

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

U.S. DEPARTMENT OF ENERGY

(License Application for Geologic Repository
at Yucca Mountain)

Docket No. 63-001-HLW

ASLBP No. 09-892-HLW-CAB-04

October 12, 2009

**JOINT TIMBISHA SHOSHONE TRIBAL GROUP'S IDENTIFICATION OF PARTY
WITNESSES SUBJECT TO PHASE I DISCOVERY**

Pursuant to the Construction Authorization Board's ("CAB04") September 30, 2009, Case Management Order # 2 (the "Order"), the Joint Timbisha Shoshone Tribal Group (the "JTS") hereby submits its list of Party Witnesses it intends to rely on for testimony in support or defense of each contention subject to Phase I discovery in this proceeding. Consistent with the Order, every 60 days the JTS will update its list of Party Witnesses, or certify that no additional Party Witnesses have been identified and, no later than 120 days before the close of Phase I discovery, a final updated list of Party Witnesses.

As described below and in the attached appendix, the JTS is furnishing for each of its Party Witnesses identified here the following information pertaining to each: (1) name, affiliation, curriculum vitae, general statement of the subject matter(s) that will be addressed, and a listing of the specific contention(s) that will be addressed; (2) all relevant publications authored by the Party Witness within the previous ten years; and (3) all cases in which the witness has provided testimony at trial or by deposition in the previous four years.

JTS PARTY WITNESSES

A. MARTIN DAVID MIFFLIN, PH.D.

1. Martin David Mifflin
President and Senior Hydrogeologist, Mifflin & Associates, Inc.
8210 Hurtado Rd.
Las Vegas, NV 89124

- A true and correct copy of Dr. Mifflin's curriculum vitae is attached hereto as Exhibit Mifflin A.
- JTS presently intends Dr. Mifflin to testify on the general subject matter of errors and omissions in the Department of Energy's representation of several matters including the repository's thermal effects, infiltration estimates and data, and the range of likely future climates.
- The specific contentions on which JTS intends to elicit Dr. Mifflin's testimony include
 JTS-NEPA-003
 JTS-NEPA-005
 JTS-NEPA-008

2. A true and correct copy of Dr. Mifflin's publications within the previous ten years is included in his curriculum vitae, which is attached as Exhibit A.

3. Dr. Mifflin has not provided testimony at trial or deposition within the previous four years.

B. CADY JOHNSON, PH.D.

1. Cady Johnson
Principal, GeoLogic VR, LLC

and

Associate Hydrogeologist, Mifflin & Associates, Inc.
2113 W. Rose Garden Lane
Phoenix, AZ 85027

- A true and correct copy of Dr. Johnson's curriculum vitae is attached hereto as Exhibit B.

- JTS presently intends Dr. Johnson to testify on the general subject matter of errors and omissions in the Department of Energy's representation of several matters including the repository's thermal effects, infiltration estimates and data, and the effects of likely future climates on radiologic population doses.
- The specific contentions on which JTS intends to elicit Dr. Johnson's testimony include
 - JTS-NEPA-003
 - JTS-NEPA-005
 - JTS-NEPA-008

2. A true and correct copy of Dr. Johnson's publications within the previous ten years is included in his curriculum vitae, which is attached as Exhibit B.

3. Dr. Johnson has not provided testimony at trial or deposition within the previous four years.

Respectfully submitted,

(signed electronically)

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RESUMÉ
MARTIN DAVID MIFFLIN
Revised 10/07

PERSONAL:

Date of Birth: 29 March 1937
Place of Birth: Olympia, Washington
Citizenship: United States of America
Marital Status: Widowed 1971, 4 children
Health: Excellent
Languages: English, working knowledge of Spanish

EDUCATION:

Ph.D., 1968, University of Nevada, in Hydrogeology
M.Sc., 1963, Montana State University, in Applied Science
B.Sc., 1960, University of Washington, in Geology
Washington State University, Eastern Washington

PROFESSIONAL EXPERIENCE:

7/86-present President and Senior Hydrogeologist of Mifflin and Associates, Inc., (MAI) a consulting firm which conducts hydrogeologic and geologic investigations. Contracts have included technical support for oversight of DOE proposed Yucca Mountain High-Level Nuclear Waste Repository for the following clients: State of Nevada (1986-1997), Nye county (1992-1994), and Inyo County (1993-1994). MAI provided ground-water monitoring and data analyses to Nevada Power Company (1987-1997) and conducts local and international ground-water development and management studies: Moapa Band of Paiutes (1998-present) Calpine Company (1999-2003), Chemical Lime (1998); Nevada Cogeneration Associates, 1989-1992; Las Vegas Paiute Tribe, 1992; United Nations—Paraguay, 1989-1991; and Kenya Wildlife Service, 1991. Specialized in providing technical support teams composed of experts, laboratories, and drilling contactors for hydrogeological and geological problems.

