**INTEROFFICE MEMORANDUM**

**TO:** PROFESSOR ARCHIBALD

**FROM:** ELLA MOORE

**SUBJECT:** WATSE WATER TREATMENT PLANT MEMO

**DATE:** 10/5/19

**LAB DAY:** FRIDAY, 8:00 A.M

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Purpose

The purpose of this memorandum is to discuss the learnings and takeaways in association with the Engineering 115 field trip to the Arcata wastewater treatment plant. During the trip we toured the plant and learned about the operation of the plant specifically focusing on the marsh and oxidation pools.

Discussion

We began the tour by visiting the headworks/primary treatment are of the plant. One of the most interesting parts of the headworks was the Archimedes screw, a variety of pump that uses rotation in order to move water. We moved to the ground near the primary clarifier, and our tour guide gave us some historical context about the plant. I learned that a lot of wastewater treatment plants were built in the 70's after the clean air and water act was passed, and they are all failing at the same time. Fortunately for the Arcata wastewater treatment plant, they will be getting some renovations soon; although our tour guide never mentioned when they will be getting the upgrades, or where the money will be coming from.

Something that I found very interesting was the extreme variation in the amount of water that it processed by the plant during different parts of the year. During the summer, the plant processes the least amount of water, around 1 million gallons a day. When students come back from holiday, that number increases to 1.5 million, and during rainy season that number jumps to 14 million gallons a day. As you can see, this treatment plan must be able to accommodate both extremes. One built in precaution are the pools, where, if need be, they can fill to accommodate the great influx of water.

I came back for this fieldtrip with a deeper understanding of tertiary treatment. At the Arcata wastewater treatment plant, tertiary treatment is carried out by 2 oxidation ponds, and a marsh. The oxidation ponds are meant to aerate the water, in order to decrease the

BOD, and the anerobic marsh is mean to then kill all the bacteria. It is then treated with chlorine and discharged.

Recommendation:

I believe that this fieldtrip deepened my understanding of wastewater treatment and the upkeep and the maintenance associated. I would recommend future Engineering 115 student be given the opportunity to, visit this plant.