

PLUG AND ABANDONMENT PROCEDURE

MAYER 27-2L

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 plunger, isolate production equipment and remove any automation prior to rig MIRU.
2	Check and report surface casing pressure. If surface casing is not accessible at ground level, re-plumb so valve is at ground level.
3	Prepare location for base beam equipped rig. Install perimeter fence as needed.
4	MIRU slickline services. Pull bumper spring and tag bottom. RDMO slickline services.
5	MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD.
6	TOOH and SB 1.66" IJ production tubing (223 jts landed @7276').
7	MIRU Warrior WL. RIH w/ gauge ring for 2 7/8" 6.5# tbg to 7000'. RIH 2 7/8" CIBP and set at 6985' to abandon Codell/Niobrara perms. Pressure test plug and csg to 2500 psi for 15 minutes.
8	Run a gyro directional survey from CIBP to surface with 100' stops. Forward results to Sabrina Frantz in Evans.
9	Run a CBL from CIBP to surface to verify cement coverage. Forward results to Evans Engineering for plugging modifications as necessary.
10	RIH 1.66" IJ tbg open-ended to CIBP @ 6985'. Hydro-test tbg to 3000 psi.
11	RU cementers and equalize a balanced plug above CIBP from 6985' to 5923' as follows: 25sx "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. (34.5 cuft of slurry)
12	Pull and LD tbg to ~5000' and reverse circulate clean w/fresh water treated with biocide.
13	TOOH and LD tbg to place EOT @ 4570'.
14	RU cementers and equalize a balanced plug from 4570' to 3685' as follows: 25 sx class "G", w/0.4% CD-32, 0.4% ASA-301, and CaCl2 as deemed appropriate mixed at 15.8 ppg and 1.15 cuft/sk (29 cuft of slurry).
15	POH to ~3000. Circulate tbg and csg clean with fresh water treated w/biocide.. WOC per cementing company recommendation.
16	Tag cement @ 3685'. POH and LD tbg.
17	RU WL, RIH w/ chemical cutter or jet cutter and cut 2 7/8" casing at 970'. Circulate bottoms up using drilling mud and continue circulating to remove any gas from wellbore. RD WL.
18	ND BOP and wellhead. Install BOP on surface casing head with 2 7/8" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet. NOTE:

If 2 7/8" casing did not pass PT in step 7, TOO H and hydro-test in to 2500 psi before proceeding to step 19.

- 19 RU cementers. Pump 10 bbl SAPP (Sodium Acid Pyrophosphate) followed by 20 bbl (min) fresh water spacer immediately preceding cement.
- 20 Pump a balanced plug 970'-350': 260 sx (346 cuft.) Type III cement w/ 0.25 pps cello flake and CaCl₂ as deemed necessary mixed at 14.8 ppg and 1.33 cf/sk . Design to fill 412' in 10" OH + 20% excess and 208' in 8 5/8" surface casing. Caliper log on file.
- 21 TOO H and LD 2 7/8" tbg. WOC per cementing company recommendation. Tag plug; TOC should be 458' or higher. If not, Consult Evans engineering before proceeding.
- 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