Well Control Drill Guide – Example Only

Drill Guide is the list of drills, questions and attributes that are in DrillPad.

This Well Control Drill Guide will be used in conjunction with the rig-specific well control procedures to conduct and assess performance during Well Control Drills. The objective is to ensure all members of the rig team with well control responsibilities are aware of their specific responsibilities, possess an understanding of well control commensurate with those responsibilities, and can confidently execute their duties when required.

All drills shall be coordinated with the senior rig contractor representative on the rig-site, or their delegate. The drills shall be selected based upon the current or upcoming operation to help the rig team maintain situational awareness. The response to scenarios and exercises in the Drill Guide should be appropriate for the specific BU, the specific rig, and the current or future rig operation being assessed. The rig contractor should conduct the exercise as realistically as practicable and participants should actually execute procedures whenever possible. For all exercises it is imperative that assessors and supervisors are prepared to prevent unintended consequences that could result from action by the participants.

Rigs need to have rig-specific well control procedures for responding to identified well control situations. Drill site and well site managers are required to conduct, document and communicate expectations and specific responsibilities assigned to third party personnel associated with these well control procedures. Each of these procedures shall clearly define the specific roles and responsibilities for all rig crew and third-party personnel involved in the procedure. Rig Crew Drills should include all rig crew, Third-party personnel with identified procedural responsibilities.

All Drills

Well Control Drill: Hole Monitoring While Drilling, Milling or Circulating

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
OIM
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Ask the derrickman/shaker hand or mud engineer to call the driller to inform he has noticed a change in the cuttings – a large increase in volume and/or large “splintery” cuttings. (E-10233)
2. Ask the mud engineer to call the driller to inform he has noticed an increase in mud temperature. (E-10235)
3. Ask the mud engineer to call the driller to inform he has noticed contaminants in the mud. (E-10237)

4. Ask the mud logger to call the driller to inform he has noticed an increase in pit volume or an increase in flow rate coming out of the well. (E-10238)
5. Ask the driller or mud engineer to transfer a known quantity of mud from the reserve mud system into the active mud system and then ask the derrickman/shaker hand to measure the change in active pit volume following the transfer. (E-10378)
6. Prepare the driller ahead of time and instruct him/her to NOT shut the well in. After briefing the driller and without notifying the mud logger ahead of time, have the Tool Pusher simulate an increase in pit volume or flow rate utilizing the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, manually manipulating the flow indicator, utilizing a dedicated “training” line, etc.) (E-10227)
7. Prepare the driller for this exercise ahead of time and instruct him/her not to respond when the mud logger calls and to NOT shut the well in. After briefing the driller and without notifying the Mud Logger, have the tool pusher simulate an increase in pit volume or flow rate from the well utilizing the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, manually manipulating the flow indicator, utilizing a dedicated “training” line, etc.) . As an alternative ask the mud logger to call the driller to inform he has noticed an increase in pit volume or an increase in flow rate (E-10250)
8. Prepare the driller ahead of time and instruct him/her to play the role of a “belligerent” driller and to NOT shut the well in. After briefing the driller and without notifying the mud logger, have the tool pusher simulate an increase in pit volume or flow rate from the well utilizing the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, manually manipulating the flow indicator, utilizing a dedicated “training” line, etc.). As an alternative ask the mud logger to call the driller to inform he has noticed an increase in pit volume or an increase in flow rate (E-10251)
9. Individual Assessment Relevant Equipment (E-11137)
10. Shallow Flow to Seafloor with no stack installed (E-11175)

Attributes:

Business Unit: XXX; Rig Type: Over Water Subsea Stack;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

3. Ensure the driller is aware of the exercise ahead of time and be prepared to stop him/her from shutting in the well in case they forget.

Assessment Guidance:

1. Was the individual's reaction and response appropriate?

2. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

3. Was the Derrickman or Shaker Hand calculation within 5 bbls of the actual volume transferred

4. Record the time required to identify any increase in pit volume or flow rate (if an influx was simulated).

5. Did The Individual understand the purpose, functioning, maintenance, calibration of the chosen equipment or the process / procedure discussed?

6. Are all personnel involved in the drill aware of their roles and responsibilities?

7. Confirm roles and responsibilities are understood during the drill

8. Observe crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from supervision followed?

9. Observe driller, was his reaction appropriate?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What are the potential warning signs for a kick and why is each warning sign a possible kick indicator? (Q-10102)

3. What equipment do you have to identify potential warning signs of a kick? What are the current alarm setting for the equipment and what is the rationale for each alarm setting? (Q-10254)

4. Does the equipment that helps you detect kick warnings and indications require calibration? If so, how frequently? When was the last time the equipment was calibrated? (Q-10263)

5. What are the possible warning signs of a kick that you might have the opportunity to observe? (Q-10256)

6. What action should be taken in response to observation of a possible kick indicator? (Q-10064)

7. What is a drilling break? What action should be taken when you observe a drilling break? Why do you take this action? (Q-10054)

8. When conducting a flow check, how do you determine if the well is flowing? How long should you observe the well before you are confident it is not flowing? (Q-10104)

9. What is ballooning? What are the indications of ballooning? Is it possible for ballooning to occur if the well has not experienced losses? What action should you take if you suspect the well is ballooning? (Q-10085)

10. Under current well conditions is there a potential for the well to kick if massive loss circulation is encountered? If so why, and if not, why not? What action should you take if massive loss circulation occurs? At what point should the well be shut in? (Q-10053)

11. What are the positive indicators of a kick? (Q-10072)

12.

What equipment do you have to identify positive signs of a kick? What are the current alarm setting for the equipment and what is the rationale for each alarm setting? (Q-10262)

13. What action should be taken in response to observation of a positive kick indicator? (Q-10063)

14. What action should be taken if you notice a change in cuttings volume, size or shape? What could a noticeable change in cuttings indicate from a well control perspective? (Q-10224)

15. What action should be taken if the derrickman or shaker hand reports a noticeable change in cuttings volume, size or shape? What could a noticeable change in cuttings indicate from a well control perspective? (Q-10058)

16. What action should be taken if you notice water or base oil being added to the mud pit with no mud engineer in attendance overseeing the addition? (Q-10226)

17. What action should be taken if the derrickman or shaker hand reports water or base oil being added to the mud pit with no mud engineer in attendance overseeing the addition? (Q-10130)

18. What action should be taken if you detect an increase in mud temperature coming out of the well? What could an increase in temperature indicate from a well control perspective? (Q-10257)

19. What action should be taken if the mud engineer reports he has detected an increase in mud temperature coming out of the well? What could an increase in temperature indicate from a well control perspective? (Q-10059)

20. What action should be taken if you detect unexplained contaminants in the mud? What could unexplained contaminants indicate from a well control perspective? (Q-10258)

21. What action should be taken if the mud engineer reports he has detected unexplained contaminants in the mud? What could unexplained contaminants in the mud indicate from a well control perspective? (Q-10060)

22. What action should be taken if an increase in pit volume or flow rate from the well is reported by the mud logger and you have not noticed the same on your monitoring equipment? (Q-10056)

23. What action should be taken if you notice an increase in pit volume or flow rate from the well? What does an increase in pit volume or flow rate indicate? (Q-10225)

24. What action should be taken if you notice an increase in pit volume? (Q-10554)

25. What action should you take prior to transferring fluids or making additions to the mud system which will result in an increase in pit volume? (Q-10260)

26. What action should be taken if you call the driller to report you have noticed an increase in pit volume or flow rate from the well and he continues drilling and does not take any action? (Q-10264)

27. What action should be taken if you call the driller to report an increase in pit volume or an increase in flow rate from the well and he does not answer? (Q-10265)

28. What is the current alarm setting for the PVT equipment? What is the rationale for this setting? (Q-10088)

29. What is the current alarm setting for the flow indicator (FloSho)? What is the rationale for this setting? (Q-10087)

30. What action should you take if an H2S alarm goes of at the rig floor or the shale shakers? (Q-10383)

31. What action should be taken if an H2S alarm goes off at the drill floor or the shale shakers? (Q-10376)

32. What is an underground blowout? What are the indications of an underground blowout? What are the first actions you should take if you suspect an underground blowout is occurring? (Q-10377)

33. Discuss the chosen components of the relevant equipment:
- Purpose and importance
- How it functions
- How it is maintained and calibrated
- Who must be notified if a fault is suspected or identified.
- Other topics/questions (Q-11139)

Attributes:

Business Unit: XXX;

34. When drilling with returns to the seafloor, what is the communication protocol on this rig if a kick is observed? (Q-11176)

Attributes:

Business Unit: XXX; Rig Type: Over Water Subsea Stack;

35. When Drilling with returns to the seafloor, where should ROV be stationed and how should the well be monitored?
If visibility is poor what other means are available to monitor the well with ROV?
What action is taken if the ROV becomes inoperable?
(Q-11177)

Attributes:

Business Unit: XXX; Rig Type: Over Water Subsea Stack;

36. When drilling with returns to the seafloor, what is the initial response that needs to be taken in the event an influx is observed?
How is a kick detected during Riserless drilling?
How can a gas flow be differentiated from a water flow?
What is the kill procedure if shallow gas/water flow is observed?
What is the pre-determined kill mud weight or will straight pad mud be pumped? (Q-11178)

Attributes:

Business Unit: XXX; Rig Type: Over Water Subsea Stack;

37. When drilling with returns to the seafloor, How is a kick detected?
What is the initial response that needs to be taken in the event an influx is observed?
Does the rig have a Shallow Water Flow plan?
What is the kill procedure if shallow gas/water flow is observed?
How can the type of flow (gas or water) flow be distinguished?
Had a pre-determined kill mud weight been identified or will straight pad mud be pumped?
What is the pad mud weight and is there sufficient amount of mud available to perform kill?
In the event of a flow will the DKD unit to blend kill mud weight will two rig pumps be used with pad mud and seawater?
Is there a move-off a plan with preferred direction? (Q-11182)

Attributes:

Business Unit: XXX; Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Shut-in While Drilling or Milling/Circulating

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, etc.). (E-10001)

2. Without notifying the driller ahead of time, simulate an increase in flow rate from the well using the agreed to technique (manually manipulating the flow indicator, using a dedicated “training” line, etc.). (E-10002)

3. Without notification to the Driller, line up and have the cementer pump mud to the trip tank (E-11113)

Attributes:

Rig Type: Land Rig; Over Water Subsea Stack; Over Water Surface Stack;

4. Without notification to the Driller, have the cementer pump mud to the Stripping Tank. Then have the Subsea Team bleed the Stripping Tank into the Trip Tank (Subsea (E-11114)

Attributes:

Rig Type: Over Water Subsea Stack;

5. Have the driller informed that an influx has been taken. (E-10211)

6. Individual Assessment Relevant Equipment (E-11137)

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. Record the time required to identify any increase in pit volume or flow rate (if an influx was simulated).

2. Record the time required for the rig team to complete the shut-in.

3. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

4. Observe the driller. Were the driller’s reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

5. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

6. Did The Individual understand the purpose, functioning, maintenance, calibration of the chosen equipment or the process / procedure discussed?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while drilling? (Q-10073)

3. Which element of the stack should be closed when shutting in the well due to an influx while drilling? Why is this element used as opposed to another element on the stack? (Q-10110)

4. How do you confirm the well has been shut-in? (Q-10027)

5. What is a hard shut-in. What is the primary objective of a hard shut in? (Q-10372)

6. What are your specific responsibilities when executing the shut-in procedure while drilling, milling or circulating? (Q-10270)

7. What action should you take if an increase in pit volume or flow rate from the well is reported by the mud logger and you have not noticed the same on your monitoring equipment. (Q-10269)

8. What is the distance from the rotary table to the uppermost set of pipe rams? (Q-10092)

9. How should the well be monitored during shut-in and prior to executing the well kill procedure? How will you ensure the BOP element closed is not leaking? (Q-10042)

10. What parameters should be recorded after shutting in on a well kick? (Q-10094)

11. Where do you monitor the Shut-in Drill Pipe Pressure (SIDPP) and Shut-in Casing Pressure (SICP)? (Q-10108)

12. Why is it important to monitor the Shut-in Drill Pipe Pressure (SIDPP) and Shut-in Casing Pressure (SICP)? (Q-10115)

13. Should the pipe be moved if the well is shut-in for an extended period of time prior to commencing well kill operations? If so, how? (Q-10052)

14. What are the positive indicators of a kick? (Q-10072)

15. What action should be taken in response to observation of a positive kick indicator? (Q-10063)

16. What are the normal pressure readings for the following gauges on your rig's accumulator system: 1) rig air, 2) accumulator bank, 3) manifold and 4) annular? (Q-10373)

17. What is the primary function of the weep holes on a ram type BOP? (Q-10384)

18. How will BOP system performance be affected if the nitrogen pre-charge pressure is lost in an accumulator bottle? (Q-10374)

19. Discuss the chosen components of the relevant equipment:
- Purpose and importance
- How it functions
- How it is maintained and calibrated
- Who must be notified if a fault is suspected or identified.
- Other topics/questions (Q-11139)

Attributes:
Business Unit: XXX;

Complications:

Well Continues To Flow

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

Gas Migration

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

2. What effect does gas migration have on a shut-in well? (Q-10083)

Gas In the Riser

Attributes:
Rig Type: Over Water Subsea Stack;

Questions:

1. How will you know if there is gas in the riser after shut-in? (Q-10276)

Attributes:
Rig Type: Over Water Subsea Stack;

2. What action should be taken if there is gas in the riser after the well is shut-in? (Q-10279)

Attributes:
Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Shut-in While Tripping

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
OIM
Rig Manager
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. While tripping and without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, etc.). (E-10407)
2. While tripping have the driller informed that an influx has been taken. (E-10420)
3. While tripping out of the hole inform the driller the well is experiencing severe losses (E-10520)
4. In a pre-tour discussion or during a detailed JSA; discuss the upcoming operation including non-routine string components which are either non-shearable or non-sealable when adjacent to the BOP. (E-10847)
5. Without notification to the Driller, line up and have the cementer pump mud to the trip tank (E-11113)

Attributes:

Rig Type: Land Rig; Over Water Subsea Stack; Over Water Surface Stack;

6. Without notification to the Driller, have the cementer pump mud to the Stripping Tank. Then have the Subsea Team bleed the Stripping Tank into the Trip Tank (Subsea (E-11114)

Attributes:

Rig Type: Over Water Subsea Stack;

7. Prepare the driller ahead of time and instruct him/her to play the role of a “belligerent” driller and to NOT shut the well in. After briefing the driller and without notifying the mud logger, have the tool pusher simulate an increase in pit volume or flow rate from the well utilizing the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, manually manipulating the flow indicator, utilizing a dedicated “training” line, etc.). As an alternative ask the mud logger to call the driller to inform he has noticed an increase in pit volume or an increase in flow rate (E-10251)

8. Prepare the driller ahead of time to sound the well control alarm and have all crew members report to appropriate stations and perform appropriate duties, simulating an influx while tripping in/out of the hole. (E-10863)

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

3. Ensure the driller is aware of the exercise ahead of time and be prepared to stop him/her from shutting in the well in case they forget.

4. Be prepared to prevent actual ROV Stab-In if it is not desired or safe.

Assessment Guidance:

1. Record the time required for the rig team to identify any simulated increase in pit volume.

2. Record the time required for the crew to install and close the safety valve or IBOP, and then close the BOP element (complete the shut-in)

3. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

4. Observe the driller. Were the driller’s reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

5. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

6. Table Top Exercise • The rig crews should be aware of any component that cannot be sheared or the BOP will not seal against and should be able to demonstrate that they understand equipment limitations and specifically how the well would be shut in and secured for each specific non- shearable tubular. • Did the driller and crew members demonstrate knowledge of the precautions or actions which must be taken prior to running the above components across the stack and the shut in procedures associated with them? • Which the rig specific procedure should be followed and reinforced? Was the rig specific procedure reviewed to ensure compliance?

7. Record the time required to identify any increase in pit volume or flow rate (if an influx was simulated).

8. Was the individual's reaction and response appropriate?

9. Are all personnel involved in the drill aware of their roles and responsibilities?

10. Confirm roles and responsibilities are understood during the drill

11. Did all crew members participate in the discussion? Was each able to explain their specific responsibilities during a standard stripping operation?

12. Did the discussion include how the BOP would be monitored during the stripping operation and the action to take if a leak was greater than the intended weep?

13. Did the discussion include how the BOP would be monitored for leaks during the kill operation and the action to take if a leak was identified?

14. Did the discussion include the circulation path for the mud during the stripping operation? Was the path and valve lineup correct?

15. Did the discussion include the circulation path for the mud during the well kill operation? Was the path and valve lineup correct?

16. Did the discussion include the procedure to monitor the Mud/Gas Separator during the well kill operation?

17. Did the discussion include the procedure to monitor the stripping tank during the stripping operation?

18. Did the discussion include who would operate the choke and the communication path?

19. Did the discussion include who would operate the pump, who would operate the choke and how they would communicate and coordinate their actions?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What are each crew members specific responsibilities when executing the shut-in procedure while tripping? (Q-10290)

3. What specific procedures do you use to monitor the hole for signs of an influx when tripping in the hole? When are you expected to conduct flow checks during a trip in the hole? (Q-10098)

4. What specific procedures do you use to monitor the hole for signs of an influx when tripping out of the hole? When are you expected to conduct flow checks during a trip out of the hole? (Q-10099)

5. What action should be taken if there is a discrepancy between the anticipated volume of mud displaced from the hole and the actual volume observed when tripping in the hole? (Q-10067)

6. What action should be taken if there is a discrepancy between the anticipated volume of mud required to fill the hole and the actual volume observed when tripping out of the hole? (Q-10068)

7. What is the displacement volume of the pipe currently being tripped and is this value based upon open ended or closed pipe? (Q-10090)

8. If tripping operations are interrupted (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Q-10049)

9. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while tripping? (Q-10077)

10. When should you use the Full Opening Safety Valve (FOSV)? (Q-10106)

11. How is the Full Opening Safety Valve (FOSV) picked up and made up? What is the shut-in procedure associated with the FOSV? Where is the wrench used to close the FOSV stored? (Q-10037)

12. When should you use the Inside BOP (IBOP)? (Q-10107)

13. How is the IBOP picked up and made up? What is the shut-in procedure associated with the IBOP? (Q-10039)

14. When should you use an Full Opening Safety Valve (FOSV) and an Inside BOP (IBOP)? (Q-10105)

15. Which element of the stack should you close when shutting in the well due to an influx while tripping? Why is this element used as opposed to another element on the stack? (Q-10112)

16. What parameters should be recorded after shutting in on a well kick? (Q-10094)

17. What is the distance from the rotary table to the uppermost set of pipe rams? (Q-10092)

18. What are three factors that could effect swabbing or surging? (Q-10078)

19. How are the operations being conducted going to change the well conditions? (ie, pumping lighter fluid, running non shearabales across BOP, changing down hole wellbore conditions by perforating or Hydraulic Fracturing) (Q-10848)

20. What is the planned communication protocol for this operation? Who is involved? (Q-10849)

Complications:

Well Continues To Flow

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

Gas Migration

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

2. What effect does gas migration have on a shut-in well? (Q-10083)

Tripping While Taking Losses

Questions:

1. Are you allowed to trip out of the hole if the well is taking losses? (Q-10011)

2. How do you ensure the well will remain overbalanced? (Q-10029)

3. Is there a limit to the loss rate before tripping operations are suspended? (Q-10051)

4. How could losses occur during this operation? What impact would losses have? What are the loss contingencies?
(Q-10850)

Potential Issues With Non-shearables Across the BOP

Questions:

1. What do you do if the rig loses power when non-shearables are across the stack? (Q-10489)

Attributes:
Rig Type: Over Water Subsea Stack;

2. What do you do if the pipe is stuck while non- shearables are across the stack? (Q-10490)

Perforating guns across the stack.

