



Eyes and Ears on Your Water Systems

Advanced Monitoring Solutions
for Your Water Systems



Cimco-GC
SYSTEMS

Patrick Miller

patrick@cimco-gcsystems.com

253-263-3099

ECHOLOGICS®

a MUELLER brand





Eyes and Ears on Your Water Systems

Advanced Monitoring Solutions
for Your Water Systems



Cimco-GC
SYSTEMS

Trevor Cole

Trevor@cimco-gcsystems.com

253-534-5667

ECHOLOGICS
a **MUELLER** brand





Eyes and Ears on Your Water Systems

Advanced Monitoring Solutions
for Your Water Systems



Cimco-GC
SYSTEMS

Ray Velasquez

Ray@cimco-gcsystems.com

253-205-4760

ECHOLOGICS
a MUELLER brand



Agenda for Today

1. **Cimco-GC Systems**
2. **Nonpermanent Acoustic Technology**
3. **Permanent Acoustic Technology**
4. **Other Abilities Of Acoustics**
5. **Case Studies**





**40+ years in water
systems**



**Technical support
and service**



**Maintenance,
troubleshooting, startups**



**Pressure reducing valves
and stations**



Raeann Velasquez
Owner, CEO



Carol Wells
Founder (retired)



Rob Velasquez
Cla-Val Design and
Quoting



Sarah Sleight
Inside Sales: Val-Matic,
Safe-T-Cover



Sarah Parker
Inside Sales: Waterman,
Echologics, Hydro-Guard



Teri Todd
Inside Sales: Cla-Val
Parts, Order Tracking



Beau Swet
Cla-Val Service and
Troubleshooting

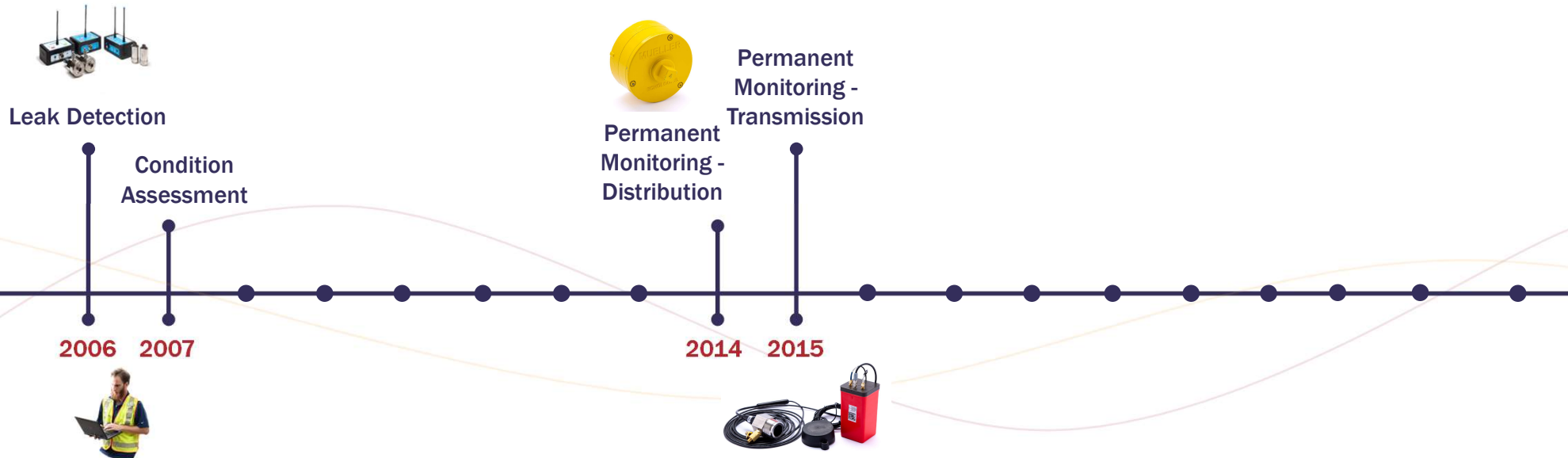


MUELLER

Echologics, LLC



A long lineage in acoustic technology and leak solutions



The water industry is at a crossroads.

- A water main breaks every two minutes.
- An estimated 6 billion gallons of treated water is lost each day in the U.S. alone.



Non-Revenue Water Components

Non-Revenue Water has 3 main components

- Unbilled authorized consumption
- Apparent Losses
 - Unauthorized consumption
 - Systematic customer meter error
- **Real Losses (leakage and overflows)**

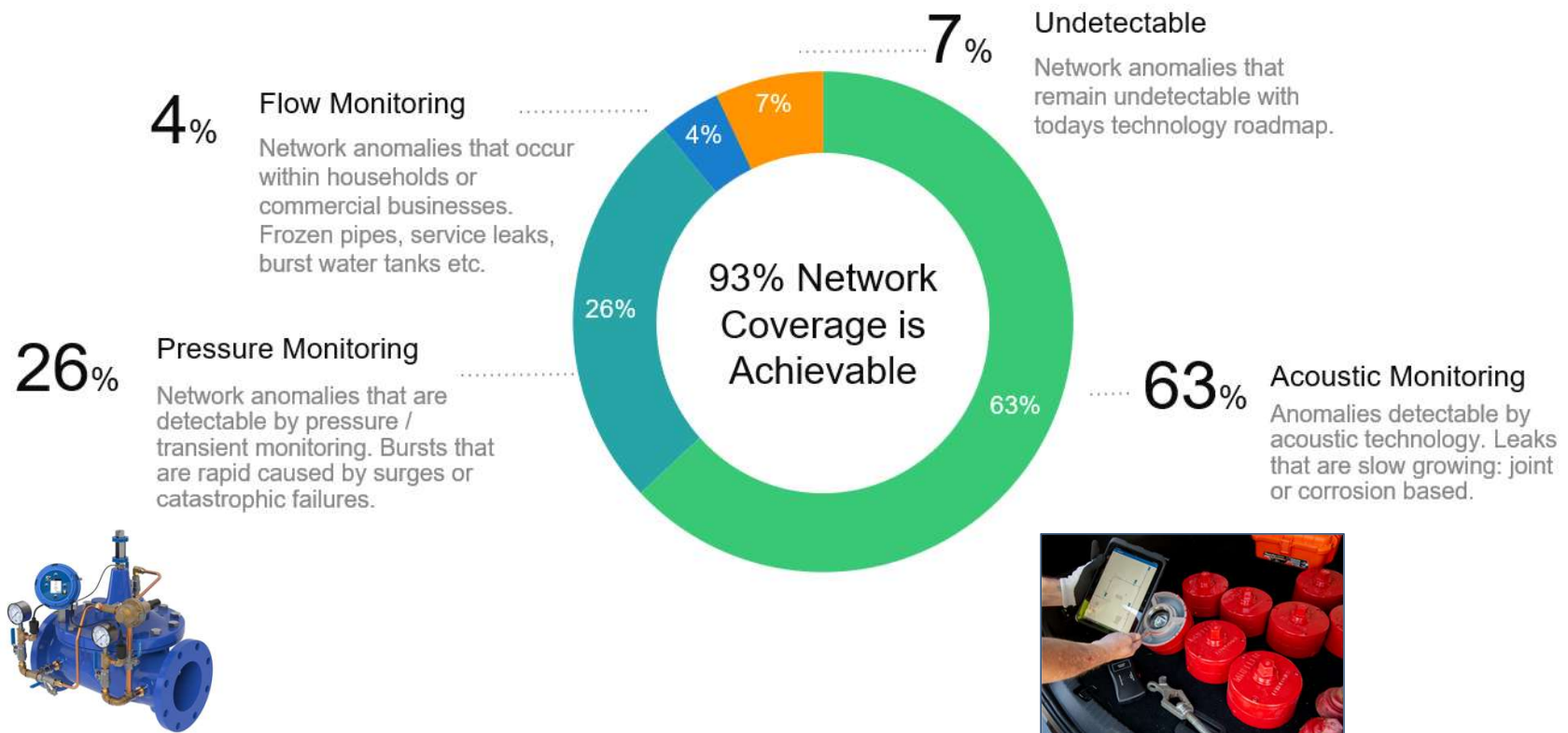


Where do most Real Losses Occur?

- Pipe bursts? Transmission mains?
- The largest components of annual real losses:
 - Background leakage
 - Long-running unreported leaks and breaks
 - Long-running reported leaks which the utility does not repair in a timely manner



We can reach nearly 100% coverage with modern technology.



Cimco-GC
SYSTEMS

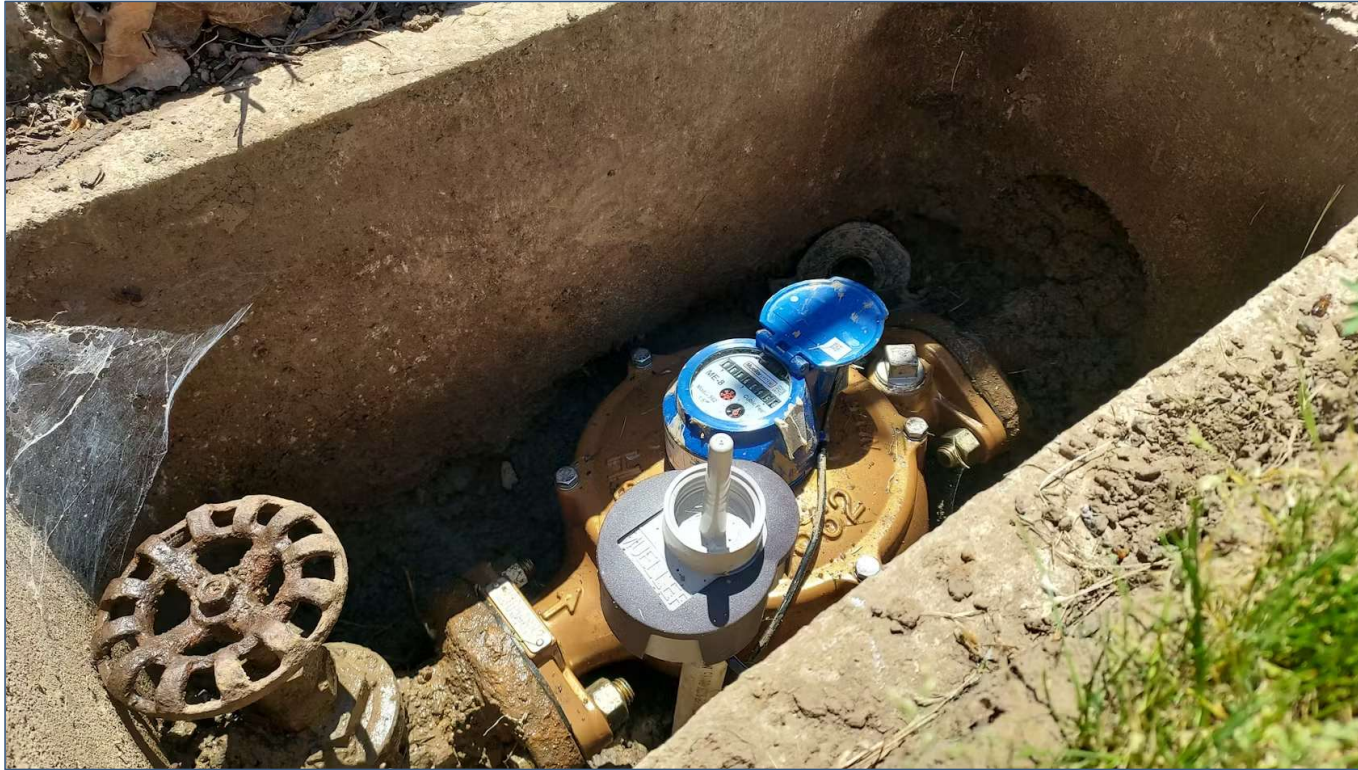
ECHOLOGICS
- MUELLER brand



Pressure and Flow Monitoring

Eyes on your system

How do we monitor flow?



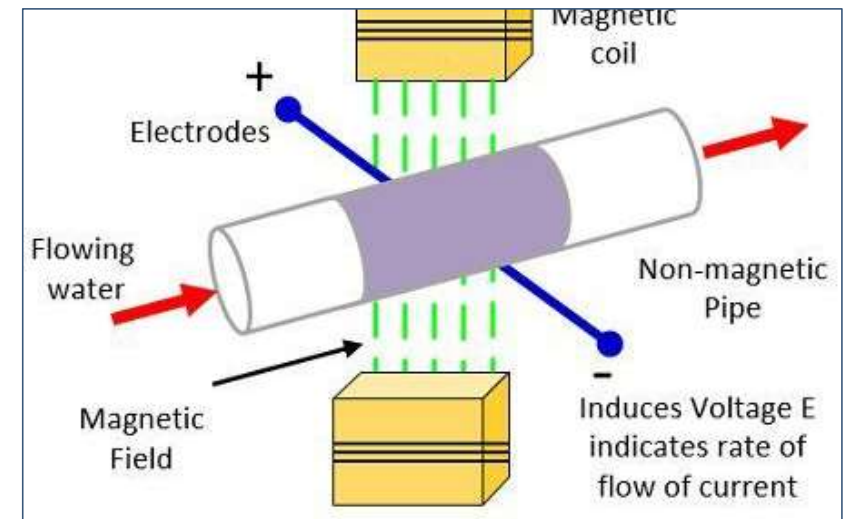
Flow and Pressure Monitoring

- **Pressure transmitters**
- **Electromagnetic flow meters (magnetic meters)**
- **Ultrasonic flow meters**
- **Turbine flow meters**
- **Vortex flow meters**
- **Positive displacement flow meters**
- **Differential Pressure Flow Meters**



Electromagnetic Flow Meters (Mag Meters)

- Measures flow by detecting voltage induced across the fluid as it moves through the magnetic field
- Based on Faraday's Law of Electromagnetic Induction
- High Accuracy
- Low maintenance, no moving parts
- Complicated installation

