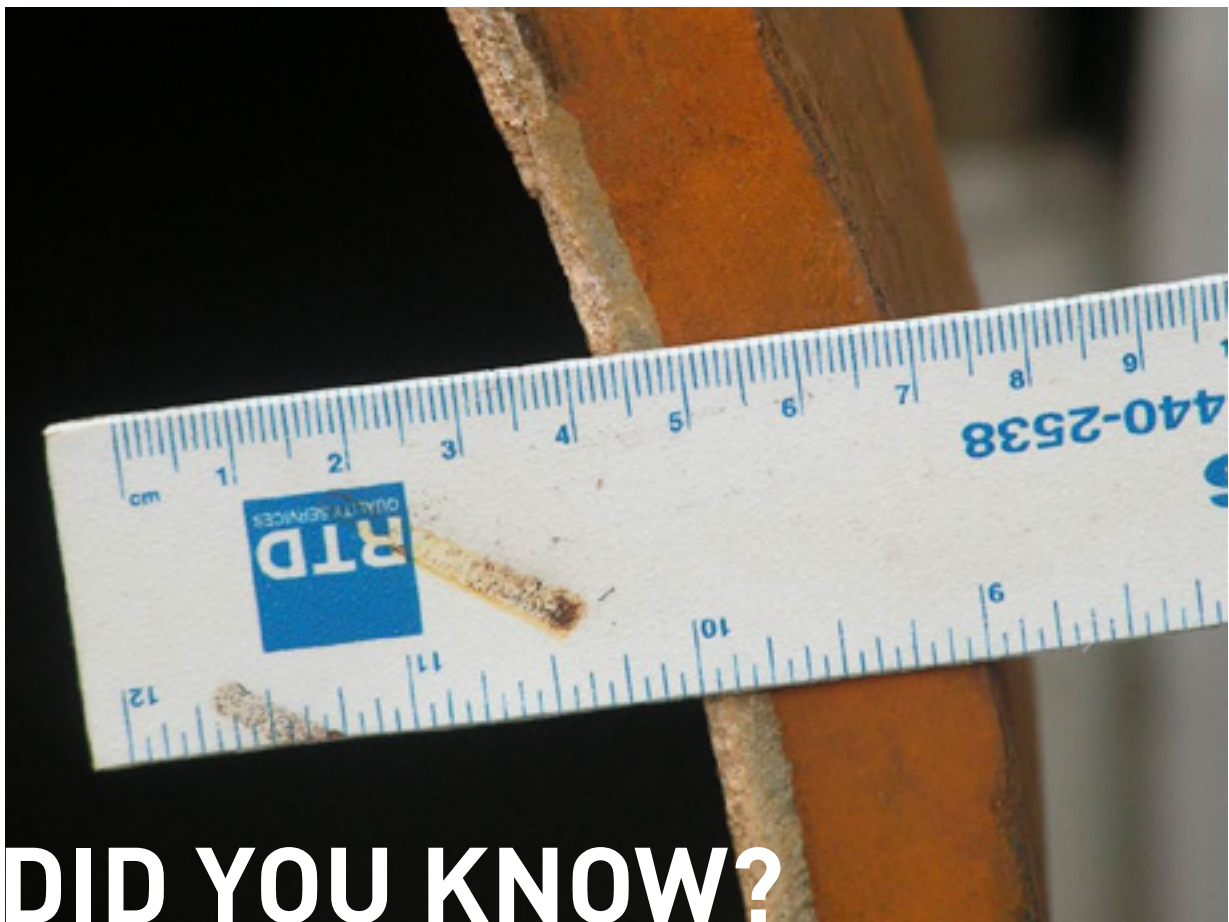


Condition Assessment



Accurate, non-invasive measurement of pipe wall thickness



DID YOU KNOW?

