Pipeline Integrity Management and In-Line Inspection

8 – 12 March 2027
Lisbon (Portugal)

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Pipeline Integrity Management and In-Line Inspection

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Pipeline Integrity Management and In-Line Inspection is a 1-week course for engineers and specialists who decide when a buried line is assessed, what an ILI run means and which defects are dug up first. You work from threat identification to defect assessment and repair planning, and leave with a draft Line Integrity Plan for one segment. Mercury Training Center delivers this pipeline integrity management course.

About This Course

Many operators collect ILI logs, CP surveys and hydrotest records but cannot turn them into a ranked dig list or a defensible reassessment interval. You should already work with transmission lines in engineering, corrosion or asset roles. You practice on threat registers, ILI feature lists, CP data and repair decisions for liquids, natural gas and water transmission lines.

Who It Is For

- Owning the integrity plan for transmission or gathering lines and setting reassessment intervals.
- Specifying in-line tool runs, reviewing vendor reports and approving dig lists.
- Running cathodic protection, coating and corrosion monitoring on buried assets.
- Deciding repairs, pressure reductions and replacements after an anomaly is found.
- Assessing leaks, ruptures and near misses and feeding lessons back into the plan.

This course is not for readers new to buried lines, who are better served by an introductory course on line design and routine upkeep, or for ILI data analysts who grade raw signals daily, who need a tool-vendor analyst course.

Competencies You Will Build

- Threat Identification: listing time-dependent, stable and random threats for each segment.
- Assessment Method Choice: picking ILI, direct assessment or a pressure test for each threat.
- ILI Data Review: checking tool performance and reading feature lists against field digs.
- Defect Acceptance: judging corrosion, dents and cracks with recognized remaining-strength methods.
- Risk-Based Prioritization: ranking segments and digs by likelihood and consequence.
- Repair Selection: choosing sleeves, cut-outs, hot taps or pressure limits for each anomaly.

What You Will Be Able to Do

By the end of the course you will be able to:

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- Given segment data and a failure history, build a threat register to ASME B31.8S categories.
- From an ILI final report, verify tool tolerance against dig results and flag features needing response.
- Using CP and coating survey data, plan an ECDA or ICDA program for an unpiggable section.
- From metal-loss dimensions, calculate safe working pressure with ASME B31G and decide action.
- Given a ranked anomaly list, set dig priorities, repair methods and the next reassessment date.

Course Content

Day 1: Integrity Frameworks and Threats

- API RP 1160 and ASME B31.8S Integrity Plan Structure for Liquid and Natural Gas Lines
- Line Sizing Inputs: Flow Rate, MAWP, Pumping Power and Material Choice for the Working Fluid
- Threat Categories: External and Internal Corrosion, SCC, Fatigue, Seam Defects and Third-Party Damage
- Erosion and Ageing Mechanisms Linked to Pump and Compressor Station Duty
- Consequence Areas, Data Integration and Custody Transfer Metering Records

Day 2: In-Line Inspection

- Magnetic Flux Leakage, Ultrasonic and Caliper Tools and the Threats Each Detects
- Tool Qualification and Performance Verification Under API 1163
- Line Cleaning Runs, Reconditioning and Piggability Assessment Before an ILI Run
- Reading Feature Lists, Unity Plots and Dig Verification Results
- Crack Management and Crack Detection Runs Under API RP 1176

Day 3: Direct Assessment, Corrosion Protection and Testing

- External Corrosion Direct Assessment ECDA on Unpiggable Segments
- Internal Corrosion Direct Assessment ICDA Using Elevation and Water Hold-Up Data
- Cathodic Protection Surveys and Internal and External Coating Choices
- Hydrostatic Test Pressure, Allowable Operating Pressure and Spike Testing
- Leak Detection, SCADA Alarms, Right-of-Way Patrols and Surveillance by Drones and Remote Sensing

Day 4: Defect Assessment and Repair

- Remaining Strength of Corroded Lines with ASME B31G and Modified B31G
- Fitness-for-Service Assessment to API 579-1/ASME FFS-1 and Remaining Life Estimates
- Composite Sleeves, Welded Sleeves and Segment Replacement Selection
- Hot Tapping, Stopple Plugging and Valve and Fitting Repairs on Live Lines
- Vibration, Support Condition, Transients and Water Hammer as Integrity Threats

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Day 5: Practice on a Segment Integrity Plan

- Risk-Based Ranking Exercise Using Likelihood and Consequence Scores
- Dig List and Repair Decision Exercise on an ILI Feature List
- Failure Root Cause Exercise with Safety Instrumentation, Spill and Environmental Impact Review
- Sensor-Based Monitoring, Digital Records, Advanced Coatings and Reliability Measures for Reassessment Intervals
- Completing Your Line Integrity Plan

Case Studies and Exercises

The items below are suggested activities.

- Case study: a crude export line ILI run reports clustered external metal loss near a road crossing; you decide which features to dig.
- Case study: an unpiggable water transmission main leaks at low points; you plan ICDA and ECDA surveys.
- Exercise: a natural gas transmission segment near a housing area; you build its threat register and set a reassessment interval.
- Exercise: a dent with metal loss on a products line; you choose between a sleeve, a cut-out and monitoring.

What You Take Back

The Line Integrity Plan sets out the threats, assessment methods, dig priorities and reassessment interval for one segment. In your first month back you use it to review your latest ILI or survey results, agree the next dig list and present the reassessment interval to your asset owner.

- A segment threat register with consequence rating.
- An assessment method matrix by threat.
- A ranked dig and repair list.
- A reassessment schedule with the basis for each interval.

Quick Answers FAQ

What should I know before a pipeline integrity management course?

You should know how transmission lines are built and run, read alignment sheets and basic corrosion data, and understand pressure ratings. No ILI analyst experience is needed; feature lists are read step by step.

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How does pipeline integrity management training differ from a line operations and upkeep course?

It centers on deciding which threats matter and which defects need action, using ILI, direct assessment and defect calculations. An operations and upkeep course focuses on running stations, cleaning, routine repairs and daily surveillance.

How often should a pipeline be reassessed with in-line inspection?

There is no single interval. It depends on the threats present, defect growth between runs, the margin at the worst defect and the consequence area. Operators set and justify the interval in the integrity plan after each assessment.

What do I take back from pipeline integrity management and in-line inspection training?

You take back a Line Integrity Plan for one segment, with its threat register, method matrix, ranked dig list and reassessment schedule.

For Your Manager

After the course, the team member will be able to build a threat register, review ILI and direct assessment results, judge defects with recognized methods and rank digs and repairs by risk. They return with a Line Integrity Plan, first used to review the latest assessment results and agree the next dig list for one segment.

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