



TREATMENT AS A SERVICE.
WHEN AND WHERE YOU NEED IT.

ChartWater™ is a global manufacturer and service provider of engineered solutions for municipal water treatment and industrial process applications. Our portfolio of proven products, processes, and engineering expertise provides customers with single-point responsibility for complete solutions that enable water professionals to achieve their objectives with the lowest combination of risk and costs while driving enhanced outcomes for people, communities, and the planet.

ENGINEERS + OPERATORS

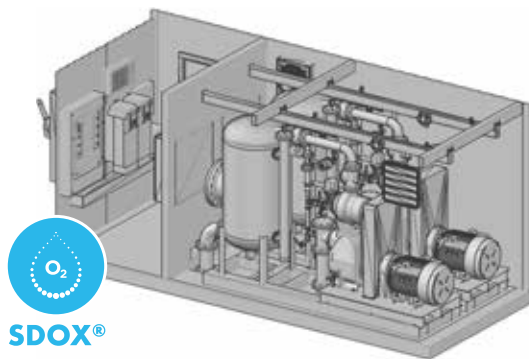
- ✓ Our team of experts efficiently transfer the insights and know-how from previous installations and applications to your operations.
- ✓ We will assess your needs, size, and deliver the solution, optimize and automate the treatment process, and remotely support your staff and operations.
- ✓ Engineering and operational expertise with a focus on process optimization and continuous improvement, ensuring efficient and effective treatment.
- ✓ Second-to-none performance contracting combined with remote support and monthly performance reporting.
- ✓ On-site knowledge transfer and operator training.



AWARD WINNER



DESIGN



SERVICE

Turn-Key Flexibility. ChartWater offers turn-key solutions for pH adjustment, oxidation, aeration, and odor control to meet your needs with the financial flexibility of a monthly contract and the peace of mind of an award-winning team of engineers and operators installing, servicing, and monitoring your project every step of the way.

Industry-Leading Efficiency. Featuring the industry's most efficient technology in a dependable, containerized design, BlueInGreen's contract services division allows end-users to rapidly and easily deploy and scale solutions to their needs, with the ability to be removed or transitioned to new locations as treatment needs change.

Single-Point Responsibility. Paired with Chart's mobile cryogenic storage and vaporization technology, our portfolio of proven products, processes, and engineering expertise provides you with single-point responsibility for complete solutions that enable you to achieve your objectives with the lowest combination of risk and costs while driving enhanced outcomes for people, communities, and the planet.

SOLUTION

The Modular Building-Block of Your Solution. The Dual 600 Platform offers design flexibility and ease of deployment.

Side-Stream Dissolution Method. Enables retrofits to basins without interrupting operations. Easy installation with minimal footprint next to lagoons, rivers, lakes, and reservoirs.

Twin, Gas-Dissolution Systems operating in Parallel. Simplifies the design of mission-critical installations requiring redundant capacity on reserve.

Robustly Packaged + Self-Contained + Communications-Ready. Ideally suited for rapid deployment and remote operation of stand-alone treatment capabilities, such as the environmental remediation of rivers, lakes, and reservoirs, or retrofitted to capacity constrained treatment basins or to enhance treatment during periods of excessively hot or cold seasonal weather.

Design Flexibility in a Plug + Play Solution: The most efficient technology packaged in a dependable, robust, shipping container offers design flexibility. Rapidly and easily deployed and scaled to your needs or easily removed or transitioned to new locations as your needs change.

Ease of Installation: Single point connections for inlet and outlet water or mixed liquor for each SDOX® as well as incoming electrical and oxygen supply make design and installation fast and efficient.

Communications Ready: Cellular modems allow real-time monitoring from internet browsers and smart phones. Industry leading PLCs make SCADA connectivity simple. Instant-messaging enables operator alerts of any variation outside of normal operating conditions.

Operational Continuity: Side-stream dissolution enables retrofitting to any in-pipe, basin or lagoon-based process without the need to drain the treatment basin, disturb existing equipment or otherwise interrupt operations.

Reduced Downtime + Maintenance Costs: Fewer moving parts that are less likely to fail significantly reduces potential sources of failure and maintenance requirements. Most periodic maintenance may be undertaken without the need for heavy equipment.

Quality Guaranteed: Attention to design details, industry leading components and superior materials and workmanship ensure quality. Factory-tested for functionality and performance to minimize construction and start-up time.

Single-Source Responsibility: Fully integrated and skid mounted dissolution and injection system - including pump/motor, VFD, control panel with PLC and HMI, optional DO feedback control loop, and associated piping and valves - all provided by BlueInGreen.

Stellar Support: From design through long-term operation, our experienced engineers and technicians are committed to success and providing the insight and resources needed along the way.

Built-In Safeguards + Redundancy: The Dual design operates two SDOX® systems in parallel, offering a minimum of 50% operating capacity in the unlikely event of a pump failure. The parallel Dual SDOX® system simplifies the design of mission critical installations requiring emergency, redundant capacity on immediate reserve.

