



SCADA: Eyes & Ears

By Nickie Soleimanzadeh

Connecticut town
employs managed
SCADA to maintain
accuracy

The town of Darien is home to 21,000 people on the Gold Coast of Connecticut. Residents pride themselves on being good environmental stewards who work to preserve their pristine waterways and natural habitat. Prior to 2012, the Darien collection system was monitored by programmable logic controllers (PLC) and phone lines. Darien collection system personnel were overwhelmed with false alarms, inaccurate data and downtime, so town officials began to look for a more dependable system.

Fred Micha is the wastewater system

supervisor for the town of Darien. He relies on remote oversight of each of its 15 pump stations to make sure the collection system works properly. Pumps, generators and wet well levels are monitored at each of the pump stations. Flow data at four of the stations are used to track the number of gallons of fluid sent to the neighboring town of Stamford for treatment. Micha said the PLCs and phone lines were unreliable and problematic.

"If a phone line went down, it would take a day or two to repair it," Micha said. "If there was a problem with a PLC, we would go a day, week or sometimes

even a month without communications, depending on what the issue was.”

Managed SCADA Solution

When the PLC radio modules became obsolete, Micha opted not to replace them. Instead, he began looking for a managed SCADA system that operated on cellular radios. He said he believed this type of system would eliminate the reliability issues he had faced with the PLCs and phone lines.

The SCADA system project went to bid and officials accepted a new system that they thought met all project specifications and budget. The SCADA system provider agreed to meet all terms of the contract. After about three months, however, the new system was not fully installed as promised, and the flow stations were not equipped with the new SCADA system.

“The problem was that [the SCADA manufacturer] was having issues with the flow,” Micha said. “Months went by and we had the old system on some stations and the new system on the others.”

After some time, Micha said he realized that the system was not going to work as intended. He was advised by the provider to implement Mission Communications managed SCADA. Mission Communications took over the project and worked with Darien officials to get the system up and running quickly.

After the remote terminals units (RTU) arrived, Micha and a contracted electrician installed them at the pump stations. The units were installed within just a few hours at each location and began sending data via cellular networks and servers in a matter of minutes.

“When the deal was finalized with Mission, I received all of the RTUs on one pallet within a week of placing the order,” Micha said. “Once they were installed, there was no question—the system worked as it was supposed to.

The situation with the other system was unfortunate, but it’s water under the bridge.”

Circumventing Failures

The SCADA system offers Micha and his team high wet well, generator run and pump malfunction alarms. Real-time alarms and pump runtime data give Darien officials a way to catch pump failures before they occur. Micha said he also appreciates the reduction in nuisance alarms with the new system, because the previous PLCs and phone lines triggered excessive false alarms.

“We didn’t know how real or not real the alarms were,” Micha said. “Even if we received a ghost alarm, we had to check it out. We were putting in overtime left and right. The PLC system ran on power, but Mission uses dry circuits, so it’s either in alarm or it isn’t. When I get an alarm from Mission, I know it’s real.”

The real-time data have reduced overtime and allowed Micha and his team to focus on more important issues. They have 24/7 access to the Web portal, and can easily monitor the collection system while on the go or from their desks.

Putting Numbers Back in Line

Micha said the flow report has given the town the pinpoint accuracy that it lacked with the previous system. The report is generated by collecting data through a flowmeter connected to an analog input on the RTU. Micha sends the monthly flow totals to the neighboring town of Stamford with confidence that the numbers are correct.

“With the PLCs, there were formulas that altered the flow data, and now that we have the Mission system, I realize how gravely off they were,” Micha said. “With Mission, what we’re seeing is exactly what we’re getting. The flow data that we get now are spot on.”

The automated report on the Web portal makes it easy for Micha to access and utilize the information. The data are available in graph, chart and spreadsheet formats. The spreadsheet includes the daily flow total, peak flow and rainfall, along with the monthly flow total. The flow versus rainfall graph helps identify sources of inflow and infiltration. Rain data are plotted on the graph using National Oceanic and Atmospheric Administration rain station data or rain data from a local rain tipping bucket.

Micha also uses the Web portal to check pump status and runtimes. The Model M800 RTUs give real-time pump status information. Through trending data, Micha can tell when the pump runtimes are normal or abnormal. He specifically uses this information on the main pump station, where pumps run continuously. A pump malfunction at that station could be more serious than a pump malfunction at a field station, where pumps alternate run cycles.

“This system is invaluable for us because I rely on it solely to operate this department,” Micha said. “Without it, we’re blind. We go out and check equipment, but when there are moving parts at every station, it’s nice to have a reliable system to be your eyes and ears when you’re not there.” **WWD**

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