

## Karich 2-32: 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. 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 tubing trailer with +/- 300' of 1.66" tubing. Kill well as necessary with water and biocide. ND wellhead. NU BOP.
- 6 Unland 1.66" tbg (215 total joints landed at 6940'). PU and TIH with additional joints of 1.66" tubing to tag RBP set at 7040'. Circulate sand off RBP. Latch onto and release RBP. TOOH standing back 7150' of 1.66" tubing. LD RBP and LD extra tubing. **\*\*IF CANNOT LATCH ONTO AND RELEASE RBP, TOOH AND BE SURE RETRIEVING HEAD IS ON BOTTOM OF 1.66" TUBING STRING. HISTORICAL WORKOVER REPORTS ARE NOT CLEAR\*\***
- 7 MIRU hydrotester. Hydrotest 1.66" tubing to 3000psi while TIH open ended. Tag cement capped CIBP at 7080'. PUH just above CIBP and circulate all gas out of the hole. Pumping water with biocide, pressure test the cement capped CIBP and production casing to 2500psi for 15 minutes. **If pressure test passes, proceed to next step; otherwise contact engineering for revised procedure steps to hydrotest 2-7/8" casing back in hole to spot stub plug prior to step 15.**
- 8 MIRU cementing services on the 1.66" tubing. Establish circulation with water and pump 20 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 2-7/8" 6.5# casing capacity from 7080' to 6250' with no excess). Displace cement to estimated TOC at 6230' using approx. 11.5 bbls water. TOOH and stand back 1.66" tubing so EOT at +/- 6000'. Reverse circulate using approx. 23 bbls water (2 times tubing volume) or until returns are clean.
- 9 TOOH and land EOT at 4600'. LD extra tubing.
- 10 MIRU cementing services on the 1.66" tubing. Establish circulation with water and pump 20 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 2-7/8" 6.5# casing capacity from 4600' to 4000' with no excess). Displace cement to estimated TOC at 3890' using approx. 7 bbls water. TOOH and stand back 1.66" tubing so EOT at +/- 3700'. Reverse circulate using approx. 14 bbls water (2 times tubing volume) or until returns are clean. RDMO cementing services. WOC to set up per cementing company recommendation.
- 11 PU and TIH with 1.66" tubing to tag cement plug at +/- 3890'. If cement is not above 4000' contact engineer, otherwise proceed to next step.
- 12 TOOH and LD all 1.66" tubing.
- 13 MIRU wireline. RIH and jet cut 2-7/8" production casing at 1210'. RDMO wireline. Circulate bottoms up and continue circulating to remove any gas from wellbore.
- 14 ND BOP. Install BOP on surface casing head with 2-7/8" pipe rams. Install 3000 psi ball valves on both casing head outlets. Install a choke or choke manifold on one outlet.
- 15 MIRU cementing services. Establish circulation through 2-7/8" casing with water and pump 10 bbls SAPP mud flush, 20 bbls fresh water spacer, then balanced stub plug using 270 sx Type III cement with cello flake and CaCl<sub>2</sub> as necessary, mixed at 14.8 ppg and 1.33 cuft/sx (cement volumes based on 463' in 9" hole with 40% excess, and 200' in 8-5/8" 24# surface casing). RDMO cementing services.
- 16 TOOH and LD 2-7/8" casing until end of casing is at +/- 200'. Circulate down 2-7/8" production casing and up surface casing/production casing annulus until returns are clean to ensure CIBP can be set in clean surface casing. Finish TOOH and LD 2-7/8" casing. WOC to set up per cementing company recommendation.

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- 17 PU and TIH with 2-7/8" workstring to tag cement plug at +/- 540'. If cement is not above 540' contact engineer, otherwise proceed to next step.
- 18 TOOH and LD all 2-7/8" workstring.
- 19 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.
- 20 RDMO wireline. RDMO WO rig.
- 21 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.
- 22 Supervisor submit paper copies of all invoices, logs, and reports to Joleen Kramer.
- 23 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 24 Excavate hole around surface casing enough to allow welder to cut casing minimum of 5' below ground level.
- 25 Welder cut casing minimum of 5' below ground level.
- 26 Fill casing to surface using 4500psi compressive strength cement (NO GRAVEL).
- 27 Spot weld on steel marker plate. Marker should contain well name, well number, legal location (1/4 1/4 descriptor), and API number.
- 28 Obtain GPS location data as per COGCC Rule 215 and send to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com)
- 29 Properly abandon flowline per Rule 1103. File electronic Form 42 once abandonment complete.
- 30 Back fill hole with fill. Clean and level location.
- 31 Submit Form 6 to COGCC ensuring to provide "As Performed" WBD identifying operations completed.

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