

February 7, 2003

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

**SUBJECT: SUMMARY REPORT — 139TH MEETING OF THE ADVISORY COMMITTEE
ON NUCLEAR WASTE, DECEMBER 17–19, 2002, AND OTHER RELATED
COMMITTEE ACTIVITIES**

Dear Chairman Meserve:

The Advisory Committee on Nuclear Waste (ACNW or Committee) held its 139th meeting on December 17–19, 2002, at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. During that meeting, the Committee discussed several matters and approved the following reports issued to Richard A. Meserve, Chairman, U.S. Nuclear Regulatory Commission (NRC), from George M. Hornberger, Chairman, ACNW:

- Review and Evaluation of the U.S. Nuclear Regulatory Commission's Waste Safety Research Program, dated December 30, 2002
- Transportation Working Group Meeting, dated January 7, 2003
- ACNW Visits to Nuclear Waste Management Sites in Sweden and Attendance at the Quadripartite Meeting in Berlin, Germany, October 21–25, 2002, dated January 23, 2003

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Staff Analyses for Understanding Repository Performance

During the 137TH ACNW meeting (September 25, 2002), the staff of NRC's Office of Nuclear Material Safety and Safeguards (NMSS) introduced the following four broad classes of "framework" analyses intended to achieve an improved understanding of repository system behavior and related performance assessment results for the proposed Yucca Mountain site in Nevada:

- (1) overall performance of a repository system
- (2) capabilities of engineered and natural barriers
- (3) effect of uncertainty in parameters and models
- (4) effect of potential limitations in the technical basis¹

¹ aka degraded barrier performance.

The NMSS staff's presentation in that meeting focused on framework analysis type 2 to analyze the capabilities of engineered and natural barriers and included some preliminary numerical results from this analysis class. At that meeting, the NMSS staff also indicated that they intended to brief the Committee on the remaining three framework analysis types at a later date.

During this meeting (139th meeting), the NMSS staff briefed the Committee on framework analysis types 1, 3, and 4. The staff described the scope of these analyses and presented some preliminary numerical results obtained. Although not part of the Yucca Mountain Review Plan (YMRP) at this time, the technical and regulatory justifications for these so-called framework analyses are being developed internally and may be added to the YMRP at a later date. Moreover, the staff informally indicated that they intend to conduct framework analyses until the U.S. Department of Energy submits its license application for the proposed high-level waste (HLW) repository at Yucca Mountain. Finally, the NMSS staff indicated that they will keep the ACNW apprised of new analysis insights and results as they become available.

Committee Action

The ACNW will consider this information in future reports to the Commission on staff efforts in this area.

2. NRC Nuclear Waste Safety Research and Technical Assistance Programs

The Committee discussed the activities related to the NRC safety research and technical assistance as they relate to the waste safety arena. These discussions focused on progress made since the ACNW conducted its comprehensive review in fiscal year (FY) 2002. The Committee heard presentations from representatives of the Office of Nuclear Regulatory Research, NMSS, and the Center for Nuclear Waste Regulatory Analyses.

Committee Action

The ACNW issued a letter report to Chairman Meserve, dated December 30, 2002.

3. ACNW Action Plan

In June 2002, the ACNW updated and finalized its Action Plan to reflect new and continuing Committee priorities for FY 2002 and FY 2003. A primary purpose of the Plan is to guide the Committee in carrying out its mission as a Federal advisory committee. In addition to the priority review topics identified in the Plan, the ACNW identified operational process improvements intended to improve its efficiency and effectiveness. In the Plan, the Committee committed to update it on an annual basis and track the progress and outcomes of the process improvements. During this meeting, the ACNW Executive Director discussed with the ACNW members approaches for use in updating the Action Plan and tracking the process improvements. One acceptable approach would be to conduct a "self-assessment." To facilitate the self-assessment, the ACNW staff will

develop a separate, internal assessment document for member use. The results of the self-assessment, coupled with inputs from both within and outside of the NRC, will guide the Committee in evaluating both near- and long-term priorities.

Committee Action

During its March 2003 meeting, the ACNW members will identify priority issues for the balance of the 2003 calendar year.

4. **Reconciliation of ACNW Comments and Recommendations**

The Committee discussed the reconciliation of the EDO's response to the ACNW's report dated December 6, 2002, entitled, Capabilities of Engineered and Natural Barriers. The Committee agreed that the response was satisfactory.

5. **PROPOSED SCHEDULE FOR THE 140th ACNW MEETING**

The Committee agreed to consider the following issues at its 140th meeting on March 25–28, 2003:

- Working Group Meeting on NRC and DOE Performance Assessments: Assumptions and Differences
- Self-Assessment for 2001 and 2002 calendar years
- Update and Prioritization of ACNW Action Plan Items

Sincerely,

/RA/

George M. Hornberger
Chairman