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.

CONTACT: Philip G. Brochman, NSIR/DSP
(301) 415-6557

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

Significant Comments

The U.S. Nuclear Regulatory Commission (NRC) received written comments on the draft regulatory (i.e., technical) basis for the rulemaking to revise the security requirements for independent spent fuel storage installations (ISFSIs) from five organizations: 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 security requirements at an ISFSI authorized to store spent nuclear fuel (SNF) and at a monitored retrievable storage installation (MRS) authorized to store SNF and high-level radioactive waste (HLW) to create logical, clear, and consistent requirements.

Of particular note, 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. The staff has completed an initial assessment of these comments and the following are two examples of the most significant comments and the staff's initial evaluation:

- **Comment:** NEI and UCS recommended the NRC use an approach involving the Design Basis Threat (DBT) for radiological sabotage at these installations rather than using an approach involving dose-based calculations developed from NRC-specified security scenarios.

  Staff evaluation: Using a DBT-approach without a dose calculation of potential release consequences (when informed by the results of the agency's 2006 security assessments for ISFSIs) may require mandating a denial protective strategy for all general and specific license ISFSIs and MRSs, because of the staff's inability to assess for an individual installation the acceptability of these potential releases upon public health and safety, the common defense and security, and the environment. The staff had additionally proposed a 0.05-Sievert (Sv) (5-rem) dose limit to avoid changes to emergency response program requirements, that would be required if the dose exceeds the May 2, 1992 U.S. Environmental Protection Agency's (EPA's) protective action guidelines (PAGs) dose limit of 0.01 Sv to 0.05 Sv (1 rem to 5 rem). Consequently, the use of a DBT approach without mandating a denial protective strategy may still require a dose calculation.

  Separately, the use of a DBT and a denial protective strategy may require the Commission to reconsider its prior decision in SRM-SECY-07-0148, "Independent Spent Fuel Storage Installation Security Requirements for Radiological Sabotage," dated August 28, 2007, on whether under Section 170D of the *Atomic Energy Act of 1954*, as amended (42 U.S.C. § 2210d), ISFSIs and MRSs are classes of facilities for which the Commission considers it appropriate "to assess the ability of a private guard force of a licensed facility to defend against any applicable design basis threat." These assessments are accomplished under force-on-force (FOF) exercises. The staff would need to evaluate whether ISFSI and MRS licensees implementing a denial protective strategy should also conduct tactical response drills and FOF exercises to ensure that the licensee's implementation of a denial protective strategy is effective. ISFSI licensees are not required to conduct tactical response drills and FOF exercises and therefore,

the NRC does not conduct FOF assessments against ISFSIs. While the NRC's FOF assessment tactics may include attacking an ISFSI co-located with a power reactor as a diversionary tactic during an attack on the reactor or the spent fuel pool, the ISFSI itself is not a target under the FOF assessment process.

The staff expects that ISFSI and MRS licensees implementing a denial protective strategy and potentially tactical response drills and FOF exercises would incur significant increased costs and would also require increased NRC licensing and inspection resources.

- **Comment:** NEI, in addition to the previous comment, also recommended that if the NRC chooses to retain dose calculations as part of the proposed rule, then a higher dose limit should be used for security-based events than the proposed 0.05-Sv (5-rem) dose limit. ISFSI and MRS licensing regulations currently use a 0.05-Sv (5-rem) dose limit for safety-based events and accidents.

  Staff evaluation: Using a dose limit greater than 0.05 Sv (5 rem) would exceed the EPA's PAGs and require ISFSI and MRS licensees to implement a full scope emergency response program (e.g., declaring events up to a general emergency; making protective action recommendations; having an emergency response facility, an emergency planning zone, and an emergency notification system; and implementing local coordination activities and periodic emergency exercises). The staff has not evaluated what would be an appropriate scope or the elements required for a full emergency response program at an ISFSI or MRS (e.g., the size of the ISFSI's emergency planning zone). The staff would expect that an ISFSI or MRS that is co-located with an operating power reactor would be able to implement a full scope emergency response program at a lower cost, through incorporation of the ISFSI or MRS into the reactor's existing emergency response program. However, if that is not the case, then the staff expects that implementing a full scope emergency response program at an ISFSI or MRS would incur significant costs for licensees and would also require increased NRC licensing and inspection resources.

