



P.O. Box 226 • Seneca, KS 66538 • 785/336-3760
FAX 785/336-2751 • <http://www.krwa.net>

September 1, 2022

Bill Lemke
City of Fort Scott
PO Box 151
Fort Scott, KS 66701

Dear Bill;

This is a follow-up letter for the recent water loss survey KRWA conducted in the city. The first leak we pinpointed was at 304 Scott Street. The subsurface leak detector indicated that the leak was at the valve at the intersection, but the water wasn't surfacing until half a block away. The most evident amount of noise on the leak detector was on the north side of the valve. As we discussed the city will excavate around the valve to find the leak. I am confident the leak is close to the valve.

The second place that indicated a leak was at 1422 South Main, in the alley. The subsurface leak detector picked up noise on several meters in that area. But with the water line being under rock and not asphalt or concrete, I could not pinpoint the leak. As we discussed, the city may just replace a short portion of the line instead of chasing the leak.

Funding for the above assistance was provided through a contractual arrangement between the Kansas Water Office and the Kansas Rural Water Association (KRWA) with funding as a benefit of the Clean Drinking Water Fee.

Call KRWA at 785-336-3760 or me at 913-370-0097 if you have any questions or need other assistance. I encourage you to visit the KRWA Web site at www.krwa.net for news and information concerning water and wastewater utilities, training opportunities, and other KRWA programs. Water rates for RWDs and cities are a recent addition to the site.

Respectfully,

A handwritten signature in black ink that reads "Tony".

Tony Kimmi
Technical Assistant

C: Michael Mix, Utility Director
Kirk Tjelmeland, Kansas Water Office



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May 3, 2023

Duane Thiel
McPherson RWD 6
1753 Smokey Valley Road
Lindsborg, KS 67460

Dear Duane,

It was a pleasure to assist you with a somewhat puzzling situation of a grit-like material at a customer's home. Mr. Joe Decker constructed a new home supplied by the rural water district. The location is on a dead-end waterline that had very little or no usage at the end of 13th Road. The district's waterline runs a short distance past Joe's service tap to another very low or unused tap approximately another quarter-mile to the south. A flush hydrant was never installed at the end of this pipeline. A meter setter was installed at the end.

Given this arrangement, it is my opinion that the waterline was never thoroughly flushed at the time of its original construction. Again, there was no flush hydrant installed on that segment. Recently a fitting was installed on the meter setter and the line was flushed for two hours. Since then, Joe has not experienced the problem of faucets plugging.

We examined the material that was collected from Joe's faucets. It is a white powder or very fine sand-like material. This material was analyzed by the lead chemist at the CHS Lab in McPherson. It was determined to be mostly calcium. Calcium and magnesium are the primary minerals contributing to the hardness of water common to Kansas groundwater. Since the district purchases groundwater from the city of Lindsborg which uses groundwater as a water supply, I suspected that to be the culprit.

When water hardness precipitates out, it generally does so in the form of scaling and not the powdery material that Joe was dealing with. While I was stumped at first, I have a theory on what caused the problem at the customer's home. During the construction of a new public water supply, disinfectants are often added to the distribution system as the pipe is installed. The lab analysis showed the material to be primarily calcium. Calcium hypochlorite is the primary product used to disinfect new water mains. A slug of calcium hypochlorite was likely pushed into the last portion of the waterline at the dead end on 13th Road. The lines coming down 13th Road from Pawnee Road and the line going east toward the grain elevator were

probably flushed but the other section could not have been because there is no flush hydrant. Since that line probably wasn't flushed during the original construction, it has likely held the chemical ever since.

It is my conclusion the material that was recovered from Joe's plumbing is the binding agents or other "stuff" that makes up calcium hypochlorite from disinfecting the pipeline during the original construction. The calcium is the carrier for the active disinfectant which is chlorine.

While experiencing these problems, Joe became very concerned about the integrity of the water being supplied by the district. This prompted him to purchase a home test kit that showed coliform bacteria. This sample was taken after the two-hour flush on the meter setter just south of his home. Since this test showed a positive for coliform bacteria, he ordered a sample Kit from SDK Lab in Hutchinson. He collected a sample from his kitchen faucet. This sample also showed a positive for coliform bacteria. No E-coli was found to be present. After visiting with Joe about the situation he wanted me to collect another sample. I delivered that sample to SDK Labs for another bacteriological analysis. We are awaiting the results of that test. If the sample is negative, this problem should be resolved. If the sample is positive, further investigation and possible distribution system disinfection procedures will be needed. I will be in touch after the sample results are known.

