

Case Study

SALT CREEK ELEMENTARY SCHOOL

Industry: Food Service

Problem: Odor Control

Hazardous H₂S Levels Reduced to a Perfect Zero

Business Overview

Salt Creek Elementary School is a relatively new school in only its third year of operation. The school is located in a very fast growing and upscale community in San Diego County. It is part of the Chula Vista School District, one of the largest elementary school districts in the state of California. The student population at Salt Creek is more than 600 and the kitchen also cooks for approximately 10 other schools.

Challenge

Since the kitchen facility is new, a grease interceptor was installed to accommodate the FOG (Fats, Oils, Grease) regulations of the state of California. The interceptor is 2,500 gallons and because of the type of cooking done in the kitchen, gets fairly low flow. The flow to the interceptor is also inconsistent since it is not a typical, commercial Food Service Establishment serving many meals per day.

The problem was weekly complaints from the staff about odors in the school's playground area as well as inside the school buildings. The plumbing company contracted for interceptor maintenance believed that the interceptor vent was allowing hydrogen sulfide gas to be released near the air conditioning intake vents.

After unsuccessfully trying several mechanical means to solve the problem, the plumbing company contacted BioMagic for consultation on the problem. Our staff performed some basic tests on the interceptor, including liquid sulfide measurement. A hydrogen sulfide gas datalogger was also installed in the interceptor outlet chamber. The sulfide level in the liquid in the interceptor was very high—seven milligrams/liter. When the sample was taken, there was a very strong hydrogen sulfide odor, the very odor that the custodian reported inside the buildings. One week later, BioMagic staff returned to download the hydrogen sulfide datalogger and analyze the data in order to recommend a solution.



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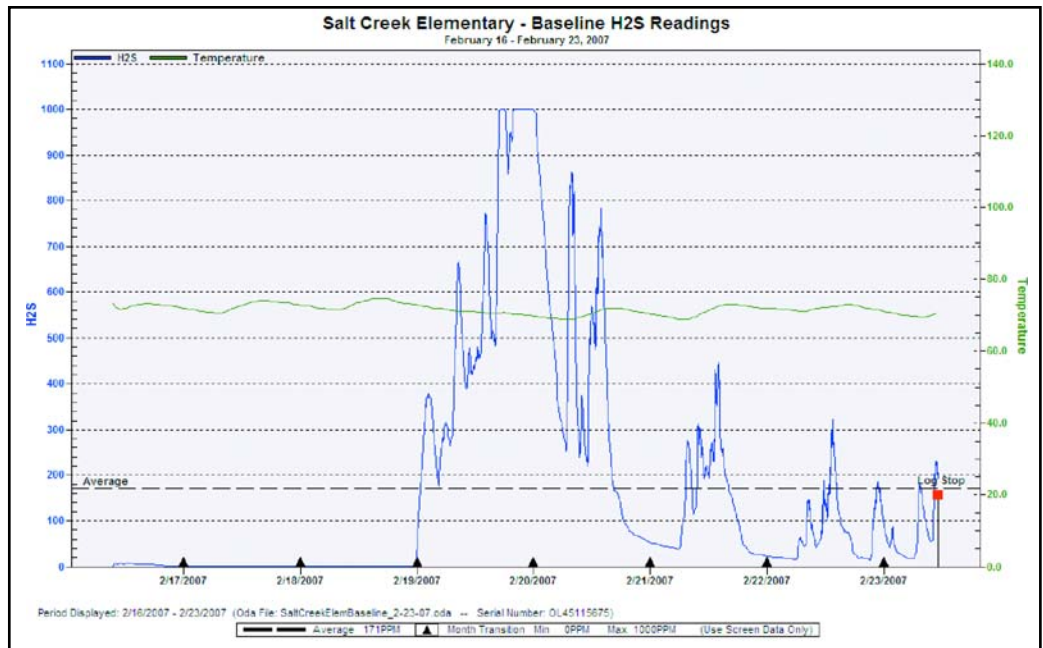
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Graph 1 showed zero levels of hydrogen sulfide gas on Friday and Saturday, but when there was some flow generated on Sunday by a school event, the gas levels literally went off the chart. This level of hydrogen sulfide gas is not only offensive smelling, but is actually hazardous, given that the interceptor is located in the heart of the school playground.



Graph 1: Hydrogen sulfide levels are zero on some days and spike dangerously on others.