  Furthermore, the staff expects that implementation of a full scope emergency response program at ISFSIs and MRSs would also require discussions with the U. S. Federal Emergency Management Agency (FEMA) regarding possible impacts on FEMA's regulations. Specifically, the NRC would discuss whether FEMA would need to revise its offsite planning regulations under 44 CFR Part 350, "Review and approval of state and local radiological emergency plans and preparedness," if the NRC requires a full scope emergency response program at ISFSIs and MRSs. For example, changes may be required to FEMA's regulations to provide direction to State and local officials for offsite emergency response activities at an ISFSI or MRS that is not co-located with an operating power reactor. Secondly, if FEMA's regulations need to be revised, then FEMA's actions may impact the NRC's schedule for the ISFSI and MRS security rulemaking, because a coordinated rulemaking with FEMA may be necessary.

DISCUSSION OF OPTIONS

The U.S. Nuclear Regulatory Commission (NRC) received written comments on the draft regulatory (i.e., technical) basis for the rulemaking to revise the security requirements for independent spent fuel storage installations (ISFSIs) from five organizations: the Nuclear Energy Institute (NEI), Union of Concerned Scientists (UCS), U.S. Department of Energy, Greenpeace, and the Prairie Island Indian Community (PIIC). The staff has completed an initial assessment of the comments received on the draft regulatory basis. Examples of these comments and the staff's potential concerns are contained in Enclosure 1.

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 opposed several of the key technical approaches set forth in the draft regulatory basis that were recommended by the staff and directed by the Commission. Specifically, NEI and UCS would rather apply an approach using the Design Basis Threat (DBT) for radiological sabotage to ISFSIs, instead of using a dose-calculation approach. In addition, NEI indicated that if dose calculations are part of the NRC's proposed rule, then the NRC should use a higher limit for security-based events than the proposed 0.05-Sievert (Sv) (5-rem) dose limit. Under the NRC's current regulations, the staff uses a 0.05-Sv (5-rem) dose limit as the licensing basis for safety-based events and accidents.

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 to shift from an approach using the DBT of radiological sabotage at ISFSIs to a risk-informed, performance-based approach using licensee dose calculations and NRC-specified security scenarios. The staff indicated that either a dose-based approach or a DBT-based approach achieved the agency's goals for ISFSI rulemaking—both approaches are performance based, achieve acceptable levels of security, and provide flexibility to ISFSI licensees. However, the staff had recommended and the Commission accepted a dose-based approach because it allows licensees to tailor their security programs to the site-specific circumstances at their ISFSIs, achieves a risk-informed, performance-based security regime, supports a wide variety of types of spent fuel storage installations, obtains consistent results, and promotes regulatory clarity. The staff viewed this approach as providing both the greatest support to the Commission's strategic objectives of developing performance based regulations and providing high assurance of protecting the common defense and security.

Based upon its initial assessment of the stakeholders' comments, the staff has developed the following three options for evaluating these comments:

1. Do not adopt stakeholder comments, develop 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.

The staff has evaluated these three options and identified advantages and disadvantages for each option. The staff did not consider a no-action alternative (i.e., not proceeding with rulemaking), given the Commission's previous direction to proceed with this rulemaking 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).