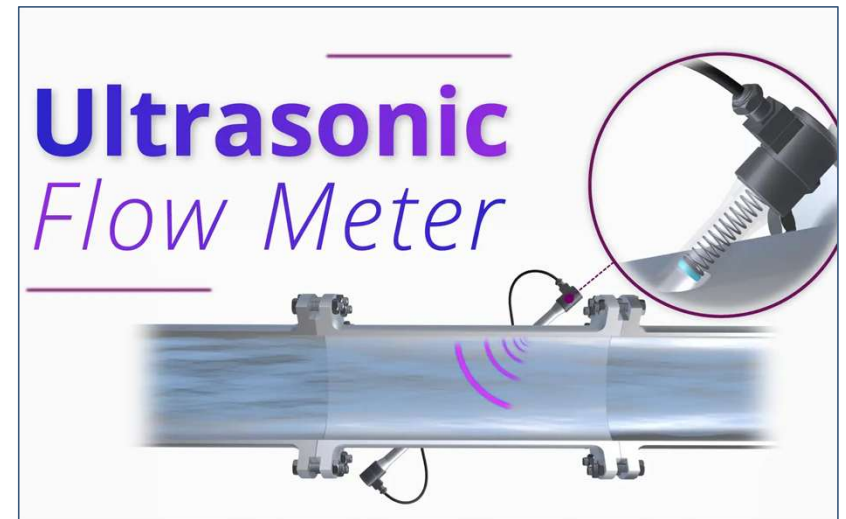


Cimco-GC
SYSTEMS



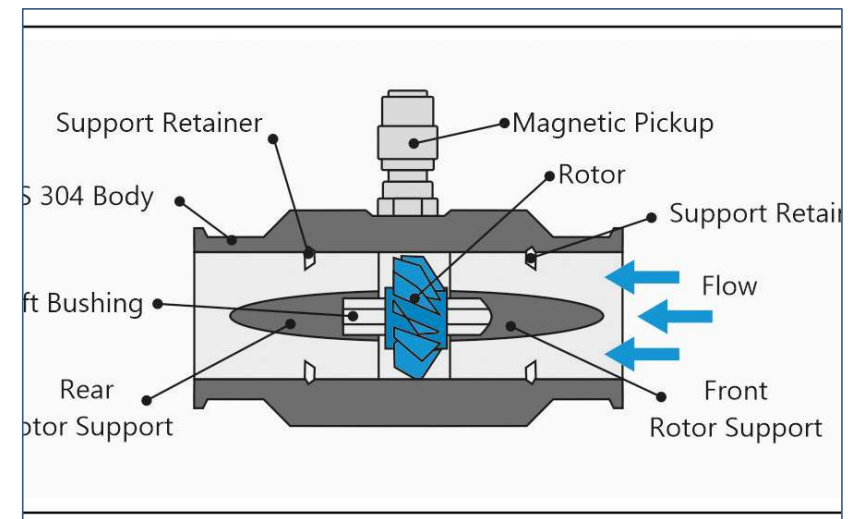
Ultrasonic Flow Meters

- Measures flow by sending ultrasonic sound waves through the water and measuring time between sensors.
- No moving parts
- Low Maintenance
- Low power consumption
- High upfront cost



Turbine Flow Meters

- Measures flow by detecting the rotational speed of the turbine.
- High accuracy
- Durable
- Rotor sits in flow of water
- Not suitable for all applications

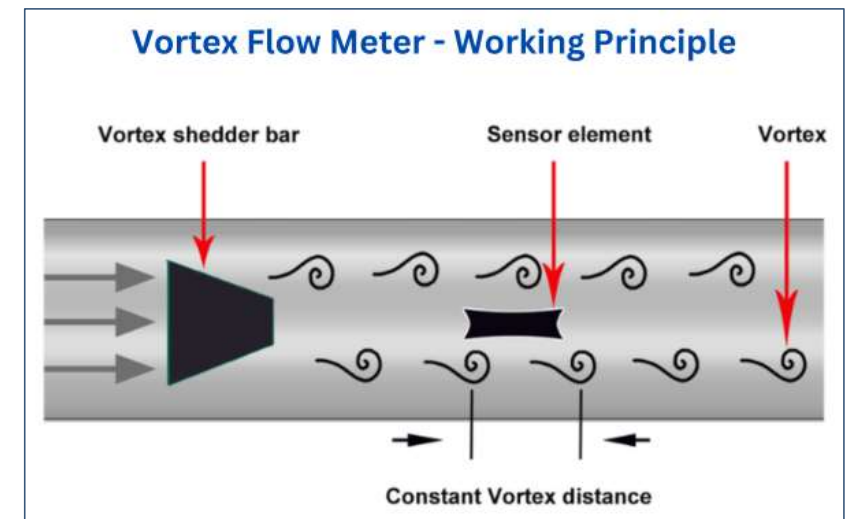


Cimco-GC
SYSTEMS



Vortex Flow Meters

- Measures flow by detecting frequency of vortices shed behind a bluff body
- Durability, no moving parts.
- Independent from temp and pressure
- Lower cost and easy install
- Sensitive to contaminants
- Susceptible to vibration



Positive Displacement Flow Meter

- Measures flow by trapping and measuring discrete volumes of fluid as it travels through
- Multiple styles: Oval Gear, Nutating Disc, Piston, Rotary Vane.
- Accurate and reliable
- Doesn't require power or up/down stream pipe lengths
- Not as suitable for high flow rates or pulsating flows
- Susceptible for damage from solids in water.



Differential Monitoring: A Key Advantage

More Data Points in One Package

- Upstream Pressure
- Downstream Pressure
- Valve position
- Flow

No Need for Extra Space

- Package retrofits onto existing valves
- Not limited by bends or joints in pipe around metering package

Cell Connected and Battery Powered

- Does not require power to your vaults
- Set up with cell provider of choice
- Cloud based platform with prebuilt interface



XP2F – Data Acquisition and Flow Meter Package

- Easily retrofitted on existing valves
- Minimal upstream/downstream straight pipe requirements
- Local display with five buttons
- No software needed
- Easy field calibration and commissioning
- Low maintenance/minimal fluid contact
- Forward and reverse metering capabilities

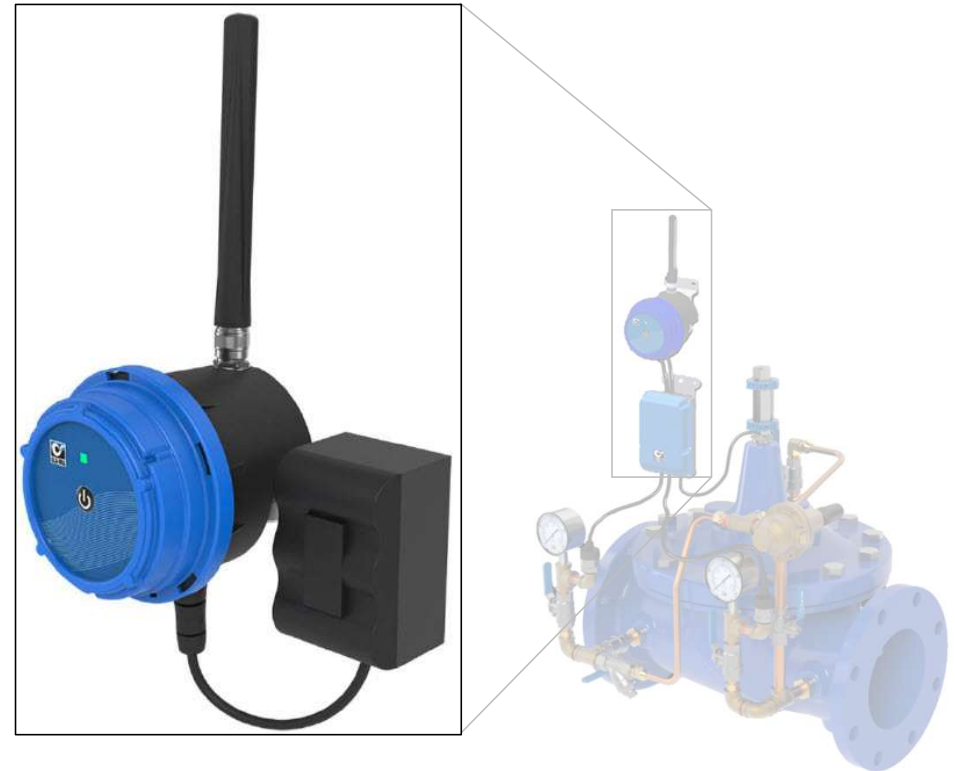


Cimco-GC
SYSTEMS



XP2F-CV35

- **Battery powered**
- **Cellular equipped**
 - Integrates with Link2Valves for monitoring
 - WiFi connection for setup and adjustments
- **2 digital input relays**
- **Components:**
 - **CV-LOG-35** Multi-channel Data Logger
 - **E-Lift-35** Position Transmitter
 - **X141-PTV** Pressure Transmitter Assembly





Overview of Acoustic Leak Detection Technology

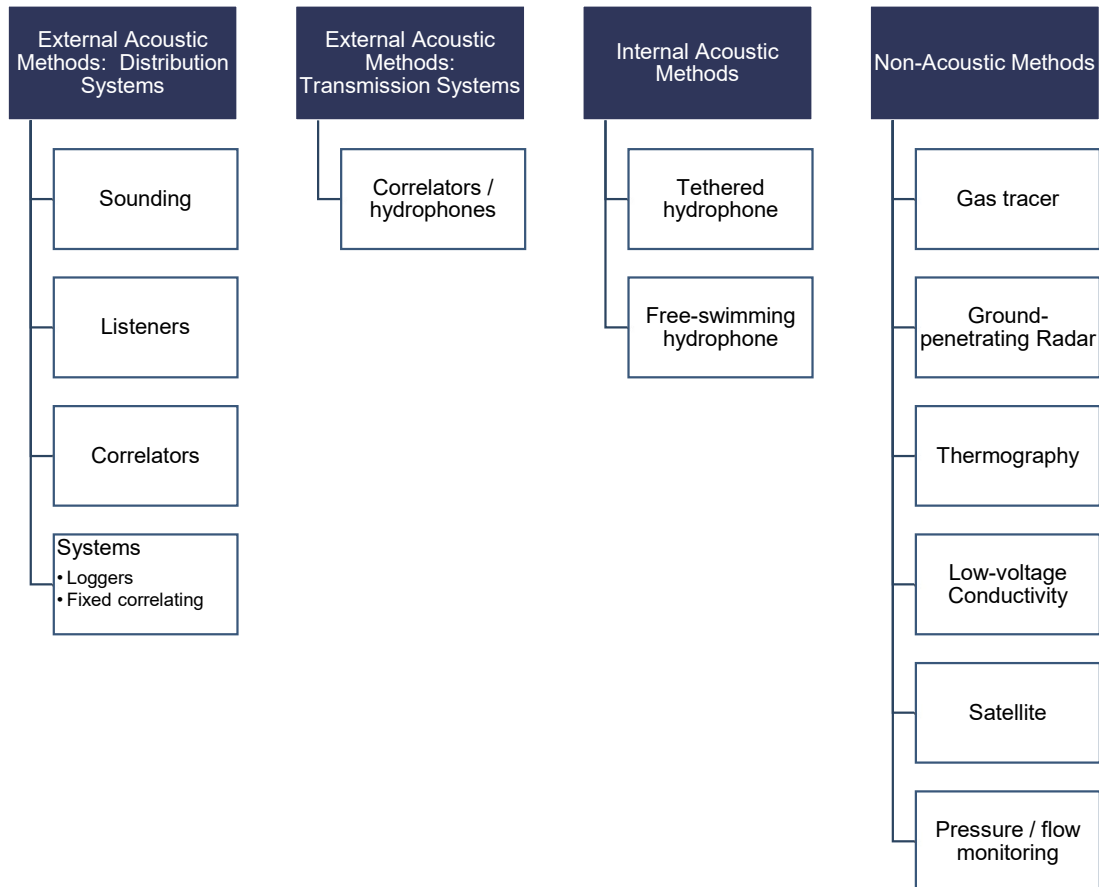
Keep your ear to the
ground for leaks





The Early Days...

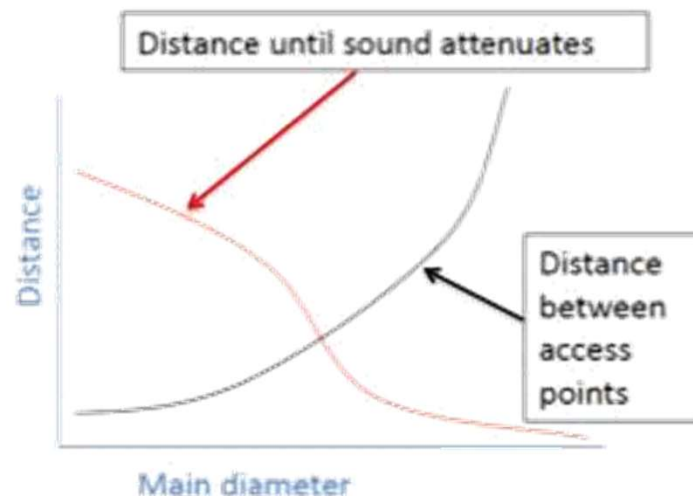
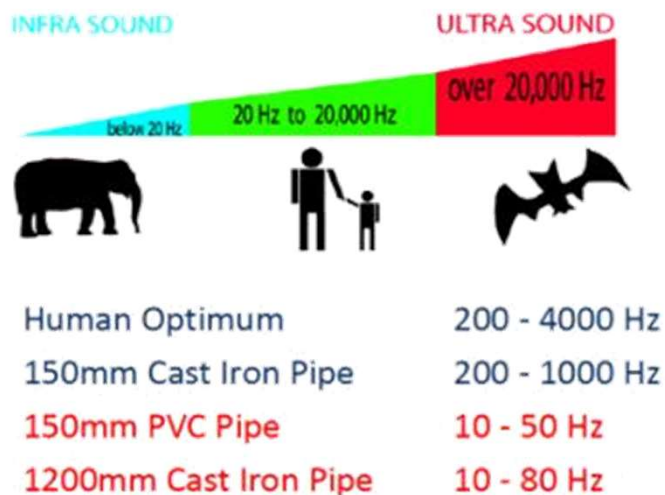
Leak Detection Methods



- **Leak detection is primarily used to find sources of water loss**
- **Also used as a pipeline performance indicator:**
 - Failure analysis
 - Prioritize pipes for inspection
 - Prevent breaks

Leak Noise Basics: Pipe Size/Type Matters

- Small leaks vibrate at higher frequencies; large leaks at lower frequencies
- Larger pipe will not carry sound as far as smaller pipe made of same material
- Leaks from metal pipe generate more noise that travels farther than leaks from cement or plastic pipes
- Transitions in pipe materials (with clamps and couplings) muffle leak noise

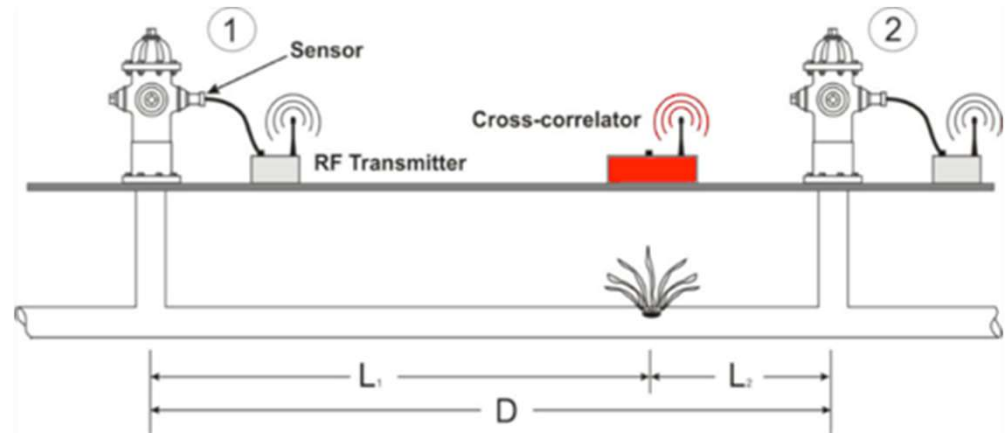
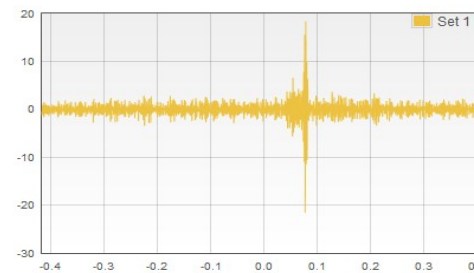


