

Temporary bypass provides non-clogging solution for Monroe County lift station system upgrade

Dual pumping system designed to manage flows during Pump Station upgrade in NY

Project

Lift stations are an essential component of many municipal and industrial wastewater collection systems to move sewage from low to high elevation. Such is the case for the John Street lift station in Monroe County, New York, which serves both a large residential community and the nearby campus of Rochester Institute of Technology (RIT).

Looking to increase efficiencies, lower utility costs and reduce overall pump maintenance for the facility, Monroe County commissioned system upgrades for the lift station, requiring a bypass system to move a peak flow of 12 million gallons per day. Dakksco Pipeline Corp. was named the bypass contractor for the project and worked with Xylem to design and install a temporary system to transfer water and effluent, ensuring an uninterrupted flow of wastewater for both the RIT campus and neighboring residential area.

"There was quite a bit of flow from both directions to maintain until the new station came online," said Dan Morin, owner of Dakksco Pipeline Corp.

Because existing flows had to be maintained during construction, the design for the pump station improvements featured a layout that would accommodate a temporary bypass pump and a construction sequence that would provide for continuous service. The fluctuating student population at the RIT campus significantly impacted flow conditions, which ranged from 5 million gallons per day on average to a peak flow of 12 million gallons per day, to just 1.5 million gallons per day during the summer months when fewer students stayed on campus.

Solution

To handle the lift station's extremely varied flow, Xylem designed a temporary bypass system that used several pumps, including a Godwin Dri-Prime CD225M 8-inch electric pump, a Godwin Dri-Prime CD300M 12-inch diesel pump and a Flygt N-Technology N 3301 electric submersible pump.

The Godwin Dri-Prime CD225M electric pump and Flygt N 3301 electric submersible pump served as the primary pumps for the bypass. Using the electric pumps enabled the contractor to plumb into the existing piping



A close-up view of the 12MGD bypass system in Monroe County, New York. The solution was comprised of Godwin and Flygt brand equipment, including the Godwin Dri-Prime CD225M 8-inch electric pump.

CUSTOMER: Dakksco Pipeline Corp.

CHALLENGE: Deliver a temporary sewage bypass system that would allow Monroe County to complete equipment upgrades to lift station.

PRODUCTS: Godwin Dri-Prime CD225M 8-inch electric pump, Flygt N-Technology N 3301 electric submersible pump, Godwin Dri-Prime CD300M 12-inch diesel pump, Godwin 100hp VFD, Godwin 75hp VFD, auto-dialer alarm agent, 200 feet of 18-inch HDPE pipe.

RESULT: A successful temporary bypass setup that operated continuously for three months while crews upgraded equipment at the lift station and allowed the project owner and contractor to monitor flow rates and responses in real-time from any location.

use existing line power at the pump system and operations and fueling cost. With limited space near the RIT campus, the flexible, modular design of the Flygt submersible pump easily fit the project's compact footprint.

The Godwin Dri-Prime CD300M 12-inch diesel pump was used as a backup pump in case an event like a power outage or system clog shut down the other two pumps.

"Diesel pumps can get pretty loud. The (2) electric primary pumpsets unit drastically reduces noise levels," said Ruiz. "That was important since the project was located close to student housing on the RIT campus. Ultimately, there was no impact on student life."

To better handle the lift station's varied flow, Xylem enhanced the temporary bypass system with two Godwin variable frequency drives.

"When students were in class, the VFDs reduced the speed of the pumps or put them in sleep mode and when students returned to their residence halls, the VFDs would speed up to handle the increase flow demand," said Ruiz.

Results

The systems started bypassing in August 2018 and ran 24/7 until November, said Ruiz. It was set to emulate the response and flows of the station's permanent equipment.

Leveraging its broad product portfolio and engineering expertise, Xylem helped Dakksco overcome unique site challenges with a rental solution that combined pumps and specialty products from proven brands, resulting in greater efficiency and peace of mind.

Remote connectivity eliminated the need for onsite 24/7 pump watch duty, saving Dakksco - and Monroe County - thousands of dollars in man hours. The bypass system also was equipped with an auto-dialer alarm agent to alert Dakksco employees about potential pump issues via any smart device, giving remote visibility to pump activity in real time.

Although the remote monitoring capability provided additional reassurance, Morin said his team never had to engage the feature because the bypass system performed as designed.

"It's a valuable feature, but we never had to use it because the bypass system worked flawlessly," Morin said.



The temporary bypass system, which included a Godwin Dri-Prime CD300M 12-inch diesel pump and Godwin Dri-Prime CD225M 8-inch electric pump, operated continuously for three months during equipment upgrades at the John Street lift station (seen in the background).



A manifold and lifting bail connects the Godwin Dri-Prime CD225M 8-inch electric pump with the Flygt N 3301 electric submersible pump (not visible).