Treatment

Aeration Basins: Biological

From the Primary Clarifiers, the wastewater flows into large, rectangular tanks called Aeration Basins, where a biological treatment called the "activated sludge process" occurs. The wastewater flows slowing through a series of chambers as large volumes of air are bubbled up through the water. There is so much air added that it looks as if the water is boiling. In these basins, the wastewater is mixed with the "activated sludge;" hundreds of millions of actively growing single-celled microorganisms (mostly bacteria and protozoa) referred to as "bugs."

Aeration Basins:-

The air is needed to help the organisms thrive and multiply. What do they eat? The waste in the wastewater! As the bugs eat, the wastewater is cleaned. While the wastewater is in the Aeration Basins, mixed with millions of bugs and air bubbling through it, it looks like boiling hot chocolate. When all of the food (waste) is gone, after about eight hours, the wastewater leaves the Aeration Basins.

Some of the bugs are sent back to the beginning of the Aeration Basins to keep the process going. Some organisms move on with the wastewater to the next step in the treatment process, the Secondary Clarifiers. The Aeration Basins can hold 1.1 million gallons at a time.

Secondary Clarifiers: Physical:-

When the wastewater enters the two Secondary Clarifiers, it still contains lots of

Primary Treatment

Preliminary Treatment: Physical

When wastewater arrives at the treatment plant, it contains many solids that cannot be removed by the wastewater treatment process. This can include rags, paper, wood, food particles, egg shells, plastic, and even toys and money. To remove these solids, the wastewater enters a building called the Headworks and passes through large screen filters which removed this material. The solids are then placed in a dumpster and taken to the landfill. This is the only byproduct of wastewater treatment that is not recycled!

Primary Clarifiers: Physical

From the Headworks, the wastewater flows into two huge circular tanks called Primary Clarifiers. These tanks can hold 600,000 gallons of water each. Here the wastewater slows down and remains in the tanks for about two hours. This allows material suspended in the wastewater to either float to the surface or sink to the bottom.

Large paddles rotate slowly over the surface and floor of the Primary Clarifier, removing these materials from the wastewater. There are two Primary Clarifiers at Soscol Water Recycling Facility. The clarifiers are covered to reduce odors!

Secondary

microorganisms from the Aeration Basins and looks brown and murky. The Secondary Clarifiers are identical to the Primary Clarifiers; materials in the wastewater sink and float and rotating arms remove this material from the water.

After treatment in the Secondary Clarifiers, the wastewater is now ready to be released to the Napa River, or further treated to produce recycled water. The Secondary Clarifiers each hold 800,000 gallons of water.

Tertiary Treatment

Filtration: Physical Chemical:-
Wastewater leaving the Secondary Clarifiers looks as clean as drinking water! Depending on conditions, this water can go directly to the Disinfection process to produce recycled water, or it can go the Filtration Building.

The Filtration Building contains a series of sand filters that are 27 feet tall, and can filter almost 14,000 gallons of water per hour. The filters remove very tiny solids ("suspended solids") from the wastewater before it moves on to disinfection. Polymers are added at this step to cause the suspended solids to clump together, making them easier to filter out.