

Case Study: Use of Accelerator within an Anaerobic system used in large Oklahoma Wastewater Plants

A study was conducted on the use of Accelerator at two large Oklahoma sewer plants. We can refer to these plants as “Plant A” and “Plant B”.

Both plants were experiencing sever odour problems with complaints coming from a mile or more away from the plants.

The existing method of handling odours was a large air filtering system – which was completely ineffective.

Anaerobic treatments create H₂S gas and once created **it must go somewhere**.

At both plants, incoming urban toilet waste is pumped from several lift stations into an underground tank. The tops of these tanks are above ground and are sealed to maintain an **anaerobic condition**.

This generates H₂S – lots of it.

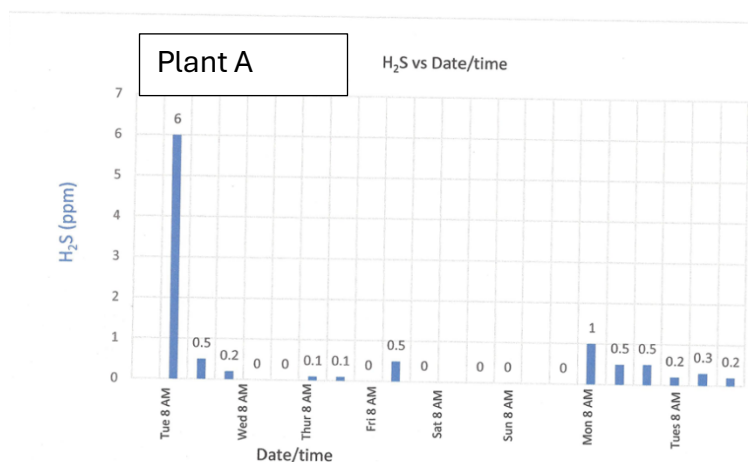
At Plant A, from the large underground collection tank the waste is pumped into a concrete, above-ground tank.

This tank is approximately 40 feet by 30 feet and 20 feet deep. It is covered by a steel top with openings for pipes and for sampling.

We were not allowed to open or sample the H₂S levels in the first large underground tank, it was rightfully considered too dangerous.

From that concrete tank, Plant A waste was gravity loaded into a tank truck for transport to Plant B.

On the day the study started, the head space near the top of the concrete tank read 6 ppm H₂S. Plant personnel reported that it routinely went above 20 ppm. We started the Accelerator treatment directly into the top of this tank.



The H₂S levels went to less than one overnight and remained virtually zero from that time on.

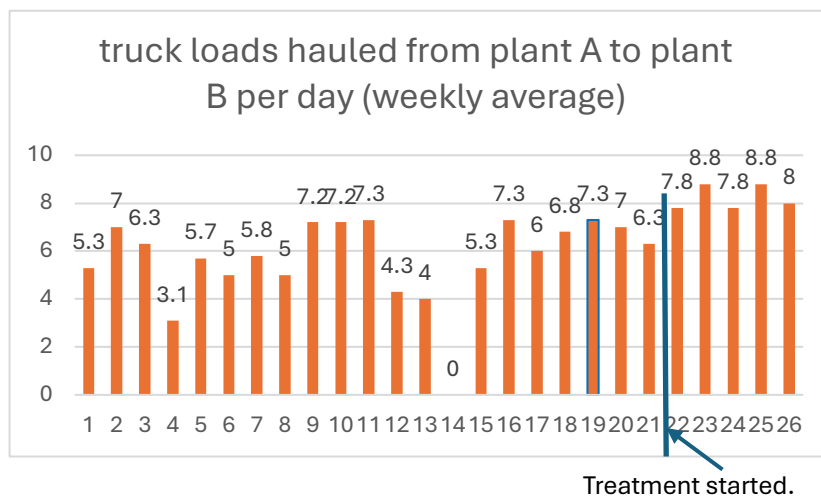
Prior to the Accelerator treatment, H₂S gas would escape from wastewater during this transfer process. The truck driver could NOT stand next to the truck while waste was being transferred. He had to hook up the eight-inch hose, open the valve and step well away.