Enhanced Worker Safety: Unlike conventional aeration systems, most periodic maintenance may be undertaken outside of the treatment basin on dry land, reducing the frequency and duration of time that people must work with electricity within the treatment basin or lagoon.

The Sustainable Solution: Reduce energy use and greenhouse gas emissions by up to 75% compared to mechanical and diffused aeration technologies.

Full-Service Contracts: Proven technology supported by the engineering and operational expertise you need – all with the flexibility of a monthly contract.

A Proven Pairing. Our mobile trailers are built with Chart vacuum-jacketed bulk tanks and Thermax vaporizers mounted on drop deck trailers. Vacuum-jacketed technology delivers superior performance, lower operating costs, and the longest hold-time without refrigeration. Trailers are equipped with multiple gas draw and fill connections and a liquid draw valve to enable fast installation and filling in tight spaces.



Environmental Remediation

Suffolk, VA: The high-water storm-surge from Hurricane Sandy – the largest Atlantic hurricane on record – caused a break in a forcemain sewer over Shingle Creek, discharging raw sewage into the river and surrounding estuary. The City’s Public Works department deployed a mobile SDOX® system and oxygen supply under a TaaS engagement, positioning the system on a highway bridge over the estuary to provide emergency biological treatment by accelerating natural, ecological processes. With infrastructure repairs completed and full remediation of the site achieved three months thereafter, the mobile SDOX® system was easily removed, leaving no permanent footprint.

Memphis, TN: Heavy spring rains and flooding combined with the City’s aging infrastructure caused several forcemain sewer breaks, resulting in raw sewage discharged into a lake and downstream waterways. Under a TaaS agreement, the sanitation district enlisted BlueInGreen to develop a treatment plan, remediate the river, and protect public health. A mobile SDOX® system and oxygen supply was locating on-site within 24-hours to provide emergency biological treatment. With infrastructure repairs completed and full remediation of the site achieved five weeks thereafter, the mobile SDOX® system was easily removed, leaving no permanent footprint.

Sao Paulo, Brazil: Many dense, burgeoning, urban municipalities have grown beyond their sewage collection and treatment infrastructure. To address the endemic pollution of surface waters from insufficient sewage collection and treatment, the State water utility deployed SDOX® technology to maintain an aerobic environment, control odor, and accelerate natural biological treatment processes in the polluted Pinheiros River. By treating in-situ, managers leverage the existing natural system to expedite the delivery of public benefits while investments in the design, construction, and commissioning of infrastructure projects are mobilized over the next decade.



Retrofits to Wastewater Collection Systems and Treatment Facilities

Simmons Foods, Missouri, USA: Wastewater from the meat processing facility is treated using a sequence batch reactor and an aerobic lagoon that discharges to surface waters following treatment. Surface aerators reduced wastewater temperatures during cold weather – creating a hostile environment for beneficial, nitrifying organisms – inhibiting nitrification, reducing treatment capacity, and increasing operational risk. A mobile, side-stream SDOX® system retrofitted to the lagoon replaced the surface aerators, eliminating the cooling effect of mechanical aeration. Having proven the ability to maintain higher water temperatures and improve treatment, the facility permanently replaced more than 1,500 HP of surface aerators with a 350-HP SDOX® system, reducing annual maintenance costs by „US\$300,000 and energy costs by 50% – saving more than US\$645,000 in net annual operating costs.

Chestermere, Alberta, Canada: The City’s extensive collection system conveys raw wastewater from residential homes, commercial buildings, and industrial facilities to a neighboring city for final treatment. During this 5.5-kilometer journey, anaerobic conditions fosters the formation and buildup of hydrogen sulphide (H₂S) – a highly toxic and odorous gas resulting from anerobic decomposition and a source of odor complaints. Managers also wanted to mitigate related corrosion issues from hydrogen sulphides combining with moisture in collection system to form sulfuric acid (H₂SO₄). Under a TaaS engagement, the City deployed a mobile SDOX® system to maintain an aerobic environment in forcemains, wet wells, gravity lines, and manholes by oxygenating the untreated, domestic sewage at a key lift station. The installation maintained an aerobic environment as sewage traveled to the point of final treatment. Having proven the application at the specific location, Chestermere installed a permanent SDOX® system to mitigate odor and significant, long-term infrastructure costs from corrosion.

Mountaire Farms, Delaware, USA: The wastewater facility serving the processing plant uses a continuous process reactor and discharges to cropland via spray irrigation. Organically overloaded and unable to address the influent’s biological oxygen demand or achieve denitrification, the facility was consistently challenged to achieve permit requirements. Insufficient aeration within the treatment basin and oxidation ditch had deteriorated to the point of non-function due to a build-up of solids, resulting in a regulatory consent decree requiring the facility to achieve permit requirements or stop production. Managers replaced the treatment basin’s surface aerators with SDOX® technology under a multi-year TaaS engagement to fulfill the oxygen needs of the various biological treatment processes. Installed without interrupting operations, the SDOX® systems increased biomass by 533%, improving treatment – from zero to complete nitrification and virtually 100% removal of ammonia – achieving permit requirements without having to construct a larger treatment basin, foregoing a \$38 million capital expense.

