

# UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

Title: AFFIRMATION/DISCUSSION AND VOTE

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

- - - -

AFFIRMATION/DISCUSSION AND VOTE

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PUBLIC MEETING

Nuclear Regulatory Commission  
One White Flint North  
Rockville, Maryland

Friday, June 15, 1990

The Commission met in open session,  
pursuant to notice, at 11:32 a.m., Kenneth M. Carr,  
Chairman, presiding.

COMMISSIONERS PRESENT:

KENNETH M. CARR, Chairman of the Commission  
KENNETH C. ROGERS, Commissioner  
JAMES R. CURTISS, Commissioner

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STAFF SEATED AT THE COMMISSION TABLE:

SAMUEL J. CHILK, Secretary

WILLIAM C. PARLER, General Counsel

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P-R-O-C-E-E-D-I-N-G-S

11:32 a.m.

CHAIRMAN CARR: Good morning, ladies and gentlemen.

This is an affirmation session. We have one item to come before us this morning.

Before I ask the Secretary to lead us through the item for affirmation, do any of my fellow Commissioners have any opening comments they would like to make?

Commissioner Remick and Commissioner Roberts are not with us this morning.

Mr. Secretary, you may proceed.

SECRETARY CHILK: The paper before the Commission, Mr. Chairman, is SECY-90-178. It's a final rule entitled, "Storage of Spent Nuclear Fuel in NRC-Approved Storage Casks at Nuclear Power Reactor Sites and Other Conforming Amendments to 10 CFR Parts 50 and 170."

The Commission is being asked to act on a final rule which would allow power reactor licensees to store spent nuclear fuel on their reactor sites under a general license. The rule will require that licensees notify the NRC, the only NRC-certified casks be used for storage, and that the spent fuel be stored

1 under conditions specified in the cask certificate of  
2 compliance.

3 The rule also provides procedures and  
4 criteria for obtaining NRC approval of spent fuel  
5 storage cask designs.

6 Chairman Carr, Commissioners Rogers,  
7 Curtiss and Remick have approved the rule with the  
8 modifications indicated in our attachment of June the  
9 13th.

10 Commissioner Roberts did not participate  
11 in this action.

12 Would you please affirm your votes?

13 CHAIRMAN CARR: Aye.

14 COMMISSIONER ROGERS: Aye.

15 COMMISSIONER CURTISS: Aye.

16 CHAIRMAN CARR: Is there anything else to  
17 come before us today?

18 SECRETARY CHILK: I have nothing further.

19 CHAIRMAN CARR: All right. We stand  
20 adjourned.

21 (Whereupon, at 11:34 a.m., the above-  
22 entitled matter was adjourned.)

23

24

25

CERTIFICATE OF TRANSCRIBER

This is to certify that the attached events of a meeting  
of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: AFFIRMATION/DISCUSSION AND VOTE

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DATE OF MEETING: JUNE 15, 1990

were transcribed by me. I further certify that said transcription  
is accurate and complete, to the best of my ability, and that the  
transcript is a true and accurate record of the foregoing events.

Carol Lynch

Reporter's name: Peter Lynch

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## **RULEMAKING ISSUE**

**(Affirmation)**

May 15, 1990

SECY-90-178

For: The Commissioners

From: James M. Taylor, Executive Director for Operations

Subject: FINAL RULE ENTITLED, "STORAGE OF SPENT NUCLEAR FUEL IN NRC-APPROVED STORAGE CASKS AT NUCLEAR POWER REACTOR SITES" AND CONFORMING AMENDMENTS TO 10 CFR PARTS 50 AND 170

Purpose: To obtain Commission approval of a final rule that would allow power reactor licensees to store spent fuel on their reactor sites under a general license.

Background: SECY-89-084, dated March 3, 1989, discussed the proposed rule on this subject. Following Commission approval, the proposed rule was published in the Federal Register on May 5, 1989 (54 FR 19379). The public comment period expired on June 19, 1989, but all comments were considered, even those that were received late.

Section 133 of the Nuclear Waste Policy Act of 1982 (NWPAA) is the legal basis for issuance of this rule. Section 133 states, "The Commission shall, by rule, establish procedures for the licensing of any technology approved by the Commission under 219(a) [sic., should be section 218(a)] for use at the site of any civilian nuclear power reactor...." Section 218(a) of the NWPAA states, "The Secretary [of DOE] shall establish a demonstration program, in cooperation with the private sector, for dry storage of spent fuel at civilian nuclear power reactor sites, with the objective of establishing one or more technologies that the Commission [NRC] may, by rule, approve for use at sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission...."

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WHEN THE FINAL SRM IS MADE  
AVAILABLE

Contact:  
J. Telford, RES  
X23796



Discussion:

The NRC received 273 comment letters from individuals, environmental groups, utilities, utility representatives, engineering groups, States, and a Federal agency. Among the comment letters were 237 from individuals, including several signed by more than one person. The comments included a "petition" addressed to the Commission, which was signed by 188 people who are opposed to the proposed rule and are specifically opposed to:

- 1) Storage at the Pilgrim nuclear power plant of spent fuel generated at other reactors,
- 2) Storage of spent fuel in casks outside the reactor building,
- 3) Storage of spent fuel without a specific approval of the storage site, and
- 4) Storage of spent fuel without specific safeguards to prevent its theft.

Many comments discussed topics that were not the subject of this rulemaking, e.g., that generation of radioactive wastes should be stopped and that environmentally safe alternative sources of power should be developed. A common comment, which is specifically addressed in the Federal Register notice (Enclosure 1), was that the rule should not permit transfer of spent fuel from one reactor site to another and that it should not permit spent fuel that was transferred from another reactor site to be stored under the general license. In the response to comments in the Federal Register notice, it is pointed out that transfer of spent fuel is not addressed by this rule-making, and receipt of spent fuel from another reactor site requires a Part 50 license amendment. A majority of the comments that discussed the subject of spent fuel storage technology expressed a preference for dry storage in casks over wet storage.

Many of the letters contained comments that were similar in nature, which have been grouped, as appropriate, and addressed as single comments.

The staff identified 50 comments, and the responses are in the Federal Register notice. Specific topics that the staff believes may be of special interest to the Commission are discussed below:

1. The most frequent comment, which was mentioned in 237 of the 273 letters, was that the proposed rule would eliminate public comment from "rulemakings" under the general license. Some comments, in particular one from the Union of Concerned Scientists, indicated that the proposed rule illegally subverts the statutory scheme for licensing nuclear power reactors. In response to these comments, the staff points out that 1) the Atomic Energy Act requires a public hearing only for applications for construction permits and 2) this action

is related to licensing storage of spent fuel and not to licensing the operation of power reactors. Further, the intent of Subtitle B-Interim Storage Program of the NHPA in general, and section 218(a) in particular, appears to be that the Commission should expedite licensing of needed additional spent fuel storage capacity at the sites of civilian nuclear power reactors.

2. Some comments addressed the requirement in § 72.236(m) that casks should be designed to be compatible, to the extent practicable, with transportation and other activities related to the transfer of spent fuel to the Department of Energy (DOE). In response to these comments, the staff points out that specific design criteria for spent fuel disposal will not be available until a repository design is approved. However, cask designers should remain aware that the ultimate disposal of spent fuel will be by DOE and that they should adopt DOE criteria as they become available.

3. Thirty comments were received regarding Commission approval of dry spent fuel storage in casks, twenty-one of which were favorable. Some comments questioned whether other technologies would be approved for use under a general license. Two comments indicated that the limited selection of only one technology provides an unfair competitive advantage to suppliers of that technology. The response points out that all other technologies being considered by the Commission for approval for use under a general license, which include dry storage of spent fuel in concrete modules, require site-specific approvals. Thus these alternative technologies would require site specific approvals or specific Part 72 licenses. One comment points out that modular spent fuel dry storage systems have been approved under topical safety analysis reports. The response to this comment points out that approval of a topical safety analysis report only allows license applicants to reference this report in a proceeding for a specific license.

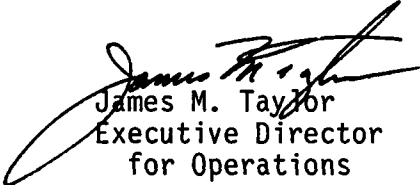
Having considered all of the public comments the staff recommends that a final rule be promulgated which would allow power reactor licensees to store spent fuel on their sites under a general license. Revisions have been made to the proposed rule as a result of public and other comments, but they are mainly editorial and clarifying in nature.

The Offices of Nuclear Material Safety and Safeguards, Nuclear Reactor Regulation, and Administration concur in this final rulemaking. The Office of the General Counsel has reviewed this final rulemaking and has no legal objections. The Committee to Review Generic Requirements and the ACNW recommend publication of this rule.

Recommendations: That the Commission:

1. Approve for publication the amendments to 10 CFR Parts 50, 72 and 170. (Enclosure 1)
2. Note that:
  - (1) This rulemaking contains a Commission finding that dry storage of spent fuel in NRC-approved casks provides adequate protection of public health and safety and the environment.
  - (2) The Commission approves revisions to 10 CFR 170.31 that ensure full cost recovery for reviews, approvals, and amendments related to cask design and for inspections at power reactor sites related to storage of spent fuel under the general license.
  - (3) The Commission finds that no significant environmental impact is expected as a result of this action, thus, no environmental impact statement need be prepared. (Statement contained in Enclosure 1, pg. 37)
  - (4) The Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. (Statement contained in Enclosure 1, pg. 39)
  - (5) Congress will be informed of the Commission's action by letter. (Enclosure 2)
  - (6) The final rule contains information requirements that are subject to review by the Office of Management and Budget (OMB). The information requirements have been approved under OMB clearance numbers 3150-0011 and 3150-0132.
  - (7) The Office of Public Affairs has prepared a public announcement for release when the final rule is published in the Federal Register. (Enclosure 3)
  - (8) Copies of the Federal Register notice will be distributed to affected licensees, commenters, and other interested parties.

(9) The Commission approves the design of four spent fuel storage casks. The Certificates of Compliance for these casks will be made available to the public in a NUREG report.

  
James M. Taylor  
Executive Director  
for Operations

Enclosures:

1. Federal Register Notice
2. Congressional Letter
3. Draft Public Announcement

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Thursday, May 31, 1990.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Thursday, May 24, 1990, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

This paper is tentatively scheduled for affirmation at an Open Meeting during the Week of June 4, 1990. Please refer to the appropriate Weekly Commission Schedule, when published, for a specific date and time.

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Enclosure 1

Federal Register Notice

[7590-01]

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50, 72, and 170

RIN: 3150-AC76

Storage of Spent Fuel in NRC-Approved Storage  
Casks at Power Reactor Sites

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations to provide for the storage of spent nuclear fuel under a general license on the site of any nuclear power reactor provided the reactor licensee notifies the NRC, only NRC-certified casks are used for storage, and the spent fuel is stored under conditions specified in the cask's certificate of compliance. This final rule also provides procedures and criteria for obtaining NRC approval of spent fuel storage cask designs.

EFFECTIVE DATE: [Insert a date 30 days following publication in the Federal Register.]

FOR FURTHER INFORMATION CONTACT: John L. Telford, Office of Nuclear Regulatory Research (Telephone: (301) 492-3796) or John P. Roberts (Telephone: (301) 492-0608), Office of Nuclear Material Safety and Safeguards, Nuclear Regulatory Commission, Washington, DC 20555.

