

## Re-Entry PLUG and ABANDONMENT PROCEDURE

### RMPCO (UPRR) LANGE 1

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| Step | Description of Work |
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|  | <ol style="list-style-type: none"><li>1. Well is being re-entered to P&amp;A to today's standards due to it being offset Robin HZ pad.</li><li>2. Provide 48 hour notice to COGCC prior to rig up per request on approved Form 6 (e.g. submit Form 42, etc.).</li><li>3. Locate and expose 8 5/8" casing stub. Extend stub to surface and install 8 5/8"x 11" SOW, 3M casing head with 3000 psi ball valves in both outlets.</li><li>4. Prepare location for base beam equipped rig. Install perimeter fence as needed.</li><li>5. MIRU workover rig. NU 9" 3000 psi BOP stack on casing head. PT BOP and csg head. Function test BOPE. Install a choke or choke manifold on casing outlet. NU rotating head on BOP. Hook up return line to shale shaker on flat tank. Ensure full opening 3-1/2" TIW on rig floor.</li><li>6. RU power swivel. PU 7-7/8" <b>rock bit</b>, bit sub, 1 – 3-1/2" drill collar, 1 – centralizer (8-5/8" 24#), 7 – 3-1/2" drill collars, 1 jt 3-1/2" work string (WS), float sub, and 3-1/2" WS. TIH and drill through existing cement plugs at surface (5 sx plug from ~10'-25'), at the base of surface casing (25 sx 100'-210'), downhole (25 sx 750'-800') and further downhole (25 sx 975-1050') using fresh water with biocide.</li><li>7. LD power swivel. Once identified cement plugs are drilled, Displace hole with 10 ppg drilling mud and continue washing down to the cut production casing. Casing cut depth not known. (Assumed to be ~6500') Stop every 1,000' and circulate 1-2 bottoms up or until mud returns clean up to make sure we are adequately removing dehydrated mud and any gas in the wellbore. Tag cut casing.</li><li>8. Break circulation and circulate 1.5 times hole volume or until there is no more gas or dehydrated mud in returns. TOOH. SB 3-1/2" WS. LD bit and drill collars. <b>*Note: If any tight spots were encountered while washing to bottom make sure to ream through the tight area until you no longer see a tight spot.</b></li><li>9. TIH to casing top with WS open-ended while hydrotesting to 3000 psi. Establish circulation with biocide treated fresh water and condition hole for cementing.</li><li>10. MIRU VES. Run gyro survey from end of WS to surface. RDMO VES.</li><li>11. Establish circulation with biocide treated fresh water.</li><li>12. <u>RU Cementers</u>. <b>Pump Stub Plug:</b> 180 sx (271 cf) with 0.25 lb/sk Polyflake, assuming 15.8 ppg &amp; 1.5 cf/sk. Volume is based on 500'q in the 7-7/8" drill bit size with 60% excess. RD cementers.</li><li>13. Slowly pull out of the cement and PUH 500' from estimated cement top. Reverse circulate to ensure no cement is left in the WS.</li><li>14. WOC per cement company recommendation. TIH and tag cement. Call Engineering to verify tag is high enough.</li><li>15. PUH to 4140'. LD WS.</li><li>16. <u>RU Cementers</u>. <b>Pump Sussex Balanced Plug:</b> 180 sx (271 cf) with 0.25 lb/sk Polyflake, assuming 15.8 ppg &amp; 1.5 cf/sk. Volume is based on 500' in the 7-7/8" drill bit size with 60% excess. Cement will be from 4900' – 4400'. RD cementers.</li><li>17. Slowly pull out of the cement and PUH to 3900'. Reverse circulate to ensure no cement is left in the WS.</li></ol> |
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18. WOC per cement company recommendation. TIH and tag cement. Call Engineering to verify tag depth is high enough.
19. PUH to 1200'. LD WS.
20. RU Cementers. **Pump Balanced Plug:** 180 sx (271 cf) with 0.25 lb/sk Polyflake, assuming 15.8 ppg & 1.5 cf/sk. Volume is based on 500' in the 7-7/8" drill bit size with 60% excess. Cement will be from 1200' – 700'. RD cementers.
21. Slowly pull out of the cement and PUH to 100'. Reverse Circulate using biocide treated fresh water, to ensure the tubing is clean.
22. WOC per cement company recommendation. TIH and tag cement. Call Engineering with tag depth to confirm cement volumes for next plug that will need to reach into surface casing shoe.
23. RU Cementers. **Pump Shoe Plug:** 200 sx (350 cf) with 0.25 lb/sk Polyflake, assuming 15.8 ppg & 1.5 cf/sk. Volume is based on 493' in the 7-7/8" drill bit size with 60% excess and 93' in 8-5/8" casing with no excess. Cement will be from 700' – 100'. RD cementers.
24. Slowly pull out of the cement and PUH to 50'. Reverse Circulate using biocide treated fresh water, to ensure the tubing is clean.
25. WOC per cement company recommendation. TIH and tag cement. Cement top needs to be at or above 100'. Call Engineering to verify tag depth ok.
26. RU WL. PU and RIH 8-5/8" 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 Evans 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 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.
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.