

Course No. 1589

Facilities Risk Management in the Oil & Gas Industry

MANAGEMENT, LEADERSHIP & DIGITAL TRANSFORMATION
OIL & GAS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

Facilities Risk Management in the Oil & Gas Industry is a specialized professional training course designed to equip participants with the knowledge and practical tools required to identify, assess, control, and monitor risks across oil and gas facilities. The course focuses on protecting people, assets, operations, production continuity, and critical infrastructure while supporting effective operational and management decision-making.

Oil and gas facilities operate within highly interconnected environments where production systems, processing units, storage areas, utilities, rotating and static equipment, electrical systems, instrumentation, pipelines, and support services depend on one another. A failure or uncontrolled risk in one area can potentially affect safety, production, asset integrity, environmental performance, and business continuity. Effective facilities risk management is therefore an essential component of reliable and resilient oil and gas operations.

The course provides a structured approach to facility risk identification and assessment, covering operational, technical, safety, environmental, security, maintenance, contractor, and infrastructure-related risks. Participants will explore practical methods for assessing the criticality of equipment and systems, developing facility risk registers, evaluating existing controls, prioritizing risk treatment actions, and monitoring risk performance.

The program also connects Facilities Risk Management with asset management, maintenance management, reliability, process safety, emergency preparedness, business continuity, and operational resilience. Through practical exercises and industry-oriented scenarios, participants will learn how to translate risk assessment findings into actionable controls, maintenance priorities, emergency arrangements, and improvement initiatives.

The course is suitable for organizations operating production facilities, processing plants, refineries, gas plants, terminals, storage facilities, offshore and onshore installations, pipelines, utilities, and other critical oil and gas infrastructure. It provides a practical framework that can support executives, managers, engineers, facilities professionals, maintenance teams, HSE specialists, risk professionals, and operational decision makers.

Objectives

- Analyze the principles of Facilities Risk Management and their application within oil and gas operating environments.
- Identify technical, operational, safety, environmental, security, and infrastructure-related risks affecting oil and gas facilities.
- Evaluate facility risks according to likelihood, consequence, exposure, asset criticality, and operational impact.
- Apply practical risk assessment techniques to production, processing, storage, utilities, maintenance, and support facilities.
- Develop structured facility risk registers covering hazards, causes, consequences, existing controls, risk ratings, and treatment actions.
- Assess the effectiveness of preventive and mitigating controls for fires, explosions, hydrocarbon releases, equipment failures, and operational disruptions.
- Improve the integration of facility risk management with asset management, maintenance, reliability, process safety, and business continuity.
- Evaluate risks associated with critical equipment, utilities, contractors, maintenance activities, modifications, and operational changes.
- Design practical risk treatment plans with defined priorities, responsibilities, timelines, and monitoring requirements.
- Strengthen risk monitoring and reporting processes to support management decisions and continuous improvement.

Who Should Attend

This course is designed for Facilities Managers, Facility Engineers, Operations Managers, Maintenance Managers, Engineering Managers, Asset Managers, Reliability Engineers, Maintenance Engineers, Process Engineers, Mechanical Engineers, Electrical Engineers, Instrumentation and Control Engineers, HSE Professionals, Risk Managers, Process Safety Professionals, and Operations Supervisors working within the oil and gas industry.

It is also highly relevant to professionals responsible for production facilities, processing plants, refineries, gas plants, terminals, storage facilities, pipelines, utilities, offshore installations, onshore facilities, workshops, warehouses, and other critical infrastructure. Contractor and contract managers, project professionals, emergency response personnel, security professionals, and

technical services teams can also benefit from the risk management methodologies covered.

The course is particularly valuable for executives, department heads, senior managers, and decision makers involved in facility investment, operational continuity, maintenance strategy, asset criticality, risk governance, production reliability, and organizational resilience.

Learning Outcomes

- Identify major facility risks affecting oil and gas production, processing, storage, utilities, and support operations.
- Conduct structured risk assessments for facilities, equipment, systems, and critical infrastructure.
- Develop comprehensive facility risk registers with clear risk ownership and treatment actions.
- Assess the criticality of equipment, systems, utilities, and facilities based on operational and business impact.
- Analyze risks associated with hydrocarbon releases, fires, explosions, hazardous gases, and loss of containment.
- Evaluate risks related to electrical systems, rotating equipment, static equipment, pipelines, utilities, and control systems.
- Assess the effectiveness of existing preventive, protective, and mitigating controls.
- Link facility risk assessments with maintenance planning, reliability improvement, and asset management decisions.
- Evaluate contractor, maintenance, modification, and operational change risks within oil and gas facilities.
- Develop practical response, mitigation, and recovery strategies for significant facility-related disruptions.
- Establish meaningful risk indicators and reporting mechanisms for management oversight.
- Develop a practical improvement plan for strengthening Facilities Risk Management within an oil and gas organization.

Course Outline

DAY 01

Fundamentals of Facilities Risk Management in Oil & Gas

- Principles and key concepts of Facilities Risk Management
- Oil and gas facility risk environment and major risk categories
- Facility lifecycle risks from design and commissioning through operation and maintenance
- Production, processing, storage, loading, utilities, and support facility risks
- Relationship between facility risk, asset management, maintenance, process safety, and business continuity

PRACTICAL APPLICATION

Developing an initial risk profile for a representative oil and gas facility

DAY 02

Facility Risk Identification and Assessment

- Risk identification techniques for oil and gas facilities
- Identification of hazards, causes, consequences, vulnerabilities, and exposure
- Hydrocarbon release, fire, explosion, hazardous gas, and loss-of-containment risks
- Risk assessment for static equipment, rotating equipment, pipelines, electrical systems, and control systems
- Facility and equipment criticality assessment
- Risk matrices, likelihood, consequence, and risk prioritization

PRACTICAL APPLICATION

Developing a facility risk register for a selected oil and gas facility

DAY 03

Risk Controls, Maintenance, and Reliability

- Hierarchy of controls and selection of effective risk reduction measures
- Integration of Facilities Risk Management with maintenance management
- Equipment criticality and failure consequences
- Preventive maintenance, condition-based maintenance, and reliability considerations
- Maintenance, isolation, repair, shutdown, and restart-related risks
- Contractor and service-provider risk management
- Management of risks associated with modifications and operational changes

PRACTICAL APPLICATION

Developing risk treatment actions for critical facility equipment

DAY 04

Emergency Preparedness, Operational Resilience, and Business Continuity

- Emergency risks affecting oil and gas facilities
- Response considerations for hydrocarbon releases, fires, explosions, and hazardous gas events
- Risks associated with loss of power, utilities, cooling, water, steam, and critical support systems
- Facility security and protection of critical infrastructure
- Business continuity and operational resilience for critical oil and gas facilities
- Impact assessment of facility and equipment failures on production and operations
- Emergency response, recovery priorities, and restoration planning

PRACTICAL APPLICATION

Scenario-based analysis of a critical facility disruption

DAY 05

Risk Governance, Monitoring, and Continuous Improvement

- Facilities Risk Management governance and organizational responsibilities
- Risk ownership, escalation, communication, and management oversight
- Facility risk registers, action plans, inspections, audits, and performance monitoring
- Key Risk Indicators and facility performance indicators
- Integrating facility risk reporting with asset management, maintenance, operations, and investment decisions
- Review of control effectiveness and continuous improvement
- Building a sustainable Facilities Risk Management framework

FINAL WORKSHOP

Developing a 90-day Facilities Risk Management implementation and improvement plan for an oil and gas facility

Register or Request More Information

Course page: <https://quest-training.com/courses/facilities-risk-management-in-the-oil-gas-industry>

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