



City of Riley Makes Improvements to Its Water System

Thanks to a \$400,000 Community Development Block Grant and a loan of \$900,000 from the Kansas Public Water Supply Loan Fund, the city of Riley will soon complete installation of an all-new water distribution system. It's a project that should stop Riley from having an unaccounted for water loss greater than thirty percent annually. Riley is home to about 1,000 people on about 415 total services.

The water system project includes about 28,000 linear feet of new mains, all new services and meters.

Riley, located in central Riley County, has been tagged by some as “the gateway to the reservoirs” because the town is located between Tuttle Creek Reservoir north of Manhattan and the Milford Lake west of Junction City. Riley also sits on the north end of Fort Riley, right on the edge of a live firing range. Although I have never been there when a live exercise was going on, I'm sure it makes a rumble.

The water system project includes about 28,000 linear feet of new mains, all new services and meters. Design consultant for the project is Chris Cox with Schwab Eaton, P.A., Manhattan. The contractor for the project is Larson Construction, Manhattan. Grant administration is being provided by Rose Mary Saunders, Ranson Financial Consultants, LLC, Wichita.

Impact on rates

In anticipation of the need to pay for the cost of improvements, the city increased water rates in June 2008. The charge for water had been \$10 for the first 2000 gallons, then \$1.50 for additional 1,000 gallons up to 10,000 gallons, and \$2 for each 1,000 gallons over 10,000.



City Manager Alan Brown is pleased with the operation of the new variable frequency drives installed recently to help control well pumps.

The increase approved by the city council brought the monthly minimum to \$14 for the first 1,000 gallons. Subsequent use is billed at \$4 per 1,000 gallons.

The new meters were manufactured by Badger Meter Company and were purchased from Salina Supply with a new state of the art automated read system. With the new metering technology, the city can better determine water loss and also track water usage of customers and let them know if they have a problem. City Manager Alan Brown explained that during a test of the equipment, the meter at his home had indicated a five-gallon per hour flow. The new meter was likely picking up this very low flow. Citywide, this should translate to lower unaccounted for water loss and an increase in revenue. The time required to read the meters in the entire city is now forty-five minutes compared to two people working two days in the past.

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The city produces its own water from six wells located throughout the city. On one of my first stops at Riley as a new tech for KRWA, I discovered through visiting with City Manager Alan Brown and Operator Doug Fasse that they were mixing chlorine daily, using calcium hypochlorite for disinfection. Both commented on their dislike of having to do this and how it always seemed to cause many ruined sets of clothing, not to mention the fumes that were created when mixing the chemical. The toll on equipment in the well houses was an even greater concern. We visited about the option of going to sodium hypochlorite in bulk



Workers put the final touches on another meter setting installation on September 27, 2010.

and discontinuing the need to mix the chemical. The city contacted a company called Hawkins, a supplier for chlorine and chlorination equipment. Hawkins, Inc. installed fifteen-gallon drums and new peristaltic pumps in each of the well houses. A company representative

stops monthly to change out empty containers and provides any supplies needed for the pumps. The new equipment came at a cost of less than \$400 per installation. The result is that the city gained a much safer and more efficient way to maintain a consistent chlorine residual in the system.

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Variable frequency drives remove the “hammer”

Another addition and upgrade the city has completed is the installation of a new Altivar variable frequency drive (VFD) on each well. With a cost of around \$5000 for parts and \$600 labor, Robert Blume of IET Consulting, Milford, KS, has removed the water hammer problems that quick startup of the wells had been causing. Robert also completed necessary rewiring for the installations. The VFDs have been a great improvement as one customer has already noticed and is very thankful for. The customer, who lives near one of the wells, had to strap all his interior plumbing because when the city’s well started, the subsequent water hammer shook every pipe in the house. The customer had frequent problems with plumbing. Since the VFDs were installed, the customer cannot detect when the well pump starts. The city also sees the benefits of much less stress placed on the system during start up and shut down of the wells. Transducers were installed on three of the wells so during periods when the storage tank is out of service for maintenance, water will not have to be wasted; the VFDs will maintain an adequate system pressure.

Other utility improvements

Riley has also been making improvements to some wastewater collection system manholes by lining those that were deteriorating. The city



A bone pile of old pipe and fire hydrants that were removed. Some of Riley’s original distribution system was installed in 1924.

contracts with Mayer Services, Goddard, KS, for yearly sewer line cleaning and video inspection to identify and address any problem areas.

The city has also updated their sewer jet trailer to help better serve the city when they have problems. Several areas have been addressed and CIP (cured in place pipe) installed; additional relining of the collection system is planned.

Other improvements over the last couple of years has been the purchase of new emergency generation with one on-site generator for one of the wells and one used portable generator that can run the lift station or another well.

The city council members and city staff are to be commended for seeing the need for improvements and progressively addressing how to get necessary improvements installed. Together, they are working to make Riley a better place for the future.

Greg Metz joined KRWA as a Technical Assistant in July 2009. He previously worked at the city of Washington for thirteen years where he was involved in city utilities including the power plant, streets, water and wastewater. He also served as purchasing agent for those utilities.



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