Engineer: Jensine Doyle
Cell Phone Number: 325-656-1680

SAFETY PREP PROCEDURE
CBL, Nio Squeeze, Fox Hills Squeeze (Aquifer), Packer, WH Change

PICKERING GERALD GU 1

Description

1. Well needs a CBL to confirm cement coverage from Nio top to surface. Well needs possible Nio squeeze above Nio top, fox hills squeeze from 1315' - 1000' to cover aquifers, packer, and WH change. CBL results will impact procedure going forward. Please confirm with engineering that the squeeze locations are correct.
2. Well has gyro survey on 5/15/2014.
3. MIRU Slickline. Pull production equipment and tag bottom. Record tag depth in OpenWells. RD Slickline.
4. Prepare location for base beam equipped rig. Install perimeter fence as needed. Evaluate location for enclosed flare or open-top tanks as described in "Flaring During P&A Operations" SOP on file with COGCC.
5. 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.
7. Kill well as necessary with biocide treated freshwater. ND WH, NU BOP.
8. PU 8-10' pup joint with TIW valve on top and screw into the tbg hanger. Unseat and LD the landing joint.
9. MIRU EMI services. EMI 2-3/8" tbg (landed at 7874') while TOOH and tally while standing back. Lay down joints that have greater than 35% penetration or wall loss. Replace all joints that fail EMI testing. Document joint numbers and depth of bad tubing and create a Production Equipment Failure report in OpenWells. RDMO EMI services.
10. MIRU WL. PU and RIH with (4.5", 11.6#) Gauge Ring to 7075'. POOH.
11. PU and RIH with (4.5", 11.6#) CIBP. Set CIBP at +/- 7065'. POOH. RDMO WL.
12. Pumping biocide treated fresh water, circulate gas out, pressure test CIBP and production casing to 1000 psi for 15 minutes. If test fails, contact Engineering.
13. Run CCL-GR-CBL-VDL from +/- 7065' to surface to confirm squeeze locations. Run from entire log with one pass at 500# and one pass at 0#. Current CBL squeeze location is 1315' and 6995'. Forward resulting logs 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. Note that squeeze hole locations and cement volume may vary depending on CBL results. May also run packer to test injection first.
14. PU and RIH with two 1’ 3-1/8" perf guns with 3 spf, 0.50" EHD, 120° phasing. Shoot 1' of squeeze holes at 6995’ and 6595'. POOH. RD WL.
15. PU and TIH with (4.5", 11.6#) CICR on 2-3/8" tbg while hydrotesting to 4000 psi and set at +/- 6655'. Establish circulation through squeeze holes with biocide treated freshwater and circulate a minimum of 200 bbls through squeeze holes.
16. RU Cementers. Pump Niobrara suicide squeeze: Pump 10 bbls sodium silicate and 4 bbls of water followed by 115 sx (176 cf). Underdisplace by 3 bbls. Cement will cover 6995'-6595' on the back side.

Volume is based on 400' in 7-7/8" OH with 40% excess, 340' below retainer in 4-1/2" production casing with no excess and 190’ on top of CICR in 4.5” casing. RDMO cementers.

17. Slowly pull out of cement and PUH to 6200' and reverse circulate tbg clean to ensure no cement is left in tbg. TOOH, SB all tbg. LD stinger. WOC per cement company guidelines.
18. MIRU WL. PU and RIH with two 1’ 3-1/8" perf guns with 3 spf, 0.50" EHD, 120° phasing. Shoot 1' of squeeze holes at 1315’ and 1' of squeeze holes at 1000'. POOH. RD WL.
19. PU and TIH with (4.5", 11.6#) CICR on 2-3/8" tbg while hydrotesting to 4000 psi and set at +/- 1060'. Establish circulation through squeeze holes with biocide treated freshwater and circulate a minimum of 150 bbls through squeeze holes. Max pressure with water shall be 545 psi.
20. MIRU Cementing. Establish circulation and pump 20 bbls (5 bbls of water, 10 bbls of sodium silicate, and 5 bbls water) spacer, 95 sx Fox Hills suicide Squeeze cement (147 cf, 26.2 bbls) 14 ppg, 1.55 yld. Underdisplace by 3 bbl. Calculations based on 315' in the annulus between 7.88" hole and 4.5" casing with 100% excess, 255' below CICR inside production casing and 3 bbl on top of CICR. Attempt to cement from 1315' to 1000'. Max pressure with full column of cement shall be 379 psi.
21. PUH to 275' and reverse circulate tbg clean to ensure no cement is left in tbg. TOOH, SB all tbg. LD stinger. WOC per cement company guidelines.
22. 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 (~867'). If ROP is faster than 2 min/ft, SD and WOC 24 hours and repeat. Drill down to CICR located at +/- 1060' and pressure test to 500 psi for 5 minutes.. Drill CICR and cement past lower perf at 1315' and pressure test to 500 psi for 5 minutes. Repeat for CICR at 6655', pressure testing first the top holes above CICR and then the bottom perfs.
23. TOOH and SB tbg, LD drill collars, LD bit.
24. MIRU WL and run CCL-GR-CBL-VDL from +/-7065' to surface. RDMO WL. 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 the completion of the job.
25. PU and TIH with bit on 2-3/8" tbg. Drillout CIBP at +/- 7065' and chase down to 8265'.
26. TOOH. SB all tbg. LD bit.
27. PU 2-3/8" NC, 2-3/8" XN nipple, 4-1/2" Arrowset AS-1X packer (10k rated above and below) to be set at 7774', and 2-3/8" 4.7# J-55 tbg to surface.
28. Set packer at +/- 7774'. Load backside with packer fluid and test to 500 psi.
29. RU rig lubricator. Broach tubing to XN seating nipple. RD rig lubricator.
30. MIRU WL. PU and RIH with tubing plug. Set 2-3/8" tbg plug in XN nipple below packer. POOH. RDMO WL.
31. ND BOP. Install 7-1/16" flanged 5000 psi tubing head adaptor with studded top, 2-1/16" flanged 5000 psi master valve, flanged 5000 psi 2-1/16" plunger lubricator (side outlets threaded). 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.
32. RU hydrotester. Install 2-1/16" pup joint above the master valve. Hydrotest WH 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. If wellhead does not pressure test, replace wellhead/wellhead valves as necessary with 5,000 psi rated equipment.
33. NU WH. RDMO WO rig. Return well to production team.