



Utilities Department News

Winter 2015

Claude H. Dyal Water Treatment Plant Project Review

By Joe DeGiovine, Dyal Water Treatment Plant Assistant Superintendent

A recent, comprehensive utility infrastructure assessment has led to an astounding number of successful projects at the Claude H. Dyal Water Treatment Plant. These projects have taken the treatment Plant into a new era in terms of technology upgrades, process improvements and regulatory compliance. While many projects are ongoing, in either design or construction, here are some highlights of progress to date.

High Service Pump (HSP) Building Wall

As part of the assessment a structural analysis of the entire Water Treatment Facility was performed that identified critical priorities. The evaluation indicated that years of chemical degradation and ambient weather damage had compromised the main structure of the front wall of the HSP building. Engineers completed an emergency design in an astonishingly short time period and construction began shortly thereafter. The project is complete. Cocoa's engineer of record and a third party structural inspection service deemed the building to be structurally sound.

Wewahootee Pump Station

Wewahootee Pump Station is a pre-treatment facility located nine miles west of the Dyal Plant, in the middle of the well field. The facility functions as a ground water



New pumps at the
Wewahootee Pump Station

storage and hydrogen sulfide removal station. Cocoa initially built the facility in the 1950s. It was sorely in need of rehabilitation due to 50 plus years of use, degradation, and antiquation. Other contributing factors to the city's decision to upgrade the facility were the need to meet regulatory compliance and to improve performance criteria. The Cocoa Utilities Department had the entire facility upgraded with new pumps, motors, electrical systems, instrumentation, personnel facilities, control systems and treatment process machinery. At the completion of the project, the site will be a fully automated, unmanned facility and improve the water treatment process for many years to come.

Supervisory Control and Data Acquisition (SCADA) System Upgrades

The SCADA system upgrades at the Dyal Plant encompass far too many tasks and projects to accurately describe in a brief statement. The project is the culmination of five years of design, development, service and construction. Cocoa is rehabilitating the entire control automation system and network of the Dyal Water Treatment Plant and Distribution System. To date, the Utilities Department has developed a master plan that includes all standards and narratives for updated control. The well field communication project gives operations staff the ability to control each well from the plant with the benefit of new instrumentation and data collection from each site. Operations staff provided very positive feedback related to the control system and their new remote capabilities in the well field. The operations console has been completely remodeled and upgraded. The Hardware Implementation project is underway which will retrofit every control panel throughout the system. This upgrade will assure up to date technology to the entire treatment system with the ability to upgrade and expand into the future.

Chlorine Contact Chamber

The construction of the Chlorine Contact Chamber is another project that assures that the Dyal Plant will meet Department of Environmental Protection regulations. The Chlorine Contact Chamber meets 4LOG standards (99.99% microorganisms physically removed or inactivated). It was built through a concerted effort of engineering and tenured institutional input. The project allows the Dyal Plant to meet current standards. It also saves Cocoa funds based on differing options to meet the standard. This project assures water disinfection and protects our water customers throughout the distribution system.

Installation of the Liquid Oxygen System (LOX)

Initially built in the late 1990s, The Surface Water Plant was fitted with an ozone disinfection system. In short, prepped, dry air is pressurized and flows across high voltage creating ozone. The ozone is then bubbled through raw water as a means of disinfection. Unfortunately the process of drying air in the state of Florida is a very intensive and expensive process due to the high humidity. The dehumidification process utilizes additional machinery and equipment with extensive energy costs to supply air to make ozone. The process is not efficient and is not reliable. The installation of a Liquid Oxygen System assures reliability and efficiency to the system. With ozone being the weak link to the Surface Water Plant, air prep was the weak link to the Ozone System. Liquid Oxygen is completely dehumidified. The need is only to store the material and assure it off gases for use. This means less energy costs, greater reliability and less maintenance to the entire system. This project is near completion and again assures reliability to the Dyal Plant for many years.



New 9,000 gallon Liquid Oxygen Tank for the Surface Water Treatment Plant at the Dyal WTP.

