Geosyntec consultants

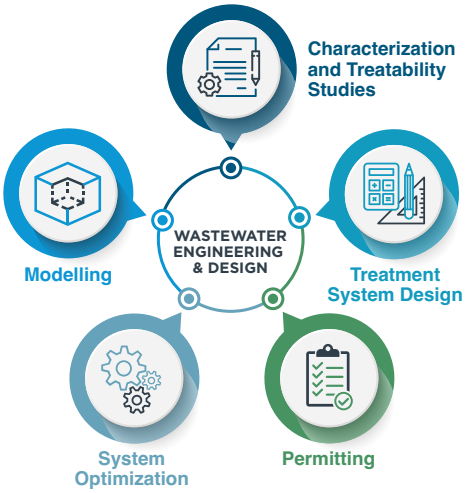
WATER AND WASTEWATER TREATMENT - PROCESS ENGINEERING DESIGN & DELIVERY

Our primary services to wastewater treatment plant owners and operators include the design of advanced and secondary treatment plants, land and waterbody direct discharge systems, physical and biological nutrient removal systems, biosolids management facilities employing aerobic and anaerobic digestion, and beneficial reuse systems.

For more information
geosyntec.com/markets/water-solutions/industrial-water

Geosyntec provides specialized water and wastewater engineering services to our clients. These include a wide range of municipal, industrial, and commercial entities. We design sustainable projects that allow our clients to benefit from long-term cost savings, greater efficiency, new revenue from innovative solutions, improved public image and stakeholder relations, and real reductions in impacts on the natural environment.

Our process engineering expertise is in water/wastewater design, remediation, air treatment, landfill leachate design, and stormwater. We also design complete facilities for wastewater treatment, water treatment, sludge disposal and solid waste handling, general manufacturing, and basic production.



OUR CAPABILITIES ARE AS FOLLOWS:

- Characterization and treatability studies
- Conceptual and detailed treatment system designs
- Instrumentation and control designs
- Facility permitting
- Construction oversight
- System start-up services
- Operation and maintenance
- System optimization and modeling
- Data management and reporting
- Advanced simulation modeling
- Planning studies
- Water and wastewater treatment plant design
- Pilot and treatability studies
- Corrective action plan implementation
- Storage, distribution, and treatment operations
- Wastewater collection system design
- Pump station design
- Water distribution system design
- Collection and distribution system studies
- Program and project management
- Construction supervision and inspection

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WASTEWATER SOLUTIONS

Geosyntec's practitioners deliver best-value, practical solutions that address the demands and cost margins facing our clients:

- Troubleshooting system performance challenges
- Developing site-wide water balances to support client decisions and risk assessments
- Identifying water and cost reduction opportunities
- Optimizing existing wastewater treatment systems to allow for production increases and/or diversifying without major capital investment
- Developing strategies to mitigate increasing sewer discharge costs
- Evaluating potential environmental impacts from proposed changes in operating procedures, production levels, or product formulation
- Upgrading outdated water and wastewater systems and equipment
- Complying with changes in permitting requirements
- Planning for facility expansions, refurbishments, or greenfield developments

We independently evaluate treatment and equipment options to design systems tailored to your operation.

WE HAVE DESIGNED TREATMENT SYSTEMS THAT RANGE FROM SIMPLE TO COMPLEX AND OFTEN INCLUDE MANY OF THE FOLLOWING COMPONENTS AND TECHNOLOGIES:

Pretreatment

- Equalization
- Coarse or bar screening
- Fine screening
- Dissolved air flotation

Physical, Chemical, and Biological Treatment

- Anaerobic digestion
- Activated sludge
- Fluidized beds
- Slurry reactors
- Biofilm trickling filters
- Membrane bioreactors
- Thin-film bioreactors
- Lagoon systems

Reuse Polishing

- Ozonation
- Advanced oxidation
- Activated carbon
- Micro-, ultra-, and nanofiltration
- Reverse osmosis

Tertiary Polishing

- pH optimization
- Phosphorus removal
- Ammonia removal
- Suspended solids removal
- Disinfection
- Ozonation
- Constructed wetlands

WATER TREATMENT AND DELIVERY

Water is a limited essential resource for industries and municipalities. Water scarcity, water quality degradation, high operational costs, stringent discharge regulations, and risk mitigation can all complicate treatment programs and systems.