## SUPPLEMENTARY INFORMATION:

### Background

The Commission published the proposed rule on this subject in the Federal Register on May 5, 1989 (54 FR 19379). The rule proposed to amend 10 CFR Part 72 to provide for storage of spent fuel on the sites of nuclear power reactors without the need for additional site-specific Commission approvals, as directed by the Nuclear Waste Policy Act of 1982 (NWPA). Section 218(a) of the NWPA directed the Department of Energy to establish a spent fuel storage development program with the objective of establishing one or more technologies that the NRC might approve for use at civilian nuclear power reactor sites without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission. Section 133 of the NWPA directs the Commission to establish, by rule, procedures for licensing any technology approved under Section 218(a). The approved technology is storage of spent fuel in dry casks. The final rule is not significantly different from the proposed rule. In order to utilize an NRC certified cask under a general license, power reactor licensees must (1) perform written evaluations showing that there is no unreviewed safety question or change in reactor technical specifications related to the spent fuel storage, and that spent fuel will be stored in compliance with the cask's Certificate of Compliance; (2) provide adequate safeguards; (3) notify NRC prior to first storage of spent fuel and whenever a new cask is added to storage; and (4) maintain the records specified in the rule.

## Public Responses

The comment period expired on June 19, 1989, but all of the comments received were considered in this final rulemaking. The NRC received 273 comment letters from individuals, environmental groups, utilities, utility representatives, engineering groups, States, and a Federal agency. Among the comment letters were 237 from individuals, including several signed by more than one person. Many commenters discussed topics that were not the subject of this rulemaking, e.g., that the generation of radioactive wastes should be stopped and that environmentally safe alternative sources of power should be developed.

The Western Governors' Association recently passed a resolution expressing their position on the storage of spent commercial power reactor fuel. In this resolution the governors endorsed at-reactor dry storage of spent fuel as an interim solution until a permanent repository is available. This resolution was forwarded to NRC Chairman Kenneth M. Carr in a memorandum dated December 5, 1989.

Included in the comments received was a "petition" addressed to the Commission, which was signed by 188 people, who are opposed to the proposed rule and who specifically oppose:

1. Storage at the Pilgrim nuclear power plant of spent fuel generated at other reactors,
2. Storage of spent fuel in casks outside the reactor building,
3. Storage of spent fuel without the need for specific approval of the storage site, and
4. Storage of spent fuel without requiring any specific safeguards to prevent its theft.



Many of the letters contained comments that were similar in nature. These comments are grouped, as appropriate, and addressed as single issues. The NRC has identified and responded to 50 separate issues that include the significant points raised. Among the comments that discussed technology, the majority expressed a preference for spent fuel storage in dry casks over wet storage.

On August 19, 1988, the Commission promulgated a final rule revising 10 CFR Part 72 (53 FR 31651), which became effective on September 19, 1988. Among the changes made in that final rule was a renumbering of the sections. These revised section numbers are the ones referenced in this rulemaking. Because many people interested in this rulemaking may not have a copy of the newly revised Part 72, sections referenced in this Supplementary Information section are followed by a bracketed number that refers to the corresponding section number in the old rule (43 FR 74693, made effective on November 12, 1980).

### Analyses of Public Comments

1. Comments. Elimination of public input from licensing of spent fuel storage at reactors under the general license was discussed in 237 letters of comment and 52 of the commenters were opposed to the rule for this reason. Many of these comments were opposed to the NRC allowing dry cask storage without going through the formal procedure currently required for a facility license amendment that requires public notification and opportunity for a hearing. One commenter stated that the proposed rule does not guarantee hearing rights mandated by the Atomic Energy Act, and, therefore, the proposed rule must be amended to provide for site-specific hearing rights before it can be lawfully adopted. Another commenter stated that, by proposing to issue a general license before determining whether license modifications are required

in order to allow the actual storage of spent fuel onsite, the NRC apparently intends to circumvent the requirement for public hearings on individual applications for permission to use dry cask storage. This comment continued that this approach would violate the statutory scheme for licensing nuclear power plants, in which the NRC must approve all proposed license conditions before the license is issued. This comment further stated that the NRC cannot lawfully issue a general license for actual onsite storage of the waste without also obtaining and reviewing the site-specific information that would allow it to find that the proposed modification to each plant's design and operation are in conformance with the Atomic Energy Act (the Act) and the regulations.

Response. This rule does not violate any hearing rights granted by the Act. Under 10 CFR Parts 2, 50, and 72, interested persons have a right to request a formal hearing or proceeding for the granting of a license for a power reactor or the granting of a specific license to possess power reactor spent fuel in an independent spent fuel storage installation (ISFSI) or a monitored retrievable storage installation (MRS). However, hearing processes do not apply when issues are resolved generically by rulemaking. Under this rule, casks will be approved by rulemaking and any safety issues that are connected with the casks are properly addressed in that rulemaking rather than in a hearing procedure.

There is a possibility that the use of a certified cask at a particular site may entail the need for site-specific licensing action. For example, an evaluation under 10 CFR 50.59 for a new cask loading procedure could require a Part 50 license amendment in a particular case. In this event the usual formal hearing requirements would apply. However, generic cask approval (issuance of a certificate of compliance) would, in accordance with Section 133 of the

Nuclear Waste Policy Act of 1982 (NWPA), eliminate the need for site-specific approvals to the maximum extent practicable.

Under the rule, actual use of an NRC certified cask will require reviews by individual facility licensees to show, among other things, that conditions of the certificate of compliance for the cask will be met. These reviews and necessary follow-up actions by the licensee are conditions for use of the cask. For example, licensees must review their reactor security plan to ensure that its effectiveness is not decreased by the use of the casks. But these requirements for license reviews do not constitute requirements for Commission approval prior to cask use; that is no Commission finding with respect to these reviews are needed prior to use of the casks. Therefore, no hearing rights will accrue to these reviews unless, of course, the reviews point to the need for an amendment of the facility license. The Commission is satisfied that public health and safety, the common defense and security, and protection of the environment is reasonably assured without the requirement for Commission approval of these license reviews because conservative requirements apply, such as a safety analysis of cask designs, including design bases, design criteria, and margins of safety; an evaluation of siting factors, including earthquake intensity and tornado missiles; an application of quality assurance, including control of cask design and cask fabrication; and physical protection. These conservative requirements and stringent controls assure safe cask storage for any reactor site.

2. Comments. The NRC apparently intends to exercise no systematic or mandatory review of applications to store spent fuel in dry casks, despite the numerous changes involved in the reactor's design and procedures. This commenter further stated that the rule should provide for mandatory submission

and review by the NRC of technical documents required in § 72.212 and that these documents should be placed in the public document rooms for inspection by the public.

Response. A condition of the general license is that a reactor licensee must determine whether activities related to storage of spent fuel at the reactor site involve any unreviewed safety question or require any change in technical specifications. This written determination becomes part of the reactor licensee's records. Under 10 CFR 50.59, an unreviewed safety question is involved if (1) the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR may be increased; or (2) if a possibility for an accident or malfunction of a different type than any evaluated previously in the SAR may be created; or (3) if the margin of safety as defined in the basis for any technical specification is reduced. If the evaluation made under 10 CFR 50.59 reveals any unreviewed safety question or if use of a cask design requires any change in technical specifications or a facility license amendment is needed for any reason, then casks of that design cannot be used to store spent fuel under the general license. The reactor licensee must make those changes to the facility license necessary to use the desired cask design, use a different cask design, or apply for a specific license under 10 CFR Part 72. If the reactor licensee chooses to make changes to accommodate the desired cask design, e.g., revise technical specifications, an application for a license amendment would have to be submitted under 10 CFR 50.90.

3. Comments. It appears that a hearing would be mandated under the Act, as spent fuel storage under the general license would involve a license amendment. The commenter argued that nuclear power reactor licenses contain a

clause stating that the facility has been constructed and will operate in accordance with the application and that the application includes the FSAR (10 CFR 50.34(b)). If the FSAR does not describe cask storage of spent fuel, then a facility using cask storage would not be operating in accordance with the application and the license, necessitating a license amendment.

Response. According to 10 CFR 50.34(b) each application for a license to operate a power reactor must include an FSAR. The FSAR must include information that describes the facility, presents the design bases and limits on its operation, and presents a safety analysis of the structures, systems, and components of the reactor. A power reactor is licensed to operate under the regulations in 10 CFR Part 50. If spent fuel is stored in an ISFSI on a reactor site, this storage will be licensed under the regulations in 10 CFR Part 72. The ISFSI may share utilities and services with the reactor for activities related to the storage of spent fuel, e.g., facilities for loading spent fuel storage casks. A power reactor FSAR will contain a description of cask loading and unloading, because reactor fuel (both fresh and spent) must be handled for operation of the reactor. If no amendment of the operating license is necessary (e.g., there is no problem in fuel handling concerning heavy loads and there is no unreviewed safety question), then spent fuel may be stored under the general license. The authority for storage of spent fuel in the certified cask would be derived from the general license, not from the Part 50 license.

4. Comments. The NRC should reconsider the indiscriminate storage on a reactor site of spent nuclear fuel that was generated at other reactor sites. One commenter stated that there should be a restriction to permit only transfer of spent fuel from plant to plant within a utility-owned group of plants.

Another commenter stated that storage of spent fuel from two or more reactors inevitably makes the host site a de facto regional repository, without the same benefit of review and discussion given the regional site. Another commenter suggested that the amount of spent fuel stored on a site should be limited to that amount produced by the site's reactor operations. The major concern of these commenters appeared to be that spent fuel from a number of reactors would be deliberately accumulated and stored at one reactor site under this general license.

Response. This rulemaking is not concerned with transfer or shipment of spent fuel from one reactor site to another. As explained in the discussion of the proposed rule (54 FR 19379), transfer of spent fuel from one reactor site to another must be authorized by an amendment to the receiving reactor's operating license, which would be a licensing action conducted under the regulations in 10 CFR Part 50. The transportation of the spent fuel is subject to the regulations in 10 CFR Part 71. This rulemaking is not germane to either spent fuel transfer or transportation procedures. The NRC anticipates that, beginning in the early 1990s, there will be a significant need for additional spent fuel storage capacity at many nuclear power reactors. This was a major reason for initiating this rulemaking at this time. Dry storage of spent fuel in casks under a general license would alleviate the necessity of transferring spent fuel from one reactor site to another.

5. Comment. The Commission should reconsider a petition for rulemaking submitted by the State of Wisconsin. The petition requested that the NRC expand the scope of its regulations pertaining to spent fuel transport "to ensure that both the need for and the safety and environmental consequences of

proposed shipments have been considered in a public forum prior to approval of the shipment and route."

Response. As explained in the response to comment number 4, this rulemaking does not apply to transportation of spent fuel. Transportation of spent fuel is the subject of 10 CFR Part 71, under which the issues raised by this petition were considered. There is no reason to reconsider this petition in terms of the issues under consideration in this rulemaking.

6. Comment. How would the rulemaking process for cask approvals be implemented?

Response. The initial step would be taken by a cask vendor submitting an application for NRC approval of a cask design. The NRC would review the cask safety analysis report (SAR) and other relevant documents. If the cask design is approved, the NRC would initiate a rulemaking to amend 10 CFR 72.214 to add certification of the cask design. The NRC would also revise the NUREG containing the Certificates of Compliance for all approved storage casks to add the new cask's Certificate of Compliance.

7. Comment. The proposed 10 CFR 72.236(c) would establish a criterion that casks must be designed and fabricated so that subcriticality is maintained. This seems to suggest that the actual fabrication takes place before cask approval. Otherwise how could NRC find that the cask has been fabricated to maintain subcriticality?

