

MAR 26 1992

Mr. John P. Roberts, Acting Associate Director  
for Systems and Compliance  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
Washington, DC 20585

Dear Mr. Roberts:

SUBJECT: PHASE I REVIEW OF U.S. DEPARTMENT OF ENERGY (DOE) STUDY PLAN FOR  
CHARACTERIZATION OF THE PERCOLATION IN THE UNSATURATED-ZONE -  
SURFACE-BASED STUDY

On May 10, 1991, DOE transmitted the study plan, "Characterization of the Percolation in the Unsaturated Zone - Surface-Based Study" (Study Plan 8.3.1.2.2.3) to the U.S. Nuclear Regulatory Commission (NRC) for review and comment. NRC has completed its Phase I Review of this document using the Review Plan for NRC Staff Review of DOE Study Plans, Revision 1 (December 6, 1990).

The material submitted in the study plan was considered to be consistent, to the extent possible at this time, with the NRC-DOE agreement on content of study plans made at the May 7-8, 1986, meeting on Level of Detail for Site Characterization Plans and Study Plans. The NRC staff recognizes that some of the information required in the agreement, especially many of the technical procedures for field and laboratory tests, cannot be provided until the prototype testing described in the study plan is completed. The staff did not consider that the absence of such information compromised its ability to conduct its Phase I Review of the material provided. However, the NRC staff requests that the procedures, methods, and other relevant details be provided to NRC for its review as soon as that information is available.

Among the references listed for this study plan are several which have not been provided to NRC and are not readily available in the public domain. We therefore request that DOE provide the NRC with the documents which are listed in the Enclosure.

A major purpose of the Phase I Review is to identify concerns with studies, tests, or analyses that, if started, could cause significant and irreparable adverse effects on the site, the site characterization program, or the eventual usability of the data for licensing. Such concerns would constitute objections, as that term has been used in earlier NRC staff reviews of DOE's documents related to site characterization (Consultation Draft Site Characterization Plan and the Site Characterization Plan for the Yucca Mountain site).

It does not appear that the conduct of the activities described in this study plan will have significant adverse impacts on repository performance and the Phase I Review of this study plan identified no objections with any of the

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activities proposed. This decision was influenced by the following considerations: 1) the information from this study plan is important to site characterization; 2) there does not appear to be a noninvasive method of collecting the data; 3) the study plan commits to sealing each unsaturated zone borehole within the Conceptual Perimeter Drift Boundary; and 4) the study plan has outlined a process to develop acceptable borehole sealing requirements and approaches. The NRC staff expects that proper sealing of boreholes will be performed consistent with 10 CFR 60.134 (a) which states, "Seals for shafts and boreholes shall be designed so that following permanent closure they do not become pathways that compromise the geologic repository's ability to meet the performance objectives for the period following permanent closure." These conclusions regarding boreholes described in this study plan should not be construed to mean that the NRC has reached the same conclusions with respect to additional or other boreholes not identified in this study plan (i.e., study plan 8.3.1.2.2.3, Revision 0).

After completion of the Phase I Review, selected study plans are to receive a second level of review, called a Detailed Technical Review, based on the relationship of a given study plan to key site-specific issues or NRC open items, or its reliance on unique, state-of-the-art test or analysis methods. We have decided not to proceed with a Detailed Technical Review of this study plan at this time, in part because the technical details required for such a review will not be available until the prototype studies are completed.

If you have any questions concerning this letter, please contact Charlotte Abrams (301)504-3403/FTS964-3403 of my staff.

Sincerely,

Joseph J. Holonich, Director  
 Repository Licensing and Quality  
 Assurance Project Directorate  
 Division of High-Level Waste Management  
 Office of Nuclear Material Safety  
 and Safeguards

Enclosure: As stated

cc's & distribution: See next page

\* See previous concurrence

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Mr. John P. Roberts

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References for Study Plan 8.3.1.2.2.3  
Requested by NRC

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ENCLOSURE

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