

Maintenance: do it or risk losing your facilities

Do it or lose it. That is what it all boils down to when it comes to maintenance of a water system. It is no different than any other man-made mechanical device. If it is not properly looked after and maintained, the service life of the facility will be compromised. It is my opinion that some systems in Kansas in no way meet the "Leave No System Behind" test. The maintenance of mainline valves, tanks, wells and electrical components of water systems sometimes is neglected for years.

Take some pride

Some of the neglect to perform maintenance can be blamed on lack of initiative or pride of workmanship. But more often it is



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due to city council, board or employee turn over. And why is that? I am frankly appalled at some of the attitudes that exist within governing bodies toward employees who are responsible for the health and safety of the community through the public water supply. Practicing preventive maintenance should be at the top of the list. You can sure bet it would be if these board or council members went to flush the toilet and there was no water there. Safe tap water was and remains the critical public service so lacking for the people affected by recent hurricanes. A water professional has an awesome responsibility to ensure a safe and adequate water supply.

Just compensation

The water utility operator needs to be adequately compensated for assuming the responsibilities of operating the public water system. When encountering a health problem and calling the doctor you don't try to bargain on rates or look for a less

expensive physician. Everyone wants a good doctor who will do the job right – and are willing to pay the price.

But water professionals responsible for public health and safety are often expected to work

assist communities like the "Operator In Training and Emergency Assistance Program."

Local officials need to work to acquire and retain qualified operators. Operators need to be paid according to their skill level, education and critical responsibilities.

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One example to relate is that of a town that fired the certified water operator because more focus was put on streets and not the water system. The operator was trying to maintain KDHE standards and regulations. The

council did not see the importance of this water system priority and was willing to jeopardize public health for the sake of street work.

In some cases KDHE will not let the system have an operator in training status but will force the city to hire an existing certified operator. Sometimes this is exactly what should happen. Each case is different but an



The 1938 plaque on the city of Sylvania's storage tank.

attitude change is needed. for low wages and benefits, if they get any at all. This attitude must change. Plus, KDHE is not going to tolerate governing bodies that lose their certified operators again and again. There are programs to

attitude change is needed.

Governing bodies need a wake up call

A trip to the KRWA Annual Conference in Wichita has

Leaking water tank cleaned and patched — one more technical assistance contact by KRWA

by Elmer Ronnebaum



Top: Matfield Green Mayor Randy Talkington makes repairs to the city's water storage tank by welding steel plates over badly pitted areas.

Right: The sun sets on August 2, 2005 as Jon Steele bolts the hatch shut on top of the tank. It's back in service.

Bottom: KRWA Circuit Rider Jon Steele grinds rust off sections that need to be welded.



Kansas Rural Water Association provides critical assistance to hundreds of RWDs and cities, ongoing. One recent example was by Circuit Rider Jon Steele and his assistance to the city of Matfield Green. Located in the heart of the Flint Hills northeast of El Dorado, the city only has 70 services. The water source is one well. Along with the typical distribution system, there is a ground storage tank which is about 22 feet tall.

In early August, KRWA received a call from the city, asking for help. Their tank had developed a leak. The hole was about a foot from the ground. The city used good ingenuity and simply drove a wood plug into the tank to stop the leak. The call was referred to KRWA Tech Jon Steele who was on-site the next morning.

With the assistance of Tom Armstrong and Mayor Randy Talkington, Steele helped clean the tank and make weld repairs. Steele speculates that the last maintenance on the tank may have been ten or more years ago. At that time there were some weld patches made to the floor of the tank, and the interior was painted. The problem however was that whoever painted the interior only painted the tank floor and about one foot of the sidewall. Severe pitting occurred at that line under a soft mineral deposit build up.

There were other problems with the tank that were also corrected. The tank level target was not functioning and there was a vent hole that was used for a lift ring that had never had a screen on it to keep birds and insects out. A quick trip to town to pick up a stainless mesh screen, some cable for replacement of the target level indicator cables and some lube on the pulleys got this tank back into service after disinfection with a 300 mg/l chlorine solution — all in a day's work.

Even though the welds are only a temporary repair, the tank is back to providing essential service. At a minimum the interior still needs a complete sandblasting and recoating. Another option is to replace the tank. A taller tank would be an advantage for higher pressure in parts of town.

