

RULEMAKING ISSUE AFFIRMATION

July 11, 2003

SECY-03-0118

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: FINAL RULE: GEOLOGICAL AND SEISMOLOGICAL
CHARACTERISTICS FOR THE SITING AND DESIGN OF DRY
CASK INDEPENDENT SPENT FUEL STORAGE
INSTALLATIONS AND MONITORED RETRIEVABLE STORAGE
INSTALLATIONS - 10 CFR PART 72

PURPOSE:

To request Commission approval for publication of the final rule.

BACKGROUND:

In a Staff Requirements Memorandum (SRM) dated November 19, 2001 (Attachment 1), the Commission approved the Modified Rulemaking Plan (SECY-01-0178, September 26, 2001). In the SRM, the Commission directed that the proposed rule should solicit comment on a range of probability of exceedance levels (for a seismic event) from 5E-4 through 1E-4, and that the U.S. Nuclear Regulatory Commission (NRC) staff should undertake further analysis to support a specific proposal. In an SRM dated June 18, 2002 (Attachment 2), the Commission approved publication of the proposed rule (SECY-02-0043, March 13, 2002). It was published in the Federal Register on July 22, 2002 (67 FR 47745). The comment period closed October 22, 2002, and nine comment letters were received on the proposed rule.

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DISCUSSION:

The geological and seismological siting and design requirements for an independent spent fuel storage installation (ISFSI) or U.S. Department of Energy (DOE) monitored retrievable storage installation (MRS) are contained in 10 CFR 72.102. This regulation requires that, for any ISFSI or MRS located in the western U.S. or in other areas of known potential seismic activity in the eastern U.S., seismicity be evaluated by the “deterministic” techniques of Appendix A to 10 CFR Part 100. For sites evaluated under Part 100, Appendix A criteria, 10 CFR 72.102(f)(1) requires that the design earthquake be equivalent to the safe shutdown earthquake (SSE) for a nuclear power plant (NPP). However, Part 100 was amended in 1996 to incorporate a new section (10 CFR 100.23) in the regulations to require NPP applicants, after January 10, 1997, to account for uncertainties in the seismic hazard evaluation by using a “probabilistic” seismic hazard analysis (PSHA) approach or suitable sensitivity analyses, instead of the “deterministic” Appendix A to Part 100 approach, as part of the geologic and seismic siting criteria for NPPs. The final rule will make the 10 CFR Part 72 regulations compatible with the 1996 revision to Part 100 that addressed uncertainties in seismic hazard analysis. Specifically, the final rule changes will require a new specific-license applicant for a dry cask storage facility located in either the western U.S. or in areas of known seismic activity in the eastern U.S., and not co-located with an NPP, to address uncertainties in seismic hazard analysis by using appropriate analyses, such as a PSHA or other suitable sensitivity analyses, for determining the design earthquake ground motion (DE). All other new specific-license applicants for dry cask storage facilities will have the option of complying with the final rule requirement to use a PSHA or other suitable sensitivity analyses to address uncertainties in seismic hazard analysis, or other options compatible with the existing regulation.

The staff also believes that the potential radiological consequences of a seismic event at an ISFSI or MRS storing spent fuel in dry casks or canisters are substantially less than the potential consequences of a similar event at an NPP. Therefore, the final rule will allow an ISFSI or MRS applicant to use a design earthquake level commensurate with the risk associated with an ISFSI or MRS, and thus the rule will be risk-informed and complies with the Commission’s policies on probabilistic risk assessment and performance goals. The accompanying Regulatory Guide 3.73 (draft was DG-3021) (Attachment 3) recommends an acceptable design earthquake level. The staff’s analysis and the basis for the recommendation is provided in the White Paper entitled, “Selection of the Design Earthquake Ground Motion Reference Probability” (Attachment 4).

As an additional minor change, the final rule will modify 10 CFR 72.212(b)(2)(i)(B) to require general licensees to evaluate dynamic loads, in addition to static loads, in the design of cask storage pads and areas for ISFSIs to ensure that casks are not placed in unanalyzed conditions. Accounting for dynamic loads in the analysis of ISFSI pads and areas will ensure that the pads support the casks during seismic events. Even though the current regulations in § 72.212(b)(2)(i)(B) do not require a dynamic loads evaluation, general licensees currently evaluate casks, pads, and areas for dynamic loads, to meet the cask design bases in the Certificate of Compliance, as required by § 72.212(b)(2)(i)(A). Therefore, the final rule changes will not require general licensees operating an ISFSI to repeat any previous written evaluations. Specific licensees are currently required, under § 72.122(b)(2), to design ISFSIs to withstand the effects of dynamic loads, such as earthquakes and tornados.

The NRC received two requests for exemptions to § 72.102(f)(1) from the ISFSI industry to allow the application of the PSHA approach instead of the deterministic approach and the use of a design earthquake lower than the SSE for an NPP. Based on feedback from industry representatives, the staff believes that any future license applicant for an ISFSI will seek the same exemption. The final rule changes will alleviate the need for applicants to request exemptions from § 72.102(f)(1).

