

Engineer: Alex Truby

Cell: 281-620-4788

## PLUG and ABANDONMENT PROCEDURE

### HSR-RANIN 13-29

API# 05-123-16875

#### Step Description of Work

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 bumper spring and tag bottom. Record tag depth in Open Wells. Well has gyro from 10/25/2011. RDMO Slickline.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed. Verify COAs before RU.
4. 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.
5. MIRU WO rig. Spot a min of 25 jts of 2-3/8" 4.7# J-55 EUE tbg. Kill well as necessary using biocide treated fresh water. ND WH. NU BOP. Unland tbg using unlanding joint and LD.
6. TOOH and SB 6915' 2-3/8" tbg, LD remaining tbg.
7. TIH w/ (4-1/2" 11.6#) bit and scraper on 2 3/8" tbg to 6915'. TOOH and SB 6905' 2-3/8" tbg.
8. MIRU WL. PU & RIH w/ (4-1/2", 11.6#) CIBP and set at 6905'. RDMO WL.
9. TIH w/ 2-3/8" tbg to 6905'. Circulate all gas out of well w/ biocide treated fresh water and pressure test to 500 psi.
10. MIRU Cementers. **Niobrara/Codell Balance Plug:** Pump 25 sxs (39 cf) 15.8 ppg & 1.53 cf/sk. Volume based on 400' inside 4-1/2", 11.6# production casing with no excess. Cement will be from 6905'-6505'. RD Cementers.
11. Slowly pull out of the cement and PUH to 6000'. Reverse circulate tbg clean to ensure no cement is left in the tbg.
12. TOOH and SB 1360' 2-3/8" tbg, LD remaining tbg.
13. MIRU WL. PU & RIH w/ (4-1/2", 11.6#) CIBP and set at 4500'. POOH & RIH to dump bail 2 sxs cement on top of CIBP. POOH.
14. PU & RIH w/ (4-1/2", 11.6#) CIBP and set at 4110'. POOH & RIH to dump bail 2 sxs cement on top of CIBP. POOH.
15. RIH and jet cut 4-1/2", 11.6# casing at 1260'. RDMO WL.
16. Attempt to circulate with biocide treated fresh water to remove any gas.
17. ND BOP. ND TH. Un-land casing using a casing spear, not a lifting sub. Rig max pull shall be 100,000#. Max pull over string weight shall be 50,000#. If unable to unland, contact Engineering.
18. Install BOP on casing head with 4-1/2", 11.6# pipe rams.

FHM 1,160; Sussex Top 4,310'; Sussex Base 4,603'; Shannon Base ABSENT; Niobrara Top 6,957'.

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19. TOOH and LD all 4-1/2", 11.6# casing. Remove 4-1/2", 11.6# pipe rams and install 2-3/8" pipe rams.
20. TIH with 2-3/8" tbg to 1360'.
21. Establish circulation with biocide treated fresh water and pump one hole volume (50 bbls).
22. **RU Cementers. Pump Stub Plug:** Pump 10 bbls (min) SMS and 5 bbls fresh water spacer followed by 285 sx (436 cf), 15.8 ppg, & 1.53 cf/sk. Volume is based on 100' in 4-1/2" production casing with no excess, 613' in ~8-1/2" open hole with 40% excess (based on caliper log), and 200' in 8-5/8" surface casing with no excess. The plug will cover 1360' – 447'. RDMO Cementers.
23. Slowly pull out of the cement and PUH to 100'. Reverse circulate using biocide treated fresh water to ensure the tbg is clean. WOC per cement company recommendation.
24. MIRU WL. RIH and tag cement. Cement top needs to be at or above 590' (50' above surface casing shoe at 647'). Call Engineering if tag is lower than 590'. POOH.
25. RIH (8-5/8", 24#) CIBP to 80'. RDMO WL and WO rig.
26. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com) within 24 hours of completion of the job.
27. Supervisor submit paper copies of all invoices, logs, and reports to Platteville Engineering Specialist.
28. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
29. 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 hydro-test pump, then remove night cap and casing head restraints.
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. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
33. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
34. Obtain GPS location data as per COGCC Rule 215 and send to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com).
35. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
36. Back fill hole with fill. Clean location, and level.
37. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.

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