



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

ACNWS-0031

June 15, 1991

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

Dear Chairman Carr:

SUBJECT: SUMMARY REPORT - THIRTY-FIRST MEETING OF THE ADVISORY
COMMITTEE ON NUCLEAR WASTE, MAY 22-23, 1991

During its 31st meeting, May 22-23, 1991, the Advisory Committee
on Nuclear Waste completed the activities noted below and the
following reports and memoranda.

REPORTS AND MEMORANDA

- Review of Regulatory Guides on Revised 10 CFR Part 20
(Partial Response to Memorandum (April 29, 1991) from
Commissioner Rogers, dated May 30, 1991.)
- Alternative Approach to the Probabilistic Section of the
Containment Requirements in 40 CFR Part 191 ("The Three-
Bucket Approach") (Report to Chairman Carr, dated May
30, 1991.)
- Review of Draft SECY Paper on Dealing with Uncertainties
(Memorandum to Mr. Robert Bernero, Director, Office of
Nuclear Material Safety and Safeguards, dated May 30,
1991. See Enclosure 1.)

HIGHLIGHTS OF MATTERS CONSIDERED BY THE COMMITTEE

- Working Draft #3 of the 40 CFR Part 191, High-Level Waste
Repository Standards

The Committee was briefed by the U.S. Environmental Protection
Agency (EPA) staff on Working Draft #3 of revised 40 CFR Part
191, High-Level Waste Repository Standards. The Committee
agreed to provide a response to the six questions that
accompanied Working Draft #3. The Committee will continue its
deliberations on this subject during the next meeting.

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- State of South Carolina

The Committee was briefed by a representative of the State of South Carolina on the implementation of its Agreement State Program. Particular attention was given to the state's responsibility for the safe operation of the low-level waste (LLW) disposal site at Barnwell, South Carolina. This briefing was for information only. No action was taken by the Committee.

- Digital Data Set

The Committee was briefed by Mr. Carl Daudt, former ACNW Intern, on a digital data set of geophysical parameters for the Yucca Mountain Site. A demonstration was given on how the system can be used to examine this data. This briefing was for information only. No action was taken by the Committee.

- Leaching Resistance of Low-Level Waste Form

The Committee briefly discussed its plan of action to provide a response to a recent Staff Requirements Memorandum (SRM) concerning an ACNW suggestion that Part 61 be revised with regard to leaching resistance of the low-level waste form and groundwater protection requirements. (This topic is scheduled for discussion during the June 20, 1991 ACNW meeting.)

- Uncertainties in Implementing the EPA's HLW Radiation Protection Standards

The Committee completed its deliberations on the NRC staff draft report which describes the NRC staff's plan for dealing with the uncertainties associated with implementation of the EPA HLW repository standards. A memorandum to Mr. Robert Bernero was approved. (See Enclosure 1)

- Working Group Report on Integration of Geophysics into Site Characterization of a High-Level Waste Repository

Dr. W. J. Hinze, ACNW Working Group Chairman, reported on the importance and advantage of, and potential results from, geophysical testing methods as those methods apply to the identification of potentially adverse conditions at an HLW site.

- Memorandum from Commissioner Rogers

The Committee discussed a memorandum from Commissioner Rogers, dated April 29, 1991, regarding three questions to be answered by the Committee. The Committee agreed to establish a Working

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Group to address the first two questions, which inquire whether the NRC staff has developed a suitable performance assessment program and whether there is adequate equipment, expertise and training available to the NRC staff for HLW and LLW computer modeling. Dr. P. W. Pomeroy will be the Chairman for this Working Group. The Working Group is tentatively scheduled to meet on September 11-13, 1991.

The Committee prepared a memorandum to Commissioner Rogers in response to his question on the basis/criteria for apportionment of the responsibilities between the ACRS and ACNW for review of the regulatory guides being developed in support of the revised 10 CFR Part 20. The memorandum was approved subject to concurrence by the cognizant ACRS subcommittee chairman.

