

Engineer: Elizabeth Hunt
Cell: 808-594-3092

PLUG and ABANDONMENT PROCEDURE

HSR-BINDER 6-15

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. 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 1-1/4" tbg (J-55, 2.25#). Well has a CIBP and 1 sx of cement downhole. Kill well as necessary using clean fresh water with biocide. ND 5K MV. NU BOP. Unland tbg using unlanding joint and LD.
6. Circulate all gas out of the hole. PT csg to 2000 psi for 15min. If PT fails, contact the on call engineer.
7. TOOH and SB all 1-1/4" tbg.
8. TIH with 1-1/4" tbg while hydrotesting to 3000psi until TOC is tagged (~6890ft).
9. RU cementers. **Pump Niobrara Balance Plug:** Pump 10 sxs (16 cf) 15.8 ppg & 1.55 cf/sk. Volume based on 450' inside 2-7/8" production casing. Cement will be from 6900' – 6450'. RD cementers.
10. Slowly pull out of the cement and PUH to 6000'. Reverse circulate tubing clean to ensure no cement is left in the tubing. TOOH and SB 3890' of 1-1/4" tubing. LD Remaining.
11. RU WL. PU and RIH with two 2-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 4300'. RD WL.
12. TIH with 2-7/8" (6.5#, J-55) packer and 1-1/4" tbg down to 3890'. Set packer and establish injection with biocide treated fresh water into squeeze perms. Do not exceed 3000 psi while trying to establish injection. Attempt to circulate to surface with 100 bbls biocide treated fresh water.
13. TOOH and LD packer. SB tbg.
14. RU cementers. **Pump Shannon/Sussex Squeeze:** Pump 5 bbls fresh water, 20 bbls sodium metasilicate and 5 bbls fresh water followed by 190 sxs (222 cf) of Sussex Blend with 0.25 lb/sk Polyflake, assuming 15.8 ppg & 1.17 cf/sk. Follow cement with a 2-7/8" (6.5#) wiper plug. Displace wiper plug down to 3890' with 15 bbls of biocide treated fresh water. Catch final displacement pressure and SI well overnight. NOTE: Do not exceed a pump pressure greater than 2000psi. Volume based on 410' inside 2-7/8" production casing, 410' in the 2-7/8" production casing annulus assuming 7-7/8" drill bit size with 60% excess. RD cementers.
15. WOC per cement company recommendations. Relieve pressure.
16. TIH with 1-1/4" tbg and tag wiper plug with tbg (~3890'). Note tag depth in OpenWells report. TOOH and SB 960' of 1-1/4" tbg. LD remainder.
17. RU WL. RIH and cut 2-7/8" casing at 860'. RD WL.
18. Circulate with fresh water containing biocide to remove any gas.

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19. Un-land casing using a casing spear, not a lifting sub. Max pull shall be 100,000#. If unable to unland, contact Engineering.
20. ND BOP. ND TH. Install BOP on casing head with 2-7/8" pipe rams.
21. TOOH and LD all 2-7/8" casing. Remove 2-7/8" pipe rams and install 1-1/4" pipe rams.
22. RIH with 1-1/4" tubing to 960'.
23. Establish circulation with biocide treated fresh water and pump one hole volume (~100 bbls). Pump 10 bbls (min) SAPP, followed by 5 bbls fresh water spacer.
24. RU Cementers. **Pump Stub Plug:** 180 sxs (210 cf) with 0.25 lb/sk Polyflake, 15.8 ppg & 1.16 cf/sk (100' in 2-7/8" production casing with no excess, 246' in 7-7/8" bit size w/ 60% excess factor, and 200' in 8-5/8" surface casing with no excess). The plug will cover 960' – 414' RD cementers.
25. Slowly pull out of the cement and PUH to 200'. Reverse Circulate using biocide treated fresh water, to ensure the tubing is clean.
26. WOC per cement company recommendation. TIH and tag cement. Cement top needs to be at or above 564' (50' above the surface casing shoe at 614'). Call Engineering if tag is lower than 564'. PU and TOOH.
27. RU WL. RIH 8-5/8" CIBP to 80'. RDMO WL and WO rig.
28. 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.
29. Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
30. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
31. 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.
32. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
33. Welder cut casing minimum 5' below ground level.
34. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
35. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
36. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
37. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
38. Back fill hole with fill. Clean location, and level.
39. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.