35, 40 and 70," no change to the regulation is required. However, the discussion and finding supporting the academic institution subcategory has been revised to make clear that only materials licenses are categorically excluded.

Another commenter correctly noted with respect to the discussion and finding supporting the exclusion for industrial radiography materials licenses (§ 51.22(c)(14)(vi)) that an average occupational exposure per individual radiographer of less than 0.4 rem per year is not "less than 1%" of the permissible exposure as stated. The correction has been made.

One commenter recommended that the amount of packaged radioactive waste which may be excluded should be limited as to quantity. (Proposed § 51.22(c)(14)(vii).) The Commission has reexamined this categorical exclusion in light of the comment and, in response, has placed two limits on the exclusion. In order to be eligible for the exclusion, the total possession limit for packaged radioactive wastes held in interim storage at the same time may not exceed

50 curies. In addition, the period of time during which any single package of radioactive waste may be held in interim storage may not exceed 180 days. [See § 51.22(c)(14)(xii).]

One commenter, a state agency, recommended that the categorical exclusion for source material licenses for the fabrication of certain products (proposed § 51.22(c)(14)(xi)) be eliminated. The commenter referred to the experience it had with a source material licensee within its geographic boundaries and listed a number of reasons why, in its view, activities under such licenses raise the potential for significant environmental impacts. The Commission does not believe that all of the commenter's arguments are germane to the proposed exclusion. However, the discussion and finding supporting the exclusion of source material licenses does not clearly address the possibility of off-site environmental impacts resulting from accidents in handling, processing, or disposing of large quantities of depleted uranium at licensed facilities. Therefore, the Commission has withdrawn this exclusion. The Commission has, however, added two new categorical exclusions: one for source material licenses which authorize the possession and use of depleted uranium as shielding material in containers or devices. [§ 51.22(c)(14)(ix)]; and one for the possession, manufacturing, processing, shipment, testing, or other use of depleted uranium military munitions [§ 51.22(c)(14)(xv).]

One commenter objected to the categorical exclusion for well logging (proposed § 51.22(c)(14)(xii)) arguing principally that if a source is lost in underground operations and consequently abandoned, the possibility exists that the radioactive material could escape into an aquifer and preclude or compromise the use of the aquifer as a source of drinking water or irrigation water. In support of this comment, the commenter cited the loss of a one curie americium-beryllium source in a mineral exploration bore in Texas and the subsequent decontamination efforts. The Commission has carefully considered the comment but has concluded, in the light of past regulatory experience and current licensing practices, that the environmental impact of licensing actions authorizing use of sealed sources and radioactive tracer materials in well-logging procedures is negligible. Accordingly, the Commission has retained this categorical exclusion. Some minor editorial revisions have been made in the description of the exclusion. [§ 51.22(c)(14)(xi).]

*Proposed Category 15.*—Issuance, amendment or renewal of licenses for import of nuclear facilities and materials

pursuant to Part 110 of this chapter, except for import of spent power reactor fuel. [§ 51.22(c)(15).]

One commenter stated that imports of nuclear facilities and materials pursuant to Part 110 of the Commission's regulations may have NEPA implications and that this category should be either limited in scope or eliminated as a categorical exclusion (§ 51.22(c)(15)). No elaboration of the commenter's position is provided. Another commenter implied that a full NEPA review of the transportation of imports might be essential in some instances. The Commission believes that no change to this proposed exclusion is necessary. The Commission is unable to respond to the first comment because of its generality. As to the second comment, the discussion and finding which accompanied the proposed exclusion specifically stated that import licenses do not authorize transportation of imported facilities and materials within the United States. Hence, transportation issues are not germane to this exclusion. Moreover, the discussion and finding also noted that an NRC final environmental statement (Final Environmental Statement on the Transportation of Radioactive Materials by Air and Other Modes, NUREG-0170, December 1977) concluded that the environmental impact of the transportation of imported radioactive materials from the time of their arrival in the United States until they reach their ultimate destination is negligible. Hence, the exclusion of this category of actions is appropriate.

### **Additional Types of Actions Suggested as Categorical Exclusions**

Two commenters suggested that an additional exclusion be created for the issuance, renewal or amendment of byproduct, source and special nuclear material licenses to holders of construction permits for power reactors, where such licenses expire upon the issuance of an operating license. The Commission does not agree that an additional categorical exclusion is necessary or appropriate for these actions. Although the comment is somewhat general, the Commission interprets it as being directed at devices containing sources used for calibration purposes at the site, neutron startup sources used for initiating fission in the reactor core, and unirradiated reactor fuel stored at the site subsequent to issuance of a construction permit but prior to issuance of the operating license. Sources contained in devices used for calibrating various equipment at the construction site are already categorically excluded. [See § 51.22(c)(14)(viii).] Therefore, an exclusion for licensing these devices is unnecessary. However, it is not appropriate for the Commission to

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categorically exclude neutron startup sources or unirradiated reactor fuel from revised Part 51 because the environmental impacts of licensing these sources are specifically considered in the Commission's review of each nuclear power reactor facility.

Two commenters also suggested that the renewal of a construction permit issued for a power reactor pursuant to 10 CFR 50.55(b) be categorically excluded. The Commission does not agree that an exclusion for this class of actions is appropriate. The completion date specified in a construction permit for a facility may be extended by the Commission for a reasonable period of time for good cause shown (10 CFR 50.55(b)). The ultimate disposition of an extension request will depend to a great extent upon the particular facts alleged by the licensee. For instance, the discovery of unanticipated environmental conditions or impacts during construction may be cited by a licensee as a contribution factor for the delay in completing construction on a timely basis. Since each extension request will be heavily fact dependent and may involve fundamental environmental questions, the Commission cannot conclude on a generic basis that the renewal of a construction permit will have no significant effect on the human environment. Therefore, a categorical exclusion for this class of actions is not warranted.

Two commenters also requested a categorical exclusion for any change in a principal environmental protection commitment by a holder of a construction permit or an operating license which does not necessitate the issuance of an amendment to such permit or license. The Commission believes that an exclusion for these types of actions is not warranted. The staff's environmental review of license applications is based in large part upon the environmental information submitted to it by the license applicant. License applicants commonly commit to taking certain actions relative to environmental protection objectives. Since the staff's evaluation of the environmental impacts of a proposed facility is premised on these commitments, any deviations therefrom subsequent to the issuance of a permit or license may result in environmental impacts which the Commission has not previously considered. Therefore, this category of actions should not be categorically excluded.

One commenter suggested a categorical exclusion similar to existing 10 CFR 51.5(d)(4) to exclude actions not specifically identified as requiring either an environmental assessment or impact statement. This comment misconceives the nature of a categorical exclusion. An

exclusion must be supported by a factual finding that a category of actions does not individually or cumulatively have a significant effect on the human environment. The Commission has endeavored to identify categories of actions which are appropriate subjects for environmental impact statements, environmental assessments or categorical exclusion. Since no factual findings can be made to support actions which are at this time either unidentified or unidentifiable, a general categorical exclusion is not appropriate.

One commenter recommended the categorical exclusion of certain NRC actions under the proposed emergency planning rule.<sup>22</sup> Specifically, the commenter suggested that NRC actions requiring licensees to shut down operating facilities because of inadequate state and local emergency plans, allowing startup following a determination or redetermination of adequacy, or allowing continued operation despite certain inadequacies in the emergency plans should qualify as categorical exclusions. The preamble which accompanied the final emergency planning rule makes clear that NRC actions leading to the possible shutdown of an operating reactor will proceed in accordance with existing NRC enforcement procedures. See 45 FR 55403, August 19, 1980. Consistent with CEQ guidance, § 51.10(d) of revised Part 51 provides that Commission actions initiating or relating to administrative enforcement actions or proceedings are not subject to section 102(2) of NEPA. Hence proceedings to shut down reactors (or other possible enforcement actions) for failure to comply with emergency planning requirements are not within the scope of Part 51, and a categorical exclusion for these actions is not necessary. However, the Commission agrees with the comment that actions authorizing renewed start up of reactors after compliance with emergency planning requirements has been demonstrated should be categorically excluded. A key assumption in the Commission's decision not to prepare an environmental impact statement for the emergency planning rule was that shutdowns of nuclear power plants as a result of actions taken under the rule are expected to be infrequent and of short duration.<sup>23</sup> Therefore, it is very unlikely that the resumption of operation at a particular facility would have a

<sup>22</sup> The final emergency planning rule amending 10 CFR Parts 50 and 70 adopted by the Commission was published on August 19, 1980 (45 FR 35402). The rule became effective on November 3, 1980.

<sup>23</sup> See 45 FR 55413-55415, August 19, 1980. Emergency Planning: Negative Declaration: Finding of No Significant Impact for Effective Rule Changes. See also, 45 FR 3913 at 3915, January 21, 1980. Emergency Planning: Draft Negative Declaration for Proposed Rule Changes.

significant effect on the human environment. Moreover, the Commission retains discretion to require an environmental assessment in special circumstances. As the commenter recognized, special circumstances may include resumed operation after a long shutdown or a shutdown involving multiple facilities. Accordingly, the Commission has categorically excluded actions authorizing the resumption of operation, provided that the basis for the authorization relates solely to compliance or recompliance with emergency planning requirements. [§ 51.22(c)(18)]

Section 51.22 of revised Part 51 sets out the procedures to be followed to establish categorical exclusions (§ 51.22(a)), describes the function of the categorical exclusion to exclude certain types of actions from environmental review requirements (§ 51.22(b)) and lists those categories of actions which the Commission has declared to be categorical exclusions (§ 51.22(c)). Section 51.22(b) also provides that in special circumstances the Commission may prepare an environmental impact statement or an environmental assessment on an action covered by a categorical exclusion.

The Commission has identified eighteen categories of actions which meet the requirement for a categorical exclusion. A description of each of these categories, with the requisite finding, follows:

### Category to Actions

1. Amendments to Parts 0, 1, 2, 4, 7, 8, 9, 10, 11, 14, 19, 21, 25, 55, 75, 95, 110, 140, 150, or 170 of this chapter, and actions on petitions for rulemaking relating to these amendments.

### Discussion and Finding

Except for Part 8, Interpretations, the regulations in the following parts relate to matters of Commission organization, administration and procedure.

Part 0—Conduct of Employees

Part 1—Statement of Organization and General Information

Part 2—Rules of Practice for Domestic Licensing Proceedings

Part 4—Nondiscrimination in Federally Assisted Commission Programs

Part 7—Advisory Committees

Part 8—Interpretations

Part 9—Public Records

Part 10—Criteria and Procedures for Determining Eligibility for Access to Restricted Data or National Security Information

Part 14—Administrative Claims under Federal Tort Claims Act

Part 140—Financial Protection Requirements and Indemnity Agreements

Part 150—Exemptions and Continued



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Regulatory Authority in Agreement States under Section 274  
Part 170—Fees for Facilities and Materials Licenses and Other Regulatory Services under the Atomic Energy Act of 1954, as amended.

The regulations in these parts serve the dual purpose of making needed information readily available to the public and providing procedures for the orderly conduct of Commission business. These regulations in and of themselves will not affect the volume of that business.

In some instances, the regulations implement Federal laws and executive orders which prescribe specific procedures and policies for the conduct of government business. These laws include the Administrative Procedure Act (15 U.S.C. 551 et seq.), the Freedom of Information Act (5 U.S.C. 552), the Privacy Act of 1974 (Pub. L. 93-579), the Government in the Sunshine Act (5 U.S.C. 552b), the Federal Advisory Committee Act (Pub. L. 92-463, 86 Stat. 770), certain provisions in 18 U.S.C. 201-209 dealing with conflicts of interest in Federal employment, and House Concurrent Resolution No. 175, July 11, 1958, on the Code of Ethics for Government Service (72 Stat. B12, 5 U.S.C.A. § 7301, Note.) Executive Order 11222, May 8, 1965, provides in part that "[t]he elimination of conflict of interest in the Federal service is one of the most important objectives in establishing general standards of conduct."

In some instances, application of the regulations will have economic or social, but not environmental consequences. Examples include: Part 140 which contains regulations implementing the provisions of the Price-Anderson Act relating to financial protection and indemnity agreements; Part 170 which prescribes the schedule of Commission fees; and Part 4 which contains regulations on nondiscrimination which implement the provisions of Title VI of the Civil Rights Act of 1964 and Title IV of the Energy Reorganization Act of 1974.

Formal interpretations of the Commission's regulations authorized by the Commission and prepared by the General Counsel are codified in Part 8. Although these interpretations may address matters of substance as well as procedure, the issuance of a formal interpretation and its inclusion in Part 8 of the Commission's regulations is an action without environmental effect.

The regulations in the following parts impose requirements on licensees.

Part 11—Criteria and Procedures for Determining Eligibility for Access to or Control Over Special Nuclear Material

Part 19—Notices, Instructions, and Reports to Workers; Inspections

Part 21—Reporting of Defects and Noncompliance

Part 25—Access Authorization for Licensee Personnel

Part 55—Operators' Licenses

Part 75—Safeguards on Nuclear Material—Implementation of US/IAEA Agreement

Part 95—Security Facility Approval and Safeguarding of National Security Information and Restricted Data

Part 110—Export and Import of Nuclear Facilities and Materials

Part 11 sets forth criteria and procedures for determining the eligibility of individuals for access to or control over formula quantities of special nuclear material in transportation and certain types of fuel cycle facilities. The requirements in Parts 19 and 21 relate to such matters as inspections, reports, record-keeping and posting of documents and notices. The requirements in Parts 25 and 95 relate to the protection of classified national security information and restricted data and the authorization for individuals to have access to such information. Part 55 establishes procedures and criteria for the issuance of licenses to operators and senior operators of licensed facilities. These regulations include procedures for filing and requirements for approval of applications, including requirements relating to written examinations, operating tests, and medical examinations. Part 75 sets forth reporting and recordkeeping requirements related to implementation of the US/IAEA Safeguards Agreement and provides for access to licensed facilities by IAEA inspectors. Although the regulations in Parts 11, 19, 21, 25, 55, 75, and 95 address matters of substance and have a social and economic effect, they do not have a significant effect on the environment.

Part 110 sets out the procedures and criteria for issuance of licenses to export and import nuclear materials and facilities. In the case of export licenses, the procedures and criteria have been specified by the Congress in the Nuclear Non-Proliferation Act of 1978 (Pub. L. 95-242, 92 Stat. 120) which does not include environmental impact as a factor to be considered. Consistent with this statutory mandate, the Commission has limited the scope of revised Part 51 to NRC's domestic licensing and related regulatory functions. Section 51.1 specifically states that the regulations in Part 51 "do not apply to export licensing matters within the scope of Part 110 \* \* \*". To the extent that they apply to import licenses, the regulations in Part 110 are largely procedural. In addition, as explained in the discussion and finding for Categorical Exclusion 15, which applies to the issuance, amendment or renewal of licenses for the import of nuclear facilities and

materials pursuant to Part 110, except for the import of spent power reactor fuel, the limited action of importation, which is the only action authorized by an import license, has no significant effect on the environment.

Accordingly, for the reasons stated, the Commission finds that amendments to Parts 0, 1, 2, 4, 7, 8, 9, 10, 11, 14, 19, 21, 25, 55, 75, 95, 110, 140, 150, or 170 of its regulations and actions on petitions for rulemaking relating to such amendments (Category 1) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 1, as a categorical exclusion, and directs that Category 1, be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

2. Amendments to the regulations in this chapter which are corrective or of a minor or nonpolicy nature and do not substantially modify existing regulations, and actions on petitions for rulemaking relating to these amendments.

### Discussion and Finding

Minor amendments of this type are sometimes needed to update, clarify or eliminate an ambiguity in an existing regulation. Since these amendments are usually editorial and do not change the substance of an existing regulation they can neither increase nor decrease any environmental impact which the existing regulation may have.

Accordingly, the Commission finds that amendments to its regulations which are corrective or of a minor or nonpolicy nature and do not substantially modify existing regulations and actions on petitions for rulemaking relating to such amendments (Category 2) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 2, as a categorical exclusion, and directs that Category 2, be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

3. Amendments to Parts 20, 30, 31, 32, 33, 34, 35, 40, 50, 51, 60, 61, 70, 71, 72, 73, 81, or 100 of this chapter which relate to (i) procedures for filing and reviewing applications for licenses or construction permits or other forms of permission or for amendments to or renewals of licenses or construction permits or other forms of permission; (ii) recordkeeping requirements; or (iii) reporting requirements; and actions on petitions for rulemaking relating to these amendments.

### Discussion and Finding

Although amendments of this type affect substantive parts of the

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Commission's regulations, the amendments themselves relate solely to matters of procedure. Requirements to keep records and make reports and regulations providing specific instructions as to where applications should be filed, how they should be signed and executed, the number of copies to be furnished, and the procedural steps which will be followed in connection with their review, do not have an effect on the environment. Like the amendments in Category 1., their function is to facilitate the orderly conduct of Commission business. Accordingly, the Commission finds that amendments of this type (Category 3.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 3. as a categorical exclusion, and directs that Category 3. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

4. Entrance into or amendment, suspension, or termination of all or part of an agreement with a State pursuant to section 274 of the Atomic Energy Act of 1954, as amended, providing for assumption by the State and discontinuance by the Commission of certain regulatory authority of the Commission.

### Discussion and Finding

Section 274 of the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2021), provides a mechanism (a section 274b. Federal-State Agreement) which authorizes the Commission to discontinue and enables individual States to assume, as they become ready and willing to do so, certain defined areas of regulatory authority over source, byproduct and special nuclear material. In order to make sure that the health and safety of the public will continue to be adequately protected, section 274d. prescribes certain conditions which must be met before an agreement can be entered into.

d. The Commission shall enter into an agreement under subsection b. of this section with any State if—

(1) The Governor of that State certifies that the State has a program for the control of radiation hazards adequate to protect the public health and safety with respect to the materials within the State covered by the proposed agreement, and that the State desires to assume regulatory responsibility for such materials; and

(2) the Commission finds that the State program is in accordance with the requirements of subsection c.\* and in all other respects compatible with the Commission's program for regulation of such

materials, and that the State program is adequate to protect the public health and safety with respect to the materials covered by the proposed agreement.

These requirements provide assurance that following the transfer of functions under the section 274b. agreement, the State will administer the existing regulatory program in a manner similar to the way in which it was previously administered by the NRC.

Under section 274j of the Act, the Commission retains certain residual powers which permit the Commission to terminate or suspend all or part of a State agreement and reassert its own licensing and regulatory authority if it finds that " \* \* (1) such termination or suspension is required to protect the public health and safety, or (2) the State has not complied with one or more of the requirements of this section [section 274]." In aid of this residual authority, section 274j also provides that the Commission " \* \* shall periodically review such agreements and actions taken by the States under the agreements to ensure compliance with the provisions of this section [section 274] \* \* \*"

Under the statutory scheme provided in section 274, state regulatory actions do not become Federal actions for the purposes of NEPA by virtue of the provisions of a Federal-State agreement. The agreement does not constitute a delegation or transfer of Federal authority to the States. Instead, the agreement specifies the conditions under which the States may exercise their own sovereign authority. Under the provisions of the agreement, the NRC's regulatory authority over source, byproduct and special nuclear material, conferred upon it by the Atomic Energy Act, is discontinued, thereby enabling the States, in the exercise of their inherent police powers to protect the public health and safety of their citizens, to assume regulatory authority over those materials. Thus, regulatory actions taken by states under an agreement are state actions and as such are not subject to NEPA which only applies to Federal actions.

Although execution of a Federal-State agreement is essential to shift regulatory control over source, byproduct and less-than-critical quantities of special nuclear material from the NRC to a state, the formal Federal action of entering into such an agreement has no immediate or measurable environmental impact. At the time of entrance into an agreement, information on the kind and number of State regulatory actions to be taken during the indeterminate period an agreement may remain in effect cannot be known and in consequence the environmental effects of those actions cannot be ascertained. Accordingly, no meaningful environmental impact statement or

environmental assessment can be prepared. Under these circumstances, a categorical exclusion for actions of this type appears warranted.

In order to implement the provisions of the Uranium Mill Tailings Radiation Control Act of 1978, it will be necessary for the Commission and those Agreement States which wish to retain regulatory authority over uranium milling to amend the provisions of the section 274b agreements now in force. The purpose of these amendments is to bind the States, in accordance with the provisions of the Act, to carry out their responsibilities with respect to the regulation of mill tailings in a manner which will not only provide adequate protection of the public health and safety but which will also protect the environment from hazards associated with those materials. Among other things, the States will be required to prepare detailed environmental analyses before they license activities which result in the production of mill tailings.

Implementation of the amended agreements, as intended by the Congress, will have a significant and beneficial effect upon the environment. To acknowledge this, however, does not change the fact that the formal action of amending an agreement, in and of itself, is not only without any environmental impact, but given the nature of the statutory mandate, which requires that the terms of the agreements conform to the requirements of the Act, is essentially ministerial.

Accordingly, the Commission finds that entrance into or amendment, suspension, or termination of all or part of an agreement with a State pursuant to section 274 of the Atomic Energy Act of 1954, as amended, providing for assumption by the State and discontinuance by the Commission of certain regulatory authority of the Commission (Category 4.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 4. as a categorical exclusion and directs that Category 4. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

5. Procurement of general equipment and supplies.

### Discussion and Finding

Procurements of general equipment and supplies ensure that NRC personnel are able to efficiently perform their official responsibilities on a day to day basis. Although these procurements have an economic effect, they do not have a significant effect on the environment.

Accordingly, the Commission finds

\*Section 274c., which was added by Pub. L. 95-604 (92 Stat. 3037), contains certain requirements relating to the licensing and regulation of mill tailings.

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that procurements of general equipment and supplies (Category 5.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 5. as a categorical exclusion, and directs that Category 5. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

6. Procurement of technical assistance, confirmatory research provided that the confirmatory research does not involve any significant construction impacts, and personal services relating to the safe operation and protection of commercial reactors, other facilities, and materials subject to NRC licensing and regulation.

### Discussion and Finding

These actions involve scientific and engineering studies, assessments and analyses in areas relating to the safe operation and protection of commercial reactors, other facilities, and materials subject to regulation, licensing and inspection by the NRC. The actions do not include confirmatory research programs which entail physical construction of plants and facilities.

Although these activities have an economic effect, no significant effect on the environment is anticipated.

Accordingly, the Commission finds that procurement of technical assistance, confirmatory research which does not involve any significant construction impacts and personal services relating to the safe operation and protection of commercial reactors, other facilities, and materials subject to NRC licensing and regulation (Category 6.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 6. as a categorical exclusion, and directs that Category 6. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

7. Personnel actions.

### Discussion and Finding

Personnel actions refer to administrative actions affecting NRC employees or potential employees, including labor union activities and the hiring, promotion and separation of personnel. Although these activities have a social and economic effect, they do not have a significant effect on the environment.

Accordingly, the Commission finds that personnel actions (Category 7.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 7. as a categorical exclusion, and directs that Category 7. be listed in § 51.22(c) as a

categorical exclusion.

### Category of Actions

8. Issuance, amendment, or renewal of operators' licenses pursuant to Part 55 of this chapter.

### Discussion and Finding

Part 55 of the Commission's regulations prohibits persons from performing the functions of an operator or a senior operator at a licensed facility unless authorized to do so by a license issued by the Commission. Although issuance or denial of an operator's license may have a significant economic effect on the individual applicant, the action of the Commission in issuing, amending or renewing an operator's license in accordance with the procedures of 10 CFR Part 55 does not have an environmental effect. The environmental impact of the operation of a licensed facility by a licensed operator is fully considered in the environmental impact statement or environmental assessment prepared in connection with the licensing action authorizing operation of the facility. The formal action of certifying an operator does not authorize facility operation.

Accordingly, the Commission finds that issuance, amendment or renewal of operators' licenses pursuant to Part 55 of this chapter (Category 8.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 8. as a categorical exclusion, and directs that Category 8. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

9. Issuance of an amendment to a permit or license for a reactor pursuant to Part 50 of this chapter which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in Part 20 of this chapter, or which changes an inspection or a surveillance requirement, provided that (i) the amendment involves no significant hazards consideration, (ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

### Discussion and Finding

Experience has indicated that amendments in this category either have no environmental impact or have an environmental impact that is insignificant. Changes which relate to the installation or use of a facility component located within a restricted area and which do not involve significant hazards considerations,

significant changes in offsite effluents, or significant increases in occupational doses do not result in offsite effects that could have a significant impact on the human environment. Associated effects, if any, would be minimal and would be confined to limited access areas on site. Experience has also shown that amendments that change an inspection or surveillance requirement are usually of a procedural nature. The purpose of these changes is to incorporate accepted improvements in the installation or use of facility components or in inspection and surveillance which will facilitate the conduct of the licensee's business and insure the adequacy and timeliness of information reported to the Commission. As a result, such amendments will not lead to significant environmental impacts on the human environment either individually or cumulatively.

Accordingly, the Commission finds that license amendments of this type (Category 9.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 9. as a categorical exclusion, and directs that Category 9. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

10. Issuance of an amendment to a permit or license pursuant to Parts 30, 31, 32, 33, 34, 35, 40, 50, 60, 61, 70, or 72 of this chapter which (i) changes surety, insurance and/or indemnity requirements, or (ii) changes recordkeeping, reporting, or administrative procedures or requirements.

### Discussion and Finding

Issuance of an amendment to a permit or license to change surety, insurance and/or indemnity requirements or to change requirements relating to recordkeeping, reporting or other administrative procedures does not affect the scope or nature of the licensed activity. Although changes in surety, insurance and/or indemnity requirements affect the financial arrangements of licensees and have economic and social consequences, they do not alter the environmental impact of the licensed activities. Similarly, changes in recordkeeping and reporting requirements and other administrative procedures relating to the licensee's organization and management do not change the nature and the consequent environmental impact of the licensed activity. The function of these procedural and administrative changes is merely to facilitate the orderly conduct of the licensee's business and to insure that the information needed by the Commission to perform its regulatory functions is readily available. Accordingly, the Commission finds that

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license amendments of this type (Category 10.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 10. as a categorical exclusion, and directs that Category 10. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

11. Issuance of amendments to licenses for fuel cycle plants and radioactive waste disposal sites and amendments to materials licenses identified in § 51.60(b)(1) which are administrative, organizational, or procedural in nature, or which result in a change in process operations or equipment, provided that (i) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, (ii) there is no significant increase in individual or cumulative occupational radiation exposure, (iii) there is no significant construction impact, and (iv) there is no significant increase in the potential for or consequences from radiological accidents.

### Discussion and Finding

Some requests for amendments to these types of licenses are administrative, organizational or procedural in nature or involve changes in process operations and equipment which do not result in any significant adverse incremental impacts to the environment from the licensed activity. Implementation of these minor and routine types of changes do not significantly alter the previously evaluated environmental impacts associated with the licensed operation, taking into account construction impacts, types and amounts of effluents released by the operation, occupational exposure of employees, or potential accidents. Furthermore, these amendments do not affect the scope or nature of the licensed activity.

Accordingly, the Commission finds that this class of amendments to licenses for fuel cycle plants and radioactive waste disposal sites and to certain types of materials licenses (Category 11.) comprise a category of actions that do not individually or cumulatively have a significant effect on the human environment, designates Category 11. as a categorical exclusion, and directs that Category 11. be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

12. Issuance of an amendment to a license pursuant to Parts 50, 60, 61, 70, 72, or 75 of this chapter relating solely to safeguards matters (i.e. protection against sabotage or loss or diversion of special nuclear material) or issuance of an approval of a safeguards plan submitted pursuant to Parts 50, 70, 72,

and 73 of this chapter, provided that the amendment or approval does not involve any significant construction impacts. These amendments and approvals are confined to (i) organizational and procedural matters, (ii) modifications to systems used for security and/or materials accountability, (iii) administrative changes, and (iv) review and approval of transportation routes pursuant to 10 CFR 73.37.

### Discussion and Finding

Amendments and approvals of this nature relate to the protection of nuclear materials against theft or diversion or to the protection of nuclear materials, facilities, and transportation activities against radiological sabotage. They are needed (1) to implement new safeguards regulations through incorporation of provisions into licenses and (2) to permit modifications to licensees' safeguards programs established under existing requirements. With the exception of amendments involving significant construction, they are confined to (i) organizational and procedural matters, (ii) modifications to systems used for security and/or materials accountability, (iii) administrative changes, and (iv) review and approval of transportation routes pursuant to 10 CFR 73.37. The issuance of license amendments relating to these matters in and of themselves will not cause any significant environmental impacts.

With regard to route approvals, the requirement in 10 CFR 73.37(b)(7) for advance NRC approval of transportation routes applies only to spent fuel shipments and was included in the Commission's regulations in order to provide additional assurance that shipments containing spent fuel would be adequately protected against loss, diversion or sabotage. Before approving a particular transportation route, the NRC first makes a determination, on the basis of independently acquired information, that (1) details have been worked out for swift response by local law enforcement agencies, if requested, and (2) concrete details for NRC contingency planning for the route are adequate. The NRC bases its route approvals on the following criteria: (1) Routes that permit more timely responses by local law enforcement agencies are preferred; (2) routes that avoid passage through tactically disadvantageous positions are preferred; (3) routes should have appropriate rest and refueling stops available; and (4) routes with advance safety design features such as divided highways and guard rails are preferred. In this manner the NRC is able to obtain or verify the adequacy of requisite safeguards information and to ensure that transportation will take place only over routes that have adequate safeguards.

The NRC distinguishes between safety matters and safeguards matters in its regulatory scheme. The requirement of NRC route approval is one of a number of elements of the physical protection system for spent fuel shipments and involves only a safeguards review. Safety matters are covered by 10 CFR Part 71 (packaging) and by Department of Transportation (DOT) regulations. Generally DOT is responsible for regulating safety in the transportation routing of radioactive materials. DOT did an environmental assessment in connection with the adoption of its rules authorizing the shipment by road throughout the Nation of all types of radioactive materials. DOT found in that environmental assessment that no environmental impact statement was required in connection with the adoption of the rules because the risks of highway transport are so low that the regulations authorizing such transport will have no significant adverse environmental impact.

DOT in its environmental assessment relied in part on two studies sponsored by the NRC: (1) Final Environmental Statement on the Transportation of Radioactive Materials by Air and Other Modes, NUREG-0170 (December 1977); (2) Transportation of Radionuclides in Urban Environs: Draft Environmental Assessment, NUREG/CR-0743; SAND 79-0369 (1980). The Commission finds from these studies and other available information, like DOT, that the transport of radioactive materials will not have a significant adverse environmental impact.

The Commission in NUREG-0170, a generic environmental impact statement, considered the environmental impacts of the transportation of radioactive materials, including the transportation of those materials over routes approved for safeguards purposes, and concluded that such impacts are small. This generic environmental impact statement set out the NRC's views of the present (1977) and projected (1985) environmental impact of the transportation of radioactive material and provided documentation for the NRC determination that the environmental impacts, radiological as well as non-radiological, of both the normal transportation of radioactive materials and of the risk and consequent environmental impacts attendant on accidents involving radioactive material shipments were sufficiently small that shipments by all modes of transport should be allowed to continue and that no immediate changes to NRC regulations were needed. This report also concluded that the risks of theft or sabotage resulting in any significant radiological release are sufficiently small to constitute no major adverse

impact on the environment. The Commission has examined the potential impacts set forth in NUREG-0170 and characterized as "small" and determined that they do not amount to a significant adverse impact.

NUREG/CR-0743 was developed to supplement NUREG-0170 by specifically studying the transport of nuclear materials through urban areas. That report concurred with the general conclusions in NUREG-0170 that neither accident-free transport nor the overall expected effects of accidents pose a significant hazard to urban populations. However, that study, although it contained a high degree of uncertainty as to the potential consequences of sabotage of spent fuel shipments, did suggest that sabotage has the potential for producing serious radiological consequences in areas of high population density.

In response to this uncertainty the NRC and the Department of Energy (DOE) sponsored separate coordinated experimental programs. While the results of these studies are still undergoing review, they appear to support the conclusion that transport of radioactive materials will not have significant adverse environmental impacts. The Commission believes that the available information, including the review of these two studies to date, provides sufficient certainty to conclude at this time that the transportation of radioactive materials in accord with NRC and DOT regulations will not have a significant adverse impact on the environment. In this connection, see *City of New York, et al. v. U.S. Department of Transportation, et al.*, 715 F.2d 732 (2d Cir., 1983) in which the U.S. Court of Appeals for the Second Circuit upheld DOT's determination that promulgation of DOT regulation HM-164 governing the highway transportation of radioactive materials was not an action requiring preparation of an environmental impact statement. Appeal dismissed and certiorari denied, February 27, 1984, No. 83-770, U.S. Supreme Court, October term 1983. The Commission notes, however, that if special circumstances are shown to exist in connection with a particular shipment an environmental assessment or an environmental impact statement may be prepared for that shipment, and that as further review continues, this conclusion may be modified.

Accordingly, the Commission finds that license amendments and approvals of this type (Category 12.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 12. as a categorical exclusion, and directs that Category 12. be listed in § 51.22(c) as a categorical exclusion.

#### Category of Actions

13. Approval of package designs for packages to be used for the transportation of licensed materials.

#### Discussion and Finding

Certificates of compliance approving package designs for packages to be used in the transportation of radioactive materials are issued upon demonstration that the package designs meet applicable performance standards contained in Part 71 of the Commission's regulations. Although it is expected that packages manufactured in accordance with approved designs will be used to transport radioactive materials, the certificates of compliance do not and cannot authorize the actual transportation of those materials. At the time a certificate approving a particular package design is issued, there is no specific information available on the number of packages that will be manufactured or the frequency of use. Since the Commission finds from other available material that the transportation of radioactive material in accord with applicable regulations will not have a significant adverse impact on the environment, the approval of package designs in accord with those regulations similarly can have no significant adverse environmental impact.

The Commission previously considered the impacts of the actual transportation of radioactive materials in packages meeting the performance standards of 10 CFR Part 71 in a generic environmental impact statement (Final Environmental Statement on the Transportation of Radioactive Materials by Air and Other Modes, NUREG-0170, December 1977) and concluded that such impacts are small. This generic environmental impact statement was prepared to aid the NRC in reevaluating its regulations for the air transportation of radioactive materials, including packaging and related ground transportation. Although the statement was directed at air transportation, packaging standards and other transportation modes—land transport and water transport—were also considered. The statement set out the NRC's views on the present (1977) and projected (1985) environmental impact of the transportation of radioactive materials. The statement also provided documentation for the NRC determination that the environmental impacts, radiological as well as non-radiological, of normal transportation of radioactive materials, including the transportation of those materials in packages for which the Commission had issued design approvals, and the risks and consequent environmental impacts attendant on accidents involving radioactive material shipments were

sufficiently small that shipments by all modes of transport should be allowed to continue. On the basis of this generic environmental impact statement, the NRC concluded that no immediate changes to its regulations, including those portions of the regulations relating to the certification of package designs, were needed. The Commission has examined the potential impacts set forth in NUREG-0170 and characterized them as "small" and determined that they do not amount to a significant adverse impact.

NUREG/CR-0743, Transportation of Radionuclides in Urban Environs: Draft Environmental Assessment (1980) was developed to supplement NUREG-0170 by specifically studying the transport of nuclear materials through urban areas. That report concurred with the general conclusions in NUREG-0170 that neither accident-free transport nor the overall expected effects of accidents pose a significant hazard to urban populations. However, that study, although it contained a high degree of uncertainty as to the potential consequences of sabotage of spent fuel shipments, did suggest that sabotage has the potential for producing serious radiological consequences in areas of high population density.

In response to this uncertainty the NRC and the Department of Energy (DOE) sponsored separate coordinated experimental programs. While the results of these studies are still undergoing review, they appear to support the conclusion that transport of radioactive materials will not have significant adverse environmental impacts. The Commission believes that the available information, including the review of these two studies to date, provides sufficient certainty to conclude at this time that the transportation of radioactive materials in accord with applicable regulations will not have a significant adverse impact on the environment. The Commission notes that as further review continues, this conclusion may be modified.

Accordingly, the Commission finds that approvals of package designs for packages to be used for the transportation of licensed materials (Category 13.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 13. as a categorical exclusion, and directs that Category 13. be listed in § 51.22(c) as a categorical exclusion.

#### Category of Actions

14. Issuance, amendment, or renewal of materials licenses issued pursuant to 10 CFR Parts 30, 31, 32, 33, 34, 35, 40, or 70 authorizing the following types of activities:

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(i) Distribution of radioactive material and devices or products containing radioactive material to general licensees and to persons exempt from licensing.

(ii) Distribution of radiopharmaceuticals, generators, reagent kits and/or sealed sources to persons licensed pursuant to 10 CFR 35.14 and 35.100.

(iii) Nuclear pharmacies.

(iv) Medical and veterinary.

(v) Use of radioactive materials for research and development and for educational purposes.

(vi) Industrial radiography.

(vii) Irradiators.

(viii) Use of sealed sources and use of gauging devices, analytical instruments and other devices containing sealed sources.

(ix) Use of uranium as shielding material in containers or devices

(x) Possession of radioactive material incident to performing services such as installation, maintenance, leak tests and calibration.

(xi) Use of sealed sources and/or radioactive tracers in well-logging procedures.

(xii) Acceptance of packaged radioactive wastes from others for transfer to licensed land burial facilities provided the interim storage period for any package does not exceed 180 days and the total possession limit for all packages held in interim storage at the same time does not exceed 50 curies.

(xiii) Manufacturing or processing of source, byproduct, or special nuclear materials for distribution to other licensees, except processing of source material for extraction of rare earth and other metals.

(xiv) Nuclear laundries.

(xv) Possession, manufacturing, processing, shipment, testing, or other use of depleted uranium military munitions.

(xvi) Any use of source, byproduct, or special nuclear material not listed above which involves quantities and forms of source, byproduct, or special nuclear material similar to those listed in sections (i)-(xv) of Category 14.

### *Discussion and Findings*

Previously, the Commission's attention to environmental review requirements for materials licensing actions has focused largely on activities in the uranium fuel cycle. In this revision to 10 CFR Part 51, other types of materials licenses are accorded additional attention. Although some types of materials licensing actions have not been the subject of an in-depth environmental review, the NRC and its predecessor agency, the Atomic Energy Commission, have had over thirty years experience in licensing and regulating these materials licensees. Based on this experience, the NRC believes that these

activities, individually or cumulatively, have not resulted in any significant impact on the environment. Absolute confirmation that none of these licensing actions would ever have any significant environmental impact could be obtained only by in-depth reviews of each of thousands of licensing actions each year. The Commission does not believe that the huge expenditure of resources that would be required would be justified and believes that the environment would be better protected if NRC's resources were devoted to the environmental analyses called for under §§ 51.20(b) and 51.21 of this subpart for the types of actions which experience suggests have real potential to cause significant environmental problems. Under the revised regulations, the NRC staff may prepare an environmental impact statement or an environmental assessment, as appropriate, for any licensing actions covered by a categorical exclusion should special circumstances come to its attention that would warrant such action.

(i) Distribution of radioactive material and devices or products containing radioactive material to general licensees and to persons exempt from licensing.

These licenses authorize persons to distribute radioactive materials and devices such as density gauges, level gauges, and other gauging devices to persons who are general licensees and to distribute products containing radioactive material such as watches, electron tubes, or smoke detectors to persons who are exempt from licensing. These licenses for distribution do not authorize processing or use of radioactive materials. There are no effluent releases or personnel exposures associated with the licensed activities. These distribution licenses presuppose ultimate use or possession of the radioactive materials under a general license or exemption established by regulation, which regulation, under § 51.21, will require an environmental assessment addressing the environmental impacts of the generally licensed or exempted activities of the recipients of the materials. The radioactive material, devices and products that may be distributed pursuant to these licenses must meet the specific standards and requirements in the NRC regulations. At the time of issuance of the regulations authorizing distribution, the determination was made that subsequent exempt or generally licensed use or possession of the materials would not constitute a risk to the public health and safety.

(ii) Distribution of radiopharmaceuticals, generators, reagent kits and/or sealed sources to persons licensed pursuant to 10 CFR 35.14 and 35.100.

These licenses authorize persons to distribute radiopharmaceuticals,

generators, reagent kits and/or sealed sources to NRC's Group medical licensees. These licenses for distribution do not authorize possession, use or processing of radioactive materials. There are no effluent releases or personnel exposures associated with the licensed activities.

(iii) Nuclear pharmacies.

Nuclear pharmacies purchase prepared radiopharmaceuticals, radioisotope generators and reagent kits from manufacturers. They elute the generators and distribute the eluate as a prepared radiopharmaceutical or compound the eluate with reagent kits to make prepared radiopharmaceuticals. They dispense and distribute prepared radiopharmaceuticals to medical licensees in unit-dose or multi-dose forms. If the services of a nuclear pharmacy are not used, the medical licensee performs these functions in his own nuclear medicine laboratory. Due to the short half-life of medically useful isotopes, the radioactive wastes that nuclear pharmacies generate may be decayed to background levels in storage. Releases in effluents may be estimated at 5% of maximum permissible values. Due to the soft gamma emission of most medically useful isotopes and the use of personnel shielding devices, exposure to personnel may be conservatively estimated at 25% of the maximum permissible dose.

(iv) Medical and veterinary.

NRC issues licenses to hospitals and to physicians authorizing use of radioactive materials in the diagnosis and treatment of patients. These licensed activities may include such activities as: receipt of radioactive material, preparation of radiopharmaceuticals from Mo-99/Tc-99m generators and reagent kits, administration of unsealed radiopharmaceuticals to patients for diagnostic or therapeutic purposes, the use of sealed sources for brachytherapy (i.e., radiation delivered from a short distance) and/or teletherapy (i.e., radiation delivered from a long distance), use of sealed sources contained in devices implanted in patients (e.g., nuclear-powered pacemakers), laboratory use of unsealed sources for performance of diagnostic tests or for tracer studies for research purposes, use of source material for shielding (e.g., as a component of a teletherapy unit or a linear accelerator), and the disposal of the authorized materials by holding for decay or by transfer to authorized recipients.

For the purposes of this discussion, medical licenses also include similar activities conducted by veterinarians for diagnosis or treatment of animals and laboratory use of unsealed sources for diagnostic tests as performed by clinical laboratories.

The environmental impact of these



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licensed activities is insignificant. In light of 10 CFR 20.107, radiation exposures of patients are not considered. The environmental impacts would be: occupational exposures estimated at less than 10% of the applicable limits; non-occupational exposures of members of the public who may have contact with these patients are generally minimal; releases to air and water or to sanitary sewerage (primarily as patient excreta) are of small quantity, or if of larger quantities, are short-lived. Effluent releases with the exception noted in 10 CFR 20.303(d) are estimated at less than 10% of the applicable limits.

(v) Use of radioactive materials for research and development and for educational purposes.

These licenses authorize persons (e.g., academic institutions, industrial firms, and government agencies) to use sealed and/or unsealed sources of byproduct, source and special nuclear material for activities such as research and development (10 CFR 30.4(q)), educational purposes, classroom demonstrations, animal tracer studies, and tracer studies of materials and compounds. (Licenses to construct or operate nuclear research reactors are not materials licenses and therefore are not within the scope of this categorical exclusion.) This categorical exclusion does not encompass (a) processing or manufacturing, (b) performance of field studies in which licensed material is deliberately released directly into the environment for purposes of the study, or (c) use of radioactive tracers in field flood studies involving secondary and tertiary oil and gas recovery. As specified in § 51.60(b)(1)(vi), applicants seeking licenses authorizing the use of tracers in field flood studies involving secondary and tertiary oil and gas recovery are required to submit environmental reports. In the case of other field studies in which licensed material is deliberately released directly into the environment for purposes of the study, environmental reports will be requested on a case-by-case basis as needed.

A typical facility is designed to minimize release of effluents to the environment. Remote handling equipment, personnel protective clothing, and shielding materials are standard equipment to minimize personnel exposures. A day-to-day radiation safety program provides for monitoring of personnel exposures, contamination levels, radiation levels, and effluent releases. Personnel exposures and effluent releases are estimated at less than 10 per cent of the limits of 10 CFR Part 20.

(vi) Industrial radiography.

Gamma radiation sources (primarily iridium-192 and cobalt-60) are used for non-destructive testing of materials

throughout the United States. The sources used are metallic and are encapsulated in a stainless steel capsule. Therefore, during ordinary use it is not expected that there will be releases of radioactive material to the environment. The radiation exposure during routine use of sources in industrial radiography is well within NRC limits for occupational exposure. The average exposure per individual radiographer is less than 0.4 rem per year, which is less than 10% of the permissible exposure.

(vii) Irradiators.

These devices are used for a variety of purposes in research and industry to expose products to large amounts of radiation. Typical uses include sterilization or microbiological reduction in medical and pharmaceutical supplies and insect eradication through sterile male release programs. Irradiators usually contain from a few hundred curies to megacuries of radioactive material, principally cobalt 60. The radioactive material is contained in sealed sources. Product irradiation occurs within areas to which access is controlled and which are shielded to protect both operating personnel and the environment.

Personnel exposures during use of these devices are less than 5% of the limits in 10 CFR Part 20. There are no effluent releases resulting from operation of irradiators.

(viii) Use of sealed sources and use of gauging devices, analytical instruments and other devices containing sealed sources.

Sealed sources used by licensees are usually singularly or doubly encapsulated depending on activity in stainless steel. Therefore, in ordinary use it is not expected that the use of sealed sources will result in the release of radioactive material to the environment. Sealed sources used by licensees are usually required to undergo rigorous prototype testing to ensure that the likelihood of a substantial release of radioactive material to the environment during abnormal use of sealed sources is unlikely.

Gauging devices used to measure thickness, density, and level of materials contain sealed sources, usually cesium-137 and strontium-90, which are encapsulated so that there is no leakage during use. The devices provide shielding such that radiation levels external to the devices are on the order of a few milliroentgens per hour. Other devices include gas chromatographs with millicurie quantities of nickel-63 or hydrogen-3, analytical devices such as X-ray fluorescence analyzers with sealed sources containing a variety of radioisotopes, instrument calibration devices containing millicurie to curie

quantities of cesium-137 and cobalt-60, and soil-density gauges which contain millicurie quantities of cesium-137 and americium-241 neutron sources.

Personnel exposure from use of these devices is less than 5% of the limits in 10 CFR Part 20. There are no effluents associated with the use of devices containing sealed sources.

(ix) Use of uranium as shielding material in containers or devices.

These licenses for possession and use of uranium for shielding are a non-nuclear use of radioactive materials. Because of its high density, uranium is excellent as shielding material. Depleted uranium has very low specific activity and the corresponding low radiation levels emitted make it very unlikely that any individual will receive a radiation dose in excess of 5% of maximum permissible dose specified in Part 20. In addition, because of its physical and chemical properties, there should be no release of radioactive material to the environment during normal use of depleted uranium as shielding and very limited release during abnormal conditions.

(x) Possession of radioactive material incident to performing services such as installation, maintenance, leak tests and calibration.

These licenses only authorize the possession of radioactive material incident to performing services either at the customer's facility or at the licensee's facility. Generally the activity involves the use of sealed sources only. Since service licenses involved very little actual possession and use of radioactive material, personnel exposure from performing the services should be less than 5% of the limits in 10 CFR Part 20 and there should be no effluent releases.

(xi) Use of sealed sources and/or radioactive tracers in well-logging procedures.

During the past 20 years in which the NRC and its predecessor agency, the AEC, have been regulating the use of sealed radioactive sources and short-lived radioactive tracers in well logging, there have been approximately 89 incidents in which well-logging sources have been forced to be abandoned in wells. A risk analysis prepared by the NRC staff shows only a small radiological risk to the public health and safety from the potential release of radioactive material due to long term corrosion or damage from drilling into sources that have been abandoned. In addition, routine safety measures, such as those described below, also protect against significant environmental impacts from well-logging activities.

Well drilling permits require that gas and oil wells be cased to below potable water aquifers to prevent cross contamination from brine, oil and gas

normally associated with wells. This requirement also serves to preclude contamination of potable water aquifers when radioactive materials are used in these cased wells. In the event a source becomes irretrievable during a well-logging operation, safety requirements are imposed to minimize the escape of radioactivity from the source and the surrounding areas. These requirements include: (1) Sealing the source in place with a cement plug to immobilize it and to preclude abrasion and corrosion; (2) setting a deflection device (whipstock) at the top of the cement plug to deflect a drill away from the general area of the source in the event of an inadvertent future drilling; (3) mounting a permanent identification plaque at the surface of the well to alert anyone planning to enter the well to the existence of a source downhole; and (4) requiring notification to be placed in pertinent land records maintained by State oil and gas regulatory agencies to alert against redrilling the well. In addition, the construction of the source itself minimizes the possibility of releases and migration of radioactive material. Source capsules are always doubly encapsulated and fabricated of stainless steel or other corrosion resistant material. The radioactive material is in the form of a very low solubility compound. The sources are enclosed in a logging tool made of steel which provides additional protection.

The radioactive materials used as tracers in well logging have short half-lives and the quantities involved are small—in the low millicurie range. The use of these tracers does not present any environmental impact because of the small quantities which decay to innocuous radioactivity levels in short periods of time.

(xii) Acceptance of packaged radioactive wastes from others for transfer to licensed land burial facilities provided the interim storage period for any package does not exceed 180 days and the total possession limit for all packages held in interim storage at the same time does not exceed 50 curies.

These licenses authorize the acceptance of radioactive waste in packages that meet all governmental regulations for transport of radioactive materials. The packaged radioactive material is stored temporarily until a sufficient number of packages is accumulated for shipment to licensed land burial sites.

In general, these activities are analogous to the transport carried out by common and contract carriers, which are exempt from NRC license requirements. Packages are not permitted to be opened although over-packaging may be carried out in the event defective packaging is received. There are no routine releases of

radioactive effluents. Safety requirements for the storage facility include protection against unauthorized entry, fire resistant buildings and packages, fire detection and suppression capability, radiation monitoring equipment and operating and emergency procedures. By limiting the total radioactivity in storage at any one time to a maximum of 50 curies and by limiting the storage period for any package to a maximum of 180 days, the chances of significant releases of radioactivity or excess exposure of personnel in the event of accident conditions, such as a fire, are minimal.

(xiii) Manufacturing or processing of source, byproduct, or special nuclear materials for distribution to other licensees, except processing of source material for extraction of rare earth and other metals.

Manufacturing or processing of source, byproduct, or special nuclear materials for distribution to other licensees consists of approximately 234 NRC licensees at the present time. Under these licenses, persons manufacture radiopharmaceuticals, labeled compounds for research purposes and sealed sources for use in gauging and analytical equipment. Other licensees in this category use and handle radioactive materials in solid form to manufacture sealed sources, e.g., radiography devices, or use and handle already sealed sources by incorporating the sources into devices used for gauging purposes.

In 1978, licensees in this category had an average dose of 0.45 rem for persons with measurable exposure and an average dose of 0.21 rem for all persons monitored. The collective dose for this category of licensees was 3,280 man-rems. The potential impact, therefore, is very small, less than one calculated health effect. Ninety-eight percent of the facilities had releases in air of less than one percent of the maximum permissible concentrations in 10 CFR Part 20. The largest release reported was approximately 12 percent of the maximum permissible concentrations. Releases of liquid wastes were well within the limits in NRC regulations.

Operations where source material is processed for extraction of rare earth or other metals may involve generation of large volumes of waste containing low levels of radioactive material. The storage and ultimate disposal of this waste may have significant environmental impact. Therefore, these types of operations are not listed as a categorical exclusion.

(xiv) Nuclear laundries.

Nuclear laundries receive slightly contaminated clothing from nuclear facilities and provide decontamination services. The "clean" garments are then returned to the customer. As of August

31, 1981, there were four NRC licensees in this category. The quantities of radioactive material involved are small, usually a few millicuries of radioactive material. In 1978, three of the four licensed laundries reported an average dose of 0.22 rem for persons with measurable exposure and a collective dose of 1 rem. The small amount of activity used by those licensees is disposed of in accordance with NRC regulations.

(xv) Possession, manufacturing, processing, shipment, testing, or other use of depleted uranium military munitions.

Possession, manufacturing, processing, shipment, testing or other use of depleted uranium munitions, e.g., bullets and other projectiles, includes about 10 licenses held by U.S. military organizations and less than 10 licensees involved with the manufacturing process. The military tests involve the use of low specific activity depleted uranium ( $3.6 \times 10^{-7}$  curies/gram) as metal alloy penetrators (rods) which vary in weight from a few grams to less than 10 kilograms. These rods are propelled at high velocities against metal targets such as armor plate. Testing of these munitions is carried out at remote desert locations on military reservations, in constructed enclosures, or over deep ocean waters. Any materials released to the environment are of low radioactive content, are highly dispersed, and are of chemical and physical form which is not readily incorporated into flora or fauna. Thus, radioactive releases to the environment which could affect human, animal or plant life from testing at any of the locations are negligible and occupational exposures from handling depleted uranium are so low that personnel monitoring is not required. Additionally, since the penetrators tested do not explode, cratering or other defacing of the environment is not experienced. The military also transports and stores depleted uranium munitions for war-readiness posture. Because the munitions are transported and stored in sealed containers as solid metal in nondispersible form, there is negligible environmental impact associated with such transportation and storage.

Manufacturers of depleted uranium munitions are also included here for the sake of completeness, although manufacturers are excluded in section (xiii) of Category 14.

(xvi) Any use of source, byproduct, or special nuclear material not listed above which involves quantities and forms of source, byproduct, or special nuclear material similar to those listed in sections (i)–(xv) of Category 14.

It has been the Commission's experience in the past that additional

## PART 51 • STATEMENTS OF CONSIDERATION

environmentally insignificant materials licensing actions occasionally arise. These cases involve uses of source, byproduct or special nuclear material in quantities and form similar to those categorically excluded in sections (i)-(xv) of Category 14, and, therefore, have insignificant environmental impacts. By categorically excluding actions of this type, the Commission will avoid the unnecessary expenditure of scarce resources in preparing environmental assessments for those few environmentally insignificant cases not separately identified as the subject of a specific categorical exclusion. The Commission anticipates that considerably less than 1% of its licensing actions in the nuclear materials area would fit within this category.

Accordingly, the Commission finds that issuance, amendment, and renewal of licenses described above (Category 14.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 14, as a categorical exclusion, and directs that Category 14, be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

15. Issuance, amendment or renewal of licenses for import of nuclear facilities and materials pursuant to Part 110 of this chapter, except for import of spent power reactor fuel.

### Discussion and Finding

Import licenses issued pursuant to 10 CFR Part 110 merely authorize import into the United States and do not authorize any person to possess, use, or transfer the facilities or materials within the United States. Also, import licenses do not authorize transportation of imported facilities and materials within the United States. An exception has been made in the categorical exclusion for imports of spent power reactor fuel. In the Final Environmental Statement on the Transportation of Radioactive Materials by Air and Other Modes (NUREG-0170, December 1977) the NRC staff examined the environmental impact of the transportation of imports from the time a shipment first arrives in the United States until it reaches its ultimate destination and concluded that the environmental impact of such transportation was negligible.

Accordingly, the Commission finds that issuance, amendment or renewal of licenses for import of nuclear facilities and materials pursuant to Part 110 of this chapter, except for import of spent power reactor fuel (Category 15.), comprises a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 15, as a categorical exclusion and directs that

Category 15, be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

16. Issuance or amendment of guides for the implementation of regulations in this chapter, and issuance or amendment of other informational and procedural documents that do not impose any legal requirements.

### Discussion and Finding

Regulatory guides are issued (and sometimes revised) to explain the NRC staff's position regarding an acceptable method of implementation of regulations. Compliance with their provisions is not required. Since regulatory guides do not modify existing regulations and are not enforceable by themselves they can neither increase nor decrease any environmental impact which an existing regulation may have. Other informational and procedural documents covered by this exclusion have no environmental impact for the same reason.

Accordingly, the Commission finds that issuance or amendment of guides for the implementation of regulations in this chapter and issuance or revision of other similar informational and procedural documents (Category 16.) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 16, as a categorical exclusion, and directs that Category 16, be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

17. Issuance of an amendment to a permit or license pursuant to Parts 30, 40, 50, or 70 of this chapter which deletes any limiting condition of operation or monitoring requirement based on or applicable to any matter subject to the provisions of the Federal Water Pollution Control Act.

### Discussion and Finding

Pursuant to the Federal Water Pollution Control Act (FWPCA), the Environmental Protection Agency has exclusive responsibility for developing, setting and enforcing nonradiological effluent limitations and water quality standards. These effluent limitations and water quality standards apply to a wide variety of pollutants. However, they do not apply to source, byproduct and special nuclear material. On June 1, 1976, the U.S. Supreme Court held that source, byproduct and special nuclear materials do not fall within the class of pollutants which are subject to regulation under the Federal Water Pollution Control Act. (*Train v. Colorado PIRG*, 426 U.S. 1 at 25.)

In the past, in order to make sure that NRC licensees were conducting their

activities in an environmentally responsible manner, the Nuclear Regulatory Commission, like its predecessor agency, the Atomic Energy Commission, included conditions relating to water quality matters covered by the FWPCA in NRC permits and licenses. Following an extensive and careful examination of the legislative history of section 511(c)(2) of the Federal Water Pollution Control Act (33 U.S.C. 1371(c)(2)), the Atomic Safety and Licensing Appeal Board held in two decisions that the Environmental Protection Agency has exclusive responsibility for the substantive regulation of nonradiological pollutant discharges where an NPDES permit is in effect, and described the respective roles of EPA and NRC in the following terms:

The first is that the spread of Federal responsibility for water quality standards and pollution control among the various licensing agencies, which resulted from the reading given NEPA by the *Calvert Cliffs* court, has been curtailed. That responsibility is shifted to EPA as its exclusive province. The second is that the mandate to acquire "expertise" in developing, setting, and enforcing effluent limitations and water quality standards is also given to EPA; federal licensing agencies are to rely on that agency when such matters are involved and not develop duplicate expertise on their own. Third, those agencies are not to "second-guess" EPA by undertaking independent analyses and setting their own standards in this area. And, finally, given the pointed Congressional comments cited, NRC, as statutory successor to the AEC, is unmistakably bound by those strictures.

To be sure, in deciding whether to license specific projects, each agency must continue to weigh any resulting degradation of water quality in its NEPA cost-benefit balance. Section 511(c)(2) does not change this obligation. Rather, its intent is to limit those agencies' NEPA roles to that balancing, leaving the substantive regulation of water pollution in EPA's hands.

ALAB-515 (1978) In the Matter of Tennessee Valley Authority (Yellow Creek Nuclear Plant, Units 1 and 2) 8 NRC 702 at 712-713, as quoted in ALAB-569 (1979) In the Matter of Carolina Power and Light Company (H. B. Robinson, Unit No. 2) 10 NRC 557 at 561.

The law established in these Appeal Board decisions is clear. The NRC no longer has a role setting conditions relating to nonradiological discharges of pollutants into aquatic bodies or establishing requirements for aquatic monitoring where an NPDES permit is in effect. Instead, EPA, and those states to whom permitting authority has been delegated, have exclusive responsibility for regulating nonradiological pollutant discharges through the NPDES permit system. The NRC's role in the water quality area is limited to regulating radiological discharges into aquatic bodies and NEPA matters such as weighing aquatic impacts in the NEPA analysis which NRC is required to make

## PART 51 • STATEMENTS OF CONSIDERATION

before reaching a major Federal licensing decision.

Under certain provisions of the Federal Water Pollution Control Act, such as sections 401(a)(2) and 401(d), NRC licenses, like licenses issued by other Federal agencies, become subject to conditions deemed imposed by the Federal Water Pollution Control Act as a matter of law. In recognition of these statutory requirements and to make clear that NRC licenses are issued subject to these conditions, whether stated in the licenses or not, the Commission is amending § 50.54 of its regulations.

In order to comply with existing law and to assure that its regulatory responsibilities are carried out in a consistent manner in accordance with these revised regulations, the NRC is continuing its ongoing process of amending all outstanding NRC licenses and permits to delete from those licenses and permits any limiting conditions of operation or monitoring requirements pertaining to nonradiological discharges of pollutants subject to the provisions of the Federal Water Pollution Control Act. These amendments will not affect EPA's independent responsibility to administer and enforce or the obligation of an NRC licensee or permittee to comply with the requirements of the Federal Water Pollution Control Act.

The Commission finds that license amendments of this type (Category 17) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment because these impacts have been addressed under the appropriate provisions of the Federal Water Pollution Control Act. Accordingly, the Commission designates Category 17 as a categorical exclusion, and directs that Category 17 be listed in § 51.22(c) as a categorical exclusion.

### Category of Actions

18. Issuance of amendments or orders authorizing licensees of production or utilization facilities to resume operation, provided the basis for the authorization rests solely on a determination or redetermination by the Commission that applicable emergency planning requirements are met.

### Discussion and Finding

The Commission published its final emergency planning rule amending 10 CFR Parts 50 and 70 on August 19, 1980 (45 FR 55402). As part of its deliberations on the rule, the Commission evaluated the environmental impact of the proposed changes and provided the public an opportunity to comment on the draft environmental assessment and draft negative declaration. See 45 FR 3913 at

3915, January 21, 1980, and 45 FR 55413-55415, August 19, 1980. After considering the public comments, the Commission determined that the changes in emergency planning requirements would not have a significant effect on the human environment. Accordingly, an environmental impact statement was not prepared. A key assumption in the Commission's decision not to prepare an environmental impact statement for the emergency planning rule was that shutdowns of nuclear power plants as a result of actions taken under the rule are expected to be infrequent and of short duration. Therefore, it is very unlikely that the resumption of operation of a particular facility would have a significant effect on the human environment. Moreover, the Commission retains discretion to require an environmental assessment or an environmental impact statement in special circumstances.

Accordingly, the Commission finds that issuance of amendments or orders authorizing licensees of production or utilization facilities to resume operation, provided the basis for the authorization rests solely on a determination or redetermination by the Commission that applicable emergency planning requirements are met (Category 18) comprises a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 18, as a categorical exclusion and directs that Category 18, be listed in § 51.22(c) as a categorical exclusion.

### CEQ Review and Approval

On October 19, 1982, the General Counsel of CEQ advised the Executive Legal Director of NRC that the Council had completed its review of NRC's draft final NEPA procedures (revised 10 CFR Part 51) as provided by 40 CFR 1507.3(a), and had determined, based on that review, that NRC's NEPA procedures address all of the sections of the CEQ regulations required to be addressed by 40 CFR 1507.3(b) and that the NRC procedures may take effect after they are published in final form in the Federal Register.

### ➤ Paperwork Reduction Act Review

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 3150-0021. (49FR24512)

### 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

Pursuant to 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 following revision of 10 CFR Part 51 and related conforming amendments to 10 CFR Parts 2, 30, 40, 50, 61, 70, 72 and 110 are published as a document subject to codification. Amendments to all parts except revised 10 CFR Part 51 issued pursuant to citations of authority presently codified.

49 FR 10922  
Published 3/23/84

### 10 CFR Part 51

#### Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments

#### Correction

In FR Doc. 84-6324, beginning on page 9352, in the issue of Monday, March 12, 1984, make the following corrections:

1. On page 9388, in the third column, in § 51.51, paragraph (b) consists of Table S-3 only; therefore the three asterisks should be removed since there was no introductory text omitted.
2. On page 9390, in the second column, in § 51.52, paragraph (c) consists of Table S-4 only; therefore the three asterisks should be removed since there was no introductory text omitted.

49 FR 19623  
Published 5/9/84  
Effective 5/9/84

#### Information Collection Requirements; Display of OMB Control Numbers

See Part 0 Statements of Consideration

➤ 49 FR 24512  
Published 6/14/84  
Effective 6/7/84

#### Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments

See Part 2 Statements of Consideration

## PART 51 • STATEMENTS OF CONSIDERATION

**49 FR 34658**  
**Published 8/31/84**

*Waste Confidence Decision*

**See Part 50 Statements of Consideration**

**49 FR 34688**  
**Published 8/31/84**  
**Effective 11/29/84**

*Requirements for Licensee Actions  
Regarding the Disposition of Spent  
Fuel Upon Expiration of Reactor  
Operating Licenses*

**See Part 50 Statements of Consideration**

**49 FR 42693**  
**Published 10/24/84**

*Waste Confidence Decision*

**See Part 50 Statements of Consideration**

**49 FR 42693**  
**Published 10/24/84**

*Requirements For Licensee Actions  
Regarding the Disposition of Spent  
Fuel Upon Expiration of Reactor  
Operating Licenses*

**See Part 50 Statements of Consideration**

**50 FR 21036**  
**Published 5/22/85**  
**Effective 5/22/85**

*Update of NRC Addresses and  
Copying Charges for Environmental  
Documents; Minor Correcting  
Amendments*

**See Part 1 Statements of Consideration**

**51 FR 9763**  
**Published 3/21/86**  
**Effective 4/21/86**

*Material Balance Reports of Source  
Material and Special Nuclear Material*

**See Part 40 Statements of Consideration**

**51 FR 33224**  
**Published 9/18/86**  
**Effective 10/20/86**

*Annual Fee for Power Reactor  
Operating Licenses and Conforming  
Amendment*

**See Part 171 Statements of Consideration**

**51 FR 35997**  
**Published 10/8/86**  
**Effective 10/8/86**

*Nomenclature Changes To Implement  
Consolidation of OGC and OELD*

**See Part 1 Statements of Consideration**

➤ **51 FR 40303**  
**Published 11/6/86**  
**Effective 1/5/87**

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

**See Part 50 Statements of Consideration**

**UNITED STATES NUCLEAR REGULATORY COMMISSION**  
**RULES and REGULATIONS**

**TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS -- ENERGY**

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**PART**  
**53**

**CRITERIA AND PROCEDURES FOR DETERMINING THE ADEQUACY...**  
**OF AVAILABLE SPENT NUCLEAR FUEL STORAGE CAPACITY**  
**STATEMENTS OF CONSIDERATION**

**50 FR 5548**  
**Published 2/11/85**  
**Effective 3/13/85**

*Criteria and Procedures for  
Determining the Adequacy of Available  
Spent Nuclear Fuel Storage Capacity*

**See Part 1 Statements of Consideration**

➤ **50 FR 8605**  
**Published 3/4/85**

*Criteria and Procedures for  
Determining the Adequacy of Available  
Spent Nuclear Fuel Storage Capacity*

**See Part 1 Statements of Consideration**



UNITED STATES NUCLEAR REGULATORY COMMISSION  
RULES and REGULATIONS

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

**PART  
55**

**OPERATORS' LICENSES**

**STATEMENTS OF CONSIDERATION**

28 FR 3197  
Published 4/3/63  
Effective 6/2/63

On October 12, 1961, the Atomic Energy Commission published in the *FEDERAL REGISTER* a notice of proposed rule making to revise Part 55 in a number of respects deemed desirable on the basis of experience acquired to date in its administration. Included therein was a provision for the licensing of individuals as supervisory operators of facilities and the requirements of their licensing.

The Commission has received many comments from interested persons and organizations. As a consequence the proposed amendment has been rewritten with incorporation of a number of these suggestions. The principal changes from the proposed amendment are as follows:

1. The proposed term "supervisory operator" has been changed throughout the amended regulation to the term "senior operator". The main reason for the change is to avoid any implication that the Commission, in granting such a license, is expressing an opinion on whether the holder of the license is part of or eligible for a management group.

2. In § 55.4, item (f), the definition of "controls" has been revised to include "apparatus and mechanisms . . . which directly affect the power level . . ." This narrower interpretation, as suggested in public comment, is in accord with the original Commission intent. The definition of "controls" for facilities other than reactors has been revised to include "apparatus and mechanisms . . . which could affect . . . process of the facility in such a manner as to affect the protection of health and safety against radiation." This revision clarifies the protection against radiation which was only implied in the proposed definition.

3. Section 55.12 has been revised to provide for waiting periods of two months, six months and two years respectively before reapplication for licensing following a denial. These time periods are less than the proposed intervals of ninety days, one year and three years, respectively. These reductions were made to avoid placing undue burdens on facility licensees and employees but are still considered sufficiently long to provide for adequate selection and training of operators and senior operators.

4. Sections 55.20, 55.21, 55.22 and 55.23 have been revised to eliminate the phrase "at which the applicant will be employed". The revision permits the licensing of an applicant on a facility where his services will be utilized although he is not employed.

Pursuant to the Atomic Energy Act of 1954, as amended and the Administrative Procedure Act of 1946, the following amendment to 10 CFR Part 55 is published as a document subject to codification to be effective 60 days after publication in the *FEDERAL REGISTER*.

31 FR 4668  
Published 3/19/66  
Effective 3/19/66

*Miscellaneous Amendments*

See Part 20 Statements of Consideration.

31 FR 12774  
Published 9/30/66  
Effective 10/30/66

*Miscellaneous Amendments*

See Part 2 Statements of Consideration.

38 FR 22221  
Published 8/17/73  
Effective 9/17/73

*Requalification Requirements for Operating Personnel of Production and Utilization Facilities*

See Part 50 Statements of Consideration.

38 FR 26354  
Published 9/20/73

*Requalification Requirements for Operating Personnel of Production and Utilization Facilities; Correction*

See Part 50 Statements of Consideration.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

*Energy Reorganization Act; Revisions to Chapter 1 to Reflect Organizational and Procedural Changes*

See Part 2 Statements of Consideration.

41 FR 16445  
Published 4/19/76  
Effective 4/19/76

*Miscellaneous Changes to Chapter*

See Part 20 Statements of Consideration.

41 FR 18300  
Published 5/3/76  
Effective 6/2/76

*Preservation of Records*

See Part 20 Statements of Consideration.

45 FR 18905  
Published 3/24/80  
Effective 3/24/80

*Deletion of Reference to Panama Canal Zone; Minor Amendments*

See Part 4 Statements of Consideration.

## PART 55 • STATEMENTS OF CONSIDERATION

47 FR 56984

Published 12/22/82

Effective 12/17/82

### 10 CFR Part 55

#### Partial Regionalization of the Operator Licensing Function

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The NRC is amending its regulations relating to operator licenses to provide information concerning the further implementation of NRC's regional licensing program. This amendment states that authority and responsibility for the issuance of licenses for operators and senior operators of licensed nuclear reactors located in Regions II and III have been assigned and delegated to the Regional Administrators of Regions II and III and specifies where applicants for these licenses should obtain necessary forms and file applications. This amendment is necessary to inform licensees, operators, applicants, and the public of current NRC organization and practice.

**EFFECTIVE DATE:** December 17, 1982.

**FOR FURTHER INFORMATION CONTACT:**

Don H. Beckham, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; Telephone (301) 492-4888.

**SUPPLEMENTARY INFORMATION:** In

further implementation of its regionalization program, the Commission has delegated to the Regional Administrators of Regions II and III authority and responsibility pursuant to the regulations in 10 CFR Part 55 to issue and renew licenses for operators and senior operators of nuclear reactors licensed under 10 CFR Part 50 and located in those regions.

The general delegation of authority for the Regional Administrators is described in NRC Manual Chapter 0128. Pursuant to that general delegation of authority, the Executive Director for Operations and the Director of Nuclear Reactor Regulation assigned and delegated to the Regional Administrators for Regions II and III the responsibility under 10 CFR Part 55 for licensing operators of nuclear reactors licensed under 10 CFR Part 50 and located in Regions II and III. Copies of the delegations of authority have been placed in the Commission's public document room at 1717 H Street, NW., Washington, D.C., and at the Region II Office, 101 Marietta Street, Suite 3100, Atlanta, Georgia 30303, and the Region III Office, 799 Roosevelt Road, Glen Ellyn, Illinois 60137, where they are available for inspection and copying by

the public.

The revised regulations, which are intended to inform licensees and the public of current NRC practices and organization, specify where applications for operator and senior operator licenses shall be filed, where reports and communications shall be submitted and where needed information and forms may be obtained.

Since the amendments to Part 55 are nonsubstantive and relate to matters of agency organization and procedure, the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) do not apply and good cause exists for making the amendments effective on December 17, 1982, without the customary 30-day waiting period.

#### Paperwork Reduction Act Statement

This rule contains no new or amended requirements for recordkeeping, reporting, plans or procedures, applications, or any other type of information collection subject to the Paperwork Reduction Act of 1980, Pub. L. 96-311.

#### List of Subjects in 10 CFR Part 55

Manpower training programs, Nuclear power plants and reactors, Penalty, Reporting requirements.

Under 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 following amendments to 10 CFR Part 55 are published as a document subject to codification.

➤ 48 FR 33243

Published: 7/21/83

Effective 7/21/83

### 10 CFR Part 55

#### Partial Regionalization of the Operator Licensing Function To Include Region I

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The NRC is amending its regulations relating to operator licenses to provide information concerning the further implementation of NRC's regional licensing program. This amendment states that authority and responsibility for the issuance of licenses for operators and senior operators of licensed nuclear reactors located in Region I has been assigned and delegated to the Regional Administrator of Region I. This amendment is necessary to inform licensees, operators, applicants, and the public of current NRC organization and practice.

**EFFECTIVE DATE:** July 21, 1983.

**FOR FURTHER INFORMATION CONTACT:** Don H. Beckham, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; Telephone (301) 492-4888.

**SUPPLEMENTARY INFORMATION:** In further implementation of its regionalization program, the Commission has delegated to the Regional Administrator of Region I authority and responsibility pursuant to the regulations in 10 CFR Part 55 to issue and renew licenses for operators and senior operators of nuclear reactors licensed under 10 CFR Part 50 and located in this region.

The general delegation of authority for the Regional Administrators is described in NRC Manual Chapter 0128. Pursuant to that general delegation of authority, the Executive Director for Operations and the Director of Nuclear Reactor Regulation on November 22, 1982, assigned and delegated to the Regional Administrators for Regions II and III the responsibility under 10 CFR Part 55 for licensing operators of nuclear reactors licensed under 10 CFR Part 50 and located in Regions II and III. Now, this same responsibility has been assigned to the Regional Administrator for Region I. A copy of the delegation of authority has been placed in the Commission's public document room at 1717 H Street, NW., Washington, D.C., and at the Region I Office, 631 Park Avenue, King of Prussia, Pennsylvania 19406, where it is available for inspection and copying by the public. Assignment of this authority and responsibility to the Regional Administrators for Regions II and III was reflected in a final rule published December 22, 1982 (47 FR 56984).

The revised regulations are intended to inform licensees and the public of current NRC practices and organization.

Since the amendments to Part 55 are nonsubstantive and relate to matters of Agency organization and procedure, the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) do not apply and good cause exists for making the amendments effective upon publication without the customary 30-day waiting period.

#### 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 3150-0018 and 3150-0024.

#### List of Subjects in 10 CFR Part 55

Manpower training programs, Nuclear power plants and reactors, Penalty, Reporting requirements.

## PART 55 • STATEMENTS OF CONSIDERATION

Under 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 following amendments to 10 CFR Part 55 are published as a document subject to codification.

48 FR 45223

<sup>1</sup>Published 10/4/83

Effective 10/4/83

### 10 CFR Part 55

#### Completion of Regionalization of the Operator Licensing Function by Assignment of the Function to Regions IV and V

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The NRC is amending its regulations relating to operator licenses to provide information concerning the further implementation of NRC's regional licensing program. This amendment states that authority and responsibility for the issuance of licenses for operators and senior operators of licensed nuclear reactors located in Regions IV and V have been assigned and delegated to the Regional Administrators of Regions IV and V. This amendment is necessary to inform licensees, operators, applicants, and the public of current NRC organization and practice.

**EFFECTIVE DATE:** October 4, 1983.

**FOR FURTHER INFORMATION CONTACT:** Don H. Beckham, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; Telephone (301) 492-4868.

**SUPPLEMENTARY INFORMATION:** In further implementation of its regionalization program, the Commission has delegated to the Regional Administrators of Regions IV and V authority and responsibility pursuant to the regulations in 10 CFR Part 55 to issue and renew licenses for operators and senior operators of nuclear reactors licensed under 10 CFR Part 50 and located in these regions. This amendment completes implementation of assignment of the operator licensing function to the regions.

The general delegation of authority for the Regional Administrators is described in NRC Manual Chapter 0128. Pursuant to the general delegation of authority, the Executive Director for Operations and the Director of Nuclear Reactor Regulation on July 1, 1983, for Region I and November 22, 1982, for

Regions II and III assigned and delegated to the Regional Administrators for these Regions the responsibility under 10 CFR Part 55 for licensing operators of nuclear reactors licensed under 10 CFR Part 50 and located in Regions I, II, and III. Now, this same responsibility has been assigned to the Regional Administrators for Regions IV and V. A copy of the delegation of authority has been placed in the Commission's public document room at 1717 H Street, NW., Washington, D.C. 20555, and also at the Region IV Office, 611 Ryan Plaza Drive, Suite 1000, Arlington, Texas 76011, and the Region V Office, 1450 Maria Lane, Suite 210, Walnut Creek, California 94596, where it is available for inspection and copying by the public. A final rulemaking for Region I, published July 21, 1983 (48 FR 33243), and for Regions II and III, published December 22, 1982 (47 FR 56984), reflected assignment of this same authority and responsibility to the administrators of these regions. The December rulemaking also specified where an applicant for a license could obtain necessary forms and file applications.

The revised regulations are intended to inform licensees and the public of current NRC practices and organization.

Since the amendments to Part 55 are nonsubstantive and relate to matters of agency organization and procedure, the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) do not apply and good cause exists for making the amendments effective upon publication without the customary 30-day waiting period.

#### 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 3150-0018 and 3150-0024.

#### List of Subjects in 10 CFR Part 55

Manpower training programs, Nuclear power plants and reactors, Penalty, and Reporting and recordkeeping requirements.

Under 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 following amendments to 10 CFR Part 55 are published as a document subject to codification.

49 FR 19623

Published 5/9/84

Effective 5/9/84

*Information Collection Requirements;  
Display of OMB Control Numbers*

See Part 0 Statements of Consideration

➤ 49 FR 42693

Published 10/24/84

Effective 11/23/84

### 10 CFR Part 55

#### Training and Qualifications of Civilian Nuclear Power Plant Personnel and Operators' Licenses

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to conform their literal language to the long-standing agency practice of conducting simulated operating tests and of treating the satisfactory completion of an NRC-approved cold license training program for training reactor operators as the equivalent of actual operating experience at a reactor. Thus an individual who has completed an NRC-approved program is eligible to take a simulated operating test as part of the licensing examination administered prior to initial criticality.

**EFFECTIVE DATE:** November 23, 1984.

**FOR FURTHER INFORMATION CONTACT:** Don Beckham, Chief, Operator Licensing Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 492-4868, or Neil Jensen, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (202) 634-3224.

**SUPPLEMENTARY INFORMATION:** On August 8, 1984, the NRC proposed a rule (49 FR 31700) which would conform 10 CFR 55.25(b) to the Commission's long-standing interpretation that completion of an NRC-approved cold license training program which includes simulator training is sufficient prior experience to entitle an applicant for an operator's license to take a simulated operating test at a reactor prior to initial criticality. Clarifying changes were also made with respect to 10 CFR 55.11(b) and 55.23 to show that both operating tests and simulated operating tests meet the requirements for approval of an application for an operator's license.

Interested persons were invited to submit written comments to the Secretary of the Commission by September 7, 1984. The Commission received seven letters from utility owners which approved amending the literal language of the regulations to conform with long-standing staff practice.<sup>1</sup> Comments from the Union of

<sup>1</sup>One comment suggested insertion of the word "cold" in the amended language of 10 CFR 55.25(b) to show that it is an NRC-approved cold license training program which is intended to meet the requirement. Since this section is concerned solely with eligibility to take an operating test prior to initial criticality, this change is viewed as unnecessary. Another comment questioned the value of the ten startups included in the cold-license training program. This comment goes beyond the scope of the present rule-making.

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Concerned Scientists and the Joint Intervenor to the Diablo Canyon Nuclear Power Plant licensing proceedings expressed agreement with the dissenting views of former Commissioner Gilinsky which were published along with the proposed rule (49 FR 31701). After consideration of the comments, the Commission has determined to publish the proposed rule without alteration for the reasons discussed below.<sup>2</sup>

The primary concern of those opposed to the rule change is their perception that the change would have the effect of permitting the operation of a new facility by a crew totally lacking in any prior "hot" experience. They do not object to the use of some newly-trained operators on initial operating shifts but regard the literal language of 10 CFR 55.25(b) as their only guarantee that at least some operators will have actual operating experience. This understandable desire is misdirected here because Part 55 is concerned only with individual operators' licenses; shift experience should properly be considered under Part 50 of the regulations. Their suggested interpretation of "actual operating experience" would require all license-holders at a new plant to have had extensive experience as a licensed operator at a comparable reactor. This would represent a much more extensive change in the regulatory scheme than is intended in the proposed rule change which is simply to update the language of the rule to reflect at least 17 years of Commission practice.

The Commission is required to address the technical adequacy of the operating organization separately from the qualifications of each individual licensed operator. See 10 CFR 50.57(a)(4) and 50.34(b)(6). The Commission shares the concern that there be some individuals with prior operating experience at a new reactor during the period of initial criticality and operation. To assure that this is the case, the NRC staff requires the use of shift advisors to assist in plant startup and initial operation at any plant where the initial operating crew does not possess sufficient "hot" experience.<sup>3</sup> As

<sup>2</sup>Documents referenced in this notice are available for viewing, or copying for a fee, at the NRC Public Document Room, 1717 H Street, NW., Washington, D.C.

<sup>3</sup>Seventeen units at thirteen different nuclear plant sites were licensed between April 1980 and December 1983. Eleven of the units started up with operators who were previously experienced at the plant's sister units or other plants within the utility's system; one plant started up with employees with previous experience at other plants; and five used shift advisors. See Memorandum to Hugh Thompson, Director, Division of Human Factors Safety, from Lawrence Crocker, Licensee Qualification Branch, Division of Human Factors Safety, February 21, 1984. The belief that the sense

formalized in Generic Letter 84-16, dated June 27, 1984, a shift advisor is expected to have at least one year of experience at an operating nuclear power plant. The Commission believes that this requirement is sufficient to assure that prior operating experience is available to each shift at a new plant.

Nevertheless, those opposed to the rule change find in § 55.25(b) a regulatory requirement for extensive actual operating experience which they apparently interpret to mean the type of experience which could only be acquired by a licensed operator employed at a comparable facility. They object that simulator-training cannot replace such experience due to inherent problems in simulator technology and a lack of plant-specific simulators.

The Commission does not contend that simulator-training is equivalent to operating experience and as a matter of policy insists upon a certain amount of such experience on a new shift under the Part 50 regulations as explained above. However, with respect to what constitutes adequate training for all applicants for an operator's license at a cold facility, the Commission believes that its long experience in using training programs which include both simulator-training and training as a participatory observer on shift at an operating reactor, as well as training in nuclear fundamentals, including ten startups at a research reactor, and training on the actual system design of the plant at which the operator will be employed is a sound basis for licensing operators at a cold plant. Thus, the Commission has no reason to introduce a requirement for previous experience as a licensed operator for all operators at a new plant.

Section 55.25 was introduced into the regulations in 1963 as part of the 1963 amendments to Part 55 (28 FR 3197, April 3, 1963). The exact meaning of the requirement, in § 55.25(b), that an applicant for a license at a cold facility have "extensive actual operating experience at a comparable reactor" is unclear. However, the comments received on the amendments as proposed (28 FR 9653, October 12, 1961) strongly suggest that the experience referred to was the experience normally gained by a trainee at a functioning reactor.<sup>4</sup> Thus, for example, the

of § 55.25(b) has largely been complied with because few plants have required the use of shift advisors confuses the function of the Part 50 rules under which shift experience is evaluated with Part 55 rules which concern only requirements for an operator's license.

<sup>4</sup>See, generally, AEC-R 83/1, "Amendments to 10 CFR Parts 50, 55 and 115 Procedures for Licensing of Reactor Operators" (February 20, 1963), pp. 4-5, and comments to proposed §§ 55.10; 55.11; and 55.25 in AEC-R 83/2, "Supplementary Information Regarding Amendments to 10 CFR 50, 55 and 115 Procedures for Licensing Reactor Operators" (February 20, 1963).

requirement in the proposed regulations that training and testing take place only at a reactor where the trainee would be employed<sup>5</sup> was dropped prior to publication in recognition of the fact that candidates for a precritical examination would continue to receive their training at a reactor where they would not be employed.<sup>6</sup> Thus, the experience required by § 55.25(b) does not appear to have consisted solely of experience of employment as a licensed operator.<sup>7</sup> The 1965 regulatory guidance for amended Part 55 confirms this view. This guidance noted that generally six months of experience at an operating facility met the § 55.25(b) requirement. However, either an operator's license for a comparable reactor or a certification describing the applicant's training experience at a comparable facility also met the requirement.<sup>8</sup>

After publication of the 1963 amendments, simulators were developed and came to supplement actual experience in operator training. At least as early as 1967, the Commission was faced with the need to develop policy with respect to simulator-training in view of the construction of the Nuclear Training Center by the General Electric Company.<sup>9</sup> The purpose of the Center was to provide for the training of their customer operating staffs by utilizing a Dresden II reactor plant simulator. The NRC staff proposed a policy at that time under which the § 55.25(b) requirement was met by completion of a training program very similar to the type presently in use. Use of simulators did not replace actual training experience at an operating reactor although it may have diminished the length of such experience needed since transient and infrequent plant evolutions could be conducted on the simulator, compressing the time required. This approach to training programs has replaced the training programs at a functioning reactor which originally constituted an acceptable method of fulfilling the § 55.25(b) requirement. This type of training program was

<sup>5</sup>See proposed §§ 55.10(a)(7); 55.11(c); 55.20; 55.21; 55.22; and 55.23 (28 FR 9655-56, October 12, 1961).

<sup>6</sup>See AEC-R 83/1, pp. 4-5.

<sup>7</sup>Only two commercial nuclear power facilities had passed initial criticality when the amendments were proposed. Thus "actual operating experience" could not have referred to experience as a licensed operator at a commercial facility. Training of operators took place at research or military reactors. Neither original Part 55 nor the 1963 amendments specified any particular amount of experience for license applicants. The focus of the regulations was on the content of written and operating tests; the nature of the requisite training was left to the facility owner and the guidance of the Commission.

<sup>8</sup>See WASH 1094, "A Guide for the Licensing of Facility Operators. Including Senior Operators," pp. 9-10.

<sup>9</sup>See Memorandum from P.A. Morris, Director, Division of Reactor Licensing, to Harold L. Price, Director of Regulation, November 29, 1967.

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incorporated into the industry standard in 1971<sup>10</sup> and was approved in the 1976 regulatory guide as fulfilling the § 55.25(b) actual operating experience requirement.<sup>11</sup>

The Commission has permitted an individual who has successfully completed an NRC-approved training program to take the operator licensing examination for at least seventeen years. Successful completion of both the written examination and operating test is required prior to licensing. If insufficient knowledge is demonstrated in the operating test, the candidate is denied a license. The Commission believes that this experience warrants confidence in this method of determining eligibility to take the operator licensing examination at new plants. Therefore, the Commission believes that it is appropriate to update § 55.25(b) to reflect actual practice.

### **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.

### **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 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 proposed 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 55**

Manpower training programs, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements.

For the reasons set forth above, and under the authority of the Atomic

Energy Act of 1954, as amended, Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 55.

➤ 49 FR 47823  
Published 12/7/84  
Effective 12/7/84

*Minor Correcting Amendments*

See Part 1 Statements of Consideration

<sup>10</sup>See ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel."

<sup>11</sup>See NUREG-0094, "NRC Operator Licensing Guide, A Guide for the Licensing of Facility Operators, Including Senior Operators," (July 1976), pp. 13-14.

# 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; LICENSING PROCEDURES

#### STATEMENTS OF CONSIDERATION

46 FR 13971

Published 2/25/81

Effective 3/27/81

10 CFR Parts 2, 19, 20, 21, 30, 40, 51,  
60, and 70

#### Disposal of High-Level Radioactive Wastes in Geologic Repositories: Licensing Procedures

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (Commission or NRC) is publishing a final rule on the disposal of high-level radioactive wastes at geologic repositories. The rule sets forth requirements applicable to the Department of Energy for submitting an application for a license and specifies the procedures which the Commission will follow in considering such an application. The rule also sets forth provisions for consultation and participation in the license review by State, local, and Indian tribal governments.

**EFFECTIVE DATE:** March 27, 1981.

**FOR FURTHER INFORMATION CONTACT:** I. C. Roberts, Assistant Director for Siting Standards, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-5985.

#### SUPPLEMENTARY INFORMATION:

##### Background

On December 8, 1979, the Nuclear Regulatory Commission published for comment a proposed rule setting forth procedures for licensing geologic high-level radioactive waste (HLW) repositories to be constructed and operated by the Department of Energy (DOE) (44 FR 70408). The proposed rule superseded the proposed General Statement of Policy published for

comment in November 1978 (43 FR 53869). Public comment on the proposed rule (10 CFR Part 60) was received from thirty-four groups and individuals. A number of changes and clarifications have been made in the rule as a result of comments received. This rule contains only the procedural requirements for licensing. The technical criteria against which the license application will be reviewed are still under development. The current staff thinking on the technical criteria was reflected in an Advance Notice of Proposed Rulemaking and draft technical criteria published for public comment on May 13, 1980 (45 FR 31393).

The Commission has made a formal determination that the final rule 10 CFR Part 60 satisfies the criteria for the approval of significant regulations set out in section 2(d) of Executive Order 12044.

##### Authority

Sections 202 (3) and (4) of the Energy Reorganization Act of 1974, as amended, provide the NRC with licensing and regulatory authority regarding DOE facilities used primarily for the receipt and storage<sup>1</sup> of the high-level radioactive wastes resulting from activities licensed under the Atomic Energy Act and certain other long-term, high-level waste storage facilities of the DOE. Pursuant to that authority, the Commission is promulgating regulations appropriate for licensing geologic disposal of HLW by the DOE. The requirement in the rule that DOE submit a Site Characterization Report in advance of performing exploration activities also implements Section 14(a) of the NRC Authorization Act of 1979 (Pub. L. 95-601).<sup>2</sup> DOE is responsible for

<sup>1</sup> The Commission interprets "storage" as used in the Energy Reorganization Act to include disposal.

<sup>2</sup> Section 14(a) reads as follows: Any person, agency, or other entity proposing to develop a storage or disposal facility, including a test disposal facility, for high-level radioactive wastes, non-high-level radioactive wastes including transuranium contaminated wastes, or irradiated nuclear reactor fuel, shall notify the Commission as early as possible after the commencement of planning for a particular proposed facility. The Commission shall in turn notify the Governor and the State legislature of the State of proposed siting whenever the Commission has knowledge of such proposed

developing the methods and technology for the permanent disposal of high-level radioactive waste in a Federal repository, and for submitting a license application for a potential repository.

The licensing procedures in this rule will be supplemented by technical criteria which will be developed by the Commission in the light of such generally applicable environmental standards as may have been established by the Environmental Protection Agency under Reorganization Plan No. 3 of 1970.

Questions have been raised in the past about the authority of NRC to regulate the construction of the waste repository. DOE activities that take place before an application is filed and may affect the long-term safety of the repository obviously may preclude receipt of a construction authorization. The Commission has concluded that NRC may use its powers to regulate construction of the repository. Accordingly, the Commission may, if necessary, issue orders to secure compliance with construction authorization conditions and to protect the integrity of the repository. In addition, failure to comply with the conditions of any construction authorization may also be grounds for denial of a license to receive material.

##### Comments

A total of thirty-four groups and individuals commented on the proposed rule, addressing a variety of issues. Most of the commenters viewed the proposed rule as a significant improvement over the proposed General Statement of Policy, and, generally, the comments were supportive of the principles and procedures outlined in the proposed rule. The principal comments received related to multiple site characterization, in situ testing at depth, cost estimates for site characterization, whether the rule should require that the site selected by DOE be the "best", whether an environmental impact statement (EIS) should be required for site characterization, whether the Commission should prepare an EIS for this rulemaking action, opportunities for



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State, local and public participation, formal public hearings, the preliminary nature of some information to be included in an application for construction authorization, and the termination of a license following decommissioning. Summaries of the comments received on these issues are presented below. Copies of the comments and an analysis of them by the NRC staff are available in the Commission's Public Document Room. Some of the commenters raised issues that will be covered in the technical criteria; those will be dealt with in connection with the ongoing rulemaking for those criteria.

a. *Site Characterization.* Comments on site characterization straddled the Commission position set forth in the proposed rule. Some commenters agreed with the requirement for multiple site characterization as presented in the proposed rule. Some commenters expressed the opinion that multiple site characterization was not required for the Commission to fulfill its NEPA obligation to consider alternatives. The Commission has carefully reviewed arguments presented by the commenters who stated that multiple site characterization is not necessary. The Commission continues to believe that required multiple site characterization provides the only effective means by which it can make a comparative evaluation as a basis for arriving at a reasoned decision under NEPA. Other commenters believed that the requirements for multiple site characterization were not stringent enough, and suggested that the rule specify the number of geologic media and sites to be characterized by the DOE. The Commission continues to believe that characterization of several sites will prevent a premature commitment by DOE to a particular site, and will assure that DOE's preferred site will be chosen from a slate of candidate sites that are among the best that can reasonably be found. The Commission considers three sites in two geologic media, at least one of which is not salt, to be the minimum number needed to satisfy NEPA. That is, the Commission can foresee no circumstance that would permit it to conclude, on the basis of a more limited investigation, that alternatives have been considered in accordance with the "rule of reason." Further it is the present judgment of the Commission that for purposes of making a reasoned choice there is not sufficient difference between bedded salt and domed salt for them to be considered two distinct alternative media. However, because the "rule of reason" is intrinsically flexible, the Commission does not believe that it would be appropriate for these regulations to

specify more than the minimum number or type of geologic media and sites that DOE must characterize during multiple site characterization. What is important is that there be sufficient information for NRC to be able to evaluate real alternatives, in a timely manner, in accordance with NEPA.

Information on plans for considering alternative sites is to be included in the Site Characterization Report. This provision was questioned by some commenters. This information is needed so that any deficiency may be the subject of "specific recommendations" by the Director of the NRC's Office of Nuclear Material Safety and Safeguards, (Director) as provided in § 60.11(e), with respect to additional information that might be needed by the Commission in reviewing a license application in accordance with NEPA.

Another commenter raised the issue that in addition to the need to consider alternatives under the provisions of NEPA, the need for characterizing several sites in a variety of media is also justified by NRC's obligation under the Atomic Energy Act to protect public health and safety. The Commission recognizes that, under the provisions of the Atomic Energy Act, a consideration of alternatives might indeed be appropriate, where necessary or desirable to protect health. (Section 161g.) The Commission cannot say at this point that an examination of alternatives would be essential for this purpose. The Commission anticipates that its fundamental licensing inquiry in the context of evaluating radiological safety issues will be directed to determining whether the activities proposed by the DOE can be carried out in a manner consistent with generally applicable environmental standards established by the Environmental Protection Agency.

The Commission also continues to believe that waste form research is an appropriate topic for treatment in the Site Characterization Report, as the discussion may lead to specific recommendations by the Director, and, as well, contribute to early examination and broader understanding of possible waste form/host rock interactions. Further, wording of § 60.11(a) has been changed from "waste form" to "waste form and packaging" to convey better the concept that the NRC will seek information relating to the interaction of the waste as emplaced (hence including packaging) with the host rock.

In response to one commenter's suggestion that the Site Characterization Report be made to NRC on a site by site basis, § 60.11(a) has been revised to require DOE to submit a separate Site Characterization Report for each site to be characterized.

There were also suggestions that the distinction between site

characterization and screening activities be drawn more sharply. However, because the activities needed prior to characterization may depend on a variety of factors peculiar to the site and geologic medium, the Commission has concluded that greater precision might be unduly restrictive.

The DOE requested clarification of the term "site". Definitions of both the terms "site" and "medium" will be set forth when the technical criteria are published.

b. *In Situ Testing at Depth.* Several commenters supported the Commission view on in situ testing at depth. Some commenters, noting the importance of in situ testing at depth, suggested that the rule require the DOE to include in situ testing at depth in its site characterization program. The U.S. Geological Survey (USGS) supported required in situ testing at depth at a number of sites prior to NRC adjudicatory hearings, so that such hearings could proceed on the basis of critical, site-specific data on the candidate host rocks and environs rather than on inferences derived from a limited number of drill holes supplemented by geophysical techniques. The USGS expressed the opinion that direct observation and in situ testing of host media will be the only way to characterize sites with confidence. Several other commenters objected to the Commission suggestion that in situ testing at depth may be necessary. The possibility of in situ testing at depth after a preferred repository site has been selected was also suggested.

The Commission, like the USGS, believes that in situ testing at depth<sup>3</sup> is an essential technique for DOE to obtain sufficient data to determine whether and to what extent the surrounding geologic medium is suitable for hosting a geologic repository. This belief is supported by the ever-present possibility of lateral changes in the properties of the host rock and the possible presence of inhomogeneities of too small a scale to be detected by remote or borehole techniques. Moreover, in order for NRC to be able to conclude that the alternatives to DOE's preferred site are in fact reasonable alternatives for the intended purpose, in situ testing at depth is essential to characterizing alternative sites as well. The NRC will then be able to determine, after considering all relevant environmental factors as contemplated by NEPA, whether a construction authorization at DOE's

<sup>3</sup> The Commission interprets the phrase "in situ testing at depth" to mean the conduct of those geophysical, geochemical, hydrologic, and/or rock mechanics tests performed from a test area at the base of a shaft excavated to the proposed depth of a potential repository in order to determine the suitability of a particular site for a geologic repository.

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proposed site should be issued. Thus the Commission requires in situ testing at depth in the rule. It is conceivable, however, that techniques may be developed to obtain the necessary data at a particular site without in situ testing at depth. In such a case, DOE may request an exemption from the in situ testing at depth requirement. DOE, like any applicant for an NRC license, has the burden of establishing that NRC requirements have been met; and the regulations require DOE to undertake any testing needed to determine the suitability of the site for a geologic repository. Thus, if exploration and in situ testing at depth were not undertaken, DOE would still have the same burden of obtaining and supplying to the Commission information needed to establish the suitability of the site.

c. *Cost Estimates for Site Characterization.* Cost estimates for site characterization cited in the Supplementary Information accompanying the proposed rule were regarded by some commenters as being too low. Much of the data for the cost estimate of \$20 million per site was derived from the Teknekron Inc. report, "A Cost Optimization Study for Geologic Isolation of Radioactive Wastes," May 1979, prepared under contract with Battelle Pacific Northwest Laboratories. The NRC staff has reexamined its previous estimate and still believes that figure of \$20 million was a realistic estimate for the "at depth" portion of the site characterization program considered at that time. Independent support of this figure has been obtained from the cost summary of \$16 million for a program during 1978-1979 analogous to site characterization conducted by the Bureau of Mines at its Environmental Research Facility in Colorado.

The DOE has developed a preliminary design for an underground test facility in New Mexico at which many site characterization activities could be conducted. The estimated cost of the facility was \$27 million (1980 dollars). This figure has been confirmed by American Mine Services under contract to NRC. The scope of the DOE preliminary design surpasses the extent of activities suggested for the "at depth" portion of site characterization in the proposed rule. For example, the DOE Site Preliminary Verification Project Plan includes extensive underground mining development. The Commission has come to believe, however, that a facility consisting of two shafts and up to 1,000 feet of tunnels is a more practical arrangement for conducting tests and experiments at depth for site

characterization. Therefore, the Commission believes a \$25-30 million figure represents the upper limit for the "at depth" portion of site characterization in soft rock. Cost estimates for site characterization including in situ testing at depth in hard rock may range up to 30% more than cost figures for soft rock.

d. *The "Best" Site.* Some commenters suggested that the final rule should require that the site selected by the DOE be the "best". Yet other commenters thought that the Commission was setting an unattainable goal of perfection for the selection of the site for a geologic repository. It remains the Commission's view that the process of multiple site characterization provides a workable mechanism by which the DOE will be able to develop a slate of candidate sites that are among the best that can reasonably be found and from which DOE will select its preferred site.

It generally has been NRC practice to consider only whether a license application meets prescribed criteria. The Commission perceives no reason to adopt a different philosophy here.

e. *Environmental Impact Statement.* Some commenters believed that the NRC should require that the DOE submit an Environmental Impact Statement (EIS) at the site characterization stage. Other commenters believed that DOE need only submit an Environmental Report or an Environmental Assessment for site characterization. In its comment letter on the proposed rule, the DOE stated that a decision to bank or withdraw a site or to conduct a site characterization by more extensive methods such as sinking a shaft will require the preparation of an EIS. In any event, since NRC is undertaking no "major Federal action" in connection with site characterization, it has no statutory basis for prescribing what steps DOE must take in order to be in compliance with NEPA.

The rule requires submission of an Environmental Report along with the Safety Analysis Report at the time of application for a license. If DOE has prepared an EIS that document can be used so long as it contains the information called for by the regulation. However, NRC cannot be bound to accept judgments arrived at by DOE in its EIS.

One commenter suggested that the NRC should prepare an EIS for the rulemaking action. The Commission determined that this was not necessary as part of its review and approval of publication of the proposed rule. Instead, an Environmental Impact Appraisal was prepared for those requirements which might have

environmental impacts. Those impacts were found not to be significant. This Environmental Impact Appraisal has recently been updated and no new impact was found to be significant. A copy of the updated appraisal is available for inspection and copying at the Commission's Public Document Room.

f. *State, Local, and Public Participation.* The proposed rule included detailed provisions to ensure extensive opportunities for participation by State and local governments and the general public in the review of the DOE's programs for site selection and site characterization. The consultation role of the States in reviewing applicable NRC regulations and licensing procedures, as well as participation in the licensing process, was treated explicitly in the proposed rule. However, a more formal role of "consultation and concurrence" for States was requested by some commenters. Suggestions were also made that the Commission require the DOE to solicit input from State, Indian tribal and local governments as well as from the general public prior to and during site characterization.

The Commission's views on this subject were set out at length in a report submitted to the Congress on "Means for Improving State Participation in the Siting, Licensing and Development of Federal Nuclear Facilities," NUREG-0539, March 1979, cited in the Supplementary Information accompanying the proposed rule. The concerns of the commenters on broad policy issues such as "consultation and concurrence" would require actions by parties other than the Commission. Within the context of NRC's existing authority, appropriate opportunities for meaningful State and public participation have been developed. No serious deficiencies in these opportunities have been pointed out to the NRC. In addition, the provisions of the NRC's open meeting policy set forth at 43 FR 28058 (June 28, 1978) will also be applied to the licensing of a geologic repository to the extent practicable. Under this policy, generally, all meetings conducted by the NRC technical staff as part of its review of a particular domestic license or permit application will be open to attendance by all parties or petitioners for leave to intervene in the case. The Commission strongly encourages the Director to conduct open meetings prior to a license application to the extent reasonable for matters such as periodic status reports and similar proceedings.

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It should be noted, however, that proposals for intervenor funding have not been incorporated as suggested by some commenters. This question may be addressed separately in the context of rulemaking applicable to various adjudicatory proceedings, should the Commission be given statutory authority, which it now lacks, to provide such funding.

In response to commenters' suggestions, the rule has been clarified with respect to notice to and participation by Indian tribes.

**g. Public Hearings.** The issue of whether public hearings should be mandatory during the pre-licensing and/or licensing stages of geologic disposal of HLW was addressed by a numbers of commenters. Two commenters suggested that hearings be required prior to site characterization. One commenter suggested that public hearings should be held in the vicinity of a proposed site prior to the approval of a Site Characterization Report, while another commenter suggested that hearings be held prior to in situ testing at depth. It was also proposed by another commenter that public hearings be held on DOE's research and development work on waste forms. Finally, two other commenters believed that formal hearings should be mandatory prior to granting construction authorization to DOE. These issues were discussed at the time the rule was proposed. The Commission then concluded, in light of the limited information available at the site characterization stage, that formal hearings were not warranted at that point. The commenter did not deny the relevance of the policy considerations identified by the Commission, but would have balanced these considerations differently. But this is a matter of judgment, and the NRC adheres to its original position for the reasons then offered. Also, the NRC must decline to review DOE research and development programs formally. NRC's statutory authority includes "licensing and related regulatory authority" as to certain DOE facilities. Although it is important to follow DOE's program closely, the Commission would not be warranted in formalizing a review process with respect to that program.

In reviewing the procedures for formal proceedings in connection with licensing, the Commission has determined that hearings would be in the public interest prior to the granting of construction authorization. An amendment (in § 2.101(f)(8)) has the effect of mandating such hearings. In addition, hearings will be held upon the request of any interested person prior to

finally granting a license to receive and possess high-level radioactive waste at a geologic repository operations area and before granting license amendments to decommission or terminate a license.

As in the case of facility licensing matters, ex parte communications would be restricted while on-the-record proceedings are pending. Because a construction authorization (unlike a license, its issuance does not constitute a final decision on the pending application. To avoid any unintended implication that the ex parte rule (10 CFR 2.780) would apply between the construction authorization proceedings and the commencement of formal proceedings prior to receipt of wastes, that rule has been amended to provide specifically that a final decision with respect to issuance of construction authorization will be deemed, unless the Commission orders otherwise, to terminate, for purposes of the ex parte rule, formal proceedings then pending before the NRC with respect to the application.

The rule has also been revised to provide that in cases involving public hearings, the initial decision of the presiding officer shall not be immediately effective. (§ 2.764.) It is further provided that even if no hearing has been held, the Director of Nuclear Material Safety and Safeguards will not issue a construction authorization, license, or significant amendment until expressly authorized to do so by the Commission. The Commission has not yet determined the specific procedures for agency review of an initial decision. It will be the Commission's intention, however, to provide expeditious action on an initial decision to avoid any undue delays in the licensing process. These changes, while not issued in direct response to commenters' suggestions, reflect sentiments that the Commission itself should be involved in major decisions on these facilities.

**h. Preliminary Nature of the Information to be Included in an Application for Construction Authorization.** A number of commenters expressed the opinion that the wording of § 60.21 did not explicitly reflect the preliminary nature of some of the information that would be available at the construction authorization stage. Some commenters believed that certain categories of information, such as emergency plans and plans for retrieval, did not seem necessary, at least in full detail, at the construction authorization stage. In view of the fact that § 60.21 must be read in conjunction with § 60.24(a), which specifies that the application "shall be as complete as

possible in light of information that is reasonably available at the time of docketing," no change to the proposed rule is required. Further, § 60.24(b) specifically lists several categories of information which, where appropriate, may be left for consideration only at the state of license issuance.

**i. Termination of a License.** Two commenters opposed the provisions (§ 60.52) for the termination of a license for a repository after decommissioning. The Commission believes that there will be considerable debate regarding license termination during the period between adoption of rules and implementation of their provisions. Although the Commission could have omitted the topic altogether, it believes that some recognition of the issue is desirable so that the rule covers the entire process. It should be noted that there is no assurance under the language that the license would be terminated: since a decision to do so could only be made if "authorized by law." The Commission wishes to emphasize that criteria to be used in making a decision to decommission a repository are not included in this procedural rule but will be set forth either within the technical criteria of Part 60 or as a future regulation or policy statement.

### Changes

The final rule contains the following changes from the proposed rule as published in December 1979.

**a. Definition of the term "Disposal".** Commenters noted that the proposed definition of the term "disposal" embodied the contradictory concepts of "permanent emplacement" and possible retrieval for purposes other than resource value. The definition has been modified to reflect usage of the term "disposal" in the rule as the condition in which isolation is required. (§ 60.2(f))

**b. Incidental Uses of Radioactive Materials.** The DOE noted that the proposed rule could have the effect of prohibiting the use of source, special nuclear, and byproduct materials at the site during site characterization and facility construction. The DOE referred to the desirability of being able to use such materials, for example, as radiography sources and radiation monitoring test sources. There may also be a need to employ a small amount of radioactive material for in situ testing in the course of site characterization activities.

The Commission did not intend to restrict DOE's use of radioactive materials for the stated purposes, and has clarified the point by adding a new section, § 60.7, which expressly recognizes that DOE (which is exempt

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from NRC licensing except as expressly required to be licensed) need not be licensed for such preliminary activities. This is not an exemption under the exemption provisions of the Atomic Energy Act but rather an interpretation of the Commission's jurisdiction under Section 202 of the Energy Reorganization Act of 1974. In other words, the "facility" that the NRC is licensing is one at which high-level radioactive wastes are actually stored. To the extent that the procedures call for earlier NRC involvement, that involvement would be undertaken with a view to long-term health and safety considerations; but during site characterization and prior to emplacement of waste, there would be no "facility" for storage of high-level waste and no basis for the exercise of licensing authority over the incidental use of source, special nuclear, and byproduct material by DOE.

Once operations at a facility have been licensed, the Commission believes it should regulate the use of all licensable materials onsite, so as to avoid fragmentation of responsibility and accountability with respect to radiological safety (particularly as it may affect occupational exposures).

The change does not respond to the DOE's additional concern that the proposed rule would prohibit construction and operation of a surface facility for the storage of spent reactor fuel at a repository site prior to issuance of a Part 60 license. Should this situation actually arise in practice, the Commission would consider granting an exemption so as to permit licensing to be carried out under other parts of NRC regulations.

**c. Site Characterization.** Following detailed consideration of public comments, the Commission has decided to require in situ testing at depth and to specify the minimum number of sites to be considered as alternatives during site characterization.

**d. Site Characterization Report.** One commenter on the proposed rule suggested that the description of the DOE's planned site characterization program include a preliminary design of the repository. Knowledge of the proposed design would help indicate how the testing program related to the repository layout. The Commission has made it explicit that the Site Characterization Report include a conceptual design of the geologic repository operations area. This is needed so as to permit analysis of certain aspects of the site characterization program. (§ 60.11(a).)

The provisions of § 60.11(a) have been modified by the addition of a footnote to

indicate that information on the criteria and methods used for site selection, identification and location of alternative sites and media, and the decision process used to select the site, including means used to obtain State, Indian tribal and public views, which all can be expected to be in DOE's Environmental Impact Statement for site characterization, need not be duplicated in the Site Characterization Report, but can be incorporated by reference.

§ 60.11(e) has been modified to state explicitly that a copy of NRC's final site characterization analysis and the Director's opinion will be transmitted to DOE.

The provisions of § 60.11(g) have been changed to require DOE to permit NRC staff to visit and inspect the site and observe excavations, borings, and in situ tests as they are done. The NRC believes that such a requirement is essential for NRC to determine that site characterization activities have no adverse impacts upon site safety.

The proposed rule contained provisions which would permit the DOE to include multiple sites in a single Site Characterization Report. In response to public comment, and for the sake of clarity, the final rule requires a separate Site Characterization Report for each site to be characterized.

The Commission reiterates that the Site Characterization Report will be reviewed by the NRC staff with opportunity for public comment on the NRC staff analysis of the DOE Site Characterization Report. DOE has indicated that it will provide opportunity for public comment on its Site Characterization Report prior to submittal to the NRC. Also, the Commission continues to anticipate that it will hold local public meetings in the immediate area of the site to be characterized. These meetings will be held both to disseminate information and to obtain public input which will be factored into the final version of the staff analysis.

The period for comment on the NRC's draft site characterization analysis has been extended from a minimum of 60 days to a minimum of 90 days in response to public comment. (§ 60.11(e))

The provision concerning semiannual progress reports has been expanded so as to provide additional guidance to the DOE on the contents of those reports. (§ 60.11(g)) In addition, § 60.11(g) now contains a provision which requires DOE to provide in report form, any information related to site characterization, when requested by the Director.

The rule has been revised to permit the Director to comment at any time in

writing to DOE to express views on any aspect of site characterization (§ 60.11(h)).

**e. Content of License Application.** Provisions which set forth the general information to be included in an application have been expanded to include a description of site characterization work actually conducted by DOE at all sites considered and, as appropriate, explanations of why such work differed from the description of program in the Site Characterization Report for each site (60.21(b)(5)). It is expected that such a provision will facilitate the evaluation of DOE's site characterization by the public.

**f. Construction Authorization Findings.** The necessary findings by the Commission on environmental matters (§ 60.31(c)) have been revised to conform to the language in other portions of the Commission's regulations. Contrary to the views expressed by a commenter, the Commission regards this provision as being fully consistent with the requirements of NEPA. Further specificity may be provided, however particularly with respect to the criteria for evaluating alternative sites at the time technical criteria are proposed.

The Commission has declined to modify the common defense and security finding, which one commenter characterized to be "so vague as to be of no consequence." The proposed "inimicality" findings, §§ 60.31(b) and 60.41(c), reflect the legal standards set forth in the Atomic Energy Act, in particular Section 57c.(2) thereof. The concerns here related generally to protection of classified information and materials, protection against loss or diversion of nuclear waste materials from the repository, and protection against radiological sabotage at the repository. Detailed regulations appear in other parts of this chapter on protection of classified matters and no further special provisions appear to be required for Part 60. See 10 CFR Part 2, subpart I, Part 25, Part 95. Radiation hazards associated with high-level radioactive wastes make them inherently unattractive as a target for diversion, and therefore no detailed provisions appear to be warranted at this time for protection against loss or diversion. The rule has been changed to require DOE to describe the elements of its plan to protect against sabotage. However, DOE, as a Federal agency operating under the Atomic Energy Act, has its own obligation to promote the common defense and security. Indeed, DOE is responsible under the Atomic

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Energy Act for protection of materials and facilities far more sensitive from a safeguards standpoint than nuclear waste materials in a geologic repository. Therefore, the rule provides that a DOE certification that its repository operations area safeguards are equal to those at comparable DOE surface facilities shall constitute a rebuttable presumption on the question of inimicality to the common defense and security.

**g. Conditions of Construction Authorization.** The final rule specifies (§ 60.32(b)) that the construction authorization "will incorporate" conditions requiring the submission of certain periodic or special reports. This wording differs from that of the proposed rule which stated that the Commission "may, at its discretion incorporate" these conditions. The NRC agrees with a commenter that such reports will be needed and that there is no reason to reserve discretion, as the proposed rule would have done. The particulars of the conditions would, of course, depend upon the nature of the project that is to be constructed.

A new paragraph 60.32(c) has been included in the final rule to inform DOE that the construction authorization will include restrictions on subsequent changes to the features of the repository and the procedures authorized. These restrictions will fall into three categories of descending importance to public health and safety as follows: (1) those features and procedures which may not be changed without (i) 60 days prior notice to the Commission, (ii) 30 days notice of opportunity for a prior hearing, and (iii) prior Commission approval; (2) those features and procedures which may not be changed without (i) 60 days prior notice to the Commission, and (ii) prior Commission approval; and (3) those features and procedures which may not be changed without 60 days prior notice to the Commission. Features and procedures falling in category (3) may not be changed without prior Commission approval if the Commission, after having received the required notice, so orders.

Not every feature and procedure in the license application at the time the construction authorization is issued would need to be included in one of the three categories. There will be a number of matters that could be changed as construction progresses without prior notice to the Commission. Such changes would be brought to the Commission's attention when the license application is updated prior to issuance of a license to receive wastes. Also, it is contemplated that changes to features or procedures

included in these categories of license conditions considered minor with respect to the public health and safety, could be made with prior notice to the Commission but without prior Commission approval.

**h. License Specifications.** The Commission has accepted a suggestion to delete a requirement for including, as license conditions, restrictions as to the location and characteristics of the storage medium. As noted by a commenter, these features may be inherent in the storage medium itself.

**i. Inspections.** The final rule contains a provision (§ 60.73(c)) requiring DOE to provide onsite office space for the exclusive use of NRC inspectors and personnel.

**j. Participation of Indian Tribes.** Several changes have been made in the rule to provide for full participation by Indian tribes in the licensing procedures. These changes generally provide that tribes shall have the same opportunities as governmental units. A new Section 60.64 provides that Indian Tribes shall have the same opportunities as States to submit proposals for their participation in the NRC review. These proposals shall be approved (and may be funded) if appropriate findings can be made concerning the contribution to be made to the licensing review. A new Section 60.65 makes it clear, however, that the Director shall endeavor to avoid duplication of effort when acting on multiple proposals, to the extent that this can be accomplished without substantial prejudice to the parties involved.

**k. Preparation of an Environmental Impact Statement prior to issuance of license to receive and possess HLW.** The requirement that the NRC prepare and circulate an EIS prior to issuing a license to receive and possess HLW has been deleted (51.5(a)(11)). Since an EIS will be prepared by NRC prior to granting construction authorization for a geologic repository operations area, it may not be necessary to prepare a second EIS. Rather, after the construction authorization stage, the NRC will perform environmental assessments, and, as appropriate, will supplement the EIS or determine that no such supplemental statement is required.

**l. Records and Tests.** The term "significant" has been deleted from Section 60.71(c)(3). The Commission requires notification of all deviations from license conditions.

**m. Definition of the term "Commission."** A definition of the term "Commission" has been added to the final rule to make it clear that in Part 60, the "Commission" means the Nuclear

Regulatory Commission or its duly authorized representatives.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, Public Law 95-601 (November 6, 1978), the National Environmental Policy Act of 1969, as amended, and sections 552 and 553 of title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter I, Code of Federal Regulations are published as a document subject to codification.

47 FR 13774  
Published 3/31/82  
Effective 4/1/82

### 10 CFR Parts 60, 72 and 81

#### Reporting, Recordkeeping, and Application Requirements

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending certain parts of its regulations to indicate that Office of Management and Budget clearance is not required for the information collection requirements contained in these parts. This action is required by the Paperwork Reduction Act of 1980.

**EFFECTIVE DATE:** April 1, 1982.

**FOR FURTHER INFORMATION CONTACT:** Steve Scott, Chief, Document Management Branch, Division of Technical Information and Document Control, Office of Administration, Telephone: (301) 492-8585.

**SUPPLEMENTARY INFORMATION:** The Paperwork Reduction Act of 1980 (Pub. L. 96-511; 44 U.S.C. Chapter 35) transferred the responsibility for approving the information collection requirements imposed by the Nuclear Regulatory Commission (NRC) on the public from the General Accounting Office (GAO) to the Office of Management and Budget (OMB). The Act requires that each agency "ensure that information collection requests required by law or to obtain a benefit, and submitted to nine or fewer persons, contain a statement to inform the person receiving the request that the request is not subject to the requirements of section 3507 \* \* \* of the Act. This requirement applies to the reporting, recordkeeping, and application requirements contained in NRC regulations on the licensing procedures for disposal of high-level radioactive

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wastes in geologic repositories (Part 60); licensing requirements for the storage of spent fuel in an independent fuel spent storage installation (Part 72); and standard specifications for the granting of patent licenses (Part 81). The information collection requirements contained in each of these parts pertain to nine or fewer persons. Therefore, the NRC is not required to obtain OMB approval for these information collection requirements. This document adds a new section to the General Provisions of each part to indicate that OMB approval is not required.

Because these are nonsubstantive amendments dealing with minor procedural matters, good cause exists for finding that the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) are unnecessary and for making the amendments effective upon publication.

Under 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 following amendments to 10 CFR Parts 60, 72, and 81 are published as a document subject to codification.

47 FR 30452

Published 7/14/82

Effective 10/12/82

*Protection of Employees Who  
Provide Information*

See Part 19 Statements of Consideration

➤ 48 FR 28194

Published 6/21/83

Effective 7/21/83

### 10 CFR Part 60

#### Disposal of High-Level Radioactive Wastes in Geologic Repositories Technical Criteria

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is publishing technical criteria for disposal of high-level radioactive wastes (HLW) in geologic repositories, as required by the Nuclear Waste Policy Act of 1982. The criteria address siting, design, and performance of a geologic repository, and the design and performance of the package which contains the waste within the geologic repository. Also included are criteria for monitoring and testing programs, performance confirmation, quality assurance, and personnel training and certification.

**EFFECTIVE DATE:** July 21, 1983.

**FOR FURTHER INFORMATION CONTACT:**  
Patricia A. Comella, Deputy Director of  
the Division of Health, Siting and Waste  
Management, Office of Nuclear  
Regulatory Research, U.S. Nuclear  
Regulatory Commission, Washington,  
D.C. 20555, Telephone (301) 427-4616.

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On February 25, 1981, the Nuclear  
Regulatory Commission published rules



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which established procedures for the licensing of geologic disposal, by the U.S. Department of Energy (DOE), of high-level radioactive wastes (HLW). 46 FR 13971. On July 8, 1981, NRC proposed technical criteria which would be used in the evaluation of license applications under those procedural rules (46 FR 35280). NRC received 93 comment letters on these proposed technical criteria, 89 of which were received in time for the Commission to consider in preparing the final technical criteria that are published here. No significant new issues were raised in the four letters received too late for consideration. The principal comments, and the Commission's responses, are reviewed in the discussion below. A more detailed analysis of the comments is contained in a NRC staff report (NUREG-0804) which is being distributed to all commenters on the proposed rule and which may be purchased by other interested parties from the NRC's GPO Sales Program, Washington, D.C. 20555. Upon publication, a copy will be placed in the Public Document Room (PDR), 1717 H Street NW., Washington, D.C. 20555. This staff report includes a technical rationale for the performance objectives in 10 CFR Part 60 as well as the comment analysis. The final rules contain a number of changes, explained in this statement, that reflect concerns addressed in the public comments.

The licensing procedures referenced above provide for DOE to submit site characterization reports to NRC prior to characterizing sites that may be suitable for disposal of HLW. NRC would analyze these reports, taking into account public comments, and would make appropriate comments to DOE.

The licensing process will begin with the submission of a license application with respect to a site that has been characterized. Following a hearing, DOE may be issued a construction authorization. Prior to emplacement of HLW, DOE would be required to obtain a license from NRC; an opportunity for hearing is provided prior to issuance of such a license. Permanent closure of the geologic repository and termination of the license would also require licensing action for which there would be opportunity for hearing.

The purpose of the technical criteria is to define more clearly the bases upon which licensing determinations will be made and to provide guidance to DOE and information for the public with respect to the Commission's policies in this regard. The criteria also indicate the approach the Commission is taking with respect to implementation of an Environmental Protection Agency (EPA)

standard, particularly with respect to the classification of processes and events as "anticipated" or "unanticipated" and the definition of the "accessible environment" from which radionuclides must be isolated.<sup>1</sup>

The Commission anticipates that licensing decisions will be complicated by the uncertainties that are associated with predicting the behavior of a geologic repository over the thousands of years during which HLW may present hazards to public health and safety. It has chosen to address this difficulty by requiring that a DOE proposal be based upon a multiple barrier approach. An engineered barrier system is required to compensate for uncertainties in predicting the performance of the geologic setting, especially during the period of high radioactivity. Similarly, because the performance of the engineered barrier system is also subject to considerable uncertainty, the geologic setting must be able to contribute significantly to isolation.

The multibarrier approach is implemented in these rules by a number of performance objectives and by more detailed siting and design criteria.<sup>2</sup> In addition to the objective of assuring that licensed facilities will adequately isolate HLW over the long term, these provisions also address considerations related to health and safety during the operational period to permanent closure of the geologic repository.

In this statement of considerations the Commission will first discuss six issues on which it had specifically requested public comment. It will then review other principal changes to the rule which have been adopted in the light of comments received. The discussion will then take up suggestions of a policy nature which the Commission has declined to adopt. Finally, a section-by-section analysis reviews all changes made other than those of a strictly editorial nature. As appropriate, reference is made to relevant provisions

<sup>1</sup> Reorganization Plan No. 3 of 1970 (35 FR 15823, October 6, 1970) authorizes EPA to establish generally applicable environmental standards for radioactivity. EPA's recently proposed standard would allow higher levels of radioactivity for "unanticipated processes and events" than would be permitted if "anticipated processes and events" were to occur. The proposed standard also relates these levels to places within the "accessible environment." The Commission has assumed that these concepts will be reflected in final standards that may be established by EPA.

<sup>2</sup> Under the Nuclear Waste Policy Act of 1982, the Commission's technical criteria "shall provide for the use of a system of multiple barriers in the design of the repository . . . as the Commission deems appropriate." Section 121(b)(1)(B). The criteria set forth in this rule represent the criteria which, for purposes of this provision, the Commission deems appropriate.

of the Nuclear Waste Policy Act of 1982, Pub. L. 97-425, approved January 7, 1983, and to the Environmental Protection Agency's proposed Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level, and Transuranic Radioactive Wastes, 47 FR 58195, December 29, 1982. The Commission regards the publication of these rules as constituting full compliance with Section 121(b)(1)(A) of the Nuclear Waste Policy Act, which requires promulgation of the Commission's technical criteria for geologic repositories not later than January 1, 1984.<sup>3</sup> The Commission will review these criteria after EPA's environmental standards are published in final form and will initiate subsequent rulemaking actions, as necessary, to take any such standards into account. The Commission further intends additional rulemaking to deal with any changes in licensing procedures that may be necessary in light of the Nuclear Waste Policy Act.

### Issues Raised by the Commission

As noted above, the Commission specifically requested public comment on six issues, each of which will be reviewed here before turning to other considerations. These issues dealt with:

- (1) A single overall performance standard vs. minimum performance

<sup>3</sup> The technical criteria are explicitly stated to be applicable to construction authorization, § 60.101(b), and to the issuance of licenses to receive and possess high-level radioactive waste at geologic repositories, § 60.101(a). An application to authorize permanent closure requires a license amendment, § 60.51(a); the relevant technical requirements and criteria are set out in the rules here being adopted, inasmuch as the Commission is to be "guided by the considerations that govern the issuance of the initial license, to the extent applicable," § 60.45(b). The Commission interprets the statutory provision pertaining to applications for "decommissioning" to refer to the procedure described in § 60.52, pertaining to termination of a license; such an application would also require a license amendment, and the Commission here, too, would be guided by the present rules to the extent applicable, together with the additional criteria already set out at § 60.52(c). Thus, at every stage of the licensing process, the central inquiry will be the adequacy of DOE's plans and activities as they relate to the isolation of wastes (as well as to safety during operations); and for each decision point we have provided, as is appropriate, for an evaluation that takes into account both the performance objectives and the more detailed criteria that the Commission here adopts. (If Section 212(b)(1)(A) applies to the decommission of surface facilities, the required criteria have been included in § 60.132(a). That paragraph provides that surface facilities must be designed to facilitate decontamination or dismantling to the same extent as would be required, under other NRC regulations, for equivalent activities. This topic may be treated again, in greater detail, in connection with the development of rules that would be generally applicable to decontamination and dismantlement of facilities at which activities subject to Commission regulatory authority are carried out.)

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standards for each of the major elements of the geologic repository; (2) the need for, and appropriate duration of, a waste retrievability period; (3) the level of detail to be used in the criteria, particularly with respect to design and construction requirements; (4) the desirability of population-related siting criteria; (5) the application of an ALARA (as low as reasonably achievable) principle to the performance requirements dealing with containment and control of releases; and (6) alternative approaches on dealing with possibilities of human intrusion into the geologic repository.

### Single vs. Multiple Performance Standards

The Commission identified two potentially viable approaches to assuring achievement of the desired isolation goal of controlling releases so as to assure that radioactivity in the general environment is kept to sufficiently low levels. The Commission suggested that a course that would be "reasonable and practical" would be to adopt a "defense-in-depth" approach that would prescribe minimum performance standards for each of the major elements of the geologic repository, in addition to prescribing the EPA standard as a single overall performance standard. However, as an alternative, the Commission invited comment on an approach that would specify the EPA standard as the sole measure of isolation performance.

There was general acceptance of the Commission's multiple barrier approach, with its identification of two major engineered barriers (waste packages and underground facility), in addition to the natural barrier provided by the geologic setting.

While the usefulness of multiple barriers was recognized, the establishment of fixed numerical values for performance was extensively criticized. The criticism took two forms. First, numerous commenters argued that until such times as an EPA standard is established, no logical connection can be demonstrated between the performance of the particular barriers and the overall system performance objective. The values specified by NRC, it was argued, had not been shown to be either necessary or sufficient to meet any particular standard. The second criticism was that the performance appropriate to a particular barrier is greatly dependent upon design features and site characteristics and that values such as those proposed by the Commission could unduly restrict the applicant's flexibility—possibly imposing great additional expense

without compensating protection of public health and safety.

The Commission recognizes the force of both these arguments. Nevertheless, if the Commission were simply to adopt the EPA standard as the sole measure of performance, it would have failed to convey in any meaningful way the degree of confidence which it expects must be achieved in order for it to be able to make the required licensing decisions. More should be done. To that end, the Commission considers it appropriate to include reasonable generic requirements that, if satisfied, will ordinarily contribute to meeting the standards even though modifications may need to be made for some designs and locations.

The Commission's response, therefore, has been to apply, for illustrative purposes, an assumed EPA standard and to examine the values for particular barriers that would assist in arriving at the conclusion that the EPA standard has been satisfied. For this purpose, a draft EPA standard which was referred to in some of the comments has been used. A copy of this draft standard has been placed in the PDR and will be contained in NUREG-0804. Following publication of EPA's proposed standard in the Federal Register, on December 29, 1982, a supplemental evaluation was made to take into account certain departures from EPA's earlier draft. In this way, the Commission has been able to demonstrate the logical connection which it makes between the overall system performance objective for anticipated processes and events, as set out in EPA's proposed standard, and the performance of specific barriers. One of the considerations that affects its judgment in this regard is the need to take proper account of uncertainties in the performance of any of the barriers. As one commenter noted, "To provide a safety factor to compensate for this uncertainty, a multi-barrier system has many advantages. Since the Commission cannot answer the global problem and predict every possible combination of circumstances that might cause releases of waste, multiple, independent mechanisms of slowing or limiting the discharge of radioactive materials to the environment are desirable." There is nothing inconsistent between the multiple barrier, defense-in-depth approach and a unitary EPA standard; on the contrary, in view of the many possible circumstances that must be taken into account, the Commission firmly believes that the performance of the engineered and natural barriers must each make a definite contribution in order for the Commission to be able to

conclude that the EPA standard will be met. The Commission's task is not only a mathematical one of modeling a system and fitting values for particular barriers into the model in order to arrive at a "bottom line" of overall system performance. The Commission is also concerned that its final judgments be made with a high degree of confidence. Where it is practical to do so, the Commission can and will expect barrier performance to be enhanced so as to provide greater confidence in its licensing judgments. Accordingly, a variance between actual and assumed EPA standards will not necessarily require a change of corresponding magnitude in the individual barrier performance requirements.

While use of an assumed EPA standard provides a basis for specifying anticipated performance requirements for individual barriers, it does not deal with the concern about undue restriction upon the applicant's flexibility. The Commission's response to this has not been to abandon the values altogether, but rather to allow them to be modified as the particular case warrants. Thus, to take one example, the Commission continues to be concerned that thermal disturbances of the area near the emplaced waste add significantly to the uncertainties in the calculation of the transport of radionuclides through the geologic environment. The proposed rule addressed this problem by providing that all radionuclides should be contained within the waste packages for a period of 1,000 years. The Commission continues to consider it important to limit the source term by specifying a containment period (as well as a release rate). But the uncertainties associated with the thermal pulse will be affected by a number of factors, such as the age and nature of the waste and the design of the underground facility. For some repositories, a period substantially shorter than 1,000 years may be sufficient to allow for some of the principal sources of uncertainty to be eliminated from the evaluation of repository performance. For cases analyzed by the Commission on the basis of specified assumptions, a range of 300 years to 1,000 years would be appropriate. (These values appear in § 60.113(a)(ii)(A)). Yet even a shorter designed containment period might be specified, pursuant to § 60.113(b), in the light of conditions that are materially different from those that had been assumed. For example, if the wastes had been processed to remove the principal heat-generating radionuclides (cesium-137 and strontium-90), the 300-years provisions would not be controlling.

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Similarly, the Commission may approve or specify a radionuclide release rate or a pre-waste-emplacement groundwater travel time that differs from the normal values, provided that the EPA standard, as it relates to anticipated processes and events, is satisfied. Appropriate values will be determined in the course of the licensing process, in a manner sensitive to the particular case, using the principals set out in the performance objectives, without having to have recourse to the exemption provisions of the regulations.

The numerical criteria for the individual barriers included in the rule are appropriate, insofar as anticipated processes and events are concerned, in assisting the Commission to determine with reasonable assurance that the proposed EPA standard has been satisfied. It should be noted, however, that in order to meet the EPA standard as it applies to unanticipated processes and events, higher levels of individual barrier performance may be required. DOE would need to provide in its design for such performance as may be necessary to meet the EPA standard with respect to such unanticipated processes and events even though in all other respects the values specified by § 60.113(a) and § 60.113(b) would be sufficient.

### Retrievability

The purpose of this requirement was to implement in a practical manner the licensing procedures which provided for temporal separation of the emplacement decision from the permanent closure decision. Since the period of emplacement would be lengthy and since the knowledge of expected repository performance could be substantially increased through a carefully planned program of testing, the Commission wished to base its decision to permanently close on such information. The only way it could envision this was to insist that ability to retrieve—retrievability—be incorporated into the design of the geologic repository.

The proposed rule would have required in effect that the repository design be such as to permit retrieval of waste packages for a period of up to 110 years (30 years for emplacement, 50 years to confirm performance, 30 years to retrieve). The Commission solicited comment, noting that it would not want to approve construction of a design that would unnecessarily foreclose options for future decisionmakers, but that it was concerned that retrievability requirements not unnecessarily complicate or dominate repository design.

While the benefits of retaining the option of retrieval were recognized, the length of the proposed requirement, in the opinion of several commenters, was excessive. In their view, the Commission had given inadequate consideration to the additional costs of design, construction, and operations implied in the original proposal; however, no new cost or design information was presented by the commenters.

The Commission adheres to its original position that retrievability is an important design consideration. However, in response to the concerns expressed, the Commission has decided to rephrase the requirement in functional terms. The final rule thus specifies that the design shall keep open the option of waste retrieval throughout the period during which the wastes are being emplaced and, thereafter, until the completion of a performance confirmation program and Commission review of the information obtained from such a program. By that time, significant uncertainties will have been resolved, thereby providing greater assurance that the performance objective will be met. In particular, the performance confirmation program can provide indications whether engineered barriers are performing as predicted and whether the geologic and hydrologic response to excavation and waste emplacement is consistent with the models and tests used in the Commission's earlier evaluations. While the commission has provisionally specified that the design should allow retrieval to be undertaken at any time within 50 years after commencement of emplacement operations, this feature is explicitly subject to modification in the light of the planned emplacement schedule and confirmation program for the particular geologic repository.

Some commenters suggested that the technical criteria specify the conditions that would require retrieval operations to be initiated. Such provisions would not belong in Subpart E, which is concerned with siting and design. Nor are they needed elsewhere. In the Commission's view, it is clear that retrieval could be required at any time after emplacement and prior to permanent closure if the Commission no longer had reasonable assurance that the overall system performance objective would be met. This situation could exist for a variety of reasons and the Commission believes that it should retain the flexibility to take into account all relevant factors and that it would be imprudent to limit the Commission's discretion by specifying in advance the particular circumstances that would

make it necessary to retrieve wastes. It should be noted that DOE may elect to maintain a retrievability capability for a longer period than the Commission has specified, so as to facilitate recovery of the economically valuable contents of the emplaced materials (especially spent fuel). So long as the other provisions of the rule are satisfied this would not be prohibited. This consideration, however, plays no role in the Commission's requirement pertaining to retrievability. The Commission's purpose is to protect public health and safety in the event the site or design proves unsuitable. The provision is not intended to facilitate recovery for resource value.<sup>4</sup>

The Commission has also included a specific provision clarifying its prior intention that the retrievability design features do not preclude decisions allowing earlier backfilling or permanent closure. A related clarifying change has been the incorporation of a definition of "retrieval." This definition indicates that the requirement of retrievability does not imply ready or easy access to emplaced wastes at all times prior to permanent closure. Rather, the Commission recognizes that any actual retrieval operation would be an unusual event and may be an involved and expensive operation. The idea is that it should not be made impossible or impractical to retrieve the wastes if such retrieval turns out to be necessary to protect the public health and safety. DOE may elect to backfill parts of the repository with the intent that the wastes emplaced there will never again be disturbed; this is acceptable so long as the waste retrieval option is preserved.

The Commission has thus retained the essential elements of the retrievability design feature, but has provided greater flexibility in its application. The

<sup>4</sup>Under the Nuclear Waste Policy Act of 1982, the Commission's technical criteria "shall include such restrictions on the retrievability of the solidified high-level radioactive waste and spent fuel in the repository as the Commission deems appropriate." Section 121(b)(1)(B). The criteria set forth in this rule represent the criteria which, for purposes of this provision, the Commission deems appropriate.

Section 122 of the Nuclear Waste Policy Act provides that, at the same time a repository is designed, DOE shall specify an appropriate period during which spent fuel could be retrieved for any reason pertaining to the public health and safety, or the environment, or for the purpose of permitting recovery of the economically valuable components of such spent fuel. The period of retrievability is subject to approval or disapproval by the Commission as part of the construction authorization process. Insofar as health and safety considerations are concerned, the Commission intends to grant such approval so long as its technical criteria are satisfied, and the Commission further intends to modify the licensing procedures to so specify.

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Commission recognizes that retrievability implies additional costs—more, perhaps, for some media and designs than for others—yet it believes this is an acceptable and necessary price to pay if it enables the Commission to determine with reasonable assurance, prior to an irrevocable act of closure, that the EPA standard will be satisfied.

### Level of Detail

The proposed rule contained general and detailed prescriptive requirements, derived from Commission experience and practice in licensing other facilities, with respect to the design and construction of a geologic repository. The Commission noted, however, that it was continuing to examine other possibilities for promulgating the more detailed of these requirements and it invited comments on the topic.

The public response included arguments addressed both to the level of detail generally and to specific criteria which were deemed to be unduly restrictive.

The Commission has concluded that there is merit in describing, in functional terms, the principal features which should be incorporated into geologic repository design—such as protection against dynamic effects of equipment failure, protection against fire and explosions, emergency capability, etc. Certain of these proposed criteria, however, such as those dealing with subsurface ventilation and shaft and borehole seals, were excessively detailed and, in some cases, inappropriate. At this stage of development, the Commission believes it should place emphasis upon the objectives that must be met and not become unduly concerned about the particular techniques that may be used in doing so. The changes that have been made are addressed in some detail in the section-by-section analysis of the rule.

### Population-Related Siting Criteria

The proposed rule did not include any siting requirements which dealt directly with population density or proximity of population centers to a geologic repository operations area. The Commission indicated its belief that a more realistic approach, given the long period of time involved, would be to address the issue indirectly through consideration of resources in the geologic setting.

The numerous comments submitted in response to the Commission's specific question on this issue fell generally into two categories—those that endorsed the proposed approach and those that argued that population factors were

important. The latter group addressed not only the geologic repository's long-term isolation capability, but also the relevance of population considerations in connection with the period when wastes are being received and emplaced.

The Commission is persuaded that population factors may need to be considered in connection with the period when wastes are being received and emplaced through evaluation of the adequacy of DOE's emergency plans. That section of the safety analysis report dealing with emergency planning (see § 60.21(c)(9)) will be reviewed on a case-by-case basis in the licensing process according to criteria that will be set forth in the future in Subpart I. (It should also be noted that under Section 112(a) of the Nuclear Waste Policy Act of 1982, DOE is required to develop guidelines that, among other things, will specify population factors that will disqualify a site from development as a repository. Issuance of those guidelines is subject to the concurrence of the Commission. The Commission has made no determination whether such guidelines, when issued, should in some manner be reflected in either the technical criteria or licensing procedures portions of 10 CFR Part 60).

Population distribution over the long term is immaterial if the geologic repository operates as anticipated. Demographic factors could nevertheless be of concern to the extent that they could increase the probability or the consequences of releases associated with unanticipated processes or events. As to probability, it is difficult to relate the likelihood of releases to population factors; it is the view of the Commission that it is more realistic, as originally stated, to reduce the probability by avoiding sites with significant resource potential and by using records and monuments to caution future generations. Consequences of unanticipated releases would be greater if they occur in densely populated areas. Nevertheless, it is the view of the Commission that it make little sense to attempt to limit such consequences by means of a population-related siting criterion, since long-range demographic forecasts are so inherently speculative and unreliable; instead, the Commission is taking the approach that releases that result from the occurrence of unanticipated processes and events must be evaluated and must satisfy the EPA standard.

While the Commission considers, based on the above, that the rule should not now contain explicit requirements, particularly numerical limits, on population density or distance from

population centers, it notes that considerations related to future human activities, particularly uses of groundwater, are an important source of uncertainty in assessing future performance of a geologic repository. The Commission would consider it a favorable condition if these sources of uncertainty, which would be affected by a large nearby population, were not present at a particular site. Therefore, the Commission has included in the final rule, as a favorable condition, a low population density within the geologic setting and a controlled area that is remote from population centers.

The Commission anticipates that the selection of a densely populated area would be unlikely even in the absence of express constraints in NRC regulations. For one thing, such a site would be disqualified under the guidelines to be developed under the Nuclear Waste Policy Act. Additionally, DOE will need to acquire interests in land within the controlled area and may have to have additional powers beyond the boundaries of the controlled area. These requirements may be difficult to satisfy unless a remote location is selected for the geologic repository.

### ALARA

The notice of proposed rulemaking requested comment on "whether an ALARA (as low as reasonably achievable) principle should be applied to the performance requirements dealing with containment and control of releases." Some commenters believed that ALARA should be applied to all licensed activities, and that no exception should be made for geologic repositories. Other commenters argued against incorporating ALARA, since the allowable releases under the EPA standard would already be so low as to eliminate any significant risk to public health and safety.

Based in part upon the standard recently proposed by EPA, the Commission considers it reasonable to anticipate that the permissible amounts of radioactivity in the general environment will be established at a very low level. In fact, the statement of considerations accompanying EPA's proposed rule explains that EPA has chosen to propose disposal standards that limit the risks to future generations to a level no greater than the risks which those generations would be exposed to from equivalent amounts of unmined uranium ore and thus, any risks to future generations from disposal of high-level wastes would be no greater than, and probably much less than, risks which those generations would face if the

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wastes had not been created in the first place. Efforts to reduce releases further would have little, if any, demonstrable value commensurate with their costs.

The EPA limits require the performance of geologic repositories to be effective over a long period of time. There will always be substantial uncertainties in predicting the long-term performance of geologic repositories. The Commission will insist upon the adoption of a variety of design features, tests, or other measures in order to be able to conclude with confidence that the EPA standard is met. The result may be the same as if the Commission were to impose similar requirements in the name of keeping releases as low as reasonably achievable. Given the substantial uncertainties involved with predicting long-term performance, the already low EPA limits and the already stringent geologic performance requirements, it is doubtful that the ALARA concept could be applied in a meaningful way.

When the Commission finds that certain measures are needed to improve confidence in dealing with uncertainties, it is making a substantial safety judgment. The same kinds of balancing that are undertaken in ALARA determinations may be appropriate. That is, if confidence in the performance of the geologic repository is sensitive to a particular source of uncertainty, it will be in order for the Commission to take into account both the significance of the factor involved and the costs of reducing or eliminating it.

In short, the Commission has concluded that the long-term performance requirements should not explicitly be tied to an ALARA principle, and the rule remains as it was when proposed. The Commission believes the concerns of the commenters in support of the ALARA approach will be largely accommodated in connection with its treatment of uncertainties in the course of the licensing process.

EPA's proposed rule (Part 191) indicates that appropriate measures must be taken, in light of the uncertainties involved in predicting repository performance, to assure that the "containment requirements" will be met. One of the measures identified by EPA would be the selection and design of disposal systems to keep releases to the accessible environment as small as reasonably achievable, taking into account technical, social, and economic considerations. The Commission is recommending to EPA that the assurance requirements, including the ALARA provision, be omitted from the final rule. The Commission emphasizes that its rules accommodate the

underlying concerns of EPA, as articulated in its statement of considerations, that measures must be taken to assure confidence that the numerical release limits will be met.

### Human Intrusion

The Commission observed, in the preamble of the proposed rule, that everything that is reasonable should be done to discourage people from intruding into the geologic repository. Those measures which its believed to be reasonable included directing site selection toward sites having little resource value and marking and documentation of the site. Beyond that, the Commission felt there would be no value in speculating on the "virtual infinity of human intrusion scenarios and whether they will or will not result in violation of the EPA standard." The Commission explained that inadvertent intrusion was highly improbable, at least for the first several hundred years during which time the wastes are most hazardous; and even if it should occur, it is logical to assume that the intruding society would have capability to assess the situation and mitigate consequences. The Commission recognized that deliberate intrusion to recover the resource potential of the wastes could result in elevated releases of radioactivity, but concluded that the acceptability of such releases was properly left to those making the decision to undertake resource recovery operations. It noted that comment on its proposal and alternative approaches would be welcome.

Commenters generally accepted the approach outlined. A number of commenters did emphasize the importance of intrusion scenarios as having the potential to lead to releases of radionuclides to the environment, but they suggested no alternative means for dealing with the prospect. One commenter correctly calls attention to the possibility of a third category of intrusion—that which is "intentional yet indifferent"—which was not covered in the earlier discussion of "inadvertent" or "deliberate" intrusion. This behavior presupposes knowledge (albeit imperfect) of the existence and nature of the geologic repository and a level of technology that could be applied to remedial action as well as to the intrusion itself, yet makes no judgment as to whether a societal decision has been made concerning the intrusion. The Commission has addressed this and other concerns in the revised language that is being adopted, as explained below.

Although the discussion accompanying the proposed rule

indicated that intrusion scenarios need not be considered, the rule itself was not explicit on this point. The Commission considers it necessary to clarify its position and, in doing so, allows for examination of intrusion under appropriate bounding conditions. After careful consideration of the public comments received on questions relating to human intrusion, the Commission is of the view that while the passive control measures it is requiring will reduce significantly the likelihood of inadvertent intrusion into a geologic repository, occasional penetration of the geologic repository over the period of isolation cannot be ruled out, and some provision should be made in the final rule for consideration of intrusion should these measures fail. Its objective is to provide a means for evaluating events that are reasonably of concern, while at the same time excluding speculative scenarios that are inherently implausible. The Commission will not require this generation to design for fanciful events which the Commission has an abiding conviction will never occur; on the contrary, it will grant a license if it is satisfied that the risk to the health and safety of future generations is not unreasonable.

The rule now incorporates a definition of "unanticipated processes and events" which are reviewable in a licensing proceeding; such processes and events expressly include intrusion scenarios that have a sufficiently high likelihood and potentially adverse consequence to exceed the threshold for review. The scenarios must be "sufficiently credible to warrant consideration." The Commission is requiring that certain assumptions be made in assessing this likelihood. First, the monuments required by the rule are assumed to be sufficiently permanent to serve their intended purpose. The Commission takes this position because of its confidence that monuments can be built to survive. While it assumes that the monuments will last, it does not automatically assume that their significance will continue to be understood. Second, the Commission requires an assumption that the value to future generations of potential resources can be assessed adequately at this time. Consistent with its previously stated views, it thinks that the selection of a site with no foreseeably valuable resources could so reduce the likelihood of intrusion as to reduce, or eliminate, any further need for it to be considered. Third, the Commission requires the assumption that some functioning institutions—though not necessarily those undertaking the intrusion—

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understand the nature of radioactivity and appreciate its hazards. The extent of intergenerational transfer of knowledge is, of course, debatable; it is conservative, in the light of human history to date, to predict this minimal level of information and to take it into account in assessing the likelihood that intrusion will occur. Fourth, the Commission provides that relevant records are preserved, and remain accessible, for several hundred years after permanent closure. While perhaps this period could not be justified on the basis of historic precedents alone, the Commission considers the required deposit in land records and archives, together with current data handling technology, to provide a sufficient basis for assuming that information about the geologic repository will continue to be available for several hundred years.

The definition of "unanticipated processes and events" also implicitly bounds the consequences of intrusion scenarios. This is accomplished not only by the assumption of continued understanding of radioactivity and survival of records, but also by the further assumptions that if there are institutions that can cause intrusion at depth in the first place, there will also be institutions able to assess the risk and take remedial action. It need not be assumed that today's technology would be used—merely that a level of social organization and technological competence equivalent to that applied in initiating the processes or events concerned would be available to deal with the situation.

It was suggested that another way to reduce the likelihood of human intrusion would be to adopt additional design criteria for the waste form or waste package. These would prohibit, or at least discourage, the emplacement of materials which themselves might attract recovery operations—for example, operations to recover the residual energy resource value in spent fuel or scarce and expensive materials in the waste package. But, under the definition of "unanticipated processes and events" in the final rule, intrusion for such purposes would have to be reviewed in the licensing process if the particular circumstances are sufficiently credible to warrant consideration. This imposes a reasonable constraint. The Commission believes that any further limitation would unduly interfere with the flexibility of DOE as a designer and could, in the case of spent fuel disposal, conflict with other national objectives.

In summary, the Commission has retained the principle that highly speculative intrusion scenarios should

not be allowed to become the driving force in license reviews, but has introduced some flexibility to permit consideration of intrusion on a case-by-case basis where circumstances warrant.

### Other Principal Changes in the Final Rule Anticipated/Unanticipated Processes and Events

The proposed rule defined anticipated processes and events as "those natural processes and events that are reasonably likely to occur during the period the intended performance objective must be achieved and from which the design bases for the engineered system are derived." At the same time, the Commission was requiring that the facility be designed so as to assure that long-term releases conform to standards established by EPA. The statement of considerations pointed out that if the process or event is unlikely, the overall system must still limit the release consistent with the EPA standard as applied to such events. This created a contradiction because on the one hand it was stated that the design bases should be derived from anticipated processes and events while, on the other hand, the design was to meet an EPA standard as applied to what was unanticipated.

The Commission has resolved this conflict by eliminating the reference to design bases from the definition of "anticipated processes and events." It has also included a definition of "unanticipated processes and events." In the final rule, numerical performance objectives are established for particular barriers, assuming "anticipated processes and events." Such numerical criteria are not established for "unanticipated processes and events." Rather, additional requirements may be found to be necessary to satisfy the overall system performance objective as it relates to unanticipated processes and events.

It should be noted that the distinction between anticipated and unanticipated processes and events relates solely to natural processes and events affecting the geologic setting. The Commission intends that a judgment whether a natural process or event is anticipated or unanticipated be based upon a careful review of the geologic record. Such processes or events would not be anticipated unless they were reasonably likely, assuming that processes operating in the geologic setting during the Quaternary Period were to continue to operate but with the perturbations caused by the presence of emplaced waste superimposed thereon. Unanticipated processes and events

would include those that are judged not to be reasonably likely to occur during the period the intended performance objective must be achieved, but which nevertheless are sufficiently credible to warrant consideration. These include processes and events which are not evidenced during the Quaternary period or which, though evidenced during the Quaternary, are not likely to occur during the relevant time frame. Identification of anticipated and unanticipated processes and events for a particular site will require considerable judgment and will not be amenable to accurate quantification, by statistical analysis, of their probability of occurrence.<sup>5</sup>

Because the design basis for the engineered barrier system will be derived from the identification of anticipated and unanticipated processes and events, such identification will have a pervasive effect on the basic structure of the licensing proceedings. The Commission therefore contemplates directing that rulings made in the course of construction authorization hearings on the scope of anticipated and unanticipated processes and events be separately identified by the presiding officers and certified to the Commission for interlocutory review, pursuant to 10 CFR 2.718(i).

The license review will thus need to include a determination whether the proposed activities will meet the EPA standard as applied to anticipated processes and events and as applied to such unanticipated processes and events, if any, as have been found to warrant consideration. Each determination will be made in the light of assessments which will involve interpretation of the geologic record and consideration of credible human-induced events as bounded by the assumptions set forth above. Worst-case scenarios would be analyzed to the extent they may be encompassed by the definition of unanticipated processes and events. Complex quantitative models will need to be employed, and a wide range of factors considered in arriving at a determination of whether there is reasonable assurance, making allowance for the time period and

<sup>5</sup> The Commission views the proposed EPA standard as being directed to the evaluation of releases arising out of the categories that we have defined as "anticipated processes and events" and "unanticipated processes and events." As EPA itself recognizes, there can only be estimates rather than rigorous demonstrations of probabilities of occurrence. The Commission's translation of the EPA language into qualitative terms provides a clearer basis for judging, under the Atomic Energy Act, whether there is unreasonable risk to the health and safety of the public.



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hazards involved, that the EPA standard will be met. There are two principal elements that will go into the Commission's application of this "reasonable assurance" concept. First, the performance assessment which has been performed must indicate that the likelihood of exceeding the EPA standard is low. Second, the Commission must be satisfied that the performance assessment is sufficiently conservative, and its limitations are sufficiently well understood, that the actual performance of the geologic repository will be within predicted limits.

### *Transuranic Waste (TRU)*

The proposed rule included a definition of transuranic waste and performance objectives that would apply to the disposal of TRU in a licensed geologic repository. This was widely misconstrued as a requirement that radioactive material conforming to the definition must be disposed of in this manner. This was not the intention, nor in fact did the rule so specify. Rather, the Commission was merely indicating what performance objectives would apply if TRU were disposed of in a licensed geologic repository. Some commenters also took exception to the definition of TRU in the rule.

Whether or not a geologic repository is subject to licensing depends upon the applicability of Sections 202(3) and 202(4) of the Energy Reorganization Act of 1974. (See definition of "HLW facility.") If a facility is licensed, then the Commission must consider the radiological hazards associated with whatever wastes may be emplaced. The Commission attempted, in the proposed rule, to address the requirements for one such kind of waste—TRU. But the Commission was too restrictive, in that its definition of TRU was too limited for present purposes and in that wastes other than HLW and TRU were not covered at all. For the time being, the Commission has concluded that the matter is best handled by eliminating all references to TRU. The remaining performance objectives provide adequate guidance to deal with TRU-related issues that may arise.

The Commission has also reviewed the waste package requirements, which as originally written would have applied to all emplaced radioactive wastes. It is appropriate to include such requirements for HLW, which must necessarily be disposed of in a licensed facility. Since the Commission does not know what other radioactive wastes, if any, will also be emplaced, and what their chemical, radiological, thermal, and other characteristics may be, it has

decided to leave pertinent waste package requirements to be determined on a case-by-case basis as the need arises.

### *Siting Criteria*

Although provisions relating to site characteristics have been revised, the Commission has retained the same two basic concepts. First, a site should exhibit an appropriate combination of favorable conditions, so as to encourage the selection of a site that is among the best that reasonably can be found. By referring to a "combination" of conditions, it implies that the analysis must reflect the interactive nature of geologic systems. Second, any potentially adverse conditions should be assessed in order to assure that they will not compromise the ability of the geologic repository to meet the performance objectives. It is important to recognize that a site is not disqualified as a result of the absence of a favorable condition or the presence of a potentially adverse condition. The Commission emphasizes this point here because several commenters who characterized the siting criteria as unduly restrictive failed to appreciate that the presence of potentially adverse conditions would not exclude a site from further consideration while others mistakenly assumed that favorable conditions were requirements.

The changes do not reflect any departure from the Commission's original philosophy, but they are designed to express its purpose more clearly. Thus, its interest in specifying that the geologic setting shall have exhibited "stability" since the start of the Quaternary Period was to assure only that the processes be such as to enable the recent history to be interpreted and to permit near-term geologic changes to be projected over the relevant time period with relatively high confidence. This concept is best applied by identifying, as potentially adverse conditions, those factors which stand in the way of such interpretation and projection; this is the approach the Commission has chosen to follow.

One revision is the elimination of the classification of potentially adverse conditions into one set pertaining to the "geologic setting" (corresponding to "site" in the final rule) and one set pertaining to the "disturbed zone." The Commission has determined that by defining these conditions as potentially adverse only when they occur in the site or disturbed zone, respectively, some significant factors bearing upon waste isolation may not be assessed. The Commission has changed the siting criteria, therefore, so that the presence

of any of the enumerated conditions is to be regarded as potentially adverse if it applies to the controlled area and, in addition, such a condition outside the controlled area is to be regarded as potentially adverse if it may affect isolation within the controlled area.

Another change, discussed under *Single vs. Multiple Performance Standards*, may have the effect of increasing the importance of the geological conditions. Under the final rule, the performance objectives for the engineered barrier system (§ 60.113(a)(1)) may be adjusted, on a case-by-case basis, if the overall system performance objective, as it relates to anticipated processes and events, is satisfied. This feature of the final rule may provide the designer additional incentive to select the site so as to maximize its isolation capabilities.

The Commission's review of the siting criteria, as modified, has led it to conclude that the isolation capabilities of the geologic repository will be given the emphasis that they merit. This review has included a consideration of suggestions that the rule require that the slate of sites be among the best that can be found on the basis of geological factors alone and that the geologic characteristics of the site provide the highest reasonably available degree of the site's isolation capabilities. These topics are discussed below, under the heading *Geologic Conditions*.

A detailed review of the siting criteria is contained in the Section-by-Section Analysis.

### *Containment*

Several commenters took exception to the performance objective calling for a design of the waste packages to "contain all radionuclides" for a specified period after permanent closure. The objections were: first, that 100% performance cannot be expected in view of the very large number of containers that may be emplaced; second, that 100% performance cannot be justified as being needed in order to meet any likely EPA standard; and, third, that the adequacy of design to contain "all" radionuclides for long

\* Under Section 112(a) of the Nuclear Waste Policy Act of 1982, DOE is required to develop guidelines for the recommendation of sites for repositories. Among other things, such guidelines are to "specify detailed geologic considerations that shall be primary criteria for the selection of sites in various geologic media." Issuance of these guidelines is subject to the concurrence of the Commission. The Commission has made no determination whether such guidelines, when issued, should in some manner be reflected in either the technical criteria or licensing procedures portions of 10 CFR Part 60.

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periods of time is not demonstrable. The commenters failed, in part, to recognize that under the specified standard of proof (see *Reasonable Assurance*, below), the applicant would not be forced to carry an impossible burden. Nevertheless, since the Commission does not expect proof that literally all radionuclides will be contained, the performance objective now requires design so that containment of HLW within the high-level waste packages will be "substantially complete" for the specified period.

### Terminology

Several commenters criticized, as vague or confusing, the terms used by the Commission to describe the various geographical locations that are addressed by the rule. There are many such locations—and there must be—because the Commission must deal with different concerns during site characterization, during operations, and after permanent closure. The Commission has nevertheless attempted to clarify the terms. In addition to the significant changes reviewed here, see also the discussion in the Section-by-Section Analysis.

**Accessible Environment/Controlled Area.** The isolation capability of a geologic repository is evaluated at a boundary which the Commission has referred to as the "accessible environment." Under the proposed rule, this was defined as "portions of the environment directly in contact with or readily available for use by human beings." Several commenters criticized this definition as being excessively vague; further, the definition failed to assure that the isolation capability of the rock surrounding the underground facility would be given appropriate weight in licensing reviews.

The Commission agrees with the criticism and has revised the definition in several respects—most importantly by excluding from the accessible environment that portion of the lithosphere that is inside what the Commission is calling, in the final rule, a "controlled area." This is an area marked with monuments designed to caution future generations against subsurface penetrations. The size and shape of the controlled area will depend upon the characteristics of the particular geologic repository, but it must be small enough to justify confidence that the monuments will effectively discourage subsurface disturbances. The Commission has therefore limited the size of the controlled area so that it extends no more than 10 kilometers from the emplaced waste. The term "accessible environment" also appears

in the proposed EPA standard. The Commission has used the EPA language as a starting point—for example, in specifying the surface locations that are part of the accessible environment. But there is an important difference between the two definitions, in that EPA includes in the accessible environment only those parts of the lithosphere that are more than 10 kilometers from the emplaced waste, whereas NRC may include parts of the lithosphere that are less than 10 kilometers from the emplaced waste, depending on the extent of the "controlled area" for a geologic repository. In other words, the accessible environment may be larger under 10 CFR Part 60 than might be the case under the proposed EPA Standard. The two definitions are nevertheless consistent in the sense that if the isolation requirements are satisfied at the boundary of the accessible environment specified by 10 CFR Part 60, they will necessarily be satisfied at the boundary defined by EPA as well.

Both technical and legal considerations have influenced the Commission's decision not to adopt an unqualified 10-kilometer standard. The technical consideration is that uncertainties about activities that may be undertaken in the area outside the controlled area are so great that the Commission would not be warranted in giving credit to the isolation capability of the undisturbed lithosphere there. The legal consideration is that the standards established by EPA are to apply outside the boundaries of locations controlled by NRC licensees, and in the context of 10 CFR Part 60 this refers most appropriately to the "controlled area" as defined by the regulation. The Commission believes that the final rule is fully responsive to the concerns of the commenters while conforming as well to the policies underlying EPA's proposed standard.

**Geologic Setting.** The proposed rule limited this term to systems that provide isolation of the waste. This is too restrictive a definition to cover the wider region of interest which the Commission seeks to encompass by "geologic setting." The definition has accordingly been extended to include the geologic, hydrologic, and geochemical systems of the region in which a geologic repository operations area is or may be located.

**Site.** "Site" had been defined in the proposed rule as being equivalent to "geologic setting." This was appropriate where geologic setting referred to an area having isolation capability. In the final rule, isolation is to be provided within a controlled area rather than

within the geologic setting and accordingly "site" now refers to the location of this controlled area.

**Decommissioning.** As used in the proposed technical criteria, the term "decommissioning" was intended to apply to that stage at which the underground facility was closed and shafts and boreholes were sealed. It was these activities that were addressed in § 60.51, "License amendment to decommission." This intention is better expressed by employing the term "permanent closure." Several commenters on the proposed rule expressed the opinion that including the requirement for dismantlement of all surface facilities in the definition of the term "decommissioning" may be unnecessary and overly restrictive. Upon consideration of these comments the Commission believes that where there is a need to refer to decontamination or dismantlement of surface facilities, this can readily be done without referring to "decommissioning."

Accordingly, references to "decommissioning" with one exception (see § 60.132(e)), have been deleted from the rule, and the language now refers to "permanent closure" or to "decontamination or dismantlement of surface facilities," as appropriate.

**Important to Safety.** In response to public comments on Part 60, the NRC has adopted a numerical criterion for determining which structures, systems and components are important to safety. Structures, systems, and components are important to safety if, in the event they fail to perform their intended function, an accident could result which causes a dose commitment greater than 0.5 rem to the whole body or any organ of an individual in an unrestricted area.<sup>7</sup> The value of 0.5 rem is equal to the annual dose to the whole body of an individual in an unrestricted area that would be permitted under 10 CFR Part 20 for normal operations, the same as permitted for normal operations of certain other activities licensed by NRC. Such systems, structures, and components would be subject to additional design requirements and to a quality assurance program to ensure that they performed their intended functions. The choice of 0.5 rem in this instance should not be construed as implying that it would be appropriate if applied to any other types of activities subject to regulation by the Commission.

<sup>7</sup> 10 CFR Part 50, Appendix A, uses the term "important to safety" in a different context for nuclear power plants. The 10 CFR Part 60 definition does not supersede the 10 CFR Part 50 definition in nuclear power application.

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(The permissible annual dose in unrestricted areas—now 0.5 rem—is currently under review. The Commission contemplates that if this dose limit were to be revised, a corresponding change would be considered here.)

In the final rule, the term "important to safety" applies solely to the functioning of structures, systems, and components during the period of operations prior to repository closure. The proposed rule had also applied this term to structures, systems, and components which must function in a particular way in order to meet the long-term isolation objective after repository closure. In the final rule, this latter group, which is intended to meet the design criteria that address long-term performance, is characterized as "important to waste isolation." Quality assurance requirements apply to structures, systems, and components equally whether they be "important to safety" or "important to waste isolation."

### Discussion of Other Comments

These issues raised by commenters merit discussion here even though they have resulted in no change to the rule.

### Comparative Safety Analyses

Several commenters took exception to the proposed requirement that the safety analysis report include a comparative evaluation of alternatives to the major design features that are important to radionuclide containment and isolation, [now termed "important to waste isolation"], on the ground that a safety analysis should be directed at the specific design being proposed. As a general principle, the commenters are correct. In the context of licensing activities at a geologic repository operations area, however, the Commission thinks it is well within its discretion to seek the requested information. If the Commission finds, on the basis of its review, that the adoption of some alternative design feature would significantly increase its confidence that the performance objectives would be satisfied, and that the costs of such an approach are commensurate with the benefits, it should not hesitate to insist that the alternative be so adopted. This is consistent with the views expressed above in the discussion of the ALARA principle and, also, with the provisions of the revised performance objectives which contemplate that the performance objectives for particular barriers are subject to modification, on a case-by-case basis, as needed to satisfy applicable EPA standards.

### Unsaturated Zone

The Commission had explained that the proposed criteria were developed for disposal in saturated media, and that additional or alternative criteria might need to be developed for regulating disposal in the unsaturated zone. Accordingly, the performance objective for the engineered barrier system (proposed § 60.111(b)(2)(i)) was written so as to require the assumption of full or partial saturation of the underground facility and the favorable and potentially adverse conditions concerned only siting in the saturated zone.

This approach was criticized on the basis that disposal in the unsaturated zone was a viable alternative, and that since the criteria were generally applicable without regard to the possibility of saturations, their scope and applicability should not be unduly restricted. The Commission has reviewed the criteria in the light of the comments and finds this criticism to be well-founded. Although the criteria as written are generally appropriate to disposal in both the saturated zone and the unsaturated zone, some distinctions do need to be made. Rather than promulgating the criteria which will apply to the unsaturated zone at this time, the Commission will shortly issue such criteria in proposed form so as to afford a further opportunity for public comment. However, those criteria that are uniquely applicable to the saturated zone are so indicated.

