

Re-Entry PLUG and ABANDONMENT PROCEDURE

Boulter 42-12 API# 05-123-16046

1. COAS** THIS WELL HAS MULTIPLE COAS THAT COULD REQUIRE CONTACTING THE COGCC. AT EACH POINT FOR THE COAS, CONTACT THE ENGINEER AND CONFIRM BEFORE PROCEEDING.**

2. Well is being re-entered to P&A well to current standards due to it being offset to upcoming fracs.
3. Provide 48 hour notice to COGCC prior to rig up per request on approved Form 6 (e.g. submit Form 42, etc.).
4. Locate and expose 8-5/8" casing stub.
5. Prepare location for base beam equipped rig. Install perimeter fence as needed. Spot in 3-1/2" work string (WS) to location.
6. MIRU Spud rig. NU 9" 3000 psi BOP stack on casing head. PT BOP and casing head. Function test BOP. Install a choke manifold on casing outlet. NU rotating head on BOP. Hook up return line to shale shaker. Ensure full opening 3-1/2" TIW on rig floor.
7. PU 7-7/8" PDC bit, 6-1/2" mud motor, X-Over to workstring.
8. TIH and drill through 10 sx cement plug at surface. Once past cement plug and no cement is seen in returns, perform flow test.
9. Continue drilling to next 200 sx cement plug. TOC estimated to be at 225'. BOC estimated at 500'. Once past cement plug and no cement is seen in returns, perform flow test.
10. Continue drilling to next 150 sx cement plug. TOC estimated to be at 1421', BOC estimated at 1700'. Once past cement plug and no cement is seen in returns, perform flow test.
11. Attempt to fish 2-3/8" tubing fish (top of fish 1720')

12. Contact COGCC to discuss plan forward if unable to fish

13. TOOH. LD Workstring. Remove bit and mud motor. TIH workstring with mule shoe to previous TD.
14. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 6900'. POOH. Slowly top fill well to clear out all gas. Pressure test CIBP to 500 psi. RIH and dump 2 sx cement on CIBP. POOH.
15. MIRU WL. PU and RIH with two 4', 3-1/8" perf guns with 4 spf. Shoot 16 squeeze holes at 4230' and 16 squeeze holes at 3530'. RDMO WL.
16. PU and TIH with (4.5", 11.6#) packer on tbg. Set packer at 3590'.
17. Initiate circulation at low rate monitoring returns for fluid. Add mud thinner to hydrate/clean mud. Slowly increase circulation rate to 4-6 BPM using mud thinner and gel polymer sweeps as needed.
18. Pump 50 bbls of 160F HSF (0.5 gals/bbl or 1.5 lbs/bbl) and let soak for ~2 hours.
19. Continue circulating at 4-6 BPM if possible. If returns show hydrocarbons or a 1 hr build-up shows pressure, swab and vent well and clean open tank. Circulate clean fluid before pumping cement.
20. Release packer. TOOH, SB tbg. LD packer.
21. PU and TIH with (4.5", 11.6#) CICR on tbg. Set CICR at 3590'.
22. MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Squeeze: 234 sx (49.5 bbl or 278 cf) of the AGM Sus blend: 2% Gypsum, 0.4% Latex, 0.25% Fluid Loss, 0.3% Dispersant. Underdisplace by 4 bbls. Volume is based on 640' in the casing below the CICR, 700' in the casing-hole annulus with 25% excess, and 260' on top of the CICR. Collect wet and dry samples of cement to be left on rig. RDMO Cementers.
23. Pull out of cement. TOOH to 3330'. Reverse circulate 2x well volume to ensure no cement is left in the tbg.
24. TOOH and SB tbg. LD stinger, and remaining tbg.

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25. MIRU Cementers. Pump Surface Plug: Pump 363 sx (78.3 bbl or 440 cf) of the AGM Upr blend: 1.5% CaCl, 4% Gypsum, 0.4% Latex. Volume based on 1000' with 30% excess. Cement will be from 1500' to 500. Verify and document cement to surface. Collect wet and dry samples of cement to be left on rig.
26. Slowly pull out of the cement and PUH to 600'. Circulate to ensure no cement is left in the WS.
27. **COA *** Prior to placing the 500' plug: verify that all fluid migration (liquid or gas) has been eliminated. If evidence of fluid migration or pressure remains, contact COGCC Engineer for an update to plugging orders.**
28. MIRU Cementers. Pump Surface Shoe Plug: Pump 88 sx (19 bbl or 107 cf) of the AGM Surf blend: 2% CaCl, 4% Gypsum, 0.4% Latex. Volume based on 79' in 7-7/8" OH with 30% excess and 200' in 8 5/8" 24# surface casing. Cement will be from 500' to 221'. Verify and document cement to surface. Collect wet and dry samples of cement to be left on rig.
29. Slowly pull out of the cement and PUH to 160'. Circulate to ensure no cement is left in the WS or above 160' in the casing.
30. TOOH, laying down remainder of WS.
31. WOC per cement company recommendation.
32. Document if cement is circulated to surface. If cement is not circulated to surface, contact engineer.
33. **COA *** After isolation has been verified, pump plug and displace. If cement is not circulated to surface, shut-in, WOC 4 hours then tag plug – must be at 371' or shallower.**
34. TIH with diverter tool on 2-3/8 tubing to 160' and pump 11 bbls of 160F HSF (0.125 gals/bbl or 0.5 lbs/bbl) to fill Csg & Flush Csg Valves. Let soak for 1 hour. Circulate out with water.
35. MIRU WL. PU and RIH with (8-5/8, 24#) CIBP and set at 160'. POOH. RDMO WL.
36. MIRU Cementers. Pump Surface Plug: Pump 57 sx (12.2 bbl or 68 cf) of the AGM Surf blend: 2% CaCl, 4% Gypsum, 0.4% Latex. Volume based on 160' inside 8-5/8, 24# surface casing with no excess. Cement will be from 160' to surface. This includes 2 additional bbls for contamination. Verify and document cement to surface. Collect wet and dry samples of cement to be left on rig.
37. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rsdJVendors@anadarko.com within 24 hours of completion of the job.
38. Supervisor submit paper copies of all invoices, logs, and reports to Platteville Engineering Specialist
39. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
40. Capping crew will set and secure night cap on 10 3/4" casing head to restrain the casing head, pressure test CIBP to 500 psi with hydrotest pump, then remove night cap and casing head restraints.
41. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
42. Welder cut casing minimum 5' below ground level.
43. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
44. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
45. Obtain GPS location data as per COGCC Rule 215 and send to rsdJVendors@anadarko.com.
46. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
47. Back fill hole with fill. Clean location, and level.
48. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.