Response. Findings by the NRC concerning safety of cask design are based on analyses presented in the cask SAR. In the case of criticality analyses, the SAR must include a description of the calculational methods and input values used to determine nuclear criticality, including margins of safety and

benchmarks, justification and validation of calculational methods, fuel loading, enrichment of the unirradiated fuel, burnup, cooling time of the spent fuel prior to cask storage, and neutron cross-sectional values used in the analysis. Further, in order to obtain approval of a cask design, the vendor must demonstrate that casks will be designed and fabricated under a quality assurance program approved by the NRC. As an example, if neutron poison material were part of the cask design to prevent inadvertent criticality, the quality assurance program would have to ensure that the material was actually installed as designed. The NRC will not inspect fabrication of each cask, but will ensure that each cask is fabricated under an NRC-approved quality assurance program. Thus, there is reasonable assurance that the cask will be designed and fabricated to maintain spent fuel in a subcritical configuration in storage.

8. Comment. Each utility should be required to present a plan for inspecting the casks in the storage area.

Response. Surveillance requirements for spent fuel storage casks in the storage area are required and are described in the cask's Certificate of Compliance. Also, periodic inspections for safety status and periodic radiation surveys are required by the certificate. Further, licensees will have to keep records showing the results of these inspections and surveys.

9. Comments. The 20-year limit on approval of cask designs seems unduly restrictive and was not supported by any discussion of safety or environmental issues in the preamble of the proposed rule. One comment stated that unless there are overriding institutional issues or a defect in a cask model, which would preclude providing adequate protection of the environment or public



health and safety, there would be no need to revoke or modify a Certificate of Compliance. Three commenters suggested that the criteria for cask design reapproval should be limited to safety and environmental issues related to the storage period, because there may have been proprietary information involved in the initial approval that might not be available for reapproval. Another commenter stated that the licensing period for spent fuel storage casks should be extended to be at least equal to the operating license of the reactor. Another commenter stated that because a 100-year period is being considered by the Commission in its waste confidence review, an extension should be considered for a cask certification period.

Response. The procedure for reapproval of cask designs was not intended to repeat all of the analyses required for the original approval. However, the Commission believes that the staff should review spent fuel storage cask designs periodically to consider any new information, either generic to spent fuel storage or specific to cask designs, that may have arisen since issuance of the cask's Certificate of Compliance. A 20-year reapproval period for cask designs was chosen because it corresponds to the 20-year license renewal period currently under Part 72.

10. Comment. It is conceivable that, after 20 years of storage, the regulations could force the transfer of spent fuel at the reactor to a new cask or a different cask design only because it better conforms to DOE's preference. If considerations such as safety risks and occupational exposure from spent fuel transfer are not a significant factor, this potential uncertainty should be removed from the rule.

Response. The Department of Energy (DOE) will be the ultimate receiver of spent fuel. If a cask design were not compatible with DOE's criteria for

receipt of spent fuel, then measures would need to be taken so that spent fuel could be transferred offsite. What these measures might be would depend on the cask design and DOE's criteria.

11. Comment. The practice of permitting each vendor to not seek reapproval of the cask design after a 20-year period seems "fragile and irresponsible."

Response. This comment is interpreted to mean that the Commission should require each cask vendor to submit an application for reapproval of their cask design. The Commission's authority over corporate entities is limited to licensing matters and it cannot control the economic status of spent fuel storage cask manufacturers. The NRC can not require that a cask vendor submit an application for renewal of a storage cask design if the vendor is no longer in business. A cask vendor who remains in the business of manufacturing spent fuel storage casks is required to submit an application for renewal of a cask design. Otherwise the cask's Certificate of Compliance would expire and that cask design could not be used to store spent fuel. Licensees cannot use any cask that does not have a valid Certificate of Compliance. If a cask vendor goes out of the business of supplying spent fuel storage casks, it would not invalidate NRC approval of the spent fuel storage casks that were manufactured by this vendor and remain in use. That is the reason the Commission will permit general licensees or their representatives to apply for cask design reapproval. Accordingly, the Commission will keep appropriate historical records and conduct inspections, as required, related to spent fuel storage in casks. Cask vendors are requested to notify the Commission if they do not intend to submit an application for reapproval of a cask design. Also, vendors are required under 10 CFR 72.234 to submit their composite record, to the NRC,

of casks manufactured and sold or leased to reactor licensees if they permanently cease manufacture of casks under a Certificate of Compliance. In any case, the cask design renewal procedure will be coordinated through historical records, inspections, and communications with cask vendors.

12. Comments. The requirement in proposed § 72.234(c) that cask fabrication cannot start prior to receipt of the Certificate of Compliance is unnecessarily restrictive. The commenter indicated that a vendor should have the option of being able to start fabrication (taking the risk of building a cask that may not ever be licensed) prior to NRC issuing the Certificate of Compliance.

Response. Paragraph 72.234(c) is not intended to prevent vendors from taking a risk. The Certificate of Compliance provides the specific criteria for cask design and fabrication. If a vendor has not received the certificate, then the vendor does not have the necessary approved specifications and may design and fabricate casks to meet incorrect criteria.

13. Comments. Requiring a submittal for reapproval of cask design 3 years before the expiration date of a Certificate of Compliance seems excessive. Another commenter suggested that a procedure similar to that used for renewal of materials-type licenses could be used, which is that when a licensee submits an application for license renewal in proper form not less than 30 days prior to the expiration date of the license that the existing license does not expire until the application for renewal has been finally determined by the Commission.

Response. Current regulations in 10 CFR Part 72 require that applications for license renewal be submitted 2 years prior to the expiration date of the

license. This was a major consideration for setting the date for submittal of a cask design reapproval application in the proposed rule. The NRC has reconsidered this requirement and believes that the period required for cask design reapproval can be reduced. The final rule has been revised to incorporate language similar to that for other materials-type license renewals, which would allow a Certificate of Compliance to continue in effect until the application for reapproval has been finally determined by the Commission.

14. Comments. No spent fuel dry storage should be allowed at sites that do not have fully operational State approved emergency preparedness plans. Another commenter stated that, for emergency response purposes and for proper inclusion in emergency planning, the utility must notify State and local governments simultaneously with the NRC when spent fuel storage is begun. Another commenter inquired whether or not States would be notified of spent fuel storage at the reactor site in order to minimize emergency response planning impacts.

Response. The new 10 CFR 72.32(c) [no section in the old rule is applicable] states that "For an ISFSI that is located on the site of a nuclear power reactor licensed for operation by the Commission, the emergency plan required by 10 CFR 50.47 shall be deemed to satisfy the requirements of this section." One condition of the general license is that the reactor licensee must review the reactor emergency plan and modify it as necessary to cover dry cask storage and related activities. If the emergency plan is in compliance with 10 CFR 50.47, then it is in compliance with the Commission's regulations. Thus, the utility does not need to separately notify State and local governments before beginning spent fuel storage.

15. Comment. What extra information, beyond that currently required in safety analysis reports, will be required in topical safety analysis reports for cask certification?

Response. Currently a Topical Safety Analysis Report (TSAR) is submitted to obtain spent fuel storage cask certification. NRC procedures allow applicants and licensees to reference appropriate Sections of a TSAR in licensing proceedings, which reduces investigative and evaluation costs for them. Under this final rule, applications and a Safety Analysis Report (SAR) (equivalent to a TSAR) will have to be submitted for cask design certification. There will not be any "extra" information required in an SAR as a result of this rulemaking. Guidance on the information to be submitted in an SAR for cask design certification is contained in Regulatory Guide 3.61, "Standard Format and Content for a Topical Safety Analysis Report for a Spent Fuel Dry Storage Cask."

16. Comment. One comment stated that it is unclear from the proposed rule as to whether full-scale or scale model testing is required for cask certification.

Response. The safety of cask designs is analyzed in the SAR. The staff reviews cask design bases and criteria. The design and performance of the cask and the means of controlling and limiting occupational radiation exposures are analyzed and evaluated. Appropriate functional and operating limits (technical specifications) are developed. However, in instances where cask design, construction, or operation can not be satisfactorily substantiated, the staff may require that some component or system testing be performed. During the first use of a certified design the licensee, in conjunction with the vendor, may be required to conduct preoperational testing on the first cask and submit a

report to the NRC. This preoperational testing would assess the extent to which data supports the critical aspects of design, for example, the resultant cask temperature, pressure, and external radiation. Full-scale testing is not currently required for spent fuel dry storage cask design certification. However, testing of systems and components important to safety is required, and is specified in the Certificate of Compliance.

17. Comment. Can the NRC provide examples of acceptable means of demonstrating that a cask will reasonably maintain confinement of radioactive material under normal, off-normal, and accident conditions?

Response. Certification of a cask design is based on analyses described in each cask's SAR. These analyses must show how radioactive materials will be confined through evaluations of the cask's systems, structures, and components, and the designed margins of safety. These analyses are performed on an individual case basis considering each cask's design, materials of construction, cask sealing systems, fuel basket criticality considerations, and gamma and neutron shielding mechanisms. Thus, analyses are the acceptable means of demonstration.

18. Comment. The NRC should use this amendment to provide guidance or criteria on use of burnup credit in criticality analyses.

Response. Evaluations of burnup credit are dependent on parameters such as fuel design, exposure, and characteristics. These evaluations are best conducted on an individual case basis, because the variables that must be evaluated are closely related to the individual case history of the spent fuel. Thus, guidance on such evaluations would be more appropriately set forth in regulatory guides, rather than in regulations. To date allowance for burnup

credit has not been accepted in reviews conducted under 10 CFR Part 72, however, regulatory guides may be issued in the future.

19. Comment. What will a current reactor licensee have to do to obtain a general license?

Response. As specified in § 72.212(b), a power reactor licensee must (1) perform written evaluations establishing that spent fuel storage will be in compliance with a cask's Certificate of Compliance and that there is no unreviewed safety question or change in technical specifications involved in activities at the reactor related to the storage of spent fuel in casks, (2) provide adequate safeguards for the spent fuel in storage, (3) notify NRC prior to first storage of spent fuel and whenever a new cask is used, and (4) keep records of spent fuel storage and related activities.

20. Comment. Could the general license be used to store spent fuel beyond the term of the reactor operating license? Several utilities hold operating licenses at more than one site; thus, clarification is needed as to when an operating license is terminated and how licensees may use a general license.

Response. A licensee who holds reactor operating licenses at more than one site must notify NRC for each site involved. A licensee who holds operating licenses for more than one reactor located on a single site need notify NRC only once.

Spent fuel can be stored on a site only as long as there is a power reactor with a valid license or the possession of spent fuel is authorized under some other regulation. This could be an amended license issued under 10 CFR 50.82, under which any reactor licensee may apply for termination of the operating license and to decommission the facility. When the reactor is put into a condition in which it cannot operate, the operating license would be

amended to permit the licensee to possess the by-product, source, and special nuclear material remaining on the site. Storage of spent fuel in dry casks under the general license could continue under the amended license, which is often called a "possession-only" license.

Decommissioning means to remove a facility from service, reduce the residual radioactivity to a level that permits termination of the license, and release of the site for unrestricted use. Spent fuel stored under a general license must be removed before the site can be released for unrestricted use (i.e., decommissioned).

