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Geophysics References on the Yucca Mountain Project

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Geophysics References on the Yucca Mountain Project

Need to Review –
for Mineral Pot. - Gphys
(1) Must
(2) Perhaps
(3) Possibly
(4) No –

Updated: 05/02/94
QA: NA
SCP: N/A

Geophysics References on the Yucca Mt. Project

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General Reference Lists

Glanzman, V. M. (1991), "Bibliography of Publications related to the Yucca Mountain Site Characterization Project prepared by U.S. Geological Survey personnel through April 1991", USGS Open-File Report USGS-OFR-91-341, 52 p.

Lawrence Livermore National Laboratory (1993), "Bibliography of Yucca Mountain Project (YMP) Publications at Lawrence Livermore National Laboratory (January 1978 through December 1992)", LLNL-YMP Bibliography, 69 p., January 1993.

Los Alamos National Laboratory (199_), "Los Alamos Yucca Mountain Project Publications, 1979 - 1992", Preprint, 25 p., March 23, 1993.

Geophysics - General

Abrams, C.E. (1991), "ACNW Working Group Meeting on Integration of Geophysical Tests into Site Characterization of a High-Level Waste Repository, April 22, 1991, Bethesda, Maryland", Certified Minutes of Meeting, June 13, 1991, United States Nuclear Regulatory Commission, Advisory Committee on Nuclear Waste (ACNW), 13 p. plus cover sheet. 3

Anonymous, (1986), "Overview and recommendations", *in* Active Tectonics, Studies in Geophysics, National Academy Press, Washington, D.C. 3

Carr, M.D., and J.C. Yount, eds., "Geologic and Hydrologic Investigations of a Potential Nuclear Waste Disposal Site at Yucca Mountain, Southern Nevada", U.S. Geological Survey Bulletin 1790, 152 p. 2

Crowe, B.M., K.H. Wohletz, D.H. Vaniman, E. Gladney, and N. Bower (1986), "Status of volcanic hazard studies for the Nevada Nuclear Waste Storage Investigations", Los Alamos National Laboratory Report LA-9325-MS, vol. 2. 4

CRWMS M&O (1993), "Preliminary Draft: Geophysics Catalog - FY93-FY94, Rev. 0", TESS, Inc. 3

Gibson, J.D., F.H. Swan, J.R. Wesling, T.F. Bullard, R.C. Perman, M.M. Angell, and L.A. DiSilvestro (1992), "Summary and evaluation of existing geological and geophysical data near 2

prospective surface facilities in Midway Valley, Yucca Mountain Project, Nye County, Nevada", SAND90-2491, January 1992, 94 p. plus appendices and plates.

Josten, N. E., S. T. Marts, and G. S. Carpenter (1991), "Use of Noninvasive Geophysical Techniques for the In Situ Vitrification Program, Volume 1: Literature Review", INEL Report EGG-WTD-9432, Vol. 1, Rev. 1, Nov. 1991, 20 p. plus appendix.

Josten, N. E., S. T. Marts, and G. S. Carpenter (1991), "Use of Noninvasive Geophysical Techniques for the In Situ Vitrification Program, Volume 2: Demonstration at the Simulated Waste Pit", INEL Report EGG-WTD-9432, Vol. 2, Nov. 1991, 36 p. plus appendix.

Josten, N. E., S. T. Marts, and G. S. Carpenter (1991), "Use of Noninvasive Geophysical Techniques for the In Situ Vitrification Program, Volume 3: Discussion and Recommendations", INEL Report EGG-WTD-9432, Vol. 3, Nov. 1991, 23 p.

Langenheim, V.E., D.B. Hoover, and H.W. Oliver (1991), "Geophysical Characterization of Mineral and Energy Resources at Yucca Mountain and Vicinity, Nevada", USGS Open-File Report USGS-OFR-91-620, 8 p. LRC: I-322446.

Oliver, H.W., G.L. Dixon, and W.J. Carr (1982), "Geophysical and Geologic Characterization of Yucca Mountain and Vicinity, Nevada", EOS, Transactions of the American Geophysical Union, vo. 63, no. 44, p. 1099, November 2, 1982.

Oliver, H.W., E.L. Hardin, and P.H. Nelson, editors (1990), "Status of data, major results, and plans for geophysical activities, Yucca Mountain Project", U.S. Dept. of Energy, Yucca Mountain Project, YMP/90-38, July 1990, 191 p. plus appendices.

Oliver, H.W., and W.D. Mooney (1992), "Characterizing Yucca Mountain, Nevada, by Geophysical Methods [abs.]", American Geophysical Union 1992 Fall Meeting Abstracts, EOS, Trans. Amer. Geophys. Union, v. 73, no. 43, p. 490. LRC; I-331630.

Scott, Robert B., Gordon D. Bath, Vincent J. Flanigan, Donald B. Hoover, Joseph G. Rosenbaum, and Richard W. Spengler (1984), "Geological and geophysical evidence of structures in northwest-trending washes, Yucca Mountain, southern Nevada, and their possible significance to a nuclear waste repository in the unsaturated zone", USGS Open-File Report USGS-OFR-84-567, 23 p.

Sehlstedt, S. (1991), "Description of geophysical data in the SKB Database GEOTAB, Version 2", SGAB, Luleå, SKB Technical Report 91-02, January 1991, 59 p.

Shephard, L.E. (1993), "Sandia National Laboratories - Geophysics Capabilities, Facilities, and Experience", Letter dated 5/17/93, with 3 p. enclosure.

Slemmons, D.B., and C.M. DePolo (1986), "Evaluation of active faulting and associated hazards", *in* Active Tectonics, Studies in Geophysics, National Academy Press, Washington, D.C.

U.S. Dept. of Energy (1990), "Technical Assessment Review - Review Record Memorandum: Geologic and Geophysical Evidence Pertaining to Structural Geology in the Vicinity of the Proposed Exploratory Shaft, Rev. 0", YMP/90-2, January 1990.

USGS (U.S. Geological Survey) (1984), "A summary of geologic studies through January 1, 1983, of a potential high-level radioactive waste repository site at Yucca Mountain, southern Nye County, Nevada", USGS Open-File Report USGS-OFR-84-792, 103 p.

Geophysics - General references yet to be obtained:

Corbett, J.D. (1991), "Overview of geophysical methods applied to precious metal exploration in Nevada", *in* Raines, G.L., R.E. Lisle, R.W. Schafer, and W.H. Wilkinson, eds., Geology and Ore Deposits of the Great Basin, Symposium Proceedings, Geological Society of Nevada, Reno, Nevada, v. 2, p.1237-1251.

Oliver, H.W. (1987), "Introduction to special section on Geophysical investigations of proposed radioactive waste disposal sites", Journal of Geophysical Research - B, vol. 92, no. 8, p. 7783-7785.

Oliver, H.W., ed., (1987), "Special section on Geophysical investigations of proposed radioactive waste disposal sites", Journal of Geophysical Research - B, vol. 92, no. 8, p. 7783-7864.

Oliver, H.W., and D.A. Ponce (1987), "U.S. Geological Survey scientific investigation plan - geophysical investigations, gravity and magnetic methods", U.S. Geological Survey Administrative Report 3221-G-01R0, 27 p.

Roseboom, E., and J. Wynn (1982), "Geophysics in the search for high-level nuclear waste disposal sites [abstract]", EOS, Transactions, American Geophysical Union, vol. 63, no. 45, p. 1098-1099. (AGU Fall Meeting, San Francisco, CA, Dec. 7-15, 1982)

Spengler, R.W. (1992), "Site-scale geologic and geophysical anomalies along a southeast trending transect through southeastern Yucca Mountain [abs.]", JG/H, 6/92, Denver, CO. LRC: I-327893.

Stoeckli, R.F. (1986), "Geophysical measurements in nuclear fuel waste management programs in Argentina", Geophysics, vol. 51, no. 8, p. 1703-1704.

U.S. Dept. 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.

Wynn, J.C., and E.H. Roseboom (1987), "Role of geophysics in identifying and characterizing sites for high-level nuclear waste repositories", Journal of Geophysical Research - B, vol. 92, no. 8, p. 7787-7796.

2 Rare

Geophysics - Aeromagnetic

Bath, G.D. (1968), "Aeromagnetic anomalies related to remanent magnetism in volcanic rock, Nevada Test Site", *in* Eckel, E.B., ed., Nevada Test Site, Geological Society of America Memoir 110, p. 135-146.

Bath, G.D., G.L. Dixon, and J.G. Rosenbaum (1982), Relation of aeromagnetic anomalies to faulted volcanic terrains at the Nevada Test Site [abs.]", Geol. Soc. Amer. Abstracts with Programs, v.14, no.6, p.302.

Bath, G.D., and C.E. Jahren (1984), "Interpretations of Magnetic Anomalies at a Potential Repository Site located in the Yucca Mountain Area, Nevada Test Site", USGS Open-File Report USGS-OFR-84-120, 40 p., map plates.

Bath, G.D., and C.E. Jahren (1985), "Investigation of an Aeromagnetic Anomaly on the west side of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-459, 24 p.

Blakely, R.J., and R.C. Jachens (1991), "Concealed mineral deposits in Nevada - Insights from three-dimensional analysis of gravity and magnetic anomalies", *in* Raines, G.L., R.E. Lisle, R.W. Schafer, and W.H. Wilkinson, eds., Geology and Ore Deposits of the Great Basin, Symposium Proceedings, Geological Society of Nevada, Reno, Nevada, v. 1, p. 185-192.

Carr, M.D., S.J. Waddell, G.S. Vick, J.M. Stock, S.A. Monsen, A.G. Harris, B.S. Cork, and F.M. Byers, Jr. (1986), "Geology of Drill Hole UE-25p#1: A test hole to pre-Tertiary rocks near Yucca Mountain, southern Nevada", USGS Open-File Report USGS-OFR-86-175, 87 p.

Glen, J.M., and D.A. Ponce (1991), "Aeromagnetic Map of the Beatty Quadrangle, Nevada-California", USGS Open-File Report USGS-OFR-91-105 (map).

Hildenbrand, T.G., A.M. Rogers, H.W. Oliver, S.C. Harmsen, J.K. Nakata, D.S. Aitken, R.N. Harris, and M.D. Carr (1988), "Regional Geologic and Geophysical Maps of the Southern Great Basin", *in* Carr, M.D., and J.C. Yount, eds., "Geologic and Hydrologic Investigations of a Potential Nuclear Waste Disposal Site at Yucca Mountain, Southern Nevada", U.S. Geological Survey Bulletin 1790, p. 3-21.

Kane, M.F., M.W. Webring, and B.K. Bhattacharyya (1981), "A preliminary analysis of gravity and aeromagnetic surveys of the Timber Mountain area, southern Nevada", USGS Open-File Report USGS-OFR-81-189, 40 p. plus plates.

Kane, M.F., and R.E. Bracken (1983), "Aeromagnetic Map of Yucca Mountain and Surrounding Regions, Southwest Nevada", USGS Open-File Report USGS-OFR-83-616, 19 p., map plates.

Kirchoff-Stein, K.S., D.A. Ponce, and B.A. Chuchel (1989/90), "Preliminary Aeromagnetic Map of the Nevada Test Site and Vicinity, Nevada", USGS Open-File Report USGS-OFR-89-446 (map), scale 1:100,000.

Langenheim, V.E., S. F. Carle, D.A. Ponce, and J.D. Phillips (1991), "Revision of an Aeromagnetic Survey of the Lathrop Wells Area, Nevada", USGS Open File Report USGS-OFR-91-46, 17 p., map plates, scale 1:62,500.

Maldonado, Florian (1981), "Geology of the Twinridge pluton area, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-156, 13 p.

Ponce, D.A. (1981), "Preliminary gravity investigations of the Wahmonie site, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-522, 64 p.

Ponce, D.A., and W.F. Hanna (1982), "Preliminary appraisal of gravity and magnetic data at Syncline Ridge, western Yucca Flat, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-931, 19 p.

Ponce, D.A., and H.W. Oliver (1992), "Gravity and Magnetic Anomalies in the Vicinity of Yucca Mountain and their Geologic Implications", preprint, 5/29/92 version, submitted to Journal of Geophysical Research

Scott, Robert B., Gordon D. Bath, Vincent J. Flanigan, Donald B. Hoover, Joseph G. Rosenbaum, and Richard W. Spengler (1984), "Geological and geophysical evidence of structures in northwest-trending washes, Yucca Mountain, southern Nevada, and their possible significance to a nuclear waste repository in the unsaturated zone", USGS Open-File Report USGS-OFR-84-567, 23 p.

Sikora, R.F., D.A. Ponce, and H.W. Oliver (1992), "Status of Aeromagnetic survey coverage of a part of southwestern Nevada and southeastern California", preprint of a paper to be published in the Journal of Geophysical Research, dated 12/2/92 (6/1/92 version). LRC: I-334959.

Snyder, D.B., and H. W. Oliver (1981), "Preliminary results of gravity investigations of the Calico Hills, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-101, 42 p.

U.S. Geological Survey (1984), "Aeromagnetic map of the Yucca Mountain area, Nevada", USGS Open-File Report USGS-OFR-84-206, scale 1:62,500.

Aeromagnetic references yet to be obtained:

Blakely, R.J. (1988), "Curie temperature isotherm analysis and tectonic implications of aeromagnetic data from Nevada", Journal of Geophysical Research, v.93, no. B10, p. 11,817-11,832.

Boynton, G.R., and J.L. Vargo (1963), "Aeromagnetic map of the Topopah Spring quadrangle and part of the Bare Mountain quadrangle, Nye County, Nevada", U.S. Geological Survey Geophysical Investigations Map GP-440, scale 1:62,500.

Boynton, G.R., J.L. Meuschke, and J.L. Vargo (1963), "Aeromagnetic map of the Tippipah Spring quadrangle and parts of the Papoose Lake and Wheelbarrow Peak quadrangles, Nye County, Nevada", U.S. Geological Survey Geophysical Investigations Map GP-441, scale 1:62,500.

Boynton, G.R., J.L. Meuschke, and J.L. Vargo (1963), "Aeromagnetic map of the Timber Mountain quadrangle and part of the Silent Canyon quadrangle, Nye County, Nevada", U.S. Geological Survey Geophysical Investigations Map GP-443, scale 1:62,500.

Carr, W.J. (1982), "Volcano-tectonic history of Crater Flat, southwestern Nevada, as suggested by new evidence from drill hole USW VH-1 and vicinity", USGS Open-File Report USGS-OFR-82-457, 23 p.

DOE (U.S. Dept. of Energy) (1979), "Airborne gamma-ray spectrometer and magnetometer survey, Death Valley quadrangle, California and Nevada", U.S. Dept. of Energy Open-File Report GJBX-164(79), vol. 2, variously paged.

Erwin, J.W., S.L. Nichols, R.H. Godson, and P.L. Hill (1980), "Aeromagnetic map index of Nevada", Nevada Bureau of Mines and Geology Map 62, scale 1:1,000,000.

Greenhaus, M.R., and C.J. Zablocki (1982), "A Schlumberger resistivity survey of the Amargosa Desert, southern Nevada", USGS Open-File Report USGS-OFR-82-897, 150 p.

Hildenbrand, T.G., and R.P. Kucks (1988), "Total Intensity Magnetic Anomaly Map of Nevada", Nevada Bureau of Mines and Geology Map 93A, scale 1:750,000.

Hildenbrand, T.G., and R.P. Kucks (1988), "Filtered magnetic anomaly maps of Nevada", Nevada Bureau of Mines and Geology Map 93B, 4 maps at scale 1:1,000,000, 2 maps at scale 1:2,000,000.

Hill, P.L. (1986), "Bibliography, index, and location maps of airborne surveys in and west of the Rocky Mountain states", U.S. Geological Survey Open-File Report USGS-OFR-86-525A, 200 p.

Ponce, D.A. (1984), "Gravity and magnetic evidence for a granitic intrusion near Wahmonie site, Nevada Test Site, Nevada", Jour. Geophys. Res., v.89, no. B11, p. 9401-9413.

Saltus, R.W., and D.A. Ponce (1988), "Aeromagnetic map of Nevada, Las Vegas sheet", Nevada Bureau of Mines and Geology, Map 95, scale 1:250,000.

Saltus, R.W., and D.B. Snyder (1986), "Aeromagnetic map of Nevada, Caliente sheet", Nevada Bureau of Mines and Geology, Map 89, scale 1:250,000.

U.S. Geological Survey (1967), "Aeromagnetic map of Goldfield and Cactus Peak, Nevada", USGS Open-File Report USGS-OFR-67-239, scale 1:62,500.

U.S. Geological Survey (1971), "Aeromagnetic map of parts of the Goldfield, Mariposa, and Death Valley 1° by 2° quadrangles, Nevada-California", U.S. Geological Survey Geophysical Investigations Map GP-753, scale 1:250,000.

U.S. Geological Survey (1978), "Aeromagnetic map of the Lathrop Wells area, Nevada", USGS Open-File Report USGS-OFR-78-1103, scale 1:62,500. ✓

U.S. Geological Survey (1979), "Aeromagnetic map of the Timber Mountain area, Nevada", USGS Open-File Report USGS-OFR-79-587, scale 1:62,500. 2

U.S. Geological Survey (1983), "Aeromagnetic map of part of the Las Vegas 1x2 degree quadrangle, Nevada", USGS Open-File Report USGS-OFR-83-729, scale 1:250,000.

U.S. Geological Survey (1984), "Aeromagnetic map of the Mercury area, Nevada", USGS Open-File Report USGS-OFR-84-209, scale 1:62,500.

Zietz, I., F.P. Gilbert, and J.R. Kirby (1978), "Aeromagnetic map of Nevada: color-coded intensities:, U.S. Geological Survey, Geophysical Investigations Map GP-922, scale 1:1,000,000.

Geophysics - Borehole logging

General Borehole Logging References:

Nelson, P.H., D.C. Muller, U. Schimschal, and J.E. Kibler (1991), "Geophysical logs and core measurements from forty boreholes at Yucca Mountain, Nevada", USGS Geophysical Investigations Map GP-1001.

Snyder, R. P. (   ), "Electric and Caliper Logs as Lithologic Indicators in Volcanic Rocks, Nevada Test Site", GSA Memoir 110, p. 117 - 124.

General Borehole Logging References Yet to be Obtained:

Daniels, J.J. (1980), "Borehole geophysical technique to determine geologic inhomogeneities in nuclear waste storage sites", U.S. Geological Survey Professional Paper 1175, p. 184-185.

Daniels, J.J. (1980), "Electrical and magnetic borehole studies useful for defining nuclear waste repositories in volcanic rocks", U.S. Geological Survey Professional Paper 1175, p. 183.

