CARUS WATER

Midwestern Municipality Treats Landfill Leachate Odor and Corrosion Issues

CARUSOL® LIQUID PERMANGANATE

CASE STUDY

BACKGROUND & PROBLEM

A midwestern municipality was experiencing two common lift station issues: (1) odor complaints due to volatile hydrogen sulfide (H_2S) and (2) sulfide corrosion of their infrastucture equipment. The source of the problem? Landfill Leachate.

Figure 1: Leachate Lift Station

The lift station has recently been replaced due to sulfide corrosion and the municipality wanted to protect the new equipment from future damage.

The leachate flows from two separate landfill cells. One is open and the other is partially capped. The open cell generates an average of 20,000 gallons per day (gpd) with wide day-to-day variation. The partially capped cell contributes an average flow of about 5,000 gpd. In order to eliminate the odor and corrosion issues, both sources of leachate would need to be treated prior to entering the wet well at the lift station.

SOLUTION

The municipality chose to use a proven technology, CARUSOL® liquid permanganate. CARUSOL is a concentrated, pre-mixed 20% active solution of permanganate that is dark purple in color. The strong oxidizing power of CARUSOL, an easy-to-use product, destroys the unpleasant hydrogen sulfide odors that were causing the complaints and eliminates the infrastructure and equipment corrosion.

CONFIGURING THE CHEMICAL FEED SYSTEMS

Metering pumps and storage tanks were set-up at two locations to treat the sources of leachate before entering the lift station.

The larger 20,000 gpd leachate flow was treated using two metering pumps. One pump wast set at a fixed rate and the second on a timer to allow for CARUSOL dosage adjustment based on the time of day and the varying flow rates.

The smaller 5,000 gpd leachate flow was treated with one metering pump at a constant rate. CARUSOL usage averaged 6-8 gpd between the two application points.

Figure 2: CARUSOL Tank and Metering Pumps

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RESULTS

Two Odalog® hydrogen sulfide analyzers were run simultaneously to generate our results. Upstream from CARUSOL® odor control treatment, the hydrogen sulfide levels averaged 99 ppm with peaks as high as 242 ppm (Figure 3). Down stream from treatment with CARUSOL, the hydrogen sulfide levels at the lift station averaged 0.40 ppm with peaks of only 6 ppm (Figure 4).

CARUSOL® for Landfill Leachate Hydrogen Sulfide Odor Control

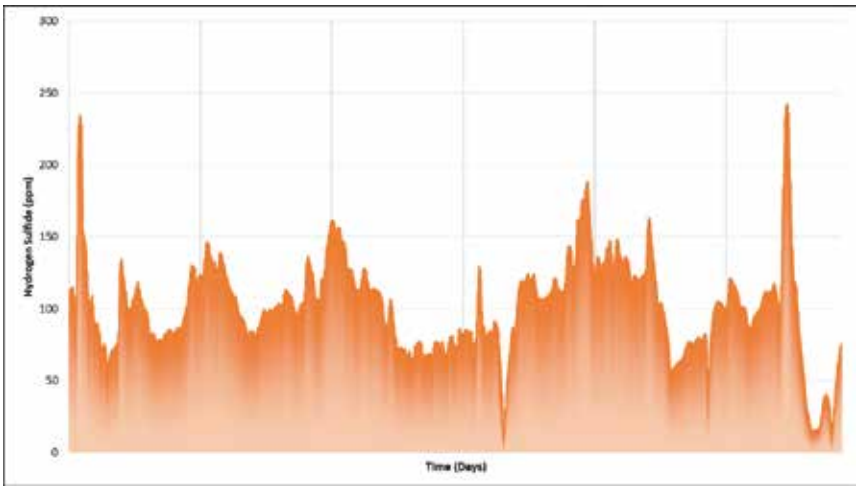

Figure 3: Hydrogen Sulfide Levels Upstream of CARUSOL® Treatment

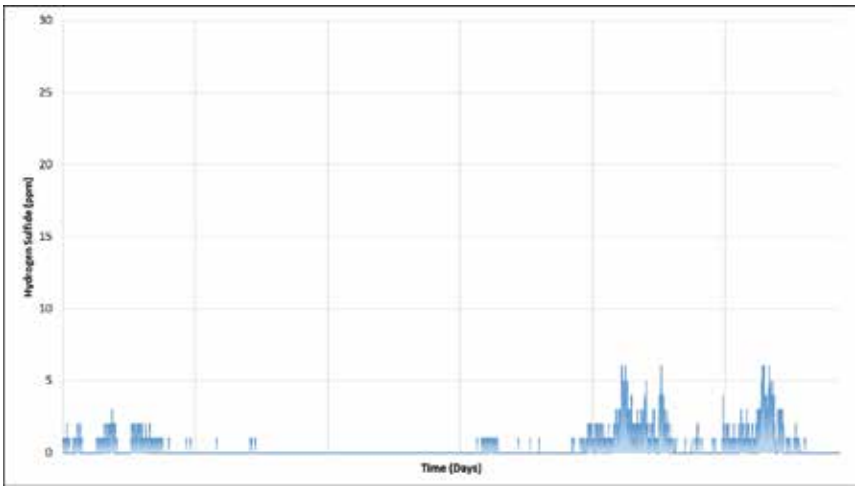

Figure 4: Hydrogen Sulfide Levels Downstream of CARUSOL® Treatment

CONCLUSION

These positive results in the reduction of hydrogen sulfide by the CARUSOL treatment confirmed for the municipality that they had chosen the right treatment to eliminate their nuisance odor complaints and prevent future corrosion of the infrastructure and equipment at the lift station from the landfill leachate.

For more information contact a member of our team at: salesmkt@caruscorporation.com

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