

IWCF Equipment Sample Questions (Surface Stack)

1. During a well control operation 4000 psi was shut in below the middle pipe rams.

Ram type BOP data:

Model: Cameron U type

Rated Working Pressure: 15000 psi

Nominal Size: 7-1/16 inch

Closing Ratio: 6.9

Opening Ratio: 2.2

It is decided to strip the tool joint through the middle pipe rams.

What is the Driller's next step?

- ✓ Initially close the upper pipe rams above the tool joint. Then pump in 4000 psi pressure between the middle pipe rams and the upper rams. Then open the middle pipe ram.

2. Which one of the following rams will be replaced before running casing?

- ✓ A. Upper pipe rams.
- B. Shear/Blind rams in the intermediate position.
- C. Lower pipe rams

3. During a routine test it is noticed that the weep hole (drain hole/vent hole) on one of the blowout preventer bonnets is leaking fluid.

What action should be taken?

- ✓ A primary seal is leaking. Immediately secure the well and renew the seal.

4. What pressure is required to close the shear/blind ram BOP, and shear 5 in drill pipe?

- ✓ 3000 psi

5. Which of the following statements about annular BOPs are correct?

- ✓ A. They will allow reciprocating or rotating of the drill string while maintaining a seal against well bore pressure.
- ✓ B. They can require a variable hydraulic closing pressure according to the test to be carried out.
- C. They will not allow tool joints to pass through

- D. They will seal around any object in the well bore
- E. They will not seal on a square or hexagonal Kelly
- ✓ F. They are a means of secondary well control

6. What is the normal or standard closing pressure of a hydraulic valve on the choke line installed on a 10000 psi surface BOP stack?

- ✓ 1500 psi

7. There is only one inside BOP with an NC50 (4-1/2 inch IF) pin/box connection on the rig. The drill string consists of:

5 inch drill pipe (NC50).

5 inch Heavy wall drill pipe (NC50).

8 inch drill collars (6-5/8 Reg.).

9-1/2 inch drill collars (7-5/8 Reg.).

Which of the following crossovers must be on the rig floor while tripping?

- A. NC50 (4-1/2 inch IF) pin × 7-5/8 inch Reg. box.
- B. 6-5/8 inch Reg. pin × 7-5/8 inch Reg. pin.
- ✓ C. NC50 (4-1/2 inch IF) box × 6-5/8 inch Reg. pin.
- D. NC50 (4-1/2 inch IF) pin × 6-5/8 inch Reg. box.
- ✓ E. NC50 (4-1/2 inch IF) box × 7-5/8 inch Reg. pin.

8. While pulling out of a well a kick is taken. The Hydril 'drop in back pressure valve' is dropped and pumped down and the well shut in.

After a while it is observed that the pressure on the drill pipe gauge continues to increase. Which of the following are the causes of this pressure increase?

- ✓ A. The special ring to stop the 'drop in back-pressure valve' has not been inserted.
- B. There is an obstruction in the annulus.
- ✓ C. The special 'seat' has not been inserted in the drill string.
- D. The stabilizers are balled up.

9. The upper Kelly valve is installed to isolate the surface installation from well pressure. When should this valve be closed?

- A. Only when the swivel packing is being replaced.
- ✓ B. In well control situations when the surface pressures may exceed the rated working pressure of the rotary Kelly hose and the standpipe manifold.
- C. Always when the rotary Kelly hose is being replaced.
- D. When connections are made, to save the spilling of drilling fluid.

10. In which of the following situations is it an advantage to use a float valve in the drill string?

- A. To allow reverse circulation.
- B. To reduce surge pressure.
- ✓ C. To avoid back-flow while tripping or during a connections.
- D. To read the drill pipe pressure following a well kick.

11. Which one of the following is a good practice in relation to diverter systems?

- ✓ A. If a rig can only have one vent line then that line should discharge down-wind of the rig
- B. Full-bore rubber hoses are acceptable on vent line bends
- C. As vent lines are not designed to take high pressures they can have bends when needed.

12. How often should all operational components of the surface BOP stack equipment systems be function tested according to API RP53?

- A. Only after installation of the BOP stack.
- ✓ B. At least once a week.
- C. Once per shift.

13. When testing the BOP stack with a test plug or cup type tester, why is pressure communication maintained from below the tool to atmosphere?

- A. Otherwise reverse circulation will be needed to release the tool.
- ✓ B. To avoid potential damage to the casing/open hole.
- C. To avoid the creation of extreme hook load.
- D. To avoid swabbing a kick during the test.

14. The body of a new BOP is subjected to hydrostatic body or shell proof test prior to shipment from the manufacturing plant.

If a BOP has a rated working pressure of 15000 psi and a through bore of 13-5/8 inch, what hydrostatic body or shell proof test pressure is required according to API RP 16 A?