The Commission should be aware that on May 22, 2003, the Atomic Safety and Licensing Board issued a Partial Initial Decision, LBP-03-08, in the Private Fuel Storage adjudicatory proceeding which decided the seismic and other geotechnical issues litigated in the proceeding. Among other matters, the Board determined that the Applicant and the staff had provided adequate justification to support staff's grant of the Applicant's request for exemption from 10 CFR 72.102(f)(1), the same issue involved in this rulemaking.

Guidance Documents:

The staff has developed Regulatory Guide 3.73, "Site Evaluations and Design Earthquake Ground Motion for Dry Cask Independent Spent Fuel Storage and Monitored Retrievable Storage Installations" to accompany the final rule. This guide provides acceptable PSHA methods and recommends an appropriate mean annual probability of exceedance value for selecting the DE. This rulemaking will necessitate a revision to NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems," and NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities," to reflect the updated rule requirements. It is anticipated that the "Notice of Availability" of Regulatory Guide 3.73 will be published in the Federal Register, coincident with the effective date of the final regulations.

Summary of Public Comments:

The NRC received nine comment letters on the proposed rule from eight commenters. The commenters were the Nuclear Energy Institute (NEI), DOE, two nuclear power utilities, three State agencies, and one license applicant for an ISFSI. Commenters were divided on the specific question posed by the Commission in the proposed rule, regarding the appropriate mean annual probability of exceedance value for the DE. Several of the more contentious comments received on this question are discussed in the "Summary of Public Comments on Specific Question Posed in Proposed Rule" (Attachment 5). All the commenters agreed with the proposal to address uncertainty by requiring the use of a PSHA or suitable sensitivity analyses for an ISFSI or MRS in the western U.S., not co-located with an NPP, and in areas of known seismic activity in the eastern U.S. All commenters supported the concept of requiring general licensees to evaluate both dynamic loads and static loads for ISFSI and MRS cask storage pads and areas. A comprehensive discussion on all public comments and the staff's responses are in the Federal Register Notice for the final rule (Attachment 6).

Performance Goals:

The staff considered the merits of the rulemaking within the context of the performance goals listed in NRC's strategic plan. It will maintain safety by selecting the design earthquake level to be commensurate with the risk associated with an ISFSI or MRS. The changes to the design earthquake level are considered risk-informed, consistent with NRC policy to develop risk-informed regulations. The rulemaking will increase NRC's effectiveness and efficiency by reducing the number of exemption requests that might be submitted and reviewed. This rule

will increase realism by enabling an ISFSI or MRS applicant to use state-of-the-art approaches, such as a PSHA or other suitable sensitivity analyses, to more accurately characterize the seismicity of a site. This rule will also reduce unnecessary regulatory burden by allowing the applicant or licensee to select a design earthquake level commensurate with the risk associated with an ISFSI or MRS facility.

AGREEMENT STATE ISSUES:

This rule is classified as compatibility category “NRC” and addresses only areas of exclusive NRC regulatory authority.

COORDINATION:

The Office of the General Counsel has no legal objection to the final rulemaking. The Office of the Chief Financial Officer has reviewed this Commission Paper for resource implications and has no objections.

RECOMMENDATIONS:

That the Commission:

1. Approve, for publication in the Federal Register, the attached notice of final rulemaking (Attachment 6).
2. To satisfy the requirement of the Regulatory Flexibility Act, 5 U.S.C. 605 (b), certify that this rule, if promulgated, will not have significant impact on a substantial number of small entities. This certification is included in the attached final rule.
3. Note:
 - a. That a Regulatory Guide has been prepared for this rulemaking (Attachment 3);
 - b. That a White Paper has been prepared for this rulemaking, “Selection of Design Earthquake Ground Motion Reference Probability” (Attachment 4);
 - c. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification and the reasons for it, as required by the Regulatory Flexibility Act, 5 U.S.C. 605(b);
 - d. That a final Regulatory Analysis has been prepared for this rulemaking (Attachment 7);
 - e. That a final Environmental Assessment has been prepared for this rulemaking (Attachment 8);
 - f. The staff has determined that this action is not a “major rule,” as defined in the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 [5 U.S.C 804(2)] and has confirmed this determination with the Office of Management and Budget (OMB). The appropriate Congressional and General Accounting Office contacts will be informed (Attachment 9);

- g. The appropriate Congressional committees will be informed;
- h. A press release will be issued by the Office of Public Affairs when the final rulemaking is filed with the Office of the Federal Register; and
- i. The final rule contains amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, et seq.) that have been already approved by OMB.

/RA William F. Kane Acting For/

William D. Travers
Executive Director
for Operations

Attachments:

- 1. Staff Requirements Memorandum dated November 19, 2001
- 2. Staff Requirements Memorandum dated June 18, 2002
- 3. Regulatory Guide 3.73
- 4. White Paper
- 5. Summary of Public Comments on Specific Question Posed in Proposed Rule
- 6. Federal Register Notice
- 7. Regulatory Analysis
- 8. Environmental Assessment
- 9. SBREFA forms

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