

HDTC Training Center

Provide

Technical proposal of the Training program

Advanced Environmental Risk Management in Oil and Gas Operations



Introduction

Environmental risk management has become a top priority in the oil and gas industry, especially as global awareness and regulatory demands continue to intensify. Senior engineers must navigate increasingly complex operational environments while maintaining compliance with national and international environmental standards. In an industry known for high-stakes decisions, unanticipated environmental incidents can lead to costly downtime, reputational damage, and legal consequences.

This comprehensive training program is designed to equip senior engineers with advanced tools, frameworks, and strategies to proactively identify, assess, and mitigate environmental risks across upstream, midstream, and downstream activities. It provides a deep understanding of environmental impact assessments, risk modeling, mitigation planning, and real-time response strategies aligned with the latest industry best practices and international frameworks such as ISO 14001 and IFC Performance Standards.

This five-day in-person training program focuses on environmental risk management principles tailored specifically to the oil and gas sector. Participants will gain insight into risk analysis methodologies, regulatory compliance tools, and real-world case studies illustrating successful environmental risk interventions. The program is structured to blend theory with practical applications through group exercises, scenario simulations, and workshop-based learning.

Program Objectives:

At the end of this training program, participants will be able to:

- Identify key environmental risk factors in oil and gas operations.
- Apply quantitative and qualitative environmental risk assessment methodologies.
- Integrate environmental risk considerations into engineering project planning.
- Develop and implement risk mitigation and contingency plans.
- Navigate international environmental regulations and compliance systems.
- Analyse real-world environmental incidents and implement lessons learned.
- Lead environmental audit and risk review processes.

Program Outlines:

★ Day 1: Fundamentals of Environmental Risk in Oil & Gas

- Overview of environmental challenges in oil and gas
- Environmental hazard identification and classification
- Risk management frameworks (ISO 31000, ISO 14001)
- Stakeholder mapping and sensitivity analysis
- Case study: Deepwater Horizon incident overview
- Group exercise: Mapping operational risk zones

★ Day 2: Environmental Risk Assessment Methodologies

- Qualitative vs. quantitative assessments
- Environmental risk matrix and scoring systems
- Risk modelling techniques and tools
- Monte Carlo simulations
- Fault tree and event tree analysis
- GIS applications in environmental risk mapping
- Environmental risk registers
- Practical session: Developing a risk profile for a sample project

★ Day 3: Regulatory Frameworks and Environmental Governance

- National and international regulatory structures
- Environmental Impact Assessment (EIA) process
- Environmental permits and compliance obligations
- Overview of key standards (IFC, EPA, OSPAR, EU directives)
- Corporate governance and environmental responsibility
- Audit preparation and documentation best practices

★ Day 4: Risk Mitigation and Contingency Planning

- Engineering controls and preventive measures
- Emergency response planning and drills
- Oil spill containment and remediation technologies
- Climate change and carbon risk mitigation
- Environmental insurance and financial assurance
- Workshop: Developing an environmental contingency plan

★ Day 5: Monitoring, Review, and Continuous Improvement

- Key Performance Indicators (KPIs) for environmental risk
- Digital tools for environmental monitoring
- Environmental audits and inspections
- Risk communication and stakeholder reporting
- Lessons learned from environmental failure case studies
- Capstone activity: Simulated incident response and debrief

This advanced training empowers senior engineers with the knowledge and tools required to manage environmental risks effectively in dynamic oil and gas environments. By aligning engineering practices with global environmental standards and forward-looking risk strategies, participants will enhance their decision-making capabilities and help safeguard both operational integrity and environmental sustainability.

Program Outputs:

- Develop comprehensive environmental risk assessment reports using both qualitative and quantitative tools.
- Design and document a complete environmental risk mitigation plan, including prevention strategies and emergency response protocols.
- Create a structured environmental risk register tailored to specific oil and gas projects or operational sites.
- Analyze real-world case studies and apply the extracted lessons to their organizational context.
- Develop and implement an environmental audit plan with relevant Key Performance Indicators (KPIs).
- Align engineering and operational plans with international environmental standards such as ISO 14001 and IFC Performance Standards.

Target Audience:

- ✓ Senior Environmental Engineers
- ✓ HSE Managers and Advisors
- ✓ Risk Management Professionals
- ✓ Project and Operations Managers
- ✓ Engineering Consultants in Oil & Gas
- ✓ Compliance and Regulatory Officers

Program competencies and qualifications:

- ❖ Environmental Risk Identification & Evaluation.
- ❖ Application of Risk Assessment Tools.
- ❖ Regulatory and Standards Compliance.
- ❖ Contingency and Emergency Planning.
- ❖ Environmental Auditing & Governance.
- ❖ Strategic Environmental Decision-Making.
- ❖ Stakeholder Engagement & Communication.

Training methods:

- ✓ Technology-based learning.
- ✓ Simulation in Training.
- ✓ On-the-job guidance.
- ✓ Trainer-Led Training.
- ✓ Work Teams and Roles.
- ✓ Films and Videos.
- ✓ Case Studies and Workshops.

Financial proposal of the Training program

Advanced Environmental Risk Management in Oil and Gas Operations



Financial proposal:

★ Price

- ✓ This fee covers attendance, educational materials, office supplies, and a certificate of attendance.

★ Venue:

- ✓ Bangkok / First Class Hotel

★ Number of days / Training Date:

- ✓ 5 Days / 13 to 17 OCT 2025

★ Timing:

- ✓ 9:00 am until 2:00 pm