

THOMAS E. LACHMAR

Associate Professor of Geology (Hydrogeology)
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EDUCATION

Ph.D., Geology, University of Idaho, 1989
M.S., Geosciences, Purdue University, 1977
B.S., Geology, University of California, Davis, 1975

PROFESSIONAL AFFILIATIONS

Member, Geological Society of America (1991-present)
Member, Association of Engineering Geologists (1992-present)
Member, National Ground Water Association (1991-2000)
Member, American Water Resources Association (2001-2004)

ACADEMIC EXPERIENCE

Assistant then Associate Professor, Utah State University (1990 to present).

Responsible for all aspects of instructing classes in physical geology, ground water geology, geochemistry, and techniques of ground water investigations. Also responsible for conducting scholarly research and publishing articles in professional journals, both undergraduate and graduate student advising, serving on thesis and other committees, and performing service functions for both the professional and lay communities. Current research projects include examining water samples, geophysical logs and core from two deep geothermal exploration boreholes in the eastern Snake River Plain, and investigating metals contamination at an abandoned mine near Challis, Idaho. Other recent research projects have included determining the feasibility of constructing an artificial salmon spawning channel near Hyder, Alaska, and characterizing, modeling and monitoring the ground water flow system in Cache Valley. Previous research interests included investigating the hydraulic properties of faults in central Utah as they relate to CO2 sequestration, assessing the impact of ground water flowing through mine tailings on heavy metals contamination of the North Fork of the American Fork River, conducting laboratory treatability experiments for bioremediation of TCE from Hill Air Force Base, the identification and geochemical characterization of perched water bodies at the Idaho National Laboratory, the relationship between stream losses and water table depths at Great Sand Dunes National Monument, and wellhead protection in a confined to semiconfined aquifer setting in the Salt Lake Valley.

Courses Taught

University Connections; Science Orientation; Introductory Geology; Physical Geology; Geology Field Excursions; Ground Water Geology; Geochemistry; Techniques of Ground Water Investigations (formerly Hydrogeologic Field Methods); Advanced Topics in Hydrogeology (topics have included Ground Water Regulations, Ground Water Chemistry and Ground Water Modeling).

Instructional Assistant then Assistant Professor (temporary, half-time), University of Idaho (1986 to 1988).

Responsible for all aspects of instructing undergraduate and graduate courses in ground water hydrology, including introductory hydrogeology, intermediate hydrogeology, field techniques in hydrogeology and contaminant transport.

Research Assistant then Research Associate, University of Idaho (1984 to 1987).

Responsible for planning, carrying out, analyzing data from and preparing a comprehensive document on an innovative field investigation into the flow of ground water through fractured crystalline rock, particularly as it applies to the abatement of acid production in abandoned underground mines.

CONSULTING EXPERIENCE

Hydrogeologist (1977 to 1980) then Senior Hydrogeologist/Project Manager, Hydro-Search, Inc. (1988 to 1990).

Responsible for technical performance and project management of consulting activities in the Great Basin and Rocky Mountain regions involving sanitary landfills, leaking underground storage tanks, hazardous and radioactive waste disposal, mine hydrogeology, and ground water contamination, including RCRA and CERCLA sites, and other hazardous waste/ground water contamination issues.

Hydrologist, Golder Associates (1981 to 1983).

Responsible for technical performance of consulting activities in the Pacific Northwest, western Canada and Alaska related to geotechnical, civil and mining projects.

GRANTS AND CONTRACTS

Hydrogeochemical studies at the Ramshorn/Skylark mine and mill site near Bayhorse, Idaho; USDA Forest Service; 2010-2011; \$10,801.00; PI (no Co-PIs)

Testing the hydraulic parameters of Cache Valley aquifers; Cache County; 2007-2008; \$19,033; PI (no Co-PIs)

GRANTS AND CONTRACTS (continued)

Marx Creek ground water spawning channel near Hyder, Alaska; USDA Forest Service, Tongass N.F.; 2006-2007; \$50,925.16; PI (no Co-PIs).

Geochemical investigation of the fate of salt water injected into the Navajo Sandstone in central Utah; Community/ University Research Initiative; 2005-2007; \$23,067; PI (no Co-PIs).