• ACNW Future Activities

- The Committee selected the following tentative dates for future Working Group meetings:

<u>Topic</u>	<u>Dates</u>	<u>Chairman</u>
10 CFR 20 Regulatory Guides Computer Modeling/ Performance Assessment	8/20-22/91 9/11-13/91	D. Moeller P. Pomeroy
Quaternary Dating	10/22/91	W. Hinze
Residual Contamination	10/25/91	M. Steindler
Long-Term Climatology	11/19/91	W. Hinze
Post-Closure Monitoring	11/22/91	D. Moeller
Human Intrusion/Natural Resources	12/17/91	W. Hinze

- The Committee agreed that there is no longer a need to have a Working Group on an alternative probabilistic format for the containment requirements in EPA's high-level waste standards.

Appendix A summarizes the proposed items 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

32nd ACNW Committee Meeting June 20, 1991 (Tentative Agenda)

Leaching Resistance of Low-Level Waste Form - The Committee will continue its discussion on a response to a recent Staff Requirements Memorandum (SRM) concerning a proposed revision of Part 61 with regard to leaching resistance of the low-level waste form and groundwater protection requirements.

Trip Reports - Dr. Pomeroy will report on his recent visit to the West Valley Demonstration Project, New York. Dr. Hinze will report on the American Geophysical Union Meeting, held in Baltimore, Md.

Joint Working Group Report - The Committee will hear a report on a joint meeting of the Working Group on Expert Judgment and the Working Group on Human Intrusion, held on June 18-19, 1991.

Working Draft #3 of the 40 CFR Part 191, High-Level Waste Repository Standards - The Committee will continue its discussion of a response to the six questions accompanying the EPA working draft #3 of the High-Level Waste Standards.

Working Group Meetings

Joint Meeting of Working Group on Expert Judgment and the Working Group on Human Intrusion in the Performance Assessment for Nuclear Waste Disposal, June 18 and 19, 1991, 7920 Norfolk Avenue, Bethesda, MD, (Gnugnoli) 8:30 a.m., Room P-110 - The Working Group will continue the examination of methods for eliciting expert judgment. The scheduled discussions are focused on the actual mechanics of elicitation. This includes questions on how the experts will be selected and identified as well as how the selected experts are trained and how their opinions are aggregated. Human intrusion will be used to relate the elicitation process to a real and useful application. Participants will include normative experts (i.e. those that establish the procedures for the use of expert judgment) as well as NRC and DOE staff and consultants involved with Yucca Mountain and WIPP.

Regulatory Guides for Implementing Revisions to 10 CFR Part 20, August 20-22, 1991, 7920 Norfolk Avenue, Bethesda, MD, (Gnugnoli) - The Working Group will review, discuss and make recommendations on seven regulatory guides:

- Interpretation of Bioassay Measurements
- Instruction on Health Risks from Occupational Radiation Exposure

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- Instructions to Pregnant Women
- Criteria and Procedures for Summation of Internal and External Occupational Doses
- Dose to Embryo/Fetus
- Assessing External Radiation Doses from Airborne Radioactive Materials
- Air Sampling

The following two draft regulatory guides will also be considered:

- Preparation of Applications for Use of Sealed Sources and Devices for Performing Industrial Radiography
- Preparation of Applications for Medical Uses

NRC Staff Computer Modeling and Performance Assessment Capabilities in HLW and LLW, September 11-13, 1991, 7920 Norfolk Avenue, Bethesda, Md, (Gnugnoli) - The Working Group will review, discuss and make recommendations regarding the NRC staff capabilities to make independent evaluations of licensee proposals with respect to the performance of low-level and high-level radioactive disposal facilities. Emphasis will be placed on computational capabilities involving computer modeling, documentation, verification and validation.

Geologic Dating October 22, 1991, 7920 Norfolk Avenue, Bethesda, MD, (Abrams) - The Working Group will review and discuss the problems and limitations associated with the various Quaternary dating methods to be used in site characterization of an HLW repository.

Residual Contamination Clean-up Criteria October 25, 1991, 7920 Norfolk Avenue, Bethesda, MD, (Gnugnoli) - The Working Group will review, discuss and make recommendations regarding the soil clean-up criteria and clean-up levels for unrestricted use at contaminated sites that are or have been under AEC or NRC license.

