

WATER

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Mercer: A Rural Water Success Story

By Bailey Elkins, Ward Heidbreder

Aging infrastructure has been a talking point in Washington, D.C., in recent months. While we hear about issues in other parts of the country, water-related issues are a problem for North Dakota communities. The city of Mercer, a small town north of Bismarck, is just a small piece of the \$3 trillion in upgrades that must be made to keep our country's infrastructure running. Infrastructure upgrades have helped the citizens of Mercer to save their town. Much of the city's economy is fueled by local agriculture and tourism. Mercer is a local oasis for people who have cabins on Brush Lake.

The city of Mercer receives their water from a shallow well, which sits on private property on the outskirts of town. Poor quality water has been an issue throughout the town's history. Most citizens won't even drink the water coming out of their tap. The poor quality of water wasn't a result of pollution. It occurred naturally when minerals, such as iron and manganese, were dissolved from the surrounding geology and not removed by the city's water treatment process.

The city of Mercer has been facing a declining population, common across rural America. At the same time, the average age of its citizens was increasing, while their available income was decreasing. As the demographics changed, the city faced a shortage of funds available to maintain their water system. The lack of maintenance revenue led to a decline in the reliability of the city's water infrastructure, which left the city facing major repairs or replacements throughout their water system.

As a newly elected mayor, Kathy Schon began searching for options so the city could continue operating their water system to provide the best quality water to its citizens in a cost-effective manner. Mayor Schon asked for the

assistance of the Mercer City Council to develop a plan of action to address the deficiencies of the water system and other infrastructure.

Mercer contracted Ulteig Engineering to act as the city's engineer, and Mayor Schon raised water rates and championed water shut-offs for residents who did not pay the water bills. Schon was determined to keep her city's water infrastructure in working order.

Ulteig assisted the city of Mercer in applying for a SEARCH Grant from USDA Rural Development. This preplanning grant is available to some small communities to identify community needs in a comprehensive, professionally developed plan.

The SEARCH Grant explored potential means of achieving the city of Mercer's goals of reliable, high quality water being provided by the city's water utility. AJ Tuck of Ulteig Engineering said his company was initially hired by the city in late 2014. "Through discussions, the mayor also kept bringing up that 'the drinking water in the city was terrible, the pump house building was about to implode and was extremely unreliable.' We looked into new wells and a treatment facility, connecting to Rural Water and erecting a water tower, or connecting to rural water and rehabbing the existing pump house."

Schon presented the information from Ulteig Engineering at a series of public information meetings.

The city's water storage tank had numerous issues related to age and deterioration. It is slated to be replaced with a non-corroding tank in 2018.



Public input was very important to Schon. A date was set for the citizens to vote on how to proceed with the city's water system. The mayor and council faced significant dissent from members of the community.

The citizens rejected connecting to a rural water system. They also rejected building a water treatment plant. The community wasn't happy with their current water situation but was reluctant to authorize the city to incur any debt on their behalf.

As a result of this vote, Mercer's city government was concerned about the imminent failure of their water system. They began seeking options to secure a future for their water system.

Schon contacted staff from North Dakota Rural Water (NDRW) to provide technical assistance and operations training for areas of their water system facing

