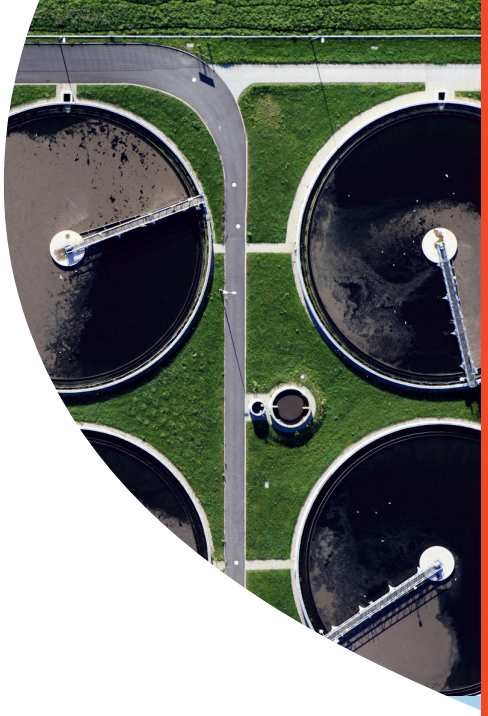


WATER & WASTEWATER TREATMENT

Statement of Qualifications

WSP USA Inc. (WSP), is the U.S. operating company of WSP, one of the world's leading engineering and professional services firms. Dedicated to serving local communities, we are engineers, planners, technical experts, strategic advisors and construction management professionals. WSP USA designs lasting solutions in the water, environment, transportation, energy and buildings markets. With more than 10,000 employees in 160 offices across the U.S., we partner with our clients to help communities prosper.

WATER & WASTEWATER TREATMENT

Population growth, industrial development and aging water assets have put pressure on conventional water and wastewater infrastructure and created new challenges in both quantity and quality management. At WSP, we understand that the development of a cost effective and sustainable supply of safe drinking water and effective wastewater treatment and reuse is of fundamental importance to the health and economic well-being of all communities.

The Water team at WSP shares a history of close collaboration with clients, a reputation for delivering innovative and cost-effective solutions to complex problems and leadership in integrating value based sustainable strategies in every aspect of project solution. WSP's water and wastewater business is equally focused on serving the needs of governmental and municipal clients, water companies, and clients in the industrial, oil and gas, manufacturing, food and beverage, and technology sectors.

Services

- Planning
- Asset Management
- Design
- Program & Construction Management
- Commissioning & Operations

Specialty Areas

- Source Evaluation
- Integrated Water Planning
- System Modeling
- Feasibility Study
- Process Design
- Water Reuse
- Hydrogeology
- Wells Field Siting & Design
- Transmission & Conveyance
- Large Tunnels & Storage
- Instrumentation & Controls
- Risk Assessments
- Energy and Chemical Optimization

OUR SERVICES

WSP provides comprehensive water and wastewater treatment services that meet the challenges of our diverse client base. From water source to treatment to tap, and back to the natural environment, our specialists focus on the full spectrum of water and wastewater management issues in the natural and built environment. Clients value our integrated design approach which provides innovative solutions and technologies for planning, engineering, construction and management of treatment systems. Our broad range of services include:

DRINKING WATER

CONVENTIONAL AND ADVANCED WATER TREATMENT TECHNOLOGIES

WSP's depth of experience is built on more than 130 years of infrastructure projects, with more than 100 completed water treatment projects. We are actively involved with new and emerging technologies, which allows us to select the most sustainable and cost-effective approach to meet our clients' needs, staffing and budgets. We have extensive experience in both groundwater and surface water treatment, and have worked on projects ranging from 5 gallons per minute to some of the largest treatment facilities in the world. Our water treatment clients include small system owners such as developers, schools, condominiums, and industrial plants, as well as large public water supply systems, including private water companies, water agencies and municipalities. Some examples of our innovative methods include the removal of arsenic, PFAS, and uranium from drinking water, as well as the removal of high nitrates through biological processes.

