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## Arcata Wastewater Treatment Plant Lab Memo

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To: Professor Sintana Vergara  
From: David Topete  
Subject: Arcata Wastewater Treatment Plant  
Lab Date: 09/28/18

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### **Purpose:**

The purpose of this memo is to explain what we learned at the Arcata Marsh such as the process of wastewater treatment. Our engineer 115 professor took us as a group to the Arcata Marsh for a tour to get a better understanding of the treatment process. This tour was led by one of the operators at the plant that worked there almost his whole life. Our tour guide walked us through the different steps of the Arcata Marsh water treatment process.

### **Discussion:**

Our tour started in front of the digester. We first talked about the history of the wastewater treatment plant. The Arcata wastewater treatment plant was created in 1949 but at this time period they only had primary treatment before water was released into Humboldt's Bay. Then came the clean water act and the Arcata marsh wasn't meeting the standards. In order for them to meet the standards they needed a secondary treatment. Professors from HSU helped with the secondary treatment by constructing wetlands. What does primary treatment and secondary treatment do? So primary treatment removes suspended solids in water waste and secondary treatment removes the organic constituents in the wastewater through oxidation ponds which settling occurs and decomposition happens, after that the water then goes to a Treatment wetland which then kills the algae and helps pull out BOD by having microorganisms do their job. During the tour we learned all six processes that waste water goes through. Those six processes are pre treatment, primary treatment, secondary treatment, tertiary treatment, disinfection, and dechlorination. We walked throughout these processes and learned that it takes about an hour for settling to happen in primary treatment. We also learned that this water waste plant has two digesters but one of the digesters is heated. I learned that this plant gets about 16 million gallons of wastewater per day. I noticed that the Arcata water waste treatment plant doesn't collect their methane instead they burn it to CO<sub>2</sub>. The plant does this because they do not produce enough methane to be economically useful. It also takes 1 to 2 years to dewater sludge in order to use as compost. The Arcata Marsh has big plans and upgrades, some of these plans are to upgrade oxidation ponds and wetlands. They are also going to upgrade their oxidation ditch. Another big upgrade that will take 2 to 3 years to happen is a new treatment for ammonia. Another is switching from chlorine to UV lights for disinfection.

### **Conclusion:**

This field trip help me understand the process better and helped me gain a big picture of the process. This field trip was beneficial because we got to see each process and saw what there BOD was. This helps us connect to our calculation quiz such as finding BOD and using mass balance equations. This field trip help me understand what Environmental Resources Engineers do.