

**NAME****JAY LAZARUS****TITLE****President / Senior Geohydrologist, Glorieta Geoscience Inc.**

Responsible for: 1) Management of all projects, clients, staff, and subcontractors; 2) Location and design of water wells, multiple aquifer test wells, pumping test design and analysis, and ground water basin analysis (ground water resource evaluation and development); 3) Management of site investigations and remediation of contaminated soils and ground water (Environmental Geology); 4) Providing expert testimony; and 5) Overall project management.

**EXPERIENCE SUMMARY****More than 39 Years of Experience Encompassing the Following Areas:**

- Environmental Investigations
- Mine hydrology
- UST Investigations
- Phase 1 and Phase 2 Environmental Site Assessments
- Water resources development and planning
- Water rights adjudication/litigation support
- Project management, cost control, and administration of complex projects
- Dairy CAFO Environmental Compliance, Hydrogeologic Characterizations, Regulatory Compliance in 4 States and Management of 13 Abatements
- Drilling supervision, well design, lithologic description of cuttings and continuous core, evaluation of geophysical logs, and development of drilling specifications
- Development of programs for conducting aquifer tests and sampling of discrete ground water zones in multi-aquifer systems
- Groundwater basin analysis
- Development of hydrogeologic framework for multilayer ground water models
- Alternative energy development
- Regulatory development
- Expert testimony/ litigation support
- Wastewater reuse projects
- Watershed analysis and perennial yields

**SELECTED PROJECT EXPERIENCE****Summary of Projects and Project Management:**

- Principal-in-Charge for Nye County, Nevada water resource development, multi-layer ground water model development with USGS and Nevada State Engineer for the Death Valley flow system, evapotranspiration studies for determination of basin water budget and evaluation of radionuclide transport from the Nevada Test Site and Yucca Mountain Project, Pahrump Valley water rights administrative model
- Principal-in-Charge for site selection and geologic and hydrologic characterization for Compressed Air Energy Storage project for Chamisa Energy in West Texas
- Principal-in-Charge for hydrology, water rights, water quality and soils analyses for purchase or 6,000 acre farm and 4,000 acre farm for confidential farming client in Texas and Arizona.
- Principal-in-Charge for development and comingling 24,000 ac-ft of artesian and shallow ground water rights for Pirtle Farms and Dairy.
- Development of CAFOWeb™ online database and nutrient application forecasting tool for dairies and other CAFOs



- Principal-in-Charge for 12,000 ac-ft of water rights in successful permit negotiations with OSE for C&R Land and Cattle
- Principal-in-Charge under contract to New Mexico State University to calculate metered water rights usage on 140 New Mexico dairies based on both metered fresh and metered discharge water
- Principal-in-Charge for development of strategies to put 17,000 ac-ft to beneficial use for the Moapa Valley Water District, Nevada
- Managed more than 80 water rights projects for numerous municipal, industrial, agricultural and commercial clients throughout New Mexico, Nevada and Texas
- Managed water rights for >50,000 ac-ft in the Lower Pecos River
- Principal Investigator for Pecos Valley Biomass cooperative to develop alternatives for reuse of 1 mgd of anaerobic digester green water from liquid and solid manures from 50,000 milking cows in Lower Pecos region of New Mexico
- Principal-in-Charge for 20 dairy ground water quality abatements in New Mexico and Nevada where ground water standards have been exceeded
- Authored or co-authored 21 technical publications; Session Chair and presenter for American Water Resources Association Annual Meeting “Applications of Aqueous Geochemistry in New Mexico” – November 2011
- Former Co-Chairman and lead technical negotiator for the Town of Taos in settlement negotiations in the Abeyta (Taos Pueblo) water rights litigation
- Successfully worked with Cornerstone Dairy and ISC staff to transfer existing Lower Pecos water rights to lands leased from the ISC
- Formerly responsible for water rights strategies and acquisition for the Town of Taos
- Maintained overall project management and NMED and USEPA compliance responsibilities for more than 25 CAFOs in New Mexico, Texas and Nevada
- Been appointed to a Statewide Task Force by the Secretary of the New Mexico Environment Department to represent the Agricultural community on the State’s proposal to take over NPDES permitting from the USEPA Co-Chairman of the USEPA Region 6 Technical Committee of Federal CAFO and rules and Region 6 regulations, Chief technical representative for Pecos Valley Biomass Cooperative, Inc.
- Co-authored and performed the major editing on an OSE publication on Taos area groundwater model documentation
- Acted as the Chief water rights negotiator for the City of Las Vegas to obtain additional water rights
- Managed water rights projects for numerous private clients throughout the State
- Managed water rights for several dairies in the Lower Pecos River
- Overall project responsibility for more than 70,000 ft of well drilling and development
- Characterization of water rights and ground water resources in the Amargosa and Pahrump Valleys in Nye County, Nevada

