CONCEPT

Coiled Tubing Operations: Rigless Well Intervention, Nitrogen Lifting and Clean-Out

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Introduction:

Coiled tubing operations let operators clean out, stimulate, log and repair live wells without a rig, but a single mis-sized string, an untested stripper or an unplanned lockup can turn a two-day intervention into a stuck pipe or well control event. This Core Concept course takes well-intervention engineers, company representatives and supervisors through CT unit equipment, pressure control barriers, fatigue and force modelling, nitrogen lifting, clean-out, acid placement, milling and fishing. Participants build a CT Job Programme with a tubing forces and fatigue check for a live case well.

Course Objectives:

- Select coiled tubing, wireline or snubbing for an intervention task based on well pressure, deviation, pumping need and job scope
- Rig up and test a CT pressure control stack and confirm the well barrier envelope before running into a live well
- Model tubing forces, helical buckling and lockup depth and track string fatigue life before each run
- Design nitrogen lifting, fill clean-out, acid placement and CT logging runs with fluids, rates and depth plans
- Plan milling and fishing operations and assess job risks with written contingency steps
- Write a CT job programme, daily job reports and a post-job lessons-learned record

Target Audience:

- Well intervention engineers who design coiled tubing jobs and select intervention methods for producing wells
- Operator company representatives who supervise rigless interventions at the wellsite and approve job steps
- Coiled tubing supervisors and senior operators who run units, pressure control equipment and crews
- Production and petroleum engineers who request clean-outs, nitrogen lifts and acid treatments
- Well services planners who schedule rigless intervention campaigns and service contracts

Course Outline:

Day 1: Coiled Tubing Unit Equipment and the Intervention Landscape

- Rigless Intervention Scope: Clean-Out, Stimulation, Logging and Remedial Tasks
- CT Unit Layout: Reel, Injector Head, Gooseneck, Power Pack and Control Cab
- Coiled Tubing String Manufacture: Grades, Wall Thickness and Tapered Strings
- Intervention Method Selection Matrix: Coiled Tubing, Wireline and Snubbing
- Wellsite Footprint, Crane Lifts and Rig-Up Sequence on Land and Offshore Locations

Day 2: Pressure Control Stack, Well Barriers and Tubing Mechanics

- CT Pressure Control Stack: Stripper Pack-Off, Combi BOP and Shear-Seal BOP
- Primary and Secondary Well Barrier Envelopes During Live-Well CT Work
- Stack Pressure and Function Test Procedure and Rig-Up Acceptance Record
- Bending Cycles over Reel and Gooseneck and Fatigue Life Tracking per String
- Tubing Force Modelling: Weight, Drag, Helical Buckling and Lockup Depth

Day 3: Nitrogen Lifting, Fill Clean-Out, Acid Placement and CT Logging

- Nitrogen Lifting Design: Kick-Off Depth, Nitrogen Rate and Unloading Sequence
- Fill Clean-Out: Annular Velocity, Particle Transport and Wiper Trip Planning
- Jetting Nozzles and Clean-Out Fluid Selection for Sand and Scale Fill
- Acid Placement by Coiled Tubing: Diversion, Pumping Schedule and Returns Handling
- CT Logging and Memory Gauge Conveyance in Deviated and Horizontal Wells

Day 4: Milling, Fishing, Job Risk and Contingency Planning

- Downhole Motor and Mill Selection for Scale, Cement and Bridge Plug Removal
- CT Fishing Tools: Overshots, Spears, Hydraulic Jars and Disconnects
- Extended-Reach Options: Friction Reducers, Tractors and Larger CT Sizes
- CT Job Risk Assessment: Stuck Pipe, Pinhole Leaks, Parted Tubing and Loss of Containment
- Contingency Plan Steps: Emergency Cut-and-Seal, Hang-Off and Well Kill

Day 5: CT Job Programme Build, Reporting and Lessons Learned

- Case Well Data Pack: Completion Schematic, Well Pressures and Intervention History
- Force and Fatigue Check Build for the Case Well Intervention
- CT Job Programme Drafting: Pumping Schedule, Depth Plan and Hold Points
- Daily Job Report, Tubing Log Update and Post-Job Performance Review
- Lessons-Learned Capture and Job Programme Peer Review

Skills You Will Gain:

- Intervention Method Selection
- Pressure Control Stack Testing
- Tubing Fatigue Management
- Tubing Force Modelling
- Nitrogen Lift Design
- Wellbore Clean-Out Design
- CT Milling and Fishing Planning
- Intervention Job Reporting

Why Attend This Course:

- Return with a CT Job Programme and force and fatigue check for a live case well, challenged in a peer review
- Recognise lockup, fatigue and barrier warnings before a run, not after the tubing is stuck or leaking
- Choose between coiled tubing, wireline and snubbing with a documented selection rationale an asset team can audit
- Compare intervention practice with engineers, supervisors and company representatives from operators and service companies

Conclusion:

Rigless intervention succeeds when the equipment, the barriers and the tubing limits are known before the unit rigs up. The week moves from CT unit equipment and method selection through pressure control stacks, well barriers, fatigue tracking and force modelling to nitrogen lifting, clean-out, acid placement, logging, milling and fishing, then to risk and contingency planning. The final day applies these methods to a case well, producing a CT Job Programme with force and fatigue checks, reporting templates and a lessons-learned record.