Cimco-GC
SYSTEMS

ECHOLOGICS
• MUELLER brand

Acoustic Leak Correlation Analysis

1. Bracket the leak with two sensors
2. The leak sound propagates in both directions
3. Vibration travels at known speeds in pipes of specific material and size
4. Correlator measures the time difference to reach each of the sensors, to determine the exact leak location



The magic tricks of correlation

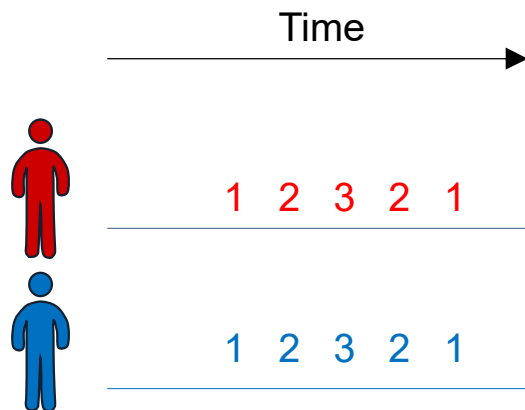


The magic tricks of correlation

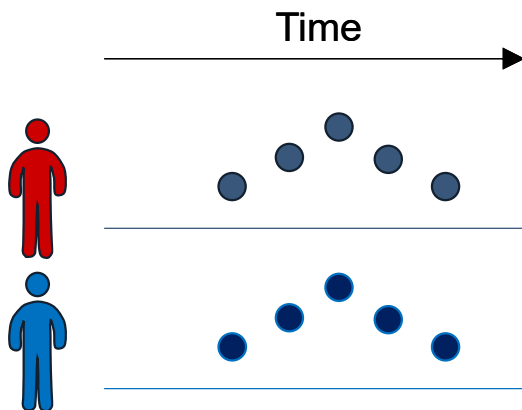
1 ... 2 ... 3 ... 2 ... 1



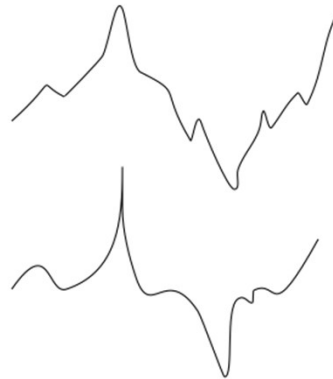
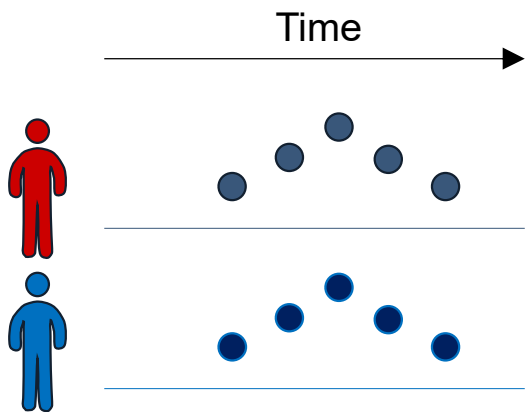
The magic tricks of correlation



The magic tricks of correlation



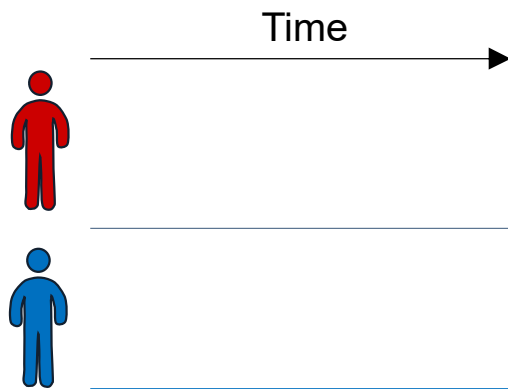
The magic tricks of correlation



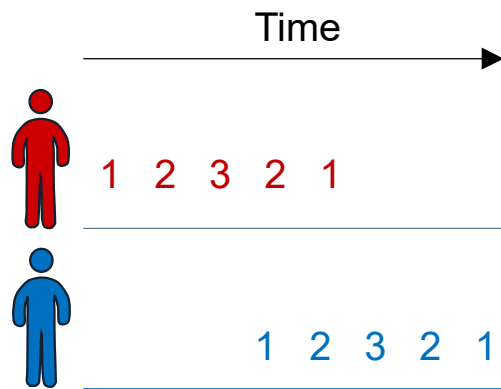
high correlation



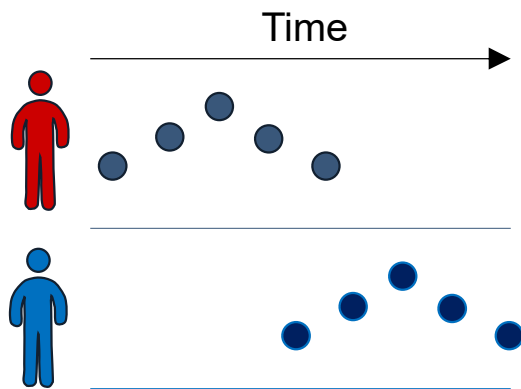
The magic tricks of correlation



The magic tricks of correlation



The magic tricks of correlation





Non-Permanent Leak Detection

LeakFinderST: Leak Noise Correlator 7th Generation

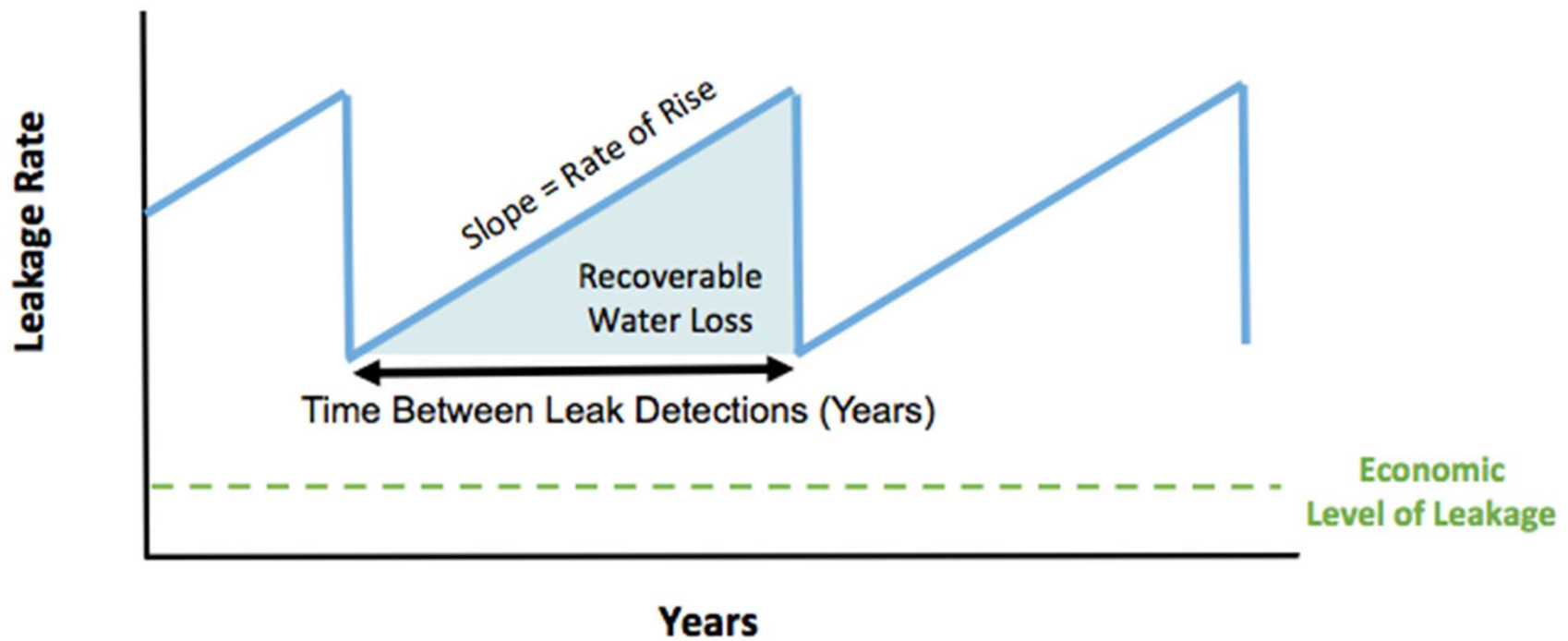
- **High Sensitivity Sensors**
 - Accelerometers, Geophones, Hydrophones
- **Powerful & Fast Signal Processing**
- **4 analysis aspects**
 - Realtime audio
 - Frequency spectrum
 - Coherence
 - Correlation
- **Sound File Capture - WAV**
- **Reporting - Word, Excel**



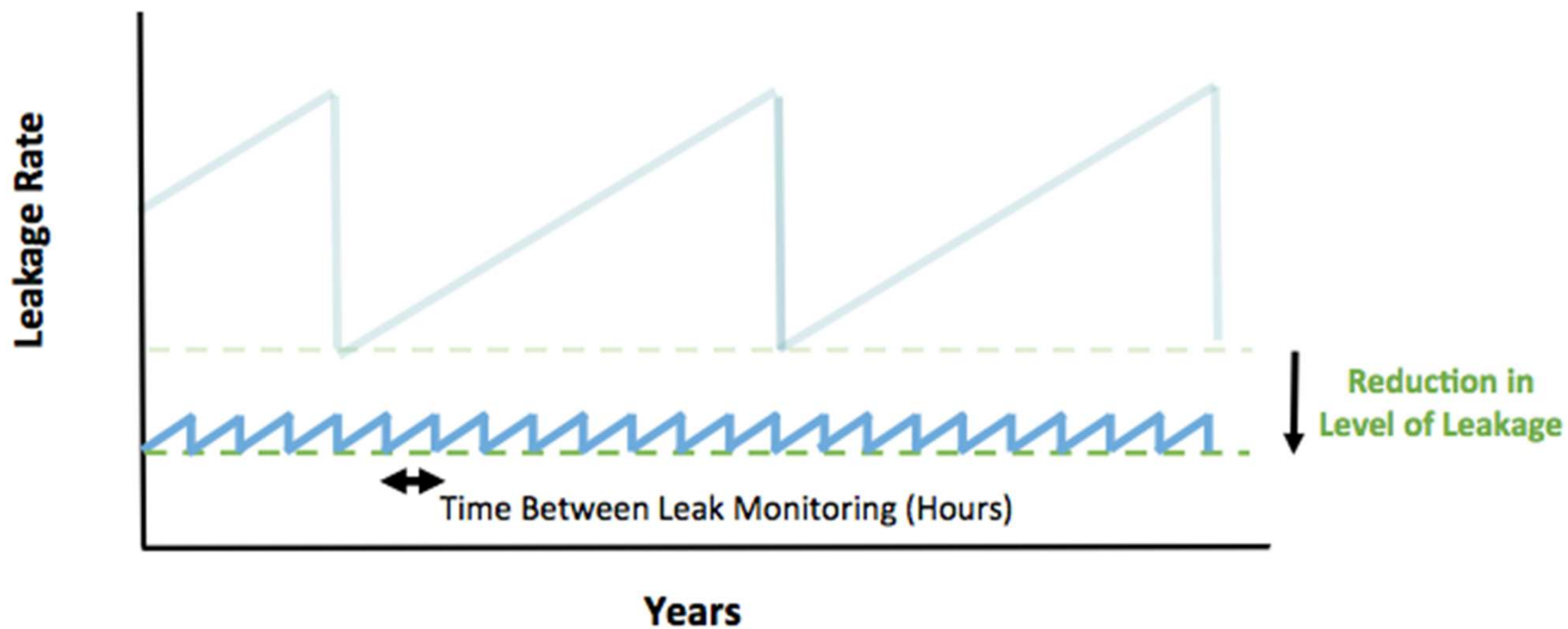
Sensor Connection Points



Active Leakage Control



Fixed Leak Monitoring





Permanent Leak Detection

EchoShore-DX Permanent Leak Monitoring – Distribution Mains

EchoShore-DX system uses sound and vibration monitoring to positively detect and locate leak acoustic patterns in distribution mains, reducing false alarms.

- **EchoShore-DX:** Integrates as a hydrant pumper cap
- **EchoShore-DXe:** Installed on underground appurtenances



EchoShore-DX - Fire Hydrant Pumper Cap Design



Custom-Made for Each Site

- Painted to match existing hydrants
- Custom thread & operating nut or Storz connections.
- Casting made at Mueller's Albertville foundry



Metallic Casting

Electronic Module

Metallic Casting



Cimco-GC
SYSTEMS

ECHOLOGICS[®]
a MUELLER brand

System Advantages

Design Flexibility

- Detects Leaks on cast iron, ductile iron, steel, asbestos cement, and concrete pipe materials.
- Works on Pipe Diameters up to 24" diameter.
- Utilize existing or new fire hydrants of any manufacture

Automatic Acoustic Analysis

- Leaks automatically correlated by multiple nodes
- Leak Location identified within a few feet

Low Maintenance

- Above Ground Installation
- 10-year design life
- System Diagnostic Capabilities



Installation Photos



'Install-and-forget'

EchoShore-DX sensors require no maintenance for up to 10 years.

