INTEROFFICE MEMORANDUM

TO: EILEEN CHASHMAN AND KYLE SIPES
FROM: ALEX WATSON
SUBJECT: ARCATA MARSH TRIP MEMO
DATE: OCTOBER 7, 2016

Purpose

The purpose of this memorandum is to provide a review of tour the Wastewater Treatment Plant on Friday September 30, 2016 in Arcata, California. A brief explanation of the treatment processes, data, and ideas are provided.

Discussion

Upon the cities effluent arrival, the Arcata Wastewater Treatment Plant uses four main treatment stages before the water can move on and be released into Humboldt Bay. These stages are primary treatment, secondary treatment, tertiary treatment, and disinfection. Each stage has its own respective goal but the total objective of the plant is to remove suspended solids and biochemical oxygen demand. The primary treatment consists of the headworks, clarifier, and digesters. These three processes remove large materials that shouldn't necessarily be there such as condoms and baby wipes. The effluent then moves through the clarifier where the suspended solids settle and are removed into digestion tanks and eventually used as compost. Secondary treatment at the plant was the first of its kind. It is the combination of oxidation ponds where algae provides oxygen and in turn give microorganisms the ability to survive and remove some of the BOD. Treatment wetlands are the next step in the process where even more BOD is removed by a similar biological method. The next and final step is the tertiary and disinfection treatment where some of the water from the previous steps is treated with chlorine and then moved through the enhancement marshes possibly several times before it is released into Humboldt Bay. It is important to state that the chlorine is removed before being released into the marshes and the bay. Upon release into the bay the BOD levels must be at a level of 30 milligrams per liter.

On a given day at the Arcata Wastewater treatment plant the rate of wastewater effluent can range from 1 to 14 million gallons per day. The reason for the fluctuation is a high rate of rain during winter months along with an increase in population. The treatment plant is very old and has developed a large amount of sludge throughout the wetlands. Recently there has been a modification with the addition of two machines called blue frogs which participate in the decrease of sludge buildup by solubilizing it which allows bacteria to break it down further.

Conclusion

The Arcata Wastewater Treatment Plant uses multiple step process to eliminate bacteria, reduce BOD, and remove objects that shouldn't be in wastewater. After many years of many years of efficient treatment the plant is trying new techniques to get back being as effective as they were when they started.