### Geologic Conditions

One commenter recommended that the rule should require that the slate of sites characterized by DOE be among the best that can reasonably be found on the basis of geological factors alone. The Commission did indicate, when it adopted licensing procedures, that the site characterization requirements will assure that DOE's preferred site will be chosen from a slate of sites that are among the best that reasonably could be found. The standard proposed by the commenter is quite different. The Commission intended that DOE should be able to take into account a variety of non-geological considerations in its screening process. It could properly exclude such locations as: (1) Areas, such as national parks and wilderness, devoted to other paramount uses, (2) locations which would be subject to unusually severe environmental and socioeconomic impacts, and (3) locations where necessary surface, mineral, and water rights may be obtainable only at great expense and with severe dislocating effects on

residents. The Commission considers the rule, as written, properly conveys its meaning on this score.

The same commenter urged it to require a demonstration that the geologic characteristics of the chosen site proved the highest reasonably achievable degree of enhancement of the waste isolation capabilities of the geologic repository. Again, the Commission declines to accept the suggestion. In the first place, it anticipates that DOE would on its own initiative strive to maximize isolation capabilities in order to demonstrate more conclusively the facility's compliance with the performance objectives and other technical criteria. Beyond this, however, the Commission believes the proposal could have undesirable and unintended consequences. Maximizing isolation capabilities could dictate development at one particular location instead of at another a few miles away; this could result in the same kind of adverse environmental or other effects as were described above. Furthermore, adherence to the proposed standard could unduly interfere with, or increase the cost of, achievement of other goals, such as maintenance of retrievability, providing for worker safety, etc.

There were other related comments which argue that the Commission's approach places too great an emphasis on engineered barriers and provides insufficient incentive to select a site with optimal geologic and hydrologic characteristics. The Commission considers both engineered and natural barriers to be important, and it has structured the technical criteria in a manner that demands not only the use of advanced engineering methods, but also selection of a site with an excellent isolation capabilities. As explained in the discussion of *Reasonable Assurance*, below, uncertainties in the models used in the analysis of repository performance must be considered in the Commission's deliberations on the issuance of a construction authorization or license. Selection of a site with favorable geologic conditions will greatly enhance the Commission's ability to make the prescribed findings. Moreover, since the final rule provides flexibility for the Commission to approve or specify performance objectives for the engineered barriers on a case-by-case basis, the applicant is afforded still a further incentive to pick a site in which the host rock has favorable geochemical characteristics or in which other particular sources of uncertainty about hydrogeologic conditions are

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substantially reduced. But in any event, the Commission anticipates that a high standard of engineering will be necessary—not only to compensate for geologic uncertainties at even the best reasonably available sites, but perhaps also to mitigate the consequences of unanticipated processes and events (including potential intrusion) during the years when fission product inventories remain high.

Although the Commission agrees with the underlying appraisal of the commenters that the isolation capabilities of the site play a key role in assuring that the performance objectives will be met, it finds no reason to change the rule's approach.

### *Reasonable Assurance*

The proposed rule stated that with respect to the long-term objectives and criteria under consideration, "what is required is reasonable assurance, making allowance for the time period and hazards involved, that the outcome will be in conformance with those objectives and criteria." A number of commenters took exception to this formulation on the ground that it provides inadequate guidance as to the required level of proof. Others were concerned that "reasonable assurance" was too weak a test and that the Commission should not license DOE activities without a "high degree of confidence" that releases would be very small. Some commenters suggested that a statistical definition of acceptability should be employed. For the reasons set forth below, the Commission has not modified the language.

In the Commission's view, the "reasonable assurance" standard neither implies a lack of conservatism nor creates a standard which is impossible to meet. On the contrary, it parallels language which the Commission has applied in other contexts, such as the licensing of nuclear reactors, for many years. See 10 CFR 50.35(a) and 50.40(a). The reasonable assurance standard is derived from the finding the Commission is required to make under the Atomic Energy Act that the licensed activity provide "adequate protection" to the health and safety of the public; the standard has been approved by the Supreme Court. *Power Reactor Development Co. v. Electrical Union*, 367 U.S. 396, 407 (1961). This standard, in addition to being commonly used and accepted in the Commission's licensing activities, allows the flexibility necessary for the Commission to make judgmental distinctions with respect to quantitative data which may have large

uncertainties (in the mathematical sense) associated with it.

The Commission has not modified the language, but has explained elsewhere (see *Anticipated/Unanticipated Processes and Events*, above) how the concept will be applied. The Commission expects that the information considered in a licensing proceeding will include probability distribution function for the consequences from anticipated and unanticipated processes and events. Even if the calculated probability of meeting the Commission's standards is very high that would not be sufficient for the Commission to have "reasonable assurance"; the Commission would still have to assess uncertainties associated with the models and data that had been considered. This involves qualitative as well as quantitative assessments. The Commission would not issue a license unless it were to conclude, after such assessments, that there is reasonable assurance that the outcome will in fact conform to the relevant standards and criteria.

It is important to keep in mind this distinction between, first, a standard of performance and, second, the quality of the evidence that is available to support a finding that the standard of performance has been met. In principle, there is no reason why the first of these—the performance standard—cannot be expressed in quantitative terms. The rule does this in several places—notably, in including as performance objectives a designed containment period, a radionuclide release rate, and a pre-waste-emplacement groundwater travel time. Similarly, EPA's standard will establish limits on concentrations or quantities of radioactive material in the general environment.

Expressing a requisite level of confidence in quantitative terms is far more problematical. To be sure, measurement uncertainties are amenable to statistical analyses. Even though there may be practical limitations on the accuracy and precision of measurements of relevant properties, it is possible to make some quantitative statement as to how well these values are known. The licensing decisions which the Commission will be called upon to make involve additional uncertainties—those pertaining to the correctness of the models being used to describe the physical systems—which are not quantifiable by statistical methods. Conclusions as to the performance of the geologic repository and particular barriers over long periods of time must largely be based upon

inference; there will be no opportunity to carry out test programs that simulate the full range of relevant conditions over the periods for which waste isolation must be maintained.

The validity of the necessary inferences cannot be reduced, by statistical methods, to quantitative expressions of the level of confidence in predictions of long-term repository performance. Similarly, the Commission will not be able to rigorously determine the probability of occurrence of an outcome that fails to satisfy the performance standards. It must use some other language, such as "reasonable assurance," to characterize the required confidence that the performance objectives will be met. In practice, this means that modeling uncertainties will be reduced by projecting behavior from well understood but simpler systems which conservatively approximate the systems in question. Available data must be evaluated in the light of accepted physical principles; but, having done so, the Commission must make a judgment whether it has reasonable assurance that the actual performance will conform to the standards the Commission has specified in this rule.

It should also be borne in mind that the fact-finding process is an administrative task for which the terminology of law, not science, is appropriate. The degree of certainty implied by statistical definition has never characterized the administrative process. It is particularly inappropriate where evidence is "difficult to come by, uncertain or conflicting because it is on the frontiers of scientific knowledge." *Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C. Cir. 1976).

### *Population vs. Individual Dose*

Some commenters noted that the performance objectives are derived from an assumed EPA standard that is based upon consideration of doses to populations as a whole rather than to the maximally exposed individual. Several other analyses of repository design have examined prospective requirements in terms of keeping individual doses below specified values, and as a consequence have led to different conclusions. The differences represent a source of potential uncertainty regarding the overall goal for safety performance. However, the resolution of this question is a matter within the province of EPA. The Commission has assumed that the EPA approach will be based upon population dose, since that is the direction reflected in its working documents and its

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recently proposed standard. The Commission's rule, especially as modified to allow performance objectives for particular barriers to be adapted in the light of the EPA standard, can be applied whether the overall safety goal is expressed in terms of total releases to the environment or in terms of maximum dose to an individual or maximum concentration at any place or time.

If EPA were to establish a standard based upon individual doses, the Commission would review the provisions dealing with the content of the license application (§ 60.21) so as to develop requirements for any additional analyses that might be needed to evaluate site-specific pathways for released radionuclides to reach humans.

### *Long-Term Post-Closure Monitoring*

Several of the commenters suggested that the performance confirmation program be required to be continued for as long as one thousand years after permanent closure of the underground facility. The Commission considers such measures unnecessary and unlikely to provide useful information on the performance of a geologic repository. The multiple barrier approach the Commission has adopted will result in containment of substantially all of the radioactive materials within the waste packages for centuries after permanent closure, the feasibility of obtaining reliable data on subsurface conditions over a period of centuries is questionable, and the practicality of taking remedial action after sealing of the shafts is doubtful. Moreover, the emplacement of remote subsurface monitoring instruments and the provision of data transmission capabilities, could provide additional pathways for release that would make it more difficult to achieve isolation. Rather, the Commission has adopted an approach where the retrievability option is maintained until a performance confirmation program can be completed that will allow the Commission to decide, with reasonable assurance, that permanent closure of the facility, with no further active human intervention with the emplaced wastes, will not cause an unreasonable risk to public health and safety. See also, *Retrievability*, above.

### *Section-by-Section Analysis*

The final rule included numerous changes that reflect the considerations discussed above. Other changes, not involving significant policy issues, have also been incorporated in the final rule. The following section-by-section analysis identifies the changes from the

proposed rule and includes an appropriate explanation for the revisions not previously discussed. Principal references are to the text of the final rule. Where the counterpart provision of the proposed (or procedural) rule appeared in a different place, that citation is given in brackets.

### *Section 60.2 Definitions.*

"Accessible environment." See *Accessible Environment/Controlled Area*, above.

"Anticipated processes and events." See *Anticipated/Unanticipated Processes and Events*, above.

"Candidate area." This term is unchanged, but will be considered again in connection with the Commission's review of the licensing procedures in the light of the Nuclear Waste Policy Act.

"Controlled area." New. See *Accessible Environment/Controlled Area*, above.

"Decommissioning." Deleted. See *Decommissioning*, above.

"Disposal." The undefined term "biosphere" has been changed to "accessible environment." As used in these rules, "isolation" refers specifically to radioactive materials entering the accessible environment. The definition here is related to the concept of isolation rather than to the concept of emplacement, as in Section 2(9) of the Nuclear Waste Policy Act; the Commission believes that in each instance the term is defined in a manner appropriate to its context, and that the differences in the definitions will not result in confusion or conflict.

"Disturbed zone." The term "disturbed zone" has been modified to relate changes in the physical or chemical properties of the controlled area to the performance of the geologic repository.

"Engineered barrier system." This term refers to the system for which containment and release rate requirements are specified. It does not include the shafts and boreholes, and their seals. The proposed rule referred instead to "engineered systems," a term that was misleading because it could be understood to include shaft and borehole seals. However, the Commission recognizes that as used in the Nuclear Waste Policy Act of 1982, the related term "engineered barriers" might be construed to include shaft and borehole seals. The NRC will review whether the definition requires change in light of the Nuclear Waste Policy Act. Preliminary review does not indicate a need for change in this definition.

"Far field." The term "far field" has been deleted from the rule. Therefore, the definition is no longer necessary.

"Floodplain." Deleted. This definition was taken from Executive Order 11988, which relates to environmental consequences of occupancy and modification of floodplains. Those effects need to be considered as part of the Commission's environmental review, but they do not implicate the radiological concerns that are addressed in Part 60. The term "floodplain" still appears in § 60.122(c)(1). However, rather than establishing any particular frequency as the means for defining its extent, the Commission will allow the factors specified in § 60.122(a)(3) to be used in assessing the significance of flooding, whenever it may occur.

"Geologic repository." Clarifying change, to bring the terminology into line with common usage. The new definition includes only that portion of the geologic setting that provides isolation—not the entire geologic setting. The term, as defined, is considered to be synonymous with "repository" as defined at Section 2(18) of the Nuclear Waste Policy Act. (The added clause "or may be used for" conforms to the statutory definition as well as the definition in existing Part 60).

"Geologic setting." See *Terminology*, above. The phrase "spatially distributed" was superfluous and has been deleted.

"High-level radioactive waste." The Nuclear Waste Policy Act distinguishes between "high-level radioactive waste" and "spent nuclear fuel." These technical criteria are applicable equally to both categories. Accordingly, no change in the definition of high-level radioactive waste is required at this time.

"Important to safety." See *Important to Safety*, above.

"Medium" or "geologic medium." Deleted. For the sake of clarity, the term "medium" is now replaced by "geologic medium" throughout the rule. Since the term "geologic medium" should be sufficiently clear to the professional community, it no longer appears necessary to define it.

"Overpack." This term has been deleted. Because the overpack could be a component of the waste package, it was included in the definition of the term "waste package." However, this term is not used in the final rule.

"Performance confirmation." The final rule's performance objective with respect to retrievability of the waste refers to the completion of a performance confirmation program and Commission review of the information obtained from such a program. The addition of this definition is intended to

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clarify the intended purpose of the performance confirmation program.

"Permanent closure." New. See

*Decommissioning*, above.

"Restricted Area." New. See

*Important to Safety*, above.

"Retrieval." New. See *Retrievability*, above.

"Saturated zone." New. Since the performance objectives in the final rule specifically refer to disposal in the saturated zone, a definition derived from Water Supply Paper 1988 (U.S.G.S., 1972) has been included.

"Site." See *Terminology*, above.

"Stability." Deleted. See *Siting Criteria*, above. Also, *Section by Section Analysis*, § 60.113, below.

"Subsurface facility." Deleted. Both "subsurface facility" and "underground facility" were defined in the proposed rule. The use of the two closely similar terms resulted in some confusion.

"Subsurface facility" has been deleted and replaced (see definition of "Permanent closure") by explicit reference to shafts and boreholes, as well as the underground facility, where appropriate.

"Transuranic wastes." Deleted. See *Transuranic Waste*, above.

"Unanticipated processes and events." New. See *Human Intrusion*, above.

"Waste form." Clarifying change to bring terminology into line with common usage.

"Waste package." Revised. Commenters questioned the clarity of this proposed definition and one commenter suggested an alternative definition. One commenter misinterpreted the proposed definition to require that the outermost component of the waste package be an airtight, watertight sealed container. The revised definition no longer uses the terms "discrete backfill" or "overpack," which were ambiguous. To the extent that absorbent materials or packing are placed around a container to protect it from corrosion by groundwater, or to retard the transport of radioactive material to the host rock, these materials would be considered part of the waste package. However, while the final rule no longer imposes a requirement for an airtight, watertight, sealed container as part of the waste package, the Commission believes it likely that DOE will incorporate such a component into the design of the waste package in order to meet the performance objectives for the engineered barrier system for the period following permanent closure. The related terms "disposal package" and "package," as defined at Section 2(10) of the Nuclear Waste Policy Act, include

unspecified overpacks; for purposes of the Commission's rules, and specifically in connection with the performance objective set out at § 60.113(a)(1)(ii)(A), a more precise definition is needed. The differences in the definitions will not, in the judgment of the Commission, result in confusion or conflict.

"Water table." New. Required because the term appears in the definition of "saturated zone." The definition is derived from Water Supply Paper 1988 (U.S.G.S., 1972).

### *Section 60.10 Site characterization.*

One amendment clarifies the point that investigations shall be conducted in such a manner as to limit adverse effects; the original language could have been construed to mean that the purpose of the investigations was to limit such effects. The provision calling, as a minimum, for the selection of borehole locations to limit subsurface penetrations was said to be confusing; the revision, which expresses the Commission's intention more clearly, includes a phrase that emphasizes that the number of penetrations must be adequate to obtain needed site characterization data. References to the "repository" have been replaced by terms that are more appropriate in their context.

### *Section 60.11 Site characterization report.*

The ambiguous term "repository" has been replaced by defined terms ("geologic repository operations area" and "geologic repository") as appropriate in the context (in § 60.11(a)(6)(ii)).

### *Section 60.21 Content of application.*

#### *Section 60.21(c)(1)*

Proposed § 60.21(c)(1) called for information regarding subsurface conditions "in the vicinity of the proposed underground facility." This has been clarified to refer to the controlled area and to other areas to the extent that subsurface conditions there may affect isolation within the controlled area.

#### *Section 60.21(c)(1)(i)*

The requirement for analysis of potential pathways has been extended to include "potentially permeable features" whether or not they are, as stated in the proposed rule, "permeable anomalies." Whether the feature is actually permeable or anomalous is not the point; what matters is the potential permeability.

The adjective "bulk," as applied to geomechanical, hydrogeologic, and

geochemical properties, has been deleted as ambiguous and confusing.

#### *Section 60.21(c)(1)(ii)(A)*

Clarifying change to include analysis of climatology as well as meteorology.

#### *Section 60.21(c)(1)(ii)(B) [§ 60.123(b)]*

This paragraph concerns analyses of the favorable and potentially adverse conditions listed in § 60.122. The addition of language pertaining to the depth and breadth of investigations assures that the information needed to analyze these conditions will be available for NRC review. This is a modification of proposed § 60.123(b) for conduct of such investigations. The modification ties the extent of investigations to effects of potentially adverse conditions on waste isolation within the controlled area, rather than to specified distances, as originally proposed.

#### *Section 60.21(c)(1)(ii)(C)*

References to "expected" performance and releases have been deleted from § 60.21(c)(1)(ii)(C) because, as revised, the evaluation must also take into account the assumed occurrence of unanticipated processes and events. Since the performance objectives provide for consideration of unanticipated processes and events, relevant information must be included in the safety analysis report. The evaluation is limited to periods after permanent closure, as the option to retrieve the wastes is available earlier.

#### *Section 60.21(c)(1)(ii)(D) [§ 60.21(c)(3)(iii)]*

This paragraph reflects text that formerly was in § 60.21(c)(3). The latter paragraph relates to structures, systems, and components "important to safety." The term "important to safety," as used in the final rule, pertains to the period of operations. Because the requirement for evaluating the effectiveness of the barriers was directed to questions regarding containment and isolation, it was relocated so as to place it in the proper context.

#### *Section 60.21(c)(1)(ii)(E) [§ 60.21(c)(1)(ii)(D)]*

This paragraph, as proposed, was duplicative insofar as it related to performance of the geologic repository after permanent closure. It has therefore been revised so as to pertain solely to identification of structures, systems, and components important to safety. [As in § 60.21(c)(1)(ii)(C) reference to "expected" has been deleted as confusing.]



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### *Section 60.21(c)(1)(ii)(F) [§ 60.21(c)(1)(ii)(E)]*

This paragraph has been revised to require that analyses and models used to predict future conditions and changes in the geologic setting be "supported by" rather than "confirmed by" an appropriate combination of methods such as enumerated in the rule. Such support concerns not only the reliability of the codes themselves, but also the representativeness of the models with respect to the physical conditions of the site. The Commission recognizes that confirmation, in the strict sense, is not achievable. The term "field verified laboratory tests" has been clarified to read "laboratory tests which are representative of field conditions."

### *Section 60.21(c)(4)*

Section 60.21(c)(4) has been amended to reflect the limitation on the scope of "important to safety." The footnote reference to 10 CFR Part 50 has been deleted because of the cross-reference contained in Subpart G.

### *Section 60.21(c)(8)*

Section 60.21(c)(8) required a description of controls to restrict access. After permanent closure, monuments will be an important control. The paragraph has been amended to require that a conceptual design of such monuments be provided.

### *Section 60.21(c)(9) and § 60.21(c)(11)*

Conforming changes required by elimination of the term "decommissioning."

### *Section 60.21(c)(13)*

The changes in this paragraph reflect the revised definitions of "geologic setting," "site," "geologic repository," and "disturbed zone." No substantive change is intended.

### *Section 60.21(c)(14)*

Conforming change reflecting limitation of "important to safety" to concerns related to the period of operations.

### *Section 60.21(c)(15)(i)*

Editorial change limiting information on DOE organizational structure to that which pertains to construction and operation of the geologic repository operations area.

### *Section 60.21(c)(15)(ii)*

Removed. This provision was redundant with § 60.21(c)(4). (Subsequent paragraphs have been renumbered.)

### *Section 60.21(c)(15)(vi)*

Conforming change required by elimination of the term "decommissioning."

### *Section 60.21(c)(15)(vii) [§ 60.21(c)(15)(viii)]*

Conforming change reflecting limitation of "important to safety" to concerns related to the period of operations.

### *Section 60.22 Filing and distribution of application.*

Section 60.22(a) has been revised to conform to § 60.3(a). In both places, the rule now refers to receipt and possession of source, special nuclear, and byproduct material "at a geologic repository operations area."

The reference in § 60.22(d) to "geologic repository" has also been changed to "geologic repository operations area", as the latter term is a more precise designation of the HLW facility that is the subject of the proposed licensing action.

### *Section 60.31 Construction authorization.*

The overall safety finding is related to the "geologic repository operations area" because that term refers to the HLW facility subject to NRC licensing authority. [This is also the reason for the change in § 60.31(a)(1)(ii).] In order to assure that the relevant features of the controlled area are considered in arriving at this finding, § 60.31(a)(2) now specifically refers to consideration of the "geologic repository." Because siting and design criteria are supplemental to performance objectives in Subpart E, § 60.31(a)(2) has been amended to provide for evaluation of the geologic repository's compliance with the performance objectives as well. The reference to Subpart F has been deleted; that subpart, which pertains to DOE's performance confirmation program, is now referenced in § 60.74

### *Section 60.32 Conditions of construction authorization.*

The change of "site data" to "data about the site," in § 60.32(b), is a clarifying editorial amendment.

In § 60.32(c), "repository" has been replaced by the defined term "geologic repository." The restrictions that may be imposed under this paragraph can include measures to prevent adverse effects on the geologic setting as well as measures related to the design and construction of the geologic repository operation area.

### *Section 60.43 License specifications.*

Section 60.43(b)(3) has been clarified by substituting "host rock" for the ambiguous and undefined term "storage medium" that previously appeared.

Section 60.43(b)(5) has been amended to require that license conditions include items in the category of controls related to the controlled area rather than the geologic repository operations area. This is a conforming change, which is made possible by the new definition of "controlled area" as an area which may extend beyond the boundaries of the geologic repository operation area. However, since additional controls may be needed outside of the controlled area (see § 60.121), the provision is not limited to the controlled area alone. Under 10 CFR Part 20 and this part, the licensee will have to establish restricted areas for purposes of assuring radiological protection during the period of operations, but this will not necessarily require the incorporation of specific conditions in the license. (See 10 CFR 50.36, a corresponding provision in the Commission's facility licensing regulations.)

### *Section 60.46 Particular activities requiring license amendment.*

Section 60.46(a)(3) has been amended for the reasons stated in the discussion of § 60.43(b)(5), to refer to the controlled area. This requirement would continue to be applicable even after permanent closure unless and until the license is terminated pursuant to § 60.52.

### *Section 60.46(a)(6). See Decommissioning, above.*

A conforming change has been made to § 60.46(a), "Particular activities requiring license amendment," which adds a new paragraph (a)(7) to make clear that any activity involving an unreviewed safety question requires a license amendment. In its proposed form § 60.46(a) could have been read to require a license amendment only for the six specific activities listed. While the enumerated activities are quite broad and may well include any change involving an unreviewed safety question, the conforming language is intended to make this point explicit. It is of course clear that an amendment would also be necessary to accomplish a change in the license conditions incorporated in the license. (The revision in no way affects the authority of DOE, under § 60.44(a)(1), without prior Commission approval, to make changes, tests, or experiments that involve neither a change in the license conditions incorporated in the license nor an unreviewed safety question.)

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### *Section 60.51 License amendment for permanent closure.*

Conforming changes have been made to refer to "permanent closure" instead of "decommissioning." See *Decommissioning*, above.

The area required to be identified is now stated to be the "controlled area" because that encompasses the region in which waste isolation is required.

The significance of preserving information is discussed in the section on *Human Intrusion*, above. To assure complete recording of the location of the geologic repository, the Commission has now provided for information to be placed in land record systems as well as archives; this better reflects its original intention. It also includes a reference to State government agencies in order to further assure comprehensiveness. It is not the Commission's intention to require that any new systems or archives be created, but only that those that are available and appropriate should be employed. A further modification expresses the intention that information concerning the detailed location of the underground facility and boreholes and shafts, as well as the boundaries of the controlled area, must be recorded.

In § 60.51(a)(4), the undefined phrase "emplacement media" has been changed to "host rock."

### *Section 60.52 Termination of license.*

Conforming changes. See *Decommissioning*, above.

#### **Subpart D—Records, Tests, and Inspections.**

There are two substantive changes in Subpart D. First, the specification of required construction records has been determined to be more appropriately included here rather than in the design criteria in Subpart E. Editorial changes, including renumbering of sections, have been made to accomplish this. Second, the final rule now requires not only that the geologic repository operations area be designed so as to permit implementation of a performance confirmation program but, as the Commission had originally intended, that such a performance confirmation program should actually be required to be carried out.

### *Section 60.71 General recordkeeping and reporting requirement.*

Paragraphs (a) and (b) have been retained. Paragraph (c) is moved to § 60.73. The caption has been changed because records and reports are now treated in §§ 60.71–60.73, rather than § 60.71 alone.

### *Section 60.72 Construction records [§ 60.134(c)].*

Transferred from Subpart E. Survey records are to cover "underground facility excavations, shafts, and boreholes" rather than "underground excavations and shafts." This makes the inclusion of borehole records explicit. A clarifying amendment was made to indicate that the records must include a description of materials encountered rather than the materials themselves.

### *Section 60.73 Reports of deficiencies [§ 60.71(c)].*

Renumbered. The change of "site characteristics" to "characteristics of the site" is editorial.

### *Section 60.74 Tests. [§ 60.72].*

A new paragraph (§ 60.74(b)) of a clarifying nature has been added which requires tests carried out under this section to include a performance confirmation program carried out in accordance with Subpart F of this part. The proposed rule inadvertently did not require such a program, merely a description of one.

### *Section 60.75 Inspections. [§ 60.73]*

References to "site" have been changed to "geologic repository operations area" or "location" where appropriate. See *Terminology*.

#### **Subpart E—Technical Criteria**

### *Section 60.101 Purpose and nature of findings.*

A change has been made to § 60.101(a)(2) with respect to evaluations of performance of the engineered barrier systems and geologic media. The point that is being made is that the further into the future one must project, the greater the uncertainties will be. The Commission did not mean to suggest that the specific period of a thousand years is especially significant; the more general "many hundreds of years" specified in the final rule better expresses the Commission's intent.

A sentence has been added to § 60.101(a)(2) that emphasizes that demonstration of compliance with long-term performance objectives and criteria will involve the use of data from accelerated tests and suitably supported predictive models.

A reference to "repository" in § 60.101(b) has been changed to "geologic repository operations area" to conform with a parallel change in § 60.31.

### *Section 60.102 Concepts.*

An introductory paragraph has been added to explain the purpose of this

section and to indicate that it is subordinate to the definitions contained in § 60.2

See *Transuranic Waste (TRU)*, above, with respect to the deletion of the reference to TRU.

The section on *Terminology*, above, explains changes affecting the terms "accessible environment," "controlled area," "geologic setting," and "site." These changes are reflected in amended § 60.102(c). The reference to the host rock was deleted so as to avoid any implication that other characteristics of the geologic setting might not, where appropriate, also receive "particular attention."

See *Decommissioning*, above, for an explanation of the change in the discussion of "permanent closure." Because activities unrelated to waste isolation may continue at the geologic repository operations area after permanent closure, the last sentence of § 60.102(d) has been deleted.

The treatment of containment and isolation has been consolidated in light of changes made in the performance objectives. The reference to assessment of uncertainties instead of prediction of consequences takes into account the need to compensate for a broader range of factors, such as identification of the events which are to be considered in the license review. See *Reasonable Assurance and Anticipated/Unanticipated Processes and Events*, above. A second reason for the change stems from a commenter's criticism of the statement that consequences of events are "especially difficult to predict rigorously" early during the life of a repository; on the contrary, he suggested, consequences would be more difficult to predict over longer periods of time. The matter need not be resolved in those terms. The point the Commission was trying to make is that containment measures are appropriate to compensate for the uncertainties involved in assessing radionuclide transport in the presence of high radiation and thermal levels.

The respective contributions of the engineered barrier system and the geologic setting to the achievement of isolation are highlighted in a new sentence. Other changes are made to conform with revised definitions. See analysis of § 60.2.

#### **Performance Objectives**

### *Section 60.111 Performance of the geologic repository operations area through permanent closure. [§ 60.111(a)].*

The provisions of § 60.111(a) dealing with radiation protection and releases

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of radioactive material for the period through permanent closure of the underground facility are unchanged in substance from the proposed rule. The paragraph has been renumbered and some editorial changes have been made.

The provisions of § 60.111(b) dealing with retrievability of waste have been modified to link the period of retrievability more closely to the performance confirmation program and to allow the Commission to modify the retrievability period on a case-by-case basis based on the waste emplacement schedule and the planned performance confirmation program. The final rule also specifies that the period of retrievability begin at the initiation of waste emplacement rather than after waste emplacement is complete. Finally, the final rule explicitly states that backfilling of portions of the underground facility is not precluded, provided the retrievability option is maintained, and that the Commission may decide to allow permanent closure of the underground facility prior to the end of the designed retrievability period. While these provisions were discussed in the supporting information, they were not explicitly stated in the proposed rule. Also see *Retrievability*, above.

### *Section 60.112 Overall system performance objective for the geologic repository after permanent closure. [§ 60.111(b)(1)].*

The term "subsurface facility" has been deleted, as explained in the analysis of § 60.2, and conforming changes have been made.

There is no conceptual difference between the proposed rule's reference to releases from the geologic repository and the final rule's reference to releases to the accessible environment. The Commission prefers the latter formulation because it more closely conforms to the standard-setting authority of EPA. The proposed rule's definition of "accessible environment" was too general to allow such an approach. Under the final rule, however, the subsurface portions of the accessible environment and the geologic repository are contiguous. See *Terminology*, above.

See also the discussion, above, relating to *Anticipated/Unanticipated Processes and Events*.

Several commenters recommended that it would be preferable to leave the rule in proposed form until the EPA standard had been published, at which time NRC could adapt its regulations to the standards that EPA actually promulgates. The Commission would, of course, prefer to have final EPA rules available; and, if they were, it could build EPA's provisions, where

appropriate, into Part 60. In the absence of the final EPA standard, however, the Commission deems it important to provide not only to DOE but also to other interested persons, including governmental institutions, firm guidance with respect to the Commission's regulatory approach. As discussed under *Single vs. Multiple Performance Standards*, above, the technical criteria provide some flexibility to take into account a range of standards that might be adopted by EPA. Should such standards, when adopted, depart from those that the Commission has assumed for purposes of analysis, the Commission would consider whether further rulemaking on its part would be desirable. The procedure that is being followed conforms to that prescribed by Section 121(b) of the Nuclear Waste Policy Act. See also the discussion regarding *Population vs. Individual Dose*.

### *Section 60.113 Performance of particular barriers after permanent closure. [§ 60.111(b)(2)-(3); § 60.112].*

The performance objectives for particular barriers have been modified for reasons discussed at length above.

The analysis of *Single vs. Multiple Performance Standards* explains the basis for retaining numerical values, while allowing them to be modified as the particular case warrants. The factors alluded to there as among those that might be taken into account are set out in § 60.113(b). § 60.113(c) reflects the observation there that considerations related to unanticipated processes and events could form the basis for additional performance requirements for individual barriers.

For the reasons presented under the heading *ALARA*, above, the Commission has elected not to apply an ALARA principle to the performance requirements in this section.

The reasons for elimination of requirements referring specifically to TRU are described in the section on *Transuranic Waste*, above. It should be noted, however, that the release requirements in § 60.113 apply to all radionuclides, including those that may be contained in any TRU that may be disposed of at a geologic repository operations area.

The proposed rule required an assumption that groundwater saturate the facility and that the performance of the waste packages be evaluated on this basis. This approach was proposed because mechanisms exist for groundwater transport to the underground facility, in salt formations as well as hard rock. It may not always be necessary or technically reasonable

to assume the specified saturation conditions, provided that appropriate evaluations are made in the context of a particular application; the final rule therefore calls for the partial and complete filling with groundwater of available void spaces in the underground facility to be considered and analysed among the anticipated processes and events in designing the engineered barrier system. This provision would not appear to be needed for disposal in the unsaturated zone, even though there may be water transport from the underground facility, primarily because the design can, in principle, provide for adequate drainage. (Criteria applicable to disposal in the unsaturated zone will be the subject of additional rulemaking.) Other changes in the provision are of a clarifying or editorial nature.

Editorial changes have been made to avoid repetitious language in the performance objectives relating to the engineered barrier system's containment and controlled-release capabilities.

The proposed requirement with respect to containment would have specified that the HLW waste packages contain all radionuclides for at least the first 1,000 years after permanent closure. In response to comments relating to the demonstrability of a design to contain "all" radionuclides for an extended period, the Commission has modified the requirement so that the design must provide "substantially complete" containment. The reason for relying on containment as one means for assuring achievement of the overall system performance objective is that many sources of uncertainty are particularly significant during the period when radiation and thermal conditions in the underground facility are dominated by fission product decay. This period will depend, to some extent, on the characteristics of the particular facility. The Commission has therefore allowed the containment period to be fixed, where appropriate, at a shorter period. See, also, the discussion of *Single vs. Multiple Performance Standards*.

The incorporation of a general standard for release of radionuclides from the engineered barrier system ("a gradual process which results in small fractional releases to the geologic setting over long times") places the specific criteria into context, thereby emphasizing the policy objective underlying these criteria. Moreover, it indicates the close relationship between the provisions dealing with containment and limited release. These are coupled parameters that should not be varied independently, but rather should be

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viewed as a system to control the release to the geologic setting. Again, see *Single vs. Multiple Performance Standards*.

The fractional release rate has been modified slightly to eliminate an ambiguity identified by one commenter. The new language makes it clear that "one part in 100,000 per year" refers to the activity at 1,000 years following permanent closure. This is a substitute for 1 part in 100,000 of the maximum inventory of the particular radionuclide at any time after 1,000 years after permanent closure. The underlying concern in the proposed rule was that the amounts of certain radionuclides, such as Ra-226 and other actinide daughters, increased with time, and that it was necessary to consider the maximum inventory of these nuclides in assessing repository performance. The analyses performed in the rationale document indicate that these nuclides are not important with respect to meeting the EPA standard as presently formulated. Accordingly, the Commission has chosen the less complicated formulation that appears in the final rule. It should be noted that the release rate refers to activity at 1,000 years after closure, even though a different containment period may be approved or specified by the Commission; the rate may also be modified, however, under the provisions of the final rule. DOE, in its comments on the proposed rule, suggested that the fractional release rate requirement should not apply to nuclides that constituted less than 0.1% of the inventory remaining at 1,000 years. This recommendation has not been adopted since it could lead to excessive releases. Table 5 of the rationale document in NUREG-0804 shows that the inventory of radioactive material in a repository containing 100,000 metric tons of spent fuel is  $1.7 \times 10^6$  curies after 1,000 years. The DOE suggestion would eliminate nuclides whose inventories were less than 170,000 curies from consideration of their release rate from the engineered barrier system, whereas the NRC provisions of § 60.113(a)(1)(ii)(B) would eliminate nuclides whose release rates were less than 1.7 curies/yr from further consideration. While the Commission has not adopted the recommended change it notes that, under the provisions of the final rule, DOE could recommend an alternative release rate for nuclides in the light of the standard adopted by EPA or the geochemical characteristics of the host rock, surrounding strata, and groundwater. In particular, the characteristics of the host rock immediately adjacent to the

underground facility may be well understood because of the excavation activities and, where appropriate, such characteristics could be taken into account in specifying the nuclide release rate.

The previously proposed performance objective for the geologic setting [§ 60.111(b)(3)] has been deleted. The new definition of "anticipated processes and events" includes the assumption that processes operating in the Quaternary Period continue to operate but with perturbations caused by the presence of emplaced radioactive waste superimposed thereon. The remainder of the proposed paragraph merely restates part of the overall system performance objective with respect to performance of the geologic setting and would be redundant.

The references to "stability" in the geologic setting since the start of the Quaternary Period have been deleted. What the Commission had intended was that the structural, tectonic, hydrogeologic, geochemical, and geomorphic processes be such as to enable the recent history to be interpreted and to permit near-term geologic changes to be projected with relatively high confidence. The selection of the term "stability" to convey this meaning was unfortunate. Commenters correctly pointed out that a geologic setting can only be said to exhibit stability in a relative sense. As they noted, the proposed rule gave no guidance as to the degree of required stability and, accordingly, the provision would introduce ambiguity with respect to one of the major elements of the geologic repository. The factors the Commission had identified are all important, but the appropriate way to consider them is to assess them in the context of favorable and unfavorable conditions and to evaluate the extent to which the geologic repository's achievement of the overall system performance objective might be affected. If the relevant processes are not well understood, one or more of the potentially adverse conditions will be exhibited and such an evaluation will be required.

The pre-waste-emplacement groundwater travel time provision is subject to adjustment on a case-by-case basis. See *Single vs. Multiple Performance Standards*. A clarifying amendment relates the travel time provision, as previously only implied, to the "fastest path of likely radionuclide travel from the disturbed zone to the accessible environment." Relating this provision to the "disturbed zone" instead of the "far field" involves no

substantive change. As stated in the analysis of § 60.2, the term "far field" has been deleted from the rule.

Some commenters suggested that the groundwater travel time be expressed in terms of post-emplacement as well as pre-emplacement conditions. This assumes that post-emplacement changes would be significant. By definition, however, the portion of the geologic setting significantly affected by waste emplacement constitutes the "disturbed zone." The groundwater travel time provision applies to transport from the disturbed zone to the accessible environment. This parameter is not dependent upon the effects of waste emplacement.

One commenter characterized the travel time performance objective as "invalid" without a clear definition of "accessible environment." The Commission agrees that the proposed rule was subject to a number of interpretations. However, the modified definition provides a means for delineating the limits of the accessible environment so as to take proper account of site-specific conditions. Under this revised definition, a subsurface area extending no more than 10 kilometers from the underground facility may be used to isolate the waste from the accessible environment. This, in effect, places an upper limit on the rate of groundwater travel to the accessible environment. Refer to the discussion of "accessible environment" and "controlled area" under *Terminology*, above.

### Land Ownership and Control

#### *Section 60.121 Requirements for ownership and control of interests in land.*

The proposed rule set out ownership and control requirements for the "geologic repository operations area." The text, however, related these requirements to the achievement of isolation. To express this concept properly, the Commission has made the requirements in § 60.121(a) applicable not only to the geologic repository operations area, but to the controlled area as well. Section 60.121(b), which deals with isolation and not with the period of operations, is amended so as to refer to the controlled area. (The reference here to the "geologic repository" instead of "site or engineered system" is not substantive; it reflects the revised definitions identified in the analysis of § 60.2.) A conforming change has also been made to the caption of the section.

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In response to a commenter's suggestion, the acquisition of appropriate water rights is now explicitly required. This will not necessitate any separate action on the part of DOE if it appears that such needed water rights have been obtained, by implication, as a result of reservation or acquisition of lands. See *U.S. v. New Mexico*, 438 U.S. 896 (1978), *Cappaert v. U.S.*, 426 U.S. 128 (1976). The "purpose of the geologic repository operations area" is intended to be construed broadly to include the isolation of radioactive wastes after permanent closure as well as any water rights needed during the period of operations.

The Commission declines an invitation to define a specific area that must be acquired to assure public health and safety prior to permanent closure. The size of this area will depend upon the particular activities to be carried out by DOE. There must be an "unrestricted area" to which releases of radioactive materials will be maintained within the limits specified in 10 CFR Part 20. § 60.111(a). The establishment of this unrestricted area must also take accidents into consideration, since structures, systems, and components "important to safety," as defined in § 60.2, must be designed so as to limit radiation doses under accident conditions to 0.5 rem at the boundary of the unrestricted area.

### Siting Criteria

*Section 60.122 Siting criteria. [§ 60.122-60.124].*

The following detailed comments supplement the discussion under the caption "Siting Criteria" in the main text, above.

Section 60.122(a) consolidates the introductory paragraphs of proposed §§ 60.122 and 60.123, together with proposed § 60.124. This change is designed to provide a clearer statement of the relationship between the favorable and potentially adverse conditions. The revised language makes it clear that all such conditions relate to isolation of the waste after permanent closure.

Proposed § 60.124 had specified ways to demonstrate that potentially adverse conditions would not "impair significantly" the isolation ability of the geologic repository. This has been modified so as to refer instead to "compromise" of such site suitability. This change is made to eliminate any question regarding the difference between the two terms. No such difference was intended. Both terms relate to conditions which would potentially preclude the Commission

from finding that the geologic repository would achieve the performance objectives.

The rule now provides for evaluating the effect of the potentially adverse conditions on the "site" rather than the "geologic setting" or "disturbed zone." See *Siting Criteria*, above.

In the provision which states that potentially adverse conditions may be compensated by the presence of favorable conditions, the Commission has specified the standard for measuring the adequacy of such compensation—namely, achievement of the performance objectives relating to isolation of waste.

*Section 60.122(b)(1) [§ 60.122(a)-(e)].*

Proposed paragraphs 60.122 (a), (c), (d), and (e) have been consolidated for editorial reasons. Even if some of the cited processes might have an adverse effect on the geologic repository's ability to isolate the waste, the Commission intends that the other processes may nevertheless be treated as favorable conditions. The distinction between "tectonic" and "structural" processes is so "fine," as it was characterized by one commenter, that the final rule uses only the former term. The references to "the start of the Quaternary Period" have been removed because of the difficulties that might be involved in dating this point with precision; for present purposes, all that is important is that processes "operating during the Quaternary Period" be identified and evaluated, and this is reflected in the revised language. Note the fact that while the provision, as before, applies to favorable conditions in the "geologic setting," the broader definition of that term in the final rule recognizes that processes operating more remotely from the geologic repository must be taken into account.

*Section 60.122(b)(2) [§ 60.122(f)].*

The proposed rule included siting criteria applicable only to disposal in the saturated zone. This paragraph adapts the provision that dealt with hydrogeologic conditions in the host rock and is appropriately limited to the saturated zone option. The Commission no longer identifies "low groundwater content" as a favorable condition because it is the rate and direction of groundwater movement rather than the amount of groundwater present that is of primary significance; thus, instead, the final rule substitutes a reference to low permeability and downward hydraulic gradient. This change also addresses more clearly the prior consideration about inhibition of groundwater circulation in the host rock. Similarly, instead of referring to

inhibition of groundwater flow between hydrogeologic units, the Commission specifies the properties which result in such inhibition, namely low vertical permeability and low hydraulic potential. Since the paragraph relates to the host rock, the reference to shafts, drifts, and boreholes was not fully appropriate and, in any event, is dealt with by identification of the pertinent properties.

The reference to groundwater travel time has been modified to conform with the language of the related performance objective. The proposed rule measured this property from the underground facility. However, the changes that may occur in the disturbed zone may negate the favorable condition in that part of the geologic setting and, accordingly, the final rule specifies that the travel time in question is to be measured from the disturbed zone to the accessible environment. There is no basis for identifying a particular number of years that will be deemed to be substantially in excess of 1,000 years. If for a particular site the value is sufficiently high to enhance the Commission's confidence that the performance objectives will be met, then it can appropriately be considered as a favorable condition.

*Section 60.122(b)(3) [§ 60.122(g)].*

Since the listed geochemical conditions may or may not occur simultaneously, yet since any of them may retard the transport of radionuclides, the paragraph has been stated in the disjunctive in the final rule (by substituting "or" in the place of "and").

*Section 60.122(b)(4) [§ 60.122(h)].*

This paragraph concerns transformation of "mineral assemblages" under thermal loading. It would be a favorable condition if changes left the capacity to inhibit radionuclide transport unaffected; the proposed rule, which spoke only of "increased" capacity, was too restrictive.

The paragraph is concerned primarily with the behavior of mineral assemblages which form coatings along the fracture paths along which radionuclides are anticipated to migrate; it would be incorrect, when referring to this surface zone, to adopt a commenter's suggestion that the Commission refers instead to "rock" or "geologic media."

*Section 60.122(b)(5) [§ 60.122(i)].*

This paragraph, relating to depth of emplacement, is unchanged. The

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purpose of the provision is to reflect the consideration that wastes buried at least 300 meters below the surface are less subject to disturbance, especially by human intrusion, than wastes closer to ground level would be. As in the case of other favorable conditions, it should be emphasized that the absence of a particular one or more of them does not rule out a site or even demand explanation; it simply means that other favorable conditions must be cited to show that the criterion set out in § 60.122(a)(1) has been satisfied. (The elevation being referred to is the altitude above mean sea level of the lowest point on the surface but the Commission perceives no need to express the concept, as one commenter had suggested, in such detail)

### Section 60.122(b)(6).

New. See *Population—Related Siting Criteria*, above.

### Section 60.122(j)).

The proposed rule would have treated as a favorable condition "any local condition of the disturbed zone that contributes to isolation." This was criticized as being unduly general and vague. As the key favorable conditions appear to have been identified, the Commission has concluded that inclusion of such a "catch all" is unwarranted.

### Section 60.122(c)(1) [§ 60.123(a) (1) and (6)].

This paragraph is adapted from two provisions of the proposed rule. Unlike most of the potentially adverse conditions, the prospect of flooding is of most concern prior to permanent closure. Even though criteria in § 60.133 provide that the underground facility be designed to handle water intrusion, the anticipated design features need not be sufficient to cope with massive inflows that could result from submersion of boreholes and shafts. Should such a situation develop, the ability of the geologic repository to achieve isolation of the wastes that had been emplaced could be compromised.

Because the concern relates to waste isolation, the paragraph has been rewritten so as to be limited to flooding of the underground facility. The design criteria for structures, systems, and components important to safety require that appropriate measures be taken to protect surface facilities against the consequences of flooding.

As there is no reason to differentiate between floods resulting from natural causes (i.e., from occupancy and modification of floodplains) and those resulting from failure of impoundments,

the two pertinent paragraphs have been combined.

With respect to required investigations [§ 60.123(b)], see Section-by-Section Analysis, § 60.21(c)(1)(ii)(B).

### Section 60.122(c)(2) [§ 60.123(a) (2) and (3)].

Two paragraphs related to the groundwater flow system have been consolidated. The conditions are to be regarded as potentially adverse if the activities in question are "foreseeable." This is more conservative than the original rule, which only identified "planned" activities. The proposed rule encompassed such activities with a potential to "significantly" affect groundwater flow. Any "adverse" effect should be treated as significant, and the final rule makes a change to reflect this.

### Section 60.122(c)(3) [§ 60.123(a)(7)].

No substantive change from proposed rule.

### Section § 60.122(c)(4) [§ 60.123(b)(8)].

[§ 60.123(b)(5)].

[§ 60.123(b)(6)].

[§ 60.123(b)(7)].

Structural deformation would have been regarded as a potentially adverse condition only if occurring within the disturbed zone during the Quaternary period. This approach was unduly limiting. Structural deformation in the geologic setting, whether or not of recent origin, is potentially adverse because of the effects which it may have upon the regional groundwater flow system. Of course, it is to be expected that structural deformation remote from the site, especially if ancient, can readily be found not to significantly affect the ability of the geologic repository to isolate the waste. Still, it is a potentially adverse condition and should be recognized as such.

Faulting is one kind of structural deformation. By including it here, the prior specific references to faulting can be eliminated.

### Section 60.122(c)(5) [§ 60.123(b)(12)].

This paragraph is no longer restricted to the disturbed zone, but otherwise is unchanged in substance.

### Section 60.122(c)(6) [§ 60.123(a)(8)].

The proposed rule referred to "expected climatic changes." Climatology is not sufficiently understood to enable us to limit our concern to "expected" changes, and the final rule therefore refers to characteristics of the geologic setting likely to be affected directly by

reasonably foreseeable climatic change, viz, the hydrologic conditions.

### Section 60.122(c)(7) [§ 60.123(b)(14)].

This paragraph referred to groundwater conditions that could "affect" solubility and chemical reactivity. The concern is not with effects *per se*, but rather with effects that increase the solubility or chemical reactivity of the engineered barrier system. This was not made explicit. In order to be more comprehensive, chemical composition of the host rock is added to the relevant groundwater conditions.

### Section 60.122(c)(8) [§ 60.123(b)(15)].

Aside from the extension of this paragraph beyond the disturbed zone, there are no changes in substance. One clarifying addition, "of radionuclides," following "sorption" was made.

### Section 60.122(c)(9) [§ 60.123(b)(13)].

This paragraph, related to non-reducing groundwater conditions, is only appropriate to disposal in the saturated zone.

### Section 60.122(c)(10) [§ 60.123(b)(5)].

Dissolution will be treated as a potentially adverse condition throughout the geologic setting. Examples of the kinds of features that provide evidence of dissolution have been included so as to make it clear that the paragraph refers to processes that provide gross manifestations of their presence.

### Section 60.122(c)(11) [§ 60.123(b)(8)].

No substantive changes.

### Section 60.122(c)(12) [§ 60.123(a)(4)].

### Section 60.122(c)(13) [§ 60.123(b)(10)].

### Section 60.122(c)(14) [§ 60.123(b)(9)].

### Section 60.122(c)(15) [§ 60.123(b)(11)].

### Section 60.122(c)(16) [§ 60.123(b)(4)].

Extended from disturbed zone to the entire geologic setting, but otherwise unchanged.

### Section 60.122(c)(17) [§ 60.123(b)(3)].

Consistent with the references to resources in the requirements for the content of the safety analysis report, § 60.21(c)(13), the presence on naturally occurring materials for which economic extraction is currently feasible or potentially feasible during the foreseeable future may give rise to a potentially adverse condition. The provision now applies to the site, rather than the disturbed zone, since it is the site that provides isolation of the waste.



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### *Section 60.122(c)(18) [§ 60.123(b)(1)].*

Extended from the disturbed zone to the site.

### *Section 60.122(c)(19) [§ 60.123(b)(2)].*

Extended from the disturbed zone to the site.

### *Section 60.122(c)(20) [§ 60.123(b)(16)].*

The paragraph refers to "rock or groundwater" conditions that would require complex engineering measures. Although the engineering measures being referred to would be applied before permanent closure, the reason for having this criterion—as in the remainder of § 60.122(c)—stems from concerns about the ability of the geologic repository to satisfy the performance objectives with respect to isolation of the waste. Although complex engineering measures are not inherently unacceptable, their reliability must be carefully scrutinized in a licensing process. A geologic setting that requires the adoption of such complex engineering measures therefore can be viewed as exhibiting a potentially adverse condition. Although the final rule applies to the geologic setting instead of the disturbed zone, this paragraph would apply over only that part of the geologic setting that has features relevant to the selection of engineering measures.

### *Section 60.122(c)(21) [§ 60.123(b)(17)].*

The criterion pertaining to stable underground openings is also unchanged in substance, except that it is no longer expressly limited to the disturbed zone. This is another criterion that pertains to the period of operations. However, like the preceding one, its underlying purpose is to assure that waste isolation objectives can be achieved. Failure of underground openings could result in the inability of the licensee to retrieve the wastes practicably, should such a course of action be found to be warranted. The consequence of this failure could be a transport of radionuclides to the accessible environment at levels exceeding the performance objectives.

### **Design Criteria for the Geologic Repository Operations Area**

#### *Section 60.130 Scope of design criteria for the geologic repository operations area. [§ 60.130(a)]*

The separation of final § 60.130 from related sections is an editorial change.

As indicated in § 60.131, Subpart E is intended to specify site and design criteria. References to construction requirements are therefore inappropriate and have been deleted.

### *Section 60.131 General design criteria for the geologic repository operations area.*

#### *(a) Radiological protection. [§ 60.130(b)(1)].*

Aside from editorial changes, the only revision relates to the design of the radiation alarm system; the language has been modified to conform to 10 CFR 72.74(b), and reference to radioactivity in effluents was deleted since this section has to do with radiation protection in restricted areas. Provisions for control of radioactivity in effluents are contained in § 60.131(b)(4), for emergency conditions, and in § 60.132(c), for normal operations.

#### *(b) Structures, systems, and components important to safety.*

##### *(1) Protection against natural phenomena and environmental conditions. [§ 60.130(b)(2)].*

The two proposed subparagraphs were duplicative and have been consolidated. The change of "site" to "geologic repository operations area" is appropriate because the concern being addressed is accident conditions at the HLW facility that could result in specified doses at the boundary. Similarly, "any relevant time period" has been deleted since this provision deals with the prevention or mitigation of accidents associated with waste storage and handling activities. Also, since it is accident conditions that are of concern, the provisions of the proposed rule dealing with operations, maintenance and testing were inappropriate and have been deleted. (The effects of natural phenomena and environmental conditions on waste isolation are addressed in § 60.122.)

##### *(2) Protection against dynamic effects of equipment failure and similar events. [Section 60.130(b)(3)]*

Editorial change, characterizing missile impacts as dynamic effects.

##### *(3) Protection against fires and explosives. [Section 60.130(b)(4)]*

The design criterion pertaining to continued operation during and after fires has been limited to such events as are "credible." This responds to comments that suggested that the proposed language could be interpreted to require protection against any fire or explosion that might be physically possible.

Because Subpart E is concerned with siting and design criteria, the Commission has not adopted a suggestion to incorporate, at this point, a requirement that explosives be excluded from areas containing radioactive materials. However, such a provision could be one of the license

specifications found to be appropriate under § 60.43.

#### *(4) Emergency capability [Section 60.130(b)(5)]*

Provision has been made to require control of effluents during emergency conditions, see §§ 60.131(a). Otherwise unchanged.

#### *(5) Utility services. [Section 60.130(b)]*

Paragraph (i) has been clarified by inserting an explicit reference to systems "important to safety." Since the definition of "important to safety" refers to "accidents," the term "emergency conditions" has been changed to "accident conditions."

Proposed paragraph (iii) has been deleted because it was redundant with the general provision for inspection, testing, and maintenance.

Proposed paragraph (iv) [now (iii)] has been abbreviated. As proposed, it could have been interpreted as requiring systems, even if redundant, to be functional at all times. The intent was to assure that timely emergency power can be provided to structures, systems, and components important to safety. The provision has been modified accordingly. There is no need to state that emergency power be sufficient to allow safe conditions to be maintained, since this is implicit in the remainder of the text.

#### *(6) Inspection, testing, and maintenance. [Section 60.130(b)(7)]*

No change from proposed rule.

#### *(7) Criticality control. [Section 60.130(b)(8)]*

No change from proposed rule.

#### *(8) Instrumentation and control systems. [Section 60.130(b)(9)]*

The adjective "engineered" has been deleted, in reference to systems important to safety, so as to retain uniform terminology throughout the rule.

The provision for design "with sufficient redundancy to ensure that adequate margins of safety are maintained," which was criticized as being vague, has been deleted. The objective was to ensure that the design incorporate needed instrumentation and this has been accomplished more clearly by the amended language.

#### *(9) Compliance with mining regulations. [Section 60.130(b)(10)]*

No change from proposed rule. It should be noted that this provision is not intended to assert NRC authority over mining safety practices generally; but to the extent that the safety of workers is necessary for systems important to safety to perform their intended functions, the relevant design features are of legitimate concern to NRC.

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(10) Shaft conveyances used in radioactive waste handling. [Section 60.133(c)]

The specific criteria applicable to hoists important to safety have remained unchanged. The general requirement that shaft conveyances used to transport radioactive materials be designed to satisfy the requirements for systems, structures, and components important to safety has been deleted because it was unduly broad; to the extent that the shaft conveyances are in fact important to safety, the applicable design requirements will still apply.

*Section 60.132 Additional design criteria for surface facilities in the geologic repository operations area. [Section 60.131]*

(a) Facilities for receipt and retrieval of waste. [Section 60.131(a)]

This paragraph has been shortened by deleting redundant and unnecessary detail. The requirement for safe handling and storage implies provision for inspection, repair, and decontamination as appropriate. Similarly, it is not necessary to state that surface storage capacity need not be provided for all emplaced waste; there must be sufficient capacity, however, to allow safe handling and storage.

(b) Surface facility ventilation. [Section 60.131(b)]

The only change is the reference to § 60.111(a) by paragraph. This is not a substantive amendment, as this is the only part of the performance objectives relevant to ventilation.

(c) Radiation control and monitoring. [Section 60.131(c)]

The reference to emergency operations is omitted because that subject is covered by § 60.131(b)(4). Editorial changes have been made here for the same reasons as were discussed in connection with that paragraph.

(d) Waste treatment. [Section 60.131(d)]

No change from proposed rule.

(e) Consideration of decommissioning. [Section 60.131(e)]

See *Decommissioning*, above. The term "decommissioning" has been retained in this context because surface facilities may continue to be used even after permanent closure. The requirement has been made more precise by specifying that the same standards apply here as to other activities licensed by NRC.

*§ 60.133 Additional design criteria for the underground facility. [Section 60.132]*

(a) General criteria for the underground facility. [Section 60.132(a)]

Proposed paragraphs (a)(1) and (a)(2) have been deleted because they were redundant.

The requirement that design features "enhance [containment and isolation of radionuclides] to the extent practicable at the site" has been changed to provide that the design shall "contribute" to such containment and isolation. As proposed, this provision could have been construed as imposing requirements substantially in excess of those needed to satisfy the performance objectives. This was not the intention. See also the discussion of *ALARA*, above.

The requirement to design the underground facility against the effects of disruptive events has been modified to apply to events occurring during the period of operations and to exclude water and gas intrusions to eliminate redundancy with other provisions of the rule. The requirement is also limited to consideration of *credible* disruptive events.

(b) Flexibility of design. [Section 60.132(b)]

The only change, in punctuation, is editorial.

(c) Retrieval of waste. [Section 60.132(d)]

Proposed paragraph (d)(2) has been deleted because it was redundant with proposed paragraph (d)(1) and was read to prohibit backfilling.

Proposed paragraph (d)(3) has been deleted because it is subsumed in the remaining text of the paragraph.

(d) Control of water and gas. [Section 60.132(g)]

Because of confusion about the meaning of the term "service water," the design requirement has been rephrased so as to refer more generally to "water or gas intrusion."

Additional proposed requirements have been deleted in response to comments regarding the level of detail in the rule. (See *Level of Detail*, above.) While each of the items that had been addressed will in all probability be needed, the remaining general design criterion for control of water and gas is adequate to ensure that each of the features will be incorporated in the design where necessary.

(e) Underground openings. [Section 60.132(e)]

This paragraph has been rewritten in functional terms so as to require design so that operations in the underground facility "can be carried out safely and the retrievability option maintained."

The requirement that the design reduce the potential for deleterious rock movement or fracturing of rock has been retained. The identification of considerations that must be taken into

account has been deleted as being more appropriate for treatment in regulatory guides. The Commission anticipates, however, that each of the factors that had been listed would in fact have been included in complying with this paragraph.

(f) Rock excavation. [Section 60.132(f)]

The proposed rule required design to "limit damage to and fracturing of rock." The extent to which damage should be "limited" was not stated. Moreover, for some geologic media and sites, the requirement could be interpreted to prescribe particular excavation methods, which was not the intent. The paragraph has been rephrased to indicate that the design must reduce the potential for creating a preferential pathway to the accessible environment.

(g) Underground facility ventilation. [Section 60.132(h)]

The term "subsurface facility" has been eliminated, conforming to the caption of the section. Paragraph (g)(1) now refers to control within and from the "underground facility."

Proposed paragraph (h)(2), which would have required design to permit continuous occupancy of all excavated areas through permanent closure, was excessively restrictive. Ventilation will need to be maintained, however, where normal operations are being carried out, so as to satisfy paragraph (g)(1).

Proposed paragraph (h)(3) was deleted. It is adequately covered by paragraph (g)(1).

As in some other contexts, reference is now made to "accident conditions" instead of "emergency conditions" (see discussion of § 60.131(b)(5) above). The requirement for design to assure continued function is retained, but the means for accomplishing this is left to the designer. Redundant equipment and fail-safe control systems would continue to be employed where necessary and appropriate.

(h) Engineered barriers. [Section 60.132(i)]

The proposed rule, in paragraph (i), would have specified several design requirements for the engineered barriers, including backfill and barriers at shafts. While the Commission continues to expect that such features will ordinarily be incorporated into the design, it has concluded that its earlier approach would have been unduly restrictive. The Commission has therefore left only the general functional statement that the engineered barriers shall be designed to assist the geologic setting in meeting long-term performance objectives.

(i) Thermal loads. [Section 60.132(k)]

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This provision retains the substance of proposed paragraph (k)(1). The reference to the "ability of the natural or engineered barriers to retard radionuclide migration" is deleted because it is already covered by requiring that the performance objectives be met.

Proposed (k)(2), identifying factors to be taken into account in the design of waste loading and waste spacings, has been omitted as containing excessive detail.

Other omitted provisions. [Sections 60.132(c), 60.132(j)]

Proposed § 60.132(c), dealing with the modular concept, was excessively restrictive. The Commission recognizes that to some degree the concurrent conduct of excavation with waste emplacement could "impair" waste emplacement or retrieval operations. Concurrent excavation and waste emplacement would be acceptable, provided that all other applicable requirements are satisfied. The provision for insulation of individual modules is not necessary, since paragraph (a)(3) requires that the design limit the effects of disruptive events and paragraph (g)(2) provides that the design assure continued function of ventilation systems under accident conditions. Section 60.131(a), including the design requirement to control the dispersal of radioactive contamination, is also relevant.

Proposed § 60.132(j) would have specified fail-safe designs in systems for handling, transporting, and emplacing wastes. This too was excessively restrictive. What protective measures are needed will be determined in the light of a range of factors, including the probability and consequences of mishaps and the costs of alternative means for dealing with them. Similarly, the final rule does not require that handling systems "minimize the potential for operator error;" specifications for such systems will depend upon an evaluation of the particular risks involved. Where protective measures are needed, particularly insofar as they relate to radiological consequences, the remaining design requirements suffice.

### *Section 60.134 Construction specifications for surface and subsurface facilities.*

The proposed rule contained a section on construction specifications that was not appropriate, since (under § 60.31(a)(2)), the scope of Subpart E was limited to site and design criteria.

Although the section has therefore been deleted, this does not mean that construction procedures are not of vital

significance. As stated in § 60.31(a)(1)(iv), the Commission will consider whether DOE has adequately described construction procedures which may affect the capability of the geologic repository to serve its intended function. Appropriate provisions will be included in a construction authorization, as provided in § 60.32.

Proposed § 60.134(c), dealing with construction records, has been retained, with minor modifications. It now appears as § 60.72, and is discussed in the analysis of that section.

### *Section 60.134 Design of seals for shafts and boreholes. [§ 60.133]*

The proposed rule contained a number of provisions which commenters criticized as being unachievable, or at least incapable of being demonstrated. Specifically, there was objection to the requirements that shaft and seal design not create preferential pathways and that sealed shafts and boreholes inhibit radionuclide transport to, at the least, the same degree as the undisturbed rock. The Commission acknowledges that in some cases a pathway may be created that may be preferential in relation to the undisturbed rock. Whether or not this is acceptable will depend upon the characteristics of the rock in question, the quality of the seal under projected conditions, the age, nature, and location of the waste, and the design of the underground facility. The important thing is that the seals not become pathways that compromise the geologic repository's ability to meet the performance objectives for the period relating to isolation of the waste. This concept now appears as § 60.134(a).

Additionally, although the Commission's general approach has been to avoid ALARA-type concepts, it has in this instance specified that materials and placement methods for seals be selected to reduce to the extent practicable, the potential for creating a preferential pathway or the migration of radionuclides through existing pathways. This approach is based upon a concern that significant deficiencies in seal design could largely, or entirely, eliminate the contribution to waste isolation which is to be provided by the geologic setting. By insisting that seal design reduce preferential pathways to the extent practicable, the Commission ensures that the design will facilitate its arriving at licensing decisions.

Proposed § 60.133(b)(1) provided that shafts and boreholes be sealed as soon as possible after they have served their operational purpose. As in the other portions of the section, the objective was to address the question of long-term isolation. Early sealing can prevent

deformations that might otherwise develop prior to permanent closure; such events could make it more difficult or impractical to achieve maximum integrity of the permanent seals when they are put into place. To the extent that this is an important concern, it too is covered under the text of the final § 60.134.

### *Design Criteria for the Waste Package*

#### *Section 60.135 Criteria for the waste package and its components.*

A geologic repository operations area, by definition, is a facility that may be used for the disposal of high-level radioactive waste. The rule must therefore address matters related to HLW, including as appropriate requirements as to HLW waste form and waste package. Whether or not other radioactive materials are emplaced in the facility is speculative, and even if this should occur, the quantities, specific activity, half-lives and other relevant factors may be so variable as to make it impossible at this time to establish reasonable rules. The final rule accordingly expressly limits the applicability of the requirements of this section to high-level radioactive waste. Nonradioactive wastes are not addressed at all. The Commission defers for later consideration, should the occasion arise, an examination of the legal and technical questions that would be presented if the disposal of nonradioactive wastes in a geologic repository operations area were to be proposed.

#### *Section 60.135(a) High-level waste package design in general.*

This paragraph has been revised editorially. It is now limited to HLW packages, but is otherwise unchanged in substance from the proposed rule.

#### *Section 60.135(b) Specific criteria for HLW package design. [§ 60.135(c)]*

Two paragraphs relate to contents of the waste package—one dealing with explosive, pyrophoric, and chemically reactive materials and a second dealing with free liquids. Editorial changes have been made so as to provide parallel language. Insofar as the period of operations is concerned, this is done by adopting the proposed language that has applied to free liquids. Insofar as waste isolation is concerned, both paragraphs are related to the relevant performance objective, adapting for this purpose the proposed provisions on explosive, pyrophoric, and chemically reactive materials.

Also, as revised, the provision pertaining to explosive, pyrophoric, and

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chemically reactive materials avoids the possible interpretation that insignificant quantities of such materials may not be incorporated in waste packages.

Other changes are merely editorial.

### *Section 60.135(c) Waste form criteria for HLW. [§ 60.135(b)].*

The portion of this paragraph that deals with combustibles has been modified so as to specify that a fire involving waste packages containing combustibles will not affect the integrity of other waste packages, adversely affect any structures, systems or components important to safety, or compromise the ability of the underground facility to contribute to waste isolation. This parallels the corresponding changes in the waste package design criteria.

The reference to structures, systems, or components is modified by the defined term "important to safety" rather than the undefined adjective "safety-related."

### *Section 60.135(d) Design criteria for other radioactive wastes.*

This paragraph is new. Its purpose is described in the introductory analysis for this section.

### **Performance Confirmation Requirements**

#### *Section 60.137 General requirements for performance confirmation.*

Unchanged from proposed rule.

### **Subpart F—Performance Confirmation Program**

#### *Section 60.140 General requirements*

The proposed rule would have specified that the performance confirmation program "ascertain" certain data. While achievement of that goal would be desirable; it is more accurate to state that the program is to "provide data which indicates, where practicable," whether conditions are within assumed limits and systems are functioning as intended.

The proposed requirement that the confirmation program be implemented so as not to "adversely affect" the natural and engineered barriers, § 60.140(d)(1), also needed to be qualified. The Commission's intention was not to prohibit useful tests that would have trivial impacts upon the repository's performance; instead, it wishes to assure that significant potentially adverse effects are taken into account in designing the performance confirmation program. The paragraph has been modified accordingly.

See also the amendment to § 60.74, which provides for the conduct of the performance confirmation program.

#### *Section 60.141 Confirmation of geotechnical and design parameters.*

Unchanged from proposed rule.

#### *Ssection 60.142 Design testing.*

Unchanged from proposed rule.

#### *Section 60.143 Monitoring and testing waste packages.*

The ambiguous term "repository" has been replaced by the defined terms "geologic repository operations area" or "underground facility," as appropriate. Other changes are editorial in nature.

### **Subpart G—Quality Assurance**

#### *Section 60.150 Scope.*

This section has been revised to correspond to the counterpart provision of 10 CFR Part 50, Appendix B. Where the same term (here, "quality assurance") is employed in related contexts, it is generally desirable to use a common definition. For this reason, the Commission has declined to substitute "reasonable assurance" for "adequate confidence" as the measure of satisfactory performance.

#### *Section 60.151 Applicability*

The final rule defines "important to safety" in a manner related to the period of operations. Because quality assurance requirements must be applied with a view to long-term performance, Subpart G is also made applicable to those elements of the geologic repository that must function in a prescribed manner so as to satisfy the performance objectives for the period after permanent closure. The proposed rule's reference to "events that could cause an undue risk to the health and safety of the public" has been deleted because of the inclusion of the more definite standards that are referred to in the revised first sentence of the section.

Further, the Commission has adopted a suggestion to revise the list of activities to which Subpart G pertains so as to correspond more closely with the structure of the rule.

#### *Section 60.152 Implementation.*

Unchanged from proposed rule.

#### *[Section 60.153 Quality assurance for performance confirmation.]*

This section of the proposed rule has been deleted because performance confirmation is now made subject, by § 60.151(b), to explicit requirement for the conduct of performance confirmation.

### **Subpart H—Training and Certification of Personnel**

Provisions for training and Certification of Personnel are unchanged in substance from the proposed rule. The rule has been clarified by replacing the undefined term "operations important to safety" with the phrase "operations of systems and components important to safety." Other changes are merely editorial.

### **Subpart I—Emergency Planning Criteria**

Section 60.31(a) provides that one of the considerations bearing upon the issuance of a construction authorization is whether DOE's emergency plan complies with the criteria contained in Subpart I. The proposed technical criteria were silent with respect to Subpart I, and the contents of that subpart here continue to be reserved.

### **Environmental Impact**

Pursuant to Section 121(c) of the Nuclear Waste Policy Act of 1982, the promulgation of these criteria shall not require the preparation of an environmental impact statement under Section 102(2)(C) of the National Environmental Policy Act of 1969 or any environmental review under subparagraph (E) or (F) of Section 102(2) of such Act.

### **Paperwork Reduction Act**

This rule contains no new or amended recordkeeping, reporting, or application requirement, or any other type of information collection requirement, subject to the Paperwork Reduction Act (Pub. L. 96-511).

### **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 upon a substantial number of small entities. The only entity subject to regulation under this rule is the U.S. Department of Energy.

### **List of Subjects in 10 CFR Part 60**

High-level waste, Nuclear power plants and reactors, Nuclear materials, Penalty, Reporting 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 Nuclear Waste Policy Act of 1982, and 5 U.S.C. 553, the Nuclear Regulatory Commission is adopting the following amendments to 10 CFR Part 60.

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➤ 50 FR 29641  
Published 7/22/85  
Effective 7/22/85

### 10 CFR Part 60

#### Disposal of High-Level Radioactive Wastes in Geologic Repositories

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations for the disposal of high-level radioactive wastes in geologic repositories. These amendments will ensure that the rule contains specific criteria for the disposal of high-level radioactive wastes within the unsaturated zone. This action is necessary to assure that NRC regulations address considerations relevant to all geologic repositories, whether sited in the saturated or unsaturated zone.

**EFFECTIVE DATE:** July 22, 1985.

**FOR FURTHER INFORMATION CONTACT:** Dr. Frank A. Costanzi, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4382.

#### SUPPLEMENTARY INFORMATION:

##### Background

On February 25, 1981, the Nuclear Regulatory Commission (NRC) promulgated a rule that established procedures for licensing the disposal of high-level radioactive wastes (HLW) in geologic repositories (46 FR 13971). NRC promulgated technical criteria to be used in the evaluation of license applications under those procedures on June 21, 1983 (48 FR 28194). Although these technical criteria are generally appropriate to disposal in both the saturated and unsaturated hydrogeologic zones, some further distinctions need to be made for disposal in the unsaturated zone. Consequently, the Commission expressed its intent to issue specific technical criteria for the unsaturated zone after promulgating the final technical criteria so as to afford further opportunity for public comment on this issue. Proposed amendments to these technical criteria to include HLW disposal within either the saturated or unsaturated zone were published for comment on February 16, 1984. These proposed amendments contained provisions for new definitions and favorable and potentially adverse siting criteria. In addition to the proposed amendments, the Commission specifically requested public input on

two questions related to groundwater travel time calculations within the unsaturated zone. In conjunction with the proposed amendments, the Commission published for public comment draft NUREG-1046<sup>1</sup> which contained a discussion of the principal technical issues considered by the Commission during the development of the proposed amendments.

#### Summary of Comments and Changes

A total of fourteen groups and individuals commented on the proposed amendments and draft NUREG-1046. There was general acceptance of the Commission's view that disposal of HLW within the unsaturated zone is a viable alternative to disposal within the saturated zone. The commenters addressed the Commission's specific questions on groundwater travel time within the unsaturated zone and provided additional comments suggesting word changes to improve the technical accuracy and clarity of the proposed amendments. The principal comments received on the questions and proposed amendments, and the Commission's corresponding responses, are discussed below. Changes and clarifications made in the rule as a result of the Commission's consideration of these comments are also explained in this section. Copies of the individual comment letters and a detailed analysis of these letters by the NRC staff are available in the NRC Public Document Room, 1717 H Street NW., Washington, DC 20555.

##### (a) Groundwater Travel Time Calculations

Technical criteria governing the post-emplacement performance of the particular barriers of the and geologic repository system (i.e. engineered barriers and geologic setting) are set forth at § 60.113 (48 FR 28224; June 21, 1983). The post-closure performance criterion for the geologic setting set forth at § 60.113(a)(2) requires that the geologic repository be located so that pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel from the disturbed zone to the accessible

environment be at least 1,000 years or such other travel time as may be approved or specified by the Commission. Although no change was made explicitly to the provisions of § 60.113(a)(2) in the proposed amendments for the unsaturated zone, the proposed definition of the term "groundwater" set forth at § 60.2 would clearly make the scope of § 60.113(a)(2) applicable to geologic repositories within either the saturated or unsaturated zone. Similarly, the proposed amendment to the Siting Criteria (§ 60.122(b)(7)) would have the effect of making pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel from the disturbed zone to the accessible environment which substantially exceeds 1,000 years a favorable condition for HLW disposal within either hydrogeologic zone.

In the statement of considerations which accompanied the proposed amendments, the Commission discussed possible limitations of the pre-waste-emplacement groundwater travel time performance objective of § 60.113 when applied to the unsaturated zone. However, the Commission stated that if DOE could demonstrate with reasonable assurance that travel time for groundwater movement through the unsaturated zone can be quantified, then DOE should be allowed to include such travel time when demonstrating compliance with § 60.113(a)(2). The Commission also acknowledged that it may be more appropriate to specify another parameter upon which performance may be evaluated for a geologic setting in the unsaturated zone, or to use the approach set forth in § 60.113(b) which provides the Commission with the flexibility to specify variations in performance objectives on a case-by-case basis, as long as the overall system performance objective is satisfied. Further, the Commission observed that calculations of pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel through the unsaturated zone could involve considerable uncertainty, and thus requested public comment on questions related to the applicability of the existing 10 CFR Part 60 performance objective for the geologic setting to sites located in unsaturated geologic media. In response to this solicitation of public comment, seven of the fourteen commenters specifically addressed the questions on groundwater travel time calculations. These questions and the views expressed by the seven commenters are reviewed below.

The notice of proposed rulemaking first requested comment on how groundwater travel time in the

<sup>1</sup> Draft NUREG-1046—Disposal of High-Level Radioactive Wastes in the Unsaturated Zone: Technical Considerations is currently being revised to reflect changes made in the amendments to 10 CFR Part 60 related to HLW disposal within the unsaturated zone. When this revision is completed, a copy of NUREG-1046 will be placed in the Commission's Public Document Room. Upon publication, copies of NUREG-1046 may be purchased by calling (301) 492-8530 or by writing to the Publication Services Section, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, DC 20555, or purchased from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

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unsaturated zone could be determined with reasonable assurance. Comments received in response to this question were divided nearly equally into two categories. The first group of commenters argued that presently it would be difficult to calculate groundwater travel time in the unsaturated zone with reasonable assurance because of the lack of generally acceptable methodology and the limited scope of research efforts currently devoted to this question. A second group of commenters, comprised predominantly of representatives of other Federal agencies, endorsed the opinion that groundwater travel time could be determined with reasonable assurance. One of these commenters indicated that groundwater travel time calculations could be made by measuring the amount of natural tritium in the groundwater samples from a vertical profile in unsaturated geologic formations. Two other commenters stated that groundwater travel time could be derived from groundwater flux using measurements of ambient water content, degree of saturation, matric potential and hydraulic conductivity to determine moisture-characteristic curves relating these parameters to one another. These curves can be developed so as to predict constitutive relationships over a wide range of conditions. From these relationships and flux determinations these commenters argued that groundwater velocities and subsequently groundwater travel times could then be estimated. One of these two commenters further stated that reasonable assurance may be gained in estimating groundwater travel time using results of laboratory testing, state-of-the-art direct determinations in the field or laboratory, and bounding estimates developed by indirect methods, while both commenters indicated that reasonable assurance may also be gained by incorporating uncertainty analyses into predictive models.

The Commission recognizes that prior to the commencement of HLW disposal studies most groundwater investigations in unsaturated geologic media were generally limited in scope to issues related to near-surface, highly porous soils and unconsolidated rock types. Efforts to predict groundwater movement through potentially suitable geologic repository sites within the unsaturated zone often entail the application of hydrogeologic theories, models and methodologies governing near-surface, porous media to much deeper hydrogeologic environments and different rock properties than they originally were designed for. The Commission realizes that given the current state of groundwater

investigations there may be difficulties associated with groundwater travel time calculations in both the saturated and unsaturated zones, as one commenter observed. However, the Commission concludes that groundwater travel time calculations can be determined in the unsaturated zone, though not necessarily with great precision, provided that the proper level of site characterization analysis is conducted. Following a detailed study of the comments received on this question, the Commission believes it is feasible for DOE to demonstrate compliance with the groundwater travel time provision, using existing field and laboratory experiments. Further, as several commenters indicated, a substantial effort is currently underway to develop new methodologies and to improve existing techniques for measuring the hydrogeologic parameters and flow properties that will provide the necessary input to groundwater travel time calculations. For example, it was noted that in-situ monitoring techniques, including tracer tests, are undergoing development and may broaden the range of rock types and conditions for which it is feasible to estimate groundwater velocity and, hence, groundwater travel time.

The second part of the first question on which the Commission sought comment centered on whether or not the existing groundwater travel time performance objective in § 60.113(a)(2) should be limited to groundwater movement within the saturated zone. The general consensus among commenters on this issue was that there is no reason to strictly limit the groundwater travel time performance objective to water movement in the saturated zone. Following a review of the discussions presented in these comments the Commission has determined that the groundwater travel time provision (§ 60.113(a)(2)) can be applied to a geologic setting located in either the saturated or unsaturated zone. The Commission could discern no obvious advantage for developing a parallel provision for the unsaturated zone as one commenter suggested. With respect to another commenter's concern that if the Commission decided to retain the groundwater travel time provision, travel time along any segment of the flow path, including the unsaturated zone, should be creditable, provided that reasonable assurance has been demonstrated, the Commission has concluded further that the definition of the term "groundwater" set forth at § 60.2 will allow travel time along subsurface flowpaths to be considered regardless of the hydrogeologic regime through which the water is moving. As defined in § 60.2, "groundwater" means

all water which occurs below the land surface. The Commission believes that the concerns of one commenter that it would be inappropriate to limit groundwater travel time to the saturated zone because such an action would not accurately indicate the actual radionuclide transport time from the original location of the waste to the accessible environment will also be largely accommodated by the definition of the term "groundwater" in § 60.2. With respect to the view expressed that the approach set forth in § 60.113(b) may be particularly appropriate in the case of HLW disposal in the unsaturated zone, it should be noted that in those instances when groundwater travel time calculations cannot be demonstrated with reasonable assurance, the Commission may prefer to specify or approve alternative performance objectives pursuant to § 60.113(b).

In its second question related to groundwater travel time the Commission sought public comment on whether groundwater travel time represented an appropriate measure of performance for a site within the unsaturated zone, or whether an alternative performance objective for the geologic setting would be more appropriate. The views expressed by the commenters were nearly equally divided on this issue. Some of the commenters asserted that, although not ideal, the groundwater travel time provision may, under certain circumstances, represent an appropriate measure of performance for a geologic setting in the unsaturated zone. Other commenters argued that groundwater travel time was not an appropriate performance objective for HLW disposal within the unsaturated zone and suggested several alternative performance objectives, as discussed below.

With respect to alternative performance requirements, one commenter considered it unacceptable to establish an alternative performance measure for unsaturated geologic media while using a different measure for a saturated salt site. The Commission anticipates that the decision to apply the groundwater travel time provision to all geologic settings regardless of the hydrogeologic zone in which the site is located should alleviate this commenter's concern. Another commenter stated that although groundwater travel time substantially exceeding 1,000 years is a favorable condition, it is not appropriate as a totally definitive performance objective for disposal in either the saturated or unsaturated zone. However, in view of § 60.113(b), the groundwater travel time performance objective is not such a "totally definitive" objective. The same commenter considered release criteria



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as the absolute measure of total performance and further argued that realistic estimates of release criteria for the unsaturated zone might not be possible until observations are actually made in shafts and drifts. In response, the Commission would note that the site characterization program would include such observations. One commenter indicated that if NRC chose to retain the groundwater travel time performance objective that this provision should only be applied if the travel time calculations include combined travel times in the unsaturated and saturated zones so as to better approximate radionuclide transport. The Commission considers the concerns of this commenter to be accommodated by the definition of the term "groundwater" adopted in the final amendments.

Most commenters who argued against the application of the groundwater travel time performance objective to unsaturated geologic media generally suggested alternatives based either on the hydrogeologic concept of flux or upon the case-by-case approach of § 60.113(b).

As derived from U.S. Geological Survey Water Supply Paper-1988 the term groundwater "flux" can be defined as the rate of discharge of groundwater per unit area of porous or fractured geologic media measured at right angles to the direction of flow. In comparison, the term "groundwater travel time" used in 10 CFR Part 60 can be interpreted as the length of time required for a unit volume of groundwater to travel between two locations. Alternatives suggested by the commenters which were based upon the concept of flux included a maximum groundwater flux requirement and a dual "either/or" criterion which would allow the applicant the option of demonstrating compliance with either a minimum groundwater travel time requirement or a maximum groundwater flux requirement. After considering the possibility of an alternative performance objective based upon the maximum groundwater flux, the Commission has decided to retain the groundwater travel time requirement for geologic settings regardless of the hydrogeologic zone in which they are located. This decision was based on the Commission's belief that the groundwater travel time requirement represents an independent measure of the overall hydrogeologic system performance which may encompass a variety of hydrogeologic parameters including groundwater flux. However, the Commission expects that groundwater flux will be an important factor in the technical evaluation of radionuclide releases in the unsaturated zone, as well as in the saturated zone.

The Commission does not consider it

necessary to specify a dual "either/or" groundwater criterion suggested by one commenter since under the provisions of § 60.113(b), the Commission already has the flexibility to approve or specify some other radionuclide release rate, designed containment period, or pre-waste-emplacement groundwater travel time on a case-by-case basis. Further, the Commission anticipates that areally integrated or averaged groundwater flow velocity referred to by this same commenter will be addressed in the evaluation of uncertainties surrounding the groundwater travel time calculations.

In addition, to a performance criterion based upon groundwater flux, other alternative performance criteria were discussed by commenters. DOE, in its original comment letter on the proposed amendments expressed general support for a performance criterion based upon groundwater flux, but in an addendum to this letter concluded that it would be impractical to define a performance objective for the geologic setting based on flux through a geologic repository located in the unsaturated zone. Instead, DOE took the position that an alternative performance objective developed upon the concept of a minimum time for groundwater travel to the accessible environment based on four separate physical events would be more appropriate for the unsaturated zone. The four physical events contained in the suggested DOE alternative performance objective are: (1) The creation of a drying zone around the emplaced wastes, (2) the subsequent return of moisture to the rock surrounding the waste canisters, (3) the travel time through the unsaturated zone and finally, (4) the travel time to the accessible environment by groundwater movement through the saturated zone.

The manner in which these or possibly other events may occur within the geologic repository system will depend upon the interactions of a number of site- and design-specific parameters such as the thermomechanical and hydrogeologic properties of the host rock, thermal loading of the underground facility and waste package design. However, as noted at 48 FR 28203, the Commission believes that it is important to consider both natural and engineered barriers individually and has structured the technical criteria of 10 CFR Part 60 in a way that requires that the natural and engineered barriers each make a definite contribution to the overall system performance objective for the geologic repository. To that end the Commission considers it important to maintain a standard of performance for the geologic setting that is a measure of the quality of the natural barriers and is

independent of any interaction between these natural barriers and the engineered barriers.

The existing pre-waste-emplacement groundwater travel time provision (§ 60.113(a)(2)) is such a performance standard since it is characteristic of the area outside of the disturbed zone created by underground facility construction and waste emplacement operations. This parameter is not dependent upon the effects of waste emplacement and is intended to provide assurance of isolation beyond the first 1000 years. The Commission prefers the existing groundwater travel time provision, which is part of its multiple barrier approach, to the alternative performance objective suggested by DOE since the latter does not offer a measure of performance for the geologic setting that can be evaluated independently of design and engineering factors. Further, the physical parameters needed to evaluate pre-waste-emplacement conditions of the geologic setting can be accurately measured with direct and indirect field methodology.

The DOE suggestion would necessitate that estimates of long-term performance of the geologic setting under post-waste-emplacement conditions be used in the Commission's deliberations on whether the groundwater travel time performance objective is met. The uncertainties associated with such estimates can be affected by a number of factors, including the age and nature of the waste and the design of the underground facility. Evaluations of the performance of the geologic setting under post-waste-emplacement condition must also take into account predictions of future changes in the thermomechanical, geochemical and hydrogeologic properties of the geologic setting through time as a result of the creation of a non-isothermal environment due to waste emplacement. The Commission's view is that the present emphasis on pre-waste-emplacement conditions will provide a higher degree of confidence in the continued isolation capabilities of the natural barriers of the geologic setting over the long term.

The view was also expressed by other commenters that the development of a new alternative performance objective to existing § 60.113(a)(2) may not be necessary since the Commission's approach set forth at § 60.113(b) might be a more appropriate means of specifying alternatives to the groundwater travel time criterion. The Commission notes that it is essentially following this approach in its decision to

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retain the existing provisions of § 60.113(a)(2) and § 60.113(b).

Following a review of the various alternative performance objectives suggested by the commenters, the Commission considers groundwater travel time to represent a more appropriate parameter upon which the performance of the geologic setting can be evaluated than any of the suggested alternatives because a prescribed groundwater travel time can be generically applied and will provide a conservative estimate of a minimum radionuclide release time to the accessible environment. It should be noted, however, that the Commission still retains the option of applying the provisions of § 60.113(b) instead of § 60.113(a)(2) to a particular geologic setting when such an action is deemed appropriate.

### (b) Definition of Groundwater

Three commenters addressed the Commission's proposed definition of the term "groundwater" as meaning "all water below the Earth's surface". Two of these commenters, citing possible confusion among the public and scientific community stated that the Commission should not define "groundwater" in this manner, but rather should limit the use of the term to water within the saturated zone. In contrast, one commenter commended NRC on this definition, but noted that it may not be consistent with the definition of the term included in the proposed EPA environmental standards—40 CFR Part 191. In its proposed rule EPA defined "groundwater" as "water below the land surface in a zone of saturation" (47 FR 58205, December 29, 1982). While the Commission recognizes that limiting the use of the term "groundwater" to water within the saturated zone may currently be a more widely accepted practice, the Commission also notes that numerous members of the scientific community routinely use the term groundwater in the same context as the Commission proposed.

The Commission has carefully reviewed the arguments presented by the commenters on this issue and has decided to retain the definition of groundwater with one minor change—the phrase "Earth's surface" has been replaced by "land surface". This change was made for the sake of clarity and internal consistency with wording in the definition of the term "unsaturated zone". The Commission's decision was based on the fact that, at present, no unique definition of the term "groundwater" appears to be universally accepted in the technical

community. Therefore, the Commission has not actually redefined the term "groundwater" as one commenter suggested but rather has adopted one of the commonly used definitions of the term that is most consistent with the Commission's intent concerning the provisions related to groundwater throughout the Part 60 regulation. With respect to the differences between the definition of the term "groundwater" adopted by the Commission and that proposed by EPA, the Commission notes that it does not consider the two definitions to be inconsistent since the scope of the definition adopted in § 60.2 will encompass water within the zone of saturation as well as water within the unsaturated zone. As noted above, the Commission considers it necessary to adopt a broader definition of the term "groundwater" in order to maintain consistency with previous Commission usage of this term and to effectively apply the provisions of 10 CFR Part 60 to the regulation of HLW disposal within unsaturated as well as saturated geologic media. Further, since EPA has not yet promulgated its final environmental standards, the Commission cannot anticipate whether or how "groundwater" will actually be defined in the final EPA regulation.

### (c) Definition of the "Unsaturated Zone"

The Commission's proposed definition was derived from U.S. Geological Survey (USGS) Water Supply Paper 1988. Two commenters noted that the phrase "deepest water table" introduced confusion into the definition of the term "unsaturated zone" (§ 60.2). The Commission had inferred that the phrase "deepest water table" as used by the USGS referred to the regional water table and hence adopted this same phraseology in the definition of the term "unsaturated zone" set forth in the proposed amendments to 10 CFR Part 60. However, in light of confusion expressed by commenters which may be due partially to the incorrect inference by some that the phrase "deepest water table" referred to local rather than regional water tables, the definition of term "unsaturated zone" has been modified. To clarify the Commission's original intent, the phrase "deepest water table" has been replaced by "regional water table" in the final amendments. (A conforming change has also been made to the definition of the term "saturated zone"). Additionally, the phrase "water in this zone is under less than atmospheric pressure" has been rewritten as "fluid pressure in this zone is less than atmospheric pressure" for the sake of technical clarity. The Commission has attempted to maintain

internal consistency with the definitions of hydrogeologic terms presented in USGS Water Supply Paper 1988 wherever practicable and for this reason has not adopted any of the alternative definitions of the term "unsaturated zone" suggested by the commenters.

### (d) Favorable Siting Conditions

Section 60.122(b)(2). The term "low hydraulic potential" has been replaced with "low hydraulic gradient" in § 60.122(b)(2)(iii) as suggested by one commenter for the sake of technical accuracy.

Section § 60.122(b)(7). In addition to comments received in response to the Commission's specific request for input on its questions related to groundwater travel time calculations in the unsaturated zone, the subject of groundwater travel time was also addressed by two commenters on proposed § 60.122(b)(7). The issues raised by these two commenters merit discussion here although they have resulted in no change to the rule.

The provisions of § 60.122(b)(7) have the effect of identifying pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel from the disturbed zone to the accessible environment that substantially exceeds 1,000 years as a favorable siting criteria for both the saturated and unsaturated zones. Previously these provisions (formerly designated as § 60.122(b)(2)(iv)) applied only to sites within the saturated zone.

One commenter on proposed § 60.122(b)(7) opposed the application of this provision to the unsaturated zone on the grounds that the determination of groundwater travel time in the unsaturated zone may not be necessary nor always be possible. Under such circumstances, this commenter argued, inability to demonstrate that groundwater travel time substantially exceeds 1,000 years should not amount to the absence of a favorable condition. The issue of groundwater travel time in the unsaturated zone has already been discussed in detail in the above section on *Groundwater Travel Time Calculations* and will not be repeated here. With respect to the second part of this comment the Commission reiterates its position set forth in the Supplementary Information to the final 10 CFR Part 60 technical criteria (48 FR 28201) that a site is not disqualified as a result of the absence of a favorable siting condition.

A second commenter on § 60.122(b)(7) expressed the view that for a HLW repository within the unsaturated zone, minimizing leachate flux would appear

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to be at least as important as maximizing groundwater travel time. To that end, this commenter feels that it might be more appropriate to specify as a favorable siting condition a dual "either/or" criterion such that groundwater travel time is greater than 1,000 years or groundwater flux through the host rock at a proposed site is less than some average rate. This rate, it was argued, could be based on nuclide solubility, leach rate criteria, and population exposure criteria. The commenter stated that whichever criterion was ultimately selected it should be based upon an areally integrated or averaged calculation, over an area on the order of the cross-sectional area of the repository normal to the direction of expected flux regardless of hydrogeologic zone to help reduce controversy concerning how the "fastest pathway" can be determined. For a discussion of the concept of applying a dual criterion of either groundwater travel time or groundwater flux see the above section entitled *Groundwater Travel Time Calculations*.

Minor corrections have been made to the provisions of § 60.122(b)(8) for the sake of clarity and technical accuracy as a result of the comments received. The phrase "and nearly constant" has been deleted from § 60.122(b)(8)(i) and a typographical error in the word "overlying" has been corrected.

### *(e) Potentially Adverse Conditions*

Section 60.122(c)(9). This provision of the final technical criteria identified groundwater conditions in the host rock that are not reducing as a potentially adverse condition for the saturated zone. One commenter on the proposed amendments stated that a parallel provision should be provided for the unsaturated zone. The Commission considers this argument to have merit and has modified the final amendments accordingly. Rather than create an additional provision, the Commission has deleted the qualifying phrase "for disposal in the saturated zone" from existing § 60.122(c)(9) to ensure that this provision will be applicable equally to groundwater conditions in the saturated and unsaturated zones.

Section 60.122(c)(23). Minor editorial changes have been made as suggested by one commenter, for the sake of clarity.

Section 60.122(c)(24). During the development of the proposed amendments (47 FR 5935, February 16, 1984) the Commission's staff identified vapor transport of contaminants as a potential concern associated with HLW disposal in the unsaturated zone. The Commission noted that in unsaturated

geologic media, water is transported in both liquid and vapor phases. The relative contribution of transport via both these phases and their direction of movement with respect to a geologic repository was deemed to directly influence the containment of contaminants. Vapor transport, particularly when a thermal gradient is imposed, may provide a possible mechanism for radionuclide migration from a geologic repository in unsaturated geologic media. This issue was discussed at length by the Commission in the proposed amendments and in draft NUREG-1046. The comments received on the discussion of vapor transport and on the wording of the proposed amendment § 60.122(c)(24) indicated a need for the Commission to clarify its intent with respect to vapor transport.

The issue of vapor transport of contaminants is a relatively new issue that has grown out of scientific investigations of the feasibility of HLW disposal in unsaturated geologic media. Since most scientific studies related to HLW disposal within the unsaturated zone have been initiated very recently, many of the associated issues have not as yet been examined in any great detail. The Commission recognized that vapor formation may not necessarily constitute an adverse condition for a particular geologic repository site, but, given the fact that vapor transport could provide a mechanism for radionuclide transport within the unsaturated zone, it wanted the opportunity to evaluate whether or not vapor transport could adversely affect a geologic repository system. To that end the Commission identified the potential for vapor transport of radionuclides from an underground facility located in the unsaturated zone to the accessible environment as a potentially adverse condition in the proposed amendments (§ 60.122(c)(24)). The Commission has not reached any conclusions on vapor transport, as one commenter incorrectly inferred, but rather is currently sponsoring research on vapor transport in unsaturated fractured rock in an effort to better understand this subject.

Some confusion was expressed by the commenters with respect to the Commission's use of the term "vapor transport". In particular, one commenter stated that § 60.122(c)(24), as written, was ambiguous and meaningless. The term "vapor transport" as used in the proposed amendments referred to both water vapor and the gaseous state of some constituent contaminants. A second commenter on this issue suggested that the Commission add quantitative clarifications to this

provision since the proposed wording allowed no potential vapor transport of radionuclides by molecular diffusion (i.e., transport at a microscopic level due to concentration gradients) or convective transport (i.e., transport due to temperature or density gradients). The same commenter noted that while the flux values associated with these two transport processes might be miniscule, they would not be zero at any unsaturated site. The Commission does not consider it appropriate to add quantitative clarifications to § 60.122(c)(24) because the movement of radionuclides in the gaseous state is, to a large extent, dependent on site- and design-specific parameters. The Commission considers the movement of radionuclides in the gaseous state may be a potentially important site- and design-related process and will retain the opportunity to evaluate whether or not such a process will adversely affect the geologic repository system. However, to alleviate the confusion surrounding proposed § 60.122(c)(24), the wording of this provision has been extensively modified in the final amendments. Reference to "vapor transport" has been deleted, and this provision now solely addresses the potential for the movement of radionuclides in a gaseous state through air-filled pore spaces of an unsaturated geologic medium to the accessible environment as a potentially adverse condition. The Commission believes the revised wording will more accurately convey its original intent and should remove any ambiguity associated with the previous wording, such as one commenter's query of where the vapor transport is occurring and when it is important.

The Commission agrees with the commenter who indicated that vapor transport may also occur in geologic repositories sited in the saturated zone until resaturation occurs. A temporary, localized, unsaturated region could form around an underground facility within the saturated zone as a result of activities related to construction and operation of a geologic repository (e.g. dewatering of shafts and drifts). To date, the issue of vapor transport has not been raised for a geologic repository within the saturated zone primarily because such a phenomenon would be expected to be encompassed within a much larger saturated region, that is, vapor transport might only be expected to occur in that portion of the host rock where the voids are not completely filled or refilled with groundwater. Further, it is anticipated that the time required for waste package integrity

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(300–1,000 yrs) will generally exceed the post-closure time required for resaturation of a geologic repository within the saturated zone (assumed by the NRC staff to occur within a few hundred years following permanent closure). Therefore, the Commission does not consider it necessary at this time to identify vapor transport as a potentially adverse condition for HLW disposal within the saturated zone. However, if future research in the area of vapor transport challenges these current assumptions, the Commission may decide to broaden the provisions of § 60.122(c)(24) to include both the saturated and unsaturated zones.

### (f) Design Criteria

Changes were made to provisions of the final technical criteria related to design criteria. The provisions of § 60.133(f) have been modified to more closely identify the concept of a potential for creating a preferential pathway for groundwater to contact the waste packages. This change was prompted by a commenter's observation that as originally worded, this provision might not be internally consistent with new § 60.122(b)(8)(iv) which identifies a host rock that provides for free drainage as a favorable hydrogeologic condition in the unsaturated zone. Similar word changes have been made to the provisions of § 60.134(b) for consistency with § 60.122(b)(8)(iv). Additionally, the phrase "radioactive waste migration" has been changed to "radionuclide migration" in both § 60.133(f) and § 60.134(b) for the sake of technical accuracy. The changes should ensure that these provisions will be equally applicable to geologic repositories within either the saturated or unsaturated zone, and will more accurately convey the Commission's original intent.

### Environmental Impact

Pursuant to Section 121(c) of the Nuclear Waste Policy Act of 1982, the promulgation of these criteria does not require the preparation of an environmental impact statement under Section 102(2)(C) of the National Environmental Policy Act of 1969 or any environmental review under subparagraph (E) or (F) of Section 102(2) of such Act.

### Paperwork Reduction Act Statement

The final rule contains no new or amended recordkeeping, reporting or application requirement, or any other type of information collection requirement subject to the Paperwork Reduction Act (Pub. L. 96-511).

### 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 only entity subject to regulation under this rule is the U.S. Department of Energy, which is not a small entity as defined in the Regulatory Flexibility Act.

### List of Subjects in 10 CFR Part 60

High-level waste, Nuclear power plants and reactors, Nuclear materials, Penalty, Reporting and recordkeeping 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 Nuclear Waste Policy Act of 1982, and 5 U.S.C. 553, the Nuclear Regulatory Commission is adopting the following amendments to 10 CFR Part 60.

51 FR 27158  
Published 7/30/86  
Effective 8/29/86

### 10 CFR Parts 2 and 60

### Disposal of High-Level Radioactive Wastes in Geologic Repositories: Amendments to Licensing Procedures

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations applicable to the disposal of high-level radioactive wastes in geologic repositories. These amendments deal with procedural aspects of site characterization and the participation of States and Indian Tribes. Among other things, the rules set forth requirements applicable to the Department of Energy for submitting site characterization plans. For the most part, the amendments to licensing procedures are changes made to reflect the provisions of the Nuclear Waste Policy Act of 1982

**EFFECTIVE DATE:** August 29, 1986.

**FOR FURTHER INFORMATION CONTACT:** Clark Prichard, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 427-4586.

### SUPPLEMENTARY INFORMATION:

#### Background

On February 25, 1981, the Nuclear Regulatory Commission (NRC) promulgated licensing procedures for the disposal of high-level radioactive waste (HLW) in geologic repositories (46 FR 13971). The enactment of the Nuclear Waste Policy Act of 1982 (NWPA), 42 U.S.C. 10101 et seq., brought about a need to revise some of the procedures in 10 CFR 60. The NWPA set forth in considerable detail the procedures to be followed during the process of siting and development of HLW geologic repositories, and the respective roles of NRC, the Department of Energy (DOE), and States and Indian Tribes. These amendments contain the changes to 10 CFR Part 60 that are needed to conform the licensing procedures in the rule to the provisions of the NWPA. In addition, the amendments contain some changes considered desirable in light of experience gained with the pre-licensing consultation process since the promulgation of the procedural part of 10 CFR Part 60.

On January 17, 1985 the Commission published proposed procedural amendments to 10 CFR Part 60 for public comment (50 FR 2579). The proposed amendments contained revisions to (1) the content of the site characterization plan (SCP), (2) NRC review of the SCP, and the issuance by NRC of a site characterization analysis (SCA), (3) means and timing of State and Indian Tribe consultation with NRC and participation in NRC reviews, and (4) notice and publication by NRC with respect to site characterization documents. The Commission received a number of comments on the proposed amendments, all of which have been carefully considered. The principal issues raised by these comments are discussed below.

#### Comments

A total of 15 organizations commented on the proposed rule, addressing a variety of concerns. Five of these issues call for extended response in this statement. These issues are: whether NRC should issue a draft site characterization analysis; the deletion of site selection information from the contents of the SCP; whether DOE should be required to receive and consider comments on the SCP before starting to sink a shaft; whether all amendments of 10 CFR Part 60 and Part 51 to conform with the Nuclear Waste Policy Act, especially those related to NEPA requirements and the present

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amendments, should be promulgated at the same time; and whether host States should automatically be afforded party status in licensing proceedings. Summaries of the comments received on these issues are presented below. Copies of all the comments, and the Commission's analysis of them, are available in the Commission's Public Document Room.

### *a. Draft Site Characterization Analysis*

There were several comments about the deletion of the draft site characterization analysis (SCA). Under the proposed rule, the NRC would have issued an SCA, a final set of comments on DOE's SCP, and would have invited public comment on its SCA for consideration in the ongoing staff review and commentary on the DOE program but would not have issued both a draft and a final SCA. Some commenters agreed with elimination of the draft SCA. However, most commenters requested that NRC continue to issue its analysis in both a draft and final form. Commenting States and Tribes believe that they have substantial expertise which NRC should consider in preparing its analysis on the DOE SCP. Some States wanted to see NRC's draft SCA to have the benefit of NRC's expertise while preparing their own comments. Some commenters emphasized a belief that any schedule delays resulting from issuing a draft SCA would not be important. Some commenters believed that the opportunities and procedures for public and State involvement in the repository siting and development process under the NWPAs are not substantially different from those contemplated when the previous regulations were promulgated. For this they concluded that there is no reason for NRC to change its procedures by eliminating the draft analysis on DOE's SCP's.

The Commission understands the concerns of the States, Tribes and public that their views be heard and considered. The Commission intends to be fully aware of State, Tribe and public views before, during, and after the site characterization plan review. The States and affected Indian Tribes will be routinely informed of the information made available to NRC and NRC's comments thereon. They are able to participate at NRC/DOE technical meetings. As is now being done, the NRC staff will continue to have discussions with State and affected Indian Tribe representatives and will respond to their written submissions. The NRC will also follow closely the NWPAs mandated opportunities for State, Tribe and public interaction with DOE to be aware of the concerns which are expressed by the States and Tribes in these forums.

The need for opportunities for State, Indian Tribe, and public involvement is addressed extensively by the NWPAs. The procedures established by the statute provide means for informing NRC of issues of concern. Given these specific procedures, and taking into account the scheduling provisions of the NWPAs, the publication of a draft SCA is no longer warranted. It is not required by law. It is important to note, however, that there will still be an opportunity to comment on NRC's SCA as the rule as amended requires the solicitation of such comments. NRC will make further comments to DOE if the State and public comments on NRC's SCA provide substantial new grounds for making recommendations or stating objections to DOE's site characterization program. (It should be noted, however, that NRC does not contemplate a formal comment analysis.)

To furnish additional assurance to the host State and affected Indian Tribes that their views will be considered in NRC's preparation of its SCA, a provision has been added to the final regulation providing an opportunity, before publication of the SCA by NRC, for those parties to present their views on the DOE SCP and suggestions with respect to NRC comments thereon.

### *b. Site Selection Information*

Some commenters opposed the deletion of information concerning DOE's site screening and selection process from the SCP contents. Some commenters also commented unfavorably on a perceived lack of any NRC review of DOE's site screening and selection process. A few commenters supported the deletion of such information from the SCPs.

The Commission has carefully reviewed the arguments presented by the commenters who stated that site selection information should still be included in the SCPs. The Commission continues to believe that such information is neither appropriate nor required in an SCP.

In regard to the generalized concern that NRC should be involved in the site selection process, it is noted that the NRC has played an important role in this process and will continue to do so. The sites under consideration for nomination have been the subject of continuous scrutiny by the NRC staff to identify licensing issues at the earliest possible stage. Available data are examined on a regular basis and site specific documents such as the environmental assessments are carefully reviewed. There are also activities specified by the NWPAs which afford the NRC an opportunity to directly influence the site selection process. These are NRC concurrence in DOE's siting guidelines and review and comments on the site characterization plans. NRC

expects that, under the EIS scoping process pursuant to CEQ rules, DOE will keep NRC fully and currently informed of its plans for implementation. We also expect to review and comment on DOE's scoping documents and activities for implementing NEPA in the repository program which are to be developed pursuant to CEQ rules, and to comment on DOE's EIS.

Thus, the issue of concern in this rulemaking is not whether the Commission should be involved in the DOE site screening and selection process generally. It is, more specifically, the scope of the information to be included in the DOE submission. The NWPAs, while generally conforming to the earlier NRC regulation, omitted the provisions dealing with NRC review of site selection matters. The Commission construes this action as an indication that the site selection issues previously dealt with in Part 60 were to be separated from the site characterization reports and dealt with, instead, in the environmental assessments. Under the NWPAs, the Commission's role in the review of DOE's site characterization plans is to determine whether they are appropriate in light of the Commission's regulations. Attention will be directed toward the adequacy of the characterization of a particular site; and this is different from, and not dependent upon, the considerations that led to the selection of that site.

### *c. Shaft Sinking*

Some commenters suggested that the regulation should be amended to require that DOE may not proceed to characterize sites by sinking shafts until NRC and State review and comment upon the SCP are complete. One commenter suggested that the regulation be clarified to specify that completion of NRC review is not a condition precedent for shaft sinking. The Commission agrees with the commenters who regard NWPAs as requiring that DOE defer the sinking of shafts at least until such time as there has been an opportunity for pertinent comments on shaft sinking to have been solicited and considered by DOE. As stated in the preamble to the proposed rule, "The Commission believes that Congress intended that DOE should provide the plans sufficiently far in advance so that comments may be developed and submitted back to DOE early enough to be considered when shaft sinking occurs, and all times thereafter." The question, therefore, is not whether the Commission agrees with the objective of those commenters to defer shaft sinking until after comments on the SCP have been received by DOE. The issue, rather, was whether the Commission should include in its own regulations an interpretation of the obligations of DOE

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under the statute. The Commission has concluded that it should do so, in the interests of fulfilling its own responsibilities more effectively. The Commission has stressed the importance of evaluating alternatives to major design features that are important to waste isolation, see 10 CFR 60.21(c)(1)(ii)(D), and in the case of the design and location of the shafts this can only be done prior to their sinking. It is important to the Commission that the comments which it may provide to DOE with respect to shaft sinking be taken into account as the Department proceeds.

The Commission observes that the incorporation of this language into the regulation should have no effect on the repository program. If the established working arrangements (including the Procedural Agreement, 48 FR 51876, described in the preamble to the proposed rule) provide the anticipated information exchange, NRC would in fact be able to review and comment in a timely fashion during DOE's early planning processes on those issues that may have a bearing upon DOE's decision to proceed with, or delay, the sinking of repository shafts. Moreover, the Commission is aware that DOE itself has indicated its intention to wait until it has completed a review of comments before proceeding to sink shafts.

### *d. Simultaneous Promulgation of Amendments*

Some commenters recommended that all revisions to Part 60 and Part 51 to conform them to the NWPA should be promulgated simultaneously. In particular, they recommended that the revisions concerning NEPA requirements accompany the revisions currently being promulgated. They believe that this would assure that a comprehensive and integrated approach is taken and any confusion regarding NWPA and NEPA requirements would be eliminated. They argue that much of Part 60 now rests on NEPA authority so that failure to include NEPA in the currently proposed revision casts a cloud over the Commission's view of its authority to carry out early site reviews.

The Commission has not put off considering its obligations under NEPA as modified by the NWPA. In developing these changes to the regulation, the Commission has specifically considered whether any procedures might be needed at the site screening or characterization stage, so as to assure that the Commission would be able to meet its ultimate NEPA responsibilities. The Commission concludes that they are not.

The Commission's Part 51 regulations govern the Commission's responsibilities for conducting

environmental reviews associated with its licensing and regulatory functions. Section 121(c) of NWPA, 42 U.S.C. 10141, clearly states that the requirements and criteria set forth in Part 60 relate to the Commission's responsibility under the Atomic Energy Act and the Energy Reorganization Act and do not require a NEPA EIS. The Part 51 changes, on the other hand, will relate to the Commission's NEPA obligations at the time DOE applies for a license.

It appears that, under NWPA, NRC prelicensing review of NEPA issues was, in fact, not intended to be extensive. Aside from its concurrence in the siting guidelines, the statutory scheme calls for NRC participation to commence with the filing of the site characterization plans by DOE. Furthermore, unless DOE fails to follow the procedures for identifying sites to be characterized, as specified in NWPA, there would be no basis or authority to insist, for NEPA purposes, that particular sites be excluded or that other sites be selected for characterization.

It is important to proceed with the present actions without awaiting other changes to Part 51 that will be prepared in the light of the NWPA. This would allow for changes related to site characterization to be implemented in a timely fashion as DOE prepares its site characterization plans.

The Commission acknowledges that the authority citation for Part 60 includes a reference to NEPA; that is appropriate because the regulation specifies NEPA licensing findings, 10 CFR 60.31(c), 60.41(d), and contemplates the inclusion, in a construction authorization and a license, of conditions to protect environmental values, 10 CFR 60.32(a), 60.42(a). These sections, in essence, merely require that the construction and operation of a repository comply with NEPA requirements. They do not represent a reliance on NEPA authority as a significant underpinning for Part 60. Part 51 of NRC regulations, which deals with NEPA implementation, will however need to be changed—specifically to (1) define the alternatives that must be discussed in an environmental impact statement, (2) exempt the promulgation of NRC licensing requirements and criteria from environmental review under NEPA, and (3) set out procedures that will be followed by the Commission in determining whether or not to adopt the DOE EIS. The alternatives are, for the most part, prescribed by NWPA. The exemption of licensing requirements from environmental review is also an explicit feature of that Act. The procedures for adoption of the DOE environmental impact statement will be governed by NWPA and the regulations

of the Council on Environmental Quality. These changes to Part 51 will be needed in order to conform NRC's licensing process to applicable law. Nothing in the present action impairs the Commission's ability to make the required changes to Part 51 or otherwise to meet its NEPA obligations. Thus, in developing this current amendment the Commission has specifically considered whether any procedures might be needed during the current site screening process to assure meeting its ultimate NEPA responsibilities. The Commission concludes that they are not. Nothing in the upcoming Part 51 changes will affect early site screening involvement. Accordingly, this rule is separable from the amendments to be proposed to Part 51. It is needed now by DOE, and there would be no justification for delay in promulgating it.

### *e. Party Status for Host State*

The point was raised that a host State is entitled to full party status at the outset in NRC licensing proceedings and should have the rights of such a party. An absolute right of participation in NRC licensing proceedings should be declared by 10 CFR Part 60.

Under section 189(a) of the Atomic Energy Act, 42 U.S.C. 2239, a person "whose interest may be affected" is entitled to be admitted to a licensing hearing as a party. Under this statutory provision, there can be no question that the host State has a legal right to be a party. Nevertheless, as in any judicial or administrative proceeding, certain rules of practice are essential in order for the party's interest in a matter, its contentions with respect thereto, and its claims for relief, to be made a matter of record.

Rights of participation in NRC licensing proceedings are referenced in 10 CFR 60.63. The test of standing are set out in § 2.714. These tests are clearly met for host State participation. The standing tests would be met for affected Indian Tribes as well. (It is also noted that States and arguably affected Indian Tribes can participate under 10 CFR 2.715 without having to take a position on issues by supplementing their intervention petition with contentions as required by § 2.714.) In response to the comments received, the final rule assures that host States and affected Indian Tribes will be permitted to intervene. This has been accomplished by amending 10 CFR 2.714(d). A conforming change is also incorporated in § 60.63(a).

It will not be necessary for such a party to demonstrate its standing, as would otherwise be the case, by a showing of its right under the Atomic Energy Act to be made a party, the nature and extent of its property, financial, or other interest in the



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proceeding, and the possible effect of any order which may be entered in the proceeding on its interest. Under the amended rule, States and affected Indian Tribes would have unquestionable legal right to full party status which includes, with respect to all matters affecting its interest, the rights to introduce evidence, put on witnesses, cross-examination, full notice and service of all pleadings, full rights of discovery, and standing to appeal. It should also be noted that non-host States may also participate in licensing proceedings as parties to the extent they meet the customary tests of standing, or as interested States.

### Changes to the Proposed Amendments

In addition to changes discussed above, the final rule contains the following substantive changes from the proposed rule as published on January 17, 1985.

### Authority Citation

Section 14(a) of Pub. L. 95-601, 42 U.S.C. 2021a would require that DOE notify the Commission as early as possible after commencement of planning for a particular repository. The Commission was directed to notify States in turn. As implied by the preamble to the proposed rule, the Commission considers these requirements to have been superseded by NWPA. The authority citation has been modified accordingly.

### Exclusion of Defense Waste Facilities

The Commission's licensing authority extends to two different classes of high-level waste disposal facilities: repositories used primarily for civilian waste (including spent nuclear fuel) and facilities for defense wastes. Energy Reorganization Act of 1974, sec. 202, 42 U.S.C. 5842. NWPA applies only to some of these facilities—namely, those used at least in part for civilian wastes (i.e., not exclusively for defense wastes). Sec. 8(c), 42 U.S.C. 10107. A commenter suggested that the pre-NWPA procedures should expressly be retained for defense-only facilities, as they were not covered by NWPA and the statute accordingly did not support any change in NRC requirements. The point has merit. However, in accordance with the procedures set out in section 8(b) of NWPA, the President has now determined that the development of repository for the disposal of defense HLW is not required. There is thus no longer any need for regulations dealing specifically with a defense-waste-only repository. To reflect this conclusion, and clarify the scope of the regulations, Section 60.1 is being revised so as to limit the application of the part to facilities "sited, constructed, or operated in accordance with the Nuclear Waste

Policy Act of 1982." Also, the reference in § 60.17(a)(4) to a geologic repository that is not subject to the Waste Policy Act has been deleted.

### Definition of "Affected Indian Tribe"

In response to comments, the final rule defines the term "affected Indian Tribe" so as to include, for purposes of these regulations, Indian Tribes having off-reservation rights arising out of "other Federal law" as well as "out of Congressionally ratified treaties", provided that specified findings have been made by the Secretary of the Interior. This would place all Indian Tribes on the same footing as long as their rights arise under Federal law irrespective of the legal form in which such rights may have been documented.

### Authority Reference for Site Characterization

One commenter noted that the reference to former 10 CFR § 51.40, in connection with the requirement that DOE is to conduct a program to characterize multiple sites, has been superseded by the NWPA. In response to that comment, § 60.15(c) has been changed to indicate that sec. 113 of the NWPA (42 U.S.C. 10133) is the basis for the site characterization program requirement. The proposed amendments had simply renumbered this section from §§ 60.10 to 60.15 without change.

### Authority for Early Site Review by NRC

In response to the comment that the NRC should not rely on the DOE-NRC Procedural Agreement as authority for early site review, the footnote to § 60.18 is revised to delete the reference to the DOE-NRC Procedural Agreement. The Commission relies upon the statutes listed in the authority citation.

### Public Comment on NRC Comments to DOE on Site Characterization

On comment stated that issues arising during site characterization could be more readily brought to the Commission's attention by establishing a notice and public comment process for the NRC semi-annual comments to DOE on site characterization. Just as the Commission will solicit comments on its comments on DOE's initial SCP, it wants to allow for public comment on any Commission comments on DOE's semi-annual reports. Section 60.18(i) has therefore been changed to include a provision that the Director shall invite public comment on comments which the Director makes to DOE upon review of the DOE semi-annual reports or on any other comments which the Director makes to DOE on site characterization.

### Obtaining Host States and Indian Tribe Views on the SCP

Although the Commission continues to

find preparation of the draft SCA to be unnecessary, some recognition of its intention to welcome the views of host States and affected Indian Tribes is warranted. Accordingly § 60.18(b) has been changed to provide an opportunity for the host State and affected Indian Tribes for each site to be characterized to present their views on the DOE SCP and their suggestions with respect to NRC comments thereon.

### Use of Radioactive Tracers During Site Characterization

One issue raised in the comments related to the scope of the Commission's obligations to concur in the necessity for DOE to use radioactive materials during site characterization. It might be argued that the statutory provision (NWPA § 113(c)(2)(A)) was intended to apply only to the emplacement of discrete packages, for testing purposes, into excavated locations in the repository. However, in view of the unqualified language that "the Secretary may not use any radioactive material at a candidate site unless the Commission concurs that such use is necessary" (emphasis supplied), the regulation has been modified to state expressly that the site characterization plan must also identify any plans DOE may have involving the use of radioactive tracer materials. See § 60.17(a)(2)(ii). Any tracer tests described in the site characterization plans would be subject to the review and concurrence procedure specified in § 60.18(e).

### Consultation and Site Review

As stated in the notice of proposed rulemaking, prior provisions pertaining to participation of Indian Tribes have been incorporated in the substantive provisions applicable to States. Further editorial changes (i.e., references to "Tribes") have been made to accomplish this purpose in § 60.62(c).

### Separate Views of Commissioner Asselstine

I approve the procedural amendments to 10 CFR 60 in part and disapprove in part. I believe the Commission has gone too far in deleting two very important provisions from the Commission's original procedural rule. These two important elements are: (1) The requirement for NRC review of the Department of Energy's site screening and selection process for a high-level radioactive waste repository; and (2) the requirement for NRC issuance of a draft site characterization analysis of DOE's site characterization plan for public comment, and staff analysis of those comments.

The Commission issued its licensing procedures for a high-level radioactive waste repository on February 25, 1981. These licensing procedures included

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NRC review of DOE's site screening and selection process and NRC issuance of a draft site characterization analysis for public comment. These were two provisions which the Commission at the time considered to be important for it to carry out effectively its licensing responsibility of a high-level radioactive waste repository. The Nuclear Waste Policy Act (NWPA) was enacted in 1982. The Congress was aware of NRC's high-level waste licensing procedures when it passed the NWPA. Congress did not object to these important provisions. However, the Commission is now taking the position that because these provisions are not required by the NWPA, then the Commission should delete them from its regulations. The fact that the new law is silent as to those two provisions does not serve as a justification for deleting these provisions from the Commission's regulations.

I believe the Commission should retain these two very important provisions in 10 CFR Part 60. The Commission's health and safety and environmental protection responsibilities warrant NRC review of DOE's site screening and selection process. I also believe that NRC issuance of its site characterization analysis for public comment will contribute to a more rigorous and thorough review of the DOE site characterization plans, which in turn, will enhance public confidence. What the Commission considered important to carry out its health and safety responsibilities in 1981 is still important and has not been changed by the NWPA.

### Environmental Impact

Pursuant to section 121(c) of the Nuclear Waste Policy Act, this rule does not require the preparation of an environmental impact statement under section 102(2)(C) of the National Environmental Policy Act of 1969 or any environmental review under subparagraph (E) or (F) of section 102(2) of such act.

### Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1989 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget Approval No. 3150-0127.

### 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. This rule relates to the licensing

of only one entity, 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.

### 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 60

High-level waste, Nuclear power plants and reactors, Nuclear materials, Penalty, Reporting and recordkeeping 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 Nuclear Waste Policy Act of 1982, and 5 U.S.C. 553, the Nuclear Regulatory Commission is adopting the following amendments to 10 CFR Part 2 and 10 CFR 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**

➤ 47 FR 57446

Published 12/27/82

Effective dates:

10 CFR 20.311 of Part 20 effective date is 12/27/83; 10 CFR Part 61 and all other changes effective 1/26/83.

10 CFR Parts 2, 19, 20, 21, 30, 40, 51, 61, 70, 73 and 170

**Licensing Requirements for Land Disposal of Radioactive Waste**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is issuing regulations that set out licensing procedures, performance objectives and technical requirements for the licensing of facilities for the land disposal of low-level radioactive waste. The regulation is necessary to provide comprehensive national criteria applicable to the land disposal of radioactive waste. This action is taken in response to the needs and requests of the public, Congress, industry, the states, the Commission, and other Federal agencies for codified regulations to govern the disposal of low-level radioactive waste.

**DATES:** 10 CFR 20.311 of Part 20 effective date is December 27, 1983; 10 CFR Part 61 and all other changes effective January 26, 1983.

**ADDRESSES:** Documents referred to in this regulation may be examined at the Commission's Public Document Room, 1717 H Street NW., Washington, DC. Copies of NUREC's may be obtained by writing the Superintendent of Documents, U.S. Government Printing Office, CIB, SSOS, UCP, Washington, DC 20401 or the NRC/GPO Sales Program, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

Copies of Branch Technical Positions may be obtained from the Low Level Waste Licensing Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

**FOR FURTHER INFORMATION CONTACT:** Paul H. Lohaus, Low-Level Waste Licensing Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)427-4500.

**SUPPLEMENTARY INFORMATION:**

**Introduction**

The NRC is amending its regulations to provide specific requirements for licensing the land disposal of low level radioactive wastes containing source, special nuclear, or byproduct material. The amendments provide licensing procedures, performance objectives, and technical criteria for licensing facilities for the land disposal of radioactive waste. Specifically, the regulations establish performance objectives for land disposal of waste; technical requirements for the siting, design, operations, and closure activities for a near-surface disposal facility; technical requirements concerning the waste form that waste generators must meet for the land disposal of waste; classification of waste; institutional requirements; and administrative and procedural requirements for licensing a disposal facility. Amendments to other parts are established to govern the certification and use of shipping manifests to track waste shipments and clarify, but not substantially modify, the requirements of existing regulations. Provisions for consultation and participation in license reviews by State governments and

Indian tribes are also included. Specific requirements for licensing facilities for the disposal of radioactive wastes other than high level waste by alternative land disposal methods will be proposed in subsequent rulemakings. Disposal of radioactive wastes by an individual licensee will continue to be governed by 10 CFR Part 20.

**Background**

On October 25, 1978, the Commission published an Advance Notice of Proposed Rulemaking (43 FR 49811) regarding the development of specific regulations for the disposal of low-level radioactive wastes (LLW). The development of these regulations was in response to needs and requests expressed by the public, the Congress, industry, the States, the Commission, and other Federal agencies for codification of regulations for the disposal of LLW. The respondents to the advance notice strongly supported the Commission's development of specific criteria and standards for the disposal of low-level waste. The comments received by the Commission on the advance notice were used by the Commission in scoping the form and content of the draft Environmental Impact Statement (EIS) (NUREG-0782) and the regulation.

On February 28, 1980, the Commission also published a Notice of Availability of a preliminary draft regulation, dated November 5, 1979, announcing availability of the draft for public review and comment (45 FR 13104). This was done to help ensure wide distribution and early public review and comment on the development of the rule. Copies of this draft regulation were distributed to all of the States.

During the summer and fall of 1980, the Commission also sponsored four regional workshops to provide an

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opportunity for open dialogue among representatives of the States, public interest groups, industry, and others on the issues to be addressed in the Part 61 rulemaking. These workshops were particularly useful in formulating our positions on the more judgmental aspects of the rule and underlying assumptions (such as the length of time we should assume that active governmental controls could reasonably be relied on).

Proposed 10 CFR Part 61 and conforming amendments were published on July 24, 1981 (46 FR 38081). The original comment period was due to expire October 22, 1981, but was extended to January 14, 1982 to coincide with the 90-day comment period for the supporting draft EIS (NUREG-0782). The availability of the draft EIS was announced on October 22, 1981 (46 FR 51778). The proposed rule was sent to all Commission licensees and copies were provided to Agreement State officials to distribute to their licensees.

Public comments were received on both the rule and draft EIS and may be examined at the Commission's Public Document Room (PDR) located at 1717 H Street NW., Washington, D.C. Comments on the rule are available at the PDR Docket No. PR-2 *et al.* (46 FR 38081). Comments on the draft EIS are available at the PDR referencing Docket No. PR-61 (46 FR 51778).

A total of 42 persons commented on the draft EIS. These commenters represented a variety of interests. Comments were received from 21 States, 8 industry/utilities, 8 Federal agencies/laboratories, 3 individuals and 2 broker/disposal firms. The comments generally raised or echoed the same issues raised concerning the rule except that some questions on the methodologies and presentation of results were raised. A detailed analysis of the comments on the draft EIS will be included as an appendix to the final EIS (NUREG-0945) which is being prepared<sup>1</sup>.

### Overview of Comments on 10 CFR Part 61

A total of 107 different persons submitted comments on the proposed 10 CFR Part 61. The commenters represented a variety of interests. Comments were received from: 19 industrial groups, 17 state groups, 13 individuals, 13 utilities, 9 federal agencies or laboratories, 6 universities, 4 medical groups, 4 engineering firms, 4 public interest groups, 4 professional organizations, 3 broker/disposal firms, 2

legal groups, 2 surety groups, and 5 others. Commenters offered from one to over 20 comments each. The topics addressed a wide range of issues and all parts of the rule.

The general response was quite favorable. Almost half (47) expressed explicit support of the rule or overall approach. Many of these commenters expressed some concern about one or a few specific provisions and most offered suggestions for improvements. Many expressed the view that the rule provides a needed and adequate framework for establishing additional low-level waste disposal capacity. The importance, reasonableness, and clarity of the rule were noted. Support was expressed by almost every sector.

Only 15 commenters expressed any outright opposition to the rule or some significant portion of the rule. Most were individuals. No state group or current disposal site operator expressed opposition. The opposition expressed appeared to stem from objections to nuclear power and use of radioactive materials, opposition to shallow land burial as a disposal method in general and for TRU wastes in particular, opposition to perceived increase in costs to waste generators, the regulatory burden of the licensing process, and the technical requirements in Subpart D of the proposed rule. Several of the commenters that expressed opposition offered suggestions for improving the rule, however.

Most of the remaining commenters (45) offered constructive comments without taking a general position on the rule, or offered support with reservations about one or more aspects of the rule.

All concerns expressed by all commenters are discussed in detail in a staff analysis of comments which is available in the PDR. Because the volume of comments and analysis in detail occupy several hundred pages, the following discussion summarizes and responds to all comments of major and generic significance. For example, comments on Part 61 standard provisions that are common to all Commission regulations are not discussed in this summary, but are covered in the document available in the PDR.

### Summary of Comments for Proposed Part 61

**Subpart A: General Provisions.** A variety of comments were received that related to the scope of the rule. Two clarifying changes were made to make it clearer that uranium and thorium tailings as defined in Section 11e(2) of the Atomic Energy Act of 1954, as

amended, are not subject to the requirements of Part 61, but are disposed of according to requirements in 10 CFR Part 40. In addition, clarifying changes were made to state that the requirements of Part 61 do not apply to persons who are licensed by an Agreement State pursuant to authority relinquished to that State by the Commission in accordance with Section 274 of the Atomic Energy Act of 1954, as amended.

Some commenters felt that provisions should be made for an individual to dispose of his or her own waste. Private waste disposal may be licensed under current provisions of 10 CFR Part 20. The Commission feels that these provisions are adequate and that no change to Part 61 to accommodate private disposal is warranted.

At least two State commenters asked about Agreement State requirements being compatible with Part 61. The Commission is preparing guidance for States that will consider Section 61.2, Definitions; Subpart C, Performance Objectives; Subpart D, Technical Requirements for Land Disposal Facilities; those portions of Subpart B that are necessary to implement the provisions of Subparts C and D; Section 20.311, Transfer for disposal and manifests; and that portion of Subpart E requiring closure funding arrangements as a matter of compatibility for the Agreement States. Guidance will identify those aspects where uniformity in desirable and those aspects where States would have flexibility in establishing their own requirements.

It was suggested that construction of a disposal facility should be permitted to begin before a license is issued. The Commission believes that to do so would have a detrimental effect on the decisionmaking process and therefore no change is being made to this provision.

In the proposed rule, near surface disposal was defined in § 61.2 and discussed in § 61.7 as disposal in the upper 15-20 meters of the earth's surface. Based on comments received, the wording could be misinterpreted to mean that disposal was allowed only between 15 and 20 meters or that deeper disposal was prohibited. The wording was clarified to make it consistent with the waste classification requirements. (Class A and B wastes have no minimum depth requirement and Class C wastes have a 5 meter depth requirement when relying on depth alone.) Disposal at a depth greater than 5 meters would also be acceptable.

**Subpart B: Licenses.** Comments received on Subpart B covered a wide range of issues. Many were concerned

<sup>1</sup>Copies of this report may be obtained by written request to the Division of Technical Information and Document Control, Washington, D.C. 20555. Copies will also be made available for inspection or copying for a fee at the NRC Public Document Room, 1717 H Street NW., Washington, D.C.

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with clarification and intent. There were, however, several issues that were more substantive and addressed by a large group of commenters.

Several commenters were concerned that the language in several places required the applicant to demonstrate in the application that certain objectives were met. Their concerns were over what would constitute a demonstration, and the impossibility of meeting an objective with complete certainty as implied by the language in the rule. The Commission agrees with these commenters and changes have been made in appropriate places to indicate that what the Commission wants is information or analyses that will provide reasonable assurance that the objective or requirement will be met. Other minor changes were made for purposes of clarification.

An advisory statement in § 61.13 that the ground water pathway was generally the most significant for near surface disposal, in terms of releases of radioactivity, was deleted. This section requires an analysis of all potential pathways and two commentators objected to singling out ground water.

Several commenters expressed concern over the length of time that the licensing process might take and suggested limits be established in the regulations. The Commission does not believe that this is practicable, considering the uncertainties in predicting the quality of future applications, the availability of staff resources at critical times, and the potential for hearings. The licensing process must be in accordance with the Commission's mission to protect public health and safety but the Commission does agree that the licensing process must be carried out in the minimum amount of time consistent with this mission. Some changes in the procedural aspects of the rule are being made with this in mind (see comments, Subpart F). The Commission staff is developing technical positions to assist applicants in preparing their applications and is developing performance assessment capabilities that will enable the staff to perform timely reviews.

Nine commenters addressed the language in § 61.25 that prevents the licensee from making any changes in the facility or procedures described in the application except as provided for in specific license conditions. The commenters felt that this was unnecessarily restrictive, in that there may be aspects of the facility or procedures that were described in the application, but which are not important to public health and safety and the

licensee should be free to change them. The Commission agrees, since it was not intended that all changes be subject to Commission review or approval, only those important to public health and safety. Section 61.25 is changed accordingly.

Over a dozen commenters raised objections to the requirement that the license be renewed on the usual five-year interval with a concomitant public notice on the opportunity to request a public hearing. The dominant reason for these objections is the burden that is perceived if public hearings were held every five years at the time of license renewal. The Commission believes that a periodic reassessment by the licensee and the Commission staff is necessary. This reassessment should factor in the past operating experiences of the disposal facility, the results of monitoring data, changing economic conditions that might affect financial assurances, advances in technology, etc. While there are alternatives to license renewal in order to ensure these periodic reappraisals, the Commission has found through its experience that periodic license renewal is the most effective method. As for the public notice of the renewal and the notice of opportunity to request a public hearing, the Commission agrees that this is not necessary and it has been deleted. Deleting this requirement will not have an adverse effect on the public's interest and rights. According to revised § 61.25, any changes to the license conditions from a license renewal process would be subject to notice and opportunity to request hearings if the conditions were in the highest category specified in that section (paragraph 61.25(a)(1)).

Two commenters suggested not subjecting the licensee to an opportunity for hearings at the time of site closure. The Commission believes that this is an important and worthwhile time to provide for public participation. No changes were made.

While none of the commenters took exception with the need for a period of post-closure observation and maintenance by the licensee, a number did object to the open-endedness of the requirements that this period be for "a minimum of five years." This provision has been changed to state that the period will normally be five years, but that shorter or longer periods may be approved by the Commission in connection with the approval of the site closure plan for a specific site.

Several commenters, including Chem-Nuclear Systems, Inc., and U.S. Ecology, the operators of the existing disposal facilities, were concerned about possible delays in transfer of the license

to the site owner at the end of the post-closure observation period. They foresee the possibility of more stringent requirements being imposed at this time, thereby delaying the transfer with an adverse effect on the ability of the licensee to effect proper closure due to changes beyond the financial requirements initially established. The Commission recognizes this possibility, but it is beyond the Commission's authority to control or regulate the site owner and force the transfer to take place. Any requirements for transfer that are outside the public health and safety considerations prescribed by Part 61 became a matter of contract or agreement between the site owner and the site operator. With the Low Level Radioactive Waste Policy Act laying the responsibility for disposal of low level waste on the States, it is obvious that the States will play an increasingly important role. State authorities, who in all likelihood will be the site owners, should become active participants in the disposal activities from the earliest stages of development through site closure and stabilization so that at the time of site transfer to them for institutional control, there are no unforeseen obstacles to the orderly and timely transfer. Part 61 provides for this participation in the licensing process, and as landlord, there are other avenues of participation.

*Subpart C: Performance Objectives.* A dozen commenters addressed the approach taken in Part 61 to establish performance objectives supplemented by some minimum technical requirements. All commenters except three supported the approach of addressing disposal from an overall systems standpoint, i.e., establishing overall performance objectives and minimum technical requirements and leaving considerable flexibility on how an applicant or licensee would design and operate a site. Of the three who disagreed, one felt that the concern for public health and safety is so great that the rule should be based on prescriptive requirements; one felt that there should be no technical requirements in the rule, only performance objectives; and the third felt that the rule is restrictive by establishing both performance objectives and technical requirements. On balance, the comments were judged to be supportive of the mix of objectives and requirements and no changes have been made in this regard.

One commenter challenged the performance objectives in Part 61 as being premature in advance of relevant EPA standards and beyond the agency's authority to the extent that they are not already embodied in 10 CFR Part 20 and

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that they are unduly stringent and unsupported. With respect to this comment, EPA, under its ambient environmental standards setting authority assigned by Reorganization Plan No. 3 of 1970 has the authority to prepare a standard that will set limits for releases of radioactivity to the general environment from disposal facilities. Presently there is no such EPA standard. In the absence of such a standard, the Commission examined a range of limits which bound that expected for the EPA standard and selected a proposed performance objective that establishes a release limit for the site boundary, a regulatory action within the limits of NRC authority. In a rulemaking action, the Commission is not solely limited to existing standards in Part 20 and the Commission does not intend to withdraw any portion of the rule that may be related to the performance objectives.

With regard to the specific performance objective for releases to the environment, the Environmental Protection Agency commented that the establishment of an individual exposure limit at the site boundary for releases as proposed in § 61.41 is appropriate. They stated that the range of 1 to 25 mrem/yr analyzed by the Commission was a reasonable range that should encompass any standard which EPA might derive for low level waste disposal facilities. Based on the Commission's analysis, NRC does not anticipate any need to change the technical requirements of Part 61 to meet a future EPA standard. In their comments, EPA stated their opinion that it was inappropriate to apply the EPA drinking water standard as proposed in § 61.41. Accordingly, this part of the performance objective has been deleted. However, this does not diminish the Commission's concern over protecting sources of drinking water. The Commission will assess the potential impact on drinking water supplies as part of its licensing review.

Reaction to the proposed performance objective to protect potential inadvertent intruders was mixed. There were some who felt the proposed 500 mrem whole body dose to the intruder was too high, some felt that it was the right value for a standard, and others felt that higher values were in order. Those that felt that the standard should be higher suggested values of 5 rem or 25 rem (the Department of Energy) to correspond to limits for occupational exposure or one-time exposures to workers from potential accidents. A number of commenters, in their comments about considering the

probability that intrusion will occur, expressed concern about weighting too heavily the protection against inadvertent intrusion in determining disposal requirements for waste. Based on these comments, the Commission believes that the primary concern of those who feel that the intruder protection objective is too restrictive is the effect that this has on the concentrations of certain nuclides that are acceptable for disposal in a near surface facility and the need to meet additional requirements such as stability for some wastes. With this in mind, and in response to other comments, the Commission has reevaluated the calculations that establish the waste classification concentration limits to eliminate unnecessarily conservative assumptions with the result that the analysis is more realistic and the limits for several important isotopes have been raised. With this action, the Commission believes that most of the concerns of those who encouraged higher exposure limits or less emphasis on protection of intruders will have been met.

With respect to those who suggested that lower limits would be appropriate, there were no compelling arguments or technical demonstrations presented that persuaded the Commission to lower the dose limit for intruders.

The EPA recommended that the 500 mrem dose limit be deleted from the performance objective, since the licensee would not be able to monitor or demonstrate compliance with a specific dose limit that applies to an event that might occur hundreds of years from now. They did recommend use of the 500 mrem whole body dose limit coupled with ALARA as the basis for determining the concentration limits in Table 1 of Part 61. The 500 mrem dose limit has been deleted from the performance objective but retained as the basis of the waste classification limits.

Comments were offered that more emphasis should be placed on requirements, such as the use of durable monuments to warn potential intruders. This concept is incorporated in the regulation.

Acts of terrorism and sabotage were identified as possible intrusion problems and suggestions were made for protecting against such acts. The Commission does not feel that the likelihood of such events or the magnitude of the effects of such acts are sufficient to warrant requirements in this regard.

EPA asked for a clarification of the intent of the performance objective in § 61.43 as it pertains to effluents from the site. This performance objective

states that operations at the land disposal facility must be conducted in compliance with the standards for radiation protection set out in Part 20. Part 20 contains standards for concentrations of radioisotopes in air and water released from a licensed facility. Section 61.41 sets forth limits on concentrations of radioisotopes released from a land disposal facility which are lower than those in Part 20. It is the Commission's intent that the provisions of Part 20 will apply to all aspects of radiation protection during operation except for releases of radioactivity from the site which will be governed by the more stringent requirements of § 61.41. The rule has been modified to clarify this point.

Commenters pointed out a need to be clearer in the rule on how the principle of maintaining radiation exposures to a level that is as low as reasonably achievable (ALARA) will be handled. The Commission intends that the ALARA principle apply to the performance objectives for long-term environmental release and protection of individuals during site operations. It cannot apply to the intruder performance objective, since Part 61 sets out the requirements for protection and intrusion which is beyond the disposal facility licensee's control. Appropriate changes have been made in §§ 61.41 and 61.43 to reflect the ALARA principle.

*Subpart D: § 61.50, Disposal Site Suitability for Near-Surface Disposal.* Approximately two dozen commenters offered comments on various aspects of § 61.50, addressing disposal site suitability requirements. These comments address eight subject areas which are discussed below.

Eight comments were received on the requirement that the disposal site shall be capable of being characterized, modeled, analyzed, and monitored. The comments were directed to the perceived vagueness of the requirement, i.e., what does it mean to be capable of being characterized, modeled, analyzed, and monitored? Some commenters offered suggested rewording or examples. The Commission has issued a staff technical position (NUREG-0902) that provides interpretation and explanation of the meaning and intent of this requirement. In the technical position, it is explained that the site characteristics must be such that limited site characterization can adequately define the site characteristics spatially across the disposal site and that site characteristics should vary with a sufficiently narrow range so that the input to modeling is representative of the hydrogeologic units and the assumptions underlying the modeling



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solid. Further, natural processes affecting the disposal site should be occurring at a consistent and definable rate such that the modeling of the site will represent both present and anticipatable site conditions after closure. Finally, site characteristics must be such that a reasonable number of monitoring points can adequately describe the extent to which radionuclides have migrated from the waste disposal units. In addition, the Commission's staff is developing an in-house modeling capability and will share that capability through pre-qualification of prospective computer codes. The Commission believes that a concise statement in the rule along with guidance on these subjects provided by technical position papers and Regulatory Guides is appropriate.

Several aspects related to ground water were addressed in the comments. Three commenters (Ontario Hydro, the Department of Interior, and the Department of Energy) endorsed the provision in § 61.50(a)(7) that permits disposal below the water table where diffusion dominated the ground water flow system.

The Department of Interior recommended using the term, "molecular diffusion" and both they and Ontario Hydro suggested specifying a limit for soil hydraulic conductivity of less than  $10^{-6}$  cm/sec, as appropriate. There were several commenters who disagreed with this provision and recommended total containment or some minimum depth to the water table.

The Commission envisions a site that would satisfy the exception in section 61.50(a)(7) as one with an inactive flow system so that the water which would contact the wastes would move on the order of less than one foot per year. Given the low hydraulic conductivity and effective porosity of the soils, very little water would actually contact the waste or flow from the disposal units. The travel time will result in sufficient reduction of concentration of the small amounts released and fine-grained soils will typically provide significant attenuation for most radionuclides. No change has been made to this provision of the rule.

Several commenters suggested requirements on retardation properties for soils, both impervious and porous. One suggested a leachate collection and treatment system for the impervious soils. The Commission does not consider it appropriate to set forth specific values for characteristics which promote attenuation of radionuclides. Whereas attenuation is advantageous for some radionuclides, others such as H-3, C-14,

and I-129 may not be significantly attenuated. The Commission believes that reliance should be placed on siting requirements which will keep water away from wastes, result in low volumes of contaminated water being released, and provide a long travel time for decay. The Commission takes exception to any design which relies on a leachate collection and treatment system to reduce migration. Such a design is expected to result in a requirement for continued active site maintenance, therefore violating the performance objective in § 61.44.

Several comments recommended that the natural resources considered under § 61.50(a)(4) specifically include ground water and aquifers underlying the site and that the resources of significance were not limited to "economic" significance. Another suggested that the resources be "known" resources so that the applicant would not have to engage in an extensive exploration program to assure that there were no significant natural resources. The Commission considers ground water and aquifers to be natural resources in the context of this requirement. The Commission also agrees that it should not be necessary to conduct extensive exploration studies to prove that no resources exist. Several changes have been made in the sections relating to ground water to reflect these comments.

Commenters raised four questions on the siting requirements related to surface water drainage. These can be summarized as (1) definition of certain terms such as upstream drainage areas, coastal high-hazard area and wetland; (2) the adequacy of the exclusion of waste disposal based on the 100-year floodplain; (3) whether engineering drainage modifications can be made in order to meet the requirements; and (4) the vagueness of some terms.

With respect to the terms "coastal high-hazard area" and "wetland," these are defined in Executive Order 11988 (42 FR 26951, May 25, 1977), *Floodplain Management Guidelines* which is noted in the rule. The term "upstream drainage area" can be defined in conventional hydrologic terms as all the land surface which drains, either by channel flow or sheetwash, across the disposal facility.

The 100-year floodplain is that land which would be inundated by a flood having a 1 in 100 chance of occurring in any particular year. The Commission feels the major hazard due to flooding is associated with the period of site operations when disposal units are open. Because of other provisions of the rule, the disposal units will be open a comparatively short time. Once closed, the covers and site drainage system will

provide protection against the effects of flooding. The Commission considers 300 or 500-year floodplains to be unnecessarily restrictive; and questions whether an adequate data base or standard methods of determining such floodplains exist.

The question on engineering modifications will be addressed more fully in staff technical positions related to site suitability, selection and characterization and to site design and operations. Engineering features may be used to improve site drainage and protect against flooding during operations.

With respect to the vagueness, or non-prescriptive, nature of the requirements, the Commission considers the siting requirements as site screening tools which will be met in most cases and which, if not met fully, would require a site-specific evaluation to determine whether an exemption is warranted. The Commission finds this preferable to treating more prescriptive siting requirements as exclusionary.

Minor changes of a clarifying nature have been made to the requirements related to flooding.

Several commenters suggested that radioactive waste disposal facilities could be collocated with hazardous waste disposal facilities. The Commission does not object to this as long as the facilities are separated from one another and the wastes are not commingled. The provisions of § 61.50 pertaining to nearby facilities not adversely impacting the ability of the site to meet the performance objectives or significantly masking the environmental monitoring program would have to be met.

Several commenters raised the question of relevance of seismic or volcanic hazards to low level waste disposal, given the orders of magnitude difference between the time frames for those geologic phenomena and the hazard of the low-level wastes. Concern was also expressed that certain areas, such as California, would have all potential sites eliminated by the requirement to avoid seismic areas.

The requirement, as written, provides the Commission a mechanism for site specific evaluation of such factors as recurrence intervals, probabilities, liquefaction potential, and ground accelerations to compare against a long-term (500-year) radiological hazard and the disposal requirements of Part 61. This minimum technical requirement would not arbitrarily eliminate potential sites so much as it would provide a site screening test which will be met in most cases and will mandate a thorough

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evaluation of site performance in areas of known tectonic hazards.

Several persons commented on the reliability of long term projections of population growth. The Commission recognizes such projections have a degree of uncertainty. Part of the staff review of any projection focuses on this uncertainty and how it has been handled by the applicant. Previous experience with commercial low-level disposal sites illustrate that suitable sites can reasonably be found in areas of low population density and minimal population growth potential.

Two commenters suggested a siting requirement based on accessibility to major transportation routes. This issue becomes a consideration in site selection and the evaluation of alternatives required under NEPA and is not necessary in the rule.

Individual comments were received suggesting siting requirements related to mechanical and physical properties of soils to make them suitable for compaction and supporting construction equipment, and requirements to avoid areas of high natural radioactivity. Changes to the rule were not deemed necessary. The mechanical and physical characteristics of soils are factors to be addressed in the site design and operations in order to meet stabilization requirements and objectives. With respect to areas of high natural radioactivity, these areas would be excluded if they could be shown to violate the ability to carry out a monitoring program. Otherwise, the Commission sees no valid reason for excluding these areas.

Several commenters raised the general question of the length of time the various siting or design requirements have to be satisfied. Others requested that the design basis natural events or phenomena be identified and that the length of time for consideration associated with these be stated.

The siting, design, and waste form requirements relate to both stability of the disposal site and control of releases within acceptable limits. Reliance must be placed for a longer time on the site since the waste form and design features will decrease in effectiveness over time. Therefore, each of the siting requirements should be considered applicable over the indefinite future and should be evaluated for at least a 500-year time frame. A 500-year time frame for design basis natural events or phenomena should also be applied.

*Subpart D: § 61.51, Disposal Site Design for Land Disposal.* Five commenters objected to the absoluteness of the requirements in

§ 61.51 relative to preventing infiltration and eliminating the contact of water with waste. Comments were also expressed requesting preferential consideration be given to progressive slope design for burial and concern was expressed that the rule does not provide specific guidance for engineered features. Commenters also expressed concern that site areas used for disposal of Class A waste will require more maintenance.

The requirements referred to are expressed as design objectives. Given that these are design objectives, the actual achievement will be to minimize, rather than absolutely prevent or eliminate. The achievement level should be as near the design objectives as is practicable. The wording of these paragraphs has been changed to reflect this. With respect to progressive slope design for burial, the regulation does not specify the type of disposal unit. The site designer should give particular attention to the design of that portion of the facility used for the disposal of Class A wastes so that the inherently unstable Class A wastes will not interfere with the long-term stability of the site.

Four commenters recommended that warning signs or permanent identification monuments be employed as a deterrent to inadvertent intrusion. Several suggested a design lifetime of 500 years for such markers.

Although there are few "signs" in the traditional sense that have design lives approaching 500 years, the Commission would consider such things as granite monuments near the survey marker control points as an appropriate adjunct to the physical intruder barriers employed in the disposal of the waste. A change to the rule has been made to require such monuments at the time the license is terminated.

*Subpart D: § 61.52, Land Disposal Facility Operation and Disposal Site Closure.* There were several issues related to facility operation and site closure identified by about thirty commenters. A half dozen commenters raised questions with respect to the requirement that Class A waste be segregated from other classes of waste. Questions also addressed the need for segregation during transportation, the meaning and intent of the term "interaction," and the need for segregation in arid sites.

The intent of the rule is not to prohibit waste from more than one class from being shipped on the same transport vehicle. Consistent with appropriate transportation regulations, the Commission has no objection to commingling different classes of waste in transport.

In identifying the need to clarify the term "interaction," the commenters noted that it was vague and unenforceable, could include migration, and could be physical or chemical interaction.

The intent of the rule is to protect Class B and C wastes. Class A wastes could interact with other wastes directly through the release of absorbed liquids, solvents, or other mobile components that might be present in Class A waste. Indirect interaction could result from degradation of Class A waste and its lack of stability. Consolidation of Class A wastes would provide a less stable support which could contribute to failure of the disposal unit cover leading to increased precipitation infiltration and surface water intrusion. The degree to which these interactions could occur depends to a large extent on site specific characteristics and the Commission does not believe that it is appropriate to set a prescriptive requirement in this area in the rule. The wording of this requirement has been changed to define the purpose for the segregation and minimization of interaction between the segregated wastes. The rule also permits Class A waste that meets the stability requirements to be placed with Class B and C wastes.

The State of Washington regulates the disposal site located in an arid region near Richland, Washington. The State noted that without the likelihood of ground water or surface water being factors at arid sites, segregation of Class A wastes seems to be unnecessary. They also noted that commingling Class A and B wastes would dilute the Class B wastes and have potential benefit.

The State's observations may have merit for arid sites but are difficult to adopt in a rule that must address sites located in all parts of the country. The Commission anticipated the need to consider alternative disposal requirements and included § 61.54, "Alternative requirements for design and operations" to provide for consideration of such alternatives.

A number of commenters noted that factors other than waste form play a role in assuring the stability of the site. In the area of site operations, these factors are identified as the way in which waste is emplaced and the filling of voids in between waste packages after emplacement. Several pointed out the stability problems (slumping, etc.) that could still be associated with disposal units containing the segregated and unstable Class A waste. A number of commenters objected to the requirement that wastes must be emplaced in an orderly manner because of perceived increased exposures. The

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requirement that was proposed in paragraph (4) of § 61.52(a) was intended to assure that the placement of packages into a disposal unit did not destroy the integrity of the package in order to minimize the possibility of releases of contamination, and also to minimize the void spaces between packages so that this would not be a contributor to site instability. It has been a common practice at waste disposal facilities to dump some wastes over the edge of a disposal trench with the packages falling and tumbling to the trench bottom where they ended up a random arrangement. This practice jeopardizes package integrity and does not permit access to voids between packages so that they could be backfilled. The assumption by the commenters that orderly emplacement necessitates increased handling by site operators with resultant higher radiation exposures is not necessarily the case. Lifting and stacking devices are currently in use for low level waste disposal that permit remote lifting and emplacement in the disposal trench without increased occupational exposure. The resulting emplacement meets the intent of protection of packaging integrity and access to void spaces. Since the term "orderly" was subject to misinterpretation, the requirement has been rewritten to remove the term and to specify the objectives of emplacement.

Six commenters addressed the requirement for maintaining a buffer zone of at least 100 feet. These comments generally supported the concept and purposes of a buffer zone, but questioned whether the specified 100 feet was sufficient. The Department of the Interior suggested that the buffer zone should be three dimensional to include some distance below the disposal site.

In response to these comments, the Commission has restated the requirement in terms of the objective to carry out monitoring activities and take mitigative measures if needed, and has made the buffer zone three dimensional.

Several persons commented on the need to conduct ancillary activities at the disposal facility such as storage, waste treatment, truck terminals, etc. Concern was expressed over the language in § 61.51(a)(7) that would seem to preclude such activities. Others felt that provisions should be made in Part 61 for the description and licensing of such activities.

The provision of § 61.51 that caused the concern was that the disposal site shall be used exclusively for the disposal of radioactive wastes. The

intent of this provision was to prevent the disposal of wastes such as toxic or hazardous chemicals which do not contain radioactive material at the facility. It was not intended, as could easily be inferred from the way the requirement was worded, that disposal is the only activity that could take place. Corrective word changes have been made to clarify this. The purpose of Part 61 is to specify the regulatory requirements for the disposal of radioactive waste. Existing requirements in Parts 30, 40, 70, *et al.*, would govern the licensing of other activities involving licensed radioactive materials, such as waste treatment or storage.

Several comments questioned the meaning of the term "a few percent above background" as applied to the requirement that limits radiation levels at the surface of the disposal unit cover. Some suggested values from as low as 1 percent of background to as high as 1 mrem/hour (about 5,000 percent of background). One commenter suggested that the radiation limit should not be confined to gamma radiation, but should be expressed as a dose rate to include other types of radiation.

The rules in Part 20 contain provisions for permissible levels of radiation in unrestricted areas in § 20.105. The Commission considers these to be appropriate for application at the time that the disposal facility license is transferred to the site owner for the period of institutional control. Although access to the site will be controlled to prevent inadvertent intrusion and the site could be viewed as a restricted area, the Commission believes it is not proper to consider those who do have access, such as caretakers and site maintenance personnel, as radiation workers who could receive much higher occupational exposures. Therefore, § 61.52(a)(6) has been changed to reflect the Part 20 unrestricted limits.

A number of other individual comments and suggestions were considered and were addressed in the detailed analysis of comments. Some clarifying changes were made to the rule as a result.

**Subpart D: § 61.53, Environmental Monitoring.** Only nine commenters addressed the provisions for environmental monitoring. One commenter observed that analyses of release pathways should be conducted so that they may be validated by data acquired from subsequent monitoring, a point with which the Commission agrees. Two comments addressed the 12-month preoperational monitoring requirement: one thought it too long, the other too short. While a one-year period

of site specific data may not provide the range of fluctuations in data expected over a longer period, the site specific data can be augmented by reconnaissance level data or regional data that can be correlated with the site-specific data. These activities should be started early enough in the site development process that they do not interfere with a timely submittal of an application. Additional data may be obtained as the licensing process continues which can be used to update the application.

It was noted that the environmental monitoring requirements are not detailed or specific and at least one commenter suggested that highly detailed prescriptive requirements be set forth. Because of the wide variety of site-specific conditions, and a desire to avoid overly prescriptive requirements in Part 61, the Commission does not feel that this suggestion is practicable. A Branch Technical Position on Monitoring is being prepared and will provide additional guidance.

It was pointed out that one important purpose of a monitoring system is to provide early warning of migration of radionuclides from the disposal site before they leave the site boundary. The Commission agrees, and has made a clarifying change to that effect.

The Department of Interior recommended that "geochemistry" be added to the site characteristics to be studied. This has been done.

**Subpart D: § 61.55, Waste Classification.** Over half of the commenters on Part 61 offered comments on one aspect or another of the waste classification provisions. Nearly 20 different issues were identified and addressed in the staff's detailed analysis of comments. In general, there was support for the concept of identifying wastes that were generally acceptable for near-surface disposal and further dividing this general category into more specific classes. Most of the comments were related to understanding how these categories were established and the basis for them; support for further identifying a class of waste that would not be of any regulatory concern because of its low radioactivity, i.e., a "de minimis" level; what should the upper limits be particularly for certain radioisotopes such as the transuranic elements; what provisions will be made for disposal of waste that exceed the limits for near-surface disposal; and how does a waste generator show compliance with the waste classification requirements. There were a large number of comments requesting clarification and restructuring of the

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requirements to make them more understandable, as well as a number of miscellaneous comments.

With respect to those comments that the numbers used to define waste classification were not adequately explained or supported in Part 61, it should be noted that most such comments were submitted before the supporting Draft Environmental Impact Statement (DEIS) for Part 61 became generally available. Since a considerable part of the DEIS is devoted to the derivation of the waste classification numbers, the Commission does not feel that the basis needs to be repeated in detail in the rule. The Commission is preparing an analysis of the comments received on the DEIS and these comments will be factored into the final EIS to make the basis for waste classification values more understandable. Other commenters on the numerical values suggested the use of values reported in an earlier NRC contractor document, NUREG/CR-1005. The present waste classification scheme proposed in Part 61 drew on this and other earlier work; however, the earlier approaches to waste classification did not consider the effects of stability or waste form.

Table 1 Proposed values for several radionuclides that were the same value regardless of the class of waste. This has led to some confusion and misunderstanding. In the disposal of wastes, precautions are taken to provide protection against intrusion for the first several hundred years. These precautions include institutional controls, waste form requirements, and intruder barriers. There are certain radionuclides common to waste that are of such a long half-life that they will be present several hundred years from now in essentially the same concentration as when they were originally disposed. Therefore, the rule limits the initial concentrations of these radionuclides to values that will be acceptable after several hundred years when the intrusion protection measures are not considered to be effective.

Over one fourth of all commenters endorsed the concept of setting levels for wastes below which there is no regulatory concern, the so-called "de minimis" level. Some of the commenters supporting the de minimis concept made direct reference to the Commission's position that exempting particular waste streams from compliance with the Part 61 regulations was preferable to setting generic levels for all isotopes. Several disagreed with this position, although at least one of these commenters remarked that as there is not yet a consensus on a

generic de minimis level, any level chosen would be premature. A number of other commenters suggested that a de minimis classification be added to the Part 61 regulations, perhaps as an additional column in Table 1.

Several commenters suggested that NRC permit case-by-case review of requests for specific application of the de minimis concept during the period criteria are being developed. Others suggested specific values for specific waste streams or radioisotopes.

The fundamental concern of practically all commenters was not as much whether a generic or a case-by-case approach be taken, but rather that action to develop de minimis standard should be taken as soon as possible.

The Commission agrees with the importance of setting timely standards for disposal of certain wastes by less restrictive means. The Commission agrees with the commenters that establishment of such de minimis levels would reduce costs of disposal for many licensees and would also conserve space in disposal facilities which are otherwise designed for wastes having much higher activities. The Commission also believes that establishment of de minimis levels is important in enhancing overall stability of a disposal facility, and therefore in reducing potential long-term site maintenance and corresponding costs, since de minimis levels would reduce the volume of Class A waste. This would also tend to reduce ground water migration impacts, since subsidence and water infiltration would be reduced.

Regarding the issue of setting de minimis levels on a generic or on a case-by-case basis, the Commission still believes that the current policy of examining waste streams on a case-by-case basis will result in the quickest and best results. It is recognized that setting generic limits may be a desirable goal, and the Commission Plans to work this goal over the next few years. Meanwhile, the Commission believes that the process of examining a few specific waste streams will facilitate the development of generic requirements and is accelerating its efforts on setting standards for disposal of wastes by less restrictive means. In this regard, the Commission staff is willing to accept petitions for rulemaking from licensees, licensee organizations, or others for declaring certain waste streams to be of no regulatory concern. Such petitions should provide at least the following information:

- A description of the process by which the waste is generated;

- A description of the waste generated, including chemical characteristics;

- The radionuclide content of the waste, including principal *as well as* trace contaminants;

- A description of the potential change in the radionuclide content as a function of process variations;

- A description of the process control and quality control programs by which the licensee would ensure compliance.

Waste streams common to a number of licensees and in which the radionuclide content is well known and relatively nonvariant are generally preferred. Individual licensees may also continue to request amendments for alternative disposal methods for the licensee's own waste pursuant to § 20.302.

Of all the values proposed in Table 1, the limits for contamination by alpha emitting transuranic elements received the most attention and comments. There were a number of issues raised related to the allowable concentration, ranging from its validity to the impacts of meeting the limit. By far the most comments were related to the magnitude of the limit. Of the 23 commenters on the transuranic issue, four thought the 10 nCi/gm limit should be retained or lowered, while the remaining 19 suggested that the limit be raised. Those who suggested that the limit be raised presented a number of supporting arguments. Many, if not most, of the commenters suggested that the limit could be safely raised to 100 nCi/gm. One argument given is the advantage of enforceability of the higher limit. With current measurement techniques, it is argued that it is very difficult if not impossible to certify that waste contains less than 10 nCi/gm, but much less difficult to certify that it is less than 100 nCi/gm. Others pointed out that a 100 nCi/gm limit would encourage volume reduction through incineration and other means while conversely, the 10 nCi/gm limit would discourage volume reduction, contrary to the Commission's policy on volume reduction. The commenters cited a number of reports, documents, and ongoing activities as providing justification for their contentions, including a proposed revision to the Department of Energy Manual Chapter 0511. Some commenters felt that the Commission's calculations were excessively conservative. The most common comment in this regard was that the analysis did not consider dilution by other wastes, and if that dilution were considered, the allowable concentration could be increased by an order of magnitude or more.

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The commenters that supported the 10 nCi/gm limit or did not want it raised generally made statements of endorsement for the value because of prior use or because of the view that wastes exceeding this limit should not be buried at commercial low-level waste disposal sites. Concern in this regard was also expressed over the provision in § 61.58 that the Commission could, on a case-by-case basis, grant exemptions to the waste classification requirement, thereby permitting disposal of higher concentrations of transuranic radionuclides.

In response to these comments, the Commission has reevaluated the analyses for disposal of waste containing transuranic nuclides, in an attempt to temper unnecessarily conservative assumptions, such as not considering the dilution by other wastes that decay to essentially inert levels with time, so that more realistic estimates of consequences will result. As a result, disposal limits for Class C, waste have been raised to 100 nCi/gm for long lived alpha emitting transuranic nuclides. For Class A wastes, the limit remains at 10 nCi/gm. The details and results of these analyses are presented in the Final Environmental Statement supporting Part 61.

Several commenters wanted to know what to do with waste containing Radium-226, a radioisotope which is not currently listed. It appears that there are two types of radium wastes to be considered: (1) small concentrated sources of radium such as radiation sources or luminescent dials, and (2) wastes which contain small amounts of radium incidental to other radioisotopes, such as radium contained in wastes from uranium separation processes. The former is not subject to regulation by the Commission, since radium is a naturally-occurring isotope and is not included in the provisions of the Atomic Energy Act of 1954, as amended. The Environmental Protection Agency has a program for collection of radium sources. This program may be phased out in the next few years. Such sources are expected to be transferred to the Department of Energy for storage and disposal. As for radium incidental to other types of waste, the Commission has made provisions for disposal of small quantities of uranium tailings as Class A waste. For purposes of this provision, a small quantity is defined as 10,000 kilograms containing not more than 5 millicuries of radium-226. This concentration is typical of uranium mill tailings (0.5 nanocuries per gram). The quantity of radium-226 is that contained in 150 pounds of natural uranium at

equilibrium with its daughter products. 10 CFR Part 40 permits any person to possess and use under general license 150 pounds of source material per year. Permitting the disposal of such a quantity in a near-future disposal facility is judged to be acceptable. For larger amounts, specific approval would be required.

Several commenters expressed concern with a footnote in Table 1 and § 61.55(d) which indicate that greater concentrations than Class C limits may be determined to be acceptable for near-surface disposal under certain conditions. Commenters were either opposed to permitting any higher concentrations or asked for clarification of what the requirements would be for higher concentrations.

The Commission established the Class C limits using the performance objectives as criteria to ensure safe disposal of waste considering the degree of protection provided by "normal" near-surface disposal. To ensure that the performance objectives are met, disposal of higher concentrations of isotopes than those listed in Table 1 would have to be by disposal technologies having greater confinement capacity or protection than "normal" near-surface disposal. Such improved disposal technologies could, depending on the particular radioisotopes, involve better waste forms or packaging, or disposal by methods having additional barriers against intrusion (e.g., burial at depths greater than 5 meters). The Commission believes that some flexibility should be permitted, provided the performance objectives are met, and therefore will evaluate exceptions on a case-by-case basis. In the meantime, the Commission is beginning studies to establish criteria for the disposal of wastes that are not normally suited for near-surface disposal. These would be the subject of future rulemaking.

Over one dozen commenters, nearly all of which were nuclear utilities or industry groups, expressed concern with how one determines compliance with the waste classification requirements. Most were concerned that the regulations would require them to routinely measure for every isotope in Table 1 within each package of waste. Many examples were given of the difficulty that this would present, citing heterogeneous waste mixtures, difficult to measure radioisotopes, increased costs, radiation exposures to personnel, etc. A number of suggestions were offered related to means of classifying the waste by its source, measuring key isotopes to infer quantities of more difficult-to-measure isotopes, and

establishing different limits for every disposal site.

The Commission expects licensees to carry out individual programs to assure proper classification of waste. However, the Commission does not feel that detailed measurements routinely made on all waste packages are necessary or desirable. The Commission staff is developing guidance to licensees on a number of alternative methods by which compliance can be shown. At present, the Commission staff has identified four basic programs which may be used either individually or in combination by licensees. They are: materials accountability; classification by source; gross radioactivity measurements; and direct measurement of individual radionuclides including scaling some radionuclides based upon measurement of others. These methods are discussed in the Branch Technical Position on Waste Classification being prepared.

Several commenters also raised the issue of averaging concentrations to comply with the concentration limits. One expressed concern about the potential for concentrated or "hot spots" of transuranic nuclides permitted under the proposed provision to allow concentrations to be averaged over the volume of the package. Since the trace transuranic nuclides in most shipments will be homogeneously distributed and incidental to the total activity, averaging over the packages is physically representative of the majority of wastes. Reprocessing or other future changes in waste streams which might change the transuranic character of the waste can be addressed in subsequent rule changes. Other commenters were concerned about potential ground water restricted inventory limits on radionuclides which are present in wastes in very low concentrations. Assay of individual packages for these nuclides is difficult as discussed in the preceding paragraph. Averaging the concentration of radionuclides such as Tc-99 or I-129 over the waste shipment or control on a total site inventory basis was suggested to minimize conservative over-reporting. Such over-reporting could exhaust site inventory limits and lead to inefficient use of the site. The Commission agrees. This issue will also be addressed in the Branch Technical Position on Waste Classification which will be available in early 1983. The concentration averaging language in the final rule was changed to provide additional flexibility for the specific guidance being developed in the Branch Technical Position.