Holmes, D.C., and M. Sehlstedt (1985), "Crosshole investigations: Design of the hydraulic testing system", Proceedings, Symposium on in situ experiments in granite associated with the disposal of radioactive waste, Stockholm, June 4-6, 1985, p. 203-213.

Muller, D.C. (1985), "Computer method to detect and correct cycle skipping on sonic logs", in Worthington, P.F., ed., Transactions of the SPWLA Annual Logging Symposium, SPWLA 26th Annual logging symposium, Dallas, TX, June 17-20, 1985, v. 26, no. 1, p. R1-R18.

New, B.M. (1986), "A seismic transmission tomography technique for rock quality evaluation", *in* Killeen, P.G., ed., Borehole Geophysics for mining and geotechnical applications, Canadian Geological Survey Paper 85-27, p. 173-180. (Symposium on borehole geophysics for mining and geotechnical applications, Toronto, ON, Aug. 1983)

Paulsson, B.N.P. (1979), Cross-hole ultrasonic monitoring of the rockmass around a full-scale heater simulating high-level nuclear waste [abstract]", Society of Exploration Geophysicists, 49th Annual International Meeting, New Orleans, LA, Nov. 4-8, 1979, no. 49, p. 76-77.

Taylor, T.A. (1986), "Application of gamma-spectral logging to ground-water investigations", in Graves, B.J., et al., eds., Surface and Borehole geophysical methods and ground water instrumentation conference and exposition, National Water Well Association, Dublin, OH, p. 527-544. (Surface and borehole geophysical methods and ground water instrumentation conference and exposition, Denver, CO, Oct. 15-17, 1986)

J-13 Borehole

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

<u>**UE16f Borehole**</u>

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

<u>**UE17a Borehole**</u>

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

<u>**UE17e Borehole**</u> (Area 17)

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

<u>**UE25a#1 Borehole**</u>

Anderson, Lennart A. (1981), "Rock property analysis of core samples from the Yucca Mountain UE25a-1 borehole, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-1338, 36 p.

Hagstrum, J.T., J.J. Daniels, and J.H. Scott (1980), "Interpretation of geophysical well-log measurements in drill hole UE25a-1, Nevada Test Site, Radioactive Waste Program", USGS Open-File Report USGS-OFR-80-941, 32 p.

Sass, J.H., A.H. Lachenbruch, and C.W. Mase (1980), "Analysis of thermal data from Drill Holes UE25a-3 and UE25a-1, Calico Hills and Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-80-826, 25 p.

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

Spengler, R.W., D.C. Muller, and R.B. Livermore (1979), "Preliminary report on the geology and geophysics of drill hole UE25a-1, Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-79-1244, 43 p.

<u>**UE25a#3 Borehole**</u>

Anderson, L.A. (1981), "Rock property analysis of core samples from the Calico Hills UE25a-3 borehole, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-1337, 30 p.

Daniels, J.J., and J.H. Scott (1980), "Borehole geophysical measurements for hole UE25a-3, Nevada Test Site, Nuclear Waste Isolation Program", USGS Open-File Report USGS-OFR-80-126, 30 p.

Maldonado, F., D.C. Muller, and J.N. Morrison (1979), "Preliminary geologic and geophysical data of the UE25a-3 exploratory drill hole, Nevada Test Site, Nevada", USGS Report USGS-1543-6, 47 p.

Sass, J.H., A.H. Lachenbruch, and C.W. Mase (1980), "Analysis of thermal data from Drill Holes UE25a-3 and UE25a-1, Calico Hills and Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-80-826, 25 p.

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

UE25a-4, -5, -6, and -7 Boreholes

Daniels, J.J., J.H. Scott, and J.T. Hagstrum (1981), "Interpretation of geophysical well-log measurements in drill holes UE25a-4, -5, -6, and -7, Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-81-389, 29 p.

Daniels, J.J., J.H. Scott, and J.T. Hagstrum (1981), "Interpretation of geophysical well-log measurements in drill holes UE25a-4, -5, -6, and -7, Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-81-615, 29 p.

Hagstrum, J.T., J.J. Daniels, and J.H. Scott (1980), "Analysis of the magnetic susceptibility well log in drill hole UE25a-5, Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-80-1263, 33 p.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

UE25b-1H Borehole

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

UE25c#1 Borehole

Healey, D.L., F.G. Clutsom, and D.A. Glover (1984), "Borehole gravity meter surveys in drill holes USW G-3, UE-25p#1 and UE-25c#1, Yucca Mountain area, Nevada", USGS Open-File Report USGS-OFR-84-672, 16 p. plus plates.

UE25p#1 Borehole

Carr, M.D., S.J. Waddell, G.S. Vick, J.M. Stock, S.A. Monsen, A.G. Harris, B.S. Cork, and F.M. Byers, Jr. (1986), "Geology of drill hole UE-25p#1: A test hole to pre-Tertiary rocks near Yucca Mountain, southern Nevada", USGS Open-File Report USGS-OFR-86-175, 87 p.

Healey, D.L., F.G. Clutsom, and D.A. Glover (1984), "Borehole gravity meter surveys in drill holes USW G-3, UE-25p#1 and UE-25c#1, Yucca Mountain area, Nevada", USGS Open-File Report USGS-OFR-84-672, 16 p. plus plates.

Muller, J.E., and J.E. Kibler (1984), "Preliminary analysis of geophysical logs from drill hole UE-25p#1, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-84-649, 14 p. and plate.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

Spengler, R.W., and K.F. Fox, Jr. (1990), "Stratigraphic and structural framework of Yucca Mountain, Nevada", Radioactive Waste Management and the Nuclear Fuel Cycle, v.13, p. 21-36.

Stock, J.M., J.H. Healy, J. Svitek, and L. Mastin (1986), "Report on televiewer log and stress measurements in holes USW G-3 and UE-25p#1, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-86-369, 91 p.

USW G-1 Borehole

Bush, C.A., C.M. Bunker, and R.W. Spengler (1983), "Radioelement Distribution in Drill-Hole USW-G1, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-83-847, 14 p.

Healy, J.H., S.H. Hickman, M.D. Zoback, and W.L. Ellis (1984), "Report on televiewer log and stress measurements in core hole USW-G1, Nevada Test Site, December 13-22, 1981", USGS Open-File Report USGS-OFR-84-15, 47 p.

Muller, D.C., and J.E. Kibler (1983), "Commercial Geophysical well logs from the USW G-1 drill hole, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-83-321, 7 p., 2 plates.

Rosenbaum, J.G., and D.B. Snyder (1985), "Preliminary interpretation of paleomagnetic and magnetic property data from drill holes USW G-1, G-2, GU-3, G-3, and VH-1 and surface localities in the vicinity of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-49, 73 p.

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW G-1 references yet to be obtained:

Spengler, R.W., and K.F. Fox, Jr. (1990), "Stratigraphic and structural framework of Yucca Mountain, Nevada", Radioactive Waste Management and the Nuclear Fuel Cycle, v.13, p. 21-36.

Stock, J.M., J.H. Healy, S.H. Hickman, and M.C. Zoback (1985), "Hydraulic fracturing stress measurements at Yucca Mountain, Nevada, and relationship to the regional stress field", Jour. Geophys. Res., v.90, no.B10, p.8691-8706.

<u>USW G-2 Borehole</u>

Nelson, P.H., and U. Schimschal (1992), "Assessment of geophysical logs from borehole USW G-2, Yucca Mountain, Nevada", USGS Open-File Report USGS-OFR-92-xxx, 9/21/92 preprint, 35 p. plus figures. LRC: I-332494. OSTI UC-814.

Rosenbaum, J.G., and D.B. Snyder (1985), "Preliminary interpretation of paleomagnetic and magnetic property data from drill holes USW G-1, G-2, GU-3, G-3, and VH-1 and surface localities in the vicinity of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-49, 73 p.

Stock, J.M., J.H. Healy, and S.H. Hickman (1984), "Report on televiewer log and stress measurements in core hole USW G-2, Nevada Test Site, October- November, 1982", USGS Open-File Report USGS-OFR-84-172, 47 p.

USW G-2 references yet to be obtained:

Stock, J.M., J.H. Healy, S.H. Hickman, and M.C. Zoback (1985), "Hydraulic fracturing stress measurements at Yucca Mountain, Nevada, and relationship to the regional stress field", Jour.

Geophys. Res., v.90, no.B10, p.8691-8706.

USW G-3/GU-3 Boreholes

Anderson, L.A. (1984), "Rock-property measurements on large-volume core samples from Yucca Mountain USW GU-3/G-3 and USW G-4 boreholes, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-84-552, 39 p.

Healey, D.L., F.G. Clutsom, and D.A. Glover (1984), "Borehole gravity meter surveys in drill holes USW G-3, UE-25p#1 and UE-25c#1, Yucca Mountain area, Nevada", USGS Open-File Report USGS-OFR-84-672, 16 p. plus plates.

Rosenbaum, J.G., and W.C. Rivers (1985), "Paleomagnetic orientation of core from drill hole USW GU-3, Yucca Mountain, Nevada: Tiva Canyon Member of the Paintbrush Tuff", USGS Open-File Report USGS-OFR-85-48, 116 p.

Rosenbaum, J.G., and D.B. Snyder (1985), "Preliminary interpretation of paleomagnetic and magnetic property data from drill holes USW G-1, G-2, GU-3, G-3, and VH-1 and surface localities in the vicinity of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-49, 73 p.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

Scott, R.B., and M. Castellanos (1984), "Stratigraphic and structural relations of volcanic rocks in drillholes USW GU-3 and USW G-3, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-84-491, 121 p., 1 plate.

Stock, J.M., J.H. Healy, J. Svitek, and L. Mastin (1986), "Report on televiewer log and stress measurements in holes USW G-3 and UE-25p#1, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-86-369, 91 p.

USW G-4 Borehole

Anderson, L.A. (1984), "Rock-property measurements on large-volume core samples from Yucca Mountain USW GU-3/G-3 and USW G-4 boreholes, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-84-552, 39 p.

Healey, D.L., F.G. Clutsom, and D.A. Glover (1986), "Borehole gravity meter survey in drill hole USW G-4, Yucca Mountain area, Nye County, Nevada", USGS Open-File Report USGS-OFR-86-205, 18 p.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

Spengler, R.W., and M.P. Chornack (1984), "Stratigraphic and structural characteristics of volcanic rocks in core hole USW G-4, Yucca Mountain, Nye County, Nevada *with a section on* Geophysical Logs by D.C. Muller and J.E. Kibler", USGS Open-File Report USGS-OFR-84-789, 77 p.

Whelan, J.F., and J.S. Stuckless (1990), "Reconnaissance $d\ ^{13}C$ and ^{18}O data from trench 14, Busted Butte, and drill hole G-4, Yucca Mountain, Nevada Test Site", *in* High Level Radioactive Waste Management, International Topical Meeting Proceedings, American Nuclear Society and American Society of Civil Engineers, v.2, p.930-933.

USW H-1 Borehole

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW H-3 Borehole

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW H-4 Borehole

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW H-5 Borehole

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW H-6 Borehole

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW VH-1 Borehole

Carr, W.J. (1982), "Volcano-tectonic history of Crater Flat, southwestern Nevada, as suggested by new evidence from drill hole USW-VH-1 and vicinity", USGS Open-File Report USGS-OFR-82-457, 23 p.

Rosenbaum, J.G., and D.B. Snyder (1985), "Preliminary interpretation of paleomagnetic and magnetic property data from drill holes USW G-1, G-2, GU-3, G-3, and VH-1 and surface localities in the vicinity of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-49, 73 p.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW VH-2 Borehole

Carr, W.J., and L.D. Parrish (1985), "Geology of drill hole USW VH-2 and structure of Crater Flat, southwestern Nevada", USGS Open-File Report USGS-OFR-85-475, 41 p. (?geophysics?)

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

USW WT series boreholes

Muller, D.C., and J.E. Kibler (1985), "Preliminary analysis of geophysical logs from the WT series of drill holes, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-86-46, 30 p. plus plates.

Ponce, D.A., S.S.C. Wu, and J.B. Spielman (1985), "Comparison of Survey and photogrammetry methods to position gravity data, Yucca Mountain, Nevada", USGS Open-File Report USGS-OFR-85-36, 11 p.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

Geophysics - Electromagnetic (EM) surveys

Flanigan, V.J. (1979), "A slingram survey on the Nevada Test Site - Part of an integrated geologic-geophysical study of site evaluation for nuclear waste disposal", USGS Open-File Report USGS-OFR-79-277, 30 p.

Flanigan, Vincent J. (1981), "A Slingram survey at Yucca Mountain on the Nevada Test Site", United States Geological Survey, Open-File Report USGS-OFR-81-980, 38 p.

Frischknecht, F.C., and P.V. Raab (1984), "Time-domain electromagnetic soundings at the Nevada Test Site, Nevada", Geophysics, v. 49, no. 7, p. 981-992.

Frizzell, V.A., Jr., and J. Shulters (1990), "Geologic map of the Nevada Test Site, southern Nevada", USGS Misc. Investigations Map I-2046, scale 1:100,000. (?geophysics?)

Hoover, D.B., W.F. Hanna, L.A. Anderson, V.J. Flanigan, and L.W. Pankratz (1982), "Geophysical studies of the Syncline Ridge area, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-145, 68 p.

Hoover, D.B., M.Chornack, K. Nervick, and M. Broker (1982), "Electrical studies at the proposed Wahmonie and Calico Hills nuclear waste sites, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-466, 91 p.

Kauahikaua, James (1981), "Interpretation of Time-Domain Electromagnetic soundings in the Calico Hills area, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-988, 13 p. plus appendices.

Scott, Robert B., Gordon D. Bath, Vincent J. Flanigan, Donald B. Hoover, Joseph G. Rosenbaum, and Richard W. Spengler (1984), "Geological and geophysical evidence of structures in northwest-trending washes, Yucca Mountain, southern Nevada, and their possible significance to a nuclear waste repository in the unsaturated zone", USGS Open-File Report USGS-OFR-84-567, 23 p.

Electromagnetic references yet to be obtained:

Daily, W.D., W. Lin, and T. Buscheck (1987), "Hydrological properties of Topopah Spring Tuff; laboratory measurements", *in* Oliver, H.W., ed., Special Section: Geophysical Investigations of Radioactive Waste Disposal Sites in the Western United States, Journal of Geophysical Research - B, vol. 92, no. 8, p. 7854-7864. (Also, AGU 1982 Fall Meeting Symposium on Investigations of Proposed Radioactive Waste Disposal Sites, San Francisco, CA, Dec. 13, 1982). (LLNL, USGS)

Ramirez, A.L., and W.D. Daily (1987), "Electromagnetic experiment to map in situ water in heated welded tuff; preliminary results", *in* Farmer, I.W, et al., eds., Rock Mechanics:

Proceedings of the 28th U.S. Symposium, University of Arizona, Tucson, AZ, June 29 - July 1, 1987, p.37-46 (LLNL)

Ramirez, A.L., and W.D. Daily (1987), "Evaluation of Alterant Geophysical Tomography in Welded Tuff", *in* Oliver, H.W., ed., Special Section: Geophysical Investigations of Radioactive Waste Disposal Sites in the Western United States, Journal of Geophysical Research - B, vol. 92, no. 8, p. 7843-7853. (Also, AGU 1982 Fall Meeting Symposium on Investigations of Proposed Radioactive Waste Disposal Sites, San Francisco, CA, Dec. 13, 1982). (LLNL, USGS)

Sinha, A.K. (1985), "Quantitative interpretation of ground VLF-EM data as applied in the Canadian Nuclear Fuel Waste Management Program [abstract]", EOS, Transactions, American Geophysical Union, vol. 66, no. 46, p. 878.

Geophysics - Geodetic Leveling

Gilmore, T.D. (1992), "Geodetic Leveling Data used to define Historical Height Changes between Tonopah Junction and Las Vegas, Nevada", USGS Open-File Report USGS-OFR-92-450, 8 p. plus Figures and Tables. LRC: I-334517.

Thatcher, W. (1986), "Geodetic measurement of active tectonic processes", *in* Active Tectonics, Studies in Geophysics, National Academy Press, Washington, D.C.

Geophysics - Gravity

__?__ (?), "Tectonic Diagram and Bouguer Gravity Map of Death Valley, California", Scale 1:96,000, USGS Professional Paper 494-A, Plate 3. (Geology by Charles Hunt 1956-61; Gravity contours by Don R. Mabey 1956-57).

Ackermann, H.D., W.D. Mooney, D.B. Snyder, and V.D. Sutton (1988), "Preliminary interpretation of seismic-refraction and gravity studies west of Yucca Mountain, Nevada and California", *in* Carr, M.D., and J.C. Yount, eds., "Investigations of the geological and geophysical characterization of a potential nuclear waste disposal site at Yucca Mountain, southern Nevada", USGS Survey Bulletin 1790, p. 23-34.

Blakely, R.J., and R.C. Jachens (1991), "Concealed mineral deposits in Nevada - Insights from three-dimensional analysis of gravity and magnetic anomalies", *in* Raines, G.L., R.E. Lisle, R.W. Schafer, and W.H. Wilkinson, eds., Geology and Ore Deposits of the Great Basin, Symposium Proceedings, Geological Society of Nevada, Reno, Nevada, v. 1, p. 185-192.

Carr, W.J., and L.D. Parrish (1985), "Geology of drill hole USW VH-2 and structure of Crater Flat, southwestern Nevada", USGS Open-File Report USGS-OFR-85-475, 41 p. (?geophysics?)

Carr, M.D., and J.C. Yount, eds. (1988), "Investigations of the geological and geophysical characterization of a potential nuclear waste disposal site at Yucca Mountain, southern Nevada", USGS Survey Bulletin 1790, 152 p.

Eaton, G.P., R.R. Wahl, H.J. Prostka, D.R. Mabey, and M.D. Kleinkopf (1978), "Regional gravity and tectonic patterns: Their relation to late Cenozoic epeirogeny and lateral spreading in the western Cordillera", *in* Smith, R.B., and G.P. Eaton, eds., "Cenozoic tectonics and regional geophysics of the western Cordillera", Geological Society of America Memoir 152, p. 51-91.

Grow, J.A., H.R. Blank, Jr., C.J. Potter, and J.J. Miller (1992), "Constraints on extensional fault geometries in eastern Railroad Valley, Nevada, based on seismic reflection and gravity data [abs.]", Proceedings of the Geological Society of America, Rocky Mountain Section, Regional Meeting, May 13-15, 1992.

Harris, R. N., and D.A. Ponce (1988), "High-precision gravity network to monitor temporal variations in gravity across Yucca Mountain, Nevada", USGS Open-File Report USGS-OFR-88-243, 19 p.

