

# Effects of Wet Spring Weather on Leak Detection

**T**his Spring the weather in Kansas has been a very wet season. The year 2019 is completely in contrast to the drought of 2018. There has been flooding affecting in all portions of eastern Kansas. The flooding and saturated soil make for nearly impossible conditions to locate leaks in public water distribution systems.

With water standing in many areas it is difficult, to almost impossible to determine if it is treated water or just ground water. An operator can test for chlorine in the water, but that is not always accurate. The water will need to turn pink immediately to ensure it is an accurate detection of chlorine. If the sample takes time to turn pink, it is possible that it's a false reading and not necessarily positive for chlorine.

In some situations it's not even possible to travel the rural roads that the water lines are buried along. Many of the roads are too muddy to travel, or the roads are impassible due to high water.

Valve risers can be under water and difficult to locate. If the riser has a metal cover, a metal detector can be very useful in locating it.

As the wet weather eventually ends, it can cause the ground to shift. If the system has gasketed pipe, it can pull apart in the joints. Sometimes it pulls apart just enough to cause very small leaks. In other cases, the contracting soil can pull the joints apart.

When the weather changes a lot, going from wet to dry then back to wet again, it can be confusing that the leak "fixes" itself. In actuality it is the ground shifting, causing the pipe to come out of the gasket, then going back together. I have had such experiences. So, yes, leaks sometimes can fix themselves.

Another issue in flooding situations is if the pipe is exposed in the creek, it can be damaged by debris flowing in the mainstream. Even the pressure of the creek flow can cause the pipe to break, split, or pull apart.

To test for a waterline leak where a pipeline crosses a creek, an operator needs to close the valve upstream from the creek crossing as well as the one downstream. Next allow the upstream valve to remain closed for

approximately ten to fifteen minutes. Then slowly open the upstream valve and have someone watch the flowing water directly above the location of the waterline. If there is a break in the line eventually bubbles will surface near the break. Be patient. Sometimes it can take ten to fifteen minutes to push the air out that creates the bubbles.

After major flooding and the water subsides in rural water district service areas, I suggest that operators inspect all major creek crossings. Be sure that none of the water lines are exposed. If they are I suggest having them reinstalled well below the creek bed. This will prevent water line damage when the next flood occurs. This will also prevent the water line from freezing in the winter. Given that many counties are in disaster declarations, water districts especially need to advise their county emergency response staff of the problems.

This past winter I received a phone call from a city that suspected they have a broken water line as several customers were out of water. After I arrived we inspected the area that the water line ran to. After about an hour of searching we found the water line exposed where it crossed a small creek. The pipe was completely frozen. Fortunately the line has not broken; it just had to be thawed.

There is also the extreme danger when working in a trench when the soil is wet. The soil can weigh as much as 145 pounds per cubic foot. If it caves in, it can crush a worker who is in the trench. There is also risk of suffocation, even if the head is not buried; the soil can prevent chest expansion. An operator should never attempt to repair a water line, in a wet trench, without shoring and other people being on the jobsite.

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*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.*



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