

Readout Report: Workgroup #4 Threat Prevention

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Top 3 Identified R&D Gaps

Gap #1 – Improved rapid, in-field evaluation of strain demand
(Technology Development) (Pipeline)

Gap #2 – Testing, modeling, and verification of strain capacity in vintage pipelines (General Knowledge)(Pipeline)

Gap #3 – Integrated database of publicly available geohazard-related data
(General Knowledge)(Pipeline/Breakout Tanks/LNG/UNGS)



Gap #1 Associated Details

Title: Improved rapid, in-field evaluation of strain demand

Main Objective: To demonstrate a tool that rapidly evaluates the strain status of an in-service pipeline under right-of-way conditions

New or Improved Technology

- a. What operating environment(s) must the technology operate in?
Buried pipeline (inside and outside), all products
- b. Can any functionality and or performance requirements be identified?
Rapid (under 1 week from field visit to results), precise pipe location data, measured change in strain status that approximates IMU performance
- c. Does the gap address any regulatory, congressional, or NTSB drivers?
CFR 192.613 and 195.414
- d. Does the gap address any related consensus standards or best practices?
API RP 1187 and ISO 20074
- e. What technical or regulatory roadblocks or barriers prevent the technology deployment? Permitting, validation and verification, confidence levels, lack of technology performance specifications
- f. What are anticipated targets or timeframes to complete this research? 24 mos.
- g. What funding level is estimated to support such a topic? \$750,000



Gap #2 Associated Details

Title: Testing, modeling, and verification of strain capacity in vintage pipelines

Main Objective: To improve confidence and accuracy of tensile strain capacity predication for vintage pipelines

Creation and Dissemination of General Knowledge

- a. Does the gap address any regulatory, congressional, or NTSB drivers?
Various PHMSA advisory bulletins
- b. Does the gap address related consensus standards or best practices?
API RP 1187, API 579, ASME B31 series
- c. What technical details or scope items are necessary and recommended?
Pre-code steel pipelines, full-scale testing, small-scale material characterization, girth flaw characterization, develop optimized testing protocol to characterize tensile strain capacity of material, validation or development of tensile strain capacity model
- d. What are anticipated targets or timeframes to complete this research?
24 to 30 months
- e. What funding level is estimated to support such a topic? \$1.2 million



Gap #3 Associated Details

Title: Integrated database of publicly available geohazard-related data

Main Objective: To determine the feasibility of assembling a quality public domain data repository over midstream infrastructure, and approaches for integrating data sets and refreshing over specific intervals based on use case

Creation and Dissemination of General Knowledge

- a. Does the gap address any regulatory, congressional, or NTSB drivers?
[CFR 192.613 and 195.414](#)
- b. Does the gap address related consensus standards or best practices?
[API RP 1133 and 1187, ISO 20074](#)
- c. What technical details or scope items are necessary and recommended?
[Evaluating remote sensing and publicly available data from government agencies for repository development \(i.e., data resolution, data quality, data updating frequency, data coverage of United States\)](#)
- d. What are anticipated targets or timeframes to complete this research?
[12 to 18 mos.](#)
- e. What funding level is estimated to support such a topic? [\\$300,000](#)



Additional Identified Gaps

1. Improved understanding of predictive susceptibility models for geohazards
2. Role of thermal cycles on initiation of stress corrosion cracking
3. Field validation of scour monitoring technologies
4. Improved understanding of coating performance



Thank You!/Questions?



U.S. Department of Transportation
Pipeline and Hazardous Materials
Safety Administration

PHMSA Research and Development Forum
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