Please do not hesitate to call if KRWA can provide assistance. Funding for this assistance was provided in part through a contract between KDHE and KRWA with funding as a benefit of the Capacity Development Program.

Sincerely,

Jon

Jon Steele

Technical Assistant

C: Joe Decker

Darrel Colaw, Board Chairman

Amelia Neis, KDHE

Marsha Fleming, KDHE



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October 6, 2022

Randy Frazer
City Manager, City of Arkansas City
118 W. Central Ave
Arkansas City, KS 67005

Dear Randy,

This letter confirms and supplements some of our October 4 discussions with Rod Philo and other city staff. The topic of discussion was the possible causes of a high number of recent waterline breaks. The breaks have caused significant work for city repair crews and cost to the city.

Of concern are the two different, interconnected pressure zones that we called the North and the South; a smaller, third zone is irrelevant to this matter. The water treatment plant supplies water to the South System, and additional pumping located in the South System provides water to the North System. The North System has a large water demand from the meat packing plant on the far north side of town. Both systems have elevated water storage. Most of the breaks are in the South System.

The North System and South System have six (6) interconnections with pressure-reducing valves (PRVs) that allow water to flow back to the South System at certain times. The largest reducing valve is presently inoperable and is shut off.

The city has significant data on the discharge pressure from the treatment plant but very limited data from the distribution system. However, the limited data from the South System when compared to the treatment data is very telling. From reviewing the data, it appears that in the South System there are significant, very numerous pressure variations (30 to 40 psi) over short periods of time. This causes significant, unnecessary stress ("water hammer" like) in the South System waterline; and can be a contributing factor or even the sole cause of the numerous breaks.

These pressure variations are most likely due to one or more of the present five (5), "operable", open PRVs not working properly or not working properly at times. The most telling data was the comparison of the plant discharge pressure and the South System pressure on a Sunday when the packing plant was not operating and the pressure in the North System was higher than during the weekdays. The higher pressure in the North System, the largest PRV being inoperable, and the possible problems with one or more of the remaining five PRV valves are likely the cause of the repeated, pressure variations and the waterline breaks.

The 6 PRVs have not been inspected internally or have maintenance for many years. We agreed at the meeting that the city should contact a qualified person to assess each PRV valve and provide needed maintenance.

Funding for this assistance was provided through a contract between the Kansas Water Office and KRWA with funding as a benefit of the Clean Drinking Water Fee. You may contact me by cell phone at 785/215-9427 or through the KRWA office at 785.336.3760. Also, for news, information, training schedules, and more about KRWA programs, visit the KRWA website at www.krwa.net.

Sincerely,

Pat

Pat McCool
Consultant, KRWA

C: Rod Philo, Environmental Services Superintendent
T.J. "Kirk" Tjelmeland, Kansas Water Office



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June 30, 2023

Joe Denny
City of Soldier
Po Box 65
Soldiers, KS 66540

Dear Joe;

The Kansas Rural Water Association provided assistance to your water system concerning the maintenance of the water storage tank.

Earlier in June, the city was in the process of having the interior of the elevated water storage tank sandblasted and painted. During the sandblasting process, the contractor did not properly seal off the inlet piping. Not doing so allowed the inlet piping to fill with sand and become plugged.

We tried several processes to remove the sand, including a high-pressure Jetter and even a firetruck. We had little success. The tank contractor was not on-site.

Later, the tank maintenance contractor returned and provided help. They brought in two high-pressure pumps. Eventually, the blasting sand was cleared from the inlet pipe. That allowed for the cleaning of the tank prior to returning it to service.,

Because the city purchases water from Jackson RWD 3, the city was able to obtain adequate flow and pressure during the extended time when the city's tank was out of service. Jackson RWD 3 operators also assisted with repair parts and supplies.

Supplemental funding for KRWA staff on this project was provided through a contract with the Kansas Water Office as a benefit of the Clean Drinking Water Fee and also through a contract with National Rural Water Association with funding originated with US EPA. Please call Kansas Rural Water Association if we can be of further assistance. Also, visit the KRWA Web site at www.krwa.net for news and information concerning water and wastewater utilities, training opportunities and other KRWA programs.

Sincerely,

Lonnie

Lonnie Boller
Surface Water Tech

C: Brenda Holliday-Stanton, Mayor
Desirae Compton, City Clerk



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December 14, 2022

Jerry Bowser
Jackson RWD 3
P.O. Box 350
Holton, KS 66509

Dear Jerry;

This is a follow-up letter for the meter testing we conducted for the district. These meters were randomly chosen for an energy audit. The meters should register between 95% to 101% according to AWWA standards. The enclosed report shows that several meters failed at different flow rates.