Harris, R.N., D.A. Ponce, D. L. Healey, and H. W. Oliver (1989), "Principal facts for about 16,000 gravity stations in the Nevada Test Site and vicinity", USGS Open-File Report USGS-OFR-89-682-A, 78 p.

Harris, R.N., D.A. Ponce, D. L. Healey, and H. W. Oliver (1989), "Principal facts for about

16,000 gravity stations in the Nevada Test Site and vicinity", USGS Open-File Report USGS-OFR-89-682-B, 227 p.

Healey, D.L. (1968), "Application of gravity data to geologic problems at the Nevada Test Site", *in* Eckel, E.B., ed., Nevada Test Site, Geological Society of America Memoir 110, p. 147-156.

Healey, D. L., and C. H. Miller (1971), "Gravity Survey of the Amargosa Desert Area of Nevada and California", U.G. Geological Survey Report 474-136, 29 p. plus 4 plates.

Healey, D.L. (1983), "Gravity Investigations", *in* "Geologic and Geophysical Investigations of Climax Stock Intrusive, Nevada", U.S. Geological Survey Open-File Report USGS-OFR-83-377, 76 p.

Healey, D.L., F.G. Clutsom, and D.A. Glover (1984), "Borehole gravity meter surveys in drill holes USW G-3, UE-25p#1 and UE-25c#1, Yucca Mountain area, Nevada", USGS Open-File Report USGS-OFR-84-672, 16 p. plus plates.

Healey, D.L., F.G. Clutsom, and D.A. Glover (1986), "Borehole gravity meter survey in drill hole USW G-4, Yucca Mountain area, Nye County, Nevada", USGS Open-File Report USGS-OFR-86-205, 18 p.

Healey, D.L., R.N. Harris, D.A. Ponce, and H.W. Oliver (1987), "Complete Bouguer gravity map of the Nevada Test Site and vicinity, Nevada", USGS Open-File Report USGS-OFR-87-506 (map).

Hildenbrand, T.G., A.M. Rogers, H.W. Oliver, S.C. Harmsen, J.K. Nakata, D.S. Aitken, R.N. Harris, and M.D. Carr (1988), "Regional Geologic and Geophysical Maps of the Southern Great Basin", *in* Carr, M.D., and J.C. Yount, eds., "Geologic and Hydrologic Investigations of a Potential Nuclear Waste Disposal Site at Yucca Mountain, Southern Nevada", U.S. Geological Survey Bulletin 1790, p. 3-21.

Hildenbrand, T.G., and R.P Kucks (1988), "Filtered Magnetic Anomaly Maps of Nevada: Pseudo-Gravity Field", Nevada Bureau of Mines and Geology, Map 93B, Sheet 3, Scale 1:1,000,000.

Hildenbrand, T.G., and R.P Kucks (1988), "Filtered Magnetic Anomaly Maps of Nevada: Magnitude of the Horizontal Gradient of the Pseudo-Gravity Field", Nevada Bureau of Mines and Geology, Map 93B, Sheet 4, Scale 1:1,000,000.

Hoover, D.B., W.F. Hanna, L.A. Anderson, V.J. Flanigan, and L.W. Pankratz (1982), "Geophysical studies of the Syncline Ridge area, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-145, 68 p. (out of control area)

Jansma, P.E., D.B. Snyder, and D.A. Ponce (1982), "Principal facts of gravity stations with gravity and magnetic profiles from the southwest Nevada Test Site, Nye County, Nevada, as of January 1982", USGS Open-File Report USGS-OFR-82-1041, 43 p.

Kane, M.F., M.W. Webring, and B.K. Bhattacharyya (1981), "A preliminary analysis of gravity and aeromagnetic surveys of the Timber Mountain area, southern Nevada", USGS Open-File Report USGS-OFR-81-189, 40 p. plus plates.

Kane, M.F., G.D. Bath, D.B. Snyder, J.G. Rosenbaum, H.W. Oliver, D.A. Ponce, and D.L. Healey (1982), "Gravity and magnetic studies in the region of the Nevada Test Site [abs.]", EOS, Trans. Amer. Geophys. Union, v. 63, no. 45, p. 1099.

Langenheim, V. E., D. A. Ponce, H. W. Oliver, and R. F. Sikora (1993), "Gravity and Magnetic Study of Yucca Wash, southwest Nevada", 10/07/93 version of USGS-OFR-93-XXX-A, LRC#: I-350128.

Mooney, W.D., D.B. Snyder, and L.R. Hoffman (1982), "Seismic refraction and gravity modeling of Yucca Mountain, Nevada Test Site [abs.]", EOS, Trans. Amer. Geophys. Union, v. 63, no. 45, p. 1100.

Oliver, H.W., D.A. Ponce, and R.F. Sikora (1991), "Major results of gravity and magnetic studies at Yucca Mountain, Nevada", Proceedings of the Second Annual International Conference on High Level Radioactive Wasye Management, Las Vegas, NV, April 28 - May 3, 1991, American Nuclear Society, v. 1, p. 787 - 794.

Oliver, H.W., and K.F. Fox (1993), "Structure of Crater Flat and Yucca Mountain, southeastern Nevada, as inferred from gravity data", American Nuclear Society, Proceedings of the Fourth Annual International High Level Radioactive Waste Management Conference, April 26-30, 1993, Las Vegas, NV, vol. 2, p. 1812-1817. LRC: I-336446.

Ponce, D.A. (1981), "Preliminary gravity investigations of the Wahmonie site, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-522, 64 p.

Ponce, D.A., and H.W. Oliver (1981), "Charleston Peak gravity calibration loop, Nevada", USGS Open-File Report USGS-OFR-81-985, 20 p.

Ponce, D.A., and W.F. Hanna (1982), "Preliminary appraisal of gravity and magnetic data at Syncline Ridge, western Yucca Flat, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-931, 19 p.

Ponce, D.A. (1984), "Gravity and magnetic evidence for a granitic intrusion near Wahmonie site, Nevada Test Site, Nevada", Jour. Geophys. Res., v.89, no. B11, p. 9401-9413.

Ponce, D.A., S.S.C. Wu, and J.B. Spielman (1985), "Comparison of Survey and photogrammetry methods to position gravity data, Yucca Mountain, Nevada", USGS Open-File

Report USGS-OFR-85-36, 11 p.

Ponce, D.A., R.N. Harris, and H.W. Oliver (1988/90), "Isostatic gravity map of the Nevada Test Site and vicinity, Nevada", USGS Open-File Report USGS-OFR-88-664 (map).

Ponce, D.A., S.B. Kohrn, and S. Waddell (1992), "Gravity and Magnetic Data of Fortymile Wash, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-92-343, 33 p. LRC: I-327725.

Ponce, D.A., and H.W. Oliver (1992), "Gravity and Magnetic Anomalies in the Vicinity of Yucca Mountain and their Geologic Implications", preprint, 5/29/92 version, submitted to Journal of Geophysical Research. LRC: I-334960.

Ponce, D.A. (1993), "Geophysical Investigations of Concealed Faults near Yucca Mountain, southwest Nevada", American Nuclear Society, Proceedings of the 4th Annual International High Level Radioactive Waste Management Conference, April 26-30, p. 168-174.

Ponce, D. A., V. E. Langenheim, and R. F. Sikora (1993), "Gravity and Magnetic Data of Midway Valley, southwest Nevada", USGS-OFR-93-540-A, 9 p., scale 1:12,000; LRC#:I-347091.

Saltus, R.W. (1988), "Gravity data for the state of Nevada on magnetic tape", USGS Open-File Report USGS-OFR-88-433, 20 p. plus magnetic tape (available *only* from USGS EROS Data Center, Sioux Falls, SD 57198).

Smith, C., H.P. Ross, and R. Edquist (1981), "Interpreted resistivity and IP section Line W1, Wahmonie Area, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-1350, 4 p. plus Figures. (?Gravity?)

Snyder, D.B. (1981), "Gravity interpretation of Yucca Mountain, Nye County, Nevada and its implications for southern Nevada structure [abs.]", EOS, Trans. Amer Geophys. Union, v. 62, no. 45, p. 1039.

Snyder, D.B., and H. W. Oliver (1981), "Preliminary results of gravity investigations of the Calico Hills, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-101, 42 p.

Snyder, D.B., and W.J. Carr (1982), "Preliminary results of gravity investigations at Yucca Mountain and vicinity, southern Nye County, Nevada", USGS Open-File Report USGS-OFR-82-701, 36 p. plus plate.

Snyder, D.B., and W.J. Carr (1984), "Interpretation of gravity data in a complex volcano-tectonic setting, southwestern Nevada", Journal of Geophysical Research, v. 89, no. B12, p. 10,193-10,206.

Wagini, A. (1985), "An automatic program for the interpretation of two-dimensional gravity and magnetic anomalies", USGS Open-File Report USGS-OFR-85-377, 68 p.

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

Gravity references yet to be obtained:

Black, A.J. (1986), "Borehole gravity surveying, current instrumentation, capabilities and applications", *in* Killeen, P.G., ed., Borehole Geophysics for mining and geotechnical applications, Canadian Geological Survey Paper 85-27, p. 181-187. (Symposium on borehole geophysics for mining and geotechnical applications, Toronto, ON, Aug. 1983)

Harris, R.N., H.W. Oliver, and D.L. Healey (1986), "Structural implications of an isostatic residual gravity map of the Nevada Test Site, Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 67, no. 44, p. 1262.

Healey, D.L. (1970), "Calculated in situ bulk densities from subsurface gravity observations and density logs, Nevada Test Site and Hot Creek Valley, Nye County, Nevada", *in* Geological Survey Research, U.S. Geological Survey Professional Paper 700-B, p. B52-B62.

Healey, D.L., R.R. Wahl, and F.E. Currey (1980), "Bouger gravity map of Nevada, Goldfield and Mariposa sheets", Nevada Bureau of Mines and Geology Map 68, scale 1:250,000.

Healey, D.L., R.R. Wahl, and H.W. Oliver (1980), "Bouguer gravity map of Nevada, Death Valley Sheet", Nevada Bureau of Mines and Geology Map 69, scale 1:250,000.

Healey, D.L., D.B. Snyder, R.R. Wahl, and F.E. Currey (1981), "Bouguer gravity map of Nevada, Caliente Sheet", Nevada Bureau of Mines and Geology Map 70, scale 1:250,000.

Kane, M.F., D.L. Healey, D.L. Peterson, H.E. Kaufman, and D. Reidy (1979), "Bouguer gravity map of Nevada, Las Vegas sheet", Nevada Bureau of Mines and Geology Map 61, scale 1:250,000.

Morelli, C., ed. (1974), The International Gravity Standardization Net 1971, International Association Geodesy Special Publ., no. 4, 194 p.

Oatfield, W.J., and J.B. Czarnecki (1989), "Hydrogeologic inferences from drillers logs and from gravity and resistivity surveys in the Amargosa Desert, southern Nevada", USGS Open-File Report USGS-OFR-88-234, 29 p.

Oliver, H.W., S.L. Robbins, R.B. Grannell, R.W. Alewine, and S. Biehler (1975), "Surface and subsurface movements determined by remeasuring gravity", *in* Oakshott, G.B., ed., "San

Fernando Earthquake of February 9, 1971", California Division of Mines and Geology Bulletin 196, p. 195-211.

Oliver, H.W., R.H. Chapman, S. Biehler, A. Griscom, E.A. Silver, L.A. Beyer, and S.L. Robbins (1980), "Gravity map of California and its continental margin", California Division of Mines and Geology Special Map, scale 1:750,000.

Roberts, C.W., R.C. Jachens, and H.W. Oliver (1981), "Isostatic residual gravity map of California", U.S. Geological Survey Open-File Report USGS-OFR-81-573, scale 1:750,000.

Robbins, S.L. (1986), "The use of borehole gravimetry in water well and waste disposal site evaluations", in Graves, B.J., et al., eds., Surface and Borehole geophysical methods and ground water instrumentation conference and exposition, National Water Well Association, Dublin, OH, p. 474-486. (Surface and borehole geophysical methods and ground water instrumentation conference and exposition, Denver, CO, Oct. 15-17, 1986)

Saltus, G.V. (1988), "Bouguer gravity map of Nevada", Nevada Bureau of Mines and Geology, Map M94A, scale 1:750,000. need

Saltus, G.V. (1988), "Regional, residual, and derivative gravity maps of Nevada", Nevada Bureau of Mines and Geology, Map M94B, 4 maps at scale 1:1,000,000, 2 maps at scale 1:2,500,000.

Snyder, D.B., C.W. Roberts, R.W. Saltus, and R.F. Sikora (1981), "Magnetic tape containing the principal facts of 64,402 gravity stations in the state of California", U.S. Geological Survey Report, 30 p.; available from National Technical Information Service, U.S. Dept. of Commerce, Springfield, VA 22161, NTIS PB-82168287.

Geophysics - Ground-Penetrating Radar/VRP/Borehole Radar

Carlsten, S., O. Olsson, S. Sehlstedt, and L. Stenberg (1987), "Radar measurements performed at the Klipperås study site", SKB Technical Report 87-01, 135 p. plus 3 appendices.

Carlsten, S., L. Lindqvist, and O. Olsson (1989), "Comparison between radar data and geophysical, geological, and hydrological borehole parameters by multivariate analysis of data", SKB Technical Report 89-15, 127 p. plus 4 appendices.

Falk, L. (1991), "SKB-PNC Development of tunnel radar antennas", SKB Technical Report 91-43, 89 p.

Olsson, D., J. Eriksson, J. Falk, and D. Sandberg (1988), "Site Characterization and Validation - Borehole Radar Investigations, Stage 1", Swedish Geological Co., Sweden, NAGRA Technical Report 88-33, April, 1988, 107 p. plus figures.

Geophysics - Heat Flow

Carr, W.J. (1984), "Regional structural setting of Yucca Mountain and late Cenozoic rates of tectonic activity in part of the southwestern Great Basin, Nevada and California", USGS Open-File Report USGS-OFR-84-854, 109 p.

Dudley, W.W., Jr. (1990), "Multidisciplinary hydrologic investigations at Yucca Mountain", *in* High Level Radioactive Waste Management, International Topical Meeting Proceedings, American Nuclear Society and American Society of Civil Engineers, v. 1, p. 1-9.

Sass, J.H., and A. H. Lachenbruch (19__), "Heat Flow and Conduction-Dominated Thermal Regimes", *in* Muffler, L.J.P., ed., "Assessment of Geothermal Resources of the United States - 1978", Geological Survey Circular 790, p. 8-11.

Sass, J.H. A.H. Lachenbruch, R.J. Monroe, G.W. Greene, and T.H. Moses, Jr. (1971), "Heat Flow in the Western United States", Journal of Geophysical Research, v. 76, p. 6376-6413.

Sass, J.H., W.H. Diment, A.H. Lachenbruch, B.V. Marshall, R.J. Munroe, T.H. Moses, Jr., and T.C. Urban (1976), "A New Heat-Flow Contour Map of the conterminous United States", U.S. Geological Survey Open File Report USGS-OFR-76-756, 24 p.

Sass, J.H., A.H. Lachenbruch, and C.W. Mase (1980), "Analysis of thermal data from Drill Holes UE25a-3 and UE25a-1, Calico Hills and Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-80-826, 25 p.

Sass, J.H., D.D. Blackwell, D.S. Chapman, J.K. Costain, E.R. Decker, L.A. Lawver, and C.A. Swanberg (1981), "Heat Flow from the Crust of the United States", in Physical Properties of Rocks and Minerals, Chapter 13, p. 503 - 548. SCP Reference 1771.

Sass, J.H., and A.H. Lachenbruch (1982), "Preliminary interpretation of thermal data from the Nevada Test Site", USGS Open-File Report USGS-OFR-82-973, 30 p.

Sass, J.H., and A.H. Lachenbruch (1982), "Hydrologic implications of preliminary heat-flow data from the Nevada Test Site [abs.]", EOS, Trans. Amer. Geophys. Union, v.63, no. 45, p. 1099.

Sass, J., A. Lachenbruch, F. Grubb, and T. Moses (1983), "Status of Thermal Observations at Yucca Mountain, Nevada", Letter Report for internal USGS/DOE circulation, April 27, 1983, 10 p. plus figures. SCP reference 3316.

Sass, J.H., A.H. Lachenbruch, W.W. Dudley, Jr., S.S. Priest, and R.J. Munroe (1987/88), "Temperature, thermal conductivity, and heat flow near Yucca Mountain, Nevada: Some tectonic and hydrologic implications", USGS Open-File Report USGS-OFR-87-649, 118 p.

Heat Flow references yet to be obtained:

Blakley, R.J. (1988), "Curie-temperature isotherm analysis and tectonic implications of aeromagnetic data from Nevada", Jour. Geophys. Res., v.93, no. B10, p. 11,817-11,832.

Geophysics - Induced Polarization

(see Geophysics- Resistivity)

Geophysics - Magnetics

Baldwin, M.J., and C.E. Jahren (1982), "Magnetic properties of drill core and surface samples from the Calico Hills area, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-536, 27 p.

Bath, G.D., C.E. Jahren, J.G. Rosenbaum, and M.J. Baldwin (1983), "Magnetic Investigations", p.40-77 *in* "Geologic and Geophysical Investigations of Climax Stock Intrusive, Nevada", U.S. Geological Survey Open-File Report USGS-OFR-83-377, 82 p.

Bath, G.D., and C.E. Jahren (1984), "Interpretations of Magnetic Anomalies at a Potential Repository Site located in the Yucca Mountain Area, Nevada Test Site", USGS Open-File Report USGS-OFR-84-120, 40 p., map plates. data in error — 1

Bath, G.D., and C.E. Jahren (1985), "Investigation of and Aeromagnetic Anomaly on West side of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-459, 24 p.

Blakely, R.J., and R.C. Jachens (1991), "Concealed mineral deposits in Nevada - Insights from three-dimensional analysis of gravity and magnetic anomalies", *in* Raines, G.L., R.E. Lisle, R.W. Schafer, and W.H. Wilkinson, eds., Geology and Ore Deposits of the Great Basin, Symposium Proceedings, Geological Society of Nevada, Reno, Nevada, v. 1, p. 185-192.

Carr, W.J., F.M. Byers, Jr., and P.P. Orkild (1986), "Stratigraphic and volcano-tectonic relations of Crater Flat Tuff, Nevada Test Site region, Nye County, Nevada", USGS Professional Paper 1323, 28 p. (supersedes USGS Open-File Report USGS-OFR-84-114).