HELPING CLIENTS HARNESS NEW WATER SUPPLIES THROUGH ADVANCED WATER TREATMENT

In inland and coastal areas where conventional freshwater resources are unavailable, or in areas where water is in short supply, desalination of brackish water and seawater, grey water recycling and reclaimed wastewater are alternative or "new" water supply sources for clean, safe water. WSP has been involved in desalination and reclamation projects around the world and has a clear understanding of the environmental issues that surround these projects, including but not limited to, byproducts or waste such as mineral reclamation, dewatering, biogas generation, composting or waste to energy systems.

WASTEWATER TREATMENT

MUNICIPAL WASTEWATER

We have completed planning, design and permitting of numerous wastewater systems for new, rehabilitated, or expanded wastewater treatment plants. Our wastewater portfolio includes current technologies in biological nutrient removal (BNR), advanced wastewater treatment (AWT) and reuse and aquifer recharge from relatively small systems to regional wastewater treatment systems. Our wastewater experts design, operate and maintain treatment facilities and bring a thorough understanding of the nuances to meeting NPDES permit obligations. We help clients meet the new challenges associated with addressing discharge limits and emerging contaminants.

INDUSTRIAL WASTEWATER

WSP's client base covers industrial, mining, food and beverage, and oil and gas wastewaters. From this portfolio of work, we have a thorough understanding of environmental regulations allowing us to tailor treatment requirements to meet the governing water quality standards. Our designers provide the best technology solutions to your treatment needs including suspended solids, fats-oils-greases, heavy metals, PH, or nutrient removals. Our staff is also experienced in remediation of receiving waters following on-site storage facility failures, restoring receiving waters back to their original pre-contaminated condition.

FACILITY AND ASSET MANAGEMENT

We integrate technical excellence, financial management, and business knowledge to provide the management strategies and tools to optimize the life and value of our clients' infrastructure assets. We work with clients to prepare asset management plans; develop asset management strategies; establish service level indicators; conduct life cycle asset valuation, performance modeling and cost analysis; conduct condition assess-

SAMPLE PROJECTS

WATER CONSERV II

Orange County, Florida

Water Conserv II is recognized as the largest reuse project of its kind in the U.S. and the world, using reclaimed water for large-scale agricultural irrigation. It is a beneficial water reuse project that offers a balance between aquifer recharge and irrigation, while providing an environmentally sound and economically feasible regional solution to previously discharged wastewater effluent. For over 25 years, WSP has provided water resources services for permitting, design, construction, operation, and maintenance of the system. We have also supported funding options through public and private markets to determine the best available source or price for a product.

HOLLY HILL RECLAIMED WATER STORAGE AND RE-PUMP FACILITY AND WATER PRODUCTION FACILITY

Polk County, Florida

Our team provided design and construction services of both the reuse and potable water facilities with a capacity of 2.0 MGD and 2.8 MGD respectively. WSP took extra precautions to segregate the potable and non potable aspects of his joint facility during design and construction. We coordinated the overall master plan and facilitated permitting.

LAKE MARION WATER RECLAMATION FACILITY EXPANSION

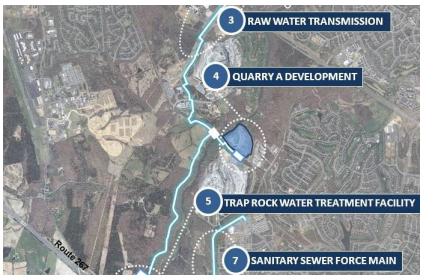
Polk County, Florida

WSP provided design and construction phase services to the Tohopekaliga Water Authority for the improvement of its 3.0 MGD Water Reclamation Facility (WRF), which included a new 6.5 MG reuse storage tank and a reclaimed water high service pump station. The high service pump station included four variable speed high service pumps - two rated at 2,500 gpm and two at 1,250 gpm-for a total high service pumping capacity of 5,000 gpm firm capacity.

