

PLUG AND ABANDONMENT PROCEDURE

RADEMACHER 11-30A

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. RDMO slickline services.
3	Check and report surface casing pressure. If surface casing is not accessible at ground level, re-plumb so valve is at ground level.
4	Prepare location for base beam equipped rig. Install perimeter fence as needed.
5	MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD.
6	TOOH and stand back 6850' 2 3/8" production tubing (232 jts landed @7264'). LD remaining 2 3/8" tbg and 10 jts 1.66" tbg (315').
7	MIRU WL. RIH gauge ring for 4 1/2" 11.6# csg to Liner Top @ 7272'. RIH 4 1/2" CIBP and set at 7270' to abandon J sand perfs. PU dump bailer and spot 2 sx cement on CIBP.
8	RIH 4 1/2" CIBP and set @ 6850' to abandon Cd/Nb perfs. Pressure test CIBP and casing to 1000 psi for 15 minutes. RDWL.
9	TIH w 2 3/8" tbg open ended to CIBP at 6850'. Hydro -test tbg to 3000 psi.
10	RU cementers and equalize a balanced plug above CIBP from 6850' to 6450' 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).
11	POH 20 stands and circulate tbg clean using fresh water treated with biocide. POH standing back 3930' of tbg.
12	RUWL. PU 2 - 1' 3-1/8" perf guns with 3 spf, 0.5" dia 120° phasing. Shoot 1' of squeeze holes at 4320' and 3900'. RDWL.
13	PU CICR on 2 3/8" tbg. RIH and set CICR at 3930'.
14	RU Cementers. Pump 5 bbl water w/ biocide, 20 bbl Sodium Metasilicate, and another 5 bbl spacer immediately preceding cement.
15	Pump Sussex Suicide: 270 sx class "G", w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sk (310 cuft of slurry) to place cement between perfs. Underdisplace and sting out of CICR to leave 3 bbls cement on top of retainer. Cement volume based on 10" hole with 40% excess.
16	POH 15 stands. Circulate water containing biocide to clear tubing. POH standing back ~1040' of tbg.
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	RU WL. Crack coupling or cut casing at 940'. RDMO WL. Circulate bottoms up and continue circulating to remove any gas from wellbore.
19	TOOH and LD 940' of 4 1/2" casing.
20	RIH with 2 3/8" tubing open-ended to 1040' (100' inside 4 1/2" stub).

- 21 RU cementers. Pump 10 bbl SAPP (Sodium Acid Pyrophosphate) followed by 20 bbl (min.) fresh water spacer immediately preceding cement.
- 22 Pump balanced Stub Plug: 250 sx Type III w/0 .25#/sk cello flake and CaCl₂ as deemed necessary mixed at 14.8 ppg and 1.33 cf/sx (333 cuft of slurry). Cement volume based on 100' in 4 1/2" csg, 200' in 8 5/8" csg, and 324' in 10" OH + 40% excess.
- 23 TOOH. WOC per cementing company recommendation. Tag Cement. TOC should be at or above 516'. If not, consult Evans Engineering.
- 24 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.
- 25 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.
- 26 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 27 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 28 Excavate hole around surface casing enough to allow welder to cut 8 5/8" casing minimum 5' below ground level.
- 29 Welder cut 8 5/8" casing minimum 5' below ground level.
- 30 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 31 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 32 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 33 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 34 Back fill hole with fill. Clean location, level.
- 35 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

Engineer: David Dalton

Cell: 970-590-6245