Workover/Well Servicing Operations

Workover Course Outline
IADC WellCAP

ORIENTATION
Rapid Fire Competition
Case History Stages
Well Control Training Approach
Situational Awareness

COMPLETION AND WORKOVER
Completion Design
Workover
Mechanical Failure
Clean Out and Workover Operations
Features of Workover
Workover Operations
Well Control: Drilling vs. Workover

PRESSURE BASICS
Hydrostatic Pressure
Understanding Depths
Bottomhole Hydrostatic Pressure
Formation Pressure
Relationship Between BHP and FP
Sucker Rod Pump Retrieval
Rod Pump Retrieval: A Quick Turnaround
Rod String Retrieval
Casing, Packer or Tubing Leaks
Formation Damage/Low Permeability
Countering Liquid Hold Up or Gas Slip
Excess Water/Gas Production
Controlling Sand and Other Fill/Debris

BARRIERS
Barrier Classification
Barriers: Production Tree
Production Tree
Subsurface Safety Valves (SSSVs)
Operating the Simulator: Choke Console
Operating the Simulator: Driller’s Console
Well Control Safety Meeting
Pressure Bleed-Down Exercise
Drawing Conclusions

THE BULLHEAD METHOD
Calculate Fluid Gradient
Calculating Hydrostatic Pressure
Calculating Kill Weight Fluid
Calculating Formation Pressure
Fluids
Water-Based Fluids
Calculating Volume for Bullheading
Calculating Strokes for Bullheading
Backpressure
Calculating Volume on Backside
Calculating Tank Volume
Plotting the Kill
Bullheading Breakover
Graph Paper
Pressure Limits & the Killsheet
Well Control Safety Meeting
Bullhead Exercise
Drawing Conclusions

BULLHEAD KILLSHEET
Preparing for the Killsheet
Well Control Safety Meeting
Bullhead w/ Killsheet Exercise
Drawing Conclusions

DOWNHOLE COMPLICATIONS
Packers
Permanent Packers
Retrievable Packers
Well Control Safety Meeting
Identifying Complications Exercise
Drawing Conclusions
Unconventional Well Control Techniques

REVERSE CIRCULATION
The Well as a U-Tube
Circulating Pressures
Circulation and Bottomhole Pressure
ECD
Downhole Communication
Reverse Circulation Method
Well Control Safety Meeting
Reverse Circulation Exercise
Drawing Conclusions

INFLUXES
Causes of Influxes
Understanding Warning Signs
Warning Signs
Consequences of Not Responding
Blowout
Reacting to an Influx
BOPs: Annular and Rams
Accumulators
Full Opening Safety Valve (FOSV)
Well Control Safety Meeting
Reverse Circulation 2 Exercise
Drawing Conclusions

FORWARD CIRCULATION
Choke Adjustments and Lag Time
Well Control Safety Meeting
Forward Circulation Exercise
Drawing Conclusions

LUBRICATE & BLEED
WELL CONTROL METHOD
Lubricate & Bleed Method
Well Control Safety Meeting
Lube & Bleed Exercise
Drawing Conclusions

END-OF-THE-DAY CONSIDERATIONS
Force and Area
Buoyancy Factor

PRACTICAL APPLICATION: MULTIPLE
WELLS WITH INFLUXES
Review
Well Control Safety Meeting
Multiple Influx Exercise
Drawing Conclusions

COMPLICATIONS
Stuck Pipe: Packoff
Stuck Pipe: Mechanical
Industry Practices
- Barriers
- Accumulators
- Function Tests
- Pressure Tests
- BOP Tests
Workover/Well Servicing Operations

Well Servicing Operations Course Outline
Wild Well

**COILED TUBING**
- CT Operations
- Washing Sand and/or Fill
- Tubing Scale Removal
- Remedial Cement
- Drilling Plugs
- Thru-Tubing Fishing
- Setting/Retrieving Bridge Plugs
- Reservoir Stimulation
- Siphon String Installation
- Formation and Drilling Data Acquisition
- Perforating With Coiled Tubing
- Other Coiled Tubing Operations
- Various Coiled Tubing Units
- Path of Coiled Tubing Downhole
- Coiled Tubing Reels
- Reel Drum
- Gooseneck
- Gooseneck or Tubing Guide Arch
- Tension
- Tubing Injector Head
- Inside Tensioners
- Stripper Assembly (or ABOP)
- Strippers
- Ram BOPs
- Stacks
- Causes of CT failure
- Pitting, Tension, Buckling, Abrasions
- Injector Induced Damages
- Ballooning, Necking, Ovality
- Reel Log
- Emergency Response

**SNABBING**
- Equipment Selection Considerations
- Snubbing vs Stripping