

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD**

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In the Matter of:

U.S. DEPARTMENT OF ENERGY

(LICENSE APPLICATION FOR GEOLOGIC
REPOSITORY AT YUCCA MOUNTAIN)

October 9, 2009

Docket No. 63-001

**NOTICE OF WHITE PINE COUNTY'S
PARTY WITNESSES**

Pursuant to CAB Case Management Order #2 of September 30, 2009, White Pine County herein provides its list of witnesses whom the County may call at a hearing to provide testimony in support or defense of certain contentions subject to Phase I discovery. Accordingly, White Pine County may call the following party witnesses in any hearing of the above-entitled matter:

A. Dr. Dennis Geist can be contacted at: University of Idaho, Moscow, Idaho 83844-3022.

Dr. Dennis Geist will be testifying as an expert for White Pine County and is affiliated with University of Idaho and White Pine County, Intervenor.

Dr. Dennis Geist will testify regarding the following contentions:

WHI-NEPA-1; WHI-NEPA-2;

WHI-NEPA-3; WHI-NEPA-4

Dr. Geist will testify to the effects of a volcanic eruption at the Yucca Mountain High Level Waste Repository on White Pine County, Nevada and related downwind areas. His testimony will relate to tephra deposition, Volcanic Gas distribution in downwind areas and the resulting concentration of tephra through natural processes due to the

geographic features of the county. Dr. Geist will testify to geologic features, meteorological data and their relation to ash and volcanic gas concentration and reworking in the general environment. Dr. Geist will address the failure of the SAR and EIS to discuss the foregoing matters in relation to White Pine and other counties downwind from Yucca Mountain and in the general environment.

Dr. Dennis Geist has not testified at trial or by deposition during the last four years.

Dr. Geist has authored the following publications:

Referred Publications:

Kurz, MD, Curtice, J, Fornari, D, Geist, D, and Moreira, M, Primitive neon from the center of the Galapagos hotspot, *Earth and Planetary Science Letters*, in press, 2009.

Geist, D. and Harpp, K, Galapagos Islands, *Geology, Encyclopedia of Islands*, Gillespie and Clague, eds. University of California Press, 367-372, 2009.

Herbert, S, Gibson, S, Norman, D, Geist, D, Estes, G, Grant, T, and Miles, A, Into the field again: Re-examining Charles Darwin's 1835 geological work on Isla Santiago (James Island) in the Galapagos Archipelago, *Earth Sciences History* 28, 1-31, 2009.

Garcia, MO, Ito, G, Weis, D, Geist, D, et al., Widespread secondary volcanism near northern Hawaiian Islands, *Eos* 89, 542-543, 2008.

Vigouroux, N., Williams-Jones, G., Chadwick, W., Geist, D., Ruiz, A., and Johnson, D., 4D gravity changes associated with the 2005 eruption of Sierra Negra volcano, Galápagos, *Geophysics* 73, 29-35, 2008.

Geist, D., Dieffenbach, B., Fornari, D, Kurz, M, Harpp, K., and Blusztajn, J., Construction of the Galapagos platform by large submarine volcanic terraces, *Geochemistry Geophysics Geosystems*, 9, doi:10.1029/2007GC001795, 2008.

Geist, D, Harpp, K, Naumann, T, Poland, M, Chadwick, W, Hall, M, and Rader, E, The 2005 eruption of Sierra Negra volcano, Galápagos, *Bulletin of Volcanology*, 70, 655-673, 2008.

Mayhew, L., Geist, D., Childers, and Pierson, J., Microbial community comparisons as a function of the physical and geochemical

conditions of the Galapagos Island fumaroles, *Geomicrobiology Journal*, 24, 615-625, 2007.

A.E. Saal, M.D. Kurz, S.R. Hart, J.S. Bluszt, J. Blichert-Toft, Y. Liang and D.J. Geist, 2007, The role of lithospheric gabbros on the composition of Galapagos lavas, *Earth and Planetary Science Letters* v. 257, 391-406.

Lyons, J, Geist, D, Harpp, K, Diefenbach, B, Olin, P, and Vervoort, J, Crustal growth by magmatic overplating in the Galápagos, *Geology* v. 35, 511-514, 2007.

Geist, D, Fornari, D, Kurz, M, Harpp, K, Soule, SA, Perfit, M, and Koleszar, A, Submarine Fernandina: A magmatic plumbing system at the leading edge of the Galapagos Hotspot *Geochemistry Geophysics Geosystems*, v. 7, DOI 10.1029/2006GC001290, 2006.

Chadwick, WW, Geist, D., Jonsson, S, Poland, M, Johnson, D and Meertens, C, Volcano bursting at the seams: Inflation, faulting, and eruption at Sierra Negra volcano, Galapagos, *Geology* 34, 1025-1028, 2006.

Geist, D., Chadwick, WW, and Johnson, D, Results from new GPS And Gravity Monitoring Networks at Fernandina and Sierra Negra Volcanoes, Galápagos, 2000-2002, *Journal of Volcanology and Geothermal Research* 150, 79-97, 2006.

Geist, D., Naumann, TR, Standish, JJ, Kurz, MD, White, WM, and Fornari, D, Wolf Volcano, Galapagos Archipelago: Melting and magmatic evolution at the margins of a mantle plume. *Journal of Petrology* 46, 2197-2224, 2005.

Harpp, KS, Koleszar, A.M., and Geist, D.J. Volcanoes in the classroom: A simulation of an eruption column, *Journal of Geoscience Education* 53, 173-175, 2005.

Teasdale. R, Geist, D, Kurz, M, and Harpp, K, 1998 Eruption at Volcán Cerro Azul, Galápagos Islands: I. Syn-Eruptive Petrogenesis. *Bulletin of Volcanology* 67, 170-185, 2005.

Beheregaray, L, Ciofi, C, Geist, D, Gibbs, J, Caccone, A, Powell, J, Genes record a prehistoric volcano eruption in the Galápagos, *Science* 302, 75, 2003.

Harpp, K.S., Fornari, D.J., Geist, D.J., and Kurz, M.D., 2003, Genovesa Submarine Ridge: A Manifestation of Plume-Ridge Interaction in the Northern Galápagos Islands, *Geochemistry Geophysics Geosystems*, 4, 8511, doi: 10.1029/2003GC000531.

Harpp, K.S. and Geist, D, The Wolf-Darwin Lineament and Plume-Ridge Interaction in the Northern Galapagos, *Geochemistry Geophysics Geosystems*, V. 3, No. 11, 8504, doi: 10.1029/2002GC000370, 2002.

Geist, D, White, WM, Albarede, F, Harpp, KS, Blichert-Toft, J, Reynolds, R, and Kurz, M, Volcanic Evolution in the Galápagos: the

Dissected Shield of Volcan Ecuador, *Geochemistry Geophysics Geosystems* 3, (10), 10611,1029/2002GC000355, 2002.

Naumann, TR, Geist, D, and Kurz, MD, Petrology and geochemistry of Volcan Cerro Azul: petrologic diversity among the western Galapagos volcanoes, *Journal of Petrology*, 43: 859-883, 2002.

Geist, D, Teasdale, R, Sims, E, and Hughes, S, Subsurface volcanology at TAN and controls on groundwater flow, *GSA Special Paper 353*, 45-59, 2002.

Geist, D, Sims, E, and Hughes, S, Open-system evolution of a single cycle of Snake River Plain magmatism, *GSA Special Paper 353*, 193-204, 2002.

Hughes, SS, McCurry, M, and Geist, DJ, Geochemical correlations and implications for the magmatic evolution of basalt flow groups at the Idaho National Engineering and Environmental Laboratory. *GSA Special Paper 353*, 151-173, 2002.

Geist, D and Garcia, MO, The role of science and independent research during volcanic eruptions, *Bulletin of Volcanology* 62, 59-61, 2000.

Naumann, T and Geist, D, Physical volcanology and structural development of Cerro Azul volcano, Isabela island, Galapagos: Implications for the development of Galapagos-type shield volcanoes, *Bulletin of Volcanology* 61, 497-514, 2000.

Geist, D and Ellisor, R, *Volcanoes*, McGraw-Hill 2001 Yearbook of Science and Technology, 414-416, 2000.

Kurz, MD and Geist, D, Dynamics and evolution of the Galapagos hotspot from helium isotope geochemistry. *Geochimica Cosmochimica Acta* 63, 4139-4156, 1999.

Geist, D, White, W, Naumann, T, and Reynolds, R, Illegitimate magmas from the Galápagos archipelago: Insights into mantle mixing and magma transport, *Geology* 27, 1103-1106, 1999.

