

ECHOLOGICS®

a **MUELLER** brand

IT'S LIKE HAVING YOUR PIPES TALK TO YOU.

Reducing Capital Expenditures Just Got Easier.

DON'T TOUCH ME

I HAVE A LEAK

REPLACE ME

MONITOR ME

MUELLER

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UTILITIES AROUND THE WORLD ARE TURNING TO EPULSE® TECHNOLOGY BECAUSE OF ITS PRACTICAL AND ADDED VALUE APPROACH.



ePulse® technology is the industry's first solution that can identify the condition of both distribution and transmission mains, while simultaneously searching for leaks. All without the need for service disruptions.

Condition assessment and the collection of information about buried pipeline assets is now simplified with ePulse® technology. The assessment approach does not require access to the inside of a pipe, costly excavations or extensive support from utility field crews. And the good news is that ePulse® technology is cost-effective enough to deploy on a wide variety of pipe diameters from 4" to over 60" and on virtually any pipe material.

For utilities with aging pipeline infrastructure challenges, ePulse® technology is an ideal tool to quickly understand the status of buried assets by using acoustic signals and advanced computer algorithms to assign a grade of good, moderate or poor based on the actual condition of the pipe segment. They say, knowledge is power and knowing the actual condition of buried assets enables utilities like yours to optimize replacement programs to maximize results — in spite of limited budgets.

“EPULSE® TECHNOLOGY GAVE US A BETTER UNDERSTANDING OF THE CONDITION OF OUR UNDERGROUND ASSETS AND WHAT SPECIFICALLY WE NEEDED TO ADDRESS. INSTEAD OF REACTIVELY RESPONDING TO FAILURES, WE NOW HAVE A 10 YEAR OPERATIONAL PLAN IN PLACE.”

Hirod Gill

*Manager of Engineering Design and Planning,
District of Mission, British Columbia, Canada*

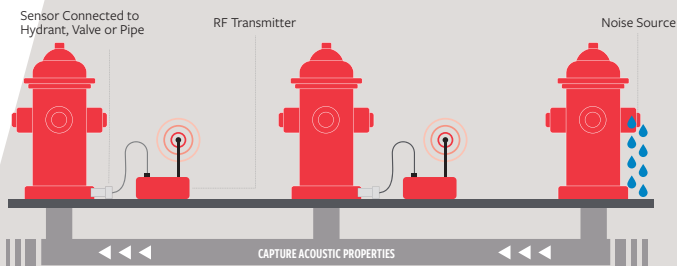
UTILITY FRIENDLY CONDITION ASSESSMENT TECHNOLOGY FOR ANY TOWN, CITY OR WATER SYSTEM OPERATOR.

HOW EPULSE® TECHNOLOGY WORKS

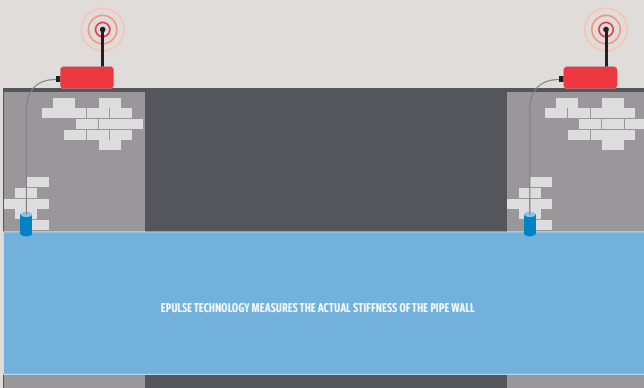
Acoustic sensors are attached to existing contact points, such as fire hydrants, valves or directly to the pipe. A sound wave is induced in the pipeline and travels along the pipe. The acoustic sensors capture the time it takes the sound wave to travel between two sensor stations. The speed at which the sound wave travels is dictated by the condition of the pipe wall.



