NAME:

Springtree Wastewater Treatment Plant

LOCATION

Sunrise, Fla.

PLANT SIZE:

11.5 mgd

INFRASTRUCTURE:

Bar screens, grit classifiers, blowers, aeration basins, clarifiers, return activated sludge pumps, waste-activated sludge pumps, digester, gravity belt thickeners

Left to right: Barry Dykes, senior operator; Dan Buchta, chief operator; Mike Knapp, lead operator; Keith Rogerwitz, senior operator

Effluent pumps

Reuse pumping station

By Amy McIntosh

Treating the Sunshine State

Improvements are on deck for Florida plant

The city of Sunrise's utility system covers 70 sq miles near the southeastern coast of Florida and serves more than 215,000 customers. The system is made up of approximately 770 miles of water distribution mains, 500 miles of sewer piping and 200 wastewater pump stations. Three water treatment facilities, four water repump facilities and three wastewater treatment facilities comprise the Sunrise Utilities Department.

The Springtree Wastewater Treatment Plant (WWTP) is one of the city's three wastewater treatment facilities and has been in operation since 1962, being placed online shortly after the city was incorporated. The plant underwent a major upgrade in 1970 and was completely rebuilt by Poole & Kent in 1997. During this upgrade, the existing packaged plants were removed and a new system was constructed.

Treatment Process

The plant currently treats about 8.2 million gal per day (mgd), but has a capacity of 11.5 mgd. Sampling at the plant occurs 24 hours a day, five days a week. Raw and effluent samples are tested at the city's offsite lab.

The plant's headworks contain two Aqua Guard bar screens to filter out rags and two Wemco grit classifiers for grit separation. Two 10-yard dumpsters sit beneath the headworks, collecting the debris. These dumpsters are emptied every week on a rotational basis.

Eight Gardner Denver blowers supply air to the plant. The plant also has four aeration basins, four clarifiers, six return activated sludge (RAS) pumps, four waste-activated sludge pumps, and two gravity belt thickeners.

As part of the 1997 upgrade, rather than building a new unit, an old packaged plant was repurposed into a single digester.

"[The digester] is functional. It would just be nice if we had a bigger digester so we could waste whenever we wanted to," said Mike Knapp, lead operator for the Springtree WWTP "We're kind of limited in our wasting. We waste just on the afternoon and midnight shifts."

The plant's dewatering building dewaters the sludge to a solids concentration of 3.5%.

Creating Savings

Two days a week, Synagro, a private waste recycling and biosolids treatment company, brings centrifuges to the plant and thickens the sludge to a solids concentration of around 18%. The company then hauls the sludge out of the plant and recycles it.

"I came from a wastewater plant that did not have dewatering, so this is a unique process," Knapp said. "[After introducing dewatering] we went from 16 liquid trucks a week hauling sludge to four. We did save the city some money in hauling costs."

Within the next two years, Knapp said the plant will be installing its own centrifuge.

"We'll be able to thicken our own sludge instead of paying an outside company to come in with their centrifuge," Knapp said. "The initial cost is pretty expensive, so that will be more of a savings in the long run."

Optimum Operation

Because the plant's last major upgrade was more than 15 years ago, there are a number of improvements lined up for the next few years.

Within the next six months, the plant will demolish its existing chlorine building and install a system that allows chlorine to be pumped directly into the clarifiers. Currently, the effluent is chlorinated in a contact chamber.

"It will help keep the troughs clean, and keep the drains from backing up," Knapp said. "Each clarifier has a drain, so we do get a lot of algae building up on the floor."

Two deep injection wells will be installed within the year. Hazardous waste currently is pumped to another of Sunrise's plants, located 2 miles west of Springtree.

Following the deep injection well installation, the new centrifuge building will be constructed on the site of the old chlorine building. Knapp said the installation of new RAS pumps is also in the works.

Treatment challenges are few and far between at the Springtree WWTP.

In the winter months when northerners flock to the warm Florida climate and the population fluctuates, the plant experiences some foaming issues.

"It could be the colder temperatures, or maybe the restaurants are doing more business, but we do have a foaming problem in the winter," Knapp said. "It usually clears up around May."

Otherwise, plant operations run smoothly, Knapp said.

"Treatment wise, we have really good treatment," he said. "This plant runs really well." WWD

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