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## PLUG and ABANDONMENT PROCEDURE

### CANNON 33-3

#### 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. Directional Survey was run on 07/26/11. 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. Kill well as necessary using biocide treated fresh water. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
7. TOO H and SB 6580' 2-3/8" tbg. LD any remainder.
8. MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 7695'. POOH.
9. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7685' (collars at 7676' & 7720'). POOH. RIH and dump 2 sx cement on CIBP. POOH.
10. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 6975' (collars at 6957' & 7001'). POOH. RDMO WL.
11. Load hole with biocide treated fresh water and circulate all gas out of well. PT CIBP to 500psi for 15 minutes.
12. Run CCL-GR-CBL-VDL from +/- 6975' to surface to confirm Niobrara squeeze location. 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.
13. RIH and dump bail 2 sx cement on top of CIBP.
14. RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 6850' and 4' of squeeze holes at 6550'. RDMO WL.
15. PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg while hydrotesting to 3000 psi. Set CICR at +/- 6580'.
16. Establish circulation to surface with biocide treated fresh water and pump 100 bbls to clean up hole.
17. MIRU Cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Niobrara Squeeze: 95 sx (25.5 bbls, 143.5 cf) with 0.25 lb/sk polyflake, assuming 15.8 ppg and 1.51 yld. Underdisplace by 3 bbls. Volume is based on 270' below the CICR inside 4-1/2", 11.6# production casing with no excess, 300' in the 4-1/2" annulus assuming 7.88" bit size and 40% excess and 188' on top of the CICR to cover top perfs. RD Cementers.
18. Slowly pull out of the cement. Reverse circulate using biocide treated fresh water to ensure the tubing is clean. TOO H, SB 1440' 2-3/8" tbg. LD remaining tbg.
19. MIRU WL. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 4240' (collars at 4210' & 4254'). POOH. RIH and dump 2 sx cement on CIBP. POOH.

20. RIH and jet cut 4-1/2", 11.6# casing at 530'. RDMO WL.
21. Attempt to establish circulation and circulate (53 bbl) with fresh water containing biocide to remove any gas.
22. ND BOP. ND TH. Un-land casing using a casing spear, not a lifting sub. Rig max pull shall be 100,000#. Max pull over string weight shall be 50,000#. If unable to unland, contact Engineering.
23. Install BOP on casing head with 4-1/2", 11.6# pipe rams.
24. TOOH and LD all 4-1/2", 11.6# casing. Remove 4-1/2", 11.6# pipe rams and install 2-3/8" pipe rams.
25. TIH with mule shoe and 2-3/8" tubing to 1440'.
26. Establish circulation to surface with biocide treated fresh water and pump at least two hole-volumes (52 bbl) to circulate all gas out of the well. Contact engineering if evidence of gas migration persists.
27. RU Cementers. Pump Stub Plug: 100 sx (26.7 bbl or 150 cf) , assuming 15.8 ppg & 1.5 cf/sk. Volume is based on 910' in 4-1/2", 11.6# production casing with no excess and 200' in the 8-5/8", 24# surface casing with no excess. The plug is designed to cover 1440'-330'. RDMO Cementers. Notify engineering if circulation is ever lost during job.
28. 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.
29. MIRU WL. 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.
30. RIH 4-1/2", 11.6# CIBP to 80'. RDMO WL and WO rig.
31. 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.
32. Supervisor submit paper copies of all invoices, logs, and reports to VWP Engineering Specialist.
33. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
34. 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.
35. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
36. Welder cut casing minimum 5' below ground level.
37. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
38. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
39. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
40. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
41. Back fill hole with fill. Clean location, and level.
42. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.