

HSR Sharkey 9-35: 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 (last cleaned out to 7285' on 2/2/05). Note tagged depth in OpenWells. Run pressure bomb survey and obtain pressure gradient survey from surface to 7178' (seating nipple depth) making gradient stops every 1000'. Forward pressure bomb results to Evans Engineering. RDMO pressure bomb services. 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. Kill well as necessary with water and biocide. ND wellhead. NU BOP.
- 6 Unland 2-3/8" tbg (231 total joints landed at 7180') and TOO H standing back 6860' 2-3/8" tubing. LD extra tubing.
- 7 MIRU wireline. RIH with junk basket/gauge ring (4-1/2" 11.6#) to 6910'. POOH. PU and RIH with CIBP (4-1/2", 11.6#) to set at 6860' (collars at 6838' and 6880'). POOH. RDMO wireline.
- 8 MIRU hydrotester. Hydrotest 2-3/8" tubing to 3000psi while TIH open ended. Tag CIBP set at 6860'. PUH just above CIBP and circulate all gas out of the hole. Pumping water with biocide, pressure test the CIBP and production casing to 1000psi for 15 minutes. If pressure test passes, proceed to next step; otherwise contact engineering.
- 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 4-1/2" 11.6# casing capacity from 6860' to 6510' with no excess). Displace cement to estimated TOC at 6460' using approx. 25 bbls water. TOO H and stand back 2-3/8" tubing so EOT at +/- 6260'. Reverse circulate using approx. 50 bbls water (2 times tubing volume) or until returns are clean. RDMO cementing services.
- 10 TOO H and stand back 3950' of 2-3/8" tubing and LD extra tubing.
- 11 MIRU wireline. PU and RIH with 3-1/8" perf guns and shoot squeeze holes at 4320' using 3 SPF, 0.5" EHD, 1' net, 3 total shots.
- 12 PUH with perf guns and shoot squeeze holes at 3920' using 3 SPF, 0.5" EHD, 1' net, 3 total shots. RDMO wireline.
- 13 PU & TIH with CICR on 2-3/8" tubing. Set CICR at 3950' (no collar locator ran at this depth to correlate to).
- 14 Establish circulation through squeeze holes to surface with water. **If circulation is established, proceed to next step; otherwise contact engineering for revised procedure steps.**
- 15 MIRU cementing services. Establish circulation with water and pump 20 bbls sodium metasilicate, 5 bbl water spacer, 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 4320' to 3920' and 4-1/2" 11.6# casing capacity with no excess from 4320' to 3820'). Underdisplace cement in tubing using 13 bbls water (2.3 bbls short of CICR set at 3950') and spot remaining cement on top of CICR. TOO H 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 TOO H and stand back 1070' of 2-3/8" tubing and LD extra tubing.
- 17 MIRU wireline. RIH and jet cut 4-1/2" production casing at 970'. 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 TOO H and LD 970' of 4-1/2" casing.
- 20 TIH w/ 2-3/8" tubing open ended to 1070' (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 140 sx Type III cement with cello flake and CaCl₂ as necessary, mixed at 14.8 ppg

HSR Sharkey 9-35: Plug & Abandonment

and 1.33 cuft/sx (cement volumes based on 100' inside 4-1/2" casing, 240' in 8" hole with 20% excess, and 200' in 8-5/8" surface casing). RDMO cementing services.

- 22 TOOHH 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 TOOHH 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 +/- 530'. If cement is not above 530' contact engineer, otherwise proceed to next step.
- 24 TOOHH and LD all 2-3/8" 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

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

Casey.decker@anadarko.com