# SWRF Photo Tour


Town of Oak Island

Public Utilities Department

10-15-11

# SWRF Photo Tour

- Influent Area: Wastewater flows into the SWRF at a controlled rate, flow comes into the wet well chamber and then is pumped into the drum screen, debris in the wastewater is screened out and then flows into one of the dual anoxic and aeration chambers. (Trains)

# SWRF Photo Tour

- Drum Screen: Wastewater comes in and the drum turns and screens out the debris, the debris rolls out the bottom and goes to containers downstairs and is disposed of at the Fish Factory Facility. The screen removes debris down to 1/16$^{th}$ of an inch in size. This is critical to protect the membranes from getting damaged.

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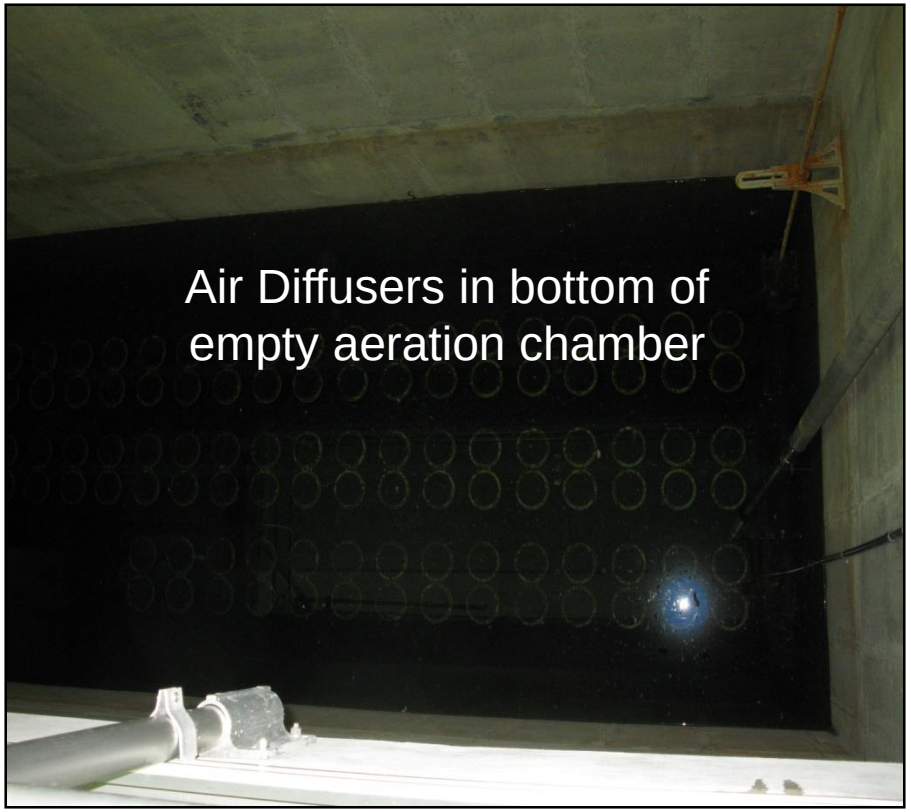
- Anoxic and Aeration Trains: Flow comes in from the drum screen into the anoxic chamber. From there it flows into the aeration chamber where air is introduced to keep the wastewater fresh and active. The SWRF has two (2) trains for treatment process to allow for different treatment capacities and maintenance requirements.

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- Membrane / Blower Area: The blowers provide oxygen to the aeration trains as well as to the membrane trains. There are two (2) large blowers for membranes the other two (2) are for the aeration trains.


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- Membranes: Manufactured by Siemens, life span from 7 – 10 years depending on wastewater characteristics. As you can see there are two (2) separate membrane trains. Membranes go through a cleaning cycle each week. Effluent water and chlorine are used to accomplish this.

