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

DRAFT

Agenda
Winter 2001 Board Meeting

Scientific and Technical Issues

Longstreet Inn
HCR 70
Box 559
Amargosa Valley, Nevada

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**
Commissioner Jeff Taguchi
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 (DOE)
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
National Scientific Evaluation Committee (CNE)
9:20 a.m. Questions, discussion

9:30 a.m. **BREAK**

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

9:45 a.m. **Regulatory and performance framework**
Stephan Brocoum
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
Framatome Cogema Fuels

11:10 a.m. Questions, discussion

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

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 Bovarsson
Lawrence Livermore 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 Eddebbahr

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
Duke Engineering

3:55 p.m. Questions, discussion

4:15 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
YMSCO

4:55 p.m. Questions, discussion

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

Jared Cohon
NWTRB

5:45 p.m. **Adjournment**

Jared Cohon
NWTRB

Wednesday, January 31, 2001

8:00 a.m. **Introduction**
John Arendt
NWTRB

8:05 a.m. **Scientific and engineering update**
Mark Peters
Los Alamos National Laboratory (LANL)
9:15 a.m. Questions, discussion

9:45 a.m. **Repository design update**
Paul Harrington
YMSCO
10:05 a.m. Questions, discussion

10:15 a.m. **BREAK**

10:45 a.m. **Decision-making in a learning environment**
Russ Dyer
Project Manager
YMSCO
11:10 a.m. Questions, discussion

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

12:00 p.m. **LUNCH**

1:00 p.m. **Evaluation of uncertainties**
William Boyle
YMSCO
1:45 p.m. Questions, discussion

2:10 p.m. **Repository Safety Strategy**
William Boyle
YMSCO
2:50 p.m. Questions, discussion

3:10 p.m. **BREAK**

3:25 p.m. **Nye County scientific program**
Tom Buqo
Nye County

4:00 p.m. Questions, discussion

4:15 p.m. **Performance Assessment of Yucca Mountain**
John Kessler
Electric Power Research Institute (EPRI)

4:50 p.m. Questions, discussion

5:05 p.m. **Questions and comments from the public**
Jared Cohon
NWTRB

5:35 p.m. **Adjournment**
Jared Cohon
NWTRB