



SMITH & LOVELESS INC.

Pump Stations

Project Profile

Town Retrofits Pump Stations with S&L Pumps; Gains Many Benefits



Application Profile: Wolcott, CT
Equipment: (4) S&L Flooded-Suction Pumps
Installed: 2008

America's wastewater is conveyed daily by tens of thousands of pump stations – many of which were originally installed in the post-war boom era as our nation rapidly expanded. Many of these original stations still operate throughout the country, mostly in underground, dry-pit configurations. As such, municipalities with older pump stations are ultimately faced with the potentially costly decisions of replacing them completely or finding less expensive routes through retrofitting internal equipment. Many times the station structure is fine, but the pumping equipment, controls and other integral elements can be replaced for improved performance and energy savings.

In the late fall of 2008, one such municipality, the Town of Wolcott, Conn., faced the prospect of rehabilitating four different pumps in two separate aging pump stations. Originally installed in the 1960s, the town's underground Mattatuck Avenue and East Street Pump Stations each contained Allis-Chalmers 4 x 4 x 10LC model 300 pumps. Town Administrator for Sewer and Water Phil Olmstead sought pump retrofit solutions, but it wasn't as simple as one might surmise.

"They are deep can stations and any piping modifications, or to the piping layout, was crucial not to disturb the existing (shell)", Olmstead said.

Major piping modifications would prove difficult because of the depth of bury – especially moving materials and tools up and down – and any welding inside a buried steel chamber can adversely affect the shell's original integrity. Yet, it was still prudent to find ways to maximize pumping efficiency and performance.

While gathering information on the feasibility of retrofitting, Olmstead came into contact with Smith & Loveless representative Sarah Gager, of New England-based J&R Engineered Products. Gager met with Olmstead and visited the pump stations and helped Olmstead determine a correct solution that not only met his specific needs, but also delivered beneficial cost-savings for the long-term with less maintenance and power demands.

Because Smith & Loveless has manufactured pump stations continuously for more than 60 years, it boasts significant experience in retrofitting aging lift station equipment, including flooded suction pumps from a variety of original OEMs. After examining the station, the Smith & Loveless team was able to provide a solution that facilitated the change out of all four pumps – without any piping modifications – while offering significant improvement in terms of performance, ease of maintenance, and durability. The original pumps were replaced with Smith & Loveless Model 4B2A Pumps, including pump stands that were simply dropped in and bolted in place. The East Street station gained two 10 HP 4B2A S&L Pumps rated at 220 gpm @ 69' TDH

REPLACEMENT ROTATING ASSEMBLIES AVAILABLE FOR:				
Manufacturer	Size	Type	Model	S&L Model
Allis-Chalmers	4x4x14	NSWV	200, 300, 400	4D4
Allis-Chalmers	8x6x17	NSWV	200, 300, 400	6D5
Aurora Pump Co.	8Ex10	KU	Series	8D5
Aurora Pump Co.	12Ex10	KU	Series	12D5
Fairbanks-Morse	4"	Fig.	5412, 5432, 5442	4B2
Fairbanks-Morse	4"	Fig.	5413, 5433, 5443	4B3
Fairbanks-Morse	5"	Fig.	5413, 5433, 5443	6B3

while the Mattatuck Avenue station received two 3 HP 4B2A S&L Pumps rated at 260 gpm @ 23' TDH. These S&L Pumps are designed for decades of service life because they come equipped with oversized, stainless steel pump shafts, bronze mechanical seal housings, and custom-trimmed, heavy cast-iron, balanced impellers. This combination severely limits the potential of mechanical seal failure over time and the need for frequent pump rebuilds or replacement.

Just as importantly in these times, Wolcott's new S&L Pumps also came equipped with NEMA rated Premium Efficient motors, which combine with S&L's published high pump efficiencies to provide superior energy-saving results. In fact, the Mattatuck Avenue stations represented a minimum increase of nine percent pump efficiency while the East Street station pumps improved by five percent. Add S&L's premium efficient motors, typically at 90 percent and greater, and the result is a considerable difference in wire-to-water efficiency, reduction in energy demand and an improved bottom-line for the town.

"I can already see a pretty substantial drop in (the) electricity bills," Olmstead noted. "Plus, I've noticed that (the station's) run times have dropped off substantially also."

This is particularly critical in Olmstead's town, where an influx of seasonal wet weather can contribute to considerable infiltration in the town's system. Reducing run times while increasing pump efficiencies can yield hundreds of dollars of savings annually from a single pump station. And when the energy demand required for these stations to operate 365 days a year is reduced, the carbon emissions required to produce that energy is also reduced, which makes for a more sustainable environment for all.

As a whole, the pump station retrofits has proven to be very positive for Olmstead and his town.

"From the get-go, I was very impressed from start to finish with the service, the treatment", Olmstead reflected. "(The pumps) are running great...and it's nice going down in there (inside the stations) knowing that the replacement parts, part numbers, all match serial numbers of the pumps."