

Inspection, Repair and Leak Detection

Technical Track 3

Government/Industry Pipeline R&D Forum
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Needs Summary

■ Leak Detection

- Assessment of significance of small leak problem
- Manage perceptions
- New technologies for real-time monitoring and detection of small leaks
- For LDCs, develop hand-helds and methods for pinpointing location and migration patterns
- For liquids, develop fly-over devices, and assess needs for new technologies vs. analytical model developments
- Technologies for use in deepwater offshore operations

Needs Summary

■ Sensor Technology

- Develop improved understanding of performance characteristics of existing technologies → examine emerging technologies to improve results
- For unpiggables,
 - Improved power and communications and/or lighter sensors
 - Integration of platform and sensor package design
 - Guidelines for cleaning
- In-ditch methods for SCC characterization
- Methods for inspecting cased pipes
- Assess needs for new technologies
 - Inspection of non-metallics
- Considerations for small diameter pipelines
- Methods/techniques to maximize data acquisition
- Development of geometry tools to traverse multi-diameter pipes

Needs Summary

■ Mechanical Damage

- Enhance methods of inspection and assessment for qualitative screening and ranking
- Develop tools and methods of inspection and assessment for quantitative life predictions and prioritization of severity damage
- Identify methods to locate and repair damage in difficult to inspect areas
- Develop proper definitions for cracks and other damages
- Design tools to inspect pipes of various steel grades and non-metallics

Needs Summary

■ When to Repair

- Identify technologies needed to support repair decisions
- Investigate how to mine existing datasets with goal of providing improved industry guidance
- Need to transfer technologies to industry to influence standards and regulatory activities

Needs Summary

■ How to Repair

- Guidance on proper selection of composite and other repair techniques
 - Tracking database
 - State of industry report
- Consider drivers for selection of repair technologies

Identified Projects

- Best Practices Guideline for Pipeline Repair Considering Non-Metallic and Other Repair Techniques (Technical/Economic Study) Guidance on proper selection of composite and other repair techniques
- Industry-wide JIP for Data Mining of Pipeline Defects
- Study Effects of SCC in Dents and High Stress Regions (Bends, Buckles, etc.)
- Technology Transfer of Repair Techniques into Body of Standards
- Develop Analytical Methods and Requisite Complementary ILI Tools for Quantifying Mechanical Damage Effects on Pipeline Integrity
- Enhance Methods of Inspection and Assessment for Qualitative Screening and Ranking of Mechanical Damage Defects

Identified Projects

- Work Towards Proper Definitions for Cracks and Other Damages
- In-Ditch Methods for SCC Characterization
- Study of the Fundamentals and Performance Characteristics of Current Sensor Technologies
- Development of Inspection Technologies for Small Diameter Pipelines
- Inspection Technologies for Non-Metallics
- Small Leak Detection
- Enhancement of Tools for Computational Pipeline Monitoring
- Pinpointing Leak and Determining Migration Patterns