

Holistic Review of Risk Assessment Practices & Tools for Application Under Distribution Integrity Management Planning (DIMP)

Description: Project defined the necessary elements for gas companies to assess risk in the context of cost effective implementation of DIMP.

Status: Complete

BENEFITS

Based on interpretation of the 49CFR Part 192 Subpart P revision for implementing 2009 DIMP mandates, formal risk practice assessment and modeling can be used to not only prioritize risk but also to potentially justify proposals to improve on code requirements of inspection frequency. There is also a potential for formal risk assessment programs to be used to justify and document effectiveness of a DIMP program. Each operator will need to choose or develop a method of risk evaluation. The Gas Piping Technology Committee, GPTC, notes that there are many potential approaches, but the process should result in at least a relative risk ranking. Also, GPTC guidance recommends that facilities be grouped to be risk ranked as a unit. Further, if adequate data is not available for a risk evaluation, the operator may need to determine how data can be obtained or develop a proposal/process by which the operator's DIMP program will be improved.

BACKGROUND

In December 2010, PHMSA issued DIMP regulations. In general, the proposal appears to line up closely with industry's expectations, as gained through substantial discussions with PHMSA and Congress over the last several years. With the new Subpart P mandates, PHMSA has attempted to issue a high-level and

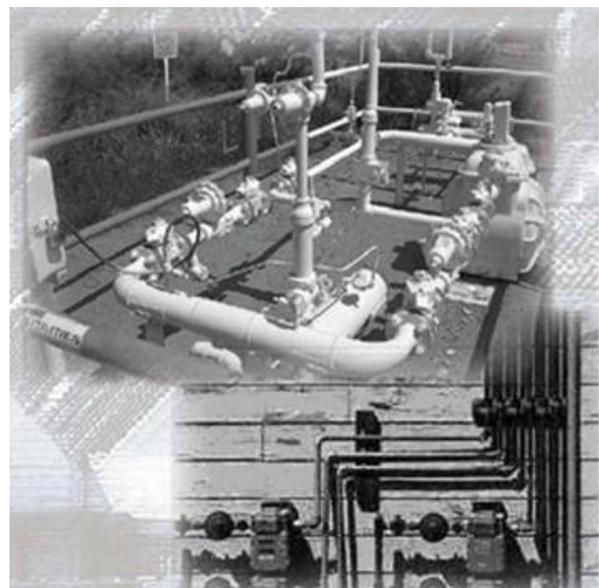


Figure 1: Implementation of DIMP

flexible regulation over how LDCs measure and improve safety on their aging distribution network. Depending on the state where the gas company operates or the size of the company, the level of new work or revision/upgrade to ongoing procedures varies. However, because of this rule and related state regulators' implementation of the rule, there could be a higher standard and level of activity to achieve Distribution Integrity as well as a standardization of sorts by multiple gas companies in the industry to make compliance as cost effective and practical as possible. In preparation for this PHMSA

rulemaking, gas company operators worked with AGA and others under a formal committee called GPTC to develop guidelines for Distribution Integrity. Those guidelines are not required under the mandates but are referenced in the pre-amble and are supported by many gas operators as a good reference document and/or guideline.

NYSEARCH worked with the NGA Distribution Integrity Working Group (DIWG) to establish the approach that they are prepared to make regarding decisions about risk practices and models.

TECHNICAL APPROACH

The objective of the work is to develop a set of guidelines for gas distribution engineers, operators or their designees to assess how existing or potentially new risk methods and models can be applied to meet the DIMP regulatory requirements.

The project defined the necessary elements for gas companies to assess risk in the context of cost effective implementation of DIMP. The guideline does NOT compare specific algorithms in commercial models, but provides a framework for individual company application of risk models and an independent assessment of what is needed in such risk models.

To accomplish these objectives, the University of California developed a risk management approach that identifies how data acquisition and data management will best assess Distribution Integrity. They analyzed the regulation, surveyed the industry users and studied related infrastructure management systems.

The University of California recognized that the proposed DOT/PHMSA DIMP regulation extends risk management beyond age related deterioration and suggests getting into operational practices and procedures in new areas. The research recommendations focus on quantifying risk into strategies for: 1) condition-based survey scheduling and structured data collection, 2) pipe segment-specific asset attributes, including third party damage assessment and 3) factoring operator error into

risk assessment.

Building and mining this data will provide more interpretive results of risk assessment than traditional risk ranking, which tends to become subjective.

The results of the research provides a recommended risk management approach including a close identification of data requirements (with the knowledge that expectation of large volumes of data has in the past resulted in unsuccessful risk management tools for this industry). From this initial conceptual approach, the University of California provided a set of guidelines to aid each funder in making decisions about risk models and practices as well as a 'prototype' purchasing specification for suitable risk management tools.

PROGRAM STATUS

The final report has been issued and is available for review. Further discussions are being planned for regulator awareness of the results.

Highlights

- Overall risk assessment tool for DIMP implementation
- Complimentary to regulatory DIMP protocol
- Recommendations include assessing data driven risk and avoiding subjective risk ranking

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