

OCT 07 1991

Mr. Dwight E. Shelor, Associate Director
for Systems and Compliance
Office of Civilian Radioactive Waste Management
U. S. Department of Energy, RW 30
Washington, D.C. 20585

Dear Mr. Shelor:

SUBJECT: PHASE I REVIEW OF U.S. DEPARTMENT OF ENERGY (DOE) STUDY PLAN FOR
CHARACTERIZATION OF THE YUCCA MOUNTAIN UNSATURATED-ZONE GASEOUS
PHASE MOVEMENT

On June 24, 1991, DOE transmitted the study plan entitled "Characterization of the Yucca Mountain Unsaturated-Zone Gaseous Phase Movement" (Study Plan for Study 8.3.1.2.2.6) to the U.S. Nuclear Regulatory Commission (NRC) for review and comment. The NRC has completed its Phase I Review of this document using the Review Plan for NRC Review of DOE Study Plans, Revision 1 (December 6, 1990).

The material submitted in the study plan was considered substantively consistent with the agreement on content resulting from the NRC-DOE agreements made at the May 7-8, 1986 meeting on Level of Detail for Site Characterization Plans and Study Plans. In addition, the references for the study plan have, for the most part, been provided to NRC or are readily available in the public domain.

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 Site Characterization Plan [SCP] for the Yucca Mountain site). The Phase I Review of this study plan identified no objections with any of the activities proposed.

There is one technical matter that the NRC staff wishes to call to the attention of DOE. Part of this study consists of a gas-flow modeling effort. The NRC staff suggests that this modeling not be limited to the use of only one numerical model. The data resulting from the study may be sufficient to allow modelers to test a number of existing gas-flow models and/or to develop new models.

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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. While the importance of the issues addressed and the state-of-the-art investigation methods being employed warrant consideration of this study plan for a Detailed Technical Review, we have decided not to proceed with such a review inasmuch as study plans yet to be transmitted to NRC will investigate the subject topic in much greater detail. It is likely that we will do a Detailed Technical Review of one or more of those study plans.

If you have any questions concerning this letter, please contact King Stablein (FTS/[301]-492-0446) of my staff.

Sincerely,

for
 (Original Signed by *Joseph J. Holonich*)
 John J. Linehan, Acting Director
 Repository Licensing and Quality
 Assurance Project Directorate
 Division of High-Level Waste Management
 Office of Nuclear Material Safety
 and Safeguards

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