



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

February 2, 2017

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

SUBJECT: SUMMARY REPORT – 639<sup>th</sup> MEETING OF THE ADVISORY COMMITTEE ON  
REACTOR SAFEGUARDS, NOVEMBER 30 - DECEMBER 2, 2016

Dear Chairman Svinicki:

During its 639<sup>th</sup> meeting, November 30 - December 2, 2016, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and memoranda:

**REPORTS**

Reports to Stephen G. Burns, Chairman, NRC, from Dennis C. Bley, Chairman, ACRS:

- “Draft Final Rule 10 CFR 50.155, ‘Mitigation of Beyond-Design-Basis Events’ and Associated Regulatory Guidance,” dated December 6, 2016
- “Closure of Fukushima Recommendations Related to Evaluation of Natural Hazards other than Seismic and Flooding, Periodic Confirmation of Natural Hazards, and Real-Time Radiation Monitoring,” dated December 13, 2016

**MEMORANDA**

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

- “Regulatory Guides,” dated December 5, 2016

- DG-3046, “Standard Format and Content for License Applications for Uranium Hexafluoride Source Material Facilities”
- DG-2004, “Emergency Planning for Research and Test Reactors and Other Non-Power Production and Utilization Facilities”
- RG 5.36, “Recommended Practice for Dealing with Outlying Observations” (Withdrawal)
- “Documentation of Receipt of Applicable Official NRC Notices to the Advisory Committee on Reactor Safeguards for December 2016,” dated December 5, 2016

## HIGHLIGHTS OF KEY ISSUES

### 1. Draft Final Rulemaking Package for Mitigation of Beyond-Design-Basis Events

The Committee met with representatives of the NRC staff and the Nuclear Energy Institute (NEI) to discuss the draft final rulemaking package for 10 CFR 50.155, “Mitigation of Beyond-Design-Basis Events.” The staff discussed the draft final Mitigation of Beyond-Design-Basis Events rule including changes that had occurred from the proposed rule to the draft final rule, and related regulatory guidance. The staff also presented information regarding a staff non-concurrence related to proposed guidance for the rule. NEI suggested that clarification was needed to clearly state that revising the reevaluated hazard included both strategies and equipment.

### Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated December 6, 2016, with the following recommendations:

- 1) Draft final rule 10 CFR 50.155 should be issued after consideration of the following recommendation: To ensure the rule consolidates and integrates requirements for equipment and strategies that licensees will use to mitigate the effects from a wide range of severe hazards, the equipment capability requirements in paragraph (c)(4) should apply for all of the strategies in paragraphs (b)(1) through (b)(3).
- 2) Draft final Regulatory Guide 1.226 should be revised to omit the overall seismic risk screening criteria that are recommended in Section H.4.5.3 of NEI 12-06, Revision 3.
- 3) It is important that Interim Staff Guidance JLD-ISG-2012-01, Revision 2 and Regulatory Guide 1.226 contain guidance that is functionally equivalent and applied consistently for all licensees. Draft Final Regulatory Guide 1.226 should not be issued until it is reconciled with the final guidance in JLD-ISG-2012-01, Revision 2.

- 4) Draft final Regulatory Guides 1.227 and 1.228 should be issued.
  - 5) The staff should review the mitigating strategies and the baseline FLEX Support Guidelines to ensure that they appropriately integrate contingency actions for loss of direct current power supplies, associated instrumentation requirements, and equipment operating practices.
2. Fukushima Recommendations Related to 1) Evaluation of Natural Hazards Other Than Seismic and Flooding, 2) Periodic Confirmation of Natural Hazards, and 3) Real-Time Radiation Monitoring

The Committee met with representatives of the NRC staff to discuss the resolution and closure of Fukushima Near-Term Task Force recommendations related to the evaluation of natural hazards other than seismic and flooding, periodic confirmation of natural hazards, and real-time radiation monitoring. The staff presented information on the effects of high winds (hurricane and tornadic), snow loading, low water conditions due to a seiche or tsunami, ultimate heat sink water quality, volcanic ash, and downstream dam failure. The staff also explained its plans to enhance existing NRC processes to provide ongoing assessment of natural hazards and briefed the Committee on the findings of its preliminary assessment on real-time radiation monitoring.

#### Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated December 13, 2016, with the following conclusions and recommendations:

- 1) Additional regulatory actions related to high winds and wind-driven missiles, snow and ice loads, failures of downstream dams, low water conditions due to a seiche or tsunami, and other conditions that result in degraded intake water quality or air quality cannot be justified.
- 2) The staff should ensure that the integrated procedures and guidelines for implementation of plant-specific diverse and flexible (FLEX) strategies contain adequate guidance for actions to trip affected operating equipment and reduce major heat loads if the plant experiences a loss of all cooling water with continued availability of AC power.
- 3) At sites which are vulnerable to conditions that may adversely affect the plant cooling water quality, the staff should review the plant-specific FLEX strategies to ensure that alternative sources of clean water are readily available, or the FLEX equipment has adequate filtration capabilities.
- 4) At sites which are vulnerable to conditions that may adversely affect the plant intake air quality for an extended time, the staff should review the plant-specific FLEX strategies to ensure that needed ventilation will remain available, and emergency generators or FLEX generators have adequate filtration capabilities.

- 5) The staff's proposed resolution of Fukushima Near-Term Task Force Recommendation 2.2 should be modified as follows:
- The scope of external hazards to be assessed by the External Hazards Center of Expertise should be expanded to include man-made hazards, except for intentional acts.
  - The assessment process should contain a requirement for periodic reporting of the staff's state of knowledge about all external hazards.
- 6) Regulatory requirements for real-time radiation monitoring capability using fixed-station onsite and within the Emergency Planning Zone at each site are not warranted. Decisions regarding augmentation of current offsite radiation monitoring capabilities are best left to the licensees, local, and state authorities who are most directly involved with implementing the emergency response plans.

#### RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the Executive Director for Operations' response of November 4, 2016, to the September 16, 2016 ACRS letter, "Report on the Safety Aspects of the Florida Power & Light Company's Combined License Application for Turkey Point Units 6 and 7." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of August 30, 2016, to the July 19, 2016 ACRS letter, "Topical Report WCAP-16996-P, Volumes I, II, and III, Revision 1, 'Realistic Loss-of-Coolant Accident Evaluation Methodology Applied to the Full Spectrum of Break Sizes'." The Committee was satisfied with the Executive Director for Operations' responses.
- The Committee considered the Executive Director for Operations' response of October 19, 2016, to the September 16, 2016 ACRS letter, "Report on the Safety Aspects of the License Renewal Application of the Fermi 2 Nuclear Power Plant." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of November 8, 2016, to the October 14, 2016 ACRS letter, "Report on the Safety Aspects of the License Renewal Application of the Grand Gulf Nuclear Station, Unit 1." The Committee was satisfied with the Executive Director for Operations' response.

- The Committee considered the Executive Director for Operations' response of August 30, 2016, to the July 18, 2016 ACRS letter, "Draft Final Regulatory Guide 1.230, 'Regulatory Guidance on the Alternative Pressurized Thermal Shock Rule,' and Draft Final Report NUREG-2163, 'Technical Basis for Regulatory Guidance on the Alternative Pressurized Thermal Shock Rule'." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of October 11, 2016, to the September 22, 2016 ACRS letter, "Pacific Gas and Electric Diablo Canyon Units 1 and 2 Digital Process Protection System Upgrade License Amendment Request." The Committee was satisfied with the Executive Director for Operations' response.

#### SCHEDULED TOPICS FOR THE 640<sup>th</sup> ACRS MEETING

The following topics are scheduled for the 640<sup>th</sup> ACRS meeting, to be held on February 9-11, 2017:

- Interim Review of APR 1400 Design Certification Safety Evaluation Report and Selected Topical Reports
- Review of Draft Final Regulatory Guide 1.207, "Guidelines for Evaluating the Effects of Light-Water Reactor Water Environments in Fatigue Analyses of Metal Components"
- Generic Quality Assurance Lessons Learned – New Reactors

Sincerely,

**/RA/**

Dennis C. Bley  
Chairman

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Dennis C. Bley  
Chairman

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