Geosyntec is advancing the state of knowledge through technology innovations and collaborative research and development (R&D), including our own R&D investments to advance the industry state of practice and better meet client needs.
Geosyntec was founded in 1983 as a specialized consulting and engineering firm that works with private and public sector clients to address their new ventures and complex problems involving the environment, our natural resources, and our civil infrastructure. Geosyntec has more than 1,200 engineers, scientists, and related technical and project support staff located in more than 80 offices throughout the United States and in Canada, Australia, and the United Kingdom.

We are nationally known for our technology leadership, broad experience, and exceptional client service. Our professionals continue to develop new technology applications and practice capabilities. Our applied research partnerships with leading universities, NASA, U.S. EPA, Department of Defense, and other organization are producing better methods for the in situ remediation of recalcitrant chemicals in the environment; management of urban watersheds to reduce pollutant loadings; protection of endangered species from the impacts of storm water runoff; design of industrial and municipal waste disposal facilities; and geotechnical and seismic analysis and design of earthen structures and other critical facilities.

Our private sector clients come from a variety of industrial sectors including mining, oil and gas, chemical, aerospace, pharmaceutical, diversified manufacturing, advanced technology, power and utility, real estate, law, and environmental management. Our public sector clients include municipal, state/regional, and national governments.
Fostering Results through Innovation and Technology Demonstrations

At Geosyntec, our scientists and engineers are exploring the frontiers of remediation, improving the application of existing technologies and developing next generation technologies. Innovation is a cornerstone of our culture. We promote an entrepreneurial spirit within our technical communities, and emphasize the importance of identifying and demonstrating new and innovative technologies that can support more effective, efficient and sustainable solutions for our clients’ environmental problems.

Technology Innovation

Areas of active research include the following:

- Vapor intrusion assessment and mitigation
- Emerging contaminants
- Sampling and site characterization methods
- Toxicology
- Conceptual site model visualization
- System modeling and large-scale data management
- In situ remediation technologies
- Enhanced natural attenuation
- Environmental forensics and molecular biological tools
- Management of contaminated sediments
- Hazard assessment and prevention

Collectively, we have significant experience with investigation and remedial success through the effective design and deployment of in situ technologies and/or ex situ technologies to cost-effectively address contaminated soil vapor, soil and groundwater. This wealth of experience makes it easy for Geosyntec to identify technology and regulatory needs, data gaps and areas for improvement.

Partnerships with University and Government Researchers

- In our quest to build world-class teams to better serve our clients, we often partner with researchers at universities and government agencies to complement our internal resources and technical knowledge with specialized expertise.
- Academic partnerships provide unique training opportunities for our employees on leading-edge technical advancements and next generation technologies.
- We provide academic researchers with engaging topics for student research, access to field sites, leveraged funding and project management expertise, allowing them to gain field insights and opportunities for technology validation and demonstration.

First-to-field pilot study of zero-valent zinc (ZVZ) to remediate 1,2,3-trichloropropane at Camp Pendleton Marine Corps Base, California

Our academic and government research partners are located across the U.S. and Canada
Thought Leadership and Technology Transfer

Our experts routinely share their knowledge to change industry paradigms through professional webinar and conference presentations, workshops and courses for industry professionals and the public, interagency collaborations, and routine authorship of review articles, presentations and books.

Examples of Geosyntec’s leadership in advancing the state of knowledge industry-wide include the following:

• Design, advertisement and launching the SERDP/ESTCP webinar series. The biweekly webinars feature invited speakers in five program areas (Energy and Water; Environmental Restoration; Munitions Response; Resource Conservation and Resiliency; and, Weapons Systems and Platforms). The webinar series has garnered wide interest (100 to 1000 participants per seminar).
• Active participation in Interstate Technology and Regulatory Council (ITRC) teams to develop guidance documents and training courses that broaden and deepen technical knowledge, shape regulatory guidance, and expedite quality regulatory decision-making.
• Planning and organizing conferences, workshops and conference sessions on key topics of interest (e.g., RemTEC Summit, Emerging Contaminants Summit).
• Peer-reviewed publications that document significant findings from ground-breaking projects.

Geosyntec Provides Seed Funding for Research and Development

Over 50 Projects Funded Since 2015

• Geosyntec provides internal R&D funding to maintain and enhance our position as technical solution leaders, foster practice leadership, promote technology development and innovation, and increase interoffice practice collaboration.
• How it works: Staff submit research proposals annually. Geosyntec’s Technical Advisory Council (TAC) evaluates and ranks proposals and selects proposals for implementation based on available funding.
• Projects that leverage external matching funding or build relationships with university faculty and researchers are favored.
• The TAC program sets us apart from other consulting firms:
  • Pushes the application of existing technologies and the development of next generation technologies
  • Encourages grassroots innovation to solve clients’ complex challenges
  • Fosters a culture of technical excellence, innovation and collegial relationships
  • Demonstrates the depth of our environmental practice and thought leadership
  • Illustrates our core principles of technical innovation and project excellence
Geosyntec maintains a strong reputation for practice leadership and technological innovation. Our professionals continually develop new technology applications and capabilities. We have teamed with researchers from universities and government agencies including the Navy, U.S. Army Corps of Engineers, U.S. Air Force Civil Engineer Center, and Environmental Protection Agency to create and validate science-based solutions to meet industry needs. Geosyntec plays a vital role in many federal research projects. Recently-awarded SERDP/ESTCP projects include the following:

