

PLUG AND ABANDONMENT PROCEDURE

Engineer: Taj Brar (970-339-1088)

Cell: 303-720-1810

GYRO COMPLETED: 3/15/2014

Note: 3-1/2" (7.7#) casing from 10' to 4124' & 3-1/2" (9.3#) casing from 4124' – 7662'.

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. Pull bumper spring, tag bottom.
3. Provide notice to COGCC 48 hrs. prior to MIRU per Form 6 COA.
4. Notify IOC when rig moves on location to generate work order for flowline removal and one call for line locates.
5. Prepare location for base beam rig.
6. MIRU WO rig. Kill well; circulate as necessary, with water containing biocide. ND wellhead. NU BOP's. Unseat landing joint and lay down.
7. Place cement services on will call when rig moves on location, providing expected volumes of cement needed. **1.) NBCD plug** – 20 sacks 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 1.38 cuft/sk; **2.) SXSH plug** - 20 sacks 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 and **3.) Top plug** – 430 sacks of Type III with celloflake and CaCl₂ mixed at 14.0 ppg and 1.53 cuft/sk considering hole size of 12" and 20% excess. Please see WBD for cement blends.
8. TOOH and stand back 1-66" (O.D.) TBG.
9. MIRU wireline services. RIH gauge ring for 3-1/2" (9.3#) casing to 7200'.

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10. PU 3-1/2" CIBP and RIH on W/L to +/-7120'. Set CIBP. P/T CIBP to 1000 psi. (casing patch at 4117').
11. PU RIH with CCL-GR-CBL-VDL. Run from +/- 7100' to surface to verify cement behind 3-1/2" CSG. Email log results to engineer. Cement blend and squeeze jobs may be changed based on log results. (NO CBL present to verify estimated TOC at 6600')
12. RIH on 1.66" TBG to +/- 7120'. Hydrotest TBG to 3000 psi while RIH.
13. Initiate circulation using water containing biocide. Note rate, pressure and circulation.
14. MIRU cementing services. Pump 20 sacks "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. Cement from 7120' to 6600'.
15. PUH 18 stands. Circulate (2X TBG Vol + Excess ~ 30 BBLS) to CLR TBG. RD cementing services
16. PUH to 4800' of TBG (78 Stands). LD remainder.
17. Spot 20 sacks 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. Cement from 4800' to 4400'.
18. PUH 15 stands. Circulate (2X TBG Vol + Excess ~ 2 BBLS) to CLR TBG. RD cementing services.
19. P & SB 1580' (25 stands) of TBG. LD remainder.
20. RU wireline services. Shoot off 3-1/2" (7.7#) CSG at 1480'. RD wireline.
21. Circulate with water w/ biocide to remove any gas from wellbore.
22. NDBOP, NDTH.
23. NU BOP on casing head. Install 3-1/2" pipe rams.
24. TOOHS with 3-1/2" casing and LD. Install 1.66" pipe rams.

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25. RIH with 1.66" TBG into casing stub to 1580' inside 3-1/2".
26. RU Cementing services. Pump 430 sx of Type III with celloflake and CaCl₂ mixed at 14.0 ppg and 1.53 cuft/sk considering hole size of 12" and 20% excess. Cement from +/- 1580' to 600'.
27. PUH to 600' & circulate water w/ biocide to clear TBG. TOOH. WOC 4 hrs.
28. TIH and tag cement plug. If plug top is below 600', top as necessary.
29. 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.
30. 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.
31. 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.
32. Have excavation contractor notify One-Call to clear for excavating around wellhead and flowline removal.
33. 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.
34. Have welder cut off 8-5/8" surface casing at least 5' below ground level.
35. MIRU ready cement mixer. Use 4,500 psi compressive strength redi-mix cement (sand and cement only, no gravel) Fill STUB. RDMO cement services.
36. 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.
37. Properly abandon flowlines as per Rule 1103.

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38. Have excavation contractor back fill hole with native material. Clean up location and have leveled.
39. Submit Form 6 to COGCC. Provide "As Plugged" wellbore diagram identifying the specific plugging completed.