



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

ACNWS-0148

November 8, 2004

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

SUBJECT: SUMMARY REPORT—153RD MEETING OF THE ADVISORY COMMITTEE
ON NUCLEAR WASTE, SEPTEMBER 22–23, 2004, AND OTHER RELATED
COMMITTEE ACTIVITIES, LAS VEGAS, NEVADA

Dear Chairman Diaz:

The Advisory Committee on Nuclear Waste (ACNW or the Committee) held its 153rd meeting on September 22–23, 2004, at the Suncoast Hotel, Ballroom A, 9090 Alta Drive, Las Vegas, Nevada. During that meeting, the Committee discussed the following matters.

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

**1. WORKING GROUP ON THE EVALUATION OF IGNEOUS ACTIVITY AND ITS
CONSEQUENCES AT A GEOLOGIC REPOSITORY AT YUCCA MOUNTAIN, NEVADA**

The ACNW has been tracking developments related to the evaluation and modeling of a disruptive igneous event at the Yucca Mountain, Nevada, site for several years. To better understand the status of the remaining technical issues prior to the submittal of a U.S. Department of Energy (DOE) license application (LA), the ACNW conducted a 2-day working group meeting (WGM).

The purposes of the WGM were to (1) increase the ACNW's technical knowledge of staff plans to evaluate the likelihood and consequences of disruptive igneous events at the proposed Yucca Mountain repository; (2) better understand NRC staff expectations regarding DOE's consequence analyses; (3) identify aspects of the analyses that may need further study; and (4) complement previous working group meetings on performance assessments of Yucca Mountain. In addition, there were discussions regarding (1) the technical bases (measurements, analyses, and interpretations) necessary to conduct dose assessments, (2) the role of risk insights in the development of technical bases, and (3) the impact of outstanding technical issues on the resolution of agreements. The expert panel offered a number of suggestions and observations regarding assessments and evaluations that will support the volcanism-related dose calculations that must be included in a DOE LA to meet the requirements of 10 CFR Part 63.

The WGM covered three areas of interest: (1) probability of future basaltic dikes intersecting a potential repository; (2) the interaction of a volcanic event intersecting a waste disposal drift and mobilizing radioactive material from waste packages; and (3) the dosimetric consequences of subsequent dispersal of radioactive material. Representatives of the Nuclear Regulatory Commission (NRC) staff and its technical assistance contractor—the Center for Nuclear Waste Regulatory Analyses (CNWRA)—the ACNW staff, the Electric Power Research Institute (EPRI), the Los Alamos National Laboratory (LANL), the Sandia National Laboratories (SNL), the Oak Ridge National Laboratory (ORNL), and the University of Utah participated in the meeting by making technical presentations. Representatives from DOE's Yucca Mountain Project and the State of Nevada were invited to make presentations as well but declined.

To lead the discussions, the ACNW relied on a group of experts on the issues under review. The experts were as follows:

Probability and Consequence Panel

Dr. Robert Budnitz ¹	Lawrence Livermore National Laboratory
Dr. Bruce Crowe ²	Los Alamos National Laboratory
Dr. William Hinze	Professor Emeritus, Purdue University
Dr. Bruce Marsh	Johns Hopkins University
Dr. William Melson	Emeritus Scientist, the Smithsonian Institution

Dose Modeling Panel

Dr. Lynn Anspaugh	University of Utah
Dr. Keith Eckerman	Oak Ridge National Laboratory
Dr. Fred Harper	Sandia National Laboratories

About 15 presentations, covering the three aspects of the analyses, were made by the staff representatives identified above, consistent with the scope of the meeting. Following each of the presentations, the panel of invited experts reviewed the material presented and offered their opinions on that material. To a limited extent, stakeholders and members of the public commented on the discussions. The 2-day WGM ended with epilogue comments and observations by Dr. David Johnson, ABS Consulting, Inc. (Irvine, California). The subject of his talk was the Garrick-Kaplan *risk triplet* (concept). It was based on his observations of the earlier presentations and discussions, and reflected his limited views on how effectively the risk triplet had been applied to the evaluation and modeling of potentially disruptive igneous events in Yucca Mountain.

¹On detail to DOE's Office of Civilian Radioactive Waste Management.

²Probability Panel Only.

Conclusions/Action Items

The results of the igneous activity WGM will be used to develop a letter report to the Commission with the ACNW's observations (and possibly recommendations). The proceedings of this WGM will be published as a NUREG/CP.

2. Reconciliation of ACNW Comments and Recommendations

The Committee considered the following reports from the NRC's Executive Director for Operations (EDO) during its Planning & Procedures meeting September 24, 2004:

- C EDO response dated July 22, 2004, to ACNW letter dated June 9, 2004, concerning Comments on the Activities of the Office of Nuclear Safety and Safeguards Task Group on Risk-Informed Regulation

The Committee decided that it was satisfied with the EDO's response.

- C EDO response dated September 14, 2004, to ACNW letter dated July 30, 2004, concerning Nuclear Regulatory Commission's Package Performance Study — Demonstration Test

The Committee decided that it was satisfied with the EDO's response, recognizing the staff intends to conduct actual tests on spent nuclear fuel transportation tasks.

- C EDO response dated September 9, 2004, to ACNW letter dated August 3, 2004, concerning Working Group Meeting on Geosphere Transport at Yucca Mountain

The Committee decided that it was satisfied with the EDO's response.

3. Proposed Agenda for the 154th ACNW Meeting

The Committee agreed to consider the following topics at its 154th meeting on October 19–21, 2004:

- C Working Group Review of the International Council on Radiation Protection (ICRP) June 2004 Recommendations (2 days)
- C Update on the Status of the License Termination Rule (LTR)
- C NRC Yucca Mountain Integrated Issue Resolution Status Report (IIRSR) Update
- C ACNW 2005 Action Plan
- C Preparation of ACNW Reports

The Committee will also discuss potential reports on uranium dissolution in spent nuclear fuel, the September 2004 Igneous Activity WGM, the draft ICRP standard, the LTR update, and IIRSR.

Sincerely,

/RA/

Michael T. Ryan
Chairman

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