

PLUG AND ABANDONMENT PROCEDURE

Michael Lee

Office: 970-339-1499 Cell: 970-302-4601

Michael.Lee@anadarko.com

SARCHET X 20-8

- | 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 pull plunger, isolate production equipment and remove any automation prior to rig MIRU. |
| 2 | Prepare location for base beam equipped rig. Install perimeter fence as needed. |
| 3 | This well has a gyro from 11/21/12. |
| 4 | Check and report surface casing pressure. If there is any bradenhead pressure present, blow down and check the next day. If pressure does not stay at zero, notify Evans engineering. If surface casing is not accessible at ground level, re-plumb so valve is at ground level. |
| 5 | MI trailer with an additional 25 joints of 2-3/8" tubing. |
| 6 | MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD. Tbg is landed @ 7232' KB w/ 233 jts. |
| 7 | TOOH and stand back 2 3/8" tbg. |
| 8 | MIRU WL. RIH with gauge ring for 4 1/2" 11.6# casing to 7230'. POH. |
| 9 | RIH 4 1/2" CIBP and set at 7190' to abandon Codell perms. RD WL. |
| 10 | Pressure test CIBP and casing to 1000 psi for 15 minutes. |
| 11 | TIH w 2 3/8" tbg open ended to CIBP at 7190'. Hydro -test tbg to 3000 psi. |
| 12 | RU cementers and equalize a balanced plug over the Niobrara from 7190 to 6560' as follows: 40 sx Thermal 35 + 0.5% CFR - 2 + 0.25% FMC, mixed at 15.6 ppg and 1.51 cuft/sk. (55 cuft of slurry). |
| 13 | POH to ~6360' and circulate tbg clean using fresh water treated with biocide. TOOH standing back 4530' of tbg. |
| 14 | Equalize a balanced plug over the Sussex from 4530' to 4130' as follows: 30 sx 0:1:0 "G" + 0.5% CFR - 2 + 0.2% FMC + 0.5% LWA mixed at 15.8 ppg and 1.15 cuft/sk (35 cuft of slurry). |
| 15 | POH to ~3930. Circulate water containing biocide to clear tubing. WOC per cement company recommendations. TIH to tag balanced plug. Report tag depth (~4130'). POOH standing back 1520' tbg. |
| 16 | RU WL. Crack coupling or cut casing at 1420'. RDMO WL. Circulate bottoms up and continue circulating to remove any gas from wellbore. |

- 17 ND BOP and wellhead. Install BOP on surface casing head with 4 1/2" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet.
- 18 TOOH and LD 1420' of 4 1/2" casing.
- 19 RIH with 2 3/8" tubing open-ended to 1520' (100' inside 4 1/2" stub).
- 20 RU cementers. Establish circulation and get bottoms up with fresh water treated with biocide. If circulation cannot be established contact Evans engineering before proceeding. Pump 10 bbl SAPP (Sodium Acid Pyrophosphate) followed by 20 bbl (min.) fresh water spacer immediately preceding cement.
- 21 Pump balanced stub plug over the Fox Hills from 1520' to 820' as follows: 210 sx Type III + 0.3% CFL - 3 + 0.3% CFR - 2 and CaCl₂ as deemed necessary mixed at 14.8 ppg and 1.33 cf/sx (269 cuft of slurry). Cement volume based on 100' in 4 1/2" csg, 207' in 8 5/8" csg, and 393' in 8.5" OH + 20% excess. (Caliper dated 2/4/2008 on file)
- 22 TOOH. WOC per cementing company recommendation. Tag Cement. TOC should be at or above 920'. If not, consult Evans Engineering.
- 23 MIRU WL. RIH 4 1/2" CIBP to 80'. Set and PT to 1000 psi for 15 min. If tests, RDMO WL and WO rig.
- 24 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.
- 25 Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
- 26 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 27 Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
- 28 Welder cut 8 5/8" casing minimum 5' below ground level.
- 29 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 30 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 31 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 32 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 33 Back fill hole with fill. Clean location, level.
- 34 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.