

Engineer: Sterling Metzger

Cell: 330-605-2231

PLUG and ABANDONMENT PROCEDURE

PSC 21-11A

Step Description of Work

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. Isolate production equipment, and remove any automation prior to rig MIRU.
2. MIRU Slickline. Gyro ran 10/7/2013. Record tag depth in Open Wells. RD slickline.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed.
4. 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.
5. MIRU WO rig. Spot in min 25 jts of 2.06" 3.25# J-55, tbg. Kill well as necessary using clean fresh water with biocide. ND WH. NU BOP.
6. TOOH. SB all 2.06" tbg.
7. PU and RIH with (3.5", 7.7#) bit and scraper on 2.06" tbg to 7215' (Liner Top). TOOH. SB 6825' 2.06" tbg. LD remaining tbg and Bit and Scraper.
8. RU WL. PU and RIH with (3.5", 7.7#) CIBP and set at +/- 7175' to abandon the J Sand perfs. TOOH. RIH and dump bail 2 sx of cement on CIBP. TOOH.
9. PU and RIH with (3.5", 7.7#) CIBP and set at +/- 6825' to abandon the Nio/Codell perfs. TOOH. RD WL.
10. TIH with 2.06" tbg while hydrotesting to 3000 psi to 6825'. Circulate all gas from well. PT CIBP to 3000 psi for 15 minutes. (Going to use 3.5" as work string eventually, that is why we PT to 3000 psi)
11. RU cementers. Pump Niobrara Balance Plug: Pump 15 sxs (24 cf) 15.8 ppg & 1.55 cf/sk. Volume based on 400' inside 3.5" production casing. Cement will be from 6825' – 6425'. RD cementers.
12. Slowly pull out of the cement and PUH to 6200'. Reverse circulate tubing clean to ensure no cement is left in the tubing. TOOH and LD all 2.06" tbg.
13. RU WL. RIH and cut 3.5" casing at 4280'. TOOH. RD WL.
14. Circulate with fresh water containing biocide to remove any gas.
15. Un-land casing using a casing spear, not a lifting sub. Max pull shall be 100,000#. If unable to unland, contact Engineering.
16. ND BOP. ND TH. Install BOP on casing head with 3.5" pipe rams.
17. Raise 3.5" casing to floor.
18. Establish circulation to surface with biocide treated fresh water at least one hole volume (300 bbls). If you cannot circulate up surface casing call engineering.
19. RU Cementers. Pump Sussex Balance Plug: Pump 10 bbls sodium silicate followed by 5 bbls fresh water spacer. 200 sx (236 cf) w/ Polyflake, 15.8 ppg & 1.18 cf/sk. Volume is based on 410' in 7.88" OH w/ 60% excess factor. Cement will be from 4280' – 3870'.
20. Slowly pull out of the cement and PUH to 3600'. Circulate to ensure no cement is left in the tbg.

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21. WOC per cement company recommendation. TIH and tag cement. Cement top needs to be at or above 3872' (200' above the SX top at 4072'). Call Engineering if tag is lower than 3872'.
22. PUH to 970' w/ 3.5" csg, LD remaining tbg.
23. Establish circulation with biocide treated fresh water and pump one hole volume (130 bbls). Pump 10 bbls (min) SAPP, followed by 5 bbls fresh water spacer.
24. RU Cementers. Pump Stub Plug: 355 sxs (412 cf) 0.25 lb/sk Polyflake, 15.8 ppg & 1.16 cf/sk (606' in 7.88 bit size w/ 60% excess factor, and 200' in 8-5/8" surface casing with no excess). The plug will cover 970' – 164' RD cementers. Notify Engineering if circulation is ever lost during job.
25. Slowly pull out of the cement and PUH to 80'. Reverse Circulate using biocide treated fresh water, to ensure the tubing is clean. TOOH. LD all csg.
26. RU WL. RIH 8-5/8" 24# CIBP to 80'. RDMO WL and WO rig.
27. 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.
28. Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
29. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
30. Capping crew will set and secure night cap on 8 5/8" casing head, restrain the casing head, pressure test CIBP to 500 psi with hydrotest pump, then remove night cap and casing head restraints.
31. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
32. Welder cut casing minimum 5' below ground level.
33. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
34. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
35. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
36. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
37. Back fill hole with fill. Clean location, and level.
38. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.