



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

September 6, 2022

The Honorable Christopher T. Hanson
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT – 697th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, JULY 6-7, 2022

Dear Chairman Hanson:

During its 697th meeting, July 6-7, 2022, which was conducted in person and virtually, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters. The ACRS completed the following correspondence:

LETTER REPORT

Letter Report to Christopher T. Hanson, Chairman, U.S. Nuclear Regulatory Commission (NRC) from Joy L. Rempe, Chairman, ACRS:

- Fourth Interim Letter on 10 CFR Part 53 Rulemaking Language, dated August 2, 2022, ADAMS Accession No. ML22196A292.

MEMORANDA

Memoranda to Daniel H. Dorman, Executive Director for Operations (EDO), NRC, from Scott W. Moore, Executive Director, ACRS:

- Documentation of Receipt of Applicable Official NRC Notices to the Advisory Committee on Reactor Safeguards for July 2022, dated July 21, 2022, ADAMS Accession No. ML22201A064, and
- Appendix K, "Monetary Valuation of Nonfatal Cancer Risk for Use in Cost-Benefit Analysis," to NUREG/BR-0058, dated July 19, 2022, ADAMS Accession No. ML22194A794.

HIGHLIGHTS OF KEY ISSUES

1. Fourth Interim Letter on Title 10 of the *Code of Federal Regulations* (10 CFR) Part 53 Rulemaking Language

The Committee heard from the NRC staff and issued its letter dated August 2, 2022, with the following conclusions and recommendations:

- a. There are limitations of the existing quantitative health objectives (QHOs) to fully capture the value and risk of nuclear technologies and the large uncertainties associated with evaluating individual and societal risk. This could inhibit flexibility and opportunities for more innovative approaches as the regulator and applicants learn from new nuclear technologies and associated missions.
- b. Critical safety functions are foundational to the licensing process. As such, the requirements for identifying critical safety functions should be common to both frameworks.
- c. The staff should require, early in the preapplication process, each applicant to identify numeric safety dose criteria, the critical safety functions, the safety design criteria, and the underlying rationale for their selection and application in the design.
- d. The staff needs to ensure that the fire protection requirements in both frameworks are fully technology inclusive.
- e. The current approach with self-contained requirements for each of the two frameworks is very long. Furthermore, the rule has a significant amount of implementation detail that could be better located in regulatory guidance. The optics of this approach run counter to a streamlined more efficient licensing process, which is an expectation for many stakeholders. As a result, the rule may be too cumbersome to implement and may not be used.
- f. The proposed general licensed reactor operator description should provide for qualified operating personnel. However, the associated guidance for implementing 10 CFR Part 55 can be amended to accommodate the objectives of the proposed rule without the additional voluminous text.
- g. The results of the probabilistic risk assessment (PRA) can be used to inform structures, systems and components (SSC) classification by aligning the risk assessment and deterministic safety analysis. This should result, in most cases, in just two tiers for classification of SSCs: Safety Related/Safety Significant and Not Safety Related/Low Safety Significant.
- h. The simple novel analysis that provides the technical basis for the entry criteria to be able to use the Alternative Evaluation of Risk Insights (AERI) should be documented either in an appendix to the draft regulatory guide (DG)-1414 or in another appropriate document (e.g., NUREG).

Several Committee Members provided additional comments on the letter report that addressed their insights into certain aspects of the proposed rulemaking. One set of added comments, by Members Bier, Brown, and March-Leuba, addressed their concern about new advanced

reactors using remote or autonomous operation. The other set of added comments, by Member Dimitrijevic, addressed applicability of the proposed two-tier SSCs classification to the staff's two Frameworks in 10 CFR Part 53, her proposed alternative for replacing QHOs, and her concerns about the AERI entry conditions. The additional comments may be found at the end of the letter report at the same ADAMS Accession Number.

2. Briefing on Advanced Manufacturing Technologies Topic

Representatives from the NRC's Office of Nuclear Regulatory Research (RES) briefed the Committee on advanced manufacturing technology issues. This was an informational briefing, and no letter report was generated on this topic.

3. SHINE Operating License Application Review

The Committee discussed various aspects of the SHINE operating license application review, including memoranda documenting lead Member findings of SHINE Final Safety Analysis Report chapters and associated NRC staff Safety Evaluation Reports. These memoranda will support future Committee deliberations and a letter from the Committee on the operating license application.

