

# Hydrogeology and Groundwater

GAI hydrogeologists and other groundwater professionals provide expert solutions to our clients' groundwater assessment, investigation, monitoring, restoration, and remediation needs.

The groundwater professionals at GAI stay informed on current regulations, and provide innovative solutions for complex groundwater problems. Our hydrogeologists, geologists, environmental engineers, and environmental scientists apply the principles of hydrogeology and geology to address groundwater challenges and impacts by formulating efficient and cost-effective solutions.

**Our experienced hydrogeologists routinely perform statistical analyses to define background water quality and evaluate potential impacts at downgradient points of compliance.**

When developing an effective solution to a groundwater concern, defining the problem is a critical first step in determining future site action.

Combining extensive experience and academic training, GAI's professionals evaluate geological conditions of the water-bearing zones underlying a site and begin to develop a Conceptual Site Model (CSM). Based on the existing information, additional investigation is focused on mitigating the groundwater impacts or the risk-based liabilities. The CSM is tested throughout the investigative process to determine whether anomalous conditions exist that affect the validity of the understanding of the site.

Once a conceptual understanding of the site hydrogeology and geology is formulated, GAI designs and installs effective monitoring systems. GAI groundwater professionals are highly experienced in the design and installation of effective groundwater monitoring networks in complex geologic conditions.

GAI professionals follow established standard operating procedures in compliance with United States Environmental Protection Agency (USEPA) and other regulatory requirements for the collection and interpretation of reliable and defensible groundwater quality data.



gai consultants.

## Service Profile



Should there be the need to quantitatively determine aquifer parameters or evaluate remedial options, aquifer testing is performed to define aquifer characteristics and estimate the rate of groundwater transport. We use state-of-the-art computer models to conduct hydrogeologic analyses, design efficient extraction well/trench drain networks, and evaluate the radius of influence and capture zones, to the standard and regulatory-accepted models for evaluation of fate and transport of constituents for risk-based closures.

GAI's groundwater investigation and remediation experience encompasses waste disposal sites, underground storage tanks, transportation facilities, commercial /industrial facilities, voluntary remediation sites, brownfields, mine sites, Resource Conservation Recovery Act (RCRA) facilities, and sites that fall under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Our remedial designs reduce or eliminate the effects of water contamination.

The environmental professionals at GAI are dedicated to evaluating and remediating the potential environmental liabilities of past practices.

### Hydrogeology and Groundwater Services

- Hydrogeology and Geology
- Monitoring Well Network Design
- Monitoring Well Installation
- Groundwater Monitoring
- Aquifer Testing
- Groundwater Fate and Transport Modeling
- Extraction Design and Installation
- Feasibility Studies
- Risk Assessments
- Risk-Based Closure

### GAI Services Summary

- Airport Planning and Design
- Bridge and Structure Inspection and Design
- Coal Combustion Residuals Management
- Construction Inspection and Management
- Cultural Resources Management
- Economic Analyses and Strategies
- Electric Transmission Design and Siting
- Environmental Engineering
- Environmental Studies, Species Studies, Permitting
- Gas Pipeline Surveying and Mapping
- Geographic Information Systems (GIS)
- Geotechnical Engineering and Geology
- Impoundment and Landfill Permitting and Design
- Land Development Engineering
- Landscape Architecture and Design
- Master Planning and Urban Design
- Mechanical, Electrical, Structural Engineering
- Natural Gas FERC Certification and Permitting
- Nuclear Energy Engineering Support
- Right of Way and Appraisal Support
- Land Surveying and Mapping
- Transportation Planning and Design
- Utility Management Consulting
- Water, Stormwater, Wastewater Management

The scope of professional services that are provided by or offered out of each GAI office including, but not limited to, engineering and surveying services, is governed by the professional and business licensing requirements of each individual State or jurisdiction in which the GAI office is located and whether GAI has the requisite professional and business licenses for that State or jurisdiction. Nothing on GAI's Web Site or marketing materials is intended to be interpreted or construed as offering to perform professional licensed services where prohibited unless the licensing requirements have been met. Engineering services are not offered out of GAI's Northern Kentucky (Florence) office location. Surveying services are not offered out of GAI's Illinois location or by our New York subsidiary.