Long-Term Climate Change November 19, 1991, 7920 Norfolk Avenue, Bethesda, MD, (Abrams) - The Working Group will review and discuss potential long-term climate changes and their impact on performance assessments and ultimately on the suitability of the site for the HLW repository.

Post-closure Monitoring November 22, 1991, 7920 Norfolk Avenue, Bethesda, MD, (Larson) - The Working Group will discuss post-closure monitoring of an HLW repository and other related issues. The ACNW staff will invite representatives from EPA, DOE and NRC to brief the Committee on various aspects associated with post-closure monitoring.

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Human Intrusion December 17, 1991, 7920 Norfolk Avenue, Bethesda, MD, (Abrams) - The Working Group will discuss methodologies for the assessment of the potential for natural resources at the proposed HLW disposal site.



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May 30, 1991

Mr. Robert M. Bernero, Director
Office of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Bernero:

SUBJECT: REVIEW OF DRAFT SECY PAPER ON DEALING WITH UNCERTAINTIES

The Advisory Committee on Nuclear Waste has reviewed a copy of the draft SECY paper, "Staff's Approach for Dealing with Uncertainties in Implementing the EPA High-Level Waste Standards." As you know, the NRC staff is writing this paper in response to a request from the Commission for an explanation of the management of uncertainties during the process of evaluating compliance of a proposed repository with the probabilistic standards of the U.S. Environmental Protection Agency (EPA). During our 30th meeting, we had extensive discussions on this topic with members of your staff. The transcript of our April 24, 1991 meeting contains details of our comments and concerns.

The draft SECY paper and its accompanying document provide a broad view of the uncertainties that will need to be addressed during site characterization and the subsequent licensing process. Although the draft SECY paper includes discussion of methods to reduce uncertainties, we believe the staff has insufficiently clarified its role in the management of uncertainties that will remain after a license application is submitted. The draft SECY paper is also substantially silent on (1) the general program plan envisioned by the NRC staff for managing uncertainties, (2) the way in which rulemaking and similar protocols will be used to manage uncertainties that are likely to become important at the time of license hearings, and (3) the distinction between the role of the NRC and that of the U.S. Department of Energy in reducing and managing technical uncertainties. At the same time, the draft SECY paper includes extensive coverage of topics that could be interpreted as not being pertinent to the questions that need to be addressed. One example is the discussion of the benefits to be derived from the existing version of the EPA Standards. The discussion of collective versus individual dose limits should also be removed from the SECY paper.

Although the draft paper is partially responsive to the request of the Commission for a discussion of the management of uncertainties, there is a need to develop a program plan that (1) establishes guidelines for developing responses to a broad range of uncertainty

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issues; (2) describes the bases for actions by the staff, for example, the method of balancing reliability and risk; and (3) serves as a guide to the preparation of additional reports that systematically explore the application of the overall plan to various parts of the licensing process, such as the approach to reconciling expert judgments that conflict. Such a plan would provide assurance of long-term regulatory consistency and completeness; in essence, it would serve as a "road map." The existing draft paper and our discussions with the NRC staff can readily serve as a beginning for the preparation of a program plan.

We believe that the staff is approaching the difficult and complex topic of uncertainty issues with growing insight. Although the present draft SECY paper represents an improvement over the earlier version, it demonstrates the need to organize the variety of issues to be addressed so that uncertainties are minimized and managed satisfactorily, leading to the formulation of defensible policies. Some parts of the draft paper, particularly portions of section 2 and much of section 3, could, after revision, be issued as a partial response to the Commission's request.

We look forward to working with the staff on these matters and to reviewing additional documents on this important topic as they are developed. We would be pleased to meet with you to elaborate on our comments and suggestions.

Sincerely,



Dade W. Moeller
Chairman

Reference:

Draft SECY Paper, "Staff's Approach for Dealing with Uncertainties in Implementing the EPA High-Level Waste Standards," undated, received April 26, 1991.