

July 23, 2001

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

SUBJECT: SUMMARY REPORT — 127TH MEETING OF THE ADVISORY COMMITTEE ON
NUCLEAR WASTE, JUNE 19–21, 2001, AND OTHER RELATED COMMITTEE
ACTIVITIES

Dear Chairman Meserve:

During its 127th meeting, June 19–21, 2001, at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, the Advisory Committee on Nuclear Waste (ACNW or the Committee) discussed several matters and approved the following reports:

REPORTS

- NRC Staff Public Outreach Activities (Letter to Dr. William D. Travers, Executive Director for Operations, NRC, from B. John Garrick, Chairman, ACNW, June 27, 2001).
- Risk-Informed, Performance-Based Regulation of Waste Management and Decommissioning (Report to the Honorable Richard A. Meserve, Chairman, NRC, from B. John Garrick, Chairman, ACNW, June 29, 2001).

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

I. Planning and Procedures

The ACNW approved the following topics for discussion during its 128th meeting, July 17–19, 2001:

- ACNW Planning and Procedures —The Committee will review items under consideration at this meeting and consider topics proposed for future ACNW meetings.
- Update on Igneous Activity Issue Resolution —The Committee members will hear a presentation from the NRC staff on progress in resolving the igneous activity issue.
- The Department of Energy's (DOE's) Supplemental Science and Performance Analysis (SSPA)—The Committee members will hear a status report from DOE on its SSPA to be issued this summer.

- Research Plan for Radionuclide Transport Program —The Committee members will hear an information briefing by the NRC Office of Nuclear Regulatory Research (RES) staff on the current status of the radionuclide transport program, and will discuss its plans to review the research program.
- Meeting Reports —The Committee will hear reports from the members and staff on meetings attended since the 127th ACNW meeting.
- Key Technical Issues (KTIs) - Vertical Slice Report —The Committee members will discuss their progress and then commence drafting a report on assigned KTIs.
- Greater-Than-Class C (GTCC) Wastes —The Committee will hear a presentation by DOE representatives on DOE's handling of GTCC.
- Preparation of ACNW Reports — The Committee will discuss proposed reports on high-level waste chemistry; igneous activity issues resolution; the research plan for radionuclide transport; GTCC disposal options; and the KTI vertical slice report.
- Preparations for October Visit to Nevada — The Committee will discuss potential topics, including public outreach sessions and a visit to the Envirocare facility.

2. Overview of Private Fuel Storage

The Committee met with the cognizant Spent Fuel Project Office (SFPO) Senior Project Manager, Mark Delligati, who provided an overview of the current Private Fuel Storage, L.L.C. (PFS) proposal, the associated NRC licensing process, and the current status of the project.

PFS, a consortium of eight utilities, proposes to construct and operate an away-from-reactor independent spent fuel storage installation. It is seeking a site-specific license, pursuant to 10 CFR Part 72. The proposed facility design capacity is 4,000 MTU on a site restricted area of approximately 100 acres in Skull Valley, Utah. Spent fuel is to be moved to the site via a new 32-mile rail line on land managed by the Bureau of Land Management.

The NRC licensing process was discussed and the technical areas of evaluation presented. In September 2000 the NRC issued a safety evaluation report (SER). Additional geotechnical and aircraft and cruise missile test information has been provided and will result in a supplement to the SER. Details of additional steps in the licensing process were discussed. The final NRC licensing decision will be made by the Commission.

Conclusions/Action Items

This briefing was for information only and no Committee action was required. However, the Committee intends to closely monitor the progress of the PFS application as part of its involvement in the overall disposition of high-level waste (HLW) and spent fuel.

3. Update on the Preclosure Approach - NRC

The NRC staff presented the current status of preclosure issues for the proposed repository at Yucca Mountain, Nevada. Preclosure activities will include the handling, packaging, and emplacement of spent fuel and HLW prior to permanent closure of the proposed repository. Although DOE designs for fuel handling and emplacement structures, systems, and components are evolving, the staff has begun the review process. NRC staff concerns have been transmitted to DOE and technical exchanges designed to close open issues will begin this summer.

Conclusions/Action Items

The Committee will continue to monitor progress on preclosure issues as part of its review of the proposed HLW repository at Yucca Mountain.

4. NRC Public Outreach Activities

The Committee heard presentations by and had discussions with representatives of the NRC staff regarding public outreach activities. The staff is actively working to improve the overall ability of the Agency to communicate with internal and external stakeholders through specific training in communication skills and techniques, managing change, conducting meetings, and plain language. In addition, as part of its effort to enhance its interactions with the public, the staff has developed posters and handouts that address, at least partially, the Committee's concerns. One such flyer illustrates the role of the various Federal regulatory agencies in the oversight of the proposed repository at Yucca Mountain.

In the development of the strategic goals and measures, performance goals and measures were developed for nuclear reactor safety, nuclear materials safety, and nuclear waste safety arenas. A performance goal for all three arenas is to increase public confidence. An ongoing initiative is developing communication plans to implement strategies to effectively communicate with and involve diverse stakeholders early in regulatory activities. The staff has recently completed preparation of a communication plan for the NRC's HLW regulatory program. The implementation of this plan will include the development of communications tools that aid the technical staff in conveying key policy and technical issues.

Conclusions/Action Items

The Committee wrote a letter on June 27, 2001, to the Executive Director for Operations commending the staff on its success in transforming the HLW outreach program and its effort and innovativeness striving for continued improvement.

This presentation was for information only and no Committee action was required.

