An Introduction to Drilling Operations

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Introduction:

This course is primarily designed for drilling, production and completion engineers and supervisors needing a practical understanding and an appreciation of well completion design and operation, well stimulation and work over planning. It explains how completion configurations are varied to meet well objectives and to maximize well productivity. Design concepts and methods are presented together with down hole tools and their selection criteria.

Completion types and design for vertical, horizontal and multilateral wells, design and optimization of tubing based on tubing performance analysis (Inflow performance analysis, liquid and gas hold up during fluid flow and forces on tubing), down hole equipment, tubing accessories, and wellhead equipment including completion. Also fluid flow through perforations and perforation techniques; communication tests; wire line operations; reservoir stimulation; and hydraulic fracture treatment design and optimization are extensively reviewed. Local case studies are also provided. This course is talking in details about casing, tubing accessories and completion types. Also completion equipment design, operations and well productivity are covered.

Objectives

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

- Enhance the candidates' knowledge skills to understand the well completion.
- Improve the awareness of wells completions types, operations and subsurface equipment
- Apply the latest techniques in well completion design and operation

- Optimize tubing dimensions for maximum production and estimate the pressure losses in tubing for different rock & fluid properties
- Use different subsurface completion equipment and accessories and select packers and packer settings
- Operate the well head equipment properly and calculate geometries and dimensions casing and tubing hangers
- Identify the different special consideration for horizontal and multilateral completions on wellbore, tubing and casing configuration
- Recognize the components of perforation of oil and gas wells such as completion fishing operations, well stimulation and fracturing, well testing, and well integrity
- Carryout the various procedures of communication tests
- Practice the process of wire line operations
- Discuss the elements of reservoir stimulation and increase the knowledge in understanding of stress and rock properties involved in the simulation techniques

Who should attend?

Drilling Engineers, Senior Drilling Engineers, Drilling Supervisors, Petroleum Engineers, Completion Engineers, Tool Pushers, Reservoir and Senior Reservoir Engineers, Geologists, Production and Completion Engineers, Foremen, Industry Personnel

Course Outline

Casing & Tubing Introduction

- Manner of manufacture
- Type of joints
- Length range
- Wall thickness

Well Completion Type

- Open hole
- Cased hole
- Slotted liner
- Single completion & double.

Completion Operation

- Cementing primary and multistage
- Remedial
- Cased hole log
- Depth control
- Cement bond evaluation

Completion Productivity

- Sizing the tubing & performance
- Artificial lift requirement
- Perforation and selection
- Completion fluids
- Case Studies
- The Drilling Rig
- Down hole Drilling Equipment
- Drilling Fluids
- Casing and Cementing

Completion Equipment and Design Practices

- Well head
- Safety valves
- Slide side door and circulation device
- Permanent and packer.

- Formation Evaluation
- Normal Drilling Operations
- Special Drilling Operations
- Management
- HSE
- Drilling Problems
- Work overs
- Planning
- New Developments