21. Comments. The proposed rule is unclear as to when the general license would terminate if a cask model has been reapproved by NRC following use of the cask for a period of up to 20 years. One commenter also suggested that § 72.212(a)(2) be changed to read: "The general license for the storage of spent fuel in each cask fabricated under a Certificate of Compliance shall terminate either 20 years after the date that the cask is first used by the licensee to store spent fuel, or, if the cask model is reapproved for storage of fuel for more than 20 years, at the conclusion of this newly-approved storage period, beginning on the date that the cask is first used by the licensee to store spent fuel."

Response. The intent of proposed § 72.212(a)(2) is that spent fuel may be stored under a valid Certificate of Compliance for a particular cask for a period of up to 20 years starting on the date the cask is first used for storage of spent fuel by the licensee. If a cask design is reapproved, the 20-year storage period begins anew, including casks of that design that remain in use. The 20-year storage period will also apply to new casks put into use after a Certificate of Compliance is reapproved. If a particular cask's Certificate of



Compliance expires, the spent fuel stored in casks of this design must be removed after a period not exceeding 20 years following first use by the general licensee of a particular cask. Revisions have been made to 10 CFR 72.212(a)(2) to more accurately reflect this intent.

22. Comment. The \$150 application fee shown in § 70.31 should be included in the total fee for the license and not required to be submitted at the time of the application.

Response. The Federal Register notice for the proposed rule was in error in that it indicated a revision to § 70.31; the revision is actually being made to § 170.31. The Commission agrees that the \$150 filing fee is not required to be submitted at the time of the application. The necessary changes to eliminate the filing fee have been made in § 170.31. This is consistent with a similar change made with respect to filing fees in § 170.21 effective January 30, 1989. There is no application fee for the general license. However, the Commission has decided that it will assess fees for those inspections conducted under the general license (§ 72.212(b) (1) (iii)).

23. Comment. Cask vendors, some of which are small businesses, will be affected by the rule and should be considered in the Regulatory Flexibility Act Certification statement.

Response. Under this rulemaking the NRC will recover full costs, which are currently estimated to be between \$250,000 and \$300,000 for cask vendors. No other significant incremental impacts are anticipated, because the criteria for cask design approvals in this final rule are not significantly different from those currently required under Part 72. The Regulatory Flexibility Act Certification Section of the final rule has been revised accordingly.

24. Comment. Some qualification is needed for the requirement in § 72.212(b)(2) that a licensee perform written evaluations showing compliance with the cask's certificate for the anticipated total number of casks to be used for storage. There is no certainty regarding when any spent fuel will be accepted by DOE, and this uncertainty should be clarified in the final rule.

Response. Each cask SAR includes an analysis of cask arrays, and licensees must consider these analyses in their selection of a cask model. Multiple storage arrays may be used if additional spent fuel storage capacity is needed. However, it was not intended that licensees be required to anticipate how much storage capacity would be needed before DOE begins accepting spent fuel for storage or disposal. Thus, revisions to § 72.212(b)(2) have been made to clarify the intent.

25. Comment. Spent fuel should be required to be stored in the reactor fuel storage pool for a minimum of 5 years prior to dry cask storage. Such a provision would place considerably less thermal stress on the storage casks. Other commenters also questioned why this was not made a requirement.

Response. It is likely that the spent fuel will be stored in the reactor fuel pool for at least 5 years before storage in a cask. However, it is not necessary to make this a requirement, because casks can be designed to safely store spent fuel having a wide range of previous pool storage times.

26. Comments. The language in proposed 10 CFR 72.230 should be changed to reflect the condition that an application for certification of a storage cask must be made available to the public.

Response. The language in this section parallels the language in § 72.20 [§ 72.13] on which it is based, i.e., that "Applications and documents

submitted to the Commission in connection with applications may be made available for public inspection in accordance with provisions of the regulations contained in Parts 2 and 9 of this chapter." In general, applications would probably be made available except to the extent that they contain information exempt from disclosure such as proprietary or classified information.

27. Comments. The proposed rule should be modified to include alternative storage technologies. Two commenters indicated that the proposed rule approval of only one storage technology (i.e., spent fuel storage in dry casks) provides an unfair competitive advantage to suppliers of these systems.

Response. The reasons for Commission approval of spent fuel storage in dry casks are discussed in the Federal Register notice for the proposed rule. An important consideration is that free-standing casks, being very strong and massive structures, are independent of the effects of site-specific natural phenomena. For instance, in a worst case scenario considering the effects of earthquakes, a cask could topple. Forces from this fall would be well within a cask's design limits for safe confinement of radioactivity. Importantly, site-specific approvals would not be required by the Commission, provided conditions in Subpart K are met. One system specifically mentioned in the comments is NUHOMS (registered trade mark by NUTECH Inc.), which consists of storing spent fuel in sealed canisters and storing the canisters in concrete modules. Another system mentioned is the Modular Vault Dry Store (FW Energy Applications, Inc.), which consists of storing the spent fuel in sealed containers and storing the containers in racks set in concrete or earth for shielding. A major reason that these spent fuel storage systems, which are being considered by the Commission for use under a general license, are not

being approved at this time is that they have components that are dependent on site-specific parameters and; thus, require site-specific approvals. For instance the concrete storage modules used in the NUHOMS system and the racks and concrete shielding required by the Modular Vault Dry Store system, which are structures and systems important to safety, are usually constructed in-place and require site-specific evaluations of earthquake intensity and soil characteristics.

28. Comment. Paragraphs 5 and 6 of "Discussion" in the proposed rule Federal Register notice did not include NUHOMS topical safety analysis reports (TSAR), although they have been approved by the staff.

Response. Two topical safety analysis reports for NUHOMS systems have been reviewed and approved by the NRC staff. Approval of a TSAR allows an applicant for a specific license under Part 72 to reference the document, instead of having to develop separate safety evaluations.

29. Comments. A licensee should be required to register use of casks prior to actual use of the cask, rather than within 30 days. Another commenter stated that the Commission has not demonstrated that the requirement to report initial storage of spent fuel in a cask within 30 days is the least burdensome necessary to achieve the Commission's objective. This commenter suggested that this information could be reported at the annual inventory.

Response. The purpose of the registration notice in § 72.212(b)(1)(ii) is to enable NRC's Office of Nuclear Material Safety and Safeguards to establish and maintain a record of the use of each cask. If safety issues arise during storage of spent fuel under the general license, they will be reported under § 72.216. The purpose of the records related to spent fuel inventory, required

under § 72.72 [§ 72.51], is to enable NRC's Office of Nuclear Reactor Regulation to inspect for compliance with safeguards regulations. The information submitted under § 72.212(b)(1)(ii) is necessary to enable the NRC to take appropriate action in a timely manner on any issue that may arise.

30. Comments. The proposed rule requires that spent fuel storage cask designers give consideration to compatibility of cask designs with transportation and ultimate disposal by DOE. Some commenters favored this consideration and others questioned its advisability, unless specific criteria could be provided. Some commenters indicated that NRC should also address the lack of consistency between Parts 71 and 72.

Response. Specific design criteria for spent fuel disposal may not be available until a repository design is approved. However, cask designers should remain aware that spent fuel ultimately will be received by DOE and that cask designs should adopt DOE criteria as it becomes available. This does not mean that cask designs previously certified by NRC will have to be recertified for this reason in order to continue to store spent fuel.

It is not necessary that storage casks be designed for transport of spent fuel (i.e., to meet requirements in Part 71), because the spent fuel could be unloaded and transferred into transport casks approved under Part 71, if necessary. However, in the interest of reducing radiation exposure, storage casks should be designed to be compatible with transportation and DOE design criteria to the extent practicable. Transportation compatibility will be attainable to the extent that cask designers can avoid return of spent fuel from dry storage to reactor basins for transfer to a transport cask before moving it off-site for disposal.

31. Comment. Paragraph 72.238 should be revised to read "The criteria in § 72.236(a) through (i) and (m)."

Response. Paragraph 72.236(m) states that, to the extent practicable in the design of casks, consideration should be given to the compatibility of the dry storage cask system and components with transportation and other activities related to the removal of the stored spent fuel from the reactor site for ultimate disposition by DOE. DOE is developing repository storage designs that will be acceptable for use at their permanent spent fuel storage facility. However, specific criteria for designing spent fuel storage casks for compatibility may not be available until the design for a high-level waste repository is complete. Revision of § 72.238 is not considered to be appropriate at this time, although requirements in proposed § 72.236(m) have been retained separately.

32. Comment. The environmental assessment fails to conform to the requirements of the National Environmental Protection Act of 1969 (NEPA) and the guidelines of the Council on Environmental Quality (CEQ).

Response. The Commission's regulations for implementing Section 102(2) of NEPA in a manner consistent with NRC's domestic licensing and related regulatory authority under the Atomic Energy Act are set forth in 10 CFR Part 51. These regulations were revised in March of 1984 (49 FR 9352) taking into account the guidelines of CEQ. The environmental assessment for this rule was performed in scrupulous conformity with the agency's environmental review procedures in 10 CFR Part 51 and thereby conforms to NEPA requirements.

33. Comment. While the public notice provides a list of documents which contain current information, a supplemental environmental impact statement is

required in order to inform the public as to the nature of the information and to allow an opportunity for public comment.

Response. Potential environmental impacts related to this rulemaking were analyzed in its environmental assessment, in previous rulemakings related to revision of Part 72, and in the Commission's waste confidence proceedings that resulted in publication of the Waste Confidence Decision in the Federal Register on August 31, 1984 (49 FR 34658). In its waste confidence proceedings the Commission found that it has reasonable assurance that no significant environmental impacts will result from the storage of spent fuel for at least 30 years beyond the expiration of nuclear power reactor licenses. As a result of its Waste Confidence Decision, the Commission revised its regulations in 10 CFR 51.23 to eliminate discussion of the environmental impact of spent fuel storage in reactor storage pools or independent spent fuel storage installations for the period following the term of the license. In addition, the Commission recently published a review of its waste confidence decision (54 FR 39765; September 27, 1989). Accordingly, an environmental assessment, rather than an environmental impact statement, is considered suitable for this rulemaking. Also all of these documents were published in the Federal Register to allow an opportunity for public comment.

34. Comment. The NRC has misrepresented the requirements of the NWPA. The environmental assessment and finding of no significant environmental impact states that the NWPA directs the Commission to approve one or more technologies for use of spent fuel storage. While the demonstration program is mandated, the adoption of one or more technologies is not.

Response. Section 218(a) of the NWPA does not direct the Commission to approve any spent fuel storage technology. However, the objective of the

demonstration program is clearly meant to provide the basis for Commission approval of one or more technologies for use at civilian nuclear power reactor sites. Section 133 of the NWPA directs that the Commission shall, by rule, establish procedures for the licensing of any technology approved by the Commission under Section 218(a). Thus, the NRC has properly represented the directives of the NWPA. The environmental assessment explains this relationship in the section entitled "The Need for the Proposed Action."

35. Comments. The NRC failed to discuss the consequences of a failure of its assumptions. The NRC states that the potential for corrosion of fuel cladding and reaction with the fuel is reduced "because an inert atmosphere is expected to be maintained" inside the casks. Further, the NRC "anticipates that most spent fuel stored in the casks will be 5 years old or more." What are the consequences if the scenarios the NRC "anticipates" does not happen?

