ACNWS-0115

August 24, 2000

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

SUBJECT: SUMMARY REPORT — 120TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE ON JULY 25–27, 2000, AND OTHER RELATED COMMITTEE ACTIVITIES

Dear Chairman Meserve:

During its 120th meeting on July 25–27, 2000, 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:

- Development of Risk-Informed Regulation in the Office of Nuclear Material Safety and Safeguards (Report to The Honorable Richard A. Meserve, Chairman, NRC, from B. John Garrick, Chairman, ACNW, July 27, 2000).

- Branch Technical Position on a Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities (Report to The Honorable Richard A. Meserve, Chairman, NRC, from B. John Garrick, Chairman, ACNW, August 2, 2000).

- Advisory Committee on Nuclear Waste 2000 Action Plan (Report to Dr. William D. Travers, Executive Director for Operations, NRC, from B. John Garrick, Chairman, ACNW, August 2, 2000).

- ACNW Visits to Nuclear Sites and Information Exchanges in the United Kingdom and France, (Report to The Honorable Richard A. Meserve, Chairman, NRC, from B. John Garrick, Chairman, ACNW, August 18, 2000).

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Planning and Procedures

The ACNW approved issues to be considered during the 121st ACNW meeting on September 19–22, 2000, to be held in Las Vegas, Nevada. Topics to be discussed will include the following:

- Presentation by the Nuclear Regulatory Commission staff on the Yucca Mountain Review Plan (YMRP).

- An overview and presentation by the DOE staff on the Yucca Mountain Project, including the following items:
  - Site Recommendation Considerations Report
  - Total System Performance Assessment-Site Recommendation (TSPA-SR)
  - Considerations associated with the detection of chlorine 36
  - Fluid inclusions
  - Project status report on the current work being performed and recent results being obtained at the Yucca Mountain site

- Comments and concerns from the stakeholders regarding the Yucca Mountain project. Representatives have been invited from the State of Nevada, impacted counties, Native American tribes, as well as other interested groups.

- A tour by the ACNW members of the proposed site at Yucca Mountain, including the most recent Nye County wells.

- Preparation for the next public meeting with the Commission. The meeting is tentatively scheduled for October 17, 2000. The Committee will discuss planned reports, including reports on the development of the YMRP and 10 CFR Part 63 involving disposal of high-level radioactive waste (HLW) in a proposed geologic repository at Yucca Mountain, Nevada; highlights of the Committee's recent European trip; risk-informed regulation in the Office of Nuclear Material Safety and Safeguards (NMSS); and comments on the staff's Yucca Mountain Site Sufficiency Strategy.

2. Revised High-Level Guidance for Performance-Based Activities

The NRC staff presented the current version of its high-level guidelines for performance-based activities. The ACNW gave the staff oral feedback on this proposal. The Committee would be interested in seeing these guidelines applied to a large complex system.

Conclusions/Action Items

The Committee will continue to follow developments in this initiative.

3. Department of Energy's Performance Confirmation Program for the Proposed Repository at Yucca Mountain, Nevada

Mr. Milton Levenson introduced Mr. Eric Smistad, Yucca Mountain Site Characterization Office, DOE, who discussed the status of DOE's Performance Confirmation Plan for the Yucca Mountain Project.

After discussing the regulatory definition of performance confirmation, various aspects of the program, inputs into the program, and the process that DOE intends to follow, Mr. Smistad discussed the potential outcomes and the activities planned subsequent to those outcomes. He noted that if the measurements are as expected, the program would be completed, whereas if the measurements are unexpected, the significance of the variance and the corrective actions necessary must be identified. The breadth of those corrective actions could vary from minor changes to the technical baseline to limited or full-scale waste retrieval.

After noting that in addition to *in-situ* monitoring and experiments, laboratory and field testing would be performed, Mr. Smistad reviewed the current status of the performance confirmation program, and indicated that specific tests will be determined before the license application (LA) is submitted. The revised plan is scheduled to be issued in August 2001 and will incorporate updated tests and test parameter definition.

In conclusion, Mr. Smistad stated that the program will achieve the following:

- comply with the regulatory requirements of 10 CFR Part 63
- focus on factors important to postclosure performance based on TSPA sensitivities
- be part of an integrated test program that supports the licensing process

Conclusions/Action Items

At this time, the Committee did not believe the performance confirmation program had developed sufficiently to warrant a letter report. However, the Committee did indicate its intent to follow this issue closely as the specificity of the performance confirmation program is developed and finalized.

