

Watershed district proposes tiny solution for very big stink

The Middle Fork of the Little Crow Watershed District is proposing the use of modern, nanobubble technology to solve a century-long problem in New London's Mill Pond.



Kyle Tadd of Montevideo fishes below the labyrinth weir dam at New London's Mill Pond on the Middle Fork of the Crow River in May of 2013. The labyrinth weir structure was completed in 2011 to replace a simple arched dam that had been in place since the late 1860's but modified and repaired in subsequent years.
Ron Adams / West Central Tribune file photo



By [Tom Cherveney](#)

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NEW LONDON — The Middle Fork of the Little Crow River Watershed District is looking to modern technology to provide a tiny solution to what is a century-old and very big problem in New London’s Mill Pond and Lake Monongalia.

Every year when the ice goes out, hydrogen sulfide gas is released from the waters of the Mill Pond and causes a plug-your nose, rotten-egg like stink that has plagued the community for decades. The malodorous gas was even blamed in 1975 for turning white paint to large splotches of black on the fish hatchery building that once stood on the Mill Pond shore.

Worst of all, the gas is harmful to health, capable of causing everything from headaches to neurological damage.

A 2002 study of the problem recorded levels of hydrogen sulfide in the air above the Mill Pond at 1,450 parts per billion. The state health standard is 30 ppb. Hydrogen sulfide levels at the city’s fire hall, about two blocks down wind, were still above the state standard.

The watershed district believes a proposal to install an advanced, nanobubble technology aerator to oxygenate the waters of the Mill Pond may be the long-sought solution.

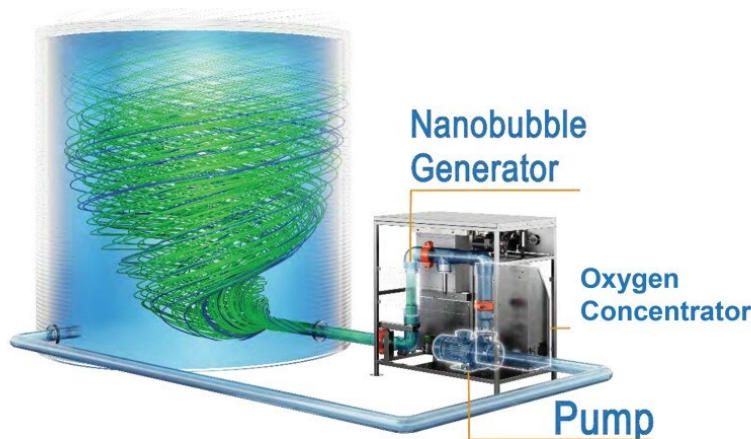
“Old school with a 21st Century spin on it,” said Dan Coughlin, watershed district manager of the proposal.

Nano bubbles are the very tiniest of bubbles. They are negatively charged and do not attach to each other. And because they are so tiny, they are not buoyant.

These are the attributes needed to disperse the oxygen filled bubbles throughout the waters of the Mill Pond, just like mixing Kool Aid in water.

It’s the oxygen that is needed. Low to zero-oxygen levels that occur in the pond during the winter are responsible for the hydrogen sulfide problem. Anaerobic bacteria that feed on the sediment in the pond create the hydrogen sulfide which off gasses when the ice goes out in the spring. The ice is like a layer of Saran Wrap that holds all of the hydrogen sulfide that builds through the winter, Coughlin explained.

Unfortunately, there’s more than a century-long build up of sediment and organic material for the bacteria to consume. This so-called “legacy” sediment has been building ever since the original Mill Pond dam was installed in 1865.



Robust, scalable, easy-to-install, technology with best-in-class over 85% oxygen transfer efficiency

Oxygen was identified long-ago as the solution for the problem, according to Coughlin. Attempts were made in the 1980’s and 1990’s to aerate the waters with traditional aeration systems, but without much success. The larger bubbles tended to rise right to the surface, creating what Coughlin called a “bubble cauldron” and not mixing sufficient levels of oxygen in the sediment layer to do much good.

A company called Moleaer in Hawthorne, California, produces a nanobubble system specifically designed to address the low oxygen, legacy nutrient problem found in the Mill Pond. A company representative made the trip to New London to meet with the watershed district staff and develop a proposal for the Mill Pond.

Coughlin and watershed staff met recently with the New London City Council to outline the proposal. He said the city council was very receptive to exploring this possible solution.

The challenge is the cost, estimated to be around \$2 million, said the watershed district director.

The watershed district has reached out to the Minnesota Pollution Control Agency and the Minnesota Board of Water and Soil Resources, but without obtaining any promise of funding. Coughlin said the district will continue to “bang all the pots and pans and see who takes notice” in an ongoing effort to raise funds.

He said one hope is to ask Governor Tim Walz to include funding for a project in his capital investment proposal to the legislature. The House and Senate bonding and capital investment committees already have the listings of projects they are considering.



Changing leaves frame a dock Wednesday on the Middle Fork of the Crow River in New London in 2019. New London's beautiful setting on the river and its Mill Pond is an attraction for many.

Erica Dischino / West Central Tribune file photo

Coughlin said watershed staff members first came across information on nanobubble technology as a possible solution, and we're skeptical until they looked into the research behind it. They contacted Moleaer and learned it is the only firm in the U.S. with a patented system for this type of situation.

If a system can be installed, it would operate in the open water season. There's too much risk of freeze up to operate this system in the winter, and with low microbial activity in the winter, minimal benefit.



Grandpa Lenny Sandven of rural New London watches his grandchildren dash into the water at Mill Pond Beach in New London in this undated Tribune file photo. In the foreground is Dylon Sandven of Alexandria with his cousins Braedyn and Allyson Sihlar of Glenwood.

Rand Middleton / West Central Tribune file photo

By adding oxygen through the year, the fish community would benefit as well, Coughlin said. The system can also help remove the legacy phosphorus and over time, reduce the nutrient load that has built up.

It's too early to know whether the watershed district will be able to find funding help, but Coughlin emphasized that it will be doing what it can. "There are so many reasons why somebody should roll up their sleeves and take on this fight," he said.