In a related issue, a few commenters remarked on the difficulty of inspection

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and enforcement to ensure compliance with the Part 61 requirements, citing past history of waste shippers not complying with the present DOT and NRC shipping requirements.

The Commission has recognized the importance of increasing inspection and enforcement activities in the processing, packaging, and transportation of waste. A number of programs have been initiated to improve compliance. At the present time, enforcement comes largely on the basis of provisions in the existing regulations (e.g., 10 CFR Parts 30, 40, and 70) that no licensee may transfer licensed material to another person unless that person is properly licensed to receive it. Requirements on waste form, concentrations, etc., are a part of the disposal site licensee's license. The Commission believes that issuing regulations to which all waste generators and disposal site operators would be subject will give the Commission a stronger basis for inspection and enforcement. Adoption of uniform requirements by Agreement States will greatly bolster the effectiveness of a national system of inspection and enforcement.

There were several commenters who argued that the waste classification scheme tends to discourage volume reduction, since this increases concentrations of radioisotopes and may result in a change in classification, or at the extreme, make the waste unacceptable for near-surface disposal. As long as the resulting concentrations of radioisotopes are within the limits set by Part 61, the Commission does not feel that waste classification necessarily discourages volume reduction. While a higher classification of waste might result in more stringent requirements on waste form and disposal methods, there are economic considerations that need to be considered by the waste generator. The cost of processing, shipping, and disposal of a small volume of higher classification waste needs to be compared with the transportation and disposal of a larger volume of a lower classification waste. There is no reason to believe that the balance will always be against volume reduction. For wastes with concentrations that would place them not generally acceptable for near-surface disposal if they were volume reduced, the provisions for specific Commission approval of the disposal of such wastes provides a potential alternative for licensees considering volume reduction.

Several commenters were concerned with materials which may be present in low-level radioactive waste which may be chemically toxic or hazardous. Some

suggested that the Commission's waste classification system incorporate a "total hazard" approach that would consider both the radiological and chemical hazard of wastes. At least one comment did not favor the total hazard approach because of the very complex classification system that the commenter perceived would result.

The Commission has stated publicly on several occasions that if it were technically feasible to classify waste by total hazard, then it would make eminently good sense to do so. We do not now know of any scheme for such classification; however, the Department of Energy intends to support research into the development of a classification system for hazardous waste that might be compatible with Part 61. In the meantime, the Commission will study the chemical toxicity of low-level waste, with special emphasis on identifying any licensees who generate hazardous wastes subject to requirements of the Environmental Protection Agency. We will look then at what could be done, perhaps through processing, to minimize the hazard.

Furthermore, the Commission believes that the technical provisions of Part 61 generally meet or exceed those expected in the Environmental Protection Agency's rules for the disposal of hazardous wastes. Although it is not the Commission's intent to allow disposal of hazardous wastes in a radioactive waste disposal facility, as is noted in the regulation, the Commission recognizes that such wastes may be present in low-level radioactive wastes. It is the Commission's view that disposal of these combined wastes in accordance with the requirements of Part 61 will adequately protect the public health and safety. Such hazardous wastes are expected to be such a small percentage of the total volume that dilution by other wastes would greatly minimize any risks. The Commission intends to work closely with the Environmental Protection Agency to assure continued compatibility. Further, EPA in its response to a resolution of the Conference of Radiation Control Program Directors indicated their willingness to work with other Federal agencies to address this problem.

Several commenters raised questions on the basis or criteria for setting site inventory limits for certain radionuclides, as was indicated in Table 1 of the proposed rule. Some correctly noted that such inventory limits would be site specific. The Commission established concentration limits for radionuclides based on a number of considerations, including protection of a

potential intruder, operational safety, and long-term site stability. In addition to concentration limits, the Commission desires the ability to limit maximum site inventories for some isotopes that are of concern from a ground water point of view. Isotopes which are both mobile and long-lived are iodine-129, technetium-99, and carbon-14. Tritium is of concern due to its extreme mobility and its presence in waste in large quantities. Establishment of inventory limits through site-specific license conditions for such radionuclides will help ensure that the performance objectives for ground water migration are not exceeded. The Commission does not plan, as was suggested by a few commenters, to establish site inventory limits for every isotope to protect against potential intrusion. Inadvertent intruder exposures are mainly controlled by the concentration of a particular isotope, and to a lesser degree by the site inventory.

Several commenters raised specific points about the cost and regulatory burden of the waste classification requirements. Much of the concern was related to the issue of costs for determining compliance with the concentration limits, as discussed earlier. The basis of the concentrations, in particular the 10 nanocurie per gram limit for transuranic nuclides was of concern and is discussed elsewhere. One commenter expressed the view that the classification requirements would raise the cost of disposal because of perceived increased cost for disposal of Class A waste and the cost of quality control activities.

While some costs will be associated with these concerns, when they are weighed against the longer term costs and institutional burdens that may result if the requirements are not adopted, the Commission judges the short-term costs to be warranted.

The State of Nevada, who regulates the Beatty site, expressed the view that the rule will increase the burden and expenses of the regulatory agencies. Two reasons cited related to monitoring the adequacy of site maintenance funds and inspection of waste generator packaging and classification activities.

Monitoring the adequacy of funding is already a part of the program for regulating disposal sites and is only peripherally related to waste classification in that stability is not assumed for Class A wastes. This is not different from the existing situation at disposal facilities where a large percentage of waste is not in a stable form. Thus, this does not appear to be a significant increase in regulatory



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burden. Inspection of waste generators for compliance with waste classification is more the responsibility of the Commission or the Agreement State regulating the generator. Existing regulatory responsibilities include inspection of the packaging and shipment of radioactive waste. The incremental burden of reviewing a licensee's program for classifying these wastes should be small.

In addition to the above issues, a large number of commenters offered individual comments on a variety of points of clarification, format, definition, and completeness of the provisions for waste classification. While not summarized here, they are addressed in the detailed analysis of comments by the Commission staff, and to the extent practicable, these comments were reflected in the revision of § 61.55.

As a result of these comments, § 61.55 has been revised to present the classification values in two tables rather than one. Those radio-nuclides with long half-lives, along with some shorter-lived precursors of long-lived nuclides, are now listed separately in a new Table 1. The presence of these long-lived radionuclides will dominate the classification of the waste. If waste contains less than one tenth the concentration of such a nuclide listed in Table 1, it is Class A waste; greater than that, it is judged to be Class C waste provided the concentration does not exceed the value shown in Table 1. Shorter-lived radionuclides are listed with a range of concentrations in Table 2. Depending on the concentration, wastes containing only these shorter-lived nuclides will be judged to be Class A, B, or C. If waste contains nuclides listed in both tables, the mixture must be considered in determining the waste class. If Table 1 nuclides are present in concentrations less than one tenth the Table 1 limits, the class is determined by the Table 2 nuclide concentration. If Table 1 nuclides exceed one tenth of the Table 1 limits the waste is Class C regardless of the Table 2 concentrations.

The phrase "theoretical maximum specific activity" has been eliminated and replaced with a notation of "no limit." A footnote to Table 2 explains that while there is no theoretical limit for concentrations of certain nuclides in Class B and C wastes, practical considerations such as radiation and heat generation will determine the limits.

Several radionuclides have been removed from the originally proposed table. Cesium-135 was removed because it is present in wastes in very small concentrations and classification will be

determined by the presence of Cs-137 and because Cs-135 is a pure beta emitter which is very difficult to measure. Similarly, the radionuclides Ni-59 and Nb-94 have been removed except as they may be contained in activated metals. As examined in the draft environmental impact statement of Part 61, these nuclides are present in reactor wastes (other than activated metals) in such small concentrations as to be insignificant. Uranium has been removed as a radionuclide that must be considered for waste classification. The Commission's analysis shows that the types of uranium-bearing wastes being disposed of do not present a sufficient hazard to warrant limitation on the concentration of this naturally occurring material. Both depleted and enriched uranium do not contain daughter products in any quantity because of the relatively short time since the uranium was refined from ore, compared to the half-lives of the uranium isotopes. The daughter products are disposed of primarily as uranium mill tailings. Primarily for these reasons, the uranium limits were dropped.

For a number of radionuclides, the maximum allowable concentrations in Class C waste have been increased by a factor of ten. This came in response to a number of comments received on the proposed rule and the draft environmental impact statement that pointed out where unnecessarily conservative assumptions had been incorporated into the calculations for intruder protection. These comments pointed out that waste disposed beneath five meters of cover would be difficult to contact even at 500 years and that such waste would be diluted by the other wastes whose radioactivity had decayed to extremely low levels. Additionally, the average concentrations tend to be only a fraction of the maximum permissible. At the present time, these are recognized by the Commission as conservative assumptions and the Commission has found that an order of magnitude increase in Class C limits is warranted. This order of magnitude increase has not changed the established framework of factors such as relying on up to 100 years of institutional control and a 500 mrem whole body limit for intruders.

The radionuclide, curium-242, was added to the nuclides in Table 1. While Cm-242 is a relatively short-lived nuclide (163 days) it decays to plutonium-238, a transuranic nuclide with a half life of nearly 90 years. The concentration of 20,000 nanocuries per gram for Cm-242 will result in a

concentration of 100 nanocuries per gram of Pu-238.

To the extent practicable, the numerous footnotes originally found in the proposed Table 1 were eliminated and have been incorporated, where appropriate, into the textual part of the section on waste classification.

In response to a number of comments, a statement is made that permits the concentrations of nuclides in waste to be determined by means other than direct measurement. These methods may include such things as material accountability, where records of receipts, shipments, and inventories can confirm that waste concentrations could not exceed permissible concentrations. Other indirect methods might include "inferential" measurements where a ratio is established between nuclides in a mixture and the concentrations of the difficult-to-measure nuclide is inferred based on measurement of some easier-to-measure nuclide. Whatever the indirect method used, there should be reasonable assurance that the values determined could be correlated with actual measurements. For example, in the case of inferential measurements, the ratio on which the value is determined should be based on previous actual measurements. In the other example above, the receipts, shipments, and inventories should be based on measured value.

*Subpart D: § 61.56, Waste Characteristics.* A large number of comments were received addressing both the minimum and the stability requirements for waste form characteristics in § 61.56. The following summarizes the comments on the minimum requirements.

One commenter objected to the use of absorbent material to immobilize liquids contained in Class A waste, stating that using absorbent materials was an obsolete technique. The State of South Carolina recommended that this requirement apply only to institutionally generated aqueous or biological waste forms. Since various absorbents have been shown to be effective with liquids, such as organic solvents, oils, etc., the Commission sees no reason to restrict the use of absorbent material to aqueous or biological waste. The Commission does not see any reason to restrict the use of absorbents to institutional generators.

Eighteen commenters stated that the requirement (proposed in Table 1, § 61.55) to obtain specific approval to dispose of wastes containing greater than 0.1 percent chelating agents was too restrictive, and stated that utilities might decide against performing

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decontamination operations which could reduce occupational exposures. Several commenters requested the basis for the 0.1 percent limit. One commenter recommended that no chelating agents be permitted.

Since chelating agents have been shown to increase the migration of certain radionuclides at certain sites, the Commission desired to evaluate the disposal of large quantities of wastes containing high concentrations of chelating agents on a case-by-case basis. This approach was used when the Commission staff reviewed the disposal of wastes that would be generated in the decontamination operations at the Dresden Unit 1 Station. Because the disposal of wastes containing chelating agents is dependent on the characteristics of the disposal facility and on the properties of the waste form, the Commission has modified the chelating agent disposal requirements to reflect this. The Commission has placed on the disposal site license applicant the responsibility for describing the conditions for disposal of waste containing chelating agents. If approved by the Commission, site specific requirements will be placed on the disposal facility licensee. At this time the waste generator will be required only to identify such wastes in the information contained on the shipping manifest.

At the request of comments, definitions have been added for the terms, "hazardous," "pyrophoric," and "explosive."

Of five comments received on the prohibition against packaging waste in cardboard or fiberboard boxes, four felt the prohibition is unnecessary. One commenter supported the provision. After reviewing the comments, including the reasons presented, the Commission still believes that such a prohibition is needed. The experience cited by the Department of Energy, of successfully using cardboard containers for waste packages at their sites, does not include extensive handling and transportation that commercially generated wastes might encounter. The existing prohibition against cardboard and fiberboard containers at existing disposal facilities came about as a result of unfavorable experience in receiving, handling, and disposing of wastes in such containers. No change has been made in this requirement.

Ten commenters addressed the requirements relating to waste in a gaseous form. Several noted an inconsistency between the provisions in §§ 61.56(a)(5) that prohibits wastes capable of generating toxic gases, and

61.56(a)(7) that permits up to 100 curies of activity in waste in a gaseous form. Several requested the basis for the 100 curie limit. A recommendation was made that gases should be processed into liquid or solid forms, and another felt that gases should be limited to several microcuries. The Department of Energy recommended that krypton 85 immobilized by zeolite encapsulation or ion implantation into metal be permitted with concentrations up to five million curies per cubic meter.

The intent of § 61.56(a)(5) is to prohibit the disposal of wastes that are chemically reactive under ambient conditions and produce toxic gaseous reaction products. This section is not intended to prohibit the disposal of properly packaged gases such as H-3 or Kr-85 which occasionally require disposal. This section has been reworded to clarify the intent. The 100 curie limit derives from the existing limits at commercial disposal facilities. The Commission has studies underway to determine whether higher limits would be appropriate. Such limits, if justified, would be proposed in a future rulemaking. In lieu of a requirement that gases be converted to a liquid or a solid, the Commission is evaluating the significant generators of tritium wastes and investigating improved package designs for tritium wastes which would be capable of retaining the contents until they had decayed to innocuous levels. The requirements of Part 61 do not contemplate the disposal of millions of curies of Kr-85 as suggested by the Department of Energy. The Commission is not prepared to set disposal requirements for this waste at this time, and since this waste is not liable to be generated by Commission licensees in the near future, the Commission believes there is ample time to assess the still emerging technology for krypton fixation and establish suitable disposal requirements through future technical guidance or rulemaking action.

Some commenters felt that the requirement in § 61.56(a)(1) that waste packages presented for disposal must comply with NRC and DOT transportation regulations implied that outer packaging such as shipping casks must also be disposed. This was not the Commission's intent. Since proper packaging for transportation purposes is specified in regulations elsewhere, the Commission feels that it is not necessary to restate them in Part 61, particularly in view of the confusion created. This requirement has been deleted.

As discussed earlier, the Commission is concerned with the possible hazards

presented by non-radiological components of the radioactive waste. This was recognized in the requirement proposed that wastes containing biological, pathogenic, or infectious material must be treated to reduce the potential hazard to the maximum extent practicable. The Commission believes it is prudent to add hazardous properties to this requirement and has done so.

A variety of comments were received on the proposed requirements in § 61.56(b) that pertain to the stability of Class B and C wastes. These are discussed below for the various aspects of the requirement.

Nine commenters commented on the statement that the requirements were intended to provide stability for at least 150 years. Three thought that the 150 years was overly restrictive and two recommended 100 years to correspond to the institutional control period. Others observed that some nuclides would not decay to low levels during the 150 years, that Class A waste should also be stable because of the presence of Cs-137 and Sr-90, that steel drums could not be expected to last this long, and that high integrity containers have not been tested for 150 years.

The Commission has reviewed the 150 year stability requirement with respect to the scenarios used to calculate the waste classification values. The property of stability contributes to meeting successfully several of the performance objectives set forth in Part 61. A waste that is stable for a long period helps assure the long term stability of the site, eliminating the need for active maintenance after the site is closed. This stability helps to assure against water infiltration due to failure of the disposal unit covers and, with the improved leaching properties implicit in a stable waste form, minimizes the potential for radionuclide migration in groundwater. Stability also plays an important role in protecting an inadvertent intruder, since the stable waste form is recognizable for a long period of time and minimizes any effects from dispersion of the waste upon intrusion.

The 150 year period was initially chosen to approximate the active life of a near-surface disposal facility, along with the periods of post-closure observation and institutional controls. At the end of this period, the intrusion scenario is based on the intruder readily recognizing any uncovered waste as something out of the ordinary with the result that no further attempts at construction or agriculture would be attempted. When other aspects of the performance objectives are considered,

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however, a longer design life is called for. The waste should continue to maintain its gross physical properties and maintain a measure of its identity for several hundred years more to provide site stability and to keep the Class B and C waste recognizable and unsuited to the construction and agriculture scenarios postulated. Consistent with its desire to avoid prescriptive requirements where possible, the 150 year specification has been removed. It is the Commission's belief, however, that to the extent that it is practicable, waste forms or containers should be designed to maintain gross physical properties and identity over 300 years, approximately the time required for Class B waste to decay to innocuous levels. This is reflected in Commission staff technical positions.

Fourteen commenters indicated that the proposed requirement that a stable waste form maintain its physical dimensions within five percent was overly restrictive and impossible to achieve due to the impracticability of filling containers to 95 percent capacity. Commenters also noted that asphalt and polymeric solidification agents would be incapable of meeting this requirement because of their viscoelastic creep properties. Commenters also observed that the limit could entail added expenses.

Upon review of the proposed requirement, the Commission has concluded that there is not sufficient basis at this time to support a numerical limit for deformation of stable waste. The five percent value has been removed from this requirement. Reliance will be placed on the requirements that void spaces within packages must be minimized, that wastes must be emplaced in a manner that permits void spaces between containers to be filled, and that these spaces must be filled.

With respect to void spaces in waste containers being reduced to the extent practicable, six comments were received. Several requested specific criteria on how this would be met and if filler materials were needed. Two felt that economics would drive waste generators to package the maximum volume of waste into a container and that this requirement in the rule is unnecessary.

Due to the highly variable nature of wastes, the Commission believes that it is not possible or desirable to include specific criteria for minimizing voids. To the extent that void spaces can contribute to eventual instability of the waste, they should be eliminated or reduced as much as possible. This might be done in some cases by filling void

spaces with other wastes or inert materials.

Eleven commenters objected to the specific requirement that the stability of waste be maintained under a compressive load of 50 pounds per square inch (psi). Most felt that the specific requirement should be deleted and replaced by a more general requirement to reflect actual disposal site conditions and operations.

In response to these comments, the 50 psi specification has been removed from the rule. The specification was based on conservatively assuming maximum burial depths up to 45 feet and waste or overburden density of 150 lb/ft.<sup>3</sup>. Testing performed on acceptable solidified waste specimens indicate that 50 psi compressive strength should be easily obtained. The Commission believes that while this is achievable, some latitude should be allowed for the design of waste forms and containers to reflect site conditions where burial depths may be less.

Since § 61.56(b) permits the stability of waste to be achieved by placing the waste in a suitable container for disposal, a number of comments addressed the properties such a container should exhibit and the uses to which it should be put. It was suggested that the Commission reexamine design criteria for a high integrity container for highly dispersible forms, and one suggested that such container should be used for both high and low concentration wastes. A major supplier of waste solidification technology questioned whether the use of a container reflected the best available technology and the concepts of ALARA.

Three commenters, two of whom are suppliers of waste solidification technology and services, felt that ion exchange resins should all be solidified and that disposal of ion exchange media by dewatering is not within the concepts of ALARA and use of the best available technology.

The Commission staff is preparing a technical position on waste form criteria, including design criteria for a high integrity container. Draft copies have been made available to interested parties for their review and comment. In short, the technical position states that the container must provide as much assurance of stability for as long as required for a stable waste form or product. It should be designed, to the extent that it is practicable, to contain the waste and maintain gross physical properties and identity over 300 years, under the conditions of disposal. The Commission believes that the use of containers to achieve stability is consistent with the concept of ALARA

and the use of the best available technology. Occupational exposures in using high integrity containers are expected to be similar to or less than waste solidification, either with mobile or installed systems.

Several commenters addressed the proposed limitation of free standing liquid which would require that such liquids be reduced to as low a level as is reasonably achievable, but in no case to exceed 1 percent. Further, the proposed rule stated that the liquid should be noncorrosive. There were no requests to increase the value. However, one waste solidification service supplier recommended a limit of zero, while the State of South Carolina recommended implementing the limits in the license for the Barnwell disposal facility, i.e., 0.5 percent for solidified wastes, 1 percent for waste in high integrity containers. Several commenters asked for a definition of the term "noncorrosive."

The Commission has reexamined the proposed limit on free standing liquid and judged that solidified wastes and wastes in high integrity containers should be addressed separately. The Commission has concluded that existing waste solidification technology can produce a waste form that is essentially free of free standing liquid. In order to compensate for potential condensation of water vapor sealed in containers, the Commission believes that a limit of 0.5 percent by volume is appropriate for solidified wastes. For dewatered products, such as ion exchange resins, that are in a container designed to ensure stability, it is very difficult to ensure that such products would meet a 0.5 percent requirement following transport to a burial site. Therefore, for dewatered products, 1 percent should be allowed to account for settling during the transport period. The non-corrosive properties of the liquids will be defined and discussed in a staff technical position, rather than in the regulation. To provide a degree of consistency between Class A wastes and the Class B and C wastes, the limitations on liquids in Class A wastes have been modified. Liquid waste must be packaged with sufficient absorbent material to absorb twice the volume of the liquid. Solid wastes with incidental liquids must meet the 1 percent free standing liquid requirement.

Two commenters pointed out what they perceived as inconsistencies between Part 61 and other Commission rules or guides. One of the guides referenced is the Effluent Treatment Systems Branch Technical Position 11-3. This document was revised in July 1981 and is consistent with Part 61 requirements. The Commission fails to

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see inconsistency between Part 61 and its supporting EIS, with Appendix I of Part 50, or guidelines for storage of waste, as claimed by the commenters.

**Subpart D: § 61.57, Labeling.** Several commenters offered suggestions or raised questions on the requirement that waste packages be labeled to show the classification of the contents. The commenters suggested color coding, different wording, consistency with DOT labeling, minimum standards, and asked for clarification of responsibilities.

The requirement for labeling is to provide the disposal facility operator with information as to whether the contents are Class A, B, or C wastes so that he will be able to dispose of them in the proper manner. The Commission does not feel that a Federal standard for such labeling is warranted, only that it be clear and legible. Individual facility operators may have operating procedures that could be enhanced by label location, size, color, etc. Since the label is to benefit the operator, it is more appropriate for him to set specifications through contractual arrangement. A suggestion to simplify the nomenclature on the labels was adopted and a minor change was made in § 61.57.

Waste classification labeling is in addition to labels required by DOT for transportation purposes. There is a similarity in nomenclature between the Class A and B wastes and the Type A and B packages used by DOT. DOT requires that packages be labeled as to whether they are Type A or B, therefore, there could be some confusion if the packages are labeled to indicate the waste classification. However, DOT has a variety of numerical and alphabetical designations and it is difficult to avoid some similarity in designation.

**Subpart D: § 61.59, Institutional Requirements.** There were few comments on the requirement for State or Federal ownership of the disposal site. Those commenting expressed general support. One commenter suggested that the State should have an option to turn ownership and responsibility for long-term custody over to the Federal government. Such an option is not available under current law. In related comments, two commenters expressed concern over the State's responsibility and liability after accepting the disposal site for custodial care. Since the State does become responsible for the site, the State must be involved and aware of the operations and conditions at the site during its operation. This could be done through some independent oversight as landlord, or through participation with NRC in the

review of the initial application as provided in Subpart F of Part 61.

About twenty commenters addressed the appropriateness of the 100 year limit on institutional controls and its effect on wastes acceptable for disposal under the conditions prescribed by Part 61. All commenters expressed support in one way or another for defining a time frame for institutional control related either to the hazard duration of the waste or assurance of continued government stability or concern. It was generally agreed that waste that was potentially hazardous after the end of the assured institutional controls should be disposed of by methods providing greater controls and assurances against potential exposure. These comments are judged to support the provisions of Part 61 that combine institutional controls with waste form, site characteristics, and site design and operations to provide assurances that potential exposures will be with acceptable limits. Class A waste that is potentially accessible and unrecognizable is no longer hazardous after 100 years. Special provisions for waste being in a stable form and in some cases buried deep assure against potentially unacceptable exposures or releases for up to 500 years.

There were a number of suggestions that the period of institutional control should be raised from 100 to 300 years. There appear to be two basic reasons for these suggestions. One reason is that institutions such as a state or the Federal government can reasonably be expected to survive for much longer than 100 years. A second reason is that the 100 year restriction on institutional care affects the waste concentrations acceptable for disposal as Class A waste with resultant higher costs to the waste generator. With respect to the first reason, the Commission feels that it is not a question of how long the government can survive, but how long should they be expected to provide custodial care. Based on work done by EPA, public comments on a preliminary draft of Part 61 and an advanced notice of proposed rulemaking, and four regional workshops, a clear consensus was developed which supported the 100 year limit. The Commission has not seen any compelling reasons to change its view on the 100 year limit.

Some commenters expressed the view that the government landowner should have flexibility in controlling site access during the institutional control period and that productive uses of the land which would not affect site integrity should be permitted. The Commission agrees and words to that effect have

been added to the Concepts section, 61.7.

**Subpart E: Financial Assurances.** Approximately two dozen commenters responded to the proposed financial assurance requirements for closure and post-closure care. In general, the commenters expressed support for the rule's establishment of financial assurances for closure and for long term care of a LLW disposal site. Commenters mentioned that the existing history of LLW disposal sites revealed a strong need to require licensees to demonstrate evidence of financial responsibility so that the public health and safety were protected and also so that potential liabilities do not rest with state taxpayers.

Several commenters felt that the financial requirements should provide more detail. The Commission agrees and has prepared a draft Branch Technical Position on Funding Arrangements for Closure and for Long-Term Care of a LLW Disposal Site that provides definitive guidance for evaluating all financial assurances, including surety bonds.

One of the major points raised by a variety of commenters was that the proposed regulation failed to address financial responsibility for unanticipated contingencies at a LLW disposal site. One group expressed concern that the regulations set the stage for a "tax-payer funded bail-out" of poorly-run disposal sites. They felt the industry should bear these costs, and that the regulations should be written to make this explicit. Another commenter noted that the experience of the State of Kentucky with Maxey Flats emphasized the importance of making contingency funds available in the event that serious problems occur. They felt this issue should be addressed in the rulemaking. One State further noted that the rule failed to mention who would be financially responsible if problems occur at the site that cost more than were budgeted on an assumption of normal operation. These questions cover such a variety of different scenarios (i.e., Acts of God, licensee negligence, etc.) that it is not possible to specifically respond to all of the potential contingencies. However, a general response to the overall issue of responsibility for contingencies at a low-level waste disposal site is possible. These comments cover two different time periods—the post-closure period, when the original licensee is still responsible at the site, and the institutional control period, when the license has been transferred to the landowner of the site for a period of up to one hundred years.

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In the case of the post-closure care period, the licensee would be responsible for all activities at the site found necessary by the Commission to protect the public health and safety. Financial responsibility for activities during the institutional control period are a matter to be worked out between the site owner (i.e., the State or Federal Government) and the licensee in their lease or other legally binding arrangement. It is possible that if the site owner were a state, they would work out an arrangement whereby the site operator would collect a surcharge from waste generators for the institutional control period. The rights and responsibilities of the State and the licensee would be determined at such a time.

With regard to contingencies, one commenter also asked who would assume responsibility for a site and its accompanying waste when it was closed prematurely by the NRC, due to rule violation. Responsibility for a site closed prematurely by the NRC would depend on the situation. Additionally, closure would be a last resort of the Commission, since the agency has other authorities, such as civil penalties, to require licensee compliance. In the event it would become necessary to close the site for health and safety reasons, the rule provides that the licensee continues to be responsible until the license is terminated. In the event that the licensee's financial condition deteriorated so that he was unable to maintain the site to protect the public health and safety, then the Commission would probably require the site owner (either the State or Federal government) to assume responsibility at the site.

Regardless of who assumed responsibility for a prematurely closed site, the rules require that a licensee have available at all times during the site life, sufficient financial guarantees to ensure that sufficient funds are available for site closure and decommissioning. These funds would be available for properly maintaining the site if the original licensee were unable to do so.

Several commenters considered that the rule should resolve the issue of financial responsibility for contingencies by requiring liability insurance or specific language that licensees would be required to indemnify property owners in case of off-site migration. Although not proposed in the original rule, the staff evaluation of these public comments indicates there is a need for licensees to provide financial responsibility for liability coverage for

off-site bodily injury and property damage. The Commission thinks the public health and safety and the environment would be protected from unanticipated contingencies by such coverage, as well as assisting the States in establishing disposal sites. Four existing LLW disposal facilities currently carry this type of liability coverage, and several other State and Federal agencies, including EPA have imposed similar requirements for hazardous and radio-active waste facilities in order to protect the public health and safety and the environment. However, at the present time, the Commission's only statutory framework for establishing such a requirement is Section 170 of the Atomic Energy Act, also known as the "Price-Anderson" Act. This type of coverage is designed to cover "catastrophic events" primarily for nuclear reactor licensees, and the Commission feels this coverage would be in excess of the risk at a low-level waste facility. Therefore, the Commission has not established a third party liability requirement in this regulation. The Commission will strongly encourage licensees to continue to carry third party liability insurance coverage through the conventional insurance market.

A variety of comments were received concerning the short term financial assurances required for closure and decommissioning. Several commenters supported the rule's use of a variety of different options for closure, noting that flexibility was crucial if the proposed rule was to function in a reasonable manner.

Other commenters expressed support for the rule's provision requiring that the amount of surety liability change with changes in cost estimates. One commenter also was concerned that the financial surety arrangements increase in value over time to compensate for the effects of inflation. The rule allows the Commission to periodically assess the amount of funds collected for both closure and post-closure care of the site and if necessary, the Commission could require the financial assurances to be increased to account for inflation, unforeseen problems, and unanticipated costs.

Commenters expressed support for the variety of alternatives allowed to demonstrate short term financial responsibility. However, several commenters mentioned that no commercial market exists to provide surety bonds of the type mentioned in the rule. In developing the rule, the Commission is aware that surety bonds of the type proposed in the rule may be

unavailable at this time. However, the Commission included this alternative in the rule in the event that this type of coverage becomes available in the insurance market at a later time.

Commenters were also divided about whether the Commission should allow self-insurance as a financial assurance for closure. Several commenters felt that self-insurance would not satisfy the surety requirements, and they recommended that licensees should be required to place specific funds in escrow to cover costs of decontamination, closure and stabilization. Another commenter suggested that self-insurance be based on an annual submittal of financial reports, i.e., a financial test.

The Commission rejected the use of stand alone "self-insurance" based on the Commission's lack of confidence in this method to provide adequate assurances. Further, state officials have informally expressed the need to have tangible funds available from the licensee for site closure, so the State as landowner would not be left financially responsible. While not specifically allowing its use on a generic basis in the rule, the Commission will evaluate the use of financial tests proposed by licensees on a case-by-case basis.

Commenters also expressed support for the need to have a long-term care fund established at the time a license is issued. Some commenters wanted the rule to explicitly require the licensee to set aside funds for long-term care. However, the Commission currently lacks the authority to require a licensee to establish a fund to provide for long-term care of the site after the license is terminated. Instead, the Commission can only require a licensee to provide evidence of entering into a lease or other binding arrangement with the site owner indicating that the two parties have established financial responsibility for long-term care between themselves. With regard to the lack of authority, one person suggested that the Commission ask Congress for authority to require financial assurances for licensees for the active institutional control period. The NRC has raised this issue with Congress both in testimony and in a letter commenting on waste legislation.

*Subpart F: Participation by State Governments and Indian Tribes.* Many of the comments on Subpart F were concerned with interpretations and clarifications. These have been answered in the detailed analysis of comments. Two noteworthy changes were made. In § 61.71, a change was made to ensure that the Director shall make Commission staff available for

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discussion with the State or tribal governing body. At the request of the Department of the Interior, a statement was added to § 2.101 to indicate that the Commission will inform the U.S. Bureau of Indian Affairs when tribes have been notified of the filing of an application.

The Commission has been examining ways by which the licensing process can be shortened in time. One way is to conduct activities in parallel where possible, rather than sequentially. One such area is in the submittal and evaluation of proposals by States and Indian tribes for participation in the NRC license review, as provided by Subpart F. As proposed, § 61.72 would provide up to 120 days after an application was docketed for a State or tribe to submit a proposal for participation. The time from initial submittal of the application until it has been docketed is estimated to be 60 days or more. Thus, there is a potential delay of 180 days between the time NRC would receive a proposal and could begin the serious consideration of the proposal. Until resolution were reached on the role a State or tribes would play in the review, the NRC's review of the application could be significantly hampered.

The Low Level Radioactive Waste Policy Act of 1980 clearly states that it is a State's responsibility to provide for the disposal of low level waste. The Act also provides for the formation of interstate compacts for this purpose, subject to Congressional approval. Thus, any application for a disposal facility license will have had State or compact participation and backing for a significant period of time before submittal. During this time, the Commission believes that the State will have had ample opportunity to determine what role it wants to play in the review of the application. This also holds true for other States that are parties to an interstate compact. Therefore, § 61.72 is being changed to require that a proposal from the State in which the facility is proposed, or from any State involved in a compact with the State, must be submitted within 45 days after the application has been tendered. However, the Commission notes that a more prompt submittal by the State would help reduce delays.

Although it is to be hoped that the States will inform Indian tribes of plans for disposal facilities and provide them with sufficient information to permit them to make a proposal at an early time, there is no way of ensuring this. Therefore, Indian tribes and States not covered above will be given 120 days from the tendering of an application to

submit their proposal. It is anticipated that the participation of Indian tribes and non-compact States will not impact the schedule of the licensing process as much and this additional time can be accommodated.

The Commission believes that there should be sufficient information in the tendered application on which to base a proposal and that it is not necessary to wait until the acceptance review is completed and the docketing procedure carried out.

By making these changes, review of proposals can be carried out earlier and in parallel with the other reviews. It is expected that this could reduce the licensing time by up to six months.

It should be noted that participation by States and Indian tribes pursuant to Subpart F of Part 61 is not through an adjudicatory hearing. If an adjudicatory hearing is requested, then 10 CFR Part 2 applies.

A provision was added to § 61.25 to ensure that State, local, and Indian officials were notified of the opportunity for a hearing for certain types of amendments to the disposal facility license.

*Subpart G: Records, Reports, Tests, and Inspections.* Several commenters made suggestions on records and reports and the need for resident inspectors. Comments were also offered encouraging state involvement in records review and inspections. Two suggestions, relative to reporting any release of radioactivity and a requirement for maintaining duplicate sets of records were rejected as being impracticable. The Commission, however, would encourage protection of records so that they would not be vulnerable to loss because of fire, flood, or other occurrence. The other suggestions did not require modification of the regulations in order to accomplish what was suggested.

*10 CFR Part 2: Rules of Practice.* No major issues were raised by the several comments on the proposed amendments to Part 2.

*10 CFR Part 20: § 20.311 Transfer for Disposal and Manifests.* Because any licensee might make a waste shipment and thus be subject to the proposed manifest system requirements, the Commission mailed copies of the proposed rules to each of the Commission's approximately 9,000 licensees. In addition, some 12,000 copies were furnished to the Agreement States for distribution to their licensees. Out of this large group came a total of 29 letters commenting on the manifest system. These comments were wide ranging, with the majority of questions or suggestions being raised by only one

commenter. Only a handful of issues drew more than one comment, with four being the largest number of comments on any issue. As a result of these comments, several changes were made to the proposed requirements to clarify some aspects.

To deal with the situation where a waste collector picks up waste directly from the generator, provisions are made for delivering the manifest to the collector at that time. The waste collector will not be required to attach copies of all waste generator manifests to his, as long as the collector's manifest has the information for each package that is required by § 20.311(b). The person transferring wastes will be required to maintain a signed copy of the manifest or equivalent documentation such as a computer generated printout from the transferee containing the same information and binding acknowledgement as the record required by Parts 30, 40 and 70 governing transfer of licensed material. This was done to provide inspectable records at the waste generator's facility which demonstrate compliance with the manifest requirements.

Changes were made in the requirements dealing with quality assurance. The term quality "assurance" has been changed to quality "control" and management's role has been modified to require evaluation of audits rather than the conduct of such audits.

Of note is that only one commenter, a midwest utility, addressed the question of the burden that the manifest would represent to small entities. When the manifest requirements were proposed, the Commission judged that they would not have significant economic impact on small entities. Pursuant to the Regulatory Flexibility Act, the Commission solicited comments on this matter.

### General Comments

Seventeen commenters expressed concern with the use of absolute terms in the rule such as "eliminate" and "prevent." One was concerned about the lack of absoluteness of "reasonable assurance."

As discussed elsewhere, most of the places where such terms were used were in the context of design objectives. Since total achievement of such absolute objectives is unlikely, modifications have been made to the requirements to require minimization or prevention to the extent practicable.

Twelve commenters made suggestions on the kinds of additional regulatory guidance they felt was needed. The Commission agrees with the need for regulatory guidance and has a program



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underway to provide such guidance, first in the form of staff technical positions, then as Regulatory Guides. Most of the topics addressed by the commenters are already under development. Consideration is being given to the development of guidance on other topics suggested by the commenters.

One commenter suggested exempting wastes in storage prior to the effective date of the regulation from the packaging and labeling requirements. This comment touches on a subject with broader implications, the phasing in of the Part 61 requirements, consistent with the ability of licensees, Agreement States, and applicants to make necessary changes to assure compliance.

The following sections and subparts will be considered a matter of compatibility for the Agreement States when the rule is adopted: Section 61.2, Definitions; Subpart C, Performance Objectives; Subpart D, Technical Requirements for Land Disposal Facilities; those portions of Subpart B that are necessary to implement the provisions of Subparts C and D; that portion of Subpart E requiring closure funding arrangements; and Section 20.311, Transfer for disposal and manifests. Meetings were held with Agreement State representatives and agreement was reached on a method for uniform implementation of the manifest requirements, waste classification, waste form, and the effective date of Section 20.311 which was set at 365 days after publication in the Federal Register.

Since all other provisions of the proposed rules would pertain only to applicants for new Commission-licensed disposal facilities, there are no reasons to delay the effective date of these requirements. The Commission is working with the Agreement States to develop model regulations to be adopted by the Agreement States in accordance with their agreements to maintain compatible state regulations.

Applicability of the requirements in Part 61 to Commission disposal facility licenses in effect on the effective date of the rule will be determined on a case-by-case basis and implemented through terms and conditions of the license or by orders issued by the Commission.

There were a variety of comments related to commenters' questions about the development of new sites, concerns over nuclear facilities becoming *de facto* disposal sites, the need for an environmental impact statement, and an extension of the comment period for Part 61 to correspond with that of the environmental impact statement. These comments are addressed in the detailed

analysis of comments and had no effect on the rule. The comment period was, in fact, extended from October 22, 1981 to January 14, 1982 to correspond with that for the EIS.

About one third of all commenters offered editorial suggestions that were aimed at improving clarity, correcting grammatical errors, and noting typographical errors. These were very helpful in preparing the final version of the rule.

### Employee Protection

A new 10 CFR 61.9 has been added concerning job protection for employees who provide information to the Commission. The new section is included in this final rulemaking to carry out the Commission's intent that all specific licensees will have similar responsibilities under its employee protection regulations. See the Federal Register notice (47 FR 30452) dated July 14, 1982 for the basis for this action.

New 10 CFR 61.9 emphasizes to employers—that is, licensees, applicants, and their contractors and subcontractors—that termination or other acts of job discrimination against employees who engage in activities furthering the purposes of the Atomic Energy Act and the Energy Reorganization Act is prohibited. In addition, new 10 CFR 61.9 makes the employee aware that if discrimination of this nature is believed to have occurred, a remedy is available through the Wage and Hour Division of the Department of Labor. To ensure that employees of licensees and applicants are aware of these amendments, these organizations are required to post their premises with explanatory material related to the prohibition of discrimination and availability of a remedy in the event of discrimination.

### Paperwork Reduction Act

As required by the Paperwork Reduction Act, Pub. L. 96-511, the recordkeeping and reporting requirements in the proposed amendments to 10 CFR 20 incorporated in the 10 CFR 61 rulemaking were submitted to the Office of Management and Budget and were approved. The proposed amendments to 10 CFR Part 20 were not significantly altered as a result of public comments so that approval remains valid. The application, reporting, and recordkeeping requirements contained in 10 CFR 61 apply only to land disposal facility operators and affect fewer than 10 persons and, therefore, are not subject to OMB clearance.

### Regulatory Flexibility Act

Based upon the information available and on the public comments received on the proposed rule, and in accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rulemaking will not, if promulgated, have a significant economic impact upon a substantial number of small entities.

The Regulatory Flexibility Act (Pub. L. 96-345) was signed into law in September 1980. The Act's principal objective is to make certain that Federal agencies try, where possible, to fit regulatory requirements to the scale of the affected activity. Significant economic impacts on a substantial number of small entities is a major concern. Part 61 and accompanying rule changes will potentially impact a significant number of persons licensed by the Commission and the Agreement States. The following discussion addresses the factors in the analyses required by the Act and the public comments received. The draft and final EIS's for Part 61 provide additional background information and analysis of the impacts of this rulemaking action.

Section 604 of the Regulatory Flexibility Act requires that the need for the regulatory action be clearly established. The need for standards to govern the disposal of low-level radioactive wastes and new regulations to implement these standards was discussed in detail in the draft EIS. The majority of the public comments supported the rule and thus affirmed the need for the rule and the regulator framework it establishes.

Section 609 of the Regulatory Flexibility Act requires that small entities have an opportunity to participate in the rulemaking when the rule will have a significant economic impact on a substantial number. Since the Commission's initial certification of no significant impact was a qualified one, special efforts to reach small entities were made. For example, the proposed rule was distributed to all Commission licensees (9,000) and made available to Agreement States (12,000 licensees) with a cover letter highlighting the points that might impact them. Comments were solicited from groups such as the Health Physics Society, a national organization of professionals concerned with radiation safety, many of whose members will have to prepare manifests and coordinate compliance with the rule. The Health Physics Society publicized the rule in its newsletters to members. Of some 107 different commenters responding, none specifically addressed

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the Regulatory Flexibility Act or the summary analysis. One utility (which is not a small entity) did make a general qualitative reference to burdens on small entities. Twelve commenters representing a variety of sectors (not just small entities) addressed the potential burden of the manifest system.

Section 604 of the Regulatory Flexibility Act further requires a summary of the issues and a statement of any changes made in the proposed rule as a result of the comments. Two commenters were concerned about the burden of specifying chemical form. Four commenters objected to shipper responsibility for tracking shipments. Three commenters including one broker considered the system to be a paperwork burden and two, a general burden. Three supported the system and one indicated no problems in complying. Two objected to forwarding a copy of the manifest and one was concerned about the implications of generator certifications.

The proposed rule included relief language "as completely as practicable" for specifying chemical form. Small entities generate a significant percent of wastes and data on these wastes is needed, so no further relief was provided. Objections to shipper tracking and forwarding manifests stemmed primarily from the need to clarify intent of the rule on waste broker or collector role and responsibility. The transfer of papers and tracking responsibility is more clearly addressed in the final rule. The recommendation for simplifying the paperwork for brokers was adopted. These issues and concerns are addressed in more detail in the staff analysis of comments in the final EIS.

The comments on waste classification were discussed in the preceding summary and resulted in extensive revision of this portion of the rule to simplify and clarify the requirements. The detailed staff analysis in the final EIS provides further discussion of the issues raised.

Federal rules that overlap the proposed rule are primarily those of the Department of Transportation (DOT). The Commission and DOT have an established working relationship implemented through a formal Memorandum of Understanding. The rule itself acknowledges the need to comply with DOT rules, and the Commission currently inspects licensees for compliance with DOT requirements. The manifest required by this rulemaking is consistent with DOT shipping paper requirements, and the same document may be used by licensees to meet requirements of both agencies. Neither NRC nor DOT require a specific form and both allow such dual

use. The waste form and packaging requirements are in addition to and compatible with DOT rules. In addition, the manifest terminology and requirements were compared to those in the proposed Uniform Hazardous Waste Manifest, the joint EPA/DOT proposed form published March 4, 1982 (47 FR 9336). A few minor procedural and terminology changes were made to conform to this proposed form. Licensees may use the Uniform Hazardous Waste Manifest, once it is implemented, as both a DOT shipping paper and a NRC manifest for radioactive wastes by using additional spaces to describe wastes and adding information to the back. These changes were made based on consultation with EPA and DOT staff and will help to reduce the burden on all licensees.

The following comment was received from EPA on possible duplicative requirements:

NRC solicited comments on possible duplicative requirements for effluent releases and broker activities under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). This "Superfund" law exempts from notification "any release of source, special nuclear, or byproduct material . . . in compliance with a legally enforceable license, permit, regulations, or order issued pursuant to the Atomic Energy Act of 1954" (CERCLA Section 101(10)(K)). Radioactive releases from nuclear waste disposal facilities which are not in compliance with an NRC license, permit, regulation, or order fall within the reporting requirements of CERCLA. Furthermore, as part of the notification regulations under CERCLA, EPA is planning to develop a notification scheme for releases of radioactive materials not licensed under the Atomic Energy Act of 1954 or the Uranium Mill Tailings Radiation Control Act of 1978. EPA wishes to minimize duplicative reporting requirements for releases reported to other agencies. EPA intends to work with NRC to minimize duplicative reporting requirements to the extent possible.

The EPA also addressed the potential for duplicative costs to the two agencies for wastes that are a mixture of hazardous chemicals and radioactive materials. Close coordination and a memorandum of understanding were suggested. EPA has regulatory responsibility for the disposal of hazardous wastes under the Resource Conservation and Recovery Act (RCRA). NRC agrees that the two regulatory programs need to be coordinated, and will take action in that regard.

The Regulatory Flexibility Act also requires discussion of alternatives to the proposed action. The recordkeeping and reporting requirements impose such a minor incremental burden that no exemption was considered. Initial estimates were that about 2,000 of the

Commission's 9,000 licensees are waste generators who might make waste shipments. Waste generators must provide more complete information on the manifest than is currently required to meet DOT shipping paper requirements and must report on investigations of missing shipments. The additional information required in the manifest includes the identities of solidification agents; presence of any chelating agents; whether the waste is Class A, B, or C; and the total quantity of H-3, C-14, Tc-99, and I-129. The annual public burden for all licensees should be no more than about 4,500 staff hours for the preparation of the manifest instead of just preparation of DOT shipping papers and 1,000 hours for investigating and reporting on late or missing shipments. Reactor licensees, who are not small entities, ship at least half the waste now shipped to disposal sites. The remainder is shipped by hospitals, universities, industrial firms, etc., who may or may not be small entities. Thus, less than half this burden should fall on small entities based on relative volumes of wastes shipped. The waste classification and characteristics portion of the rule does provide relief for most wastes produced by the small entities, i.e., Class A wastes. Where radiological hazard permits, segregated disposal has been provided as an option to complying with more restrictive waste acceptance requirements for Class B and C wastes.

The incremental burdens were initially judged small. Based on further staff evaluations and public comments on the rule, this initial judgment was correct and the rule will not have a significant economic impact. The rulemaking will not affect economic factors such as employment, business viability, or ability of affected entities to compete. The improvements in waste disposal practices and the contribution of those improvements to establishing new disposal capacity are judged to significantly outweigh the small economic impact on small entities.

### List of Subjects in 10 CFR Part 61

Low-level waste, Nuclear materials, Penalty, Waste treatment and disposal.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of title 5 of the United States Code, the following new 10 CFR Part 61 and the following amendments to 10 CFR Parts 2, 19, 20, 21, 30, 40, 51, 70, 73, and 170 to Chapter 1 of Title 10, of the Code of Federal Regulations are published as a document subject to codification.

## **PART 61 • STATEMENTS OF CONSIDERATION**

**49 FR 9352**

**Published 3/12/84**

**Effective: Upon approval of OMB or  
6/7/84.**

*Environmental Protection Regulations  
for Domestic Licensing and Related  
Regulatory Functions and Related  
Conforming Amendments*

**See Part 51 Statements of Consideration**

**49 FR 24512**

**Published 6/14/84**

**Effective 6/7/84**

*Environmental Protection Regulations  
for Domestic Licensing and Related  
Regulatory Functions and Related  
Conforming Amendments*

**See Part 2 Statements of Consideration**

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**

21 FR 764  
Published 2/3/56  
Effective 3/4/56

Effective 30 days after publication in the FEDERAL REGISTER, Part 70, Title 10, Chapter I, Code of Federal Regulations, entitled "Definition of Fissionable Material," is hereby amended to read as follows:

25 FR 12730  
Published 12/13/60  
Effective 1/12/61

The following amendment prescribes a standard transfer and receipting form to be used by persons holding licenses issued pursuant to the regulations in Part 70, Chapter 1, Title 10, Code of Federal Regulations, in initiating and receipting shipments of special nuclear material.

Notice of proposed issuance of the amendment was published in the FEDERAL REGISTER on August 17, 1960 (25 F.R. 7890), and a period of 60 days was allowed for receipt of comments by interested persons. The comments filed have been given careful consideration.

The provisions of the new § 70.54 are unchanged from those which appeared in the notice of proposed rule making. However, slight changes have been made in the Form AEC-388, and in the accompanying instructions, as follows:

1. On the face of the Form AEC-388 the parenthetical instruction "(For AEC Use Only)" has been deleted from Item 5.

2. On the Face of Form AEC-388 Item 11 has been changed to read: "The items and quantities listed above were shipped on . . . ."

3. On the face of Form AEC-388 Item 12 has been changed to read: "The items and quantities listed above were received on . . . ."

4. In the instructions appearing on the reverse side of Form AEC-388 the "Note" at the bottom of the page is designated "Note No. 1", and a "Note No. 2" is added, reading: "Licensees are not

required to report transfers of special nuclear material to another licensee or to the Commission, for disposal, if the material is contained in waste and if the material has been declared to the Commission as 'consumed' by a licensee. Licensees are required to report all other transfers of special nuclear material, even though the Commission may have been paid the full value therefor. In such cases the following statement should be inserted in Item 8: 'Full value paid to AEC'."

5. Instruction 5 has been changed to read: "Enter name, address, license number and lease number of the organization assuming lease responsibility for the material; also the applicable order (Form AEC-640) number, if available."

Copies of Form AEC-388 referred to in the amendment will be furnished upon request made to AEC Material Leasing Officer, U.S. Atomic Energy Commission, Oak Ridge, Tennessee.

Notice is hereby given that the following amendment to 10 CFR Part 70 is published as a document subject to codification and is effective 30 days after publication in the FEDERAL REGISTER:

29 FR 5883  
Published 5/5/64  
Effective 6/4/64

On September 20, 1963, the Commission published in the FEDERAL REGISTER (28 F.R. 10302) for public comment proposed amendments to 10 CFR Part 70 to (1) issue a general license authorizing the receipt, possession, use and transfer of plutonium in calibration or reference sources, and (2) specify requirements for a specific license for persons who manufacture such sources for distribution to persons generally licensed. This action was taken in response to a petition for rule making (FRM-70-1) submitted to the Commission by Eberline Instrument Corporation.

The general license in § 70.19 below would be issued only to the following persons:

(1) Any person in a non-agreement State (any State with which the Commission has not entered into an effective agreement under subsection 274b. of the Act) who holds a specific license issued by the Commission which authorizes him to receive, possess, use and transfer by-product material, source material, or special nuclear material;

(2) Any Government agency, as de-

fined in § 70.4(f), which holds a specific license issued by the Commission which authorizes it to receive, possess, use and transfer byproduct material, source material, or special nuclear material; and

(3) Any person in an agreement State (any State with which the Commission has entered into an effective agreement under subsection 274b. of the Act) who holds a specific license issued by the Commission which authorizes him to receive, possess, use and transfer special nuclear material.

In § 70.39 below the requirements for a specific license would be established for persons who manufacture sources for distribution to persons generally licensed under § 70.19.

The amendments published below retain the substantive provisions set forth in the proposed rule although a number of minor revisions have been made for purposes of clarification. These revisions reflect Commission consideration of the comments and suggestions received in response to the notice of proposed rule making. One of the revisions is a modification of the wording on the label required to be affixed to the source or source container to make the label appropriate for use in both agreement States and non-agreement States. The change in wording on the label should simplify labeling requirements for manufacturers who distribute sources.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendment of Title 10, Chapter I, Part 70, "Special Nuclear Material", is published as a document subject to codification to be effective thirty (30) days after publication in the FEDERAL REGISTER.

29 FR 14401  
Published 10/21/64  
Effective 1/18/65

See Part 40 Statements of Consideration.

31 FR 4668  
Published 3/19/66  
Effective 3/19/66

*Miscellaneous Amendments*

See Part 20 Statements of Consideration.

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32 FR 2364  
Published 2/3/67  
Effective 3/5/67

### Requirements for Control and Physical Inventory

On May 27, 1966, the Atomic Energy Commission published in the *FEDERAL REGISTER* (31 F.R. 7634) proposed amendments to its regulation, 10 CFR Part 70, Special Nuclear Material, which would require holders of licenses for special nuclear material to adopt material control systems to better enable them to account for the special nuclear material which they are licensed to possess and to perform physical inventories of such material.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. Upon consideration of the material submitted in response to the notice of proposed rule making, the views of industry representatives offered during an industry advisory conference convened by the Atomic Energy Commission on July 27, 1966, to discuss the proposed amendments, and other factors involved, the Commission has adopted the amendments set forth below.

The principal differences from the amendments published for comment are:

1. Proposed § 70.22(b) has been revised to require applicants for special nuclear material licenses to possess and use more than 5,000 grams of special nuclear material for activities other than those involved in the operation of a nuclear reactor or as a sealed source to submit to the Commission (1) a full description of their procedures for the control of and accounting for special nuclear material, including certain specified procedures, and (2) an identification of the fundamental material controls provided in the applicant's material control and accounting procedures, which the applicant considers essential for assuring that special nuclear material in his possession will be adequately safeguarded;

2. Proposed § 70.22(b) has been revised to provide that the fundamental material controls identified by the applicant will be considered by the Commission in determining the conditions to be incorporated in the license pursuant to § 70.32(c);

3. Footnotes have been added to §§ 70.22(b)(1) and 70.51(c)(1) to note that as guidance in preparing the required descriptions, an applicant or a licensee may consult "A Guide for the Preparation of Procedure Manuals for Safeguards Control and Inventory Management of Nuclear Materials," which is available upon request to the AEC. In this regard it is noted that the AEC views as high priority the development of more definitive criteria and standards in the safeguarding of special nuclear material and as these are developed they will be included in appropriate AEC regulations or guides;

4. A new § 70.32(c) has been added which provides that each license to possess and use more than 5,000 grams of

special nuclear material for activities other than those involved in the operation of a nuclear reactor or as a sealed source shall contain a condition requiring the licensee to maintain such fundamental material controls as were identified pursuant to §§ 70.22(b)(2) and 70.51(c)(2) and such other material control procedures, as the Commission determines to be essential for the safeguarding of special nuclear material;

5. The new requirements relating to the establishment and maintenance of material control and accounting procedures and the performance of physical inventories by special nuclear material licensees, have been included in § 70.51 as paragraphs (b) and (c) rather than in a new § 70.24 as proposed;

6. The present § 70.51 has been redesignated § 70.51(a) and revised to require licensees to keep records of all special nuclear material in their possession regardless of origin or method of acquisition;

7. Redesignated § 70.51(b) and (c) have been revised to make clear that the new requirements apply only to licensees authorized to possess and use special nuclear material in a quantity exceeding 5,000 grams of "contained" uranium 235, uranium 233, and plutonium or any combination thereof;

8. Redesignated § 70.51(b)(2) has been revised to make clear that the requirement for an annual physical inventory of material is a minimum requirement and that the Commission may require inventories at more frequent intervals in individual cases if this appears to be necessary;

9. A footnote has been added to redesignated § 70.51(b)(2) to explain that the required physical inventory of the special nuclear material content of irradiated fuel elements may be performed by calculations, using measured indirect parameters such as reactor power output;

10. Redesignated § 70.51(c) has been revised to require licensees authorized to possess and use more than 5,000 grams of special nuclear material for activities other than those involved in the operation of a nuclear reactor or as a sealed source to submit to the Commission (1) a full description of their procedures for the control of and accounting for special nuclear material, including certain specified procedures, and (2) an identification of the fundamental material controls provided in the licensee's material control and accounting procedures, which the licensee considers essential for assuring that special nuclear material in his possession will be adequately safeguarded;

11. Redesignated § 70.51(c) has been revised to provide that the fundamental material controls identified by the licensee will be considered by the Commission in determining the conditions to be incorporated in the license pursuant to § 70.32(c).

Certain editorial changes have also been made in the amendments set forth below.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, as amended, the following amendments to 10 CFR Part 70 are published as a document sub-

ject to codification to be effective 30 days after publication in the *FEDERAL REGISTER*.

32 FR 2562  
Published 2/7/67  
Effective 3/9/67

### LICENSES TO OWN AND EXPORT SPECIAL NUCLEAR MATERIAL

#### Miscellaneous Amendments

On September 21, 1965, the Atomic Energy Commission published in the *FEDERAL REGISTER* (30 F.R. 12039) for public comment proposed amendments to 10 CFR Parts 50, 70, 115, and 140, intended as partial implementation of Public Law 88-489 to reflect the Commission's authority to issue licenses to receive title to, own, acquire, deliver, import, or export under the terms of an agreement for cooperation arranged pursuant to section 123 of the Atomic Energy Act of 1954, as amended, special nuclear material.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. After careful consideration of the comments received in response to the notice of proposed rule making and other factors involved, the Commission has adopted the amendments set forth below which, except as noted, are the same as those set out in the notice of proposed rule making.

Section 70.23, *Requirements for the approval of applications*, has been amended to exclude from its purview applications for licenses to export special nuclear material. [Requirements for applications for licenses to export special nuclear material are covered in § 70.22(c) and conditions for the issuance of such licenses are set out in § 70.31(d).] That amendment was not included in the notice of proposed rule making published on September 21, 1965. However, since the revision of § 70.23 is merely a change in organization and has no substantive effect, the Commission has found that general notice of proposed rule making and public procedure thereon are unnecessary in connection with that amendment.

Proposed § 70.22(b) has been redesignated § 70.22(c) and revised to eliminate the requirement that an application for a license to export special nuclear material contain a certificate by the government of the country of destination certifying that the material will be received and used in that country within the scope of and consistent with the terms of an agreement for cooperation made in accordance with section 123 of the Act. The Commission has decided to obtain such information through direct government-to-government communications.

Proposed § 70.44(a)(2) has been revised to permit a secured creditor to take possession of licensed special nuclear material under a mortgage, pledge, or lien either by the issuance of a license by the Commission authorizing such possession or by a license transfer pursuant to § 70.36. In this respect, the

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section, as revised, will be consistent with the equivalent creditor regulations in § 50.81 of 10 CFR 50 pertaining to facilities and will take account of the existing provisions in § 70.36 for transfer of special nuclear material licenses.

The amendments set forth below revise the affected parts of the Commission's regulations to provide for the private ownership, export and import of special nuclear material authorized by P.L. 88-489. Section 70.44, for example, reflects the Commission's authority to consent to the creation of a lien on privately owned special nuclear material.

Paragraph (c) of § 70.22 prescribes the contents of an application for export of special nuclear material. As required by amended section 53 of the Act, such exports must be under an agreement for cooperation arranged pursuant to section 123. Most of the existing agreements for cooperation were entered into under circumstances contemplating government-to-government transfer of special nuclear material, and will need to be amended or otherwise formally clarified before export licenses may be issued under them.

The notice of proposed rule making published September 21, 1965, indicated that the Commission intended to consider amendments to Part 70 regarding accountability and reporting requirements which would provide specific instructions for appropriate reporting of privately owned special nuclear material. Proposed amendments to Part 70 containing such provisions were published for comment on March 29, 1966 (31 F.R. 5075) and the comments received in response to the notice of proposed rule making are under consideration.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, as amended, the following amendments of 10 CFR Parts 50, 70, 115, and 140 are published as a document subject to codification to be effective 30 days after publication in the FEDERAL REGISTER.

33 FR 9809  
Published 7/9/68  
Effective 8/8/68

### General License for Ownership of Special Nuclear Material

The Atomic Energy Commission has amended its regulation, "Special Nuclear Material", 10 CFR Part 70, by the addition of a new § 70.20, providing a general license for ownership of special nuclear material. A general license is effective without the filing of an application with the Commission or the issuance of licensing documents to a particular person.

The general license includes the right both to receive and transfer ownership of special nuclear material. The amendment does not affect the Commission's existing rules applicable to transfer, receipt, possession, use, import, or export of special nuclear material.

Ownership alone of special nuclear material does not present any problems of radiation safety or the common defense and security. It is expected that the general license will simplify and expedite the Commission's regulatory

processes without prejudicing in any way Commission controls over possession, use and physical transfer of special nuclear material. General licenses for the ownership of byproduct material and source material are already included in Parts 31 and 40, respectively. The addition of § 70.20 makes Part 70 consistent with those parts in that respect.

The new § 70.20 has the effect of relieving persons of the necessity of filing applications for specific licenses for ownership of special nuclear material. Therefore, the Commission has found that good cause exists why general notice of proposed rule making and public procedures thereon are unnecessary.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment of 10 CFR Part 70 is published as a document subject to codification, to be effective 30 days after publication in the FEDERAL REGISTER.

36 FR 145  
Published 1/6/71  
Effective 2/5/71

### Fees for Facilities and Materials Licenses

See Part 170 Statements of Consideration.

36 FR 17573  
Published 9/2/71  
Effective 9/2/71

On May 28, 1971, the Atomic Energy Commission published in the FEDERAL REGISTER (36 F.R. 9786) proposed amendments of its regulations in 10 CFR Part 70, "Special Nuclear Material," which would provide for Commission review, prior to construction of the site and design bases for plutonium processing and fuel fabrication plants for which a license is sought.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the FEDERAL REGISTER. Upon consideration of the comments received and other factors involved, the Commission has adopted the amendments set out below. These amendments are identical to those published for comment except for minor changes reflecting amendments to Part 70 which were published in the FEDERAL REGISTER subsequent to May 28, 1971.

The requirements of the amendments will apply to plants for the manufacture of plutonium reactor fuel and plants for the conduct of plutonium fuel research and development activities. These plants typically process kilogram quantities of plutonium.

Under the amendments, an application for a license to possess and use special nuclear material in a plutonium processing and fuel fabrication plant must be filed at least 6 months before the beginning of plant construction. Such an application is required to contain, in addition to other required information, a

description of the plantsite, a description and safety assessment of the design bases of the principal plant structures, systems and components, and a description of the quality assurance program to be applied to the design, fabrication, construction, testing and operation of structures, systems and components of the plant. Applicants for such licenses should select sites which are at reasonable distances from densely populated areas.

The purpose of the Commission's pre-construction review will be to determine whether the applicant's design bases for the principal structures, systems and components, and its quality assurance program provide reasonable assurance of protection against natural phenomena and the consequences of potential accidents. The Commission will approve construction of the principal structures, systems and components of a plutonium processing and fuel fabrication plant when it has made a favorable safety determination. Failure to obtain Commission approval prior to beginning of construction may be grounds for denial of a license to possess and use special nuclear material in a plutonium processing and fuel fabrication plant.

The Commission is developing appropriate siting and general design criteria for plutonium processing and fabrication plants which will include consideration of protection against adverse natural phenomena as well as inplant accidents. In the interim, the siting principles of 10 CFR Part 100, the General Design Criteria for nuclear power reactors in 10 CFR Part 50 and the criteria used by the Commission to evaluate the adequacy of the design of irradiated fuel reprocessing plants will be used to the extent pertinent. The criteria set forth in appendix B of 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Powerplants," will be used in determining the adequacy of the quality assurance programs.

Existing licensed plutonium processing and fabrication plants will be examined with the objective of improving to the extent practicable their ability to withstand adverse natural phenomena without loss of capability to protect the public and their capability for coping with inplant accidents.

The Commission has found that, because of the importance of the amendments in regard to the public health and safety, good cause exists for making the amendments effective without the customary 30-day notice. Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 70, are published as a document subject to codification to be effective upon publication in the FEDERAL REGISTER (9-2-71).

37 FR 5745  
Published 3/21/72  
Effective 3/21/72

### Prohibition of Site Preparation and Related Activities

See Part 50 Statements of Consideration.



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38 FR 30533  
Published 11/6/73  
Effective 12/6/73 (§ 70.22(g), 70.23(a)(9)  
& 73.30(e))  
Effective 3/6/74

### *Amended Requirements for Material in Transit*

See Part 73 Statements of Consideration.

38 FR 30537  
Published 11/6/73  
Effective 12/6/73

### *Physical Protection of Plants and Materials*

See Part 73 Statements of Consideration.

38 FR 30542  
Published 11/6/73  
Effective 12/6/73

### **Revised Control and Accounting Requirements**

On February 1, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 3077) proposed amendments to its regulations in 10 CFR Part 70 which would revise the materials control and accounting requirements for special nuclear material.

Interested parties were invited to submit comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication in the *FEDERAL REGISTER*. Upon consideration of the comments received, and other factors involved, the Commission has adopted the proposed amendments, with certain modifications as set forth below.

Significant differences from the proposed amendments published for comment are: (1) A change in the detailed control and accounting requirements for plutonium containing 80 percent or more by weight of the isotope Pu-238; (2) addition of a requirement for tamper-safing procedures to include control of the tamper-safing devices and records of the date and time of tamper-safing; (3) addition of requirements for the identification and control of in-process items containing special nuclear material; (4) changes in the date of the first inventory required under the amended regulation and the date by which the licensee's description of his program to meet the amended regulations must be submitted to the Commission have been made; (5) a change in the required frequency of plutonium inventories has been made from one to two months; (6) clarification of the description of that portion of a fuel reprocessing plant requiring only 6-month inventories; (7) addition of a five-year retention period for material balance and inventory records; (8) provision for licensees to apply for a license or amendment authorizing alternate limits of error (LE) for material unaccounted for (MUF) than specified in the proposed amendments and deletion of the limit of error of MUF requirements to be effective after January 1, 1976; (9) modification of LEMUF requirements to specify that they apply to a total plant balance for inprocess material of each type; (10) modification of the absolute minimum quantity

limits for LEMUF to reflect a less stringent requirement for low enriched uranium; (11) modification of the material balance requirements to require accounting for plutonium only on the element basis; (12) deletion of specific remeasurement criteria for material inventory that has not been tamper-safed to permit the licensee flexibility in this remeasurement of SNM; and (13) addition of a footnote to clarify that the regulations do not require plant shutdown and cleanout for physical inventory. In addition, editorial changes were made.

The following discussion pertains to the respective items (1) through (13) above:

(1) The rule set forth below requires that the control and accounting requirements for plutonium containing 80 percent or more by weight of the isotope Pu-238 be the same as those for low-enriched uranium. This isotope of plutonium, because of the heat generated within the material, is, like low-enriched uranium, an improbable fissile material for use in nuclear weapons and does not require the controls specified in Part 70 for strategic material such as high-enriched uranium and plutonium having higher Pu-239 isotopic content. This isotope at these concentrations, i.e., greater than 80 percent, does not exist in quantity because it is produced only by special irradiation programs and not ordinarily as a product from power reactors.

(2) The rule set forth below specifies that tamper-safing devices must be controlled and that the date and time of application of the devices be recorded. Unless it can be assured that the tamper-safing devices are available only to authorized persons and that there is documented evidence that the devices were applied at a time appropriate to ensure the integrity of the measurement of the material, tamper-safing cannot be an effective control mechanism.

(3) The proposed rule required item identification and control for items containing special nuclear material that had been tamper-safed and were not in process. It is equally as important to identify and control items in process that contain special nuclear material. The rule set forth below requires identification and control of items containing special nuclear material whether in process or not in process.

(4) Section 70.51(e)(2) of the proposed amendments would have required the licensee to perform the first inventory under the amended rule within 90 days after the effective date of the rule. However, § 70.51(g) would not have required the licensee to submit a description of his procedures to be used to comply with the requirements of amended rule until 120 days after the effective date. Based on comments received, the Commission believes the licensee should develop and submit a description of his inventory procedures prior to taking an inventory following the amended rule. Accordingly, the rule set forth below provides effective dates such that the additional material control and accounting requirements will become effective 6 months after publication of these amendments, the first inventory under the revised rule must be taken within 6 months after publication of these amendments, and the licensee's program

description must be submitted to the Commission within 4 months after publication of these amendments. Until the submittals have been reviewed and their acceptability determined, licensees will be expected to follow the material control and inventory program described in their submittals.

(5) After evaluating comments, it was determined not to be feasible for licensees to meet the 0.5 percent limit on the limit of error of material unaccounted for (LEMUF) on a monthly balance for plutonium as specified in the proposed amendments. To meet the 0.5 percent limit licensees indicated that plant shutdown and clean-out would be required. Even then there were some questions whether the 0.5 percent limit would be met. To have a higher throughput factor for the LEMUF limit, the rule set forth below requires conduct of plutonium inventories every two months instead of every month as required by the proposed amendment. The two-month inventory interval for plutonium (other than in a reprocessing facility) makes the limits and inventory interval for plutonium the same as for high enriched uranium.

(6) The proposed rule identified that part of a fuel reprocessing plant which would have required physical inventory at only 6-month intervals. Comments indicated that the intent of this requirement was not clear. The rule set forth below more specifically identifies that portion of the fuel reprocessing process that is inaccessible and not as susceptible to diversion of special nuclear material and therefore does not require as frequent inventories as more accessible processes and materials.

(7) The rule set forth below specifies a five-year retention time for material balance and inventory records. This requirement is consistent with International Atomic Energy Agency records retention requirements and will make the U.S. records retention requirements compatible with IAEA safeguards for purpose of the Treaty on the Nonproliferation of Nuclear Weapons.

(8) At the time that the proposed rules were formulated, it was recognized that some types of processes and operations initially could not meet the proposed regulations and provision was made for application for exception to the specified requirements. Based upon comments received and upon reconsideration, the Commission has determined that specific provision should be made in the regulations for consideration of alternative LEMUF limits. The regulation has been revised accordingly. If a licensee has demonstrated through actual experience that he cannot meet the specified LEMUF limits, he may apply to the Commission for imposition of limits that can be met. These alternate limits will be approved if the licensee demonstrates that he has made reasonable efforts and cannot meet the prescribed limits and he has or will initiate a program to enable him to meet the prescribed limits. In view of this alternate provision and in consideration of the many uncertainties in the developing technology, prediction of firm LEMUF limits two to three years in the future was not considered feasible. Licensee performance and technological developments will be evaluated on a continuing basis and more stringent LEMUF limits established as the need is indicated and as the state-of-the-art permits.

(9) The proposed amendments were

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not clear as to which material balance the LEMUF limits applied. The rule set forth below specifies that the LEMUF limits apply to the total plant in-process material balance for a given material type. While balances still will be needed for material balance areas and limits of error calculated for such balances to permit MUF evaluation, the LEMUF limits specified in the rule set forth below do not apply for such balances unless they consist of the total plant in-process balance for a given material type.

(10) The proposed amendments specified absolute quantities for the LEMUF limits below which the relative percentage limits would not apply. The proposed limits for low enriched uranium were more stringent at the 3-4 percent enrichment level on an effective kilogram basis than the limits for plutonium, U-233, and high enriched uranium. To provide proper gradation of requirements the limits for low enriched uranium have been modified.

(11) The proposed amendments would have required calculation of an in-process material balance, MUF, and LEMUF for both element and isotope for plutonium. Adequate control can be maintained for plutonium using only the element balance. The rule set forth below requires calculation of an in-process material balance, MUF and LEMUF for plutonium element only.

(12) The proposed amendments specified confidence levels for statistical sampling plans to be used for verification of previous measurements for inventory purposes. Comments indicated that these statistical sampling plan statements were interpreted to mean specific requirements for the use of the specified plans. There also appeared to be some confusion as to the interpretation of the confidence levels being required. The rule set forth below specifies only that measurements of SNM on inventory whose integrity is not ensured by tamper-safing shall be verified by remeasurement. The licensee may select appropriate remeasurement procedures and sampling plans. These plans will be included in the description of his program which will be submitted to the Commission.

(13) Comments indicated that the inventory criteria in the proposed amendments were interpreted as requiring plant shutdown and cleanout for physical inventory. Such is not required so long as process inventory measurements can be made on a dynamic basis to sufficient precision and accuracy to meet the LEMUF limits specified in § 70.51(e) (5) (ii). The rule set forth below contains a footnote to this effect. Many comments indicated that the licensee should be given flexibility to develop "innovative" inventory techniques to preclude costly plant shutdown. Such flexibility had always been the intent of the proposed amendments.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments of Title 10, Chapter I, Code of Federal Regulations, Part 70 are published as a document subject to codification.

38 FR 32784  
Published 11/28/73

### Correction

In FR Doc. 73-23552, appearing at page 30537, in the issue for Tuesday, November 6, 1973, the following changes should be made in § 70.32(f):

38 FR 33968  
Published 12/10/73  
Effective 3/11/74

### Transfer of Radioactive Material; Requirements

See Part 30 Statements of Consideration.

39 FR 26279  
Published 7/18/74  
Effective 8/19/74

### Environmental Protection; Licensing and Regulatory Policy and Procedures

See Part 51 Statements of Consideration.

39 FR 37765  
Published 10/24/74  
Effective 11/25/74

### Fundamental Nuclear Material Controls

On September 25, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 28735) proposed amendments to its regulations in 10 CFR Part 70 which would specify fundamental nuclear material controls required to be established, maintained, and followed by licensees authorized to possess at any one time and location more than one effective kilogram of special nuclear material in unsealed form.

Interested parties were invited to submit comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication in the *FEDERAL REGISTER*. Upon consideration of the comments received, and other factors involved, the Commission has adopted the proposed amendments with certain modifications as set forth below.

These amendments provide the basic criteria for detailed licensee material control and accounting systems. The Commission intends that these criteria provide the basis for the eventual development of material control and accounting systems utilizing advanced technology such as nondestructive analysis and automatic data processing to provide real-time accurate control of and accounting for special nuclear material.

Significant differences from the proposed amendments published for comments are: (1) Addition of language to clarify the intent that the licensee's description of his fundamental nuclear material controls will be included in his license conditions and to permit changes in his program without AEC approval provided the changes do not decrease the effectiveness of the program; (2) revision of the requirement for management review of the licensee program to clarify the scope of the review and to permit the use of an independent audit organization for the review; (3) revision of the material balance area criteria to clarify the extent of measurements re-

quired for internal transfers and to exempt certain items from internal transfer measurement; (4) revision of the item control area criteria to include a requirement for tamper-safing; (5) revision of the measurement requirements to exempt samples of less than 10 grams from measurement; (6) revision of the shipper-receiver difference evaluation requirements to be more specific as to the type and extent of evaluation required; (7) revisions of the internal handling control requirements to require current knowledge of special nuclear material within the plan rather than continuous knowledge; (8) revision of the scrap control requirements to apply only to scrap generated in a licensee's own plant and to change the scrap retention time limits from 3 months to 6 months for plutonium, U-233, and high-enriched uranium and to 12 months for low-enriched uranium and plutonium containing 80 percent or more of the isotope Pu-238; (9) deletion of the retention time limits for disposal waste; (10) deletion of the 30 percent limit on the scrap uncertainty contribution to the LEMUF; and (11) addition of a definition of special nuclear material scrap. In addition, editorial changes were made.

The following discussion pertains to the respective items (1) through (11) above:

(1) The proposed rule would have deleted paragraph (c) of § 70.32 which makes the licensee's program for compliance with the fundamental nuclear material controls a part of the license conditions. To provide a mechanism for greater control of the licensee's program by the AEC, this paragraph has been retained in the rule set forth below with appropriate revisions to the references therein, including the provision permitting the licensee to change the program without AEC approval provided the change does not decrease the effectiveness of the program.

(2) The proposed rule would have required a management review and audit by individuals in licensee management. Industry comments suggested that this could be accomplished by qualified auditing organizations and that provision should be made for such. The rule set forth below requires that the review and audit be conducted by individuals independent of the material control and accounting functions of the licensee organization but does not require that such individuals be a part of the licensee organization. In addition, comments indicated some confusion as to the scope of the review. The rule set forth below addresses this point briefly. Additional guidance will be provided by a regulatory guide on this subject which is now in preparation.

(3) Industry comments indicated that the material balance area (MBA) management criteria were not clear. The phrase in the proposed amendments in paragraph (d) (1) of § 74.58 "... can be measured," was interpreted to mean that material was required to be measured as it entered or left an MBA. This is not necessarily the case. If a measurement made earlier in the process remains valid, e.g., by tamper-safing or on a sealed, identifiable fuel rod, another measurement is not required for transfer from an MBA nor is the internal plant MBA receiving such an item required to measure the item. The rule set forth below specifies that items transferred into or out of MBAs shall be "represented by

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a measured value." In addition, industry comments suggested that certain items transferred between in-plant MBAs need not be measured to provide adequate control. The rule set forth below exempts from internal MBA measurement, items which have been determined by other means to contain less than 10 grams of U-235, U-233, or plutonium each; plutonium-beryllium sources; and reactor-irradiated fuels involved in research, development, and evaluation programs in facilities other than fuel reprocessing plants.

(4) The proposed rule specified that item control in Item Control Areas be based on previously determined special nuclear material quantities. The rule set forth below includes a requirement for tamper-safing or otherwise providing assurance that such prior measurements are valid.

(5) Industry comments suggested that certain items could be exempted from the measurement requirements of paragraph (e) of § 70.58 without adverse effect on the material control. The rule set forth below exempts from the measurement requirement samples which have been determined by other means to contain less than 10 grams of U-235, U-233, or plutonium each and reactor-irradiated fuels involved in research, development, and evaluation programs in facilities other than fuel reprocessing plants. The rule also exempts plutonium-beryllium sources from all of the measurement requirements.

(6) Industry comments raised several questions regarding the type and the extent of shipper-receiver evaluation that would be required by the proposed amendments. The rule set forth below identifies specifically the bases for shipper-receiver difference evaluations, specifies the level of statistical significance at the 95 percent confidence level, and establishes minimum quantities below which evaluations are not required.

(7) The proposed amendments would have required continuous knowledge of the identity, quantity, and location of special nuclear material within a facility. Comments indicated that a definition of "continuous" was needed to clarify the intent of this requirement. The intent is more accurately described by the word "current" rather than by "continuous." "Continuous" would mean knowledge without interruption whereas the intent was for licensees to maintain such knowledge on a timely basis. The precise definition of the word "current" in this context will depend on the specific system. The rule set forth below requires current knowledge rather than continuous knowledge.

(8) The proposed amendments would have required licensees to process scrap so that no item of scrap would remain on inventory for more than three months. Industry comments noted that, in a plant that recovers scrap for others, this could be an impractical requirement since many scrap jobs are scheduled more than three months in advance and shipments often are received more than three months prior to the start of a campaign. Comments also noted that, for scrap processed on the same site on which it is generated, it may require more than three months to accumulate enough scrap to make it practical to operate the scrap recovery process. It also was suggested that the retention time should be related to the strategic significance of the material.

Comments suggested further that the limit of error of material unaccounted for (LEMUF) requirements of paragraph (e) (5) of § 70.51 would adequately control special nuclear material in the form of scrap. The LEMUF limits provide control of the precision of the scrap measurements. However, a systematic error in scrap measurement could be used to mask a theft. Since scrap measurements are almost always by non-destructive techniques, the only way to assure that no systematic error has been introduced, either inadvertently or otherwise, is recovery or processing to a more accurately measurable form. Since the systematic error probably would not be large, a check by recovery need not be as frequent as the inventory intervals specified in paragraph (e) of § 70.51.

The rule set forth below requires that scrap generated onsite and not measured to within  $\pm 10$  percent shall not remain on inventory longer than 6 months for plutonium, U-233, and high enriched uranium or longer than 12 months for low-enriched uranium and plutonium containing 80 percent or more of the isotope Pu-238.

(9) The proposed amendment would have required that disposable waste be kept on inventory no longer than three months. Since disposable waste normally has low special nuclear material content, the effect of measurement uncertainties and biases on the material balance would not be significant whether the wastes were on inventory for three months or longer. The proposed disposable waste retention limit is not included in the rule set forth below.

(10) The proposed rule would have limited the material balance uncertainty component due to scrap to 30 percent of the total material balance uncertainty. Comments indicated that this requirement was redundant and unnecessarily restrictive. It was suggested that the licensees should be free to operate with any mix of material balance components as chooses provided he can meet the LEMUF limits specified in paragraph (e) (5) of § 70.51. Experience has shown that one of the major contributing factors to not meeting the LEMUF limit of § 70.51 (e) (5) is large scrap measurement uncertainties. However, if the licensee can meet the specified limits, there is no need to restrict the component mix. A limit on the uncertainty component of LEMUF contributed by scrap measurement is not included in the rule set forth below.

(11) Comments suggested that definitions of scrap and disposable waste be included in the rule. The rule set forth below includes a definition of special nuclear material scrap but does not include a definition of disposable waste because the rule does not use the term.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments of Title 10, Chapter I, Code of Federal Regulations, Part 70 are published as a document subject to codification.

### Criticality Accident Alarm Systems

On October 12, 1973, the Atomic Energy Commission published in the FEDERAL REGISTER (38 FR 28301) a proposed amendment of 10 CFR Part 70 of its regulations which would revise the criteria for criticality accident alarm systems in §§ 70.22 and 70.24 to provide greater conformity with American National Standards N16.2-1969, "Criticality Accident Alarm System," and N16.1-1969, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors." The amendments were intended to increase flexibility for licensees with no loss of safety. All interested persons were invited to submit written comments and suggestions in connection with the proposed amendments within 45 days after publication of the notice of proposed rulemaking in the FEDERAL REGISTER. Seven written comments were received, and some changes in the amendment have been made in response to those comments. The changes made, however, do not affect the main substance of the proposed amendment which was published for comment.

The phrase in the proposed paragraph (a) (1) of § 70.24 exempting special nuclear material from such alarm systems "when it is stored in a critically safe container or storage array," was questioned. Upon reconsideration the Commission has deleted the phrase in question. While such containers may be critically safe in limited quantities, very large arrays under conditions of storage could be critical. Thus an alarm is necessary where large arrays of such containers could be formed. In transportation vehicle size limits the number of containers in the array. Consequently, there is no danger of criticality from shipments in transit packaged in accordance with Part 71 requirements, and alarms are not necessary for such material in transit.

Licensees may request an exemption for materials stored while packaged in accordance with Part 71 requirements under § 70.14, "Specific Exemptions," or § 70.24(b). The request should demonstrate that precautions are taken to assure separation of containers such that there is no possibility of criticality associated with an array of containers.

The proposed requirement in § 70.24 (a) (1) for two independent detectors was also questioned. Upon reconsideration the word "independent" is deleted.

Two comments pointed out that the proposed wording of § 70.24 (as well as the presently effective wording) would require Part 70 licensees to have alarm systems in areas where only small quantities of special nuclear material would be present (e.g., laboratories with small samples or isotopic neutron sources). Although there may be such areas in a facility, it is not practicable in a general regulation to define precisely all possible conditions under which criticality could not occur. The proposed wording is therefore retained. Licensees may apply for exemptions for specific areas under § 70.14, "Specific Exemptions," or § 70.24(b), an exemption clause for that paragraph.

One comment urged deletion of the more restrictive mass limits in § 70.24(a) when small quantities of graphite are present since small quantities do not significantly affect the minimum critical mass. These more restrictive mass limits

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were not meant to apply to small quantities of these moderators. The word "massive" has, therefore, been inserted before the word "moderators" in the first sentence of § 70.24(a).

The use of the "rad" as a unit of dose instead of the "rem" was questioned. The International Commission on Radiation Units and Measurements in ICRU Report 19 (1971) states that "rad" is the special unit of "absorbed dose" and "rem" is the special unit of "dose equivalent." They note that dose equivalent "may be used . . . in the region of, or below, the applicable maximum permissible dose equivalent. It should not be used for high level accidental exposures." A reason for this restriction is that the relative biological effectiveness (RBE) for neutrons is quite different for the acute effects of large doses compared with the long term chronic effects of low level doses. For example, it has been found that the RBE of neutrons for 30 day mortality in large mammals is less than one.<sup>1</sup> Accordingly, the use of the term "rad" has been retained.

The problem of establishing a valid alarm set-point for a detector that detects only gammas or neutrons when different gamma/neutron ratios can occur was pointed out. This problem is discussed in the Appendix to American National Standard N16.2-1969, "Critically Accident Alarm System." In that Appendix an alarm set-point and maximum detector-source distance are calculated which are applicable to a very wide variety of possible situations. Thus a single set-point and maximum detector-source distance are applicable for the great majority of situations. The standard N16.2-1969 is currently under review by American Nuclear Society Subcommittee 8, and the subcommittee anticipates that the revised version of the standard will continue to include such calculations in the Appendix. It is believed that the guidance in the Appendix can be used as easily as the specific set-point and maximum detector-source distance previously specified in § 70.24 of the Commission's regulations and would provide for greater flexibility by the user.

One comment suggested that low fission rate critically accidents could occur which would not be large enough to set off the alarm. While such an occurrence may be theoretically possible, it is considered extremely unlikely. Any accident which is self-terminating must liberate enough energy to provide a shutdown mechanism. While a system could conceivably liberate this energy over a long time, this would require reactivity control of such delicacy that it is not to be expected in process accidents.

The proposed rule published for public comment would have eliminated the requirement for an alarm when sufficient water covered the special nuclear material, so that a significant dose to workers would not be possible. However, in view of the possibility of special nuclear material going critical and then being inadvertently lifted to the surface or being lifted to the surface and then going critical, the language of the existing § 70.24 has, therefore, been retained.

Section 70.24 has also been reorganized so that the requirements applicable under the "grandfather clause" are explicitly stated in paragraph (a)(2) of

### § 70.24.

In accordance with the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment of Title 10, Chapter I, Code of Federal Regulations, Part 70 is published as a document subject to codification.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

*Energy Reorganization Act; Revisions to Chapter 1 to Reflect Organizational and Procedural Changes*

See Part 2 Statements of Consideration.

40 FR 14085  
Published 3/28/75  
Effective 3/28/75

### PART 31—GENERAL LICENSES FOR BYPRODUCT MATERIAL

#### PART 70—SPECIAL NUCLEAR MATERIAL

##### Organization and Procedural Changes; Correction

In FR Doc. 75-5205, appearing at page 8774, in the issue for March 3, 1975, the following changes should be made:

40 FR 16047  
Published 4/9/75  
Effective 4/9/75

### PART 70—SPECIAL NUCLEAR MATERIAL

#### Organization and Procedural Changes Correction

In FR Doc. 75-8104 appearing at page 14085 of the issue for Friday, March 28, 1975, in the first column on page 14086 the paragraphs numbered (1) through (4) which precede paragraph (a) of § 70.11 should be removed and made part of footnote 10 to that section, the footnote to read as follows:

40 FR 33651  
Published 8/11/75  
Effective 9/11/75

### PART 70—SPECIAL NUCLEAR MATERIAL Measurement Control Program for Special Nuclear Materials Control and Accounting

On October 31, 1974, the Atomic Energy Commission published in the *FEDERAL REGISTER* (39 FR 38392) proposed amendments to its regulations in 10 CFR Part 70 which would specify criteria for a measurement control program which would be required to be established and maintained by each licensee which is authorized to possess, at any one time and place, more than one effective kilogram of special nuclear material in unsealed form. Interested parties were invited to submit comments and suggestions for consideration in connection with the proposed amendments within 60 days after publication in the *FEDERAL REGISTER*. Upon consideration of the comments received, and other factors involved, the Commission has adopted

the proposed amendments with certain modifications as set forth below.

Differences from the proposed amendments published for comment are: (1) Additions to and clarifications of the definitions contained in § 70.57(a); (2) rewording of the requirement for management reviews and audits so as not to exclude the use of an independent audit organization or of corporate auditors; (3) clarification of licensee's responsibilities to assure the quality of measurements performed by a contractor; (4) clarification of the requirement to identify and control sampling errors; (5) simplification of the requirement to provide management review and approval of procedures which pertain to the measurement control system; (6) clarification of the requirement to perform quality control engineering analyses of all measurement systems; (7) clarification of the requirement to establish traceability of measurements to the National Bureau of Standards; (8) deletion of the requirement to determine sources of analytical error such as between-operator, between-equipment and between-shift; (9) clarification of the provision allowing the combining of historical and current material control and accounting data; and (10) revision of the requirement to establish a statistical control system. In addition, editorial changes were made.

The following discussion pertains to the respective items (1) through (10) above:

(1) Comments suggested that § 70.57 (a) be expanded to include more definitions, and that some of the proposed definitions be modified. The rule set forth below contains additional definitions. Some of the proposed definitions were modified to more accurately convey the Commission's meaning with respect to the requirements of § 70.57(b).

(2) The proposed rule would have restricted the performance of audits and reviews to "trained personnel." This implied that only licensee employees could be used for this function. The revised rule allows the performance of audits and reviews by any trained individuals who are independent of responsibility for the receipt, custody, utilization, measurement, measurement quality, and shipment of special nuclear material.

(3) The question was raised as to the need for having contractors which provide measurement services meet all of the requirements of § 70.57(b). The rule set forth below excludes those portions of § 70.57(b) which are not applicable to licensee measurement contractors.

(4) The proposed rule stated that measurements, by definition, include sampling and that measurements must be traceable to certified standards. Comments suggested that in many cases certified standards are not available for performing sampling studies. Therefore, the requirement to perform mixing and sampling tests, set forth below in § 70.57 (b) (4) has been modified to permit licensees to perform such tests with well characterized special nuclear materials.

(5) The proposed rule would have required the review and approval of measurement control system procedures by management personnel whose direct responsibilities could be affected by the quality of material control and accounting measurements. Comments suggested that the determination of those man-

<sup>1</sup> D. G. Brown and F. F. Haywood, *Health Physics*, Volume 24, June 1973, page 627.

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agement personnel having such responsibility was subject to various interpretations. The rule set forth below requires only that measurement control system procedures be reviewed and approved.

(6) The proposed rule would have required that engineering analyses and evaluations be performed on measurement systems. The rule further required that said analyses and evaluations be reviewed annually to assure the continued reliability of the system. Comments indicated some misinterpretation as to the scope of said annual reviews. Comments also suggested that said annual review was redundant with the annual management review and audit required in § 70.57(b)(2). The rule set forth below requires engineering analyses and evaluations initially for all measurement systems, and thereafter whenever a significant change occurs in a component of a measurement system.

(7) Comments suggested that in certain cases measurements could not be traced directly to a certified standard because such standards are not available for each measurement method for each type of material. The rule set forth below resolves this difficulty by allowing traceability through the use of reference standards as defined in § 70.57(a).

(8) The proposed rule would have required that sources of analytical error such as between-operator, between-equipment, and between-shift be determined. Industry has suggested that the training program required in § 70.57(b)(7), as set forth below, should reduce such sources of error to an insignificant level. Also, as long as the total analytical error is controlled, that it is unnecessary to isolate individual sources of analytical error. Further, comments indicated that the cost of isolation of such sources of error would greatly outweigh the diagnostic benefits. The rule set forth below has been modified to delete the requirement to isolate such sources of analytical error.

(9) The proposed rule would have allowed under certain conditions, that material control and accounting data from the current material balance period could be combined with historical data. Comments suggested that this provision be made more definitive. The rule set forth below clarifies the requirements for the combining of data sets.

(10) Comments suggested that discarding all data which exceed control limits would (i) result in the loss of some valid measurement points, and (ii) artificially narrow the confidence band. The rule set forth below provides one set of limits for the investigation of suspect data, and another set of limits for establishing that a measurement system is out-of-control.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, the following amendments of Title 10, Chapter I, Code of Federal Regulations, Part 70 are published as a document subject to codification.

### PART 40—LICENSING OF SOURCE MATERIAL

#### PART 70—SPECIAL NUCLEAR MATERIAL

##### Effluent Monitoring and Reporting Requirements

On October 31, 1974, the Atomic Energy Commission published in the FEDERAL REGISTER (39 FR 38392) proposed amendments to its regulations 10 CFR Part 40, "Licensing of Source Material," and 10 CFR Part 70, "Special Nuclear Material," which would specify reporting requirements regarding results of monitoring for radionuclides in gaseous and liquid effluents released to unrestricted areas from uranium milling, uranium hexafluoride production and other licensed fuel cycle activities in which special nuclear material is used.

Interested persons were invited to submit written comments or suggestions in connection with the proposed amendments by December 2, 1974. The comments received favored the adoption of the amendments but suggested changes in the proposed frequency of the reports and imposition of a requirement that licensees also file such reports with the appropriate State agency. None of the comments were substantive technical comments of an adverse nature. The reported effluent monitoring results will be public information available to anyone on request. The matter of environmental monitoring is a separate consideration of the regulations. Upon consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments without modification, except for changing the proposed § 70.57 to § 70.59.

On October 11, 1974 the Energy Reorganization Act of 1974 (Pub. L. 93-438; 88 Stat. 1233) was enacted into law. This Act abolished the Atomic Energy Commission and, by section 201 established the Nuclear Regulatory Commission (effective January 19, 1975) (E. O. 11834) and transferred to that Commission all of the licensing and related regulatory functions of the Atomic Energy Commission. In addition, section 301 of the Energy Reorganization Act provides that any proceedings pending before the AEC at the time of its abolition shall, to the extent that such proceedings relate to functions transferred by the Act, be continued.

The amendments do not impose new restrictions on the concentration or amounts of effluents released to unrestricted areas from licensed activities, nor do they add any measurement requirements nor modify the concept of maintaining radiation exposures and releases of radioactive materials in effluents to unrestricted areas as low as is practicably achievable, as specified in 10 CFR 20.1.

The amendments require each licensee authorized to engage in uranium milling, or the production of uranium hexa-

fluoride, or licensed to possess or use special nuclear materials for fuel fabrication and processing, conversion of uranium hexafluoride or scrap recovery to submit semiannual reports of the quantities of radioactive materials released to unrestricted areas. If quantities released during the reporting period are significantly above design objectives, the licensee will be required to cover that fact specifically in its reports. The information received from the licensee will provide an improved technical basis from which the Commission will continue to evaluate the potential radiation dose commitment to the public resulting from the normal operations of such facilities.

Licensees presently monitor effluent streams to determine the concentrations of radionuclides in effluents released from these fuel cycle plants. The records of measurements made are presently available to the Commission on request. Such licensees are required by the amendments to Parts 40 and 70 to make the results of those measurements available to the Commission on a periodic basis.

The Commission is now preparing effluent monitoring guides defining the type and format of information to be submitted. The guidance is expected to be available before the end of FY 1976.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 40 and 70 are published as a document subject to codification.

41 FR 16445  
Published 4/19/76  
Effective 4/19/76

*Miscellaneous Changes to Chapter*

See Part 20 Statements of Consideration.

41 FR 18300  
Published 5/3/76  
Effective 6/2/76

*Preservation of Records*

See Part 20 Statements of Consideration.

41 FR 21177  
Published 5/24/76  
Effective 6/2/76

*Preservation of Records; Correction*

See Part 50 Statements of Consideration.

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41 FR 21627  
Published 5/27/76  
Effective 5/27/76

*Clarifying and Corrective Amendments*

See Part 40 Statements of Consideration.

41 FR 31521  
Published 7/29/76  
Effective 9/27/76

### PART 70—SPECIAL NUCLEAR MATERIAL Criticality Accident Protection Requirements

On October 11, 1974, the Atomic Energy Commission published in the *FEDERAL REGISTER* (39 FR 36802) proposed amendments of its regulations in 10 CFR Part 70, "Special Nuclear Material," for public comment. The amendments proposed requiring a criticality accident dosimetry capability where special nuclear material is handled, used, or stored.

The purposes of this dosimetry are to provide a method for determining which individuals were significantly exposed, and to provide estimates of neutron and gamma doses to personnel, should a criticality accident occur.

After the amendments were proposed, the Nuclear Regulatory Commission staff prepared a value-impact analysis on the effects of requiring this criticality accident dosimetry capability. The analysis indicated that while the cost of the dosimetry was found to be fairly modest, the probable value of the dosimetry was still not worth the cost. The bases of this conclusion were: (1) The future occurrence rate of such accidents was predicted to be very small; and (2) physicians experienced in the treatment of individuals who have received large doses of radiation reported that although they would wish to have dose estimates, in the event of radiation exposure, they would base their treatment entirely on physical symptoms, not on dose estimates. The principal value of the dosimetry was, it was suggested, its ability to provide a good estimate of the dose within 24 hours, before major physical symptoms are apparent, so that early preparation for the necessary medical treatment can proceed. The value of this early preparation was difficult to quantify, but was not considered significant. The probability of such earlier preparation resulting in a life saved was estimated to be very small. The value-impact analysis is available in the NRC Public Document Room, or a copy may be obtained upon request from the Office of Standards Development, Washington, D.C. 20555.

The value-impact analysis did indicate that a device, such as an indium strip, to permit immediate identification of the workers exposed to radiation from a criticality accident, was well worth the cost. Therefore, the effective rule requires this "screening" device but does not require use of a dosimeter.

Under section 301 of the *Energy Reorganization Act of 1974*, any proceedings pending before the AEC at the time of its abolition, and the establishment of the NRC, shall, to the extent that such proceedings relate to functions trans-

ferred by the Act, be continued by NRC. After careful consideration of the comments received and other factors involved, the Commission has adopted the amendments in the form set out below.

Pursuant to the Atomic Energy Act of 1954, as amended, the *Energy Reorganization Act of 1974*, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments of Title 10, Chapter I, Code of Federal Regulations Part 70, are published as a document subject to codification.

42 FR 17125  
Published 3/31/77  
Effective 3/31/77

### PART 70—SPECIAL NUCLEAR MATERIAL Plans for Coping With Radiological Emergencies

On June 27, 1975, the Nuclear Regulatory Commission published in the *FEDERAL REGISTER* (40 FR 27260), and invited written comments on, proposed regulations in the form of amendments to 10 CFR Part 70, "Special Nuclear Material." The purposes of the amendments were to set forth (1) the requirement that an application for a license to possess and use special nuclear material in fuel processing and fuel fabrication plants contain plans for coping with emergencies and (2) the minimum information that applicants should include in these emergency plans.

Interested parties were invited to submit written comments within 60 days after publication of the proposed amendments in the *FEDERAL REGISTER*. One comment suggested that the amendments were unnecessary because § 70.22 (a) (8) of 10 CFR Part 70 requires an applicant to provide "Proposed procedures to protect health and minimize danger to life and property (such as . . . emergency procedures, etc.)." and should be withdrawn. Currently licensees engaged in processing and fuel fabrication, scrap recovery, and conversion of uranium hexafluoride develop plans for coping with radiological emergencies based on requirements imposed as a condition of such licenses. The amendments which follow impose a requirement that radiological emergency plans shall be developed for a license to possess and use special nuclear material for processing and fuel fabrication, scrap recovery, or conversion of uranium hexafluoride. They also go beyond 10 CFR § 70.22(a) (8) by establishing minimum requirements for these emergency plans. Two commenters asserted that the amendments should not refer to Sections II and IV of Appendix E to 10 CFR Part 50. Their concern was that reference to Part 50 and to the Preliminary Safety Analysis Report in Section II in particular might lead to confusion regarding the Part 70 licensing sequence and requirements. To avoid this possible concern, the proposed amendments have been revised to eliminate the references to Appendix E in the body of the text. Another comment questioned the adequacy of the present Appendix E for development of emergency plans. Based on experience, the staff considers that Appendix E does provide the necessary framework

of regulatory requirements for establishing adequate radiological emergency plans. However, guidance concerning certain related aspects, such as implementation on the part of licensees and development of supportive interfaces between licensees and State and local government emergency response organizations, requires improvement. A Regulatory Guide to provide additional guidance in these areas is being developed by the staff. Section IV of Appendix E contains an appropriate listing of the elements which, as a minimum, should be included in radiological emergency plans of licensees to possess and use special nuclear material for processing and fuel fabrication, scrap recovery, or conversion of uranium hexafluoride. These elements are similar to the current requirements imposed as a condition of these licenses. Since Section IV of Appendix E to 10 CFR Part 50 contains an appropriate description of the required information, and since it is an established part of NRC regulations, a footnote has been added indicating that this information should be included in such emergency plans. There is no intent, thereby, to establish a two step review process of the type used for production and utilization facilities. Another comment noted that the proposed amendments only addressed fuel processing and fuel fabrication plants and stated that a definition should be included in § 70.4 if the amendments were intended to cover less than the scope of activities licensed under 10 CFR Part 70. In order to clarify this ambiguity, revisions have been made (1) to eliminate the references to "fuel processing and fuel fabrication plants," and (2) to specify that radiological emergency plans are required for a license to possess and use special nuclear material for processing and fuel fabrication, scrap recovery, and conversion of uranium hexafluoride. The revised provision in § 70.23(a)(11) that plans be "adequate" instead of "adequate to protect public health and safety and prevent damage to property" is made to conform with parallel language in preceding clauses.

On the basis of the foregoing and after careful consideration of the comments received and other factors involved, the Nuclear Regulatory Commission has adopted these amendments in the form set forth below.

Since these amendments codify requirements already being imposed for developing emergency plans, good cause exists for making the amendments effective upon publication.

Pursuant to the Atomic Energy Act of 1954, as amended, the *Energy Reorganization Act of 1974*, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 70, is published as a document subject to codification.

42 FR 28891  
Published 6/6/77  
Effective 7/6/77; §§ 21.6, 21.21(a), and 21.51  
effective 1/6/78  
(7/6/77 effective date extended to 8/10/77)

*Reports to the Commission Concerning  
Defects and Noncompliance*

See Part 21 Statements of Consideration.



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43 FR 6915  
Published 2/17/78  
Effective 5/3/78

*Export and Import of Nuclear Facilities and Materials*

See Part 110 Statements of Considerations.

43 FR 11962  
Published 3/23/78  
Effective 6/6/78

*Licensee Safeguards Contingency Plans*

See Part 73 Statements of Consideration.

43 FR 14007  
Published 4/4/78  
Effective 6/6/78

*Licensee Safeguards Contingency Plans; Correction*

See Part 73 Statements of Consideration.

44 FR 17479  
Published 3/22/79  
Effective 6/5/79

*Timely Notification of Discontinued Licensed Activities*

See Part 30 Statements of Considerations

44 FR 26850  
Published 5/8/79  
Effective 6/7/79

### 10 CFR Part 70

#### General License Requirements For Any Person Who Possesses Formula Quantities of Strategic Special Nuclear Material (SSNM) In Transit Subject to Certain Requirements

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations to remove the exemption to licensing for carriers and other persons who possess or control formula quantities of strategic special nuclear material for the purpose of transport or storage incident to transport. Under the amendment a general license is issued to any person who possesses, or who exercises control over, formula

quantities of strategic special nuclear material in transit. The general license will require such persons to be responsible for assuring that the material in their possession is protected against theft and sabotage by a security system which is implemented in accordance with a Transportation Security Plan that has received prior NRC approval. The general license would bring persons who possess or control formula quantities of strategic special nuclear material in transit directly under NRC physical protection regulations.

**EFFECTIVE DATE:** June 7, 1979.

#### FOR FURTHER INFORMATION CONTACT:

Mr. R. J. Jones, Chief, Safeguards Standards Branch, Division of Siting, Health and Safeguards Standards, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-443-5907.

**SUPPLEMENTARY INFORMATION:** On May 24, 1978, the NRC published a proposed amendment to 10 CFR 70, "Domestic Licensing of Special Nuclear Material" (43 FR 22215). The amendment proposed to revise § 70.12 and add a new § 70.20a. Interested persons were invited to submit comments or suggestions in connection with the proposed amendment within 30 days after publication in the *Federal Register*. The comment period expired June 23, 1978. One comment was received from a licensee. The commenter offered the observation that the proposed amendment incorporates many references to other Sections of 10 CFR Part 70 which may be a problem for carriers heretofore not subject to NRC regulations. The commenter suggested that a revision to § 70.12 should provide a self-contained general license setting forth specifically applicable terms and conditions. The commenter offered to submit such a revision to § 70.12 to the NRC by July 21, 1978. However, the proposed revision was not received.

In response to the commenter's remarks, staff believes that it is not necessary to repeat the details of each applicable paragraph of 10 CFR Parts 70 and 73 in such a detailed general license requirement under a revision to § 70.12. To do so would not necessarily simplify the proposed rule, but would lead to duplication of some sections of 10 CFR Parts 70 and 73. Therefore, staff believes that the method used in the proposed rule, that is, cross-referencing, is a reasonable and prudent method. Thus, the NRC is adopting the proposed amendment with only editorial and clarifying changes.

As initially proposed, paragraph 70.12 will remove the exemption to licensing for carriers and other persons who

possess or control formula quantities of strategic special nuclear material for the purpose of transport or storage incident to transport. The new § 70.20a grants a general license to any person who would possess or control formula quantities of strategic special nuclear material in transit. The scope of the general license granted under the proposed amendment would be limited to possession only and will be effective during the course of a shipment. The amendment will not affect the exemption to licensing for carriers and other persons under § 70.12 who transport all other forms of special nuclear material subject to NRC regulations. Also, the amendment will not apply to transient shipments, that is, shipments which originate in a foreign country with destinations in a foreign country and which are not offloaded or transferred within the United States.

The amendment will subject the general licensee to certain enumerated Sections of Parts 70 and 73. The general license requires that a transportation security plan be submitted and receive prior NRC approval before any person could possess formula quantities of strategic special nuclear material for the purpose of transport or storage incident to transport. The plan submitted by a carrier or other person for the purpose of this general license may incorporate by reference the terms of a transportation security plan already approved by the NRC.

The amendment being adopted will codify practices and procedures presently conducted on a voluntary basis by carriers and other persons and will not require the filing of applications with the Commission or the issuing of licensing documents to particular persons by the Commission.

The promulgation of the amendment will not result in any activity that affects the environment. Accordingly, the Commission has determined under the National Environmental Policy Act, the Council of Environmental Quality guidelines, and the criteria of 10 CFR Part 51, that neither an environmental impact statement or environmental impact appraisal to support a negative declaration for the proposed amendment to 10 CFR Part 70 is required.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 70 is published as a document subject to codification.

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44 FR 43280  
Published 7/24/79  
Effective 11/21/79

### 10 CFR Parts 70, 73, and 150

#### Safeguard Requirements for Special Nuclear Material of Moderate and Low Strategic Significance

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations for physical protection of plants and materials, including nonpower reactors, to require physical protection measures to detect theft of special nuclear material of moderate and low strategic significance. The amendments are being made in the interest of common defense and security. The measures are designed to provide a level of protection equivalent to that recommended in Information Circular/225/Rev. 1 (INFCIRC/225) published by the International Atomic Energy Agency (IAEA). The amendments specify protection requirements for special nuclear material at fixed sites, including nonpower reactors, and for special nuclear material in transit.

Physical protection requirements for independent spent fuel storage installations and nuclear power reactors are presently covered under 10 CFR § 73.40, § 73.50, and § 73.55 and therefore are not included in these amendments.

Concurrent with the publication of the amendments, the NRC is publishing a regulatory guide entitled, "Standard Format and Content for the Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance." This document has been prepared as an aid to uniformity and completeness in the preparation and review of the physical security plan for special nuclear material of moderate and low strategic significance. In addition, a value/impact assessment of these amendments has been prepared and placed in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

**EFFECTIVE DATE:** November 21, 1979.

**Note.**—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for review of its reporting requirement under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of the rule becomes effective, unless advised to the contrary, includes a 45-day period which that statute allows for Comptroller General review (44 U.S.C. 3512(c)(2)).

**FOR FURTHER INFORMATION CONTACT:** Mr. J. A. Prell, Safeguards Standards Branch, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 443-5904 or Mr. C. K. Nulsen, Requirements Analysis Branch, Division of Safeguards, Office of Nuclear

Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 427-4043.

**SUPPLEMENTARY INFORMATION:** On May 24, 1978 the Nuclear Regulatory Commission published in the *Federal Register* (43 FR 22216) proposed amendments to 10 CFR Parts 70, 73, and 150 of its regulations. Interested persons were invited to submit written comments and suggestions on the proposed amendments within thirty days after publication in the *Federal Register*. Based on the public comments and other considerations, the Commission has adopted the proposed amendments, with modifications as set forth below.

The effective physical protection amendments are designed to have overall equivalency to the recommendations of INFCIRC/225 Rev. 1, but there are differences in the detailed requirements. INFCIRC/225 Rev. 1 recommendations are designed to minimize the possibilities of theft or sabotage of SNM of moderate or low strategic significance. The effective amendments have been primarily designed to require early detection of theft of SNM of moderate or low strategic significance. However, in requiring early detection capabilities, these amendments deter the possibilities of theft or diversion. In the judgment of the Commission, the degree of protection afforded by the containment, monitoring and detection procedures required by these amendments provide equivalency to the INFCIRC/225 Rev. 1 recommendations for protection of theft or diversion of SNM.

Significant differences from the proposed rule published for comment on May 24, 1978 are: (1) Plutonium-Beryllium (PuBe) sealed sources would be exempted from the physical protection requirements; (2) Plutonium with isotopic concentration exceeding 80 percent in plutonium-238 would be exempted from the physical protection requirements; (3) package and vehicle search requirements at facilities where special nuclear material of moderate strategic significance is used or stored have been changed; (4) The period of time allotted for submittal of a licensee plan to implement these requirements has been changed from 60 days to 120 days after the effective date of the amendment. In addition, editorial and clarifying changes were made and some definitions added to clarify the intent of the regulations.

The following discussion pertains to items (1) through (4) above.

(1) PuBe sealed sources—Commenters stated that the cost of providing the required physical protection for PuBe sealed sources would be prohibitive from the point of view of the limited budgets available at universities where most of the sources are now located. Imposition of the proposed

requirements, it was said, would result in the curtailment of the use of PuBe sources at some sites with a significant impact on the educational and research programs at those institutions. In view of the very small quantities of plutonium found in PuBe sealed sources (generally, from 16 to 161 grams) and the fact that potential adversaries wishing to obtain a 5 kg formula quantity of plutonium would have to commit separate acts of theft at a large number of widely separated sites without being detected, the Commission has decided that the threat to the common defense and security of this country was sufficiently low that physical security measures should not be required for PuBe sealed sources. There is an upper limit of 500 grams of plutonium to which this exemption can be applied because greater than a 500 gram accumulation of plutonium in this form invalidates the basis for this exemption. IAEA guidelines allow for such exceptions in the case of research type facilities.

(2) More than 80 percent Pu-238—The proposed rule has been amended to reflect that plutonium with isotopic concentration exceeding 80 percent in plutonium-238 would be exempted from the physical protection requirements. This change corrects an oversight in the initially proposed amendments in which it was intended that such material would be exempted to be consistent with the definitions of Category II and III material in the IAEA document INFCIRC/225/Rev. 1.

(3) Search requirements—Package and vehicle search requirements at facilities at which special nuclear material of moderate strategic significance is used or stored have been changed. As revised, random searches are only required regarding items leaving controlled access areas, and not of those entering. The primary objective of entry searches is to detect materials which could be useful in sabotage. Since protection against sabotage is not within the scope of the proposed amendments, an entry search requirement is not necessary.

(4) Submission and Implementation of Plans—Several commenters stated that more time would be needed than the sixty days allowed for submission of physical security plans, or amendments to them, following the date the proposed amendments become effective.

The Commission agrees that more time may be required, especially in the case of licensees who have limited managerial and financial resources, and has changed the submission date to be 120 days following the effective date of the amendment. In addition, the licensee is now required to implement the approved security plan within 240 days following the effective date of the amendment or within 30 days after the plan is approved, whichever is later.

Concurrent with the publication of the amendments, the NRC is publishing a

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guide entitled "Standard Format and Content for the Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance." The guide is being published for a sixty-day comment period and will be reissued with comments taken into consideration. The amendments to 10 CFR Parts 70, 73 and 150 would become effective at this time (120 days after publication) (November 21, 1979). Licensees would therefore have 240 days after publication of the amendments to submit their plans. The plan would have to be implemented 30 days after approval by the Commission or 360 days after (date of publication in the Federal Register) (July 24, 1979).

Another area of comment dealt with employee screening. Some of the licensees interpreted the screening requirement to call for a full field background investigation of all personnel entering the controlled access areas where the material is used or stored. The wording of the rule has been revised to more clearly indicate that the requirement is merely one requiring a screening based on knowledge of persons permitted access rather than a formal security investigation. The guidance package being issued with the rule explains more fully the intent of this requirement.

There was one other area of comment for which no specific changes were made to the amendments but which is of significance. These comments dealt generally with the technical justification for the proposed amendments.

Many of the commenters questioned the technical justification for the proposed amendments on the basis of the lack of detailed information regarding the threat; the additional costs

of implementation they perceived to be incommensurate with only marginal improvements in physical protection; and the impacts on the licensees' ongoing educational and research programs. Particular attention was focuses by some commenters on the physical protection requirements for low enriched uranium.

The technical justification for the U.S. adoption of the proposed amendments is contingent on both domestic and international factors, which are closely interrelated. Current NRC physical protection regulations apply primarily to strategic special nuclear material (uranium enriched in the isotope U-235 to 20% or greater, U-233, and plutonium) in quantities of five formula kilograms or greater. There are no specific physical protection requirements for quantities in lesser amounts. Yet, it can be properly argued that a 4.9 formula kilogram quantity of SNM is about as important a quantity as 5.0 kilograms. Multiple thefts of such materials in close to formula quantities could result in the

accumulation of more than a formula quantity. The proposed detection requirements are considered to provide sufficient protection with minimum added cost so as not to affect educational and research programs. Since the requirements are of a detection nature rather than prevention, characterization of the adversary in the regulations was deemed not to be necessary.

In regard to low enriched uranium (LEU) (enrichments less than 20%), clandestine enrichment to higher levels may go beyond the capability of subnational terrorists, but it does not go beyond the capability of other governments. Unless properly safeguarded, low enriched uranium could be stolen on behalf of foreign governments and enriched to explosive useable levels after it is smuggled out of the U.S.

The Nuclear Non-Proliferation Act of 1978 specifies that NRC shall promulgate regulations which assure that physical security measures are provided to special nuclear materials exported from the United States without specifying whether the materials are low enriched uranium or high enriched uranium. Pursuant to this legislation, the Commission has promulgated 10 CFR Part 110.43 which provides among other things that:

"(b) Commission determinations on the adequacy of physical security programs in recipient countries for Category II and III quantities of material will be based on available relevant information and written assurances from the recipient country or group of countries that physical security measures providing as a minimum protection comparable to that set forth in INFCIRC/225 will be maintained."

While the proposed amendments would provide a needed extension of domestic physical protection to special nuclear materials for which the level of physical protection required was not previously specified, the full value of such protection could not be realized until similar protection is afforded all such material among the nations utilizing such materials. Physical protection measures similar to those proposed, which are based on the recommendations of the IAEA Information Circular INFCIRC/225/Rev. 1, have already been adopted by several countries.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 70, 73, and 150 are published as a document subject to codification.

44 FR 47918  
Published 8/16/79  
Effective 9/17/79

*Licensing of Production and Utilization Facilities; Facilities and Access for Resident Inspection*

See Part 50 Statements of Consideration.

45FR14199  
Published 3/5/80  
Effective 3/5/80

*Minor and Clarifying Amendments*

See Part 1 Statements of Consideration

45 FR 18905  
Published 3/24/80  
Effective 3/24/80

*Deletion of reference to Panama Canal Zone; Minor Amendments*

See Part 4 Statements of Consideration.

45 FR 50705  
Published 7/31/80  
Effective 7/31/80  
Effective Date 12/24/80 \*  
*Safeguards on Nuclear Material-  
Implementation of US/IAEA Agreement*

See Part 75 Statements of Consideration .

45 FR 55402  
Published 8/19/80  
Effective 11/3/80

*Emergency Planning*

See Part 50 Statements of Consideration

45 FR 65521  
Published 10/3/80  
Effective 11/17/80

*Uranium Mill Licensing Requirements*

See Part 30 Statements of Consideration

\*Amended 45 FR 84967

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45 FR 73012

Published 11/4/80

Effective Date: Upon the US/IAEA

Safeguards Agreement's entry into force and publication of notice thereof in the Federal Register

Effective Date 12/24/80 •

*Safeguards on Nuclear Material; Implementation of US/IAEA Agreement*

See Part 75 Statements of Consideration

45 FR 74693

Published 11/12/80

Effective 11/28/80

*Licensing Requirements for the Storage of Spent Fuel in an Independent Fuel Spent Storage Installation*

See Part 72 Statements of Consideration

45 FR 76968

Published 11/21/80

Effective 2/4/81

*Criteria and Procedures for Determining Eligibility for Access to or Control Over Special Nuclear Material*

See Part 11 Statements of Consideration

46 FR 12193

Published 2/13/81

Effective 10/13/81

10 CFR Parts 70 and 73

**Transient Shipments of Strategic Special Nuclear Material**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to withdraw the exemption from

licensing requirements for carriers who possess formula quantities of strategic special nuclear material in the course of a transient shipment and require them to be responsible for assuring that the strategic special nuclear material is protected against theft and radiological sabotage. These carriers will be required, during stopovers at United States ports, to provide physical protection in accordance with a security plan. This amendment will bring carriers who possess formula quantities of strategic special nuclear material in the course of a transient shipment directly under NRC physical protection regulations. A transient shipment is defined as a shipment of special nuclear material originating and terminating in foreign countries, on a vessel or aircraft which stops at a United States port. These amendments are intended to assure that any transient shipments which may occur are provided physical protection equivalent to that currently required of domestic, import and export shipments. Consequently, physical protection requirements for all shipments of formula quantities of strategic special nuclear material within United States territory will be uniform.

**EFFECTIVE DATE:** October 13, 1981

**FOR FURTHER INFORMATION CONTACT:** Mr. C. K. Nulsen, Regulatory Improvements Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Phone (301) 427-4181.

**SUPPLEMENTARY INFORMATION:** In accordance with the Commission's position that shipments of formula quantities of strategic special nuclear material (SSNM) should be protected in the interest of the common defense and security and public health and safety, the Commission published proposed amendments on January 8, 1980 (45 FR 1625) to 10 CFR Parts 70 and 73 of its regulations that would require carriers possessing formula quantities of strategic special nuclear material in the course of a transient shipment to provide physical protection for the material during stopovers at United States ports. Interested persons were

given until March 10, 1980, to comment on the proposed amendments.

The proposed amendments have been adopted in effective form without significant changes and will become effective 240 days after publication of this notice (October 13, 1981). In the interim period, the NRC will publish a regulatory guide in draft form entitled, "Physical Protection of Transient Shipments of Formula Quantities of Strategic Special Nuclear Material." This document has been prepared to provide guidance to persons covered by the general license issued by these amendments and will be published for a public comment period of sixty days. It is expected that the final regulatory

guide will be published prior to the time the final rule becomes effective.

With respect to the proposed amendments, the resolution of the comments received is as follows:

(1) A comment received from the Department of State noted that § 70.20(d)(7) of the proposed amendments would require the use of armed personnel to protect transient shipments at United States ports and questioned the legal standing of foreign nationals to act as guards or escorts for the shipments.

A number of different avenues are available to licensees for obtaining the services of armed personnel to serve as escorts for transient shipments at a United States port. These are outlined in the draft guidance referred to above. The regulation neither requires nor prohibits the use of foreign nationals to provide the required escort services at the United States port. However, there are several factors which should be taken into consideration in determining whether or not foreign nationals could effectively protect a transient shipment. Language difficulties and lack of familiarity with local communications systems could possibly detract from the ability of foreign nationals to rapidly and effectively communicate with local law enforcement agencies or with those elements of the guard force who may be of local origin for purposes of requesting assistance when needed or for coordinating response activities. Local jurisdictions in the United States generally exercise control over the use and possession of hand guns or other firearms. If required permits for carrying weapons are not obtained in advance of the shipment, foreign nationals could not legally carry weapons off the shipment vessel or aircraft. Licensees intending to include foreign nationals in a guard force provided to protect a transient shipment would be expected, just as would any other licensee, to be able to demonstrate that the physical protection system provided meets the requirements of 10 CFR Part 73 (specifically, §§ 73.20 and 73.25, and the portions of the guard qualifications and training requirements of Appendix B corresponding to the guard duties required for transient shipments).

The draft guidance document referred to above has been revised to specifically reflect the foregoing considerations.

(2) Another State Department comment raised the question of classification of written security plans and proper access to the resultant classified information and urged the NRC to take steps to assure that plans are properly protected. Since the publication of the proposed amendments, new regulations in 10 CFR Part 95 have been promulgated under which the NRC has determined that certain information contained in physical protection plans and advance shipment notifications is classified

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Confidential National Security Information (CNSI) and must be protected accordingly.

Since some of the information contained in physical protection plans and advance shipment notifications generated by potential general licensees under the proposed amendments would be of a safeguards-sensitive nature, it is expected that potential general licensees would seek to protect the information from unauthorized disclosure on their own initiative since it is in their best interest to do so. This information, in the hands of the U.S. Government or a person in the United States, would be considered classified as CNSI, and thus, subject to the provisions of 10 CFR Part 85.

Plans generated by a foreign firm for the protection of its nuclear material while it is in the United States are treated as classified by NRC while the material is under U.S. control and those plans would probably be protected, in the interest of the owners of the SSNM, while under foreign control. The U.S. Government has no jurisdictional basis to classify information originated by and in the custody of a foreign firm until it reaches the United States. At that point, although classifiable, it would be declassified as necessary for the carrier to carry out the plan. Appropriate language has been included in the draft guidance referred to above regarding approaches for protection of classified information.

(3) A third comment questioned the Commission's finding that neither an environmental impact statement nor an environmental appraisal to support a negative declaration was required for the proposed amendments. The commenter cited a number of possible economic impacts and environmental hazards which he foresaw resulting from the proposed amendments (e.g., lost opportunities for commerce due to cargo ships avoiding U.S. ports, increase in freight charges to receivers of nonnuclear merchandise, and environmental risk of at-sea transfers attempted in order to avoid increased docking costs). The Commission has examined these stated impacts and hazards and determined that it is unrealistic to expect any of them to materialize as a result of the amendments, especially in consideration of the very low number of transient shipments known to have taken place in the past or projected to take place in the future. The Commission, therefore, finds no basis for changing its position on the need for environmental impact statements or environmental appraisals.

(4) The State Department also suggested that the proposed amendments be extended in scope to require protection for categories of material other than formula quantities of strategic special nuclear material (e.g., special nuclear material of moderate

and low strategic significance, irradiated reactor fuel, etc.). This action was suggested in anticipation of the U.S. Senate ratification of the Convention on the Physical Protection of Nuclear Material, of which the U.S. is a signatory. Such an extension of the scope of the proposed rule would appear to be premature since the Convention has not yet been ratified. Also, an additional public comment period would be required if such a major change were made in the proposed amendments. Therefore, this suggestion will be addressed in a separate action.

Minor changes have been made in the amendments which follow for purposes of clarification and to maintain consistency with other NRC regulations. Some of the more significant changes are:

(1) The definition of "transient shipment" has been changed and a new section (§ 70.13a) added to 10 CFR Part 70 to clarify the nature of the exemption extended to persons carrying transient shipments of special nuclear material in foreign military aircraft. The previous definition was intended to indirectly exempt from the proposed regulations those persons carrying transient shipments of formula quantities of special nuclear material intended for military use. It was determined that it would be difficult for NRC inspectors to ascertain the intended future use of the material being shipped. Also, it was determined that the intended exemption should appear in a separate section of Part 70 with other exemptions. The revised amendment exempts persons carrying transient shipments who are subject to provisions of 49 U.S.C. 1538(a) (which requires State Department authorization to navigate aircraft of the armed forces of a foreign nation within the United States). This exemption, however, does not apply to plutonium since Public Law 94-79 restricts the NRC's authority to license, or exempt from licensing requirements, the air transport of plutonium in any form (except for certain medical applications and when in a container that has been certified as crash-proof). Since a transient shipment is the only situation contemplated under which a foreign military aircraft would enter the United States carrying special nuclear material, and since these shipments would be infrequent, of short duration, and under the direct control of the Department of State, the Commission has found that this exemption is not inimical to the common defense and security and does not constitute an unreasonable risk to the health and safety of the public.

(2) The wording of revised § 70.20a(a) and new § 70.20b have been changed to reflect recent changes made in § 70.20a by another rulemaking action.

(3) The notification procedures included in § 70.20b(d) have been changed to more closely conform to the

corresponding requirements presently imposed on domestic shippers of similar types and quantities of material. Appropriate corresponding changes have also been made in the draft guidance.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Parts 70 and 73, are published as a document subject to codification.

46 FR 12695  
Published 2/18/81  
Effective 4/20/81

### 10 CFR Part 70

#### Domestic Licensing of Special Nuclear Material; General License Requirements for any Person Who Possesses Irradiated Special Nuclear Material (SNM) in Transit

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The NRC is amending its regulations to issue a general license to any person who possesses irradiated reactor fuel in transit. Under the general license, a person who possesses irradiated reactor fuel in transit would be subject to certain requirements. This action would provide the NRC a level of direct control and direct inspection authority over irradiated reactor fuel shipments comparable to that now provided over formula quantities of strategic special nuclear material (SSNM) in transit. Notice is hereby given that this action meets the intent of the petition for rulemaking (PRM 73-5) filed by Mr. Samuel Edlow by letter dated June 29, 1979, with the Nuclear Regulatory Commission and therefore further action is not required.

**EFFECTIVE DATE:** April 20, 1981.

#### FOR FURTHER INFORMATION CONTACT:

Mr. James A. Prell, Safeguards Standards Branch, Division of Siting, Health and Safeguards Standards, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 301-443-5904.

**SUPPLEMENTARY INFORMATION:** On May 8, 1979, effective amendments to 10 CFR Part 70 were published, 44 FR 28850, that removed the licensing exemption and issues a general license to carriers and other persons who have actual or

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constructive possession (constructive possession is a form of legal possession of material in a shipment that does not require actual physical custody; it may be evidence through control over the shipment or by other means) of formula quantities of SSNM for the purpose of transport or storage incident to transport. This provided the NRC with a legal basis (in the absence of a specific license or other formal means) for inspecting shipments of formula quantities of SSNM in transit. Prior to issuance of the effective amendments, inspections were submitted to on a voluntary basis on the part of the carriers.

On June 15, 1979, effective amendments to 10 CFR Part 73 (Section 73.37) were published (44 FR 34466) that prescribed requirements for the physical protection of irradiated reactor fuel in transit. In their present form, these regulations do not subject to direct regulation carriers and other persons who possess (actually or constructively) irradiated reactor fuel for the purpose of transport or storage incident to transport. This creates the same situation for the shipment of irradiated fuel as existed for the shipment of strategic special nuclear material prior to the removal of the licensing exemption for carriers of that material (44 FR 26850). That is, the NRC has no legal basis for inspecting the irradiated reactor fuel shipments in transit to verify compliance with Section 73.37.

On June 29, 1979, Mr. Samuel Edlow, President of Edlow International Company, filed with the Nuclear Regulatory Commission a petition for rulemaking to amend 10 CFR Parts 70 and 73. The intent of this petition, which was assigned Docket Number PRM 73-5, was to make carriers of irradiated reactor fuel subject to a level of NRC control similar to that required of carriers of formula quantities of strategic special nuclear material.

In order to provide the NRC a level of control over irradiated fuel shipments comparable to that provided over formula quantities of SSNM in transit, the Commission is, therefore, amending its regulations to issue a general license to any person who possesses (actually or constructively) irradiated reactor fuel during transport. The general license would pertain only to the carriage or storage in transit of irradiated fuel subject to 10 CFR 73.37.

For this purpose, on March 12, 1980, the Nuclear Regulatory Commission published in the Federal Register [45 FR 15936] proposed amendments to 10 CFR Part 70 of its regulations. Interested persons were invited to submit written comments and suggestions on the proposed amendments within sixty days after publication in the Federal Register.

The principal comments and the Commission's responses follow:

(1) Physical protection responsibilities of carriers—one commenter sought clarification as to whether or not the carrier was responsible for meeting the physical protection requirements of 10 CFR § 73.37.

This rule does not relieve the shipper of full responsibility for meeting the physical protection requirements of § 73.37. However, the carrier shall either assure himself or receive certification from the shipper that the requirements are being met. Paragraph 73.20a(e)(1) has been modified from the proposed amendment to clarify this meaning.

(2) Reporting requirements—two commenters suggested that all reporting requirements associated with lost or missing material be channeled through the Department of Transportation. The Department of Transportation, however, prefers that all reports be made directly to the Nuclear Regulatory Commission.

(3) Exemption from 10 CFR § 70.42—One commenter felt that general licensees should not be subject to the requirements of 10 CFR § 70.42 "Transfer of special nuclear material." He felt that since the licensee shipper was already subject to these requirements, making the general licensee subject to them would be redundant, accomplish little and add to the "bureaucratic nightmare." Paragraph 70.42(c) requires: (1) that the general licensee initially register with the NRC, and (2) that prior to transferring special nuclear material, the transferor verify that the transferee's license authorizes receipt of the type, form and quantity of material to be transferred. The Commission believes that this requirement is needed in order to help assure proper control of the material at all points of transfer. The Commission also believes that this will not present the general licensee with a "bureaucratic nightmare" because:

(1) the general licensee is required to register with the Commission only initially, and

(2) the general licensee can verify and obtain from the official records of the Commission or an Agreement State the identity of all the licensees it intends to deliver to and the scope and expiration dates of their licenses and registrations. Once obtained, this list only has to be updated occasionally as licenses expire or license conditions change or new receivers are added.

In light of the above, appropriate paragraphs of § 70.20a have been revised to issue a general license to any person who possesses (actually or constructively) irradiated reactor fuel in transit. The scope of the general license granted under the amendment is limited to possession only and is effective during the course of a shipment. The

amendment does not affect the exemption for carriers and other persons under § 70.12 who transport other forms of special nuclear material subject to NRC regulations. Also, the amendment does not apply to transient shipments, that is, shipments that originate in a foreign country with destinations in a foreign country that transit the United States. Such shipments are the subject of a separate rulemaking procedure (see 45 FR 1625). The amendment codifies practices and procedures presently submitted to on a voluntary basis by most carriers and other persons. The amendment does not require the filing of applications with the Commission or the issuing of licenses to particular persons by the Commission.

The promulgation of this amendment does not result in any activity that affects the environment. Accordingly, the Commission has determined under the National Environmental Policy Act, the Council of Environmental Quality guidelines, and the criteria of 10 CFR Part 51, that neither an environmental impact statement nor an environmental impact appraisal to support a negative declaration for the proposed amendment to 10 CFR Part 70 are required.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 70 are published as a document subject to codification.

46 FR 13971

Published 2/25/81

Effective 3/27/81

*Disposal of High-Level Radioactive  
Wastes in Geologic Repositories:  
Licensing Procedures*

See Part 60 Statements of Consideration

46 FR 51718

Published 10/22/81

Effective 10/22/81 for Sections 2.744(a), 2.790(d)(1), 73.2(jj) and (ll), and 73.21(a), (b) and (c)(1). All remaining sections will be effective on 1/20/82.

*Protection of Unclassified Safeguards  
Information*

See Part 73 Statements of Consideration



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47 FR 8

Published 1/4/82  
Effective 1/4/82

*Submission of Installation  
Information Pursuant to  
US/IAEA Safeguards  
Agreement*

See Part 40 Statements of Consideration

47 FR 23138

Published 5/27/82  
Effective 5/27/82

*Regional Licensing Program*

See Part 30 Statements of Consideration

47 FR 27060

Published 6/23/82

*Regional Licensing Program;  
Correction*

See Part 30 Statements of Consideration

47 FR 30452

Published 7/14/82  
Effective 10/12/82

*Protection of Employees Who  
Provide Information*

See Part 19 Statements of Consideration

47 FR 41336

Published 9/20/82  
Effective 9/20/82

*Minor Clarifying Amendments*

See Part 1 Statements of Consideration

47 FR 57446

Published 12/27/82  
Effective dates:

10 CFR 20.311 of Part 20 effective  
date is 12/27/83; 10 CFR Part 61 and  
all other changes effective 1/26/83.

*Licensing Requirements for Land  
Disposal of Radioactive Waste*

See Part 61 Statements of Consideration

48 FR 5886

Published 2/9/83  
Effective 2/9/83  
Correction published 2/28/83.  
*Regional Licensing Reviews*

See Part 50 Statements of Consideration

48 FR 8256

Published 2/28/83

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#### Regional Licensing Reviews

##### Correction

In FR Doc. 83-3326 beginning on page 5886 in the issue of Wednesday, February 9, 1983, make the following corrections.

On page 5887, first column, § 70.32 (c)(1), eighth line from the bottom, "discribed" should read "described"; second column, paragraph (d), sixth line, "§ 80.22(g)" should read "§ 70.22(g)"; third column, paragraph (g), eighth line, "licensees" should read "licensee"; and in the sixth line from the bottom, "70.30(g)" should read "73.30(g)".

48 FR 16030

Published 4/14/83  
Effective 4/1/83

*Regional Licensing Program;  
Further Implementation*

See Part 30 Statements of Consideration



48 FR 22131

Published 5/17/83  
Effective 6/16/83

### 10 CFR Part 70

#### Changes in Physical Security Plans; Licensees Possessing or Using Special Nuclear Material of Moderate and Low Strategic Significance

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to allow licensees possessing or using special nuclear material of moderate and low strategic significance to make minor modifications to their physical security plans without prior approval by the Commission, provided the changes do not decrease the effectiveness of the plan. This amendment is necessary to remove an inconsistency in the regulations applicable to special nuclear material licensees.

**EFFECTIVE DATE:** June 18, 1983.

**FOR FURTHER INFORMATION CONTACT:** Andrea K. Barnold, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 443-5976.

**SUPPLEMENTARY INFORMATION:** On July 24, 1978, the Nuclear Regulatory Commission published a final rule (44 FR 43280) amending 10 CFR Parts 70, 73, and 150 to require physical protection measures to detect theft of special nuclear material of moderate and low strategic significance. One of the

requirements of Part 70 is that applicants for licenses to possess or use special nuclear material must submit physical security plans. When Part 70 was amended to require submission of the plans by applicants for licenses to possess or use special nuclear material of moderate and low strategic significance, they were not included in the provision allowing minor changes to be made to physical security plans without prior Commission approval (see 10 CFR 70.32(e)). It is the Commission's belief that such licensees should be accorded the same privilege to make minor modifications that is accorded to licensees possessing larger quantities of strategic special nuclear material in order to have consistent regulations. Experience has shown the privilege to be a useful form of self-regulation and its extension to licensees possessing special nuclear material of moderate and low strategic significance is a step in reduction of regulatory burden.

Pursuant to 5 U.S.C. 553(b), the Commission for good cause finds that notice and public procedure on the amendment are not necessary, because the amendment confers a privilege on licensees possessing special nuclear material of moderate and low strategic significance that is now enjoyed by licensees possessing larger quantities of strategic special nuclear material. The amendment also relieves the affected licensees of the burden and license fee cost of submitting minor changes to security plans to the Commission for prior approval as formal license amendments.

#### 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 3150-0009.

#### List of Subjects in 10 CFR Part 70

Hazardous materials—transportation, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting requirements, Scientific equipment, Security measures, and Special nuclear material.

The authority citation for this document is sec. 161, Pub. L. 83-703, 68 Stat. 948, as amended (42 U.S.C. 2201).

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendment to Title 10, Chapter 1, Code of Federal Regulations, Part 70, is published as a document subject to codification.

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48 FR 32324

Published 7/15/83

Effective 8/15/83

*Amendments Specifying Licensee Responsibility for Nuclear Materials and Procedures for Termination of Specific Licenses*

See Part 30 Statements of Consideration

48 FR 34416

Published 7/29/83

Effective 7/29/83

*Amendments Specifying Licensee Responsibility for Nuclear Materials and Procedures for Termination of Specific Licenses*

See Part 40 Statements of Consideration

48 FR 39036

Published 8/29/83

Effective 9/28/83

*Irretrievable Well-Logging Sources*

See Part 30 Statements of Consideration

49 FR 9352

Published 3/12/84

Effective: Upon approval of OMB or 6/7/84.

*Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments*

See Part 51 Statements of Consideration

49 FR 19623

Published 5/9/84

Effective 5/9/84

*Information Collection Requirements; Display of OMB Control Numbers*

See Part 0 Statements of Consideration

49 FR 19630

Published 5/9/84

Effective 4/2/84

*Regional Licensing Program; Further Implementation*

See Part 30 Statements of Consideration

49 FR 21699

Published 5/23/84

Effective 5/23/84

*Information Collection Requirements, Display of OMB Control Numbers*

See Part 0 Statements of Consideration

49 FR 24512

Published 6/14/84

Effective 6/7/84

*Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments*

See Part 2 Statements of Consideration

49 FR 47823

Published 12/7/84

Effective 12/7/84

*Minor Correcting Amendments*

See Part 1 Statements of Consideration

➤ 50 FR 7575  
Published 2/25/85  
Effective 3/27/85

### 10 CFR Parts 70 and 74

#### **Amended Material Control and Accounting Requirements for Special Nuclear Material of Low Strategic Significance**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its material control and accounting (MC&A) requirements for licensees possessing and using quantities larger than one effective kilogram of special nuclear material of low strategic significance. These amendments reform the MC&A

regulations for fuel cycle facilities by establishing a grading of requirements between those applicable to low enriched uranium (LEU) and those applicable to more strategically significant forms of special nuclear material. These amendments will make the regulations more consistent with the low strategic significance of this material and will result in a significant reduction in costs for the affected licensees. Emphasis has been given to performance requirements rather than prescriptive requirements to allow licensees to select the most cost-effective ways to satisfy NRC requirements for LEU of low strategic significance.

**EFFECTIVE DATE:** March 27, 1985.

**FOR FURTHER INFORMATION CONTACT:** Dr. W.B. Brown, Chief, Fuel Facility Safeguards Licensing Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4043.

#### **SUPPLEMENTARY INFORMATION:**

##### **Background**

A new 10 CFR Part 74 is created which will eventually contain all the domestic MC&A regulatory requirements. As other existing MC&A requirements, which are currently found in Part 70, "Domestic Licensing of Special Nuclear Material," are revised they will be moved to Part 74. This will place the MC&A requirements in a format similar to Part 73, "Physical Protection of Plants and Materials." Specific safeguards program requirements will be found in Parts 73 and 74 with the general license requirements being retained in Part 70.

Seven low enriched uranium fuel fabrication and recovery facilities will follow the new Part 74. These seven facilities, who are authorized to possess and use more than one effective kilogram of special nuclear material of low strategic significance, are Babcock and Wilcox Co., Lynchburg, Virginia; Combustion Engineering, Inc., Windsor, Connecticut and Hematite, Missouri; Exxon Nuclear Co., Inc., Richland, Washington; General Electric Co., Wilmington, North Carolina; Westinghouse Electric Corp., Columbia, South Carolina; and the LEU scrap recovery operations at Nuclear Fuel Services, Inc., Erwin, Tennessee. All other current licensees subject to safeguards requirements in 10 CFR Part 70 will continue to follow Part 70 until the provisions of Part 70 applicable to them are transferred to Part 74. Any such transfer will be accomplished by public notice in the *Federal Register*.

The goal of this rule is to reduce the MC&A regulatory requirements for LEU

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licensees to a level that is consistent with the safeguards risk associated with the low strategic significance of LEU. Under the current regulations, the major differences in the MC&A requirements for LEU and Strategic Special Nuclear Material (SSNM) are a longer inventory period and a higher de minimis inventory difference action threshold for LEU. The bulk of the other current requirements are essentially the same for LEU and SSNM.

On December 14, 1982, the Nuclear Regulatory Commission published proposed amendments to 10 CFR Part 70, on which this final rule is based, in the *Federal Register* (47 FR 55651). A discussion of safeguards risk associated with LEU can be found in that *Federal Register* Notice. Interested parties were invited to submit written comments and suggestions regarding the proposed amendments. Comments were received from four licensees, three private citizens, one professional group, one consulting firm, several NRC groups, and the Department of State, which coordinated comments from the Executive Branch.

### Changes Made to Proposed Amendments to 10 CFR Part 70

1. The general reporting requirements for MC&A have been deleted from Part 70 and moved to a new Part 74. The previously proposed § 70.60 has been redesignated § 74.31.

2. The definition of "goal quantity" and reference to that quantity have been deleted. Licensees subject to Part 74 are required to detect losses of specified quantities of SNM. These loss detection quantities will be determined by the NRC on a site-by-site basis.

3. The first performance objective in the new § 74.31(a)(1) has been reworded.

4. The words "and use" have been added to the first sentence of § 74.31(a).

5. Licensees subject to § 74.31 are explicitly exempted from the recordkeeping requirements of § 70.51(b).

6. Explicit requirements have been added that the accounting records be based on measured values and that values with significant measurement bias be corrected.

7. The first sentence of the requirements for current knowledge of items has been rephrased for clarity.

8. Some definitions from Part 70 have been added to § 74.4.

9. The language in § 70.57 now explicitly shows that it does not apply to special nuclear material of low strategic significance.

10. Other minor changes have been made throughout the amendments.

### Discussion of Changes Made

(1) In the current rule structure, the

MC&A requirements have been interspersed among the safety and general licensing requirements of 10 CFR Part 70. These MC&A requirements are being moved to a new Part 74 of 10 CFR to avoid confusion with the safety requirements in Part 70, to allow the requirements to be presented in a more orderly manner, and to be consistent with the use of Part 73 for physical protection requirements. The MC&A requirements remaining in §§ 70.51, 70.57, and 70.58 apply to special nuclear material (SNM) of moderate strategic significance, strategic special nuclear material, and special categories of licensees possessing SNM of low strategic significance who are currently not required to have an approved MC&A plan. Performance-oriented regulations for these classes of licensees will be added to Part 74 as they become final and will eventually replace the MC&A requirements in Part 70.

(2) As indicated in the supplementary information accompanying the publication of the proposed amendments, comments were solicited from the Department of State. As a result of these comments, the term "goal quantity" has been dropped to avoid any confusion between the International Atomic Energy Agency's (IAEA) use of the term "significant quantities" when addressing a national level threat and the NRC's use of "goal quantity" when addressing our domestic level threat. Further, in keeping with the IAEA's inspection approach, the NRC will establish quantities for loss detection on a site-by-site basis. Guidelines for this process will be provided in the Acceptance Criteria for the LEU Reform Amendments.

(3) When the term "goal quantity" was dropped, the first general performance objective of § 74.31(a)(1) was reworded.

(4) The requirements of § 74.31 are not intended to apply to licensees who merely possess and store sealed containers of SNM. Thus, the phrase "and use" was added to the first sentence of § 74.31(a) to make that section only applicable to licensees who process the SNM in some manner.

(5) For licensees using SNM of low strategic significance in a quantity greater than one effective kilogram, the recordkeeping requirements in § 74.31(d) apply in lieu of the requirements in § 70.51(b). In response to the comments, this is now made more explicit.

(6) The wording of the amendments, as proposed, raises some question as to whether licensees continue to be required to make measurements of the material they possess and to correct for biases in the measurement systems. To make this clearer, two new capability statements were added. These new

statements require that material values on record be based on measurements and that biases in the measurement systems be estimated and corrected for when they are significant.

(7) The first sentence of the capability statement dealing with current knowledge was reworded to avoid confusion which resulted over how the 14-day criterion was to be applied. The 14-day period is to be used to determine when an item must formally be entered into the record system for tracking items.

(8) The list of definitions in § 74.4 has been expanded to include appropriate ones from Part 70. More definitions will be added as the MC&A requirements for the other classes of SNM are moved to Part 74. Concerning 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. As the requirements for the other classes of SNM are revised and added to Part 74, the new terms will be used. The definitions in § 74.4 cross reference the existing Part 70 definitions where changes in terms have been made.

(9) A commenter suggested that § 70.57 be amended to exclude special nuclear material of low strategic significance. While this exclusion is implied in the amendment to § 70.58(a), § 70.57(b) was also amended to make it more explicit.

### The Following Comments Did Not Result in Changes to the Proposed Amendments

(1) Several commenters made the assumption that the current knowledge requirement for items (proposed § 70.60(c)(4), now § 74.31(c)(6)) was only needed to assess losses of a goal quantity (e.g., 500 kg of uranium-235) or more, and thus, would not need to be sensitive to losses of less than a goal quantity of items.

The stated MC&A objectives in § 74.31(a) (2) and (3), "Resolve indication of missing material and aid in the investigation and recovery of missing material," give no specific quantity of material. A system which has no better discrimination capability than a goal quantity will not be very helpful in resolving any known thefts of smaller amounts. A current knowledge capability is needed to aid the NRC and other Federal and local authorities in determining the credibility of claims of material theft. NRC needs information to facilitate this type of determination in order to properly execute its legal responsibility to protect the public health and safety. If such a claim were true, the NRC needs to have a good estimate of the amount and form of the material involved. Also, if a theft has

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occurred, the NRC must be able to determine if corrective action is required.

(2) Commenters suggested that an amendment similar to that made to § 70.58(a) should be made for § 70.51 (i.e., exclude all SNM of low strategic significance).

A blanket exclusion was not appropriate because some classes of SNM of low strategic significance (those excluded from § 74.31) are still subject to parts of § 70.51 as they were in the past. In response to the comments, § 70.51(b) is being amended to exclude licensees subject to § 74.31. The other paragraphs of § 70.51 not being amended are of a minor nature and no explicit exclusion from them is considered to be necessary.

(3) Commenters suggested the removal of the phrase "unless otherwise required to satisfy Part 75" from the inventory requirement of § 74.31(c)(5).

This phrase was retained because of concerns expressed by the Department of State and certain NRC groups. Part 75 contains the requirements necessary to satisfy the agreement between the United States and the International Atomic Energy Agency. It was always the intent that the more restrictive requirements of Part 75 would take precedence over those of Parts 70 and 74. Making this explicit in the amendments has no net effect on the licensee.

### Use and Availability of Acceptance Criteria

In preparing the plan required by § 74.31(b), it is suggested that the licensee/applicant utilize both the rule and the acceptance criteria. The rule is written in general, performance-oriented language to give the licensee/applicant flexibility in designing a cost-effective system which makes best use of site-specific features. The purpose of the acceptance criteria document is to provide an explanation and amplification of the required, basic performance-oriented system capabilities in § 74.31, and to suggest the information that a typical licensee/applicant would include in a comprehensive plan. The acceptance criteria were developed from the viewpoint that conventional measures, as utilized today, may continue to be employed by the licensee/applicant. It should be noted that the NRC acknowledges that the licensee/applicant is free to use alternative measures to comply with the requirements of § 74.31. In this regard, the NRC also recognizes that various aspects in the acceptance criteria may not be applicable. Single copies of the Acceptance Criteria for the LEU Reform Amendments may be obtained from: Dr.

W.B. Brown, Chief, Fuel Facility Safeguards Licensing Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

### Regulatory Analysis

The Commission has prepared a regulatory analysis of this final regulation. The analysis examines the cost saving and rationale for this regulatory action versus maintaining the status quo. 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: Dr. W.B. Brown, Chief, Fuel Facility Safeguards Licensing Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

### Environmental Impact

The material control and accounting requirements for licensees possessing and using quantities larger than one effective kilogram of special nuclear material of low strategic significance will be amended in two major ways.

1. Certain safeguards related record keeping and reporting requirements now found in Part 70 are moved to a new Part 74 in order to separate the safety requirements of Part 70 from safeguards requirements.

2. Material control and accounting regulatory requirements for low enrichment uranium licensees will be reduced to a level that is consistent with the safeguards risk associated with the low strategic significance of LEU. The major differences in the MC&A requirements are a longer interval between physical inventories and a larger de minimis quantity for the inventory-difference action threshold.

Pursuant to 10 CFR 51.22(c)(3) (ii) and (iii) a categorical exclusion is granted for amendments to Commission regulations which relate to recordkeeping and reporting requirements. The proposed amendments described in Paragraph 1 above, meet the eligibility criteria for this categorical exclusion. Accordingly, no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

For the following reasons the Commission has also determined not to prepare an environmental impact statement for the amendments described in paragraph 2 above, 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 proposed rule will not result in changes in the licensees' processes or

manufacturing procedures and therefore will not affect or alter any releases of effluents to the environment.

2. The proposed rule will allow the licensees' the flexibility to change certain measurement procedures to meet performance criteria set forth in the rule. Measurement procedures have no environmental significance.

3. The proposed rule will affect seven low enrichment uranium fuel fabrication and recovery facilities, all of which 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, D.C. Single copies of the environmental assessment and finding of no significant impact are available from Dr. W.B. Brown, Chief, Fuel Facility Safeguards Licensing Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. 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 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. 3150-0009 (for Part 70) and No. 3150-0123 (For Part 74).

### 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 seven facilities that fabricate low enriched fuel, and is expected to result in an estimated savings for the industry on the order of \$3.9 million per year. The facilities include Babcock and Wilcox Company, Lynchburg, Virginia; Combustion Engineering, Inc., Hematite, Missouri, and Windsor, Connecticut; Exxon Nuclear Company, Inc., Richland, Washington; General Electric Company, Wilmington, North Carolina; Westinghouse Electric Corporation, Columbia, South Carolina; and the LEU scrap recovery operations at Nuclear Fuel Services, Inc., Erwin, Tennessee. 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.

### List of Subjects

10 CFR Part 70

## PART 70 • STATEMENTS OF CONSIDERATION

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.

### **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. 552 and 553, the following amendments to 10 CFR Part 70 and a new 10 CFR Part 74 are published by the NRC as a document subject to codification.

**50 FR 12221**

Published 3/28/85

Effective date will be published at a later date.

*Implementation of the Convention on Physical Protection of Nuclear Material*

**See Part 40 Statements of Consideration**

**50 FR 14692**

Published 4/15/85

Effective 4/1/85

*Regional Nuclear Materials Licensing for Certain Federal Facilities*

**See Part 30 Statements of Consideration**

**51 FR 35999**

Published 10/8/86

Effective 10/1/86

*Regional Nuclear Materials Licensing for the United States Air Force*

# UNITED STATES NUCLEAR REGULATORY COMMISSION

## RULES and REGULATIONS

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

# PART 71

## PACKAGING OF RADIOACTIVE MATERIAL FOR TRANSPORT AND TRANSPORTATION OF RADIOACTIVE MATERIAL UNDER CERTAIN CONDITIONS

### STATEMENTS OF CONSIDERATION

31 FR 9941  
Published 7/22/66  
Effective 8/22/66

The regulations of the Atomic Energy Commission (AEC), 10 CFR Parts 30, 40, and 70, require that before the AEC approves an application for license to receive, possess, use or transfer byproduct, source, or special nuclear material, it must determine that the applicant's proposed program is adequate to protect health and minimize danger to life and property.

In 1958, the AEC adopted 10 CFR Part 71, "Regulations to Protect Against Accidental Conditions of Criticality in the Shipment of Special Nuclear Material". This regulation established procedures for approval of transport of special nuclear material, but set only limited standards. Certain small shipments under specified conditions were exempted from the licensing requirement.

On March 5, 1963, the AEC published a proposed revision of Part 71 (28 F.R. 2134), incorporating many detailed specifications regarding acceptable shipping methods. Public response to that proposed revision suggested that the detailed standards proposed might impair the growth of the industry and development of improved safety concepts and that the regulation should emphasize performance standards rather than detailed design standards. Proposed Part 72, "Protection Against Radiation in the Shipment of Irradiated Fuel Elements" (26 F.R. 8982, 28 F.R. 2142), which proposed standards and procedures for packaging and transport of irradiated solid nuclear fuel, elicited a similar public response.

On December 21, 1965, the AEC published for comment a proposed revision of Part 71 (30 F.R. 15748). The proposed revision combined the standards for unirradiated and irradiated fissile material previously proposed separately as Parts 71 and 72, and added standards and procedures for the shipment of large quantities of licensed material. It emphasized performance standards to determine the adequacy of proposed shipping methods, with the method of satisfying those performance standards left to the ingenuity of the shippers. The proposed performance standards would be compatible with those devel-

oped by the International Atomic Energy Agency during the past 2 years.

Subsequent to the publication of proposed Part 71, a Memorandum of Understanding between the Interstate Commerce Commission (ICC) and AEC was signed. In the Memorandum, the two agencies agree, subject to their respective statutory authorities, that (1) ICC will adopt appropriate regulations and requirements applicable to transport of all radioactive materials, and to shippers of all types and quantities of radioactive materials, but will avoid duplicatory standards with respect to preparation for shipments of fissile materials and large quantities of radioactive material, and (2) AEC will adopt appropriate regulations applicable to standards for the preparation for shipment of fissile material and large quantities of radioactive material and will be responsible for the adoption of regulations and requirements applicable to its licensees or contractors as may be necessary to protect against radiation and criticality hazards in the transportation of all radioactive material where shipment is outside the regulatory jurisdiction of ICC.

Under the Memorandum of Understanding, the ICC will utilize the assistance of AEC on container approvals for fissile materials and large quantities of radioactive materials. The AEC and ICC are working together to develop criteria for additional "specification containers" in order to reduce the number of special container permits issued by ICC.

Several changes have been incorporated in the regulation, as adopted, as a result of the Memorandum of Understanding, and the publication of amendments to ICC regulations on April 29, 1966 (31 F.R. 6492), covering some of the same areas covered in the notice of proposed rule making published by the AEC on December 21, 1965 (30 F.R. 15748). Thus, the following provisions that were contained in that AEC proposed rule have been omitted in the effective rule set out below:

1. Section 71.11 of the proposed rule, which would have imposed ICC requirements through AEC authority;

2. References throughout the proposed rule to transport of radioactive material by a licensee;

3. The radiation level limitations in proposed § 71.34;

4. The definitions of "milliroentgen per hour or equivalent" and "transport unit" in proposed § 71.4 (j) and (u);

5. The requirement in proposed § 71.40 (b) that a Fissile Class II package be labelled as prescribed by ICC, although the procedure for determining the minimum "radiation unit" for criticality control has been retained;

6. The requirement in proposed § 71.40 that a licensee not transport or deliver to a carrier more than 40 units of Fissile Class II packages, nor a single package with a calculated radiation unit of more than 10;

7. The requirement in proposed § 71.41(b) for Fissile Class III transport procedures to protect against commingling with other fissile material;

8. The requirement in proposed § 71.54 for routine determinations with regard to the radiation level limits, surface contamination limits, and transport procedures.

The definition of "carrier" in proposed § 71.4 has been modified to conform to usage under the Transportation of Explosives and Other Dangerous Articles Act (18 U.S.C. §§ 832-837), which is administered by the ICC.

Other significant differences from the regulation published for comment are:

1. The definition of the term "fissile material" has been restricted to those isotopes of uranium and plutonium which must now be controlled during transport to avoid criticality.

2. A requirement in proposed § 71.31 (b) which imposed a temperature standard on the materials and fabrication of packaging has been deleted. Correspondingly, the temperature to be considered for Normal Conditions of Transport set out in Appendix A has been increased from 100° F. to 130° F. This increased ambient temperature would provide for the more extreme conditions which might be encountered in normal transport.

3. The requirement in proposed § 71.31 (e) that primary coolant not circulate outside of the shielding has been deleted.

4. The lifting and tie-down device requirements in proposed § 71.31 (f) and (g) have been modified to make it clear that the standards apply only to devices which are a structural part of the packaging. The modified requirements are



## PART 71 • STATEMENTS OF CONSIDERATION

included in § 71.31 (c) and (d) set forth below.

5. The pressure design standards of the proposed § 71.32(b)-(d), including that for a pressure relief device, have been replaced by an internal pressure test to be initially performed on each individual package which will be subjected to significant internal pressure, set out in § 71.53(b).

6. The specific temperature restriction, contained in proposed § 71.33, on large quantity packages, assuming loss of coolant and cooling devices, has been omitted, as has the corresponding test requirement of proposed § 71.53(b). Temperature restrictions will be effectuated through the performance standards of §§ 71.35 and 71.36. Requirements have been included in § 71.35 set out below to assure that there will be no loss of coolant under the Normal Conditions of Transport.

7. The limitation on loss of shielding under the Hypothetical Accident Conditions (Appendix B) has been revised to specify an allowable increase in radiation levels to 1,000 milliroentgens per hour or equivalent at 3 feet from the external surface of the package.

8. The provisions relating to assumed leakage of water to and outleakage of liquids from fissile material packages in determining subcriticality in proposed § 71.37(b)(3) have been revised and redesignated § 71.33.

9. The requirement in proposed § 71.39 (a) that Fissile Class I packages be considered with other types of Fissile Class I packages has been deleted as unnecessary in view of the provision for assumed interspersed moderation.

10. The requirement in proposed § 71.51(a) for licensee quality control procedures has been replaced by a performance requirement in § 71.53(c) set out below that the licensee assure that the packaging is fabricated in accordance with the design approved by the AEC.

11. The list of items to be included in a licensee's operating procedures required by proposed § 71.51(b) has been deleted from the regulation.

Additional minor changes from the proposed rule have been incorporated in the effective rule.

The rule, set forth below, establishes packaging standards for the shipment of fissile material, both unirradiated and irradiated, and of large quantities of licensed radioactive material. The rule specifies the quantities and methods of transport which are exempt from Part 71 requirements and those which are under a general license. The exemption and general license provisions are applicable to shipments which from a safety standpoint do not require an AEC packaging evaluation. Those shipments are subject to regulation by federal transport agencies. For shipments not exempted or generally licensed, the rule prescribes the determinations which must be made with respect to packaging and shipping precautions required in order to assure nuclear safety of shipping methods.

With a few exceptions, the basic organization and standards set out below have not been changed significantly from those contained in the notice of pro-

posed rule making, issued on December 21, 1965 (30 F.R. 15748). A detailed explanation of the organization and standards of Part 71 is made in the notice of proposed rule making.

The rule set out below divides radionuclides into a number of groups, each having a comparable potential hazard in transport. These groups were derived from the International Atomic Energy Agency's Safety Series No. 6, "Regulations for the Safe Transport of Radioactive Materials," 1964 Revised Edition. The derivation of the groupings and the quantity limits assigned to those groupings have been published by the United Kingdom Atomic Energy Authority in its Health and Safety Branch Report AHSB (RP) R 23, dated 1963, by K. T. Aspinall and A. Fairbairn. This document is available from the Authority Health and Safety Branch, United Kingdom Atomic Energy Authority, 11 Charles II Street, London, S.W.1.

Published simultaneously with proposed 10 CFR Part 71 on December 21, 1965, were certain proposed amendments to 10 CFR Parts 30 and 70 (30 F.R. 15748), the basic licensing regulations for byproduct and special nuclear material, respectively, containing a reference to Part 71. Those amendments are no longer considered necessary and that notice of proposed rule making is, accordingly, withdrawn.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following revision of 10 CFR Part 71 is published as a document subject to codification, to be effective 30 days after publication in the FEDERAL REGISTER.

33 FR 17621

Published 11/26/68

Effective 12/31/68

### Miscellaneous Amendments

On July 22, 1966, the Atomic Energy Commission published in the FEDERAL REGISTER (31 F.R. 9941) regulations for the packaging of fissile material and large quantities of licensed radioactive material, 10 CFR Part 71. The explanatory statement indicated the relationship of those regulations to the safety regulations of the Interstate Commerce Commission (ICC). Among other things, the regulations of the ICC under the Transportation of Explosives and Other Dangerous Articles Act prescribed the conditions of transport for shipments prepared in accordance with 10 CFR Part 71.

On April 1, 1967, the functions of the ICC under the Transportation of Explosives and Other Dangerous Articles Act were transferred to the Department of Transportation (DOT). The DOT has continued to apply the former ICC regulations pertaining to safety in the transportation of radioactive materials; those regulations are now known as the DOT's Hazardous Materials Regulations (49 CFR Parts 170-190, 14 CFR Part 103).

On January 20, 1968, the DOT published in the FEDERAL REGISTER (33 F.R. 750) for comment, as Notice 68-1, Docket No. HM-2, a proposed major revision of its regulations for transporting radioactive material. The DOT has given due consideration to the numerous comments received and, after consultation with the AEC and the atomic energy industry, has made modifications in the proposed requirements. On October 4, 1968, the DOT published in the FEDERAL REGISTER (33 F.R. 14918) a revision of its regulations pertaining to safety in transport of radioactive material, authorizing compliance on publication and making the amendments effective on December 31, 1968. The changes in the Commission's 10 CFR Part 71 set out below will conform 10 CFR Part 71 with the revision of the DOT regulations. Since the revision of the DOT regulations was published for public comment, the Commission has found that good cause exists for omitting notice of proposed rulemaking and public procedure thereon with respect to the following changes to 10 CFR Part 71, to correspond to the revision of the DOT regulations, as unnecessary.

One change in the DOT regulations which directly affects AEC licensees is the change from a limit of 40 radiation units to a maximum transport index of 50 in a single vehicle or storage area. To implement that change, all existing licenses which authorize Fissile Class II packages are amended by a new § 71.14 to increase the minimum number to be placed on each Fissile Class II packaged by a factor of 1.25. All holders of such licenses will receive individual notification of this amendment.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of the United States Code, the following amendments of 10 CFR Part 71 are published as a document subject to codification, to be effective December 31, 1968. Compliance with these amendments is authorized on and after the date of publication in the FEDERAL REGISTER.

37 FR 3985

Published 2/25/72

Effective 3/26/72

### Miscellaneous Amendments to Chapter

See Part 20 Statements of Consideration.

38 FR 10437

Published 4/27/73

Effective 6/30/73

## PART 71 • STATEMENTS OF CONSIDERATION

### Approval of Type B, Large Quantity, and Fissile Material Packagings

On November 20, 1971, the Atomic Energy Commission published in the *FEDERAL REGISTER* (36 FR 22134) proposed amendments to 10 CFR part 71 of its regulations. The proposed amendments would provide a means for implementing the transfer of the approval of type B packagings from the Department of Transportation (DOT) to the AEC (in its regulatory function) by adding to part 71 standards and requirements for AEC approval of type B packagings, and procedures for obtaining AEC regulatory staff approval of type B, large quantity, and fissile material packagings. The transfer of the approval function for packages used by license-exempt AEC contractors is being implemented by a change in AEC manual, chapter 5201. Proposed amendments to DOT regulations, published concurrently, would require AEC approval of packagings, other than specification packagings prescribed in the DOT regulations and packagings approved by a foreign national competent authority under the 1967 regulations of the International Atomic Energy Agency, used to ship quantities of fissile material which exceed the small quantities specifically exempted by DOT regulations or to ship quantities of other radioactive material which exceed type A quantities, as defined in DOT regulations.

After consideration of the comments received and other factors involved, the Commission has adopted the amendments published for comment with the following changes:

1. The definition of "Type A quantity" in § 71.4(g) has been modified to limit Californium-252 in special form to 2 curies instead of 20 curies, to conform to that limit recently introduced into DOT regulations.

2. The general license provided in § 71.12 for shipment in DOT specification containers and in packages licensed for use by licensees has been amended to include packaging approved by a foreign national competent authority. The amendment to the DOT regulations, to be made effective concurrently, requires that packages approved by a foreign competent authority be revalidated by DOT before use in the United States.

3. In § 71.10 the period during which persons are exempted from the requirements for an AEC approval for Type B packages being used under a DOT special permit has been lengthened from 3 to 6 months after the effective date of the amendments.

Other minor corrective and editorial changes have been made.

The amended regulation permits uninterrupted use of type B containers approved under DOT special permits. Pursuant to § 71.10, an AEC licensee using a type B container under a valid DOT special permit is allowed to use that container until the AEC acts on an application for license submitted within 6

months of the effective date of the amendments or prior to the date on which the special permit expires, whichever is later. The corresponding DOT amendments, published February 14, 1973 (38 FR 4396), authorize the use of AEC-approved packagings, and provide that special permits issued by DOT will continue in effect until their stated expiration date.

AEC approval of packagings will consist of: (1) A license or license amendment issued under part 71, (2) an administrative approval issued to AEC license-exempt contractors in accordance with standards and procedures published in the AEC manual, or (3) an approval issued by the AEC's Directorate of Licensing to persons subject to DOT jurisdiction who are not AEC licensees. The latter category includes agreement State licensees, and persons who ship type B quantities or large quantities of radium.

To obtain AEC approval, all persons, other than AEC license-exempt contractors, are required to submit an application to the Chief, Transportation Branch, Directorate of Licensing, U.S. Atomic Energy Commission, Washington, D.C. 20545. The contents of the application are set forth in §§ 71.21, 71.22, 71.23, and 71.24 of 10 CFR part 71. AEC license-exempt contractors must apply for approval in accordance with the provisions of the AEC manual, chapter 5201.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, part 71, are published as a document subject to codification to become effective June 30, 1973.

39 FR 20960  
Published 6/17/74  
Effective 7/17/74

#### Form for Shipping Plutonium

On August 1, 1973, the Commission published in the *FEDERAL REGISTER* a notice of proposed rulemaking (38 FR 20482) that would have required that all plutonium in excess of twenty curies per package be shipped as a solid material contained within a "special form" capsule placed within a package meeting the conditions for normal form material. The effective date proposed was three years after adoption of the amendment. All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendment within 60 days after publication of the notice of proposed rulemaking in the *FEDERAL REGISTER*. After careful consideration of the comments received and other factors involved, the Commission has adopted the amendments as published for comment with the following changes:

(1) The proposed requirement that the inner containment vessel meet the "special form" capsule requirement has been replaced with a requirement that the inner containment vessel must maintain its integrity after the entire package has been subjected to the normal and accident test conditions prescribed by Part

71. The effect of the amended provisions is still to require double containment of the contents. A number of commenters expressed the view that while double containment of plutonium is an important safety objective, a requirement that the inner container meet the stringent performance specifications required of a "special form" capsule was unnecessary. The Commission considers it most important that solid form plutonium be doubly contained and that both barriers in the packaging maintain their integrity under normal and accident test conditions. The present packaging required for normal form material provides the outer barrier. In specifying the "inner barrier" in the proposed rule, the Commission proposed a form of encapsulation that was already defined in Part 71, with corresponding performance specifications. Since the inner containment requirements are intended to take into account the fact that the plutonium may not be in a "nonrespirable" form, the Commission has concluded that if it can be demonstrated that the inner container will maintain its integrity in the packaging after the package is subjected to the normal and accident test conditions, sufficient protection will be afforded.

