CASE STUDY: FORCE MAIN ODORS

- Frontera Pump Station, El Paso, TX -

Preventing Odor & Corrosion through Super-Oxygenation

COLLECTION SYSTEMS

HEADWORKS

PRIMARY CLARIFIERS

WASTEWATER TREATMENT PLANTS

INDUSTRIAL

ECO OXYGEN TECHNOLOGIES, LLC

www.eco2tech.com

El Paso Water Utilities Replaces Chemical Feed System with Oxygen

El Paso Water Utilites operates the Northwest WWTP which was built with a 17.5 MGD capacity, but currently with an average daily flow of 9-10 MGD. Odor emissions at the plant are directly related to the wastewater entering the front end of the plant from the collection system, mainly the 3.5-mile dual force main from the Frontera Pump Station (which conveys over 90% of the plant's flow).

The high HRT (over 12 hours at times) results in extremely high H2S concentrations of up to 20mg/L in the liquid phase, which causes excessively high odors and corrosion rates.

With the WWTP adjacent to the busy Interstate-10 and a new housing development, El Paso Water Utilities hired CH2MHill to study, design, and manage the construction of odor improvements at the Northwest WWTP.

Their study included a comparison of five traditional odor control chemicals, ozonation, and SuperOxygenation. **Based on lowest life-cycle costs, the SuperOxygenation System by ECO_2 was chosen** and installed at the Frontera Pump Station, upstream of the plant.

Pictured at right: SuperOxygenation System's Speece Cone Oxygen Transfer Reactor Installed at Frontera Pump Station, El Paso, TX

ECO$_2$

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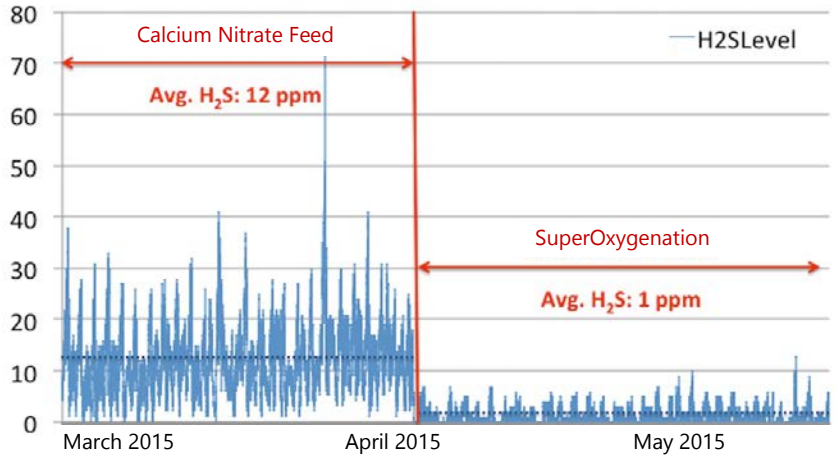
ECO$_2$ System Installation

The hydrogen sulfide (H_2S) levels at the discharge of the Frontera Dual Force Main are shown in the figure below. At 40% of the cost, the ECO2 system lowers the average H_2S level from 12ppm, to 1ppm.

H_2S Concentration at Discharge of Frontera Dual Force Main

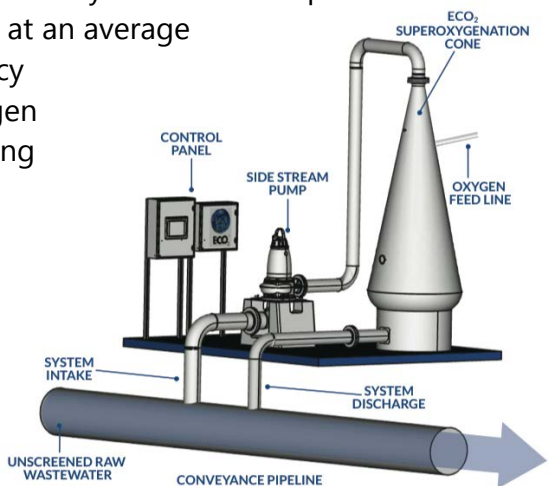


Start-up and Performance Testing Results

- Reduced Odor Emissions at Northwest WWTP and Headworks
- Reduced Concentrations of Dissolved Sulfides at Headworks
- Reduced Chemical Consumption at Existing Chemical Scrubber

ECO$_2$ System Design

The ECO$_2$ SuperOxygenation System dissolves pure oxygen into wastewater at an average oxygen transfer efficiency of 95%. Dissolved Oxygen readily reacts with existing sulfides and prevents further formation of sulfides by creating aerobic conditions. Eliminating H_2S not only prevents odor, but also, prevents costly corrosion of pipes and treatment plant equipment.



At 40% of the cost, the ECO2 System lowers the average H2S level from 12 ppm with calcium nitrate feed, to 1 ppm with oxygen.