HSR Ebaugh 15-36: Plug & Abandonment

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 IOC (970-506-5980) at least 24 hours prior to rig move. Request they catch and remove plunger, isolate production equipment, and remove any automation equipment prior to MIRU.

2 Prepare location for base beam equipped rig. Install perimeter fence as needed.

3 Check and report surface casing pressure. If surface casing is not accessible at ground level, re-plumb so valve is at ground level

4 MIRU WO rig. Spot in tubing trailer with +/- 5020' of 2-3/8" 4.7# tubing. Kill well as necessary with water and biocide. ND wellhead. NU BOP.

5 PU and TIH with retrieving head and 2-3/8" tubing to latch onto and release RBP set at +/- 4500'. TOOH standing back 4500' of 2-3/8" tubing and LD RBP.

6 MIRU wireline. RIH with junk basket/gauge ring (4-1/2" 11.6#) to 5060'. POOH. PU and RIH with CIBP (4-1/2", 11.6#) to set at 5020' (collar at 5006' and no CBL over lower collar). POOH. RDMO wireline.

7 MIRU hydrotester. Hydrotest 2-3/8" tubing to 3000psi while TIH open ended. Tag CIBP set at 5020'. PUH just above CIBP.

8 MIRU cementing services. Establish circulation with water and pump 60 sx Class "G" cement with 0.4% CD-32 and 0.4% ASA-301 mixed at 15.8ppg and 1.15 cuft/sx (cement volumes based on 4-1/2" 11.6# casing capacity with no excess from 5020' to 4250'). Displace cement to estimated TOC at 4220' using approx. 16.3 bbls water. TOOH and stand back 2-3/8" tubing so EOT at +/- 4020'. Reverse circulate using approx. 32 bbls water (2 times tubing volume) or until returns are clean. RDMO cementing services. WOC to set up per cementing company recommendation.

9 PU and TIH with 2-3/8" tubing to tag cement plug at +/- 4220'. If cement is not above 4350' contact engineer, otherwise proceed to next step.

10 Circulate all gas out of hole so CBL can be ran. TOOH and stand back 3990' of 2-3/8" tubing. LD extra tubing.

11 MIRU wireline services. PU and RIH with CCL-GR-CBL-VDL. Log from +/- 4200' to surface while holding +/- 1,000 psi on casing to verify cement coverage. ***DO NOT TAG CEMENT TOP at +/- 4220' WITH CBL* Contact engineering after CBL is run to identify any changes to the below steps and confirm no cement coverage above 4242'.** RDMO wireline.

12 ****ALL BELOW STEPS ASSUME NO CEMENT BEHIND PRODUCTION CASING FROM 4242' TO SURFACE****

13 PU and RIH with two 1' long 3-1/8" perf guns and shoot squeeze holes at 4160' and 3960' using 3 SPF, 0.5" EHD, 1' net, 3 total shots. RDMO wireline.

14 PU & TIH with CICR on 2-3/8" tubing. Set CICR at 3990' (no collar locator ran at this depth to correlate to).

15 MIRU cementing services. Establish injection with water through CICR and pump 20 bbls sodium metasilicate, 5 bbl water spacer, 120 sx Class "G" cement with 0.25 pps cello flake, 0.4% CD-32 and 0.4% ASA-301 mixed at 15.8ppg and 1.15 cuft/sx (cement volumes based on 200' of 10" hole x 4-1/2" casing annulus with 20% excess and 4-1/2" 11.6# casing capacity with no excess from 4160' to 3800'). Underdisplace cement in tubing using 12.4 bbls water (3 bbls short of CICR set at 3990') and spot remaining cement on top of CICR. TOOH and stand back 2-3/8" tubing so EOT at +/- 3600'. Reverse circulate using approx. 28 bbls water (2 times tubing volume) or until returns are clean. RDMO cementing services.

16 TOOH and stand back 1230' of 2-3/8" tubing. LD extra tubing.

17 MIRU wireline. RIH and jet cut 4-1/2" production casing at 1130'. RDMO wireline. Circulate bottoms up and continue circulating to remove any gas from wellbore.

18 ND BOP. Install BOP on surface casing head with 4-1/2" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet.

19 TOOH and LD 1130' of 4-1/2" casing.

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20 TIH w/ 2-3/8" tubing open ended to 1230' (100' inside the 4-1/2" stub).
21 MIRU cementing services. Establish circulation with water and pump 10 bbls SAPP mud flush, 20 bbls fresh water spacer, then balanced stub plug using 470 sx Type III cement with cello flake and CaCl2 as necessary, mixed at 14.8 ppg and 1.33 cuft/sx (cement volumes based on 100' inside 4-1/2" 11.6# casing, 673' in 11" hole with 20% excess, and 200' in 8-5/8" surface casing). RDMO cementing services.
22 TOOH and LD 2-3/8" tubing until EOT at +/- 200'. Circulate down tubing and up surface casing/tubing annulus until returns are clean to ensure CIBP can be set in clean surface casing. Finish TOOH and LD 2-3/8" tubing. WOC to set up per cementing company recommendation.
23 PU and TIH with 2-3/8" tubing to tag cement plug at +/- 250'. If cement is not at or above 250' contact engineer, otherwise proceed to next step.
24 TOOH and lay down all 2-3/8" tubing.
25 MIRU wireline. PU and RIH with CIBP (8-5/8", 23#/ft). Set CIBP at 80' and pressure test the CIBP to 1000psi for 15mins. If pressure test fails contact engineering, otherwise proceed to next step.
26 RDMO wireline. RDMO WO rig.
27 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 job.
28 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
29 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
30 Excavate hole around surface casing enough to allow welder to cut casing minimum of 5' below ground level.
31 Welder cut casing minimum of 5' below ground level.
32 Fill casing to surface using 4500psi compressive strength cement (NO GRAVEL).
33 Spot weld on steel marker plate. Marker should contain well name, well number, legal location (1/4 1/4 descriptor), and API number.
34 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com
35 Properly abandon flowline per Rule 1103. File electronic Form 42 once abandonment complete.
36 Back fill hole with fill. Clean and level location.
37 Submit Form 6 to COGCC ensuring to provide "As Performed" WBD identifying operations completed.

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