



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

December 21, 1990

The Honorable Kenneth M. Carr  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Chairman Carr:

SUBJECT: SUMMARY REPORT - TWENTY FIFTH MEETING OF THE ADVISORY  
COMMITTEE ON NUCLEAR WASTE, OCTOBER 24-25, 1990

During its 25th meeting, October 24-25, 1990, the Advisory  
Committee on Nuclear Waste discussed several matters as noted  
below.

HIGHLIGHTS OF CERTAIN MATTERS CONSIDERED BY THE COMMITTEE

- Technical Assessment Review (TAR) of the Geologic and Geophysical Evidence Pertaining to Structural Geology in the Vicinity of the Proposed Exploratory Shaft

The Committee was briefed by Mr. John Corbett, ACNW Consultant on geophysics, on his assessment of the geophysical testing techniques and data discussed in the DOE report, "Technical Assessment Review Record Memorandum, Geologic and Geophysical Evidence Pertaining to Structural Geology in the Vicinity of the Proposed Exploratory Shaft." Representatives of the NRC staff and DOE OCRWM consultants were also present and made brief remarks about the status of the staff's review and the future plans of the TAR committee.

The members expressed interest in being kept informed on the outcome of the TAR activities and suggested that the NRC staff continue to monitor DOE studies related to the ESF.

This briefing was for information only. No Committee action was taken.

- Overview of the Nuclear Regulatory Commission's Waste Management Research Program

The Committee heard presentations from representatives of the Office of Research, Waste Management Branch, on the research program for waste. The briefing was intended as an overview to familiarize the Committee with the scope of the research program and how the various projects are integrated. The

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continuing transition from a program involving several contractors to the Center for Nuclear Waste Regulatory Analyses was also discussed.

This was an information briefing. No Committee action was taken.

- Status Report: Potential for Long Term Isolation by the WIPP Disposal System

The Committee was briefed by Dr. D. R. Anderson on the recent report by Sandia National Laboratories, SAND 90-0616, "Status Report: Potential for Long-Term Isolation by the Waste Isolation Pilot Plant Disposal System," dated June 1990. The report concluded that there is reasonable confidence that compliance of the WIPP facility with the EPA standards is achievable. In light of other comments and uncertainties, the members questioned the report's conclusion. The following four areas were discussed:

- (a) The WIPP project perception of the stringency of EPA's standards and their impact upon WIPP.
- (b) The use and role of expert judgment (this will be the subject of a future ACNW Working Group meeting.)
- (c) Performance assessment methodology.
- (d) Human intrusion.

This was an information briefing. No Committee action was taken.

- Nuclear Regulatory Commission's Nuclear Safety Research Review Committee

Dr. David Morrison, Chairman of the Nuclear Safety Research Review Committee (NSRRC), briefed the ACNW on the activities and findings of the NSRRC Subcommittee on Nuclear Waste. The intent of the briefing was to familiarize the ACNW with the recommendations of the Subcommittee on Nuclear Waste.

Dr. Morrison and the ACNW agreed to provide each other with relevant reports and agendas of the two committees in the future to keep each other up to date on Committee activities and to avoid any areas of potential overlap.

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- Phase I Demonstration of the Nuclear Regulatory Commission's Capability to Conduct a Performance Assessment for a High-Level Waste Repository

The Committee was briefed by the NRC HLWM staff on the final draft of "Phase I Demonstration of the Nuclear Regulatory Commission's Capability to Conduct a Performance Assessment for a HLW Repository," dated April 20, 1990. This report was the result of the first phase of the staff's efforts to develop methods to apply in the review of DOE performance assessments and is not intended as a substitute for DOE's own performance assessment methods. The staff gave a brief overview of the goals and results of their efforts and stated some preliminary conclusions that resulted from the development of the Phase I report. The staff emphasized that this work was part of an iterative process and outlined their plans for Phase 2 of the performance assessment demonstration.

