

PLUG AND ABANDONMENT PROCEDURE

HUETT JOSEPH UNIT 1

Step	Description of work
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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.). Call Automation Removal Group at least 48 hours prior to rig move. Request they isolate production equipment and remove any automation prior to rig MIRU.
2. Prepare location for base beam equipped rig, install perimeter fence as needed.
3. 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.
4. Contact the On-Call Engineer to discuss bradenhead pressure upon rig-up to determine if additional action needs to be taken beyond what the procedure proposes.
5. MIRU WO rig. Kill well as necessary using clean fresh water with biocide. ND WH. NU BOP.
6. PU bit and scraper for 4-1/2" 11.6 & 10.5 lb/ft casing and RIH with 2-3/8" tubing to 7970'. TOOH and SB 6815' of 2-3/8" tubing and LD remaining 2-3/8" tubing and bit and scraper.
7. RU WL. PU CIBP for 4-1/2" 11.6 lb/ft casing and RIH and set at 7960' (no collar data). POOH.
8. PU dump bailer. RIH and dump bail 2 sx of cement on top of CIBP at 7960'. POOH.
9. PU CIBP for 4-1/2" 11.6 lb/ft casing and RIH and set at 7500' (no collar data). POOH. RD WL.
10. Pressure test casing to 500 psi for 15 minutes. **Monitor Bradenhead pressure during test.**
Contact the on-call engineer if the Bradenhead pressure is affected by the casing test.
11. TIH with 2-3/8" tubing to 2500' and circulate gas out of hole. TOOH.
12. RU WL and run CCL-GR-CBL-VDL from 7500' to surface. If Niobrara, Sussex and Fox Hills cement is not the same as described on the WBD, contact engineering for review and further instructions. Email logs to engineering and DJVendors@anadarko.com.
13. PU dump bailer. RIH and dump bail 2 sx of cement on top of CIBP at 7500'. POOH.
14. RIH with two 3-1/8" guns with 3 spf, 0.50" EHD, 120° phasing. Shoot 2' of squeeze holes at 7200' and 4' at 6785'. RD WL.
15. RU hydrotesters. PU 4-1/2", 11.6 lb/ft CICR and TIH with 2-3/8" tubing to 6815' while hydrotesting in to 3000 psi. RD hydrotesters.
16. Establish circulation through squeeze holes with 50 bbls of biocide treated fresh water.
17. RU Cementers. Precede cement with 10 bbls Sodium Metasilicate followed by 10 bbls fresh water. **Pump Niobrara Suicide Squeeze:** 145 sx (221.5 cu.ft.) with Polyflake assumed at 15.8 ppg & 1.53 ft³/sk. Under-displace by 3 bbls and un-sting from CICR spotting a minimum 100' of cement covering the squeeze holes. The plug will cover 7200'- 6785'. Volume based on 415' in 7.88" OH w/ 60% excess and 485' in 4-1/2" production casing with no excess. RD cementers.
18. Slowly pull out of the cement and PUH to 6550'. Reverse circulate tubing clean with fresh water to ensure no cement is left in the tubing.
19. PUH to 5040' and LD remaining 2-3/8" tubing.
20. RU Cementers. **Pump Sussex/Shannon Balance Plug:** 60 sx (67.2 cu.ft.) assumed at 15.8 ppg & 1.18 ft³/sk. The plug will cover 5040'- 4290'. Volume based on 750' in 4-1/2" production casing w/ no excess. RD cementers.

