

Benjamin Peterson, P.G., C.E.M.
Geologist and GIS Specialist

Professional Experience

Mr. Peterson is a Licensed Professional Geologist in six western states, a Nevada Certified Environmental Manager, and a Geographic Information Systems (GIS) Analyst with approximately 12 years of professional experience that includes: water resource and groundwater investigations; water well permitting, design and construction; water quality sampling; discharge measurements; geologic hazard assessments; NEPA Environmental Assessments; mining plans of operation; mining claim staking and management; environmental due diligence assessments for commercial real estate transactions (Phase I and II environmental site assessments); GIS analysis; and technical report writing. Mr. Peterson's versatile experience is the result of his eagerness to accept new challenges, combined with his background and education in geoscience, environmental science, and mapping.

Education

- B.S., Geology, Fort Lewis College, Durango, Colorado, 2007
- Geographic Information Systems Certificate, Fort Lewis College, Durango, Colorado, 2007

Certifications and Registrations

- Licensed Professional Geologist, California PG #9291
- Licensed Professional Geologist, Utah PG #9289608-2250
- Licensed Professional Geoscientist, Geology, Texas PG #12397
- Registered Professional Geologist, Idaho PGL-1669
- Registered Professional Geologist, Oregon RG #G2618
- Registered Professional Geologist, Arizona RG #67098
- Certified Environmental Manager, Nevada CEM #2397
- FAA Part 107 Certified Drone Operator, Remote Pilot #4385570
- Leaking Petroleum Storage Tank Corrective Action Project Manager, Texas, License PM0000626
- OSHA, 29 CFR 1910 40-Hour, Hazardous Waste Operations and Emergency Response (HAZWOPER) and subsequent 8-hour Annual Refreshers
- MSHA Part 48, Surface Miner Training
- Certificate of Completion, ASTM Technical and Professional Training on Environmental Site Assessments for Commercial Real Estate

Select Project Experience

Mining Projects

- **Newcrest Resources, Inc., Jarbidge, NV** – Project Geologist responsible for development and implementation of a surface water monitoring program to support mineral exploration activities on United States Forest Service Land. Tasks include: discharge measurements of springs and historical mine features emanating water; collection of water quality samples for analysis of Nevada Division of Environmental Protection Profile 1 water quality standards; and installation of turbidity and temperature monitoring stations with solar power, data loggers and telemetry for ensuring protection of bull trout.

- **Confidential Client, Clayton Valley, Nevada** – Project Geologist responsible for identifying and mapping areas of unclaimed land available for staking and performed the field work and desktop work to stake the unclaimed lands.
- **Hiskett & Sons’ Flat Top Pit Expansion, Churchill County, NV** – Prepared a Mine Plan of Operations for the expansion of an aggregate pit on 198 acres of land administered by the BLM. Coordinated and managed the baseline studies and preparation of a NEPA Environmental Assessment.
- **Geologic Evaluation of Naturally Occurring Asbestos and Erionite for NDOT Import Materials** – Project Geologist responsible for conducting numerous geologic evaluations of naturally occurring asbestos and erionite for commercial aggregate pits and preparation of field sampling plans for sites with a potential presence, in accordance with the Nevada Department of Transportation’s (NDOT) programmatic requirements.
- **National Environmental Policy Act (NEPA) Environmental Assessments, in various locations**– Project Manager responsible for coordinating NEPA environmental assessments for proposed actions on federal lands. Projects have included junior gold mines, aggregate pits, wildcat oil wells, a hospital, and a canal rehabilitation.
- **Abandoned Mine Lands Program, Nevada Division of Environmental Protection** – Project Geologist responsible for conducting desktop historical research on abandoned mine sites in Nevada to identify potential contaminants of concern and exposure pathways for human health and the environment in support of the NDEP AML Program.
- **Kinross, Bald Mountain, NV** – Project Geologist responsible for field oversight of a groundwater characterization drilling program. Project included drilling oversight, installation of grouted vibrating wire piezometers based on encountered subsurface conditions, and installation of a monitoring well for aquifer testing.
- **Jerritt Canyon Mine, Elko, NV** – Project Geologist responsible for conducting a hydraulic capture zone evaluation of plume pump-back wells to assess performance in support of ongoing remediation activities.
- **Relief Canyon Mine, Lovelock, NV** – Project Geologist responsible for oversight of a field investigation to determine viability and support the design of a proposed rapid infiltration basin. Field activities included soil classification and infiltration testing in drilled boreholes and excavated test pits.

