IADC COILED TUBING COURSE OUTLINE

IADC WELLSERVICE COILED TUBING		
COURSE OUTLINE		
DAY1		
TIME	***Subject***	***Lesson plan***
8:00 - 9:00	**Risk Awareness and Management** :Potential Impacts of a Well Control Event Live/Dead Well , Risk Management Systematic risk ,Pre-job Communication , Handover for Tour and Hitch Change ,Safety Margin Selection , Bridging Documents , Emergency Equipment , Requirements procedures (MAASP)	Lesson plan -1
9:00 - 10:30	Installation of rings, flanges and connections , Load Bearing Considerations(requires lifting certifications , environmental factors) , **Pressure Fundamentals** (Types of pressure a. Hydrostatic pressure , b. Applied Pressures 1. Surface pressure a. SITP b. Annulus Pressure	Lesson plan -2
10:30 - 10:45	BREAK	
10:45 - 11:00	2. Pump Pressure 3. ECDs (Equivalent Circulating Densities) 4. Trapped Pressure 5. Swab/surge c. Formation pressure d. Differential pressure e. Fracture pressure	Lesson plan -3
11:00-12:00	f. Bottom hole pressure 1. Balanced 2. Underbalanced 3. Overbalanced, (MASP) , Kill Mud Weight , ECD and calculation **, U-tubing** , Buoyancy and calculation , Volume , strokes and rates /Displacement calculations, Principles(Tubing Collapse and Casing Burst , von Mises equivalent (VME) form.) , Given well data, complete a well data question form (wellbore profile , deviation)	Lesson plan -4
12:00-12:30	Launch Time	
12:30-02:00	pre-recorded information (Well configuration " Top and bottom of perforations , Packer/tool locations) Coiled Tubing String Properties(fatigue cycling) , Maximum allowable working pressure(well head , casing) ,the well (Wellhead / Well Control Stack / Christmas tree valves – function test) **Barriers** : **Philosophy** and Operation of Barrier Systems(Barriers and barrier envelope ,Purpose of barriers) **Types of Barriers** (fluid , mechanical)	Lesson plan -5
02:00-02:45	**Levels** of Barriers (Hierarchy , primary ,secondary and tertiary) Barrier Management (test criteria , monitoring and detecting failure) **Influx :** Detention , Causes , Influx detection (signs and indicators)	Lesson plan -6

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02:45: 03:00	BREAK	
03:00-03:45	Importance of Influx Management in Open Hole Operations **(**Managing Risk **,** Consequences of not Managing influx "pollution**"** Pressure and Volume Relationship (Boyles Law) " Gas Volume/Pressure .	Lesson plan -7
03:45: 05:00	Completion and Workover Fluids (purpose, corrosion) Brine requirements . Fluid properties (Density , viscosity ,PH, saturation ,Crystallization Fluid Flow Behavior (friction pressure loss , geometry) Fluid Types (Gas , oil , water) Measuring Techniques (density and viscosity)	Lesson plan -8
05:05	END OF TRAINING DAY	
	DAY 2	
08:00-09:45	**Surface and Subsurface Wellbore Equipment** Christmas Tree , BOP component stack (function, component , HCR &manual valve , Annular , Blind/shear , shear or cutter ram) Accumulator(function ,min. system pressure , Drawdown test . closing time , regulators , panel) , Chokes and Choke Manifolds , Fluid Measuring (strokes, rates)	Lesson plan -9
09:45-10:00	BREAK	
10:00-11:00	Workstring and Production Tubing integrity(burst , collapse ,torsion) Completion Equipment Surface & sub-surface Controlled Sub-Surface Safety Valve (SCSSV) . Packers , SSD , Gas lift mandrill	Lesson plan -10
11:00-12:00	**Procedures**: Set/Check Alarm Limits(PIT LEVEL &FLOW RETURN) , Shut-in (procedures , Non-sharable) , Monitoring and Recording During Shut-in (visual check , accumulator) , Securing the Well (tube in/out well , verify valves , consequences , monitoring and Record keeping a. Coiled Tubing, annulus and casing pressures 1. At initiation of operations 2. At regular intervals	Lesson plan -11
12:00-12:30	LAUNCH TIME	
12:30-02:45	**Contingency Procedures (API 16ST) :** **Stripper** assembly failure **Leaking** Coiled Tubing between gooseneck and the reel **Leaking** Coiled Tubing between the gooseneck and the stripper assembly **or BOP** **Parted** Coiled Tubing between the stripper assembly and the injector **Buckled** Coiled Tubing between injector and stripper assembly	Lesson plan -12

