

November 20, 2002

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

SUBJECT: SUMMARY REPORT — PUBLIC INFORMATION MEETING, TOUR OF
SELECTED NEVADA TEST SITE FACILITIES, AND 137TH MEETING OF THE
ADVISORY COMMITTEE ON NUCLEAR WASTE, SEPTEMBER 23–26, 2002,
AND OTHER RELATED COMMITTEE ACTIVITIES

Dear Chairman Meserve:

The Advisory Committee on Nuclear Waste (ACNW or the Committee) held a public information meeting on September 23, 2002, in Pahrump, Nevada; toured selected Nevada Test Site (NTS) facilities on September 24, 2002; and, held its 137th meeting on September 25-26, 2002, in North Las Vegas, Nevada. During these meetings, the Committee discussed several matters, as summarized below. The Committee also approved one letter report, entitled “Orphan Sources” (a letter to the Honorable Richard A. Meserve, Chairman, NRC, from George M. Hornberger, Chairman, ACNW, dated October 17, 2002).

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Public Information Meeting

On September 23, 2002, the ACNW held a public information meeting at the Bob Ruud Community Center, 150 North Highway, 160 and Basin Avenue in Pahrump, Nevada. This meeting was a continuation of the Committee’s efforts to gain insights into stakeholders’ concerns and perspectives regarding the proposed geologic repository at Yucca Mountain, Nevada. There was no set agenda for the public information meeting, and interested stakeholders were able to discuss their views with individual ACNW members. In addition to members of the public, attendees included representatives from Clark County, Nevada, and the U.S. Environmental Protection Agency (EPA).

Conclusions/Action Items

The ACNW will consider stakeholders’ input in future reports to the Commission regarding staff efforts related to the proposed geologic repository at Yucca Mountain, Nevada.

2. Tour of Selected Nevada Test Site Facilities

On September 24, 2002, the ACNW toured the proposed geologic repository site for the disposal of spent nuclear fuel and other high-level radioactive waste (HLW) within the Nevada Test Site (NTS) at Yucca Mountain. Representatives of the U.S. Department of Energy (DOE) conducted the tour, which included a review of selected underground tests and experiments within both the Exploratory Studies Facility and the so-called East-West Cross Drift. The current scope of DOE underground testing includes investigations to evaluate thermal, mechanical, and hydrological properties of the repository host rock. Following the tour of the Yucca Mountain underground facility, the ACNW toured DOE's low-level radioactive waste (LLW) disposal facility in NTS Area 5. This tour included an information briefing on the types of disposal methods employed at this non-commercial LLW disposal site. These tours were also attended by representatives of the State of Nevada; Clark and Nye Counties, Nevada; and the EPA.

Conclusions/Action Items

These tours were only intended as information briefings.

3. 137th Meeting of the Advisory Committee on Nuclear Waste

During September 25–26, 2002, the Committee held its 137th meeting at the Texas Station Hotel, Amaryllis Room, 2101 Texas Star Lane in North Las Vegas, Nevada.

A. Status of Key Technical Issue (KTI) Resolution

The Committee heard presentations concerning NRC activities related to the current status of key technical issue (KTI) agreements and the issue resolution process. These presentations were intended to update the Committee on developments since the detailed briefing presented during the 130th ACNW meeting. Representatives of the NRC staff also discussed DOE's re-baselining of agreements.

Conclusions/Action Items

The Committee will continue to follow this area because of the importance of issue resolution to the staff's pre-licensing activities for the proposed Yucca Mountain repository.

B. Discussion of Integrated Issue Resolution Status Report

The Committee received an overview briefing by the NRC staff on the Integrated Issue Resolution Status Report (IIRSR), NUREG-1762, and its key highlights. The staff also discussed a "Framework for Staff Analyses to Support Pre-Licensing Interactions and Issue Resolution." This included discussion of analyses that the staff is performing to promote a better understanding of the use of risk information in the issue resolution process.

Conclusions/Action Items

The Committee will continue to follow the development of the IIRSR and the staff's analyses to support issue resolution because of their importance to pre-licensing activities for the proposed Yucca Mountain repository.

