

August 6, 2001

April V. Gil, Team Leader
Regulatory Interactions and Policy Development
Office of Licensing and Regulatory Compliance
U.S. Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 30307
North Las Vegas, NV 89036-0307

SUBJECT: THERMAL EFFECTS ON FLOW AGREEMENT (TEF) TEF.2.06

Dear Ms. Gil:

During the Thermal Effects on Flow (TEF) Technical Exchange and Management Meeting held on January 8-9, 2001, the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) reached an agreement pertaining to Phase 3 of the ventilation test. Specifically, DOE agreed to provide a detailed test plan for the Phase III ventilation test. The agreement further stated that NRC comments will be provided no later than two weeks after receipt of the test plan, and will be considered by the DOE prior to test initiation.

By letter dated June 28, 2001, DOE provided the subject document. Enclosed are the NRC comments pertaining to the test plan. Please consider these comments prior to commencing the test. Comments 1 and 2 contain minor suggestions that are not critical to the outcome of the test, but if addressed, would constitute improvements to the planned testing. Based on this letter, the NRC considers TEF agreement TEF.2.06 complete (no additional information needed at this time). If you have any questions regarding this letter, please contact Mr. James Andersen. He can be reached at (301) 415-5717.

Sincerely,

/RA/

C. William Reamer, Chief
High-Level Waste Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc: See attached distribution list

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Letter to A. Gil from C.W. Reamer dated: August 6, 2001

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**Comments Regarding the DOE Phase III Ventilation Test Plan
Thermal Effects on Flow (TEF) Agreement TEF.2.06**

During the Thermal Effects on Flow Technical Exchange and Management Meeting held on January 8-9, 2001, the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) reached an agreement pertaining to Phase 3 of the ventilation test. Specifically, DOE agreed to provide a detailed test plan for the Phase III ventilation test. The agreement further stated that NRC comments will be provided no later than two weeks after receipt of the test plan, and will be considered by the DOE prior to test initiation.

By letter dated June 28, 2001, DOE provided the test plan. The following are the NRC's comments regarding the test plan.

- 1) The Center for Nuclear Waste Regulatory Analyses ventilation model shows early dryout of the rock surrounding the drift. The consequent decrease in unsaturated permeability for liquid water near the drift wall tends to restrict water removal by the ventilation. In the Phase III test description, trays of water are to remain open to the ventilation air, and will be continually replenished with fresh water, for the duration of the test. A ventilation model calibrated for water removal by evaporation from open trays may tend to overpredict moisture removal by ventilation from the proposed emplacement drifts.
- 2) A purpose of the test is to provide data for heat removal by ventilation from emplacement drifts. The outer surface of concrete pipe representing the drift is to be covered with two inches of insulation to prevent heat loss to the surrounding atmosphere. Since energy balance is a crucial factor in obtaining reliable heat loss data, monitoring of possible heat escape through the insulation could be important. The test description does not discuss how potential unwanted heat loss from the test will be detected or how a global energy balance will be verified.
- 3) The test description states that at the conclusion of the test, a report will be prepared to describe any problems encountered during performance of the test and the application of data for the validation of computer models. Per TEF agreement TEF.2.07, DOE will provide the Ventilation Model Analysis and Model Report, with ventilation test data and results, in fiscal year 2002.

Enclosure