**Nye County, Nevada (2011 – 2014):** Principal-in-Charge for Nye County, NV water resources development and water quality protection. Oversight of Nye County’s portion of development of the Southern Amargosa Embedded Model with the USGS to evaluate non-Federal pumping impacts on Death Valley, Devils’ Hole (Caepert), Ash Meadows, and radionuclide migration from the Nevada Test Site and Yucca Mountain Project. Development of a groundwater model of the Pahrump Valley for water rights administration.

**New Mexico Interstate Stream Commission Vaughan Ranch Purchase (2005 – present):** Principal-in-Charge for acquisition of the Vaughan Ranch in



Ft. Sumner New Mexico for the New Mexico Interstate Stream Commission. Oversight of all water rights analyses, well testing and analyses, ground water models, well field operations manual, water rights transfer strategies, model documentation and subcontractors selected by the ISC. GGI completed all work within budget and within schedule.

**Hydrology and Environmental Consultant to Dairy Producers of New Mexico (1997 – present):** Provide analyses of hydrologic and environmental legislation and rule-making issues that affect DPNM; Write Federal and Region 6 EPA CAFO/NPDES rule and regulations; evaluate NM State Engineer water rights policies that affect surface and ground water rights; Member NM Environment Department Task force evaluating NM taking primacy over NPDES permits from EPA; Member Water Quality Act Committee making changes to NM Water Quality Act.

**Eldorado Water and Sanitation District (EAWSD) Ground Water Development and Development of Ground Water Models (2005 – present):** Principal-in-charge of development of three groundwater models in fractured bedrock aquifers for EAWSD. Mr. Lazarus assisted Ms. Meghan Hodgins in development of: 1) a well field management model; 2) a water rights model for a 200 acre-ft/yr supplemental well, and; 3) development of a ground water model with OSE staff for future EAWSD ground water development in fractured bedrock aquifers.

**El Valle de Los Ranchos Water and Sanitation District (2008 – present):** Principal-in-Charge for development of a water rights acquisition strategy for El Valle's water right acquisition program. Developed criteria for El Valle's consumptive use water rights purchases and evaluated the validity of water rights offered to El Valle for purchase.

**Dairy Technical Working Manual (2012):** Senior Author for the Dairy Technical and Regulatory Guidance Manual for New Mexico (NMSU Circular 639), written under contract to New Mexico State University. The manual is the first comprehensive "how to" technical, scientific and regulatory manual for the dairy industry in New Mexico.

**Pecos Valley Biomass Cooperative, Roswell, NM (2006 – present):** Responsible for developing water supply and wastewater disposal alternatives for a 1.5 mgd collection, treatment and discharge system for biomethane generation and treatment dairy green water.

**Blackstone Ranch Water Rights, Taos County, NM (2008 – present):** Principal-in-Charge for water rights analysis, planning and transfer for the Blackstone Ranch. Developed the overall consumptive use water rights strategies for change of use and place and point of diversion for development of 130 irrigated acres from 2 stream systems and 3 acequias in the Taos valley.

**Ground Water Discharge Permit Management for 30 Dairies (1997 – present):** Principal-in-Charge for all State and Federal ground water permit and NPDES permit compliance for 30 dairies in New Mexico and Nevada ranging in size from 300 milking cows to 10,000 milking cows.

