

January 23, 2003

The Honorable Richard A. Meserve  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Chairman Meserve:

SUBJECT: SUMMARY REPORT - 498<sup>th</sup> MEETING OF THE ADVISORY  
COMMITTEE ON REACTOR SAFEGUARDS, DECEMBER 5-7,  
2002, AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 498<sup>th</sup> meeting, December 5-7, 2002, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports and letter.

REPORTS:

The following reports were issued to Richard A. Meserve, Chairman, NRC, from George E. Apostolakis, Chairman, ACRS:

- Draft Commission Paper on Policy Issues Related to Non-Light-Water Reactor Designs, dated December 13, 2002
- Report on the Safety Aspects of the License Renewal Applications for the North Anna Power Station Units 1 and 2 and the Surry Power Station Units 1 and 2, dated December 18, 2002
- Framatome ANP S-RELAP5 Realistic Large-Break Loss-of-Coolant Accident Code, dated December 20, 2002

LETTER:

The following letter was issued to William D. Travers, Executive Director for Operations, from George E. Apostolakis, Chairman, ACRS:

- Draft Final American Nuclear Society External Events Probabilistic Risk Assessment Methodology Standard, dated December 20, 2002

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## HIGHLIGHTS OF KEY ISSUES

### 1. Davis-Besse Lessons Learned Task Force Report and Status of NRC Oversight (0350) Panel's Investigation of the Davis-Besse Event

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the findings and recommendations of the Davis-Besse Lessons Learned Task Force (LLTF) and the status of the NRC 0350 Panel Oversight of the Davis-Besse Nuclear Power Station activities.

An update of the activities of the Panel, a summary of the results of recent inspection activities, and a description of some significant plant equipment issues were discussed. The Panel stated that First Energy's actions appear adequate and safety focused.

The objectives and scope of the LLTF and the review methods used to conduct the study were discussed. Some of the more significant conclusions arrived at during the study, results related to Davis-Besse's assessment of plant safety, and the NRC staff's integration of information into assessments of Davis-Besse safety performance were discussed. Areas of LLTF recommendations included: inspection guidance, operating experience assessment, code inspection requirements, NRC programs and capabilities, technical information and guidance, leakage monitoring requirement and guidance, NRC licensing processes, and previous NRC lessons-learned reviews.

#### Committee Action

This was an information briefing and no Committee action was taken.

### 2. Framatome ANP S-RELAP5 Realistic Large-Break LOCA Code

The Committee heard presentations by and held discussions with representatives of Framatome ANP and the NRC staff regarding Framatome's development of the S-RELAP5 realistic code and its application to PWR large-break LOCA accident analyses. S-RELAP5 is based on the MOD2 and MOD3 versions of the NRC RELAP5 code. A realistic version of the code employs analytical models that more accurately describe the physics and reduce the need for conservative assumptions. The NRC staff has reviewed and approved use of the Framatome ANP S-RELAP5 code for application to PWR LOCA analyses for 3- and 4-loop Westinghouse and CE-designed nuclear steam supply systems.

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### Committee Action

The Committee issued a report to Chairman Meserve on this matter, dated December 20, 2002, recommending that: S-RELAP5 code be approved for application to realistic large break LOCA analyses; Framatome ANP take actions to ensure that documentation of future code versions is improved; and nodalization and momentum modeling be enhanced.

3. Meeting with Mr. Laurence Williams, HM Chief Inspector, Nuclear Installations Inspectorate (NII), United Kingdom (U.K.)

The Committee held discussions with Mr. Williams, NII, UK, regarding several items of mutual interest, including pre-decisional plans to expand the nuclear program in the UK.

This session was closed to discuss information provided in confidence by a foreign source.

4. North Anna and Surry License Renewal Application

The Committee heard presentations by, and held discussions with, representatives of the NRC staff and Virginia Electric and Power Company regarding the staff's final Safety Evaluation Report (SER) for the North Anna Power Station and Surry Power Station license renewal applications. The staff addressed the Committee's concern associated with the time limited aging analyses and discussed resolution of open items that were identified in the draft SER.

### Committee Action

The Committee issued a report to Chairman Meserve on this matter, dated December 18, 2002. The Committee recommended that the application be approved. The Committee also noted that time-limited aging analyses (e.g., evaluations of the reactor vessel margins for pressurized thermal shock and upper shelf energy) should be independently verified by the staff in future license renewal applications.

