

Regional Utilities' Expanded Wastewater Plants Produce High-Quality Effluent for Reuse

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Six years ago, scenic Walton County was booming. Located halfway between Pensacola and Panama City, the county borders the Gulf of Mexico, includes large areas of public land, and claims much of Choctawhatchee Bay. At that time, it was the sixth fastest growing county in Florida, attracting many new residential and recreational developments and associated commercial businesses.

This rapid growth created challenges for Regional Utilities of Walton County, which operates the water supply system, sanitary sewer collection system, and three activated sludge wastewater treatment plants that serve the county's southern region. The three plants—Point Washington, Sandestin, and Seacrest—are interconnected, allowing Regional Utilities to divert streams from any one plant to the others during maintenance shutdowns, utility power outages or peak-flow periods.

The area, which includes beach-front properties and resorts, doubles in population during spring break and summer, and can easily triple around the 4th of July. With the increase in population came an increase in wastewater flows, which created the challenge of drying and dis-

posing of all the digested sludge.

Plant personnel labored during the winter to make space in the digesters at all three plants so that the digesters would be empty and the drying beds clean when spring break began. That was all well and good unless the region received a few days of rain.

The utility considered adding more drying beds, but decided against it for several reasons: Cleaning sand beds is labor intensive, since they must be cleaned mostly by hand, and rain is a continual problem in the summer. Another consideration was the amount of land required for additional drying beds. At Sandestin, seven of the existing drying beds were 100 x 22 feet, another one was 65 x 40 feet, and four more were 65 x 30 feet. The utility would have had to build 15 to 20 more beds to keep up with the demand, which would have been too costly.

Regional Utilities also considered land applying the sludge, but that was not feasible because the company that land applies their dry solids would have had to truck the sludge 80 miles away.

The existing nine-year-old 750,000 gallons-per-day Point Washington plant was an out-of-date, flow-through system in bad repair

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and in desperate need of an upgrade. Seacrest had a 500,000 gallons-per-day sequencing batch reactor (SBR) that was overloaded and needed to be expanded to 2.0 million gallons per day (MGD) for future development. The 2.0-MGD biological nutrient removal (BNR) system at Sandestin was several years old, and although it was operating well, it could not handle some of the surges during high-flow periods such as the 4th of July. The plant also needed to expand for future growth.

The Solution

After looking at all the options, Regional Utilities found the solution: a \$10 million wastewater treatment expansion that receives and processes biosolids from the utility's wastewater treatment plants. Treatment equipment includes SBRs, centrifuge dewatering systems, disc filters and chlorine disinfection systems.

Point Washington

The \$3 million system at Point Washington delivers 2 MGD and produces effluent suitable for reuse. The system consists of an SBR, chosen for its small footprint, ease of operation and high-quality effluent.

The land around the site is part of the Point Washington State Wildlife Management area, so expansion was not an option. The system also includes a centrifuge, media filters for tertiary treatment, sludge pumps and traveling bridge filters. Space limitations on the property were also met by using tanks from the exist-

ing plant for post-equalization basins, digesters, and chlorine contact chambers.

Sandestin

The 2.0-MGD system at Sandestin consists of an SBR, dewatering system, disc filters, chlorination system and pumps.

Seacrest

A 2.0-MGD SBR system replaced the existing field-erected SBR, which was converted into a digester for the facility. A centrifuge dewateres the sludge, which is then dried with an indirect-heat biosolids dryer. The combination of the centrifuge and dryer produces a product of less than 10 percent moisture, which greatly reduces the volume of the problem. The facility also includes disc filters and a chlorination system.

Advantages of the New Plant

With the wastewater treatment plant expansion, Regional Utilities wanted to be able to vary the wastewater flows quickly and to reuse as much of the water as possible, while achieving high removal levels. The effluent limits for Point Washington and Seacrest are currently 20 parts per million (ppm) BOD, 20 ppm suspended solids, and 12 ppm nitrogen; at Sandestin, the limit is 20 ppm BOD and 20 ppm suspended solids with no nitrogen limits. The new SBRs are allowing the utility to quickly vary the wastewater flows and reuse much of the water. The centrifuge dewatering systems solved the sludge drying problem.

The effluent meets the state of Florida's requirements for public access and for Class 1 reliability. This high-quality effluent is used for water reuse applications, such as spray-irrigating some of the local golf courses. Whatever can't be used by the golf courses is diverted to a spray field, which is located on approximately 1,000 acres, north of the Choctawhatchee Bay in Freeport. The utility pumps the effluent about 10-12 miles north to this spray field.

The sludge from all three plants is sent to Seacrest, where it is fed to the indirect-heat biosolids dryer. The dryer is producing U.S. Environmental Protection Agency Regulations Part 503 Class A and state of Florida Class AA heat-treated biosolids, suitable for use as a beneficial agricultural soil amendment. Regional Utilities is marketing this product to golf courses and local farmers.

The plants' expansion was designed for 5 ppm BOD, 5 ppm suspended solids, 3 ppm nitrogen, and 1 ppm phosphorus. Although the plants currently are not required to meet these limits, they will be able to meet them per future environmental regulations. The plant upgrade enables Regional Utilities to produce a beneficially useful product while saving on disposal costs now and into the future. ◇



Aerial views of the Point Washington Wastewater Treatment Plant (top), the Sandestin plant (center), and the Seacrest facility.