

NOTE TO COMMISSIONERS' ASSISTANTS

SUBJECT: PROPOSED REVISIONS TO SCHEDULE MILESTONES FOR RISK-INFORMED, TECHNOLOGY-INCLUSIVE REGULATORY FRAMEWORK FOR ADVANCED REACTORS (PART 53)

The purpose of this Commissioners' Assistants Note is to inform the Commission offices of the staff's progress for completing the Part 53 rulemaking. As directed in "Staff Requirements – SECY-20-0032, Rulemaking Plan on 'Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors (RIN-3150-AK31; NRC-2019-0062)'" (October 2, 2020; Agencywide Documents Access and Management System (ADAMS) Accession No. ML20276A293), the U.S. Nuclear Regulatory Commission (NRC) staff has been releasing preliminary proposed rule language to support interactions with the Advisory Committee on Reactor Safeguards (ACRS) and a wide variety of stakeholders. These releases have primarily been in the form of preliminary proposed subparts to a new part (Part 53) and corresponding and supportive changes to other selected parts within Title 10 of the *Code of Federal Regulations* (10 CFR). The staff has worked to complete the development of the rule language and supporting documents to meet the Commission-directed schedule of providing a proposed rule package to the Commission by May 2022, and to complete the final rulemaking by October of 2024 (in advance of the December 31, 2027, completion date included in the Nuclear Energy Innovation and Modernization Act). The following table summarizes the past and planned releases of preliminary rule language and other major activities related to Part 53:

Subpart	Subpart Description	Status
A	General Requirements	Released 1st iteration, including initial definitions (April 2021)
B	Safety Criteria	Released 3rd iteration (August 2021)
C	Design and Analysis	Released 3rd iteration (August 2021)
D	Siting	Released 1st iteration (April 2021)
E	Construction	Released 1st iteration (April 2021)
	Manufacturing	Released 1st iteration (April 2021)
F	SSCs	Released 1st iteration (April 2021)
	Personnel	Released 1st iteration (October 2021)
	Programs	Released 1st iteration (April 2021)
G	Decommissioning	Under development (Planned release November 2021)
H	Licensing (LWA, ESP, SDA, DC)	Released 1st iteration (August 2021)
	Licensing (ML, CP/OL, COL)	Released 1st iteration (October 2021)
I	Maintaining Licensing Basis	Released 1st iteration (August 2021)
J	Reporting & Financial	Released 1st iteration (August 2021)
Part 5X	Deterministic Alternative	Released 1st iteration (October 2021)
Part 73	Physical Security	2nd iteration planned release November 2021
	Cyber Security	2nd iteration planned release November 2021
	Access Authorization	2nd iteration planned release November 2021

Part 26	FFD	Under development (Planned release November 2021)
Other	Conforming Changes	Under development
	SOC	Under development
	Regulatory Analysis	Under development

However, the staff has concluded that additional time is needed to complete the proposed and final rules based on the contributing factors listed below, many of which were identified as key risks and uncertainties in the November 2, 2020, memorandum in response to the Commission's staff requirements memorandum (SRM) for SECY-20-0032 (ADAMS Accession No. ML20288A251). These contributing factors have evolved since the establishment of the current rulemaking schedule.

- 1) The SRM for SECY-20-0032, instructed the staff to intermittently release preliminary proposed rule language, engage stakeholders, and iterate on the language during the development of the proposed rule. The staff has implemented this approach and found that more time is needed to further engage stakeholders, including the ACRS, and iterate on rule language, as well as to develop other parts of the rulemaking package. In the November 2, 2020, response to the Commission, the staff identified engagement on key issues within the NRC and communicating constructively with external stakeholders and the ACRS as a key risk and uncertainty related to publishing the final rule by October 2024.

