



UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
2300 Clarendon Boulevard, Suite 1300
Arlington, VA 22201

Agenda

Winter 2001 Board Meeting Scientific and Technical Issues

Longstreet Inn
HCR 70
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Amargosa Valley, Nevada
Tel: (775) 372-1777 Fax: (775) 372-1280

Tuesday, January 30, 2001

- 8:00 a.m. Call to order and introductory comments**
Jared Cohon
Chairman
Nuclear Waste Technical Review Board (NWTRB)
- 8:10 a.m. Welcoming remarks**
Jeff Taguchi
Commissioner, Nye County
- 8:15 a.m. Program and Project update**
Lake Barrett
Acting Director
Office of Civilian Radioactive Waste Management
U.S. Department of Energy
- 8:35 a.m. Questions, discussion**
- 8:45 a.m. Contractor transition**
[Ken Hess](#)
General Manager
Bechtel-SAIC Company LLC
- 8:55 a.m. Questions, discussion**

9:00 a.m. Scientific and technical oversight in France
[Jean-Claude Duplessy](#)
Member
French National Scientific Evaluation Committee

9:20 a.m. Questions, discussion

9:30 a.m. BREAK

9:40 a.m. Introduction to technical inquiries
Don Runnells
Member
NWTRB

9:45 a.m. Regulatory and performance framework
[Stephan Brocoun](#)
Assistant Manager
Office of Licensing and Regulatory Compliance
Yucca Mountain Site Characterization Office (YMSCO)

10:10 a.m. Questions, discussion

10:30 a.m. Question 1: Waste Package Corrosion

What is the current theoretical and empirical basis for extrapolating the behavior of Alloy-22 for extremely long periods (e.g., 10,000 years)? What are the current significant gaps in understanding? How might those gaps be closed (and how long would it take)? How much of a reduction in uncertainty is likely to take place if that additional work is performed? Is that additional work necessary for making a site-recommendation decision? Why or why not?

For example, TSPA predicts that localized corrosion of Alloy 22 will never occur in Yucca Mountain because the models used in TSPA rely on the open-circuit potential of Alloy 22 never approaching or exceeding a certain critical localized corrosion potential. What theory, data, analysis, etc., form the basis for believing that open-circuit potential will not change significantly over extremely long periods?

[Gerald Gordon](#)
Waste Package Materials Team Lead
Framatome Cogema Fuels

11:10 a.m. Questions, discussion

11:30 a.m. Questions and comments from the public
Jared Cohon

12:00 p.m. LUNCH (1 hour)

1:00 p.m. Question 2: Unsaturated Zone

What is the mean and variance of the travel time for a conservative species from the repository horizon to the water table? How did you arrive at this answer? (Include here a discussion of the significance of percolation flux.) What independent lines of evidence corroborate your estimates of travel time in the unsaturated zone? What are the sources of uncertainty in these estimates? How much difference might the uncertainties make?

[Gudmundur Bodvarsson](#)

Laboratory Lead

Lawrence Berkeley National Laboratory

1:40 p.m. Questions, discussion

2:00 p.m. Question 3: Saturated Zone

What is the mean and variance of the travel time for a conservative species from the water table to the accessible environment 20 km downgradient of the repository? How did you arrive at this answer? (Include here a discussion of the significance of specific discharge, including three-dimensional aspects of flow.) What independent lines of evidence corroborate your estimates of travel time in the saturated zone? What are the sources of uncertainty in these estimates? How much difference might the uncertainties make?

Al Eddebbarh

Saturated Zone Lead

Los Alamos National Laboratory

2:40 p.m. Questions, discussion

3:00 p.m. BREAK

3:15 p.m. Question 4: Total System Performance Assessment

Questions have been raised about over reliance on the waste package in the safety case and the lack of clarity about the roles played by the different natural and engineering components in the proposed repository. Please address these issues, comparing the nominal-case TSPA with the scenarios that result in some form of rapid waste package failure, including juvenile failures, degraded waste packages, and neutralized waste packages. Specifically address the significance of the mode and extent of assumed waste package failure in each scenario, the mechanism for release into the unsaturated zone, and the roles played by the

different engineered and natural barriers in limiting the dose due to failed waste packages. Why, for example, is the peak dose due to a degraded waste package almost an order of magnitude higher (at 100,000 years) than the dose due to neutralized waste packages? What would the potential dose be if the waste packages were completely neutralized? What would the potential dose be if the contents of one or more waste packages were released directly to the accessible environment? Demonstrate the individual contribution of each barrier in reducing this potential dose. Finally, how robust are conclusions on defense-in-depth that are based solely on TSPA?

[Robert Andrews](#)

Manager

Performance Assessment Operations

Duke Engineering

4:10 p.m. Questions, discussion

4:30 p.m. Question 5: Repository Design

In selecting a design for a repository, there are likely to be multiple objectives. Explain what those objectives might be and the relative weight given to each, at least provisionally. If the objectives conflict, describe as specifically as possible what the key trade-offs might be.

[Paul Harrington](#)

Project Engineer

YMSCO

4:55 p.m. Questions, discussion

5:15 p.m. Questions and comments from the public

Jared Cohon

5:45 p.m. Adjournment

Jared Cohon

Wednesday, January 31, 2001

- 7:00 a.m.** **Coffee and donuts for the public with Board members**
- 8:00 a.m.** **Introduction**
John Arendt
Member
NWTRB
- 8:05 a.m.** **Scientific and engineering update**
Mark Peters
Testing and Engineering Support Office Manager
Los Alamos National Laboratory
- 9:15 a.m. Questions, discussion*
- 9:45 a.m.** **Repository design evolution**
[Paul Harrington](#)
- 10:05 a.m. Questions, discussion*
- 10:15 a.m.** **BREAK**
- 10:30 a.m.** **Update on uncertainties**
[William Boyle](#)
Senior Advisor for Regulatory Policy
Office of Licensing and Regulatory Compliance
YMSCO
- 11:15 a.m. Questions, discussion*
- 11:40 a.m.** **Questions and comments from the public**
Jared Cohon
NWTRB
- 12:10 p.m.** **LUNCH**
- 1:25 p.m.** **Decision-making in a learning environment**
[Russ Dyer](#)
Project Manager
YMSCO
- 1:50 p.m. Questions, discussion*

2:10 p.m. Repository Safety Strategy

[William Boyle](#)

YMSCO

Dennis Richardson

TRW M&O

2:50 p.m. Questions, discussion

3:10 p.m. BREAK

3:25 p.m. Nye County scientific program

[Tom Buqo](#)

Principal Investigator

Nye County

4:00 p.m. Questions, discussion

4:15 p.m. Performance Assessment of Yucca Mountain

[John Kessler](#)

Project Manager

Spent Fuel Storage and Disposal

Electric Power Research Institute

4:50 p.m. Questions, discussion

5:05 p.m. Questions and comments from the public

Jared Cohon

5:35 p.m. Adjournment

Jared Cohon