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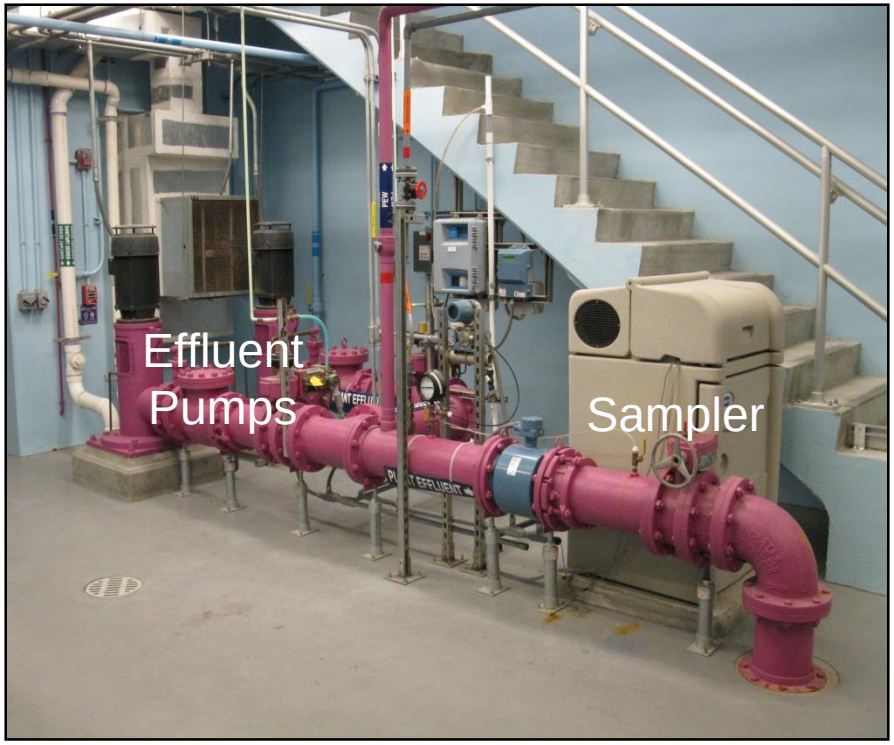
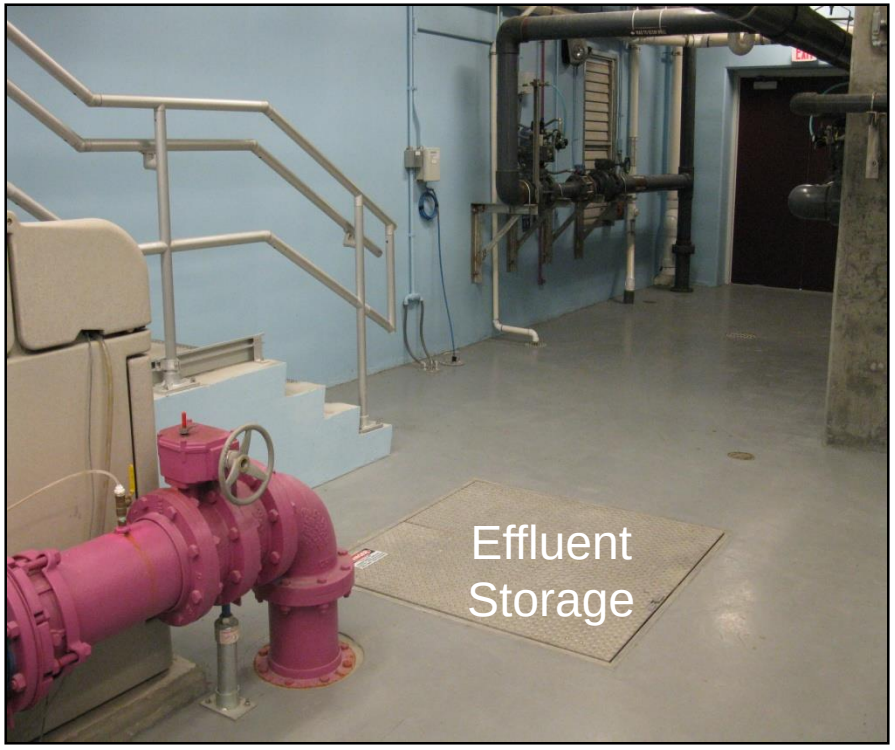
- Pumps and Instrumentation Area: SWRF uses two different sets of pumps to move residuals around from different process applications.

  Flow meters, turbidity meters, chlorine residual, DO are just part of the instrumentation equipment used to monitor the treatment process and effluent quality of our system.


# SWRF Photo Tour

- Effluent Area: The Effluent produced is stored under the ground floor, approximately 75,000 gals is stored there. The Effluent is also pumped to the old Yaupon Water Tank which can store 75,000 gals. There is an  effluent sampler to meet sampling requirements per our State permit.



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- Chlorine Room: Chlorine (Bleach) is used for membrane cleaning and to provide a small amount of disinfection. The membranes take out coliform bacteria's that are harmful but chlorine is added to prohibit different types of growth through out the effluent storage and piping systems.