3/79-7/86 Research Professor, Water Resources Center, Desert Research Institute, University of Nevada System. Research in ground-water problems in arid zone hydrology. Specific areas of activity: carbonate rock hydrogeology, ground-water exploration and development, exploratory drilling techniques, vadose zone moisture conditions, and recharge in arid terrain. During this period of time, major ground-water exploration and development programs were established for the State of Nevada (Jean Prison water supply, Valley of Fire State Park), the United States Air Force (Tonopah Test Range, Tolicha Peak), and Nevada Power Company (Meadow Valley Wash Well Field development, monitoring, and

modeling; carbonate-rock ground-water exploration program near Moapa). Program Director of the Yucca Mountain Candidate High-Level Nuclear Waste Repository oversight technical support program for the State of Nevada (1983-1986). Helped the Nuclear Project Office, State of Nevada, design its technical oversight program (1982-1983).

- 3/78-3/79 Senior Hydrogeologist, and Resident Administrator UNDP, Chile. Leave of absence from Desert Research Institute for service in Region 4, Chile UNDP project. Water resource assessment project in semi-arid region of Chile, chief resident administrative responsibility for the UNDP project.
- 7/75-3/78 Associate Director and Research Professor (September 1977 to March 1978, Research Professor), Water Resources Center, Desert Research Institute, Las Vegas, Nevada. Acting as researcher and head administrator in the Water Resources Center of the Desert Research Institute in the Las Vegas branch office. General responsibilities included research funding, direction, and execution of programs of the Water Resource Center in Southern Nevada. Areas of research interest during this period included land subsidence caused by fluid withdrawals and associated earth fissures and faults in Las Vegas Valley and Mexico, deep carbonate-rock aquifers in Nevada as a potential water-supply alternative for Eastern and Southern Nevada, and waste-water treatment by natural marsh systems in Las Vegas Valley. Expert testimony on the Cross Florida Barge Canal ground-water hydrology was given to the State of Florida Bureau of Planning and Florida Cabinet in July 1976, as well as serving on the board of review for the Water Element of the State Plan of Florida from 1976 to 1977. Periodic Consulting in 1975, 1976 and 1977 for the Comision del Plan Nacional Hidraulico in the area of ground-water policy and executed programs of resource evaluation and advanced training of personnel.
- 9/73-7/75 Leave of absence from the University of Florida in order to accept an 18-month position as World Bank Resident Consultor to the Plan Nacional Hidraulico (PNH), a newly-created planning organization within the Mexican government. Also concurrently held PNH position of Jefe de Aguas Subterraneas (chief in charge of ground-water planning and associated investigations within PNH). Responsibilities involved training and development of professional staff, development of procedures and policy, and direction of ground-water studies designed for both short and long term planning of ground-water exploitations and management. PNH was a joint effort by the United Nations Development Program (UNDP) and the Mexican Government. The UNDP effort was executed by the World Bank (International Bank for Reconstructions and Development), which provided five internationally selected resident consultors expert in

various disciplines in water resource planning and development to work with Mexican counterparts. The experimental program was judged successful by the UNDP, World Bank, and the Mexican Government. Mexico formalized the organization into the continuing national planning agency for water resource development in Mexico (Comision del Plan Nacional Hidraulico, ASRH).

9/69-7/75 Associate Professor of Geology, University of Florida. Teaching responsibilities in the following courses: Physical Geology, Introductory Geosciences, Geomorphology, Structural Geology, Ground-Water Geology, and Hydrogeology. Research was local problems of ground-water pollution and continued field work (summers of 1970 and 1972) on isostatic rebound in the Lahontan Basin of the Great Basin. Member of the UF Graduate Faculty and served on graduate committees (M.S. and Ph.D.) for Geology, Environmental Engineering, Coastal Engineering, and Civil Engineering graduate students. Considerable involvement in ground-water pollution aspects of the Cross Florida Barge Canal (controversy), with testimony given to Florida Legislative committees, the State of Florida Cabinet, and the U.S. Presidential Council on Environmental Quality. The Corp of Engineer project was terminated by U.S. Presidential Executive Order in 1970 due to Floridian Aquifer pollution hazard largely based on my testimony and analyses of fundamental design problems. Principal expert witness in hydrological groundwater issues for EDF and U.S. Department of Justice in court proceedings (U.S. Government vs. Florida Canal Authority) August, 1973.

