PLUG AND ABANDONMENT PROCEDURE

Engineer: Taj Brar (970-339-1088)
Cell: 303-720-1810

1. Call foreman or Lead Operator before rig up to isolate and remove automation and production equipment. Install fence if needed.
2. MIRU slickline services and VES. Pull bumper spring, tag bottom and run gyro stopping every 100' from 7300' to surface. Forward survey results to Sabrina Frantz. RDMO SL & VES.
3. Provide notice to COGCC prior to MIRU per Form 6 COA.
4. Prepare location for base beam rig.
5. MIRU WO rig. Kill well; circulate as necessary, with water containing biocide. ND wellhead. NU BOP's. Unseat landing joint and lay down.
6. Place cement services on will call when rig moves on location, providing expected volumes of cement needed. (~ 60 sacks (80 cu.ft) for NBCD in pipe plug; 560 sacks (650 cu.ft) for SXSH plug, ~ 470 sacks (630cu.ft) for top plug). See attached WBD for cement blends.
7. TOOH and stand back 2 3/8" (4.7#) J-55 TBG.
8. MIRU wireline services. RIH gauge ring for 4 ½ " (11.6#) casing to 7050'.
9. PU 4 ½ " (11.6#) CIBP and RIH on W/L to +/- 7010'. Set CIBP. P/T CIBP to 1000 psi.
10. RIH 2 3/8" TBG to +/- 7010'. Hydrotest TBG to 3000 psi while RIH.
11. Initiate circulation using water containing biocide. Note rate, pressure and circulation.
12. MIRU cementing services. Spot 60 sacks (~ 80 cu. ft.) of "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 1.15 cuft/sk. Cement from 7010' to 6150'.

13. PUH ~ 24 stands. Circulate (2 X TBG Vol + Excess) with water + biocide to CLR TBG. RD cementing services.
14. TOOH and stand back 4020' (65 stands) of 2-3/8" TBG. LD remainder.
15. MIRU wireline services.
16. PU two 1' 3 1/8" perf guns loaded with 3 spf, 0.5" EHD, 120 phasing. Shoot 1' of squeeze holes at 5000' and 3990'. RD wireline.
17. PU 4 ½ " CICR (11.6#) and RIH on 2 3/8" TBG to 4020'. Set CICR.
18. Initiate circulation using water containing biocide. Note rate, pressure and circulation.
19. MIRU cementing services. Preflush with 5 bbl of H20; 20 bbl of sodium metasilicate; 5 bbl of H20.
20. Pump 560 sacks (650 cu. ft) of "G" w/ 0.25 pps cello flake , 0.4% CD-32, 0.4% ASA - 301, mixed at 15.8 ppg and 1.15 cuft/sk with 20% excess used and considering hole size of 10". Cement from 5000' to 3990'.
21. Underdisplace by 3 BBL. Unsting from CICR and dump remainder on CICR.
22. PUH 9 stands. Circulate (2 X TBG Vol + Excess) to CLR TBG. RD cementing services.
23. P & SB 1130' (18 stands) of TBG. LD remainder.
24. RU wireline services. Crack closest coupling at 1030' or shoot off. RD wireline.
25. Circulate with water w/ biocide to remove any gas from 4 ½ " and OH annulus.
26. NDBOP, NDTH.
27. NU BOP on casing head. Install 4 ½" pipe rams.
28. TOOH with 4 ½ " casing and lay down.
29. RIH with 2 3/8" TBG into casing stub to +/- 1130' inside 4 ½".
30. RU Cementing services.

31. Pump 470 sacks (~630 cu. ft) of Type III w/ cello flake and CaCl2, mixed at 14.8 ppg and 1.33 cuft/sk. Cement from 1130' to 250'. Volumes calculated considering 12" hole size and 20% excess.
32. PUH to +/- 150'. Circulate (2 X TBG Vol + Excess) to CLR TBG. RD cementing services. TOOH. WOC 4 hrs.
33. TIH and tag cement plug. If plug top is below +/- 250', top as necessary. RDMO cementing services.
34. MIRU wireline services. PU 8-5/8" CIBP and RIH to 80'. Set CIBP. Pressure test CIBP to 1000 psi for 15 minutes. If plug tests, RDMO wireline and WO rig.
35. 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.
36. Wellsite supervisor turn all paper copies of cementing reports/invoices and logs in to Joleen Kramer. NOTE: During the job, wellsite supervisor should instruct the logging and cementing contractors to e-mail all logs, job reports/invoices to Joleen Kramer.
37. Have excavation contractor notify One-Call to clear for excavating around wellhead and flowline removal.
38. Excavate hole around surface casing of sufficient size and depth to allow welder to cut off 8-5/8" surface casing and at least 5' below ground level.
39. Have welder cut off 8-5/8" surface casing at least 5' below ground level.
40. MIRU ready cement mixer. Use 4,500 psi compressive strength redi-mix cement (sand and cement only, no gravel) Fill STUB. RDMO cement services.
41. Have welder spot weld steel marker plate on top of surface casing. (Note: marker shall be labeled with well name and number, legal location (¼ ¼ description) and API number.

42. Properly abandon flowlines as per Rule 1103.

43. Have excavation contractor back fill hole with native material. Clean up location and have leveled.

44. Submit Form 6 to COGCC. Provide “As Plugged” wellbore diagram identifying the specific plugging completed.