**Village of Taos Ski Valley Water Rights, Taos County, NM (1999 – present):** Responsible for all water rights acquisitions and compliance for the Village. Acted as the Village's lead negotiator in a lawsuit over the appraised value of diversionary and consumptive use water rights leased to the Village. Worked with 3 appraisers (1 from each party and a jointly nominated independent 3<sup>rd</sup> party appraiser) to establish appraised values for settlement and subsequent purchase by the Village.



**Century Bank Water Rights Analysis, Santa Fe County, NM (2007 – 2008):** Analyzed validity of consumptive use water rights transferred into the Buckman well field and direct diversion. Provided a valuation of 144 ac-ft of consumptive use water for the Bank to evaluate for loan collateral.

**Cornerstone Dairy, Eddy County, New Mexico (2006 – present):** Worked with Ms. Dempsey to complete a lease of land owned by the ISC, to which water rights dedicated to Texas state line deliveries were appurtenant, to Cornerstone dairy which then successfully filed an application to transfer other existing rights to the leased land.

**Pahrump Dairy Water Rights, Nye County, NV (1998 – 2013):** Responsible for evaluation of ground water production capacity for irrigation and dairy purposes for a 2500 cow dairy with 225 irrigated acres. Calculated irrigation needs, supervised long term specific capacity testing and is calculating irrigation water requirements to transfer point and place of use of both Valley and Fan water rights in the Pahrump valley.

**Enchantment Dairy, Chaves County, NM (2001 – present):** Principal-in-Charge for water rights and environmental compliance for Enchantment Dairy on 576 irrigated acres and performed due diligence for acquisition of 160 irrigated acres. Work includes evaluating weekly and monthly irrigation water meter readings and credits for irrigation reuse of dairy green water (parlor wash water)

**Santa Fe Canyon Ranch Water Rights, Santa Fe County, NM (2006 – 2008):** Principal-in-Charge for a successful transfer of a licensed surface water right to ground water for a 1310 acre subdivision near La Cienega. The application was protested and Mr. Lazarus developed the water rights strategy and negotiated settlement conditions with OSE and protestants. The application with conditions will allow a 55% return flow credit.

**Cottonwood Springs Dairy, Eddy County, New Mexico (2001– present):** Principal-in-Charge for water rights compliance for Cottonwood Springs Dairy for 297 irrigated acres. Work includes evaluating weekly and monthly irrigation water meter readings and credits for irrigation reuse of dairy green water (parlor wash water).

**Top Line Dairy, Chaves County, NM (2001 – present):** Principal- in-Charge for water rights compliance for Top Line Dairy. Work includes evaluating weekly and monthly irrigation water meter readings and credits for irrigation reuse of dairy green water (parlor wash water) on 880 irrigated acres.

**City of Española Well Development and Ground Water Modeling (2008 – present):** Served as principal in charge for drilling, zone testing, completion, testing and modeling for the City's OSE application for City Well 8. GGI modified the OSE ground water model for the Española's approved permit to use Well 8 as a supplemental well and evaluated pumping effects on wells of other ownership and effects on surface water flows.

**Abeyta Settlement Model, NM (1989 – 2006):** Co-chair of the Abeyta Technical Committee (Taos Pueblo Water Rights Litigation) and part of a multiparty team that developed a multilayer ground water/surface water model of the Taos Valley for settlement of claims in the Abeyta Litigation. Final peer review and editor of the State Engineer model report.

**G-22 Technical Committee, Gallup NM (2001 – present):** Member of a Technical Committee, on behalf of Zuni Pueblo, that is charged with development of a model to be used for estimation of pumping effects that will



result from the City of Gallup's proposed pumping of in excess of 5000 acre-ft per year.

**Ground Water Model for Water Rights Transfer, Pareo Farms, Veguita, NM (2002 – 2005):** Principal-in-Charge for design and development of a 1100+ gpm well and preparation of an application and associated ground water model for transfer of irrigation water rights to ground water for dairy and irrigation purposes.