When the tank truck was full, he drove approximately 8 Km to Plant B. The agitation of the drive broke out even more H₂S. The truck made several runs per day as time allowed.

The top of his tank was opened while emptying so that the waste would flow out of the back without creating a vacuum inside the tank. The top space of his tank was **carefully** tested for H₂S. The reading was over 700 ppm. This is a deadly level. This area was avoided from that time on – as the driver was always careful to do.

After the Accelerator treatment was started, several changes occurred:

- While loading the truck driver did not have to step away – the H₂S was gone.
- The hose and valve used to load the truck cleaned up – with built up sludge and grime being removed by the super activated bacteria. This took about three days.
- The truck filled faster, since sludge was thinner – allowing more loads per day to be transferred. See chart below.
 - This allowed a couple of holding tanks that had been full of sludge – stored when hauling got behind schedule – to be added to the active waste stream, handled, and transferred to Plant B.
- The top of the truck no longer built up a deadly level of H₂S.
- Odours while emptying the truck at Plant B were virtually eliminated.



The average number of truck loads per day immediately went up.

PLANT B. A very similar set up as Plant A, with waste collecting in an underground, sealed tank, then moving to a holding tank. This holding tank also received the trucked waste from Plant A.

Accelerator was applied into this holding tank.

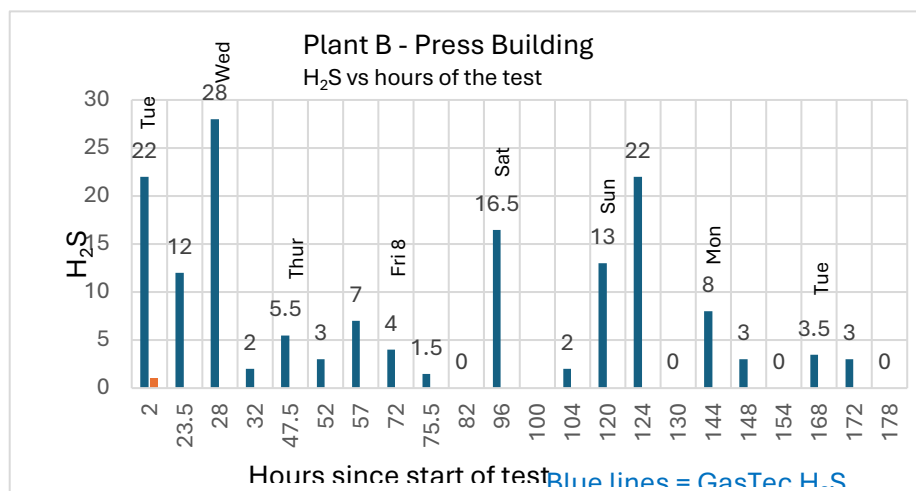
A belt press operates at this plant. The combined waste from Plant A and Plant B is moved to the belt press to dewater it and then it is loaded onto additional trucks for disposal.

The belt press is inside a building and H₂S gas would build up inside.

Employees reported numbers as high as 65 ppm inside the building, despite exhaust fans and filtering equipment. Their rules required wearing of filter masks inside the building and limiting time spent inside to 15 minutes at a time.

The first day of this study the building was over 40 ppm. After treatment was started at both plants H₂S levels started dropping.

The following chart shows the H₂S reading versus the time after Accelerator was started in the Plant B holding tank.



The belt press was not run on weekends, so no treated waste came into the building. The belt press and building were not cleaned (since it was not safe to be in the building, cleaning did not happen often). For this reason, H₂S went up on the weekends.

The belt press did clean up some while treated waste was passing through. The super activated bacteria worked on cleaning it up as it had done in Plant A around the truck loading hoses.

For this reason, week two improved over week one. A longer test period would have seen further improvement.

For more information on the application and effects of Accelerator, or to get a quote for your system, please contact us at info@fpprocess.ca or on 403-879-6174.