RULEMAKING ISSUE
NOTATION VOTE

August 26, 2010 SECY-10-0114

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: RECOMMENDATION TO EXTEND THE PROPOSED RULEMAKING ON SECURITY REQUIREMENTS FOR FACILITIES STORING SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

PURPOSE:

To request Commission direction concerning the proposed rulemaking for Title 10 of the *Code of Federal Regulations* (10 CFR) Part 73, "Physical Protection of Plants and Materials," for facilities storing spent nuclear fuel (SNF) at an independent spent fuel storage installation (ISFSI) in light of significant comments received from stakeholders during the public comment period on the draft regulatory basis of the rule. In addition, the staff requests the Commission consider expanding the scope of the rulemaking to include SNF and high-level radioactive waste (HLW) stored at a monitored retrievable storage installations (MRS), and to extend the schedule of the proposed rulemaking.

SUMMARY:

On December 16, 2009, the staff published in the *Federal Register* (FR) (74 FR 66589) a notice of opportunity to comment on the draft regulatory basis for the proposed rulemaking to update the security requirements for facilities storing SNF at ISFSIs. The staff received several significant comments on the draft regulatory basis from a range of stakeholders. Of particular note, some commenters who have demonstrated a significant interest in ISFSI security issues were clearly aligned in their opposition to some of the key technical approaches proposed for this rulemaking. Because of the significance of these comments, the staff is recommending that the schedule for the rulemaking effort be extended to allow the staff to further evaluate these comments and their implications. The staff will provide the results of this evaluation and any new or revised recommendations for this proposed rulemaking to the Commission consistent with the schedule described in this paper.

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During this evaluation effort, the staff would continue its planned outreach efforts to the public, licensees, and other stakeholders. Continued outreach will allow the staff to discuss with licensees and other stakeholders these comments and the potential impacts they might have on the rulemaking. This outreach will also allow the staff to discuss the Safeguards Information (SGI) underpinning the rulemaking with stakeholders who have the appropriate access and "need-to-know."

In addition, the staff recommends that the Commission expand the scope of this rulemaking to include an MRS that would be authorized to store both SNF and HLW. This approach would provide for more effective and efficient use of agency resources and would allow decision makers more flexibility when evaluating the Nation's options for safely and securely storing SNF and HLW.

BACKGROUND:

In SECY-07-0148, "Independent Spent Fuel Storage Installation Security Requirements for Radiological Sabotage," dated August 28, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML062860177), the staff had proposed a technical concept to shift from an approach using the Design Basis Threat (DBT) for radiological sabotage at ISFSIs to a risk-informed and performance-based approach using security scenarios and dose calculations considering site-specific information. The staff had indicated that either a dose-based approach or a DBT-based approach achieved the agency's goals for an ISFSI rulemaking—both approaches are performance based, achieve technically acceptable levels of security, and provide assessment and implementation flexibility to ISFSI licensees. The staff recommended a dose-based approach. This approach allows licensees to tailor their security programs to the site-specific circumstances at their ISFSIs, achieves a risk-informed and performance-based security regime, supports a wide variety of types of spent fuel storage installations, obtains consistent results, and promotes regulatory clarity.

Other specific goals of this rulemaking were to make generically applicable the ISFSI security orders that were issued following the terrorist attacks of September 11, 2001; update ISFSI security regulations to reflect lessons learned from prior ISFSI security inspections, the power reactor force-on-force (FOF) assessment results that are applicable to ISFSIs, and the Commission's recent final rulemaking on power reactor security; and improve regulatory clarity and consistency between general licensed and specific licensed ISFSIs. Because of the significant differences in design and vulnerabilities between a power reactor and an ISFSI, the staff recommended that the adversary characteristics for ISFSIs be delineated in a separate document distinct from that of power reactors. In the dose-based approach, the ISFSI adversary characteristics document would provide the basis for the security scenarios against which licensees would perform dose calculations and apply specific radiological dose acceptance limits. In developing SECY-07-0148, however, the staff did not obtain any input from external stakeholders. Therefore, the Commission did not benefit from the views of external stakeholders when it considered SECY-07-0148.