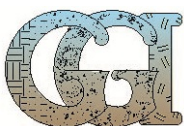
**Deep Well Exploratory Program, Taos, NM (1989 – 2009):** Provided overall project direction to various work tasks for the Town of Taos to locate, drill, test and develop deep (1,700-3,000 ft.) exploratory and public-supply production wells. To identify potential large production well sites GGI is making extensive use of geophysical surveys, fracture tracing techniques, water-quality and isotopic fingerprinting, review of geologic and well databases and aquifer performance tests to characterize the underlying Santa Fe Group aquifer sediments. Long-duration tests (96-hours to 14 days) are performed on all wells after completion for the purpose of aquifer characterization and evaluation of impacts to other wells and surface water resources.

**Water Rights Adjudication Program, Taos, NM (1994 – 2008):** Served as the Town of Taos's representative on the committee comprised of technical representatives for all of the major water users. Worked closely with Taos Pueblo, Taos Valley Association of Acequias, Water and Sanitation Districts and Mutual Domestic Systems to devise settlement strategies that involve the evaluation of alternative methods for assuring future water supplies and water rights for Taos valley. The work of this technical group required the development and evaluation of surface water and groundwater hydrologic data and joint projects for drilling and testing exploratory wells. An important goal of GGI's and the Technical group's work was the securing San Juan-Chama project water for the benefit of all Taos valley water users.

**Hydrology Consulting, Zuni Pueblo, NM (1999 – present):** Principal-in-Charge to provide, hydrology, geology, and ground water modeling consulting to Zuni Pueblo for evaluation of pumping impacts on Zuni Salt Lake from Fence Lake Mine; evaluate pumping impacts on Rio Nutria and Rio Pescado resulting from City of Gallup application G-22 and Southern Cross Subdivision applications; Zuni's groundwater consultant in Zuni River adjudication; develop and modify MODFLOW analytical models, perform original geologic mapping, interpretation of geophysical logs, and perform core drilling to characterize geology of Zuni Salt Lake maar.

**Hydrologic and Water Rights Consultant to City of Rio Rancho, NM (1998 – present):** Worked to develop the City's water supply program and assisted the City in successfully obtaining a NM State Engineer permit for an additional 12,000 ac-ft of new ground water, which included litigation support, development of model input parameters, direct well field modeling and 40-yr pumping schedule; design of program to obtain offsetting surface water rights; manage well design, drilling, completion, testing and analyses of 2500-3000 ft deep production wells; manage compliance monitoring for City sewage treatment plant discharges.

**Geohydrologic Investigations, Taos County, NM (1994 – present):** GGI staff under the direction of Mr. Lazarus has provided a variety of hydrologic and environmental services to private and public sector clients located throughout Taos County from Ojo Caliente to Costilla and Tres Piedras into the Sangre de Cristo Mountains. Responsible for preparation of numerous hydrologic investigations of groundwater conditions, water availability and groundwater sustainability. These investigations require the collection and interpretation of



geologic data, fracture analysis and field location of wells, and the drilling and testing of wells.

**Groundwater Exploration and Development and Water Rights Appropriations, Zorro Ranch, Stanley, NM (2000 – 2003):** Inventory and expand water rights available to 12,000 acre ranch; locate, supervise drilling, completion and testing of 1700 feet deep production well, new appropriation of water rights.

**Fracture-controlled Groundwater Distribution and Recharge to the Santa Fe Basin, Santa Fe County, NM (1981 – 1985):** Retained by Santa Fe County to analyze fracture-controlled groundwater distribution and recharge to the Santa Fe Basin. Located and installed monitoring wells on regional-scale fracture systems in Precambrian crystalline rocks of the Sangre de Cristo Mountains, and supervised data collection and analysis of water level fluctuations in 45 wells in the region to provide estimates of recharge to the basin.

**Evaluation of US Geological Survey San Juan Basin Ground Water Model (1980 – 1981):** Under contract to SOHIO, GGI provided peer review and model critiques of the USGS San Juan Basin ground water model for analysis of water right and water production issues for the proposed SOHIO uranium mine near Marquez, NM.