- Versatile and rugged design
- Long distance between sensors
- Extra-long (verified) 10-year battery life

Implement EchoShore-DXe on:

- Valves
- Below-ground hydrants
- Release valves



Built to last

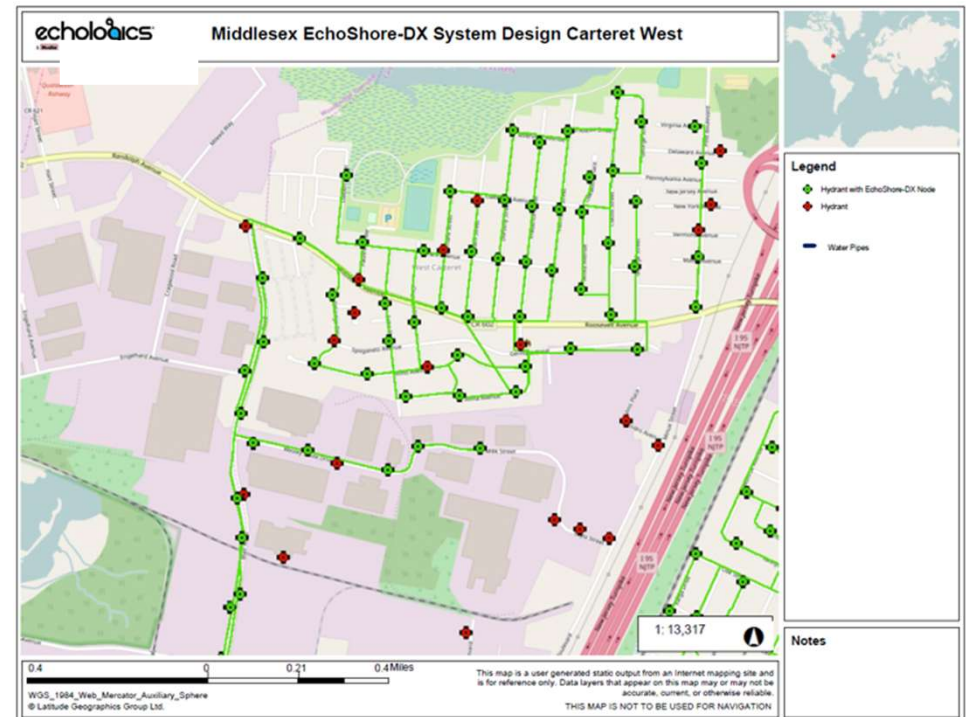
- Node plastic enclosure is constructed of impact resistant polycarbonate materials
- Painted for added UV protection
- Tested to the IEC 62262 standard for impact survival
- Node withstood torque of 797 ft-lb. Stopped at 797 ft-lb as fire hydrant nozzle failed at that torque



Sophisticated planning architecture

Our planners work with you to optimize EchoShore-DX by:

- ⑩ Strategically placing sensors to greatest effect
- ⑩ Minimizing cost, maximizing impact



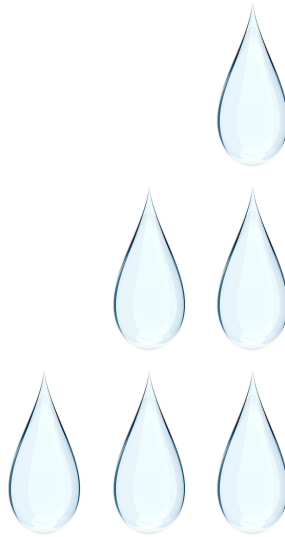
Cimco-GC
SYSTEMS

ECHOLOGICS
- MUELLER brand

Leak Sizes – A Predictive Model

Leak Size:

- Predicts the potential size of a reported leak event
- Backed by Machine Learning and model trained and validated on over 1,500 reported leaks
- Provides a prediction of a small, medium or large leak



Small Flow Rate: Less than 5 Gallons Per Minute (GPM)

Medium Flow Rate: Between 5 GPM and 30 GPM

Large Flow Rate: Larger than 30 GPM

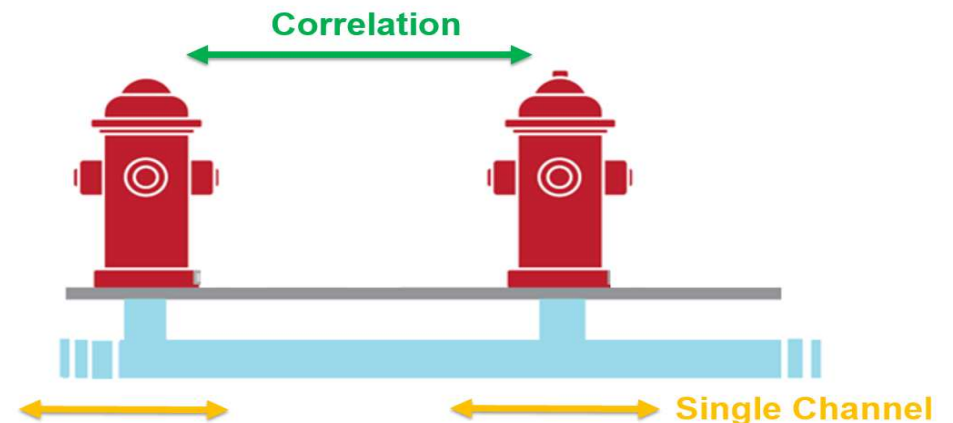
Single Channel Leak Detection

Overview:

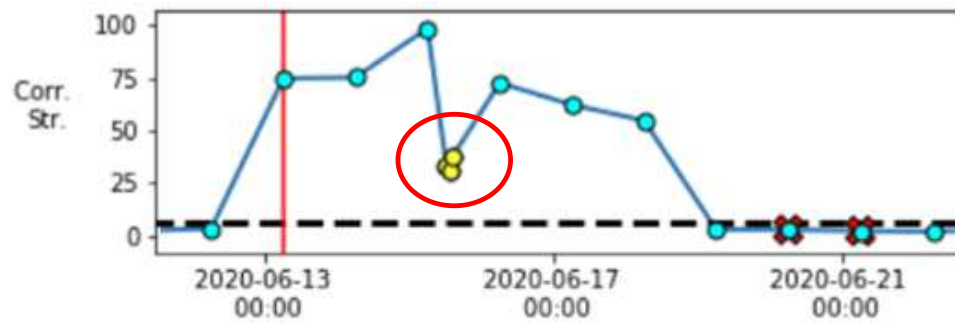
- Single Channel leak detection monitors for changes in sound that indicate an emerging leak
- Leak notifications are generated from data from a single sensor and signal leakage at or nearby an EchoShore-DX sensor

Benefit:

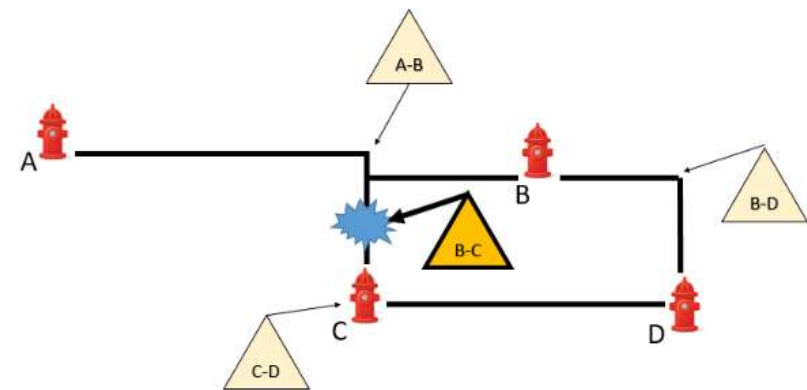
- Detects leaks that are located directly at or nearby EchoShore-DX sensors to improve correlated leak monitoring capabilities



Machine Learning



**Recordings scheduled
outside of standard time**



**Group of signals reporting
from same source**

**Both algorithms are automatic and result in a
higher likelihood of an alert being a leak*

Acoustic Correlation Techniques

Large Diameter vs. Small Diameter Pipe

1. High Consequence of Failure (COF)

2. Less Pipe Access

3. Lack of Redundancy

4. Unique Acoustic Profile

5. Less Industry Attention

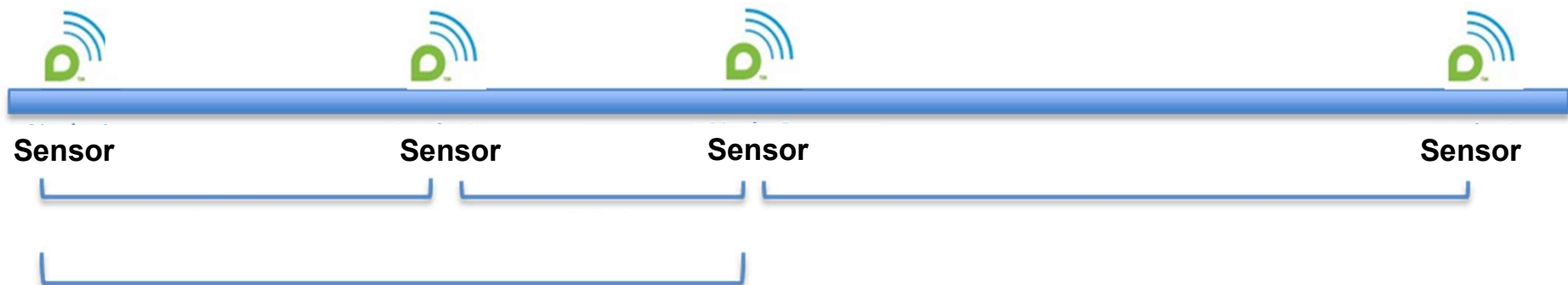
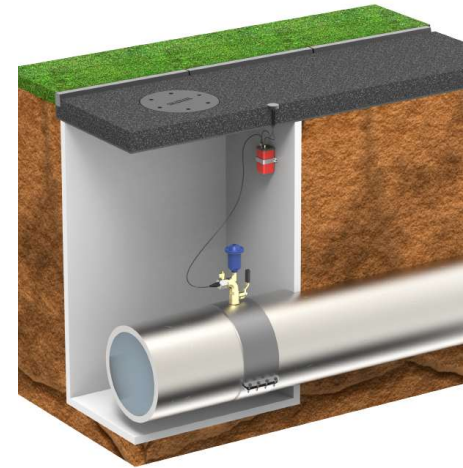


Leak Detection Technology must be tailored for use on large diameter pipes.

How do you monitor large diameter pipes?

EchoShore®-TX is a permanent monitoring leak detection solution for transmission water mains

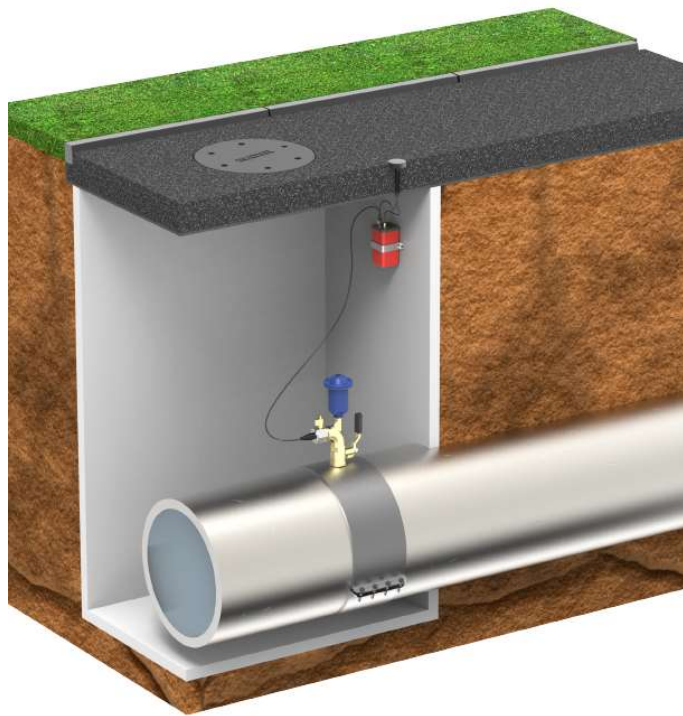
- Captures acoustic data using sensitive acoustic hydrophones sensors installed along a transmission pipe
- Acoustic data from these sensors is reviewed to find leaks



Cimco-GC
SYSTEMS

ECHOLOGICS
a MUELLER brand

EchoShore®-TX Hardware Components



Antenna

For cell and GPS connection



Electronic Module

Houses battery and processor



Hydrophone Sensor

Collects acoustic data



Cimco-GC
SYSTEMS

ECHOLOGICS
• MUELLER brand

Redesign EchoShore®-TX



Robust and Compact Hardware



Unified Sentryx Interface



Updated Collection & Analysis Profile



Reduced Price Point



**EchoShore-TX
GEN3**



**EchoShore-TX
GEN 2**



Data Analysis



Advanced Leak Monitoring Analytics:
The system processes collected data using advanced algorithms.

An Expert-Managed Service

A team of highly skilled Data Analysts review the data to identify items that need to be investigated onsite.

Sentryx Water Intelligence Platform:
The Sentryx user interface platform leverages water network monitoring analytics for pressure flow and acoustics in a common user interface & backend

SENTRYX™
Water Intelligence Platform

Managed Monitoring Service Benefits

- Dedicated Leak Operations Center (LOC)
Analyst assigned to site
- Ongoing customer service
- Constant learning and familiarization with site allows for more accurate PCN reporting

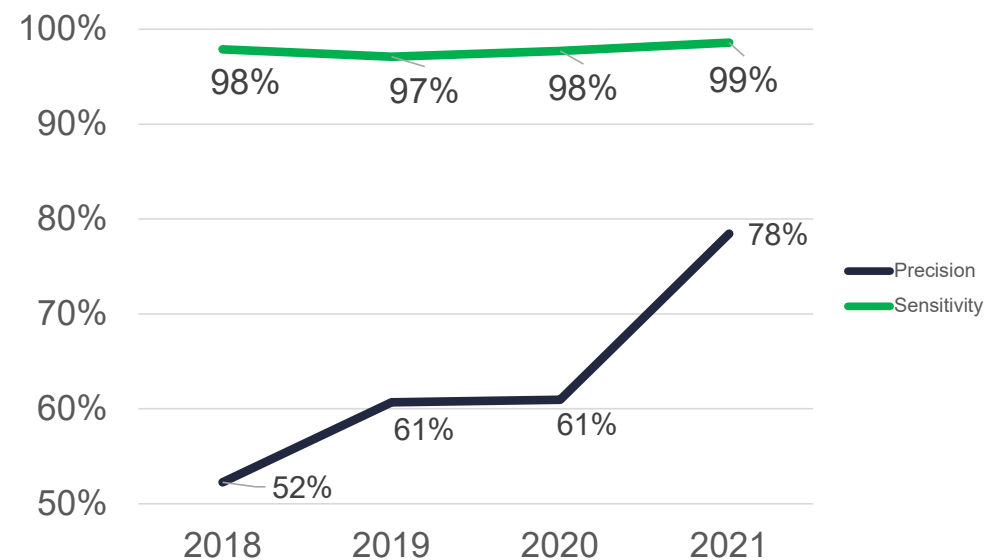
Why has there been a 50% increase in precision of the system?

- Improved understanding of network effects
- Deployed Feedback Tool on Integrated Monitoring Platform
- Standard Process Implementation

What's next?

- Machine Learning to improve efficiency
- Single channel & pressure integration

EchoShore-DX Sensitivity & Precision

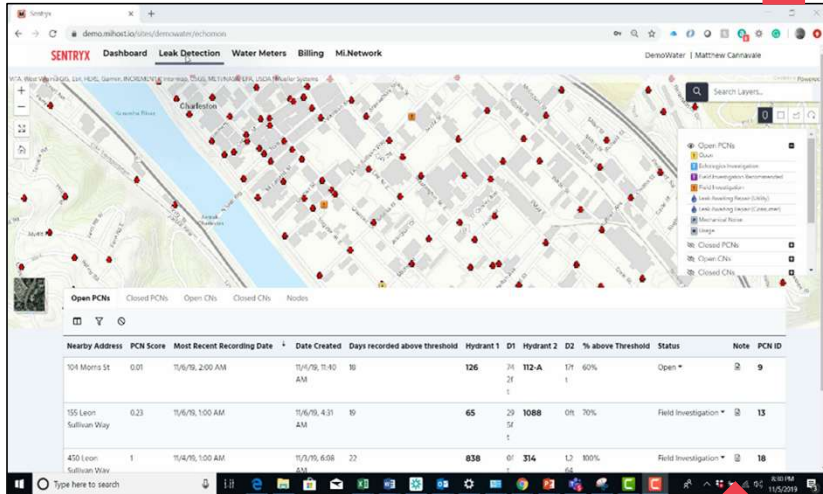


Precision improvement saved our users from performing ~442 unnecessary field investigations (false alerts) in 2021, saving \$100,000+ labor costs.