Response. The potential consequences from off-normal and accident conditions involving spent fuel storage were discussed in the proposed rule. Licensees are required to store spent fuel, under the general license, in accordance with the regulations in 10 CFR Part 72 and the cask's Certificate of Compliance. Part 72 prohibits the storage of spent fuel that is less than 1 year old. The Certificate of Compliance requires that the spent fuel be stored in accordance with the technical specifications developed in the safety analysis report. These specifications set forth the age, number of fuel assemblies, maximum initial enrichment, maximum burnup, and maximum heat generation rate of the spent fuel. In general terms, the longer the spent fuel is aged, the greater the capacity of the cask. Cask atmospheres will be required to be filled with an inert gas and provided with monitoring systems to detect leaks in the cask sealing system. If the redundant seals and the



monitoring system fail, oxidation of the fuel cladding could occur if the inert gas leaked out, atmospheric air leaked in, and the internal cask temperature increased markedly. But, there would not be any significant increase in radioactivity, because any release of radioactive particles from the fuel rods would remain confined within the cask. If the redundant seals fail and the monitoring system does not fail, the monitoring system would detect the failure and the seals would be promptly repaired. If removal of the spent fuel were required, unloading procedures call for checking the cask's atmosphere before removing the lid and the radioactive material within the cask would be retained by the reactor fuel handling facility containment systems with no significant release to the environment.

Improper loading of spent fuel aged for less than 5 years is readily detectable by spent fuel assembly identification, independent verification, and monitoring procedures. If an improper fuel loading should occur, the results would be limited to a marginally higher storage temperature and possibly a slight increase in radiation from the cask. Any significant increase in temperature or radiation would be detected through procedures for cask monitoring, which have been added to the requirements in the Certificate of Compliance.

36. Comments. The criteria for locating storage cask sites, for ensuring adequate cooling for casks, for evaluating the adequacy of radiation shielding, or for other aspects of cask designs in the proposed rule have not been assessed for environmental impact.

Response. These technical criteria have been assessed and are currently used by the NRC staff for approval of cask designs under Part 72. As previously mentioned, the environmental impacts related to storage of spent

fuel under Part 72 have been generically evaluated under two previous rulemakings and the Commission's waste confidence proceedings. Thus, these potential environmental impacts need not be reassessed.

37. Comment. The environmental impact of decommissioning contaminated casks after the 20-year storage period has not been assessed.

Response. The decommissioning of contaminated casks was discussed in the environmental assessment for this rule, which points out that decommissioning of dry cask spent fuel storage under a general license may be carried out as part of the power reactor site decommissioning plan. Decommissioning would consist of removing the spent fuel from the site and decontaminating cask surfaces. Alternately, this decontamination could take place at a DOE operated facility. In either case, the decontamination solutions would be combined with larger volumes of contaminated solutions resulting from decontamination of the reactor or DOE facility; thus, environmental impacts from decommissioning casks are expected to be a small fraction of the overall decommissioning impacts. Also the incremental costs associated with decommissioning casks are expected to represent a small fraction of the cost of decommissioning a nuclear power reactor. It is noted that, if the decommissioning of a reactor presents no significant safety hazard and if there is no significant change in types or amounts of effluents or increase in radiation exposure, then this decommissioning is covered by a categorical exclusion under 10 CFR 51.22.

38. Comment. The fire in the spent fuel storage pool subsequent to the major accident at Chernobyl has not been considered in the proposed rulemaking.

Response. In the early stages of the Chernobyl accident a hypothesis was developed that a fire occurred in the spent fuel pool. This hypothesis was not

based on observation of any real fire at the Chernobyl installation, but rather inferred from fallout spectra observed in eastern Europe. Officials of the USSR have confirmed that indeed a fire did not occur in the spent fuel pool at Chernobyl. In fact, a fire in a spent fuel storage pool is not credible and, therefore, was not considered in the proposed rulemaking.

39. Comment. The NRC has studied responses of loaded casks to a range of sabotage scenarios. The four casks that are referenced in the background information are all metal casks, and there is limited reference to concrete systems. Because the referenced study is classified, we do not have any indication that this study specifically addressed concrete dry storage systems with respect to small arms, fire, and explosives.

Response. The referenced study did not specifically consider concrete storage systems. However, the general conclusions of the study could be extended to concrete storage systems because of the difficulty of 1) using small arms, fire, or explosives to create respirable particles and 2) cause those particles to be spread off site. These difficulties derive from both the inherent resistance to dispersal of the spent fuel and the massiveness of the storage casks required to provide both shielding from radiation and protection of the spent fuel from earthquakes and tornado missiles, which are requirements that all designs must meet.

40. Comments. Safeguards requirements were either inadequate or too stringent. One commenter stated that the safeguards system for the existing site cannot be considered adequate for the additional burden of spent fuel cask storage. Unless a utility commits to a location for cask storage adjacent to the reactor building, the existing safeguards can be compromised and any cask

storage area should be located greater than 100 meters from the nearest public access (roadway, park, beach, etc.). Another commenter suggested that terrorists need targets and that above-ground storage of spent fuel provides terrorists with a target. It further stated that a small bomb dropped from a light plane or helicopter could spread the contents of an above-ground cask over many states. Another commenter stated that there is no reason why the licensee should be exempt from §§ 73.55(h)(4)(iii)(A) and 73.55(h)(5), which require that guards interpose themselves between vital areas and any adversary, and respond using deadly force if necessary. Another commenter stated that § 73.55 requirements are not needed for a spent fuel storage area that is a new protected area separate from the existing reactor protected area. This commenter further stated that the background material for this proposed rule indicates that requirements should be significantly reduced from § 73.55 requirements for storage areas within a new separate protected area and, specifically, that § 72.212 should specify the requirements instead of referencing exemptions from § 73.55.

Response. As described in the proposed rule (54 FR 19379), none of the information the staff has collected confirms the presence of an identifiable domestic threat to cask storage facilities. Despite the absence of an identifiable domestic threat, the NRC considered it prudent to study the response of loaded casks to a range of sabotage scenarios. After considering various technical approaches to radiological sabotage, and experiments and calculations, the NRC concluded that radiological sabotage, to be successful, would have to be carried out using large quantities of explosives, not a small bomb dropped from an airplane, and that the consequences to public health and safety would be low because most of the resultant contamination would be localized to the storage site. (See response to comment 39 above.) Thus, the condition to be

protected against is protracted loss of control of the storage area. For that reason, protection requirements were proposed to provide for (1) early detection of malevolent moves against the storage site and (2) a means to quickly summon response forces to ensure protection against protracted loss of control of the storage area. Given these conditions, exemptions were provided for those § 73.55 provisions not essential to early detection of malevolent acts and for summoning local law enforcement agencies or other response forces. With the exception of one change in the rule that is being adopted (which is consistent with the intent of the proposed rule and is discussed in Comment 46), the NRC does not believe that these comments provide any new information or sufficient rationale for changing the proposed rule. Further, 10 CFR 72.106(b) requires that the minimum distance from the storage facility to the nearest boundary of the controlled area shall be at least 100 meters.

41. Comment. Could the cask body be the protected area boundary?

Response. No, because that would not meet the requirements in § 73.55(c) for an isolation zone. An isolation zone must be maintained adjacent to the physical barrier and must be of sufficient size to permit observation of the activities of people on either side of the barrier in the event of its penetration. Thus, the cask body cannot be the physical barrier.

42. Comment. Please clarify the requirement for a periodic inventory of the special nuclear material contained in the spent fuel.

Response. It is the same as the current requirement for periodic inventory of special nuclear material that is required by § 72.72 [§ 72.51]. Cask records must show the contents of the cask, including the special nuclear material. In lieu of periodically opening a cask, a licensee may use tamper

indicating seals to show that the cask has not been opened. If any tamper indicating seals are broken, then the contents of the cask may have to be verified.

43. Comment. The requirements for vital areas are delineated in other paragraphs of § 73.55, and all vital area requirements throughout § 73.55 should be exempted in 10 CFR 72.212(b)(5)(ii), not just § 73.55(c).

Response. The NRC agrees with this comment. Proposed § 72.212(b)(5)(ii) states that storage of spent fuel under this general license need not be within a separate vital area. If spent fuel is not stored within a vital area (i.e., rather in a separate protected area), then regulations that pertain only to vital areas would not apply to a spent fuel storage area.

44. Comment. Paragraph (b)(5)(iii) of § 72.212 should distinguish between the security requirements for an existing protected area that is expanded and a new protected area. In the case of a new protected area, § 73.55(h)(6) should not be required. Instead, the requirement should be only an alarm assessment via CCTV, guard, or watchman.

Response. The NRC agrees with this comment. For an existing protected area, the current requirements will continue. Proposed § 72.212(b)(5)(iii) and (iv) have been revised to apply only to new protected areas. Proposed § 72.212(b)(5)(iv) has been revised to allow a guard or watchman on patrol in lieu of closed circuit television to provide the necessary observational capability.

45. Comment. For purposes of this rule, if the licensee is exempt from § 73.55(h)(4)(iii)(A) and (5) (i.e., neutralize threat), then § 73.55(h)(3) requirements (i.e., number of armed responders) should also be exempted.

Response. The general license presumes that the same essential physical security organization and program will be applied to spent fuel storage as are currently applied to protection of the reactor. Paragraph (b)(5)(i) of § 72.212 requires that the organization and program be modified as necessary to ensure that there is no decrease in effectiveness. Accordingly, additional personnel need be added only if it is necessary to ensure that there is no decrease in effectiveness. The rule does not require an independent application of § 73.55(h)(3), which specifies the minimum number of armed responders for a spent fuel storage area.

46. Comment. The requirement in § 73.55(d)(1) that searches for firearms and explosives be accomplished by equipment designed for such detection should be deleted when a new protection area is added that is not contiguous with the existing protection area. The only requirement in this case should be to perform a visual search for bulk explosives. This is supported by the discussion in the Federal Register notice.

Response. The NRC agrees that searches for firearms and explosives for the purposes of a general license under this rulemaking need not be conducted using equipment capable of detecting these devices. Accordingly, the final rule has been revised to allow the use of physical pat-down searches, in lieu of detection equipment, for firearms and explosives searches.

47. Comments. Is the use of the word "defect" in § 72.216(b) consistent with the definition of "defect" in 10 CFR Part 21? What is the purpose of the reporting requirements in proposed § 50.72(b)(2)?

Response. Section 72.216(a) states that cask users must report defects discovered in storage cask systems, structures, and components important to

safety and any instance in which there is a significant reduction in the effectiveness of a cask's confinement system. This information is necessary to inform the NRC of potential hazards to the public health and safety. Proposed § 72.216(a) is not being revised to replace the word defect, because the definition of "defect" in 10 CFR Part 21 is compatible with the intent of this reporting requirement. However, proposed § 50.72(b)(2) is being revised to clarify such reporting, in order to avoid an apparent duplication of reporting requirements.

48. Comment. Proposed § 72.234(d)(3) requires a composite record for all casks to be maintained by the cask vendor "for the life of the cask." It further states that the vendor would not necessarily be in a position to know how long the general license will be extended; thus, this provision should be clarified.

Response. The intent of this section is that cask vendors should maintain a record of all casks that are fabricated and sold or leased to power reactor licensees. This record would be used by the NRC to confirm information supplied by cask users and to determine whether or not a cask vendor will submit an application for cask design reapproval. The commenter raised a valid point, thus, § 72.234(d)(3) has been revised to require only a composite record of casks fabricated.

49. Comment. The Commission has not demonstrated the practical utility of requiring cask fabrication initiation and completion dates to be included as part of the cask record in § 72.234(d)(2)(iv) and (v).

Response. The purpose for including the cask fabrication initiation and completion dates in a cask record is to ensure that any safety problem that



might arise related to fabrication procedures of a particular cask model can be traced and corrected in all casks of that model. For instance, if a faulty batch of steel is fabricated into closure bolts, which could be discovered through quality assurance procedures, these fabrication dates would enable the staff to determine which specific casks were involved. Thus, corrective actions could be taken, if necessary, based on this information.

