

JAN 19 1993

Mr. John P. Roberts, Acting Associate Director
for Systems and Compliance
Office of Civilian Radioactive Waste Management
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Mr. Roberts:

SUBJECT: PHASE I REVIEW OF U.S. DEPARTMENT OF ENERGY (DOE) STUDY PLAN
"DIFFUSION TESTS IN THE EXPLORATORY STUDIES FACILITY"

On June 8, 1992, DOE transmitted the study plan, "Diffusion Tests in the Exploratory Studies Facility" (Study Plan 8.3.1.2.2.5) to the U.S. Nuclear Regulatory Commission 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 information about many of the technical procedures for tests, cannot be provided at this time. 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 information about applicable procedures be provided to NRC as soon as that information is available.

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 activities proposed.

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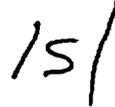
One test interference effect not considered by this study plan is the potential for exploratory drifts to influence the results of diffusion testing by drying the rock. By referencing calculations by Sobolik and others ("Movement of Shaft and Drift Construction Water in Yucca Mountain, Nevada - An Extended Study," Sandia National Laboratories Report SAND91-0791) the NRC staff was able to determine that drying effects on this experiment would not be significant. However, if the quality of data from this study appears to be impacted by drying effects, the experiment may need to be reevaluated as more data are gathered, or changes to the Exploratory Studies Facility design and scheduling of tests may need to be considered.

In making the determination that there are no objection-level concerns related to this study plan, the NRC staff did not consider test interference and repository performance impacts from the construction of exploratory tunnels in the Topopah Springs or Calico Hills geologic units. It is anticipated that DOE will consider the potential impacts in its ongoing evaluation of characterization activities. The NRC staff plans to consider these potential impacts when the DOE presents its exploratory facilities final design and has conducted an analysis of how that design meets relevant 10 CFR Part 60 requirements.

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. Based on these criteria, we have decided to proceed with a Detailed Technical Review of this study plan. If additional information about relevant procedures should become available during the course of our Detailed Technical Review, we would request that DOE provide that information to assist in our review.

If you have any questions concerning this letter, please contact Charlotte Abrams (301) 504-3403 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

Mr. John P. Roberts

3

- cc: R. Loux, State of Nevada
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