Benstog Construction well 7 and future claim for well 1; U.S. DOD, Air Force, Hill AFB; 2005-2006; \$3,750.03; PI (no Co-PIs).

Spring monitoring and measurement of non-point source recharge and canal seepage in Cache Valley, Utah; USU Water Initiative; 2005-2006; \$14,106; PI (David Chandler and Wynn Walker, Co-PIs).

Hydrologic contributions from springs on the Logan River, Utah; USU Water Initiative; 2004-2005; \$10,000; Co-PI (Michael Gooseff, PI; James Evans and Peter Kolesar, Co-PIs).

Discharge monitoring and chemical characterization of springs in Cache Valley; Cache County; 2003-2006; \$29,500; PI (no Co-PIs).

Simulation of ground water flow and initiation of long-term monitoring in Cache Valley; Community/University Research Initiative; 2001-2002; \$19,000; PI (no Co-PIs).

Simulation of ground water flow and chemical characterization of ground water and surface water interactions in Cache Valley; Cache County; 1998-2001; \$12,975; PI (no Co-PIs).

Comparative study of the feasibility for CO₂ sequestration in faulted/fractured sandstone reservoirs in eolian and fluvial -deltaic deposits; U.S. DOE; 2001-2003; \$252,213; Co-PI (James Evans, PI).

Interpretation of hydraulic properties of fault zones in sandstone aquifers using integrated geologic, hydrologic, and probabilistic models; U.S. DOE; 1998-2001; \$262,931; Co-PI (James Evans, PI).

Outcrop-to-simulation study: growth mechanics, architecture, and permeability of the Bighole Fault; a consortium of various oil companies; 1998-1999; \$70,000; Co-PI (James Evans, PI).

Well installation and pumping test plan report, Milford Chevron, Milford; Utah, Utah Department of Environmental Quality; 2000; \$30,726; Co-PI (Ryan Dupont, PI).

Feasibility studies for aquifer storage and recovery at four locations in Utah; Utah Division of Water Resources; 1998-1999; \$19,910; Co-PI (Mariush Kembrowski, PI).

Identification of perched water bodies and characterization of recharge at the Radioactive Waste Management Complex; Idaho National Engineering Laboratory; 1993-1994; \$14,925; PI (no Co-PIs).

Ground water monitoring for wellhead protection, case study in a confined to semiconfined aquifer, Salt Lake County, Utah; U.S. EPA; 1991-1994; \$142,944; PI (Craig Forster, Co-PI).

Surface flow on Medano, Mosca and Sand Creeks in relation to fault zones and water tables, Great Sand Dunes National Monument, Colorado; National Park Service; 1991-1993; \$31,746; Co-PI (James McCalpin, PI).

Identification of ground water recharge area(s) for the Cub River, Franklin County, Idaho; Utah State University Mineral Lease Grant; 1991-1992; \$14,145; PI (no Co-PIs).

PUBLICATIONS

Nelson, T.P., and Lachmar, T.E., 2013, Design of a groundwater model to determine the feasibility of extending an artificial salmon-spawning stream: case study for Marx Creek, near Hyder, Alaska: *Applied Water Science*, vol. 3, no. 3, p. 613-624.

Lachmar, T.E., and Randall, K.L., 2013, Suitability of central Utah's Navajo Sandstone for disposal of mined hydrocarbon water: *In* Wolkersdorfer, C., Brown, A., and Figueroa, L. (editors), *Reliable Mine Water Technology*, International Mine Water Association, p. 1211-1216.

Shervais, J.W., Schmitt, D.R., Nielson, D., Evans, J.P., Christiansen, E.H., Morgan, L., Shanks, W.C.P., Prokopenko, A.A., Lachmar, T., Liberty, L.M., Blackwell, D.D., Glen, J.M., Champion, D., Potter, K.E., and Kessler, J.A., 2013, First results from HOTSPOT: the Snake River Plain scientific drilling project, Idaho, U.S.A.: *Scientific Drilling*, no. 15, p. 36-45.

