

PLUG AND ABANDONMENT PROCEDURE

GOTMILK W 28-4JI

Step	Description of work
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| 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.). Call 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 services. 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. |
| 5. | Spot 25 jts of 2-3/8", 4.7# J-55 8RD EUE tbgs. |
| 6. | MIRU WO rig. Kill well as necessary using clean fresh water with biocide. ND WH. NU BOP. |
| 7. | Before unlanding the tbgs, make sure backside is loaded and PT packer to 1000 psi for 15 min. Record the results of the PT in Open Wells. Unseat landing joint, and LD. |
| 8. | Call Thunderbird Services to come out and release the packer. Release PKR (7338') and TOO, SB 2-3/8" tubing. LD PKR. Have Thunderbird provide the on-call engineer with information regarding the packer. |
| 9. | PU bit and scraper for 4-1/2" 11.6 lb/ft casing and RIH to 7800'. TOO, SB 2-3/8" tubing and LD bit and scraper. |
| 10. | RU WL. PU 4-1/2" 11.6 lb/ft CIBP and set at 7790' (collars are located at 7765' and 7804') to abandon J-Sand perms. RD WL. |
| 11. | Pressure test CIBP to 1000 psi for 15 minutes.
<i>Monitor Bradenhead pressure during test. Contact the on-call engineer if the Bradenhead pressure is affected by the casing test.</i> |
| 12. | RU hydrotesters. RIH with 2-3/8" tubing OE to 7790' while hydrotesting in to 3000 psi. RD hydrotesters. Reverse circulate all gas out of the hole. |
| 13. | <u>RU Cementers</u> . Pump Niobrara Balanced Plug: 65 sx (95 ft ³) assumed at 15.6 ppg and 1.51 ft ³ /sk. The plug will cover 6710' - 7790'. Volume based on 1080' in 4-1/2" casing w/ no excess. RD cementers. |
| 14. | Slowly pull out of the cement and PUH to 6500'. LD tbgs while PUH to 6500'. Reverse circulate tubing clean with fresh water to ensure no cement is left in the tubing. |
| 15. | PUH to 4720'. LD tbgs while PUH to 4720'. |
| 16. | <u>RU cementers</u> . Pump Sussex Balanced Plug: 40 sx (38 ft ³) assumed at 15.8 ppg and 1.15 ft ³ /sk. The plug will cover 4720' to 4220'. Volume is based on 500' inside 4-1/2" casing with no excess. RD cementers. |
| 17. | Slowly pull out of the cement and PUH to 4020'. Reverse circulate tubing clean to ensure no cement is left in the tubing. LD tbgs while PUH to 4020'. |
| 18. | WOC per cement company recommendation. TIH to tag top of cement. Cement top needs to be at or above 4220'. Record tag depth in Open Wells. |
| 19. | TOO and SB 1510' 2-3/8" tubing. LD remainder. |
| 20. | RU WL with jet cutter. RIH and cut 4-1/2" casing at 1410'. RD WL. |

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21. Circulate with clean fresh water with biocide to remove any gas.
22. Un-land casing. ND BOP. ND TH. Install BOP on casing head with 4-1/2" pipe rams.
23. TOOH and LD 1410' of 4-1/2" casing. Remove 4-1/2" pipe rams and install 2-3/8" pipe rams.
24. RIH with 2-3/8" tubing to 1510'.
25. Establish circulation with biocide treated water, circulate 115 bbls (one hole volume).
26. RU cementers. Precede cement with 10 bbls (min) SAPP followed by a 20 bbl fresh water spacer. Pump stub plug: 325 sx (428 ft³) with Polyflake, assumed at 14.8 ppg & 1.33 cf/sk (100' in 4-1/2" production casing with no excess, 564' in 9" OH with 40% excess, and 200' in 8-5/8" casing with no excess). The plug will cover 1510' – 646'. RD cementers.
27. Slowly pull out of cement and PUH to 400'. SB tbq. Reverse circulate to ensure no cement is left in the tubing.
28. WOC per cement company recommendation. Tag cement. Cement top needs to be at or above 796' (50' above surface casing shoe located at 846'). TOOH. LD remaining tbq.
29. RU WL. RIH 8-5/8", 24# CIBP to 80'. RDMO wireline 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 the 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 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.
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 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.