

TREATMENT PLANT OPERATOR

# tpo™

DEDICATED TO WASTEWATER & WATER TREATMENT PROFESSIONALS

tpomag.com  
JUNE 2016

IN MY WORDS  
A sound approach  
to water audits

PAGE 48

Mike Gill  
Lead Operator  
Salt Lake City, Utah

# Minding the Seasons

**BIG COTTONWOOD WATER PLANT  
MARKS 16 YEARS OF DELIVERING  
HIGH-QUALITY WATER  
TO SALT LAKE CITY**

PAGE 12

**TECH TALK:  
Understanding  
activated carbon**

PAGE 22

**HOW WE DO IT:  
Advanced grit removal  
in Grand Island, Nebraska**

PAGE 50



\*\*AUTO\*\*SCH 5-DIGIT 48240 FSS MIX COMAIL  
922669  
INKEN MELLO  
ECO OXYGEN TECHNOLOGIES, LLC  
3939 PRIORITY WAY SOUTH DR STE 400  
INDIANAPOLIS IN 46240-3821  
396  
58150  
1531501  
44

PRSTD STD  
U.S. POSTAGE  
PAID  
COLE  
PUBLISHING INC

ELECTRONIC SERVICE REQUESTED

COLE PUBLISHING INC., PO BOX 220, THREE LAKES WI 54662

## Oxygenation system prevents odor and corrosion in force main

### Problem

The City of Raymore, Missouri, has a history of odor and corrosion in its gravity collections system, to which a force main discharged. Low velocities in the oversized, 17,000-foot force main led to long retention times and anaerobic conditions, leading to hydrogen sulfide formation. With no chemical feed, the hydrogen sulfide concentrations peaked at 600 to 900 ppm daily, causing corrosion, odor issues and worker safety concerns.

### Solution

The city installed an **ECO2 SuperOxygenation System** from **ECO Oxygen Technologies**. The system dissolves high levels of oxygen in a wastewater sidestream that is then blended back into the force main. Automated controls pace the oxygen feed to ensure sufficient dissolved oxygen in the line to maintain aerobic conditions. Hydrogen sulfide is effectively eliminated. The system consists of a stainless steel cone, automated system controls and a sidestream pump that is the only moving part requiring standard maintenance.



### RESULT

The day the system was turned on, hydrogen sulfide concentrations rapidly decreased from over 600 ppm to an average of 2 ppm. **317/706-6484; www.eco2tech.com.**

## Covers provide over 99 percent odor capture at plant

### Problem

The Cronulla Wastewater Treatment Plant owned by Sydney Water in Australia had concerns about odors affecting a new residential development near the plant. The utility developed an Odor Management Program Alliance to reduce the impacts. The plant planned to cover tanks but needed a solution that allowed for easy access.

### Solution

The utility chose retractable **cover systems** from **Geomembrane Technologies** to capture foul air while allowing workers quick and easy access to tank internals. The system consists of fabric covers tensioned over aluminum arches. The design includes inspection hatches and clear-span guardrails that allow the covers to be safely opened and closed without interference from standard guardrail supports.



### RESULT

The covers control odors, while protecting plant infrastructure and allowing operations and maintenance teams to perform their work. The ventilation system allows the covers to maintain a negative pressure of around -20 Pascal and achieve more than 99 percent odor capture. **506/449-0993; www.gtcovers.com.**

## Replacement vacuum feeders boost disinfection reliability

### Problem

The liquid vacuum feed system for sodium hypochlorite and bisulfite at the 15 mgd wastewater treatment plant in Appleton, Wisconsin, was plagued by plugged injector tube orifices and leaking of the vacuum relief diaphragm, causing feed outages that hindered disinfection reliability. The faulty equipment also distracted the plant's instrumentation technician and operators. While operators became adept at manual changeout of injectors, new operators lacked that training. When management could not find a replacement for the vacuum relief diaphragm, the problem became critical.

### Solution

The facility turned to **JCS Industries** for a next-generation **vacuum feeder** without the troublesome diaphragm. Before making the switch to the replacement liquid vacuum feeders, the operations supervisor had his engineering firm consider peristaltic and diaphragm pumping options. They found the replacement vacuum feed to be the most cost-effective.



### RESULT

The replacement feed system ended outages due to plugging and leaks, while providing a 30 percent reduction in bisulfite due to greater feeding accuracy. The instrumentation technician can now focus on his SCADA responsibilities, and plant operators can now focus on other plant operations. **281/353-2100; www.jcsindustries.us.com.**

## Floating covers help improve chlorine disinfection

### Problem

Algae and UV rays were adversely affecting chlorination in an upstate New York reservoir and southern Florida wastewater treatment facility. Algae was shielding embedded bacteria from chlorine, making the bactericide ineffective and requiring increased chlorine dosage. In addition, UV light was dissipating unstabilized chlorine. Calibrating the proper chlorine dosage was challenging.

### Solution

Both facilities installed **floating covers** manufactured by **Industrial & Environmental Concepts**. New York installed a floating cover on its pond, and Florida installed a cover on its chlorine contact chamber.



### RESULT

Covering the water surface eliminated penetrating UV and sunlight from the water column. Algae disappeared, chlorine demand decreased and residuals stabilized. Dosing expenses went down and disinfection improved with process predictability. **952/829-0731; www.ieccovers.com.**

(continued)