In Staff Requirements Memorandum (SRM)-SECY-07-0148, "Staff Requirements—SECY-07-0148—Independent Spent Fuel Storage Installation Security Requirements for Radiological Sabotage," dated December 18, 2007 (ADAMS Accession No. ML073530119), the Commission directed the staff to begin a rulemaking to revise the security requirements for ISFSIs. The SRM directed the staff to use the recommended dose-based approach and to

develop a separate adversary characteristics document for ISFSIs. The SRM also directed the staff to: (1) "aggressively encourage" public comments during the development of the proposed rule;" (2) "share to the maximum extent possible, classified and unclassified security related information with stakeholders that would be affected by this rulemaking;" (3) "develop draft regulatory guidance…for deployment during the proposed rule stage to ensure all parties understand the objective, implementation, and scope of the proposed rule;" (4) "develop ISFSI regulatory guidance that would be bounded by the adversary characteristics regulatory guidance supporting the DBT for radiological sabotage associated with power reactors;" (5) "assess additional threat and vulnerability information in order to develop a technical basis to support inclusion of this approach or…an appropriate alternate approach in the proposed rule;" and (6) "engage stakeholders on appropriate approaches to address potential licensing, emergency preparedness, and security plan impacts from this rulemaking."

DISCUSSION:

A. Status of Proposed Rule Development, Stakeholder Outreach, and Guidance Development

As part of its effort to aggressively encourage stakeholder input on this rulemaking, the staff publicly released a redacted version of SECY-07-0148. The staff also held or participated in four public events (i.e., meetings, industry and professional society conferences, or webinars) to discuss the staff's conceptual approaches and the Commission's policy direction for this proposed rulemaking. On December 16, 2009, the staff published in the FR a notice of opportunity to comment on the draft regulatory basis for the proposed rulemaking. The notice indicated that the staff would hold a Webinar on January 14, 2010, to facilitate the development and submission of comments. The staff posted the draft regulatory basis, SECY-07-0148, and SRM-SECY-07-0148 to the Federal e-Rulemaking Web site http://www.regulations.gov/ under Docket ID: NRC-2009-0558. Approximately 95 individuals participated in the January 14, 2010, webinar.

The NRC received written comments on the draft regulatory basis from five organizations or individuals: the Nuclear Energy Institute (NEI), Union of Concerned Scientists (UCS), U.S. Department of Energy, Greenpeace, and the Prairie Island Indian Community (PIIC). Overall, the comments supported the goal of the proposed rulemaking to update the ISFSI security regulations to create logical, clear, and consistent requirements. However, some commenters (NEI and UCS) who have demonstrated a significant interest in ISFSI security issues were clearly aligned in their opposition to some of the key technical approaches proposed for this rulemaking that were recommended by the staff in SECY-07-0148 and approved by the Commission. Although many of these comments might be technically acceptable, if adopted, they could have significant policy, regulatory, or resource implications for both the NRC and licensees. Enclosure 1 contains two of the most significant comments from stakeholders and the staff's initial evaluation of their potential impacts (i.e., shifting to a DBT-based approach or considering a dose limit greater than 0.05 Sievert (Sv) (5 rem)). Enclosure 2 contains the staff's options for resolving all stakeholder comments.

NEI indicated in its comments that despite the staff's previous SGI-level briefings to reactor licensees, the vulnerability and threat basis supporting this rulemaking was not clear. NEI requested SGI-level briefings for industry to better understand the basis for this rulemaking. The staff intends to provide ISFSI vulnerability and threat information to impacted licensees

(i.e., ISFSI and reactor licensees) and to other cleared stakeholders with a "need-to-know" (e.g., certain Federal agencies, States, and Native American Tribes). This information would consist of the studies completed by the Office of Nuclear Material Safety and Safeguards in 2006 (i.e., the ISFSI aircraft attack and ground assault security assessments) and the current threat information supporting the DBT for radiological sabotage.[1] The staff had previously briefed four dry storage system (i.e., cask) vendors and selected NEI staff on the ISFSI security assessments; however, the staff has not briefed ISFSI or reactor licensees on these security assessments. Consequently, stakeholders may not have had sufficient information to fully inform their comments on the draft regulatory basis.

Additionally, given the potential of the proposed security rulemaking to affect Tribal land, people, and resources, the PIIC requested that the NRC engage in government-to-government consultations with the PIIC on this proposed rulemaking, pursuant to the provisions of Executive Order (E.O.) 13175, "Consultation and Coordination with Tribal Governments," dated November 6, 2000.[2] The staff began initial government-to-government discussions (on the proposed rulemaking and its regulatory basis) with the PIIC on August 10, 2010, and intends to begin discussions with one other Native American Tribe (potentially affected by the rulemaking) in the fourth quarter of fiscal year (FY) 2010. In evaluating whether a Tribe would have a "need–to-know," the staff would apply a screening criteria of whether a Tribe is located within 16.1 kilometers (10 miles) of a licensed ISFSI (i.e., whether the ISFSI would likely impact a specific Tribe from a security or emergency response basis). The PIIC and the Skull Valley Band of the Goshute Tribe are the only tribes meeting this impact criteria. Therefore, the staff intends to inquire whether the Goshute Tribe desires to participate in such discussions. These discussions could be multilateral or bilateral. In addition to discussing the basis and proposed direction for this rulemaking, the staff would also discuss relevant SGI-level ISFSI vulnerability and threat information underpinning this rulemaking and any associated guidance documents. In its initial meeting with the PIIC, the staff explored the scope of the Tribe's desired information and discussed the NRC's requirements for access to SGI.

