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## PLUG and ABANDONMENT PROCEDURE

### KURTZ AL GU 1

#### 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. Gyro was run on 12/8/2014. 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. Spot a min of 125 jts of 2.375" 4.7#, J-55, EUE tbgs. Kill well as necessary using clean fresh water with biocide. ND WH. NU BOP. Unland tbgs using unlanding joint and LD.
7. TOOH and SB 7610' 2.375" tbgs. LD any remainder.
8. PU and TIH with (4.5", 10.5#) Bit and Scraper on 2.375" tbgs to 7610'. TOOH.
9. MIRU WL. PU and RIH with (4.5", 10.5#) CIBP and set at +/- 7600' (collars at 7572' & 7614'). POOH. RIH and dump 2 sx cement on CIBP. POOH and SB WL.
10. TIH with 2.375" tbgs to 2500'. Load hole with biocide treated fresh water and circulate all gas out of well. PT CIBP to 500psi for 15 minutes. TOOH and SB all 2.375" tbgs.
11. RIH and run CBL from 6920' to surface. Forward CBL to Platteville office. Cementing plans may change depending on CBL results.
12. RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 6880' and 4' of squeeze holes at 6480'. RDMO WL.
13. MIRU hydrotesters. PU and TIH with 2.375" tbgs and (4.5", 10.5#) CICR to 6510' while hydrotesting to 3000 psi. RDMO hydrotesters.
14. Set CICR at 6510'. Establish circulation to surface with biocide treated fresh water, and pump 100 bbls to clean up hole.
15. MIRU Cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water space. Pump Niobrara Squeeze Plug: Pump 150 sxs (227cf) with 0.25 lb/sk polyflake, assuming 15.8 ppg & 1.51 cf/sk. Underdisplace by 3 bbls. Volume is based on 370' below the CICR inside 4.5", 10.5# production casing with no excess, 400' in the 4.5", 10.5# annulus assuming 7.88" bit size with 60% excess and 185' on top of the CICR to cover top perfs. RD cementers.
16. Slowly pull out of the cement and TOOH to 5800'. Reverse circulate using biocide treated fresh water, to ensure the tubing is clean. TOOH and SB 3945' of 2.375" tbgs. LD remaining tbgs.
17. 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 4315' and 4' of squeeze holes at 3915'. RDMO WL.
18. PU and TIH with (4.5", 10.5#) CICR on 2.375" tbgs. Set CICR at 3945'.
19. Establish circulation to surface with biocide treated fresh water, and pump 100 bbls to clean up hole.

20. RU Cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water space. Pump Sussex Squeeze: 150 sxs (227cf) with 0.25 lb/sk polyflake, assuming 15.8 ppg & 1.51 cf/sk. Underdisplace by 3 bbls. Volume is based on 370' below the CICR inside 4.5", 10.5# production casing with no excess, 400' in the 4.5", 10.5# annulus assuming 7.88" bit size with 60% excess and 185' on top of the CICR to cover top perfs. RD cementers.
21. Slowly pull out of the cement and TOO H to 3260'. Reverse circulate to ensure no cement is left in the tbg.
22. TOO H and SB 860' of 2.375" tbg. LD CICR, stinger, and remaining tbg.
23. TIH with 2.375" tubing to 860'.
24. RU Cementers. Pump Stub Plug: 40 sxs (60cf) assuming 15.8 ppg & 1.5 cf/sk. Volume is based on 860' in 4.5", 10.5# production casing with no excess. The plug is designed to cover 860'-275'. RDMO cementers.
25. Slowly pull out of the cement and TOO H to 100'. Reverse circulate using biocide treated fresh water, to ensure the tubing is clean. TOO H, LD all 2.375" tbg.
26. MIRU WL. Tag cement as needed. RIH 4-1/2", 10.5# CIBP to 80'. RDMO WL and WO rig.
27. 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.
28. Supervisor submit paper copies of all invoices, logs, and reports to VWP Engineering Specialist.
29. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
30. Capping crew will set and secure night cap on 4-1/2", 10.5# casing head, restrain the casing head, pressure test CIBP to 500 psi with hydrotest pump, then remove night cap and casing head restraints.
31. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
32. Welder cut casing minimum 5' below ground level.
33. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
34. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
35. Obtain GPS location data as per COGCC Rule 215 and send to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com).
36. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
37. Back fill hole with fill. Clean location, and level.
38. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.