



Department of Energy
Washington, DC 20585

JUL 23 1992

Mr. Joseph J. Holonich, Director
Repository Licensing & Quality Assurance
Project Directorate
Division of High-Level Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Holonich:

Enclosed is the U.S. Department of Energy's (DOE) response to an U.S. Nuclear Regulatory Commission (NRC) comment made in its Phase I review of Site Characterization Study Plan 8.3.1.2.2.6, "Characterization of the Yucca Mountain Unsaturated-Zone Gaseous Phase Movement." Enclosure 1 is the NRC Phase I letter with the comment identified, and enclosure 2 is DOE's response to the comment.

The Yucca Mountain Site Characterization Project uses Administrative Procedure 1.14, Revision 1, "Disposition of Comments on the Site Characterization Program," to respond to comments on DOE approved study plans. DOE forwarded the comment to the U.S. Geological Survey's (USGS) Technical Project Officer and Principal Investigator for an assessment of potential impact on the planned study.

The NRC raised a concern with the gas flow modelling effort. The NRC recommends that the modelling effort not be limited to the use of one model. DOE agrees with the comment. In fact, additional gas flow modelling is being performed and is planned to be performed (enclosure 2).

If you have any questions, please contact Mr. Chris Einberg of my office at 202-586-8869.

Sincerely,

John P. Roberts
Acting Associate Director for
Systems and Compliance
Office of Civilian Radioactive
Waste Management

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Enclosures:

1. Ltr, 10/7/91, Linehan to Shelor
2. DOE Response to NRC Comment

cc: w\enclosures

Alice Cortinas, CNWRA, San Antonio, TX

cc: w\enclosures

- C. Gertz, YMPO
- R. Loux, State of Nevada
- M. Baughman, Lincoln County, NV
- J. Bingham, Clark County, NV
- B. Raper, Nye County, NV
- P. Niedzielski-Eichner, Nye County, NV
- G. Derby, Lander County, NV
- P. Goicoechea, Eureka, NV
- C. Schank, Churchill County, NV
- F. Mariani, White Pine County, NV
- V. Poe, Mineral County, NV
- E. Wright, Lincoln County, NV
- J. Pitts, Lincoln County, NV
- R. Williams, Lander County, NV
- J. Hayes, Esmeralda County, NV
- M. Hayes, Esmeralda County, NV
- B. Mettam, Inyo County, CA
- C. Abrams, NRC



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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.

NRC Comment

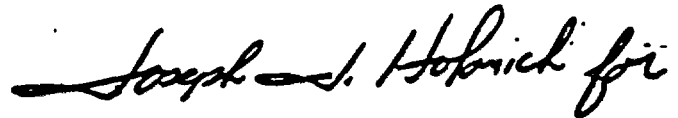
ENCLOSURE 1

~~44-10160132~~ 3 pp.

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,



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

cc: R. Loux, State of Nevada
C. Gertz, DOE/NV
S. Bradhurst, Nye County, NV
M. Baughman, Lincoln County, NV
D. Bechtel, Clark County, NV
D. Weigel, GAO
P. Niedzielski-Eichner, Nye County, NV
C. Thistlethwaite, Inyo County, CA
V. Poe, Mineral County, NV
F. Sperry, White Pine County, NV

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U.S. Department of Energy (DOE) Response to U.S. Nuclear Regulatory
Commission (NRC) Comment on Study Plan 8.3.1.2.2.6
(Characterization of Yucca Mountain
Unsaturated-Zone Gaseous Phase Movement)

NRC Comment

There is one technical matter that the NRC staff wishes to call to the attention of DOE. Part of this study consists of gas-flow modelling effort. The NRC staff suggests that this modelling not be limited to 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.

DOE Response

The DOE agrees that gas circulation through Yucca Mountain needs to be simulated by more than one model. In fact, some alternative modelling is currently being performed at Sandia National Laboratories (SNL) through a contract with Disposal Safety, Inc., and at Los Alamos National Laboratory. The U.S. Geological Survey will also model unsaturated-zone gaseous phase movement as part of the scope of work for Study Plan 8.3.1.2.2.9 (Site Unsaturated-Zone Modelling and Synthesis). In addition, SNL and the Civilian Radioactive Waste Management System Management and Operating Contractor will perform gas flow modelling as part of performance assessment.