**EDUCATION**

M.S. Program, University of Arizona, 1975-1978  
 B.S. Geoscience, University of Arizona, 1975  
 B.A. History, University of Illinois, 1972

**PROFESSIONAL DEVELOPMENT/ TRAINING**

- Preparation of Environmental Impact Statements, The Shipley Group, 2000. Environmental Consulting to Insurance Industry, Environmental Claims Support, 2000.
- The Role of Borehole Geophysics in Contaminant Hydrogeology and Groundwater Investigations, E<sup>3</sup>, 1996.
- Use of MODFLOW for Simulation of Groundwater Flow and Advective Transport, National Groundwater Association, 1994.
- Hydraulics, Erosion and Sedimentation in Arid Lands, University of Arizona, 1981.
- Underground Injection Control, U.S. Environmental Protection Agency, 1978.

**EXPERT TESTIMONY**

DATE	CASE	CLIENT	JURISDICTION	EXPERTISE
2010	Black Interests Limited Partnership v. Godsoe Construction	Blackstone Ranch, Taos, NM	NM District Court	Geology, Hydrology, Water rights, Water Resource and Wastewater Planning and Management
2010	Ponderosa Dairy Discharge Permit Appeal	Rockview Farms, Inc.	Nevada State Environmental Commission	Geology, Hydrology, CAFO Permitting, CNMP Preparation
2008	ParaSol Dairy Ground Water Discharge Permit	ParaSol Dairy/John McCatharn	NM Environment Department	Geology, Hydrology, Geohydrology



2007	La Bajada Ditch v. Harrington	David and Galilea Harrington	NM State Engineer	Geology, Hydrology
1997	State of NM ex rel State Engineer; Gallinas River	City of Las Vegas	US Dist Court- NM District	Geology, Geohydrology, Hydrology
1996	State of NM ex rel State Engineer v. Aragon; Priority dates for Chamita, Hernandez and Salazaar Ditches	Rio de Chama Acequia Assoc.	US Dist Court – NM District	Geology, Geohydrology, Hydrology
1996	Native Amercian Prep School; Water Rights	Village of Pecos	NM State Engineer	Geology, Geohydrology, Hydrology
1995-1996	Pilar v. Taute; Cost of Replacement well	Dr. Guillermo Pilar	NM District Court	Geology, Hydrology
1994	Lake Peak Corp.; Water Rights	Rancho Los Ciruelos	NM State Engineer	Geology, Geohydrology, Hydrology
1992	State of NM ex rel State Engineer v. Aamodt	Rio Tesuque, Rio Pojoaque, Rio Nambe Acequias	US Dist Court – NM District	Geology, Geohydrology, Hydrology
1990	Montoya v. Town of Taos; Impacts from Sewage Treatment Plant Discharge	Town of Taos	NM District Court	Geology, Geohydrology, Hydrology, Geomorphology, Structural Geology
1989	State of NM ex rel State Engineer v. Abeyta; Water Rights	Taos Valley Acequia Assoc.	US Dist. Court – NM District	Geology, Hydrology, Geomorphology
1987	Brush v. Miller and Sebesta; Water Quality and Water Supply	Ron Sebesta	NM District Court	Geology, Geohydrology
1986	State of NM ex rel State Engineer v. Abeyta; Tienditas Creek/Rio Fernando de Taos – Change Point of Diversion, Purpose, Place of Use	Acequia del Sur Del Cafion	US Dist. Court – NM District	Geology, Hydrology, Geomorphology
1985	Romig v. Thompson Drilling; Water well drilling dispute	Dr. Romig	NM District Court	Domestic Wells
1985	Ensenada & Park View Ditch v. Gaylor/Sleeper; Change Point of Diversion	Ensenada & Park View Ditch	NM State Engineer, and NM District	Geology, Geohydrology
1983-1984	Groundwater Discharge Plan Geohydrology	Ski and Tennis Ranch of Taos	NM Health and Environment Department	Geology
1983-1984	Teton Drilling v. Edison Metal products	Travelers Insurance Company	NM District Court	Geology, Geohydrology
1981	Montano v. Acequias de Los Fuertes y San Agostin; Change Point of Diversion	Acequias de Los Fuertes y San Agostin	NM State Engineer	Hydrology

**APPOINTMENTS TO MULTIDICIPLINARY TECHNICAL COMMITTEES**

**Co-Chairman Abeyta Technical Committee:** Represent Town of Taos in technical committee; schedule meetings, develop meeting agendas and chair meetings; develop and implement \$2,000,000.00 cooperative exploratory drilling program with Taos Pueblo, US BIA, and US Bureau of Reclamation, develop



and analyze prototype projects for development of additional surface water and groundwater supplies; develop ground water settlement model.