BACK RIVER WASTEWATER TREATMENT PLANT

Baltimore, Maryland

WSP provided construction project management services or this contract. The scope of work under this $38.7 million project consists of new site utilities, electrical substation, Acid Phase Reactor Building, Gravity Belt Thickener, polymer system, process control and instrumentation, rehabilitation of the High Rate Digester and related pumps, valves and meters.



POTOMAC RIVER WATER SUPPLY AND RAW WATER STORAGE PROGRAM (PWSP)

Loudoun County, Virginia

WSP was part of the team performing comprehensive program and construction management services for the PWSP. The PWSP consists of a $459 million program to meet current and projected needs for the next 30 years by withdrawing raw, non-potable water directly from the Potomac River, storing it for future use in existing quarries, and processing finished drinking water at a new treatment facility.

STERLING NATURAL RESOURCE CENTER - RECLAIMED WATER SYSTEM (WRF)

Highland, California

The state-of-the-art water reclamation facility will create a new drought-resistant water source for the region and replenish the local groundwater basin, while providing opportunities for community education. WSP is supporting the East Valley Water District and the design – build team for this water reclamation facility which will capture and treat wastewater, and recharge the Bunker Hill Basin with the recycled water. The plant will produce up to 10 million gallons of disinfected recycled water per day.

SEABROOK ISLAND WTP/WWTP OPERATIONS & MAINTENANCE

Seabrook, South Carolina

WSP manages, operates and maintains this water and wastewater treatment facility for the Seabrook Island Utility Commission (SIUC). The physical facilities for water distribution include water storage, pumping stations distribution lines and water meters and fire hydrants. The wastewater treatment plant pumps residential and commercial sewage and treats it via an extended aeriation process with a capacity of 1.2 M gallons a day. Due to the location of the facility (an island) no direct discharges are allowed and the treated effluent is used for irrigation.

DAIRY PRODUCE BIOLOGICAL TREATMENT FACILITY

Private Client, Louisiana

Operations at a Louisiana dairy produce a wastewater that historically contains a high BOD effluent discharged to the local city wastewater treatment facility. It became increasingly evident the city's treatment works would not be capable of handling the combined city flow and the dairy BOD load without the operation of a pretreatment system. WSP was awarded a design/build project to design and construct an 80,000 GPD biological treatment facility to meet the pretreatment requirements of the city. Unit operations include dissolved air flotation and aerobic biological treatment using a trickling filter.

WASTEWATER TREATMENT FOR A BIODIESEL PRODUCTION PLANT

El Paso, Texas

WSP was hired by a biodiesel production plant to design its wastewater treatment plant in compliance with local standards pertaining to oil and grease discharge. The challenge for this project was the water composition, as it was quite diverse, and included a refinery, a grease recovery plant, and wash water. WSP designed and installed a system that included screening, flow equalization, preliminary physical treatment of oils and grease, chemical treatment of oils and grease in a pre-existing DAF (dissolved air flotation), additional chemical treatment of oils and grease in a new DAF installed in series with the pre-existing one, and neutralization of treated water.

CHEESE PLANT WASTEWATER TREATMENT

Gooding, Idaho

WSP was hired to develop a program of upgrades and process improvements to the wastewater treatment system of a cheese plant that produces up to 1.4 MGD of high-strength wastewater. The overarching goal of the project was to reduce effluent nutrient concentrations to allow for beneficial reuse for crop irrigation.

WSP prepared a preliminary design and capital cost estimate for a post-anoxic bioreactor and clarifier system, and was awarded a $4M turnkey design-build contract for detailed engineering, construction and startup of the improvements.

