



# Addition of Biotifx® Liquid Max Significantly Reduces H<sub>2</sub>S and FOG in A Municipal Sewer System

## SUMMARY

A municipal sewer system with high concentrations of fat, oils and grease (FOG) loading and moderate hydrogen sulfide (H<sub>2</sub>S) production sought to reduce expenses associated with their control. The municipality was spending over \$10K monthly for lift station FOG removal, while using 100-300 gallons per day calcium nitrate to mitigate H<sub>2</sub>S. Calcium nitrate usage was reduced and Biotifx® Liquid Max was applied upstream of the FOG accumulation and H<sub>2</sub>S production reducing them by 70% and 99% respectively. Treatment of Biotifx® was paused and FOG ceased to be digested and H<sub>2</sub>S production increased despite the continuation of calcium nitrate usage.

## Treatment Objective

- Reduce FOG accumulation by digesting it biologically reducing disposal volumes.
- Proactively reduce H<sub>2</sub>S formation and limit calcium nitrate usage.

## MATERIALS AND METHODS

The municipality had been treating the sewer system with calcium nitrate. The sewer system was surveyed and three dosing locations were identified upstream of the FOG and H<sub>2</sub>S. Biotifx® Liquid Max, which contains dormant *Bacillus* spores and a robust micronutrient blend, was dosed multiple times each day during periods of low flow. Calcium nitrate treatment continued at a lower dose of 50 GPD. Accumulation rates of FOG were monitored on a gallon/day basis and hydrogen sulfide was monitored constantly with gas monitors downstream. After collecting data over 30 days of treatment, Biotifx® Liquid Max was paused intentionally to monitor the effects on FOG and H<sub>2</sub>S.

## RESULTS

**FAT, OIL, AND GREASE:** Accumulation was reduced by 655 gallons/day (70%) (Figure 1). Much of the FOG was digested and released as CO<sub>2</sub> from the system, and the remaining FOG density reduced significantly with treatment which resulted in a 50% reduction in disposal costs.

**HYDROGEN SULFIDE:** During biological treatment with Biotifx® Liquid Max the H<sub>2</sub>S average was reduced by 99%. Hydrogen sulfide gas levels increased dramatically within one week of discontinuing treatment despite the continuation of calcium nitrate (Figure 2).

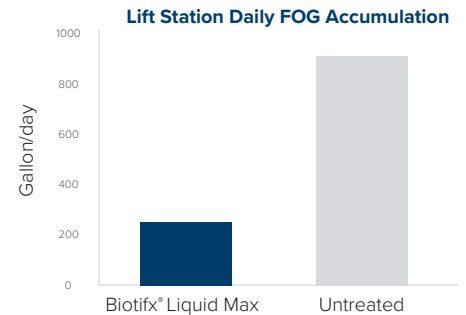


Figure 1. FOG accumulation in Lift Station over time.

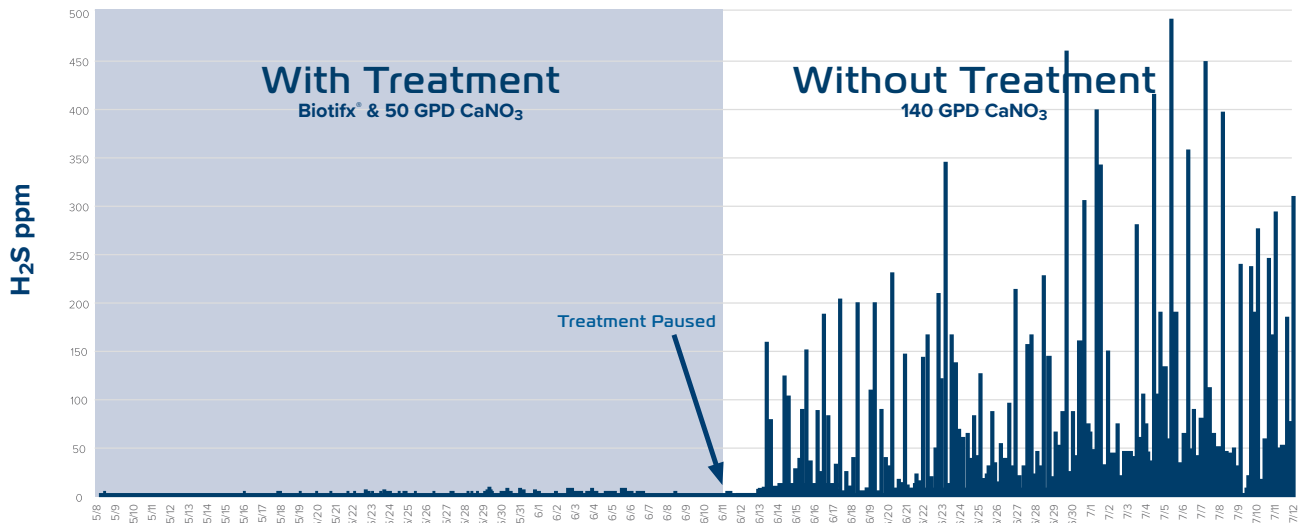


Figure 2. H<sub>2</sub>S concentrations with and without Biotifx® Liquid Max, measured by gas monitor in real time.