

Engineer: Jade Patterson

Cell: 509-307-7514

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## PLUG AND ABANDONMENT PROCEDURE

### SWEET VALLEY FARMS UPRR 31-33 #2, API 05-123-14804

#### Steps

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 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 services and pressure bomb services. Pull bumper spring, tag bottom, and run pressure bomb survey and obtain pressure gradient survey from surface to 7120' making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. RDMO slickline and pressure bomb services.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed.
4. Check and record Braden head pressure. If Braden head valve is not accessible, re-plumb so that valve is above GL.
5. MIRU, kill as necessary using clean fresh water with biocide. NDWH. NUBOP. Unseat landing jt, LD.
6. Notify cementers to be on call. Provide volumes listed below:
  - 6.1 Niobrara suicide: 25 sx (35 cu-ft) "G" w/20% silica flour, 0.4% CD-32, 0.4 ASA-301 and R-3 to achieve 2:30 pump time. Mix at 15.8 ppg and 1.38 cu-ft/sk. Cement volume based on 400' in 4 1/2" casing.
  - 6.2 Sussex suicide: 450 sx (518 cu-ft) "G" w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301, mixed at 15.8 ppg and 1.15 cu-ft/sk. Cement volume based on 770' in 4 1/2" casing and 610' in an 11 1/2" OH with 20% excess. Caliper on file.
  - 6.3 Foxhills plug: 560 sx ( cu-ft) Type III w/cello flake and CaCl<sub>2</sub> as necessary, mixed at 14.8 ppg and 1.33 cu-ft/sk. Cement volume based on 100' in 4 1/2" casing, 651' in an 11 1/2" OH with 40% excess and 209' in 8 5/8" casing. Nearest caliper measurement at 4100'.
7. TOOH 231 joints of 2 3/8" tubing landed at 7229'. Stand back 6900'.
8. MIRU WL. PU 4 1/2" gauge ring and RIH to 6930'. POOH. RD WL.
9. PU 4 1/2" CIBP, RIH and set at +/-6900' to abandon Codell and Niobrara perms. RD WL. PT to 1000 psi for 15 minutes.
10. RIH and tag CIBP at +/- 6900', PUH 5'.
  - 6.1 RU cementers. Pump Niobrara plug: 25 sx (35 cu-ft) "G" w/20% silica flour, 0.4% CD-32, 0.4 ASA-301 and R-3 to achieve 2:30 pump time. Mix at 15.8 ppg and 1.38 cu-ft/sk. Plug to cover from 6900' to 6500' in 4 1/2" casing.
11. PUH to 6000' and circulate to clear tubing and displace cement.
12. P&SB 3980', LD remainder.
13. RU WL. PU two 3 1/8" perf guns, with 3spf, 120 degree phasing and 0.59" EHD. Shoot 1' squeeze holes at 4560' and 3950'. RD WL.

14. PU 4 ½" CICR and RIH on 2 3/8" tubing. Set at ~3980' per CCL. Establish circulation with fresh water containing biocide.
15. RU Cementers. Precede cement with 5 bbl water w/biocide, 20 bbl sodium metasilicate, and another 5 bbl water spacer.
16. Pump Sussex suicide: 450 sx (518 cu-ft) "G" w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301, mixed at 15.8 ppg and 1.15 cu-ft/sk to place cement between perms from 4560' to 3950'. Under displace and sting out of CICR to leave 3 bbls on top of retainer. RD cementers. Plug to cover from 4560' to 3950' in an 11 ½" OH with 20% excess and 4560'-3790' in 4 ½" casing. Caliper on file.
17. PUH to 3500' and circulate to clear tubing and displace cement.
18. P&SB 1070', LD remainder.
19. RU WL. Shoot off casing at or below 970'. RD WL. Circulate casing with water containing biocide to remove any excess gas.
20. NDBOP, NDTH. Install BOP on casing head with 4 ½" pipe rams.
21. TOOH 4 ½" casing, LD. Replace 2 3/8" pipe rams.
22. RIH with 2 3/8" tubing to +/- 1070' inside 4 ½" casing.
23. RU cementers. Precede cement with 10 bbl SAPP and a 20 bbl (minimum) fresh water spacer.
24. Pump Foxhills plug: 560sx (745 cu-ft) Type III w/cello flake and CaCl<sub>2</sub> as necessary, mixed at 14.8 ppg and 1.33 cu-ft/sk. Plug to cover from 1070'-970' in 4 ½" casing, 970' to 319' in an 11 ½" OH with 40% excess, and 319' to 110' in 8 5/8" casing. Nearest caliper reading was at 4100'.
25. PUH to 100' and circulate clean. TOOH and WOC per cement company recommendations.
26. RIH with 2 3/8" tubing and tag cement at 110'. If not consult with Evans Engineering. POOH and LD.
27. RU WL. PU 8 5/8" 24# CIBP and RIH to 80'. Set and PT to 1000 psi for 15 minutes. If tests, RDMO WL and WO rig.
28. Instruct cementing and wireline contractors to email copies of all job logs/jobs summaries to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com) within 24 hours of completion of the job.
29. Supervisor is to submit paper copies of all invoices, logs, and reports to Joleen Kramer.
30. Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
31. Excavate hole around surface casing enough to allow welder to cut casing minimum 5' below ground level.
32. Welder cut casing minimum 5' below ground level.
33. Fill casing to surface using 4500 psi compressive strength cement, (NO gravel).
34. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
35. Obtain GPS location data as per COGCC Rule 215 and send to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com).
36. Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
37. Back fill hole with fill. Clean location, level.