



**BACKGROUND & PROBLEM**

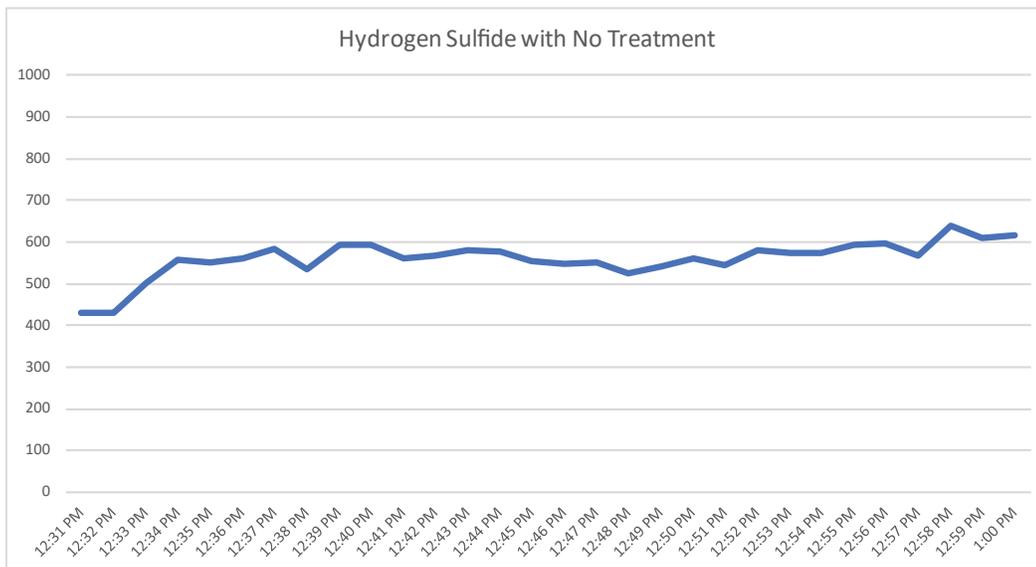
A small wastewater plant located in the Southern United States dewateres sludge on a belt filter press (Image 1). The press operates an average of 2-3 days per week dewatering sludge from 2-3% solids to about 20-25% solids.



**Image 1: Belt Filter Press**

When the plant dewateres sludge on the belt filter press, nuisance odors are a common problem. A major contributor to the odor is hydrogen sulfide (H<sub>2</sub>S). Hydrogen Sulfide is a colorless gas that is moderately soluble in water and gives off a rotten egg odor. In addition to the rotten egg odor, hydrogen sulfide is also very corrosive to metal pipes, equipment, and metal surfaces.

Without any treatment, the atmospheric hydrogen sulfide above the belt press averaged 569 ppm and dissolved sulfide averaged 4 mg/L in the filtrate (Graph 1).



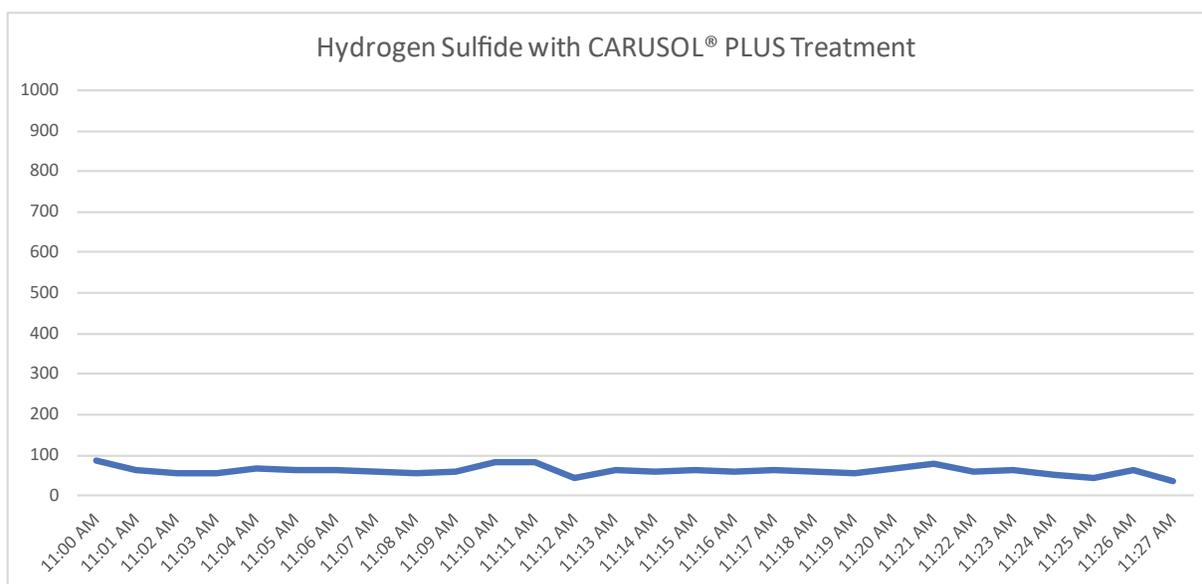
**Graph 1: Atmospheric Hydrogen Sulfide with no Treatment**



## SOLUTION & RESULTS

The goal of the trial was to lower the overall hydrogen sulfide level in the building and lower the odors being emitted from the sludge dewatering. CARUSOL® PLUS liquid permanganate was chosen to provide immediate odor control because of the rapid reaction with hydrogen sulfide.

For this application, CARUSOL PLUS was supplied in 55-gallon drums and fed directly into the sludge stream by means of a simple metering pump. CARUSOL PLUS was dosed at 100 mg/L and reduced the atmospheric hydrogen sulfide above the press to 64 ppm and the dissolved sulfide to 0 mg/L (Graph 2 below). After starting CARUSOL PLUS treatment, the operators noticed that the pungent smell went away with treatment and noticed less of the smell lingering on their clothing when they left the dewatering area.



**Graph 2: Atmospheric Hydrogen Sulfide with CARUSOL® PLUS Treatment**