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## PLUG and ABANDONMENT PROCEDURE

EDWARDS 32-15

API: 05-123-22917

### Description

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 production equipment and tag bottom. Record tag depth in Open Wells. Gyro was run on 01/21/15. RDMO Slickline.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed.
4. COA: Verify Form 17 (State Bradenhead Test) has been run within 60 days of RU. If Form 17 required sampling, contact Engineering to verify plugging orders before beginning P&A operations.
5. Upon RU, 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.
6. Refer to BOP testing guidelines, fluid barrier management, and tripping best practices as applicable. All wireline operations will need a flanged changeover, WL BOP, Lubricator with an ID to fit the largest OD of the toolstring, and a packoff. Please contact foreman to discuss arrangement of stack, or alternate plan. Contact your foremen with any questions regarding standard operating procedures or any potential deviations.
7. MIRU WO rig. Kill well as necessary using biocide treated fresh water. Verify BOP and wellhead rating, inspect for appropriate API standards, pressure test BOP according to BOP testing guidelines. ND WH. NU BOP. Unland tbq using unlanding joint and LD.
8. Once well has been killed, pump an additional 200 bbls of water to ensure wellbore is clear of gas. Must maintain full column of fluid or constant pup rate to keep gas out until top perforations are covered with a cast iron bridge plug
9. TOOH and SB 6990' of 2-3/8" tbq. LD remaining 2-3/8" tbq.
10. MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 7000'. POOH.
11. MIRU WL. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 6990' (collars at 6964' & 7008'). POOH. RIH and dump 2 sx cement on CIBP. POOH. RDMO WL.
12. Top fill well with biocide treated fresh water. PT CIBP to 1000 psi for 15 minutes. A good PT has less than 10% loss in pressure and stabilization at the end of the test. Test can be extended longer in time if need be. Contact Foreman or Engineer to confirm proceeding after pressure test.
13. COA: Confirm and document static conditions in the well before placing the next plug. If there is evidence of pressure or fluid migration at any time after placing the Sussex plug, contact Engineering.
14. MIRU WL. PU and RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 4' of squeeze holes at 4185' and 4' of squeeze holes at 3925'. RDMO WL.
15. PU and TIH with (4-1/2", 11.6#) packer on 2-3/8" tbq. Set packer at 3980'.

16. Establish circulation to surface with biocide treated fresh water, and pump 100 bbls to clean up hole. Max pump pressure is 918 psi with fresh water at 2 bpm. If unable to circulate at that pressure, contact engineer.
17. Release packer. TOOH, SB 2-3/8" tbg. LD packer.
18. PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at 3980'.
19. MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Sussex Squeeze: 115 sx (36.7 bbl or 206 cf), assuming 12 ppg & 1.79 cf/sk. Max pump pressure is to be 756 psi at 2 bpm with a full column of cement. Underdisplace by 3 bbls. Volume is based on 345' below the CICR inside 4-1/2", 11.6# production casing with no excess, 405' in the 4-1/2", 11.6# annulus assuming 7.875" bit size with 60% excess and 190' on top of the CICR to cover top perfs. Collect wet and dry samples of cement to be left on rig. RDMO Cementers.
20. Pull out of cement at a rate of 1 jt/min. TOOH to 3290'. Reverse circulate to ensure no cement is left in the tbg.
21. TOOH and LD stinger, and remaining tbg.
22. MIRU WL. PU and RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 4' of squeeze holes at 1000'
23. ND BOPs, ND Wh, install 4-1/2" casing collar, swage, 2" ball valve, and plumb cementer into 4-1/2".
24. Establish circulation to surface with biocide treated fresh water. Max pump pressure is 894 psi with fresh water at 4-8 bpm. If unable to circulate at that pressure, contact engineer.
25. COA: Verify and document that all pressure and fluid migration has been eliminated prior to placing the SC shoe plug at 735'. If there is evidence of pressure or fluid migration, contact Engineering.
26. NOTE: The following cement job should be pumped at 4-8 bpm with mixed water at approximately 70 deg F. The cement blend is considered thixotropic and has a thickening time of approximately 90 mins.
27. MIRU cementers. Pump 10 bbls (min) of pre-flush, followed by 5 bbls fresh water spacer. Pump Surface Plug: 220 sx (48.2 bbl or 5271 cf) Class G with 0.4% latex, 3% CaCl, and 5% Gypsum, assuming 15.8 ppg & 1.23 cf/sk. Volume is based on 650' in 4-1/2", 11.6# production casing with no excess, 119' in the 4-1/2" X 7-7/8" annulus with 100% excess, and 531' in the 4-1/2" X 8-5/8" annulus with no excess. Collect wet and dry samples of cement to be left on rig. Verify and document cement to surface in 4-1/2" production casing and 4-1/2" X 8-5/8" annulus. RDMO Cementers.
28. COA: If cement was not circulated to surface, then WOC 4 hours. Tag TOC. TOC must be 481' or shallower. If tag is too deep or there is evidence of pressure or fluid migration, contact Engineering.
29. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to [rsdJVs@anadarko.com](mailto:rsdJVs@anadarko.com) within 24 hours of completion of the job.
30. Supervisor submit paper copies of all invoices, logs, and reports to VWP Engineering Specialist.
31. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
32. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
33. Welder cut casing minimum 5' below ground level.
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 [rsdJVs@anadarko.com](mailto:rsdJVs@anadarko.com).
36. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
37. Back fill hole with fill. Clean location, and level.
38. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.