**Dairy Technical Working Group:** Technical representative for Dairy Producers of New Mexico (DPNM) to Dairy Technical Working Group composed of representatives from DPNM, NM Environment Department, NM Office of State Engineer, Natural Resources Conservation Service, NM State University, USGS.

**Co-Chairman USEPA Region 6 CAFO Industry Group:** Acted as co-chairman, representing DPNM, of multidisciplinary EPA Region 6 CAFO working group (NM, Texas, Oklahoma, Arkansas, and Louisiana) since 1998 to write national and regional CAFO rules and regulations and to develop criteria for reproducible technical data for development of discharge permit regulations for concentrated animal feeding operations.

**Water Quality Act Committee:** Represent New Mexico agriculture industry on committee recommending changes to New Mexico Water Quality Control Commission regulations.

**City of Gallup OSE Application G22:** Primary technical representative of Zuni Pueblo and US Department of Interior to technical committee developing groundwater model for 7000 ac-ft/yr new appropriation of groundwater.

**Gallinas Stream System Technical Committee:** Represent City of Las Vegas in technical committee composed of City, OSE, Storrie Project and Gallinas River acequias for settlement of Rio Gallinas adjudication.

**Las Vegas Water Committee:** Represent City of Las Vegas in negotiations with Storrie Project and Gallinas River acequias over use of Gallinas River water.

**Environmental Initiatives Committee, National Milk Producers Federation (NMPF):** DPNM representative to NMPF on national discharge and environmental regulations.

**Member, City of Santa Fe Water Conservation Committee:** Recommendations on municipal water conservation options, evaluate and make recommendations on budgetary options for expenditures of \$500,000.00 per year for water conservation programs.

## SELECTED PUBLICATIONS

- Lazarus, Jay, Davis, J., Arata, A., and O'Callaghan, A., 2015, Effect of US Bureau of Land Proposed Resource Management Plan on Water Providers, Devils Hole Conference, Abstracts with programs.
- Lazarus, Jay, and Naumburg, E., 2015, Technical Evaluation of Reports by U.S. Environmental Protection Agency on Nitrate in Water Wells in the Yakima River Basin, Yakima County, WA, Waste to Worth 2015, Abstracts with programs.
- Lazarus, Jay, Riesterer, J., Naumburg, E., 2014, From Wells to Hoses, Ground Water Production and Conservation in the High Plains/Ogallala Aquifer, invited presentation to High Plains Dairy Conference, abstracts with programs.
- Lazarus, Jay, Riesterer, J., Naumburg, E., 2014, Design of High Production, High Efficiency Irrigation Wells in Amargosa Valley, NV invited presentation to Devils Hole Conference, abstracts with programs.
- Lazarus, Jay, and Naumburg, E., 2014, Water Resource Conservation, Best Management Practices, and Water Rights Management Ponderosa Dairy, Amargosa Valley, Nevada invited presentation to Devils Hole Conference, abstracts with programs.
- Lazarus, Jay and Lacey, D., 2013, Challenges to Water Development in Southern Nye County, Nevada, 2013 Devils Hole Conference, Furnace Creek, Abstracts p 7.





