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PROCESS INSTRUMENTATION

Ultrasonics level system helps protect the environment and reduce expenses

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Providing water and wastewater treatment to thousands of residents, a municipal water company in southern Ontario, Canada serves a mix of urban and rural customers.

Challenges

Two significant challenges facing this company are energy usage and overspill detection.

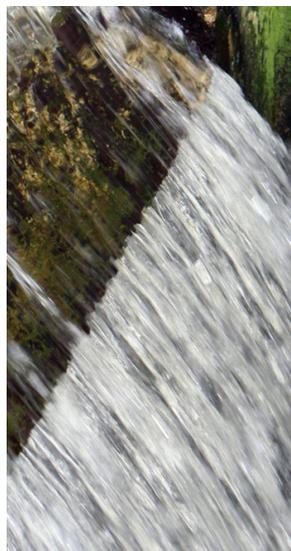
Throughout the treatment process, the water company strives to reduce energy usage and costs where possible during pumping. Pump control is always a concern for water utilities, since pumps use a substantial amount of energy, especially during start-up. Premature shutoffs, before pumps reach their full pumping rate, are often responsible for excess energy use – and increased expenses.

During wastewater treatment, continuously monitoring for potential wastewater overflow is crucial to protecting the surrounding environment, including two important local watersheds.

In order to avoid harmful consequences caused by wastewater overspill in these ecologically rich spaces, proper monitoring of levels in local wetwells and treatment plants is critical.

Solution

The company installed SITRANS LUT400 series ultrasonic level controllers from Siemens throughout the water system in both the clean water supply and the wastewater treatment plants.



With millions of liters of water treated, this municipal water system relies on the accuracy and reliability of SITRANS LUT400. The SITRANS LUT400 is compatible with the full range of Echomax ultrasonic transducers from Siemens.

Reliable control allows operators to increase the span of pump operation so pumps can reach peak efficiency. This maintains their maximum flow rate for a substantial time period before the completion of their cycle. By optimizing the pump 'on' and 'off' levels with a wider span, SITRANS LUT400 has reduced the number of pump start-ups. And fewer start-ups equal lower costs.

In the company's wastewater treatment, SITRANS LUT440 closely monitors the discharge volume of open channel flumes. These values are reported regularly to local water authorities. They also help to determine the wastewater facility's performance and any future upgrades or expansions.

SITRANS LUT400 series controllers are cost-effective devices for monitoring level, calculating volume, and open channel flow monitoring. The controllers are available in three models: SITRANS LUT420 Level and Volume Controller; SITRANS LUT430 Level, Volume, Pump, and Flow Controller; and SITRANS LUT440 High Accuracy Open Channel Monitor, providing a suite of advanced level, volume, and pump controls.

The controllers offer highly accurate measurements and feature HART digital communications as well as compatibility with SIMATIC PDM and other configuration packages, allowing PC configuration and setup. Siemens' patented Sonic Intelligence software processes signals from the Echomax transducers mounted in the reservoirs or wells.

Benefits

Results from the installation of SITRANS LUT400 are sizeable energy savings and reduced wear and tear on pumps. When pumps start and stop, the sudden torque puts strain on bearings, seals, shafts, impellers, and elsewhere. By cutting the number of starts and stops, the introduction of these ultrasonic controllers has decreased the amount of pump maintenance. Plus, with its real-time clock, SITRANS LUT400 helps avoid pumping during peak energy cost periods, saving energy expenses for this municipal water company.

Prevention and detection of wastewater spillage into the area's watersheds has significant environmental implications for humans and other species living in these areas. Wastewater can contain deadly bacteria such as salmonella, viruses such as hepatitis A, and a number of other dangerous microbes. The intensive cleanup process after a wastewater spill includes restoring water quality by eliminating such bacteria and repopulating the watershed with both animal and plant species.

By avoiding overspill into watersheds through accurate measurements with Siemens SITRANS LUT400 controllers, this municipal water company is able to avoid costly cleanup and restoration efforts and protect our environment.

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