

July 13, 2004

Dr. Gordon Wittmeyer, Manager  
Hydrology Section  
Center for Nuclear Waste Regulatory Analyses  
6220 Culebra Road, Bldg. 189  
San Antonio, TX 78238-5166

SUBJECT: COMPLETION OF INTERMEDIATE MILESTONE 06002.01.091.420:  
ALTERNATIVE MODELS FOR COUPLING NEAR-DRIFT AND IN-DRIFT  
PROCESSES

Dear Dr. Wittmeyer:

The U.S. Nuclear Regulatory Commission staff has completed its review of the report titled "Drift-Scale Thermohydrological Process Modeling - In-Drift Heat Transfer and Drift Degradation", that you sent by cover letter, dated July 1, 2004. This product is both programmatically and technically acceptable. Integration of in-drift and near-field heat transfer processes in a coupled thermohydrological detailed process model is the main objective of this report. A two-dimensional, dual-continuum, drift-scale model was developed to include explicit representation of radiative heat transfer inside the drift. While the near-field thermohydrological conditions are controlled by conductive heat transfer in the host rock, radiation is the dominant process inside the drift. The report also assesses the effect of drift degradation on the in-drift conditions by incorporating the temporal variation of in-drift and drift wall geometry.

If you have any questions, please contact me at (301) 415-6703 or by e-mail at [jap2@nrc.gov](mailto:jap2@nrc.gov).

Sincerely,

**/RA/**

Jeffrey A. Pohle, Program Element Manager  
Thermal Effects on Flow Key Technical Issue  
Division of High-Level Waste Repository Safety  
Office of Nuclear Material Safety  
and Safeguards

cc: B. Meehan, ADM/DCPM/CMC1  
C.W. Reamer, HLWRS

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