

## PLUG AND ABANDONMENT PROCEDURE

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### SCOTTDALE RANCH 13-35

- | 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 automation removal group 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 gyro from EOT (7468') to surface, making stops every 100'. Forward results to Sabrina Frantz. RDMO slickline services. Note: last tag on 2/26/2014 @ 7461'.  |
| 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 8/30/2012 had a Bradenhead pressure of 14 psig after a 30 minute blow down, and produced 14 gallons of condensate. It may be necessary to blow down the Bradenhead pressure each day after rigging up. |
| 5    | MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD.  |
| 6    | TOOH and SB 2 1/16" production tubing (223 jts landed @ 7468').  |
| 7    | MIRU WL. RIH junk basket w/ gauge ring for 3 1/2" 7.7#/ft casing to 7250'. POOH.   |
| 8    | Set 3 1/2" CIBP at 7150' to abandon Codell and Niobrara perms. RD WL.  |
| 9    | MIRU hydrotester. PU 3 1/2" packer and RIH w/ 2 1/16" tbg, hydrotest to 3000 psi while RIH to 7100'. Set pkr @ 7100'. RD hydrotester.  |
| 10   | PT CIBP to 1000 psi for 15 minutes. PUH and set pkr @ 5000'. Test csg to 3000 psi (csg leak @ 5495'). If casing does not pass PT, contact engineering. TOOH, LD pkr. TIH w/ 2 1/16" tbg to 7150'. Tag CIBP and PU 5'.  |
| 11   | RU Cementers. Pump Niobrara/Codell balanced plug: 20 sx (30.2 cuft) Thermal 35 + 0.5% CHR-2 + 0.25% FMC blend mixed at 15.6 ppg and 1.51 cuft/sx (580' inside 3 1/2" csg, no excess). The plug will cover 7150' - 6640'. RD cementers.   |
| 12   | PUH to 6200' and circulate tubing clean to ensure no cement is left in the tubing. PUH to 5660'.   |
| 13   | RU cementers. Pump balanced plug: 15 sx (17.3 cuft) class G cement w/ 0.5% CFR-2 + 0.2% FMC + 0.5% LWA mixed at 1.15 cuft/sx and 15.8 ppg (335' inside 3 1/2" csg, no excess). The plug will cover 5660' - 5325', historic csg leak @ 5495'.   |
| 14   | PUH to 5000' and circulate tubing clean to ensure no cement is left in tubing.   |
| 15   | WOC per cement company recommendation. Tag cement, tag must be 5445' or shallower.   |
| 16   | TOOH, LD all 2 1/16" tubing.   |
| 17   | MIRU WL. RIH w/ jet cutter and cut csg at 4240'. RDMO WL.  |
| 18   | NDBOP, NDTH. Install BOP on casing head with 3 1/2" pipe rams.   |

- 19 Break circulation and circulate at least 400 bbls (1.5x volume of 3 1/2" and open hole of 9.5" diam). Circulate with fresh water containing biocide to remove any gas and heavy mud.
- 20 MIRU Cementers on 3 1/2" csg. Pump 20 bbls sodium metasilicate and a 5 bbls water spacer followed by Sussex Cement: 210 sx (241.5 cuft) Class "G" cement with 0.25 pps cello flake, 0.5% CFR-2 + 0.2% FMC + 0.5% LWA, mixed at 15.8 ppg and 1.15 cuft/sx (410' in 9.5" OH from caliper with 20% excess). The plug will cover 4240' - 3830'. RDMO cementers.
- 21 PUH to 3200' and circulate tubing clean to ensure no cement is in the tubing.
- 22 WOC per cement company recommendation. Tag cement. Cement top needs to be above 3834'.
- 23 PUH to 920', LD remainder.
- 24 MIRU Cementers. Establish circulation and get bottoms up. Pump 10 bbl (min) SAPP followed by a 20 bbl fresh water spacer. Pump Base of Surface Casing cement plug: 210 sx (279 cuft) Type III w/ cello flake and CaCl<sub>2</sub> as deemed necessary w/ 0.3% CFL-3 + 0.3% CFR-2, mixed at 14.8 ppg and 1.33 cuft/sx (283' in 9.5" OH from caliper with 40% excess, 207' in 8 5/8" surface csg with no excess). The plug will cover 920' - 530'. RD cementers.
- 25 Pull up to 100' and circulate clean using fresh water treated with biocide. TOOH.
- 26 WOC per cement company recommendation. Tag cement. Cement top needs to be above 530'.
- 27 MIRU WL. RIH 8 5/8" CIBP to 80'. Set and pressure test to 1000 psi for 15 minutes. RDMO WL and WO rig.
- 28 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.
- 29 Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
- 30 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 31 Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
- 32 Welder cut casing minimum 5' below ground level.
- 33 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 34 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 35 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 36 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 37 Back fill hole with fill. Clean location, level.
- 38 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.