(2) Solid plutonium in the following forms has been exempted from the double containment requirements: (a) Reactor fuel elements; (b) metal or metal alloy; and (c) other plutonium bearing solids that the Commission determines suitable for such exemption. Since the double containment provision compensates for the fact that the plutonium may not be in a "nonrespirable" form, solid forms of plutonium that are essentially nonrespirable should be exempted from the double containment requirement. Therefore, it appears appropriate to exempt from the double containment requirements reactor fuel elements, metal or metal alloy, and other plutonium bearing solids that the Commission determines suitable for such exemption. The latter category provides a means for the Commission to evaluate, on a case-by-case basis, requests for exemption of other solid material where the quantity and form of the material permits a determination that double containment is unnecessary.

(3) The implementation period has been extended from three to four years. Many comments suggested that the proposed three-year implementation period was not long enough, considering the necessary plant design effort, licensing, and construction of required facility modifications necessary to meet the requirements. Additional time was requested. The Commission believes that the increases in the amounts of plutonium to be shipped and the changing characteristics of plutonium will not change significantly in the next four years when compared to years beyond 1978. The four-year period for compliance should give the nuclear industry a sufficient period for implementation.

The Commission has determined, pursuant to guidelines of the Council on Environmental Quality, that this rulemaking action will not significantly affect the quality of the human environment and, accordingly, makes this Negative Declaration on environmental impact. The staff's environmental impact appraisal supporting this declaration is available for public inspection at the

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Commission's Public Document Room, 1717 H Street, NW., Washington, D.C.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 71, are published as a document subject to codification.

39 FR 22131  
Published 6/20/74  
Effective 6/20/74

### Broadening of General License Conditions

In the revised Memorandum of Understanding between the Atomic Energy Commission and the Department of Transportation dated March 22, 1973, the Commission agreed to evaluate package designs for fissile material and Type B and large quantities of radioactive material, and if found satisfactory, to issue approvals directly to the persons requesting the evaluation. The Department of Transportation in its regulations has authorized the use of such AEC-approved packages by any person, without the need for a DOT Special Permit, provided the packages meet certain specified requirements.

The purpose of the amendments which follow is to authorize persons holding a general or specific AEC license to use, under a general license, package designs for which a certificate of compliance or other approval has been issued by the Commission's Directorate of Licensing. A certificate of compliance would be the form by which a package approval would be issued to persons, such as Agreement State licensees, for whom AEC does not issue licenses or license amendments. This change will eliminate duplicate applications for package approvals and issuance of duplicate package approvals to licensees for package designs which are evaluated pursuant to the Memorandum of Understanding between the Atomic Energy Commission and the Department of Transportation without affecting safety in the use of the package.

The general license does not authorize the receipt, possession, or use of by-product, source or special nuclear material; such authorization must be obtained pursuant to the appropriate regulations (10 CFR Parts 30 to 38, 40 or 70). The general license also does not authorize the transportation of licensed material. Transportation by private, common, or contract carriers is subject to the requirements of the Department of Transportation (49 CFR Parts 170 to 179 and 397; 14 CFR Part 103; 46 CFR Part 146) either directly or through requirements in AEC or state regulations.

Since the amendments set forth below relate solely to minor procedural matters, good cause exists for omitting notice of proposed rule making, and public procedure thereon, as unnecessary. Since the amendments grant relief from restrictions under regulations currently in effect, they will become effective without the customary 30 day notice.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10,

Chapter 1, Code of Federal Regulations, Part 71, are published as a document subject to codification.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

*Energy Reorganization Act; Revisions to Chapter 1 to Reflect Organizational and Procedural Changes*

See Part 2 Statements of Consideration.

42 FR 39364  
Published 8/4/77  
Effective 10/18/77  
Comment Period expires 10/18/77

### PART 71—PACKAGING OF RADIOACTIVE MATERIAL FOR TRANSPORT AND TRANSPORTATION OF RADIOACTIVE MATERIAL UNDER CERTAIN CONDITIONS

#### Quality Assurance Requirements for Transport Packages

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations for packaging of radioactive material for transportation and transportation of radioactive material. The amendments would upgrade requirements for quality assurance in the design, fabrication, assembly, testing, use, and maintenance of packaging for shipping and transporting licensed radioactive material. The amendments would also revoke, subject to a timely application for re-approval, the present authority for licensees to use certain shipping casks for solid irradiated nuclear fuel which had been approved under criteria used before the current standards in these regulations were adopted.

EFFECTIVE DATE: October 18, 1977.

NOTE.—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for such review as may be appropriate under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of this rule becomes effective, unless advised to the contrary, accordingly reflects inclusion of the 45-day period which that statute allows for such review (44 U.S.C. 3512(c)(2)).

#### FOR FURTHER INFORMATION CONTACT:

Mr. Donald R. Hopkins, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555; phone 301-443-6910.

SUPPLEMENTARY INFORMATION: On December 28, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 35490) proposed amendments to 10 CFR Part 71 of its regulations. Interested persons were invited to submit written comments and suggestions. Further action on the proposed rule was delayed almost three years while developing acceptable methods of implementation.

#### COMMENTS RECEIVED

##### COMMENTS ON PROPOSED RULE

Comments were received from ten persons who manufacture or use the ship-

ping packages which were the subject of the proposed amendments, and from one state regulatory agency. Most of the comments urged clarification, modification, or deletion of specific provisions of the proposed rule.

#### COMMENTS ON PROPOSED SPECIFIC TESTS

More than half the comments were concerned with the proposed provisions of § 71.53, "Initial determinations and tests." The comments were varied and concerned the clarity and appropriateness of the proposed requirements and their applicability to certain types of packages. The Commission recognizes the validity of those comments and has not adopted those requirements in the amendments which follow. Further consideration will be given to such requirements after experience is gained in their application as license conditions in appropriate cases.

A number of comments were submitted with respect to the proposed addition of specific tests in § 71.54, "Routine determinations." Many of these are reflected in the amendments adopted. Some comments noted that certain tests, and in particular those relating to pressure relief devices, should be tailored to the package design. The wording of § 71.54(h) and of "quality assurance program bases" in section 2 of Appendix E permit the tests and determinations to be fashioned around the package design and the safety function which the design features provide.

#### COMMENTS ON IDENTIFYING RESPONSIBLE INDIVIDUAL

Some comments questioned the need to submit the title and qualifications of the individual in the applicant's organization who is responsible for assuring that packages have been prepared in accordance with all applicable requirements, as would have been required by proposed § 71.24(b). Since it is recognized that a licensee's entire management is responsible for licensed activities, the requirement has been deleted.

#### COMMENTS ON "GRANDFATHER CLAUSE" IN § 71.41

A number of commenters misunderstood the proposed amendment of § 71.41 and judged it to retroactively impose quality assurance requirements, including records, on the construction of irradiated fuel casks fabricated during the 1961-1967 period. This is not the purpose of the amendment. Present § 71.41 has provided a "grandfather clause" authority for the use of irradiated solid nuclear fuel casks which were constructed prior to 1967 before the current packaging standards became effective. The proposed changes to § 71.41 would phase out this "grandfather clause" authority. The proposed changes deal with the design characteristics of these old casks and the extent to which those characteristics satisfy the present packaging standards. The proposed changes are unrelated to the proposed quality assurance provisions in the notice of proposed rule making.

#### COMMENTS ON RESPONSIBILITY FOR QUALITY ASSURANCE

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A number of commenters suggested that clarification be provided as to whether the package manufacturer or the licensee is responsible for providing information to the Commission on specific aspects of quality assurance, and as to who is responsible for carrying out those specific aspects of quality assurance in the manufacture and use of the package.

The licensee who is the applicant for the package approval provides the descriptions of quality assurance programs governing the manufacture and use of the package. If the package is approved by the Nuclear Regulatory Commission for use in the transportation of radioactive material, a package approval is issued which incorporates the package description and identification, its safety evaluation, and a description of the applicant's specific quality assurance provisions for design, fabrication, assembly, testing, use, and maintenance of the package. In the absence of reasons to the contrary, the package approval will be issued for use by any licensee who possesses the applicable documents incorporated by reference into the package approval, who has had his general quality assurance program approved by the Commission, and who will adhere to the conditions of the package approval. The authority for any licensee to use the package once it is approved is contained in the general license in 10 CFR Part 71, § 71.12, "General License for Shipment in DOT specification containers, in packages approved for use by another person, and in packages approved by a foreign national competent authority." The general license requires that each licensee who uses the general license register his name and certain other information with the Commission prior to the first use of the package and have a quality assurance program approved by the Commission.

A licensee who uses a package under the authority of the general license in § 71.12 must comply with the provisions of the general license. One provision of the general license, as clarified by the amendments which follow, is that the licensee use approved packages only in accordance with a quality assurance program which has been approved by the Commission. Another provision of the general license is that the package be used in accordance with the terms and conditions of the package approval. Quality assurance requirements specific to the particular package design would be specified in the package approval. A licensee's quality assurance program for the use of packages in transportation would then consist of the following:

1. The general provisions which satisfy to the extent necessary each of the applicable criteria of Appendix E of Part 71. These general provisions would apply to the use, testing, and maintenance of any package (and its design and fabrication if applicable), and such general provisions would have to be approved by the Commission; and
2. The specific provisions specified or referenced in the package approval which are applicable to the particular package design.

A licensee who delivers licensed material to a carrier for transport under

the authority of § 71.12 must be assured that the package is as described in the package approval, and that it is used, tested, and maintained in accordance with both the general and specific portions of the approved quality assurance program. While information may be submitted by any interested person to the Commission in support of an application for package approval, it is the licensee who delivers a package of radioactive material to a carrier who must assure himself and the Commission that the quality assurance program, on which approval of the package design is based, has been followed.

### COMMENTS ON GENERAL PROVISIONS IN APPENDIX E

A number of commenters suggested changes in the provisions of proposed Appendix E to Part 71, which contains the general provisions relative to all package quality assurance programs. It was observed that proposed Appendix E was patterned closely after Appendix B of 10 CFR Part 50, "Licensing of Production and Utilization Facilities." Comments were offered that transportation packages differ in many ways from nuclear facilities, and that the same quality assurance provisions should not be applied to both. However, the quality assurance provisions of proposed Appendix E are general in nature and with minor modifications are applicable to a wide variety of types of quality assurance programs. Flexibility in applying the provisions of Appendix E, section 2, "Quality Assurance Program" has been emphasized by the second paragraph of that section dealing with the importance, complexity, and other characteristics of the package or component to be controlled. While some suggested clarifications of Appendix E have been adopted, the general requirements of that Appendix, parallel to the general requirements of Appendix E of Part 50, have been retained. (Under § 71.51(d), a licensee may use a Commission approved quality assurance program, based on Appendix B of 10 CFR Part 50, which is established, maintained and executed with regard to transport packages.) As with the Part 50 requirements, more specific package quality assurance guidelines will be developed and published in the form of Regulatory Guides, beginning in FY 78. The comments which have been offered with respect to Appendix E will be further considered in connection with these guidelines.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 71, are published as a document subject to codification. The Commission invites all interested persons who desire to submit written comments or suggestions in connection with the amendments to send them to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch, by October 18, 1977.

Consideration will be given such submissions with the view to possible further amendments. Copies of comments may be examined in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

43 FR 27174  
Published 6/23/78  
Effective 6/23/78

## PART 71—PACKAGING OF RADIOACTIVE MATERIAL FOR TRANSPORT AND TRANSPORTATION OF RADIOACTIVE MATERIAL UNDER CERTAIN CONDITIONS

### Extension of the Implementation Period for QA Program Requirements

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Effective rule.

SUMMARY: The U.S. Nuclear Regulatory Commission extends until January 1, 1979, the date for filing a description of a quality assurance program for transport packages. The original deadline of July 1, 1978 appeared in amendments published in the FEDERAL REGISTER on August 1, 1977. This extension is in response to requests from interested persons to delay implementation of the quality assurance criteria.

EFFECTIVE DATE: June 23, 1978.

FOR FURTHER INFORMATION CONTACT:

Robert J. Doda, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C., 20555, phone 301-443-6910.

SUPPLEMENTARY INFORMATION: On August 4, 1977, the Nuclear Regulatory Commission published effective amendments to its regulations in 10 CFR Part 71. These amendments included a requirement to file a description of a quality assurance (QA) program satisfying the criteria of Appendix E by July 1, 1978 (42 FR 39364). Although written comments or suggestions to these amendments were invited at that time, none were received.

The Commission has since received letters from interested persons questioning the applicability of these QA requirements to Agreement State licensees. Also, the Commission has received requests to delay implementation of the Appendix E criteria.

The Commission is in the process of addressing the question of the applicability of these QA requirements to Agreement State licensees. Because of this effort, and having considered other factors involved, the NRC has determined that a delay of 6 months in implementing the Appendix E criteria appears justified. A short-term delay will have no significant adverse effect on public health and safety because of existing specific QA provi-

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sions in Part 71 and the requirement for a QA program, which the staff imposes for approval of packagings for shipping irradiated fuel, high level waste, and plutonium. Accordingly, the Commission is amending its regulations by extending the date for filing a description of a QA program in § 71.51 to January 1, 1979.

Because this amendment relates solely to procedural matters, the Commission has found that good cause exists for omitting notice of proposed rule making, and public procedure thereon, as unnecessary. Since the amendment relieves licensees from restrictions under regulations currently in effect, it may become effective upon publication in the **FEDERAL REGISTER**.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 71 is published as a document subject to codification.

44 FR 63083  
Published 11/2/79  
Effective 12/3/79

### 10 CFR Part 71

#### **Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions; Shipment in Accordance With Department of Transportation Regulations**

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Effective rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations for packaging and transportation of radioactive material. The amendments would require all shipments of radioactive materials made by NRC licensees, other than shipments subject to the regulations of the U.S. Postal Service, to be made in accordance with the regulations of the U.S. Department of Transportation. The regulations are being amended to allow the NRC to inspect the activities of its licensees involved with shipment of radioactive materials.

**EFFECTIVE DATE:** December 3, 1979.

**FOR FURTHER INFORMATION CONTACT:** Ralph J. Jones, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 [(301)-443-5949].

**SUPPLEMENTARY INFORMATION:** An increased number of shipments are being made each year of low specific activity materials and of type A quantities of radioactive materials. This trend is expected to continue in the future. Recently, there has also been a growing number of incidents involving the shipment of these materials. The basic cause of many transportation incidents can be attributed to the use of defective shipping containers or to improper loading and preparation of packages for shipment. After consulting with the U.S. Department of Transportation, the U.S. Nuclear Regulatory Commission has determined that there is a need to further assure that these shipments are being conducted in accordance with Federal regulations. Therefore, the NRC is amending 10 CFR Part 71 to require that all shipments of licensed material, except those shipments subject to the regulations of the U.S. Postal Service, be made in accordance with the regulations of the U.S. Department of Transportation. This change to the regulations which will not alter any substantive requirements will permit the NRC to inspect the activities of its licensees in this area and to take enforcement actions if warranted.

The Nuclear Regulatory Commission has overlapping authority with the Department of Transportation to regulate the transportation of radioactive materials. Because of the numerous transportation incidents that have occurred involving low specific activity and type A quantities of radioactive materials, a need exists for additional inspection and enforcement efforts to more fully assure that these shipments are made in accordance with Federal regulations. Augmenting the inspection and enforcement efforts of the Department of Transportation with those of the Nuclear Regulatory Commission will further assure that applicable Federal regulations are observed with respect to packaging and shipment of low specific activity and type A quantities of radioactive materials. In view of the foregoing and of the importance from the standpoint of the public health and safety of assuring that NRC licensees are in compliance with Federal regulations applicable to the packaging and shipment of radioactive material, the Commission has found that there is immediate need to increase the level of its inspection and enforcement activities in this area, that this change relates primarily to matters of Commission practice and procedures, and therefore, good cause exists for omitting notice of proposed rulemaking and public procedure thereon as contrary to the public interest. The amendments will become

effective December 3, 1979.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 71, is published as a document subject to codification.

45 FR 20462  
Published 3/28/80  
Effective 3/28/80

### 10 CFR Part 71

#### **Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions; Correction of U.S. Postal Service Regulation Reference**

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Effective rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission is correcting its regulatory references to U.S. Postal Service regulations governing the transportation of radioactive material by the U.S. Postal Service.

**EFFECTIVE DATE:** March 28, 1980.

#### **FOR FURTHER INFORMATION CONTACT:**

Ralph J. Jones, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 443-5946.

**SUPPLEMENTARY INFORMATION:** In a Federal Register Notice dated November 2, 1979 (44 FR 63083), reference was made to the regulations of the U.S. Postal Service in 39 CFR Parts 14 and 15. Parts 14 and 15, however, have been deleted from Title 39. This reference was a portion of Sections 71.5, "Transportation of licensed material," and 71.7, "Exemption for certain quantities," of 10 CFR Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions."

Section 111.1 of 39 CFR Part 111, "General Information on Postal Service," provides as follows:

§ 111.1 *Postal Service Manual; incorporation by reference of general information on postal services.*

Section 552(a) of title 5, United States Code, relating to the public information requirements of the Administrative Procedure Act, provides in pertinent part that "... matter reasonably available to the class of persons affected thereby is deemed published in the **Federal Register** when incorporated by reference therein with the

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approval of the Director of the Federal Register." In conformity with that provision, and with 39 U.S.C. section 410(b)(1), and as provided in this part, the United States Postal Service hereby incorporates by reference in this part, Chapter I of its Postal Service Manual, a looseleaf publication published and maintained by the U.S. Postal Service, Washington, D.C. 20260.

The "Postal Service Manual" is commonly referred to as the "Domestic Mail Manual." The availability of this manual is set forth in 39 CFR 111.2 which provides:

*§ 111.2 Availability of Chapter I of the Postal Service Manual.*

(a) Copies of Chapter I of the Postal Service Manual are available for reference and inspection upon request at the National Headquarters and regional offices of the U.S. Postal Service and at all United States Post Offices and classified stations and branches during normal business hours. Regional offices are located in New York, Philadelphia, Memphis, Chicago, and San Francisco.

(b) A copy of Chapter I of the Postal Service Manual, together with each amendment of it, is on file with the Director, Office of the Federal Register, National Archives and Records Service, General Services Administration, at 1100 L Street, NW, Room 8401, Washington, D.C. 20408.

(c) Copies of the entire Postal Service Manual may be purchased from the Superintendent of Documents, Washington, D.C. 20402 for \$33.00. This price includes entitlement to receive, for an indefinite period, changes in the Postal Service Manual which may be published from time to time. A companion publication entitled Instructions for Mailers excerpts all portions of Chapter I which are directed to the mailing public. This publication is sold to the public on a subscription basis for \$5.00 by the Superintendent of Documents.

Section 124.3, "Radioactive Material," contained within Part 124, "Nonmailable Matter—Articles and Substances; Special Mailing Rules," of the Domestic Mail Manual, incorporates by reference United States Postal Service Publication 6, a ten page pamphlet entitled "Radioactive Materials." The provisions of this document track the U.S. Department of Transportation (DOT) regulations governing the transportation of limited quantities of radioactive materials and are periodically revised to be consistent with the DOT regulations on this subject. Copies of Publication 6 are available from the U.S. Postal Service, Eastern Area Supply Center, Somerville, New Jersey 08877.

Accordingly, §§ 71.5 and 71.7 of 10 CFR Part 71 are being amended to revise their reference to the regulations of the U.S. Postal Service to read "Postal Service Manual (also known as Domestic Mail Manual), section 124.3, incorporated by reference, 39 CFR 111.1 (1974)." Inasmuch as these amendments are of a minor, corrective nature, good cause exists for omitting notice of

proposed rulemaking, and public procedure thereon, as unnecessary, and for making the amendments effective on March 28, 1980.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments of Title 10, Chapter 1, Code of Federal Regulations, Part 71, are published as a document subject to codification.

47 FR 596  
Published 1/6/82  
Effective 7/6/82

### 10 CFR Part 71

#### Advance Notification to States of Transportation of Certain Types of Nuclear Waste

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to implement a federal statute which requires the NRC to promulgate regulations providing for timely notification to the governor of any state prior to transport of certain types of nuclear waste, including spent fuel, to, through, or across the boundary of that state. This notification provides the governor advance information, not otherwise available to the governor, related to nuclear waste transportation in his state. Shipment of spent fuel is covered under a separate amendment to the Commission's regulations on the physical protection of plants and materials since information regarding these shipments contains sensitive safeguards data which must be protected.

**EFFECTIVE DATE:** July 6, 1982.

**FOR FURTHER INFORMATION CONTACT:** John P. Roberts, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Telephone: 301-427-4205).

#### SUPPLEMENTARY INFORMATION:

##### Background

Section 301(a) of Pub. L. 96-295 requires the Nuclear Regulatory Commission to

Promulgate regulations providing for timely notification to the Governor of any State prior to the transport of nuclear waste, including spent nuclear fuel, to, through, or across the boundaries of such State. Such notification requirement shall not apply to nuclear waste in such quantities and of such types as the Commission specifically determines do not pose a potentially

significant hazard to the health and safety of the public.

On December 9, 1980, the NRC published a Federal Register notice (45 FR 81056) inviting public comments on a proposed rule providing for advance notification to governors of states of the transportation of nuclear waste. The 90-day comment period expired March 9, 1981. Copies of the proposed rule with a request for comments were also sent to state governors. The final rule is essentially the same as the proposed rule except that its scope has been restricted to cover only large quantity (defined in § 71.4(f) as exceeding Type B radioactivity limits) shipments of radioactive waste and spent fuel not covered under advance notification provisions of 10 CFR Part 73.

#### The Rule

The Commission and the Department of Transportation (DOT) have established packaging standards for packages for various quantities of radioactive material to provide for adequate safety of the public. There are two basic categories of packages, Type A and Type B. Type A packages must be designed to withstand the rigors of normal transport but are not designed to withstand transport accidents. Therefore, the quantities and types of radioactive material which may be transported in Type A packages are limited so that, if material release occurs in an accident, no significant hazard to public health and safety would result. Type B packages, which contain larger quantities of radioactive material, are designed to withstand both the normal conditions of transport and specified accident conditions. While limits are set for Type B quantities of radioactive materials, there are no quantity limits for radioactive material per se in Type B containers. Accordingly, quantities larger than Type B, designated large quantities, may also be transported in Type B containers. However, regulatory requirements, which set limits on such factors as weight, volume, decay heat generation, and criticality control, place practical restrictions on the contents of Type B containers.

The NRC has recently affirmed the adequacy with respect to safety of existing 10 CFR Part 71 in its Withdrawal of Advance Notice of Rulemaking, "Radioactive Material Packaging and Transportation by Air," (46 FR 21619, April 13, 1981). In reaching this conclusion, it cited NUREG-0170, the Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes, which, after considering the types and quantities of materials shipped in Type A and Type B and large quantity packaging, states that the potential risk



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of transportation is small.

Radioactive material shipments, including spent fuel shipments, were considered in NUREG-0170 and are subject to the NRC regulations in 10 CFR Part 71 which the Commission found to be adequate with respect to transportation safety. However, the Congress in Section 301(a) of Pub. L. 96-295 has specifically required prenotification for spent fuel shipments. Thus, while Congress leaves to the Commission's judgment, on the basis of potential significant hazard to public health and safety, which types of nuclear waste may be excluded from prenotification, it has also made it clear that at least one type of material, spent fuel, is not to be excluded. Shipments of spent fuel are almost all large quantity (defined in § 71.41(f) as exceeding Type B radioactivity limits) shipments. Almost all spent fuel shipments will contain in excess of 100 grams mass of spent fuel and will be covered under the amendment to 10 CFR Part 73.

At the present time, all large quantity shipments of radioactive waste, excluding spent fuel, are of low level waste. In the future, should reprocessing of power reactor spent fuel resume, shipments of solidified high level waste would be expected to occur. Such shipments would be expected to be in large quantities, and the characteristics of such high level waste would be similar, in terms of radioactivity and heat load, to spent fuel.

After reviewing the data on radioactive waste shipments which is currently available, the Commission has determined that its conclusion on the adequacy of existing 10 CFR Part 71 with respect to the safety of radioactive material transportation should be reaffirmed. It also has determined that, in accordance with the intent of Congress in Section 301 of Pub. L. 96-295, for shipments of radioactive waste which include large quantities of radioactive waste and spent fuel required to be shipped in Type B packaging, prenotification shall be required. Shipments of all other types of radioactive materials do not pose a potentially significant hazard to the public health safety, and such types of materials are excluded from shipment prenotification requirements.

The NRC also recognizes that, while the term "large quantity" may be eliminated as a result of proposed rulemaking to revise regulations for the transportation of radioactive material to make them compatible with those of the International Atomic Energy Agency ("Packaging of Radioactive Material for Transportation and Transportation of Radioactive Material Under Certain Conditions, Compatibility with IAEA Regulations," 44 FR 48234, at 48236,

August 17, 1979), this revision will address types and quantities of radioactive materials presently covered under these regulations so that no purpose would be served at this time in attempting in this rulemaking to separately redefine the term "large quantity" for advance notification.

In accordance with the intent of Congress and consistent with the Commission's determination that shipments of radioactive waste do not pose a potentially significant hazard to the health and safety of the public, the Commission is amending its regulations in 10 CFR Part 71 to require NRC licensees to notify state governors in advance of all large quantity shipments of radioactive waste and of spent fuel not covered under the amendment to 10 CFR Part 73 (generally 100 grams mass or less) required to be shipped in Type B packaging.

Advance notification requirements for spent fuel shipments in excess of 100 grams mass are being addressed by the Commission in a separate rulemaking action in 10 CFR Part 73 for safeguards purposes. A companion notice covering this action is published elsewhere in this issue of the Federal Register. Shipments of large quantities (defined in § 71.4(f) as exceeding Type B radioactivity limits) of radioactive waste, including spent fuel not subject to 10 CFR Part 73 (approximately 100 grams mass or less) are covered in this amendment to 10 CFR Part 71.

The amendment to 10 CFR Part 71 will require licensees to supply the following information: the name, address, and telephone number of the shipper, carrier and receiver of the shipment, a description of the material to be transported, point of origin, estimated period of departure, estimated periods of arrival at state boundaries, the destination of the shipment, the estimated period of arrival, and a point of contact for current shipment information. This information would be provided by mail postmarked at least seven days or delivered by messenger at least four days in advance of the estimated period of departure, to the offices of the governors of affected states or their designees. A new information requirement contained in a recent DOT rulemaking ("Radioactive Material; Routing and Driver Training Requirements," 46 FR 5298, January 19, 1981) may lessen the impact of this amendment since shippers are on notice that they may need to develop procedures for reporting to DOT and can arrange to extend this effort to include NRC. The DOT Final Rule "Radioactive Materials; Routing and Driver Training Requirements," would require that route plans for large quantity shipments be submitted to the DOT Materials

Transportation Bureau (49 CFR 173.22(c) 46 FR 5298 at 5316, January 19, 1981).

This final rule, unlike the DOT Final Rule (46 FR 5298), affects only NRC licensees, resulting, at the outset, in a situation where governors will not receive notification concerning a fraction of the total number of shipments, since some shipments of interest will be made by Agreement State licensees. This situation was anticipated, as noted in the additional views of several representatives (opposed to the requirement of section 301) appearing at page 37 of H. Rept. 96-194, Part 2 (June 29, 1979):

Further, the NRC currently licenses possession of radioactive materials in only 25 [now 24] states. Under agreements between the NRC and the remaining states, those states would also have to implement regulations under this amendment.

### The Comments

NRC received 62 letters containing more than 300 comments on the proposed rule. Comments were received from these entities as follows:

	Comments
State governors or state agencies.....	21
Individuals from public sector.....	19
Nuclear industry.....	10
Federal agencies.....	3
City mayor.....	1
Total.....	62

The comments covered three general categories: (1) the scope of the rule; (2) its impacts and (3) administrative considerations.

1. *Scope of the Rule. a. Contents of packages subject to prenotification requirement.* Comments received ranged from favoring inclusion of almost all radioactive wastes for prenotification to not promulgating any amendment at all.

Initially, the NRC contemplated that all waste required to be shipped in Type B packaging should be included. Type B packaging designs are required to be accident resistant because Type B quantities of radioactive wastes are potentially a more significant hazard to the public health and safety if they are not adequately contained. However, NRC regulatory requirements for Type B packaging have been found to be adequate. As has been noted herein, the NRC has recently affirmed the adequacy with respect to safety of Type B packaging in a withdrawal of Advance Notice of Rulemaking, "Radioactive Material; Packaging and Transportation by Air" (46 FR 21819, April 13, 1981). In reaching this conclusion, it cited NUREG-0170, the Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes, which, after considering the types and quantities of materials shipped in Type A and Type B and large

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quantity packaging states that the potential risk of transportation is small. Upon further consideration and review of the currently available data on radioactive waste shipments, the Commission has determined that shipments of radioactive waste do not pose a potentially significant hazard to the health and safety of the public. However, Congress has specifically required prenotification of shipments of spent fuel, which are almost always large quantity shipments, for prenotification. Accordingly, the Commission is amending the regulations in 10 CFR Part 71 to require NRC licensees to notify state governors or their designees in advance of all large quantity shipments of radioactive waste and of spent fuel not covered under the amendment to 10 CFR Part 73 required to be in Type B packaging. In the opinion of the Commission, this amendment is consistent with the intent of Congress which specifically included spent fuel, almost always shipped in large quantities, in the prenotification provisions of section 301(a) of Pub. L. 96-295, but also authorized the Commission to determine which types of radioactive waste may be excluded from prenotification requirements.

The NRC also believes that the varying concerns of the states can best be addressed by limiting NRC prenotification requirements to large quantity shipments of radioactive waste, including spent fuel. In its recent June 8, 1981 meeting, the State Planning Council on Radioactive Waste Management endorsed prenotification of high-level or large quantity shipments of radioactive materials, including spent fuel.

Finally, after consideration of comments, the NRC believes that inclusion of all shipments of Type B packaged waste is likely to cause an unwieldy paper management problem and reduce the utility of the notification system. For this reason the NRC determines that limiting advance notification to large quantity shipments will significantly reduce an undue administrative burden of notification on states and shippers. The number of shipments expected under this more restricted rule is a few hundred annually and will more likely be less than one percent of the 24,000 Type B shipments per year previously estimated in the proposed rule.

**b. Emergency preparedness concerns.** These issues are already being addressed outside this rulemaking action and therefore do not require further discussion at this time. As the Commission noted on April 13, 1981 in its Withdrawal of Advance Notice of Rulemaking (46 FR 21619),

In another separate action, the NRC, in cooperation with the Federal Emergency

Management Agency and other federal agencies is currently developing guidance material to be used by state agencies in developing emergency response plans for transportation accidents involving radioactive material.

**c. State and local authority.** Since the advance notification rule is solely informational and does not in any way preempt existing state or local authority with respect to regulation of transportation of radioactive materials, the concerns raised on the impact of the rule on state and local authority, particularly on the issue of preemption, are not germane. With respect to concerns over the failure to include Agreement State licensees under prenotification requirements, Congress did not choose to amend the Atomic Energy Act of 1954, as amended, to subject Agreement State licensees to this requirement. However, NRC plans to work with Agreement States to make regulations equivalent to this rule a matter of compatibility.

**2. Impact.** Concern was expressed over the potential impacts that the proposed amendment could have on the public health and on the safety of radioactive materials shipping. Such comment varied considerably because of widely differing views of commenters as to the present dangers to the public of radioactive waste shipping and whether a greater degree of regulation would enhance or diminish public safety. Concern was also expressed over potential problems for shipping accruing from the implementation of the proposed amendment. Potential problems raised included additional radiation exposure to the public, impeding efficient shipping, the financial and administrative burden of reporting on shippers, carriers, state agencies, and safeguards. In general, these comments indicated concern that the impact of the amendment was negative. However, with respect to safeguards, inclusion of all Type B shipments under proposed § 73.37(f) was also advocated. A third area of concern was that NRC regulations be coordinated with the Department of Transportation. This concern was generally directed toward the prospect of alleviating the administrative burden resulting from federal regulations on shipping.

The NRC has already addressed the issue of shipment safety in determining what types of wastes should be excluded from prenotification. In accordance with the provisions of section 301(a) of Pub. L. 96-295 only shipments of large quantities of radioactive waste, including spent fuel, required to be shipped in Type B packaging are subject to the prenotification requirement. Under existing transportation regulations, such

shipments are placarded and information on them is not restricted from the public. Moreover, this regulation does not preempt existing state and local authority over transportation. The NRC has therefore concluded that requiring prenotification for large quantity shipments of spent fuel and radioactive waste will have negligible negative impacts on public health and safety and efficient shipping.

The Commission also believes that the exclusion from the prenotification requirement of all radioactive waste shipments except large quantities required to be shipped in Type B packaging, including spent fuel not covered under the amendment on advance notification to 10 CFR Part 73, will significantly reduce the financial and administrative burden on states, carriers, and shippers of such notification. Based on estimates contained in NUREG-0170, the Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes, in 1985 shipments of Type B wastes are expected to number 24,000 while large quantity shipments are only expected to number, at most, a few hundred annually and more probably less than one percent of the 24,000 Type B waste shipments.

With respect to coordination with the Department of Transportation, DOT announced in the preamble to its final rule on "Radioactive Materials; Routing and Driver Training Requirements" (46 FR 5298, January 19, 1981) that,

In order to prevent a possibly severe inconsistency between NRC and DOT transportation requirements, the DOT will have to wait at least until final rules are issued for NRC licensees before undertaking a rulemaking proceeding to consider specific prenotification requirements for other types of large quantity shipments.

**3. Administrative Considerations.** A number of changes which were suggested or raised for consideration in comments may be categorized as administrative in nature. These included: inclusion of route information, use of generic reporting, creation of a federal clearing-house for notification, designation of a state agency addressee for notification receipt other than the office of the governor, restrictions on notification information to be supplied, clearer definition of carrier and licensee responsibilities, requesting state acknowledgement of notification before a shipment could enter a state, additional documentation requirements related to notification, and changes in the period required prior to shipment.

With one exception, notification to a governor's designee, which will serve to facilitate state response, these comments have not been adopted in this rule. Three of these comments, inclusion

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of route information, use of generic reporting, and the creation of a federal clearinghouse for reporting information were substantially resolved in the recent DOT rulemaking on "Radioactive Materials; Routing and Driver Training Requirements" (46 FR 5298, January 19, 1981), the preamble to this final DOT rule states in part,

Also a provision is added to § 173.22(c) to require shippers of a large quantity package of radioactive materials to file a copy of the route plan prepared for that shipment within 90 days following the shipment with DOT. The Department intends to consolidate the information contained in the route plans and supply it to interested parties.

This effort by DOT to obtain post-shipment information is likely to provide greater accuracy in such reporting, and any NRC efforts would be largely duplicative.

The Commission believes that proposals on restricting information to be supplied in reporting would be confusing and burdensome. Provision for some state governors to decline to receive prenotification would also be a burden to licensees. Governors are not required to take any action on prenotifications received and are free to dispose of them since they will not contain protected information that Part 73 prenotifications will. Provision for receipt of partial information, which was also suggested, would result in increased paperwork since, for a single shipment, different amounts of information would be required for different states and militate against use of a standard reporting form. As already noted, summary information is expected to be available from DOT as a result of its highway routing rule. In addition, NRC staff plans to forward to DOT advance notifications received for DOT's data base. Another restriction suggested, requiring a state to reapply periodically for continued receipt of notification, does not comport with congressional intent in section 301 of Pub. L. 96-295.

The text of § 71.5a makes it clear that responsibility for advance notification of a shipment of nuclear waste, as defined in § 71.4(r), rests with the licensee, i.e., the shipper, not the carrier. Requiring shippers to await state acknowledgement of notifications would likely impede interstate shipping and could burden interstate commerce by effectively excluding shipments from states which did not choose to establish means of promptly acknowledging such notifications. With regard to suggestions that would require additional documentation from licensees, such as, for example, requiring licensees to document telephoned notification changes by letter, the NRC concludes that the additional burden on industry and states is not worth such effort. No

change has been made in the period of time within which advance notification of a shipment must be given. A shorter period would tend to reduce the effectiveness of notification by mail and a longer period does not seem necessary. Basing the period on arrival at individual state boundaries rather than shipment departure would result in multiple and differing notifications for a single shipment which would require additional effort and possibly contribute to confusion in reporting.

### Environmental Impact Statement

In accordance with 10 CFR 51.5(d)(3), an environmental impact statement, negative declaration, or environmental impact appraisal need not be prepared in connection with this rulemaking action because the amendments are nonsubstantive and insignificant from the standpoint of environmental impact.

### Paperwork Statement

The Nuclear Regulatory Commission has submitted this rule to the Office of Management and Budget for such review as may be appropriate under the Paperwork Reduction Act, Pub. L. 96-511. The SF-83, "Request for Clearance," Supporting Statement, and other related documentation submitted to OMB have been placed in the NRC Public Document Room at 1717 H Street NW., Washington, DC 20555 for inspection and copying for a fee.

After careful consideration of the comments on the proposed rule, the Commission, for the reasons set out in the preamble and pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, Section 301 of Pub. L. 96-295 (94 Stat. 789-790), and Sections 552 and 553 of Title 5 of the United States Code, has adopted the following amendments to 10 CFR Part 71 which are published as a document subject to codification.

47 FR 34970  
Published 8/12/82  
Effective 8/12/82

### 10 CFR Part 71

#### General License for Shipment in Packages Approved for Use by Another Person

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations concerning the transportation of radioactive material. Specifically, it is

changing the recordkeeping requirements of the general license authorizing an NRC licensee to use a package that the Commission has previously evaluated and specifically authorized another licensee to use. Previously, as a condition of the general license, the general licensee was required to possess copies of all documents referred to in the Commission's specific authorization. This amendment will require the general licensee to possess only those drawings and other documents relating to the use and maintenance of the packaging and to the actions to be taken prior to shipment.

**EFFECTIVE DATE:** August 12, 1982.

**FOR FURTHER INFORMATION CONTACT:** Mr. Donovan A. Smith, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone (301) 443-5825.

**SUPPLEMENTARY INFORMATION:** On May 18, 1982, the Nuclear Regulatory Commission published in the Federal Register (47 FR 21269) a notice of proposed amendment to 10 CFR Part 71 to modify the recordkeeping requirements of the general license in § 71.12 for shipment in packages specifically approved by the Commission or by a foreign national competent authority. The amendment to § 71.12 pertains only to the documents which users of the general license must possess.

### Background

In 1970 the U.S. Atomic Energy Commission (AEC) amended its transportation regulations to provide a general license for persons shipping licensed material in packages which the Commission had previously evaluated, found to meet the standards of Part 71, and specifically authorized another licensee to use.

The general license procedure adopted in 1970 provided authority for any AEC licensee to use any package which had been specifically licensed by the AEC if the general licensee (1) had a copy of the specific licensee and related documents authorizing use of the type of package, (2) complied with the terms and conditions of the specific license, and (3) notified the AEC of the specific licensee's name and license number and the model number of the packaging.

The general license published by AEC (now in § 71.12 of the NRC regulations) has been effective in reducing paperwork; however, one of its requirements has caused questions about the documents which the general licensee must possess. As a condition of the general license, the general licensee has been required to have a copy of  
\* \* \* all documents referred to in the

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license, certificate, or other approval  
• • •

By letter dated March 10, 1980, the Foster Wheeler Energy Corporation filed a petition for rulemaking (Docket No. PRM 71-8) requesting that the Commission exempt persons licensed under 10 CFR Part 34 for industrial radiography from the requirement for the general licensee to have a copy of all the documents referred to in the specific approval.

Upon consideration of the information that would contribute to safe shipment, the Commission proposed amendment of the general license so that the general licensee would not be required to have "all" referenced documents, but would be required to have those drawings and other documents which relate to the use and maintenance of the packaging and to the actions to be taken prior to shipment.

The proposed amendment provided a period of 30 days for public comment. Eleven comments were received. The comments are general in nature and support the proposed amendment.

### The Regulation

The final rule is the same as the proposed amendment. It modifies the requirement of § 71.12(b)(1)(i) that the general licensee have all documents referred to in the Commission's specific approval of the package. As modified, the regulation requires that the general licensee have those drawings and other documents relating to use and maintenance of the packaging and to the actions to be taken prior to shipment.

The final rule also amends § 71.12(c)(1) to clarify that the requirement for users of foreign-approved packages to possess documents relating to use and maintenance and preparation of the packages for use, includes an obligation to possess pertinent drawings.

### Paperwork Reduction Act Statement

The Office of Management and Budget will be notified of the reduction of a recordkeeping requirement contained in Part 71.

### Regulatory Flexibility Certification

Since this amendment reduces a present recordkeeping requirement, the Commission, in accordance with sec. 605(b) of the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), hereby certifies that this rule will not have a significant economic impact on a substantial number of small entities. Persons using the general license in § 71.12 will be required to possess fewer documents and thus should incur a reduction of approximately 50 percent in paperwork and recordkeeping costs.

### List of Subjects in 10 CFR Part 71

**Hazardous materials—transportation, Nuclear materials, Packaging and containers, Penalty, Reporting requirements.**

Since the following amendment relieves rather than imposes restrictions under regulations currently in effect, it will become effective August 12, 1982, pursuant to 5 U.S.C. 553(d).

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment of Title 10, Chapter I, Code of Federal Regulations, Part 71, is published as a document subject to codification.

➤ 48 FR 35600

Published 8/5/83

Effective 9/6/83

Correction 8/24/83

### 10 CFR Part 71

#### Rule To Achieve Compatibility With the Transport Regulations of the International Atomic Energy Agency (IAEA)

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is revising its regulations for the transportation of radioactive material to make them compatible with those of the International Atomic Energy Agency (IAEA) and thus with those of most major nuclear nations of the world. Although several substantive changes are made to provide a more uniform degree of safety for various types of shipments, the Commission's basic standards for radioactive material packaging remain unchanged. Some deletions from the proposed rule have been made to account for changes expected in the 1984 revision of the IAEA regulations (begun since the NRC proposed rule was issued) which will bring those regulations closer to those of the United States. These regulations apply to all NRC specific licensees who place byproduct, source, or special nuclear material into transportation. The special restriction on the air transport of plutonium has been included in this revision in its final form.

**EFFECTIVE DATE:** September 6, 1983. The information collection requirements are suspended until the Office of Management and Budget (OMB) has completed its review of the information collection requirements. In order

to minimize negative impacts through the period before this rule becomes effective, during which there are some inconsistencies between the presently effective regulations of NRC and the Department of Transportation (DOT), the NRC has adopted a policy of flexibility. In practical terms, in those situations where compliance with a new DOT requirement would be in conflict with a current 10 CFR Part 71 requirement, NRC would in most cases accept compliance with the new DOT requirement. NRC would reserve judgement, however, to take enforcement action in an appropriate case.

**ADDRESSES:** Single copies of the value/impact analysis for this rule change may be obtained on request from the contact identified below. Copies of the value/impact analysis and of the Commission's analysis of public comments may be examined and copied for a fee in the Commission's Public Document Room at 1717 H Street NW., Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Donald R. Hopkins, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-443-7825.

### SUPPLEMENTARY INFORMATION

#### Background

On August 17, 1979, the Nuclear Regulatory Commission published in the Federal Register (44 FR 48234) a proposed revision of 10 CFR Part 71 of its regulations pertaining to the transportation of radioactive material. Interested persons were invited to submit written comments and suggestions on the proposal and/or the supporting value/impact analysis by October 16, 1979. The public comment period was subsequently extended to December 17, 1979. Based on the public comments and other considerations, the Commission has adopted the proposed revision, with modifications as set forth below. The regulations apply to all NRC licensees who place byproduct, source, or special nuclear material into transportation.

The revision, as proposed, in combination with a corresponding amendment of Title 49 of the Code of Federal Regulations by the Department of Transportation (DOT), would bring the U.S. regulations into accord with relevant portions of the International Atomic Energy Agency (IAEA) design and performance requirements to the extent considered feasible, thereby making U.S. regulations compatible with the domestic regulations of most of the international community.

One important change proposed was a change in the system used to specify the quantities of radioactive materials permitted in packages (designated Type A packages) not required to survive severe transportation accidents. These quantities, derived from criteria limiting

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Individual radiation exposure resulting from transportation accidents, have since 1966, been based on grouping all radionuclides in seven transport groups and limiting all radionuclides in the group according to the toxicity of the most hazardous member. There was, in addition, a "special form" category for radioactive materials which are not dispersible because of their inherent physical form or because of suitable encapsulation. This system is unnecessarily restrictive when applied to the less toxic group members, which in some cases are less than one-tenth as toxic as other group members. The proposed change would eliminate the transport groups and instead assign to each radionuclide two values,  $A_1$  and  $A_2$ , which are the maximum quantity of that radionuclide permitted in Type A packages in special form and non-special form, respectively.

The other major proposed change was to create two classifications of packages (designated Type B packages) which are resistant to transportation accidents. The two classifications are the Type B(M) package which for international shipment requires approval of the package design by the competent authority of each country into or through which the package is transported (i.e., multilateral approval) and the Type B(U) package which requires package design approval only of the country of origin (i.e., unilateral approval). Requirements for the Type B(U) package approval would be more stringent to assure that all countries affected would be satisfied with the package design as approved by the country of origin.

Other changes were proposed dealing with definitions, requirements for transporting low specific activity materials, small quantities of fissile material, and standards for leak tightness. A large number of changes were proposed to bring U.S. domestic rules as close as possible to the international standards. However, the basic systems of control remain unchanged as do the basic standards which define the required level of safety.

### Other Considerations

#### IAEA Activities

During September 1980 and March 1982, revision panels were assembled by IAEA to draft changes for the scheduled 1984 revision of its transportation regulations. Decisions made by these revision panels, consisting of representatives of most major countries involved in nuclear material transportation, would make IAEA regulations more compatible with present U.S. regulations. NRC, in consultation with DOT, has decided not to include in its final revision of 10 CFR

Part 71 those requirements introduced in the IAEA regulations in 1973 which are expected to be removed from IAEA regulations in the 1984 revision. This results in elimination of the "additional requirements for Type B(U) packages" in proposed § 71.34. The design criteria of § 71.34 (f) and (g) are deleted. All other distinctions between B(U) and B(M) packages are eliminated except those related to internal pressure limitations and pressure relief devices for B(U) packages, which are now contained in the definition of a Type B package.

The IAEA, as part of its effort to maintain the continued adequacy of the regulations, has adopted a modified system for determining  $A_1$  and  $A_2$  values. This new system will be incorporated in the 1984 revision of the IAEA regulations which is being-prepared. The system was adopted in principle by the IAEA at the March 1982, Advisory Group on the revision and it was subsequently refined by a special Work Group which met in August 1982. When the IAEA circulates the "3rd Draft" version of the regulations, DOT will be making it available and will seek public comment.

It has become apparent to NRC that the new system incorporates a radiological exposure pathway which has not been considered previously. This pathway involves consideration of the dose to the skin of a person contaminated with a radionuclide. For most radionuclides this is not a limiting pathway as other considerations in both the present and proposed systems are generally more limiting. Examples of the other more limiting considerations are radiation levels from unshielded material and internal pathways such as inhalation. For some beta-emitting nuclides, however, the contaminated skin consideration is limiting. In some cases the Type A limits calculated under the newly adopted system are significantly lower than the previously accepted  $A_2$  values and some are even lower than the earlier Transport Group values.

The NRC believes that it cannot ignore the contribution that the contaminated skin consideration makes toward a complete system for calculating Type A values. This is particularly true for radionuclides which have high  $A_2$  values under the 1973 IAEA regulations and would have considerably lower  $A_2$  values under the new IAEA system due to their potential for significant dose to contaminated skin. Of these radionuclides, some have values below the old transport group values (Case 1) and some have values between the old transport group and the 1973 IAEA values (Case 2).

The NRC believes that it is prudent to both accept this new pathway as

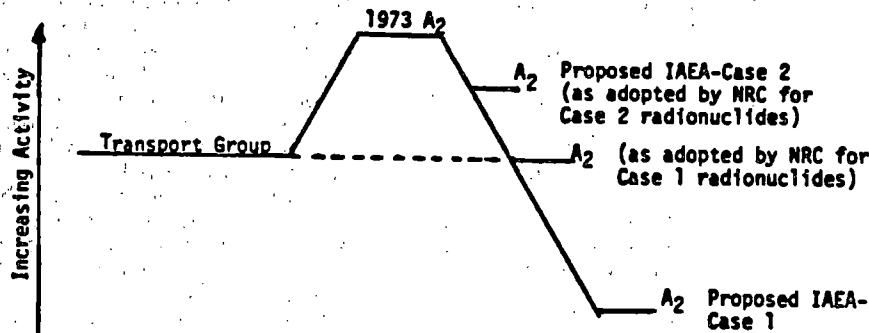
necessary to provide a complete system for setting Type A values and to minimize unnecessary fluctuations in the Type A limits. While there is some uncertainty as to the exact values which will result from the final, accepted new IAEA system, the NRC is confident that the values now available are conservative and will most probably not be lowered. Therefore, for those nuclides which are limited by the skin exposure pathway, values have been selected as follows:

Case 1: The transport group values are adopted as the new  $A_2$  values.

Case 2: The values now available are adopted in lieu of the 1973 IAEA values.

These two cases can be represented graphically as:

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The radionuclides which are affected in Case 1 are:

Ag-111	Mo-99	Sc-47
As-77	Nd-147	Si-31
Au-198	Nd-149	Sm-153
Cd-115	Os-193	Te-127m
Ce-143	Pd-109	Te-127
Dy-165	Pm-149	Te-129
Er-171	Pr-143	W-187
Gd-159	Pt-197m	Zn-69m
In-115m	Pt-197	Zn-69
	Ra-226	

The radionuclides which are affected in Case 2 are:

Au-198	Eu-155	Rh-108
Br-77	Hf-181	Ru-103
C-14	Hg-203	S-35
Ce-45	I-133	Sb-125
Ce-141	In-111	Sr-89
Cl-36	Ir-192	Tb-160
Cs-134m	K-43	Tc-99
Cs-135	Lu-177	Te-128m
Cs-137	N-13	Th-231
Cu-64	Np-239	Ti-204
Cu-67	Os-191	Tm-170
Er-160	Pm-147	W-185
Eu-152	Rb-81	Yb-175

In both cases the values adopted herein are no lower than the previously existing transport group values and yet are lower than the previously proposed 1973 IAEA  $A_2$  values. For the radionuclides listed under Case 1, the  $A_2$  is set at the old limit of 20 curies as each nuclide was previously in transport group IV which had this limit. The nuclides listed in Case 2 have been assigned the currently available values under the new IAEA system. These values are between the old transport group and the 1973 IAEA values. When the new IAEA system is fully implemented by the IAEA, and the skin exposure pathway is taken into due account, then NRC expects to complete the alignment of  $A_2$  values between the U.S. and the IAEA.

It is expected that there will be a complete revision of the IAEA criteria governing the definition and transportation of low specific activity material. In anticipation of the future IAEA changes, the proposed definitions of low-level solid radioactive material (LLS) and of low specific activity material (LSA) are withdrawn, and the definition of low specific activity material in the present rule is retained with some minor changes to make it

consistent with the new  $A_1/A_2$  system for defining Type A quantities of radioactive material. The proposed exemption from NRC regulation for LSA and LLS materials has been withdrawn pending resolution of this issue. A separate NRC rulemaking action to upgrade the LSA standards will be undertaken in the near future. .  
*United States Activities*

New guidelines have been issued by the Office of the Federal Register on the use of numbering systems for regulations, and on the use of appendices. These new guidelines, and others concerning the writing of regulations in "plain English," have resulted in large but nonsubstantive changes in the format of 10 CFR Part 71. Existing Appendices A, B, D, and E have all been incorporated as new sections in the body of the rule and large, complex sections have been divided for clarity.

Two recent NRC decisions have resulted in minor changes from the Transportation rules proposed in 1979. The definition of "radioactive material" has been deleted because it duplicated, in a less effective manner, the function of the long standing exemption in proposed § 71.8(a) (now § 71.10(a)) which avoids any regulatory requirements for radioactive material having a specific activity not greater than .002 microcuries per gram. Although this leaves NRC rules without a definition of radioactive material corresponding to those of DOT and IAEA, there is no substantive inconsistency because the exemption provisions are retained.

NRC has also decided to require reporting of package defects within 30 days of discovery to assist the staff in follow-on evaluations of approved package designs. Reporting of defects is already required by 10 CFR Part 21, "Reporting of Defects and Noncompliance," and is added to the proposed reporting requirement in § 71.61 (now § 71.95) for clarity and emphasis. The information to be reported has been moved from the 10 CFR Part 71 recordkeeping requirement of § 71.62 (now § 71.91) to the reporting

requirement in § 71.95.

## Other Rulemaking Actions Included

On November 2, 1979, the NRC published in the Federal Register (44 FR 63083) a final rule to require all shipments of radioactive material made by NRC specific licensees to be made in accordance with the regulations of DOT. The effect of the rule was to allow the NRC to inspect the activities of its licensees involved with shipment of radioactive materials against the requirements in DOT regulations. Licensees who violate the referenced DOT standards also violate NRC regulations. Those changes are incorporated in this revised rule.

On January 6, 1982, the NRC published in the Federal Register (47 FR 596) a final rule to require advance notification to the governor of any state prior to transport of certain types of nuclear waste, including spent fuel, to, through, or across the boundary of that state. That requirement has been repositioned in this revised rule for clarity, and is now codified as § 71.97 "Advance notification of shipment of nuclear waste." The associated definition of "nuclear waste" has been incorporated into § 71.97.

The preamble to the final rule imposing the advance notification requirement recognized that the term "large quantity," which establishes the level of radioactivity at which the advance notification is required, was being eliminated from the regulations. The original purpose of the term, as a designator of the quantities of radioactive materials which generate sufficient decay heat to warrant consideration of heat dissipation in the package design and approval, is antiquated, as all Type B packages are now evaluated for heat dissipation under both normal and accident conditions. In addition, the elimination of the transport group system for classifying radionuclides in favor of the  $A_1/A_2$  system has removed the basis on which the term "large quantity" was defined. This final rule retains the advance notification requirement with the same limits on reportable quantities. There have been some minor changes made to make the requirement consistent with the new  $A_1/A_2$  system for defining Type A quantities of radioactive material.

On November 13, 1981 the NRC published in the Federal Register (46 FR 55992) a proposed rule to restrict the air transport of plutonium. Under the proposed rule, plutonium could be transported by air only in a package specifically certified by NRC as air-crash resistant unless the plutonium is in a medical device for individual human use or is shipped in quantities or



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concentrations small enough to present no significant hazard to the public health and safety even if the plutonium were released in an air crash. Only one public comment was received with respect to the proposed rule, and that was favorable. The final rule, as proposed, is therefore included in this overall revision of Part 71.

The original restriction on the air transport of plutonium was imposed by NRC order dated August 15, 1975. This order was imposed after the U.S. Congress, in Pub. L. 94-79, prohibited the NRC from licensing any shipments of plutonium by air until the NRC certified to the Congress that a safe container had been developed and tested which would not rupture under crash and blast-testing equivalent to the crash and explosion of a high-flying aircraft. A second order was issued on September 1, 1978, superseding the first order dated August 15, 1975, after the first air-crash resistant package, the Model PAT-1 package, had been certified by NRC to the Congress. The second order allowed the use of the PAT-1 package for the air transport of plutonium. With the finalization of this regulatory revision and the imposition of 10 CFR Part 71.88 to implement the restriction of Pub. L. 94-79, the NRC's second order dated September 1, 1978 is being revoked by the Provisions of § 71.88. However, in addition to the NRC orders, restrictive conditions were also placed in the licenses of persons authorized to possess plutonium, restricting its air shipment. Those license conditions will be automatically removed from the licenses when the licenses are processed by NRC for renewal or amendment. Any licensee who needs that license condition removed earlier should request that action. There will be no licensing fee for removal of the condition.

On October 1, 1976, Diagnostic Isotopes Incorporated petitioned the Commission to include the radionuclide lead-201 in Appendix C of 10 CFR Part 71, as a Transport Group IV radionuclide (PRM-71-3). Lead-201 decays in a short time to thallium-201 which is useful in clinical nuclear medicine. This final revision of 10 CFR Part 71 includes lead-201 in the table of radionuclides with a Type A quantity of 20 curies, thus granting the petition.

On July 18, 1977, Eberline Instrument Corporation petitioned the Commission (PRM-70-6) to approve the air transport of calibration or reference sources which contain not more than five microcuries of plutonium and which are generally licensed pursuant to 10 CFR 70.19, "General license for calibration or reference sources." Air transportation of plutonium has been prohibited by NRC order since August 15, 1975, except when the plutonium is in a medical device for individual human use, or is in a package specifically

certified by NRC as air-crash resistant. This final revision of 10 CFR 71 at § 71.88 allows the air transport of plutonium in quantities or concentrations small enough to present no significant hazard to the public health and safety even if the plutonium were released in an air crash, thus granting the petition.

### Public Comments and Detailed Considerations

There were 29 letters of comment received on the proposed revision from industry, government, and medical sources. The most common comment noted differences among NRC, DOT, and IAEA definitions and requirements where no reasons for differences were apparent. The present Memorandum of Understanding between DOT and NRC, published on July 2, 1979 (44 FR 38890), defines the types and quantities of radioactive materials to be regulated by each agency. There are some common definitions and requirements. It is important that the two sets of regulations be consistent. It is also intended that, to the extent feasible, and aside from administrative matters, both sets be substantively in accord with IAEA regulations, Safety Series No. 6. These inconsistencies have been corrected in the final rule where possible.

Detailed consideration of all public comments is contained in a document entitled "Consideration of Public Comments—Revision of 10 CFR Part 71 for Compatibility with IAEA Regulations (44 FR 48234)." This document may be examined in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C. The following is a discussion of public comments of general interest on, and significant changes in, the proposed regulations, discussed in the order in which the requirements were proposed:

#### Section 71.4 Definitions

One commenter noted that certain isotopes of americium, curium, and californium are also fissile, but not included in the definition of "fissile material." Another commenter proposed deleting plutonium-238 from the list of fissile radionuclides because, as with fissile isotopes of americium, curium, and neptunium, it is capable only of fast fissioning. The present Part 71 classification, which is also that of the IAEA, is being retained because plutonium-238 is shipped in substantial quantities, whereas available quantities of americium, curium and neptunium are so small as to be of no concern with respect to criticality in transportation.

With respect to the definition of "Type B package", the question was asked, "Are there limits on the quantity of material that can be shipped in a single Type B package?" While there are no limits specified in the regulation

there are quantity limits specified in the package design approval. These may be the limits proposed in the application for package design approval, if adequately justified, or may be lower if necessary due to heat, criticality, shielding, or other considerations. In addition, the definition of "Type B package" has been modified to more clearly specify the sole remaining technical distinctions between B(U) and B(M) packages, having to do with the internal pressure, and pressure relief devices. The definition remains different from that of IAEA which emphasizes the unilateral or multilateral approval system for international transportation. This is an administrative distinction which will be controlled through the regulations of DOT.

The proposed definition for special form would have required all encapsulations to be contained in a sealed capsule "which can be opened only by destructive means." This phrase was intended to clarify the IAEA requirement which states that an encapsulation must be "so constructed that it can be opened only by destroying the capsule." Comments received indicated that the IAEA wording was less subject to varying interpretations and so it has been incorporated in the definition of special form. Commenters pointed out some difficulties which would result from performing cutting and welding or brazing operations in the closed environment of a glove-box or hot cell, but these objections were not quantified to any degree and are routinely performed in certain industries. It was not established by the commenters that the proposed requirement could not be met or that it would be too costly to meet the requirement.

#### Section 71.5 Transportation of licensed material

In the interest of simplicity, the references to the regulations of the U.S. Postal Service (USPS) have been removed from § 71.5. The jurisdiction of the USPS has no limitations pertinent to safety as does the DOT jurisdiction which is limited to the "transportation of hazardous materials in commerce." Anyone who uses the USPS transportation system for transportation of radioactive material is subject to the USPS regulations, the substance of which is contained in USPS Publication #6, "Radioactive Materials," dated December 1975. Single copies of that publication are available from USPS or from the contact identified in this notice. References to USPS regulations are deleted from § 71.5 but included in § 71.0(b) as a reminder that there are

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other agencies having jurisdiction over means of transport.

§ 71.5 has been revised for clarity to refer specifically to those revisions of DOT regulations which are imposed by reference. The list of provisions is not inclusive, however. A knowledge of all applicable DOT regulations is necessary.

### *Section 71.7 Exemption of Physicians (now § 71.9)*

Two comments related to the exemption of physicians in proposed § 71.7, and particularly to the idea that large quantities of radioactive material could be carried by physicians without any regulatory control. When this physician exemption was introduced into Part 71, the Notice of Proposed Rulemaking (36 FR 6521, April 6, 1971) explained that the exemption was "in line with the position taken several years ago by the Interstate Commerce Commission and now assumed by the Department of Transportation, that the DOT regulations do not apply to physicians transporting in their own vehicles radioactive material used for treatment or diagnosis." The physician exemption was added to the regulations concurrently with § 71.5 which imposed DOT regulations, by NRC (AEC at that time) authority, on persons not otherwise subject to them. The physician exemption served to avoid having NRC impose DOT regulations on physicians when DOT chose not to impose them by its own authority. The changes to the physician exemption by this rule clarify that physicians are exempt only from § 71.5, and therefore from NRC imposition of DOT requirements, but are subject to requirements of Part 71 if they transport fissile material or Type B quantities of other radioactive material. Physicians who are exempt from § 71.5 under this provision must possess an NRC license under Part 35 of this chapter.

### *Section 71.8 Exemption for low level materials (now § 71.10)*

The exemption for low specific activity material and low level solids has been removed from this section because NRC plans to retain control over Type B quantities of such material until questions regarding the adequacy of the standards have been resolved.

### *Section 71.9 Exemption for fissile material (now § 71.53)*

For clarity, the provisions describing the types of fissile material that are exempt from fissile packaging standards now precede the general requirements for all fissile material packages. In addition, a new entry dealing with irradiated natural or depleted uranium has been added.

### *Section 71.11 General license for shipment of fissile material*

The extensive provisions of § 71.11 have been divided, for clarity, into four new sections codified as §§ 71.18-71.24. The substance of the four new sections corresponds to the substance of paragraphs (a), (b), (c), and (e) of § 71.11 of the proposed rule. The substance of proposed § 71.11(d) was to provide system flexibility once an NRC fissile package approval has been issued. This type of provision is more appropriately placed in DOT regulations, and has been placed there.

### *Section 71.12 General license for shipment in approved packages (new §§ 71.12-71.16)*

The extensive provisions of § 71.12 have been divided, for clarity, into three new sections codified as §§ 71.12, 71.14, and 71.16. The substance of the three new sections corresponds to the substance of paragraphs (b), (a) and (c), respectively, of § 71.12 of the proposed rule.

One commenter noted that this section fails to grant a license to transport Type A packages and packages containing low specific activity material, and that DOT regulations also do not grant that type of license. The requirement for a license to transport radioactive material is not pervasive throughout the regulatory system. The requirement for a general or specific license is imposed by § 71.3 of NRC regulations, but that section specifically excludes from the licensing requirement persons who are "exempted in this part." Those exempted are identified in § 71.8 (now § 71.10) as including licensees who ship Type A packages. DOT regulations do not impose a licensing requirement, so no license is required by either Federal regulation for shipments exempt under § 71.8 (now § 71.10).

Another question asked concerning § 71.12 is as follows: "In the event a licensee who is not the owner of a package procures a package for another licensee to make a shipment, which licensee(s) must register as users of the package and have copies of the Certificates of Compliance and all referenced documents?" As provided in § 71.2 "Scope" (now § 71.0), the regulations in Part 71 apply " . . . if the licensee delivers such materials to a carrier for transport or transports such material outside the confines of his facility, plant or other authorized place of use." The requirements of Part 71, and thus of § 71.12, apply to a licensee who ships or transports licensed radioactive material. A licensee who procures a package but does not use it to ship or transport licensed material is not subject to the regulations of Part 71.

### *§ 71.31 Demonstration of compliance (now § 71.41)*

In response to public comments this section has been revised to clarify the intent that actual testing is not always required. The demonstration of compliance might, for example, include a combination of full-scale testing, scale model or mockup testing, calculation, and reference to other suitably documented tests. Compliance with thermal test requirements, for example, is often demonstrated by calculation or a combination of calculation and test. As another example, some packages such as those made of metal, would obviously suffer no ill effects from the water spray test, so that appropriate statements about the design might then suffice.

### *Section 71.32 Standards for all packages (now § 71.43-71.47)*

Par. (h)—The appropriateness of the reference to "NRC approved test procedures" was questioned, because no reasonable procedures have yet been published by NRC. There are some acceptable leak testing procedures in Regulatory Guide 7.4, "Leakage Tests on Packages for Shipment of Radioactive Materials," which refers to the standards published in the American National Standards Institute Publication N14.5. However, the reference to "NRC approved test procedures" was primarily to procedures the NRC has been or will be approving with quality assurance plans submitted for package approval (as required under proposed § 71.24), or with quality assurance plans submitted for approval under proposed § 71.12 to qualify for the general license provisions. The phrase "NRC approved test procedure" has been deleted from the final rule as unnecessary.

*Section 71.35. Special requirements for plutonium shipments (now § 71.63)* An objection was received on the continuance of this special requirement which is not contained in IAEA regulations. The requirement was justified when imposed in 1974; the Commission considers that the need for this requirement still exists.

A comment suggests changes to the scope of this section to include other radionuclides of similar radiotoxicity such as californium-249, californium-252, and protactinium-231, and to exclude plutonium-241 because of its relatively low radiotoxicity. While this suggestion may have merit, it will be considered in a separate rule making action since it is beyond the scope of this particular action.

A question was asked whether PuO<sub>2</sub> would be considered as a solid for the

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purpose of this requirement.  $\text{PuO}_2$  in a powder form or pressed into a pellet would be considered a solid for purposes of this requirement;  $\text{PuO}_2$  suspended in a liquid would not.

Par. (b)—It was suggested that a specific exemption be included for solid waste which contains plutonium from the requirements for solid form and double containment, or alternatively that specific criteria be included to qualify for that exemption. The establishment of detailed criteria would require further experimental work and analysis. However, the general consideration that the plutonium must be in "nonrespirable" form is discussed in the Statement of Considerations accompanying the rulemaking action requiring solid form and double containment as published in the Federal Register on June 17, 1974 (39 FR 20960). Possible exemptions must, at present, be considered on a case-by-case basis, and undoubtedly some solid waste forms would not qualify as being sufficiently nonrespirable.

### *Section 71.37 Previously approved packages (now § 71.13)*

It was suggested that an application for renewal of an existing certificate of compliance should be evaluated under the same criteria as the original application. The purpose of proposed § 71.37 was to allow the continued use of existing packages without regard to the relatively minor changes to the package standards effected by this rule. The purpose was not to prolong the existence of the old standards, not even for purposes of certificate renewal or minor design changes. Existing package approvals for the use of existing hardware will be renewed without regard to the change in package standards, although other factors, such as package experience or inspection history, may result in denial of an application for renewal of a Certificate of Compliance.

The provisions of proposed § 71.37 have been incorporated by reference into the new § 71.12 "General license: NRC approved package." The general license of § 71.12 continues to apply to previously approved packages if fabrication of the packages is completed by August 31, 1986. After August 31, 1986, previously approved packages cannot be used for international transport unless they have been reapproved under the new standards and assigned a B(U) or B(M) designation, or shipped under special arrangement approved by the DOT. Paragraph 71.31(b) has been added to clarify that only limited changes in packaging or contents will be approved for previously approved packages without a demonstration that the new package standards are satisfied.

### *Section 71.52 Assumptions as to unknown properties (now § 71.83)*

A suggestion was made that "this section should be a part of § 71.35 since it does not address a transport operation, but deals with package evaluation." On the contrary, proposed § 71.52 (now § 71.83) is intended to assure that, during the preparation of a package for shipment, a conservative approach is taken with respect to any pertinent property of fissile material to be transported when the property is not positively known. For this purpose, the Commission judges that the "Operating Controls and Procedures" Subpart to Part 71 is the proper location for the requirement. The design, evaluation, and Certificate of Compliance may cover a range of properties and quantities. For a particular shipment, however, some property or quantity may not be accurately known; in that case the most adverse credible assumption must be made for assessment of compliance.

### *Section 71.53 Preliminary determinations (now § 71.85)*

Par. (b)—Several commenters objected to the word "leak-tightness" as an acceptance standard for this overpressure test, on the grounds that it differs from the parallel IAEA requirement that imposes only a structural integrity acceptance criterion. A pressure test at some pressure higher than design pressure has been used, for example, in ASME Code practice, as a test for structural integrity but not for leak-tightness. The Commission considers that in the case of radioactive material packages, integrity of the containment (including closures, valves, and other possible routes of escape) should be demonstrated for each fabricated package before first use. Required tests for leak-tightness are presently related to the package design and are required as a condition of the package design approval.

Clarification of this requirement with respect to pressure relief devices was requested. Although a pressure relief device may need to be made inoperative to reach the test pressure of proposed § 71.53(b) (now § 71.85(b)), the device may normally be set below that test pressure for shipment, provided the criteria of Subparts E and F are satisfied.

### *Section 71.54 Routine Determinations (now § 71.87)*

Par. (b)—It was suggested that external radiation level limits (as well as other provisions) be excluded from NRC regulations in deference to the same provisions in DOT regulations. The Commission's policy in this matter is that all Type B and fissile material package requirements are to be included

in NRC regulations. External radiation level and temperature restrictions have been transferred to the "Package Standards" Subpart as design review requirements.

As suggested, the wording of the external radiation level limits has been made nearly identical to that of the DOT regulation. The limit at 2 meters from the surface also conforms to that of IAEA in that it does not apply to space above or below the vehicle. The 2-meter limit is for the purpose of controlling general public exposure for which there is little control needed above and below the vehicle. This is in contrast to the surface limits for control of exposure to persons working in and around the vehicle where the limits are applied to the upper and lower surfaces in addition to the vertical surfaces.

One commenter suggested that the external temperature limits be applied only to B(U) packages (as in IAEA regulations) but not to B(M) packages. It is the Commission's view that the higher temperature limit stated (82°C) would be applicable only to an exclusive use shipment where the carrier's handling procedures and the stowing of other cargo can be controlled by the shipper to avoid problems resulting from the higher surface temperature. All packages placed in normal transport must adhere to the lower temperature.

Par. (d)—As noted in the comments, there were no limits proposed on package coolant contamination. The Commission has adopted the IAEA rationale that contaminated coolant is part of the package contents, and must either be restricted to very low levels or retained in the package under the hypothetical accident conditions.

The level of non-fixed radioactive contamination on external surfaces of packages was limited in the proposed rule by values in Table VI. However, it was not sufficiently clear that when the wiping method is used, the limit of the radioactive contamination collected by the wiping material is not to exceed 10% of the values specified in the Table. Since the wiping method is used almost exclusively for determining non-fixed contamination levels, it is simpler to specify directly in the Table the limits on radioactive contamination as determined by the wiping method. Therefore, the levels in the Table (now Table V) are reduced by a factor of ten and these levels are specified as the limits for radioactive contamination as determined by the wiping method. Other methods of assessment of equal or greater detection efficiency may be used. For these methods, limits on radioactive contamination on the external surfaces of packages are specified. This change clarifies the meaning of the paragraph but does not

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change any regulatory requirement.

A commenter asked who must perform the preliminary and routine determinations and keep records where the shipper (licensee) of a package is not the owner (also a licensee) of the package. Ownership of a package is not important in satisfying Part 71 requirements. The scope of the rule applies the requirements to a person who is already licensed under any other part of 10 CFR Chapter I, but only if that licensee delivers licensed materials to a carrier for transport or if the licensee transports licensed material. A person who merely owns a package is not subject to the requirements of Part 71. On the other hand, a user of the package would be subject to the Part 71 requirements for preliminary and routine determinations and record keeping requirements, even though the user may not own the package. The user of the package always has the regulatory responsibility for preliminary and routine determinations. However, the user can contract with some other person, perhaps the owner, to satisfy those requirements for the user, although the user's records must demonstrate that the requirements have been satisfied.

It was noted that the choice of materials for packaging is dependent upon the low temperature initial condition for the normal transportation tests with respect to brittle fracture. The same commenter requested explicitly stated criteria on materials of construction to eliminate the present degree of subjective judgment. With this rule change, the Commission believes that the performance criteria for materials of construction that relate to brittle fracture are reasonably clear with a combination of temperature and drop tests, puncture, and vibration mechanical tests. Design guidance for brittle fracture is being developed within NRC and will be contained in a future regulatory guide.

### *Appendix A—Normal Conditions of Transport (now § 71.71)*

**Heat**—As discussed in the Notice of Proposed Rulemaking, the proposed ambient air temperature of 54° C (130° F), to which the effects of solar radiation must be added as an extreme condition of normal transport, differs from the IAEA figure of 38° C (100° F) to which the effects of solar radiation must be added. These final requirements of Part 71 have been modified to adopt the IAEA standard of 38° C plus specified solar radiation. This decision takes into account that Type B packages do not respond quickly to temperature changes, so a long-term average temperature test is more appropriate than a test which includes temperature extremes.

**Cold**—A commenter argued that the IAEA regulations are being misinterpreted when the NRC applies a temperature of -40° C as a normal transport temperature extreme. IAEA regulations state that "-40° C and 70° C shall be considered as satisfactory limits to be used in the selection of the materials." The Commission has chosen to use the lower temperature extreme as an ambient temperature not to be considered in combination with any impact. As such the lower temperature extreme provides protection against damage from differential thermal expansion and other static types of damage. Protection against dynamic types of damage is provided by the -29° C temperature, specified as an initial condition for the tests, in combination with mechanical impacts characteristic of rough handling in normal transport.

### *Appendix C—Determination of A<sub>1</sub> and A<sub>2</sub> (now Appendix A)*

Commenters pointed out that the new, lower A<sub>1</sub> value for sealed sources (special form) of americium and plutonium used in neutron sources and in nuclear-powered heart pacemakers involves significant costs without any apparent benefits. For the uses in question, the present 20 curie limit for Type A packages satisfies the international standard of not exceeding a dose rate level of 1000 millirem per hour at 3 meters from the source if all radiation shielding were lost. The proposed reduction in Type A package limits comes from an additional, arbitrary IAEA limit of a factor of 1000 on the difference in allowed radioactive contents between special form and non-special form sources. Because of the high radiotoxicity of most plutonium and americium isotopes, which severely restrict the A<sub>2</sub> (non-special form) values, the A<sub>1</sub> (special form) values in IAEA regulations are reduced to 3 curies for plutonium-238, 2 curies for plutonium-239, and 8 curies for americium-241. Because of the economic impact for neutron sources (oil well-logging industry) and heart pacemakers (health industry), the reduced limits proposed have been reevaluated, with the conclusion that the criteria are sufficiently conservative without the arbitrary limit to warrant retaining the 20-curie limits for domestic shipment in these cases. An exception has thus been introduced into § 71.10, "Exemption for low-level materials," retaining the 20-curie limit for domestic transport of americium and plutonium in special form.

A commenter questioned the A<sub>1</sub> values in Table A-1 for the radionuclides cesium-137 and strontium-90 as the values are related to those which would be obtained under the

Appendix instructions. In each case, the radionuclides are part of a decay chain, and the commenter, in calculating A<sub>1</sub> values, has ignored the radiation emitted by the daughter radionuclides of the decay chain. When the radiation emitted by the daughter radionuclides is considered, there is no discrepancy. The instructions in Appendix A, Section II, "mixture of radionuclides, including radioactive decay chains," have been modified to clarify this matter.

### *Comparison With Current Regulations*

Set forth below is a cross-index of sections contained in this final revision of Part 71, the previous effective regulation, and IAEA Safety Series No. 6, "Regulations for the Safe Transport of Radioactive Materials—1973 Revised Edition (As Amended)," dated 1979.

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<sup>1</sup> Reference is to the provisions of Department of Transportation regulations in 49 CFR Part 173.

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## Administrative Requirements

The Commission has determined that neither the Council on Environmental Quality guidelines, 40 CFR Part 1500, nor the NRC regulations in 10 CFR Part 51, "Licensing and Regulatory Policy and Procedures for Environmental Protection," requires the NRC to prepare an environmental impact statement for this revision of 10 CFR Part 71. Concurrently with the publication of this notice of rulemaking, the Commission is making available in its Public Document

Room at 1717 H Street, NW., Washington, DC, an "Environmental Impact Appraisal of Changes to Radioactive Material Transport Regulations," to support the negative Declaration required by 10 CFR Part 51.

## Paperwork Reduction Act Statement

The information collection requirements in this final rule were not reviewed by the Office of Management and Budget at the proposed rule stage because the proposed rule was published prior to April 1, 1981, when

the Paperwork Reduction Act became effective. Therefore, the Nuclear Regulatory Commission is submitting this final rule to the Office of Management and Budget for any review appropriate under the Act (44 U.S.C. 3501 et seq.). The effective date for the information collection requirements in this rule provides the 60 days required for OMB review.

## List of Subjects in 10 CFR Part 71

Hazardous materials—transportation, Nuclear materials, Packaging and containers, Penalty, Reporting and

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### recordkeeping requirements.

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 following revision in its entirety of 10 CFR Part 71 is published as a document subject to codification.

notice contained a number of typographical errors which are corrected below. In addition, Table A-1 is reprinted in a larger format for reader convenience.

**FOR FURTHER INFORMATION CONTACT:** Donald R. Hopkins, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-443-7878.

#### **SUPPLEMENTARY INFORMATION:**

Corrections are made to the following pages:

1. On page 35601, column three, in the second complete paragraph, line 15, "betaemitting" is corrected to read "beta-emitting".
2. On page 35602, column one, the fourth item in the third column of the table under the sentence which begins, "The radionuclides which are affected in Case 1 are:" "Te-127M" is corrected to read "Te-127m".
3. On page 35602, column one, the 11th item in the first column of the table under the sentence which begins, "The radionuclides which are affected in Case 2 are:" "Cu67" is corrected to read "Cu-67".
4. On page 35603 in column two, just above the center heading "Public Comments and Detailed Considerations" insert this paragraph:  
On October 1, 1976, Diagnostic Isotopes Incorporated petitioned the Commission to include the radionuclide lead-201 in Appendix C of 10 CFR Part 71, as a Transport Group IV radionuclide. Lead-201 decays in a short time to thallium-201 which is useful in clinical nuclear medicine. This final revision of 10 CFR Part 71 includes lead-201 in the table of radionuclides with a Type A quantity of 20 curies, thus granting the petition.
5. On page 35604, column one, line

three, "radiocative" is corrected to read "radioactive".

6. On page 35604, column three, in line five, "\$ 710" is corrected to read "\$ 71.0".

7. On page 35606, column one, in the first complete paragraph, line 19, "radioactive" is corrected to read "radioactive".

8. On page 35606, column three, in the first complete paragraph, line four, delete the "=" which precedes the number 90.

#### **PART 71—[CORRECTED]**

9. On page 35608, column one, Subpart H-Quality Assurance, eighth entry which reads "71.115 Control of purchased material equipment, and services." is corrected to read "71.115 Control of purchased material, equipment, and services."

#### **§ 71.0 [Corrected]**

10. On page 35608, in § 71.0, line two, "Requirements" should be corrected to read "requirements".

#### **§ 71.4 [Corrected]**

11. On page 35609, column two, in line eight of paragraph (5), "disintegrations" is corrected to read "disintegrations".

#### **§ 71.12 [Corrected]**

12. On page 35610, in § 71.12(e), a period is added to the end of the sentence.

#### **§ 71.16 [Corrected]**

13. On page 35611, in § 71.16(c)(2), line 7, "license" is corrected to read "licensee".

#### **§ 71.18 [Corrected]**

14. On page 35611, in § 71.18(c), delete the word "the" in line five, and the formula should be corrected to read as follows:

$$\text{Minimum Transport Index} = (0.40 + 0.67y + z) \left(1 - \frac{15}{x + y + z}\right).$$

#### **§ 71.20 [Corrected]**

15. On page 35612, in § 71.20(b)(6), Table I should appear in paragraph (i) and Table II should appear in paragraph (ii).

#### **§ 71.24 [Corrected]**

16. On page 35612, in § 71.24(b)(6), Table III should appear in paragraph (i) and Table IV should appear in paragraph (ii).

#### **§ 71.31 [Corrected]**

17. On page 35613, in § 71.31(a)(3), the word "descriptions" is corrected to read "description".

18. On page 35613, column one, Table

III, the final item in the second column, headed "Permissible maximum grams of uranium-235 per consignment" is corrected to read "15,000".

#### **§ 71.33 [Corrected]**

19. On page 35613, in § 71.33(a)(6), the final word is to read "coolant."

#### **§ 71.45 [Corrected]**

20. On page 35614, in § 71.45(b)(2), line two, the word "tie-down" should not be hyphenated.

#### **§ 71.75 [Corrected]**

21. On page 35617, in § 71.75(b), line three, "beding" is corrected to read "bending".

48 FR 38449

Published 8/24/83

### 10 CFR Part 71

#### **Rule To Achieve Compatibility With the Transport Regulations of the International Atomic Energy Agency (IAEA)**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; correction.

**SUMMARY:** In a Federal Register document published on August 5, 1983 (48 FR 35600), the U.S. Nuclear Regulatory Commission (NRC) revised its regulations for the transportation of radioactive material to make them compatible with those of the International Atomic Energy Agency (IAEA) and thus with those of most major nuclear nations of the world. This



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22. On page 35617, in § 71.75(d), line eight, "grater" is corrected to read "greater".

23. On page 35617, in § 71.75(d), line 11, the expression " $(1.3 \times 10^{-3} \text{ atm cm}^3/\text{s})$ " is corrected to read " $(13.3 \times 10^{-4} \text{ atm cm}^3/\text{s})$ ".

24. On page 35617, in § 71.75(d), line 14, the expression " $10^{-6}$ " is corrected to read " $10^{-8}$ ".

### § 71.77 [Corrected]

25. On page 35617, in § 71.77(c), line 12, the word "force" is corrected to read "face".

### § 71.87 [Corrected]

26. On page 35618, in § 71.87(i)(1), line 11, the word "and" is corrected to read "on".

### § 71.107 [Corrected]

27. On page 35621, in § 71.107(b), line two, the word "indentification" is corrected to read "identification".

### Appendix A—[Corrected]

28. On page 35623, in Appendix A.I.(1), line five, the word "radionculides" is corrected to read "radionuclides".

29. On page 35623, in Appendix A.II.(5), line five, the word "radionculides" is corrected to read "radionuclides".

30. On page 35623, in column one of TABLE A-1, lines 8, 9, and 10, the footnote indicator "1" is corrected to read "".

31. On page 35625, in column one of TABLE A-1, lines 10, 11, 12, 13, 14, and 15, the footnote indicator "1" is corrected to read "".

32. On page 35626, in column one of Table A-1, lines 17, 18, 67, 68, 69, 70, 71, 72, 73, and 74, the footnote indicator "1" is corrected to read "". On line 45 the footnote indicator "2" is corrected to read "\*\*\*\*". On line 82 the footnote indicator "3" is corrected to read "\*\*\*\*\*".

33. On page 35625, in columns three and four, lines 71, 72, 74, and 76, the entry is corrected to read, "Unlimited".

34. On page 35626, columns three and four, lines 4, 42, 44, 58, 59, and 61 the entry is corrected to read "Unlimited".

35. On page 35626, column five, line four, " $20 \times 10^{-8}$ " is corrected to read " $2.0 \times 10^{-8}$ ".

36. On page 35626, column five, line 44, " $2.2 \times 10^7$ " is corrected to read " $2.2 \times 10^{-7}$ ".

37. On page 35626, column five, on lines 59 and 61 the entry is corrected to read (SEE TABLE A-4).

38. On page 35626 line 60 is corrected to read:

U (enriched)	Unlimited	Unlimited	(See table A-4)
< 20%	100	0.1	(See table A-4)
20% or greater			

39. On page 35627, lines one, two, and four, footnote indicators "1", "2", "3", are corrected to read, "\*\*\*\*", "\*\*\*\*\*".

40. On page 35627, lines six, seven, eight, and nine, delete footnotes "4 Unlimited"

"5 Unlimited 100"

"6 Unlimited 0.1"

"7 See Table A-4".

41 On page 35627, Table A-2, in the first column "> 2.0" is corrected to read "> 2.0".

42. On page 35627, "TABLE A-" is corrected to read "TABLE A-3".

43. On page 35627, in TABLE A-4, in the heading of first column, "wt %  $^{235}\text{U}$  present" is deleted from first line and second line is corrected to read, "wt %  $^{235}\text{U}$  present".

44. On page 35627, in TABLE A-4, column 2, line 13 " $2.2 \times 10^{-7}$ " is corrected to read " $2.2 \times 10^{-1}$ ".

Dated at Bethesda, MD this 17th day of August, 1983.

For the Nuclear Regulatory Commission.

Victor Stello, Jr.,

Acting Executive Director for Operations.

### ➤ 48 FR 45381

Published 10/5/83

Effective 9/6/83

### 10 CFR Part 71

#### Rule To Achieve Compatibility With the Transport Regulations of the International Atomic Energy Agency (IAEA)

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; grant of petitions, correction, partial suspension of effective date.

**SUMMARY:** In a Federal Register document published on August 5, 1983 (48 FR 35000), the U.S. Nuclear Regulatory Commission (NRC) revised its regulations for the transportation of radioactive material to make them compatible with those of the International Atomic Energy Agency

(IAEA) and thus with those of most major nuclear nations of the world. This notice and a subsequent correction notice that was published on August 24, 1983 (48 FR 38449), contained a number of typographical errors, the remainder of which are corrected below. In addition, two petitions for rulemaking, PRM-70-8 and PRM-71-3, are granted.

**EFFECTIVE DATE:** September 6, 1983. The information collection requirements in §§ 71.5, 71.7, 71.12(c)(3), 71.31, 71.33, 71.35, 71.37, 71.38, 71.81(c), 71.85(c), 71.87 (e) and (f), 71.89, 71.91, 71.93(c), 71.95, 71.97, and 71.101-71.137 are suspended until the Office of Management and Budget (OMB) has completed its review of the information collection requirements. In order to minimize negative impacts through the period before this rule becomes effective, during which there are some inconsistencies between the presently effective regulations of NRC and the Department of Transportation (DOT), the NRC has adopted a policy of flexibility. In practical terms, in those situations where compliance with a new DOT requirement would be in conflict with a current 10 CFR Part 71 requirement, NRC would in most cases accept compliance with the new DOT requirement. NRC would reserve judgment, however, to take enforcement action in an appropriate case.

#### FOR FURTHER INFORMATION CONTACT:

Donald R. Hopkins, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone: 301-443-7878.

#### SUPPLEMENTARY INFORMATION:

Corrections are made to the following pages:

1. On page 35603, as corrected by a document appearing at 48 FR 38449, in column two, just above the first paragraph which begins "On October 1, 1976," insert this paragraph:

On July 18, 1977, Eberline Instrument Corporation petitioned the Commission (PRM-70-8) to approve the air transport of calibration or reference sources which contain not more than five microcuries of plutonium and which are generally licensed pursuant to 10 CFR 70.19, "General license for calibration or reference sources." Air transportation of plutonium has been prohibited by NRC order since August 15, 1975, except when the plutonium is in a medical device for individual human use, or is in a package specifically certified by NRC as air-crash resistant. This final revision of 10 CFR Part 71 at § 71.88 allows the air transport of plutonium in quantities or concentrations small enough to present no significant hazard to the

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public health and safety even if the plutonium were released in an air crash, thus granting the petition.

2. On page 35603, as corrected by a document appearing at 48 FR 38449, in column two, line five of the paragraph which begins "On October 1, 1976," is corrected to read as follows:

"71, as a Transport Group IV radionuclide (PRM-71-3). Lead-201 decays in a short".

3. On page 35607, the Paperwork Reduction Act Statement at the top of column three is corrected to read as follows:

## Paperwork Reduction Act Statement

The information collection requirements in this final rule were not reviewed by the Office of Management and Budget (OMB) at the proposed rule stage because the proposed rule was published prior to April 1, 1981, when the Paperwork Reduction Act became effective. Therefore, the Nuclear Regulatory Commission is submitting this final rule to OMB for any review appropriate under the Act (44 U.S.C. 3501 et seq.). The effective date for the information collection requirements in

this rule provides the 60 days required for OMB review.

4. On page 35611, in § 71.18(c), the formula is corrected to read as follows:

$$\text{Minimum Transport Index} = \frac{15}{(0.40x + 0.67y + z)(1 - x + y + z)}.$$

5. On page 35617, in § 71.75(d), line 11, the expression " $(1.3 \times 10^{-3} \text{ atm cm}^{-3} \text{ s})$ " is corrected to read " $(1.3 \times 10^{-4} \text{ atm cm}^3/\text{s})$ ".

6. On page 35626, line 60 is corrected to read:

Symbol of radionuclide	Element and atomic number	A <sub>1</sub> (Ci)	A <sub>2</sub> (Ci)	Specific activity (Ci/g)
u (enriched):	*	*	*	*
< 20 percent	*	Unlimited	Unlimited	(See table A-4).
20 percent or greater	*	100	0.1	(See table A-4).

7. On page 35627, Table A-2, in the first column ">2.0" is corrected to read ">2.0".

8. Sections 71.5, 71.7, 71.12(c)(3), 71.31, 71.33, 71.35, 71.37, 71.39, 71.81(c), 71.85(c), 71.87 (e) and (f), 71.89, 71.91, 71.93(c), 71.95, 71.97, and 71.101-71.137 are suspended.

Dated at Washington, D.C., this 27th day of September 1983.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary of the Commission.

➤ 48 FR 51903  
Published 11/15/83  
Effective 11/14/83

## 10 CFR Part 71

### Rule to Achieve Compatibility With the Transport Regulations of the International Atomic Energy Agency (IAEA)

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; correction; revocation of suspension.

**SUMMARY:** In a Federal Register document published on August 5, 1983 (48 FR 35600), the U.S. Nuclear Regulatory Commission (NRC) revised its regulations for the transportation of radioactive material to make them compatible with those of the International Atomic Energy Agency (IAEA) and thus with those of most major nuclear nations of the world. That notice and two subsequent correction notices were published on August 24, 1983 (48 FR 38449) and October 5, 1983

(48 FR 45381). The second correction notice also suspended the effective date of all sections in Part 71 that contained information collection requirements. This document corrects the remaining typographical errors and revokes the suspension.

**EFFECTIVE DATE:** November 14, 1983.  
**FOR FURTHER INFORMATION CONTACT:** Donald R. Hopkins, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-443-7878.

**SUPPLEMENTARY INFORMATION:** Corrections are made to the following pages:

1. On page 35607, the Paperwork Reduction Act Statement at the top of column three is revised to read as follows:

## 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 on November 2, 1983: approval number 3150-0008.

2. On page 35611, in § 71.18(c), the formula is corrected to read as follows:

$$\text{Minimum Transport Index} = (0.40x + 0.67y + z) \left(1 - \frac{15}{x + y + z}\right)$$

3. On page 35617, in § 71.75(d), line 11, the expression " $(1.3 \times 10^{-3} \text{ atm cm}^3/\text{s})$ " is corrected to read " $(1.3 \times 10^{-4} \text{ atm cm}^3/\text{s})$ ".

4. On page 35627, Table A-2, in the first column ">2.0" is corrected to read ">2.0".

5. The suspension of §§ 71.5, 71.7, 71.12(c)(3), 71.31, 71.33, 71.35, 71.37, 71.39, 71.85(c), 71.87 (e) and (f), 71.89, 71.91, 71.93(c), 71.95, 71.97, 71.101-71.137 is revoked.

Dated at Washington, DC, this 7th day of November, 1983.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary of the Commission.

## PART 71 • STATEMENTS OF CONSIDERATION

➤ 49 FR 19623  
Published 5/9/84  
Effective 5/9/84

*Information Collection Requirements;  
Display of OMB Control Numbers*

See Part 0 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION  
RULES and REGULATIONS

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

**PART  
72**

**LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL  
IN AN INDEPENDENT FUEL SPENT STORAGE INSTALLATION**

**STATEMENTS OF CONSIDERATION**

45 FR 74693

Published 11/12/80

Effective 11/28/80

**Licensing Requirements for the  
Storage of Spent Fuel in an  
Independent Fuel Spent Storage  
Installation**

**AGENCY:** U.S. Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is adding a new Part to its regulations to cover the specific licensing requirements for the storage of spent fuel in an independent spent fuel storage installation (ISFSI). Such activities are currently licensed under the Commission's general regulation for the Domestic Licensing of Special Nuclear Material, 10 CFR Part 70. Experience with licensing actions under this regulation demonstrated the need for a more definitive regulation to cover spent fuel storage in an ISFSI. This new Part was developed to meet this need.

**DATES:** Effective date: November 28, 1980.

**Note.**—The NRC did not submit this rule to the Comptroller General for a review of its reporting and recordkeeping requirements because the projected number of licensees involved, fewer than 10, makes it exempt from the Federal Reports Act, as amended, 44 USC 3512.

**FOR FURTHER INFORMATION CONTACT:**

Dennis W. Reisenweaver, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 443-5910.

**SUPPLEMENTARY INFORMATION:** On October 6, 1978, the NRC published in the *Federal Register* (43 FR 46309) a notice of proposed rulemaking covering the storage of spent fuel in an independent spent fuel storage installation (ISFSI). In addition, copies of the proposed rule with a request for comments were sent to individuals, organizations, and government agencies thought to be potentially interested in this subject.

Seventy letters, containing more than 600 individual comments, were received in response to this request. Individual letters were submitted on behalf of several contributors. In addition,

comments were received from interested NRC staff members. The comments covered generic subjects in addition to ones addressed to specific sections of the draft rule. After a careful consideration of all of the comments received, the Commission has adopted 10 CFR Part 72 in effective form. Major issues contained in these comments and resulting changes in the rule are discussed below. The detailed responses to individual comments are documented in NUREG-0587, "Analyses of Comments on 10 CFR Part 72." Copies of this report are available from the Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

**Issues Addressed in Public Comments**

1. *Need for a Rule at This Time.* Fifty commenters showed a broad recognition of the need for the proposed rule at this time and endorsed this action by the NRC, although exceptions were taken to some of the specific requirements. Twelve commenters were opposed to this rule and its promulgation at this time. For example, some of these commenters expressed a concern that the promulgation of a rule covering spent fuel storage would decrease pressures on both industry and government to solve the radioactive waste problem. Others advocated a halt to the generation of spent fuel, i.e., shut down nuclear power plants until the waste problem is solved.

Following the President's deferral of reprocessing of spent fuel in April 1977 came the general recognition that, regardless of future developments, spent fuel would have to be stored for a number of years prior to its ultimate disposition, and that the storage of spent fuel in an ISFSI would be a likely additional new step in the nuclear fuel cycle. The NRC expects a number of license applications covering this activity in the near future. Part 72 establishes specific regulatory requirements for this activity.

It is the judgment of the Commission that the promulgation of Part 72, which is designed to codify certain existing regulatory practices and better define licensing requirements covering the

storage of spent fuel in an ISFSI, is consistent with the NRC objective of having applicable regulations in place to meet anticipated needs.

2. *Purpose and Scope of Part 72.* In the opinion of those commenters who consider spent fuel to be a high-level waste, the licensing of spent fuel storage is the de facto licensing of the temporary storage of high-level wastes. Others commented that Part 72 could be expanded to cover the temporary storage of high-level wastes in a facility like an ISFSI to allow further radioactive decay prior to placement in a repository.

Part 72 is limited in scope to the temporary storage (up to 20 years with renewal at the option of the Commission) of spent fuel (and radioactive materials associated with spent fuel storage) in facilities designed specifically for this purpose. The purpose of Part 72 is to prescribe the regulatory requirements for this activity.

The Commission has stated that spent fuel from power reactors is high-level waste for the purposes of Section 202(3) of the Energy Reorganization Act.<sup>1</sup> Thus an ISFSI that is operated by the Department of Energy must be licensed by NRC.

3. *De Facto Support of Nuclear Power.*

Some commenters interpreted the promulgation of Part 72 as de facto support by the Commission of the continuing production of electricity by nuclear power (and its resultant waste generation) without a national waste management policy. The Commission's intent in promulgating Part 72 is simply to have applicable regulations in place for the protection of the health and safety of the public and of the environment if applications are received for the storage of spent fuel in an ISFSI. The Commission's position on the subject of waste management was addressed in the *Federal Register* notice on 10 CFR Part 51, published on August 2, 1979 (44 FR 45362) promulgating a final rule which sets out in Table S-3, Table of Uranium Fuel Cycle Environmental Data, revised environmental impact values for the

<sup>1</sup> Statement of Dr. Joseph R. Hendrie, then Chairman of the U.S. Nuclear Regulatory Commission before the Committee on Energy and Natural Resources, U.S. Senate, May 10, 1979.

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uranium fuel cycle including waste disposal and the notice of proposed rulemaking on 10 CFR Parts 50 and 51, "Storage and Disposal of Nuclear Wastes," published on October 25, 1979 (44 FR 61372).

4. *Adequacy of Technology Base.* A number of commenters questioned the adequacy and availability of the technology base for the development of a rule covering extended spent fuel storage. In fact, there is a very broad technology base for both wet and dry modes of spent fuel storage for the contemplated lifetime of an ISFSI.

Water basins are simple structures that have been used since the mid-1940s for the handling, transfer and storage of spent fuel and other highly radioactive sources such as  $^{60}\text{Co}$  and for the shielding of research reactors, initially at government plants and later at commercial reactors. The engineering practices and procedures involved in their design and construction are well established. The operation of a water basin is also straightforward, the water chemistry is well established, and the maintenance of high quality basin water is readily achievable. These water conditions are essentially non-corrosive to both the materials involved in the basin itself and the components of spent fuel assemblies from commercial light water reactors. Both experience and theoretical analyses of basin storage conditions indicate that spent fuel can be stored underwater for several decades without serious degradation.

Although dry storage has not been used for commercial light water reactor (LWR) fuels, dry storage has been used for a number of years for other types of spent fuels and other highly radioactive materials, particularly at the Idaho Nuclear Engineering Laboratory. Dry storage is used for spent MAGNOX fuels at the Wylfa Power Station in Wales. Canada is developing dry storage for CANDU reactor fuels, and the U.S. Department of Energy (DOE) is evaluating the storage of high burnup LWR fuels both in concrete and steel canisters similar to the Canadian design and in near-surface dry well storage at the Nevada Test Site.

5. *Is Spent Fuel Storage a Low Risk Operation?* Some commenters questioned whether the extended storage of spent fuel is a low risk operation as stated in the preamble to the proposed rule.

Radiological risks to the public result from a release of radioactive materials and their dispersal to the environment. Once in place, spent fuel storage is a static operation and during normal 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 or 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.

However, it is essential to maintain safe storage conditions. For water basins, this means that the pool structure, storage racks and possibly other items such as crane tiedowns, must be designed to withstand the maximum potential natural phenomena, including earthquakes, to which the ISFSI may be exposed. For this reason, the rule stresses the selection of sound sites and designing for the most severe natural phenomena reported for the site and surrounding area. The same considerations are applicable to ISFSI designs other than water basins.

6. *Coverage of Dry Storage and Existing Facilities.* A number of commenters suggested that the purpose and scope be written in more definitive language and specifically to cover dry storage and other radioactive materials associated with spent fuel, recognizing that this was intended in the proposed rule. The wording was changed for improved clarity in response to these suggestions. In addition, paragraph 72.2(c) was added to the scope to clarify the fact that this rule covers both wet and dry storage. Other appropriate changes were made in the body of the rule to further clarify this point.

7. *Types of Fuel Covered and Decay versus Fuel Characteristics.* Comments were received suggesting that the rule be broadened to cover other than LWR spent fuel, e.g., CANDU reactor fuel that might be received from abroad. In response, the definition of spent fuel was broadened to cover all types of power reactor fuels. An ISFSI would have to be designed to accommodate the types of spent fuel to be stored, and any restrictions on fuel types would be a subject of license conditions.

Some commenters questioned the one-year decay stipulation, preferring that this requirement be expressed in terms of specific power, burnup, or other pertinent fuel characteristics. In practice, specific power is important only for freshly discharged fuel as the power level prior to shutdown is the controlling factor for the concentration of short-lived radionuclides present in spent fuel. The long-lived radionuclides

present in spent fuel are proportional to burnup; but within the limits of expected burnups, this is not a significant factor for spent fuel aged more than one year.

The one-year decay stipulation has been retained as this is a basis for the requirements of Part 72, i.e., the presumption is made that no short-lived radionuclides are present and the levels of volatile radioactive materials are very substantially reduced.

Inasmuch as the definition of spent fuel eligible for storage in an ISFSI [Section 72.3(v)] specifies that the fuel must have undergone at least a year's decay since its irradiation in a power reactor, any facility for temporary storage of fuel irradiated in a power reactor which has not undergone a year's decay would be licensed under Part 50 rather than Part 72.

8. *Definition of Temporary Storage.* In response to comments, a definition of temporary storage has been added as paragraph 72.3(x). Temporary storage, in the context of Part 72, means "interim storage of spent fuel for a limited time only, pending its ultimate disposal."

9. *Material Versus Facility License.* Some confusion and misunderstanding over the differences between a Part 70 "material" license and a Part 50 "facility" license was reflected by a number of commenters. Under Part 70, a licensee is authorized to receive title to, own, acquire, deliver, receive, possess, use, and transfer special nuclear material for a stated purpose, such as fuel manufacturing, to be carried out in an approved plant complex; however, the plant itself is not licensed but its operation is regulated. Under Part 50, a licensee is authorized to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess or use a production or utilization facility, as defined by the Atomic Energy Act; the license covers the facility, not the material. The possession of fuel by a reactor licensee is covered under a Part 70 license, which is incorporated into the Part 50 license. The licensing of spent fuel storage in an ISFSI under Part 72 is a material type of license; however, Part 72 includes requirements for an ISFSI that are conditions under which a license to possess spent fuel will be issued.

10. *One License Application and One Safety Analysis Report.* For some time the NRC has endeavored to simplify its regulations and licensing activities. As spent fuel storage in an ISFSI is a simple operation, does not require a complex plant and is subject to few controversial technical issues, a one step licensing procedure requiring only one application and one SAR was adopted in Part 72. This one step licensing procedure was

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the subject of a number of comments. It is believed that the rewording of the text of the rule plus the discussions of individual comments in NUREG-0587 have clarified requirements and the one application and one SAR requirement has been retained in Part 72. However, it should be recognized that locating an ISFSI on a nuclear power plant site may require an amendment to the Part 50 license to take into account possible interactions with the ISFSI.

Section 2.764 of 10 CFR Part 2 has been amended by adding a new paragraph (c) which provides that an initial decision directing the issuance under 10 CFR Part 72 of an initial license for the construction and operation of an independent spent fuel storage installation (ISFSI) shall not become effective until review by the Commission has been completed and that the Director of Nuclear Material Safety and Safeguards shall not issue such an initial license until expressly authorized to do so by the Commission. This amendment does not affect and is not intended to alter in any way the previous action of the Commission temporarily suspending the immediate effectiveness rule (10 CFR 2.764 (a) and (b)) in certain proceedings as provided in Appendix B to Part 2 (44 FR 65049 November 9, 1979.)

11. *Accident Analyses.* A number of comments addressed the subject of accident analyses, particularly an apparent inconsistency between the 24-hour inhalation/ingestion dose addressed in paragraph 72.15(a)(13) and the 2-hour direct radiation dose used as a site evaluation factor in § 72.67.

In response to those comments and upon further consideration, paragraph 72.15(a)(13) was revised to require accident analyses to cover both immediate dose and long-term dose commitment based on the duration of the postulated event rather than on an arbitrary time limit. Accident criteria to be used in site evaluation were removed from §§ 72.65 and 72.67 and placed in a new § 72.68 which addresses the criteria for establishing the controlled area for an ISFSI.

12. *Decommissioning Plan.* The requirement in Part 72 that the license application include a plan for decommissioning of the proposed ISFSI and the financial arrangements therefore were the subject of many comments. The reason for this requirement is that the decommissioning plan provides design input (see § 72.76) and the basis for the costs of decommissioning. Part 72 makes it a requirement that adequate financial arrangements to cover the cost of

decommissioning should be made before a license is issued.

Although decommissioning of an ISFSI should require only the removal of surface contamination, planning for decontamination and decommissioning is an essential element of design input. The value of a decommissioning plan being developed at the license application stage is that this plan demonstrates the extent to which the proposed ISFSI has been designed for decommissioning.

The provisions for financing the ultimate decommissioning of an ISFSI were also the subject of many comments reflecting that this is a problem yet to be resolved. This should not be a serious problem as the cost of decommissioning an ISFSI that is designed for decommissioning should be small compared to these costs for some other nuclear facilities.

13. *Prequalification of Part 50 Licensees.* Some commenters, particularly utilities, suggested that Part 50 licensees should be considered to be prequalified. This suggestion was not adopted, although no serious difficulty is anticipated in the qualification of a Part 50 licensee. A Part 50 licensee must satisfy the requirement in Part 72 that an applicant have an adequately trained staff committed to the design, construction and operation of the proposed ISFSI. The storage of spent fuel in an ISFSI is a low risk operation provided the ISFSI is designed, constructed and operated in accordance with required standards. A commitment to this effect on the part of an applicant is considered important.

14. *Required Detail and Updating of the SAR.* Questions were raised on the required detail in the SAR and its updating. The single license granted under Part 72 prior to the start of construction requires considerable detail in the license application, particularly in the SAR. There must be sufficient detail to: (1) Support the findings enumerated in § 72.31 for the issuance of a license, and

(2) Serve as the bases for both the license conditions applicable to design and construction and the license conditions, including technical specifications, applicable to operations.

The wording has been changed throughout the rule to clarify this point.

Updating the SAR during the design and construction phase of the project is required. However, such updating is limited to an elaboration or modification of the information in an approved SAR. Any changes involving an unreviewed safety question require an amendment to the license. An annual updating of the SAR after the ISFSI is built is required

even if no changes have been made. The annual updating will also address the significance of any changes to codes, standards, regulations, or regulatory guides which the licensee has committed to meeting that are applicable to the design, construction, or operations of the ISFSI. Changes at an ISFSI after it is built are expected to be limited to support systems with only marginal safety significance. This requirement is comparable to that of the proposed amendment to § 50.71 of 10 CFR Part 50, commonly referred to as the "FSAR Update Rule."

15. *Content of Environmental Reports.* The content of the environmental report required by § 72.20 was the subject of a number of comments. The environmental report required for an ISFSI is an evaluation of the environmental impact of the ISFSI on the region in which it is located, including the transportation that is involved. Discussions of generic issues covered by DOE and NRC generic environmental impact statements may be incorporated by reference.

16. *Provision for Public Hearings and State and Local Participation in the Licensing Process.* A number of commenters expressed concern over the omission in proposed Part 72 of any reference to public hearings or other provisions covering state and local participation in the licensing process. In accordance with the requirements of Sec. 189a of the Atomic Energy Act, as amended, which provides in part "... the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding. . . ." the Office of Nuclear Materials Safety and Safeguards has established the practice of publicizing proposed spent fuel storage licensing actions and holding public hearings on a request by any person whose interest may be affected. A section based on the provisions of §§ 2.104 and 2.105 of 10 CFR Part 2, has been added to the rule (See § 72.34).

17. *Applicability of License Conditions.* Some commenters raised questions on the content and applicability of license conditions, recognizing that license conditions are an important aspect of the single preconstruction license issued under Part 72. In response to these comments, the wording of § 72.33 was changed to clarify the point that license conditions are applicable to design, construction, and operational activities. Since license conditions applicable to ISFSI operations are technical in nature, these have been identified by the more



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familiar term "Technical Specifications."

18. *At-Reactor versus Away-From-Reactor Siting.* Some commenters favored restricting the siting of ISFSIs to reactor sites, with the thought that this might reduce perceived transportation risks and keep pressure on the nuclear industry to help solve the waste management problem. Others favored away-from-reactor siting, perceiving this to be safest solution even though transportation might be increased.

Also, some commenters interpreted the promulgation of Part 72 as reflecting an NRC bias favoring away-from-reactor siting. This conclusion is not correct. The NRC is not aware of any compelling reasons generally favoring either at-reactor or away-from-reactor siting of an ISFSI. There are many factors to be considered in each situation and in the licensing actions involved; accordingly, the rule permits either.

19. *The Use of New Site-Related Terms.* One subject of particular interest to many commenters was the use in Part 72 of new site-related terms ("controlled area," "neighboring area" and "region,") rather than the more familiar site-related terms used in 10 CFR Parts 20 and 100.

Several considerations went into the development of new terms for site-related areas around an ISFSI. While the terminology used in 10 CFR Part 20, specifically 'restricted' and 'unrestricted' areas, applies to all nuclear facilities, it is limited to radiation protection concerns associated with normal operations and the means used by the licensee to control the access to areas of potential radiation exposure. With the advent of as low as is reasonably achievable objectives and environmental radiation protection standards promulgated by the Environmental Protection Agency in 40 CFR Part 190, the term "unrestricted" used in 10 CFR Part 20 is too narrow in meaning for applications to areas beyond the boundaries of the licensee's property.

The current terminology used in 10 CFR Part 100, specifically 'exclusion area' and 'low population zone', is applicable to postulated radiological consequences to individuals beyond the site boundary from potential accidents in test and power reactors. Its applicability is limited to specific types of nuclear reactors, not other nuclear installations, and to well-defined reference dose guidelines and risks associated with such nuclear reactors. The terminology used in 10 CFR Part 100 is too restrictive in meaning for use at multi-purpose sites and was never

intended to be used for other than reactor sites. The use of these terms from 10 CFR Part 100 for an ISFSI is inappropriate.

Furthermore, the "Report of the Siting Policy Task Force," NUREG-0625, has recommended several changes in the basic criteria of 10 CFR Part 100. Therefore using the current terminology of 10 CFR Part 100 in 10 CFR Part 72 is not appropriate due to the potential changes that may be made in Part 100. For example, it is proposed to change the term (and definition) of "low population zone" to "emergency planning zone" (EPZ). This terminology was used in the proposed revision of Appendix E (now titled "Emergency Planning and Preparedness for Production and Utilization Facilities") to 10 CFR Part 50, that was published for comment on December 19, 1979. Consistent with this proposed revision, the term "neighboring area" in 10 CFR Part 72 has been changed to "ISFSI Emergency Planning Zone" (ISFSI-EPZ) because these are comparable in concept. The size of an ISFSI-EPZ is expected to be much smaller than that of a reactor EPZ.

20. *Criteria for Establishing the Controlled Area, Neighboring Area,<sup>1</sup> and Region as Applied to the Site of an ISFSI.* A number of commenters expressed the need for criteria for establishing the controlled area, the neighboring area and the region for an ISFSI as these terms are used in Part 72 and noted that there was a potential conflict of terms in the proposed rule. In response to these comments, more definitive criteria have been incorporated in the pertinent sections of the rule and clarifying changes in the text and definitions have been made.

Another concern with the implementation of these defined areas for an ISFSI is the possible conflict in terminology for an ISFSI located on the same site with a nuclear power reactor licensed under 10 CFR Parts 50 and 100 requirements.

Part of this concern appears due to a misunderstanding and the impression that the controlled area for an ISFSI is the same as the exclusion area for a reactor and that the neighboring area (since changed to ISFSI-EPZ) for an ISFSI is the same as the low population zone for a reactor. In concept, these areas are similar but the bases for their establishment are different. The controlled area for an ISFSI is not the same as the exclusion area for a reactor because the design basis accidents are different. Reactor accidents involve a

<sup>1</sup> The term "neighboring area" has been changed to "ISFSI-EPZ."

potential release of radioactive materials, including short-lived species such as <sup>131</sup>I. Design basis accidents of concern at an ISFSI primarily involve direct radiation from exposure to the spent fuel rather than releases of radioactive materials. The areas requiring control or protective action measures for the protection of the public are quite different and hence using different terminology for each avoids confusion.

The four site-related terms and their definitions, i.e., site, controlled area, neighboring area (now ISFSI-EPZ), and region, establish each of the geographical areas and the interrelationship that would exist between these areas and the need to protect public health and safety and the environment. The site means the real property on which the ISFSI is located. The controlled area, which may or may not be the same as the site, has the purpose of defining licensee control for meeting regulatory licensing requirements. The controlled area, in most cases, will be enclosed by some physical barrier such as a fence, to provide the needed control of activities within the area. Beyond the controlled area, the licensee does not necessarily exercise authority over activities.

The ISFSI-Emergency Planning Zone (ISFSI-EPZ) is that area in the immediate vicinity of an ISFSI upon which local and State governments should base their radiological response plans. The requirement to define a neighboring area in the proposed 10 CFR Part 72, in which State and local governments could take protective action in the event of an emergency, is comparable in concept to the emergency planning zones for reactors. The term ISFSI-EPZ has been adopted to differentiate this zone and its requirements from those of an EPZ for a reactor.

The regions around an ISFSI site will vary in geographical area and location depending upon the event being evaluated to determine its impact on the ISFSI. A region has the purpose of defining the area within which such an event can have an impact on the public health and safety or environment. This impact must be assessed from the consequences postulated for the events evaluated.

21. *Dose Limits for Normal Operations and Accidents.* A number of commenters addressed the subject of dose limits for normal operations and accidents. Although spent fuel storage is not specifically identified as a fuel cycle operation in 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power

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Operations," the dose limits specified in this regulation are used in Part 72. Section 72.67 was rewritten to better clarify the requirements on effluents and direct radiation during normal operations and anticipated occurrences.

The accident dose limit of 5 rem was placed in a new § 72.68, that defines the criteria for establishing a controlled area for an ISFSI. The 2-hour criterion was deleted; the controlling design basis accident for the specific ISFSI covered in the application is to be evaluated. The 5 rem cumulative exposure limit is derived from protective actions recommended by EPA for projected doses to populations for planning purposes.<sup>2</sup>

The reference to 24 hours in paragraph 72.15(a)(13) was deleted; the requirements for the accident analysis section of the SAR were changed to call for the evaluation of a dose commitment due to the event that would take into account the total dose from a single exposure as well as dose reduction due to protective action.

In response to comments on the applicability of Appendix I to 10 CFR Part 50 and Part 100 to an ISFSI, Appendix I is applicable only to light water cooled power reactors and Part 100 is applicable only to power and test reactors. Neither of these regulations is applicable to an ISFSI.

**22. Geological and Seismological Investigations.** In the proposed rule, the geological and seismological investigation requirements for an ISFSI site were based on the reasoning that it should be possible to select sound sites for the few ISFSIs expected to be built. Seismologically, a sound site was considered one having potential ground motion of less than 0.25 g from earthquake with a return period of 500 years. This earthquake potential could be determined on a probabilistic basis; i.e., read from seismic zonation maps such as those published by the U.S. Geological Survey.<sup>3</sup> Uncertainties in such determinations could be offset by overdesign.

This use of probabilistic techniques was considered appropriate as a site selection criterion; it was not intended to be used for determining the design earthquake for structures. Assuming a sound site as defined above, the use of a standard design earthquake of 0.25 g (which has a return period that is much greater than 500 years) was considered

conservative and adequate to offset uncertainties in an evaluation of a specific site on a probabilistic basis.

However, it was not possible to obtain a consensus among experts in the field on this approach. It was generally agreed that probabilistic techniques are adequate to determine potential seismicity on a regional basis, but these techniques are not yet adequately developed for application to a specific site.

As an alternative, the proposed rule allowed a site specific "g" value to be determined by the procedures of Appendix A to Part 100, "Seismic and Geologic Siting Criteria for Nuclear Power Plants." This provision was in Subpart E, "Siting Criteria," and was intended for use in the evaluation of site characteristics, such as potential soil liquefaction, under earthquake conditions in areas of low potential seismic activity where the use of the standard design earthquake of 0.25 g was considered to be unduly restrictive.

The final rule makes a differentiation between the regions east and west of the Rocky Mountain Front, approximately 104° west longitude, and in the east makes a further differentiation between areas of low seismic potential and areas of known seismic potential, including, but not limited to, New Madrid, Mo.; Charleston, S.C.; and Attica, N.Y.

In areas of low seismic potential in the eastern United States, a proposed site will be considered acceptable if the results from onsite foundation and geological investigation, literature review, and regional geological reconnaissance show no unstable geological characteristics, soil stability problems, or potential for vibratory ground motion at the site in excess of an appropriate response spectrum anchored at 0.2 g. Unstable geological characteristics are defined as capable faults, surface offset potential, subsidence or collapse features, uplift or downwarp, active tectonism, or landslide or mudflow potential. In the western United States and in regions of known seismic potential in the eastern United States, the seismicity at a proposed site must be evaluated by the criteria and level of investigations of Appendix A of 10 CFR Part 100, "Seismic and Geologic Siting Criteria for Nuclear Power Plants."

The conservatism reflected both in the use of a standard design earthquake of 0.25 g for the design of structures at sites in areas of low seismic potential or the alternative of developing a site specific design earthquake by the very thorough investigation required by Appendix A of Part 100 is considered necessary and

appropriate for the protection of an ISFSI which could contain a large inventory of spent fuel. The Commission is considering a revision of Appendix A to Part 100. However, it is anticipated that such revision would be in the nature of a clarification of its requirements and that the rule would still be applicable to ISFSI siting.

The principle of selecting sound sites has been retained in the final rule. For example, floodplains and sites that lie within the range of strong nearfield ground motion from earthquakes on larger capable faults should be avoided. This principle is consistent with the recommendations in the "Report of the Siting Policy Task Force," NUREG-0625.

**23. The ISFSI Design Earthquake (ISFSI-DE).** The standardized ISFSI-DE of 0.25 g for massive structures, such as water basins, has been retained in the final rule for use at sites east of the Rocky Mountain Front that are in areas of low potential seismic activity and hence do not need to be evaluated by the criteria and level of investigations of Appendix A of 10 CFR Part 100.

For sites west of the Rocky Mountain Front and in regions in the eastern United States of known seismic activity, the ISFSI-DE must be determined using the level of investigations and the criteria of Appendix A of 10 CFR Part 100, including the requirement that it be no less than 0.10 g.

For an ISFSI that is located on a power plant site which has been evaluated by the criteria and level of investigations of Appendix A of 10 CFR Part 100, the ISFSI-DE for structures shall be equivalent to the safe shutdown earthquake (SSE) for a nuclear power plant.

For ISFSI's which do not involve massive structures, such as dry storage casks and canisters, the required design earthquake will be determined on a case-by-case basis until more experience is gained with the licensing of these types of units.

**24. Probability Basis Used for Other Natural Phenomena.** Some commenters wanted to go one step further and use a probabilistic basis for other natural phenomena such as tornadoes and floods. It has been common practice in the United States to use probable maximum events as design bases for radiological safety-related structures, systems, and components. When a frequency or probabilistic analysis of historical data is used to estimate such a low probability event, there is generally too much uncertainty to make the estimate useful for design purposes. Therefore, the probable maximum flood, for example, is estimated using deterministic hydrologic models which

<sup>2</sup>EPA 520/1-75-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," September, 1975.

<sup>3</sup>Such as Algermissen and Perkins, USGS, Open File Report 76-416, 1976, "A Probabilistic Estimate of Maximum Acceleration in Rock in the Contiguous United States."

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utilize meteorological input that approaches the upper limit possible for that location, taking into account existing climate and time of year.

**25. Prequalification of Reactor Sites and Their Population Distributions.** Some commenters recommended that reactor sites be prequalified with no site specific investigations required for an at-reactor siting of an ISFSI. While a site that has undergone a full safety and environmental review and has been approved for a Part 50 facility is likely to be found acceptable for a properly designed ISFSI, the pre-qualification of sites licensed under Part 50 without review in relation to the proposed design of the ISFSI does not seem prudent. Information on a specific site that has been submitted to the NRC in connection with other licensing actions need not be repeated in a Part 72 license application. It can be incorporated by specific references to previous submissions.

**26. Transportation Considerations.** A number of commenters considered that the transportation involved in spent fuel shipments to an ISFSI could be an important consideration in an evaluation of site suitability. This might be particularly true of a large installation. The Commission agrees and a new § 72.70 has been added to the rule to specifically address this point.

**27. Missile Protection.** Part 72 requires protection from natural phenomena with the exception of tornado missiles. Tornado missile protection at reactors is of concern because rupture of recently discharged fuel at a reactor could cause the potential release of volatile short-lived radionuclides, particularly <sup>131</sup>I. Since the quantity of <sup>131</sup>I present in aged fuel at an ISFSI is reduced a factor of 10<sup>9</sup> due to radioactive decay in the first year after discharge, the potential risk from the rupture of aged fuel is orders of magnitude lower for an <sup>131</sup>I release. The radionuclides which could potentially be released as a result of a tornado missile event are long-lived <sup>85</sup>Kr and <sup>129</sup>I. However, an accident evaluation in NUREG-0575,<sup>5</sup> Section 4.2.3.2, using conservative assumptions demonstrates that the consequences from the release of the nuclides attributable to a tornado missile would not be significant. Hence, a requirement for protection from tornado missiles does not appear to be justified.

**28. Criticality.** A number of commenters expressed concern over the prospect of a criticality in an ISFSI.

Criticality has been a subject of study and experiment in the nuclear industry and has received much attention among nuclear engineers. The technology used in evaluating a given design for criticality potential is now highly developed with sophisticated computer codes. These codes have been benchmarked by actual measurements in various kinds of lattices and configurations of critical arrays of fuel elements. Because spent fuel storage racks are designed with a large safety factor to prevent criticality, the possibility of a significant criticality in ISFSI is very remote.

**29. Application of ALARA to Occupational Exposures.** Some commenters objected to the application of the ALARA principle to the design of a facility as this might affect occupational exposures. These objections were based on two points:

- (1) The thought that ALARA applied only to public health and safety, and
- (2) Occupational exposures are controlled by administrative procedures.

In response, the ALARA concept does apply to occupational health protection as specified in 10 CFR Section 20.1(c). Furthermore, although it is recognized that occupational exposures can be controlled to some extent by administrative procedures, design provisions such as adequate shielding of sources and proper equipment layout to minimize exposures are also important factors in keeping occupational exposures to a minimum. It is often impossible to fully compensate for a poor design using administrative procedures. ALARA (and its predecessor ALAP) has been a cornerstone of radiation protection for many years and it has always been considered to apply to all types of exposure, occupational and public.

**30. Broadened Applicability of Quality Assurance Program.** Some commenters took objection to what they interpreted as a broadening of the QA program, e.g., coverage of operations and the physical security system. It is the Commission's view that a licensee's QA program must cover not only design and construction, but all activities that are important to safety throughout the life of a facility.

**31. Certification versus Licensing of Operating Personnel.** The safety of an ISFSI is achieved by static means, primarily its configuration. Its safety is not dependent on dynamic reactions to the manipulation of controls like a reactor. It is necessary that operating personnel be adequately trained but not necessarily licensed by the NRC. A certification by the licensee of an

individual's proficiency to operate equipment is considered adequate.

### **32. Definition of the term**

**"Independent":** The meaning of the term "Independent" as used in Part 72 when applied to an ISFSI that is located on the site of another licensed facility, was the subject of a number of comments and considerable staff discussion.

An ISFSI may be a free-standing, away-from-reactor, fully independent type of facility or it may be located on the site of an existing facility such as a nuclear power plant. Such a location could have the economic benefit of sharing some utilities, services and personnel between the ISFSI and an existing facility on the site.

The rule is applicable to either type of location and an ISFSI may be provided with services from an existing facility and still be considered "independent." The use of services from an existing facility (i.e., electricity, makeup water, waste treatment, etc.) is allowable provided the Commission finds there is reasonable assurance that the construction and operation of the ISFSI will provide adequate protection to the health and safety of the public from the standpoint of both facilities involved.

Any physical connection between facilities must be evaluated, but any penetration of the reactor storage pool walls will be considered a conclusive showing that the ISFSI is not "independent" and hence is not within the scope of Part 72 and should be covered by licensing action under Part 50.

**33. Licensing Actions Involving Previously Licensed Facilities.** There are now in existence three facilities for spent fuel storage that have been subject to previous licensing actions. These are:

G.E.—Morris, Ill.—built under a Part 50 Construction Permit authorization as a reprocessing plant; spent fuel storage now licensed under Part 70;

NFS—West Valley—now licensed under Part 50;

AGNS—Barnwell, S.C.—built under a Part 50 Construction Permit authorization as a reprocessing plant; but no operating license issued.

In the event of an application for use of one of the above facilities as an ISFSI, a license would be issued if the facility meets the requirements of Part 72. Such licensing actions will require the preparation of an environmental impact statement or appraisal under conforming amendments of Part 51. In this regard see § 51.5(a)(10) for issuance of an initial license for storage of spent fuel in an ISFSI at a site not occupied by a nuclear power reactor; § 51.5(b)(4) for issuance of certain amendments to a

<sup>5</sup>Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Reactor Fuel, August 1979.

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license for storage of spent fuel in an ISFSI; § 51.5(b)(5) for issuance of a renewal license for storage of spent fuel in an ISFSI; and § 51.5(b)(9) for issuance of an initial license for storage of spent fuel in an ISFSI on the site of a nuclear power reactor. These environmental impact assessments will include an evaluation of feasible alternatives. However, since the site selection process for an existing facility has already been completed, no comparative review of alternative sites will be required unless there is new information which could alter the original site evaluation findings. In practice, this means that alternative sites need not be reviewed and that the existing facility would be rejected for siting considerations only if the site involved found to be unsuitable with respect to either safety or environmental impact considerations.

An application for renewal of the license for the G.E.—Morris facility under 10 CFR Part 70 was received on February 27, 1979 and has been under review since that time. As 10 CFR Part 72 has become effective prior to completion of this licensing action, such licensing action will proceed pursuant to 10 CFR Part 72 which is specifically designed to cover spent fuel storage in an ISFSI. This is expected to result in some procedural delays in the G.E.—Morris proceedings.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following new Part 72 and related conforming amendments of Parts 51, 70, 73 and 150 to Chapter I of Title 10, of the Code of Federal Regulations are published as a document subject to codification.

46 FR 36119  
Published 7/14/81  
Effective 8/13/81

### 10 CFR Part 72

#### Reporting Requirements for Spent Fuel Storage Facilities Subject to IAEA Safeguards

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to make it clear that licensees required to submit inventory change reports and material status reports pursuant to the US/LAEA Safeguards Agreement are not additionally required to submit material status reports and nuclear material transfer reports under NRC domestic safeguards regulations. This amendment clarifies Commission intent that a licensee need not submit duplicative reports.

**EFFECTIVE DATE:** August 13, 1981.

**FOR FURTHER INFORMATION CONTACT:** Mr. E. R. Morgan, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-443-5878).

**SUPPLEMENTARY INFORMATION:** On July 31, 1980, the Nuclear Regulatory Commission published in the Federal Register (45 FR 50706) a new Part 75 to Title 10 of the Code of Federal Regulations and amendments to 10 CFR Parts 40, 50, 70, 150, and 170 to implement the Agreement Between the United States of America and the International Atomic Energy Agency for the Application of Safeguards in the United States of America.

On November 2, 1980 (45 FR 74693), the Commission added a new Part 72 to Title 10 implementing licensing requirements for the storage of spent fuel in an independent spent fuel storage installation.

Parts 75 and 72 both contain requirements for the submittal of material status reports and material transfer reports (the latter are referred to in Part 75 by the LAEA nomenclature as inventory change reports). The amendments which follow clarify that the Commission does not intend that a licensee submit duplicative reports.

These amendments are of a minor and nonsubstantive nature in that they clarify existing requirements. As a result, the publication of a notice of proposed rulemaking is unnecessary and the requirements of the Regulatory Flexibility Act do not apply. No new reporting requirements subject to the Paperwork Reduction Act are imposed.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Part 72 of Title 10, Chapter I, Code of Federal Regulations are published as a document subject to codification.

46 FR 58281  
Published 12/1/81  
Effective 12/1/81

10 CFR Parts 11, 19, 20, 21, 25, 72, 75, 95, and 170

#### Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation; Minor Clarifying and Conforming Amendments

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** This document makes minor clarifying amendments to the final rule establishing Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation. This document also makes needed conforming amendments to other parts of the Commission's regulations. The amendments are necessary to ensure proper application of the Commission's regulations.

**EFFECTIVE DATE:** December 1, 1981.

**FOR FURTHER INFORMATION CONTACT:** Dennis W. Reisenweaver, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Phone 301-443-5910).

**SUPPLEMENTARY INFORMATION:** This final rule amends 10 CFR Part 72 of the Commission's regulations as published in final form on November 12, 1980 (45 FR 74693) to conform the description of the general license to receive title to and own spent fuel without regard to quantity established in 10 CFR 72.6(b) to the description used for comparable general licenses in 10 CFR 31.9, 40.21 and 70.20 of the Commission's regulations. These general licenses do not authorize the general licensees to receive, possess, use or transfer any radioactive material and are therefore not subject to the provisions of 10 CFR Part 21. This change to § 72.6(b) will make clear that the provisions of Part 21, which relate to the reporting of defects and noncompliance and which apply, among others, to certain persons licensed to possess, use and/or transfer source, byproduct and/or special nuclear material, are not applicable to persons generally licensed under

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§ 72.6(b). In order to recognize the establishment of the general license in 10 CFR 72.6(b), a minor corrective amendment is also made to § 72.2 which describes the scope of 10 CFR Part 72.

This final rule also makes minor conforming amendments to Parts 11, 19, 20, 21, 25, 75, 95, and 170 of the Commission's regulations to incorporate in each part, as appropriate, needed references to new Part 72.

Since the amendments are corrective and of a minor nature, good cause exists for omitting notice of proposed rulemaking and public procedure thereon as unnecessary and for making the amendments effective upon publication in the Federal Register.

### Regulatory Flexibility Act Statement

This final rule is not subject to the provisions of the Regulatory Flexibility Act, Pub. L. 96-354, 94 Stat. 1164. The Commission has determined pursuant to 5 U.S.C. 553 that a notice of proposed rulemaking need not be issued and that the rule may be promulgated in final form and become effective on the date of publication in the Federal Register.

### Paperwork Reduction Act Statement

The provisions of the Paperwork Reduction Act of 1980, Pub. L. 96-511, 94 Stat. 2812, are not applicable to this final rule because the final rule does not contain any new or amended requirements for recordkeeping, reporting, plans or procedures, applications, or any other type of information collection.

For the reasons set out in the preamble and pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1 of the Code of Federal Regulations are published as a document subject to codification.

**47 FR 13774**  
Published 4/1/82  
Effective 4/1/82

*Reporting, Recordkeeping, and  
Application Requirements*

See part 60 Statements of Consideration

**47 FR 30452**  
Published 7/14/82  
Effective 10/12/82

*Protection of Employees Who  
Provide Information*

See Part 19 Statements of Consideration

**47 FR 41338**  
Published 9/20/82  
Effective 9/20/82

*Minor Clarifying Amendments*

See Part 1 Statements of Consideration

**49 FR 9352**  
Published 3/12/84  
Effective: Upon approval of OMB or  
6/7/84.

*Environmental Protection Regulations  
for Domestic Licensing and Related  
Regulatory Functions and Related  
Conforming Amendments*

See Part 51 Statements of Consideration

**49 FR 24512**  
Published 6/14/84  
Effective 6/7/84

*Environmental Protection Regulations  
for Domestic Licensing and Related  
Regulatory Functions and Related  
Conforming Amendments*

See Part 2 Statements of Consideration

**50 FR 41662**  
Published 10/15/85  
Effective 11/14/85

*Hybrid Hearing Procedures for  
Expansion of Spent Nuclear Fuel  
Storage Capacity at Civilian Nuclear  
Power Reactors*

See Part 2 Statements of Consideration

**50 FR 45398**  
Published 10/31/85

*Hybrid Hearing Procedures for  
Expansion of Spent Nuclear Fuel  
Storage Capacity at Civilian Nuclear  
Power Reactors*

See Part 2 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION  
RULES and REGULATIONS

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

**PART  
73**

**PHYSICAL PROTECTION OF PLANTS AND MATERIALS**

**STATEMENTS OF CONSIDERATION**

38 FR 35430  
Published 12/28/73

**PART 73—PHYSICAL PROTECTION OF  
PLANTS AND MATERIALS**

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the Atomic Energy Commission's regulation 10 CFR Part 73 is hereby republished as a document subject to codification for the purpose of incorporating into one document all amendments to the regulation to date including the amendments published in the *Federal Register* on November 6, 1973. In republishing Part 73 a number of editorial changes have been made, including clarification of the effective date of a number of sections.

40 FR 52840  
Published 11/13/75  
Effective 12/15/75

**PART 73—PHYSICAL PROTECTION OF  
PLANTS AND MATERIALS**

**Advance Notice of Certain Shipments of  
Special Nuclear Material**

On April 4, 1975, the Nuclear Regulatory Commission (NRC) published in the *Federal Register* (40 FR 15098) proposed amendments to its regulations in 10 CFR Part 73 to require that advance notice of shipments involving certain quantities of special nuclear material (SNM) be provided to the NRC, and that the NRC be notified upon arrival of such shipments. Interested persons were invited to submit comments and suggestions for consideration in connection with the proposed amendments within 30 days after publication in the *Federal Register*. Upon consideration of the comments received and other factors involved, the NRC has adopted the proposed amendments with certain modifications set forth below.

Significant differences from the amendments published for comment are: (1) the amount of information to be supplied in the advance shipping notice has been reduced; (2) in addition to notifying the NRC Inspection and Enforcement Regional Office by mail, the licensee is required to notify the Director of the appropriate Regional Office by telephone seven days in advance of the shipping date that an advance shipping notice had been sent by mail; (3) the

requirement for advance shipping notice is not applicable to spent fuel shipments, and would also not be applicable to shipments or transfers of SNM by road with one way transit times of one hour or less in duration between installations of a licensee; (4) telephone and telegraph or teletype notifications are required when the shipment arrives at its destination in all cases; (5) and a definition of the appropriate NRC Regional Inspection and Enforcement Office to be notified of shipments has been added.

The following discussion pertains to items (1) through (5) respectively:

(1) The proposed rule specified that the advance notice of shipment contain information as specified in § 73.70(g). Comments on this requirement indicated that some of the information in proposed § 73.70(g) is not available seven days in advance of a shipment. Accordingly this provision has been revised to require only the following information in the advance shipping notice: shipper, receiver, carrier(s), estimated date and time of departure and arrival, transfer points, and modes of shipment.

(2) A telephone call to the Director of the appropriate NRC Inspection and Enforcement Regional Office assures that the Regional Office would be alerted to the fact that advance shipping information details were being sent by mail. Appropriate action could be taken if the information did not arrive as expected.

(3) Several commenters requested clarification on whether the advance shipping notice was required for spent fuel shipments. It was not intended that the advance shipping notice apply to spent fuel shipments. Accordingly, § 73.6 has been revised to except spent fuel shipments from the requirement for an advance shipping notice. Additionally, one commenter requested that inter-site shipments between closely spaced installations also be excluded from the requirement of an advance shipping notice. Section 73.72 has been accordingly revised to exclude the requirement of an advance shipping notice for "road shipments or transfers with one way transit times of one hour or less in duration between installations of a licensee."

(4) Paragraph 73.36(c)(3) of the proposed rule required the consignee to notify the shipper upon arrival of a shipment by telephone, telegraph or teletype. Paragraph 73.36(e) of the proposed rule required that the consignee inform the shipper and the appropriate Regional Office by telephone and telegraph or tele-

type. In order to make notification requirements upon arrival of a shipment consistent, paragraph 73.36(c)(3) has been revised to require that the consignee inform the shipper by telephone and telegraph or teletype.

(5) In order to be more definitive as to the "appropriate" NRC Inspection and Enforcement Regional Office to be informed of shipments a new definition has been added in paragraph 73.2(r). For domestic shipments the appropriate Regional Office is the office within whose region the licensee who is responsible for the physical protection arrangements of the shipment is located. For export and/or import shipments the appropriate Regional Office is the office within whose region the licensee who is responsible for the physical protection arrangements of the shipment is located and also the Regional Office for the region in which the last or first point of exit or entry from or into the U.S. is located, as appropriate.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of title 5 of the United States Code, the following amendments of Title 10, Chapter I, Code of Federal Regulations, Part 73 are published as a document subject to codification.

42 FR 10836  
Published 2/24/77  
Effective 3/28/77

**PART 50—LICENSING OF PRODUCTION  
AND UTILIZATION FACILITIES**

**PART 73—PHYSICAL PROTECTION OF  
PLANTS AND MATERIALS**

**Requirements for the Physical Protection  
of Nuclear Power Reactors**

On November 13, 1974, the Atomic Energy Commission published in the *Federal Register* (39 FR 40038) proposed amendments to its regulations in 10 CFR Part 73, "Physical Protection of Plants and Materials," which, in the interest of the common defense and security and the public health and safety, would identify measures to be taken for the protection of nuclear power reactors against industrial sabotage.

Interested parties were invited to submit comments and suggestions in connection with the proposed amendments within 60 days after publication in the



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FEDERAL REGISTER. Upon consideration of the comments received, and other factors involved, the Nuclear Regulatory Commission has adopted the proposed amendments, with certain modifications as set forth below.

Significant differences from the proposed amendments published for comments are: (1) Addition of a general performance requirement; (2) clarification of the requirements for multiunit sites; (3) clarifying the number and response requirements of onsite security personnel; (4) rewording of the requirement to have a security supervisor on shift at all times; (5) specification of the level of illumination to be provided for monitoring and observation requirements; (6) replacement of the term "bullet penetration resistance" with a new term "bullet-resisting"; (7) changes to permit off loading of cargo inside of the protected area; (8) a change to require escort for all vehicles in the protected area, except designated licensee vehicles, instead of requiring cleared drivers or licensee employee drivers; (9) a change to permit certain Commission approved delivery and inspection activities to be carried out in protected or vital areas; (10) deletion of the requirement for additional barriers to obstruct ready access to vital areas; (11) changes to permit additional licensee vehicles necessary to the conduct of the official plant functions into the protected area; (12) an addition to require upon termination of employment of any employee that certain keys, locks, combinations, and other related equipment be changed; (13) changes to require the implementation of the new rules on a graded basis; and (14) changes in the protected area access control provision to delete the requirement for progression of search functions and to define physical protection in terms of a bullet-resisting structure. Editorial changes also were made, as appropriate. This includes eliminating an obsolete provision in § 50.54. In addition, § 73.55 (b) (2), (b) (3), and (b) (4) (physical barriers) and § 73.55 (c) (3) and (c) (8) (access requirements) have been clarified and reorganized into § 73.55 (c) (2), (c) (3), (c) (4), (c) (5) and (d) (3), (d) (4), respectively.

The following discussion pertains to items (1) through (14) above:

(1) Although performance objectives were considered in the development of the proposed rule, the rule itself did not specify the level of performance that the physical protection system and security organization are to achieve. Many of the comments indicated that inclusion of a general performance requirement would aid in the implementation of the rule and more explicitly indicate the level of protection required. A paragraph has been added to the amendment which addresses these general performance requirements for the physical protection system and the security organization. On the basis of intelligence and other relevant information available to the NRC there are no known groups in this country having the combination of motivation, skill, and resources to attack either a fuel facility or a nuclear power re-

actor. In addition, studies have indicated that the generic characteristics (i.e., the "defense-in-depth" concept of reactor plant design) of commercial power reactors make the releasing of radioactivity by acts of sabotage difficult. Furthermore, the potential consequences of a reactor sabotage are judged to be less than the extreme consequences which could be associated with the successful detonation of an illicit nuclear explosive device. Having considered these factors, the Commission has concluded that the level of protection specified in § 73.55 is adequate and prudent at this time. The kind and degree of threat and the vulnerabilities to such threats will continue to be reviewed by the Commission. Should such reviews show changes that would dictate different levels of protection, the Commission would consider changes to meet the changed conditions.

Compliance with the detailed requirements should essentially satisfy the general performance requirements stated in the rule in § 73.55(a). However, there may be instances for some plants where additional requirements will have to be imposed so that the general performance requirements can be met. In these cases, such requirements will be specified by the Commission's staff. In any event all licensees subject to the rule must comply with the general performance requirements. Nothing herein should be construed as precluding licensees from providing the Commission's staff with suggested other equivalent detailed measures that the licensee determines to be necessary to meet the general performance requirements.

It also should be noted that to reduce the vulnerability of operating facilities from the threat of an insider, the Commission is considering a program to require personnel security clearances for individuals employed in sensitive work activities who have access to or control over special nuclear material. However, applicants and licensees should continue to use the employee screening guidance from the American National Standard, ANSI N18.17, "Industrial Security for Nuclear Power Plants." Should the continuing review of such internal threats by the Commission show changes that would dictate different levels of protection, future changes to meet these new conditions would be forthcoming.

(2) In adopting these amendments the Commission considered the special case of the physical security interfaces of an operating reactor on a site at which another reactor is under construction. Specifically, consideration was given to the need for special access procedures, barriers, or guards at the security boundaries common to the two units. It was determined that these amendments require a level of protection along a protected area boundary, i.e., monitored physical barriers, isolation zones, and surveillance, which is independent of the activity outside or inside the protected area. While the specific protective measures will vary according to what is adjacent to a protected area boundary, e.g., a river, a parking lot, or a reactor under construction, the level of protection and its

functional requirements will not vary. However, to clarify the requirements on these and other special cases of physical security interfaces of operating power reactors, a specific mention is made of the case of adjacent reactor facilities.

(3) Guard force duties have been the subject of review by the Commission in connection with fuel cycle facilities. A specification of those duties, appropriate to licensed power reactors, has been included in § 73.55(h) (3).<sup>1</sup>

In addition, minimum and nominal numbers of armed response personnel have been specified in § 73.55(h) (2). The number of such armed response personnel required at a given facility could be more or less than the nominal number depending on factors such as the following to be considered during evaluation of a licensee's physical security plan, not necessarily in order of importance:

(a) Selection, training and motivation of response force.

(b) Availability and construction of defensive positions.

(c) Availability and knowledge of weapons and other equipment.

(d) Individual site considerations, including size, topography, configuration, geography, weather, and number of nuclear power plant units.

(e) Location and reliability of initial detection devices.

(f) Consideration of Local Law Enforcement Agencies response.

(g) Vital area hardening, including plant design, location of and access control to vital areas.

(h) Design and construction of protected area barriers.

(i) Redundancy of security systems.

(j) Initial clearance and continuing reliability assessment of personnel.

(k) Security and contingency procedures.

It also should be noted that, to increase the effectiveness of security organizations, the Commission is considering a regulation concerning guards and other security personnel qualifications and training. The regulation could take the form of an amendment to 10 CFR Part 73 and include performance criteria for use by licensees in developing and applying detailed personnel qualifications, basic training, and tactical training plans to be used in conjunction with security plans.

(4) The proposed rule would have required that a supervisor of the security organization be onsite at all times. Comments indicated that the responsibility of the security supervisor had been confused with that of the shift supervisor. To clarify its intent, the rule set forth below was reworded to require that one

<sup>1</sup> The Commission has published for comment, proposed amendments to 10 CFR 73.50 (g) that correspond to the response requirements contained in § 73.55(h) (3). While the proposed change to 10 CFR 73.50(g) is a separate rulemaking from this proceeding, persons with an interest in the response requirements in § 73.55(h) (3) may comment on the proposed amendment to § 73.50(g) before April 11, 1977. Any changes resulting from comments on § 73.50(g) will also be considered with respect to the present rule, § 73.55(h) (3).

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full time member of the security organization who is authorized to direct the activities of all other members of the security organization be onsite at all times.

(5) The proposed rule did not specify a level of illumination. Comments indicated that a level of illumination should be specified. The rule set forth below specifies a level of illumination which is sufficient for the monitoring and observation requirements.

(6) The proposed rule used the term "bullet penetration resistance." Comments indicated a need for a clear meaning. Since the meaning of "bullet penetration resistance" was covered in the term "bullet-resisting" defined and used by the Underwriters' Laboratories (UL) Standard UL-752, the rule set forth below was changed to use the term "bullet-resisting" and a new definition has been added in § 73.2 to correspond to the definition of "bullet-resisting" used by the Standard UL-752.

(7) The proposed rule would have required that cargo be off loaded outside the protected area. On the basis of public comments, it was determined that off loading outside the protected area may not be cost effective. The rule set forth below provides for off loading inside the protected area under appropriate security conditions and, to the extent practicable, at a specifically designated materials receiving area that is not adjacent to a vital area.

(8) The proposed rule would have required that either the driver of a vehicle permitted access into the protected area possess an AEC personnel security clearance, or the vehicle be driven by an employee of the licensee while in the protected area. Based upon the comments received and the attendant increase in traffic that would result from item (7) above, regarding off loading, the rule has been revised to require that all vehicles, except designated licensee vehicles, requiring entry into the protected area shall be escorted by a member of the security organization while within the protected area.

(9) The proposed rule would have required that all packages be searched prior to entry into the protected area. The rule set forth below has been changed to permit certain Commission approved delivery and inspection activities to be conducted within protected or vital areas for reasons of safety, security or operational necessity.

(10) The proposed rule would have required appropriate barriers to obstruct ready access to vital areas by ground vehicles. The Commission has decided on the basis of studies in progress that this proposed provision as it applies to vehicles should not be included in the regulations at this time. This proposed amendment has been deleted from the rule set forth below, although physical barriers are required for protection against attempts at unauthorized access of the character described in the general performance requirements.

(11) The proposed rule would have limited the admission of vehicles designed primarily for carrying passengers

within the protected area to only those designated as emergency or security vehicles except under emergency conditions. Based on comments received the Commission has concluded that additional transportation, other than for emergency and security purposes, is required to perform necessary plant functions. Therefore, the rule set forth below has been modified to permit designated licensee vehicles necessary to perform official plant functions within the protected area but with certain necessary controls.

(12) The proposed amendments specified that locks, keys, combinations, and other related equipment used to control access to protected and vital areas be controlled to reduce the probability of compromise and be changed whenever there is evidence that they may have been compromised. An additional requirement to change upon termination of employment of any employee, keys, locks, combinations, and related equipment to which that employee has access, has been included.

(13) The proposed amendments specified that the new rules be implemented by licensees by 180 days from the date of Commission approval of the physical security plan. Comments received showed a need for additional time for implementation of certain features. It appears that additional time could be provided for compliance with some features of the rule without prejudice to the public health and safety and common defense and security. Other features can be more promptly implemented. The Commission has therefore concluded that a graded program for implementation is desirable. The rule has been changed to permit additional time for construction and installation requirements and to require the procedural aspects in the organization, access, communications, and response provisions to be implemented by May 25, 1977.

(14) The proposed amendments would have required that access control to the protected area proceed progressively from the detection of firearms and explosives to identification and admission, that the function for the detection of firearms and explosives be physically separate from the function of identification, and that individuals performing the identification and controlling admittance be housed in a structure capable of providing physical protection to the occupants to assure their ability to respond and summon assistance. On further consideration, these provisions appear to be unduly restrictive. The important factor in preventing a compromise of such an access control function is to protect the ability of the guards to respond and to summon assistance. Accordingly, the progression and physical separation provisions discussed above have been deleted from the amendments and a requirement added for isolation of the individual(s) responsible for the last access control function within a bullet-resisting structure to assure his ability to respond and communicate.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorga-

nization Act of 1974, and Section 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 73 are published as a document subject to codification.

42 FR 64103  
Published 12/22/77  
Effective 1/23/78

### PART 73—PHYSICAL PROTECTION OF — PLANTS AND MATERIALS

#### Guard Force Response to an Alarm

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to clarify the alarm response requirements for onsite guards to protect special nuclear material from theft and licensed plants from industrial sabotage.

**EFFECTIVE DATE:** The amendments become effective January 23, 1978.

**FOR FURTHER INFORMATION CONTACT:**

George W. McCorkle, Chief, Physical Security Licensing Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-427-4181.

**SUPPLEMENTARY INFORMATION:** On February 10, 1977, the Nuclear Regulatory Commission published in the *FEDERAL REGISTER* (42 FR 8382) proposed amendments to its regulations in 10 CFR Part 73, "Physical Protection of Plants and Materials," which would clarify the responsibilities of the onsite guards for the protection of special nuclear material from theft and licensed plants from industrial sabotage, and would assure uniformity in the application of regulatory requirements in this important area.

Interested parties were invited to submit comments and suggestions in connection with the proposed amendments within 60 days after publication in the *FEDERAL REGISTER*. Upon consideration of the comments received and other factors involved, the Nuclear Regulatory Commission has adopted the proposed amendments, with certain modifications as set forth below. Significant differences from the proposed amendment published for comment are: (1) Restructuring and rewording of the measures to be taken to neutralize a threat, and (2) rewording of conditions for the use of deadly force.

Some of the comments received indicated a belief that the guard force actions listed in the proposed rule were sequential, that is, (iv) was not to begin until (iii) was completed. To clarify its intent, the rule was reworded to require that actions to neutralize the threat (interposing guards between special nuclear material and any person attempting entry for the purpose of industrial sabotage or theft, etc., and informing local law enforcement agencies of the threat and requesting assistance) be taken concurrently. Additionally, the words "if necessary" were deleted with regard to

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requesting assistance from the local law enforcement agency. In any instance where active measures to neutralize a threat are undertaken, requesting assistance from law enforcement personnel appears prudent.

Three commentors addressed the Commission's statement on the use of deadly force as contained in the proposed rule. One commentor felt the Atomic Energy Act of 1954, as amended, should be viewed as preempting state law in this area. Others said the rule should permit the use of deadly force to prevent a felony.

The use of deadly force by private guards at nuclear power plants and fuel cycle facilities has for many years presented a regulatory problem to the Nuclear Regulatory Commission. In the absence of overriding Federal authority, the law governing the liability of a private guard is State law. That is, if a private guard while on duty killed or wounded someone, the killing or wounding would be justifiable or not depending upon the law of the State in which it occurred. Experience with licensees and research has shown that considerable variation in State law exists on the question of justifiable homicide. However, in the narrow context of private guards doing their job on private property, there are three major aspects of justifiable homicide that the Commission thinks are universally acceptable in this country and that can, accordingly, be embodied in a rule of general application. The first is that the guard has no duty to retreat from a show of force, or from a situation that could lead to use of force. This principle is embodied in the response rule in the requirement that the guard interpose himself between the adversary and the material access areas or vital areas subject to attack. A second principle is that guards may generally meet force with force. This principle is stated in the response rule. Finally, there is general acceptance of the use of deadly force when there is a reasonable belief it is necessary in self-defense or defense of others. It is made clear in the rule that licensee's guards are expected to stand and use their right of self-defense against adversaries. The Commission believes that these three principles, taken together, constitute an adequate, practical, and publicly acceptable response rule.

Whether the Commission should go further in its response rule is a matter currently under consideration. The General Accounting Office, in a classified report on security at fuel-cycle facilities, has recommended that the Commission seek Federal and/or State legislative authority, "as appropriate," to allow guards to use firearms to prevent the theft of special nuclear material if such action is the minimum necessary to accomplish the task. The Commission is evaluating this recommendation in light of its current policy needs and the apposite legal authorities. An unclassified digest of the report has been published by GAO (EMD-77-40a, May 2, 1977).

To clarify the regulatory intent considering the above principles, the conditions for the use of deadly force were reworded to emphasize that the guard

applying deadly force is the person who must have a reasonable belief that such force is necessary in self-defense or in the defense of others.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and Section 553 of Title 5 of the United States Code, the following amendments to Title 10 Chapter I, Code of Federal Regulations, Part 73 are published as a document subject to codification.

43 FR 11962  
Published 3/23/78  
Effective 6/6/78

### LICENSED NUCLEAR MATERIALS AND FACILITIES

#### Licensee Safeguards Contingency Plans

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to require that licensees authorized to operate a nuclear reactor (other than certain research and test reactors), and those authorized to possess strategic quantities of plutonium, uranium-233, or uranium-235 develop and implement acceptable plans for responding to threats, thefts, and industrial sabotage of licensed nuclear materials and facilities.

The plans will provide a structured, orderly, and timely response to safeguards contingencies and will be an important segment of NRC's contingency planning programs. Licensee safeguards contingency plans will result in organizing licensee's safeguards resources in such a way that, in the unlikely event of a safeguards contingency, the responding participants will be identified, their several responsibilities specified, and their responses coordinated.

EFFECTIVE DATE: June 6, 1978.

NOTE.—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for review of its reporting requirement under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of the rule becomes effective, unless advised to the contrary, includes a 45-day period which that statute allows for Comptroller General review (44 U.S.C. 3512(c)(2)).

#### FOR FURTHER INFORMATION CONTACT:

Thomas F. Carter, Jr., Chief, Contingency Planning Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 telephone 301-427-4191.

SUPPLEMENTARY INFORMATION: On May 19, 1977, the Nuclear Regulatory Commission (NRC) published in the FEDERAL REGISTER (42 FR 25744) proposed amendments to 10 CFR Parts 50, 70, and 73 of its regulations. Interested persons were invited to submit written comments and suggestions in connection with the proposed

amendments within 60 days after publication in the FEDERAL REGISTER. The Commission also has under consideration other proposed amendments to 10 CFR Part 73 that relate to the response to a safeguards contingency. These were published on July 5, 1977 (42 FR 34310), and were titled, "Performance Oriented Safeguards Requirements." The comment period expired on September 19, 1977.

For administrative convenience the Commission is incorporating some sections of the proposed amendments published on July 5, 1977, in the final rule on safeguards contingency planning. Upon consideration of the comments received on the proposed amendments published on May 19, 1977, and on the pertinent sections of the proposed amendments published on July 5, 1977, and upon consideration of other factors involved, the Nuclear Regulatory Commission has adopted the proposed amendments with certain modifications as set forth below. (The pertinent sections of the proposed rule published on July 5, 1977, are paragraphs 73.26(c)(3)(iii), 73.26(d), 73.46(b)(3)(iii), 73.46(h), 73.55(b)(3)(iii) and 73.55(h).)

Significant differences from the proposed amendments published for comment on May 19, 1977, are: (1) licensees will be required to submit for NRC approval all categories of information in a safeguards contingency plan (as set forth in Appendix C to 10 CFR Part 73) except the implementing Procedures; the proposed rule required that implementing Procedures also be subject to NRC approval as part of the licensing process; (2) the observation that a goal of contingency planning is for licensee responses to be compatible with Federal responses has been removed; (3) the requirement concerning "a statement of the perceived danger" has been clarified by stating that such a statement promulgated by the Commission may be used by the licensee; (4) cross-reference to the licensee's physical security plan is explicitly permitted for topics that are adequately covered in that plan; (5) the requirement for periodic drills or tests of the licensee's safeguards contingency plan has been modified to relieve the licensee from responsibility for testing the response of entities not under the licensee's control; (6) paragraphs 73.50(g) and 73.55(h) have been revised to include an explicit requirement for safeguards contingency plans in accordance with the proposed rule published on July 5, 1977; and (7) the requirements on "Development and Maintenance of the Plan" have been removed from Appendix C of 10 CFR Part 73 and placed at appropriate places in the text of the rule.

The following discussion pertains to items (1) through (7) above.

(1) Several commenters suggested that the fifth category of information (Procedures) contained in a safeguards contingency plan as set forth in Appendix C of 10 CFR Part 73 should not be a part of a licensee's approved safeguards contingency plan because of the lack of flexibility associated with requiring NRC approval or concurrence of day-to-day operations.

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They cited other precedents in this area, such as § 50.59 of 10 CFR Part 50.

The amendments as proposed contained the flexibility suggested by these comments. In paragraphs 50.54(p) and 70.32(g) as proposed on May 19, 1977, the licensee would not be required to submit changes to the contingency plan to the NRC if the changes did not decrease the plan's effectiveness. Paragraph 50.54(p) has been revised to state this option more explicitly.

In consideration of the comments, however, the Commission has decided to omit the Procedures as part of the licensee safeguards contingency plan approved by the Commission. The procedures, which are derived from the Responsibility Matrix, will be a document that can be changed by the licensee. If the Responsibility Matrix is changed as a result of a procedure change, however, an amendment to the plan must be submitted for approval in accordance with paragraph 50.54(p) or 70.32(g). The Procedures will continue to be a part of the plan, and NRC's Office of Inspection and Enforcement will insure that they conform to the licensee's Responsibility Matrix.

Paragraphs 50.34(d), 50.54(p), 70.22(g), 70.22(j), 70.32(g), 73.30(g), Section 73.40, and Appendix C to 10 CFR Part 73 have been revised to reflect this change.

(2) Several commenters suggested that the goal of having licensee contingency plans compatible with Federal responses should be the responsibility of the Nuclear Regulatory Commission rather than the licensee's, because the Commission is in a better position to integrate this capability.

The Commission did not intend to imply that licensees were responsible for insuring compatibility of licensee and Federal-level safeguards contingency plans. The goal that the plans be compatible will be achieved through licensee plans prepared in accordance with the "Standard Format and Content" guides that the Commission is furnishing to the licensees. The Commission will assure that the guides provide for the desired compatibility.

Nevertheless, because the statement regarding compatibility of licensee and Federal responses has been subject to misinterpretation, it has been deleted from the introduction to Appendix C of 10 CFR Part 73.

(3) Several commenters believed that a "statement of the perceived danger" is in the purview of the Commission and that further theorizing by the licensee on additional threats would be a drain on resources already allocated to implement existing plans.

The requirement for the licensee to submit a "statement of the perceived danger" in the Background section of his safeguards contingency plan (cf. Appendix C to 10 CFR Part 73) has been modified to permit the licensee to incorporate such a statement promulgated by the Commission if the licensee chooses to do so. However, the licensee should examine his facility or operation to determine its vulnerabilities in light of the adversary charac-

teristics postulated by the Commission. This examination would make the licensee more aware of the total scope of a response and could promote the generation of additional stimuli in the Generic Planning Base.

(4) Many comments dealt with the contention that contingency plans duplicate other plans. Recommendations were made to combine all security-related plans into a single plan.

The licensee or applicant may submit a single security-related plan as long as he assures that all requirements of Appendix C of 10 CFR Part 73 have been addressed. The three "Standard Format and Content" guides that are being issued concurrently with these amendments provide guidance developed by the staff on the kind of information needed in the safeguards contingency plan and also permit reference to information that may have been submitted in an existing security plan. Section 50.34(d) and Appendix C (under Licensee Planning Base) have been revised to more explicitly state the acceptability of incorporation by reference of those topics treated in adequate detail in the licensee's or applicant's physical security plan. Paragraph 73.55(h) has also been revised to allow the incorporation of contingency plan information into security plans.

(5) The Commission recognizes the inappropriateness of holding licensees responsible for actions of persons not subject to licensee control. Therefore, licensee responsibility during periodic drills or tests has been clarified to exclude responsibility for testing the reaction of response forces not under his control.

(6) Paragraphs 73.50(g) and 73.55(h) have been revised to include an explicit requirement for safeguards contingency plans prepared in accordance with the criteria in Appendix C of 10 CFR Part 73, in order to eliminate an ambiguity that previously existed. Appropriate paragraphs, 73.46(h)(1), 73.46(h)(2) and 73.55(h)(1) of the proposed amendments published for comment in the FEDERAL REGISTER on July 5, 1977 (42 FR 34310) have been modified and used for this purpose.

(7) Upon further consideration, the Commission believes that the requirements in that section of the proposed Appendix C entitled "Development and Maintenance of the Plan" should more appropriately appear elsewhere in the rule. Hence, the requirement on assignment of responsibilities was moved to the discussion of the Responsibility Matrix and the other requirements were incorporated with the proposed amendments published on July 5, 1977, and moved to the body of the rule.

Concerning the proposed amendments published for comment on July 5, 1977, no substantive comments were received on the remaining portions of paragraph 73.46(h) nor on paragraphs 73.26(c)(3)(iii), 73.26(d), 73.46(b)(3)(iii), 73.55(b)(3)(iii), and 73.55(h). Appropriate portions of these paragraphs have therefore been incorporated into the final rule on safeguards contingency

plans.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 50, 70, and 73 are published as a document subject to codification.

43 FR 14007  
Published 4/4/78  
Effective 6/6/78

### LICENSED NUCLEAR MATERIALS AND FACILITIES

#### Licensee Safeguards Contingency Plans; Correction

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is correcting certain errors which appear in the document published in FR Doc. 78-7861.

EFFECTIVE DATE: June 6, 1978.

FOR FURTHER INFORMATION CONTACT:

Thomas F. Carter, Jr., Chief, Contingency Planning Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-427-4191.

In FR Doc. 78-7861, appearing at page 11962, in the issue for Thursday, March 23, 1978, make the following corrections:

43 FR 37421  
Published 8/23/78  
Effective 10/23/78

### PART 73—PHYSICAL PROTECTION OF PLANTS AND MATERIALS

#### Security Personnel Qualification Training and Equipment Requirements

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: On July 5, 1977, the Commission published for public comment proposed amendments to the

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Commission's regulations to impose upgraded guard qualification, training, and equipping requirements for security personnel protecting against theft of special nuclear materials and industrial sabotage of nuclear facilities or nuclear shipments.

In response to public comments, the training and qualifications section of the proposed amendments has been extensively revised to specify performance oriented requirements instead of the detailed training requirements as originally proposed on July 5, 1977. The performance oriented requirements give licensees flexibility in selecting and developing the most cost-effective training programs to meet site specific needs. The Nuclear Regulatory Commission now is publishing these revised amendments in final form.

Concurrent with publication of these amendments, the NRC is issuing for public comment guidance documents to assist the licensee in the development of security personnel training and qualifications plans required by the amendments. The effective date of the revised requirements has been set to permit public comment on the guidance and its issuance in final form at the time the requirements become effective.

**EFFECTIVE DATE: October 23, 1978.**

**NOTE.**—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for review of its reporting requirements under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of the rule becomes effective, unless advised to the contrary, includes a 45-day period which that statute allows for Comptroller General review (44 U.S.C. 3512(c)(2)).

### FOR FURTHER INFORMATION CONTACT:

Mr. R. J. Jones, Chief Materials Protection Standards Branch, Division of Siting, Health and Safeguards Standards, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-443-5907.

### SUPPLEMENTARY INFORMATION:

In 1975, the security agency study (NUREG-0015, ES) concluded that "Creation of a Federal guard force for maintaining security in the nuclear industry would not result in a higher degree of guard force effectiveness than can be achieved by the use of private guards properly qualified, trained and certified (by the NRC)." In 1976, a joint ERDA-NRC task force was formed to propose a plan of action for improving the controls and protection of nuclear materials at NRC licensed fuel cycle facilities. The task force addressed the current status and future direction of physical security protection at NRC licensed fuel cycle facilities now in possession of certain quantities of special nuclear materials. The task force report issued in July 1976

included conclusions and recommendations which provide a basis for rule-making. The Nuclear Regulatory Commission has determined, as a result of the security agency study conclusions, the joint task force findings and other subsequent deliberations, that security personnel qualification and training requirements should be upgraded through public rulemaking. On July 5, 1977, the Nuclear Regulatory Commission published in the *FEDERAL REGISTER* (42 FR 34321) proposed amendments to 10 CFR part 73 of its regulations. Interested persons were invited to submit written comments and suggestions on the proposed amendments within 45 days after publication in the *FEDERAL REGISTER*. The comment period was subsequently extended 30 days. Based on the public comments and other considerations, the Commission has adopted the proposed amendments, with modifications as set forth below.

In adopting these amendments the Commission decided that the requirements should not be made effective until guidance had been published to assist the licensees in developing their security personnel training and qualifications plans. Concurrent with the publication of these amendments, three guidance documents are being published for public comment. These are:

1. NUREG-0464, "Site Security Personnel Training Manual,"
2. NUREG-0465, "Transportation Security Personnel Training Manual," and
3. Regulatory Guide 5.52, "Standard Format and Content for the Physical Protection Section of a License Application (For Facilities Other Than Nuclear Power Plants)," Revised Chapter 4, "Security Organization," and Chapter 18, "Security Personnel."

Copies of these three guidance documents are being sent to persons who have expressed an interest in this matter. Comments are being requested by September 22, 1978 so that final guidance can be published by the time the rule becomes effective October 23, 1978.

A fourth document specific for nuclear power plants, "Nuclear Security Personnel for Power Plants, NUREG-0216, Draft 2," was published for comment in April 1978. This document has been revised and published in final form. Copies of these documents also will be placed in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C. Single copies of these four guidance documents may be obtained by writing to the U.S. Nuclear Regulatory Commission, Attention: Bernadine Scharf, Distribution Services Branch, Washington, D.C. 20555.

