U.S. Nuclear Regulatory Commission Public Meeting Summary

June 1, 2021

Title: Part 53 Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors Rulemaking – Subpart E Rule Language and Revised Preliminary Rule Language

Meeting Identifier: 20210375

Date of Meeting: April 8, 2021

Location: Webinar

Type of Meeting: Category 3

Purpose of the Meeting(s):

The Nuclear Regulatory Commission (NRC) staff hosted another webinar to provide an opportunity for external stakeholders and the NRC staff to exchange information on the NRC's development of Part 53 preliminary proposed rule language for advanced nuclear reactors.

General Details:

The NRC has been directed by Congress through the Nuclear Energy Innovation and Modernization Act to conduct a rulemaking to establish a technology-inclusive, regulatory framework for optional use by commercial advanced nuclear reactors by 2027. In Staff Requirements Memorandum (SRM)-SECY-20-0032, dated October 2, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20276A293), the Commission directed the NRC staff to accelerate the Part 53 rulemaking timeline, targeting a final rule publication date of October 2024. To facilitate stakeholder engagement throughout the development of the proposed rule, the NRC staff are hosting a series of public meetings to discuss and review feedback on various regulatory topics and preliminary proposed rule language for Part 53.

Prior to the April 8, 2021 public meeting and in response to stakeholder commentary, the NRC staff drafted revised Part 53 preliminary proposed rule language for subpart B, "Technology-Inclusive Safety Requirements," and subpart C, "Requirements for Design and Analysis." These documents were made available to the public on March 29, 2021 in ADAMS under accession number ML21083A031. In addition, in advance of the public meeting, the staff prepared preliminary proposed rule language for subpart E, "Construction and Manufacturing Requirements," and a white paper titled "Risk-Informed and Performance-Based Human-System Considerations for Advanced Reactors," which were made available on February 23, 2021 and March 25, 2021 in ADAMS under accession numbers ML21042B855 and ML21069A003, respectively. The meeting proceeded in a "workshop" format, which gave stakeholders an opportunity to provide input on the preliminary proposed rule language and ask direct questions of the NRC staff.

The meeting was attended by over 162 people participating through webinar and audio teleconferencing.

Summary of Presentations:

Robert Beall, Rulemaking Project Manager, in the NRC's Office of Nuclear Material Safety and Safeguards, opened the meeting and introduced himself as the NRC Project Manager for the Part 53 rulemaking and the meeting facilitator. He noted that this meeting is a comment gathering public meeting and that no regulatory decisions would be made at the meeting. Mr. Beall advised participants on the features of the teleconference platform and how to ask questions. Following Mr. Beall, Ms. Andrea Veil, Director of the Office of Nuclear Reactor Regulation, made introductory remarks. Ms. Veil emphasized the NRC remains open to discussion and flexible in its consideration of stakeholder feedback as the staff continues to develop the proposed rule package. Mr. Beall then introduced several other members of the NRC staff, including Mr. Bill Reckley and Ms. Nanette Valliere, who are technical leads in developing the Part 53 rule.

After Mr. Beall, Juan Uribe and Jesse Seymour presented the NRC staff's white paper, "Risk-Informed, Performance-Based Human-System Considerations for Advanced Reactors." Following Mr. Uribe and Mr. Seymour, Martin O'Neill from the Nuclear Energy Institute (NEI) and Cyril Draffin and Jeff Merrifield of the U.S. Nuclear Industry Council (USNIC) made presentations on human-system considerations. Following USNIC, the floor was open to comments from the public and many participants provided input.

Mr. Reckley then presented the NRC staff's proposed second iteration of preliminary proposed rule language for subpart B, "Technology-Inclusive Safety Requirements." Following Mr. Reckley, Mr. Draffin and Frank Akstulewicz from USNIC made presentations on their responses to the second iteration of preliminary proposed rule language. Following Mr. Draffin and Mr. Akstulewicz, Mr. O'Neill from NEI made a presentation. Following Mr. O'Neill, the floor was open to comments from the public.

Mr. Reckley then presented the NRC staff's proposed second iteration of preliminary proposed rule language for subpart C, "Requirements for Design and Analysis." Following Mr. Reckley, Mr. O'Neill introduced Doug True from NEI who made a presentation on probabilistic risk assessments (PRA). Following Mr. True, Mr. Draffin and Dennis Henneke also made presentations on behalf of USNIC about PRA. Following Mr. Draffin and Mr. Henneke, the floor was open to the public.

