

Monroe County Waste Treatment Facility Improves Safety with Wireless Monitoring of Safety Showers

RESULTS

- Improved safety / man-down awareness
- Eliminated need for I/O infrastructure
- Low installed cost



APPLICATION

Eyewash station monitoring

CUSTOMER

Monroe County Pure Waters, Van Lare plant in Rochester NY and the Northwest Quadrant (NWQ) plant in Hilton, NY. These wastewater plants are located on the south shore of Lake Ontario. Van Lare dates back to 1916 and is the largest treatment plant in Monroe County with a rating currently at 135 million gallons a day with a capability of handling 660 million gallons a day.

CHALLENGE

Water treatment facilities are often spread over a large area, and utilize potentially harmful chemicals like Hypochlorite. Jeff Helfer, who is in charge of maintaining both the Van Lare plant and the NWQ plant 12 miles away (and pump stations up to 20 miles away), had one brief misstep at the plant that put him in a precarious position. "In 2009, I was working in the FEV Scrubber building on a hypo flowmeter. I had failed to isolate the chemical line properly causing sodium Hypochlorite to spray on my face and upper body. Although I was protected by the proper PPE, I still used a nearby emergency shower to dilute the hypo. Despite my best efforts, the line continued to leak and I was unable to call for radio help. I had to run to the solids control room for help."

In the ensuing years, Helfer had been thinking about the response an employee could expect if he or she was injured and activated a remote emergency eyewash/shower and was unable to call for help. The solution was to equip remote eyewash/shower units with a device which would trigger an alarm on the operator screen in the FEV Control room, which would notify that operator of the location of the activated unit. Unfortunately, the distance spanned over 2000 feet. "The plant is a mile long, front to back. A wired solution was too expensive to consider, except for the stations near the control room in each plant," said Helfer.

"These devices require no power to operate, are non-contact direct sensing with no exterior moving parts to break and are waterproof. They are also resistant to extreme environments; high/low temperatures, dust, dirt, moisture, wash down, physical abuse, electrical noise and radio frequency interference. With this system in place, an injured employee can depend on a quick response to their exact location so medical assistance can be summoned in a timely manner."

Jeff Helfer

Instrument Technician

Monroe County Pure Waters, Rochester and Hilton, NY

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SOLUTION

Monroe County had already installed two Smart Wireless Gateways for wireless vibration monitoring at each plant. Three remote emergency eyewash/shower units at the Van Lare plant were chosen as test sites, utilizing the wireless network in the area of the targeted showers. One Rosemount 702 Wireless Discrete Transmitter with two TopWorx GO™ Switches monitor each of the three push stations for the eyewash and pull stations for the emergency shower.

“The wireless eyewash and shower monitoring solution worked well,” said Helfer. “They were easy to install, and can be located far from the control room at a fraction of the cost of a wired solution. No additional I/O cards required, no wires, no conduit.”

He added, “These devices require no power to operate, are non-contact direct sensing with no exterior moving parts to break and are waterproof. They are also resistant to extreme environments; high/low temperatures, dust, dirt, moisture, wash down, physical abuse, electrical noise and radio frequency interference. With this system in place, an injured employee can depend on a quick response to their exact location so medical assistance can be summoned in a timely manner.”

Helfer noted that even when the wireless devices and switches are covered with ice or snow, the plant never had a problem with them working. Because of the success of the test sites, a total of 9 safety systems have been installed to date at both the Van Lare and NWQ plants, with the intent to add systems to all 20 safety showers in the future.

Automatic alarms significantly increase man-down awareness, and provide the required time stamp in the DCS every time a shower is activated, whether for a required inspection or an event. “The safety coordinator loves it, because these stations can be used by anyone for any emergency. If they are utilized, an instant alarm is sent to the control room. Protocols are already in place to respond to any alarm,” he added.

Even the drivers of the chemical trucks have appreciated these efforts. Although drivers have full gear, they now have the added protection of automated alarms in the case an emergency does occur. “Wireless is increasing our ability to monitor these critical pieces of emergency safety equipment, increasing our man-down awareness and the speed of first responders,” Helfer concluded. “We continue to expand the wireless network on a yearly basis to create the infrastructure needed when any remote location needs to be monitored.”

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A 702 Wireless Discrete transmitter with TopWorx GO Switches communicate to a Smart Wireless gateway 1000 feet away to alert operators when the shower or eyewash station is activated.

RESOURCES

Emerson Process Management Water/Wastewater Industries

<http://www2.emersonprocess.com/en-US/divisions/power-water/Pages/powerwater.aspx>

Emerson Smart Wireless Gateways

<http://www2.emersonprocess.com/en-US/brands/rosemount/Wireless/Wireless-Gateways/Pages/index.aspx>