

PLUG AND ABANDONMENT PROCEDURE

UPRC 9-16K

- | Step | Description of Work |
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| 1 | Provide 48 hr notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). Call IOC (970-506-5980) at least 24 hr prior to rig move. Request they catch and remove the plunger, isolate production equipment and remove any automation prior to MIRU. |
| 2 | MIRU slickline services. Pull bumper spring and tag bottom. |
| 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 | MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD. |
| 6 | TOOH and stand back 2 3/8" production tubing (234 jts landed @ 7281'). |
| 7 | MIRU WL. RIH gauge ring for 4 1/2" 11.6 #/ft casing to 7050'. POOH. |
| 8 | Set CIBP at 7000' to abandon Codell and Niobrara perms. Pressure test CIBP to 1000 psi. |
| 9 | RIH 2 3/8" tubing to 7000' while hydrotesting to 3,000 psi. |
| 10 | RU Cementers. Pump Niobrara/Codell plug w/ 2 3/8" tubing: 30 sx (41.4 cuft) 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/sx to place plug from 7000' to 6600'. Volume based on 400' inside 4 1/2" casing, no excess. RD Cementers. |
| 11 | PUH to 6400' and circulate to clear tubing. POOH. |
| 12 | MIRU WL. RIH with 2-1' 3-1/8" perf guns with 3 spf, 0.5" diam 120° phasing. Shoot 1' of squeeze holes at 4500' and 4050'. RDMO WL. |
| 13 | PU 4 1/2" CICR and RIH on 2 3/8" tubing. Set CICR @ 4080'. |
| 14 | RU Cementers. Establish injection through squeeze holes. Pump 5 bbl water w/ biocide, 20 bbl Sodium Metasilicate, and another 5 bbl spacer immediately preceding cement. Pump Sussex Suicide Squeeze: 190 sx (219 cuft) class G w/ 0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sx to place plug from 4500' to 4050'. Underdisplace by 3 bbls and unsting from CICR spotting at least 100' cement on top of squeeze holes. Volume based on 450' inside 4 1/2" casing with no excess plus 450' in 9" open hole with 20% excess. RD Cementers. |
| 15 | PUH to 3800', LD remainder and circulate hole clean using fresh water w/ biocide. POOH. |
| 16 | MIRU WL. Shoot off casing at or below 1100'. RDMO WL. Circulate one full circulation with water containing biocide to remove any gas. |

- 17 NDBOP, NDTH.
- 18 Install BOP on casing head with 4 1/2" pipe rams.
- 19 POOH with 1100' of 4 1/2" casing, LD.
- 20 RIH with 2 3/8" tubing to 1200'.
- 21 RU Cementers. Precede cement with 10 bbl SAPP and a 20 bbl (min) fresh water spacer. Spot Stub Plug: 400 sx (532 cuft) Type III w/ cello flake and CaCl₂ as deemed necessary at 14.8 ppg and 1.33 cuft/sx (100' inside 4 1/2" production casing with no excess, 585' in 10" open hole with 40% excess, 215' inside surface casing with no excess). The 400 sx plug will cover 1200' - 300'. RD cementers.
- 22 Trip up to 100' and circulate tubing clean using fresh water treated with biocide. TOOH.
- 23 WOC 4 hrs. Tag cement. Cement top needs to be above 300'.
- 24 MIRU WL. RIH 8 5/8" CIBP to 80'. Set and pressure test to 1000 psi for 15 minutes. RDMO WL and WO rig.
- 25 Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@anadarko.com within 24 hrs of 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 casing minimum 5' below ground level.
- 29 Welder cut casing minimum 5' below ground level.
- 30 Fill casing to surface using 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 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 33 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 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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