

PSC 43-9A: 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 ***Note that wireline rope socket and broken plunger are stuck in tubing at +/- 6842'. Four prior attempts to retrieve equipment have failed***
- 3 Prepare location for base beam equipped rig. Install perimeter fence as needed.
- 4 Check and report surface casing pressure. If surface casing is not accessible at ground level, re-plumb so valve is at ground level
- 5 MIRU WO rig. Kill well as necessary with water and biocide. ND wellhead. NU BOP.
- 6 Unland 2-1/16" tbg (210 total joints landed at 6847') and TOO H standing back all 2-1/16" tubing. Remove rope socket, broken plunger, and other junk from tubing.
- 7 MIRU hydrotester. Hydrotest 2-1/16" tubing to 3000psi while TIH open ended. Tag fish in the 3-1/2" casing at expected depth of 7033' **(145' of 2-3/8" tubing and packer left downhole on 6/16/09)**. Document tagged fish depth in OpenWells daily report.
- 8 PUH no more than 1 joint above the tagged fish depth and establish circulation pumping water with biocide.
- 9 MIRU cementing services. Establish circulation with water and pump 30 sx Class "G" cement with 20% silica flour, 0.4% CD-32 and 0.4% ASA-301 mixed at 15.8ppg and 1.38 cuft/sx (cement volumes based on 3-1/2" casing capacity from 7033' to 6226' with no excess). Displace cement to estimated TOC at 6226' using approx. 18.5 bbls water. TOO H and stand back 16 stands of 2-1/16" tubing so EOT at +/- 6026'. Reverse circulate using approx. 36 bbls water (2 times tubing volume) or until returns are clean. RDMO cementing services.
- 10 TOO H and stand back enough 2-1/16" tubing to tag cement plug with estimated top at +/- 6226'. LD extra tubing. WOC to set up per cementing company recommendation.
- 11 PU and TIH with 2-1/16" tubing to tag cement plug at +/- 6226'. If cement is not above 6378' contact engineer, otherwise proceed to next step.
- 12 TOO H and stand back 4000' of 2-1/16" tubing and LD extra tubing.
- 13 MIRU wireline. PU and RIH with 2-1/2" perf guns and shoot squeeze holes at 4305' using 3 SPF, 0.48" EHD, 8" penetration, 1' net, 3 total shots. POOH with perf guns. RDMO wireline.
- 14 MIRU cementing services on the 3-1/2" production casing. Establish circulation with water and pump 20 bbls sodium metasilicate followed by 220 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 10" caliper plus 20% excess from 4305' to 3905' and 3-1/2" casing capacity from 4305' to 3905'). Drop wiper plug and displace to 3905' using 35.5 bbls water. RDMO cementing services. WOC to set up per cementing company recommendation.
- 15 TIH w/ 2-1/16" tubing and tag cement plug @ +/-3905'. If cement is not above 3905' contact engineer, otherwise proceed to next step.
- 16 TOO H and stand back 880' of 2-1/16" tubing and LD extra tubing.
- 17 MIRU wireline. RIH and jet cut 3-1/2" production casing at 780'. RDMO wireline. Circulate bottoms up and continue circulating to remove any gas from wellbore.
- 18 ND BOP. Install BOP on surface casing head with 3-1/2" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet.
- 19 TOO H and LD 780' of 3-1/2" casing.
- 20 TIH w/ 2-1/16" tubing open ended to 880' (100' inside the 3-1/2" stub).
- 21 MIRU cementing services. Establish circulation with water and pump balanced stub plug using 260 sx Type III cement with cello flake and CaCl₂ as necessary, mixed at 14 ppg and 1.53 cuft/sx (cement volumes based on 100' inside 3-1/2" casing, 419' in 10" hole with 40% excess, and 200' in 8-5/8" surface casing). RDMO cementing services.

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- 22 TOOHH and LD 2-1/16" tubing until EOT at +/- 100'. Circulate down tubing and up surface casing/tubing annulus until returns are clean to ensure CIBP can be set in clean surface casing. Finish TOOHH and LD 2-1/16" tubing. WOC to set up per cementing company recommendation.
- 23 PU and TIH with 2-1/16" tubing to tag cement plug @ +/- 160'. If cement is not above 160' contact engineer, otherwise proceed to next step.
- 24 TOOHH and LD all 2-1/16" tubing.
- 25 MIRU wireline. PU and RIH with CIBP (8-5/8", 24#/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.

Casey Decker - Production Engineer II

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