Advanced Well Completion Design

24 - 28 Sep 2017, Dubai

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Advanced Well Completion Design

Introduction

This training seminar provides in-depth information on the impact of workovers and completion design in maximizing field production and increasing recoverable reserves. It also emphasizes the importance of a team concept as a determining factor in operations success. Participants will gain a greater understanding of how to apply advanced technologies to designing and executing workover jobs, and how to select the best operations method to perform the task in the safest, most efficient manner.

This training seminar will feature:

- Develop a high level completion strategy for wells in a variety of situations
- Select tubing, packers, and completion flow control equipment

Objectives

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

- Appraise/design a suitable flow barrier strategy and suitable intervention strategy
- Make recommendations on installation and retrieval practices for tubing, packers, etc. in different well types
- Identify key features/applicability of the main sand control, frac. pack and well stimulation options

Training Methodology

This 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 the proper selection of production string
- Extending the well life and control it, achieve the optimum production
- Ensuring the well integrity and avoiding all risks

Personal Impact

- Obtain integrating knowledge of well completion design
- Hone their knowledge and get the self-confidence in designing proper completion
- Get the latest technology in well operations
- Solving and avoiding the problems which impact on the optimum production, and well integrity

Who Should Attend?

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

- Affiliate Technical Directors
- 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)
**Seminar Outline**

### DAY 1

**Basic Well Completion Design, Practices, and Strategies**
- Completion and workover operations
- Design considerations
- Reservoir considerations
- Mechanical considerations
- A wellhead provides a means of support
- Types of completions
- Reservoir completion methods
- Upper completion methods
- Examples of completion methods
- Example of well performance sensitivity to reservoir pressure
- Multiple zone single string completion
- Dual zone dual string completion
- Triple zone dual string completion
- Reservoir drive mechanism
- Sources of reservoir energy
- Well completion design
- Design considerations
- Team integration
- Data gathering
- Productivity index
- Example of an IPR curve
- Vertical lift performance
- Well outflow and inflow systems
- Typical vertical lift performance (VLP) for various tubing sizes
- Matching VLP curves with an IPR curve
- Completion design example 1
- Completion design example 2
- Gas lift
- Gas lift completion designs
- Electrical submersible pumps
- Y block
- Coiled tubing deployed ESP
- Turbine driven submersible
- Jet pumps
- Progressive cavity pumps
- Beam pumps
- Packer type gas anchor
- Hydraulic Piston pumps
- Reciprocating plunger pump

### DAY 2

**Packer Selection and Tubing Forces**
- Packers types
- Packers Generic Mechanisms
- Permanent and Retrievable Packers
- Locator Seals and Anchor Seals
- Applications for Permanent and for Retrievable Packers
- Setting Packers
- Dual Packers
- Compression Packers
- Tension Packers
- Inflatable Packers
- Packer Selection Process
- Packer/PBR (polished bore receptacle) or Tubing Anchor?

### DAY 3

**Wellheads / Chokes / Sub-surface Safety Valves and Flow Control Equipment**
- Corrosion and Erosion Inflow and Tubing Performance
  - Types of wellhead
  - A sketch of a wellhead
  - A sketch of a Christmas tree
  - Single string surface production tree
  - Dual string surface production tree
  - Tubing hanger
  - A sketch of a casing head
  - Pressure testing the tree
  - Production chokes
  - Spool and hanger
  - Tree hook – up
  - Wellhead, tree and flow line
  - X mas tree selection
  - Tree saver
- Well Integrity Life Cycle
  - Definition of well integrity
  - Failure case history
  - Surface casing failure
  - Annulus pressure build up
  - Well integrity management system
  - Well integrity team
  - Tubing / Annulus program
  - Barrier system
  - Well & tree maintenance
  - Safety valve program
  - Data management
  - Well integrity diagnostic report
  - Why is well integrity important?
  - Well integrity checklist
  - Attached documentation
  - Well barrier envelope
  - Recommendation testing
  - Well quality
  - Risk assessment considerations for well integrity
  - Outflow potential
  - Well effluent
  - External environment
  - Application of risk assessment
  - Risk based maintenance & inspection matrix
  - Well Quality and integrity
  - External well integrity maintenance
  - Internal well integrity maintenance
Seminar Outline

DAY 4

Deviated / Multiple Zone / Subsea / Horizontal / Multilateral and HPHT Completion Considerations

- Tubing design
- Tubing movement
- Piston effect
- Buckling effect
- Temperature effect
- Floating tubing
- Landing Conditions
- Sand control
  - Sand formation properties and geology
  - Why sand is produced?
  - Why Sand Control Production?
  - Erosion
  - Sand bridging
  - Casing failures
  - What causes sand production?
  - Drilling and completion requirements
  - Fluid selection
  - Solids free fluids
  - Polymers bridging material
  - Perforating
  - Perforating damage
  - Gravel control
  - Gravel and screen selection
  - Gravel sizing
  - Slot sizing
  - Inside gravel packing
  - Open hole gravel packing
  - Placement methods
  - Hole enlargement
  - Carrier fluid concept
  - Chemical consolidation
  - Consolidated packs
  - Expandable screens
  - Expandable screens and borehole interactions
  - Expansion methods
  - Open hole gravel packs (OHCPs)
  - Cased hole gravel and frac packs
  - Choosing the appropriate method of sand control

- Well stimulation methods
  - Acidizing
  - Fracturing
  - Acid frac

DAY 5

Wireline / Coiled Tubing / Snubbing Operations

- Snubbing operations
- Rig assist snubbing system
- Push / pull snubbing machine
- Rig assist unit (Hydraulic)
- Well control during normal operations
- Slip operating sequence (Light pipe running in)
- Annular BOP
- Stripping BOP sequence when running in
- Coiled tubing
  - Coiled tubing use
  - Sand trap system
  - Debris catching
  - Under reaming
  - Mechanical scale removal
  - High pressure jet washing
  - Fishing and milling
  - Removing and recovering obstructions
  - Cutting pipe
  - Milling
  - Zone isolation
  - Retrievable packer
  - Stimulation and fracturing
  - Sand control completions
  - Circulating gravel pack system
  - Multi-Lateral wells drilling and completions
  - Case history
REGISTRATION DETAILS

LAST NAME:________________________________________
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PAYMENT DETAILS

☐ Please invoice my company
☐ Cheque payable to GLOMACS
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CERTIFICATION

Successful participants will receive GLOMACS’ Certificate of Completion

4 WAYS TO REGISTER

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TERMS AND CONDITIONS

- Fees – Each fee is inclusive of Documentation, Lunch and refreshments served during the entire seminar.
- Mode of Payment – The delegate has the option to pay the course fee directly or request to send an invoice to his/her company/sponsor. Credit card and cheque payments are both acceptable.
- Cancellation / Substitution – Request for seminar cancellation must be made in writing & received three (3) weeks prior to the seminar date. A US$ 250.00 processing fee will be charged per delegate for each cancellation. Thereafter, we regret that we are unable to refund any fees due. although in such cases we would be happy to welcome a colleague who would substitute for you.
- Hotel Accommodation – is not included in the course fee. A reduced corporate rate and a limited number of rooms may be available for attendees wishing to stay at the hotel venue. Requests for hotel reservations should be made at least three (3) weeks prior to the commencement of the seminar. All hotel accommodation is strictly subject to availability and terms and conditions imposed by the hotel will apply.
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