

Pumps Help South Carolina District Go From Rags to Riches



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The James Island (S.C.) Public Service District (JIPSD) provides services for fire protection, wastewater collection and solid waste disposal. In 2011, JIPSD commissioned the construction of a wastewater pump station equipped with a pair of submersible pumps powered by variable-frequency drives on a programmable logic controller (PLC).

It is not uncommon for wastewater pumps to collect fibrous materials that subsequently cause blockages. Known as "ragging," this phenomenon can occur several times a day, and cleaning a submersible pump is both an unpleasant and expensive experience. After commissioning, the JIPSD submersible pumps almost immediately began to rag up at night during low-speed, low-flow runtimes. The district spent some time optimizing the drives by using flying starts to minimize ragging, but it was unable to completely solve the problem. Recognizing that the pumps were insufficient, JIPSD scheduled the first replacement in 2015.

Technology Selection

Due to project funding regulations, JIPSD required two bidders: Xylem and the manufacturer of the original pump. Xylem lost the original project in 2011 due to pricing, but the district already had been building a case internally to include replacement pumps for this station in its 2015 budget because of the clogging.

Fortunately, the preferred manufacturer happened to have a 35-hp Flygt N-design pump in its central distribution center. The N3171, a self-cleaning submersible pump, immediately was shipped to JIPSD. The unit employs N-pump hydraulics to keep the impellers free of debris. Also, by keeping the pump impellers clean, the pumps utilize less energy. N-pumps feature Class H induction motors, which provide optimum heat transfer, long-life seals and low shaft deflection.

Successful Installation

In April 2015, JIPSD installed the N3171 in position one at the pump station. About two weeks later, it had to remove the original pump from position two for cleaning, which had apparently already been ragged up when the first pump was installed. Since the new pump was installed, the district has had no callouts to that station for low flow or ragging. The N-design submersible pump cleans the wastewater well enough that the neighboring submersible pump no longer suffers from ragging issues. JIPSD has ordered a second one, which will arrive in January 2016.

This application not only highlights the N-pumps' clog-free design, but also that N-design hydraulics perform well in applications where a PLC drive is used to match diurnal flow with low pump speeds and long pump runtimes. **w&wd**

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