C. NRC Review of Public Comments Received on the Yucca Mountain Review Plan

The Committee heard an NRC presentation concerning more than 900 public comments received on the Yucca Mountain Review Plan (YMRP). The staff explained how the comments are being categorized based on the organization of chapters in the YMRP. The staff also gave examples of the types of comments that were received.

Conclusions/Action Items

The ACNW plans to examine the revisions to the YMRP based upon public comments.

D. Overview of Well Drilling in the Amargosa Desert Area

Michael Lee, ACNW staff, gave an overview of well drilling in the Amargosa desert area. To better understand the role and history of groundwater in the lifestyles and habits of past and current Amargosa Valley residents, as they relate to the potential geologic repository at Yucca Mountain, the NRC staff conducted an analysis of groundwater development activities in the Amargosa Desert area during the past 150 years. The staff will publish the results of its analysis as a two-part report identified as NUREG-1710. In the first part, the staff will review published literature to chronicle local water development activities, thereby providing some background and historical context for the second part of the staff's analysis. The second part will describe the timing and rate of borehole drilling activity, based on electronic drilling

records obtained primarily from the Nevada State Engineer's Office and the U.S. Geological Survey. Because drilling for groundwater in the area began in the early 1900s, the data analysis described in the second part of NUREG-1710 will be limited to the period from 1900 through 1999. The electronic databases studied indicate that approximately 985 boreholes were dug or drilled in the Amargosa Desert area between 1900 and 1999.

Conclusions/Action Items

The briefing was only intended as an information briefing.

E. U.S. Department of Energy Scientific Update Regarding Selected Activities Related to the Geologic Repository Program and Yucca Mountain

Recently, Congress and the President approved DOE's recommendation to submit to the NRC a construction authorization application to build a geologic repository at the Yucca Mountain site. Current DOE plans indicate that DOE will submit its construction authorization application, consistent with the Commission's regulations in Title 10, Part 63, of the *Code of Federal Regulations*, sometime in 2004. In this series of presentations, DOE provided the Committee with an overview of the activities that will be necessary to complete and submit a license application. DOE also discussed other Yucca Mountain-related scientific activities of interest to the Committee.

- Yucca Mountain Project Plans

In their first presentation, DOE representatives discussed general plans for preparing an NRC license application for Yucca Mountain. Specifically, they identified and broadly discussed the following critical path activities:

- (1) design philosophy for the repository
- (2) preclosure safety analysis
- (3) total-system performance assessment
- (4) technical basis documentation

Although the Nuclear Waste Policy Act milestone to reach a site recommendation decision has been achieved, DOE observed that it has not yet reached a decision regarding a final repository design. Nonetheless, DOE noted that any construction authorization application would include sufficient design information for NRC review. In this regard, DOE reminded the Committee that any final license application design would be consistent with the flexible design concept described in the recent site recommendation and within operating parameters bounded by the final environmental impact statement (FEIS). As part of the presentation, DOE also noted that the key technical issue resolution process is working as intended and that, in its judgment, there are no outstanding technical issues that would preclude DOE from submitting a license application to the NRC in 2004.

Conclusions/Action Items

The ACNW intends to follow developments in this area.

- Rebaselining of DOE's Yucca Mountain Program

DOE's management and operating (M&O) contractor has proposed a phased approach to the construction and operation of a geologic repository, which would allow waste acceptance and emplacement operations to begin at Yucca Mountain in calendar year 2010. While preserving all capabilities of earlier design concepts, this approach assumes a lower spending profile than previously proposed. The phased approach favors a modified repository design concept, including a smaller initial repository facility, simplified overall surface complex, and a larger underground emplacement footprint. In their second presentation, DOE representatives discussed the M&O contractor's overall design proposal, schedule, and funding requirements for phased repository operations.

Conclusions/Action Items

The ACNW intends to follow developments in this area.