Clients turn to us for leading-edge solutions and for quality delivery of traditional methods. We blend novel and current state-of-the-practice approaches to find and build solutions that last.

We do more than create and install systems that satisfy technical specifications and compliance requirements. Our practitioners collaborate with clients to select, design, and construct water systems that align with their businesses, objectives, and future goals.

Geosyntec manages water treatment and reuse projects, from the first consultation to the system installation and support. Our experts across fields help clients design robust systems that tackle complex water challenges, last for a long time, and maximize the level of beneficial reuse.

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WATER AND WASTEWATER TREATMENT - PROCESS ENGINEERING DESIGN & DELIVERY

Clients reliably achieve the goals of their customers, communities, and stakeholders, while we deliver the technical acumen and expertise to address regional water quality issues with made-to-measure solutions.

GEOSYNTEC ALSO PROVIDES CLIENTS WITH SOLUTIONS FOR THE FOLLOWING:

CONVEYANCE SYSTEM EVALUATION AND DESIGN

We help clients design and install conveyance pipeline in urban and geotechnically challenging areas, including supporting complex regional drinking water supply projects in California. To support water conveyance systems, we engineer pump stations, distribution networks, and reservoirs; design interconnecting water systems; evaluate pipeline integrity due to varying water characteristics; and provide other specialty services.

RESIDUAL SOLIDS MANAGEMENT

Management of wastewater residuals such as screenings, settled mud/primary sludge, dissolved air flotation float, and biosolids can end up being the most significant operating costs incurred by water or wastewater treatment systems. Geosyntec has a proven record of reducing the cost of residuals management and finding sustainable, long-term solutions that reduce the risk of cost increases to our clients.

Our strength in residual solids handling lies in our ability to look at wastewater and residual management as related issues to create integrated solutions. We work with facilities to find the best solution for their site and type of wastewater.

DRINKING WATER EXTRACTION AND TREATMENT

Geosyntec offers a wide range of engineering services and talents to deliver comprehensive drinking water extraction and treatment solutions. We are leading the development of investigative and treatment strategies for emerging compounds, including 1,4-dioxane; 1,2,3-trichloropropane (TCP); and PFAS/PFOS.

GROUNDWATER REMEDIATION

Geosyntec provides comprehensive services to help manage groundwater impacted by TCP. On investigation and water treatment projects throughout the United States, we lead project strategy and master planning, design and implement investigations, and build best-value solutions that balance the objectives of clients and stakeholders.

We develop and apply leading-edge technologies for addressing TCP in soil and groundwater, from treatability study to full-scale implementation:

- Ex situ granular activated carbon (GAC)
- Ex situ zero valent zinc column tests
- In situ bioremediation (ISBR), including biostimulation and bioaugmentation
- In situ chemical reduction (ISCR) using novel zero-valent reductants
- In situ chemical oxidation (ISCO) using a variety of oxidant formulations

STORMWATER MANAGEMENT, STORMWATER CAPTURE, AND NATURAL TREATMENT SYSTEMS

Geosyntec's stormwater management practice focuses on urban runoff and other water quality and quantity issues that can influence the environment, development projects, and regulatory compliance. We apply cutting-edge approaches to improve control of stormwater quantity and quality and address pollution issues at development and rehabilitation projects.

MEMBRANE-BASED TREATMENTS

Membrane-based treatment technologies are not new, and their use in the water and wastewater industry only continues to grow. For all their advantages, membranes come with challenges of their own, including fouling, integrity breaches, and operational complexity. This is why it is critical to work with a team with experience in membrane-based technologies and a specialized understanding of water chemistry.

Whether assessing treatment options, procuring equipment, replacing membranes, optimizing systems, or making warranty claims, working with our practitioners gives you the unbiased leverage you need to get it right.

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