

Long-Overdue Well Rehab Helps Small Town of Herndon, Kansas



Parts and pieces of inoperable valves and corroded piping from Well #4 are only good for scrap metal.

Over many years of work as a technical assistant at Kansas Rural Water Association – and more than one operator ago, I have been called to assist the city of Herndon on water loss, well problems, the Operator-in-Training program, issues concerning water treatment and numerous other operational issues. Herndon is a very small community located in Rawlins County in northwest Kansas. According to the 2010 census, the city’s population was 129 people with 66 households. Herndon is not unlike scores of other towns in Kansas; it has challenges maintaining infrastructure and it has a declining population.

The city’s two wells, number #3 and #4, were installed in the 1960s. The original design specs cannot be located. Both wells were equipped with turbine pumps; neither of the wells had a meter. Electrical hour meters were used to calculate water production. Later, water meters were installed in pits outside the well houses. These were propeller type meters, situated in the

main line. These meters had always been extremely difficult to read. The isolation valves failed, preventing any attempt to shut down the system; the only option was to close the one operable valve at the base of the elevated storage tank. During any repair, air was frequently introduced into the distribution system, often resulting in even more problems when the system was returned to service.

Other issues that were troublesome involved enclosures that had been installed around the gas chlorination system. These were added after the meters to satisfy design standards of

the Kansas Department of Health and Environment (KDHE). This was acceptable other than after a couple of years, parts became corroded. When working on rusting and corroded parts, what usually should require an hour ends up taking a day or more because when trying to remove a fitting everything on or related to that fitting breaks, resulting in the need to replace even more components. Been there; done that – and many times!

The city operated the wells on the “get by as long as we can” approach. Eventually a sanitary inspection by KDHE pointed out the shortcomings of not being able to work on the system’s components. Water loss was also an issue. The city was given a time frame to address some of the issues. The city asked me to help come up with a plan – and yes, they had a very limited budget.

The city hired Miller & Associates, Consulting Engineers, P.C. to conduct a review. The engineer calculated the pump capacity needed to fill and maintain tower pressure. Burton Well

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This photo shows the well house for Well #4 after installation of new piping and valves.

Drilling from Bartley, Nebraska, was contracted to pull pumps and bail or sand-bucket the wells and to inspect the casings. Well #4 was the first to be reviewed. It was quickly determined that the turbine pump was beyond repair with excessive wear of the bowls. The well casing was in good shape. A new 15-hp submersible pump was installed. A test pumping was conducted at 180 gallons per minute; drawdown stabilized at only ten feet.

Next the proper placement of the meter was determined with five diameters of straight pipe upstream and at least two diameters of pipeline size downstream. The injection point for the chlorination was determined. An air relief valve, sample ports to obtain both untreated and treated water were placed. For the first time in the history of this small town, Operator Vern Frick can now enter the well house and check the water usage, the flow rate and chlorination dosage all within a five-foot area. And, if any maintenance is needed the isolation valve is right there.

After the rehab work was completed on Well #4, work began on Well #3. The casing in that well was also in good condition. A smaller pump was

installed because that well has a lower production rate. A new meter was also installed for this well.

The production rate for Well #4 is set at 172 gpm and it is 132 gpm on Well #3. There is no air in the system. The water loss that was being reported at more than 30 percent is now at 20 percent. The total costs of this work for Well #3 was less than \$10,000 and the work on Well #4 was approximately \$11,000. The city is now concentrating on replacing some of the distribution pipeline and customer meters.

Everything is relative

While this project at Herndon does not compare to many of the mega-projects that larger communities might tackle, I thought writing about Herndon might help other very small systems learn that there are improvements that are of a relatively low cost that can make all the difference in the world for the community. Everything is relative. Why was Herndon in such poor condition? Well, to be quite frank about it, more could have been done to make improvements earlier.

What may seem like a small project for many systems can be significant for a town that only has only 60 or 70 households. Herndon used internal funds for the project. With my encouragement, the town council has contracted for additional engineering services for the replacement mains and meters. The city recently selected the firm of Schwab-Eaton, PA, as consultant for that effort.

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July Meetings Set to Hear Public Input on 50-Vision for Kansas

Governor Sam Brownback told more than 550 attendees at the Conference on the Future of Water in Kansas that now is the time to act and address the necessity of a 50-Year Vision for Kansas water in order to meet the state's needs.

After many months of meetings, the Kansas Water Office has announced the dates and locations for public input. These are as follows: Monday, July 7: Wichita and St. John; Tuesday, July 8: Liberal, Garden City and Dighton. Wednesday, July 9: Colby, Stockton and Assaria. Thursday, July 10: Manhattan, Washington and Kansas City. Friday, July 11: Fort Scott.

For more information, visit the Kansas Water Office Web site at www.kwo.org