

PLUG AND ABANDONMENT PROCEDURE

DINNEL L 14-17

- | Step | Description of Work |
|------|---|
| 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. RIH with pressure bomb from surface to 7385' stopping every 1000'. 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. Note: Form 17 completed on 9/4/2014 had a bradenhead pressure of 214 psig after a 20 minute test, and produced 20 gallons of condensate. |
| 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 (222 jts landed @ 7364'). |
| 7 | MIRU WL. RIH junk basket w/ gauge ring for 4 1/2" 11.6#/ft casing to 7350'. POOH. |
| 8 | Set 4 1/2" CIBP at 7300' (collars at 7271' and 7314') to abandon Codell perfs. RDMO WL. |
| 9 | Pressure test the CIBP to 1000 psi. |
| 10 | MIRU hydrotester. Hydrotest 2 3/8" tubing to 3000 psi while TIH open ended. Tag CIBP @ 7300' and PU 5'. |
| 11 | RU Cementers. Pump Niobrara/Codell plug: 40 sx (56 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 (630' inside 4 1/2" csg, no excess). The plug will cover 7300' - 6670'. RD cementers. |
| 12 | PUH to 6400' and circulate tubing clean to ensure no cement is left in the tubing. |
| 13 | PUH 4360' of tubing, LD remainder. |
| 14 | MIRU WL. PU and RIH with 2, one foot 3 1/8" perf guns shoot squeeze holes at 4730' and 4330' with 3 spf, 0.59" diam, 120 degree phasing. RDMO WL. |
| 15 | PU and RIH with a 4 1/2" CICR on 2 3/8" tubing and set at 4360'. Establish circulation with fresh water treated with biocide. |
| 16 | MIRU Cementers. Pump 20 bbls sodium metasilicate and a 5 bbls water spacer followed by Sussex Suicide Squeeze: 180 sx (207 cuft) Class "G" cement with 0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sx (400' in 9" OH from caliper with 20% excess, 400' in 4 1/2" production casing with no excess). Underdisplace by 3 bbls and unsting from CICR spotting at least 100' of cement over squeeze perfs. The plug will cover 4730' - 4330'. RDMO cementers. |
| 17 | PUH to 4100' and circulate tubing clean to ensure no cement is in the tubing. PUH 1330' of tubing, LD remainder. |
| 18 | MIRU WL. RIH and jet cut casing at 1230'. 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 1230' of 4 1/2" casing, LD. Replace 4 1/2" pipe rams with 2 3/8" pipe rams.
- 22 RIH with 1330' of 2 3/8" tubing (100' into casing stub at 1230').
- 23 MIRU Cementers. preceding cement, pump 10 bbl (min) SAPP followed by a 20 bbl fresh water spacer. Pump Stub Plug: 300 sx (399 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, 507' in 9" OH from caliper with 40% excess, 203' in 8 5/8" surface csg with no excess). The plug will cover 1330' - 520'. 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 523'.
- 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.

Engineer: Nicole Schaly
Cell: 419-908-8781