
MEMO

TO: INSTRUCTOR KRISTEN RADECKSKY
FROM: JOSEPH TREJO ENGR 115 STUDENT
SUBJECT: ARCATA WASTE WATER TREATMENT PLANT
DATE: MAY 3, 2013

Purpose:

The purpose of the field trip to the Arcata waste water treatment plant was to expose us the students to the real world example of a water treatment plant. It's one thing for students to learn about a subject in a book or lecture, but it's another thing for students to get real hands on experience and see the process at first hand.

Discussion:

The tour of the Arcata waste water treatment plant was good overall even though there were a few down sides. When we arrived the first thing that popped out was the really strong odor but that was expected beforehand. Luckily we had a tour guide that lead us through the processes one by one in order. First we went to the primary treatment where the odor was coming from. It was really hard to pay attention with the smell but the guide showed us how objects like plastic bags would be caught and how the water is then transferred to the secondary clarifier. We got to see the secondary clarifier but from afar and were told that it used strings to prevent seagulls from flocking up. He then lead us to the digesters the first being the primary digester when anaerobic bacteria break down the liquid sludge into heat and gas. The second digester was not heated and was full of a very thick sludge. After the digesters we went to the sludge beds where they dry it out and do analysis. We also saw a compost bed where the sludge is mixed with wood chips.

After the smelly sludge part we went on to the oxidation ponds where the guide explained how the algae in the water breaks down the waste water even further and produce oxygen at the same time. We also found out fish and ducks lived in the ponds as well. He also told us that at this point in the process, the water's BOD5 is less than 30. He explained that the plant's tertiary treatment was optional. We then saw the treatment wetlands which were completely covered in plants like cattails and bulrush plants except for one area that was currently being built. Then at the end of the tour he took us to the disinfection treatment which requires chlorine and had several rows but due to security risks we weren't allowed to get a closer look. Before going, he showed us the finished product which was surprisingly clean but was definitely water I would not touch. Then we got to see the marsh and the rest of the treatment center by taking a quick detour on the bus and that was the end of the field trip.

Conclusion:

The most interesting thing I learned on the tour was that the treatment plant actually raised salmon in the waste water and was comparably successful to other fish hatcheries. Also how he told us that salmon that are sheltered have a 5% return rate while those that are exposed to predators like birds early on have a 90% return rate.