

May 7, 2003

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

Dear Chairman Diaz:

SUBJECT: SUMMARY REPORT - 501<sup>st</sup> MEETING OF THE ADVISORY  
COMMITTEE ON REACTOR SAFEGUARDS, APRIL 10-12, 2003  
AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 501<sup>st</sup> meeting, April 10-12, 2003, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letter, and memoranda:

REPORTS:

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

- Proposed NRC Generic Letter 2003-XX: Control Room Habitability, dated April 17, 2003
- Proposed Resolution of Public Comments on Draft Regulatory Guide DG-1122, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated April 21, 2003
- Draft Final Risk-Informed Revision to 10 CFR 50.44, "Combustible Gas Control in Containment," dated April 21, 2003

LETTER:

The following letter was issued to William D. Travers, Executive Director for Operations, NRC, from Mario V. Bonaca, Chairman, ACRS:

- NUREG/CR 6813, "Issues and Recommendations for Advancement of PRA Technology in Risk-Informed Decisionmaking," dated April 29, 2003

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#### MEMORANDA:

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

- Closeout of Generic Safety Issue 168, "Environmental Qualification of Low-Voltage Instrumentation and Control Cables," dated April 15, 2003
- Draft Regulatory Guide DG-1101, "Site Investigations for Foundations of Nuclear Power Plants" (Draft Final Revision 2 to Regulatory Guide 1.132), dated April 15, 2003
- Draft Final Amendment to 10 CFR 50.55a, "Codes and Standards," dated April 22, 2003

#### HIGHLIGHTS OF KEY ISSUES

1. Draft Final Risk-Informed Revisions to 10 CFR 50.44, "Combustible Gas Control in Containment"

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding a draft final risk-informed revision to 10 CFR 50.44, "Combustible Gas Control in Containment." The staff presented the draft final rule language, including reconciliation of public comments. The draft final rule retains requirements for (a) hydrogen control systems for Mark III and ice condenser containments, (b) inerting Mark I and Mark II containments, and (c) ensuring a mixed atmosphere in the containment. The draft final rule deletes several requirements, including the requirement that prohibits licensees from venting the reactor coolant system if it could aggravate a challenge to containment.

#### Committee Action

The Committee issued a report to the NRC Chairman on this matter, dated April 21, 2003. The Committee found that the draft final rule will provide effective and efficient regulation to deal with combustible gases in containments and recommended that the rule be approved.

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2. Draft Regulatory Guide, DG-1122, "An Approach for Determining the Technical Adequacy of PRA Results for Risk-Informed Activities"

The Committee heard presentations by and held discussions with representatives of the NRC staff and the Nuclear Energy Institute (NEI) regarding the staff's proposed resolution of public comments received in regard to Draft Regulatory Guide, DG-1122. DG-1122 provides guidance to licensees in four areas (a) a minimal set of functional requirements of a technically acceptable PRA, (b) NRC position on consensus PRA standards and industry PRA program documents, (c) demonstration that the PRA (in toto or specific parts) used in regulatory applications is of sufficient technical adequacy, and (d) documentation that the PRA (in toto or specific parts) used in regulatory applications is of sufficient technical adequacy. The staff discussed the reconciliation of the large number of comments received from the American Society of Mechanical Engineers (ASME) and the industry. Industry and ASME disagree with three staff positions related to the definition of terms such as "dominant" sequences or events, the assessment of key assumptions by the peer reviews, and the minimum list of topics the peer review process should include.

Committee Action

The Committee issued a report to the NRC Chairman on this matter, dated April 21, 2003. The Committee made six recommendations concerning the draft final Regulatory Guide. The recommendations include Committee's views on three staff positions with which the ASME and NEI disagree. The Committee would like to review the draft final version of DG-1122 before it is issued for trial use.

3. Control Room Habitability

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding control room habitability. The Committee also heard a presentation by representatives of NEI and its control room habitability task force regarding NEI 99-03, Revision 1, "Control Room Habitability Guidance".

Testing at 30 nuclear power plants has shown that unfiltered inleakage to control rooms exceeds the inleakage assumed in plant safety analyses. The NRC staff has developed four draft regulatory guides pertinent to control room habitability. In addition, the staff has developed a generic letter to alert licensees to such findings suggesting that the control room licensing and design bases, and the applicable requirements may not be met.

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In March 2003, NEI revised its NEI 99-03 to address issues related to design basis and operator dose analyses, hazardous chemical evaluation, control room unfiltered inleakage, reactor control during smoke events, and control room emergency filtration system technical specifications. The goal of NEI 99-03, Revision 1, is to provide guidance to licensees in assuring that their control rooms comply with the NRC regulations.

#### Committee Action

The Committee issued a report to the NRC Chairman on this matter dated April 17, 2003, recommending that the generic letter be issued. The report also states that NRC human factors research program should consider development of quantitative information on potential performance degradation when control rooms are contaminated with smoke or operators are wearing special protective equipment.

