
MEMORANDUM

TO: MARGRET LANG
FROM: MARY KRIEGER
SUBJECT: REVIEW OF ARCATA WASTEWATER TREATMENT PLANT TRIP
DATE: 11/30/2012

Introduction

The Engineering 115 class attended a tour of the Arcata wastewater treatment plant on Thursday November 22, 2012 to gain a better understanding of the function of the treatment marshes and the overall processes of wastewater treatment.

Discussion

The Arcata wastewater treatment plant was, at its time of inauguration, radical in its methods. The plant has the usual screening for solids at the headworks for pre-treatment of the incoming sewage. The wastewater then is transported to the primary clarifier in which the large suspended particles in the water are settled via gravity. At this point the plant moves away from traditional mass treatment processes, the solids are sent to an anaerobic digester, and the waste water is moved into the two large oxidation ponds near the Arcata marsh. The water is allowed to settle for an extended period in the first pond before flowing into the second. From the oxidation ponds the water is fed into the treatment wetlands, areas planted with specific species which offer clarifying treatment to the water which passes over the roots and through the stems. The plant is currently constructing new treatment wetlands due to the aging of the original wetlands. The original sites have become overgrown with cat tails and other species which detract from the clarifying ability of the wetlands. The new areas will have an altered design from the originals to increase retention time of wastewater in the wetland. From the treatment wetlands the water is brought back to the main plant operation to be sanitized by chlorination. Arcata is currently looking into investing in UV light sanitation technology for the near future. The water is finally released into the enhancement wetlands, also known as the Arcata Marsh and Wildlife Refuge. The tour concluded with discussion overall ppm measurements for the wastewater treatment plant. By the time the water reaches the enhancement wetlands it has a suspended particle content of 5 ppm.

Conclusions

The most fascinating part of the tour was the anaerobic digester. It would be wonderful to see the digester being used to run the plant rather than burning the excess during the warm months. Collaboration with the Eureka co-gen operation could provide insight to proper mixing methods of methane and diesel fuel to continually burn a consistent solution.