7/63-9/69 Research Associate, Desert Research Institute and Nevada Center for Water Resources Research. Activities primarily research in ground water and hydrogeology. Principal Investigator or co-investigator in research dealing with the following: hydrologic safety, AEC underground nuclear detonation; investigation of land subsidence in Las Vegas Valley and the development of the theory of mechanics; investigation of the hydrogeology of Las Vegas Valley for feasibility of artificial recharge; delineation of ground-water flow systems using studies of fluid potential, water chemistry, isotopes, and other methods; paleohydrologic investigations in Nevada (surface water and ground water); stratigraphic studies of alluvial basins; documentation of mudlump formation and hydrologic relationships causing formation, and developing a theory for mechanics of formation; investigations of carbonate-terrain hydrology in Nevada using tritium and hydrogeochemical techniques; exploration and development of ground water in a number of arid areas for federal, state, and private agencies; investigation of techniques for delineation of ground-water flow systems. Other activities included guest and substitute lecturing in ground water, hydrogeology, and physical geology, and

direction of graduate student research in the Great Basin on hydrologic problems. Nevada State Legislative Committee testimony that began a process which resulted in a new Dept. of Interior diversion policy in the early 1970's. The new policy for TCID Newlands Project Truckee River diversion basically doubled Truckee River flows to Pyramid Lake.

- 9/62-6/63 Graduate Research Assistant, Montana State University. The Montana State University experience consisted of half-time teaching of geology laboratories and two winters of snow avalanche research.
- 5/62-9-62 Geologist. GS-7, U.S. Geological Survey. Field geologic mapping in the Lemhi Range, Idaho, and Beaverhead Range, Montana.
- 9/60-6/62 Graduate Teaching Assistant, Montana State University. Half time geology laboratory instructor.
- 3/59-8-59 Apprentice Geologist, Pan American Petroleum Corporation. Field reconnaissance mapping in Western Alaska.

PROFESSIONAL HONORS AND OTHER PROFESSIONAL ACTIVITIES

Recipient, with co-authors, of the Geological Society of America *Kirk Boyen Award*, 2007 for published paper of distinction advancing the Science of Quaternary Geology.

Committee Member, National Academy of Science, Committee of Review Specific Scientific and Technical Safety Issues Related to the Ward Valley, California, Low-Level Radioactive Waste Site, 1994-1995.

Editorial Board, Groundwater Journal, 1992-1995.

Geological society of American Meinzer Award Committee, term 1989-1992.

Co-Chairman of Hydrogeology Session, FOCUS 89, September 1989, Las Vegas Nevada.

Co-Leader (with Jay Quade) Geological Society of America Field Trip, Paleohydrology and Hydrogeology of the Carbonate Rock Province of the Great Basin (East-Central to Southern Nevada) Oct 28, 1988 –Oct 30, 1988

DRASTIC Advisory Board Member, National Water Well Association, 1986-1987.

Invited Speaker, International Workshop of Regional Aquifers, Sponsored by the Institute of Geophysics, UNAM, Mexico City, February 1985, "Hydrogeology of Regional Systems in the Great Basin".

Co-Leader, Field Trip, White River hydrological (Karst) system, Southeast Nevada, 6th conference on Karst Hydrogeology and Speleology (Friends of the Karst), September 1979.

Moderator, Water Supply Planning Session, AWRA Conference "Water Resource Management in a Changing Society", September 1979, Las Vegas, Nevada.

Geological Society of America Meinzer Award Committee, term 1977-1980.

Elected to Desert Research Institute Faculty Senate, 1975-1978.

Moderator, Special Session on Ground-Water Quality, Las Vegas Valley, NWWA Technical Meeting, Las Vegas, 1976.

Selected as Resident International Consultant in the field of ground water to the Mexican Government by the World Bank and UNDP, 1973-1975.

Trustee: Florida Defenders of the Environment (1970-1977); FDE Scientific Committee Co-Chairman (1971-1974).

Appointed Chairman, Environment Impact Committee, City of Gainesville-Alachua County Joint Committee (January 1973, Resigned August 1973).

Elected Foundation Advisory Member, Environmental Information Center, Florida Conservation Foundation, Inc. 1972.

Elected Member UF Presidential Faculty Concerns Committee, 1971.

Designated Program Moderator (1970 National Geological Society of America Evening discussion of Hydrology Section).

Granted first sabbatical leave offered to Desert Research Institute Faculty, 1969.

Elected to Desert Research Institute Faculty Organization, 1968-1969.

