



Advanced Drilling Best Practices

Course Duration : 5 days

Date : 24-Nov-2024 to 28-Nov-2024

Location : Vienna

Type of Participant : Drilling engineers, completion engineers, production engineers, supervisors, toolpushers, company men, field supervisors, involved in the well planning and implementation of drilling programs.

Summary:

This course is an overview of advanced drilling operations. It is designed to provide 'state-of-the-art' advanced drilling procedures. It covers well design, discusses challenges in implementing the drilling program and seeks solutions. Reviews drilling problems, analyzes bits and bit performance, reviews drilling fluids and drilling hydraulics program and calculations, well control and mud logging evaluation.

Objective:

- Understand the concepts of advanced drilling practices
- Build foundations on drilling and well planning, drilling fluids, drilling hydraulics, bits and ROP optimization
- Evaluate stuck pipe problems and analyze hole cleaning efficiencies
- Learn techniques to maximize penetration rates
- Understand importance of mud logging services

Participants will learn:

- To understand stuck pipe issues, and to be able to implement means to avoid them
- To implement bit and hydraulic programs
- To understand importance of hole cleaning and factors affecting it
- To understand mud logs and to be able to identify potential problems

Contents:



- Overview of drilling operations
- Hole problems, importance and solutions
- Stuck pipe issues
- Hole cleaning
- Importance of good drilling measurements
- Lost circulation and means to overcome them
- Bit selection, bit hydraulics
- Drill off tests
- ROP optimization
- Hydraulic programs, estimation of wellbore pressures
- BHA and drilling string design
- Functions of drilling fluids
- Drilling fluid measurements
- Advances in drilling fluid design, special wells
- Well control, kicks, kick detection, procedures for killing the well
- Managed pressure drilling
- Mud logging, basic and advanced concepts, how to spot and resolve potential problems

Daily Program:

Day 1

Drilling operations overview, drilling problems and challenges

- Overview of drilling operations
- Drilling problems
- Stuck pipe, types, prevention, solutions
- Fishing and fishing tools
- Hole cleaning and importance in drilling problems
- Lost circulation, causes, prevention, mitigation

Day 2

Bits, bit selection, bit hydraulics, drill string design

- Bit types
- Selecting the proper bit
- Bit hydraulics
- Factors affecting Rate Of Penetration
- Drill Off test
- ROP optimization
- BHA and drill string design
- Case study of ROP optimization

Day 3

Drilling fluids, properties, issues, advances, wellbore hydraulics



- Drilling fluids functions, properties, measurements
- Rheology, density, fluid loss
- High Pressure High Temperature drilling fluids, additives, issues, solutions
- Wellbore hydraulics, pressure buildup along the wellbore
- Case study of a good well hydraulics program

Day-4

Well control and appropriate calculations

- Reasons for well control, equipment, potential problems
- Kicks, occurrence, detection in water and oil based muds, kick control
- Kill procedures
- Calculations, review of the kill sheet
- Advances in kick detection and kick control
- Exercise on kick calculations

Day 5

Mud logging and drilling progress evaluation

- Mud logging concepts, advanced mud logging techniques
- Gas analysis, fast gas detection
- Cuttings evaluation
- Flow-in / flow-out measurements, importance, advance concepts
- Petrophysical measurements
- Integration of mud logging measurement with drilling measurements

FINAL QUIZ : post-assessment of knowledge level on advanced drilling practices