



CASE STUDY: Odor Control

- Town of Fishers, IN -

Preventing Odors & Corrosion through Super- Oxygenation

COLLECTION SYSTEMS

HEADWORKS

PRIMARY CLARIFIERS

POST-AERATION

INDUSTRIAL

ECO OXYGEN TECHNOLOGIES, LLC

www.eco2tech.com

Cheaney Creek Wastewater Treatment Plant Headworks Odor and Corrosion Control

The Cheaney Creek Wastewater Treatment Plant (WWTP) is located in an upscale residential area of Fishers, IN, a fast-growing suburb of Indianapolis. Odor from the plant's headworks and a nearby lift station were sources of frequent complaints.

The Town wanted to address odor complaints and be a good neighbor. The ECO₂ Super-Oxygenation system was chosen to supersede gas scrubbers because of its environmentally friendly process. In addition, operating costs were expected to be significantly less than the alternative chemical treatments.

Project Goals:

- ✓ Zero dissolved sulfides at WWTP influent
- ✓ Positive D.O. at WWTP influent
- ✓ Reduce odors at lift stations & headworks
- ✓ Reduce corrosion in force mains

The plant receives its influent from two long force mains, fed from three lift stations (schematic on the next page). The ECO₂ SuperOxygenation system was installed at each lift station to pretreat all plant influent to prevent the formation and release of hydrogen sulfide (H₂S). Each system is pictured below.



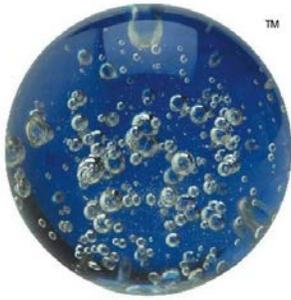
*Allisonville Rd
Lift Station*



*Hague Rd
Lift Station*



*Smock Creek
Lift Station*



ECO₂[®]

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Hague Road Lift Station



Force Main
Average Flow 1.5 MGD
Diameter 12 in.
Length 3/4 mile
Retention Time 1 hr.

ECO₂ System
Cone Diameter 3 ft.
Cone Height 15 ft.
Oxygen Rate 180 lbs/day
Sidestream Flow 600 gpm
Sidestream D.O. 25 mg/l

Allisonville Road Lift Station



Force Main
Average Flow 2.3 MGD
Diameter 16 in.
Length 2 miles
Retention Time 2 hrs.

ECO₂ System
Cone Diameter 3 ft.
Cone Height 15 ft.
Oxygen Rate 410 lbs/day
Sidestream Flow 600 gpm
Sidestream D.O. 60 mg/l

Smock Creek Lift Station



Force Main
Average Flow 2.8 MGD
Diameter 16 in.
Length 3 miles
Retention Time 2.5 hrs.

ECO₂ System
Cone Diameter 3 ft.
Cone Height 15 ft.
Oxygen Rate 640 lbs/day
Sidestream Flow 800 gpm
Sidestream D.O. 65 mg/l



Cheeney Creek WWTP

Headworks D.O. 5 mg/l

Odor Control System Schematic

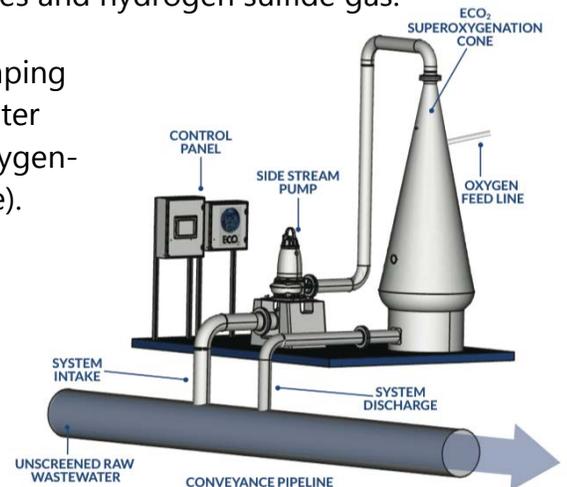
100% of flow to Cheeney Creek WWTP treated by ECO₂ SuperOxygenation Technology

ECO₂ System Operation

The ECO₂ technology eliminates hydrogen sulfide odor and corrosion by dissolving pure oxygen in wastewater at high concentrations, which oxidizes any existing sulfides and prevents the formation of dissolved sulfides and hydrogen sulfide gas.

The system operates by pumping a sidestream of raw wastewater through a conical shaped oxygen-transfer device (Speece Cone). Pure oxygen gas is metered into the cone, and the oxygenated wastewater is blended back into the force main.

(Diagram at right)



Pure oxygen can be sourced locally or generated on-site. Fishers, IN uses liquid oxygen (LOX), which is delivered by a local supplier and stored on-site.

Odor Control System Results

Successful performance of the ECO₂ system is evident by typical dissolved oxygen (D.O.) levels of about 5 mg/L entering the WWTP.

All three of the systems in Fishers, IN have been in successful operation, for over 15 years. Richard Farnham, WWTP Director describes these systems as "hands-free" as the only O&M costs are the supply of LOX and regular pump maintenance on the sidestream pumps.