

August 6, 2003

The Honorable Nils J. Diaz
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Chairman Diaz:

SUBJECT: SUMMARY REPORT - 504th MEETING OF THE ADVISORY COMMITTEE
ON REACTOR SAFEGUARDS, JULY 9-11, 2003, AND OTHER RELATED
ACTIVITIES OF THE COMMITTEE

During its 504th meeting, July 9-11, 2003, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and memoranda:

REPORTS:

The following reports were issued to Nils J. Diaz, Chairman, NRC, from Mario V. Bonaca, Chairman, ACRS:

- Safety Culture, dated July 16, 2003
- Proposed Criteria for the Treatment of Individual Requirements in a Regulatory Analysis, dated July 17, 2003
- Security of Nuclear Facilities, dated July 18, 2003 (Internal Use Only)

MEMORANDA:

The following memoranda were issued to William D. Travers, Executive Director for Operations, NRC, from John T. Larkins, Executive Director, ACRS:

- Revision to Section 9.5.1, "Fire Protection Program," of the Standard Review Plan, dated July 15, 2003
- Draft Final Regulatory Guide DG-1105, "Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites," dated July 15, 2003

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HIGHLIGHTS OF KEY ISSUES

1. Safeguards and Security

The Committee met with representatives of the NRC staff, the Nuclear Energy Institute (NEI), and their contractors to discuss safeguards and security matters, including Commission papers on risk-informed guidance for vulnerability assessment and on risk-informed decisionmaking, integration of the results of the vulnerability studies, potential vulnerability to sabotage of spent fuel storage facilities, and NEI-sponsored work in the area of safeguards and security. This meeting was closed pursuant to 5 U.S.C. 552b(c)(1).

Committee Action

The Committee issued a report to Chairman Diaz on this matter, dated July 16, 2003.

2. Mixed Oxide Fuel Fabrication Facility

The Committee heard presentations by and held discussions with representatives of Duke Cogema Stone and Webster (DCS) and the NRC Office of Nuclear Material Safety and Safeguards (NMSS) regarding the Mixed Oxide (MOX) fuel fabrication facility construction authorization request submitted by DCS in 2001, and the open items associated with the request. NMSS indicated that, currently, there are twelve open items to be resolved. It is noted that the facility is to be sited within the Savannah River Plant, Aiken, DC.

DCS presented information on the MOX facility mission, layout, and safety philosophy. NMSS presented information on the technical aspects associated with the facility such as the estimated risk to the public, criticality and fire safety, "red" oil, and the remaining open items.

The purpose of the MOX facility is to fabricate mixed-oxide fuel rods and assemblies from plutonium oxide powder which has been purified from weapon-grade plutonium taken from U.S. nuclear weapons stockpile. The above ground facility will be approximately 400 x 400 feet and about 65 feet tall and comprised of an aqueous polishing area, shipping and receiving, and the MOX processing area. The facility safety strategy is prevention and redundancy, nested ventilation zones, and high-efficiency particulate air filtration.

Committee Action

The Committee deferred action on a letter report to a later date because of the number of open items remaining.

3. Proposed Criteria for the Treatment of Individual Requirements in Regulatory Analyses

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the proposed criteria for treatment of individual requirements in regulatory analyses. To address the concern that aggregating or "bundling" different requirements in a

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single regulatory analysis could potentially mask the inclusion of an inappropriate individual requirement, the staff has developed proposed criteria for treating individual requirements in a regulatory analysis. The staff plans to develop final criteria and provide them to the Commission as part of its response to a Staff Requirements Memorandum (SRM) dated December 31, 2001.

Committee Action

The Committee issued a report to NRC Chairman Diaz on this matter, dated July 17, 2003. The Committee found that the proposed criteria are appropriate and responsive to the Commission's direction as provided in the December 31, 2001 SRM.

4. ESBWR Pre-Application Review

The Committee heard presentations by and held discussions with representatives of the NRC staff and the General Electric (GE) Company regarding the design aspects of the Economic and Simplified Boiling Water Reactor (ESBWR) design.

The ESBWR is a 1380 Mwe boiling water reactor with improved safety margins and passive safety systems. The ESBWR design is based on the GE Simplified Boiling Water Reactor (SBWR) and the Advanced Boiling Water Reactor (ABWR) components with natural circulation and passive safety systems. All pipes and valves are inside containment with significant reduction in systems and buildings.