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02:45 : 03:00	BREAK	
03:00-05:00	**Parted** Coiled Tubing between the gooseneck and the reel **Leak** between tree and Well Control Stack pressure-sealing rams	Lesson plan -13 **SIMULATOR**
05:00	END OF TRAINING DAY	
	DAY 3	
08:00-09:30	**Coiled Tubing Surface Equipment Failure** (power unit , circulation system , swivel , power pack) **General** muster alarm **Rigging Up** (Calculate MASP, connections , Adapters)	Lesson plan -14
09:30-09:45	BREAK	
09:45-10:45	**Pressure Control Equipment Barriers** : **Barrier Envelope (**lubricator/riser , fluid inlet " flow tree with isolation valve " , kill line , **Primary Barrier** A-stripper (purpose , types **, limitation)**	Lesson plan -15
10:45-12:00	**B-**Check valves **Secondary Barrier** (quad BOP) **Tertiary Barrier** (quad BOP , shear seal , X-tree)	Lesson plan -16
12:00-12:30	LAUNCH TIME	
12:30-02:00	Explain use of well control equipment components commonly used to maintain pressure isolation (i.e., CT , stripper , check-valve(s)). **Hoses , Fittings and Connections**	Lesson plan -17
02:00-02:15	BREAK	
02:15-03:45	**Operational Considerations**: Operational Limitations (pressure, forces) , Coiled Tubing Limitations (material strength , bend-cycle fatigue) **, Well Kill in Preparation of Well Interventions** : Live vs. Dead Well intervention (without killing the well , Bull heading , circulation	Lesson plan -18
03:45-05:00	**Parted** Coiled Tubing between the gooseneck and the reel **Leak** between tree and Well Control Stack pressure-sealing rams	Lesson plan -19 SIMULATOR
05:05	END OF TRAINING DAY	

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	DAY 4	
08:00-09:30	**Special Situations**: Blockages and Trapped Pressure in Tubing / Wellbore , Hydrates , H2S consideration (detention , necessary equipment) , Describe and discuss conditions where pressure calculations exceed MASP, Operations with Specific Well Control Concerns(acid, frac , Perf.) , CO_2 Influx , Safety Systems and Emergency Shutdown Devices (ESDs)	Lesson plan -20
09:30-09:45	BREAK	
09:45 :11:00	**Coiled Tubing Service Complications and Solutions** Collapsed Coiled Tubing (Differential pressure , mechanical)	Lesson plan -21
11:00-12:00	**Organizing a Well Control Operation** : personnel -Roles and Responsibilities , Plan Responses to Anticipated Well Control Scenarios	Lesson plan -22
12:00-12:30	LAUNCH TIME	
12:30-03:00	**Testing** : Pressure and Function Tests (purpose , Maximum safe working pressures of well control equipment , low & high pressure test) , BOP Testing (specific equipment , pressure test value) Testing of Completion Equipment (Packers , deep set plug , documentation	Lesson plan -23
03:15-03:30	BREAK	
03:30-05:00	**Government, Industry and Company Rules, Order and Policies** : API and ISO recommended practices, standards and bulletins pertaining to well control , Company/operator specific requirements **Ancillary Considerations**: Gas detector , fluid gas separator , Choke Drills , Wellhead Control Panel	Lesson plan -24
05:00	END OF LAST TRAINING DAY	