Naumann, T and Geist, D, Generation of alkali-olivine basalts by fractionation of tholeiitic magma, *Geology* 27, 423-426, 1999.

Barragan, R, Geist, D, Hall, ML, Larson, PB, and Kurz, M, Subduction controls on the compositions of lavas from the Ecuadorian Andes, *Earth and Planetary Science Letters* 154, 153-166, 1998.

Geist, D, Naumann, T, and Larson, PB, Evolution of Galapagos magmas: mantle and crustal level fractionation without assimilation, *Journal of Petrology* 39, 953-971, 1998.

Harpp, K and Geist, D, Galapagos Plumology, *Noticias de Galapagos* 59, 23-28, 1998.

Richter, K, Chesley, JT, Geist, D, and Ruiz, J, Behavior of Re during magma fractionation: an example from Volcan Alcedo, Galapagos, *Journal of Petrology* 39, 785-795, 1998.

Standish, J, Geist, D, Harpp, K, and Kurz, M, The emergence of a Galapagos shield volcano: Roca Redonda, *Contributions to Mineralogy and Petrology* 133, 136-148, 1998.

Hughes, SS, Casper, JL, and Geist, DJ, Potential influence of volcanic constructs on hydrogeology beneath Test Area North, Idaho National Engineering and Environmental Laboratory, Idaho. *Proc. 32nd Symp. Engin. Geol. and Geotech. Engin.*, 23-36, 1997.

Geist, D, On the emergence and submergence of the Galapagos Islands, *Noticias de Galapagos*, 56, 5-8, 1996.

Geist, D, Howard, KA, and Larson, PB, The generation of oceanic rhyolites by crystal fractionation: The basalt-rhyolite association at Volcan Alcedo, Galápagos Archipelago, *Journal of Petrology*, 36, 965-982, 1995.

Larson, P and Geist, D, On the origin of low 18O magmas: evidence from the Casto Pluton, Idaho, *Geology* 23, 909-912, 1995.

Reynolds, R, Geist, D, and Kurz, M, Physical volcanology and structural development of Sierra Negra volcano, Galápagos Archipelago, *Geological Society of America Bulletin* 107, 1398-1410, 1995.

Reynolds, R and Geist, D, Petrology of basalts from Sierra Negra volcano, Galápagos Archipelago, *Journal of Geophysical Research* 100, 24,537-24,553, 1995.

Geist, D and White, CM, Assimilation and fractionation in adjacent parts of the same magma chamber: the Vandfaldsdalen Macrodiike, East Greenland, *Contributions to Mineralogy and Petrology* 116, 92-107, 1994.

Geist, D, Howard, KA, Jellinek, AM, and Rayder, S, The volcanic history of Volcan Alcedo, Galápagos Archipelago: A case study of rhyolitic oceanic volcanism, *Bulletin of Volcanology* 86, 243-260, 1994.

Geist, D and Richards, M, The origin of the Columbia Plateau and Snake River Plain: Deflection of the Yellowstone Plume, *Geology* 21, 789-792, 1993.

Geist, D, An appraisal of melting processes and the Galápagos hotspot: major and trace element evidence, *Journal of Volcanology and Geothermal Research* 52, 65-82, 1992.

Bow, CS and Geist, D, Geology and petrology of Floreana Island, Galápagos Archipelago, *Journal of Volcanology and Geothermal Research* 52, 83-105, 1992.

Geist, DJ, Hyperphase: Computer-aided instruction for the interpretation of igneous phase diagrams, *Journal of Geological Education* 40, 125-129, 1992.

Geist, DJ, Volcanoes, in *Encyclopedia of Earth System Science*, Nierenberg, ed., Academic Press (San Diego), 427-438, 1991.

Kolker, A, Frost, CD, Hanson, G, and Geist, DJ, Neodymium, strontium, and lead isotopes in the Maloin Ranch Pluton, Wyoming:

implications for the origin of evolved rocks at anorthosite margins, *Geochimica et Cosmochimica Acta* 55, 2285-2297, 1991.

Geist, DJ, Frost, CD, and Kolker, A, Sr and Nd isotopic constraints on the origin of the Laramie Anorthosite Complex, Wyoming, *American Mineralogist* 75, 13-20, 1990.

Geist, DJ, Frost, CD, Kolker, A, and Frost, BR, A geochemical study of magmatism across a major terrane boundary: Sr and Nd isotopes in Proterozoic granitoids of the Southern Laramie Range, Wyoming, *Journal of Geology* 97, 331-342, 1989.

White, CM, Geist, DJ, Frost, CD, and Verwoerd, WJ, Petrology of the Vandfaldsdalen Macrodiike, Skaergaard Region, East Greenland, *Journal of Petrology* 30, 271-298, 1989.

Geist, DJ, Myers, JD, and Frost, CD, Megacryst-bulk rock isotopic disequilibrium as an indicator of contamination processes: The Edgecumbe Volcanic Field, SE Alaska, *Contributions to Mineralogy and Petrology* 99, 105-112, 1988.

Geist, DJ, White, WM, and McBirney, AR, Plume-asthenosphere mixing beneath the Galápagos Archipelago, *Nature* 333, 657-660, 1988.

Geist, DJ, McBirney, AR, and Duncan, RA, Geology and petrogenesis of lavas from San Cristobal Island, Galápagos Archipelago, *Geological Society of America Bulletin* 97, 555-566, 1986.

Geist, DJ, McBirney, AR, and Duncan, RA, Geology of Santa Fe Island: the oldest Galápagos volcano, *Journal of Volcanology and Geothermal Research* 26, 203-212, 1985.

McBirney, AR, Cullen, AB, Geist, DJ, Vicenzi, EP, Hall, ML, Estrella, M, and Duncan, RA, The Galápagos volcano Alcedo: a unique oceanic caldera, *Journal of Volcanology and Geothermal Research* 26, 1985.

Non Referred Publications:

John W. Shervais, Michael J. Branney, Dennis J. Geist, Barry B. Hanan, Scott Hughes, Alexander A. Prokopenko, and Douglas F. Williams, HOTSPOT: The Snake River Scientific Drilling Project Tracking the Yellowstone Hotspot Through Space and Time, *Scientific Drilling* v. 3, 56-57, 2006.

Dennis Geist, Karen Harpp, and Robert Reynolds, A field trip guide to the geology of the Galapagos Islands, *Cities on Volcanoes* 4, Quito, Ecuador, 37 pp., 2006.

Geist, D, Bohrson, W, and Harpp, K, Evolution of ocean island volcanoes, *GSA Today* 8 (December), 18-21, 1998.

Geist, D, Bohrson, W, and Harpp, K, Evolution of ocean island volcanoes, *Episodes* 21, 261-263, 1998.

Geist, D, *Volcanology in the Galápagos Islands: Clues to the nature of the earth*, Idaho Research, Winter, 26-27, 1992.

Geist, DJ and White, CM, Forward, Special Issue in Honour of Alexander R. McBirney, Journal of Volcanology and Geothermal Research 52, vii-viii, 1992.

Geist, DJ, McBirney, AR, and Baker, BH, MacGPP: Petrologic and Geochemical software for the MacIntosh, Eugene, OR, 1989 (2nd ed. 1993), 49 pp.

Larson, PB and Geist, DJ, Oxygen isotope ratios in the Casto Pluton, Idaho: An isotopically zoned, low 18O magma, Leon T. Silver 70th Birthday Symposium and Celebration, California Institute of Technology, 219-223, 1995.

McBirney, AR, Geist, DJ, and Baker, BH, GPP: Petrologic and Geochemical software for the IBM PC, Eugene, OR, 1985 (2nd ed.1992), 33 pp.

Dr. Dennis Geist's resume is attached.

B. Mike L. Baughman, Ph. D. can be contacted at: Post Office Box 2008, Carson City, NV 89702.

Mike L. Baughman, Ph. D. will be testifying as an expert for White Pine County and is affiliated with White Pine County and Intertech Services Corporation.

Mike L. Baughman, Ph. D. will testify regarding the following contentions:

WHI-NEPA-1; WHI-NEPA-2;

WHI-NEPA-3; WHI-NEPA-4

Dr. Baughman will testify to the requirements that EIS documents must meet and the failure of the DOE EIS properly to address the affects of a volcanic event at the Yucca Mountain High Level Waste Facility on downwind areas generally and White Pine County, specifically. Dr. Baughman will address the bounding requirements that an EIS is required to address as well as the need to discuss mitigation measures with EIS

documents. Dr. Baughman is an expert in NEPA compliance and will discuss the NEPA failures by DOE in the License Application as it relates to White Pine County's contentions.

Mike L. Baughman, Ph. D. has not testified at trial or deposition during the last four years.

