



**Statement of Qualifications**





“No other consulting and engineering firm better combines technology and practice leadership with client service and project delivery excellence to provide services and solutions that are highly valued by its clients.”

Geosyntec is a consulting and engineering firm that works with private and public sector clients to address new ventures and complex problems involving our environment, natural resources, and civil infrastructure. We serve our clients from offices in the United States, Canada, the United Kingdom, Ireland, and Australia.

Our high-value services, first-to-field deployment of emerging technologies, and innovative solutions address new ventures and complex challenges involving our environment, natural resources, and infrastructure for our private and public sector clients.

## Practice Areas

- Contaminated Site Assessment and Cleanup
- Environmental Planning and Management
- Building Health Evaluations and Rehabilitation
- Air Quality Management and Air Pollution Control
- Water and Natural Resources Assessment, Management, and Restoration
- Water and Wastewater System Planning, Engineering, and Design
- Waste Management Planning, Engineering, and Design
- Civil Site Engineering and Design
- Geotechnical and Geological Analysis, Modeling, and Engineering
- Structure and Fluid Analysis, Modeling, and Engineering
- Facility Hazard Definition and Risk Management
- Waste Management Planning, Engineering, and Design Civil Site Engineering and Design
- Geotechnical and Geoenvironmental Analysis, Modeling, and Engineering
- Structure and Fluid Analysis, Modeling, and Engineering Facility Hazard Definition and Risk Management

## Client Sectors

- Federal Departments and Agencies
- Oil and Gas Affiliated Industries
- Chemicals and Petrochemicals
- Diversified Manufacturing Industries
- Aerospace and Electronics Manufacturing Industries
- Pharmaceuticals and Biotechnology
- Electric Power Utilities
- Solid and Hazardous Waste Management
- Real Estate and Property Development Services
- Law Firms
- Municipalities, Counties, and Local Public Agencies
- State Government Agencies and Departments
- Mining
- Dams

**17%**

DOCTORATE DEGREE

**31%**

BACHELOR'S DEGREE

**52%**

MASTER'S DEGREE



Geosyntec has built a record of successful client service by attracting some of the most creative scientists and engineers from the graduate programs of leading universities around the world.

Our practitioners' exceptional technical and problem-solving skills foster a collaborative environment that puts our clients' needs first. Geosyntec's high retention rate is due to our interesting clients, projects, and technology development initiatives that has promoted a supportive work environment that manifests itself in the quality of our work products, our trust-based relationships with academic and regulatory agency colleagues, and the value our clients tell us we bring to every assignment.

## Technical Disciplines



### Engineering

- Civil
- Environmental
- Earthquake
- Geotechnical
- Coastal
- Hydraulic
- Water Resources
- Chemical
- Structural
- Mechanical



### Life Sciences

- Microbiology
- Biology
- Limnology
- Zoology
- Soil Science
- Biochemistry



### Risk Management

- Toxicology
- Public Health
- Health Physics
- Epidemiology
- Statistics



### Earth Sciences

- Geology
- Hydrogeology
- Geochemistry
- Geophysics
- Seismology



### Physical Sciences

- Mathematics
- Physics
- Chemistry



### Construction

- Construction Management
- Resident Engineering
- Quality Assurance



Our project experience spans hundreds of initiatives across the environmental remediation spectrum.

Geosyntec practitioners rank among the world's top professionals in providing site assessment and remediation services at a wide range of impacted sites using innovative technologies and solutions that consistently advance the state of the practice.

Through our use of innovative technologies and solutions, we provide our public and private sector clients with a wide array of services to address their toughest challenges.

Our contaminated site practitioners guide our clients through a specialized remediation plan, consult on regulatory strategies, and develop a comprehensive cleanup approach. We can address numerous types of media, including contaminated soils, sediments, and groundwater

### Advancing the State of the Practice

Geosyntec's practitioners are pioneers in site assessment and remediation. Our senior practitioners have developed and authored guidance material and courses for local, state, and national agencies and associations on remediation techniques and technologies. Working with the Interstate Technical Regulatory Council (ITRC), Geosyntec practitioners taught a training course on vapor intrusion, including mitigation options for the development of vapor-impacted brownfield sites. Geosyntec practitioners also wrote the guidance document on evaluating, optimizing, or ending post-closure care at impacted sites, including brownfield sites, and developed a patented approach for sub-slab vapor migration mitigation allowing residential, commercial, and industrial development on sites impacted by vapor intrusion.