BioMagic Solution

The BioMagic staff interviewed school district management to get an understanding of the expected flow profile of the interceptor. Combining that information with the data taken from the hydrogen sulfide datalogger, a dosing scheme was devised for adding BioMagic's G6 BioOdorStop to the interceptor. A location for a tank/pump system was found which was out of the kitchen staff's work area, yet close enough to run an injection line into a sink drain which flowed to the interceptor. The interceptor was initially shocked with three gallons of G6 BioOdorStop. The treatment was set to inject G6 BioOdorStop into the interceptor four times per day Monday-Friday, once per day on Saturday, and twice on Sunday in anticipation of students returning on Monday morning.

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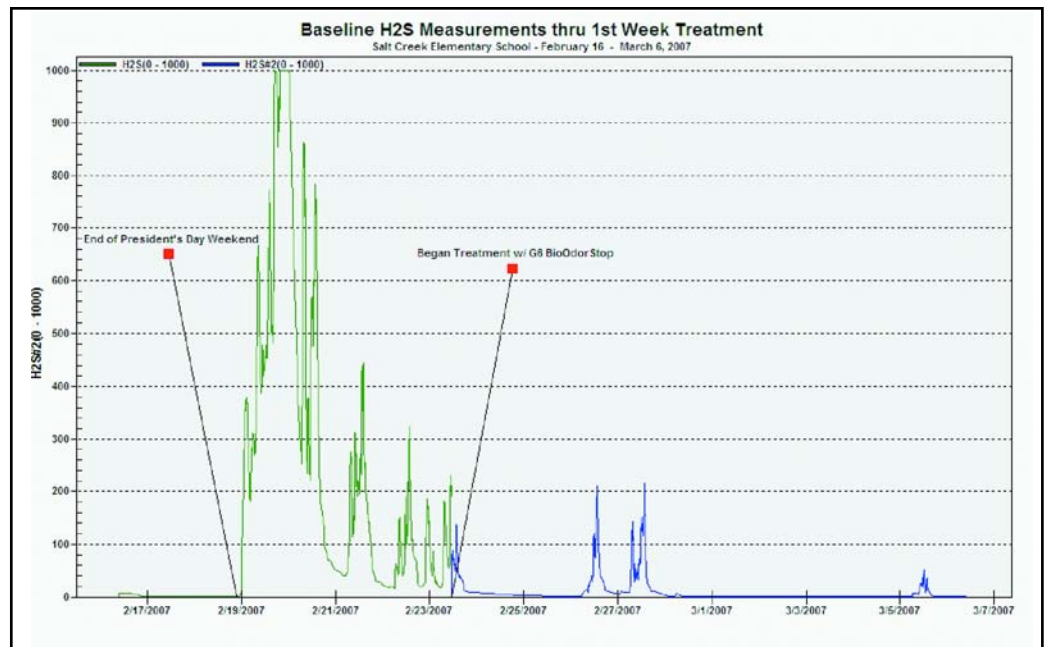
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Results

BioMagic staff returned eleven days after the G6 BioOdorStop treatment had begun to evaluate the results of the initial dosing of the interceptor. There had been no odor complaints during the treatment period. The interceptor had been pumped that morning, so no liquid sample could be taken, but the data from the hydrogen sulfide datalogger installed inside the interceptor was downloaded and compared to the original data. See graph 2.



Graph 2: The chart shows the dramatic results achieved during the treatment period, despite several spikes.

It was clear that the hydrogen sulfide levels had been drastically reduced, but there were still a couple of events that needed to be eliminated. The pump was programmed to anticipate the spikes of high gas levels, and the dosing continued. Another datalogger was installed in the interceptor to analyze the modified dosing scheme.

We returned eight days later to gather the data from the past week. The liquid sulfide level in the interceptor was zero sulfide concentration. The data from the datalogger was downloaded for the previous week.

