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**MEMORANDUM**

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**TO:** MARGARET LANG  
**FROM:** AARON HU  
**SUBJECT:** WATER TREATMENT PLANT  
**DATE:** 5/9/2013

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**Purpose**

The Purpose of this memorandum is to review the field trip to the Arcata wastewater treatment plant during the Engineering Lab on November 15<sup>th</sup>, 2012.

**Discussion**

During the lab, the Engineering 115 class went to the Arcata wastewater treatment plant, in which they learned how the plant operates.

Steps in how the plant operates:

1. Wastewater enters plant and is moved diagonally upwards with a hydraulic screw.
2. Waste water goes through primary treatment in which large objects and sludge are removed.
3. Sludge goes to an aerobic digester where sludge is heated to remove pathogens
4. Wastewater then goes to the primary clarifier where some sludge slowly settles and oils float, making it easier to remove.
5. Wastewater is then chlorinated and mixes with treated water.
6. Wastewater then goes into oxidation ponds where small organic particles are turned into larger bacteria
7. From the oxidation pond wastewater goes into the treatment wetlands. What the wetlands does is lowered the BOD in the water, removing organic material.
8. The wastewater then goes into the enhancement wetlands where wastewater is then used to help the marshes by providing water and a habitat in the area.
9. Treated wastewater is then chlorinated, mixed with pre-treated wastewater and then dechlorinated and released into the bay.

At the wastewater treatment plant, around 15 million gallons of water are treated each day. The plant also produces compost which is made by taking sludge from wastewater and killing off the pathogens through heat and then is put in pools to dry to make compost. The treatment plant is required to have all water going out to be less than 30 BOD. Water coming into the plant varies around 200 to 300, 90 with heavy rains and can be as high as 800, which operators suspect hydroponic farmers dumping their waste down the drain. After primary treatment, wastewater varies, sometimes around 100 to 120.

**Conclusion**

The wastewater treatment plant takes raw wastewater and recycles it, by turning large solids into compost, and uses treated wastewater to help the habitat around the plant to be able to release wastewater into the bay.