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.