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PLUG and ABANDONMENT PROCEDURE

REIGLE 32-4

Description

1. Provide 48 hour notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). Notify Automation Removal Group at least 24 hours prior to rig move. Request they catch and remove plunger, isolate production equipment, and remove any automation prior to rig MIRU.
2. MIRU Slickline. Pull production equipment and tag bottom. Record tag depth in Open Wells. Gyro was run on 04/01/11. RDMO Slickline.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed.
4. Verify COAs before RU.
5. Upon RU, check and record bradenhead pressure. If bradenhead valve is not accessible, re-plumb so that valve is above GL. Blow down bradenhead and re-check pressure the next day. Repeat until pressure stays at 0 psi.
6. MIRU WO rig. Spot in an empty float. Kill well as necessary using biocide treated fresh water. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
7. TOOH and SB 7460’ 2-3/8" tbg. LD any remainder.
8. MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 7470'. POOH.
9. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7460' (collars at 7442' & 7482'). POOH. RDMO WL.
10. TIH with 2-3/8" tbg to 7460’
11. Load hole with biocide treated fresh water and circulate all gas out of well. PT CIBP to 1000psi for 15 minutes.
12. MIRU Cementers. Pump Niobrara Balance Plug: Pump 25 sx (6.9 bbl or 39 cf), assuming 15.8 ppg & 1.53 cf/sk. Volume based on 400’ inside 4-1/2", 11.6# production casing with no excess. Cement will be from 7460'-7060'. RD Cementers.
13. Slowly pull out of the cement and TOOH. Reverse circulate using biocide treated fresh water to ensure the tubing is clean. TOOH, SB 850' 2-3/8" tbg. LD remaining tbg.
14. MIRU WL. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 4460' (collars at 4442' & 4484'). POOH. Run CBL - 0 psi from 4460'-surface and 500 psi pass from 2000'-surface. RIH and dump 2 sx cement on CIBP. POOH. Area to squeeze/perf may change. Also consider changing perf & squeeze to a section mill.
15. TIH with 6' perf gun - 6 spf, 60 degree phasing. 40" penetration and 0.4 entry hole (KLX gun) or equivalent. Shoot holes from 1124'-1130'
16. Close blind rams and establish an injection rate. Max pressure down casing is 600 psi at low pump rate.
17. TIH with cement and put EOT just below bottom perf.
18. MIRU Cementers. Pump SLB thin squeeze Balance Plug: Pump 25 sx (5.2 bbl or 30 cf), assuming 15.8 ppg & 1.17 cf/sk. Volume based on 335’ inside 4-1/2", 11.6# production casing with no excess. Cement will be from 1130'-795'. RD Cementers. TOH above cement top and perform Hesitation squeeze to push cement into perfs - max pressure is 500 psi
19. Shut down and WOC. Ensure no gas migration before continuing. Contact engineering for an update if there are signs of gas migration.

20. TIH with mule shoe and 2-3/8" tubing to tag TOC. Pull up to 850'.
21. Establish circulation to surface with biocide treated fresh water.
22. RU Cementers. Pump Fox Hills Balance Plug: 25 sx (5.1 bbl or 28.8 cf) , assuming 15.8 ppg & 1.15 cf/sk. Volume is based on 330' in 4-1/2", 11.6# production casing with no excess. The plug is designed to cover 850'-525'. RDMO Cementers. Notify engineering if circulation is ever lost during job.
23. Slowly pull out of the cement and TOOH to 100'. Reverse circulate using biocide treated fresh water to ensure the tubing is clean. TOOH, LD all 2-3/8" tbg.
24. Tag cement as needed. After tagging top of cement, and verifying appropriate coverage above the surface casing shoe, pressure test surface casing to 500 psi and hold for 15 minutes.
25. MIRU WL. RIH 4-1/2", 11.6# CIBP to 80'. RDMO WL and WO rig.
26. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@anadarko.com within 24 hours of completion of the job.
27. Supervisor submit paper copies of all invoices, logs, and reports to VWP Engineering Specialist.
28. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
29. Capping crew will set and secure night cap on 4-1/2", 11.6# casing head, restrain the casing head, pressure test CIBP to 500 psi with hydrotest pump, then remove night cap and casing head restraints.
30. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5’ below ground level.
31. Welder cut casing minimum 5' below ground level.
32. Fill production and surface casing to surface using 4500 psi compressive strength cement (NO gravel).
33. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
34. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
35. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
36. Back fill hole with fill. Clean location, and level.
37. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.