FORMATION EVALUATION   EXP009

COURSE DESCRIPTION

Most types of logs are used to characterize the reservoir behavior prior to install well completion; while a number of logging tools are available to provide information during production operations and beyond. This course will discuss the various types of cased hole logging and how they can often be used to provide critical information to define production problems and diagnose remedial actions.

Cased hole logging tools are used to efficiently and accurately evaluate the well's performance. They diagnose and verify potential issues in reservoir performance. Real-time, depth-correlated production data, including flow rates, pressures, gas/oil/water ratios and completion integrity status

Using these key production parameters, it is possible to evaluate production operations and diagnose potential problems such as water or gas breakthrough, crossflow, tubing leaks and this in turn will reduces downtime.

This course will highlight:

- Identify what cased hole Logging is and categorize commonly used.
- Distinguish cased hole logging tools including its purpose, benefits, and deliverables.
- Identify the features and benefits of using Cased hole logging technology

COURSE OBJECTIVES

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

- Distinguish between different types of cased hole logging Tools including its purpose, benefits, and deliverables.
- Determine the functions of downhole tools used throughout cased hole work with a surface acquisition system.

WHO SHOULD ATTEND

This Formation Evaluation course is suitable to a wide range of professionals and will greatly benefit:

- Production engineers
- Completion engineers
- Reservoir engineers
- Geologists
- Petroleum engineer
- Production technologist

COURSE DURATION

5 Working Days

COURSE OUTLINES

1. Day One

   - Introduction Into basic reservoir characteristics and production system
   - Inflow performance and productivity index for oil wells and gas wells.
   - Outflow performance: matching inflow with outflow to optimize well productivity
   - Well completions applied to vertical, deviated and horizontal wells
   - Reservoir Fluids: fluid properties: GOR, Bubble point Pressure
   - Reservoir drive mechanisms and associated production problems
   - Flow Regimes in vertical and deviated wells and slippage velocities

2. Day Two

   - Production Logging tools and application
   - Meaning of production logging and its basic downhole string.
   - Define and estimate the 3-fluid phase velocities
   - Production logging in vertical/deviated/horizontal wells.
   - Cross flow identifications and remedial actions.
   - Spinners, inline and full bore measurement philosophy.
   - Measurements of three phase holdups.
   - Tools calibration and logging data measurement.
   - Depth control in cased hole wells using GR and CCL

3. Day Three

   - Tubing String Integrity and corrosion monitoring
   - Corrosion Mechanism and Corrosion Monitoring
   - Pressure control system for rigless operation
   - Leak Detection using temperature log and PLT
   - Leak detection with mechanical multi finger tools
   - Limitation of multi finger tools
   - Tubing leak repair with straddle pack off
   - Straddle pack off design and installation
   - Example of leak detection and repair program

4. **Day Four**

- Cement evaluation Log, saturation logging and special cased hole Logging tool.
- The cementing operations and the function of cement.
- Effects of cement quality on oil & gas production
- Cement evaluation log CBL-VDL and ultrasonic tools.
- Cement repair job discussion.
- Reservoir saturation tools and its application.
- Gravel pack evaluation log

5. **Day Five**

- Perforating Theory and Selection
- Principles of Shaped Charges.
- Skin damage due to perforation.
- Perforating Gun Systems.
- Optional techniques for Perforating.
- Wire line Conveyed Casing Guns.
- Wire line Conveyed through Tubing Guns.
- Tubing Conveyed Perforating Guns.
- Mechanical Firing.
- Advantages of TCP.
- Disadvantages of TCP.
- Operational Considerations.
- Perforation Gun Selection.
- Perforation Charge Performance.
- Perforating Options.