Significant differences from the proposed rule published for comment on July 5, 1977 are: (1) titles and definitions used in appendix B have been

clarified and moved to 10 CFR 73.2 to be consolidated with other definitions applicable to 10 CFR part 73; (2) employment suitability criteria have been revised to be less restrictive on the hiring of unarmed security personnel, and more specific on the hiring of armed security personnel; (3) physical qualification criteria have been revised to require physical examinations for central alarm station operators and armed security personnel; (4) the criteria for vision and hearing capability have been revised for clarification purposes, and to permit the use of hearing aids to qualify to the hearing criteria; (5) mental qualifications criteria have been revised to delete the requirement for psychological testing of unarmed security personnel, except for central alarm station operators, and to allow for some flexibility in the licensee psychological evaluation program; (6) physical fitness qualifications criteria have been revised to permit each licensee to develop physical fitness requirements to meet site specific needs; (7) contract security personnel criterion has been revised to be job related; (8) training and qualifications criteria have been completely revised to delete specified training courses and instead rewritten to require the licensee to develop a plan that he will use to meet the proposed criteria, in order to assure that security personnel possess the required skill, knowledge and ability to perform assigned security job duties; (9) the criteria which specify certain requirements for security management and security supervisors have been deleted; (10) the criteria for weapons training have been revised and the number of training hours has been deleted; (11) weapons qualification criteria have been simplified and clarified; (12) the phrases "... not limited to ...", and "... as appropriate ..." have been deleted; (13) the period of time allotted for submittal of a licensee plan to implement these proposed requirements has been lengthened from 30 to 120 days for fuel cycle facilities and transportation and 300 days for power reactors; and (14) fuel cycle facility and transportation licensees plans would be followed by 180 days after the effective date of the rule or 60 days after NRC approval of the plan, whichever is later, and power reactor licensees plans would be followed by 500 days after the effective date of the rule or 60 days after the approval of the plan, whichever is later.

The following discussion pertains to items (1) through (14) above.

(1) *Titles and definitions.* Commenters stated that titles and definitions contained in appendix B should be limited and clarified and suggested that all definitions applicable to 10 CFR part 73 and appendix B should be located in 10 CFR 73.2.

In response to these comments the Commission has decided to limit the number of titles used, to clarify such



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titles, and to remove titles and definitions from appendix B. Accordingly, titles and definitions of job duties, essential to the effective operation of a licensee security system, have been clarified, the term "armed escort" has been added and defined, and titles and definitions have been included in 10 CFR 73.2.

(2) *Suitability criteria.* Some commenters recommended that criteria for suitability and physical qualification be deleted. Some commenters stated that in view of the fact that the age of majority for voting, joining the armed services and entering into legal transactions is 18 years, a minimum age of 21 years for hiring security personnel would present legal problems if challenged under equal employment laws. Other commenters stated that the criteria for a high school diploma or equivalent and the prohibition against felony convictions should be clarified to avoid any complications that might arise because of employment opportunity laws.

In response to these comments the Commission has decided: (a) to permit licensees to employ unarmed security personnel under 21 years of age; (b) to elaborate on the meaning of high school equivalent; and (c) to be more explicit regarding types of felony convictions to be considered. The rule has been changed to clarify the meaning of high school equivalent, in terms of job connection, and in requiring no felony convictions to show a direct relationship between a felony conviction and the specific job assignment being sought. However, the Commission believes that because of the high level of responsibility associated with the job duties of armed personnel, suitability criteria are necessary. Accordingly, the minimum age requirement of 21 years has been retained for armed security personnel.

(3) *Physical qualifications criteria.* Some commenters stated that the rigidity of physical qualifications would severely limit the number of candidates available to fill security job functions and that the criteria specified would result in a violation of Federal age and sex discrimination laws.

In response to these comments the Commission has decided to delete the criteria requiring a physical examination for unarmed security personnel except for central alarm station operators and instead will require such personnel to be physically capable of performing assigned security job duties. The criteria specifying the requirement for physical examinations have been revised to apply only to armed security personnel and central alarm station operators.

(4) *Vision and hearing criteria.* Commenters made the following statements about the proposed vision and hearing criteria: (a) they are overly restrictive; (b) unarmed security personnel should not be required to meet the criteria; (c) the requirement for recog-

nizing basic colors should be clarified; (d) the use of a hearing aid should be allowed to correct hearing impairment; (e) that additional clarification of these requirements is essential; and (f) that it would be preferable to specify minimum requirements in terms of the better ear.

In response to these comments the Commission has decided that: (a) unarmed security personnel should be exempt from vision and hearing requirements unless required by assigned security related task identified in the licensee's plan; (b) the criteria need to be clarified; and (c) a hearing aid to correct hearing impairment should be permitted. Accordingly, the criteria which specify vision and hearing requirements have been revised to: (a) Apply explicitly to armed personnel; (b) clarify the requirements; and (c) permit the use of a hearing aid to meet hearing requirements.

(5) *Mental qualifications criteria.* Some commenters stated that the requirement for each security force member to be examined by a licensed clinical psychologist or psychiatrist is unnecessary and overly restrictive, and that adequate psychological screening is within the capabilities of a general physician who has experience in such matters. Other commenters stated that an option to the mental examination should be available, and suggest that individuals employed by the same firm for more than 2 years with no sign of emotional instability should be excused from taking the mental examination.

In response to these comments the Commission has determined that: (a) psychological evaluations should be administered by a licensed psychologist, or psychiatrist, or physician or other person professionally trained to identify emotional instability; (b) persons other than armed personnel and central alarm station operators need not undergo psychological evaluation; and (c) the granting of exemptions or exceptions to NRC requirements, properly supported and documented, will continue to be a licensing responsibility. Accordingly, mental qualifications criteria have been revised to require only armed personnel and central station operators to undergo psychological examination, and to permit subsequent identification of possible emotional instability for these and all other security personnel by normal supervisory personnel, subject to verification by an appropriately licensed and trained person.

(6) *Contract security personnel.* Commenters stated that requirements for contract security personnel should be job duty related.

In response to these comments the Commission agreed that contract security personnel should be required to meet the same criteria for specific security job tasks and duties that would be required for a licensee proprietary guard force. Accordingly, contract se-

curity personnel criteria have been revised to be job related just as for in-house security personnel.

(7) *Training and qualifications.* Some commenters stated that the proposed training and qualifications criteria attempt to be too broad and all inclusive in scope while sacrificing quality, indepth education and training. Most commenters stated that the overall concept of specifying in fine detail each course of instruction, the number of hours of instruction for each course, the individuals who would be required to attend each course, the documenting of names of instructors and places of instruction for each course, specific training requirements for licensee management and security supervisory personnel, etc., would not necessarily achieve the desired objective of uniformly upgrading the quality of security personnel at licensed facilities and in transportation because training in itself would not measure an individual's capability to perform assigned security job duties. In addition, commenters stated that there appeared to be much duplication among the proposed training programs, and that training programs and facilities would more properly be designed and implemented on a site specific basis.

In response to these comments the Commission has decided that, because of site specific requirements as they relate to security hardware, physical barriers, material access and vital areas, alarm systems, and procedures required to implement a licensee's physical security and contingency plans, the training and qualifications criteria should be revised to give the licensee greater latitude to design and develop site specific training requirements and programs to meet site specific needs. In order to accomplish this, the training and qualifications criteria have been revised to require each licensee to submit a training and qualifications plan which outlines the processes by which guards, watchmen, armed response persons, armed escorts and other members of the security organization will be selected, trained, equipped, tested, and qualified to assure these individuals meet the requirements.

(8) *Security management.* Commenters stated that the criterion which specifies a training program and hours of instruction for managers does not clearly define up to what level of management would be required to receive such training. One commenter stated that rather than requiring specific training for management, the NRC should specify minimum qualifications for the various functions within management and that the NRC should provide any additional security training that the NRC deems necessary.

In response to these comments the Commission has decided to delete the requirement for security management



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training. The revised criteria for training and qualifications described in (7) above will assure the Commission that the proper level of management will be involved in the decision making and implementation process in the qualification and training of guards.

(9) *Weapons training.* Most commenters stated that weapons training requirements: (a) were excessive with respect to number of hours of instruction required; (b) were not clear as to who should undergo the training; (c) specified unnecessary training time, since performance requirements are later specified in section IV of appendix B; and (d) did not take into account individuals with previous weapons experience.

In response to these comments the Commission has decided that the weapons training criteria should be stated in terms that would permit flexibility with respect to hours of instruction required based on an individual's experience and to permit the licensee to identify by security related job tasks or duties, which individuals would be required to qualify with weapons and the weapon with which they would qualify. To effect this change the weapons training criteria have been revised to delete the number of hours of training required to give the licensee the requisite flexibility in determining by job assignment who will receive training and the extent of training required to qualify with the assigned weapon.

(10) *Weapons qualification.* Commenters stated that: (a) It would be difficult to establish and operate the firing ranges needed for weapons qualification because of training facility limitations; (b) the requirements for both day and night range firing is not necessary to achieve and maintain firing proficiency; (c) lighting presently required at nuclear facilities would preempt any need for night firing; and (d) firing ranges are not equipped to duplicate lighting at nuclear facilities. This can only be done using military type battlefield illumination sources which are beyond the scope of private licensees.

In response to these comments the Commission has decided: (a) That weapons qualification requirements should be relaxed to give the licensees flexibility in designing their weapons qualifications programs and to permit licensee armed personnel to either fire the course specified or to select an equivalent course of fire; and (b) that it is necessary to require armed individuals to perform nighttime or simulated nighttime firing for familiarization only, because of the varying psychological effects on persons not accustomed to night firing. Accordingly, weapons qualification criteria have been revised to permit the licensee to either select the course of fire specified or to choose an equivalent course of fire to qualify armed personnel. In addition, the criteria requires individ-

uals to qualify only with assigned weapons as identified in the licensee's plan.

(11) *Suggestive phrases.* Commenters noted that phrases such as "• • • but not limited to • • •" and "• • • as appropriate • • •" were suggestive, not definitive, and implicitly require more to be done.

The criteria in appendix B have been changed to eliminate these phrases. As revised, the requirements are stated broadly in terms of capability and performance to permit flexibility in the design of training and qualifications programs. The Commission believes that the revised rule will assure the upgraded quality of licensee security personnel so that open-ended, suggestive wording is unnecessary.

(12) and (13) *Licensee plan submitted and implementation.* Commenters stated that the Commission did not provide for adequate time to develop a plan in response to the proposed requirements, or provide sufficient time to implement the plan after it has been approved.

The Commission agrees that adequate time must be allowed for proper planning and implementation to assure effective programs. The rule has been changed to allow more time for planning and implementation.

In addition to the comments that resulted in changes in the proposed amendments, a number of other issues were commented on which did not result in changes to the proposed amendments, but which warrant discussion and explanation.

(1) *Security personnel training manual.* One commenter stated that the training manual should not be published as a NUREG document if the manual is intended to demonstrate one acceptable approach to satisfying the requirements of the proposed regulation.

The Commission had intended for the training manual to represent a general course outline for training security personnel and not to provide specific parallel guidance to meet each of the requirements of appendix B. It was not intended as a regulatory guide. The utility of the training manual will be enhanced, as a general document, in light of the revised amendments.

(2) *Environmental impact statement.* A few commenters stated that as a practical matter the drastic increase in security personnel training requirements proposed by the amendments would undoubtedly require additional security, administrative, and recordkeeping staff, therefore affecting other persons rather than dealing only with the training of existing security personnel; involve the potential employment rights and opportunities of numerous existing and future security personnel; and involve the potential issuance of advanced weaponry to private security forces. They believed

that the Commission has too narrowly construed the term "environment" contrary to Commission policy as stated in 10 CFR 51.1(a), concluding that an environmental impact statement is required to satisfy NRC's obligations under NEPA and CEQ guidelines.

The Commission has reviewed the criteria provided in 10 CFR Part 51, the Council on Environmental Quality (CEQ) and National Environmental Policy Act (NEPA) guidelines in light of the comments received and continues to believe that an environmental impact statement for the proposed amendments to 10 CFR Part 73 is not required. The main effect of the rule is to require training and qualification of security personnel and is basically procedural, with no environmental effect worth noting.

(3) *Guard upgrading.* One commenter stated that the entire upgrading of guard qualification, training and equipping was unwarranted because his facility maintains liaison with local law enforcement authorities and that the local authorities have superior manpower, training and equipment to deal with security contingencies beyond the control of the site security organization.

Based on the Joint ERDA-NRC Task Force on Safeguards and the Security Agency Study (SAS) reports, the Commission decided that the upgrading of licensee guard quality was necessary. In support of this decision, the Commission also compared the content and scope of training programs submitted by each licensee to meet the present requirements with the guidance the NRC provided through regulatory guide 5.20. The results of this comparison revealed that present training programs for new guards would not produce the quality needed to assure the effective protection of special nuclear materials, facilities, or shipments. The fact that licensees maintain liaison with local law enforcement authorities was considered in the decision to require upgraded guard quality, accepting that proximity to, response time by, and the number of responding local authorities could bear on the degree of upgrading that would be required in onsite response force numbers and tactical training requirements.

(4) *Tear gas or mace.* Numerous comments were made that the use of tear gas or mace would violate certain State laws which prohibit the use of such substances by private citizens. Tear gas or other nonlethal gases will continue to be required, and where State law prohibits such possession and use by private citizens, adequately supported requests for exemption may be granted or equivalent alternative protection measures may be proposed in conjunction with a request for exception from the specific requirement.

(5) *Costs.* There were a few comments made relative to costs to imple-

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ment the proposed requirements. One commenter did provide a cost estimate for training his existing guard force plus annual cost for training new hires. No basis was given to support these or the other estimates. The cost effectiveness of alternative training programs will be investigated as part of the logistical management study identified in paragraph 1. Staff has prepared a value-impact assessment which has been placed in the public document room which provides a breakdown of the cost estimates including statements of benefit whenever possible. The important aspect of the proposed regulation, as now written, is that the job related performance orientation will give the licensee greater flexibility in developing the most cost-effective training program for his plant and transport system.

(6) A few comments were received in response to the Commission's request for comments, recommendations, and cost tradeoffs on the alternate approaches available for training personnel, and the alternative of certifying training programs vs. certifying of individuals, to assist the Commission in arriving at a consensus as to the most cost-effective approach for conducting security personnel training. These comments can be categorized generally as follows:

(i) Central and regional training versus local training.

(ii) Certification of training programs versus certification of individuals.

(iii) Training costs.

The following discussion pertains to items (i) through (iii) above.

(i) Comments received were both in favor of and opposed to the need for establishing central or regional training facilities. Persons favoring the establishment of central or regional training facilities stated that such facilities could be established by or under contract to the NRC, possibly using existing Federal installations. Since there would be only a few instructors available with the expertise necessary to teach some of the courses required, the staffing of central or regional facilities would not be difficult, while the simultaneous staffing of localized training facilities may not be achievable. Such commenters also stated that with central or regional training facilities, changes in the Commission's regulations could be implemented directly, and that the skill levels of graduates would be consistent throughout the industry. No cost figures were provided by commenters advocating the establishment of central or regional facilities.

Commenters opposing central or regional training facilities stated that the expenses for transporting, feeding, and housing individuals at a central or regional facilities would add substantially to the cost for training. Under either of these training arrangements, it would be difficult to provide site

specific training sufficient to meet the needs of each licensee. Additionally, regional centers or a central facility would necessitate pooling of security personnel from various licensees for each class of students, which would increase the probability of unauthorized disclosure of sensitive and proprietary licensee physical security system information. No cost comparison estimates were provided to support the position of commenters opposed to central or regional training of security personnel.

(ii) Commenters stated that the alternative of certifying training programs for a specific training center versus certification of security personnel would only be acceptable from a cost-effective standpoint if each licensee or the employer of the personnel could operate its own certified training centers. One commenter stated that the requirements should be defined, methods for certification identified, and actual training programs be made available prior to implementation of the proposed rule.

(iii) A few commenters provided generalized and unsupported costs for implementing the proposed amendments. They also expressed concern that they were limited in attracting younger personnel who might meet the requirements, and historically, they have experienced a high turnover rate in security personnel which would drive the costs for training and retraining even higher.

The Commission agrees that there are economic advantages and disadvantages and other problems associated with the alternative means available for training licensee security personnel. The revised amendments take into consideration the Commission's objective to assure that security personnel quality be uniformly upgraded at licensee facilities and in transportation. This can be achieved by either close coordination with all training programs, or by a means for assuring that each person assigned to perform security tasks is properly equipped and qualified to do so. The revised amendments follow the latter approach and do not specifically address training details. Nevertheless, the Commission is still concerned that some level of uniformity of performance should be established for all affected licensees. As stated in July 1977, the Commission will study alternative approaches to training personnel and the alternative of certifying training programs or individuals. There is underway a logistical management study which should assist the Commission in deciding on the most cost-effective approach available for certification, and will provide the licensees information on the cost effectiveness of each of the training alternatives to meet NRC requirements. In addition, the results of the study should provide information on the availability of instructors with the ex-

pertise necessary to train security personnel. The results of this study should be available around November 15, 1978. These results, along with the experience gained from implementation of the effective rule, will be used in the decision making process by the Commission to determine whether a more structured system of training of security personnel should be recommended to licensees.

The Commission has determined under Council of Environmental Quality guidelines and the criteria in 10 CFR Part 51.5(d)(3), that neither an environmental impact statement nor environmental impact appraisal to support a negative declaration for the proposed amendments to 10 CFR Part 73 is required because the amendments deal primarily with the qualification and training of existing security personnel and do not directly or indirectly affect the environment.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 73 are published as a document subject to codification.

44 FR 34466

Published 6/15/79

Effective 7/16/79

Comment period expires 8/17/79

10 CFR Part 73

### Physical Protection of Irradiated Reactor Fuel In Transit

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Interim final rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission has decided to establish requirements for protection of spent fuel in transit. A recent study suggests that the sabotage of spent fuel shipments has the potential for producing serious radiological consequences in areas of high population density. It will be some time before confirmatory research relative to the estimated consequences resulting from a successful act of sabotage on spent fuel can be completed. In the meantime, the Commission believes that interim requirements for the protection of such shipments should be issued immediately. This rule is subject to reconsideration or revision based on public comments received subsequent to its publication. Concurrently, the NRC is issuing guidance documentation (NUREG-0561) to assist licensees in the implementation of these requirements. The Public is invited to submit its views

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and comments on both the Rule and the Guidance.

**EFFECTIVE DATE:** July 16, 1979.

**DATE:** Comment period expires August 17, 1979.

**ADDRESSES:** Written comments should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch.

**FOR FURTHER INFORMATION CONTACT:** Mr. L. J. Evans, Jr., Regulatory Improvements Branch, Division of Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Phone (301) 427-4181.

**SUPPLEMENTARY INFORMATION:** The U.S. Nuclear Regulatory Commission is amending 10 CFR 73 of its regulations to provide interim requirements for the protection of spent fuel in transit. This amendment is being published in effective form without benefit of public comment in the interest of the public health and safety.

Previous studies (NUREG-0194, Calculations of Radiological Consequences from Sabotage of Shipping Casks for Spent Fuel and High-Level Waste, February 1977; NUREG-0170, FES on the Transportation of Radioactive Material by Air and Other Modes, December 1977), estimated the health effects of a radiological release in a non-urban area resulting from a high-explosive assault on a spent fuel cask. The estimated risks were not considered so substantive as to warrant regulatory action. A subsequent study by Sandia Laboratories includes a chapter on the sabotage of spent fuel in urban areas of high population density (SAND-77-1927, Transport of Radionuclides in Urban Environs: A working Draft Assessment). This study suggests that the sabotage of spent fuel shipments has the potential for producing serious radiological consequences in areas of high population density. The Commission has concluded that, in order to protect health and to minimize danger to life and property (Sections 161b and 161i(3) of the Atomic Energy Act of 1954, as amended), it is prudent and desirable to require certain interim safeguards measures for spent fuel shipments. The interim rule would be in effect until the results of confirmatory research are available and analyzed.

The focus of concern is on possible successful acts of sabotage in densely populated urban areas. Because of the possibility that spent fuel shipments could be hijacked and moved from low population areas to high population areas, the interim requirements apply to

all shipments even though the planned shipment route may not pass through densely populated urban areas.

Prior to publication of this rule, informal contact was made with the carriers primarily involved in spent fuel shipments as well as with other interested parties, and their comments are known to the staff. It was ascertained that the imposition of these requirements would probably double the cost per mile rate for these shipments for an increase of approximately \$200,000 per year for the estimated 200 annual shipments involved.

Because spent fuel shipments are ongoing and the time of sabotage cannot be predicted, the Commission is of the opinion that time is of the essence in this matter, and that health and safety considerations override the necessity for public comment before issuance of an effective rule. Accordingly, the Commission, for good cause, finds that notice and public procedure are unnecessary and contrary to the public interest.

Although this rule is being published in effective form without a prior public comment period, the public is invited to submit its views and comments. After reviewing these views and comments, the Commission may reconsider or modify the interim rule as it deems necessary.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 73, are published as a document subject to codification.

44 FR 43280

Published 7/24/79

Effective 11/21/79

*Safeguard Requirements for Special Nuclear Materials of Moderate and Low Strategic Significance*

See Part 70 Statements of Considerations.

44 FR 68184

Published 11/28/79

Effective 3/25/80

## 10 CFR Parts 70, 73, and 150

### Physical Protection Upgrade Rule

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** In July 1977, the Commission published for public comment proposed amendments to its regulations for strengthened physical protection for strategic special nuclear material, certain fuel cycle facilities, transportation and other activities involving significant quantities of strategic special nuclear material. Extensive comments were received and a revision of the proposed amendments was published in August 1978 requesting public comment on the changes made.

In response to public comments, some additional changes have been made to the proposed amendments. The Nuclear Regulatory Commission now is publishing these revised amendments in final form.

The NRC has issued for public comment guidance documentation to assist the licensee in the development of safeguards physical protection and transportation protection plans and the implementation of such plans required by the amendments. The effective date of the revised requirements has been set to permit public comment on the guidance and its issuance in final form at the time the requirements become effective.

**EFFECTIVE DATE:** March 25, 1980.

**Note.**—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for review of its reporting requirement under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of the rule becomes effective, unless advised to the contrary, includes a 45-day period which that statute allows for Comptroller General review (44 U.S.C. 3512(c)(2)).

**FOR FURTHER INFORMATION CONTACT:** Mr. L. J. Evans, Jr., Chief, Regulatory Improvements Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-427-4181, or Dr. W. B. Brown, Acting Chief, Safeguards Standards Branch, Division of Siting, Health And Safeguards Standards, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-443-5907.

**SUPPLEMENTARY INFORMATION:** On July 5, 1977, the Nuclear Regulatory Commission published in the *Federal Register* (42 FR 34310) proposed amendments to 10 CFR Part 73 of its regulations. Interested persons were invited to submit written comments and suggestions in connection with the

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proposed amendments within 45 days after publication in the *Federal Register*. The comment period was subsequently extended thirty days. Upon consideration of the comments received on the proposed amendments published on July 5, 1977 and upon consideration of other factors involved, the Nuclear Regulatory Commission published revised proposed amendments on August 9, 1978 in the *Federal Register* (43 FR 35321) to obtain further public comment on the changes that had been made to the proposed amendments.

Significant differences from the original proposed amendments published for comment on July 5, 1977 were: (1) The definition of the conspiracy threat was changed to a conspiracy between individuals in any position who may have access to and detailed knowledge of the facilities and activities referred to in § 73.20(a) or items that could facilitate theft of special nuclear material or both; (2) export/import requirements were revised to reflect the jurisdictional aspects of the regulation; (3) the phrase " \* \* \* but not necessarily limited to \* \* \*" was deleted from the general performance requirements and capability requirements; (4) the package search requirements were changed so that packages carried into a protected area by persons having access authorization need only be searched when that person is chosen for random search. The package search requirement also was changed to require only random search of packages delivered into a protected area; (5) the Contingency and Response plan requirements for in-transit protection were revised to add more detailed response requirements consistent with the fixed site requirements; (6) the requirement for three armed escorts on cargo aircraft and for sea shipments was changed to two; (7) the requirement for Pu and U-233 containers resistant to small arms fire was deleted; (8) the export/import security plan approval requirement was changed to apply to all shipments and was clarified as to timing; (9) the requirement for alarm stations to be considered vital areas was changed; (10) the use of vault type rooms for storage of strategic special nuclear material directly useable in a nuclear explosive device was prohibited and the definition of vault changed to better reflect the purpose of vaults; (11) the word "immediately" was deleted from the requirement that armed response personnel be immediately available; (12) definitions were added for deceit, stealth, and force, and other changes in wording and language were made throughout the rule to clarify the intent and be more specific in the

meaning of the requirements; (13) obsolete sections to be deleted when the effective rule is published were noted; and (14) planning and implementation times were changed.

After review of the latest round of comments, the following substantive changes have been made: (1) Non-power reactors are not required to meet the provisions of the upgrade rule. As an interim measure, non-power reactors must meet the provisions of § 73.67 (a), (b), (c), (d), (requirements for protection of material of low and moderate strategic significance), and in some cases of the provisions of a revised § 73.60 (for those non-power reactor facilities possessing formula quantities of special nuclear material not meeting the 100 rem self-protection exemption); (2) the definition of vault has been further revised and required vault attributes have been added to § 73.46(c)(5)(i); (3) the number of armed escorts required for transfer, rail and road transportation of domestic shipments of SSNM has been reduced from nine to seven individuals; (4) the requirement for "penetration resistant" tamper-indicating containers for storage of certain SSNM has been changed to tamper-indicating containers; (5) the requirement for a third closed circuit television monitor of vaults has been changed; (6) a definition has been added for "undergoing processing;" (7) planning and implementation times have been changed; (8) the design basis threat relating to theft of strategic special nuclear material has been modified and moved to § 73.1(a); (9) the design basis threat statement relating to radiological sabotage (present § 73.55) has been modified and moved to § 73.1(a); and (10) the "high assurance phrase" contained in § 73.20(a) of the proposed rule and in present § 73.55(a) has been modified to state that the physical protection system will have as its objective to provide high assurance. In addition, changes in wording and language have been made throughout the rule for clarification, and conforming changes in references to and by existing sections have been made.

The following discussion pertains to items (1) through (10) above.

(1) Application of the requirements of these amendments to non-power reactors possessing formula quantities of special nuclear material which cannot meet the 100 rem self-protection exemption has been deferred pending completion of a separate on-going review of total safeguards requirements adequacy at such facilities. In the interim, such licensees will be subject to the provisions of § 73.67 (a), (b), (c), and (d), and revised § 73.60. This is an interim solution only, and it is the intent

of the Commission to bring non-power reactors under an improved safeguards system in the near future.

(2) Commenters noted that the definition of vault, while attempting to specify a delay capability tied to the response time of LLEA, failed to account for the significance of other aspects of the security system, such as intrusion detection and communication, in determining that response time. Additionally, the use of LLEA response time as the criterion for measuring vault delay time was criticized as being impractical and ignoring the protection afforded by response of the armed onsite security force. Accordingly, the definition has been changed and an additional discussion of required vault attributes has been added to § 73.46.

(3) In determining a specific number of armed escorts for domestic transfers, rail, and road shipments, the basic principles were that force size be large enough to engage a small group of attackers and delay theft and that this force would always be composed of two distinct separated groups, so that no single act which interrupted communications of one group would totally destroy the ability to communicate to the movement control center. The Commission, in reviewing the differences in performance that could be expected from different group sizes, determined that seven armed individuals could provide the necessary protection while lessening labor expense. The rule has been changed accordingly.

(4) Comments questioned whether a "penetration resistant" tamper-indicating container was adequately defined, available, or even necessary. As the meaning of penetration resistant was not clear, availability of containers was not certain, and the need for such containers was not defined, the rule was changed to delete the terms "penetration resistant."

(5) Commenters stated that requiring a third continuously manned location to monitor closed circuit television was equivalent to requiring a third alarm station. The intent of this provision was to add a third factor to protect against collusion between the two alarm station operators. After review, the Commission has determined that this factor could be provided without the specific requirements of a third CCTV monitor. The rule has been changed accordingly.

(6) Commenters expressed confusion as to when protection requirements were required while SSNM is undergoing processing. A definition has been added to § 73.2 to define undergoing processing and to clarify the distinction between such processing and storage for application of protection requirements.

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(7) The implementation schedule has been simplified. There is now one schedule required for planning and implementing a revised security program, rather than separate schedules for the external threat plan and internal conspiracy plan as previously proposed. The prior two schedule approach was to permit time for development of guidance for protection against the internal conspiracy. This guidance has now been developed so that a schedule delay is not necessary.

(8) Based upon review of the design basis threat, the previous threat description stated as a general performance requirement in § 73.20(a) has been modified to reflect a reference to the malevolent act of concern (theft or diversion) rather than a reference to the type of facility to be protected and has been moved to § 73.1. Appropriate reference changes have been made accordingly.

(9) The existing design basis threat stated in § 73.55(a) for nuclear power reactors has also been modified as in (7) above to be referenced to the radiological sabotage threat rather than to the facility to be protected and has been moved to § 73.1. Appropriate reference changes have been made accordingly.

(10) The Commission has modified the statement of general performance requirements. Paragraph 73.20(a) of the proposed rule required the physical protection system to prevent theft of strategic special nuclear material and to protect against radiological sabotage with high assurance. This paragraph has been modified to state that the physical protection system will have as its objective to provide high assurance that covered activities are not inimical to the common defense and security and do not constitute an unreasonable risk to public health and safety.

The Commission is also making a conforming modification to 10 CFR 73.55(a) to state an objective of high assurance in the performance of security systems to protect against radiological sabotage at nuclear power reactors identical to the general performance objective in 10 CFR 73.20(a). This is a change from the present 10 CFR 73.55(a) which currently calls for high assurance in performance as a requirement of physical security systems. It is important to note that this change will not affect the Commission's judgments of what system requirements are necessary to assure provision of adequate safeguards against radiological sabotage, theft or diversion. "High assurance," as used in 10 CFR 73.55(a), is deemed to be comparable to the degree of assurance contemplated by the Commission in its safety review for protection against severe postulated

accidents having potential consequences similar to the potential consequences from reactor sabotage. It should be appreciated that the standard "reasonable assurance," commonly used in safety evaluations, is applied to a broad category of safety concerns ranging from the mitigation of minor anticipated operational occurrences to protection against severe postulated accidents. Thus, the degree of assurance necessary to provide "reasonable assurance" varies with the gravity of the safety concern.

In adopting these amendments, the Commission decided that the requirements should not be made effective until guidance had been published assisting licensees in conforming to performance-oriented physical protection requirements for affected facilities and activities. Allowance for consideration of public comments on this guidance has been built into the time period specifying the effective date of the amendments. Prior to the publication of these amendments, two guidance documents have been published for public comment. These are: (1) "Fixed Site Physical Protection Upgrade Rule Guidance Compendium, Volumes I and II" and (2) Regulatory Guide 5. (SG904-4), "Standard Format and Content, Physical Protection of Strategic Special Nuclear Material In Transit."

In addition, revisions to Regulatory Guides 5.7, "Exit/Entry Control to Protected Areas, Vital Areas, and Material Access Areas," 5.14, "The Use of Observation (Visual Surveillance) Techniques in Material Access Areas," 5.44, "Perimeter Alarm Systems," and 5.57, "Shipping and Receiving Control of Special Nuclear Material," have been made. These documents also have been published for comment.

Copies of these new and revised guidance documents have been sent to persons who have expressed an interest in this matter. Comments have been received so that final guidance can be published by the time the rule becomes effective on March 25, 1980. Copies of these documents also will be placed in the Commission's Public Document Room at 1717 H Street, NW., Washington, D.C.

The Commission believes that a significant number of comments for which no changes to the amendments were made will be satisfactorily addressed by this guidance documentation to be published concurrently with the effective date of these amendments.

In addition to the comments that resulted in changes in the proposed amendments, the threat and general performance requirements were again

questioned. The Commission believes it is worth restating the purpose and intent of the threat characterization and its relationship to the general performance requirements.

The purpose of the threat defined in the proposed amendments is to define the general character of the domestic safeguards challenge. It is intended to provide a design basis for physical protection systems; therefore, additional adversary attributes are not necessary to serve this purpose. Physical protection systems, when designed to the level specified in the general performance sections of the rule and in accordance with the reference system specified in the rule and other design guidance to be provided, will be responsive to a general range of threats characterized by that stated in the amendments.

With respect to specific numbers of adversaries, the numbers are not as significant as are the capabilities and resources of the adversary. For example, the threat from a disorganized mob of fifty or so people is much different from that of only a few well-organized, well-trained people.

Given that the described threat is a design basis for a physical protection system, additional design criteria are given in the form of required system capabilities. These capabilities are further supported by a reference safeguards system (§ 73.46) which provides guidance concerning those safeguards measures which will generally be included in a physical protection system that achieves the required performance capabilities.

The Commission has determined under Council of Environmental Quality guidelines and the criteria in 10 CFR Part 51 that an environmental impact statement for the amendments to 10 CFR Part 73 is not required. Concurrently with publication of the notice of proposed rulemaking of July 5, 1977 (42 FR 34310), the Commission made available in its Public Document Room at 1717 H Street NW., Washington, D.C., an "Environmental Impact Appraisal of Amendments to 10 CFR Part 73" to support a Negative Declaration. This document is appropriate for the revised amendments as well.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 70, 73, and 150, are published as a document subject to codification.

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45FR14199

Published 3/5/80

Effective 3/5/80

### *Minor and Clarifying Amendments*

#### See Part 1 Statements of Consideration

45 FR 19215

Published 3/25/80

Effective 3/25/80

#### 10 CFR Part 73

##### **Extension of Dates for Submitting and for Implementing Security Plans in Response to Requirements for the Physical Protection of Special Nuclear Material of Moderate and Low Strategic Significance.**

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission extends from March 20, 1980, to May 18, 1980, the date for submitting physical security plans or amendments thereto in response to § 73.67(c)(1) of 10 CFR Part 73. The Nuclear Regulatory Commission also extends from July 24, 1980, to September 21, 1980, the date for implementing NRC approved security plans, as provided in paragraph 73.67(c)(2) of 10 CFR Part 73. These extensions are made because of a 50-day delay in publishing the final guidance needed for implementing the rule.

**EFFECTIVE DATE:** March 25, 1980.

**FOR FURTHER INFORMATION CONTACT:** James A. Prell, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 Telephone: 301-443-5904, or C. K. Nulsen, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 Telephone: 301-427-4181.

**SUPPLEMENTARY INFORMATION:** On July 24, 1979, the U.S. Nuclear Regulatory Commission published in final form regulations entitled, "Safeguard Requirements for Special Nuclear Material of Moderate and Low Strategic Significance" (44 FR 43280). These regulations became effective 120 days later, with licensees being required to submit plans for protecting special nuclear material of moderate or low strategic significance by March 20, 1980, and to put into effect NRC approved security plans for implementing the rule by July 24, 1980. The 120-day delay was intended to allow time for (1) NRC to

publish, for public comment, supporting guidance needed to implement the rule, the (2) NRC to incorporate comments received and to publish the guidance in final form. Because of extensive revisions to the guidance caused by both public and Commission comments, the final guidance was not published until January 10, 1980.

Since the publication of the guidance in final form was delayed by 50 days, licensees are being allowed 60 additional days for submitting security plans and for implementing the requirements of the rule. Accordingly, the Commission is amending its regulations by extending the date for submitting a security plan from March 20, 1980, to May 18, 1980, and the date for implementing the effective rule from July 24, 1980, to September 21, 1980.

Because this amendment relates solely to procedural matters, the Commission has found that good cause exists for omitting notice of proposed rule making, and public procedure thereon and for making the amendment immediately effective on March 25, 1980.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 73 is published as a document subject to codification

45 FR 37399

Published 6/3/80

Effective 7/3/80

#### 10 CFR Part 73

##### **Physical Protection of Irradiated Reactor Fuel in Transit**

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Effective amendments to interim final rule.

**SUMMARY:** The Commission is amending its interim rule for the physical protection of irradiated reactor fuel (spent fuel) in transit which was issued on June 15, 1979. The interim rule and a related guidance document designated NUREG-0561 were issued in effective form without the benefit of public comment. Public comments were, however, solicited on both the interim regulation and the guidance document. This notice summarizes the comments, gives the Commission response to each, and sets forth the interim amended rule in final form.

**EFFECTIVE DATE:** July 3, 1980.

**Note.**—The Nuclear Regulatory

Commission has submitted this rule to the Comptroller General for review under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the record keeping requirement of § 73.37(b)(5) becomes effective, unless advised to the contrary, will be 75 days following publication in the **Federal Register**. This time period reflects inclusion of the 45 days which the General Accounting Office is allowed for its review (44 U.S.C. 3512(c)(2)).

#### **FOR FURTHER INFORMATION CONTACT:**

Mr. L. J. Evans, Jr., Chief, Regulatory Improvements Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards. The telephone number is (301) 427-4181.

**SUPPLEMENTARY INFORMATION:** On June 15, 1979, the U.S. Nuclear Regulatory Commission amended 10 CFR Part 73 of its regulations to provide immediately effective interim requirements for the protection of spent fuel in transit. Concurrently, the NRC issued a guidance document (NUREG-0561) to assist licensees in carrying out the requirements. Both the amendment and the guidance document were published without benefit of public comment in the interest of the public health and safety. At the time of publication, the public was invited to submit its views and comments. After reviewing comments received from the public, and after taking into account the experience gained during the several months that the amendments have been effective, the Commission has decided to make a number of changes to the amendments and to NUREG-0561. All references to specific sections of the regulation refer to the June 15, 1979 version of the regulation, unless otherwise specified.

A. Following is a summary of changes to the amendments. These changes were, of course, accompanied by appropriate changes to NUREG-0561.

(1) *Small quantity shipments.* Some comments suggest that the scope of the rule should be revised to specify for spent fuel a threshold quantity below which protection requirements would not apply. The Commission agrees with this suggestion and has modified § 73.1(b)(5) and § 73.37(a) to set the threshold level at 100 grams in net weight of irradiated fuel (i.e., uranium, plutonium and associated fission products) exclusive of cladding or other structural or packaging material; thus shipments of spent fuel in quantities below 100 grams need not be protected. It is believed that the 100 gram threshold is in the public interest inasmuch as it would simplify the transport of small quantities, such as those made in connection with spent fuel research activities. The calculated average radiological consequences of successful sabotage of a shipment of 100 grams of spent fuel even in a heavily populated



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environment are negligible.

The language of § 73.1(b)(5) and § 73.37(a) has also been changed to clarify which shipments are covered by the amendments. Shipments of material which are exempt from the requirements of § 73.30 through § 73.36 on the basis of the external radiation dose rate associated with such shipments, are now referred to in the regulations directly in terms of their dose rate, rather than in terms of their exemption from another rule. The guidance will clarify that the dose rate measurement in the case of smaller shipments, which may involve multiple packaging, should refer to the arrangement of shipment packages which results in the highest measurable external dose rate. This should eliminate any ambiguity which may arise from the possibility that the highest measurable dose rate for a grouping of several different packages comprising a single shipment may depend on the particular arrangement and orientation of the packages within the transport vehicle.

(2) *Transit through heavily populated areas.* Some comments suggest that the NRC modify its current embargo of shipments through heavily populated areas. These comments contend that truck shipments should not be required to depart from interstate highways, even in heavily populated areas. Some of these comments further contend that interstate highways are safer and faster than alternative routes, that police response time is faster along interstate than secondary routes, that hijacked shipments would be easier to locate on interstates, and that interstates offer saboteurs less advantage of protracted concealment. Comments noted that prior to the issuance of the regulation, routes were being chosen to avoid heavily populated areas and to minimize shipment time. Some comments contend that shipments protected by armed escorts as outlined in the guidance document should be permitted to transit heavily populated areas.

Other comments suggest that NRC continue to strengthen its current embargo on spent fuel transit through heavily populated areas. They ask that the "where practicable" exception in 10 CFR 73.37(a)(3) be eliminated. They also ask that the guidance document be modified to eliminate extra driving time as a basis for exception, unless there are overriding safety and safeguards considerations. Some comments suggest that the NRC emphasize the use of routes through areas of low population density.

The NRC considered two alternative protection strategies. Under the first alternative, shipments would be planned to avoid heavily populated areas where practicable. Preliminary analysis

indicated that most spent fuel shipments would move by road and suggested that avoidance of heavily populated areas is generally practicable. This alternative became the basis for the rule issued on June 15, 1979. The chief benefit of this alternative is that it takes advantage of the fact that sabotage of spent fuel must take place in a heavily populated area if the serious consequences discussed in a Sandia Report (SAND 77-1927) are to be obtained. The necessary conditions for successful sabotage would thus entail the adversary gaining control over the shipment, moving it to a heavily populated area, and then placing and detonating the necessary explosive charge. It is believed that the measures set forth in the June 15, 1979 regulation are capable of interrupting this sequence of events. The principal disadvantage of this protection strategy stems from the fact that the highway system is designed to connect population centers, and therefore major highways pass near or through the population centers. Avoidance of heavily populated areas leads to the use of secondary roads. Compared with interstate highways, these secondary roads are characterized by a higher likelihood of conventional traffic accident, by longer times in transit, by less frequent patrolling by the local law enforcement agency (LLEA), and by lengthened response times in the event that LLEA assistance is requested.

Under the second alternative, shipments would be permitted to transit heavily populated areas under armed escort. The significant advantages and disadvantages of the first alternative are interchanged in the second alternative. In the second alternative, highways are the best available, the likelihood of a conventional traffic accident is reduced, total travel time for the shipment is reduced, the roads are more frequently patrolled by the LLEA, and the LLEA response time in the event of a call for assistance is reduced. On the other hand, spent fuel would be within heavily populated areas on a planned basis some of the time, thus satisfying one of the necessary conditions for successful sabotage with potentially serious consequences.

The Commission has decided that there is no clear advantage of the one alternative strategy over the other. Accordingly, the rule has been revised to allow either protection strategy to be used. The revised provisions make it clear that either (i) avoidance of heavily populated areas, or (ii) passage through heavily populated areas on approved routes employing additional protective measures, which are delineated in § 73.37(c)(1), (d)(1), and (e)(1), are acceptable routing alternatives. The Commission retains its earlier position

that interstate highways should be used whenever possible.

(3) *Performance objectives.* Some comments suggest that the NRC should provide criteria and guidelines for the use of force for the protection of spent fuel shipments. Another comment suggests that the regulation and guidance be modified to clarify whether escorts have the duty to defend spent fuel shipments or merely to detect and report threats to the shipment. The amendments have been modified to include a new section, now designated as § 73.37(a), which provides performance objectives to be achieved by the physical protection system for spent fuel shipments. These performance objectives do not specifically address the issue of the degree of force escorts are to use in protecting shipments, but indicate the general level of protection that is to be provided by the entire physical protection system. Within heavily populated areas, armed escorts are expected to carry out their assigned duties, including implementation of emergency procedures in case of attack, under the same legal umbrella extended all other private guards (or law enforcement personnel, in the case LLEA personnel are employed as escorts).

(4) *Clarification of certain terms.* Some comments request that certain troublesome phrases in the regulation be clarified. With respect to § 73.37(a)(3), which requires that "the route is planned to avoid, where practicable, heavily populated areas," comments request that the phrase "where practicable" be clarified. In § 73.37(d), which requires that " \* \* \* if it is not possible to avoid heavily populated areas, the Commission may require, depending on individual circumstances of the shipment, additional protective measures," comments request that the phrases "not possible" and "additional protective measures" be clarified. The requirements have been revised and the troublesome phrases have been eliminated or clarified.

(5) *Calls for assistance.* Some comments present the concern that the rule does not require that escorts communicate directly with the LLEA in the event that LLEA assistance is required. The Commission agrees with this concern. The regulation has been modified to explicitly require that escorts communicate directly with the LLEA in the event LLEA assistance is required.

(6) *Road shipments: Immobilization.* Some comments are concerned with the safety consequences of immobilization and that inadvertent operation of the immobilization device could lead to a serious accident. Some comments

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suggest that immobilization of both the tractor and the trailer (rather than the tractor or trailer) should be provided. Some comments suggest that the method of immobilization should be specified and approved by the NRC rather than allowing the method to be specified by the licensee. Other comments suggest the NRC analysts consider strengthening the immobilization requirement while simultaneously reducing the number of escort personnel required. Finally, one comment suggests that LLEA's along the route should be familiarized with the immobilization technique in the event that the need should arise to move a vehicle following activation of the immobilization device.

The NRC is concerned with the possible safety consequences of immobilization. The method of immobilization proposed by the licensee was intended to be reviewed by the NRC for its safety implications. The regulation has been modified to specifically require that the method of immobilization be approved by the NRC prior to the making of shipments. The intent of the regulation and the related guidance is to assure that, when operated, the immobilization device will delay movement of the spent fuel shipment for at least one-half hour. The immobilization provision is essentially a performance requirement that can be complied with by immobilizing the trailer or the tractor or both. The guidance has been reviewed and appears to be clear on this point.

It is also intended that the licensee should have the opportunity to use his ingenuity and skill in determining how to best accomplish the immobilization. Accordingly, the particular method of immobilization required has not been specified.

The staff recognizes that a licensee might develop alternative methods of immobilization. The staff will evaluate any proposed method of protection and will approve the proposal if it provides adequate protection against sabotage occurring in heavily populated areas.

The staff believes that it would be self defeating to familiarize a large number of individuals with the immobilization technique, with a view toward constructive use of this information in the event that the need should arise to move a vehicle following immobilization. Instead, the guidance document has been revised to suggest that the possible need for traffic control following operation of the immobilization device should be considered by the licensee when preparing the operating procedures for the shipment.

(7) *Road shipments: Training.* Some comments suggest a significant expansion of the driver and escort training program. Some of these

comments suggest that the training curriculum should include training in anti-sabotage and in initial response to spills of radioactive material. Some comments suggest that clarification of the level of proficiency needed to satisfy the training curriculum of Appendix D should be provided. One comment contends that some of the topics in Appendix D are superfluous. Another comment suggests that the training curriculum in Appendix D should apply to drivers as well as escorts. One comment suggests that the training program should emphasize safe driving techniques.

The driver and escort training requirements have been reviewed and the regulations and guidance have been adjusted accordingly. The revised amendments include specific requirements for familiarization of the driver and LLEA personnel with certain safeguards procedures, and inclusion of a weapons training and qualifications program for escorts who are armed. The Commission has decided that the training requirements, as revised, are consistent with the duties and responsibilities of the drivers and escorts.

(8) *Rail shipments: Route restrictions.* Some comments content that rail transport is penalized, compared with truck transport, through the lack of realistic alternative routes. The regulation has been modified to permit transport through heavily populated areas. One effect of that change is to eliminate the need for alternative rail routes which avoid heavily populated areas.

(9) *Rail shipments: Stops.* Some comments ask that the regulation and guidance pertaining to planned rail stops be modified to allow for the crew changes that take place every 100-200 miles. The comments also point out that rail shipment planners cannot meet the current stop criteria, which would permit stops only for refueling and provisions. These suggestions were adopted and the regulation and guidance document have been modified accordingly.

(10) *Shipments by sea.* Some comments suggest that the rule be expanded to include requirements for the protection of spent fuel aboard ships and boats. A review of the rule as published June 15, 1979, will show that § 73.1(b)(5), § 73.37(a), and § 73.37(d) apply to shipments independent of the mode of transport. However, in the interest of clarity, the rule has been revised to include a new section specifically addressing the protection of spent fuel shipments aboard vessels. New guidance has been added to NUREG-0561, accordingly.

(11) *Written log.* The original version

of NUREG-0561 contained a chapter describing a written log to be kept by shipment escorts during the course of a spent fuel shipment. The purpose of this log was to provide a durable record of the circumstances surrounding a given shipment, to support inspection and enforcement functions of the NRC, and form the basis for any further regulatory actions regarding spent fuel shipments, in general. It was determined that this guidance needed to be given a firm regulatory basis by specifically requiring the maintenance of a written log in the regulations. These requirements are comparable to the recordkeeping requirements of § 73.70, which cover shipments of other types of special nuclear material.

(12) *Communications center.* The amendments published on June 15, 1979, included requirements for calls by escorts to a "designated location," for purposes of monitoring the spent fuel shipment. Further details regarding the duties of personnel at this designated location were included in the guidance document, NUREG-0561. It was determined that further detail regarding this safeguards function would be desirable so as to give the detailed guidance included in NUREG-0561 a firm regulatory basis. The facility at the designated location has been termed the "communications center," and is now described in the regulation.

B. In some instances, the comments showed a need for modification of the guidance document alone. Following is a summary of those changes:

(1) *Definition of heavily populated areas.* A number of comments suggest that the definition of a heavily populated area be modified in various ways to permit more areas to qualify. Some point out that the present definition causes certain cities to be excluded from the list of heavily populated areas provided in the guidance document even though they have populations or population densities greater than some of those which were included. These anomalies were explained to arise from failures to take into account the combined populations of contiguous cities in the same urbanized area and the total populations of urbanized areas. Other comments suggested that areas with large temporary populations such as colleges be included although their permanent populations would not otherwise qualify the areas as heavily populated areas. Some comments suggested that specific cities be added to the list of heavily populated areas.

Reconsideration of the bases for defining heavily populated areas has led to a broader definition which is included in the revised guidance document. Accordingly, the number of urbanized

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areas listed as heavily populated areas is increased to approximately 180.

The NRC would like to take temporary population centers into account in determining whether an area qualifies as a heavily populated area. However, there are no readily available census figures upon which the NRC presently can base such determinations. Therefore, the NRC invites officials of temporary population centers to submit, to the NRC, information in support of including that area in the list of heavily populated areas.

This same mechanism will be used to assist in the continuous updating of the list relative to those areas meeting the population criteria.

(2) *Road shipments: Criteria for selection of highways.* Some comments suggest that NRC guidance should include a prioritizing or ordering of the various highway types (interstate, 4 lane, 2 lane marked, 2 lane unmarked, etc.) to aid licensees in the selection of alternative routes. One comment suggests that routes used in the past for spent fuel shipments, including routes used for military spent fuel shipments, should be approved automatically. The suggestion to prioritize route highway-types was adopted and the guidance in NUREG-0561 has been amended to include suitable criteria. Routes used for spent fuel shipments prior to the issuance of the interim rule, however, will not be automatically approved inasmuch as those routes, like all other proposed routes, must meet current criteria before approval.

(3) *Road shipments: Criteria for detours.* Some comments express concerns about detours from pre-planned routes. Some of these comments ask that the guidance document be modified to provide better criteria for determining when detours are appropriate. These comments also suggest that the NRC, rather than the licensee, should produce the guidelines. Some comments are concerned that once a shipment is en route, implementation of the detour procedures set forth in the guidance document might not be possible. Some comments suggest that LLEA's should be notified at the outset of each unplanned detour. In response to these suggestions, the guidance document has been modified to set forth some new guidelines to be followed in detour situations. However, except for the obvious instance of where a shipment is being escorted by LLEA personnel, it is believed that the LLEA need not be notified of each detour inasmuch as the agency is not expected to do anything differently as a result of a detour.

(4) *Rail shipments: Advance notification.* Comments indicate that not all of the required advance notification

data can be provided in advance of a rail shipment; among these data are routing, specification of stops, and cask serial numbers. Some comments contend that some of the information specified in the guidance document may be irrelevant to rail shipments. These suggestions were generally adopted. The guidance document has been modified to clarify advance notification requirements for rail shipments.

(5) *Rail shipments: Unanticipated route changes.* Some comments suggest that the rule and the guidance should be modified to allow for the unanticipated route changes that sometimes occur in rail transport. This suggestion was adopted by modifying the guidance document.

C. The Commission also received a number of comments and suggestions which were considered but which did not lead to changes to the amendments or to NUREG-0561. Following is a discussion of those comments:

(1) *Justification for the rule.* Some comments contend that the NRC has not provided proper or sufficient basis for the new regulation.

(a) Some comments ask that the NRC not modify its regulations on the basis of unproven information in draft form, such as the Sandia report. The Commission has decided that there is an adequate basis for interim requirements for the protection of spent fuel shipments. The NRC continually reexamines the adequacy of its regulations for the protection of the public health and safety against deliberate acts. Part of this reexamination consists of studies and research projects. One of these studies, conducted by Sandia Laboratories and published in draft form in May 1978 as SAND-77-1927, concluded that serious public health consequences could result in the event of successful sabotage of a spent fuel shipment in a heavily populated area. Although a later draft Sandia report predicts less serious consequences, a significant degree of uncertainty remains that can only be resolved by further study. The Commission is currently pursuing a research effort to resolve these issues. While awaiting the results of this research the Commission believes that it is prudent to retain these requirements on an interim basis. When the final research results are analyzed the NRC will either modify, continue, or rescind 10 CFR 73.37, whichever is appropriate, based on those results.

(b) Other comments point out that the NRC should regulate on the basis of risk, a concept wherein risk equals the product of the consequences of an event, such as sabotage, and the probability of the event. Inasmuch as the NRC has no basis to specify an identifiable threat, some comments conclude that the probability of sabotage is insufficient to

justify a legitimate concern.

NRC has not pursued quantitative risk studies for safeguards because of extreme difficulty in adequately quantifying the various factors contributing to risk. This view was expressed in the Reactor Safety Study (WASH 1400) and sustained by the Lewis panel's peer review of that document. The Lewis Panel Report (NUREG/CR-0400) states: "The risk from sabotage was not calculated in the Reactor Safety Study. The omission was deliberate, and proper, because it was recognized that the probability of sabotage of a nuclear power plant cannot be estimated with any confidence." Similarly, estimates of the probability of successful sabotage of spent fuel shipments cannot be made with any confidence.

In their report (NUREG/CR-0400) the Lewis panel points out that, even with "realistic" risk estimates, further conservatism must be incorporated in the regulatory process. In the absence of "realistic" risk estimates, it is even more important to incorporate conservatism in regulatory decision making. This is the approach taken in safeguards.

We know of no attempts to sabotage spent fuel shipments in a manner leading to a significant radiological release. But we have conservatively assumed that such a sabotage act might be attempted. Furthermore, we have tried to determine, logically and systematically, the characteristics of persons who might attempt to perpetrate such crimes. The results of our threat characterization work have been published as NUREG-0459, *Generic Adversary Characteristics Summary Report*.

Another factor in making a determination concerning the probability of successful sabotage is the reaction of spent fuel to sabotage. It is generally agreed among analysts that the serious consequences discussed in the Sandia report could result only if sabotage is carried out in or near a heavily populated area and only if some of the normally solid spent fuel contained in a massive, durable cask is somehow released as respirable particles. It is further agreed among analysts that the only credible way to carry out such sabotage is through the skillful use of explosives. The reaction of spent fuel and spent fuel casks to explosive sabotage is subject to large uncertainty. A research program is being carried out to improve our understanding, but the program will likely not yield useful results for approximately one year.

The Commission frequently uses the concept of risk in its deliberations concerning the need for new regulations and did so in this case. The Commission found that the likelihood of successful

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sabotage is uncertain inasmuch as the existence of a credible adversary organization cannot be ruled out and the response of spent fuel and spent fuel casks to credible explosive sabotage is subject to large uncertainty. With respect to consequences, it appears that the release of a small fraction of the inventory of a spent fuel cask as respirable particles could produce serious consequences in a heavily populated area. On this basis the Commission has decided to generally let stand these requirements designed to protect spent fuel shipments against sabotage in heavily populated areas on an interim basis. The need for permanent requirements will be reconsidered when the results of the research program become available.

(c) with respect to the Sandia report, the staff notes that the latest draft of the report projects sabotage consequences less serious than are set forth in the May 1978 draft, and cited by the NRC as the basis for the rule. Another comment points out that even the consequences set forth in the May 1978 Sandia Draft, are not that much more serious than those of a severe accident, the risk of which the NRC appears to be willing to accept.

As mentioned above, a later draft of the Sandia report issued during September 1979, estimates less serious consequences than the May 1978 version, partly because the May version assumed larger amounts of material released as a result of sabotage. In view of the continuing uncertainties concerning the release fraction, the Commission has decided it is prudent to, in the interim, protect spent fuel in-transit.

(d) Other comments point out that Department of Energy (DOE) analysts have concluded that the rule is premature and inappropriate. The comments also point out that DOE does not require protection of spent fuel shipments for which it is responsible.

The Commission notes that the DOE and the NRC have access to the same information and that DOE has decided not to require protection for the spent fuel shipments for which it is responsible. Despite the policy of NRC and DOE to have comparable requirements for the protection of nuclear materials, the Commission accepts the fact that from time to time reasonable administrators will differ temporarily on the difficult question of what constitutes adequate safeguards. Both agencies are developing additional information on the issues and are coordinating with one another. It is believed that the differences in positions of the two agencies are temporary and will be resolved as new information, such as that from the research program discussed above, becomes available.

(e) Other comments argue that adequate protection is provided by the durable containers in which spent fuel shipments are made.

The Commission agrees that the massive, durable casks in which spent fuel shipments are made provide a high degree of protection against many kinds of sabotage, including explosive sabotage. However, in view of the uncertainties in predicting the response of spent fuel and spent fuel casks to explosives, the Commission believes that it is no longer prudent to depend upon cask design alone to protect against sabotage in heavily populated areas. Accordingly, until additional information can be developed to resolve some of the present uncertainties concerning the response of spent fuel to explosives, the Commission has decided that spent fuel shipments should be protected as specified in 10 CFR 73.37, as modified.

(f) Some comments question the need for significant, costly protection measures for rail casks. They point out that rail casks are more substantial than truck casks and that according to Sandia, successful sabotage entails even more explosives and skill than for truck casks. The comments further point out that there is no record of hijacking trains, and therefore the movement of a hijacked train from a low population area to a high population area seems quite remote. Comments also point out that protection measures for rail shipments in heavily populated areas already include frequent surveillance by railroad police and are therefore adequate.

The referenced Sandia Report indicates that similar uncertainties apply to possible explosives attacks on both road and rail shipments. Even though rail shipments would most likely require a higher level of adversary resources for successful sabotage, such sabotage is considered possible for both road and rail modes. The Sandia Report states in particular that attacks on rail casks using shaped charges is possible since the requisite materials can be carried by men on foot. Moreover, the likelihood that available rail routes would include passages through heavily populated areas diminishes the importance of the consideration that it would be more difficult for an adversary to illicitly move a hijacked train from a less densely populated area to a heavily populated area. Protection for rail shipments, therefore, is still required.

(2) *Adequacy of protection requirements.* Some comments state that protection of spent fuel shipments under the interim rule is not adequate against terrorist action. These comments argue that protection equivalent to that

already given strategic special nuclear materials is needed.

Some comments suggest that NRC should require licensees to justify all spent fuel shipments by considering all possible alternatives to the making of shipments.

One of the most frequent comments favored an embargo of spent fuel shipments until a permanent storage facility is established. Thereafter, spent fuel shipments would be permitted only to that facility.

Some comments contend that the additional measures required for movements through heavily populated areas are too weak to deter or to provide protection against successful sabotage; these comments ask that the regulation be modified to indicate additional safeguards and list them in detail.

One comment suggests that for any given heavily populated area the protection measures required should be similar for all shipments, rather than allowing various options for each shipment.

The Commission considered a number of sets of measures for the protection of spent fuel shipments. One of these sets of measures would have provided that spent fuel shipments would be protected equivalently to shipments of formula quantities of strategic special nuclear material (SSNM), which must also be protected against theft. However, 10 CFR 73.6 of the Commission's physical protection rules for SSNM specifically exempts spent fuel which is not readily separable and which has a total external dose rate in excess of 100 rems per hour at a distance of 3 feet from any accessible surface without intervening shielding. Such materials possess intrinsic protection against theft and are not readily usable to fabricate nuclear explosives. Nevertheless, the Commission considers it prudent to require some additional measures to protect spent fuel against radiological sabotage.

Shippers of spent fuel must submit route information and security plans to the NRC for authorization to carry out the shipment. The NRC thus has the opportunity to review the shipper's plan for the shipment and to assure that he has considered alternatives to the making of the shipment.

The Commission reaffirms its judgment that spent fuel can be shipped safely without constituting unreasonable risk to the health and safety of the public. Accordingly, the Commission does not believe that it is necessary to prohibit spent fuel shipments until a permanent storage facility is established.

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Some requirements of the regulation, particularly regarding transiting urbanized areas, have been changed considerably in this later version. Given these changes, the Commission has decided that the protection level required reasonably protects the public against risk from sabotage of spent fuel shipments. The escort force has the capability to call for assistance and in a heavily populated area, local law enforcement authorities could be on the scene within minutes. Within a heavily populated area, the escort force is armed and therefore has the potential to prevent sabotage until local authorities arrive.

The Commission is seeking adequate protection for shipments which must pass through heavily populated areas. In the Commission's view, an adequate level of protection can be provided by either private guards or law enforcement personnel.

(3) *Liability limits.* One comment suggests that no shipments of spent fuel should be permitted unless the shipper carries private liability insurance without limit. Other comments favor informing the public of the liability limits currently in force for shipments.

The Commission has not at the present time extended indemnity coverage to spent fuel shipments on a generic basis. However, spent fuel shipments are indemnified while in the course of transportation to or from an indemnified facility (principally nuclear reactors). Indemnity coverage for spent fuel shipments to or from reactors terminates at the point at which transportation ends.

The provisions of Section 170 of the Atomic Energy Act of 1954, as amended, require production and utilization facility licensees, i.e., reactors and reprocessing plants to have and maintain financial protection (e.g., nuclear liability insurance) to cover public liability claims resulting from a nuclear incident. The Commission is also directed to enter into protection and indemnify the licensee for up to \$500 million in excess of that financial protection.

The indemnity protection afforded the public for accidents arising during transportation is derived from the coverage provided under the insurance policies maintained by licensees of reactors and reprocessing plants and in the indemnity agreements executed by these licensees with the Commission. The coverage under the policies and indemnity agreements incorporated the so-called "omnibus" provisions of the Price-Anderson Act. Under the "omnibus" coverage liability protection extends not only to the liability of the

licensee, but also to any other person who may be liable, such as a transporter. However, there would be no Price-Anderson Act protection (or limit on liability) under facility licensees' insurance policies and indemnity agreements once a shipment was hijacked and placed beyond the control of the transporter. Extension of the Price-Anderson Act protection to cover incidents occurring after a shipment has been hijacked is beyond the scope of this rulemaking.

(4) *ALARA implications.* One comment suggests that the implications of the rule with respect to the Commission policy of maintaining radiation exposure levels as low as reasonably achievable (ALARA) should be examined.

The Commission has not at the present time extended indemnity coverage to spent fuel shipments on a generic basis. However, spent fuel shipments are accidents involving radioactive material shipments are sufficiently small to allow continued shipments by all modes. Because transportation conducted under present regulations provides adequate safety to the public, the staff concludes that no immediate changes to the regulations are needed at this time. This determination is partly based on the conclusion in NUREG-0170 that the average radiation dose to the population at risk from normal transportation is a small fraction of the limits recommended for members of the general public from all sources of radiation other than natural and medical sources and is a small fraction of natural background dose.

The staff has examined the ALARA implications of the rule for the specific case of spent fuel shipments by truck. Calculations indicate that routine exposure from shipments routed around cities would likely be about 30% higher than the small but calculable routine exposure for similar shipments routed through cities. The Commission considers that this difference in such small routine exposures is not a significant health factor and therefore not to be considered a significant factor in the choice of routing.

(5) *Transportation mode.* Some comments suggest that the scope of the rule should be expanded to require licensees to examine alternative transportation modes for shipments.

The Commission agrees that alternative modes of transportation should be considered during the development of a program for the protection of spent fuel shipments against sabotage. The characteristics of alternative modes have been considered

in the revised rule and suitable measures have been developed for road, rail and water transport. Accordingly, a licensee may choose the mode of transportation for his shipment on the basis of considerations other than safeguards.

(6) *High level waste.* Some comments suggest that the scope of the rule should provide requirements for the protection of high level waste shipments.

No licensed shipments of high level waste are presently being made. Only a few facilities currently possess high level waste. Shipments of the waste from a facility at which it now resides to another facility would involve the amendment of one or more licenses. At that time, appropriate requirements would be issued.

(7) *Test reactor fuel shipments.*

Comments suggest that the staff consider relaxing protection requirements for test reactor spent fuel in recognition of the fact that it contains no free radioactive gases.

The revised rule has not been modified to reduce the protection requirements for test reactor spent fuel. Fission gases would account for only a tiny fraction of the calculated health effects. Solid, respirable material would account for most of the health effects.

(8) *Distinction between guidance documents and regulations.* Public comments on both the amendments published in the **Federal Register** and the supporting guidance document (NUREG-0561) were received. Some comments apparently mistake the guidance document for a regulation and therefore conclude that the supposed regulation is too loosely worded. Other comments apparently reflect only the regulatory amendments and suggest that the amendments alone are worded too loosely to be effective.

Following is a discussion of the distinction between regulations and guidance documents. Regulations set forth legal requirements that licenses must follow. The NRC is empowered to inspect against and enforce the provisions of its regulations. Regulations without exception carry the approval of the Commission. Guidance documents, on the other hand, can be prepared and issued by the staff. The documents are not legally binding upon licensees. The primary purposes of the guidance documents are: (1) To describe and make available to the public the intent and scope of application of the regulatory provisions, (2) in some cases, to provide alternative methods that are normally acceptable to the NRC staff for implementing specific parts of the Commission's regulations, (3) in some cases, to delineate techniques used by

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the staff in evaluating specific problems, and (4) to provide guidance to applicants concerning certain information needed by the staff in its review of applications for permits and licenses. Guidance documents are not intended as substitutes for regulations and, therefore, compliance with guidance documents is not required.

(9) *Licensee costs.* Some comments contend that the cost estimates developed by the staff are too low. One comment suggests that the cost for truck transportation would be at least double that estimated by the NRC staff and probably much higher. Another comment states that truck transportation cost is approximately double that estimated by the staff even before the cost of safeguards required by the rule are added in. One comment places cost in the range of twenty million dollars per year by assuming ten thousand shipments per year circa 1985. Comments argue that staff estimates of rail costs are in even greater error than staff estimates of truck costs; these comments conclude that rail shipments must be made in special trains in order to satisfy the rule and that, therefore, the cost of each rail shipment will be in the range of twenty to forty thousand dollars.

With respect to truck shipments, our latest information indicates that as many as 500 shipments might occur during calendar year 1980. The number of possible shipments is currently limited by the number of shipment casks available. Even if new casks were quickly manufactured, allowing the number of shipments to double, the Commission notes that the interim rule is designed to be in effect only until about mid CY81, and therefore, believes that the high cost estimates stemming from protection of large numbers of spent fuel shipments circa 1985 are not appropriate or relevant. With respect to rail shipment costs, the Commission disagrees with the contention that special trains are needed to meet the requirements for rail shipments, and therefore, rejects the high cost estimates which are based on the use of special trains.

(10) *Cost-benefit study.* Some comments suggest that the NRC should provide a cost benefit analysis in support of the regulation. Comments also suggest that the requirements of the rule should be clearly defined and should be cost effective. They argue that regulations must be cost effective in order to be meaningful and must avoid being arbitrary or capricious or an abuse of discretion. Some comments suggest

that the rule is not cost effective in its present form.

This interim rule is expected to be in effect for a year or two. Recent figures indicate that if the maximum number of potential shipments occur, the requirements may result in a cost of about five hundred thousand dollars per year, distributed over a number of licensees. The addition of protection measures for spent fuel shipments does not have a significant effect on the environment. After taking into account the cost, the duration, and the absence of significant impact on the environment, the Commission has decided that a detailed cost-benefit study is not needed for this interim rule. Although a detailed cost-benefit study was not performed, the general costs and benefits resulting from this rule have been reviewed, as have the potential consequences of sabotage of spent fuel shipments to the public health and safety. A decision has been made that the benefits from reducing the probability of occurrence and potential consequences of spent fuel shipment sabotage justify the cost of the requirements. A detailed cost-benefit study will be prepared in support of any permanent rule that is issued.

(11) *Preemption.* Some comments urge that the NRC preempt state and local restrictions on spent fuel shipments. Some comments seek to preempt those state and local ordinances in conflict which would ban or otherwise restrict shipments or which would require rerouting of shipments over secondary roads, with an attendant increase in safety hazard.

Some comments argue that preemption would lead to a more responsible national policy concerning uniformity of spent fuel transport regulations. Some comments favoring preemption suggest that the NRC should take into account state and local concerns when drafting federal regulations. One comment suggests that NRC eliminate from its rule references to local ordinances as a basis for rerouting shipments; this comment concludes that a local community should not be able to prevent the use of a route acceptable to the NRC. One comment suggests that the regulations make clear that local ordinances with the NRC rule would be preempted.

Other comments took the opposite view of preemption. These comments declare that local communities have the right to be more restrictive than the NRC in the regulation of spent fuel shipments which they perceive as threatening their safety.

To date, the NRC has contested a local ordinance that regulates the

transport of nuclear materials only once (United States v. New York City (S.D.M.V. No. 76 Civ. 273)). In this case NRC, ERDA (now DOE) and DOT sought a judgment declaring a New York Health Code provision to be inconsistent with the Federal Statutory scheme for transportation of nuclear materials. On January 30, 1976, a United States request for a preliminary injunction barring enforcement of the local ordinance was denied.

On August 17, 1978, the Materials Transportation Bureau of the DOT published an advance notice of proposed rulemaking (43 FR 36492) dealing with the subject of highway routing of radioactive materials. On October 26, 1978, the DOT published a notice (43 FR 50006) of its intention to hold a public hearing on this subject in Washington, D.C., on November 29, 1978. On January 31, 1980 the DOT published for public comment a proposed rule dealing with the highway transportation (including Federal routing requirements) of radioactive material. The DOT has expressed its intention to publish a final rule on this subject by the end of 1980.

Where state law is consistent with new Federal regulations promulgated under the Hazardous Materials Transportation Act (HMTA) or where the state in a legitimate exercise of its police power imposes general, non-radiological constraints (e.g., speed limits, load limits) on all truck transportation, the Commission does not presently contemplate actions to preempt the enforcement of these laws. However, the Commission reserves judgment on whether it may become necessary to seek such preemptive action in a limited way (e.g., where specific route considerations are at issue) prior to the time the DOT regulations become effective. Once the DOT regulations on this subject become effective, there appears a strong possibility that inconsistent state and local rules may be preempted on a broader basis.

(12) *Information on routes and schedules.* Some comments suggest that the NRC adopt a liberal policy concerning the information on routes and schedules that would be made public. These comments suggest that route information should be published in the *Federal Register*; subsequently the NRC should hold public hearings (or provide some other means for public input) on routes. These comments further suggest that NRC should contact state and local authorities before granting a route approval. Some comments conclude that a local



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population has better knowledge of routes than could be developed by NRC surveillance teams, thereby allowing the defects and advantages of alternate routes to be more adequately considered. Comments suggest that the state and local authorities should be notified of details of routes. Comments also suggest that state and local authorities should be notified in advance of the schedule of each shipment. Some comments suggest that state and local authorities should take steps to have emergency response and law enforcement organizations alerted and on duty at the time spent fuel shipments are made.

Other comments suggest that the NRC should adopt a conservative policy with respect to information on routes and schedules. These comments suggest that NRC withhold information on routes and schedules, pointing out that information certified by the NRC would be valuable to potential saboteurs. The comments also point out that it is a principle of security that sensitive information should be restricted to the minimum number of people. These comments conclude that the NRC should restrict dissemination of route and schedule information to a limited number of elected and appointed state and local officials who should be requested or required to avoid making the information public.

Current staff policy concerning information on routes and schedules is to generally withhold this information from public disclosure. However, in one recent specific instance, the Commission decided that information on staff-approved routes should not be withheld. It noted, however, that the decision was case-specific and should not be considered a precedent.

(13) *Consolidated notice.* Some comments note the proliferation of local ordinances requiring advance notice and ask that the NRC establish in its rule such that only the NRC need be notified. The NRC could then notify state and local agencies as it deems necessary.

Adoption of this suggestion would imply that the NRC rule preempts local ordinances calling for advance notification of shipments. As was noted earlier, the NRC has not yet contested local ordinances that regulate the transportation of spent fuel. Although this suggestion will not be adopted at this time, it will be re-evaluated when DOT routing rules go into effect.

(14) *Need for comprehensive study.* One comment suggests that a comprehensive study of ports of entry for import of spent fuel shipments and subsequent routes is needed; the proposed principal criteria for selection

of a port or route would be to affect the least population in event of sabotage.

In consideration of the Commission's revised position relative to avoidance of heavily populated areas; i.e., that passage through a heavily populated area, on approved routes, when supported by additional measures such as armed escorts, is acceptable, the Commission does not regard ports-of-entry as a particular problem area with respect to routing. Ports that are also listed as heavily populated areas will require the additional protection.

(15) *Expansion of response capabilities.* Some comments propose a significant expansion of capabilities for responding to accidents or sabotage. These comments suggest that all emergency response units in all communities along the route submit response plans to the NRC for approval. Some comments suggest that all emergency response units in all communities along the route submit response plans to the NRC for approval. Some comments suggest that these response units should be required to conduct drills. Other comments proposed that LLEA personnel along the route be trained to deal with radiological releases. Some comments suggested that the shipper should provide an escort capable of handling all emergency situations. Some comments also suggest that the NRC should help to develop these various emergency response units. Some comments suggest that the shipper should be responsible for the preparation of emergency plans, while others suggest that the NRC should be responsible. Some comments ask that provisions be made for local governments to approve licensee emergency response procedures and emergency plans.

These suggestions appear to be prompted, at least in part, by the provisions of 10 CFR 73.37(a)(6) which require a licensee to develop procedures for coping with threats and safeguard emergencies. As is noted in NUREG-0561, the purpose of this requirement is to provide for the development of a plan to be used by drivers, escorts, licensee personnel and other individuals involved in a shipment in case of threats, attempted sabotage, or other events that jeopardize the security of a shipment. The larger question of emergency plans, emergency preparedness, emergency response and the like are judged to be beyond the scope of these interim safeguards requirements. Recent staff views on these questions are available in NUREG-0535—Review and Assessment

*of Package Requirements (Yellow Cake) and Emergency Response to Transportation Accidents.*

(16) *Arrangements with LLEA: Clarity and feasibility.* Some comments request that the NRC clarify its description of what constitutes acceptable arrangements, who must be contacted, and whether the arrangement or contact with the LLEA must be documented. One comment suggests that the licensee's responsibility with respect to this requirement be limited to maintaining an up-to-date list of telephone numbers and contacts in LLEAs.

One comment points out that the case of transcontinental shipment, a very large number of LLEAs would have jurisdiction along the route and that contacting all of them would not be feasible.

Under current practice, the NRC staff makes the initial contacts and arrangements with LLEAs as part of the approval process. Accordingly, the concerns set forth in the comment do not appear to be justified since the relevant burdens have been assumed by the NRC staff.

(17) *Arrangements with LLEA: Information security concerns.* Some comments suggest that coordination with LLEAs along the route would be tantamount to announcing the route and would therefore be contrary to good information security practice.

During the coordination process, the NRC staff informs LLEAs of the importance of protection of spent fuel and asks that the agency not disclose sensitive information, such as routes, that would be helpful to a saboteur. The agencies have generally been cooperative. Accordingly, NRC practices were not changed as a result of the suggestion.

(18) *LLEA capabilities.* One commenter notes his experience which suggests that LLEAs in heavily populated areas are unwilling or unable to provide the additional protection suggested by the NRC for shipments through heavily populated areas.

NRC staff experience is at variance with the experience of this commenter. Staff experience is that LLEAs have been very cooperative in assisting in the protection of shipments of nuclear materials. Also the rule allows for private armed escorts, instead of LLEA personnel, to be used to protect shipments. For these reasons, no changes were made in the regulation or the guidance as a result of this comment.

(19) *Road shipments: Alternative routes.* Some comments suggest that NRC route approval policy should include approval of a reasonable

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number of alternative routes. The comments suggest that the approvals remain valid indefinitely.

Current staff policy is to approve a number of alternative routes. The actual number of routes that can be approved is, of course, limited. Once a route is approved, the approval would remain valid until new information suggests that the approval should be withdrawn.

(20) *Road shipments: Rush-hour concern.* One comment suggests that in the event of routing through a heavily populated area, the scheduling should be planned so as to avoid the local rush hour traffic.

The staff performs route surveys, including route surveys through heavily populated areas, and makes arrangements with LLEAs along the route of the shipments for their response to an emergency or a call for assistance. Rush-hour concerns are taken into account during this planning.

(21) *Road shipments: Route planning.* Some comments contend that the information given in the guidance document and in the related reference documents does not provide detail sufficient to distinguish and select highway routes.

The staff agrees with the comments, but notes that the Census Bureau data supplemented by local road maps jointly provide a sufficient basis for route selection. Furthermore, the revised rule allows greater use of interstate highways, which should make route selection easier. Accordingly, no changes were made in the regulation or guidance as a result of this comment.

(22) *Road shipments: Drivers.* Some comments suggest that the NRC should confer more closely with the DOT inasmuch as it appears that some driver requirements imposed by NRC are in conflict with DOT requirements. One comment suggests that 10 CFR 73.37(b)(1) be modified to specify two trained drivers rather than one. Comments suggest that in view of the potential consequences from accidents, drivers should operate spent fuel shipment vehicles in the safest and most reassuring way in order to instill public confidence.

With respect to the coordination suggestion, the staff notes that in accordance with the terms of a Memorandum of Understanding, the latest version of which was published in the *Federal Register* on July 2, 1979, the NRC and DOT have agreed to advise and consult with one another before either issues a new regulation. This procedure was followed before issuance of this regulation. The DOT review did not reveal any conflicts between DOT regulations and the NRC interim

regulation. The suggestion that the requirements of 10 CFR 73.37(b)(1) be modified to make explicit that two properly trained truck drivers satisfy the requirement was not adopted because the original phrasing already permits that option. The suggestion that two truck drivers rather than one should be required was not adopted because there appears to be no adequate safeguards justification. The provision is allowed to stand because it allows greater flexibility for the licensee in designing his security arrangements and it does not sacrifice the effectiveness of protection arrangements.

The NRC agrees with the comment that shipment vehicles should be operated safely. However, the rule was not changed because the subject of safe driving is not within the scope of this physical protection rule change proceeding.

(23) *Road shipments: Escorts.* Some comments suggest that the regulation should be changed to always require an escort vehicle to accompany the shipment vehicle; other comments contend that an escort vehicle is undesirable because it increases the likelihood of an accident. Some comments are concerned that the duties assigned to drivers and escorts in the regulation and guidance would overwhelm the drivers and escorts for shipments longer than one day. One comment proposes that the NRC should license escorts and test them annually. Finally, some comments suggest that more than one escort might be needed for extended stopovers.

The Commission has decided that the current level of protection, which permits a single vehicle system to be used outside of heavily populated areas, is adequate. In addition, a second escort or other added safeguards measures are required for transiting urban areas. The Commission has also decided that the duties of the drivers and escorts are straight-forward; that the training program as revised (Appendix D of 10 CFR Part 73) is adequate. With respect to the size of the escort force, the regulation specifies the number, capabilities, and duties of personnel who are to be on duty at any one time; it is the obligation and responsibility of the licensee to provide a force size sufficient to provide for relief and rest periods.

(24) *Road shipments: Call-in schedule.* Some comments contend that the two-hour call-in schedule required by 10 CFR 73.37(b)(2) is not practicable; they argue that carrying out the requirements would violate DOT regulations by disturbing the co-driver's rest period on long trips. The comments suggest that an eight-hour call-in schedule would be

more appropriate. Comments also point out that the two-hour call-in schedule (if carried out) would require extra stops for telephone calls, thereby making the shipment vulnerable to sabotage.

The two-hour call-in schedule has been reviewed with DOT. Representatives of DOT found nothing in the requirement that was unsafe for a lone driver to carry out while driving or that was in conflict with DOT regulations. Accordingly, the two-hour call-in requirement is allowed to stand. The Commission reaffirms its judgment that the benefits from two-hour call-ins justify the additional risk of those instances where the vehicle must be stopped and the call-in done by conventional telephone.

(25) *Road shipments: Citizens band (CB) radio.* Some comments suggest that there is no assurance that CB contacts can be made, and therefore the requirement for CB radio in the shipment vehicle is superfluous. Other comments note that the designated control location is not required to be equipped with a CB radio and ask that the NRC reconsider whether a potential saboteur could gain advantage from this situation.

A requirement for CB radio is included in recognition of the fact that CB radio offers an inexpensive back-up to the primary communication system.

It is true that there is no guarantee that a CB contact can be established in the event that there is a need to call for assistance. On the other hand, the adversary is faced with a back-up communications system that he can neither ignore nor readily defeat. The CB requirement is included because it, in some measure, reduces an adversary's likelihood of success. Also, CB radio is useful for communication among the escort vehicles and shipment vehicle and can be used in most heavily populated areas to contact the LLEA. However, because the transmission range of CB radio is short compared with the likely distance that shipments will be transported, there is no requirement for a CB radio to be installed in the control location.

(26) *Rail shipments: Special trains.* Some comments urge the use of special trains to transport spent fuel rail casks. These comments contend that special trains have the following advantages: The requirements of 10 CFR 73.37(c) are difficult for regular trains but can be handled readily by special trains. Special train speeds are lower and can be tailored to circumstances. Special trains are shorter than regular trains with the advantage that "burying" the shipment car under other cars in the event of an accident is less likely; this

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feature, the comments argue, would be very significant in the event of a fire. A special train offers better observation of the shipment car. Most railroad accidents occur in rail yards and special trains spend less time in rail yards than do regular trains. Special trains have priority in use of track over regular trains. Regular trains could conceivably carry spent fuel together with other hazardous material, such as explosives or inflammables, in different cars of the same train; this situation would not occur with a special train.

Special routing is possible to avoid rail yards and heavily populated areas. Finally, the probability of certain classes of train accidents, such as brake failure or railroad crossing accidents, is lower because special trains are shorter than regular trains.

Other comments take the opposite view and suggest that the use of regular trains for spent fuel shipments is entirely satisfactory for the following reasons: The likelihood of hijacking a regular train from a low population to a high population area is remote in the extreme. Special trains have no particular advantage in avoiding high population areas. Special trains, as now proposed, would be stopped to yield right-of-way to regular trains.

NRC approval of alternative routes would provide adequate response to the uncertainties of weather, rail damage, and other uncontrollable influences.

A regular train in a rail yard would be under surveillance by the escort and the railroad police. Special trains have no advantage in communications; moreover, rail traffic controllers always know the approximate location of their trains.

Needed protection requirements for rail shipments can be met by regular trains. Accordingly, the suggestion that the regulations be modified to require the use of special trains was rejected.

(27) *Rail shipments: Arrangements with LLEA.* Some comments suggest that arrangements with LLEAs are needed only when a shipment car is stopped in a rail yard. This suggestion was not adopted because it would be inconsistent with the fundamental protection measure that an escort should always be present with a spent fuel shipment and that escort should be able to request and obtain assistance from the LLEA independent of the location of the shipment.

(28) *Rail shipments: Escorts.* Some comments contend that escorts are not needed when a train is moving. Other comments point out that more than one escort will be needed to provide surveillance during extended stopovers and that special lighting might be

needed for effective surveillance. One comment points out that no existing spent fuel rail cask car provides for an escort within the car, as is implied by the guidance document and the regulation. Finally, some comments request that the NRC consider speed restrictions for spent fuel shipments and reconsider its decision not to require surveillance while the train is moving—particularly while the train is moving very slowly.

One of the fundamental protection measures is that an escort should always be present near the shipment, independent of the location of the train and independent of whether the train is moving. Accordingly, the suggestion that an escort is not needed while the train is moving was rejected.

One intent of the requirement is that a stopped shipment car always be under observation; it is the responsibility of the licensee to provide an escort force sufficiently large to meet that intent.

The object of the observation requirement is the early detection of circumstances that threaten deliberate damage to the shipment in a heavily populated area. Lighting in heavily populated areas is expected to be sufficient for this purpose.

With respect to the comment concerning the escort in the same rail car with the spent fuel cask, the guidance document was written so as not to preclude the escort from riding in a rail car containing a spent fuel cask. The staff had in mind a small cask in which slightly greater than exempted quantities of spent fuel might be shipped rather than a typical rail cask containing up to ten fuel assemblies.

The Commission has recognized the need for surveillance capabilities while trains are moving, and has reflected this in the regulation.

(29) *Rail shipments: Strengthening of requirements proposed.* One comment asserts that spent fuel shipments by road are inherently unsafe and that shipments should be made by rail. The comment contends that current capabilities for the safety and protection of rail shipments are inadequate and identifies numerous areas where he believes improvements are needed.

The Commission disagrees with the view that spent fuel shipments by road are inherently unsafe. The comment does not provide an adequate justification for the extreme measures proposed pertaining to rail shipments. The Commission has no new information to modify its current view that spent fuel shipments can be moved safely on the existing rail system. Accordingly, no changes were made to

the regulation or the guidance as a result of this comment.

The following modifications to the rule have been coordinated with the Department of Transportation in accordance with the Memorandum of Understanding between NRC and DOT that was published in the *Federal Register* on July 2, 1979. The Department of Transportation has determined that the NRC rule is not in conflict with current DOT regulations.

These amendments to the interim final rule are being published in effective form subject to codification. In the *Federal Register* notice issuing the interim final rule (44 FR 34466), comments were requested on the rule even though it was published in effective form. It is those comments received that have led to the amendments being made here. It is as if comments had been received on a proposed rule. Accordingly, the Commission for good cause finds that further notice and public procedure is unnecessary.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 73, are published as a document subject to codification.

45 FR 67645

Published 10/14/80

Effective 10/14/80

### 10 CFR Part 73

#### Physical Protection of Plants and Materials: Correction

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Correction.

**SUMMARY:** In a final rule document published in the *Federal Register* July 24, 1979 (44 FR 43282), § 73.1(b) was revised. An error was made in the amendatory language resulting in the inadvertent deletion of § 73.1(b)(2), (3), (4), and (5). It was not the intent of the Commission to delete paragraphs (2), (3), (4) and (5) of § 73.1(b). This document corrects this error and republishes § 73.1(b) as it should appear including a revision made to § 73.1(b)(5) as published at 45 FR 37409 on June 3, 1980.

**FOR FURTHER INFORMATION CONTACT:** John D. Philips, Chief, Rules and Procedures Branch Division of Rules and Records, Office of Administration, Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-7086.

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45 FR 74693

Published 11/12/80

Effective 11/28/80

*Licensing Requirements for the Storage of Spent Fuel in an Independent Fuel Spent Storage Installation*

See Part 72 Statements of Consideration

45 FR 79410

Published 12/1/80

Effective 12/1/80

### 10 CFR Part 73

#### Searches of Individuals at Power Reactor Facilities

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is extending its current relief from pat-down searches of regular employees at nuclear power reactors in order to accommodate a rulemaking proceeding concerning revisions to its rules in § 73.55 intended to finalize requirements for entry searches at such facilities.

**EFFECTIVE DATE:** December 1, 1980.

**FOR FURTHER INFORMATION CONTACT:** L. J. Evans, Jr., Chief, Regulatory Improvements Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 427-4181.

**SUPPLEMENTARY INFORMATION:** On July 31, 1979, the Commission changed the date from August 1, 1979, to November 1, 1979, when pat-down searches of regular employees of nuclear power plant licensees had to be implemented. The rationale for this extension was provided in the *Federal Register* notice on this subject, 44 FR 47758, August 15, 1979. The Commission further extended the implementation date to November 1, 1980. The rationale for that extension is contained in 44 FR 65969.

The Commission plans to issue proposed revisions to 10 CFR § 73.55(d)(1) to finalize requirements for personnel searches at protected area entry portals of power reactors. The extension of the relief from physical pat-down searches of regular employees contained herein is intended to allow sufficient time for public comment on the proposed search requirements and their implementation, if adopted. Because this rule delays a requirement and merely continues a temporary

situation for another limited period of time, the Commission finds that notice and public procedure are unnecessary and that the change can be made immediately effective without the customary 30 day period of notice required by 5 U.S.C. 553.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following Amendment to Title 10 Chapter 1, Code of Federal Regulations, Part 73 is published as a document subject to codification.

45 FR 80271

Published 12/4/80

*Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation; Correction*

See Part 72 Statements of Consideration.

45 FR 83195

Published 12/18/80

Effective 12/18/80

### 10 CFR Part 73

#### Physical Protection Upgrade Rule; Clarification of Effective Dates

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Clarification of effective dates.

**SUMMARY:** The NRC issues this notice to clarify three dates concerning the development and implementation of plans required of nuclear power reactor licensees for the training and qualification of security personnel. Because of ambiguous effective date provisions in amendments to 10 CFR 73.55(b)(4), published November 28, 1979 (44 FR 68184), incorrect dates appeared in the January 1, 1980 revision of 10 CFR Chapter I. The text of § 73.55(b)(4) is published below in its entirety to clarify this ambiguity.

**EFFECTIVE DATES:** Thursday, December 18, 1980.

**FOR FURTHER INFORMATION CONTACT:** Mr. L. J. Evans, Jr., Chief, Regulatory Improvements Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-427-4181, or Mr. F. P. Gillespie, Chief, Safeguards Standards Branch, Division of Siting, Health and Safeguards Standards, Office of

Standards Development, U.S. Nuclear Regulatory Commission, Washington, DC 20555, 301-443-5907.

**SUPPLEMENTARY INFORMATION:** The text of 10 CFR 73.55(b)(4) as corrected reads as follows:

### § 73.55 [Corrected]

\* \* \* \* \*

46 FR 2025

Published 1/8/81

Effective 1/8/81

### 10 CFR Part 73

#### Physical Protection of Plants and Materials; Clarifying and Corrective Amendments

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Clarifying and corrective amendments.

**SUMMARY:** The Nuclear Regulatory Commission is issuing certain clarifying and correcting amendments that refer to documents incorporated by reference in Part 73, Physical Protection of Plants and Materials. These amendments do not modify current practices or application of the regulations.

**EFFECTIVE DATE:** January 8, 1981.

**FOR FURTHER INFORMATION CONTACT:** Patricia D. Anderson, (301) 492-7297.

**SUPPLEMENTARY INFORMATION:** The Nuclear Regulatory Commission is amending two sections of 10 CFR Part 73, "Physical Protection of Plants and Materials" to clarify the citations to materials incorporated by reference into two sections within Part 73.

46 FR 4858

Published 1/19/81

Effective 4/6/81

### 10 CFR Part 73

#### Physical Protection of Plants and Materials; Reporting of Physical Security Events

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations to clarify existing requirements dealing with the reporting of events which significantly affect physical security effectiveness. Proposed amendments were published

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for comment in October 1979, and have been revised to take into consideration public comment. Instead of reporting within 1 hour as originally proposed, a range of reporting times up to 24 hours or the recording of an event in the licensee's records would be allowed, depending on the severity of the event and compensatory measures taken.

Concurrently with the issuance of the final rule, the NRC staff is issuing a Regulatory Guide which provides a procedure that may be used to determine whether an event is reportable, including a partial list of typical events that a licensee should report. This guide was issued for comment along with the proposed regulation and has been revised to reflect both the changes made in the effective regulation and the comments received on the proposed guide.

**EFFECTIVE DATE:** April 6, 1981.

**NOTE:** The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for review of its reporting requirement under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of the rule becomes effective, unless advised to the contrary, includes a 45-day period which that statute allows for Comptroller General review (44 U.S.C. 3512(c)(2)).

**FOR FURTHER INFORMATION CONTACT:** Mr. James Prell, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-443-5903).

**SUPPLEMENTARY INFORMATION:** On October 22, 1979, the NRC published in the *Federal Register* (44 FR 60743) proposed amendments to 10 CFR Part 73 of its regulations concerning reporting of safeguards events. Interested persons were invited to submit written comments and suggestions in connection with the proposed amendments, within 60 days after publication in the *Federal Register*. Concurrently with the publication of the proposed amendments, the NRC issued for comment a guide which provides a procedure for implementing the regulations (Draft Regulatory Guide, Reporting of Safeguard Events, SG 901-4). After reviewing public comments on the regulation and the guide, the NRC has decided to make a number of changes to both documents.

Following is a summary of the substantive changes to the amendments. These changes were accompanied by appropriate changes to the guide.

1. *Reporting Times.* Several comments suggest that a clearer distinction be made between serious and less serious types of events, and that reporting times be made commensurate with the

severity of the event. The NRC agrees with this suggestion and has developed criteria for classifying event severity and the associated reporting times. The final rule makes a distinction between events which must be reported by phone within 1 hour and those that must be reported within 24 hours. Events which must be reported within 1 hour are those that involve an explicit threat or a major loss of physical security effectiveness. Events that must be reported within 24 hours are those involving a potential threat or a moderate loss of physical security effectiveness. Reporting of a major loss of physical security effectiveness can be delayed for 24 hours if: (a) compensatory measures specified in an approved security or contingency plan have been taken, or (b) within ten minutes of that event's occurrence, compensatory measures are implemented that provide a level of security equivalent to that existing prior to the event. Similarly, a moderate loss of physical security effectiveness event need not be reported if equivalent compensatory measures have been implemented. Every event must be entered into the licensee's records. Events that have been defined in a licensee's approved security or contingency plan as not being reportable need not be reported to the NRC.

2. *Compensating Measures.* Several comments suggest that when, following an event, compensating measures are placed into force that provide a level of security equivalent to that existing prior to the event, it need not be reported to the NRC but merely recorded in the licensee's records. This suggestion has been adopted for a moderate loss of physical security event. However, for a compensated major loss of physical security effectiveness event, a report must be made within 24 hours instead of 1 hour. Even though measures have been taken to compensate for this type of event, a report is required because the NRC needs to be informed of the cause of such an event and the action taken to correct it.

3. *Distinction in Reporting Requirements Between High and Low Enriched Uranium.* One comment suggests that reporting requirements for events involving formula quantities of strategic special nuclear material should be different from those involving moderate and low strategic significance material. The basis cited for this suggestion is the considerable differences in their respective physical security requirements, as specified in §§ 73.25, 73.26, 73.45, 73.46 versus 73.67. The NRC agrees with this comment with regard to the loss of physical security effectiveness type events. Accordingly,

events pertaining to material or moderate strategic significance, which must meet the safeguard requirements of Section 73.67 paragraphs (d) and (e), have been placed in the moderate loss of physical security effectiveness category, while events pertaining to material of low strategic significance, which must meet the safeguard requirements of Section 73.67 paragraphs (f) and (g), do not have to be reported. However, explicit or potential threats concerning all types of material covered by safeguards regulations must be reported.

4. *Material Control and Accounting.* Some comments suggest that material control and accounting reporting requirements are adequately addressed by existing regulations. The NRC has reevaluated the need for the reporting of events involving material control and accounting and agrees with these comments.

5. *More Definite Description of Authorized Individual.* Some comments suggested there are many "authorized individuals" at fuel cycle facilities who could feel bound to report the same event. The commenters proposed that a responsible individual be more specifically identified. The NRC disagrees with this suggestion. The Commission is not concerned with who reports the security event, but rather that the event be reported within the required time frame beginning at the moment of discovery by a member of the security organization or any other employee of the licensee. The requirement has been changed to better reflect this concern.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 73, are published as a document subject to codification.

46 FR 12696  
Published 2/18/81  
Effective 3/20/81

### 10 CFR Part 73

**Physical Protection of Plants and Materials; Physical Protection of In-Transit Special Nuclear Material of Moderate Strategic Significance**

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**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to allow the NRC to delay the shipment of certain quantities of special nuclear material of moderate strategic significance. The intent of the NRC is to prevent the concurrent shipment of two or more quantities of SNM of moderate strategic significance that, in total, would exceed a formula quantity. This amendment will help the NRC prevent the loss or theft of a formula quantity of strategic special nuclear material.

**EFFECTIVE DATE:** March 20, 1981.

**FOR FURTHER INFORMATION CONTACT:**

Mr. C. K. Nulsen, Regulatory Improvements Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 427-4181.

**SUPPLEMENTARY INFORMATION:** The Commission has been concerned that possible theft of concurrent shipments of special nuclear material (SNM) of moderate strategic significance could result in the accumulation by an adversary of a formula quantity of strategic special nuclear material (SSNM). On January 14, 1980, the Nuclear Regulatory Commission (NRC) published in the *Federal Register* [45 FR 2657] proposed amendments to 10 CFR Part 73 to allow the NRC to delay the shipment of certain quantities of SNM of moderate strategic significance. The purpose of these amendments was to (1) help assure that a formula quantity of SSNM could not be lost or stolen while in transit, and (2) provide the NRC with the capability of preventing the loss of additional material to an adversary before an accounting of a lost shipment has been made. On February 21, 1980, these amendments were republished [45 FR 11503] with additional details provided explaining how the scheduling control for preventing concurrent shipments of two or more quantities of SNM of moderate strategic significance totalling more than a formula quantity will be implemented. The comment period was also extended until March 24, 1980.

The proposed amendments have been adopted in effective form without significant changes, and will become effective 30 days after publication of this notice. The changes which were made in response to public comments were primarily for the purpose of clarification and are consistent with the intent of the Commission at the time of publication of the proposed amendments. A summary of public comments resulting in changes in the regulation, and a description of the resulting changes follows.

(1) One comment suggested that shipments which are physically protected should not be subject to NRC-imposed delays. This suggestion has been adopted by the addition of a new subparagraph, § 73.67(e)(6)(iv), which provides that shipments of SNM of moderate strategic significance protected in accordance with the provisions of §§ 73.20, 73.25 and 73.26 will neither be subject to NRC orders to delay shipment nor considered to constitute a portion of an aggregate formula quantity of SSNM for the purpose of determining whether any shipments must be delayed. This additional provision is to achieve consistency with the related provisions of § 73.24(b) which are currently effective.

(2) Some comments indicated a concern that NRC ordered shipment delays would increase shipping costs and cause interference in the shipper/carrier relationship to the detriment of shippers. The two-day notice the NRC might provide to shippers was thought to be too late to cancel a vehicle ordered for pickup of material without incurring extra charges. Also, it was thought that failures on the part of nonlicensees (e.g., overseas recipients, the Department of Energy) to provide timely confirmation of receipt of shipments could cause unfair impacts on licensees who had planned subsequent shipments. Commenters also expressed more general concerns about the possible impact of the proposed amendments on the private nuclear sector.

The Commission is sensitive to possible disruptions that could be caused to licensees as a result of the proposed regulations. Most of the potential delays which might occur could be avoided if notification is given the NRC sufficiently in advance of each planned shipment. The staff intends to request shipment delays as soon as the need for delays becomes apparent based upon the receipt of planned shipment notifications in accordance with § 73.72. These decisions will usually be made after consultation with the prospective shippers so that NRC-ordered shipment delays can be minimized and the needs of the shippers can be accommodated. These actions taken in the context of the low number of shipments which are projected will occur each year (twenty to thirty) should result in no significant economic impacts.

With regard to potential delays caused by difficulties in obtaining confirmation of receipt for export shipments, the proposed amendments have been changed by adding the stipulation that for export shipments the licensee need only confirm that a particular export shipment has left its scheduled port of exit from the United

States intact, rather than requiring that receipt be confirmed at its foreign destination. This provision is consistent with the objective of the existing regulation which is to assure that an aggregate formula quantity of SSNM constituted by several shipments of SNM of moderate strategic significance not be permitted to be transported within the United States without appropriate physical protection.

(3) One comment suggested that the NRC did not intend to include low-enriched uranium in the requirements for notifying the NRC of shipments of SNM of moderate strategic significance, and that the language of § 73.72 should be changed accordingly. The NRC did not intend that shipments of SNM of moderate strategic significance containing no SSNM be included in the notification requirements of § 73.72, or that such shipments should be subject to delays pursuant to the proposed amendments. Therefore, the suggestion has been adopted and § 73.72 has been modified accordingly.

With respect to the proposed amendments, the resolution of the comments received not resulting in changes is as follows:

(1) A comment by the Department of Energy (DOE) recommended that the proposed amendments be limited to delaying licensed shipments involving the commingling of five kilograms or more of SSNM in transport vehicles or storage facilities. The DOE stated that addressing aggregate quantities of special nuclear material of moderate strategic significance in all possible combinations of licensed shipments is not justified. Concern was also expressed that the proposed amendments would still permit commingling of DOE Category III shipments with licensed shipments such that the total would amount to a formula quantity, thus defeating the purpose of the proposed amendments.

The authority given the staff to delay shipments of SNM of moderate strategic significance is intended to be exercised on a case-by-case basis to the extent necessary to assure protection of the public health and safety and common defense and security. This will allow the staff to eliminate all significant opportunities for thefts of formula quantities of SSNM.

Regarding DOE's concern for commingling of shipments, carriers are required under the terms of a general license, issued pursuant to § 70.20(a), to provide protection for formula quantities of SSNM in their possession, regardless of whether such material was intended to be transported as one or more separate shipments. Thus, carriers are obligated to protect a formula quantity of SSNM if an NRC licensed Category II shipment is commingled with a DOE



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Category III shipment and the total amount of SSNM exceeds a formula quantity.

(2) Another comment suggested that the decision criteria for delaying shipments should be part of the regulation and that consideration should be given to giving priority for advanced scheduled shipments of required deliveries to operating reactors.

In response to the above comment, the staff has decided to enlarge upon the list of decision criteria last published in the *Federal Register* with the proposed amendments.

According to the revised criteria, staff decisions to delay shipments of special nuclear material will be based upon the following criteria: (1) Total time needed to complete the shipment, (2) the impact of a schedule delay on the use of the SNM at the delivery site, (3) expected routing, (4) relationship of the material to the national defense or to other essential programs in the nation's interest, (5) whether a licensee might volunteer to delay shipment, (6) the possible impacts on the shipper/carrier relationship with regard to availability of shipment vehicles and other special arrangements which would be difficult to rearrange, and (7) how far in advance of the proposed shipment date the NRC was notified of the intent to make the shipment. Regulatory Guide 5.59 entitled "Standard Format and Content for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance," will be modified accordingly to reflect these criteria and the proposed amendments.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 73, are published as a document subject to codification.

46 FR 51718

Published 10/22/81

Effective 10/22/81 for Sections 2.744(e), 2.790(d)(1), 73.2(jj) and (ll), and 73.21(a), (b) and (c)(1). All remaining sections will be effective on 1/20/82.

### 10 CFR Parts 2, 50, 70, and 73

#### Protection of Unclassified Safeguards Information

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require NRC licensees and other

persons to protect unclassified safeguards information against unauthorized disclosure. The rule establishes requirements and sets forth conditions to be applied by NRC licensees and other persons for the protection of unclassified Safeguards Information for operating power reactors, spent fuel shipments, and activities involving formula quantities of strategic special nuclear material.

**EFFECTIVE DATE:** October 22, 1981 for §§ 2.744(e), 2.790(d)(1), 73.2(jj) and (ll), and 73.21(a), (b) and (c)(1). All remaining sections will be effective on January 20, 1982.

**FOR FURTHER INFORMATION CONTACT:** Mr. Donald J. Kasun, Physical Security Licensing Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Phone 301-427-4010.

#### SUPPLEMENTARY INFORMATION:

##### Background

On December 29, 1980, the Nuclear Regulatory Commission published for comment a proposed rule that would prohibit the unauthorized disclosure of certain safeguards information by NRC licensees or other persons (45 FR 85459). The proposed rule was published in response to the provisions of a new section 147, SAFEGUARDS INFORMATION of the Atomic Energy Act, as amended. Public comment on the proposed rule was received from forty-five groups and organizations as follows:

Power Reactor Licensees	19
Fuel cycle licensees	6
Nuclear service companies	7
States	6
Law firms	3
Associations	2
Other government agencies	2
Private citizens	1

There were no comments received from public interest groups or organizations.

Extensive revisions have been made to the rule as a result of the comments received. The most significant revisions include:

Excluding from the scope of the rule activities involving less than a formula quantity of strategic special nuclear material (except for spent fuel shipments).

Deleting limit of error of inventory difference (LEID) information from the rule.

Adding guard qualification and training plans as items considered to be Safeguards Information (those portions that disclose facility safeguards features).

Deeming information protection systems used by State and local police

force adequate to meet regulatory requirements.

Rephrasing § 2.790(d)(1).

Not requiring the marking of documents more than one year old stored by licensee contractors. Such documents would be marked if and when taken from storage for use.

#### A. Discussion of Comments Resulting in Changes to Proposed Rule

(1) *Reduction in the Scope of Application*—A number of commenters suggested that physical protection information for facilities that possess only special nuclear material of low strategic significance (Category III) be deleted from the rule considering the small potential hazard of such materials. Commenters also suggested that this type of information when in the hands of the NRC be withheld from public disclosure as commercially valuable (proprietary) information.

The Commission agrees with both points. The original determination of scope was based on the assumption that appropriate information pertinent to all facilities and special nuclear materials required to be protected under 10 CFR Part 73 should be included in the proposed rule. Upon further review the Commission has concluded that applicability should be more closely related to the "significant adverse effect on the health and safety" standard contained in Section 147 of the Atomic Energy Act, as amended. Accordingly, the scope of the rule has been reduced to apply only to those facilities, nuclear materials, or transport activities for which there exists significant potential for harm to the public health and safety if the nuclear materials or facilities involved are intentionally misused or damaged. Therefore, Safeguards Information is limited to information regarding the physical protection of:

All activities involving formula quantities of strategic special nuclear material, both irradiated and unirradiated (most of the physical protection information for activities involving a formula quantity of *unirradiated* strategic special nuclear material would be classified as National Security Information under 10 CFR Part 85).

Operating power reactors, and Spent fuel shipments (but not routes and quantities).

This separation is generally consistent with the overall NRC Policy of graded safeguards. The activities that remain under the rule (with certain minor exceptions such as non-power reactors) require protection by armed guards, whereas the activities deleted do not. Appropriate paragraphs of § 73.21 have been modified to reflect this scope change. In regard to the second point, the Commission has determined

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generically that information concerning a licensee's or applicant's material control and accounting or physical security program for special nuclear material, not otherwise covered by specific statutory exemptions, is commercial or financial information for purposes of Freedom of Information Act (5 U.S.C. 552) (FOIA) requests. In order to reduce both the licensee's and the Commission's administrative burden associated with licensees applying for a withholding determination for each item of such information submitted to the NRC under 10 CFR 2.790(b)(1), 10 CFR 2.790(d)(1) has been amended to deem such information confidential commercial information under exemption (4) of the FOIA. This continues in effect present procedures for such information.

Nine commenters supported the retention and/or expansion of § 2.790(d)(1) as an appropriate method for withholding material control and accounting and physical security information not considered to be Safeguards Information. There were no comments to the contrary.

(2) *Deletion of Limit of Error of Inventory Difference (LEID) Information*—A large number of commenters recommended the deletion of LEID information for low enriched uranium fabrication facilities on the basis that this information would not be very valuable to a diverter attempting to steal material within the limits of a statistical alarm threshold.

The Commission agrees and LEID information has been deleted from the rule (LEID information for activities involving formula quantities of strategic special nuclear material would still be classified under Part 95).

(3) *Addition of Guard Qualification and Training Plans to the Rule*—Ten comments were received on this matter, the most for any item. Commenters stated that guard qualification and training plans contained, among other things, site specific response procedures and descriptions of facility safeguards features. A review of several such plans received by the NRC disclosed that while some plans were so general that they could not be considered Safeguards Information, others contained specific information that should be protected. The rule has been amended to include those portions of guard qualification and training plans that disclose site specific features of the physical protection system.

(4) *Grandfathering*—Comments pointed out that certain organizations (e.g. architect/engineering firms) may have very large quantities of old documents that qualify as Safeguards Information but are rarely removed from storage. They suggested that this information be exempted or at least

given special consideration. The Commission agrees with this suggestion in part and has amended the rule to require marking of documents more than one year old only when they are removed from storage. Storage, protection and access requirements however, would still apply. Documents containing Safeguards Information located at the operating facility would have to be marked regardless of age.

(5) *"As Built" Drawings*—Some commenters suggested that all revisions of drawings, not just the final, be considered as Safeguards Information. Other commenters suggested that preliminary design and construction drawings be specifically excluded from the rule. The Commission believes there is some merit in both suggestions. Accordingly, the rule has been changed

to indicate that any drawing or document that substantially represents the final design of the physical security system would have to be protected. This change eliminates the need to control much of the initial information, such as requests for bids, but still requires protection of documents that are only slightly different from the final version.

(6) *Vital Area Identification and Location*—Several commenters noted that the proposed rule might be interpreted as requiring protection of information already in public documents, such as in the FSAR, specifically in regard to drawings that show locations of safety related equipment. The rule was therefore revised to indicate that only drawings or documents that explicitly identify items of safety-related equipment as vital for purposes of physical protection are required to be protected. (Note that the content of Appendix E has now been incorporated into the text of the rule at paragraph § 73.21(b).) Other than as above, engineering and construction drawings that show the locations of safety-related equipment are not considered Safeguards Information.

(7) *Acceptability of Present Protection Systems*—Several commenters suggested that specific physical protection requirements not be included in the existing rule but that licensee or State standard procedures be accepted instead. The Commission has concluded, based on frequent NRC staff contacts, that State and local police forces protect information in a way that is equivalent to the rule requirements. Accordingly, the rule has been revised to deem State and local police information protection procedures acceptable. In regard to NRC licensees that fall into the scope of the rule, the Commission has concluded that without formal requirements there would be no assurance of uniformity, consistency or an adequate level of protection across the industry. As evidenced by the comments received,

there is considerable divergence of opinion as to what constitutes a minimum acceptable level.

(8) *Other Minor Changes*—Based primarily on comments received, additional rule changes have been made to:

Permit Safeguards Information to be transported by any individual authorized access under the rule.

Show that matter other than documents may contain Safeguards Information.

Allow use of ADP systems by contractors of licensees.

Indicate that non-security related orders and procedures for guards need not be protected.

Limit off-site communication information that needs to be protected to communications used for security purposes.

Show that portions of any correspondence that contains Safeguards Information would have to be protected.

Remove from the rule and place in guidance documents many of the detailed requirements relative to marking, transmission, and destruction of documents that contain Safeguards Information.

Note in § 2.744(e) the applicability of criminal sanctions, as well as civil penalties, for violations of Board orders pertaining to Safeguards Information.

### B. Discussion of Comments Not Accepted By the Commission

(1) *Protection During Agency Proceedings*—The adequacy of proposed 10 CFR 2.744(e) was questioned by law firm commenters representing licensees. The amendment as proposed would confirm a presiding officer's authority to issue appropriate protective orders whenever protected Safeguards Information is required in an adjudicatory hearing. The amendment was seen by the Commission as the minimum restriction needed to protect the health and safety of the public or the common defense and security in the context of adjudicatory hearings pursuant to section 147a of the Atomic Energy Act of 1954, as amended (the Act), and to impose the minimum impairment of procedural rights, as required by section 181 of the Act. The amendment makes it clear that the physical protective measures and need to know standards of proposed § 73.21 would apply to Safeguards Information in adjudicatory hearings.

First, the commenters note correctly, but as a shortcoming, that § 2.744(e) applies only to agency records and not to Safeguards Information possessed only by an applicant, licensee, or contractor. A second objection was that the proposed § 2.774(e) gives relatively weak authority to the licensing boards

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to prevent disclosure by intervenors and their lawyers. The commenter asserted that some showing of reliability should be required of such persons before Safeguards Information is disclosed. Third, the commenters stated that the proposed regulation gives inadequate guidance to the licensing boards on the kind of protection intervenors should be required to give to Safeguards Information. The commenters suggest that the restrictions used in the Diablo Canyon case be adopted. See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant Units 1 and 2) ALAB-600, 12 NRC 3 (1980). Finally, the commenters suggest that the possibility of criminal sanctions, as well as of civil penalties, be noted for violations of Board orders pertaining to Safeguards Information.

In response to these comments the Commission has made one change to proposed § 2.744(e). That change notes the applicability of criminal sanctions by stating, for the purpose of section 223 of the Act, that any order issued pursuant to § 2.744(e) with respect to Safeguards Information be considered an order issued pursuant to section 161b. of the AE Act. This is in accord with section 147b. of the Act.

The Commission believes the other comments should not be adopted. It was not the intention of the Commission to place any restrictions on discovery by intervenors, or to write any special rules chilling intervenors' rights, such as a screening requirement not applicable to all parties. Not only would such rules be discriminatory, but also would be contrary to sections 181 and 147a of the Act. This Commission cannot presume beforehand that intervenors and their counsel are any-the-less trustworthy than the staff or applicant and their counsel.

The minimum protection required for Safeguards Information is stated in proposed § 73.21. The requirements there apply to intervenors and their counsel as well as to the applicant or licensee. Section 2.744(e) allows a Board to go further, if, in its judgment after hearing all relevant arguments, the circumstances warrant it. This Commission needless to say, has confidence in the ability of its Boards to exercise sound judgment in the exercise of their discretion under § 2.744(e), and therefore at this time declines to write any special rules for the guidance of the Boards as to the extra measures they may require for the protection of Safeguards Information in adjudicatory hearings.

With respect to the protective measures used by the Boards in the Diablo Canyon case and their potential general applicability, the Commission notes that those conditions are involved

in a review of the Diablo Canyon hearing by an Atomic Safety and Licensing Appeal Board. The Appeal Panel has informed the Commission that it would like to make some suggestions regarding the handling of Safeguards Information in adjudicatory hearings but feels constrained not to do so until the Diablo Canyon adjudication is finished. The Commission believes that the suggestions of the Appeal Panel will be most useful in determining if restrictions on intervenor's rights of discovery of Safeguards Information should be inserted into the agency's rules as the commenters request.

For this reason also, the Commission will defer to a later time the decision whether it should stipulate any further guidance or rules for how the licensing boards should write protective orders to protect Safeguards Information. At this time the Commission believes that its opinion and those of the Boards provide adequate guidance. See, *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI 80-24, 11 NRC 775 (1980), ALAB 410, 5 NRC 1398, (1977); ALAB 580, 11 NRC 227 (1980); ALAB 592, 11 NRC 744 (1980); and ALAB 600, 12 NRC 3 (1980).

One commenter also took the position that proposed § 2.744(e) did not provide adequate protection against undesirable disclosure of physical security plans for nuclear power plants. In his view a protective order and affidavit of nondisclosure would not eliminate the risk of unauthorized disclosure by intervenors who had an ulterior motive of securing the plans for use in sabotaging the plant. This commenter recommended (i) inclusion of rules of decision based upon *Diablo Canyon* for presiding officers to apply in hearings, and (ii) security clearances or a screening program for persons with access to Safeguards Information in hearings, in order to assure trustworthiness and reliability. Both of these recommendations have been discussed above and rejected. In addition, the Commission does not propose to write rules affecting rights of intervenors in adjudicatory hearings based upon a suspicion of ulterior motives in intervening. To do so would be tantamount to writing rules based upon speculation rather than on fact and law. The hearing process already contains screens to separate the genuine intervenor from the spurious. The intervenor must validate both his standing under judicial rules and the merit of his contentions. He is a known and readily identifiable person who openly participates at considerable expense. Intervenors generally make no effort to conceal their opposition to nuclear power, but this does not supply an adequate basis to consider them as potential co-conspirators in plots to

sabotage operating power reactors.

In contrast to the above, a third commenter stated that proposed § 2.744(e) was potentially too restrictive of intervenors' rights in that it gave too much authority to the presiding officer. The commenter suggested modification of proposed § 2.744(e) to allow disclosure of Safeguards Information to a party upon a showing by the party of reasonable necessity for disclosure. 10 CFR 2.744(e) as drafted requires a finding by the presiding officer that disclosure is necessary to a proper decision. The presiding officer, as usual, will exercise a rule of reason in applying the standard. The language used accomplishes the same result and is generally consistent with the terminology in § 2.744.

(2) *Trustworthiness Determinations*—A number of commenters disagreed with the absence of a personnel clearance or screening program as a necessary condition for access to Safeguards Information, noting that the traditional requirements for access to sensitive information include both "need-to-know" and trustworthiness determinations. One commenter suggested that persons having access be subjected to the screening program which the Commission has directed be established for power reactor personnel. Another commenter suggested that individuals be required to show sufficient evidence of trustworthiness before being granted access.

The Commission's position on this matter has not changed. In the first place, Section 147 of the Atomic Energy Act contains no provisions regarding trustworthiness determinations on which to base a federal personnel security program (as is set forth in Section 145 for access to Restricted Data). Secondly, the Commission does not believe that there is any reasonable regulatory framework that can be used to establish a licensee administered screening program, considering the wide distribution afforded some Safeguards Information. While the power reactor access authorization program mentioned by one commenter might be used for "clearing" licensee employees and other persons granted unescorted access to the reactor facility, it would not be applicable to engineering firm employees who are never on the site (but who in some cases have total access to the physical protection system design information). Thirdly, the Commission believes that the proper administration of the need-to-know requirement combined with the rule's occupational restrictions will provide an effective information protection program and still satisfy the "minimum restrictions" provisions of section 147a of the Act.

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(3) *Unrestricted Use of Telecommunications*—Several commenters suggested that the restrictions on the use of telephone circuits for transmission of Safeguards Information be deleted. Various reasons were given for this change. One commenter stated that the rule would prevent the licensee from calling for help in a safeguards emergency. This is not so since the regulations make an exception for extraordinary or emergency circumstances. Another commenter contended that the resources needed to intercept unsecured communications exceeded the technical capabilities of the design basis threat. The Commission disagrees with this position and believes that relatively little skill is needed to tap phone lines or eavesdrop on radio conversations. A third commenter noted that the telephone is normally used to transmit shipping information and it would be burdensome to use another method. In this regard, the only shipments covered by the final rule are spent fuel and formula quantities of strategic special nuclear material. (Category I.)

Notifications regarding spent fuel shipments are required to be by mail (See 10 CFR 73.72) except that reporting schedule changes are permitted to be made by phone in the form of time deviations from the original schedule. Information regarding Category I shipments is classified National Security Information under Part 95 and use of unsecured telephone for such information is prohibited.

Another commenter stated that the rule conflicts with the requirements of § 73.71 regarding the telephonic reporting of physical security events. The events for which reporting is required are considered to be extraordinary conditions in themselves and therefore exempt from the restrictions. An explicit statement was added to the rule in this regard. The Commission, after careful consideration, concluded that the restrictions on the use of unsecured telecommunication circuits needs to be retained in the rule to assure that Safeguards Information is not lost or compromised *without the knowledge of the person responsible for its protection*. There is no indication that these restrictions will unduly burden the licensee or the NRC staff during routine licensing matter or transport activities. For example, periodic call-ins required during shipments can be made using prearranged signals or an operating code.

(4) *Restrictions on Use of ADP Systems*—Commenters stated that the meaning of an "ADP system" was not clear, that facilities without on-site

capabilities would be excessively burdened, and that the restrictions should be removed. The Commission disagrees noting that the problem regarding unauthorized access to Safeguards Information stored in ADP systems is more severe than with telephone usage. ADP systems located at engineering firms may have in memory large amounts of information on the design of a physical security system. Without restrictions, access to such information potentially could be gained by anyone, authorized or not, who is familiar with the operation and has access to a terminal. Remote terminals could provide an especially easy and unobtrusive means for obtaining selected Safeguards Information. Access to unprotected data lines between facilities could also be used to compromise a physical security system.

(5) *Physical Protection Requirements*—Several commenters stated that the storage requirements were too restrictive. Suggested alternatives (to locked security storage containers) included storage in desks, file cabinets, locked rooms, undesignated or non-GSA approved storage repositories, or anywhere in a controlled access or protected area. The Commission does not agree with the suggested alternatives. The basic objective of the security container is to make more difficult *undiscovered* compromise of Safeguards Information. A steel filing cabinet secured with a locking bar and a GSA approved combination lock, or a GSA approved security container both satisfy this objective. On the other hand, locked file cabinets, desks, and ordinary doors can be entered with little difficulty and without leaving any indication that compromise has occurred. The objection to storing anywhere in a controlled access or protected area is based on the free access this would allow to anyone in these areas. However, the rule has been changed to delete the requirement that the security storage container be in a *locked* room when inside a controlled access or protected area.

Other commenters objected to the requirement for control of Safeguards Information by an individual while in use within a controlled access or protected area. The Commission agrees that some relaxation is warranted on this matter; however, the basic requirement has been left in the rule and guidance has been provided to indicate that under certain conditions the general control exercised over controlled access and protected areas would satisfy the requirement.

One commenter noted that the requirements to keep Safeguards Information in locked security containers would have an adverse

impact on the availability of the security force to respond to a threat or a safeguards incident. The Commission does not agree. Documents located within alarm stations and guard houses need not be in locked security containers since they are under direct control of security personnel. Similarly, guard orders and procedures may be posted at access control points provided that the post is continuously manned and the information is located so as to prevent observation by visitors.

(6) *Addition of Other Types of Information*—Several commenters disagreed with the deletion of generic safeguards studies and reports (such as the Sandia Laboratories' *Handbooks on Barrier Technology and Entry Control Systems*) from the scope of the rule and noted that no justification was given for the omission. On this matter the Commission notes that the original legislative proposal prepared by the NRC, and interim versions of the legislation, contained explicit language regarding the protection of "studies, reports, and analyses — which concern the safeguarding of nuclear materials or facilities."<sup>1</sup> This provision was deleted from the final version of section 147. In view of this deliberate action by the Congress, the Commission has no choice but to delete these items from the rule.

One commenter suggested that information developed during the course of probabilistic risk assessments be protected under this rule. The Commission, while agreeing that such information might have value to a potential saboteur, has concluded that on balance the public interest is better served if all safety-related studies are available for scrutiny. The question also arises concerning the legality of withholding information under Section 147 that is neither related to a licensee's physical protection program nor produced in response to security considerations.

(7) *Deletions of Certain Types of Information*—One commenter suggested that it would be unlawful to include information regarding off-site response forces, shipment schedules and locations of safehavens in that these items are not "security measures" as set forth in section 147. The Commission disagrees on this point. NRC regulations require licensees to make arrangements with State or local police forces for response to safeguards emergencies. For fixed sites these arrangements are documented and become part of the facility physical security plan. For transport of spent fuel and Category I

<sup>1</sup> Congressional Record—House, H 11334, November 29, 1979.

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quantities of highly enriched uranium and plutonium, route surveys are conducted by the NRC staff in order to determine what police response could be expected in an emergency, the location of safe havens, and zones of weak-radio-telephone communications. The information gathered is documented and transmitted to the licensee for inclusion in his physical protection plan. In this regard, the U.S. District Court for the District of Columbia has recently upheld the Commission's position that police response capabilities and telephone shortcomings are legitimate items for withholding under section 147 of the Act.<sup>2</sup>

Another commenter stated that it might be impossible to prevent disclosure of certain information regarding local police forces. The Commission agrees in part and the rule has been modified to more accurately reflect the original intent that only details of the forces committed to respond to a facility safeguards emergency need be protected.

(8) *Withholding Spent Fuel Route Information*—Two commenters recommended that routes used for spent fuel shipments be withheld until the shipments have been completed. This is not a matter for Commission deliberation. Section 147 contains an explicit statement that "Nothing in this Act shall authorize the Commission to prohibit the public disclosure of information pertaining to the routes and quantities of shipments of—irradiated nuclear reactor fuel."

(9) *Limit Regulations to Parts 2 and 9*—One commenter suggested that the licensed industry be allowed to devise its own methods of protection, that specific requirements be deleted from Part 73, and that Parts 2 and 9 contain directives that Safeguards Information be protected. As is stated elsewhere, the Commission believes that without formal requirements (which are considered to be the minimum restrictions that provide an acceptable level of protection) there would be no assurance of uniformity or consistency. Comments received indicate there is no general agreement in the licensed industry concerning what constitutes a minimum level of protection.

(10) *Other Comments*—Following is a list of other comments on minor matters that were not incorporated into the final rule on the basis of no demonstrable need or benefit:

Show that the licensees are not responsible for compliance by other

persons that receive Safeguards Information.

Require records to be kept for any Safeguards Information transmitted off-site.

Require that a list be kept of persons who have a need-to-know.

Note that distribution, reproduction, and destruction of Safeguards Information need not be documented.

Include a document exclusion list in the rule.

Add attorneys to the occupation list contained in § 73.21(c); (not necessary in that attorneys are already included in (c) (i) and (vi)).

Amend the definition of Safeguards Information to add "controlled" before Safeguards Information.

Add a definition for "composite plan." Limit withholding of information on security system weaknesses to those items severe in nature.

(11) *Comments Regarding Guidance*—A number of comments were received regarding guidance needed to implement the rule. The specific items mentioned by commenters were taken into consideration during the development of the guidance document.

(12) *Cost*—Several commenters stated that the estimated costs for implementing the rule were too low, particularly in regards to storage during the construction phase, protection at licensee contractor facilities, and recurring labor. The Commission has revised its estimates as follows. (A value-impact analyses is available in the Public Document Room.)

Initial costs		Recurring (annual)	
Licensees and Nuclear Service Companies (245 Locations)			
\$4,000	per location	\$2,200	per location
(avg) × 245 locations		(avg) × 245 locations	
Total \$986,500		Total \$531,000	
State Governments (40 States)			
Total \$24,000		Total \$126,000	

(13) *Public Announcement*—One commenter noted that some firms who may have Safeguards Information are not part of an information network that would inform them of the existence of this new rule. The Commission agrees that special effort is needed regarding public dissemination of the rule. In addition to the normal practice of publication in the Federal Register and distribution of NRC public announcements the Commission intends to (i) encourage licensees to notify their contractors, suppliers, and local police response forces, (ii) send out a special mailing to nuclear service firms that do business with power reactor licensees, and (iii) invite certain associations to notify their members.

### C. Petition for Rulemaking

On June 7, 1977, the Northern States Power Company and Wisconsin Electric Power Company petitioned the Nuclear Regulatory Commission to amend 10 CFR 50.34(c) so as to include plant security information within the definition of Restricted Data, or alternatively within the definition of National Security Information, to amend 10 CFR 2.905 so as to assure that discovery of plant security information is subject to the protections of Subpart I to 10 CFR Part 2, to amend Subpart I to 10 CFR Part 2 to explicitly recognize that its protections extend to information not under Commission control, and to delete 10 CFR 2.790(d)(1). The Commission's decision on the petition, in light of the issuance of this rule, will be set forth in a separate Federal Register Notice.

### D. Effective Dates

The Commission has decided to make §§ 2.744(e), 2.790(d)(1), 73.2(jj) and (ll), and 73.21(a), (b) and (c)(1) effective immediately for good cause pursuant to the exception provided by 5 U.S.C. 553(d)(3). The enumerated sections define the scope of Safeguards Information protected by the rules, identify those persons who are permitted access, set forth certain protections afforded by the Commission to such information, and provide certain protections for physical protection and material control and accounting information not otherwise designated as Safeguards Information or classified as National Security Information or Restricted Data. These sections alone impose no new requirements on licensees or other persons outside the agency.

Immediate effectiveness of these sections is warranted to avoid further delay in implementing the Congressional intent in enacting Section 147 of the Atomic Energy Act to provide protection from public disclosure for certain specified types of Safeguards Information. Since the rule also codifies current Commission procedure as to what types of information are protected, immediate effectiveness of those provisions will not adversely affect Commission licensees or others in possession of Safeguards Information.

The remaining provisions of the rule will be effective on January 20, 1981.

### E. Paperwork Reduction Statement

There are no reporting or recordkeeping requirements contained in this regulation and therefore it is not subject to Office of Management and Budget clearance as required by Pub. L. 96-511.

The promulgation of these amendments would not result in any

<sup>2</sup> *Virginia Sunshine Alliance vs NRC*, Civil Action No. 80-2099, February 26, 1981 (Presently under appeal.)

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activity that affects the environment. Accordingly, the Commission has determined under the National Environmental Quality guidelines and the criteria of 10 CFR 51.5(d) that neither an environmental impact statement nor environmental impact appraisal to support a negative declaration for the proposed amendments to Title 10 is required.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 2, 50, 70, and 73, are published as a document subject to codification.

47 FR 600  
Published 1/6/82  
Effective 7/6/82

### 10 CFR Part 73

#### Advance Notification to Governors Concerning Shipments of Irradiated Reactor Fuel

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to implement a federal statute which requires the NRC to promulgate regulations regarding notification to state governors of the transport of spent fuel through a state. This notification will provide the governor advance information, not otherwise available to the governor, related to spent fuel transportation in his state. Shipment of certain other forms of nuclear waste is covered under a separate amendment to the Commission's regulation 10 CFR Part 71. Separate amendments are needed because information regarding spent fuel shipments contains sensitive safeguards data which must be protected. The information pertaining to the other waste shipments is not sensitive.

**EFFECTIVE DATE:** July 6, 1982.

**ADDRESS:** The comments received may be examined at the NRC Public Document Room at 1717 H Street, NW, Washington D.C.

**FOR FURTHER INFORMATION CONTACT:** Tom R. Allen, Regulatory Improvements Branch, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Telephone: 301-427-4181).

### SUPPLEMENTARY INFORMATION:

#### Background

Section 301(a) of Pub. L. 96-295 states: "The Nuclear Regulatory Commission, within 90 days of enactment of this Act, shall promulgate regulations providing for timely notification to the Governor of any State prior to the transport of nuclear waste, including spent nuclear fuel, to, through, or across the boundaries of such State. Such notification requirements shall not apply to nuclear waste in such quantities and of such types as the Commission specifically determines do not pose a potentially significant hazard to the health and safety of the public."

On December 9, 1980, the NRC published a Federal Register notice (45 FR 81060) inviting public comments on a proposed rule providing for advance notification to governors of states of the transportation of spent fuel. The 90-day comment period expired March 9, 1981. Copies of the proposed rule, with a request for comments, were also sent to state governors. The final rule is essentially the same as the proposed rule except that it has been modified to permit notification of a governor's designee (rather than the governor).

#### The Rule

The amendment to 10 CFR Part 73 will require licensees to supply the following information: the name, address, and telephone number of the shipper, carrier and receiver of the shipment, a description of the material to be transported, point of origin, estimated date and time of departure, estimated date and time of arrival at state boundaries, and a description of the shipment route to be used within the state. This information would be provided by mail, postmarked at least seven days or delivered by messenger at least four days in advance of the estimated date of departure, to the offices of the governors (or governors' designees) of affected states. Any person receiving schedule information would be required to protect it against unauthorized disclosure. The information protection measures are set forth in § 73.21 of 10 CFR Part 73 and are the subject of a separate rulemaking notice (46 FR 51718, October 22, 1981). Schedule information would be downgraded a short time after completion of the shipment, so that protection need not be continued. The state official would be renotified in the event of schedule changes in excess of six hours.

#### The Comments

NRC received 60 letters containing more than 300 comments on the

proposed rule. Comments were received from these entities as follows:

	Comments
State governors or state agencies	24
Individuals from public sector	23
Nuclear industry	9
Federal agencies	3
City mayor	1
Total	60

Some of these comments resulted in minor changes to the rule or in changes in the way the NRC will administer the rule. These comments relate to three general groupings.

The first such group of comments resulted in modification of the rule. A number of comments requested that the regulation be modified to require advance notifications be sent to a state official designated by the governor, rather than being sent to the governor himself. The Commission has decided that notification of a governor's designee has significant information handling and information protection advantages. Accordingly, the final rule has been modified to provide for notification of a governor's designee.

One comment requested that the advance notification information include the telephone number of the shipper and receiver. This suggestion is being adopted because during times of emergencies it would allow quick access to additional technical information about a shipment at insignificant additional cost. For completeness, the rule modification has been expanded to include the telephone number of the carrier.

A final comment requested that the regulation make clear that renotification can be done routinely by telephone. Paragraph § 73.37(f)(4) in the regulation has been modified to make this point clear.

In addition to the revisions resulting from public comment revisions were also made to simplify the information protection provisions of § 73.37(f)(3) and to clarify that they apply to intrastate shipments as well as to interstate shipments.

The second such group of comments made suggestions that were adopted but did not result in modification of the rule. Rather, these suggestions will be carried out by the NRC in the administration of the rule.

One comment in this group stressed the importance of a governor's right to decline to receive notifications and suggested that the regulations make this right explicit, while opposing comments insisted that a governor should not be given the option of declining to receive the notifications. The Commission continues to believe that in view of the information protection requirements of



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§ 73.21, a governor should have the option to decline to receive advance notification information relevant to spent fuel shipments. If requested by a governor, the NRC will remove that governor's name from the list of governors to be notified.

One of these comments suggested that the notification should be made to a single contact within each state, and that localities within the state that need the information would obtain it from that contact. Another suggested that the NRC should make available to licensees a list of the responsible persons in each state to be notified in the event of a change of schedule. The Commission has decided that it is consistent with the intent of Congress that notifications should be made to a single designated individual within each state who is to receive notifications and renotifications. The NRC will make available a list of these individuals.

One comment requested that the list of governors to receive advance notifications should include the executives of certain Pacific Island territories and the U.S. Secretary of Interior (for shipments that would stop over at these Pacific Island territories). This suggestion is consistent with the language of the statute, which includes territories as states. The list of governors will be so modified.

One comment requested that a standardized advance notification form be used. The NRC adopted the suggestion and will issue a suggested format as a guidance document.

The Commission also received comments which were evaluated but not adopted. Some of these were in the form of suggestions, while others provided information for consideration. Some dealt with matters beyond the scope of this regulatory action or with matters beyond the authority of the Commission. These comments are discussed below:

1. *Scope of the Rule.* Several comments made suggestions concerned with the scope of the rule. These suggestions were rejected because they would modify the scope of the rule in ways that are inconsistent with NRC understanding of law or inconsistent with the aims of this particular rulemaking.

a. *Application to other than NRC licensees or to non-radioactive materials.* One comment suggested that the rule should apply to all transporters of radioactive fuel, rather than being limited to NRC licensees. Another comment expressed concern that the rule would be unjustifiably extended to include vast numbers of shipments of nonradioactive waste. These comments

were rejected because the NRC has no authority to apply the rule to persons other than NRC licensees.

b. *Promulgation of the rule by DOT, rather than NRC.* One comment contended that the DOT, rather than the NRC, should promulgate the rule.

However, since Congress specifically directed the NRC to issue the rule, DOT has not undertaken the promulgation of such a rule.

c. *Emergency response and other state actions.* Some comments requested that the NRC identify state actions needed for optimum utilization of the information and provide more information on emergency response. Apart from information protection rules, which was required by Pub. L. 96-295, the NRC does not regulate state use of advance notification information. Accordingly, it would be inappropriate to incorporate advice concerning state use of notification information in a regulation. Although emergency response by states is a timely and important subject, these issues are already being addressed outside this rulemaking action, and therefore do not require further discussion here. As the Commission noted on April 13, 1981 in its withdrawal of advance notice of rulemaking (46 FR 21819):

In another separate action, the NRC in cooperation with the Federal Emergency Management Agency and other federal agencies is currently developing guidance material to be used by state agencies in developing emergency response plans for transportation accidents involving radioactive material.

d. *State and local authority.* A group of comments pointed out differences between the proposed rule and existing state laws and asked whether the rule would preempt the existing state laws. In that regard, local regulations that call for the advance disclosure of spent fuel shipment schedule information could be affected by new NRC requirements for the protection of such schedule information. In accordance with a separate rulemaking, NRC licensees as well as any other person who has advance schedule information will be prohibited from furnishing it to any local official other than a member of a local enforcement authority that is responsible for responding to requests for assistance during safeguards emergencies (see § 73.21(c) in 46 FR 51718, October 22, 1981). It should be noted that the protection provisions of § 73.21(c) do not apply to any of the other information provided to governors or the designees in accordance with this regulation.

Other comments requested that the rule provide for advance notification of

citizens along spent fuel shipment routes. The NRC has not adopted this suggestion because it is beyond the scope of Pub. L. 96-295, and because a local official could obtain such information from his state governor's office as appropriate.

e. *Routing.* Some comments suggested that the rule require that shipments be routed on interstate highways and that the NRC consult with state police before approving a route. The issue of whether to route shipments only on interstates is outside the scope of the advance notification rule. Routing of spent fuel shipments is covered in 10 CFR 173.37 and in DOT regulation 49 CFR 173 and 177. However, it should be noted that the NRC encourages the use of interstate highways and, routinely consults with state police before approving a route.

2. *Impacts.* Some comments contended that the rule was unsupported and would be burdensome and ineffective. Congress has decided that, rather than being burdensome and ineffective, advance notification to states is beneficial because it enables states to contribute to the security, safety, and ease of transport of shipments. Therefore, Congress directed the NRC to issue requirements for its licensees to carry out advance notification.

3. *Administrative.* Comments in this group generally requested clarification of how various details of the rule would be interpreted and administered or set forth alternatives to the measures proposed. The specific comments are discussed below.

a. *Waterborne and airborne shipments.* One comment asked how the rule will apply to waterborne and airborne shipments. Notifications for waterborne shipments would be given as for highway shipments. There are no airborne shipments of spent fuel.

b. *Shipper-carrier division of responsibility.* Some comments asked whether the shipper or the carrier is intended to be responsible for notification under various conditions. Generally two licensees, a shipper and a carrier, are involved in each spent fuel shipment. Both are responsible for physical protection, including advance notification. As a practical matter, division of responsibility for carrying out the physical protection requirements is a subject of agreement between the shipper and the carrier.

c. *Series shipments.* One comment requested clarification concerning the way in which series of shipments are related with respect to protection of schedule information. Shipments in a series are related in the sense that knowledge of the schedule details of one

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shipment in the series could aid in predicting the schedule of subsequent shipments in the series. For this reason, schedule information protection is required until after the last shipment in a series is completed.

**d. Documentation to demonstrate compliance.** One comment asked what documentation a licensee must maintain to demonstrate compliance with the regulation. The Commission has decided that maintenance of a recordkeeping system by licensees is not required at this time. For its inspection the NRC will rely on a sampling process wherein NRC records concerning the details of notification will be checked against state records for the same shipment.

**e. Notification lead times.** Some comments inquired about the basis for the proposed lead times for notifications, suggested various alternative lead times, and asked whether there are circumstances under which a shipment could be made with less than four days advance notification. The notification lead times are selected to offer a reasonable compromise between the needs for (1) timely advance notification, (2) avoidance of unnecessarily long periods for protection of schedule information, and (3) avoidance of unnecessary numbers of renotifications stemming from schedule changes. NRC regulations in 10 CFR Part 73 provide for the granting of exceptions to the provisions of Part 73, including the provision for four-day notification lead time, but there must be good cause for the exception to be granted.

**f. Confirmation of receipt of notification.** One comment suggested that, prior to entering a state with a shipment, licensees obtain confirmation from the state that notification has been received. The suggestion was not adopted because it could lead to significant delays of shipments en route and thereby weaken safeguards of the shipments.

**g. Use of registered or certified mail.** One comment suggested that notifications be sent only by certified or registered mail to ensure delivery. The suggestion was not adopted because NRC analysis showed insignificant benefit.

**h. Clearinghouse for notifications.** One comment suggested that the NRC establish a Federal clearinghouse or other centralized unit to transmit notifications to states. The suggestion was not adopted because it is not necessary to the notification process, it would be costly, and it could cause notification delays.

**i. Notification through mutual agreement.** One comment suggested that notifications be carried out through mutual agreement between licensee and state, rather than having the details specified by the NRC in a regulation. The suggestion was rejected because notifications would likely be nonuniform from state to state and would be difficult for the NRC to enforce.

**j. Schedule tolerance.** Several comments suggested various alternatives to the proposed  $\pm 6$  hours tolerance be considered. The  $\pm 6$  hour tolerance was retained because it appears to be a reasonable compromise between (1) the need for carriers to be allowed to have significant flexibility in schedules for long distance shipments and (2) the need for schedule accuracy in order to assure that states have the opportunity to contribute to the security and safety of transport of shipments.

**k. Relevant state law.** Some comments contended that the NRC should have evaluated all of the relevant advance notification rules now in force in several of the states. The NRC staff reviewed a number but not all of the state advance notification laws and consulted with representatives of some states that have operational advance notification laws. Some provisions of the proposed rule were adopted from state laws.

**l. General rather than specific notifications.** Some comments suggested that states need only general information (routes, number of shipments using that route, typical quantity of material in a shipment, etc.) rather than shipment specific information. The suggestion was rejected because states will have a greater range of alternatives to contribute to the security, safety, and ease of transport of spent fuel shipments if the notifications are in advance and are shipment specific.

**4. Information protection.** Numerous comments were concerned with the information protection provisions in the proposed rule, under which shipment schedule information would be required to be protected.

Concerns surrounding the basis for protection of information, and the ways in which such information should be handled, are addressed in a separate rulemaking (see 10 CFR 73.21, 46 FR 51718, October 22, 1981).

After careful consideration of these comments, the Commission has adopted the amendment in final form.

### Environmental Impact Statement

In accordance with 10 CFR 51.5(d)(3), an environmental impact statement, negative declaration, or environmental impact appraisal need not be prepared

in connection with this rulemaking action because the amendments are nonsubstantive and insignificant from the standpoint of environmental impact.

### Paperwork Statement

The Nuclear Regulatory Commission has submitted this rule to the Office of Management and Budget for such review as may be appropriate under the Paperwork Reduction Act, Pub. L. 96-511. The SF-83, "Request for Clearance," Supporting Statement, and other related documentation submitted to OMB have been placed in the NRC Public Document Room at 1717 H Street, NW., Washington, D.C. 20555 for inspection and copying for a fee.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, Section 301 of Pub. L. 96-295 (94 Stat. 789-790), and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 73 are published as a document subject to codification.

47 FR 11511

Published 3/17/82

Effective 4/16/82

### 10 CFR Part 73

#### Reporting of Physical Security Events

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations regarding notification requirements for reporting significant physical security events to conform with the proposed requirements for the reporting of significant events contained in § 50.72. This change will require that licensees of nuclear power plants and fuel fabrication facilities, who have access to the system, notify the NRC Operations Center via the Emergency Notification System (ENS), rather than the Regional Office, of a reportable physical security event. This document also corrects an omission in a previously published rule.

**EFFECTIVE DATE:** April 16, 1982.

**FOR FURTHER INFORMATION CONTACT:** Kristina Z. Markulis, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (301-433-5976).

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**SUPPLEMENTARY INFORMATION:** In 1979, the Commission's concern about the lack of effective and timely communication between licensees and the NRC regarding unusual events at operating reactor facilities prompted a rulemaking action leading to a final rule (10 CFR 50.72, "Notification of Significant Events") being published in the Federal Register on February 29, 1980 (45 FR 13435). One requirement of the rule is that operators of nuclear power reactors notify the NRC Operations Center, via the Emergency Notification System, of reportable physical security events as set forth in 10 CFR 73.71. The Commission is amending the notification requirements of § 73.71 to be consistent with the proposed requirements in § 50.72.

On January 19, 1981, the Commission published amendments to 10 CFR 73.71 (45 FR 4858) as a final rule which clarified existing reporting requirements and included a Table, "Reporting of Physical Security Events." An omission was made in Footnote 2 of the Table which is now being corrected to include nuclear power plant licensees (§ 73.55). Correcting the clarifying footnote to add a reference to § 73.55 does not change the content of the rule which covers all general and specific licenses.

Appendix A of 10 CFR Part 73 is being updated to include the Regional Federal Telecommunications (FTS) numbers, a change of address for Region V, and an explanatory footnote. The commercial telephone number for the NRC Operations Center is also being added to the Appendix for licensees who do not have access to the notification system, or in the event that the Emergency Notification System is inoperative.

Since these amendments are of a minor and nonsubstantive nature, a notice of proposed rulemaking is unnecessary and good cause exists to make the amendments effective April 16, 1982.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 73, are published as a document subject to codification.

47 FR 19112  
Published 5/4/82.  
Effective 6/3/82

### 10 CFR Part 73

#### Physical Protection of In Transit Special Nuclear Material of Moderate Strategic Significance

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its physical protection regulations for special nuclear material of moderate strategic significance to improve licensee safeguards capabilities for early detection of the possible theft of this material while it is in transit. These improvements include (1) maintaining the material under lock or under the control of a responsible individual, (2) confirming the status of shipments while en route, and (3) employment of either dedicated use transports or signature acknowledgement of custody of shipments. The intent of these amendments is to assure close monitoring of shipments of special nuclear material of moderate strategic significance in order to achieve early detection of loss or theft of the material so that repeated thefts can be prevented.

**EFFECTIVE DATE:** June 3, 1982.

**FOR FURTHER INFORMATION CONTACT:** Mr. C. K. Nulsen, Material Transfer SG Licensing Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 427-4181.

**SUPPLEMENTARY INFORMATION:** The Commission has been concerned that possible multiple thefts of special nuclear material (SNM) of moderate strategic significance could result in the accumulation by an adversary of more strategically significant quantities of special nuclear material. To help prevent this, current physical protection requirements for SNM of moderate strategic significance were designed to help provide early detection of an initial theft of this material. Early detection would allow the Commission to take further actions to assure that additional thefts could be prevented before the lost or stolen material was accounted for. On June 15, 1981, the Commission published proposed amendments in the Federal Register (46 FR 31267) to require additional physical protection for

intransit SNM of moderate strategic significance. These amendments were to improve the licensee's capabilities for early detection of possible thefts of the material by requiring (1) the material be maintained under lock or under the control of a responsible individual, (2) periodic communications between the licensee and the transport vehicle, and (3) employment of exclusive use vehicles or signature acknowledgement of all custody transfers. A sixty-day comment period expired on August 15, 1981. Comments were received from eight respondents.

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 notice. Changes were made in response to the public comments to better reflect services which can be provided by common carrier(s), and also to provide clarification where necessary. A summary of the public comments and, where appropriate, a description of the changes that resulted from them follows:

(1) *Need for these amendments.* All but one of the commenters questioned the need for additional physical protection requirements for the affected shipments. They suggested that current requirements allowing the NRC to order delays in these shipments to keep formula quantities of SSNM from being in transit at the same time would be unnecessarily redundant with additional physical protection requirements for individual shipments.

The final amendments complement existing regulations which allow the NRC to order shipment delays for safeguards purposes. They provide for closer licensee control over shipments and better traceability so that the chances of having to delay a shipment will be decreased. With regard to the comment concerning those shipments of low enriched uranium covered by these amendments, it was decided to exclude low enriched uranium of moderate strategic significance from the requirements (1) to maintain the material under lock or under the control of a responsible individual and (2) to use an exclusive use vehicle or signature acknowledgement of all custody transfers. Low enriched uranium shipments, however, will be required to meet the remaining physical protection regulations for material of moderate strategic significance. The exclusion of low enriched uranium from the additional requirements of this amendment was made after considering the primary intent of the additional requirements to provide early detection in time to prevent the theft of a formula quantity of strategic special nuclear material, which consists of only high

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enriched uranium and plutonium.

(2) *Locking requirements.* The proposed amendments would have required the material to be transported in a locked cargo compartment, and during road shipments, to be kept under lock while in transit or in temporary storage en route. Many commenters noted that these locking requirements would be impossible to comply with in the case of less-than-truckload (LTL) shipments and most air shipments, the modes primarily used in past shipments. The loading and unloading of other cargo, it was stated, precludes maintaining the material continuously under lock. Also, most aircraft do not have lockable cargo compartments. It was also stated that storage of the material in a locked area was not always feasible for import and export shipments.

It was anticipated by commenters that some carriers might refuse to carry the material if the proposed amendments became effective, and that less-than-truckload shipments would be effectively eliminated. Commenters also questioned whether the purpose of the proposed locking requirements was to prevent rather than detect theft.

The final amendments permit an alternative to the lock requirements. This alternative provides for maintaining the material under the control of a responsible individual where the use of locks is not practicable. Under this alternative, the shipment should be kept under continuous observation or be checked periodically by a responsible individual to assure its continued integrity. Periodic checking of the shipment could be facilitated by inspecting the seals required on NRC-approved shipping containers, or by use of an appropriate seal placed on the cargo compartment or temporary storage areas containing the shipment. The responsible individual also should assure the correct routing of the shipment, and should assure that the licensee or its designee is notified immediately if the material is determined to be missing. The responsible individual in each case will be required to be an individual who has acknowledged by signature acceptance of custody of the material.

For air shipments these requirements could be satisfied by requesting the signature security service provided by air carriers. This service provides routing control, surveillance and periodic checking of shipments. For road shipments, common carriers of less-than-truckload quantities should be able to provide service consistent with these requirements under special arrangements, and at a cost less than what would be charged for an exclusive use vehicle. A revised regulatory guide

will be published to reflect these changes, which will describe in further detail the appropriate means for complying with the requirements for maintaining control of the shipments.

(3) *Exclusive use vehicles.* Some commenters questioned the use of the term "exclusive use vehicle." It was claimed that prohibiting other cargo from being transported in the same vehicle with a shipment of SNM of moderate strategic significance would not necessarily affect the security of the shipment and thus is unjustified. The term "exclusive use vehicle" was used in the proposed amendments in reference to a type of service routinely offered in the motor freight industry. In order to avoid confusion, the term "exclusive use vehicle" does not appear in the final amendments. More descriptive language focusing only on the security aspects of these shipments has been substituted.

One commenter also suggested that the requirement for exclusive use vehicles goes beyond the stated objective of the proposed rule. Although use of an exclusive use vehicle itself would not prevent the theft of this material, it would not appear to be inconsistent with assuring early detection of a possible theft. Also, it should be noted that the final amendments permit the use of alternative means for satisfying this objective.

(4) *Communications.* Some commenters considered the proposed requirement for periodic communications between the shipper, receiver, or their designee, and the transport vehicle to be unnecessary since they supplement existing requirements for tracing lost or unaccounted for shipments and notifying authorities. It also was suggested that communications more often than every several hours would slow shipments, greatly increase operating costs, and effectively eliminate less-than-truckload shipments. Conversely, however, one commenter endorsed the proposed periodic communications requirement and suggested exclusive use vehicles be used, equipped with satellite-based navigation receivers and transmitters.

Some commenters questioned specifically whether communications would be required during periods when the shipment was in temporary storage, and whether the requirement was intended to apply to all modes or only to road shipments. With regard to the periodic communications requirement, the objective of early detection could be achieved by periodic reports from the carrier on the shipment's status relative

to a predetermined itinerary. Several airfreight and motor freight carriers who have previously handled shipments of special nuclear material are known to provide the appropriate tracing services at no additional cost. Computerized data bases maintained by some of the motor freight carriers are generally updated every 10 to 14 hours, and more frequently in the case of air shipments.

Concerning the use of a satellite communications system, as suggested by one commenter, this could conceivably satisfy the proposed communications requirements but it would not be appropriate for the Commission to require a particular system design or type of hardware in preference to other acceptable alternatives.

(5) *Cost effectiveness.* Some commenters stated that the proposed amendments would result in cost increases that would have a significant impact on the operations of nonpower reactor facilities which must financially justify their existence even though they might be subsidiaries of much larger companies or institutions. Generally, these statements appear to have been based on the premise that the proposed amendments would force licensees to utilize exclusive use vehicles for road portions of shipment in preference to less-than-truckload shipments.

As stated earlier, the additional physical protection measures included in the proposed amendments were not intended to force licensees to utilize exclusive use vehicles for road shipments. Based upon information developed in staff inquiries, the modifications to the proposed amendments will make it possible for licensees to satisfy the additional physical protection requirements for shipments of SNM of moderate strategic significance while continuing to employ common carriers provided they can make special arrangements for the required services. This should be possible to arrange at a cost significantly less than if an exclusive use vehicle were required. Thus the Commission has determined that the additional physical protection measures are cost effective in balancing the additional protection provided against the additional cost.

### Paperwork Reduction Act Statement

The Nuclear Regulatory Commission has submitted this rule to the Office of Management and Budget for such review as may be appropriate under the Paperwork Reduction Act, Pub. L. 96-511. The SF-83, "Request for Clearance," Supporting Statement, and other related documentation submitted to OMB have been placed in the Public Document

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Room at 1717 H St., NW., Washington, D.C. 20555 for inspection and copying for a fee. The application requirements contained in this regulation have been approved by the Office of Management and Budget; OMB approval No. 3150-0002 (expires May 31, 1983).

### Regulatory Flexibility Statement

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. This proposed rule would amend 10 CFR Part 73 to require certain improvements in the capabilities of physical protection systems provided by licensees to protect against the theft or loss of special nuclear material of moderate strategic significance while this material is in transit. These improvements would increase the cost of shipment of this material in absolute terms, but the total costs of transportation would generally remain less than one percent of the value of the material shipped. In addition, the number of shipments expected to be made annually is quite low, estimated to be about thirty shipments per year based upon past experience in the nuclear industry. The licensees who could be affected by these amendments number approximately 37 possessing special nuclear material of moderate strategic significance, 27 of which operate nonpower reactors. In addition to these 37 licensees, there are about six licensees possessing formula quantities of strategic special nuclear material who may occasionally choose to ship their material in less than formula quantities. All the licensees potentially affected are either large private or state universities, large corporations, each employing in excess of 500 persons having annual sales or revenues in excess of \$1 million, or state or Federal agencies. Less than ten of the affected licensees are small colleges or businesses that fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards in regulations issued by the Small Business Administration at 13 CFR Part 21.

### List of Subjects in 10 CFR Part 73

Hazardous materials—transportation, Nuclear materials, Nuclear plants and reactors, Penalty, Reporting requirements, and Security measures.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 73, are published as a document subject to codification.

47 FR 41336  
Published 9/20/82  
Effective 9/20/82

### Minor Clarifying Amendments

See Part 1 Statements of Consideration

47 FR 57446  
Published 12/27/82  
Effective dates:  
10 CFR 20.311 of Part 20 effective date is 12/27/83; 10 CFR Part 61 and all other changes effective 1/26/83.

### Licensing Requirements for Land Disposal of Radioactive Waste

See Part 61 Statements of Consideration

48 FR 38604  
Published 8/25/83  
Effective 8/22/83

### Minor Clarifying Amendments

See Part 20 Statements of Consideration

48 FR 44172  
Published 9/28/83  
Effective 9/12/83

### Commercial Telephone Number Change; Region III Office

See Part 20 Statements of Consideration

49 FR 19623  
Published 5/9/84  
Effective 5/9/84

### Information Collection Requirements; Display of OMB Control Numbers

See Part 0 Statements of Consideration

49 FR 47823  
Published 12/7/84  
Effective 12/7/84

### Minor Correcting Amendments

See Part 1 Statements of Consideration

50 FR 12221  
Published 3/28/85  
Effective date will be published at a later date.

### Implementation of the Convention on Physical Protection of Nuclear Material

See Part 40 Statements of Consideration

50 FR 46630  
Published 11/12/85  
Effective 11/12/85

### Change in Region II Telephone Number

See Part 20 Statements of Consideration

➤ 51 FR 27817  
Published 8/4/86  
Effective 9/3/86

10 CFR Parts 50 and 73

### Miscellaneous Amendments Concerning Physical Protection of Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to provide a more safety-conscious safeguards system while maintaining current levels of protection. The revised requirements are a result of a Commission review of the impact of safeguards requirements on plant safety objectives. The amendments include refined policy on vital area access controls, authority to suspend safeguards measures during safety emergencies, protection of certain items of security equipment which significantly impact nuclear plant security, and key and lock controls. This amendment supports the Commission's goal of increased assurance that power reactors are adequately protected against sabotage by an insider.

**EFFECTIVE DATE:** September 3, 1986.

**FOR FURTHER INFORMATION CONTACT:** Priscilla A. Dwyer, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4773.

### SUPPLEMENTARY INFORMATION:

#### Background

Commission experience since the implementation of § 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage," indicated a need to clarify the policy for the designation and protection of vital areas containing safety-related equipment. Particular concern has been focused on ensuring that security measures do not impede

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plant safety. Inspections have indicated certain physical security equipment is not protected as vital, despite the fact that sabotage of this equipment could significantly impact plant safety. In addition, experience with key and lock controls indicates that § 73.55 can be modified to provide greater flexibility while continuing to maintain adequate plant protection. The Commission believes that the clarification and refinement of requirements as reflected in these amendments is appropriate because they afford an increased assurance of plant safety.

On March 12, 1980, the NRC published proposed amendments regarding access controls to 10 CFR Part 73 (45 FR 15937). These amendments were the precursor to the Miscellaneous Amendments. Public comment was invited and received. The Commission significantly revised these requirements to assure adequate access for safety purposes while accomplishing the safeguards objectives.

On August 1, 1984, the NRC published the revised amendments to 10 CFR Part 73 (49 FR 30735) again for public comment as part of the three-rule Insider Safeguards Rules package. This action was taken based upon the substantial changes that had been made to the rule since its prior publication in proposed form. The original 120-day public comment period was extended an additional 90 days at public request and expired on March 7, 1985. Changes to the proposed rule have been made in response to public comment and to provide clarification where necessary. A summary of public comment and, where appropriate, a description of the changes that resulted from them follows. Minor conforming amendments to 10 CFR Part 50, which were subject to public comment as part of the Access Authorization Rule of the Insider Safeguards Rules (49 FR 30726), are included within these amendments because of the Commission's disapproval of final issuance of the Access Authorization Rule. No public comment was received on these conforming amendments to 10 CFR Part 50.

### Response to Public Comments

A total of 34 letters of comment were received from utilities, utility associations, contractors, private citizens, and State governments.

The comments addressed a number of issues and have been placed in the following categories:

1. Vital Island Concept/Independent Vital Islands
2. Barriers and Intrusion Alarms
3. Access Lists/Logs
4. Suspension of Safeguards Measures
5. Key/Lock/Badge
6. Clarification of Terms

1. *Vital Island Concept/Independent Vital Islands.* The proposed rule introduced the concept of the "vital island" as one or more vital areas protected as a single entity. Many commenters recommended that the adoption of the vital island concept be voluntary in that mandating the adoption could result in unnecessary expense and would not enhance the current level of protection. The commenters indicated that adequate vital equipment protection is afforded under current regulations. Further, commenters questioned how this revised policy was to interface with on-going NRC vital area designation studies and evolving vital area designation policy.

Concerning independent vital islands, commenters felt that use of the term was in conflict with the intent of the rule because it would result in compartmentalization contrary to the rule's intent. It was further suggested that the designation of the vital areas or equipment should remain site specific rather than requiring specific areas or items of equipment be protected as vital at all sites. Commenters also noted that the development of independent vital islands is unnecessary expense because protection against the insider is already achieved through internal barriers and access controls.

The Commission has considered the public comment on the vital island concept and "independent" vital islands (which in general indicated opposition or confusion) and is cognizant of the evolving nature of the NRC's vital area designation policy. The Commission further notes that present regulations, i.e., 10 CFR 73.55, do not preclude the consolidation of one or more vital areas into a single vital area if approved by the NRC. Based upon these three factors, the Commission believes the most appropriate course of action is to delete the vital island and "independent" vital island portions from the rule on an interim basis pending finalization of policy in this area. The supporting Regulatory Guide will be revised accordingly. This deletion also impacts the "sunshine door" provision of these amendments. Further discussion of this issue is found in the discussion of the second category of issues, 2. Barriers and Intrusion Alarms. The remaining proposed amendments of the Miscellaneous Amendments are not impacted and go forward as a final rule.

2. *Barriers and Intrusion Alarms.* Commenters expressed concern regarding the intent of proposed § 73.55(d)(7)(i)(D) to lock and protect by an active intrusion alarm system all exterior doors leading to vital islands which are not otherwise controlled. It was felt this could result in protection in excess of the current required double barriers. It was also recommended that

the term "active" be changed to "activated."

Further, proposed § 73.55(c)(2) requires the physical barriers at the perimeter of the protected area to be separated from any other barrier designated as a physical barrier for a vital area or island within the protected area. Commenters felt that this requirement may not be practical in areas such as the gate house and the water intake structure which often times are located at the protected area perimeter.

As previously noted, the vital island concept has been deleted from the rule on an interim basis pending finalization of vital area policy. Because of this fact, the Commission believes the requirement to lock and alarm all exterior doors leading to vital areas (or islands) can also be deleted on an interim basis. The rule has been modified accordingly. With regard to the term "active," the Commission agrees with the comment in this area and has changed the term "active" to "activated" within the regulatory text to allow for the use of balanced magnetic switches in accordance with current procedures.

Concerning the separation of protected area and vital area barriers, the Commission agrees that this provision may be difficult or impractical to implement in certain situations. While no revision has been made to the requirement, the protection of vital areas which are located on the perimeter of the protected area will be considered to meet the requirement if the structure is Seismic Category I reinforced concrete and, in the case of the essential service water intake structure designated as vital, the following criteria are met with regard to the intake structure. It (1) is secured with screening or grill to prevent introduction of large objects, (2) has double barriers on any non-water side that contains a movable opening, (3) is equipped with heavy duty doors that provide delay to penetration, sufficient to allow arrival of facility response force, (4) is kept under continual surveillance for rapid assessment, and (5) is protected by volumetric intrusion alarm system consistent with criteria found in Regulatory Guide 5.44, "Perimeter Intrusion Alarm Systems." This criteria will be added to the rule's supporting Regulatory Guide.

One commenter noted that the proposed amendment deleted "ceiling" from § 73.55(e)(1) regarding elements of a central alarm station that must be bullet-resisting. This was an error of omission and the word "ceiling" has been added to this provision.

3. *Access Lists/Logs.* Proposed requirements under § 73.70(d) require all individuals granted unescorted vital area access to log their name, badge number, time of entry, reason for entry,



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and time of exit when entering or exiting a vital area (except the reactor control room). Further proposed revisions to § 73.55(d)(7) require access lists to be updated and approved by cognizant licensee management at least once every 31 days. Commenters indicated that both of these requirements are unnecessary and over burdensome. In a related matter, commenters suggested that the term "log" be revised to allow use of a procedure or system.

The Commission disagrees that the term "log" needs revision. The intent of this provision is to retain a record of all personnel who entered or exited vital areas at a facility; this may be accomplished through a written log or computerized system. The Commission believes that requiring data explaining the reason for vital area entry may be overly burdensome and limit the use of computerized systems. Hence this particular portion of the requirement has been deleted. This is considered acceptable because the requirement to update access lists at least once every 31 days will remain. This assures that only individuals whose specified duties require access to vital areas are allowed access.

**4. Suspension of Safeguards Measures.** Several commenters specifically supported the amendment addressing the suspension of safeguards measures. It was requested that clarification be provided regarding the licensee's responsibility of reporting the suspension of safeguards measures. It was recommended that suspension of safeguards measures be tested during drills and exercises in order to adequately evaluate the system. Additional guidance was requested regarding how this provision is to interface with existing regulation of a similar nature, i.e., §§ 50.54 (x) and (y).

In response to public comment the Commission has revised the provision for the suspension of safeguards measures to directly relate to the provisions of § 50.54 (x) and (y) and to indicate explicitly that the suspension is reportable under § 73.71. Guidance on the suspension of safeguards measures during drills and exercises has been included in the amendment's supporting Regulatory Guide.

**5. Key/Lock/Badge Issues.** Proposed 73.55(d)(9) requires that keys, locks, combinations, and related equipment be changed whenever a person who had access to them is terminated for untrustworthiness, unreliability, or inadequate work performance. Commenters suggested it was inappropriate to require that keys and locks be changed when an individual is terminated for inadequate work performance. It was indicated that unless there was cause for questioning the individual's reliability or

trustworthiness that the requirement to change the keys and locks was an unnecessary expense. It was further suggested that the term "related equipment" be changed to "related access control devices" and the requirement to change all keys, locks, combinations, and related equipment at least every 12 months should be optional. Commenters also noted that provisions should be made for keys, locks and combinations to be changed or *rotated*. Finally commenters felt that it is not practical to retrieve identification badges prior to termination as proposed in § 73.55(d)(7)(i)(C).

After reviewing the comments, the Commission has amended the rule to change the term "related equipment" to "related access control device" to better clarify the Commission's intent. Additionally, the rule has been revised to allow for rotation of keys, locks, and combinations.

The Commission believes the requirement to change or rotate access devices whenever an individual is terminated for inadequate work performance has merit and has made no revision to the rule in this regard. The Commission believes employees terminated for inadequate work performance may have a high potential for becoming disgruntled ex-employees. It is considered merely prudent action to change or rotate the locks and combinations to which these individuals had access. Additionally, the Commission believes the changing or rotating of all access devices at least every 12 months is a minimum requirement necessary to reduce the potential for compromise.

The intent of the requirement to retrieve identification badges prior to termination is to disallow these employees from having unescorted facility access after they have received notice of termination but have not been formally terminated from employment. This accommodates licensee processing time. No revision has been made to the rule in this respect; however, the issue will be clarified in the rule's supporting Regulatory Guide.

**6. Clarification of Terms.** Commenters requested clarification of 10 terms or phrases contained in the proposed Miscellaneous Amendments. These terms have either been dropped because of deletion of the vital island concept and independent vital island provision or have been covered previously in this discussion.

### Environmental Impact: Categorical Exclusion

The NRC has determined 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 numbers 3150-0002 and 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, 1717 H Street NW., Washington, DC. 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 rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. This rule affects electric utilities that own and operate nuclear power plants and are dominant in their respective service areas. These utilities 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 13 CFR Part 121. These regulations will affect some nuclear power industry contractors and vendors most of whom are large concerns who service the industry.

### Backfit Analysis

As required by 10 CFR 50.109 (50 FR 38097), the Commission has completed a backfit analysis for this final rule. This analysis, along with a summary regulatory analysis, follows.

### I. Summary Regulatory Analysis

**1. Objective.** The objective of this rule is to provide a more safety-conscious

## PART 73 • STATEMENTS OF CONSIDERATION

safeguards system while maintaining current levels of safeguards protection at nuclear power plants. Commission experience since the implementation of § 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage," indicated a need to clarify policy for the protection of vital areas containing safety-related equipment. Particular concern has been focused on ensuring that security measures do not impede plant safety. Inspections have indicated that certain physical security equipment is not protected as vital, despite the fact that the equipment safeguards vital areas containing essential safety-related equipment. In addition, experience with key and lock controls indicates that § 73.55 can be modified to provide greater flexibility while continuing to maintain adequate plant protection. This amendment further supports the Commission's goal of increased assurance that power reactors are adequately protected against sabotage by an insider.

