

October 20, 2000

Dr. Asadul H. Chowdhury,
Manager, Mining, Geotechnical, and Facility Engineering
Center For Nuclear Waste Regulatory Analyses
6220 Culebra Road, P.O. Drawer 28510
San Antonio, Texas 78228-5166

Subject: Repository Design and Thermal-Mechanical Effects Key Technical Issue
Intermediate Milestone No.20-01402.671.020: Thermal-Mechanical-Hydrologic
Coupled Analysis–Progress Report

Dear Dr. Chowdhury:

I have reviewed the Center for Nuclear Waste Regulatory Analyses (CNWRA) report entitled: *“Progress Report for DECOVALEX-III Task 2: Numerical Simulation of the Drift-Scale Heater Test at Yucca Mountain.”* I concur with the change of title which better reflects the contents of the report. The subject report documents the results of the CNWRA analyses of the U.S. Department of Energy Drift-Scale Heater Test (DST). The results represent the progress to date and are part of the ongoing work intended for presentation and discussion at the next DECOVALEX meeting in January, 2001.

The study has not progressed far enough to conclude that the model used in the analyses (“MULTIFLO”) can be employed successfully to duplicate the rock mass behavior at the DST. It is not clear at this stage, how the ‘manipulations’ of input parameters (such as the somewhat arbitrary reductions in the values of fracture permeability and thermal conductivity of the rock) match the observed behavior at the DST are to be interpreted. Matters get further complicated because of heat and mass loss observed at the bulkhead of the DST and its unknown effects on the overall simulations and measurements. Potential implications of these observations were discussed during a CNWRA presentation to the Nuclear Regulatory Commission staff recently. The report correctly notes that these are some of the unresolved questions that need to be addressed as the work progresses.

I look forward to further discussions on this study with the author of the report and the rest of the team members. If there are any additional comments on the subject report from other members of the RDTME or other KTI teams, they will be communicated to you through informal discussions or e-mails. If you have any questions on the contents of this letter, please contact

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me at (301) 415-6695 or via e-mail (msn1@nrc.gov). No written response to this letter is required and the subject report is considered to fulfill the Center's contractual obligations for this Intermediate Milestone.

Sincerely,

Mysore Nataraja,
Program Element Manager
Projects and Engineering Section
High-Level Waste and Performance
Assessment Branch
Division of Waste Management

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Sincerely,

/RA/

Mysore Nataraja,
Program Element Manager
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