Advanced Drilling Operations and Well Control Training Course



16 - 20 Nov 2026

Geneva

5900 € (Per Person)

Ref: #OG3380_98453

Course Introduction / Overview:

This comprehensive training course provides an in-depth exploration of advanced drilling operations and critical well control technologies essential for today's complex oil and gas exploration and production environment. As the industry pushes into more challenging frontiers, such as deepwater and High-Pressure/High-Temperature (HPHT) reservoirs, the need for advanced skills in preventing and managing well control incidents has never been greater. This program, offered by BIG BEN Training Center, is meticulously designed to bridge the gap between fundamental knowledge and the advanced practices required for safe and efficient well construction. Drawing upon principles outlined by industry experts like Neal J. Adams in his seminal work "Drilling Engineering: A Complete Well Planning Approach," the course delves into sophisticated topics including Managed Pressure Drilling (MPD), wellbore stability, and advanced kill procedures. Participants will gain a robust understanding of the physics of well control, the mechanics of modern drilling technologies, and the strategic thinking required to manage complex downhole scenarios, ensuring operational integrity and personnel safety from start to finish.

Target Audience / This training course is suitable for:

- Drilling Engineers and Supervisors.
- Wellsite Leaders and Rig Managers.
- Toolpushers and Senior Drillers.
- Subsea Engineers.
- Completion and Well Intervention Engineers.
- Health, Safety, and Environment (HSE) Professionals in the drilling sector.
- Petroleum Engineers involved in well design and planning.
- Regulatory and compliance personnel.

Target Sectors and Industries:

- Oil and Gas Exploration and Production (E&P) Companies.
- Drilling Contractor Companies.
- Oilfield Service and Equipment Providers.
- Engineering, Procurement, and Construction (EPC) Contractors.
- Consulting firms specializing in well engineering and risk management.
- Governmental agencies and regulatory bodies overseeing oil and gas operations.

Target Organizations Departments:

- Drilling and Wells Department.
- Operations and Production Department.
- Engineering and Design Department.
- Health, Safety, and Environment (HSE) Department.
- Subsurface and Geoscience Teams.
- Asset Management and Field Development Teams.
- Contracts and Procurement Department.

Course Offerings:

By the end of this course, the participants will have able to:

- Master the principles of advanced well control and blowout prevention.
- Analyze and manage wellbore stability in complex geological settings.
- Implement Managed Pressure Drilling (MPD) and Underbalanced Drilling (UBD) techniques effectively.
- Design and execute well kill procedures for various complex scenarios.
- Evaluate and select appropriate well control equipment for challenging environments like deepwater and HPHT.
- Optimize drilling fluid programs to enhance operational efficiency and safety.
- Conduct comprehensive risk assessments for drilling operations.
- Apply advanced casing design principles for well integrity.
- Investigate and learn from historical well control incidents.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to foster a deep, practical understanding of advanced drilling and well control. This course moves beyond traditional lectures to create an immersive and interactive learning environment. A significant portion of the training is dedicated to analyzing real-world case studies of major well control incidents, allowing participants to deconstruct complex events and understand the chain of decisions that led to them. The program heavily utilizes high-fidelity drilling simulators to provide hands-on experience in managing kicks and executing kill procedures in a risk-free setting. Interactive workshops and group discussions encourage collaborative problem-solving, where participants tackle complex drilling scenarios and develop robust operational plans. Our expert instructors, who bring decades of field experience, facilitate these sessions, providing personalized feedback and ensuring that theoretical concepts are firmly linked to practical, on-the-job application. This blended approach ensures participants not only learn the material but also build the confidence to apply it effectively in high-pressure situations.

Course Agenda (Course Units):

Unit One: Fundamentals of Wellbore Pressures and Kick Prevention

- Introduction to advanced well control principles.
- Pore pressure and fracture gradient prediction techniques.
- Wellbore stability and the geomechanical model.
- Early kick detection indicators and technologies.
- Trip margin and surge/swab pressure calculations.
- Drilling fluid properties and their impact on well control.
- Primary well control and barrier philosophy.

Unit Two: Advanced Well Control Equipment and Procedures

- Blowout Preventer (BOP) stack configurations for surface and subsea.
- BOP control systems, accumulators, and emergency functions.
- Choke and kill manifold operations and pressure management.
- The Driller's Method for well kill operations.
- The Wait and Weight Method for well kill operations.
- Bullheading and volumetric methods.
- Complications during well control operations (e.g., gas migration, plugged bit).

Unit Three: Managed Pressure Drilling (MPD) and Underbalanced Operations

- Principles of Managed Pressure Drilling (MPD).
- MPD variations: Constant Bottom Hole Pressure, Pressurized Mud Cap Drilling.
- MPD equipment, systems, and operational planning.
- Underbalanced Drilling (UBD) and its applications.
- Well control procedures during MPD and UBD operations.
- Hazard identification and risk assessment for pressurized drilling systems.
- Casing-while-drilling (CWD) technology and its benefits.

Unit Four: High-Pressure/High-Temperature (HPHT) and Deepwater Well Control

- Challenges of drilling in HPHT environments.
- Well design and material selection for HPHT wells.
- Specific well control considerations for HPHT operations.
- Deepwater drilling challenges and riser mechanics.
- Subsea well control equipment and ROV interfaces.
- Gas hydrate formation and prevention.
- Well integrity management in deepwater and HPHT wells.

Unit Five: Well Planning, Risk Management, and Incident Analysis

- Integrating well control into the well planning process.
- Advanced casing seat selection and casing design.
- Contingency planning for well control events.
- Human factors and crew resource management in well control.
- Analysis of major industry well control incidents.
- Developing a robust well control emergency response plan.
- Final comprehensive simulation exercise and assessment.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As drilling automation and AI-driven systems become more prevalent, how will the fundamental responsibilities and decision-making authority of the wellsite supervisor in a critical well control event evolve?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by moving beyond standard certification curricula to provide a deep, integrated understanding of the interplay between advanced drilling technologies and well control. While many courses focus narrowly on kill procedures, this program dedicates significant time to proactive and preventative strategies, particularly through in-depth modules on Managed Pressure Drilling (MPD) and geomechanical wellbore stability. The curriculum is built around a philosophy of holistic risk management, teaching participants not just how to react to a kick, but how to design and execute a well plan that minimizes its probability from the outset. Another key differentiator is our extensive use of case studies from major industry incidents. We go beyond the headlines to analyze the technical, procedural, and human factors that contributed to these events, providing invaluable lessons that cannot be learned from a textbook. This approach, combining advanced theory with forensic analysis of real-world events and hands-on simulations, equips professionals with the critical thinking skills needed to manage the complex, high-stakes challenges of modern drilling operations, ensuring they are prepared for both expected and unexpected scenarios.