Attributes:
Rig Type: Over Water Subsea Stack;

Questions:

1. What is the correct action if the well starts to flow with spent guns across the stack? (Q-10682)

Attributes:
Rig Type: Over Water Subsea Stack;

2. What do you do if the rig loses power with live guns across the stack? What about spent guns? (Q-10683)

Attributes:
Rig Type: Over Water Subsea Stack;

Dual Gradient System or Riser Cap (Mud or Seawater/base oil) in Hole

Questions:

1. How do we determine shut in pressure with a dual gradient column of fluid? (Q-10715)

2. When using a mud cap, how do you determine if the volume of mud pumped will be enough to stop the well flow or address losses? How can you check to confirm your calculated height is correct? (Q-10716)

3. How do you determine where to place the mud cap in the well? (Q-10718)

4. Where should the riser cap be placed for POOH? What determines where you spot the cap in the riser? (Q-10836)

Attributes:

Rig Type: Over Water Subsea Stack;

5. Where should the riser cap be placed for TIH? What determines where you spot the cap in the riser? (Q-10837)

Attributes:

Rig Type: Over Water Subsea Stack;

6. Can you have a riser cap mud weight lighter than current mud weight? (Q-10838)

Attributes:

Rig Type: Over Water Subsea Stack;

7. While performing operations with a mud cap in the hole what is are positive indicator(s) of a kick? How do you measure displacement of pipe or wire? What is the correct action if the actual value is different from the calculated value
(Q-10719)

8. What barrier do we not want the riser cap to fall below and why? (Q-10710)

Attributes:

Rig Type: Over Water Subsea Stack;

9. Who has the responsibility of monitoring the volume of mud cap/sea water/baseoil is in the well? (Q-10711)

10. How do you determine volume of light mud or sea water/baseoil in the hole and EMW at any point in the hole? How do you determine the depth/ bottom of the mud cap? (Q-10705)

11. While pulling out of a hole with pipe or wire and a mud cap, what are positive indicator(s) of a kick? How do you measure fill up? What fluid do you fill the hole with? What is the correct action if the actual value is different from the calculated value?
(Q-10708)

12. If TIH with a mud cap in the hole, what should you do if the cap is going into the trip tank? (Q-10840)

13. What will we do to make sure accurate mud weight and mud volume is being pumped? (Q-10841)

14. How many stands should be pulled or run before adjusting the location of the riser cap? (Q-10839)

Attributes:

Rig Type: Over Water Subsea Stack;

15. Why is it so important to keep an accurate track where the top & bottom of the cap is located in the Hole? (Q-10842)

16. What should be done prior to pumping riser cap out of the riser? (Q-10843)

Attributes:

Rig Type: Over Water Subsea Stack;

17. If a light riser cap (riser cap < current mud weight) is being used to control losses while POOH, why is it important to keep track of the riser cap bottom location in the riser? (Q-10844)

Attributes:

Rig Type: Over Water Subsea Stack;

18. Why is it so important to make sure all valve lineups are correct prior to inserting or repositioning Riser Cap in the riser? (Q-10845)

Attributes:

Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Shut-in While Logging

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
OIM
Rig Manager
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. In a pre-tour discussion or during a detailed JSA; discuss the upcoming operation including wireline tool components which are non-shearable/sealable, when they will be adjacent to the BOP. (E-10851)
2. While logging and without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, etc.). (E-10398)
3. Without notification to the Driller, line up and have the cementer pump mud to the trip tank (E-11113)

Attributes:

Rig Type: Land Rig; Over Water Subsea Stack; Over Water Surface Stack;

4. Without notification to the Driller, have the cementer pump mud to the Stripping Tank. Then have the Subsea Team bleed the Stripping Tank into the Trip Tank (Subsea (E-11114)

Attributes:

Rig Type: Over Water Subsea Stack;

5. While logging, have the driller informed that an influx has been taken. (E-10397)
6. While logging, inform the driller the hole is experiencing severe losses (E-10528)

Regular Caution Guidance:

1. DO NOT allow the wireline line to be cut or damaged.

2. Be prepared to prevent closing the BOP if it is not desired or safe.

3. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. If the discussion was a table top drill, was the rig specific procedure and R&R's understood by all? Was the rig specific procedure reviewed to ensure compliance if required?

2. Record the time required for the rig team to identify any simulated increase in pit volume.

3. Record the time required for the rig team to complete the simulated shut-in.

4. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

5. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

6. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What specific procedures do you use to monitor the hole for signs of an influx while logging? Will tides make tracking wire displacement more difficult? Do you have tide tables to assist you if required? (Q-10100)

3. What are the proper steps and specific responsibilities for each member of the drilling crew when executing the shut-in procedures while logging? (Q-10074)

4. What is the displacement volume of the wireline currently being run? What action should you take if the volume gained while tripping in the hole with wireline exceeds this value? (Q-10091)

5. How do you know how much wireline has been run in order to determine how much fluid should be displaced to the trip tank? (Q-10030)

6. Do you fill the hole at any point while pulling the wireline tools out of the hole, and if so how do you know if the hole is taking the correct amount of fluid? (Q-10016)

7. Are you required to fill the hole while tripping out of the hole with logging tools? If yes, how often? What action should you take if there is a discrepancy between the anticipated volume of mud required to fill the hole and the actual volume required to fill the hole? (Q-10390)

8. Can your annular seal on wireline? Should we adjust the annular closing pressures to shut-in on wire? What is the recommended closing pressure for wireline operations? (Q-10117)

9. Can your Blind Rams seal on wireline? (Q-10013)

10. Can your Blind Shear Rams cut wireline? (Q-10014)

11. Can your Blind Shear Rams cut wireline? How would you cut the wireline? (Q-10530)

12. Is the IWOCs currently deployed? Does this have any implications for operations and emergency procedures? Can we intervene with the ROV if required? What is required for an ROV intervention? (Q-10854)

13. How would you cut the wireline if the driller directed you to do so? Is the cutter and clamp on the rig floor? (Q-10284)

14. Is the top drive configured with a "TEAS" /wireline entry system? How is that used? What must we do to rig up to use the TEAS/wireline entry system after cutting wire? (Q-10856)

15. What are your specific responsibilities when executing the shut-in procedures while logging? (Q-10283)

16. What parameters should be recorded after shutting in on a well kick? (Q-10094)

17. What is the procedure used when conducting formation fluid sampling (MDT, RFT, etc.) to ensure formation fluids pumped into the wellbore do not result in an underbalanced condition? Is there a limit on how much formation fluid can be pumped into the wellbore during fluid sampling before a trip is required to circulate the wellbore? (Q-10391)

Complications:

Well Continues to Flow (Logging)

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

2. How will you know if the annular is leaking? What action should be taken if the annular is leaking after it is closed? (Q-10043)

Gas Migration

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

2. What effect does gas migration have on a shut-in well? (Q-10083)

Logging While Taking Lossess

Questions:

1. Are you allowed to log the well if the well is taking losses? (Q-10010)

2. How do you ensure the well will remain overbalanced? (Q-10029)

3. Is there a limit to the loss rate before logging operations are suspended? (Q-10282)

Dual Gradient System or Riser Cap (Mud or Seawater/base oil) in Hole

Questions:

1. How do we determine shut in pressure with a dual gradient column of fluid? (Q-10715)

2. When using a mud cap, how do you determine if the volume of mud pumped will be enough to stop the well flow or address losses? How can you check to confirm your calculated height is correct? (Q-10716)

3. How do you determine where to place the mud cap in the well? (Q-10718)

4. Where should the riser cap be placed for POOH? What determines where you spot the cap in the riser? (Q-10836)

Attributes:
Rig Type: Over Water Subsea Stack;

5. Where should the riser cap be placed for TIH? What determines where you spot the cap in the riser? (Q-10837)

Attributes:
Rig Type: Over Water Subsea Stack;

6. Can you have a riser cap mud weight lighter than current mud weight? (Q-10838)

Attributes:
Rig Type: Over Water Subsea Stack;

7. While performing operations with a mud cap in the hole what is are positive indicator(s) of a kick? How do you measure displacement of pipe or wire? What is the correct action if the actual value is different from the calculated value
(Q-10719)

8. What barrier do we not want the riser cap to fall below and why? (Q-10710)

Attributes:

Rig Type: Over Water Subsea Stack;

9. Who has the responsibility of monitoring the volume of mud cap/sea water/baseoil is in the well? (Q-10711)

10. How do you determine volume of light mud or sea water/baseoil in the hole and EMW at any point in the hole? How do you determine the depth/ bottom of the mud cap? (Q-10705)

11. While pulling out of a hole with pipe or wire and a mud cap, what are positive indicator(s) of a kick? How do you measure fill up? What fluid do you fill the hole with? What is the correct action if the actual value is different from the calculated value?
(Q-10708)

12. If TIH with a mud cap in the hole, what should you do if the cap is going into the trip tank? (Q-10840)

13. What will we do to make sure accurate mud weight and mud volume is being pumped? (Q-10841)

14. How many stands should be pulled or run before adjusting the location of the riser cap? (Q-10839)

Attributes:

Rig Type: Over Water Subsea Stack;

15. Why is it so important to keep an accurate track where the top & bottom of the cap is located in the Hole? (Q-10842)

16. What should be done prior to pumping riser cap out of the riser? (Q-10843)

Attributes:

Rig Type: Over Water Subsea Stack;

17. If a light riser cap (riser cap < current mud weight) is being used to control losses while POOH, why is it important to keep track of the riser cap bottom location in the riser? (Q-10844)

Attributes:

Rig Type: Over Water Subsea Stack;

18. Why is it so important to make sure all valve lineups are correct prior to inserting or repositioning Riser Cap in the riser? (Q-10845)

Attributes:

Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Shut-in While Running Casing or Tubing

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
OIM
Relief Operator
Reverse Operator
Rig Manager
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Table Top Exercise

• The rig crews should be aware of any component that cannot be sheared or the BOP will not seal against and should be able to demonstrate that they understand equipment limitations and specifically how the well would be shut in and secured for each specific non-shearable/sealable tubular.

• Did the driller and crew members demonstrate knowledge of the precautions or actions which must be taken prior to running the above components across the stack and the shut in procedures associated with them?

• Which the rig specific procedure should be followed and reinforced? Was the rig specific procedure reviewed to ensure compliance?

(E-10857)

2. While running casing or tubing and without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, etc.). (E-10426)

3. Without notification to the Driller, line up and have the cementer pump mud to the trip tank (E-11113)

Attributes:

Rig Type: Land Rig; Over Water Subsea Stack; Over Water Surface Stack;

4. Without notification to the Driller, have the cementer pump mud to the Stripping Tank. Then have the Subsea Team bleed the Stripping Tank into the Trip Tank (Subsea (E-11114)

Attributes:

Rig Type: Over Water Subsea Stack;

5. While running casing or tubing have the driller informed that an influx has been taken. (E-10422)

6. While running casing or tubing inform the driller the well is experiencing severe losses. (E-10534)

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. If the discussion was a table top drill, was the rig specific procedure and R&R's understood by all? Was the rig specific procedure reviewed to ensure compliance if required?

2. Record the time required for the rig team to identify any simulated increase in pit volume.

3. Record the time required for the crew to install and close the safety valve, and then close the BOP element (complete the shut-in)

4. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

5. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

6. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

7. Are the appropriate crossovers for each tubular size on the rig floor?

8. Record the time required for the crew to install and close the safety valve or IBOP, and then close the BOP element (complete the shut-in)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What specific procedures do you use to monitor the hole for signs of an influx when running casing/ tubing? (Q-10097)

3. What specific action should be taken to shut-in the well in response to recognition of a positive kick indicator while running casing or tubing? (Q-10288)

4. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while running casing/tubing? (Q-10076)

5. What is the displacement volume of the casing/tubing currently being tripped and is this value based upon open ended or closed pipe? (Q-10089)

6. How do you monitor and record the fluid displaced from the hole while running casing/tubing? (Q-10031)

7. What action should be taken if there is a discrepancy between the anticipated volume of fluid displaced from the hole while running casing/tubing and the actual volume observed? (Q-10066)

8. What are your specific responsibilities when executing the shut-in procedures while running casing or tubing? (Q-10289)

9. When are you expected to conduct flow checks while running in the hole with casing/tubing? (Q-10103)

10. If the well starts flowing while running casing/tubing, how do you isolate the inside of the casing/ tubing to prevent flow? Is a crossover required for this procedure? (Q-10048)

11. How is the Full Opening Safety Valve (FOSV) or the tool used to shut off flow from inside the casing/tubing during a kick on your rig actually picked up and made up? What is the shut-in procedure? (Q-10038)

12. Which element of the stack should be closed when shutting in the well due to an influx while running casing/tubing and why is this element used as opposed to another element on the stack? (Q-10111)

13. Which string components (packers, mandrels, SCSSV) will not allow shut-in if positioned across the stack? What do we do if one is across the stack and the well starts to flow? (Q-10858)

14. Which components are Shearable? Which are not? (Q-10859)

15. Do you make any adjustments to the annular operating pressure on your rig prior to running casing? How do you know what adjustment to make? (Q-10018)

16. Do you make any adjustments to the annular operating pressure on your rig prior to running the upper completion? What adjustment is required? (Q-10860)

17. Is the IWOCs currently deployed? Does this have any implications for operations and emergency procedures? Can we intervene with the ROV if required? What is required for an ROV intervention? (Q-10861)

18. What parameters should be recorded after shutting in on a well kick? (Q-10094)

19. Can the Blind Shear Rams on your rig shear the casing you are about to run? (Q-10012)

20. If operations are interrupted while running casing/tubing (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Q-10047)

21. Identify the barriers (internal [tubular bore] and external [tubular annulus]) that are in place while running/pulling the casing/tubing and explain how the barriers function (Q-10392)

22. If auto-fill float equipment is being utilized, explain how the use of this type of equipment would impact a well control situation and explain what rig specific procedures are in in place to address the use of this type of equipment (Q-10393)

23. If a “standing valve” (a one way check valve used to test tubing while being installed) is being utilized, explain how the use of this type of equipment would impact a well control situation and explain what rig specific procedures are in in place to address the use of this type of equipment (Q-10394)

24. Is there a risk of becoming pipe light, if forced to shut-in while running in the hole? Under current conditions how long is such a risk present? If the string is pipe light and begins to move upward through the closed stack what is the correct next action? What is the next action? (Q-10676)

Complications:

Gas Migration

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

2. What effect does gas migration have on a shut-in well? (Q-10083)

Running Casing While Taking Losses

Questions:

1. What action do you take if the well starts taking losses while running casing or tubing? (Q-10055)

2. Are you allowed to run casing or tubing if the well is taking losses? (Q-10536)

3. Is there a limit to the loss rate before you stop running the casing or tubing? (Q-10535)

4. How do you ensure the well will remain overbalanced? (Q-10029)

5. What action should be taken if you run out of mud in this situation? (Q-10123)

Running tubing with external control lines.

Questions:

1. Will the Stack seal around tubing with control lines? If not how do we secure the well? (Q-10678)

2. How do you recognize if the well is secure after shutting in? (Q-10679)

3. What do you do if preferred method to secure well fails? What is the last thing you close if all else fails? (Q-10680)

4. Should control line pressures be monitored in the event of a well control situation? How? (Q-10681)

Shallow Shut-in (Pipe Light)

Questions:

1. How many joints of pipe need to be run before the risk of being in a pipe light condition is negligible? (Snub) (Q-11015)

Dual Gradient System or Riser Cap (Mud or Seawater/base oil) in Hole

Questions:

1. How do we determine shut in pressure with a dual gradient column of fluid? (Q-10715)

2. When using a mud cap, how do you determine if the volume of mud pumped will be enough to stop the well flow or address losses? How can you check to confirm your calculated height is correct? (Q-10716)

3. How do you determine where to place the mud cap in the well? (Q-10718)

4. Where should the riser cap be placed for POOH? What determines where you spot the cap in the riser? (Q-10836)

Attributes:

Rig Type: Over Water Subsea Stack;

5. Where should the riser cap be placed for TIH? What determines where you spot the cap in the riser? (Q-10837)

Attributes:

Rig Type: Over Water Subsea Stack;

6. Can you have a riser cap mud weight lighter than current mud weight? (Q-10838)

Attributes:

Rig Type: Over Water Subsea Stack;

7. While performing operations with a mud cap in the hole what is are positive indicator(s) of a kick? How do you measure displacement of pipe or wire? What is the correct action if the actual value is different from the calculated value
(Q-10719)

8. What barrier do we not want the riser cap to fall below and why? (Q-10710)

Attributes:

Rig Type: Over Water Subsea Stack;

9. Who has the responsibility of monitoring the volume of mud cap/sea water/baseoil is in the well? (Q-10711)

10. How do you determine volume of light mud or sea water/baseoil in the hole and EMW at any point in the hole? How do you determine the depth/ bottom of the mud cap? (Q-10705)

11. While pulling out of a hole with pipe or wire and a mud cap, what are positive indicator(s) of a kick? How do you measure fill up? What fluid do you fill the hole with? What is the correct action if the actual value is different from the calculated value?
(Q-10708)

12. If TIH with a mud cap in the hole, what should you do if the cap is going into the trip tank? (Q-10840)

13. What will we do to make sure accurate mud weight and mud volume is being pumped? (Q-10841)

14. How many stands should be pulled or run before adjusting the location of the riser cap? (Q-10839)

Attributes:

Rig Type: Over Water Subsea Stack;

15. Why is it so important to keep an accurate track where the top & bottom of the cap is located in the Hole? (Q-10842)

16. What should be done prior to pumping riser cap out of the riser? (Q-10843)

Attributes:

Rig Type: Over Water Subsea Stack;

17. If a light riser cap (riser cap < current mud weight) is being used to control losses while POOH, why is it important to keep track of the riser cap bottom location in the riser? (Q-10844)

Attributes:

Rig Type: Over Water Subsea Stack;

18. Why is it so important to make sure all valve lineups are correct prior to inserting or repositioning Riser Cap in the riser? (Q-10845)

Attributes:

Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Shut-in While Out of Hole

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. While out of the hole and without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, etc.). (E-10427)

2. Without notification to the Driller, line up and have the cementer pump mud to the trip tank (E-11113)

Attributes:

Rig Type: Land Rig; Over Water Subsea Stack; Over Water Surface Stack;

3. Without notification to the Driller, have the cementer pump mud to the Stripping Tank. Then have the Subsea Team bleed the Stripping Tank into the Trip Tank (Subsea (E-11114)

Attributes:

Rig Type: Over Water Subsea Stack;

4. While out of the hole have the driller informed that an influx has been taken. (E-10421)

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. Record the time required for the rig team to identify any simulated increase in pit volume.

