

Erie Water Works bucks trend with quality infrastructure, low lead levels



Erie Water Works CEO Paul Vojtek is shown on June 13 above the sediment ponds at the Richard S. Wasielewski Water Treatment Plant in Millcreek Township. It's been a year since the Wasielewski plant reopened, making tap water safer for Erie Water Works' 190,000 customers, according to Vojtek, who says the sediment ponds use gravity and a chemical process to settle larger sediment out of water coming into the plant from Lake Erie. The sediment ponds are not a mandatory part of the process, but the cleaner water coming out of the ponds helps to extend the life of the filtration material that performs the final cleaning of the water.
CHRISTOPHER MILLETTE/ERIE TIMES-NEWS

When Paul Vojtek interviewed for the Erie Water Works' finance director job in 1998, he saw a major problem. "I was a bit surprised to see the condition of the water system infrastructure," he said. "I knew we had to figure out a way to rebuild the system assets."
Nearly 18 years later, the system's infrastructure is in a condition that Vojtek -- the Erie Water Works' CEO since 2003 -- considers acceptable.
The water, according to Erie Water Works and the state Department of Environmental Protection, is also safe to drink, with lead levels well below the government-mandated minimum levels.
Improving Erie Water Works' infrastructure and water supply has been expensive -- the utility over the past 20 years has spent \$180 million to upgrade a system that dates to the 1840s.
But Vojtek said the spending has been necessary to guarantee that Erie Water Works' 53,000 direct residential customers -- in Erie, Lawrence Park Township, Wesleyville and Millcreek Township, as well as parts of Harborcreek, McKean and Summit townships -- are getting safe water from a system with limited leaks.
Scrutiny of water systems nationwide increased after the crisis in Flint, Michigan, where levels of lead in some of the city's tap water was found to be 27 times higher than the Environmental Protection Agency's limit.
More than 50 percent of 1,033 adult Americans surveyed in March believe that Flint's water contamination is a sign of a more widespread problem, according to a poll the Associated Press co-sponsored. About 50 percent of those polled also said they are confident their tap water is safe for drinking.
Erie has been dealing for decades with higher-than-average rates of lead poisoning among its children. Erie Water Works and Erie County health officials agree, though, that the cause is lead paint, not the drinking water.
Test results dating to 1997 -- after the EPA implemented its Lead and Copper Rule -- show lead levels in Erie's water supply are consistently far below the EPA's limit of 15 parts per billion.
- At Erie Water Works, which the Erie City Water Authority oversees, the overall lead level in its 2015 water quality report was 0.478 parts per billion, far less than the EPA limit of 15 parts per billion. The DEP has found no problems with the system's lead and copper levels.

"Data for lead and copper from the Erie City Water Authority shows both well below action levels in the previous two monitoring periods" in 2010 and 2013, DEP spokesman Neil Shader said. He said the next monitoring will take place later this year.

- In the 1990s, 65 percent of the water in the Erie Water Works system was lost daily to leaks. The daily loss is now about 20 percent of the 70 million gallons of water stored in the system, Vojtek said. He said the industry standard is 20 percent.

Collecting the water

Erie Water Works took action in the early 1990s to properly treat water to keep the lead levels nearly undetectable, Vojtek said. He said the "the best way to maintain a safe water supply is by continuous monitoring."

Erie Water Works now does that monitoring electronically.

Its most valuable tool is a 3-year-old plastic membrane system at the 84-year-old Richard S. Wasielewski Water Treatment Plant at the foot of Sommerheim Drive in Millcreek.

The state-of-the-art system uses hollow spaghetti-like plastic tubes, a little thicker than the size of a human hair, to filter the water of dirt and microscopic particles.

The membranes were included in a \$9.3 million filtration system that Erie Water Works installed as part of a \$42 million, four-year upgrade at the Wasielewski plant.

Erie Water Works also owns the 103-year-old Chestnut Street Water Treatment Plant, in Erie. That facility is not in active operation, but it can run in case of an emergency at the Wasielewski plant. The Chestnut Street plant filters water with sand rather than plastic membranes.

With its upgrades finished, the Wasielewski plant is now fully operational and capable of pumping 45 million gallons per day, Vojtek said. The plant pumps 24 million gallons daily from an intake pipe in Lake Erie, more than a mile off Presque Isle State Park's Beach 1 shoreline.

The intake pipe has three risers that draw in water. The risers are housed in a 20-foot-high, 40-foot-wide and 40-foot-long wooden crib.

The structure is partially buried, but aluminum grates on top and parts of the walls allow water in. Those areas and interior areas of the structure are inspected, cleaned and repaired, if needed, once or twice a year, said Eric Guerrein, owner of Lakeshore Towing, who has been doing the work for Erie Water Works for about 20 years.

Part of Lakeshore's job is to clear the intake crib of zebra mussels.

"It's like a log cabin with nine chambers," Guerrein said.

Cleaning the water

A pipe, mostly buried and 72 inches in diameter, feeds the lake water into a 20-foot-high well at the Wasielewski plant, Vojtek said. Then the water gets dumped into the plant. From there:

- The plant's microstrainers remove large items.

- A 30-foot-deep sedimentation basin allows dirt and metals to drop to the basin's floor with the use of a coagulate. The dirt and metals are pushed into a drain and pumped to Erie's Wastewater Treatment Facility.

The DEP said the basin is not needed because the plant is using the membrane system, Vojtek said. But he said using the basin to remove larger particles will help the membranes last longer.

- The water flows through the plastic membranes. They are in a ground-level filtration room and inside eight concrete chambers, 20 feet wide by 20 feet long and nearly 10 feet deep.

The membranes are cleaned every 30 minutes. The system shuts off vacuum pumps and pushes air back through the membranes in reverse, creating an agitation motion to shake the strands free of dirt and particles, Vojtek said.

Guarding the water

Erie Water Works also uses chemicals to keep the water safe.

Plant operators and chemists "collect and analyze daily water samples throughout the system," Vojtek said. "Monitoring the chlorine levels assures the water is free of harmful bacteria."

Workers add chlorine and ortho- and polyphosphates, an alkaline substance, to the clean water before the system pumps it from the Wasielewski plant to four reservoirs and eight holding tanks. The Water Works' security system guards those and other facilities from intruders who could foul the water.

The chlorine inactivates bacteria for a time, so workers add it again at the reservoirs and tanks. The use of the ortho- and polyphosphates "nearly eliminates the leaching of lead and copper into the water," Vojtek said. The lack of phosphates contributed to the problems in Flint, officials said.

The improvements to the Wasielewski plant should extend its use by 50 to 80 years, Vojtek said. He said the upgrades have allowed the system to supply the region "with the highest quality water possible."

"We're very proud of that," he said.

By the numbers

65: In gallons, that's how much water the average Erie Water Works residential customer uses daily. The utility has 53,000 residential customers.

3M: In gallons, that's the daily amount of water, on average, used by GE Transportation, Erie Water Works' biggest customer. CHRIS SIGMUND can be reached at 870-1870 or by email. Follow him on Twitter at twitter.com/ETNSigmund.

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