2. *Description of Activity.* The amendments include revised policy on:

(1) Vital area access controls to establish and update at least every 31 days access lists for each vital area, and to design the access authorization system to accommodate the potential need for rapid ingress or egress of individuals during emergencies.

(2) Authority to suspend safeguards measures during safety emergencies.

(3) The protection of onsite secondary power supply systems for alarm annunciator equipment and nonportable communications equipment as vital, and

(4) Key and lock controls to assure such devices are changed or rotated at least once every 12 months or when there is evidence of compromise or an individual with access to the keys or locks is terminated for cause.

3. *Potential Change in Risk to the Public from Accidental Offsite Release of Radioactive Material.* Permitting unauthorized personnel access to vital areas at power reactors and not protecting certain equipment which safeguards vital areas containing essential safety-related equipment creates significant potential for harm. To the extent that this regulation establishes certain controls for vital area access and protection of certain equipment as vital, the risk of radiological sabotage and offsite release of radioactive material (risk to the public) is reduced.

4. *Potential Impact on Radiological Exposure of Facility Employees.* Assuring that safeguards measures (particularly in the area of access/egress

controls to vital areas) do not have an adverse impact on plant safety during emergencies reduces the potential impact on radiological exposure of facility employees.

Further, protection of specific security equipment as vital which has not previously been protected as vital reduces the risk of the equipment being sabotaged and, hence, reduces the risk of a radioactive release. Thus, this action also reduces the potential impact on radiological exposure of facility employees.

### 5. *Installation and Continuing Costs.*

Implementation Cost Per Site: \$10.2K; Annual Operational Savings Per Site: \$15.0K (due to key and lock control revisions).

### 6. *Potential Safety Impact of Changes in Plant or Operational Complexity.*

(a) Maintaining current access lists to vital areas will increase plant safety by helping to assure that only authorized individuals are granted access to these areas.

(b) Designing a facility's access authorization system to accommodate the need for rapid ingress/egress of individuals during emergencies reduces the complexity of plant operation during safety-related emergencies.

(c) Authority to suspend safeguards measures during safety-related emergencies reduces the complexity of plant operations during such emergencies.

(d) Changing or rotating keys and locks annually or when access is suspended for cause, as opposed to when any individual with access to keys or locks changes duty, reduces the complexity of plant operations.

### 7. *Estimated Resource Burden on the NRC.*

Implementation Cost Per Existing Site: \$4.3K; Implementation Cost Per New Site: none; Operational Costs: none.

Existing resource skills are adequate. FTE requirements are reflected in budget documents.

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 practicality of implementing this rule.

9. The Proposed Rule is final.

## II. Justification

1. *Increased Protection of the Public Health and Safety.* In addition to providing a more safety-conscious security system while maintaining adequate security, the Miscellaneous Amendments contain revised policy on vital access controls, authority to suspend safeguards measures during emergencies, protection of specific

security equipment as vital, and key and lock controls. Each of these measures contributes to the Commission's goal to provide increased assurance against the insider threat at nuclear power plants. With respect to vital area access controls, increased assurance that only authorized individuals are granted unescorted access to vital areas reduces the potential for access by unauthorized individuals intent upon committing radiological sabotage. Controlling access to these areas, including the use of access lists updated every 31 days, contributes significantly to the protection of the public health and safety because of the sensitive nature of vital areas. Authority to suspend safeguards measures during safety-related emergencies will facilitate plant access by emergency response personnel. For this reason certain site emergencies with the potential to result in a radioactive release might be mitigated in a more timely manner by emergency response personnel, thereby preventing a radioactive release. In this situation, the protection of the public health and safety would be significantly increased. The specific security equipment that would be protected as vital under these amendments are onsite secondary power supplies for alarm annunciator equipment and nonportable communications equipment. Protection of this equipment as vital will help assure proper operation of the central alarm station during a safeguards emergency, and, further, will help assure communications with local law enforcement agencies (LLEA) in such an emergency. The ability of the site security force to respond to site emergencies in a cohesive, timely manner, and to call upon LLEA, if needed, significantly increases the assurance that the public health and safety will be adequately assured. Finally, reducing the operational complexity of key and lock controls while assuring that these controls remain adequate, will permit safer plant operation. This results in an overall increase in the protection of the public health and safety. In conclusion, these amendments, in toto, will result in a significant increase in the protection of the public health and safety.

2. *Cost Implications.* The cost of the Miscellaneous Amendments associated with implementation is estimated to be \$10.2K per site. However, the annual operational savings per site is estimated to be \$15.0K. This is primarily due to key and lock control revisions which in part require changing or rotating keys or locks when individuals with access to them have access suspended for cause

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rather than simply because of change of duty.

**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 high priority.

In addition, the proposed changes do not affect the schedules of other regulatory activities ongoing at the facility.

**4. Findings.** The Commission 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 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 73

Hazardous materials-transportation, Incorporation by reference, 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 amendments to 10 CFR Parts 50 and 73.

➤ 51 FR 27822  
Published 8/4/86  
Effective 9/3/86

#### 10 CFR Part 73

### Searches of Individuals at Power Reactor Facilities

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its requirements for entry searches at power reactor facilities. This amendment is needed to clarify requirements for searches of individuals at these facilities. This amendment requires equipment searches of all individuals seeking access to protected areas, except on-duty law enforcement officers. Additionally, pat-down searches will be required when detection equipment fails or cause to suspect exists. This amendment supports the Commission's goal of increased assurance that power reactors

are adequately protected against sabotage by an insider.

**EFFECTIVE DATE:** September 3, 1986.

### FOR FURTHER INFORMATION CONTACT:

Priscilla A. Dwyer, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 427-4773.

### SUPPLEMENTARY INFORMATION:

#### Background

On February 24, 1977, the Nuclear Regulatory Commission published in the **Federal Register** (42 FR 10836) effective amendments to its regulation in 10 CFR Part 73, "Physical Protection of Plants and Materials." One requirement included in these amendments was to search individuals for firearms, explosives, and incendiary devices. The regulations specified that the search function would be conducted by a physical search or by use of equipment capable of detecting such devices. The requirements involving procedural measures were scheduled for implementation by August 24, 1977 or earlier if equipment was installed. Since equipment available at that time was not capable of detecting all types of explosives and incendiary devices, the search requirement called for additional measures, such as random physical searches, to provide high assurance of protecting against sabotage. The implementation date of May 25, 1977, for procedural measures was extended under **Federal Register** notice (42 FR 51607) dated September 29, 1977 to August 24, 1978, the date when all the requirements of § 73.55 were to have been required, pending further review by the Commission. The implementation was further extended by a series of notices (43 FR 34765, 44 FR 11201, 44 FR 47758, and 44 FR 65969) until on December 1, 1980 (45 FR 79492) when the Commission revised the regulation to read: "... a licensee need not implement the physical search requirement of paragraph (d)(1) of this section for individuals who are regular employees of the licensees ... until 60 days following Commission approval of security plan amendments which define how the final search requirements of paragraph (d)(1) of this section, will be met." At the same time, the Commission issued proposed revisions to 10 CFR 73.55(d)(1) to finalize requirements for personnel searches at protected area entry portals of power reactors. The Commission revised the rule in response to public comment and the recommendations made by the Committee to Review Safeguards Requirements at Power Reactors (Safety/Safeguards Committee). This Committee had the overall task of studying power reactor safeguards

requirements and practices to determine whether actual or potential conflicts exist between plant safety and safeguards objectives.

On August 1, 1984, the proposed rule was again published for public comment (49 FR 30738) as part of the proposed Insider Safeguards Rules because of the interrelationship among the rules with regard to protection against the insider threat. The original 120-day comment period on the Insider Safeguards Rules was extended an additional 90 days at licensee request and expired on March 7, 1985.

### Summary of Public Comment

A total of 28 letters of comments was received from licensees, licensee groups, licensee contractors, and unions. A summary of the public comments follows:

**1. Use of Pat-Down Searches.** The proposed rule requires pat-down searches of all individuals requiring facility access, except on-duty law enforcement officers, when search equipment fails or cause to suspect exists. A broad range of comments was received on this issue. Some comment indicated full-time facility employees should never be pat-down searched because pat-down search of long-standing, trusted employees is degrading. Other comment recommended a distinction be made on pat-down search requirements for individuals with unescorted versus escorted access. Finally, comments recommended that only 5 or 10% of individuals requiring access should be pat-down searched when search equipment failed, giving credit for use of random checks and citing the time-consuming nature of pat-down searches. Some comment went as far to say that pat-down searches were unnecessary when search equipment failed because the equipment is usually repaired before individuals being searched are aware of equipment failure. The Commission has rejected revising the rule in response to the above noted comments for two reasons. First, allowing no search of any kind upon equipment failure provides no protection against an insider who may have surreptitiously originated the failure of the equipment. Second, the use of random pat-down searches was explored by the Safety/Safeguards Committee. As a result of its study, the Committee believed that most licensees had successfully adjusted to 100% equipment search, and that 100% pat-down searches would be more easily implemented than those randomly implemented.

**2. Individuals Exempt from Equipment Search.** The proposed rule requires all persons entering the protected area of nuclear power reactors, except on-duty law enforcement officers, to be searched using metal and explosive detectors.

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Comment recommended that persons exempt from equipment search requirements should also include emergency response personnel and armed security force members. As a result of the Commission's review of potential conflicts between safeguards and safety requirements conducted by the Safety/Safeguards Committee, the Commission is revising 10 CFR 73.55(a) to provide authority to licensees to suspend safeguards measures as required to accommodate emergency response. This revision is being made as part of the Miscellaneous Amendments rule published elsewhere in this issue. The Commission has rejected the inclusion of armed security force members within the search exemption. The distinction has been made between law enforcement officers and members of a facility's security force because law officers for the most part will be under continual escort. This provides an increased degree of assurance of protection against a malevolent act. Security personnel on the other hand are for the most part provided unescorted access based upon screening. Because the Commission's design basis threat includes an internal threat of an insider including an employee in any position, the Commission believes the time to equipment search members of the security force is insignificant compared to the increased assurance against a malevolent insider gained by equipment search.

**3. Time Lapse for Implementation of Pat-Down.** The proposed rule requires the licensee to immediately implement pat-down searches of all individuals, except on-duty law enforcement officers, requiring facility access when search equipment fails. Some comment indicated that immediate implementation of the pat-down search procedure was not necessary. These commenters recommended that a lapse ranging from 4 to 72 hours was acceptable prior to implementing pat-down searches. Justification for the time lapse included the fact that individuals being searched would be unaware of equipment malfunction and that the majority of individuals being searched were long-time, trusted employees. The Commission has rejected revising the rule in response to these comments because it maintains the belief that contraband searches are necessary elements of a reactor security program and immediate pat-down searches are easily implemented.

On the basis of public comment received, no changes were made to the proposed search requirements and the Commission is now publishing these amendments in final form.

### **Environmental Impact: Categorical Exclusion**

The NRC has determined that this

proposed 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 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, 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, if promulgated, will not have a significant economic impact on a substantial number of small entities. This rule affects electric utilities that own and operate nuclear power plants and are dominant in their respective service areas. These utilities 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 13 CFR Part 121. These regulations will affect some nuclear power industry contractors and vendors most of whom are large concerns who service the industry.

### **Backfit Analysis**

As required by 10 CFR 50.109 (50 FR 38097), the Commission has completed a backfit analysis for this final rule. This analysis, which includes a summary regulatory analysis, follows.

#### **I. Summary Regulatory Analysis**

##### **1. Objective**

The objective of this rule is to clarify requirements for entry searches of individuals at power reactor facilities to preclude the introduction of contraband into protected areas at such facilities. This amendment supports the Commission goal of increased assurance that power reactors are adequately protected against acts of sabotage.

##### **2. Description of Activity**

This amendment requires firearms and explosive detection equipment searches of all individuals seeking access to protected areas at power reactors, except on-duty law enforcement officers, to detect unauthorized firearms, explosives, and incendiary devices. Additionally, pat-down searches are required when detection equipment fails or cause to suspect exists.

The amendment, in effect, adds a requirement for pat-down searches in the event of equipment failure and codifies interim procedures established by the Commission in 1977 (42 FR 51507). At that time an effective amendment to 10 CFR 73.55, Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage, was issued amending prefatory language to § 73.55 to relieve licensees from conducting pat-down searches of site employees in accordance with § 73.55(d)(1). Section 73.55(d)(1) requires the licensee to control all points of personnel and vehicular access to the protected area at power plants through identification and search. The search function for detection of firearms, explosives, and incendiary devices must be conducted by either a physical search or by use of equipment capable of detecting such devices. The amendment in 1977 stated that search procedures implemented using only equipment capable of detecting firearms, explosives, and incendiary devices satisfied the performance requirements of § 73.55(d)(1) until final search procedures were issued. The Search Requirements Rule represents these final search procedures.

##### **3. Potential Change in Risk to the Public From Accidental Offsite Release of Radioactive Material**

Allowing unauthorized firearms, explosives, or incendiary devices to enter the protected area at power reactors creates significant potential for harm. To the extent that this program improves the licensees' ability to prohibit the introduction of such contraband that would otherwise be carried into the plant, the risk of radiological sabotage and offsite release of radioactive material (risk to the public) is reduced.

##### **4. Potential Impact on Radiological Exposure of Facility Employees**

To the extent that the risk of radiological sabotage is reduced, the potential impact on radiological exposure of facility employees would also be reduced. Otherwise, with respect to radiological exposure, there is no impact on facility employees.

##### **5. Installation and Continuing Costs**

Implementation Cost Per Existing Site

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(which consists of submittal of security plan amendments), minimal.

Implementation Cost Per New Site, \$16.4K.

Annual Operational Cost Per Site, minimal.

### 6. Potential Safety Impact of Changes in Plant or Operational Complexity

Not applicable.

### 7. Estimated Resource Burden on the NRC

Implementation Costs All Sites—  
Licensing Review, \$205.0K.

Operational Costs, minimal.

Existing resource skills are adequate. FTE requirements are reflected in budget documents.

### 8. Potential Impact of Differences in Facility Type or Age

No potential impact is noted of differences in facility type on the relevance or practicality of implementing this rule. However as indicated in Item 5, existing facilities would incur no cost because of interim procedures presently in place, while new facilities would incur the costs indicated in Item 5.

### 9. The Proposed Rule is final.

## II. Justification

### 1. Increased Protection of the Public Health and Safety

The stated objective for this rule is to clarify requirements for entry searches of individuals to preclude the introduction of contraband such as unauthorized firearms, explosives, and incendiary devices into the protected area at power reactors. This rule established a regulatory base for procedures which are at present interim.

Prohibiting unauthorized firearms, explosives, and incendiary devices from the facility through use of state-of-the-art equipment search will significantly reduce the risk and potential for harm from malevolent acts involving such contraband. The NRC design basis threat against which the physical protection at nuclear power plants is targeted is designed to assure the protection of the public health and safety. The design basis threat includes acts of radiological sabotage. Unauthorized use of the contraband devices previously cited could contribute significantly to the success of an attempted act of radiological sabotage. If the potential for successful completion of radiological sabotage can be decreased, the overall protection of the public health and safety would be increased. Therefore, the significant decrease in the potential for successful completion of radiological sabotage that will result from prohibiting unauthorized contraband onsite will result in a

substantial increase in the overall protection of the public health and safety.

### 2. Cost Implications

The cost of the Search Requirements associated with implementation would be insignificant for existing sites (because licensees have at present implemented interim procedures requiring electronic search equipment) and \$16.4K for future sites, with no significant annual operating cost.

### 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 high priority.

In addition, the proposed changes do not affect the schedules of other regulatory activities on-going at affected facilities.

### 4. Findings

The Commission finds that (1) issuance of this final rule will result in a substantial increase in the overall protection of the public health and safety, and (2) direct and indirect costs are justified in view of the increase in protection.

### 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.

➤ 51 FR 35499  
Published 10/6/86  
Effective 10/6/86

*Changes in Telephone Numbers for  
Uranium Recovery Field Office*

See Part 20 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION

**RULES and REGULATIONS**

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

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**PART  
74**

**MATERIAL CONTROL AND ACCOUNTING  
OF SPECIAL NUCLEAR MATERIAL  
STATEMENTS OF CONSIDERATION**

50 FR 7575  
Published 2/25/85  
Effective 3/27/85

*Amended Material Control and  
Accounting Requirements for Special  
Nuclear Material of Low Strategic  
Significance*

See Part 70 Statements of Consideration

➤ 51 FR 9763  
Published 3/21/86  
Effective 4/21/86

*Material Balance Reports of Source  
Material and Special Nuclear Material*

See Part 40 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**

45 FR 50705

Published 7/31/80

Effective 7/31/80

Effective Date 12/24/80 \*

**10 CFR Parts 40, 50, 70, 75, 150, and  
170**

**Safeguards on Nuclear Material—  
Implementation of US/IAEA  
Agreement**

**AGENCY:** U.S. Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to enable the United States to implement the US/IAEA Safeguards Agreement, with respect to licensed activities, as soon as the Agreement enters into force. Implementation of the Agreement will require the cooperation of NRC and Agreement State licensees, in accordance with appropriate regulations. The rules published here are the means by which the Agreement will be implemented with respect to licensed activities.

**EFFECTIVE DATE:** Upon the Agreement's entry into force and publication of notice thereof in the Federal Register.\*

\*Note.—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for such review as may be appropriate under the Federal Reports Act, as amended, 44 U.S.C. 3512. The reporting requirements of this rule will not become effective until clearance is granted by the General Accounting Office following review as set forth in 44 U.S.C. 3512(c)(2). Comments regarding the report forms and instructions may also be submitted directly to the Commission. Submissions made within 21 days after GAO's publication, in the Federal Register, of notice of receipt of NRC's report proposals will be considered by the Commission before the forms are placed into use.

**FOR FURTHER INFORMATION CONTACT:** Mr. L. C. Solem, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Phone 301-443-5903); Mr. James R. Wolf, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555

\*Amended 45 FR 84967

(Phone 301-492-8694); or Mr. Paul K. Morrow, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Phone 301-427-4004).

**SUPPLEMENTARY INFORMATION:** On May 25, 1978, the Nuclear Regulatory Commission published in the Federal Register (43 FR 22365) proposed amendments to Parts 40, 50, 70, and 150 and a new proposed Part 75 to Title 10, Code of Federal Regulations. Interested persons were invited to submit written comments or suggestions in connection with the proposed amendments within 60 days after publication in the Federal Register. On November 21, 1978, the Commission published a notice (43 FR 54255) regarding the availability of certain supplemental documents and extending the period of comment for 30 days. On July 17, 1979, the Commission published revised proposed amendments (44 FR 41468). Interested persons were invited to submit written comments and suggestions. Upon consideration of the comments received from 7 licensees and the Texas Department of Health, the Nuclear Regulatory Commission has decided to adopt and publish, with modification, the revised proposed amendments to Title 10, Chapter I, Code of Federal Regulations. Copies of the comments and an analysis of them by the NRC staff are available in the Commission's Public Document Room.

**Overview**

The United States, as a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), has joined with other nations in an effort to limit the spread of nuclear weapons. To encourage widespread adherence to the NPT by non-nuclear-weapon States, President Johnson in 1967 announced that the United States would permit IAEA to apply its safeguards to nuclear activities in this country—excluding only those with direct national security significance. This policy has been reaffirmed by each succeeding President and has been referred to by other Governments as a consideration

affecting their decisions to ratify the NPT.

The instrument for applying IAEA safeguards in the United States would be a formal Agreement between the U.S. Government and the International Atomic Energy Agency, to which the U.S. Senate gave its advice and consent to ratification as a treaty on July 2, 1980. The US/IAEA Agreement contains provisions which parallel agreements between the IAEA and non-nuclear-weapon States, the principal difference being the exclusion of national security activities. Implementation of the Agreement will require the cooperation of NRC and Agreement State licensees, in accordance with appropriate regulations. The rules published here are the means by which the Agreement will be implemented with respect to licensed activities.

The provisions of the Agreement were the subject of hearings before the Senate Committee on Foreign Relations on June 22 and December 11, 1979. In the development of these rules, the Commission has considered the matters discussed during those hearings and subsequent Senate deliberations. In particular the rules reflect our intention to work closely with licensees so as to ensure, insofar as possible, that the Agreement can be implemented in a spirit of full cooperation. It is widely recognized that IAEA safeguards can help protect the international community from nuclear proliferation, and the Commission perceives a general willingness to join together in efforts toward that end.

**Changes**

In summary, differences from the proposed amendments published for comment on July 17, 1979, are: (1) The regulations now specifically refer to Facility Attachments (or Transitional Facility Attachments) negotiated under the Agreement and indicate that certain provisions of the Facility Attachments will be reflected in license conditions; (2) licensees' opportunities for consultation are expanded; (3) various clarifying amendments have been made

to reflect more clearly the structure of the Agreement, particularly with respect to identifications made under either the principal text or the Protocol; (4) procedures are provided for resolution of certain issues outside the context of a show-cause proceeding; (5) inspections are categorized by type, with inspectors' access rights further defined; (6) reference is made to a licensee's opportunity to propose that a special material balance area be established around process steps involving commercially sensitive information; (7) the standard for measuring sufficiency of installation information is revised to correct the implication that determinations are made unilaterally by IAEA; (8) licensees are advised not to include details of physical security plans in installation information; (9) provisions for reporting of modifications affecting installation information have been clarified and relaxed, particularly with respect to emergency or unforeseen situations; (10) the Commission's intention to provide NRC representatives to accompany IAEA inspectors is stated more positively; (11) licensees are relieved of the responsibility to revise their material accounting and control procedures until the Facility Attachment has been completed; (12) requirements with respect to records and reports describing the isotopic composition of licensees' holdings have been made less burdensome; (13) the inventory change report provision includes a better definition of the "concise note" requirement and is conformed to domestic safeguards regulations, particularly with respect to submission formalities; (14) scheduling for material status reports is made more flexible and the occasions when such reports are required are described more precisely; (15) the special reports provision has been revised with a view to minimizing efforts beyond those called for under the Agreement; (16) the Commission's intent to give prompt notice to a licensee when its installation is no longer subject to application of IAEA safeguards is made explicit; (17) the regulations now state that the IAEA will "reimburse for" (instead of the less specific "bear the cost of") certain expenses; (18) the provision pertaining to the breaking of IAEA seals has been stricken; and (19) miscellaneous minor changes have been made for purposes of clarification.

The following discussion pertains primarily to items (1) through (19) above. In some cases, the discussion also treats related suggestions which were considered by the Commission, but which—for the reasons stated—were not accepted.

#### (1) Facility Attachments.

Implementation of the Agreement will require that a Facility Attachment be prepared for each installation where nuclear material subject to IAEA safeguards is located. (A Transitional Facility Attachment, which may omit a number of provisions, such as those applicable to inspections and special reports, will have to be prepared for an installation identified under the Protocol to the Agreement.) The proposed rule made no explicit reference to the Facility Attachment, but instead simply noted that certain written communications (intended to be based upon the Facility Attachment) would be binding upon licensees.

The Commission believes that the addition of language that refers expressly to the Facility Attachment will clarify the implementation process. Thus, instead of affording a licensee an opportunity to be consulted with respect to any matters that are to be the "subject of Agency determinations," the final rules relate licensee participation specifically to the contents of the Facility Attachment (or Transitional Facility Attachments). A further clarification is achieved by providing that certain provisions of the Facility Attachment will be referred to or reflected in license conditions. These changes appear in § 75.4 (additional definitions), § 75.8 (dealing with Facility Attachments), and §§ 75.11, 75.21, 75.22, 75.34, 75.35, 75.36, 75.42, 75.45 and 75.46 (references to license conditions). However, because Agreement State licensees are not subject to NRC license conditions, § 150.17a has been amended to indicate that the equivalent of license conditions would be provided, for such licensees, in the form of orders issued under section 274m of the Atomic Energy Act.

We have not implemented a suggestion that certain specific factors (e.g., cost-effectiveness) be identified as considerations that will influence the provisions of Facility Attachments. It is preferable to use general terms because of the wide range of provisions in the Agreement that must be given effect.

(2) Consultation. Several commenters once again noted the importance of licensees playing an active role in the negotiation of the Facility Attachment. The final rules accommodate these concerns by giving assurance that a licensee will be afforded a reasonable opportunity to participate in the development of the Facility Attachment and to review and comment upon it before it has been agreed to by the United States. (See § 75.8.) The Commission will give full and fair consideration to the comments of the licensee and will provide, on request, a

statement of reasons for any conclusions it has reached that are contrary to the views of the licensee.

A number of commenters raised issues that will be addressed when Facility Attachments are prepared. The revised consultation provision gives further recognition to the rights of licensees to be heard at that time. It would be premature to accommodate such concerns in the rule, however, as their resolution will require agreement with the IAEA.

(3) Terminology conforming to Agreement. Several changes relate the language of the regulations more closely to that of the Agreement. Thus, as already mentioned, the final rules refer specifically to Facility Attachments and Transitional Facility Attachments. Similarly, where the context requires, the regulations now explicitly differentiate obligations arising under the principal text of the Agreement (relating to licensees whose installations are subject to the application of IAEA safeguards, including a program of inspections) from licensee obligations which arise under the Protocol to the Agreement.

The revised definition of "Agreement" points out that the term includes the Protocol "unless otherwise specified." Where the intent is to refer specifically either to the principal text on the one hand or to the Protocol on the other, the language so indicates. (See §§ 75.4(g), 75.4(q), 75.8, 75.41.) Although references to the Agreement in §§ 75.42 through 75.46 relate to activities under the principal text of the Agreement, and not the Protocol, limiting language was not inserted because in those sections the references back to § 75.41 adequately indicate that it is the principal text that is relevant.

Note also the addition of the defined term "identification under the Agreement" (§ 75.4(j)), which includes "identifications" (selections by IAEA from the eligible list) made under either Article 39(b) of the principal text of the Agreement or Article 2(a) of the Protocol. This term is used in the definitions of Facility Attachment and Transitional Facility Attachment, and in §§ 75.11, 75.21, 75.31, and 75.41. The significance of this addition is that it limits the implementation of the reporting and other provisions of the regulations to those installations which have been selected by IAEA under the principal text of the Agreement or the Protocol. In view of the applicable time constraints, the Commission had earlier contemplated that requests for installation information, in particular, might be made before formal identification by IAEA, but now believes that such a procedure should be

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avoided, at least at the outset, so to avoid any unnecessary burdens upon licensees. (Note that, in accordance with § 75.11(a), the Commission will specify the instrument under which the identification has been made.)

(4) *Recourse procedures.* Some commenters requested that a procedure be established that would enable disputes with licensees to be resolved by means other than an enforcement proceeding. We construe this suggestion as relating particularly to proceedings instituted by a show-cause order under § 2.202. The Commission believes that this concern is answered, in part, by providing, in § 75.8, that requirements reflecting provisions of the Facility Attachments, unless agreed to by the licensee, will be issued in the form of license amendments under § 2.204 of the NRC rules of practice. A licensee has a right to a hearing with respect to an order entered pursuant to that regulation unless the Commission finds that the public health, safety, or interest requires the order to be made effective immediately. (In view of this change, the caption of § 75.51 has been changed from "Violations" to "Enforcement" and the references to § 2.201 and § 2.202 have been broadened to refer to Part 2, Subpart B instead.)

We have considered a suggestion that disputes arising in the course of IAEA inspections should be handled in a way that would allow a decision to be deferred until the cognizant Director (as specified in § 75.6(b)), after submission of the matter to him by interested parties, had made a determination. The proposal is unacceptable because, if applied, it could interfere with the IAEA's ability to implement a satisfactory safeguards regime. Another suggestion called for a special procedure to resolve disputes over installation information involving license applicants. This is unnecessary, however, because existing procedures allow for prompt resolution. For utilization facilities, the issues would arise in a context separate from the proceedings for the issuance of a construction permit or operating license. (A request would be issued under § 50.78 and would be determined, if necessary, under Part 2, Subpart B.) Applicants for materials licenses would be advised, should informal techniques prove to be unavailing, that the application does not comply with Commission regulations (§ 2.103) or that there has been a failure to supply required information (§ 2.108), and in either case a hearing could be scheduled promptly to resolve the issue.

(5) *Inspection categories.* One commenter took exception to the Commission's earlier statement that the

regulations need not differentiate among types of inspections because in each case the obligations of licensees would be the same. We have reviewed the provisions of the Agreement once again and have determined that the locations to which an IAEA inspector may have access will depend upon the type of inspection. Section 75.42 has been modified to reflect the access provisions contained in Article 74.

(6) *Commercially sensitive process steps.* A commenter requested that the provisions of Article 46(b)(iv), which relates to the establishment of special material balance areas around process steps involving commercially sensitive information, should be incorporated in the regulations. While the proposed rule would have permitted a licensee to request such an MBA to be established, this is now made explicit in revised § 75.11(b)(4). It is anticipated, however, that this course would be followed only in exceptional situations and only where compatible with the terms and objectives of the Agreement.

(7) *"Agency determinations."* The provisions relating to submission of installation information (in § 75.11) have been amended to eliminate the term "Agency determinations." The matters involved are those to be included in the Facility Attachments, and thus the determinations will not be made unilaterally by IAEA. The new language corresponds more closely to its counterpart in Article 46 of the Agreement.

(8) *Physical security plans.* The proposed rules provided for the withholding of details of physical security plans from physical transmission to the IAEA. We have determined, however, that such information need not ordinarily be included in installation information and have so indicated in § 75.11(e). Nevertheless, to provide a clear basis for denying access to such information (or other information), where consistent with the Agreement, we have retained (with modification) a portion of former § 75.12(c). (Paragraphs in § 75.12 have been rearranged for editorial reasons.)

(9) *Modifications to installation information.* Section 75.11(c) has been revised, in response to comments, so as to provide greater guidance and flexibility. First, the revised rules provide that the types of modifications that must be reported in advance will be set out in license conditions; this should result in greater specificity than the previously proposed language calling for such reporting when, among other things, a modification would decrease the effectiveness of the material accounting and control procedures. This

amendment reflects the provision of Code 3.1.3 of the Subsidiary Arrangements, which contemplates that the types of modifications in question will be identified in the Facility Attachment. Second, a shorter reporting period is permitted, where approved by the Commission, in the event of unforeseen situations. This again implements Code 3.1.3, which requires that the longer notice period shall "normally" be provided. Third, since the modifications required to be reported under Article 45 are those "relevant for safeguards purposes," the duty to submit information with inventory change reports has correspondingly been restricted in § 75.11(c)(2). Finally, the deletion of the reference to "changes" (in addition to "modifications") is more faithful to Article 45.

(10) *IAEA inspections and visits.* In response to commenters' renewed urging that NRC inspectors accompany IAEA representatives, both §§ 75.13 and 75.42 have been revised to indicate that this will be done, to the extent feasible, unless the licensee agrees otherwise (instead of "upon request by a licensee"). However, to assure that the unavailability of NRC personnel does not result in a licensee's denying access to an IAEA inspector in violation of the Agreement, the regulations still require that unaccompanied inspectors be admitted.

A clarifying amendment with respect to the advance notice period has been included in § 75.13 to indicate that the allotted 3-day period does not commence at the time of posting of a written communication, but rather upon receipt of the information (whether by telephone or by mail). Further expansion of the minimum-notice period would be inconsistent with undertakings of the IAEA; nevertheless, licensees will be given as much notice as possible, since this should serve the interests of all in assuring that the IAEA visits are productive.

While a proposal that verification visits under § 75.13 be put off if key personnel are unavailable has not been accepted in full, that section has been revised to indicate that licensees should consult with the Commission immediately if this is the case. NRC would then proceed to take such action as necessary in light of Article 48 (relating to the sending of inspectors "in cooperation with the United States") and Article 9(c)(i), which provides that visits be arranged so as to "reduce to a minimum the possible inconvenience and disturbance" to the activities of the licensee concerned.

As noted above, § 75.42 has been modified to reflect the types of

inspections authorized by the Agreement and to define more clearly inspectors' rights of access. In addition to giving licensees advance notification of inspections, in accordance with § 75.42(h), the Commission expects to periodically furnish licensees with other information regarding the IAEA inspection program.

(11) *Scope and implementation of procedures.* A commenter objected to the language in § 75.21 that would obligate a licensee to overhaul its procedures in advance of the negotiation of a Facility Attachment. Article 40(c), which allows the IAEA to apply safeguards on a interim basis, had been cited as the grounds for this provision. Upon further consideration, the conclusion reached is that Article 40(c) can be applied while the licensee continues to use its established material accounting and control procedures. It will be sufficient for the licensee to use those procedures so long as they allow inventory changes to be documented. (Code 10 of the Subsidiary Arrangements). As the schedule for implementation will be specified in license conditions, the reference (in former § 75.21(e)) to a 10-day period has been deleted. The qualifying language in § 75.21(b) also reflects the fact that the provisions of the Agreement may, for some installations, be achievable without procedures falling in each enumerated category.

Note the deletion of the reference to batch accounting, contained in former § 75.21(b). That provision was determined to be redundant.

The change in § 75.21(b)(6), substituting "a system of accounting and operating records" for "maintenance of" such records, adopts the parallel language of Article 32.

(12) *Records and reports of isotopic composition.* A commenter pointed out that the provision for including "isotopic composition" in the batch data defined in § 75.22(b) could be construed to call for a complete spectrum of major and minor isotopes present. This would go beyond the definition of "batch data" in Article 90D of the Agreement, which requires inclusion of isotopic composition "when appropriate." The extent to which the information is appropriate will depend upon the character of the activities involved. For a particular licensee it will be specified in the Facility Attachment. § 75.22(b) has accordingly been changed to relate the isotopic-composition recordkeeping requirement to license conditions (which will reflect the terms of the Facility Attachment).

The comment also prompted a change in § 75.45, which now calls for advance notifications of transfers to include

isotopic composition data, other than fissile isotope weights, only to the extent specified by license conditions. This is more faithful to the provisions of the Subsidiary Arrangements.

(13) *Inventory change reports.* Section 75.34 has been amended to indicate that "concise notes," when appropriate, will be submitted on a separate form (DOE/NRC Form-740M, Concise Note) and to limit the requirement with respect to reports of the anticipated operational program so that it includes only matters that are specified in license conditions. The schedule for submission of the forms (former § 75.34(c)) has been deleted because it will be dealt with explicitly in the instructions; similar changes have been made in § 70.54 (nuclear material transfer reports in the domestic safeguards program) to assure consistency with Part 75. See also the conforming change in the source material regulations (§ 40.64).

(14) *Material status reports.* Revised material accounting procedures will require the use of two separate forms, a Material Balance Report (DOE/NRC Form-742) and a Physical Inventory Listing (DOE/NRC Form-742C). These are collectively referred to in § 75.35 as material status reports. Conforming changes also are made in § 40.64 (pertaining to source material) and

§ 70.53 (pertaining to special nuclear material), which sections also have been amended to eliminate conflict with the requirements of Part 75 (particularly with respect to scheduling).

Section 75.35 also has been modified to make it clear that physical inventory reports are required only for inventories which are taken in response to the requirements of Part 75. The reports need not be prepared for other inventories, such as those taken routinely for internal control purposes. Details with respect to entries on the forms have been deleted because they were incomplete and because the matter will be addressed specifically in the instructions for completing the forms. Further, the final rule allows for completion dates to be included in the license conditions; this may be necessary in some cases to assure compliance with Article 61(b) of the Agreement.

(15) *Special reports.* The Commission has once again reviewed comments to the effect that the special reports provision (§ 75.36) is unnecessarily burdensome, particularly with respect to losses of containment that occur "unexpectedly." Since the subject is one that will be treated in detail in the Facility Attachments, the Commission has determined that the requirements for particular installations should be treated in license conditions. Such

conditions, tailored to the circumstances of individual licensees, will be phrased in a manner that will eliminate much of the concern that has been expressed. Language also has been inserted in § 75.31, which eliminates a perceived inconsistency in the regulations regarding the coverage of the special reports requirement.

(16) *Termination of installation designation.* The provision dealing with designation of installations (§ 75.41) has been expanded, in response to a suggestion, to indicate that the Commission will give a licensee prompt notice when its installation is no longer subject to the application of IAEA safeguards.

(17) *Expenses.* A commenter asked for the regulations to state the mechanism by which the IAEA is to "bear the cost" of certain expenses. The language concerned, in former § 75.47(a), was based upon Article 14 of the Agreement. The Commission understands that the reference to bearing the costs in question contemplates a reimbursement procedure. The proposed rule has accordingly been modified to substitute "reimburse a licensee for the cost" in place of "bear the cost." See new § 75.46. Should costs not be reimbursed with reasonable promptness, the

Commission would, when deemed appropriate, seek to initiate action pursuant to § 75.46(d) and the dispute resolution articles of the Agreement.

(18) *Agency seals.* The section dealing with the breaking of IAEA seals (former § 75.46) has been deleted because there is no direct counterpart in the Agreement. This change is also responsive to concerns expressed by some licensees that the regulations could unduly interfere with operational requirements. The Facility Attachment will address matters relating to the integrity of IAEA seals and will take operational requirements into account.

(19) *Miscellaneous minor changes.* A number of editorial changes, though not substantive, merit brief comment. The term "IAEA" is used in place of "Agency" to avoid possible confusion that an agency of the United States government is being referred to. The explanation of "source data" in § 75.22 corresponds more closely to Article 90R of the Agreement. The former term "initial report" in § 75.32 is replaced by the more descriptive "initial inventory report." The additional statutory citations to sections 103 and 104 of the Atomic Energy Act provide a more explicit basis for including holders of construction permits within the scope of Part 75. Section 75.6(a), which specifies the NRC offices to whom specific communications are to be directed, has been changed so as to improve the

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efficiency of administering the regulations.

### Discussion of Other Comments

In addition to the matters referred to above, the Commission has considered carefully all the issues identified in the comments received. Some of these, although not resulting in changes to the proposed rule, merit additional discussion, as follows:

**Comment:** Licensees should not be required to maintain two documents pertaining to material accounting and control, one for domestic purposes and one for IAEA purposes.

**Response:** As reflected in the final rule, NRC recognizes the desirability of reconciling the requirements of 10 CFR Parts 70 and 75 insofar as practicable. To the extent that duplication can be eliminated, we shall continue to make every effort to do so. Suggestions from licensees, drawn from their actual experience, will be welcome at any time.

**Comment:** Schedules for implementation of the Agreement do not allow sufficient time for licensees to make necessary preparations.

**Response:** The regulations, especially as revised, provide as much time as is

permitted under the applicable provisions of the Agreement and Subsidiary Arrangements. Licensees are encouraged to make advance preparations so that installation information can be submitted promptly when requested by the Commission and so that applicable procedures, including initial inventory reporting, can be implemented in a timely fashion.

**Comment:** Experimental and research facilities should not be designated for the application of IAEA safeguards.

**Response:** Such facilities are within the scope of the Agreement. So long as selections are made in conformity with the Agreement and Subsidiary Arrangements, the Commission would have no occasion to urge any particular course of action upon the IAEA. In any event, the question cannot be dealt with in the context of the present rulemaking action.

**Comment:** NRC should provide, in the rule, more specific guidance regarding the information that must be submitted as installation information and as routine reports.

**Response:** Detailed guidance has been prepared by the NRC staff and is now available. This guidance includes various new or revised forms, together with instructions for their preparation. These are being submitted to the General Accounting Office for clearance pursuant to 44 U.S.C. 3512. GAO will publish notice of submission, at which time affected persons will have the

opportunity to comment. Written data, views, or arguments regarding the forms and instructions may also be submitted directly to the Commission. Submissions made within 21 days after GAO's publication, in the Federal Register, of a notice of receipt of NRC's report proposals will be considered by the Commission before the forms are placed into use.

**Comment:** The regulations should indicate that the licensee need not include information beyond what is necessary for the Agency to make knowledgeable determinations.

**Response:** The proposed language fails to express affirmatively, as it should, just what a licensee must do. The formulation in § 75.11(d)—that the information shall be sufficiently detailed to enable knowledgeable determinations to be made in the development of Facility Attachments—is preferable.

**Comment:** The requirement that licensees submit a description of proposed procedures (as opposed to existing systems) is nebulous, may be applied unduly broadly, and is unnecessary in view of after-the-fact reports of changes in the safeguards system.

**Response:** The language in question (§ 75.11(b)(4)) implements Article 43(d) of the Agreement and accordingly has not been changed. However, as the forms supplied under § 75.11(d) will make clear, the licensee will not be called upon to propose any new procedures for purposes of compliance with the provisions of Part 75. The "proposed procedures" which must be described are those which the licensee intends to institute, for other reasons, but which are not yet in effect. (Our prior comments on this subject are withdrawn, to the extent they are inconsistent with this statement.) The details of the procedures, as opposed to a description thereof, would be required only when necessary for knowledgeable determinations to be made in the development of Facility Attachments.

**Comment:** The regulations should provide for defining in the Facility Attachment the categories of information that will be treated as being particularly sensitive.

**Response:** The commenter's concern relates to the avoidance of inadvertent loss of the protection contemplated by § 75.12(b)(1). The suggested amendment would be inappropriate, however, because the determination of particular sensitivity is to be made by the Commission; it is not a subject to be covered in the Facility Attachment. Indeed, the information in question most likely would be supplied to the IAEA before the Facility Attachment even has been prepared. To minimize the risk that

available protection is lost through inadvertence, the forms supplied by the Commission (§ 75.11(d)), or the accompanying letter of transmittal, will call attention to the provisions of § 75.12. This may be done by reference to that section, by reciting it, or by including appropriate questions reflecting its terms.

**Comment:** Licensees should not be required to provide access to IAEA inspectors, under § 75.42, except "during normal working hours."

**Response:** To limit inspections to "normal working hours" could seriously interfere with the IAEA's ability to carry out its responsibilities. "During normal working hours" seems appropriate for visits under § 75.13 to verify installation information. However, the IAEA's safeguards regime cannot be effective if inspections outside of normal working hours are subject to restraints. In view of the relevant provisions of the Agreement (e.g., Article 9 (c)(ii)), the scheduling of inspections, in practice, probably will not result in serious inconvenience to the licensee.

**Comment:** The rule should state that IAEA equipment will not be agreed to

by the United States if it impinges upon certain specified interests of the licensee (such as safety, protection of proprietary information, and product quality).

**Response:** The recommended criteria are not included in the rule because they will not be utilized in precisely the terms proposed. They are relevant, however, in determining whether or not, for example, the safeguards "avoid undue interference . . . in the operation of the facilities," the information to be provided is the "minimum" required by the IAEA. The standards that will be applied are those contained in the Agreement itself, as made clear by the reference thereto in § 75.42(e)(2).

**Comment:** Advance notification should not be required, under § 75.43, with respect to routine shipments, such as those recycling uranium hexafluoride heels.

**Response:** The issue will be considered in the development of Facility Attachments. Relief may be provided, where appropriate, by granting an exemption under § 75.3(a).

### Supplemental Rules

The Commission has determined that the rules set forth in this notice will permit timely implementation of the Agreement. However, certain additional details of the process will need to be treated by the time the Agreement enters into force, or shortly thereafter. For example, IAEA representatives must be assured of access to some items of classified information; to meet this need,

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appropriate rule changes, such as amendments to 10 CFR Parts 25 and 95, may be considered. Similarly, import and export regulations will be reviewed, with a view to adopting measures which will enable IAEA inspectors to discharge their functions without impediment. Any necessary rule changes will be made in accordance with established rulemaking procedures.

### Notice

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following new Part 75 and the following amendments to Parts 40, 50, 70, 150, and 170 of Title 10, Chapter I, Code of Federal Regulations, are published as a document subject to codification.

45 FR 73012

Published 11/4/80

Effective Date: Upon the US/IAEA Safeguards

Agreement's entry into force and

publication of notice thereof

in the Federal Register

Effective 12/24/80 \*

10 CFR Parts 70 and 75

### Safeguards on Nuclear Material; Implementation of US/IAEA Agreement

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is amending its regulations to make it clear that licensees required to submit inventory change reports pursuant to the US/IAEA Agreement are not additionally required to submit nuclear material transfer reports under NRC domestic safeguards regulations.

**EFFECTIVE DATE:** Upon the US/IAEA Safeguards Agreement's entry into force and publication of notice thereof in the Federal Register.

**FOR FURTHER INFORMATION CONTACT:** Mr. L. C. Solem, Office of Standards Development, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-443-5903).

**SUPPLEMENTARY INFORMATION:** On July 31, 1980 the Nuclear Regulatory Commission published in the Federal Register (45 FR 50705) a new Part 75 to Title 10 of the Code of Federal Regulations and amendments to 10 CFR Parts 40, 50, 70, 150 and 170 to implement the Agreement Between the United States of America and the International Atomic Energy Agency for

the Application of Safeguards in the United States of America.

The Commission is amending 10 CFR Parts 70 and 75 to specify that licensees subject to 10 CFR 75.34, "Inventory change reports," are not required to provide the same information under 10 CFR 70.54, "Nuclear material transfer reports." The amendments are for purposes of clarification, as it was not intended that duplicate reports should be submitted.

Inasmuch as the amendments set forth below are of a minor and nonsubstantive nature, good cause exists for omitting notice of proposed rulemaking and public procedure thereon as unnecessary.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Parts 70 and 75 of Title 10, Chapter I, Code of Federal Regulations, are published as a document subject to codification.

46 FR 58281

Published 12/1/81

Effective 12/1/81

*Licensing Requirements for the  
Storage of Spent Fuel in an  
Independent Spent Fuel Storage  
Installation; Minor Clarifying and  
Conforming Amendments*

See Part 72 Statements of Consideration

➤ 49 FR 19623

Published 5/9/84

Effective 5/9/84

*Information Collection Requirements;  
Display of OMB Control Numbers*

See Part 0 Statements of Consideration

\*Amended 45 FR 84967



# 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

38 FR 7318  
Published 3/20/73  
Effective 3/20/73

#### AEC-Owned Inventions

This revision of 10 CFR Part 81 of the Atomic Energy Commission regulations sets forth the standard specifications for the issuance of licenses on inventions owned by the AEC, and is issued pursuant to sections 156 and 161g. of the Atomic Energy Act of 1954, as amended, and the Presidential Patent Policy Statement of August 23, 1971. It is promulgated to implement the General Services Administration regulations, 41 CFR Part 101-4, published February 5, 1973, which provide for the licensing of Government-owned inventions for the purpose of enhancing their utilization.

47 FR 13774  
Published 4/1/82  
Effective 4/1/82

*Reporting, Recordkeeping, and  
Application Requirements*

See part 60 Statements of Consideration

38 FR 8240  
Published 3/30/73  
Effective 3/30/73

#### Licensing of AEC-Owned Inventions

This revision of the Atomic Energy Commission Regulations Part 81 sets forth the standard specifications for the issuance of licenses on foreign patents and patent applications owned by the AEC, and is issued pursuant to sections 156 and 161g. of the Atomic Energy Act of 1954, as amended. It is promulgated for the purpose of enhancing the utilization by industry of AEC-owned foreign patents in the public interest.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

*Energy Reorganization Act; Revisions to Chapter 1 to Reflect Organizational and Procedural Changes*

See Part 2 Statements of Consideration.

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**

45 FR 14476

Published 3/5/80

Effective 5/19/80

( Effective Date Extended To 10/1/80)

*Access to and Protection of National Security  
Information and Restricted Data*

See Part 25 Statements of Consideration.

45 FR 37410

Published 6/3/80

Effective 6/3/80

*Deletion of Reference to Panama  
Canal Zone; Minor Amendments*

See Part 140 Statements of Consideration

46 FR 13203

Published 2/20/81

Effective 3/23/81

**10 CFR Part 95**

**Access by Representatives of the  
International Atomic Energy Agency**

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** These amendments permit  
Nuclear Regulatory Commission (NRC)  
licensees to grant International Atomic  
Energy Agency (IAEA) representatives

access to NRC classified information as  
required by their visits to NRC-licensed  
facilities under the U.S./IAEA  
Safeguards Agreement. The  
amendments also specify recordkeeping  
requirements related to this access.

**EFFECTIVE DATE:** March 23, 1981.

**FOR FURTHER INFORMATION CONTACT:**  
Duane G. Kidd, Chief, Security Policy  
Branch, Division of Security, Office of  
Administration, U.S. Nuclear Regulatory  
Commission, Washington, DC 20555,  
telephone (301) 427-4415.

**SUPPLEMENTARY INFORMATION:** On July  
31, 1980, the Nuclear Regulatory  
Commission published, as final rules, 10  
CFR Part 75, "Safeguards on Nuclear  
Material—Implementation of U.S./IAEA  
Agreement," and other conforming  
amendments which provide the  
framework under which IAEA  
representatives will make visits and  
carry out certain inspections in NRC-  
licensed facilities (45 FR 50705). The  
Commission noted in the Statement of  
Considerations accompanying the rule  
that additional details of the  
implementation process would need to  
be treated by the time the Agreement  
enters into force. One of the details  
referred to in that notice was assurance  
that IAEA representatives could have  
access to some items of classified  
information, where required, in carrying  
out visits and inspections under the  
Safeguards Agreement.

On March 5, 1980, 10 CFR Part 95,  
"Security Facility Approval and  
Safeguarding of National Security  
Information and Restricted Data," was  
published as a final rule in the Federal  
Register (45 FR 14476). This part, which  
sets forth the information and physical  
security requirements that affected  
licensees must follow to protect NRC  
classified information, became effective  
October 1, 1980. Part 95 as currently  
written limits access to classified

information to individuals possessing an  
NRC personnel security clearance.

This necessary amendment to Part 95  
brings NRC procedures and regulations  
governing control and access to  
classified information into conformance  
with the U.S./IAEA Safeguards  
Agreement. Under these amendments,  
licensees are authorized to release (i.e.,  
transfer possession of) copies of  
classified documents directly to IAEA  
representatives officially designated by  
IAEA to make these requests. However,  
in order that the U.S. may maintain an  
accurate account of what classified  
information has been disclosed to IAEA  
representatives, affected licensees will  
be required to keep certain records  
concerning IAEA visitations.

The Commission has determined that  
there are only three licensees presently  
affected by these amendments, namely,  
Rockwell International, General Atomic,  
and Public Service Co. of Colorado.  
Each of these licensees has been  
afforded an opportunity to comment  
regarding this action, and some  
clarifying changes have been made in  
response to their concerns. Other  
significant comments are discussed  
below. A record of the communications  
with these licensees has been placed in  
the Commission's Public Document  
Room at 1717 H Street, NW.,  
Washington, D.C., where it is available  
for inspection and copying.

One commenter noted that the  
disclosure provisions of the NRC  
regulations may be inconsistent with  
requirements imposed by the  
Department of Energy (DOE) with  
respect to work performed under DOE  
contract at the licensee's site. NRC has  
brought this matter to the attention of  
DOE. It is anticipated that DOE will take  
appropriate action to modify its contract  
requirements so as to eliminate the  
potential conflict with NRC regulations.

Another commenter suggested that

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since the classified information to which IAEA inspections would require access was entirely, or at least primarily, "safeguards information" as defined in section 147 of the Atomic Energy Act of 1954 (as amended by Pub. L. 95-295, the NRC Authorization Act for Fiscal Year 1980), the access and disclosure provisions should be drafted in accordance with that provision. Proposed regulations under section 147 were issued for public comment in the Federal Register on December 29, 1980 (45 FR 85459). Licensees, therefore, currently have the opportunity to consider these regulations and comment upon their relationship to Part 95. The immediate need is to provide a means for IAEA inspectors to have access, where required by the Agreement, to

information which is currently classified as National Security Information, and this can only be accomplished by amending Part 95 along the lines of the present action.

A commenter suggested that the classification of information subject to disclosure be defined more specifically. The rule now specifically bars disclosure of Restricted Data. By authorizing access or release of National Security Information generally, it allows both Confidential and Secret NSI to be disclosed, where "relevant" to the conduct of a visit or inspection; we do not consider a specific reference to Confidential and Secret classifications to be needed.

Under the circumstances described in the rule, licensees are authorized to permit an IAEA inspector to have access to NSI. An inspector may make notes which reflect the contents of NSI to which he has had access. The inspector may carry these notes, along with copies of documents which have been released pursuant to specific disclosure authorization, away from a licensed facility as set forth in 95.36; measures relating to the protection of any NSI contained in these materials are provided for in the arrangements between the Government and the IAEA and are not the responsibility of the licensee. It should be noted, however, that no reproduction of NSI by the licensee is permitted except as provided under other portions of existing regulations.

One commenter suggested that the duration of the record keeping period be reduced from five years to two years, which would conform to other provisions of Part 95. Two years is considered inadequate, however, in view of the unique aspects arising out of the release of classified information to representatives of international organizations. Compromise of the

information, should it occur, is less likely to come to the attention of United States officials within a two-year period. Moreover, the investigation of disclosures might be complicated by the need to make inquiries through diplomatic channels and by the inability to rely upon subpoenas and similar measures that are effectual only within the jurisdiction of the United States. In view of the national security interests involved, the small number of affected licensees, the low number of predicted visits, and the relatively small number of documents likely to be disclosed, the five-year requirement is not regarded as being unduly burdensome. However, in an effort to keep the burden as small as possible, the rule differs from that

discussed with affected licensees by providing that records pertaining to documents to which inspectors have been permitted access (but which have not been released) may identify such documents by category rather than individually.

In view of the fact that each licensee subject to this rule upon entry into force of the Agreement has been afforded an opportunity to comment thereon, and since delay in promulgating this rule could result in actions inconsistent with the Agreement, and because there is involved a foreign affairs function of the United States, the NRC finds that notice of proposed rulemaking and public procedure thereon are unnecessary and contrary to the public interest.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Part 95 of Title 10, Chapter 1, Code of Federal Regulations are published as a document subject to codification.

**46 FR 58281**  
Published 12/1/81  
Effective 12/1/81

*Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation; Minor Clarifying and Conforming Amendments*

See Part 72 Statements of Consideration

**47 FR 9194**  
Published 3/4/82  
Effective 4/5/82

*Requirements for Access to and Protection of National Security*

*Information and Restricted Data; Minor Amendments*

See Part 25 Statements of Consideration

**47 FR 38675**  
Published 9/2/82  
Effective 10/2/82

*Revision and Clarification of Criteria and Procedures for Determining Eligibility for Access to Restricted Data or National Security Information or an Employment Clearance and Conforming Amendments*

See Part 10 Statements of Consideration

**48 FR 24318**  
Published 6/1/83  
Effective 6/27/83

*Access to and Protection of National Security Information and Restricted Data*

See Part 25 Statements of Consideration

➤ **48 FR 48644**  
Published 10/20/83

### 10 CFR Part 95

#### Access to and Protection of National Security Information and Restricted Data; Correction

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; correction.

**SUMMARY:** This document corrects a final rule appearing in the Federal Register on June 1, 1983 (48 FR 24318) concerning access to and protection of National Security Information and Restricted Data, that, among other amendments, updated Appendix A to Part 95 in order to comply with Executive Order 12356. This correction is necessary to restore information that was inadvertently omitted as a result of the amendments to the Classification Guidance table appearing in Appendix A.

#### FOR FURTHER INFORMATION CONTACT:

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## PART 95 • STATEMENTS OF CONSIDERATION

**SUPPLEMENTARY INFORMATION:** On June 1, 1983, the Nuclear Regulatory Commission published a final rule amending its regulations pertaining to the access to and protection of National Security Information and Restricted Data (48 FR 24318). In this document, the Classification Guidance portion of Appendix A to Part 95 was amended to require a determination by the originating agency before information may be declassified in place of the previously required review at the end of seven or 20 years.

However, the amendatory instruction necessary to accomplish this change was not complete. As a result, the acronyms necessary to complete the classification level and description of material in the Classification Guidance table were inadvertently omitted. This correction restores the omitted information. In order to avoid unnecessary confusion, the correction is accomplished by reprinting the entire Classification Guidance table.

In Appendix A to Part 95, the Classification Guidance table immediately following paragraph G is revised to read as follows (This correction supersedes amendatory instructions 22 and 23 in the June 1, 1983 final rule.):

50 FR 36983  
Published 9/11/85  
Effective 10/11/85

*Access to and Protection of National  
Security Information and Restricted  
Data*

See Part 25 Statements of Consideration

➤ 51 FR 47204  
Published 12/31/86  
Effective 12/31/86

*Access Authorization for Licensee  
Personnel*

See Part 25 Statements of Consideration

48 FR 51903  
Published 11/15/83

### 10 CFR Part 95

#### **Access to and Protection of National Security Information and Restricted Data; Correction**

In FR Doc. 83-28197 beginning on page 48644 in the issue of Thursday, October 20, 1983, make the following corrections:

1. On page 48647, "Classification Guidance" table, entry "294" in the first column, "U." should appear adjacent to the first line.

2. On page 48648, "Classification Guidance" table, entry "341", in the second column, "U." should appear adjacent to the first line.

49 FR 19623  
Published 5/9/84  
Effective 5/9/84

*Information Collection Requirements;  
Display of OMB Control Numbers*

See Part 0 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

27 FR 3509  
Published 4/12/62  
Effective 5/12/62

Pursuant to the Administrative Procedures Act and the Atomic Energy Act of 1954, as amended, the following guide is published as a document subject to codification, to be effective 30 days after publication in the FEDERAL REGISTER.

*Statement of considerations.* On February 11, 1961, the Atomic Energy Commission published in the FEDERAL REGISTER a notice of proposed rule making that set forth general criteria in the form of guides and factors to be considered in the evaluation of proposed sites for power and testing reactors. The Commission has received many comments from individuals and organizations, including several from foreign countries, reflecting the widespread sensitivity and importance of the subject of site selection for reactors. Formal communications have been received on the published guides, including a proposed comprehensive revision of the guides into an alternate form.

In these communications, there was almost unanimous support of the Commission's proposal to issue guidance in some form on site selections, and acceptance of the basic factors included in the proposed guides, particularly in the proposal to issue exposure dose values which could be used for reference in the evaluation of reactor sites with respect to potential reactor accidents of exceedingly low probability of occurrence.

On the other hand, many features of the proposed guides were singled out for criticism by a large proportion of the correspondents. This was particularly the case for the appendix section of the proposed guides, in which was included an example calculation of environmental distance characteristics for a hypothetical reactor. In this appendix, specific numerical values were employed in the calculations. The choice of these numerical values, in some cases involving simplifying assumptions of highly complex phenomena, represent types of considerations presently applied in site calculations and result in environmental distance parameters in general accord with present siting practice. Nevertheless, these particular numerical values and the use of a single example calculation were widely objected to, basically on the grounds that they presented an

aspect of inflexibility to the guides which otherwise appeared to possess considerable flexibility and tended to emphasize unduly the concept of environmental isolation for reactors with minimum possibility being extended for eventual substitution thereof of engineered safeguard.

In consequence of these many comments, criticisms and recommendations, the proposed guides have been rewritten, with incorporation of a number of suggestions for clarification and simplification, and elimination of the numerical values and example calculation formerly constituting the appendix to the guides. In lieu of the appendix, some guidance has been incorporated in the text itself to indicate the considerations that led to establishing the exposure values set forth. However, in recognition of the advantage of example calculations in providing preliminary guidance to application of the principles set forth, the AEC will publish separately in the form of a technical information document a discussion of these calculations.

These guides and the technical information document are intended to reflect past practice and current policy of the Commission of keeping stationary power and test reactors away from densely populated centers. It should be equally understood, however, that applicants are free and indeed encouraged to demonstrate to the Commission the applicability and significance of considerations other than those set forth in the guides.

One basic objective of the criteria is to assure that the cumulative exposure dose to large numbers of people as a consequence of any nuclear accident should be low in comparison with what might be considered reasonable for total population dose. 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. Neither of these objectives were readily achievable by a single criterion. Hence, the population center distance was added as a site requirement when it was found for several projects evaluated that the specification of such a distance requirement would approximately fulfill the desired objectives and reflect a more

accurate guide to current siting practices. In an effort to develop more specific guidance on the total man-dose concept, the Commission intends to give further study to the subject. Meanwhile, in some cases where very large cities are involved, the population center distance may have to be greater than those suggested by these guides.

A number of comments received pointed out that AEC siting factors included considerations of population distributions and land use surrounding proposed sites but did not indicate how future population growth might affect sites initially approved. To the extent possible, AEC review of the land use surrounding a proposed site includes considerations of potential residential growth. The guides tend toward requiring sufficient isolation to preclude any immediate problem. In the meantime, operating experience that will be acquired from plants already licensed to operate should provide a more definitive basis for weighing the effectiveness of engineered safeguards versus plant isolation as a public safeguard.

These criteria are based upon a weighing of factors characteristic of conditions in the United States and may not represent the most appropriate procedure nor optimum emphasis on the various interdependent factors involved in selection of sites for reactors in other countries where national needs, resources, policies and other factors may be greatly different.

31 FR 4668  
Published 3/19/66  
Effective 3/19/66

#### Miscellaneous Amendments

See Part 20 Statements of Consideration.

## PART 100 • STATEMENTS OF CONSIDERATION

38 FR 31279  
Published 11/13/73  
Effective 12/13/73

### Seismic and Geologic Siting Criteria

On November 25, 1971, the Atomic Energy Commission published in the *FEDERAL REGISTER* (36 FR 22601) for public comment proposed amendments to 10 CFR Part 100, "Reactor Site Criteria," which would add an Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants". The purpose of the criteria is to set forth the principal seismic and geologic considerations which guide the Commission in its evaluation of the suitability of proposed sites for nuclear power plants and the suitability of the plant design bases established in consideration of the seismic and geologic characteristics of the proposed sites in order to provide reasonable assurance that the nuclear power plant can be constructed and operated at a proposed site without undue risk to the health and safety of the public.

All interested persons were invited to submit comments or suggestions in connection with the proposed amendments within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. After consideration of the comments received in response to the notice of proposed rulemaking the Commission has decided to adopt the amendments in the form set out below. The amendments as adopted reflect the suggestions in a number of the comments. Major differences in Appendix A from the amendments published for comment are:

1. The Safe Shutdown Earthquake and the Operating Basis Earthquake have been defined in terms of geology and seismology.

The proposed rule defined the Safe Shutdown Earthquake and the Operating Basis Earthquake in terms of the effect of these earthquakes on structures, systems and components of the plant. This concept has been retained in these amendments, so that effects on plant structure as well as geologic and seismic considerations are required to adequately define each earthquake.

2. Advances in the state of the art of geologic investigations have been taken into account by giving more credit to three-dimensional investigations, such as those obtained from offshore geologic surveys, in determining the extent of the zone requiring detailed faulting investigations.

3. The selection of an Operating Basis Earthquake has been made mandatory and has been applied to those features of the plant that are safety related.

The proposed rule required that the Operating Basis Earthquake selected be related to the operability of those struc-

tures, systems and components necessary for power generation. Many of the comments questioned the legality of imposing safety requirements on portions of the plant which were not safety related. As a result of these comments, the definition of the Operating Basis Earthquake was made more restrictive.

Other significant changes which relate to specific sections of Appendix A are as follows:

1. Section I of Appendix A, entitled "Purpose," has been revised to reference General Design Criterion 2 of Appendix A to 10 CFR Part 50 which requires that nuclear power plant structures, systems, and components important to safety be designed to withstand the effects of natural phenomena without loss of capability to perform their safety function.

2. Section II of Appendix A, entitled "Scope," has been revised to:

a. Clarify the Commission's intent that the investigations described in Appendix A of 10 CFR Part 100 are considered to fall within the scope of § 50.10(c) (1) of 10 CFR Part 50.

b. Define in more precise terms when additional investigations or more conservative determinations or both are required.

c. State that the criteria do not address investigations of possible volcanism required for sites located in areas of volcanic activity and that investigations of the volcanic aspects of such sites will be determined on a case-by-case basis.

3. A number of definitions included in section III of Appendix A have been revised to define more precisely the terms used in this appendix with respect to geology and seismology, and their relationship to safety related structures, systems and components of a nuclear power plant.

The specific changes made to the definitions of section III are as follows:

a. Paragraph (c) of section III has been revised so that the Safe Shutdown Earthquake is that earthquake which is based upon an evaluation of the maximum earthquake potential considering the regional and local geology and seismology and the specific characteristics of local subsurface material.

b. In paragraph (d) of section III the definition of the Operating Basis Earthquake has been revised by substituting for the definition of the earthquake which produces the vibratory ground motion for which those structures, systems and components necessary for power generation are designed to remain operable, the earthquake which produces vibrating ground motion for which those features of the nuclear power plant necessary for continued operation without undue risk to the health and safety of the public are designed to remain functional, and considering the regional and local geology and seismology and specific characteristics of local subsurface material, which could reasonably be expected to affect earthquake vibratory motion at the plant site during the operating life of the plant.

c. The term "active" fault has been replaced by the term "capable" fault throughout the appendix to eliminate the confusion which has existed between

the Appendix A definition of an "active" fault and the other definitions of an active fault widely used by geologists. As used in the Appendix, a capable fault is a fault whose geologic history is taken into account in evaluating the fault's potential for causing vibratory ground motion and which is capable of causing surface faulting. An additional change has been made to paragraph III(g) in that the regional restriction concerning instrumentally determined macro-seismicity has been deleted from paragraph (g) (2) of section III. The definition now includes only the characteristics of macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault.

d. The definition of "zone requiring detailed faulting investigation" in paragraph (j) of section III has been revised to state more clearly the scope and types of investigations in the zone needed to demonstrate that the need to design for surface faulting does not exist, or that the design basis for surface has been properly determined.

4. Section IV, entitled "Required Investigations," has been revised as follows:

a. A statement has been added in paragraph (a) of section IV that the investigations for vibratory ground motion produced by the Safe Shutdown Earthquake are considered to provide an adequate basis for selection of an Operating Basis Earthquake.

b. Paragraph (a) (2) of section IV has been modified to require that investigations for vibratory ground motion and surface faulting include consideration of the possible effects of man's activities on the tectonic structures underlying the site and the region surrounding the site.

c. A new paragraph (b) (2) has been added to section IV to clarify that an evaluation of tectonic structures underlying the site with regard to their potential for causing surface displacement at or near the site is required and that such evaluation shall include consideration of the effects of man's activities on the tectonic structures underlying the site and the region surrounding the site.

d. A footnote has been added to paragraphs (a) (7) and (b) (7) of section IV to clearly state that in the absence of absolute dating, evidence of recency of movement of a fault may be obtained by applying relative dating techniques to rupture, offset warped or otherwise structurally disturbed surface or near surface material or geomorphic features.

e. A footnote has been added to paragraph (a) (7) and (b) (7) of Section IV to clarify that the applicant is to evaluate whether a fault is a capable fault with respect to the defined characteristics stated in paragraph IIIg by conducting a reasonable investigation using suitable geologic and geophysical techniques.

5. The following changes have been made to Section V, entitled "Seismic and Geologic Design Bases:"

a. Paragraph V(a) has been expanded to provide for determination of the design basis for the expected vibratory ground motion as well as the design basis for maximum vibratory ground motion.



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b. A requirement has been added to paragraph (a) (1) (iv) of section V that, in the case where a causative fault is near the site, the effect of proximity of an earthquake on the spectral characteristics of the Safe Shutdown Earthquake shall be taken into account.

c. Paragraph (a) (2) of section V has been changed to require the applicant to specify the Operating Basis Earthquake. A requirement which reflects the seismic design bases for plants recently evaluated for construction permits that the maximum vibratory ground acceleration of the Operating Basis Earthquake shall be at least one-half the maximum vibratory ground acceleration of the Safe Shutdown Earthquake has been added.

d. Paragraph (b) (1) of section V has been revised to specify that more detailed three dimensional information such as that obtained from precise investigative techniques may justify the use of a narrower zone requiring detailed faulting investigations. This change has been made to give greater recognition to advances in the state of the art of geologic investigations. Examples of certain types of faults which may require an increase in the width of the zone also are given.

e. Paragraph (d) (1) of section V has been modified to include consideration of the loading effects of dams or reservoirs in the determination of soil stability.

f. Paragraph (d) (4) of section V requires that those structures which are not located in the immediate vicinity of the site, but which are safety related, be designed to withstand the effects of the Safe Shutdown Earthquake and the design basis for surface faulting, determined on a basis comparable to that of the nuclear power plant.

6. The following significant changes were made to section VI, entitled "Application to Engineering Design:"

a. Paragraphs (a) (1) and (a) (2) of section VI have been revised to permit the use of a suitable qualification test to demonstrate that structures, systems and components can withstand the seismic and other concurrent loads.

b. Paragraph V(a)(1) has been changed to eliminate the requirement that safety related structures, systems, and components also be designed to withstand the effects of vibratory motion of at least fifty percent of the Safe Shutdown Earthquake in combination with other appropriate loads well within elastic limits. This requirement is now included as part of the determination of the Operating Basis Earthquake in paragraph (a) (2) of section V.

c. Paragraph (a) (2) of section VI has been modified to reflect the change made to the Operating Basis Earthquake definition and to define more precisely the stress and deformation limits within which 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 be designed to remain functional.

d. A footnote has been added to the end of paragraph (a) (3) of section VI that the criteria do not address the need for instrumentation that would automatically shut down a nuclear power

plant when an earthquake occurs which exceeds a predetermined intensity.

e. A footnote has been added to § 50.36 (c) (2) of 10 CFR Part 50 to assure that each power reactor licensee is aware of the limiting condition of operation which is imposed under these criteria. This limitation requires that if vibratory ground motion exceeding that of the Operating Basis Earthquake occurs, shut down 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.

The criteria describe the seismic and geologic investigations required to obtain information needed to determine the design basis for earthquake-produced vibratory ground motion and for seismically induced floods and water waves. They also describe investigations required to obtain information to determine whether and to what extent the nuclear power plant need be designed to withstand the effects of surface faulting.

The design basis for the maximum vibratory ground motion is determined, as described in the criteria, through evaluation of the seismology and geology and the geologic and seismic history of the site and the surrounding region. The most severe earthquakes associated with tectonic structures or tectonic provinces in the region surrounding the site are identified by considering those historically reported earthquakes that can be associated with these structures or provinces. If faults in the region surrounding the site are capable faults, the most severe expected earthquakes associated with these faults are determined by also considering their geologic history. Because of the limited historical data, the most severe earthquakes associated with these tectonic structures or tectonic provinces are determined in a conservative manner and are usually larger than the maximum earthquake historically recorded. The design basis for vibratory ground motion at the site is then determined by assuming that the epicenters or locations of highest intensity of the earthquakes are situated at the point on the tectonic structures or tectonic provinces nearest the site.

The criteria require the evaluation of other design considerations which are affected by the design basis for vibratory ground motion, including soil stability, slope stability, and cooling water supply.

In determining whether and to what extent a nuclear power plant need be designed to withstand the effects of surface faulting, the criteria require that the location of the site with respect to capable faults be considered. Procedures are provided for determining whether the site is within a zone requiring detailed faulting investigation based on its location with respect to capable faults. Where a site is within a zone requiring detailed faulting investigation, the criteria require that the regional and local geologic and seismic characteristics of the site be investigated in considerable detail. The adequacy of the detailed investigation will be determined by the

Commission on an individual case basis, taking into account the specific site characteristics. Where the detailed investigation indicates that surface faulting need not be taken into account in the design of the nuclear power plant, the criteria require that sufficient data to clearly justify the proposed design basis be presented in the license application.

The criteria also provide general guidance for the design of a nuclear power plant to withstand earthquake-caused effects, pending the development of more detailed criteria.

The amendments were prepared in cooperation with the U.S. Geological Survey and the National Oceanic and Atmospheric Administration. The amendments reflected the experience accumulated by these agencies and the Atomic Energy Commission in evaluating seismic and geologic characteristics of sites for the location of nuclear power plants.

Discussions have been held with various interested groups to assure clarity of the criteria.

A determination has been made that an Environmental Impact Statement is not required. The considerations factored into this determination are included in a memorandum on file at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

The seismic and geologic siting criteria in this appendix supplement 10 CFR Part 100 by specifying the seismic and geologic investigations and analyses necessary to determine the acceptability of a proposed site as required by § 100.10. The existing provisions in § 100.10(c) (1) stating that the design of a facility should conform to accepted building codes or standards and that no facility should be located closer than one-fourth mile from the surface location of a known active earthquake fault will be superseded by these criteria.

The criteria will also assist license applicants in complying with § 50.34(a) (1) of 10 CFR Part 50 which requires that the preliminary safety analysis report include a description and safety assessment of the site on which a production or utilization facility is to be located, with appropriate attention to features affecting facility design.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 50 and 100 are published as a document subject to codification.

## PART 100 • STATEMENTS OF CONSIDERATION

40 FR 26526  
Published 6/24/75  
Effective 6/24/75  
Comment Period expires 7/24/75

### PART 100—REACTOR SITE CRITERIA Population Center Distances

Since their promulgation by the Atomic Energy Commission (AEC) in April, 1962, the site criteria set forth in 10 CFR Part 100 have served as the framework for evaluations of proposed sites for stationary power and test reactors from the standpoint of protection of the health and safety of the public. Part 100 includes three quantitative site criteria centered around the concepts of: an "exclusion area" surrounding the reactor in which, subject to certain exceptions, the licensee has the authority to determine all activities including exclusion or removal of personnel and property, 10 CFR 100.3(a); a "low population zone" immediately surrounding the "exclusion area" which contains residents the total number and density of whom are such that there is a reasonable probability that appropriate protection measures could be taken in their behalf in the event of a serious accident, 10 CFR 100.3(b); and a "population center distance" which is defined as "the distance from the reactor to the nearest boundary of a densely populated center containing more than about 25,000 residents" 10 CFR 100.3(c). Under Part 100, site suitability is strongly dependent upon whether certain calculated doses from postulated hypothetical accidents at the boundaries of the "exclusion area" and "low population zone" are within specified dose guideline values, 10 CFR 100.11(a) (1) and (2), and whether the "population center distance" is at least one and one-third times the distance from the reactor to the outer boundary of the low population zone, 10 CFR 100.11(a) (3).

As the Statement of Considerations which accompanied publication of the effective Part 100 in the FEDERAL REGISTER indicated, the effective Part was intended to reflect current AEC siting practices. The Statement of Considerations indicated a concern on the part of the AEC with cumulative exposure dose to large numbers of people as a consequence of nuclear reactor accidents. The population center distance criterion in 10 CFR 100.11(a) (3), in particular, was added to the effective Part in order to provide additional protection to people in large centers (27 FR 3509, April 12, 1962).

In light of this underlying concern for cumulative exposure dose to large numbers of people in population centers, the AEC has applied the population center

distance criterion with a view to consideration of population distribution. Indeed 10 CFR 100.11(a) (3) specifically provides that "in applying this [population center distance] guide, due consideration should be given to the population distribution within the population center." The "boundary" of a densely populated center has been determined on a case-by-case basis. Generally, where it has not appeared that the population center distance criterion would be crucial to site suitability because the site was located far from any densely populated area, the "boundary" of the population center was, for convenience, taken as the corporate or political boundary. However, it is clear that a wide variety of political, economic, and social factors are applied by State and local jurisdictions in selecting corporate or political boundaries. Thus, there is no necessary correlation between corporate or political boundaries and population distribution. Indeed, even if a particular corporate or political boundary had been chosen on the basis of population distribution, there would be no assurance that the boundary would continue to reflect actual population distribution. Consequently, in cases where the population center distance criterion might weigh heavily in the overall site suitability evaluation, a more refined definition of the population center boundary has been utilized. In defining the boundary, consideration has not been confined to the location of the political or corporate boundary of the population center, but distribution of people within and even beyond the political or corporate boundary has been given even greater significance.

A general examination of power reactor siting regulations and policies is underway as a separate matter. In the interim, the Commission is firmly of the opinion that continued implementation of its population center distance criterion is required. However, the recent decision of the United States Court of Appeals for the Seventh Circuit in *Izaak Walton League v. AEC*, — F. 2d —, No. 74-1751 (April 1, 1975), expresses the view that such implementation is inconsistent with the present language of the regulation. In that decision the Court held that while a population center boundary under the meaning of Part 100 may extend beyond the political or corporate limits because of population distribution considerations, "there is neither reason nor sound safety policy to cut down the boundaries of that unit and make some hopeless attempt to construct imaginary boundaries." Slip Opinion at 13-14. The AEC held in that licensing proceeding, and the NRC maintained before the Court on review, that the boundary of the population center within the meaning of Part 100 must be determined in light of considerations of population distribution, rather than determined on the basis of acceptance of the political or corporate boundary.

In light of the above, the Commission wishes to amend Part 100 to restore and make clear the intended meaning of the rule. The amendment which follows provides that in applying the population center distance criterion in 10 CFR

100.11(a) (3), the "boundary" of the population center, as that term appears in 10 CFR 100.3(c), shall be determined upon consideration of population distribution (rather than determined solely upon consideration of location of the political or corporate boundaries). The proposed amendment is interpretative in nature and reflects the current and consistent siting practice of the Commission.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and section 553 of Title 5 of the United States Code, notice is hereby given of adoption of the following amendment to 10 CFR Part 100.

Because the amendment is interpretative in nature, and merely reflects the current siting practice of the Commission, and because of the immediate adverse effect of the Bailly reading, the amendment is made immediately effective. However, the Commission is providing an opportunity for public comment upon the amendment. All interested persons who desire to submit written comments should send them to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Attention: Docketing and Service Section, Washington, D.C. 20555, by July 24, 1975. Copies of comments received will be available for public inspection at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

42 FR 2051  
Published 1/10/77  
Effective 1/10/77

### PART 100—REACTOR SITE CRITERIA Seismic and Geologic Design Bases

By letter dated February 11, 1975, Mr. David S. Fleischaker of Berlin, Roisman, Kessler, and Cashdan, 1712 N Street, NW, Washington, D.C. 20036, counsel for the New England Coalition on Nuclear Pollution, filed a petition for rule making (PRM 100-1) with the Nuclear Regulatory Commission.

The petitioner requested that an opinion interpreting and clarifying Appendix A of 10 CFR Part 100, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," with respect to the determination of the Safe Shutdown Earthquake, be issued. The question of interpretation raised in the petition is whether or not the maximum vibratory ground motion design basis for a nuclear power plant is limited to that associated with the maximum intensity earthquake of historical record, i.e., whether or not the Safe Shutdown Earthquake is necessarily the maximum intensity earthquake of historical record.

The petitioner also requested that, in

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the event a clarifying opinion is not issued, the Commission institute a rulemaking proceeding pursuant to § 2.802 of 10 CFR Part 2, to amend Section V(a)(1) of Appendix A of 10 CFR Part 100 as follows:

1. *Determination of the Safe Shutdown Earthquake.* The Safe Shutdown Earthquake shall be determined by reference to the following guidelines which establish minimal requirements for evaluation of seismic and geologic information developed pursuant to the requirements of paragraph IV(a).

The Commission treated the matter as a petition for rulemaking, and a notice of filing of the petition, Docket No. PRM-100-1, was published in the *FEDERAL REGISTER* on May 14, 1975 (40 FR 20983). The public comment period ended July 14, 1975.

The Commission has considered the public comments received and other relevant information in its evaluation of the petition.

The procedures and investigations specified in Section V(a)(1) of the existing regulations result invariably in the Safe Shutdown Earthquake intensity being equal to or exceeding the maximum historic earthquake intensity experienced at a nuclear power plant site. These provisions of Appendix A are minimum requirements, and they have consistently been interpreted as such in licensing decisions. Section V(a)(1)(i) of Appendix A of the CFR Part 100 states in pertinent part that "The magnitude or intensity of earthquakes based on geologic evidence may be larger than that of the maximum earthquake historically recorded." Furthermore, Section II, "Scope," of Appendix A states in relevant part that " \* \* \* more conservative determinations than those included in these criteria may be required for sites located in areas having complex geology or in areas of high seismicity."

The Commission does not believe that the specific clarifying language proposed by the petitioner would clarify Appendix A, add to its inherent safety, or improve its implementation, and, therefore, it has rejected the specific wording proposed by the petitioner. However, the Commission has accepted the substance of the petitioner's proposal and has decided to issue an amendment to Appendix A that clearly states that the maximum historic earthquake could be exceeded in the determination of the safe shutdown earthquake where warranted.

The Commission believes that this clarifying amendment will accomplish the petitioner's objective, and eliminate a possible source of misinterpretation. In particular, with regard to the determination of the Safe Shutdown Earthquake, and whether and under what conditions it may exceed the value derived by application of the methodology specified in Appendix A, the previous regulation provided the broad guidance that the "procedures in paragraphs (a)(1)(i) through (iii) of this section (Section V) shall be applied in a conservative manner." The amendment would clarify this guidance, in light of past experience in implementing the regulation by specifi-

cally providing, that a larger Safe Shutdown Earthquake may be required when geological and seismological data warrant. Some conditions which might warrant selection of a larger Safe Shutdown Earthquake are: (1) Where the highest intensity of historically reported earthquakes is determined to have been experienced at the site taking into consideration site foundation conditions, (2) where seismicity in the immediate site vicinity is significantly higher than that generally existing in the tectonic province as a whole, (3) where there exists in proximity to the site tectonic structure demonstrably like that found where larger earthquakes in the tectonic province have occurred historically.

Because the amendment which follows relates solely to minor matters of a clarifying nature, good cause exists for omitting notice of proposed rulemaking, and public procedure thereon, as unnecessary, and for making the amendment effective on January 10, 1977.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of Title 5 of the United States Code the following amendment to Appendix A of 10 CFR Part 100 is published as a document subject to codification.

49 FR 19623

Published 5/9/84

Effective 5/9/84

*Information Collection Requirements;  
Display of OMB Control Numbers*

See Part 0 Statements of Consideration

UNITED STATES NUCLEAR REGULATORY COMMISSION  
RULES and REGULATIONS

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

**PART  
110**

**EXPORT AND IMPORT OF NUCLEAR FACILITIES  
AND MATERIALS**

**STATEMENTS OF CONSIDERATION**

43 FR 6915

Published 2/17/78

Effective 3/3/78

**Title 10—Energy**

**CHAPTER 1—NUCLEAR REGULATORY  
COMMISSION**

**EXPORT AND IMPORT OF NUCLEAR FACILITIES  
AND MATERIALS**

**Export and Import of Nuclear Facilities and  
Materials**

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations by adding a new part providing for standards, procedures and rules of practice for licensing the export and import of utilization facilities, source, byproduct and special nuclear materials. Conforming changes are also made to other parts of the Commission's regulations relating to export and import matters. The new part, designed to codify in one place export and import regulations, deals principally with the standards for grant or denial of license applications; the information required to be submitted in license applications; the general procedures followed for Commission review and for obtaining Executive Branch views on license applications; public notification of applications; the conduct and format of public procedures on export and import license applications; and enforcement actions and rulemaking relating to exports and imports.

**EFFECTIVE DATE:** May 3, 1978.

**NOTE:**—The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for such reviews as may be appropriate under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of this rule becomes effective, unless advised to the contrary, accordingly reflects inclusion of the 45-day period which that statute allows for such review (44 U.S.C. 3512(c)(2)).

**FOR FURTHER INFORMATION  
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**SUPPLEMENTARY INFORMATION:** On June 30, 1977, in 42 FR 33317, the Commission published for comment a proposed new part 110 to CFR entitled "Export and Import of Nuclear Facilities and Materials", with conforming changes made to other parts of the Commission's rules.

Under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended, the Nuclear Regulatory Commission (Commission) is responsible for licensing the export and import of nuclear utilization facilities (nuclear Reactors), and source, byproduct and special nuclear materials.

During its first year as an independent regulatory agency, the Commission, in conjunction with the Executive Branch, developed procedures for obtaining the unified view of Executive Branch agencies on pending export and import license applications. These procedures were made formal for the Executive Branch in early 1976 by issuance of Executive Order 11902. Also, beginning in January of 1976 the Commission undertook a comprehensive examination of its export and import licensing provisions. This rule is a result of this study and the comments received on the proposed rule.

The Commission, Executive Branch, and Congress are examining the substantive standards and criteria for granting or denying export license applications to be added to Part 110. Any changes to the substantive standards and criteria set forth in these regulations will be the subject of a separate rulemaking and FEDERAL REGISTER notice.

**SUMMARY OF REGULATIONS**

The export and import regulations are set forth in a new Part 110 entitled "Export and Import of Nuclear Facilities and Materials". Conforming changes are made to other parts of the Commission's rules.

The basic purposes of the new Part 110 are twofold: first, to reflect in its procedures the basic differences between the Commission's export and import licensing functions and its domestic licensing functions; and second,

to consolidate the Commission's export and import licensing provisions, presently scattered throughout the Commission's regulations, into one part for the convenience of the public.

Briefly, the new Part 110 includes:

- (1) Required contents of export and import license applications;
- (2) Procedures for Commission review of export and import license applications;
- (3) Exemptions from licensing requirements and grants of general licenses for exports and imports;
- (4) Substantive standards for grant or denial of export and import license applications;
- (5) The Commission's relationship to Executive Branch agencies in nuclear export and import matters;
- (6) Provisions for public notification of the receipt of export and import license applications;
- (7) Procedures for public participation in the Commission's export and import licensing review process, including provisions for granting or denying requests for hearings and petitions for leave to intervene, and provisions for the hearings themselves.
- (8) Provisions regarding access to, and introduction of, classified information in hearings;
- (9) Procedures for rulemaking on nuclear export and import matters;
- (10) Recordkeeping requirements for export and import licensees; and
- (11) Enforcement actions concerning export and import licenses.

Most of the substantive provisions have been developed (with some revision and updating) from other parts of the Commission's regulations on nuclear exports and imports in 10 CFR Parts 30, 31, 32, 33, 36, 40, 50 and 70. However, the provisions in the new Part 110 regarding public participation in the Commission's nuclear export and import licensing review process differ from the procedures used in the Commission's domestic licensing review process and deserve further explanation.

**PUBLIC PARTICIPATION IN EXPORT AND  
IMPORT LICENSING**

On March 2, 1978, the Commission received, for the first time in its history or the history of its predecessor, the Atomic Energy Commission (AEC), a petition for leave to intervene and request for a hearing on an

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export license application. The Commission held that the petitioners lacked standing to intervene in the case, but decided as a matter of discretion that the conduct of a legislative-type hearing would be in the public interest. *Edlow International Company* (Tarapur), 3 NRC 563 at 568 and 580 (1976).

The Commission adopted procedures which afforded the petitioners in that proceeding an opportunity to make their views known in a manner and under a procedural format compatible with the orderly conduct of the licensing process and the nature of the issues involved in the matter, including sensitive foreign relations and national security considerations. *Id.*, at 568, 580, 590-591. The procedural aspects of the Commission's decision in *Edlow* are presently under judicial review by the U.S. Court of Appeals for the D.C. Circuit.

In a subsequent opinion on another export license application, the Commission discussed its export licensing procedures, the sensitive and policy-oriented character of the issues involved, and the Commission's treatment of these matters. *Westinghouse Electric Corporation* (ASCO II), 3 NRC 739 (1976).

The Commission is authorized by the Atomic Energy Act to issue a license for a particular export or import only after determining that issuance would not be inimical to the common defense and security of the United States, or the health and safety of the United States public, and (in the case of nuclear facilities and certain nuclear materials) after determining that the export would be within the scope of, and consistent with, an agreement for cooperation in the civil uses of atomic energy between the United States and another nation or group of nations.

Pursuant to section 123 of the Atomic Energy Act, agreements for cooperation become effective only after: (1) They are approved and authorized by the President of the United States, who is required to make a determination in writing that "the performance of the proposed agreement will promote and will not constitute an unreasonable risk to the common defense and security"; and (2) they have been submitted to Congress for review under a special statutory arrangement.

The statutory finding which the Commission makes before issuing an export or import license often requires consideration of highly sensitive foreign policy and national security matters, some of which may have an impact well beyond the specific nuclear export or import being considered. For example, the Commission examines, among other matters, the safeguards and assurances provided by the recipient government to ensure that U.S.-supplied facilities and materials are not diverted to unauthorized uses, and the relationship of the Commission's grant or denial of an export li-

cense application to overall U.S. policies on the proliferation of nuclear explosives. In contrast, domestic licensing usually involves factual matters, relating to the domestic public health and safety and the environment, associated with discrete applications for the construction and operation of nuclear power plants. Moreover, the Commission's export and import licensing review process constitutes only one part of this country's broader activities in the nuclear import and export control area—activities which are part of United States foreign policy and nuclear nonproliferation efforts.

As the Commission has noted, the procedures applicable to domestic licensing are not in general well-suited to the Commission's conduct of its export and import licensing functions. See *Edlow International*, *supra*. In case of material covered by import licensing proceedings, if certain domestic health, safety, environmental and safeguards issues are raised, which are similar to issues commonly raised in domestic licensing proceedings, these issues may be properly addressed using domestic licensing procedures to the extent that they are separable from other issues associated with the license. Thus, persons or organizations establishing in an import licensing proceeding that they have an interest which may be affected, may be accorded additional procedural rights in the resolution of factual issues regarding protection of the U.S. public health, safety and environment.

The Commission has statutory discretion to formulate appropriate procedures for export and import licensing. Section 189a. of the Atomic Energy Act provides:

In any proceeding under this Act, for the granting, suspending, revoking, or amending of any license or construction permit, or application to transfer control, and in any proceeding for the issuance or modification of rules and regulations dealing with the activities of licensees, . . . the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit such person as a party to such proceeding.

This language does not by its terms provide for an "on-the-record" hearing calling into play the formal adjudicatory requirements of sections 5, 7, and 8 of the Administrative Procedure Act, in each and every context in which a hearing is required. For example, such requirements do not apply where the Commission engages in rulemaking. *Stegel v. AEC*, 400 F. 2d 788 (D.C. Cir. 1968). What the language requires in each instance is to be settled by reference to congressional intent, established practice and sound policy.

It is clear from the legislative history of the provision, consistent agency practice, and indeed the general structure and conduct of government that formal adjudicatory procedures are required for controversies arising out of domestic licensing. *Id.* at 785. There is no similar indication concerning export or import licensing. During its

20-year administration of the Atomic Energy Act, the AEC did not once conduct a public or formal export or import licensing proceeding. The legislative history of the Energy Reorganization Act is equally devoid of any hint that Congress expected the Commission to follow formal adjudicatory procedures in export or import licensing.

Indeed, Congress' first explicit consideration of export procedures came in 1975, after enactment of the Energy Reorganization Act. Thus, neither congressional expectation nor established practice requires on-the-record adjudication of export or import licensing matters.

The absence of congressional concern over the informal nature of AEC export or import reviews is particularly significant in light of the unique relationship the *Stegel* court recognized between the Commission and the Congress, one designed to keep Congress fully and currently informed about this agency's views and actions. 400 F.2d at 783. See also *Union of Concerned Scientists v. AEC*, 499 F.2d 1069, 1079 (D.C. Cir. 1974). Congress was fully aware of the Commission's export and import licensing procedures, under the Commission's legal obligation to keep the Joint Committee on Atomic Energy "fully and currently informed with respect to all . . . (its) activities" including its export licensing practices. See section 202a. of the Atomic Energy Act.

The Commission's understanding of section 189 is also supported by more general considerations touching the nature of the issues, the practices of other federal agencies, and the appropriateness of adopting procedures other than adjudicatory hearings for nuclear export and import licensing.

As indicated before, the statutory finding which the Commission must make for an export or import, and the statutory context in which that finding is made, often require consideration of highly sensitive foreign policy and national security issues, including other countries' intentions and policies. An attempt to resolve these issues in the format of a formal adjudicatory hearing could seriously impair the conduct of United States foreign relations. It could appear to place on trial a foreign government's intentions on matters concerning its own vital national interests. These statutory findings are inherently policy decisions, committed to agency discretion, and singularly inappropriate for resolution in a formal adjudicatory context.

Finally, to the Commission's knowledge, no other agency holds adjudicatory hearings on such sensitive foreign policy issues.

Indeed, even if section 189 itself were to be construed to require formal adjudicatory procedures on all Commission licensing proceedings, Section 5 of the Administrative Procedure Act permits modification of those formal procedures where the conduct of foreign affairs functions is involved. Thus, regardless of the precise interpretation to be accorded the term

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"hearing" in section 189, a similar result obtains under Section 5 of the Administrative Procedure Act—formal adjudicatory procedures are not required and are inappropriate for Commission export and import licensing.

"It is part of the genius of the administrative process that its flexibility permits adoption of approaches subject to expeditious adjustment in the light of experience." *American Airlines, Inc. v. Civil Aeronautics Board*, 359 F.2d 624, 633 (D.C. Cir. 1966). The Commission has endeavored in the new Part 110 to provide for procedures that will facilitate effective public participation in export and import licensing—procedures that are designed to be fair and consistent with the nature of the issues involved. Also, the Commission has endeavored to provide a structure for public participation that is sufficiently comprehensive so as to eliminate or substantially decrease the need for time consuming case-by-case development of procedures for export and import license applications.

### ELEMENTS OF PUBLIC PARTICIPATION ON EXPORT AND IMPORT LICENSING MATTERS

In brief, the New Part 110 establishes the following procedures for public participation in export and import licensing matters. First, public notices is given for all major export and import license applications by periodically publishing a list of those applications received in the *FEDERAL REGISTER*—the Commission intends to do this twice a month; by placing copies of all export and import license applications in the Commission's Public Document Room; and by periodically mailing a list of export and import license applications received to persons or organizations requesting such information.

Second, the new part explicitly provides for public participation through written comments to the Commission. The Commission encourages and will consider carefully any written comments received on pending export and import license applications.

Third, provision is made for both hearings consisting of written comments and oral hearings where the Commission believes these would be in the public interest and of assistance in making its export and certain import licensing determinations. In keeping with the nature of the issues, oral hearings will be modeled on those used by legislative bodies. At such hearings, participants may be questioned by the presiding officer (ordinarily the presiding officer will be the Commission itself). Also, participants in the hearing may submit proposed questions to the presiding officer, to be addressed by others at the discretion of the presiding officer.

Finally, the Commission will give careful consideration to all relevant

written comments received, and the record of any hearings, in making its decision. However, in reaching its decision, the Commission may draw on material not included in the hearing record and may consult with its staff, Executive Branch agencies and other persons.

**Comments.**—Twenty-four letters of comment were received from a total of 23 persons, companies or organizations: 14 from the domestic nuclear industry; 1 law firm representing nuclear industry clients; 2 foreign industry groups; 2 public interest groups; 3 State government agencies; the Department of Commerce; and the Department of State. Copies of these comments have been placed in the Commission's Public Document Room at 1717 H Street NW, Washington, D.C. The commentators had both general and detailed remarks on the procedures and most offered detailed drafting changes to the proposed regulations. The general comments and their resolutions are as follows:

(1) Industry commentators basically supported the promulgation of consolidated export regulations at this time. However, one public interest commentator (representing several organizations) suggested the adoption of the regulations was inappropriate prior to enactment of comprehensive nonproliferation legislation pending before the 95th Congress. One industry commentator supported this view.

Part 110 was drafted with the nonproliferation legislation in mind and, if legislation is enacted, appropriate provisions will be integrated into the new regulations (for example, more detailed export licensing criteria under § 110.42). The Commission has endeavored to draft Part 110 in a manner consistent with the latest versions of proposed legislation, as well as Commission statements of its intention to develop comprehensive export/import regulations at an early date. The new part is warranted on its own merits.

(2) Industry comments also reflected support for adopting legislative hearings as the typical format for public participation in export licensing. A few thought the public participation regulations were too broad and were an invitation to abuse by groups having only a remote interest in the subject matter. Several companies urged a rule requiring a stronger showing of interest before permitting interventions in NRC export licensing proceedings. On the other hand, comments by some environmental and public interest groups objected to adoption of a legislative hearing format and urged that the regulations be amended to provide for adjudicatory hearings (including full party status for intervenors, formal discovery by interrogatory, subpoenas for witnesses, cross-examination, on-the-

record decisions, and the right of public parties to initiate enforcement proceedings).

As previously detailed, the procedures applicable to domestic licensing are not in general well-suited to the Commission's conduct of its export and import licensing functions. On the other hand, the Commission does not feel that the public participation regulations adopted are too broad and sees no sound reason why a stronger showing interest should be required for intervention.

(3) Several commentators suggested various ways for the Commission to expedite the licensing review process. It was suggested that the Commission (1) act on an export license within a specified time, ranging from 90 days to 6 months following receipt of an application, (2) limit the review process for routine applications such as reactor fuel reloads, and (3) provide a preliminary export license commitment, such as an advisory opinion, similar in principle to that granted by the Eximbank and the Commerce Department.

In response to these comments, it should be noted that the Commission has been actively working with the executive branch to expedite the licensing review process. Section 110.40 sets a guideline period for processing applications and stipulates that, if the guideline period is not met, the applicant will be informed in writing of the reason and given appropriate follow-up reports. Routine export license applications for low-enriched fuel shipments subsequent to an initial coreload, such as those for a facility in a country adhering to the Nuclear Nonproliferation Treaty (NPT), will not ordinarily be referred to the Commissioners for review. Applications involving non-parties to the NPT, intervention petitions or requests for a hearing, or changed circumstances are considered non-routine.

The more detailed comments and responses are noted below. The proposed rule has been revised, as appropriate, in response to general comments suggesting simplification and clarification. This has been accomplished throughout the proposed rule without altering the substance.

### CONFORMING CHANGES

(1) In response to a comment concerning §§ 30.41, 40.51, and 70.42, new subparagraphs (b)(6) are added to these sections to clarify that persons authorized to possess nuclear material are authorized to transfer the material to a person abroad pursuant to an export license issued under Part 110 of this chapter.

(2) Material identification requirements, previously implemented by import license conditions, have been incorporated into § 70.54



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### SUBPART A—GENERAL PROVISIONS

(3) § 110.1, "Purpose and scope", is simplified, clarified and expanded to note that certain Department of Defense and Department of Energy activities are excluded from coverage by statute.

(4) In response to several comments, definitions are added for "packaging" (§ 110.2(v)), "reexport" (§ 110.2(bb)), "transfer" (§ 110.2(ii)), and "transport" (§ 110.2(j)). Also, definitions for "atomic energy" and "Restricted Data" are deleted as unnecessary, and other definitions are clarified.

The new definitions are designed, in part, to distinguish between "export", "import", and "transfer". A specific export or import license simply authorizes the licensee to arrange for a utilization facility or special, source or byproduct material to be conveyed out of or into the U.S. An export or import license does not authorize the licensee to possess the material. A supplier or receiver, the only person with actual physical possession is responsible under existing regulations for providing appropriate packaging and transportation. However, a licensee with a specific license to export or import special nuclear material is responsible for compliance with the physical protection requirements of Part 73, unless a domestic licensee (supplier or receiver) has assumed that responsibility and the Commission has been so notified. See § 110.50(b).

(5) In response to a comment, the definition for "Agreement State" in former § 110.2(c), new § 110.2(b), is changed to clarify that it applies only to "States" in the United States and not to foreign "states."

(6) One commentator suggested that "person" in § 110.2(y) is defined too broadly, in effect granting "standing" to anyone to file written comments, request a hearing or petition for leave to intervene. The definition is unchanged, since there is no direct correlation between "person" and "standing" in Part 110.

(7) One commentator suggested that any reference to "participants", (§ 110.2(x)), be changed to "parties" to give every participant in a hearing equal status and the right to seek judicial review. The definition is unchanged. In effect, the status of participants in a hearing will be equal, depending (1) on the degree of involvement in the hearing (e.g. providing written comments only) or (2) on the framework the Commission sets for any hearing (e.g. providing for an oral hearing). In addition, because legislative-type, rather than adjudicatory-type hearings are provided for, the term "participant" rather than "party" seems more appropriate.

This commentator also suggested that all participants are entitled to seek judicial review under section 189b of the

Atomic Energy Act. However, only a person who has established an interest that may be affected and is aggrieved (see Hobbs Act, 42 U.S.C. § 2341 et seq.) may seek judicial review.

(8) In response to several comments, § 110.5 is revised to clarify the requirements for a license. Former paragraph (c) is covered elsewhere in Part 110 and is deleted; and former paragraph (d) is deleted and incorporated into a new § 110.6, to clarify procedures for obtaining reexport approval.

### SUBPART B—EXEMPTIONS

(9) Many commentators requested various new exemptions or general licenses in connection with Subparts B and C. Many of the proposals are believed to have merit and have been under Commission and executive branch review. These proposals will be addressed in a separate rulemaking proposal to be published in the near future in the *FEDERAL REGISTER*. Any regulations emerging from this rulemaking would be incorporated into Part 110.

(10) In response to several comments, § 110.10 is clarified and also revised to make clear that exemptions granted by the Commission are subject to executive branch review and, where appropriate, public rulemaking proceedings. One commentator suggested an exemption from licensing requirements for Government-to-Government imports of special nuclear material. The staff is analyzing this suggestion and any proposed changes to this part resulting from the staff analysis will be subject to a separate rulemaking proposal.

(11) Former § 110.11, exempting the Department of Defense from export or import licensing to a certain extent, is deleted and incorporated into § 110.1, as noted in the first response.

(12) In response to a comment, former § 110.12, new § 110.11, is clarified to make it parallel to § 70.11 of this chapter.

(13) In response to a comment, former § 110.13 is deleted. The exemption dealing with carriers is subsumed under domestic transfer and licensing requirements.

(14) A new § 110.12 is added to incorporate a recent rulemaking on intergovernmental cooperative activities (see former § 70.15 of this chapter).

### SUBPART C—GENERAL LICENSES

(15) In keeping with the comments and revisions in § 110.10, a new § 110.20 is added to explain the authority and requirements for issuance of general licenses, including provision for executive branch review and rulemaking proceedings.

(16) One comment proposed shipment limitations for former §§ 110.20(f), 110.20(g), and 110.21(e) (new §§ 110.21(f), 110.21(g), and

110.22(e)). The suggested limitations have not been adopted in view of the inherently nonsensitive nature of the byproduct and source material under these general licenses. However, in response to another comment, former § 110.21(a), new § 110.22(a), is revised to limit the total amount of source material that a person can export annually to any country.

(17) In response to a comment on former § 110.23, this section is deleted, since information on generally licensed exports can be obtained from U.S. Customs and because there requirements have been difficult to administer.

(18) Several commentators requested that the general license for import, § 110.25, be modified to exclude imports of nuclear waste for disposal. This proposal would require a substantive change to existing regulations. The staff is analyzing this matter and any proposed change will be subject to a separate rulemaking proposal.

### SUBPART D—APPLICATIONS FOR SPECIFIC LICENSES

(19) In response to a comment, references to application forms are added to § 110.30.

(20) In response to several comments on § 110.31, former paragraph (a)(3), new paragraph (a)(2), is clarified and former paragraph (a)(9) is deleted since this is covered in § 110.33.

The other comments on this section and their resolution are as follows:

A. One commentator also requested that the requirement for an end-use statement be deleted. This information is essential to licensing review, and the requirement is unchanged.

B. Another commentator requested that the principal initiating a license application (often a foreign government or corporation) should be identified. This is unnecessary if the license applicant, supplier and the receiver are clearly identified.

C. Finally, one commentator suggested that reprocessing and spent-fuel storage plans of the recipient should be included in export license applications. Information on U.S. controls over the reprocessing of U.S. supplied material and on related spent fuel storage considerations is available from governmental sources and considered, as appropriate, in export license reviews. It is unnecessary and inappropriate to request the license applicant to provide such information.

(21) In response to several comments, § 110.32 is clarified so that "items" in paragraph (b) refers to individual shipments and so that paragraph (c) explains why a list is required.

One commentator suggested that jurisdictional lines between the Commission and the Department of Commerce be clarified. Licensing practice

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indicates that this clarification is unnecessary. Changes resulting from enactment of pending nonproliferation legislation would be incorporated into future amendments to Part 110.

(22) In response to several comments, § 110.33 is clarified and revised by requiring contract numbers only, if known, in paragraph (a); by deleting former paragraph (c), since shipping and packaging requirements are covered by the Commission's domestic licensing regulations; by adding a new paragraph (e), to identify the country of origin for source and special nuclear material in order to meet international standards; and by deleting former paragraph (f), since the information it requested is often proprietary or classified and is more appropriately obtained government-to-government.

(23) In response to several comments, § 110.34 is clarified and revised by requiring the name of the supplier instead of the owner in new paragraph (c), former paragraph (a)(4); by deleting former paragraph (a)(10), since these requirements are covered by the Commission's domestic licensing regulations; and by clarifying former paragraph (a)(11), new paragraph (i).

(23) In response to a comment, § 110.35 is revised to apply to applicants only.

### SUBPART E—REVIEW OF SPECIFIC LICENSE APPLICATIONS

(24) In response to a comment, former § 110.36 is combined with new § 110.53 to further clarify that any person applying for an export or import license must have a U.S. address through which the Commission can take enforcement action or inspect his records, premises and activities related to the export or import shipment.

(25) In response to several comments, § 110.41 is revised by deleting former paragraph (a)(3) as redundant; and by deleting former paragraph (b), since the requirement to forward to the Executive Branch those import license applications involving material for subsequent export is unnecessary in view of the fact that subsequent export will be subject to Executive Branch and Commission review.

The other comments and their resolution are as follows:

A. One commentator suggested that, in situations involving the import of material for subsequent export, the Commission should issue a combined import/export license. This suggestion is not adopted, since applicants may apply simultaneously for import and export licenses, if they wish such matters to be considered concurrently.

B. One commentator suggested that the Commission require the Executive Branch to prepare a nonproliferation assessment, including a timely warning analysis, on each export license ap-

plication. This is considered unnecessary, since proliferation aspects of each export are already considered in the Executive Branch and Commission review of proposed exports as part of the normal licensing review.

C. Finally, one commentator suggested that the Commission's regulations should set standards governing the quality of Executive Branch analysis. This is unnecessary. The Commission has established procedures for obtaining information from the Executive Branch, its staff and others, and does not make its export licensing determinations until it has received adequate information.

(26) § 110.42 adopts as final an interim rule proposed in 42 FR 43821 (August 31, 1977). See § 70.31(e) of this chapter. In response to a comment received on the interim rule, the final rule requires that the quantity of exempted diluted material may not exceed 100 grams. It should be noted that § 110.42, and the Atomic Energy Act itself, do not require that source material exports be pursuant to an agreement for cooperation. Nevertheless, the Commission will normally require that source material exports for nuclear end-uses be pursuant to an agreement for cooperation in order to satisfy the "noninimicality" determination requirement.

### SUBPART F—LICENSE TERMS AND RELATED PROVISIONS

(27) There were numerous comments on § 110.50. This section is revised by:

A. Simplifying paragraphs (a)(1) and (a)(2); deleting former paragraph (a)(3), since it is redundant; clarifying paragraph (a)(4) and renumbering it (b)(9); and deleting former paragraphs (a)(5) and (a)(6), since shipping requirements are covered by the Commission's domestic regulations;

B. Clarifying former paragraph (b)(1) and renumbering it (b)(2); adding a new paragraph (b)(1) to provide for license expiration dates; deleting former paragraph (b)(2), because the Commission has other means to verify the information contained in Shipper's Export Declarations; and adding a new paragraph (b)(5) to indicate the licensee's responsibility with respect to the packaging requirements of Part 71;

C. Renumbering paragraphs (c)(1) and (c)(2) as (b)(8) and (b)(7), respectively;

D. Revising former paragraph (d)(1) to cover packaging and fuel element hardware and renumbering it (a)(5); deleting paragraphs (d)(2) and (d)(3), since reporting and shipping requirements are covered by the Commission's domestic regulations; incorporating former paragraph (d)(4) into new paragraph (a)(3); renumbering paragraph (d)(5) as (b)(6) and revising it to make clear that the export licens-

ee is responsible for compliance with the physical protection requirements in Part 73, unless a domestic licensee of the Commission has assumed that responsibility and the Commission has been so notified; and deleting paragraph (d)(6), since this provision is covered by the Commission's domestic regulations.

E. Deleting paragraphs (e)(1) and (e)(3) through (e)(7), since these requirements are covered by the Commission's domestic regulations; and deleting paragraph (e)(2) and providing for appropriate coverage in a conforming change to Part 73.

(28) A commentator suggested that the Commission revise § 110.51 to require the Commission to provide the licensee notice that his license is about to expire. This suggestion is not adopted because it would impose an unwarranted administrative burden on the Commission. A licensee is fairly chargeable with a duty to review his legal authority to engage in a licensed activity and to take whatever action is required to maintain that authority.

(29) In response to a comment, § 110.54 is deleted, since reporting requirements are adequately covered by the Commission's domestic regulations. This deletion obviates the need to respond to other comments on § 110.54.

(30) In response to a comment, former § 110.55, now incorporated into § 110.53, is revised to clarify the Commission's statutory authority and the coverage of the Commission's inspections.

### SUBPART G—VIOLATIONS AND ENFORCEMENT

(31) In response to several comments, §§ 110.60, 110.61, 110.62, 110.63, 110.64 and 110.65 are clarified and simplified. One commentator requested that paragraphs (e) and (f) of § 110.64 be deleted on grounds that section 234 of the Atomic Energy Act does not authorize hearings in connection with civil penalties. Such hearings are authorized by the Atomic Energy Act (see 10 CFR § 2.205) and the request is therefore not adopted. However, these paragraphs are clarified to indicate that any alleged violator does not need to seek an administrative hearing.

### SUBPART H—PUBLIC NOTIFICATION AND AVAILABILITY OF DOCUMENTS AND RECORDS

(32) Section 110.70 is clarified and divided into 4 sections in response to several comments suggesting that it was unclear.

The other comments and their resolution are as follows:

A. The Commission is adopting a suggestion that it publish in the Federal Register notice of receipt of applications other than those for utilization facilities. The Commission will

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also notice in the **FEDERAL REGISTER** receipt of applications for 1 effective kilogram or more of special nuclear material and 10,000 kilograms or more of source material. Thus, major applications will be noticed in the **FEDERAL REGISTER**. The Commission believes, however, that publication in the **FEDERAL REGISTER** has only marginal value as a means of providing actual notice of applications in minor cases and will continue to notice these by placement in the Commission's Public Document Room.

B. In response to a comment, former paragraph (a)(3) is deleted. It should be noted that, in § 110.80 of Part 110, the Commission encourages written comments from the public. In order to afford the Commission an opportunity to focus on public views and concerns, it requests that, if possible, the comments should be submitted within 30 days after notice of receipt of an application.

C. Finally, in response to a comment, the Commission believes it unnecessary to provide notice to the applicant that his application was received, since this can be verified by telephone.

(33) In response to several comments, former § 110.71, new § 110.73, is clarified and a new paragraph (b) is added to specify that the provisions of §§ 2.790 (b), (c) and (d) of this chapter also may be applied to proprietary information.

### SUBPART I—PUBLIC PARTICIPATION PROCEDURES CONCERNING LICENSE APPLICATIONS

(34) In response to several comments, § 110.80 is clarified and provision made for the Commission to provide an applicant with a copy of any comments received and, as appropriate, a reasonable opportunity to respond. It should be noted that the written comment procedure in this section is separate from the procedure for a hearing consisting of written comments.

(35) In response to several comments, § 110.81 is clarified, revised and incorporated into other sections as appropriate.

In response to a comment, the Commission does not consider it necessary to bolster the provisions on untimely intervention petitions or hearing requests and on the documentation and information required from a petitioner or requestor.

In keeping with Commission acceptance of the comment that it should act expeditiously on export license applications, former § 110.81(b), new § 110.81(c), is revised to allow 15 days after public notice of receipt of the application in the Public Document Room for the filing of hearing requests or intervention petitions on minor export or import license applications. As stated before, for major ap-

plications published in the **FEDERAL REGISTER**, hearing requests and intervention petitions will be considered timely only if filed not later than 30 days after notice of receipt in the **FEDERAL REGISTER**.

(36) In response to comments, § 110.82 is revised by providing equal time limits for filing answers, adding a new provision covering replies, and making these consistent with § 110.81.

(37) In response to several comments, § 110.83 is revised by:

A. Changing paragraph (b)(1) to make clear that a key factor the Commission will consider in acting on an intervention petition or hearing request is the impact of a hearing on the common defense and security of the United States (the Commission has not adopted other suggested criteria, since it believes that the present criteria as revised are adequate);

B. Adding a new paragraph (f) specifying that, where a hearing request or intervention petition does not establish an interest which may be affected, the Commission will not conduct a new hearing on an issue adequately explored in another hearing, unless it determines that changed circumstances or new information warrant a new hearing. If the Commission determines that a hearing request or intervention petition does establish an interest which may be affected, it will grant a hearing and structure it to take account of information on the same issue received in any previous hearing; and

C. Specifying in new paragraph (g) that upon the affirmative vote of two Commissioners a hearing will be ordered.

(38) In response to a comment on §§ 110.84 and 110.85, the distinction between the procedures for oral hearings and hearings consisting of written comments is clarified.

(39) Several commentators stated that the order of the sections in Subpart I, "Public Participation Procedures Concerning License Applications" and Subpart J, "Hearings and Decisions" was unclear. For the most part, Subpart I concerns public participation procedures prior to hearings and Subpart J concerns procedures during hearings. To make the distinction clearer, the two subparts are retitled; former § 110.86 is incorporated into §§ 110.84 and 110.85; former § 110.87 is retitled and renumbered § 110.86; former §§ 110.90, 110.92, 110.93 and 110.95 are deleted from Subpart I, placed in Subpart J and renumbered §§ 110.101, 110.102, 110.103 and 110.105(a)(7) respectively; and §§ 110.94, 110.96, 110.97 and 110.110(c) are renumbered §§ 110.89, 110.88, 110.87 and 110.90, respectively.

### SUBPART J—HEARINGS

(40) In response to comments, former § 110.93(d), new § 110.103(d), is

revised by deleting the requirement for filing 20 conformed copies; and former § 110.94 (b) and (c), new § 110.89 (b) and (c), is revised by decreasing the time periods to correspond with standard requirements in domestic licensing proceedings.

(41) The comment that the Commission permit interrogatories is not accepted, since, as noted earlier, hearings have a legislative rather than an adjudicatory format. Instead, former § 110.104, new § 110.106, is revised to make clear that participants may address written or oral questions to the Commission or other presiding officer who may refer them to other participants for response.

Although several commentators suggested deletion of former § 110.104(c), new § 110.106(c), concerning import licensing hearings, the Commission is retaining it, as clarified, since it provides an option for according additional procedural rights in certain cases.

(42) In response to several comments, former § 110.105, new § 110.107, is revised by deleting the requirement in paragraph (a) for advance filing of rebuttal testimony; by relettering former paragraph (b) as new paragraph (f); and by inserting new paragraphs (c) and (d) permitting members of groups to testify in their individual capacities and participants to present their own witnesses.

The suggestion that the Commission grant subpoenas at the request of a participant is not adopted. Although the Commission is authorized to issue subpoenas on its own motion (see section 161c. of the Atomic Energy Act), the grant of subpoenas on request would be inconsistent with the legislative format established by these regulations for hearings.

(43) In response to several comments, former § 110.107, new § 110.109, is revised by changing paragraph (a) to require that, when the Commission is not the presiding officer, all motions must be filed initially with the presiding officer and all written motions served on the participants; and by changing the time limit in paragraph (b) to conform with standard practices in domestic licensing.

(44) In response to several comments, former § 110.110, new § 110.113, is revised by changing paragraph (a) to provide for a written Commission opinion after a hearing; by transferring former paragraph (c) to Subpart I and making it new § 110.90; and by making clear in new paragraph (d) that the Commission may act at any time on a license application when the requirements in that paragraph are met.

### SUBPART K—SPECIAL PROCEDURES FOR CLASSIFIED INFORMATION IN HEARINGS

(45) One commentator suggested that Subpart K limited the flow of classi-

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fled information between the Executive Branch and the Commission. The Commission believes that neither the filing of a hearing request or intervention petition nor the granting of these should imply any limit on the flow of classified information, and this subpart has been revised accordingly. Section 110.120 is also clarified to indicate that, whether or not a hearing is conducted, classified information should be declassified to the maximum extent feasible, and, to the extent consistent with classification requirements, public statements by the Executive Branch will reflect consideration of any classified information. This is reaffirmed in § 110.125, incorporating former § 110.121.

(46) In response to a comment, former § 110.122, new § 110.121, is revised by clarifying procedures for obtaining access to classified information. The distinction between access to classified information introduced and not introduced into a hearing is retained.

(47) In response to a comment, former § 110.124, new § 110.123, is revised by clarifying that, when a participant does not intend to introduce classified information into a hearing, a notice of intent should not be filed.

(48) In response to a comment, former § 110.125, new § 110.123(a), is revised by clarifying that a hearing participant must file a notice of intent to introduce classified information at the earliest possible time after the hearing notice.

(49) One commentator questioned the need for paragraphs (b) and (c) of former § 110.126, new § 110.123 (b)(2) and (b)(3), and recommended deletion. These paragraphs are clarified but remain essentially unchanged. They simply note that all participants should attempt to ensure that any classified information introduced in a hearing is, to the extent consistent with classification requirements, declassified and reflected in the public hearing record.

(50) In response to a comment, § 110.127 is deleted as unnecessary. The Commission will, in any event, give appropriate weight to any classified information, whether or not it is introduced into a hearing.

### SUBPART L—RULEMAKING CONCERNING THE REGULATIONS IN THIS PART

(51) Subpart L has been clarified to make it consistent with the changes to other subparts.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following new Part 110, together with conforming changes, to Title 10, Chapter I, Code of Federal Regulations, is published as a document subject to codification.

43 FR 21641

Published 5/19/78

Effective 5/19/78

Comment period expires 7/8/78

## **PART 110—EXPORT AND IMPORT OF NUCLEAR EQUIPMENT AND MATERIAL**

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** Pursuant to the Nuclear Non-Proliferation Act of 1978 (NNPA), the Nuclear Regulatory Commission (NRC) has amended its export/import regulations (10 CFR Part 110). The amended regulations incorporate the new export criteria mandated by the NNPA to govern exports of nuclear facilities, source material and special nuclear material for peaceful nuclear uses. Consistent with the NNPA, the amended regulations would also provide for NRC export control authority over nuclear facility components and other nuclear items and substances having possible significance for nuclear explosive uses. Because the NNPA requires the Commission to promulgate regulations within a short time frame, the amendments are being made effective immediately. However, the Commission is soliciting public comments with a view to further amending Part 110 to incorporate public views if warranted.

**DATES:** Effective date: May 19, 1978. Comments should be submitted by July 8, 1978.

**ADDRESSES:** Send comments to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Copies of comments received may be examined at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

### **FOR FURTHER INFORMATION CONTACT:**

Joanna M. Becker, Esq., Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 492-7630, or Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commis-

sion, Washington, D.C. 20555, telephone 492-8155.

**SUPPLEMENTARY INFORMATION:** On February 17, 1978, NRC published at 43 FR 6915 a new Part 110 to Chapter 1, Title 10 of the Code of Federal Regulations, entitled "Export and Import of Nuclear Facilities and Materials." This part, which became effective on May 3, 1978, codified in one place NRC's export and import regulations and contained special provisions for public participation in NRC's export and import licensing review process. Part 110 did not contain any major substantive revisions to the standards and procedures for granting or denying export license applications, since these areas were still undergoing consideration by the Congress, the Executive Branch, and NRC.

On March 10, 1978, the President signed the Nuclear Non-Proliferation Act of 1978 (NNPA), which specifically addresses export licensing procedures and criteria. The NNPA directs NRC to promulgate revised export control regulations incorporating the major portion of the Act's requirements by July 7, 1978, and new regulations covering physical security standards by May 9, 1978. NRC has chosen to promulgate both portions of its amended regulations simultaneously.

Although many sections of Part 110 are unchanged by the new amendments, both substantive and format changes are made in various parts of Part 110. It is therefore being republished in its entirety for the convenience of the public.

### **SUMMARY OF REGULATIONS**

The major changes to Part 110 are summarized below in the order in which they appear:

1. § 110.1. The scope of Part 110 has been expanded to cover the additional material and equipment transferred to NRC's export control authority from the Department of Commerce pursuant to section 109 of the Atomic Energy Act and also to give NRC authority to license exports of the Department of Energy upon application by that Department. A new Appendix A has been added to provide the public with a detailed list of all equipment and material under NRC's export and import control authority. The statutory criterion for selecting "compo-

nents," "items" and "substances" referenced in amended section 109 of the Atomic Energy Act for Commission licensing is that of "especially relevant from the standpoint of export control because of their significance for nuclear explosive purposes." The components, items and substances chosen are essentially those on the Nuclear Suppliers' Group and IAEA Zangger Committee trigger lists, thus reflecting an international consensus on items considered to be significant for nuclear explosive uses. To avoid problems associated with dual licensing authorities, agreement has also been reached with the Commerce Department that all specially designed components for nuclear reactors will be transferred to NRC's export control authority. This will enable exporters to apply to one agency for all proposed exports of nuclear reactor components.

2. § 110.2. New definitions have been added for deuterium, high and low-enriched uranium, nuclear equipment, nuclear-grade graphite, nuclear material, physical security and production facility. The "utilization facility" definition has been changed so that "utilization facility" now means either a complete nuclear reactor, a reactor pressure vessel, a primary coolant pump, a control rod or a nuclear fuel charging or discharging machine. These definition changes are primarily related to NRC's expanded export licensing authority. The new definition of "utilization facility" has the effect of bringing within that definition certain components "especially designed" for a utilization facility as permitted by section 11 cc of the Atomic Energy Act. The components chosen are deemed to be especially critical for the functioning of a utilization facility.

3. § 110.6. This section has been retitled "Retransfers" to conform with the language in the NNPA.

4. § 110.11. The exemption in § 110.11 for Department of Energy prime contractors has been deleted, as further review indicated no need for its inclusion. It has been replaced by a new exemption for imports of nuclear equipment, source material and byproduct material by licensees authorized to possess such equipment or material under another exemption or a specific or general license issued by the Commission or an Agreement State. Except for nuclear equipment, the

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import license exemptions were previously covered by the general license in § 110.25.

5. § 110.25 and § 110.26. These sections provide new general licenses for exports of small quantities of deuterium (including heavy water) and nuclear grade graphite.

6. Subpart E. This Subpart has been extensively revised and expanded to incorporate the new export criteria mandated by the NNPA and the related procedures pertaining to the review of export license applications. The new export criteria are listed in § 110.42.

Section 110.43 sets out the physical security standards, amplifying the new physical security criterion in § 110.42(a)(3). The physical security standard which will be used in acting upon applications for licenses to export facilities, special nuclear material and source material is specified as, at a minimum, protection comparable to that set forth in International Atomic Energy Agency publication INFCIRC/225, Rev. 1. The measures recommended in that publication are international guidelines to which the United States subscribes, whose use is permitted by section 304(d) of the Nuclear Non-Proliferation Act of 1978. In the Commission's judgment such levels of physical security will provide adequate protection for the facilities and materials to which they must be applied as provided by section 127(3) of the Atomic Energy Act.

The Commission notes that, in evaluating whether the physical security program established by the recipient country meets the physical security standards of § 110.43, the staff will consider for Category I materials (see Appendix C to Part 110) the following essential elements, or their equivalent:

(i) Storage of materials in areas which provide penetration resistance and delay;

(ii) Protection of processing and storage areas with intrusion alarm system;

(iii) 24-hour armed security force (or an unarmed security force if a national or regional emergency plan has been established that will ensure immediate wide scale alert and response by armed police or other government agencies);

(iv) Armed offsite forces capable of response;

(v) Independent duplicated transmission system for two-way voice communication;

(vi) Procedures to control access to and to provide continuing surveillance in material storage and processing areas;

(vii) Protection of transport by escorts or guards to be armed if armed emergency teams are not available for timely response to prevent attempted theft and facilitate recovery;

(viii) Transport in vehicles equipped with communications capable of calling for assistance from the local police or emergency team;

(ix) A program for determining trustworthiness of guards and individuals who have access to nuclear materials.

The Commission also notes that the staff will consider any potential threats to nuclear activities within the recipient country.

Section 110.44 sets out the basic statutory findings NRC must make before issuing an export or import license and provides for referral of export license applications to the President if NRC is unable to make the requisite findings.

7. § 110.51. This section has been revised to indicate that changes in the value of nuclear equipment authorized for export do not require a license amendment.

8. § 110.80. This section provides that the procedures in Part 110 will constitute the sole basis for hearings on export license applications. Those procedures have not been substantially changed except for the addition of criteria to be used in determining whether to grant leave to intervene or hold a hearing in export licensing proceedings mandated by section 304(b) of the NNPA as follows:

(1) Whether intervention or a hearing would be in the public interest and

(2) Whether intervention or a hearing would assist the Commission in making the statutory determinations required by the Atomic Energy Act.

The Commission intends to develop a new general license for the export of nuclear equipment to approved nuclear facilities abroad. Section 110.21 has been reserved for such a general license, which would be the subject of a notice of proposed rule making to be published at a later date.

Other revisions of an editorial nature have been made to Part 110. Although revised Part 110 is effective immediately, the Commission and the Commerce Department have agreed that the transfer of export licensing responsibility for items currently licensed by the Commerce Department will take place July 8, which will permit a more orderly transfer of responsibilities and result in less disruption to licensee export activities. The items involved are those listed in Appendix A, paragraphs (a)(1) through (a)(9); paragraphs (b)(1) through (b)(7); paragraphs (c)(1) through (c)(6); and paragraphs (d), (e), (i), and (j). Applications for the export of the items covered by these paragraphs will be accepted by the Department of Commerce through July 7, 1978, after which license applications shall be submitted to NRC. Prospective applicants may obtain NRC export license application forms from the Assistant Director for Export/Import and International Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

Because the NNPA mandates that the amendments required by that Act be promulgated within a time period that does not permit publication of a notice of proposed rule making and

public procedure thereon, the Commission has found that such notice and public procedure are impracticable and that good cause exists for making revised Part 110 effective without the customary 30-day notice. The Commission invites all interested persons who desire to submit written comments or suggestions for consideration in connection with revised Part 110 to send them to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch. Comments should be submitted by July 8, 1978. Copies of comments received may be examined at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C. Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 as amended, the Nuclear Non-Proliferation Act of 1978 and Sections 552 and 553 of Title 5 of the United States Code, the revised Part 110 of Title 10, Chapter 1, Code of Federal Regulations is published as a document subject to codification.

45 FR 11114

Published 2/20/80

Effective 2/20/80

### 10 CFR Part 110

#### Commission Review of Export License Applications

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

**SUMMARY:** The Nuclear Regulatory Commission has revised its regulations to narrow those classes of export applications which will require Commissioner review. The Commission has determined that certain classes of nuclear export license applications do not raise issues which require review by the Commission.

**EFFECTIVE DATE:** February 20, 1980.

**FOR FURTHER INFORMATION CONTACT:** James B. Devine, Office of Policy Evaluation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (202-634-3302.)

**SUPPLEMENTARY INFORMATION:** The Nuclear Regulatory Commission has reviewed its processing of nuclear export license applications under the Atomic Energy Act of 1954, as amended, and the Nuclear Non-Proliferation Act of 1978 and determined that certain classes of nuclear export license applications do not raise issues which require review by the Commissioners. Therefore, the Commission has revised its regulations to delegate authority to the NRC staff to



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act upon certain classes of applications without prior consultation with the Commissioners. Under the revised regulations, the Commissioners will continue to review all applications seeking a license to export production and utilization facilities. In addition, the Commissioners will review all exports of one effective kilogram or more of high enriched uranium and plutonium (except for plutonium comprised of 80% or more of Pu-238), all exports of 1,000 kilograms or more of heavy water or nuclear grade graphite, and any NRC-licensed components destined for use in a reprocessing, enrichment or heavy water production facility. The Commissioners will also review any proposed export of any material or equipment, including Section 109 components, items and substances to a country to which the Commissioners have not previously authorized an export pursuant to the Nuclear Non-Proliferation Act of 1978. Other license applications will be reviewed by the Commissioners if either the NRC staff or a majority of the Commissioners determines the application should be reviewed by Commissioners.

Under the revised regulations the Commission will continue to review applications raising major policy or legal issues. By providing the NRC staff with more authority to act on routine applications without prior Commissioner consultation, the export licensing process will be expedited. This modification furthers the policy set forth in Section 2 of the Nuclear Non-Proliferation Act that the U.S. be a timely and reliable supplier of nuclear commodities to countries which have adopted effective non-proliferation policies.

Because these amendments relate solely to matters of internal agency procedures, and effective utilization of agency personnel, good cause exists for omitting notice of proposed rulemaking, and public procedure thereon, as unnecessary and for making the amendment effective February 20, 1980.

Pursuant to section 2201(p) of Title 42 of the United States Code, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 110, are published as a document subject to codification, to be effective February 20, 1980.

### 10 CFR Part 110

#### Export and Import of Nuclear Equipment and Material; Export of Certain Minor Quantities of Nuclear Material

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations by simplifying its licensing requirements for the export of certain quantities of nuclear material which do not have significance from a nuclear proliferation perspective. The amendments establish or expand general licensing provisions for gram quantities of special nuclear material (SNM) and certain kinds of source and byproduct material. The amendments, which reflect public comments, are the result of an extensive review by the Commission and the Executive Branch aimed at updating and streamlining NRC regulations to permit the expedited export of nuclear material where no significant nuclear proliferation risks are involved. This final rule leaves unchanged the general license for the export of americium-241. Revisions to that general license will be proposed in a separate rulemaking proceeding.

**EFFECTIVE DATE:** April 21, 1980.

**FOR FURTHER INFORMATION CONTACT:** Joanna M. Becker, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301/492-7630 or Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone 301/492-8155.

**SUPPLEMENTARY INFORMATION:** On May 9, 1978, NRC published in the Federal Register (43 FR 19861) a proposal to amend 10 CFR Part 110. The proposed amendments would simplify licensing requirements for the export of certain minor quantities of nuclear material. The proposed amendments would establish a new general license for the export of up to 3 grams of SNM when contained in sensing components installed in instruments, and for the export of plutonium-238 when contained in cardiac pacemakers.

In addition, it was proposed that authority be provided for the issuance of specific licenses to export plutonium-238, up to 3 grams of any other SNM and 100 grams or less of SNM diluted so as to be unusable for any nuclear activity relevant from the point of view of safeguards and practicably irrecoverable, other than under the terms of an agreement for cooperation with another nation.

The existing general licenses for source material would be revised to eliminate, where possible, the more restrictive application of general licenses with respect to exports to communist countries.

Because of the national security concern over the possible use of americium-241 and polonium-210 as neutron sources, the existing general licenses for these materials would be revoked.

The existing general license for byproduct material having an atomic number between 3 and 83 would be broadened to encompass exports to most communist countries. The existing licensing exemptions for commodities containing byproduct material would be eliminated, since these exemptions would no longer be needed to permit exports to those communist countries not allowed to receive exports under the existing general license. Elimination of the byproduct material exemption would also preclude the export of any material to countries against which the United States then had a comprehensive trade embargo (Cambodia, Cuba, North Korea, Southern Rhodesia and Vietnam).

Finally, the cumulative limits on the export under general license of certain forms of tritium and polonium-210 would be eliminated.

Twenty letters of comments from the public were received in response to the proposed rule. Copies of these comments have been placed in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

Except for the proposed deletion of the general license for americium-241, the comments were generally in support of the proposed amendments. Of the 20 commenters, 14 objected to the proposed deletion of the americium-241 general license and requested retention of at least a portion of that license. Several recommendations were also made to revise NRC's export regulations to provide general licenses for additional items.

In addition to the public comments, the Executive Branch requested that the proposed general license for SNM contained in instruments be revised to restrict the amount of plutonium and uranium-233 in each instrument to .1 gram because of the possible national security concerns over the use of these materials.

In view of these comments, the Commission has decided on a two-stage approach. First, it has adopted those portions of the proposed amendments which were not the subject of significant criticism. Second, it will address the issue of the americium-241 general license in a revised proposed amendment to be published at a later

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date. The requests for additional general licenses will also be considered in this separate rule making proceeding.

With respect to the amendments which follow, the resolution of the comments received is as follows:

1. Section 110.22 Export of special nuclear material. The quantity of plutonium and uranium-233 permitted to be exported has been limited to .1 gram per instrument. This general license has also been clarified to specify that (a) the 3 gram and .1 gram limitations apply to the quantity of SNM contained in each instrument, and not to individual shipments; and (b) that there is no quantity limitations for plutonium-238 contained in cardiac pacemakers.

2. Section 110.24 Export of byproduct material (formerly numbered § 110.21). As noted above, the general license for americium-241 has not been revoked (§ 110.24(e)).

3. The general license for tritium in luminous safety devices installed in aircraft has been retained. The proposed amendments inadvertently would have required a specific license for 100 curies or more of tritium in such devices on a single aircraft.

4. One commenter requested clarification as to whether an export license could be issued authorizing several shipments over a period of a year or more. Section 110.30(d) of Part 110 speaks clearly to this matter.

5. Pursuant to Executive Order 12183 of December 18, 1978, the embargo of exports to Zimbabwe-Rhodesia has been deleted.

6. In addition, editorial amendments or corrections have been made in §§ 110.22 through 110.28 and § 110.44. It should also be noted that § 110.13 is deleted. This deletion was discussed in the statement of considerations accompanying the proposed rule but was inadvertently not included in the text of the proposed amendments. Also, in § 110.24, the general license to export tritium contained in labeled organic compounds has been changed to include tritium in inorganic compounds as well.

The paragraph concerning reporting requirements (included in the proposed rule as § 110.26) has also been deleted. These requirements were necessary because of international export-control procedures subscribed to by the United States. However, due to a recent change in these procedures, reporting is no longer required.

The Commission has concluded that the amendments, including the exemption in § 110.44(a)(1), are not inimical to the common defense and security, do not constitute an unreasonable risk to the public health and safety, and will not result in any activity that adversely affects the

environment. Furthermore, the amendments are consistent with the provisions of the Atomic Energy Act of 1954, as amended by the Nuclear Nonproliferation Act of 1978, and do not conflict with the safeguards criteria of the International Atomic Energy Agency.

The amendments are not inconsistent with the obligations of the United States under any treaty or international arrangement, including the Treaty on the Non-Proliferation of Nuclear Weapons.

Commissioner Bradford non-concurred in the proposed amendments exempting minor quantities from the Atomic Energy Act's Agreement for Cooperation requirement. He believes that the amendments are probably illegal under the Atomic Energy Act and would not approve them without Congressional action. Commissioner Bradford also non-concurred in the staff conclusion that general licenses could be exempted from the requirement of Section 128.

Since the amendments will not result in any increased requirements or expense to the public, the Commission has not prepared a separate value-impact analysis. Based on past licensing actions, the amendments should reduce the number of specific export licenses issued by the Commission by approximately 5 to 10 percent.

Accordingly, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 110, are published as a document subject to codification.

45 FR 18905  
Published 3/24/80  
Effective 3/24/80

*Deletion of reference to Panama Canal Zone; Minor Amendments*

See Part 4 Statements of Consideration.

45 FR 51184  
Published 8/1/80  
Effective 8/1/80

### 10 CFR Part 110

#### Export and Import of Nuclear Equipment and Material; Commission Review of Export License Application

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission has amended its

regulations to narrow and clarify those classes of export license applications which will require Commissioner review. The Commission has determined that certain classes of nuclear export license applications do not raise issues which require review by the Commission.

EFFECTIVE DATE: August 1, 1980.

FOR FURTHER INFORMATION CONTACT: Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (301-492-8155).

SUPPLEMENTARY INFORMATION: The Nuclear Regulatory Commission has reviewed its processing of nuclear export license applications under the Atomic Energy Act of 1954, as amended, and the Nuclear Non-Proliferation Act of 1978 and determined that certain classes of nuclear export license applications do not raise issues which require review by the Commissioners. Therefore, the Commission has amended § 110.40(b)(5) of 10 CFR Part 110 to delegate additional authority to the NRC staff to act upon certain classes of applications without prior consultation with the Commissioners.

Presently, the Commissioners review all proposed exports to countries to which they had not previously authorized an export pursuant to the Nuclear Non-Proliferation Act of 1978. Under the amended paragraph, the Commissioners will review only applications for licenses to export source or special nuclear material for peaceful nuclear uses, or components, items and substances subject to section 109b. of the Atomic Energy Act of 1954, as amended, to such countries. In addition the Commission has amended § 110.40(b) (2) and (4) to clarify their intent.

Because these amendments relate solely to matters of internal agency management, notice of proposed rulemaking and public procedure thereon are not required by section 553 of Title 5 of the United States Code.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, the following amendment of Title 10, Chapter 1, Code of Federal Regulations, Part 110, is published as a document subject to codification.

47 FR 6610  
Published 2/16/82  
Effective 2/16/82

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date. The requests for additional general licenses will also be considered in this separate rule making proceeding.

With respect to the amendments which follow, the resolution of the comments received is as follows:

1. Section 110.22 Export of special nuclear material. The quantity of plutonium and uranium-233 permitted to be exported has been limited to .1 gram per instrument. This general license has also been clarified to specify that (a) the 3 gram and .1 gram limitations apply to the quantity of SNM contained in each instrument, and not to individual shipments; and (b) that there is no quantity limitations for plutonium-238 contained in cardiac pacemakers.

2. Section 110.24 Export of byproduct material (formerly numbered § 110.21). As noted above, the general license for americium-241 has not been revoked (§ 110.24(e)).

3. The general license for tritium in luminous safety devices installed in aircraft has been retained. The proposed amendments inadvertently would have required a specific license for 100 curies or more of tritium in such devices on a single aircraft.

4. One commenter requested clarification as to whether an export license could be issued authorizing several shipments over a period of a year or more. Section 110.30(d) of Part 110 speaks clearly to this matter.

5. Pursuant to Executive Order 12183 of December 18, 1979, the embargo of exports to Zimbabwe-Rhodesia has been deleted.

6. In addition, editorial amendments or corrections have been made in §§ 110.22 through 110.28 and § 110.44. It should also be noted that § 110.13 is deleted. This deletion was discussed in the statement of considerations accompanying the proposed rule but was inadvertently not included in the text of the proposed amendments. Also, in § 110.24, the general license to export tritium contained in labeled organic compounds has been changed to include tritium in inorganic compounds as well.

The paragraph concerning reporting requirements (included in the proposed rule as § 110.28) has also been deleted. These requirements were necessary because of international export-control procedures subscribed to by the United States. However, due to a recent change in these procedures, reporting is no longer required.

The Commission has concluded that the amendments, including the exemption in § 110.44(a)(1), are not inimical to the common defense and security, do not constitute an unreasonable risk to the public health and safety, and will not result in any activity that adversely affects the

environment. Furthermore, the amendments are consistent with the provisions of the Atomic Energy Act of 1954, as amended by the Nuclear Nonproliferation Act of 1978, and do not conflict with the safeguards criteria of the International Atomic Energy Agency.

The amendments are not inconsistent with the obligations of the United States under any treaty or international arrangement, including the Treaty on the Non-Proliferation of Nuclear Weapons.

Commissioner Bradford non-concurred in the proposed amendments exempting minor quantities from the Atomic Energy Act's Agreement for Cooperation requirement. He believes that the amendments are probably illegal under the Atomic Energy Act and would not approve them without Congressional action. Commissioner Bradford also non-concurred in the staff conclusion that general licenses could be exempted from the requirement of Section 128.

Since the amendments will not result in any increased requirements or expense to the public, the Commission has not prepared a separate value-impact analysis. Based on past licensing actions, the amendments should reduce the number of specific export licenses issued by the Commission by approximately 5 to 10 percent.

Accordingly, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 110, are published as a document subject to codification.

45 FR 18905  
Published 3/24/80  
Effective 3/24/80

*Deletion of reference to Panama Canal Zone; Minor Amendments*

See Part 4 Statements of Consideration.

45 FR 51184  
Published 8/1/80  
Effective 8/1/80

### 10 CFR Part 110

Export and Import of Nuclear Equipment and Material; Commission Review of Export License Application

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission has amended its

regulations to narrow and clarify those classes of export license applications which will require Commissioner review. The Commission has determined that certain classes of nuclear export license applications do not raise issues which require review by the Commission.

EFFECTIVE DATE: August 1, 1980.

FOR FURTHER INFORMATION CONTACT: Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (301-492-8155).

SUPPLEMENTARY INFORMATION: The Nuclear Regulatory Commission has reviewed its processing of nuclear export license applications under the Atomic Energy Act of 1954, as amended, and the Nuclear Non-Proliferation Act of 1978 and determined that certain classes of nuclear export license applications do not raise issues which require review by the Commissioners. Therefore, the Commission has amended § 110.40(b)(5) of 10 CFR Part 110 to delegate additional authority to the NRC staff to act upon certain classes of applications without prior consultation with the Commissioners.

Presently, the Commissioners review all proposed exports to countries to which they had not previously authorized an export pursuant to the Nuclear Non-Proliferation Act of 1978. Under the amended paragraph, the Commissioners will review only applications for licenses to export source or special nuclear material for peaceful nuclear uses, or components, items and substances subject to section 109b. of the Atomic Energy Act of 1954, as amended, to such countries. In addition the Commission has amended § 110.40(b) (2) and (4) to clarify their intent.

Because these amendments relate solely to matters of internal agency management, notice of proposed rulemaking and public procedure thereon are not required by section 553 of Title 5 of the United States Code.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, the following amendment of Title 10, Chapter I, Code of Federal Regulations, Part 110, is published as a document subject to codification.

47 FR 6610  
Published 2/16/82  
Effective 2/16/82

## PART 110 • STATEMENTS OF CONSIDERATION

### 10 CFR Part 110

#### Export of Safeguards Samples Pursuant to the US/IAEA Safeguards Agreement

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to exempt the export of IAEA safeguards samples from the requirements for a license. This amendment will permit the United States to implement that portion of the US/IAEA Safeguards Agreement which involves the export of IAEA safeguards samples of special nuclear material from facilities designated by the IAEA for the application of safeguards. The amendment will permit the export of these samples without an export license, by NRC licensees, Agreement State licensees, and the U.S. Department of Energy.

**EFFECTIVE DATE:** February 16, 1982.

**FOR FURTHER INFORMATION CONTACT:**

Joanna M. Becker, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 492-7830; or

David A. Myers, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 492-8155

**SUPPLEMENTARY INFORMATION:** The US/IAEA Agreement for the Application of Safeguards in the United States (the Agreement) provides for the application of IAEA safeguards to selected U.S. nuclear facilities. On July 29, 1980, the Nuclear Regulatory Commission published in the Federal Register (45 FR 50705) a final rule adding a new part 75, and amending Parts 40, 50, 70 and 150 of the Commission's regulations. Part 75 and the conforming amendments establish the primary means by which the Agreement will be implemented with respect to NRC and Agreement State licensees.

The purpose of the following amendment to Part 110 is to facilitate certain safeguards activities, required by the Agreement, which will involve the export of IAEA safeguards samples of special nuclear material from those facilities designated by the IAEA for the application of safeguards.

An integral part of the safeguards approach at bulk handling facilities under IAEA safeguards is the destructive analysis of representative samples, drawn from the facility's inventory. This analysis is necessary to verify the element and isotopic content of a representative portion of the facility's inventory in order to establish

confidence in the facility's reported inventory. This material sampling and analysis is not normally included in the IAEA safeguards approach for most types of reactors.

The total annual quantity of safeguards samples is anticipated to be 100 grams or less of contained fissile material (Pu, U-233 and U-235) per facility.

While it would be administratively possible for each NRC and Agreement State licensee selected by the IAEA for the application of safeguards and for the Department of Energy (DOE), to apply for a specific license to export IAEA safeguards samples, exempting these exports from the requirements for a license will avoid: (1) An administrative burden on licensees or DOE who otherwise would have to file applications for specific licenses; (2) possible delays which might result from NRC processing of specific license applications; and (3) the problems which would arise if the operator of a safeguarded facility did not apply promptly for a specific license. Exempting these exports from the requirements for a license is consistent with the provisions in section 122 of the Atomic Energy Act, as amended, that the Commission "give maximum effect to the policies contained in any international arrangement" and with NRC's policy to minimize the burden on licensees of implementing the Agreement.

Pursuant to sections 57d. and 54c. of the Atomic Energy Act of 1954, as amended, the Commission has concluded that exemption from the requirements for a license for the export

of IAEA safeguards samples is not inimical to the common defense and security, and does not constitute an unreasonable risk to the public health and safety. Furthermore, the amendment is consistent with other provisions of the Atomic Energy Act, as amended by the Nuclear Nonproliferation Act of 1978, with the Treaty on the Nonproliferation of Nuclear Weapons, and with the obligations of the United States under the US/IAEA Safeguards Agreement.

The Commission has not prepared an environmental impact statement or a negative declaration since the amendment is non-substantive and insignificant from the standpoint of environmental impact.

The final rule contains no new or amended requirements for recordkeeping, reporting, plans or procedures, applications, or any other type of information collection subject to the Paperwork Reduction Act of 1980.

Since the amendment will not result in any increased requirements or expense

to the public, the Commission has not prepared a separate value-impact analysis. Based on preliminary estimates, the amendment should reduce the number of specific export licenses required for implementation of the US/IAEA Safeguards Agreement by approximately 3 licenses per bulk handling facility per year.

Licensees should note that nothing in the amendment is intended to relieve any person from complying with other U.S. government agencies' regulations applicable to exports under their authority, any pertinent requirement in Parts 71 and 73 of Title 10 of the Code of Federal Regulations, or any Commission order pursuant to section 201(a) of the Energy Reorganization Act of 1974, as amended, pertaining to shipment of plutonium by air.

Because this amendment involves the foreign affairs functions of the United States, notice of proposed rulemaking and public procedure thereon are not required by section 553 of Title 5 of the United States Code. Since the amendment grants an exemption from regulations currently in effect, it will become effective without the customary 30-day notice.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment to 10 CFR Part 110 is published as a document subject to codification.

47 FR 44111

Published 10/6/82

Effective 10/6/82

### 10 CFR Part 110

#### Export of Australian-Origin Nuclear Material and Equipment

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to require persons holding export licenses to notify the Commission in certain circumstances before shipping nuclear material or equipment of Australian-origin. This requirement is necessary to carry out those provisions of the U.S./Australia Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy that require the U.S.

Government to obtain the prior consent of the Australian authorities before exporting Australian-origin nuclear material or equipment to a third country.

**EFFECTIVE DATE:** October 6, 1982.

**FOR FURTHER INFORMATION CONTACT:**

Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 492-4599; or Joanna M. Becker, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, (301) 492-7830

**SUPPLEMENTARY INFORMATION:** The U.S./Australia Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy (the Agreement) entered into force on January 18, 1981. Article 13, paragraph 2, of the Agreement requires the parties to "establish administrative arrangements to ensure the effective implementation" of the Agreement. Negotiations between the U.S. and Australian authorities regarding these administrative arrangements have been completed and it appears that most of the provisions of the Agreement can be implemented without imposing any new requirements on persons licensed under the Atomic Energy Act of 1954, as amended. However, Article 5, paragraph 2, of the Agreement requires the U.S. to obtain the agreement of the Australian authorities before export of nuclear material or equipment of Australian origin from the United States.

In view of the limited amount of nuclear commerce between the U.S. and Australia, the impact of this rulemaking action on NRC export licensees is expected to be minimal. The NRC staff estimates that less than ten holders of export licenses per year will be affected. Most of these licenses are for the export of low-enriched uranium derived from Australian-origin source material. Furthermore, in many of these cases it will be possible to identify Australia as the country of origin at the time the export license application is originally submitted. In these instances, NRC will confirm that Australia agrees to the export of its material or equipment before the export license is issued and NRC will indicate this approval on the face of the license. No further notification to NRC by the licensee will then be required before shipment. In other instances, however, the country of origin will not be known at the time of license issuance and the advance notification requirement imposed by the regulation that follows will apply should the material or equipment be subsequently identified as being of Australian origin.

When advance notification is made to NRC of a proposed shipment of

Australian material or equipment, the NRC will promptly consult with the appropriate Executive Branch officials regarding Australian consent for the export. These consultations should normally be completed well within the 40-day advance notification period.

The Commission has not prepared an environmental impact statement or a negative declaration since the amendment is non-substantive and insignificant from the standpoint of environmental impact.

Since delay in promulgating this amendment could result in action inconsistent with the Agreement and because a foreign affairs function of the United States is involved, Commission notice of proposed rulemaking and public procedures thereon are not required by Section 553 of Title 5 of the United States Code. Since the U.S.-Australia Agreement for Cooperation requires Australian consent to the exports that will be subject to the amendment, the Commission finds that good cause exists for making the amendment effective without the customary 30-day notice.

**Paperwork Reduction Review**

The information collection requirement contained in this final rule is required by law or to obtain a benefit and submitted to nine or fewer people. Therefore, OMB clearance under Pub. L. 96-511 is not required.

**List of Subjects in 10 CFR Part 110**

Administrative practice and procedures, Classified information, Export, Import, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting requirements, Scientific equipment.

**PART 110 [AMENDED]**

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendment to 10 CFR Part 110 is published as a document subject to codification.

49 FR 2881  
Published 1/24/84  
Effective 1/24/84

**10 CFR Part 110**

**NRC Export Licensing Authority; Interpretation**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Interpretative rule.

**SUMMARY:** The Nuclear Regulatory Commission is issuing an interpretative rule that further specifies those components especially designed or prepared for use in a gas centrifuge uranium enrichment plant which are subject to the Commission's export licensing authority. This action will carry out the IAEA Zangger Committee's recommendation that these components be subject to export licensing control by supplier nations.

**EFFECTIVE DATE:** January 24, 1984.

**FOR FURTHER INFORMATION CONTACT:**

Joanna M. Becker, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Phone: 301-492-7630 or Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Phone: 301-492-4599.

**SUPPLEMENTARY INFORMATION:** For the past two years the U.S. 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 international nuclear export control "Trigger List" by specifying certain additional components especially designed or prepared for use in the gas centrifuge uranium enrichment process. Agreement has not been reached on the specific centrifuge components to be added and their detailed definitions. Currently, all especially designed and prepared enrichment plant components are subject to NRC's export licensing control under a general heading in Appendix A of NRC's export licensing regulations (10 CFR Part 110). However, in order to improve the administration of export controls over these components, the U.S. and the other supplier governments, working in the context of IAEA's Zangger Committee, have agreed that a more detailed listing of the components covered should be prepared and included in each government's export control regulations. As a result of this agreement, the Department of State, as the responsible U.S. Government agency for undertaking the Zangger Committee negotiations, has recommended that the Commission publish an appropriate interpretative notice in the Federal Register which lists the new specified components.

Appendix A to 10 CFR Part 110 lists all of the nuclear equipment and material subject to NRC's export/import licensing authority. Paragraph (b) of Appendix A covers isotope separation equipment as follows:

(b) Plants for the separation of the isotopes of source material, special nuclear material or lithium, and specifically designed or prepared equipment and components therefor as

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follows:

- (1) Uranium hexafluoride (UF<sub>6</sub>) corrosion resistant valves.
- (2) Units capable of separating isotopes of source material, special nuclear material or lithium, such as (i) gas centrifuges, (ii) jet nozzle separation units, (iii) vortex separation units, and (iv) laser isotope separation units.
- (3) Uranium hexafluoride (UF<sub>6</sub>) corrosion resistant axial or centrifugal compressors, and specially designed or prepared seals for such compressors.
- (4) Gaseous diffusion barriers specially designed or prepared for use in separating isotopes of source material, special nuclear material or lithium.
- (5) Gaseous diffuser housings specially designed or prepared for use in plants for separating isotopes of source material, special nuclear material or lithium.
- (6) Heat exchangers specially designed or prepared for use in gaseous diffusion plants.
- (7) Any other equipment or component specially designed or prepared for use in an isotope separation plant.
- (8) Specially designed or prepared parts and components for any of the above.

The components specified by the Zangger Committee are covered by paragraphs (b)(2)(i), (b)(7) and (b)(8) of Appendix A. Accordingly, the effect of this interpretative rule is to clarify that the specific components identified are especially designed or prepared for use in gas centrifuges and are subject to the statutory export licensing criteria of section 109 of the Atomic Energy Act of 1954, as amended. Assistance to foreign uranium enrichment programs is subject to very stringent requirements. Therefore, any proposed export of enrichment plant components would be subject not only to criteria (1), (2) and (3) of section 109b, but more stringent requirements to meet the non-inimicality criterion and other provisions of the Act as now apply.

Until the clarification recently agreed upon, many of the components specified by the Zangger Committee have been under the export control authority of the Commerce Department as "dual-use" commodities pending the determination of their "especially designed or prepared" status. As a result, this interpretative rule has been coordinated with the Commerce Department, which will also be publishing in the near future an appropriate notice clarifying that it no longer will exercise export licensing authority over gas centrifuge enrichment components now specified as especially designed or prepared. Commerce will continue to exercise export licensing controls over a wide-range of other dual-use nuclear-related commodities, including several with potential gas centrifuge related end-uses.

### List of Subjects in 10 CFR Part 110

Administrative practice and procedures, Classified information, Export, Import, Incorporation by

reference, Intergovernmental relations, Nuclear material, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Scientific equipment.

49 FR 9352

Published 3/12/84

Effective: Upon approval of OMB or 6/7/84.

*Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments*

See Part 51 Statements of Consideration

49 FR 19623

Published 5/9/84

Effective 5/9/84

*Information Collection Requirements; Display of OMB Control Numbers*

See Part 0 Statements of Consideration

49 FR 24512

Published 6/14/84

Effective 6/7/84

*Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and Related Conforming Amendments*

See Part 2 Statements of Consideration

➤ 49 FR 47191

Published 12/3/84

Effective 1/2/85

### 10 CFR Part 110

#### Export and Import of Nuclear Equipment and Material

**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. The amended regulations expand the authority to export nonsensitive nuclear equipment and minor quantities of nuclear material without applying for and obtaining a specific NRC license authorizing the action. These amendments are intended to reduce the total number of required licensing actions without affecting the Commission's existing rigorous controls over the export of proliferation-sensitive

nuclear commodities.

**EFFECTIVE DATE:** January 2, 1985.

**FOR FURTHER INFORMATION CONTACT:** Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-4599 or Joanna M. Becker, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7630.

**SUPPLEMENTARY INFORMATION:** On March 1, 1984, the Nuclear Regulatory Commission (NRC) published a proposed amendment in the **Federal Register** to 10 CFR Part 110, its regulation governing the export and import of nuclear equipment and material (49 FR 7572). These proposed amendments contained provisions that would expand the authority to export nonsensitive nuclear equipment and minor quantities of nuclear material under a general license.

These amendments would reduce the number of actions that would require an exporter to apply for and obtain a specific NRC license that would authorize the export of certain types of nuclear equipment and certain quantities of nuclear material, thereby reducing the regulatory burden on the public and the administrative burden on the NRC staff. The proposed amendments also contained several miscellaneous changes to simplify and clarify the provisions of 10 CFR Part 110.

The final rule which follows, with only minor exceptions, adopts the amendments as proposed. The amendments can be divided into four broad categories: (1) New or revised general licenses; (2) elimination of unnecessary paperwork and other regulatory burdens on licensees; (3) simplification and clarification of certain sections of Part 110; and (4) corrections and other nonsubstantive technical amendments.

The new and revised general licenses incorporate for the first time in NRC's regulations the U.S. Government policy of facilitating nuclear cooperation with countries sharing U.S. nonproliferation goals. The Departments of Commerce and Energy have adopted similar general licensing provisions for nuclear-related commodities and technology under their respective export licensing and approval authorities. Under this concept, the general licenses are divided into essentially two categories. Those in the first category permit exports to all countries except certain embargoed countries: Cuba, Kampuchea, North Korea, and Vietnam. The Commission and the Executive Branch have reviewed these general licenses and concluded that the material involved is insignificant from the standpoint of possible proliferation concerns,



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regardless of the country of destination. The general licenses in the second category apply to a narrower category of countries, i.e., those states, except for Libya, Iraq, Syria, and Iran, which are adherents to the Nuclear Nonproliferation Treaty (NPT), plus France, Spain, and the Peoples Republic of China. While additional commodities could be exported under the general licenses in this category, they are only moderately more significant from a proliferation standpoint than those in the first category. As a further caution, a general license may not be used if the exporter knows, or has reason to believe, that the material will be used in any activities related to isotope separation, chemical reprocessing, heavy water production or the fabrication of nuclear fuel containing plutonium. The new component general license is further limited to only those countries which, in addition to sharing good nonproliferation credentials, have provided the U.S. with generic assurances that they meet the criteria set out in section 109 of the Atomic Energy Act. For easy reference, a detailed comparison of the new or revised general licenses with the former general licenses is included at the end of this statement of considerations.

The Commission believes that this new approach to general licenses can benefit U.S. nonproliferation objectives by demonstrating to countries abroad the advantages of supporting effective nonproliferation policies. It also conforms to section 2 of the Nuclear Non-Proliferation Act of 1978 (NNPA) with respect to confirming the reliability of the United States as a supplier of nuclear equipment and material to those countries which adhere to effective nonproliferation policies. At the same time, the Commission remains concerned about the further spread of sensitive nuclear activities (i.e., isotope separation, chemical reprocessing, heavy water production and plutonium fuel fabrication) beyond those advanced nations that are already engaging in those activities. The Commission intends to monitor developments in these areas closely and, should additional countries make any significant moves that are inconsistent with U.S. law and policy, such as the design or acquisition of sensitive nuclear facilities or the commencement of research and development programs to acquire such facilities, the Commission will promptly initiate steps, after consulting with the Executive Branch, to revoke the eligibility of these countries for favorable general license treatment.

The new or revised general licenses are as follows:

1. Paragraph 110.21(a)(1): New general

license for the export of low-enriched uranium in contaminated items or substances.

2. Paragraph 110.21(b)(1): New general license for the export of up to 0.001 effective kilogram per shipment of any special nuclear material.

3. Paragraph 110.21(b)(2): New general license for the export of replacements for damaged or defective fuel elements.

4. Paragraph 110.22(a)(2): Revision to the general license for export of thorium to conform with revisions in the international export control (COCOM) embargo list.

5. Section 110.23: Revisions to general licenses to export byproduct material to provide for expanded authority to export tritium and other byproduct material with an atomic number greater than 83 (e.g., californium-252, neptunium-237 and berkelium-249).

6. Paragraph 110.23(b): Revision to the general license to export americium-241 to restrict generally-licensed exports to certain destinations (i.e., the general license is limited to americium-241 incorporated in petroleum exploration equipment).

7. Section 110.24: Increase in the amount of deuterium authorized for export under a general license.

8. Section 110.25: Revision to the general license to export nuclear grade graphite to cover exports of fabricated nonnuclear-related commercial products (e.g., electrodes, golf clubs, fishing rods, etc.).

9. Paragraph 110.22(b): Increase from 1 to 10 kilograms of source material authorized for export under general license. This revision conforms with revisions of the COCOM embargo list and is consistent with the export control guidelines in IAEA INFCIRC/254, "Guidelines for Nuclear Transfers" (Supplier Guidelines).

10. Section 110.26: New general license for the export of nuclear reactor components to light water- or heavy water-moderated research or power reactors in designated countries which have acceptable nonproliferation credentials and which have also provided the U.S. with generic assurances that they meet the Section 109 criteria of the Atomic Energy Act. Except for France, NPT adherence or acceptance of full-scope IAEA safeguards is a necessary condition for placing a country on the authorized list. Persons making exports under this new general license are also required to submit an annual report of all components shipped during the previous calendar year.

11. Section 110.27: New general license for the import of special nuclear material, except for spent fuel in quantities exceeding 100 kilograms.

In addition to the new and revised

general licenses, the following amendments have been made to Part 110:

1. Sections 110.1 and 110.3 through 110.5 are revised and simplified.

2. In § 110.2, editorial changes are made and definitions added for "NPT" and "IAEA." The "Nuclear grade graphite" definition is also revised to conform with international export control guidelines and the definition of a "person" is revised to clarify that, with respect to imports, the Department of Energy is not considered a person.

3. Section 110.6 is revised to (1) cover produced SNM and (2) eliminate the requirement for approvals in cases where the retransfer has been approved in the context of a previously issued NRC export license.

4. Former §§ 110.11 and 110.12 are deleted because they are replaced or encompassed by the proposed new general licenses in § 110.27 and § 110.21(b)(1), respectively. Former § 110.13 is redesignated § 110.11.

5. Paragraph 110.30(d), concerning consolidated license applications, has been revised to eliminate the two year time period limitation and the restriction to "reasonably similar circumstances." These provisions, which stem from subsection 126a.(2) of the Atomic Energy Act, apply only to single Commission findings involving multiple export license applications.

6. Section 110.30 is revised and expanded in scope to encompass the provisions of existing §§ 110.30, 110.35, and 110.36 [except that the requirement in former § 110.36(b) is deleted as unnecessary].

7. Section 110.31 is revised to incorporate, in simplified form, the provisions of former §§ 110.31 through 110.34.

8. Former § 110.35(b) is deleted as unnecessary.

9. Sections 110.40 and 110.41 are revised for clarification and to expand the categories of cases not requiring Executive Branch review.

10. In § 110.42, editorial changes are made and certain provisions from former § 110.44 are added so that § 110.42 contains a comprehensive listing of all the applicable export licensing criteria for NRC-licensed equipment and material. The changes also specify that health and safety findings (pertaining to health and safety in the U.S.) are required only for issuance of licenses to export production and utilization facilities.

11. In § 110.43, the provision for "countrywide" physical security findings has been expanded to cover exports of all categories of nuclear material.

12. In § 110.44, editorial changes are made to accommodate the transfer of certain provisions to § 110.42. Changes

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are also made to reflect the fact that byproduct material export license applications, for which the Commission cannot make the requisite statutory findings after receipt of favorable Executive Branch judgments, will not be referred to the President for action since applicable statutes do not contemplate referral. These applications will be denied by the Commission.

13. Section 110.45 is revised to specify that its provisions do not apply to byproduct material exports.

14. In § 110.50, paragraph (b)(3) is deleted as unnecessary.

15. Section 110.51 is revised to specify that license amendments are not required for certain changes in intermediate consignees.

16. In § 110.70, the categories of license applications noticed in the **Federal Register** are revised to eliminate noticing requirements for imports and for low-enriched uranium export license applications and applications for export of less than five effective kilograms of plutonium, high-enriched uranium or uranium-233.

17. Editorial changes are made in §§ 110.83 and 110.84.

18. Section 110.89 is revised to clarify certain filing and service requirements.

19. Paragraphs (b) and (c) of § 110.91 are deleted since their provisions for public dissemination of Commission staff and Executive Branch views are adequately covered in § 110.72. The Commission intends to adhere to its practice of making unclassified staff and Executive Branch views promptly available to the public.

20. Paragraph 110.103(a) is revised to eliminate the requirement for binding hearing documents on the left side.

21. The contents of former Appendix A are incorporated into new §§ 110.8 and 110.9.

22. A new Appendix A is added which lists gas centrifuge enrichment plant components which are under NRC's export licensing authority. This appendix was published in the **Federal Register** originally as part of an interpretative rule on January 24, 1984 (49 FR 2881).

23. Appendix C is redesignated Appendix B and footnote c to the appendix is revised to conform to IAEA INFCIRC/225-Rev. 1.

### Analysis of Public Comment

The public comment period on the proposed rule expired April 17, 1984. The NRC received comments from six sources including individuals, businesses, and the Executive Branch. The following discussion summarizes the comments received and describes the actions taken in response to these suggestions.

*Nuclear Control Institute.* The Nuclear

Control Institute (NCI) comments, in general, objected to any amendments which would relax the Commission's existing export licensing regulations. The Commission shares NCI's concern regarding the continued necessity of strong export licensing regulations which are rigorously implemented and enforced. The Commission has exercised proper caution in this regard by assuring that the amendments, insofar as they alter current requirements, involve only nonsensitive matters which do not affect existing rigorous controls over proliferation-sensitive nuclear commodities.

NCI also suggested that the Commission delay action which affects component exports until completion of action on several pending legislative proposals directed at nuclear component exports. Although these proposals failed to pass during the 98th Congress, the Commission recognizes that eventual passage of some of the bills if resubmitted would require changes in Part 110. The Commission will take action to amend Part 110 promptly upon the passage of any legislation requiring amendments to the regulations. However, in view of the delay in final consideration of the contemplated legislative changes, the Commission believes that the pending Part 110 amendments should be implemented as planned. This is particularly so since only one portion of the amendments would be affected by the legislation as originally proposed.

NCI also had several comments directed at specific proposed amendments to which the Commission responds as follows:

1. Section 110.6: NCI objects to the proposed amendment to § 110.6 which would clarify that retransfers of material and equipment approved in the context of an export license do not require separate Department of Energy (DOE) approval as a "subsequent arrangement" under the requirements of the Nuclear Non-Proliferation Act of 1978 (NNPA).

The Commission does not agree that this amendment would conflict with the requirements for separate DOE review under section 131 of the Atomic Energy Act. The amendment simply clarifies what has, in fact, been Commission and Executive Branch practice since enactment of the NNPA in 1978. Separate reviews are required only when the ultimate end use is not known at the time of the original export license application. A typical case involves the export of low-enriched uranium fuel for fabrication in one country and then reexport to a second country for installation in a power reactor. In these cases, the Commission views the application as an export to the second country with an intermediate consignee

in the first country. The Executive Branch and the Commission have agreed that it is unnecessary to require a separate (and duplicate) DOE review of the reexport to the ultimate consignee in the second country. The Commission notes that such retransfer approvals do not extend to retransfers for such sensitive end uses as reprocessing. These types of retransfers will continue to be subject to separate DOE review as a "subsequent arrangement" under section 131 of the Atomic Energy Act.

2. Section 110.7: NCI objects to the Commission's practice (since 1978) of conforming its export licensing jurisdiction with the international export control "Trigger List" and suggests the Commission's jurisdiction should be expanded to cover additional proliferation-sensitive items.