2. Record the time required for the rig team to complete the shut-in.

3. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

4. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

5. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What specific procedures do you use to monitor the hole for signs of an influx while there is no pipe in the hole? (Q-10101)

3. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while out of hole? (Q-10075)

4. What are your specific responsibilities when executing the shut-in procedures while out of hole? (Q-10541)

5. What specific procedures do you use to ensure the hole is full while there is no pipe in the hole? (Q-10096)

6. What do you do if the hole will not remain full while there is no pipe in the hole? (Q-10082)

7. Do you close the Blind Rams or Blind Shear Rams on your rig when you are out of the hole? How do you know if the hole is staying full? What procedure do you use to open the Blind Rams or Blind Shear Rams when you are ready to run in the hole? (Q-10015)

8. How is the hole monitored for signs of an influx while there is no pipe in the hole? (Q-10542)

9. What parameters should be recorded after shutting in on a well kick? (Q-10094)

Complications:

Gas Migration

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

2. What effect does gas migration have on a shut-in well? (Q-10083)

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Choke Operations

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
Rig Manager
Rig Operator
Toolpusher

Exercises:

1. With the well shut-in on a cased hole (per the rig-specific well kill procedure), pump into the annulus to trap ~ 200 psi of pressure to simulate a kick (do not put pressure on the drill pipe). Have the responsible personnel (per the rig-specific well kill procedure) in position to execute the well kill procedure. Conduct several or all of the following operations with all instructions issued by the appropriate individual per the rig-specific well kill procedure. One objective of this drill is to ensure the chain of command and communication procedures are clear and functional.
   - Line up through the choke manifold and Mud/Gas Separator.
   - Have the choke operator bump the float to determine the Shut-in Drill Pipe Pressure (SIDPP).
   - Have the choke operator direct the pump operator to bring the pump up to the pre-determined kill rate.
   - After the pump is at kill rate and the casing and drillpipe pressure have stabilized, have the choke operator increase the casing pressure by 100 psi and to observe/record the lag time for the drillpipe pressure to increase by 100 psi.
   - Have the choke operator direct the pump operator to increase the kill rate by 10 strokes per minute.
   - After the casing and drillpipe pressure stabilize, have the choke operator to direct the pump operator to decrease the kill rate by 5 strokes per minute.
   - After the casing and drillpipe pressure stabilize, have the choke operator to direct the pump operator to stop the pump.
   - Repeat any of the steps above to ensure proficiency.
   - After the pump is stopped at the conclusion of the exercise, have the choke operator bleed off the pressure.
   - Line up the BOP and choke manifold for normal operations. (E-10007)
2. Individual Assessment Relevant Equipment (E-11137)

Regular Caution Guidance:

1. Ensure the circulation path is correctly lined up through the choke manifold and Mud/Gas Separator before the float is bumped.

2. Ensure all personnel are in their appropriate stations for the well kill operation (or a discussion is held to ensure all personnel understand their station, if there is a desire for some of the personnel to remain on the rig floor to observe the remainder of the drill) prior to initiating the well kill exercise.

3. Ensure pressure is bled off and the BOP and choke manifold are correctly lined up for normal operations upon conclusion of the exercise.

Assessment Guidance:

1. Is the circulation path correct and are the appropriate valves opened/closed?

2. Are all personnel involved in the drill aware of their roles and responsibilities?

3. Was the correct procedure utilized to bump the float and was the communication effective during this operation?

4. Is communication between the choke operator and pump operator effective?

5. Does the choke operator correctly manipulate the choke to maintain constant casing pressure when the pump rates were changed?

6. Does the choke operator manage pressure effectively with the choke?

7. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

8. Did The Individual understand the purpose, functioning, maintenance, calibration of the chosen equipment or the process / procedure discussed?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is your rig-specific procedure used to determine the Shut-In Drill Pipe Pressure (SIDPP) when there is a solid float in the drill string? (Q-10093)

2. Who is the Person-In-Charge (PIC) during an actual well kill operation? (Q-10431)

3. Explain your rig-specific procedure to bring the pumps up to speed to the pre-determined kill rate. (Q-10022)

4. Who operates the pump and who operates the choke during a well kill operation? (Q-10114)

5. How does the choke operator communicate with the pump operator? (Q-10032)

6. Explain your rig-specific procedure to shut the pumps down should it become necessary? (Q-10023)

7. How are bathroom and/or meal breaks for the choke and pump operators handled? (Q-10024)

8. What would your responsibilities be if this were an actual well kill? (Q-10549)

9. Discuss the chosen components of the relevant equipment:
- Purpose and importance
- How it functions
- How it is maintained and calibrated
- Who must be notified if a fault is suspected or identified.
- Other topics/questions (Q-11139)

Attributes:

Business Unit: XXX;

Complications:

<u>Choke Plugging</u>

Questions:

1. What could cause choke plugging? (Q-10081)

2. How is it recognized? (Q-10035)
3. What actions should be taken? (Q-10069)
4. What is the consequence of not recognizing or reacting? (Q-10086)

Choke Wash Out

Questions:

1. What could cause a choke to wash out? (Q-10080)
2. How is it recognized? (Q-10035)
3. What actions should be taken? (Q-10069)
4. What is the consequence of not recognizing or reacting? (Q-10086)

Bit Nozzle Plugging

Questions:

1. How is bit nozzle plugging recognized? (Q-10034)
2. What actions should be taken? (Q-10069)
3. What is the consequence of not recognizing or reacting? (Q-10086)

Mud Pump Problems

Questions:

1. How are pump problems recognized? (Q-10025)
2. What actions should be taken? (Q-10069)

Drill String Washout

Questions:

1. How is a drill string washout recognized? (Q-10033)
2. What immediate actions should be taken (subsequent action will be dependent upon suspected location of the washout, location of the influx in the wellbore, etc. and would require consultation with offsite supervisory personnel)? (Q-10084)
3. What is the consequence of not recognizing or reacting? (Q-10086)
4. How might you estimate the location of the washout? (Q-10041)

Choke Line Cuts Out

Questions:

1. What action should be taken if the choke line cuts out? (Q-10057)

H2S Alarms Activate while Circulating out kick

Attributes:

Business Unit: XXX; XXX; XXX; XXX;

Questions:

1. What action should you take if the H2S alarm sound during well kill operations. (Q-11129)

Attributes:

Business Unit: XXX; XXX; XXX; XXX;

2. If the alarm requires abandoning the rig floor how is the well secured in the evacuation?
Are the pumps shut down? how?
Is the choke closed? how?
Is escape gear donned before or after securing the well?

(Q-11130)

Attributes:

Business Unit: XXX; XXX; XXX; XXX;

Skills Assessed:

Communications
Complication Execution
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Well Kill

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
Rig Manager
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Provide a high level well kill scenario with the following details: bit depth, current mud weight, Shut-in Drill Pipe Pressure (SIDPP), Shut-in Casing Pressure (SICP), Pit Gain and current status of the stack (i.e. which element was closed during the Shut-in Procedure). Conduct a “walk-through” or “table-top” well kill drill using the rig-specific well kill procedure. Ask each member of the crew, starting with the driller and working down to the floorhands, to explain their responsibilities during a standard well kill procedure providing as many specifics as possible. After all crew members have contributed to the discussion, ask the senior rig contractor representative to conduct a simulated pre-kill meeting outlining the roles and responsibilities of all crew members, re-enforcing the comments made by the individual crew members, and identifying and addressing any gaps. At the conclusion of this exercise, debrief and address any gaps not covered.

The “walk through” drill should cover:

• The BOP element to use during the kill

• Monitoring the BOP element for leaks

• Circulation path for the mud during the well kill operation

• Procedure to monitor the Mud/Gas Separator

• Operation of the pump and choke

• Responsibilities of each crew member and the method of communication between crew members (especially the pump operator and the choke operator)

(This discussion can be followed by a Choke Drill) to simulate and re-enforce the well kill procedures) (E-10006)
2. Walk through the entire circulation path used during the rig's standard well kill operation, starting at the BOP, and point out the valves that should be open and the valves that should be closed (for a subsea stack use a diagram of the BOP to explain the flow path to the choke manifold). Explain how the choke operator would communicate with the pump operator. (E-10336)
3. Assume the choke specified for use during the standard well kill operation on the rig has plugged or washed out. Walk through the process to isolate this choke and to line up to use an alternate choke. If the alternate choke is not remotely operated, explain how communication would be coordinated between the choke operator and the pump operator. (E-10337)
4. Line up to pump into the annulus via the kill line using the rig pumps. Do the same using the cement unit, if applicable (E-10395)
5. Take Slow Circulating Rates (SCR) and Choke Line Friction (CLF) pressure readings at a typical kill rate for the rig (E-10396)
6. Individual Assessment Relevant Equipment (E-11137)

Assessment Guidance:

1. Did all crew members participate in the discussion? Was each able to explain their specific responsibilities during a standard well kill operation?

2. Did the driller identify the proper BOP element to be used during the kill operation?

3. Did the discussion include the circulation path for the mud during the well kill operation? Was the path and valve lineup correct?

4. Did the discussion include the procedure to monitor the Mud/Gas Separator during the well kill operation?

5. Did the discussion include who would operate the pump, who would operate the choke and how they would communicate and coordinate their actions?

6. Did the discussion include how the BOP would be monitored for leaks during the kill operation and the action to take if a leak was identified?

7. Did the senior rig contractor representative conduct an effective pre-kill meeting and address the specific roles and responsibilities of each crew member? Were any gaps in the information provided by the crew members pointed out and addressed?

8. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

9. Was the communication protocol and coordiantion method between the choke operator and pump operator discussed? Was who wold operate the choke and the pumps discussed?

10. Was the flow path for kill weight mud understood? Was the path and valve lineup correct?

11. Did The Individual understand the purpose, functioning, maintenance, calibration of the chosen equipment or the process / procedure discussed?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What could cause “trapped” pressure during a well shut-in? How do you check for “trapped” pressure? (Q-10079)

3. Why is it important to recognize and bleed off “trapped” pressure prior to commencing well kill operations? (Q-10116)

4. How do you differentiate between trapped pressure and pressure due to the influx? What is the consequence of bleeding off more than just the trapped pressure? (Q-10028)

5. What is your rig-specific procedure used to determine the Shut-In Drill Pipe Pressure (SIDPP) when there is a solid float in the drill string? (Q-10093)

6. How is the Shut In Drill Pipe Pressure (SIDPP) used to determine the Kill Weight Mud? (Q-10040)

7. What are your specific responsibilities during a well kill operations? (Q-10293)

8. Who is the Person-In-Charge (PIC) during a well kill operation? (Q-10113)

9. Explain in detail the responsibility of each of the crew members during a well kill operation. (Q-10021)

10. Which element of the BOP should be used to kill the well per your rig-specific procedure? (Q-10109)

11. Are there any situations which might require you to use a different element of the BOP during a well kill operation? What are the situations? Which alternate BOP element would you use and why? (Q-10009)

12. Do you lock the rams during a well kill operation? Why or why not? How? (Q-10017)

13. Does your rig-specific procedure require the drill pipe to be hung-off during the well kill operation? Which specific ram is used for the hang-off? What is the hang-off weight limit for the ram? (Q-10020)

14. Does your rig-specific procedure allow pipe movement during the well kill operation? What are the guidelines or instructions on when and how to move the pipe? (Q-10019)

15. Explain your rig-specific procedure to bring the pumps up to speed to the pre-determined kill rate. (Q-10022)

16. What are some reasons that it is preferred to use a slow pump rate when killing a well? (Q-10071)

17. Who operates the pump and who operates the choke during a well kill operation? (Q-10114)

18. How does the choke operator communicate with the pump operator? (Q-10032)

19. Explain your rig-specific procedure to shut the pumps down should it become necessary? (Q-10023)

20. How are bathroom and/or meal breaks for the choke and pump operators handled? (Q-10024)

21. Is the Mud/Gas Separator (poorboy or atmospheric degasser) monitored during well kill operations? What specifically is monitored? (Q-10050)

22. What is the maximum pressure allowed on the Mud/Gas Separator during a well kill operation? How is this pressure monitored? What actions are required if the maximum pressure is approached or exceeded? (Q-10543)

23. Discuss the chosen components of the relevant equipment:
- Purpose and importance
- How it functions
- How it is maintained and calibrated
- Who must be notified if a fault is suspected or identified.
- Other topics/questions (Q-11139)

Attributes:

Business Unit: XXX;

Complications:

Choke Plugging

Questions:

1. What could cause choke plugging? (Q-10081)
2. How is it recognized? (Q-10035)
3. What actions should be taken? (Q-10069)
4. What is the consequence of not recognizing or reacting? (Q-10086)

Choke Wash Out

Questions:

1. What could cause a choke to wash out? (Q-10080)
2. How is it recognized? (Q-10035)
3. What actions should be taken? (Q-10069)
4. What is the consequence of not recognizing or reacting? (Q-10086)

Bit Nozzle Plugging

Questions:

1. How is bit nozzle plugging recognized? (Q-10034)
2. What actions should be taken? (Q-10069)
3. What is the consequence of not recognizing or reacting? (Q-10086)

Mud Pump Problems

Questions:

1. How are pump problems recognized? (Q-10025)
2. What actions should be taken? (Q-10069)

Drill String Washout

Questions:

1. How is a drill string washout recognized? (Q-10033)
2. What immediate actions should be taken (subsequent action will be dependent upon suspected location of the washout, location of the influx in the wellbore, etc. and would require consultation with offsite supervisory personnel)? (Q-10084)
3. What is the consequence of not recognizing or reacting? (Q-10086)

4. How might you estimate the location of the washout? (Q-10041)

Choke Line Cuts Out

Questions:

1. What action should be taken if the choke line cuts out? (Q-10057)

Loss of Mud Leg on the MGS during Well Kill

Questions:

1. How is loss of the mud leg on the Mud/Gas Separator recognized? (Q-10036)
2. What actions should be taken? (Q-10069)
3. What is the consequence of not recognizing or reacting? (Q-10086)

Leaking BOP

Questions:

1. How would you know if the BOP element closed develops a leak during a well kill operation? (Q-10046)
2. What specific action would you take to address a leaking BOP element? (Q-10095)

Total Loss of Power during Well Kill

Questions:

1. What action should you take if the rig has a total loss of power? (Q-10061)
2. What are each person's responsibilities in the event of a total power loss? (Q-10070)

H2S Alarms Activate while Circulating out kick

Attributes:

Business Unit: XXX; XXX; XXX; XXX;

Questions:

1. What action should you take if the H2S alarm sound during well kill operations. (Q-11129)

Attributes:

Business Unit: XXX; XXX; XXX; XXX;

2. If the alarm requires abandoning the rig floor how is the well secured in the evacuation?
Are the pumps shut down? how?
Is the choke closed? how?
Is escape gear donned before or after securing the well?

(Q-11130)

Attributes:

Business Unit: XXX; XXX; XXX; XXX;

Skills Assessed:

Communications
Complication Execution
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Diverter

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. During a connection or flow check, inform the driller that the well is flowing. (E-10432)
2. After latching the stack and prior to displacing the riser from seawater to mud, close the annular and simulate flow from an influx in the riser using the booster pump. (E-10433)

Attributes:

Rig Type: Over Water Subsea Stack;

3. After closing the annular during a shut-in drill, inform the driller the well is continuing to flow. (E-10434)

Attributes:

Rig Type: Over Water Subsea Stack;

Regular Caution Guidance:

1. Ensure the BOP is reopened if closed and all valves are returned to the correct line-up at the conclusion of the exercise prior to resuming normal operations.
2. Be prepared to prevent closing the BOP if it is not desired or safe.
3. Ensure the BOP is reopened all valves are returned to the correct line-up at the conclusion of the exercise prior to resuming normal operations.

Assessment Guidance:

1. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?
2. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?
3. Did the driller and crew members demonstrate knowledge of the rig diverter equipment capability and operability? Were the valve(s) to the appropriate diverter line(s) opened. Were the crew members familiar with their muster locations?
4. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What are your specific responsibilities during divert operations? (Q-10454)

3. Explain and discuss the divert procedures for the rig, including the sequencing of the divert equipment. (Q-10437)

4. Explain and discuss the evacuation plan for the rig and specifically when evacuation is required during a divert operation? (Q-10438)

5. Explain in detail the responsibility of each of the crew members during a divert situation. (Q-10439)

6. What is the maximum pressure rating of your diverter system? (Q-10440)

7. What is the maximum flow capacity of your diverter system? (Q-10441)

8. Under what circumstances would you close the diverter? (Q-10442)

9. What tests/checks do you carry out on the diverter system before starting to drill? (Q-10443)

10. Can you line up to divert through the poor boy degasser? Should you ever divert through the poor boy degasser? (Q-10444)

11. Where are the control panels for the diverter? (Q-10445)

12. If you have more than one diverter line available, how do you select which line to use? (Q-10446)

13. What are the main hazards when diverting and how do you manage these hazards? (Q-10448)

14. Under what circumstances would you consider closing the diverter before closing the BOP? (Q-10449)

Attributes:

Rig Type: Over Water Subsea Stack;

15. If, after spacing out across the BOP, there was a tool joint across the diverter, what would you do? (Q-10450)

Attributes:

Rig Type: Over Water Subsea Stack;

Complications:

Diverter Equipment Issues

Questions:

1. What do you do if the diverter packer starts leaking during a divert situation? (Q-10451)
2. What do you do if you are diverting upwind? (Q-10452)
3. What do you do if the slip joint leaks during a divert situation? (Q-10453)

Attributes:

Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Emergency Disconnect Sequence (EDS)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller

Cementer
Derrickman/Shakerhand
DPO
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Manager
Mud Engineer
Mud Logger
OIM
Rig Manager
Rig Operator
ROV Operator
Sub Sea Engineer
Superintendent
Toolpusher

Exercises:

1. Have the Bridge issue a White Advisory to the drill floor, wait 5 minutes and then follow the White Advisory with a Yellow Alert. After the appropriate action is taken for the Yellow Alert, discuss the steps to be taken if the situation progresses to a Red Alert. DO NOT ISSUE A RED ALERT to the drill floor! This exercise can be done as an “Announced” or “Unannounced” drill. (E-10455)

Attributes:

Rig Type: Over Water Subsea Stack;

2. Have the Bridge issue a Yellow Alert to the drill floor. After the appropriate action is taken for the Yellow Alert, discuss the steps to be taken if the situation progresses to a Red Alert. DO NOT ISSUE A RED ALERT to the drill floor! It is recommended to do this exercise as an “Announced” drill. (E-10456)

Attributes:

Rig Type: Over Water Subsea Stack;

3. Have the Bridge issue a Yellow Alert for the vessel. After the appropriate action is taken for the Yellow Alert, discuss the steps to be taken if the situation progresses to a Red Alert. DO NOT ISSUE A RED ALERT for the vessel! It is recommended to do this exercise as an “Announced” drill. (E-11115)

Attributes:

Rig Type: Over Water Subsea Stack;

Regular Caution Guidance:

1. DO NOT issue a Red Alert to the Drill Floor

2. Ensure personnel involved in conducting the drill are located near all panels capable of initiating the EDS sequence to ensure it is not inadvertently initiated as a result of the drill.

3. DO NOT issue a Red Alert for the vessel.

4. Ensure personnel involved in conducting the drill are located near all panels capable of initiating the Emergency Quick Disconnect (EQD) sequence to ensure it is not inadvertently initiated as a result of the drill.

Assessment Guidance:

1. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

2. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

4. Did the driller and crew members demonstrate knowledge of the Emergency Disconnect Procedures and the Well Specific Operation Guidelines.

5. Observe crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from supervision followed?

6. Observe the supervisor. Were the supervisor's reaction and the direction provided to the crew members appropriate? Were the supervisor's communications with other personnel on the vessel appropriate and effective?

7. Was the vessel specific procedure followed and reinforced? Was the specific procedure reviewed to ensure compliance once the well/vessel was established in a safe or static condition?

8. Did the crew members demonstrate knowledge of the Emergency Disconnect Procedures and the Well Specific Operation Guidelines.

