UNDERSTANDING PIPELINE FLAW ASSESSMENT AND REPAIR

14 PDHs Available

Why: To provide operators with a basic understanding of the effects of various types of pipeline flaws on pipeline integrity and the advantages and limitations of various assessment and repair methods for those flaws. Understanding the potential consequences of different types and severities of flaws, the inputs needed to assess the flaw severity, and the options for repair will provide operators with improved ability to prioritize flaws for assessment, efficiently gather the required input data, perform the assessment, and select among the most effective methods of mitigating the risk of failure.

What: While most pipeline operators are familiar with the use of B31G or RSTRENG® for evaluating corrosion and the limitations for dents in the various ASME B31 standards, they are less familiar with assessments applicable to very low toughness pipes, cracks, flaws and damage at or near welds, and the concept of leak versus rupture. In addition, when a flaw is determined to be unacceptable, a myriad of repair options exist, all having different advantages, limitations, and cost. This course will introduce the attendees to the types of pipeline flaws that can be encountered, the influence of the metallurgical properties and operating conditions of the pipeline on the consequences of the flaws, the assessment methods applicable to different flaws and pipe conditions, and the applicable repair options, including considerations when welding on in-service piping.

Instructor: Bill Amend is a Principal Engineer at Det Norske Veritas, (USA) in the Welding & Materials Engineering group. DNV works with pipeline operators to deliver comprehensive pipeline integrity strategies that manage risk and meet challenges in every phase of the pipeline lifecycle. Bill has a B.S. in metallurgical engineering from Cal Poly at San Luis Obispo (Calif.) and 32 years experience providing metallurgical, welding, and corrosion engineering support for natural gas pipelines, oil & gas production, and the geothermal energy production industry. Before joining the staff of DNV Bill was an Associate with the Pipeline Services Group of Structural Integrity. Prior to that Bill served as Sr. Research Engineer at Unocal's Science and Technology Division, and was Principle Engineer in Southern California Gas Company's Pipeline Integrity Management Dept. While at SoCalGas Bill managed a variety of research projects for various supervisory committees of Pipeline Research Council International, (PRCI), and served as chairman of research emphasis areas related to degradation and assessment of early generation pipelines and welding on in-service pipelines.

Where: Technical Toolboxes
3801 Kirby Dr. #501
Houston, TX  77098

When: $1695.00 per student
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Course Outline

How Pipelines Fail

Types of Pipeline Flaws

Introduction to pipeline metallurgy, manufacturing, fabrication and material specifications and their influence on flaws and flaw assessment

Input data needed for flaw assessment: Flaw characteristics, steel properties, stress

The role of bell hole inspection and data derived from other sources including ILI and hydro testing.

In-situ, nondestructive measurement of measuring steel properties and stress

How Flawed is Too Flawed?

Limitations imposed by U.S. codes and industry consensus standards

Models and calculation methods:

- Corrosion assessment
- Mechanical damage assessment
- SCC assessment, and assessment of other cracks
- Manufacturing and fabrication flaw assessment, including assessment of wrinkle bends, welds, seams, and plate flaws

Repair and Remediation

- The evolution of repair practices in the pipeline industry
- The principle of repair by reinforcement; use of full encirclement sleeves (metallic and composite)
- Repair by modification the flaw profile; converting sharp crack-like flaws to smooth, rounded flaws by grinding
- Welding on in-service pipelines; avoid making a bad situation worse

Technical Toolboxes

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Terms and Conditions: One registration is required per person. Upon receipt of your above registration, an invoice will be generated for payment. Payment is due 30 days from receipt of invoice. Full price of the course fee will be refunded provided written cancellation is received 3 weeks prior to course date. A cancellation after the deadline will receive full credit towards a future date for the same course.

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