

PLUG AND ABANDONMENT PROCEDURE

UPRR 22 PAN AM "U" #1

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 pressure bomb and obtain pressure gradient survey from surface to 7665' (halfway between J sand perfs) making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. RDMO slickline services.
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. Last Form 17 test on 4/19/2012 recorded a Bradenhead pressure of 321 psi after a 30 minute blowdown test.
5	MIRU, kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing jt, LD.
6	TOOH and SB 2 3/8" production tubing (241 jts landed @ 7616').
7	MIRU WL. RIH with junk basket and gauge ring for 5 1/2" 17 #/ft casing to 7600'. POOH. Set CIBP at 7550' (collars @ 7528' & 7571') to abandon J sand perfs. RD WL.
8	Pressure test CIBP to 1000 psi.
9	MIRU hydrotester. Hydrotest 2 3/8" tubing down to 7550'. Tag CIBP and pick up 5'.
10	RU Cementers. Pump Niobrara/J sand Balanced Plug: 100 sx (133 cuft) "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/sx. The plug will cover 7550' to 6480'. Volume based on 1070' inside 5 1/2" production casing with no excess. RD cementers.
11	PUH to 6300' and circulate tubing clean to ensure no cement is left in the tubing.
12	P & SB 4030', LD remainder.
13	MIRU WL. PU and RIH with 2-1' 3-3/8" perf guns with 3 spf, 0.73" EHD, 120° phasing. Shoot 1' of squeeze holes at 4420' and 4000'. RD WL.
14	RU 5 1/2" CICR and RIH on 2 3/8" tubing to set CICR at 4030'. Establish circulation with fresh water treated with biocide.
15	RU Cementers. Pump 20 bbl sodium metasilicate and a 5 bbl water spacer to establish injection and circulation. Pump Sussex Suicide: 260 sx (299 cuft) Class "G" cement with 0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cuft/sx. Underdisplace by 3 bbls and unsting from CICR spotting at least 100' cement on top of squeeze holes. The plug will cover 4420' - 4000'. Volume based on 420' in 10" OH from caliper with 40% excess, 570' in 5 1/2" production casing with no excess. RDMO cementers.

- 16 PUH to 3750' and circulate to ensure no cement left in the tubing.
- 17 P & SB 1290' of tubing, LD remainder.
- 18 RU WL. RIH and cut casing at 1190'. RDMO WL.
- 19 Circulate with fresh water containing biocide to remove any gas.
- 20 Unland casing. NDBOP, NDTH. Install BOP on casing head with 5 1/2" pipe rams.
- 21 POOH with 1190' of 5 1/2" casing, LD. Remove 5 1/2" pipe rams and install 2 3/8" pipe rams. Note: Bottom joint of 8 5/8" dropped to 825' (top) when running 5 1/2" casing.
- 22 RIH with 2 3/8" tubing to 1290'.
- 23 MIRU Cementers. Precede cement with 10 bbl (min) SAPP followed by a 20 bbl fresh water spacer. Pump Stub Plug: 370 sx (492 cuft) Type III w/ cello flake and CaCl₂ as deemed necessary, mixed at 14.8 ppg and 1.33 cuft/sx (100' in 5 1/2" production casing with no excess, 525' in 10" OH from caliper with 40% excess, 205' in 8 5/8" surface csg with no excess). The plug will cover 1290' - 460'. RD cementers.
- 24 Pull up to 200' and circulate tubing clean using fresh water treated with biocide. TOOH.
- 25 WOC per cement company recommendation. Tag cement. Cement top needs to be above 465'.
- 26 MIRU WL. RIH 8 5/8" CIBP to 80'. Set and pressure test to 1000 psi for 15 minutes. RDMO WL and WO rig.
- 27 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.
- 28 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 29 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 30 Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
- 31 Welder cut casing minimum 5' below ground level.
- 32 Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
- 33 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 34 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 35 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 36 Back fill hole with fill. Clean location, level.
- 37 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

Engineer: Nicole Schaly - Cell: 419-908-8781