PUBLICATIONS (continued)

- Shervais, J.W., Nielson, D., Evans, J.P., Lachmar, T.E., Christiansen, E.H., Morgan, L., Shanks, W.C.P., Delahunty, C., Schmitt, D.R., Liberty, L.M., Blackwell, D.D., Glen, J.M., Kessler, J.A., Potter, K.E., Jean, M.M., Sant, C.J., and Freeman, T.G., 2012, Hotspot: the Snake River geothermal drilling project – initial report: Geothermal Resources Council Transactions, vol. 36, p. 767-772.
- Lachmar, T.E., Freeman, T.G., Wood, T.R., Shervais, J.W., and Nielson, D.L., 2012, Chemistry and thermometry of geothermal water from Mountain Home test well MH-2B: preliminary results: Geothermal Resources Council Transactions, vol. 36, p. 689-692.
- Inkenbrandt, P.C., and Lachmar, T.E., 2012, Estimating hydraulic parameters in Cache Valley, Utah, with applications to engineering and environmental geology: *In* Hylland, M.D., and Harty, K.M. (editors), Selected Topics in Engineering and Environmental Geology in Utah, Utah Geological Association, p. 69-84.
- Lachmar, T.E., and Olsen, A.A., 2012, Identification of recharge sources for springs in Cache Valley, Utah: *In* Hylland, M.D., and Harty, K.M. (editors), Selected Topics in Engineering and Environmental Geology in Utah, Utah Geological Association, p. 85-98.
- Heath, J.E., Lachmar, T.E., Evans, J.P., Kolesar, P.T., and Williams, A.P., 2009, Hydrogeochemical characterization of leaking carbon-dioxide charged fault zones in east-central Utah, with implications for geologic carbon storage. *In* McPherson, B.J., and Sundquist, E. (editors), Carbon Sequestration and Its Role in the Global Carbon Cycle, Geophysical Monograph Series 183, American Geophysical Union, p. 147-158.
- Lachmar, T.E., and Schieb, W.M., 2007, Impact of the Big Hole fault on fluid flow in the Navajo Sandstone, northern San Rafael Swell, Utah. *In* Willis, G., Clark, D., Hylland, M., and Chidsey, T. (editors), Guidebook to the Geology of Central Utah, Utah Geological Association, p. 425-438.
- Lachmar, T.E., Burk, N.I., and Kolesar, P.T., 2006, Groundwater contribution of metals from an abandoned mine to the North Fork of the American Fork River, Utah: Water, Air, and Soil Pollution, vol. 173, p. 103-120.
- Lachmar, T.E., Myers, B., and Robinson, J.M., 2004, Updated conceptual and MODFLOW ground-water models of Cache Valley, Utah and Idaho. *In* Spangler L.E. (editor), Ground Water in Utah: Resource, Protection, and Remediation, Utah Geological Association, Salt Lake City, Utah, p. 43-58.
- Lachmar, T.E., Gadt, J.W., and Robinson, J.M., 2004, Isotopic characterization of ground water in Salt Lake and Cache Valleys, Utah. *In* Spangler, L.E. (editor), Ground Water in Utah: Resource, Protection, and Remediation, Utah Geological Association, Salt Lake City, Utah, p. 59-76.
- Berkey, J.S., Lachmar, T.E., Doucette, W.J., and Dupont, R.R., 2003, Tracer studies for evaluation of in situ air sparging and in-well aeration system performance at a gasoline-contaminated site: Journal of Hazardous Materials, B98, p. 127-144.
- Lachmar, T.E., Bradbury, K.K., and Evans, J.P., 2002, Structure and hydrogeology of deformed sedimentary bedrock aquifers, western Summit County, Utah: Environmental & Engineering Geoscience, vol. VIII, no. 3, p. 219-236.
- Hall, B.L., Lachmar, T.E., and Dupont, R.R., 2001, Field monitoring and performance evaluation of a field-scale in-well aeration system at a gasoline-contaminated site: Journal of Hazardous Materials, B82, p. 197-212.
- Hall, B.L., Lachmar, T.E., and Dupont, R.R., 2000, Field monitoring and performance evaluation of an in situ air sparging system at a gasoline-contaminated site: Journal of Hazardous Materials, B74, p. 165-186.
- Hall, B.L., Baldwin, C.K., Lachmar, T.E., and Dupont, R.R., 2000, Instrumentation design and installation for monitoring air injection technologies: Ground Water Monitoring & Remediation, vol. XX, no. 2, p. 46-54.
- Forster, C.B., Lachmar, T.E., and Oliver, D.S., 1997, Comparison of models for delineating wellhead protection areas in confined to semiconfined aquifers in alluvial basins: Ground Water, vol. 35, no. 4, p. 689-697.
- Hadlock, G.L., Lachmar, T.E., and McCalpin, J.P., 1997, The relationship between the water table and the surface flow of a losing stream, lower Medano Creek, Great Sand Dunes National Monument, Colorado: Environmental Geology, vol. 30, no. 1/2, p. 10-16.
- Lachmar, T.E. and Gadt, J.W., 1995, Identification of recharge areas for irrigation water in carbonate terranes: Journal of Soil and Water Conservation, vol. 50, no. 4, p. 378-382.
- EI-Bihery, M.A. and Lachmar, T.E., 1994, Groundwater quality degradation as a result of overpumping in the delta Wadi El-Arish area, Sinai Peninsula, Egypt: Environmental Geology, vol. 24, no. 4, p. 293-305.

