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COURSE BROCHURE

Advanced Oil and Gas Risk Assessment and Management Training

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Registered in the United Kingdom and Saudi Arabia

Advanced Oil and Gas Risk Assessment and Management Training

Oil and Gas Risk Assessment and Management is a 2-week advanced training course for HSE leads, risk engineers and asset managers who set risk appetite across producing assets and operations, ending with an Operational Risk Appetite and Barrier Assurance Report. Ageing facilities, leaner crews and investor scrutiny of major accident exposure make defensible risk judgements a board-level matter. The course is delivered by Jupiter Prime Training.

Why Oil and Gas Risk Assessment and Management Matters Now

Three forces shape operational risk in oil and gas today: ageing wells, pipelines and process plant running beyond original design life; a workforce in which experienced operators retire faster than they can be replaced; and lenders, insurers and partners who ask for evidence that major accident hazards are understood. An operator that links hazards, barriers and appetite keeps licence to operate and avoids costly shutdowns, while one that relies on scattered registers learns of weak barriers only after an incident. The course rests on the bow-tie method, the as low as reasonably practicable ALARP principle and probabilistic modelling.

Who Gains Most from Oil and Gas Risk Assessment and Management

- Those who own the hazard and barrier picture of a producing asset or terminal
- Those who run process safety studies and turn findings into barrier actions
- Those who set tolerability criteria and approve deviations from them
- Those who report operational exposure to leadership, partners and insurers
- Those who decide maintenance and inspection priorities on safety-critical equipment

An asset leadership group whose HSE, operations and integrity members attend together gains most, because it leaves with one shared language for barriers, appetite and escalation.

Oil and Gas Risk Assessment and Management Capabilities

Participants move from hazard lists to barrier-based judgements that leaders can test and defend.

- Build bow-tie diagrams for major accident hazards with threats, consequences and barriers — asset safety cases
- Calculate risk using frequency and consequence models with stated uncertainty — tolerability decisions
- Assess barrier condition from inspection, testing and incident evidence — maintenance priorities
- Design a risk appetite statement with measurable operational limits — executive committees
- Weigh treatment options against ALARP and cost of mitigation — capital allocation boards
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Communicate residual exposure in a concise assurance report — partners, insurers and leadership

Key Oil and Gas Risk Assessment and Management Terms

- Major accident hazard — an event such as a blowout or large hydrocarbon release that could cause multiple fatalities or severe environmental harm.
- Bow-tie diagram — a picture linking threats, a top event and consequences through preventive and mitigating barriers.
- Barrier — a physical or human control that stops a threat developing or limits the consequences of an event.
- ALARP — the principle that risk is reduced until further reduction costs grossly more than the benefit gained.
- Risk appetite — the amount and type of exposure leaders accept in pursuit of production and growth objectives.
- Key risk indicator — a measured signal showing that exposure is moving towards or beyond an agreed limit.

Oil and Gas Risk Assessment and Management Day by Day

Day 1: The Operational Risk Landscape

- Upstream To Downstream Hazard Profiles — Where Exposure Concentrates
- Lessons From Major Industry Incidents — Recurring Barrier Failures
- Stakeholder Expectations On Exposure — Partners, Insurers And Lenders
- Ageing Asset And Life Extension Pressures — Inspection And Investment Choices
- Risk Vocabulary And Taxonomy — Consistent Reporting Across Sites

Day 2: Hazard Identification Methods

- HAZID Sessions For Wells And Facilities — Early Design Choices
- What-If And Checklist Reviews — Simple Changes And Modifications
- Structured Brainstorming With Operators — Capturing Field Knowledge
- Hazard Registers And Ownership — Accountability For Each Hazard
- Screening Major Accident Hazards — Focus For Detailed Study

Day 3: Bow-Tie Construction

- Top Event And Threat Definition — Scope Of Each Diagram
- Preventive And Mitigating Barriers — Coverage Of Every Threat
- Escalation Factors And Their Controls — Hidden Weaknesses In Barriers
- Barrier Ownership And Performance Standards — Who Maintains Each Control
- Bow-Tie Software And Templates — Consistency Across Assets

