BioMagic
An Environmental Solutions Company

Case Study

SOUTH COAST WATER DISTRICT

Industry: Municipal Wastewater
Problem: Lift station odor and hydrogen sulfide control

A Toxic Odor Problem Is Reduced to Almost Nothing

Business Overview
The South Coast Water District provides fresh water and sewer service to more than 40,000 residents and more than two million visitors a year in the California coastal communities of Dana Point, South Laguna Beach and San Clemente. The district delivers 7 million gallons of water each day to homes and businesses and removes 4 million gallons of wastewater for treatment.

The South Coast Water District's facilities are extensive. The sewer system contains 136 miles of pipelines, 3,800 manholes, 14 lift stations and 3 miles of force mains.

The district's commitment to quality service is evident: to meet or exceed state and federal standards through disciplined maintenance and repair, as well as the addition of capital improvements to its facilities.

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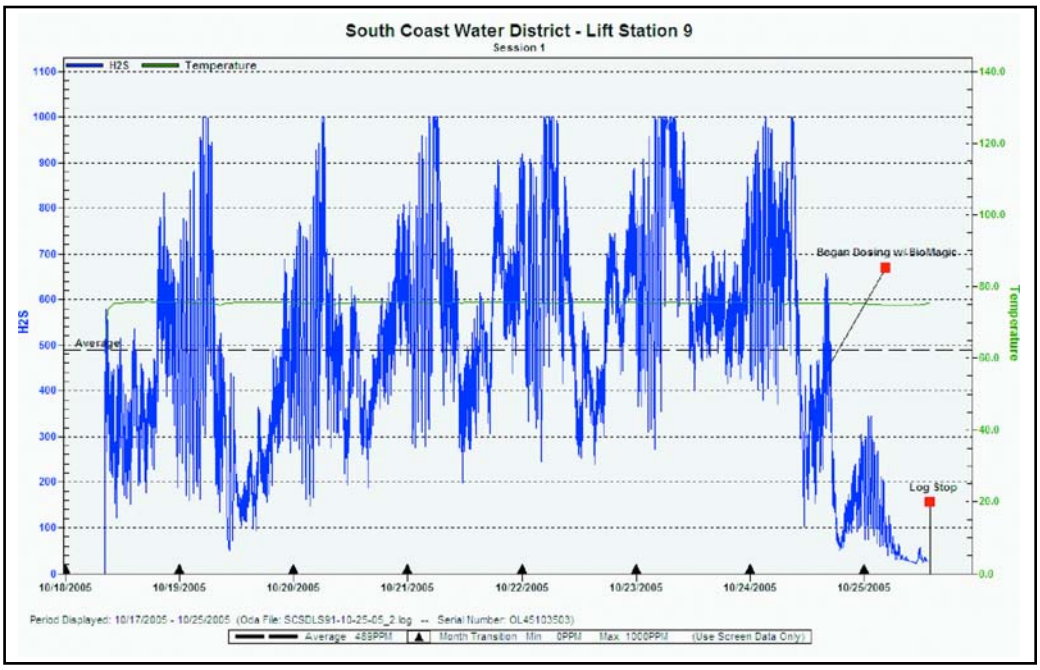
Challenge

Lift Station 9 is located in the environmentally sensitive marina area of Dana Point Harbor, with the force main discharge manhole very near a highly used jogging and biking path. Restaurants and businesses provide the lift station's primary influent.

Unfortunately, most of the restaurants in the marina area are older, meaning that they do not have the grease interceptors required of new food service establishments. The influent to the lift station, therefore, contains an inordinate amount of grease and food wastes. Rapidly decaying waste, plus normal sewage, along with long periods of very low flow, provide an environment for heavy production of liquid sulfides. Add the turbulence created as the effluent of the force main drops almost 10 feet to the floor of the force main discharge manhole and now we have the ideal situation for the release of extremely high levels of hydrogen sulfide gas (H_2S). The result is both corrosive damage to the manhole cover, ring, and lining and significant odor complaints.

The district turned to BioMagic for a solution. To determine the extent of the problem, baseline measurements were taken in the force main discharge manhole for one week using an OdaLog H_2S datalogger. The average H_2S concentration for the baseline test was 527 parts per million (ppm) and at least once each day, H_2S levels exceeded the instrument's 1000 ppm upper limit. This meant that the air inside the manhole was literally toxic..



Baseline measurements in the force main discharge manhole are off the chart at least once per day.

