NAME:

City of Pompano Beach Reuse Irrigation Treatment Facility

LOCATION:

Pompano Beach, Fla.

PLANT SIZE:

7.5 mgd, expandable to 12 mgd

INFRASTRUCTURE:

Storage tank, upflow sand filters, pumps, and chlorine and chemical feed equipment

Upflow sand filters are key components of the facility.

The OASIS reuse program protects the city's potable water wells.

The facility could someday treat another 10 to 15 mgd of water to reuse standards.

By Elizabeth Lisican

Reuse Oasis

City of Pompano Beach, Fla., drastically improves water quality and savings with unique facility

The city of Pompano Beach prides itself on its inspiring oceanfront, small-town feel and plentiful fishing. The vibrant south Florida beach community also houses a unique reuse irrigation treatment facility—which the city says is just as integral, ultimately, to its quality of life.

Saltwater Travesty

The reuse plant came into existence as a requirement by the South Florida Water Management District (SFWMD). The more freshwater that is pulled from underground sources, the more likely the chance of saltwater intrusion. By that token, an area golf course contained wells that were overpumped and brought saltwater intrusion into the area. When consumptive use permits were withdrawn, they were ordered to go to reuse.

"Being that our consumptive use permit for the utility came up around a year later, they ordered the utility to go in and start providing reuse as well," said Randy Brown, utilities director. "So we built a 2-million-gal-per-day (mgd) reuse treatment plant. The plant receives its water from the influent of the Broward County Regional Wastewater Treatment Plant."

The facility was first constructed in 1989. Foresight in the 1980s set the facility up to be one of the leaders in today's time, according to Brown. "We're always looking for ways to increase the usage of our product, the high quality. We're looking to protect the resources."

In 2002, the plant was expanded from 2 mgd to 7.5 mgd.

"We're adding about 10,000 to 12,000 ft a year of reclaimed distribution system, and we have dual piping going through the area for irrigation and potable water," Brown said. "We focus mainly on the saltwater intrusion line first, and as we fill that in, we will move toward other areas of the city where it's beneficial for the recharge because every gallon of reuse we use, we get a savings on our potable water of a gallon."

The reuse program—dubbed the Alternative Supply Irrigation System (OASIS)—allows the facility to further treat and reuse processed wastewater, an alternative water supply. When customers are given OASIS water for irrigation, millions of gallons of drinking water are saved, according to the city.

Cost & Effect

Bonds were the source of funding for the facility. The city was bonded for the funds to construct the facilities, and the SFWMD contributed some grants.

"Now we apply for and receive annual grants from the SFWMD to expand the distribution system," said Maria Loucraft, laboratory manager.

"The reuse fund that we charge isn't 100%," Brown said. "It's subsidized by the water system a certain percentage, and because the reuse is beneficial to the whole city, it's fair to distribute those costs over all customers. Even though some of those customers may never have reuse, they are receiving benefit from having the consumptive use permit and the economic benefit that it can provide the city."

The high-quality effluent water has been reused for landscaping irrigation for golf courses, medians and city plantings. The results of the plant's performance over the years have been significant, according to Don Bayler, water treatment superintendent.

"Since 1988 we've actually, according to USGS [U.S. Geological Survey], repelled the saltwater intrusion line back toward the east several hundred feet, so the impact of using reuse in that area has benefited and protected our wellfield as well," Bayler said.

The original design of the reuse process included 12 Parkson upflow sand filters and one 2-million-gal storage tank, various pumps and chlorine equipment to run the treated wastewater that is heading out to the ocean outfall.

"We draw the water that has already been treated and we tertiary treat it through the Parkson sand filters, and then that goes into a storage tank," Bayler said. "It's chlorinated and we draw it off every day for reuse down the mediums of highways, schools, areas around the airport and residential areas."

Reuse Future

That was good enough up through around 2001, when the SFWMD and the city—with a longer-term vision—knew that they would need more reuse. So they designed an additional 18 Parkson filters with new and upgraded pumps and chemical feed equipment, and an additional 4-million-gal storage tank was implemented and installed in 2002.

"We have a longer vision of expanding that plant either by changing some of the operating procedures used for the filters and/or adding additional new-type filters, such as disk filters, to increase the capacity, which we'll need in the future," Bayler said.

The city anticipates it will probably need additional capacity in the future, especially because the state has required the county to eliminate the ocean outfall so that all the water it does not pick up now—about 20 mgd—will be turned into reuse.

"We could be a key player in another 10 to 15 mgd of wastewater being treated to reuse standards within 15 to 20 years," Bayler said. WWD

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