Funding for the above assistance was provided through a contractual arrangement between the Kansas Water Office and the Kansas Rural Water Association (KRWA), with funding as a benefit of the Clean Drinking Water Fee.

Call KRWA at 785-336-3760 or me at 913-370-0097 if you have any questions or need other assistance. I encourage you to visit the KRWA Web site at www.krwa.net for news and information concerning water and wastewater utilities, training opportunities, and other KRWA programs. Water rates for RWDs and cities are a recent addition to the site.

Respectfully,

A handwritten signature in black ink that reads "Tony".

Tony Kimmi
Technical Assistant

Enclosure

C: Brenda Adkins, Manager
Kirk Tjelmeland, Kansas Water Office
Stewart Kasper, KRWA

**Meter Test
Jackson RWD 3
December 2022 by KRWA**

Meter: 5/8" Precision s/n 95373600				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	10	10	100.0%
2	2	10	10	100.0%
3	5	98	100	98.0%
Meter: 5/8" Precision s/n 95373599				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	10	10	100.0%
2	2	9.9	10	99.0%
3	5	100	100	100.0%
Meter: 5/8" Hersey s/n 8201920				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	10	10	100.0%
2	2	10	10	100.0%
3	5	99	100	99.0%
Meter: 5/8" Hersey s/n 10088893				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	9.2	10	92.0%
2	2	9.1	10	91.0%
3	5	96	100	96.0%
Meter: 5/8" Master Meter s/n 20056242				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	10	10	100.0%
2	2	10	10	100.0%
3	5	99	100	99.0%
Meter: 5/8" Master Meter s/n 19189961				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	10.4	10	104.0%
2	2	10.1	10	101.0%
3	5	101	100	101.0%
Meter: 5/8" Master Meter s/n 5478291				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	9.2	10	92.0%
2	2	10	10	100.0%
3	5	100	100	100.0%
Meter: 5/8" Master Meter s/n 20250050				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	.25 gpm	9.7	10	97.0%
2	2	9.9	10	99.0%
3	5	99	100	99.0%
Meter: 5/8" Master Meter s/n 20250082				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	9.6	10	96.0%
2	2	10	10	100.0%
3	5	99	100	99.0%
Meter: 5/8" Master Meter s/n 3408540				
Test Number	Test Flow rate gallons per min.	Meter Volume (entity's meter)	Tester Volume (KRWA's tester)	Entity's meter accuracy (compared to KRWA)
1	0.25	9	10	90.0%
2	2	9.9	10	99.0%
3	5	99	100	99.0%



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July 7, 2023

Corey Heck
City of Colwich
PO Box 158
Colwich, KS 67030

Dear Corey,

It was a pleasure to assist you with the testing at the city supply wells. This is maintenance that is part of a good program and should be performed at least on an annual basis to maintain the city's critical water infrastructure. Unfortunately, the testing of wells is something that sometimes is neglected by public water supply systems. I noticed during the testing that Well 2 is producing water at a rate of at 510 gallons per minute (GPM), which is higher than what it was producing in the past. The drive may need to be adjusted to slow down the production rate. Please note that the water rights only allow a total rate of diversion of 600 GPM when both wells operate simultaneously.

City of Colwich: Water Supply Well No. 1

Static Water Level: 34.1 feet	Voltage	Amperage
Discharge Rate: 400 gpm	L1-L2, 490 volts AC	L1, 31 amps
Pumping Water Level @ 30 minutes 43.75 feet	L2-L3, 486 volts AC	L2, 31.9 amps
Drawdown: 9.65 feet	L1-L3, 469 volts AC	L3, 31.8 amps
Specific Capacity: 41.4 g/ft		
Shut off Head: 80 psi		

City of Colwich: Water Supply Well No. 2

Static Water Level: 36 feet	Voltage	Amperage
Discharge Rate: 510 gpm	L1-L2, 490 volts AC	L1, 31 amps
Pumping Water Level @ 30 minutes 40.66 feet	L2-L3, 488 volts AC	L2, 31.9 amps
Drawdown: 4.66 feet	L1-L3, 470 volts AC	L3, 31.8 amps
Specific Capacity: 109 .44 g/ft		
Shut off Head: 110 psi		

Funding for this assistance was provided through a contract between the Kansas Water Office and KRWA as a benefit of the Clean Drinking Water Fee. Please call any time at 620-931-0394 or the KRWA office at 785-336-3780 if anyone can be of help. For news, information, training schedules and more about KRWA programs, visit the website at www.krwa.net.

Sincerely,

Jon

Jon Steele
Technical Assistant

C: Terri Nicholson, Mayor
Kirk "TJ Tjelmeland, Kansas Water Office