Dr. Baughman has authored the following materials:

"Contending for the Superconducting Super Collider", Nevada Government Today, Volume 13, Number 2, Fall 1987.

"Circuitous Routings: Integration of Public Acceptability With Technical and Economic Feasibility", in Proceedings of the Second International High Level Radioactive Waste Management Conference, May 2, 1991.

"Tourism Impacts of the Three Mile Island and Other Adverse Events: Implications for Lincoln County and Other Rural Counties Bisected by Radioactive Wastes Intended for Yucca Mountain", Environmental Management, Summer 1995.

"Mediation", in Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse, edited by Ortwin Renn et. al., Kluwer Academic Publishers, Boston, 1995.

Mike L. Baughman, Ph. D.'s resume is attached.

C. Dr. Anne Taunton can be contacted at: 602 S. Adams Street, Moscow, ID 83843.

Dr. Anne Taunton will be testifying as an expert for White Pine County and is affiliated with University of Idaho, Department of Geological Sciences.

Dr. Anne Taunton will testify regarding the following contentions:

WHI-NEPA-1; WHI-NEPA-2;

WHI-NEPA-3; WHI-NEPA-4

Dr. Taunton will testify as a geochemist to the dispersal of radionuclides suspended in volcanic gases.

Dr. Anne Taunton has not testified at trial or by deposition during the last four years.

Dr. Taunton has authored the following articles:

Submitted:

Taunton AE, Gunter ME, Druschel GK, Wood SA. Geochemistry in the lung: Reaction-path modeling and experimental examination of rock-forming minerals under physiologic conditions. Submitted to American Mineralogist. Taunton AE, Gunter ME, Nolan RP. Characterization of minerals in pleural plaques from lung tissue of non-human primates that inhaled fibrous materials. Submitted to American Mineralogist.

Reviewed:

Taunton AE, Gunter ME (2007) Introducing medical geology to undergraduates as a critical thinking and risk assessment tool. Journal of Geoscience Education 55:169-180.

Wood SA, Taunton AE, Normand C, Gunter ME (2006) Mineral-fluid interaction in the lungs: Insights from reaction-path modeling. Inhalation Toxicology 18:975-984.

Martin F, Taunton AE (2006) Perceived importance and integration of the human-animal bond in private veterinary practice. Journal of the American Veterinary Medical Association 228:522-527

Martin F, Taunton AE (2005) Perceptions of the human-animal bond in veterinary education by veterinarians in Washington state: structured versus experiential learning. Journal of Veterinary Medical Education 32:523-530

Martin F, Taunton AE, Paznokas L (2005). Who let the dog in? Virtual animals as science teaching assistants. CESI Science. Accepted for publication.

Martin F, Ruby KL, Deking TM, Taunton AE (2004) Factors associated with client, staff, and student satisfaction regarding small animal euthanasia procedures at a veterinary teaching hospital. Journal of the American Veterinary Medical Association 224:1774-1779

Welch SA, Taunton AE, Banfield JF (2002) Effect of microorganisms and microbial metabolites on apatite dissolution. *Geomicrobiology Journal* 19:343-367

Allen CC, Albert FG, Chafetz HS, Combie J, Graham CR, Kieft TL, Kivett SJ, McKay DS, Steele A, Taunton AE, Taylor MR, Thomas-Keprta KL, and Westall F. (2001) Physical biomarkers in carbonate thermal springs: Implications for Mars. *Icarus* 147:49-67
Taunton AE, Welch SA, Banfield JF (2000) Microbial controls on phosphate and lanthanide distributions during granite weathering and soil formation. *Chemical Geology* 169:371-382

Taunton AE, Welch SA, Banfield JF (2000) Geomicrobiological controls on lanthanide distributions during granite weathering and soil formation. *Journal of Alloys and Compounds* 303-304:30-36

Banfield JF, Barker WW, Welch SA, Taunton AE (1999) Biological impact on mineral dissolution: Application of the lichen model to understanding mineral weathering in the rhizosphere. *Proceedings of the National Academy of Science USA* 96:3404-3411

Banfield JF, Welch SA, Taunton AE, Santelli CM, Barker WW (1999) Exploring microbial controls on mineral weathering. In *Geochemistry of the Earth's Surface*, Armannsson H, ed., Rotterdam: AA Balkema. 353-356

Thomas-Keprta KL, McKay DS, Wentworth SJ, Stevens TO, Taunton AE, Allen CC, Coleman A, Gibson EK, Romanek CS (1998) Bacterial mineralization patterns in basaltic aquifers: Implications for possible life in martian meteorite ALH84001. *Geology* 26:1031-1034

Benoit PH and Taunton AE (1997) The challenge of remote exploration for extraterrestrial fossil life. *SPIE (In. Soc. of Opt. Eng) Proc* 3111:98-108

Dr. Anne Taunton's resume is attached.

White Pine County may call any or all party witnesses identified by the United State Department of Energy or the Staff of the Nuclear Regulatory Commission who are identified by them as experts in the matter of volcanism, tephra deposition, volcanic gases, mitigation of the effects of radiation contaminated tephra and mitigation of the effects of radiation contaminated volcanic gases or the meteorology of the Yucca Mountain area to testify in any hearing on this matter.

DATED this 9th day of October, 2009.

Richard W. Sears
Nevada Bar No. 5489
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Carson City, Nevada 89702
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Education

Ph.D. Environmental Policy
Clark University, Worcester, MA., 1994
Graduate and CID/CEcD Certified
Economic Development Institute
University of Oklahoma, Norman, 1989
M.S. Agricultural and Resource Economics
University of Nevada, Reno, 1978
B.S. Agricultural and Resource Economics
University of Nevada, Reno, 1977

Professional Societies

International Economic Development Council
American Planning Association
Nevada Water Resources Association

Experience

Intertech Services Corporation (formerly Intertech Consultants) September 1986 - Present
Founder and President

Dr. Baughman is the co-founder and President of this consulting firm which specializes in providing planning, economic development and program management assistance to clients in both the public and private sectors. Specific firm capabilities include community and economic development, resource management, and facility siting. Dr. Baughman has represented various local government entities at the Nevada Legislature. Currently, Dr. Baughman is assisting Terra-Gen Power, LLC and CH2MHill in completing National environmental Policy Act (NEPA) compliance initiatives for three proposed geothermal power plants and related electrical transmission to be located in central Nevada. Previously, Dr. Baughman has assisted the Bureau of Land Management (BLM) Ely Field Office as contract Environmental Impact Statement Project Manager for the Toquop Energy Project and the White Pine Energy Station EIS. He also assisted the BLM Ely Field Office in preparation of the Ely Resource Management Plan and related NEPA compliance as a subcontractor to ENSR. Dr. Baughman was a member of the BLM Carson City Field Office Core Team for the North Valleys Pipeline ROW EIS. He recently completed an assignment serving as proponents' NEPA compliance manager for the Lincoln County Land Act and Kane Springs Valley groundwater development projects in Nevada.

Since 1998, Dr. Baughman has served as contract executive director for the Lincoln County Regional Development Authority, an economic development entity serving the City of Caliente and unincorporated Lincoln County. In that capacity, he has overseen development

Baughman Cont'd.

of the Meadow Valley Industrial Park in Caliente and on-going development of the Alamo Industrial Park.

Since 1993, Dr. Baughman has served as contract executive director of the five-county Humboldt River Basin Water Authority. Organized by the county commissions of Elko, Eureka, Lander, Humboldt and Pershing counties, the Authority is a proactive water resources planning and advocacy organization.

For 21 years, Dr. Baughman has been a registered lobbyist before the Nevada Legislature representing client issues concerning water resources, economic development and energy development.

Clark University Worcester, Mass. August 1989 - July 1992

Research Associate

While a doctoral candidate, Mr. Baughman was associated with the Center For Technology, Environment, and Development at Clark University. His work for CENTED included assisting the New York State Energy Research and Development Authority in developing strategies for effective stakeholder participation in the Authorities' program to build, operate, and eventually decommission the State of New York's facility for disposal of low level radioactive wastes.

Resource Concepts, Inc. August 1979 - September 1986

Vice President

While employed at RCI, Mr. Baughman served as Vice President and Principal Economist/Planner for this multi-disciplinary engineering and planning firm. Mr. Baughman was responsible for a variety of environmental, land use and economic development planning projects throughout Nevada and California.

Pacific Northwest River Basins Commission January 1979 - August 1979

Acting Program Manager

Mr. Baughman served as Acting Program Manager for a U.S. Water Resources Council funded Water Assessment of Emerging Energy Technologies. The project intended to determine and evaluate potential environmental, economic, and social impacts of allocating Columbia River water for use by emerging energy technologies in the five-state Pacific Northwest Region.

