

Trickling Filters

Trickling filters are a type of fixed-film reactor. They work by passing wastewater through a fixed media by rotating arms that distribute the wastewater evenly across the top of the media. The media has a biological film that comprises of a diverse population of living organisms. The wastewater comes in contact with the biological organisms that consume the soluble organic material from the wastewater. The biological organisms are predominately aerobic that absorb oxygen from air circulating through the media. As the organisms die off they will slough off the media and continue through to the CMAS system.



Trickling Filters

The two trickling filters are each 200 feet in diameter with a WesTech distribution system. The filters have 8-foot depth of limestone media with a design surface area loading of 398 gpd/sqft. Each filter has four distribution arms with a rotary distributor and is hydraulically driven by the PEPs pumps.



Primary Effluent Pump

The trickling filters are designed for a loading of 25 pounds of C-BOD/day/1000 cuft and a hydraulic load of 541-gpd/sq ft peak at 34 MGD. The average loadings are 239 gpd/sqft. In 2009 the trickling filters removed an average C-BOD of 33 mg/L, with a removal efficiency of 46%. With an average loading of 67 mg/L of C-BOD to each filter and an average flow of 17 MGD, the filters have an actual loading of 15.5 pounds of C-BOD/day/1000. This leaves about 40% of loading capacity left. The filters are annually flooded for 24 hours in an effort to control the filter fly population.

The Trickling Filter effluent goes to a diversion structure where it is mixed with the return activated sludge. The 54-inch Trickling Filter Bypass enters at this chamber.



Trickling Filter Effluent Pump

The effluent from the trickling filter diversion structure enters the Trickling Filter Effluent Pump station. The station has three open three-flight screw pumps that lift the sewage into the CMAS basins. The screw pumps are 42 feet in length and 8.2 feet in diameter. The pumps use 150 HP motors and rotate at 28 RPM. Each pump is rated at 31.4 MGD.