

CASE STUDY

Sunbelt Rentals Engineers Creative Solution For Wastewater Treatment Plant

Punta Gorda is a small harbor city in Charlotte County, Fla. Like many coastal cities, older sewer systems and wastewater treatment plants are vulnerable to storm surges and sea level rise. The sewer pipes carrying wastewater to treatment plants can develop leaks as they age.

After a leak was discovered in the 30-inch ductile iron pipe (DIP) feeding the headworks at the city's wastewater treatment plant, the city of Punta Gorda hired King Engineering for the pipe rehabilitation project. The Florida-based civil engineering contractor called its local Sunbelt Rentals location for assistance. Our Pump & Power team provided full design and support services for the temporary bypass project.

"Our investigation determined the treatment system had less than two feet of head pressure," said Eric Eaton, Sunbelt sales development manager. "However, the difference in elevation was sufficient to do a pipe-only bypass instead of relying on temporary pumps."

Sunbelt Rentals' solution was fully turnkey in nature and provided an innovative fix for bypassing wastewater during repairs of the deteriorated drain pipe at the treatment plant. Equipment provided included 24 and 18-inch HDPE pipe, fusion machines, gate valves, flanges, reducers, joint fittings, forklifts and steel road plates.

The Sunbelt crew installed 18-inch knife gate valves with 16 bolts per flange where the 24-inch pipes transitioned to the smaller discharge lines. This allowed operators to take aeration basins or clarifiers out of service during low flow conditions and push all of the flow to one side. Operators then closed the valves and pressure-tested the 24-inch system to 20 PSI, a test that revealed that the joints were perfect.

When a concrete distribution box needed to be built between

the clarifiers, the Sunbelt Rentals team excavated a 3-foot deep trench in front of the aeration basins and buried the section of 24-inch pipe running in front of them. Steel road plates were then placed over the trench, allowing heavy equipment access to the construction site. The team also routed the bypass around the outside of the tanks to keep the center aisle open.

During the final portion of the bypass, operators closed the feed lines to the tanks and drained them as needed.

"We vented our system to mimic the original piping," Eaton said. "Because we had isolating valves, we turned on the bypass as each tank was hooked up."

The bypass ran seamlessly for several months, allowing the contractor to repair the outdated portion of the pipe and get the lines back to functioning order. The job also included 24/7 pump watch and system maintenance.

The scope of work and rental equipment included:

- Rehabilitation of deteriorated pipe at wastewater treatment plant
- Design, setup, maintenance and teardown of bypass
- Pipe, fusion machines, fittings, flanges, reducers and steel road plates
- Two 8,000-pound-capacity and one 6,000-pound-capacity forklifts

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