Effective Pipeline & Piping Inspection & Maintenance

Energy Milestones Corporation

Advancing Professionals to the next level

Energy Milestones is proud to be accredited, partner and associated with the following association bodies:

info@energymilestones.com

energymilestones.com

Effective Pipeline & Piping Inspection & Maintenance

Overview

This course provides practical training on piping and pipeline integrity, maintenance, and repair, focusing on the technical basis and application of ASME and API integrity rules through case studies and exercises. Participants will learn to identify mechanical (pressure, vibration, fatigue, transients, damage) and corrosion-related (thinning, pitting, cracking) degradation, apply integrity analysis for run-or-repair decisions, and understand ASME B31.3, B31.4, B31.8, B31G, and API 579 codes. The course covers inspection methods (PT, MT, UT, RT, MFL, AE, PED, UT pigs, multi-pigs), hydrotesting, integrity management programs, periodic inspections, and repair techniques, including their pros, cons, and selection logic.

Course Objectives

At the end of this course, the participants will be able to:

- Provide a comprehensive introduction to all aspects of utility and inline inspection pigging
- Implement the standard procedure of piping and pigging during operation, maintenance and construction
- Practice in-line inspection tools with performance, theory and detection limits
- Design and implement an inline inspection using the LI tool and a specific design
- Discuss post-in-line inspection issues and observe regulatory requirements for developing protocols and response

Course Content

1. Piping for Operation and Maintenance

- Pigging during construction
- Pigging during operation
- Utility Pigs
- Cleaning pigs
- Sealing pigs
- Gauging pigs
- Dual diameter pigs
- Magnetic cleaning pigs
- Designing a Pipeline for Pigging
- Pig traps and pigging stations
- Location and tracking devices

Effective Pipeline & Piping Inspection & Maintenance

Course Content

2. In-Line Inspection (ILI) Tools –Theory, Performance, and Detection Limits

- Metal loss In-line Inspection
- Other In-Line Inspection Tools
- Crack detection pigs
- Mapping
- Geometry and bend-detection
- Wax deposition measurement
- Spanning pigs
- Semi-intelligent pigs

3. Designing and Implementing an In-Line Inspection (ILI) Program

- Selecting an ILI Tool
- Specific Design Considerations for
- Running ILI Tools
- Launch and Receive trap design
- Bends, tees, and valves
- Issuing an Inquiry
- Schedule requirements

4. Preparation for Ili

- Controlling Operational Parameters During the Inspection Run
- Strategy for Contract Development and Negotiations
- Developing a good specification
- Contingency Planning for a Stuck Pig
- Offshore risers
- Onshore flowlines, gathering system main sections or laterals

5. Post In-Line Inspection Issues

6. Quality Assurance Check of the Data

7. Development of Protocols for Response

8. Prioritisation of the Dig Plan

- US regulatory requirements
- Criteria for corrosion-caused metal loss
- Criteria for dents

9. Validation of Results:

- Planning and preparation for field NDE
- Comparison between ILI, field NDE and actual:
- Corrosion
- Dents - effects of rounding
- Establish a level of confidence

10. Fitness for Purpose: Assessment

- Assessment of defects
- Establish a long-term integrity management program
- Incorporation of results in risk programs
- Potential Repair Consideration

Effective Pipeline & Piping Inspection & Maintenance

Targeted Audience

The course is especially designed for project managers, engineers, maintenance and technical personnel responsible for pipeline integrity assurance, flow assurance, corrosion control, and safety.

Course Methodology

Facilitated by an experienced professional trainer, this training course will be conducted as a highly interactive workshop session. A variety of training methodologies and facilitation techniques will be employed before and during the course, as applicable. These methods are aimed at enhancing individual and group interaction while maximising learning. Some of these methods are:

- Online Pre-post Test
- Colourful Visual Aids
- Gamification
- Self-Assessment Instruments
- Simulations
- Case Studies
- Videos
- Group Exercises & Discussions
- Role plays
- Indoor & Outdoor games