The Commission agrees with NCI that there are many commodities outside NRC's jurisdiction which may be significant from a nuclear proliferation standpoint. Nevertheless, the Commission does not believe there is any need to change the scope of NRC's export licensing jurisdiction because section 309(c) of the NNPA provides for adequate nonproliferation export controls over nuclear commodities licensed by the Department of Commerce. The Commission staff has worked closely with the Executive Branch in establishing the Commerce Department's export control "Nuclear Referral List" and consults with the Executive Branch on frequent occasions with regard to individual export license applications for items on this list. It is also relevant to note that the great majority of items licensed by the Commerce Department are so-called "dual-use" items, such as high speed computers, which have predominantly nonnuclear end uses. The Commission believes that, as a general matter, it is good administrative practice to limit the Commission's export licensing authority exclusively to nuclear items, where NRC's expertise is greatest, and to rely on the Commerce Department to consult with the Commission on those Commerce-licensed dual-use exports with potential proliferation significance.

3. Paragraph 110.21(b)(2): NCI objects to the scope of the Commission's proposed new general license for the export of replacement fuel elements. To reduce the risk of misreporting as a means of accumulating low-burn-up spent fuel containing weapons-grade plutonium, NCI recommends that the general license be valid only until fuel elements are used in a reactor or for a period of one year after the initial export authorization.

The Commission does not agree with NCI's contention that the proposed general license would pose a realistic proliferation threat. Licensing experience since 1975 indicates that its

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provisions would need to be used only on rare occasions and where expeditious export is critical. In addition, there are only a limited number of exporters of enriched uranium fuel and significant exports of this material would also probably be subject to DOE enrichment contracts. These factors significantly minimize the risk of proliferation concerns with respect to the proposed general license. Accordingly, the Commission does not believe it necessary to make any change to the proposed general license.

4. Section 110.26: NCI recommends that the proposed component general license be revised to require notifications to the Commission of shipments under the license within 60 days of each export rather than a single annual report. NCI believes that this more rigorous reporting requirement would reduce the risk of the piecemeal accumulation of sensitive component exports.

While the suggested change would moderately increase the Commission's ability to monitor shipments, the significant increase in administrative reporting requirements on licensees that this change would entail (i.e., several hundred individually reportable shipments can be expected to be made under the general license at various times throughout a typical year) would far outweigh the modest decrease in proliferation concern, particularly since the general license would not apply to countries with significant potential proliferation concerns. In view of the limited number of countries involved and the lengthy period of time which would be required to construct an unauthorized reactor via the diversion route, the Commission concludes that an annual reporting requirement would be sufficient. However, the Commission will, as NCI proposed, review annually the proliferation implications of the components exported under the general license, and place the annual reports in the Public Document Room.

NCI also questioned the inclusion of Taiwan and South Korea on the list of countries which would be eligible to receive U.S. components under the proposed component general license.

In view of Taiwan's and South Korea's status as parties to the Nuclear Nonproliferation Treaty (NPT) and their nonproliferation credentials, the Commission has decided not to revise the list of countries as proposed. The Commission shares, however, NCI's general concern that exports under the proposed general license warrant careful monitoring. Accordingly, the Executive Branch has been notified formally by the Commission that NRC intends to monitor closely the activities of countries on the eligible lists and will not hesitate to take steps, after

consulting with the Executive Branch, to revise a country's status if changed circumstances warrant.

5. Paragraph 110.30(d): NCI objects to the proposal to relax the existing limitations on consolidated license applications.

The Commission has decided not to accept the comment and change the amendment as requested. In view of the extremely wide range in proliferation significance of the various commodities licensed by NRC, it is not possible to devise any practical general guidelines for the scope and duration of individual export licenses. Conversely, a detailed set of export licensing guidelines for each commodity (and form of commodity) would be excessively complicated for incorporation into Part 110. Accordingly, the Commission will continue to exercise its careful case-by-case judgment regarding the appropriateness of any requested consolidated license application. For example, exports of high-enriched uranium will continue to be licensed individually. On the other hand, because of the limited proliferation concerns involved, unnecessary burdens would be imposed on exporters and the NRC staff if separate export licenses for each shipment of low-enriched uranium (LEU) fuel to power reactors in countries with good nonproliferation credentials are required. Furthermore, even for these countries, all long-term licenses are reviewed on an ongoing basis by the Commission. Should a material change in circumstances arise in the importing country, the Commission has sufficient authority to take appropriate action, including suspension or revocation of active export licenses.

6. Paragraph 110.35(b): NCI objects to the proposed deletion of the requirement for license applicants to amend their applications whenever substantive changes occur before the license is issued.

The Commission continues to believe that this provision should be deleted. If there should be a significant change in the export request, such as a change in the type of quantity of material or its destination, an applicant would be required, in its own self-interest, to notify the Commission. Otherwise the license as eventually issued by the Commission would not reflect the change in facts and could not be used.

7. Sections 110.40 and 110.41: NCI objects to the proposed revised guidelines for referring export license applications to the Commission and the Executive Branch for review.

The Commission does not agree that these proposed internal procedures for processing the less significant export license applications are inappropriate. The lack of Commissioner or Executive Branch review of certain categories of

exports does not lessen in any way the substantive review of each application by the NRC staff with respect to compliance with statutory requirements. In addition, if there are significant changes in circumstances involving particular exports or recipient countries, the NRC staff will continue its practice of referring these cases to the Executive Branch and/or the Commissioners. Such referrals are contemplated by §§ 110.41(a)(8) and 110.40(b)(7).

8. Paragraph 110.41(d)(8): NCI objects to the proposed deletion of the dollar limit (\$10,000) cutoff for those cases requiring Executive Branch review.

The Commission believes that a more meaningful basis for judging the proliferation significance of a particular export is the country of destination. This consideration led to the proposal to amend § 110.41 to delete the dollar cutoff criterion and replace it with a requirement that *all* export license applications for countries with questionable nonproliferation credentials be referred to the Executive Branch. Accordingly, the Commission has not retained the dollar limit.

9. Sections 110.44, 110.45(c): NCI objects to the proposed editorial amendment to § 110.45(c) which would *require* the Commission to issue an export license if "applicable statutory provisions are met." NCI prefers leaving license issuance optional and also revising the related provision in § 110.44 to conform with § 110.45(c).

The Commission does not agree with this position since, if all applicable statutory provisions have been determined by the Commission to be met, there is clearly no basis for the Commission to withhold issuance of the requested export license. Further, Section 126 b. of the Atomic Energy Act of 1954, as amended, *requires* the Commission to issue an export license when all applicable statutory requirements have been met.

10. Section 110.70: NCI objects to the proposal to eliminate **Federal Register** noticing requirements for low-enriched uranium fuel export license applications.

While the Commission agrees with NCI that public participation in the Commission's export license reviews should be permitted, it does not believe that this necessitates that all low enriched fuel export license applications be noticed in the **Federal Register**. Copies of all applications will continue to be placed in the Commission's Public Document Room. In addition, the great majority of persons interested in the Commission's export license proceedings are on a mailing list which provides a monthly list of all new NRC export license applications received. (Others desiring this listing can be added to the mailing list by contacting NRC's Office of International Programs). The list of applications received will

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normally be received in time for recipients to submit comments to the Commission on the pending applications prior to license issuance. The Commission believes that these latter means are more effective than **Federal Register** noticing in making interested parties aware of pending NRC export license applications. As an extra precaution, however, the Commission will continue to notice in the **Federal Register** receipt of license applications with potential proliferation significance, such as all proposed exports of significant quantities of high-enriched uranium.

Mr. E. Nemethy. Mr. Nemethy had 4 comments, none of which, in the Commission's view, warranted any revisions to the amendments as proposed. Mr. Nemethy's comments, and the Commission's responses to them, are as follows:

1. Paragraph 110.41(a)(7) requires Executive Branch review for export license applications to embargoed countries (i.e., those listed in § 110.28). Mr. Nemethy asked how it is possible to consider approving exports to "embargoed" countries.

The Commission would not normally consider licensing exports to countries listed in § 110.28 in view of the U.S. Government's general embargo on U.S. trade with those countries. However, although there have been no export licenses to an embargoed country issued to date, the Commission recognizes that it may be appropriate to consider exceptions to the general embargo in certain situations, such as the export of medical radioisotopes for humanitarian purposes.

2. Mr. Nemethy asked why the USSR isn't included on the lists of embargoed or restricted destinations. If the USSR is permitted to receive imports under the proposed general licenses, what would prevent it from reexporting the material to an embargoed destination?

With regard to Mr. Nemethy's first point, the Executive Branch and the Commission do not believe that the USSR poses any foreign policy concern or any proliferation risk with respect to any of the non-sensitive commodities under NRC's existing or proposed general licenses. With regard to Mr. Nemethy's second point, if the USSR should begin to retransfer NRC general-licensed commodities to embargoed countries in violation of Part 110, the Commission would clearly have grounds to consider placing the USSR on the restricted or embargoed country lists.

3. Mr. Nemethy asked what would prevent the USSR, or any other country, from retransferring any NRC-licensed export to a third country without obtaining DOE approval as required by § 110.6.

The Commission acknowledges that foreign countries could subvert U.S. export controls by diverting NRC-licensed exports from their original intended end use. There are actions that the U.S. Government can take, and has taken, however, to counter these concerns. For exports of proliferation significance, such as exports of reactors and significant quantities of special nuclear material, exports must be made under formal agreements for cooperation which contain explicit requirements for obtaining the prior consent of the U.S. Government before retransfers of U.S.-origin material can take place. As a result, any unauthorized retransfer would be a violation of the terms of the agreement and grounds for taking appropriate diplomatic action including cessation of further nuclear cooperation. For less significant commodities, the primary means for controlling reexports is through the export licensee. The Commission has the authority to impose appropriate sanctions on such licensees in cases of violations of any export license terms. In addition, the Commission could refuse to issue any new licenses for export to countries which permit the unauthorized retransfer of NRC-licensed commodities to third countries. To date, the Commission is not aware of any examples of the unauthorized retransfer by any country of any NRC-licensed commodity.

4. Mr. Nemethy asked, with reference to the proposed general license in § 110.21, what would prevent an exporter from exporting material for use in the specified proscribed sensitive activities and then later denying that he had any advance knowledge of the activities.

The Commission recognizes that in certain instances it may be difficult to establish that a violation is willful. This is particularly the case with respect to the proposed end use restrictions in § 110.21. Because of this situation, the Commission has limited severely the quantities and forms of materials that may be exported under a general license so that, even in the case of a deliberate violation, the proliferation risk would be minimal.

*The Atomic Industrial Forum (AIF).* AIF was generally in favor of the proposed amendments. It commented that reactor pressure tubes should be eligible for export under the proposed general license in § 110.26.

The Commission agrees with AIF's comment that reactor pressure tubes are eligible for export under the proposed general license in § 110.26 and the final rule has been correspondingly modified. The Commission also notes AIF's suggestion that NRC replace DOE as the agency responsible for obtaining official

assurance letters from foreign governments with respect to proposed nuclear exports. The Commission plans to consult further with the Executive Branch on this matter.

*The Department of Energy (DOE).* DOE raised questions concerning the proposed general license for the export of Neptunium-237.

After consultation with DOE and the other Executive Branch agencies, it was concluded that it would be appropriate to adopt a limited Neptunium-237 general license which will permit the export of up to 1 gram per shipment and 10 grams per year to any one country. The previously proposed general license would have permitted the export of up to 1 kilogram of Neptunium-237 per year to any one country.

*The Petroleum Equipment Suppliers Association (PESA).* PESA claimed that the proposed general license for the export of Americium-241 could place undesirable constraints on the development of oil and gas resources around the world and recommended that the general license be modified.

The Commission has consulted with the Executive Branch on this matter and agreement has been reached to modify the proposed general license to permit exports of Americium-241 when contained in petroleum exploration equipment in quantities of up to 20 curies per device and 200 curies per year to countries listed in § 110.28. This modification will permit the unrestricted export of Americium-241 for the oil and gas exploration purposes cited by PESA.

*3M Company.* 3M objected to the revised general license in § 110.23(a)(4) because it would revoke the provisions of the former general license in § 110.24(c)(4) which permitted the essentially unrestricted export of polonium-210 in static eliminators.

The restriction on static eliminator exports was unintentional. The Commission has consulted with the Executive Branch and agreement has been reached to reinstate the former general license which will permit the continued export under general license of polonium-210 when contained in static eliminators. In addition, the Executive Branch has requested additional time to review the proposed general license for the export of polonium-210 when *not* incorporated in static eliminators. Accordingly, that proposed general license will not be adopted at this time.

*Miscellaneous.* The proposed language covering end use restrictions on general licenses in §§ 110.21(b) and 110.22(b) has been moved to § 110.20(d) so that the restrictions now apply to all exports under general license. The proposed general license for the export of nuclear grade graphite has been modified to make it simpler and clearer.

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The list of restricted destinations in § 110.29 has been updated. Finally, the definition of a "person" in § 110.2 has been revised to specify that, with respect to imports, DOE is not defined as a person.

**Note.**—DOE has separate statutory authority to import nuclear equipment and material. As a result of this latter change, the proposed DOE contractor import exemption in § 110.11 is no longer necessary and it has been deleted. The Commission has concluded that the amendments are not inimical to the common defense and security, do not constitute an unreasonable risk to the public health and safety, and will not result in any activity which adversely affects the environment. Furthermore, the amendments are consistent with the Atomic Energy Act of 1954, as amended by the Nuclear Non-Proliferation Act of 1978, and do not conflict with the safeguards criteria of the International Atomic Energy Agency.

The amendments are not inconsistent with the obligations of the United States under any treaty or international arrangement, including the Treaty on the Non-Proliferation of Nuclear Weapons.

### COMPARISON OF FORMER REGULATIONS WITH NEW CHANGES

New	Former
<b>I. General License Revisions</b>	
A. Special nuclear material:	
1. Low-enriched uranium as residual contamination (§ 110.21(a)(1)).	None.
2. One effective gram or less of SNM to countries not listed in § 110.28 or § 110.29 (§ 110.21(b)(1)).	None.
3. Replacement fuel elements to countries not listed in § 110.28 or § 110.29 (§ 110.21(b)(2)).	None.
B. Source material:	
1. Thorium in alloys in concentrations of 5% or less to countries not listed in § 110.28 (§ 110.22(a)(2)).	Thorium in aircraft parts only (§ 110.23(b)(2)).
2. Source material in individual shipments of 10 kilograms or less to countries not listed in § 110.28 or § 110.29 (§ 110.22(b)).	Individual shipments of 1 kilogram or less (§ 110.23(a)(1)).
C. Byproduct material:	
1. Byproduct material with an atomic number greater than 83, except polonium-210, americium-241 and neptunium-237 (§ 110.23(a)(1)).	Americium-241 only (§ 110.24(d)).
2. Tritium in light sources up to 10,000 curies per shipment (§ 110.23(a)(2)).	100 curies per shipment limitation (except in aircraft safety devices) § 110.24 (b) and (c)).
3. Tritium in any dispersed form in shipments of 100 curies or less (§ 110.23(a)(3)).	Same, but limited to certain dispersed forms only (§ 110.24(c)).
4. Neptunium-237 in shipments of 1 gram or less. (§ 110.23(a)(5)).	None.
5. Tritium in any form in shipments of 100 curies or less to countries not listed in § 110.28 or § 110.29 (§ 110.23(b)).	None.
D. Deuterium:	
1. Deuterium in shipments of 1 kilogram or less (§ 110.24(a)).	90 grams of heavy water (18 grams of deuterium) or less per shipment (§ 110.25).

### COMPARISON OF FORMER REGULATIONS WITH NEW CHANGES—Continued

New	Former
2. Deuterium in shipments of 10 kilograms or less to countries not listed in § 110.28 or § 110.29 (§ 110.24(b)).	None.
E. Nuclear grade graphite in shipments of up to 100 kilograms or in fabricated non-nuclear related commercial products (§ 110.25).	Shipments of up to 100 kilograms only (§ 110.26).
F. Nuclear reactor components to certain countries (§ 110.26).	None.
G. Imports (§ 110.27)	Formerly authorized under exemption except no authority for SNM imports (§ 110.11).

### H. Significant Other Changes to Part 110

(Other than general license)

A. Section 110.6	Elimination of requirements for prior approval of re-transfers when such re-transfers have been approved in the context of issuing the original export license.
B. Section 110.30(d)	Elimination of provision limiting consolidated license applications to two year duration.
C. Section 110.41	Expansion of authority for NRC to process minor applications without referral to the Executive Branch (i.e., emphasis would be placed on reviewing exports for sensitive and uses or initial exports to new facilities).
D. Section 110.42	Clarification that health and safety findings are not required with respect to the impact abroad of reactor exports.
E. Section 110.50	Elimination of requirement to return expired licenses to NRC.
F. Section 110.51	Elimination of requirement to obtain license amendments for: (1) Changes in value (but not quantity) of nuclear equipment; (2) changes in addresses of consignees; and (3) addition of new intermediate consignees for component licensees.
G. Section 110.70	Elimination of requirement to notice receipt in the FEDERAL REGISTER of applications for imports and for export of LEU and less than 5 kgs. of HEU, U-233 or plutonium.

### Environmental Impact: Categorical Exclusion

The NRC has determined that these amendments are a categorical exclusion under 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for these amendments.

### 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 3150-0027.

### Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. This 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. Single copies of the analysis may be obtained from Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-4599.

### 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, except to reduce the regulatory burden on licensees by reducing significantly the number of specific license applications required. It is estimated that, among the approximately 125 exporters/importers affected, the number of specific license applications per year will be reduced from about 450 to 200. Assuming an average of one hour to prepare an application, this will reduce the cost to the public from about \$27,000 to \$12,000 per year.

### List of Subjects in 10 CFR Part 110

Administrative practice and procedures, Classified information, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Scientific equipment.

Under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the following amendments to 10 CFR Part 110 are published as a document subject to codification.

➤ 49 FR 49841  
Published 12/24/84

### 10 CFR Part 110

### Export and Import of Nuclear Equipment and Material

#### Correction

In FR Doc. 84-31548, beginning on page 47191 in the issue of Monday, December 3, 1984, make the following corrections:

1. On page 47197, in the first column, in § 110.1, the second word in the fifth line of paragraph (a) should read "of".

2. Also on page 47197, in the second column, in § 110.2, the last word in the sixth line of the definition for "Person"

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should read "any".

3. On page 47199, in the third column, in § 110.25, the second word in the eleventh line of paragraph (b) (the ninth line of the third column) should read "machining".

4. On page 47202, in the second column, in § 110.50, the last word in the eighth line of paragraph (b)(3) should read "licensee".

5. Also on page 47202, in the third column, the last word in the heading of § 110.53 should read "inspections".

50 FR 12221

Published 3/28/85

Effective date will be published at a later date.

*Implementation of the Convention on Physical Protection of Nuclear Material*

See Part 40 Statements of Consideration

reached to specify coverage of certain additional components of uranium gas centrifuge enrichment plants (see 49 FR 2881, January 24, 1984). Agreement has now been reached on the adoption of new definitions of items specially designed or prepared for use in nuclear fuel reprocessing plants. Currently, all specially designed or prepared reprocessing components are subject in the U.S. to NRC's export licensing control under the provisions of 10 CFR 110.8(c) of NRC's export/import licensing regulations. 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 that the Commission take appropriate steps to implement the Zangger Committee's decision.

In support of the decision to adopt four new definitions of reprocessing plant 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:

### Introductory Note: Spent Nuclear Fuel Reprocessing

Reprocessing irradiated nuclear fuel separates plutonium and uranium from intensely radioactive fission products and other transuranic elements. Different technical processes can accomplish this separation. However, over the years Purex has become the most commonly used and accepted process. Purex involves the dissolution of irradiated nuclear fuel in nitric acid, followed by separation of the uranium, plutonium, and fission products by solvent extraction using a mixture of tributyl phosphate in an organic diluent.

Purex facilities have process functions similar to each other, including: irradiated fuel element chopping, fuel dissolution, solvent extraction, and process liquor storage. There may also be equipment for thermal denitration of uranium nitrate, conversion of plutonium nitrate to oxide or metal, and treatment of fission product waste liquor to a form suitable for long term storage or disposal. However, the specific type and configuration of the equipment performing these functions may differ between Purex facilities for several reasons, including the type and quantity of irradiated nuclear fuel to be reprocessed and the intended disposition of the recovered materials, and the safety and maintenance philosophy incorporated into the design of the facility.

The equipment listed below performs key reprocessing functions. Each comes into direct contact with the irradiated fuel of process liquor and operates in an environment characterized by criticality,

radiation, and toxicity hazards. These make remote control of the process essential.

(1) *Fuel element chopping.* The equipment breaches the cladding of the fuel to expose the irradiated nuclear material. Especially designed metal cutting shears are the most commonly employed. Although advanced equipment, such as lasers, may be used.

(2) *Dissolvers.* Dissolvers normally receive the chopped up spent fuel. In these critically safe vessels, the irradiated nuclear material is dissolved in nitric acid and the remaining hulls removed from the process stream.

(3) *Solvent extractors.* Solvent extractors both receive the solution of irradiated fuel from the dissolvers and the organic solution which separates the uranium, plutonium and fission products. Solvent extraction equipment is normally designed to meet strict operating parameters, such as long operating lifetimes with no maintenance requirements or adaptability to easy replacement, simplicity of operation and control, and flexibility for variations in process conditions.

(4) *Holding or storage vessels.* Three main process liquor streams result from the solvent extraction step. Holding or storage vessels are used in the further processing of all three streams, as follows:

(a) The pure uranium nitrate solution is concentrated by evaporation and passed to a denitration process where it is converted to uranium oxide. This oxide is reused in the nuclear fuel cycle.

(b) The intensely radioactive fission products solution is normally concentrated by evaporation and stored as a liquid concentrate. This concentrate may be subsequently evaporated and converted to a form suitable for storage or disposal.

(c) The pure plutonium nitrate solution is concentrated and stored pending its transfer to further process steps. In particular, holding or storage vessels for plutonium solutions are designed to avoid criticality problems resulting from changes in concentration and form of this stream.

(5) Plutonium nitrate to oxide conversion system. In most reprocessing facilities, this final process involves the conversion of the plutonium nitrate solution to plutonium dioxide. The main functions involved in this process are: process feed storage and adjustment, precipitation and solid/liquid separation, calcination, product handling, ventilation, waste management, and process control.

(6) Plutonium oxide to metal conversion system. This process, which could be related to a reprocessing facility, involves the fluorination of

50 FR 20742

Published 5/20/85

Effective 5/21/85

### 10 CFR Part 110

#### Export of Reprocessing Plant Components

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations to further clarify what components are especially designed or prepared for use in a nuclear fuel reprocessing plant and thus are subject to the Commission's export licensing authority. This action will implement the recent decision of the multilateral Non-Proliferation Treaty Exporters Committee (Zangger Committee) to adopt four new definitions to its international export control Trigger List covering specially designed or prepared reprocessing plant components.

**EFFECTIVE DATE:** May 21, 1985.

**FOR FURTHER INFORMATION CONTACT:** Marvin R. Peterson, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-4599, or Joanna M. Becker, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7630).

**SUPPLEMENTARY INFORMATION:** During recent years, the U.S. and other nuclear supplier governments have engaged in discussions within the framework of the Non-Proliferation Treaty Exporters Committee (Zangger Committee) to further clarify the coverage of the international nuclear export control "Trigger List". In 1984, agreement was



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plutonium dioxide normally with highly corrosive hydrogen fluoride, to produce plutonium fluoride which is subsequently reduced using high purity calcium metal to produce metallic plutonium and a calcium fluoride slag. The main functions involved in this process are: fluorination (e.g., involving equipment fabricated or lined with a precious metal), metal reduction (e.g., employing ceramic crucibles), slag recovery, product handling, ventilation, waste management, and process control.

These processes, including the complete systems for plutonium conversion and plutonium metal production, may be identified by the measures taken to avoid criticality (e.g., by geometry), radiation exposure (e.g., by shielding), and toxic hazards (e.g., by containment).

### Regulatory Action Required

Currently, Part 110 specifies reprocessing plant component export licensing requirements for only (1) fuel element chopping machines; (2) criticality safe tanks; (3) countercurrent solvent extractors; and (4) process control instrumentation. The Zangger Committee's recent action will require the amendment to the solvent extractor entry in § 110.8(c)(3) and the addition of three new items: (1) Chemical holding or storage vessels; (2) plutonium nitrate to plutonium oxide conversion systems; and (3) plutonium metal production systems.

Because this amendment involves a foreign affairs function of the United States, Commission notice of proposed rulemaking and public procedures thereon are not required by section 553 of Title 5 of the United States Code. Since the State Department has requested expeditious action on this amendment in order to meet international commitments, the Commission finds that good cause exists for making the amendment effective without the customary 30-day notice.

### Environmental Impact: Categorical Exclusion

The NRC has determined that this amendment is 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 amendment.

### 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

Adoption of this amendment is necessary in order to maintain U.S. consistency with U.S.-supported international nuclear export control guidelines. No other NRC regulatory actions or alternative actions by other agencies address this matter nor are any alternative courses of action feasible. While this amendment impacts all potential U.S. exporters of reprocessing plant components, it is not expected to result in any increased regulatory burden since it essentially clarifies the scope of existing NRC export licensing controls. In addition, to date, NRC has neither received an application to export any reprocessing plant components nor are any such applications expected in the foreseeable future.

### List of Subjects in 10 CFR Part 110

Administrative practice and procedures, Classified information, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Scientific equipment.

Under the authority of the Atomic Energy Act of 1954, as amended, and 5 U.S.C. 552 and 553, the following amendment to 10 CFR Part 110 is published as a document subject to codification.

51 FR 12598  
Published 4/14/86  
Effective 4/14/86

### 10 CFR Part 110

### Licensing Requirements for the Export of Nuclear Equipment and Material

**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 material: (1) To require certain holders of export licenses to notify the Commission in writing at least 40 days prior to exporting Canadian-origin nuclear material or equipment; (2) to expand the general license for byproduct material to cover the export of americium-241 contained in industrial process control equipment; and (3) to update the list of countries in the provisions setting out restricted destinations (§ 110.29) by deleting from the list certain countries that recently have adhered to the Nuclear Non-Proliferation Treaty (NPT).

This action is necessary to implement portions of the U.S./Canada Agreement for Cooperation, to correct an oversight in the current regulations, and to continue the policy of facilitating nuclear cooperation with countries sharing the non-proliferation goals of the United States.

**EFFECTIVE DATE:** April 14, 1986.

### FOR FURTHER INFORMATION CONTACT:

Elaine O. Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-7984 or Joanna Becker, Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-7630.

**SUPPLEMENTARY INFORMATION:** The Executive Branch has requested the NRC to amend its regulations in § 110.50(b)(3) concerning the notification of the export of foreign-origin nuclear material or equipment so that it will include Canadian-origin nuclear material and equipment in addition to Australian-origin nuclear material and equipment. This action will carry out Article XII, paragraph D of the U.S./Canada Agreement for Cooperation which requires the consent of Canadian authorities before the Canadian-origin nuclear material and equipment may be exported from the United States. In most cases, Canadian authorities have given their prior consent for retransfer at the time the material is imported into the United States. In other cases, where the country of origin is not known at the time NRC issues the license, the license holder or applicant must notify NRC in writing at least 40 days prior to actual export of the material or equipment in order to obtain United States Government authorization should the nuclear material or equipment be determined to be Canadian origin. The NRC will consult with the Executive Branch to obtain Canadian consent for the shipment. During this period, the licensee may not ship the nuclear material or equipment until authorized by NRC. Consultations normally will be completed well within 40 days.

The NRC is also amending its regulations concerning the restrictions on exports of byproduct material under the general license set out in § 110.23(b). This amendment will allow the export of americium-241 contained in industrial process control equipment. This amendment corrects an oversight in the current general license regulations covering americium-241 which now prohibit the export of americium-241 exceeding one curie per shipment or 100 curies per year to countries listed in § 110.29 unless it is contained in petroleum exploration equipment. Because it was never the intention of the Commission to prohibit exports of

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americium-241 for legitimate commercial use, the regulation will be amended to correct this oversight.

The NRC is also amending its regulations in § 110.29, the list of restricted destinations for exporting nuclear materials and equipment under general licenses, in order to delete the following countries: Belize, Bhutan, Equatorial Guinea, Kiribati, St. Vincent and the Grenadines, and Seychelles. These countries are recent adherents to the NPT. This amendment removes special restrictions on the export of nuclear material and equipment to certain countries which have adhered to the NPT, thereby continuing the United States Government policy of facilitating nuclear cooperation with countries sharing U.S. non-proliferation goals. Because these amendments involve a foreign affairs function of the United States, the Administrative Procedure Act provisions governing rulemaking do not apply to this action (5 U.S.C. 553 (a)(1)). Therefore, a notice of proposed rulemaking is not required for this action and the final rule may be made effective upon publication in the Federal Register.

### Environmental Impact: Categorical Exclusion

The NRC has determined that the amendments to Part 110 in this regulation are 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 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 3150-0036.

### Regulatory Analysis

The Commission has prepared a regulatory analysis of 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. Single copies of the analysis may be obtained from Elaine Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7984.

### Backfit

The NRC has determined that the backfit provisions in 10 CFR 50.109 do not apply to amendments to 10 CFR Part 110 rule changes, since the regulations in Part 110 apply only to the export of nuclear facilities, material, and

components and have no impact on domestic facilities. Therefore, a backfit analysis has not been prepared for these amendments.

### List of Subjects in 10 CFR Part 110

Administrative practice and procedure. Classified information. Export, Import, Incorporation by reference, Intergovernmental relations. Nuclear materials, Nuclear power plants and reactors. Penalty, Reporting and recordkeeping requirements. Scientific equipment.

Pursuant to 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 following amendments to 10 CFR Part 110 are published as a document subject to codification.

➤ 51 FR 27825  
Published 8/4/86  
Effective 8/4/86

### 10 CFR Part 110

### Licensing Requirements for the Export of Tritium

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations for the export of tritium under a general license. The revised regulations impose more restrictive limits on the amount of dispersed tritium which can be contained in luminescent light sources and other items exported under the general license. The revision precludes the export of large tritium light sources under the general license unless the light source is installed in an aircraft as a safety device. This action is necessary to address the concerns of the Executive Branch and other governments that the current general license regulations covering tritium luminescent light sources may represent a potential proliferation risk. This amendment also defines tritium in order to clarify its meaning to exporters and to conform NRC's export regulations with international guidelines.

**EFFECTIVE DATE:** August 4, 1986.

### FOR FURTHER INFORMATION CONTACT:

Elaine O. Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-7984 or Joanna M. Becker, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-7630.

**SUPPLEMENTARY INFORMATION:** The Executive Branch has requested that the NRC amend its regulations concerning the export of tritium contained in

luminescent light sources under a general license. This action is being taken as a result of a review of tritium export controls by the NRC and the Executive Branch and consultations with other governments which indicated that the current general license may represent a potential proliferation concern. Section 110.23(a)(2) now permits individual shipments of tritium in light sources of up to 10,000 curies to any country except those listed in the embargoed destinations (§ 110.28) with no other limitations. The general license was intended to cover exports of many small tritium light sources for non-nuclear related commercial products (e.g., watch dials, exit signs, etc.). At the time the current general license was proposed, it was considered unnecessary to impose upper limits on the amount of tritium contained in each light source because most light sources contained only a few millicuries of tritium up to a maximum of 25 curies. However, in recent years, the maximum size of light sources has increased significantly. For example, tritium light panels when used for remote airfields contain five light sources of 60 curies each, for a total of 300 curies of tritium per panel. In these larger quantities, it becomes technically easier to extract bulk tritium from the light sources and divert it to proliferation sensitive end uses. To address this concern, the current general license provisions of § 110.23(a)(2) which now covers tritium in light sources and § 110.23(a)(3) which now covers all other items containing dispersed tritium in quantities of less than 100 curies per item will be combined into a single general license provision. The revised § 110.23(a)(2) will limit exports of tritium in any dispersed form under a general license to 10 curies per item, 1,000 curies per shipment, and 10,000 curies per person per year to any one country. A limited general license authority will be retained at § 110.23(a)(3) to allow the continuation of the export of tritium in amounts exceeding 10 curies per item when installed in aircraft as a luminescent safety device. This limited general license authority is appropriate because many aircraft tritium light sources exceed 10 curies and, when installed in aircraft, are of minimal proliferation concern.

In summary, exporters of any item containing dispersed tritium including a luminescent light source in quantities greater than 10 curies per item will be required to obtain a specific NRC license before they may export the item unless the item is a light source installed in an aircraft as a safety device.

NRC also will be amending its regulations in § 110.2, the list of definitions, to add a definition of tritium reading as follows: "Tritium" means not

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only tritium but also includes compounds and mixtures containing tritium in which the ratio of tritium to hydrogen by atoms exceeds one part in 1,000. This action clarifies the meaning of tritium to exporters, and also conforms NRC's export regulations with international export control guidelines. Finally, a minor editorial change will be made in the wording of the current general license provision pertaining to the export of bulk tritium in § 110.23(c) for the purpose of making it consistent with the language in the other general license entries.

The impact of this rulemaking action on exporters is expected to be minimal. NRC believes less than five exporters of tritium light sources will be affected per year. With respect to exports of other forms of dispersed tritium, NRC also believes less than five exporters will be affected per year.

Because this rulemaking involves a foreign affairs function of the United States and since the Department of State has requested expeditious action, 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**.

### **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.

### **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 3150-0036.

### **Regulatory Analysis**

The Commission has prepared a regulatory analysis of 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, 1717 H Street, NW, Washington, DC. Single copies of the analysis may be obtained from Elaine Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7984.

### **Backfit**

The NRC has determined that the backfit analysis provisions in 10 CFR 50.109 do not apply to amendments to 10 CFR Part 110 because Part 110 applies

only to the export and import of nuclear facilities, material, and components and does not deal with domestic facilities. Therefore, a backfit analysis has not been prepared for these amendments.

### **List of Subjects in 10 CFR Part 110**

Administrative practice and procedure, Classified information, Export, Import, Incorporation by reference, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Scientific equipment.

Pursuant to 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 following amendments to 10 CFR Part 110 are published as a document subject to codification.

**51 FR 35997**  
Published 10/8/86  
Effective 10/8/86

*Nomenclature Changes To Implement Consolidation of OGC and OELD*

See Part 1 Statements of Consideration

➤ **51 FR 47207**  
Published 12/31/86  
Effective 12/31/86

### **10 CFR Part 110**

### **Imports of Uranium from South Africa**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations concerning the import of uranium from South Africa under the general license. This action is necessary to implement the provision of the Comprehensive Anti-Apartheid Act of 1986, enacted October 2, 1986, which prohibits the import into the United States of uranium ore and uranium oxide produced or manufactured in South Africa. The final rule deletes the general import license with respect to the import of any uranium of South African origin, thereby precluding the import of this material unless a specific license is requested and obtained.

**EFFECTIVE DATE:** December 31, 1986.

**FOR FURTHER INFORMATION CONTACT:** Elaine O. Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-7984 or Joanna M. Becker, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-7630.

**SUPPLEMENTARY INFORMATION:** On October 2, 1986, Public Law 99-440, the Comprehensive Anti-Apartheid Act of

1986 ("the Act"), was enacted 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 imposes 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. The Treasury Department, in Executive Order 12571 of October 27, was delegated authority in the Executive Branch to implement the Act's provisions on the importation of uranium (Section 309(a)). The NRC, which has independent regulatory authority under the Atomic Energy Act over the import of uranium, must also implement provisions in its regulations to conform with the requirements of the Act and ensure that these provisions are consistent with the provisions of the Treasury Department's regulations.

South Africa, as used in the Act, includes the Republic of South Africa; any territory under the administration, legal or illegal, of South Africa (including Namibia); and the "bantustans" or "homelands", to which South African blacks are assigned on the basis of ethnic origin, including the Transkei, Bophuthatswana, Ciskei, and Venda.

Section 309(a) of the Act prohibits the importation into the United States of uranium ore and uranium oxide that is produced or manufactured in South Africa. The NRC's import regulations in 10 CFR 110.27 currently 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. To implement section 309(a), the NRC is amending its regulations in § 110.27 to delete the general license with respect to the import of any uranium of South African origin. A person wishing to import South African origin uranium which is no longer permitted for import under the general license in § 110.27 may submit a specific license request to import this material to the NRC for consideration. However, subject to further clarifications of the scope of the Act, such import license applications may be denied under existing law, including applications to import material intended for further processing in the U.S. (e.g., enrichment) and subsequent reexport to a third country.

It should also be noted that section 303 of the Act prohibits the import (with some exceptions not pertinent here), of any products grown, produced, manufactured by or otherwise exported

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by a "parastatal organization" of South Africa. A parastatal organization is defined as a corporation, partnership or other entity owned or controlled or subsidized by the South African Government, but not a corporation, partnership, or entity which previously received start-up assistance from the South African Industrial Development Corporation but which is now privately owned. This prohibition covers uranium in any form, as Senator Lugar noted in his remarks introducing S. 2701 (132 CONG. REC. S. 9889-9898, daily ed. July 30, 1986). The Treasury Department published regulations implementing this section on November 19, 1986 (51 FR 41907). The Department of State published a list of South African parastatal organizations on the same date (51 FR 41912).

### **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.

### **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**

The Commission has prepared a regulatory analysis of this final regulation. The analysis examines the costs and benefits of the regulation. 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 Elaine Hemby, Office of International Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-7984.

### **Backfit Analysis**

The NRC has determined that the backfit analysis provisions in 10 CFR 50.109 do not apply to amendments to 10 CFR Part 110 because Part 110 applies only to the export and import of nuclear facilities, material, and components and does not deal with domestic facilities. Therefore, a backfit analysis has not been prepared for this amendment.

### **List of Subjects in 10 CFR Part 110**

Administrative practice and procedure, Classified information, Export, Import, Incorporation by reference, Intergovernmental relations,

Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting and recordkeeping requirements, Scientific equipment.

Pursuant to section 309(a) 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 following amendment to 10 CFR Part 110 is published as a document subject to codification.

# 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

23 FR 1151  
Published 2/21/58  
Effective 2/21/58

See Part 70 Statements of Consideration.

25 FR 2944  
Published 4/7/60  
Effective 5/7/60

The following amendments to Part 140 constitute a comprehensive revision to this part.

Notice of proposed issuance of the following rules was published in the *FEDERAL REGISTER* on May 1, 1959 (24 F.R. 3508). A detailed statement of considerations explaining the provisions of the following amendments was published with the notice of proposed rule making at 24 F.R. 3508. Comments filed by interested persons have been given careful consideration.

Except for §§ 140.3, 140.6, 140.12, 140.15 and 140.17, the provisions of the following amendments are the same as those incorporated in the notice of proposed rule making. Section 140.6 (concerning reports) has been rewritten to clarify the obligations of an indemnified licensee following a nuclear incident and to eliminate the filing of extensive reports by a licensee until the extent of the incident and the need for such reports and records have been determined by the Commission. Minor changes, mainly of a drafting nature, have been made in §§ 140.3(j), 140.12(b)(4)(ii), 140.15(a) and 140.17(b).

Sections 140.11 and 140.12 establish the amount of financial protection to be maintained by reactor licensees. They are substantially similar to the corresponding provisions in the proposed rule published on May 1, 1959. Representatives of the Nuclear Energy Liability Insurance syndicates ("NELIA" and "MAELU") have urged that the Commission require, in some cases, the maintenance of higher levels of financial protection than are required under the following rules. Their recommendations are set forth particularly in a letter dated January 22, 1960, and the attachments thereto, from Charles J. Haugh, Vice President, The Travelers Insurance

Company. This letter and the attachments are available for public inspection in the Commission's Public Document Room, 1717 H Street NW., Washington 25, D.C. Copies of the aforesaid letter may be obtained upon request to the Director, Division of Licensing and Regulation, U.S. Atomic Energy Commission, Washington 25, D.C.

The Commission plans to re-evaluate the provisions of §§ 140.11 and 140.12 in the light of comments received from the Nuclear Energy Liability Insurance syndicate, and comments received from interested members of the public, not later than December 31, 1960.

All interested persons who desire to submit comments for the consideration of the Commission on the proposals filed by the nuclear energy insurance syndicates and their member companies should send them to the U.S. Atomic Energy Commission, Washington 25, D.C., Attention: Director, Division of Licensing and Regulation within 90 days after publication of this notice in the *FEDERAL REGISTER*.

Effective 30 days after publication in the *FEDERAL REGISTER*, 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," is amended to read as follows:

25 FR 2948  
Published 4/7/60  
Effective 5/7/60

On August 28, 1958 (23 F.R. 6681, 6684), and on May 1, 1959 (24 F.R. 3508), the Atomic Energy Commission published for public comment two proposed amendments to Part 140 "Financial Protection Requirements and Indemnity Agreement". One proposed amendment included a form of indemnity agreement to be entered into between the Commission and nuclear reactor licensees. Under the second proposed amendment, the Commission proposed to grant approval by rule to the furnishing of financial protection in the form of the nuclear energy liability insurance policy form then available from the NELIA and MAELU syndicates (Nuclear Energy Liability Association and Mutual Atomic Energy Liability Underwriters, respectively). Following publication of the

proposed amendments, interested members of the public have submitted many helpful comments and suggestions. The comments and suggestions received have been taken into consideration by the Commission in the adoption of the following amendments.

The amendment set forth below approves, as proof of financial protection, the revised form of nuclear energy liability insurance policy currently available from NELIA and MAELU (§ 140.75, Appendix "A").

The revised form of nuclear energy liability insurance policy set forth in § 140.75 has been filed with and approved by a substantial number of state insurance agencies and has been issued by the syndicates to many AEC licensees in lieu of the binders previously in effect. The new insurance policy differs from the form previously published in the *FEDERAL REGISTER* on August 28, 1958, and May 1, 1959, primarily in the following respects:

1. The new form includes coverage of nuclear incidents occurring in transportation of nuclear materials to the reactor from any location, without regard to whether the transportation originated at a Government facility. The previous form provided coverage during transportation to the reactor only if the transportation was from a facility owned by the United States.

2. The period of prior notice to the Commission before the insurers can make a policy suspension effective has been increased from 12 hours to at least one full business day.

3. The new form excludes coverage for risks resulting from the transportation of "useful" or "commercial" isotopes. The NELIA and MAELU organizations have explained that such coverage is afforded in conventional liability policies.

4. With respect to a common occurrence, the aggregate insurance under all nuclear energy liability insurance policies issued by each syndicate has been expanded from the limit of liability of the highest applicable policy to the total pool capacity, if the facilities involved in the common occurrence have in the aggregate purchased that amount of coverage from the syndicate.

5. At hearings held before the Joint Committee on Atomic Energy on April 29, 1959 (Hearings Before the Joint Com-

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mittee on Atomic Energy, "Indemnity and Reactor Safety," page 4). Commission representatives testified that, among other things, the phraseology of the common occurrence provision in the insurance policies may cover more situations than intended by the syndicates. To clarify the intent of the insurance syndicates, a statement was subsequently furnished to the Joint Committee on Atomic Energy on behalf of NELIA and MAELU (Hearings, page 42). With respect to the common occurrence provisions, the syndicates said:

The Commission, in the statement made to the Joint Committee, has expressed doubt that the common occurrence provision in the policy (condition 4) has the meaning intended, and particularly that it may be construed, under subparagraph (a), to be applicable to bodily injury or property damage resulting from the conflation of fission products discharged from two or more reactors as a result of separate, distinct occurrences at each such reactor. The persons responsible for the policy language did not intend any such result but, on the contrary, intended that if two reactors at different locations "blow" at or about the same time, the applicable limit of liability of each reactor's policy will be available for resulting claims, and condition 4 will not be applicable. In brief, the pools (MAELU and NELIA) intend subparagraph (a) to apply only to situations where the gradual accumulation of nuclear materials discharged or dispersed over a period of time from two or more nuclear facilities, whether in the course of their normal operation or as a result of undetected malfunction or accidental leakage of effluents. A simple illustration is the contamination of a watershed as the result of the continued operation of two or more facilities for a period of time, without the occurrence of an incident, identifiable in time, at any of the facilities.

Even if the construction of subparagraph (a) of condition 4 feared by the Commission is possible, the pools could not take advantage of it because of the settled principles of law that if a provision in an insurance policy is ambiguous, the provisions must be given the meaning most favorable to the insured.

It is submitted that the provisions of the Price-Anderson Act particularly the definition of "nuclear incident," and subsection (c) and (e) of section 170, require that with respect to Government indemnity any occurrence or series of occurrences to which the policy's common occurrence provision is applicable should be construed as one nuclear incident. Otherwise the Government would be liable, in such a situation, not for \$500 million but for multiples thereof.

The general approval contained in the following amendment of the form of policy now offered by NELIA and MAELU should not be construed as indicating that it is the only form of nuclear energy liability insurance policy which the Commissioner will approve. The Commissioner will accept any other form of nuclear energy liability insurance policy as proof of financial protection under this part if it concludes that such other form provides adequate financial protection under the requirements of the Commission's regulations and applicable legislation.

The Commission will welcome further comments and suggestions concerning these amendments.

Effective thirty days after publication in the FEDERAL REGISTER, Part 140, Title 10 CFR, is amended by adding the fol-

lowing Appendix (§ 140.75).

26 FR 1396  
Published 2/17/61  
Effective 4/16/61

A comprehensive revision of the financial protection requirements in Part 140 was published in the FEDERAL REGISTER on April 7, 1960 (25 F.R. 2944).

The revision of Part 140 established fixed amounts of financial protection to be required of licensees of reactors having relatively low power levels. For power and testing reactors having a higher thermal power level, Part 140 prescribed a formula for computing financial protection. The basic elements of the formula were thermal power level and reactor location.

Early in 1960, representatives of the nuclear energy liability insurance syndicates ("NELIA" and "MAELU") urged the Commission to adopt a financial protection formula which would, in most cases, require reactor licensees to maintain higher levels of financial protection than those required under the revised Part 140. The recommendations of the insurance industry are embodied in a letter dated January 22, 1960, from Mr. Charles J. Haugh, Vice President, Travelers Insurance Company.

In prescribing the revised financial protection requirements in Part 140 as published April 7, 1960, the Commission announced that it planned to re-evaluate, no later than December 31, 1960, its financial protection requirements in light of comments and suggestions submitted to the Commission by the insurance industry and by interested members of the public. The Commission further requested that interested persons submit their comments on the proposals filed by the nuclear energy liability insurance syndicates.

The Commission has completed the re-evaluation of its financial protection requirements. In connection therewith careful consideration has been given to the insurers' proposal and to all comments and suggestions submitted by the insurers, the reactor industry, and other interested persons.

As a result of its study the Commission has concluded that:

a. Revision of the fixed amounts of financial protection presently prescribed by Part 140 would not be justified;

b. With respect to the formula prescribed by § 140.12 of Part 140, for determining amounts of financial protection other than the fixed amounts prescribed by § 140.11, revision of the population factor of the formula is desirable for the reasons given herein; and that revision of the value assigned in the formula to the base amount of financial protection would not be justified.

The amended financial protection formula set forth below does not vary, therefore, from the formula presently prescribed by Part 140 with respect to the base amount of financial protection required (\$150 per kilowatt of thermal

energy capacity). The base amount prescribed by Part 140 is consistent with the principle that the quantity of fission products that could escape in the event of an incident varies roughly in direct proportion to power level.

The range specified for the location (population) factor in the formula, however, has been extended from 1 to 1.5 to a range of 1 to 2. The NELIA-MAELU proposal of January 22, 1960 urged that a more realistic range would be 1 to 4. Both the insurers and the Commission agree, however, that since no scientific basis is possible for either range of values, any range used must necessarily reflect a substantial element of judgment.

Statistics compiled from hazards summary reports for some 19 power reactors in operation, under construction or presently planned, indicate that population densities within areas surrounding the reactor sites actually differ by a factor of approximately 10. Therefore, on the basis of adjacent population alone, it appears that a location factor ranging from 1 to 1.5 is too narrow. However, surrounding population is not the only parameter pertinent to the prescription of the "location factor" to be used in the financial protection formula. Credit must also be given to those safeguards that are inherently part of the reactor design or that have been specially engineered into the plant complex in recognition of the proximity and density of population surrounding the reactor site. No scientific basis exists, however, for determining the relative value that might be assigned to such safeguards. The value, therefore, must necessarily be based largely upon subjective evaluation. After careful study, the Commission has concluded that the range presently specified in Part 140 (1 to 1.5) gives more limited effect, and that proposed by the insurance syndicates (1 to 4) gives greater effect to differences in location than is believed justified. In the absence, however, of any scientific method for determining what the range should be, the Commission has concluded that, in any case, an increase in the span of the range is required and that a difference of 100 percent between the upper and lower limits is reasonable. The Commission has, therefore, adopted a location factor range of 1 to 2. The following amendment to 10 CFR 140 gives effect to this broader range.

Effective 60 days after publication in the FEDERAL REGISTER, 10 CFR Part 140, § 140.12(b)(4)(ii), is amended to read as follows:

26 FR 3455  
Published 4/22/61  
Effective 7/21/61

The following amendments establish the form of indemnity agreement which the Commission will execute with licensees furnishing insurance policies as proof of financial protection (§ 140.76); and the form of indemnity agreement



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which the Commission will enter into with licensees furnishing proof of financial protection in the form of the licensees resources. (§ 140.77)

The Commission acknowledges, with appreciation the numerous, helpful comments and suggestions which have been received from interested members of the public and participants in industry advisory conferences. These comments have been taken into consideration in adoption of these amendments.

Principal features of the form of indemnity agreement contained in § 140.76 *Appendix B* include the following:

1. The form includes common occurrence provisions (Article I, par. 3; Article II, par. 6; Article III, par. 4) which are similar to the common occurrence provisions in the NELIA and MAELU insurance policy (§ 140.75 *Appendix A*). Inclusion of the common occurrence provision in the indemnity agreement goes far towards eliminating a gap in protection which might otherwise exist.

The common occurrence provisions in the proposed indemnity agreement published for public comment in the *FEDERAL REGISTER* on April 7, 1960, 25 *F.R.* 2999, did not fully eliminate the gap in coverage which might result from a "common occurrence". As stated in the statement of considerations published with the notice of proposed rule-making,

A remaining possible gap is due to the fact that, although the Commission's obligations under the common occurrence provisions begin at an amount equal to the sum of all applicable insurance required under the regulations or \$60,000,000, whichever is lower, NELIA and MAELU limit their responsibility to the capacity of their respective pools; that is, if all of the insurance policies applicable to the common occurrence are issued by one of the syndicates, the obligation of the insurers would not exceed the capacity of the particular syndicate (\$46,500,000 in the case of NELIA or \$13,500,000 in the case of MAELU).

The Commission requested the insurance pools (Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters) to consider the adoption of changes in their nuclear energy insurance policies (facility form) to eliminate this possible gap. In a letter dated December 22, 1960 (a copy of which is available for examination in the Commission's Public Document Room, 1717 H Street NW., Washington 25, D.C.), the pools concluded that:

It should be emphasized that we have no objection to assuming liabilities up to \$60,000,000 in cases where the applicable limit of policies are equal to or in excess of that amount. Thus far, we have been unable to find a way to limit the loss liability of one pool to its insured by policies issued by the other pool to another insured. As pointed out earlier, if such a clause is not enforced by a court, the companies would be exposed beyond their commitments. The managers of the pools have no authority to expose the member companies in such a manner.

Consequently, the Commission has modified the common occurrence provisions of its indemnity agreement to eliminate this possible gap. (§ 140.76 *Appendix B*, par. 6, Article II.)

2. Provisions are included (Article I,

par. 4(c) to protect against double coverage in the event a nuclear incident occurs in transportation of nuclear material between two indemnified licensed facilities. Under these provisions, the shipper's agreement would be applicable and the consignee's agreement would not be applicable.

A principal purpose of provisions covering transportation "to the location" is to cover shipments of nuclear fuel directly from a fuel element fabricator's plant to the site of the reactor in which the elements will be used as fuel.

3. Licensees furnishing proof of financial protection in the form of their own resources are required "to indemnify and hold harmless all persons indemnified as their interest may appear from public liability \* \* \*". This obligation includes coverage of liability for damage to on-site property. Because the form of NELIA-MAELU policy does not cover such liability, the indemnity agreement in § 140.76 *Appendix B*, requires licensees furnishing the policies as financial protection to indemnify any person against liability for damage to on-site property (Article II, par. 2(b)). The Commission has recommended to the Congress that the indemnity provisions of the Atomic Energy Act of 1954 (§ 170) be amended to eliminate coverage of liability for damage to so-called "on-site" property. If such legislation is enacted, paragraph 2b., Article II, of the proposed indemnity agreement (§ 140.76 *Appendix B*) would be deleted and a corresponding change would be made in the provisions of Article III of the agreement. Paragraph 1, Article II, and Article III of the agreement in § 140.77 *Appendix C*, would also be modified.

4. Under the Atomic Energy Act of 1954, as amended, the Commission is required to indemnify against damage to property of persons indemnified, provided that such property is covered under the terms of the financial protection and is not located at the site of, and used in connection with, the activity where the nuclear incident occurs. The financial protection provided by the NELIA-MAELU policy form covers damage to property of persons indemnified only if the property is away from the site. Accordingly, the form of indemnity agreement in *Appendix B* excludes coverage of damage to on-site property of persons liable for the nuclear incident (Article III, par. 2).

5. A provision is included in the indemnity agreement (Paragraph b. of Item 2 of the Attachment thereto) under which the Commission fills a "gap" between the financial protection and the Commission's indemnity obligation resulting from payments made by the insurers under a nuclear energy liability insurance policy. The agreement does not include the provision, contained in the form published in April 1960, establishing a \$1,000,000 floor under the Commission's obligation. In the event that the licensee does not obtain reinstatement of the amount of financial protection within ninety days after the date of a payment under the policy, a provision is included under which the Commission may issue an order requiring the licensee to furnish financial

protection in another form (Article II, par. 2(a)).

6. A new article, Article VII, has been added to the indemnity agreement defining the "term" of the indemnity agreement.

7. A number of comments received from members of the public suggest that certain provisions of the indemnity agreement be clarified to indicate more precisely the coverage of the indemnity agreement with respect to the time and place of occurrence of covered "nuclear incidents". The Commission has considered these suggestions, but has not made any change in the text of the agreement with respect to them. It is clear from the definition of "nuclear incident" in paragraph 3, Article I, that the "occurrence or series of occurrences" referred to are those which take place "at the location or in the course of transportation". As stated in the report of the Joint Committee on Atomic Energy on H.R. 7383 (H.R. 435, 85th Cong., 1st Sess.), p. 16, "The occurrence which is the subject of this definition is that event at the site of the licensed activity \* \* \* which may cause damage, rather than the site where the damage may be caused."

From the foregoing, it seems clear also that references in the indemnity agreement to "nuclear incidents occurring during the term of this agreement" (Par. 4, Article II; par. 5, Article III), refer to such "occurrence or series of occurrences at the location or in the course of transportation"; and that any liability for damages caused by such occurrence or series of occurrences is covered by the agreement if the occurrence or series of occurrences takes place within the term of the agreement even though the damage resulted or became manifest after termination of the term of the agreement.

8. The statement of licensee's obligations under subsection 53e(8) of the Atomic Energy Act of 1954, as amended, has been deleted as suggested in a number of comments, and corresponding changes have been made in paragraph 3, Article II. This provision was in paragraph 3, Article II of the form published in April, 1960. The provision formerly in Item 2b(2) of the Attachment has also been deleted. These deletions are not considered as affecting the obligations of the various interests involved. Any obligations of the licensee under subsection 53e(8) of the Act to indemnify the United States and the Commission from public liability are substantially covered by the insurance form in § 140.75 *Appendix A*.

9. Article IV applies in cases where the Commission determines that the United States will probably be required to make indemnity payments under the provisions of the agreement. The Article provides among other things, that the Commission "shall have the right (a) to require the prior approval of the Commission for the settlement or payment of any claim or action asserted against the licensee or other person indemnified \* \* \*". Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters in their

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letter of comments dated June 6, 1960 (a copy of which is on file in the Commission's Public Document Room) have objected to these provisions. They object on the ground that in this provision the "Commission has exceeded its statutory authority". They assert also that the provision is "impractical" because it would impede prompt claims handling. The Commission, however, believes it has authority under sections 161 and 170 of the Atomic Energy Act of 1954, as amended, to adopt the provision in question. In connection with the assertion that the provision is impractical, it should be noted that the provision does not require Commission approval, but only reserves to the Commission the right to require Commission approval. It is anticipated that this authority would be exercised only in special circumstances and in such manner as to avoid undesirable delay in the settlement and defense of claims and actions. Discussions have been held with both syndicates looking towards the adoption of an agreement between them and the AEC concerning claims investigations and handling. In light of such arrangements as may be made as the result of those discussions, it may be desirable to reconsider the provisions of Article IV.

10. Article III, paragraph 2, has been revised essentially by adding subparagraphs (c) and (d). These subparagraphs were added further to implement the exception in subsection 11u of the Act for "property which is located at the site of and used in connection with the activity where the nuclear incident occurs."

Changes have also been made in the definition of public liability to exclude indemnity coverage for employees on the transporting vehicle when an incident occurs in the course of transportation.

11. The following amendments also add a provision to Subpart A (§ 140.9) applicable to all indemnity agreements subject to Part 140 providing that the Commission will publish at least a fifteen-day prior notice in the FEDERAL REGISTER of its intent to enter into an indemnity agreement which differs from the applicable form set forth in the appendices in Part 140.

The form indemnity agreements do not affect contractual obligations of suppliers to reactor licensees to repair or replace components furnished by such suppliers.

The form indemnity agreement in § 140.77 Appendix C, applies to licensees who furnish financial protection in the form of their own resources. That form is essentially similar to that in § 140.76 Appendix B, except for changes required by the difference in the form of financial protection.

The Commission has entered into temporary indemnity agreements with licensees pending adoption of the forms contained in these amendments. After the effective date of these amendments, the Division of Licensing and Regulation will tender to each licensee subject thereto a definitive indemnity agreement. These definitive agreements will, upon due execution, supersede the temporary indemnity agreements.

Notice is hereby given that the Commission has adopted the following amendments to Part 140, 10 CFR, "Financial Protection Requirements and Indemnity Agreements" to be effective ninety days after publication in the FEDERAL REGISTER.

26 FR 6641  
Published 7/26/61  
Effective 7/26/61

Nuclear Energy Liability Insurance Association has requested Commission approval of an amendatory endorsement which the Commission understands the Association and Mutual Atomic Energy Liability Underwriters propose to place on all nuclear energy liability insurance policies (facility form). The form of the endorsement is set forth in its entirety in the following amendments.

Notice of the proposed approval of the endorsements by the Commission was published in the FEDERAL REGISTER on April 14, 1961 (26 F.R. 3204). In publishing that notice, the Commission stated that the endorsements do not appear to effect material changes in the provisions of the policies. No public comments have been received on the notice.

Notice is hereby given that the following amendment is adopted to be effective upon publication in the FEDERAL REGISTER.

26 FR 7770  
Published 8/19/61

On April 22, 1961, the Commission published in the FEDERAL REGISTER the definitive form of indemnity agreement which the Commission will execute with licensees furnishing insurance policies as proof of financial protection (§ 140.76), and the definitive form of indemnity agreement which the Commission will enter into with licensees furnishing proof of financial protection in the form of the licensee's resources (§ 140.77). These definitive forms, by the terms of the notice, are to become effective on July 21, 1961.

By letter dated June 5, 1961, an Ad Hoc Committee on Nuclear Liability and Insurance of the Atomic Industrial Forum suggested that the Commission make several changes in the definitive form published as § 140.76 Appendix B. The Commission has decided to accept some of these suggestions. The suggestions adopted are all editorial or corrective in nature.

Typographical errors are also corrected in the form published as § 140.77, Appendix C.

1. In Paragraph 1, Article II, the phrase "been completed as provided in paragraph 4, Article I" is changed to read "ended as defined in subparagraph 4(b), Article I." This change is made merely to conform the language of Paragraph I, Article II, more closely to the

language of subparagraph 4(b), Article I.

2. The inclusion of the word "other" in the phrase "bears to the sum of the limits of liability of all other nuclear liability insurance policies" in paragraph 6(a) and 6(b) of Article II was inadvertent and is, therefore, deleted.

3. The word "licensee" is used three times in the first paragraph of paragraph 6(c), Article II. The first two uses of "licensee" refer to a person who provides financial protection in the form of his own resources while the last use refers to a person who provides financial protection in the form of insurance. While this fact is apparent from the language as published, in order to avoid any possible ambiguity with respect to the use of the word "licensee," the first three lines of paragraph 6(c), Article II, are revised to read: "If any of the other applicable agreements is with a person who has furnished financial protection in a form . . ."

4. The omission of the word "public" before the word "liability" in paragraph 3, Article III, was inadvertent; the word is therefore, added.

5. In Article VII, "ended as defined in subparagraph 4(b), Article I" is substituted for "been completed as provided in Paragraph 4, Article I." This change is made merely to conform the language of Article VII more closely with the language of subparagraph 4(b), Article I.

6. The only changes in the form of indemnity agreement contained in § 140.77 Appendix C is the insertion of the letter "(a)" between "employed" and "at" in the sixth line of paragraph 6, Article I, the insertion of the phrase "of the radioactive material" between "transportation" and "on" in the eighth line of paragraph 6, Article I; and the deletion of the word "and" after the letter "(b)" in the ninth line of paragraph 6, Article I. These errors were inadvertent, and the corrections will conform paragraph 6, Article I of Appendix "C" with paragraph 6, Article I, of Appendix "B".

Notice is hereby given that the Commission has adopted the following amendments to the amendments to Part 140, 10 CFR, "Financial Protection Requirements and Indemnity Agreements," which were published in the FEDERAL REGISTER on April 22, 1961:

27 FR 2884  
Published 3/29/62  
Effective 3/29/62

On April 22, 1961, the Commission published in the FEDERAL REGISTER the form of indemnity agreement which it would execute with licensees furnishing insurance policies as proof of financial protection and the form of indemnity agreement which it would enter into with licensees furnishing proof of financial protection in the form of the licensee's resources. On the same date a proposed amendment to 10 CFR Part 140 was issued for public comment. That proposed amendment contained the forms of indemnity agreement which the Commission would execute with federal agencies

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and nonprofit educational institutions subject to Part 140. Except for changes made because federal agencies and nonprofit educational institutions are not required to furnish financial protection, the forms of these proposed indemnity agreements were similar to those adopted for execution with licensees who furnish financial protection. Except for changes indicated below, the following amendments substantially adopt these proposed forms.

On November 22, 1961, the Commission issued for public comment a proposed amendment to Part 140 implementing Public Law 87-206, effective September 6, 1961. This statute contains a provision amending the definition of "public liability" in section 11u, of the Atomic Energy Act of 1954, as amended. Prior to enactment of the 1961 statute, the definition of "public liability" included coverage of liability for damage to certain on-site property used in connection with the licensed activity. Public Law 87-206 eliminated indemnity coverage of liability for damage to such on-site property. The following amendments include changes in the forms of indemnity agreement to effectuate the provisions of Public Law 87-206.

No substantive comments were received on either of the proposed amendments.

Opportunity is also taken at this time to correct minor typographical and editorial errors; to clarify §§ 140.52 and 140.72 appropriately to reference the form of indemnity agreement and to revise the language of these sections to conform with § 140.20; to add titles to Appendices "A," "B," "C," "D," and "E" which are policy and indemnity agreement forms; and to revise the provisions of Appendices "C" and "E" to make them consistent with similar provisions in the other indemnity agreement forms.

The principal changes in the form of indemnity agreement contained in § 140.76 Appendix B, are as follows:

1. As of 12:01 a.m., September 6, 1961, Paragraph 6 of Article I (definition of "public liability") is amended to delete indemnity coverage for on-site property.

2. As of 12:01 a.m., September 6, 1961, Paragraph 2 of Article II is amended by deleting the "(a)" after the 2 and by deleting the (b) paragraph in its entirety. Paragraph 2(b) required the licensee to indemnify and hold harmless all persons indemnified from public liability for damage to on-site property. Since there is no longer any public liability for on-site property, this provision is deleted.

3. As of 12:01 a.m., September 6, 1961, Paragraph 3 of Article II is amended by deleting the phrase "under paragraph 2(b) of this Article, and". The deletion of paragraph 2(b) requires that this reference also be deleted.

4. As of 12:01 a.m., September 6, 1961, the second paragraph of paragraph 6(c) of Article II is amended by deleting "under paragraph 2(b) of this Article II, and". The deletion of 2(b) also requires that this reference to paragraph 2(b) be deleted.

5. Paragraph 4(a) of Article III is amended by deleting the comma after the word "property". The insertion of this comma was inadvertent.

The principal changes in the form of indemnity agreements contained in § 140.77 Appendix C, are as follows:

6. As of 12:01 a.m., September 6, 1961, Paragraph 6, Article I (definition of "public liability") is amended to delete indemnity coverage for on-site property.

7. Paragraph 4(a) of Article III is amended by adding, between the comma and the word "incident" in the fifth line, the following parenthetical phrase: "(other than such property described in the proviso to paragraph 2 of this Article)". This amendment conforms this paragraph with the corresponding paragraphs in the other form indemnity agreements. The omission was inadvertent.

The only principal change in the form of indemnity agreement contained in § 140.78 Appendix D, is the amendment, effective as of 12:01 a.m., September 6, 1961, of Paragraph 5, Article I (definition of "public liability") to delete indemnity coverage for on-site property.

The principal changes in the form of indemnity agreements contained in § 140.79 Appendix E, are as follows:

8. As of 12:01 a.m., September 6, 1961, Paragraph 5, Article I (definition of "public liability") is amended to delete indemnity coverage for on-site property.

9. Paragraph 1, Article II is amended by deleting the number 1. See Paragraph 13 for reason.

10. Article II is amended by adding "Article III" immediately after Paragraph 1 of old Article II and by adding a Paragraph 1 immediately after the new Article III to read as follows:

1. The Commission undertakes and agrees to indemnify and hold harmless the licensee and other persons indemnified, as their interest may appear, from public liability.

See Paragraph 13 for reason.

11. Paragraph 2 of old Article II is amended by deleting the last sentence.

12. Old Article II is amended by changing the numbers of Paragraphs 5, 6, and 7 to 6, 7, and 8 of new Article III, respectively, and by adding a Paragraph 5 to new Article III to read as follows:

5. The obligations of the Commission under this agreement shall apply only with respect to nuclear incidents occurring during the term of this agreement.

See Paragraph 13 for reason.

13. Appendix "E" is amended by renumbering Articles III, IV, V and VI to Articles IV, V, VI and VII, respectively. Two new paragraphs (Paragraphs 1 and 5 of new Article III) are added. Opportunity is also taken to separate the provisions pertaining to obligations of the licensee (new Article II) from those pertaining to obligations of the Commission (new Article III) which necessitates the renumbering of old Articles III, IV, V and VI.

Pursuant to the Administrative Procedure Act and the Atomic Energy Act of 1954, as amended, notice is hereby given that the following amendments to Title 10, Chapter I, Part 140 "Financial Protection Requirements and Indemnity Agreements" are adopted to be effective upon publication in the FEDERAL REGISTER, except as otherwise specified below or in Part 140.

28 FR 7077  
Published 7/11/63  
Effective 8/10/63

The Nuclear Energy Liability Insurance Association and the Mutual Atomic Energy Liability Underwriters have proposed a change in the form of the nuclear energy liability insurance policy set forth in Appendix A of 10 CFR Part 140 (25 F.R. 2944 and 26 F.R. 6641). Appendix A is the form of nuclear energy liability insurance policy issued by the two associations and approved by the Commission as financial protection under 10 CFR Part 140.

Notice of the proposed approval of the change by the Commission was published in the FEDERAL REGISTER on April 20, 1963 (28 F.R. 3918). In publishing the notice, the Commission stated that the change will include as part of the policy the industry credit rating plan previously announced by the associations and does not in any way affect the scope of coverage provided with respect to financial protection since it is only a formal expression of a credit rating plan which has been in effect in principle since the issuance of the original policies by the associations.

One public comment was received from the Pacific Gas and Electric Company which stated:

We note that the proposed amendment is silent as to the treatment of interest earned on the amount of premiums reserved to cover future losses. In our opinion, the amendment should be modified to provide that interest earned on these reserves should be included in the amount available for refund to the various insureds.

The question raised by PG&E, involving the matter of premium rates, is more appropriately one for resolution by the insured and the insurer since the matter is not within the Commission's area of responsibility.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendment to 10 CFR Part 140 is published as a document subject to codification to be effective 30 days after publication in the FEDERAL REGISTER.

29 FR 7710  
Published 6/17/64  
Effective 6/17/64

On April 8, 1964 (29 F.R. 4919), the Commission published for public comment proposed amendments to 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," consisting of an endorsement to the form of nuclear energy liability insurance policy set forth in Appendix "A", 10 CFR Part 140 (25 F.R. 2944, 26 F.R. 6641 and 28 F.R. 7077), and a related change, for the purpose of clarification, in the form of indemnity agreement set forth in Appendix "B", 10 CFR Part 140 (26 F.R. 3455, 26 F.R. 7770 and 27 F.R. 2884). The form of the endorsement is intended by the insurers, Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters, for use in reinstatement of liability cov-

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erage following payment by the insurers of an incurred loss. No comments were received by the Commission regarding these proposed amendments.

Since the form of the endorsement and the clarification in the form of indemnity agreement do not impose any new requirements, and immediate effectiveness will not adversely affect any person, the Commission has found that good cause exists why these amendments should be effective without the customary period of prior notice.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendments of 10 CFR Part 140 are published as a document subject to codification to be effective upon publication in the *FEDERAL REGISTER*.

29 FR 9529  
Published 7/14/64  
Effective 7/14/64

On May 14, 1964, the Commission published in the *FEDERAL REGISTER* (29 F.R. 6349) for public comment a proposed amendment to 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," consisting of an endorsement to the form of the nuclear energy liability insurance policy set forth in Appendix "A", 10 CFR Part 140 (25 F.R. 2344, 26 F.R. 6641, 28 F.R. 7077, and 29 F.R. 7710). The form of the endorsement, requested by the insurers, Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters, is intended for use in eliminating from nuclear liability insurance policies coverage of public liability claims which are covered by the Commission's indemnity agreements. One comment, which was favorable, was received by the Commission regarding the proposed amendment.

Since the form of the endorsement does not impose any new requirements, and immediate effectiveness will not adversely affect any person, the Commission has found that good cause exists why this amendment should be made effective without the customary period of prior notice.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendment of 10 CFR Part 140 is published as a document subject to codification to be effective upon publication in the *FEDERAL REGISTER*.

30 FR 14007  
Published 11/5/65  
Effective 12/5/65

### Restoration of Limit of Liability Endorsement

On September 16, 1965, the Commission published in the *FEDERAL REGISTER* (30 F.R. 11873) for public comment, a proposed amendment to 10 CFR Part 140, "Financial Protection Requirements and

Indemnity Agreements," consisting of an amendment to an endorsement to the form of the nuclear energy liability insurance policy set forth in Appendix A, 10 CFR Part 140 (25 F.R. 2948, 26 F.R. 6641, 28 F.R. 7077, 29 F.R. 7710 and 29 F.R. 9529). The amendment would provide for an alternate paragraph in the "Restoration of Limit of Liability Endorsement." The alternative provision would be used when the reduction in the limit of liability results from a clearly identifiable nuclear event and restoration of the limit would be made retroactive to the effective date of the policy for claims other than those resulting from the identified event.

The Commission has decided to adopt the proposed amendment. The text of the amendment set out below is identical with the text of the proposed amendment published September 16, 1965, as corrected by publication September 22, 1965.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendment of 10 CFR Part 140 is published as a document subject to codification to be effective thirty (30) days after publication in the *FEDERAL REGISTER*.

30 FR 14779  
Published 11/30/65  
Effective 1/1/66

### Miscellaneous Amendments

Under the provisions of section 170 of the Atomic Energy Act of 1954, as amended, the holder of a license for a production or utilization facility is required to have and maintain financial protection to cover public liability claims and the Commission is required to indemnify the licensee and other persons indemnified against public liability claims in excess of the amount of financial protection required. Subsection 170b. requires that for facilities designed for producing substantial amounts of electricity and having a rated capacity of 100 electrical megawatts or more, the amount of financial protection required shall be the maximum amount available from private sources. For other licensees, the Commission may require lesser amounts of financial protection. Financial protection may be in the form of private insurance, private contractual indemnities, self insurance, or other proof of financial responsibility, or a combination of such measures. Non-profit educational institutions and Federal agencies are not required to obtain financial protection.

At present, the maximum amount of financial protection available from private sources is \$60 million, the maximum amount of private nuclear energy liability insurance that is available. The insurers who provide such liability insurance, Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters, have advised that effective January 1, 1966, the maximum amount of privately available nuclear energy liability insurance will be increased from \$60 million to \$74 million. Pursuant to the provisions of subsection

170b. of the Act, the amount of financial protection required for facilities having a rated capacity of 100 electrical megawatts or more will be increased to \$74 million, effective January 1, 1966. The following amendments to 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements", reflect this requirement.

These amendments also incorporate into Part 140 the reduction in the amount of Government indemnity that the Commission is authorized to extend to licensees as a result of Public Law 89-210. Public Law 89-210 requires that Government indemnity in the amount of \$500 million be reduced by the amount that the financial protection required of the licensee exceeds \$60 million.

The Commission is also presently considering whether to amend other provisions of Part 140 to increase the financial protection requirements applicable to licensees of power and testing reactors having an authorized thermal power level in excess of 1 megawatt but not having a rated capacity of 100 electrical megawatts or more. This matter is the subject of a separate public notice issued simultaneously herewith.

Since the amendments set out below merely conform the Commission's regulations to a statutory requirement which will become operative when the amount of privately available insurance is increased on January 1, 1966, the Commission has found that general notice of proposed rule making and public procedures thereon are unnecessary.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendments of Title 10, Chapter 1, Part 140, Code of Federal Regulations, are published as a document subject to codification, to be effective January 1, 1966.

32 FR 2562  
Published 2/7/67  
Effective 3/9/67

### Miscellaneous Amendments

See Part 70 Statements of Consideration.

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32 FR 8124  
Published 6/7/67  
Effective 8/6/67

### Change in the Amount of Financial Protection Required for Certain Reactors

On November 30, 1965, the Atomic Energy Commission published an amendment to 10 CFR Part 140, effective January 1, 1966, (1) increasing from \$60 million to \$74 million, the amount of financial protection required of licensees of facilities having a rated capacity of 100 electrical megawatts or more (who are required by statute to have and maintain financial protection in the maximum amount available from private sources) and (2) reducing the amount of indemnity extended by the Commission to such licensees by a like amount (30 F.R. 14779). Simultaneously with the publication of this amendment the Commission published a notice of proposed rule making (30 F.R. 14814) stating that it was considering whether to effect a proportional increase (approximately 23 percent) in the financial protection requirements for licensees of power or testing reactors having an authorized thermal power level in excess of one megawatt but having a rated electrical capacity less than 100 megawatts (licensees governed by application of the formula set forth in 10 CFR 140.12). Interested persons were invited to submit comments or suggestions within 60 days after publication of the notice.

After careful consideration of the comments received and other factors involved, the Commission has decided to adopt the amendments set forth below. The amendments would effect an increase of approximately 23 percent in the financial protection requirements for licensees governed by application of the formula set forth in 10 CFR 140.12. The increase would be proportional to the increase made effective January 1, 1966, for reactors having a rated capacity of 100 electrical megawatts or more.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 140, § 140.12, are published as a document subject to codification, to be effective sixty (60) days after publication in the FEDERAL REGISTER.

33 FR 15998  
Published 10/31/68  
Effective 12/1/68

### Criteria for Determination of an Extraordinary Nuclear Occurrence

On May 9, 1968, the Commission published for comment in the FEDERAL REGISTER (33 F.R. 6978) proposed amendments to its regulation, "Financial Protection Requirements and Indemnity

Agreements," 10 CFR Part 140, which would effectuate the amendments to the Price-Anderson Act of 1966 (Public Law 89-645) providing for waivers of certain defenses in the event of an extraordinary nuclear occurrence.

The principal purpose of the amendments is to assure that the public will receive prompt financial compensation under the available indemnity and underlying financial protection for damage resulting from the hazardous properties of radioactive material or radiation. All interested persons were invited to submit written comments or suggestions for consideration in connection with the proposed amendments to 10 CFR Part 140 within 60 days after publication of the notice of proposed rule making in the FEDERAL REGISTER. The notice also announced that an industry conference would be held on June 11, 1968, at the Commission's offices at 1717 H Street NW., Washington, D.C., to discuss the provisions of the proposed amendments to 10 CFR Part 140.

After careful consideration of the comments received, the views presented at the industry conference, and other factors, the Commission has adopted the amendments set forth below. In most essential respects, the amendments are the same as those set forth in the notice of proposed rule making. However, there are some changes from the proposed rule. As will be indicated, the Commission is providing an opportunity for comment on these changes, but the amendments will be effective 30 days after publication. The principal changes are described below.

New § 140.82 *Procedures*, provides that, if the Commission is unable to make a determination, within 7 days after it has received notification of an alleged event, that there has been an extraordinary nuclear occurrence, it will publish a notice in the FEDERAL REGISTER of the initiation of a procedure for the making of a determination. Such notice will request persons having knowledge of the alleged occurrence to submit their information to the Commission.

New § 140.83 *Determination of extraordinary nuclear occurrence*, provides that the 90-day period for the making of a determination runs from the time of publication of a notice in the FEDERAL REGISTER that the Commission is considering the making of a determination, and also makes clear that the Commission may extend the 90-day time period.

New § 140.84 *Criterion I—substantial discharge of radioactive material or substantial radiation levels offsite*, contains revisions from the proposed rule with respect to surface contamination. The Statement of Considerations published in connection with the proposed rule made clear the intent that Criterion I would not be met by a release of radioactive material within or not greatly in excess of the limits set forth in the Commission's regulations and in license conditions. It has come to the Commission's attention that with respect to some facilities the description of the location (site) for purposes of the Price-Anderson indemnity agreement is so narrowly defined

geographically that it is possible under normal operating conditions for levels of contamination in restricted or controlled areas which are offsite to exceed the levels proposed in the table of total surface contamination levels. The table has been revised by applying a factor of 10 to the proposed levels where the contaminated offsite property is contiguous to the site and is owned or leased by the licensee, who is thus able to control access to the area. As was explained in the Statement of Considerations, the levels originally proposed were intended to represent only an administrative index for determining that something unexpected and out of the ordinary has taken place. The higher levels set by the application of a factor of 10 for contamination of property where the public is generally excluded are consonant with this concept and in keeping with the Price-Anderson Act's purpose of protecting the public. The levels originally proposed are applicable to all other offsite property. It should be noted that this revision involves no change in Criterion II.

New § 140.85 *Criterion II—substantial damages to persons offsite or property offsite*, now makes clear that "damage" in all cases refers to damage from the radioactive, toxic, explosive, or other hazardous properties of source, special nuclear, or byproduct material. New § 140.85 also lowers the test for substantial damages to persons offsite by changing from ten to five the number of people the Commission would have to find were killed or hospitalized by physical injury from exposure.

The amendments to the form of nuclear energy liability policy for facilities and to the forms of indemnity agreements with licensees contained in the Appendices to 10 CFR Part 140 (§§ 140.91 through 140.95) are changed from the proposed amendments in the following respects:

(1) The waiver of an issue or defense relating to unforeseeable intervening causes no longer refers to the "operation of a force of nature," since that formulation appears to be only an alternative way of stating the more commonly used term "act of God" which is covered specifically by the rule.

(2) The proposed exclusion in the waivers of defenses relating to the abnormally sensitive character of the claimant's activities or operations is not being adopted at this time. The Commission is not fully convinced of the appropriateness of the exclusion and, at any rate, there appears to be considerable dispute on the appropriate formulation of the abnormally sensitive defense.

One of the tests for meeting Criterion II (§ 140.85) refers to \$2,500,000 or more of damage offsite which has been or will probably be sustained by any one person. While no change in this formulation appears to be necessary, it should be understood that the test can be met by a person sustaining the requisite amount of damage by operation of law rather than because of ownership of the damaged property, for example, a railroad, in the event of damage to lading owned by numerous

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persons but cumulatively totaling the requisite amount.

It has been the intention of the Commission, in connection with these amendments to Part 140, to eliminate the 2-year discovery provision in nuclear policies furnished as proof of financial protection. The Commission still intends to accomplish this change as soon as possible, but final agreement with insurers has not yet been reached.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 140 are published as a document subject to codification to be effective 30 days after publication in the *FEDERAL REGISTER*. The Commission invites all interested persons who desire to submit written comments or suggestions with respect to the changes made from the proposed rule to send them to the Secretary, U.S. Atomic Energy Commission, Washington, D.C. 20545, within 90 days after publication of this notice in the *FEDERAL REGISTER*. Consideration will be given such submission with the view to possible amendments to the rule.

34 FR 705

Published 1/17/69

Effective 2/1/69

### Miscellaneous Amendments

Under the provisions of section 170 of the Atomic Energy Act of 1954, as amended, the holder of a license for a production or utilization facility is required to have and maintain financial protection to cover public liability claims, and the Atomic Energy Commission is required to indemnify the licensee and other persons indemnified against public liability claims in excess of the amount of financial protection required. Subsection 170b requires that for facilities designed for producing substantial amounts of electricity and having a rated capacity of 100 electrical megawatts or more, the amount of financial protection required shall be the maximum amount available from private sources. For other licensees, the Commission may require lesser amounts of financial protection. Financial protection may be in the form of private insurance, private contractual indemnities, self-insurance or other proof of financial responsibility, or a combination of such measures. Nonprofit educational institutions and Federal agencies are not required to obtain financial protection.

At present, the maximum amount of financial protection available from private sources is \$74 million, the maximum amount of private nuclear energy liability insurance that is available. The insurers who provide such liability insurance, Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters, have advised the Commission that effective January 1, 1969, the maximum amount of privately available nuclear energy liability insurance will be increased from \$74 million

to \$82 million. Pursuant to the provisions of subsection 170b of the Act, the amount of financial protection required for facilities having a rated capacity of 100 electrical megawatts or more will be increased to \$82 million, effective February 1, 1969. The following amendments to 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," reflect this requirement.

The Commission is also considering whether to amend other provisions of Part 140 to increase the financial protection requirements applicable to licensees of power and testing reactors having an authorized thermal power level in excess of 1 megawatt but below 100 electrical megawatts. This matter will be the subject of a separate public notice to be issued in the future.

Since the amendments set out below conform the Commission's regulations to a statutory requirement, the Commission has found that good cause exists for omitting public notice of proposed rule making and public procedure thereon as unnecessary and for making the amendments effective without the customary 30-day notice.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to title 10, Chapter 1, Part 140, Code of Federal Regulations, are published as a document subject to codification, to be effective February 1, 1969.

34 FR 19546

Published 12/11/69

Effective 12/11/69

### Miscellaneous Amendments

See Part 20 Statements of Consideration.

36 FR 21580

Published 11/11/71

Effective 12/11/71

### Waivers of Defenses Endorsement

On May 6, 1971, the Atomic Energy Commission published in the *FEDERAL REGISTER* proposed amendments to 10 CFR Part 140, Financial Protection Requirements and Indemnity Agreements, and a proposed endorsement to the facility form of nuclear liability insurance policy furnished as financial protection, to clarify the waivers of defenses provisions in the facility form and in the AEC indemnity agreement forms (36 FR 8451). Interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments within 30 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. After consideration of the material submitted in response to the notice of proposed rule making and other factors involved, the Commission has adopted the amendments and approved the endorsement as proposed. The endorsement

to the facility form and the amendments to the Commission indemnity agreement forms clarify that a licensee's workers who are employed at an indemnified site exclusively in connection with the construction of a nuclear reactor with respect to which no operating license has been issued by the Atomic Energy Commission, and who are not employed in connection with the possession, storage, use or transfer of nuclear material at the facility, will maintain their rights under the waivers of defenses provisions of the facility form and of the indemnity agreement. The waivers of defenses provisions in the event of an "extraordinary nuclear occurrence" are also intended to be available to an indemnified licensee's employees engaged at an indemnified location in the construction of a follow-on production or utilization facility (nuclear power reactor) for which no operating license has been issued.

It is the intention of the insurers and the Commission that claimants employed exclusively in connection with the construction of a nuclear reactor include those employees engaged in maintaining a facility, the construction of which is essentially complete in an appropriate state of readiness pending the receipt by the applicant of the operating license, even though the maintenance duties in connection with the facility may not be full time.

The insurers who provide nuclear liability insurance, Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters, have agreed to the addition of the clarifying endorsement to the forms of insurance policies issued by them. The amendments reflect that agreement and correspondingly amend the Commission forms of indemnity agreement.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to 10 CFR Part 140 are published as a document subject to codification, to be effective 30 days after publication in the *FEDERAL REGISTER*.

38 FR 2983

Published 1/31/73

Effective 3/2/73

### Indemnity Locations

On May 6, 1972, the Atomic Energy Commission published in the *FEDERAL REGISTER* (37 FR 9227) a proposed amendment to 10 CFR Part 140, Financial Protection Requirements and Indemnity Agreements, which would specify how the Commission will determine the geographical boundaries of indemnity locations in indemnity agreements for the preoperational storage of fuel at the site of a power reactor under construction, and the geographical boundaries of indemnity locations where a nuclear reactor is operating and an additional power reactor is under construction nearby on a contiguous site by the same licensee.



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Interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendment within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. After consideration of the comments received, the Commission has adopted the proposed amendment with certain changes.

The principal point in three of the comments, submitted by utilities, was that the proposed amendment would increase their insurance costs from nuclear property pools during construction. However, since the nuclear liability insurers are presently using the broader site concept for new policies, utilities have already found it necessary to purchase nuclear property insurance for the construction site whereas in the past they had been able to purchase "builder's risk" insurance at lower premiums. This amendment reflects such use of the broad concept by both nuclear liability insurers and nuclear property insurers. As stated in connection with the proposed rule published in the *FEDERAL REGISTER* on May 6, 1972, this amendment may not be susceptible of application to all circumstances (e.g., where conventional builder's risk policies, subject to a nuclear exclusion, remain in effect at some units, construction of which was commenced when such coverage was still available). Where the Commission on application of any affected person or on its own initiative determines that a departure from this proposed method would be authorized by law and otherwise in the public interest, it may establish a different indemnity location in individual cases.

The Commission believes that the amendment, by widening the geographical boundaries of the indemnity location to include the entire construction area of nuclear power reactors, will assure that indemnity funds in the highly unlikely event of a nuclear incident, will be available to the general public and will not be diluted in compensation of possible property losses at the site of the reactor under construction.

In order to eliminate the ambiguity of the phrase "the entire construction area of the nuclear power reactor" as used in the proposed amendment, the words "as determined by the Commission" have been added. A sentence to the effect that such area will not necessarily be coextensive with the indemnity location which will be established at the time an operating license is issued for additional nuclear power reactors has also been included.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment of 10 CFR Part 140 is published as a document subject to codification, to be effective on March 2, 1973.

38 FR 11066  
Published 5/4/73  
Effective 6/4/73

### Nuclear Energy Liability Policy.

On February 5, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 3336) a proposed amendment to 10 CFR part 140, "Financial Protection Requirements and Indemnity Agreements," which would be reflected in the facility form set out in § 140.91, and would extend from 2 to 10 years the period after termination or cancellation of the Nuclear Energy Liability Insurance Policy (facility form) during which a written claim may be made against the insurer which alleges bodily injury or property damage caused during the policy period.

Interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendment within 30 days after publication of the notice of proposed rulemaking in the *FEDERAL REGISTER*. General Electric submitted the only comment prior to the March 7, 1973, expiration period. Their comment was an endorsement of the amendment.

Under the 2-year discovery provision currently in effect in the nuclear facility policy, there is the possibility that termination of the policy after a nuclear incident may result in exclusion of a significant portion of the insurer's liability from the coverage of the policy. Such a possibility has particular significance in connection with radiation injuries because such injuries may not become evident until some years after exposure has occurred. In addition, there could be a gap in the financial protection afforded under such policies since the applicable State statute of limitations might provide for a period longer than 2 years during which suits might be instituted.

Pursuant to the Atomic Energy Act of 1954, as amended, and section 553 of title 5 of the United States Code, the following amendment of 10 CFR part 140 is published as a document subject to codification, to be effective June 4, 1973.

40 FR 7081  
Published 2/19/75  
Effective 3/21/75

### PART 140—FINANCIAL PROTECTION REQUIREMENTS AND INDEMNITY AGREEMENTS.

#### Miscellaneous Amendments

The provisions of section 170 of the Atomic Energy Act of 1954, as amended, (the Act) require the holder of a license for a production or utilization facility to have and maintain financial protection to cover public liability claims. Section 170 of the Act in conjunction with section 201 of the Energy Reorganization Act of 1974 requires the Nuclear Regulatory Commission to indemnify the licensee and other persons indemnified 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 electrical megawatts or more, the amount of financial protection

required shall be the maximum amount available from private sources. For other licensees, the Commission may require lesser amounts of financial protection. Financial protection may be in the form of private insurance, private contractual indemnities, self-insurance or other proof of financial responsibility, or a combination of such measures. Nonprofit educational institutions and Federal agencies are not required to obtain financial protection.

The insurers who provide the nuclear liability insurance, Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters, have advised the Commission that effective January 1, 1975, the maximum amount of privately available nuclear energy liability insurance would be increased from \$110 million to \$125 million. Pursuant to the provisions of subsection 170b. of the Act, the amount of financial protection required for facilities having a rated capacity of 100 electrical megawatts or more will be increased to \$125 million, effective March 21, 1975. The following amendments to 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," reflect this requirement.

Since the amendments set out below conform the Commission's regulations to a statutory requirement, the Commission has found that good cause exists for omitting public notice of proposed rule making and public procedure thereon as unnecessary.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Part 140, Code of Federal Regulations, are published as a document subject to codification.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

*Energy Reorganization Act; Revisions to Chapter 1 to Reflect Organizational and Procedural Changes*

See Part 2 Statements of Consideration.

41 FR 16445  
Published 4/19/76  
Effective 4/19/76

*Miscellaneous Changes to Chapter*

See Part 20 Statements of Consideration.

42 FR 46  
Published 1/3/77  
Effective 8/1/77

### PART 140—FINANCIAL PROTECTION REQUIREMENTS AND INDEMNITY AGREEMENTS

#### Implementation of Legislation Amending the Price-Anderson Act

On December 31, 1975, H.R. 8631 was enacted as Pub. L. 94-197. This legislation modifies and extends for ten years (to August 1, 1987) the present Price-

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Anderson Act.<sup>1</sup> The Price-Anderson Act established a system of Government indemnity and license conditions requiring certain licensees to have financial protection designed to compensate the public for damages caused by nuclear incidents. On March 18, 1976, a notice of intent to amend 10 CFR Part 140 to implement the provisions of Pub. L. 94-197 was published in the FEDERAL REGISTER (41 FR 11327). The purpose of that notice was to invite recommendations in the form of written comments and suggestions from interested persons.

The Commission received a number of comments on the notice. After consideration of the comments and other factors involved, on September 20, 1976, the Commission published a notice of proposed rulemaking in the FEDERAL REGISTER (41 FR 40511) to implement provisions of Pub. L. 94-197. Only thirteen comments were received in response to the proposed rule. Of these comments few differed with the substance of the proposed rule. Most of the comments raised questions of interpretation or clarification.

1. By December 31, 1976, the Commission must establish at some level in the range of \$2 million to \$5 million, the amount of the retrospective premium to be assessed against each licensee required to maintain financial protection.

The Commission proposed establishing the retrospective premium at \$5 million per facility per incident. Of the thirteen comments received in connection with the proposed rule, only two addressed this issue. One commenter recommended that the retrospective premium be established in the range of \$2 million to \$3 million so as not to impair the ability of utilities to acquire new capital while the other suggested a sliding premium schedule under which the retrospective premium would not reach \$5 million until 1983.

The Commission has considered these comments. When the Commission proposed establishing the retrospective premium at \$5 million, these same concerns were carefully evaluated. To obtain advice on the financial impact that retrospective premiums of \$2 million to \$5 million would have on different size utilities, the Commission staff engaged the services of an outside consultant. Based upon his analysis, Dr. Ronald Melicher, Associate Professor of Business, University of Colorado, concluded that a retrospective premium assessment of \$5 million per reactor would not have a significant financial impact on representative small, medium and large size utilities. By analyzing the cash flow of representative utilities as well as the impact of a \$5 million retrospective premium on interest coverage and earnings per share, Dr. Melicher concluded that the representative utilities studied would have financial resources that would be more than adequate to cover a \$5 million retrospective premium assessment for reactors currently operating, under construction, or being planned. The Commission agreed with Dr. Melicher's conclusions. None of the comments received on this question

refuted the conclusions of the Melicher study.

The Commission has concluded that there are considerations that favor establishing the retrospective premium at \$5 million. First, while such a premium would not present any undue financial burden on any size utility, it would ensure the termination of Government indemnity at the earliest feasible date. Further, a \$5 million retrospective premium would result in the maximum financial protection available to pay public liability claims and, therefore, a limit of liability in the event of a nuclear incident at the highest amount permitted by Pub. L. 94-197. For these reasons, the Commission is establishing the retrospective premium at \$5 million per reactor per incident.

2. Pub. L. 94-197 authorized the Commission to establish a maximum amount which the aggregate retrospective premiums charged for each facility within one calendar year may not exceed. Congress viewed the establishment of such a maximum as serving to remove retrospective premium assessments as a potential open-ended liability and as providing assurance to publicly owned utilities that retrospective premium assessments would not be construed as the lending of credit prohibited by some state constitutions.

Two of the commenters discussed this question. The comments recommended that based on the remote probability of more than a single nuclear incident occurring in any calendar year the maximum amount be set equal to a single retrospective premium per facility. Further, the comments also expressed the belief that contrary to the interpretation adopted by the Commission, the maximum amount was meant to limit the liability of a utility in a calendar year rather than the total payments for charges made by the insurance pools in a calendar year.

The Commission has considered these arguments. While the Commission agrees that the probability of even a single nuclear incident in a calendar year is quite remote, there is another purpose to be served by setting the maximum amount at more than just equal to one assessment per facility. If a nuclear incident did result in public liability claims, payment of many of these claims would presumably be made within the months following the incident. However, if the incident occurred near the end of the calendar year, a number of claims could be carried over for payment in a subsequent year. Further, since one could reasonably expect that public liability claims could be filed many years after the nuclear incident occurred—especially in view of the Act's provision that, in the event of an extraordinary nuclear occurrence, suits may be brought for up to twenty years after the date on which the incident occurred—this could result in claims being settled many years after the year in which the nuclear incident occurred. In order to ensure that funds would exist to pay all of the delayed claims for an earlier incident, as well as the claims that could arise from a nuclear incident in a given year, it is necessary to establish the maximum amount at greater than just a single retrospective

premium per facility.

The Commission does not agree with the interpretation that the purpose of the maximum amount was to limit the liability of the utility to a fixed amount, but believes that its purpose was only to limit the retrospective premiums the utility would be required to pay in any one year. Because each utility would know beforehand the maximum amount of retrospective premiums it would be required to pay in any one calendar year, premium assessments are then prevented from becoming an open-ended charge in any one year. The Commission believes this is the purpose of establishing a maximum amount. The maximum amount does not in any way limit the number of incidents or the liability for these incidents for which a utility may be charged retrospective premiums. For the reasons discussed above, the Commission has concluded that the maximum amount of deferred premiums charged for each facility within one calendar year be established at \$10 million per facility. However, this provision is clarified so as to eliminate any ambiguities present in the proposed rule as to whether the maximum aggregate represented the amount charged the utility or the liability (whether charged in that year or not) accrued by the utility.

3. Pub. L. 94-197 authorizes the Commission to establish amounts less than the standard retrospective premiums for individual facilities on the basis of such factors as the facility's size, location and other factors pertaining to the hazard. In the notice of proposed rule making, the Commission did not propose the establishment of lower retrospective premiums for individual facilities. It did not appear that development of premiums less than the standard retrospective premium would increase the protection provided to the public.

In view of the foregoing and since none of the comments on the proposed rule addressed this question, the Commission is not establishing lower retrospective premiums for individual facilities.

4. The Commission is directed by Pub. L. 94-197 to establish requirements necessary to assure that following a nuclear incident deferred premiums will be paid as called for. One of the comments received on this issue suggested that a separate guarantee of premiums is not necessary because the Commission reviews a licensee's financial stability at various stages of the licensing process. Further, it was stated that the use of any type of guarantee would impede a licensee's line of credit and increase electricity costs. While the Commission recognizes these arguments, the success of the retrospective premium assessment program is dependent upon the likelihood that the retrospective premiums would be available when needed. The Commission believes, therefore, that utilities should provide some form of independent assurance not based on previous statements that they would not default on their obligations.

It was for this reason that the Commission proposed rules which established requirements for such guarantees. A licensee would be afforded the opportunity to meet these guarantee require-

<sup>1</sup> 42 U.S.C. 2210 and pertinent subsections in 42 U.S.C. 2014.

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ments by providing through any one of a number of alternative methods the amount of \$10 million for each large power reactor it would be licensed to operate. The alternatives would be:

1. Surety bonds;
2. Letters of credit;
3. Revolving credit/term loan arrangements;
4. Maintenance of escrow deposits of government securities;
5. Annual certified financial statement showing either that a cash flow (i.e., cash available to a company after all operating expenses, taxes, interest charges, and dividends have been paid) can be generated and would be available for payment of retrospective premiums within three (3) months after submission of the statement, or a cash reserve or a combination of cash flow and cash reserve; and
6. Such other type of guarantee approved by the Commission

Two of the comments received in connection with this question suggested that in those cases where as its guarantee a utility chooses to file certified annual financial statements demonstrating the adequacy of cash flow, the Commission not treat dividends as a reduction of cash flow. While on the one hand, the Commission recognizes that creditor claims such as claims for payment of deferred premiums have a clear priority over payment of dividends, the nonpayment of dividends by a utility is an extreme step. Therefore, the Commission believes it desirable to take the more conservative approach of requiring a utility to provide proof of cash flow for \$10 million after dividends have been paid.

None of the comments received that address the issue of guarantees of retrospective premiums point up either the unavailability of any of the guarantees or any problems with the methods of guarantee that the Commission has proposed. In view of the foregoing, the Commission is establishing requirements for such guarantees and licensees will be afforded the opportunity to provide any one of the stated alternative methods for assuring the payment of these premiums. The effective rule is modified slightly, however, to clarify that all methods of guarantee are with respect to \$10 million and not just the cash flow method.

5. Pub. L. 94-197 authorizes the Commission to provide reinsurance or otherwise guarantee the payment of retrospective premiums in the event that the resources of the nuclear liability insurance pools are not sufficient to absorb defaults by licensees in payment of the retrospective premiums and if licensee guarantees fail. In the Commission's notice of proposed rule making, provisions were inserted in indemnity agreements providing that any amount paid by the Commission to cover defaulted retrospective premiums would create an immediate lien in favor of the United States upon the licensee's property. In addition, it was proposed that provisions be inserted in indemnity agreements to require licensees defaulting in the payment of retrospective premiums to provide certified financial statements to the Commission. After reviewing these statements, the Commission would then de-

termine whether a licensee were financially able to reimburse the Commission for payments made on the licensee's behalf. If a determination were made that a licensee was financially able to reimburse the Commission, the licensee would be given 120 days to do so. Any reimbursement not made during this period could result in a thirty-day suspension of the license and possible termination of the license by the Commission.

The Commission continues to believe that these lien provisions offer the greatest assurance of reimbursement for payments made because of any defaults in retrospective premiums. While the creation of liens upon a licensee's assets does not offer absolute assurance of reimbursement to the Commission (since these liens could be subordinate to other creditors' claims), such liens could provide a valuable tool for reimbursement of any Government payment.

The only comment received on this issue suggested that licensees defaulting in the payment of retrospective premiums should be given 180 to 270 days instead of 120 days to reimburse the Commission. The Commission has considered this suggestion, but believes that the additional time for reimbursement is not necessary in view of the fact that a licensee will probably not, in the first instance, be called upon to pay retrospective premiums for some months after a nuclear incident. When this period between the nuclear incident and the call for payment is added to the 120 day period a licensee has in which to pay the defaulted retrospective premiums, sufficient time to repay the Commission is considered to be provided. To extend the period beyond this is not considered reasonable.

6. Pub. L. 94-197 authorized the Commission to reduce the annual indemnity fee of \$30 per thermal megawatt capacity imposed on each reactor licensee in reasonable relation to increases in financial protection required above a level of \$60 million.

The Commission has proposed establishing a five-tiered schedule which both adheres to the intent of Pub. L. 94-197 to reduce fees in reasonable relation to increases in financial protection, and is relatively simple to administer. The schedule also reflects the view that, as ultimate guarantor of the retrospective premium and as evaluator of the financial ability of reactor licensees to pay such retrospective premiums, the Government should levy a minimum fee for such services even if there is no indemnity obligation. No comments were received on this issue.

Therefore, the indemnity fee schedules which the Commission will establish for reactors are as follows:

- (a) For indemnification of \$500 million to \$400 million inclusive, a fee of \$30.00 per year per thousand kilowatts of thermal capacity authorized in the license;
- (b) For indemnification from \$399 million to \$300 million inclusive, a fee of \$24.00 per year per thousand kilowatts of thermal capacity authorized in the license;
- (c) For indemnification from \$299 million to \$200 million inclusive, a fee of \$18.00 per year per thousand kilowatts of thermal capacity authorized in the license;

capacity authorized in the license;

(d) For indemnification from \$199 million to \$100 million inclusive, a fee of \$12.00 per year per thousand kilowatts of thermal capacity authorized in the license;

(e) For indemnification from \$99 million to \$1 million inclusive, a fee of \$6.00 per year per thousand kilowatts of thermal capacity authorized in the license.

No fee would be less than \$100 per annum for any nuclear reactor. This minimum fee would continue to be levied after indemnity is phased out, in consideration of the Government's ultimate role as guarantor of the retrospective premium. For those instances in which a certified financial statement is provided as a guarantee of payment of deferred premiums, a fee of \$1,000 or the indemnity fee, whichever is greater, would be required. This reflects the additional effort that would be required of the Commission to evaluate this guarantee option as opposed to options where third parties are providing the guarantee of payment of the retrospective premium for licensees.

7. The Commission proposed exercising its discretionary authority to require persons licensed to possess plutonium in the amount of 5 kilograms or more<sup>1</sup> and persons licensed to process plutonium in the amount of 1 kilogram or more<sup>1</sup> for use in plutonium processing and fuel fabrication plants to maintain financial protection in the amount of \$125 million. Indemnity coverage would be extended to such licensees.

All three comments received that addressed this issue disagreed with the Commission and recommended that in view of the limited operating experience with these types of commercial facilities the Commission either not establish financial protection requirements for these licensees or establish interim requirements of \$20 million. The Commission has considered these suggestions, but believes that there are definite benefits to be derived by establishing financial protection requirements at \$125 million. First is the basic thrust of the Price-Anderson Act itself—namely, that the public should be assured compensation for damages resulting from those segments of the nuclear industry that may involve significant consequences. With the basic financial protection layer and Government indemnity resulting in a combined coverage of \$560 million, the public would be adequately assured availability of funds for payment of claims resulting from nuclear incidents associated with the possession or use of significant quantities of plutonium at plutonium processing and fuel fabrication plants. Second, several licensees in the plutonium processing and fuel fabrication industry already maintain the maximum amount of financial protection available from private sources (currently \$125 million). Third, the Commission has been advised that those licensees who currently buy less than \$125 million in nuclear insurance would pay a maximum additional premium of less than \$40,000 per year to obtain \$125

<sup>1</sup>Excluding that contained in sealed sources and welded or otherwise sealed, unirradiated or irradiated fuel rods.

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million in coverage. The Commission believes that such an additional premium is not unreasonable. In view of the foregoing, the Commission is establishing financial protection requirements of \$125 million for those persons licensed to possess 5 kilograms or more<sup>1</sup> of plutonium and those persons licensed to process 1 kilogram or more<sup>1</sup> of plutonium for use in plutonium processing and fuel fabrication plants. The Commission is also establishing a \$5,000 per year indemnity fee for these licensees. The proposed rule has been modified slightly to clarify that the determining factor with respect to the Commission's requirement that a licensee maintain \$125 million in financial protection and be indemnified by the Commission is the quantity of plutonium that a person is licensed to possess rather than the actual quantity that is currently in the licensee's possession.

The Commission along with other interested persons has recognized that there may be a need to further exercise its discretionary authority to extend Price-Anderson coverage to other materials licensees. The Commission will continue to consider the possible extension of its discretionary authority to such materials licensees.

This rule does not contain any provisions implementing (or interpreting) the amendments to H.R. 8631 introduced by Senator Hathaway, agreed to by the Senate, and contained in Pub. L. 94-197 regarding exclusion of the costs of investigating and settling claims from funds used for the payment of claims.

Although establishment of the retrospective premium and certain other proposed changes in 10 CFR Part 140 must be accomplished by December 31, 1976, the Commission proposes that these changes be made effective on August 1, 1977, so as to afford the Commission, the insurance pools and the licensees reasonable opportunity to implement these changes.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to 10 CFR Part 140 are published as a document subject to codification.

42 FR 20139  
Published 4/18/77  
Effective 5/1/77

### PART 140—FINANCIAL PROTECTION REQUIREMENTS AND INDEMNITY AGREEMENTS

#### Miscellaneous Amendments

AGENCY: Nuclear Regulatory Commission.

ACTION: Final Rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations "Financial Protection Requirements and Indemnity Agreements," to increase the level of the primary layer of financial

protection required of certain indemnified licensees, and make certain other minor changes in indemnity agreement forms and in the facility form of nuclear liability insurance policy furnished as financial protection. The Commission is amending its regulations at the present time to coincide, as statutorily required, with the increase in the level of the primary layer of insurance provided by private nuclear liability insurance pools.

EFFECTIVE DATE: May 1, 1977.

FOR FURTHER INFORMATION CONTACT:

Mr. Ira Dinitz, Antitrust and Indemnity Group, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-443-6961.

**SUPPLEMENTARY INFORMATION:** The provisions of section 170 of the Atomic Energy Act, as amended, (the Act) require production and utilization facility licensees to have and maintain financial protection to cover public liability claims resulting from a nuclear incident. The Commission has exercised its discretionary authority to require persons licensed to possess plutonium in the amount of 5 kilograms or more and persons licensed to process plutonium in the amount of 1 kilogram or more for use in plutonium processing and fuel fabrication plants to also maintain financial protection at the maximum amount available from private sources. Section 170 of the Act, in conjunction with section 201 of the Energy Reorganization Act of 1974, as amended, 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 electrical megawatts or more, the amount of financial protection<sup>1</sup> required shall be the maximum amount available from private sources. For other licensees, the Commission may require lesser amounts of financial protection. Primary financial protection may be in the form of private insurance, private contractual indemnities, self-insurance or other proof of financial responsibility, or a combination of such measures. Non-profit educational institutions and Federal agencies are exempted by statute from the financial protection requirements.

<sup>1</sup>Public Law 94-197 does not by its precise language require maintenance of a "primary" (i.e., nuclear liability insurance) layer and a "secondary" (i.e., retrospective premium) layer of financial protection but merely considers the combination of these two layers as "financial protection." However, the recently published amendments (42 FR 46, Jan. 3, 1977) to 10 CFR Part 140 implementing part of Public Law 94-197, distinguish between primary and secondary layer of financial protection on the basis of their different insurance characteristics. The amendments in this rule relate solely to increases in the primary layer of financial protection.

The insurers who provide the nuclear liability insurance, Nuclear Energy Liability-Property Insurance Association (NEL-PIA) and Mutual Atomic Energy Liability Underwriters (MAELU), have advised the Commission that effective January 1, 1977, the maximum amount of private nuclear energy liability insurance available was increased from \$125 million to \$140 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 electrical megawatts or more will be increased to \$140 million, effective May 1, 1977. In accordance with recent amendments to 10 CFR Part 140 (42 FR 46, January 3, 1977), licensees of plutonium processing and fuel fabrication plants required to maintain the maximum amount of financial protection will have to comply with this requirement on August 1, 1977. The following amendments to 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," reflect this requirement.

Other changes to Part 140 to implement Pub. L. 94-197 relate to the extension of indemnity protection to (1) indemnified shipments of new or spent fuel while outside of the United States and any other nation during transit from one NRC licensee to another and (2) stationary nuclear facilities, such as floating nuclear power plants, licensed by the NRC and located in international waters. There is one slight difference between the endorsement to the facility form of nuclear liability insurance policy submitted by NEL-PIA and the amendments to the Commission indemnity agreement form implementing this change. The endorsement, unlike the indemnity amendments, will not extend coverage at this time to nuclear material being transported to or from a floating nuclear power plant. This coverage would be extended, however, before such a plant would be licensed.

Pub. L. 94-197 also provided that in the event of an "extraordinary nuclear occurrence" the Commission could enforce provisions in an insurance policy furnished as proof of financial protection and incorporated in indemnity agreements, requiring a licensee to waive any defense based upon a statute of limitations if suit is instituted within 3 years from the date on which the claimant first knew or reasonably could have known of his injury or damage, but in no event more than 20 years after the date of the nuclear incident. Before the enactment of Pub. L. 94-197, the extension of the time for initiating of a suit for damages was only 10 years after the date of the nuclear incident. Both the endorsement to the facility form and the indemnity agreement forms implement this change as set forth below.

Apart from the change discussed above, there is one additional nonsubstantive modification in the present waiver of defenses endorsement submitted by NEL-PIA that differs from the waiver of defenses endorsement now contained in § 140.91. The existing endorsement was amended by addition of a new paragraph 6 published in the FEDERAL REGISTER on November 11, 1971 (36

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FR 21580). That new paragraph basically provided that a licensee's workers employed at an indemnified site exclusively in connection with the construction of a nuclear reactor for which no operating license had been issued would be permitted to take advantage of the waiver of defenses provisions of the facility form. The nuclear liability insurance pools intended that this paragraph be published as a separate endorsement and not as a part of the general waiver endorsement. Hence, this paragraph is now being retained as a separate endorsement.

This rule does not contain any provisions implementing (or interpreting) the amendments to H.R. 8631 introduced by Senator Hathaway, agreed to by the Senate and contained in Pub. L. 94-197 regarding exclusion of the costs of investigating and settling claims from funds used for the payment of claims.

Since the amendments set out below conform the Commission's regulations to a statutory requirement, the Commission has found that good cause exists for omitting public notice of proposed rule making and public procedure thereon as unnecessary.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Part 140, Code of Federal Regulations, are published as a document subject to codification.

42 FR 43385

Published 8/29/77

Effective 8/29/77

### PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

### PART 140—FINANCIAL PROTECTION REQUIREMENTS AND INDEMNITY AGREEMENTS

#### Revocation or Modification of Certain Reporting Requirements

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulation "Licensing of Production and Utilization Facilities" to revoke the requirement that if the construction or modification of a facility is completed before the earliest date specified in the construction permit the holder of the construction permit shall promptly notify the Commission for the purpose of accelerating the final inspection. The Commission also is amending its regulation "Financial Protection Requirements and Indemnity Agreements" to modify the repetitive reporting requirements set out in special provisions applicable to licensees furnishing financial protection in whole or in part in the form of adequate resources. These amendments reduce the reporting burden on NRC licensees.

EFFECTIVE DATE: August 29, 1977.

#### FOR FURTHER INFORMATION CONTACT:

Gerald L. Hutton, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Tel. 301-492-7211.

#### SUPPLEMENTARY INFORMATION:

Section 50.55(a) of 10 CFR Part 50 requires that if the construction or modification of a facility is completed before the earliest date specified in the construction permit, the holder of the construction permit shall promptly notify the Commission for the purpose of accelerating the final inspection. A separate report for this event is not necessary and this reporting requirement is being revoked.

Section 140.18 of 10 CFR Part 140 requires that in any case where a licensee undertakes to maintain financial protection in the form specified in § 140.14 (a)(2) for all or part of the financial protection required by Part 140, the licensee shall file with the Commission a balance sheet and operating statement prepared and certified by a certified public accountant. This section is being revised so that it no longer requires repetitive reports, but states that the Commission may require the licensee to file with the Commission such financial information as the Commission determines to be appropriate for the purpose of determining whether the licensee is maintaining financial protection as required by Part 140.

Since the amendments set forth below relate to minor matters and are intended to provide relief from, rather than to impose, restrictions under regulations currently in effect, the Commission has found that good cause exists for omitting general notice of proposed rule making and public procedure thereon as unnecessary and for making the rule effective on August 29, 1977, without the customary 30 day waiting period.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 50 and 140 are published as a document subject to codification.

44 FR 20632

Published 4/6/79

Effective 5/1/79

### 10 CFR Part 140

### Financial Protection Requirements and Indemnity Agreements; Miscellaneous Amendments

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final Rule.

SUMMARY: 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 resulting from a nuclear incident.

The Nuclear Regulatory Commission is amending its regulations to increase the level of the primary layer of financial protection required of certain indemnified licensees. The Commission is amending its regulations at the present time to coincide, as statutorily required, with the increase in the level of the primary layer of insurance provided by private nuclear liability insurance pools.

EFFECTIVE DATE: May 1, 1979.

FOR FURTHER INFORMATION CONTACT: Mr. Ira Dinitz, Antitrust and Indemnity Group, U.S. Nuclear Regulatory Commission, Washington, DC 20555. (Phone: 301-492-8338).

SUPPLEMENTARY INFORMATION: The provisions of Section 170 of the Atomic Energy Act of 1954, as amended, (the Act) require production and utilization facility licensees to have and maintain financial protection to cover public liability claims resulting from a nuclear incident. Section 170 of the Act 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 electrical megawatts or more, the amount of financial protection required shall be the maximum amount available from private sources. For other licensees, the Commission may require lesser amounts of financial protection. 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 effective January 9, 1979, the maximum amount of primary nuclear energy liability insurance available was increased from \$140 million to \$160 million. Pursuant to the provisions of subsection 170b. of the Act, the amount of primary financial protection required

<sup>1</sup> The Act does not by its precise language require maintenance of a "primary" (i.e., nuclear liability insurance) layer and a "secondary" (i.e., retrospective premium) layer of financial protection but merely considers the combination of these two layers as "financial protection." However 10 CFR Part 140, of the Commission's regulations that implement the Act, distinguishes between the primary and secondary layers of financial protection. The amendments in this rule relate solely to increases in the primary layer of financial protection.

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for facilities having a rated capacity of 100 electrical megawatts or more will be increased to \$160 million, effective May 1, 1979. In addition, in compliance with 10 CFR Part 140, those persons licensed to possess plutonium in the amount of 5 kilograms or more and persons licensed to process plutonium in the amount of 1 kilogram or more for use in plutonium processing and fuel fabrication plants will also be required to provide financial protection in the amount of \$160 million.

Since the amendments set out below conform the Commission's regulations to a statutory requirement, the Commission has found that good cause exists for omitting a value/impact analysis, public notice of proposed rule making and public procedure thereon as unnecessary.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Part 140, Code of Federal Regulations, are published as a document subject to codification.

45FR14199

Published 3/5/80

Effective 3/5/80

*Minor and Clarifying Amendments*

See Part 1 Statements of Consideration

45 FR 37410

Published 6/3/80

Effective 6/3/80

### 10 CFR Parts 95 and 140

#### Deletion of Reference to Panama Canal Zone; Minor Amendments

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is deleting references to the Panama Canal Zone in Parts 95 and 140 of its regulations. This action was taken in regard to all other parts of the Commission's regulations on March 24, 1980 (45 FR 18905). Parts 95 and 140 were inadvertently excluded from that previous action. These minor amendments reflect the provisions of the Panama Canal Treaty of 1977 and the

recently enacted Panama Canal Defense Act of 1979. Under the Act and the Treaty, the U.S. Government relinquished jurisdiction over the Panama Canal Zone to the Republic of Panama. These amendments revise portions of the Commission's regulations to reflect the revised status of the Canal Zone.

**EFFECTIVE DATE:** June 3, 1980.

#### FOR FURTHER INFORMATION CONTACT:

Joseph M. Felton, Director, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-7211.

**SUPPLEMENTARY INFORMATION:** Under the Panama Canal Treaty of 1977, the territory of the former Panama Canal Zone became subject to the jurisdiction of the Republic of Panama on October 1, 1979. The Treaty, and the recently enacted Panama Canal Defense Act of 1979 (P.L. 96-70) passed on September 27, 1979, supersede all previous legislation. Thus, all references in the Atomic Energy Act to the Canal Zone as being jurisdictionally part of the United States are no longer valid. Therefore, the Nuclear Regulatory Commission is deleting references to the Canal Zone from Parts 95 and 140 of its regulations in Title 10, Chapter 1 of the Code of Federal Regulations.

Since these amendments are corrective and relate solely to minor procedural matters, notice of proposed rulemaking and public procedure thereon are unnecessary and good cause exists to make the amendments effective upon publication in the **Federal Register**.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Parts 95 and 140 are published as a document subject to codification.



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exercise its discretionary authority to extend Price-Anderson indemnity coverage in any given situation. See 42 FR 44817, September 8, 1977; and 46 FR 55024, November 5, 1981. Comments addressing any other issue are not considered relevant.

Because granting a hearing or requesting public comment on such an insubstantial point, as the precise wording of an amendment to the standard indemnity agreement, is not meaningful, the Commission proposed to delete the second sentence of this section as unnecessary.

Two letters of comment were received in response to the notice of proposed rulemaking. Both letters expressed support for the proposed rule. One letter of comment recommended deleting all of the appendices to 10 CFR Part 140. Deletion of these appendices is an action that the Commission favors. In the near future, the Commission will publish a proposed rule soliciting public comment on this action. A rulemaking action resulting in deletion of these appendices would necessitate a conforming change to Part 140 deleting § 140.9 in its entirety.

No significant adverse comments or questions were received on the notice of proposed rulemaking, nor were any substantial changes in the text indicated. Therefore, the final rule being adopted by the Commission is identical to the proposed rule published for public comment.

### Paperwork Reduction Act Statement

Pursuant to the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511), the NRC has made a determination that this rule would not impose new recordkeeping, application, reporting, or other types of information collection requirements.

### Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the NRC certifies that this rule will not have a significant economic impact on a substantial number of small entities. The rule affects the licensing and operation of nuclear reactors. The companies and institutions who own these reactors do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or in the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121. Since the companies that will be affected by this rule are dominant in their service areas, this rule does not fall within the purview of the Act.

### List of Subjects in 10 CFR Part 140

Extraordinary nuclear occurrence, Insurance, Intergovernmental relations,

Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting requirements.

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 following amendment to 10 CFR Part 140 is published as a document subject to codification.

48 FR 8256

Published 2/28/83

### 10 CFR Part 140

#### Modification of Indemnity Agreements

##### Correction

In FR Doc. 83-625 beginning on page 1029 in the issue of Monday, January 10, 1983, make the following correction.

On page 1030, second column, in the Authority Citation, second paragraph, last line, "905" should read "950".

49 FR 11146

Published 3/26/84

Effective 4/23/84

### 10 CFR Part 140

#### Financial Protection Requirements and Indemnity Agreements; Facility Form Policy

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is adding statements to its regulations that would indicate that the text of the Facility Form policy, including any codified amendatory endorsement or change to the policy, is an example of a contract that has been "accepted" as evidence of financial protection but that other variations on the text would be considered by the Commission. This action, which is discussed in Section 1, is intended to remove the misimpression that the Commission requires its nuclear power reactor licensees to maintain financial protection containing the exact language presented in the text of the Facility Form policy. Section 2 of the Notice contains two amendatory endorsements that modify certain definitions in the Facility Form policy. Section 3 contains the standard secondary master policy form which is published for codification and which certain licensees are maintaining as secondary financial protection.

Finally, Section 4 contains other minor changes to conform certain sections of 10 CFR Part 140 both to Pub. L. 94-197 and the Atomic Energy Act of 1954, as amended.

**DATE:** This amendment becomes effective April 23, 1984.

**FOR FURTHER INFORMATION CONTACT:** Ira Dinitz, Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone (301) 492-9884.

**SUPPLEMENTARY INFORMATION:** Section 1.—In a proposed rule published on October 19, 1983 (48 FR 48474), the Commission sought comment on its decision to continue to publish Appendices A through H to 10 CFR Part 140 with certain clarifying statements made to Appendix A. (Appendix A is the Facility Form policy furnished by certain licensees as evidence of financial protection; Appendices B through H, except for Appendix F, are standard form indemnity contracts executed by the Commission and its licensees). This new language would state that the codified text of the Facility Form policy and amendatory endorsements to the policy were merely examples of contracts that the Commission would consider acceptable as proof of financial protection, but that other variations of the text would be considered as well. This language would remove the misimpression that the Commission was placing its imprimatur on all of the language in the text of the Facility Form.

The Commission's decision to continue publishing the Appendices to 10 CFR Part 140 was made after considering the comments received in connection with a Notice of Proposed Rulemaking published in the *Federal Register* on March 4, 1983 (48 FR 9284). That Notice sought public comment on the question of deleting Appendices A through H to 10 CFR Part 140. Eighteen comments were received on the Notice, and all of the commenters argued against removing the Appendices from the regulations.

Six comments have been received in response to the Notice published on October 19, 1983. Commenters included the nuclear insurance pools, trade organizations and utilities, and law firms representing utilities. One commenter supported the proposed rule. Another commenter opposed the rule as published because he believed it would allow insurance Commissioners in each State to adopt different approved policy forms. The remaining four commenters, supporting the proposed rule, suggested two minor revisions which the Commission has adopted to remove present ambiguities in the proposed rule. The first modification conforms the introductory paragraph to § 140.91,

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Appendix A, to the modifications made in § 140.15. This clarifies the Commission's intent that variations to the standard form of nuclear liability insurance policy for a particular facility may be submitted by the licensee for that facility. The second change adds the words "and its other statutory duties" to the last sentence of the introductory paragraph of Section 140.91 to reflect the fact that the Commission has authority under subsection 170b. of the Atomic Energy Act to consider matters other than "public protection."

**Section 2**—Two amendatory endorsements are also published in final form in this rule. These endorsements, NE-50 and NE-51, which were published for comment in the *Federal Register* on February 18, 1981 (46 FR 12750), modify the definition of "insured shipments" to conform to the change made in the statutory definition of "byproduct material" in Pub. L. 95-604, the Uranium Mill Tailings Radiation Control Act of 1978, and also relieve the insurers of liability arising out of inspections. Both changes are contained in one endorsement, NE-51, that is used for policies issued before January 1, 1981. Endorsement NE-50 has been used with policies issued on or after January 1, 1981.

**Section 3**—In order to implement the provisions of Pub. L. 94-197, the Commission is publishing for codification in 10 CFR Part 140 a standard master policy form which the Commission has determined to be adequate proof that a licensee is maintaining the necessary secondary financial protection required by subsection 170b. of the Atomic Energy Act of 1954, as amended. This standard master policy form was submitted by the Nuclear Energy Liability-Property Insurance Association (NEL-PIA), the predecessor organization to American Nuclear Insurers (ANI), one of the two liability insurance pools. (An additional policy identical to the published policy has been submitted by the Mutual Atomic Energy Liability Underwriters (MAELU), the other liability insurance pool, but will not be published separately.)

Since August 1, 1977, the Commission has utilized a binder furnished by these two insurance pools as evidence of adequate secondary financial protection. The binder is almost identical to the standard master policy form and in the Commission's view meets all the requirements for implementation of Pub. L. 94-197.

Both the master secondary financial protection policy and the accompanying certificate of insurance, which names the utility insureds, establish the terms and conditions under which the insureds

are responsible for the payment of the retrospective premium and, in addition, establish the liability of the insurance pools for the non-payment of the premiums in the event of default by the insureds. The secondary financial policy establishes the conditions under which the retrospective insurance premium becomes payable and contains additional terms and conditions to (1) establish the total contingent liability of the insuring companies in the event of retrospective premium defaults; (2) establish the requirements with which the insureds must comply in notifying the insuring companies of a nuclear incident; (3) establish the right of recovery by the insuring companies for any policy; and (4) cancel the policy for both the insuring companies and insureds.

On April 6, 1979, the Commission published for comment a proposed rule in the *Federal Register* (44 FR 20709) which contained the standard master policy form submitted by NEL-PIA. Only two letters of comment were received in response to this notice of proposed rulemaking. The first, submitted by NEL-PIA on behalf of both NEL-PIA and MAELU, simply provided editorial corrections. These changes have been incorporated in the secondary financial protection policy. The second letter of comment was submitted by Ropes and Gray, a law firm representing Yankee Atomic Electric Company, Connecticut Yankee Atomic Power Company, Vermont Yankee Nuclear Power Company and the several joint owners of the Seabrook Project. This letter suggested certain detailed changes in the secondary financial protection policy that the commenter believed would be advisable to clarify situations where multiple licensees own a single reactor. Basically, the Ropes and Gray position is that the secondary financial protection policy, as proposed, is at variance with subsection 170b. of the Atomic Energy Act of 1954, as amended, by not making a clear distinction between the concept of an "aggregate assessment against each facility" and the pro rata retrospective premiums charge against each licensee.\*

The Commission has analyzed the Ropes and Gray position and does not agree with it. Subsection 170b. does not differentiate between a license issued to a single utility and a license issued to more than one utility for the operation of a jointly owned reactor. The financial protection requirement applies to all co-licensees included under the term "licensee" as a unit and not separately to each of the co-licensees.

Ropes and Gray raises an additional concern in its comments relating to the "joint and severally liable" issue. The

argument is made that placing a "joint and severally" obligation upon a public utility is in effect a lending of credit by one utility to another utility. Such an obligation, it is asserted, may require prior approval by either Federal or state governmental agencies. The Commission does not agree with this position. The lending of credit concern was discussed by public power representatives during hearings held in late 1975 by the Joint Committee on Atomic Energy on H.R. 8631, the bill that was enacted into law as Pub. L. 94-197. The thought was expressed at that time that the retrospective premium system might be construed to be in violation of some State constitutions, which prohibit a municipal utility from lending its credit or making expenditures for other than public purposes. The Joint Committee Report accompanying H.R. 8631 stated:

Furthermore, the deferred premium should not be interpreted as establishing a responsibility by one licensee for a liability or debt of another. The potential deferred premiums are considered by the Joint Committee to have fundamentally the same status as any other such insurance premium. The bill authorizes the Commission to establish a maximum limit on the amount of deferred premiums which can be charged to a facility in any one year. The purpose of this provision is to clarify the status of the premiums and to ensure that they cannot be construed as the lending of credit by any licensee and thus raise constitutional problems for some publicly owned utilities.\*

**Section 4**—Finally, although the cost of investigating the settling liability claims and defending suits for damage is retained as part of financial protection, i.e., both primary and secondary insurance, the final rule modifies certain sections of 10 CFR Part 140 in conformance with Pub. L. 94-197 to exclude these costs from government indemnity. The amendments to Part 140 also include clarifying modifications, that were not in the proposed rule, to the definitions of the terms "financial protection" and "in the course of transportation" as used in the forms of indemnity agreements.

### Paperwork Reduction Act Statement

This effective 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 impact on a substantial number of small entities. The rule affects in part two named nuclear

\* Joint Committee on Atomic Energy, Report No. 94-048, November 19, 1975, p.11.

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liability insurance underwriting pools. Those two pools are the only ones in the United States writing nuclear liability policies, and do not fall within the definition of a small business found 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.

### 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.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Part 140, Code of Federal Regulations, are published as a document subject to codification.

49 FR 19623  
Published 5/9/84  
Effective 5/9/84

*Information Collection Requirements;  
Display of OMB Control Numbers*

See Part 0 Statements of Consideration

50 FR 30415  
Published 7/26/85

### 10 CFR Part 140

**Financial Protection Requirements and Indemnity Agreements;  
Indemnification of Spent Reactor Fuel Stored at a Reactor Site Different Than the One Where It Was Generated**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Exercise of discretionary statutory authority.

**SUMMARY:** The Commission has decided to exercise its discretionary statutory authority under the Price-Anderson Act and again extend Government indemnity to spent reactor fuel stored at a particular reactor site different than the one where it was generated. Absent this action by the Commission, this spent reactor fuel would not have been covered by Government indemnity in the event of a nuclear incident at the site where this spent fuel was stored and where the reactors involved have the same licensee.

**FOR FURTHER INFORMATION CONTACT:** Mr. Ira Dinitz, Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-9884.

**SUPPLEMENTARY INFORMATION:** Most operating reactor licensees have increased, or are planning to increase, the capacity of their onsite spent fuel storage pools. In some instances where the capacity of the storage pools at the reactor site cannot be increased sufficiently to meet the licensee's needs, fuel storage may be sought at another location. One method of storing spent fuel away from the reactor from which it is discharged is to store it in the spent fuel pool of another of the same licensee's reactors but at a different site.

The Commission has received a request from Duke Power Company to authorize and indemnify this type of activity. The Duke Power request is for Commission authorization permitting Duke to store spent fuel discharged from its Oconee Units 1, 2, and 3 at its McGuire Unit 2 reactor. Duke is seeking Price-Anderson indemnity protection for all such storage of spent fuel at the distant reactor location. The Commission considered and approved similar requests by Carolina Power and Light Company in August 1977 and Duke Power Company in November 1982 (See Federal Register Notice 42 FR 44615 and 46 FR 55024).

Under the Price-Anderson Act (section 170 of the Atomic Energy Act of 1954, as amended (the Act)), financial protection and government indemnity are *mandatory* for production and utilization facilities, such as reactors, licensed under section 103 and section 104 of the Act. This financial protection and indemnity covers the "licensed activity" which encompasses not only possession and operation of the reactor facility itself but also certain ancillary activities including (1) possession of the new fuel (containing special nuclear material) being stored on-site for use in the reactor and (2) on-site storage of spent fuel following irradiation at that reactor. Mandatory indemnification does not extend to the fuel when it is stored at another reactor site.

Possession of spent fuel away from the facility where it was generated, i.e., at a location where it is not used in connection with the operation of the facility, is not a part of the ancillary activity of possession and operation of the facility where the spent fuel is to be stored. As a result, after being transferred from the reactor site where it was generated to some other site, possession of such spent fuel must be licensed under other provisions of the Act which authorize licenses for possession and use of the special nuclear and byproduct material and would not be subject to the mandatory indemnity requirements of the Act providing that the Commission require financial protection of and indemnify reactor (and other production and utilization facility) licensees.

Accordingly, no indemnity protection automatically would be afforded spent fuel stored away from the facility where it is produced or used. To indemnify this spent fuel, the Commission must require the licensee at whose facility the spent fuel will be stored to maintain financial protection and to be indemnified by exercising its *discretionary* authority under section 170 of the Act. For the purposes of Price-Anderson coverage, this exercise of discretionary authority would result in treating spent fuel produced at one reactor site but stored at a different site the same as spent fuel stored at the site of the reactor where it was produced. Thus, irradiated fuel generated by a reactor at one site whether stored by itself in the spent fuel pool of a reactor at a different site or commingled with the second reactor's irradiated fuel in that reactor's spent fuel pool would be covered by financial protection and indemnity.

The NRC believes that it would not be desirable to have a situation where spent fuel generated by one reactor and stored in the spent fuel pools of a second reactor at a different site would be unindemnified while the spent fuel produced by the second reactor and stored at the same site would be indemnified. If indemnity coverage were not extended to the spent fuel generated by the first reactor but stored at the site of a second reactor and if an accident occurred involving the fuel storage pool it would be virtually impossible to determine whether indemnified or unindemnified spent fuel caused the accident.

In view of the foregoing, the Commission has decided to exercise its discretionary authority under section 170 of the Atomic Energy Act of 1954, as amended, and will modify Duke's indemnity agreement at the McGuire's facility to permit the storage of Oconee's irradiated fuel at McGuire. As required in 10 CFR 140.9, the Commission is publishing this amendment, which would redefine the term "the radioactive material" in Article I, paragraph 9 in the McGuire Indemnity Agreement B-83, to read as follows:

The radioactive material means source, special nuclear and byproduct material which (1) is used, was used or will be used in, or is irradiated, was irradiated or will be irradiated by, the nuclear reactors licensed under NPF-9 and NPF-17 or (2) was used in, or was irradiated in the nuclear reactors licensed under DPR-38, DPR-47, and DPR-55 and subsequently is transported to the site of the nuclear reactors licensed under NPF-9 and NPF-17 for the purpose of storage or (3) which is produced as a result of operation of the nuclear reactors licensed under NPF-9 and NPF-17.

This amendment relates to changes in an indemnity agreement incorporated

# 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 UNDER SECTION 274

### STATEMENTS OF CONSIDERATION

27 FR 1351  
Published 2/14/62  
Effective 2/14/62

Public Law 86-373, dated September 23, 1959, amended the Atomic Energy Act of 1954 by the addition of a new section 274, "Cooperation With States." One purpose of that legislation was to recognize the interests of the States in the peaceful uses of atomic energy and to clarify the respective responsibilities under the Atomic Energy Act of the Commission and the States with respect to the regulation of byproduct, source, and special nuclear materials.

Under section 274b. of the Atomic Energy Act, the Commission is authorized to enter into an agreement with the Governor of any State providing for discontinuance of the regulatory authority of the Commission under Chapters 6, 7, and 8, and section 161 of the Act with respect to the following materials within the State: Byproduct materials, source materials, and special nuclear materials in quantities not sufficient to form a critical mass.

Subsection (c) of section 274 of the Atomic Energy Act specifically excludes from such agreements the discontinuance of any Commission authority with respect to:

1. The construction and operation of any production or utilization facility;
2. The export from or import into the United States of any byproduct, source, or special nuclear material or of any production or utilization facility;
3. The disposal into the ocean or sea of byproduct, source, or special nuclear waste materials as defined in regulations or orders of the Commission;
4. The disposal of such other byproduct, source, or special nuclear material as the Commission determines by regulation or order should, because of the hazards or potential hazards thereof, not be so disposed of without a license from the Commission.

In addition to the foregoing the Commission, notwithstanding any agreement between the Commission and any State pursuant to subsection 274b. of the Act, is authorized by rule, regulation, or order to require that the manufacturer, processor or producer of any equipment, device, commodity or other product containing source, byproduct or special nuclear material shall not transfer pos-

session or control of such product except pursuant to a license issued by the Commission.

On September 29, 1961, the Commission published for public comment a draft of a proposed 10 CFR Part 150, which would relinquish certain licensing authority to agreement States and exempt persons in those States from Commission licensing requirements. The Statement of Considerations published with the proposed Part 150 stated that the Commission had not taken a position as to whether it should retain or relinquish to the States its authority to regulate the commercial disposal by burial of atomic wastes, or its authority to license the distribution by producers of products containing atomic energy materials; and specifically invited public comment on those questions and on possible alternatives.

Following publication, comments were received from some fifty organizations and individuals. The proposed Part 150 was discussed with a number of committees representing national organizations, as well as with the Commission's Advisory Committee of State Officials. The majority of all comments received were concerned in the main with the question of whether the Commission should continue control in agreement States of the commercial land burial of byproduct, source, or special nuclear wastes and the question of whether the Commission should continue control of transfer by manufacturers, processors or producers of equipment, devices, commodities, or other products containing agreement materials.

The Commission has taken into consideration the comments and advice it has received in adopting the regulation set out herein. The Commission has decided against blanket reservations of control over land burial of waste and over the transfer of manufactured products.

However, as to land burial, the Commission finds, pursuant to section 274 c.(4), of the Act that because of the hazards or potential hazards thereof, high level atomic energy wastes from the chemical processing of irradiated fuel elements should not be disposed of without a license from the Commission. This finding is reflected in § 150.15(a) (4). Control over the handling and storage of waste at the site of a reactor,

including effluent discharge, will be retained by the Commission as a part of the control of reactor operation. The States will have control over land burial of low level wastes.

With respect to whether the Commission should retain or relinquish authority to license the transfer by manufacturers, processors or producers of equipment, devices, commodities or other products containing atomic energy materials, Part 150 provides for State regulatory control in this area except those items intended for use by the general public (§ 150.15(a)(6)). Thus, control over the manufacture and transfer of industrial type devices, such as thickness gauges, would be exercised by the agreement States.

Control over consumer type devices, such as luminous watches, would be retained by the Commission. The uncontrolled distribution of atomic materials in products designed for distribution to the general public, such as consumer type devices, and the ultimate uncontrolled release of these materials into the environment, involve questions of national policy which have not yet been resolved. It is for this reason that the Commission is retaining control over such products. The Commission recognizes that the phrase "products designed for distribution to the general public" is not precise. The purpose of the provision, however, will be discussed with each agreement State; serious difficulties in interpretation of the phrase are not anticipated.

In order to achieve the maximum degree of uniformity of design and labeling requirements for those products and devices which will be under State control, the agreement to be executed between the Commission and an agreement State will provide for cooperative arrangements under which the State will keep the Commission informed of proposed requirements for the design and distribution of such products. In addition, the State will agree to use its best efforts to maintain its total control program compatible with the control program of the Commission on a continuing basis.

The agreement will also provide that the Commission and the agreement State will use their best efforts to develop rules, regulations and procedures by which reciprocal recognition of licenses

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covering agreement materials will be accorded.

In the implementation of the reciprocal recognition provision in the agreement, § 150.20 grants a general license to any person who holds a valid specific license from an agreement State to conduct the same activity in a non-agreement State, provided that the specific license does not limit the activity authorized by the license to specific installations or locations. The general license so provided in § 150.20 requires the licensee to comply with the appropriate provisions of Parts 20, 30, 31, 40, and 70 of Title 10. In addition, such licensee must register in advance with the Commission; must not in any non-agreement State, transfer or dispose of the radioactive material possessed or used under the general license except by transfer to a person specifically licensed by the Commission to receive such material; must not in any non-agreement State, possess or use radioactive material, or engage in the activity authorized in § 150.20 for more than 20 days in any period of 12 consecutive months, without obtaining a specific license from the Commission, and must comply with all terms and conditions of the specific State license except those terms and conditions as are contrary to the requirements of § 150.20.

There are certain classes of devices containing byproduct material which may be used under general licensing provisions contained in Part 30, § 30.21(c), if the device is manufactured in accordance with a specific license issued to the manufacturer by the Commission. Part 30 is being amended to provide that such products, if manufactured in an agreement State pursuant to a specific license from the agreement State, may be transferred to users in non-agreement States and used by the users under the general licensing provisions of Part 30.

The Commission's decision not to exercise its authority to license the transfer of products containing atomic energy materials (other than products designed for distribution to the general public) is based on the assumption that agreement States will maintain continuing compatibility between their programs and Commission programs; and that procedures will be devised assuring reasonable, reciprocal recognition of licenses and licensing requirements among such States and the Commission. If attainment of these objectives should prove to be unfeasible, the Commission will reconsider the need for the exercise of its authority to prescribe the specifications for products containing atomic energy materials.

It will be desirable for the Commission and agreement States to develop programs for the collection and exchange of data concerning the effectiveness of standards and procedures observed in their respective programs for licensing and regulating the possession and use of atomic energy materials. For this purpose, the Commission plans, in cooperation with the agreement States, to develop procedures under which the agreement States will furnish to the

Commission such information as may be agreed upon from time to time; and the Commission will make available to each agreement State, summaries of the information received from other agreement States and from Commission licensees.

As has previously been announced, the Commission is conducting studies of activities involving the processing and use of very substantial quantities of byproduct material (in the order of hundreds of thousands of curies). These studies have been undertaken in part to provide information on which the Commission may make a determination as to whether provisions of the Price-Anderson Indemnity Act (section 170 of the Atomic Energy Act of 1954) should be extended to such activities. They have also been undertaken for the purpose of providing information as to whether the Commission should determine that facilities which process such quantities of byproduct material are production or utilization facilities within the meaning of Section 11 of the Act. If the Commission finds that such facilities should be classified as utilization facilities, the Commission's licensing and regulatory requirements would be applicable: The provisions of the Price-Anderson Indemnity Act cannot be made applicable except to activities licensed by the Commission.

The exemptions herein granted are issued in order to carry out agreements between the Commission and the Governor of any State under section 274b. of the Atomic Energy Act of 1954, as amended.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following regulation is published as a document subject to codification, to be effective on publication in the FEDERAL REGISTER.

30 FR 12069  
Published 9/22/65  
Effective 10/22/65

### Computation of Quantities of Special Nuclear Material in Agreement States for Purposes of Exemption

1. On June 5, 1965, the Commission published a proposed amendment to 10 CFR Part 150 which would revise the basis for computation of whether a quantity of special nuclear material within an agreement State<sup>1</sup> is sufficient to form a critical mass, allowing thirty days for public comment. (30 F.R. 7445) After consideration of the comments received in response to the notice of proposed rule making, and other factors involved, the Commission has decided to adopt the proposed amendment in the form published in the notice, as an effective rule.

2. Subsection 274b. of the Atomic Energy Act of 1954, as amended, authorizes the Commission to enter into agreements with individual States for the discontinuance of Commission regulatory authority under the Act, with respect to certain atomic energy materials. Among those materials are special nuclear materials in quantities not sufficient to form a critical mass.

<sup>1</sup>A State to which the Commission has transferred certain regulatory authority over radioactive material by formal agreement, pursuant to section 274 of the Atomic Energy Act of 1954, as amended.

3. The Commission has, thus far, entered into agreements with eleven States pursuant to subsection 274b. It has also promulgated a regulation, 10 CFR Part 150, to carry out such agreements.

4. Section 150.10 of Part 150 exempts persons in agreement States who manufacture, produce, receive, possess, use or transfer special nuclear material in quantities not sufficient to form a critical mass from the requirements for a license contained in the Act and from the Commission's licensing regulations. Paragraph (a) of § 150.11 sets out the quantities of special nuclear materials which are deemed to be not sufficient to form a critical mass. Paragraph (b) of that section provides, in effect, that in determining whether the exemption applies, the total quantity of special nuclear material which a person is authorized to receive, possess or use anywhere in a particular agreement State at any one time shall be included in the quantity computed under paragraph (a).

5. The amendment to § 150.11(b) set forth below provides that in determining whether the exemption of § 150.10 applies at any particular plant or other authorized location of use, only the material which the person is authorized to receive, possess or use at that plant or location at any one time need be included in the computation. Even though the total quantity of special nuclear material which a person is authorized to possess or use within an agreement State may be sufficient to form a critical mass, no problems of accidental criticality are presented so long as the quantity of material possessed and used at any separate location at any one time is insufficient to form a critical mass.

6. Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act of 1946, the following amendment to 10 CFR Part 150 is published as a document subject to codification to be effective thirty days after publication in the FEDERAL REGISTER.

31 FR 15145  
Published 12/2/66  
Effective 12/2/66

### Miscellaneous Amendments to Chapter

See Part 9 Statements of Consideration.

34 FR 6517  
Published 4/16/69  
Effective 5/16/69

### Transfer of Products Containing Byproduct Material and Source Material Exempted From Licensing and Regulatory Requirements

On February 24, 1968, the Atomic Energy Commission published in the FEDERAL REGISTER (33 F.R. 3346) a proposed amendment to 10 CFR Part 150 which would redefine the category of products containing radioactive materials over whose transfer by the manufacturer, processor, or producer in an Agreement State the Commission retains jurisdiction. The notice of proposed rule making was published in the FEDERAL REGISTER once each week for four consecutive weeks, allowing 60 days for public comment after initial publication.

After consideration of the comments and other factors involved, the Commis-

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sion has adopted the proposed amendment. The text of the effective rule is the same as the proposed rule except for clarifying changes of language.

Subsection 274c of the Atomic Energy Act of 1954, as amended, provides that notwithstanding any agreement between the Atomic Energy Commission and any State, the Commission is authorized to require that the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source, byproduct, or special nuclear material shall not transfer possession or control of such product except pursuant to a license issued by the Commission.

In issuing 10 CFR Part 150, which implemented certain provisions of section 274 of the Act, in 1962, the Commission exercised its authority under subsection 274c of the Act by providing (§ 150.15(a)(6)) that persons in Agreement States are not exempt from the Commission's licensing requirements with respect to \* \* \*

(6) The transfer of possession or control by the manufacturer, processor, or producer of any equipment, device, commodity, or other product containing source, byproduct, or special nuclear material, intended for use by the general public.

In retaining regulatory authority over transfer of products "intended for use by the general public", the Commission was seeking to maintain surveillance over the safety of products containing radioactive materials, without the imposition of regulatory controls, and to be able to assess the effect of the attendant uncontrolled addition of these radioactive materials to the environment.

In view of the increasing difficulty in determining whether or not such products are intended for use by the general public, the Commission has adopted the amendment of Part 150 set out below, which changes § 150.15(a)(6) by deleting the phrase "product \* \* \* intended for use by the general public" and substituting therefor the phrase "product \* \* \* whose subsequent possession, use, transfer and disposal by all other persons are exempted from licensing and regulatory requirements of the Commission under Parts 30 and 40 of this chapter."

Under Part 150 as amended below the transfer of possession or control by a manufacturer, processor, or producer of any equipment, device, commodity, or other product containing byproduct material or source material whose subsequent possession, use, transfer, and disposal by all other persons are exempted from Commission licensing and regulatory requirements under Parts 30 and 40, is not subject to the licensing and regulatory authority of an Agreement State even though the product is manufactured, processed, or produced pursuant to an Agreement State license. The manufacturer of such products in an Agreement State is subject to the Commission's regulatory authority with respect to transfer of any product which has been so exempted from the Commission's licensing and regulatory requirements. The Commission has confined its

regulation of the transfer of exempt products to specifications for the products, quality control procedures, requirements for testing, and labeling. The authority of Agreement States to regulate any radiation hazards that might arise during manufacture of such products is not affected by the amendment. Accordingly, dual regulation will continue to be avoided.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 150, is published as a document subject to codification effective thirty (30) days after publication in the *FEDERAL REGISTER*.

35 FR 7640  
Published 5/16/70  
Effective 6/15/70

### *Material Status Reports and Nuclear Material Transfer Reports*

See Part 70 Statements of Consideration.

35 FR 7725  
Published 5/20/70  
Effective 6/19/70

### **Recognition of Agreement State Licenses**

On December 20, 1969, the Atomic Energy Commission published in the *FEDERAL REGISTER* (34 F.R. 19996) a proposed amendment to its regulation 10 CFR Part 150, "Exemptions and Continued Regulatory Authority in Agreement States Under Section 274," which would (a) increase the time during which persons holding specific licenses from Agreement States may engage in activities in non-Agreement States under the general license in § 150.20 from 20 days in any period of 12 consecutive months to 180 days in any calendar year; (b) limit the application of the general license to a person holding a specific license issued by the State where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained; and (c) modify the requirements for notifying the Commission of proposed activities to be conducted in non-Agreement States under the general license.

All interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendment within 60 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. No adverse comments were received. The Commission has adopted the proposed amendments. The text of the amendment set out below is identical with the text of the proposed amendment published December 20, 1969.

The amendment increases the time that persons holding specific licenses from Agreement States are permitted to engage in activities in non-Agreement States under the general license from 20 days in any period of 12 consecutive months to 180 days in any calendar year. This increase in time will encourage the use of the general license by Agreement States specific licensees who are engaged in transient field operations.

The amendment limits use of the general license to the specific licensee whose license was issued by the Agreement State where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained. This State will be in the best position to evaluate the licensed activities and to require and enforce any corrective measures which might be desirable or necessary in the interest of public health and safety.

Agreement State specific licensees will be required to file Form AEC-241, "Report of Proposed Activities in Non-Agreement States," at least 3 days prior to engaging in any activities in non-Agreement States under § 150.20. The Director of the Commission's appropriate Regional Compliance Office is authorized to permit commencement of the activity without the 3-day period notice upon receipt of telephone notification. Also, he is authorized to waive the requirement for filing additional reports during the remainder of the calendar year, following the receipt of the initial report.

The Commission expects that the amendment of the general license in § 150.20 will permit a greater number of Agreement State specific licensees to use the general license, reduce the need for multiple specific licenses, and reduce the number of reports required of persons proposing to engage in activities under the general license. The amendment will simplify licensing of radioactive materials without compromising health and safety.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 150, is published as a document subject to codification effective thirty (30) days after publication in the *FEDERAL REGISTER*.

35 FR 12195  
Published 7/30/70  
Effective 8/29/70

### *Source Material Reports*

See Part 40 Statements of Consideration.

36 FR 10938  
Published 6/5/71  
Effective 7/5/71

### *Safeguards Reporting Requirements for Source Material*

See Part 40 Statements of Consideration.

37 FR 9207  
Published 5/6/72  
Effective 6/5/72

### *Reporting and Control Requirements for Tritium*

See Part 30 Statements of Consideration.

38 FR 2330  
Published 1/24/73  
Effective 1/24/73

### *Miscellaneous Amendment*

See Part 2 Statements of Consideration.



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38 FR 3039  
Published 2/1/73  
Effective 2/1/73

### Aircraft Transportation of Special Nuclear Material

The Atomic Energy Commission has adopted amendments to its regulations in 10 CFR Part 73, "Physical Protection of Special Nuclear Material," which, in the interest of the common defense and security, strengthen existing requirements for physical protection of special nuclear material (SNM) while in transit. The quantities of SNM that may be carried aboard passenger carrying aircraft are limited to 20 grams or 20 curies, whichever is less of plutonium or uranium-233 or 350 grams of uranium-235 (contained in uranium enriched to 20 percent or more in the U-235 isotope). The limitations on plutonium and uranium-233 are consistent with international air transport regulations governing shipments of these materials aboard passenger aircraft. They also are consistent with export license conditions which have been imposed by the Director of Regulation since February 1969, limiting shipments of special nuclear materials on international flights. Accordingly, Part 150 is being amended to impose similar restrictions on licensees of Agreement States.

In the interest of the common defense and security, the Commission has found that general notice of proposed rule making and public procedure thereon are contrary to the public interest and good cause exists for making the amendments effective without the customary 30-day notice. Pursuant to the Atomic Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendment of Title 10, Chapter I, Code of Federal Regulations, Part 150 is published as a document subject to codification to be effective on February 1, 1973.

39 FR 39559  
Published 11/8/74  
Effective 11/8/74

### PART 70—SPECIAL NUCLEAR MATERIAL

#### PART 150—EXEMPTIONS AND CONTINUED REGULATORY AUTHORITY IN AGREEMENT STATES UNDER SECTION 274

##### Reporting of Theft or Attempted Theft of Special Nuclear Material

On February 8, 1974, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 4930) proposed amendments to its regulations in 10 CFR Part 70, "Special Nuclear Material," and 10 CFR Part 150, "Exemptions and Continued Regulatory Authority in Agreement States Under Section 274," which would require reporting of theft or attempted theft of special nuclear material in the interest of the common defense and security.

Interested parties were invited to submit comments and suggestions for consideration pertaining to the proposed amendments by March 25, 1974. Upon consideration of the comments received, and other factors involved, the Commission has adopted the proposed amendments with minor editorial and clarifying changes.

These reporting requirements are being promulgated as part of an overall AEC effort to strengthen the protection of strategically important special nuclear material.

In the interest of the common defense and security, the Commission has found that good cause exists for making the amendments effective upon publication in the *FEDERAL REGISTER* without the customary 30-day notice.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments of 10 CFR Parts 70 and 150 are published as a document subject to codification.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

##### Energy Reorganization Act; Revisions to Chapter I to Reflect Organizational and Procedural Changes

See Part 2 Statements of Consideration.

41 FR 16445  
Published 4/19/76  
Effective 4/19/76

##### Miscellaneous Changes to Chapter

See Part 20 Statements of Consideration.

42 FR 33265  
Published 6/30/77  
Effective 6/30/77

##### Certain Reporting Dates Changed

See Part 30 Statements of Consideration.

42 FR 43965  
Published 9/1/77  
Effective 9/1/77

##### Amendments to Chapter to Revoke or Revise Certain Reporting Requirements

See Part 20 Statements of Consideration.

44 FR 50012  
Published 8/24/79  
Effective 8/24/79  
Comment Period expires 10/24/79

##### Uranium Mill Tailings Licensing

See Part 40 Statements of Consideration.

44 FR 68184  
Published 11/28/79  
Effective 3/25/80

##### Physical Protection Upgrade Rule

See Part 73 Statements of Considerations.

45FR14199  
Published 3/5/80  
Effective 3/5/80

##### Minor and Clarifying Amendments

See Part 1 Statements of Consideration

45 FR 18905  
Published 3/24/80  
Effective 3/24/80

##### Deletion of reference to Panama Canal Zone; Minor Amendments

See Part 4 Statements of Consideration.

45 FR 50705

Published 7/31/80  
Effective 7/31/80  
Effective Date 12/24/80 \*

##### Safeguards on Nuclear Material—Implementation of US/IAEA Agreement

See Part 75 Statements of Consideration.

45 FR 65521  
Published 10/3/80  
Effective 11/17/80

##### Uranium Mill Licensing Requirements

See Part 30 Statements of Consideration

45 FR 74693  
Published 11/12/80  
Effective 11/28/80

##### Licensing Requirements for the Storage of Spent Fuel in an Independent Fuel Spent Storage Installation

See Part 72 Statements of Consideration

46 FR 44149  
Published 9/3/81  
Effective 10/5/81

\*Amended 45 FR 84967

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### 10 CFR Parts 31 and 150

#### NRC's Jurisdiction Over Persons Using Byproduct, Source or Special Nuclear Materials in Certain Offshore Waters

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations (1) to clarify that it has jurisdiction vis-a-vis Agreement States over persons using byproduct, source, or special nuclear materials in certain offshore waters bounded by the U.S. Outer Continental Shelf, (2) to recognize Agreement State specific licenses in an NRC general license covering activities in these waters, and (3) to allow Agreement States to perform inspections and other functions for NRC in these waters.

**EFFECTIVE DATE:** October 5, 1981.

**FOR FURTHER INFORMATION CONTACT:** Thomas F. Dorian, Esq., Office of the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (Telephone: 301-492-8690).

#### SUPPLEMENTARY INFORMATION:

##### The Problem

Several incidents in the Gulf of Mexico involving actual or potential overexposures to radiographers have disclosed to the Commission the need to clarify its jurisdiction vis-a-vis that of coastal Agreement States<sup>1</sup> over offshore radiographic, well-logging, and other operations using byproduct, source, or special nuclear materials. Licensing, regulatory, and enforcement problems have arisen because it has been unclear whether a person with a specific license

from an Agreement State or from NRC, operating in offshore waters, namely, in the area, beyond a coastal Agreement State's Submerged Lands Act jurisdiction (see 43 U.S.C. 1301, *et seq.*) (that is, outside State boundaries which normally extend three miles or three marine leagues from the coastline), but on or above the Outer Continental Shelf, should be licensed and regulated by the Agreement State or by the Commission.

##### The Comments

On October 30, 1980, NRC published a proposed rule, in the Federal Register (45 FR 71807) addressing the issue of jurisdiction including several concerns raised by Louisiana and Texas with respect to this issue. During the comment period, the Department of Justice was the sole commenter on the proposed rule,<sup>2</sup> agreeing with the proposal and suggesting several word changes to clarify the concept of "offshore waters." In essence, the Department suggested that "offshore waters" should be defined as those waters beyond Agreement States' "Submerged Lands Act jurisdiction and above the U.S. Outer Continental Shelf," rather than, as defined in the proposed rule, those waters beyond Agreement States' "territorial waters and within the area of the U.S. Outer Continental Shelf."

The Submerged Lands Act (Pub. L. 31, 43 U.S.C. 1301, *et seq.*) was promulgated in order to extend Federal jurisdiction and control to the submerged lands off the U.S. Outer Continental Shelf. It deals, in pertinent part, with the rights and claims of the States to the seabed and its resources beyond historic State boundaries. See House Report No. 215, accompanying H.R. 4198, in 1953 *U.S. Code Cong. and Admin. News*, at 1385.

The Commission has accepted the changes suggested by the Department of Justice, with some additional minor modifications discussed with it. The modifications make clear that "offshore waters" include both the land and water areas, beyond Agreement States' Submerged Lands Act jurisdiction, on or above the U.S. Outer Continental Shelf.

Shortly after the comment period ended, Louisiana and an independent consultant notified the Commission<sup>3</sup> that, though they agreed with the principal substantive provisions of the proposed rule (that is, that NRC has the requisite jurisdiction over persons in the defined offshore waters), nonetheless, they and many licensees were concerned about two minor procedural

requirements the proposed rule would have imposed upon licensees. The Commission learned that Texas was similarly concerned. Both requirements have now been changed, as discussed later. One would have required Agreement State licensees (working in the offshore area under the proposed NRC general license) to file NRC-241 forms to allow the Commission to track their activities in order to make inspections. The other would have required them to apply for specific licenses after 180 days (measured cumulatively over a calendar year) of operating under the general license.

##### Examination of the Jurisdictional Issue

Three principles underlying the amendments should be made clear before a fuller examination of the jurisdictional issue. First, the Agreement States of Texas and Florida (on the Gulf of Mexico only) have Submerged Lands Act jurisdiction beyond the Federal territorial sea. The Commission intends to recognize the jurisdiction of these States to the seaward limits of their seabed resources jurisdiction. Second, the Outer Continental Shelf includes only the seabed underlying the sea beyond the limits of the Agreement States' seabed resource jurisdiction, not the superjacent water. Third, the high seas begin at the limit of the Federal territorial sea and extend to another country's territorial sea.

After examining the issue of jurisdiction, the Commission has concluded that NRC retains jurisdiction vis-a-vis coastal Agreement States over persons using byproduct, source, and special nuclear materials when these materials are used in the offshore waters previously described. NRC's jurisdiction over persons using these materials extends seaward from the limit of the States' jurisdiction, above the U.S. Outer Continental Shelf, continues past the Shelf onto the high seas, and, in most instances, stops at another country's territorial sea, as recognized by the United States. This conclusion is based on several considerations.

The Commission's jurisdiction over persons using byproduct, source, or special nuclear materials is found in sections 81 and 82 (byproduct material), 62, 63, and 64 (source material), and 53, 54, and 57 (special nuclear material) of the Atomic Energy Act, as amended. These sections grant NRC *in personam* jurisdiction, that is, jurisdiction over a person (when stating, "No person may

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<sup>1</sup> An Agreement State is a State with which NRC has an agreement under section 274 of the Atomic Energy Act. Section 274 of the Atomic Energy Act was enacted in 1959, to recognize the States' interest in atomic energy activities, to clarify the respective responsibilities of the States and the Commission under the Act, and to provide a statutory means by which the Commission can discontinue certain of its regulatory responsibilities with respect to byproduct, source, and special nuclear materials and by which the States can assume these responsibilities. An agreement made pursuant to section 274b, carries out the basic Congressional intent that either the State or the Commission—but not both—should regulate a given atomic energy activity from the point of view of radiation protection. One of the evils that Congress sought to avoid was "dual regulation." This means that, insofar as regulation of these materials by the State and the Commission is concerned, the activities discontinued under the agreement will be regulated only by the State, and that the activities reserved by the Commission will be regulated only by the Commission.

<sup>2</sup> Copies of comments are available for inspection at NRC's Public Document Room at 1717 H Street, NW., Washington, D.C.

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Continental Shelf arose between the Federal Government and certain States, the Atomic Energy Commission (AEC) followed a personal, as opposed to a territorial, approach to offshore jurisdiction. This allowed Agreement States, with AEC's acquiescence, to regulate their own citizens' offshore uses of materials within the purview of an agreement under section 274b. of the Atomic Energy Act (described in the footnote); in 1967, in light of the submerged lands controversy, this practice was changed in part because the Federal Government argued that things, such as oil drilling rigs, attached to the U.S. Outer Continental Shelf were subject to its exclusive jurisdiction; for the AEC, this meant that an Agreement State did not have jurisdiction to regulate possession and use of byproduct, source or special nuclear materials on such things as oil rigs in offshore waters, as previously described.

At the time of the submerged lands controversy, the AEC was negotiating a standard agreement with Louisiana pursuant to section 274b. of the Atomic Energy Act. So as not to compromise the pending litigation between the Federal Government and Louisiana, the AEC and Louisiana also entered into a Memorandum of Understanding and an agreement under section 274i. of the Act. The Memorandum of Understanding, which is still in effect between NRC and Louisiana, states, in essence, that AEC (now NRC) retains regulatory authority over the disputed area in the Gulf of Mexico and that the agreement made pursuant to section 247b. of the Act shall not prejudice the position of either the United States or Louisiana in the pending litigation. The agreement under section 274i. of the Act, which is also still in effect, invokes the authority granted to the Commission under section 274i. of the Act to enter into agreements with States "to perform inspections or other functions on a cooperative basis as the Commission deems appropriate." The agreement authorizes Louisiana to perform certain inspections and other functions for and on behalf of the Commission.

This rule would allow Louisiana and NRC to terminate the Memorandum of Understanding and to enter into a revised agreement under section 274i. of the Act.

The Supreme Court in a series of cases has settled the Federal-State dispute over the Outer Continental Shelf in the Gulf of Mexico. *United States v. Louisiana*, 389 U.S. 155 (1967), 394 U.S. 1 (1969) (cited as the Texas Boundary Case), 394 U.S. 11 (1969) (cited as the

Louisiana Boundary Case), and 404 U.S. 388 (1971) (also cited as the Louisiana Boundary Case).

It is now clear that the Outer Continental Shelf Lands Act has placed the Outer Continental Shelf under exclusive Federal jurisdiction, extending the laws of the United States to the subsoil and seabed of the Shelf and to all artificial islands and fixed structures erected thereon (see 43 U.S.C. 1331, *et seq.*). It should be noted, however, that for some purposes State law is adopted as a surrogate for Federal law under the Act to the extent that such State law is "applicable and not inconsistent with . . . other Federal laws." 43 U.S.C. 1333(a)(2); *Rodriguez v. Aetna Casualty Co.*, 395 U.S. 352, 365 (1969); *Union Oil Company v. Oppen*, 501 F.2d 558, 561 (1974); *Oppen v. Aetna Insurance Co.*, 485 F.2d 252, 255, (1973.) It should also be noted that the Act does not apply to the sea above the subsoil and seabed. 43 U.S.C. 1332(b).

It is thus clear as regards oil drilling rigs, for example, that NRC has jurisdiction over persons in offshore waters beyond an Agreement State's Submerged Lands Act jurisdiction using byproduct, source, or special nuclear materials on these rigs, for these rigs are attached to the Outer Continental Shelf and are considered fixed structures erected on the seabed.

It is also clear that NRC has jurisdiction over persons in offshore waters beyond an Agreement State's Submerged Lands Act jurisdiction and above the Outer Continental Shelf using byproduct, source, or special nuclear materials on free-floating objects, such as lay barges or other vessels, or in offshore diving activities. This view is based on the *in personam* jurisdiction argument described before and supported by another argument.

Sections 274b. and 274d. of the Atomic Energy Act, under which NRC may either retain or discontinue certain parts of its regulatory authority, do not provide for discontinuance of the Commission's regulatory authority over byproduct, source, or special nuclear materials not "within a State". Thus, the Commission retains jurisdiction over persons using these materials and specifically licensed by the Commission or Agreement States when these persons are not within an Agreement State. This jurisdiction extends on the high seas seaward from the limits of the State's jurisdiction, but normally stops when it would conflict with another country's territorial sea, as recognized by the United States.

### Resolution of the Problem

#### *The General License*

Since the present problem is limited to incidents in offshore waters, and because the Commission has jurisdiction in these waters, it has extended its general licensing scheme to activities of specific licensees of Agreement State in this land and water area. It has done so in two compatible ways. First, it has recognized Agreement State specific licenses in a new NRC general license (without a time limitation) covering activities in offshore waters. (It should be noted, by the way, that NRC specific licensees currently authorized to operate in offshore waters, of course, would not need to request a license amendment in order to continue to do so.) Second, it has extended a reporting requirement (it already uses on land) to monitor the activities of these licensees—except that it would not impose this requirement when an Agreement State has an agreement with the Commission under section 274i. of the Atomic Energy Act to perform inspections for it.

The Commission believes that the regulation change will remove present ambiguities and go a long way toward providing administrative simplicity. It therefore has broadened the scope of Parts 31 and 150 to provide for Commission regulatory authority in the form of general licensing over persons in offshore waters, namely, beyond Agreement States' Submerged Lands Act jurisdiction and on or above the Outer Continental Shelf.

As presently drafted, §§ 31.6 and 150.20 grant general licenses to a person with a specific license from an Agreement State to conduct the licensed activity within non-Agreement States. However § 150.20 presently authorizes a person to engage in activities in non-Agreement States under NRC's general license for no more than 180 days (calculated cumulatively) in any calendar year. Presently, at the end of this period, the general license expires and the person needs a specific license from the Commission to continue to engage in these activities in non-Agreement States. The reason for obtaining such a license is described in *the Matter of Chem-Nuclear Systems, Inc.*, 10 NRC 865 (1979), namely, that long-term field operations should be controlled through specific licensing. Operations in offshore waters, however, are short term and of a somewhat different character than those on land (for example, radiography is performed on board lay barges moving back and forth between jurisdictions, i.e., between the shore and oil rigs far from the shore).

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Moreover, simplified regulation between NRC and Agreement States is desirable in this area. Therefore, in response to the comments received, under §§ 31.6 and 150.20 new general licenses have been created for the offshore area. These are modified versions of the general license for activities on land. They allow persons operating in the offshore area to do so under the general licenses without having to apply for a specific license after the 180-day period.

