

CASE STUDY

MDG Products Reduce Odor and Maintenance in Lift Station and WWTP

SUMMARY

A wastewater management company had a history of odor complaints regarding lift stations and treatment facilities at three of their municipal wastewater treatment plants. A baseline assessment was conducted at each of the lift stations and treatment plants to quantify the odors and determine the best treatment method. Biotifx® ULTRA and ZymoBac® GTLS were administered to specific lift stations, which flowed to the three treatment facilities. After two weeks of MDG product application, odor was reduced significantly; and after four weeks, odors were not noticeable at lift stations or treatment plants. It was also observed at the plant head-works screen that struvite and other sludge types were being removed from force-mains feeding the individual plants.

BACKGROUND

A wastewater management company in the southwestern United States operating three small (200K-400K GPD) municipal treatment plants with a total of nine lift stations, experienced regular and numerous foul odor complaints from residential neighbors. The force-mains and gravity sewers running from the lift stations ranged in length from less than one mile to over four miles. This allowed anaerobic and septic conditions to form resulting in generation of odors and hydrogen sulfide (H₂S), as well as corrosion of pipes and equipment. Solids and struvite in the collection system also contributed to odors and resulted in the need for regular jetting of sewer lines and pumping out of lift stations.

WWTP Concerns Included:

- Odor
- Hydrogen sulfide (H₂S)
- Corrosion of piping and equipment
- “Jetting” of force mains
- Pumping out lift stations
- Odor control chemical costs

OBJECTIVE

The objective was to eliminate odors, and reduce hydrogen sulfide (H₂S) and related corrosion within the lift stations and treatment plants. In addition, evidence of reduced solids build up in the force mains and lift stations was to be collected.

MATERIALS AND METHODS

A baseline assessment was performed to establish existing odor levels and determine the best product application plan for each of the three wastewater treatment facilities. Treatment with Biotifx® ULTRA and ZymoBac® GTLS started May, 2017 at four lift stations with daily monitoring of the facilities continuing for the first eight weeks.

Volume of product added to each lift station varied depending on their size. Lift stations were dosed daily with 1.0 or 2.0 kg of Biotifx® ULTRA for the first four weeks. After four weeks, lift stations were set up with dosing pumps and 1 to 3 gallons of ZymoBac® GTLS was dispensed on a daily basis during off-peak hours. No odor-control chemistry was used during trial period.

Odor levels were determined by survey. Employees from the management company, site operators as well as third party personnel were asked to rank odors at facilities from 1-10, ten being the worst odor and 1 being no odor at all. Results were compiled for each treatment plant and its lift stations over the first eight weeks.

RESULTS

Odor levels as measured by the survey were reduced 32%-43% during the first four weeks and 64%-85% by the end of week eight (**Figure 1**).

Anecdotally, it was noted by operators and residences that these facilities have not had odor levels so low in years.

Approximately five weeks after treatment started, plant operators reported chunks of struvite and sludge getting collected at the head-works screens at the treatment plants (**Figure 2**). This material likely accumulated over the years prior inside the sewer lines and lift stations feeding into the plants. These accumulated solids were being washed out due to enhanced solids digestion by the Biotifx® and ZymoBac® products in those systems. If left unchecked, the accumulation of these solids would have led to serious maintenance issues at these facilities.

The site operators have been very pleased with improvements in operation of the lift stations and WWTPs. They report that odors have been eliminated and sludge in lift stations has decreased dramatically.

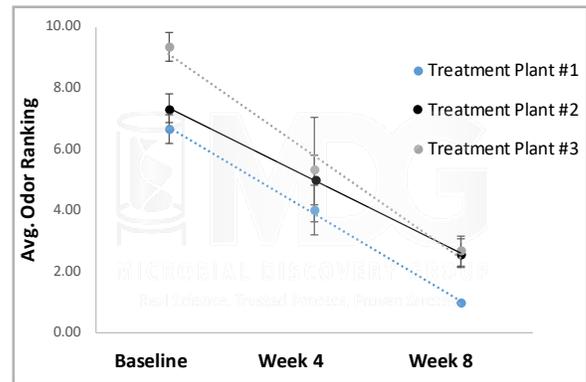


Figure 1: Average odor ranking given for each wastewater treatment plant and its corresponding lift stations over a eight week period



Figure 2: Sludge and struvite collected at head works of treatment plant one week after Biotifx® ULTRA treatment