

Engineer: Elizabeth Hunt
Cell: 808-594-3092

PLUG and ABANDONMENT PROCEDURE

WEICHEL 10-14

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, and if possible open well to separator, submit Form 42, etc.). Notify automation Removal Group at least 48 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. RD slickline.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed. Spot a min of 10 jts of 2-3/8" 4.7" J-55 EUE tbg.
4. Check and record bradenhead pressure every day while working on well. 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. Kill well as necessary using clean fresh water with biocide. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
6. TOOH and SB 7050' 2-3/8" tbg. LD Remainder.
7. RU WL. PU and RIH with 3.75" GR/JB to 7080'. PU and RIH with (4.5", 11.6#) CIBP and set at 7050' to abandon the Nio formation/Codell perms. TOOH. RD WL.
8. TIH with 2-3/8" tbg while hydrotesting to 3000 psi to 7050'. Circulate all gas from well. PT CIBP to 1000 psi for 15 minutes.
9. RU cementers. Pump Niobrara Balance Plug: Pump 35 sxs (54 cf) 15.8 ppg & 1.55 cf/sk. Volume based on 411' inside 4-1/2" production casing. Cement will be from 7050' – 6439'. RD cementers.
10. Slowly pull out of the cement and LD tbg until EOT is at 4472'.
11. Establish circulation to surface with fresh water.
12. RU Cementers. Pump Sussex Balance Plug: Pump 30 sx (35 cf), assuming 15.8 ppg & 1.17 cf/sk. Volume is based on 400' inside 4-1/2" production casing with no excess. Cement will be from 4472' – 4072'.
13. Slowly pull out of the cement and PUH to 3900'. Reverse circulate to ensure no cement is left in the tbg.
14. TOOH and SB 1500' 2-3/8" tbg, LD remaining tbg.
15. RU WL. RIH and cut 4-1/2" casing at 1400'. RD WL.
16. Circulate wellbore volume (215 bbls) with fresh water containing biocide to remove any gas.
17. ND BOP. ND TH. Install BOP on casing head with 4-1/2" pipe rams.
18. Un-land casing using a casing spear, not a lifting sub. Max pull shall be 100,000#. If unable to un-land, contact Engineering.
19. TOOH and LD 1400' of 4-1/2" casing. Remove 4-1/2" pipe rams and install 2-3/8" pipe rams.
20. RIH with 2-3/8" tubing to 1500'.
21. Establish circulation with biocide treated fresh water.
22. RU Cementers. Pump Stub Plug: 330 sxs (381 cf) with 0.25 lb/sk Polyflake, 15.8 ppg & 1.16 cf/sk (100' in 4-1/2" production casing with no excess, 107' in 7.88 bit size w/ 60% excess

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- factor, and 200' in 8-5/8" surface casing with no excess). The plug will cover 1500' – 646' RD cementers.
23. Slowly pull out of the cement and PUH to 300'. Reverse Circulate using biocide treated fresh water, to ensure the tubing is clean.
 24. WOC per cement company recommendation. TIH to tag cement. Record tag depth in OpenWells. Cement top needs to be at or above 796' (50' above the surface casing shoe at 846'). Call Engineering if tag is lower than 796'. PU and TOOH.
 25. RU WL. RIH with 8-5/8" 24# CIBP to 80'. RDMO WL and WO rig.
 26. 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.
 27. Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
 28. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
 29. 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.
 30. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
 31. Welder cut casing minimum 5' below ground level.
 32. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
 33. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
 34. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
 35. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
 36. Back fill hole with fill. Clean location, and level.
 37. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.