xylem
Let's Solve Water

Falmouth, Massachusetts selects Xylem Wedeco ozonation process to improve taste and quality of its surface water supply

Cape Cod vacation town previously relied on unfiltered water for 120 years

When summer arrives in Falmouth, Massachusetts, so do the tourists. Beaches, boating, fresh seafood and other activities make it an idyllic vacation destination. But the influx of out-of-towners to this small coastal town in the Cape Cod region can multiply the town's water demand by as much as five times. That means the water department needs to increase its output to service from 31,000 permanent residents to a summer population of up to 120,000 people.

Until recently, a pump station that had been in use since 1898 provided most of Falmouth's water supply. While the water that the station provided was safe, it wasn't filtered. This could give the water an unpleasant taste, smell and cloudy appearance, making it less than ideal for both residents and tourists.

Challenge

Since Long Pond water was unfiltered, it relied heavily on chlorine as a disinfectant, which led to health concerns. In 2014, a Massachusetts Department of Environmental Protection (MassDEP) mandate gave Falmouth the option to add another disinfectant to its existing water treatment process or build a new facility.

Because the existing Long Pond Water Treatment Plant did not use filtration to remove bacteria, organics and particulates, the water quality entering the distribution system was an ongoing concern with elevated turbidity and organics leading to seasonal color, taste and odor complaints; and elevated bacteria and elevated algae counts. In addition, the high doses of chlorine needed to maintain the disinfection residuals required for an unfiltered supply reacted with the organics in the raw water to form disinfection by-products, which did not meet new EPA and MassDEP standards.

"When you have surface water supply, water quality can change at any given time," said Michael Reghitto, chief treatment plant operator for the Long Pond WTP. "We have a relatively clean reservoir – that's why we were unfiltered for over 100 years, but it does turn once or twice a year."

Before the construction of the Long Pond Water Filtration Facility, which went online in 2017, one pump station provided most of Falmouth's water supply since 1898.

Customer:	Falmouth Massachusetts Long Pond Water Treatment Plant
Challenge:	The water supply the treatment plant provided was safe, but not filtered, which led to complaints about unpleasant taste, smell and cloudy appearance.
Xylem Solution:	The town built a new water treatment plant that incorporates two Xylem Wedeco SMOevo-510 Ozone Generator Systems, significantly improving the quality of the water supply. The WTP also takes advantage of Xylem's Annual Preventative Maintenance Agreement.

WEDECO
a xylem brand

As a result of the MassDEP mandate to improve certain water quality measures, the town voted to allocate $46 million to construct a new water treatment and filtration plant on the east shore of Long Pond.

Solution

Construction on the new Long Pond Water Treatment Plant began in April 2015. The plant, which became operational in October 2017, delivers approximately 70% of all the water that is used from the public water system in Falmouth. The facility draws water from the town's primary water source, Long Pond, and treats it in four separate processes: algae removal, ozonation to improve taste and odor, activated carbon filtration and sodium-hypochlorite disinfection.

Long Pond WTP incorporates two Xylem Wedeco SMOevo-510 Ozone Generator Systems, which use 2G ozone electrode technology, to deliver relatively low concentrations/doses of ozone into the process. The four-step ozone filtration system has a greater disinfection effectiveness against bacteria and viruses and has oxidizing properties that can help reduce the concentration of iron, manganese and sulfur.

The new plant, which handles an average of 8.4 million gallons per day, can adjust to accommodate fluctuating flow rates of 2.5 million gallons per day during the winter up to a peak 12 million per day in the summer, when the tourist population swells.

"The system is unique in that it offers great variability," said Reghitto.

Results

Since the new plant went online in late 2017, it has significantly improved both the water supply's taste and quality. And using the latest control and information technologies, the state-of-the-art plant can be minimally staffed to help keep operating costs and hiring demands down.

The Effizon 2G ozone electrodes, which have a 10-year warranty, have worked flawlessly to create the ozone gas needed for the process, and have required no service or replacement by the plant or factory technicians during the time in service.

"We have not had to open the contained ozone generator vessels to have any sort of look or repair which is what we expect with good quality technology like this," said Reghitto.

The Long Pond WTP also takes advantage of Xylem's Annual Preventative Maintenance Agreement (PMA) to protect its investment in Xylem Wedeco ozone technologies. The PMA, which includes a discount on labor rates and spare parts as well as two onsite visits by factory technicians per year, affords peace of mind and reliability. Although plant staff are fully trained on the Xylem Wedeco Ozone System, having a PMA enables factory technicians to regularly service the system so emergency repairs and fixes are less likely.

"Our factory technicians are Xylem employees," said Richard Nash, after-market territory manager – treatment, Xylem. "We don't use third party contractors, sales agents or manufacturers' reps."

Along with Xylem factory technicians, the Long Pond WTP staff can also rely on the Aftermarket, Engineering and Service team for remote support whenever questions or issues arise.

The Long Pond facility treats the water it draws in four separate processes: algae removal, ozonation to improve taste and odor, activated carbon filtration and sodium-hypochlorite disinfection.

The new water treatment plant incorporates two Xylem Wedeco SMOevo-510 Ozone Generator Systems, significantly improving the quality of the water supply.

The state-of-the-art Long Pond facility uses the latest control and information technologies so it can be minimally staffed to help keep operating costs and hiring demands down.

Xylem, Inc.
4828 Parkway Plaza Blvd. Suite 200
Charlotte, NC 28217
Tel 704.409.9700
Fax 704.295.9080
855-XYL-H2O1 (855-995-4261)
www.xylem.com

WCS092 • Wedeco Falmouth, MA Case Study • 7/2021 • ACT