Engineer: Tod Haanes
Cell: 303-929-2339
Date: 2/29/2015

PLUG and ABANDONMENT PROCEDURE

Ale Partnership Federal W29-9JI

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.). Call 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 WL. Pull bumper spring and tag bottom. Run pressure bomb and obtain pressure gradient survey from surface to 7925' (halfway between J Sand perfs) making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. Note: Do not run the BHP Survey after blowing down or killing the well with fluid. RD WL.
3. Prepare location for base beam equipped rig. Install perimeter fence as needed.
4. Check and record Bradenhead pressure. If Bradenhead valve is not accessible, re-plumb so that valve is above GL. The last Form 17 test on 11/5/2014 recorded a Bradenhead pressure of <1 psi, and no liquids.
5. MIRU WO rig. Kill well as necessary using clean fresh water with biocide. ND WH. NU BOP. Unseat landing joint, and LD.
6. TOOH and SB 6860’ 2-3/8'' tubing.
7. RU WL. PU gauge ring and RIH to 7880’ for 4-1/2" 11.6 lb/ft casing (spud date = 1/22/2000). POOH and LD gauge ring.
8. Set CIBP at 7850' (collars are located at 7825’ and 7868’) to abandon the J Sand perfs. Standby WL.
9. Fill hole and pressure test CIBP to 1000 psi for 15 minutes.
10. PU dump bailer and spot 2 sxs of “G” cement on the CIBP at 7850’.
11. PU and RIH with *two* 3-1/8" perf guns with 3 spf, 0.50" EHD, 120° phasing. Shoot 1' of squeeze holes at 6860' and 2’ at 6500'. RD WL.
12. RU 4-1/2" CICR and RIH on 2-3/8" tubing while hydrotesting to 4000 psi and set CICR at 6530'.
13. RU Cementers. Establish circulation through squeeze holes. **Pump Niobrara suicide squeeze:** 100 sxs (165 cf) 1:1:3 'Poz G Gel'+20% silica+0.4% CFL-3+0.4% CFR-2+0.1% SMS, mixed at 13.5 ppg & 1.66 cf/sk. Under-displace by 2 bbls and un-sting from CICR spotting at least 100' cement on top of the squeeze holes. The plug will cover 6860' - 6370'. Volume is based on 360' in 8.5" OH from caliper with 20% excess, and 490' in 4-1/2" production casing with no excess. RDMO cementers.
14. Slowly pull out of the cement and PUH to 6000' and circulate tubing clean to ensure no cement is left in the tubing. TOOH, SB 5070’ 2-3/8” tubing, and LD CICR stinger setting assembly. RIH to 5070’.
15. RU Cementers. **Pump Sussex balanced plug:** 60 sxs (69 cf) 0:1:0 'G'+0.5% CFR-2+0.2% FMC+0.5% LWA, mixed at 15.8 ppg & 1.15 cf/sk. The plug will cover 5070' - 4280'. Volume is based on 790' in 4-1/2" production casing with no excess. RD cementers.
16. Slowly pull out of the cement and PUH to 3900' and circulate to ensure no cement is left in the tubing.

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17. WOC per cement company recommendation. Tag cement. Cement top needs to be above 4308' (COGCC requires 200' above the Sussex TOP of 4508').
18. TOOH and SB 1560' 2-3/8" tubing.
19. RU WL. RIH and cut casing at 1460'. RD WL.
20. Circulate with fresh water containing biocide to remove any gas.
21. Un-land casing. ND BOP, ND TH. Install BOP on casing head with 4-1/2" pipe rams.
22. TOOH and LD 1460' of 4-1/2" casing. Remove 4-1/2" pipe rams and install 2-3/8" pipe rams.
23. RIH with 2-3/8" tubing to 1560'.
24. RU Cementers. Precede cement with 10 bbl (min) SAPP followed by a 20 bbl fresh water spacer. **Pump Stub Plug:** 390 sxs (519 cf) Type III+0.3% CFL-3+0.3% CFR-2+0.25 lb/sk Polyflake, mixed at 14.8 ppg & 1.33 cf/sk (100' in 4-1/2" production casing with no excess, 591' in 9" OH from caliper with 40% excess, 405' in 8-5/8" surface casing with no excess). The plug will cover 1560' - 464'. RD cementers.
25. Pull up to 200' and circulate tubing clean using fresh water treated with biocide.
26. WOC per cement company recommendation. Tag cement. Cement top needs to be above 470' (COGCC is requiring 50' above the Fox Hills sand TOP located at 522'). TOOH.
27. RU WL. RIH 8-5/8" CIBP to 80'. Set and pressure test to 1000 psi for 15 minutes. RDMO WL and WO rig.
28. 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.
29. Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
30. Excavation crew to notify One Call to clear excavation area around wellhead and for flow lines.
31. Excavate hole around surface casing enough to allow welder to cut casing a minimum 5' below ground level.
32. Welder cut casing minimum 5' below ground level.
33. Fill casing to surface using 4500 psi compressive strength cement (NO gravel).
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 rscDJVendors@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.