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RULEMAKING ISSUE
(Notation Vote)

June 6, 2022 SECY-22-0052

FOR: The Commissioners

FROM: Daniel H. Dorman
Executive Director for Operations

SUBJECT: PROPOSED RULE: ALIGNMENT OF LICENSING PROCESSES AND LESSONS LEARNED FROM NEW REACTOR LICENSING (RIN 3150-AI66)

PURPOSE:

The purpose of this paper is to obtain Commission approval to publish in the *Federal Register* the enclosed proposed rule (Enclosure 1) that would amend regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" to align reactor licensing processes and incorporate lessons learned from new reactor licensing into the regulations.

SUMMARY:

The U.S. Nuclear Regulatory Commission (NRC) staff is proposing amendments to nine parts of 10 CFR Chapter I, involving 61 technical areas. The NRC's goals in amending these regulations are to ensure consistency in new reactor licensing reviews, promote a more effective and efficient new reactor licensing process; reduce the need for requests for exemptions from existing regulations and license amendment requests; address other new reactor licensing issues deemed relevant; and support the NRC's Principles of Good Regulation, including openness, clarity, and reliability. As discussed in Enclosure 2, the staff intends to update existing regulatory guidance for several technical areas to help applicants and licensees implement the proposed requirements.

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BACKGROUND:

The Commission directed the NRC staff to proceed with an integrated rulemaking on updating licensing processes in a September 22, 2015, staff requirements memorandum (SRM) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15266A023) to SECY-15-0002, "Proposed Updates of Licensing Policies, Rules, and Guidance for Future New Reactor Applications," dated January 8, 2015 (ADAMS Accession No. ML13281A382). The Commission further stated that this rulemaking should do the following:

- Revise regulations in 10 CFR Part 50 for new power reactor applications to more closely align with requirements in 10 CFR Part 52.

- Revise regulations in 10 CFR Part 50 and 10 CFR Part 52 and supporting regulations to incorporate the lessons learned from recent licensing activities.

In SRM-SECY-15-0002, the Commission also directed the staff to evaluate the priority and schedule for rulemaking in the context of Project Aim 2020 to ensure that it uses agency resources effectively. Subsequently, this rulemaking was budgeted to start in fiscal year 2019. On January 15, 2019, the NRC held a Category 3 public meeting (ADAMS Accession No. ML19023A046) to obtain feedback from external stakeholders on the scope of the rulemaking. Using the input received from NRC staff and external stakeholders, NRC management agreed on the regulatory basis scope in July 2019. On August 27, 2019, the NRC issued SECY-19-0084, "Status of Rulemaking to Align Licensing Processes and Lessons Learned from New Reactor Licensing" (ADAMS Package Accession No. ML19161A169), informing the Commission of the scope of the regulatory basis for this proposed rule.

The NRC published the regulatory basis in the *Federal Register* on January 29, 2021 (86 FR 7513). In the regulatory basis, the NRC presented recommendations to update and align its regulations and guidance to incorporate lessons learned from previous new power reactor licensing reviews. The NRC requested public comment on these recommendations and asked specific questions about other possible revisions of the NRC's requirements. The NRC held a public meeting on March 2, 2021 (ADAMS Accession No. ML21048A067), to discuss the regulatory basis and issued a summary of the meeting on March 19, 2021 (ADAMS Accession No. ML21076A098). A request for the extension of the public comment period was granted in a notice published on March 18, 2021 (86 FR 14695), and the NRC received eight public comment submissions on the regulatory basis, which staff considered in its formulation of this proposed rule.

DISCUSSION:

Overview of Proposed Changes to NRC Regulations

The staff has identified several areas that require alignment between the 10 CFR Part 50 and 10 CFR Part 52 licensing processes to ensure that equivalent design applications submitted for NRC review under each process would be assessed against consistent technical standards that yield outcomes with equivalent demonstrations of adequate safety, security, and environmental protection. Overall, the NRC's experience confirms that the current processes for licensing new reactors ensure that applications provide reasonable assurance of adequate protection of public health and safety and are consistent with the common defense and security; however, the NRC has identified regulatory changes intended to improve clarity and reduce unnecessary burden

on applicants and the NRC. In addition, the staff has identified areas for improvement that would affect applicants and could affect current licensees.

