



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

March 4, 2009

The Honorable Dale E. Klein
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: SUMMARY REPORT – 559th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, FEBRUARY 5-7, 2009, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

Dear Chairman Klein:

During its 559th meeting, February 5-7, 2009, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following report, letters, and memoranda:

REPORT

Report to Dale E. Klein, Chairman, NRC, from Mario V. Bonaca, Chairman, ACRS:

- SECY-08-0197, "Review of Options to Revise Radiation Protection Regulations and Guidance with Respect to the 2007 Recommendations of the International Commission on Radiological Protection," dated February 18, 2009

LETTERS

Letters to R. W. Borchardt, Executive Director for Operations, NRC, from Mario V. Bonaca, Chairman, ACRS:

- Draft Final NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking," and Draft Appendix A, "Example Implementation of the Process for the Treatment of PRA Uncertainty in a Risk-Informed Regulatory Application," dated February 23, 2009
- Draft Final Regulatory Guide DG-5021, "Managing the Safety/Security Interface," dated February 18, 2009

MEMORANDA

Memoranda to R. W. Borchardt, Executive Director for Operations, NRC, from Edwin M. Hackett, Executive Director, ACRS:

- Draft Regulatory Guides 1.189 (DG-1214), 1.28 (DG-1215), and DG-5028, dated February 11, 2009

- Draft Final Regulatory Guide 1.212, dated February 9, 2009

HIGHLIGHTS OF KEY ISSUES

1. Draft Final NUREG-1855, Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking

The Committee met with representatives of the NRC staff, Electric Power Research Institute (EPRI), and ERIN Engineering to discuss draft final NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision-making," and the associated Appendix A, "Example Implementation of the Process for the Treatment of PRA Uncertainty in a Risk-Informed Regulatory Application."

The NRC staff described key elements of the report and discussed the collaboration between the NRC and EPRI in generating this document. EPRI described the scope and limitations of the report, and explained that the report addresses model and completeness uncertainties, and identifies which uncertainties should be designated as "key."

EPRI also discussed the changes made to the report since the ACRS subcommittee meeting on September 30, 2008. In the new draft, the scope of the report has been clarified and the emphasis has been placed on what is needed (rather than what is not needed). Many of these changes were in response to the members' comments at the September 30, 2008, subcommittee meeting.

ERIN Engineering also discussed an example of the use of the methods described in the main body of the document. The example is based on a proposed extension of the allowed outage time for the residual heat removal system at a hypothetical Boiling Water Reactor/4.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated February 23, 2009, recommending that NUREG-1855 be published without the Appendix A, and that the NRC staff revise and separately publish the Appendix A to include additional examples illustrating applications of the diverse aspects of the guidance described in the NUREG report. The ACRS will review the revised Appendix A when made available by the staff.

2. Draft Final Regulatory Guide DG-5021, Safety/Security Interface

The Committee met with representatives of the NRC staff to discuss the draft final Regulatory Guide DG-5021 that was developed to support the new rule 10 CFR 50.78, "Safety/Security Interface Requirements for Nuclear Power Reactors." The draft final regulatory guide, reviewed by the Committee, incorporated public comments, as appropriate. Although the emphasis of DG-5021 is to identify areas where planned or emergent changes could impact plant security

provisions, it cites the use of existing change management processes for identifying adverse impact on safety. The Committee agreed with the provisions of the guide including the use of current management controls and processes, enhanced by additional screening processes and training, for implementation of the rule.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated February 18, 2009, recommending that the draft Regulatory Guide DG-5021 be issued as final. The Committee also recommended that all regulatory guidance for changes in the licensing basis (e.g., Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis") be updated to address consideration of the interface between safety and security, and the impact of the change on security.

3. Digital Upgrade of the Oconee Reactor Protection System and Engineered Safety Features

The Committee met with representatives of the NRC staff and Duke Energy to discuss the digital upgrade of the Oconee Reactor Protection System (RPS) and Engineering Safety Features (ESF). The staff provided an overview of the Oconee License Amendment Request (LAR) to replace the existing RPS and ESF systems with a Digital Reactor Protective System/Engineered Safeguard Protective System (RPS/ESPS) system which is based on the TELEPERM XS platform. The new Oconee Digital Protection System will provide a plant response that does not require any manual operator actions for at least 30 minutes for all Chapter 15 accidents with the single exception of a manual trip during a small break loss of coolant accident.

Based on the review of the LAR, the staff has identified several issues. The primary issues include:

- Diversity and Defense-in-Depth
- Communications
- Changes to TXS Platform

The staff and Duke Energy have developed a strategy to resolve the remaining issues. The final Safety Evaluation Report (SER) is planned for completion in July 2009.

Committee Action

This was an information briefing and no Committee action was necessary at this time. The Committee plans to review the final SER associated with this LAR.

