

Wastewater Treatment in Andalusia, AL

Advanced Wastewater Pumps will Pay Dividends in Energy Savings for City

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The sewer utility for the City of Andalusia is among scores of municipal and regional operations across the nation that benefited from the American Recovery and Reinvestment Act of 2009. Andalusia qualified for a \$250,000 U.S. Department of Energy Block Grant. However, the proposed use for replacing aging pumps at two lift stations along the municipal sewage collection system had to be fully demonstrated to be eligible.

Project or Scope

A local engineering firm, Goodwyn, Mills and Cawood, Inc., called the grant to the city's attention and collaborated in providing input to prepare the application and proposal before leading the eventual project. The final report on the project scope and month-long monitoring results required the scrutiny--and seal--of a licensed professional engineer to verify the facts for grant eligibility. The prerequisite for eligibility required at least 30 days of documented monitoring to substantiate a guaranteed 25 percent reduction in electrical consumption by the replacement pumps versus the existing pumps.



END USER: Andalusia, AL
CLIENT: Andalusia, AL
ORDER DATE: 2011
COMPLETION: 2011

“As the existing pumps aged, their efficiency declined to the point where they had to operate for longer periods to achieve the same results.”

As in many cases, the city's sanitary sewer collection system remains generally out of sight, out of mind until the monthly electric bills arrive or a failed pump demands an immediate response to prevent a sanitary sewer overflow.

Solution

Flygt N-pumps were specified as replacements. The semi-open, self-cleaning impeller on an N-pump represents a patented innovation that makes the companion wastewater-handling pumps fitted with them more energy stingy and reliable. The design keeps the leading edges of the impeller vanes unobstructed where fouling often sets the stage for clogging. The leading edges of the impeller vanes pass across a stationary relief groove that clears any snared fibrous solids, grease or sludge, creating a self-cleaning flow path through the pump. The self-cleaning feature inherently reduces an impeller's vulnerability to entangling material that results in an ensuing drag on pump speed. This occurs although the energy consumption remains constant. The patented volute and impeller are therefore the underlying features contributing to improved energy efficiency.

"I wish we could replace our entire system with this type of Flygt pump."

Result

The advanced engineering features of the high-performance pumps delivered energy use reductions of 48.1 percent at one location and 56.1 percent at the other station. Although not addressed in the grant requirements, the unique pumps have a superior record of reliability in reducing the clogging experienced at lift stations elsewhere.

Earl Johnson, the multi-term Mayor of Andalusia who also serves as Chairman of the (Sewer, Electric, Water) Utilities Board says, "We not only replaced aging pumps that were well beyond their expected life but the new pumps will help us save thousands of dollars worth of electricity every year." The savings Andalusia will accrue in electricity costs should have a favorable—and compounding—impact on the bottom line of the Sewage Department's Operations & Maintenance budget.

With firsthand experience in how the advanced pumps conserve energy, engineer Bob Carter, PE, foresees future applications when energy conservation is a partial goal of pump station retrofits.

"I've become a believer in N-pump technology through this process requirement at Andalusia," he said, "As engineers we are always trying to get the most efficient equipment for our clients. If another client is in a similar situation, I would specify their project this same way, no question."



Lifting a Flygt N-pump for a quick rinse.



Preparing the N-pump for installation.

Xylem, Inc.
14125 South Bridge Circle
Charlotte, NC 28273
Tel 704.409.9700
Fax 704.295.9080
www.xylem.com

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