BioMagic Solution

A chemical injection system was set up to deliver BioMagic's M6 BioOdorStop product directly into the wet well. Because of the extremely high sulfide levels, an aggressive dosing scheme of 5 gpd (gallons per day) was implemented. This dosing was semi-continuous, delivering about 1.5 ounces every three minutes.

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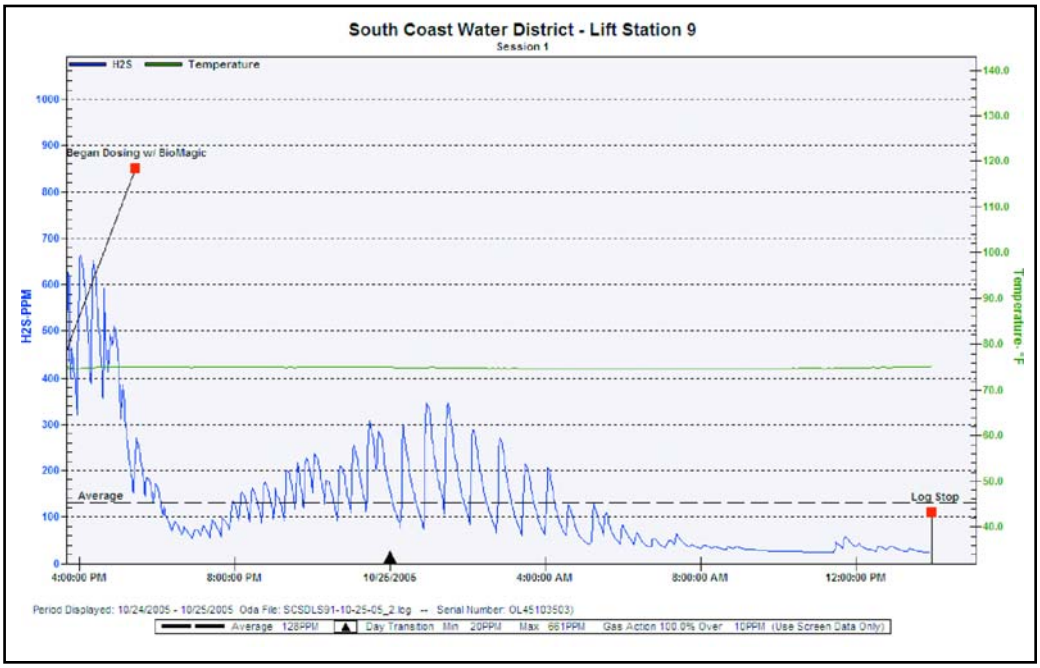
Results

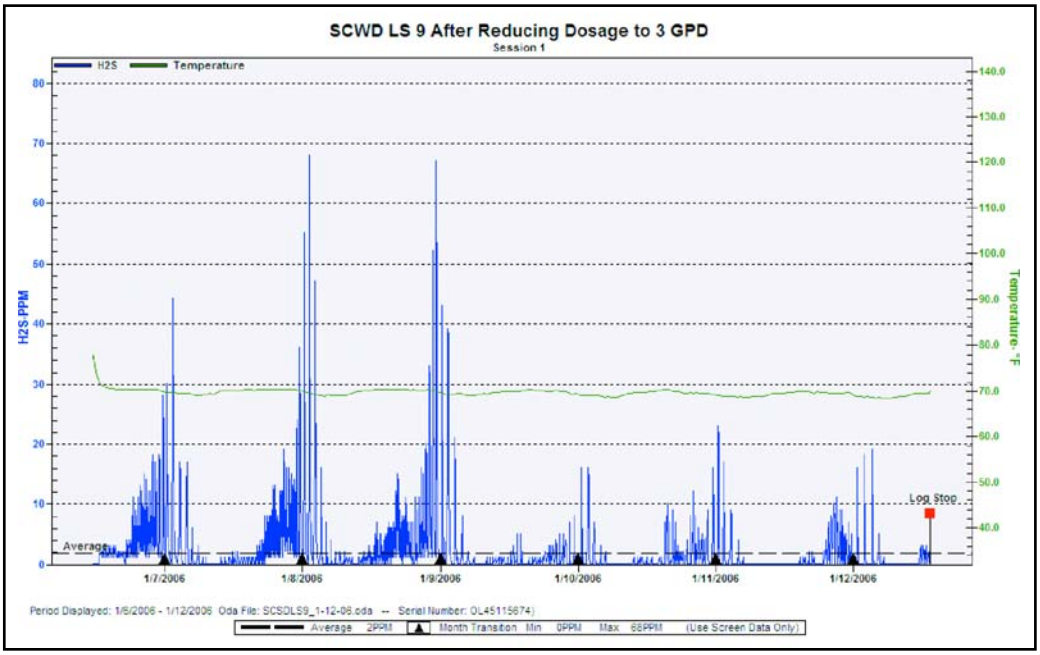
H_2S levels dropped dramatically to fewer than 25 ppm during the 15 hours after treatment began—a 20 times reduction.



