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## PLUG and ABANDONMENT PROCEDURE

CROISSANT 23-20

API: 05-123-27363

### 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. Directional Survey was run on 11/28/06. 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 tbg 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 pump rate to keep gas out until top perforations are covered with a CIBP
9. TOOH and LD all 2-3/8" tbg.
10. MIRU WL. PU and RIH with (4-1/2", 11.6#) gauge ring to 7200'. POOH.
11. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7190' (collars at 7164' & 7206'). POOH. RIH and dump 2 sx cement on CIBP. POOH.
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. RIH and dump 2 sx cement on CIBP. POOH
14. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 6860' (collars at 6840' & 6882'). POOH. RIH and dump 2 sx cement on CIBP. POOH. RDMO WL.
15. COA: Confirm and document static conditions in the well before placing the Sussex plug. If there is evidence of pressure or fluid migration at any time after placing the Niobrara plug, contact Engineering.
16. MIRU WL. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 3850' (collars at 3822' & 3864'). POOH. RIH and dump 2 sx cement on CIBP. POOH. RDMO WL.

17. 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 685'. RDMO WL.
18. Attempt to establish circulation and circulate with fresh water containing biocide to remove any gas and clean up hole.
19. ND BOPs, ND Wh, install 4-1/2" casing collar, swage, 2" ball valve, and plumb cementer into 4-1/2".
20. COA: Verify and document that all pressure and fluid migration has been eliminated prior to placing the SC shoe plug at 685'. If there is evidence of pressure or fluid migration, contact Engineering.
21. RU Cementers. Pump 15 bbls (min) of pre-flush. Pump Stub Plug: 220 sx (48.2 bbl or 271 cf) Class G cement with 0.4% latex, 2% CaCl, and 4% gypsum, assuming 15.8 ppg & 1.23 cf/sk. Volume is based on 685' in 4-1/2", 11.6# production casing with no excess, 153' in the openhole annulus assuming 7.88" bit size with 100% excess factor, and 532' in the 8-5/8", 24# surface casing annulus with no excess. The plug is designed to cover 685'- surface. RDMO Cementers. Notify engineering if circulation is ever lost during job.
22. COA: If cement was not circulated to surface, then WOC 4 hours. Tag TOC. TOC must be 0' or shallower. If tag is too deep or there is evidence of pressure or fluid migration, contact Engineering.
23. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to rscDJVendors@anadarko.com within 24 hours of completion of the job.
24. Supervisor submit paper copies of all invoices, logs, and reports to VWP Engineering Specialist.
25. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
26. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
27. Welder cut casing minimum 5' below ground level.
28. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
29. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
30. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
31. Back fill hole with fill. Clean location, and level.
32. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.