Eaton units keep operations flowing at water facility

“Every time we’ve dealt with Eaton, they’ve been first-class in every single way. I’ve been very impressed with the service and technical support people. They are extremely knowledgeable.”

Jim Donovan, operator/electrician

Background
Incorporated in 1655, Billerica is located 20 miles northwest of Boston, bordering Lowell to the south. The town remained predominately agricultural until the mid-nineteenth century, when a major mill complex was constructed on the Concord River. Currently, some 40,000 residents call Billerica home.

The Billerica Department of Public Works delivers many services that help maintain the high quality of life within the town. In addition to responsibilities such as cleaning, repairing, and maintaining the town’s streets and drainage systems, the department maintains the town’s water supply and wastewater system and facilities.

Challenge
Ensuring that the town’s water treatment plant remains fully operational at all times is no small task. Among the equipment required to keep systems flowing is a SCADA computer system, which monitors the entire plant. All valves and pumps are controlled through a PLC cabinet, which is also tied into the SCADA system.

“It’s extremely critical,” reveals Jim Donovan, plant operator/electrician. “If we had downtime, the entire plant would go down, all pumps would stop, all processes would stop.

This, in turn, would set off an entire chain of undesirable consequences — essentially leaving the plant in hot water. “We would have to allow a period of time for the computer to reboot itself,” Donovan explains. “We would basically have to restart the plant. Filters would likely start to drain because valves didn’t close. It would definitely be a difficult time.”

Location:
Billerica, Mass.

Segment:
Local Government

Problem:
When its previous Eaton unit became obsolete, the facility needed an equally reliable and robust solution to ensure water systems remain protected at all times.

Solution:
Eaton® 9355, Eaton FERRUPS, Service

Results:
The Eaton 9355 — coupled with other Eaton UPSs installed at various city sites — ensures that residents will receive safe water even during a power loss.

Eaton Corporation is a diversified power management company ranked among the largest Fortune 500 companies. Eaton is a global leader in electrical components and systems for power quality, distribution and control; hydraulics components, systems and services for industrial and mobile equipment; aerospace fuel, hydraulics and pneumatic systems for commercial and military use; and truck and automotive drivetrain and powertrain systems for performance, fuel economy and safety. Eaton has approximately 73,000 employees and sells products to customers in more than 150 countries. www.eaton.com
To avert that scenario, the plant initially relied on a Powerware® 9330 uninterruptible power system (UPS) to safeguard its sensitive electronic equipment. But in 2011, following a preventive maintenance service call on the obsolete unit, the water department opted to replace it.

“This was the original UPS that we installed back when the plant was brand new,” Donovan explains.

“Instead of replacing the batteries and trying to get parts for an obsolete unit, we decided that it made better sense financially for us to buy a new unit with a full warranty.”

A positive experience with its 9330 — as well as the fact that several other Eaton units were also ensuring uptime around the facility — led plant operators to seek another UPS from the same manufacturer.

Solution

Billerica Department of Public Works quickly honed in on the Eaton 9355, which features a true, double-conversion online design to completely isolate equipment from utility power and protect against all nine of the most common power problems, including outages, sags, surges, spikes, brownouts, line noise, frequency variation, switching transients and harmonic distortion.

“It’s a critical piece for us,” Donovan acknowledges. “The purpose of the UPS is to back up PLC panels and computer systems to allow for continued operation of the plant. In the event of a power failure, the UPS is designed to hold everything and keep it running until the generator transfers on.”

With a sleek tower configuration that includes the internal batteries, the UPS packs significant power into half the footprint of previous generation systems. This innovative design provides one of the industry’s best combinations of high efficiency, low input current distortion and high power factor.

“We really like the compact form factor, since space around here is kind of at a premium,” Donovan acknowledges.

Billerica Department of Public Works was also impressed with the 9355’s high 0.9 output power factor, which delivers more power than the vast majority of competitors’ models. In addition, its high efficiency rating of up to 92 percent across all load ranges reduces utility costs and facilitates cooler operating conditions, thereby extending component life.

Further reliability is achieved with Eaton’s exclusive ABM® technology, which significantly increases battery life. ABM relies on an innovative three-stage charging technique that features prolonged rest periods between charge phases, as well as temperature-compensated charging, both of which optimize recharge time.

The plant has also experienced exceptional success from its Eaton FERRUPS® UPS, which is tasked with protecting 13,000-volt switchgear during a power failure. “It has to have a power source to allow the instrumentation to switch over from the utility to the generator and keep those controls powered during the transfer of switch gear from one side to another,” Donovan explains.

The FERRUPS delivers proven, ferroresonant battery backup power and scalable runtimes for critical applications. Highly configurable with a wide range of voltages, frequencies, runtimes, power cords and receptacles, the FERRUPS continually regulates voltage and eliminates harmful harmonic currents.

In addition, the department has deployed Powerware 9125 UPSs in several remote buildings, where the units back up PLC panels.

“With the variety of Eaton UPSs safeguarding the plant’s critical systems, the Billerica Department of Public Works is able to keep its head above water even in complete blackout situation. With the units in place, the department is able to:

• Ensure continuous, clean power to sensitive SCADA systems and other equipment
• Power more equipment in less space with the 9355’s high power factor
• Preserve valuable space in its facilities with the UPS’s compact design
• Maintain optimal performance and health with Eaton service

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Results

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• Maintain optimal performance and health with Eaton service

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