The staff also provided the Committee with a brief overview of the results of meetings with and comments from DOE and other outside parties on the Phase I demonstration and stated that those comments had been favorable.

This briefing was for information only. No Committee action was taken.

- Performance Assessment Methodology for an LLW Site by NMSS

The Committee was briefed by the Office of Nuclear Material Safety and Safeguards staff on the status of the performance assessment methodology developed for use by the NRC for its determination of compliance with 10 CFR Part 61.41 performance objectives. The methodology is structured in a manner that allows the NRC to perform confirmatory analyses on either part of, or all of the licensee's performance assessment. This was followed by a presentation by a representative of the technical assistance contractor, Sandia National Laboratories, on the technical aspects of the methodology.

No Committee action was taken.

- Working Group Chairman's Report on the Human Intrusion Working Group Meeting

An ACNW working group meeting was held on October 23, 1990, to discuss concerns relative to the potential for and impact of human intrusion of a high-level waste repository.

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Presentations were heard from representatives of the Environmental Protection Agency, Bureau of Land Management (BLM), State of Nevada, Sandia National Laboratories, and New Mexico Environmental Evaluation Group. Discussions focused on the guidance on human intrusion found in 40 CFR Part 191 Appendix B. The Working Group heard discussions on examples of performance assessments incorporating human intrusion from the WIPP experience and discussed the lessons learned.

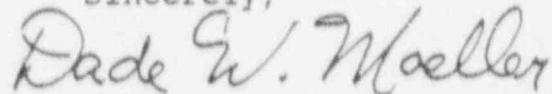
The Working Group plans to hold a follow-up meeting at a future date on this topic to examine natural resource assessment for an HLW site.

This briefing was for information only. No Committee action was taken.

#### FUTURE ACTIVITIES

Appendix A summarizes the tentative agenda items that were proposed for future meetings of the Committee and related Working Groups. This list includes items proposed by the Commissioners and NRC staff as well as ACNW members.

Sincerely,



Dade W. Moeller  
Chairman

APPENDIX A. FUTURE AGENDA

**Working Group Meeting** October 26, 1990

Migration of Carbon-14 (Open) - A Working Group will be briefed on the potential impact that could arise at a high-level repository in the event of carbon-14 release and subsequent migration to the environment. This will include a discussion of EPA release limits for this radionuclide. A report to the full Committee is planned for the 26th ACNW meeting.

**Working Group Meeting** December 11, 1990

Mixed Wastes (Open) - The Working Group will review and discuss the interchangeability (if any) of EPA requirements for land burial of hazardous materials and the NRC disposal requirements for radioactive materials, particularly as related to the disposal of mixed wastes. A report to the full Committee will follow.

**26th Committee Meeting** December 12-13, 1990

Meeting with Commissioners (Open) - The Committee is scheduled to meet with the Commissioners to discuss items of mutual interest.

Division of High-Level Waste Management Study Plans (Open) - The Committee will be briefed by the HLWM staff on the results of the staff's reviews of the Study Plans for the characterization of volcanic features and mineralogy, petrology and chemistry of transport pathways.

Reports from ACNW Working Groups (Open) - The Committee will be briefed on the results of the Working Group meetings on carbon-14 release and migration, human intrusion of a high-level waste repository, and mixed wastes. The development of Committee reports to the Commission on these subjects will be initiated, as appropriate.

DOE Study Plans (Open) - The Committee will review the proposed revisions to current NRC staff review procedures for its review of DOE study plans and progress reports associated with the site characterization for the proposed HLW repository.

HLW Repository Subsystem Performance Requirements (Open) - The Committee will consider 10 CFR Part 60, high-level waste repository subsystem performance requirements regarding their conformance with the EPA high-level waste standards.

Committee Activities (Open/Closed) - The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate. The Committee will also elect officers for the calendar year 1991.

