

## HSR Camp 7-24: 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 MIRU slickline. RIH to retrieve production equipment and tag for fill (tubing fish at +/- 7639' on 4/26/05). Note tagged depth in OpenWells. RDMO slickline.
- 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. Spot in trailer with 10 joints of 2-1/16" 3.25# tubing for tag. Kill well as necessary with water and biocide. ND wellhead. NU BOP.
- 6 MIRU slickline. RIH and set standing valve in seating nipple at +/- 7406'. Using rig pump, pressure test the 2-1/16" tubing string to 3000psi for 15 minutes. If pressure test passes, remove standing valve and proceed to next step. If pressure test fails, TOO and stand back all tubing then hydrotest 2-1/16" tubing to 3000psi while TIH open ended to tag fish at 7639'.
- 7 PU extra joints of 2-1/16" tubing and drop down to tag fish in the 3-1/2" casing at expected depth of 7639' (**179' of 2-1/16" tubing cemented downhole on 1/5/02**). 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 25 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 7639' to 6967' with no excess). Displace cement to estimated TOC at 6967' using approx. 20.5 bbls water. TOO and stand back 14 stands of 2-1/16" tubing so EOT at +/- 6767'. Reverse circulate using approx. 40 bbls water (2 times tubing volume) or until returns are clean. RDMO cementing services. WOC to set up per cementing company recommendation.
- 10 PU and TIH with 2-1/16" tubing to tag cement plug at +/- 6967'. If cement is not above 7031' contact engineer, otherwise proceed to next step.
- 11 TOO and stand back 1200' of 2-1/16" tubing and LD extra tubing.
- 12 MIRU wireline. PU and RIH with 2-1/2" perf guns and shoot squeeze holes at 4763' using 3 SPF, 0.48" EHD, 8" penetration, 1' net, 3 total shots. POOH with perf guns. RDMO wireline.
- 13 MIRU cementing services on the 3-1/2" production casing. Establish circulation with water and pump 20 bbls sodium metasilicate followed by 140 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 8" caliper plus 20% excess from 4763' to 4363' and 3-1/2" casing capacity from 4763' to 4363'). Drop wiper plug and displace to 4363' using 39.5 bbls water. RDMO cementing services. WOC to set up per cementing company recommendation.
- 14 MIRU wireline. RIH to tag cement plug at +/- 4363'. If cement is not above 4363' contact engineer, otherwise proceed to next step.
- 15 RIH with jet cutter and cut 3-1/2" production casing at 1100'. RDMO wireline. Circulate bottoms up and continue circulating to remove any gas from wellbore.
- 16 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.
- 17 TOO and LD 1100' of 3-1/2" casing.
- 18 TIH w/ 2-1/16" tubing open ended to 1200' (100' inside the 3-1/2" stub).
- 19 MIRU cementing services. Establish circulation with water and pump 10 bbls SAPP mud flush, 20 bbls fresh water spacer, then balanced stub plug using 185 sx Type III cement with cello flake and CaCl<sub>2</sub> as necessary, mixed at 14.8 ppg

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and 1.33 cuft/sx (cement volumes based on 100' inside 3-1/2" casing, 342' in 8" hole with 40% excess, and 200' in 8-5/8" surface casing). RDMO cementing services.

- 20 TOOH and LD 2-1/16" 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 2-1/16" tubing. WOC to set up per cementing company recommendation.
- 21 MIRU wireline. RIH to tag cement plug at +/- 553'. If cement is not above 553' contact engineer, otherwise proceed to next step.
- 22 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.
- 23 RDMO wireline. RDMO WO rig.
- 24 Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com) within 24 hours of completion of job.
- 25 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 26 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 27 Excavate hole around surface casing enough to allow welder to cut casing minimum of 5' below ground level.
- 28 Welder cut casing minimum of 5' below ground level.
- 29 Fill casing to surface using 4500psi compressive strength cement (NO GRAVEL).
- 30 Spot weld on steel marker plate. Marker should contain well name, well number, legal location (1/4 1/4 descriptor), and API number.
- 31 Obtain GPS location data as per COGCC Rule 215 and send to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com)
- 32 Properly abandon flowline per Rule 1103. File electronic Form 42 once abandonment complete.
- 33 Back fill hole with fill. Clean and level location.
- 34 Submit Form 6 to COGCC ensuring to provide "As Performed" WBD identifying operations completed.

Casey Decker - Production Engineer II

970-506-5984 - Office - 406-490-2184 - Cell