

PLUG AND ABANDONMENT PROCEDURE

DECHANT X 19-5

- | 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 plunger, isolate production equipment and remove any automation prior to rig MIRU. |
| 2 | MIRU slickline services. Pull bumper spring and tag bottom. Run pressure bomb and obtain pressure gradient survey from surface to 7846' making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. RDMO slickline services. |
| 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 SB 2 3/8" production tubing (254 jts landed @ 7846'). |
| 7 | MIRU WL. RIH junk basket w/ gauge ring for 4 1/2" 11.6#/ft casing to 7800'. POOH. |
| 8 | Set CIBP at 7780' (collars at 7755' and 7798') to abandon J sand perms. |
| 9 | Pressure test the CIBP to 1000 psi. |
| 10 | MIRU hydrotester. Hydrotest 2 3/8" tubing to 3000 psi while TIH open ended to 7780'. Tag CIBP and PU 5'. |
| 11 | RU Cementers. Pump Niobrara/Codell plug: 70 sx (97 cuft) class "G" w/ 20% silica flour, 0.4% CD-32, 0.4% ASA-301 and R-3 to achieve 2:30 pump time, mixed at 15.8 ppg and 1.38 cuft/sx (1110' inside 4 1/2" csg, no excess). The plug will cover 7780' - 6670'. RD cementers. |
| 12 | PUH to 6500' and circulate tubing clean to ensure no cement is left in the tubing. |
| 13 | P & SB 4780' of tubing, LD remainder. |
| 14 | MIRU Cementers. Pump Sussex Balanced Plug: 50 sx (58 cuft) Class "G" cement with 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sx (630' in 4 1/2" production casing with no excess). The plug will cover 4780' - 4150'. RDMO cementers. |
| 15 | PUH to 4000' and circulate tubing clean to ensure no cement is in the tubing. |
| 16 | WOC per cement company recommendation. Tag cement. Cement top needs to be above 4279'. |
| 17 | P&SB 1600' of tubing, LD remainder. |
| 18 | MIRU WL. RIH and jet cut casing at 1500'. RDMO WL. |
| 19 | Circulate with fresh water containing biocide to remove any gas. |
| 20 | NDBOP, NDTH. Install BOP on casing head with 4 1/2" pipe rams. |

- 21 TOOH with 1500' of 4 1/2" casing, LD. Replace 4 1/2" pipe rams with 2 3/8" pipe rams.
- 22 RIH with 1600' of 2 3/8" tubing (100' into casing stub at 1500').
- 23 MIRU Cementers. Preceding cement, pump 10 bbl (min) SAPP followed by a 20 bbl fresh water spacer. Pump Stub Plug: 270 sx (359 cuft) Type III w/ cello flake and CaCl₂ as deemed necessary, mixed at 14.8 ppg and 1.33 cuft/sx (100' in 4 1/2" casing with no excess, 510' in 8.5" OH from caliper with 40% excess, 200' in 8 5/8" surface csg with no excess). The plug will cover 1600' - 790'. RD cementers.
- 24 Pull up to 100' and circulate tubing clean using fresh water treated with biocide. TOOH.
- 25 WOC per cement company recommendation. Tag cement. Cement top needs to be above 790'.
- 26 MIRU WL. RIH 8 5/8" CIBP to 80'. Set and pressure test to 1000 psi for 15 minutes. 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 within 24 hrs of completion of the job.
- 28 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 29 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 30 Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
- 31 Welder cut casing minimum 5' below ground level.
- 32 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 33 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 34 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 35 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 36 Back fill hole with fill. Clean location, level.
- 37 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

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