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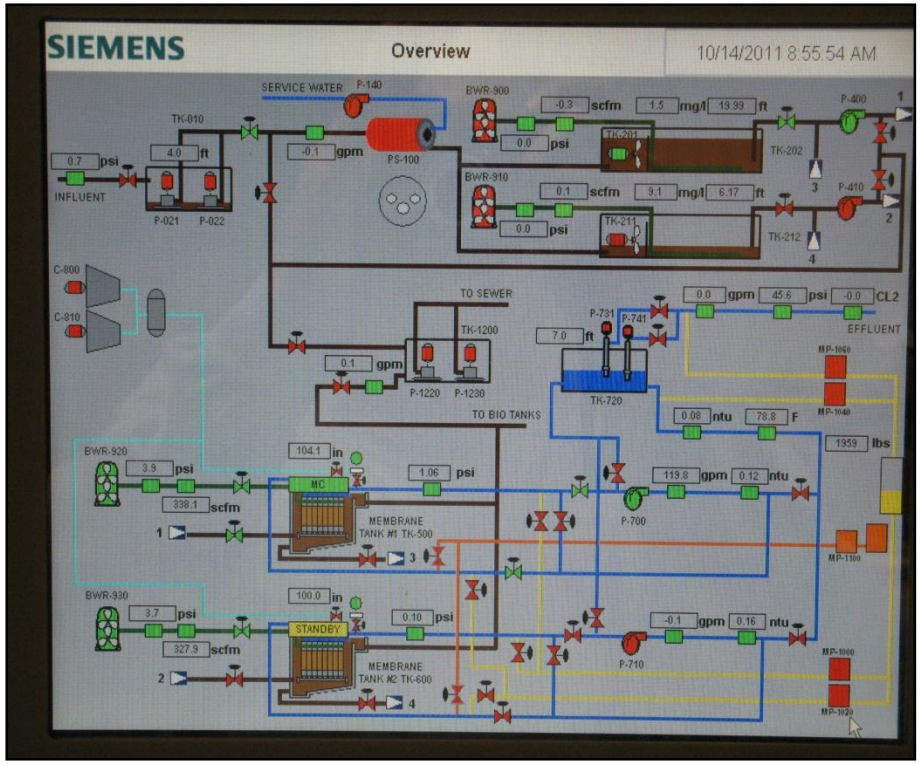
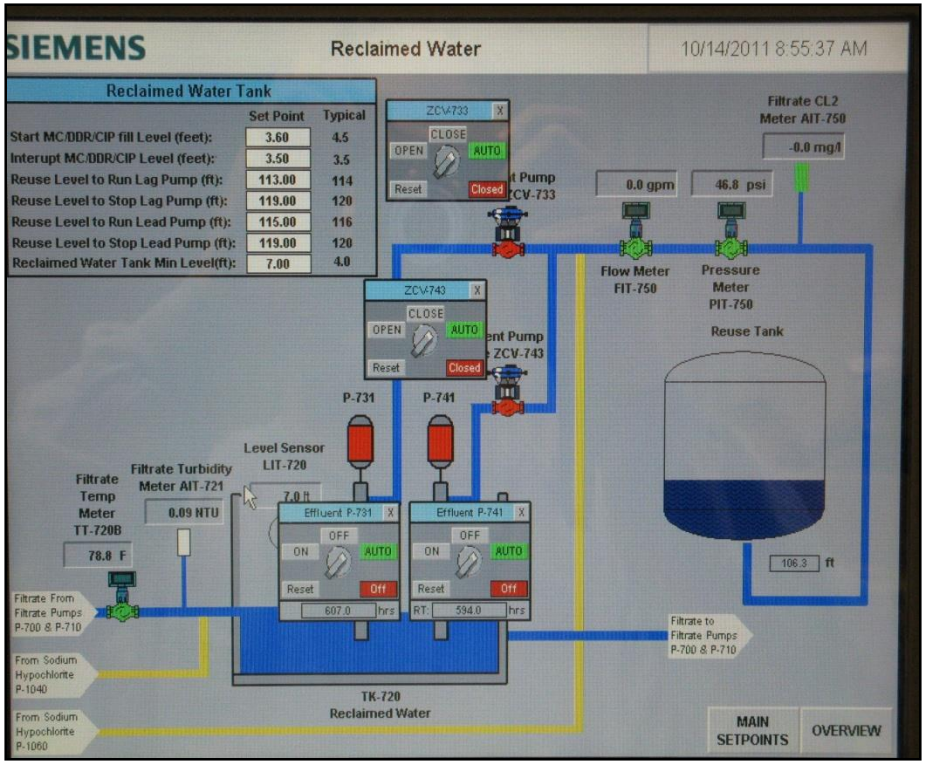
- This facility is controlled by a automated computer system. We have the ability to change items and re-program processes as needed. Siemens has always been there to help support our system. The screens below are also viewed on our SCADA system for monitoring purposes.



