

Project Profile

DAF Clarification of Biological Solids from an Activated Sludge Process



Background

ETS provided a Model RT-500 dissolved air flotation (DAF) system with a flocculation tank (above) to a citrus processor for either the pretreatment of raw wastewater for TSS and BOD removal prior to an activated sludge process or secondary treatment for clarification of biological solids from the activated sludge process. The existing treatment system had a hydraulic clarifier that frequently develops floating biomass (right) that results in poor effluent quality. When this occurs, the plant will shift the operation of the DAF from pretreatment to service as a secondary clarifier.



DAF Clarification

When operated as a secondary clarifier, the effluent from the activated sludge process is routed through the flocculation tank where a light dose of an anionic polymer is added. The resulting floc floats easily upon entry into the DAF system (right). Use of the DAF as a secondary clarifier results in an effluent quality superior to that of the traditional hydraulic clarifier (below). It also generates a thickened waste activated sludge (WAS) that is less than 25% the volume of that generated by the hydraulic clarifier, thereby reducing the cost of sludge disposal.



Data

The data below illustrate the performance of the system as a secondary clarifier for the removal of biological solids from the effluent of the activated sludge process:

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|--------------------|--|
| Industry type: | citrus processing |
| Application: | clarification of aerobic biomass from activated sludge process |
| Flow, rate: | 750 gpm (1.08 MGD) |
| TSS, influent: | 5,400 mg/L |
| TSS loading: | 2,025 lbs TSS/hr |
| DAF size: | ETS Model RT-500, 500 ft ² surface area |
| Hydraulic loading: | 1.5 gpm/ft ² |
| TSS loading: | 4.05 lbs TSS/hr•ft ² |
| TSS, effluent: | 8 mg/L |
| TSS, removal: | 99.8% |
| Float solids: | 2.85% TS |



For Information

For additional information on the use of dissolved air flotation for secondary clarification of biological solids, contact Environmental Treatment Systems, Inc.:



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