PUBLICATIONS (continued)

Lachmar, T.E., 1994, Application of fracture-flow hydrogeology to acid-mine drainage at the Bunker Hill Mine, Kellogg, Idaho: *Journal of Hydrology*, vol. 155, nos. 1-2, pp. 125-149.

Lachmar, T.E., 1993, The influence of fracture properties on ground water flow at the Bunker Hill Mine, Kellogg, Idaho: *Bulletin of the Association of Engineering Geologists*, vol. XXX, no. 4, p. 395-407.

Lachmar, T.E., Gadt, J.W., and Forster, C.B., 1993, Ground water management for wellhead protection in a confined to semiconfined aquifer, Salt Lake County, Utah. In Allen, R.G. and Neale, C.M.U. (editors), *Management of Irrigation and Drainage Systems: Integrated Perspectives*, American Society of Civil Engineers, New York, N.Y., p. 289-296.

Lachmar, T.E., 1991, The influence of rock discontinuity properties on ground water flow at the Bunker Hill Mine, Kellogg, Idaho. In McCalpin, J.P. (editor), *Proceedings of the 1991 Annual Symposium on Engineering Geology and Geotechnical Engineering*, Logan, Utah, no. 27, p. 34.1-34.16.

PUBLISHED ABSTRACTS

Lachmar, T.E., Freeman, T.G., Sant, C.J., Shervais, J.W., and Evans, J.P., Evaluation of the geothermal potential of the Snake River Plain, Idaho, based on three exploratory coreholes: Geological Society of America annual meeting, Denver, Colorado, October 27-30, 2013.

McDonough, H.L., and Lachmar, T.E., Ground water and surface water contributions to metals loadings in the Bayhorse Creek at the abandoned Ramshorn Mine site near Bayhorse, Idaho: Geological Society of America annual meeting, Charlotte, North Carolina, November 4-7, 2012.

Lachmar, T.E., and Olsen, A.A., Identification of recharge sources for springs in Cache Valley, Utah: Association of Environmental & Engineering Geologists annual meeting, Salt Lake City, Utah, September 15-23, 2012.

Shervais, J., Evans, J.P., Lachmar, T.E., Christiansen, E.J., Schmitt, D.R., Kessler, J.E., Potter, K.E., Jean, M.M., Sant, C.J., and Freeman, T.G., Project Hotspot – the Snake River Scientific Drilling Project: a progress report: Geological Society of America Rocky Mountain and Cordilleran sections joint meeting, Logan, Utah, May 18-20, 2011.

Lachmar, T.E., Ground water monitoring for wellhead protection, case study in a confined to semi-confined aquifer, Salt Lake County, Utah: Geological Society of America annual meeting, Denver, Colorado, October 31-November 3, 2010.