### *The NRC-241 Form*

As mentioned before, Louisiana questioned the need for Agreement State licensees (working in the offshore area under the NRC general license) to file NRC-241 forms, since similar forms are already filed with respect to its own inspections. The Commission wanted to extend this requirement (presently used on land with respect to general licensees) to the offshore area to enable it to track the activities of its general licensees in order to make its own inspections. After discussions with Louisiana, the Commission has decided to continue to allow that State to perform inspections for NRC in the defined offshore area under the previously-described 274i. Agreement and to update that Agreement. Additionally, after discussions with the other coastal Agreement States, the Commission has also decided to permit all these States to perform inspections for it under similar 274i. agreements.

In light of this development, the final rule now states that the Commission requires the filing of the NRC-241 form, unless the licensee provides to the Agreement State that issued the specific license timely notification of its offshore activities and that State is listed in the rule as agreeing to perform inspections for NRC under a 274i. agreement. Louisiana is the only State now listed in the rule because it already has the requisite agreement. The rule will contain a complete list as soon as the Commission has section 247i. agreements with the other coastal Agreement States. It is presently pursuing discussions with them toward that end. Thus, the issues of offshore inspection and of the use of the reporting forms have been resolved simultaneously by allowing Agreement States to perform inspections on NRC's behalf, thereby simplifying the Commission's regulatory efforts and avoiding dual reporting for the defined offshore area.

### *Definition of "Offshore Waters"*

It should be noted that the rule defines "offshore waters" as "that area of land and water, beyond Agreement

States' Submerged Lands Act jurisdiction, on or above the U.S. Outer Continental Shelf" without specifying for each Agreement State the exact boundaries of these waters and the land area of the Shelf. The definition of offshore waters is designed to keep the proposed rule simple. Aside from the fact that it is not feasible to draw cartographic lines in any regulation, it is unnecessary to do so. The Supreme Court has decided the Federal-State dispute over the land areas of the Outer Continental Shelf and, as a matter of law, defined the necessary boundary lines. Further, as a practical matter, the three-mile limit is depicted generally on large-scale nautical charts of the United States published by the National Ocean Survey of the Department of Commerce.

In addition, in the cases of Texas and Louisiana cited before, the Supreme Court defined the necessary boundary lines as a matter of fact. Thus, in the case of Louisiana, for example, its jurisdiction over the seabed of the Shelf extends three nautical miles from its coastline; and, in the case of Texas, for example (and the same is true for Florida), as a technical legal matter having to do with its admission as a State of the Union, its jurisdiction over the seabed of the Shelf extends up to nine nautical miles from its coastline.

Thus, the definition in the proposed rule is intended to cover, in an understandable and simple fashion, the Commission's jurisdiction over persons operating beyond the Agreement States' normal three-mile jurisdictional limit, just described, and using byproduct, source, or special nuclear materials on things, such as oil rigs, attached to the seabed of the Outer Continental Shelf as well as the Commission's jurisdiction over persons using these materials in diving activities or on free-floating objects, such as lay barges and other vessels, in the waters above the seabed of the Shelf.

It should also be noted that the rule is focused on the Outer Continental Shelf area and not on the high seas beyond the Shelf. Thus, beyond the Outer Continental Shelf, NRC will continue, as has been the case historically, its licensing authority over certain kinds of persons, such as the Navy using nuclear material on naval vessels, while Agreement States will retain their authority over other kinds of persons, such as, for example, those using nuclear materials on State-chartered research vessels. In other words, the Commission acknowledges its present practice of regarding possession and use of nuclear materials on those high seas beyond the Shelf by certain citizens of

littoral States as also subject to those States' regulatory authorities. However, in light of the previous jurisdictional statement, the Commission reserves the right to alter or amend such practice at any time.

### *Paperwork Reduction Act*

This final rule contains no new or amended requirements for recordkeeping, reporting, plans or procedures, applications or any other type of information collection.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 31 and 150, are published as a document subject to codification.

46 FR 50781

Published 10/15/81

Effective 10/15/81

### **10 CFR Part 150**

#### **NRC's Jurisdiction Over Persons Using Byproduct, Source or Special Nuclear Materials in Certain Offshore Waters; Corrections**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule; corrections.

**SUMMARY:** The Commission is publishing two minor corrections to its amendment regarding NRC's jurisdiction in certain offshore waters that appear in the Federal Register on September 3, 1981 (46 FR 44149).

**EFFECTIVE DATE:** October 15, 1981.

**SUPPLEMENTARY INFORMATION:** In a Federal Register notice published in September 1981 [46 FR 44149], in 10 CFR 150.20(b)(1) the clause beginning with "Provided, however" and the remainder of the paragraph were inadvertently omitted. Further, in 10 CFR 150.20(b)(3) the end mark should have been a semi-colon.

46 FR 55085

Published 11/6/81

Effective 11/6/81

*Removal of Certain Information  
Collection Requirements for Tritium*

See Part 30 Statements of Consideration

## PART 150 • STATEMENTS OF CONSIDERATION

47 FR 8  
Published 1/4/82  
Effective 1/4/82

*Submittal of Installation  
Information Pursuant to  
US/IAEA Safeguards  
Agreement*

See Part 40 Statements of Consideration

49 FR 19623  
Published 5/9/84  
Effective 5/9/84

*Information Collection Requirements;  
Display of OMB Control Numbers*

See Part 0 Statements of Consideration

47 FR 30452  
Published 7/14/82  
Effective 10/12/82

*Protection of Employees Who  
Provide Information*

See Part 19 Statements of Consideration

49 FR 24705  
Published 6/15/84  
Effective 7/16/84

*Tritium and Source Material Reports*

See Part 30 Statements of Consideration

50 FR 41852  
Published 10/16/85  
Effective 11/15/85

*Uranium Mill Tailings Regulations;  
Conforming NRC Requirements to EPA  
Standards*

See Part 40 Statements of Consideration

48 FR 39036  
Published 8/29/83  
Effective 9/28/83

*Irretrievable Well-logging Sources*

See Part 30 Statements of Consideration

➤ 51 FR 9763  
Published 3/21/86  
Effective 4/21/86

*Material Balance Reports of Source  
Material and Special Nuclear Material*

See Part 40 Statements of Consideration

48 FR 40882  
Published 9/12/83

### 10 CFR Part 150

#### Irretrievable Well-Logging Sources

##### *Correction*

In FR Doc. 83-23603 beginning on page 39036 in the issue of Monday, August 29, 1983, make the following corrections in the first column on page 39039:

1. Between the third and fourth lines from the bottom of the page, insert the following language:

"8. Remove the authority citations following §§ 150.3, 150.14, 150.15, 150.15a, 150.30, 150.31, and 150.32."

2. In the fourth line from the bottom of the page the section number reading "1509.32" should read "150.32".

**UNITED STATES NUCLEAR REGULATORY COMMISSION**  
**RULES and REGULATIONS**

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

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**PART  
160**

**TRESPASSING ON COMMISSION PROPERTY**

**STATEMENTS OF CONSIDERATION**

28 FR 8400  
Published 8/16/63  
Effective 9/15/63

The following regulations implement section 229 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2278 a., which reads as follows:

*Sec. 229. Trespass Upon Commission Installations.*

a. The Commission is authorized to issue regulations relating to the entry upon or carrying, transporting, or otherwise introducing or causing to be introduced any dangerous weapon, explosive, or other dangerous instrument or material likely to produce substantial injury or damage to persons or property, into or upon any facility, installation or real property, subject to the jurisdiction, administration, or in the custody of the Commission. Every such regulation of the Commission shall be posted conspicuously at the location involved.

b. Whoever shall willfully violate any regulation of the Commission issued pursuant to subsection a. shall, upon conviction thereof, be punishable by a fine of not more than \$1,000.

c. Whoever shall willfully violate any regulation of the Commission issued pursuant to subsection a. with respect to any installation or other property which is enclosed by a fence, wall, floor, roof, or other structural barrier shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not to exceed \$5,000 or to imprisonment for not more than one year, or both.

Pursuant to the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act, the following regulations are published as a document subject to codification, to be effective thirty (30) days after publication in the **FEDERAL REGISTER**

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

*Energy Reorganization Act; Revisions to Chapter 1 to Reflect Organizational and Procedural Changes*

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 AND MATERIALS LICENSES AND OTHER REGULATORY SERVICES UNDER THE ATOMIC ENERGY ACT OF 1954, AS AMENDED

### STATEMENTS OF CONSIDERATION

33 FR 10923  
Published 8/1/68  
Effective 10/1/68

#### LICENSE FEES FOR FACILITY LICENSES AND MATERIALS LICENSES

A notice of proposed rule making was published by the Atomic Energy Commission in the FEDERAL REGISTER on March 11, 1967 (32 F.R. 3995) proposing the establishment of license fees for facility construction permits and operating licenses issued under 10 CFR Part 50 and for specific byproduct, source, and special nuclear material licenses issued under 10 CFR Parts 30, 40, and 70. The fees were set out in a proposed new Part 170. Amendments to Parts 30, 40, 50, and 70 to reflect proposed application filing fee requirements also were proposed.

The Commission's decision to propose fees for licenses was made in accordance with Title V of the Independent Offices Appropriation Act of 1952 (65 Stat. 290; 31 U.S.C. 483a) which states:

It is the sense of the Congress that any work, service, publication, report, document, benefit, privilege, authority, use, franchise, license, permit, certificate, registration, or similar thing of value or utility performed, furnished, provided, granted, prepared, or issued by any Federal agency \* \* \* to or for any person (including groups, associations, organizations, partnerships, corporations, or businesses), except those engaged in the transaction of official business of the Government, shall be self-sustaining to the full extent possible, and the head of each Federal agency is authorized by regulation \* \* \* to prescribe therefor such fee, charge, or price, if any, as he shall determine, in case none exists, or redetermine, in case of an existing one, to be fair and equitable taking into consideration direct and indirect cost to the Government, value to the recipient, public policy or interest served, and other pertinent facts \* \* \*

General policies for developing an equitable and uniform system of charges in implementation of the above-cited provisions of the Independent Offices Appropriation Act of 1952, have been set forth by the Bureau of the Budget in Circular No. A-25 and in a memorandum dated February 15, 1965, directed to heads of Federal agencies.

The notice of proposed rule making allowed 60 days for comment by interested persons. By notice published in the FEDERAL REGISTER on April 18, 1967 (32 F.R. 6099) the time for filing comments was extended to July 9, 1967. Many comments have been received.

The amendments which follow have been adopted by the Commission after careful consideration of those comments and further Commission study. The revised fee schedule eliminates most fees for materials licenses included in the previously proposed amendments, including those for medical uses. The Commission is continuing to study the matter of fees for materials licenses.

The categories of materials licenses which will be subject to application fees and annual fees are:

a. Licenses for byproduct material of 100,000 curies or more in sealed sources used for irradiation of materials;

b. Licenses for special nuclear material in quantities sufficient to form a critical mass, except for licenses for plutonium-beryllium neutron sources; and

c. Waste disposal licenses specifically authorizing the receipt of waste radioactive materials for the purpose of commercial disposal by land or sea burial. (This category of fees would not be applicable to licenses which authorize collection, processing, storage, and transfer of wastes to another person for land or sea burial to be performed by the transferee.)

The exception of licenses for special nuclear material in plutonium-beryllium neutron sources, which was not included in the proposed rule, is based upon the lack of criticality considerations involved in the licensing of such sources.

The schedule of fees for licenses for production and utilization facilities in § 170.21 of Part 170 eliminates the broad categorization of reactors set forth in notice of proposed rule making published on March 11, 1967. Fees for power reactors will be assessed on the basis of the number of megawatts of rated power (sliding scale) of the facility involved. Single fees for other facilities are established. The Commission considers that such a basis for assessment is more equitable than the grouping basis set forth in the notice of proposed rule making.

Proposed § 170.11(a)(4) has been re-

vised to exempt from licensing fees licenses for materials or facilities other than power reactors issued to nonprofit educational institutions, used for training, teaching, or medical purposes. Many licenses for facilities or materials of this type would have fallen within the exemption of § 170.11(a)(4) as set forth in the proposed rule for licenses issued to nonprofit educational institutions holding an AEC research assistance contract or loan agreement. The present exemption, however, applies to a nonprofit educational institution which is licensed to operate a facility, other than a power reactor, for teaching, training, or medical purposes or to use materials for such purposes, but does not have a loan agreement or university reactor assistance contract with the Commission.

A new § 170.11(a)(5) has been added which specifically exempts Government agencies from licensing fees.

A number of editorial changes of a clarifying nature also have been made.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Parts 30, 40, 50, and 70, and a new 10 CFR Part 170 are published as a document subject to codification, to be effective 60 days after publication in the FEDERAL REGISTER. The Commission invites all interested persons who desire to submit written comments or suggestions in connection with the amendments and regulation to send them to the Secretary, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Branch, within 60 days after publication of this notice in the FEDERAL REGISTER. Consideration will be given such submission with the view to possible amendments. Copies of comments received may be examined at the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

33 FR 11587  
Published 8/15/68  
Effective 8/15/68

#### Correction

In F.R. Doc. 68-9160 appearing at page

## PART 170 • STATEMENTS OF CONSIDERATION

10923 of the issue for Thursday, August 1, 1968, make the following changes:

36 FR 145  
Published 1/6/71  
Effective 2/5/71

### FEE FOR FACILITIES AND MATERIALS LICENSES

On August 4, 1970, the Atomic Energy Commission published in the *FEDERAL REGISTER* (35 F.R. 12412) proposed amendments to 10 CFR Parts 30, 40, 70, and 170 of its regulations which would revise fees charged for facilities and materials licenses. Interested persons were invited to submit written comments and suggestions for consideration within 30 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*. Subsequently, the time for submitting comments was extended for an additional 45 days to October 18, 1970.

The decision to publish the notice of proposed rule making was based on the Bureau of the Budget Circular No. A-25 and Title V of the Independent Offices Appropriation Act of 1952 (65 Stat. 290; 31 U.S.C. 483a), which states:

It is the sense of the Congress that any work, service, publication, report, document, benefit, privilege, authority, use, franchise, license, permit, certificate, registration, or similar thing of value or utility performed, furnished, provided, granted, prepared, or issued by any Federal agency . . . to or for any person (including groups, associations, organizations, partnerships, corporations, or businesses), except those engaged in the transaction of official business of the Government shall be self-sustaining to the fullest extent possible, and the head of each Federal agency is authorized by regulation . . . to prescribe therefor such fee, charge, or price, if any, as he shall determine, in case none exists, or redetermine, in case of an existing one, to be fair and equitable taking into consideration direct and indirect cost to the Government, value to the recipient, public policy or interest served, and other pertinent facts. . . .

The revised fees for facilities and materials licenses are based on the principle of full cost recovery. Only those regulatory costs associated with the processing of licenses were used. No costs related to compliance, rule making, development of standards, codes, criteria, special nuclear material safeguards, and administration of the State relations program were included. Costs associated with licenses exempt from fees were identified and excluded. The Commission has also sought to achieve simplicity of computation and ease in the administration of the fee system in the establishment of the fee schedule. Where feasible, groupings have been made of different kinds of licenses and a common fee established for the entire grouping in order to avoid undue complexity.

After consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments with certain modifications discussed below.

Several commentators maintained that, where an operating license fee has been paid for the first reactor at multiple unit, single-site power stations, similar additional units at these stations should be subject to a reduced operating license fee where they are subject to concurrent review. To reflect anticipated reduced effort in such situations, the fee

schedule in § 170.21 of the proposed amendment has been modified to reduce the operating license fee for follow-on units at multiple unit, single-site power stations that are the same design as the first unit and are subject to concurrent licensing review. To maintain the principle of full cost recovery, the revenue that will be lost by reducing the operating license fee for these follow-on units is recovered by increasing the fee itself. Section 170.21 has also been modified to establish an upper limit power level for computation of construction permit fees, operating license fees, and annual fees for power reactors. (Minor modifications have also been made to the description of the fee to be paid for construction permits issued for multiple unit, single-site power stations to make the language consistent with the revised language for operating licenses.)

Section 170.11(a) has been amended to exempt from license fees uranium used in licensed devices and containers as shielding material.

Section 170.12(c) has been revised to clarify the due date for payment of license fees. Payment of prescribed fees for those licenses that have not been subject to fees prior to the amendments to Part 170 herein will be required within 30 days after the effective date. In the case of licenses that have been subject to fees prior to promulgation of these amendments, the licensee will be billed at the revised rate 1 year from the due date of the last fee payment.

The fee schedule in § 170.31 of the proposed amendment has been modified to more clearly identify those licensed activities that were included in the proposed fee Category 3A. This has been accomplished by establishing a category for licenses authorizing distribution of generally licensed items or quantities, and a category for licenses authorizing distribution of exempt items or quantities. Fees are required for each of these licensed activities because each involves distinct licensing effort.

One commentator maintained that where the reviews of applications for construction permits for reactors at multiple unit, single-site power stations are conducted concurrently but, because of some technicality the permits are not issued concurrently, applicants should not have to pay a separate construction permit fee for the delayed unit. It was not the Commission's intent to charge a separate fee for such units that are delayed solely because of technicalities unrelated to health and safety.

The Commission is required in accordance with BoB Circular No. A-25 to keep the matter of license fees under continuing review and, if costs of licensing services change, it may be expected that the fee schedule will be adjusted.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Parts 30, 40, 70, and 170, are published as a document subject to codification to be effective 30 days after publication in the *FEDERAL REGISTER*.

36 FR 18173  
Published 9/10/71  
Effective 9/10/71

### Exemptions and Payment of Fees

On March 16, 1971, the Atomic Energy Commission published in the *FEDERAL REGISTER* (36 F.R. 4978) a notice of rule making which amended § 170.12(c) of 10 CFR Part 170 to extend the due date for payment of license fees to sixty (60) days after the effective date of the amendments to Part 170 published on January 6, 1971. The notice also provided that under certain circumstances the applicable fee would be waived, or would be assessed in an amount applicable to the license as amended.

Since the Commission has continued to receive a number of applications for licensing actions which, if granted, would affect liability for or the amount of license fees, the Commission has amended § 170.12(c) to extend the license fee due date for the fee period February 5, 1971–February 5, 1972, to October 15, 1971. If an application is filed on or before October 15, 1971, to cancel a license, the Commission will waive the applicable fee upon cancellation of the license. If an application is filed on or before October 15, 1971, to amend a license and the Commission acts favorably upon the application, the fee will be assessed in the amount applicable to the license as amended.

Section 170.41 of Part 170 provides that where the Commission finds that a licensee has failed to pay the applicable annual fee, the Commission may suspend or revoke the license or may issue such order with respect to licensed activities as the Commission determines to be appropriate or necessary in order to carry out the provisions of its regulations in Parts 30, 40, 50, 70, and 170, and of the Atomic Energy Act, as amended.

Paragraph 170.11(b) provides that "the Commission may, upon application by an interested person, or upon its own initiative, grant such exemptions from the requirements of this part as it determines are authorized by law and are otherwise in the public interest." This section has been amended to set forth examples of licensed activities that would be favorably considered by the Commission for exemption from license fees.

Because these amendments relate solely to clarification and minor procedural matters, the Commission has found that good cause exists for omitting notice of proposed rule making and public procedure thereon as unnecessary. Since the amendment relieves from restrictions under regulations currently in effect, it will become effective without the customary 30-day notice.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 551 and 552 of title 5 of the United States Code, the following amendments of Title 10, Chapter 1, Code of Federal Regulations, Part 170, are published as a document subject to codification to be effective upon publication in the *FEDERAL REGISTER* (9-10-71):

## PART 170 • STATEMENTS OF CONSIDERATION

37 FR 24028  
Published 11/11/72  
Effective 12/11/72

### Removal of Exemption From Fees for Licenses Issued to Government Agencies for Nuclear Power Plants

On October 4, 1972, the Atomic Energy Commission published in the *FEDERAL REGISTER* (37 F.R. 20871) a proposed amendment to its regulations in 10 CFR Part 170 to remove the exemption from payment of fees for a construction permit or license applied for by, or issued to, a Government agency for a reactor producing power on a commercial basis. Interested persons were invited to submit written comments and suggestions for consideration within 15 days after publication of the notice of proposed rule making in the *FEDERAL REGISTER*.

No comments were received. The Commission has adopted the amendment in the form set forth in the notice of proposed rule making.

On June 16, 1972, legislation was enacted amending the Atomic Energy Act by adding a new subsection 161.w., which authorized the Commission to:

w. Prescribe and collect from any other Government agency, which applies for or is issued a license for a utilization facility designed to produce electrical or heat energy pursuant to section 103 or 104b, any fee, charge, or price which it may require, in accordance with the provisions of section 483a of title 31 of the United States Code or any other law, of applicants for, or holders of, such licenses.

The amendment which follows implements the new statutory authority by amending § 170.11(a)(5) of Part 170 to remove the exemption for Government agencies which apply for or are issued a license to operate a nuclear reactor producing power for sale.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of title 5 of the United States Code, the following amendment to Title 10, Chapter 1, Code of Federal Regulations, Part 170, is published as a document subject to codification to be effective thirty (30) days after publication in the *FEDERAL REGISTER*.

38 FR 18443  
Published 7/11/73  
Effective 8/10/73

#### Revised Fees

On February 12, 1973, the Atomic Energy Commission published in the *FEDERAL REGISTER* (38 FR 4272) proposed amendments to its regulations in 10 CFR Part 170 which would change fees charged for facilities and materials licenses. Interested persons were invited to submit written comments and suggestions for consideration in connection with the proposed amendments by April 13, 1973.

The fees set out in the notice of proposed rulemaking covered costs associated with the Commission's licensing and health and safety compliance and inspection program, taking into account additional costs incurred by the implementation of the National Environmental Policy Act of 1969 and by the antitrust review of nuclear power reactor applications. Costs related to rulemaking, development of standards, codes, criteria,

and regulatory guides, safeguards activities and administration of the Agreement States program were not included in the proposed fee schedules. Costs associated with licenses exempt from fees were identified and excluded. The notice proposed to eliminate the exemption from payment of fees for licenses authorizing: (1) Possession, but not operation, of production or utilization facilities, (2) human use of byproduct material, source material, or special nuclear material, and (3) use of byproduct material, source material, or special nuclear material for civil defense purposes only.

The notice also proposed separate fee categories for certain types of licenses to provide a greater degree of equity in assessing fees. New fee categories include licenses for: (1) Byproduct material for processing or manufacturing quantities or items for commercial distribution where no product safety evaluation is required, (2) byproduct material for industrial radiography operations limited to one location, (3) byproduct material in quantities of less than 10,000 curies for irradiation of materials, (4) waste disposal where burial is not authorized, (5) distribution of exempt quantities of byproduct material, (6) distribution of exempt timepieces, hands and dials, containing hydrogen 3 or promethium 147, (7) byproduct material for research and development, and (8) uranium mills and uranium conversion plants.

After consideration of the comments received and other factors involved, the Commission has adopted the proposed amendments with certain modifications discussed below.<sup>1</sup>

Paragraph 170.12(c) has been revised to clarify the due date for payment of license fees. Payment of prescribed fees for those licenses that have not been subject to fees prior to the amendments to Part 170 herein will be required within 30 days after the effective date. In the case of licenses that have been subject to fees prior to promulgation of these amendments, the next annual fee will be payable one year from the due date of the last fee payment and annually thereafter. In the case of licenses issued after the promulgation of these amendments, annual fees are payable one year following the date of issuance and annually thereafter.

Footnote 4 has been added to § 170.31 to provide for waiver of the annual fee where an application for license cancellation has been filed prior to the due date of the annual fee, and for reduction of the annual fee where an application to reduce the scope of the license has been filed prior to the due date of the annual fee. The fees will be affected only when the application contains adequate information to enable the Commission to complete the requested action.

<sup>1</sup> Commissioner William O. Doub's approval is based on the understanding that there is a legal question as to the scope of an agency's authority to impose certain fees under Title V of the Independent Offices Appropriation Act of 1952 (31 U.S.C. 483a), but that the Commission's imposition of the revised fees is consistent with Office of Management and Budget guidance in Circular A-25 pending resolution of the legal question in litigation now before the U.S. Supreme Court, whose decision may not be handed down until next spring.

Footnote 5 has been added to § 170.31 so that persons possessing special nuclear material in the form of sealed sources, in addition to other physical forms of special nuclear material, are not required to pay an additional fee under Category 1E when they have paid a fee under Categories 1A through 1D.

Fee Category 5A has been modified to make clear that it is intended to cover licenses for tracer studies and for all well logging and well surveys.

In addition, minor editorial revisions have been made in fee Categories 1D, 1E, 2C, 3I, 3K, and 3L.

Pursuant to the Atomic Energy Act of 1954, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 170, are published as a document subject to codification to be effective on August 10, 1973.

38 FR 30251  
Published 11/2/73  
Effective 12/3/73

### Standardization of Design; Licenses to Manufacture Nuclear Power Reactors; Miscellaneous Amendments

See Part 2 Statements of Consideration.

40 FR 8774  
Published 3/3/75  
Effective 3/3/75

### Energy Reorganization Act; Revisions to Chapter 1 to Reflect Organizational and Procedural Changes

See Part 2 Statements of Consideration.

43 FR 7210  
Published 2/21/78  
Effective 3/23/78

### PART 170—FEES FOR FACILITIES AND MATERIALS LICENSES AND OTHER REGULATORY SERVICES UNDER THE ATOMIC ENERGY ACT OF 1954, AS AMENDED

#### Revision of Fee Schedule

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The rule which follows revises the Commission's schedule of fees for applications, permits, and licenses. It establishes fees for requests filed by vendors and architect-engineers for standardized reference design approvals; amendments; renewals; routine inspections; special projects or reviews; approval of spent fuel casks, and shipping containers; and approval of sealed sources, and devices containing or utilizing byproduct, source, or special nuclear material. The fees are based on the Commission's costs of providing services in accordance with guidelines published on May 2, 1977.

DATE: This amendment will be effective March 23, 1978.

FOR FURTHER INFORMATION CONTACT:

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Mr. W. O. Miller, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, 301-492-7225.

### SUPPLEMENTARY INFORMATION:

#### BACKGROUND

On May 2, 1977, the U.S. Nuclear Regulatory Commission published in the *FEDERAL REGISTER* (42 FR 22149-22168) for public comment proposed amendments to its regulations in 10 CFR Part 170 which would revise its schedule of fees for facilities and materials applications and licenses. It would establish fees for (1) requests filed by vendors and architect-engineers for standardized design approvals; (2) license amendments and renewals; (3) routine inspections; (4) special projects and reviews; (5) requests for approval of spent fuel casks and shipping containers; and (6) requests for approval of sealed sources and devices containing or utilizing byproduct, source, or special nuclear material. The notice invited interested persons to submit written comments for consideration in connection with the proposed amendments on or before June 1, 1977. Upon request, the Commission extended the comment period for an additional 30 days to July 1, 1977.

On May 12, 1977, the Commission held a public meeting in Bethesda, Md. Data used in developing the proposed schedule of fees were discussed at this meeting and copies of these data were provided to all interested persons.

The Commission has placed in its Public Document Room at 1717 "H" Street, Washington, D.C., all manpower, cost data, and more than 200 other documents used in developing the schedule of fees. In addition, computer printouts of manpower usage and workpapers have been made available for inspection at the Commission's office at 7920 Norfolk Avenue, Bethesda, Md 20014.

The May 2, 1977, notice set forth the Commission's guidelines for fees under the Independent Offices Appropriation Act of 1952, 31 U.S.C. 483a. These guidelines are based on the Supreme Court decisions in *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), and further guidance provided by the United States Court of Appeals for the District of Columbia Circuit in *National Cable Television Association, Inc. 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).

In summary, the guidelines provide that:

1. Fees may be assessed to persons who are identifiable recipients of "special benefits" conferred by specifically identified activities of the NRC. The term "special benefits" includes services rendered at the request of a recipient and all services necessary for the issuance of a required permit, license, approval, or amendment, or other services necessary to assist a recipient in complying with statutory obligations or obligations under the Commission's regulations;

2. All direct and indirect costs incurred by the NRC in providing special benefits may be recovered by fees;

3. It is not necessary to allocate costs in proportion to the degree of public or private benefit resulting from conferring a special benefit on a recipient;

4. Where the identification of the specific beneficiary of NRC activity is obscure, the cost of the activity may not be included in the cost basis for fees;

5. A fee shall not exceed the sum on the average of the direct and indirect costs which the NRC incurs in furnishing the services for a member of the class of recipients for which the fee is assessed; and

6. Calculation of agency costs shall be performed as accurately as is reasonable and practical, and shall be based on specific expenses identified to the smallest practical unit associated with the rendering of the type of agency service to the particular class of recipients.

These guidelines determine whether or not the Commission may charge a fee for a particular service and what the maximum fee may be. In keeping with the sense of Congress expressed in the Independent Offices Appropriation Act of 1952 that agency activities performed on behalf of persons the agency serves "shall be self-sustaining to the full extent possible," the Commission is generally obliged to impose the fees allowed by these guidelines where it is fair and equitable to do so. The Commission recognizes that in exceptional circumstances fairness may require that a fee be set at a level below the cost of rendering the service. However, the Commission's discretion to reduce fees for certain service categories is limited by the IOAA mandate and by the requirement that a consistent and fundamentally fair fee structure must accord equal treatment to similarly situated recipients of agency services.

The fees in this notice are based on these Commission guidelines. Several changes have been made, however, in the schedule of fees contained in the May 2, 1977 notice in response to comments received from the public. Copies of the comments received by the Commission have been placed in our Public Document Room.

The May 2, 1977, notice contained a description of the functional activities

of the various Commission offices and identified the special services for which costs were included in fees and those activities for which costs were excluded from fee recovery. It also described the method of fee computation; discussed the costs of major NRC offices; and estimated the amount of fees the Commission would collect under the proposed fee schedule.

In accordance with Commission instructions, the staff analyzed the functions performed and services rendered by each NRC office to determine which activities, if any, provided special benefit to applicants, licensees, or permittees. After each NRC service was properly categorized, contractual services analyzed, and the professional manpower figures obtained for each fee category, the cost per man-year to maintain a professional employee (professional man-year rate) was developed for the Offices of Nuclear Reactor Regulation, Nuclear Material Safety and Safeguards, and Inspection and Enforcement, and the Advisory Committee on Reactor Safeguards, Atomic Safety and Licensing Board Panel and the Atomic Safety and Licensing Appeal Panel. These rates were developed by using (1) each office's costs of personnel compensation (salaries), personnel benefits, administrative support and travel, (2) the number of professional employees who were identified as working on licensing, inspection, and other special projects (excluding administrative, supervisory and management direction employees), and (3) the overhead support provided by the Program Direction and Administration and the Program Technical Support offices to the Offices of Nuclear Reactor Regulation, Nuclear Material Safety and Safeguards, and Inspection and Enforcement, and the Advisory Committee on Reactor Safeguards, Atomic Safety and Licensing Board Panel, and Atomic Safety and Licensing Appeal Panel (operating offices). To determine overhead support, the Program Direction and Administration and the Program Technical Support offices were analyzed to identify what service, if any, they provided to the operating offices.

After the analysis, the manpower and other costs of the Offices of the Secretary, Controller, Management Information and Program Control, Administration, Executive Legal Director, and the Executive Director for Operations, were allocated as overhead support to other NRC offices. Each of these offices, with the exception of the Offices of Controller and Administration, analyzed its operations in terms of the support it provides to the various operating offices. Based on this analysis, each office allocated its effort on a percentage basis. This overhead was applied to

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the total cost of the office receiving the support. The costs for the Offices of Administration and Controller were distributed to all of the NRC offices on a pro-rata basis based on distribution of manpower. This procedure was followed for the Offices of the Controller and Administration because their support is directly correlated with the needs of the various NRC offices. Program Direction and Administration and the Program Technical Support offices excluded from fees are the Office of the Commissioners, General Counsel, Policy Evaluation, Inspector and Auditor, Congressional Affairs, Public Affairs, Planning and Analysis, Equal Employment Opportunity, and International and State Programs.

### COMMENTS

Several comments contended that the proposed fee schedule was inconsistent with the guidelines established by the United States Supreme Court in *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 particular, they argued that the activities for which the Commission contemplated charging fees benefited not only the licensee, but also the public and that the Commission may not assess the licensee for those services which benefited the public.

The United States Court of Appeals for the District of Columbia Circuit rejected this argument in *Electronic Industries Association v. F.C.C.*, 554 F.2d 1109 (1976). The court explicitly endorsed a Federal Communications Commission assertion that: "The fact that the general public may also benefit by Commission authorization of such activities, in that the activities may directly or indirectly provide a service to the public, does not limit the Commission's authority to charge a fee to the recipients of the services that will allow those services provided by the Commission to be operated on a self-sustaining basis as mandated by Title V (of the IOAA)," 554 F.2d at 1114, fn. 12.

Several comments cited a Federal district court decision, *Public Service Company of Colorado, et al. v. Andrus, et al.*, No. 76-F-48 (D. Col. May 31, 1977) as authority for the contrary proposition that an agency may not recover through fees the cost of a service which benefits the public as well as the licensee. The case held that agency costs associated with the implementation of the National Environmental Policy Act (NEPA) cannot be collected from licensees under the Independent Offices Appropriation Act because NEPA primarily benefits the public. The Commission views this result as inconsistent with the recent

decisions of the United States Court of Appeals for the District of Columbia Circuit, cited above. As the quotation in the previous paragraph makes clear, the reasoning of these decisions supports inclusion of the costs associated with the implementation of NEPA and the Commission finds these decisions to be the better view. Accordingly, the Commission has not changed the guidelines upon which the fee schedule is based.

Many comment letters focused on the Commission's proposal to charge fees for routine inspections, contending for the most part that fees should not be charged for the conduct of routine inspections since the benefits of those inspections accrue solely to the public and because inspections provide no "special benefit" to the licensees. Some argued that inspections are (1) not part of the process of obtaining a license, (2) not services requested by licensees, and (3) not justified, because inspections are conducted solely to enable the Commission to meet its statutory obligation of assuring that licensed activities are conducted in a manner so as to protect the public's health and safety. The Commission believes these arguments overlook the essential point that continuing assurance that the licensed activity is being properly conducted is a necessary condition under the Atomic Energy Act for a license to remain in effect. Routine inspections give the licensee the opportunity to provide this assurance. Thus, the conduct of routine inspections comes under the Commission's guidelines for assessing fees to persons who are identifiable recipients of services which are necessary to assist a recipient in complying with statutory obligations or obligations under the Commission's regulations.

Several persons commented that the Commission was attempting in the proposed fee schedule to recover the full cost of licensing and inspection services and other persons contended that the schedule was designed to recover the full costs of regulatory services. It was suggested that this perceived policy exceeded the IOAA mandate to charge only for specific services rendered to identifiable beneficiaries. The fact is that if the revised schedule had been in effect in fiscal year 1977, the Commission would have recovered approximately 12 percent of its fiscal year 1977 budget.

After analysis of benefits and beneficiaries, those NRC activities and services that have been determined to be excludable from cost recovery are:

1. *Research*.—This covers all NRC research activities including the regulatory confirmatory assessment program (\$85 million in costs) which deals specifically with NRC decisions for the safe and environmentally compatible operation and protection of nuclear fa-

cilities and materials. The research program develops and analyzes technical information on reactor safety, safeguards, and environmental protection, as a basis for licensing and other decisions in the regulatory process. These activities relate directly to the licensing of reactors and other facilities; however, because these activities are generic in nature or because it would be difficult to allocate the costs of research between various recipients of the benefits, the total budgeted cost of research has been excluded (\$127.5 million in fiscal year 1977).

2. *Generic licensing activities*.—The Commission reviews many safety issues on a generic basis, i.e., issues not readily identified with a specific application or group of in-house applications. This means that a significant portion of the NRC professional staff is reviewing licensing or inspection matters for which no costs were included in fees because there is no immediate identifiable recipient. In fiscal year 1977, the budgeted costs of these services were estimated to be \$30.6 million.

3. *Standards development*.—These activities cover site safety and environmental impact standards for nuclear facilities; safety engineering standards for design, procurement, construction, testing, operation and decommissioning of nuclear power plants; fuel cycle facility safety engineering standards; safeguards standards for physical protection and control of nuclear materials and facilities; standards for safe transport of radioactive materials in medical, industrial and consumer products; and radiation protection standards. These standards are supportive of the NRC licensing and inspection programs. None of the budgeted costs of these services (\$16.2 million) are recovered by fees since they are not limited to specific applications or classes of applications.

4. *Safeguards*.—A significant part of the NRC safeguards effort is concerned with the development of contingency plans to deal with threats, thefts, and sabotage; assessment studies; and the monitoring, testing, and upgrading of safeguards systems. These activities, which were budgeted at \$7.1 million for fiscal year 1977, have been excluded from recovery because they are generic in nature. The remaining safeguards effort is concerned with processing license applications and inspection casework and, therefore, provides benefit to the applicant and licensee. The \$5.8 million in budgeted costs for these programs were included for fee consideration.

5. *Contested applications*.—Part 50 applications for facilities may be subjected to contested hearings and appeals under the Commission's regulations. As a matter of policy, the Commission has determined that to the

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extent the costs of contested hearings exceed those of uncontested hearings, these costs would not be recovered through fees. The Commission's budget costs in fiscal year 1977 for contested hearings are estimated at \$5.6 million.

6. *International and State Programs.*—These programs are responsible for the development and implementation of plans, policies and programs for the coordination and integration of Federal and State regulation of nuclear materials and facilities, and for the negotiation and implementation of regulatory and safety programs and information exchange with other countries. As a matter of Commission policy, their budgeted costs of \$2.9 million are excluded from fees.

7. *Non-routine inspections.*—Non-routine inspections are concerned with incidents, investigations, or allegations involving licensed materials or facilities; reports that have been made alleging unusual occurrences pursuant to Part 19; management-audits; and enforcement activities. These activities, which are unscheduled, have not been included in fees based on Commission policy. Budgeted costs for this program are \$1.6 million.

8. *Establishment of overall policy, administration and management of NRC by the Office of the Commissioners.*—Since it is not practical to isolate and allocate the services of this office to individual activities, the budgeted costs of this office (\$1.3 million) have not been used in fee computation.

9. Services for policy evaluation and plans and analysis are not directly concerned with the review of applications or routine inspection activities and their budgeted costs totaling \$1.9 million have been excluded from fees.

10. The activities of the Offices of Inspector and Auditor (\$1 million), Congressional Affairs (\$0.2 million), Public Affairs (\$0.7 million), and Equal Employment Opportunity (\$0.2 million), have been excluded from cost recovery because the activities are not concerned with the review of applications or routine inspections and appear to constitute an independent public benefit.

11. The legal service provided by the Office of the General Counsel and its services in contested hearings and litigation is excluded from fees because the services, except those involved in contested hearings, are not directly concerned with the licensing and inspection process. Commission policy provides that the services of the Office of the General Counsel in contested hearings are to be excluded from fees. Total exclusion is \$0.6 million.

12. All activities related to government owned reactors were excluded. Budgeted costs of \$0.1 million were excluded.

13. The costs of the facility indemnity program were excluded since these

costs are recoverable under another program. Budgeted costs of \$0.2 million were excluded.

14. The costs of providing services under the Freedom of Information Act, Privacy Act, and the Federal Reports Act, have been excluded from fees. Budgeted costs of \$0.5 million were excluded.

15. The costs of special projects in the Office of the Executive Director for Operations were excluded since they are not directly concerned with licensing or inspection services. Budgeted costs of \$0.4 million were excluded.

16. Capital equipment budgeted costs of \$0.8 million, which cover inspection vans, radiation monitoring equipment, instrumentation, reproduction equipment, etc., were excluded from fees.

Based on the Commission's guidelines and a detailed analysis of the regulatory services provided by NRC, \$199.4 million, or approximately 80 percent of the Commission's budgeted regulatory costs, were excluded from consideration for recovery because the services do not provide special benefit to applicants or licensees, because the recipient of the benefit is not readily identifiable, or because the program is conducted on behalf of the public. Those regulatory services which provide special benefit to applicants and licensees include:

1. The processing and reviewing of applications or requests for construction permits, operating licenses, manufacturing licenses, materials licenses, amendments, renewals, approval of standardized reference designs, special projects (such as early site review, topical report reviews, and amendments or renewal of standardized reference design approvals), approval of packages and containers for shipping radioactive materials, and evaluation of sealed sources and devices containing or utilizing radioactive material. The NRC's budgeted costs of providing these services are \$30.9 million.

These services are provided by the reactor licensing staff (\$22.9 million); materials and non-reactor facilities licensing staff (\$6.4 million); the Advisory Committee on Reactor Safeguards (\$1.3 million); and the Atomic Safety and Licensing Board Panel and Atomic Safety and Licensing Appeal Panel in their licensing effort (\$0.3 million).

2. Routine health, safety, safeguards, and quality assurance inspections. The NRC's budgeted costs of providing these services are \$22.3 million.

The costs of licensing and inspection include the costs of professional manpower and their overhead and support costs.

NRC services which provide special benefit to applicants and licensees and that meet the criteria of the Commis-

sion guidelines for fees were approximately \$53.2 million in fiscal year 1977. Under this revised schedule, it is anticipated that the Commission would recover approximately \$30 million of its Fiscal Year 1978 budget of \$281.4 million and \$20 million of the Fiscal Year 1979 budget. The reasons for the small percentage of recovery in relation to the NRC budget are three-fold: (1) Approximately 80 percent of the regulatory services have been determined to fall outside the guidelines for fees, (2) specific activities such as the review of an application for a construction permit for a power reactor, extend over a period greater than one year, and (3) the revised schedule would not be in effect for the entire fiscal year 1978.

One person commented that overhead or support costs should be excluded from fees since such activities provide no benefit to applicants and licensees. It is common practice in business and industry to include in a fee or charge for consultation, service or product, a portion of management, space, communications, and administrative costs. It is reasonable to include in the fee base that portion of overhead costs incurred in support of professional staff work on applications, licenses, and inspections.

Several vendors and architect-engineers who have filed standardized reference designs for power reactors for review and approval contend that the schedule of fees fails to provide an incentive for the industry to standardize and, in fact, may serve as a disincentive. They note that the schedule of fees does not show a savings in the effort required to review and approve a standard design or plant when compared to the effort required for an application for a power plant that embodies a custom design nuclear steam supply system and balance of plant. The primary difference in review requirements for custom and standard designs arises from the treatment of interfaces between the standardized portions and the custom portion of the plant. In the custom plant there are no interface problems between the nuclear steam supply system and the balance of the plant because the unit is reviewed as a complete package. In the standard plant the nuclear steam supply system design must be evaluated and described so that it can be referenced by any one of several different balance-of-plant systems. This means that all portions of the nuclear steam supply system that must be met by the balance of the plant must be pulled out and identified for future reference and compatibility.

The standard reference design also differs in that more complete preliminary design information is required. Because of these situations the manpower is reflected in higher review



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costs for standard designs at the construction permit stage. Since standardization in the nuclear power industry is in the developing stages, it is reasonable to assume that the NRC staff may have been in the upper part of a learning curve with respect to the review and evaluation of such applications when the manpower averages were developed for these facilities. The Commission believes that as standardization increases, the review time and, hence, the accompanying fees will decrease. It is also expected that, as experience is gained by the industry, the NRC effort required to process applications for standard designs and standardized plants will decrease because interface problems will be resolved, and custom and standard plant designs will approach each other with regard to completeness of preliminary design. Because of the changing state in standardization, and reactor licensing, the charges for all construction permits and operating licenses; facility manufacturing licenses; and for review of Preliminary Design Approvals and Final Design Approvals (including amendments and renewals thereto) will be based on the expenditures for professional manpower and appropriate support services required to process the specific application. The respective fees will be determined when the review of the project is completed.

It is important to realize that, in the standardization of nuclear facilities, the significant benefits to industry would be predictability, repeated use of a design, and commonality in analysis, procedures, and purchase specifications. Additionally, as these benefits develop, licensing time and costs should decrease.

It should be noted that, with respect to the licensing of a standard nuclear power plant, much of the effort required to process the application is independent of the standardization option. The effort related to environmental, antitrust, and safeguards reviews and considerations as well as quality assurance inspections and evaluations, considerations of the Advisory Committee on Reactor Safeguards, and hearings, are independent of the type of plant or design.

It was observed by one person that the proposed schedule of facility fees did not contain a schedule of fees for renewal of licenses for test and research reactors. It is intended that renewals of such licenses will be handled by amendments under the appropriate class in the license amendment schedule of § 170.22, and that a separate fee schedule is unnecessary.

It was suggested that the six classes of amendment fees for facility permits, licenses, or approvals, be revised for clarification purposes. The licensing staff has reviewed the classes of amendments and made revisions to

the class definitions so that they would be more specific. The schedule in § 170.22 has also been revised to provide that, at the time an application for amendment or other required approval is filed, the applicant shall determine the class of amendment or approval being filed, state the basis for the classification, and remit the corresponding fee with the application. The Commission will evaluate the application or request to determine accuracy of the fee classification and inform the applicant if reclassification is required. Where a reclassification results in overpayment by the applicant, a refund will be made. If the reclassification results in placing the application into a higher fee class, the applicant will be billed for the additional charge. The Commission's processing of an application or request by consolidation or by separation into parts will not result in increased charges. The processing of an application for an amendment or approval will not be delayed pending resolution of proper fee payment: *Provided*, The applicant has classified the application and remitted what it believes to be the correct fee.

Proposed § 170.22 provided that amendments or approvals resulting from Commission Orders issued pursuant to 10 CFR 2.204 of this chapter, or amendments resulting in an initial increase in power to 100 percent of the initial design power, are exempt from fees. The section was amended to provide that, in addition, the Commission will consider exempting from fees those applications for amendments in Classes I, II, and III, when the application results from a written NRC request for an application to amend a license; provided, however, that the request is to simplify or clarify license or technical specifications, the amendment has no, or only minor safety significance, and the amendment is issued for the convenience of the NRC. Examples of such amendments would include, but are not limited to, conversion to standardized technical specifications, revision of reporting requirements, Commission initiated changes to simplify interpretation of specifications, and removal of unnecessary technical specifications after satisfactorily completing environmental studies.

Several persons commented that the Commission should specify a maximum level of inspection frequency rather than a minimum frequency so that licensees would know how many inspections would be performed in a given period of time, as well as the costs thereof. Some licensees argued that unless a maximum inspection frequency was provided for in the rule, the NRC could perform numerous inspections at will and charge the licensees for each inspection. We agree that the rule should provide for maximum

charges, and thus, have revised the inspection fee schedules accordingly to show the maximum number of charges which will be assessed against a license during a specified period.

One person commented that the proposed schedule of facility fees did not recognize the case of a duplicate plant project utilizing a reference nuclear steam supply system and a balance of plant. This approach to standardization is covered by § 170.21, fee Category A.4.b.

It was suggested by one person that NRC costs incurred in the review of applications for approval of standardized reference designs filed by vendors and architect-engineers be incorporated in the charges assessed to a utility filing for a construction permit for a nuclear power plant. The writer argued that the utility is the ultimate recipient of any benefit of standardization. We have not done this because vendors and architect-engineers file the applications and request approval of their designs and are therefore the identifiable recipients of special benefits conferred by NRC approval of standardized reference designs.

One person commented that any fees paid for an early site review should be deducted from the charge assessed for a construction permit. We agree that, where an application for a construction permit is filed proposing to build a facility on a site which has been approved for a facility by the NRC, and a fee has been paid for the early site review, the fee will be subtracted from the charge imposed on the applicant for the construction permit. In no instance will an applicant be required to pay more than one fee for review of a single site, except where the time lapse since the review is such that an update of the review must be completed.

Two parties commented that it would be unfair to assess fees for Preliminary Design Approvals and Final Design Approvals for standardized reference designs where the application was on file prior to the effective date of this notice. As of December 16, 1977, the Commission has reviewed and issued 11 approvals without assessing fees. To be fair and equitable in those cases where no fees are presently being charged, the Commission will exempt from payment of fees (1) approvals of Preliminary Design Approvals and Final Design Approvals, (2) special projects, e.g., early site reviews, topical reports, and amendment or renewal of Preliminary Design Approvals and Final Design Approvals, (3) approvals issued for the evaluation of casks, packages, and containers, used in transportation of radioactive material, and (4) approvals for standardized spent fuel facility designs, provided such complete and acceptable applications were filed prior to the ef-

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fective date of this notice. In those cases where no fees are presently being charged for license amendments and license renewals, and where a complete and acceptable application for amendment or renewal is filed prior to the effective date of this notice, the Commission will exempt the application from fees.

In the case of Part 50 construction permits, manufacturing licenses, and operating licenses, where the permit or license review is completed on or after the effective date of this amendment to Part 170, the revised schedule of fees shall apply. Under the present regulations in Part 170, the application fee for Parts 30, 40 and 70 licenses covers the review and licensing process. Accordingly, no additional license fees would be imposed on those applications filed prior to the effective date of this amendment.

One person questioned how charges would be determined for facility Reference System Preliminary Design Approvals and Final Design Approvals when more than one standard design is included in a single application. The point was made that it would be unfair to charge a full fee for each approval when there is likely to be an amount of commonality in designs. The charge for vendor and architect-engineer standard design approvals will be based on the expenditures for professional manpower and appropriate support services required to review the particular application with an upper ceiling specified in the rule. The charge for the approval of a single design will not exceed that shown in the fee schedule (application fee plus approval fee). When one application for a Preliminary Design Approval or a Final Design Approval contains more than one design, the additional approvals are subject to a maximum fee which is the sum of the application fee and approval fee. Consequently, where a design has commonality with a previously approved design, the reduced effort will be reflected in the charge. Where a Preliminary Design Approval or Final Design Approval is amended or renewed the amendment fee or renewal fee will be based on expenditures for professional manpower and appropriate support services required and be considered as a special project.

Two parties suggested that the collection of fees for Preliminary Design Approvals and Final Design Approvals be deferred until the design is sold and a construction permit issued and the fee be spread over several units. The Commission has decided that collection of review costs for Preliminary Design Approvals and Final Design Approvals will be as follows: the applicant will be required to remit an application fee of \$50,000 with the application and pay 20 percent of the remaining review costs (which are limited by

the rule) for each of the first five units of the approved design as they are referenced in applications filed by a utility or utilities.

Several parties argued that collection of fees for regulatory services may lead to inefficiency and redundancy in NRC's review of applications. This argument appears to be without merit. The Commission is committed to the expeditious review of each application; however, the review must be conducted within the established guidelines and regulations of the NRC and applicable statutes. In addition, the Commission is committed to the effective use of its resources and accordingly, budget and staffing proposals are carefully reviewed by internal review committees, by the Commission, by the Office of Management and Budget in the Executive Office of the President, and by the Congress.

Several persons commented that the NRC's assessing of fees, while the Agreement States do not, puts the Commission licensees at a competitive disadvantage with licensees operating under Agreement State licenses. The extent and significance of this problem is not serious because at this time, several Agreement States have license fees and it is expected that other states will adopt a fee program. The Commission has furnished model license fee legislation to all 50 states and to the Council of State Governments. In addition, there are few instances where Commission licensees are in close and direct competition with Agreement State licensees. Finally, assessment of fees here is consistent with the judicial guidelines utilized in promulgating this fee schedule.

One person commented that the length of time is too short between renewals for materials licenses, and that renewal fees should be deleted since the renewal of a materials license can be addressed as an amendment.

The matter of the length of time between issuance and expiration of a license is not directly related to fees. It is noted, however, the staff is currently reviewing the five-year renewal requirement for materials licenses. With regard to whether or not a separate fee category is warranted for renewals, it should be noted that the nature and scope of license renewals and license amendments are sufficiently different to warrant categorizing them separately. License amendment reviews normally focus on one or more narrow aspects of a licensed operation, while a license renewal involves a broad review of nearly all aspects of licensed operations.

Two persons commented that the terms "major amendment" and "minor amendment" for materials licenses should be defined and that the cost difference between the major and

minor amendment fees may not be fair. The proposed fee schedule did define the two classes of materials license amendments. Because of limited licensing experience in the fuel cycle area, commercial waste disposal by burial, and the evaluation of packages and containers used in transportation of licensed material, the fees shown in the schedules will be the maximum charges and the fee will be based on the actual expenditures for professional manpower and appropriate support services.

Several persons commented that Category 11, the fees for review and approval of shipping packages and containers, should be broadened to differentiate between small and large shipping containers. The proposed rule has been revised to take into account the various types of shipping containers on the basis of the decay heat for spent fuel casks. The number of categories has also been expanded to make a distinction with respect to the quantity and form of radioactive material that may be present in the shipping package and whether the contents of the package are fissile.

Numerous colleges and universities questioned whether nonprofit educational institutions would be required to pay license, amendment, and inspection fees for research reactor facilities under the proposed schedule of fees when the facility is used for purposes other than teaching, training, or medical activities. They argued that to impose such charges may in some instances jeopardize their research programs. On the other hand, there were also comments from industry that it was unfair for an educational institution to use a research reactor for commercial purposes in competition with private industry without being subject to the payment of license and inspection fees. Currently, there are 54 colleges and universities licensed by the Commission to operate research reactors. The Commission does not have data concerning how extensively these facilities may be used for purposes other than teaching, training, or medical. It is not practical to resolve this matter with this amendment to Part 170. The Commission will pursue this matter at a later date and issue a separate notice.

Several parties argued that the Commission should not impose fees on vendors and architect-engineers for review of facility topical reports. These reports deal with subjects such as design, analytical models, or techniques or performance testing of components, and systems of nuclear power plants, which can be reviewed independently of any specific license application for a construction permit or operating license. The basis for the argument is that these reports benefit the Commission's licensing process and

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the utility by reducing the time required to process a permit or license. They argue that imposition of fees for topicals may discourage the submission of such reports since the vendor and architect-engineers are not particularly interested in this review system in any event.

The May 2, 1977 notice left the charge for topical report reviews open; to be based on actual expenditures for professional manpower and appropriate support services with no upper limit. The topical report review involves the evaluation of an application filed by a vendor or architect-engineer. It comes under the Commission's guidelines for assessing fees to persons who are identifiable recipients of special benefits conferred by specifically identified activities of the NRC. The Commission has decided to assess fees for topical reports because the service provided in the review of the application or report falls within the guidelines which were based on the court's decisions. The Commission has, however, set an upper limit of \$20,000 for a topical report review because it believes that the submission of topical report requests should not be discouraged by the possibility of an open-ended fee. In this exceptional circumstance the Commission has, therefore, set a maximum fee for the topical report review. It is to be noted that the upper limit applies equally to all persons who request topical report reviews and is consistent with the guidelines.

One licensee commented that the steady-state power, which characterizes a research reactor, is the level which the Commission should use in setting the frequency of routine inspections. The classification of each licensed research reactor is described in the Commission inspection manual which is in the Commission's Public Document Room located at 1717 H Street NW., Washington, D.C. This classification is based on various characteristics of the facility as they relate to safety and, in general, are related to licensed steady-state power levels. As suggested, steady-state power will be used to determine the frequency of inspections for research reactors.

One person commented that it is inequitable to propose a safeguards inspection fee for a reactor fuel reprocessing facility that is substantially higher than the fee for a power reactor. Most of the difference in fees result from costs attributable to the inspection of the material control and accountability aspects of the licensee's program. This is directly related to the fact that considerable special nuclear material is in an uncontained state while in various process streams and, therefore, is much more vulnerable to theft and/or diversion through sabotage in a fuel reprocessing plant. By

contrast, inspection for a reactor is concerned with control and accountability involving only verification of sealed fuel element inventory and burn-up calculations and physical security.

Several parties commented that fees should be related to revenue earned by the licensee or to the volume of sales so that smaller businesses pay lower fees. The Court of Appeals found that the value conferred standard means that the fee assessed cannot exceed approximate costs to the agency rendering the service. Fees based on revenue or the volume of business would not conform to the Court's guidance because these variables are unrelated to the NRC's costs of performing the service.

It was suggested by one person that the new schedule should include a provision for situations where the licensee places a licensed plant in a standby situation for an indeterminate period. This situation would be handled by license amendment. When a plant is placed in standby, the license may be modified to authorize "possession only" and this would be considered a minor amendment. When the licensee plans to resume operations, the license would be amended to authorize "possession and use".

### CHANGES INCORPORATED IN FINAL RULE

1. The schedule of facility fees has been revised to provide that charges for construction permits, operating licenses, facility manufacturing licenses, review of standardized reference designs filed by vendors and architect-engineers, and topical report reviews will be based on the expenditures for professional manpower and appropriate support services required to process the application or request. Such charges will not exceed the fees shown in § 170.21.

2. A new term "Advanced Reactors" has been added to § 170.21 and will replace the category identified as "Breeder Reactors". The new category is defined as any nuclear reactor concept other than light water reactors and high temperature gas cooled reactors and will accommodate new reactor concepts which may be submitted to the Commission for review.

3. The category identified as Fuel Reprocessing Complex has been deleted in Proposed 170.21 E. Any processing of such applications in the future will be handled as special projects.

4. Footnote 4 of § 170.21 (previously designated footnote 10) has been revised to provide that, where a fee has been paid for a facility early site review, the charge will be deducted from the fee assessed for a construction permit issued for the approved site. Also, the revised footnote clarifies the intent that a separate charge will not be assessed for a site review where the person requesting the review has

an application for a construction permit concurrently on file for the same site, except where the application for the construction permit is withdrawn by the applicant or denied by the Commission.

5. The classes of amendments for facility permits, licenses, or approvals, have been revised extensively. Although six classes remain, the descriptions have been amplified and clarified. The footnote in § 170.22, which would exempt from fees amendments issued pursuant to Commission orders, has been broadened to provide that Classes I, II, and III amendments, which result from written NRC requests, may be exempted from fees at the discretion of the Commission when the amendment is issued for the convenience of the Commission.

6. The definition of special projects has been broadened to cover applications or requests to amend or renew Preliminary Design Approvals or Final Design Approvals for standardized reference designs filed by vendors and architect-engineers. Accordingly, fees for such applications or requests will be based on actual expenditures for professional manpower and support services.

7. The schedule of inspection fees has been modified to show the maximum number of charges which will be assessed against a license during a specified period. The proposed schedule did not set an upper limit. Licensees may be inspected more frequently than shown in the schedule, however, the number of charges will be limited by the schedule.

8. Several new fee subcategories have been developed for Category 1H licenses which authorize the receipt and storage of spent fuel. The new categories take into consideration factors which affect the scope of the licensing review. This includes whether or not the facility will be based on an approved standardized design or a custom design, and whether the facility will be located on a site for which an environmental and site safety review have been performed and documented when the license application is filed with the Commission. A new fee Category 12, covering the review of a standardized spent fuel facility design, has been established. The new categories will accommodate the new standardization concept in licensing.

9. Several new fee categories have been developed for the review of packages and containers used in the transportation of licensed radioactive materials. The new categories are designed to cover the smallest practical units used in transportation.

10. Materials license fee Categories 1A through 1G, 2A through 2C, and 4A, of § 170.31 have been modified to split the application fee shown in the proposed schedule into an application fee and license fee. The total charge will remain the same as shown in the May 2, 1977 notice. The modifications make the method of assessing fees for

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fuel cycle applications and licenses consistent with that used for Part 50 facility licenses.

11. The definition of materials license fee Categories 1A, 1C, 1D, 1E, 1F, and 1G, of §170.31 and §170.32 have been modified to make the language consistent with Part §73.1 and equivalent sections of Part 70 with respect to safeguards application requirements.

12. Footnote 1 to §170.31 has been revised to provide that an application for a license, license renewal, or license amendment, covering more than one fee category of special nuclear material, except Category 1H (spent fuel storage), will be subject to the category having the highest fee, provided, however, the use of the material is confined to one location. The purpose of this change is to clarify the intent of the Commission to limit fees to the direct and indirect costs of the licensing review or inspection.

13. §170.31 has been revised to clarify the intent that applications for licenses to manufacture and distribute encapsulated byproduct material or special nuclear material for use in power generation are not subject to the charges in fee Categories 1J and 3A. Also, fee Category 10 covering power sources has been revised to clarify that reactor start-up sources are not considered sources used for power generation.

14. Fee Categories 1D through 1G, and 1J have been revised to clarify the intent that these categories cover licenses which authorize research and development and that the radioactive material is in an unsealed form.

15. A footnote has been added to §170.31 which specifies that an applicant for a license or license amendment which would authorize both byproduct material and special nuclear material contained in sealed sources for use in gauging devices will pay a single fee under fee Category 11. This change takes into account the Commission's intent to limit fees to the direct and indirect costs of the licensing review.

16. Fees have been established for renewal of Commission "Approvals" for packages and containers used in the transport of radioactive materials. The renewal fee was inadvertently omitted in the proposed schedule.

17. The terms "duplicate unit", "replicate unit", "reference systems concept", and "Advanced Reactors", have been added to §170.3 for clarification purposes. The definition of "waste disposal license" has been deleted as unnecessary.

18. A footnote has been added to §170.32 which provides that, where more than one permanent radiography installation is shown on a materials license as authorized locations of use, a separate fee will be assessed for the routine inspection of each location, provided, however, that if the multiple installations can be inspected during one visit a single inspection fee

will be assessed.

19. The regulation in §170.12 concerning the remittance of fees by applicants and licensees has been revised in its entirety to accommodate the amended rule.

20. The schedule of amendment fees for materials license Categories 1A through 1H, 2A through 2C, 4A and 4B, and 11A through 11D, have been modified to add fees for "Administrative" type amendments. Footnote 3 to §170.31 has been amended to define administrative amendments. The modification will accommodate those requests from licensees which are routine or administrative in nature (e.g. name changes, minor word changes in licenses or approvals, etc.).

21. The proposed amendment fee for materials fee Category 2B has been redesignated as a major safety and environmental amendment fee. A new category designated as minor safety and environmental amendment has been established for fee purposes. These changes make the amendment fees for Category 2B consistent with those established for other major fuel cycle licenses.

22. Footnote 4 of §170.21 (previously designated as footnote 10) has been broadened to provide for a maximum fee of \$20,000 for the review of a topical report. The fee will be based on actual expenditures incurred for professional manpower and support services. The fee in the proposed schedule was open-ended.

23. Footnote 1.d. of §170.31 has been revised to provide that the Commission may exempt from fees applications for amendments to materials licenses and approvals which result from a written NRC request and the amendment is issued for the convenience of the Commission.

24. Footnote 4, of §170.31, which provides for the charging of fees based on actual manpower and support services required to process the application, has been added to Categories 1D through 1G of §170.31. This approach is consistent with other fuel cycle licenses where the professional manpower and appropriate support services will be determined and the resultant fee assessed, but in no event will the fee exceed that shown in §170.31.

25. The method of payment for Preliminary Design Approvals or Final Design Approvals has been modified to require the application for approval to be accompanied by an application fee of \$50,000, and to require the approval fee to be paid in five installments based on payment of 20 percent of the fee for each of the first five units of the approved design referenced in an application filed by a utility or utilities. Approval fees for additional designs, filed in a single application are subject to a maximum fee which is the sum of the application fee and the approval fee.

### RULEMAKING PETITIONS

On May 2, 1974, Conner, Hadlock

and Knotts, a Washington, D.C., law firm, filed a petition for rulemaking on behalf of 13 electric utilities with the Nuclear Regulatory Commission (at that time the Atomic Energy Commission) to amend the license fee schedules specified in 10 CFR Part 170 by reducing the fees for nuclear power reactor licenses. The petition cited the March 4, 1974 decisions of the Supreme Court, referred to previously. This petition was docketed as PRM-170-2 and a notice was published in the FEDERAL REGISTER on May 21, 1974.

In a letter dated February 7, 1975, the petitioners moved the Commission to limit fees to be charged in the future to the amounts specified in their petition of May 2, 1974, with respect to application fees, construction permit fees, and operating license fees, until the matter of appropriate fees is finally resolved by court or legislative action and to consolidate into Docket PRM-170-2 the Commission initiated rulemaking proceeding regarding the proposed amendments to 10 CFR Part 170. The Commission denied the petitioner's request for a temporary reduction of fees as made in their letter of February 7, 1975 and granted the request to consolidate Docket PRM-170-2 with the Commission's ongoing rulemaking proceeding in connection with the proposed amendment of 10 CFR Part 170 (40 FR 33736).

The Nuclear Regulatory Commission has developed a revised schedule of license fees in 10 CFR Part 170 consistent with the holdings of the Supreme Court decisions and the United States Court of Appeals for the District of Columbia Circuit in its December 16, 1976 decisions in the Federal Communications Commission cases.

Under these Courts' decisions, we find no basis for granting the petitioner's request for a reduction of licensing fees to approximately five percent of the current level in 10 CFR Part 170. Under the guidance provided by the Court of Appeals, fees may be assessed to persons who are identifiable recipients of special benefits conferred by specifically identified activities of the NRC. Special benefits include services rendered at the request of a recipient, all services necessary for the issuance of a required license, and all services necessary to assist a recipient in complying with statutory obligations or obligations under the Commission regulations. Under the revised schedule, the direct and indirect costs incurred in providing special benefits as described above were used in fee calculations.<sup>1</sup>

The Atomic Industrial Forum also filed a petition to amend the license fee schedule (PRM 170-1, 39 FR

<sup>1</sup>Under its current regulations the Commission recovered approximately 3.7 percent of its regulatory budget in fiscal year 1977. If the revised schedule had been in effect during fiscal year 1977, the Commission would have recovered about 12 percent of its fiscal year 1977 budget of approximately \$250 million.

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15521). The Commission's independent rule making proceeding on license fees has rendered the petition moot. Accordingly, it is denied.

Following the Supreme Court decisions on March 4, 1974, in *National Cable Television Association, Inc. v. United States* 415 U.S. 336 (1974), and *Federal Power Commission v. New England Power Co.*, 415 U.S. 345 (1974), the Commission eliminated annual license fees and notified licensees that a request may be filed for refund of annual fees collected. We again advise licensees that a refund of annual fees is available. A request for refund should include the name and address of the licensee and the license number. Each specific annual fee refund claim should include the invoice number, the amount paid by year, the amount of the refund requested, and the amount of any previous refund.

Request for refunds should be mailed to the Office of the Controller, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 170, are published as a document subject to codification to be effective March 23, 1978.

45 FR 50705

Published 7/31/80

Effective 7/31/80

Effective Date 12/24/80 \*

*Safeguards on Nuclear Material-  
Implementation of US/IAEA Agreement*

See Part 75 Statements of Consideration.

46 FR 49573

Published 10/7/81

Effective 11/6/81

### 10 CFR Part 170

#### Fees for Review of Applications

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission is promulgating an interpretative rule to clarify that fees for review of power reactor license applications and major fuel cycle license applications will be charged, as appropriate, when review of

an application is completed, whether by issuance of a permit, license, or other approval, or by denial or withdrawal of an application, or by any other event that brings active Commission review of the application to an end.

**EFFECTIVE DATE:** November 6, 1981.

**FOR FURTHER INFORMATION CONTACT:** William O. Miller, Chief, License Fee Management Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone: 301-492-7225.

**SUPPLEMENTARY INFORMATION:** Based upon the language of 10 CFR 170.12(b) and of footnote 3 to 10 CFR 170.21 (footnote 3 reads in pertinent part as follows: "When review of the permit, license, approval, or amendment is complete, the expenditures for professional manpower and appropriate support services will be determined and the resultant fee assessed, but in no event will the fee exceed that shown in the schedule of facility fees." \* \* \*) the Commission has been billing power reactor construction permit applicants for the actual costs of review of withdrawn applications up to the time the applicant withdraws the application from Commission consideration.

It was the Commission's intent in promulgating 10 CFR Part 170 that charges be assessed whenever a review is brought to an end, whether by reason of issuance of a license, a denial of an application, or by its withdrawal, suspension or postponement. These charges are authorized and directed under Title V of the Independent Offices Appropriation Act of 1952 (31 U.S.C. 483a) and supported by judicial decision upholding charges for government services rendered to applicants based upon cost to the agency. See e.g., *Mississippi Power and Light v. NRC*, 601 F.2d 223 (1979) cert. denied 444 U.S. 1102 (1980), and cases cited therein. The fee guidelines approved by the Commission and the Court of Appeals in *Mississippi Power and Light v. NRC*, *supra*, make clear the Commission's position that the review of an application at the request of an applicant is a service for which a charge may be made. Under the guidelines, fees may be assessed for services rendered at the request of an applicant whether or not these services are linked to or result in the issuance of a permit or license. For example, the guidelines support the inclusion in the fee schedule of "special projects and reviews" that do not result in issuance of permits, licenses or approvals but are yet subject to a fee for the service based upon actual cost. (10 CFR 170.21, Schedule F). The review given a power reactor application that does not end in a permit or license is analogous to a special project with respect to the work performed and the

service rendered to the applicant.

The interpretative amendments to 10 CFR 170.12 are intended to remove any possibility of misunderstanding the Commission's intent to charge fees on withdrawal or denial of an application and in appropriate cases of suspension or postponement of action on an application. The Commission will consider billing an applicant for costs incurred in the processing and review of an application upon either a statement of intent by the applicant to postpone further review effort or a delay in the construction schedule which causes the staff to postpone further review. In the event an application is reinstated without significant changes, or review effort recommenced, subsequent charges will accrue only from the time of reinstatement or recommencement of review effort. In these cases the aggregate of charges for review of applications covered by the actual cost principle will not exceed the scheduled amount for the class of facility.

Although the impetus for issuing this interpretative rule stems from the withdrawal of power reactor construction permit applications, the interpretative amendments also apply to certain materials licenses applications subject to the actual cost principle as stated in footnote 4 to 10 CFR 170.31. These are primarily major fuel processing and fabrication plants, waste storage and disposal facilities, spent fuel storage facilities, uranium milling plants, evaluation of casks and packages, and special projects.

Since the new language merely restates what the Commission's rule has been on collecting fees for withdrawn or otherwise terminated applications since the promulgation of revisions to 10 CFR Part 170 (43 FR 7218; February 21, 1978), the clarifying language is applicable to all license applications on file before the Commission on or after March 23, 1978, the effective date of the current version of 10 CFR Part 170, as well as to those received after adoption of the clarifying language.

Although the rules' changes in these amendments are interpretative only and could have been published effective immediately without notice and comment under 5 U.S.C. 553(b), and without the customary 30 days notice under 5 U.S.C. 553(d), the Commission decided to solicit public comment prior to adopting the clarifying language. (See 45 FR 74493, November 10, 1980.)

Four comments were received. All objected to the proposed rule. A 29-page comment submitted by Shaw, Pittman, Potts and Trowbridge, a law firm representing several electric utilities, claimed that the proposed rule could not be regarded as an interpretation of the

\* Amended 45 FR 84967

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existing fee rules, effective since March 23, 1978, but rather amounted to "a substantive amendment by which the Commission for the first time seeks to impose license fees on withdrawn applications." To support this claim the Shaw, Pittman comment argued that the 1978 fee regulation, 10 CFR Part 170, made no provision, "either directly or by fair inference," for the payment of fees, other than the application fee, for review of license applications that are withdrawn before a license or construction permit issues. Accordingly, Shaw, Pittman asserted that the NRC cannot, as the proposed interpretative rule would do, impose fees to recover costs incurred in processing license applications that were on file on or after March 23, 1978 but have since been withdrawn. "Even assuming that the Independent Offices Appropriation Act (IOAA) would permit the assessment of such fees for withdrawn applications," this commenter concluded, "at the most, the Commission can assess license fees on withdrawn applications only in connection with services and benefits rendered by the Commission after the effective date of the proposed amendment."

The other commenters generally agreed with the Shaw, Pittman position that fees for withdrawn applications were not imposed by the 1978 fee regulations and therefore cannot be imposed by an "interpretative" rule based on those regulations. The other commenters also raised the argument that the Commission lacks statutory authority to impose fees for withdrawn applications because the applicant has received no "special benefit" when an application has been withdrawn. Public Service Company of Oklahoma, for example, noted that it "shared the widespread interpretation of Part 170 that such fees were to be charged only upon successful completion of review." (Commenter's emphasis.)

In response to these comments the Commission reaffirms at the outset its conclusion that NRC review of a license application constitutes a "special benefit" subject to a fee under the IOAA, whether or not a license issues after completion of the review. The NRC's work in performing these reviews is a service rendered at the request of the applicant. The Commission's fee guidelines, set out in the 1978 notice promulgating the present fee schedule, made it plain that under the IOAA fees could be assessed to recover the cost of providing these services:

Fees may be assessed to persons who are identifiable recipients of "special benefits" conferred by specifically identified activities of the NRC. The term "special benefits" includes services rendered at the request of a recipient and all services necessary for the

issuance of a required permit, license, approval, or amendment, or other services necessary to assist a recipient in complying with statutory obligations or obligations under the Commission's regulations.

See the Commission's fee guidelines (43 FR 7211, February 21, 1978). These guidelines were quoted with approval in *Mississippi Power and Light v. NRC*, *supra*. There is thus no doubt that pursuant to the IOAA and the fee guidelines the Commission has authority to impose a fee to recover the cost of processing a license application that has been withdrawn.

The notice of final rulemaking also made clear that under the fee schedules effective March 23, 1978, the Commission intended to exert this authority by imposing all fees allowed by the guidelines, barring exceptional circumstances. The relevant language from the notice is as follows:

These guidelines determine whether or not the Commission may charge a fee for a particular service and what the maximum fee may be. In keeping with the sense of Congress expressed in the Independent Offices Appropriation Act of 1952 that agency activities performed on behalf of persons the agency serves "shall be self-sustaining to the full extent possible," the Commission is generally obliged to impose the fees allowed by these guidelines where it is fair and equitable to do so. The Commission recognizes that in exceptional circumstances fairness may require that a fee be set at a level below the cost of rendering the service. However, the Commission's discretion to reduce fees for certain service categories is limited by the IOAA mandate and by the requirement that a consistent and fundamentally fair fee structure must accord equal treatment to similarly situated recipients of agency services. (43 FR 7211 (February 21, 1978)).

Those NRC activities and services which the Commission did intend to exclude from cost recovery were identified with specificity in the notice. See 43 FR 7212, 7213. None of the services specified as exempt from fees could reasonably be interpreted to include review of license applications later withdrawn. Nor is there any suggestion or reason to believe that the Commission would have regarded it as generally unfair or inequitable to recover the costs of reviewing license applications which turn out to be unsuccessful. Rather, the notice of final rulemaking stated that "[t]hose regulatory services which provide special benefit to applicants and licensees include: 1. The processing and reviewing of applications or requests for construction permits, operating licenses, manufacturing licenses, materials licenses . . . ." [43 FR 7213 (emphasis added)]. As this language indicates, the notice tied "special benefits" to the processing and reviewing, not

necessarily to the issuance of the license itself. Amended language in the fee regulation, 10 CFR 170.12(b), confirmed this emphasis on completion of review rather than license issuance as the fee-triggering event.<sup>1</sup>

### 10 CFR 170.12(b) License Fees.

Fees for construction permits, operating licenses, manufacturing licenses, and materials licenses, are payable upon notification by the Commission when the review of the project is completed.

Finally, the notice of final rulemaking announced a major change in the Commission's method of determining fees. Henceforth, facility fees were to be based on the Commission's actual "expenditures for professional manpower and appropriate support services required to process the application or request." 43 FR 7216. The switch to an actual-cost basis, as distinguished from fixed fees based on the average cost for issuing a particular type of license, made it possible to determine and impose a fee based on the actual cost for any license review, even when, because of withdrawal or some other reason for termination, the review was completed at an atypical intermediate stage short of license issuance.

For the reasons given in the above discussion, the Commission has concluded that the notice of final rulemaking and the language in the final rule itself gave fair and adequate notice to license applicants that for applications on file after March 23, 1978 the Commission would charge a fee for withdrawn applications. The fee would be sufficient to recover the costs the NRC had incurred in reviewing those applications, to the extent the costs were not already covered by the application fee. The commenters' arguments to the contrary place unwarranted emphasis on certain language in 10 CFR 170.12(a), dealing with application fees, which provides that "[a]ll application fees will be charged irrespective of the Commission's disposition of the application or a withdrawal of the application." The commenters assert that this language, which appeared in the original 1969 proposed fee regulations and remains unchanged in the current version of the regulations, must be taken as the Commission's total and exclusive mechanism for recovering review costs of withdrawn applications. Yet it is clear that the power reactor construction permit application fee, presently set at \$125,000, falls far below the cost which the Commission can

<sup>1</sup> The superseded rule, 10 CFR 170.12(b) (1977), had stated:

Fees . . . are payable when the construction permit manufacturing license operating license is issued.



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incur in reviewing an application prior to withdrawal.<sup>3</sup> It does, of course, guarantee the NRC at least partial cost recovery should an applicant become insolvent, but one could not reasonably interpret the 10 CFR 170.12(a) provision for retention of this fee as by itself a fulfillment of the Commission's expressed intent in the 1978 regulations to recover to the full extent allowable the cost of providing special benefits.

The commenters are correct that prior to adoption of the 1978 rule the Commission's regulations did not provide for recovery of withdrawn application costs beyond the amount of the application fee. Fees in addition to the application fee became payable only "when the construction permit . . . is issued." See 10 CFR 170.12(b) (1977). See also the proposed § 170.12(b) in the Commission's 1977 notice of proposed rulemaking, 42 FR 22149, 22162 (May 2, 1977). The commenters are not justified however, in concluding that in the 1978 rule the Commission intended to continue this treatment of withdrawn applications. In addition to changed language in 170.12(b), a clear signal that the practice had changed was the switch in the 1978 final rule to an actual-cost basis for determining fees, which made practical the assessment of fees reflecting the actual review costs for a withdrawn application, to be collected "when the review, is completed," 10 CFR 170.12(b) (1979).<sup>4</sup> From this amended language in 170.12(b), viewed in the context of the overall rulemaking emphasis on cost recovery, it should have been plain that under the new fee schedule an applicant cannot avoid review cost already incurred by withdrawing the application. Fees assessed after March 23, 1978 for the review of construction permit (CP) or operating license (OL) applications, whether withdrawn or resulting in the issuance of a CP or OL, were to be based on the actual manpower and contractual services costs expended for the review. The maximum fee for a CP or OL prescribed by regulation is assessed and collected upon issuance of the CP or OL. The actual human resource expended for the review is

determined after issuance of the CP or OL and the utility is notified whether or not a refund may be due. If the application is withdrawn, the human resource expended is determined after the licensing board has dismissed the case (if a hearing has commenced), and the utility is billed accordingly. Once an application (CP or OL) is filed and the staff begins review, the costs associated with the review are costs that are covered by § 170.12(b) rather than cost subject to the scope of § 170.12(a). The revised language of § 170.12(b) reflects this change.

The Shaw, Pittman comments cite 10 CFR 170.21, footnote 4, dealing with early site reviews, as a supposed contradiction to the Commission's position that the 1978 rules impose fees for withdrawn applications. Footnote 4 provides as follows:

*Where a fee has been paid for a facility early site review, the charge will be deducted from the fee for a construction permit issued for that site. A separate charge will not be assessed for a site review where the person requesting the review has an application for a construction permit on file for the same site, except where the application is withdrawn by the applicant or denied by the Commission. (Commenter's emphasis)*

### The comment states:

Footnote 4 is based on the premise that the fee for a site review will ordinarily be included in the construction permit fee. The final "except" clause is necessary so that the early site review fee can be collected separately in the event that the construction permit application is withdrawn and no construction permit fee can be charged. However, if the Commission is correct in its "interpretation" here—that the current regulations were always intended to require payment of license fees on withdrawn construction permit applications—then the "except" clause in footnote 4 would be rendered totally meaningless and redundant. This is so because the construction permit fee still would be payable despite withdrawal and would include the cost of the NRC review of the site portion of the application. In short, there would be no need for a special provision to ensure collection of the site review fee upon withdrawal of the construction permit application.

The comment is correct that Footnote 4 rests on the premise that the fee for an early site review (ESR) will ordinarily be included in the CP fee, but the comment has misinterpreted the "except where . . ." clause. Footnote 4 is intended to cover early site reviews filed under Appendix Q of the regulations. The "except" clause is necessary so that the early site review fee can be collected separately in the event that the early site review application (Appendix Q) is withdrawn, not the CP application. An applicant might very well withdraw the ESR Appendix Q application without

withdrawing the Part 50 CP application, for example, in a case where the applicant finds a more suitable site for a proposed plant while the ESR for the site initially selected is still in progress. Thus, the "except" clause is not meaningless and redundant. In fact, the language reinforces the Commission's intent to treat withdrawn Appendix Q applications the same as withdrawn CP applications, that is, charge for them if they are withdrawn.

The commenter also suggests that, if the Commission can collect a fee for a withdrawn CP application, then by a literal reading of footnote 4 the Commission could collect an illegal double recovery by charging for the ESR as well. The following example of how footnote 4 might work in practice demonstrates that no such double recovery is possible, although technically the Commission could recover a separate early site review fee in addition to a fee for the withdrawn construction permit application. Collection of separate fees could come about as follows: (1) An Appendix Q application is filed and review is started by the Commission, (2) the applicant subsequently files a CP application which incorporates by reference the Appendix Q ESR and review begins on the reactor design, (3) site problems develop and the applicant withdraws the Appendix Q application, (4) applicant requests continuation of CP design review while looking for another site, (5) applicant subsequently withdraws the CP application. Footnote 4 of § 170.21 allows the Commission to immediately bill the applicant for the Appendix Q application upon withdrawal despite the fact that there is an active CP application on file and being reviewed. When the CP application is subsequently withdrawn, the Commission could bill for the Office of Nuclear Reactor Regulation (NRR) design review and Office of Inspection and Enforcement (IE) quality assurance work that has been completed from the date the application was filed to the date of withdrawal. There could never be illegal double recovery by the Commission since the fees for both reviews would be based on the actual manpower expended separately for, (1) the Appendix Q review and (2) the CP design work.

One commenter called attention to the express exemption from fees for withdrawal of application for early site reviews and argued that this exemption militated against charging a fee for a withdrawn application. It is correct that the Commission authorized an exemption from fees for certain early site reviews requested before March 23, 1978, in order to avoid an appearance of retroactively imposing a fee for a type of

<sup>3</sup>The Commission has incurred costs of \$1.1 million dollars in reviewing eight construction permit applications that have been withdrawn and billed since March 23, 1978. The application fees received from these applicants total only \$945,000. Other applications have also been withdrawn for which the NRC has not yet completed the billing process.

<sup>4</sup>The change to an actual cost basis was not part of the rule proposed in 1977 but was adopted by the Commission in the final rule promulgated in 1978. Compared to the previous flat fee assessments this change benefits applicants by assuring that the fee for a facility license will not exceed the actual cost of processing (or a fixed fee set out in the schedule, whichever is lower), thereby giving applicants an opportunity to reduce their licensing costs below the level of fixed fees.

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review where *no* fee had been prescribed by the regulations. This exemption was granted in the March 1978 notice of final rulemaking and is limited to early site reviews requested as special projects. It thus applies only to early site reviews requested under Appendix Q to 10 CFR Part 50, and not to early site reviews conducted as part of a standard construction permit review (see 10 CFR 2.101(a-1)).

In sum, the Commission does not find persuasive the commenters' assertions that the fee regulations adopted on March 23, 1978 provide no basis for the Commission to impose fees recovering the costs of processing applications withdrawn since that time. The proposed interpretative rule, 45 FR 74493, does not add substantively to the provisions already in the Commission's regulations. This being the case, the Commission rejects the commenters' characterization of the proposed rule as "an impermissible retroactive fee assessment" which will impose "severe hardship on large numbers of applicants." The Commission sees no unfairness or "severe hardship" in requiring persons who have requested and received NRC review of license applications to pay the costs of that review in accordance with the IOAA, the intent of Congress, and the intent of the Commission as expressed in the Statement of Consideration for the final rule and the language of the rule itself.<sup>4</sup> Applicants presumably entered into the licensing process prepared to pay the costs of review in the expectation that a license would eventually issue. In claiming "hardship" the commenters have not demonstrated that applicants' decisions to seek licenses or to put off withdrawing applications already before the Commission have in fact hinged on any reasonable belief that review costs would be picked up by the NRC whenever the applicant should choose to declare the quest for a license abandoned. The Commission rejects

<sup>4</sup> Although the interpretative rule is not "retroactive," as the commenters have characterized it, if it were the Commission would find ample legal authority for imposing such a rule. In *SEC v. Chenery Corp.*, 332 U.S. 194 (1974), cited by the Commenters, for example, the Supreme Court held that retroactive rulemaking was not *per se* forbidden and that "retroactivity must be balanced against the mischief of producing a result which is contrary to statutory design or to legal and equitable principles." The commenters, referring to *Chenery*, see no "mischief" in applying the Commission's interpretative rule prospectively only, but the Commission would regard it a substantial mischief unnecessarily to impose on the public treasury costs of more than six million dollars incurred by the government in performing services at the request of private beneficiaries (see footnote 2 above), albeit the requesters have now changed their minds about wanting those services, especially where Congress has made plain its intention that such costs should be recovered.

these general contentions of "hardship" and concludes that there is no unfairness in imposing fees for withdrawn applications in the manner described by the proposed interpretative rule.

Pursuant to Title V of the Independent Offices Appropriation Act of 1952 (31 U.S.C. 483a), the Atomic Energy Act of 1954, as amended, and Sections 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendments to Part 170, Title 10, Chapter I, Code of Federal Regulations, are adopted subject to codification.

46 FR 58281  
Published 12/1/81  
Effective 12/1/81

*Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation; Minor Clarifying and Conforming Amendments*

See Part 72 Statements of Consideration

47 FR 57446  
Published 12/27/82  
Effective dates:  
10 CFR 20.311 of Part 20 effective date is 12/27/83; 10 CFR Part 61 and all other changes effective 1/26/83.

*Licensing Requirements for Land Disposal of Radioactive Waste*

See Part 61 Statements of Consideration

49 FR 21293  
Published 5/21/84  
Effective 6/18/84

### 10 CFR Part 170

#### Revision of License Fee Schedule

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is amending its regulations that include the schedule of fees for inspections and for the review of applications and requests for permits, licenses, approvals, amendments, renewals, and special projects. The revised schedule of fees will more completely recover NRC costs incurred in providing services to identifiable

recipients, including both materials and facility applicants and licensees. The revision is based on the costs of providing services in accordance with the Commission's license fee guidelines published on May 2, 1977; subsequent evaluation of costs incurred by the NRC for inspection and review activities; and evaluation of public comments on the proposed revision of the regulations on fees.

**EFFECTIVE DATE:** June 20, 1984.

**FOR FURTHER INFORMATION CONTACT:** William O. Miller, License Fee Management Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Telephone: (301) 492-7225.

**SUPPLEMENTARY INFORMATION:** The Commission published a notice of proposed rulemaking on November 22, 1982 (47 FR 52454-52466), which was corrected on December 17, 1982 (47 FR 56505-56506), revising its fee regulations and schedule of fees for review of applications and requests for permits, licenses, amendments, renewals, approvals, special projects, reactor operator testing and routine and non-routine inspections. The proposed schedule would have removed the ceiling or maximum limits on fees for review of applications or requests for reactor construction permits, licenses, amendments, approvals, and topical reports; inspection of reactor facilities; applications or requests for uranium enrichment plants; major materials fuel cycle activities, including applications and licenses for 200 grams or more of plutonium in unsealed form or 350 grams or more of contained U-235 in unsealed form or 200 grams or more of U-233 in unsealed form, receipt and storage of spent fuel, possession and use of source material in recovery operations; applications for licenses for receipt of waste byproduct material, source material or special nuclear material from other persons for the purpose of commercial disposal by burial by the licensee and licenses authorizing contingency storage of low-level radioactive waste at the site of nuclear power reactors; applications for licenses authorizing the use of byproduct material for field flooding tracer studies; applications or requests for approval of spent fuel casks and packages; and applications or requests for review of standardized spent fuel facilities or special projects.

The notice of proposed rulemaking invited interested persons to submit written comments for consideration in connection with the proposed amendments on or before January 18, 1983. Upon request, the Commission extended the comment period to February 8, 1983.

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The Commission placed in its Public Document Room at 1717 H Street, NW., Washington, D.C., data used in developing the proposed rule and revised schedule of fees. In addition, the Commission's staff has been available to answer any questions concerning the notice of proposed rulemaking.

The November 22, 1982 notice of proposed rulemaking set forth the Commission's guidelines for fees under Title V of the Independent Offices Appropriation Act of 1952 (IOAA) (now codified at 31 U.S.C. 9701). 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 Communication 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 licence to operate a low-level radioactive waste burial site; and

(6) the NRC's fees were not arbitrary or capricious.

On July 19, 1982, the U.S. Court of Appeals for the First Circuit decided the *New England Power v. NRC*, 683 F. 2d 12 (1st Cir. 1982) concerning the assessment of fees for withdrawn applications. The Court held that applicants may not be billed for the cost of reviewing withdrawn applications for which the request for withdrawal was filed with the Commission before November 6, 1981, the effective date of the Commission's interpretative rule concerning this matter. The Court further stated that "review work performed by the NRC at the request of an applicant constitutes a sufficiently substantial and particularized benefit to the applicant to justify the imposition of fees under the court's reading of the IOAA."

The NRC staff examined the Fiscal Year 1981 costs of providing licensing review and inspection services and determined that the Commission's March 23, 1978 schedule of fees in 10 CFR Part 170 was not adequate to cover the costs of providing the service nor did they meet the intent of Congress as set forth in Title V of the Independent Offices Appropriation Act of 1952. Title V of the Independent Offices Appropriation Act was formerly codified at 31 U.S.C. 483a. With the enactment of Title 31, United States Code, into positive law, Pub. L. 97-258, September 13, 1982, 96 Stat. 1051, the law is now found at 31 U.S.C. 9701, and reads as follows:

*Sec. 9701. Fees and charges for Government services and things of value*

(a) It is the sense of Congress that each service or thing of value provided by an agency (except a mixed-ownership Government corporation) to a person (except a person on official business of the United States Government) is to be self-sustaining to the extent possible.

(b) The head of each agency (except a mixed-ownership Government corporation) may prescribe regulations establishing the charge for a service or thing of value provided by the agency. Regulations prescribed by the heads of executive agencies are subject to policies prescribed by the President and shall be as uniform as practicable. Each charge shall be—

- (1) Fair; and
- (2) Based on—
  - (A) The cost to the Government;
  - (B) The value of the service or thing to the recipient;
  - (C) Public policy or interest served; and
  - (D) Other relevant facts.
- (c) This section does not affect a law of the United States—

(1) Prohibiting the determination and collection of charges and the disposition of those charges; and

(2) Prescribing bases for determining charges, but a charge may be determined under this section consistent with the prescribed bases.

(Pub. L. 97-258, Sept. 13, 1982, 96 Stat. 1051)

Commission guidelines (47 FR 52454) were used as the basis for determining whether or not a particular licensing or inspection service rendered by the NRC may be subject to cost recovery under this rule and what the fee may be. The November 22, 1982 notice of proposed rule making and the schedule of fees contained therein contemplated full cost recovery where it was determined to be fair and equitable.

In developing the revised schedule, the staff analyzed the functions performed by each NRC office to determine which activities, if any, provided special benefits to applicants or holders of licenses, permits and approvals. After each service was properly analyzed and categorized, a yearly professional staff rate was developed for the Offices of Nuclear Reactor Regulation (NRR), Nuclear Material Safety and Safeguards (NMSS), and Inspection and Enforcement (IE), and for the Advisory Committee on Reactor Safeguards (ACRS), Atomic Safety and Licensing Board Panel (ASLBP), and Atomic Safety and Licensing Appeal Panel (ASLAP). The rates in § 170.20 were developed using (1) each office's costs of personnel compensation (salaries), personnel benefits, administrative support and travel, (2) the number of professional employees working in each program office (excluding administrative, supervisory and management direction employees), and (3) the overhead support costs based on an analysis of Program Direction and Administration and Program Technical Support provided to NRR, NMSS, IE, ACRS, ASLBP, and ASLAP.

After the analysis, the staff effort and other costs of the Offices of the Secretary (SECY), Controller (CON), and Management and Program Analysis (MPA) now Resource Management, Administration (ADM), Executive Legal Director (ELD), and Executive Director for Operations (EDO) were allocated as overhead support to other NRC offices. These costs of SECY, ELD and EDO were allocated on a percentage basis while the costs of ADM and CON were distributed to all NRC offices on a pro rata basis based on staff complement in each office.

### Analysis of Comments Received

One hundred twenty-nine letters were received commenting on the proposed revision to Part 170. Fifty-three letters were from persons concerned with Part 50 facilities and 76 commented on fees for materials licenses. Fifty-two of the 76 letters commenting on materials licenses were concerned with medical programs, eight were concerned with uranium mining or milling interests, and the remaining 16 were concerned with other

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types of industrial applications. In addition to the 129 letters of comment, 13 letters of inquiry were received from Congressmen. Copies of all comment letters are available for public inspection or copying for a fee at the NRC's Public Document Room, 1717 H Street, NW., Washington, D.C.

The comments ranged from strong opposition to all fees to the argument that the proposed fees were inadequate to recover the NRC's costs of all work necessary to protect the public health and safety and environment.

Most comments took issue with the proposed amendment in six areas:

(1) The proposed elimination of ceilings on fees; (2) retroactive application of the proposed amendments; (3) charges for certain kinds of exemptions or extensions of time required to comply with a rule; (4) the need for NRC management control over the review and inspection process; (5) charges for non-routine inspections; and (6) proposed fees for medical program licenses.

### Elimination of Ceilings

Comments on the proposed elimination of maximum fees asserted this action was inequitable and did not take account of staff inefficiencies and variations in the work product of personnel that exists in the licensing process. Commenters asserted that these variations in staff efficiencies are beyond the control of the applicant and that the applicants should not have to pay for perceived staff deficiencies and inefficiencies in the licensing process.

In legal terms, it is clear that the Commission may charge the full cost of processing an application for which the applicant receives a special benefit not available to the public at large. This is clearly one of the conclusions to be drawn from *Mississippi Power and Light v. U.S. Nuclear Regulatory Commission*, 601 F.2d 223 (5th Cir. 1979) where the court approved the fee rule and schedule published in February, 1978. That fee schedule included full cost recovery for several kinds of licensing activities as well as Commission reviews that fell within the category of special projects. In upholding the fee schedule, the court explicitly emphasized the legal authority of the Commission to recover the full cost of providing services to identifiable beneficiaries. See *id.* at 232 and 233.

➤ Although there is no legal objection to full cost recovery, in response to comments received, the final rule has been amended to retain a predetermined ceiling or maximum fee for a majority of applications and licenses where the fees are computed on an individual basis using the professional staff hours and the professional staff rates contained in § 170.20 and contractual services costs

expended for the case. The ceilings represent, in most instances, the top of the cost ranges shown in the proposed rule for the various fee categories.

For power reactor operating licenses, McGuire 1 review costs were used as the ceiling for the operating license fee since it was the only full or 100% power operating license issued in FY 1981 for a first unit at a site. The McGuire review did not encompass any unusual review problems and could be considered a normative operating license review. 46,200 professional staff hours were required for the McGuire 1 review and when these hours are multiplied by the appropriate FY 1981 staff rates and the costs of contractual support services are added, the cost is approximately \$3.1 million for the operating license.

There is no firm data base that may be used to establish a ceiling for reactor construction permits since the NRC has not completed a construction permit review since January 1979. Only the Hanford/Skagit and Clinch River applications are under review and indications are that the Hanford/Skagit application will be withdrawn. The Clinch River Breeder application is unique and incomplete. At this point, costs incurred in the ongoing review of Skagit 1 are approximately \$3 million. Accordingly, no ceiling has been established for construction permit reviews for power reactors.

The NRC has no applications on file for research or test reactor facility construction permits or operating licenses and none are anticipated. Consequently, no ceilings have been established.

On December 17, 1982, the NRC issued a manufacturing license to Offshore Power Systems for eight floating nuclear plants at the preliminary design stage. This is the only reactor facility manufacturing license that the Commission has issued. When the FY 1981 professional staff rates are applied to the professional hours required to complete the review of the preliminary design plus the contractual services costs expended, the cost for the review is approximately \$3.2 million. Accordingly, based upon actual experience for this category, the new ceiling for the review of a manufacturing license preliminary design is approximately \$3.2 million. The Commission has had no data base to use in developing a ceiling for review of a final design for manufactured reactor facilities.

Ceilings have been established for the review of Part 50 power reactor applications for license amendments and other approvals. The March 1978 rule separated applications for license amendments and other approvals into six classes based on the complexity of the review. In developing a ceiling for this final rule, the Commission

examined approximately 200 completed power reactor amendment actions and applied the FY 1981 professional rates (\$ 170.20) to the professional hours expended for each of these reviews. The review costs ranged from a few hundred dollars for an administrative type amendment to \$164,600 for an amendment authorizing repair of a steam generator. The 1981 amendment authorizing steam generator repair required 2,609 professional hours and \$2,800 in contractual support services costs to complete the review. This application was used as the ceiling for power reactor license amendment and other approval fees. A ceiling of \$42,100 has been established for test and research reactor facility license amendments based on the upper limit of cost shown in the November 22, 1982 notice.

The Commission has not changed the ceiling of \$20,000 on charges for the reviews of topical reports. These reports are normally reviewed independently of any specific application for a construction permit or license and should benefit the NRC licensing process and the utility by reducing the time required to review certain applications. The Commission believes that the upper limit of \$20,000 for a topical report review is fair and equitable and should not discourage the submission of such reports. The ceiling applies to all persons filing topical reports for review and is consistent with Commission license fee guidelines as set forth in the Commission's November 22, 1982 notice of proposed rulemaking.

A limit of \$147,600 has been established as the ceiling that may be assessed a utility for Part 55 examinations and associated activities conducted for each of its plant site(s) during any one-year period. This ceiling is based on workload data developed by the Office of Nuclear Reactor Regulation (ONRR) which shows that on the average 1.32 professional staff years are expended per site each year to conduct requalification examinations, replacement examinations and reexaminations for reactor operators. Based on the FY 1981 professional staff rates, the NRC's average cost for this service would be \$147,600 and this figure has been used as the ceiling which may be assessed during any one-year period per site.

Ceilings have been retained for review of applications for preliminary and final standardized reference design approvals filed by vendors and architect-engineers for reactor facilities. No preliminary design approvals (PDAs) or final design approvals (FDAs) were issued in FY 1981 and the only approval issued in recent years was the FDA for GESSAR II issued July 27, 1983, to General Electric. The review of GESSAR II required 15,176 professional staff

hours and \$468,493 in contractual services costs. Since GESSAR II is the only recent standardized reference design approval completed, it was used as the base to establish a ceiling for review of standardized reference designs filed by vendors or architect-engineers. The ceiling is approximately \$1.4 million and was computed by using the professional staff-hours expended for the review multiplied by the staff rates in § 170.20 and the costs of contractual services. The NRC has no recent data to use in developing ceilings for amendments and renewals of preliminary and final design approvals.

Ceilings have been retained on fees for routine inspection of nuclear power reactor facilities (Category 170.21A); test, research and critical facilities (170.21C) and all categories of materials licenses except special nuclear material license categories 170.32 1E, 1F and 1I; source material license category 170.32 2E; and waste disposal license category 170.32 4A. The November 22, 1982 notice of proposed rulemaking would have eliminated ceilings on inspection fees for all Part 50 licenses, fuel cycle licenses, licenses authorizing receipt and burial of radioactive waste and licenses authorizing contingency storage of low-level radioactive waste at nuclear power reactor sites.

The revised ceiling on fees for routine inspections of an operating nuclear power reactor is \$300,000, and is based on actual FY 1981 inspection experience. This ceiling is a combined maximum that may be charged for routine safety and safeguards inspections commenced on or after the effective date of this rule and represents the maximum amount that may be charged for each licensed reactor unit during a one-year period. No ceilings have been developed for special nuclear material license categories 170.32 1E, 1F and 1I; source material license category 170.32 2E; and waste disposal license category 170.32 4A because of the limited inspection activity and inspection cost data for these licenses. NRC records show only four category 1E licenses, two 1F licenses, seven 1I licenses, seven 2E licenses and two 4A licenses.

There are no ceilings in the final rule for non-routine or reactive inspections, except for small materials license programs in fee categories 170.32 1J, 1K, 2D, 2F, 2G, 3A-P and 4B through 8A. Ceilings were not established for these licenses because the level of inspection effort required to deal with incidents, or allegations, or required for followup on program deficiencies or implementation of specified safety requirements is determined on the basis of the safety significance and threat to the public health and safety. Fees for non-routine inspections where no ceilings are shown in the rule will be based on full costs.

Ceilings have been retained for review of applications for renewal and amendment of special nuclear material license categories 170.31 1A, 1B, 1D, 1E, 1F and 1G. Fees for new special nuclear material licenses in categories 170.31 1A-1G, 1H1 and 1I will be based on full cost without ceilings because the NRC has no recent data to use in developing ceilings and no new applications are anticipated for these categories. Ceilings are retained for source material license categories 170.31 2A and 2B for new licenses, amendments and renewals and for categories 170.31 2C and 2D for license renewal and amendment only. Ceilings are retained for waste disposal license category 4A for new licenses, renewal and amendment. Ceilings have been retained for transportation certificates of compliance categories 170.31 10A-10E. These ceilings are based on revised estimates of review effort provided by the licensing staff. In instances where the licensing staff estimates exceed the top of the cost range shown in Table 10 of the November 22, 1982 notice, the Commission has decided the upper range of cost shown in Table 10 will be retained as the ceiling.

The ceilings set forth in this final rule represent the maximum an applicant or licensee will pay for NRC services; but in no event will the fee assessed exceed the cost of reviewing an application or conducting an inspection.

#### Retroactive Application of Fees

Comments regarding "retroactive" application of fees were directed primarily to the question of applying full cost recovery to applications already on file and being processed at the time this rule change would become effective. Since the final rule would now retain ceilings for most major licenses, and the hourly rates established by this rule will apply only to work that occurs after the effective date of the final rule, this particular aspect of the question of "retroactive" application of the amendments is no longer germane. However, the Commission believes that the charge of "retroactive" application of the rule, implied by the commenters to be illegal, should be addressed in detail.

The Commission fails to see an impermissible retroactive application of the rule. For full license fees that are payable in advance on filing of an application, the fees are for future review and there is no retroactive application involved; most materials license applications would be in this grouping. For reactor construction permits and operating licenses, and for some major fuel cycle materials licenses, an initial application fee is charged with the balance of the fee to be paid in installments on a full cost basis as the work progresses until the full fee

is reached. In such cases, the hourly rates established by this final rule will apply only to work that takes place on or after the effective date of the final rule. The hourly rates used for the 1978 rule (43 FR 7210) will be applied to work completed prior to the effective date of the final rule. Billing and payment will be for work in progress, and again no element of retroactivity is present.

For construction permit and operating license applications filed before the effective date of this final rule, there is no change in the Commission's position respecting the applicability of the fee schedule. Just as with the fee schedule published February 21, 1978 (43 FR 7210), the Commission's position is that the fee due is that fee in the schedule legally in effect in the codified regulations at the time the full fee becomes payable. This position was expressly stated in the Statement of Considerations to the 1978 rule. See 43 FR 7210, 7215. In approving in total the 1978 fee rule, the court in *Mississippi Power and Light v. U.S. Nuclear Regulatory Commission*, *supra*, accepted and ratified this position. The Commission's position was also ratified in *New England Power v. U.S. Nuclear Regulatory Commission*, 683 F. 2d 12 (1st Cir. 1982), where the court allowed a new rule charging a fee for withdrawn applications to be applied to applications withdrawn after the effective date of the rule (although not before), regardless of when the application was filed. In this case, it was clear that while no fee was chargeable until the new rule was effective, this fee would be chargeable to all applications withdrawn after its effective date. Thus, for both license fees and fees for withdrawn applications, the controlling cases establish that the fee to be charged is the fee in the rule in effect at the time the license is issued or the application withdrawn. The right of the Government to collect the full fee and the obligation of the applicant to pay are finally fixed at that time, and not before.

The concept of impermissible retroactivity applies only to those cases where a new law or rule is applied to transactions completed in the past, prior to the new rule, where the rights and obligations of the parties already have been fixed. See *Sturges v. Carter*, 114 U.S. 511, 519 (1884); *Reynolds v. United States*, 292 U.S. 443 (1934). It is clear from the action of the courts in both *Mississippi Power and Light v. U.S. Nuclear Regulatory Commission*, *supra*, and *New England Power Co. v. U.S. Nuclear Regulatory Commission*, *supra*, that applicants have no antecedent right in any given fee (or absence of a fee) that was not finally due and levied on the applicant before the effective date of a rule enlarging a fee or imposing a new fee.

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Commenters, however, cited a few cases to support their characterization of the Commission's proposed rule revision as impermissibly "retroactive." Among those cases cited, *Securities and Exchange Commission v. Chenery Corp.*, 332 U.S. (1947), in upholding an alleged "retroactive" administrative order of the SEC, appears to support the Commission's position more than commenters' position. Two other cases cited by commenters, *N.L.R.B. v.*

➤ *Majestic Weaving Co.*, 355 F. 2d 854 (2nd Cir. 1966), and *Retail Wholesale and Department Store v. N.L.R.B.*, 466 F. 2d 380 (D.C. Cir. 1972), are concerned with a very specialized national labor law case of applying a newly announced rule of decision in an adjudication to other adjudications in which the conduct of the parties predated the new rule and which relied upon a prior rule of decision. As the discussion in *Retail* indicates, even in these cases the answer to the question of permissible or impermissible retroactive application seems to lie in the discretion of the court. See also, *H. and F. Binch Co. Plant of Native Laces, etc. v. N.L.R.B.*, 456 F. 2d 357 (2nd Cir. 1972).

One commenter also took issue, on the basis of retroactive application of the fee schedule, with the removal of the ceiling for review of topical reports submitted for review prior to the effective date of these amendments. Two cases cited by this commenter, *Saint Francis Memorial Hospital v. Weinberger*, 413 F. Supp. 323 (N.D. Cal. 1976) and *Phillips Petroleum Co. v. Department of Energy*, 449 F. Supp. 760 (D. Del. 1978), both illustrate an application of the general principle that a rule cannot be applied retroactively to established antecedent rights in completed transactions. In the first case, an improperly issued rule was applied retroactively by the agency to deny a hospital its medicaid reimbursement for construction interest which it had paid and expensed rather than capitalized as required by the improper rule. In the second case, a rule was applied retroactively by the Department of Energy to deny to an oil refiner passed through, nonproduct cost increases previously allowed under DOE staff practices. These cases are consistent with *New England Power Co. v. U.S. Nuclear Regulatory Commission*, *supra*, where the court disallowed retroactive application of the new rule to applications withdrawn before its effective date; that is, the Commission could not change antecedent financial rights in fully completed transactions.

The Commission's position is that observations with respect to the asserted retroactive application of the new schedule to major licenses would also apply to increasing the ceiling for topical reports were the Commission to

do so, however, in view of the fact that the Commission has not changed the ceiling for topical reports there is no need to further address the question. The action would not be retroactive because, under the Commission's rules as ratified by the courts, an applicant has no established antecedent right in the full amount of a fee until there is a fixed obligation to pay the full amount.

### Fees for Requests for Exemptions or Extensions

Some reactor licensees expressed concern with the proposal to charge fees for requests for exemption or extensions of time to comply with Commission regulations. The rule published for comment proposed to change the rule on fees for requests for exemptions and extensions of time in two areas. First, the Commission's discretion to waive fees in certain instances would no longer be explicitly stated as done in footnote 2 to 10 CFR 170.22, and applicants and licensees should not depend upon an automatic exercise of Commission discretion in waiving fees. This is reflected in the revised wording of footnote 1 to the new 10 CFR 170.21. Discretionary exemption authority still exists, however, in the unchanged 10 CFR 170.11(b)(1). This change is primarily one of procedure, not substance. Further, amendments resulting directly from orders issued pursuant to 10 CFR 2.204 still remain exempt from fees.

Second, the proposed change would add exemptions from regulations to the list of Commission actions on applications subject to fees, an area not covered in the 1978 rule. In opposing this change, a few commenters cited *Connecticut Light and Power Co. v. NRC*, 673 F. 2d 525 (D.C. Cir. 1982) in support of their contention that fees should not be charged for exemptions from regulations. In this case the court, in upholding the NRC rule, stressed that the rule contained built-in flexibility in an exemption procedure under which licensees could show that an alternative to a prescribed requirement provided equivalent safety protection. Because the exemption feature of that rule was intended to be at the option of the licensee (i.e., the licensee could either comply with the rule as written or request an exemption that served, among other things, to allow more time for compliance), a licensee applying for an exemption did so for its own benefit. The review of the exemption request and the issuance of an approval is a service to the applicant that can be legitimately charged for when covered by the rule. It is the view of the Commission that the case is not persuasive on the point of not charging for requested exemptions from regulations.

In issuing its 1978 rule, the

Commission exempted from fees certain applications for Commission approvals that had never been subject to fees and which were filed prior to the effective date of the rule. This was done on the grounds of fairness and equity because some applicants had already received approvals on a fee-free basis, while others in the same class had not and, were it not for the Commission's discretionary exemption, would have been subject to payment of a fee (See 43 FR 7210, February 21, 1978).

The final rule will allow the Commission to exercise its discretion in the same manner with respect to those exemption requests not previously subject to fees which were filed with the Commission prior to the effective date of this amendment to 10 CFR Part 170. This would primarily include exemption requests filed under the fire protection rule (10 CFR 50.48) and under 10 CFR 30.11, 40.14, 50.12, 70.14, and 73.5. Request for exemptions filed after the effective date of this amendment will be subject to fees.

### Management Oversight

There were several comments that without ceilings on fees NRC management may not exercise adequate control over the review and inspection process to control costs and there would be little or no incentive to conclude license reviews and inspections quickly and use resources efficiently. It was suggested that there may be excessive use of contractor services in licensing and inspection.

The NRC's principal concern under the Atomic Energy Act of 1954, as amended, is public health and safety. While the Commission is committed to the expeditious review of each application and uses all reasonable means of keeping costs as low as feasible, its responsibility for health and safety and environmental protection cannot be compromised. The Commission's licensing and inspection budgets are based on the need to meet the agency's statutory responsibilities. The Commission exercises management controls to provide that its regulatory responsibilities are efficiently and effectively discharged.

To ensure that applications are processed in a timely and cost-effective manner, each NRC Office in the licensing process develops and works in accordance with an approved operating plan. Upon receipt of applications, schedules are established and resources allocated for each review based on the amount of time and professional staff effort determined necessary to complete the particular type of application or activity. Since the total assigned workload must be completed with limited resources, management is continuously challenged and, indeed,



evaluated on its ability to balance workload and assigned resources in the most efficient and effective manner. Similarly, management is expected to adhere to established review schedules and changes are approved only with suitable justification. The staff's performance in meeting schedules is monitored continuously and critically by NRC staff management, the Commission, Congressional oversight committees and by the applicants and licensees.

Commenters suggested that there are factors which affect the cost of reviews and inspections that do not increase value to the recipient of the service; such factors as meetings attended by staff and reassignment of personnel to other projects were most often cited. Management exercises control to ensure that only those staff members who have a need-to-know or something to contribute participate in meetings. In certain instances, reviews may be delayed because project personnel are assigned to a higher priority task. This may occur for a variety of reasons, including applicant/licensee late responses to NRC requests for additional information. In any event, the agency must maintain flexibility in order to balance staff resources and workload efficiently and effectively.

The staff routinely prepares and maintains updated workload forecasts and resource allocation plans to enable management to make early determinations as to the potential need for outside contract assistance. In most instances, where outside assistance is required, the agency will utilize the service of experienced laboratories or commercial contractors.

It was suggested by the uranium milling industry that the NRC should eliminate or greatly reduce the use of outside technical consultants and use its staff with adequate management controls to review applications. Representatives also cited instances where they felt the NRC disregarded the input of consultants.

In reviewing applications, the agency uses existing staff where possible. However, it is sometimes difficult to find and retain qualified experts in all the various disciplines necessary to perform licensing reviews. Also, licensing work is sufficiently varied so that it is not always possible to justify having certain types of full-time experts on the staff to do the occasional reviews demanding their expertise. Consequently, outside technical consultants are used as needed. Thus, the employment of direct staff is not always more cost effective. As to disregarding the advice of consultants, the situation noted by the commenter resulted from experience and knowledge gained by NRC between the time that a draft Environmental

Impact Statement (EIS) had been prepared using consultant input and the issuance of the final EIS. Operational difficulties at the first commercial scale mining operation required the staff to consider the site-specific hydrological characteristics in more detail; in effect, the work performed earlier by NRC consultants was overtaken by events.

To better manage contractual efforts, a Technical Assistance Program Manager is assigned to each contract and has an oversight function which includes cost and schedule control. The Program Manager is responsible for the review and approval of all contract costs that are to be included in any license fee. In the case of very large contracts, the NRC uses a full-time dedicated Technical Assistance Program Manager Group to manage, review, and oversee these contract operations.

#### Charges for Non-Routine Inspections

Several commenters expressed concern about the proposal to charge for non-routine (i.e., unscheduled) inspections. The commenters correctly pointed out that the Commission stated in earlier notices that for policy reasons it chose not to charge fees for non-routine inspections. For example, in the *Federal Register* notice of the current rule, the Commission stated that non-routine inspections would be excluded from fees based upon Commission policy (43 FR 7210, 7213, February 21, 1978), and that non-routine inspections are "considered to be an independent public benefit" (42 FR 22149, 22161, May 21, 1977). The commenters note that the notice does not state the basis for the change in Commission policy. Commenters also imply that it is legally inappropriate to charge a fee for non-routine inspections.

Regarding the first point, the Commission has stated two reasons for deciding to charge for non-routine inspections. Both non-routine inspections and routine inspections deal with the same fundamental issues of safety, health physics, safeguards and physical security of special nuclear materials, and protection of the environment. Since 1978, providing this service of non-routine inspections has become a significant effort for the NRC inspection staff. For these reasons, the Commission is changing its policy on non-routine inspections and accordingly finds it appropriate to recover the costs of these services.

As to the second point, it is clear that even where a service provides a public benefit, if it also provides a special benefit to the recipient of the service, fees may be charged. No allocation of benefits is necessary. See: *Electronics Industries Assoc. v. F.C.C.*, 544 F. 2d 1109 (D.C. Cir. 1976).

In non-routine inspections the

beneficiary is clearly identified and the specific benefit falls within the Commission's judicially approved fee guidelines. The non-routine inspection is a service necessary to assist a recipient in complying with statutory obligations or obligations under the Commission's regulations as in routine inspections.

No fees will be assessed for investigations conducted by the NRC Office of Investigations. These investigations are outside the definition of inspections. In addition, non-routine inspections that result from third party allegations will not be subject to fees and in computing an inspection fee the hours of the Enforcement Staff, Office of Inspection and Enforcement, involved in the processing and issuance of a notice of violation or civil penalty would be excluded.

#### Medical Program Fees

The largest block of comments came from physicians, hospitals or their representatives. The majority of these comments expressed the opinion that the proposed increase is excessive and will adversely affect patients' medical costs. It was also mentioned that the Government has cut medicare and medicaid payments. The currently effective schedule of fees was based on fiscal year 1977 costs and the fee for a medical program (except teletherapy) was set at \$190 for a new license; \$150 for a license renewal; and \$40 for an amendment. Because licenses are issued for five-year periods, the average cost for a new license amounted to less than \$40 per year. In the revised schedule, the charge for a new license would be \$580, or a little more than \$100 per year for all medical licenses except for a new license fee category, the broad scope research and development license issued to some major medical institutions. The license fee for the broad scope license is \$1,200 for five years, or an average of \$240 per year. If the full cost of license fees was passed on to patients, it would result in a relatively minor increase in cost per patient.

#### Other Comments

There were comments that the NRC could reduce costs of licensing uranium milling activities by eliminating the requirement for the full National Environmental Policy Act (NEPA) environmental impact statement (EIS) for each application through the use of generic environmental statements supported by experience the NRC has gained to date through the licensing and inspection of uranium mining operations. The NEPA reviews being questioned generally fit into three types: first, new uranium mills; second, renewal of uranium mill licenses; and third, *in-situ* solution mining operations.

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For the first type, 10 CFR Part 51 of the Commission's regulations requires that an EIS be prepared. The Commission believes these rules are consistent with NEPA and the regulations of the Council on Environmental Quality. As for the second type review, the issue may be moot. Before the issuance of the Generic Environmental Impact Statement on Uranium Milling (GEIS), NRC had committed itself to doing an EIS at the time of the license renewal for existing mills and to continue this practice until the issuance of the GEIS. When the GEIS was issued, essentially all mills had been evaluated and EIS's issued. It has been NRC policy to perform an environmental assessment at the time of license renewal to determine whether a full EIS should be prepared for the renewal. Absent any significant changes, a negative declaration is the usual result. As for the third type of application, *in-situ* mining operations, the matter is currently being considered by the Commission's legal staff to determine if there is any mandatory requirement for an EIS.

One person commented as to why the proposed fee range for review of an application for an *in-situ* mining operation is higher than the applicant's cost to prepare the application. A large part of NRC review costs are incurred in preparation of the EIS. NRC costs for preparation of the EIS are comparable to those of the Corps of Engineers, GSA, EPA and FHA, based on an August 9, 1977 GAO report to the U.S. Senate with figures updated to cover inflation.

Another factor that has a significant impact on licensing costs is the quality of the information and completeness of the application. In fact, there is a direct relationship between costs of review and the completeness and quality of an application, and this is under the control of the applicant.

Several commenters suggested that facilities and major fuel cycle applicants and licensees be billed for licensing services on a more frequent basis than at six-month intervals, e.g., on a monthly or quarterly basis, or alternatively to continue the present procedure of billing when the license or permit is issued. No one billing frequency is satisfactory to all applicants and licensees. Consequently, the billing procedures in this final rule are the same as the procedures described in the proposed rule. Applicants will be billed for review and licensing costs at six-month intervals as the review progresses or when review of the application is completed, whichever is earlier, for those applications where fees are based on full costs. Licensees will be billed at the end of each calendar quarter for completed inspections where fees are based on full costs.

It was suggested that elimination of the present Commission policy whereby payment of standard reference design (nuclear steam supply system or balance of plant) review cost are deferred until the design is referenced in a utility application may serve as a disincentive to standardization of the nuclear industry. Prior to March 1978, the NRC recovered none of these costs. The 1979 rule contained a deferred payment plan where the fee would be collected as the design is referenced in an application filed by a utility. The fee would be paid in five installments as the first five units were referenced. Since 1978, the Commission has recovered none of its costs incurred in review of preliminary and final designs except for application fees. The staff expects that the final design approval for CESSAR-80 will be issued within the next several weeks, and at that time the Commission will recover a portion of its review costs. Under the Independent Offices Appropriation Act of 1952, the Commission has the responsibility to recover its costs of providing special benefits to identifiable recipients and in this instance, the services are rendered at the request of the vendor or architect-engineer.

One person commented that the costs of Part 55 reactor operator examinations should not be charged to the facility licensee since it is the reactor operator who receives the special benefit of the Part 55 license. Part 50 requires that applicants for reactor operating licenses have qualified reactor operators when the licenses are issued and subsequently to have approved requalification programs. The NRC must approve the licensee's initial program for qualifying reactor operators and its requalification/replacement programs.

➤ An individual operator cannot be licensed apart from a facility. Accordingly, it is the utility which applies for certification and consequently is the beneficiary of the Part 55 licensing action.

Several persons commented that fees should be eliminated for amendments issued for the convenience of the Commission and where amendments are submitted solely to comply with changes in Commission rules and regulations. Fees are not imposed for amendments issued solely for the convenience of the Commission and for which there is no request or application.

On the other hand, applications submitted as a result of Commission rules, regulations, or requests for license amendments that are necessary to protect the public health and safety and environment are subject to fees.

One person said that licensees should not be penalized by fees for requesting an amendment which would exempt them or provide relief from a general

Commission rule that may not be applicable to a particular type of facility. If a rule is not applicable to a particular type of facility there is no need to request relief from it. If a request for clarification of the rule's applicability is presented, such a request for clarification would not require a fee.

It was suggested that fees for small materials licensed programs should be based on full cost so that applicants filing well-prepared and complete applications would pay only their full costs. In the final rule the Commission has elected to continue to set fees for these licenses by dividing them into several fee categories based on the type of material, use, complexity of the review, and licensing experience. The alternative of imposing full cost for each review and inspection would impose a significant administrative burden and expense upon the NRC since more than 8,000 individual fee determinations would be required each year. The fee assessed for each category of small Part 30, 40 and 70 programs would continue to be based on the average cost of providing the service to the recipients.

Several commenters suggested that applicants/licensees be provided with advance estimates of costs for specific applications. It is neither feasible nor practical to anticipate in advance the nature and extent of any problems which may develop during the review of a complex application. Similarly, it is not possible to predict the responsiveness of an applicants/licensee to a request for information. In most instances, however, ceilings have been established for licensing actions and routine inspections based on historical data. In those cases where it is not practical to develop ceilings due to limited experience, an estimate of costs could be made available based on a preliminary review of the application.

Several commenters expressed the idea that applicants/licensees should be able to audit NRC costs. Staff hours used in the review of an application/request are recorded against a docket or other control number assigned to the request. Likewise, inspection effort including preparation time, time on site, and documentation time are charged to an inspection report and recorded. Thus, where fees are to be based on full cost, staff time will be reviewed on a case-by-case basis. Any contractual costs will also be charged against a docket or control number. Therefore, a detailed statement of costs can be provided to an applicant/licensee upon request. Where questions arise on a particular fee, the NRC is prepared to review the disputed charge with the applicant or licensee representative.

Since 1978, the NRC has used professional staff hours and contractual services costs data to bill construction

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permit, operating license and other major fuel cycle applicants for licensing services. This final rule will also require full cost recovery for inspection of these licensees and for license amendments for facilities up to a specified ceiling or maximum limit.

### Summary of Changes Incorporated in Final Rule

1. In most instances, except for non-routine inspections, where fees are based on professional staff hours and contractual services costs expended for the review, a ceiling or maximum has been established for each fee category.

2. Investigations conducted by the Office of Investigations will not be subject to fees.

3. Non-routine inspections that result from third-party allegations will not be subject to fees. In computing an inspection fee the time involved by the Enforcement staff, Office of Inspection and Enforcement, in the processing and issuance of a notice of violation or civil penalty would be excluded.

4. In § 170.21, fee Category B, "Standard Reference Design Review," has been revised to add the terms "Preliminary" and "Final" for clarity. Category D in this section has been revised to be applicable only to "Manufacturing License" applicants and licensees since Category A covers those utility applicants referencing the design.

5. Footnote 2 to § 170.21 has been revised to state how the fee will be determined where an application may cover a one-step licensing process for power reactors, e.g., a combined review of the construction permit and operating license.

6. Section 170.41, "Failure by applicant or licensee to pay prescribed fees," has been revised to incorporate other Commission regulations that are pertinent to this part.

7. The scope of Part 170 has been broadened by adding a new § 170.2(n) that will apply to the requirements of 10 CFR Part 61.

8. Section 170.3 has been revised as follows:

(s) To delete the term "fuel reprocessing facilities," and the language "amendment or renewal of standardized reference design approvals" since these items are covered in § 170.21. The term "special projects" is further defined and additional examples given.

(t) To eliminate investigations conducted by the NRC Office of Investigations.

(v) Revised to emphasize that Part 55 reviews include such things as preparation, review, and grading of examinations and tests.

9. In § 170.31, fee Category 9, "Device, Product or Sealed Source Safety

Evaluation," has been expanded to add two fee categories for the review of devices or sealed sources. The categories cover devices and sealed sources not intended for commercial distribution.

10. Several fee categories were re-established in §§ 170.31 and 170.32 to maintain a ceiling or maximum fee as a result of comments received.

11. In most cases, ceilings or maximum fees and billing frequencies have been re-established for the inspection fee schedule in § 170.32.

12. A new § 170.51, "Right to review and appeal of the Prescribed Fees," has been added to address concern about appeal rights relating to the assessment of fees.

### Fee Collection

The NRC billing procedure is revised so that applicants pay review and licensing costs (professional staff hours and contractual) as the review progresses for those applications where fees are determined based on the full costs expended for the review. In certain instances full cost fees are limited by a ceiling. Under the revised procedure, charges will be assessed against all applicable applications currently on file with the Commission for permits, licenses, approvals, or special projects, except applications for renewals, amendments, and other required approvals for which fees have already been paid in accordance with the March 23, 1978 fee schedule and complete and acceptable special project applications filed prior to March 23, 1978.

Accordingly, for those applications currently on file for which fees are determined based on full review costs, the professional staff hours expended for the review of the application up to the effective date of the revised rule will be determined and the billing for that time period will be based on the professional staff rates established for the March 23, 1978 fee schedule. On or after the effective date of this final rule, the professional rates shown in § 170.20 will be used. For those applications currently on file, the first itemized billing for NRC services based on full costs will be made when this final rule becomes effective and continue every six months thereafter as work progresses or when review of the application is completed, whichever is earlier. For applications filed on or after the effective date of this final rule, itemized billings for NRC services based on full costs will be made at six-month intervals for all costs accumulated on each application. The revised billing procedure will enable the applicant to pay for work as it progresses. Under this rule, all applications that are to be assessed fees on a full cost basis are to

be accompanied by the application fee specified in this part. In no event will the fee assessed exceed the full costs of reviewing an application, and in no circumstance will the applicant pay less than the application fee specified in this rule. Fees for applications not subject to full-cost charges will remain payable at the time the applications are filed with the Commission.

For those inspection fees that are to be based on full cost (professional staff hours and contractual), the Commission will bill each licensee at the end of each calendar quarter for completed inspections that were initiated on or after the effective date of this final rule. Inspection fees based on the average cost method of computation will continue to be due upon notification by the Commission.

Licensees currently billed once a year for inspections (Part 50 power reactor licensees, other production and utilization facility licensees, and possession-only licensees) will be billed under this final rule on a pro-rated basis for any partial year elapsed (less than 365 days) since they were last billed under the 1978 rule. That is, if 20 days have elapsed from the last billing period to the effective date of this final rule, the licensee would be billed 20/365 of the total fee as prescribed in the 1978 rule. Thereafter, those licensees will be billed quarterly based on the rates shown in 10 CFR 170.20 for inspections initiated on or after the effective date of this final rule. These pro-rated billings will be made when this final rule becomes effective. For those licensees who hold licenses that are billed on a per-inspection basis (small materials programs) if the inspection is started before the effective date of this final rule, the licensee will be billed in accordance with the fees established in the 1978 rule.

All revenues collected in fees by the NRC for providing licensing and inspection services to applicants and licensees have been and will continue to be deposited into the U.S. Treasury as miscellaneous receipts, and not used as an offset to the NRC appropriation.

### Paperwork Reduction Act Statement

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. 3501 et seq.).

### Regulatory Flexibility Certification

In the notice of proposed rulemaking published on November 22, 1982 (47 FR 52454), 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

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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 also mailed the proposed rule document to each of its more than 9,000 licensees.

The Commission received 129 comments on the proposed rule, representing less than two percent of all NRC licensees. Of the 129 comments, only one mentioned the Regulatory Flexibility issue directly, recommending that NRC tier its license fees to charge smaller licensees reduced fees for licensing actions.

A total of 15 comments are believed to have come from small entities based upon a review of information contained in their comments. Six of these comments were from small hospitals, six from small radiology firms, one from a small uranium milling company, and two from other small materials licensees.

Each of the small hospitals, small radiology firms and two of the remaining small entities which commented were subsequently contacted by the Commission staff in an effort to obtain further information concerning the economic impact of the revised fee rule on their operation.

The license application fee would represent an increase of approximately \$500-\$1000 for each of the small hospitals (defined as a hospital with fewer than 150 beds by the Small Business Administration regulations, 13 CFR 121.3-10(d)(5)). When apportioned over the five-year life of the license, this increase would result in an annual increase of \$200 or as estimated by one hospital administrator; by about fifty cents for each procedure conducted by the nuclear medicine department. Most hospitals do not, however, have broad medical licenses and the annual increase in application fees would be about \$80. Other fees for license amendments and inspections, while not assessed on an annual basis, would occur as needed for amendments and inspections. The increase in fees for a routine inspection, which is generally conducted every one or two years, would be \$280.

The license fee revision for the small radiologist groups, most of which are associated with hospitals, are almost identical to those for the small hospitals.

The three remaining comments from various small materials licensees raised a number of concerns not specifically related to the regulatory flexibility issue

posed by the Commission in its Certification Statement. A small uranium mine company commented on the lack of a specific upper limit on licensing fees which will be assessed on a full-cost basis for in-situ mining licenses. On the other hand, a small company with a gauging license and another with an irradiator license commented that their license application fees should be based on full costs rather than an average cost established for whole licensing categories. None of these licensees, when contacted, indicated that this revised fee rule would have serious economic implications for their businesses.

Based upon the number of comments received on the proposed rule, analysis of the comments, and the additional information obtained from small entities, the Commission finds, and hereby certifies, that this rule will not have significant economic impact upon a substantial number of small entities.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and Sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 170 are published as a document subject to codification.

### List of Subjects in 10 CFR Part 170

Byproduct material, Nuclear materials, Nuclear power plants and reactors, Penalty, Source material, Special nuclear material.

➤ 49 FR 24113  
Published 6/12/84

### 10 CFR Part 170

#### Revision of License Fee Schedule

##### Correction

In FR Doc. 84-13517 beginning on page 21293 in the issue of Monday, May 21, 1984, make the following corrections:

1. On page 21293, second column, the **EFFECTIVE DATE** now reading "June 18, 1984" should read "June 20, 1984".

2. On the same page, third column, second complete paragraph, line four, "developed" should read "developing".

3. On page 21294, first column, line eleven, "Broadcaster" should read "Broadcasters".

4. On the same page, first column, line seventeen, "Commission" should read "Communication".

5. On page 21295, first column, **Elimination of Ceilings**, paragraph three, first line, "not" should read "no".

6. On page 21296, first column, second complete paragraph, line eighteen,

"four" should read "for".

7. On the same page, third column, first complete paragraph, line three, "effective" should read "effectiveness".

8. On page 21297, first column, first complete paragraph, line thirteen, "335" should read "355".

9. On page 21299, third column, first complete paragraph, insert the sentence "An individual operator cannot be licensed apart from a facility." between lines fourteen and fifteen.

10. On page 21300, third column, eleventh line from the bottom, "that" should read "than".

11. On page 21301, first column, **Regulatory Flexibility Certification**, line fourteen, "consider" should read "considered".

#### § 170.21 [Corrected]

13. On page 21304, first column, footnote one, line five "a" should appear before "specific"; and in line fourteen, "of" should read "or".

14. On the same page, first column, footnote two, line twenty, "ahs" should read "has".

#### § 170.31 [Corrected]

15. On page 21305, column one, § 170.31, entry 3.B, line seven, "licensees" should read "license"; entry 3.E, line one, "uses" should read "use"; and in entry 3.G, line one "uses" should read "use".

16. On the same page, column two, entry 3.K, line eight, "licensees" should read "licenses".

17. On the same page, column three, entry 5.B, line five, "Licenes" should read "License".

18. On page 21306, column three, footnote 1(d), line sixteen, "in" should appear between "10F," and "which".

19. On the same page, column three, footnote 2, first line, "or" should read "for".

#### § 170.32 [Corrected]

20. On page 21307, § 170.32, column one of the table, entry 2.A, line four, "ion-exchanging" should read "ion-exchange"; also in entry 2.B, line one, "possession" should read "processing".

21. On the same page column four of the table, the eleventh and twelfth entries from the bottom, should appear as one entry read "1 per 7 year per inspection"; entries seven and eight from the bottom should appear as one entry reading "1 per year per inspection"; and entries three and four from the bottom should appear as one entry reading "1 per 2 years per inspection".

22. On page 21308, first column in the table, entry K, second line, "times" should read "items"; and in entry P, first line, "materal" should read "material".

23. On the same page, column four in the table, lines three and four should appear as one entry reading "1 per year

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per inspection"; lines seven and eight should appear as one entry reading, "1 per 3 years per inspection"; lines nine and ten should appear as one entry reading, "1 per 3 years per inspection"; lines eleven and twelve, should appear as one entry reading, "1 per 3 years per inspection"; lines thirteen and fourteen should appear as one entry reading, "1 per 3 years per inspection"; and lines fifteen and sixteen should appear as one entry reading, "1 per 3 years per inspection".

### § 170.51 [Corrected]

24. On page 21309, column one,

§ 170.51, line six, "10 CFR 51.31" should read "10 CFR 15.31".

UNITED STATES NUCLEAR REGULATORY COMMISSION

RULES and REGULATIONS

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

**PART  
171**

**ANNUAL FEE FOR NUCLEAR POWER REACTORS  
OPERATING LICENSES OR APPLICATIONS AND MAJOR  
MATERIALS LICENSES AND CONFORMING AMENDMENT**

**STATEMENTS OF CONSIDERATION**

51 FR 33224  
Published 9/18/86  
Effective 10/20/86

**10 CFR Parts 51 and 171**

**Annual Fee for Power Reactor  
Operating Licenses and Conforming  
Amendment**

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission is adding to its regulations a new regulation that will impose an annual fee on power reactors with operating licenses. This annual fee will recover allowable NRC budgeted costs for providing regulatory services to power reactors with operating licenses and will not alter the existing fee schedule under 10 CFR Part 170. The annual fee is necessary to comply with the statutory mandate of the Consolidated Omnibus Budget Reconciliation Act of 1985.

**EFFECTIVE DATE:** October 20, 1986.

**FOR FURTHER INFORMATION CONTACT:**  
Robert L. Fonner, Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: 301-492-8692.

**SUPPLEMENTARY INFORMATION:**

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  - A. Authority for the Rule
  - B. Revisions and Effect on Existing Fee Schedule
- II. Summary of Comments
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**I. Background**

**A. Authority for the Rule**

The Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985 (Pub. L. 99-272, 1986) requires the Nuclear Regulatory Commission to assess and collect annual charges from persons licensed by the Commission pursuant to the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) in an amount to approximate 33 percent of the Commission's estimated budget.

Section 7601 of the Budget Reconciliation Act states that the charges assessed shall be established by rule and, specifically, in paragraph (b)(1) that:

... the Nuclear Regulatory Commission shall assess and collect annual charges from its licensees on a fiscal year basis, except that—

(A) the maximum amount of the aggregate charges assessed pursuant to this paragraph in any fiscal year may not exceed an amount that, when added to other amounts collected by the Commission for such fiscal year under other provisions of law, is estimated to be equal to 33 percent of the costs incurred by the Commission with respect to such fiscal year; and

(B) any such charge assessed pursuant to this paragraph shall be reasonably related to the regulatory service provided by the Commission and shall fairly reflect the cost to the Commission of providing such service.

The legislative history shows that Congress intended the authority of this mandate to go beyond that contained in the Independent Offices Appropriation Act (IOAA) of 1952 (65 Stat. 290; 31 U.S.C. 9701). The Congressional Managers of COBRA, in describing this legislative provision, asserted:

The charges assessed pursuant to this authority shall be reasonably related to the regulatory service provided by the Commission and fairly reflect the cost to the Commission of providing such service. This is intended by the conferees to establish a standard separate and distinct from the Commission's existing authority under the Independent Offices Appropriation Act of 1952 in order to permit the Commission to more fully recover the costs associated with regulating various categories of Commission licensees.

See 132 Cong. Rec. H879 (Daily Ed. March 6, 1986); 132 Cong. Rec. S2725 (Daily Ed. March 14, 1986).

The NRC is construing this legislation to permit it to charge licensees not only for special benefits provided to individual licensees, as that term has been used in construing the IOAA, but also to recover the cost of any Commission activity reasonably related to regulating power reactors licensed to operate.

**B. Revisions and Effect on Existing Fee Schedule**

The proposed rule (July 1, 1986; 51 FR 24078) provided that applicants for power reactor operating licenses or holders of power reactor operating licenses and major material licensees would pay an annual fee in lieu of all other fees.

The final rule will impose an annual fee on power reactors with operating

licenses. The annual fee under 10 CFR Part 171 will be based on NRC budgeted costs for providing the following regulatory services to power reactors with operating licenses: (1) Research activities directly related to the regulation of power reactors on a generic basis, (2) power reactor plant regulation (except licensing and inspection activities, and Part 55 operator licensing and instructor certification), and (3) safeguards activities for power reactors (other than those activities directly associated with plant-specific licensing and amendments). This fee will include cost for many operating reactor-related regulatory costs not recovered under NRC's existing fee schedule, 10 CFR Part 170 (49 FR 21293; May 21, 1984), which established fees for some regulatory services that NRC provides its licensees.

The proposed rule provided that Part 170 would be suspended and, therefore, no fees would be collected under the IOAA. This proposal also relieved small materials licensees of all fees. The final rule provides that Part 171 will not affect the existing 10 CFR Part 170 fee schedule. This means that all fees currently collected under 10 CFR Part 170 will continue to be collected, including those from small materials licensees. Thus, under the final rule, holders of power reactor operating licenses will pay an annual charge (COBRA) under Part 171 and IOAA fees under Part 170. Other applicants and licensees will pay fees only under Part 170.

The Commission has placed in its Public Document Room at 1717 H Street, NW., Washington, D.C., data used in developing the proposed 10 CFR Part 171, copies of the comments received, and a separate document that categorizes and summarizes these comments by facilities, Agreement States, and materials licensees.

**II. Summary of Comments**

Only three commenters supported the proposed rule; the majority of the sixty-one comments discussed eleven common concerns:

1. Constitutionality of the Annual Fee
2. Exclusion of Some Licenses from Fees
3. Collection of One-Third of the NRC Budget



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4. Inclusion of Research Costs in Fee Base
5. Fines, Penalties, Interest, and Reimbursements
6. Basing the Fee on Size of Reactor
7. High-Level Waste Fund
8. Exemption Provision
9. Quarterly Assessments
10. Adjustments
11. Comment Period

Twelve commenters thought the proposed fees to be unconstitutional, and four commenters said no annual fees should be assessed to recover NRC costs for providing regulatory services, but, rather that the public, as the real beneficiary of NRC regulatory services, should support the regulatory costs of the NRC. Thirty-four commenters, in opposition to the proposed rule, requested that small materials licenses be subject to fees charged by the NRC.

Two commenters stated that relief should be given from the proposed fees for uranium mills licenses. One commenter thought that suspended license applications, with minimal activity, should not be subject to the proposed annual fee because the fee would be disproportionately large in relation to the profit realized in that circumstance. One commenter also thought that operating license (OL) applicants would not be receiving a benefit from the activities upon which the proposed fee was based and would, in effect, have a double fee burden because they would pay the annual fee in addition to fees previously paid under Part 170. One commenter asserted that "Architect-Engineers, vendors, test reactors, waste repositories and others . . ." should pay annual fees.

Several commenters expressed the view that the NRC was not required to collect a full 33 percent of its budget. Eleven commenters held the view that agency research costs should not be included in the cost basis for determining the annual fee. Two commenters asserted that fines, interest, and penalties should be included in the cost basis for the proposed fees. Ten commenters thought the annual fee should be assessed on the basis of power rating in thermal megawatts (one commenter opposed this suggestion). One commenter thought that the Department of Energy high-level waste program fund should be subject to fees. One commenter said that an exemption provision was needed for small and expensive-to-operate reactors because of the disproportionate burden that the proposed rule would impose on the resources generated from these reactors. Six commenters thought that fees should be collected on a quarterly or a monthly basis. Commenters urged that, should excess fees be collected, a provision for refunds be included in the rule. Finally,

several commenters thought that the comment period for the proposed rule was too short.

No comments were received regarding the proposed amendment to 10 CFR Part 51, which provides that promulgation of Part 171, and future amendments thereto, does not require preparation of an environmental impact statement or assessment.

### III. Resolution of Comments

#### 1. Constitutionality of the Annual Fee

*Comment:* Many of the commenters argued that the Commission was imposing an unconstitutional tax.

*Response:* The thrust of commenters' arguments was that the Commission's proposal violated constraints on user fees established by the Supreme Court in *National Cable Television v. United States*, 415 U.S. 336 (1974) and *Federal Power Commission v. New England Power*, 415 U.S. 345 (1974) and further developed in subsequent decisions by courts of appeals. In *National Cable and New England Power*, the Supreme Court examined agency authority to assess fees pursuant to a particular statute, the Independent Offices Appropriation Act of 1952. The Court there adopted a limiting construction of the IOAA to avoid a Constitutional question of whether certain language of the IOAA amounted to a delegation to assess "taxes" rather than "fees." The Court indicated that the legislative history of the IOAA did not reveal an intention on the part of Congress to delegate its taxing authority to Federal agencies. In short, the Court's analysis was largely limited to the IOAA itself. The commenters, however, appear to read these cases as establishing general Constitutional limitations on an agency's power to assess fees. Accordingly, many of the commenters argued that because the NRC was not only charging for "special benefits" provided to identifiable recipients of NRC services, but also recovering the costs of its generic rulemaking and research activities, the NRC was imposing an unconstitutional tax.

The Commission finds these legal arguments to be unpersuasive. The commenters' arguments are based on the faulty premise that the only legally acceptable standard for assessing fees is that contained in the IOAA. In Section 7601(b)(B) of COBRA, Congress provided that annual charges assessed by the NRC "... shall be reasonably related to the regulatory service provided by the Commission and shall fairly reflect the cost to the Commission of providing such service." The underlying legislative history makes clear that this provision is intended by the conferees to establish a standard separate and distinct from the Commission's existing authority under IOAA in order to permit the Commission

to more fully recover the costs associated with regulating various categories of Commission licensees. Statement of Managers Re NRC Fees, 132 Cong. Rec. H. 879 (Daily Ed. March 6, 1986); 132 Cong. Rec. S. 2725 (Daily Ed. March 14, 1986). Congress undeniably has the authority to provide a fee standard distinct from the IOAA, provided that the standard satisfies Constitutional requirements.

In numerous cases the Supreme Court has addressed the issue of whether Congress has unconstitutionally delegated legislative power to administrative agencies. A reading of those cases indicates that Congress may delegate its authority to administrative agencies provided that it sets forth intelligible standards for the agency to follow in carrying out the Congressionally prescribed policy. *Hampton, Jr. & Co. v. United States*, 276 U.S. 394 (1928). A delegation is not unconstitutional simply because the determination of facts and the inferences to be drawn from them in light of the statutory standards and declaration of policy call for the exercise of judgment and for the formulation of subsidiary administrative policy within the prescribed statutory framework. *Yakus v. United States*, 321 U.S. 414, 425 (1944).

In COBRA, Congress has laid down an intelligible standard for the Commission to apply and has articulated its policy objectives. Simply put, the NRC is to recover approximately 33 percent of its budget from user fees (see Statement of Managers Re NRC Fees) and is to assess fees based on the standard articulated above. We believe this delegation of authority to the NRC satisfies all Constitutional requirements.

The courts have previously considered the issue of whether a fee can be charged for a service provided by the Government that benefits not only the licensee, but also the general public. The Courts have held that the mutual benefit of a Government service to the recipient and to the public is not a legal bar to the imposition of fees. 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).

Thus the only question that remains is whether the fee schedule promulgated by the NRC falls within the parameters authorized by Congress. We believe that it clearly does. Following the Congressional mandate, we are attempting to collect a third of our budget in fees and, as explained elsewhere in this notice, have carefully developed a schedule which ensures that fees assessed are reasonably related to the NRC costs of providing regulatory services.

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### 2. Exclusion of Some Licenses From Fees

**Comment:** Agreement States and some other commenters asserted that the proposed rule, in eliminating fees for small materials licensees, would have a severe adverse effect on State fee programs and that 10 CFR Part 170 should be retained in order to maintain reasonable fees for materials licensees.

Many commenters asserted that the Commission had misconstrued Congressional intent by proposing the suspension of collections under the IOAA—the authority for the current Part 170. Commenters argued that the Congress contemplated that the NRC would continue to collect fees under the IOAA, as well as COBRA. Specifically, many commenters vigorously argued that Congress contemplated that all licensees should pay fees and that the NRC lacked authority to exempt all small materials licenses from payment of fees.

**Response:** The Commission believes it did not misread the Congressional intent, and that it has the authority under COBRA to suspend collections under Part 170 and not charge fees to small materials licensees. The Commission, nonetheless, has decided to retain Part 170 as a means of more equitably distributing the agency costs among those receiving services.

The final rule will not affect materials licensees; they will continue to pay only fees chargeable under part 170. Major materials licensees will not be subject to an annual fee, as previously proposed. OL applicants similarly will remain subject only to fees under Part 170. With the issuance of an operating license, a former OL applicant will be subject to the annual fee required under this final rule in addition to the other fees collected for services covered by Part 170. If an OL applicant receives its OL license during the year, it will pay only a prorated annual fee for that year, because, under the final rule, Part 170 will remain in effect, and fees will be collected under Part 170 up to the time of issuance of the OL. The applicants for licenses and holders of these licenses for test and research reactors and waste repositories will also continue to pay fees under that part. Vendors will also continue to pay fees under Part 170.

### 3. Collection of One-Third of the NRC Budget

**Comment:** The Commission is not required by Section 7601 of the COBRA to collect the full 33 percent of its budget.

**Response:** The Budget Reconciliation Act provides that the "maximum amount of the aggregate charges assessed may not exceed an amount that . . . is estimated to be equal to 33 percent of the costs incurred by the Commission with respect to such fiscal year. . . ." On

its face, this is a ceiling, i.e., it would permit the Commission to charge user fees of less than 33 percent. However, the legislative history clearly indicates that Congress expected the NRC to charge the full amount authorized by the statute. The Statement of Managers, which was drafted to reflect the views of the Conference Committee that considered the legislation and was inserted into the *Congressional Record* as part of the floor debate on the measure, states:

The conferees agreed to require the NRC to assess and collect annual charges from its licensees in an amount that, when added to other amounts collected by the Commission shall not exceed 33 percent of the Commission's budget for each fiscal year. Assuming the current level of NRC expenditures, this is expected to result in the collection of additional fees in an amount up to approximately \$80 million per year for each fiscal year.

132 Cong. Rec. H. 879 (Daily Ed. March 6, 1986); 132 Cong. Rec. S. 2725 (Daily Ed. March 14, 1986).

We read this limited legislative history as indicating that Congress expected this legislation to result in approximately \$80 million in collections each year above that already collected by the NRC under Part 170. To meet this target, collecting a full third of the NRC budget is required.

Such an interpretation is also consistent with the President's request to Congress that the NRC recover a far greater amount of its budget from user fees. The President in his proposed budget to Congress for fiscal year 1987 had suggested that 50 percent of the NRC budget be recovered through user fees, a figure adopted by the House of Representatives, but reduced in Conference Committee.

### 4. Inclusion of Research Costs in Fee Base

**Comment:** Commenters argued that the NRC research costs should not be recovered through fees.

**Response:** Commenters argued for instance that a boiling water reactor (BWR) licensee under the proposed rule would be paying for research on a pressurized water reactor (PWR) and vice versa. This could result in one group of licensees subsidizing another. It was also argued that other research costs may be relevant only to future generations of reactors, but of no benefit to the current reactors. The Commission has reviewed again the research portion (as well as the Nuclear Materials Safety and Safeguards, Nuclear Reactor Regulation, Inspection and Enforcement, and Analysis and Evaluation of Operational Data portions) of the cost basis for the annual fee. The purpose of this review was to ensure that only generic costs associated with all power reactors, with operating licenses,

regardless of type, were included in the cost basis. Costs for research rulemaking and other activities not relevant to all reactors will not be recovered through fees. A detailed breakdown of costs to be recovered is available in the NRC Public Document Room in Washington, D.C. Based on this review, the cost basis for the annual fee has been revised as follows:

### FISCAL YEAR 1987 PROJECTIONS OF NRC COSTS FOR NUCLEAR POWER REACTOR REGULATORY GENERIC PROGRAMS

(Dollars in thousands)

Programs	Costs for regulatory services
Research.....	\$74,356
Safeguards.....	2,326
Reactor regulation.....	24,346
Inspection and enforcement.....	15,482
Analysis and evaluation of operational data.....	7,720
Total.....	\$124,230

Because the costs listed above apply to all power reactors, the costs have been divided equally for purposes of calculating the annual fee. This approach is consistent with the Congressional directive that all fees be reasonably related to the cost of providing services.

### 5. Fines, Penalties, Interest, and Reimbursements

**Comment:** Commenters said that fines, interest, penalties, and reimbursements should be included in the cost basis as collections under other laws.

**Response:** The commenters argued that COBRA provides that the maximum total of fees to be collected by the NRC may not exceed, when added to other amounts collected by the Commission, 33 percent of the Commission's budget. Accordingly, they believe the 33 percent total is to be derived by adding fees collected to fines, interest, penalties, and reimbursements collected. The Commission rejects this argument. Fines and penalties are charged because of the failure of a licensee to adhere to prescribed standards or requirements. No public policy would be served by reducing a power reactor's annual fee because a utility violated NRC's requirements. We are unwilling to attribute such an intent to Congress. Nor do we believe Congress contemplated reducing fees to account for interest paid to the NRC. Interest is assessed only for late payment of monies due the United States. Accordingly, interest is not included in the cost base.

Finally, the NRC receives reimbursements from other Federal

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agencies of approximately \$50,000 per year. We have not included this sum in the fee base. The purpose of COBRA was to generate additional Federal revenue as compensation for services rendered by the NRC. The transfer of funds from one Federal agency to another does not result in increased Federal revenue. Accordingly, Congress did not contemplate that reimbursements would be in the fee base.

### 6. Basing the Fee on Size of Reactor

*Comment:* The annual fee should be based upon the power rating in thermal megawatts for each reactor.

*Response:* The Commission has considered calculating the annual fee on power reactors with operating licenses on the thermal megawatt ratings of those reactors. An argument can be made that the larger the reactor, the greater the licensee's ability to generate income to pay the annual fee. The COBRA, however, requires that the fees be reasonably related to the agency's costs of providing services to the licensee. As discussed in the proposed rule (51 FR 24078, 24082-3), the Commission has examined the relationship between megawatt rating and the costs of NRC regulation. The NRC finds no necessary relationship or predictive trend between the thermal megawatt rating of a reactor and NRC regulatory costs (see Memorandum to Files,<sup>1</sup> entitled "Reactor Inspection, Licensing and Part 55 Fees Assessed for One-Year Period," dated July 7, 1986, from James Holloway, Acting Director, License Fee Management Staff, Office of Administration). Accordingly, the Commission has determined that fees should not be based on the size of the reactor. Nevertheless, in recognition of the problem that some licensees of smaller reactors may have in paying substantially increased fees, the Commission has provided for fee exemptions. This issue is discussed in item 8, Exemption Provision.

### 7. High-Level Waste Fund

*Comment:* The Department of Energy (DOE) should be assessed fees, payable from the high-level waste fund, for NRC services provided toward high-level waste management.

*Response:* The Commission has no legal authority to charge the DOE fees for NRC staff work associated with high-level waste. The IOAA and the Atomic Energy Act of 1954, as amended, do not authorize the NRC to charge the

DOE fees. The Commission does not construe COBRA as augmenting NRC authority in such a way as to permit the NRC to collect fees from the DOE.

### 8. Exemption Provision

*Comment:* One commenter, a holder of a license for a small reactor, requested that provision for exemptions from the full annual fee be included in the final rule.

*Response:* While the Commission is concerned with recovering its costs, it is not the intent of the Commission to promulgate a fee schedule that would have the effect of imposing fees at such a level that the owners of the handful of small, older reactors would find it in their best economic interest to shut their reactors down. Therefore, the Commission has included an exemption provision that takes reactor size and age and other factors into consideration in determining whether a license should be exempted from the full annual fee.

### 9. Quarterly Assessments

*Comment:* Several commenters were concerned with the size of the annual fee and its effect on their cash flow. The commenters also suggested that the NRC not require payment of fees in a single lump sum.

*Response:* In recognition of these concerns, the Commission will collect the annual fee under Part 171 in equal quarterly installments. Fees collected under Part 170 will continue to be collected under the payment schedule set forth under that part.

### 10. Adjustments

*Comment:* Provision should be made for refunds if the total of fees collected exceeds 33 percent of the NRC budget enacted by Congress.

*Response:* The Commission agrees with commenters that the possibility exists, under both the proposed and final rules, that the aggregate of collections under Parts 170 and 171 could exceed the statutory limit of 33 percent of the NRC budget in a given fiscal year. Therefore, a section has been added to the final rule which requires that any such overpayment be returned on a prorata basis to those who pay fees under Part 171. Provision is also made for adjusting the refund to take into account any power reactors that were given an operating license during the course of the fiscal year and thus did not pay the full fee. If the prorata share of the overpayment is \$10,000 or less, it will be credited against the annual fee for the following fiscal year.

Finally, if a final appropriation for the NRC has not been passed at the time the

annual fee is set and if the final appropriation is greater or less than the projection, the annual fee would be raised or reduced, as appropriate, and an adjustment to the remaining quarterly installments or a refund would be made, as appropriate.

### 11. Comment Period

*Comment:* Some commenters argued that the Commission should have provided for more than a 15-day comment period on the proposed rule.

*Response:* The Commission was under a statutory mandate to promulgate final fee regulations 45 legislative days after submission of its July 7, 1986, report to Congress on user fees. A longer comment period would have prevented the Commission from meeting the Congressionally mandated deadline. Under the circumstances, the comment period was reasonable, particularly because licensees were on notice in April when COBRA was enacted that the NRC would be proposing substantially higher fees. Moreover, based on the thoroughness of the comments received and the numerous issues raised in them, the Commission is convinced that all relevant issues of importance to this rulemaking have been identified and that the commenters have not demonstrated that they have been prejudiced by the 15-day comment period.

## IV. Section-by-Section Revision

### Section 171.1 Purpose.

The purpose section is revised to state that Part 171 sets out the fee to be charged persons licensed to operate a power reactor as defined in the new part.

### Section 171.3 Scope.

The scope is revised to state that Part 171 applies only to persons licensed to operate a power reactor.

### Section 171.5 Definitions.

In the final rule, the definitions for "Materials license," "Source material," and "Special nuclear material" have been deleted because licenses for these materials will remain subject to the appropriate fee schedules under 10 CFR Part 170. The definition for "Nuclear power reactor" has been modified to conform with the definition for "Power reactor" in 10 CFR Part 170.

### Section 171.11 Exemption.

As stated in the proposed rule (51 FR 24078, 24082), the Congress urged the Commission to consider the impact of its fee schedule on certain licensees. Based on comments received, the Commission

<sup>1</sup> A copy of this memorandum is available for review at the NRC Public Document Room, 1717 H Street, NW., Washington, DC.

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has determined that it is appropriate to take a similar approach in setting the fee schedule for power reactors with operating licenses. Accordingly, the added Exemption section provides that the holder of a license to operate a power reactor who believes that the annual fee is unfair or overly burdensome may apply to the Commission for partial relief from the annual fee. The Commission may grant such relief, if it is persuaded by the licensee that factors such as age and size of the plant and size and impact on its customer rate base substantially reduce the NRC's regulatory costs for that plant and the benefits bestowed on that licensee below that of the other power reactors. Nevertheless, the agency's intent is to grant exemptions sparingly.

### *Section 171.13 Notice.*

This section, which was § 171.11 in the proposed rule, is revised to reflect that only power reactors licensed to operate are covered by the final rule.

### *Section 171.15 Annual fee: Power reactor operating licenses.*

The proposed § 171.15, Annual Fee: Materials Licenses, has been deleted. This renumbered section on computing the annual fee is revised to reflect that only power reactors will be subject to the annual fee under Part 171. The formula was also revised to deduct the estimated fees to be collected under Part 170. The fees under Part 170 are estimated for fiscal year 1987 to be \$37 million. It is estimated that approximately \$30 million of this amount will come from power reactors with operating licenses. The annual fee will be charged to every power reactor unit licensed to operate as of October 1, 1986 (assumed to be 101 reactors), and, on a prorata basis, to any power reactor licensed to operate during the fiscal year. 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. Such reactors no longer benefit from the regulatory services that are the basis for the annual fee. Plants within this latter category, such as Dresden 1, Humboldt Bay, Peach Bottom 1, and Indian Point 1 will not be charged fees under this part (though they remain subject to any applicable fees pursuant to Part 170 of this chapter).

The annual fee is calculated as follows:

\$405 million (NRC FY 87 budget)  $\times .33 =$  \$133 million (rounded down to the nearest million)  
\$133 million minus \$37 million (est. fees Part 170, FY 87)  $=$  \$96 million  
\$96 million divided by 101 licensed reactors  $=$  \$950 thousand per license (rounded down to the nearest thousand).

### *Section 171.17 Proration.*

Section 171.17 in the proposed rule addressed the annual fee and its calculation for major materials licenses. As they will not be subject to fees under this part, that section is deleted and a new § 171.17 is added to the final rule for the purpose of addressing the issue of prorating fees for power reactors that are licensed to operate after the beginning of a fiscal year. No such provision was necessary in the proposed rule. As revised, applications for operating licenses under review will still be subject to fees chargeable under Part 170. It would not be fair to holders of new operating licenses to charge them the full annual fee in addition to fees which might have accrued under Part 170 during a fiscal year but prior to issuance of an operating license. The annual fee would be prorated by first dividing the annual fee by 365 and then multiplying the quotient by the number of days remaining in the fiscal year after the operating license issuance date. For example, if an operating license were issued on January 15 of fiscal year 1987, the annual fee for that fiscal year would be \$950,000 divided by 365, which is \$2,603, and then multiplied by 258 (the number of days remaining in FY), which is \$671,574.

### *Section 171.19 Payment.*

This section, which was § 171.17 in the proposed rule, is revised in the final rule to allow the NRC to prescribe only those collection mechanisms that are acceptable to the U.S. Treasury Department. At this time, such mechanisms include checks, drafts, money orders, or the Electronic Funds Transfer System. This section also has been revised in the final rule to provide for payment in quarterly installments of the Part 171 fee rather than payment in a single lump sum as proposed.

### *Section 171.21 Refunds.*

Section 171.21, in the proposed rule was Enforcement and is renumbered § 171.23 in the final rule. This new § 171.21 is added to address the contingency that by the end of a given fiscal year, the aggregate of collections under Parts 170 and 171 might exceed

the statutory limit on collections of 33 percent of the NRC budget. For example, several plants could be licensed to operate during the fiscal year and thereby pay a prorata share of the annual fee, or the number of amendments, inspections, or other activities subject to fees under Part 170 could be greater than estimated at the beginning of the fiscal year.

The purpose of the annual fee pursuant to Part 171 is to collect that portion of costs to the agency of providing regulatory services to power reactors, but with a ceiling on those collections equal to the difference between collections under Part 170 and 33 percent of the NRC budget. Accordingly, any collection of fees exceeding this ceiling will be refunded under this part. Refunds will be adjusted to allow for the fact that some licenses may only have been subject to a portion of the annual fee because the license to operate was issued during the fiscal year. However, it is anticipated that overpayments will arise under this provision rarely, if at all, and will probably not exceed \$10,000 per license. Because of the administrative costs associated with making a refund from the U.S. Treasury, any overpayment of \$10,000 or less will be credited against the annual fee for the following year.

### *Section 171.25 Collection, interest, penalties, and administrative costs.*

This renumbered section, which was § 171.23 in the proposed rule, is modified slightly to reflect the requirement under 4 CFR Part 102 that, in addition to interest and penalties, administrative costs of collection also are recoverable by the NRC. The section is also modified in recognition of the authority given under § 171.19 to pay the annual fee in quarterly installments. If the quarterly installment is not paid on time in accordance with the schedule provided in § 171.19, then the full annual fee becomes immediately due and payable. Interest, penalties (if applicable), and administrative costs of collecting the fee will be calculated from the date that the late quarterly installment was due.

### *Unchanged Sections.*

Sections 171.7, Interpretations, 171.9, Communications, and renumbered 171.23, Enforcement, are in this final rule as they were in the proposed rule.

### *10 CFR 51.22 Categorical exclusion.*

The amendment to 10 CFR Part 51 to include Part 171 as a categorical exclusion is unchanged.

Commissioner Thomas M. Roberts abstained. The separate views of

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Commissioner Frederick M. Bernthal follow:

While this final rule is a distinct improvement over the Commission's earlier proposed rule, it still suffers from several technical deficiencies, and more importantly, from fundamental infirmities which I noted in my previous views on this subject.

Whether or not the user fee idea is conceptually sound, one cannot justify the assessment of one class of licensee to pay for "services" which benefit another. The user fee concept should be permitted to sink or swim in court on its own merits, unburdened by questions of equity in implementation.

The final rule advanced by the Commission is so burdened to the extent that it (1) singles out one class of licensee for payment of the "extra fee" over and above the Part 170 fee schedule, and (2) charges the same "extra" fee to all holders of operating licenses, despite the fact that good performers will be subsidizing poor performers on whose behalf the NRC must frequently put forth extraordinary efforts.

Further, this final rule does not assess the Department of Energy, via the nuclear waste fund or other appropriate mechanism, for NRC services related to the Nuclear Waste Policy Act. Absent extraordinary accounting precaution by Congress in its annual appropriations, the rule would thus indirectly require utilities to subsidize the regulatory costs attendant to the geologic disposal of defense high level waste. If the user fee concept is to be applied at all, it ought to be applied in a manner such that, insofar as possible, all entities which derive a "benefit" from NRC services share equally the costs of providing that benefit.

Technical deficiencies of this rule aside, however, there are elemental reasons for concern with all rules such as this. User fees have an undeniable philosophical and popular appeal—after all, who can be against the benefactors of federal regulatory services paying the cost of such services? But the user fee principle must proceed from a single premise: namely, that such fees be required of *all* entities which are subject to government regulatory activity—in short, that there be a level playing field.

The playing field is not level. Nuclear utilities are now to be singled out for payment of a user fee tax, while Congress has not seen fit to levy corresponding charges on other utilities which are the "beneficiaries" of similar Federal regulatory activity. I make no judgment on the merits of the many and diverse regulatory activities of the Federal Government. But I fail to see how our licensees benefit more from regulatory services than do the coal-burning utilities upon whom the EPA conferred the "benefit" of requirements for scrubber installation to reduce stack emissions, or for that matter, than do the pharmaceutical houses regulated by the FDA, or than do a host of other industries now subject to the regulatory requirements of the government.

Indeed, I question the theory (and the Congress should be concerned, lest the impression be created) that our licensees are the principal beneficiaries of the services provided by this agency; the prime beneficiary is the public at large, whom we

are mandated to protect. But if that is so, should our licensees then be required to pay not only for an NRC-mandated nuclear powerplant backfit, for example, but also for the costs of a belated agency decision to require the backfit (because earlier regulatory standards were found to be inadequate)?

In passing the 1954 Atomic Energy Act, Congress found that:

[R]egulation by the United States of the production and utilization of atomic energy and of the facilities used in connection therewith is *necessary . . . to protect the health and safety of the public.* (emphasis added)

In the Energy Reorganization Act of 1974, Congress declared that the promotional and regulatory functions of the Atomic Energy Commission should be separated, because it was "in the public interest", that the purpose of the Act was, among other things, "to assure public health and safety."

These Congressional findings and statements of purpose strongly suggest that the responsibilities of this agency are to be carried out for the benefit of the general public, and not for the benefit of any single enterprise, public or private. If there *were* any direct benefits to be conferred upon those whom we regulate, it seems clear that those vanished (and appropriately so) when the AEC was split and its promotional responsibilities assigned to agencies other than the NRC.

The American public, through its elected representatives, has thus charged the NRC with regulating the nuclear industry to promote safety and security. Yet the Commission is now required to implement legislation, the premise of which appears to be contrary to the stated purposes of this agency's enabling legislation.

I therefore approve this final rule only to permit the Commission to promulgate implementing regulations in fulfillment of its Congressional mandate.

### Environmental Impact: Categorical Exclusion

The action required under this final rule is administrative and would not impact the environment. The Commission has determined pursuant to 10 CFR 51.22(a) that this final rule would be the type of action that is 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 proposed 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 NRC's predecessor, the Atomic Energy Commission, adopted its first license fee schedule in the fall of 1968, as codified in 10 CFR Part 170. The authority to collect fees was based on

Title V of the Independent Offices Appropriation Act of 1952 (IOAA) (31 U.S.C. 9701). That fee schedule covered power reactors, test and research reactors, fuel reprocessing plants, and materials licenses. It was revised and updated in 1978 and 1984.

The license fees were designed to recover a part of the costs of services attributable to identifiable recipients. Only those costs that were associated with the review of a license application and related to a specific identifiable beneficiary were used in the cost base for the establishment of the fee schedule. Certain costs under the Commission's 1984 revised fee schedule in 10 CFR Part 170 (49 FR 21293) continued to be excluded from fees. Some of the costs that were excluded from the fee base were those associated with: (1) Research, (2) generic licensing activities, (3) standards and code development, (4) contested hearings, (5) the Office of International and State programs, (6) the Office of Inspector and Auditor, (7) the Office of Congressional Affairs, and (8) the Office of Public Affairs.

Section 7601 of the Consolidated Omnibus Budget Reconciliation Act of 1985 requires the NRC to establish by rule an annual charge for its licensees that, when added to other amounts collected, is estimated to be equal to 33 percent of the estimated costs incurred by the Commission. This section authorizes NRC to expand its fee base to recover costs previously excluded, such as research and generic licensing activities. This final rule reflects NRC's interpretation of the intent of Section 7601.

### Regulatory Flexibility Certification

This rule is not a major rule for the purpose of Executive Order 12291 of February 17, 1981. As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), and NRC Size Standards (50 FR 50241, December 20, 1985), the Commission hereby certifies that this final rule does not have a significant impact on small business entities. This rule affects only nuclear power plants licensed to operate. The companies that own these companies do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act.

### List of Subjects

#### 10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear

## **PART 171 • STATEMENTS OF CONSIDERATION**

power plants and reactors, Reporting  
and recordkeeping requirements.

*10 CFR Part 171*

Annual charges, Power plants and  
reactors, Penalty.