

DEC 06 1991

Mr. John P. Roberts, Acting 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. Roberts:

SUBJECT: PHASE I REVIEW OF U.S. DEPARTMENT OF ENERGY (DOE) STUDY PLAN FOR ANALYSIS OF THE PALEOENVIRONMENTAL HISTORY OF THE YUCCA MOUNTAIN REGION

On June 24, 1991, DOE transmitted the study plan entitled "Study Plan for Analysis of the Paleoenvironmental History of the Yucca Mountain Region" (Study Plan for Study 8.3.1.5.1.4) 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 Staff Review of DOE Study Plans, Revision 1 (December 6, 1990).

The material submitted in the study plan was determined to be for the most part 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. However, for a number of tests (e.g., Sampling Airborne Dust, p. 3-3), "No explicit requirements for tolerance, accuracy, or precision have been identified..." Either these requirements should be specified in the study plan or a definitive statement as to why they are not required should be provided. The missing information should be provided to NRC as soon as possible either in a revised study plan or in a letter.

In addition, eleven of the 28 technical procedures needed to support the activities in this study plan remain to be developed. The NRC staff did not consider that the lack of availability of those procedures compromised its ability to conduct its Phase I Review of the material provided. However, we request that DOE provide us with a schedule for the development of those procedures and that DOE notify us when the procedures are available for review.

Also, among the references listed for this study plan are some which have not been provided to NRC and are not readily available in the public domain. We therefore request that DOE provide us with the documents listed in the Enclosure to this letter.

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). The Phase I Review of this study plan identified no objections with any of the activities proposed.

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There is one technical matter related to the study plan that the NRC staff wishes to call to the attention of DOE. The use of yet-to-be-qualified existing borehole data has been identified as part of this study plan (Activity 8.3.1.5.4.2 - Surficial Deposits Mapping of the Yucca Mountain Area). DOE indicates (Section 3.2.3.3, p. 3-17) that such data "will be qualified as appropriate." Inasmuch as many site characterization tests and analyses, including the ones identified in the subject study plan, will rely heavily upon existing borehole-derived data, it would seem prudent for DOE to develop, initiate, and accomplish a program to qualify existing borehole data as soon as possible. If such a qualification process is delayed, and then later it is found that some portion of the existing borehole-derived data cannot be qualified, the redrilling of one or more boreholes, with the attendant potential for negative impacts on site characterization and licensing schedules, may be necessary.

After completion of the Phase I 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, certain study plans are selected to receive a second level of review, called a Detailed Technical Review. The NRC staff considers the subject study plan a likely candidate for a Detailed Technical Review. However, until the eleven procedures mentioned earlier in this letter are completed and available to the NRC staff, we cannot make a final determination regarding the need for a Detailed Technical Review of this study plan.

Sincerely,

*for* *David Brooker*  
 Joseph J. Holtonich, 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: R. Loux, State of Nevada
- C. Gertz, DOE/NV
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PALEOENVIRONMENTAL SP REVIEW

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References for Study Plan 8.3.1.5.1.4 Requested by NRC

- o Miotke, Franz-Dieter, 1974, Carbon dioxide and the soil atmosphere: Abhandlungen Zur Karstund Höhlenkunde, Series A, v. 9, pp. 1-49.
- o Papadakis, J., 1965, Potential evapotranspiration: Buenos Aires, Argentina, 54 pp.
- o Taylor, E.M., 1986, Impact of time and climate on Quaternary soils in the Yucca Mountain area of the Nevada Test Site: M.S. Thesis, University of Colorado, Boulder, Colorado, 217 pp.

ENCLOSURE