


UCT

THE Event For The Utility Infrastructure Industry

Underground Construction Technology

International Conference & Exhibition



ACE PIPE CLEANING INC.
a Carylton Company

Inspection Technologies
Acoustic to LIDAR


Bruce Jameson, Certified Associate Asset Manager AWAM

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ACE PIPE CLEANING

ASSET MANAGEMENT

WATER
SEWER
STORM WATER

INSPECTION
MAINTENANCE
REHABILITATION


A FULL SERVICE NATIONAL INSPECTION TO REHAB COMPANY FOR WATER, STORM, AND WASTE WATER SOLUTIONS
CURB TO PLANT SOLUTIONS

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What's the Alternatives to Condition Assessment?

- **Tale of Two Extremes**
 - Do Nothing; Run to Failure **Very Risky! Very Expensive!**
 - Replace Everything **Very Risk Averse! Very Expensive!**

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WATER

Technology-Based Solutions Provide those Answers to Manage Risk

- Prioritize IMMEDIATE Rehabilitation/Replacement Priorities
- Develop long-term capital improvement with Quantitative Data
- Develop sensible asset (risk) management Matrix
- Improve Water QUALITY
- Improve, Enhance, and Extend RUL of Infrastructure

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WATER

Water Main Condition Assessment Solutions for Leaks/Condition/RUL

Ultrasonic
 Destructive-Coupon*
 Acoustic
 HDCTV/Acoustic
 ND-CAT Scans*
 Robotics*
 Pressure Sensors
 Destructive-Coupon*
 Emerging Technologies

*requires access or excavation

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Finding Solutions that Manage Risk

- How Much Information about Assets to Avoid Failures?
- How Much Information to Avoid Unnecessary Capital Replacement Projects?
- Every Water System has unique Risk Profile and Condition Assessment Needs

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"Live" Water Main Condition Assessment

Challenges for Water Infrastructure Inspection and Assessment

- A 24/7/365 asset
- Pressurized/full-flow condition
- Very limited access
- Public health and safety
- Minimal history on condition
- Wide range of age and type

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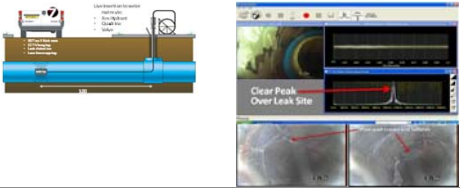
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WATER

"Live" Water Main Condition Assessment

Live Insertion No-dig Inspection



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Live Water Main Inspection Solutions

JD7 Technologies
New Construction Verification
Potable Water Line

Psi: 125

Distance: ~227.5 ft

Hydrant Insertions

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Live Water Main Inspection Solutions

Main Line Solutions 2" Insertion



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Live Water Main Inspection Solutions

- Another tool in your toolbox
- Additional Technologies in the marketplace
- More Competitive pricing in an expensive market

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Waste Water

Waste Water

ACOUSTIC SEWER INSPECTIONS

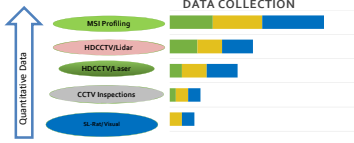
SL-RAT RAPID ACOUSTIC TECHNOLOGY



Waste Water

Inspections Basic-Advanced

What is the difference between conventional CCTV and a "advanced" inspection?



Waste Water

Common Types of Inspections

Basic Level

- Smoke
- Acoustic
- Conventional CCTV
- **Advanced**
- CCTV and Laser
- CCTV and Sonar
- Combination Sonar/Lidar/Laser/HD-CCTV
- "Smart" Technologies"

Waste Water







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Waste Water

Inspections Basic-Advanced

"Level One" Inspections CCTV- Used for 20+years

Pro's

- Proven technology
- Inexpensive
- Standardized- PACP
- Reliable

Con's

- Visual
- Interrupted
- No Measured Values!



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What is Quantitative Data?

How Much Wall Loss Do You See?

Wall thickness 5"

Maximum Wall loss 4.6"

Wall thickness 5"

Wall Loss 4.8"

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HD Manhole Inspections




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HDCCTV

- Providing better data to engineers, reduces stress for operators
- Increased productivity
- Changing the way we inspect our underground infrastructure.



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HDCCTV



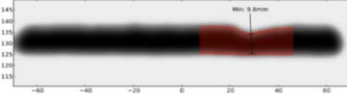

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CAT SCAN Systems

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What is an “advanced” technology?

- Any “Advanced Technology” is generally a platform that can detect various defects in Sewer Mains that may be undetectable by conventional CCTV. These platforms have a series of sensors for detecting defects, ovality issues, corrosion loss for QUANTATIVE measurements within millimeters.