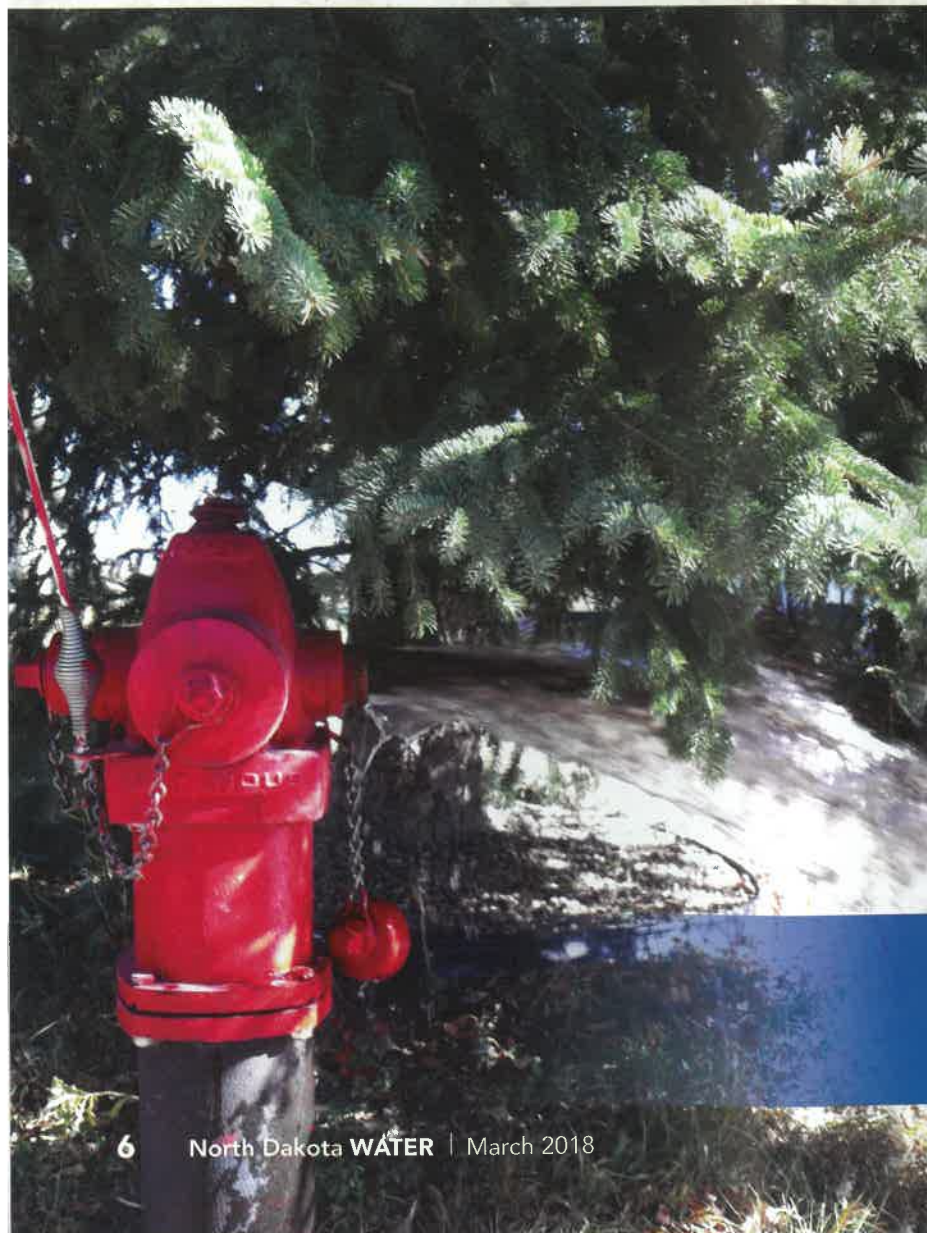
the biggest risk of failure. Mayor Schon also attained Certified Water Operator status at the level appropriate for her system with the aid of NDRW's training specialist, Chuck Mischel. Les Sigette, waste water specialist, provided guidance on the sewer system, which was also failing. Bailey Elkins, source water specialist, conducted a survey of the city's well site and raw water quality. She advised a well maintenance program and seeking an alternative source. Ward Heidbreder was invaluable to Schon as a technical advisor, in both the technical operations and financial management of the system. Heidbreder made himself available to speak at city meetings and assist with water system operations, sometimes with little notice.

Heidbreder assisted in a second public information campaign to educate the citizens of Mercer about continuing to operate their water system in the manner they had in the past. Business as usual was no longer a viable option for the city in the face of changing regulations. Heidbreder advised that it was necessary for the city's current generation to make a capital investment in the community's infrastructure, as their forefathers had. Should the water system fail, it could easily result in the city dissolving.

A second vote approved moving forward with a new water source for the city, a connection to McLean-Sheridan Rural Water System. The city of Mercer, with the assistance of Ulteig Engineering, was awarded a 75 percent grant funding package by USDA Rural Development. It's the first 75 percent grant that the current state engineer knows of. The city was also awarded a 75 percent loan forgiveness funding package by the Drinking Water State Revolving Fund (DWSRF).

There was still some reluctance in the community. Some citizens did not see any issue with their current water source. At a 2017 council meeting, a resident was prepared to

The extremely high mineral content of Mercer's well water is easily seen when flushing hydrants, and also noticed as black streaks in the water by the residents on a daily basis.



“...the mayor also kept bringing up that **‘the drinking water in the city was terrible, the pump house building was about to implode and was extremely unreliable’.**”

AJ Tuck, *Ulteig Engineering*

voice dissent, but Schon produced results from the most recent chemical analysis required by the ND Department of Health. The city's drinking water had tested high for a naturally occurring radioactive isotope. The most economical way to provide safe water for the citizens of Mercer was to connect to the regional rural water system.

Construction on the city of Mercer's connection to McLean-Sheridan Rural Water began in late November 2017, and was completed on January 19, 2018. Water quality was significantly improved. A Mercer resident recently posted a photo of her sudsy kitchen sink on social media with the following caption, “My dishwashing water actually has bubbles, and my hair is so soft!!! Thank you rural water!”

AJ Tuck of Ulteig Engineering provided an update of the project, “Work is currently ongoing within the pump house to retrofit it with new pumps, tanks, control panels and piping. We are in the process of designing the water distribution system for the city. Water meters are also being installed throughout the city.”

He continued, “The DWSRF Program funding, which was awarded, will cover the cost of replacing individual service lines. Due to the potential of lead service lines, this is incredibly important. Severe encrustation of minerals and other deposits could also potentially harm the users of the new water supply by breaking down these deposits and bringing them into the home. We anticipate the

water distribution improvements to be in May 2018, with construction concluding at the end of 2018.”

This rural water success story wouldn't have been possible without the assistance of Ulteig engineering, McLean-Sheridan Rural Water, USDA Rural Development, DWSRF, and the assistance of N.D. Rural Water Systems staff.



Poor water quality has caused corrosion issues in the distribution system.