



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

November 1, 2023

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

**SUBJECT: SUMMARY REPORT – 709<sup>th</sup> MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, OCTOBER 3-5, 2023**

Dear Chair Hanson:

During its 709<sup>th</sup> meeting, October 3-5, 2023, 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 to Christopher T. Hanson, Chair, U.S. Nuclear Regulatory Commission (NRC)  
from Joy L. Rempe, Chairman, ACRS:

- Draft White Paper, “Micro-Reactor Licensing and Deployment Considerations: Fuel Loading and Operational Testing at a Factory,” dated October 25, 2023, Agencywide Documents Access and Management System (ADAMS) Accession No. ML23289A043.

**MEMORANDUMS**

Memorandum to Daniel H. Dorman, 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 October 2023, dated October 16, 2023, ADAMS Accession No. ML23283A175.
- Regulatory Guides, dated October 18, 2023, ADAMS Accession No. ML23283A199.

**HIGHLIGHTS OF KEY ISSUES**

- a. Review of Draft White Paper, “Micro-Reactor Licensing and Deployment Considerations: Fuel Loading and Operational Testing at a Factory”

The Committee heard from the NRC staff and other stakeholders; it issued an October 25, 2023, letter, with the following conclusions and recommendations:

1. The staff draft white paper identifies near-term options for licensing of factory-fabricated micro-reactors that could be implemented without rulemaking, to enable fuel loading and operational testing of micro-reactors where they are fabricated. We favor the alternative options because the status quo options impose a regulatory burden that does not comport with the anticipated lower hazard level posed by some micro-reactors.
  2. Innovative alternative options proposed by the staff for micro-reactors include:
    - a. Redefining when a reactor is considered operational from the initiation of “fuel loading” to “removal of features to preclude criticality,” enabling fuel loading prior to transport; and
    - b. Using NUREG-1537 guidance (for licensing of non-power research and test reactors) as a graded review approach for the anticipated lower hazard of operational testing with fuel loaded at the fabrication facility.
  3. For completeness and improved clarity, the white paper should:
    - a. Define key terms, such as “micro-reactors” and “features to preclude criticality,” and
    - b. Expand the list of topics to address in guidance, such as acceptable attributes for features to preclude criticality, the required safety margin to criticality (especially for first-of-a-kind reactors with little or no operating experience), and the certification required for personnel conducting operational testing at a factory.
- b. Discussions at the Planning and Procedures (P&P) Session
1. The Committee discussed the Full Committee and Subcommittee schedules through March 2024 as well as the planned agenda items for Full Committee meetings.
  2. The ACRS Executive Director led a discussion of significant notices issued by the Agency since the last Full Committee meeting in September 2023 (this activity is documented in the memorandum dated October 16, 2023).
  3. The ACRS Executive Director led a discussion of three regulatory guides that the Committee was asked about regarding interest in review. The Executive Director documented the Committee’s decision in a memorandum dated October 18, 2023.
  4. Member Martin led a discussion on his proposal to elevate a concern that implementation of the ACRS recommendation of “systematic searches for hazards”. Member Martin stated the ACRS recommended in several of its letter reports that the value of “systematic searches for hazards” be incorporated into the Part 53 rulemaking. He pointed out the staff’s implementation of this ACRS recommendation (found in DG-1413, “Technology-Inclusive Identification of Licensing Events for Commercial Nuclear Plants”) is too narrow. The Committee suggested future discussion of this matter, including possibly forming a working group or requesting an information briefing from the staff.

5. Member Halnon led a discussion about proposed changes to 10 CFR Part 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors." Member Halnon characterized the change in reporting requirements for non-emergency events as being 'administrative in nature' and being 'well thought-out by the NRR staff'. The Committee agreed that no further review of this rulemaking was necessary at this time.
6. Vice Chair Kirchner led a discussion on whether the Committee should review Westinghouse Electric Company's Topical Report CENPD-289-P/NP, Supplement 1, Revision 0, "Use of Inert Replacement Rods in CE 16x16 Next Generation Fuel (CE16NGF™)." Vice Chair Kirchner was assisted in his review of this topical report by Member Martin. Westinghouse Electric Company informed the NRC that being unable to reconstitute non-Class A assemblies had "resulted in several adverse consequences," and that this topical report would address these concerns by expanding the conditions that defined Class A assemblies. Members Kirchner and Martin reviewed the relevant material and concluded the safety basis record (consisting of the topical report and the staff's safety evaluation) was sufficiently complete to assure there are no new or unique hazards requiring engagement with the ACRS. The Committee agreed that no further review of this topical report was necessary.
7. Member Halnon led a discussion on a potential visit to Region II in the Summer of 2024. Member Halnon mentioned visiting the Technical Training Center in Chattanooga to see how they are preparing for potential advanced reactor applications. There were discussions amongst the Committee about additional locations to visit. Members were asked to provide their preferences to Member Halnon for further consideration at a future P&P session.
8. Member-at-large Petti updated the Committee on last month's discussion of the Committee's review of the Technology Inclusive Content of Application Project and Advanced Reactor Content of Application Project guidance documents. These documents are available for review. The Regulatory Policies and Practices – Part 53 Subcommittee plans to meet on November 16, 2023, to discuss this matter.
9. Executive Director Moore led a discussion on the need and frequency for future P&P Subcommittee meetings. Committee members acknowledged that not having a P&P Subcommittee meeting in October did not adversely impact the P&P discussions at the October Full Committee meeting. The Committee decided not to have a P&P Subcommittee meeting in November. Members agreed future P&P Subcommittee meetings, if needed, should be scheduled by the Executive Director after consultation with ACRS leadership.
10. There were no reconciliations this month.
11. There was a closed session of the P&P to discuss proprietary Committee Engagement Plans as well as sensitive administrative and personnel issues.

c. Scheduled Topics for the 710<sup>th</sup> ACRS Meeting

The following topics are on the agenda for the 710<sup>th</sup> ACRS meeting scheduled for November 1-3, 2023:

- Level 3 Probabilistic Risk Assessment, and
- Increased Enrichment Rulemaking Regulatory Basis.

Sincerely,



Signed by Rempe, Joy  
on 11/01/23

Joy L. Rempe  
Chairman

November 1, 2023

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