



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
ADVISORY COMMITTEE ON NUCLEAR WASTE  
WASHINGTON, DC 20555 - 0001

ACNWS-0159

December 22, 2005

The Honorable Nils J. Diaz  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Chairman Diaz:

SUBJECT: SUMMARY REPORT—165<sup>TH</sup> MEETING OF THE ADVISORY COMMITTEE ON  
NUCLEAR WASTE, NOVEMBER 14–16, 2005, AND RELATED ACTIVITIES OF  
THE COMMITTEE

During its 165<sup>th</sup> meeting, November 14–16, 2005, the Advisory Committee on Nuclear Waste (ACNW) discussed several matters and completed the following reports, letters, and memoranda.

REPORTS

Reports to Nils J. Diaz, Chairman, NRC, from Michael T. Ryan, Chairman, ACNW:

- C Development of a Standard Review Plan for U.S. Department of Energy Waste Determinations, dated December 9, 2005
- C Review of the NRC Program on the Risk From Igneous Activity at the Proposed Yucca Mountain Repository, dated December 9, 2005

HIGHLIGHTS OF KEY ISSUES

1. Observations from the U.S. Environmental Protection Agency's (EPA's) October 2005 Public Meeting on its Proposed Revisions to 40 CFR Part 197

Dr. Weiner reported an October 2005 meeting in Las Vegas, Nevada, that she attended. She said that EPA representatives introduced key provisions of the revised Yucca Mountain standards and the supporting documentation and then responded to questions from the public about the proposed revised standards. After the informal question and answer sessions, members of the public were invited to make formal comments for the record. A transcription service was provided. Dr. Weiner said EPA intends to consider all the comments received as part of the public meeting process, along with any other written comments received by the EPA staff.

Committee Action

This briefing was for information purposes only.

## 2. U.S. Nuclear Regulatory Commission's (NRC's) Plans for the Implementation of a Dose Standard After 10,000 Years

Consistent with the 2004 Court decision and parallel with the related EPA rulemaking, the Commission proposes to revise its regulations in 10 CFR Part 63 on the disposal of high-level radioactive waste in the proposed Yucca Mountain repository. The revisions would implement EPA's proposed standards for doses that could occur after 10,000 years but within the period of geologic stability (not to exceed 1 million years) by specifying an infiltration rate through Yucca Mountain. This specified infiltration rate is intended to reflect future changes in climate in the Yucca Mountain region to slightly wetter conditions by accounting for groundwater flux through the repository horizon as part of a total system performance assessment. The deadline for the receipt of comments on the proposed NRC revisions is December 7, 2005.

Dr. Janet Kotra, of NRC's Office of Nuclear Materials Safety and Safeguards, said that EPA has published its proposed revisions for public comment and that the NRC staff intends to implement those revisions essentially as they are without comment. After a brief overview of EPA's proposed revisions to its standards, Dr. Kotra described how the NRC intends to implement the revisions. She said the Commission proposes to use a time-dependent deep percolation rate to represent the effect of future climate change.

### Committee Action

This briefing was for information purposes only. The staff will brief the Committee on the statistical distribution for the proposed infiltration rate recommendation at the Committee's 166<sup>th</sup> meeting in December 2005. The Committee also expects that subject matter experts will provide briefings on the reasonableness of the proposed NRC infiltration rate recommendation at that meeting.

## 3. Public Comment Session

At earlier meetings in 2005, the ACNW was briefed on a number of issues that are potentially relevant to a revised Yucca Mountain regulatory framework. These briefings concerned: (a) earlier Committee advice on an appropriate time period of compliance (TOC), (b) the basis for the NAS's original 1995 TOC recommendations for the Yucca Mountain standards (and peripheral issues), and (c) projected climate trends in the Yucca Mountain region and the implications for the regional groundwater flow system. The ACNW also received preliminary stakeholder views on regulatory approaches to addressing the 2005 court remand. The Committee provided recommendations to the Commission in a letter dated June 28, 2005, on past ACNW time-of-compliance advice.