University of Nevada, Reno 1977 - 1979

Research Fellow

As principal investigator, Mr. Baughman was responsible for estimating the demand for fluid milk within Nevada and surrounding states and evaluating the competitive ability of Nevada producers and processors to supply demanded milk. Conducted research relative to various economic aspects of the Nevada dairy industry and to regional distribution of solid waste collection facilities.

Baughman Cont'd.

University of Nevada, Reno 1976 - 1977

Research Assistant

Mr. Baughman served as a member of a study team responsible for interviewing households in Elko County, Nevada, to determine their perceived needs for public facilities. Mr. Baughman served as a member of a study team responsible for interviewing skiers at several Lake Tahoe area resorts for the purpose of determining preferences and demands for various types of alpine skiing facilities.

Publications

A Description of the Nevada Dairy Industry, Agricultural Experiment Station Bulletin Number B47. College of Agriculture, University of Nevada, Reno, 1978.

Interregional Competition - A Model Describing the Nevada Dairy Industry, Division of Agricultural and Resource Economics, College of Agriculture, University of Nevada, Reno, Masters Series Paper, 1978.

"Contending for the Superconducting Super Collider", Nevada Government Today, Volume 13, Number 2, Fall 1987.

"Circuitous Routings: Integration of Public Acceptability With Technical and Economic Feasibility", in Proceedings of the Second International High Level Radioactive Waste Management Conference, May 2, 1991.

"Tourism Impacts of the Three Mile Island and Other Adverse Events: Implications for Lincoln County and Other Rural Counties Bisected by Radioactive Wastes Intended for Yucca Mountain", Environmental Management, Summer 1995.

"Mediation", in Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse, edited by Ortwin Renn et. al., Kluwer Academic Publishers, Boston, 1995.

Dissertation

Siting Hazardous Facilities: an Evaluation of Institutional Indicators of Permitting Activity and Outcome, Clark University, published by U.M.I., Ann Arbor, 1994.

Papers Presented

Potential Impacts of MX Deployment on Ranch Management and Ranch Economics. Presented at the Western Agricultural Economics Association Meetings, Lincoln, Nebraska, July, 1981.

Baughman Cont'd.

Circuitous Routings: Integration of Public Acceptability With Technical and Economic

Feasibility. Presented at the Second International High Level Radioactive Waste Management Conference, Las Vegas, Nevada, May 2, 1991.

Media Amplification of Risks: Implications for Hazard Management. Presented at the Society For Risk Analysis 1991 Annual Meeting, Baltimore, Maryland, December 9, 1991.

Other Presentations

Inter-Tribal Council of Nevada Convention. Participant in panel on Economic Development Opportunities for Native Americans in Nevada. October, 1982.

Central Nevada Development Authority. Invited Discussant: "Leakage - How to Identify and Capture It". May, 1983.

Northeast Nevada Development Authority Economic Development Conference, Invited Speaker, March 1, 1986.

Nevada League of Cities Annual Conference. Invited Panelist on Economic Development, August 15, 1986.

Governors Conference On Economic Development, Las Vegas, Nevada, Panel Discussant, December, 1986.

Governors Conference On Economic Diversification, Las Vegas, Nevada, Plenary Session Coordinator, December, 1988.

HAZMAT 91, Northwestern University, Evanston, Illinois, Panelist, June 17, 1991.

Revitalizing Small Communities Conf., Reno, Nevada, Panelist, February 22, 1992.

Tri-County Development Authority Annual Conference, "Our Environment, Your Livelihood", Winnemucca, Nevada, October 16, 1992.

Nevada Water Resources Association, Invited Panelist, Las Vegas, Nevada, August 1994.

House Resources Subcommittee on National Parks, Forests, and Land Hearing, Invited Testimony on Transfer of Federal Lands to States, Washington, D.C., August 1, 1995.

Nevada Association of Conservation Districts Annual Conference, Invited Panelist, Sparks, Nevada, November 9, 1995.

Baughman Cont'd.

National Conference of State Legislatures, High-Level Waste Conference, Invited Panelist, Las Vegas, Nevada, November 10, 1995.

Nevada Rural Summit, Invited Panelist, September 21, 1996, Fallon, Nevada.

Nevada Division of State Lands, Public Lands Symposium, Invited Panelist, Reno, Nevada, September 17, 1996.

Governor's Economic Development Conference, Invited Panelist, Sparks, Nevada, October 20, 1998

Appointments

Carson City Regional Planning Commission, January 1986-July 1989.

Northern Nevada Development Authority, Board of Directors, June 1986-July 1989.

American Economic Development Council, Certification Board, June 1990-1995.

American Economic Development Council, Rural Dev. Committee, June 1990-1995.

Community Business Resource Center, Board of Directors, April 2002 – July 2005

Teaching

ETS 101, Humans and the Environment, Clark University (Worcester, MA.), team taught, Fall 1991.

PSC 457/657, Environmental Policy, University of Nevada Reno, Division of Continuing Education, Fall 1997.

APEC 332, Ag. Resource and Environmental Policy, University of Nevada Reno, guest lecturer, Spring 1998.

PSC 456/656, Lobbying and Intergovernmental Relations, University of Nevada Reno, Division of Continuing Education, Fall 1999

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Education

- Doctor of Philosophy, Department of Geological Sciences, 2007
University of Idaho, Moscow, Idaho
 - Advisor: Mickey E. Gunter
 - Dissertation Title: Mineralogy and Geochemistry in the Lung
 - Instructor, Geol 423, Principles of Geochemistry
 - Teaching Assistant, Geol 101, Physical Geology
 - Outstanding Graduate Student, Diane B. Haynes Memorial Award, College of Science
 - Outstanding Graduate Student, Department of Geological Sciences
 - Sigma Xi Fellow
 - GPA: 3.94

- Master of Science, Geology (Geomicrobiology), 2000
University of Wisconsin-Madison
 - Advisor: Jillian F. Banfield
 - Thesis Title: Microbial controls on phosphate and lanthanide distributions during granite weathering and soil formation.
 - Teaching Assistant, Geol 301, Mineralogy
 - Teaching Assistant, Geol 231, Gems and Gemstones
 - Weeks Research Fellow
 - National Science Foundation Fellow Honorable Mention
 - GPA: 3.70

- Bachelor of Science, Chemistry *cum laude*, 1997
University of Arkansas
 - Advisors: Paul Benoit and Derek Sears
 - Thesis Title: Scanning Electron Microscopy Studies of Antarctic Lunar and SNC Meteorites: Implications for Extraterrestrial Life.
 - Governor's Scholar, University Scholar, Chemistry Scholar
 - GPA: 3.63

Publications

Submitted:

Taunton AE, Gunter ME, Druschel GK, Wood SA. Geochemistry in the lung: Reaction-path modeling and experimental examination of rock-forming minerals under physiologic conditions. Submitted to *American Mineralogist*.

Taunton AE, Gunter ME, Nolan RP. Characterization of minerals in pleural plaques from lung tissue of non-human primates that inhaled fibrous materials. Submitted to *American Mineralogist*.

Reviewed:

Taunton AE, Gunter ME (2007) Introducing medical geology to undergraduates as a critical thinking and risk assessment tool. *Journal of Geoscience Education* 55:169-180.

Wood SA, **Taunton AE**, Normand C, Gunter ME (2006) Mineral-fluid interaction in the lungs: Insights from reaction-path modeling. *Inhalation Toxicology* 18:975-984.

Martin F, **Taunton AE** (2006) Perceived importance and integration of the human-animal bond in private veterinary practice. *Journal of the American Veterinary Medical Association* 228:522-527

Martin F, **Taunton AE** (2005) Perceptions of the human-animal bond in veterinary education by veterinarians in Washington state: structured versus experiential learning. *Journal of Veterinary Medical Education* 32:523-530

Martin F, **Taunton AE**, Paznokas L (2005). Who let the dog in? Virtual animals as science teaching assistants. CESI Science. Accepted for publication.

