
ENGR 115 MEMORANDUM

TO: INSTRUCTOR RADECSKY
FROM: REBECCA DENNY
SUBJECT: SUMMARY OF ARCATA WASTEWATER TREATMENT PLANT FIELD TRIP
DATE: NOVEMBER 22, 2013

INTRODUCTION

The purpose of this memo is to provide a summary of our class field trip to the Arcata Wastewater Treatment Plant on November 22, 2013. Included are the steps in the Arcata Wastewater Treatment Plant's treatment train and some interesting facts about Arcata's wastewater.

DISCUSSION

We began our tour at the headworks, where the wastewater enters the plant. This is where the largest pieces of matter are filtered out of the wastewater with bar screens and grit chambers. From there, the wastewater goes into the primary clarifier where smaller solids are removed by settling and FOG (fat, oil, and grease) is skimmed off the top. The solids are then sent to the anaerobic digester. (Arcata doesn't put FOG in their digester; they send it to a landfill instead.) The solids from the digester, once broken down by anaerobic microbes, next go to drying beds, then compost. The wastewater from the clarifier goes to the oxidation ponds. The oxidation ponds utilize both aerobic and anaerobic bacteria to decrease the wastewater's BOD. From the oxidation ponds, wastewater goes to the treatment marshes. The treatment marshes filter out nutrients and metals through chemical reduction. From here, wastewater travels to Arcata's enhancement marshes where even more nutrients and metals are removed by aquatic plants. The enhancement marshes are also home to an abundance of wildlife, especially many species of birds, and serve as a recreational facility for Arcata's residents. The day we visited was beautiful and sunny and we were really able to appreciate the many functions of the enhancement marshes. Finally, the water is disinfected with chlorine then treated with sulfur dioxide to remove any remaining chlorine, and discharged into Humboldt Bay. Our tour guide told us within the next three years the Arcata Wastewater Treatment Plant will switch from chlorine disinfection to UV disinfection.

CONCLUSION

Overall, the trip was both fascinating and disgusting. The most interesting thing I learned on this trip was that the Arcata Wastewater Treatment Plant produces Class A sludge. This means Arcata's sludge, after going through the anaerobic digester, drying beds, and compost, is considered and "exceptional quality biosolid" and the City of Arcata uses it in parks as fertilizer. The city of Fortuna sells its Class A sludge as soil amendment. Los Angeles, however, produces Class D sludge, which is a hazardous waste and must be treated as such.