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Benefits of Multi-Sensor Inspections

“MANAGE” Critical Large Diameter Assets

- Overcome Manhole Access Issues
- Full Automated pipe wall loss measurements
- Extensive Detailed Engineered Reports
- Quantitative data for Proactive decision making
- Predict likelihood of failure of existing pipe
- Determine if Pipe Cleaning is necessary/ methodology
- Define exact debris quantities/ disposal costs”

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Benefits of Multi-Sensor Inspections

“MANAGE” Critical Assets- Large Diameter

- Identify emergency repairs before total failure occurs
- Extend Remaining Useful Life of Existing Pipelines
- Predict likelihood of failure of existing pipe
- Provide MEASURED data for rehabilitation methodology
- Prioritize Rehabilitation Projects with Quantitative Data
- “Manage” System into Perpetuity*

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MSI Floating Platforms



LIDAR Live Feed Platform

Autonomous SONAR Platform

Ace Pipe QWNS and deploys the TECHNOLOGY DAILY

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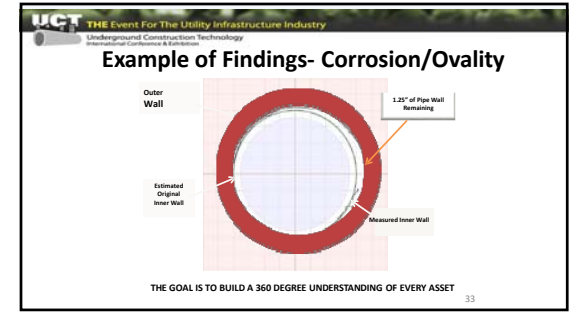
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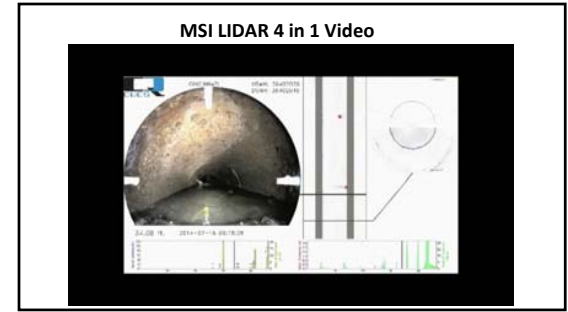
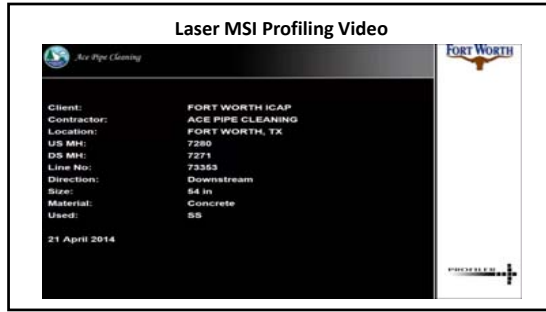
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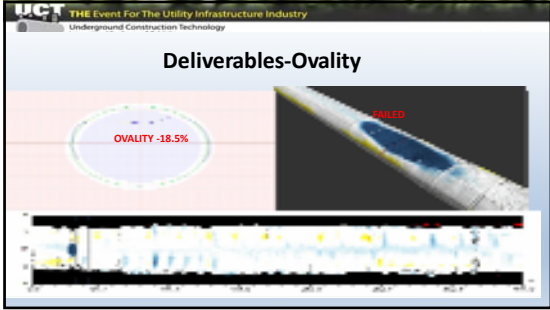
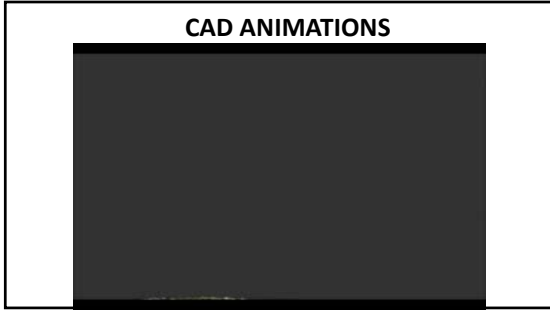
Risk Based Assessment

