

## PLUG and ABANDONMENT PROCEDURE

### OLIN L 17-20

#### 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 catch and remove plunger, isolate production equipment, and remove any automation prior to rig MIRU.
2. MIRU Slickline. WELL NEEDS GYRO RUN. Run gyro to 7374', making stops every 100'. RDMO Slickline. Pull bumper spring and tag bottom. Record tag depth in Open Wells. RDMO 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. MIR WO rig and spot in empty pipe trailer. Kill well as necessary using biocide treated fresh water. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
6. TOOH and SB all 2-3/8" tbg. LD 1 joint.
7. MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 7330'. RIH w/ (4-1/2", 11.6#) CIBP on WL and set at 7320' (Collars at 7300' and 7340'). POOH and RD WL.
8. MIRU Cementers. Niobrara/Codell Balance Plug: Pump 40 sxs (61.2 cf, 10.9 bbl) 15.8 ppg & 1.53 cf/sk (or 40 sx minimum for SLB). Volume based on 702'+ inside 4-1/2" production casing with no excess. Cement will be from 7320' – 6710'. RD Cementers.
9. Slowly pull out of the cement and LD tubing to keep 4175'. Reverse circulate tbg clean to ensure no cement is left in the tbg. TOH with remaining tubing and SB.
10. 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 4545' and 4' of squeeze holes at 4145'. RDMO WL.
11. PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 4175'.
12. Establish circulation to surface on backside through retainer with biocide treated fresh water, and pump 110 bbls to clean up hole. **If circulating pressure is over 1000#, call engineer.**
13. RU Cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump **GAS BLOK Sussex Squeeze:** 175 sx (36 bbl or 203 cf) assuming 12 ppg & 1.16 cf/sk. **Slurry could be different yield – confirm yield and volume before pumping. Confirm job pressures with engineer.** Underdisplace by 3 bbls. Volume is based on 370' below the CICR inside 4-1/2" 11.6# production casing with no excess, 400' in the 4-1/2", 11.6# annulus assuming 7.88" bit size with 60% excess and 193' on top of the CICR to cover top perfs. RD Cementers.
14. Slowly pull out of the cement and TOOH and LD to 3000'. Reverse circulate to ensure no cement is left in the tbg. **Leave 200# on casing.**
15. After pumping the squeeze at 4175', SD and WOC at minimum 4 hrs; verify gas migration/pressure on surface casing has been eliminated. If evidence of gas migration or pressure remains, contact engineer.
16. TOOH and SB 1245' of 2-3/8" tbg. LD stinger, and remaining tbg.
17. RIH and jet cut 4-1/2" casing at 1145'. RDMO WL.
18. Attempt to circulate with biocide treated fresh water to remove any gas.

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19. 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.
20. Install BOP on casing head with 4-1/2" pipe rams.
21. TOOH and LD all 4-1/2" casing. Remove 4-1/2" pipe rams and install 2-3/8" pipe rams.
22. TIH with 2-3/8" tbg to 1245'.
23. Establish circulation with biocide treated fresh water and pump pump 200 bbls to clean up hole. Call engineer if any gas is present.
24. RU Cementers. **Pump GAS BLOK Stub Plug:** Pump 10 bbls (min) SAPP and 5 bbls fresh water spacer followed by 370 sx (45 cf, 75 bbl), 14 ppg, & 1.16 cf/sk cement. **Slurry could be different yield – confirm yield and volume before pumping.** Volume is based on 100' in 4-1/2" production casing with no excess, 476' in 7-7/8" bit size OH with 100% excess, and 200' in 8-5/8" surface casing with no excess. The plug will cover 1245'– 469'. RDMO Cementers.
25. Slowly pull out of the cement and TOH. Reverse circulate using biocide treated fresh water to ensure the tbg is clean. WOC at minimum 4 hrs; verify gas migration/pressure on surface casing has been eliminated.
26. MIRU WL. RIH and tag cement. Cement top needs to be at or above 619' (50' above surface casing shoe at 669'). Call Engineering if tag is lower than 619'. POOH.
27. Pump pressure test to test casing. Test shall be 500psi for 15mins. If well fails pressure test PU TIH with (8-5/8", 24#) packer and set just above cement top. Re-test casing. If casing still fails test, contact engineering.
28. RIH (8-5/8", 24#) CIBP to 80' and set. 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 Platteville 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.