



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

August 11, 1998

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

SUBJECT: SUMMARY REPORT – 102ND MEETING OF THE ADVISORY COMMITTEE ON
NUCLEAR WASTE, JULY 20-22, 1998, AND OTHER RELATED COMMITTEE
ACTIVITIES

Dear Chairman Jackson:

During its 102nd meeting on July 20-22, 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:

- Report to the Honorable Shirley Ann Jackson, Chairman, NRC, from Dr. B. John Garrick, Chairman, ACNW, "Comments on NRC's Total System Sensitivity Studies for the Proposed High-Level Radioactive Waste Repository at Yucca Mountain, Nevada," dated July 29, 1998.
- Report to the Honorable Shirley Ann Jackson, Chairman, NRC, from Dr. B. John Garrick, Chairman, ACNW, "NRC Staff Research on Generic Post-Disposal Criticality at Low-Level Radioactive Waste Facilities," dated July 30, 1998.

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Generic Low-Level Waste Post-Disposal Criticality Issues

As required by the staff requirements memorandum (SRM) on SECY-98-010, "Petition for Envirocare of Utah to Possess Special Nuclear Material in Excess of Current Regulatory Limits," dated April 29, 1998, Messrs. Robert Nelson and Timothy Harris, Division of Waste Management (DWM), Office of Nuclear Material Safety and Safeguards (NMSS), briefed the Committee on the current regulatory perspective on criticality at

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disposal sites resulting from hydrogeochemical reconcentration. Although this possibility is considered remote both in occurrence and consequence, there is interest in providing some quantification of this likelihood on a generic basis.

Conclusions/Action Items

The ACNW prepared and approved a letter report to the Commission recommending a limited effort to quantify the likelihood and the consequences of post-disposal criticality at low-level disposal sites.

2. Development of a Standard Review Plan for Decommissioning

After briefly discussing the history of decommissioning regulations (from July 1988 to the present) and outlining the major sections of the regulatory guide and the Commission's SRM of July 8, 1998, on the license termination rule, Dominick Orlando, Project Manager, DWM, NMSS, discussed the purpose of the proposed Standard Review Plan (SRP). He noted that the SRP will be developed by work groups comprised of staff from the Office of Nuclear Regulatory Research; the Division of Fuel Cycle Safety and Safeguards and the Division of Waste Management from NMSS; and the NRC regional offices. Additional work groups may be convened if it is determined that they would facilitate the development of the SRP.

Mr. Orlando then introduced Bobby Eid, whose presentation focused on the dose modeling module of the SRP and the current issues. Mr. Eid closed his presentation by noting the forthcoming internal workshop on parameter selection for the DandD code and the development of a default table by August 15, 1998, to replace Regulatory Guide 1.86.

Conclusions/Action Items

The staff indicated that it would present both the results of the workshop and the default table to the Committee at its next meeting. After that presentation, the Committee will determine the contents of any letter it would write on this topic.

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

Mr. John Greeves, Director, DWM, and Dr. Michael Bell, Acting Chief, Performance Assessment and High-Level Waste Integration Branch, DWM, updated the activities of the Department of Energy and the NRC related to Yucca Mountain. They also discussed the recent Committee report to the Commission on research, as well as other topics of mutual interest. Mr. Greeves commented on several of the issues discussed during the Committee's meeting with the Commission on July 21, 1998, indicating that the staff would keep the Committee informed on those issues, seeking Committee advice in a timely manner.

Conclusions/Action Items

This portion of the meeting was part of a regularly scheduled information exchange between the Committee and NMSS, and no specific actions were indicated.

4. Yucca Mountain Regulatory Framework

Dr. Keith McConnell, Dr. Timonthy Martin, and Ms. Christiana Lui, DWM, presented their draft regulatory framework for geologic disposal of high-level waste (HLW) at Yucca Mountain. Presentations included an overview of the site-specific implementing rule for HLW disposal, as well as the Total System Performance Assessment (TSPA) Issue Resolution Status Report (IRSR).

The rule for post-closure criteria includes (1) an individual dose limit of 25-mrem/year, (2) a compliance period of 10,000 years, and (3) a geologic repository that includes a system of multiple barriers. The 25-mrem/yr dose limit is the only quantitative limit; the rule does not contain subsystem requirements for individual barriers or a separate limit for ground water.

The Committee complimented the staff's progress and indicated that it was pleased to see that the rule is moving toward performance-based regulation. Dr. Garrick, however, questioned whether transparency in DOE's performance assessment can be achieved without specifying, in the rule, that each barrier must be quantified.

The TSPA methodology IRSR is the integrating IRSR that provides the framework and the context for other key technical issue IRSRs and delineates the staff's systematic approach for determining compliance with an overall performance objective. The staff briefed the Committee on Revision 0 of the TSPA IRSR. Subissues in the TSPA methodology IRSR include model abstractions (Revision 0), scenario analysis (Revision 1), and transparency and traceability of the analysis (Revision 2). The staff's future plans include formulation of acceptance criteria and review methods for the remaining two subissues in Revisions 1 and 2 in Fiscal Year (FY) 1998 and FY 1999, respectively.

Conclusions/Action Items

The Committee plans to prepare a letter report to the Commission on draft 10 CFR Part 63 and the TSPA IRSR and will follow future developments on these topics.

5. Importance Measures

Dr. Norman Eisenberg, DWM/NMSS, and Dr. Budhi Sagar, Center for Nuclear Waste Regulatory Analyses, briefed the Committee on importance measures and their application to nuclear waste regulation. The briefing provided ACNW with an overview of importance measures and identified considerations in developing importance measures for waste repositories. The presenters discussed key differences between importance measures for reactor probabilistic risk assessment and for waste performance assessment. Drs. Eisenberg and Sagar also described the proposed importance measures and gave examples of how importance measures can be implemented for active and passive systems, including an HLW geologic repository.

Conclusions/Action Items

The Committee plans to develop a letter to the Commission on the use of importance measures and other risk-assessment analysis tools in waste management regulation.

PROPOSED SCHEDULE FOR THE 103RD ACNW MEETING

The Committee agreed to consider the following issues during its 103rd meeting on August 27 and 28, 1998:

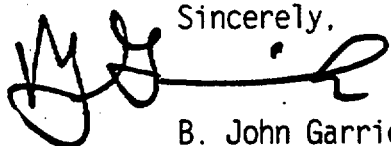
- Development of a Standard Review Plan for Decommissioning – The Committee will continue monitoring progress on this subject and will be briefed on recent staff activities related to parameter selection for the DandD code and the development of a default table.
- Meeting With NRC's Director, Division of Waste Management, Office of Nuclear Material Safety and Safeguards – The Committee will meet with the Director of DWM to discuss recent developments within the division such as developments at the Yucca Mountain project, rules and guidance being developed, available resources, and other items of mutual interest.
- Preparation of ACNW Reports – The Committee will discuss planned reports, including the report on the recent working group meeting on the near-field environment and the performance of the engineered barrier system for the proposed Yucca Mountain repository; potential regulations for licensing the Yucca Mountain repository; proposed importance measures for evaluating nuclear waste repository performance; issues related to the regulatory guides and to the SRP for decommissioning; and other topics discussed at this and previous meetings.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

The ACNW plans to meet with the Reaktorsicherheit-Kommission (Reactor Safety Commission, Germany) during the week of September 14-18, 1998. The Committee also plans to tour the Konrad, Morsleben, and Gorleben facilities during its visit to Germany.

The 104th ACNW meeting is scheduled for October 19-22, 1998, in Las Vegas, Nevada.

Sincerely,



B. John Garrick
Chairman