4. Summary of the NRC Staff's Yucca Mountain Key Technical Issues Resolution Strategy

Ms. Carol Hanlon, DOE, discussed the approach to the NRC/DOE meetings on key technical issues (KTIs) in support of preliminary NRC sufficiency comments and how the approach was recently refocused. Initially, DOE was to provide technical information to the NRC during exchange meetings on the process model reports (PMRs) and the TSPA-SR, including evaluation of KTIs. Nine meetings were originally scheduled on PMRs from July through November 2000 to discuss relevant PMRs, including purpose, conclusions, bases, and information gaps. Based on the experience gained from the first two technical exchange meetings, DOE and NRC have shifted the approach in the information exchange meetings to focus more on closure of issues for those KTIs with the greatest possibility of reaching complete closure.

King Stablein, Chief of the Projects and Engineering Section, HLW Branch, gave an overview of the staff's KTI program since 1996 and described the 10 KTIs. He also described the highlights of the NRC/DOE meeting on April 25–26, 2000, on the resolution of KTIs. At the request of the ACNW, each KTI lead staff person addressed the status of KTIs and their subissues. Mr. Stablein presented a summary of the status of nine KTIs and subissues and discussed next steps and the path forward. The staff's objective in issue resolution is to resolve nine KTIs (all but the rulemaking KTI, which is treated separately) and the 38 subissues before DOE submits an LA. This measure will enable the staff to review the LA in the 3-year time frame assigned by Congress. Fourteen subissues are closed or closed pending, and 24 are still open.

Meetings are scheduled in the near future between NRC and DOE to close issues in the areas of unsaturated zone flow and transport (August 16–17, 2000), igneous activity (August 29–31, 2000), container life and source term (September 12–13, 2000), and saturated zone (November 1–2, 2000). Issue resolution status reports (IRSRs) are being deferred on these KTIs until after these meetings take place. IRSRs on the other KTIs are being issued on September 30, 2000.

Conclusions/Action Items

The ACNW decided that within the next few months, pending additional information gathering, the Committee intends to prepare a letter report on the NRC's issue resolution program.

5. Meeting With the Deputy Director of the Office of Nuclear Material Safety and Safeguards

Mr. Virgilio, Deputy Director of NMSS, matched NMSS near-term priorities to the Committee's 2000 Action Plan. Mr. Virgilio highlighted areas in which he believed the Committee could contribute to the staff's efforts.

Conclusions/Action Items

This was one of a periodic set of meetings with the Deputy Director of NMSS to discuss items of mutual interest.

6. Status of the NRC's Decommissioning Program

Dr. Raymond G. Wymer introduced Mr. Robert A. Nelson, NMSS, who gave introductory remarks and also introduced the other presenters: John Buckley and Larry Camper, NMSS, and Stuart Richards, NRR.

The presentation covered the entire spectrum of decommissioning issues currently being considered by the staff. Included in the presentation were the following:

- an overall description of the program activities
- an update of the current status of the Site Decommissioning Management Program (SDMP) sites
- a brief status of sites designated as complex
- a summary of the reactor decommissioning program, along with a brief description of some of the sites undergoing decommissioning
- a description of staff efforts to enhance the efficiency and effectiveness of the decommissioning program

The presentations closed with a discussion of the challenges currently being addressed, such as the development of dose modeling guidance; the efforts to develop a clearance (release of solid materials) rule; the difficulties associated with restricted releases; the development of innovative performance-oriented approaches; the issues associated with partial site releases (and some of the most recent efforts in that area), and the question of the finality of a license termination decision.

The Committee spent considerable time discussing with the presenters what their perspectives were regarding the principal technical problems of interest before the ACNW. Regarding decommissioning-related issues that the staff intends to bring before the ACNW, it appears that several issues will be addressed during the next several meetings.

Conclusions/Action Items

The Committee indicated its intent to follow this issue closely. It has identified decommissioning as a first-tier issue and, as part of its overall responsibilities in the area of decommissioning, plans to hold a working group on the topic in the spring.

5. Hydrology Research

The Committee heard an overview of two projects sponsored by the Office of Nuclear Regulatory Research to develop and test methodologies for dealing with hydrologic parameter uncertainty and conceptual model uncertainty. These methodologies are intended to be implemented in dose models for decommissioning such as DandD, RESRAD, and MEPAS. An overview of parameter uncertainty in dose modeling at decommissioning sites was presented by Dr. Phil Meyer (Pacific Northwest National Laboratory). Professor Shlomo Neuman (University of Arizona) presented a plan for developing methodologies to deal with conceptual model uncertainty in ground water flow and transport models. Field infiltration experiments at the Apache Leap Research Site designed to test conceptual model uncertainty were presented by Dr. Pete Wierenga (University of Arizona).

Conclusions/Action Items

This was an information briefing to provide background for ACNW's review of waste and materials related research at the NRC.

Sincerely,

/RA/

B. John Garrick
Chairman