Program Chairman, Sigma XI Luncheon Lecture Series at University of Nevada, 1965-1966.

Co-Author of scientific paper nominated for the Geological Society of America Meinzer Award, 1965.

NSF Basin and Range Field Conference Co-Leader, 1965.

INQUA Great Basin Field Conference Co-Leader, 1965.

Sigma XI, nominated at Montana State University for M.S. thesis.

CONSULTING EXPERIENCE

Consultant to Penner Propiedades, Design and Plan of a proposed regional water supply (well field and pipeline) for the Central Chaco Communities, Paraguayan Chaco, South America, 2006-2007

Consultant to the World Bank/Kenya Wildlife Service, Amboseli National Park Excess Water Assessment, Kenya. 1991.

Consultant to United Nations, DTCD, Senior Project Consultant, ground-water development in the Chaco Region of Paraguay, 1989-1991.

Consultant to United Nations, DTCD, for the UN representation of a tripartite (UN, World Bank, and Food and Agricultural Organization) project review in the Sudan, November-December 1988.

Consultant to the U.S. Nuclear Regulatory Commission on Yucca Mountain, Nevada, 1982-1984.

Consultant to the Government of Ecuador, ground-water development for irrigation, Rio Guayas Basin, 1982-1983.

Consultant to USAID, University of Wisconsin, Government of Tunisia, on design and feasibility of potable water development for dispersed populations in Central Tunisia, February-March, 1980.

Consultant in the organization of, and participant in, "Seminar on Development and Rational Management of Groundwater of the Yucatan Peninsula" sponsored by the Banco de Mexico, S.A., December 3-7 1979, Merida, Yucatan, Mexico.

Consultant to Mexico, reviewer of all ground-water studies by CPNH, 1973-1077, Comision del Plan Nacional Hidraulico, ASRH, July 1977.

State of Florida, Division of State Planning, Water Element of State Comprehensive Plan, Panel of Experts, review of water element, 1977

State of Florida, Division of Planning, testimony to the Florida Cabinet on hydrologic impacts of Cross Florida Barge Canal, June 1976.

Ground-water consultant to Arthur D. Little, Inc. on bi-national water resource development project for Colombia and Venezuela, 1976.

Consultant to Mexico, organization of PHN-sponsored symposium, entitled "La Sobreexplotación de Agua Subterránea en Algunas Partes del Mundo", Mexico City, December 1975.

Nevada and California (1969-1973): Runoff/erosion studies with respect to timbering activities in the Sierra Nevada (1972, major lumber company).

Florida (1969-1973): lake dewatering hydrogeological studies for Lake Apopka (1970) Citrus Growers. Numerous hydrogeological studies for land developers as senior hydrologic consultant for the firms Eco Impact, Inc. and Environmental Science Engineering, Inc. (1972-1973). Solid waste disposal and site suitability of Alachua County (1972); three landfill sites located, evaluated, and subsequently adopted by the County. Offshore Nuclear Power Plant site evaluation---aspects of tectonic history and seismic hazards (major engineering firm, 1973).

Nevada and California (1963-1969): Ground-water exploration and water supply development in arid terrain for the U.S. Fish and Wildlife Service, Nevada State parks, and several development and mining firms. Ground-water supply and contamination studies, U.S. Gypsum.

PUBLICATIONS, REPORTS, AND PRESENTATIONS

Johnson, C. and Mifflin, M.D. 2006, The Order 1169 Pumping Experiment., Hypothesis Tests and Noise Reduction Implications for Results, Mifflin and Association Inc. submitted to the Moapa Band of Paiutes, June 2006, 11p.

Johnson, C. and Mifflin, M. D. 2006, The AEM and Regional Carbonate Aquifer Modeling, Ground Water, Vol 44, No. 1, pp 24-34.

Johnson, C., and Mifflin, M.D. 2003, *Evidence for a sub-regional hydraulic barrier in Southeastern Nevada*, Geological Society of America 115th Annual Meeting, Seattle, WA, Program and Abstracts.

Reheis, Marith; Sarna Wojoicki, A.M.; Reynolds, R.L.; Repenning, C.A.; and Mifflin, M.D. 2002, Pliocene to middle Pliocene lakes in the western Great Basin-Ages and connections, in Hershler, R., Carrey, D. and Madsen, D. (Eds.) Great Basin Aquifer

Systems History: Smithsonian contributions to Earth Sciences, #33, Washington D.C. Smithsonian Institution Press, p 53—108.

