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SAFETY PREP PROCEDURE

CANNON 15-31

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 08/11/14. 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. Kill well as necessary using biocide treated fresh water. Verify BOP and wellhead rating, inspect for appropriate API standards, pressure test BOP according to VWP BOP testing guidelines. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
7. TOOH and SB 7400' 2-3/8" tbg. LD any remainder.
8. MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 7860'. POOH.
9. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7850' (collars at 7830' & 7871'). POOH. RIH and dump 2 sx cement on CIBP. POOH.
10. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7400' (collars at 7373' & 7414'). POOH. RDMO WL.
11. TIH with 2-3/8" tbg to 7400'
12. Load hole with biocide treated fresh water and circulate all gas out of well. PT CIBP to 1000 psi for 15 minutes.
13. 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 7400'-7000'. Collect wet and dry samples of cement to be left on rig. RD Cementers.
14. Pull out of cement at a rate of 1 jt/min. TOOH, SB 1606' 2-3/8" tbg. LD remaining tbg.
15. TOOH, SB 6847' 2-3/8" tbg. LD remaining tbg.
16. MIRU WL. RIH and dump 2 sx cement on CIBP. POOH. PU and RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 6900' and 4' of squeeze holes at 6787'. RDMO WL.
17. PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 6847'.
18. Establish circulation to surface for a minimum 4 hours with biocide treated fresh water, and pump 100 bbls to clean up hole. Max pump pressure is 2177 psi with fresh water at 2 bpm. If unable to circulate at that pressure, contact engineer.
19. RU Cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Niobrara Squeeze: 40 sx (11 bbl or 62 cf) Class G cement with 0.25 lb/sk polyflake, assuming 15.8 ppg & 1.53 cf/sk. Max pump pressure is to be 1552 psi at 2 bpm with a full column of cement. Underdisplace by 3 bbls. Volume is based on 53' below the CICR inside 4-1/2", 11.6# production casing with no excess, 113' in the 4-1/2", 11.6# annulus assuming 7.88" bit size with 40% excess and 192' on top of the CICR to cover top perfs. Collect wet and dry samples of cement to be left on rig. RD Cementers.
20. Pull out of cement at a rate of 1 jt/min. TOOH to 6155'. Reverse circulate to ensure no cement is left in the tbg.
21. TOOH and SB 1606' of 2-3/8" tbg. LD stinger, and remaining tbg.
22. MIRU WL. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 4338' (collars at 4306' & 4346'). POOH. RIH and dump 2 sx cement on CIBP. POOH. RDMO WL.
23. MIRU WL. PU and RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 1846' and 4' of squeeze holes at 1546'. RDMO WL.

24. PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 1606'.
25. Establish circulation to surface for a minimum 4 hours with biocide treated fresh water, and pump 100 bbls to clean up hole. Max pump pressure is 571.2 psi with fresh water at 2 bpm. If unable to circulate at that pressure, contact engineer.
26. RU Cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Squeeze: 115 sx (31.8 bbl or 179 cf) Class G cement with 0.25 lb/sk polyflake, assuming 14 ppg & 1.55 cf/sk. Max pump pressure is to be 295 psi at 2 bpm with a full column of cement. Underdisplace by 3 bbls. Volume is based on 240' below the CICR inside 4-1/2", 11.6# production casing with no excess, 300' in the 4-1/2", 11.6# annulus assuming 7.88" bit size with 100% excess and 191' on top of the CICR to cover top perms. Collect wet and dry samples of cement to be left on rig. RD Cementers.
27. Pull out of cement at a rate of 1 jt/min. TOOH to 915'. Reverse circulate to ensure no cement is left in the tbg.
28. TOOH and SB ' of 2-3/8" tbg. LD stinger, and remaining tbg.
29. PU and TIH with 3-7/8" bit and appropriate number of 3-1/2" drill collars on 2-3/8" tbg. Time drill cement above CICR (~64'). If ROP is faster than 2 min/ft, SD and WOC 24 hours and repeat. Drill down to CICR located at 1606'. Pressure test top holes to 500 psi for 15 minutes. If test holds, drill CICR and cement past lower perf at 1846' and pressure test holes to 500 psi for 15 minutes. If pressure does not hold, contact engineer.
30. TOOH and SB tbg, LD drill collars, LD bit.
31. MIRU WL and run CCL-GR-CBL-VDL from +/- 2000' to surface. Forward to Engineering. In addition to normal handling, of logs/job summaries, email copies of all cement job logs/job summaries and invoices to DJVendors@anadarko.com within 24 hours of completion of the job.
32. TIH with 2-3/8" tbg to 1900'
33. Load hole with biocide treated fresh water and circulate all gas out of well.
34. MIRU Cementers. Pump Fox Hills Balance Plug: Pump 25 sx (6.9 bbl or 39 cf), assuming 14 ppg & 1.55 cf/sk. Volume based on 400' inside 4-1/2", 11.6# production casing with no excess. Cement will be from 1900'-1500'. Collect wet and dry samples of cement to be left on rig. RD Cementers.
35. Pull out of cement at a rate of 1 jt/min. TOOH and LD tbg.
36. ND BOP, NU 7-1/16", 5,000 psi flanged tubing head adaptor w/ new 2-1/16", 5,000 psi flanged master valve. Replace packing on all gland nuts/lockdown pins with new packing. Replace tubing hanger seals with new o-rings. Put new R46 gasket on tubing head. Make sure all wellhead valves are rated to 5,000 psi and all nipples are XXH. Torque and test WH. Document wellhead components in an OpenWells wellhead report.
37. RU hydrotester. Install 2-3/8" pup joint above master valve. Hydrotest wellhead first to 500 psi for a low pressure test. Then, hydrotest wellhead to 5,000 psi from below tubing head through master valve for 15 minutes. No leakoff will be accepted. Please record results of pressure test. RD hydrotester.
38. Secure wellhead, clean up location. RDMO WO rig.