FOR DISTRIBUTION MAINS



FOR TRANSMISSION MAINS



ACCURATE AND ACTIONABLE INFORMATION

Once the acoustic data is captured, Echologics® field engineers use proven computer algorithms to convert the data into a measure of the average minimum wall thickness of the inspected pipe segment. For cast iron, ductile iron and asbestos cement pipe, the calculated wall thickness measurement is compared to the original thickness of the pipe to determine the average percentage of wall loss.

SIMULTANEOUS LEAK DETECTION

An added and unique benefit of the ePulse® method is that Echologics field engineers can simultaneously analyze the captured acoustic data for the presence of leaks. This increases program value by avoiding the need to invest, plan, and execute separate inspections. We are a globally recognized leader in leak detection and have surveyed thousands of miles of water mains, successfully locating leaks of all sizes.

MONITORING CRITICAL INFRASTRUCTURE

Transmission mains that are reaching the end of the operating life or have a history of ruptures are often difficult to replace. For these high risk situations, we offer the advanced Echoshore®-TX platform for monitoring. The platform can be applied to any pipe material with a diameter of 16-inches or greater and can monitor several parameters from leaks to static pressure.

SIMPLIFIED CONDITION ASSESSMENT

Trained field crews can move rapidly through a water network, collecting accurate and actionable information about buried pipe infrastructure.



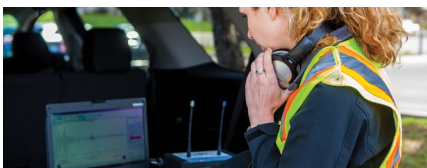
STEP 1: ATTACH SENSOR TO EXISTING PIPE CONTACT POINTS



STEP 2: INDUCE NOISE INTO THE PIPE



STEP 3: CAPTURE ACOUSTIC DATA



STEP 4: COMPUTER ALGORITHMS ANALYZE DATA TO DETERMINE
CONDITION OF PIPE

FIELD APPLICATIONS

DEFERRING PIPE REPLACEMENT COSTS

In Nevada, a troublesome 6.5 mile section of mortar lined steel cylinder pipe which supplied major tourist attractions experienced several ruptures over a short time period. Repair crews noticed that the pipe walls had been worn thin due to corrosion. The district expected they would have to replace the entire section at an estimated cost of over 10 million dollars. Prior to replacement, the district turned to our ePulse® technology to verify the condition of the pipe. The inspection revealed that the majority of the pipe was still in good condition, and that only 15-20% of the pipe required replacement, deferring the need to allocate capital cost. In addition, several leaks were identified and quickly repaired by the district.

VALIDATING PIPE REPLACEMENT NEED PRIOR TO EXCAVATION

A large water company in Western Europe has selected ePulse® technology to optimize its capital improvement program. Traditionally, before replacing pipes, the line would be shut down, excavated with samples cut out for physical testing. By replacing this disruptive process with ePulse® technology, the utility is now able to test a larger portion of its mains, at a lower cost, without disruptions to roadways or the water supply.

OPTIMIZING CAPITAL IMPROVEMENT PLANS

In Washington State, a proactive utility selected ePulse® technology to validate pipe replacement recommendations which were based on remaining economic life models. ePulse® technology was selected based on the short time in which field inspections could be completed and the ability of the technology to conduct analysis without service interruption to customers. Through the use of a strategic asset management plan and the information provided by ePulse® technology the utility was enabled to further optimize pipe replacement timing, and reduce their main replacement budget from \$18 million to \$9 million.

ABOUT US

We are an affiliate of Mueller, a developer of water infrastructure diagnostic technologies for water loss management, leak detection, pipe condition assessment and permanent pipeline monitoring. We are dedicated to helping utilities prioritize capital spending, reduce water loss and avoid catastrophic failures.

For more information about us or to view our full line of water products, please visit www.echologics.com or call Echologics® customer service at 800.423.1323.

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