

PLUG and ABANDONMENT PROCEDURE

MOSER 6-28

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. 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. MIRU WO rig. Spot a min of 25 jts of 2-3/8" 4.7# J-55 EUE tbg. 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.
7. MIRU WL. PU and RIH w/ (4-1/2", 11.6#) gauge ring to 7035'. POOH.
8. PIRIH w/ (4-1/2", 11.6#) CIBP on WL and set at 7015'. POOH. RDMO WL.
9. TIH with 2-3/8" tbg to 7015'. Load hole with biocide treated water and circulate all gas out of hole. PT csg and CIBP to 1000psi.
10. MIRU Cementers. Niobrara/Codell Balance Plug: Pump 25 sxs (35 cf) 15.8 ppg & 1.53 cf/sk. Volume based on 400' inside 4-1/2" production casing with no excess. Cement will be from 7015' – 6615'. RD Cementers.
11. Slowly pull out of the cement and PUH to 6100'. Reverse circulate tbg clean to ensure no cement is left in the tbg.
12. TOOH and SB 1350' 2-3/8" tbg, LD remaining tbg.
13. MIRU WL. PIRIH w/ (4-1/2", 11.6#) CIBP on WL and set at 4230'. POOH.
14. RIH and dump bail 2sxs on top of CIBP at 4230. POOH. RDMO WL.
15. Circulate all gas from well.
16. ND BOP and WH. 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-Probable excavate, cut, weld job needed after shoe plug pumped.
17. NU double entry flange and BOP. Install 1.315" pipe rams.
18. PU 480' 1.315" 1.7# J-55 tbg and TIH in annulus between production casing and surface casing to 480' while continuously circulating. Circulate at least 2 sweeps of DF 20-20 (annular volume is 21 bbls based off 480' of 4-1/2" x 8-5/8" annulus with no excess.
19. Using the rig pump, circulate a minimum of 1.5 annular volumes to condition the hole and until well is dead. Pump a final sweep of DF 20-20 at 480'. If unable to circulate dead, contact Engineering.
20. MIRU Cementers. Pump Annular Fill: Establish circulation and pump the following in sequential order: 5 bbls of water, 10 bbls of sodium silicate, and 5 bbls fresh water spacer. Pump 50 sx (600 cf) 0.25 lb/sk polyflake 15.8 ppg & 1.16 cf/sk GasBlok cement. Volume is based off 230' inside 4-1/2" x 8-5/8" annulus with no excess. RDMO Cementers.

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21. Slowly pull out of the cement and PUH to 50'. Reverse circulate tbg clean to ensure no cement is left in the tbg.
22. TOOH and LD all 1.315" tbg. ND BOP and dual entry flange. Use 4-1/2" casing spear to re-land 4-1/2" casing. NU BOP. Install 2-3/8" pipe rams. Shut in well and WOC for a minimum of 24 hours.
23. TIH with 2-3/8" tbg inside 4-1/2" casing to 1350'.
24. Establish circulation with biocide treated fresh water and pump one hole volume (25 bbls).
25. RU Cementers. **Pump Shoe Plug:** Pump 10 bbls (min) SAPP and 5 bbls fresh water spacer followed by 65 sx (70 cf) .25lb/sk polyflake, 15.8 ppg, & 1.16 cf/sk GasBlok cement. Volume is based on 800' in 4-1/2" production casing with no excess. The plug will cover 1350' – 550'. RDMO Cementers.
26. Slowly pull out of the cement and PUH to 100'. Reverse circulate using biocide treated fresh water to ensure the tbg is clean. WOC per cement company recommendation.
27. MIRU WL. RIH and tag cement. Cement top needs to be at or above 698 (50' above surface casing shoe at 748). Call Engineering if tag is lower than 698. POOH. RDMO WL.
28. If Bradenhead pressure present after completion of shoe plug, call engineering for alternate surface plug procedure.
29. RIH (4-1/2", 11.6#) CIBP to 80'. RDMO WL and WO rig.
30. 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.
31. Supervisor submit paper copies of all invoices, logs, and reports to Platteville Engineering Specialist.
32. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
33. Capping crew will set and secure night cap on 4-1/2" casing head, restrain the casing head, pressure test CIBP to 500 psi with hydrotest pump, then remove night cap and casing head restraints.
34. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
35. Welder cut casing minimum 5' below ground level.
36. Fill 4.5" and 8-5/8" casing to surface using 4500 psi compressive strength cement (NO gravel).
37. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
38. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
39. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
40. Back fill hole with fill. Clean location, and level.
41. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.