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5. Status of the Development of the Review Standard for Power Upgrades

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the current status of development of a Review Standard for plant power uprate reviews. The Review Standard is being developed pursuant to Commission direction and the ACRS recommendation that the Office of Nuclear Reactor Regulation (NRR) develop a Standard Review Plan Section for guiding future power uprate reviews. The Committee provided informal feedback on the staff's approach to develop such a Review Standard. The staff plans to issue its draft Review Standard for public comment.

Committee Action:

This briefing was for information only. No Committee action was taken at this time. The Committee plans to review the draft final standard subsequent to reconciliation of public comments by the staff.

6. Safeguards and Security Activities

The Committee discussed a proposed ACRS plan for its involvement in safeguards and security activities. The proposed plan had been coordinated with cognizant staff in the Office of Nuclear Safety and Incident Response (NSIR), Office of Nuclear Regulatory Research (RES), and the Office of Nuclear Material Safety and Safeguards (NMSS) and reflects their input and current schedules. The ACRS approved the plan and the relevant milestones that were incorporated into the December 2002 update of the ACRS/ACNW Operating Plan.

7. Proposed Options for Resolving Policy Issues for Future Non-Light Water Reactors

The Committee heard presentations by and held discussions with representatives of RES regarding the draft Commission paper on policy issues for non-light water reactor designs. RES staff has identified seven technical issues with policy implications. The Committee agreed with the proposed options.

Committee Action

The Committee issued a report to NRC Chairman Meserve on this matter dated December 13, 2002, agreeing with the staff's recommendation for each of the seven

policy issues. The Committee also commended the staff on its efforts and looks forward to further interactions on this subject.

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8. Draft Final ANS External Events Methodology Standard

The Committee heard presentations by and held discussions with Dr. Robert J. Budnitz, Chairman of the American Nuclear Society (ANS) External Events Working Group, regarding the Draft Final External Events Probabilistic Risk Assessment (PRA) Methodology Standard, BSR/ANS 58.21.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated December 20, 2002. The Committee acknowledged that the ANS Standard: adds to the standards available to assist in preparing PRAs for nuclear power plants; provides guidance rather than a prescriptive analytical method; and does not address the issue of seismically induced fires. The Committee also commented that the interface between the fire PRA and external events PRA will need further attention.

9. Election of ACRS Officers

The Committee elected Dr. Mario V. Bonaca as ACRS Chairman, Dr. Graham B. Wallis as ACRS Vice-Chairman, and Mr. Stephen L. Rosen as Member-at-Large for the Planning and Procedures Subcommittee for calendar year 2003.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the EDO's response of November 26, 2002 to comments and recommendations included in the ACRS report dated October 17, 2002, concerning publication of the NUREG/BR report, "Guidance For Performance-Based Regulation".

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

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from November 7, 2002 through December 4, 2002, the following Subcommittee meetings were held:

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- Thermal-Hydraulic Phenomena - November 12-14, 2002

The Subcommittee reviewed the Framatome S-RELAP5 realistic code and its application to large-break LOCA analyses, and discussed the status of RES's Rod Bundle Heat Transfer Program under way at The Pennsylvania State University.

- Safety Research Program - December 4, 2002

The Subcommittee discussed the ACRS 2003 report on the NRC-sponsored research programs.

- Planning and Procedures - December 4, 2002

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 Review Standard for plant power uprate reviews subsequent to reconciliation of public comments.
- The Committee plans to review changes made to the NUREG/BR report, "Guidance for Performance-Based Regulation," upon its receipt. The changes were made to address the Committee's recommendations which were described in its report of October 17, 2002.
- The Committee plans to have further interactions with the staff on the options for resolving policy issues for future non-light water reactors.

#### PROPOSED SCHEDULE FOR THE 499<sup>th</sup> ACRS MEETING

The Committee agreed to consider the following topics during the 499<sup>th</sup> ACRS meeting, to be held on February 6-8, 2003:

- Catawba and McGuire License Renewal Application
- Draft Regulatory Guide DG-1107, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident" and Draft Generic Letter 2003-xx, related to the Resolution of GSI-191, "Assessment of Debris Accumulation on PWR Sump Performance"

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- PTS Reevaluation Project: Technical Bases for Potential Revision to PTS Screening Criterion
- Draft Final Version of Regulatory Guide DG-1077, "Guidelines for Environmental Qualification of Microprocessor-Based Equipment Important to Safety in Nuclear Power Plants"
- Annual ACRS Report on the NRC Safety Research Program

Sincerely,

**/RA/**

George E. Apostolakis  
Chairman