Leaks happen. But as municipalities and water customers become increasingly aware of the importance of conserving water, innovative solutions for detecting water leaks in underground piping are more important than ever. Simply put, a leak detection program is a vital element of an efficiently operated water distribution system. From areas with a history of excessive leaks to areas exposed to stray electric current and traffic vibration, water leaks can occur in a variety of places, and are caused by multiple factors. Benefiting most from 3M’s water leak detection solutions are:

- Areas where leaks and breaks can result in the heaviest property damage
- Areas where system pressure is high
- Areas near stream crossings
- Areas where leaks on pipes exceed design loads
- Old or poorly constructed pipelines with inadequate corrosion protection and poorly maintained valves

Depending on the ground type of an area, there will always be some leaks that are not evident on the surface. Having the equipment to detect leaks is key to reducing water loss. That’s where we come in, offering highly specialized equipment for detection and water loss control.

3M offers technically advanced methods for detecting, locating and pinpointing leaks. Our ground microphones, loggers and correlators can be easily operated by new technicians, and the easy user interface provides faster detection times to maximize savings and reduce waste.
The 3M™ Electronic Listening Stick (ELS) is a ground microphone that records and amplifies structure-borne vibrations, allowing operators to quickly and effectively pinpoint leaks. With its small microphone and short probe tip, the ELS is designed specifically for use in tight spaces, such as under the floorboards of buildings or in hard-to-reach areas. The ELS uses advanced signal processing to enhance the sound reproduction, allowing even the most quiet vibrations to be detected. Eight sound oscillations, with a sensor that ensures undistorted sound quality, allow the listener to hear the source of the leak directly, even in the most challenging environments.

The 3M™ Electro-Acoustic Leak Detector (EALD) is a professional system that can detect structure-borne vibrations, as well as ground-borne noise—enabling the operator to detect leaks at multiple points, even when the water is insufflated or there are high levels of external noise. In addition, the EALD is equipped with a sound protection function, which can help ensure that excessive sound levels do not reach the operator’s ears. With its small microphone and short probe tip, the EALD is a versatile tool for locating leaks in a variety of environments, including large facilities and hard-to-reach areas. The EALD uses advanced signal processing to enhance the sound reproduction, allowing operators to hear the source of the leak directly, even in the most challenging environments.

The 3M™ Leak Noise Correlator (LNC) is an innovative system that can quickly and accurately pinpoint leaks in minutes rather than hours. The LNC is unaffected by external noise interferences like cars or wind, making leak detection possible in even the most challenging environments. Microphones pick up the sound directly from the water pipe, allowing operators to accurately pinpoint leaks in minutes rather than hours.

Loggers

The amount of time water escapes through a leak has a significant influence on the total damage caused. Leaks that go undetected can cause significant losses in the water supply and possibly cause liabilities or road run damage. The 3M™ Noise Logger Master (NLM) provides early detection of leaks by recording and analyzing the intensity and consistency of noise, and actively monitors water supply networks. Since detection of leaks on municipal water supplies depends highly on the intensity of environmental noise and must often be conducted at night, 3M loggers are an effective low-cost alternative in night work.

Place an ELS at various positions along a water supply network, the NLM allows customers to locate inspected leaks quickly. By recording changes in noise and transmitting the data via radio signals at scheduled times, the presence of leaks can be identified as they develop. The NLM has a durable rubber-wrapped aluminum housing that offers short-term or permanent leak detection. Monitoring for precise detection of water leaks, highly sensitive microphones record sounds in a wide range of frequencies, which are recorded in a variety of connection points. Microphones pick up the sound directly from the water supply system, greatly increasing the range that can be correlated—up to 1500 feet.

When a pressurized water pipe develops a leak, water flows out into the surrounding soil at high speed, causing the pipe material to vibrate at the exit point. This vibration travels through the soil to the surface, where the NLM ground microphone can detect the presence of a leak, even at long distances.

Correlators

Correlators detect leaks in buried water pipe systems using two radio transmitters to pinpoint the location of a leak. A leak in a pipe system produces water that travels through the pipe walls and surrounding ground. The 3M™ Leak Noise Correlator (LNC) detects this water stream opposite power plants, allowing highly sensitive microphones. Utilizing this and other relevant information, the correlator can calculate the exact location, depth, and size of the leak.

Benefits of Water Leak Detection

Reduce contamination risk: A leaky pipe is a natural cross-connection that could provide a gateway for contaminants to enter the water supply. Systems with leaks can be more likely to get bacteria or water quality test

Reduce property damage: Water leaks can cause significant property damage if not located and repaired in a quick and timely manner.

Improve environmental quality: The most significant environmental benefit generated by 3M leak detection is the reduction in municipal consumption of water and electricity. Our innovative leak detection solutions help ensure that water flow goes to the consumer instead of being lost through leaks in the distribution network.

Save money: Multiply the amount of water lost through a leak during a given period of time by the retail value of water, and you’ll get an idea of the cost savings leak detection can provide. In addition, a superior leak detection solution can help extend the life of facilities, reduce wear on equipment, lower electric bills and other operating costs, and enhance productivity by reducing inspection times.

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