Coiled Tubing & Nitrogen Operations in Completion & Workover

5 days

Overview

LEVEL
Skilled

PURPOSE
This course provides a comprehensive, practical knowledge of coiled tubing equipment and operations on a producing well.

LEARNING OBJECTIVES
Upon completion of the course, participants will be able to:
learn about coiled tubing applications in completion and workover,
design coiled tubing programs (wellbore treatment, logging, cementing, lifting and drilling).

WAYS AND MEANS
Exercises - Animations.

LEARNING ASSESSMENT
Quiz.

PREREQUISITES
No prerequisites for this course.

Agenda

BASIC DATA
Importance of nitrogen in stimulation and workover.
Importance of coiled tubing in completion and workover.

NITROGEN - NITRIFIED ACID - FOAMED ACID
Nitrogen (properties, basic formula for design).
Specifications for nitrogen storage and pumping equipment.
Two-phase fluids and foams (properties, chart and tables for design, difference between foam and two phase fluids), diverting effect of foamed fluid.
Stimulation methodology, flow back procedure.

COILED TUBING EQUIPMENT (TECHNOLOGY, DIMENSION, WEIGHT)
Main components: reel, injector, BOP and related equipment.
Auxiliary equipment: crane, pumping equipment, etc.
Downhole tools: connectors, safety equipment, circulating tools, downhole motor, fishing tools, inflatable packers, etc.
Guide for safe equipment rig-up.

PIPE CHARACTERISTICS & BEHAVIOR
Geometric and mechanical properties: geometry, metallurgy, performance, characteristic curve.
Tubing behavior (at surface, in hole): fatigue, buckling, tension and pressure limits (tubing force analysis, model for operation design).

Measuring and recording of operating parameters.

**COILED TUBING APPLICATIONS**

Kick off with nitrogen, underbalance perforating.

Well clean out (fill removal, wax and hydrate removal).

Sand control.

Matrix treatment: acid, solvent.

Other applications: CT assisted DST, conveyed tool operations in high deviated well, use as producing, gas lift or chemical injection string, fishing, underreaming, drilling.

Statistics, economy, areas for future development.

**CEMENTING OPERATIONS WITH NITROGEN OR COILED TUBING**

Foamed cement: definition, use (primary cementing, squeeze).

Cementing through coiled tubing: cement plug, squeeze (squeeze slurry characteristics, job design, keypoints).