

Plastic Recycling Industry Wastewater Solutions

Bottle recycling has been on the up rise for a number of decades. As the global community becomes more aware of the practices and benefits of reuse and recycling of plastics, they are demanding better controls be put in place by manufactures, corporations, environmental agencies, and end users. This promotes the use of new technologies that support sustainable goals and allows companies to be good corporate stewards of the environment. For this reason, Clean Water Technology, Inc. (CWT) has become an advocate in providing sustainable solutions.

Challenge

A recycled plastics bottle company approached CWT when the city gave them a challenge to meet their effluent requirements or be closed down. The company had an existing dissolved air flotation (DAF) system that was old and struggling with high chemical usage to operate.

Time was also of the essence as the company needed to install a system quickly to meet the municipal discharge standards and time-line.

Solution



CWT provided the company with a treat-ability study and plan-of-action. The CWT laboratory in Los Angeles, CA, analyzed the wastewater and made recommendations to address the recycler's challenges. (See tables 1 & 2)

The aging DAF system was retrofitted with GEM® System technology, to save time and money. This technology uses the liquid-solids gas energy mixing (GEM) patented hydro-cyclones of the GEM System. This mixing, combined with the injection of 100% of air and chemicals before the tank increases contaminant capture exponentially over the tank mixing DAF method. After assessing installed DAF system to determine it's integrity, it was fitted with GEM System LSGM Heads (liquid solid-gas-mixing) and other components to make it a primary wastewater treatment system that removes more contaminants than a DAF.

TABLE 1: Plant #1: California

PARAMETER	INFLUENT	EFFLUENT	% REDUCTION
TSS (ppm)	5,500	25	99%
COD (ppm)	15,000	5,500	64%
Turbidity (NTU)	>1,000	8	99%

TABLE 2: Plant #2: California

PARAMETER	INFLUENT	EFFLUENT	% REDUCTION
TSS (ppm)	550	25	95%
COD (ppm)	28,000	5,500	80%
Turbidity (NTU)	>1,000	8	99%

Conclusion

The GEM® System technology overcame the challenges of the old system in the recycling plant. Removal rates of contaminants helped the company meet compliance with the municipal standards.

- The company was now in compliance
- TSS, FOG and COD were greatly reduced
- All non-dissolved materials were removed from the wastewater
- Chemical usage reduced by 60%
- Sludge was reduced
- The system is expandable for flow and loads without additional capital expenditures