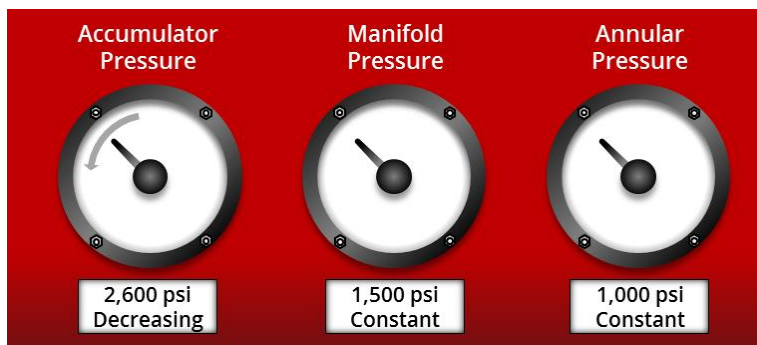


Equipment & Subsea Questions – Day 3

1. **You close the upper pipe ram. What has occurred if the open light stays on, the close light does not illuminate and the manifold pressure remains static?**
 - A. The hydraulic closing line to the BOP is most likely plugged
 - B. The hydraulic closing line to the BOP is most likely leaking
 - C. The manifold regulator is malfunctioning
 - D. The 3-position/4-way valve failed to operate

2. **During drilling operations you notice the gauges on the BOP accumulator system show the following readings. What do you think is happening?**



- A. There is a leak in the annular preventer hydraulic system
 - B. The annular regulator is malfunctioning
 - C. There is possibly a leak in the system and the pressure switch controlling the pump has not operated
 - D. The hydraulic closing line to the BOP is most likely plugged

3. **Which of the following dimensions determine the pressure at which gas can 'blow-through' to the shakers?**
 - A. Height and inside diameter of the body
 - B. Height of liquid mud seal
 - C. Length of choke line
 - D. Size and total number of shakers

4. **What would most likely happen if a self-fill (autofill-tube type) failed to convert properly to a check valve? (Assume cement is heavier than the mud used for displacement)**

(TWO ANSWERS)

 - A. The cement cannot be pumped inside the casing
 - B. The cement could u-tube back up inside the casing when pumps are shut down
 - C. The cement would not set properly and remain in the liquid state
 - D. The pressure would have to be held on the cement head to prevent u-tubing

5. **What type of equipment may indicate a possible increase in formation pressure?**
- A. Mud Gas Detector
 - B. Stroke counters
 - C. Clogged shaker screens
 - D. Vacuum Degasser
6. **You are running in the hole with a slick non shearable tool on a surface stack rig. The well flows when the tool is located across the BOP stack. What is the quickest action the driller can take to shut in the well?**
- A. Pick up a joint or stand of shearable drill pipe, run into position and install a safety valve
 - B. Make up safety valve in drill string and close the annular BOP
 - C. Open downwind diverter line and close diverter packing element
 - D. Space out and close shear rams
7. **What is the main function of the choke in the choke manifold?**
- A. To bleed a large volume of formation fluid
 - B. To create back-pressure during kill operations
 - C. To pressure test surface equipment
 - D. To restrict the amount of drilling fluid circulated through the mud gas separator
8. **What is the correct amount pressure that must be kept in the annular BOP closing chamber during a stripping operation?**
- A. The minimum pressure that allows the tool joint to go through the packing element with a decrease of 30k lbs. of hook load
 - B. At least equal to or greater than 1500 psi
 - C. The minimum pressure required to maintain a seal
 - D. The normal pressure required to close the annular BOP
9. **If a self-fill float in the casing becomes plugged and the casing does not get filled properly, what are the main well control risks?**
- A. Surge pressure could potentially breakdown the formation at the bottom of the well
 - B. You will not be able to reverse circulate to kill the well
 - C. If the plug suddenly clears the drilling fluid level in the annulus will fall
 - D. Trip tank could overflow due to increase in returns

