

Independent Spent Fuel Storage Installation Security Rulemaking History

In SECY-07-0148, "Independent Spent Fuel Storage Installation Security Requirements for Radiological Sabotage," dated August 28, 2007 (Agencywide Documents Access and Management System Accession No. ML062860177, nonpublic; [ML080030050](#), redacted), the U.S. Nuclear Regulatory Commission (NRC) staff proposed the development of new security requirements to update the security regulations for independent spent fuel storage installations (ISFSIs), using a new risk-informed and performance-based structure. The new requirements would implement a "dose-based approach," which would require all ISFSI licensees to demonstrate that security at ISFSIs could effectively protect against radiological releases, if any, resulting from specific security events bounded by the design-basis threat (DBT) for radiological sabotage, so that the estimated dose at the controlled area boundary would not exceed 0.05 sievert (5 rem). Under these new requirements, the regulatory framework for security at ISFSIs would shift from a threat-based framework to a vulnerability-based framework. The staff developed these new requirements based on its review of classified 2004–2006 spent fuel vulnerability assessment reports (SFVARs) from the NRC and Sandia National Laboratories, which challenged previous NRC conclusions about whether a malevolent act could breach shielding or confinement barriers at ISFSIs, causing the release of radiation or radioactive material.

The staff's proposal to implement the dose-based approach for all ISFSIs was also intended to increase the regulatory clarity and consistency of the security requirements for general- and specific-license ISFSIs. Other goals of this rulemaking were to make the ISFSI security orders issued in response to the terrorist attacks of September 11, 2001 (post-9/11 security orders) generically applicable, and to increase consistency by incorporating lessons learned from prior ISFSI security inspections, force-on-force assessment results applicable to ISFSIs, and the final rule on power reactor security (74 FR 13925; March 27, 2009). In Staff Requirements Memorandum (SRM)-SECY-07-0148, dated December 18, 2007 ([ML073530119](#)), the Commission approved the staff's recommendation to pursue a rulemaking to "develop new, risk-informed, performance-based security requirements applicable to all ISFSI licensees to enhance existing security requirements" using the dose-based approach.

On December 16, 2009, the staff published a notice in the *Federal Register* (74 FR 66589) seeking public comment on "Draft Technical Basis for Rulemaking Revising Security Requirements for Facilities Storing Spent Nuclear Fuel and High-Level Radioactive Waste," Revision 1 ([ML093280743](#)). Some stakeholders, including the Nuclear Energy Institute and the Union of Concerned Scientists, provided comments expressing concerns about the dose-based approach and stated that they would prefer to continue applying the DBT for radiological sabotage to ISFSI security. Also, the Nuclear Energy Institute commented that if dose calculations were made part of the NRC's proposed rule, then the dose limit should be 0.25 sievert (25 rem), rather than the proposed 0.05 sievert (5 rem). A primary objection from the Union of Concerned Scientists was that the dose-based approach could allow licensees to adjust the required data entries to achieve an acceptable dose level. Some industry stakeholders also indicated a desire to review the Sandia SFVAR information supporting the dose-based approach.

After assessing stakeholder feedback on the draft regulatory basis (as a common practice, the term "regulatory basis" has replaced the term "technical basis" for rulemaking), the staff submitted SECY-10-0114, "Recommendation to Extend the Proposed Rulemaking on Security Requirements for Facilities Storing Spent Nuclear Fuel and High-Level Radioactive Waste,"

dated August 26, 2010 ([ML101960614](#)), to the Commission. In this paper, the staff put forward three options for proceeding with the rulemaking in light of stakeholder feedback:

- (1) Proceed with the proposed rule using the dose-based approach, requiring all ISFSI licensees to demonstrate that the consequences of the specified security events would be below the 0.05-sievert (5 rem) limit.
- (2) Proceed with the proposed rule using a “DBT-based approach,” which would require all ISFSI licensees to demonstrate that the consequences of a malevolent act described in the DBT for radiological sabotage would be below 0.25 sievert (25 rem). (The staff would also consider whether the DBT-based approach should require licensees to implement a “denial-of-access” or “denial-of-task” protective strategy instead of requiring a dose calculation.)
- (3) Reassess the technical approach and evaluate the effects of shifting technical approaches before proceeding with the proposed rule. The reassessment would address several topics that SECY-07-0148 raised as policy issues, including force-on-force exercises for licensees implementing a denial protective strategy and whether to use any dose limit metrics.

The staff recommended Option 3 and requested Commission approval to further evaluate the stakeholder comments on the draft regulatory basis and to reassess the technical approach before developing the final regulatory basis and proceeding to proposed rule development. The staff stated that if, after the reassessment, it concluded that the dose-based approach remained appropriate, it would inform the Commission of this conclusion and proceed with the rulemaking effort as directed by SRM-SECY-07-0148. If instead the staff concluded that the rulemaking required a new or revised technical approach, the staff would prepare a supplemental paper for the Commission assessing the implications of the new information and providing updated or revised recommendations. The staff also recommended that the Commission expand the scope of the rulemaking to include monitored retrievable storage (MRS) installations that would be authorized to store both spent nuclear fuel and high-level waste to promote efficiency and future regulatory flexibility.