**Demonstration of In-Situ PFAS Treatment using Low-pH Persulfate Oxidation**

*NAVFAC, Geosyntec, University of California, Berkeley*

This field demonstration is evaluating thermally-enhanced low-pH in situ persulfate oxidation to treat per- and polyfluoroalkyl substances (PFAS). In the laboratory, this technology fully destroyed perfluorinated carboxylic acids including PFOA and precursors. In situ treatment could decrease the cost and duration of pump-and-treat to address PFOS and other remaining perfluorinated sulfonic acids (ER-201729).

**Mass Flux Characterization for Vapor Intrusion Assessment**

*Geosyntec*

Geosyntec is developing and validating techniques to measure volatile organic compound (VOC) mass flux from the subsurface to indoor air. Characterizing vapor phase mass flux instead of concentration minimizes uncertainties due to spatial and temporal variabilities. This project is expected to improve vapor intrusion assessment and generate more accurate estimates of indoor VOC levels (ER-201503).

**Biologically-Mediated Abiotic Degradation of Chlorinated Ethenes: A New Conceptual Framework**

*University of Iowa, Geosyntec*

The project examines the kinetics and pathways of perchloroethene (PCE) and trichloroethene (TCE) degradation mediated by reactive mineral solids generated by iron- or sulfate-reducing bacteria in the subsurface. In partnership with academic researchers, Geosyntec conducted field sampling and analysis to assess the potential use or enhancement of these natural attenuation mechanisms for site management (ER-2532).

**NMR-Based Sensors for In Situ Monitoring of Changes in Groundwater Chemistry**

*University of Guelph, Geosyntec*

Novel in situ nuclear magnetic resonance (NMR) sensors are being developed. These sensors can improve the temporal and spatial monitoring of natural attenuation processes and reduce long-term monitoring costs (ER-2534).

**Other SERDP/ESTCP Projects**

- Assessment and Management of Stormwater Impacts of Sediment Recontamination (ER-2428)
- Electrokinetic-Enhanced Amendment Delivery for Remediation of Low Permeability Media (ER-201325)
- Demonstration of Cost-Effective Methods for Mitigating Radon and VOC Vapor Intrusion (ER-201322)
- Climate Management System for Corrosion Control Facilities (13 EBEW4-026 / EW-201345)
- Forecast Effective Site Characterization and Early Remediation Performance (ER-2313)
- Enhancing cis-DCE Natural Attenuation through Bioaugmentation (ER-0516)
- In Situ Bioremediation of Perchlorate (CU-1164)
Since 2014, Geosyntec has provided our own funding for R&D projects. A Technical Advisory Council (TAC) guides and manages Geosyntec’s R&D investments. The TAC evaluates research proposals submitted by staff and provides seed funding to promising ideas on an annual basis. TAC funding has fostered close collaborations between Geosyntec, university researchers and government partners, and has paved the way for external R&D projects.

Recent Examples of TAC-Funded Projects:

- Development of 3D Model for Passive Vapor Intrusion Mitigation System Design
- Enhanced Bioremediation of Hexavalent Chromium in Groundwater
- Enhancing Understanding of 1,2,3-Trichloropropane Bioremediation
- Developing and Characterizing a Microbial Culture for Treatment of 1,4-Dioxane
- Assessing Microbial Viability and Biodegradation Capabilities in Rock Matrices
- In Situ Biosequestration of Heavy Metals for Remediation of Chromated Copper Arsenate (CCA) Contaminated Sites
- Anaerobic Benzene Bioremediation
- Developing and Commercializing a Passive Sampling Device and Service for Sediment Pore Water and Surface Water
- Real Time Field Measurement of Per- and Polyfluoroalkyl Substances (PFAS)
- Development of Mercury Isotopes as Forensic Tool to Assess Mercury Sources
- Development of Nuclear Magnetic Resonance (NMR) Forensic and Diagnostic Tools
- Phytoscreening for Reconnaissance-Level Plume Delineation Field Scale Application for a Large Volatile Organic Compound Plume
- Field-Scale Application of Sodium Persulfate to Treat Manufactured Gas Plant (MGP) Residuals
- Physical/Chemical Treatment of Selenium at Power Plants and Mine Sites
- Electrolytic Degradation of Perfluoroalkyl Substances
- Electrochemical Recovery of Blowdown Water Halogen
We value technology leadership and practice innovation as the foundation for producing services and solutions of exceptional value to our clients that incorporate principles of environmental sustainability and stewardship.
Geosyntec Consultants is a consulting firm with engineers, geologists, environmental scientists, and other technical and project staff based in offices throughout the United States and at select locations in Australia, Canada, Ireland, and the United Kingdom. We address new ventures and complex problems involving our environment, natural resources, and civil infrastructure.

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