Martin F, Ruby KL, Deking TM, **Taunton AE** (2004) Factors associated with client, staff, and student satisfaction regarding small animal euthanasia procedures at a veterinary teaching hospital. *Journal of the American Veterinary Medical Association* 224:1774-1779

Welch SA, **Taunton AE**, Banfield JF (2002) Effect of microorganisms and microbial metabolites on apatite dissolution. *Geomicrobiology Journal* 19:343-367

Allen CC, Albert FG, Chafetz HS, Combie J, Graham CR, Kieft TL, Kivett SJ, McKay DS, Steele A, **Taunton AE**, Taylor MR, Thomas-Keprta KL, and Westall F. (2001) Physical biomarkers in carbonate thermal springs: Implications for Mars. *Icarus* 147:49-67

Taunton AE, Welch SA, Banfield JF (2000) Microbial controls on phosphate and lanthanide distributions during granite weathering and soil formation. *Chemical Geology* 169:371-382

Taunton AE, Welch SA, Banfield JF (2000) Geomicrobiological controls on lanthanide distributions during granite weathering and soil formation. *Journal of Alloys and Compounds* 303-304:30-36

Banfield JF, Barker WW, Welch SA, **Taunton AE** (1999) Biological impact on mineral dissolution: Application of the lichen model to understanding mineral weathering in the rhizosphere. *Proceedings of the National Academy of Science USA* 96:3404-3411

Banfield JF, Welch SA, **Taunton AE**, Santelli CM, Barker WW (1999) Exploring microbial controls on mineral weathering. In *Geochemistry of the Earth's Surface*, Armannsson H, ed., Rotterdam: AA Balkema. 353-356

Thomas-Keprta KL, McKay DS, Wentworth SJ, Stevens TO, **Taunton AE**, Allen CC, Coleman A, Gibson EK, Romanek CS (1998) Bacterial mineralization patterns in basaltic aquifers: Implications for possible life in martian meteorite ALH84001. *Geology* 26:1031-1034

Benoit PH and **Taunton AE** (1997) The challenge of remote exploration for extraterrestrial fossil life. *SPIE (In. Soc. of Opt. Eng) Proc* 3111:98-108

Presentations/Abstracts/Posters:

Submitted:

Taunton AE, Gunter ME, Druschel GK, Wood SA. Behavior of rock-forming minerals under simulated and actual lung conditions. Submitted to the 2008 VM Goldschmidt International Meeting.

Presented:

Glover S, Martin F, and **Taunton AE** (2005). Human-Animal Bond: Implications for the Practice of Veterinary Medicine as Reflected in Perceptions of Practitioners, Owners' Expectations and the Law. (Poster). International Society for Anthrozoology Annual Conference. Niagara, NY. USA.

Martin F and **Taunton AE** (2005). Introducing humane education through technology and virtual animals. (Poster). International Society for Anthrozoology Annual Conference. Niagara, NY. USA.

Martin F and **Taunton AE** (2005) Perceptions on Human-Animal Bond (HAB) education and the role of the HAB in private practice by veterinarians in Washington state. (Poster). International Society for Anthrozoology Annual Conference. Niagara, NY. USA.

Gunter ME and **Taunton AE** (2004) A mineralogist does risk and epidemiology, and other critical thinking exercises in geology and human health. *Geological Society of America Abstracts with Programs*

Martin F, Ruby KL, **Taunton AE** (2004) When the bond is broken: Companion animal owners and staff of a veterinary teaching hospital share their experiences about euthanasia. *10th International Conference on Human-Animal Interactions*

Taunton AE, Wood SA, Gunter ME (2002) The thermodynamics of asbestos mineral dissolution and conversion in the human lung. *Geochimica et Cosmochimica ACTA* 66 (15A): A765-A765 Suppl. 1

Allen, C, Albert F, Chafetz H, Combie J, Graham C, Kieft T, Kivett S, McKay D, Steele A, **Taunton A**, Taylor M, Thomas-Keprta K, Westall F (2000) Physical biomarkers in carbonate thermal springs: Implications for martian exobiology. *2000 Lunar and Planetary Science Conference*.

Taunton AE, Welch SA, Fowle DA, and Banfield JF (1999) Organic acid and enzymatic effects on dissolution of an insoluble secondary phosphate mineral *1999GSA*

Taunton AE, Welch SA, and Banfield JF (1999) Formation of soil from weathered granite: insights into inorganic and biogeochemical processes from mineralogical, microbiological, and bulk chemical analyses. *9th Annual Goldschmidt Conference*

Welch SA, **Taunton AE**, and Banfield JF (1999) Role of Microorganisms and microbial metabolites on apatite and biotite. *9th Annual Goldschmidt Conference*

Welch SA, **Taunton AE**, Santelli CM, and Banfield JF (1999) Role of microorganisms in the weathering of granite and formation of soil. 1999 ASM poster

Taunton AE, Welch SA, and Banfield JF (1999) Phosphorus minerals as localization sites for biosignatures. 30th Annual Lunar and Planetary Science Conference Proceedings. Abstract#1748

- Welch SA, **Taunton AE**, Santelli CM, Fournelle J, and Banfield JF (1998) Apatite weathering and cerium fractionation: possible microbial influences. GSA Abstracts with Programs A-304
- Welch SA, **Taunton AE**, Santelli CM, Fournelle J, and Banfield JF (1998) The role of microorganisms in biotite weathering. GSA Abstracts with Programs A-305
- Allen CC, **Taunton AE**, Taylor MR, and McKay DS (1998) Microbes in Carbonate Thermal Springs: Hot Springs National Park. *Proc. Lunar Planet. Sci. Conf.* **29**
- Wentworth SJ, Thomas-Keprta KL, and **Taunton AE** (1998) Possible Weathering Features in ALH84001. *Proc. Lunar Planet. Sci. Conf.* **29**
- Taunton AE** (1997) SEM Studies of Antarctic Lunar and SNC Meteorites with Implications for Martian Nanofossils: a Progress Report. *Conference on Early Mars: Geologic and Hydrologic Evolution, Physical and Chemical Environments, and the Implications for Life* 76-77
- Schneider DM, **Taunton AE**, Benoit PH, and Sears DWG (1997) A Comparison of the Compositions of Chondrules in EH and EL Chondrites and Discussion of Some Implications. *Proc. LPSC* **28** 1257-1258
- Taunton AE**, Benoit PH, and Sears DWG (1996) Size Sorting of Chondrules in EL Chondrites: Implications for the Origin of Enstatite Chondrites. *Met Planet Sci* **31** suppl. 139-140
- Sears DWG, Symes S, **Taunton AE**, Akridge G, Shaoxiong H, Benoit P (1996) The Lunar Devitrified Glass Spherules: Implications for the Origin of Meteoritic Chondrules. *Proc LPSC* **27** 1167-1168

DENNIS J. GEIST
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EDUCATION

1985 Ph.D. - University of Oregon, Geology.
1980 A.B. - Dartmouth College, Earth Sciences.

PROFESSIONAL

2000-present Professor of Geology, University of Idaho.
2001-2008 Chair of the Department of Geological Sciences, University of Idaho
1994-2000 Associate Professor of Geology, University of Idaho.
1990-1994 Assistant Professor of Geology, University of Idaho.
1988-1990 Assistant Professor of Geology, Hamilton College.
1986-1988 Postdoctoral Research Associate, University of Wyoming.
1985 Visiting Assistant Professor, University of Oregon.

AWARDS AND PROFESSIONAL ACTIVITIES

Charles Darwin Foundation, Board of Directors, 2008-present.
Ridge2000 Steering Committee, 2008-present.
Visiting Scientist, Woods Hole Oceanographic Institution, 2007-2008.
Visiting Fellow, Christ's College and Department of Earth Sciences, University of Cambridge, 2008.
Science Reorganization Administrator, Charles Darwin Foundation, 2008.
NSF Panel, Geochemistry and Petrology, 2006-2007.
NSF Panel, Ridge2000, 2007-2008.
Executive Committee, HOTSPOT: Snake River Scientific Drilling Project, 2004-present.
Editorial Board, *Journal of Petrology*, 2000-2005.
Board of Advisors, *Journal of Petrology*, 2005-present.
University Research Excellence Award, University of Idaho, 2000.
Co-Chief Scientist, Drift4 cruise, R/V *Revelle*, 2001.
American Federation of Mineralogical Societies Distinguished Achievement Award 2003.
Geological Society of America, Penrose Conference Committee, 2004-2007.
American Geophysical Union, VGP Publications Committee, 2000-present.
NSF Chautauqua Program Leader, Geology and Biodiversity of the Galápagos. 2007.
Field Trip Leader, Cities on Volcanoes IV, Geology of the Galápagos Islands, 2006.
Convener, Penrose Conference, Evolution of Ocean Island Volcanoes, 1998.
Editorial Board, *Geology*, 1994-1997.
Fellow of the Geological Society of America.
Charles Darwin Foundation, General Assembly, 1998-present.
Plenary Lecture, American Association of Physics Teachers annual meeting, "The Physics of Volcanoes", 2002.
External program reviewer, Utah State University Geology Dept., 2009.
External program reviewer, UNLV Ph.D. program, 1997.
External program reviewer, UNLV Ph.D. program, 2005.
External program reviewer, University of Alaska, Anchorage, 2004.
Scientific participant; Northwest Hawaiian Archipelago Cruise, R/V *Kilo Moana*, 2007; Puna

Ridge Cruise, *R/V Thompson*, 1998.
Member, American Geophysical Union.
International Association for Volcanology and Chemistry of the Earth's Interior.
Panel Review Committee, *DOE*, Natural and Accelerated Bioremediation Research Program, 1997; 2000.
Guest Editor, *Journal of Volcanology and Geothermal Research*, 1992.
Ridge Workshop participant: Plume-ridge interaction, 2001.
Symposium convener, Goldschmidt Conference, Basalts and mantle dynamics, 2005.
Symposium convener, AGU joint session, Timescales of magmatism, 2004.
Symposium convener, AGU annual meeting, The 2002 edition of the Evolution of the Igneous Rocks: the 75th Anniversary of Bowen's Lectures, 2002.
Symposium convener, GSA annual meeting, Ocean islands: Where do we go from here? 2000.
Symposium convener, AGU annual meeting: The Yellowstone Hotspot, 1993.
JOI/USSAC Workshop participant: Drilling the oceanic lower crust and mantle, 1989.
JOI/USSAC Workshop participant: Large igneous provinces, 1990.

