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jh

This may also be of interest

Basic Reservoir Engineering

Reservoir Engineering

Reserves Calculations based on PRMS

Reserves Calculations based on PRMS

Waterflooding from A to Z

Description

This is five days lecture to present the reservoir engineering practices and methods applied to maximize the hydrocarbons recovery, though the life cycle of oil and gas fields, emphasizing in integrated studies principles, best practices and lessons learned in assets value optimization. Describes the framework for planning and executing reservoir engineering studies from the stage of the field discovery, though appraise, development and production under primary recovery, secondary recovery and enhanced oil recovery methods.

The course address classical calculation methods of reservoir engineering to determine representative reservoir parameter, reserves estimations by deterministic and probabilistic methods, topics of numerical reservoir simulation and a summary of the methods to increase the recovery factor by secondary and Enhanced Oil Recovery process

Objectives

- Understand the fundamentals and applications of Reservoir Engineering
- Have a better knowledge on reservoir fluid and rock properties
- Learn how to calculate the original hydrocarbon in place
- Learn how to identify new infill opportunities using conventional Reservoir Engineering
- Understand production optimization concept and applications
- Discuss Reservoir Surveillance and Monitoring Plans
- Understand principles of water and gas coning
- Learn well testing concepts and principles
- Get understanding on Gas Reservoir performance
- Gain basic knowledge on numerical reservoir simulation modeling practices

Audience

This course is recommended for oil companies or service companies personnel that need to gain or increase their understanding of reservoir production performance

- Petroleum and Production Engineers
- Reservoir Engineers & Reservoir Managers
- Geologist, Geophysicist & petrophysicists

This training can be delivered in house, based on workshop sessions for groups of delegates, it can be tailored to specific company needs.



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Content

Day 1

Introduction & Objectives

- History of Reservoir Engineering
- Fluid Properties
- Rock Properties
- Driving mechanisms
- Type and Classification of Reserves

Day 2

Reservoir Engineering Roles and Activities

- Roles of the Reservoir Engineer
- Reserves Determination, Volumetric Reserves Estimation
- Development Planning, Production Operations Optimization
- Geological Model
- Reserves Definition, Uncertainties, Proved Reserves
- Economics, Reserves Progression
- Probabilistic Reserves, evolution of reserves & recovery factor
- Dynamic Characterization
- Material Balance equations
- Decline Curve Analysis

Day 3

Dynamic Reservoir Models & Well Testing

- Introduction to Dynamic Reservoir Modelling
- Geologic and Engineering Activities in Reservoir Description
- Well testing Objectives, Concepts and Applications.
- Skin, Wellbore Storage, Modern Well Test Analysis
- Drawdown & Build Up, Horner time, Superposition, semi-log and log-log Analysis,
- Type Curves,
- Fractures, Sealing Faults, Horizontal Wells, Dual Porosity, Dual Permeability,
- Intersecting Faults, Close Reservoirs
- Flow Regimes identification

Day 4

Secondary Recovery Concepts

- Waterflooding & Gas flooding
- Efficiencies of Secondary Recovery Methods
- Fundamentals of Water Injection, Displacing oil with Water, Frontal Advance &
- Fractional Flow.
- Water Oil Relative Permeability
- Injection Patterns
- Mobility Ratios
- Gas and Water Viscous Fingering
- Sweep Efficiency
- Sources of Water, Water Disposal
- Optimum Timing for a Waterflood
- **Enhanced Oil Recovery Part 1**
- EOR Fundamentals



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Day 4 (cont.)

Secondary Recovery Concepts (cont.)

- EOR Thermal Flooding
- Steam-flooding, Cyclic Steam Injection
- In situ Combustion
- SAGD (Steam Assisted Gravity Drainage)
- Constrains for EOR Thermal Methods

Day 5

Enhanced Oil Recovery Part 2

- Miscible Gas Flooding, CO2 flooding
- Nitrogen and Flue Gas
- Constrains for Gas Injection
- Chemical EOR
- Polymer, Surfactants & Alkalis
- Microbial EOR
- Wrap Up Summary of the Week.
- Discussion and Conclusions

End of the training