



Interstate Natural Gas Association of America **Leak Detection**

Panel 3: Considerations for Natural Gas Pipeline Leak Detection Systems
Natural Gas Pipelines National Perspective

As Presented at the PHMSA Leak Detection Workshop on March 27, 2012



INGAA – Who We Are



Interstate Natural Gas Association Of America

- Trade association representing 27 natural gas transmission pipeline operating companies in North America
- Mileage representing approximates 203,000 miles, or 2/3 of United States gas transmission mileage

INGAA Member Companies:

Alliance Pipeline Ltd.

Boardwalk GP, LLC

Carolina Gas Transmission Corp.

CenterPoint Energy

Cheniere Energy, Inc.

Dominion

DTE Pipeline Company

El Paso Corporation

Enbridge Energy Company, Inc.

EQT Corporation

Iroquois Pipeline Operating Company

Kinder Morgan

National Fuel Gas Company

National Grid

New Jersey Resources

NiSource Gas Transmission & Storage

ONEOK Partners

Pacific Gas & Electric Company

Panhandle Energy

Questar Pipeline Company

Sempra Pipelines and Storage

Southern Star Central Gas Pipeline

Spectra Energy

TransCanada Corporation

Transwestern Pipeline Company

Williams Gas Pipeline Company

Williston Basin Interstate Pipeline Co.

Guiding Principles of Pipeline Safety



- **Our goal is zero incidents** - a perfect record of safety and reliability for the national pipeline system. *We will work every day toward this goal.*
- **We are committed to safety culture** as a critical dimension to continuously improve our industry's performance.
- **We will be relentless in our pursuit of improving** by learning from the past and anticipating the future.
- **We are committed to applying integrity management principles on a system-wide basis.**
- **We will engage our stakeholders** - from the local community to the national level - so they understand and can participate in reducing risk.





IMCI Action Teams



1. Stakeholder Outreach	Two-way communication with meaningful performance measures. Actively promote PIPA (Pipeline and Informed Planning Alliance)
2. Risk Management	Apply risk management concepts beyond High Consequence Areas (HCAs) with comprehensive threat analysis
3. Integrity Management Tools	Enhance corrosion control methods and anomaly management protocols
4. Pipelines Built Prior to PHMSA Regulations	Develop inventory and protocols to manage integrity
5. Technology Development & Deployment	• Improve crack-detection tools & management • Work with PHMSA to produce a R&D road map, and • Define assessment alternatives for non-piggable lines
6. Management Systems	Apply safety culture principles to drive learning across the industry
7. Emergency Preparedness Response	Update isolation valves automation and enhance public awareness
8. New Construction	Fully implement the 2010/2011 INGAA Foundation Pipe and Construction Action Plans
9. Storage	Clarify regulatory oversight for storage facilities

INGAA Members 9 Step Action Plan



- Apply Risk Management beyond High Consequence Areas (HCAs)
- Raise the Standards for Corrosion Anomaly Management
- Demonstrate Fitness for Service on Pre-Regulation Pipelines
- Shorten Pipeline Isolation and Response Time to 1 Hour in Populated Areas
- Improve Integrity Management Communication and Data
- Implement the Pipelines and Informed Planning Alliance (PIPA) Guidance
- Evaluate, Refine and Improve Threat Assessment and Mitigation
- Implement Management Systems across INGAA Members
- Provide Forums for Stakeholder Engagement and Emergency Officials

Leak Detection encompassed within these action steps

Leak Detection



- **Prevention**

- ... let's not have leaks to start with
- ... but if there is a leak, let's be sure their consequences are mitigated

- **Detection**

- ... and let's be sure we have continuing and robust surveillance to proactively detect them

- **New, workable leak detection technologies and methodologies are welcome**

Leak Detection



Prevention

- Design
- Construction
- Hydrostatic testing
- Integrity management programs
- Pipeline replacements
- Corrosion control
- Damage prevention programs
- Other O&M
- R&D

Mitigation

- Isolate segment
- Pressure reduction
- Repair
- Replacement
- “Green” areas
- Emergency response plans
- Public awareness

Detection

- Leak surveys
- Line patrols
- Aerial patrols
- Odorant / smell
- Visual
- Sound
- SCADA ?
- R&D

Leaks vs Ruptures



- **Larger risk for gas transmission lines can be ruptures versus leaks**
- **Leaks don't necessarily serve as precursor for ruptures for high pressure pipelines... often little warning for a rupture**
- **Significant pipeline integrity management efforts focus on prevention of both ruptures... and leaks**

Leak Detection Benefits

- **We recognize the benefits of leak detection:**
 - **Minimize safety hazards to the public and communities**
 - **Minimize environmental effects, including any greenhouse gas effects**
 - **Minimize loss of product**
 - Saves energy
 - Minimizes lost & unaccounted for gas
 - Saves customer and/or operator cost
- **But we're still working to look for and control the precursor(s) to a leak via Integrity Management programs**

Leak Detection



- **Few revolutionary methods for leak detection for natural gas pipelines in recent years**
- **Management processes must be in place for leak detection:**
 - Use of conventional methods
 - Overall layers of redundancy and overlap to manage
- **New methods and technology needed to take leak detection for natural gas pipelines to the next level for new and existing pipelines:**
 - SCADA detection of leaks ?
 - Field detection/verification of leaks
 - Methods to manage leaks

Summary



- **We want to continue to focus first and foremost on prevention... work toward our goal of zero incidents**
- **We recognize the importance of leak detection and will continue to embrace available, value-adding leak detection systems**
- **We recognize the need for and welcome additional and workable leak detection technologies and methodologies**

Reminder...



April is... National Safe Digging Month!



**Know what's below.
Call before you dig.**