In SRM-SECY-10-0114, dated November 16, 2010 ([ML103210025](#)), the Commission approved the staff’s recommendation to consider the public comments on the draft regulatory basis and authorized the sharing of classified technical information with stakeholders having appropriate security clearances and a need-to-know determination (cleared stakeholders). The Commission also approved expanding the scope of the rulemaking to include MRS installations. The Commission determined that it was “premature to change the technical approach for the rule or determine which policy issues previously evaluated should be readdressed.” Therefore, the Commission disapproved the staff’s recommendation and directed the staff to provide to the Commission, within 12 months, a paper “providing an analysis of the stakeholder comments, and making any recommendations, if justified, for modifying the direction contained in the SRM on SECY-07-0148, accompanied by a fully developed basis for doing so.”

Between 2011 and 2013, the staff made the following efforts to engage stakeholders to understand and resolve issues surrounding this rulemaking:

- conducting both unclassified meetings with stakeholders and classified meetings with cleared stakeholders to discuss comments on the draft regulatory basis

- holding nonpublic meetings with cleared stakeholders on the staff's proposed draft adversary characteristics document (Draft Regulatory Guide 5033, "Security Performance (Adversary) Characteristics for Physical Security Programs for 10 CFR Part 72 Licensees" (nonpublic, safeguards information))
- continuing to assess the validity of the classified SFVAR information
- conducting a proof-of-concept surrogate test to validate certain adversary tools and security scenarios

In "Comment Resolution: ISFSI Security Rulemaking Regulatory Basis," dated December 17, 2013 ([ML13085A150](#)), the staff summarized the stakeholder comments on the draft regulatory basis. However, the staff did not then provide the Commission with a paper, as directed in SRM-SECY-10-0114, that contained an analysis of the stakeholder comments and recommendations for modifying the direction in SRM-SECY-07-0148 because developments in the nuclear power industry described below led the staff to reexamine the timing of this rulemaking.

In response to SRM-SECY-10-0114, the staff provided the Commission with COMSECY-15-0024, "Proposed Rulemaking on Security Requirements for Facilities Storing Spent Nuclear Fuel and High-Level Radioactive Waste," dated September 11, 2015 ([ML15229A231](#)). In this paper, the staff recommended that the agency not pursue the ISFSI security rulemaking at that time, and that it reevaluate in 5 years whether rulemaking was warranted. As the basis for this recommendation, the staff noted that as more power reactors were transitioning from operating status to decommissioning status, it was necessary to investigate when during this transition process to implement the dose-based approach, in order to minimize operational impacts while providing "high assurance of public health and safety." The staff also noted that, because certain entities had recently expressed interest in constructing centralized interim spent fuel storage facilities, the NRC might need to reexamine potential security scenarios to support the technical basis for the rulemaking. The staff's evaluation of costs and benefits did not support pursuing the rulemaking at the time. The staff emphasized the following:

[T]he existing security requirements for ISFSIs, together with the additional requirements in the post-9/11 security orders, provide continued high assurance of adequate protection of public health and safety regardless of the ISFSI license type or ISFSI location.

The staff noted that, if the NRC continued the rulemaking activity, it would need to expend resources to reevaluate the technical approach based on the progress of the decommissioning rulemaking; gain further clarity on the development of the domestic spent nuclear fuel management strategy; complete ongoing studies to support the dose-based approach; and develop guidance for the dose-based approach, including the development of release fractions for credible and reasonable security scenarios and dose assessment methods. In SRM-COMSECY-15-0024, dated October 6, 2015 ([ML15280A105](#)), the Commission approved the staff's recommendation and directed the staff to "re-evaluate whether rulemaking in this area is warranted" at the end of the 5-year period.

However, before the conclusion of the 5-year period, the Commission issued SRM-COMKLS-18-003, "Fiscal Year 2020 Budget to the Commission," dated August 22, 2018 (ML18234A238, nonpublic), directing the staff to proceed with the ISFSI security rulemaking

with the exclusive scope of codifying the requirements of the post-9/11 security orders. After a cost-benefit analysis, the staff determined that continuing with a rulemaking with this exclusive scope “would not further improve public health and safety or the common defense and security and would not be cost-justified.” Therefore, in SECY-19-0100, “Discontinuation of Rulemaking—Independent Spent Fuel Storage Installation Security Requirements,” dated October 9, 2019 ([ML19172A301](#)), the staff recommended that the Commission approve discontinuation of the rulemaking.

In SRM-SECY-19-0100, dated August 4, 2021 ([ML21217A045](#)), the Commission disapproved the staff’s request to discontinue the rulemaking. The Commission stated that, “before deciding whether and how to proceed with this rulemaking, the Commission would benefit from a staff analysis of more options for the scope of the rule and the potential regulatory, resource, and timing impacts of those options.” The Commission directed the staff to provide the Commission with a notation vote paper with a full range of options for this rule. This SECY paper transmits a full range of options and responds to SRM-SECY-19-0100.