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

   Attributes:
   Rig Type: Over Water Subsea Stack;

2. Are you aware of and familiar with the Well Specific Operating Guidelines (or equivalent) in use during the current operation? (Q-10458)

   Attributes:
   Rig Type: Over Water Subsea Stack;

3. What conditions can evoke a White Advisory status? (Q-10459)

   Attributes:
   Rig Type: Over Water Subsea Stack;

4. Explain and discuss the specific action which must be taken by each crew member when a White Advisory is issued (at a minimum, discuss action to be taken by the DPO, driller and subsea engineer). (Q-10460)

   Attributes:
   Rig Type: Over Water Subsea Stack;

5. What conditions can evoke a Yellow Alert? (Q-10461)

   Attributes:
   Rig Type: Over Water Subsea Stack;

6. What are your specific responsibilities when a Yellow Alert is issued? (Q-10485)

   Attributes:
   Rig Type: Over Water Subsea Stack;

7. Explain and discuss the specific action which must be taken by each crew member when a Yellow Alert is issued (at a minimum, discuss action to be taken by the DPO, driller and subsea engineer). (Q-10462)

   Attributes:
   Rig Type: Over Water Subsea Stack;

8. What conditions can evoke a Red Alert? (Q-10463)

Attributes:

Rig Type: Over Water Subsea Stack;

9. What are your specific responsibilities when a Red Alert is issued? (Q-10486)

Attributes:

Rig Type: Over Water Subsea Stack;

10. Explain and discuss the specific action which must be taken by each crew member when a Red Alert is issued (at a minimum, discuss action to be taken by the DPO, driller and subsea engineer) (Q-10464)

Attributes:

Rig Type: Over Water Subsea Stack;

11. Are there any Emergency Shut Down (ESD) systems on the rig which should be activated during an EDS event? Is there more than one ESD panel and where are they located? (Q-10465)

Attributes:

Rig Type: Over Water Subsea Stack;

12. How often are the watch circles updated and what evokes a revision to the watch circle? (Q-10466)

Attributes:

Rig Type: Over Water Subsea Stack;

13. Explain the sequence of events that occur with the BOP stack and riser tensioning system after the EDS is initiated as a result of a Red Alert? (Q-10467)

Attributes:

Rig Type: Over Water Subsea Stack;

14. Explain how the riser recoil system works on your rig and the potential risks associated with the riser system when the LMRP is disconnected during an EDS event. (Q-10468)

Attributes:

Rig Type: Over Water Subsea Stack;

15. Is there more than one option available to control the actual Emergency Disconnect Sequence on your rig (such as EDS1, EDS2, etc.)? If so, what are the differences, who decides which EDS option is active and when would the EDS option potentially be revised? (Q-10469)

Attributes:

Rig Type: Over Water Subsea Stack;

16. Is there a Deadman System (DMS) on your rig? What could potentially active the DMS and what sequence of events occur on the BOP stack if the DMS is activated? (Q-10470)

Attributes:

Rig Type: Over Water Subsea Stack;

17. Is there an Autoshear system your rig? What could potentially active the Autoshear? What sequence of events occur on the BOP stack if the Autoshear is activated? (Q-10471)

Attributes:

Rig Type: Over Water Subsea Stack;

18. Explain how and when the Deadman and Autoshear systems are tested. (Q-10472)

Attributes:

Rig Type: Over Water Subsea Stack;

19. Explain what functions on the BOP stack can be operated by the ROV. (Q-10473)

Attributes:

Rig Type: Over Water Subsea Stack;

20. Describe what equipment is required to activate the ROV functions on the stack. (Q-10474)

Attributes:

Rig Type: Over Water Subsea Stack;

21. Explain the procedures associated with activating each of the ROV functions on the BOP stack. (Q-10475)

Attributes:

Rig Type: Over Water Subsea Stack;

22. Explain how and when the ROV functions on the BOP stack are tested. (Q-10476)

Attributes:

Rig Type: Over Water Subsea Stack;

23. What is the purpose of the ESD system, what actually happens when the ESD is activated on the rig and who is responsible for activating the ESD and when should they activate the ESD? (Q-10627)

Attributes:

Rig Type: Over Water Subsea Stack;

24. Explain and discuss the specific action which must be taken by each crew member when a Yellow Alert is issued (at a minimum, discuss action to be taken by the DPO, supervisor, and subsea engineer). (Q-11116)

Attributes:

Rig Type: Over Water Subsea Stack;

25. Explain and discuss the specific action which must be taken by each crew member when a Red Alert is issued (at a minimum, discuss action to be taken by the DPO, supervisor, and subsea engineer). (Q-11117)

Attributes:

Rig Type: Over Water Subsea Stack;

26. Are there any Emergency Shut Down (ESD) systems on the vessel which should be activated during an EQD event? Is there more than one ESD panel and where are they located? (Q-11118)

Attributes:

Rig Type: Over Water Subsea Stack;

27. Explain the sequence of events that occur with the subsea intervention system after the EQD is initiated as a result of a Red Alert? (Q-11119)

Attributes:

Rig Type: Over Water Subsea Stack;

28. Is there more than one option available to control the actual Emergency Quick Disconnect Sequence on your vessel / system (such as EQD1, EQD2, etc.)? If so, what are the differences, who decides which EQD option is active and when would the EQD option potentially be revised? (Q-11120)

Attributes:

Rig Type: Over Water Subsea Stack;

29. Is there a Deadman System (DMS) on your subsea intervention system? What could potentially active the DMS and what sequence of events occur on the subsea intervention system if the DMS is activated? (Q-11121)

Attributes:

Rig Type: Over Water Subsea Stack;

30. Explain what functions on the subsea intervention system can be operated by the ROV. (Q-11122)

Attributes:

Rig Type: Over Water Subsea Stack;

31. Describe what equipment is required to activate the ROV disconnect functions on the subsea intervention system.

(Q-11123)

Attributes:

Rig Type: Over Water Subsea Stack;

32. Explain the procedures associated with activating each of the ROV disconnect functions on the subsea intervention system.

(Q-11124)

Attributes:

Rig Type: Over Water Subsea Stack;

33. Explain how and when the ROV functions on the subsea intervention system are tested.

(Q-11125)

Attributes:

Rig Type: Over Water Subsea Stack;

34. What is the purpose of the ESD system, what actually happens when the ESD is activated on the vessel and who is responsible for activating the ESD and when should they activate the ESD?

(Q-11126)

Attributes:

Rig Type: Over Water Subsea Stack;

Complications:

Potential EDS Issues

Attributes:

Rig Type: Over Water Subsea Stack;

Questions:

1. What do you do if you are unable to communicate with the bridge when the Yellow Alert is issued? What do you do in this situation if the alert status degrades to a Red Alert? (Q-10478)

Attributes:

Rig Type: Over Water Subsea Stack;

2. What do you do if the pipe is stuck when a Yellow Alert is issued and you are unable to space out to the hang off position? Would the action taken differ if you had a tool joint or an un-shearable tubular across your shear rams? (Q-10479)

Attributes:

Rig Type: Over Water Subsea Stack;

3. What do you do if you do not have fixed rams identified as hang off rams and your current string weight below the BOP stack exceeds the capacity of your variable bore rams? (Q-10480)

Attributes:

Rig Type: Over Water Subsea Stack;

4. What do you do if you are cementing a casing string or liner when the Yellow Alert is issued? Would your action differ if hydrocarbons were being isolated by the casing/liner being cemented? (Q-10481)

Attributes:

Rig Type: Over Water Subsea Stack;

5. What do you do if you are circulating out an influx when the Yellow Alert is issued? Would this action differ if the influx was in the choke line(s) at the time of the Yellow Alert? What would you do if the influx was in the choke line and the alert status degrades to a Red Alert? (Q-10482)

Attributes:

Rig Type: Over Water Subsea Stack;

6. What do you do if the rig is heaving heavily when the Yellow Alert is issued? (Q-10483)

Attributes:

Rig Type: Over Water Subsea Stack;

7. What do you do if a Yellow Alert is issued when the following non-shearables are across the stack: drill collars, thick wall casing, core barrel, perforating guns, others? (Q-10484)

Attributes:

Rig Type: Over Water Subsea Stack;

Post EDS – Recovery of Sheared String (Drill String)

Attributes:

Rig Type: Over Water Subsea Stack;

Questions:

1. When reconnecting to the stack after an EDS, but before actuating any stack component, how do we confirm we are properly latched up? Do we perform any pull test? To what tension? What about pressure tests? Which are required? How are they performed? (Q-10689)

Attributes:

Rig Type: Over Water Subsea Stack;

2. If we sheared the string or dropped it in the hole, do we know where it is, if not what assumptions do we make? (Q-10690)

Attributes:

Rig Type: Over Water Subsea Stack;

3. What fishing tools do we have on location? (Q-10691)

Attributes:

Rig Type: Over Water Subsea Stack;

4. What is the pressure of our hydrostatic column at the wellhead? (Q-10692)

Attributes:

Rig Type: Over Water Subsea Stack;

5. When should we perform our first full test of the stack? (Q-10693)

Attributes:

Rig Type: Over Water Subsea Stack;

6. After latching up and testing appropriately, if we determine the wellbore IS NOT DEAD what should be our first action? How? (Q-10694)

Attributes:

Rig Type: Over Water Subsea Stack;

7. After latching up and testing appropriately, if we determine the well IS DEAD what should be our first action? How? (Q-10695)

Attributes:

Rig Type: Over Water Subsea Stack;

8. After latching up and displacing the riser, how do we confirm that we have a uniform column of mud alt the way around? (Q-10697)

Attributes:

Rig Type: Over Water Subsea Stack;

Post EDS – Recovery of Sheared String (Completion Ops)

Attributes:

Rig Type: Over Water Subsea Stack;

Questions:

1. When reconnecting to the stack after an EDS, but before actuating any stack component, how do we confirm we are properly latched up? Do we perform any pull test? To what tension? What about pressure tests? Which are required? How are they performed? (Q-10689)

Attributes:

Rig Type: Over Water Subsea Stack;

2. If we sheared the string or dropped it in the hole, do we know where it is, if not what assumptions do we make? (Q-10690)

Attributes:

Rig Type: Over Water Subsea Stack;

3. When should we perform our first full test of the stack? (Q-10693)

Attributes:

Rig Type: Over Water Subsea Stack;

4. After latching up and testing appropriately, if we determine the wellbore IS NOT DEAD what should be our first action? How? (Q-10694)

Attributes:

Rig Type: Over Water Subsea Stack;

5. After latching up and testing appropriately, if we determine the well IS DEAD what should be our first action? How? (Q-10695)

Attributes:

Rig Type: Over Water Subsea Stack;

6. What fishing tools or service provider recovery tools, do we have on location? (Q-10699)

Attributes:

Rig Type: Over Water Subsea Stack;

7. How do we confirm position of the valves in the tree? (Q-10700)

Attributes:

Rig Type: Over Water Subsea Stack;

8. Is higher pressure under the stack an increased risk with completion brine in the hole? (Q-10701)

Attributes:

Rig Type: Over Water Subsea Stack;

9. After latching up and displacing the riser, how do we confirm that we have a uniform column of brine all the way around? (Q-10702)

Attributes:

Rig Type: Over Water Subsea Stack;

<u>Potential EQD Issues</u>

Attributes:

Rig Type: Over Water Subsea Stack;

Questions:

1. What do you do if you are unable to communicate with the bridge when the Yellow Alert is issued? What do you do in this situation if the alert status degrades to a Red Alert? (Q-10478)

Attributes:

Rig Type: Over Water Subsea Stack;

2. What do you do if the vessel is heaving heavily when the Yellow Alert is issued? (Q-11127)

Attributes:

Rig Type: Over Water Subsea Stack;

3. What do you do if you are pumping acid when the Yellow Alert is issued? Would this action differ if the acid was in the coiled tubing at the time of the Yellow Alert? What would you do if the acid was in the coiled tubing and the alert status degrades to a Red Alert? (Q-11128)

Attributes:

Rig Type: Over Water Subsea Stack;

4. What indications would be seen indicating that the EQD was not successful? What action is required if the EQD was not successful? (Q-10754)

Attributes:

Rig Type: Over Water Subsea Stack;

5. Who has the responsibility to provide the instructions to initiate the secondary method of well isolation? How is the secondary method of well isolation initiated? (Q-10755)

Attributes:

Rig Type: Over Water Subsea Stack;

6. What specific action should be taken to initiate the secondary method of well isolation? (Q-10770)

Attributes:

Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Execution
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:

Rig Type: Over Water Subsea Stack;

Well Control Drill: Contingency: Non-Shearables Across the BOP

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Simulate a well flow while non-shearable tubulars such as those noted below are across the BOP stack:

• Drill Collars / HWDP
• Casing
• Vacuum Insulate Tubing (VIT) c/w control lines or power cables
• Mud motors / Rotary Steerable Assemblies
• Tubing hangers / Tubing Hanger Running Tool
• Core barrels
• Electrical Submersible Pumps (ESPs)
• Sand screens c/w washpipe
• Other situations as identified in the risk assessment or noted in the drilling/completion/workover program

(E-10487)

Regular Caution Guidance:

1. This drill should be performed prior to running any known non-shearables across the stack
2. Be prepared to prevent closing the BOP if it is not desired or safe.

Assessment Guidance:

1. The rig crews should be made aware of any non-shearables which could be run and should be able to demonstrate that they understand equipment limitations and specifically how the well would be shut in and secured for each specific non-shearable tubular.
2. Observe the crew. Did the driller and crew members demonstrate knowledge of the precautions/ actions which must be taken prior to running non-shearables across the stack and the shut in procedures associated with the non-shearables?
3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)
2. Explain the specific shut in procedures associated with the non-shearables you are about to run or which are currently across the stack. (Q-10491)
3. Explain in detail the responsibility of each of the crew members during the shut in procedure. (Q-10492)
4. What are your specific well control related responsibilities when non-shearables are across the BOP stack? (Q-10499)
5. If your procedure requires “dropping the pipe”, discuss the specific actions required to do this and identify who is responsible for each action. Discuss the practicality of these actions. Could the crew actually conduct these operations? Is the required equipment in place to allow the operation to be conducted? What action is taken if there is no time to conduct the operation? (Q-10493)
6. What specific actions do you take prior to running non-shearables across the stack? Include any special pup joints, elevators, bails, etc. which may be required for the contingency procedures. Include any action taken by the ROV operator or bridge, marine, subsea or maintenance departments. (Q-10494)

Attributes:

Rig Type: Over Water Subsea Stack;

7. Prior to setting the slips, stopping to circulate or “chaining the brake” for any reason, do you consider the location of any non-shearables and take action to ensure they are not across the stack if at all possible? (Q-10495)

8. What is the maximum pressure that can be utilized on the operators for the shear ram? Are there any procedural steps which must be taken in order to apply the maximum pressure to the operators on the shear rams? (Q-10496)

9. Under what circumstances, if any, would you intentionally close the shear rams when non-shearables are across the stack? (Q-10497)

Attributes:

Rig Type: Over Water Subsea Stack;

10. Does the ROV operator have any responsibilities associated with your contingency procedures for non-shearables across the stack? What are they? (Q-10498)

Attributes:

Rig Type: Over Water Subsea Stack;

11. Do you, as the ROV operator, have any responsibilities associated with the rig contingency procedures for non-shearables across the stack? What are they? What equipment preparation is involved? (Q-10500)

Attributes:

Rig Type: Over Water Subsea Stack;

Complications:

Potential Issues With Non-shearables Across the BOP

Questions:

1. What do you do if the rig loses power when non-shearables are across the stack? (Q-10489)

Attributes:

Rig Type: Over Water Subsea Stack;

2. What do you do if the pipe is stuck while non- shearables are across the stack? (Q-10490)

Perforating guns across the stack.

Attributes:

Rig Type: Over Water Subsea Stack;

Questions:

1. What is the correct action if the well starts to flow with spent guns across the stack? (Q-10682)

Attributes:

Rig Type: Over Water Subsea Stack;

2. What do you do if the rig loses power with live guns across the stack? What about spent guns? (Q-10683)

Attributes:

Rig Type: Over Water Subsea Stack;

Skills Assessed:

Communications
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: Stripping

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Walk Through/Table Top Drill - Provide a high level stripping scenario with the following details: hole depth, bit depth (or how far off bottom), current mud weight, Shut in Drill Pipe Pressure (SIDPP), Shut in Casing Pressure (SICP), Pit Gain and current status of the stack (i.e. which element was closed during the Shut in Procedure). Conduct a “walk-through” or “table-top” stripping drill using the rig-specific stripping procedure. Ask each of the drill participants to explain their responsibilities during a stripping operation providing as many specifics as possible. After all participants have contributed to the discussion, ask the senior rig contractor representative to discuss the roles and responsibilities of all crew members using the rig specific procedure, re-enforcing the comments made by the individual crew members, and identifying and addressing any gaps. At the conclusion of this exercise, debrief and address any gaps identified.

The “walk through” drill should cover:

• Objectives and Theory – what is the goal and how are we going to get there?

• The BOP component(s) to use during the drill, any regulator pressure settings/adjustments, and why the components and pressure settings were selected

• Appropriate line up of choke manifold and use of trip tank and/or stripping tank

• Stripping schedule and volumes anticipated as per schedule

• Potential issues associated with a gas kick and how to address in the stripping schedule: gas migration and elongation of the gas when BHA stripped into the kick

• Procedures to discharge/empty stripping tank back to active system

• Expected hookload variation and what variables could affect the hookload
(E-10644)

2.
Practice Drill (off bottom kick; 300 psi SICP; no gas migration occurring; 100 psi Safety Factor for the stripping operation) - While tripping in/out of a cased hole with a cemented shoe track:

• Shut-in the well using the FOSV and the annular preventer (per the rig specific shut-in procedure).

• Install the IBOP and open the FOSV used to shut-in the well. Ensure the choke is closed and open the HCR.

• Apply 300 psi pressure on the annulus using the kill line. Check to ensure the IBOP is not leaking.

• Reduce the closing pressure on the annular preventer as low as possible and still maintain a seal. Open valve to surge bottle on annular closing line if one exists.

• Line up choke manifold to trip/strip tank (tank should be ~ 1/3 full).

• Make-up next stand. Use a file to remove any tong/slip marks on the pipe and apply mud or suitable lubricant to the bottom upset of the tool joints prior to passing through the rotary table (surface stack only).

• Slowly strip the first stand into the hole with choke closed (i.e. without bleeding mud) until the casing pressure reaches 400 psi (300 psi SICP + 100 psi Safety Factor).

• Continue stripping the first stand into the hole maintaining the casing pressure at 400 psi while stripping by bleeding off through the choke. Measure volume bled to ensure it is equal to the closed end volume stripped (use closed end volume stripped after reaching the 400 psi pressure).

• Install second stand and slowly strip in while maintain pressure at 400 psi. Measure volume bled to ensure it is equal to the closed end volume stripped.

• Fill the inside of the two stripped stands with mud.

• Strip additional stands using same procedure if required to ensure the crew is comfortable with the operation.

• When the stripping operation is finished – bleed off casing pressure through the choke; close valve to annular surge bottle if used; increase annular regulator to normal operation pressure; open annular; close HCR; align choke manifold for normal drilling operations; pull stripped stands to FOSV; close FOSV; remove IBOP (check for trapped pressure); open FOSV (to bleed any trapped pressure); remove FOSV.

• Debrief and address any gaps. Consider pressure testing the annular prior to commencing the tripping operation.
(E-10645)

Drill Specific Caution Guidance:

1. Ensure pressure is bled off and the BOP and choke manifold are correctly lined up for normal operations upon conclusion of the exercise.
2. Check for trapped pressure below the IBOP and FOSV prior to breaking out.