Fitterman, D.V. (1982), "Magnetometric resistivity survey near Fortymile Wash, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-82-401, 27 p. 2-3

Hagstrum, J.T., J.J. Daniels, and J.H. Scott (1980), "Analysis of the magnetic susceptibility well log in drill hole UE25a-5, Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-80-1263, 33 p.

Hildenbrand, T.G., A.M. Rogers, H.W. Oliver, S.C. Harmsen, J.K. Nakata, D.S. Aitken, R.N. Harris, and M.D. Carr (1988), "Regional Geologic and Geophysical Maps of the Southern Great Basin", *in* Carr, M.D., and J.C. Yount, eds., "Geologic and Hydrologic Investigations of a Potential Nuclear Waste Disposal Site at Yucca Mountain, Southern Nevada", U.S. Geological Survey Bulletin 1790, p. 3-21.

Hildenbrand, T.G., and R.P. Kucks (1988), "Total intensity magnetic anomaly map of Nevada", Nevada Bureau of Mines and Geology, Map 93A, Scale 1:750,000.

Hildenbrand, T.G., and R.P. Kucks (1988), "Filtered Magnetic Anomaly Maps of Nevada: Residual Total Magnetic Field Reduced to the North Magnetic Pole", Nevada Bureau of Mines and Geology, Map 93B, Sheet 1, Scale 1:1,000,000.

Hildenbrand, T.G., and R.P. Kucks (1988), "Filtered Magnetic Anomaly Maps of Nevada: First Vertical Derivative of the Magnetic Field", Nevada Bureau of Mines and Geology, Map 93B, Sheet 2, Scale 1:1,000,000.

Hildenbrand, T.G., and R.P. Kucks (1988), "Filtered Magnetic Anomaly Maps of Nevada: Shaded Magnetic Relief Maps", Nevada Bureau of Mines and Geology, Map 93B, Sheet 5, Scale 1:2,000,000.

Jansma, P.E., D.B. Snyder, and D.A. Ponce (1982), "Principal facts of gravity stations with gravity and magnetic profiles from the southwest Nevada Test Site, Nye County, Nevada, as of January 1982", USGS Open-File Report USGS-OFR-82-1041, 43 p.

Kane, M.F., G.D. Bath, D.B. Snyder, J.G. Rosenbaum, H.W. Oliver, D.A. Ponce, and D.L. Healey (1982), "Gravity and magnetic studies in the region of the Nevada Test Site [abs.]", EOS, Trans. Amer. Geophys. Union, v. 63, no. 45, p. 1099.

Langenheim, V.E., K.S. Kirchoff-Stein, and H.W. Oliver (1992), "Geophysical investigations of buried volcanic centers near Yucca Mountain, southwest Nevada", American Nuclear Society, Proceedings of the Fourth Annual International High Level Radioactive Waste Management Conference, April 26-30, 1993, Las Vegas, NV, vol. 2, p. 1840-1846. LRC#: I-334939. 2-3

Langenheim, V. E., D. A. Ponce, H. W. Oliver, and R. F. Sikora (1993), "Gravity and Magnetic Study of Yucca Wash, southwest Nevada", 10/07/93 version of USGS-OFR-93-XXX-A, LRC#: I-350128.

Oliver, H.W., D.A. Ponce, and R.F. Sikora (1991), "Major results of gravity and magnetic studies at Yucca Mountain, Nevada", American Nuclear Society, Proceedings of the Second Annual International Conference on High Level Radioactive Waste Management, Las Vegas, NV, April 28 - May 3, 1991, American Nuclear Society, v. 1, p. 787 - 794. 4

Ponce, D.A., and W.F. Hanna (1982), "Preliminary appraisal of gravity and magnetic data at Syncline Ridge, western Yucca Flat, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-931, 19 p. out of control area 4

Ponce, D.A. (1984), "Gravity and magnetic evidence for a granitic intrusion near Wahmonie site, Nevada Test Site, Nevada", Journal of Geophysical Research, v.89, no. B11, p. 9401-9413. 2 repeat have

Ponce, D.A., S.B. Kohrn, and S. Waddell (1992), "Gravity and Magnetic Data of Fortymile Wash, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-92-xxx, 5/14/92 version preprint, 33 p. 4

Ponce, D. A., V. E. Langenheim, and R. F. Sikora (1993), "Gravity and Magnetic Data of

Midway Valley, Southwest Nevada", 8/12/93 version of USGS-OFR-93-XXX-A, LRC#:I-347091.

Ponce, D.A. (1993), "Geophysical investigations of concealed faults near Yucca Mountain, southwest Nevada", American Nuclear Society, Proceedings of the Fourth Annual International High Level Radioactive Waste Management Conference, April 26-30, 1993, Las Vegas, NV, vol. 1, p. 168-174. LRC: I-336441.

Rosenbaum, J.G., and D.B. Snyder (1985), "Preliminary interpretation of paleomagnetic and magnetic property data from drill holes USW G-1, G-2, GU-3, G-3, and VH-1 and surface localities in the vicinity of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-49, 73 p.

Schlinger, C. M., J.G. Rosenbaum, and D.R. Veblen (1988), "Fe-oxide microcrystals in welded tuff from southern Nevada: Origin of remanence carriers by precipitation in volcanic glass", Geology, v. 16, p. 556-559, June 1988.

Schlinger, C.M., D.R. Veblen, and J.G. Rosenbaum (1991), "Magnetism and Magnetic Mineralogy of Ash Flow Tuffs from Yucca Mountain, Nevada", Journal of Geophysical Research, v. 96, no. B4, p. 6035-6052. 2-3

Scott, Robert B., Gordon D. Bath, Vincent J. Flanigan, Donald B. Hoover, Joseph G. Rosenbaum, and Richard W. Spengler (1984), "Geological and geophysical evidence of structures in northwest-trending washes, Yucca Mountain, southern Nevada, and their possible significance to a nuclear waste repository in the unsaturated zone", USGS Open-File Report USGS-OFR-84-567, 23 p.

Snyder, D.B., and H.W. Oliver (1981), "Preliminary results of gravity investigations of the Calico Hills, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-101, 42 p.

Wagini, A. (1985), "An automatic program for the interpretation of two-dimensional gravity and magnetic anomalies", USGS Open-File Report USGS-OFR-85-377, 68 p.

Magnetics - yet to be obtained:

Baldwin, M.J., and C.E. Jahren (1982), "Magnetic properties of drill core and surface samples from the Calico Hills area, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-536, 27 p.

Hoover, D.B., W.F. Hanna, L.A. Anderson, V.J. Flanigan, and L.W. Pankratz (1982), "Geophysical studies of the Syncline Ridge area, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-145, 68 p. out of test area

Lapointe, P., A.G. Latham, and W.A. Morris (1986), "Rock Magnetic Properties: A tool in Rock Quality Evaluation [abstract]", Geophysical Journal of the Royal Astronomical Society, vol. 85, no. 1, p. 258. (Tenth UK Geophysical Assembly, Glasgow, Apr. 7-9,1986)

Rosenbaum, J.G., and R.W. Spengler (1986), "Variation of magnetic properties in thick sections of the Crater Flat Tuff, southern Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 67, no. 44, p. 924.

Rosenbaum, J.G., and C.M. Schlinger (1987), "Magnetic property variations and the origin of paleomagnetic carriers in an ash-flow sheet at Yucca Mountain, Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 68, no. 44, p. 1250. (3)

Smith, C., H.P. Ross, and R. Edquist (1981), "Interpreted resistivity and IP section Line W1, Wahmonie Area, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-1350, 4 p. plus Figures. (Have)

Geophysics - Magnetotellurics

Furgerson, Robert B. (1982), "Remote-reference magnetotelluric survey, Nevada Test Site and vicinity, Nevada and California", USGS Open-File Report USGS-OFR-82-465, __ p. plus appendices and plates.

Hoover, D.B., M.P. Chornack, and M.M. Broker (1982), "E-field ratio telluric traverses near Fortymile Wash, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-82-1042, 14 p.

USGS Scientific Investigation Plan 3226G-01, R0, "NNWSI Project USGS Scientific Investigation Plan - Magneto-Telluric Survey", 10/30/87. [NNA.871217.0032]

Zablocki, Charles J. (1979), "Some reconnaissance-type electrical surveys of Timber Mountain Caldera, Nye County, Nevada", USGS Open-File Report USGS-OFR-79-1695, 10 p. plus Figures.
AMT, Telluric

Magnetotelluric references yet to be obtained:

Frizzell, V.A., Jr., and J. Shulters (1990), "Geologic map of the Nevada Test Site, southern Nevada", USGS Misc. Investigations Map I-2046, scale 1:100,000. (?geophysics?)

Wilds, S.R., and S. MacInnes (1991), "High resolution CSAMT application in gold exploration", *in* Raines, G.L., R.E. Lisle, R.W. Schafer, and W.H. Wilkinson, eds., Geology and Ore Deposits of the Great Basin, Symposium Proceedings, Geological Society of Nevada, Reno, Nevada, v. 2, p.1231-1236.

Geophysics - Paleomagnetics

Rosenbaum, J.G. (1983), "Evidence for a hematitic TCRM in a welded tuff, Yucca Mountain, Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 65, no. 45, p. 683.

Rosenbaum, J.G., and W.C. Rivers (1985), "Paleomagnetic orientation of core from drill hole USW GU-3, Yucca Mountain, Nevada: Tiva Canyon Member of the Paintbrush Tuff", USGS Open-File Report USGS-OFR-85-48, 116 p.

Rosenbaum, J.G. (1985), "Inclination error produced by welding in a Miocene ash-flow tuff, Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 66, no. 18, p. 256.

Rosenbaum, J.G., and D.B. Snyder (1985), "Preliminary interpretation of paleomagnetic and magnetic property data from drill holes USW G-1, G-2, GU-3, G-3, and VH-1 and surface localities in the vicinity of Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-85-49, 73 p.

Rosenbaum, J.G. (1986), "Paleomagnetic directional dispersion produced by plastic deformation in a thick Miocene welded tuff, southern Nevada: Implications for welding temperatures", Jour. Geophys. Res., v. 91, no. B12, p. 12,817-12,834.

Rosenbaum, J.G., and M.R. Hudson (1989), "Paleomagnetic Investigation of Tertiary Structural Rotations at Yucca Mountain, Southern Nevada", *in* FOCUS '89, Proceedings of the Topical Meeting on Nuclear Waste Isolation in the Unsaturated Zone, Sept. 17-21, 1989, Las Vegas, NV; American Nuclear Society, Inc., La Grange Park, IL, p. 344-350.

Schlinger, C.M., D.R. Veblen, and J.G. Rosenbaum (1987), "Fe-Oxide Microcrystals in Volcanic Glasses from Yucca Mountain, Nevada", Proceedings, Second International Conference on Natural Glasses, Prague, p. 155-161.

Schlinger, C.M., J.G. Rosenbaum, and D.R. Veblen (1988), "Fe-oxide microcrystals in welded tuff from southern Nevada: Origin of remanence carriers by precipitation in volcanic glass", Geology, v. 16, p. 556-559, June 1988.

Schlinger, C.M. (1989), "Magnetic stratigraphy of ash-flow sheets at Yucca Mountain, Nevada", in Watters, R.J., ed., Engineering Geology and Geotechnical Engineering, Proceedings of the 25th Symposium on Engineering Geology and Geotechnical Engineering, Reno, NV, 20-22 March 1989, p.19-24.

Schlinger, C.M., D.R. Veblen, and J.G. Rosenbaum (1991), "Magnetism and Magnetic Mineralogy of Ash Flow Tuffs from Yucca Mountain, Nevada", Journal of Geophysical Research, vol. 96, no. B4, P. 6035 - 6052, April, 1991.

Scott, Robert B., Gordon D. Bath, Vincent J. Flanigan, Donald B. Hoover, Joseph G.

Rosenbaum, and Richard W. Spengler (1984), "Geological and geophysical evidence of structures in northwest-trending washes, Yucca Mountain, southern Nevada, and their possible significance to a nuclear waste repository in the unsaturated zone", USGS Open-File Report USGS-OFR-84-567, 23 p.

Spengler, R.W., and J.G. Rosenbaum (1980), "Preliminary interpretations of geologic results obtained from boreholes UE25a-4, -5, -6, and -7, Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-80-929, 33 p.

Paleomagnetic references yet to be obtained:

Callian, J.T., J.W. Geissman, and R.P. Keller (1988), "Paleomagnetism and deformational response to regional extension: Walker Lane region, western Great Basin (abs.)", EOS, Transactions, American Geophysical Union, v. 69, no. 44, p. 1164.

Champion, D.E. (1990), "Volcanic episodes near Yucca Mountain as determined by paleomagnetic studies at Lathrop Wells, Crater Flat, and Sleeping Butte, Nevada", Proceedings, High Level Radioactive Waste Management Conference, American Nuclear Society, La Grange Park, IL, p. 61-67.

Chomyn, B.A., P. Lapointe, W.A. Morris, and R.L. Coles (1986), "Application of magnetic susceptibility within crystalline rocks", *in* Killen, P.G., ed., Borehole geophysics for mining and geotechnical applications, Canadian Geological Survey, Ottawa, ON, Canada, Paper 85-27, p. 227-236. (Symposium on borehole geophysics for mining and geotechnical applications, Toronto, ON, Aug. 1983).

Maldonado, Florian (1990), "Structural geology of the upper plate of the Bullfrog Hills detachment fault system, southern Nevada", Geological Society of America Bulletin, v. 102, p. 992-1006.

Rosenbaum, J.G., and C.M. Schlinger (1987), "Magnetic property variations and the origin of paleomagnetic carriers in an ash-flow sheet at Yucca Mountain, Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 68, no. 44, p. 1250.

Rosenbaum, J.G., and M.R. Hudson (1988), "Paleomagnetic investigation of Tertiary rotations, southwest Nevada - Yucca Mountain [abs.]", EOS, Transactions of the American Geophysical Union, vol. 69, no. 44, p. 1164.

Rosenbaum, J.G., M.R. Hudson, and R.B. Scott (1991), "Paleomagnetic constraints on the geometry and timing of deformation at Yucca Mountain, Nevada", Jour. Geophys. Res., v. 96, no. B2, p. 1963-1979.

Schlinger, C.M., D.R. Veblen, and J.G. Rosenbaum (1987), "Paleomagnetic carriers in an ash-flow sheet at Yucca Mountain, Nevada: TEM study of Fe-oxide microcrystals in vitric and devitrified samples [abs.]", EOS, Trans. Amer. Geophys. Union, v. 68, no. 44, p. 1250.

Scott, R.B., and J.G. Rosenbaum (1986), "Structural and paleomagnetic evidence of rotation about a vertical axis during extension at Yucca Mountain, southern Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 67, no. 16, p. 358.

Zhang, Y., S.L. Gillet, R.E. Karlin, R.A. Schweickert (1993), "Paleomagnetism of the Miocene dikes in Bare Mountain, southwest Nevada: Implications for regional tectonics [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Geophysics - Radar - Borehole (general references)

Carlsten, S., L. Lindqvist, and O. Olsson (1989), "Comparison between radar data and geophysical, geological, and hydrological borehole parameters by multivariate analysis of data", Swedish Geological Company, Uppsala; SKB Technical Report 89-15, 127 p. plus appendices.

Carlsten, S., O. Olsson, S. Sehlstedt, and L. Stenborg (1987), "Radar Measurements performed at the Klipperas study site", Swedish Geological Company, Uppsala/Lulea, Sweden; SKB Technical Report 87-01, 135 p. plus appendices.

Falk, L. (1991), "Development of tunnel radar antennas", ABEM, Uppsala; SKB Technical Report 91-43, 89 p.

Borehole Radar references yet to be obtained:

Olsson, O., L. Falk, E. Sandberg, S. Carlsten, and K.A. Magnusson (1985), "Results from borehole radar reflection measurements", Proceedings, Symposium on in situ experiments in granite associated with the disposal of radioactive waste, Stockholm, June 4-6, 1985, p. 190-202.

Olsson, O., O. Forslund, L. Lundmark, E. Sandberg, and L. Falk (1985), "The design of a borehole radar system for detection of fracture zones", Proceedings, Symposium on in situ experiments in granite associated with the disposal of radioactive waste, Stockholm, June 4-6, 1985, p. 172-189.

Olsson, O., and B. Nilsson (1986), "Some examples from borehole radar measurements", *in* Killeen, P.G., ed., Borehole Geophysics for mining and geotechnical applications, Canadian Geological Survey Paper 85-27, p. 197-206. (Symposium on borehole geophysics for mining and geotechnical applications, Toronto, ON, Aug. 1983)

Wright, D.L., R.D. Watts, and E. Bramsoe (1986), "Single-hole short-pulse borehole radar experiments and a crosshole transponder", *in* Killeen, P.G., ed., Borehole Geophysics for mining and geotechnical applications, Canadian Geological Survey Paper 85-27, p. 207-216. (Symposium on borehole geophysics for mining and geotechnical applications, Toronto, ON, Aug. 1983)

Geophysics - Radiometric Age Dating

Radiometric references yet to be obtained:

Cerling, T. (1990), "Dating geomorphic surfaces using cosmogenic ^{3}He", Quaternary Research, vol. 33, p. 148-156.

Colman, S.M., K.L. Pierce, and P.W. Birkeland (1987), "Suggested terminology for Quaternary dating methods", Quaternary Research, vol. 28, p. 314-319.

McDougall, I., and T.M. Harrison (1988), Geochronology and Thermochronology by the ^{40}Ar/^{39}Ar Method, Oxford University Press, NY.

Pierce, K.L. (1986), "Chapter 13: Dating Methods", in Active Tectonics, National Academy Press, Washington, D.C., p.195-214.

Sinnock, S., and R.G. Easterling (1982), "Empirically determined uncertainty in potassium-argon ages for Plio-Pleistocene basalts from Crater Flat, Nye County, Nevada", Sandia National Laboratories, SAND82-2441, 17 p.

Turrin, B.D., and D.E. Champion (1990), "^{40}Ar/^{39}Ar laser fusion and K-Ar ages from Lathrop Wells, Nevada, and Cima, California: The age of the latest volcanic activity in the Yucca Mountain area", Proceedings, High Level Radioactive Waste Management Conference, American Nuclear Society, La Grange Park, IL, p 68-75.

Turrin, B.D., D. Champion, and R.J. Fleck (1991), "^{40}Ar/^{39}Ar age of the Lathrop Wells volcanic center, Yucca Mountain, Nevada", Science, vol. 253, p. 654-657.

Wells, S.G., B.M. Crowe, M. Murrell, J. Poths, G. Valentine, S.L. Forman, J.W. Geissman, L.D. McFadden, and F.V. Perry (199_), "Disparity in Chronologic and field studies of small Quaternary basaltic centers, southern Nevada, and eastern California", in preparation.