- Final Environmental Impact Statement for Yucca Mountain

The ACNW heard a presentation by DOE representatives on the evolution of the Yucca Mountain draft environmental impact statement (DEIS) into the FEIS. DOE received nearly 13,000 public comments on the DEIS, of which 25 percent resulted in changes that are reflected in the FEIS. Other changes resulted from the correction of errors, new information, and improved analytical methods. The next steps in the environmental impact statement (EIS) process include finalizing the mode of transportation (currently, rail is preferred both nationally and in Nevada), and initiating the process to support adoption of the FEIS by the NRC.

Conclusions/Action Items

The ACNW intends to follow the process leading to the adoption of the FEIS by the NRC.

- Repository Design Update

In a previous presentation, DOE representatives introduced the notion that DOE is considering a so-called “phased approach” to the construction and operation of the Yucca Mountain geologic repository. Under a phased approach, DOE discussed the potential to redesign major features of the repository, including the following:

- an expanded underground emplacement footprint consisting of five emplacement panels
- a performance confirmation test facility
- a simplified surface facility complex
- a waste retrieval holding area
- an offsite training facility
- a pre-emplacement aging option

Conclusions/Action Items

The ACNW intends to follow developments in this area.

- Proposed Resolution of Anomalous Chlorine-36 Indications

The Committee heard an overview of the ongoing DOE/contractor efforts to resolve discrepancies in chlorine-36/total chlorine ratios in samples from the exploratory studies facility measured by Lawrence Livermore National Laboratory (LLNL) and Los Alamos National Laboratory. This presentation reviewed the history of the issue and provided the current status of the project. The Committee had an opportunity to discuss the issues with researchers involved in the validation effort.

Conclusions/Action Items

The Committee continues to follow this issue because of the importance of the results to the understanding of water movement through Yucca Mountain.

- Microbial-Induced Corrosion Considerations

The Committee received an overview presentation by Lawrence Livermore National Laboratory personnel concerning their studies of microbiologically influenced corrosion (MIC) of engineered barrier materials. The presentation gave the current status of the work and provided an opportunity to discuss the issues with the principal scientists involved.

Conclusions/Action Items

The Committee continues to follow MIC because of its potential importance to the lifetime of waste packages and other engineered barriers in Yucca Mountain.

RECONCILIATION OF ACNW COMMENTS AND RECOMMENDATIONS

- The Committee considered the response from the NRC's Executive Director for Operations (EDO), dated September 18, 2002, to ACNW letter dated, August 2, 2002, concerning Revision 2 to the Yucca Mountain Review Plan.

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

- The Committee considered the response from the EDO, dated September 18, 2002, to ACNW letter dated, August 7, 2002, on the high-level waste performance assessment sensitivity studies. During its 137th meeting, the NRC's Office of Nuclear Material Safety and Safeguards (NMSS) presented followup information on the types of barrier analyses that could be used to evaluate DOE compliance with NRC's regulations.

The Committee decided that it was satisfied with the EDO's response. NMSS committed to keep the Committee apprised of the staff's thinking in this areas as it evolves.

- The Committee considered the response from the EDO, dated August 21, 2002, to ACNW letter dated June 28, 2002, concerning the proposed package performance study test protocols.

The EDO's response did not adequately address all of the Committee's concerns, and the ACNW plans to followup on this matter during future meetings with the staff.

- The Committee considered the response from the EDO, dated September 17, 2002, to ACNW letter dated, August 5, 2002, on the high-level waste program performance of waste packages at the proposed Yucca Mountain repository.

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

PROPOSED SCHEDULE FOR THE 138th ACNW MEETING

The Committee agreed to consider the following issues at its 138th meeting on November 19–21, 2002:

- Transportation Working Group Workshop
- Igneous Activity at Yucca Mountain
- Preparation for briefing the Commission on December 18, 2002,
- Preparation of Proposed ACNW Reports

- Principal Observations from the September Trip to Yucca Mountain and Environs
- Observations from the October Trip to Swedish Waste Management Facilities and Berlin Quadripartite Meeting
- Comparison of NRC's Total-System Performance Assessment and DOE's Total System Performance Assessment Computer Code Results
- Conclusions Regarding the Safety of Spent Nuclear Fuel Transportation

Sincerely,

/RA/

George M. Hornberger
Chairman