pump POWER

Hit by Hurricane Wilma, a Florida city implements backup pumping to keep lift stations active even without electricity

By Stephanie E. Morgan

Sewage lift stations are a necessary component in most wastewater systems. These stations provide the pumping necessary to raise liquids from lower to higher elevations. With increasing pressure on eliminating harmful sanitary sewer overflows (SSOs), lift station pumping must be reliable and continuous; this includes the ability to respond to varying flow demands regardless of time of day or availability of electricity.

Rethinking the Contingency Plan

Traditional lift stations have been engineered with an adequate number of pumps to handle normal and peak demands. Supplying alternative power by way of a generator in the event of an outage has seemed the most cost-effective and logical approach to achieve reliability; however, there are inherent flaws and risks associated with this strategy. In recent years, there has been an increasing

Backup pumping systems and lift station pump systems do not rely on one another to operate.

shift away from the conventional thinking of backup power to a new solution using backup pumping for lift station assurance.

For decades, surface-mounted, diesel-driven trash pumps featuring automatic priming and solids handling capabilities have been the staple of sewer bypass applications. Design features such as automatic priming and indefinite dry running have brought simplicity and reliability to the portable pumping market. Now the stationary lift station market can benefit from these same features.

Backup Pumping vs. Backup Power

Backup pumping provides simplicity because the automatic self-priming pump set is a stand-alone unit. The system is independent of utility line power and lift station pump control. Start and stop controls are provided by either a pressure transducer or float switches located in the wet well that activate the diesel- and natural gas-driven pumps when the wet well sewage level rises to a predetermined height.

The automatic priming feature removes air from the suction line, creating a vacuum that allows the sewage to rise, which then primes the pump. The pump set continues to operate and pump the required flow, then it shuts off when either the wet well is lowered or the electricity is restored and the primary system takes control again. The net effect is that the emergency backup pumping system and the lift station pump system are separate, independent and do not rely on each other.

Putting Theory into Practice

From coast to coast, backup pumping is becoming a prominent choice in lift station construction and upgrades.

There may be no more vulnerable location for a municipality than in the direct path of a hurricane. In fact, when Hurricane Wilma struck the city of Boynton Beach, Fla., in October 2005, the entire region was left without power.

"During Wilma, we lost power at all of our stations," said Boynton Beach Deputy Director of Utilities Pete Mazzella. "We didn't have the manpower to monitor all of those stations when that happened, so we were looking for something that didn't rely on utility power."

The city of Boynton Beach began implementing Godwin Dri-Prime Backup System (DBS) installations at its lift stations in an effort to continue pumping, regardless of the presence of power or even humidity that creates electronics problems.

"We were looking for something to automatically start and keep running in an emergency," Mazzella said.

Backup pump station installations are on the rise for U.S. collections systems.

"The pumps don't need monitoring. If they lose prime, they'll regain it without us having to monitor them. Though they thankfully haven't been tested yet, we feel a lot more prepared for the storm season than we were two years ago."

For collections systems across the country, there are many benefits to having a complete backup pump station. The ability to schedule and perform maintenance, continue pumping during repair, accommodate new construction and supplement the primary station during storm water infiltration or power outages are a few of the higher-profile reasons more planning boards are choosing backup pumping.

The reliability of a self-starting unit that is independent of electric power reduces the risks associated with mechanical failure in both the traditional lift station and its usual generator-based contingency plan. For a price that is comparable to generator installation, collection systems across North America are choosing backup pumping to achieve 100 percent redundant lift station assurance. SWS

Stephanie E. Morgan is technical writer for Godwin Pumps. Morgan can be reached by e-mail at stephanie.morgan@godwinpumps.com.

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