



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

ACNWS-0081

PDR
11/196

August 6, 1996

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

Dear Chairman Jackson:

SUBJECT: SUMMARY REPORT - EIGHTY-FOURTH MEETING OF THE ADVISORY
COMMITTEE ON NUCLEAR WASTE, JUNE 25-27, 1996, AND OTHER RELATED
ACTIVITIES OF THE COMMITTEE

During its 84th meeting, June 25-27, 1996, held at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, the Advisory Committee on Nuclear Waste discussed several matters and completed the following reports.

REPORTS

1. Health Effects of Low Levels of Ionizing Radiation (Report to Shirley Ann Jackson, Chairman, NRC, from Paul W. Pomeroy, Chairman, ACNW, dated July 10, 1996)
2. Elements of an Adequate NRC Low-Level Radioactive Waste Program (Report to Shirley Ann Jackson, Chairman, NRC, from Paul W. Pomeroy, Chairman, ACNW, dated July 24, 1996)

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Specification of Critical Group and Reference Biosphere

The Committee heard presentations by individuals representing the majority and the dissenting views on the National Research Council/National Academy of Science's report "Technical Bases for Yucca Mountain Standards." The NRC staff discussed considerations related to the specification of the reference biosphere, while the Environmental Protection Agency (EPA), the Electric Power Research Institute, and the State of Nevada representatives provided their perspectives on both the reference biosphere and the critical group issue.

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Conclusion/Action Items

These presentations provided the Committee with a broad background on many of the relevant issues related to the designation of the critical group and the reference biosphere for the proposed Yucca Mountain, NV, high-level waste repository. Additional discussions will be scheduled for a future meeting.

2. Meeting with the Acting Director, Division of Waste Management, NMSS

Ms. Margaret Federline met with the Committee to discuss items of current interest. Topics discussed included: the licensing support system, EPA's high-level waste standards, a branch technical position on expert elicitation, and recent developments at the Yucca Mountain site.

Conclusion/Action Items

This portion of the meeting was part of a regularly scheduled information exchange between the Committee and the Acting Director.

3. Discussion with Dr. Dade Moeller, Moeller and Associates, Inc.

Dr. Moeller discussed an approach utilized by EPA in the control of environmental discharges of toxic chemicals, known as the "open market trading rule." Under this rule, EPA permits operators of a facility that is releasing contaminants into the environment the option of reducing its own discharges or those of other sources in the same geographical area, especially if reductions in these other sources can be accomplished more effectively and at less cost. Dr. Moeller also discussed his views on the potential application of this rule to the regulation of releases of radioactivity.

Additionally, Dr. Moeller commented on the health effects of low levels of ionizing radiation and presented background information and views on the linear, no-threshold theory and the designation of the "critical group."

Conclusion/Action Items

The Committee indicated that Dr. Moeller's comments were helpful in their consideration of the technical issues related to the use of the linear, no-threshold theory in regulation and the designation of a "critical group." The potential applicability of the "open market trading rule" will require further Committee consideration.

4. Meeting with the NRC Commissioners

The Committee held discussions with the Commissioners on items of current and mutual interest, including:

- Health Effects of Low Levels of Ionizing Radiation
- Time Span for Compliance of the High-Level Waste Repository
- Comments on High-Level Waste Prelicensing Program Strategy and Key Technical Issues
- Issues and ACNW Activities Associated with the National Research Council's Report, "Technical Bases for Yucca Mountain Standards"
- ACNW Priorities
- Use of Expert Judgment in the Regulatory Process

5. Total System Performance Assessment 1995 (TSPA '95)

The NRC and the Center for Nuclear Waste Regulatory Analyses (CNWRA) staffs briefed the Committee on their audit reviews of the Department of Energy's (DOE's) Total System Performance Assessment 1995 (TSPA '95). They discussed specific issues, concerns, and discussion points that were raised at the NRC/DOE Technical Exchange on May 22 and 23, 1996, in Las Vegas, NV. In general, the NRC and CNWRA evaluated the TSPA '95 calculations by setting up their own analyses of the problems using DOE data, as well as other sources of information. One of the goals was to see how reproducible the results were and to determine how sensitive the results were to key assumptions, models, and parameters. They also compared TSPA '95 and TSPA '93 to evaluate DOE's modeling concepts. The focus areas included: temperature and relative humidity, thermal effects on flow, container degradation, infiltration and deep percolation, dilution, and the TSPA abstraction process. The Committee was also briefed by the DOE staff on their perspective of the technical exchange meeting and what future TSPA activities DOE will be conducting. They discussed a possible future NRC/DOE Technical Exchange on Flow and Transport (including site characterization data and models).

