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UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

February 2, 1999

The Honorable Shirley Ann Jackson
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT — 105TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE, DECEMBER 15–17, 1998, AND OTHER RELATED COMMITTEE ACTIVITIES

Dear Chairman Jackson:

During its 105th meeting on December 15–17, 1998, at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, the Advisory Committee on Nuclear Waste (ACNW) discussed several matters and approved the following reports.

REPORTS

1. Development of a Standard Review Plan for Decommissioning (Report to Shirley Ann Jackson, Chairman, NRC, from B. John Garrick, Chairman, ACNW, dated January 11, 1999)

2. Comments on the Regulatory Uses of Importance Measures for Waste Management and Possible Application to the Proposed High-Level Radioactive Waste Repository at Yucca Mountain, Nevada (Report to Shirley Ann Jackson, Chairman, NRC, from B. John Garrick, Chairman, ACNW, dated January 12, 1999)

3. Advisory Committee on Nuclear Waste 1999 Action Plan and Priority Issues (Report to Shirley Ann Jackson, Chairman, NRC, from B. John Garrick, ACNW, dated January 22, 1999)

4. ACNW Visit to German Waste Isolation Authorities and Facilities, September 14–18, 1998, General Observations and Impressions (Report to Shirley Ann Jackson, Chairman, NRC, from B. John Garrick, Chairman, ACNW, dated January 27, 1999)

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HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Meeting With the Director of NRC's Division of Waste Management

John T. Greeves, Director of the Division of Waste Management (DWM), Office of Nuclear Material Safety and Safeguards (NMSS), accompanied by Martin J. Virgilio the new Deputy Director of NMSS, after noting several recent management changes in his division, discussed the current activities of the Department of Energy (DOE) and the - Nuclear Regulatory Commission (NRC) relative to Yucca Mountain. He also commented on recent developments that could affect several low-level waste (LLW) disposal sites (i.e., Barnwell and Envirocare). Mr. Greeves discussed various aspects of decisions related to the shipment of the Trojan reactor pressure vessel and noted the forthcoming Commission briefing on decommissioning criteria for the West Valley site in western New York State. He also described the activities of the Decommissioning Management Board and the potential clearance rule. He closed his comments by noting ten topics that he believed the Committee could contribute to during the forthcoming year.

Conclusions/Action Items

These discussions are part of a continuing dialogue between the ACNW and DWM management.

2. Overview of Fiscal Year 1999 NRC Staff Programs

Representatives from NMSS, the Office of Nuclear Reactor Regulation (NRR), and the Spent Fuel Project Office (SFPO) presented an overview of the following four Fiscal Year (FY) 1999 programs: the High-Level Waste (HLW) Repository Program, the NMSS and the NRR Decommissioning Programs, and the proposed activities for the Spent Fuel Project Office.

Michael J. Bell, Branch Chief in DWM, NMSS, discussed FY 1999 goals and strategies, major programmatic milestones, and the FY 1999 priority issues, closing his presentation with suggestions for future ACNW interactions. Included in these suggestions were the following:

a. Review of the DOE Viability Assessment (VA) document (February-March 1999 time frame).

b. Evaluation of public comments on the proposed HLW implementing rule (10 CFR Part 63). Scheduled for May 1999.

c. Update on the most recent Issue Resolution Status Reports.

d. Status of the importance analysis/total system performance assessment code post-processor effort.

e. NRC staff comments on the proposed Environmental Protection Agency (EPA) Yucca Mountain Standard (10 CFR Part 197) and on DOE's Draft Environmental Impact Statement (tentative).

The Committee noted that with the limited number of ACNW meetings available in FY 1999, there is a need to have a plan to ensure that these discussions are scheduled in such a way that Committee advice is provided in a timely manner. The NRC staff and the ACNW will work together to accomplish this objective.

John W. Hickey, Branch Chief in DWM, NMSS, discussed the NRC's materials decommissioning program. After noting the program's objectives, scope, and process, he discussed the NMSS responsibilities for both materials and reactor facilities, as well as other relevant aspects of the program. The following staff interactions with the Committee were noted:

a. Development of the License Termination Rule

- briefing on issues requiring resolution
- review and comment on the drafts of several Standard Review Plan (SRP) modules

b. Review and comment on a proposed "clearance" rule

c. Proposed staff decontamination and decommissioning (D&D) process improvements

NRR's portion of these overview presentations were introduced by Michael T. Masnick, and the following items were discussed:

a. an overview and a brief history of reactor decommissioning,

b. a discussion of the current reactor decommissioning process,

c. the license termination plan requirements and process to be followed insofar as the termination of reactor licenses was concerned,

d. an updated report on the status of nuclear power reactor decommissionings, and

e. a listing of guidance and process improvements planned for the next several years.