- Riesterer, Jim, Hodgins M., Lazarus, J., 2013, Preliminary Development of a Superposition Ground Water Model for Use in Administration of Water Right Transfers in the Pahrump Valley 2013 Devils Hole Conference, Furnace Creek, Abstracts p7.
- Lazarus, Jay and Riesterer, J., 2013, Design of High Capacity Energy Efficient Wells, Waste to Worth 2013, Livestock and Poultry Environment Center, Denver, Co, Abstracts
- Vander Dussen, Tara, Hagevoort, G.R, Lazarus, J., Naumburg, E. et al, 2012 Water usage on New Mexico dairies: based on the volume of pumped water and the volume of discharged water. J. Dairy Sci. (Abstr.) Journal of Dairy Science 95: 698
- Heikoop Jeffrey, Lazarus, J., Drakos, P., Perkins, G., Naumburg, E. et al, 2011 Nitrogen Isotope Forensics of Dairy Greenwater, AWRA Annual Conference, Albuquerque, NM, Abstracts
- Lazarus, Jay and Naumburg, E., 2011, Dairy Water Cycle and Sources of Nitrogen in Dairies, AWRA Annual Conference, Albuquerque, NM, Abstracts
- Lazarus, Jay and Hagevoort, R., 2011. The Groundwater, Energy, Food Nexus, *Invited presentation* to the Ground Water Protection Council Annual Forum, Meeting Competing Demands with Finite Groundwater Resources, abstract 12F.
- Lazarus, Jay, and Naumburg, E., 2011. Sources and Controls of Emcons at Dairies, poster presented at EmCon 2011, 3rd Intl Conference on Emerging Contaminants in the Environment Copenhagen, Denmark.
- Lazarus, Jay, 2011. Emerging Contaminants in surface and groundwater, Progressive Dairyman, vol 25, No. 5, p54-55.
- Lazarus, J., Hagevoort, R, and Ratcliff C.D., 2010. Dairy Technical and Regulatory Guidance Manual for New Mexico, New Mexico State University Circular 639; 152 pages.
- Lazarus, Jay, 2010, Water/Energy/Food Nexus: Sustaining Agricultural Production, *in* Water Resources IMPACT, Volume 12 No. 3, May 2010, p. 12-14
- Ganta, R., Lazarus, J., and Lombardi, S. 2008. Sorting out manure management plan options; Hoards dairyman – The National Dairy Farm Magazine since 1885; February 10, 2008: p. 107
- Riesterer, J., Drakos, P. and Lazarus, J. 2006. Hydrogeology of Hale Spring and evaluation of declining spring discharge, Ruidoso Downs, New Mexico. In New Mexico Geological Society Guidebook 57<sup>th</sup> Field Conference , Caves and Karst of Southeastern New Mexico, p. 287-295.
- Hodgins, M., Lazarus, J., and Mitchem, C., 2006, Naturally occurring radionuclide contamination in diverse aquifers tapped by domestic wells in the Santa Fe, New Mexico area. NGWA 2006 Ground Water Summit Conference Proceedings p. 30.
- Drakos, P., Lazarus, J., Riesterer, J., White, B., Banet C., Hodgins, M., and Sandoval, J., 2004, Subsurface stratigraphy in the southern San Luis Basin, New Mexico *in* New Mexico Geological Society, 55<sup>th</sup> Field Conference Guidebook, p. 374-382.
- Drakos, P., Lazarus, J., White, B., Banet, C., Hodgins, M., and Riesterer, J., 2004, Hydrologic Characteristics of Basin-Fill Aquifers in the Southern San Luis Basin, New Mexico *in* New Mexico Geological Society, 55<sup>th</sup> Field Conference Guidebook, p. 391-404.
- Drakos, P., Sims, K., Riesterer, J., Blusztajn, J., and Lazarus, J., 2004, Chemical and isotopic constraints on source-waters and connectivity of basin-fill aquifers in the southern San Luis Basin, New Mexico *in* New Mexico Geological Society, 55<sup>th</sup> Field Conference Guidebook, p.405-414.
- Hodgins, M., Hall, J., Lazarus, J., 2003, Subsurface mapping and hydrologic characterization of Bishop's Lodge Member of the Tesuque Formation, USGS Española Basin Technical Advisory Group (EBTAG) 2<sup>nd</sup> Annual Basin Workshop Abstracts Volume (March 4-5, 2003).
- Drakos, P. D., Lazarus, J., and Ratcliff, C. D., 2002; Hydrocarbon Contamination of Domestic Wells in Fractured-rock Aquifers Near Zuzax, New Mexico – How Can Detailed Hydrogeologic Information Be Used to Prevent Future Water Quality Impairment?; *in*, Fractured-Rock Aquifers 2002, NGWA, p. 208.
- Hodgins, M., Lazarus J., and Chudnoff, M., 2002; Groundwater – Surface Water Communication in Fractured Crystalline Bedrock Aquifer Near Red River Pass, Colfax County, New Mexico; *in*, Fractured-Rock Aquifers 2002, NGWA, p. 179-184.
- Lazarus, J., Drakos, P., and Riesterer, J., 2002; Will pumping from the fractured Dakota Sandstone aquifer at the Fence Lake mine lower water levels at the Sacred Zuni Salt Lake or are pumping effects limited to the mine site? – a tale of conflicting analytical models; *in*, Fractured-Rock Aquifers 2002, NGWA, p. 126-130.
- Lazarus, J. and Drakos, P., 1999, Hydrogeologic characterization of fractured Abo and Madera Formation aquifers, hydrocarbon contamination and transport along the Zuzax Fault, Tijeras Canyon, New Mexico: New Mexico Geological Society 50th Annual Field Trip Guidebook: Albuquerque Country III, p. 419-424.
- Lazarus, J. and Drakos, P., 1998, Hydrogeologic characterization, surface water-ground water interaction, and water quality in the southern San Luis Basin in the vicinity of Taos, NM: Proceedings of the 1998 Ground Water Protection Council Annual Forum, p. 104-114.
- Lazarus, Jay, 1997. Geohydrologic Characteristics of the City of Las Vegas Taylor Well Field, San Miguel County, New Mexico: *in* Proceedings of the 42<sup>nd</sup> Annual New Mexico Water Conference, New Mexico Water Resources Research Institute, Tucumcari Conference.
- Drakos, P., Lazarus, J., and Inoué, C., 1996, Holocene evolution of canyons and implications for contaminant transport, Pajarito Plateau: New Mexico Geological Society 47th Annual Field Trip Guidebook: Jemez Mountains Region, p. 399-406.