10. **While tripping the drill string into the hole at 6000 ft. a flow check is positive. The rig procedure is to shut in the well using the soft shut in procedure. What is the correct procedure to shut in the well?**
- A. Close the BOP, open the choke, monitor and record pressure.
 - B. Stab a full opening safety valve, open HCR valve and choke, close BOP, close choke, close safety valve, record pressure.
 - C. Close the BOP, stab a full opening safety valve, close the safety valve, open choke, record pressure.
 - D. Stab a full opening safety valve, close the safety valve, open failsafe valves, close BOP, and close choke, record pressures.
11. **The well is full of 12.4 ppg mud. A 500 ft cement plug is set and tested. The mud above the plug is displaced with 10.4 ppg brine. If the cement plug were to fail, what direction would fluid move across the cement plug?**
- A. The pressure from above the plug would cause fluid to move down
 - B. The pressure from below the plug would cause fluid to move up
 - C. The pressure from above and below the plug would remain constant
12. **You are drilling through top hole formations with a surface BOP stack, the well begins to flow due to a shallow gas influx. What is the best action to take to secure the safety of the rig and personnel?**
- A. Keep pumps on, close diverter, open downwind vent line, close flowline valve to shakers
 - B. Shut down pumps, open downwind vent line, close flowline valve to shakers, close diverter
 - C. Shut down pumps, close diverter, open downwind vent line, close flowline valve to shakers
 - D. Keep pumps on, open downwind vent line, close flowline valve to shakers, close diverter
13. **Why is it very important to circulate bottoms up prior to starting a cement job on a deviated well?**
- A. To remove the drilled cuttings that could potentially plug the casing float collar
 - B. To ensure the annulus contains a good clean column of drilling fluid
 - C. To ensure the cement will not enter the drill string
 - D. To ensure the cement does not get mixed with the drilling fluid

SUBSEA

14. During a connection on a subsea BOP stack, the Driller shut the well in due to an abnormally long flow back time. The shut in pressures have stabilized, but the flow out paddle sensor continues to detect flow at the flowline. It is determined that the BOP closing pressure and gallon count are correct. A second BOP component is closed but this also does not stop the flow. The flow out has increased from 10% to 60% in the last three minutes. The shut in pressures continue to remain constant.

What action should you take?

- A. Monitor the surface pressure for indications of gas migration
 B. Nothing, the well is most likely ballooning downhole
 C. Close the diverter, there could be gas expansion in the marine riser
 D. Circulate to remove the gas influx out of the well
15. You are drilling a 9 5/8 inch pilot hole riserless on a floating rig. Seawater and viscous sweeps are being circulated in the well.

WELL DATA:

Well Depth	1700 feet
Water Depth	950 feet
Air Gap	80 feet
Sea Water Density	8.6 ppg
Annular Pressure Loss	50 psi

A shallow gas formation is encountered while drilling at 1700 ft. The estimated formation pore pressure is 750 psi. Which explanation best describes the situation?

- A. The well is impossible to control without marine riser installed
 B. The well is overbalanced when the pumps are running at the rate used for drilling
 C. The well is underbalanced while circulating
 D. The well is overbalanced in the static condition
16. **What is the correct definition of riser margin?**
- A. The hydrostatic pressure of the drilling fluid inside of the marine riser
 B. The additional drilling fluid density above seawater density required to balance the well with the marine riser connected
 C. The mud density increase to compensate for the loss of the marine riser
 D. The difference between the weight of the marine riser in air and the weight in water

17. **If the well is shut in on a floating rig but the gas managed to get above the subsea BOP stack, what effect would it have?**

- A. If the gas migrates it could unload the riser explosively at the surface leading to riser collapse
- B. If the gas migrates it could potentially burst the casing
- C. If the gas migrates it could increase the mud viscosity in the riser
- D. It would have no effect

18. **A well has been shut in on a subsea floating rig. The entire choke line contains drill water.**

WELL DATA:

Choke line length	4600 ft
Drill water density	8.4 ppg
Mud density	12.4 ppg
SICP	1350 psi

Before starting the kill operation, the choke line is displaced to 12.4 ppg drilling mud. What is the new SICP value?

- A. 393 psi
- B. 612 psi
- C. 1030 psi
- D. 1122 psi

19. **The lower marine riser package (LMRP) was suddenly disconnected from the lower BOP stack on a floating rig.**

WELL DATA:

- **RKB to Mud Line = 4680 ft**
- **Air Gap = 80 ft**
- **Water Depth = 4600 ft**
- **Sea Water Density = 8.6 ppg**
- **Mud Weight = 10.5 ppg**
- **Well Depth = 8000 ft TVD**

Calculate the loss of hydrostatic pressure.

- A. 441 psi
- B. 462 psi
- C. 498 psi
- D. 513 psi

20. **What is the best reason for hanging off the drill string on a subsea rig?**

- A. To function test the lower pipe rams
- B. To reduce the weight of the hookload
- C. To reduce BOP wear caused by rig heave
- D. To safely allow for removal and installation of BOP components

ANSWER KEY – DAY 3

- | | | |
|--------|---------------|------|
| 1. D | 9. C | |
| 2. C | 10.D | |
| 3. B | 11.B | 16.C |
| 4. B D | 12.D | 17.A |
| 5. A | 13.B | 18.A |
| 6. B | Subsea | 19.C |
| 7. B | 14.C | 20.C |
| 8. C | 15.B | |