

E-SOURCE SMALL SYSTEMS BULLETIN

MINNESOTA RURAL WATER ASSOCIATION - July 2011

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Dear Lori,

Welcome to the ***E-Source: News and Training Information for Small Systems***. The purpose of this bulletin is to keep you, the operator of a small water system, informed on issues concerning your water system. Topics covered in the bulletin will include: operation and maintenance, treatment, backflow/cross-connections, regulations, operator training, management, and many others. Dates and locations of future workshops will also be included.

If you have suggestions about topics that you would find helpful give us a call at 1-800-367-6792 or send us an e-mail at don.christianson@mrwa.com or jennifer.koenig@mrwa.com. Maybe you had a unique experience at your water system that you would like to write about and submit for the bulletin. We're always looking for volunteer writers! We hope this bulletin will be of assistance to you in operating your water system. Watch for this quarterly newsletter and we'll see you at a future small system training workshop!

The City of Riverton Completes Water System Project

The central Minnesota city of Riverton is located in the lakes area northeast of Brainerd. This small community of approximately 100 residents had experienced years of low water pressure and numerous water main breaks. The city was confronted with a 15,000 gallon water tower, built in 1944, that was badly in need of repair, and didn't have the proper elevation to provide adequate water pressure for the city.

Planning for water system improvements began in the summer of 2008 with the start of a water system evaluation report by the engineering firm of Short Elliot Hendrickson, Brainerd office. The individual engineers involved in this planning and subsequent design was Jeff Ledin and Chad Katzenberger.

This water system evaluation report concluded that in order for the city to provide safe and adequate and reliable water service, some major improvements would need to be undertaken. This report indicated the existing 25 psi water

The Quiz Spot



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pressure, the extensive water main breaks and water tower rehabilitation cost of \$165,000, as the major problems to be addressed. Other issues were the metering of water from the two existing wells and the chemical addition of chlorine and fluoride.

The summary of the proposed improvements found in the evaluation report were:

- Insulated and heated well house
- Rerouting of the wells discharge lines to the new well house
- Chlorination and fluoride feed pumps and tanks
- Well discharge line meters
- Local pressure well pump controls
- Hydropneumatic pressure tank
- Electrical service and equipment
- Replacement of problematic water mains

The decision to replace the existing water tower was a major one. Even though the capacity of the tank was 15,000 gallons, its short height only produced 25 psi. The low water pressure caused the fire department not to rely on it for fire protection. The 1,500 gallon hydropneumatic pressure tank that was proposed also would not provide adequate fire protection. Rehabilitation of the existing tower did not justify the cost and the low water pressure issue would still exist. The hydropneumatic pressure tank would increase the water pressure and flows in the distribution system.

The funding for this project was secured. The sources of this funding were:

- The Army Corps of Engineers Section 569 program Grant Funds
- Minnesota Department of Employment of Economic Development(DEED)
- Small Cities Development Grant
- Iron Range Resources(IRR) Public Works Grants
- City Funds

The new well house with equipment and the majority of the distribution system improvements were completed in the summer of 2010. Two additional blocks of water mains was completed in the spring of 2011. The water mains installed included 2,600 feet of 4 inch and 1,370 feet of 6 inch. The total cost of all the improvements was \$555,000. The well house with its contents was \$214,000 of that total.

The new well house contains the 1,500 gallon hydropneumatic pressure tank with controls, meters, piping, chlorination and fluoridation equipment. There also is the capability of connecting to an emergency electrical generator.

I want to thank Chad Katzenberger and Jeff Ledin, SEH, for providing information for this article. Jeff Ledin also conducted a presentation at the small systems session in St Cloud, March 2 on the design aspects of a hydropneumatic pressure tank and discussed the Riverton project.

The city water operator, Norm Hullinger, attended the small systems session on March 2, 2011 in St Cloud. During the discussion about the operation and maintenance of hydropneumatic pressure tanks, Norm asked if someone from Minnesota Rural Water Association could come to Riverton and give some suggestions on the maintenance required on a system such as this. Jennifer Koenig and I accepted that invitation and met with Norm on March 30. We were given a tour of the city with Norm pointing out water mains that were replaced. The next stop was the new well house that fit very nicely in its surroundings. After visiting with Norm in the well house and discussing operation and maintenance issues, we sent Norm and the city a follow up letter with our suggestions.

The main topics that were suggested were:

- The water level in the tank. We pointed out that to obtain maximum capacity of the pressure tank that it should operate at 60 % full of water.
- The pressure tank's interior should be inspected every 3 to 5 years. The tank also should be drained and flushed annually. This prevents excessive sediment build up on the bottom of the tank.
- Valves in the well house and distribution system should be exercised annually.
- The pressure tank bypass line should be flushed annually to eliminate stagnant water and prevent possible coliform bacteria contamination.
- Norm wanted to develop some instructions on how to operate the emergency generator. We encouraged him to do that and recommended developing instructions on how to bypass the pressure tank.
- The pressure tank sight glass was clean, but we discussed methods to clean it.
- One of the wells is used as a back-up. That well should be operated periodically to prevent stagnant water in the piping and make sure it is operable in an emergency.
- We suggested that a well contractor make an inspection of the well on an annual basis. The static, pumping and drawdowns should be determined and recorded along with an electrical check of the pump.
- Flushing of the distribution systems was suggested to be done twice a year. Considering that there is a 1,500 gallon pressure tank, with no more than 1,000 gallons of storage available, distribution flushing is more challenging than with a 15,000 gallon water tower.

There are leaders in the community of Riverton who stepped forward and took responsibility for the future of their water system and their city. These decisions weren't easy for them. They have gone a long way in providing the residents of Riverton a reliable and safe supply of water. Also, with the city's support of the water operator, Norm Hullinger, the

operation and maintenance of this system should be in good shape for the foreseeable future.

Upcoming Training Sessions Class D Training (8am - 5pm)

September 14, 2011

Minnesota Department of Health
Snelling Office Park, 1645 Energy Park Drive, St. Paul, MN

October 11, 2011 -

Itasca Mantrap Electrical Association
16931 County Road 6, Park Rapids, MN

Class E operators may attend the morning session of the Class D workshops for 4 credit hours.

Class E Training (8am - Noon)

August 23, 2011 -

Crosslake Community Center
14126 Daggett Pine Road, Crosslake, MN

October 6, 2011 -

Vermilion Community College -SWAMP
13884 Rocky Ridge Road, Ely, MN

November 22, 2011 -

Willmar Fire Station
515 SW 2nd Street, Willmar, MN

December 7, 2011

City of Hastings
101 Fourth Street East, Hastings, MN

December 14, 2011

St. Peter Community Center
600 South 5th Street, St. Peter, MN

Sincerely,

Don Christianson & Jennifer Koenig
Minnesota Rural Water Association

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