



Department of Energy
Washington, DC 20585

MAR 17 1988

Robert E. Browning, Director
Division of High-Level Waste Management
Office of Nuclear Materials
Safety and Safeguards
Nuclear Regulatory Commission
Washington, D.C. 20555

Reference: Letter from Robert E. Browning to Stephen H. Kale,
dated January 26, 1988.

Dear Mr. Browning:

Thank you for your letter referenced above. Your staff noted two deficiencies that might have impacted their ability to review portions of the Site Characterization Plan Consultation Draft (SCP/CD), and thus, acceptance of the statutory Site Characterization Plan (SCP). This letter describes the actions underway by the DOE to mitigate the observed deficiencies .

The NRC staff noted that the conclusion in Section 8.4 of the SCP/CD that exploratory shaft construction and testing will not adversely affect repository performance is inadequately supported by the material contained in the SCP/CD. In August 1985, the DOE provided the NRC with the results of preliminary analyses and initiated a more substantive analysis of the effects of exploratory shaft construction and testing on waste isolation performance. The DOE conducted these analyses during the time period when both the SCP/CD and the Conceptual Design Report (CDR) were being developed, and prepared three reports. Two reports were supplied to the NRC in 1987; SAND86-7001, "Modification of Rock Mass Permeability in the Zone Surrounding a Shaft in Fractured, Welded Tuff" and, SAND84-1895, "Technical Basis for Performance Goals, Design Requirements , and Material Recommendations for NNWSI Repository Sealing Program." The third report, SAND85-0598, "Analyses to Evaluate the Effect of the Exploratory Shaft on Repository Performance of Yucca Mountain", will be released in mid-April 1988. A prepublication draft of this report should be available to the NRC by April 1, 1988.



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Your staff further noted that 21 of the 1907 references cited in the SCP/CD were not included in the reference set transmitted to you. An updated list of the references that were not available at the time of issuance of the SCP/CD is provided in Enclosure 1. Please note that Enclosure 1 includes two references not on the original missing reference list. Please also be aware that text was, in fact, provided for seven of the references categorized as missing; these references were categorized as missing pending submittal of the entire reference set to the NRC.

Enclosure 1 briefly summarizes the current status of the missing references. Eight of the missing references were shipped to the Nuclear Regulatory Commission (NRC) on January 15, 1988, one week after issuance of the SCP/CD. Four missing references were shipped on January 22, 1988; four references were transmitted on February 5, 1988; and, three of the missing references were shipped on February 16, 1988. There are four references that have yet to be provided to the NRC. It is anticipated that all four of these references will have been provided to the NRC, at least in pre-publication draft form, by the end of March 1988.

Should you have any questions concerning these matters, please contact Donald H. Alexander at DOE/HQ (FTS 896-1238) or Maxwell B. Blanchard at the DOE/NV Waste Management Project Office.

Sincerely,



Ralph Stein, Director
Engineering and Geotechnology
Division
Office of Civilian Radioactive
Waste Management

Enclosure :

cc: R. Loux, State of Nevada
C. Gertz, WMPO, DOE/NV
S. Kale, DOE/HQ

ENCLOSURE 1

Reference	Status
<p>Anderson, R. E., 1973. <u>Large Magnitude Late Tertiary Strike-Slip Faulting North of Lake Mead, Nevada</u>, Geological Survey Professional Paper 794, U.S. Government Printing Office, Washington, D.C.</p>	<p>Text only was originally provided. Complete reference was shipped 15 JAN 88.</p>
<p>Ballard, R. F., and F. G. McClean, 1975. "Seismic Field Methods for In Situ Moduli," <u>Proceedings of the Conference on In Situ Measurement of Soil Properties, Geotechnical Engineering Division (ASCE) Specialty Conference, Raleigh, North Carolina, June 1-4, 1975</u>, Vol. 1, American Society of Civil Engineers, New York, pp. 121-150.</p>	<p>Reference was shipped 16 FEB 88.</p>
<p>Bedinger, M. S., K. A. Sargent, and W. H. Langer (eds.), 1984. <u>Studies of Geology and Hydrology in the Basin and Range Province, Southwestern United States, for Isolation of High-Level Radioactive Waste: Characterization of the Death Valley Region, Nevada and California</u>, USGS-OFR-84-743, Open-File Report, U.S. Geological Survey, Denver, Colo.</p>	<p>Text only was originally provided. Complete reference was shipped 02 FEB 88.</p>
<p>Bohannon, R. G., 1984. <u>Nonmarine Sedimentary Rocks of Tertiary Age in the Lake Mead Region, Southeastern Nevada and Northwestern Arizona</u>, Geological Survey Professional Paper 1259, U.S. Government Printing Office, Washington, D.C.</p>	<p>Text only was originally provided. Complete document was ordered from GPO DEC88. Delivery is pending. Complete reference will be supplied as soon as GPO order is received.</p>
<p>Cornwall, H. R., 1972. <u>Geology and Mineral Deposits of Southern Nye County, Nevada</u>, Nevada Bureau of Mines Geology Bulletin 77, University of Nevada, Reno.</p>	<p>Text only was originally provided. Complete reference was shipped 22 JAN 88.</p>

ENCLOSURE 1 (continued)