Working Group Meeting January 25, 1991 (Tentative Agenda)

Expert Judgment (Open) - The Working Group will review and discuss the role of expert judgment in site characterization and licensing activities. A report to the full Committee will be scheduled for February 20-22, 1991 ACNW meeting.

Working Group Meetings (Dates to be determined)

DOE/USGS White Paper (Open) - An ACNW Working Group will discuss the NRC staff's review of and comments on the DOE/USGS white paper on integration of the geophysical aspects of the repository SCP. The Committee will discuss the results of the NRC staff's review of the DOE/USGS "white paper" on the "Status of Data, Major Results, and Plans for Geophysical Activities, Yucca Mountain Project." This report is important as it relates to an important theme on integration of tests, studies, and existing data in the NRC staff's comments on the DOE Site Characterization Plan.

Subsystem Requirements Strategy (Open) - An ACNW Working Group will discuss the performance criteria of 10 CFR Part 60.113 to determine the interface with the EPA HLW standards. The Committee will discuss the 10 CFR Part 60.113 subsystem performance criteria for groundwater travel-time, substantially complete containment, and release rate limit and how these criteria relate to the overall performance objective of the EPA HLW standards.

Guidelines on Calculating Collective Dose (Open) - The Working Group will review and discuss methods of calculating collective population doses from exposure to low levels of ionizing radiation.

Definition of "Substantially Complete Containment" (Open) - An ACNW Working Group will discuss the feasibility of the "Substantially Complete Containment" concept. The Committee will hear a briefing on the study by the staff and CNWRA on the technical feasibility of the Substantially Complete Containment concept. Issues to be considered include the feasibility of a canister that can be designed to contain the waste for 300 to 1000 years.

ACNWC-001

MELVIN W. CARTER, Ph.D.  
International Radiation Protection Consultant

June 22, 1989

Dr. Dade Moeller, Chairman  
Advisory Committee on Nuclear Waste  
U.S. Nuclear Regulatory Commission  
27 Wildwood Drive  
Bedford, Massachusetts 01730

JUN 22 1989

Dear Dade:

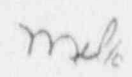
This letter and its attachment contain brief comments and suggestions on Draft #1 of the proposed letter to Chairman Zech regarding the NRC "Site Characterization Analysis". The scope and coverage are appropriate and I have no major problems with your proposed text. As a general comment, perhaps we should suggest that the "Objections" of the NRC Staff could be ranked or at least placed in two or three major ranking categories.

For example, consider the two most major concerns to be those related to the potential for volcanism near the Yucca Mountain Site and the need to demonstrate the expected low groundwater flow rate within the proposed "Yucca Mountain Repository". The other major concerns are of a somewhat lower order of concern.

I regret being unable to participate in the important twelfth meeting of the Advisory Committee on Nuclear Waste. Good luck.

Best personal regards.

Sincerely,



Melvin W. Carter

MWC/bc  
Enclosure  
cc: Mr. Richard Major

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COMMENTS ON DRAFT #1  
PROPOSED LETTER - MOELLER TO ZECH:  
"COMMENTS ON SITE CHARACTERIZATION ANALYSIS  
BEING PREPARED BY NRC STAFF"

TEXT

COMMENTS

Page 1, end of paragraph 1	Please identify the specific state organizational unit or office.
Page 1, paragraph 2, line 1	Insert "responsibility for reviewing" prior to "specific".
Page 1, paragraph 3, lines 4 - 9	Need appropriate punctuation for this compound sentence.
Page 1, last line	Change "an" to "a".
Page 2, paragraph 3, lines 4 & 5	Delete "acceptability" and replace with "the NRC licensing".
Page 2, item d	Suggest replacing "fault" with "flaw".
Page 3, line 1	Suggest rewording to "...lost" or "masked" in the main...".
Page 6, last paragraph, line 1	Insert "further" prior to "development".
Page 6, last paragraph, line 2	Insert "by the NRC Staff" after "Analysis".