

Engineer: VALERIE WHITE

Cell: 307-696-3591

## PLUG and ABANDONMENT PROCEDURE

### CHAMPLIN 78 AMOCO D 1

Step	Description of Work
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 Automation Removal Group at least 24 hr prior to rig move. Request they catch and remove the plunger, isolate production equipment and remove any automation prior to MIRU.
2.	MIRU Slickline and VES. Pull bumper spring and tag bottom. Record tag depth in Open Wells. Run gyro from 7900' to surface making 100' stops. RD slickline.
3.	Prepare location for base beam equipped rig. Install perimeter fence as needed. Order a minimum of 25 joints additional 2-3/8, 4.7# tbg.
4.	Check and record bradenhead pressure. If bradenhead valve is not accessible, re-plumb so that valve is above GL. The last Form 17 test on 09/01/2015 recorded a bradenhead pressure of 17 psi with no fluids produced. Blow down bradenhead and re-check pressure the next day. Repeat until pressure stays at 0 psi. Contact Evans Engineering if pressure does not blow down to 0 and stay at 0.
5.	MIRU WO rig. Kill as necessary using clean fresh water with biocide. ND WH. NU BOP. Unland tbg.
6.	TOOH and SB 7870' of the 2-3/8" tbg.
7.	TIH with 5-1/2", 17# csg scraper and 2-3/8" tbg down to 7870' and TOOH. SB 7855' of 2-3/8" tbg.
8.	RU WL. RIH with 5-1/2" CIBP and set at +/- 7855' to abandon the Codell and Niobrara perfs. TOOH. Standby WL.
9.	TIH with 2-3/8" tbg to 2500'. Load hole with biocide treated fresh water and circulate the gas out of the well. TOOH
10.	RIH and run CBL from 7855' to surface. Forward CBL to Evans office. Cementing plans may change depending on CBL results. RIH to dump 2 sx on CIBP. TOOH. Standby WL.
11.	PT to 1000 psi for 15 minutes.
12.	RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 1' of squeeze holes at 6780' and 2' of squeeze holes at 6660'. RD WL.
13.	PU CICR (5-1/2" 17#, K-55) and 2-3/8" tbg and RIH while hydrotesting tubing to 4000 psi. Set CICR at 6690' (Refer to Wireline's perforation run for collar locations).
14.	<u>RU cementers.</u> Establish injection with biocide treated fresh water. <b>Pump Niobrara Squeeze:</b> Pump 70 sxs (116.2 cf) 1:1:3 Poz:G:Gel + 20% silica + 0.4% CFL-3 + 0.4% CFR-2 + 0.1% SMS mixed at 13.5 ppg & 1.66 cf/sk. Underdisplace by 5 bbls. Volume based on 90' below the CICR inside 5-1/2" (17#, K-55) production casing, 120' in the 5-1/2" casing annulus assuming 9.75" OH from the caliper log with 40% excess, and 215' on top of the CICR. RD cementers.
15.	Slowly pull out of the cement and PUH to 6200'. Reverse circulate tubing clean to ensure no cement is left in the tubing. TOOH and SB 4750' of 2-3/8" tbg.
16.	RU WL. RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 1' of squeeze holes at 4750' and 2' of squeeze holes at 4540'. RD WL.
17.	PU CICR (5-1/2" 14#, K-55) and 2-3/8" tbg. Set CICR at 4570' (Refer to Wireline's perforation run for collar locations).
18.	<u>RU cementers.</u> Establish circulation to surface with biocide treated fresh water. <b>Pump Shannon/Sussex Squeeze:</b> : Pump 5 bbls fresh water, 20 bbls sodium metasilicate and 5 bbls fresh water followed by 165 (189.75 cf) sxs 0:1:0 'G' + 0.5% CFR-2 + 0.2% FMC + 0.5% LWA + 0.25 lb/sk Polyflake mixed at 15.8 ppg & 1.15 cf/sk. Underdisplace by 5 bbls. Volume based on 180' below the CICR inside 5-1/2" (14#, K-55) production casing, 210' in the 5-1/2" production casing annulus assuming 11" OH from the caliper log with 20% excess, and 205' on top of the CICR. RD cementers.
19.	Slowly pull out of the cement and PUH to 4200'. Reverse circulate tubing clean to ensure no cement is left in the tubing. TOOH and SB 1400' of 2-3/8" tbg.

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20. RU WL. RIH with jet cutter and cut 5-1/2" casing at 1300'. RD WL.
21. Circulate with fresh water containing biocide to remove any gas.
22. Un-land casing. ND BOP. ND TH. Install BOP on casing head with 5-1/2" pipe rams.
23. TOOH and LD 1300' of 5-1/2" casing. Remove 5-1/2" pipe rams and install 2-3/8" pipe rams.
24. RIH with 2-3/8" tbg to 1400'.
25. RU Cementers. Establish circulation with biocide treated fresh water, 10 bbls (min) SAPP, followed by 20 bbls fresh water spacer. **Pump Foxhills Plug:** 575 sxs (764.75 cf) Type III + 0.3% CFL-3 + 0.3% CFR-2 + 0.25lb/sk Polyflake, mixed at 14.8 ppg and 1.33 cf/sk. Volume is based on 100' in 5-1/2" production casing with no excess and 800' of 11" OH from log with 40% excess. The plug will cover 1400' to 500'. RD cementers.
26. Slowly pull out of the cement and PUH to 300'. Reverse circulate tubing clean to ensure no cement is left in the tubing. TOOH and SB 500' of 2-3/8" tbg.
27. WOC per cement company recommendation. Tag cement. Cement top needs to be at or above 500'. TOOH.
28. RU Cementers. Establish circulation with biocide treated fresh water, 10 bbls (min) SAPP, followed by 20 bbls fresh water spacer. **Pump Stub Plug:** 215 sxs (285.95 cf) Type III + 0.3% CFL-3 + 0.3% CFR-2 + 0.25lb/sk Polyflake, mixed at 14.8 ppg and 1.33 cf/sk. Volume is based on 199' of 11" OH from log with 40% excess and 251' in 8-5/8" surface casing with no excess. The plug will cover 450' to surface. RD cementers.
29. WOC per cement company recommendation. Tag cement. Cement top needs to be at or above 151'. TOOH. RDMO WO rig.
30. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@anadarko.com within 24 hrs of completion of the job.
31. Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
32. Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
33. Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
34. Welder cut casing minimum 5' below ground level.
35. Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
36. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
37. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
38. Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
39. Back fill hole with fill. Clean location, level.
40. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.