

OCT 04 1991

SP LETTER--REGIONAL GW FLOW

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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 REGIONAL GROUND WATER FLOW  
SYSTEM

On February 15, 1991, DOE transmitted the study plan entitled "Characterization of the Yucca Mountain Regional Ground Water Flow System" (Study Plan for Study 8.3.1.2.1.3) 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 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. Some procedures remain to be developed, particularly in the areas of unsaturated-zone measurements and energy-balance methods for evaluating evapotranspiration, and hence could not be provided. The NRC 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 staff requests that those procedures be provided to NRC for its review as soon as they are 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 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. Although the study plan describes general relationships between this and other studies, there is no explicit discussion of a program of iterative performance assessment, or discussion of the timing of this study relative to such a program. This kind of systematic, iterative approach to identifying the information and analyses needed to support a license application has previously been recommended in other NRC documents (e.g., Comment 1 in NRC's Site Characterization Analysis of DOE's SCP), and is hereby recommended once again for DOE's consideration as its site characterization program proceeds.

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.

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

Sincerely,  
 (Original Signed by *Joseph J. Holonich*)  
 for 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

Enclosure: As Stated

- 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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References for Study Plan 8.3.1.2.1.3 Requested by NRC

- o Brown, Louis, 1987, Be-10: recent applications in earth sciences: Philosophical Transactions of the Royal Society, London, A; v. 323, p. 75-86.
- o Czarnecki, J.B., and Stannard, D.I., 198 , Geohydrology and evapotranspiration at Franklin Lake playa, Inyo County, California: U.S. Geological Survey Open-File Report xx-xxxx, in review.
- o Fritschen, L.J., and Gay, L.W., 1979, Environmental Instrumentation: Springer-Verlag, New York, 209 p.
- o Groeneveld, D.P., Warren, D.C., Hubbard, P.J., and Yamashita, I.S., 1986, Transpiration processes of shallow groundwater shrubs and grasses in the Owens Valley, California. Phase 1: Steady state conditions: Unpublished report.
- o Osterkamp, W.R., 1989, Sediment storage and movement on the Southern High Plains of Texas as indicated by beryllium-10: Proceedings, IAHS Third Scientific Assembly, Baltimore, Maryland (in press).
- o Puckridge, D.W., 1978, A comparison of evapotranspiration measurements of crop communities using lysimeters and assimilation chambers: Aust. J. Soil Res. 16, p. 229-236.
- o Ronen, D., Magaritz, M., Kanfi, Y., and Garner, W., 1985, Monitoring of groundwater quality: a new approach: Scientific Basis for Water Resources Management, Proceedings of the Jerusalem Symposium, September, 1985, pp. 311-315.
- o Sinton, P.O., 1989, Characterization of the hydraulic gradient beneath the north end of Yucca Mountain, Nevada (abs.): Transactions, American Geophysical Union, EOS, v. 70, no. ??, p. 321.
- o Sinton, P.O., and Downey, J.S., (in preparation), Preliminary quasi-three-dimensional, steady-state model of the ground-water flow system in the vicinity of the Nevada Test Site, Nevada-California: U.S. Geological Survey Water-Resources Investigation 90-XXX, \_\_\_p.

ENCLOSURE