

## UPRR 22 Pan Am V 1

## PLUG AND ABANDON PROCEDURE

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.
3. PU pressure bomb and obtain pressure gradient survey from halfway between the bottom and top perms to surface (+/- 7,800' to surface). Forward pressure bomb results to Evans Engineering. POOH and LD the pressure bomb.
4. MIRU VES. PU Gyro and run from tbg SN (+/- 7,772) to surface. POOH and LD Gyro. RDMO VES & slickline services.
5. Prepare location for base beam equipped rig. Install perimeter fence as needed.
6. Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL.
7. MIRU WO rig. Kill well as necessary w/ water containing biocide. ND WH, NU BOP.
8. Unseat and LD landing joint. PU w/ 2-3/8" tbg (4.7#, J-55, 8rd EUE) to break any sand bridges. Do not exceed the safety tensile load of 57,384 lbs (80% of upset yield strength).
9. TOO H and SB 2-3/8" tbg (266 jts landed at 7,772').
10. PU scraper for 5-1/2", 17# csg on 2-3/8" tbg. TIH to +/- 7,750' (+/- 250 jts). TOO H and SB tbg.
11. MIRU Wireline. PU CIBP for 5-1/2" 17# csg on wireline and RIH to 7,740'. Set CIBP in the csg at 7,740'. Pressure test to 1000 psi for 15 min. RDMO Wireline.
12. TIH 2-3/8" tbg and tag the CIBP at +/- 7,740' while hydrotesting each joint to +/- 3000 psi and tag CIBP. Pick up 5' from tag.
13. MIRU Cementing Services. Spot 110 sx (+/- 152 cuft) of cmt (Class 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 from 7,740' to 6,650'. RDMO Cementing Services.
14. PUH w/ 2-3/8" tbg to +/- 6,000' (+/- 56 jts) and circulate tbg clean. POOH, SB +/- 3,810' of tbg, LD remainder.
15. MIRU Wireline. PU and RIH on wireline two 1' perf guns (3-1/8", 3 spf, "Big Hole" 0.6" EHD, 7" penetration, 120° phasing, 2' net, 6 total holes) to 4,180'. Perf bottom squeeze holes at 4,180' then PUH to 3,780' and perf top squeeze holes in 5-1/2" prod csg. POOH perf guns. RDMO wireline.
16. PU CICR for 5-1/2" 17# csg on 2-3/8" tbg. TIH and set at +/- 3,810' (+/- 123 jts).
17. MIRU Cementing Services. Pump 5 bbls of fresh water, 20 bbls of metalillicate, and 5 bbls of fresh water followed with 270 sx (+/- 310 cuft) of cmt (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. Under displace

- by 3bbls of cement, sting out of CICR and dump cmt on CICR. Planned cement is from 4,180' to 3,780' in 10-1/2" OH (from closest caliper reading & plus 40% excess) & from 4,180' to 3,680' in 5-1/2", 17# csg. PUH to +/- 3,300 (+/- 12 jts) and circulate to clean tbg. TOOH and SB +/- 1,400' of tbg and LD remainder. RDMO Cementing Services.
18. MIRU Wireline. PU a jet cutter and RIH to 1,290' to cut 5-1/2" csg. Cut csg and circulate bottoms up. Continue to circulate to remove any gas in the wellbore. RDMO Wireline.
  19. ND BOP and tbg head. NU BOP on the surface csg with 5-1/2" pipe rams. Install 3,000 psi ball valves on the csg head outlets. Install a choke or a choke manifold on one outlet.
  20. TOOH and LD 5-1/2" csg. If unable to pull csg, contact the Engineer and notify COGCC.
  21. Remove the 5-1/2" pipe rams and install 2-3/8" pipe rams on the BOP.
  22. TIH w/ 2-3/8" tbg to +/- 1,390' (+/- 45 jts) so EOT is 100' in csg stub.
  23. MIRU Cementing Services. Pump 10 bbls of SAPP (Sodium Acid Pyrophosphate) followed by 20 bbls of fresh water containing biocide prior to pumping cement. Spot 420 sx (+/- 558 cuft) of cmt (Type III w/ cello flake and  $\text{CaCl}_2$  as deemed necessary) mixed at 14.8 ppg at 1.33 cuft/sk. Planned cement is from 1,390' to 1,290' stub plug in 5-1/2", 17# csg stub, 1,290' to 721' in 10-1/2" OH (from the closest caliper reading & plus 40% excess), and from 721' to 520' inside 8-5/8", 24# surface csg. PUH to 150' and circulate tbg clean, POOH and SB tbg. RDMO Cementing Services. WOC for 4 hrs.
  24. Tag TOC and if TOC is deeper than 521' contact engineer for possible further cement work. TOOH and LD 2-3/8" tbg.
  25. MIRU wireline. PU CIBP on wireline for 8-5/8" (24#) csg and TIH to +/- 80'. Set CIBP and test to 1000 psi for 15 min. POOH and LD wireline. RDMO wireline.
  26. RDMO WO rig.
  27. NOTE: Instruct cementing & wireline contractors to email copies of all job logs/job summaries & invoices to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com) within 24 hours of the completion of the job.
  28. Wellsite supervisor should turn all paper copies of cementing reports/invoices and logs into Joleen Kramer.
  29. Have excavation contractor notify One-Call to clear for digging around wellhead and flowline removal.
  30. Excavate hole around surface casing enough to allow welder to cut 8-5/8" casing minimum 5' below ground level.
  31. Welder cut 8-5/8" casing minimum 5' below ground level.
  32. MIRU ready cement mixer. Fill the last 80' inside the 8-5/8" prod. casing until 10' below surface. Use 4,500 psi compressive strength redi-mix cement (Sand and Cement only, no gravel) to finish filling surface casing to top of cut off.
  33. Have welder spot weld on steel marker plate. (Note: marker shall be labeled with well name and number, legal location (¼ ¼ description) and API number.

34. Properly abandon flowlines as per rule 1103.
35. Have excavation contractor back fill hole with native material. Clean up location and have leveled to plant any vegetation required.
36. Submit Form 6 to COGCC. Provide “As Plugged” wellbore diagram identifying the specific plugging completed.

Michael Sax – Production Engineer I

970-339-1449 – Office      310-613-1637 – Cell

Michael.sax@anadarko.com