Arabian Institute For Training

Advanced Drilling Best Practices

INTRODUCTION

- Today's drilling personnel must have a working knowledge of all the required disciplines in order to effectively drill a well. This Advanced Drilling Best Practices training seminar provides all the fundamentals necessary to drill a well whether it is a shallow well or a complex, high pressure well.
- This Oil & Gas Technology training course is also designed for engineers and field personnel involved in the planning and implementation of drilling programs. This covers all aspects of drilling technology, emphasizing both theory and practical application.
- Computer programs are used to design many aspects of the modern well and this training seminar will provide the participants with the theory behind most programs along with practical implementation. This Advanced Drilling Best Practices training seminar will also include advanced Mud Logging principles and operations.
- This Advanced Drilling Best Practices training seminar builds a firm foundation in the principles and practices of drilling and well planning, drilling fluid, drill string design, hydraulic optimization and drilling hole problems. Participants will learn the components of drilling string and how to use each in optimum ways, how to evaluate the WOB and select the proper size of drill collar. Participants will also be able to apply the practical solution for analyzing the performance of drill string design for both vertical and direction holes.

OBJECTIVES

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

- Drill a well cost effectively and maximize penetration rate & Evaluate stuck pipe problems and avoid potential problems by optimizing hole cleaning and ROP
- Design, drill string and BOP / wellheads & Design and implement bit and hydraulics programs
- BHA design for proper deviation, directional and horizontal drilling control & Recognize and evaluate well control problems by effectively using Mud Logging principles and techniques

TRAINING METHODOLOGY

- This Advanced Drilling Best Practices training seminar will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The daily workshops will be highly interactive and participative.

ORGANISATIONAL IMPACT

The organisation will gain, in sending their employees to attend this particular training seminar, the following:

- Reduction in the cost of the well and avoiding the risk
- Extending the well life and control it
- Ensuring the well integrity

PERSONAL IMPACT

- Obtain integrating knowledge to mitigate and eliminate the drilling problems
- Hone their knowledge and get the self-confidence for doing the proper well control, in addition, how to predict and analyzing all the warning signs to eliminate all kinds of problems

WHO SHOULD ATTEND?

This training seminar is suitable to a wide range of professionals but will greatly benefit:

- Drilling Engineers
- Well Site Supervisors
- Drilling Contractors
- Drilling Supervisors
- Trainee Drillers
- Rig Engineers

Course Outline

Drilling Hole Problems and Practical Solutions

- Hole Problems (stuck pipe, lost circulation)
- Impact of Hole Cleaning on Hole Problems
- Stuck Pipe Types
- Formation and Problems Related
- Good Recommendations of Drilling Practices and Preventive Measurements
- Fishing Tools and Impact on Stuck Pipe
- Lost Circulation and Types
- Materials used to Solve the Problems
- Recommendations and Procedures

Preventing Washout and Twist-off

- How you can prevent Washouts?
- How do you analyze the true pressure loss of a Washout?
- Bit Selection and Hydraulics Application, including Nozzle Selection
- Bit Types
- Rolling Cutter Bits
- Polycrystalline Diamond Bits
- Standard Classification of Bits
- Preparing the Bit to be run in Hole
- Running in Hole and Drilling-out Cement and Plugs
- Breaking the Bits
- Fundamental Parameters Discussion
- Optimising Drilling Performance
- Drill-off Test
- Drill String Dynamic / Vibration
- Factors related to Bit Run Termination
- Bit Hydraulic
- BHA and Drill String Design, Selection of Casing Seats, BOP Equipment
- Drill Strings
- Functions of Drill Pipe, Drill Collars and BHA Selection
- Grades of Drill Pipe and Strength Properties
- Thread Types and Tool-joints
- Drill Collar Weight and Neutral Point
- Basic Design Calculations based on-depth to be Drilled
- Functions of Stabilizers and Roller Reamers

Drilling Fluids Planning and Control, Routine and Special Problems

- Lifting Capacity of Drilling Fluids, Pressure losses in the Circulating System and ECD
- Functions of the Drilling Fluids, Impact of Hydraulic on the Drilling Optimization
- Parameters affecting on the Drilling Penetrations
- Drilling Fluid Properties, Functions of Drilling Fluid
- Mud Properties and Problems related to Mud Properties
- Seepage Losses Control

Well Control & Hydro-dynamic Pressure

- Well Control
- Three Phases of Well Control
- Hydro-dynamic Pressure
- Equivalent Circulating Density
- Mud Weight Maintenance
- Second Line of Defense
- Induced Kick
- Kick Detection Team
- Causes of Kicks while Drilling
- Indication of Induced Kicks
- Diverter Guidelines while Drilling
- Best Kill Procedure for Kick Type
- Kick Control Team
- Removing Gas Trapped below the BOP
- Causes of Kicks while Tripping
- Diverter Guidelines while Tripping
- Evaluating the Off Bottom Kick Condition
- Strip and Bleed Guidelines
- Volumetric Guidelines
- Dynamic Lubricates and Bleed Guidelines
- Third Line of Defense (Underground Blowout)
- Indication of Underground Blowout
- Kick Detection in Oil Base Mud
- Operations that can mask a Kick
- Well Control Kill Sheet
- Exercise

Planning Including Mud Logging Requirements

- Introduction
- Modern Mud Logging Unit
- Petroleum Engineering Services
- Gas Analysis
- Cutting Evaluation
- Shale Bulk Density
- Shale Factor
- Flow Line Temperature
- Drilling Models
- Petro Physical Measurements
- Drilling Porosity
- Selection a Mud Logging Service
- Workshop discussing the Drilling problems and How to solve them

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