

City of Anderson

Wastewater Division

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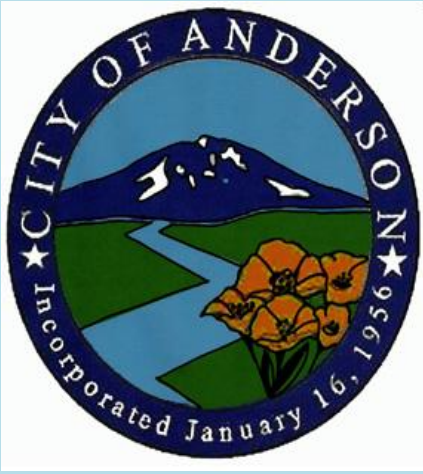
Operator I
Vacant

Collections Supervisor
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Anderson Water Pollution Control Plant





Clean water is a basic human need and is threatened by population pressure in this region. The City Council of the City of Anderson recognized this need early in 1970, implementing a comprehensive engineering study and developed a long range plan to design and construct a modern water pollution control plant. The construction of the plant was begun in August of 1974. The facilities were constructed at a cost of 1.3 million dollars. Originally the plant was designed as a Class III Secondary Treatment Facility, with 1 million gallons per day (MGD) dry weather flow and a 3 MGD wet weather capacity. Expansions to the plant in 1985 and 1989 have increased the dry weather flow to 2 MGD and wet weather flow to 6 MGD. The addition of pressure filters has now made the facility a Class IV Advanced Secondary Treatment Plant. The treatment process removes biochemical oxygen demand (BOD) and suspended solids (SS). BOD is a measurement of the

organic carbon matter in the wastewater. The average removal at the plant for these two basic effluent limitations is 98%. The treated outflow that is discharged to the Sacramento River is actually cleaner than what is already in the river.

Outline of the Treatment Process

Collection System - 38 miles of sewer mains and four pump stations convey the raw sewage to the plant. These lines and stations are maintained by the collection crew. Periodic checks, flushing and viewing are carried out throughout the year.



Influent Pump Station & Headwork's - As it flows into the plant it enters the influent pump station where it is pumped to the headworks for screenings removal and gravity flows to the aeration basins.



Aeration Basins - In the aeration basins the incoming sewage is mixed with dissolved oxygen, the dissolved and suspended organic substances are oxidized by bacteria, this is an acceleration of the natural biological process. This mixture of water, dissolved, suspended matter and microorganisms is commonly referred to as mixed liquor suspended solids (MLSS).



Clarifiers - After a designed time parameter in the basins the MLSS flows to the clarifiers where the where floatables are removed and the MLSS settle. A portion of the generated microorganisms (settled solids) are pumped to the digester, the term used for this flow is waste activated sludge (WAS), the remainder of the settleable solids is refer to as return activated sludge (RAS) and is pump back to the aeration basins to treat the incoming raw sewage.



Ballast Pond: Equalizes flow to the pressure filters, as the flows fluctuate throughout the day the filter pumps draw levels down.



Pressure Filters - The clear overflow of the secondary clarifiers is pumped through vessels, these pressure filters are dual media containing charcoal and sand. These high rate filters remove the remaining 1 to 5 percent of the fine suspended matter not removed in the clarification process.



Disinfection – Chlorine is used to destroy pathogens (disease producing organisms). However chlorine is toxic to fish and wildlife, the chlorine has to be neutralized with sulfur dioxide. The filter flow is dosed with chlorine in the contact chamber for a minimum of 20 minutes, as it exits the chamber it is dosed with the sulfur dioxide, the treatment process is complete and the effluent is discharged through a diffused out fall in the river.



Aerobic Digester – The WAS that is pumped from the clarifier spends about 40 days in the digester. Here the food supply runs out and the bacteria feed upon themselves and other dying bacteria (endogenous respiration) reducing the volume of what is now called sludge by about 25%. Water is released by the dying bacteria. The water and remaining digested sludge are discharged to the sludge storage ponds.



Sludge Storage Ponds - Here the sludge is stabilized in a facultative (aerobic & anaerobic) environment, the water is removed by pumping, leaving organic humus which is now referred to as bio-solids, it remains in the pond to dry to about 93% solids before disposal to landfill or applied to land as fertilizer.



Drying Beds – Solids from ponds are pumped here for quicker drying times, once the bio-solids are dried to approximately 93% it is land applied or disposed of at the landfill.



Emergency Storage Ponds – Currently there is one 3 million gallon storage pond. A second pond is currently under construction. The new pond will essentially double the emergency storage capacity. This enables the plant to store the partial untreated wastewater instead of discharging to the river in the event of severe plant upset, 100 year storms and prolonged power outages. The new pond also has the capability to store and dry bio-solids when used in conjunction with other sludge storage ponds facilities and should be completed in the summer of 2010



Operations Building – This building houses offices, plant instrumentation, motor control center, various pumps, emergency power back-up generator, records and the laboratory.



Group Plant Tours are available, to schedule call the Anderson Wastewater Treatment Plant: Phone (530) 378-6664