

CASE STUDY

Biotifx[®] AMMO Improves Sludge Handling and Hauling at Beef Processing WWTP

SUMMARY

A large beef processing facility in the western United States was limited in waste activated sludge (WAS) holding and processing capacity causing issues with mixed liquor suspended solids (MLSS) being too high. After application of Biotifx[®] Ammo, operators noticed holding capacity and sludge pressing improvement in a matter of days. Operators were able to “catch up” with sludge wasting and thus improve performance of aeration basin in addition to reducing the amount of sludge being disposed.

BACKGROUND

The subject facility was a beef processing plant operating a 2.7 million gallons per day (MGD) activated sludge system. Waste activated sludge (WAS) was sent to two (2) holding ponds (1.2 MG each) prior to being sent to a single belt press. Sludge holding ponds were supposed to be decanted while filling in order to reduce water and volume processed by the belt press. Excessive sludge production coupled with poor decanting resulted in sludge holding ponds filling too quickly, leaving the belt press unable to handle the volume. This resulted in a buildup of MLSS in the aeration basin and difficulties with treatment. There were also concerns about the cost of hauling pressed sludge for disposal (**Image 1**).



Image 1: Sludge holding pond before treatment

OBJECTIVE

The objective of this case study was to achieve and demonstrate the following:

- Improved operational capacity of the sludge holding ponds
- Improvement of sludge dewatering by belt press
- Reduction in the amount of sludge being disposed

MATERIALS AND METHODS

Treatment with Biotifx® Ammo started in late June of 2017 and is currently ongoing. Product was dosed in dry form directly into the WAS holding ponds. Initial seeding dose was 60Kg (~6ppm pond volume). This was followed by a regular maintenance dose of 0.5 kg per 60,000 gallons of WAS (~2ppm of WAS flow).

Plant personnel collected all data as part of their regular system monitoring. Data were compiled after two months of treatment and compared to historical averages. Operational capacity of the ponds was monitored by decanting duration, concentration of sludge after decanting and the ability for the operators to reduce MLSS to desired levels. Belt press efficiency was monitored by the % solids of pressed cake. Sludge yield from the press was evaluated by comparing the average tons per day the plant disposed of.

RESULTS

Operators started seeing changes in decanting and pressed solids as little as two days after the initial treatment. At the end of the two month treatment period, operating capacity of the WAS holding ponds was increased by 300% as measured by increased decanting duration and sludge percent solids improvement of 58% (**Table 1**). The goal of a lower MLSS was also reached.

Percent solids of pressed sludge improved by 13% and sludge disposal decreased 33% (**Table 2**). Because the improvement in efficiency of sludge decanting and pressing the plant can now manage MLSS appropriately and overall system operation has improved. Additionally the plant has reduced sludge hauling costs and avoided the cost of sludge treatment expansion.

Table 1

	Pond Decanting Duration	Decanted Sludge % Solids	MLSS (mg/l)
Before	2 days	1.94	8141
After	6 days	3.07	6790
% Improved	300%	58%	17%

Table 2

	Pressed Cake % Solids	Sludge Hauled/Day (tons)
Before	12.17%	31.5
After	13.75%	21.1
% Improved	13%	33%