5. **Key Technical Issues (KTI) - Vertical Slice Report**

The Committee continued discussing its vertical slice review. Dr. Wymer, ACNW, discussed the status of the HLW chemistry paper, and Dr. Garrick summarized his planned approach for the total system performance assessment vertical slice review. Richard Major, ACNW staff, commented briefly on the vertical slice review performed by himself and Mr. Levenson on thermal effects on flow. Dr. Hornberger deferred discussion of the saturated zone vertical slice review until after the July meeting.

The members had a lively discussion about the role and use of the DOE TSPA code and the NRC TPA code. In particular, concern was expressed that the DOE 's total system performance assessment analysis is not a risk assessment in that it has many conservative assumptions that can lead to misleading results about the risk posed by the proposed Yucca Mountain facility. The members also discussed to what extent the total system performance assessment analysis has to be thoroughly understood before the Committee can evaluate the NRC staff's TPA code; whether the total system performance assessment analysis can be used to evaluate safety or compliance regardless of whether it is a realistic or a risk-informed, performance-based type of analysis; whether there is anything inherently wrong with performing bounding rather than realistic analyses; whether the NRC's TPA code is being used to confirm the staff's sufficiency review and, if so, whether the code's use is well documented and transparent; and how the NRC uses its confirmatory analysis and the TPA code to assess DOE's use of conservatism.

Lynn Deering, ACNW staff, and John Larkins, ACNW/Advisory Committee on Reactor Safeguards Executive Director, suggested that the Committee revisit its comments on the viability assessment before making its comments on sufficiency.

Dr. Hornberger reiterated that a complete draft letter on the staff's sufficiency review will be ready for the July meeting and will include the main messages from the Committee's vertical slices. Ms. Deering asked members and staff to pass along observations from their individual vertical slices via e-mail so that a draft letter could be completed by the July meeting. The Committee will finalize its letter in August after hearing a briefing from the staff on its sufficiency review and from the DOE on its Supplemental Science and Performance Analysis.

Conclusions/Action Items

This presentation was for information only and no Committee action was required.

6. Department of Energy's Science and Engineering Report

The Committee heard a presentations by and held discussions with representatives of DOE regarding the recently released Yucca Mountain Science and Engineering Report (YMS&ER). On May 4, 2001, DOE announced initiation of its consideration of Yucca Mountain Site for possible recommendation to the President for development as a geologic repository for spent nuclear fuel and HLW. The YMS&ER addresses several requirements of the Nuclear Waste Act and presents a summary of information and data collected during more than 20 years of study and characterization of Yucca Mountain as a potential repository site. To support the YMS&ER, the DOE released a Supplement to the Draft Environmental Impact Statement to update information on the repository enhancements and operating modes.

The YMS&ER provides a summary and road map of the underlying technical information that has been the subject of the DOE's interactions with the Commission staff over many years. It is based on the current Total System Performance Assessment and its supporting Process Model Reports and Analysis Model Reports.

Conclusions/Action Items

This briefing was for information only and no Committee action was required.

7. Memorandum of Understanding (MOU) for Cooperation on Multimedia Environmental Models

Mr. William R. Ott, Assistant Chief, RES, discussed a meeting concluded the day before in which six Federal agencies agreed to work together on research and development (R&D) of multimedia (air, ground water, surface water, etc) environmental models used to assess contaminant risks to human populations.

The purpose of this effort is to obtain mutual benefits from R&D programs and ensure effective information exchanges between the staffs and contractors of the six agencies. A steering committee, representing each agency, was established and was given specific assignments. The steering committee will coordinate joint research in accordance with the MOU.

Once the agencies signed the MOU, they agreed to establish two working groups:

1. The Software System Design and Implementation of Environmental Modeling Working Group
2. The Uncertainty and Risk Analysis Working Group

Of particular interest to ACNW members was the applicability of some of these efforts to NRC activities, particularly Yucca Mountain analyses and the decontamination and decommissioning activities of the Agency. Mr. Ott noted how relevant these programs become when developed will depend largely on the enthusiasm of the participants. At this time he believes there is much enthusiasm for the program. He noted that several other agencies had also expressed an interest in joining the charter group of six.

Conclusions/Action Items

The briefing was for information only and no Committee action was required. However, the Committee intends to follow the progress of this effort. If deemed appropriate, a presentation to the ACNW on first-year highlights will be considered.

8. Overview of Sequoyah Fuels

Mr. Jim Shepherd, Project Manager, Office of Nuclear Material Safety and Safeguards, provided a brief history and the current status of the Sequoyah Fuels Corporation (SFC) facility, including project decommissioning issues and planned staff actions. He was assisted by Gerry Stirewalt, Earthvision Software, who discussed the models used in the analyses.

The SFC facility operated from 1970 to 1993 as a uranium conversion facility. During that period of operation there were several significant operational events. Operations ended in July 1993. In 1999 a decommissioning plan was submitted to the NRC. The current SFC schedule envisions site remediation during 2002–2003 with post-closure monitoring during 2004–2005. The NRC plans to publish its Final Environmental Impact Statement in August 2003, issue a license amendment in April 2004, and terminate the license in December 2008.

Conclusions/Action Items

The briefing was for information only and no Committee action was required. However, the Committee intends to follow the activities at the site as an example of license termination at an extremely complex site.

9. Election of Officers

The Committee elected Dr. George M. Hornberger as Chairman and Dr. Raymond G. Wymer and Vice-Chairman. Their terms of office will run from July 1, 2001, through June 30, 2002.

Sincerely,

/RA/

B. John Garrick
Chairman