As directed by SRM-SECY-07-0148, the staff has begun to develop several guidance documents to support this rulemaking effort. Several of these documents will be controlled as SGI, and some will be publicly available. Under the proposed dose-based approach, a "NUREG-type" document would contain "release fractions" (i.e., quantity of radionuclides released in a specific event) under various NRC-specified security scenarios for both SNF storage casks and SNF and HLW storage installations. Licensees would use these release fractions in calculating the dose consequences of a security event under the proposed dose-based approach. The NRC is developing this document under contract with Sandia National Laboratories and is nearing completion of the scoping phase (Phase 1). The contractor has delivered the initial draft of the classified scoping report to the staff for review and

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1 Under 10 CFR 73.1, "Purpose and scope," the DBT for Radiological Sabotage applies to general-license ISFSIs, but not to specific-license ISFSIs. Applying the DBT for Radiological Sabotage to both types of ISFSIs is one of the significant comments received by the NRC.

2 Section 1 of E.O. 13175 explicitly excludes from the requirements of the order, "independent regulatory agencies, as defined in 44 U.S.C. § 3502(5)." However, according to Section 8 of the E.O., "Independent regulatory agencies are encouraged to comply with the provisions of this order." Although the Commission is explicitly exempt from the E.O., the NRC remains committed to its spirit and seeks to meet the underlying goals and objectives of the E.O. in its interactions with Native American Tribes. PIIC's request for government-to-government consultations with the NRC is contained in the Tribe's comments on the draft regulatory basis (see ADAMS Accession No. ML100341215).

comment. The staff expects to issue the scoping report by the end of the first quarter of FY 2011. The detailed calculation phase (Phase 2) of the contract would begin only after the staff approves the classified scoping report, completes any analysis required under the options discussed below, and receives direction from the Commission to continue using the dose-based approach. In addition, because the potential cost of the Phase 2 contract exceeds $1M, the staff anticipates that the Chairman's approval would be required.

As directed by the SRM, the staff has developed a second guidance document that contains draft adversary characteristics for ISFSIs at the Safeguards level. Draft Regulatory Guide (DG)-5033, "Security Performance (Adversary) Characteristics for the Design, Development, and Implementation of a Physical Security Program for Spent Nuclear Fuel and High-Level Radioactive Waste Storage Facilities under 10 CFR Part 73 (U)," contains this information. DG-5033 is based upon the adversary characteristics for power reactors found in Regulatory Guide (RG) 5.69, "Guidance for the Application of the Design Basis Threat for Radiological Sabotage in the Design, Development and Implementation of a Physical Security Program that Meets the Requirements of 10 CFR 73.55 (U)," (Safeguards Information Electronic Safe (E-Safe) Accession No. ES100011001). However, the staff has recognized that spent fuel storage systems have different design features and vulnerabilities than light-water power reactors. Consequently, differences exist between DG-5033 and RG 5.69. The staff intends to issue DG-5033 for comment to impacted licensees and other cleared stakeholders with a "need-to-know" in conjunction with the above SGI-level briefings. The information in DG-5033 will assist licensees and cleared stakeholders in understanding the vulnerability and threat issues that underpin this rulemaking.

Finally, as directed by the SRM, the staff will develop an updated threat assessment for these waste storage facilities (ISFSIs and MRSs) that will inform the basis for the proposed rulemaking and the final regulatory guidance documents (e.g., the ISFSI and MRS final RG adversary characteristics). In conducting this threat assessment, the staff will focus first on those adversary capabilities that are already included in the Commission's DBT for radiological sabotage.