Inkenbrandt, P.C., and Lachmar, T.E., Estimates of the hydraulic parameters of aquifers in Cache Valley, Utah and Idaho: Geological Society of America annual meeting, Denver, Colorado, October 31-November 3, 2010.

Lachmar, T.E., A geologic and hydrochemical investigation of the suitability of central Utah's Navajo Sandstone for the disposal of saline process water: Energy Resources and Produced Waters Conference: Water Quality, Management, Treatment, and Use, University of Wyoming, Laramie, Wyoming, May 25-26, 2010.

Lachmar, T.E., Fracture-flow hydrogeology of the Bunker Hill Mine, Kellogg, Idaho: Geological Society of America annual meeting, Portland, Oregon, October 18-21, 2009.

Inkenbrandt, P.C., and Lachmar, T.E., Compilation of existing estimates and field measurements of aquifer parameters in Cache Valley, Utah and Idaho: Geological Society of America Rocky Mountain section meeting, Orem, Utah, May 11-13, 2009.

Lachmar, T.E., Nelson, T.P., and Randall, K.L., MODFLOW modeling for a proposed artificial salmon spawning channel extension near Hyder, Alaska: Geological Society of America annual meeting, Denver, Colorado, October 28-31, 2007.

Nelson, T.P., Randall, K.L., and Lachmar, T.E., Feasibility of extending an artificial salmon spawning stream near Hyder, Alaska: Geological Society of America Rocky Mountain section meeting, Saint George, Utah, May 7-9, 2007.

Randall, K.L., and Lachmar, T.E., Geologic and hydrochemical evaluation of the suitability of the Navajo Sandstone for CO₂ sequestration in central Utah: Geological Society of America Rocky Mountain section meeting, Saint George, Utah, May 7-9, 2007.

Lachmar, T.E., and Olsen, A.A., Identification of discharge sources to springs in southeastern Cache Valley, Utah: USU Water Initiative Spring Runoff Conference, Logan, Utah, April 5-6, 2007.

Randall, K.L., and Lachmar, T.E., Suitability of the Navajo Sandstone for CO₂ sequestration in central Utah: Geological Society of America Rocky Mountain section meeting, Gunnison, Colorado, May 17-19, 2006.

PUBLISHED ABSTRACTS (continued)

