SL-0501

June 3, 2002

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

Dear Chairman Meserve:

SUBJECT: SUMMARY REPORT - 492nd MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, MAY 2-3, 2002 AND OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 492nd meeting, May 2-3, 2002, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports. In addition, the Committee authorized Dr. John T. Larkins, Executive Director, ACRS, to transmit the memorandum noted below:

REPORTS

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

- PHEBUS-FP Program, dated May 8, 2002
- Core Power Uprate for the Brunswick Steam Electric Plant, Units 1 and 2, dated May 10, 2002

MEMORANDUM

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

- Proposed NRC Generic Letter 2002-XX: Control Room Envelope Habitability, dated May 7, 2002

HIGHLIGHTS OF KEY ISSUES

1. Brunswick Steam Electric Plant, Units 1 & 2 Core Power Uprate

The Committee heard presentations by and held discussions with representatives of the Carolina Power and Light Company (CP&L) and the NRC staff regarding CP&L's request for a 14.3% increase in core thermal power for the Brunswick Steam Electric Plant, Units 1 and 2, and the NRC staff's associated draft safety evaluation. The CP&L uprate application is similar to power uprates approved for the Duane Arnold Energy Center, Dresden Nuclear Power Station, and Quad Cities Nuclear Power Station BWR plants. CP&L utilized the General Electric (GE) Nuclear Energy and NRC-approved Extended Power Uprate (EPU) licensing topical report framework, with a few exceptions that are consistent with those previously granted to other licensees and described in GE Topical Report NEDC-33004-P, "Constant Pressure Power Uprate" (CPPU). In an April 17, 2002, letter the Committee recommended approval of the CPPU topical report for application to BWR power increases of up to 20% of the original licensed thermal power.

Committee Action

The Committee issued a report on this matter, dated May 10, 2002, recommending that the application by CP&L for an increase in core thermal power from 2558 MWt to 2923 MWt be approved.

2. Expert Panel Recommendations on Source Terms for High Burnup and Mixed Oxide (MOX) Fuel

The Committee heard presentations by and held discussions with representatives of the Office of Nuclear Regulatory Research (RES) on the findings and recommendations of an expert panel to assess the applicability of NUREG-1465 (Accident Source Terms for Light Water Nuclear Power Plants, 1995) for high burnup and MOX fuels. The panel findings were documented in a draft report and principal findings include the following: 1) For both PWRs and BWRs the release duration from high burnup fuel should not be significantly different than that recommended in NUREG-1465 for UO_2 fuel irradiated to 40 GWD/Mt; 2) For MOX fuel, release parameters for the noble gases, halogens, and alkali metals would not be expected be greatly different than that provided by NUREG-1465; 3) RES should cooperate in national and international research programs on fission product release from high burnup and MOX fuels.

Committee Action

This was an information briefing. However, the Committee plans to continue its discussion of this matter after further progress has been made by the RES staff.

3. Confirmatory Research Program on High Burnup Fuel

The Committee heard presentations by and held discussions with representatives of the NRC staff regarding the status of research being coordinated by RES on the use of high burnup fuel. The staff briefing was in response to the Committee's March 14, 2002, letter to the Executive Director for Operations, expressing concern that the Office of Nuclear Reactor Regulation (NRR) no longer supports the confirmatory research on high burnup fuel.

The Committee is concerned that the staff does not have sufficient technical basis to show that high burnup fuel can maintain its integrity for plant power uprate conditions. The NRR staff stated that it had recently received a draft Topical Report on "Reactivity Initiated Accidents," from the Electric Power Research Institute (EPRI). The research involving high burnup fuel was given a low priority because, until the EPRI Topical Report was submitted for staff review, the staff did not have a licensing action which required such research. However, the staff is reassessing the priority of such research based, in part, on the EPRI Topical Report and other topical reports that the staff expects to receive on this matter. The staff intends to respond to the Committee's March 14, 2002, letter.

Committee Action

This was an information briefing. However, the Committee will review the staff's response to its March 14, 2002, letter and will then determine whether further action is required.