Mr. Reckley then presented the NRC staff's preliminary proposed rule language for subpart E, "Construction and Manufacturing." Following Mr. Reckley, Mr. Draffin and Steven Schilthelm presented on behalf of USNIC. Following Mr. Reckley, Mr. O'Neill made a presentation on behalf of NEI. Following Mr. O'Neill, the floor was open to the public.

Ms. Valliere then presented the NRC staff's list of key guidance which has been identified to support the Part 53 rule. Following Ms. Valliere, Mr. O'Neill from NEI made a presentation on key guidance. Following Mr. O'Neill, Mr. Draffin from USNIC made a presentation on key guidance. Following Mr. Draffin, the floor was open to comments from the public and several participants made comments.

To close the meeting, Rob Lewis made some brief remarks and then reintroduced Mr. Beall. Mr. Beall made brief closing remarks, including noting future public meetings, providing contact information for participants to use to provide input on topics of discussion in future Part 53 public meetings, identifying the regulations.gov docket number for submitting public

comments, and noting that participants in the public meeting can submit feedback to improve the structure of future public meetings.

Public Participation Themes:

Prior to the public meeting, external stakeholders representing NEI and USNIC requested to speak highlighting their views on the topics included in the meeting agenda. Additionally, members of the public were given an opportunity to contribute to the discussion via the teleconference line. These key stakeholders as well as several members of the public raised questions or provided recommended changes related to the preliminary proposed rule language, NRC's approach to human-system considerations, or the list of key guidance. Topics of discussion are listed below and grouped by agenda item. This is a high-level summary and not an exhaustive list of topics discussed during the meeting.

White Paper on Human-System Considerations

- The NRC human factors engineering vision should consider experience outside of nuclear.
- The NRC should require stricter dose limits, revise refueling outage language, allow electronic operator exams, and consider alternatives to shift technical advisor and senior reactor operator requirements.
- The NRC should more clearly define radiological risk levels at which operating protocols can be relaxed and more clearly define "passively fail-safe."

Second Iteration of Preliminary Proposed Rule Language, Subpart B, "Technology-Inclusive Safety Requirements"

- Subpart B, even as amended, adds burden relative to existing licensing frameworks.
- The NRC should move "as low as reasonably achievable" (ALARA) to guidance rather than including it in rule text.
- The two-tiered structure remains confusing. The NRC should consider if the safety construct could be accomplished without tiers, or move elements of the second tier to guidance.
- The NRC should re-insert the "reasonable assurance of adequate protection" language.
- Subpart B's first tier could have a lower threshold than 25 rem for offsite consequences.

Second Iteration of Preliminary Proposed Rule Language, Subpart C, "Requirements for Design and Analysis"

- The NRC should add an explicit deterministic pathway, rather than probabilistic, for advanced reactors to demonstrate their safety case.
- The NRC should create a bright-line limit, below which PRA is not needed.
- The NRC should consider other approaches, such as "graded," or "hybrid" PRA.
- Other stakeholders encouraged the NRC to require a high bar to safety cases.

Preliminary Proposed Rule Language, Subpart E "Construction and Manufacturing"

- Extending manufacturing licenses down the supply chain will impact cost-effectiveness.
- Safety and security are better addressed through Parts 70 and 71.

Key Guidance Documents for Part 53

- The NRC should consider adding guidance to support reporting requirements, the licensing process, annual fees, defense in depth, guidance specific to reactor type and load levels, and topics related to NUREG/BR-0303.

- The NRC should provide detailed guidance on PRA and encourage staff flexibility in application reviews.

Action Items/Next Steps:

The next public meeting will be scheduled for May 6, 2021. In advance of that public meeting, any preliminary proposed rule text will be posted on www.regulations.gov under docket ID NRC-2019-0062. The NRC staff will also be meeting with the Advisory Committee on Reactor Safeguards Future Plants subcommittee in April 2021.

Public meeting participants were encouraged to email any comments from issues raised during the public meeting to either Robert Beall at Robert.Beall@nrc.gov or Bill Reckley at William.Reckley@nrc.gov.

Attachments:

- Meeting Agenda – ML21089A017
- Meeting Presentation Slides – ML21088A279
- Meeting Transcript – ML21106A004
- Discussion Table for Preliminary Rule Language for the Part 53 Rulemaking: 2nd Iteration of Subparts B, "Technology-Inclusive Safety Requirements," and C, "Requirements of Design and Analysis" – ML21083A031
- Discussion Table for Preliminary Proposed Rule Language for Subpart E, "Construction and Manufacturing" – ML21042B855
- White Paper: "Risk-Informed and Performance-Based Human-System Considerations for Advanced Reactors," – ML21069A003