

ChemTreat Reduces BOD Levels, Improves Effluent Quality at Food Plant

Background

A processed food plant experienced high total biochemical oxygen demand (BOD) effluent, resulting in sewer surcharges from the local municipality. In addition, occasional effluent upsets from high oil/grease and low pH were a concern. The discharge limits for each constituent are as follows:

- Total Suspended Solids (TSS): 1,200 mg/L
- Total BOD: 1,000 mg/L
- Oil/Grease: 200 mg/L
- pH: 5.0 – 10.5

Improvement Opportunity

The plant averages 750,000 gpd of sewer discharge, with highly variable water quality coming to their wastewater pretreatment facility. The treatment program in place prior to ChemTreat's involvement utilized Ferric Sulfate for coagulation and an anionic polymer for flocculation.

Strategy

Lowering Total Cost of Operation:

- Sewer surcharges
- Treatment costs
- Sludge haul-outs

Shared-Interest Approach (Local and Corporate)

- Utilities
- Engineering
- Sanitation
- Environmental
- On-site support of the overall program



Program

A majority of the total BOD is in the soluble form; however, insoluble BOD levels could be improved considerably with a different chemical approach. ChemTreat proposed a chemical program to reduce insoluble BOD and oil/grease, and maintain better control of effluent pH.

When the influent wastewater becomes excessively difficult, ChemTreat supplements a low dose of ferric sulfate to aid with coagulation. This approach provides improved effluent quality without a pH deviation while achieving the treatment cost goal.

Poly Trace™ automation was used for real-time dosing adjustment. It was determined TSS would be used as the operational control parameter since it can be measured in real time.





Outcome

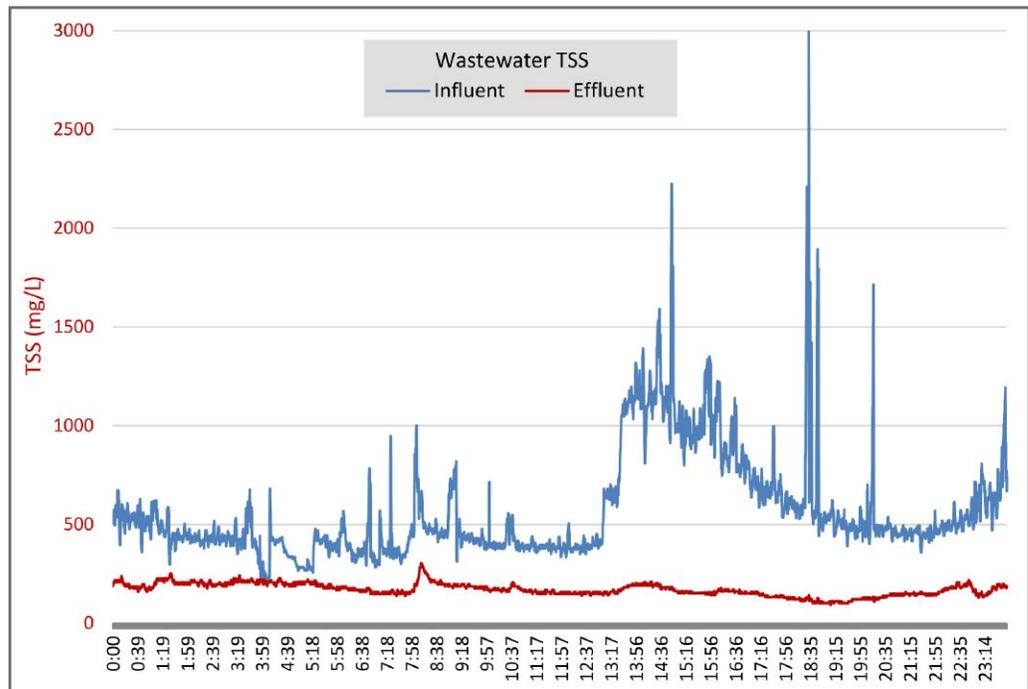
ChemTreat’s treatment program successfully achieved each goal. Trial data revealed 100 percent compliance with effluent water quality limits (Table 1). The TSS of both the influent and effluent streams were monitored with Poly-Trace™ in real time and reported daily to approximate removal efficiency of the insoluble constituents (chart 1). Sludge haul-out volume was reduced by 11.1 percent per load and load frequency was reduced by 7.2 percent. Ferric sulfate daily usage dropped by 90 percent. This provides minor cost savings and cost avoidance since ferric sulfate was the sole cause of previous pH excursions.

As a result of our efforts, ChemTreat secured a contract for this customer’s wastewater treatment program and continues to achieve these results. The partnership continues to focus on ways to reduce total operational costs through on-going improvement projects and superior on-site support.

TABLE 1

	Previous Average	ChemTreat Average	Improvement
Total Suspended Solids (mg/L)	131	86	-34%
BOD (mg/L)	710	576	-19%
Oil/Grease (mg/L)	84	26	-69%
pH Excursions (Monthly)	1+	None	-100%
Ferric Sulfate Usage (GPD)	200	20	-90%

CHART 1



Results are examples only. They are not guaranteed. Actual results may vary.