50. Comments. Although § 72.6(b) [§72.6] provides for issuance of a general license, § 72.6(c) might be interpreted to disallow storage of spent fuel in an ISFSI by a licensee under the general license, unless the holder of such a license also had a specific license for that purpose. One commenter suggested that existing § 72.6(c) be revised or clarified to specifically provide for storage of spent fuel under a general license without the requirement for a specific license, as long as the provisions of Subpart K are met.

Response. Paragraph 72.6(c) has been revised to make an exception of spent fuel storage under a general license according to the provisions of Subpart K. Subpart K sets forth conditions under which the holder of a power reactor operating license may store spent fuel under the general license being promulgated by this rulemaking. Conditions set forth in § 72.6 are now considered sufficient to allow storage of spent fuel under the general license. However, it is not intended that this rule serve as authorization for storage of spent fuel in amounts or for durations beyond those provided for in a power reactor license.

Having considered all comments received and other input, the Commission has determined that the following final rule should be promulgated.

## Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment, and therefore an Environmental Impact Statement (EIS) is not required. The finding is premised on two actions, which are (i) the licensing of an operating reactor for a particular site for which an EIS has been previously prepared and (ii) the independent certification of spent fuel storage casks for use at any reactor site. Thus, the rule does not add any significant environmental impacts and does not change any safety requirements. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW, Washington, DC.

## Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget with approval numbers 3150-0011 and 3150-0132.

Public reporting burden for this collection of information is estimated to average 134 hours per response for a power reactor licensee and 2,448 hours per response for a cask vendor including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments

regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Paperwork Reduction Project (3150-0011 and 3150-0132), Office of Management and Budget, Washington, DC 20503.

### Regulatory Analysis

The Commission prepared a preliminary regulatory analysis for the proposed rulemaking on this subject. The analysis examined the benefits and impacts considered by the Commission. The Commission requested public comments on the preliminary regulatory analysis, but no comments were received. No changes to the regulatory analysis are considered necessary, so a separate regulatory analysis has not been prepared for the final rule.

### Regulatory Flexibility Act Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule, if adopted, will not have a significant economic impact on a substantial number of small entities. This final rule affects licensees owning nuclear power reactors. Owners of nuclear power reactors do not fall within the scope of the definition of "small entities" set forth in Section 601(3) of the Regulatory Flexibility Act, 15 U.S.C. 632, or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

Only one cask model is currently being used to store spent fuel under 10 CFR Part 72, but an additional three cask models are being certified under §

72.214 of this final rule. Companies involved in the design, manufacture, and sale of casks are large private entities employing more than 500 persons and having sales in excess of \$1 million. Some companies involved in the actual sale of these casks may or may not employ over 500 persons, but have sales in excess of \$1 million. These companies may or may not fall within the scope of "small entities" as defined above. The Preliminary Regulatory Analysis, which was made available for public comment when the proposed rule was published, analyzed potential impacts on cask vendors. No comments were received on the analysis. In any case, cask vendors will decide whether or not to submit applications for cask design approval based on their analysis of the potential market.

### Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule, and, thus, a backfit analysis is not required, because these amendments do not contain any provisions which would impose backfits as defined in § 50.109(a)(1).

### List of Subjects

Part 50: Antitrust, Classified information, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, and Reporting and recordkeeping requirements.

Part 72: Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

Part 170: Byproduct material, Non-payment penalties, Nuclear materials, Nuclear power plants and reactors; Source material, Special nuclear material.

For reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Nuclear Waste Policy Act of 1982, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following revisions to 10 CFR Part 72 and conforming amendments to 10 CFR Parts 50 and 170.

#### PART 72 - LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

1. The authority citation for Part 72 is revised to read as follows:

AUTHORITY: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236, 2237, 2238, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688, as amended (42 U.S.C. 2021); sec. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 131, 132, 133, 135, 137, 141, Pub. L. 97-425, 96 Stat. 2229, 2230, 2232, 2241, sec. 148, Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10151, 10152, 10153, 10155, 10157, 10161, 10168).

Section 72.44(g) also issued under secs. 142(b) and 148(c), (d), Pub. L. 100-203, 101 Stat. 1330-232, 1330-236 (42 U.S.C. 10162(b), 10168(c)(d)).

Section 72.46 also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97-425, 96 Stat. 2230 (42 U.S.C. 10154). Section 72.96(d) also issued under sec. 145(g), Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10165(g)). Subpart J also issued under secs. 2(2), 2(15), 2(19), 117(a), 141(h), Pub. L. 97-425, 96 Stat. 2202, 2203, 2204, 2222, 2244 (42 U.S.C. 10101, 10137(a), 10161(h)). Subparts K and L are also issued under sec. 133, 96 Stat. 2230 (42 U.S.C. 10153) and 218(a), 96 Stat. 2252 (42 U.S.C. 10198).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§72.6, 72.22, 72.24, 72.26, 72.28(d), 72.30, 72.32, 72.44(a), (b)(1), (4), (5), (c), (d)(1), (2), (e), (f), 72.48(a), 72.50(a), 72.52(b), 72.72(b), (c), 72.74(a), (b) 72.76, 72.78, 72.104, 72.106, 72.120, 72.122, 72.124, 72.126, 72.128, 72.130, 72.140(b), (c), 72.148, 72.154, 72.156, 72.160, 72.166, 72.168, 72.170, 72.172, 72.176, 72.180, 72.184, 72.186 are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); §§ 72.10(a), (e), 72.22, 72.24, 72.26, 72.28, 72.30, 72.32, 72.44(a), (b)(1), (4), (5), (c), (d)(1), (2), (e), (f), 72.48(a), 72.50(a), 72.52(b), 72.90(a)-(d), (f), 72.92, 72.94, 72.98, 72.100, 72.102(c), (d), (f), 72.104, 72.106, 72.120, 72.122, 72.124, 72.126, 72.128, 72.130, 72.140(b), (c), 72.142, 72.144, 72.146, 72.148, 72.150, 72.152, 72.154, 72.156, 72.158, 72.160, 72.162, 72.164, 72.166, 72.168, 72.170, 72.172, 72.176, 72.180, 72.182, 72.184, 72.186, 72.190, 72.192, 72.194 are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§ 72.10(e), 72.11, 72.16, 72.22, 72.24, 72.26, 72.28, 72.30, 72.32, 72.44(b)(3), (c)(5), (d)(3), (e), (f), 72.48(b) (c), 72.50(b), 72.54(a), (b), (c), 72.56, 72.70, 72.72, 72.74(a), (b), 72.76(a), 72.78(a), 72.80, 72.82, 72.92(b), 72.94(b), 72.140(b), (c), (d), 72.144(a), 72.146, 72.148, 72.150, 72.152, 72.154(a), (b), 72.156, 72.160, 72.162, 72.168, 72.170, 72.172, 72.174, 72.176, 72.180, 72.184,

72.186, 72.192, 72.212(b), 72.216, 72.218, 72.230, 72.234(e), and (g) are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

2. In § 72.6, the introductory text of paragraph (c) is revised to read as follows:

§ 72.6 License required; types of licenses.

\* \* \* \* \*

(c) Except as authorized in a specific license and in a general license under Subpart K issued by the Commission in accordance with the regulations in this part, no person may acquire, receive, or possess --

\* \* \* \* \*

3. In § 72.30, paragraph (b) is revised to read as follows:

§ 72.30 Decommissioning planning, including financing and recordkeeping.

\* \* \* \* \*

(b) The proposed decommissioning plan must also include a decommissioning funding plan containing information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI or MRS. This information must include a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning from paragraph (c) of this section, including means of adjusting cost estimates and associated funding levels periodically over the life of the ISFSI or MRS.

\* \* \* \* \*

4. New Subparts K and L are added to read as follows:

Subpart K - General License for Storage of Spent  
Fuel at Power Reactor Sites

Sec.

- 72.210 General license issued.
- 72.212 Conditions of general license issued under § 72.210.
- 72.214 List of approved spent fuel storage casks.
- 72.216 Reports.
- 72.218 Termination of licenses.
- 72.220 Violations.

Subpart L - Approval of Spent Fuel Storage Casks

- 72.230 Procedures for spent fuel storage cask submittals.
- 72.232 Inspection and tests.
- 72.234 Conditions of approval.
- 72.236 Specific requirements for spent fuel storage cask approval.
- 72.238 Issuance of an NRC Certificate of Compliance.
- 72.240 Conditions for spent fuel storage cask reapproval.

Subpart K - General License for Storage of Spent Fuel  
at Power Reactor Sites

§ 72.210 General license issued.

A general license is hereby issued for the storage of spent fuel in an independent spent fuel storage installation at power reactor sites to persons



authorized to possess or operate nuclear power reactors under Part 50 of this chapter.

§ 72.212 Conditions of general license issued under § 72.210.

(a)(1) The general license is limited to that spent fuel which the general licensee is authorized to possess at the site under the specific license for the site.

(2) This general license is limited to storage of spent fuel in casks approved under the provisions of this part.

(3) The general license for the storage of spent fuel in each cask fabricated under a Certificate of Compliance terminates 20 years after the date that the particular cask is first used by the general licensee to store spent fuel, unless the cask's Certificate of Compliance is renewed, in which case the general license terminates 20 years after the cask's Certificate of Compliance renewal date. In the event that a cask vendor does not apply for a cask model reapproval under § 72.240, any cask user or user's representative may apply for a cask design reapproval. If a Certificate of Compliance expires, casks of that design must be removed from service after a storage period not to exceed 20 years.

(b) The general licensee shall:

(1)(i) Notify the Nuclear Regulatory Commission using instructions in § 72.4 at least 90 days prior to first storage of spent fuel under this general license. The notice may be in the form of a letter, but must contain the licensee's name, address, reactor license and docket numbers, and the name and means of contacting a person responsible for providing additional information concerning spent fuel storage under this general license. A copy of the submittal must be sent to the administrator of the appropriate Nuclear

Regulatory Commission regional office listed in Appendix D to Part 20 of this chapter.

(ii) Register use of each cask with the Nuclear Regulatory Commission no later than 30 days after using that cask to store spent fuel. This registration may be accomplished by submitting a letter using instructions in § 72.4 containing the following information: the licensee's name and address, the licensee's reactor license and docket numbers, the name and title of a person responsible for providing additional information concerning spent fuel storage under this general license, the cask certificate and model numbers, and the cask identification number. A copy of each submittal must be sent to the administrator of the appropriate Nuclear Regulatory Commission regional office listed in Appendix D to Part 20 of this chapter.

(iii) Fee. Fees for inspections related to spent fuel storage under this general license are those shown in § 170.31 of this chapter.

(2) Perform written evaluations, prior to use, that establish that (i) conditions set forth in the Certificate of Compliance have been met; (ii) cask storage pads and areas have been designed to adequately support the static load of the stored casks; and (iii) the requirements of § 72.104 have been met. A copy of this record must be retained until spent fuel is no longer stored under the general license issued under § 72.210.

(3) Review the Safety Analysis Report (SAR) referenced in the Certificate of Compliance and the related NRC Safety Evaluation Report, prior to use of the general license, to determine whether or not the reactor site parameters, including analyses of earthquake intensity and tornado missiles, are enveloped by the cask design bases considered in these reports. The results of this review must be documented in the evaluation made in paragraph (b)(2) of this section.

