

OCS-G-23516 DC 491 #1 ST01
Well Control Procedures

WELL CONTROL WHILE DRILLING

1. Monitor the following while drilling to detect the occurrence of a kick and minimize kick influx volume:
 - flow rate in and flow rate out of the well
 - pit volumes
 - connection flowback trends
 - flow checks with pumps off (e. g. – connections)
 - penetration rates
 - other key parameters (e. g. – gas, cuttings size, etc.)
2. If a possible kick is indicated while drilling, pick up the bit off bottom, turn the pumps off and check the well for flow.
3. If a kick is detected or suspected, close the BOPs on drillpipe using a Hard Shut In. Monitor and record shut in pressures to assess the pressure in the kick formation.
4. After shutting in and evaluating the kick, circulate the kick from the well through the choke/kill line(s) using the drillers method or the wait and weight method.
 - Consideration may also be given to Bullheading fluid if the influx is large and the kick fluid is suspected to be gas.
5. After removing the kick from the wellbore using the drillers method, circulate kill weight mud into the well. Maintain constant bottom-hole pressure by continuing to circulate through the choke.
6. When kill weight mud has been circulated to surface, shut down the pumps. Monitor the well for flow through an open choke to confirm no flow.
7. Flush below the shut in BOP to remove any trapped kick fluids using contractor's procedure.
8. Adjust the mud weight in the riser, choke line, kill line and boost line as needed.
9. Open the BOP. Monitor the well with the pumps off to confirm the well is dead.
10. When the well is confirmed dead, resume circulating and continuing well operations.

Note: If a kick is taken, the real-time conditions will be assessed. Alternative control methods will be considered to ensure that the optimum kill technique is selected based on actual conditions.

WELL CONTROL WHILE TRIPPING

1. Monitor the following while tripping to detect the occurrence of a kick and minimize the kick influx volume:
 - flow rate out of the well with pumps off and pipe static
 - trip tank / fillup and pipe displacement trends
2. If a kick is detected while tripping, close the BOPs using a Hard Shut In. Monitor and record shut in pressures to assess the nature of the kick.
3. Assess the kick based on the following: well depth, drillstring depth, shut in pressure trends, shoe strength, mud weight, and other circumstances.
4. Based on the circumstances an optimum kill process will be selected from alternative methods such as: drillers method, wait and weight method, volumetric well control, stripping, bullheading, weighting up the riser and other methods.
5. Continue the kill process until the well is static and the drillstring can be placed in the well at a depth that will allow circulation of uniform mud density.
6. Flush below the shut in BOP to remove any trapped kick fluids using contractor's procedure prior to opening the BOP at any time during the kill process.
7. When kill weight mud has been circulated to surface, shut down the pumps. Monitor the well for flow through an open choke to confirm no flow.
8. Adjust the mud weight in the riser, choke line, kill line and boost line as needed.
9. Open the BOPs. Monitor the well with the pumps off to confirm the well is dead.
10. When the well is confirmed dead, resume circulating and continuing well operations.