

# Workover/Well Servicing Operations

Workover Course Outline IADC WellCAP



## 3 DAYS - SUPERVISOR

### 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: Drillers 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

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### 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

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## 3 DAYS - SUPERVISOR

### 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

### SNUBBING

- Equipment Selection Considerations
- Snubbing vs Stripping