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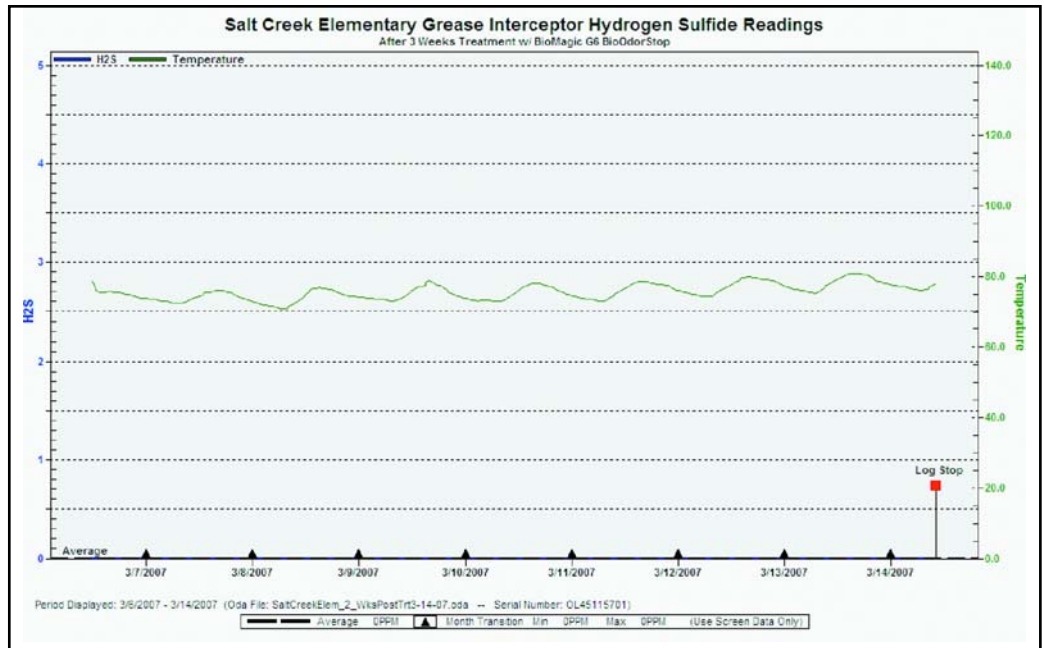
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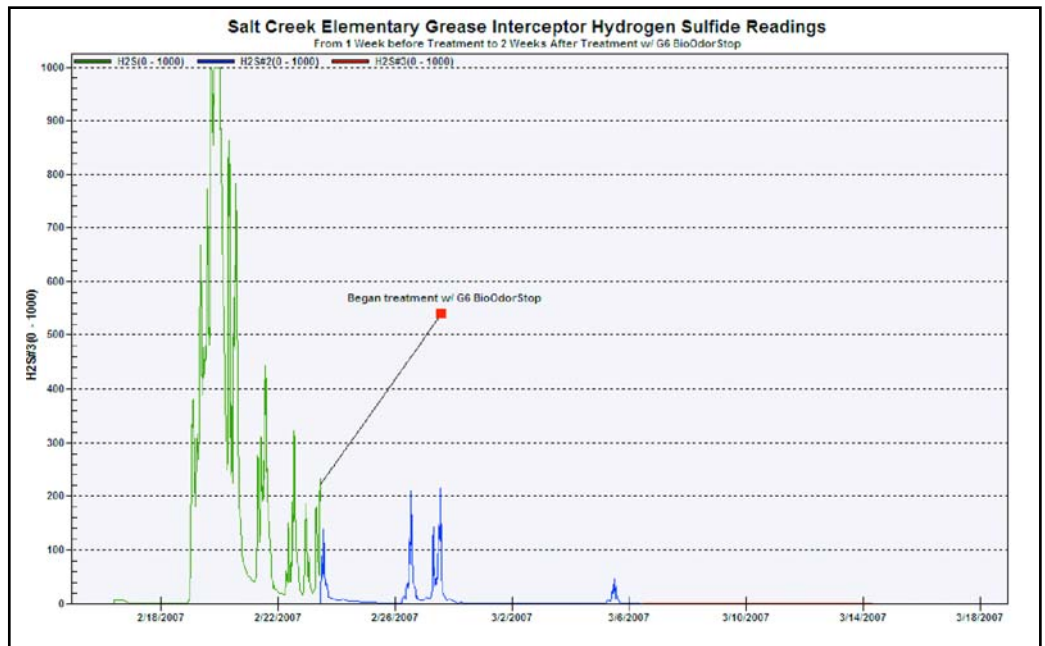


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The results were perfect. There was zero measurable hydrogen sulfide gas in the interceptor over the last eight days! (The green line in the chart is temperature; the hydrogen sulfide line is on top of the zero line.) Again, during the last eight days of the modified dosing, there were no odor complaints. The following chart illustrates the change in hydrogen sulfide levels from pre-treatment of the interceptor to just two weeks after treatment began.



Graph 3: The new dosing scheme achieved a perfect result of no hydrogen sulfide gas in the interceptor. The green line in the chart is temperature; the hydrogen sulfide line is on top of the zero line.



Graph 4: The chart illustrates the change in hydrogen sulfide levels from pre-treatment of the interceptor to just two weeks after treatment began.

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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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