Assessment Guidance:

1. Did all crew members participate in the discussion? Was each able to explain their specific responsibilities during a standard stripping operation?

2. Did the Subsea Engineer participate and identify proper regulator setting pressures?

3. Did the discussion include the circulation path for the mud during the stripping operation? Was the path and valve lineup correct?

4. Did the discussion include why mud is bled off while stripping and the fundamental concepts associated with the stripping schedule?

5. Did the discussion include the procedure to monitor the stripping tank during the stripping operation?

6. Did the discussion include who would operate the choke and the communication path?

7. Did the discussion include how the BOP would be monitored during the stripping operation and the action to take if a leak was greater than the intended weep?

8. Did the senior rig contractor representative conduct an effective pre-stripping meeting and address the specific roles and responsibilities of each crew member? Were any gaps in the information provided by the crew members pointed out and addressed?

9. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

10. Anticipating a successful stripping operation, was the next step in the well control process discussed?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

2. What are your specific well control related responsibilities during a stripping operation? (Q-10646)

3. Who is the Person-In-Charge (PIC) during a stripping operation?
(Q-10647)

4. Explain in detail the responsibility of each of the crew members during a stripping operation. (Q-10648)

5. Which component(s) of the BOP should be used for stripping operations as per your rig-specific procedure? (Q-10649)

6. Is there a surge bottle installed on the annular hydraulic closing line? Does the rig specific procedure require a surge bottle to be installed prior to stripping? (Q-10650)

7. What method is used to determine the lowest practical closing pressure (regulator setting) on the annular preventer during a stripping operation? Why is it important to minimize the regulator setting for the annular preventer? (Q-10651)

8. Why is the pressure regulator on the annular adjusted to the minimum value that will still allow the annular to seal prior to stripping? (Q-10652)

9. Who operates the regulator pressure on the annular during a stripping operation? (Q-10653)

10. Does the rig specific stripping procedure require the control line for the opening chamber of the annular to be vented during the stripping operation? (Q-10654)

11. Who operates the choke during a stripping operation? (Q-10655)

12. How does the choke operator communicate with the other team members? (Q-10656)

13. Why is it important to ensure the mud volume returning to the strip/trip tank is carefully monitored and precisely recorded? Is there a means to drain mud that might leak past the annular from the flowline to the trip tank during the stripping operation? (Q-10657)

14. Who is responsible for keeping an accurate stripping log? (Q-10658)

15. What volume of mud should be used in the trip/strip tank as a starting volume prior to stripping? At what volume is the trip/strip tank pumped out to return to the initial starting volume? Should fresh mud be used in the trip/strip tank? (Q-10659)

16. What are possible actions that can be taken if the mud in the trip tank is foamy and hence difficult to accurately read the small volumes associated with the stripping operation? (Q-10660)

17. If there is no gas migration, what volume of mud should be bled off for each stand of pipe stripped into the hole? Does this volume change if there is a ported float or no float in the drillpipe? (Q-10661)

18. What happens in the wellbore if you accidentally bleed off more volume or more pressure than indicated by the stripping schedule? (Q-10662)

19. What happens in the wellbore if you don't bleed off as much pressure/volume as the stripping schedule indicates? (Q-10663)

20. Explain how you would fill the string during the stripping operation. How often is the inside of the drillpipe filled during the stripping operation?

(Q-10664)

21. Is there a maximum recommended stripping speed? If so, what is it and why? (Q-10665)

22. Does the rig specific procedure specify a maximum allowable stripping speed? Why is it important to minimize the stripping speed? (Q-10666)

23. When was the IBOP last certified? When was the IBOP last pressure tested? Why is it important to have a properly functioning IBOP during a stripping operation? (Q-10667)

24. When is the job complete? (Q-10668)

25. If the BOP has a pressure sensor, is information from this sensor monitored and considered during the stripping operation? (Q-10669)

Attributes:

Rig Type: Over Water Subsea Stack;

Complications:

Potential Stripping Issues

Questions:

1. Are there any situations which might require you to use a different component of the BOP during a stripping operation? What are the situations? Which alternate BOP component would you use and why? (Q-10672)

2. What possible steps could be taken to allow the stripping operation to continue if the annular is providing too much resistance to allow the tool joint to be stripped through it? (Q-10673)

3. Are there any situations defined in the rig specific procedure for stripping which would require the stripping operations to stop? What are they? (Q-10674)

Skills Assessed:

Communications
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Well Control Drill: ROV Intervention

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller

Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
OIM
Rig Operator
ROV Operator
Toolpusher

Exercises:

1. Without notifying the ROV Team in Advance have the driller notify them that a well control problem exists and ROV intervention is required. Start clock and inform the ROV team that an influx had been taken and ROV intervention is necessary
1. Review JSA for ROV intervention for well control.
2. Launch as normal
3. Call subsea let him know we are having a drill get instructions on which receptacle to plug into, relay intentions of process back.
4. Call drill floor and bridge let the driller know we are in the water and inform them of our intentions Sub Sea.
5. During decent review ROV intervention procedures.
6. While descending orientate stack to rig, pull hot stab.
7. Open tooling page for pump controls, test pump on the way down, insure parameters are set and pump is functional.
8. When on bottom fly to selected panel on pre-selected route.
9. Grab Rail insert stab into UOK Closed Stop Timer.
10. Call DSM on rig floor and report drill for reporting purposes. (E-10731)

Attributes:

Rig Type: Over Water Subsea Stack;

Drill Specific Caution Guidance:

1. Be prepared to prevent actual ROV Stab-In if it is not desired or safe.

2. On the ROV control panel; set flow to zero (0) and exit tooling page to prevent accidental activation of pump while plugged in

3. On the sub-sea stack; verify grab area is clear for engagement

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

2. Observe the ROV Supervisor. Were the ROV Supervisor's reaction and the direction provided to the crew members appropriate? Were communications with other personnel on the rig appropriate and effective?

3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What are the specific responsibilities for each member of the ROV crew when executing an ROV intervention to close the Stack? (Q-10732)

Attributes:

Rig Type: Over Water Subsea Stack;

2. Describe the Procedure to operate each stack component. What are the expected pressure and maximum pressure for each component? What is the feedback expected if the operation is successful? (Q-10733)

Attributes:

Rig Type: Over Water Subsea Stack;

3. What volume is taken to close each component? Is the “onboard volume checked / confirmed prior to dive? Where is the onboard volume recorded? Can more than one (1) component be functioned closed given the volume in the bladder? With the onboard volume what is the best plan of action? (Q-10734)

Attributes:

Rig Type: Over Water Subsea Stack;

4. How is the pressure output on the pump set or reset? (Q-10735)

Attributes:

Rig Type: Over Water Subsea Stack;

5. How do we confirm the pump is functioning? (Q-10736)

Attributes:

Rig Type: Over Water Subsea Stack;

6. Which element of the stack should be closed when shutting in the well due to an influx while drilling, what about tripping or logging? In each case how do you confirm the well has been shut-in? (Q-10737)

Attributes:

Rig Type: Over Water Subsea Stack;

7. Does the ROV operator have any responsibilities associated with contingency procedures for non-shearables across stack? What are they? (Q-10738)

Attributes:

Rig Type: Over Water Subsea Stack;

Complications:

Total loss of rig power during ROV intervention

Attributes:

Rig Type: Over Water Subsea Stack;

Questions:

1. What action should you take if the rig has a total loss of power? (Q-10061)

Attributes:

Rig Type: Over Water Subsea Stack;

2. What are each person's responsibilities in the event of a total power loss? (Q-10070)

Attributes:

Rig Type: Over Water Subsea Stack;

Well Continues to flow (ROV Intervention)

Attributes:

Rig Type: Over Water Subsea Stack;

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

Attributes:

Rig Type: Over Water Subsea Stack;

2. How will you know if the pipe ram is leaking? What action should be taken if the pipe ram is leaking after it is closed? (Q-10044)

Attributes:

Rig Type: Over Water Subsea Stack;

3. How will you know if the annular is leaking? What action should be taken if the annular is leaking after it is closed? (Q-10043)

Attributes:

Rig Type: Over Water Subsea Stack;

4. What action should you take if you close a second element and the well continues to flow? (Q-10008)

Attributes:

Rig Type: Over Water Subsea Stack;

Skills Assessed:

Complication Knowledge
Positive Kick Indicators
Procedural Execution
Procedural Knowledge
Well Control Theory

Attributes:

Rig Type: Over Water Subsea Stack;

Well Control Drill: Well Control During Coiled Tubing Operations

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
OIM
Rig Manager
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. In a pre-tour discussion or during a detailed JSA; discuss the upcoming operation including components which are non-shearable/sealable, when they will be adjacent to the BOP and/or IRS. (E-10864)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

2. While in the hole with coiled tubing, have the coiled tubing operator informed that an influx has been taken. (E-10865)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

3. While in the hole with coiled tubing, notify the coiled tubing operator the stripper assembly is leaking. (E-10866)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

4. While in the hole with coiled tubing, notify the coiled tubing operator a leak in the coiled tubing between the tubing glide arch and service reel has occurred. (E-10867)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

5. While in the hole with coiled tubing, notify the coiled tubing operator a leak in the coiled tubing between the tubing glide arch and stripper assembly has occurred. (E-10868)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

6. While in the hole with coiled tubing, notify the coiled tubing operator the CT string has parted between the tubing glide arch and service reel. (E-10869)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

7. While in the hole with coiled tubing, notify the coiled tubing operator the coiled tubing string has parted between the stripper and injector assembly. (E-10870)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

8. While in the hole with coiled tubing, notify the coiled tubing operator the coiled tubing string has buckled between the stripper and injector assembly. (E-10871)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Regular Caution Guidance:

1. Conduct drill when coiled tubing is in operationally safe position.
2. DO NOT allow the coiled tubing to be cut or damaged.
3. DO NOT close shear rams, blind rams, or slip rams.
4. DO NOT shut down pumps or change choke settings

Assessment Guidance:

1. If the discussion was a table top drill, was the rig specific procedure and roles and responsibilities understood by all? Was the rig specific procedure reviewed to ensure compliance if required?
2. Record the time required for the rig team to secure well.
3. Observe rig and Coiled Tubing crews. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

4. Observe the coiled tubing operator. Were the coiled tubing operator's reaction and the direction provided to the crew members appropriate? Were the coiled tubing operator's communications with other personnel on the rig appropriate and effective?

5. Was the rig specific procedure pertaining to Coiled Tubing followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10894)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

2. What specific procedures do you use to monitor the hole for signs of an influx during coiled tubing operations? Will tides make tracking coiled tubing displacement more difficult? Do you have tide tables to assist you if required? (Q-10895)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

3. What are the proper steps and specific responsibilities for each member of the drilling crew when executing the shut-in procedures during coiled tubing operations? (Q-10896)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

4. What is the displacement volume of the coiled tubing currently being run? What action should you take if the volume gained while tripping in the hole with coiled tubing exceeds this value? (Q-10897)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

5. How do you know how much coiled tubing has been run in order to determine how much fluid should be displaced to the trip tank? (Q-10898)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

6. Do you fill the hole at any point while pulling the coiled tubing out of the hole, and if so how do you know if the hole is taking the correct amount of fluid? (Q-10899)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

7. Are you required to fill the hole while tripping out of the hole with coiled tubing? If yes, how often? What action should you take if there is a discrepancy between the anticipated volume of fluid required to fill the hole and the actual volume required to fill the hole? (Q-10900)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

8. Is the IWOCs currently deployed? Does this have any implications for Coiled Tubing operations and emergency procedures? Can we intervene with the ROV if required? What is required for an ROV intervention? (Q-10901)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

9. How would you cut the coiled tubing if the driller directed you to do so? (Q-10902)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

10. What are your specific responsibilities when executing the shut-in procedures during coiled tubing operations? (Q-10903)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

11. What parameters should be recorded after shutting in coiled tubing on a well kick? (Q-10904)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

12. Which brake is set to secure the coiled tubing string? (Q-10905)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

13. What parameters should be monitored to determine course of action after stopping pump? (Q-10906)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

14. What are the choke operator's and coiled tubing crew member monitoring the pits responsibilities while the pumps are being shut down? (Q-10907)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

15. What parameters and pipe movement constraints would dictate cutting the coiled tubing string? (Q-10908)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

16. Can your shear rams cut the current CT string? What steps would you take to cut? (Q-10909)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

17. Can your Blind Rams cut the coiled tubing sting? (Q-10910)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

18. What is the proper closing sequence for coiled tubing BOPs? (Q-10911)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

19. Why do we utilize a dual flapper check valve? What risks are associated with the dual flapper check valve? (Q-10912)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

20. How would a dual flapper check valve failure be identified? What action should you take if the dual flapper check valve is not holding? (Q-10913)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Complications:

Gas Migration

Attributes:

Business Unit: XXX;
Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

Attributes:

Business Unit: XXX;
Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

2. What effect does gas migration have on a shut-in well? (Q-10083)

Attributes:

Business Unit: XXX;
Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Leaking Stripper

Attributes:

Business Unit: XXX;
Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Questions:

1. What action should you take if a leak is observed at the stripper assembly and additional hydraulic pressure applied to the stripper assembly does not re-establish the pressure seal? (Q-10880)

Attributes:

Business Unit: XXX;
Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

2. How will you ensure the BOP element is not leaking? (Q-10881)

Attributes:

Business Unit: XXX;
Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Leak in Coiled Tubing at Surface

Attributes:

Business Unit: XXX;
Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Questions:

1. What is the correct action if a leak is observed in the coiled tubing string between the tubing glide arch and the service reel? (Q-10882)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

2. What do you do if a leak is observed in the CT string between the tubing guide arch and the stripper assembly (within the injector body)? (Q-10883)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

3. When should the coiled leak be pulled onto the reel rather than ran into the hole? (Q-10884)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

4. What should be done if a leak is identified with hazardous fluid in the coiled tubing string? (Q-10885)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Coiled Tubing Parts or Buckles at Surface

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Questions:

1. What is the correct action if the coiled tubing string parts between the tubing guide arch and the service reel? (Q-10886)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

2. What is the correct action if the coiled tubing string parts between the stripper assembly and injector chain drive section? (Q-10887)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

3. What do you do if the coiled tubing string buckles between the injector head and stripper assembly? (Q-10888)

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Skills Assessed:

Communications
Complication Execution
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:

Business Unit: XXX;

Rig Type: Over Water Subsea Stack; Over Water Surface Stack;

Well Control Drill: Choke Operations (WO)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
Reverse Operator
Rig Manager
Rig Operator
Toolpusher

Exercises:

1. With the well shut-in on a cased hole (per the rig-specific well kill procedure), pump into the annulus to trap ~ 200 psi of pressure to simulate a kick (do not put pressure on the drill pipe). Have the responsible personnel (per the rig-specific well kill procedure) in position to execute the well kill procedure. Conduct several or all of the following operations with all instructions issued by the appropriate individual per the rig-specific well kill procedure. One objective of this drill is to ensure the chain of command and communication procedures are clear and functional.

• Line up through the choke manifold and Mud/Gas Separator.
• Have the choke operator bump the float to determine the Shut-in Drill Pipe Pressure (SIDPP).
• Have the choke operator direct the pump operator to bring the pump up to the pre-determined kill rate.
• After the pump is at kill rate and the casing and drillpipe pressure have stabilized, have the choke operator increase the casing pressure by 100 psi and to observe/record the lag time for the drillpipe pressure to increase by 100 psi.
• Have the choke operator direct the pump operator to increase the kill rate by 10 strokes per minute.
• After the casing and drillpipe pressure stabilize, have the choke operator to direct the pump operator to decrease the kill rate by 5 strokes per minute.
• After the casing and drillpipe pressure stabilize, have the choke operator to direct the pump operator to stop the pump.
• Repeat any of the steps above to ensure proficiency.
• After the pump is stopped at the conclusion of the exercise, have the choke operator bleed off the pressure.
• Line up the BOP and choke manifold for normal operations. (E-10007)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Regular Caution Guidance:

1. Ensure the circulation path is correctly lined up through the choke manifold and Mud/Gas Separator before the float is bumped.

2. Ensure all personnel are in their appropriate stations for the well kill operation (or a discussion is held to ensure all personnel understand their station, if there is a desire for some of the personnel to remain on the rig floor to observe the remainder of the drill) prior to initiating the well kill exercise.

3. Ensure pressure is bled off and the BOP and choke manifold are correctly lined up for normal operations upon conclusion of the exercise.

Assessment Guidance:

1. Is the circulation path correct and are the appropriate valves opened/closed?

2. Are all personnel involved in the drill aware of their roles and responsibilities?

3. Was the correct procedure utilized to bump the float and was the communication effective during this operation?

4. Is communication between the choke operator and pump operator effective?

5. Does the choke operator correctly manipulate the choke to maintain constant casing pressure when the pump rates were changed?

6. Does the choke operator manage pressure effectively with the choke?

7. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is your rig-specific procedure used to determine the Shut-In Drill Pipe Pressure (SIDPP) when there is a solid float in the drill string? (Q-10093)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

2. Who is the Person-In-Charge (PIC) during an actual well kill operation on this WO Rig? (Q-10935)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

3. Explain your (WO) rig-specific procedure to bring the pumps up to speed to the pre-determined kill rate. (Q-10934)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

4. Who operates the pump and who operates the choke during a well kill operation? (Q-10114)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

5. How does the choke operator communicate with the pump operator? (Q-10032)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

6. Explain your rig-specific procedure to shut the pumps down should it become necessary? (Q-10023)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

7. How are bathroom and/or meal breaks for the choke and pump operators handled? (Q-10024)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

8. What would your responsibilities be if this were an actual well kill? (Q-10549)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

Complications:

Choke Plugging

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Questions:

1. What could cause choke plugging? (Q-10081)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

2. How is it recognized? (Q-10035)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

3. What actions should be taken? (Q-10069)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

4. What is the consequence of not recognizing or reacting? (Q-10086)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Choke Wash Out

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Questions:

1. What could cause a choke to wash out? (Q-10080)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

2. How is it recognized? (Q-10035)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

3. What actions should be taken? (Q-10069)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

4. What is the consequence of not recognizing or reacting? (Q-10086)

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Bit Nozzle Plugging

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Questions:

1. How is bit nozzle plugging recognized? (Q-10034)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

2. What actions should be taken? (Q-10069)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

3. What is the consequence of not recognizing or reacting? (Q-10086)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

Mud Pump Problems

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Questions:

1. How are pump problems recognized? (Q-10025)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

2. What actions should be taken? (Q-10069)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

Drill String Washout

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Questions:

1. How is a drill string washout recognized? (Q-10033)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

2. What immediate actions should be taken (subsequent action will be dependent upon suspected location of the washout, location of the influx in the wellbore, etc. and would require consultation with offsite supervisory personnel)? (Q-10084)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

3. What is the consequence of not recognizing or reacting? (Q-10086)

   Attributes:

   Business Unit: XXX; Rig
   Type: Workover Rig;

4. How might you estimate the location of the washout? (Q-10041)

Attributes:
Business Unit: XXX; Rig
Type: Workover Rig;

Choke Line Cuts Out

Attributes:
Business Unit: XXX; Rig
Type: Workover Rig;

Questions:

1. What action should be taken if the choke line cuts out? (Q-10057)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

H2S Alarms Activate while Circulating out kick

Attributes:
Business Unit: XXX; XXX; XXX; Rig Type: Workover Rig;

Questions:

1. What action should you take if the H2S alarm sound during well kill operations. (Q-11129)

Attributes:
Business Unit: XXX; XXX; XXX; Rig Type: Workover Rig;

2. If the alarm requires abandoning the rig floor how is the well secured in the evacuation?
Are the pumps shut down? how?
Is the choke closed? how?
Is escape gear donned before or after securing the well?