B. Options for Commission Consideration in Evaluating Stakeholder Comments

Two stakeholders who have demonstrated a significant understanding and interest in ISFSI security issues, NEI and UCS, are consistent in opposing several of the key elements of the proposed approach described in the draft regulatory basis. Specifically, these stakeholders would rather apply a DBT for radiological sabotage to ISFSIs, instead of using a dose-calculation approach recommend by the staff and approved by the Commission. In addition, NEI indicated that if dose calculations remain as part of the NRC's proposed rule, then a higher dose limit should be used for security-based events than the proposed 0.05-Sv (5-rem) dose limit. Under the current regulations, the staff uses a 0.05-Sv (5-rem) dose limit as the licensing basis for evaluating safety-based events and accidents.[3]

[3] The dose criteria in 10 CFR 72.106, "Controlled area of an ISFSI or MRS," includes exposures of 0.05 Sv (5 rem) total effective dose equivalent; 0.15 Sv (15 rem) to the lens of the eye; 0.5 Sv (50 rem) as either the sum of the deep dose equivalent and any organ dose, or the shallow dose equivalent to the skin or any extremity. Collectively and hereinafter, the staff refers to these separate doses as the "0.05-Sv (5-rem)" dose limit.

The staff has developed the following three options for Commission consideration. Because some of the options depart from the Commission's previous direction in SRM-SECY-07-0148, the time and resources necessary for staff to complete this effort would increase. Enclosure 2 provides a detailed discussion of the three options and their revised timelines:

1. Do not adopt stakeholder comments, proceed with the development of the final regulatory basis, and proceed to proposed rule development using the dose-based approach previously directed by the Commission.
2. Address stakeholder comments, evaluate impacts of shifting to a DBT based approach for all types of ISFSIs, develop the final regulatory basis, and proceed to proposed rule development.
3. Re-assess the technical approach based on the comments provided by stakeholders and evaluate impacts from shifting technical approaches prior to development of the final regulatory basis and proceeding to proposed rule development.

Under Option 1, the staff would finalize the regulatory basis and proceed to development of the proposed rule within 3 to 6 months. However, the staff would expect this option to extend the date for submission of a proposed rule by an additional 18 to 24 months, to allow the staff to complete the development of the technical basis to support regulatory guidance specifying fission product release fraction that licensees would use in calculating dose. The Commission directed the staff to issue such guidance along with the proposed rule in the SRM to SECY-07-0148. The guidance will assist stakeholders in evaluating the potential impacts of the proposed rule.

Under Option 2, the staff would also finalize the regulatory basis and proceed to the development of a proposed rule. However, the staff would require an additional 6 to 12 months to incorporate the changes proposed under Option 2 into the final regulatory basis. This additional time is needed because of the complexity of the issues. Overall, the staff would expect this option to extend the schedule for submission of a proposed rule by 16 to 22 months, because dose calculation guidance would need to be developed and issued with the proposed rule.

Under Option 3, the staff would assess the comments and their impacts in detail. If following this assessment, the staff concludes that the technical approaches set forth in SECY-07-0148 remain appropriate (i.e., use of a dose-based approach and a 0.05-Sv (5-rem) dose limit), it would inform the Commission of these conclusions and proceed with the rulemaking effort as directed by SRM-SECY-07-0148. However, if it concludes that new or revised technical approaches are necessary for this rulemaking, then the staff would develop a supplemental paper for the Commission that assesses this new information and its implications and provides updated or revised recommendations for the rulemaking approach, as appropriate. The staff would also include in this paper any insights gained during discussions with stakeholders. The staff would expect to complete this assessment and outreach effort within 12 months of receipt of Commission direction on this paper. If new recommendations are developed, the staff would expect that an additional 24 to 30 months are required to submit the proposed rule to the Commission (i.e., time for Commission to consider staff's updated recommendations and issue new direction; and time for the staff to issue a revised draft regulatory basis for further stakeholder comment, issue a final regulatory basis document, and develop the proposed rule).

The staff would consider the following significant policy issues under Option 3:

- whether a DBT-based approach is now preferable,
- whether a denial protective strategy is necessary or mandatory for ISFSIs or MRSs for ground assault events under a DBT-based approach,
- whether ISFSI and MRS licensees implementing a denial protective strategy should also conduct tactical response drills and FOF exercises,
- whether ISFSI and MRS installations implementing a denial protective strategy should be considered for inclusion in the NRC's FOF assessment program required under Section 170D of the *Atomic Energy Act of 1954*, as amended,
- whether any dose-limit limits or metrics should be used with a DBT-based approach,
- whether dose-based limits for security events should be higher than for safety-based events and accidents, and
- whether a full emergency response plan would be necessary for security events that could exceed a dose of 0.05 Sv (5 rem) at the site boundary for either ground assault or aircraft attack events.

Under Options 2 and 3, the staff would also assess the anticipated increased costs to licensees over the nominal extended lifetimes of these storage facilities; and the anticipated increased NRC resources required to implement the licensing and inspection programs under such requirements.