**A PIPE'S AGE
DOES NOT DETERMINE
ITS CONDITION**



PIPE WALL INTEGRITY TESTING

The amount of old pipe that exists in water systems often dictates how water utilities prioritize their rehabilitation and replacement programs. Seldom are decisions based on actual measurements of the structural condition of pipe, as existing technologies typically require invasive measures that disrupt service and can potentially cause a number of problems such as the introduction of foreign organisms into the water system, loss of tools in the pipe and sediment disturbance that can negatively affect water quality.

Fortunately, Echologics' non-invasive pipe condition assessment service provides municipalities with an accurate measurement of the remaining wall thickness of selected pipes in their water systems, helping them to efficiently and cost-effectively prioritize repairs and replacement while simultaneously detecting and locating leaks—all without breaking ground or disrupting service.

Echologics condition assessment service directly measures a pipe's structural thickness, which provides an accurate indication of the pipe's remaining life. Its core technology uses a proprietary acoustic-based leak detection system and a comprehensive proprietary database to assess the structural condition of selected water pipes of all sizes and materials including ductile iron, pre-stressed concrete cylinder pipe (PCCP), plastic and asbestos cement (AC).

Key Advantages of Echologics

Pipe Condition Assessment Service

- Completely non-invasive and non-destructive
- Does not disrupt flow or service
- No requirement to close service take-offs
- No need for specialized ports
- 0% probability of:
 - foreign organisms being introduced into the pipe
 - loss of components in the pipe
 - disturbance of sediment in the pipe
- Low cost of implementation
- Can accurately identify large leaks many miles away

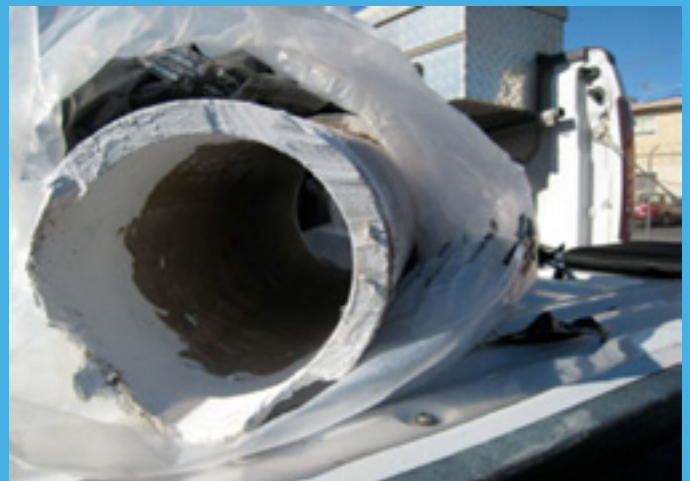
Implementing the technology

- Pipes are accessed by valves or fire hydrants on the line
- Typical sensor spacing can range from 49' (15 m) to 984' (300 m). The closer the sensor spacing, the better the resolution to find small areas of degraded pipe
- Acoustic signals can be induced in the pipe by any of several means: by flowing water from fire hydrants, by physically tapping on an appurtenance such as a valve, or by attaching vibro-mechanical shakers to the system



Field Notes

With limited water resources, the Las Vegas Valley Water District takes water-loss management and asset-planning very seriously. When an Echologics' assessment of two sections of 6" AC pipe and a length of 24" AC pipe suggested the pipe was intact and not in need of replacement, the client excavated one portion to verify those results. With the accuracy of its non-invasive technology confirmed, Echologics has become a critical partner in helping the Las Vegas Valley Water Department achieve one of the lowest (5%) water loss measures in the U.S.



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.



A DIVISION OF MUELLER COMPANY

Echologics Engineering,
A division of Mueller Company
6295 Northam Drive, Unit 1
Mississauga, ON L4V 1W8

Toll Free: +1 (866) ECHO LOG (324-6564)
Phone: +1 (905) 672-ECHO (3246)
Fax: +1 (905) 612-0201
Online: www.echologics.com