

February 11, 2003

MEMORANDUM TO: Lawrence Kokajko, Acting Branch Chief  
Environmental and Performance Assessment Branch  
Division of Waste Management, NMSS

THROUGH: Andrew Campbell, Chief */RA/*  
Performance Assessment Section  
Environmental and Performance Assessment Branch  
Division of Waste Management, NMSS

FROM: Christopher Grossman, General Engineer  
Environmental and Performance Assessment Branch  
Division of Waste Management, NMSS

SUBJECT: NUCLEAR WASTE TECHNICAL REVIEW BOARD WINTER 2003  
MEETING IN LAS VEGAS, NEVADA

#### Background

On January 28, 2003, I observed the U.S. Nuclear Waste Technical Review Board (NWTRB) meeting in Las Vegas, Nevada. During the morning session of the meeting, the U.S. Department of Energy (DOE) and its contractor Bechtel SAIC Company, LLC. (BSC) provided briefings on the status of the Yucca Mountain project. Specific discussions included DOE's plans for operating a waste management system, including waste acceptance, packaging, transportation, repackaging, and emplacement as well as an update of its science and engineering activities to support repository development. During the afternoon session, the State of Nevada presented a status report on state-sponsored corrosion studies, and the DOE presented an update on its materials testing activities, waste package manufacturing, closure welds, and barrier analyses for the license application. The public made several comments at the close of both the morning and afternoon sessions. DOE also provided a handout of responses to a NWTRB letter dated September 22, 2002, and can be found in the attachment. Additionally, a detailed agenda and handouts of the presentations from both sessions of the meeting, which are not attached, accompany this letter in the Agencywide Document Access and Management System (ADAMS) under ML030370501. Transcripts from the meeting will be available at the NWTRB's website beginning March 2, 2003. If you have any questions concerning the briefing material or discussions that occurred during the meeting sessions, please contact me at 301-415-7658 or [cjg2@nrc.gov](mailto:cjg2@nrc.gov).

#### Summary of Specific Observations

Margaret Chu (DOE) discussed the on-going reorganization of the Office of Civilian Radioactive Waste Management. Specifically, DOE renamed the Site Characterization Office to the Office of Repository Development (ORD), and initiated and a Science and Technology Program to investigate a wide spectrum of issues related to the program. She discussed the addition of key personnel to the new program, including Tom Keyes, Robert Budnitz, John Mitchell, and

Joe Payer. DOE plans to discuss the Science and Technology program in more detail at the NWTRB's May meeting. She reiterated that DOE will emphasize specific areas including the design of the repository, a post-closure total system performance assessment, pre-closure safety assessment, Key Technical Issue (KTI) resolution, and certification of the Licensing Support Network in order to submit a license application to the U.S. Nuclear Regulatory Commission (NRC) by December, 2004. DOE considers KTI resolution their first priority and believes the process is on schedule but would like to see quicker decisions in the future and plans on more focused interactions. She also reiterated that DOE will begin planning and development of transportation infrastructure in order to anticipate receipt of the first waste shipments by the end of 2010. Secretary Abrams has requested the completion of the plan by December, 2003. DOE will use the following guiding principles for transportation planning: public safety and confidence, frequent interactions with other governmental units, maximum utilization of private industry, and utilization of technology to maximize safety and efficiencies.

Jeff Williams (DOE) discussed plans for the waste management operating system at Yucca Mountain including the anticipated schedule for waste acceptance rates, acceptance criteria as specified by contract provisions, transportation casks and equipment, cask certification requirements, route selection and the preference for rail transportation both nationally and in Nevada, surface handling facilities, and emplacement equipment. DOE anticipates using private industry to the extent practicable. DOE also anticipates route selection will occur 3 to 5 years prior to waste shipments. Surface facility operations may include blending and surface storage for thermal management purposes.

John Arthur (DOE) discussed the status of the Yucca Mountain Project and outlined its management philosophy going forward to instill an operating culture within the project as a potential NRC licensee. Specifically, DOE will demonstrate its capability to safely operate the facility, implement a quality assurance culture, increase formal interactions with NRC, increase accountability within the program, develop a strategic plan including goals and incentives, benchmark best practices, rollout the ORD, and improve both internal and external communications. DOE plans to rollout its strategic plan in February, and will revisit with the NWTRB at a future meeting regarding the schedule for their plan to improve the communication of the relative contribution of the engineered and natural barriers. Additionally, DOE confirmed that there is some water at the site, but is still working out issues.

Mark Peters (BSC) provided an update on the science and engineering data collection underway on the project to address uncertainties and provide confidence in natural and engineered systems process models and design for the license application.

The public made several comments at the close of the morning session. Jacob Paz expressed concern about the interactions of radionuclides and hazardous chemicals at Yucca Mountain. Sally Devlin notified the NWTRB of a recent news article regarding the transportation of nuclear waste through our nation's commercial ports. Grant Hudlow expressed concern about the quality of the DOE staff.

Don Shettel (Nevada) discussed the variability of post-emplacement waters and the potential formation of aggressive environments in the drift at Yucca Mountain. Roger Staehle provided an update on the continuing investigations of heterogeneous local environments on waste container surfaces. Current studies investigated acidic environments in which higher corrosion rates were observed than under DOE testing environments. He expressed the need for DOE to

develop a better structure to examine the potential behavior which he believes will be “transformative”.

Joe Farmer (BSC) discussed the categories of water possibly contacting the waste package including expected deliquescence brines from dust-water interactions, expected seepage brines from fracture flow, unexpected  $\text{CaCl}_2$  brines and associated evolution of acidic gas.

Jerry Cogar (BSC) discussed DOE strategy for waste package prototype procurement involving the Idaho National Engineering and Environmental Laboratory and a commercial contractor, plans for closure weld verification, and the proposed design changes for waste package final closure.

Graham Fogg (UC, Davis) discussed research conducted to examine the influence of paleosols on fluid flow and transport.

Peter Swift (BSC) discussed the types of analyses currently being considered to support the license application. Analyses will focus on intermediate metrics using component analyses, full-system analyses, and one-off/one-on techniques as appropriate to quantify the capabilities of barriers to reduce the movement of water or radionuclides.

At the close of the afternoon session, the public made several comments. Jerry Semansky expressed concern regarding the resolution of the up-welling water issue by DOE. Sally Devlin asked the NWTRB to review the Federal Facility Agreement Compliance Report for Yucca Mountain, and expressed concern that she had not received information fulfilling any of the KTI agreements as promised at a recent NRC-DOE meeting. Judy Triechel questioned the need to develop the repository before scientific understanding is sufficient. She also reiterated that worst-case scenarios need to be revisited in the wake of the terrorist attacks on September 11, 2001. Finally, she expressed concern that the burden is on DOE to prove a repository at Yucca Mountain will work, not on the State of Nevada to prove otherwise. Calinda Tilgas called for more gender equity on the NWTRB and DOE to analyze terrorism. She also expressed concern for the lack of attention paid to a dairy farm situated in the vicinity of Yucca Mountain. John Jervis expressed concern about a potential squeeze on transportation planning due to budgetary constraints. Joe Payer expressed the need for continued research into the likelihood of aggressive chemical environments.

Attachment:

Letter from Margaret Chu to Michael Corradini (RE: Responses to the September 22, 2002 Letter to DOE from the Nuclear Waste Technical Review Board)

cc: John Greeves, DWM  
Bill Reamer, DWM  
Janet Schlueter, DWM/HLWB  
Andy Campbell, DWM/EPAB  
King Stablein, DWM/HLWB  
Larry Campbell, DWM/HLWB  
T. McCartin, DWM

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