Reference	Status
Rautman, C., D. L. South, and B. C. Whittet, 1987. <u>Definitions of Reference Boundaries for the Proposed Geologic Repository at the Yucca Mountain, Nevada, SAND86-2157, Sandia National Laboratories, Albuquerque, N. Mex.</u>	Complete reference was shipped 15 JAN 88.
Reynolds, M. W., 1969. <u>Stratigraphy and Structural Geology of the Titus and Titanothere Canyons Area, Death Valley, California, Ph. D. Dissertation, University of California, Berkeley, 310 p.</u>	Complete reference was shipped 22 JAN 88.
SNL (Sandia National Laboratories), 1987. <u>Site Characterization Plan Conceptual Design Report, SAND84-2641, Sandia National Laboratories, Albuquerque, N. Mex.</u>	Volumes 1 and 2 were supplied with the SCP/CD. Remaining volumes were shipped on 22 JAN 88 as soon as they were available from Sandia National Laboratory.
Walker, G. P. L., 1973. "Lengths of Lava Flows," <u>Philosophical Transactions of the Royal Society of London, Series A, Vol. 274, Royal Society, 6 Carlton House Terrace, London SW1Y 5AG, pp. 107-118.</u>	Complete reference was shipped 15 JAN 88.
Wu, S. S. C., 1985. <u>Topographic Maps of Yucca Mountain Area, Nye County, Nevada, USGS-DFR-85-620, Open-File Report, scale 1:5,000, U.S. Geological Survey, Denver, Colo.</u>	Complete reference was shipped 22 JAN 88.
Zyvoloski, G., and S. Kelkar, 1987. "Preliminary Investigation into Coupled Heat/Mass/Stress Effects at Yucca Mountain," NNWSI Milestone R346, Los Alamos National Laboratory, Los Alamos, N. Mex.	Complete reference was shipped 05 FEB 88.

ENCLOSURE 1 (continued)

Reference	Status
Kane, M. F., M. W. Webring, and B. K. Bhattacharyya, 1981. <u>A Preliminary Analysis of Gravity and Aeromagnetic Surveys of the Timber Mountain Area, Southern Nevada, USGS-OFR-81-189, Open-File Report, U.S. Geological Survey, Denver, Colo.</u>	Text only was originally provided. Complete reference was shipped 15 JAN 88.
Knauss, K. G., W. B. Beiriger, D. W. Peifer, and A. Piwinski, 1987. <u>Reaction of Solid Wafers of Topopah Spring Tuff with J-13 and Distilled Water at 90, 150, and 250 deg. C in Dickson-Type Gold-Bag Rocking Autoclaves: 1. Short Term Experiments, UCRL-53645, Lawrence Livermore National Laboratory, Livermore, Calif.</u>	Complete reference was shipped 16 FEB 88.
Langenheim, R. L., Jr., and E. R. Larson, 1973. <u>Correlation of Great Basin Stratigraphic Units, Nevada Bureau of Mines and Geology Bulletin 72, University of Nevada, Reno, 36 p.</u>	Complete reference was shipped 15 JAN 88.
Martin, P. S., 1963. <u>The Last 10,000 Years - A Fossil Pollen Record of the American Southwest, University of Arizona Press, Tucson, Ariz., 87 p.</u>	Complete reference was shipped 05 FEB 88.
Nuttall, H. E., 1986. <u>Population Balance Model for Colloid Transport, NNWSI Milestone R318, LA-UR-86-1914, Los Alamos National Laboratory, Los Alamos, N. Mex.</u>	Complete reference was shipped 05 FEB 88.
Oversby, V. M., and H. D. Shaw, 1986. <u>Spent Fuel Data: An Analysis of Data Relevant to the NNWSI Project, UCID-20926, Lawrence Livermore National Laboratory, Livermore, Calif.</u>	Report is presently in LLNL QA review. Draft text is expected in WMPD for Policy Review by 26 FEB 88. It is anticipated that a prepublication draft will be shipped on or before 18 MAR 88.

ENCLOSURE 1 (continued)

Reference	Status
<p>Cornwall, H. R., and F. J. Kleinhampl, 1964. <u>Geology of the Bullfrog Quadrangle and Ore Deposits Related to the Bullfrog Hills Caldera, Nye County, Nevada and Inyo County, California</u>, Geological Survey Professional Paper 454-J, U.S. Government Printing Office, Washington, D.C.</p>	<p>Text only was originally provided. Complete document was ordered from GPO DEC88. Delivery is pending. Complete reference will be supplied as soon as GPO order is received.</p>
<p>Fernandez, J. A., T. E. Hinkebein, and J. B. Case, 1988. <u>Analyses to Evaluate the Effect of the Exploratory Shaft on Repository Performance of Yucca Mountain, SAND85-0598</u>, Sandia National Laboratories, Albuquerque, NM.</p>	<p>Report is presently in press. Draft text is expected in WMPO 22-28 FEB 88 for Policy Review. It is anticipated that a prepublication draft will be shipped on or before 29 FEB 88.</p>
<p>Hillel, D., 1980. <u>Fundamentals of Soil Physics</u>, Academic Press, Inc., New York, 413 p.</p>	<p>Reference was shipped 15 JAN 88.</p>
<p>Hillel, D. I., 1982. <u>Introduction to Soil Physics</u>, Academic Press, Inc., New York.</p>	<p>Reference was shipped 15 JAN 88.</p>
<p>Jansma, P. E., D. B. Snyder, and D. A. Ponce, 1982. <u>Principal Facts of Gravity Stations with Gravity and Magnetic Profiles from the Southwest Nevada Test Site, Nye County, Nevada, as of January, 1982, USGS-OFR-82-1041</u>, Open-File Report, U.S. Geological Survey, Menlo Park, Calif.</p>	<p>Text only was originally provided. Complete reference was shipped 15 JAN 88.</p>
<p>Jennings, C. W., 1977. <u>Geologic Map of California, Geologic Data Map No. 2, California Geologic Data Map Series, Scale 1:750,000</u>, California Division of Mines and Geology.</p>	<p>Complete document was ordered DEC 88. Delivery is pending. Complete reference will be supplied as soon as order is received.</p>