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A Successful Bypass

Thompson pumps allow city personnel to reroute the flow of sewage to inspect a force main pipe

On July 29, 2007, the city of Jackson, Miss., began experiencing problems with a 54-in. concrete sewer force main at its Savanna Street water and waste treatment plant. This problematic force main served a vital pump station that pumped several gravity flow lines. The pump station pumped the flow from these lines through this 54-in. force main 1,100 ft to the plant.

Diverting the flow

The city personnel needed to reroute the flow of sewage to inspect the force main pipe. Thus, the city installed six 12-in. Thompson dry prime, solids-handling centrifugal sewer bypass pumps. Having these pumps in inventory quickly paid off. They were able to divert the flow from the pump station to a sewage lagoon, install the pumps at this lagoon and pump through 700 ft of 12-in. HDPE pipe to the plant. The lagoon served as a reservoir to hold the sewer flow until the diesel pumps became operational.

Once in place, the six 12-in. pumps could keep up with the normal flows of the 54-in. force main, which are around 27,500 gal per minute (gpm). To prevent spillage during a large rain, Thompson Pump representative Jim Templeton installed an 18JSC—an 18-in. solids-handling, dry-prime, compressor-assisted pump—which could produce an additional 8,500 gpm. With this added capacity, the system could handle flows in a rain event and pump down the surcharge in the lagoon.

Municipalities that rely on a bypass specialist when needed will operate more efficiently and complete infrastructure upgrades in a timely fashion.

Bypass systems do the job

This system is still running flawlessly, and the force main has been rehabbed. For municipalities facing the task of replacing or rehabilitating their wastewater infrastructure, pumping systems are critical. Bypass systems can be employed at water and wastewater treatment facilities and on sewer lines to reroute flows to another location temporarily so public utility engineers can inspect, service or repair an existing structure.

Several steps must occur to ensure that a project involving a bypass system is completed under budget and on time. The most critical aspects of any bypass project involve estimating anticipated flows and calculating proper discharge size. A bypass specialist also establishes equipment requirements, including pumps, priming systems, valves, monitoring equipment and pipe plugs. Based on these findings, the specialist must create project specifications and pumping requirements to determine a project's scope.

Once logistics and regulations are determined, bypass setup begins. A bypass specialist is responsible for coordinating deliveries of all pumps, fusing HDPE pipe, providing safety and testing equipment and setting up suction and discharge hose and piping. Once a system is in operation, a specialist can oversee it continuously or a municipality may consider a system for remote monitoring and alarm notification.

A bypass specialist ultimately provides a temporary solution to an immediate need. Municipalities that rely on a bypass specialist when needed will operate more efficiently and complete infrastructure upgrades in a timely fashion. WWD

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