Oil and Gas Projects

- **West Grant Canyon Development Company, Railroad Valley, NV** – Project Geologist responsible for preparing a BLM Right-of-Way application and associated Plan of Development for an 11-mile long access road and preparing the Notice of Staking (NOS) and Application for Permit to Drill (APD) for a wildcat oil well in Railroad Valley, Nevada.
- **BP America Production Company, ConocoPhillips Company, Burlington Resources, XTO Energy, and Samson Resources Company, Durango, CO** – GIS Specialist responsible for permitting over 3,000 coal-bed methane gas wells as water wells, after the Colorado Supreme Court ruled that the production of coal-bed methane constitutes a beneficial use of water and therefore must be administered by the Colorado State Engineer’s Office. Combined spatial and

tabular data of gas wells with water production data to prepare permit applications for thousands of wells in a single process. The Colorado State Engineer's Office adopted the template created by Mr. Peterson for use by other well permit applicants in the oil and gas industry.

- **Confidential Major Oil and Gas Company, Durango, CO** – Geologist and GIS Specialist responsible for conducting an investigation and analysis to assess the areas within a specific geologic formation where produced groundwater associated with oil and gas development would meet the nontributary statutory definition in the State of Colorado using spreadsheet and commercial models.
- **BP America Production Company, Durango, CO** – Geologist responsible for the collection of baseline surface water quality samples to satisfy Colorado Oil and Gas Conservation Commission requirements of Rule 317B. Project consisted of mapping oil and gas wells affected by Rule 317B and collecting baseline water samples for each of these wells from the nearest classified water supply segment.
- **BP America Production Company, Durango, CO** – Geologist responsible for the collection of bi-annual groundwater samples from various wells and springs to support a groundwater investigation of the San Juan Basin. Samples were analyzed for tritium and CFC's to calculate an apparent age of the water and analyzed for several other elements to determine a geologic source.

Environmental Site Assessment Projects

Phase I Environmental Site Assessments

Environmental Professional responsible for conducting numerous Phase I environmental site assessments for commercial real estate transactions. Assessed various types of industrial, commercial and residential properties for the presence of recognized environmental conditions in accordance with ASTM 1527 or ASTM 2247.

Phase II Environmental Site Assessments

Project Manager responsible for conducting numerous Phase II environmental site assessments to address environmental concerns at commercial and industrial properties in connection with real estate transactions. Routine tasks include preparing cost estimates and work plans, directing field activities, soil logging, soil/groundwater sampling, regulatory reporting and regulatory liaison as necessary, preparing site maps, and preparing a report of findings. Select projects include:

- **Cosmetic Enterprises, LTD, Dayton, NV** – Project Manager responsible for conducting a due diligence Phase II environmental site assessment at a former titanium foundry. Activities included the advancement of two soil borings to facilitate groundwater sampling, advancement of multiple soil borings within the 60,000-square-foot building to assess for soil contamination, and collection of indoor air samples to assess for vapor intrusion. The property transaction was successful as a result of the environmental site assessment.
- **Cascade Columbia Distribution, McCarran, NV** – Project Manager responsible for conducting a due diligence Phase II environmental site assessment at a former aluminum micromill. Activities included groundwater sampling from three existing monitoring wells and advancement of multiple soil borings within the 105,000-square-foot building to assess for soil contamination. The site assessment led to a successful property transaction.
- **MontBleu Casino, Stateline, NV** – Project Manager responsible for conducting a Phase II environmental site assessment at the MontBleu Casino to address potential environmental

concerns identified in a prior Phase I ESA. Activities included the advancement of three soil borings to facilitate soil and groundwater sampling and collecting water samples from eleven existing monitoring wells. The site assessment activities addressed the potential environmental concerns and facilitated the refinancing of a commercial loan.

