



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

November 16, 2017

The Honorable Kristine L. Svinicki
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT – 647th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, OCTOBER 4-5, 2017

Dear Chairman:

During its 647th meeting, October 4-5, 2017, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following letters and memoranda:

LETTERS

Letters to Victor M. McCree, Executive Director for Operations, NRC, from Dennis C. Bley, Chairman, ACRS:

- “Safety Evaluation for Topical Report ANP-10300P, Revision 0, ‘AURORA-B: An Evaluation Model for Boiling Water Reactors Application to Transient and Accident Scenarios’,” dated October 19, 2017
- “Safety Evaluation of the NuScale Power, LLC Topical Report TR-0116-20825-P, ‘Applicability of AREVA Fuel for the NuScale Design,’ Revision 1,” dated October 20, 2017
- “Revision 3 to Regulatory Guide 1.174,” dated October 20, 2017

MEMORANDA

Memoranda to Victor M. McCree, Executive Director for Operations, NRC, from Andrea D. Veil, Executive Director, ACRS:

- “Documentation of Receipt of Applicable Official NRC Notices to the Advisory Committee on Reactor Safeguards for October 2017,” dated October 11, 2017

- “Regulatory Guide,” dated October 11, 2017
 - Regulatory Guide 1.12, “Nuclear Power Plant Instrumentation for Earthquakes” (not review)

HIGHLIGHTS OF KEY ISSUES

1. Review of AREVA’s Transient Code Suite AURORA-B

The Committee met with representatives of the NRC staff, their contractor, and AREVA to review the AREVA topical report ANP-10300P, “AURORA-B: An Evaluation Model for Boiling Water Reactors; Application to Transient and Accident Scenarios.” AURORA-B is a code suite developed for predicting the dynamic response of boiling water reactors during a variety of transient and accident scenarios. AREVA has proposed to apply AURORA-B to most of the transient and accident events described in Chapter 15 of the NRC’s Standard Review Plan (NUREG-0800).

Committee Action

The Committee issued a report to the NRC Executive Director for Operations on this matter, dated October 19, 2017, with the following conclusion and recommendation: AURORA-B, with the staff-imposed limitations and conditions, provides an acceptable methodology to estimate transient safety margins for boiling water reactors operating up to extended flow window conditions, which include extended power uprate conditions. The staff’s safety evaluation should be issued.

2. NuScale Topical Report on Use of AREVA Fuel Methodology

The Committee met with representatives of the NRC staff and NuScale Power, LLC to review the staff’s safety evaluation report for the NuScale topical report TR-0116-20825-P, “Applicability of AREVA Fuel Methodology for the NuScale Design.” The topical report asserts that several AREVA fuel analysis methodologies are applicable to evaluate performance of the NuScale fuel design. These AREVA methodologies have been approved for analyzing pressurized water reactor fuel at operating plants and cover evaluation of cladding and structural materials, fuel mechanical analysis, fuel thermal-mechanical analysis, fuel cladding creep collapse, and fuel rod bowing.

Committee Action

The Committee issued a report to the NRC Executive Director for Operations on this matter, dated October 20, 2017, with the following conclusion and recommendation: The AREVA methods and codes discussed in the NuScale topical report, with the noted modifications and staff-imposed limitation, are applicable for use in analyzing the NuScale fuel design. The safety evaluation report should be issued.

3. RG 1.174, Revision 3

The Committee met with representatives of the NRC staff to review draft Revision 3 to Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." Regulatory Guide 1.174 describes the key principles and guidance for the use of risk information in regulatory decisions. One of the principles indicates that a proposed licensing basis change should be "consistent with the defense-in-depth philosophy." Balanced treatment of risk information and traditional defense-in-depth considerations has been a source of extensive discussions during staff reviews of risk-informed licensing submittals.

Committee Action

The Committee issued a report to the NRC Executive Director for Operations on this matter, dated October 20, 2017, with the following recommendation: Revision 3 of Regulatory Guide 1.174 should be issued.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the Executive Director for Operations' response of August 31, 2017, to the June 21, 2017 ACRS letter, "Draft Proposed Rulemaking 10 CFR 73.53, 'Requirements for Cyber Security at Nuclear Fuel Cycle Facilities,' Related Parts 70, 73, and 40, and Draft Regulatory Guide DG-5062, 'Cyber Security Programs for Nuclear Fuel Cycle Facilities.'" The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of September 7, 2017, to the July 26, 2017 ACRS letter, "Interim Letter: Chapters 3, 4, 9, and 15 of the NRC Staff's Safety Evaluation Report with Open Items Related to the Certification of the APR1400 Design." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of September 19, 2017, to the July 27, 2017 ACRS letter, "Safety Evaluation for WCAP-17642-P, Revision 1, 'Westinghouse Performance Analysis and Design Model (PAD5)'" The Committee was satisfied with the Executive Director for Operations' response.

SCHEDULED TOPICS FOR THE 648th ACRS MEETING

The following topics are scheduled for the 648th ACRS meeting, to be held on November 2-4, 2017:

- Northwest Medical Isotopes Mo-99 Radioisotope Production Facility
- State-of-the-Art Reactor Consequences Analyses (SOARCA) Project-Sequoyah

Sincerely,

/RA/

Dennis C. Bley
Chairman

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Dennis C. Bley
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