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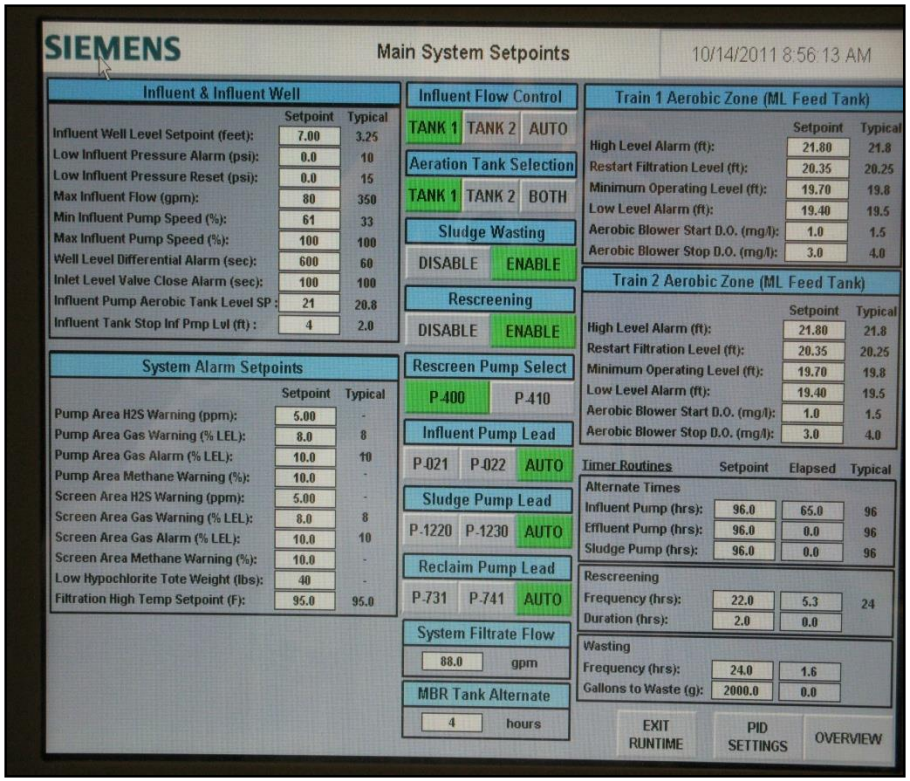
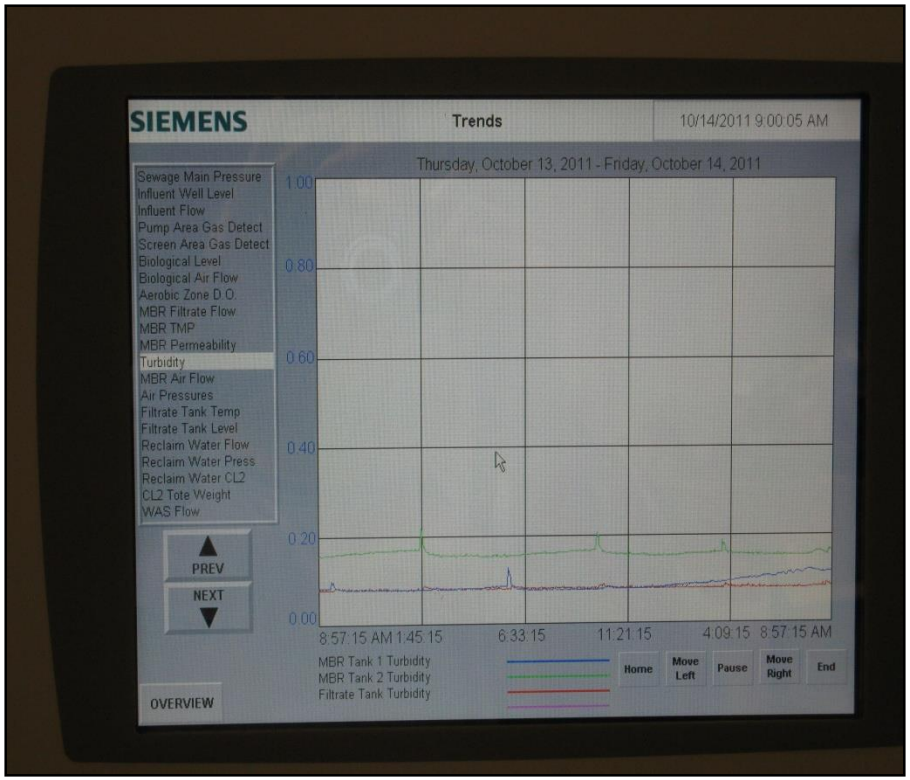
- We can change the set points within the SWRF to meet our needs for capacity. Our minimum desired flow is 65,000 gals per day, our maximum flow is 400,000 gals per day. The other screen is a trend screen of our turbidity, we can monitor many parameters within our treatment process. All of this is on our SCADA as well.



# SWRF Photo Tour

- Current termination point of Reuse Line: Next to Towns Well House near intersection of Live Oak and HWY 133. Location is on Oak Island Golf Course property.

# SWRF Photo Tour

- 65th Street Valve Vault Control Station: We can send flow east or west. The Commercial area can go to all three (3) treatment facilities. System is automated and is controlled by SCADA.