Major provisions of the proposed rule include changes in the following areas:

- **Severe Accident Treatment Requirements:** The proposed rule would require applicants for light-water power reactor licenses under 10 CFR Part 50 to provide descriptions and analyses of severe accident design features. Modifications to these future plants would also be assessed under 10 CFR 50.59, "Changes, tests, and experiments," for their potential to increase the frequency or severity of ex-vessel severe accidents (i.e., severe accidents in which material from a damaged core escapes the reactor pressure vessel). This change conforms to the similar requirement found in each 10 CFR Part 52 appendix certifying a standard design (Section VIII.B.5.c) and also supports implementation of the Commission's "Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants," dated August 8, 1985 (50 FR 32138), for 10 CFR Part 50 applicants.

- **Probabilistic Risk Assessment Requirements:** The proposed rule would extend the current probabilistic risk assessment requirements in 10 CFR Part 52 to apply to 10 CFR Part 50 applicants. The proposed rule also would expand the applicability of 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors," to allow design certification applicants, construction permit holders, and combined license holders to risk-inform the categorization of structures, systems, and components. The proposed rule would require future 10 CFR Part 50 power reactor applicants to address risk associated with all operating modes and initiating events for which NRC-endorsed consensus standards exist at the time of the application for the construction permit or combined license. Finally, the proposed rule would simplify the schedule for upgrading the probabilistic risk assessment.

- **Three Mile Island Requirements:** The proposed rule would require 10 CFR Part 50 applicants to provide information related to addressing lessons learned from the Three Mile Island accident in the same manner as currently required for 10 CFR Part 52 applicants. The NRC would revise the introductory text of 10 CFR 50.34(f), "Additional TMI-related requirements," so new construction permit and operating license applicants under 10 CFR Part 50 would be required to comply with 10 CFR 50.34(f). This change to the regulations would fulfill the intent of SECY-15-0002 by aligning 10 CFR Parts 50 and 52 on requirements related to the Three Mile Island accident and would ensure consistency in new reactor licensing reviews. The proposed rule also would eliminate obsolete requirements and those requirements that are redundant with other existing regulations. This change would ensure that applicants under 10 CFR Part 50 address Three Mile Island requirements necessary for safety.

- **Fire Protection Requirements:** The proposed rule would clarify the 10 CFR Part 50 requirements on the submittal of information related to fire protection design features and fire protection plans to be consistent with those currently required for 10 CFR Part 52 applicants. Section 50.34(a), "Preliminary safety analysis report," and (b), "Final safety analysis report," would be revised to identify the information that is required to review fire protection design features at the construction permit stage and operating license phase, respectively. This would promote the objective of aligning requirements in 10 CFR Part 50 and 10 CFR Part 52.

- **Operators' Licenses:** The proposed rule would amend the NRC's regulations in 10 CFR Part 55, "Operators' Licenses," related to simulation facilities. The proposed rule would change the definition of "plant-referenced simulator" to enable plant operator license applicants to meet certain operator experience requirements during construction of the plant and to clarify that the plant does not need to be fully constructed in order to have a plant-referenced simulator. The proposed rule also would amend 10 CFR Part 55 to permit the use of suitable alternatives in lieu of the plant walkthrough portion of the operating test while the plant is under construction; permit a licensee to ask for a waiver for examination and test requirements for multiple unit sites of the same design; and require actions that would ensure that an operator license applicant's knowledge, skills, and abilities are maintained when significant time elapses between when the applicant successfully passes the licensing exam and completes the remaining requirements to be licensed. These changes would promote a more efficient and effective operator licensing process at plants under construction.

- **Physical Security Requirements:** The proposed rule would change the implementation milestone for the security requirements in 10 CFR 73.55, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage," and 10 CFR 73.56, "Personnel access authorization requirements for nuclear power plants," from before fuel is allowed onsite to initial fuel load into the reactor. Additionally, the proposed rule would amend 10 CFR 70.22, "Contents of applications," and 10 CFR 73.67, "Licensee fixed site and in-transit requirements for the physical protection of special nuclear material of moderate and low strategic significance," to make security requirements for Category II and III quantities of special nuclear material brought on site at nuclear power reactors for new and existing facilities licensed under 10 CFR Part 50 consistent with those requirements for facilities licensed under 10 CFR Part 52. The proposed changes would enhance consistency and establish a level of protection for special nuclear material that is commensurate with the security risk associated with the material.