4. Discussions at the Planning and Procedures (P&P) Session

- a. The Committee discussed the Full Committee and Subcommittee schedules through November 2022 as well as the planned agenda items for Full Committee meetings.
- b. The ACRS Executive Director led a discussion of significant notices issued by the Agency since the last Full Committee meeting in June 2022 (this activity is documented in the memorandum dated July 21, 2022).
- c. Executive Director Moore also noted that there were no regulatory guides to discuss this month.
- d. Member Halnon led a discussion of the regulatory basis for the rulemaking for reporting requirements for non-emergency events at nuclear power plants. The Committee discussed this issue and agreed to document the following in this Summary Report:

Member Halnon reviewed the regulatory basis document and recommends that no ACRS brief or review is warranted. This is largely an administrative rulemaking in response to several factors, all triggered by an industry petition in 2018. The rule also updates the requirements based on sound lessons learned and historical data. Member Halnon believes this is very responsive to industry and internal NRC concerns with the reporting regime. Member Halnon sees no safety implications about which the ACRS should be concerned. In the future (2023), Member Halnon as Chair of the Plant Operations SC may request an informational briefing. Changes to regulations and guidance regarding industry performance oversight, such as this rulemaking on reporting non-emergency events, may be a portion of such a briefing.

The Committee agreed that no further interactions are needed.

- e. Member Halnon led a discussion on Appendix K, "Monetary Valuation of Nonfatal Cancer Risk for Use in Cost-Benefit Analysis," to NUREG/BR-0058. Member Halnon discussed that this appendix provides guidance for valuing morbidity risks from radiation exposure for use in cost-benefit analysis at the NRC. To account for non-lethal health outcomes resulting in health costs and impacts to quality of life in cost-benefit analysis, these changes in morbidity risks are monetized to the extent practicable. The staff is quantifying existing cumulative dose numbers and there is no effect on QHOs. After his review, Member Halnon recommended no further Committee review on Appendix K.

The Committee agreed with Member Halnon and approved issuance of the memorandum on this topic dated July 19, 2022.

- f. Member Halnon led a discussion of the planned visit to Region III headquarters the week of August 15, 2022. This visit will include site visits to the Region III headquarters, the SHINE construction site, and the Byron operating plant.
- g. Member Ballinger led a discussion about the status of the SHINE operating license application review and when ACRS interactions could take place (the ACRS "rainbow chart" is already populated with proposed subcommittee and full committee meeting dates for this topic). Currently, a final letter on the Committee's recommendation to the Commission is planned to be discussed and documented at the September 2022 Full Committee meeting.
- h. Member Petti led a discussion about the various Committee activities involving the 10 CFR Part 53 rulemaking language and noted that subcommittee and full committee meeting agenda items have already been identified on the rainbow chart and anticipated work schedule. The letter report on Frameworks A and B is part of this ACRS full committee meeting. There is a subcommittee meeting scheduled for October 18 and 19, 2022, on the consolidated rule language and a November full committee meeting letter report.
- i. Member Petti led a discussion on a planned SECY paper on fusion by the NRR staff. The staff plan to provide a SECY Paper on the subject in advance of a meeting with the Commission scheduled for November 8, 2022. A subcommittee meeting is scheduled for September 23, 2022, and a full committee meeting on this topic is scheduled in October.
- j. Member Ballinger led a discussion about the planned visit to the Framatome fuel facility scheduled for the week of September 19, 2022.
- k. Alesha Bellinger led a discussion about NRC headquarters emergency evacuation procedures including enrollment in the NRC emergency notification system and updates to emergency evacuation procedures. The Committee was informed of new assembly areas for ACRS Members and staff who may be physically present at NRC headquarters if, and when, an emergency evacuation takes place.
- l. Chairman Rempe led a discussion of the status of outreach efforts to international counterparts regarding the planned multinational event to be held in March 2023. Several international advisory committee members have requested that an introductory and planning virtual meeting be held prior to the March 2023 event. Members concurred with working group member plans to schedule this virtual meeting.

- m. Regarding reconciliations, Member Halnon led a discussion of the staff's response dated March 30, 2022, regarding the ACRS letter entitled "Preliminary Rule Language for 10 CFR Part 53, Subpart F, "Requirements for Operations," Interim Report. The Committee deliberated on this response and incorporated its position in the letter report completed during this full committee meeting.
- n. Chairman Rempe led a closed discussion about personnel issues and proprietary information.

5. Scheduled Topics for the 698th ACRS Meeting

The following topics are on the agenda for the 698th ACRS meeting scheduled for September 7-9, 2022:

- SHINE memoranda review and Committee deliberation; technical specifications and cyber security
- NuScale topical report on emergency planning zone plume
- RG 1.250, "Dedication of Commercial-grade DI&C Items for Nuclear Power Plants"

Sincerely,



Signed by Rempe, Joy
on 09/06/22

Joy L. Rempe
Chairman

September 6, 2022

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