#### 4. Subcommittee Report on the Interim Review of the License Renewal Application for the St. Lucie Nuclear Power Plant

The Committee received a briefing by the License Renewal Subcommittee Chairman regarding highlights of the Subcommittee's review of the Florida Power and Light Company's license renewal application for St. Lucie Units 1 and 2, and the corresponding Safety Evaluation Report, with open items prepared by the NRC staff. During the Subcommittee meeting, a few minor issues regarding the St. Lucie application were identified. In addition, several generic issues were raised regarding the license renewal process (e.g., concrete inspections, quality assurance of license renewal applications, and monitoring of electrical cables in manholes and other areas that may collect water).

#### Committee Action

The Committee requested to be briefed by the staff once all of the open items were resolved and will then prepare a letter report summarizing the Committee's views. In addition, the Committee will continue to pursue the generic issues during future meetings with the staff on license renewal.

#### 5. Subcommittee Report on AP1000 Design Certification Matters

The Vice Chairman of the Thermal-Hydraulic Phenomena Subcommittee provided a report to the Committee highlighting the matters associated with AP1000 that were discussed at the Subcommittee meeting on March 19-20, 2003. Also, Dr. Susan G. Sterrett (Assistant Professor, Department of Philosophy/Duke University) presented and

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submitted a statement regarding the level of detail of the AP1000 design review. Dr. Sterrett expressed concern regarding whether the NRC verifies or asks for proof that the system fluid parameters reported in the AP1000 design certification application (and used in the analyses reported in topical reports) are actually justified by design details, as opposed to the system designs at the conceptual stage.

#### 6. Recent Operating Events

The Committee, in its efforts to continue awareness of recent operating events, briefly discussed a shadow corrosion and fuel channel bowing at several General Electric plants, high pressure injection pump sump debris problems at Davis-Besse, Palisades loss of shutdown cooling, and shutdown and charging pump problems at Millstone.

#### RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the EDO's response of April 4, 2003, to comments and recommendations included in the ACRS report dated February 20, 2003, concerning proposed resolution of Generic Safety Issue (GSI)-191, "Assessment of Debris Accumulation on PWR Sump Performance."

The Committee decided that it was satisfied with the EDO's response. The Committee plans to review the final draft of a Generic Letter and draft final Regulatory Guide, which the staff has proposed as part of the resolution of GSI-191, after resolution of public comments.

- The Committee considered the EDO's response of April 3, 2003, to comments and recommendations included in the ACRS report dated December 20, 2002, concerning Framatome-ANP S-RELAP5 Realistic Large-Break Loss-of-Coolant Accident Code.

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

- The Committee considered the EDO's response of March 28, 2003, to comments and recommendations included in the ACRS report dated February 21, 2003, concerning Pressurized Thermal Shock (PTS) Reevaluation Project: Technical Bases for Potential Revision to PTS Screening Criteria.

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

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- The Committee considered the EDO's response of March 27, 2003, to comments and recommendations included in the ACRS report dated February 14, 2003, concerning Draft Final Regulatory Guide DG-1077, "Guidelines for Environmental Qualification of Microprocessor-Based Equipment Important to Safety in Nuclear Power Plants."

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

#### OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from March 6, 2003, through April 9, 2003, the following Subcommittee meetings were held:

- Thermal-Hydraulic Phenomena - March 19 and 20, 2003

The Subcommittee discussed thermal-hydraulic issues associated with design certification of the AP1000 reactor design.

- Plant License Renewal - April 9, 2003

The staff and the applicant briefed the Subcommittee on the Safety Evaluation Report, with open items, regarding the Florida Power and Light Company's license renewal application for St. Lucie Nuclear Power Plant Units 1 and 2.

- Planning and Procedures - April 9, 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.

#### LIST OF MATTERS FOR THE ATTENTION OF THE EDO

- The Committee plans to review the draft final version of DG-1122 before issuing a letter on its trial use as described in its report dated April 21, 2003.
- The Committee plans to review the final draft of a Generic Letter and draft final Regulatory Guide, which the staff has proposed as part of the resolution of GSI-191, after resolution of public comments.
- The Committee plans to hold a further briefing by the staff on the control room habitability issues once licensees have responded to the requests of the generic letter and staff has reviewed and analyzed the responses.

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PROPOSED SCHEDULE FOR THE 502<sup>nd</sup> ACRS MEETING

The Committee agreed to consider the following topics during the 502<sup>nd</sup> ACRS meeting, to be held on May 8-9, 2003:

- Vessel Head Penetration Cracking and Degradation
- Proposed Revisions to Regulatory Guide 1.178 and Standard Review Plan Section 3.9.8 for Risk-Informed Inservice Inspection of Piping
- Operating Experience Program Effectiveness
- Draft Commission Paper on ACRS Self Assessment
- Subcommittee Report on the Revised Application for the Mixed Oxide (MOX) Fuel Fabrication Facility
- Subcommittee Report on the Integrated Industry Initiating Event Performance Indicator
- Advancement of PRA Technology to Improve Risk-Informed Decisionmaking

Sincerely,

**/RA/**

Mario V. Bonaca  
Chairman