(Q-11130)

Attributes:
Business Unit: XXX; XXX; XXX; Rig Type: Workover Rig;

Skills Assessed:

Communications
Complication Execution
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:
Business Unit: XXX; Rig
Type: Workover Rig;

Well Control Drill: Hole Monitoring While Drilling, Milling or Circulating (WO)

Drill Type: Team/Individual

Potential Participants:
Assistant/Relief Driller

Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
Reverse Operator
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Ask the Reverse Unit Operator to call the driller to inform he has noticed a change in the cuttings – a large increase in volume and/or large “splintery” cuttings (E-10936)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

2. Ask the driller to transfer a known quantity of mud from the reserve mud system into the active mud system and then ask the reverse unit operator to measure the change in active pit volume following the transfer. (E-10938)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

3. Prepare the driller (WO) ahead of time and instruct him/her to NOT shut the well in. After briefing the driller have the Tool Pusher simulate an increase in pit volume or flow rate utilizing the agreed to technique (manually raising pit level float, transferring mud from pit, manually manipulating the flow indicator, utilizing a dedicated “training” line, etc.) (E-10939)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. Ensure the driller is aware of the exercise ahead of time and be prepared to stop him/her from shutting in the well in case they forget.

3. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. Was the individual's reaction and response appropriate?

2. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

3. Was the Reverse Unit Operator's calculation within 5 bbls of the actual volume transferred

4. Record the time required to identify any increase in pit volume or flow rate (if an influx was simulated).

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

2. What are the potential warning signs for a kick and why is each warning sign a possible kick indicator? (Q-10102)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

3. What equipment do you have to identify potential warning signs of a kick? What are the current alarm setting for the equipment and what is the rationale for each alarm setting? (Q-10254)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

4. Does the equipment that helps you detect kick warnings and indications require calibration? If so, how frequently? When was the last time the equipment was calibrated? (Q-10263)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

5. What are the possible warning signs of a kick that you might have the opportunity to observe? (Q-10256)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

6. What action should be taken in response to observation of a possible kick indicator? (Q-10064)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

7. When conducting a flow check, how do you determine if the well is flowing? How long should you observe the well before you are confident it is not flowing? (Q-10104)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

8. What is ballooning? What are the indications of ballooning? Is it possible for ballooning to occur if the well has not experienced losses? What action should you take if you suspect the well is ballooning? (Q-10085)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

9. Under current well conditions is there a potential for the well to kick if massive loss circulation is encountered? If so why, and if not, why not? What action should you take if massive loss circulation occurs? At what point should the well be shut in? (Q-10053)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

10. What are the positive indicators of a kick? (Q-10072)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

11.

What equipment do you have to identify positive signs of a kick? What are the current alarm setting for the equipment and what is the rationale for each alarm setting? (Q-10262)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

12. What action should be taken in response to observation of a positive kick indicator? (Q-10063)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

13. What action should be taken if you notice an increase in pit volume or flow rate from the well? What does an increase in pit volume or flow rate indicate? (Q-10225)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

14. What action should be taken if you notice an increase in pit volume? (Q-10554)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

15. What action should you take prior to transferring fluids or making additions to the mud system which will result in an increase in pit volume? (Q-10260)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

16. What is an underground blowout? What are the indications of an underground blowout? What are the first actions you should take if you suspect an underground blowout is occurring? (Q-10377)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

17. What action should you take if an H2S alarm goes of at the rig floor or the shale shakers? (Q-10383)

Attributes:

Business Unit: XXX; Rig

Type: Workover Rig;

Skills Assessed:

Communications
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:

Business Unit: XXX; Rig
Type: Workover Rig;

Well Control Drill: Shut in while tripping (WO)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
Relief Operator
Reverse Operator
Rig Manager
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. While tripping and without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, transferring mud from pit, etc.). (E-10940)

Attributes:

Business Unit: XXX; XXX; Rig
Type: Workover Rig;

2. While tripping have the driller informed that an influx has been taken. (E-10420)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

3. While tripping out of the hole inform the driller the well is experiencing severe losses (E-10520)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

4. In a pre-tour discussion or during a detailed JSA; discuss the upcoming operation including non-routine string components which are either non-shearable or non-sealable when adjacent to the BOP. (E-10847)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. Record the time required for the rig team to identify any simulated increase in pit volume. (WO)

2. Record the time required for the crew to install and close the safety valve or IBOP, and then close the BOP element (complete the shut-in) (WO)

3. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (WO)

4. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective? (WO)

5. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? (WO)

6. Table Top Exercise • The rig crews should be aware of any component that cannot be sheared or the BOP will not seal against and should be able to demonstrate that they understand equipment limitations and specifically how the well would be shut in and secured for each specific non- shearable tubular. • Did the driller and crew members demonstrate knowledge of the precautions or actions which must be taken prior to running the above components across the stack and the shut in procedures associated with them? • Which the rig specific procedure should be followed and reinforced? Was the rig specific procedure reviewed to ensure compliance? (WO)

7. Record the time required for the crew to install and close the safety valve or IBOP, and then close the BOP element (complete the shut-in)

8. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

9. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

10. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

11. Table Top Exercise • The rig crews should be aware of any component that cannot be sheared or the BOP will not seal against and should be able to demonstrate that they understand equipment limitations and specifically how the well would be shut in and secured for each specific non- shearable tubular. • Did the driller and crew members demonstrate knowledge of the precautions or actions which must be taken prior to running the above components across the stack and the shut in procedures associated with them? • Which the rig specific procedure should be followed and reinforced? Was the rig specific procedure reviewed to ensure compliance?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

   Attributes:

   Business Unit: XXX; XXX;

   Rig Type: Workover Rig;

2. What are each crew members specific responsibilities when executing the shut-in procedure while tripping? (Q-10290)

   Attributes:

   Business Unit: XXX; XXX;

Rig Type: Workover Rig;

3. What specific procedures do you use to monitor the hole for signs of an influx when tripping in the hole? When are you expected to conduct flow checks during a trip in the hole? (Q-10098)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

4. What specific procedures do you use to monitor the hole for signs of an influx when tripping out of the hole? When are you expected to conduct flow checks during a trip out of the hole? (Q-10099)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

5. What action should be taken if there is a discrepancy between the anticipated volume of mud displaced from the hole and the actual volume observed when tripping in the hole? (Q-10067)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

6. What action should be taken if there is a discrepancy between the anticipated volume of mud required to fill the hole and the actual volume observed when tripping out of the hole? (Q-10068)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

7. What is the displacement volume of the pipe currently being tripped and is this value based upon open ended or closed pipe? (Q-10090)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

8. If tripping operations are interrupted (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Q-10049)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

9. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while tripping? (Q-10077)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

10. When should you use the Full Opening Safety Valve (FOSV)? (Q-10106)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

11. How is the Full Opening Safety Valve (FOSV) picked up and made up? What is the shut-in procedure associated with the FOSV? Where is the wrench used to close the FOSV stored? (Q-10037)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

12. When should you use the Inside BOP (IBOP)? (Q-10107)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

13. How is the IBOP picked up and made up? What is the shut-in procedure associated with the IBOP? (Q-10039)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

14. When should you use an Full Opening Safety Valve (FOSV) and an Inside BOP (IBOP)? (Q-10105)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

15. Which element of the stack should you close when shutting in the well due to an influx while tripping? Why is this element used as opposed to another element on the stack? (Q-10112)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

16. What parameters should be recorded after shutting in on a well kick? (Q-10094)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

17. What is the distance from the rig floor to the upper most pipe rams? (Q-10941)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

18. What are three factors that could effect swabbing or surging? (Q-10078)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

19. How are the operations being conducted going to change the well conditions? (ie, pumping lighter fluid, running non shearabales across BOP, changing down hole wellbore conditions by perforating or Hydraulic Fracturing) (Q-10848)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

20. What is the planned communication protocol for this operation? Who is involved? (Q-10849)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

21. With a packer set, what could an increase in the annulus pressure in a producing well indicate? (Q-11093)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

22. Trapped fluid and pressure can accumulate in which areas of the wellbore? (Q-11094)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

23. Will a 10 bbl kick in a smaller casing have a higher or lower SICP than in a larger casing? (Q-11095)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

24. Will the migration rate of gas in a brine solution generally be faster or slower than in mud? (Q-11096)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

25. If the same fluid is reverse circulated at the same rate, will the ECDs be higher, lower, or the same as if it were circulated the "long way"? (Q-11101)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

26. Why is reverse circulating preferred when removing a gas kick from a well with poor casing or wellhead integrity? (Q-11102)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

27. How do you keep the well overbalanced when on losses? (Q-11103)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

28. Why is it important to punch holes in the tubing prior to pulling the steam injection completion? (Q-11104)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

Complications:

Well Continues To Flow

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Gas Migration

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

2. What effect does gas migration have on a shut-in well? (Q-10083)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Tripping While Taking Losses

Attributes:

Business Unit: XXX; XXX; Rig
Type: Workover Rig;

Questions:

1. Are you allowed to trip out of the hole if the well is taking losses? (Q-10011)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

2. How do you ensure the well will remain overbalanced? (Q-10029)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

3. Is there a limit to the loss rate before tripping operations are suspended? (Q-10051)

Attributes:

Business Unit: XXX; XXX; Rig
Type: Workover Rig;

4. How could losses occur during this operation? What impact would losses have? What are the loss contingencies?
(Q-10850)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Potential Issues With Non-shearables Across the BOP

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. What do you do if the rig loses power when non-shearables are across the stack? (Q-10489)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Over Water Subsea Stack;

2. What do you do if the pipe is stuck while non- shearables are across the stack? (Q-10490)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Perforating guns across the stack (WO)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. What is the correct action if the well starts to flow with spent guns across the stack? (Q-10682)

Attributes:
Business Unit: XXX; XXX;
Rig Type: Workover Rig;

2. What do you do if the rig loses power with live guns across the stack? What about spent guns? (Q-10683)

Attributes:
Business Unit: XXX; XXX;
Rig Type: Workover Rig;

BLEVE

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Questions:

1. What is a BLEVE? (Q-11097)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

2. How can you avoid a BLEVE? (Q-11098)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:
Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Well Control Drill: Shut-in While Running Casing or Tubing (WO)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE

Floorman/Motorman
Manager
Mud Engineer
Mud Logger
Relief Operator
Reverse Operator
Rig Manager
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Table Top Exercise

• The rig crews should be aware of any component that cannot be sheared or the BOP will not seal against and should be able to demonstrate that they understand equipment limitations and specifically how the well would be shut in and secured for each specific non-shearable/sealable tubular.

• Did the driller and crew members demonstrate knowledge of the precautions or actions which must be taken prior to running the above components across the stack and the shut in procedures associated with them?

• Which the rig specific procedure should be followed and reinforced? Was the rig specific procedure reviewed to ensure compliance?

(E-10857)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

2. While running casing or tubing and without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, etc.). (E-10426)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

3. While running casing or tubing have the driller informed that an influx has been taken. (E-10422)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

4. While running casing or tubing inform the driller the well is experiencing severe losses. (E-10534)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. If the discussion was a table top drill, was the rig specific procedure and R&R's understood by all? Was the rig specific procedure reviewed to ensure compliance if required?

2. Record the time required for the rig team to identify any simulated increase in pit volume.

3. Record the time required for the crew to install and close the safety valve, and then close the BOP element (complete the shut-in)

4. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

5. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

6. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

7. Are the appropriate crossovers for each tubular size on the rig floor?

8. Record the time required for the crew to install and close the safety valve or IBOP, and then close the BOP element (complete the shut-in)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

2. What specific procedures do you use to monitor the hole for signs of an influx when running casing/ tubing? (Q-10097)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

3. What specific action should be taken to shut-in the well in response to recognition of a positive kick indicator while running casing or tubing? (Q-10288)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

4. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while running casing/tubing? (Q-10076)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

5. What is the displacement volume of the casing/tubing currently being tripped and is this value based upon open ended or closed pipe? (Q-10089)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

6. How do you monitor and record the fluid displaced from the hole while running casing/tubing? (Q-10031)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

7. What action should be taken if there is a discrepancy between the anticipated volume of fluid displaced from the hole while running casing/tubing and the actual volume observed? (Q-10066)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

8. What are your specific responsibilities when executing the shut-in procedures while running casing or tubing? (Q-10289)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

9. When are you expected to conduct flow checks while running in the hole with casing/tubing? (Q-10103)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

10. If the well starts flowing while running casing/tubing, how do you isolate the inside of the casing/ tubing to prevent flow? Is a crossover required for this procedure? (Q-10048)

Attributes:

Business Unit: XXX; XXX; Rig

Type: Workover Rig;

11. How is the Full Opening Safety Valve (FOSV) or the tool used to shut off flow from inside the casing/tubing during a kick on your rig actually picked up and made up? What is the shut-in procedure? (Q-10038)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

12. Which element of the stack should be closed when shutting in the well due to an influx while running casing/tubing and why is this element used as opposed to another element on the stack? (Q-10111)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

13. Which string components (packers, mandrels, SCSSV) will not allow shut-in if positioned across the stack? What do we do if one is across the stack and the well starts to flow? (Q-10858)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

14. Do you make any adjustments to the annular operating pressure on your rig prior to running casing? How do you know what adjustment to make? (Q-10018)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

15. What parameters should be recorded after shutting in coiled tubing on a well kick? (Q-10904)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

16. If operations are interrupted while running casing/tubing (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Q-10047)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

17. Identify the barriers (internal [tubular bore] and external [tubular annulus]) that are in place while running/pulling the casing/tubing and explain how the barriers function (Q-10392)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

18. If auto-fill float equipment is being utilized, explain how the use of this type of equipment would impact a well control situation and explain what rig specific procedures are in in place to address the use of this type of equipment (Q-10393)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

19. If a “standing valve” (a one way check valve used to test tubing while being installed) is being utilized, explain how the use of this type of equipment would impact a well control situation and explain what rig specific procedures are in in place to address the use of this type of equipment (Q-10394)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

20. Is there a risk of becoming pipe light, if forced to shut-in while running in the hole? Under current conditions how long is such a risk present? If the string is pipe light and begins to move upward through the closed stack what is the correct next action? What is the next action? (Q-10676)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

21. With a packer set, what could an increase in the annulus pressure in a producing well indicate? (Q-11093)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

22. Trapped fluid and pressure can accumulate in which areas of the wellbore? (Q-11094)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

23. Will a 10 bbl kick in a smaller casing have a higher or lower SICP than in a larger casing? (Q-11095)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

24. Will the migration rate of gas in a brine solution generally be faster or slower than in mud? (Q-11096)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

25. If the same fluid is reverse circulated at the same rate, will the ECDs be higher, lower, or the same as if it were circulated the "long way"? (Q-11101)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

26. Why is reverse circulating preferred when removing a gas kick from a well with poor casing or wellhead integrity? (Q-11102)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

27. How do you keep the well overbalanced when on losses? (Q-11103)

Attributes:

Business Unit: XXX; XXX;

Rig Type: Workover Rig;

28. Why is it important to punch holes in the tubing prior to pulling the steam injection completion? (Q-11104)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

Complications:

Gas Migration

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

2. What effect does gas migration have on a shut-in well? (Q-10083)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Running Casing While Taking Losses

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. What action do you take if the well starts taking losses while running casing or tubing? (Q-10055)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

2. Are you allowed to run casing or tubing if the well is taking losses? (Q-10536)

Attributes:

Business Unit: XXX; XXX; Rig
Type: Workover Rig;

3. Is there a limit to the loss rate before you stop running the casing or tubing? (Q-10535)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

4. How do you ensure the well will remain overbalanced? (Q-10029)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

5. What action should be taken if you run out of mud in this situation? (Q-10123)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Running tubing with external control lines.

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. Will the Stack seal around tubing with control lines? If not how do we secure the well? (Q-10678)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

2. How do you recognize if the well is secure after shutting in? (Q-10679)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

3. What do you do if preferred method to secure well fails? What is the last thing you close if all else fails? (Q-10680)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

4. Should control line pressures be monitored in the event of a well control situation? How? (Q-10681)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Shallow Shut-in (Pipe Light)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. How many joints of pipe need to be run before the risk of being in a pipe light condition is negligible? (Snub) (Q-11015)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Dual Gradient System or Riser Cap (Mud or Seawater/base oil) in Hole (WO)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Questions:

1. When using a mud cap, how do you determine if the volume of mud pumped will be enough to stop the well flow or address losses? How can you check to confirm your calculated height is correct? (WO) (Q-10942)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

2. How do you determine where to place the mud cap in the well? (WO) (Q-10943)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

3. While performing operations with a mud cap in the hole what is are positive indicator(s) of a kick? How do you measure displacement of pipe or wire? What is the correct action if the actual value is different from the calculated value. (WO) (Q-10945)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

4. Who has the responsibility of monitoring the volume of mud cap/sea water/baseoil is in the well? (WO) (Q-10946)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

5. How do you determine volume of light mud or sea water/baseoil in the hole and EMW at any point in the hole? How do you determine the depth/ bottom of the mud cap? (WO) (Q-10947)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

6. While pulling out of a hole with pipe or wire and a mud cap, what are positive indicator(s) of a kick? How do you measure fill up? What fluid do you fill the hole with? What is the correct action if the actual value is different from the calculated value? (WO) (Q-10948)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

7. What will we do to make sure accurate mud weight and mud volume is being pumped? (WO) (Q-10949)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

8. Why is it so important to keep an accurate track where the top & bottom of the cap is located in the Hole? (WO) (Q-10950)

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

BLEVE

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Questions:

1. What is a BLEVE? (Q-11097)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

2. How can you avoid a BLEVE? (Q-11098)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:

Business Unit: XXX; XXX;
Rig Type: Workover Rig;

Well Control Drill: Shut-in While Drilling or Milling/Circulating (WO)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
Reverse Operator
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. Without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float or transferring mud). (E-10951)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

2. Without notifying the driller ahead of time, simulate an increase in flow rate from the well using the agreed to technique (manually manipulating the flow indicator, using a dedicated “training” line, etc.). (E-10002)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

3. Have the driller informed that an influx has been taken. (E-10211)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (WO)

2. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

3. Record the time required for the rig team to complete the shut-in.

4. Record the time required to identify any increase in pit volume or flow rate (if an influx was simulated).

5. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

6. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

7. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

   Attributes:
   Business Unit: XXX;
   Rig Type: Workover Rig;

2. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while drilling? (Q-10073)

   Attributes:
   Business Unit: XXX;
   Rig Type: Workover Rig;

3. Which element of the stack should be closed when shutting in the well due to an influx while drilling? Why is this element used as opposed to another element on the stack? (Q-10110)

   Attributes:
   Business Unit: XXX;
   Rig Type: Workover Rig;

4. What is the distance from the rig floor to the uppermost set of pipe rams? (WO) (Q-10952)

   Attributes:
   Business Unit: XXX;
   Rig Type: Workover Rig;

5. How do you confirm the well has been shut-in? (Q-10027)

   Attributes:
   Business Unit: XXX;
   Rig Type: Workover Rig;

6. What is a hard shut-in. What is the primary objective of a hard shut in? (Q-10372)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

7. What are your specific responsibilities when executing the shut-in procedure while drilling, milling or circulating? (Q-10270)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

8. How should the well be monitored during shut-in and prior to executing the well kill procedure? How will you ensure the BOP element closed is not leaking? (Q-10042)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

9. What parameters should be recorded after shutting in on a well kick? (Q-10094)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

10. Where do you monitor the Shut-in Drill Pipe Pressure (SIDPP) and Shut-in Casing Pressure (SICP)? (Q-10108)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

11. What are the positive indicators of a kick? (Q-10072)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

12. What action should be taken in response to observation of a positive kick indicator? (Q-10063)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

13. What are the normal pressure readings for the following gauges on your rig's accumulator system: 1) rig air, 2) accumulator bank, 3) manifold and 4) annular? (Q-10373)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

14. What is the primary function of the weep holes on a ram type BOP? (Q-10384)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

15. How will BOP system performance be affected if the nitrogen pre-charge pressure is lost in an accumulator bottle? (Q-10374)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

16. Why is it important to monitor the Shut-in Drill Pipe Pressure (SIDPP) and Shut-in Casing Pressure (SICP)? (Q-10115)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Complications:

Well Continues To Flow

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Gas Migration

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

2. What effect does gas migration have on a shut-in well? (Q-10083)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

Well Control Drill: Shut-in While Logging (WO)

Drill Type: Team/Individual

Potential Participants:
Assistant/Relief Driller
Cementer
Derrickman/Shakerhand
Driller

DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
Relief Operator
Reverse Operator
Rig Operator
ROV Operator
Sub Sea Engineer
Toolpusher

Exercises:

1. In a pre-tour discussion or during a detailed JSA; discuss the upcoming operation including wireline tool components which are non-shearable/sealable, when they will be adjacent to the BOP. (WO) (E-10955)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

2. While logging and without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float,transferring mud). (WO) (E-10956)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

3. While logging, have the driller informed that an influx has been taken. (WO) (E-10957)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

4. While logging, inform the driller the hole is experiencing severe losses. (WO) (E-10958)

Attributes:

Business Unit: XXX;

Rig Type: Workover Rig;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. DO NOT allow the wireline line to be cut or damaged.

3. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

Assessment Guidance:

1. If the discussion was a table top drill, was the rig specific procedure and R&R's understood by all? Was the rig specific procedure reviewed to ensure compliance if required?

2. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

3. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

4. Record the time required for the rig team to complete the shut-in.

5. Record the time required for the rig team to identify any simulated increase in pit volume.

6. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

7. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

8. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? (WO)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is our primary well control barrier? What is our secondary well control barrier? (Q-10629)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

2. What specific procedures do you use to monitor the hole for signs of an influx while logging? (WO) (Q-10959)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

3. What are the proper steps and specific responsibilities for each member of the drilling crew when executing the shut-in procedures while logging? (Q-10074)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

4. Can your annular seal on wireline? Should we adjust the annular closing pressures to shut-in on wire? What is the recommended closing pressure for wireline operations? (Q-10117)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

5. Can your Blind Rams seal on wireline? (Q-10013)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

6. How would you cut the wireline if the driller directed you to do so? Is the cutter and clamp on the rig floor? (Q-10284)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

7. What are your specific responsibilities when executing the shut-in procedures while logging? (Q-10283)

Attributes:
Business Unit: XXX;
Rig Type: Workover Rig;

8. What parameters should be recorded after shutting in on a well kick? (Q-10094)

Attributes:
Business Unit: XXX; Rig
Type: Workover Rig;

Complications:

Well Continues to Flow (Logging)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

2. How will you know if the annular is leaking? What action should be taken if the annular is leaking after it is closed? (Q-10043)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Gas Migration

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

2. What effect does gas migration have on a shut-in well? (Q-10083)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Logging While Taking Lossess

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Questions:

1. Are you allowed to log the well if the well is taking losses? (Q-10010)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

2. How do you ensure the well will remain overbalanced? (Q-10029)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

3. Is there a limit to the loss rate before logging operations are suspended? (Q-10282)

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Skills Assessed:

Communications
Complication Execution
Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:

Business Unit: XXX;
Rig Type: Workover Rig;

Well Control Drill: Hole monitoring: Wash in work string. (Snub)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
Floorman/Motorman
Relief Operator
Reverse Operator
Rig Manager
Rig Operator

Exercises:

1. While drilling, inform driller that a loss in stand pipe pressure has occurred.(snub) (E-10960)

Attributes:

Business Unit: XXX; XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

Assessment Guidance:

1. Observe the driller. Were the driller’s reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

2. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? See posted procedure. (Snub)

3. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (Snub)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. How do we recognize a wash has taken place in the work string while milling. (Snub) (Q-10961)

Attributes:

Business Unit: XXX; XXX;

2. What is our primary well control barrier? What is our secondary well control barrier? (Snub) (Q-10962)

Attributes:

Business Unit: XXX; XXX;

3. How do you determine where in the work string the wash has taken place? (Snub) (Q-10963)

Attributes:

Business Unit: XXX; XXX;

4. What equipment should be checked at surface to ensure it is in fact a wash in the work string? (Snub) (Q-10964)

Attributes:

Business Unit: XXX; XXX;

5. How does a washout affect well control? (Snub) (Q-10965)

Attributes:

Business Unit: XXX; XXX;

6. What are your specific responsibilities when executing the shut-in procedure while tripping? (Snub) (Q-10969)

Attributes:

Business Unit: XXX; XXX;

Complications:

Observe pressure in tubing with pumps off. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What action should be taken if there is communication inside of tubing with the well? (Snub) (Q-10966)

Attributes:

Business Unit: XXX; XXX;

Loss of pump pressure but there is no inflow through the work string. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. Where would the potential wash be located?(Snub) (Q-10967)

Attributes:

Business Unit: XXX; XXX;

Hydraulic IBOP fails. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What would we close if the hydraulic IBOP fails on top drive and we have flow up the work string?(Snub) (Q-10968)

Attributes:

Business Unit: XXX; XXX;

Skills Assessed:

Communications
Complication Execution
Complication Knowledge

Procedural Execution
Procedural Knowledge
Supervision of Subordinates

Attributes:

Business Unit: XXX; XXX;

Well Control Drill: Hole Monitoring: BHA/Pipe twist off. (Snub)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
Floorman/Motorman
Relief Operator
Reverse Operator
Rig Manager
Rig Operator

Exercises:

1. While milling BHA/Pipe twist off, lost in hole. What actions should be taken? (Snub) (E-10979)

Attributes:

Business Unit: XXX; XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe. (Snub)

Assessment Guidance:

1. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (Snub)

2. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. How to recognize loss of pipe integrity while drilling?(Snub) (Q-10984)

Attributes:

Business Unit: XXX; XXX;

2. How do we recognize if twist off is at the bit or motor?(Snub) (Q-10985)

Attributes:

Business Unit: XXX; XXX;

3. What well control procedures would we use to secure the well?(Snub) (Q-10986)

Attributes:

Business Unit: XXX; XXX;

4. How would you determine if twist off occurred below the RN Nipple?(Snub) (Q-10987)

Attributes:

Business Unit: XXX; XXX;

5. What would the secondary well control point that we would run a slick line plug to?(Snub) (Q-10988)

Attributes:

Business Unit: XXX; XXX;

6. What are your specific responsibilities when executing the shut-in procedure while tripping?(Snub) (Q-10989)

Attributes:

Business Unit: XXX; XXX;

7. In what ways could a twist off affect well control?(Snub) (Q-10990)

Attributes:

Business Unit: XXX; XXX;

Complications:

Loss of pump pressure (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What should the driller do if there is a sudden loss of pump pressure? (Snub) (Q-10980)

Attributes:

Business Unit: XXX; XXX;

Change in torque and increase of RPM. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What are a few possible causes of a drastic decrease in torque and increase of RPM? (Snub) (Q-10981)

Attributes:

Business Unit: XXX; XXX;

Loss of string weight (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. How would we be able to determine the location of the twist off? (Snub) (Q-10982)

Attributes:

Business Unit: XXX; XXX;

Driller has flow up work string (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What steps must be taken if there is flow up the work string? (Snub) (Q-10983)

Attributes:

Business Unit: XXX; XXX;

Skills Assessed:

Communications
Complication Knowledge

Procedural Execution
Procedural Knowledge
Supervision of Subordinates

Attributes:

Business Unit: XXX; XXX;

Well Control Drill: Shut-In While Tripping (work string, production string, or tubing) (Snub)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Logger
Relief Operator
Reverse Operator
Rig Manager
Rig Operator
Toolpusher

Exercises:

1. While Tripping in hole with production tubing, the tubing begins to flow after a joint was lowered into the hole. (After the rupture disk was previously tested with a good negative test) (E-10991)

Attributes:

Business Unit: XXX; XXX;

2. While Tripping in hole with production tubing, we are past balance point and rupture the burst disc. We are unable to get a good negative test. (Snub) (E-11066)

Attributes:

Business Unit: XXX; XXX;

3. While tripping in 2 3/8'' production tubing with burst disc in BHA and pump through plug installed in the X Nipple. (Tubing begins to leak prior to bursting disc or pumping) (Snub) (E-11012)

Attributes:

Business Unit: XXX; XXX;

4. While tripping in the hole to the kill plug, the assistant driller notices the pipe displacement is not equal to the actual mud displacement in the trip tank. What actions should be taken? (Snub) (E-11019)

Attributes:

Business Unit: XXX; XXX;

5. While tripping in the hole with production tubing the driller notices a leak on the BOP what actions should be taken? (Snub) (E-11079)

Attributes:

Business Unit: XXX; XXX;

6. While stripping in hole with flex packers, BOP elements begin to leak.(Snub) (E-11083)

Attributes:

Business Unit: XXX; XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. Be prepared to prevent closing the BOP if it is not desired or safe. (Snub)

Assessment Guidance:

1. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

2. Observe the driller. Was the driller's reaction appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

4. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (Snub)

5. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective? (Snub)

6. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? See posted procedure. (Snub)

7. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

8. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What are each crew members specific responsibilities when executing the shut-in procedure while tripping? (Q-10290)

   Attributes:
   Business Unit: XXX; XXX;

2. (Snub) What is the primary means of well control? (Q-10995)

   Attributes:
   Business Unit: XXX; XXX;

3. (Snub) How can it be verified that the IBOP is closed and holding pressure? (Q-10997)

   Attributes:
   Business Unit: XXX; XXX;

4. (Snub) How can it be verified that the rams are fully closed? (Q-10998)

   Attributes:
   Business Unit: XXX; XXX;

5. (Snub) What BOP element should be closed in a well control situation? Why? (Q-10999)

   Attributes:
   Business Unit: XXX; XXX;

6. (Snub) When is the TIW used? Why? (Q-11000)

   Attributes:
   Business Unit: XXX; XXX;

7. (Snub) How many turns are required to fully engage manual ram locks? (Q-11001)

Attributes:
Business Unit: XXX; XXX;

8. (Snub) Other than the drillers cabin, where else can you operate the BOP rams? (Q-11002)

Attributes:
Business Unit: XXX; XXX;

9. (Snub) Which rams must be closed if rig power is lost? Why? (Q-11003)

Attributes:
Business Unit: XXX; XXX;

10. What actions must be taken prior to R/U Slickline? (Q-11071)

Attributes:
Business Unit: XXX; XXX;

11. (Snub) What is the minimum ID required for all iron M/U to the Top Drive when R/U with Slickline lubricator? Why? (Q-11072)

Attributes:
Business Unit: XXX; XXX;

12. (Snub) How is the well secured to prevent gas/fluids escaping from the tubing/work string? (Q-11006)

Attributes:
Business Unit: XXX; XXX;

13. (Snub) What is the role of each crew member during this drill? (Q-11007)

Attributes:
Business Unit: XXX; XXX;

14. Apart from the driller's cabin, where else can you operate the BOP rams? (Q-11009)

Attributes:
Business Unit: XXX; XXX;

15. (Snub) What is the procedure to TOOH? (Q-11010)

Attributes:
Business Unit: XXX; XXX;

16. If tripping operations are interrupted (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Q-10049)

Attributes:
Business Unit: XXX; XXX;

17. Why do we monitor displacement while tripping in the hole to the kill plug? (Snub) (Q-11023)

Attributes:
Business Unit: XXX; XXX;

18. (Snub) If the well starts to flow Which BOP Element do we close? can we continue in the well stripping then drill the kill plug? (Q-11026)

Attributes:
Business Unit: XXX; XXX;

19. What action should be taken if there is a discrepancy between the anticipated volume of mud displaced from the hole and the actual volume observed when tripping in the hole? (Q-10067)

Attributes:
Business Unit: XXX; XXX;

20. What is the displacement volume of the pipe currently being tripped and is this value based upon open ended or closed pipe? (Q-10090)

Attributes:
Business Unit: XXX; XXX;

21. What BOP elements can be closed next if the annular does not hold pressure? Can we strip in and drill ahead? (Snub) (Q-11027)

Attributes:

Business Unit: XXX; XXX;

22. What is the recommended range of annular pressure for the tubing in hole? (Snub) (Q-11081)

Attributes:

Business Unit: XXX; XXX;

23. How can changes in well head pressure affect Annular sealing? (Snub) (Q-11082)

Attributes:

Business Unit: XXX; XXX;

24. (Snub) Who is responsible for monitoring the trip tank? (Q-11020)

Attributes:

Business Unit: XXX; XXX;

25. (Snub) What should be the first thing done if a discrepancy in the trip sheet was found? (Q-11021)

Attributes:

Business Unit: XXX; XXX;

26. (Snub) What could be possible causes of discrepancies in the trip sheet? (Q-11022)

Attributes:

Business Unit: XXX; XXX;

Complications:

Snub: Hydraulic IBOP failed to close

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What would be the next valve you would close? (Snub) (Q-11014)

Attributes:

Business Unit: XXX; XXX;

2. What will be the next valve that will be closed and still be able to monitor hole conditions? (Snub) (Q-11068)

Attributes:

Business Unit: XXX; XXX;

You just picked up a joint and you notice flow. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. Would you stab into joint in the air or bring joint down to floor level first to make the connection? (Snub) (Q-10993)

Attributes:

Business Unit: XXX; XXX;

Pumping through tubing to clear the float does not stop the flow. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What would be the next action we would take to secure the well? (Snub) (Q-10994)

Attributes:

Business Unit: XXX; XXX;

Snub: Top drive is not made up to work string.

Attributes:

Business Unit: XXX; XXX;

Questions:

1. If burst disc and pump through plug are leaking and there is an unwanted release is escaping from connection on elevator, can you stab FOSV? (Snub) (Q-11013)

Attributes:

Business Unit: XXX; XXX;

After running in with slick line to retrieve and set new pump through plug.

Attributes:

Business Unit: XXX; XXX;

Questions:

1. Would you continue running in hole or trip out to change out BHA? (Snub) (Q-11016)

Attributes:

Business Unit: XXX; XXX;

BOP element. malfunction (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What element would you close if the primary BOP was not functioning? (Snub) (Q-11058)

Attributes:

Business Unit: XXX; XXX;

Pump through plug failed. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What is our plan of action going to be?(Snub) (Q-11067)

Attributes:

Business Unit: XXX; XXX;

Potential Issues with Non Shearables across the BOP. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What do you do if non shearables are across the stack? (Snub) (Q-11080)

Attributes:

Business Unit: XXX; XXX;

Flex packer leaking. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What do you do if flex packer continues leaking after adjusting annular pressure higher? (Snub) (Q-11084)

Attributes:

Business Unit: XXX; XXX;

Skills Assessed:

Communications

Complication Knowledge
Positive Kick Indicators
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:

Business Unit: XXX; XXX;

Well Control Drill: Shut-In While Drilling, Milling or Circulating (Snub)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
Floorman/Motorman
Relief Operator
Reverse Operator
Rig Manager
Rig Operator

Exercises:

1. (Snub) During a tubing connection while milling; the flapper valves give way while a joint is in in the elevators. (E-11004)

Attributes:

Business Unit: XXX; XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe. (Snub)

Assessment Guidance:

1. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

2. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? See posted procedure. (Snub)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. (Snub) How can it be verified that the IBOP is closed and holding pressure? (Q-10997)

Attributes:

Business Unit: XXX; XXX;

2. (Snub) How many turns are required to fully engage manual ram locks? (Q-11001)

Attributes:

Business Unit: XXX; XXX;

3. (Snub) Which rams must be closed if rig power is lost? Why? (Q-11003)

Attributes:

Business Unit: XXX; XXX;

4. (Snub) How is the well secured to prevent gas/fluids escaping from the tubing/work string? (Q-11006)

Attributes:

Business Unit: XXX; XXX;

5. (Snub) What is the role of each crew member during this drill? (Q-11007)

Attributes:

Business Unit: XXX; XXX;

6. (Snub) What is the primary means of well control? (Q-10995)

Attributes:

Business Unit: XXX; XXX;

7. (Snub) How can it be verified that the rams are fully closed? (Q-10998)

Attributes:

Business Unit: XXX; XXX;

8. (Snub) Which rams should be closed in a well control situation? Why? (Q-11008)

Attributes:

Business Unit: XXX; XXX;

9. Apart from the driller's cabin, where else can you operate the BOP rams? (Q-11009)

Attributes:

Business Unit: XXX; XXX;

10. (Snub) What is the procedure to TOOH? (Q-11010)

Attributes:

Business Unit: XXX; XXX;

Complications:

Snub: Hydraulic IBOP failed to close

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What would be the next valve you would close? (Snub) (Q-11014)

Attributes:

Business Unit: XXX; XXX;

2. What will be the next valve that will be closed and still be able to monitor hole conditions? (Snub) (Q-11068)

Attributes:

Business Unit: XXX; XXX;

Snub: Top drive is not made up to work string.

