

EXERCISE COMPLETION OPERATIONS 2

1. Given is Data for a Producing Gas Well: -

Well Depth:	12,000 ft (MD) and 6,150 ft (TVD)
Tubing Shoe Depth (EOT):	11,500 ft (MD) and 5,980 ft (TVD)
Formation Pressure Gradient:	0.5720 psi/ft
Gas Gradient:	0.0707 psi/ft
Casing Capacity:	0.0452 bbl/ft
Tubing Capacity:	0.0083 bbl/ft
Tubing Closed-End Displacement:	0.0120 bbl/ft
Pump output:	0.0899 bbl/stroke

How many pump strokes are required to displace the entire well bore, by pumping down tubing?

Answer _____ strokes

2. Given is Data for a Producing Gas Well: -

Well Depth:	11,200 ft (MD) and 9,570 ft (TVD)
Formation Pressure Gradient:	0.5720 psi/ft
Gas Gradient:	0.0707 psi/ft

The 7" casing has been set and the 3-1/2" completion string installed. Prior to perforating, the drilling mud in the well has to be displaced with brine to balance formation pressure.

- 2.1 What is the required brine density?

Answer _____ ppg

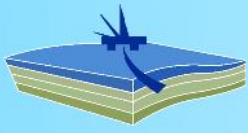
- 2.2 What is the rated working pressure (WP) of wellhead and Xmas tree equipment to be installed on this well?

Answer _____ psi

3. A well has to be killed with brine weight of 9.0 ppg. The well depth is 12,000 ft (MD) or 10,500 ft (TVD). The recently measured formation pressure is 4,814 psi. How much is the 'overbalanced' pressure?

Answer _____ psi





4. Which of the following are commonly used as barriers, when we are able to monitor and maintain the fluid level? (THREE ANSWERS)

- a) Brine
- b) Nitrogen
- c) Diesel
- d) Condensate
- e) Drilling mud
- f) Inhibited Sea Water

5. Which barrier terminology (Primary, Secondary or Tertiary) is used to classify Water, IF this water is pumped into the well, stabilizes the well pressure and there is no flow to surface?

Answer _____

6. The well has just been shut in on a gas kick. What is the expected behavior of this gas influx at the bottom of the well? [FOUR ANSWERS]

- a) Gas will migrate upwards as a result of its lower density compared with other fluids in the well
- b) The surface shut-in pressure will decrease with time after the well is shut in
- c) The surface shut-in pressure will increase with time after the well is shut in
- d) The bottom hole pressure will increase with time after the well is shut in
- e) The bottom hole pressure will decrease with time after the well is shut in
- f) The gas influx bubble pressure will remain the same

7. When planning a kill on a standard 'single completion' well, which killing method is always preferred?

Answer _____

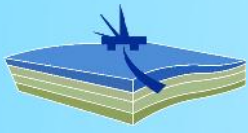
8. Which of the following measures or actions can prevent or remove hydrates? (THREE ANSWERS)

- a) Rapid bleed-off of gas to a vent or flare system
- b) Use of water/glycol mixture during pressure testing
- c) Pressure testing up to the maximum working pressure of the equipment
- d) Raising the temperature of the affected equipment
- e) Injecting methanol into the affected equipment

9. Can a fluid barrier be a Secondary Barrier?

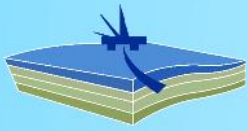
- a) YES
- b) NO





10. Which of the following statements describe an effective kick-off or toolbox meeting?
- a) Get everyone involved to attend the meeting and explain exactly what is going to happen during the operation
 - b) Get everyone involved to attend the meeting and go through plans, ask for feedback and comments, modify the plan if necessary and make sure that everyone understands it properly
 - c) Get everyone involved to attend the meeting and read out the plan sent out by the onshore organization. Explain that the plan must be followed to the letter
11. If a problem occurs during an intervention operation, who should shut in the well and be responsible for safe working practices? (TWO ANSWERS)
- a) The Operator Representative (or Well Foreman)
 - b) The Well Intervention planner
 - c) The person who is designated to operate a control panel
 - d) The Production Manager
 - e) The leader of the Well Intervention team
 - f) The operator of on-site Well Intervention equipment
12. Can hydrate ONLY be formed with free water in the well?
- a) YES
 - b) NO
13. Hydrates may cause damage to Well Intervention Equipment if they are released as a result of high differential pressure!
- a) TRUE
 - b) FALSE
14. Which of the following mechanical devices can be installed by Well Intervention methods and is accepted to function as a barrier? (TWO ANSWERS)
- a) Hi-vis pill
 - b) Casing Cement Retainer
 - c) Pump Open plug
 - d) Orifice valve
 - e) Expandable Plug
15. A rod pumping well will be re-completed. Does the well need to have the same minimum number of well control barriers in place when compared with a well that has natural flow?
- a) NO
 - b) YES





EXERCISE COMPLETION OPERATIONS-2

1.	5309 strokes
2.1	11.0 ppg
2.2	5000 psi
3.	100 psi
4.	a, e, f
5.	Primary
6.	a, c, d, f
7.	Reverse Circulation
8.	b, d, e
9.	No
10.	b
11.	c, f
12.	Yes
13.	a
14.	c, e
15.	Yes

EXERCISE COMPLETION OPERATIONS-3

1.	b, d
2.	c
3.	c, d, e
4.	a, e
5.	a, e
6.	d
7.	a, e
8.	c, e
9.	a, b, e
10.	b
11.	b
12.	b
13.	a, c
14.	b, e
15.	b, d, e

