

RESERVOIR DAMAGE AND REMEDY

EXP010

COURSE DESCRIPTION

Formation damage is an impairment of reservoir permeability around the well bore, leading to low or no well production or injection. Therefore, it is evident that formation damage problems are caused by the nature of our activities during the cause of interactions with our wells. The critical factor from a well completion and intervention standpoint is to limit, where possible, the creation of damage (especially severe plugging in the near wellbore area). This means, to avoid plugging of the perforations in a cased hole completion and to avoid plugging of the formation face in an open-hole completion. This course will educate participants on how to avoid plugging and how to restore wells with plugging problems in the perforations or formation face.

Beyond taking steps to eliminate severe permeability reduction in the near wellbore area, the next step is to obtain the best communication of the wellbore with the virgin formation. Therefore, fluids selection is critical as damage to the reservoir can result in impaired production and substantial loss of revenue to the Operator. It has resulted in increased reliance on formation damage testing to select the appropriate fluid and/or clean-up technique. This course has been designed to cover the laboratory techniques involved in formation damage testing and different well stimulation techniques to achieve the best reservoir-wellbore communications.

COURSE GOAL

To enhance participants' knowledge, skills, and abilities necessary to understand types and mechanics of formation damage, and their preventions and treatments.

COURSE OBJECTIVES

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

- Identify the risks and causes of formation damage.
- Understand the effect of formation damage on revenue to the operator.
- Understand the mechanism of formation damage.
- Understand formation lab tests and interpretation.
- Understand the impact of skin on productivity for both vertical and horizontal wells.
- Select the best fluid (less damaging) at every phase of the well development: drilling and completion, cementing, perforating, stimulation, gravel packing, workover, production and injection operations.
- Diagnose formation damage problems.
- Apply the best treatment to a sandstone and carbonate reservoir.
- Stimulate tight reservoir with low porosity and low permeability.
- Stimulate high permeability reservoir.

WHO SHOULD ATTEND

- Completion Engineer / Superintendent
- Completions Team Lead / Manager
- Well Intervention Engineer / Site leader / Site Manager
- Petroleum Engineer
- Reservoir Engineer
- Drilling Engineer/Superintendent / Site Manager
- Cross-Discipline Training
- Oil and Gas Project Evaluator
- Oil and Gas Industry Drilling/Completion/Intervention Service providers

COURSE DURATION

5 Working Days

COURSE OUTLINES

- Risks and causes of formation damage.
 - Invasion of drilling mud solids into the formation.
 - Drilling Mud filtrate invasion into the formation.
 - Cement loses into fractures.
 - Plugged inadequate perforation.
 - Creation of emulsion in the formation.
 - Injection of acids / solvents that contain solids.
 - Sand fill in the well bore.
 - Excessive draw downs.
- The Effect of Formation Damage on Revenue to the Operator
- Mechanism of Formation Damage
- Formation Lab Tests and Interpretation
- The Impact of Skin on Productivity for Both Vertical and Horizontal Wells
- Selection of the Best Fluid (Less Damaging) at Every Phase of the Well Development:
 - Drilling and completion
 - Cementing, perforating
 - Stimulation
 - Gravel packing
 - Workover

- Production
- Injection operations
- Diagnosing of Formation Damage Problems
- Application of the Best Treatment to a Sandstone and Carbonate Reservoir
- Stimulating Tight Reservoir with Low Porosity and Low Permeability.
- Stimulating High Permeability Reservoir.

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