Johnson, C., Mifflin, M.D., and Haitjema, H., 2001, Hydrogeologic and Groundwater Modeling Analyses for the Moapa Paiute Energy Center, Mifflin and Associates, Inc, Feb, 2001, Moapa Paiute Draft Environmental Impact Statement, Appendix D., 78 p, Appendices..

Morrison, R.B., and Mifflin, M.D., 2000, Lake Tecopa and its environs: 2.5 million years of exposed history relevant to climate, groundwater, and erosion issues at the proposed nuclear-waste repository at Yucca Mountain, Nevada, *in* Lageson, D.R. Peters, S.G., and Lehren, M.M. *eds*, Great Basin and Sierra Nevada: Geological society of America Field Guide 2, p. 355-382.

Mifflin, M.D. 1998, Observations on the Origin of Las Vegas Valley Compaction Scarps, Proceedings of a conference on Seismic Hazards in the Las Vegas Region, UNLV, Nov 14th and 15th, 1996 Nevada Bureau of Mines and Geology. Open File Report 98-6, pp.44-69.

Mifflin, M.D., and Tyler, S. 1997, Protocol for resampling the Proposed Ward Valley low-level radioactive waste repository: submitted to U.S. Secretary of Interior, 45p.

Mifflin, M.D. 1995, Summary for Ground-Water Development Impacts in the Upper Muddy River, Nevada, (paper) presented at the Nevada State Engineer's Hearing on Applications 55450 and 58269, January 24-26, 1995, Las Vegas, Nevada 18 p. plus appendix.

Mifflin, M.D. and Adente, O. A., 1995, 1994 Hydrologic Impacts from Ground-Water Withdrawals in the Upper Muddy River Valley, Nevada, prepared for Nevada Power Company, 53p. plus appendices.

Mifflin, M. D., 1995, Minority Report on Questions #1 and #7, submitted to the U.S. Secretary of Interior, Natural Academy of Science, Committee to Review Specific Scientific and Technical Safety Issues Related to the Ward Valley, California Low Level Radioactive Waste site, 15 p.

Adenle, O.A., and Mifflin, M.D., 1995, Ground-Water exploration at the Harry Allen Station: Exploratory Borehole (HAE-1), Las Vegas, Nevada 9 p. plus appendix.

Mifflin, M.D. and Adenle, O.A., 1995, Impacts of Urbanization on Ground Water in the Las Vegas Valley, National Ground Water Association 9th Outdoor Action Conference and Exposition, May 1, 1995, Field Trip Guide, 6p plus Appendix.

Quade, J., Mifflin, M.D., Pratt, W.L., McCoy, W., and Burckle, L., 1995 Fossil Spring Deposits in the Southern Great Basin and Their Implications for Changes in Water-Table Levels near Yucca Mountain, Nevada, during Quaternary Time, GSA Bulletin, vol. 107, no. 2, p. 213-230.

Mifflin, M.D. and Adenle, O.A., 1994, 1993 Hydrologic Impacts from Ground-Water Withdrawals in the Upper Muddy River Valley, Nevada, Mifflin and Associates, Inc. Prepared for Nevada Power Company, Las Vegas, Nevada, 151 p.

Mifflin, M.D., Mifflin and Associates, Inc. (representing the State of Nevada and Nye County, Nevada), 1993 presentation to the National Academy of Sciences/National Research Council Committee on Technical Bases for Yucca Mountain Standards, *State of Knowledge Regarding Performance Assessment for an Undisturbed Repository*, Meeting 16 December 1993, Washington, D.C. 19 pp.

Mifflin, M.D. 1993, *Determining Infiltration from Precipitation for Characterization of Yucca Mountain During Climate Change*, Prepared by Request for the Nuclear Waste Technical Review Board (office of the President of the United States) Meeting, Reno, Nevada, April 1993.

Mifflin, M.D., Mifflin and Associates, Inc (Representing the State of Nevada and Nye County, Nevada), 1993, *Fracture and Matrix Flow in the Vadose Zone at Yucca Mountain*, presented to the Nuclear Regulatory Commission Advisory Committee on

Nuclear Waste, Working Group Meeting, 14 December 1993, Las Vegas, Nevada viewgraphs, 15 pp.

Bell, J.W., Price, J.G., and Mifflin, M.D., 1992, Subsidence-Induced Fissuring Along Pre-Existing Faults in Las Vegas Valley, Proceedings, 35th Annual Meeting of the Association of Engineering Geologists, Los Angeles, CA pp 66-75

Mifflin, M.D., 1992, *Climate Change Issue at the Yucca Mountain Proposed High-Level Nuclear Waste Repository*, prepared by request for the Advisory Committee on Nuclear Waste, Nuclear Regulatory Commission, November 1992, Bethesda, Maryland.