The Committee indicated an interest in receiving a listing and a tentative schedule of items for which NRR desired ACNW review and comment and/or concurrence.

Susan F. Shankman, SFPO, NMSS, presented the SFPO approach to licensing reviews, discussing in some detail the recent discipline and improvements incorporated into the review process. She stated that over the past 6 months (the period during which these changes have been in effect), the SFPO has never failed to meet a deadline.

She also reviewed the status of Portland General Electric's application to ship, in one piece, the Trojan reactor pressure vessel from the reactor site down the Columbia River and finally across a section of DOE's Hanford site to the U.S. Ecology commercial LLW disposal facility.

She noted that SFPO did not foresee any topics that it had planned for FY 1999 that would require ACNW review.

Conclusions/Action Items

The Committee indicated that it will be responsive to staff requests for review of any aspects of the topics noted in the above overview presentations but cautioned that it needed adequate preparation time if it was to conduct a thorough review in a timely manner. Office staffs were requested to work closely with the cognizant ACNW staff.

3. **Comparison of DandD and RESRAD Computer Codes Used in Decommissioning Analysis**

Cheryl A. Trottier, Branch Chief in the Office of Nuclear Regulatory Research (RES), presented the initial results of the DandD and the RESRAD model comparison currently underway. Ms. Trottier noted that the purpose of the comparison was to provide information regarding the differences and similarities between the models, not to determine which model is "better." After discussing the six tasks established for the comparison, she presented the results obtained thus far (and reported in a draft letter report available on the Web).

Ralph E. Cady, RES, gave a status report on the Sandia Environmental Decision Support System (SEDSS). The goal of this project is to provide a flexible framework for integrating a general collection of discipline-specific computer codes, thus enabling the staff to perform appropriate stochastic analyses of D&D or LLW problems.

Conclusions/Action Items

The Committee intends to follow the results of the DandD/RESRAD code model comparisons, particularly insofar as the staff's providing guidance (in a regulatory guide and a Standard Review Plan) regarding what model attributes are important for specific site conditions. The Committee also is most interested in the results of the SEDSS effort.

4. **Department of Energy's Total Systems Performance Assessment**

Representatives from DOE briefed the Committee on selected aspects of its Viability Assessment. Jack N. Bailey, management and operating (M&O) contractor, discussed DOE's repository safety strategy and the 19 "principal factors" that DOE has identified as potentially important to post-closure performance. The main focus of the briefing was on DOE's Total System Performance Assessment Analyses for the VA and the methods used to analyze these results to identify the most important features, events, and processes to repository performance. Ernest L. Hardin, M&O, discussed the process being employed to prioritize technical work that it believes is needed to complete a defensible license application. Finally, Mr. Bailey described DOE's concept of defense-in-depth and how such an approach may be used to reduce uncertainty.

Conclusions/Action Items

The Committee has begun reviewing DOE's VA, with an emphasis on the Total System Performance Assessment for the proposed Yucca Mountain HLW repository.

PROPOSED SCHEDULE FOR THE 106TH ACNW MEETING

The Committee agreed to consider the following issues during its 106th meeting on February 23–25, 1999:

- **Viability Assessment** — The Committee will continue its review of DOE's Yucca Mountain VA. Discussions with representatives of DOE and the NRC staff are anticipated. Committee members will discuss their own internal review of the VA.

- **Waste-Related Research** — The Committee will review nuclear waste-related research and technical assistance being performed for the NRC. The Committee will present the results of this review in a report due to the Commission in April 1999. Discussions with representatives of NRC's RES and NMSS are anticipated.

- **Repository Design** — The Committee will begin work on a white paper that addresses repository design issues for Yucca Mountain. The paper will focus on the results of thermal testing and modeling and how moisture contacts and affects the waste package.

The Committee may also examine the significance of coupled effects, aspects of waste retrievability, repository ventilation, rock fall, and water dripping into drifts.

- **Meeting With Representatives From the Nuclear Energy Institute** — Representatives from the Nuclear Energy Institute will present their perspective on the upcoming year. Topics will focus on the U.S. HLW program and related legislation.

- **Preparation for the Next Meeting With the Commission** — The Committee will begin preparations for its next public meeting with the Commission. Specific topics for discussion will be finalized and reviewed.

- **Preparation of ACNW Reports** — The Committee will discuss planned reports, including reports on DOE's VA, NRC-supported waste-related research, a white paper on HLW repository issues at Yucca Mountain, and other topics discussed at this and previous meetings.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

The 107th ACNW meeting is scheduled for March 23–25, 1999.

Sincerely,

B. John Garrick
Chairman