Zreda, M.G., F.M. Phillips, P.W. Kubik, and P. Sharma (1991), "Cosmogenic Chlorine-36 Dates for a lava flow and volcanic bombs at Lathrop Wells, Nevada [abs.]", EOS, Transactions of the American Geophysical Union, vol. 72, p. 577.

Geophysics - Radon Monitoring

Griffin, M. D. (1993), "Active versus Passive Radon Monitoring at the Yucca Mountain Site", preprint of 1994 IHLRWM Conference paper, LRC#: I-351069.

Who??

Geophysics - Remote Sensing (general references)

Remote Sensing references yet to be obtained:

Abrams, M.J., R.P. Ashley, L.C. Rowan, A.F.H. Goetz, and A.B. Kahle (1977), "Mapping of hydrothermal alteration in the Cuprite Mining District, Nevada, using aircraft scanner images for the spectral region 0.46 to 2.36 m", Geology, v. 5, no. 12, p. 713-718. 1-2

Bailey, G.B., J.L. Dwyer, and M.H. Podwysocki (1985), "Evaluation of Landsat thematic mapper data for geologic mapping in semi-arid terrains", *in* International Symposium on Remote Sensing of Environment, Thematic conference on remote sensing for exploration geology, 4th, Colorado, 1985, Proceedings, Ann Arbor, Michigan, Environmental Research Institute of Michigan, p. 781-782. 3

Brickey, D.W. (1987), "The use of thematic mapper imagery for mineral exploration in the sedimentary terrane of the Spring Mountains, Nevada", *in* International Symposium on Remote Sensing of Environment, Thematic conference on remote sensing for exploration geology, 5th, Reno, Nevada, Sept. 29 - Oct. 2, 1986, Proceedings, Ann Arbor, Michigan, Environmental Research Institute of Michigan, p. 607-613. 3

Hunt, G.R. (1979), "Spectra of rocks and soils from the eastern Shoshone Range, Nevada", U.S. Geological Survey Open-File Report USGS-OFR-79-707, 4 p.

Knepper, D.H., Jr. (1988), "Distribution of exposed limonitic rocks and soils from Landsat multispectral scanner data on the southern Ute Indian reservation, southwestern Colorado", in Fassett, J.E., ed., "Geology and Coal-Bed Methane Resources of the northern San Juan Basin, Colorado and New Mexico", Rocky Mountain Association of Geologists Guidebook, p. 295-296.

Krohn, M.D. (1984), "Interpretation of thermal-infrared multispectral scanner (TIMS) images of the Osgood Mountains, Nevada", *in* International Symposium on Remote Sensing of Environment, Thematic conference on remote sensing for exploration geology, Colorado Springs, Colorado, April 16-19, 1984, Proceedings (ext. abs.), Ann Arbor, Michigan, Environmental Research Institute of Michigan, vol. 2, p. 735-737.

✓ Krohn, M.D. (1986), "Spectral properties (0.4 to 25 microns) of selected rocks associated with disseminated gold and silver deposits in Nevada and Idaho", Journal of Geophysical Research, v. B.91, p. 767-783. **[Get exact ref.!]** HR v. 91, no. B1, no. B1 ✓ ✓

Krohn, M.D., M.J. Abrams, and L.C. Rowan (1978), "Discrimination of hydrothermally altered rocks along the Battle Mountain-Eureka, Nevada, mineral belt using Landsat images", U.G. Geological Survey Open-File Report USGS-OFR-78-585, 63 p.

Kruse, F.A. (1986), "Digital mapping of alteration zones in a hydrothermal system using Landsat thematic mapper data - An example from the northern Grapevine Mountains, Nevada/California", 0 *in* International Symposium on Remote Sensing of Environment, Thematic Conference on Remote Sensing for Exploration Geology, 5th, Reno, Nevada, Sept. 29 - Oct. 2, 1986, Summaries, Ann Arbor, Michigan, Environmental Research Institute of Michigan, p. 51.

Kruse, F.A., S. Hummer-Miller, and K. Watson (1987), "Thermal infrared remote sensing of the Carlin disseminated gold deposit, Eureka County, Nevada", Symposium on bulk mineable precious metal deposits of the western United States, Sparks, Nevada, April 6-8, 1987.

Kruse, F.A., and G.L. Raines (1984), "A technique for enhancing digital color images by contrast stretching in Munsell color space", *in* International Symposium on Remote Sensing of Environment, Thematic Conference on Remote Sensing for Exploration Geology, 3rd, Colorado, Proceedings, Ann Arbor, Michigan, Environmental Research Institute of Michigan, v. 2, p. 755-760.

Niblack, W. (1981), "Control point library building system", Photogrammetric Engineering and Remote Sensing, v. 47, no. 12, p. 1709-1750.

O'Leary, D.W., and J.D. Friedman (1981), "Toward a workable lineament symbology", *in* O'Leary, D.W., and J.L. Earle, eds., International Conference on Basement Tectonics, 3rd, Proceedings, Denver, Colorado, Basement Tectonics committee, Publication 3, p. 29-31.

O'Leary, D.W., J.D. Friedman, and H.A. Pohn (1976), "Lineament, linear, lineation - some proposed new standards for old terms", Geological Society of America Bulletin, v. 87, p. 1463-1469. 2

O'Leary, D.W., J.D. Friedman, and H.A. Pohn (1976), "Lineament, linear, lineation - some proposed new standards for old terms: Discussion and Reply", Geological Society of America Bulletin, v. 88, p. 159-160.

O'Leary, D.W., and H.A. Pohn (1978), "A photogeologic comparison of Skylab and Landsat images of southwestern Nevada and southeastern California", National Technical Information Service N76-20598/LL.

O'Leary, D.W., J.D. Friedman, and H.A. Pohn (1979), "Lineament and linear, a terminological reappraisal", in Second International Conference on Basement Tectonics, Proceedings, Basement Tectonics Committee, Denver, Colorado, p. 571-576, 22 ref. [?] -2-

Podwysocki, M.H., M.S. Power, J.W. Salisbury, and O.D. Jones (1984), "Evaluation of low-sun illuminated Landsat-4 thematic mapper data for mapping hydrothermally altered rocks in southern Nevada", *in* International Symposium on Remote Sensing of Environment, Thematic conference on remote sensing for exploration geology, 3rd, Proceedings, Ann Arbor, Michigan, Environmental Research Institute of Michigan, v. 2, p. 541-551.

Podwysocki, M.H., W.J. Ehmann, and D.W. Brickey (1987), "Application of combined Landsat thematic mapper and airborne thermal infrared multispectral scanner data to lithologic mapping in Nevada", *in* International Symposium on Remote Sensing of Environment, 21st, Ann Arbor, Michigan, Oct. 26-30, Summaries [abs.], Environmental Research Institute of Michigan, p. 20.

Purdy, T.L., G.B. Bailey, and J.L. Dwyer (1984), "Alteration and geologic mapping south-central Nevada using thematic mapper data", *in* International Symposium on Remote Sensing of Environment, Thematic conference on remote sensing for exploration geology, 4th, San Francisco, California, 1985, Proceedings [abs.], Ann Arbor, Michigan, Environmental Research Institute of Michigan, p. __ **[Get exact ref.!]**

Purdy, T.L., G.F. Brem, and W.E. Collins (1984), "Use of high-spectral resolution airborne spectroradiometer data to map hydrothermally altered rocks in the Gabbs Valley Range, Nevada", U.S. Geological Survey Open-File Report USGS-OFR-84-563, 8 p.

Purdy, T.L., G.B. Bailey, and J.L. Dwyer (1985), "Landsat multispectral scanner and Landsat thematic mapper images and interpretations of Hannapah and Royston Hills, Nevada", U.S. Geological Survey Open-File Report USGS-OFR-85-461, 3 p., 21 slides.

Purdy, T.L., and L.C. Rowan (1985), "Map showing distribution of altered rocks, faults, and linear features in the Walker Lake 1° x 2° quadrangle, Nevada and California", U.S. Geological Survey Miscellaneous Investigation Map I-1643.

Raines, G.L. (1977), "Digital color analysis of color-ratio composite Landsat scenes", *in* International Symposium on Remote Sensing of Environment, 11th, Proceedings, Ann Arbor, Michigan, Environmental Research Institute of Michigan, p. 1463-1472.

Robinove, C.J. (1982), "Computation with physical values from Landsat digital data", Photogrammetric Engineering and Remote Sensing, v. 48, no. 5, p. 781-784.

Rowan, L.C., and P.H. Wetlaufer (1973), "Structural geologic analysis for Nevada using ERTS-1 images: A preliminary report", *in* Symposium on Significant Results Obtained from Earth Resources Technology Satellite-1, Proceedings, National Aeronautics and Space Administration, NASA SP-327, v. 1, sec. A, p. 413-424.

Rowan, L.C., P.H. Wetlaufer, A.F.H. Goetz, F.C. Billingsley, and J.H. Stewart (1974), "Discrimination of rock types and detection of hydrothermally-altered areas in south-central Nevada by the use of computer-enhanced ERTS images", U.S. Geological Survey Professional Paper 883, 35 p.

Rowan, L.C., and P.H. Wetlaufer (1979), "Geologic evaluation of major Landsat lineaments in Nevada and their relationship to ore deposits", U.S. Geological Survey Open-File Report USGS-OFR-79-544, 87 p.

Rowan, L.C., M.D. Krohn, and T.L. Purdy (1980), "Generalized map of occurrences of limonitic rocks in the Walker Lake 1° by 2° quadrangle, Nevada-California", U.S. Geological Survey Open-File Report USGS-OFR-80-232, scale 1:250,000.

Rowan, L.C., and T.L. Purdy (1980), "Preliminary map showing distribution of altered rocks and limonitic unaltered rocks in the Walker Lake 1° by 2° quadrangle, Nevada-California", U.S. Geological Survey Open-File Report USGS-OFR-80-931, scale 1:250,000.

Rowan, L.C., and T.L. Purdy (1981), "Definition of alteration belts in the Walker Lake, Nevada-California 1° by 2° quadrangle (summary)", *in* International Geoscience and Remote Sensing Symposium Digest, Institute of Electrical and Electronics Engineers, v. 1, p. 325-330.

Rowan, L.C., and P.H. Wetlaufer (1981), "Relationship between regional lineament system and structural zones in Nevada", American Association of Petroleum Geologists, v. 65, no. 8, p. 1414-1432.

Rowan, L.C., and T.L. Purdy (1984), "Map of the Walker Lake 1° by 2° quadrangle, California and Nevada, showing the regional distribution of linear features", U.S. Geological Survey Miscellaneous Field Studies Map MF-1382-P, 22 p. text, scale 1:250,000.

Sawatzky, D.L. (1985), "Programmer's guide to REMAPP, Remote Sensing Array Processing Procedures", U.S. Geological Survey Open-File Report USGS-OFR-85-231, 16 p.

USGS (U.S. Geological Survey) (19__), "Geophysics Remote Sensing tape library", U.S. Geological Survey, Branch of Geophysics, Denver, Colorado. **[Get exact ref.!]**

Geophysics - Remote Sensing - Aerial & Ground Gamma Ray Surveys

(General references only)

Remote Sensing - Gamma Ray references yet to be obtained:

Burson, Z.G. (1974), "Research progress in airborne surveys of terrestrial gamma radiation", Workshop on Environmental Radiation, USAEC HASL, New York. **[Get exact ref.!]**

Darnley, A.G. (1972), "Airborne gamma-ray survey techniques", *in* Bowie, S.H.U., M. Davis, and D. Ostle, eds., Uranium Prospecting Handbook, Institute of Mining and Metallurgy, London, p. 174-211.

Davis, F.J., and P.W. Reinhardt (1957), "Instrumentation in aircraft for radiation measurements", Nuclear Science and Engineering, v. 2, no. 6, p. 713-727.

Geophysics - Resistivity

Anderson, L.A., R.J. Bisdorf, and D.R. Schoenthaler (1980), "Resistivity sounding investigation by the Schlumberger method in the Syncline Ridge area, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-80-466, 54 p.

Anderson, L.A. (1981), "Rock property analysis of core samples from the Calico Hills UE25a-3 borehole, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-1337, 30 p.

Anderson, Lennart A. (1981), "Rock property analysis of core samples from the Yucca Mountain UE25a-1 borehole, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-1338, 36 p.

Anderson, L.A. (1984), "Rock-property measurements on large-volume core samples from Yucca Mountain USW GU-3/G-3 and USW G-4 boreholes, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-84-552, 39 p.

Daniels, J.J., and J.H. Scott (1981), "Interpretation of hole-to-surface resistivity measurements at Yucca Mountain, Nevada Test Site", USGS Open-File Report USGS-OFR-81-1336, 23 p.

Fitterman, D.V. (1982), "Magnetometric resistivity survey near Fortymile Wash, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-82-401, 27 p.

Greenhaus, M.R., and C.J. Zablocki (1982), "A Schlumberger resistivity survey of the Amargo Desert, southern Nevada", USGS Open-File Report USGS-OFR-82-897, 13 p. plus appendix.

Hoover, D.B., M.P. Chornack, K.H. Nervick, and M.M. Broker (1982), "Electrical studies at tl proposed Wahmonie and Calico Hills Nuclear waste sites, Nevada Test Site, Nye Co., Nevada USGS Open-File Report USGS-OFR-82-466, 45 p. plus appendices and plates.

Senterfit, R.M., D.B. Hoover, and M. Chornack (1982), "Resistivity sounding investigation b the Schlumberger method in the Yucca Mountain and Jackass Flats area, Nevada Test Sit Nevada", USGS Open-File Report USGS-OFR-82-1043, 8 p. plus appendix and plate.

Smith, C., H.P. Ross, and R. Edquist (1981), "Interpreted resistivity and IP section Line W1, Wahmonie Area, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-81-1350, 4 p. plus Figures.

Smith, C., and H. P. Ross (1982), "Interpretation of resistivity and induced polarization profiles with severe topographic effects, Yucca Mountain, Nevada Test Site, Nevada", U.S. Geological Survey Open-File Report USGS-OFR-82-182, 19 p. plus appendices and plates.

Zohdy, A.A.R., and R.J. Bisdorf (1979), "Schlumberger soundings and geoelectric cross-sections in Yucca Lake, Nevada Test Site, Nevada", U.S. Geological Survey Open-File Report USGS-

OFR-79-220, 68 p. SCP Ref#1868.

Resistivity references yet to be obtained:

Czarnecki, J.B., and W.J. Oatfield (1987), "Use of driller's logs and geophysical surveys to define the hydrologic framework of the Amargosa Desert, southern Nevada", EOS, Transactions of the American Geophysical Union, v. 68, no. 16, p. 302.

Daniels, J.J. (1983), "Hole-to-surface resistivity measurements", Geophysics, vol. 48, no. 1, p. 87-97. (USGS)

Ehni, W.J. (1991), "The use of vertical electrical sounding in mineral exploration", *in* Raines, G.L., R.E. Lisle, R.W. Schafer, and W.H. Wilkinson, eds., Geology and Ore Deposits of the Great Basin, Symposium Proceedings, Geological Society of Nevada, Reno, Nevada, v. 2, p. 1221-1230.

Frischnecht, F.C., and P.V. Raab (1984), "Time-domain electromagnetic soundings at the Nevada Test Site, Nevada", Geophysics, v.49, no. 7, p. 981-992.

Hoover, D.B., W.F. Hanna, L.A. Anderson, V.J. Flanigan, and L.W. Pankratz (1982), "Geophysical studies of the Syncline Ridge area, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-145, 55 p.

Oatfield, W.J., and J.B. Czarnecki (1989), "Hydrogeologic inferences from drillers logs and from gravity and resistivity surveys in the Amargosa Desert, southern Nevada", USGS Open-File Report USGS-OFR-88-234, 29 p.

Roberts, J.J., and W. Lin (1992), "Electrical Resistivity of Topopah Springs Tuff as a function of Water Saturation", Talk presented at 12/92 AGU meeting, San Francisco, CA. LRC: I-331310. Also, I-338266.

Ross, H.P., and J. Lunbeck (1978), "Interpretation of resistivity and induced polarization profiles, Calico Hills and Yucca Mountain areas, Nevada Test Site", University of Utah Research Institute report ESL-UURI-8.

Geophysics - Seismicity/Seismotectonics

Ahmad, M.U., and B. Dressel (1992), "A Hydro-Seismic model of the Yucca Mountain waste repository site", unpublished manuscript, 10 p., submitted and rejected by 1993 HLRWM Conference meeting.

Anderson, J.G., J.N. Brune, D. dePolo, J. Gomberg, S.C. Harmsen, M.K. Savage, A.F. Sheehan, and K.D. Smith (1992), "Preliminary report: the Little Skull Mountain earthquake, June 29, 1992", Univ. Nev.-Reno Seismic Lab preprint, 14 p. LRC: I-334358.

Bell, J. W., A. R. Ramelli, C. M. dePolo, and H. F. Bonham (1989), "Progress Report for the Period 1 July 1988 to 30 September 1989: Task 1 - Quaternary Tectonics", p. 1-1 to 1-38 plus appendices, <u>in</u> Zhang, P. (1989), ed., "Evaluation of the Geologic Relations and Seismotectonic Stability of the Yucca Mountain Area, Nevada Nuclear Waste Site Investigation (NNWSI)", Final Report covering the period 1 July 1988 to 30 September 1989 [dated 30 September 1989], vol. 1 of 2, Center for Neotectonic Studies, Mackay School of Mines, University of Nevada, Reno.

Brune, J. N., W. Nicks, and A. Aburto (1992), "Microearthquakes at Yucca Mountain, Nevada", Bulletin of the Seismological Society of America, vol. 82, no. 1, pp. 164-174.

Carr, W.J., and A.M. Rogers (1982), "Tectonics, seismicity, volcanism, and erosion rates in the southern Great Basin", *in* U.S. Geological Survey research in radioactive waste disposal - Fiscal Year 1979, USGS Circular 847, p. 7-10.

Carr, W.J., A.M. Rogers, and B.M. Crowe (1984), "Nevada Test Site and vicinity: tectonics, seismicity, and volcanism of the southern Great Basin", in U.S. Geological Survey research in radioactive waste disposal - Fiscal Year 1982", U.S. Geological Survey Water-Resources Investigations Report 84-4205, p. 19-28.

Carr, W.J. (1984), "Regional structural setting of Yucca Mountain and late Cenozoic rates of tectonic activity in part of the southwestern Great Basin, Nevada and California", USGS Open-File Report USGS-OFR-84-854, 109 p.

