

PLUG AND ABANDONMENT PROCEDURE

TIEFEL STATE 7-36A

- | Step | Description of Work |
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| 1 | Provide notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). Call foreman or lead operator at least 24 hr prior to rig move. Request they catch and remove the plunger, isolate production equipment and remove any automation prior to rig showing up. Install perimeter fence as needed. |
| 2 | MIRU slickline services. Pull bumper spring and tag bottom. RDMO slickline services. |
| 3 | Notify IOC when rig mobilizes to location to generate workorder for flowline removal & one call for line locates. |
| 4 | Prepare location for base beam equipped rig. |
| 5 | MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD. |
| 7 | TOOH 2 3/8" production tubing. Stand Back. |
| 8 | MIRU WL. RIH gauge ring for 4 1/2" 11.6#/ft casing to 7732'. RIH CIBP w/ WL. Set at 7650'. PU dump bailer, dump bail 2 sx class 'G' cement on CIBP. |
| 9 | RIH CIBP w/ WL. Set at 7200'. |
| 10 | RIH with 2 3/8" tubing to 7200' while hydrotesting to 3,000 psi. |
| 11 | RU Cementers. Mix and equalize Niobrara casing plug: 40 sx class G w/ 20% silica flour, 0.4% CD-32, 0.4% ASA-301 and R-3 mixed at 15.8 ppg and 1.38 cuft/sk (55 cuft of slurry) to place balanced plug 7200'-6570'. |
| 12 | PUH to 4300' and circulate clean. |
| 13 | RU Cement Services. Mix and equalize Sussex casing plug: 40 sx class "G" w/ 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cf/sx (46 cuft of slurry) to place balanced plug from 4300' to -3800'. |
| 14 | PUH to 3000' and circulate to clear tubing. WOC per cement company recommendation. |
| 15 | Tag top af plug at 3800'. TOH standing back 1600' of WS. LD remainder. |
| 16 | ND BOPE, ND tubing head. |
| 17 | Install BOP on casing head with 4 1/2" pipe rams. |
| 18 | RU WL. Crack coupling or cut off casing at 1500'. RDMO WL. Circulate bottoms up and continue circulating as necessary to remove any gas from wellbore. |
| 19 | Pull and LD 4 1/2" casing. Install 2 3/8" pipe rams in BOP. |

- 20 RIH with 2 3/8" tubing to 1600' (100' inside 4 1/2" casing stub).
- 21 RU Cementers. Mix and equalize Stub Plug: 540 sx Type III CaCl₂ cement mixed at 14.8 ppg and 1.33 cf/sk (718 cuft of slurry). Cement volume based on 100' 4 1/2" csg, 10" OH 1500'-680' with 40% excess, and 8 5/8" csg from 680' to 480'
- 22 TOH and WOC per cement company recommendation.
- 23 Tag cement to confirm TOC is at or above 580'.
- 24 MIRU WL. RIH 8 5/8" CIBP to 80'. Set, PT to 1000 psi for 15 min. Assuming successful test, RDMO WL and WO rig.
- 25 Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries and invoices to rscDJVendors@anadarko.com within 24 hrs of the completion of the job.
- 26 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 27 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 28 Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
- 29 Welder cut 8 5/8" casing minimum 5' below ground level.
- 30 Fill surface casing with 4500 psi compressive strength cement (NO gravel).
- 31 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 32 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 33 Obtain GPS location data per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 34 Back fill hole with fill. Clean location, level.
- 35 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

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