Geographic Information Systems

- **Comstock Mining, Inc., Silver City, NV** – GIS Specialist responsible for geospatial database development, maintenance, and mapping for an environmental site assessment and remediation project in the historic Comstock mining district, which coincides with the current day Carson River Mercury Superfund site. Location data and chemical data from hundreds of soil samples were compiled in a geospatial database for comparison to Carson River Mercury Superfund Site waste categories. The project is high profile and publicly sensitive.
- **Diamond X Ranch, Douglas County, NV and Alpine County, CA** – GIS Specialist responsible for geospatial database development, maintenance, and mapping for an environmental site assessment project to characterize the extent of metals contaminated soils, sediment, surface water, and groundwater at a former cattle grazing ranch. Metal contamination resulted from flood irrigating the ranch with surface water that had been impacted by acid mine drainage. The geospatial database included chemical data for approximately 1,200 soil and sediment samples from roughly 400 locations at varying depths and approximately 100 surface water samples.
- **Former Sage Hill Clay Sports Gun Club, Reno, NV** – GIS Specialist responsible for geospatial database development, maintenance, and mapping for an environmental site assessment project to characterize the extent of lead contaminated soils at a former shotgun range. The geospatial database included chemical data for approximately 300 soil samples.
- **Bathymetric Surveys for various clients, Western Slope, CO** – GIS Specialist responsible for conducting numerous bathymetric surveys of gravel pits, stock ponds, aesthetic ponds, and irrigation reservoirs to calculate pond volumes and surface areas for use in a water rights application.
- **Bear Creek Ranch, Durango, CO** – GIS Specialist responsible for the preparation of court exhibits for use in active litigation of a water rights dispute. Compiled a series of maps using historical aerial photography to show the historical ditch alignment and area of use. Historical maps were compared with GPS-derived data of the current ditch alignment and area of use. Maps were used as court exhibits to successfully show continued use of the ditch through time and prevent the client from losing water rights from an abandonment claim.
- **Several Water Rights Clients, Western Slope, CO** – GIS Specialist responsible of the composition of maps to display locations derived from water court decrees, court testimony, water rights applications and well permits. Composed maps depicting locations of ditch points of diversion, ditch conveyance systems, wellhead locations, and other features as needed for water rights applications or water court documents.

Groundwater Investigations

- **Aquifer Testing and Analysis, Various Locations, Western Slope, CO** – Geologist responsible for coordination and/or collection of water level data and water quality sampling during aquifer (bedrock and alluvial) testing, with aquifer properties analyzed using various spreadsheet and commercial models.

- **Bondad Landfill Methane Monitoring, Bondad, CO** – Geologist responsible for the monitoring of methane probes and groundwater monitoring wells at the Bondad Landfill. Utilized a GEM-2000 methane meter to record methane concentrations in gas probes and collected water samples from monitoring wells for an analysis of dissolved methane in groundwater for submittal to state regulators.

Geological Hazard Assessment

- **Gateway Canyons Resort, Gateway, CO** – Geologist responsible for conducting a geological hazard assessment for a planned golf course and residential subdivision. Evidence of previous rockfall events and historical debris flows were documented. Developed maps to show the proposed development, drainage paths, and slope angles throughout the property. Potential rockfall boulders were modeled with computer software to determine potential roll-out distances and hazardous areas.

Water Rights and Water Resources

- **Historical Agricultural Water Right Changes for Commercial Uses, Western Slope, CO** – Geologist responsible for completing studies for several clients using aerial photography, water use records, and crop types to demonstrate the historic consumptive use of irrigated farm fields for developing a defensible basis for transfer of water rights to commercial uses. Created GIS maps to calculate areas of irrigated land, annual precipitation, evaporation, elevation and location.
- **Public Water Supply Well, Durango, CO** – Geologist responsible for designing and constructing a public water supply well and establishing compliance with national drinking water standards. Successfully designed a flowing-artesian water well that produced drinking water from a shallow sandstone aquifer that was recharged by a local stream, while eliminating influence of surface water contamination.
- **Water Well Permitting, Various Clients, Western Slope, CO** – Water Resource Specialist responsible for compliance of permit requirements for clients involved with gravel pit mining, oil and gas production, and commercial properties.
- **Augmentation Plans and Substitute Water Supply Plans, Various Clients, Western Slope, CO** – Water Resource Specialist responsible for preparation of augmentation plan reports and substitute water supply plan reports for several gravel pits throughout Colorado. Reports included depletion calculations, calculation of historical consumptive use credits from dried-up irrigation, lagged return flows, and replacement water sources. Created maps to identify locations of water rights and aid in locating potential sources of augmentation water.