GRADUATE STUDENTS (Principal Advisor)

Jason Felsman, M.S., in progress
Peter Oswald, Ph.D., in progress
Susan Wilson, M.S., in progress
Andres Ruiz, M.S., 2008, Inflation and deflation modeling at Sierra Negra and Fernandina Volcanoes based on GPS measurements. Galapagos Islands, Ecuador.
Melissa Sabga, M.S., 2008, Implications of temporal-compositional variations in the Cerro Pajas Flow, Floreana Volcano, Galapagos Islands.
Lisa Mayhew, M.S., 2006, Microbial community comparisons as a function of the physical and geochemical conditions of Galapagos Island fumaroles.
Peter Oswald, M.S., 2006, Eocene volcanic rocks of the southern Talkeetna Mountains, Alaska: Anomalous forearc volcanism in an extensional setting.
Bridget Diefenbach, M.S., 2005, Volcanic construction of the Galapagos Platform: Evidence from morphology and geochemistry of large submarine terraces.
Matthew Hoffer, M.S. 2004, Petrology and geochemistry of Cretaceous plutons in the Careywood Quadrangle, Northern Idaho.
John Lyons, M.S. 2004, Petrogenesis of ultramafic and mafic xenoliths, Floreana island, Galapagos archipelago: implications for lithospheric evolution.
Charlotte Goddard, M.S. 2003, Relationship of geology to species richness within the islands and islets of the Galapagos archipelago, Ecuador.
Ellen Hedfield, M.S., 2003, Insight into the magmatic evolution of Fernandina volcano, Galapagos, from olivine- and plagioclase-hosted melt inclusions.
Jennifer Gustafson, M.S., 2002, Mobility of selenium from the Red Dog zinc deposit, Alaska.
Rachel Teasdale, Ph.D., 2001, Lavas of the 1998 eruption at Volcan Cerro Azul, Galapagos: Flow emplacement and magma petrogenesis.
Elisa Sims, M.S., 2000, Origin and evolution of Snake River Plain basalts: a geochemically constrained model.
Michelle Bishop, M.S., 1999, Volcanism on the northern margin of the Thunder Mountain caldera complex, Idaho.
Terry Naumann, Ph.D., 1998, Geology and petrology of Cerro Azul volcano, Isabela island, Galapagos archipelago.
Pedro Najjar, M.S., 1998, Geology and geochemistry of the Papoose Peak quadrangle in the

Salmon and Payette National Forest, Idaho and Valley Counties, Idaho.
Lisa Morrow, M.S., 1996, Volcanic evolution of Guffey Butte volcano, Snake River Plain, Idaho.
Jeff Standish, M.S., 1996, The emergence of a Galapagos shield volcano: Roca Redonda.
Mark Jellinek, M.S., 1994, A window into a caldera-filling ignimbrite: Twin Peaks caldera, Idaho.
Robert Reynolds, Ph.D., 1994, The geology and petrology of Sierra Negra volcano, Galápagos archipelago.
Roberto Barragan, M.S., 1994, A petrologic transect of the Ecuadorian Andes.
+ 11 undergraduate theses.

UNIVERSITY AND COMMUNITY SERVICE

University Promotion Committee, 2008-present.
Provost Search Committee, 2004-2005.
Library Assessment Committee, 2002-2003.
Faculty Evaluation Task Force, 2003-2004.
Co-Chair, Science and Engineering Restructuring Committee, 2001.
Faculty Appeal Hearing Board, 1996-2000 (chair, 1999-2000; 2005-2006); 2003-2006.
Committee on Committees, 1997-1999.
Faculty Affairs Committee, 1994-1997; 2008 (chair 1996-1997).
Scientific Misconduct Committee, 1993-1997; 1999-2006.
Faculty Advisor, University of Idaho Rugby Club, 1999-2006.
Departmental Administrators' Review Task Force, 1999-2000.
College of Agriculture Reduction/Restructuring Committee, 1996-1997.
Dean, College of Mines, Search Committee, 1997.
Chair, Graduate Admissions and Awards, Geology Dept., 1995-2000.
Latah County Planning and Zoning Commission, 1992-1997 (vice chair, 1996-1997).
University Curriculum Committee (1993-1994).
Faculty Council (1995-1997).

PUBLICATIONS

Geist, D. and Harpp, K, Geology of the Galapagos Islands, *Encyclopedia of Islands*, in press, 2008.
Herbert, S, Gibson, S, Norman, D, Geist, D, Estes, G, Grant, T, and Miles, A, Into the field again: Re-examining Charles Darwin's 1835 geological work on Isla Santiago (James Island) in the Galapagos Archipelago, *Earth Sciences History* 28, 1-31, 2009.
Garcia, MO, Ito, G, Weis, D, Geist, D, et al., Widespread secondary volcanism near northern Hawaiian Islands, *Eos* 89, 542-543, 2008.
N. Vigouroux, G. Williams-Jones, W. Chadwick, D. Geist, A. Ruiz, and D. Johnson, 4D gravity changes associated with the 2005 eruption of Sierra Negra volcano, Galápagos, *Geophysics* 73,29-35, 2008.
Geist, D., Dieffenbach, B., Fornari, D, Kurz, M, Harpp, K., and Blusztajn, J., Construction of the Galapagos platform by large submarine volcanic terraces, *Geochemistry Geophysics Geosystems*, 9, doi:10.1029/2007GC001795, 2008.
Geist, D, Harpp, K, Naumann, T, Poland, M, Chadwick, W, Hall, M, and Rader, E, The 2005 eruption of Sierra Negra volcano, Galápagos, *Bulletin of Volcanology*, 70, 655-673, 2008.
Mayhew, L., Geist, D., Childers, and Pierson, J., Microbial community comparisons as a function of the physical and geochemical conditions of the Galapagos Island fumaroles,