(4) Prior to use of the general license, determine whether activities related to storage of spent fuel under this general license involve any unreviewed facility safety question or change in the facility technical specifications, as provided under § 50.59. Results of this determination must be documented in the evaluation made in paragraph (b)(2) of this section.

(5) Protect the spent fuel against the design basis threat of radiological sabotage in accordance with the same provisions and requirements as are set forth in the licensee's physical security plan pursuant to § 73.55 of this chapter with the following additional conditions and exceptions:

(i) The physical security organization and program for the facility must be modified as necessary to assure that activities conducted under this general license do not decrease the effectiveness of the protection of vital equipment in accordance with § 73.55 of this chapter.

(ii) Storage of spent fuel must be within a protected area, in accordance with § 73.55(c) of this chapter, but need not be within a separate vital area. Existing protected areas may be expanded or new protected areas added for the purpose of storage of spent fuel in accordance with this general license.

(iii) For purposes of this general license, searches required by § 73.55(d)(1) of this chapter before admission to a new protected area may be performed by physical pat-down searches of persons in lieu of firearms and explosives detection equipment.

(iv) The observational capability required by § 73.55(h)(6) of this chapter as applied to a new protected area may be provided by a guard or watchman on patrol in lieu of closed circuit television.

(v) For the purpose of this general license, the licensee is exempt from §§ 73.55(h)(4)(iii)(A) and 73.55(h)(5) of this chapter.

(6) Review the reactor emergency plan, quality assurance program, training program, and radiation protection program to determine if their effectiveness is decreased and, if so, prepare the necessary changes and seek and obtain the necessary approvals.

(7) Maintain a copy of the Certificate of Compliance and documents referenced in the certificate for each cask model used for storage of spent fuel, until use of the cask model is discontinued. The licensee shall comply with the terms and conditions of the certificate.

(8)(i) Accurately maintain the record provided by the cask supplier for each cask that shows, in addition to the information provided by the cask vendor, the following:

- (A) The name and address of the cask vendor or lessor;
- (B) The listing of spent fuel stored in the cask; and
- (C) Any maintenance performed on the cask.

(ii) This record must include sufficient information to furnish documentary evidence that any testing and maintenance of the cask has been conducted under an NRC-approved quality assurance program.

(iii) In the event that a cask is sold, leased, loaned, or otherwise transferred to another registered user, this record must also be transferred to and must be accurately maintained by the new registered user. This record must be maintained by the current cask user during the period that the cask is used for storage of spent fuel and retained by the last user until decommissioning of the cask is complete.

(9) Conduct activities related to storage of spent fuel under this general license only in accordance with written procedures.

(10) Make records and casks available to the Commission for inspection.

§ 72.214 List of approved spent fuel storage casks.

The following casks are approved for storage of spent fuel under the conditions specified in their Certificates of Compliance.

Certificate Number: 1000

SAR Submitted by: General Nuclear Systems, Inc.

SAR Title: Topical Safety Analysis Report for the Castor V/21 Cask  
Independent Spent Fuel Storage Installation (Dry Storage) (TSAR)

Docket Number: 72-1000

Certification Expiration Date: [Insert the month and day that the rule is made effective], 2010

Model Number: CASTOR V/21

Certificate Number: 1001

SAR Submitted by: Westinghouse Electric Corporation

SAR Title: Topical Safety Analysis Report for the MC-10 Cask Independent  
Spent Fuel Storage Installation (Dry Storage)

Docket Number: 72-1001

Certification Expiration Date: [Insert same date as is in certificate number 1000]

Model Number: MC-10

Certificate Number: 1002

SAR Submitted by: Nuclear Assurance Corporation

SAR Title: Topical Safety Analysis Report for the NAC

Storage/Transportation

Cask Independent Spent Fuel Storage Installation (Dry Storage)

Docket Number: 72-1002

Certificate Expiration Date: [Insert the same date as in certificate number 1000]

Model Number: NAC S/T

Certificate Number: 1003

SAR Submitted by: Nuclear Assurance Corporation

SAR Title: Topical Safety Analysis Report for the NAC

Storage/Transportation

Cask Containing Consolidated Fuel for Use at an Independent Spent Fuel Storage Installation (Dry Storage)

Docket Number: 72-1003

Certificate Expiration Date: [Insert the same date as in certificate number 1000]

Model Number: NAC-C28 S/T

§ 72.216 Reports.

(a) The general licensee shall make an initial report under § 50.72(b)(2)(vii) of this chapter of any:

(1) Defect discovered in any spent fuel storage cask structure, system, or component which is important to safety; or

(2) Instance in which there is a significant reduction in the effectiveness of any spent fuel storage cask confinement system during use.

(b) A written report, including a description of the means employed to repair any defects or damage and prevent recurrence, must be submitted using instructions in § 72.4 within 30 days of the report submitted in paragraph (a)

of this section. A copy of the written report must be sent to the administrator of the appropriate Nuclear Regulatory Commission regional office shown in Appendix D to Part 20 of this Chapter.

§ 72.218 Termination of licenses.

(a) The notification regarding the program for the management of spent fuel at the reactor required by § 50.54(bb) of this chapter must include a plan for removal of the spent fuel stored under this general license from the reactor site. The plan must show how the spent fuel will be managed before starting to decommission systems and components needed for moving, unloading, and shipping this spent fuel.

(b) An application for termination of the reactor operating license submitted under § 50.82 of this chapter must contain a description of how the spent fuel stored under this general license will be removed from the reactor site.

(c) The reactor licensee shall send copy of submittals under § 72.218(a) and (b) to the administrator of the appropriate Nuclear Regulatory Commission regional office shown in Appendix D to Part 20 of this Chapter.

§ 72.220 Violations.

This general license is subject to the provisions of § 72.84 for willful violation of the regulations under this part.

Subpart L - Approval of Spent Fuel Storage Casks

§ 72.230 Procedures for spent fuel storage cask submittals.

(a) An application for approval of a spent fuel storage cask design must be submitted in accordance with the instructions contained in § 72.4. A safety analysis report describing the proposed cask design and how the cask should be used to store spent fuel safely must be included with the application.

(b) Casks that have been certified for transportation of spent fuel under 10 CFR Part 71 of this chapter may be approved for storage of spent fuel under this subpart. An application must be submitted in accordance with the instructions contained in § 72.4. A copy of the Certificate of Compliance issued for the cask under Part 71 of this chapter, and drawings and other documents referenced in the certificate, must be included with the application. A safety analysis report showing that the cask is suitable for storage of spent fuel for a period of at least 20 years must also be included.

(c) Public inspection. An application for the approval of a cask for storage of spent fuel may be made available for public inspection under § 72.20.

(d) Fees. Fees for reviews and evaluations related to issuance of a spent fuel storage cask Certificate of Compliance and inspections related to storage cask fabrication are those shown in § 170.31 of this chapter.

#### § 72.232 Inspection and tests.

(a) The applicant shall permit, and make provisions for, the Commission to inspect the premises and facilities at which a spent fuel storage cask is fabricated and tested.

(b) The applicant shall perform, and make provisions that permit the Commission to perform, tests that the Commission deems necessary or appropriate for the administration of the regulations in this part.



(c) The applicant shall submit a notification under § 72.4 at least 45 days prior to starting fabrication of the first spent fuel storage cask under a Certificate of Compliance.

§ 72.234 Conditions of approval.

(a) Design, fabrication, testing, and maintenance of a spent fuel storage cask must comply with the requirements in § 72.236.

(b) Design, fabrication, testing, and maintenance of spent fuel storage casks must be conducted under a quality assurance program that meets the requirements of Subpart G of this part.

(c) Fabrication of casks under the Certificate of Compliance must not start prior to receipt of the Certificate of Compliance for the cask model.

(d)(1) The cask vendor shall ensure that a record is established and maintained for each cask fabricated under the NRC Certificate of Compliance.

(2) This record must include:

(i) The NRC Certificate of Compliance number;

(ii) The cask model number;

(iii) The cask identification number;

(iv) Date fabrication was started;

(v) Date fabrication was completed;

(vi) Certification that the cask was designed, fabricated, tested, and repaired in accordance with a quality assurance program accepted by NRC;

(vii) Certification that inspections required by § 72.236(j) were performed and found satisfactory; and

(viii) The name and address of the cask user.

(3) The original of this record must be supplied to the cask user. A current copy of a composite record of all casks manufactured under a Certificate of Compliance, showing the information in paragraph (d)(2) of this section must be initiated and maintained by the cask vendor for each model cask. If the cask vendor permanently ceases production of casks under a Certificate of Compliance, this composite record must be sent to the Commission using instructions in § 72.4.

(e) The composite record required by paragraph (d) of this section must be available to the Commission for inspection.

(f) The cask vendor shall ensure that written procedures and appropriate tests are established prior to use of the casks. A copy of these procedures and tests must be provided to each cask user.

§ 72.236 Specific requirements for spent fuel storage cask approval.

(a) Specifications must be provided for the spent fuel to be stored in the cask, such as, but not limited to, type of spent fuel (i.e., BWR, PWR, both), maximum allowable enrichment of the fuel prior to any irradiation, burn-up (i.e., megawatt-days/MTU), minimum acceptable cooling time of the spent fuel prior to storage in the cask, maximum heat designed to be dissipated, maximum spent fuel loading limit, condition of the spent fuel (i.e., intact assembly or consolidated fuel rods), and inerting atmosphere requirements.

(b) Design bases and design criteria must be provided for structures, systems, and components important to safety.

(c) The cask must be designed and fabricated so that the spent fuel is maintained in a subcritical condition under credible conditions.

(d) Radiation shielding and confinement features must be provided sufficient to meet the requirements in §§ 72.104 and 72.106.

(e) The cask must be designed to provide redundant sealing of confinement systems.

(f) The cask must be designed to provide adequate heat removal capacity without active cooling systems.

(g) The cask must be designed to store the spent fuel safely for a minimum of 20 years and permit maintenance as required.

(h) The cask must be compatible with wet or dry spent fuel loading and unloading facilities.

(i) The cask must be designed to facilitate decontamination to the extent practicable.

(j) The cask must be inspected to ascertain that there are no cracks, pinholes, uncontrolled voids, or other defects that could significantly reduce its confinement effectiveness.

(k) The cask must be conspicuously and durably marked with:

- (1) A model number;
- (2) A unique identification number; and
- (3) An empty weight.

(l) The cask and its systems important to safety must be evaluated, by appropriate tests or by other means acceptable to the Commission, to demonstrate that they will reasonably maintain confinement of radioactive material under normal, off-normal, and credible accident conditions.

(m) To the extent practicable in the design of storage casks, consideration should be given to compatibility with removal of the stored spent fuel from a reactor site, transportation, and ultimate disposition by the Department of Energy.

§ 72.238 Issuance of an NRC Certificate of Compliance.

A Certificate of Compliance for a cask model will be issued by NRC on a finding that the requirements in § 72.236(a) through (i) are met.

§ 72.240 Conditions for spent fuel storage cask reapproval.

(a) The holder of a cask Certificate of Compliance, a user of a cask approved by NRC, or the representative of a cask user must apply for a cask model reapproval.

(b) The application for reapproval of a cask model must be submitted not less than 30 days prior to the expiration date of the Certificate of Compliance, and the existing Certificate of Compliance will not expire until the application for renewal has been finally determined by the Commission. The application must be accompanied by a safety analysis report (SAR). The new SAR may reference the SAR originally submitted for the cask model approval.

(c) A cask model will be reapproved if conditions in § 72.238 are met, and the application includes a demonstration that the storage of spent fuel has not in fact significantly adversely affected structures, systems, and components important to safety.