Mifflin, M.D., Kao, S., and Keith, J., 1992, *Economics of the Las Vegas Valley Water District Ground-Water Applications*, talk presented to the Nevada Water Conference, 11 February 1992, Reno, Nevada, program with abstract, 14 pp.

Adenle, O.A., and Mifflin, M.D., 1992 Inventory of Earth Fissures and Associated Damage at Windsor Park, Prepared for the City of North Las Vegas, Nevada, Windsor Park Revitalization Project, 32 p.

Mifflin, M.D., 1992, The Arrow Canyon Range Cell, Carbonate Aquifer and Upper Muddy River Valley Ground-Water Monitoring: A summary of Local and Regional Evidence and Interpretations, Mifflin and Associates, Inc., Prepared at the Request of Nevada Power Company, 14 p. plus maps.

Mifflin, M.D., 1992, Evaluation of the Availability of Ground Water on the Las Vegas Paiute Tribal Lands, Mifflin and Associates, Inc., Prepared at the Request of the Las Vegas Paiute Tribe, 21 p. plus Appendices.

Mifflin, M.D., Adenle, O.A., 1992, Ground-Water Availability for future Power Generation, Southern Nevada, Phase 1, Mifflin and Associates, Inc. Prepared at the Request of Nevada Power Company, 11p. plus Appendices.

Mifflin, M.D., Adenle, O.A., and Stringer, C.F., 1992, Construction of Water Supply Well, EBA-1, Prepared for Georgia Pacific Corporation, 11p. plus Appendices.

Mifflin, M.D., Adenle, O.A., and Stringer, C.F., 1992, 1991 Hydrologic Impacts from Ground-Water Withdrawals in the Upper Muddy River Valley, Nevada, Prepared for Nevada Power Company, 179 p.

Mifflin, M.D., Bentley, C.B., and Stringer, C.F., 1992, Construction and Testing of Water-Supply Well EBM-4, Black Mountain Cogeneration Project, Clark County, Nevada, Mifflin International, Inc., Prepared for Black Mountain Cogeneration Associates #2, Las Vegas, Nevada, and Nevada Cogeneration Associates, Salt Lake City, Utah, 20 p. plus Appendices.

Mifflin, M.D. and Stringer, C.F., 1992, Construction and Testing of Water-Supply Well EGV-3, Garnet Valley Cogeneration Project, Mifflin International, Inc, Prepared for Texaco Black Mountain, Inc., Las Vegas, Nevada, and Nevada Cogeneration Associates, Salt lake City, Utah, 19 p. plus Appendices.

Mifflin, M.D. and Stringer, C.F., 1991 Construction of Exploration Borehole EBM-3, Black Mountain Cogeneration Project, Clark County, Nevada, Mifflin International, Inc., Prepared for Nevada Cogeneration Associates #2, Las Vegas, Nevada, and Nevada Cogeneration Associates, Salt lake City, Utah, 10 p. plus appendices.

Mifflin, M.D. 1991 Final Report and Recommendations for Department de Agua del Chaco, Ministeria de Defense, Paraguay/UNDP/DTCD.

Mifflin, M.D., 1991, Review and Recommendations on the Water Problems of the Amboseli National Park, Kenya, submitted to the Kenya Wildlife Service/World Bank.

Mifflin, M.D., Adenle, O.A., and Johnson, R.J., 1991, Effects of 1989 and 1990 Groundwater Withdrawals on Muddy River Flows, Upper Muddy River Valley, Nevada,

Prepared for Nevada Power Company, 149 p.

Mifflin, M.D., Adenle O.A., and Johnson, R.J., 1991, Earth Fissures in Las Vegas Valley, 1990 Inventory, prepared for the Nevada Bureau of Mines and Geology, 42 p.

Mifflin, M.D., Adenle, O.A., and Johnson, R.J., 1990, Ground-Water Exploration summary EBP-2, Exploratory Borehole/Test Well, Pabco Site Water Supply Development, prepared for Bonneville Nevada, 136 p.

Johnson, R.J., Mifflin, M.D., and Adenle, O.A., 1990, Groundwater Exploration Summary EBP-1 Exploratory Borehole, Gypsum Wash, Nevada, prepared for Bonneville Nevada.

Johnson, R.J., and Mifflin, M.D., 1990, Hydrogeology of the Alluvial Aquifer, Upper Muddy River Valley, Nevada, prepared for Nevada Power Company, Las Vegas, Nevada.