Attributes:

Business Unit: XXX; XXX;

Questions:

1. If burst disc and pump through plug are leaking and there is an unwanted release is escaping from connection on elevator, can you stab FOSV? (Snub) (Q-11013)

Attributes:

Business Unit: XXX; XXX;

Skills Assessed:

Communications
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates

Attributes:

Business Unit: XXX; XXX;

Well Control Drill: Shut-In While Milling (Snub)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
Floorman/Motorman
Relief Operator
Reverse Operator
Rig Manager
Rig Operator

Exercises:

1. While milling frac plugs driller radios and says he believes the choke or bit is plugging off. What actions should be taken? (Snub) (E-11028)

Attributes:

Business Unit: XXX; XXX;

2. While milling frac plugs FMC radios to the driller and says they have damage to surface equipment due to proppant. (E-11044)

Attributes:

Business Unit: XXX; XXX;

3. While milling frac plugs FMC radios that the junk catcher or iron to junk catcher has plugged off. (Snub) (E-11052)

Attributes:

Business Unit: XXX; XXX;

4. While milling the annular begins to leak from around the element. (Snub) (E-11056)

Attributes:

Business Unit: XXX; XXX;

5. While milling frac plugs FMC radios to the driller and says they believe they have a washed choke. (Snub) (E-11063)

Attributes:

Business Unit: XXX; XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe. (Snub)

Assessment Guidance:

1. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective? (Snub)

2. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (Snub)

3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? See posted procedure. (Snub)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. How would we secure the well and prevent gas/fluids escaping from the well bore? (Snub) (Q-11032)

   Attributes:
   Business Unit: XXX; XXX;

2. (Snub) What is the role of each crew member during this drill? (Q-11007)

   Attributes:
   Business Unit: XXX; XXX;

3. (Snub) What is the primary means of well control? (Q-10995)

   Attributes:
   Business Unit: XXX; XXX;

4. What steps would FMC take to ensure we did not over pressure the well bore? (Snub) (Q-11033)

   Attributes:
   Business Unit: XXX; XXX;

5. What will be the steps taken to swap chokes to be able to resume normal operations? (Snub) (Q-11034)

   Attributes:
   Business Unit: XXX; XXX;

6. What are your specific responsibilities when executing the shut-in procedure while drilling? (Snub) (Q-11035)

   Attributes:
   Business Unit: XXX; XXX;

7. If drilling operations are interrupted (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Snub) (Q-11036)

   Attributes:
   Business Unit: XXX; XXX;

8. Who operates the pump and who operates the choke? (Snub) (Q-11037)

   Attributes:
   Business Unit: XXX; XXX;

9. How does the choke operator communicate with the pump operator? (Snub) (Q-11038)

   Attributes:
   Business Unit: XXX; XXX;

10. How does choke plugging effect well head flowing pressure? (Snub) (Q-11039)

    Attributes:
    Business Unit: XXX; XXX;

11. How does choke plugging effect stand pipe pressure? (Snub) (Q-11040)

    Attributes:

Business Unit: XXX; XXX;

12. How does choke plugging effect milling parameters (DiffP, SPP, WOB)? (Snub) (Q-11041)

Attributes:

Business Unit: XXX; XXX;

13. How does choke plugging effect surface fluid volume (PVT)? (Snub) (Q-11042)

Attributes:

Business Unit: XXX; XXX;

14. What is the preventative maintenance schedule for flow backs iron to mitigate this from happening? (Snub) (Q-11045)

Attributes:

Business Unit: XXX; XXX;

15. How does a washout on surface irons upstream of the choke out effect well control? (Snub) (Q-11046)

Attributes:

Business Unit: XXX; XXX;

16. How does a washout on surface irons downstream of the choke out effect well control? (Snub) (Q-11047)

Attributes:

Business Unit: XXX; XXX;

17. What is the buffer zone distance around pressured surface irons? (Snub) (Q-11048)

Attributes:

Business Unit: XXX; XXX;

18. How does a washout upstream of the choke effect milling parameters? (Snub) (Q-11049)

Attributes:

Business Unit: XXX; XXX;

19. How does a washout downstream of the choke effect milling parameters? (Snub) (Q-11050)

Attributes:

Business Unit: XXX; XXX;

20. How does the washout effect surface fluid volumes (PVT)? (Snub) (Q-11051)

Attributes:

Business Unit: XXX; XXX;

21. (Snub) How would the well be shut in and secured if the junk catcher was plugged? (Q-11054)

Attributes:

Business Unit: XXX; XXX;

22. What are some of the hazards associated with a packing off the junk catcher? (Snub) (Q-11055)

Attributes:

Business Unit: XXX; XXX;

23. If milling operations are interrupted (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Snub) (Q-11059)

Attributes:

Business Unit: XXX; XXX;

24. What is the max pressure the annular can be set to? (Snub) (Q-11060)

Attributes:

Business Unit: XXX; XXX;

25. What is the max pressure rating for the annular? (Snub) (Q-11061)

Attributes:

Business Unit: XXX; XXX;

26. What other options do we have if the annular fails? (Snub) (Q-11062)

Attributes:

Business Unit: XXX; XXX;

27. How are bathroom and/or meal breaks handled? (Snub) (Q-11064)

Attributes:

Business Unit: XXX; XXX;

28. Who operates the choke during normal operations? (Snub) (Q-11065)

Attributes:

Business Unit: XXX; XXX;

Complications:

Plugged choke. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What is a possible cause of this and what can we do to mitigate the possibility of reoccurrence? (Snub) (Q-11029)

Attributes:

Business Unit: XXX; XXX;

Plugged Bit. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What actions should be taken? (Snub) (Q-11030)

Attributes:

Business Unit: XXX; XXX;

Plugged choke or bit. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What is the consequence or not recognizing or reacting? (Snub) (Q-11031)

Attributes:

Business Unit: XXX; XXX;

Washout in flow backs iron. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What is a possible cause of this and what can we do to mitigate the possibility of reoccurrence? (Snub) (Q-11029)

Attributes:

Business Unit: XXX; XXX;

2. What would be some signs that a washout was occurring? (Snub) (Q-11043)

Attributes:

Business Unit: XXX; XXX;

Junk catcher/ flow line is packed off. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What safe guards/ back-ups do we have in place if junk catcher is packed off? (Snub (Q-11053)

Attributes:

Business Unit: XXX; XXX;

Annular leaking. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What do you do if annular continues leaking after adjusting annular pressure higher? (Snub) (Q-11057)

Attributes:

Business Unit: XXX; XXX;

BOP element. malfunction (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What element would you close if the primary BOP was not functioning? (Snub) (Q-11058)

Attributes:

Business Unit: XXX; XXX;

Choke washed. (Snub)

Attributes:

Business Unit: XXX; XXX;

Questions:

1. What is a possible cause of this and what can we do to mitigate the possibility of reoccurrence? (Snub) (Q-11029)

Attributes:

Business Unit: XXX; XXX;

2. What would be some signs that a washout was occurring? (Snub) (Q-11043)

Attributes:

Business Unit: XXX; XXX;

3. What actions should be taken? (Snub) (Q-11030)

Attributes:

Business Unit: XXX; XXX;

4. What is the consequence or not recognizing or reacting? (Snub) (Q-11031)

Attributes:

Business Unit: XXX; XXX;

Skills Assessed:

Communications
Complication Knowledge
Possible Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates

Attributes:

Business Unit: XXX; XXX;

Well Control Drill: Shut-In While Milling/Tripping (Snub)

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
Floorman/Motorman
Relief Operator
Reverse Operator
Rig Manager
Rig Operator

Exercises:

1. While milling frac plugs motor hand notices damage to a BOP hydraulic control line and is leaking. (Snub) (E-11073)

Attributes:

Business Unit: XXX; XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe. (Snub)

Assessment Guidance:

1. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (Snub)

2. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective? (Snub)

3. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? See posted procedure. (Snub)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. How would we secure the well and prevent gas/fluids escaping from the well bore? (Snub) (Q-11032)

Attributes:

Business Unit: XXX; XXX;

2. (Snub) What is the role of each crew member during this drill? (Q-11007)

Attributes:

Business Unit: XXX; XXX;

3. (Snub) What is the primary means of well control? (Q-10995)

Attributes:

Business Unit: XXX; XXX;

4. What are your specific responsibilities when executing the shut-in procedure while tripping?(Snub) (Q-10989)

Attributes:

Business Unit: XXX; XXX;

5. If drilling operations are interrupted (for example due to mechanical issues), how should the well be secured and monitored during this time frame? (Snub) (Q-11036)

Attributes:
Business Unit: XXX; XXX;

6. What are some of the hazards associated with a leaking BOP hydraulic line? (Snub) (Q-11075)

Attributes:
Business Unit: XXX; XXX;

7. How can you isolate the leaking lines at the accumulator prior to repairs? (Snub) (Q-11076)

Attributes:
Business Unit: XXX; XXX;

8. How much spare volume of hydraulic fluid is on location? (Snub) (Q-11077)

Attributes:
Business Unit: XXX; XXX;

9. Can we continue milling if the leaking line is not that of the Annular? (Snub) (Q-11078)

Attributes:
Business Unit: XXX; XXX;

Complications:

Lost all of the hydraulic oil from the koomy. (Snub)

Attributes:
Business Unit: XXX; XXX;

Questions:

1. What safe guards/ back-ups do we have in place if all the hydraulic oil was lost? (Snub) (Q-11074)

Attributes:
Business Unit: XXX; XXX;

Skills Assessed:

Communications
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates

Attributes:
Business Unit: XXX; XXX;

Well Control Drill: Hole Monitoring while Milling or Circulating (Snub)
Drill Type: Team/Individual
Potential Participants:
Assistant/Relief Driller
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
Floorman/Motorman
Relief Operator
Reverse Operator
Rig Manager
Rig Operator

Exercises:

1. What action should be taken if a H2S monitor goes off near the return tanks? (E-11085)

   Attributes:

   Business Unit: XXX; XXX;

2. What action should be taken if a LEL monitor goes off near the return tanks indicating gas is at surface? (Snub) (E-11089)

   Attributes:

   Business Unit: XXX; XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe. (Snub)

Assessment Guidance:

1. Observe the driller. Were the driller's reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective? (Snub)

2. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? See posted procedure. (Snub)

3. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed? (Snub)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. How would we secure the well and prevent gas/fluids escaping from the well bore? (Snub) (Q-11032)

   Attributes:

   Business Unit: XXX; XXX;

2. (Snub) What is the role of each crew member during this drill? (Q-11007)

   Attributes:

   Business Unit: XXX; XXX;

3. (Snub) What is the primary means of well control? (Q-10995)

   Attributes:

   Business Unit: XXX; XXX;

4. What are your specific responsibilities when executing the shut-in procedure while drilling? (Snub) (Q-11035)

   Attributes:

   Business Unit: XXX; XXX;

5. What are some of the hazards associated with sour gas? (Snub) (Q-11087)

   Attributes:

   Business Unit: XXX; XXX;

6. Where is the primary and secondary muster location in an H2S event? (Snub) (Q-11088)

   Attributes:

   Business Unit: XXX; XXX;

7. What are some of the hazards associated with gas at surface? (Snub) (Q-11091)

   Attributes:

   Business Unit: XXX; XXX;

8. What is the primary function of the weep holes on a ram type BOP? (Snub) (Q-11092)

Attributes:
Business Unit: XXX; XXX;

Complications:

Junk catcher is packed off. (Snub)

Attributes:
Business Unit: XXX; XXX;

Questions:

1. What safe guards/ back-ups do we have in place if junk catcher is packed off? (Snub) (Q-11086)

Attributes:
Business Unit: XXX; XXX;

2. Well continues to flow. (Snub) (Q-11090)

Attributes:
Business Unit: XXX; XXX;

Skills Assessed:

Communications
Complication Knowledge
Procedural Execution
Procedural Knowledge
Supervision of Subordinates

Attributes:
Business Unit: XXX; XXX;

Well Control Drill: Rigless Intervention - Wireline
Drill Type: -

Exercises:

1. Wireline intervention with no rig on location (E-11133)

Attributes:
Business Unit: Rig Type: Rigless;

Complications:

Total Loss of Power

Attributes:
Business Unit: Rig Type: Rigless;

Attributes:
Business Unit: Rig Type: Rigless;

Well Control Drill: Rigless Intervention - Pressure Pumping
Drill Type: -

Exercises:

1. Well Control event during Pumping operation (E-11134)

Attributes:
Business Unit: Rig Type: Rigless;

Attributes:
Business Unit: Rig Type: Rigless;

Well Control Drill: Rigless Intervention - Coil Tubing

Drill Type: -

Exercises:

1. Coil Tubing Drilling/Milling or Circulating (E-11135)
   Attributes:
   Business Unit: Rig Type: Rigless;
2. Coil Tubing Triping (E-11136)
   Attributes:
   Business Unit: Rig Type: Rigless;

Complications:

Loss of Power
Attributes:
Business Unit: Rig Type: Rigless;

Attributes:
Business Unit: Rig Type: Rigless;

Well Control Drill: Consolidated: Shut-in While Drilling Milling Or Circulating

Drill Type: Team/Individual

Potential Participants:

Assistant/Relief Driller
Derrickman/Shakerhand
Driller
DSM/WSM
DSM/WSM Advisor
Equipment Operator (Specialized Equipment)
FDE
Floorman/Motorman
Mud Engineer
Mud Logger
OIM
Relief Operator
Reverse Operator
Rig Manager
Rig Operator
ROV Operator

Sub Sea Engineer
Toolpusher

Exercises:

1. Without notifying the driller ahead of time, simulate an increase in pit volume using the agreed to technique (manually raising pit level float, draining mud from degasser, transferring mud from slugging pit, etc.). (E-10001)

Attributes:

Business Unit: XXX;

2. Without notifying the driller ahead of time, simulate an increase in flow rate from the well using the agreed to technique (manually manipulating the flow indicator, using a dedicated “training” line, etc.). (E-10002)

Attributes:

Business Unit: XXX;

3. Without notification to the Driller, have the cementer pump mud to the Stripping Tank. Then have the Subsea Team bleed the Stripping Tank into the Trip Tank (Subsea (E-11114)

Attributes:

Business Unit: Rig Type: Over Water Subsea Stack;

4. Without notification to the Driller, line up and have the cementer pump mud to the trip tank (E-11113)

Attributes:

Business Unit: XXX;

Rig Type: Land Rig; Over Water Subsea Stack; Over Water Surface Stack;

5. Have the driller informed that an influx has been taken. (E-10211)

Attributes:

Business Unit: XXX;

6. Individual Assessment Relevant Equipment (E-11137)

Attributes:

Business Unit: XXX;

7. (Snub) During a tubing connection while milling; the flapper valves give way while a joint is in in the elevators. (E-11004)

Attributes:

Business Unit: XXX;

Regular Caution Guidance:

1. Be prepared to prevent closing the BOP if it is not desired or safe.

2. If a BOP element is closed during the drill, ensure the element is opened prior to resuming operations.

3. Be prepared to prevent closing the BOP if it is not desired or safe. (Snub)

Assessment Guidance:

1. Record the time required to identify any increase in pit volume or flow rate (if an influx was simulated).

2. Record the time required for the rig team to complete the shut-in.

3. Observe rig crew. Was the crew able to execute their assigned responsibilities? Was communication between crew members effective? Were any special instructions from the driller followed?

4. Observe the driller. Were the driller’s reaction and the direction provided to the crew members appropriate? Were the driller's communications with other personnel on the rig appropriate and effective?

5. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition?

6. Did The Individual understand the purpose, functioning, maintenance, calibration of the chosen equipment or the process / procedure discussed?

7. Was the rig specific procedure followed and reinforced? Was the rig specific procedure reviewed to ensure compliance once the well/rig was established in a safe or static condition? See posted procedure. (Snub)

Questions: Select from the following (direct appropriate questions to specific individuals to encourage full team participation) -

1. What is the primary well control barrier? Secondary? (Q-10750)

Attributes:
Business Unit: XXX;

2. What are the specific responsibilities for each member of the drilling crew when executing the shut-in procedures while drilling? (Q-10073)

Attributes:
Business Unit: XXX;

3. Which element of the stack should be closed when shutting in the well due to an influx while drilling, what about tripping or logging? In each case how do you confirm the well has been shut-in? (Q-10737)

Attributes:
Business Unit: XXX;

4. How do you confirm the well has been shut-in? (Q-10027)

Attributes:
Business Unit: XXX;

5. What is a hard shut-in. What is the primary objective of a hard shut in? (Q-10372)

Attributes:
Business Unit: XXX;

6. What are your specific responsibilities when executing the shut-in procedure while drilling, milling or circulating? (Q-10270)

Attributes:
Business Unit: XXX;

7. What action should you take if an increase in pit volume or flow rate from the well is reported by the mud logger and you have not noticed the same on your monitoring equipment. (Q-10269)

Attributes:
Business Unit: XXX;

8. What is the distance from the rotary table to the uppermost set of pipe rams? (Q-10092)

Attributes:
Business Unit: XXX;

9. How should the well be monitored during shut-in and prior to executing the well kill procedure? How will you ensure the BOP element closed is not leaking? (Q-10042)

Attributes:
Business Unit: XXX;

10. What parameters should be recorded after shutting in on a well kick? (Q-10094)

Attributes:
Business Unit: XXX;

11. Where do you monitor the Shut-in Drill Pipe Pressure (SIDPP) and Shut-in Casing Pressure (SICP)? (Q-10108)

Attributes:

Business Unit: XXX;

12. Why is it important to monitor the Shut-in Drill Pipe Pressure (SIDPP) and Shut-in Casing Pressure (SICP)? (Q-10115)

Attributes:

Business Unit: XXX;

13. Should the pipe be moved if the well is shut-in for an extended period of time prior to commencing well kill operations? If so, how? (Q-10052)

Attributes:

Business Unit: XXX;

14. What are the positive indicators of a kick? (Q-10072)

Attributes:

Business Unit: XXX;

15. What action should be taken in response to observation of a positive kick indicator? (Q-10063)

Attributes:

Business Unit: XXX;

16. What are the normal pressure readings for the following gauges on your rig's accumulator system: 1) rig air, 2) accumulator bank, 3) manifold and 4) annular? (Q-10373)

Attributes:

Business Unit: XXX;

17. What is the primary function of the weep holes on a ram type BOP? (Q-10384)

Attributes:

Business Unit: XXX;

18. How will BOP system performance be affected if the nitrogen pre-charge pressure is lost in an accumulator bottle? (Q-10374)

Attributes:

Business Unit: XXX;

19. Discuss the chosen components of the relevant equipment:
- Purpose and importance
- How it functions
- How it is maintained and calibrated
- Who must be notified if a fault is suspected or identified. (Q-11147)

Attributes:

Business Unit: XXX;

20. (Snub) How can it be verified that the IBOP is closed and holding pressure? (Q-10997)

Attributes:

Business Unit: XXX;

21. (Snub) How many turns are required to fully engage manual ram locks? (Q-11001)

Attributes:

Business Unit: XXX;

22. (Snub) Which rams must be closed if rig power is lost? Why? (Q-11003)

Attributes:

Business Unit: XXX;

23. (Snub) How would the well be shut in and secured if the junk catcher was plugged? (Q-11054)

Attributes:

Business Unit: XXX;

24. (Snub) What is the role of each crew member during this drill? (Q-11007)

Attributes:
Business Unit: XXX;

25. (Snub) What is the primary means of well control? (Q-10995)

Attributes:
Business Unit: XXX;

26. (Snub) How can it be verified that the rams are fully closed? (Q-10998)

Attributes:
Business Unit: XXX;

27. (Snub) Other than the drillers cabin, where else can you operate the BOP rams? (Q-11002)

Attributes:
Business Unit: XXX;

28. (Snub) Which rams should be closed in a well control situation? Why? (Q-11008)

Attributes:
Business Unit: XXX;

29. (Snub) What is the procedure to TOOH? (Q-11010)

Attributes:
Business Unit: XXX;

Complications:

Well Continues To Flow

Attributes:
Business Unit: XXX;

Questions:

1. What action should you take if the well continues to flow after the BOP is initially closed? (Q-10065)

Attributes:
Business Unit: XXX;

Gas Migration

Attributes:
Business Unit: XXX;

Questions:

1. How can you identify gas migration? What should you do if you determine gas is migrating while the well is shut-in? (Q-10026)

Attributes:
Business Unit: XXX;

2. What effect does gas migration have on a shut-in well? (Q-10083)

Attributes:
Business Unit: XXX;

Gas In the Riser

Attributes:
Business Unit: Rig Type: Over Water Subsea Stack;

Questions:

1. How will you know if there is gas in the riser after shut-in? (Q-10276)

Attributes:
Business Unit: Rig Type: Over Water Subsea Stack;

2. What action should be taken if there is gas in the riser after the well is shut-in? (Q-10279)

Attributes:

Business Unit: Rig Type: Over Water Subsea Stack;

Snub: Hydraulic IBOP failed to close

Attributes:

Business Unit: XXX;

Questions:

1. What would be the next valve you would close? (Snub) (Q-11014)

Attributes:

Business Unit: XXX;

2. What will be the next valve that will be closed and still be able to monitor hole conditions? (Snub) (Q-11068)

Attributes:

Business Unit: XXX;

Snub: Top drive is not made up to work string.

Attributes:

Business Unit: XXX;

Questions:

1. If burst disc and pump through plug are leaking and there is an unwanted release is escaping from connection on elevator, can you stab FOSV? (Snub) (Q-11013)

Attributes:

Business Unit: XXX;

Skills Assessed:

Communications
Complication Knowledge
Positive Kick Indicators
Procedural Execution
Procedural Knowledge
Supervision of Subordinates
Well Control Theory

Attributes:

Business Unit: XXX;