The ESBWR design has several diverse means of decay heat removal. Regulatory challenges need to be addressed associated with the use of the extensive new testing and NRC approved SBWR and ABWR programs. The question of whether the regulatory hurdle is too high for new plants needs to be explored.

Committee Action

This briefing was for the Committee's information. The Committee will continue to follow-up on this matter during future meetings.

5. Expert Elicitation in Support of Risk-Informing 10 CFR 50.46

The Committee met with representatives of the NRC staff to discuss the on-going expert elicitation to reconcile loss of coolant accident (LOCA) frequency distributions to support a risk-informed alternative to the present maximum LOCA break size. A proposed rule change is being developed in response to the Commission's March 31, 2003 SRM.

Committee Action

This was an information briefing. The Committee plans to work closely with the NRC staff in the development of the proposed rule change.

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6. Recent Operating Events

The Committee, in its efforts to continue awareness of recent operating events, heard an information briefing by the NRC Office of Nuclear Reactor Regulation on the South Texas Project Unit 1 bottom mounted instrumentation nozzle leakage issue. The Committee also briefly discussed events involving dryer cracking, a stuck open relief valve, leaks in GE and Framatome fuels, and automatic scrams.

Committee Action

This was an information briefing. No Committee action was taken.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the response from the EDO dated July 2, 2003, to the ACRS report dated May 16, 2003, concerning the Proposed Revisions of Regulatory Guide 1.178, "An Approach for Plant-Specific Risk-Informed Decisionmaking for Inservice Inspection of Piping," and the associated SRP Chapter 3.9.8.

The Committee decided that it was satisfied with the EDO's response.

- The Committee considered the response from the EDO dated June 23, 2003, to the ACRS report dated April 17, 2003, concerning the "Proposed NRC Generic Letter 2003-XX: Control Room Habitability."

The Committee decided that it was satisfied with the EDO's response.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from June 12, 2003 through July 8, 2003, the following Subcommittee meetings were held:

- Thermal-Hydraulic Phenomena - July 8, 2003

The Subcommittee was briefed on the application of the TRACG code to the ESBWR design and scaling analysis.

- Planning and Procedures - July 8, 2003

The Subcommittee discussed proposed ACRS activities, practices, and procedures for conducting Committee business and organizational and personnel matters relating to ACRS and its staff.

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- Reliability and Probabilistic Risk Assessment, and Plant Operations - July 8, 2003

The Subcommittees discussed an update on the development of the mitigating system performance indices.

LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- In the Fall 2003, the Committee plans to review the results of the expert elicitation to reconcile LOCA frequency distributions. Also, the Committee plans to review proposed rule changes in a timeframe to support the SRM's due date of March 31, 2004.
- The Committee plans to continue its discussion of the construction authorization application for the MOX Fuel Fabrication Facility during a future meeting.
- The Committee plans to continue its discussion of the ESBWR design during future meetings.
- The Committee decided to refer Draft Final Regulatory Guide DG-1105, "Procedures and Criteria for Assessing Seismic Soil Liquefaction at Nuclear Power Plant Sites," to the ACNW for possible consideration.
- The Committee decided that the ACRS Subcommittees on Reliability and Probabilistic Risk Assessment and on Human Factors should hold a joint meeting to discuss the Draft NUREG Report on Updated SPAR Human Reliability Analysis Methodology.

PROPOSED SCHEDULE FOR THE 505th ACRS MEETING

The Committee has tentatively agreed to consider the following topics during the 505th ACRS meeting, to be held on September 10-13, 2003:

- Final Review of St. Lucie License Renewal Application
- Draft Final Regulatory Guide DG-1107, "Water Sources for Long-Term Recirculation Cooling Following a LOCA" and Draft Final Generic Letter 2003-XX, "Potential Impact of Debris Blockage on Emergency Recirculation Design-Bases Accident at PWRs"
- Proposed Resolution of GSI-186, "Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants"

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Future topics (continued)

- Development of NRC Review Standard for Review of Core Power Uprate Requests
- Review of PIRT Process
- Draft Final Regulatory Guide, DG-1122: Determining the Technical Adequacy of PRA Results for Risk-Informed Activities
- Subcommittee Report on Fire Protection Issues

Sincerely,

/RA/

Mario V. Bonaca
Chairman