



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

ACNWS-0082

PDR 11/1/96

September 18, 1996

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

Dear Chairman Jackson:

SUBJECT: SUMMARY REPORT - EIGHTY-FIFTH MEETING OF THE ADVISORY  
COMMITTEE ON NUCLEAR WASTE, AUGUST 21-23, 1996, AND  
OTHER RELATED ACTIVITIES OF THE COMMITTEE

During its 85th meeting, August 21-23, 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 report.

REPORT

Comments on the Final Draft Branch Technical Position on the  
Use of Expert Elicitation in the High-Level Radioactive  
Waste Program (Report to Shirley Ann Jackson, Chairman, NRC,  
from Paul W. Pomeroy, Chairman, ACNW, dated August 30, 1996)

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

1. Coupled (Thermal-Hydrologic-Mechanical-Chemical) Processes

The Committee held a full-day Working Group session to learn  
more about the topic of Thermal-Hydrologic-Mechanical-Chemi-  
cal (THMC) Coupled Processes as they relate to high-level  
waste (HLW) repository performance. The purpose of this  
portion of the meeting was to evaluate how the issue of THMC  
Coupled Processes is treated in the HLW "Vertical Slice  
Approach" and to determine the effectiveness of integration  
among the various key technical issue (KTI) teams. This  
Working Group session included presentations by the NRC and  
the Center for Nuclear Regulatory Analyses (CNWRA) staffs, a  
representative of the international DEVELOPMENT of Coupled  
models and the VALIDATION against EXPERIMENTS in nuclear

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waste isolation (DECOVALEX) project, and other invited experts. The NRC and CNWRA are presently investigating the effects of three types of couplings that are considered to be the most significant to repository performance: thermal-mechanical, thermal-hydrologic, and thermal-hydrologic-chemical. Topics also discussed included data needs, model validation, and effects of larger-scale geologic processes, such as seismic activity. Overall system performance assessment by the NRC and Department of Energy (DOE), in addition to the recently initiated thermal testing at Yucca Mountain, will help to establish the relative importance of the coupling phenomena as well as to support present and future modeling efforts.

#### Conclusions/Action Items

The Committee plans to write a letter report to the Commission describing its findings and recommendations for the NRC HLW program.

#### 2. Technical Guidance on Expert Elicitation

Staff from the Division of Waste Management (DWM), Office of Nuclear Material Safety and Safeguards, briefed the ACNW on the revised final draft of the "Branch Technical Position (BTP) on the Formal Use of Expert Elicitation in the High-Level Radioactive Waste Program." The BTP discusses the use of expert judgment in the licensing process; provides general guidelines on how and when a formal expert elicitation may be used, including some cautions about its use; and presents a nine-step process for accomplishing an expert elicitation. The DWM staff presented an overview of the final draft of the BTP, the public comments received, and their disposition of the public comments.

#### Conclusion/Action Items

The Committee issued a report dated August 30, 1996 to Shirley Ann Jackson, Chairman, NRC, recommending the prompt completion and publication of the BTP. This report also discusses some Committee concerns about the use of formally elicited expert judgment in the decision-making process.

The Committee believes that the resolution of these concerns may be addressed outside of the BTP.

3. Meeting with the Director, Division of Waste Management, Office of Nuclear Material Safety and Safeguards

Ms. Margaret Federline, Acting Director, Division of Waste Management, met with the Committee to discuss items of current interest. Topics discussed included: the status of currently proposed FY 1997 Authorization and Appropriation legislation, the status of the Environmental Protection Agency's (EPA) HLW standards, the status of the BTP on Low-Level Waste Performance Assessment, the forthcoming annual report on KTI's and the relevant integration task force, 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.

4. Time of Compliance in Low-Level Waste Disposal

The ACNW has been reviewing and evaluating technical and policy issues in specifying a time period for conducting performance assessment (PA) calculations to demonstrate compliance with the low-level waste (LLW) regulation, 10 CFR Part 61. During this meeting the Committee heard further discussion on this issue. Dr. Paul Merges, Chief, Bureau of Pesticides and Radiation, New York State Department of Environmental Conservation, discussed the time frame used in PA analyses that were conducted in developing the New York State regulations for LLW disposal and New York's views on the issue. The Committee also held discussions with Joe Klinger, Head of Licensing, Illinois Department of Nuclear Safety (IDNS), Tom Ortziger, IDNS Director, and Gordon Appel, IDNS Deputy Director on the state of Illinois' regulatory perspective on this issue. The Committee also heard from representatives of the National Academy of Public Administration who gave a presentation on a study entitled; "Deciding for the Future: Balancing Risks, Costs, and Bene-

fits Fairly Across Generations," which was conducted by them.

Representatives of the Prairie Island Indian Community, in Welch, Minnesota, discussed and entered into the record, a written statement describing their opposition to the storage of spent nuclear fuel in dry casks at the Northern States Power Company nuclear plant. They were concerned about the risks to their community and supported a national solution to the nuclear waste problem, including development of a national interim storage site, until a permanent site is ready.

#### Conclusions/Action Items

The Committee will write a letter to the Commission on the subject of Time of Compliance for Low-Level Nuclear Waste Disposal. The Committee entered the material submitted by the Prairie Island Indian Community into the meeting record.

#### Proposed Schedule for the 86th ACNW Meeting

The Committee agreed to consider the following during the 86th ACNW meeting and Yucca Mountain site tour, September 24-27, 1996:

- Radionuclide Transport at Yucca Mountain - The Committee will discuss the status of studies and modeling of radionuclide transport in the saturated and unsaturated zones at Yucca Mountain. This topic will constitute the entire meeting on September 26, 1996. Specific focus will be on the transport of radionuclides in fracture systems at Yucca Mountain. This will include the ingress of water to the repository horizon and geochemical processes that affect transport of radionuclides out of the repository via fracture systems.
- Priority Issues - The Committee will focus on improving its operations and priority review areas for the next 12 to 18 months on September 24, 1996.

- Yucca Mountain Site Tour - The Committee will tour the Exploratory Studies Facility at the Yucca Mountain site and visit the Amargosa Valley on September 25, 1996.
- Site Characterization - The Committee will discuss site characterization integration through the use of performance assessment. A continuation of discussions with DOE on Total System Performance Assessment will be held with emphasis on the use of expert elicitation panels.
- Repository Design for Viability Assessment - The Committee will discuss the advanced conceptual design for the proposed repository at Yucca Mountain, Nevada, with representatives of the DOE and other interested parties.
- Public Comments - The Committee will hear comments from members of the public on concerns related to nuclear waste disposal.
- Preparation of ACNW Reports - The Committee will discuss proposed reports, including: radionuclide transport at Yucca Mountain, specifying a critical group and reference biosphere to be used in a performance assessment of a nuclear waste disposal facility, the consideration of THMC coupled processes in the design of an HLW repository, time of compliance in HLW and LLW disposal, and the DOE program plan and waste isolation strategy.
- 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.

Sincerely,

A handwritten signature in cursive script, reading "Paul W. Pomeroy". The signature is fluid and stylized, with a large initial "P" and a long, sweeping underline.

Paul W. Pomeroy  
Chairman