

PLUG AND ABANDONMENT PROCEDURE

STATE 16-11L

- | 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. Run a Gyro directional survey from EOT @ 7110' KB to surface with 100' stations. Forward results to Sabrina Frantz in Evans. RDMO slickline services. |
| 3 | Prepare location for base beam equipped rig. Install perimeter fence as needed. |
| 4 | MIRU, kill well as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD. |
| 5 | TOOH and stand back 2 3/8" production tubing (225 jts landed @ 7110'). . |
| 6 | PU scraper for 4 1/2" 11.6# casng. TIH on 2 3/8" tbg to 7120' (2 7/8" X 4 1/2" Liner Hanger @ 7124'). TOH, standing back ~ 6730' of tbg. LD scraper. |
| 7 | MIRU WL. . RIH CIBP w/ WL. Set at 7115'. PU dump bailer and spot 2 sx cement on CIBP.

RIH CIBP and set at 6730'. PT Casing to 1000 psi for 15 minutes. RDWL.

TIH w 2 3/8" tbg open-ended to CIBP at 6730'. Hydro-test tbg to 3000 psi. |
| 9 | RU cementers and equalize a balanced plug above CIBP from 6730' to 6335' as follows: 25 sx "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/sk. (35 cuft of slurry). |
| 10 | POH 10 stands and circulate tbg clean using fresh water treated with biocide. POH and LD WS to bring EOT to 4300'.. |
| 11 | RU cementers and equalize a balanced plug from 4300' to 3900' as follows: 30 sx class "G", w/0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sk (35 cuft of slurry). |
| 15 | POH 10 stands. Circulate water containing biocide to clear tubing. POH standing back ~980' of tbg. |
| 16 | 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. |
| 17 | RU WL. Crack coupling or cut casing at 880'. RDMO WL. Circulate bottoms up and continue circulating to remove any gas from wellbore. |
| 18 | TOOH and LD 880' of 4 1/2" casing. |
| 19 | RIH with 2 3/8" tubing open-ended to 980' (100' inside 4 1/2" stub). |

- 20 RU Cementers. Pump balanced Stub Plug: 380 sx Type III w/0 .25#/sk cello flake and CaCl₂ as deemed necessary mixed at 14.8 ppg and 1.33 cf/sx (505 cuft of slurry). Cement volume based on 100' in 4 1/2" csg, 200' in 8 5/8" csg, and 383' in 12" OH + 40% excess.
- 21 TOOH. WOC per cementing company recommendation. Tag Cement. TOC should be at or above 397'. If not, consult Evans Engineering.
- 22 MIRU WL. RIH 8 5/8" CIBP to 80'. Set and PT to 1000 psi for 15 min. If tests, RDMO WL and WO rig.
- 23 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.
- 24 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 25 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 26 Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
- 27 Welder cut 8 5/8" casing minimum 5' below ground level.
- 28 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 29 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 30 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 31 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 32 Back fill hole with fill. Clean location, level.
- 33 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

Engineer: David Dalton
Cell: 970-590-6245