

TRINITY RIVER AUTHORITY OF TEXAS
Dallas, TX

Central Regional Wastewater System

Total Treated Flow of 150 MGD

Reference: James McMillen, P.E.
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Project Description

The Trinity River Authority's Central Regional Wastewater System, located in Dallas, Texas, serves over 1 million people in 20 north Texas cities. Since the early 1970's, the Authority has included odor control as one of the top priorities in its master plan, and in 2003, the TRA completed a comprehensive odor abatement evaluation. After evaluation of structural and chemical odor control options, TRA selected the **ECO₂** SuperOxygenation System as part of their Stage VII Odor Control Improvement Program.

One of the goals of the odor abatement program is to reduce odorous emissions in the primary clarifiers. Structural options including primary clarifier covers and gas scrubbers were very expensive to construct, maintenance-intensive and potentially hazardous to employees. A pilot study using dissolved oxygen showed that the highly odorous and hazardous hydrogen sulfide could be effectively removed prior to wastewater reaching the treatment plant headworks. Two **ECO₂** SuperOxygenation cones will dissolve pure oxygen into wastewater sidestreams to provide a minimum of 11 mg/l D.O. at the headworks.

The **ECO₂** SuperOxygenation system, designed in conjunction with consulting engineers, Alan Plummer Associates is presently under construction at TRA's Central Regional Wastewater System treatment plant.

Primary Clarifier Odor Control

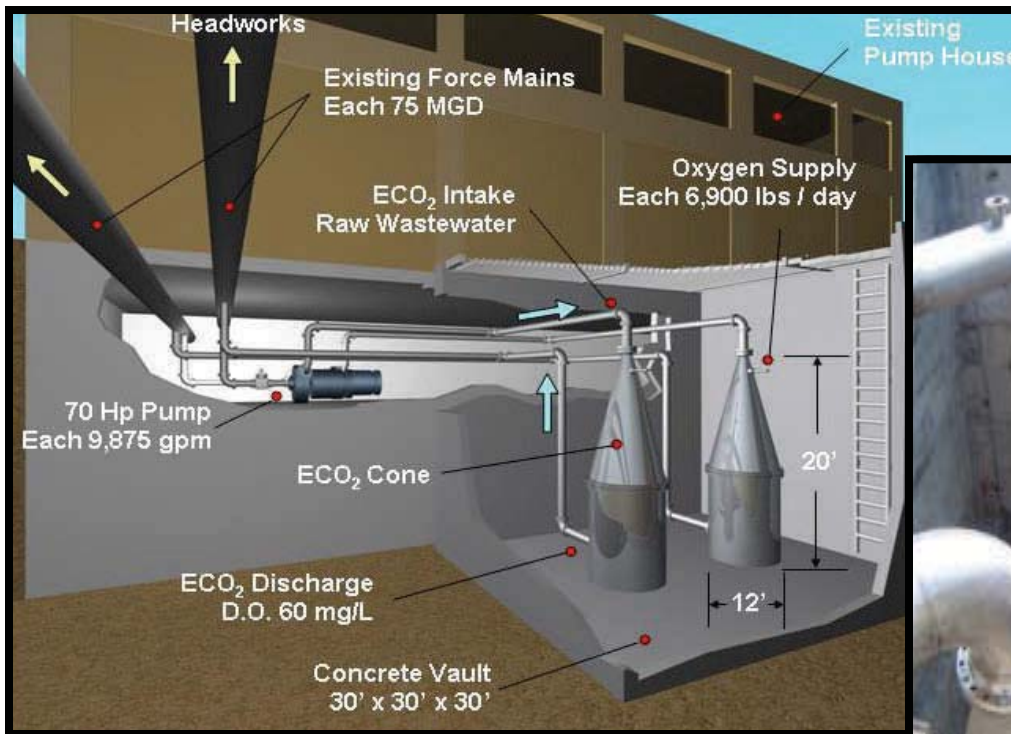


Trinity River Authority of Texas

The Trinity River Authority encompasses all of five and parts of twelve counties within the Trinity River Basin, providing water and wastewater treatment, water supply and reservoir systems to a population of over 3.5 million, including the Dallas and Fort Worth areas.

TRA's main treatment facility is the Central Regional Wastewater System, which includes a 200 mile collection system. The CRWS is an award-winning treatment facility, known for its innovative programs and operations excellence.





Project Objectives

SuperOxygenation is an economically competitive and environmentally friendly odor control process that prevents the formation of sulfides in force main systems. Trinity River Authority desires the following results:

- ◆ Dissolve 90% of supplied oxygen into wastewater
- ◆ Provide a minimum DO of 60 mg/l at discharge point of SuperOxygenation system
- ◆ Provide a final minimum DO of 11 mg/l in the stream at the entrance to the treatment plant

Overhead View:

12 ft. diameter by 20 ft. high ECO₂ SuperOxygenation cones installed in 30 ft. deep vault adjacent to pump house.

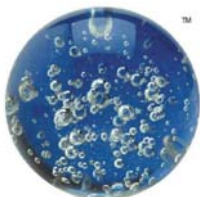
TECHNICAL SPECIFICATIONS

Force Main (2 each)

| | | |
|--------------------------------|-------|------|
| Flow—average | 75 | MGD |
| Length of force main | 1,250 | ft. |
| Diameter of force main | 72 | in. |
| Pressure at system connection | 19 | psig |
| Retention time at average flow | 5 | min. |

ECO₂ System Design (2 each)

| | | |
|-------------------------|-------|---------|
| Cone diameter | 12 | ft. |
| Cone height | 20 | ft. |
| Oxygen dissolution rate | 6,900 | lb./day |
| Sidestream flow | 9,875 | gpm |
| Sidestream D.O. | 60 | mg/l |



The ECO₂ SuperOxygenation technology is an innovative, economical and environmentally friendly odor control solution for municipal wastewater systems including Force Main Odor Control, Headworks Odor Control, Primary Clarifier Odor Control and Dissolved Oxygen Discharge Compliance. ECO₂ technology was featured in the technical program during the 2006 Odor and Air Emissions specialty conference hosted by the Water Environment Federation and Air & Waste Management Association.

ECO₂

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