Day 4: Consequence and Frequency Modelling

- Release Rates, Fire And Explosion Effects — Siting And Layout
- Dispersion Of Toxic Gas — Emergency Response Zones
- Failure Frequency Data Sources — Credibility Of Estimates
- Fault Trees And Event Trees — Combining Causes And Outcomes
- Risk Matrices Versus Quantified Risk — Choosing The Right Depth

Day 5: Tolerability and ALARP

- Individual And Societal Risk Criteria — Thresholds For Acceptance
- ALARP Demonstration Techniques — Justifying Residual Exposure
- Cost Benefit Of Risk Reduction — Gross Disproportion Tests
- Layers Of Protection Analysis — Independent Safeguards On Process Units
- Recording ALARP Arguments — Audit Trail For Decisions

Day 6: Probabilistic Cost and Schedule Exposure

- Monte Carlo Simulation Basics — Ranges Instead Of Single Values
- Turnaround And Shutdown Schedule Exposure — Restart Date Confidence
- Cost Contingency On Brownfield Modifications — Budget Approval
- Correlation And Tornado Charts — Drivers Worth Treating
- Expert Elicitation And Bias Control — Credible Input Ranges

Day 7: Risk Appetite and Limits

- Appetite Statements For Operations — Production Versus Safety Balance
- Operating Envelopes And Integrity Windows — Limits On Process Conditions
- Key Risk Indicators For Barriers — Early Warning Signals
- Deviation And Override Management — When To Escalate
- Linking Appetite To Incentives — Behaviour Of Site Leaders

Day 8: Treatment Planning

- Hierarchy Of Controls — Elimination Before Procedures
- Treatment Action Plans With Owners — Tracked Closure Dates
- Management Of Change Reviews — Avoiding New Hazards
- Contractor And Simultaneous Operations Exposure — Interface Controls
- Risk Transfer And Insurance — Retained Versus Transferred Losses

Day 9: Assurance and Reporting

- Three Lines Model For Operational Exposure — Roles And Independence
- Barrier Health Dashboards — Board And Executive Visibility
- Process Safety Performance Indicators — Leading And Lagging Measures
- Audit Of Bow-Tie Barriers In The Field — Evidence Of Effectiveness
- Reporting To Partners And Insurers — Clear Residual Exposure Statements

Day 10: Practising the Risk Appetite and Barrier Assurance Report

- Bow-Tie For A Chosen Asset Hazard — Applying Barrier Methods
- Quantified Estimate With Uncertainty — Applying Frequency Models
- ALARP Case For A Treatment Option — Applying Cost Benefit Tests
- Indicator Set And Limits — Applying Appetite Statements
- Operational Risk Appetite And Barrier Assurance Report — Leadership Sign-Off

Applying Oil and Gas Risk Assessment and Management After the Course

- Run a bow-tie review of one major accident hazard on your asset and rate each barrier against its performance standard.
- Draft a set of key risk indicators tied to the operating envelope and present it at the next asset leadership meeting.

Oil and Gas Risk Assessment and Management Questions FAQ

What is oil and gas risk assessment and management and why does it matter now?

It is the discipline of identifying hazards, judging their likelihood and impact, and controlling them through barriers and agreed limits. Ageing assets, thinner experience on site and closer scrutiny from partners and insurers make defensible judgements more important than ever.

Which roles gain most from oil and gas risk assessment and management?

HSE leads, risk and process safety engineers, integrity managers and asset leaders gain most. Each uses barrier and appetite methods to choose priorities, approve deviations and report residual exposure to leadership.

How is oil and gas risk assessment and management different from a project risk course?

It focuses on operating assets rather than capital projects. Project risk courses centre on contracting and execution; this course centres on major accident hazards, barriers, ALARP and operating limits, with only one day on probabilistic cost and schedule work for shutdowns and brownfield changes.

What do you bring back from oil and gas risk assessment and management training?

You bring back a bow-tie, a quantified estimate, an ALARP case and an indicator set for one real hazard on your asset, combined into a report that leadership can review and approve.

Oil and Gas Risk Assessment and Management: The Way Forward

The Operational Risk Appetite and Barrier Assurance Report first informs which safety-critical barriers receive maintenance and inspection funding next. Asset leaders, HSE teams and integrity engineers use it to agree limits and escalation. After its first use, revisit the tolerability criteria and indicator thresholds, since real barrier performance data often shows where the original appetite was set too loosely or too tightly.