

89001736

DEC 14 1992

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, DC 20585

Dear Mr. Roberts:

SUBJECT: PHASE I REVIEW OF U.S. DEPARTMENT OF ENERGY (DOE) STUDY PLAN
"CHARACTERIZATION OF VERTICAL AND LATERAL DISTRIBUTION OF
STRATIGRAPHIC UNITS WITHIN THE SITE AREA"

On July 6, 1992, DOE transmitted the study plan, "Characterization of Vertical and Lateral Distribution of Stratigraphic Units within the Site Area" (Study Plan 8.3.1.4.2.1) 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.

Among the references listed for this study plan are three which are cited within the study plan text, but are not listed in the study plan References section, and three which are cited in the References section, but do not appear in the text (See Enclosure). Due to insufficient information on the three references not listed in the References section of the study plan, the NRC staff is unable to determine whether or not they are readily obtainable. We therefore request that DOE either 1) provide the NRC with copies of the references listed in the Enclosure or 2) provide the full reference citation if the references are considered to be readily 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. This decision was based on the following considerations: 1) the information from this study plan is important to site characterization; 2) there does not appear to be a noninvasive method of collecting the data; and 3) the study plan commits to sealing each borehole within the Conceptual Perimeter Drift Boundary. The NRC staff expects that proper sealing of boreholes will be performed consistent with 10 CFR 60.134(a) which states,

9212280145 921214
PDR WASTE
WM-11 PDR

102.8
WM-11
NHL

"Seals for shafts and boreholes shall be designed so that following permanent closure they do not become pathways that compromise the geologic repository's ability to meet the performance objectives for the period following permanent closure." These conclusions regarding boreholes described in this study plan should not be construed to mean that the NRC has reached the same conclusions with respect to additional or other boreholes not identified in this study plan.

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 and will provide DOE with staff comments as soon as that review is completed.

During the Phase I review the staff identified a concern related to the scope of Activity 8.3.1.4.2.1.2, "Surface-Based Geophysical Studies." In light of the June 29, 1992, Little Skull Mountain earthquake, the areal extent of the geophysical surveys shown on Figure 2.2-1 appears to be insufficient to encompass the Little Skull Mountain aftershock region. We recommend that DOE consider expanding the area of investigation to gain a better understanding of the source (geologic structure) of this event as well as the aftershocks. This comment will be included in the Detailed Technical Review of the study plan. We include it as part of this letter, because DOE plans to initiate activities related to this study plan in the near future.

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

Sincerely,

JS

Joseph Holonich, Director
 Repository Licensing and Quality
 Assurance Directorate
 Division of High-Level Waste Management
 Office of Nuclear Material Safety
 Safeguards

Enclosure: As stated

(See attached list for cc's and distribution)

* See previous concurrence

OFC	HLPD		HLGE*	E	HLGE*	E	HLGE*	E	HLPD
NAME	CAbrams/wd		HLefevre		KMcConnell		RBallard		JHolonich
DATE	12/02/92		12/02/92		12/04/92		12/07/92		12/10/92

C = COVER

E = COVER & ENCLOSURE

N = NO COPY

s:\phase

10 CFR 60.134(a) which states, "Seals for shafts and boreholes shall be designed so that following permanent closure they do not become pathways that compromise the geologic repository's ability to meet the performance objectives for the period following permanent closure." These conclusions regarding boreholes described in this study plan should not be construed to mean that the NRC has reached the same conclusions with respect to additional or other boreholes not identified in this study plan.

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 and will provide DOE with staff comments as soon as that review is completed.

During the Phase I review the staff identified a concern related to the scope of Activity 8.3.1.4.2.1.2, "Surface-Based Geophysical Studies." In light of the June 29, 1992, Little Skull Mountain earthquake, the areal extent of the geophysical surveys shown on Figure 2.2-1 appears to be insufficient to encompass the Little Skull Mountain aftershock region. We recommend that DOE consider expanding the area of investigation to gain a better understanding of the source (geologic structure) of this event as well as the aftershocks. This comment will be included in the Detailed Technical Review of the study plan. We include it as part of this letter, because DOE plans to initiate activities related to this study plan in the near future.

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

Sincerely,

Joseph Holonich, Director
Repository Licensing and Quality Assurance Directorate
Division of High-Level Waste Management
Office of Nuclear Material Safety Safeguards

Enclosure: As stated

(See attached list for cc's and distribution)

OFC	HLPD	E	HLGE	E	HLGE	E	HLGE	E	HLPD
NAME	CAbrams/wd		HLeveve		KMcConnell		RBall		JHolonich
DATE	12/02/92		12/02/92		12/02/92		12/17/92		12/17/92

C = COVER

E = COVER & ENCLOSURE

N = NO COPY

s:\phase

CC's for letter to John P. Roberts from Joseph J. Holonich, subject:
PHASE I REVIEW OF U.S. DEPARTMENT OF ENERGY (DOE) STUDY PLAN "CHARACTERIZATION
OF VERTICAL AND LATERAL DISTRIBUTION OF STRATIGRAPHIC UNITS WITHIN THE SITE
AREA" dated _____

- cc: R. Loux, State of Nevada
- T. J. Hickey, Nevada Legislative Committee
- C. Gertz, DOE/NV
- M. Murphy, Nye County, NV
- M. Baughman, Lincoln County, NV
- D. Bechtel, Clark County, NV
- D. Weigel, GAO
- P. Niedzielski-Eichner, Nye County, NV
- B. Mettam, Inyo County, CA
- V. Poe, Mineral County, NV
- F. Sperry, White Pine County, NV
- R. Williams, Lander County, NV
- P. Goicoechea, Eureka County, NV
- L. Vaughan II, Esmeralda County, NV
- C. Shank, Churchill County, NV
- E. Holstein, Nye County, NV.

DISTRIBUTION

CNWRA	NMSS R/F	HLPD R/F	LSS
LPDR	ACNW	PDR	Central File
BJYoungblood, HLWM	JLinehan, HLWM	RBallard, HLGE	MFederline,
HLHP	JHolonich, HLPD	On-Site Reps	CAbrams, HLPD
HLefevre, HLGE			

ENCLOSURE

REFERENCES CITED IN STUDY PLAN TEXT AND NOT LISTED IN REFERENCES SECTION

Barbier, 1983 - Pages 2-10 and 3-15

Brocher, et al, 1990 - Page 3-14

Howard, et al, 1990 - Page 1-3

REFERENCES NOT CITED IN STUDY PLAN

Longman, I.M., 1959, Formulas for computing the tidal accelerations due to the moon and sun: Journal of Geophysical Research, v. 64, p. 2351-2355.

U.S. Department of Energy, 1990, Review Record Memorandum: Geologic and geophysical evidence pertaining to structural geology in the vicinity of the proposed exploratory shaft, Rev. 0, YMP/90-2, Nevada Operations Office, Yucca Mountain Project Office, Las Vegas, Nevada.

Zumberge, M.A., Harris, R.N., Oliver, H.W., Sasagawa, G.S., and Ponce, D.A., 1988, Preliminary results of absolute and high-precision gravity measurements at the Nevada Test Site and vicinity, Nevada: U.S. Geological Survey Open-File Report 88-242, 29 p.