MERCURY

Oil and Gas Well Integrity Design, Analysis and Management

12 – 16 October 2026
Rome (Italy)

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

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Ref: 15131_276015 **Date:** 12 – 16 October 2026 **Location:** Rome (Italy) **Fees:** 7200 Euro

Introduction:

The oil and gas well integrity design, analysis, and management training course in directional drilling teaches everything related to drilling a directional well. Participants will learn about wellbore positioning, how to perform survey calculations and familiarize themselves with survey tools and measurements. Positioning the well inside the reservoir requires participants to understand survey quality and reservoir target sizing. As drilling technology advances quickly, in this part, the training participants will learn the latest technologies in directional drilling and what is best for their wells.

Directional well requires extensive planning. In this oil and gas well integrity design, analysis, and management course, participants will understand the different engineering practices and calculations that go into directional wells, from well planning to Bottom Hole Assembly BHA design to hydraulics and torque and drag calculations. The last part talks about the execution stage, where participants will learn how to drill a well directionally with both a steerable motor and Rotary Steerable Systems RSS to position the well in the sweet spot of the reservoir.

Targeted Groups:

- Drilling Engineers.
- Drilling Superintendents.
- Drillers.
- Oil and Gas Well site Drilling Engineers.

Course Objectives:

By the end of this oil and gas well integrity design, analysis, and management course, participants will be able to:

- Understand the components and processes involved in oil well design and oil well design process, and execute well engineering with high accuracy.
- Equip with knowledge in drilling a well, from meticulous planning to robust execution.
- Learn the appropriate oil well performance analysis procedures to drill a well safely within the reservoir, thereby achieving better overall well economics.
- Build a solid foundation in the principles and practices of oil and gas well design, including aspects of gas and oil well integrity.
- Gain a comprehensive overview of past and present integrity strategies, fortified with visual schematics and animations to support gas lift well design and other concepts.
- Utilize calculations to grasp the crucial link between oil and gas well integrity and exemplary engineering practice.

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Targeted Competencies:

By the end of this oil and gas well integrity design, analysis, and management training, target competencies will be able to:

- Understand Well Integrity Principles.
- Design for Well Integrity.
- Risk Assessment and Management.
- Regulatory and Industry Standards Compliance.
- Material Selection and Evaluation.
- Well Integrity Monitoring and Surveillance.
- Problem Diagnosis and Troubleshooting.
- Data Analysis and Interpretation.
- Technology and Innovation Application.
- Collaborative Decision-Making.
- Lifecycle Management of Wells.
- Incident Investigation and Learning.
- Sustainable and Environmental Practices.

Course Content:

Unit 1: Well Barriers and Their Principles:

- Define an oil and gas well barrier.
- Well Integrity.
- Overview of industry standards and government regulations related to oil and gas well management.
- Explore principles, schematics, and element acceptance criteria.

Unit 2: Well Design Integrity:

- Conduct offset well analysis pertinent to gas and oil well design.
- Determine kick tolerance as part of the oil well design process.
- Case Seat selection for ensuring oil and gas well design oil and gas integrity.
- Case design with an emphasis on oil and gas well completion design.
- Mud and cementing design essential for oil and gas well design.

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Unit 3: Well Barrier Verification and Preventative Well Control

- Explore reasons for gas well integrity and oil well integrity failures.
- React properly to cases with compromised oil well integrity.
- Utilize oil and gas well integrity equipment and perform calculations critical to oil well management.
- Adhere to standards and procedures for maintaining gas well integrity over the operational lifespan.
- A case study Macondo well / BP will explore in-depth scenarios impacting oil and gas well integrity.

Unit 4: Well Integrity Management Systems WIMS

- Intro to WIMS.
- Know the emphasis on operational phase well integrity, specifically for oil and gas wells.
- Understand oil and gas well risk management for oil and gas well design.
- Conduct hazard analysis, emergency response planning, and change management as part of comprehensive oil and gas well management.
- Document, handing over, and recordkeeping processes to ensure continuity and integrity in oil well management.

Unit 5: Well Integrity Monitoring and Maintenance:

- Learn methods for continuous monitoring of well integrity.
- Understand the importance of regular maintenance schedules.
- Explore various technologies used for integrity monitoring.
- Identify signs of potential well integrity issues early.
- Develop plans for routine inspections and interventions.
- Implement non-destructive testing methods.
- Use remote sensing tools and real-time data analysis.
- Perform integrity testing on well barriers and components.
- Evaluate the effectiveness of remedial actions.
- Maintain records of monitoring and maintenance activities.
- Case studies on successful well integrity maintenance practices.
- Learn to use diagnostic tools for integrity assessment.
- Understand the role of corrosion monitoring and control.
- Conduct pressure testing and logging to ensure oil and gas well integrity.
- Establish protocols for emergency repair and response.
- Integrate monitoring data into oil and gas well integrity management systems.

Conclusion:

This comprehensive course on oil and gas well integrity, design, analysis, and management incorporates various crucial aspects, including oil and gas well design and well analysis, and provides tools and knowledge to ensure the highest standards of oil and gas well integrity.

training@mercury-training.com
www.mercury-training.com