



Department of Energy

Washington, DC 20585

June 15, 1998

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Dr. Jared L. Cohon
Chairman
Nuclear Waste Technical Review Board
2300 Clarendon Boulevard
Arlington, Virginia 22201-3367

Dear Dr. Cohon:

The Department of Energy appreciates the Nuclear Waste Technical Review Board's continuing effort to provide preliminary comments following its public meetings. To ensure that important issues are being addressed in a timely manner, the Department would like to provide the Board with preliminary responses to its comments of April 7, 1998, on the Board's January 1998 meeting. This meeting focused on studies of the saturated zone and the environmental impact statement.

Characterization of the Saturated Zone

We share the Board's interest in saturated zone (SZ) studies. Additional field tests are being planned in response to the importance assigned to SZ flow and transport in the repository safety strategy. The intent of these tests is to reduce the uncertainties about radionuclide dilution in the SZ. We will keep the Board informed of the results of ongoing studies and of plans for additional tests in the SZ. As the plans for additional tests are being formulated, we will also consider the Board's suggestion for a review of the plans by an outside technical panel.

Expert Elicitation on the Saturated Zone

The Board suggested that our SZ models assume an optimistic amount of dilution and that the current models need better integration and more supporting data. Based on the expert elicitation and other inputs, we have substantially revised and simplified the SZ model in TSPA-VA from that presented to the Board in January 1998. This has resulted in more realistic dispersion and therefore, much reduced dilution factors. We will include in the viability assessment (VA) a study on the sensitivity of repository performance to variations in the dilution factor. As was discussed earlier, the Department intends to conduct additional testing in the SZ after the VA to provide additional data to support the SZ models.

Presentation by the State of Nevada's Contractor

As suggested by the Board, the SZ flow model presented by the State's contractor is being reviewed as we continue development of SZ models. The Department recognizes the value of considering alternative models for ensuring that the full range of uncertainty is addressed.

The Environmental Impact Statement (EIS)

The Department welcomes the Board's interest in the EIS process and how alternative designs will be considered. Through the EIS, we intend to bound the environmental impacts from a reasonable range of designs, based primarily on a range of thermal loads. The impacts of other reasonable alternative designs should fall within these bounds.

As the Board mentions, the Department must at the appropriate time present a comparative evaluation of design alternatives. We expect that evaluation, which is required by the U.S. Nuclear Regulatory Commission (the Commission), to be initially developed for the VA and then to evolve throughout the precicensing and licensing periods. The Department intends to use a workable reference design to support the development of a license application. We recognize that technological advances over the decades of repository construction and operation can be expected to influence design changes. Input from the Board, the Commission, and other interested parties will be important in making the design decisions.

Thermal Testing

We agree with the Board on the importance of thermal testing for reducing uncertainties in the thermal-hydrologic response of Yucca Mountain. We appreciate the Board's compliments on the progress in the thermal testing program.

We continue to value the Board's feedback as we pursue completion of the VA and the future work beyond. If you have any questions, please contact me at (202) 586-6842.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lake H. Barrett', written in a cursive style.

Lake H. Barrett, Acting Director
Office of Civilian Radioactive
Waste Management