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APR 24 1991

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MEMORANDUM FOR: Joseph Holonich, Acting Director
Repository Licensing and Quality Assurance
Project Directorate
Division of High-Level Waste Management

FROM: Ronald Ballard, Chief
Geosciences and Systems Performance Branch
Division of High-Level Waste Management

SUBJECT: PHASE I REVIEW OF STUDY PLAN FOR
CHARACTERIZATION OF THE UNSATURATED ZONE-
INFILTRATION (S.P. 8.3.1.2.2.1, REV 0)

As requested we have completed the Phase I review of the Study Plan for Characterization of the Unsaturated Zone-Infiltration Rev 0 (see enclosure). This review was conducted using the Review Plan for NRC Staff Review of DOE Study Plans, Revision 1 (December 6, 1990).

The subject study plan consists of three activities: (1) Characterization of hydrologic properties of surficial materials, (2) evaluation of natural infiltration, and (3) evaluation of artificial infiltration. The work involves using borehole and surface geophysical methods to monitor natural infiltration, simulation of rainfall in artificial infiltration plots, and calculation of parameters using analytical techniques. The nature of these investigations is such that work should be started as soon as possible. Monitoring methods must be in operation when major precipitation events occur in order for useful data to be obtained. The artificial infiltration investigations are also long term studies that require the construction of facilities before data collection can begin.

The principal finding of this review is that the study plan is a candidate for detailed technical review based on the importance of the issues being addressed and the state-of-the-art investigation methods being employed. However, we do not recommend that a detailed review be conducted because the technical details required for such a review will not be available until after "prototype studies" (part of the study plan) are completed. For this reason we recommend that once the work begins, technical exchanges regarding the infiltration studies be held periodically. We also found the study plan deficient in regard to references that have not been provided to NRC. We are requesting copies of those listed references which do not appear to be readily available, and may request additional listed references during future reviews or exchanges.

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The review was conducted by Rex Wescott of the Hydrologic Transport Section who can be reached on ext. 20167.

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Ronald L. Ballard, Chief
Geosciences and Systems Performance Branch
Division of High-Level Waste Management

Enclosure:
As stated

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