Senior Project Hydrogeologist

Expertise	Mine Water Management Including Water Balance and Water Quality Modeling, Surface Water Data Analysis, Climate Modeling, Remote Sensing and Geospatial Analysis
Education	B.S. (Sustainable Energy, Materials, and Technology), 2011 Arizona State University, Tempe, Arizona, USA
Certifications	MSHA (Mining Safety and Health Administration)

Professional Experience

2025 – Present	ITASCA Denver, Lakewood, Colorado Senior Project Hydrogeologist
2018 – 2024	SRK Consulting, Denver, Colorado Geoenvironmental Consultant
2016 – 2018	WSP/Parsons Brinckerhoff, Denver, Colorado Project Hydrogeologist/Engineer I
2012 – 2016	Schlumberger Water Services, Denver, Colorado Project Hydrogeologist/Engineer I
2011 – 2012	Freeport-McMoRan Inc., Phoenix, Arizona Sustainable Development/Engineering Intern

Project Experience

Modeling in Support of Mine Water Management:
Over a decade of experience supporting mining projects across the U.S. (Arizona, Nevada, Colorado, North Carolina, Alaska), Canada (British Columbia), Latin America (Mexico, Peru, Brazil, Chile, Colombia), and Africa (Mauritania, Ghana, South Africa). Responsibilities have included developing site-wide probabilistic water and chemical mass balance models using *GoldSim*, integrating climate change parameters into long-term water planning, and reviewing third-party water balance models. Experience spans all phases of mine development, including scoping, feasibility, operations, and closure.

Surface Water Data Analysis and Remote Sensing:
Led efforts to validate and enhance surface water datasets using multispectral and hyperspectral satellite imagery. Developed hydrological indices for remote sensing applications and created workflows for integrating satellite-derived data into water balance models. Skilled in geospatial analysis using *ArcGIS* and *QGIS*, catchment delineation, and 3D surface modeling in *AutoCAD Civil 3D*. Experience includes interpreting streamflow data, installing surface water sensors, and extracting hydrologic parameters for water balance modeling and engineering design.

Climate Modeling and Environmental Data Analytics:
Developed stochastic climate models incorporating AR5 and AR6 parameters of the Intergovernmental Panel on Climate Change (IPCC) to support water resource planning and risk assessments. Conducted QA/QC of large environmental datasets, performed statistical analysis using R and Python, and built dashboards and visualizations in *Power BI* to communicate environmental performance with stakeholders. Experience includes climate data interpretation, natural recharge estimation, and integration of climatic trends into mine water management strategies.

Field Investigations and Instrumentation:
Extensive field experience in drilling supervision, instrumentation, and data collection for hydrogeologic and environmental impact studies. Responsibilities have included managing drilling crews in remote locations, supervising vertical and directional drilling programs, installing monitoring wells and surface water sensors, and troubleshooting custom-built scientific equipment. Field programs have supported dewatering, water quality monitoring, surface water monitoring, and geotechnical investigations.

Sustainability and Water Resources Planning:
Supported sustainable development initiatives through water conservation assessments, environmental impact reporting, and stakeholder engagement. Experience includes developing site water management plans, identifying water and energy conservation opportunities, and contributing to workshops and training programs focused on sustainability in mining operations.