

FOUR WAY 12-16

PLUG AND ABANDON

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 (+/- 7,700' to surface). Forward pressure bomb results to Evans Engineering. POOH and LD the pressure bomb. RDMO wlickline.
4. Prepare location for base beam equipped rig. Install perimeter fence as needed.
5. Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL.
6. MIRU WO rig. Kill well as necessary w/ water containing biocide. ND WH, NU BOP.
7. 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).
8. TOOH and SB 2-3/8" tbg (247 jts landed at 7,661').
9. MIRU Wireline. PU gauge ring for 4-1/2", 11.6# csg on wireline and RIH to 7,650'. POOH and LD gauge ring.
10. PU CIBP for 4-1/2" 11.6# csg on wireline and RIH to 7,630'. Set CIBP in the csg at 7,630' (Collars are at 7,614' & 7,656'). Pressure test to 1000 psi for 15 min. RDMO Wireline.
11. TIH w/ 2-3/8" tbg and tag the CIBP at +/- 7,630' while hydrotesting each joint to +/- 3000 psi and tag CIBP. Pick up 5' from tag.
12. MIRU Cementing Services. Spot 70 sx (+/- 96 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 7,630' to 6,550'.
13. PUH w/ 2-3/8" tbg to +/- 6,000' and circulate tbg clean. PUH to +/- 4,940' while LD tbg.
14. Spot 60 sx (+/- 69 cuft) of cmt (Class G, 0.4% CD-32, 0.4% ASA-301) mixed at 15.8 ppg and 1.15 cuft/sk. Planned cement is from 4,940' to 4,170' in 4-1/2", 11.6# csg. RDMO Cementing Services.
15. PUH to +/- 3,700 (+/- 28 jts) and circulate to clean tbg. WOC for 4 hrs.
16. TIH w/ tbg and tag TOC. If TOC is deeper than 4,173' contact engineering for possible further cmt work.
17. TOOH and SB +/- 1,500' of tbg and LD remainder.
18. MIRU Wireline. PU a jet cutter and RIH to 1,380' to cut 4-1/2" 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 4-1/2" 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 4-1/2" csg. If unable to pull csg, contact the Engineer and notify COGCC.
21. Remove the 4-1/2" pipe rams and install 2-3/8" pipe rams on the BOP.
22. TIH w/ 2-3/8" tbg to +/- 1,480' (+/- 48 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 370 sx (+/- 492 cuft) of cmt (Type III

w/ cello flake and CaCl_2 as deemed necessary) mixed at 14.8 ppg at 1.33 cuft/sk. Planned cement is from 1,480' to 1,380' stub plug in 4-1/2", 11.6# csg stub, 1,380' to 860' in 9-1/2" OH (from closest caliper from a nearby well drilled in 1993, plus 60% excess), and from 860' to 660' inside 8-5/8", 24# surface csg. RDMO Cementing Services.

24. PUH to 150' and circulate tbg clean. WOC for 4 hrs.
25. TIH and tag TOC, if TOC is deeper than 660' contact the engineer for possible further cement work. POOH and SB 2-3/8" tbg.
26. 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.
27. RDMO WO rig.
28. NOTE: Instruct cementing & wireline contractors to email copies of all job logs/job summaries & invoices to rscDJVendors@anadarko.com within 24 hours of the completion of the job.
29. Wellsite supervisor should turn all paper copies of cementing reports/invoices and logs into Joleen Kramer.
30. Have excavation contractor notify One-Call to clear for digging around wellhead and flowline removal.
31. Excavate hole around surface casing enough to allow welder to cut 8-5/8" casing minimum 5' below ground level.
32. Welder cut 8-5/8" casing minimum 5' below ground level.
33. 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.
34. 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.
35. Properly abandon flowlines as per rule 1103.
36. Have excavation contractor back fill hole with native material. Clean up location and have leveled to plant any vegetation required.
37. 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