Well Intervention & Pressure Control (IWCF) – Level 3/4

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Introduction:

The course is designed for operators, engineers and supervisors and provides the knowledge and skills necessary to effectively and safely control a well during well intervention operations. This course provides an advanced understanding of pressure control methods related to well servicing methods and equipment. This course is designed to fulfill the requirements for International Well Control Forum (IWCF) Well Intervention Pressure Control Qualification.

The course is essential training for those currently working in a role that is expected to shut-in a well during live well intervention work. The course aims to reinforce and improve the candidate's existing knowledge and appreciation of the various stages of shutting-in a well based on given rig-ups; from identifying current and alternative barriers, to monitoring pressure once the well is shut in. The course will also focus extensive on detecting warning signs and equipment failures from the operator's point of view. The course will raise the awareness of the negative impact and effect of a well control incident. Moreover; it provides an understanding of well intervention and pressure control techniques with the necessary skills to plan, supervise and carry out well intervention operations.

The program is aimed at persons in pressure control critical positions during well intervention operations. The course is suitable for Drillers, Drilling Supervisors, Well Service Supervisors, Well Intervention Supervisors, Senior Operators, Equipment Operators, employees with any role that is expected to shut in a well such as Intervention, Completion Equipment Operators, Supervisors, Engineers, anyone expected to shut-in a well in case of unintended or unexpected flow, such as wireline, coiled tubing, or snubbing operators and other well servicing personnel.

The course will feature:

- Overview of well completion methods
- Reasons for well intervention
- Methods of well servicing (wireline/coil tubing/snubbing)
- Understanding fluids and pressure
- Production well kill methods
- Preparation
- Bull heading, reverse circulation, lubricate and bleed, work string deployed
- Pressure control equipment and operating procedures
- Well Service Operations (rig-up, pressure testing)
- Barrier theory for well servicing (types and classification)
- Wellhead equipment
- Failures and effects (wireline/coil tubing/snubbing)
- Reverse circulation well kill simulation and testing
- Hydrates (formation, prevention, removal)

Objectives:

By the end of this BTS training course, participants will be able to:

- Comply with the well integrity requirements
- Know the safety barrier principles
- Understand the behavior of a producing well
- Learn the equipment of a completion
- Apply the methods used to control well pressure
- Learn procedures and equipment used in wireline, coiled tubing, snubbing, work-over

Who should attend?

Personnel concerned with well intervention operations (wire-line, coiled tubing, snubbing, workover): engineers, supervisors and operators who have to plan, supervise or carry out well intervention operations

Course Outline

Principles & Well Fundamentals

- Type of well effluents (heavy oil, oil, gas)
- Hydrostatic and hydrodynamic pressures
- Fracture Pressure
- Specific gravities, densities, pressure gradient

- Primary Well Control
- Secondary Well Control
- Over-balance/under-balance
- Pore pressure, frac pressure
- Pressure Control Equipment

Completion Operations: Principles, Procedures and Equipment

- Overview of Completions Operations
- Introduction to Well Control
- Introductions to Barriers
- Risk Management
- Circulating Systems
- Testing and Well Integrity Testing
- Shut in Procedures
- Well Control Methods: Kill method principles
- Bullheading
- Lubricate and Bleed Method
- Well integrity testing

- Influx characteristics and behavior
- Shut-in procedures Contingency Planning (Recognition of Problems and First Actions, Pressure Gauge Failure, Surface Failures, Hydrate Formation, The Effects of Bottom Hole Pressure, Blockage in the Well)

- Blowout Preventers
- Completions Equipment
- Annulus Pressure Monitoring

Pressure Control Applied To Completion & Well Intervention

- Safety barriers, pressure tests
- Well calculation (pressure, volume, kill fluid, pumping time, balancing the pressure at the depth of the circulating device …)
- Shut in procedures
- Kill methods (direct or reverse circulation, bull heading, lubricate and bleed…)
- Specific problems linked to producing wells (losses, plugging, migration, hydrates, H2S and CO2 …)
- Responsibilities, decision making

- Blow Out preventers WEQA
- Completion equipment WEQG
- Annulus pressure monitoring

Completion Equipment

- Different types of completion
- Downhole equipment as: Packers, Safety valves SCSSSV, nipples, side pocket mandrels, tubing (sizes, grades and connections), Xmas tree, …

Wire Line Intervention

- Safety barriers and specific equipment
- Rigging up and pressure tests surface pressure control equipment
- Slick line: specific equipment (BOP, Lubricator, Stuffing box, cable cutter valve, …)
- Braided line, e-line: specific equipment (twin BOP, Grease injection system, Pack-off system, Tool trap, Tool catcher, …)
- Problems during the interventions, interpretation and decision (Shut-In)

Coiled Tubing

- Barriers and specific equipment (strippers, BOP, …)
- Rigging up and pressure tests surface pressure control equipment
- Problems during the interventions, interpretation and decision (shut in)
- Testing
- Barrier Principles
- Contingency Procedures
- Shut in Procedures

Snubbing

- Barriers and specific equipment (Strippers, BOP, stripping rams, safety rams, …)
- Rigging up and pressure tests surface pressure control equipment
- Problems during the interventions, interpretation and decision (shut in)
- Testing
- Barrier Principles
- Contingency Procedures

- Shut in Procedures
- Operating Procedures

Wireline Operations

- Pressure Control Equipment
- Rigging Up
- Testing

- Barrier Principles
- Managing a Leak or Malfunction on Surface
- Contingency Procedures
- Critical Operating Procedures