Managed Monitoring Alerts



ALERT



New Message

To Water Department

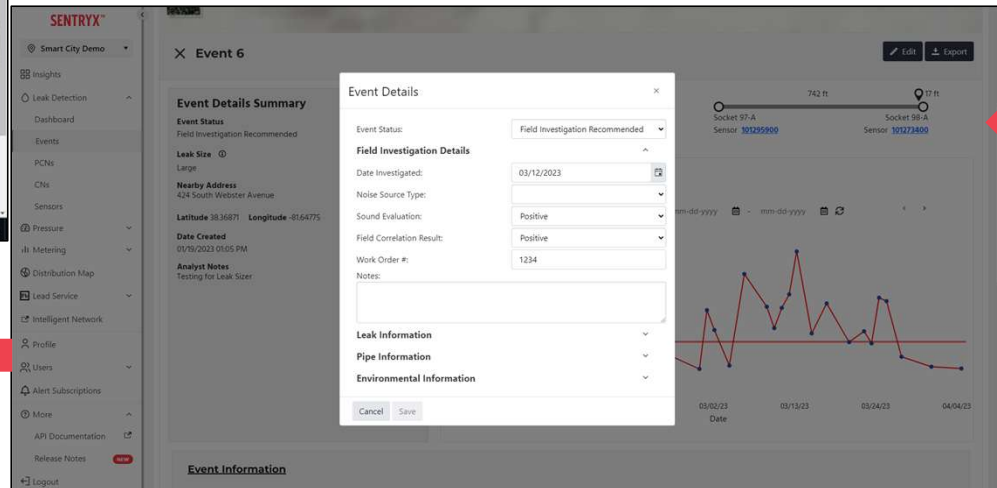
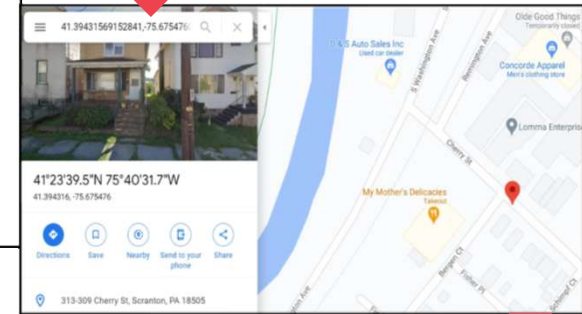
Subject PCN for Investigation Alert

A persistent correlated noise (PCN) has been flagged for investigation.

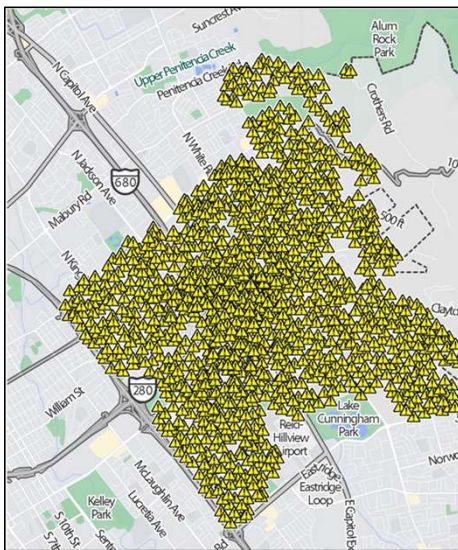
The signal correlates between hydrant IDs A123 and A124, 186 feet from hydrant A123.

The approximate address is: 123 ABC Street, City Name, New York

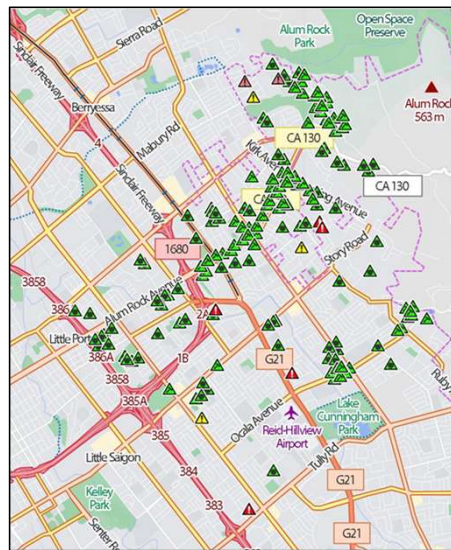
Here's a dropped pin on Google Maps: PCN location <- this would be a hyperlink to a google map with the PCN location



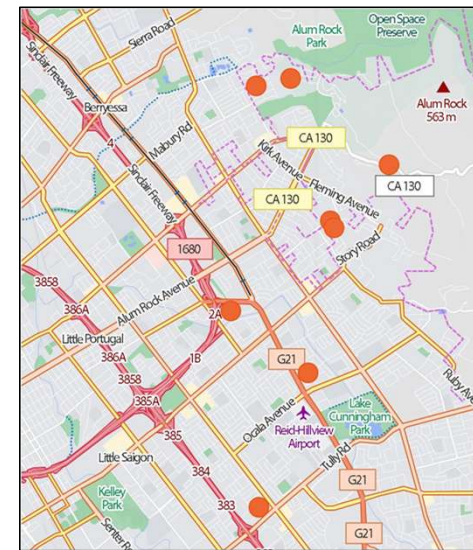
Cut through the noise



Data: 29,297 Network Noises
(correlated noises)



Information: 555 Persistent Noises
(persistent correlated noises)



Insights: 8 Investigations Recommended
(events)

Who are the analysts?



M.Sc. Physics



**B.Sc.
Math & Statistics**



**Ph.D. Electrical &
Computer Engineering**



**M.Eng.
Data Analytics**



**B.A.
Geographic Analysis**



**M.Sc. Mechanical
Engineering**



**Ph.D.
Psychology**



**M.A.Sc. Mechanical
Engineering**



**M.Sc. Industrial &
Systems Engineering**



**Ph.D.
Astrophysics**

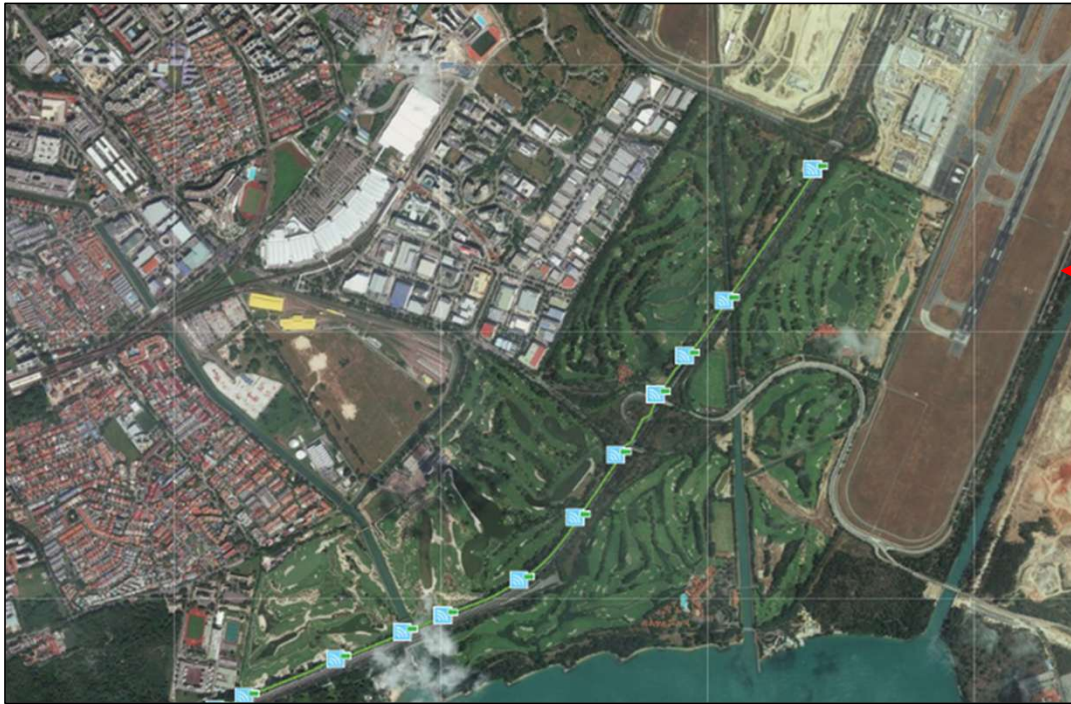
What kind of performance can you expect with managed monitoring?

- We find about 99% of detectable leaks
- Around 60-80% of what we report is leaks
- This can be adjusted to meet client needs

Leaks Found	Leaks Missed
TP 1376	FN 12
FP 717	TN 42593
False Alerts	Classified Correctly

**Sep 2021--Sep 2022 data*

Leak Monitoring System Design: Major Airport Water Supply



Airfield

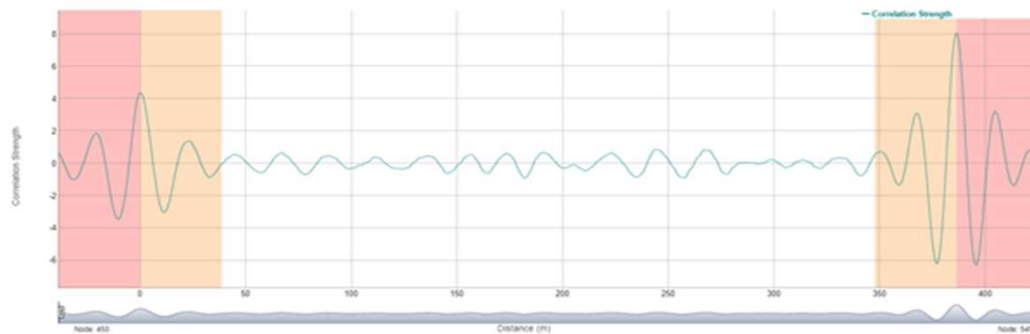


Cimco-GC
SYSTEMS

ECHOLOGICS
a MUELLER brand

Significant Acoustic Signal Detected Day Over Day

June 18th



No noises detected within the pipe segment

June 19th



Strong noise detected within the pipe segment

Confirmed Leak Location: At First Few Signs of Leakage



June 19



June 30

Confirmed Leak Location: At First Few Signs of Leakage



Pin-hole leak



Leak plugged with wood splint smaller than finger

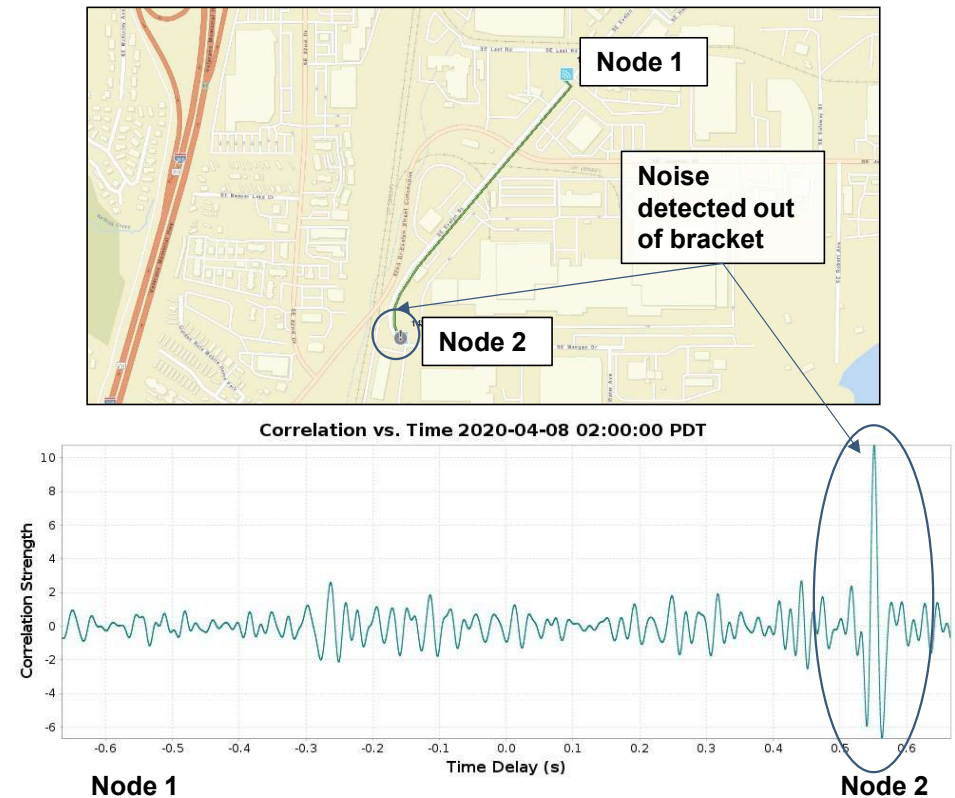
Pump Control Valve Stuck Open

- **Site Overview: West Coast US**

- ESTX monitored a segment of pipe over 2000ft

- **Results: Out-of-bracket noise detected by ESTX**

- Field investigations found an open pump control valve stuck open.
- The noise source was 1,400 feet away from the nearest node.
- The Utility was unknowingly passing 600 GPM to a neighboring water system as free water





Pipe Condition Assessment

Why Perform Condition Assessment Inspections?

Condition Assessment is the collection of pipe data to determine:

- What's occurring in the system today?
- What's the probability of a failure?
- What's the best solution to prevent a failure?
- How much time do I have to implement the solution?



