

# **Working Group #1**

# **Gas Gathering Pipelines**

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# Attendance Breakdown

Approximate total attendance	33 persons
Federal Regulators	5 persons
State Regulators	0 persons
International Regulators	0 persons
Pipeline Industry/Service Providers	9 persons
Standard Developing Organizations	2 persons
Researchers	13 persons
Academics	4 persons
Other	0 persons

# Top 3 Identified R&D Gaps

**Gap #1 – Inspecting for Damage (Technology)**

**Gap #2 – Assessing the Damage (General Knowledge)**

**Gap #3 – Corrosion, Erosion-Corrosion, Material Compatibility, and Associated Design (General Knowledge)**

**NOTE: We did not Identify gaps suitable for University Partnerships**

# Associated Details

## (Gap #1 – Inspecting for Damage)

Developing and/or evaluating Non Destructive Evaluation tools to evaluate composites of any kind having various defect types (size/shape, etc.). Seeking tools applied for both internal and or external inspection.

For composite pipe, seeking to qualify/baseline new construction by inspecting for damage to fibers, connections, de-laminations, etc. Application to all pipe diameters.

This project should be informed by research projects assessing damage and input from manufacturers, operators, etc.

The project supports gaps as identified from the rulemaking actions by PHMSA.

Multi year project \$500k + estimated.

# Associated Details

## (Gap #2 – Assessing the Damage)

Determining a minimum threshold for continued operations and operating pressure, i.e. fitness for service - API 579 approach.

The project must factor the damage type, shape, etc. with application to all materials including composites.

For composites, addressing damage to reinforcement, connections and delaminations.

Establishing a testing program where relevant to qualify pipe including post repairs. Pull in lessons learned from other sectors and operational experience.

The project supports gaps as identified from the rulemaking actions by PHMSA.

Multi year 2-3 year program. Roughly \$700k-\$900k

# **Associated Details**

## **(Gap #3)**

### **Corrosion, Erosion-Corrosion, Material Compatibility, and Associated Design**

Develop a knowledge-based study on corrosion, erosion-corrosion mechanisms based on the mixed-mode flow (solid, liquid, and particulate) and gas composition variability.

Include material susceptibility, pressure and flow considerations, and geologic (regional) considerations. Suggest measures/applications to slow down or mitigate corrosion/erosion.

Apply any lessons learned or best practices from other industries/sectors. Where relevant reference standards such as NACE MR0175.

The project supports gaps as identified from the rulemaking actions by PHMSA.

Estimated as 12 – 18 months. \$300-\$500k

# Additional Identified Gaps

- Investigating the integrity of connections between different materials
- Developing pressure testing programs in general and possibly by defect type
- Understanding the risks that gas composition and constituents play on various pipe material types. \* possible university project