This assistance to Matfield Green is just one more example of a very small city benefiting from the partnership they have with KRWA. The cost to the city — not a penny! Two of KRWA's tech positions are available thanks to contracts through National Rural Water Association. Funding for those two programs originates with USDA Rural Development; Jon Steele operates one and KRWA Tech Doug Guenther, Russell, helps systems in north-central and northwestern Kansas on the other.

Maintenance: do it . . .

provided some board or council members entirely new appreciation for the water professional. From a first-time board or council attendee I have heard comments like, "I had no idea there was such a responsibility involved," or "I didn't realize there was so much to it." As regulations become increasingly stringent, violations will increase. Penalties may be what it takes to alert some of these governing bodies to the importance and responsibilities of the certified operator.

Chunks of metal and rust

Without proper maintenance, valves will turn into chunks of rust. That problem may not be any fault of the present operator. Lack of valve maintenance began after the first valve was installed. Often the operator inherits a poorly maintained system. Some will make it better; some can't or won't. I have worked with systems where the operator inherits a deteriorated mess and

turns it into a crown jewel. A good example of this was featured in a March 2004 *Lifeline* article about how city crews in Larned took a deteriorated well and turned it into

make the repairs. Because the operator did not know where the valves were and they had not been exercised in years, it places them in what I call "the dysfunctional

There is nothing like wearing yourself out trying to operate a valve that hasn't been turned for several years while water gushes from a leak that may continue until the tank is drained.

an example of what a well and pumping facility should be.

Back to valves. Operable valves are critical. I recently worked with a small town to operate and monitor the water system while a tank company cleaned and inspected the tank. The tower valve took two men to open/close and risked breaking the stem in order to operate it. Then after the system was put back into service, the system developed a water leak. There was no way to isolate the leak. The entire system had to be drained again in order to

pile of rust" category. Valves are critical; they should be exercised at least annually. Broken or difficult to open valves should be replaced. There is nothing like wearing yourself out trying to operate a valve that hasn't been turned for several years while water gushes from a leak that may continue until the tank is drained.

Line cleaning

Another aspect of the business that is regularly overlooked is line cleaning. What do the inside of your mains look like? Are they



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clean and free flowing, or have they turned into slime and barnacle coated messes. Many water systems still in use are from the same era as the Sylvania Water Works ID plate date shown in the photo on page 30. Many distribution system cast iron mains still in service were installed at the turn of the 20th century. This is a testament to workmanship and pride that went into the projects; they've stood the test of time. There are still many storage tanks and miles of decades old pipelines that are still functioning just fine. Good maintenance will keep those facilities providing service for perhaps additional decades.

Keep your wells, well

If not properly maintained, wells are no different than any other component of a water system. Preventive maintenance keeps wells healthy, allowing good production. Iron and manganese can be a big problem if quantities are sufficient. The suggested limits are 0.3 mg/l for iron and 0.05 mg/l for manganese. Sometimes even lower amounts can cause problems. If the well has never been cleaned, what I call the "rehab treatment" is needed. After the first major cleanup, less comprehensive treatments can be made periodically to keep nuisance bacteria in check. At least annually, wells and pumps should be checked for discharge flow rate, shut off head pressure, pumping pressure at various flow rates. Static water level and pumping water level should be checked monthly or often enough to monitor changes.

Occasionally it is good to remove the pump and inspect the pumping equipment for any problems. Also a camera could be used to inspect the well. This should then be followed up with a chlorine treatment before the well is put back into service.

Electrical systems are often overlooked. All components should

be inspected and periodically cleaned. I like to use a good contact cleaner, lubricant moisture displacer such as CRC 226 when working on electrical components. Periodically,

into the air causing corrosion problems.

KRWA is able to assist with many of these and other

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readings should be taken for voltage, amperage and imbalances. Also once a year the electrical system should be shut down and all connections checked and tightened. Normal expansion and contraction can cause lugs to become loose. Heat is generated at points when electrical connections are loose. Chlorine gas causes major corrosion problems of electrical controls. Chlorine systems should be isolated from other equipment if at all possible. Liquid systems are especially bad about gassing off

maintenance issues as well as financial and managerial needs. There's plenty to do; we all have a role to provide for the health, safety and welfare of Kansans. It's not a responsibility to take lightly. I hope you will give KRWA a call for any question or problem related to your water or wastewater utilities. KRWA is available to attend any board or council meeting to discuss problems, issues or concerns. Call us at 785/336-3760 or e-mail to KRWA at krwa@nvcs.com.

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