Mifflin, M.D., 1990, *Effects of Past Climates on Regional Hydrology*: Briefing to National Academy of Science Panel on Coupled Hydrologic/Tectonic/Hydrothermal systems of Yucca Mountain, 30, May, 1990.

Elzeftawy, A., and Mifflin, M.D., 1989, *Unsaturated Zone Hydrologic Principles Applied to Yucca Mountain and Beatty Sites*, FOCUS'89 (Joint Geological Society of America and American Nuclear Society Meeting), Las Vegas, Nevada.

Mifflin, M.D., 1989, *Climate Change Concerns of Proposed Nuclear Waste Repository at Yucca Mountain, Nevada*, talk presented to the Technical Review Board (Office of the President of the United States), 28 June, 1989, Las Vegas, Nevada.

Mifflin, M.D. 1989, *Vadose Zone Concerns of the Proposed Nuclear Waste Repository at Yucca Mountain, Nevada*, talk presented to the Technical Advisory Board of the U.S. Nuclear Regulatory Commission, 8 March 1989, Washington, D.C.

Mifflin, M.D., 1989, Earth Fissures in Las Vegas Valley, in Geotechnical Investigations of Windsor Park, North Las Vegas, Nevada, prepared for Western Technologies, Inc.

Mifflin, M.D., Adenle, O.A., Johnson, R.J., and Felix, R., 1989, Design, Construction, and Development of EH-7 Production Well, Tonopah Test Range, prepared for Homes & Narver, Inc. 98 p.

Johnson, R.J., and Mifflin, M.D., 1989, Geology of Trench 1 and Trench 2, Jones and Loan Mountain Road, Las Vegas, Nevada, prepared for Dunmore Homes, San Diego, California, 8 p.

Johnson, R.J., Mifflin, M.D., and Adenle, O.A., (Mifflin and Associates, Inc.) 1989, Hydrogeologic Study of the Black Mountain Area: Death Valley Monument, California 101 p.

Mifflin, M.D., Johnson, C., and Johnson, R.J., 1989, Hydrogeologic Assessment, Upper Muddy River Valley, Nevada, 49 p.

Mifflin, M.D., and Quade, J., 1988, Hydrogeology and Paleohydrology of the Carbonate Rock Province of the Great Basin, *in* Holder, G.D. (ed), Geological Society of America Field trip Guidebook, 1988 Geological Society of America Centennial Annual Meeting, p. 305-335.

Mifflin, M.D., 1988, Region 5, Great Basin, *in* Back, W., Rosenshein, J.S. and Seaber, P.R. (Eds.), Hydrogeology, Geological Society of America, p.69-78, Plate.

Mifflin, M.D., and Quade, J., 1987, *Estimating Climate Change from Hydrologic Response*, Water Forum '86, ASCE Proceedings, August 4-6, 1986, Long Beach, California.

Mifflin, M.D., Johnson, C.L., and Johnson, R.J., Summary of Ground Water Exploration in Lanfair Valley, California, through 7 March 1987, for Viceroy Mining Corporation, 10 p.

Mifflin, M.D., and Johnson, R.J., 1987, Hydrology of the Eldorado Valley, Nevada, in Environmental Assessment of Eldorado Valley as a Hazardous Waste Transfer Facility, prepared for Western Technologies, Inc., 8 p.

Mifflin, M.D., Johnson, C.L., and Johnson, R.J., 1987, Appendices A&B, Location Map1, Well and Spring Inventory, Upper Muddy River Valley, Nevada, 349 p.

Mifflin, M. D., et al, (Mifflin and Associates, Inc), 1987, Technical Review Comments on the Environmental Assessment, Yucca Mountain Site, Nevada Research and Development Area, Nevada, (May 1986, Volumes I, II, II (DOE/RW-0073), July, 187 p.

Mifflin, M.D., and Morgenstein, M.E., Eds., 1985, Technical Review Comments on the Draft Environmental Assessment, Yucca Mountain Site, Nevada Research and Development Area, Nevada, Water Resources Center, Desert Research Institute, March 1985, 169 p.

Mifflin, M.D., and Zimmerman, D.E., May 1984, Ground-Water Availability in the Lower Meadow Valley Wash Near Glendale, Nevada, Water Resources Center, Desert Research Institute, 1984, 52 p.