Center for Neotectonic Studies, Mackay School of Mines, University of Nevada - Reno (1988), Evaluation of the geologic relations and seismotectonic stability of the Yucca Mountain area, Nevada Nuclear Waste Site Investigation (NNWSI), Final Report (Preliminary)", July 26, 1988, revised October 1988, two volumes.

Center for Neotectonic Studies, Mackay School of Mines, University of Nevada - Reno (1988), "Evaluation of the geologic relations and seismotectonic stability of the Yucca Mountain area, Nevada Nuclear Waste Site Investigation (NNWSI), Progress Report (Preliminary), 30 September 1990".

Coppersmith, K.J., and R.R. Youngs (1992), "Modeling Fault Rupture Hazard for the Proposed

Repository at Yucca Mountain, Nevada", Proceedings, Third International Conference, High Level Radioactive Waste Management, Las Vegas, NV, April 12-16, 1992, p.1142-1150.

dePolo, Craig M. (1994), The Maximum Background Earthquake for the Basin and Range Province, Western North America", Bulletin of the Seismological Society of America, vol. 84, no. 2, pp. 466-472, April, 1994.

Doser, D.I. (1992), "Historical Earthquakes of the Basin and Range [abs.]", Seismological Research Letters, v. 63, no. 1, p. 38.

Dressel, Brian W. (1992), "A hydro-seismic model of the Yucca Mountain waste repository site", Masters Thesis, Ohio University, March 1992, 111 p. plus 7 Appendices, 45 Figures, 11 Tables, and 2 Map Plates.

Evans, J.R., and M. Smith III (1992), "Teleseismic Tomography of the Yucca Mountain Region: Volcanism and Tectonism", preprint, Proceedings, 1992 International High Level Radioactive Waste Management Conference, April 12-16, 1992, Las Vegas, NV. 15 p. plus figures. LRC: I-322815.

Fernandez, J.A. (1992), "Seismic considerations in sealing a potential high-level radioactive waste repository", ASCE Symposium on Dynamic Analysis and Design Considerations for High-Level Nuclear Waste, August 19-20, 1992, San Francisco, CA; SAND92-1317C. LRC: I-328291.

Gawthrop, W.H., and W.J. Carr (1988), "Location refinement of earthquakes in the southwestern Great Basin, 1931-1974, and seismotectonic characteristics of some of the important events", USGS Open-File Report USGS-OFR-88-560, 64 p. plus plate.

Gibson, J.D., L.E. Shephard, F.A. Kerl, F.H. Swan, and J.R. Wesling (1989), "Synthesis of studies for the potential of fault rupture at the proposed surface facilities, Yucca Mountain, Nevada", CONF-900406, International High-Level Radioactive Waste Conference, Las Vegas, NV, p.109 - 116, SAND89-2099C.

Gibson, J.D. (1992), "Preclosure Seismic Hazards and Their Impacts on Site Suitability of Yucca Mountain, Nevada", Proceedings, Third International Conference, High Level Radioactive Waste Management, Las Vegas, NV, April 12-16, 1992, p.1151-1158. LRC: I-322202.

Gomberg, Joan (1991), "Seismicity and shear strain in the southern Great Basin of Nevada and California", Journal of Geophysical Research, v.96, no. B10, p. 16,383-16,399, Sept. 10, 1991. LRC: I-325542.

Gomberg, J.S. (1991), "Seismicity and detection/location threshold in the southern Great Basin seismic network", Journal of Geophysical Research, vol. 96, no. 16, pp.40-46; LRC: I-325534. JGR-91

Gomberg, J. (1993), "Correction to 'Seismicity and shear strain in the southern Great Basin of

Nevada and California' [abs]", EOS, Trans. Amer. Geophys. Union, Geophysical Abstracts in Press, v.3, issue 2, p.12.

Harmsen, S.C., and A.M. Rogers (1987), "Earthquake location data for the southern Great Basin of Nevada and California: 1984 through 1986", USGS Open-File Report USGS-OFR-87-596, 92 p.

Harmsen, Stephen C. (1990), "Regional-scale velocity anisotropy inferred from Nevada Test Site nuclear test P-arrivals (abstract)", p. 14, in Gomberg, Joan, editor, "U.S. Geological Survey Committee for the Advancement of Science in the Yucca Mountain Project Symposium on "Fractures, Hydrology, and Yucca Mountain": Abstracts and Summary", USGS Open-File Report USGS-OFR-91-125, 39 p.

Harmsen, S.C., and C.G. Bufe (1992), "Seismicity and focal mechanisms for the southern Great Basin of Nevada and California: 1987 through 1989", USGS Open-File Report USGS-OFR-91-572, 208 p. LRC: I-324692.

Harmsen, S.C. (1991), "Seismicity and focal mechanisms for the southern Great Basin of Nevada and California in 1990", USGS Open-File Report USGS-OFR-91-367, 103 p. LRC: I-320918.

Harmsen, S.C. (1992), "Seismicity and focal mechanisms for the southern Great Basin of Nevada and California in 1991", USGS Open-File Report USGS-OFR-92-340, Draft version, 101 p. LRC: I-320088.

Harmsen, Steve (1992), "SGB Seismic Activity for September, 1992", USGS report to UNR, preprint, October 1, 1992, 2 p. plus tables and figures.

Harmsen, S.C. (1992), "Regional-scale velocity anisotropy inferred from Nevada Test Site nuclear test P-arrivals [abs.]", Seismological Research Letters, v. 63, no. 1, p. 39.

Hill, D.P., et al. (1993), "Seismicity Remotely Triggered by the Magnitude 7.3 Landers, California, Earthquake", Science, vol. 260, p. 1617-1623, 11 June 1993. (31 authors)

Jones, C.H. (1992), "Contributions of mantle buoyancy to variations in elevation in and around the Basin and Range inferred from crustal seismic velocity structures [abs.]", Seismological Research Letters, v. 63, no. 1, p. 38.

Kerr, Richard A. (1993), "Landers quake's long reach is shaking up seismologists", Science, vol. 259, 1 January 1993, p.29 (News report).

Kiciman, O.K., and N.A. Abrahamson (1988), "A probabilistic estimation of seismic damage to the waste-handling facilities of a repository located at Yucca Mountain, Nevada", SAND88-7067A, 2 p.

EOS

King, J.L., G.A. Frazier, and T.A. Grant (1989), "Assessment of faulting and seismic hazards at Yucca Mountain", SAIC, June 2, 1989, 25 p.

King, J.L. (1990), "Approach to developing a ground-motion design basis for facilities important to safety at Yucca Mountain", NNA.900308.0284, 14 p.

King, J.L., G.A. Frazier, and T.A. Grant (1988), "Assessment of seismic hazards at Yucca Mountain", SAIC/T&MSS report, 9022700/268-270 (microfilm).

King, K.W. (1982), "A study of surface and subsurface ground motions at Calico Hills, Nevada Test Site", USGS Open-File Report USGS-OFR-82-1044, 19 p.

Lagerbäck, R. (1988), "Postglacial faulting and paleoseismicity in the Landsjärv area, northern Sweden", SKB Technical Report 88-25, October 1988, 37 p.

Ma, C.W., and L.J. Jardine (1988), "Offsite radiation doses resulting from seismic events at the Yucca Mountain Repository", SAND-88-7066A, NN1.880811.0046, 3p.

Martin, R. J. III, R. H. Price, and R. W. Haupt (1993), "The Effect of Frequency on Young's Modulus and Seismic Wave Attenuation", draft SAND Report 92-0847, LRC#: I-349158.

McGuire, R.K. (1992), "Perspectives on Seismic Design Basis Deterministic and Probabilistic Approaches", Proceedings, Third International Conference, High Level Radioactive Waste Management, Las Vegas, NV, April 12-16, 1992, p.1137-1141.

Meremonte, M.E., and A.M. Rogers (1987), "Historical catalog of southern Great Basin earthquakes 1868-1978", USGS Open-File Report USGS-OFR-87-80, 203 p.

Merritt, J.L. (1992), "Seismic Vulnerabilities & Seismic Design Issues: Subsurface Facilities", Viewgraphs presented at NWTRB Panel on Structural Geology & Geoengineering, January 22-23, 1992. LRC: I-323243.

Molnar, P., K. Jacob, and L. R. Sykes (1969), "Microearthquake activity in eastern Nevada and Death Valley California before and after the nuclear explosion Benham", Bulletin of the Seismological Society of America, vol. 59, pp. 2177-2184.

Monfort, M.E., and J.R. Evans (1982), "Three-dimensional modeling of the Nevada Test Site and vicinity from teleseismic P-wave residuals", USGS Open-File Report USGS-OFR-82-409, 66 p.

Monfort, M.E., and J. R. Evans (1982), "Teleseismic studies of the Earth's Crust and Upper Mantle in Southern Nevada [abstract]", EOS, Transactions of the American Geophysical Union, vol. 63, no. 44, p. 1099.

O'Brien, G.M. (1993), "Earthquake-induced Water-Level Fluctuations at Yucca Mountain, Nevada, June, 1992", U.S. Geological Survey Open-File Report USGS-OFR-93-xxxx (1/21/93 version). LRC: I-930159, I-336991.

Patton, H.J., and G. Zandt (1989), "Regional Stress Field Characterization from Seismic Moment Tensors of Earthquakes in Northern California and Nevada", Seismological Research Letters, vol. 60, no. 1, p. 29, Jan.-Mar. 1989. SCP Ref#3019.

Patton, H.J. (1992), "Seismic moment tensors of earthquakes with M<5 and implications for the stress field in the western United States [abs.]", Seismological Research Letters, v. 63, no. 1, p. 38.

Perkins, D.M., P.C. Thenhaus, S.L. Hanson, and S.T. Algermissen (1986), "A reconnaissance assessment of probabilistic earthquake accelerations at the Nevada Test Site", USGS Open-File Report USGS-OFR-87-199, 28 p.

Richardson, A.M., and T.E. Blejwas (1992), "Seismic design of circular-section concrete-lined underground openings - preclosure performance considerations for the Yucca Mountain site", Proceedings, ASCE Symposium on High Level Nuclear Waste Repository Seismic Design, August 19-20, 1992, San Francisco, CA.; SAND 92-0279C; draft copy dated 5/20/92; LRC: I-328064.

Rogers, A.M., and W.H.K. Lee (1976), "Seismic Study of Earthquakes in the Lake Mead, Nevada-Arizona Region", Bulletin of the Seismological Society of America, vol. 66, no. 5, p. 1657-1681, October 1976. SCP Ref#506.

Rogers, A.M., D.M. Perkins, and F.A. McKeown (1976), "A Catalog of Seismicity within 400 km of the Nevada Test Site", USGS Open-File Report USGS-OFR-76-832, 44 p.

Rogers, A.M., D.M. Perkins, and F.A. McKeown (1977), "A preliminary assessment of the seismic hazard of the Nevada Test Site region", Bulletin of the Seismological Society of America, vol. 67, no. 6, p.1587-1606, December 1977. SCP Ref#828 (137?)

Rogers, A.M., S.C. Harmsen, and W.J. Carr (1981), "Southern Great Basin Seismological Data Report for 1980 and Preliminary Data Analysis", USGS Open-File Report USGS-OFR-81-1086, 148 p.

Rogers, A.M., S.C. Harmsen, W.J. Carr, and W.J. Spence (1983), "Southern Great Basin seismological data report for 1981 and preliminary data analysis", USGS Open-File Report USGS-OFR-83-669, 240 p.

Rogers, A.M., S.C. Harmsen, R.B. Herrmann, and M.E. Meremonte (1987), "A study of ground motion attenuation in the southern Great Basin, California-Nevada using several techniques for estimates of Q_s, log A_0, and Coda Q", Journal of Geophysical Research, v. 92, no. 85, p. 3527-3540. SCP Ref#3425.

Rogers, A.M., S.C. Harmsen, and M.E. Meremonte (1987/8), "Evaluation of the seismicity of the southern Great Basin and its relationship to the tectonic framework of the region", USGS Open-File Report USGS-OFR-87-408, 196 p. plus plate.

Rogers, A.M., S.C. Harmsen, E.J. Corbett, K. Priestley, and D. dePolo (1991), "The seismicity of Nevada and some adjacent parts of the Great Basin", in Slemmons, D.B., E.R. Engdahl, M.D. Zoback, and D.D. Blackwell, eds., Neotectonics of North America: Boulder, CO, Geological Society of America, Decade Map Volume 1, p.153-184.

Slemmons, D.B., A.E. Jones, and J.I. Gimlett (1965), "Catalog of Nevada Earthquakes, 1852-1960", Bulletin of the Seismological Society of America, vol. 55, no. 2, p. 537-583, April 1965.

Slemmons, D.B. (1977), "Faults and Earthquake Magnitude", Report 6, State-of-the-Art for Assessing Earthquake Hazards in the United States, Mackay School of Mines, University of Nevada, Reno, NV 89507, Miscellaneous Paper S-73-1, p. 87-99.

Slemmons, D.B. (1982), "Determination of Design Earthquake Magnitudes for Microzonation", Proceedings, 3rd International Earthquake Microzonation Conference, Seattle, WA, June 28 - July 1, 1982, vol. 1, p.119-130. SCP Ref#3925

Slemmons, D.B., and C.M. dePolo (1986), "Evaluation of Active Faulting and Associated Hazards", *in* Active Tectonics, Studies in Geophysics, National Academy Press, p. 45-62. SCP Ref#2388.

Slemmons, D.B. P. Zhang, and F. Mao (1989), "Geometry and Displacement of the Surface Rupture Zone associated with the 1954 Fairview Peak, Nevada, Earthquake [abstract]", Seismological Research Letters, vol. 60, no. 1, p. 29-30, Jan. - Mar. 1989.

Smith, R.B., and M.L. Sbar (1974), "Contemporary tectonics and seismicity of the western United States with emphasis on the Intermountain Seismic Belt", Geological Society of America Bulletin, v. 85, p. 1205-1218, 10 figs., August 1974.

Smith, K.D., A.F. Sheehan, M.K. Savage, D. dePolo, J.N. Brune, and J.G. Anderson (1993), "Aftershocks of the June 29, 1992 M_L5.6 Little Skull Mountain earthquake [abs.]", Proceedings of the April 14-16, 1993, Seismological Society of America meeting in Ixtapa-Zihuatanejo, Mexico, 1p.

Stark, C.L., W.J. Silva, I.G. Wong, and S.M. Jackson (1992), "Assessment of stress drops of normal-faulting earthquakes in the Basin and Range province [abs.]", Seismological Research Letters, v. 63, no. 1, p. 39.

Swan, F.H., J.R. Wesling, and A.P. Thomas (1993), "Paleoseismic investigation of the Paintbrush Canyon Fault in southern Midway Valley, Yucca Mountain, Nevada: Preliminary results [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993. LRC: I-336992.

Tarr, A.C., and A.M. Rogers (1986),"Analysis of earthquake data recorded by digital field seismic systems, Jackass Flats, Nevada", USGS Open-File Report USGS-OFR-86-420, 67 p.

von Seggern, D.H., and M.K. Savage (1993), "Comparison of USGS and UNR Seismic Bulletins for the month of September 1992", Univ. Nevada - Reno Seismological Laboratory, unpublished preliminary draft, dated 3/4/93.

Vortman, Luke J. (1991), "An evaluation of the seismicity of the Nevada Test Site and vicinity", SAND86-7006, December 1991, 231 p.

U.S. Geological Survey (1984), "A summary of geologic studies through January 1, 1983, of a potential high-level radioactive waste repository site at Yucca Mountain, southern Nye County, Nevada", USGS Open-File Report USGS-OFR-84-792, 103 p.

Walter, W.R. (1992), "Source parameters of the June 29, 1992 Little Skull Mountain earthquake from complete regional waveforms at a single station", submitted to Geophysical Research Letters, LLNL UCRL-JC-111604 (Preprint), October 1992, 8 p. plus figures.

Zhang, P., F. Mao, and D.B. Slemmons (1989), "Geometry and Displacement of the Surface Rupture Zone associated with the 1954 Dixie Valley, Nevada, Earthquake [abstract]", Abstracts of the 84th Annual Meeting, Seismological Society of America, *in* Seismological Research Letters, vol. 60, no. 1, p. 30, Jan.-Mar., 1989.

Zhang, P. (1989), ed., "Evaluation of the Geologic Relations and Seismotectonic Stability of the Yucca Mountain Area, Nevada Nuclear Waste Site Investigation (NNWSI)", Final Report covering the period 1 July 1988 to 30 September 1989 [dated 30 September 1989], vol. 1 of 2, Center for Neotectonic Studies, Mackay School of Mines, University of Nevada, Reno.

Zhang, P., M. A. Ellis, D. B. Slemmons, and F. Mao (1989), "Right-lateral Displacements associated with Prehistoric Earthquakes and Holocene Slip Rate along the southern Panamint Valley Fault zone: Implications for southern Basin and Range Tectonics", p.1-29 plus 15 figs., in Zhang, P. (1989), ed., "Evaluation of the Geologic Relations and Seismotectonic Stability of the Yucca Mountain Area, Nevada Nuclear Waste Site Investigation (NNWSI)", Final Report covering the period 1 July 1988 to 30 September 1989 [dated 30 September 1989], vol. 1 of 2, Center for Neotectonic Studies, Mackay School of Mines, University of Nevada, Reno.

Seismicity references yet to be obtained:

Anderson, L.W., and D.R. O'Connell (1993), "Late quaternary faulting and historic seismicity in the western Lake Mead area, Nevada, Arizona, and California [abs.]", , Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Anderson, J.G., J. Louis, Y. Zeng, G. Yu, M. Savage, D. dePolo, and J.N. Brune (1993), "Earthquakes in Nevada triggered by the Landers, California earthquake, June 28, 1992 [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Anderson, J.G., C.M. dePolo, J.W. Bell, and R. Siddharthan (1993), "Peak ground acceleration in Nevada [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Brune, J.N. (1993), "Precariously balanced rocks in Nevada and California: Implications for earthquake hazard in Nevada, particularly at Yucca Mountain [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Carr, W.J., and A.M. Rogers (1982), "Tectonics, seismicity, volcanism, and erosion rates in the southern Great Basin", *in* U.S. Geological Survey Research in Radioactive Waste Disposal - Fiscal Year 1980, USGS Open-File Report USGS-OFR-82-509, p. 11-15.

