



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 12, 1995

MEMORANDUM FOR: Malcolm R. Knapp, Deputy Director
Office of Nuclear Material Safety and Safeguards

FROM: Margaret V. Federline, Deputy Director *M.V. Federline*
Division of Waste Management
Office of Nuclear Material Safety and Safeguards

SUBJECT: HOLD ON TUNNEL BORING MACHINE OPERATION

By letter of November 14, 1994, the U.S. Department of Energy (DOE) informed NRC that a hold point was being placed on tunnel boring machine (TBM) operation until pneumatic pressure data was collected through several barometric pressure fronts. This hold point was placed by the DOE as a demonstration of sensitivity to the State of Nevada's concerns about potential loss of pneumatic characterization data due to the continued operation of the TBM. By letter of May 1, 1995, the DOE informed the NRC that the DOE was planning to release this hold point on May 12, 1995, because the pneumatic pressure data has been successfully collected. The staff will respond to DOE's letter of May 1, 1995 as soon as possible indicating that NRC does not have an "objection" level concern (significant, irreversible, and unmitigable effects on characterization that would preclude obtaining information necessary for licensing). In a May 11, 1995, telephone conference between NRC, DOE, and the State of Nevada in which NRC explained its position, the State of Nevada indicated that they will be sending a letter to DOE objecting to lifting the holdpoint.

The pneumatic characteristics of Yucca Mountain may potentially affect repository performance in two ways: (1) they are a factor needed for determining the rate of transport of gaseous releases to the surface from the repository; and (2) they are a factor needed for determining transport and the extent of moisture redistribution within Yucca Mountain as a result of thermal effects. The State of Nevada identified the "pneumatic pathways" issue and is concerned that tunnel excavation may compromise the collection of undisturbed data on how the bedded zones transmit barometric pressure changes. The State contends that the best measure at the repository block scale for tightness of the bedded zones is soil gas pressure data in response to barometric pressure changes. Furthermore, the State contends that once the tunnel introduces atmospheric pressures into the Topopah Spring's highly fractured welded tuff below the Paint Brush non-welded bedded tuff, there may be little or no opportunity to develop an undisturbed pneumatic database.

CONTACT: Rex G. Wescott, NMSS
415-6727

9506010019 950512
PDR WASTE
WM-11 PDR

102

WM-11

NH16
1/0

M. Knapp

The staff has considered information from the DOE and the State of Nevada to determine if the NRC has an "objection" level concern that Exploratory Studies Facility (ESF) construction might compromise the ability to collect "pneumatic pathway" data. It is our decision that an "objection" level concern does not exist, in large part, because most of the information to characterize pneumatic pathways will come from tests, which are not impacted by (ESF) construction. Such tests include isotope geochemistry, moisture measurements, cross-hole pneumatic testing, and examination of surface drilling logs. Some of the required testing, such as pneumatic testing of the host rock near the repository can best be performed from alcoves within the ESF. As a result, it is our view that it is up to the DOE to determine when to release the hold point at the geologic contact between the Tiva Canyon welded and the Paintbrush non-welded units.

cc: M. Federline
J. Holonich

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