Consistent with past Commission direction, the Committee has provided stakeholders the opportunity to comment on regulatory matters under review by the Agency. The ACNW continues to receive requests from stakeholders who wish to provide their views on the proposed revisions to the Yucca Mountain regulatory framework. During this meeting, the following individuals made presentations to the ACNW: Dr. Dade Moeller, Chairman of the Board, Dade Moeller and Associates; Dr. Thomas Tenforde, President, National Council on Radiation Protection; Dr. Matt Kozak, Monitor Scientific, representing the Electric Power

Research Institute; and Mr. Martin Malsch, Esquire, representing the State of Nevada. Most of the comments concerned the proposed EPA standards.

#### Committee Action

This briefing session was intended as an opportunity for stakeholders to express their views for the record about the proposed revisions to the Yucca Mountain regulatory framework. The Committee will benefit from these views in its discussions regarding NRC's proposed revisions to 10 CFR Part 63.

#### 4. Reactive Transport Research

William Ott from the Office of Nuclear Regulatory Research and Susan Atman and Randy Cygan from Sandia National Laboratories (SNL) briefed the Committee on the NRC research on sorption processes, SNL work on radionuclide sorption, the status of Phase II of the Nuclear Energy Agency (NEA) Sorption Project, and insights from the Reactive Transport Working Group's participation in the Interagency Steering Group on Multimedia Environmental Models (ISGMEM) April 2004 workshop. The work at SNL is focused on obtaining an improved scientific understanding of the sorption process by constructing mechanistic models at a molecular level. Phase II of the NEA Sorption Project will apply existing sorption models to a set of sites chosen for characteristics believed to be important to model testing. Eighteen organizations from 13 countries are involved in these model evaluations. The objectives of the Reactive Transport Working Group's participation in the ISGMEM workshop were to evaluate progress in modeling field-scale migration of inorganic solutes and to identify needed research. The participants concluded that significant progress was being made in the development of sorption models. Recommendations for additional research included publication of a guidance document for using conceptual sorption models, an analysis of sorption model parameters using the existing database, and additional field-scale testing of models.

#### Committee Action

This presentation provided background for the Committee's ongoing reviews of NRC-sponsored waste safety research. The Committee will provide comments on waste safety research in its next report to the Commission.

#### 5. Preparation for Commission Briefing on January 11, 2006

The Committee reviewed and revised draft slides in preparation for the Commission briefing on January 11, 2006.

#### Committee Action

The slides will be finalized and the members will dry run their presentations at the December 2005 Committee meeting.

6. White Paper on Low-Level Radioactive Waste

The Committee presented a revised outline for the white paper. The paper will consist of a legislative and regulatory history background. It will contain discussions of 10 CFR Part 61 and there will be an “opportunities” section based on the previous parts. The Committee will continue its development of the white paper and will have a near-final version at the next meeting in December.

RECONCILIATION OF ACNW COMMENTS AND RECOMMENDATIONS/EDO COMMITMENTS

The Committee considered the Executive Director for Operations’ October 31, 2005, response to the comments in the ACNW report of September 30, 2005 on the NRC staff recommendation on the use of collective dose. The Committee decided that it was satisfied with the EDO’s response.

PROPOSED SCHEDULE FOR THE 166<sup>th</sup> ACNW MEETING

The Committee agreed to consider the following topics during the 166<sup>th</sup> ACNW meeting on December 13–15, 2005.

- C Combined NMSS Office and Division Directors Briefing
- C NRC’s Plans for the Implementation of a Dose Standard After 10,000 Years
- C Reasonableness of NRC Infiltration Assumption in the Proposed Part 63
- C White Paper on Low-Level Radioactive Waste
- C Generalized Composite Modeling
- C Preparation for Commission Briefing
- C Discussion of Draft and Possible Letters and Reports

Sincerely,

**/RA/**

Michael T. Ryan  
Chairman

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