BIOTIFX®
WASTEWATER TREATMENT

Biotifx® ULTRA Improved Sludge Pressing and Reduced Sludge Disposal Costs

SUMMARY

A municipal wastewater treatment plant (WWTP) dosed with the Biotifx® Ultra into the sludge storage tanks showed a significant improvement in sludge yield and pressing, reduced solids content and reduced odors. Solids within the sludge pressing improved by 19%. Baseline data indicated average solids of 10.8% solids prior to treatment and during treatment solids going to 12.4%. Time between pressing cycles increased from 17 to 28 days due to a 25% reduction in solids. Additionally, odor levels were reduced by over 80% during the treatment period.

BACKGROUND

The municipal WWTP was located in the north-central part of the United States. The municipal facility had an average daily flow rate of 250,000 gallons per day (GPD) with most of the intake being residential. Waste activated sludge (WAS) was sent to two holding tanks (22,500 gal each) where it was aerated for 3-4 weeks prior to being sent to a single belt press and disposed. Pressed sludge historically had poor solids content (<10.5%) and required constant adjustment and maintenance during pressing. Additionally, odors were always an issue during pressing.

OBJECTIVE

The case study objective was to assess if the use of Biotifx® ULTRA could:

1. Reduced sludge disposed of
2. Reduce the sludge sent to the press
3. Improved operating capacity of the sludge holding tanks
4. Improved dewater efficiency of pressing process
5. Reduced labor and maintenance cost of the pressing process
6. Reduce the odors of the pressed sludge

Figure 1. Sludge pressing equipment

MATERIALS AND METHODS

The Biotifx® ULTRA treatment started on May 31, 2017 and was can continued for a period of 90 days. Baseline data were obtained for the sludge handling a processing and included:

- Volume of WAS sent to holding tanks
- % solids for sludge sent to press
- % solids of pressed cake
- Tons of sludge hauled during pressing events

MDG MICROBIAL DISCOVERY GROUP
MDGBio.com 5200 W. Ashland Way, Franklin, WI 53132 414-235-3767

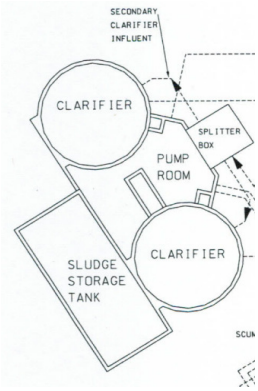

Figure 2. Diagram of WWTP

The plant manager conducted the odor surveys for baseline and treatment periods. Odor levels were ranked on a scale from 1 (no odor)-10 (worst odor). The odor survey was taken at the start, middle and end of the pressing cycle in order to measure the changes in odor that can take place as the sludge holding tanks empties. Historically, odor levels increase during the last stage of pressing. The sludge storage consisted of 2 x 22,500 gallon tanks. Biotifx® Ultra was dosed at the rate of 0.5 kg (6ppm) per week into each sludge storage tank.

RESULTS

Sludge volumes were reduced by and 99% during the first 60 days of treatment (figure 1). Sludge volumes were not reduced significantly during the first 30 days primarily due to increased wasting from the aeration basin. During the month of June, the facility reduces its mixed liquor suspended solids (MLSS) in its aeration basin from around 3400 down to 2200 (33%).

The percent solids being pressed increased from 10.8% to 12.4% or a 16% increase (figure 2). In the past, the operator would have to make multiple adjustments during the pressing cycle, with alarms going off during pressing. This resulted in additional labor and maintenance costs of pressing. The plant operator commented the solids pressed extremely well, requiring very little adjustment during the treatment period. We believe this to be due to improved consistency of sludge content coming from sludge holding tank.

The odor levels decreased by over 80% versus past pressing periods (figure 3). Most importantly, odors were even reduced during the last phase of pressing by over 80%. This is normally when odors were at the highest levels.

The operator commented that probably the best odor level test would be when he got home. If his wife would tell him, you pressed today didn't you! During two separate pressing cycles, his wife made no comments.

Figure 3. WWTP equipment

Figure 4. Sludge pressing equipment