- **Fitness-for-Duty Requirements:** The proposed rule would address lessons learned from the implementation of fitness-for-duty (FFD) programs at nuclear power reactor construction sites. The proposed rule would change the implementation milestone for an FFD program required to implement all requirements of 10 CFR Part 26, "Fitness for Duty Programs," except for Subpart I, "Managing Fatigue," and Subpart K, "FFD Programs for Construction," from establishment of the protected area to prior to initial fuel load into the reactor. Additionally, this change would revise requirements that address the escorting of construction workers at the construction site and procedures for Medical Review Officers. Other changes would clarify regulatory language.

- **Emergency Planning:** The proposed rule would address lessons learned, align the licensing process within 10 CFR Parts 50 and 52, and clarify requirements related to the emergency plan change process, emergency preparedness exercises, and the review of emergency plans. The staff has engaged with the Federal Emergency Management Agency (FEMA) to describe the proposed rule changes in accordance with the Memorandum of Understanding between the NRC and FEMA and will engage with other stakeholders as needed once the proposed rule is issued.

- **10 CFR Part 52 Licensing Processes:** The proposed rule would eliminate requirements for renewing design certifications and expiration dates of existing design certifications and standard design approvals. The proposed rule would extend the

maximum duration of new and renewed manufacturing licenses from 15 years to 40 years. This proposed rule also would address lessons learned related to standard design approvals and certifications, such as the change process for standard design approvals and the scope of the design that standard design certification applicants must submit for NRC review. Specifically, the proposed rule would establish a change process for standard design approvals, and it would also clarify the term "essentially complete design" for design certification applicants. The proposed rule also would eliminate requirements for evaluating the impact on standardization when approving departures from design certification or manufacturing license information.

- **Environmental:** The proposed rule would amend 10 CFR 51.50, "Environmental report - construction permit, early site permit, or combined license stage," to clarify that an applicant for a construction permit can incorporate by reference an environmental document prepared by the NRC for a different approval.

Related Petition for Rulemaking

In a September 10, 2020, staff requirements memorandum to SECY-18-0106, "Staff Requirements – SECY-18-0106 – Consideration in the Rulemaking Process of Issue Raised in Petition for Rulemaking on Applicability of Risk-Informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors (PRM-50-110; NRC-2015-0028)" (ADAMS Accession No. ML20254A357), the Commission directed the staff to consider in the rulemaking process the issue of whether to allow holders of a combined license to adopt risk-informed classification of structures, systems, and components under 10 CFR 50.69. The proposed changes discussed above to allow design certification applicants, construction permit holders, and combined license holders to make use of 10 CFR 50.69 would address the Commission's direction in SECY-18-0106.

Stakeholder Feedback

The NRC received eight comment submissions on the regulatory basis. The staff reviewed the public comment submissions and grouped the comments into several regulatory areas. These comments are discussed with the associated topics in the draft *Federal Register* notice for the proposed rule (Enclosure 1). Several comments resulted in changes to numerous recommendations the staff made in the regulatory basis. Enclosure 1 includes details on how the staff used stakeholder feedback to develop this proposed rule.

Regulatory Analysis

The staff prepared a draft regulatory analysis (Enclosure 3) to determine anticipated costs and benefits of the proposed rule. In particular, the draft regulatory analysis evaluates the costs and benefits associated with the proposed new requirements and the development of, or modifications to, NRC guidance for each technical area addressed by the proposed rule. The staff determined that the proposed rule would be cost-beneficial to the nuclear industry, Government, and the general public.

Cumulative Effects of Regulation

The staff is considering the cumulative effects of regulation by engaging with external stakeholders throughout this rulemaking. On January 15, 2019, the NRC held a Category 3 public meeting to gain feedback from external stakeholders on the scope of the rulemaking. On April 29, 2020, the NRC held a Category 3 public meeting (ADAMS Accession No. ML20141L609) to update the public on the progress of the development of the regulatory basis for the rulemaking. On March 2, 2021, the NRC held a Category 3 public meeting (ADAMS Accession No. ML21076A098) to gain feedback from external stakeholders on the regulatory basis for the rulemaking.

Implementing Guidance

Enclosure 2 discusses implementing guidance that either supports the proposed changes to the regulations or requires conforming changes. It identifies related subjects for which current implementing guidance is sufficient. In addition, it addresses several projects that are already underway to develop or update other implementing guidance.