Carr, W.J., and A.M. Rogers (1983), "Tectonics, seismicity, and volcanism of the southern Great Basin", *in* U.S. Geological Survey research in radioactive waste disposal - Fiscal Year 1981, USGS Water-Resources Investigations Report 83-4105, p. 13-22.

dePolo, C.M., and D.B. Slemmons (1993), "125,000 year vs. 10,000 year (Holocene) classification of "active" faults in the Basin and Range Province [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

dePolo, C. M. (1993), "Analysis of the seismic hazard of faults in Nevada [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Fridrich, C., and D. O'Leary (1993), "Does the Walker Lane extend through the Nevada Test Site region? [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__. 2-3

Harmsen, S.C., and A.M. Rogers (1986), "Inferences about the local stress field from focal mechanisms: Applications to earthquakes in the southern Great Basin of Nevada", Bulletin of the Seismological Society of America, v. 76, no. 6, p. 1560-1572.

Johnson, C.A., and D.D. Tillson (1993), "Seismic design considerations for active faulting at Yucca Mountain", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Kana, D.D., B.W. Vanzant, P.K. Nair, and B.H.G. Brady (1991), "Critical assessment of seismic and geomechanics literature related to a high-level nuclear waste underground repository", NUREG/CR-5440, 172 p., June 1991. Abstract in DOE/YMP Bibliographies, p. 101, #494.

Menges, C.M., G. Vadurro, R. Cress, J. Coe, and F.W. Simonds (1993), "Stratigraphic evidence for multiple small Quaternary displacements on the Bow Ridge Fault at northeast Yucca Mountain, Nevada [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

O'Brien, G.M. (1992), "Earthquake-induced water-level fluctuations at Yucca Mountain, Nevada, April, 1992", U.S. Geological Survey Open-File Report USGS-OFR-92-137. LRC: I-327727.

O'Brien, G.M., and P. Tucci (1993), "Hydrologic responses to earthquakes, June 28-29, 1992 at Yucca Mountain, Nevada", Proceedings, February, 1993 Waste Management Symposium, Tucson, Arizona. LRC: I-336449.

Parsons, T., and G. A. Thompson (1991), "The role of magma overpressure in suppressing earthquakes and topography: worldwide examples", Science, vol. 253, pp. 1399-1402.

Patrick, S.M. (1993), "Earthquakes and Nuclear Waste: A Lesson in Media Relations", SAIC 93-14821, 1993 International High-Level Radioactive Waste Management Conference, Las Vegas, Nevada, April 26-30, 1993. LRC: I-336182.

Savage, M.K., and D. dePolo (1993), "Foreshock probabilities in the western Basin and Range/Eastern California region [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Sheehan, A.F., Y. Zeng, and K.D. Smith (1993), "Waveform analysis of aftershocks of the June 29, 1992 Little Skull Mountain, Nevada, earthquake [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993. LRC: I-338796, 781.

Geophysics - Seismic Reflection

Allmendinger, R.W., T.A. Hauge, E.C. Hauser, C.J. Potter, S.L. Klemperer, K.D. Nelson, P. Kneupfer, and J. Oliver (1987), "Overview of the COCORP 40° N transect, western United States: The fabric of an orogenic belt", Geological Society of America Bulletin, v. 98, p. 308-319. 3

Barbier, M.G. (1983), The Mini-Sosie Method, International Human Resources Development Corp., Boston, Massachusetts, 90 p..

Barry, C.T. (1980), "A study of the vertical vibrator source for seismic profiling in the Yucca Mountain area of the Nevada Test Site", Master of Engineering thesis, ER-2429, Colorado School of Mines, 58 p.

Brocher, T.M., P.E. Hart, and S.F. Carle (1990), "Feasibility Study of the Seismic Reflection Method in Amargosa Desert, Nye County, Nevada", USGS Open-File Report USGS-OFR-89-133, 150 p.

Brocher, Thomas M., and Patrick E. Hart (1991), "Comparison of Vibroseis and Explosive Source Methods for Deep Crustal Seismic Reflection Profiling in the Basin and Range Province", *Jour. Geophys. Res.*, Vol. 96, No. B11, p.18,197 - 18,213, Oct. 10, 1991. 2-3

Brocher, T.M., M.D. Carr, K.F. Fox, Jr., and P.E. Hart (1993), "Seismic reflection profiling across Tertiary extensional structures in the eastern Amargosa Desert, southern Nevada, Basin and Range Province", Geological Society of America Bulletin, v. 105, p. 30-46, 15 figs., 2 tables, January 1993. LRC: I-325263. 2-3

deVoogd, B., L. Serpa, L. Brown, E. Hauser, S. Kaufman, J. Oliver, B.W. Troxel, J. Willemin, and L.A. Wright (1986), "Death Valley bright spot: A midcrustal magma body in the southern Great Basin, California?", Geology, v. 14, p. 64-67, January 1986.

deVoogd, B., L. Serpa, and L. Brown (1988), "Crustal extension and magmatic processes: COCORP profiles from Death Valley and the Rio Grande rift", Geological Society of America Bulletin, v. 100, p. 1550-1567, October 1988.

Grow, J.A., H.R. Blank, Jr., C.J. Potter, and J.J. Miller (1992), "Constraints on extensional fault geometries in eastern Railroad Valley, Nevada, based on seismic reflection and gravity data [abs.]", Proceedings of the Geological Society of America, Rocky Mountain Section, Regional Meeting, May 13-15, 1992. LRC: I-325176. 3

Harding, S.T. (1988), "Preliminary results of high-resolution seismic-reflection surveys conducted across the Beatty and Crater Flat fault scarps, Nevada", *in* Carr, M.D., and J.C. Yount, eds., "Investigations of the geological and geophysical characterization of a potential nuclear waste disposal site at Yucca Mountain, southern Nevada", U.G. Geological Survey Bulletin 1790, p. 121-128. 2

Hoover, D.B., W.F. Hanna, L.A. Anderson, V.J. Flanigan, and L.W. Pankratz (1982), "Geophysical studies of the Syncline Ridge area, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-145, 68 p.

Hunter, W.C., R.W. Spengler, and T.M. Brocher (1992), "Seismic reflection profiling: Essential geophysical data for Yucca Mountain, Nevada", preprint (12/29/92) of talk given at the 1993 International High Level Radioactive Waste Management Conference, April 26-30, 1993. LRC: I-336455.

Klemperer, S.L., T.A. Hauge, E.C. Hauser, J.E. Oliver, and C.J. Potter (1986), "The Moho in the northern Basin and Range Province, Nevada, along the COCORP 40° N seismic reflection transect", Geological Society of America Bulletin, v. 97, p. 603-618.

Knuepfer, P.L.K., P. J. Lemiszki, T. A. Hauge, L. D. Brown, S. Kaufman, and J. E. Oliver (1987), "Crustal structure of the Basin and Range-Sierra Nevada transition from COCORP deep seismic-reflection profiling", Geological Society of America Bulletin, v. 98, p. 488-496.

Majer, E.L., and E. Karageorgi (1994), "Milestone Report for Activity: 8.3.1.4.2.2.5, 3GGF240M, Analysis Paper: Ghost Dance Surface Reflection Profiles", Lawrence Berkeley Laboratory, LRC Number I-351813.

McArthur, R.D., and N.R. Burkhard (1986), "Geological and geophysical investigations of Mid Valley", Lawrence Livermore National Laboratory, UCID-20740, 92 p. plus 1 plate.

McGovern, T.F. (1983), "An evaluation of seismic reflection studies in the Yucca Mountain area, Nevada Test Site", with an introduction by L.W. Pankratz and H.D. Ackermann, USGS Open-File Report USGS-OFR-83-912, 58 p.

Neal, J.T. (1986), "Preliminary Validation of Geology at Site for Repository Surface Facilities, Yucca Mountain, Nevada", SAND85-0815, 28 p. plus appendices.

Serpa, L., B. deVoogd, L. Wright, J. Willemin, J. Oliver, E. Hauser, and B. Troxel (1988), "Structure of the central Death Valley pull-apart basin from COCORP profiles in the southern Great Basin", Geological Society of America Bulletin, v. 100, p. 1437-1450.

Stephenson, W.J., J. Odum, K.M. Shedlock, T.L. Pratt, and R.A. Williams (1992), "Mini-Sosie High-Resolution Seismic Method Aids Hazards Studies", EOS, Trans. Amer. Geophys. Union, November 3, 1992, p.473.

USGS (U.S. Geological Survey) (1988), "Geologic and hydrologic investigations of a potential nuclear waste disposal site at Yucca Mountain, southern Nevada", Carr, M.D., and J.C. Yount, eds., U.S. Geological Survey Bulletin 1790, 152 p., 2 overlays.

Yarnold, J.C. (1992), "Identification of multiple generations of cross-cutting 'domino-style' faults:

insights from seismic modeling [abs.]", EOS, Trans. Amer. Geophys. Union, Geophysical Abstracts in Press, December 1992, p.2.

Young, S.R., A.P. Morris, and G.L. Stirewalt (1992), "Preliminary structural interpretation of reflection seismic line AV-1", Center for Nuclear Waste Regulatory Analyses, San Antonio, TX, CNWRA-92-024, 29 p.

Seismic Reflection references yet to be obtained:

Brocher, T.M., and P.E. Hart (1988), "Direct comparison of dynamite and Vibroseis methods for deep crustal seismic reflection studies in the southwestern Basin and Range, Nevada, USA", (poster/abs.), EOS, Transactions, American Geophysical Union, v. 69, no. 44, p. 1313.

Felch, R.N., J.F. Ferguson, C.L.V. Aiken, and J.S. Oldow (1979), "A three-dimensional gravity analysis of Yucca Flat, Nevada, utilizing borehole data and seismic reflection profiling", EOS, Transactions, American Geophysical Union, vol. 60, no. 46, p. 954. (AGU Fall Meeting, San Francisco, CA, Dec. 3-7, 1979)

Grow, J.A., C.J. Potter, and J.J. Miller (1993), "Seismic constraints on fault angles in Railroad Valley, NV [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.___.

Hasbrouck, W.P. (1987), "Hammer-impact, shear-wave studies", in Danbron, S.H., and S.N. Domenico, eds., Shear Wave Exploration, Geophysical Development Series, v. 2, Society of Exploration Geophysicists, p. 97-121.

Hasbrouck, W.P. (1988), "Five shallow seismic feasibility surveys", Expanded Abstracts, Society of Exploration Geophysicists, 58th Annual International Meeting and Exposition, Oct. 30 - Nov. 3, 1988, p. 286-289.

Hauser, E.C. et al. (1987), "COCORP Arizona Transect: Strong crustal reflections and offset Moho beneath the Transition Zone", Geology, v. 15, p. 1103-1106.

Howard, M.S., and S.H. Danbom (1983), "Random noise example", *in* Bailey, A.W., ed., Seismic Expressions of Structural Styles, v.1, American Association of Petroleum Geologists, Studies in Geology, ser. 15, p. 25.

Hurich, C.A., M.C. Humphreys, A.W. Snoke, R.A. Johnson, D.M. Fountain, and S.B. Smithson (1984), "Crustal reflection profiling in the metamorphic core complex of the Ruby Range, Nevada [abstract]", EOS, Transactions, American Geophysical Union, vol. 65, no. 45, p. 985. (AGU 1984 Fall meeting, San Francisco, CA, Dec. 3-7, 1984)

Jarchow, C.M. (1993), "Seismic evidence for active magmatic underplating beneath the Basin and Range Province, Western United States [abstract]", EOS, Transactions, American Geophysical

Union, vol. __, no. __, p. __. (#7245)

Knuepfer, P.L.K., P.J. Lemiszki, T.A. Hauge, and J.E. Oliver (1985), "Crustal structure of the northern Walker Lane from COCORP reflection profiling and its relation to seismicity [abstract]", EOS, Transactions, American Geophysical Union, vol. 66, no. 46, p. 974. (Cornell Univ.) AGU 1985 Fall Meeting, San Francisco, CA, Dec. 9-13, 1985. 3

Nelson, K.D., T-F Zhu, A. Gibbs, R. Harris, J.E. Oliver, S. Kaufman, L.Brown, and R.A. Schwickert (1986), "COCORP deep seismic reflection profiling in the northern Sierra Nevada, California", Tectonics, vol. 5, no. 2, p. 321-333.

Okaya, D.A. (1984), "Reflection profiling of the lower crust in the Basin and Range: Dixie Valley, Nevada [abstract]", EOS, Transactions, American Geophysical Union, vol. 65, no. 45, p. 985. (AGU 1984 Fall meeting, San Francisco, CA, Dec. 3-7, 1984) 3

Okaya, D.A. (1986), "Seismic profiling of the lower crust: Dixie Valley, Nevada", *in* Barazangi, M., and L.D. Brown, eds., Reflection seismology: the continental crust; Cornell Univ., Institute for the Study of the Continents, Ithaca, NY, Geodynamics series, vol. 14, p. 269-279. (International Symposium on Deep structure of the continental crust; results from reflection seismology, Ithaca, NY, June 26-28, 1984). 3

Potter, C.J., C-S Liu, J. Huang, L. Zheng, T.A. Hauge, E.C. Hauser, R.W. Allmendinger, J.E. Oliver, S. Kaufman, and L.Brown (1987), "Crustal structure of north-central Nevada: results from COCORP deep seismic profiling", Geological Society of America Bulletin, vol. 98, no. 3, p. 330-337.

Valasek, P.A., R.A. Johnson, C.A. Hurich, and S.B. Smithson (1986), "Reflection profiling in the Ruby Mountains, Nevada [abstract]", EOS, Transactions, American Geophysical Union, vol. 67, no. 16, p.313. (Univ. Wyoming - Laramie) AGU 1986 Spring Meeting, Baltimore, MD, May 19-22, 1986.

Wentworth, C.M., M.D. Zoback, A. Griscom, R.C. Jachens, and W.D. Mooney (1987), "A transect across the Mesozoic accretionary margin of Central California", Geophysical Journal of the Royal Astronomical Society, vol. 89, no. 1, p. 105-110. (also, Proceedings, 2nd International Symposium on Deep seismic reflection profiling of the continental lithosphere, Cambridge, July 15-18, 1986).

Geophysics - Seismic Refraction

Ackermann, H.D., W.D. Mooney, D.B. Snyder, and V.D. Sutton (1988), "Preliminary interpretation of seismic-refraction and gravity studies west of Yucca Mountain, Nevada and California", *in* Carr, M.D., and J.C. Yount, eds., "Investigations of the geological and geophysical characterization of a potential nuclear waste disposal site at Yucca Mountain, southern Nevada", USGS Survey Bulletin 1790, p. 23-34.

Anderson, L.A. (1984), "Rock-property measurements on large-volume core samples from Yucca Mountain USW GU-3/G-3 and USW G-4 boreholes, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-84-552, 39 p.

Carroll, R. D., and J. E. Magner (1986), "Postshot seismic investigations in the vicinity of the Midas Myth event, U12t.04 Drift, Nevada Test Site, Nevada", USGS Open-File Report USGS-OFR-86-98, 42 p.

Chuchel, B.A. (1989), "TURBOSEIS - An interactive program for constructing and editing models of seismic refraction traveltime data using a color-graphics terminal", USGS Open-File Report USGS-OFR-89-567A, 82 p.

Davis, R.K., R. A. Hopkins, and W. E. Doll (1992), "Seismic Refraction Survey of the ANS Preferred Site", ORNL/TM-11998, 39 p. plus 7 appendices.

Hoffman, L.R., and W.D. Mooney (1983), "A seismic study of Yucca Mountain and vicinity, southern Nevada: Data report and preliminary results", U.S. Geological Survey Open-File Report USGS-OFR-83-588, 50 p.

Hoover, D.B., W.F. Hanna, L.A. Anderson, V.J. Flanigan, and L.W. Pankratz (1982), "Geophysical studies of the Syncline Ridge area, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-145, 68 p.

King, K.W. (1982), "A study of surface and subsurface ground motions at Calico Hills, Nevada Test Site", USGS Open-File Report USGS-OFR-82-1044, 19 p.

Mooney, W.D., D.B. Snyder, and L.R. Hoffman (1982), "Seismic refraction and gravity modeling of Yucca Mountain, Nevada Test Site [abs.]", EOS, Trans. Amer. Geophys. Union, v. 63, no. 45, p. 1100.

Murphy, J.M. (1989), "USGS FM cassette seismic-refraction recording system", USGS Open-File Report USGS-OFR-88-570, 43 p. plus appendix.

Neal, J.T. (1986), "Preliminary Validation of Geology at Site for Repository Surface Facilities, Yucca Mountain, Nevada", SAND85-0815, 28 p. plus appendices.

Pankratz, L.W. (1982), "Reconnaissance seismic refraction studies at Calico Hills, Wahmonie, and Yucca Mountain, southwest Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-82-478, 25 p.

Ponce, D.A. (1981), "Preliminary gravity investigations of the Wahmonie site, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-522, 64 p.

Scott, J. H. (1977), "SIPT - A Seismic Refraction Inverse Modeling Program for Timeshare Terminal Computer Systems", USGS-OFR-77-365.

Snyder, D.B., and H.W. Oliver (1981), "Preliminary results of gravity investigations of the Calico Hills, Nevada Test Site, Nye County, Nevada", USGS Open-File Report USGS-OFR-81-101, 42 p.

Sutton, V.D. (1984), "Data report for the 1983 seismic-refraction experiment at Yucca Mountain, Beatty and vicinity, southwestern Nevada", USGS Open-File Report USGS-OFR-84-661, 62 p.

Sutton, Vickie D. (1985), "Data report for the 1985 seismic-refraction experiment at Yucca Mountain and vicinity, southwestern Nevada", USGS Open-File Report USGS-OFR-85-591, 96 p. plus plates.

Seismic refraction references yet to be obtained:

Ackermann, H.D., L.W. Pancratz, and D.A. Dansereau (1982), "A comprehensive system for interpreting seismic refraction arrival-time data using interactive computer methods", USGS Open-File Report USGS-OFR-82-1065.

Chang, P.S. (1989), "Seismic-refraction study of crustal structure for southern Great Basin, Nevada [abs.]", EOS, Trans. Amer. Geophys. Union, v. 70, no. 43, p. 1214.

Hamilton, W.B. (1987), "Crustal extension in the Basin and Range Province, southwestern United States", *in* Coward, M.P., J.F. Dewey, and ___, [Geological] Society [of America] Special Publication no. 28, p. 155-176. **NOTE:Get exact ref.!**

Mooney, L.R., and S.G. Schapper (1988), "Report on the status of regional geophysics, NNWSI Program: Seismic refraction profiles", Technical report submitted to USGS/NNWSI management, 27 p., 8 Figures. **NOTE:Get exact ref.!**

Rodriguez, E.A., and J.C. Yount (1988), "Relation between P-wave velocity and stratigraphy of Late Cenozoic deposits in southern Nevada", U.S. Geological Survey Bulletin 1790, p. 139-146.

