

Staff Geologist

FIELDS OF EXPERTISE

Water Resource Development, Well Design, Hydrogeology, Geology

HIGHLIGHTS OF EXPERIENCE

Mr. Morrison is a geologist with more than 5 years of professional experience in water well installations, hydrogeologic studies, water resource planning and development, and environmental projects. Water resource development is a particular area of expertise for him. He has completed several well siting and groundwater resource projects for clients using methods appropriate for the client and project. Last year, he completed a groundwater resource development project that delineated areas of groundwater resources available to the client. He identified nine supply well sites within the resource areas and oversaw the installation of those wells.

PROJECT EXPERIENCE

- Groundwater Resource Development: Mr. Morrison coordinated the field operations for a groundwater investigation at an open-pit copper mine. Nine supply well sites were identified, which yielded approximately 5,000 gpm. Wells were located based on surficial geophysical surveys, constant-rate and falling head aquifer tests, borehole geophysics, and geologic mapping. Groundwater production was measured in the borings during and after drilling to ensure a reliable yield before a well was installed.
- Groundwater Supply Investigation: Mr. Morrison led field operations for a groundwater resource investigation in Baja California Sur, Mexico. A groundwater source was identified to supply drinking water for up to 1,000 homes in an arid environment. Proper management of the aquifer would allow for a sustainable groundwater yield and prevented nearby salt water from intruding into the aquifer.
- Groundwater Supply Investigation: Mr. Morrison has contributed to an on-going groundwater resource investigation for a municipal water supply company in Tucson, Arizona. Created a GIS database to evaluate potential well sites based on site accessibility, geology, production potential, and proximity to nearby wells.
- Groundwater Investigation: Mr. Morrison created an excel spreadsheet to model groundwater flow into an open-pit mine. A final copy of the spreadsheet was included as a deliverable at the conclusion of the project so that mine operations personnel can update the model to adapt to future mining plans.
- Supply Well Installation: Mr. Morrison oversaw the installation of three 12-inch diameter industrial supply wells for a mining client. Wells were installed in karstic and fractured bedrock to depths of 600-950 feet. Used borehole geophysics, depth-specific groundwater sampling and pumping tests to construct wells that met the project goal of 500 gpm.
- Supply Well Installation: Mr. Morrison oversaw the installation of seven domestic supply. High-sulfate water is present in the upper aquifer, and high-arsenic water is present at depth. The domestic supply wells were designed to draw potable water from an intermediate depth in the aquifer.
- Supply Well Rehabilitation – Multiple Clients: Mr. Morrison has consulted on numerous well rehabilitation projects for private clients and public water supply companies. Well rehabilitation methods, such as brushing-and-bailing, casing patches, and chemical treatment, can be used to improve the performance of older wells.
- Monitor Well Installation – Multiple Clients: Mr. Morrison has overseen the design, installation, and testing of numerous groundwater monitoring wells and piezometers.
- Aquifer Protection Planning and Permitting: Mr. Morrison has completed state and federal permits for the protection of drinking water aquifers from industrial contaminants.

EDUCATION

M.S., Geoscience, University of Arizona, Tucson, AZ, 2003

B.A., Geology/Environmental Studies, University of Pennsylvania, Philadelphia, PA, 2001

Health and Safety Training: 40 hrs. Hazardous Waste Operations (OSHA 1910.120)

Health and Safety Training: 8 hrs. Refresher Hazardous Waste Operations (OSHA 1910.120)

Health and Safety Training: 24 hrs. New Miner (MSHA 30 CFR, Part 46)

Health and Safety Training: 8 hrs. Refresher (MSHA 30 CFR, Part 46)

Health and Safety Training: Red Cross First Aid and CPR Certification

AFFILIATIONS

The American Institute of Professional Geologists

Arizona Hydrological Society