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## MEMORANDUM

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TO: EILEEN CASHMAN  
FROM: ANDREW VALVERDE  
SUBJECT: ARCATA MARSH WASTEWATER TREATMENT PLANT FIELD TRIP  
DATE: OCTOBER 6, 2016

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### Purpose

The purpose of this memorandum is to provide a description of what I learned, as well as what I found interesting during the Engineering 115 field trip to the Arcata Wastewater Treatment Plant on Thursday, September 29, 2016.

### Discussion

The opportunity to go to the Wastewater Treatment Marsh was provided to me by the Engineering 115 class. The marsh is located just south of Arcata, California and is connected to the northern part of the Humboldt Bay.

Upon visiting the marsh, I was greeted by one of the treatment plant operators who was the designated tour guide for the Engineering 115 classes visiting. The treatment plant operator is not an engineer, which was something that I was not aware of. The operators go through technical training, but are not actually engineers themselves. While the engineers on the other hand actually design and build the treatment plant, but never actually operate it. This can lead to certain difficulties on the part of the operators and mechanics who do the plants maintenance and upkeep.

The plant operator first took the class to the Archimedes Screws, which is part of the first process of treating the wastewater known as Pre-Treatment. Large materials are removed prior to the water traveling up the screws, which can handle up to 2.5 Million Gallons a day each, to a total of 5 Million Gallons. During heavy rains, water flows into the plant at an increased rate due to infiltration, and any water over the 5 Million Gallon limit is re-routed directly into the Oxidation ponds.

I also learned the importance of upkeeping the system during the tour of the marsh. I learned the effects and difficulties that one may encounter when the plant is not undergoing regular maintenance. However there are steps being taken in attempt to address some of the issues, like the buildup of material on the bottom of the treatment ponds. Recently, graduate Kyle Sipes began working on a project researching a possible reparations of parts of the treatment ponds at a time. This will prevent the plant from having to excavate a large portion of mature vegetation from a single treatment pond at one time, allowing for continued use of the pond for wastewater treatment during the maintenance process.

### Conclusion

The field trip to the Arcata Wastewater Treatment Marsh provided an opportunity for me to see, in context, and put together things I learn in class with real world situations. I was also able to learn about the unique nature of the Arcata Marsh system and some pros and cons of having such a unique biological system.