

OTD: Addressing Distribution and Transmission Industry Needs

August 6, 2014

DOT PHMSA Government & Industry R&D Forum

Panel 2: Current Industry Research

OTD

Operations
Technology
Development

Operations Technology Development

- Addressing the Nation's Infrastructure Needs

- OTD's 22 members directly represent over 28 million natural gas customers – a true representation of the nation's LDC infrastructure
- OTD's members operate about 20% of the total intrastate pipeline in the lower 48
- The majority of OTD's members have intrastate transmission pipelines with unique challenges including legacy materials, short unpiggable sections, and small diameters
- The members' distribution systems vary widely in materials, age, and construction techniques requiring enhanced risk assessment and mitigation

OTD Portfolio of R&D Projects

OTD Focus Areas

- > Data and Integrity Management (includes inspection and verification)
- > Infrastructure Innovations & Rehabilitation (includes construction techniques)
- > Environment, Health, and Safety (includes methane emissions)



Crosscutting

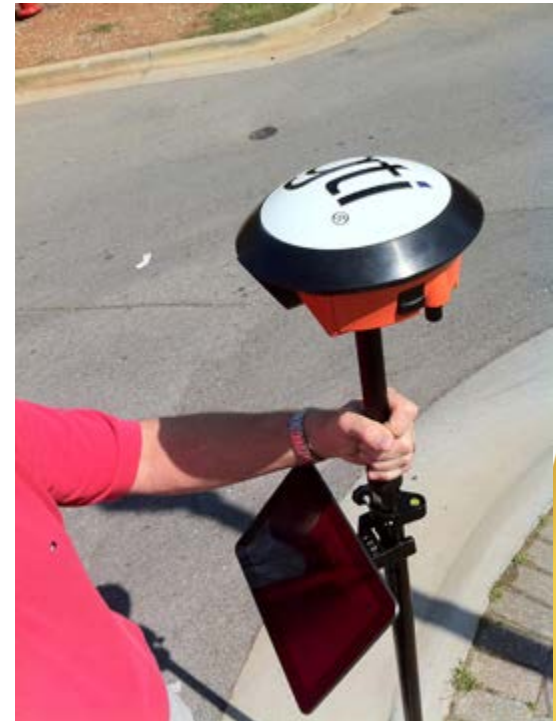
- > Safety & System Integrity
- > Efficiency of Operations
- > Renewable Energy and Gas Quality
- > Smart Energy Future



Alignment with Working Group

- *Damage Prevention*

- Geospatial Technologies for Preventing Excavation Damage
 - Geospatial technologies for creating high accuracy maps
 - GPS for monitoring excavation activities to prevent encroachment
- Need: Lower cost tools and integration into daily use



Alignment with Working Group

- *Leak Detection/Fugitive Methane*

- More Accurate Emissions Information
 - Develop a methodology for calculating methane emissions that will provide an increased level of accuracy
 - Provide technical validation of methodologies and emission data
- Needs
 - Continuous improvement in the quantification of distribution sector emissions to enable accurate utility level tracking of emission profiles
 - Build robust data set of leak emission characteristics to better quantify methane emissions
 - Implement utility specific methodology to establish baseline emission profiles and quantify subsequent reductions
 - Leak survey technology that will enable prioritization based on safety and environmental issues

Alignment with Working Group

-Anomaly Detection/Characterization

- Assisting Operators in Maintaining Safety through Inspection and Verification
 - Developing a small diameter EMAT sensor for crack detection and coating disbondment/quality identification
 - Supporting new work on Guided Wave inspections
- Needs
 - Improved crack detectors for small diameters
 - Nondestructive determination of mechanical properties, chemistry, and seam identification from inside and/or outside the pipe

Alignment with Working Group

- *Improving Risk Models*

● Useful Risk Models

- The focus is on predictive models, calculators, and databases that describe the complex and interconnected behavior of infrastructure systems and their risks.

Examples include:

- Hydrotest Alternative Calculator
 - Leak Rupture Boundary Model
 - In-Field Corrosion
 - Mechanical Corrosion
 - Vintage Plastic Pipe
 - Cast Iron Corrosion Rate
- Need: Industry-standard, risk-based model for mains replacement programs

Alignment with Working Group

- Addressing Legacy Materials Challenges

- Vintage Piping Systems - Risk Quantification and Mitigation Optimization Tools
 - Composite material solutions
 - Alternative pipe replacement options: splitting, insertion, etc.
 - Identification of high risk materials and prioritization to assist with replacement options
- Needs
 - Structural, flexible, and tappable liners for legacy pipelines
 - Small diameter sensor for crack detection
 - Tracking and traceability for piping systems

Thank you!



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Serving over 28 million natural gas customers, our members are committed to strengthening North America's delivery infrastructure.