Future Projects

Members of Dyal Water Treatment Plant staff as well as members of Engineering and the Utilities Department have spent tireless hours evaluating the entire Water Utility as a critical piece of Cocoa's infrastructure. The Cocoa Utilities Department has made great strides toward assuring reliability of the system for many years to come. These Dyal Plant projects only scratch the surface of what the Utilities Department has accomplished. There is still much to come. In the near future, continued structural upgrades will take place at the plant. The elevated walkway will be replaced. A new clear well will be built assuring safety, compliance and isolation to the Surface Water Plant. The Utilities Department is evaluating the redundancy of the delivery system to assure reliability in the future. Treatment Process Byproduct Storage is yet

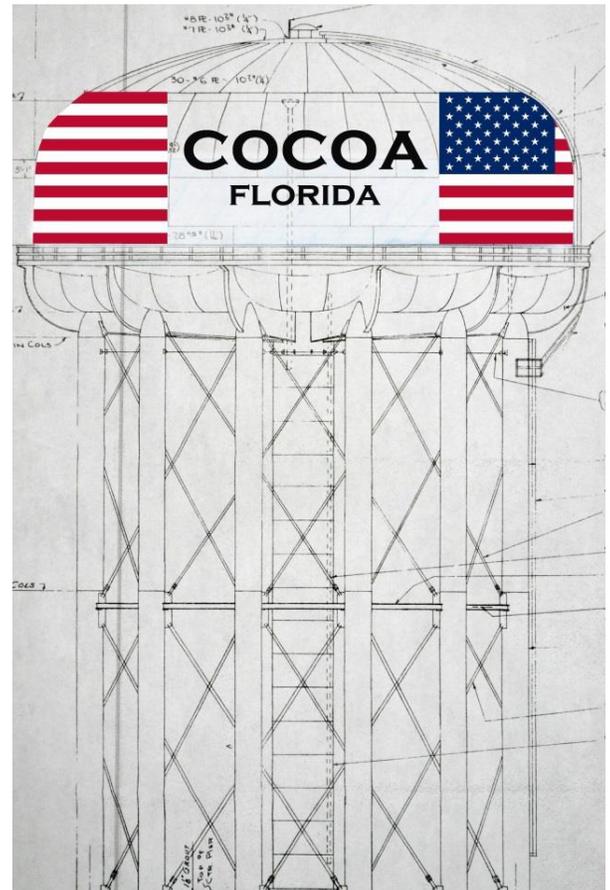
another project in the design phase. The Dyal Plant will continue to improve and upgrade the SCADA System to bring the Dyal Plant into the future. Expanding ground storage is also being evaluated.

The process of revitalizing the utility infrastructure seemed insurmountable to many only a few short years ago. Today, there is light at the end of the tunnel. The plan is to assure our infrastructure rests once again ahead of the curve of degradation. Jack Walsh has instituted a proactive approach to the utility that not only assures this strategy, but also affords the utility to be preemptive in its practices, procedures, methodology and maintenance in the future. This is the approach of the Utilities Department.

Update to Elevated Tank Makeover

The repainting of the elevated tank is progressing. The contractor has installed a tarp that completely encloses the entire tank. The tarp protects the surrounding area from debris and paint. Workers are sandblasting the tower to strip the paint and rust from the tower and then will begin repainting a total of three coats. The contractor will repaint the American Flags on the tower and the Cocoa, Florida branding will be included between the three flags.

The estimated completion date for the project is the end of March 2015.



February Water Saving Tips

1. Score super savings for team water when you flush with a WaterSense labeled toilet.
<http://www.epa.gov/watersense/products/toilets.html>
2. Feb. 14: Water and energy savings are a perfect pair. Show your utility bill some love and savings with WaterSense labeled products.
<http://www.epa.gov/watersense/pubs/waterenergy.html>
3. Save Water, Money, and the Environment
4. Visit www.cocoafl.org/conservation to find out about toilet and rain barrel rebates and other ways to conserve water.



Utilities December Statistics

Claude H. Dyal Water Treatment Plant

Raw Well Water

- Total raw water pumped: 657.92 MG, 21.22 MGD Avg.
- Peak day: December 21, 24.52 MGD
- pH: 7.73
- Total Hardness: 338
- Chlorides: 103
- Color: 30

Finished Water

- Total treated: 639.63 MG, 20.63 MGD Avg.
- pH: 8.92
- Total Hardness: 119
- Chlorides: 108
- Color: 5

Customer Service

- Total gallons billed: 546.48 MG
- Total billed FY 14-15: 1,827.85 MG
- Total water meters read: 80,944
- Total reuse meters read: 2,113

Jerry Sellers Water Reclamation Facility

- Total Influent (incoming wastewater): 66.89 MG
- Total Reclaimed water: 69.12 MG

For suggestions, comments, or questions about the Cocoa Utilities Department
Call 321-433-8705 or
email d downs@cocoafl.org