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21. Slowly pull out of the cement and PUH to 4260'. Reverse circulate tubing clean with fresh water to ensure no cement is left in the tubing.
22. TOOH, SB 3980' of 2-3/8" tubing; LD stinger and remaining tubing.
23. WOC per cement company recommendation.
24. RU WL. RIH and tag cement. Cement top is estimated to be at or above 4290'. Contact the on-call engineer with tag depth to determine appropriate coverage.
25. PU and RIH with two 3-1/8" guns with 3 spf, 0.50" EHD, 120° phasing. Shoot 2' of squeeze holes at 4250' and 4' at 3950'. RD WL.
26. PU 4-1/2", 10.5 lb/ft CICR and TIH with 2-3/8" tubing to 3980'.
27. Establish circulation through squeeze holes with 100 bbls of biocide treated fresh water.
28. RU Cementers. Precede cement with 10 bbls sodium silicate followed by 5 bbls fresh water spacer. **Pump Sussex Suicide Squeeze:** 140 sx (162.7 cu.ft.) with Polyflake assumed at 15.8 ppg & 1.18 ft³/sk. Under-displace by 3 bbls and un-sting from CICR spotting a minimum 100' of cement covering the squeeze holes. The plug will cover 4250'- 3950'. Volume based on 300' in 7.88" OH w/ 60% excess and 370' in 4-1/2" production casing with no excess. RD cementers.
29. Slowly pull out of the cement and PUH to 3750'. Reverse circulate tubing clean with fresh water to ensure no cement is left in the tubing.
30. TOOH and SB 910' of 2-3/8" tubing. LD stinger and remaining tubing.
31. RU WL. PU and RIH with two 3-1/8" guns with 3 spf, 0.50" EHD, 120° phasing. Shoot 2' of squeeze holes at 1565' and 4' at 880'. RD WL.
32. PU 4-1/2", 10.5 lb/ft CICR and TIH with 2-3/8" tubing to 910'.
33. Establish circulation through squeeze holes with 100 bbls of biocide treated fresh water.
34. RU Cementers. Precede cement with 10 bbls sodium silicate followed by 5 bbls fresh water spacer. **Pump Fox Hills Suicide Squeeze:** 315 sx (363.3 cu.ft.) with Polyflake assumed at 15.8 ppg & 1.16 ft³/sk. Under-displace by 3 bbls and un-sting from CICR spotting a minimum 100' of cement covering the squeeze holes. The plug will cover 1565'- 880'. Volume based on 685' in 7.88" OH w/ 60% excess and 755' in 4-1/2" production casing with no excess. RD cementers.
35. Slowly pull out of the cement and PUH to 810'. Reverse circulate tubing clean with fresh water to ensure no cement is left in the tubing.
36. TOOH and SB 810' of 2-3/8" tubing. LD stinger and remaining tubing.
37. RU WL with jet cutter. RIH and cut 4-1/2" casing at 480'. RD WL.
38. Circulate with clean fresh water with biocide to remove any gas.
39. Un-land casing using a casing spear, not a lifting sub. Max pull shall be 100,000#. If unable to unland, contact Engineering.
40. ND BOP. ND TH. Install BOP on casing head with 4-1/2" pipe rams.
41. TOOH and LD 480' of 4-1/2" casing. Remove 4-1/2" pipe rams and install 2-3/8" pipe rams.
42. TIH with 2-3/8" tubing to 810'.
43. Establish circulation with biocide treated water, get bottoms up twice.
44. RU cementers. Precede cement with 10 bbls (min) SAPP followed by a 20 bbl fresh water spacer. **Pump Stub Plug:** 145 sx (166.7 ft³) with Polyflake, assumed at 15.8 ppg & 1.16 cf/sk (330' in 4-1/2" production casing with no excess, 253' in 7.88" OH with 60% excess, and 200' in 8-5/8" surface casing). The estimated plug is calculated to cover 810' – 27'. RD cementers.
45. Slowly pull out of cement and PUH to 90'. SB tbg. Reverse circulate to ensure no cement is left in the tubing.

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46. TOOH. LD remaining tbg.
47. RU WL. RIH 8-5/8", 24# CIBP to 80'. RDMO wireline and WO rig.
48. 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.
49. Supervisor submit paper copies of all invoices, logs, and reports to the engineering Specialist.
50. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
51. Capping crew will set and secure night cap on 8 5/8" casing head, restrain the casing head, pressure test CIBP to 500 psi with hydrotest pump, then remove night cap and casing head restraints.
52. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
53. Welder cut casing minimum 5' below ground level.
54. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
55. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
56. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
57. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
58. Back fill hole with fill. Clean location, and level.
59. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.