

## RE-ENTRY P&A PROCEDURE

### SAKATA STATE 24-36

Step	Description of Work
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| 1.  | Well is being re-entered due to having inadequate cement coverage for the upcoming frac of the Meese State HZ Pad.   |
| 2.  | 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)  |
| 3.  | Locate and expose 8-5/8" casing stub (about 3-4' below surface). Extend stub to surface and install 8-5/8" x 11" SOW, 3M rated surface casing head with XXH bull plugs.  |
| 4.  | Prepare location for base beam equipped rig. Install perimeter fence as needed.  |
| 5.  | MIRU WO rig. Spot a min of 260 jts of 2-3/8" 4.7# L-80 EUE tbg.  |
| 6.  | NU 7" 5000 psi BOP stack on casing head. PT BOP and csg head. Function test BOP.   |
| 7.  | PU and TIH with 3-7/8" drill bit and appropriate drill collars on 2-3/8" tbg to TOC near surface.  |
| 8.  | RU Power Swivel. Establish circulation with biocide treated fresh water. Drill out all cmt until bit falls free (25 sx plug at surface. Bottom assumed to be +/- 350'). Gas and pressure may be under plug. RD Power Swivel.   |
| 9.  | Load hole with biocide treated fresh water and attempt to circulate any gas out of the well.   |
| 10. | TOOH and SB all 2-3/8" tbg.  |
| 11. | Continue tripping in/washing down to 7990'. TOOH and SB 6880' of 2-3/8" tbg, LD remaining tbg and bit and scraper. Contact Engineering if unable to get bit and scraper to 7990'.  |
| 12. | MIRU VES. Run GYRO to 7500' making stops every 100'. RDMO VES.   |
| 13. | MIRU WL. PU and RIH with (4-1/2", 11.6#) CIBP and set at +/- 7980' to abandon the J Sand perfs. POOH. RIH to dump 2 sx cement on CIBP. POOH  |
| 14. | PU and RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 7250' and 4' of squeeze holes at 6850'. POOH and RDMO WL.  |
| 15. | MIRU Hydrotester. TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg while hydrotesting to 3000 psi to 6880'. Set CICR at +/- 6880'. RDMO Hydrotester.  |
| 16. | Establish circulation to surface with biocide treated fresh water and pump 200 bbls to clean up hole.  |
| 17. | <u>RU Cementers. Pump Niobrara Squeeze:</u> Pump 10 bbls sodium silicate and 5 bbls fresh water followed 160 sx (242 cf) assuming 0.25 lb/sk polyflake 15.8 ppg & 1.51 cf/sk cement. Underdisplace by 3 bbls. Volume is based on 370' below the CICR inside 4-1/2" production casing with no excess, 400' in the 4-1/2" annulus assuming 9" OH from caliper log with 20% excess, and 190' on top of the CICR to cover top perfs. RD Cementers. |
| 18. | Slowly pull out of the cement and PUH to 6000'. Reverse circulate to ensure no cement is left in the tbg.  |
| 19. | TOOH and SB 4520' of 2-3/8" tbg. LD remaining tbg and CICR stinger.  |
| 20. | MIRU WL. Well needs CBL. PU and RIH with CCL-GR-CBL-VDL. Run log from 1600' to surface and send results to Engineering. Report cement tops in OpenWells. If cement differs from WBD, contact Engineering for revised design.   |
| 21. | PU and RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 4940' and 4' of squeeze holes at 4490'. POOH and RDMO WL.  |
| 22. | PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at +/- 4520'.   |
| 23. | Establish circulation to surface with biocide treated fresh water and pump 200 bbls to clean up hole.  |

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24. **RU Cementers. Pump Sussex Squeeze:** Pump 10 bbls sodium silicate and 5 bbls fresh water followed 320 sx (484 cf) assuming 0.25 lb/sk polyflake 15.8 ppg & 1.51 cf/sk cement. Underdisplace by 3 bbls. Volume is based on 420' below the CICR inside 4-1/2" production casing with no excess, 450' in the 4-1/2" annulus assuming 12.5" OH from caliper log with 20% excess, and 190' on top of the CICR to cover top perfs. RD Cementers.
25. Slowly pull out of the cement and PUH to 3800'. Reverse circulate to ensure no cement is left in the tbg.
26. TOOH and SB 1030' of 2-3/8" tbg. LD remaining tbg and CICR stinger.
27. MIRU WL. PU and RIH with two 3-1/8" perf guns with 3 spf, min 0.5" EHD, 120° phasing. Shoot 2' of squeeze holes at 1580' and 4' of squeeze holes at 1000'. POOH and RDMO WL.
28. PU and TIH with (4-1/2", 11.6#) CICR on 2-3/8" tbg. Set CICR at +/- 1030'.
29. Establish circulation to surface with biocide treated fresh water and pump 100 bbls to clean up hole.
30. **RU Cementers. Pump Fox Hill Squeeze:** Pump 10 bbls sodium silicate and 5 bbls fresh water followed 225 sx (338 cf) assuming 0.25 lb/sk polyflake 15.8 ppg & 1.50 cf/sk cement. Underdisplace by 3 bbls. Volume is based on 550' below the CICR inside 4-1/2" production casing with no excess, 580' in the 4-1/2" annulus assuming 7.88" bit size with 60% excess, and 190' on top of the CICR to cover top perfs. RD Cementers.
31. Slowly pull out of the cement and PUH to 500'. Reverse circulate to ensure no cement is left in the tbg.
32. MIRU WL. RIH and jet cut 4-1/2" casing at 300'. POOH and RDMO WL.
33. Attempt to circulate with biocide treated fresh water to remove any gas.
34. 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.
35. Install BOP on casing head with 4-1/2" pipe rams.
36. TOOH and LD all 4-1/2" casing. Remove 4-1/2" pipe rams and install 2-3/8" pipe rams.
37. TIH with 2-3/8" tbg to 400'.
38. Establish circulation with biocide treated fresh water and pump one hole volume (30 bbls).
39. **RU Cementers. Pump Stub Plug:** Pump 10 bbls (min) SAPP, followed by 5 bbls fresh water spacer. Pump 85 sx (128 cf) assuming 0.25 lb/sk Polyflake 15.8 ppg & 1.50 cf/sk. Volume based on 100' in 4-1/2" production casing with no excess, 146' in 7.88" bit size OH with 100% excess factor, and 54' in 8-5/8" surface casing with no excess. The plug will cover 400' – 100'. RDMO Cementers.
40. Slowly pull out of the cement and PUH to 80'. Reverse circulate using biocide treated fresh water to ensure the tbg is clean. WOC per cement company recommendation.
41. MIRU WL. RIH and tag cement. Cement top needs to be at or above 104' (50' above the surface casing shoe at 154'). Call Engineering if tag is lower than 104'. POOH.
42. PU and RIH with (8-5/8", 20#) CIBP to 80'. Set CIBP at 80'. POOH, RDMO WL and WO rig.
43. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to [rsdJVendors@anadarko.com](mailto:rsdJVendors@anadarko.com) within 24 hours of completion of the job.
44. Supervisor submit paper copies of all invoices, logs, and reports to Platteville Engineering Specialist.
45. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
46. 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 hydrotest pump, then remove night cap and casing head restraints.

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47. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
48. Welder cut casing minimum 5' below ground level.
49. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
50. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
51. Obtain GPS location data as per COGCC Rule 215 and send to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com).
52. Properly abandon flow lines per Rule 1103. File electronic Form 42 once abandonment is complete.
53. Back fill hole with fill. Clean location, and level.
54. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.