Conclusion/Action Items

The Committee will hold future briefings on TSPA '95 issues, including a session at the 86th ACNW meeting in Las Vegas, NV, in September 1996. The Committee is interested in receiving more detailed presentations and discussion for specific areas, such as the next iteration of TSPA for DOE's Viability Assessment, and the abstraction process used to go from process level models to performance assessment models.

6. Department of Energy's Program Plan

The Committee was briefed on the recently released revision of DOE's Yucca Mountain Project Program Plan. A DOE representative described the rationale for revising the Program Plan, the integrated planning process, the Project Integrated Safety Assessment (PISA), and the present program focus. Recommendations to EPA and NRC for consideration in future rulemaking, as well as potential streamlining of DOE's 10 CFR Part 960, "General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories," were discussed. The PISA document will serve as the integrating document for scientific studies, performance assessment, design of repository and waste packages, and evaluations of environment, safety, and health. A summary schedule of the program was presented. Major milestones include the Viability Assessment (1998), Preparation of PISA (1998), Draft Environmental Impact Statement (1999), Site Recommendation to the President (2001), Construction Designs (2002), and License Application (2002).

Conclusion/Action Items

The Committee indicated that the timely presentation of the changes to the Program Plan was illuminating and helpful.

7. Time of Compliance in Low-Level Waste Disposal

The Committee reviewed and evaluated technical and policy issues associated with specifying a compliance period for 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," the low-level waste (LLW) regulation. A specific objective was to obtain the views and comments of state developers and regulators on the issue. One of the main issues is that Part 61 relies in part on dose-based performance objectives, but does not specify a time of compliance. The result is varying regulatory approaches for dealing with the time frame. Department of Energy representatives also presented DOE's approach with regard to the time of compliance for LLW disposal at DOE sites. A representative of the Texas Low-Level Radioactive Waste Development Authority provided information about how time of compliance was handled in the license application submitted to the State of Texas regulatory authorities. A representative of the Nebraska Department of Environmental Quality presented Nebraska's regulatory policy with respect to the time of compliance for the license application that was submitted and is currently being reviewed by the state.

Conclusion/Action Items

The Committee expressed its intent to continue the discussion of the time of compliance for LLW at its next meeting. They also plan to prepare a letter to the Commission on this subject.

Proposed Schedule for the 85th ACNW Meeting

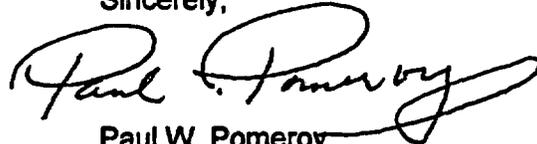
The Committee agreed to consider the following during the 85th ACNW Meeting, August 21-23, 1996:

- Thermal-Mechanical-Hydrological-Chemical Coupled Processes - The Committee will devote an entire day to a discussion of the DOE and NRC staffs' plans to develop and use coupled process models in evaluating various aspects of repository performance. The Committee will investigate how thermal input to the host rock and groundwater system will affect the hydrologic, mechanical, and chemical characteristics and processes of the geologic systems.
- Meeting with the Director, NRC's Division of Waste Management, Office of Nuclear Material Safety and Safeguards - The Director will discuss items of current interest related to the Division of Waste Management programs which may include: progress at the Yucca Mountain site, the status of EPA's Yucca Mountain standards and NRC's high-level waste regulations, and the status of a branch technical position on low-level waste performance assessment.
- Preparation of ACNW Reports - The Committee will discuss proposed reports, including: specifying a critical group and reference biosphere to be used in a performance assessment of a nuclear waste disposal facility, the consideration of coupled processes (Thermal-Mechanical-Hydrological-Chemical) in the design of a high-level waste repository, and comments on a branch technical position on the Use of Expert Elicitation.
- Technical Guidance on Expert Elicitation - The Committee will review the NRC staff's draft technical position on the use of expert elicitation in the licensing of a nuclear waste disposal facility.
- Time of Compliance in Low-Level Waste Disposal - The Committee will discuss options for setting a regulatory time of compliance for a low-level waste disposal facility. Participation by representatives of individual states is anticipated.
- Committee Activities/Future Agenda - The Committee will consider topics proposed for future consideration by the full Committee and Working Groups. The Committee will discuss ACNW-related activities of individual members.
- Miscellaneous - The Committee will discuss miscellaneous matters related to the conduct of Committee activities and organizational activities and complete discussion of matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

- The Committee changed the dates for the 88th ACNW meeting to December 11-13, 1996.
- Since this was Dr. Martin J. Steindler's last meeting as an ACNW member, the Committee thanked Dr. Steindler for his contributions and service during his term on the Committee.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul W. Pomeroy". The signature is fluid and cursive, with a large initial "P" and a long, sweeping underline.

Paul W. Pomeroy
Chairman