MUNICIPAL WASTEWATER ODOR CONTROL SOLUTIONS

ECO_2 Company Profile

Noxious odor and widespread corrosion are significant problems in wastewater systems, resulting in resident complaints and expensive capital infrastructure projects.

ECO_2 SuperOxygenation technology may be your solution.

Odors and corrosion are often the result of hydrogen sulfide formation in pump stations, pipelines, pretreatment systems and headworks facilities. ECO_2 technology eliminates the problem by preventing hydrogen sulfide formation and can be added to current facilities and treatment systems in virtually any location or footprint.

ECO_2 SuperOxygenation systems for water and wastewater treatment are designed and produced by Eco-Oxygen Technologies, LLC, an independent company headquartered in Indianapolis, Indiana. The technology is the pioneering effort of Dr. Richard Speece, Centennial Professor Emeritus of Civil and Environmental Engineering at Vanderbilt University, who invented the Speece Cone, a device originally used to add oxygen to the bottom of lakes to enhance downstream fisheries.

The ECO_2 SuperOxygenation method is a simple process with no chemicals and no moving parts other than standard industrial water pumps. The result is a robust, reliable, economically competitive and environmentally-friendly technology.

In municipal applications, ECO_2 technology eliminates hydrogen sulfide odor and corrosion by dissolving enough pure oxygen in wastewater to prevent the formation of hydrogen sulfide and its “rotten-egg” odor. The ECO_2 SuperOxygenation system saves money on alternative chemicals, eliminates the need for scrubbers and traditional treatment systems, provides pretreatment without increasing total dissolved solids, and eliminates the costly handling and disposal of hazardous by-products associated with scrubbers and chemical treatment.

ECO_2 SuperOxygenation systems are solving problems for communities across the country including D.O. discharge compliance in Maine; force main odor control in California and Kentucky; primary clarifier odor control in Texas and headworks odor control in Indiana.

Contact us for a green, environmentally-friendly, economically competitive odor control solution.

NO CHEMICALS — NO CORROSION — NO COMPLAINTS

Applications of the ECO_2 SuperOxygenation technology include Force Main Odor Control, Headworks Odor Control, Primary Clarifier Odor Control and Dissolved Oxygen Discharge Compliance. The process prevents the formation of hydrogen sulfide, thus preventing odor formation with the added benefit of minimizing pipeline corrosion and extending equipment and system life. The system can often be placed inside existing buildings and lift stations, making it virtually invisible to the public.

ECO_2 SuperOxygenation technology will be featured in the technical program during the 2008 Odor and Air Emissions specialty conference hosted by the Water Environment Federation and Air & Waste Management Association.

7172 Graham Road Indianapolis, IN 46250 317.845.1060 www.eco2tech.com

D.O. DISCHARGE COMPLIANCE

KENNEBUNK SEWER DISTRICT, MAINE

The Kennebunk Sewage District sought a long-term solution to help its 5 MGD Wastewater Treatment Plant meet stringent D.O. Discharge Standards. The solution has been installation of an ECO_2 SuperOxygenation System, designed in conjunction with consulting engineers, Woodard & Curran.

Final effluent flows through the proprietary ECO_2 process prior to discharge, increasing the dissolved oxygen content to meet discharge standards. The installation successfully achieved its performance specifications during initial start-up and testing on April 25, 2006.

FORCE MAIN ODOR CONTROL

CITY of LAGUNA BEACH, CALIFORNIA

Complaints of hydrogen sulfide odors from their sewer system led the California coastal community of Laguna Beach to investigate such odor control remedies as scrubbers, chemical treatment and the new ECO_2 SuperOxygenation technology. Because of physical constraints and the high cost of chemicals, scrubbers and chemical treatment were not deemed practical or cost effective. The ECO_2 system offered several valuable advantages including a return on investment of less than four years, the ability to generate the necessary oxygen on-site and within the space constraints of the lift station, increased service life of the North Coast Interceptor pipeline (a result of preventing hydrogen sulfide formation) and the significant reduction of odors between the lift stations.

The ECO_2 SuperOxygenation system was installed during Fall 2006 and is meeting all design criteria. The system fits inside the existing lift station, providing the residents with an invisible solution to their odor problems.

FORCE MAIN ODOR CONTROL

SANITATION DISTRICT NO. 1 of NORTHERN KENTUCKY

The Sanitation District #1 of Northern Kentucky wanted to compare technical performance and economics of the ECO_2 SuperOxygenation technology with their existing chemical treatment program. Richwood force main was selected for a pilot study because, with a 9 hour retention time, it was a notable source of odor that produced complaints from tenants in an office park located near the discharge.

ECO_2 was engaged to design, install and operate an ECO_2 odor control system at the Richwood pump station for a period of two months during Fall 2005. Gas phase and liquid phase hydrogen sulfide levels were monitored at the force main discharge. Successful performance of the ECO_2 SuperOxygenation system resulted in a reduction in hydrogen sulfide from untreated levels of 500 ppm down to <1 ppm.

PRIMARY CLARIFIER ODOR CONTROL

TRINITY RIVER AUTHORITY, TEXAS

The 150 MGD Central Regional Wastewater System is implementing Stage VII Odor Control Improvements, including addition of an ECO_2 SuperOxygenation System.

Designed in conjunction with consulting engineers Alan Plummer Associates, the ECO_2 SuperOxygenation system for the Trinity River Authority is being installed at the wastewater treatment plant to reduce odor from the primary clarifiers.

This project is presently under construction with completion expected Spring 2008.

HEADWORKS ODOR CONTROL

TOWN of FISHERS, INDIANA

Cheeney Creek Wastewater Treatment Plant is located in an upscale residential area of Fishers, a fast growing Indianapolis suburb. Odor from the head works and from the nearby Allisonville Road lift station were sources of frequent complaints. After a pilot demonstration in 2001, the ECO_2 SuperOxygenation system was installed upstream at three lift stations to pretreat all plant influent to prevent the formation of hydrogen sulfide at the headworks.

Successful performance of the ECO_2 SuperOxygenation system is evidenced by typical D.O. levels of about 5 mg/L entering the Cheeney Creek WWTP. Added benefits of ECO_2 SuperOxygenation are BOD reduction and protection of capital investment from corrosion in the pipelines. An added benefit is the protection of the city's capital investment from pump and pipe corrosion.