Our specialists routinely collaborate with prominent national researchers from academia and government agencies to provide innovative and defensible strategies for sites with contaminated sediments. For example, we collaborated with the U.S. Geological Survey (USGS) to remediate chlorinated solvent-contaminated marsh sediments by applying a bioreactive mat system embedded with a dehalogenating microbial consortium, a technology that Geosyntec helped develop. This project and partnership earned our client recognition as a finalist for the Service to America Medal awarded by the Partnership for Public Service.

Through a collaborative research project with the University of Florida, Geosyntec professionals assisted in the development of the FLUCL software package for the Florida Department of Environmental Protection. This software is used to calculate exposure point concentration statistics in risk assessment and was the first of its kind to contain algorithms for censored datasets. FLUCL has received endorsements from several U.S. Environmental Protection Agency (EPA) regions and the California EPA.

Geosyntec scientists also pioneered the use of genetic molecular tools for the characterization of the microbes in environmental media and are engaged in applied research and development with top academic institutions around the world, including the University of Toronto, Cornell University, and the Georgia Institute of Technology.

During the assessment and cleanup of environmentally compromised sites, a thorough understanding of the fate and transport of contaminants can be a key element in the design and choice of successful remediation solutions.

For more than 30 years, Geosyntec engineers and scientists have been recognized by industry peers for their demonstrated skill in the mathematical modeling of contaminant fate and transport in sediment and water, including underground water columns and large surface water systems. These models provide valuable insights into the complex physical, chemical, and biological processes present at contaminated sites and allow us to propose effective remediation solutions to clients based on sound, verifiable data.

After determining what chemical, biological, or photolytic reactions are underway among any contaminants of concern (fate) and how the contaminants physically move through impacted media (transport), our staff employ the supporting data for site characterization and risk assessments that, in turn, guide remediation strategies and management decisions by our clients.

Our practitioners employ a systematic modeling approach that allows for appropriate review and feedback at each stage of model development. After we determine the overall goals and objectives for the fate and transport analysis, we collect available data for a preliminary conceptual model of the system. This model improves our understanding of the site, identifies data gaps and inconsistencies in the system, and may point out the need for additional data collection or research. Once in place, the final fate and transport model can be used to predict concentrations of contaminants, make risk assessments, and evaluate various remediation options.

Depending on the type of site and media present, our models can be used to:

- Evaluate groundwater movement, flow direction, velocity, and discharge rates
- Understand any interactions between hydrogeologic systems
- Develop and manage groundwater supply systems
- Simulate changes in flow conditions
- Determine potential impacts of contamination to nearby wells or surface water
- Estimate leachability from soil sources to groundwater
- Demonstrate compliance with regulatory requirements
- Estimate vapor intrusion from groundwater and soils into buildings
- Estimate capture zones and drinking water source protection areas

Our senior practitioners have successfully presented and defended modeling results to state and national regulatory agencies, including the U.S. Environmental Protection Agency. They also have provided peer review of groundwater models developed by others.

Understanding how water interacts with the surface and sub-surface environment at any contaminated location is critical to designing innovative and cost-effective remediation systems or site management strategies.

A thorough delineation and understanding of the geology and hydrogeology affecting any contaminated site strengthens the conceptual site model and provides the framework for design of a groundwater remedial program, if needed. Ultimately, hydrogeological characterization and modeling affects the performance of any remediation technologies deployed as a solution.

The purpose of these investigations and models is to determine flow directions, pathways, and rates of groundwater flow, potential receptors of groundwater, potential contaminants, and the extent of contamination in the subsurface environment. Our use of bold approaches to site conceptualization frequently challenge traditional or pre-conceived notions pertaining to characterization or remedial strategies.

Some of the field methods we employ include borehole exploration (including coring) and 2D or 3D mapping of surface features. For groundwater flow information, we monitor water elevations in wells and adjacent surface waters and perform aquifer tests using pumping or slug tests. We also conduct laboratory analysis of cores and borehole flowmeters. For subsurface chemistry, we collect soil and groundwater samples for analysis. If dense non-aqueous phase liquid (DNAPL) is present, we collect samples and measure the thickness of free product.

Geosyntec's sound, reliable data coupled with our novel thinking lead to a clearer understanding of site concepts by all parties. Cost-saving benefits to our clients are often found in our implementation of the innovative remedies that emerge from our analysis of a site's hydrogeological conditions.

Additionally, Geosyntec practitioners offer clients a wealth of site characterization experience conducted under a wide range of regulatory environments, ranging from state-led programs and projects regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). Our professionals have the experience base and technical knowledge to effectively advocate innovative remedial strategies on behalf of our clients.