

Secondary Clarifiers

The secondary clarifiers allow floc from the CMAS system to settle out of the flow stream and return it back to CMAS to maintain the bio-mass and to remove the bio-mass that is not needed.



Secondary Clarifiers

There are two square secondary clarifiers, measuring 140 feet on each side with a 10-foot side water depth. The floc-collecting unit consists of a set of plows. The plows push the secondary floc to a floc connection trough near the center of the tank. There is an average of two feet of floc in the bottom of the secondary clarifiers. The secondary clarifiers were installed in the 1961 upgrade. They were designed to be used with only trickling filters. In 1988 the plant was changed to an advanced secondary plant with the addition of the Complete-Mix Activated Sludge process.

The design detention time for two secondary clarifiers is 168 minutes. At a plant average flow of 15 MGD, the secondary clarifiers detention time is 281 minutes and at the peak-sustained flow of 34 MGD, the detention time is 124 minutes. Each clarifier has a Return Activated Sludge (RAS) line, which comes from the floc connection trough of the secondary clarifiers through a flow meter and throttling valve. The RAS is set to flow

at 70% of the plant influent. It is adjusted automatically by the SCADA system by modulating an automatic valve. Each of the two RAS lines has a flow meter. The plant tries to maintain a two to three foot sludge blanket in the secondary clarifiers and a 70% flow rate can maintain that level. The weir overflow rate at average flow of 15 MGD is 13,393 gpd/ft and 30,357 gpd/ft at the peak sustained flow of 34 MGD. The wasting rate is determined by the amount of Mixed Liquor Settleable Solids in the CMAS basins. If the Mixed Liquor Settleable Solids imhoff cone test reads above predetermined limits the operator starts the WAS pump and set its speed at either 30% or 50% of its rated pumping capacity.



WAS Pump

The WAS pumps are on a VFD and are set at either 30% (45 gpm) or 50% (75 gpm). The plant removes an average of 7900 pounds of solids from the CMAS system per day. The channels and weirs of the secondary clarifiers build up with algae and are manually cleaned on a regular basis.