

Trunk Main Leak Detection

Large-diameter leak detection solutions rity testing



DID YOU KNOW?

A 1/8" HOLE IN A WATER MAIN CAN LOSE OVER
1 MILLION GALLONS
OF WATER A YEAR

Trunk Main

Virtually every water utility has at some point experienced a catastrophic failure of a large-diameter trunk main, resulting in damage to both the water main itself and the surrounding infrastructure.

In the past, leak-noise correlators have been ineffective in locating leaks in large-diameter trunk mains. Current detection methods involve a microphone being placed inside a pipe and being borne downstream by the flow of water. The leak is identified when the microphone passes by its location. While this technology is effective, it has drawbacks that limit its use. As a result, few utilities have done any leak detection on their trunk mains.

Echologics has now succeeded in making leak-noise correlation technology effective on large-diameter trunk mains, as evidenced by extensive field-testing.

How it Works

A correlator listens passively for noise created by a leak. Two sensors are mounted on existing pipeline appurtenances so that the leak lies between them, or is "bracketed" by the sensors. A leak that lies outside the area spanned by these sensors is known as an "out-of-bracket" leak. Since correlation is a time-of-flight technology, the leak's location is determined by the length of time it takes for its sound to arrive at each sensor.

Typically for trunk mains, hydrophone (water microphone) sensors are mounted on the pipe at existing appurtenances such as air valves or fire hydrants. The distance between the two sensors can range from 1000' (300m) up to over 5000' (1300m).

Performance

On-site performance is dependent on a number of factors, including the distance between the sensors and the geometry of the leak. Results actually achieved in the field:

- 60" PCCP, 3600' (1100m) between sensors, leak of 1 GPM (~4 LPM)
- 24" Cast Iron, 2500' (760m) between sensors, leak of .25 GPM (1 LPM)

To date, Echologics has surveyed over 100 miles (160 km) of trunk mains, locating dozens of leaks.

Key Advantages

Echologics' technology has several key advantages:

- No specialized ports are required to implement the technology
- Large leaks will be located first, and can be seen over great distances and tracked down
- There is no requirement for a minimum flow rate
- There is no need to close service laterals
- There is no limitation on the pipe geometry such as 90-degree bends or butterfly valves
- The technology is completely non-intrusive, meaning that there is no probability of losing components within the pipe

Echologics Trunk Main Leak Detection technology can be licensed or supplied on a service contract, on either a daily or mileage rate basis.



Field Notes

When Thames Water needed urgent help to address leak problem on their trunk mains, the U.K. water utility turned to Echologics. Working with our team over many miles of large-diameter trunk mains ranging in size from 18" to 72", the utility located leaks that were causing over 1.4 million gpd (5.5ML) of water loss a day in their Crouch Hill DMA. A 400,000 gpd (1.5M lpd) was tracked down from a sensor over 3km away, saving the city what would amount to the equivalent of an Olympic sized swimming pool every day and a half. Our accurate, easy-to-use technology yielded those results in only 30 days.

Mueller Co.

Echologics is now a division of **Mueller Co.**, the leader in water infrastructure products and services, and part of the **Mueller Water Products, Inc.** family, which manufactures and markets products and services that are used in the transmission and distribution of safe, clean drinking water and in water treatment facilities throughout North America. Water flows through, is controlled by or measured by the types of products we manufacture – valves, hydrants, ductile iron pipe, and AMR and AMI systems. With **Echologics**, we can now help municipalities rebuild North America's aging water infrastructure by identifying leaks, potential leaks and assessing the overall condition of their piping systems.



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