Scott, R.B., and M. Castellanos (1984), "Stratigraphic and structural relations of volcanic rocks in drillholes USW GU-3 and USW G-3, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-84-491, 121 p., 1 plate.

Snyder, D.B., and W.J. Carr (1984), "Interpretation of gravity data in a complex volcano-tectonic setting, southwestern Nevada", Journal of Geophysical Research, v. 89, no. B12, p. 10,193-10,206. 2-3

Geophysics - Stress Measurements

NA

Bjarnason, B., and A. Torikka (1989), "Field instrumentation for hydrofracturing stress measurements: Documentation of the 1,000 m hydrofracturing unit at Luleå University of Technology", SKB Technical Report 89-17, August 1989, 24 p.

Carr, W.J. (1974), "Summary of Tectonic and Structural Evidence for Stress Orientation at the Nevada Test Site", USGS Open-File Report USGS-OFR-74-176, 53 p., map plates.

Frizzell, Jr., V. A., and M. L. Zoback (1987), "Stress Orientation determined from fault slip data in Hampel Wash area, Nevada, and its relation to contemporary regional stress field", Tectonics, vol. 6, no. 2, p. 89-98, April 1987.

Healy, J.H., S.H. Hickman, M.D. Zoback, and W.L. Ellis (1982), "Deep borehole stress measurements at the Nevada Test Site [abs.]", EOS, Transactions of the American Geophysical Union, v. 63, no. 45, p. 1099-1100.

Healy, J.H., S.H. Hickman, M.D. Zoback, and W.L. Ellis (1984), "Report on televiewer log and stress measurements in core hole USW-G1, Nevada Test Site, December 13-22, 1981", USGS Open-File Report USGS-OFR-84-15, 49 p.

Pahl, A., St. Heusermann, V. Bräuer, and W. Glöggler (1989), "Grimsel Test Site: Rock Stress Investigations", Federal Institute for Geosciences and Natural Resources, Hannover, FRG, NAGRA Technical Report 88-39E, April, 1989, 132 p. plus plates.

Patton, H.J., and G. Zandt (1989), "Regional Stress Field Characterization from Seismic Moment Tensors of Earthquakes in Northern California and Nevada", Seismological Research Letters, vol. 60, no. 1, p. 29, Jan.-Mar. 1989. SCP Ref#3019.

Rogers, A.M., S.C. Harmsen, and M.E. Meremonte (1988), "Evaluation of the seismicity of the southern Great Basin and its relationship to the tectonic framework of the region", USGS Open-File Report USGS-OFR-87-408, 196 p. plus plate.

Stock, J.M., and J.H. Healy (1984), "Magnitudes and orientations of stresses in an extensional regime: Yucca Mountain, Nevada [abs.]", Geological Society of America, Abstracts with Programs, v. 16, no. 6, p. 669.

Stock, J.M., J.H. Healy, and S.H. Hickman (1984), "Report on televiewer log and stress measurements in core hole USW G-2, Nevada Test Site, October- November, 1982", USGS Open-File Report USGS-OFR-84-172, 47 p.

Stock, J.M., J.H. Healy, S.H. Hickman, and M.C. Zoback (1985), "Hydraulic fracturing stress measurements at Yucca Mountain, Nevada, and relationship to the regional stress field", Journal of Geophysical Research, v. 90, no. B10, p. 8691-8706.

Stock, J.M., J.H. Healy, J. Svitek, and L. Mastin (1986), "Report on televiewer log and stress measurements in holes USW G-3 and UE-25p#1, Yucca Mountain, Nye County, Nevada", USGS Open-File Report USGS-OFR-86-369, 91 p.

Stock, J.M., and J.H. Healy (1988), "Stress field at Yucca Mountain, Nevada", in Carr, M.D., and J.C. Yount, eds., Investigations of the geologic and geophysical characterization of a potential nuclear waste disposal site at Yucca Mountain, southern Nevada", U.S. Geological Survey Bulletin 1790, p. 87-94.

Stock, Joann M. (1990), "Stress Field at Yucca Mountain and in Surrounding Regions (abstract)", in Gomberg, Joan, editor, "U.S. Geological Survey Cormmittee for the Advancement of Science in the Yucca Mountain Project Symposium on "Fractures, Hydrology, and Yucca Mountain": Abstracts and Summary", USGS Open-File Report USGS-OFR-91-125, 39 p., p.20.

Swolfs, H.S., and W.Z. Savage (1985), "Topography, stresses, and stability at Yucca Mountain, Nevada", *in* Ashworth, Eileen, ed., "Research and Engineering applications in rock masses: Proceedings of the Twenty-Sixth U.S. Symposium on Rock Mechanics,South Dakota School of Mines & Technology, Rapid City, SD, 26-28 June, 1985, p. 1121-1129. SCP Ref#414.

Swolfs, H. S., and W. Z. Savage (1986), "Topographic modification of in situ stress in extensional and compressional tectonic environments", Proceedings of the International Symposium on Rock Stress and Rock Stress Measurements, Stockholm, Sweden, 1-3 September, 1986, p. 89-98.

Swolfs, H.S., W.Z. Savage, and W.L. Ellis (1988), "An evaluation of the topographic modification of stresses at Yucca Mountain, Nevada", *in* Carr, M.D., and J.C. Yount, eds., Investigations of the geological and geophysical characterization of a potential nuclear waste disposal site at Yucca Mountain, southern Nevada", U.S. Geological Survey Bulletin 1790, p. 95-102.

U.S. Geological Survey (1984), "A summary of geologic studies through January 1, 1983, of a potential high-level radioactive waste repository site at Yucca Mountain, southern Nye County, Nevada", USGS Open-File Report USGS-OFR-84-792, 103 p.

Zoback, M. D., and D. D. Pollard (1978), "Hydraulic Fracture Propagation and the Interpretation of Pressure-Time Records for In-Situ Stress Determinations", Preprint - Proceedings, 19th U.S. Symposium on Rock Mechanics, May 1 - 3, 1978, Stateline, NV, p. 14-22. Published by University of Nevada - Reno Extended Programs and Continuing Education.

Zoback, M.L., and M.D. Zoback (1980), "Faulting Patterns in North-Central Nevada and Strength of the Crust", Journal of Geophysical Research, vol. 85, no. B1, p. 275-284, January 10, 1980.

Zoback, M.L., and M. Zoback (1980), "State of stress in the conterminous United States", Journal of Geophysical Research, v. 85, no. B11, p.6113-6156.

N/A

Zoback, M.L., R.E. Anderson, and G.A. Thompson (1981), "Cainozoic evolution of the state of stress and style of tectonism of the Basin and Range Province of the western United States", Philosophical Transactions of the Royal Society of London, Vol. A300, p. 407-434. SCP Ref#1805.

Zoback, M.D., D. Moos, and R.N. Anderson (1982), "Determination of the Horizontal Principle Stresses from Wellbore Breakouts", EOS, Transactions of the American Geophysical Union, vol. 63, no. 45, November 9, 1982. SCP Ref#608.

Zoback, M. D., D. Moos, and L. Mastin (1985), "Well Bore Breakouts and in Situ Stress", Journal of Geophysical Research, vol. 90, no. B7, p. 5523-5530, June 10, 1985.

Stress references yet to be obtained:

Fox, K.F., Jr., and M.D. Carr (1989), "Neotectonics and volcanism at Yucca Mountain and vicinity, Nevada", Radioactive Waste Management and the Nuclear Fuel Cycle, v. 13, p. 37-50.

Harmsen, S.C., and A.M. Rogers (1986), "Inferences about the local stress field from focal mechanisms: Applications to earthquakes in the southern Great Basin of Nevada", Bulletin of the Seismological Society of America, v. 76, no. 6, p. 1560-1572.

Healy, J., J. Stock, J. Svitek, and S. Hickman (1983), "Hydrofrac stress measurements on Yucca Mountain, Nevada", EOS, Transactions, American Geophysical Union, vol. 64, no. 18, p. 320.

Jones, C.H., and S.G. Wesnousky (1993), "Implications regarding the temporal and spatial variation of stress in the southwestern Basin and Range from observations of slip deformation [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Scott, R.B., and G.S. Hofland (1987), "Fault-slip paleostress analysis of Yucca Mountain, SW Nevada [abs.]", EOS, Transactions of the American Geophysical Union, v. 67, no. 44, p. 1461.

Stock, J., J. Healy, and J. Svitek (1983), "The orientation of the current stress field on Yucca Mountain, Nevada, as determined from televiewer logs", EOS, Transactions, American Geophysical Union, vol. 64, no. 18, p. 319. (USGS)

Zoback, M.L. (1989), "State of stress and modern deformation of the northern Basin and Range Province", Journal of Geophysical Research, v. 94, no. B6, p. 7105-7128.

Zoback, M.L., and O. Bellier (1993), "Recent changes in stress regime in the Walker Lane zone [abs.]", Proceedings, Joint Meeting of the Cordilleran and Rocky Mountain Sections, Geological Society of America, Reno, NV, May 19-21, 1993, p.__.

Geophysics - Vertical Seismic Profiling and Crosshole Seismic Imaging

Balch, A.H., H. Chang, G. Hofland, K. Ranzinger, and W. A. Schneider, Jr. (1992), "Seismic cross-borehole imaging of the near surface using tomography and prestack migration in elastic physical models", Proceedings, 60th Annual International Meeting of the Society of Exploration Geophysicists, San Francisco, CA, Sept. 23-27, 1990, vol. 1, p. 133-136; OSTI, UC-814; LRC: I-332623.

Cosma, C., P. Heikkinen, and S. Pekonen (1991), "Improvement of High Resolution Borehole Seismics: Part I - Development of Processing Methods for VSP Surveys; Part II - Piezoelectric Signal Transmitter for Seismic Measurements", Technical Report 91-13, STRIPA Project, SKB, Stockholm, Sweden, May 1991, 86 p. plus 12 p. Appendix.

Cunningham, D.A. (1988), "Computer and physical VSP modeling of Yucca Mountain, Nevada", Master of Science Thesis #T-3637, Colorado School of Mines, Golden, Colorado.

Daley, T. M., and E. L. Majer (1994), "Interim Report for Activity: 8.3.1.4.2.2.5 3GGF142M Analysis Paper: Data Reduction NRG-6/WT-2 VSP", Lawrence Berkeley Laboratory, LRC Accession Number I-351813, Jan. 4, 1994.

DiSiena, J.P. and S.E. Gaiser (1983), "Three-Component Vertical Seismic Profiles: An Application of Gal'perin's Polarization - Position Correlation Technique", 53rd Annual SEG Extended Abstracts, Los Angeles.

Gal'perin (1984), "The polarization method of seismic exploration", Boston, D. Reidel Publishing Co., esp. Ch. 5, "Polarization Position Correlation (PPC) of seismic waves", pp. 158-202 (Translation from the Russian, Nedro Moscow), 268 p.

Gal'perin, Y. I., Y. D. Mirzoyan, and V. Y. Oyfa (1980), "Results of using the polarization method of vertical seismic profiling (PM VSP) in the territory of the Krasnodar Region", Express Informatzia, Ministry of Geology, Moscow, no. 16, p. 27-39.

Hardage, R. A. (1985), Vertical Seismic Profiling, Part A: Principles, London/Amsterdam, Geophysical Press, 509 p. (esp. p. 463-467).

Jaramillo, H.H., A.H. Balch, C. Erdemir (1993), "Multi-mode reverse time VSP migration over complex structures at Yucca Mountain, Nye County, Nevada", draft abstract, to be presented at the 1993 Society of Exploration Geophysicists meeting, September 26-30, 1993, Washington, D.C. LRC: I-340774.

Majer, E.L., J.E. Peterson, L.R. Myer, T.M. Daley, K. Karasaki, and T.V. McEvilly (1990), "Seismic Imaging for Fracture Characterization and Structural Definition [abs.]", in Gomberg, Joan, editor, "U.S. Geological Survey Committee for the Advancement of Science in the Yucca Mountain Project Symposium on "Fractures, Hydrology, and Yucca Mountain: Abstracts and

Summary", USGS Open-File Report USGS-OFR-91-125, 39 p., p. 13.

Majer, E., L. Myer, J. Peterson, and J.M. Lee (1992), "High Resolution Seismic Imaging for Characterizing Fractures in Potential Sites for Nuclear Waste Repositories", Proceedings, Third International Conference, High Level Radioactive Waste Management, Las Vegas, NV, April 12-16, 1992, p. 1111-1121. LRC: I-920056.

Majer, E.J., J.E. Peterson, T.V. McEvilly, and M.A. Tura (199_), "The application of vertical seismic profiling and cross-hole tomographic imaging for fracture characterization at Yucca Mountain", CONF900406, p. 897 - 907.

Vertical Seismic Profiling/Crosshole Seismic references yet to be obtained:

Balch and Lee (1984), "Vertical Seismic Profiling technique, applications and case histories", Boston, IHRDC Press, 488 p. (esp. p. 114-115, 118-119, 124-127).

Beydoun, W. (1984), "Seismic tool-formation coupling in boreholes" *in* Vertical Seismic Profiling, edited by M. Nafi Toksoz and R. Stewart, Geophysical Press, London/Amsterdam.

Cosma, C. (1985), "Detection of fractured zones by crosshole seismics", Proceedings, Symposium on in situ experiments in granite associated with the disposal of radioactive waste, Stockholm, June 4-6, 1985, p. 160-171.

Lee, J.M., T.M. Daley, and E.L. Majer (199_), "Nine-Component VSP Data from Yucca Valley, Nevada [abs.]", LRC: I-319886.

Levine, E.N., Z.A. Cybriwsky, and M.N. Toksoz (1984), "Detection of permeable rock fractures and estimation of hydraulic conductivity and yield by 3-D vertical seismic profiling", in Nielson, D.M., and M. Curl, eds., Surface and borehole geophysical methods in ground water investigations, National Water Well Association, Worthington, OH, p. 853-876.

Pihl, J., M. Gustavsson, S. Ivansson, and P. Moren (1985), "Tomographic analysis of crosshole seismic measurements", Proceedings, Symposium on in situ experiments in granite associated with the disposal of radioactive waste, Stockholm, June 4-6, 1985, p. 146-159.

JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 92, NO. B8, PAGES 7843–7853, JULY 10, 1987

Evaluation of Alterant Geophysical Tomography in Welded Tuff

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Electromagnetic measurements have been performed at 300 MHz to evaluate the applicability of alterant geophysical tomography to delineate in situ flow paths in a welded tuff rock mass. The evaluation has involved a field experiment, which was supplemented by a test bed experiment and a computer simulation study. The field measurements were made before, during, and after a water-based dye tracer flowed through the rock mass. Alterant geophysical tomographs are compared with independent evidence: maps of fractures intersected by the measurement boreholes and dyed rock samples. Anomalies present in the tomograph match fractures mapped with a borescope. The locations of tracer-stained fractures coincide with the locations of most image anomalies. The core data show that some of the image anomalies represent flow through single fractures. Other geophysical anomalies required further evaluation because they existed where tracer-stained fractures were not observed. The field images were also evaluated using evidence from a computer simulation study and from a test bed experiment where the technique was evaluated under controlled conditions. The results from these supplementary tests suggest that the field test image anomalies without corresponding dyed fractures are unlikely to be artifacts and thus probably represent flow paths of the tracer through the rock.

- not Yucca Mtn!

1. INTRODUCTION

The Nevada Nuclear Waste Storage Investigations (NNWSI) Project is studying the suitability of the tuffaceous rocks at Yucca Mountain, Nevada Test Site, for the construction of a high-level nuclear waste repository. Lawrence Livermore National Laboratory (LLNL), Livermore, California, has been given the task of designing and predicting the performance of waste packages for the NNWSI Project.

The properties of the geologic environment around a waste package must be well characterized so that performance can be reliably predicted. Many factors controlling the properties of the geologic barrier are strongly interrrelated. For example, groundwater flow trough fractures and/or pores will impact the chemical and physical properties of the geologic barrier and, hence, its performance. Fractures may be the predominant flow paths and are the focus of this experimental program.

Various in situ tests will be conducted within the Topopah Springs member of the Paintbrush Tuff at Yucca Mountain to investigate its behavior in the vicinity of simulated waste packages. The planned tests will simulate the repository environment by emplacement of heaters within the rock mass. Rock behavior will be monitored during the heating and cooling phases and with water percolating through the rock mass. A key objective of this work is to study the hydrologic behavior of the rock under a thermal load. A water injection system will be used in some of the tests to vary the natural moisture conditions. Depending on how the water is added, water injection could simulate the percolation caused by a wet climatic period [*Yow*, 1985].

The hydrologic environment expected to develop around a heater is shown schematically in Figure 1. The heater will dehydrate the partially saturated rock near the emplacement borehole. The water vapor formed will travel through the matrix until it intersects a fracture and then moves along the fracture. Laboratory work performed by *Daily et al.* [this issue] suggests tha this dehydration mechanism is valid. The water vapor will condense where the temperatures are sufficiently cool. Part of this water may move into the matrix due to capillary tension while the remainder may flow along the fracture. When the heated and dehydrated region is allowed to cool, it is expected to slowly resaturate.

The interaction of the groundwater with the thermally simulated waste package and rock will be studied with various measurement techniques. This report discusses the preliminary results of an experiment in which one of the candidate measurement techniques, alterant geophysical tomography [*Ramirez and Lytle*, 1986], was used to detect in situ fracture flow. This technique involves the use of a water tracer to alter the electromagnetic properties of flow paths in a rock mass; the locations where the changes occur are reconstructed with a tomography inversion technique.

The objective of the experiments described in this paper was to evaluate the capacity of alterant geophysical tomography to delineate fracture flow paths in partially saturated welded tuff. Of particular importance was to evaluate whether the method could distinguish between water within a fracture and the much larger volume of water trapped in the surrounding welded tuff. Future work will evaluate the method's effectiveness in resolving the remaining components of the hydrologic environment shown in Figure 1.

Previous work under different geologic conditions has suggested that geophysical tomography can delineate in situ fracture flow and map rock mass porosity. At a fractured granite site near Oracle, Arizona, fully saturated fractures could be indentified in tomographs and their locations correlated with fracture location along the borehole as inferred from well log data [*Ramirez et al.*, 1982]. These same tomographic data were used in conjunction with laboratory data which related rock water content to the electromagnetic parameters measured in the tomograph to generate a two-dimensional map of water content and, therefore, total porosity of the rock mass [*Daily and Ramirez*, 1984].

These same techniques can be used to study the hydrologic characteristics of densely welded tuff. However, differences in the geologic setting and experimental constraints between the granite and tuff sites are substantial, so that another objective

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