

The Challenges of Conducting Water Loss Surveys

My experience working at Kansas Rural Water Association is that water leak detection can be difficult, time-consuming, and sometimes frustrating. Some leaks can take days and or even weeks to locate.

As everyone knows, if the water is surfacing it makes it much easier to locate the leak. But the water surfacing does not necessarily mean the leak is directly below it, and sometimes the leak will be several hundred feet away.

I personally use KRWA's subsurface leak detector to listen for leaks. It works well in the right conditions. Smaller metal pipes carry the sound the greatest distance, sometimes up to one thousand feet. PVC pipe does not carry the sound nearly as well.

The subsurface leak detector works the best over asphalt, concrete or even brick streets. In my experience it does not work well on dirt or greasy areas. Traffic will really affect the sound in the leak detector. A vehicle can very well mimic the sound of a water leak. I was excited at the time to believe I was on top of the leak only to look up and see a vehicle approaching. That was the sound that I was detecting. Once the vehicle passes the noise subsides. Leak detection work can also be very dangerous at times with heavy traffic. A person cannot hear the oncoming traffic with the ear muffs on unless the trigger is pulled to listen for the leak.

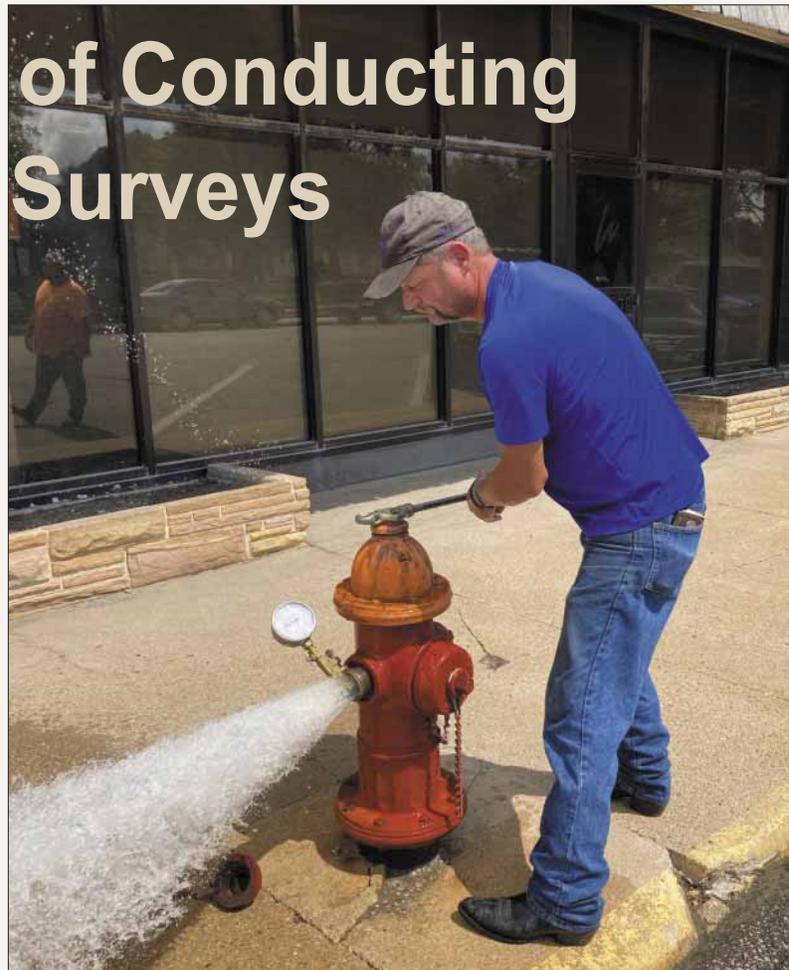
Overhead power lines can also affect the sounds. Power lines produce a humming sound in the ear phones of the sonic leak detection equipment.

A cell phone will also affect the detector. It is like placing your phone next to a phone next to a computer and it makes the same noise. I always leave my phone in the truck during leak detection.

In rural water districts it is very helpful to have area meters. These meters monitor water usage in different sections of the district. I always encourage districts to install area meters whenever possible.

Another major difficulty is when no one knows precisely where the water lines are located. This past summer an operator and I spent two days walking through soybean and cornfields to locate a leak. It was a very difficult leak to identify because we were unsure of where the water line was. Luckily the operator found the water leak after many miles of walking.

One interesting leak I was on was in a rural water district pumping 335 GPM and still losing water in their main storage tank. KRWA Tech Lonnie Boller and I showed up to search for the leak. We started by driving out the water lines,



In addition to providing outstanding services conducting water loss surveys and leak detection, KRWA staff member Tony Kimmi also provides help, such as shown in this photo where he performs a flow test on a fire hydrant for a city in northeast Kansas.

beginning with the largest and working our way down to the 2-inch lines. We then decided it was probably not going to be on any line smaller than 2-inches. I then asked the operator what they had recently done in the system. The operator mentioned a recent bore under a creek. We proceeded to check the area out but with no luck. Next, he mentioned the cleaning of their standpipe. When we drove to the standpipe, we found the drain pipe flowing full stream. The flow was approximately 300 feet from the standpipe. The operator had opened the fill valve but forgot to close the drain valve. It was an honest mistake but also one of the easiest issues with a leak to remedy. We shut the valve and returned home.

Tony Kimmi has worked as a Tech Assistance for KRWA since October 2009. He has extensive experience in the operation of construction equipment. He has assisted in the construction of several rechlorination stations and ongoing monitoring of water quality issues. Tony enjoys providing assistance to public water systems.



OLATHE
Winwater
 COMPANY

OLATHE
Winwater
 COMPANY

1165 W. 149 St
 Olathe, KS 66061

GAVIN FOUTS
 Sales
 gkfouts@winwaterworks.com

Phone: (913) 829-3300
 Fax: (913) 829-3993
 Mobile: (913) 205-9657

OLATHE
Winwater
 COMPANY

1165 W. 149 St
 Olathe, KS 66061

CLINT CALLAGHAN
 Sales
 E-mail: cacallaghan@winwaterworks.com

Phone: (913) 829-3300
 Fax: (913) 829-3993
 Mobile: (785) 214-0815

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