

BOP Testing, Inspection, Training and Maintenance

BOP Testing Procedure

The Annular, double gate, HCR, Accumulator as well as all auxiliary equipment shall be tested when installed and every 14 days thereafter. We shall follow an overbearing program to protect all parties involved. BOP testing shall go as follows:

1. When the BOP is installed after running casing
 - (a) Fill hole, close blind rams, close standpipe, open kill line master and control valves, open choke line master and control valves, open HCR, open master valve on panic line, open inward choke valves, open chokes, close panic line control valve and isolation valves for chokes. Do low pressure test (200-300 psi) for 5 min. Do high pressure test (1500psi) for 5 min. Record in Book
 - (b) All following test will have same pressures and time limits
 - (c) Bleed pressure off at pump and see if check valve closes and what pressure is left. Record in Book. Bleed off pressure
 - (d) Close inward valves on chokes and master valve on panic line. Do low pressure test. Record. Do high pressure test and record. Bleed off
 - (e) Open blind rams and RIH with BHA and drill pipe (no float), circulate out air
 - (f) With the Kelly made up into string Close pipe rams, close master valve on kill and choke line, Disconnect kill line at check valve. Do low pressure test and record, do high pressure test and record, bleed off
 - (g) With pipe rams still closed, open master valves on kill and choke lines, close control valves on kill and choke line, do low pressure test and record, close upper kelly cock and bleed off at pump, record and open upper kelly cock, do high pressure test and record, close upper Kelly cock and bleed off at pump and record. Open Kelly cock and bleed off
 - (h) With pipe rams closed, kill and choke lines closed, do low pressure test and close standpipe trapping pressure, bleed off at pump and record. Same with high pressure test
 - (i) Open pipe rams, close bag, close kill line, open control and master valves on choke line, close HCR valve, do low pressure test and record, do high pressure test and record, bleed off
 - (j) Reconnect kill line and open both valves, install FOSV in drill pipe. Through kill line do low pressure test and record, do high pressure test and record, bleed off
 - (k) Take off FOSV and install internal preventer, Through kill line do low pressure test and record, do high pressure test and record, bleed off
 - (l) The auxiliary pump line valve will be tested every time as well as most other valves
 - (m) Check all levels in accumulator and back up systems, Record in Book.

2. During normal operation every 14 days
 - (a) Blind rams will be tested when out of the hole with a test plug
 - (b) Pipe, bag and HCR will be tested while still inside the shoe on trip in the hole with a test plug
 - (c) All low and high pressure test will be the same
 - (d) All shall be recorded in Book

BOP Inspection and Actuation

All required BOP equipment shall be actuated periodically to ensure operational readiness. Following are the minimum frequencies.

1. Every 12 hour shift the following are to be performed:
 - (a) Check the accumulator pressure
 - (b) Check the pressure of the emergency back-up system
 - (c) Check the hydraulic fluid level in the accumulator
 - (d) Check air pressure to support system
 - (e) Record all of the above in IADC Log Book and well Ledger

2. Every trip, but do not do twice in 24 hours
 - (a) Function test pipe rams (when inside shoe)
 - (b) Function test blind rams (when out of hole)
 - (c) Operate all Kelly cocks
 - (d) Check Drill pipe safety valve
 - (e) Function test HCR valve
 - (f) Record all of the above in IADC Log Book and well Ledger

3. Every 7 days or 1 week actuate the following:
 - (a) Annular preventer
 - (b) All gate valves in the choke and kill system
 - (c) Inside BOP
 - (d) Record all of the above in IADC Log Book and well Ledger

Crew Training and Drills

BOP Practice drills and training sessions shall be conducted at least once each week for each crew. These drills shall be performed with everyone on site to provide training for each crew member to ensure:

1. A clear understanding of the purpose and the method of operation of each preventer and all associated equipment
2. The ability to recognize the warning signs that accompany a kick
3. The crew shall be aware this is a shallow slim hole which reduces volume in the annulus and requires increased attention
4. A clear understanding of each crew members station and duties in the event of a kick while drilling, tripping or out of the hole
5. A clear understanding of the maximum allowable casing pressure (MACP) and the significance of the pressure for well conditions that exist at the time of the drill or training session

BOP Records Requirements

1. A record of all inspections and tests must be recorded in IADC Log book and well ledger
2. A record of all crew drills and training sessions must be kept in the IADC Log book and well ledger

BOP Maintenance Requirements

1. All equipment shall be maintained in accordance with the manufacturer's recommendations
2. All maintenance records shall be kept for the past three years

Shut-In Procedure Drilling and Tripping

Drilling

1. For a kick while drilling stop the rotary and sound the alarm
2. Pick up drill string until the Kelly saver sub clears the rotary table
3. Stop the pumps
4. Close the annular preventer
5. Confirm that all flow from the well is stopped. No flow should occur from the choke manifold, the bell nipple or back through the drill string
6. Open the HCR valve
7. Read and record SIDPP (shut in drill pipe pressure) SICP (shut in casing pressure) Allow to stabilize first
8. Read and record the pit level increase
9. Notify Supervisor

The primary advantage of a hard shut-in is that the kick influx is held to a small volume because the well is closed in more quickly.

Tripping

1. For a kick while tripping immediately .set the slips and sound the alarm
2. Install and make up the FOSV in the drill pipe. It should be open
3. Close the drill pipe safety valve
4. Open the HCR valve
5. Close the BOP
6. Close the choke
7. Confirm that all flow from the well has stopped
8. Pick up and make up the Kelly
9. Record SIDPP and SICP
10. Read and record pit level increase
11. Notify Supervisor