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Engineer: Tyler Davis

Cell: 303-717-0764

PLUG AND ABANDOMENT PROCEDURE

Wardell UPRR 31-29 #3

1. Note: Production Casing = 4 1/2" OD, 15.1#/ft; Production Hole Drilled @ 7 7/8."
2. Provide 48 hr notice to COGCC prior to rig up per request on approved Form 6 (e.g. call field coordinator, submit Form 42, etc.). Call IOC (970-506-5980) at least 24 hr prior to rig move. Request they catch and remove plunger, isolate production equipment and remove any automation prior to rig MIRU.
3. MIRU SL. Pull bumper spring and tag bottom. RDMO slickline services.
4. Prepare location for base beam equipped rig. Install perimeter fence as needed.
5. Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL.
6. MIRU, kill as necessary using clean fresh water with biocide and circulate. ND WH. NU BOP. Unseat landing jt, LD. Notify cementers to be on call. Provide volumes listed below:
    - 6.1 Niobrara Plug: 41 cu ft/ 30 sx "G" w/20% silica flour, 0.4% CD-32, 0.4% ASA-301 and R-3 to achieve 2:30 pump time mixed at 15.8 ppg and 1.38 cuft/sk yield (400' inside 4-1/2" casing).
    - 6.2 SX Suicide: 540 cu ft/ 470 sx class "G" w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cf/sx (600' in 12" OH + 20% excess. 600' inside 4 1/2" casing, no excess).
    - 6.3 Balanced Plug: 691 cu ft/ 520 sx Type III CaCl2 cement w/0.25 pps cello flake mixed at 14.8 ppg and 1.33 cf/sx (100' inside 4-1/2" csg, 666' inside 12" OH + 40% excess, and 204' inside 8-5/8" surface casing).
7. TOOH 2-3/8" production tubing. Stand back.
8. PU casing scraper and RIH with 2-3/8" tubing to 6950'. Then TOOH. Note: 4-1/2", 15.1# casing.
9. MIRU WL. RIH CIBP and set at +/- 6900. Dump bail 2 sx class G cmt. Pressure test CIBP to 1000 psi. RD WL.
10. RIH to 6900' w/ 2-3/8" tubing. RU Cementers. Pump Niobrara Plug: 41 cu ft/ 30 sx "G" w/20% silica flour, 0.4% CD-32, 0.4% ASA-301 and R-3 to achieve 2:30 pump time mixed at 15.8 ppg and 1.38 cuft/sk yield (400' inside 4-1/2" Casing, no excess) to place cement in production casing from 6900' to 6500'.
11. PUH to 5500'. Circulate 80 bbls water containing biocide to clear tubing. Then, TOOH and SB remainder of tbg.
12. RU WL. PU 3-1/8" perf guns with 3 spf, 0.5" dia 120deg phasing. Shoot 1' of squeeze holes at 4930' and 4330'. RD WL.
13. PU and RIH w/ CICR and 2-3/8" tubing and set CICR at approximately 4360'.
14. RU Cementers. Pump 5 bbl water w/biocide, 20 bbl Sodium Metasilicate, and another 5 bbl water spacer immediately preceding cement. Pump SX Suicide: 540 cu ft/ 470 sx class "G" w/0.25 pps cello flake, 0.4% CD-32, 0.4% ASA-301 mixed at 15.8 ppg and 1.15 cf/sx (600' in 12" OH + 20% excess and 600' inside 4-1/2" casing) to place suicide squeeze between perfs from 4930' to 4330'. Under displace and sting out of CICR to leave 3 bbls on top of retainer.
15. PUH to 3500'. Circulate 45 bbls water containing biocide to clear tubing. Then, TOOH.
16. RU WL. Shoot off casing at or below 1260'. RDMO WL. Circulate water containing biocide down casing and up annulus to remove any gas.
17. NDBOP, NDTH.
18. Install BOP on casing head with 4-1/2" pipe rams.
19. TOOH with 4-1/2" casing, LD.
20. RIH with 2-3/8 " tubing to 1360'.
21. RU Cementers. Pump 10 bbl SAPP with a minimum of 20 bbl fresh water spacer. Pump Balanced Plug: 691 cu ft/ 520 sx Type III CaCl2 cement w/0.25 pps cello flake mixed at 14.8 ppg and 1.33 cf/sx from 1360' to 390'.
22. PUH to 100'. Circulate 5 bbls water containing biocide to clear cement and tubing.

23. TOOH. WOC 4 hrs. Tag Cement. Cement top needs to be at or above 390'; Proceed assuming TOC is at or above 390'. Otherwise, call production engineer.
24. MIRU WL. RIH 8-5/8” CIBP to 80'. Set, PT to 1000 psi for 15 min. If tests, RDMO WL and WO rig.
25. Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries and invoices to rscDJVendors@anadarko.com within 24 hrs of the completion of the job.
26. Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
27. Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
28. Excavate hole around surface casing enough to allow welder to cut 8 5/8” casing minimum 5’ below ground level.
29. Welder cut 8 5/8" casing minimum 5' below ground level.
30. MIRU ready cement mixer. Use 4500 psi compressive strength cement, (NO gravel) fill stubout.
31. Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
32. Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
33. Properly abandon flowlines per Rule 1103.
34. Back fill hole with fill. Clean location, level.
35. Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed. File electronic Form 42 once abandonment complete.