

Arcata Wastewater Treatment Trip Memo

To: Instructor Radecsky

From: Robert Williams

Date: December 2, 2013

Lab Class: Thursday 2-5

Purpose

The purpose of our field trip to the Arcata Wastewater Treatment Plant was to help reinforce our understanding of the wastewater treatment process, by actually seeing the techniques, methods and equipment in action. Going to the treatment plant gave us the opportunity to expand on what we had already learned in class as well as to clarify anything that may have been difficult to understand or visualize by just reading or listening about the process.

Discussion

During the tour we saw the archimedes screws that pump the wastewater up to the first step of removing solids by way of bar racks and settling tanks. The tour guide mentioned that during the summers and holiday breaks, when there are less people in Arcata, they only run one screw. I thought it was interesting when the man who gave us the tour said that toothpaste caps can get stuck in filters and are one of the most troublesome things that get flushed down by people. After most of the grit and "unmentionables" are filtered out the water goes to a primary clarifier where more solids are removed with a rotating sludge raking system. Not only does it remove solids that settled on the bottom, but it skims the top as well. The cleaner water is then sent to the oxidation ponds for further treatment. The sludge is sent to a digester where it is stabilized. The solids that come from the digesters are then dried and eventually used as compost. The cleaner water from the primary clarifier travels to oxidation ponds, and on the way out it travels through the treatment wetlands. These wetlands have a lot of Cattails and Hardstem Bulrush, biofilm accumulates on their roots, which acts as a natural filter. Then to meet water quality standards for measurements like BOD the water is sent to the enhancement marshes, and then is pumped to the disinfection stage. The water is chlorinated and then dechlorinated with sulfur dioxide, and finally released into Humboldt Bay.

Conclusion

I really enjoyed the field trip to the arcata wastewater treatment plant. I found it extremely interesting and fun. I thought it was amazing how they can take nasty wastewater, send it through a surprisingly natural process (by way of ponds and marshes) and have a finished product of water clean enough to be discharged into the bay and meet state standards. I also enjoyed all of his humorous/gross stories, like about the pressure crack in the raw sewage plexiglass window and the people who try to walk across the compost beds.