Based on the discussion in Enclosure 2, the staff recommends the approach contained in Option 3. Since the staff did not obtain input from external stakeholders during the development of SECY-07-0148, the Commission did not have the insights represented by these views when it considered SECY-07-0148. Option 3 best promotes the agency's strategic goals of openness and transparency, is consistent with the SRM's direction to aggressively seek stakeholder input, and provides the Commission with the necessary additional information to confirm or change its previous direction for this rulemaking. Because of the security improvements required under the post-September 11, 2001, ISFSI security orders, the staff believes that additional time is warranted to fully assess the implications of the stakeholder comments, and if necessary, to develop alternative options to the proposed rulemaking. Furthermore, given the potential extended lifetime for these waste storage facilities, the staff considers such an extension reasonable when weighed against the agency's strategic goals of openness, transparency, effectiveness, and long-term efficiency.

C. Monitored Retrievable Storage Installation

In SECY-07-0148 the staff focused on security issues for ISFSIs. However, during the subsequent development of the draft regulatory basis document, the staff recognized that the security requirements for an MRS to be clearly equivalent to those for a standalone ISFSI (i.e., an ISFSI that is not located near a power reactor and thus cannot take advantage of the reactor licensee's security and emergency response infrastructure and programs). Although no MRS facilities are currently licensed by the NRC, nor are any applications for an MRS currently projected, the staff is recommending that this rulemaking address the security requirements for both ISFSIs and MRSs. Updating the security requirements for both types of facilities will be more effective and efficient and will ensure that these security regulations can support a range of potential future licensing actions. Not updating MRS security requirements in this rulemaking

would require the staff to separate ISFSI and MRS security requirements, because they are currently intertwined in 10 CFR 73.51, "Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste." Updating the requirements for both ISFSIs and MRSs would provide decision makers evaluating the Nation's options for storing SNF and HLW with increased flexibility and a better understanding of the costs for various options. Therefore, the staff recommends that the scope of this rulemaking include both ISFSIs and MRSs. The resources required to include MRSs are minimal, and the schedules described under each of the Options are sufficient to include these facilities.

SCHEDULE, RESOURCES, AND IMPACTS:

The staff has begun discussions with one of the impacted Tribes and is contacting the other. The staff intends to conduct the SGI briefings for impacted licensees and other cleared stakeholders with a "need to know" by the end of the first quarter of FY 2011. This should provide a sufficient amount of time to process the Tribal individuals for access to SGI, since the staff views their attendance at the vulnerability and threat presentations as highly beneficial. Under the recommended Option 3, the staff's goal would be to complete the assessments, incorporate insights from the SGI-level stakeholder interactions, and deliver the supplemental paper to the Commission within 12 months.

The resources to complete these actions are included in the FY 2010 budget and the FY 2011 budget request in the Business Line: Spent Fuel and Transportation; Product Line: Rulemaking; Product: Rulemaking. The staff will address the required funding for FY 2012 and beyond during the Planning, Budgeting, and Performance Management process.

This rulemaking effort has been coordinated with the staff's June 15, 2010, paper to the Commission in COMSECY-10-0007, "Project Plan for the Regulatory Program Review to Support Extended Storage and Transportation of Spent Nuclear Fuel," (ADAMS Accession No. ML101390216). Specifically, the staff indicated in the project plan that the ISFSI and MRS security rulemaking should continue to proceed forward and that the security gap assessments described in the project plan should begin after the Commission has approved a proposed ISFSI and MRS security rule. Because the staff expects the ISFSI and MRS security rulemaking to raise the baseline security requirements for these types of installations, it is more effective and efficient to perform the gap assessment from this new (i.e., increased) baseline, rather than from the current regulations. Consequently, under the recommended Option 3, the staff would not expect to begin the security gap assessment effort until FY 2013.

COMMITMENTS:

The staff has committed to the following actions or activities in this paper.

If directed by the Commission under Option 3, the staff would complete its assessment of stakeholder comments and potential impacts within 12 months of receipt of the direction and then would either (1) inform the Commission of its conclusion to continue this rulemaking using the technical approaches directed by SRM-SECY-07-0148, or (2) recommend new or revised technical approaches to the Commission in a supplemental paper.

RECOMMENDATIONS:

That the Commission:

1. Approve Option 3. The staff should perform a detailed assessment of stakeholders' comments and their implications, including estimating any increased costs for licensees and increased resources for the NRC.
2. Approve the inclusion of MRS installations in the scope of this proposed security rulemaking.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objection.

/RA by Martin J. Virgilio for/

R. W. Borchardt
Executive Director
for Operations

Enclosures:
1. Significant Comments
2. Discussion of Options

RECOMMENDATIONS:

That the Commission:

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