As part of its interactions with stakeholders, the staff has received numerous comments requesting that an alternative to the probabilistic risk assessment (PRA)-led framework in the current Part 53 preliminary proposed rule language be developed as part of this rulemaking activity. For example, the Nuclear Energy Institute (NEI) recently sent a letter to the agency on this topic (ADAMS Accession No. ML21274A070). This letter provided input on the role of the PRA in Part 53 that would allow for an NRC licensing path for future advanced reactors that generally aligns with international standards such as the International Atomic Energy Agency (IAEA) Specific Safety Requirements (SSR) 2/1, "Safety of Nuclear Power Plants: Design." The framework and specific details suggested in the IAEA SSR 2/1 are similar to the existing NRC regulations in 10 CFR Parts 50 and 52, including provisions to address a single-failure criterion, certain beyond-design-basis events (e.g., station blackout), and severe accident design features. The staff has evaluated stakeholder comments concerning the role of the PRA and possible harmonization with international standards and agrees that they have merit. The staff is therefore developing preliminary proposed rule language to support establishing a more traditional, deterministic approach for designing and licensing advanced nuclear plants in addition to the staff's ongoing work to develop the rule language for the Part 53 PRA-led framework. In addition, the staff is exploring the viability of a dose-based deterministic approach, which uses bounding estimates, instead of PRA, to demonstrate adequate protection. While not inconsistent with the rulemaking plan dated April 13, 2020 (ADAMS Accession No. ML19340A056), the extent of these activities was not foreseen in the Part 53 rulemaking plan, which describes a risk-informed, performance-based approach building from previous activities

such as the Licensing Modernization Project. The staff anticipates that the development of a traditional, deterministic option that is technology inclusive will be complex and require significant stakeholder engagement.

- 2) While some external stakeholders favor the current schedule for the Part 53 rulemaking, several industry organizations representing a variety of designers, suppliers, and possible operating companies have requested that the schedule for developing the proposed rule be extended or indicated that they would not be opposed to such an extension. These stakeholders have stated that additional time is needed to support their engagements with the staff, and some have stressed that “urgency should not come at the expense of achieving the goal of creating a rule that will be used and useful” (see NEI letter dated July 14, 2021, ADAMS Accession No. ML21196A498). Additional time for stakeholders to review preliminary proposed rule language and for additional public engagement would result in a better understanding of public comments and aid in the development of both the PRA-led and traditional, deterministic approaches. Additionally, the staff remains committed to engagement with a variety of stakeholders and recognizes that some public stakeholders may not have been able to fully participate due to the pace of this rulemaking. The staff plans to have a meeting with non-governmental organizations to specifically solicit their views on Part 53. The staff is hopeful that the additional time for stakeholder engagement in this early stage of the rulemaking process will reduce the likelihood of requests to extend the comment period on the proposed rule and ultimately result in fewer comment submittals opposing the proposed rule. These interactions during the development of the proposed rule may allow for a shorter timeframe to complete the final rule; however, as indicated in the November 2, 2020, memo to the Commission, the ability of the public to review the proposed rule within the 60-day public comment period remains a key risk and uncertainty to the schedule.
- 3) The preliminary proposed rule language for Part 53 is related to and, in some cases, incorporates aspects of other significant ongoing rulemaking and guidance activities. The schedules for many of these activities closely correspond to the current Part 53 due dates, which creates challenges in managing these activities, interacting with stakeholders, and ensuring alignment between those activities before Part 53 is presented to the Commission (e.g., rulemakings for Incorporation of Lessons Learned From New Reactor Licensing (Parts 50 and 52 Licensing Process Alignment)(NRC-2009-0196); Emergency Preparedness Requirements for Small Modular Reactors and Other New Technologies (NRC-2015-0225); Alternative Physical Security Requirements for Advanced Reactors (NRC-2017-0227); and guidance development for the Technology Inclusive Content of Application Project (TICAP) and Advanced Reactor Content of Application Project (ARCAP), and operator licensing). Additional time to develop the Part 53 proposed rule will enable better coordination and alignment between these activities.

The staff is separately requesting an extension of the Risk-informed, Technology-Inclusive Regulatory Framework for Advanced Reactors (Part 53) rulemaking schedule. The staff has determined that extending the Part 53 due dates will not impact the staff’s ability to review near-term advanced reactor applications expected to be submitted under the existing regulatory framework.