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COURSE BROCHURE

# Pipeline Dent, Gouge and Metal Loss Defect Assessment Training Course

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Kuala Lumpur

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Registered in the United Kingdom and Saudi Arabia

# Pipeline Dent, Gouge and Metal Loss Defect Assessment Training Course

**Ref:** 2879_110111 **Date:** 4 – 8 July 2027 **Location:** Kuala Lumpur **Fees:** 4900 GBP

Pipeline Dent, Gouge and Metal Loss Defect Assessment is a 1-week training course for integrity engineers who must judge whether a damaged line can keep operating, at what pressure, and for how long, producing a defect assessment and repair decision record. Inline inspection now reports more anomalies than crews can excavate, so sound ranking protects people and budgets. Jupiter Prime Training delivers this Pipeline Dent, Gouge and Metal Loss Defect Assessment course.

## Why Pipeline Dent, Gouge and Metal Loss Defect Assessment Matters Now

Higher-resolution inline inspection returns thousands of features, each needing a severity call. Ageing networks carry interacting damage, such as a dent with a gouge, that simple screening handles poorly. Insurers and the public expect traceable reasons for every decision to dig, derate or leave a feature. Good assessment spends excavation budgets where risk sits; poor assessment over-repairs sound pipe or misses the feature that ruptures. The course rests on published remaining strength methods, dent strain screening and crack growth reasoning.

## Who Gains Most from Pipeline Dent, Gouge and Metal Loss Defect Assessment

- Engineers who decide which inspection features need excavation
- Specialists who calculate safe operating pressures for damaged segments
- Field verification leads who measure anomalies in the ditch and compare them with tool calls
- Repair planners who select sleeves, composite wraps or cut-outs for each damage type
- Asset owners who sign off pressure reductions and their effect on throughput

Integrity teams gain most when analysts, field staff and repair planners attend together.

## Pipeline Dent, Gouge and Metal Loss Defect Assessment Capabilities

Participants turn a reported anomaly into a defensible number and a repair call.

- Calculate the remaining strength of corroded pipe — the safe operating pressure decision
- Assess plain, kinked and constrained dents — the excavation priority list
- Evaluate gouges and dent-gouge combinations as high-consequence mechanical damage — the immediate response call
- Weigh crack-like flaws against fracture toughness and growth rates — the reinspection interval
- Specify pressure reductions with a clear basis and duration — operations and commercial stakeholders
- Select repair methods matched to defect type and pipe condition — the repair contractor scope

## Key Pipeline Dent, Gouge and Metal Loss Defect Assessment Terms

- Metal loss — Wall thinning from corrosion or erosion, measured as depth and length against nominal wall.
- Dent — A permanent inward deformation of the pipe wall without metal removal.
- Gouge — Surface damage that removes metal and leaves a cold-worked layer.
- Remaining strength — The calculated failure pressure of a damaged section.
- Safe operating pressure — The highest pressure a defective segment may carry after a safety factor.
- Interacting defects — Nearby anomalies assessed together as one larger feature.

## Pipeline Dent, Gouge and Metal Loss Defect Assessment Day by Day

### Day 1: Damage Mechanisms and Inspection Evidence

- Corrosion, Mechanical Damage and Cracking Mechanisms — Which Threat Drives Each Feature
- Inline Inspection Tool Types and Sizing Tolerances — Trusting Reported Depths
- Anomaly Listings and Feature Classification — Screening Thousands of Calls Quickly
- Field Verification Digs and Unity Plots — Calibrating Tool Performance
- Material Properties and Pipe Records — Filling Gaps in Grade Data

### Day 2: Metal Loss Remaining Strength

- Flow Stress and Folias Bulging Factor — Choosing Inputs for Failure Pressure
- Simplified Length and Depth Methods — Fast Screening of Corrosion Features
- Effective Area and River Bottom Profiles — Refining Long Complex Corrosion
- Interaction Rules for Clustered Pits — Combining Neighbouring Metal Loss
- Corrosion Growth Rates and Remaining Life — Setting Reinspection Timing

### Day 3: Dents, Gouges and Cracks

- Dent Depth and Strain Screening — Ranking Plain and Kinked Dents
- Rock Restraint and Rebound Behaviour — Judging Constrained Dent Risk
- Dents on Welds and with Metal Loss — Escalating Combined Damage
- Gouge Cold Work and Dent-Gouge Failure Behaviour — Immediate Response Triggers
- Crack Sizing and Fracture Toughness Inputs — Estimating Critical Flaw Size

### Day 4: Pressure Reduction and Repair Choices

- Safety Factors and Derating Calculations — Setting Temporary Operating Limits
- Pressure Cycling and Fatigue Effects — Judging Dent Life Under Fluctuation
- Type A and Type B Steel Sleeves — Reinforcing or Containing Damage
- Composite Wraps, Grinding and Cut-Outs — Matching Method to Defect
- Response Timeframes by Severity Class — Scheduling Immediate and Planned Digs

## Day 5: Practising the Defect Assessment and Repair Decision Record

- Inspection Data Case from a Gas Transmission Line — Screening and Ranking Features
- Corrosion Cluster Case from a Crude Oil Line — Failure Pressure and Remaining Life
- Dent with Gouge Excavation Case — Response Class and Repair Selection
- Peer Challenge of Assumptions and Inputs — Testing Sensitivity of Each Result
- Defect Assessment and Repair Decision Record — Completing the Signed Submission

## Applying Pipeline Dent, Gouge and Metal Loss Defect Assessment After the Course

- Re-rank the top features of a recent inline inspection report with effective area and dent strain screening.
- Build a unity plot from completed verification digs to correct tool sizing.

## Pipeline Dent, Gouge and Metal Loss Defect Assessment Questions FAQ

### What is pipeline dent, gouge and metal loss defect assessment and why does it matter now?

It is the engineering judgement of whether a damaged pipeline can operate safely. Ranking reported features on remaining strength directs repair budgets to real threats.

### Which roles gain most from pipeline dent, gouge and metal loss defect assessment?

Integrity engineers gain most, alongside inspection data analysts, field verification leads and repair planners. Asset owners approving pressure reductions also benefit.

### How does this pipeline dent, gouge and metal loss defect assessment course differ from a general pipeline integrity course?

It focuses on calculating individual defects rather than running a whole integrity system. Time goes on failure pressure, dent screening, crack sizing and repair selection.

### What do you bring back from pipeline dent, gouge and metal loss defect assessment training?

You bring back a worked defect assessment and repair decision record built on realistic inspection data. It shows inputs, safety factors and the chosen response.

## Pipeline Dent, Gouge and Metal Loss Defect Assessment: The Way Forward

The defect assessment and repair decision record first informs which features are excavated this season and at what pressure the line runs until then. Integrity engineers, operations planners and repair contractors all work from it. After its first use, revisit the sizing tolerances and growth rates behind it, since field verification results often shift those assumptions more than any formula choice.