Under all three options and consistent with Commission direction in the SRM, the staff intends to issue for comment to impacted licensees (i.e., ISFSI licensees and power reactor licensees) and cleared stakeholders with a "need to know" (e.g., certain Federal agencies, States, and Native American Tribes) the draft adversary characteristics for ISFSIs and monitored retrievable storage installations (MRSs). These adversary characteristics are contained in draft Regulatory Guide (DG)-5033, "Security Performance (Adversary) Characteristics for the Design, Development, and Implementation of a Physical Security Program for Spent Nuclear Fuel [SNF] and High-Level Radioactive Waste [HLW] Storage Facilities under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 73 (U)." The information in DG-5033 will assist licensees and cleared stakeholders in understanding the vulnerability and threat issues that underpin this rulemaking. Given the importance of adversary characteristics information, the staff's issuance of DG-5033 will provide the staff information that will inform the development of the proposed rule and is consistent with the direction in SRM-SECY-07-0148 to "develop draft regulatory guidance…to ensure all parties understand the objective, implementation, and scope of the proposed rule." Additionally, under all three options the staff would continue to provide briefings on the vulnerability and threat information underpinning this rulemaking to impacted licensees and other cleared stakeholders with a "need to know"; and to conduct government-to-government discussions with one or more Native American Tribes on this rulemaking.

Option 1—Do not adopt stakeholder comments, develop the final regulatory basis, and proceed to proposed rule development using the dose-based approach previously directed by the Commission.

In this option, the staff would proceed with the rulemaking in accordance with the Commission's direction in SRM-SECY-07-0148 to use a dose-based approach. The staff would complete the final regulatory basis and proceed to develop the proposed rule. The proposed rule language would seek comment on this option as well as each alternative presented to date by stakeholders. The staff would engage with stakeholders to understand the basis for individual stakeholder comments, provide additional information to cleared stakeholders with a "need-to-know" on the NRC's vulnerability and threat information underpinning the rulemaking, and to discuss the implications of implementing a DBT approach. The staff would specifically focus on responding to the significant stakeholder comments to assure that the stakeholders understand the basis for the dose-based approach.

Under Option 1, the staff would finalize the regulatory basis and proceed to development of the proposed rule within 3 to 6 months. Simultaneous development of the DG is expected to take 18 to 24 months, to allow adequate time to clear and engage stakeholders.

Advantages

- The option is responsive to the SRM's direction to use a dose-based approach and to use a 0.05 Sv (5 rem) dose limit.

- The option is responsive to the SRM's direction to share relevant safeguards information (SGI) with appropriately cleared stakeholders.

- This option permits the development of the final regulatory basis and the proposed rule to begin immediately.

- Because the proposed rule would seek comment on this option, plus identified stakeholder alternatives, the Commission would have the flexibility at the final rule stage to pick its preferred approach without having to issue a revised proposed rule for public comment.

Disadvantages

- The final regulatory basis would not be based on fully informed decision making—stakeholders having all necessary information (no access to SGI) on which to base their comments and the staff having a clear understanding (analysis of the impacts) of the stakeholders' comments.

- The staff may not be able to resolve one or more of the stakeholders' issues with the dose-based approach, even after providing additional information on the vulnerability and threat basis for this rulemaking.

Option 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.

Under this option, the staff would address the significant comments received on the draft regulatory basis and would shift to a DBT-based approach, instead of using a dose-based approach. In SECY-07-0148, 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 were performance based, achieve technically acceptable levels of security, and provide flexibility to ISFSI licensees. Because the staff did not obtain input from external stakeholders during the development of SECY-07-0148, the Commission did not have the views of external stakeholders when it considered SECY-07-0148. Consideration of these significant comments may support the use of a DBT-based approach as preferable (i.e., in SECY-07-0148, the staff considered both the dose-based approach and the DBT-based approach technically acceptable; however, the staff recommended the dose-based approach).

The staff would address stakeholders' comments to use the DBT approach by explaining that the licensees would likely be required to implement a denial protective strategy for all ISFSIs and MRSs, if a dose calculation were not required to assess the impact of potential releases at

a licensee's specific site. Whether a denial of access protective strategy or a denial of task protective strategy is appropriate for these types of facilities would require further staff evaluation.

