

New Meter Technology Installed at Sumner RWD 4



Many public water systems in Kansas have adopted new, automated meter reading (AMR) technology. Sumner County RWD No. 4 recently did the same. The district's was made at a time when it was decided to replace the existing meters, many of which were installed at the time of the district's construction in the late 1970s.

Sumner RWD 4 was constructed at a cost of approximately \$350,000; formation of the district came after the small town of Honeywell wanted to have a reliable quality source of water. The quality and quantity of groundwater in the area are troublesome. The district presently has 374 active service connections and 90 inactive services throughout its network of 220 miles of pipeline. The district's distribution system includes two standpipes and one pump station. The district's office is located just west of Arkansas City on Highway 166. The district has

Badger Meter software tech Steve Pautz assists Sumner RWD 4 bookkeeper Krista Czaplinski with linking the new system to the Thoroughbred Systems billing program.

always purchased from the city; the present rate is \$4.00 per thousand gallons. The district tried to develop its own source to reduce costs of water, however water quality was a problem in some areas and lack of sufficient quantity was the problem in other areas, pointing right back to the very reason the district was originally formed.

Moving to AMR

Like many self-read rural water systems, Sumner RWD 4 struggled with billing as well as monitoring water loss. Unaccounted for water loss has been a problem for the district for many years due to poor quality construction and occasionally sub-standard materials found in the distribution system. The district's water loss have averaged 30 to 40 percent. That is costly when paying \$4.00 per thousand. District personnel have also been proactive in repairing leaks on the system, however there always seem to be leakage that goes undetected, running into creeks or drainage areas or simply not surfacing. There was always the question if the unaccounted for water had gone through the meters and not paid for or as leakage; the district audited the meters annually. Only after the district conducted the annual audit of all the meters could the unaccounted for water be accurately determined. AMR changes that for water systems as readings can be tabulated instantaneously.



Operator/Manager Chris Brumley explains the distribution system and placement of the area meters to Matt Carls, Vice-President of Sales, Midwest Meter.

Sumner RWD 4 chose to upgrade its metering system to a cell phone-read system to improve overall system management. Other systems were evaluated. The drive-by technology would require traveling the entire system. There was not sufficient coverage of the distribution system for the fixed base style reading system from the district's two existing water storage tanks, plus a fixed-based system required the utility to maintain all of the signal transmitting and receiving equipment.

The system that was chosen is a Badger Beacon Advanced Metering Analytics system. The meter itself is an E-series ultrasonic meter made of stainless steel and an engineered polymer. The product is advertised that because of no moving parts to wear, the meters carry a 20-year warranty. The flow range is from 0.05 gpm to 25 gpm with a plus or minus accuracy of 1.5 percent over the entire range of flow. Another neat feature is the meters ability to detect backflow.

The utility and the customers also have the ability through a customer portal to access their own meter for annual usage history. The data storage also allows the district the capacity to show customers their usage pattern or any customer can review their own data. The technology also allows for notifications to be sent if an unusual usage pattern develops. As a example, the district staff or any customer can review an account and see that water flowing through the meter at 2:00 A.M. each night for the last ten days at the rate of 0.5 gpm may indicated a leaky toilet valve or other small leak. In the case of Sumner RWD 4, a .5-gpm leak in a month's time would be \$200 worth of water (at the selling price) in addition to a customer's normal use. The customer can be notified before the bill gets out of control. This feature alone is exciting and will go a long way towards improved customer relations. On the first day when the new metering system was activated, the district identified 31 customer leaks.

The value of area meters

The big advantage to the district is that it now has the ability to read meters quickly and compare customer meters to master meters for an accurate accounting of water loss. The district has 16 area meters to help identify and better track where the water is moving in the system. That log can be quickly compared to customer meter readings downstream of the area meter to determine if leakage is present in that area. I have dreamed of a system like this for the last 20 years in order to help water districts get a better handle on water loss. Monthly billing by the district will also improve revenue flow and overall office management and efficiency.

The new metering system charge does come with substantial price tag of \$180,000. The resultant cost over a ten-year period is \$4.00 per customer per month. The district's present water rates are \$25 for

a monthly minimum and \$9.50 per thousand on all water use.

The new system has many management advantages over conventional systems of the past and the possibilities are many including the ability to link the system to monitor inventory, better customer relations, leak detection, and GIS mapping data. These types of systems have been around for a while but are now beginning to be used by more Kansas water systems. I am sure there will be some glitches as with anything new but it's exciting to see how far the waterworks industry has come. So say farewell to the good old days of the pencil and pad as I started with some 33 years ago; the new information technology age is here to stay.

Annual conference

The 2018 Annual Conference & Exhibition is set for next March 27 – 29 at Century II Convention Center in Wichita. A big part of that conference is the huge number of exhibits for the water and wastewater industries. I know there will be automated meter reading systems on display. I encourage everyone to check out all the vendors; do your shopping – ask questions – and make the most of the conference.

Jon Steele has been employed by KRWA as a Circuit Rider since 1995. Jon is certified as a water and wastewater operator. He has more than twenty-five years experience in public works, construction and industrial arts.



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