



HARNESS THE POWER
OF KNOWLEDGE

Underbalanced Drilling (UBD)

TRAIN



Course Overview:

Underbalanced Drilling (UBD) is a specialized drilling technique that utilizes a lighter-than-formation fluid to maintain a state of underbalance during the drilling process

This unique approach offers several advantages, including reduced drilling fluid losses, improved wellbore stability, and enhanced formation evaluation

This comprehensive 5-day professional training course will provide a thorough understanding of UBD principles, equipment, techniques, and applications in various drilling scenarios

Course Objectives:

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

1

Grasp the fundamental principles of UBD and its advantages over conventional drilling methods

2

Identify the key components of UBD equipment and their functions, including specialized drilling rigs, compressors, and fluid separation systems

3

Understand the different types of UBD fluids, their properties, and their selection criteria

4

Discuss the procedures for planning and executing UBD operations, including wellbore design, fluid management, and operational monitoring

5

Apply UBD techniques to enhance drilling performance, reduce formation damage, and optimize wellbore productivity

Course Agenda:

Day 1: Introduction to Underbalanced Drilling

- Delve into the significance of UBD in drilling operations and its impact on wellbore stability, formation evaluation, and drilling efficiency
- Explore the history of UBD technology and the evolution of UBD equipment and techniques
- Discuss the regulatory framework and safety standards governing UBD operations and environmental protection
- Analyze the applications of UBD in various drilling scenarios, such as horizontal wells, unconventional reservoirs, and challenging formations

Day 2: UBD Equipment and Fluid Systems

- Understand the fundamental principles of UBD equipment and its components
- Identify the major components of a UBD drilling rig, including specialized rotary systems, mud circulation systems, and compressors
- Discuss the functions and operation of different types of UBD fluids, such as air, nitrogen, and natural gas
- Explore the selection criteria for UBD fluids based on formation characteristics, drilling objectives, and environmental considerations

Day 3: Underbalanced Drilling Techniques and Applications

- Delve into the principles and procedures for planning UBD operations, including wellbore design, fluid management, and operational monitoring
- Discuss the techniques for maintaining underbalance conditions during drilling, including surface pressure control, fluid injection, and gas lifting
- Analyze the application of UBD in various drilling scenarios, such as horizontal wells, unconventional reservoirs, and challenging formations
- Explore the use of advanced UBD technologies, such as real-time monitoring, automated control systems, and data analytics

Day 4: UBD Challenges and Best Practices

- Discuss the challenges associated with UBD operations, such as wellbore stability, fluid management, and environmental impact
- Explore techniques for addressing UBD challenges, such as wellbore strengthening, fluid loss control, and environmental mitigation strategies
- Analyze best practices for UBD operations, including safety procedures, environmental management, and quality assurance
- Discuss case studies of successful UBD projects and identify key lessons learned for future planning and execution

Day 5: Advanced Underbalanced Drilling Techniques

- Delve into advanced UBD techniques, such as Managed Pressure Drilling (MPD) and Live Fluid Sampling (LFS)
- Discuss the principles and applications of MPD, including wellbore pressure control, real-time optimization, and formation integrity management
- Explore the techniques and applications of LFS, including fluid sampling, fluid analysis, and formation evaluation
- Analyze the potential of UBD in emerging drilling technologies, such as coiled tubing drilling, multilateral wells, and deepwater drilling

Who Should Attend:

- Petroleum engineers and drilling engineers involved in UBD planning, design, and execution
- Reservoir engineers and geoscientists responsible for formation evaluation, well performance optimization, and unconventional reservoir development
- UBD project managers and supervisors overseeing UBD operations, safety, and environmental compliance
- UBD contractors, service company personnel, and technicians engaged in UBD equipment operation and maintenance
- Students and individuals interested in pursuing a career in UBD, unconventional reservoir development, or advanced drilling technologies

Course Benefits:

- Develop a comprehensive understanding of UBD principles, equipment, techniques, and applications
- Gain hands-on experience in UBD planning, fluid selection, and operational monitoring concepts
- Enhance your ability to design and execute UBD projects, address operational challenges, and optimize well performance
- Stay updated on the latest advancements in UBD technologies, fluid systems, and industry best practices
- Network with other professionals from diverse backgrounds within the oil and gas industry