
Oil and Gas Integrity Assurance: Barriers, Inspection Planning and Anomaly Control Training Course

4 – 8 April 2027
Manama





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Programme Summary

Oil and gas asset integrity assurance is the subject of this one-week training course for asset managers, inspection leaders and operations managers, ending in a facility integrity assurance plan for one site. Facilities age while safety critical barriers, corrosion and open defects compete for limited inspection time. The programme links barrier performance, risk-based inspection, anomaly control and ageing asset evidence, then applies each tool to one facility. Mars Training Centre UK delivers this programme on oil and gas asset integrity to mixed-organisation cohorts.

The Business Case

Production facilities carry equipment that corrodes, wears and outlives its design assumptions. Leaders who can show which barriers are healthy, which inspections are overdue and which defects are still open decide spending with evidence, and give boards and partners a clear account of residual risk.

- Loss of Containment Exposure: Falls as barrier performance and inspection coverage are checked against agreed standards.
- Inspection Effort: Is directed to higher risk equipment as plans follow risk ranking.
- Unplanned Shutdowns: Reduce as anomalies are classified, assessed and closed on time.

Principles and Evidence Base

- ISO 55001 asset management system requirements: It frames the integrity management system map in Session 1.
- ISO 31000 risk management guidelines: It structures the risk ranking and spending priorities in Sessions 1 and 4.
- API RP 580 on risk-based inspection: It guides the screening and interval planning in Session 2.
- Safety critical barrier performance standards: They underpin the barrier register and the assurance review in Sessions 1 and 4.

Intended Participants

- Asset managers who answer for the condition and remaining life of production facilities.
- Inspection and integrity engineers who plan inspection scope and assess defects.
- Operations and maintenance managers who keep safety critical barriers in service.
- Health, safety and environment leads who review barrier health and report integrity risk.
- Senior planners who prioritise integrity spending across several facilities.

Typical sectors include upstream production, gas processing, refining and pipelines and terminals.



Learning Outcomes

1. Participants will be able to construct a safety critical barrier register with performance standards for a facility.
2. Participants will be able to prioritise equipment for inspection using risk ranking.
3. Participants will be able to evaluate inspection findings against degradation mechanisms.
4. Participants will be able to classify and justify the handling of an anomaly, including temporary repairs.
5. Participants will be able to assess the evidence for continued operation of an ageing asset.
6. Participants will be able to present a facility integrity assurance plan for one site.

Programme Structure

Day 1: Integrity Management and Safety Critical Barriers

How do degradation and barrier performance define the integrity of an oil and gas facility?

- Integrity Management System Map under ISO 55001
- Safety Critical Barrier Register
- Barrier Performance Standard Template
- Degradation Mechanism Reference Table
- Risk Ranking Matrix Based on ISO 31000

Day 2: Inspection Planning and Risk-Based Inspection

How are inspection scope and intervals set from risk rather than habit?

- Risk-Based Inspection Screening under API RP 580
- Inspection Scope and Interval Planner
- Corrosion Loop Review Sheet
- Non-Destructive Testing Method Selection Guide
- Inspection Backlog Burn-Down Chart

Day 3: Anomaly Management and Defect Control

How is an anomaly reported, assessed and closed with a recorded decision?

- Anomaly Reporting and Classification Form
- Fitness-for-Service Screening Checklist
- Temporary Repair and Deviation Log
- Anomaly Close-Out Tracker
- Management of Change Review Sheet



Day 4: Ageing Assets and Integrity Assurance

What evidence shows that an ageing facility remains safe to operate?

- Ageing Asset Condition Scorecard
- Life Extension Evidence Pack Outline
- Integrity Indicator Dashboard
- Integrity Assurance Review Protocol
- Integrity Spending Prioritisation Model

Day 5: Applying the Tools to One Facility

Do the barrier, inspection, anomaly and ageing tools hold together for one facility?

- Applying the Session 1 Barrier Register to the Facility
- Testing the Session 2 Inspection Planner on Sample Data
- Running the Session 3 Anomaly Form on Three Cases
- Checking the Session 4 Scorecard Against Evidence
- Completing the Facility Integrity Assurance Plan

Methodology

The programme uses a data exercise method built on anonymised inspection records, barrier test results, anomaly logs and short written cases from production facilities, refineries and pipelines. Participants work in small groups on one facility, explain their decisions to peers from other functions and receive facilitator feedback on every register entry, ranking and anomaly decision.

- Suggested activity: Ranking ten equipment items for inspection and defending the order.
- Suggested activity: Classifying three anomalies and recording the decision for each.
- Suggested activity: Reviewing a barrier test record and listing the gaps an auditor would raise.

Capstone Output

Each participant completes a facility integrity assurance plan for one site. It holds a barrier register, a risk-ranked inspection plan, an anomaly handling summary, an ageing asset scorecard and a short action list. The plan is used at work to brief senior management, direct inspection resources and prepare for assurance reviews.



Frequently Asked Questions

Is training in oil and gas asset integrity suitable for managers who are not inspection specialists?

Yes. The programme assumes familiarity with facility operations and basic engineering terms, and builds oil and gas asset integrity practice from barriers, degradation and risk ranking.

Which standards does oil and gas asset integrity rest on in this programme?

It rests on ISO 55001 for asset management systems, ISO 31000 for risk management, API RP 580 for risk-based inspection and safety critical barrier performance standards.

How is the oil and gas asset integrity assurance plan used at work?

You use it to brief senior management, direct inspection resources and prepare for assurance reviews on your own facility.

How does learning oil and gas asset integrity differ from a programme on maintenance planning?

It centres on barriers, inspection and anomaly decisions, while maintenance planning centres on work scheduling, spares and shutdown logistics.