- Geomicrobiology Journal*, 24, 615-625, 2007.
- A.E. Saal, M.D. Kurz, S.R. Hart, J.S. Bluszta, J. Blichert-Toft, Y. Liang and D.J. Geist, 2007, The role of lithospheric gabbros on the composition of Galapagos lavas, *Earth and Planetary Science Letters* v. 257, 391-406.
- Lyons, J, Geist, D, Harpp, K, Diefenbach, B, Olin, P, and Vervoort, J, Crustal growth by magmatic overplating in the Galápagos, *Geology* v. 35, 511-514, 2007.
- Geist, D, Fornari, D, Kurz, M, Harpp, K, Soule, SA, Perfit, M, and Koleszar, A, Submarine Fernandina: A magmatic plumbing system at the leading edge of the Galapagos Hotspot *Geochemistry Geophysics Geosystems*, v. 7, DOI 10.1029/2006GC001290, 2006.
- Chadwick, WW, Geist, D., Jonsson, S, Poland, M, Johnson, D and Meertens, C, Volcano bursting at the seams: Inflation, faulting, and eruption at Sierra Negra volcano, Galapagos, *Geology* 34, 1025-1028, 2006.
- Geist, D., Chadwick, WW, and Johnson, D, Results from new GPS And Gravity Monitoring Networks at Fernandina and Sierra Negra Volcanoes, Galápagos, 2000-2002, *Journal of Volcanology and Geothermal Research* 150, 79-97, 2006.
- Geist, D., Naumann, TR, Standish, JJ, Kurz, MD, White, WM, and Fornari, D, Wolf Volcano, Galapagos Archipelago: Melting and magmatic evolution at the margins of a mantle plume. *Journal of Petrology* 46, 2197-2224, 2005.
- Harpp, KS, Koleszar, A.M., and Geist, D.J. Volcanoes in the classroom: A simulation of an eruption column, *Journal of Geoscience Education* 53, 173-175, 2005.
- Teasdale. R, Geist, D, Kurz, M, and Harpp, K, 1998 Eruption at Volcán Cerro Azul, Galápagos Islands: I. Syn-Eruptive Petrogenesis. *Bulletin of Volcanology* 67, 170-185, 2005.
- Luciano B. Beheregaray, Claudio Ciofi, Dennis Geist, James P. Gibbs, Adalgisa Caccone, and Jeffrey R. Powell, Genes record a prehistoric volcano eruption in the Galápagos, *Science* 302, 75, 2003.
- Harpp, K.S., Fornari, D.J., Geist, D.J., and Kurz, M.D., 2003, Genovesa Submarine Ridge: A Manifestation of Plume-Ridge Interaction in the Northern Galápagos Islands, *Geochemistry Geophysics Geosystems*, 4, 8511, doi: 10.1029/2003GC000531.
- Harpp, K.S. and Geist, D, The Wolf-Darwin Lineament and Plume-Ridge Interaction in the Northern Galapagos, *Geochemistry Geophysics Geosystems*, V. 3, No. 11, 8504, doi: 10.1029/2002GC000370, 2002.
- Geist, D, White, WM, Albarede, F, Harpp, KS, Blichert-Toft, J, Reynolds, R, and Kurz, M, Volcanic Evolution in the Galápagos: the Dissected Shield of Volcan Ecuador, *Geochemistry Geophysics Geosystems* 3, (10), 10611,1029/2002GC000355, 2002.
- Naumann, TR, Geist, D, and Kurz, MD, Petrology and geochemistry of Volcan Cerro Azul: petrologic diversity among the western Galapagos volcanoes, *Journal of Petrology*, 43: 859-883, 2002.
- Geist, D, Teasdale, R, Sims, E, and Hughes, S, Subsurface volcanology at TAN and controls on groundwater flow, *GSA Special Paper* 353, 45-59, 2002.
- Geist, D, Sims, E, and Hughes, S, Open-system evolution of a single cycle of Snake River Plain magmatism, *GSA Special Paper* 353, 193-204, 2002.
- Hughes, SS, McCurry, M, and Geist, DJ, Geochemical correlations and implications for the magmatic evolution of basalt flow groups at the Idaho National Engineering and Environmental Laboratory. *GSA Special Paper* 353, 151-173, 2002.
- Geist, D and Garcia, MO, The role of science and independent research during volcanic eruptions, *Bulletin of Volcanology* 62, 59-61, 2000.
- Naumann, T and Geist, D, Physical volcanology and structural development of Cerro Azul volcano, Isabela island, Galapagos: Implications for the development of Galapagos-type

- shield volcanoes, *Bulletin of Volcanology* 61, 497-514, 2000.
- Geist, D and Ellis, R, Volcanoes, *McGraw-Hill 2001 Yearbook of Science and Technology*, 414-416, 2000.
- Kurz, MD and Geist, D, Dynamics and evolution of the Galapagos hotspot from helium isotope geochemistry. *Geochimica Cosmochimica Acta* 63, 4139-4156, 1999.
- Geist, D, White, W, Naumann, T, and Reynolds, R, Illegitimate magmas from the Galápagos archipelago: Insights into mantle mixing and magma transport, *Geology* 27, 1103-1106, 1999.
- Naumann, T and Geist, D, Generation of alkali-olivine basalts by fractionation of tholeiitic magma, *Geology* 27, 423-426, 1999.
- Barragan, R, Geist, D, Hall, ML, Larson, PB, and Kurz, M, Subduction controls on the compositions of lavas from the Ecuadorian Andes, *Earth and Planetary Science Letters* 154, 153-166, 1998.
- Geist, D, Naumann, T, and Larson, PB, Evolution of Galapagos magmas: mantle and crustal level fractionation without assimilation, *Journal of Petrology* 39, 953-971, 1998.
- Harpp, K and Geist, D, Galapagos Pluimology, *Noticias de Galapagos* 59, 23-28, 1998.
- Righter, K, Chesley, JT, Geist, D, and Ruiz, J, Behavior of Re during magma fractionation: an example from Volcan Alcedo, Galapagos, *Journal of Petrology* 39, 785-795, 1998.
- Standish, J, Geist, D, Harpp, K, and Kurz, M, The emergence of a Galapagos shield volcano: Roca Redonda, *Contributions to Mineralogy and Petrology* 133, 136-148, 1998.
- Hughes, SS, Casper, JL, and Geist, DJ, Potential influence of volcanic constructs on hydrogeology beneath Test Area North, Idaho National Engineering and Environmental Laboratory, *Idaho. Proc. 32nd Symp. Engin. Geol. and Geotech. Engin.*, 23-36, 1997.
- Geist, D, On the emergence and submergence of the Galapagos Islands, *Noticias de Galapagos*, 56, 5-8, 1996.
- Geist, D, Howard, KA, and Larson, PB, The generation of oceanic rhyolites by crystal fractionation: The basalt-rhyolite association at Volcan Alcedo, Galápagos Archipelago, *Journal of Petrology*, 36, 965-982, 1995.
- Larson, P and Geist, D, On the origin of low ¹⁸O magmas: evidence from the Casto Pluton, Idaho, *Geology* 23, 909-912, 1995.
- Reynolds, R, Geist, D, and Kurz, M, Physical volcanology and structural development of Sierra Negra volcano, Galápagos Archipelago, *Geological Society of America Bulletin* 107, 1398-1410, 1995.
- Reynolds, R and Geist, D, Petrology of basalts from Sierra Negra volcano, Galápagos Archipelago, *Journal of Geophysical Research* 100, 24,537-24,553, 1995.
- Geist, D and White, CM, Assimilation and fractionation in adjacent parts of the same magma chamber: the Vandfaldsdalen Macrodike, East Greenland, *Contributions to Mineralogy and Petrology* 116, 92-107, 1994.
- Geist, D, Howard, KA, Jellinek, AM, and Rayder, S, The volcanic history of Volcan Alcedo, Galápagos Archipelago: A case study of rhyolitic oceanic volcanism, *Bulletin of Volcanology* 86, 243-260, 1994.
- Geist, D and Richards, M, The origin of the Columbia Plateau and Snake River Plain: Deflection of the Yellowstone Plume, *Geology* 21, 789-792, 1993.
- Geist, D, An appraisal of melting processes and the Galápagos hotspot: major and trace element evidence, *Journal of Volcanology and Geothermal Research* 52, 65-82, 1992.
- Bow, CS and Geist, D, Geology and petrology of Floreana Island, Galápagos Archipelago, *Journal of Volcanology and Geothermal Research* 52, 83-105, 1992.
- Geist, DJ, Hyperphase: Computer-aided instruction for the interpretation of igneous phase diagrams, *Journal of Geological Education* 40, 125-129, 1992.

- Geist, DJ, Volcanoes, in *Encyclopedia of Earth System Science*, Nierenberg, ed., Academic Press (San Diego), 427-438, 1991.
- Kolker, A, Frost, CD, Hanson, G, and Geist, DJ, Neodymium, strontium, and lead isotopes in the Maloin Ranch Pluton, Wyoming: implications for the origin of evolved rocks at anorthosite margins, *Geochimica et Cosmochimica Acta* 55, 2285-2297, 1991.
- Geist, DJ, Frost, CD, and Kolker, A, Sr and Nd isotopic constraints on the origin of the Laramie Anorthosite Complex, Wyoming, *American Mineralogist* 75, 13-20, 1990.
- Geist, DJ, Frost, CD, Kolker, A, and Frost, BR, A geochemical study of magmatism across a major terrane boundary: Sr and Nd isotopes in Proterozoic granitoids of the Southern Laramie Range, Wyoming, *Journal of Geology* 97, 331-342, 1989.
- White, CM, Geist, DJ, Frost, CD, and Verwoerd, WJ, Petrology of the Vandfaldsdalen Macrodiike, Skaergaard Region, East Greenland, *Journal of Petrology* 30, 271-298, 1989.
- Geist, DJ, Myers, JD, and Frost, CD, Megacryst-bulk rock isotopic disequilibrium as an indicator of contamination processes: The Edgumbe Volcanic Field, SE Alaska, *Contributions to Mineralogy and Petrology* 99, 105-112, 1988.
- Geist, DJ, White, WM, and McBirney, AR, Plume-asthenosphere mixing beneath the Galápagos Archipelago, *Nature* 333, 657-660, 1988.
- Geist, DJ, McBirney, AR, and Duncan, RA, Geology and petrogenesis of lavas from San Cristobal Island, Galápagos Archipelago, *Geological Society of America Bulletin* 97, 555-566, 1986.
- Geist, DJ, McBirney, AR, and Duncan, RA, Geology of Santa Fe Island: the oldest Galápagos volcano, *Journal of Volcanology and Geothermal Research* 26, 203-212, 1985.
- McBirney, AR, Cullen, AB, Geist, DJ, Vicenzi, EP, Hall, ML, Estrella, M, and Duncan, RA, The Galápagos volcano Alcedo: a unique oceanic caldera, *Journal of Volcanology and Geothermal Research* 26, 1985.