The Problem of Pipe Replacement and Failure

All pipe will degrade and fail over time but at varying rates

- Consequences = water loss and catastrophic breaks

Pipe is hidden underground

- No visual way to determine good versus bad pipe

Reliance on pipe failure history and age can be ineffective

- 60% to 70% of mains being replaced are still in good condition

Replacing and rehabilitating pipe is expensive

- Pipe replacement costs of \$1,000,000 or more per mile

Because of price and selection error, wrong pipes are targeted

- Increasing water loss and likelihood of catastrophic breaks



Cimco-GC
SYSTEMS

ECHOLOGICS
• MUELLER brand

Prioritizing Pipeline Renewal Based on Condition

Pipeline 1

Installed 1860

Brown sandy soil

Moderate soil corrosivity

6" Cast Iron Pipe



31% Thickness Loss

Pipeline 2

Installed 1860

Brown sandy soil

Moderate soil corrosivity

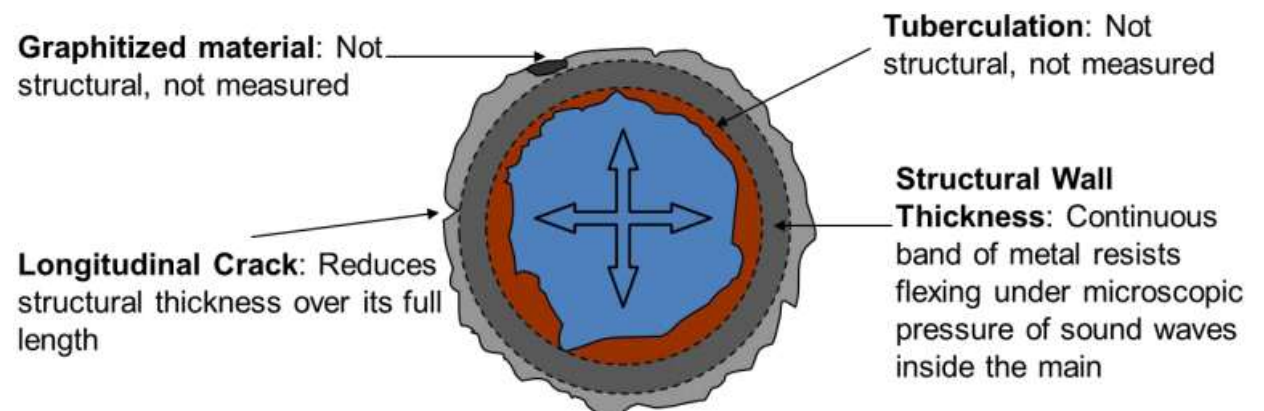
6" Cast Iron Pipe



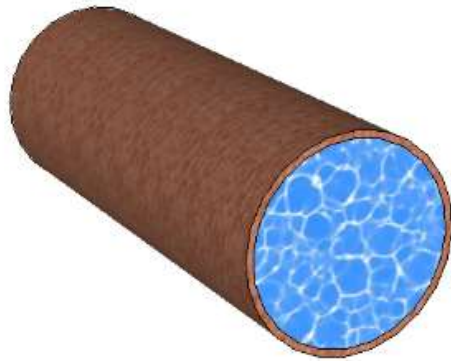
1% Thickness Loss

ePulse – Acoustic Pipe Wall Condition Assessment

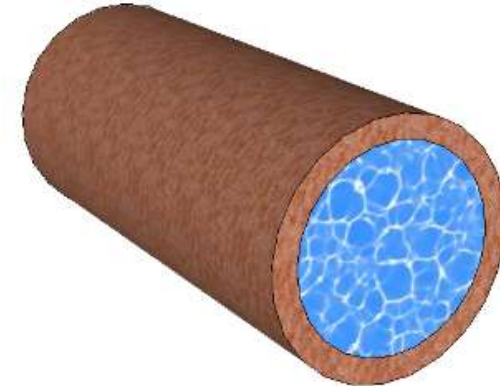
- The **ePulse** measures the average minimum remaining pipe wall thickness over a length of pipe between two sensors
- **Added Value:** Detect Leaks while measuring average minimum remaining pipe wall thickness



ePulse – Acoustic Wave Speed Principle

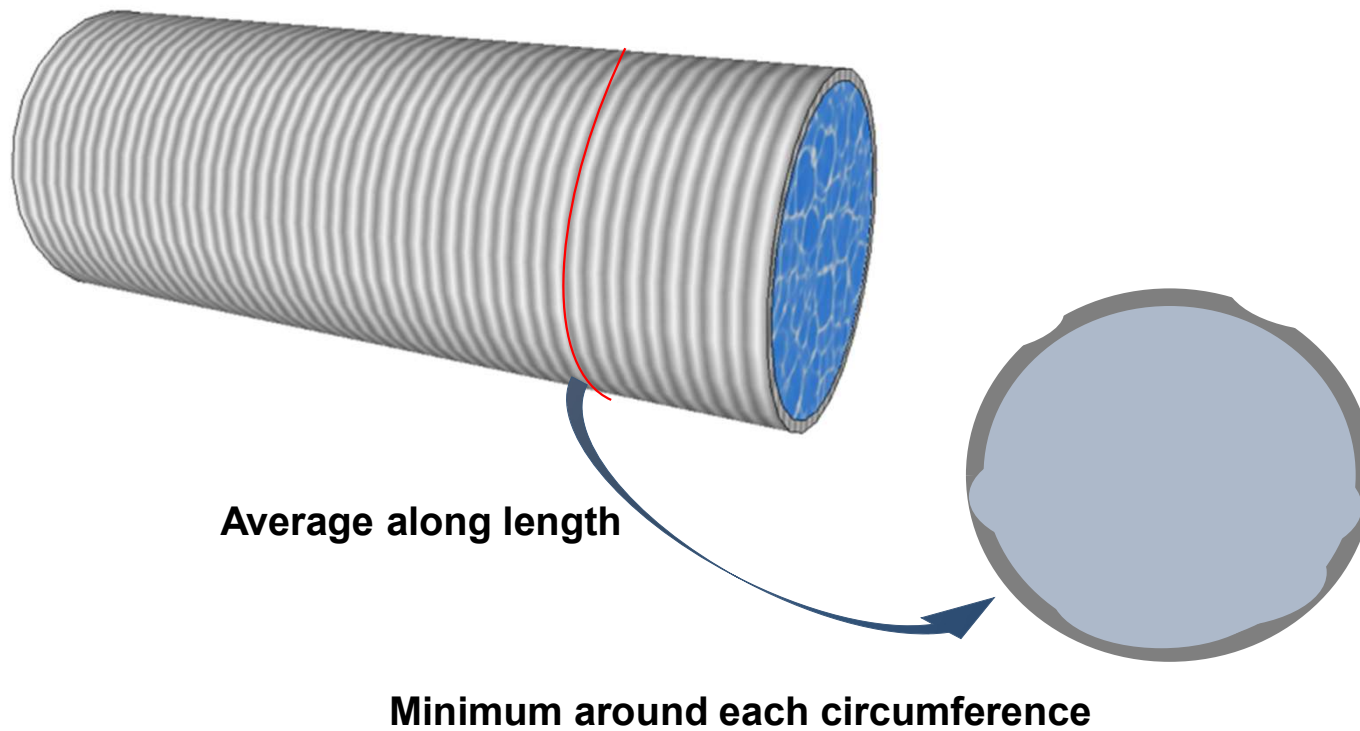


Slower

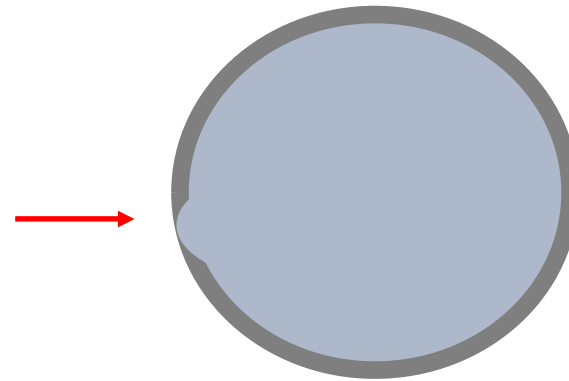
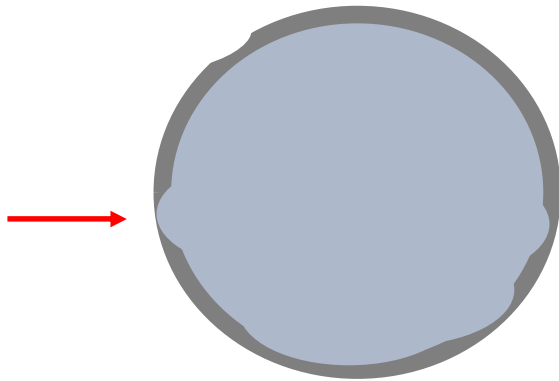


Faster

ePulse Measured Thickness



Measure Minimum Around the Circumference



**Minimum
Wall Thickness**

0.13

**Minimum
Wall Thickness**

0.13

Average Wall
Thickness

0.18

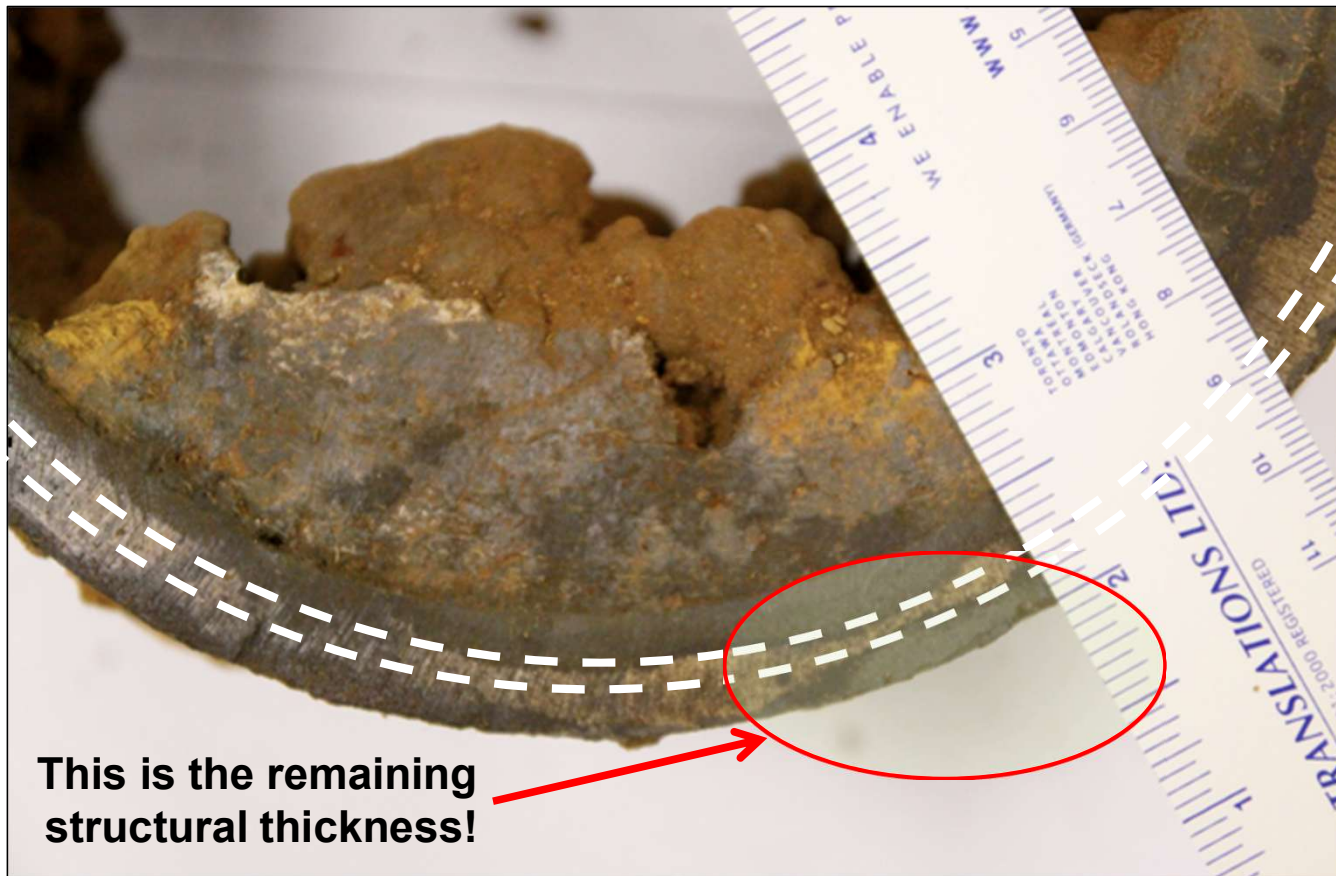
Average Wall
Thickness

0.27



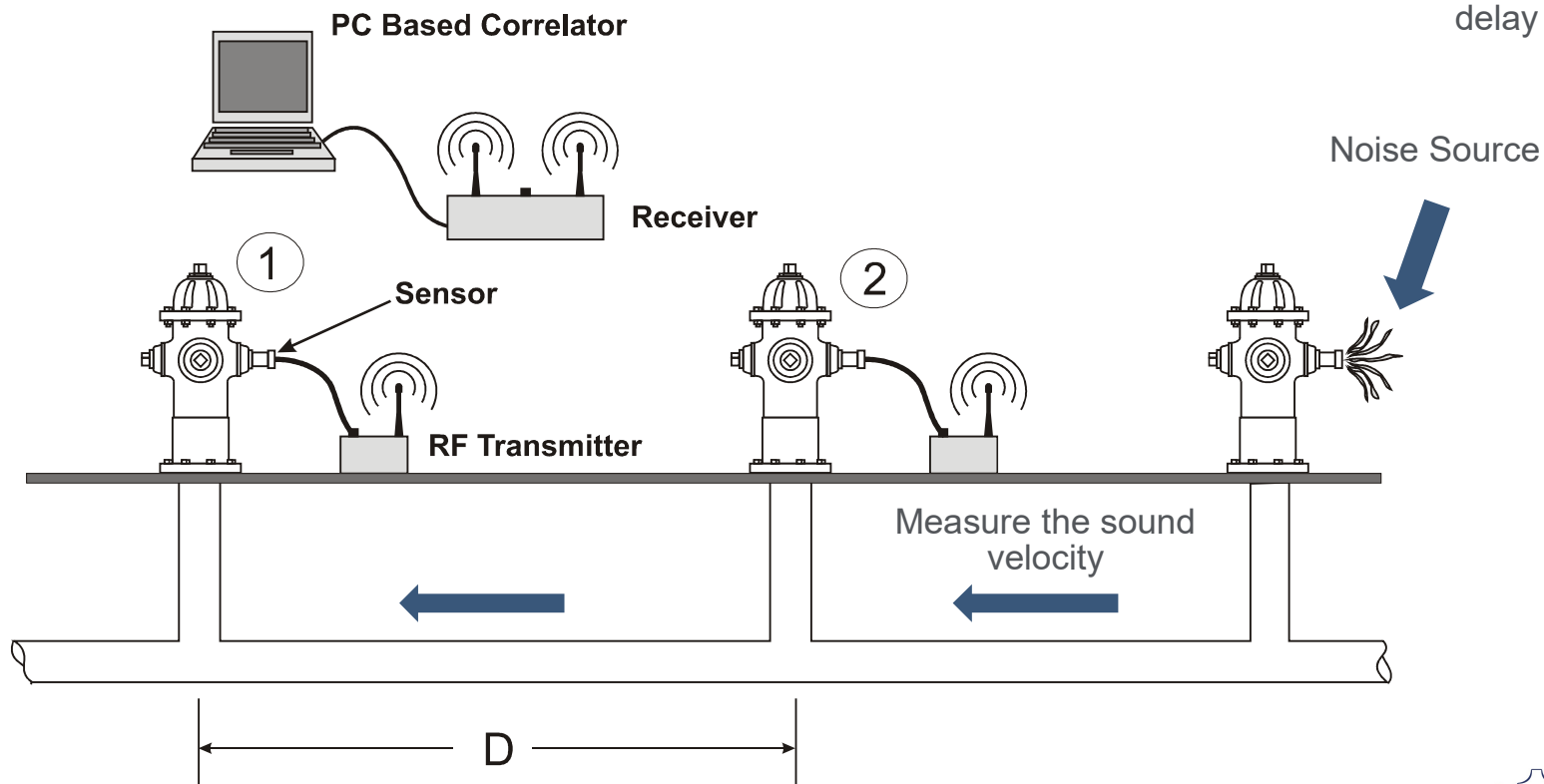
Cimco-GC
SYSTEMS

ECHOLOGICS
• MUELLER brand



ePulse – How it works

Wave propagation velocity (v) = $D/\Delta T$, where ΔT is time delay between signals 1 and 2



