

LeakFinderRT™ Helps Greensboro, NC Efficiently Reduce Water Loss with Accurate, Non-Invasive Leak Detection

SITUATION

The City of Greensboro is the third largest city by population in the state of North Carolina where it is home to approximately 270,000 residents. The city's Water Resources Department treats and delivers an average of about 32 million gallons of water per day and has provided its customers with safe, clean water for almost 100 years.

The department is dedicated and committed to maintaining and providing high quality drinking water that meets or surpasses all standards for health, safety, and aesthetic appeal. As a result of this commitment, the department takes conservation and water loss very seriously, and it goes to great lengths to mitigate underground leaks in its water system, before they result in service issues or damage to surrounding infrastructure.

Originally, the department used geophones and electronic listeners to detect and locate underground leaks. However, it found that the technology had limited accuracy and subpar listening quality, especially for leaks that were located under roadways, sidewalks and other types of concrete structures. As a result, Greensboro's Water Resources Department began evaluating four different acoustic leak detection correlators that would enable it to accurately detect and locate leaks—without having to undergo excavations that were costly and disruptive.

ACTION

Greensboro turned to LeakFinderRT™—a Windows-based acoustic leak detection system developed and provided by Mississauga-based Echologics LLC, a leading developer of advanced acoustic-based technologies for water loss management, leak detection, and pipe condition assessment.

LeakFinderRT's proprietary sensor and signal conditioning technologies substantially reduce noise and ambient background noise often created by road traffic or pumps, and it works exceptionally well on all pipes irrespective of geometry, material, etc.

Its unique ability to accurately detect leaks on pipes of all material is a result of an enhanced correlation function. This dramatically improves its ability to accurately identify and locate narrow-band

Customer

City of Greensboro, NC

Situation

Sub-surface leaks

Pipe Material(s)

Cast Iron, Ductile Iron, PVC, Reinforced Concrete

Pipe Diameter

4" - 36"

Technology

LeakFinderRT™

Results

Non-invasively pinpointed leaks
Helped reduce water loss



leak noise, a capability that is ideal for plastic pipes, multiple leak situations, and scenarios where there is a large amount of background noise or where leak sensors have to be closely spaced. Data collection is completely non-invasive, as LeakFinderRT uses standard pipe appurtenances such as hydrants, valves, or direct attachments to the pipe's outer wall.

Essentially, LeakFinderRT measures how quickly an acoustical signal is transmitted along a section of pipe, using sensors (hydrophones) and acoustic correlation algorithms. By knowing the distance between the sensors and the pipe material and diameter, LeakfinderRT can accurately pinpoint the location of leaks.

RESULTS

Greensboro's decision to adopt LeakFinderRT was prompted by a particularly troublesome leak that was first reported near the intersection of a four lane roadway. At times, evidence of the leak was visible at grade, appearing as if someone had thrown a bucket of water in the intersection, according to David Carpenter, Utility Coordinator for the City of Greensboro Water Resources Department. Workers initially used electronic listeners in their attempts to determine the exact location of the leak. Ultimately, this method proved to be unsuccessful even after multiple excavations of suspected leak sites and examinations of the areas using the electronic listeners that had been attached to ground rods.

Greensboro requested Echologics to demonstrate LeakFinderRT on the troubled section of its distribution network. Less than two minutes after the sensors were attached to the appurtenances, the system located the leak, which was responsible for losing water at an increasing rate of 2-5 gallons per minute (gpm), on a section of 6" inch cast iron pipe; service crews excavated the site and repaired the leak to prevent further loss of water.

Since it began using LeakFinderRT, Greensboro's Water Resources Department has pinpointed more than 50 leaks throughout its service area, which includes roughly 1500 miles of pipe and covers approximately 42 square miles, without breaking ground or disrupting service.

"Of the four different correlators we evaluated, LeakFinderRT was the only one that pinpointed every leak in the test sites," said Carpenter. "When you look at the cost of a leak, you should not only consider water loss, but also labor, materials and equipment. By adopting LeakFinderRT, we have been able to quickly and non-invasively locate numerous leaks of various sizes in high traffic areas without incurring enormous costs in terms of time and labor we previously experienced when we would have to dig up different locations to find a single leak. The accuracy and efficiency provided by this technology prevents us from having to focus excessive amounts of resources on finding leaks and allows us to concentrate on other projects that can help us to improve the level and quality of service we provide to our customers."

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*David Carpenter
Utility Coordinator, City of Greensboro
Water Resources Department*

Find out more ways Echologics can help reduce costs, conserve water, and improve customer service by calling us today at 1-866-324-6564 or visiting www.echologics.com.