

May 24, 2000

Dr. English Percy, Manager
Geohydrology and Geochemistry Element
Center for Nuclear Waste Regulatory Analyses
6220 Culebra Road, Building 189
San Antonio, Texas 78238-5166

SUBJECT: COMPLETION OF INTERMEDIATE MILESTONE - IM 1402.861.030 - CNWRA
REPORT "MODELING AND FIELD STUDIES FOR EVALUATING FUTURE
INFILTRATION AND PERCOLATION"

Dear Dr. Percy:

The U.S. Nuclear Regulatory Commission staff has completed its review of the subject report. It was sent on May 10, 2000, two days early. This product is technically and programmatically acceptable for publication and can be entered as a public document. The report does an excellent job of summarizing the features of watersheds on Yucca Mountain that strongly influence recharge and deep percolation. The report provides an excellent basis for us to review DOE's treatment of runoff and recharge in watersheds at Yucca Mountain. A key conclusion is that focused infiltration can cause non-uniform flow through the tuff units that overlie the repository, leading to strong spatial distribution of deep percolation. This should also influence seepage patterns in emplacement drifts. The next step should be to examine whether focused recharge zones correlate with: (1) perched water bodies, (2) underground zones of enhanced rock moisture, and (3) tunnel sites where chlorine-36 data suggest fast flow paths exist.

The Center report supports resolution of the deep percolation subissue (key technical issue: Unsaturated and Saturated Flow Under Isothermal Conditions). The milestone relates to several sections of the Yucca Mountain Review Plan. These include 3.2.1.3.3 (Quantity and Chemistry of Water Contacting Waste Packages and Waste Forms); 3.2.1.3.5 (Spatial and Temporal Distribution of Flow); and 3.2.1.3.6 (Flow Paths in the Unsaturated Zone). If you have any questions, please call me at (301) 415-6615.

Sincerely,

/RA/

Neil Coleman, Program Element Manager
Division of Waste Management
Office of Nuclear Material Safety and Safeguards

cc: J. Linehan
B. Meehan
B. Sagar, CNWRA

Dr. English Pearcy, Manager
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