



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

March 15, 2016

The Honorable Stephen G. Burns  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**SUBJECT:** SUMMARY REPORT – 631<sup>st</sup> MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 4-6, 2016

Dear Chairman Burns:

During its 631<sup>st</sup> meeting, February 4-6, 2016, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and memorandum:

**REPORTS**

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

- “Draft Final Rule 10 CFR 50.46c, ‘Emergency Core Cooling System Performance during Loss-of-Coolant Accidents (LOCA)’ and Associated Regulatory Guides,” dated February 23, 2016
- “Peach Bottom Atomic Power Station Units 2 and 3 Maximum Extended Load Line Limit Analysis Plus (MELLLA+) License Amendment Request,” dated February 17, 2016

**MEMORANDUM**

Memorandum to Victor M. McCree, Executive Director for Operations, NRC, from Edwin M. Hackett, Executive Director, ACRS:

- “Documentation of Receipt of Applicable Official NRC Notices to the Advisory Committee on Reactor Safeguards for February 2016,” dated February 16, 2016

## HIGHLIGHTS OF KEY ISSUES

### 1. 10 CFR 50.46c Rulemaking Activities

The Committee met with representatives of the NRC staff, industry, and the Nuclear Energy Institute (NEI) to discuss 10 CFR 50.46c, "Emergency Core Cooling System Performance during Loss-of-Coolant Accidents" rulemaking activities. The staff discussed recent changes to the performance-based requirements for reactor fuel cladding to prevent cladding embrittlement during a loss of coolant accident. NEI discussed the industry's perspective on the rulemaking. Members of the public also made comments on the rulemaking.

#### Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated February 23, 2016, with the following recommendations: 1) The draft final rule 10 CFR 50.46c and associated Regulatory Guides 1.222, "Measuring Breakaway Oxidation Behavior," 1.223, "Measuring Post-Quench Ductility," and 1.224, "Establishing Analytical Limits for Zirconium-Alloy Cladding Material" should be issued and 2) Draft Regulatory Guide 1.229, "Risk-Informed Approach for Addressing the Effects of Debris on Post-Accident Long-Term Core Cooling," should not be issued until our review has been completed.

### 2. Peach Bottom MELLLA+ License Amendment Request

The Committee met with representatives of the NRC staff and Exelon Generation Company to discuss a license amendment request for operation of Peach Bottom Atomic Power Station (PBAPS) Units 2 & 3 in the Maximum Extended Load Line Limit Analysis Plus (MELLLA+) domain and the associated NRC staff's draft safety evaluation.

PBAPS currently operates in the Maximum Extended Load Line Limit Analysis domain. The expanded operating domain in MELLLA+ increases operating flexibility by allowing control of reactivity at maximum power by changing recirculation flow rather than control rod insertion and withdrawal. Operation in the MELLLA+ domain could adversely affect the plant's susceptibility to instability and its response to anticipated transients without scram. Analysis results show that mitigating actions in the emergency operating procedures (e.g., feedwater flow runback to uncover the feedwater spargers and boron injection) are effective in the MELLLA+ operating domain, if operator actions are accomplished within a specified time. The ACRS examined the effects of conservatisms assumed in the analyses and concluded that there is acceptable margin for PBAPS operation in the MELLLA+ domain.

#### Committee Action

The ACRS issued a report to the NRC Chairman on this matter, dated February 17, 2016, and recommended that the Exelon application for operation of PBAPS Units 2 and 3 in the MELLLA+ domain should be approved, subject to the limitations and conditions identified in the staff's draft safety evaluation.

3. Draft Final Regulatory Guide 1.127, "Criteria and Design Features for Inspection of Water Control Structures Associated with Nuclear Power Plants," Revision 2

The Committee met with representatives of the NRC staff to discuss draft final Regulatory Guide 1.127, "Criteria and Design Features for Inspection of Water Control Structures Associated with Nuclear Power Plants," Revision 2. The staff provided an overview of Regulatory Guide 1.127 and discussed stakeholder comments on the draft Regulatory Guide and comments from the ACRS Regulatory Policies and Practices Subcommittee meeting held on November 18, 2015. The staff indicated that draft final Regulatory Guide 1.127, Revision 2 is ready for publication.

Committee Action

The Committee concluded that the Regulatory Guide provides adequate criteria and design features for inspection of water control structures associated with nuclear power plants. The Committee has no objection to the staff's proposal to issue this Regulatory Guide.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the Executive Director for Operations' response of November 19, 2015, to comments and recommendation included in the September 23, 2015 ACRS letter on "Interim Staff Guidance DC/COL-ISG-028, 'Assessing the Technical Adequacy of the Advanced Light-Water Reactor Probabilistic Risk Assessment for the Design Certification Application and Combined License Application.'" The Committee decided that its report and the staff's response adequately describe the differing points of opinion on this matter, and no further written exchange was needed.
- The Committee considered the Executive Director for Operations' response of November 25, 2015, to comments and recommendation included in the October 15, 2015 ACRS letter on "Report on the Safety Aspects of the Construction Permit Application for Shine Medical Technologies, Inc. Medical Isotope Production Facility." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of October November 24, 2015, to comments and recommendation included in the October 20, 2015 ACRS letter on "Interim Staff Guidance, 'Guidance for the Evaluation of Acute Chemical Exposures and Proposed Quantitative Standards.'" The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of December 16, 2015, to comments and recommendation included in the November 16, 2015 ACRS letter on SECY-15-0137, "Proposed Plans for Resolving Open Fukushima Tier 2 and 3 Recommendations." The Committee was satisfied with the Executive Director for Operations' response.

- The Committee considered the Executive Director for Operations' response of November 25, 2015, to comments and recommendation included in the October 16, 2015 ACRS letter on "The Reactor Oversight Process Enhancements." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of December 1, 2015, to comments and recommendation included in the November 12, 2015 ACRS letter on "Report on the Safety Aspects of the License Renewal Application for Davis-Besse Nuclear Power Station." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of December 13, 2015, to comments and recommendation included in the November 17, 2015 ACRS letter on "The Revised Fuel Cycle Oversight Process Cornerstones." The Committee was satisfied with the Executive Director for Operations' response.
- The Committee considered the Executive Director for Operations' response of December 28, 2015, to comments and recommendation included in the November 13, 2015 ACRS letter on "Draft SECY Paper, 'Recommendations on Issue Related to Implementation of a Risk Management Regulatory Framework.'" The Committee decided that its report and the staff's response adequately describe the differing points of opinion on this matter, and no further written exchange was needed.
- The Committee considered the Director of Nuclear Regulatory Research's response of December 3, 2015, to the quality assessment included in the November 17, 2015 ACRS letter on "ACRS Assessment of the Quality of Selected NRC Research Projects – FY 2015." The Committee was satisfied with the Director of Nuclear Regulatory Research's response.

#### SCHEDULED TOPICS FOR THE 632<sup>nd</sup> ACRS MEETING

The following topics are scheduled for the 632<sup>nd</sup> ACRS meeting, to be held on March 3-5, 2016:

- Non-Power Production and Utilization Facilities Proposed License Renewal Rulemaking
- Biennial Review and Evaluation of the NRC Safety Research Program
- Group 2 Fukushima Tier 2 and 3 Closure Plans
- Meeting with the Commission

Sincerely,

*/RA/*

Dennis C. Bley  
Chairman

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Dennis C. Bley  
Chairman

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