

Company reduces wastewater treatment billing rates

Siemens Measurement solution helps manage effluent quality and volume

Process Instrumentation



HydroRanger 200 Ultrasonic Level Controller

A medical research company in the Midwest United States offers comprehensive services to help determine the safety of life-changing compounds and assist in bringing them to the marketplace as rapidly as possible. Their drug safety evaluation research services offer dedicated expertise in a wide variety of medical arenas.

The company is invoiced by their local municipality's wastewater treatment plant based on their wastewater effluent volumes, in addition to the total suspended solids (TSS) and pH levels.

Challenge

The local municipality had notified the company that they would need to increase the rates the company was being charged due to a high level of TSS in their wastewater.

Solution

After consulting with the local Siemens representative, the customer installed three primary flow elements (two Parshall flumes and one Palmer Bowlius flume) on the effluent channels from the plant. The flow measuring instrument being used on the flumes is the Siemens HydroRanger 200 ultrasonic level controller with two channels. The second channel is used for periodic

measurements of TSS and pH. The information gathered is transmitted via Modbus communication from the three flume outfalls to three different sites on the customer's campus. The customer gathers the plant data through its Ethernet and has enabled the email function of the Siemens RD500 data manager to send outfall reports to the local municipal authority. Additionally, the customer uses the Siemens RD500 remote data manager to monitor wastewater generation times and duration. With the implementation of this solution, the customer has successfully improved its effluent quality and reduced water consumption within their facility.

By more effectively monitoring the TSS amounts in their effluent, the customer is now able to manage their plant processes to keep that number within the local guidelines. In addition, the previous high usage of water in the facility was costing tens of thousands of dollars quarterly. The savings from monitoring the origination and timing of excessive wastewater flows has offset the cost of the Siemens project by decreasing the quantity of wastewater generated, and reducing the rates charged by the local authority because of lower amounts and a better quality of wastewater being discharged.

Benefits

■ *Cost savings*

Estimated \$50,000 savings annually based on improved quality of the wastewater outfall and reduced wastewater billing rates

■ *Improved accuracy*

By using the Siemens measuring solution, the customer is now accurately measuring the wastewater effluent from their plant in addition to the amount of TSS in that effluent. This has resulted in considerable process and billing improvements.

■ *Improved quality of wastewater*

Through more effective monitoring, the customer has reduced the amount of TSS in their wastewater.

■ *Customer service*

The local Siemens representative staff provided complete project support for the customer by guiding them through specifications, initial setup, quarterly calibrations, configuration of data manager and on-site training. They also supplied all the project solution components including the primary flow element, Siemens instruments and site-based engineering. The RD500 remote data manager solutions was also guided by the Siemens Product Manager.

■ *Unique product features*

The SITRANS RD500 remote data manager provided the link to real-time data for process improvement.

About the HydroRanger 200 Ultrasonic Level Controller

The HydroRanger 200 is an ultrasonic level controller for up to six pumps and provides control, differential control and open channel flow monitoring.

For water authorities, municipal water and wastewater plants, the HydroRanger 200 controller is an economical, low-maintenance solution delivering control efficiency and productivity needed to meet today's exacting standards. It offers single-point monitoring with all models, and optional dual-point monitoring with the 6-relay model. It also has digital communications with built-in Modbus RTU via RS-485.

The standard 6-relay HydroRanger 200 will monitor open channel flow and features advanced relay alarming and pump control functions as well as volume conversion. It is compatible with SIMATIC PDM, allowing for PC configuration and setup. Sonic Intelligence® advanced echo-processing software provides increased reading reliability.

The HydroRanger 200 controller uses proven continuous ultrasonic echo-ranging technology to monitor water and wastewater, of any consistency, up to 15 m (50 ft) in depth. Achievable resolution is 0.1% with accuracy to 0.25% of range. Unlike contacting devices, the HydroRanger 200 controller is immune to problems caused by suspended solids, harsh corrosives, grease or silt in the effluent, thus reducing downtime.

About the SITRANS RD500 Remote Data Manager

The SITRANS RD500 is a remote data manager providing integrated web access, alarm event handling, and data capture for instrumentation. It uses a web-based application and hardware modules. The unique modular approach allows a variety of process signals to be monitored, while the serial ports allow data to be collected from any Modbus RTU device.

The RD500 unit's built-in web server, FTP, and email client allows the process to be monitored remotely. Alarm notifications are communicated through email and SMS text messages to one or more recipients to ensure that appropriate actions are taken by personnel.

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