

Technical Writing Sample

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ENGR 115

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MEMORANDUM

TO: DR. EILEEN CASHMAN
FROM: LORENZ V. HERNANDEZ
SUBJECT: ARCATA WASTEWATER TREATMENT PLANT FIELD TRIP
DATE: OCTOBER 7, 2016

Purpose

The purpose of this memorandum is to describe my experience and what I learned about the trip to the Arcata Wastewater Treatment Plant (AWWTP) and Wildlife Sanctuary.

Discussion

At the Arcata Wastewater Treatment Plant we, as a group of Engineering 115 students, met Thea. Thea is an operator in the wastewater treatment plant. She first spoke of the brief history of the water plant and soon after, showed us the different treatments and functions of plants to treat waste water.

1. Primary Treatment

Before waste water goes through the treatment process, I learned that the U.S. EPA allowed the city to implement a Pretreatment Program. The Pretreatment Program reduces the amount of inorganic pollutant, such as heavy metal, grease and chemicals, by not allowing certain industries dispose their inorganic pollutant with the collection of water (sewage).

As the collection of water travels through the sewage system and reaches AWWTP, the waste water goes through the headworks. Headwork is one of the primary treatment in the plant. We saw two Archimedes' screws that took the raw sewage fifteen feet above the lines and into the headworks. We went on top of the headworks, where we were able to see the raw sewage go through bars to settle large debris. Then inflow is measured through Parshall flume. I learned that monitoring the inflow of water is important, because if it isn't monitored then overflow and complications can occur in the plant. The design flow is 2.3 MGD, but the plant usually treats between 0.9-1.4 MGD. Water continues to flow through a grit separator where typically sand, pebbles and small glass pebbles are removed, but many times foreign objects like money, hair, and others items, are also removed here. Finally, we went to go see the water clarifier. The clarifier was a very big, enclosed cylindrical plant, which allows suspended particles to settle down, while floating objects and oils are skimmed and thrown away in the dumpster. The settled particles are pumped into a digester and turned into sludge. We saw the sludge on the dry beds. I thought there would be more dry beds but there was only three. The water from the clarifier is then sent to the secondary treatment, oxidation ponds.

2. Secondary and Tertiary Treatment

We only saw one pond and it was very beautiful. The oxidation ponds are used to remove the BOD through the growing algae and living bacteria in the water. Then we saw, as part of the secondary treatment some of the wetlands. The treatment wetlands are the marshes. Thea was able to explain how the plants played a role in the treating the water; although, over the years, many plants have over populated the wetlands, causing less water flow. Because there was less water flow, mosquitos has inhabited the water. During this time we also saw the Blue Frog. The two Blue Frog was place in the third wetland. Unfortunately, because of the power outage during that day, the Blue Frogs were not functioning. Blue Frog is a circulator that makes the sludge more soluble and is easier to remove from the water.

Conclusion

Overall, the trip to the AWWTP gave me a better understanding of how the city of Arcata treats waste water and gained some knowledge of how natural water treatment plant functions. Also, saw the Blue Frog and learned about it.