
Senior Project Hydrogeologist

Expertise	Hydrogeologic Investigations, Numerical Groundwater Modeling
Education	M.S. (Hydrologic Science), 2015 Colorado School of Mines, Golden, Colorado, USA B.S. (Hydrogeology), 2009 University of Nevada Reno, Reno, Nevada, USA
Professional Affiliations	Member: National Ground Water Association, Colorado Groundwater Association

Professional Experience

2020 – Present	ITASCA Denver, Lakewood, Colorado Project Hydrogeologist
2017 – 2019	ERM, Denver, Colorado Hydrogeologist
2016 – 2017	Glorieta Geoscience, Santa Fe, New Mexico Hydrogeologist
2009 – 2014	Farr West Engineering, Reno, Nevada Hydrogeologist

Project Experience

Basin-Scale 3-D Numerical Groundwater Model for Mine Dewatering Predictions: Developed and calibrated a 3-D numerical groundwater model to simulate pre-development (historical) to current observed groundwater conditions at the project area and surrounding basins in Nevada. The model is utilized for scenario testing of proposed mine dewatering predictions and will be used for satisfying permitting requirements.

Simulated Basin-Scale Infiltration of Produced Water for Design and Permitting of Alluvial Rapid Infiltration Basins (RIBs): Modified a 3-D groundwater flow model for use in scenario testing of RIB locations and infiltration rates to assess the impacts to groundwater mounding for the purposes of design and permitting in the state of Nevada.

Hydrogeologic Investigation of Fractured Rock Proximal to Ore Body: Performed hydraulic testing of fractured rock with downhole packer assembly up to depths of 1,800 meters to determine the hydraulic properties of the rock for use in a regional groundwater model. Hydraulic information will be used in the design and permitting of a mine in Ecuador.

3-D Geologic and Contaminant Fate and Transport Groundwater Model in Basin Fill Aquifer: Created a 3-D conceptual site model (CSM) to include local (fine resolution) and regional (coarse resolution) stratigraphic units. Built 3-D fate and transport model from CSM and modeled the natural attenuation of chlorinated solvents. Tested remedial scenarios to identify the most feasible and cost-effective strategy to meet cleanup goals.

Hydrogeologic Investigation for Proposed Aggregate Quarry: Managed hydrogeologic field investigation and data analysis to characterize the granitic intrusion, determine future mine pit inflows, and analyze the potential for water quantity and quality impact to groundwater users in the region.

3-D Geologic and Contaminant Fate and Transport Groundwater Model in Weathered Rock Aquifer: Created a 3-D CSM to include fractured rock contact from seismic refraction survey. Built 3-D fate and transport model from CSM and modeled the discharge of contaminants to a creek in a weathered and fractured rock environment. Presented 3-D model results to governing agency.

Contaminant Fate and Transport Groundwater Model: Created a 3-D contaminant fate and transport numerical groundwater model to simulate the hydrogeologic conditions and environmental fate and reactive transport of chlorinated volatile organic compounds (CVOCs) in groundwater. Tested several pump-and-treat remedial scenarios to identify the most cost-effective capture design of the groundwater plume.

Hydrogeologic Investigation and Contaminant Fate and Transport Groundwater Model: Conducted a multiday constant-rate aquifer test during a hydrogeologic investigation and assisted with a regional-scale contaminant fate and transport groundwater model to determine optimal pumping scenarios for capture of a large 1,4-Dioxane plume.

H₂O Water Right Application: Modeled the impacts to wells of other ownership from the pumping of the full diversion of a water right application for commercial water sales and compliance with New Mexico state water law.

Discharge Permit Compliance: Provided contractor coordination and field supervision for monitoring well drilling, lithologic logging, and installation in accordance with New Mexico state EPA regulations.

Well Improvement Project: Designed and installed a 500-gallons-per-minute, 1,100-foot bedrock well based on the information obtained from an exploratory drilling project and extensive review of the local water quality and geologic setting in Nevada. Produced safe drinking water in a region with arsenic exceedances and used modern wellhead technologies including a variable frequency drive (VFD) to allow for the control of production-rate-induced drawdown, the optimization of water quality, and future potential design flows for water treatment.

Well Improvement Project: Modified existing pumps and wells to meet water-quality standards for total dissolved solids and new well exploration and production well drilling at Walker Lake in Nevada. Conducted an extensive review of the regional and local water quality and geologic setting. Used rotasonic drilling for continuous lithology and zone water-quality sampling at three locations, leading to a beneficial water source. Designed and installed a production well based on the test boring that met all water-quality standards.