

# Subsea Study Guide

## Kill Start-up:

- Two acceptable methods for start-up:
  - a. Bring pumps up to kill speed adjusting casing pressure to dynamic (adjusted) casing pressure.
  - b. Bring pumps up to kill speed holding static kill line constant.

## Choke Line Friction (CLF):

- CLF > SICP:
  - a. After start-up casing gauge will read zero
  - b. After start-up BHP will increase due to not allowing casing to drop below zero
- Taking CLF by circulating down the choke line and up the Riser minimizes ECD and BHP
- Why take CLF? To help determine possible pressure increase at the final stages of a well kill
- Circulating down the drillpipe and taking returns up the choke line creates the highest BHP
- Re-take CLF:
  - a. When change in pump output
  - b. When mud properties change
- Flow rate for taking CLF is the same as the Slow Circulating Rate (SCR)
- CLF should be recorded from the drillpipe gauge on the choke panel which is the same gauge used to take the SCR's.
- Most common method for taking CLF is to circulate down the drillpipe and up the Riser and record pressure. Close BOP and circulate down the drillpipe up the choke line. Record that pressure and the difference in the two is the CLF.

## Hydrates:

- Frozen mixture of water and gas
- Needs water, gas, temperature, and pressure to form

## Gas in Riser:

- Can cause flow after shut-in
- Can unload the Riser leading to collapse

**Non-Shearables & BOP's:**

- Before running through BOP:
  - a. Notify Dynamic Positioning Operator (DPO)
  - b. Flow check the well to verify it is dead
- Kick with non-shearables across BOP- should strip in or out to locate a shearable across the BOP and hang-off if possible.
- Emergency Disconnect Sequence (EDS) will be unsuccessful with non-shearable across the BOP.

**Subsea Accumulator System:**

- If no response from flow meters when functioning annulars or rams, change pods and try again.
- After functioning annulars or rams if fluid flow continues to register, put that element into block and call the subsea engineer.
- While drilling if alarm and rapid loss of accumulator pressure with flow meter registering fluid movement, stop drilling and put all functions into block and call subsea engineer.
- Pilot fluid operates the Sub-Plate Mounted (SPM) valves.
- Shuttle valves isolate the selected pressurized pod from the redundant vented pod

**SICP & MASP:**

- Colder, denser, mud in choke line and kill lines could cause shut-in surface pressures to read lower than what they actually are.
- Changing to a lighter fluid in the choke line will cause SICP or MASP to be higher.
- Changing to a heavier fluid in the choke line will cause SICP or MASP to be lower.
- If you are concerned about low casing and kill line pressures, you should flush the choke and kill line with clean mud

**Gas in Riser:**

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- Can unload the Riser leading to collapse

**Riser Margin:**

- It is the mud weight increase to compensate for the loss of the Riser.