After 15 hours of treatment, H_2S levels are significantly reduced.

Dosing continued at 5 gpd for an additional 17 days. Average H_2S levels were reduced even further during this time frame to 9 ppm.

Dosing was reduced to 3 gpd, which was the originally agreed upon maintenance dosing level. Treatment continued at this level for about one additional month. Testing showed that average H_2S levels had dropped to 2 ppm. Odor complaints had been eliminated.



Average H_2S levels drop to 2 ppm after a maintenance-level of 3 gpd dosing.

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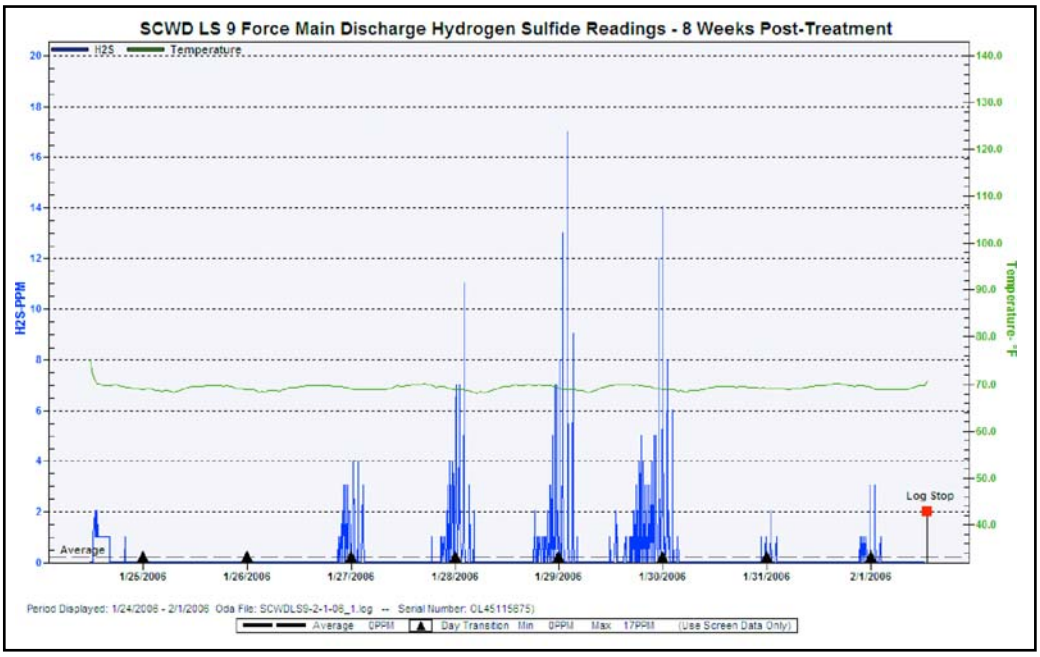
Eight weeks after initial treatment, average H_2S readings were even better, having been reduced even further to 0 ppm, with minor spikes of 2-15 ppm.



Eight weeks of treatment yield an average of 0 ppm of H_2S.

Despite the option of reducing M6 BioOdorStop dosing to lower costs further, the district decided to stay with the 3 gpd maintenance dosing. Odor complaints have been eliminated, corrosion damage has been stopped and the district and its customers are all breathing easier.

About BioMagic

We develop and manufacture engineered solutions for the control and elimination of organic waste odor and the reduction of solid waste. Our products are primarily used to control odor and infrastructure damage caused by hydrogen sulfide gas and other odor-causing compounds.

Simple, effective and environmentally friendly, our solutions oxygenate the setting—accelerating the natural cycles of waste elimination. Our bio-stimulants are equally effective in liquid or solid waste conditions.

BioMagic is located in Costa Mesa, CA and can be reached at:

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