

**HOBDDAY 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. PU Pressure Bomb and RIH to 7,825'. Survey to surface with pressure readings every 1,000'. POOH and LD Pressure Bomb. 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.
5. MIRU WO rig. Kill well as necessary w/ water containing biocide. ND WH, NU BOP.
6. 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).
7. TOO and SB 2-3/8" tbg (landed at 7,767').
8. PU scraper for 4-1/2", 11.6# csg (well has both 11.6# & 10.5# 4-1/2" csg). TIH to +/- 7,750' (+/- 250 jts). TOO and SB tbg. Circulate gas out of the well from 7,750' to prepare the well for a CBL.
9. MIRU Wireline. PU CIBP for 4-1/2" (11.6#) csg on wireline and RIH to 7,735'. Set CIBP in the csg at 7,735' and pressure test to 1,000 psi for 15 min. Dump bail 2 sx of Class G cement on top of the CIBP. POOH wireline.
10. PU CCL-CBL on wireline and RIH to CIBP (+/- 7,735'). Log to surface. Notify engineer of log results. POOH and LD CCL-CBL.
11. PU and RIH on wireline two 1' perf guns (3-1/8", 6 spf, "Big Hole" 0.59" EHD, 4.72" penetration, 60° phasing, 2' net, 12 total holes) to 7,400'. Perf bottom squeeze holes at 7,400' then PUH to 6,640' and perf top squeeze holes in 4-1/2" prod csg. POOH and LD perf guns. RDMO Wireline.
12. PU CICR for 4-1/2" 11.6# csg on 2-3/8" tbg and RIH and set at 6,670'. Hydrotest to 3,000 psi while TIH.
13. MIRU Cementing Services. Establish circulation using water containing biocide. Pump 330 sx (+/- 564 cuft) of cmt (50/50 Poz "G" w/ 20% silica flour, 3% gel, 0.1% sodium metasilicate and 0.4% FL-52) mixed at 13.5 ppg and 1.71 cuft/sk yield. Under displace by 3 bbls and sting out of CICR and dump 3 bbls of cmt on top of the CICR. Planned cement is from 7,400' to 6,640' in 4-1/2" csg/10-1/2" annulus (from caliper, plus 20% excess) and from 7,430' to 6,540' in the 4-1/2" csg. RDMO Cementing Services.
14. PU w/ 2-3/8" tbg to +/- 6,000' and circulate tbg clean. POOH and SB +/- 4,270' of tbg, LD the remainder.
15. MIRU Wireline. PU and RIH two 1' perf guns on wireline (3-1/8", 6 spf, "Big Hole" 0.59" EHD, 4.72" penetration, 60° phasing, 2' net, 12 holes total) to 4,750'. Perf bottom squeeze holes at 4,750' then PUH to 4,240' and perf top squeeze holes in 4-1/2" prod csg. POOH and LD perf guns. RDMO Wireline.
16. PU a CICR on 2-3/8" tbg and TIH and set the CICR at 4,270'. Establish circulation using fresh water containing biocide.
17. MIRU Cementing Services. Pump 5 bbls of fresh water containing biocide, 20 bbls of metasilicate, and 5 bbls of fresh water containing biocide followed with 340 sx of cmt (+/- 391 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 4,750' to 4,240' in 4-1/2" csg/10-1/2" OH annulus (from caliper, plus 40% excess) & from 4,750' to 4,280' in 4-1/2", 11.6# csg. RDMO Cementing Services.
18. PUH to +/- 3,800 and circulate to clean tbg. TOO and SB +/- 1,620' of tbg, LD the remainder.
19. MIRU Wireline. PU a jet cutter and RIH to 1,520' to cut 4-1/2" csg. Cut csg and circulate bottoms up. Continue to circulate to remove any gas in the wellbore. RDMO Wireline.
20. 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.
21. TOO and LD 4-1/2" csg. If unable to pull csg, contact the Engineer and notify COGCC.
22. Remove the 4-1/2" pipe rams and install 2-3/8" pipe rams on the BOP.
23. TIH w/ 2-3/8" tbg to +/- 1,620' (+/- 52 jts) so EOT is 100' in csg stub.

24. Clean hole w/ 10 bbls of SAPP (Sodium Acid Pyrophosphate) followed by 20 bbls of fresh water containing biocide prior to pumping cement.
25. MIRU Cementing Services. Spot 870 sx (+/- 1,157 cuft) of cmt (Type III w/ cello flake and CaCl₂ as deemed necessary) mixed at 14.8 ppg at 1.33 cuft/sk. Planned cement is from 1,620' to 1,520' stub plug in 4-1/2", 11.6# csg stub, 1,520' to 517' in 11" OH (from closest caliper, plus 40% excess), and from 517' to 300' 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.
26. Tag TOC and if TOC is deeper than 317' contact engineer for possible further cement work. TOO and LD 2-3/8" tbg.
27. 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.
28. RDMO WO rig.
29. 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.
30. Wellsite supervisor should turn all paper copies of cementing reports/invoices and logs into Joleen Kramer.
31. Have excavation contractor notify One-Call to clear for digging around wellhead and flowline removal.
32. Excavate hole around surface casing enough to allow welder to cut 8-5/8" casing minimum 5' below ground level.
33. Welder cut 8-5/8" casing minimum 5' below ground level.
34. 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.
35. 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.
36. Properly abandon flowlines as per rule 1103.
37. Have excavation contractor back fill hole with native material. Clean up location and have leveled to plant any vegetation required.
38. Submit Form 6 to COGCC. Provide "As Plugged" wellbore diagram identifying the specific plugging completed.