PART 50 - DOMESTIC LICENSING OF PRODUCTION  
AND UTILIZATION FACILITIES

5. The authority citation of Part 50 continues to read as follows:

AUTHORITY: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 1244, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282);

secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 50.10 also issued under secs. 101, 185, 68 Stat. 936, 955, as amended (42 U.S.C. 2131, 2235); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, 50.54(dd), and 50.103 are also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80-50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); § 50.46(a) and (b), and 50.54(c) are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); § 50.7(a), 50.10(a)-(c), 50.34(a) and (e), 50.44(a)-(c), 50.46(a) and (b), 50.47(b), 50.48(a), (c), (d), and (e), 50.49(a), 50.54(a), (i), (i)(1), (1)-(n), (p), (q), (t), (v), and (y), 50.55(f), 50.55a(a), (c)-(e), (g), and (h), 50.59(c), 50.60(a), 50.62(c), 50.64(b), and 50.80(a) and (b) are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and § 50.49(d), (h), and (j), 50.54(w), (z), (bb), (cc), and (dd), 50.55(e), 50.59(b), 50.61(b), 50.62(b), 50.70(a), 50.71(a)-(c) and (e), 50.72(a), 50.73(a) and (b), 50.74, 50.78, and 50.90 are issued under sec. 161(o), 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

6. In § 50.72, a new paragraph (b)(2)(vii) is added to read as follows:

§ 50.72 Immediate notification requirements for operating nuclear power reactors.

\* \* \* \* \*

(b) \*\*\*

(2) \*\*\*

(vii) Any instance of:

(A) A defect in any spent fuel storage cask structure, system, or component which is important to safety; or

(B) A significant reduction in the effectiveness of any spent fuel storage cask confinement system during use of the storage cask under a general license issued under § 72.210 of this chapter.

A followup written report is required by § 72.216(b) of this chapter including a description of the means employed to repair any defects or damage and prevent recurrence, using instructions in § 72.4, within 30 days of the report submitted in paragraph (a). A copy of the written report must be sent to the administrator of the appropriate Nuclear Regulatory Commission regional office shown in Appendix D to Part 20 of this Chapter.

\* \* \* \* \*

PART 170 - FEES FOR FACILITIES AND MATERIALS LICENSES AND OTHER  
REGULATORY SERVICES UNDER THE ATOMIC ENERGY ACT  
OF 1954, AS AMENDED

7. The authority citation for Part 170 continues to read as follows:

AUTHORITY: 31 U.S.C. 9701, 96 Stat. 1051; sec. 301, Pub. L. 92-314, 86 Stat. 222 (42 U.S.C. 2201w); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841).

8. In § 170.31, a new category 13 is added and footnotes 1(b), (c), and (d) are revised to read as follows:

§ 170.31 Schedule of fees for materials licenses and other regulatory services, including inspections.

*	*	*	*	*
Category of materials licenses and type of fee <sup>1</sup>			Fee <sup>2,3</sup>	
*	*	*	*	*
13.	A.	Spent fuel storage cask Certificate of Compliance		
		Approvals	Full Cost	
		Amendments, Revisions and Supplements	Full Cost	
		Reapproval	Full Cost	
	B.	Inspections related to spent fuel storage cask Certificate of Compliance		
		Routine	Full Cost	
		Nonroutine	Full Cost	
	C.	Inspections related to storage of spent fuel under § 72.210 of this chapter.		
		Routine	Full Cost	
		Nonroutine	Full Cost	

<sup>1</sup> Types of fees - \*\*\*

(b) License or approval fees - Fees for applications for new licenses and approvals subject to full cost fees (fee Categories 1A, 1B, 2A, 4A, 5B, 10A, 11, 12, 13A, and 14) are due upon notification by the Commission in accordance with § 170.12(b), (e), and (f).

(c) Renewal or reapproval fees - Applications for renewal of materials licenses and approvals must be accompanied by the prescribed renewal fee for each category, except that fees for applications for renewal of licenses and approvals subject to full cost fees (fee Categories 1A, 1B, 2A, 4A, 5B, 10A, 11, 12, 13A, and 14) are due upon notification by the Commission in accordance with § 170.12(d).

(d) Amendment fees - Applications for amendments to licenses and approvals, except those subject to fees assessed at full costs, must be accompanied by the prescribed amendment fee for each license affected. An application for an amendment to a license or approval classified in more than one fee category must be accompanied by the prescribed amendment fee for the category affected by the amendment unless the amendment is applicable to two or more fee categories in which case the amendment fee for the highest fee category would apply. For those licenses and approvals subject to full costs, (fee Categories 1A, 1B, 2A, 4A, 5B, 10A, 11, 12, 13A, and 14) amendment fees are due upon notification by the Commission in accordance with § 170.12(c).

An application for amendment to a materials license or approval that would place the license or approval in a higher fee category or add a new fee category must be accompanied by the prescribed application fee for the new category.

An application for amendment to a license or approval that would reduce the scope of a licensee's program to a lower fee category must be accompanied by the prescribed amendment fee for the lower fee category.



Applications to terminate licenses authorizing small materials programs, when no dismantling or decontamination procedure is required, shall not be subject to fee.

\* \* \* \* \*

Dated at Rockville, Maryland, this \_\_\_\_ day of \_\_\_\_\_, 1990.

For the Nuclear Regulatory Commission.

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Samuel J. Chilk,  
Secretary of the Commission.

Enclosure 2

Congressional Letters



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

The Honorable Morris K. Udall, Chairman  
Subcommittee on Energy and the Environment  
Committee on Interior and Insular Affairs  
United States House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

Enclosed for the information of the Subcommittee on Energy and the Environment is a copy of the Federal Register notice of a final rule that will provide for the storage of spent fuel under a general license on the site of any nuclear power reactor provided the reactor licensee notifies the NRC, only NRC-certified casks are used for storage, and the spent fuel is stored under conditions specified in the cask's certificate of compliance. The rule is based on directives contained in Sections 133 and 218(a) of the Nuclear Waste Policy Act of 1982, as amended.

The proposed rule on this subject was published in the Federal Register on May 5, 1989 (54 FR 19379). The NRC received 273 letters of comment, 237 of which were from individuals. The NRC staff has identified 50 separate topics, which are responded to in the Federal Register notice. Revisions, mainly clarifying and editorial, have been made in the final rule as a result of the comments received.

Sincerely,

A handwritten signature in dark ink, appearing to read "Eric S. Beckjord", is written over a horizontal line.

Eric S. Beckjord, Director  
Office of Nuclear Regulatory Research

Enclosure:  
Federal Register notice  
of a Final Rule

cc: Representative James V. Hansen



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

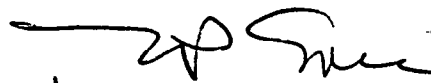
The Honorable Philip R. Sharp, Chairman  
Subcommittee on Energy and Power  
Committee on Energy and Commerce  
United States House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

Enclosed for the information of the Subcommittee on Energy and Power is a copy of the Federal Register notice of a final rule that will provide for the storage of spent fuel under a general license on the site of any nuclear power reactor provided the reactor licensee notifies the NRC, only NRC-certified casks are used for storage, and the spent fuel is stored under conditions specified in the cask's certificate of compliance. The rule is based on directives contained in Sections 133 and 218(a) of the Nuclear Waste Policy Act of 1982, as amended.

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Sincerely,

  
Eric S. Beckjord, Director  
Office of Nuclear Regulatory Research

Enclosure:  
Federal Register notice  
of a Final Rule

cc: Representative Carlos J. Moorhead



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

The Honorable John B. Breaux, Chairman  
Subcommittee on Nuclear Regulation  
Committee on Environment and Public Works  
United States Senate  
Washington, DC 20510

Dear Mr. Chairman:

Enclosed for the information of the Subcommittee on Nuclear Regulation is a copy of the Federal Register notice of a final rule that will provide for the storage of spent fuel under a general license on the site of any nuclear power reactor provided the reactor licensee notifies the NRC, only NRC-certified casks are used for storage, and the spent fuel is stored under conditions specified in the cask's certificate of compliance. The rule is based on directives contained in Sections 133 and 218(a) of the Nuclear Waste Policy Act of 1982, as amended.

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Sincerely,

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Eric S. Beckjord, Director  
Office of Nuclear Regulatory Research

Enclosure:  
Federal Register notice  
of a Final Rule

cc: Senator Alan K. Simpson

**Enclosure 3**  
**Draft Public Announcement**

DRAFT

## NRC AMENDS REGULATIONS ON SPENT FUEL STORAGE

The Nuclear Regulatory Commission is amending its regulations to authorize nuclear power plant licensees to store spent fuel on reactor sites in NRC-approved dry storage casks under a general license, without submitting an application for a specific license to store the fuel.

The rule also sets out criteria and procedures for obtaining NRC approval of the casks to be used for the spent fuel storage.

On-site spent fuel storage can continue after the reactor shuts down permanently, but the licensee will have to indicate in its application for reactor license termination how the spent fuel will be removed from storage and shipped off-site prior to decommissioning, or release of the site for unrestricted use.

The nuclear reactor licensee will have to ensure, through written evaluations, that there are no unreviewed safety questions or changes needed in association with the use of the casks for storage of spent fuel at the particular reactor site. The licensee will also have to show compliance with conditions of the cask's Certificate of Compliance and develop operating procedures for use of the dry storage casks.

DRAFT

To obtain NRC approval of a dry storage cask, an applicant (manufacturer) must submit a safety analysis report describing the proposed cask and how it should be used to store spent fuel safely. The applicant must make provisions for the NRC to inspect the premises and facilities where a spent fuel storage cask is fabricated and tested. In addition, the applicant must perform, and make provisions to allow the NRC to perform tests that the NRC decides are necessary.

Design, fabrication, testing, maintenance and use of a spent fuel storage cask will have to comply with technical criteria in the Commission's regulations and be conducted under a quality assurance program that meets the NRC's requirements. Cask approval will expire 20 years' after issuance of a Certificate of Compliance unless the cask design is reapproved.

Four dry storage casks that have been reviewed and evaluated by the NRC are being approved for spent fuel storage without site-specific approvals: the Model CASTOR V/21, by General Nuclear Systems, Inc., Columbia, SC; Model MC-10, by Westinghouse Electric Corporation, Pittsburgh, Penn.; Model NAC S/T by Nuclear Assurance Corporation, Norcross, Ga.; and Model NAC-C28 S/T, also by Nuclear Assurance Corporation.

The rule notes that, to the extent practicable, in the design of dry storage casks, consideration should be given to compatibility with transportation, removal of the stored spent fuel from the reactor site, and ultimate disposition by the Department of Energy.

Enclosure 3



DRAFT

A proposed rule on this subject was published in the Federal Register for public comment on May 5, 1989. In response to comments received, the Commission has revised the procedures for reapproval of the cask when its 20-year certification period expires. Under the final rule, if an application for reapproval of a cask model is submitted not less than 30 days before the expiration date of the Certificate of Compliance, the existing certificate will not expire until the Commission takes final action on the application for reapproval.

Several commenters on the proposed rule were concerned about the storage of spent fuel at one reactor site that was generated at other reactor sites. However, the general license authorized by this regulation is not related to the transfer or shipment of spent fuel from one reactor to another. Such transfers must be authorized under a specific amendment to the receiving reactor's operating license and would be a licensing action that would involve an opportunity for a public hearing.

Other changes to the proposed rule are described in a Federal Register notice published on \_\_\_\_\_.