

January 3, 2003

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

Dear Chairman Meserve:

SUBJECT: SUMMARY REPORT — 138TH MEETING OF THE ADVISORY COMMITTEE
ON NUCLEAR WASTE, NOVEMBER 19–21, 2002, AND OTHER RELATED
COMMITTEE ACTIVITIES

The Advisory Committee on Nuclear Waste (ACNW or the Committee) held its 138th meeting on November 19–21, 2002, at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. During that meeting, the Committee discussed several matters and approved the following reports, which the Committee issued to Richard A. Meserve, Chairman, U.S. Nuclear Regulatory Commission (NRC), under the signature of George M. Hornberger, Chairman, ACNW:

- “Capabilities of Engineered and Natural Barriers,” dated December 6, 2002
- “ACNW Meeting in Nevada, September 23–26, 2002,” dated December 13, 2002

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Transportation Working Group Meeting

The Committee conducted a one-and-a-half day meeting on the transportation of spent nuclear fuel (SNF) and high-level radioactive waste (HLW). The meeting convened a panel of experts in the areas of SNF transportation cask design, analysis, and testing methods to evaluate the current evidence regarding the mechanical and thermal capabilities of transportation packages. In addition, the experts reviewed the history of domestic and worldwide SNF and HLW transportation experience. Approximately 90 staff persons and stakeholders attended the workshop. In addition to the information provided by the experts, the Committee received input from several other stakeholders during the periods reserved for public comment.

Committee Action

The Committee is evaluating expert and stakeholder input and plans to issue a letter to the Commission on this matter. In addition, the Committee will issue a NUREG-series report documenting the proceedings of the Transportation Working Group Meeting.

2. Igneous Activity Update

In a letter report to Richard A. Meserve, Chairman, NRC, dated August 1, 2002, the ACNW provided the following conclusions concerning igneous activity at Yucca Mountain, Nevada:¹

- The range of estimated probabilities of igneous intrusion into the repository used by the U.S. Department of Energy (DOE) in its performance assessments is reasonable.² New information from recently completed U.S. Geological Survey aeromagnetic surveys³ does need to be evaluated more fully to determine possible changes in the appropriate probability range, but the Committee currently sees no reason to expect changes that would fundamentally alter the current conclusions of DOE's performance assessment results.
- The analysis of magma-drift interaction presented by the NRC consultants, Woods et al.⁴ is too idealized to be of direct use in interpreting possible impacts on a hypothetical repository at Yucca Mountain. The main value of the NRC-sponsored study appears to be the elevation of the importance of this modeling activity in technical meetings between the NRC and DOE so that appropriate agreements for issue resolution, at the staff level, could be made.
- The agreements to resolve the igneous activity key technical issue provide a reasonable technical basis for proceeding with the evaluation of a potential license application for the Yucca Mountain repository.

In its response dated September 24, 2002, the Executive Director for Operations noted that the staff agreed with the ACNW's August 1, 2002, conclusions, without exception. Moreover, to keep the Committee informed of activities in these areas, the staff offered to brief the Committee during its 138th meeting.

¹ In the letter report dated August 1, 2002, the ACNW was not able to consider a number of important issues associated with disruptive igneous activity at or near Yucca Mountain. In particular, the ACNW had not yet reviewed the dose calculations and the assumptions made therein and, thus, did not comment on the reasonableness of this aspect of the performance assessment results presented by the U.S. Department of Energy (DOE).

² DOE estimated a range of probabilities on the order of $\sim 10^{-9}$ to $\sim 10^{-7}$ events per year, based on available information.

³ Blakely, R.J., V.E. Langenheim, D.A. Ponce, and G.L. Dixon, "Aeromagnetic Survey of the Amargosa Desert, Nevada and California: A Tool for Understanding Near-Surface Geology and Hydrology," U.S. Geological Survey Open-File Report 00-188, Denver, Colorado, 2002.

⁴ Woods, A.W., S. Sparks, O. Bokhove, A-M. Lejeune, C. Connor, and B.E. Hill, "Modeling Magma-Drift Interaction at the Proposed High-Level Radioactive Waste Repository at Yucca Mountain, Nevada, USA," *Geophysical Research Letters*, Vol. 29, No. 13, 2002.

At the 138th meeting, the staff of the NRC Office of Nuclear Materials Safety and Safeguards made two presentations on igneous activity. The first presentation was a discussion of work by the Center for Nuclear Waste Regulatory Analyses to examine how the new aeromagnetic survey data could potentially affect igneous activity probability estimates for Yucca Mountain. The second presentation was a status report on activities of DOE's Igneous Consequences Peer Review Panel. DOE is using a peer review panel to evaluate the adequacy of its technical programs intended to address concerns related to estimating the consequences of igneous activity at the site. Albeit incomplete, the DOE peer review interim report was released on August 23, 2002.⁵ The final report is scheduled for completion some time in early 2003.

Committee Action

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

Sincerely,

/RA/

George M. Hornberger
Chairman

⁵ Budnitz, R.J., et al., "Yucca Mountain Igneous Consequences Peer Review Panel: Interim Report," Bechtel SAIC Company, North Las Vegas, Nevada, August 23, 2002.