4. Reactor Fuels Subcommittee Report

Dr. Dana Powers summarized the April 10, 2002, presentation to the Reactor Fuels Subcommittee by Duke Cogema Stone and Webster, and the NRC staff regarding the Department of Energy announcement of changes to the Mixed Oxide fuel fabrication facility. The changes will cause a delay of the NRC review by about a year.

Committee Action

This was an information only report and update to the full Committee of a recent subcommittee meeting.

5. Safeguards and Security Activities

In a closed session the Committee heard presentations by and held discussions with representatives of the NRC staff on the organization, structure and planned activities of the office of Nuclear Security and Incident Response as well as RES-sponsored activities in support of the NRC's current re-evaluation of safeguards and security issues.

Committee Action

The briefing was for information only. The Committee plans to continue its discussion of the NRC staff activities associated with safeguards and security during future meetings.

6. PHEBUS-FP, PHEBUS-2K AND PHEBUS-LOCA International Projects

The Committee heard presentations by and held discussions with representatives of the Institut de Radioprotection et de Surete Nucleaire (IRSN) regarding the PHEBUS-FP experimental program and plans for the PHEBUS-2K and PHEBUS-LOCA programs.

The PHEBUS-FP program is an international cooperative research program to develop experimental data for validating computer models used for severe accident analysis. The experimental work is performed at the Cadarache Centre in France. Partners in this research include the European Union, Canada, Japan, South Korea, Switzerland, and the United States. Both PHEBUS-2K and PHEBUS-LOCA are follow-on programs.

Committee Action

The Committee issued a report to Chairman Meserve, dated May 8, 2002, stating that the PHEBUS-FP program is an outstanding example of an international cooperative research program; PHEBUS-2K and PHEBUS-LOCA promise to provide pertinent data; and participation in these follow-on programs will yield important data not otherwise obtainable, but will require a long-term commitment.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

- The Committee considered the response from the EDO, dated April 24, 2002, to comments and recommendations included in an ACRS report dated March 14, 2002, concerning a licensee application for a core power uprate for the Clinton Power Station, Unit 1.

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

- The Committee considered the response from the EDO dated April 19, 2002, to comments and recommendations included in the ACRS report dated March 14, 2002, concerning Phase 2 pre-application review for AP1000 passive plant design.

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

OTHER RELATED ACTIVITIES OF THE COMMITTEE

During the period from April 10, 2002, through May 1, 2002, the following Subcommittee meetings were held:

- Reactor Fuels - April 10, 2002

The Subcommittee discussed both the Duke Cogema Stone & Webster application for construction authorization for a mixed oxide fuel fabrication facility as well as recently announced DOE changes to the application.

- Thermal-Hydraulic Phenomena - April 23, 2002

The Subcommittee reviewed the core power uprate application and associated NRC staff safety evaluation for the Brunswick Steam Electric Plant, Units 1 and 2.

- Planning and Procedures - May 1, 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 EDO response to its March 14, 2002 letter regarding the confirmatory research program on high burnup fuel when made available and will then decide whether further action is required.

- The Committee plans to continue its discussion on source term for high burnup and MOX fuels after further progress has been made by the staff.

- The Committee would like an opportunity to review the draft final version of the NRC Generic Letter 2002-XX: Control Room Envelope Habitability after reconciliation of public comments.

PROPOSED SCHEDULE FOR THE 493rd ACRS MEETING

The Committee agreed to consider the following topics during the 493rd ACRS meeting, June 6-8, 2002:

- CRDM Cracking of Vessel Head Penetrations and Vessel Head Degradation
- Technical Assessment of Generic Safety Issue (GSI)-189, "Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion During a Severe Accident"
- Technical Assessment of GSI-168, "Environmental Qualification of Low-Voltage Instrumentation and Control Cables"
- Development of Reliability/Availability Performance Indicators and Industry Trends
- Technical and Policy Issues Related to Advanced Reactors
- Proposed Rulemaking to Endorse National Fire Protection Association (NFPA) 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants"
- Generic Resolution of Voids in the Concrete Containment
- Format and Content of the 2003 ACRS Report on the NRC Safety Research Program

Sincerely,

/RA/

George E. Apostolakis
Chairman