

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

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 (pine barrens) and is considered part of the Philadelphia Metropolitan Area, due to its proximity to the city. 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.

The 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, between allowing enough calcium carbonate to precipitate out to provide a protective coating on the pipes, but not so much scale as to damage equipment. At the same time, customers want their soaps, shampoos and detergents to rinse off easily with water.

The treatment process at the water plant included pumping a heavy 12% lime slurry into the finished water to help maintain alkalinity. Operators experienced continuous problems with the existing peristaltic hose pumps being unable to adequately pump the slurry. The resulting frequent low pH alarms, were a constant problem for operators, particularly when they occurred in the middle of the night.



Encore® 700 Pump at Upper Deerfield Township

Based on prior experience with the Encore® metering pump line, the Upper Deerfield superintendent of

water and sewer suggested switching from peristaltic hose pumps for the delivery of the lime slurry, to diaphragm pumps. The diaphragm pump, or positive displacement pump, uses the reciprocating action of a diaphragm and valves to pump a fluid. The Encore® 700, a rugged, heavy-duty mechanical diaphragm metering pump was the natural choice for this challenging application. The pump is engineered to handle industrial and municipal metering applications in water and wastewater treatment. In this case, the operators chose the simplex pump version, with a single head design on a single gear box with variable speed control. The reliable and smooth discharge pattern through 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.

The results were immediate. No more low pH alarms or repairs to struggling softening equipment. The



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Encore® 700 metering pumps, with their long history of reliability, provided a robust design and the NSF 61 certification required for the drinking water application.

“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