ADVANCED COMPLETION DESIGN & OPERATIONS

TRAINIT ACADEMY

Drilling, Reservoir & Petroleum Training

COURSE TITLE

ADVANCED COMPLETION DESIGN & OPERATIONS

COURSE DATE/VENUE

18th-22nd May 26'

Munich, Germany

COURSE REFERENCE

DRPT114

COURSE DURATION

05 Days

DISCIPLINE

Drilling, Reservoir & Petroleum Training

COURSE INTRODUCTION

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In the development of a hydrocarbon reservoir, many wells are drilled and required to be completed, to allow the structure to be depleted. However, the drilling and completion operations are crucial to the long-term viability of the wells in meeting the specified objectives.

The design and completion of both production and injection wells are required to satisfy several objectives including:

- Provision of optimum production/injection performance
- Ensure safety
- Maximize the integrity and reliability of the completion over the envisaged life of the completed well
- Minimize the total costs per unit volume of fluid produced or injected, i.e.
- Minimize the costs of initial completion, maintaining production and remedial measures

This training on Well Completion Design will feature:

- The main functions of completion
- Developing a high-level completion strategy for wells in a variety of situations
- Select tubing, packers, and completion flow control equipment
- Understand different sand control techniques and their application

COURSE OBJECTIVE

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

- Evaluate for a given reservoir scenario the bottom hole completion options and make a recommendation based on well integrity and reservoir management requirements
- Identify, evaluate and recommend functional capability of completion strings for a variety of situations
- Describe the purpose and generic operating principles for major completion equipment components
- Identify limitation of well completion schematically designs and potential failure mechanisms / operational problems with equipment
- Assess well safety requirements and capabilities inherent in well design
- Describe the integration of the various stages of completing a well
- List and flow chart a general procedure to run a completion string
- Describe the requirements to pressure test and retain well control throughout the completion process
- Define the need for full and accurate reporting and records to be kept

COURSE AUDIENCE

- Asset Managers
- Petroleum Engineers
- Production Technologists
- Production Personnel (Production Operators, Maintenance Supervisors)

- Drilling and Well Servicing Personnel (Drilling Manager, Drilling/Well Engineers, Completion and Well Service Engineers, Drilling Supervisors, Rig Manager, Toolpusher, Drillers)

COURSE CONTENT

DAY 1

Well Completion Design, Practices and Strategies

- Introduction of Reservoir Drive Mechanism
- Introduction into Artificial lift methods and their application
- IPR and Productivity Index
- Vertical Lift Performance
- Well Outflow and Inflow Systems
- Typical Vertical Lift Performance (VLP) for Various Tubing Sizes
- Matching VLP Curves with an IPR Curve
- Well Completion Design Considerations
- Reservoir Considerations
- Mechanical Considerations
- Classification of Completions

DAY 2

Lower & Upper Completion String Components & Selection Consideration

- Production Packer functions
- Packers Types
- Packers Generic Mechanisms
- Permanent and Retrievable Packers
- Locator Seals and Anchor Seals
- Applications for Permanent and for Retrievable Packers
- Setting Packers
- Inflatable Packer Applications
- Sliding Side Door Function

- Gas Lift Mandrel
- Running the Completion
- Perforation Methods and Perforating Equipment
- Perforation Selection and Conveying Methods

DAY 3

Wellheads / Sub-Surface Safety Valves & Flow Control Equipment

- Wellheads Components, Function and Types
- Subsurface Safety Valves Function
- Safety Valves Types
- Setting Depth of Subsurface Safety Valves Consideration
- Surface Control Subsurface Safety Valves
- Flow Control Devices
- Nipple Profiles Types and Plug Selection
- Workover Reasons
- Well Killing Operations Technique and Consideration
- Example for Workover Operations (Gas lift wells, Natural gas well, ESP well)

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DAY 4

Overview of Sand Control Completion

- Sandstone Formation Properties and Geology
- What causes Sand Production?
- Consequences of Sand Production Downhole and on Surface
- What is the mean of sand control?
- Perforation System for Non-sand Control Completion
- Sand Control Options
- Chemical Consolidation
- Mechanical Sand Control Methods
- Cased Hole Gravel Pack
- Open Hole Gravel Packing
- Expandable Screens
- Gravel Pack Design, Gravel Sizing and Slot Sizing

- Placement Methods
- Carrier Fluid Concept
- Choosing the Appropriate Method of Sand Control
- Losses Controlling during Sand Control Operations
- Perforating System for Sand Control
- Standalone Screen Applications

DAY 5

Fundamentals of Rigless Operations Theory & Stimulation

- Coiled Tubing Surface and Subsurface Components
- Coiled Tubing Applications
- Cleaning Aperations with CT
- Well Back Flow (nitrogen lift)
- Wireline Types and Application
- Surface and Subsurface Components of Wireline
- Formation Damage Mechanisms and their Remediation
- Stimulation Design Considerations
- The Most Important Production Logging (PLT)
- Well Barrier Philosophy during Well Interventions

COURSE CERTIFICATE

TRAINIT ACADEMY will award an internationally recognized certificate(s) for each delegate on completion of training.

COURSE FEES

£5,750 per Delegate. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions

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