- A. 15000
- ✓ B. 22500
- C. 20000
- D. 17500
- E. 25000

15. According to API RP53, the components that could be exposed to well pressure should be tested on location. The first test is called the 'initial high-pressure test'. The following tests are called 'subsequent tests'.

To which pressure should the lower Kelly cock, upper Kelly cock, drill pipe safety valves and inside BOP be tested at the subsequent tests?

- A. Always use a pressure equal to 10000 psi
 - B. Twice the rated working pressure of the tool used (up to 5000 psi)
 - ✓ C. Test to a pressure at least equal to the maximum anticipated surface pressure, but limited to the maximum rated working pressure of the BOP stack in use.
 - D. One and a half times the rated working pressure of the tool used
16. What is the maximum recommended closing time for a 13-5/8 inch annular surface BOP according to API RP 16 E?
- A. 45 seconds
 - ✓ B. 30 seconds
 - C. 2 minutes
17. What is the corrected description of a hydraulic pressure regulator on the hydraulic BOP control unit manifold?
- A. A device that automatically converts hydraulic pressure signals into electric signals or into pneumatic pressure signals
 - B. A device that is built into a hydraulic or pneumatic system to relieve any excess pressure
 - ✓ C. A hydraulic device that reduces upstream supply pressure to a desired (regulated) pressure.
 - D. A hydraulic device that maintains supply pressure at a desired (regulated) pressure.
18. What is the first action that should be taken after connecting the OPEN and CLOSE hydraulic lines to the stack?
- A. Drain the accumulator bottles and check the pre-charge pressure
 - B. Record slow circulating rate pressure
 - ✓ C. Function test all items on the stack
 - D. Place all functions to neutral position and charge up hoses
19. In a well control situation the annular BOP was leaking badly. Therefore, the closing of a pipe ram was urgently required. The driller activated the ram close function and observed that the manifold pressure immediately decreases to zero.

Which one of the following options should be taken to close the pipe ram as quickly as possible?

- ✓ A. Activate the by-pass function.
- B. Use a hammer to free the stuck 'manifold pressure reducing and regulating valve'.
- C. Send the Assistant Driller to put the upper pipe ram in the block position, and then close the middle pipe ram.
- D. Close the ram manually by use of ram lock screws.
- E. Send the Assistant Driller to manually operate the stuck selector valve.

20. What would the hydraulic pressure in the ram opening lines between the hydraulic BOP control unit and the BOP stack normally be while drilling?

- A. 500
- B. 3000
- C. Zero
- ✓ D. 1500

21. On the remote BOP control panel on a surface BOP installation the open/close function will not operate unless the master control valve has been activated.

- ✓ A. True
- B. False

22. The gauges on the Driller's remote BOP control panel are used to observe the status of the surface BOP control unit while drilling. The BOP has not been operated and the electrically driven pump is not running. The following has been observed:

Accumulator Pressure: 2500 psi (constant)

Manifold Pressure: 1500 psi (constant)

Annular Pressure: 700 psi (constant)

What is the reason for these readings?

- A. Pre-charge pressure is too low.
- ✓ B. Problem with the hydraulic pumps.
- C. Everything is correct.
- D. Problem with the hydraulic pressure regulating valve.

23. On a Driller's remote BOP control panel on a surface installed BOP a ram close function was activated and the following observations were made:

Green light went out

Red light came on.

Annular pressure remained steady.

Manifold pressure remained steady.
Accumulator pressure remained steady.

What is the cause of this problem?

- A. There is a blockage in the hydraulic line between the hydraulic BOP control unit and the BOP.
- B. The pressure switch for the pumps on the hydraulic BOP control unit is malfunctioning.
- C. There is a leak in the hydraulic line between the hydraulic BOP control unit and the BOP
- D. The selector (operating) valve (3-position/4-way valve) is stuck in the 'Ram open position'.
- E. The electric driven triplex pump on the hydraulic BOP control unit is malfunctioning.

24. When closing the upper rams from the remote control panel on the rig floor the green light indicator goes out but the red light indicator does not come on. The Accumulator pressure and the manifold pressure readings decrease and then return to normal.

What could be the reason for this?

- A. There is a leakage on the hydraulic circuit.
- B. There is an electrical fault with the lights.
- C. The ram did not close.
- D. The 3-positions/4-way valves on the hydraulic BOP control unit did not move.

25. What is the main function of the choke in the overall BOP system?

- A. To direct hydrocarbons to the flare.
- B. To direct well bore fluids to the mud/gas separator.
- C. To shut the well in safely.
- D. To control back-pressure while circulating out a kick.

26. A Vacuum Degasser is often used to remove gas from drilling fluid while drilling.

Where the suction line to the Vacuum Degasser should be connected according to best practice?

- A. From the mud gas separator vent line
- B. Upstream of the mud gas separator
- C. Downstream of the mud gas separator
- D. Inside the mud gas separator