



UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
1100 Wilson Boulevard, Suite 910
Arlington, VA 22209

November 12, 1991

The Honorable James D. Watkins
Secretary
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Mr. Secretary:

Thank you for your letter of October 28, 1991, to the Nuclear Waste Technical Review Board (the Board) regarding budget limitations that have been imposed on the Office of Civilian Radioactive Waste Management for fiscal year (FY) 1992. The Board understands the difficulties involved with reallocating funds so that both site characterization of Yucca Mountain, Nevada, and the planning and design of a monitored retrievable storage facility can progress in a timely manner.

You indicated in your letter that the Department of Energy (DOE) has decided to focus its Yucca Mountain site-characterization activities for the coming year primarily on surface-based testing. Such activities, including trenching and drilling, will be conducted to obtain information on site conditions or features that could disqualify the site (e.g., fault movement, volcanism, natural resource potential, and ground-water flow). Consequently, design work for the exploratory studies facility (ESF) will focus on those components that must be completed before the start of ESF construction (roads, pads, etc.). The comprehensive design of the access portals, ramps, and underground facilities would be delayed one year; construction of the first portal would be delayed until FY 1994.

The Board has long believed that surface-based testing alone will not provide the critical information needed to determine site suitability. For this reason, we have continued to advocate early access to the underground so that the Ghost Dance Fault and other important fault zones can be crossed by the ramp accesses and exploratory drifts. The information gained through a visual inspection and evaluation of the underground geology will be of tremendous value in judging potentially disqualifying conditions, such as ground-water flow and fault movement. This approach is very similar to the one presented in point 2, page ix, in your 1989 *Report to Congress on Reassessment of the Civilian Radioactive Waste Management Program*, which says that the DOE believes that an "iterative scientific approach using both surface-based and underground tests, combined with the continuing evaluation of the data as they relate to site suitability, is the efficient, cost-effective, and timely way to conduct the scientific investigations."

The Board is most concerned about the delayed access to underground exposures, which are key to determining site suitability. It appears that with the present schedule, the first underground exposure of the known faults will not occur until 1996, at the earliest. Such late access to critical geologic features, plus the additional time needed to study them, could delay a determination of site suitability ~ or unsuitability — until 1997, or beyond.

The Board believes that earlier underground evaluation should be a top priority of the program. We believe that Title II (final) design of the ESF should continue and that a tunnel boring machine (TBM) should be selected during this fiscal year so that construction of at least one of the portals can begin in early FY 1993. Procurement of the TBM also should be initiated so that evaluation of the ramp access can start in late FY 1993 or early in FY 1994. By keeping to this schedule, the Ghost Dance Fault could be crossed at the repository level near the end of FY 1994.

Starting the ESF with one portal and one access ramp also gives the program the flexibility to cope with future funding uncertainties. For example, if the south portal and access ramps are started first, the TBM excavation (say of 20-ft diameter) could proceed down the ramp and then along the north-south tunnel alignment at repository level to the Ghost Dance Fault in the form of a J; or, the TBM could continue on to the base of the north ramp, and on up the ramp alignment to the surface (north portal) in the form of a U. Depending on funding, a second, smaller TBM (say 16-ft diameter) could begin at any time to excavate from the repository level down to the underlying Calico Hills unit, then ramp back up to the repository level in the form of a U.

Personally, I feel veiy strongly that a wealth of new information on the important geologic features at Yucca Mountain will become available upon access to the underground geology. My 30 years of consulting on the siting, design, and construction of large underground works has borne out the value of early exploratory tunnels.

The entire Board concurs that early access to the underground is crucial. We hope that adequate funding can be made available this year so that the design work can continue and the ESF portal and access ramp construction can begin in FY 1993.

I would be pleased to discuss these and other issues with you and Dr. John Bartlett at your convenience.

Sincerely,



Don U. Deere
Chairman