PHOTOS COURTESY OF MISSION COMMUNICATIONS

Streamlined Process

This is an example of a remote terminal unit fully installed. This unit gathers data about the system and shares it with an online portal, which the operators can view from any internet-connected device.

Compiled By Nickie Soleimanzadeh

Remote terminal units discover unknowns in wastewater treatment system

Oconee Joint Regional Sewer Authority (OJRSA) is located in Oconee County, South Carolina, and provides wastewater transportation and treatment services to the cities of Seneca, Westminster, and Wahalla. Each city handles collection from residences and businesses, then OJRSA transports the wastewater from the trunk line to the treatment facility by way of pump stations and gravity sewer. The Oconee treatment facility is rated for 7.8 million gallons per day but moves closer to 3 million gallons. Mark Dain, maintenance supervisor, explained that about 12 years ago, the textile industry left the area and the flow through the facility declined significantly.

Dain has been with OJRSA for 19 years,

nine of them in his current position. A Mission Communications remote terminal units (RTUs) and system helps him oversee the maintenance of pump stations and the treatment plant. Dain also issues jobs, purchases parts and tools, researches and quotes contracts, evaluates employees and assigns job tasks.

Dain explained that OJRSA uses 19 Mission M800 series remote terminal units (RTUs) to monitor pump runtimes, wet well levels, rainfall, and both analog and pulse flow. He appreciates the customized flow report that is automatically emailed each week. This report is used for billing the serviced towns based on the pulse flow value. The analog flow value is used for comparative and graphical analysis.

Optimized for Water & Wastewater Utilities

OJRSA began using Mission RTUs in the fall of 2017 when the organization hired a new director who heralded his experience with Mission-managed SCADA service with a previous utility. Prior to implementing the system for OJRSA, the utility had used a system that was not optimized for water and wastewater utilities. Dain explained the previous system had originally been intended for monitoring generators, and then stumbled into the utility business.

The RTUs for this system only reported every 15 minutes, and the analog inputs were difficult to configure for flow monitoring conveyance reporting. Additionally, the web portal for the system was not user-friendly.

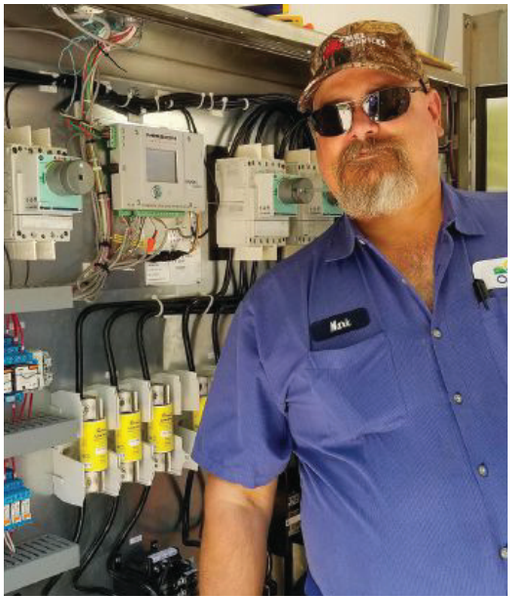
"Our director didn't like the way the portal was formatted for the previous system. After using Mission, I can see why," he said. "It didn't have graphs, and it wasn't as interactive. You couldn't customize reports like you can on the Mission portal."

The hardware and software are purpose-built for the water and wastewater industries, resulting in a system that is intuitive to operate with no cumbersome, unnecessary features. Mission 800-series (M800 and MyDro 850) RTUs send analog data every two minutes and update in real-time on a 5% or greater change. All RTUs also dispatch alarms in real-time.

RTU Monitoring Provides Unanticipated Functionality

The Mission system has provided OJRSA with solutions to issues that previously went undetected as well as presented a better course of action for a few previously existing processes.

Dain explained that during heavy rain events, the level sensing flow meter that measures the flume was experiencing dead band because of a blind spot above the head of the device. It would report a max reading and stop measuring flow due to configuration issues with the previous system.



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Mark Dain is the maintenance supervisor for the Oconee Joint Regional Sewer Authority in South Carolina. He said the remote terminal units installed in his system give him better control over pumps and lift stations during wet weather events.

"We were losing money because we weren't able to bill the cities for those higher flows," he said. "We've gained a tremendous advantage. Now we see those dead band events, and we can go back in to recalculate those flows based on the maximum flow."

Pumps within collection systems are highly susceptible to getting "ragged up" — where the impeller becomes entangled in some foreign object, which results in the pump not running efficiently. This leads to harmful and costly backups and equipment damage. Prior to the RTU installation, when this occurred Dain had to comb through pages of information looking for trending data for insight that would help identify this.

OJRSA uses current-sensing switches and current transducers on their pump motors to collect pump runtimes. With the Mission Pump Variance Report and Daily Station Summary Report, analyzing trending data is a streamlined and efficient process.

"You can see a trend regarding your amps during usual pump runtimes. They're generally close together in comparison, but if you get a pump that is ragged, then you're actually pumping less water and your amps go down," he said. "On the weekend, you're at home, and you're not always actively looking at the system, so that variance report has been really helpful too because it's almost like it grabs stuff without you having to go look for it."

OJRSA has also started using an RTU to monitor the fuel level in its generators, using a Pulsar dBi ultrasonic transducer. Dain explained that this information is critical during severe weather events, since those sites can be without power for extended periods of time.

"This capability is a huge advantage. If you don't have that, then someone has to go out in the rain and put a stick in the tank to see the fuel level. You're getting water in the fuel, and you're getting fuel on you," he said. "It's a huge advantage we have now."

Additionally, a portion of the OJRSA treatment facility was recently under construction, preventing operators from entering the area where chart recorders were located. Workers rerouted the 4-20 mA signals from the building to an M800 unit, which allows operators to have all of the crucial system information sent to one central location.

OJRSA officials are taking advantage of the the company's trade-in policy to upgrade existing legacy (M800 and M110) units for the MyDro series. The LCD touchscreen makes the calibration processes simple and quick for the new units. WWD

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