ePulse – Typical Field Setup for distribution mains



How it Works – In the Field



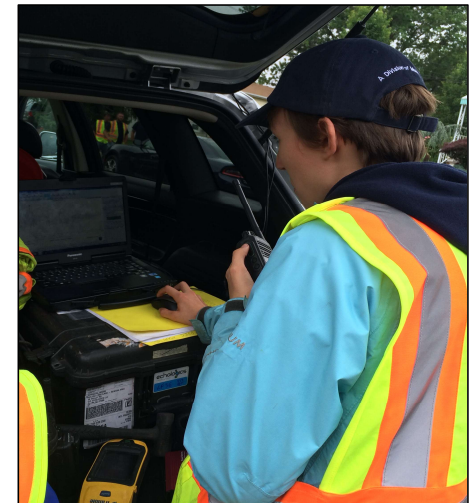
**Connect
Sensors**



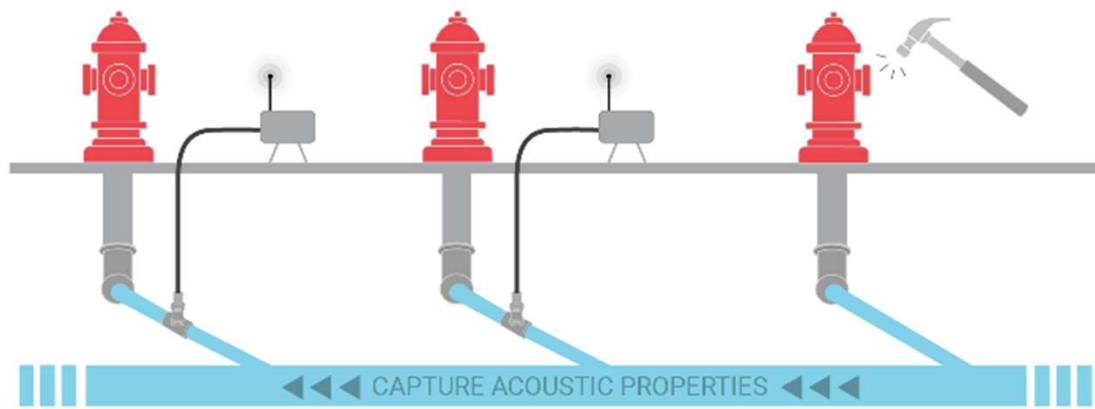
**Measure
Distance**



**Create
Noise**

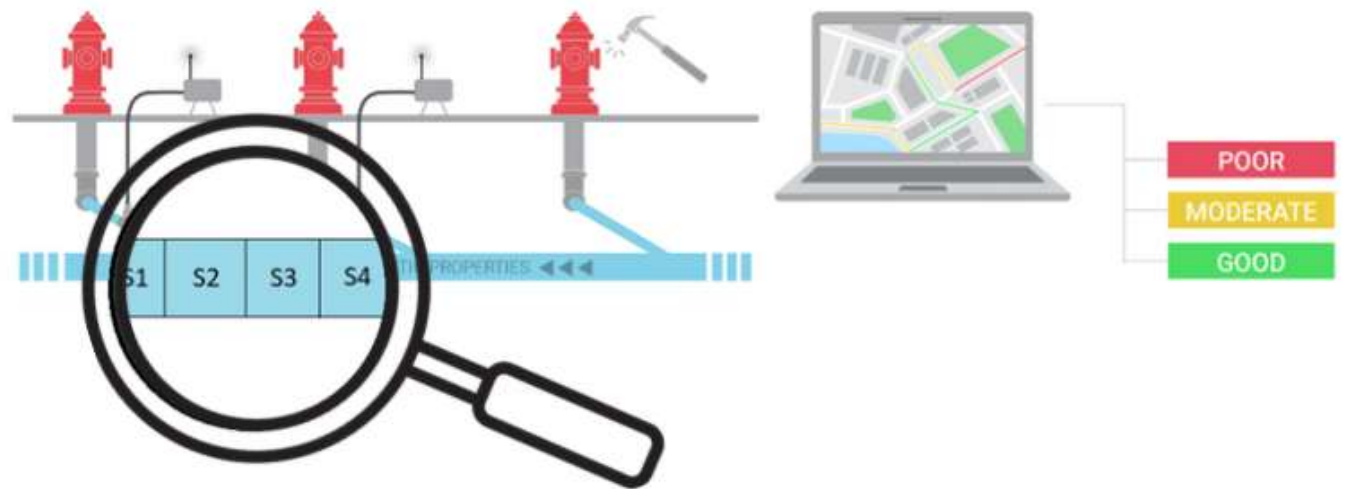


**Measure
Velocity**

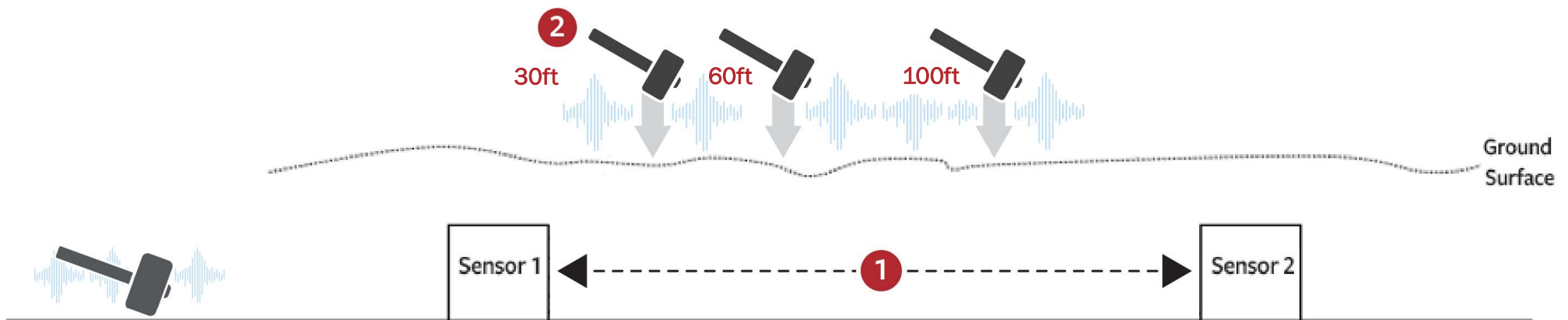


ePulse® Optimize

- Provides pipe ranking of poor, moderate, or good
- Analyzes sections of pipe as low as 30ft
- Provides simultaneous leak detection



ePulse® Optimize - How it Works?



- 1 Carry out standard ePulse including distance measurement between sensors and "out of bracket" excitation recordings.
- 2 Divide and measure out desired sections within the segment and generate "in-bracket" excitation recordings for each section.
- 3 Recordings are sent to Echologics data science team for analysis. A report is provided with pipe condition and location of any leak(s) identified during survey.

ePulse: Technical Qualification

1. The Right Pipes

Pipe Material	Pipe Diameter
Metallic or Asbestos	Up to 108"

2. Maps (GIS Preferred)

3. Access to outside of pipe (~every 700') NOTE: May require potholing

4. Known Pipe Material & Diameter

5. Pressurized Pipes (20+ psi)



Often GIS maps is all you need to develop an ePulse proposal

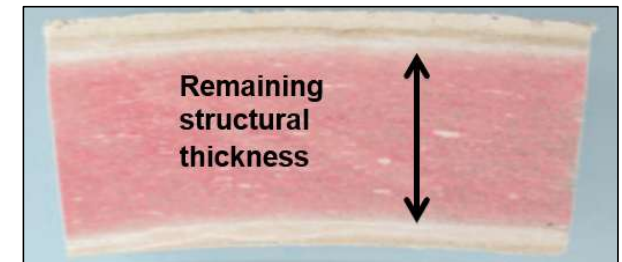
ePulse Survey Results

ePulse Data

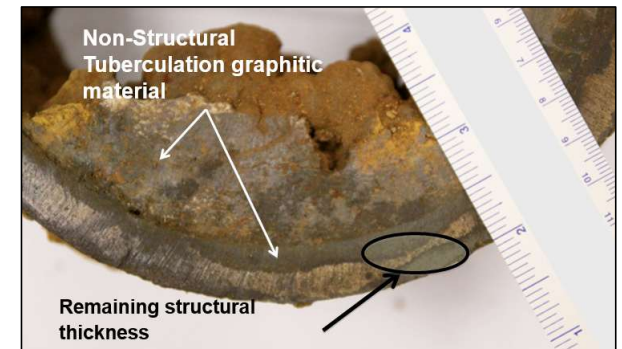
- Remaining Structural Wall Thickness
- % Loss from Original Thickness
- Qualitative Pipe Grade
- Presence and Location of Any Leaks

Section	Diameter (In)	Length (Ft)	Material	Pressure Class	Nominal Thickness	Measured Thickness	Loss
Unit	In	Ft	-	-	In	In	%
1	16	546	DI	350	0.38	0.31	20%
2	16	251	DI	350	0.38	0.23	40%
3	16	252	DI	350	0.38	0.34	11%
4	16	428	DI	350	0.38	0.35	7%
5	16	427	DI	350	0.38	0.37	4%
6	16	516	DI	350	0.38	0.41	0%
		513	DI	350	0.38	0.32	17%
							0%

Sample:
Asbestos
Cement



Sample:
Ferrous



Cimco-GC
SYSTEMS

ECHOLOGICS
a MUELLER brand

ePulse – Typical Results

Applications:

- Pipe Types: CI, DI, AC, BWP
- Segment Distances:
 - Minimum = 150 lf
 - Maximum = 750 lf
 - Preferred = 500 lf

Leak



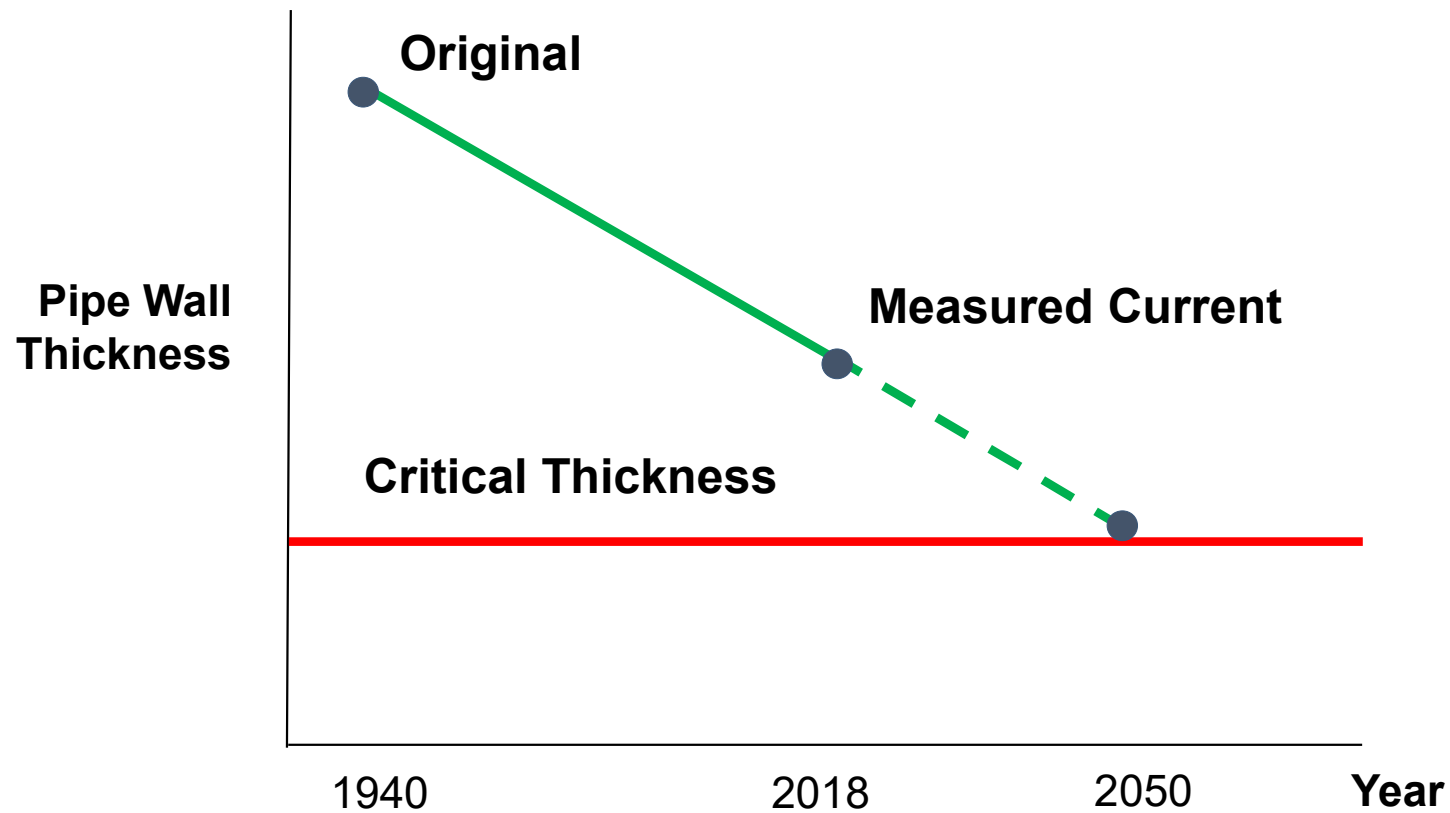
Segment	Street	Distance (ft)	Pipe Material	Internal Diameter (in)	Nominal Thickness (in)	Remaining Thickness (in)	Change from Nominal %
1	West Vine St.	413	Asbestos Cement	6	0.66	0.31	53%
2	West Vine St.	338	Asbestos Cement	6	0.66	0.43	35%
3	West Vine St.	323	Asbestos Cement	6	0.66	0.41	38%
4	Cottage St.	381	Ductile Iron	8	0.33	0.28	15%
5	Cottage St.	425	Ductile Iron	8	0.33	0.30	9%



