



Department of Energy

Washington, DC 20585

July 22, 2003

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

Dear Dr. Corradini:

Thank you for your April 30, 2003, letter expressing the Nuclear Waste Technical Review Board's (Board) perspective on our February 25, 2003 meeting.

The Department of Energy appreciates and values the Board's continuing review of our activities as we proceed toward submitting a license application for a repository construction authorization to the Nuclear Regulatory Commission. Our responses to the views expressed by the Board are presented in the enclosed letter.

The Department has benefited from the constructive views of the Board and we look forward to continuing our dialogue.

Sincerely,

A handwritten signature in black ink, appearing to read "m. chu", written over a horizontal line.

Dr. Margaret S.Y. Chu, Director
Office of Civilian Radioactive
Waste Management

Enclosure:

*Responses to the April 30, 2003 letter to the
U.S. Department of Energy (DOE) from the
Nuclear Waste Technical Review Board*



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**Responses to the April 30, 2003 letter to DOE from the
Nuclear Waste Technical Review Board**

Transportation

In the Board's view, the DOE should adopt safety as a guiding principle in planning and developing a transportation system and should develop an integrated safety plan for guiding the development process. The schedule for such transportation planning also is important, and it appears that the DOE's current timetable may be optimistic, considering the substantial amount of work to be done.

Response: DOE agrees that safety should be a guiding principle in planning and developing a transportation system for shipments to a geologic repository in Nevada. We also agree that an integrated safety plan is necessary to guide the development process. Consequently, DOE looks forward to further discussions with the Board regarding the format and content of such a plan. DOE also agrees that the public should be involved in the development of the Transportation Strategic Plan and, therefore, plans to seek stakeholder input at the July 16-17, 2003 Transportation External Coordination Working Group meeting. Input received during that meeting will be addressed as DOE finalizes its Plan.

Waste Acceptance

...it is apparent that significant coordination is needed for the waste acceptance process to be smooth and efficient. For example, no casks have been certified for transporting some of the high burn-up spent fuel likely to be generated in the future. Coordination of cask development (and certification) with utility shipping needs and with repository and transportation systems capabilities will be important for efficient operations. The DOE should seek approaches to improving communications with utilities in a way that will facilitate planning for the waste acceptance process.

Response: DOE acknowledges that commercial utilities are producing higher burn-up spent fuel than was envisioned when the Standard Contract was signed. Recognizing this future scenario, DOE has considered and incorporated repository facility design features and operational scenarios to receive, package, and emplace higher burn-up spent fuel as a part of DOE's ongoing design evolution process. For example, repository surface facilities are being designed to blend spent nuclear fuel in waste packages with a combination of high burn-up spent fuel and cooler older spent fuel to manage thermal loading requirements.

Development and certification of transportation cask designs for higher burn-up commercial spent nuclear fuel is a multi-faceted endeavor requiring close regulatory interactions with the Nuclear Regulatory Commission, transportation cask design and production assessments of cask vendors, and logistical coordination with commercial nuclear utilities. DOE is examining how best to develop and manage a transportation system that would accommodate the variety and range of spent nuclear fuel that would be available for shipment to support repository operations. However, the submittal of a license application for repository construction authorization continues to be our primary program focus, especially given the exigencies of the budget process. DOE has requested funding in fiscal year 2004, and will

continue to do so in future budget requests to examine high burn-up spent nuclear fuel and other transportation and waste acceptance issues

Surface and Underground Facilities

The Board would appreciate receiving additional information on two significant issues related to the design and operation of surface and underground facilities. First is the possibility that a small amount of spent fuel will be damaged during transportation to Yucca Mountain. Spent fuel found to be damaged when the casks are opened at the surface facilities will be handed in the remediation building. However, DOE does not plan to have the remediation building operational until three years after the receipt of spent nuclear fuel begins.

Response: DOE's design process is evolutionary, and will continue to be refined and optimized. The design and operational concepts presented last February were provided to the Board as a snapshot in time. DOE realizes that specific design feature details, including the handling of off-normal operations, must be addressed in a license application. The sequencing of the functional status of the Remediation Building shown to the Board was primarily based on expected funding profiles and how construction could be adjusted to meet the expected funding scenarios. Options are now being developed to construct the remediation capabilities first and have them built into the main Dry Transfer Building instead of as a stand alone separate building. Damaged SNF could also be stored after receipt until the necessary remediation facilities are completed so as not to disrupt any proposed shipping scenarios. DOE and our M&O contractor have recently awarded a contract to enlist the services of a surface facility design contractor. Remediation capability is a major part of this present design effort.

..the DOE presentation identified two potentially significant changes in the design and operation of the underground facilities: (1) use of a wheeled waste transporter and (2) location of exhaust drifts and shafts. The board would like more details on the technical bases for these concepts.

Response: Since the February 2003 meeting, DOE has reexamined the utility of the "wheeled waste transporter." Based on a review of how the "wheeled waste transporter" would operate within the subsurface tunnel environment, DOE and the M&O have decided to pursue a conceptual design with a rail based transporter. Consistent with the evolution of the surface design approach, DOE is pursuing a modular subsurface construction approach - building underground panels of emplacement drifts in phases. Consequently, exhaust drifts and exhaust shafts will be constructed to best accommodate the sequential construction of the emplacement panels. DOE expects to have a greater fidelity of detail regarding this and other design issues as the design stabilization efforts mature.