PROGRAM MANAGEMENT FOR REMEDIATION, CONSTRUCTION MONITORING AND CONSTRUCTION MANAGEMENT

Tampa, Florida

WSP provided program management services for the remediation of a 20 MGD seawater desalination facility. Work included overseeing the correction of deficiencies at the plant, contract administration and construction management of the design-build-operate contract for vendor's pilot testing, design, re-permitting, construction completion and start up of the 25 MGD seawater desalination plant. WSP also assisted with permitting, project reporting, design review and testing and commissioning. WSP currently performs an annual audit of the Operations and Maintenance Contractor's performance.

CHINO BASIN DESALTER AUTHORITY PHASE 3 EXPANSION

Riverside, California

Chino Basin Desalter Authority (CDA) has water supply and distribution facilities spanning a major portion of the lower Chino Basin. CDA's facilities produce nearly 25,000 acre feet of potable water per year (22.3 MGD) using reverse osmosis and ion exchange technologies. WSP was selected to oversee the development, design and permitting of the CDA Phase 3 Expansion Program which provides an additional 10,600 acre feet / year. The expansion includes installation of six new wells, rehabilitation of three existing wells, installation of 80,000 feet of pipeline, expansion of the Chino I and II treatment to increase capacity and provide treatment of volatile organic carbon contaminants, five new potable water pump stations, constructing a 2MG potable water reservoir and adding 5000 feet of 10 inch concentrate disposal piping. WSP's program management services included procurement and contract administration, program controls, and coordination with member agencies and stakeholders.

JUDGE FARMS ALTERNATIVE WATER SUPPLY SURFACE WATER TREATMENT FACILITY

Osceola County, Florida

WSP is providing water resource consulting and engineering services to Tohopekaliga Water Authority (TWA) to help plan, permit, design and implement this project. As part of sustainable solutions included in the Central Florida Water Initiative (CFWI) regional water supply plan, this project will use the 450-acre former Judge Farms property to harvest and store stormwater/ surface water for reclaimed water system augmentation and to provide nutrient removal from surface waters. The captured stormwater will be used as an alternative water supply source (AWS) for reuse system augmentation purposes. In addition, water from the reservoir may be used by TWA to increase beneficial aquifer recharge via a series of rapid infiltration basins located along the Lake Wales Ridge. By diverting stormwater before it enters Lake Toho, the reservoir and AWS use will help reduce pollutant (nutrient) loading into Lake Toho and downstream surface water bodies. Once completed, the Judge Farms AWS project will provide multiple benefits, including regional flood control, stormwater treatment, nutrient reduction, water quality improvements to Lake Toho, reuse system augmentation, and a public park area.

SPARTECH INDUSTRIES – INDUSTRIAL WATER PROCESS IMPROVEMENTS

Stamford, Connecticut

WSP provided design services for improvements to this water supply system which utilizes up to 400,000 gallons of water per day. The water is provided by a private, investor owned public water supply system in its manufacturing process. Discharge samples collected did not meet the aquatic toxicity standard. WSP analyzed the cause of the violation and designed improvements to the system as needed. Our study found that corrosion and leaching of copper from the internal plant plumbing was resulting in elevated copper levels and related high aquatic toxicity levels in the plant's discharge. Several possible improvements were evaluated for ability to reduce metals concentrations including addition of coagulation, sedimentation and filtration, cation exchange and reverse osmosis equipment. These were rejected due to operating costs, system downtime and space considerations. The final design improvements included injection of liquid phosphate corrosion control near the service entrance point to the plant, and incorporation of flow metering, flow pacing and associated controls.

BRACKISH GROUNDWATER DESALINATION FEASIBILITY ASSESSMENT

San Antonio, Texas

WSP performed a feasibility assessment of a 20MGD brackish groundwater treatment facility utilizing either the Wilcox Aquifer or the saline portion of the Edwards Aquifer as a source of raw water for the plant. The assessment determined the technical and economic feasibility of the desalination facility and the location of sources of brackish groundwater capable of yielding up to 20 MGD of treated water in close proximity to the existing distribution system. Services included groundwater investigation, conceptual design for the treatment facility and associated pipelines, concentrate management approach, procurement assessment and financial modeling of procurement alternatives.