

Emergency Frac Tank Wastewater Treatment Facility

Location: Atlanta, Georgia

Client: Confidential Food Processing Facility

Contract Amount: \$430,000

PROBLEM:

Remtech constructed an emergency 60,000 gpd Frac Tank pre-treatment facility for a major food manufacturing facility when their plant failed with leaking tanks, non-functional pumps and neutralization system, and a DAF air injection system that stopped working. Regulatory authorities required that manufacturing stop until a waste treatment system was operational.

SOLUTION:

The temporary treatment system was brought on line in three and completed in 15 days and was designed to operate for four months (but continued for 9 months) until a permanent plant was completed

Six (6) 20,000 gal frac tanks were mobilized to provide unit operations for the plant. Raw wastewater was diverted to an primary 20,000 blending and solids screening tank. A 60,000 gal equalization basin was constructed of three (3) 20,000 gal. frac tanks connected in parallel. Flow between tanks was split equally providing a five hour retention time for flow and concentration equalization. Fifty (50) micron air diffuser manifolded heads were inserted through 30" manholes with connections consisting of 5 universal fittings and 85 pound anchoring magnets. Sixteen (16) diffusers in each tank provided flow and concentration equalization and enough mixing to prevent settling of solids. An existing 5 Hp rotary lobe blower (187 cfm @ 15 psi) provided excess air to provide uniform mixing and oxygen for biological oxidization.

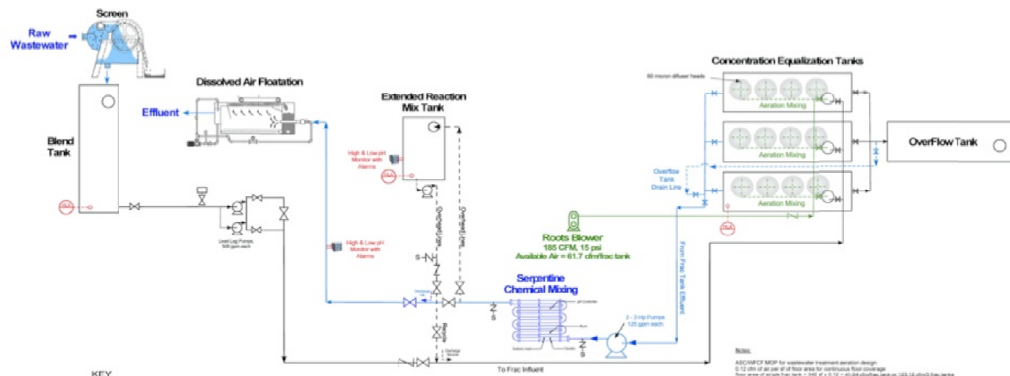


Emergency 60,000 gal Aerated Equalization Basin with Micro Bubble Diffusion



Serpentine Chemical Mixing System Fabricated in One Day for Acid, Base and Alum Addition

Air mixing pilot tests on four diffuser heads on 34" centers required 1.3 cfm air per head at 5 psi to produce a radius of influence of 8 ft in each tank. Available air provided three times the air required for mixing and oxidization. Wastewater from the equalization basin flowed through a seven (7) tier 10 ft long serpentine chemical flocculation/neutralization/mixing system constructed out of four-inch schedule 80 PVC that provided a 15 second contact/mixing time for acid/base/alum addition. Chemical addition was controlled by a PID pH controller. A new 20 micron bubble pump was installed to restore operation of the dissolved air flotation system that replaced the old compress air injection system. This pump replaced the existing compressor, pressure vessel, ejector, and static mixer.



- KEY**
- Roots Blower
 - Centrifugal Pump
 - Sampling Tap
 - Sol Valve
 - High/Low Level Alarm
 - Pump Activation Flow Switch
 - High & Low pH Monitor with Alarm

EMERGENCY WASTEWATER TREATMENT FACILITY

Notes:
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 2010/05/14/001 - 10/14/2010/05/14/001 - 10/14/2010/05/14/001



COST/BENEFITS

This temporary wastewater treatment system allowed this manufacturing facility to continue to manufacture product and avoid a costly shut down period.