Were the staff to retain some form of a dose limit, the staff would also use a higher dose limit as suggested by NEI, and would apply a limit of less than 0.25 Sv (25 rem) for any security dose calculations. This would allow for higher dose consequences for security-based events than for safety-based events and accidents. A dose limit of less than 0.25 Sv (25 rem) is consistent with the agency's safety goal of no prompt health effects and would not require an ISFSI or an MRS licensee to protect the SNF or HLW in a vital area (i.e., protection in a vital area would be required for dose outcomes exceeding 0.25-Sv (25-rem) dose limit). However, ISFSIs and MRSs would require a full emergency response program at the general-emergency level, because of the potential for offsite doses to exceed the 0.05-Sv (5-rem) dose limit found in the 1992 U.S. Environmental Protection Agency's protective action guidelines. This option would result in significant increased costs for some ISFSI licensees and increased NRC licensing and inspection resources. These increased costs would primarily occur at ISFSIs that are not co-located with a reactor or are co-located with a power reactor that is undergoing decommissioning. Finally, the staff would engage with the U.S. Federal Emergency Management Agency (FEMA) on whether a requirement for a full emergency response plan for ISFSI and MRS licensees would also require changes to FEMA's regulations under 44 CFR Part 350, "Review and approval of state and local radiological emergency plans and preparedness."

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 due to the complexity of these issues. the staff would also need16 to 22 months for DG development because dose calculation guidance would need to be issued with the proposed rule. In addition, during development of the proposed rule, the staff plans to reach out to appropriately cleared stakeholders to share relevant SGI in order to enhance stakeholders' ability to provide well-informed comments on the proposed rule.

Advantages

- This option is responsive to the SRM's direction to aggressively seek stakeholder input to inform decision-making. Because this option would incorporate the approaches advocated by stakeholders, there would be less outreach to stakeholders and analysis of alternate approaches. However, the staff would discuss the impacts of these advocated approaches with stakeholders.

- The option is responsive to the SRM's direction to share relevant SGI with appropriate cleared stakeholders.

- This option permits the development of the final regulatory basis and the proposed rule to begin immediately.

- This option permits the staff time to engage with FEMA staff on the need for FEMA rulemaking.

Disadvantages

- This option departs from the SRM's direction to use a dose-based approach and to use a 0.05-Sv (5-rem) dose limit. Licensees using a DBT-approach without a dose calculation of potential release consequences (when informed by the results of the agency's 2006 security assessments for ISFSIs) may require mandating a denial protective strategy for all general and specific license ISFSIs and MRSs, because of the staff's inability to assess for an individual installation the acceptability of these potential releases upon public health and safety, the common defense and security, and the environment.

- Requiring the use of a denial protective strategy would impose significant increased costs for licensees, especially for ISFSIs located outside of an existing reactor's protected area. In addition, using a higher dose limit of greater than 0.05 Sv (5 rem) but less than 0.25 Sv (25 rem) would require an ISFSI or MRS licensee to implement a full emergency response program (i.e., at the general-emergency level) with increased cost for licensees and increased NRC resources. Finally, in addition to these emergency response program changes, using a dose limit greater than 0.25 Sv (25 rem) would require licensees to protect the SNF or HLW in a vital area (i.e., currently ISFSI licensees are only required to store their SNF inside a "protected area barrier"; whereas reactor licensees are required to store their SNF inside both protected area and vital area barriers).

- This option would likely result in significant costs for some licensees (i.e., for ISFSIs not co-located with an operating power reactor) and increased NRC resources for licensing and inspection.

- Similar to Option 1, the final technical basis would not be developed based on fully informed decision making—stakeholders did not have all the necessary information on which to base their comments. The staff would provide the cost estimates for industry and NRC resources with the proposed rule for the Commission's consideration. However, this would not be informed by additional stakeholder input. Some commenters might revise their comments, if they understood that their suggested approach could incur significant costs.

