MERCURY

# Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities

27 – 31 December 2026
Dubai (UAE)



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# Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities

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## Introduction

The Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities training course provides in-depth theoretical knowledge essential for managing critical storage infrastructure within oil and gas operations. It addresses the operational role of storage tanks across upstream, midstream, and downstream facilities while emphasizing safe, reliable, and compliant practices.

Participants will explore how effective oil and gas tank management supports continuity of supply, asset protection, and environmental stewardship. They will understand storage tank operations, inspection cycles, and maintenance planning aligned with international safety standards for storage tanks. The Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities program highlights storage tank safety protocols that reduce operational risk and prevent loss events.

The Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities course examines tank maintenance techniques that enhance structural integrity and extend asset life. Learners develop an awareness of operational safety for storage tanks during both normal and abnormal conditions. It equips professionals with the analytical perspective needed to improve performance, ensure compliance, and strengthen the safety culture of oil and gas operations.

## Targeted Groups

This Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities training targets professionals seeking specialized knowledge and skills:

- Operations engineers in oil terminals and refineries.
- Maintenance engineers are responsible for tank integrity.
- HSE officers managing hazardous storage systems.
- Tank farm supervisors oversee daily activities.
- Mechanical engineers supporting oil facility tank procedures.
- Inspection engineers applying tank inspection methods.
- Facility managers are improving storage facility operations.
- Environmental specialists ensure that safety measures for facility storage are in place.
- Technical staff involved in oil and gas tank monitoring.
- Auditors and compliance professionals focused on operational compliance with storage tanks.

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## Course Objectives

Participants will achieve the following objectives by completing the Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities course:

- Understand storage tank classifications and design intent.
- Explain the operational role of tanks within oil and gas facilities.
- Identify the critical components that influence safe tank performance.
- Interpret international standards governing storage tank operations.
- Apply tank maintenance best practices to minimize failures.
- Analyze corrosion mechanisms affecting tank integrity.
- Evaluate tank inspection methods used for condition assessment.
- Recognize risks associated with hydrocarbon storage.
- Apply storage tank risk management principles.
- Assess operational safety for storage tanks during routine tasks.
- Interpret monitoring data supporting tank performance monitoring.
- Explain emergency response procedures for tank incidents.
- Evaluate environmental risks linked to tank leaks and emissions.
- Apply compliance requirements related to oil and gas operations safety.
- Prepare structured inspection and maintenance documentation.

## Targeted Competencies

Participants will gain the following competencies during the Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities program:

- Storage tank operations analysis and control.
- Application of tank management strategies.
- Execution of tank maintenance techniques.
- Evaluation of storage tank safety protocols.
- Interpretation of tank inspection findings.
- Identification of operational hazards and risks.
- Implementation of facility storage safety measures.
- Monitoring of tank performance indicators.
- Coordination of maintenance and operations teams.
- Documentation aligned with operational compliance for storage tanks.
- Assessment of environmental and safety impacts.
- Continuous improvement of storage tank operation optimization.

## Studying Scenarios

In this Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities training, participants will develop their skills through the analysis of the following scenarios:

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- Overfill incidents affecting oil facility tank procedures.
- Corrosion failures were identified during scheduled inspections.
- Emergency shutdowns due to vapor release events.
- Maintenance delays are impacting storage tank operations.
- Tank foundation settlement is affecting stability.
- Confined space entry planning for internal inspections.
- Leak detection alarms trigger response actions.
- Non-compliance findings during regulatory audits.
- Monitoring data anomalies in oil and gas tank monitoring systems.

## Course Content

### Unit 1: Fundamentals of Storage Tank Operations in Oil & Gas Facilities

- Overview of storage tank operations within oil and gas facilities.
- Fixed roof, floating roof, and pressurized tank configurations.
- Design intent and functional limitations of each tank type.
- Role of storage tanks in production, transport, and distribution.
- Product compatibility and segregation requirements.
- Liquid behavior affecting operational safety for storage tanks.
- Vapor space management and pressure control principles.
- Basic tank gauging systems and inventory measurement.
- Introduction to storage tank operation optimization concepts.

### Unit 2: Storage Tank Maintenance and Inspection Practices

- Purpose of preventive maintenance in oil and gas tank management.
- External inspection scope and observation techniques.
- Internal inspection planning and preparation steps.
- Application of tank inspection methods for integrity checks.
- Standard deterioration mechanisms in steel storage tanks.
- Coating systems and corrosion protection strategies.
- Cathodic protection fundamentals and performance indicators.
- Documentation practices supporting tank maintenance best practices.
- Alignment of maintenance activities with operational continuity.

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## Unit 3: Safety Procedures for Storage Tank Operations

- Identification of hazards in hydrocarbon storage environments.
- Application of storage tank safety protocols during operations.
- Confined space entry requirements and authorization systems.
- Gas testing and atmosphere control procedures.
- Fire, explosion, and static electricity risks.
- Emergency preparedness for storage tank incidents.
- Spill prevention systems and secondary containment design.
- Personal protective equipment selection and use.
- Integration of oil and gas operations' safety culture.

## Unit 4: Environmental and Regulatory Compliance

- Environmental risks associated with storage facility operations.
- Emission sources and vapor control mechanisms.
- Leak detection technologies and alarm systems.
- Regulatory frameworks governing oil facility tank procedures.
- Compliance audits and inspection readiness.
- Environmental impact mitigation strategies.
- Waste and sludge management from tank operations.
- Reporting obligations for environmental incidents.
- Community and stakeholder safety considerations.

## Unit 5: Operational Excellence and Performance Monitoring

- Importance of tank performance monitoring systems.
- Integration of automation in storage tank operations.
- SCADA and digital monitoring applications.
- Data analysis for predictive maintenance planning.
- Use of KPIs for storage tank operation optimization.
- Lifecycle management of storage tanks.
- Reliability-centered maintenance concepts.
- Continuous improvement in tank management strategies.
- Alignment of operational efficiency with safety standards for storage tanks.

# Final Insights & Key Takeaways

The Storage Tank Operations, Maintenance, and Safety Procedures in Oil & Gas Facilities course delivers a structured understanding of how safe operations and maintenance protect critical assets. It strengthens professional capability in managing risks, compliance, and performance within complex storage environments. Participants gain a comprehensive perspective on integrating safety, maintenance, and monitoring into daily operations. The course reinforces sustainable, compliant practices essential to long-term operational excellence in oil and gas facilities.