



Connecting the Drops

Transcript: Detecting Leaks with Data

October 2017

Colorado's growing population is putting pressure on water providers to come up with more and more of this precious resource. Conservation efforts have been increasing but utilities are also paying attention to water lost in the system through leaks. As part of our Connecting the Drops series, Hannah Leigh Myers went hunting for a leak with a Denver Water technician to get a closer look at the ever improving data systems and technology responsible for the decline in water lost in leaky public systems.

Data compiled by the Environmental Protection Agency shows that on average, utilities around the country lose around 16 percent of their water to leaks ... resulting in over two trillion gallons of water being lost nationwide every year.

Denver Water spokesperson Stacy Chesney says the cost of water loss compounded with the threat of water scarcity and rapid population growth in the west is motivating Denver Water to aggressively combat water leaks.

“Since 2012 DW has surveyed more than 4,600 miles of pipe and pinpointed nearly 1,100 leaks within our system and fixing all of those least saved an estimated 138 million gallons of water.”

But to stop a water leak, it must first be found, that's where technicians like Chris Garcia come in. “I do enjoy finding the leak. I just feel like, it's exciting.”

If a leak happens in a water main at someone's home, the property owner is responsible. But Denver Water is responsible for repairing leaks on its water meters and water mains, which run for thousands of miles underneath the city. Technicians like Garcia gather data over 3 days before repairs begin.

Data loggers capture three days' worth of information and will help Garcia identify unusual sound frequencies that might signal a leaky pipe. Once it has been confirmed there's a leak in the area, more data is gathered through magnetic transducers that are placed on pipes or valves. They will send frequencies to a computer which then helps the crew narrow down the leak's location on the pipe.

“This morning I was out there processing these data loggers. So, they tell me there's a leak in this area that we're going to be doing this morning. And we have a correlator that will tell us where the leak is exactly or pinpoint it to a certain degree and then we'll go and listen!”

Not all water providers in Colorado have their own leak detection unit. That's where the private sector comes in. Brian Clark owner of Colorado Leak Detection works with utilities and has seen first-hand how the ageing infrastructure is contributing to the leaks. The majority of water system pipes in the state are over a century old, deteriorating further by the day.

“This is the reason why I moved to the Denver area to do leak detection. In accordance with the EPA website there were 822 thousand homes built between 1920 and 1960, well, that’s my market. Those are the pipes that are going to leak.

This year the American Society of Civil Engineers’ gave the country’s water infrastructure a D rating . The EPA is estimating \$600 billion will be needed over the next 20 years to upgrade dilapidated water systems.

That’s a big expense particularly for smaller water providers and it could be why small utilities lag far behind larger utilities when it comes to the percent of water lost to leaks, says Chris Woodka, Issues Management Program Coordinator for the Southeastern Colorado Water Conservancy District.

“A state senator asked me to look into it and I found that larger utility systems lose between 5 and 6 percent of their treated water and in smaller systems you may find losses up to 15 to 20 percent and leaks are part of that. The smaller utilities don’t have the people and funds to spend on leak monitoring like the large utilities do. A leak that happens in that happens in a small system would depend on someone reporting it and it may be months, years before you found out you had a leak.”

Smart meter technology is being used by some utilities to let customers know if they have a leak. Fort Collins is able to share up to the minute data with customers to help them identify leaks and cut back on waste. Nationwide, water providers are looking to use similar technology to help them gather data on water loss with a view to plugging the leak on the billions of gallons being lost every year.

One thing seems clear, if Colorado wants to meet its goal to conserve at a minimum of 130 billion gallons of water a year by 2050, water managers are going to have to use all the tools and data available to keep treated water in the pipes.