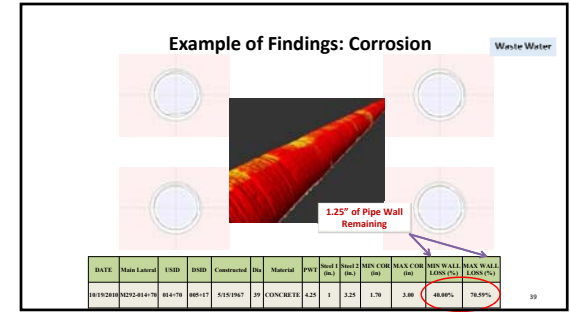
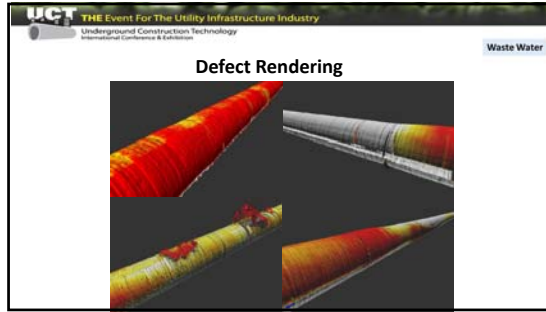
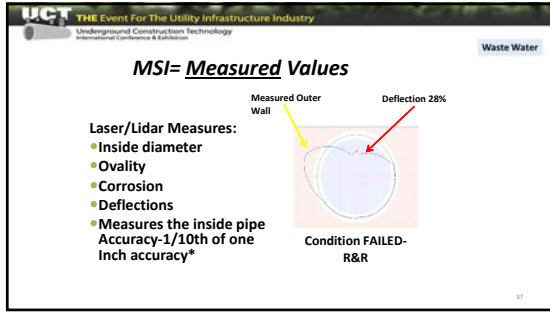
Probability of Failure/Criticality of Failure

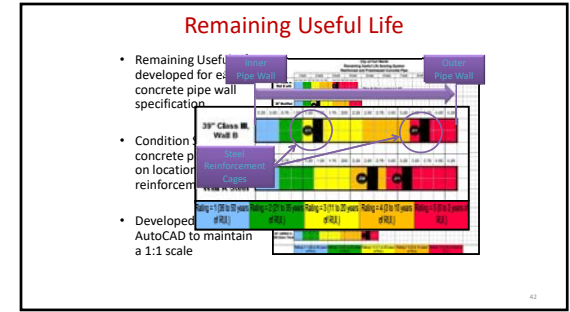
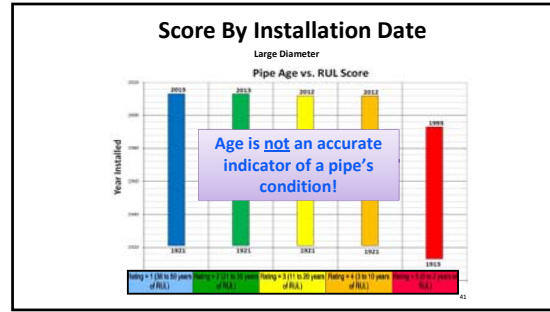
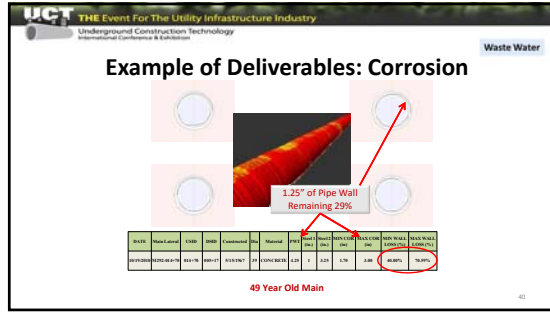
		Condition				
		Very Good (Rating 1)	Good (Rating 2)	Fair (Rating 3)	Poor (Rating 4)	Very Poor (Rating 5)
Impact	Low	Low Risk				
	Medium					
	High			Medium Risk		
	Very High					
					High Risk	

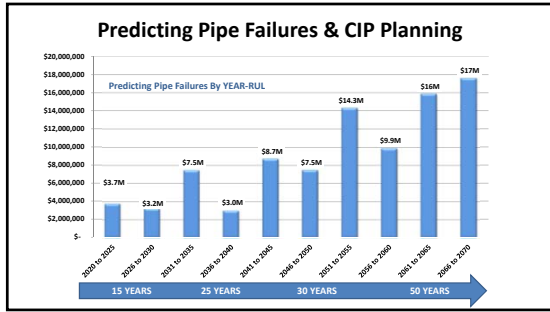












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MSI Data Ongoing Analysis

- Acceleration- Speed
- Corrosion Loss- Linear?
- Ovality- External Pressures Effects/Reaction
- Tuberculation Accumulation- Timeline
- Reactions to Chemical Applications-Effective

National Recognition

2016 TCEQ EXCELLENCE AWARD



Reactionary Asset Management



Pipe Collapse- Excessive Corrosion = ADDITIONAL 1.5 million dollars ER

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100 GPM Jet-Vac RECYCLES 100% of Water used



Questions?



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