4. SECY-08-0197, Options to Revise Radiation Protection Regulations and Guidance Based on Recommendations of the International Commission on Radiological Protection (ICRP)

The Committee met with representatives of the NRC staff to discuss the Options Paper to revise the NRC radiation protection regulations and guidance based on the 2007 ICRP recommendations included in Publication 103, "The 2007 Recommendations of the International Commission on Radiological Protection." During the 557th ACRS meeting held November 6-7, 2008, the NRC staff presented to the ACRS a plan to prepare the Options Paper.

The NRC staff presented three options for revising the NRC radiation protection regulatory framework: (1) Make no changes to the existing regulatory framework; (2) Update certain portions of the regulations, not previously revised, to conform to existing 10 CFR Part 20 concepts and quantities based on ICRP Publications 26 and 30; and (3) Begin the process of aligning, to a greater degree, the NRC's regulatory framework with the recommendations contained in ICRP Publication 103. The staff prefers Option 3. Under this Option, several factors were identified, including: the schedule upon which additional technical information will be available; the need to revise certain regulations and address their implementation for licensing new reactors; the variety of other technical and policy issues that may be considered when various portions of the regulations are proposed for amendment; and the availability of resources.

Committee Action

The Committee issued a report to the NRC Chairman, dated February 18, 2009, endorsing the NRC staff's preferred option 3. This Option would begin the process of moving toward a greater degree of alignment between the regulatory framework of 10 CFR Parts 20 and 50 and Appendix I of Part 50 with the recommendations contained in the December 2007 ICRP Publication 103. In addition, the Committee recommended that the NRC staff continue its participation in ICRP and other national and international committees and standards organizations, and that the NRC not develop separate radiation protection regulations for plant and animal species.

5. Plant License Renewal Subcommittee Report (Beaver Valley License Renewal Application)

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the February 4, 2009, meeting with the NRC staff and representatives of FirstEnergy Nuclear Operating Company (FENOC) to review the draft Safety Evaluation Report (SER) related to license renewal application for the Beaver Valley Power Station (BVPS) Units 1 and 2. The NRC staff's draft SER, issued in January 2009, contained one open item. The current operating license expires on January 29, 2016, for Unit 1, and May 27, 2027, for Unit 2. During the meeting, FENOC representatives described the operating history, the license renewal review methodology, the aging management programs, and its commitment tracking system. The primary issues discussed were the submerged 4kV cables, the BVPS Unit 1 containment liner, fatigue cycles estimates, the nil ductility acceptance criterion, and the Boral Surveillance Program.

Committee Action

The Committee plans to review the final SER related to the license renewal application for the BVPS, Units 1 and 2 in July 2009.

6. Plant License Renewal Subcommittee Report (NIST License Renewal Application)

The Chairman of the Plant License Renewal Subcommittee provided a report to the Committee summarizing the results of the February 4, 2009, meeting with the NRC staff and representatives of the National Institute of Standards and Technology (NIST) to review the license renewal application for the National Bureau of Standards Reactor (NBSR) and the associated NRC staff's SER with Open Items.

On April 9, 2004, NIST submitted its application to renew the NBSR operating license for an additional 20 years. The applicant continues to operate the facility in accordance with the current license under the provisions of 10 CFR 2.109, "Effect of timely renewal application." The NRC staff's draft SER was issued in January 2009 and contained one open item. The open item is related to the operator training and requalification program. The NRC staff is currently reviewing the applicant's program in this area.

Committee Action

The Committee plans to review the final SER related to the license renewal application for the NBSR in April 2009.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

- The Committee considered the EDO's response of December 2, 2008, to conclusions and recommendations included in the October 29, 2008, ACRS interim letter on Chapters 19 and 22 of the NRC staff's safety evaluation report with open items related to the certification of the ESBWR design. The Committee decided that it was satisfied with the EDO's response.
- The Committee considered the response of the Director, Office of Nuclear Regulatory Research (RES) dated December 15, 2008, on quality assessment of the selected research projects included in the ACRS letter dated October 22, 2008. The Committee decided that it was satisfied with the RES response.

PROPOSED SCHEDULE FOR THE 560th ACRS MEETING

The following topics are scheduled for the 560th ACRS meeting to be held on March 5-7, 2009:

- Draft Final Regulatory Guide 5.71 (formerly DG-5022), "Cyber Security Programs for Nuclear Facilities"
- Draft Final Revisions to 10 CFR 50.61, "Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events"
- Draft Final Regulatory Guide 1.200 (formerly DG-1200), Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities"

- Draft Final Regulatory Guide 5.73 (formerly DG-5026), "Fatigue Management for Nuclear Power Plant Personnel"
- International Human Reliability Analysis (HRA) Empirical Study
- Containment Overpressure Credit Issue

Sincerely,

/RA/

Mario V. Bonaca
Chairman

- Draft Final Regulatory Guide 5.73 (formerly DG-5026), "Fatigue Management for Nuclear Power Plant Personnel"
- International Human Reliability Analysis (HRA) Empirical Study
- Containment Overpressure Credit Issue

Sincerely,

/RA/

Mario V. Bonaca
Chairman

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