Cimco-GC
SYSTEMS

ECHOLOGICS
• MUELLER brand

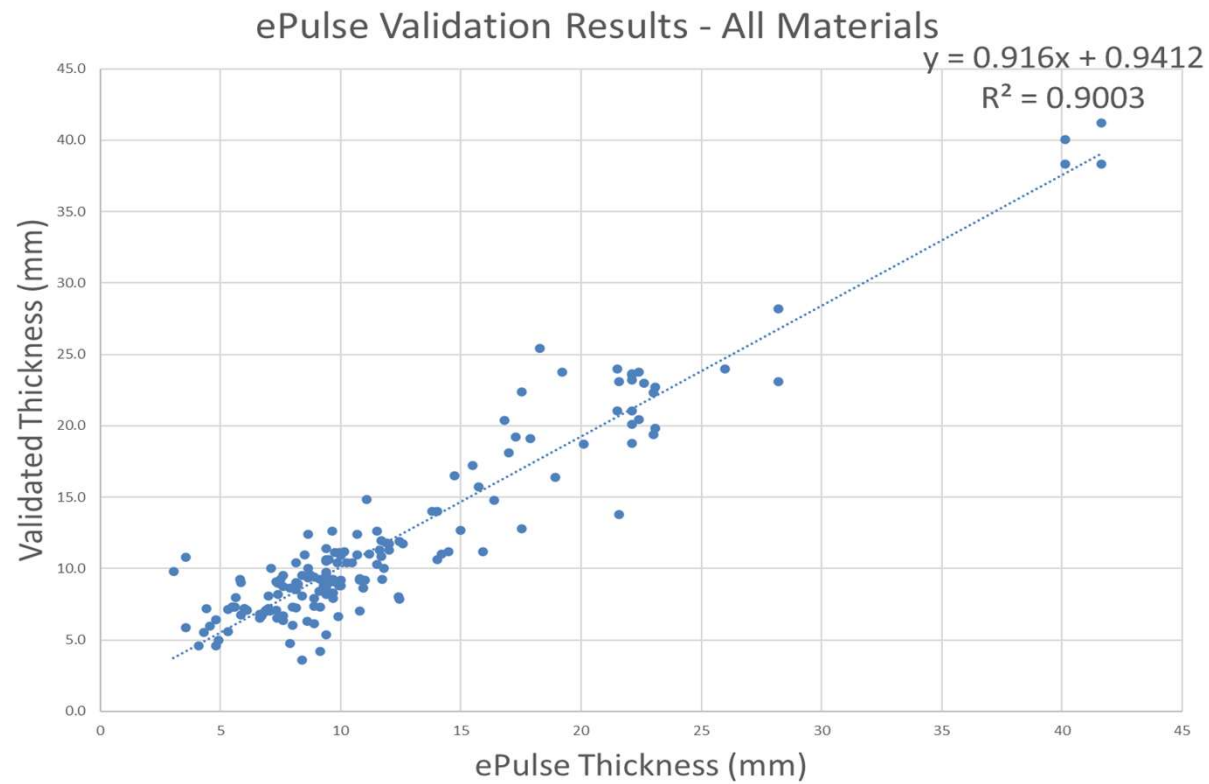
Remaining Service Life Calculation



Remaining Service Life Calculation with ePulse

Pipe Segment	Street Name	Length	Nominal Thickness ₁	ePulse® Measured Thickness	Pressure	Temp	Installation Year	% Change from Nominal	Remaining Service Life (years)	Predicted Breakage Rate	Probability of Failure Per Segment Length
#		(m)	(mm)	(mm)	(PSI)	(°C)				(brks/km/yr)	(this year)
1	Hennebury Pl	185.9	10.9	9.1	85	11	1940	-17%	50+	0.01	<1%
2	McNeil St	152.4	10.9	4.4	70	11.3	1940	-60%	Exceeded RSL	1.02	3%
3	Howley Ave	175.9	11.7	10.2	70	11.3	1940	-13%	50+	0.00	<1%
4	Summer St	132.6	10.9	3.1	70	11.3	1940	-72%	Exceeded RSL	1.71	4%
5	Merrymeeting Rd	168.2	14.7	9.9	85	11.6	1940	-33%	Exceeded RSL	0.16	1%
6	Merrymeeting Rd	133.8	14.7	11.0	85	11.6	1940	-25%	20 to 29	0.05	<1%
7	Merrymeeting Rd	149.7	14.7	10.9	85	11.6	1940	-26%	20 to 29	0.05	<1%
8	Winchester St	114.3	10.9	8.2	85	11.6	1940	-25%	30 to 39	0.04	<1%
9	Monchy St	152.7	10.9	7.8	75	11.6	1940	-28%	10 to 19	0.07	<1%
10	Monchy St	99.4	10.9	8.5	75	11.3	1940	-22%	40 to 49	0.02	<1%
11	Hamel St	147.8	10.9	3.4	95	11.3	1940	-69%	Exceeded RSL	4.21	39%

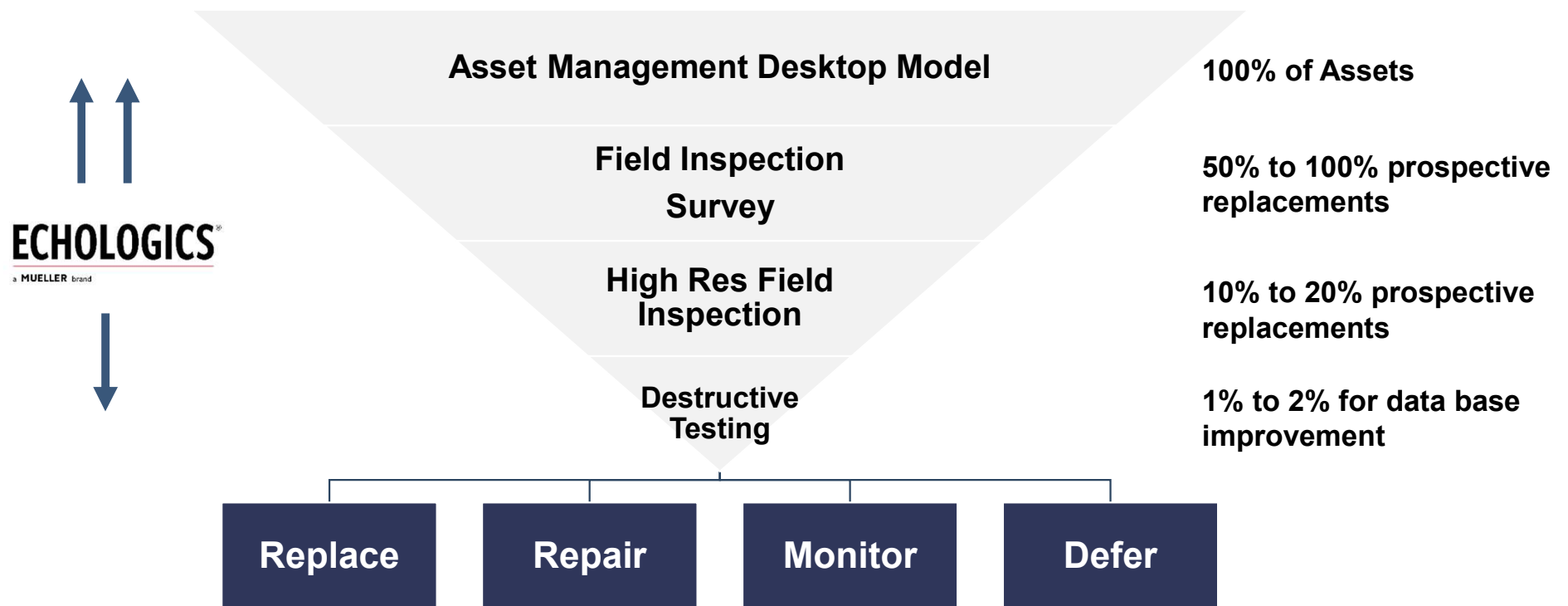
ePulse – Validations



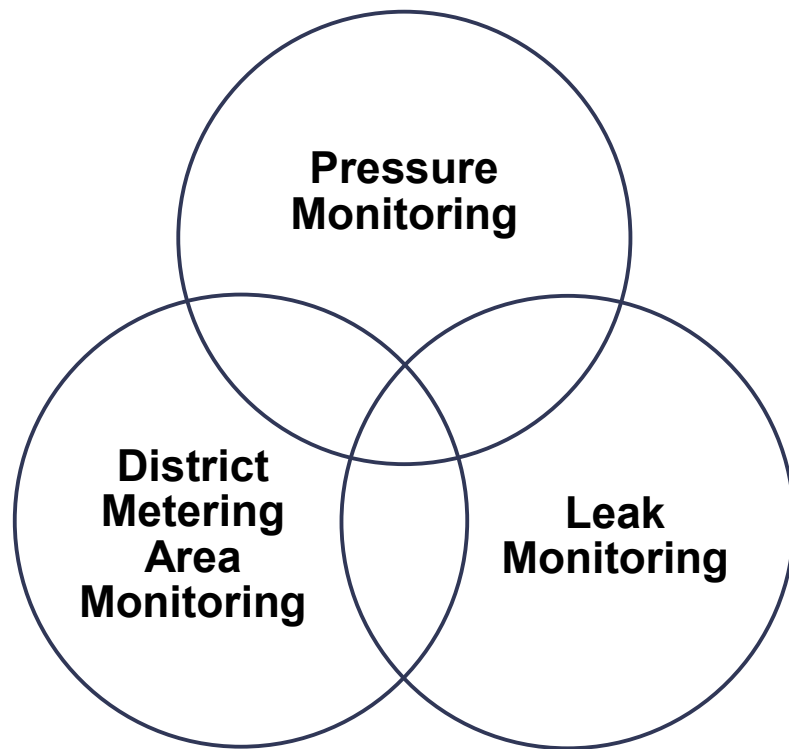
Cimco-GC
SYSTEMS

ECHOLOGICS
• MUELLER brand

Inform Capital Investments



The Power at the Intersection of Multiple Sources of Data



**Sentryx
Facilitates
Decisions**

DMA shows water imbalance

- An older area in town needs focus to reduce non-revenue water loss, but where exactly?

Leak Monitoring proactively shows multiple locations with potential leaks

- Repair team starts to address
- Which ones are the highest priority

Pressure drop is detected and noise from one leak location stops

- Text / email alerts sent immediately, and team jumps into action on high priority repair

Problem: Regulatory mandate to prevent chlorine pollution of rivers and streams.

Solution: Leak monitoring system designed to cover areas adjacent to waterways.

Results: Delivered early notification of over 203 confirmed leaks to date and prevented costly damage to bridges and other infrastructure.



2,000 nodes deployed

Problem: Customer service issues, high cost of water, and the utility understaffed

Solution: Expansive leak monitoring system installed to find and prioritize leak repair.

Results: The system significantly improved level of customer service

- 133 leaks found since January 2018
- 44+ million gallons of water saved



Water Loss Prevention: Irvington, New Jersey

Problem: Leak surveys not conducted due to safety concerns. High rate of water loss.

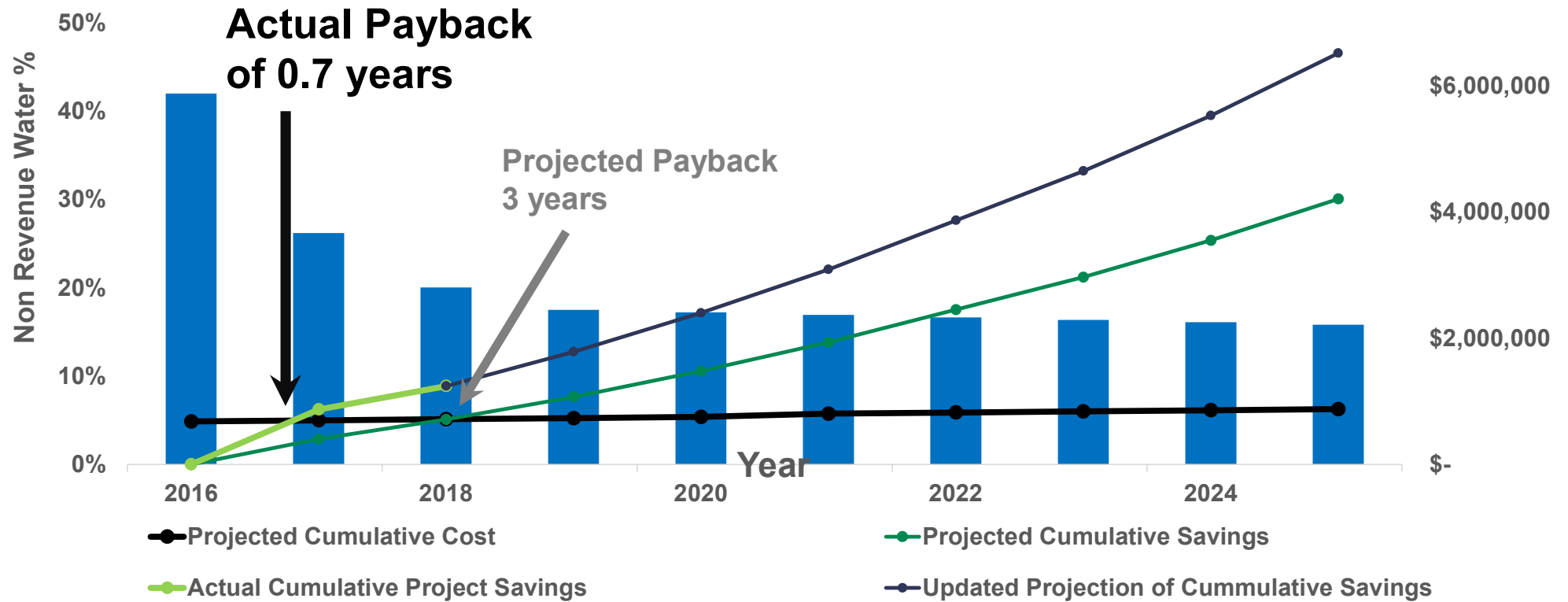
Solution: Leak monitoring system installed to plan leak repairs proactively with appropriate staffing.

Results: Payback of system within 9 months.
In first year of monitoring:

- 67 leaks repaired
- 880 gallons per minute of water loss prevented
- 90% of leaks not surfacing



Irvington, NJ: Actual ROI & Project



PURPOSE

The purpose of the Pilot Performance Evaluation Document is to develop an understanding of and establish the expectations for the Echologics® Cellular EchoShore-DX installation. This document establishes the terms that will be used to determine if the pilot installation will be considered successful or unsuccessful.

PILOT PERIOD

The Echologics pilot start date will be considered as the installation completion date of all necessary equipment, hardware, software, and any associated training needed to evaluate the pilot program. The pilot ending date will be a maximum of 90-days after the pilot start date.

PILOT PERFORMANCE EVALUATION CRITERIA

- **Leak Tracking**
- **System Communication**
- **Technology Functionality**
- **User Interface Functionality**
- **Vendor Evaluation**
- **Overall *Customer* Evaluation**

- **Qualifying Questions**

- Budget for successful pilot?
- Will the project require going to an RFP?
- Expectations to expand beyond successful pilot
 - Budgets
 - Legal
 - Drivers
 - Hurdles

- **Pilot Details**

- Install a 60-day performance evaluation pilot based on CUSTOMER expectations and criteria.
- The pilot would conclude in one of three options:
 - CUSTOMER deems the pilot successful and moves forward with a second phase of 100+ nodes
 - 30 DX Nodes for pilot will be discounted per negotiated agreement
 - CUSTOMER deems the pilot successful but decides not to move forward with expansion:
 - Echologics will invoice CUSTOMER for negotiated product rates
 - No more action
 - Pilot deemed to be unsuccessful
 - Echologics will remove nodes
 - CUSTOMER will not be charged for any product or service.

- **Managing Pilot**

- Sales Leads Project
 - Structure support team
 - Roles & Responsibilities
- Weekly/Bi-Weekly Call
 - Sales should lead with support from project manager
- Track success of pilot
 - Work with project manager to update POC monthly

- **Pilot Results**

- Successful-No More Deployments
 - Echologics will invoice customer the agreed upon pilot cost including 12-month service fees
- Successful – Expand Deployment
 - Offer pilot discount based on number of node expansion
- Unsuccessful
 - Echologics uninstalls unit at no-charge
 - No costs to customer



Questions?



Cimco-GC
SYSTEMS

Ray Velasquez
ray@cimco-gcsystems.com
(253) 205-4760

ECHOLOGICS
a MUELLER brand





Questions?



Cimco-GC
SYSTEMS

Patrick Miller

patrick@cimco-gcsystems.com

253-263-3099

ECHOLOGICS®

a MUELLER brand





Questions?



Cimco-GC
SYSTEMS

Trevor Cole

Trevor@cimco-gcsystems.com

253-534-5667

ECHOLOGICS
a **MUELLER** brand

