

REC'D BY SECY

31 MAY 01 2:19



Update on Status of Yucca Mountain Studies

Dr. Jared L. Cohon, Chairman
Dr. Debra S. Knopman, Member
Dr. Alberto A. Sagüés, Member
June 14, 2001

DJF342v1

What is the NWTRB?

- **An independent federal agency created by NWPAA of 1987**
- **11 members nominated by NAS and appointed by the President**
- **Reviews characterization of Yucca Mountain and packaging and transportation of waste**

What is the NWTRB (cont'd)?

- **Reports to Congress and Sec'y of Energy twice each year**
- **Recommendations only; no enforcement or implementation authority**
- **Board (and Panels) often meet in Nevada; meetings open to the public**

DOE Program Milestones

- ***Viability Assessment* was issued in 1998**
- **Site recommendation documents are pending**
- **Site recommendation is planned for late 2001**

NWTRB Priorities

- **Meaningful quantification of conservatisms and uncertainties**
- **Progress in understanding processes of waste package corrosion**
- **Evaluate and compare base-case and low-temperature designs**
- **Multiple lines of evidence for technical defensibility**

Meaningful Quantification of Uncertainties

- **Essential information for policy-makers**
- **Difficult to interpret performance predictions based on conservative, realistic, and optimistic assumptions**
- **Uncertainties cannot be eliminated**
- **Decision-makers must decide how much uncertainty is acceptable**

Understanding Fundamental Corrosion Processes

- **Waste package may be most important barrier**
- **Predicting long-term corrosion rates from short-term data is uncertain**
- **Need progress in understanding the fundamental processes that affect passive layer stability**

Lower-Temperature Repository Design

- **Higher temperatures increase “coupled” thermal, hydrological, mechanical, and chemical effects**
- **Waste packages may be more vulnerable to corrosion at higher temperatures**
- **Comparison with a low-temperature, ventilated design would be helpful**

Multiple Lines of Evidence

- **Safety case relies on:**
 - performance-assessment calculations
 - safety margins and defense-in-depth
 - evaluation of potentially disruptive events
 - insights from natural analogs
 - performance confirmation
- **Emphasis is needed on lines of evidence that are independent of performance assessment**

DOE's Relationship with the Board

- **DOE responded to Board recommendations:**
 - **Began quantifying conservatisms and uncertainties**
 - **Peer review of waste package corrosion issues**
 - **Developed low-temperature operating mode**
 - **Meeting on multiple lines of evidence**