- Lazarus, J., and Drakos, P., 1995, Geohydrologic characteristics and hydrocarbon contamination of the shallow alluvial/Tesuque Formation aquifer within the city of Santa Fe, NM: New Mexico Geological Society 46<sup>th</sup> Annual Field Trip Guidebook, p. 307-311.
- Lazarus, J., Drakos, P., and Shoenfeld, P., 1994, Water Reuse – Water Quality and Water Rights Considerations; Efficient Water Use, UNESCO Regional Office for Science and Technology for Latin America and the Caribbean – ROSTLAC Montevideo – Uruguay, p. 145-152.
- Lazarus, J., Drake, P.G., and Shoenfeld, P.B., 1991, Water reuse - water quality and water rights considerations. Proceedings, International Seminar on Efficient Water Use, Mexican Institute of Water Technology and International Water Resources Association, Mexico City, p. 143-145. Paper selected as best in its Technical Session.
- Lazarus, Jay, 1989, Water Availability and Water Rights, National Xeriscape Conference, Program Abstracts, 1989 National Meeting, Albuquerque, New Mexico, p.24.
- Lazarus, Jay, 1985, Fracture controlled groundwater distribution adjacent to Los Esteros Reservoirs. Guadalupe County, New Mexico, New Mexico Geological Society Guidebook 36, p. 325-330.
- Lazarus, Jay, and Gibbons, J.F., 1981, Environmental response predictability in uranium mill tailings management, Proceedings of the Symposium on Waste Management, American Nuclear Society Topical Meeting, v. 11 p. 999-1008.
- Lazarus, Jay, 1981, Geohydrology, Geomorphology, and Geology of the White Oaks, New Mexico Coal District, Report to the New Mexico Energy and Minerals Department, 45p.
- Wachter, Bruce G., and Lazarus, J., 1978, Rockfall hazards in national parks of New Mexico and Arizona, Report to National Park Service, 34p.

## TEACHING EXPERIENCE

- Hydrologic Characterization and Water Quality in New Mexico, 2008, NRCS Comprehensive Nutrient Management Plan Training, Albuquerque, NM.
- CAFO Permitting Requirements, Hydrologic Characterizations, Water Quality and New Mexico Dairy Case Studies, 2008, NRCS Comprehensive Nutrient Management Plan Training, Albuquerque, NM.
- Well Rehabilitation and Analysis of Structural Causes of Casing Failure, New Mexico Ground Water Association, 2002, Ruidoso New Mexico.
- Physical Geology Instructor, University of Arizona, 1978