Glancy, P.A., Jacobsen, R.L., and Mifflin, M.D., 1984, The Hydrogeology of the Carson and Truckee River Basins, Nevada *in* Lintz, J. (ED.), Western Geological Excursions, 1984 Annual Meeting, Geological society of America, vol. 3, p. 52-146

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Mifflin, M.D., Elzeftawy, A., Wheatcraft, S.W., and Hess, J.W., 1982, Henderson, Nevada, Rapid Infiltration Basin Siting and Monitoring Study, Water Resources Center, Desert Research Institute, Project Report, 100 p.

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STUDIES DIRECTED AND/OR CO-AUTHORED IN MEXICO (as Jefe de Aguas Subterranas, PNH). Published in Spanish by Plan Nacional Hidraulico, Secretary of Water Resources, Mexico:

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GeoLogic VR, LLC, Principal, 2003-present
Wave Uranium Holding, President/CEO, 2007-2009
Petroleum Helicopters, Inc., Pilot, 1998-2003
Papillon Grand Canyon Helicopters, Pilot, 1997
Woodward-Clyde Federal Services, Senior Project Hydrogeologist, 1991-1997
Helicopter Services of Nevada, Pilot/Mechanic, 1990-1991
Mifflin & Associates, Inc., Associate/Hydrogeologist, 1986-1989
Desert Research Institute, Assistant Research Professor, 1985-1986
Coffey & Partners Pty. Ltd., Senior Hydrogeologist/Geochemist, 1984
Intera Environmental Consultants, Staff Consultant, 1983
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REPRESENTATIVE EXPERIENCE

Dr. Johnson has over 25 years of full-time professional experience as a hydrogeologist, 10 of which were conducted in parallel with flight operations as a commercial helicopter pilot.

Dr. Johnson maintains an active consulting practice as Principal of GeoLogic VR, LLC, an Arizona company, and serves as President and Chief Executive Officer of Wave Uranium Holding, a Nevada corporation.

He was employed until August of 2003 as an emergency medical services (EMS) pilot with AirEvac Services (a subsidiary of Petroleum Helicopters, Inc.) in Phoenix. He relocated temporarily to Antarctica to fly for the National Science Foundation in 2001, after 2 ½ years of offshore operations in the Gulf of Mexico.

Dr. Johnson served for over five years as Senior Project Hydrogeologist in the Yucca Mountain Site Characterization group of Woodward-Clyde Federal Services in Las Vegas. In this position he was responsible for integration of field activities from numerous technical disciplines, including development of staff positions on fluid-flow modeling and issue resolution strategies. The Site Characterization Program is a ten year effort to assess the suitability of Yucca Mountain, Nevada, as the host environment for a high-level radioactive waste repository.

Previously, Dr. Johnson worked as a consultant to the Nevada Nuclear Waste Project Office while employed with Mifflin & Associates, Inc., a private consultancy, and with the Desert Research Institute (University of Nevada System). Additional duties at these positions included water quality and water resource evaluations for utility companies and the mining industry, and occasional graduate-level teaching assignments.

He was employed as Senior Hydrogeologist/Geochemist with Coffey & Partners Pty. Ltd. in Sydney, Australia, and contributed to a variety of mine dewatering, environmental, and corrosion-related evaluations. As a Staff Consultant with Intera Environmental Consultants in Houston, he contributed to performance assessment modeling of regional ground-water flow at candidate salt-repository sites in Texas and Louisiana, and to evaluations of the validity of ion-activity approximations at high ionic strengths.

At Bendix Field Engineering Corp., he contributed to three (3) quadrangle evaluations for the National Uranium Resource Evaluation (NURE) Program, and was Principal Investigator on the Las Vegas NTMS Quadrangle Evaluation. He designed the ground-water monitoring network for the Monticello Facility under the Uranium Mill Tailings Remedial Action (UMTRA) Program, and conducted interference tests and modeling analyses using production wells to evaluate aquifer parameters.

Dr. Johnson is an experienced professional pilot, rotary-wing flight instructor, and a licensed airframe and powerplant mechanic. As a Certified Infrared Thermographer, he has used modeling analyses to develop a thermal-barometric time constant for barometric pumping in the vadose zone near Yucca Mountain. The properties under study will govern the modes of heat and moisture redistribution in the partially-saturated rock above a nuclear waste repository.

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**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

U.S. DEPARTMENT OF ENERGY

(License Application for Geologic Repository
at Yucca Mountain)

Docket No. 63-001-HLW

ASLBP No. 09-892-HLW-CAB04

October 12, 2009

CERTIFICATE OF SERVICE

I hereby certify that copies of the *Joint Timbisha Shoshone Tribal Group's Identification of Party Witnesses Subject to Phase I Discovery* in the above-captioned proceeding have been served on the following persons this 12th day of October 2009, by Electronic Information Exchange.

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