Backfitting and Issue Finality Considerations

The NRC staff prepared a backfitting and issue finality assessment for this proposed rule (Enclosure 4). Only one set of the changes in this proposed rule would constitute backfitting, as that term is defined in 10 CFR 50.109, "Backfitting," and described in NRC Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," for current holders of 10 CFR Part 50 operating licenses. The proposed changes to 10 CFR 70.22(k), 73.67(d), and 73.67(f) would revise the security requirements for Category II and III quantities of special nuclear material stored within the owner-controlled area but outside the protected area at 10 CFR Part 50 nuclear power reactors. This change in the Commission's regulations would affect nuclear power plant licensees in their capacity as 10 CFR Part 50 licensees and could impose a change to the licensees' required physical security program, thereby meeting the definition of "backfitting" in 10 CFR 50.109(a)(1).[1] The staff finds that this backfitting action would be necessary to ensure that these facilities provide adequate protection to the health and safety of the public and are in accord with the common defense and security. Because an adequate protection exception to the requirement to prepare a backfit analysis would apply, a backfit analysis was not required to support the proposed backfitting.

Forward Fitting Considerations for New Light-Water Reactor Applications

As described in more detail in Enclosure 5, one set of changes in this proposed rule relates to the NRC staff's application of the Commission's forward fitting policy in Management Directive 8.4. A section of the forward fitting policy refers to the regulations in 10 CFR Part 50 and 10 CFR Part 52 that require an applicant for a new light-water reactor license or approval to include in its application an evaluation of conformance with the Standard Review Plan in effect six months before docketing of its application. The proposed changes would eliminate this requirement but would not constitute forward fitting and should not impact the staff's

[1] The backfitting provision in 10 CFR 50.109 would apply in this instance instead of the backfitting provision in 10 CFR 70.76 because 10 CFR 70.76, like all sections of 10 CFR Part 70, Subpart H, does not apply to nuclear power reactor licensees.

implementation of the Commission's forward fitting policy. Enclosure 5 contains the NRC staff's assessment addressing the impact of the proposed changes on the forward fitting policy.

RECOMMENDATIONS:

The NRC staff recommends that the Commission approve the enclosed proposed rule (Enclosure 1) for publication in the *Federal Register* and note the following:

(1) Upon Commission approval, the NRC will publish the proposed rule in the *Federal Register* for a 75-day comment period.

(2) The proposed rule contains revised information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3521). The NRC staff will submit information collection requirements to the Office of Management and Budget (OMB) for its review and approval on or immediately after the date of publication of the proposed rule in the *Federal Register* in accordance with OMB procedures.

(3) The Office of Congressional Affairs will keep the appropriate congressional committees informed.

(4) The NRC staff will hold a public meeting during the comment period for this proposed rule.

COORDINATION:

The Office of the General Counsel has no legal objection to the publication of the proposed rule. The Chief Financial Officer has reviewed this paper for resource implications and has no objections. The Committee to Review Generic Requirements has reviewed the backfitting and issue finality assessment for this proposed rule and has no objections. The staff met with the Advisory Committee on Reactor Safeguards (ACRS) on March 2, 2022. In a letter to the Commission dated March 23, 2022 (ADAMS Accession Number ML22069A269), the ACRS recommended that the staff should proceed with this rulemaking package.

The staff will work with the Office of Public Affairs on an appropriate public communication when the NRC publishes the proposed rule in the *Federal Register*. The NRC staff will provide an information copy of the *Federal Register* notice to the Advisory Committee on Reactor Safeguards after publication.

Daniel H. Dorman
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Enclosures:
1. *Federal Register* notice
2. Regulatory Guidance
3. Draft Regulatory Analysis
4. Backfitting and Issue Finality Assessment
5. Application of Forward Fitting Policy to Initial Licensing Actions for New Light-Water Reactor Facilities
6. Estimated Resources

SUBJECT: PROPOSED RULE: ALIGNMENT OF LICENSING PROCESSES AND LESSONS LEARNED FROM NEW REACTOR LICENSING (RIN 3150-AI66) DATED: June 6, 2022

SRM-S19-0084-2

ADAMS Accession Nos: PKG: ML21159A055, Commission Paper: ML21159A057; FRN: ML21159A067; Draft Regulatory Analysis: ML21159A069; Regulatory Guidance: ML21159A074, Application of Forward Fitting Policy to Initial Licensing Actions for New Light-Water Reactor Facilities: ML21320A243, Backfitting and Issue Finality Assessment: ML21335A022; Resource Estimates (OUO, Non-Public): ML21341A001

SECY-012

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