CASE STUDY

UPPER DEERFIELD TOWNSHIP

Robust Encore® Pumps Replace Peristaltic Hose Pumps to Maintain Consistent pH for Finished Drinking Water

OVERVIEW

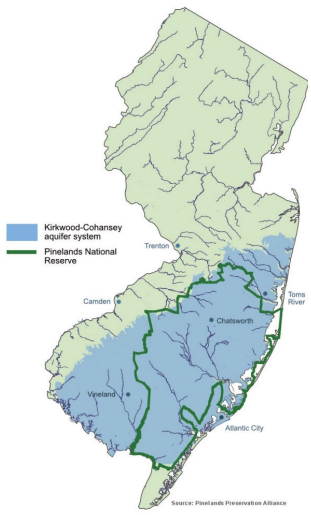
Upper Deerfield Township is a small community of nearly 8,000 people in southwestern New Jersey. This region of the state is known for dense pine forests and is considered part of the Philadelphia Metropolitan Area, due to its close proximity to Philadelphia. Like other semi-rural areas throughout the northeast corridor, the region is experiencing steady population growth as the suburbs stretch further away from the cities.

SITUATION

Upper Deerfield Township relies on groundwater from four wells measuring 120 to 160 feet deep to supply their drinking water. The water is treated at two treatment plants with a capacity of 2.2 MGD (million-gallons-per-day) and then pumped out to the distribution system with approximately 750,000 gallons of storage.

Since the deep groundwater is hard, operators add lime to the finished water to raise the pH to reduce hardness. This process of softening drinking water and managing corrosion control can sometimes be a delicate balancing act. It is important to allow enough calcium carbonate to precipitate out to provide a protective coating on the pipes, but not so much scale as to damage equipment. Also, residents want to be able to rinse soaps, shampoos and detergents easily with water.

The previous treatment process at the water plant involved pumping a heavy 12% lime slurry into the finished water to help maintain alkalinity. Often times the existing peristaltic hose pumps were unable to adequately pump the slurry. This lead to frequent low pH alarms. The alarms were a constant problem for operators and became increasingly frustrating when they were triggered in the middle of the night.



The Kirkwood-Cohansey Aquifer holds nearly 17 trillion gallons of fresh water, with the system covering nearly half of the entire state of New Jersey. This map of New Jersey highlighting the Kirkwood-Cohansey aquifer system.

APPROACH

Thanks to past exposure to the Encore® Metering Pump line, the Upper Deerfield Superintendent of Water and Sewer suggested switching from peristaltic hose pumps to diaphragm pumps for the delivery of the lime slurry. The diaphragm pump, or positive displacement pump, uses the reciprocating action of a diaphragm and its valves to pump the fluid.

The Encore® 700, a rugged, heavy-duty mechanical diaphragm metering pump, was the obvious choice for this challenging application. The Encore® 700 pump was engineered to excel in industrial, municipal metering and water and wastewater treatment applications.

At the Upper Deerfield plant, operators chose the Encore® 700 Simplex Pump, which features a single head design on a single gear box with variable speed control.

The reliable and smooth discharge pattern of the non-loss of motion stroke, meant the diaphragm pumps had more than enough pumping power to deliver up to 50 GPH (gallons-per-hour) of 12% slurry efficiently against 75 psi backpressure.

RESULTS

50 GPH
Pumping Power

33% REDUCTION
In Cost for Trucked-In Bleach

- **The Encore®700 Pump was able to generate up to 50 GPH and deliver 12% slurry efficiently against 75 psi backpressure.**
- **The new system maintained a steady, consistent pH level reducing low pH alarms significantly.**

"The Encore® 700 pumps have proven themselves to be a reliable means of injecting a heavy lime slurry into a pressurized line to maintain a constant pH without constant operator attention and maintenance."

John Hoogendorn, Superintendent of Water & Sewer, Upper Deerfield Township

CONCLUSION

The Encore®700 had an immediate improvement on performance. Not only could the team rely on the Encore®700 Pump's reliability and pumping power to deliver up to 50 GPH consistently, the new system maintained a steady pH level and required much less maintenance.

Due to the Encore's extensive history of reliability and dependability and NSF 61 certification for drinking water, the team felt confident that the had chosen the perfect solution.

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