NON-REFEREED:

- John W. Shervais, Michael J. Branney, Dennis J. Geist, Barry B. Hanan, Scott Hughes, Alexander A. Prokopenko, and Douglas F. Williams, HOTSPOT: The Snake River Scientific Drilling Project Tracking the Yellowstone Hotspot Through Space and Time, *Scientific Drilling* v. 3, 56-57, 2006.
- Dennis Geist, Karen Harpp, and Robert Reynolds, A field trip guide to the geology of the Galapagos Islands, *Cities on Volcanoes* 4, Quito, Ecuador, 37 pp., 2006.
- Geist, D, Bohrson, W, and Harpp, K, Evolution of ocean island volcanoes, *GSA Today* 8 (December), 18-21, 1998.
- Geist, D, Bohrson, W, and Harpp, K, Evolution of ocean island volcanoes, *Episodes* 21, 261-263, 1998.
- Geist, D, Volcanology in the Galápagos Islands: Clues to the nature of the earth, *Idaho Research*, Winter, 26-27, 1992.
- Geist, DJ and White, CM, Forward, Special Issue in Honour of Alexander R. McBirney, *Journal of Volcanology and Geothermal Research* 52, vii-viii, 1992.
- Geist, DJ, McBirney, AR, and Baker, BH, MacGPP: Petrologic and Geochemical software for the MacIntosh, Eugene, OR, 1989 (2nd ed. 1993), 49 pp.
- Larson, PB and Geist, DJ, Oxygen isotope ratios in the Casto Pluton, Idaho: An isotopically zoned, low ¹⁸O magma, Leon T. Silver 70th Birthday Symposium and Celebration, California Institute of Technology, 219-223, 1995.
- McBirney, AR, Geist, DJ, and Baker, BH, GPP: Petrologic and Geochemical software for the

IBM PC, Eugene, OR, 1985 (2nd ed.1992), 33 pp.

CONFERENCE ABSTRACTS:

More than 200 since 1984.

COURSES TAUGHT (times taught)

Mineralogy (2); Igneous Petrology (1); Andesites (1); Field Volcanology (1); Basalt Petrogenesis (2); Magmatic and Metamorphic Fluids (1); Field Geology (11); Physical Geology (19); Igneous and Metamorphic Petrology (20); Volcanology (10); K/T Boundary (1); Humans, Earth, and the Cosmos (1); Optical Mineralogy (3); Physical Petrology (8); Granites (2); Trace Element Methods (2); Survey of Minerals (1); Structural Geology (1); Oceanography (1); Snake River Plain Geology and Hydrology (1); Volcano Deformation (1); Natural History of Islands (1), Active Volcanism (1).

INVITED LECTURES

Portland State University (1985; 2007), Colorado College (1986), University of Wyoming (1986), Boise State University (1987; 2001), Colgate University (1989, 2004), RPI (1989), Franklin and Marshall College (1989), University of Hawaii (1990; 2004), Washington State University (1990), Idaho State University (1991), University of Oregon (1991; 2003; 2005), Oregon State University (1991), University of Washington (1997), Caltech (2000), Spokane CC (2000), UCLA (2001), Woods Hole Oceanographic Institution (2001; 2007), Columbia University (2001), Ecole Normale Supérieure de Lyon (2001), Cascade Volcano Observatory (2003), University of British Columbia (2003), Stanford University (2003), Michigan Tech (2005), Nordic Volcanological Institute (2005), Escuela Politecnica Nacional de Quito (2006), University of Massachusetts (2006), Harvard University (2007), University of Cambridge (2008), Durham University (2008), Leicester University (2008), Williams College (2009), University of Rochester (2009).

GRANTS

- 2008 *NSF*, Collaborative Research: An integrated seismic-geodetic study of active magmatic processes at Sierra Negra volcano, Galapagos Islands.
- 2008 *NSF*, Collaborative Research: Boiling-over Pyroclastic Flows.
- 2007 *NSF*. Collaborative Research, RUI: The Transition from Subduction to Extensional Magmatism in the Dry Valleys of Antarctica.
- 2006 *NSF*. Intrusion and Eruption Dynamics on Active Galapagos Volcanoes.
- 2006 *NSF*. Acquisition of an inductively coupled plasma spectrometer and high precision ion chromatograph (Dr. Scott Wood, lead PI).
- 2005 *National Geographic*. Extremophilic microbes in Galapagos hydrothermal systems (with Dr. Susan Childers).
- 2004 *NSF*. Collaborative Research: The timescales of magmatic differentiation and their relationship to eruptive style at Hekla volcano, Iceland.
- 2003 *USGS Edmap*. Geologic map of the Careywood quadrangle, Idaho.
- 2002 *NSF*. Collaborative Research: the Origin and Evolution of the Galapagos Lithosphere, Floreana Volcano.
- 2000 *NSF*. Development of an inexpensive continuous GPS system for remote monitoring of volcano deformation.
- 2000 *NSF*. Compositional buffering of magmas as an indicator of differentiation processes.
- 2000 *USGS Edmap*. Geologic map of the Thompson Point quadrangle, Idaho.

- 2000 *NSF*. Collaborative Research: The leading edge of the Galapagos hotspot.
- 1999 *NSF*. Volcano deformation and magma transport in Galapagos shield volcanoes.
- 1998 *NSF*. Supplement to "Volcanic evolution in the Galapagos"; monitoring of the active eruption at Cerro Azul.
- 1998 *National Geographic*. Geologic controls on biodiversity in the Galapagos.
- 1997 *NSF*. Support for young scientists to attend Penrose conference on Evolution of Ocean Island Volcanoes (with Drs. Wendy Bohrson and Karen Harpp).
- 1997 *NSF*. REU supplement to "Volcanic evolution in the Galapagos".
- 1997 *NSF*. ROA supplement to "Volcanic evolution in the Galapagos".
- 1996 *DOE*. Bioremediation and geologic characterization of Test Area North at the Idaho Water Resources Institute (IWRRI) (with Dr. R. Mink and 8 other PIs).
- 1996 *NSF*. Volcanic evolution in the Galapagos: a geological, petrological, and geochemical investigation of Volcan Ecuador.
- 1994 *NSF*: The volcanic and petrologic evolution of Isabela Island, Galápagos archipelago.
- 1994 *National Geographic*. The emergence of a Galápagos shield volcano, Roca Redona.
- 1993 *NSF*: Acquisition of a graphite-furnace atomic absorption spectrometer and gradient ion chromatograph (with Dr. Scott Wood).
- 1993 *NSF*: Acquisition of a powder x-ray diffractometer (with Dr. F. Froes and 6 other PIs).
- 1993 *University of Idaho Research Council seed grant*: A petrologic transect of the Ecuadorian Andes.
- 1992 *University of Idaho Research Council seed grant*: Genesis of hot and dry magmas in Central Idaho.
- 1992 *State Board of Education Research Grant*: Infra- to supra-structure of a magmatic plumbing system.
- 1992 *NSF*. REU supplement to "Contrasting differentiation processes in oceanic magma chambers.
- 1992 *NSF*: Contrasting differentiation processes in oceanic magma chambers: Cerro Azul and Sierra Negra volcanoes, Galápagos.
- 1991 *University of Idaho Research Council seed grant*: Petrogenesis of magmas from the Challis Volcanic Field, Central Idaho.
- 1989 *NSF*: Contrasting differentiation processes in oceanic magma chambers: Sierra Negra and Alcedo Volcanoes, Galápagos Islands.
- 1989 *Pew Foundation*: Development of Introductory Level Courses in Geology (with Drs. Barbara Tewksbury, Kurt Hollocher, and Michael Owen).
- 1989 *NSF*: A modern x-ray laboratory for undergraduate instruction.
- 1988 *NSF*: Petrogenesis of the Felsic Series of the Vandfaldsdalen Macrodike, East Greenland (with Dr. Craig White).
- 1982 *GSA Penrose Fund*: Support of PhD thesis research.
- 1982 *Sigma Xi Research*: Support of PhD thesis research.