Option 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 this option, the staff would re-assess the technical approach based on additional information gained from stakeholder comments prior to development of the final regulatory basis. This would include assessing the likely costs for both licensees and the NRC, if a denial protective strategy is necessary or a general-emergency level emergency response program is necessary. The staff developed the options in SECY-07-0148 without the benefit of stakeholder

input. Stakeholder comments on the draft regulatory basis have provided the staff with significant new insights into this complex rulemaking effort. As discussed in Enclosure 1, the staff would evaluate the need for, and impact of, the licensee conducting tactical response drills and force-on-force (FOF) exercises at ISFSIs or MRSs for licensees implementing a denial protective strategy, as well as the NRC conducted FOF assessments at these installations. The staff would also evaluate whether any dose-limit metrics should be used, whether such a dose limit should be higher for security-based events, and whether a full emergency response plan is necessary for potential ground assaults and aircraft attacks. As with Option 2, the staff would engage with FEMA on whether a requirement for a full emergency response plan for ISFSI and MRS licensees would also require changes to FEMA's regulations under 44 CFR Part 350.

Additionally, industry (reactor licensees) have previously raised concerns with NRC management on the aggregate impact of the various security rulemakings recently completed by the agency, or planned for completion over the next few years. In developing final rule implementation dates, the NRC considers the impact of new regulations requiring hardware changes. For this ISFSI security rulemaking, the staff anticipates that making the requirements imposed under the post-September 11, 2001, ISFSI security orders generically applicable may require significant hardware improvements for some ISFSI installations. For example, evaluating blast impacts and installing a permanent vehicle barrier system around the installation's protected area (i.e., the post-September 11, 2001,ISFSI security orders only required licensees to install a temporary vehicle barrier system at their installation). Consequently, the additional time required for the staff to complete the ISFSI security rulemaking provides additional time for licensees' planning efforts, and thus is responsive to industry's concerns on the aggregate effects of individual NRC security rulemakings.

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 the staff concludes that new or revised technical approaches are necessary for this rulemaking, 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 expects this assessment effort and outreach would be completed within 12 months.

However, the staff does not view the timelines anticipated under these options as increasing or impacting the security risk for these types of installations, because of the presence of the post-September 11, 2001, ISFSI security orders and the actions taken by licensees. Moreover, these timelines support the agency's strategic goals of openness, transparency, effectiveness, and long-term efficiency. Additionally, ISFSI licensees could use this additional time incurred under this extension to plan for the potential hardware improvements. For example, the staff expects that a final rule will likely require a permanent version of the vehicle barrier system currently required by the post- September 11, 2001,ISFSI security orders (i.e., the ISFSI security orders currently require a temporary vehicle barrier system).

Advantages

- This option would allow detailed analysis to proceed in parallel with discussions and outreach efforts with stakeholders. These discussions are responsive not only to the SRM's direction to aggressively engage with stakeholders, but also to the stakeholders' requests for further critical information on this rulemaking.

- The option is responsive to the SRM's direction to share relevant SGI with appropriate cleared stakeholders.

- This new information would inform stakeholders and staff, thereby potentially yielding different positions, as stakeholders better understand the NRC's intentions and bases for this rulemaking.

- This option responds to the direction in SRM-SECY-07-0148 for the staff to "engage stakeholders on appropriate approaches to address potential licensing, emergency preparedness, and security plan impacts from this rulemaking."

- This option permits the staff time to engage with FEMA on the potential need for FEMA rulemaking.

- This option best supports the agency's strategic goals of openness, transparency, effectiveness, and long-term efficiency.

Disadvantages

- This option would apply current budgeted resources to evaluation of the comments and would likely extend the schedule for submission of a proposed rule by 24 to 30 months. As a result, the funds to complete the proposed rule and final rule would need to be requested in the FY 2013 and 2014 budget cycles.

Recommended Option

The staff recommends Option 3. Of the three assessed options, Option 3 best promotes the agency's strategic goals of openness and transparency, 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 NRC has sufficient time to fully assess the implications of the stakeholder comments and develop alternative options, if appropriate, before developing a proposed rule. 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.