

# Arcata Marsh Trip Memo

Luke Pascasio

October 7<sup>th</sup>, 2016

For ENGR 115, Introduction to Environmental Resources Engineering, we took a field trip to the Arcata Waste Water Treatment Plant to learn how municipal waste water is treated before being expelled into the bay. The most interesting part about this trip is how the AWWTP treats the waste water in an environmentally friendly way compared to the processes that other waste water treatment plants utilize. This memo showcases the components used to design the AWWTP in a way that takes the environment into account.

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## MEMORANDUM

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**TO:** EILEEN CASHMAN & MARGRET LANG  
**FROM:** LUKE PASCASIO  
**SUBJECT:** OUR TRIP TO THE ARCATA WASTEWATER TREATMENT PLANT  
**DATE:** OCTOBER 7, 2016

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### Introduction

On this field trip we toured the Arcata wastewater treatment plant, the institution that which cleans and treats the water that the general public has used, on Friday the 30<sup>th</sup> of September, at about 9 in the morning. Our guide, an operator at the treatment plant, led us from the headworks to the treatment wetlands and chlorination tank, for the purpose of giving us a more hands on understanding of what it's like to treat wastewater.

### Discussion

At the beginning of our tour we meet with our tour guide near where the sludge from the primary clarifier is sent to dry out to be used as compost. Our guide spoke with us about how the plant takes different amounts of influent at different times of the year. For example in the summer there is around 1.1 MGD while that grows to over double in the winter due to the rainfall leaking into porous leaky pipes. She also informed us that the AWWTP is planning on switching from a chlorination based disinfection process to a UV one as the current process needs a dechlorinating component and extra cleaning as it has harmful byproducts.

Finally, our guide began our tour starting at the headworks, where the influent is brought into the AWWTP. The headworks has Archimedes screws which bring the water up into the primary clarifier against gravity and much large matter gets stuck in grates. In the clarifier the water, which smells like sewage, has its large particles settles to the bottom as sludge before it gets sent to the oxidation ponds. As mentioned before the sludge gets sent to an anaerobic digester which houses microorganisms which breakdown the sludge without oxygen to create compost that is used by the city, but not the public.

The water then heads to the oxidation ponds where oxygen is added by algae, plants and other microorganisms to facilitate higher dissolved oxygen levels in the water. After the ponds, we headed to the treatment wetlands where much more sludge settles as well as nitrogen and phosphorous which are contaminants in water. The special thing about these wetlands as well as the enhancement wetlands is that they house an environment for wildlife and plants, while other treatment centers use up land that can't be used by native flora and fauna.

### Conclusion

The Arcata wastewater treatment plant cleans the water used by the citizens of Arcata in a more environmentally friendly way. They use their sludge byproduct as a compost for the city of Arcata and their wetlands are home to many forms of wildlife as well as plant species instead of just taking up land like many other waste water treatment plants do while still expelling effluent that meets regulatory standards.