- Olsen, A.A., and Lachmar, T.E. Discharge monitoring, chemical characterization, and source identification of springs along the east side of southern Cache Valley, Utah: Geological Society of America Rocky Mountain section meeting, Gunnison, Colorado, May 17-19, 2006.
- Kolesar, P.T., Evans, J.P., Lachmar, T.E., Gooseff, M.N., and Payn, R., A tale of two karsts, Bear River Range, Cache National Forest, Utah: USU Water Initiative Spring Runoff Conference, Logan, UT, March 27-28, 2006.
- Kolesar, P.T., Evans, J.P., Gooseff, M.N., Lachmar, T.E., and Payn, R., A tale of two (or more) karsts, Bear River Range, Cache National Forest, Utah: Geological Society of America annual meeting, Salt Lake City, Utah, October 16-19, 2005.
- Lachmar, T.E., Schieb, W.M., and Evans, J.P., Hydraulic testing of a faulted sandstone reservoir - the Big Hole fault in the Navajo Sandstone, northern San Rafael Swell, Utah: Geological Society of America Rocky Mountain section meeting, Grand Junction, Colorado, May 23-25, 2005.
- Gooseff, M.N., Evans, J.P., Kolesar, P.T., Lachmar, T.E., and Payn, R., Determination of hydrologic contributions from springs to the Logan River, Utah: American Geophysical Union spring meeting, New Orleans, Louisiana, May 23-27, 2005.
- Burk, N.I., Lachmar, T.E., and Kolesar, P.T., Geochemistry of metals in surface and ground water from an abandoned mine in the north fork of the American Fork River: Geological Society of America Rocky Mountain and Cordilleran sections joint meeting, Boise, Idaho, May 3-5, 2004.
- Murch, K.L., Lachmar, T.E., and Dupont, R.R., Evaluation of bioremediation suitability at a TCE-contaminated site based on large-scale column tracer and microcosm experiments: Geological Society of America Rocky Mountain and Cordilleran sections joint meeting, Boise, Idaho, May 3-5, 2004.
- Lachmar, T.E. and Myers, B., Updated MODFLOW ground water model of Cache Valley, Utah and Idaho: USU Water Initiative Spring Runoff Conference, Logan, Utah, March 25-26, 2004.
- Heath, J.E., Evans, J.P., and Lachmar, T.E., Hydrogeochemical characterization of leaking CO₂-charged, low net-to-gross fault zones: the Little Grand Wash and Salt Wash fault zones, Emery and Grand Counties, Utah. American Association of Petroleum Geologists, International Conference & Exhibition, Barcelona, Spain, September 21-24, 2003.
- Heath, J.E., Lachmar, T.E., Kolesar, P.T., and Evans, J.P., Hydrogeochemical characterization of leaking CO₂-charged fault zones in east-central Utah. Institut Francais du Petrole, International Conference on Gas-Water-Rock Interactions Induced by Reservoir Exploitation, CO₂ Sequestration, and other Geological Storage, Rueil-Malmaison, France, November 18-20, 2003.
- Heath, J.E., Lachmar, T.E., Shipton, Z.K., Nelson, S., and Evans, J.P., 2002, Hydrogeochemical analysis of leaking CO₂-charged fault zones: the Little Grand Wash and Salt Wash fault zones, Emery and Grand Counties, Utah. Geological Society of America Abstracts with Programs, vol. 34, no. 6.
- Bradbury, K.K., Evans, J.P., Yonkee, W.A., and Lachmar, T.E., 2002, Structural characterization of folded and fractured sedimentary bedrock aquifers near Park City, Utah: Fractured-Rock Aquifers 2002 Conference, Denver, Colorado, p. 38.
- Robinson, J.M. and Lachmar, T.E., 2001, Hydrostratigraphic and chemical characterization of groundwater and surface water interactions in Cache Valley, Utah: Geological Society of America Rocky Mountain and South-Central sections joint annual meeting.
- Forster, C.B., Evans, J.P., Shipton, Z.K., and Lachmar, T.E., 2000, Deformation bands; networks of low permeability systems associated with faults in sandstone: American Geophysical Union spring meeting.
- Evans, J.P., Lachmar, T.E., Robeson, K., Schieb, B., Shipton, Z., Forster, C.B., and Snelgrove, S.S., 1999, Detailed Three-Dimensional Fault Zone Structure and Hydraulic Properties of the Big Hole Normal Fault, Utah: American Association of Petroleum Geologists annual convention.
- Hadley, H.K., Kolesar, P.T. and Lachmar, T.E., 1997, Chemical and isotopic signatures of ground water and their use in identifying the source of salinity in ground water in southern Juab Valley, Juab County, Utah: Geological Society of America Abstracts with Programs, vol., 29, no. 6, p. A-430.
- Jones, A.V., Lachmar, T.E. and Hubbell, J.M., 1995, Hydraulic and geochemical evidence for seasonal migration of recharge through the vadose zone at the Idaho National Engineering Laboratory, Idaho: Geological Society of America Abstracts with Programs, vol. 27, no. 4, p. 17.
- Gadt, J.W. and Lachmar, T.E., 1994, The application of isotopes to delineating wellhead protection areas in a confined to semiconfined aquifer, Salt Lake County, Utah: Geological Society of America Abstracts with Programs, vol. 26, no. 7, p. A-323.

PUBLISHED ABSTRACTS (continued)

Gadt, J.W., Lachmar, T.E. and Forster, C.B., 1994, Ground water monitoring for wellhead protection in a confined to semiconfined aquifer, Salt Lake County, Utah: Geological Society of America Abstracts with Programs, vol. 26, no. 6, p. 13.

Lachmar, T.E., Hadlock, G.L. and McCalpin, J.P., 1994, The hydrogeology of lower Medano Creek, Great Sand Dunes National Monument, San Luis Valley, Colorado: Geological Society of America Abstracts with Programs, vol 26, no. 6, p. 25.

