
Memorandum

TO: Eileen Cashman

FROM: Sabrinna Rios Romero

SUBJECT: Arcata Wastewater Treatment Plant Memo

DATE: October 7, 2016

Purpose

The purpose of this memorandum is to overview the steps of the wastewater treatment plant in Arcata, Ca during a tour given on September 29, 2016. This memorandum will describe how each part of the plant works, how seasons affect the plant, and the overall trip at the Arcata wastewater treatment plant.

Discussion

The volume of effluent being received around fall time, the time in which we were at the plant, was about 1.1 million gallons. It was said it was distinctively low because of the dry summer and no rain, but drastically changes during the winter. During the winter, the effluent volume increases to about 14 million gallons. A problem that was informed, was that the plant is only capable of two pumps that only pump 5-6 MGD. Although that much can not be pumped all at once, there is another designated area for pumping, which are the storm pumps. As the amount of rain increases, the flow rates increase, causing larger flow rates, that then are able to be processed differently depending on the season.

Steps of the water treatment plant:

- 1)Primary treatment, where the process of wastewater begins, was shown to us. This area was very loud because of the mechanics to bring the water up, against the force of gravity, to remove large suspended solids. The plant at this step consists of three separate factors. Removal of sediments is done by the headworks, which then go to the clarifier where the suspended solids are settled, and then the digester where compost and methane are produced.
- 2)Secondary treatment takes place as the oxidation ponds receive effluent from the the previous step. The oxidation pond is used to remove BOD from the wastewater. This is done by the growth of microorganisms due to the increase in algae. Where it was shown, the plants are very abundant.
- 3)Tertiary treatment is where the water is then chlorinated and dechlorinated. The enhancement marches is where this takes place. A recreational aspect to the marches is available. It was seen to be very open with trails along the way. Further removal of BOD takes place and phosphorus and nitrogen are reduced.
- 4)Disinfection is the final step of the treatment plant. Pathogens and bacteria are removed and the final water flows to Humboldt Bay.

We were shown a new implementation that has started to remove sludge that has built up at the bottom of the treatment plants. The system used to pump it are called blue frogs and function by bringing out bubbles of air. They are being monitored since they are new to the system and will be seen how well they work. The reason for them was because of failure to check up over the past 30 years.

Conclusion

The trip clarified my understanding of how wastewater treatment is carried out. How the process changes due to weather was a new factor I had not been aware of. Seeing each step and where it was located, furthered my grasp on this topic. Seeing how the blue frogs function, showed how there are many ways to go about solving the problem.