

Engineer: Clark Martin  
Cell Phone Number: 970-371-4601

### PLUG and ABANDONMENT PROCEDURE

HALE 21-13

API: 05-123-26959

#### Description

1. Provide 48-hour notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). Notify Automation Removal Group at least 24 hours prior to rig move. Request they catch and remove plunger, isolate production equipment, and remove any automation prior to rig MIRU.
2. MIRU Slickline. Pull production equipment and tag bottom. Record tag depth in Open Wells. Gyro was run on 07/20/18. RDMO Slickline.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed.
4. COA: Verify Form 17 (State Bradenhead Test) has been run within 60 days of RU. If Form 17 required sampling, contact Engineering to verify plugging orders before beginning P&A operations.
5. Upon RU, check and record bradenhead pressure. If bradenhead valve is not accessible, re-plumb so that valve is above GL. Blow down bradenhead and re-check pressure the next day. Repeat until pressure stays at 0 psi.
6. Refer to BOP testing guidelines, fluid barrier management, and tripping best practices as applicable. All wireline operations will need a flanged changeover, WL BOP, Lubricator with an ID to fit the largest OD of the toolstring, and a packoff. Please contact foreman to discuss arrangement of stack, or alternate plan. Contact your foremen with any questions regarding standard operating procedures or any potential deviations.
7. MIRU WO rig. Kill well as necessary using biocide treated fresh water. Verify BOP and wellhead rating, inspect for appropriate API standards, pressure test BOP according to BOP testing guidelines. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
8. TOOH and SB 7050' of 2-3/8" tbg. LD remaining 2-3/8" tbg.
9. MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 7060'. POOH.
10. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7050' (collars at 7030' & 7074'). POOH. RDMO WL.
11. TIH with 2-3/8" tbg to 7050'
12. Load hole with biocide treated fresh water and circulate all gas out of well. PT CIBP to 500 psi for 15 minutes. A good PT has less than 10% loss in pressure and stabilization at the end of the test. Test can be extended longer in time if need be. Contact Foreman or Engineer to confirm proceeding after pressure test.
13. COA: Confirm and document static conditions in the well before placing the Sussex plug. If there is evidence of pressure or fluid migration at any time after placing the Niobrara plug, contact Engineering.
14. TOOH, SB 860' 2-3/8" tbg. LD remaining tbg.
15. MIRU WL. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 4210' (collars at 4182' & 4226'). POOH. RIH and dump 2 sx cement on CIBP. POOH.
16. PU and RIH with one 4' casing punch gun, and punch casing at 650'. POOH.
17. Establish circulation down the 4-1/2" up the 8-5/8" with at least two hole volumes and verify clean returns.

18. TIH with mule shoe on 2-3/8" tubing to 860'. Establish circulation to surface with biocide treated fresh water and pump at least two hole-volumes (83 bbl) to clean up wellbore.
19. COA: Verify and document that all pressure and fluid migration has been eliminated prior to placing the SC shoe plug at 860'. If there is evidence of pressure or fluid migration, contact Engineering.
20. MIRU cementers. Pump Fox Hills Balance Plug: Pump 15 sx (3.3 bbl or 19 cf), assuming 15.8 ppg & 1.23 cf/sk AGM 2% CaCl, 4% gypsum and .4% latex. Volume is based on 210' in 4-1/2", 11.6# production casing with no excess. The plug is designed to cover 860'-650'. Collect wet and dry samples of cement to be left on rig.
21. Pull out of cement at a rate of 1 jt/min. TOO, LD all 2-3/8" tbg.
22. Establish circulation down the 4-1/2" up the 8-5/8" with at least two hole volumes and verify clean returns.
23. ND BOP. ND TH. Install swedge to 4-1/2".
24. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Stub Plug: Pump 290 sx (63.6 bbl or 357 cf), assuming 14 ppg & 1.23 cf/sk. Volume is based on 650' in the 8-5/8", 24# surface casing with no excess. The plug is designed to cover 650'-0'. Verify and document cement to surface. Collect wet and dry samples of cement to be left on rig.
25. COA: If cement was not circulated to surface, then WOC 4 hours. Tag TOC. TOC must be 650' or shallower. If tag is too deep or there is evidence of pressure or fluid migration, contact Engineering.
26. Top off cement to surface. Circulate clean. RDMO cementers. TOO and LD tbg subs. RDMO WO rig.
27. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@anadarko.com within 24 hours of completion of the job.
28. Supervisor submit paper copies of all invoices, logs, and reports to VWP Engineering Specialist.
29. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
30. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
31. Welder cut casing minimum 5' below ground level.
32. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
33. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
34. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
35. Back fill hole with fill. Clean location, and level.
36. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.