

Engineer: SABRINA FRANTZ

Cell: 970-388-1139

## PLUG and ABANDONMENT PROCEDURE

### BERRY 26-12L

#### 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. Request they isolate production equipment, and remove any automation prior to rig MIRU.
2. MIRU Slickline. Pull bumper spring and tag bottom. Record tag depth in Open Wells. Well has a gyro survey from 11/21/2014. 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 a min of 25 jts of 2-1/6" 3.25# J-55 tbg. Load hole using clean fresh water with biocide to control well. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
6. TOOH and SB 7360' of 2-1/6" tbg. LD remaining tbg.
7. PU and TIH with 3-1/2", 7.70# csg scraper on 2-1/6" tbg down to 7360' TOOH.
8. RU WL. PU and RIH with (3.5", 7.70#) CIBP and set at +/- 7350' (collars at 7325' and 7372') to abandon the JSand Perfs. POOH.
9. PU and RIH with (3.5", 7.70#) CIBP and set at +/- 7220' (collars at 7202' and 7255') to abandon the Codell Perfs. POOH. RD WL.
10. TIH with 2-1/6" tbg while hydrotesting to 3000 psi to 7220'. Circulate all gas from well. PT CIBP to 1000 psi for 15 minutes.
11. RU cementers. Pump Niobrara Balance Plug: Pump 20 sxs (31 cf) 15.8 ppg & 1.55 cf/sk. Volume based on 580' inside 3-1/2" production casing. Cement will be from 7220' – 6640'. RD cementers.
12. Slowly pull out of the cement and PUH to 6140'. Reverse circulate tubing clean to ensure no cement is left in the tubing. TOOH and SB 6640' of 2-1/6" tbg.
13. RU WL. RIH with 3' of a 3-1/2" perf gun with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 4835' and 4' of squeeze holes at 4030'. POOH. RD WL.
14. PU CICR (3-1/2" 7.70 #) on 2-1/6" tbg and TIH. Set CICR at 4060'.
15. Establish circulation with biocide treated fresh water (200 bbls) through squeeze holes.
16. RU Cementers. Pump Sussex Squeeze: 10 bbls sodium silicate and 5 bbls fresh water followed by 385 sxs (65 cf) w/ polyflake 15.8 ppg & 1.18 cf/sk. Underdisplace by 3 bbls. Volume is based on 775' below the CICR inside 3-1/2" production casing, 805' in the 3-1/2" csg annulus assuming 8" OH from the log with 20% excess, and 195' on top of the CICR. RD cementers.
17. Slowly pull out of the cement and PUH to 3530'. Reverse circulate to ensure no cement is left in the tbg. TOOH and SB 1095'.
18. RU WL. RIH and cut 3-1/2" casing at 995'. RD WL.
19. Circulate with fresh water containing biocide to remove any gas.
20. ND BOP. ND TH and Un-land casing using a casing spear, not a lifting sub. Max pull shall be 100,000#. If unable to unland, contact Engineering.
21. Install BOP on casing head with 3-1/2" pipe rams.
22. TOOH and LD all of 3-1/2" casing. Remove 3-1/2" pipe rams and install 2-1/6" pipe rams.

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23. RIH with 2-1/6" tbg to 1095'.
24. Establish circulation with biocide treated fresh water (115 bbls).
25. RU Cementers. Pump Stub Plug: 315 sxs (464 cf) with 0.25 lb/sk Polyflake, 15.8 ppg & 1.16 cf/sk (100' in 3-1/2" production casing with no excess, 583' in 7.88 bit size w/ 60% excess factor, and 200' in 8-5/8" surface casing with no excess). The plug will cover 1095' – 312' RD cementers.
26. Slowly pull out of the cement and PUH to 100'. Circulate using biocide treated fresh water, to ensure the tubing is clean.
27. WOC per cement company recommendation. TIH and tag cement. Cement top needs to be at or above 462' (50' above the surface casing shoe at 512'). Call Engineering if tag is lower than 462'. PU and TOOH.
28. RU WL. RIH 8-5/8" 24# CIBP to 80'. RDMO WL and WO rig.
29. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com) within 24 hours of completion of the job.
30. Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
31. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
32. 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.
33. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
34. Welder cut casing minimum 5' below ground level.
35. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
36. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
37. Obtain GPS location data as per COGCC Rule 215 and send to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com).
38. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
39. Back fill hole with fill. Clean location, and level.
40. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.