Gadt, J.W., Lachmar, T.E. and Forster, C.B., 1993, Ground water monitoring for wellhead protection -- case study in a confined to semiconfined aquifer, Salt Lake County, Utah: American Water Resources Association's 23rd Annual Rocky Mountain Groundwater Conference, Albuquerque, N.M., October 27-29.

Lachmar, T.E. and Gadt, J.W., 1992, Identification of ground water recharge areas for the Cub River, Franklin County, Idaho: Geological Society of America Abstracts with Programs, vol. 24, no. 6, p. 22.

Lachmar, T.E. and Williams, R.E., 1988, Analysis of fracture flow at the Bunker Hill Mine: Geological Society of America Abstracts with Programs, vol. 20, no. 6, p. 426.

THESES COMPLETED

McDonough, H.L., 2015, Ground water and surface water contributions to metals loading in Bayhorse Creek at the abandoned Ramshorn mine site, near Bayhorse, Idaho: M.S. thesis, Utah State University, Logan, Utah, 180 p.

Freeman, T.G., 2013, Evaluation of the geothermal potential of the Snake River Plain, Idaho, based on three exploration holes: M.S. thesis, Utah State University, Logan, Utah, 102 p.

Inkenbrandt, P.C., 2010, Estimates of the hydraulic parameters of aquifers in Cache Valley, Utah and Idaho: M.S. thesis, Utah State University, Logan, Utah, 168 p.

Nelson, T.P., 2010, Feasibility of extending an artificial salmon spawning stream, Marx Creek near Hyder, Alaska: M.S. thesis, Utah State University, Logan, Utah, 167 p.

Randall, K.L., 2009, A geologic and hydrochemical investigation of the suitability of central Utah's Navajo Sandstone for the disposal of saline process water and CO₂: M.S. thesis, Utah State University, Logan, Utah, 151 p.

Olsen, A.A., 2007, Discharge monitoring, chemical characterization, and source identification of springs along the east side of southern Cache Valley, Utah: M.S. thesis, Utah State University, Logan, Utah, 178 p.

Heath, J.E., 2004, Hydrogeochemical characterization of leaking carbon dioxide-charged fault zones in east-central Utah: M.S. thesis, Utah State University, Logan, Utah, 175 p.

Schieb, W.M., 2004, Hydraulic testing of the Big Hole fault, northern San Rafael Swell, Utah: M.S. thesis, Utah State University, Logan, Utah, 135 p.

Burk, N.I., 2004, Geochemistry of ground water - surface water interactions and metals loading rates in the north fork of the American Fork River, Utah, from an abandoned silver/lead mine: M.S. thesis, Utah State University, Logan, Utah, 218 p.

Murch, K.L., 2003, One-dimensional modeling of bromide tracer and trichloroethylene transport based on laboratory experiments in vertical soil columns: M.S. thesis, Utah State University, Logan, Utah, 331 pp.

Myers, B.M., 2003, Simulation of groundwater flow in Cache Valley, Utah and Idaho: M.S. thesis, Utah State University, Logan, Utah, 88 pp.

Robinson, J. M., 1999, Chemical and hydrostratigraphic characterization of ground water and surface water interaction in Cache Valley, Utah: M.S. thesis, Utah State University, Logan, Utah, 184 pp.

Jones, A.V., 1995, Analysis of perched groundwater bodies beneath the Radioactive Waste Management Complex at the Idaho National Engineering Laboratory: M.S. thesis, Utah State University, Logan, Utah, 110 pp.

Hadlock, G.L., 1995, Groundwater and surface water interactions along lower Medano Creek, Great Sand Dunes National Monument, Colorado: M.S. thesis, Utah State University, Logan, Utah, 88 pp.

Gadt, J.W., 1994, Hydrogeology and hydrochemistry of the east-central portion of the Salt Lake Valley, Utah, as applied to wellhead protection in a confined to semiconfined aquifer: M.S. thesis, Utah State University, Logan, Utah, 162 pp.

EI-Bihery, M.A., 1993, Hydrogeology and hydrochemistry of the delta Wadi El-Arish area, north Sinai Peninsula, Egypt: M.S. thesis, Utah State University, Logan, Utah, 161 pp.