

Sarchet 33-9L

PLUG AND ABANDON PROCEDURE

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- 1 Provide 48 hr notice to COGCC prior to rig up per request on approved Form 6. Submit Form 42 and call Automation Removal Group at least 24 hr prior to rig move. If not already completed, request that they catch and remove plunger, isolate production equipment and remove any automation equipment prior to the rig showing up. Install perimeter fence as needed.
- 2 MIRU slickline services. Pull bumper spring and tag bottom. Record tag depth in Open Wells. RD slickline. Gyro run 12/16/2014.
- 3 Prepare location for base beam equipped rig. Install perimeter fence as needed.
- 4 Check and record bradenhead pressure. If bradenhead valve is not accessible, re-plumb so that valve is above GL. The last Form 17 test on 06/20/2013 recorded a bradenhead pressure of 4 psi, blown dead with no fluids produced. Blow down bradenhead and re-check pressure the next day. Repeat until pressure stays at 0 psi. Contact Evans Engineering if pressure does not blow down to 0 and stay at 0.
- 5 Spot 25 jts of 2-1/16" 3.25# J-55 10RD IJ tbg.
- 6 MIRU WO rig. Kill well with fresh water and biocide. ND WH, NU BOP.
- 7 PU tbg to break any possible sand bridges. Do not exceed 80% of tubing tensile strength, or 39,256 lb. LD landing jt. TOOH with 2-1/16" tbg.
- 8 PU casing scraper (3.5" 7.7 #/ft) and RIH on 2-1/16" tbg to 7400'. Circulate all gas out of the hole. TOOH and LD casing scraper.
- 9 MIRU WL. Set CIBP at 7390' (collars at 7361' and 7402').
- 10 PU dump bailer, dump bail 1 sx of Neat G cement on CIBP.
- 11 PU and set CIBP at 7260' (collars at 7237' and 7278'). RD WL.
- 12 PU and RIH with 2500' 2-16" tbg and circulate all gas out of the hole. TOOH.
- 13 RU WL and RIH with CCL-GR-CBL-VDL. Log from CIBP at 7260' to surface to verify cement coverage. No CBL can be found. TOC is believed to be at +/- 7000' with free pipe to surface. Contact engineering before proceeding to verify procedure. Remaining steps assume there is NOT adequate cement coverage over Niobrara and there is free pipe to surface.
- 14 Pressure test CIBP and casing to 3000 psi for 15 minutes. If pressure test passes, proceed. PU dump bailer, dump bail 1 sx of Neat G cement on CIBP.
- 15 PU 3' x 2-7/8" perforation gun that will result in a ~0.5" squeeze hole, 7" penetration, and 3 spf at 120° phasing. Shoot 1' of squeeze holes at 6900'. Note: Squeeze hole placement to be determined by CBL. RDMO WL.
- 16 PU and RIH with CICR (3.5" 7.7# csg) on 2-1/16" tbg while hydrotesting to 3500 psi. Set the CICR at 6530' (no collar data).
- 17 Establish injection through the squeeze holes with water treated with biocide.
- 18 MIRU cementers. Pump Niobrara Squeeze: 120 sx 1:1:3 'Poz:G:Gel' + 20% silica + 0.4% CFL-3 + 0.4% CFR-2 +0.1% SMS, mixed at 13.5 ppg and 1.66 cuft/sk. (200 cuft of slurry). Underdisplace and sting out of CICR to leave 3 bbls cement on top of retainer. (Cement volume based on 8.5" hole with 20% excess. Caliper log dated 11/12/1993 on file.)

- 19 PUH about 400' and reverse circulate fresh water to clear the work string of any excess cement.
- 20 TOO H and lay down tbg.
- 21 MIRU WL. PU jet cutter and RIH to 4800', cut 3-1/2" csg. Circulate to remove any gas from wellbore. RDMO WL.
- 22 ND BOP, ND tbg head. NU BOP on surface csg with 3-1/2" pipe rams. Install 3000 psi ball valves on csg head outlets. Install choke or choke manifold on one outlet.
- 23 TOO H with 3-1/2" csg and LD flared jt.
- 24 PU and RIH w/ 3-1/2" csg to 4510'.
- 25 Establish circulation with water treated with biocide and circulate bottoms up to clean hole.
- 26 MIRU cementers. Establish circulation with fresh water and biocide. Pump balanced Sussex plug: Pump 5 bbls fresh water followed by 20 bbls sodium metasilicate followed by 5 bbls fresh water ahead of 270 sx of 0:1:0 'G' +0.5% CFR-2 + 0.2% FMC + 0.5% LWA + 0.25 lb/sk Polyflake mixed at 15.8 ppg and 1.15 cuft/sx. Plug to cover 4510' – 4000'.
- 27 PUH to 3800' and reverse circulate fresh water with biocide to clear csg.
- 28 WOC 4 hrs and tag plug. Tag needs to be 4000' or higher.
- 29 PUH to 1500' and establish circulation with fresh water containing biocide and get bottoms up.
- 30 MIRU cementers. Pump 10 bbls SAPP, 20 bbls fresh water and biocide followed with 470 sx of Type III cement of the Base of the Surface Casing blend with CaCl₂, mixed at 14.8 ppg and 1.33 cf/sk (cement from 1500' to 400' over Fox Hills, 7-7/8" hole from bit no caliper, adding 60% excess).
- 31 PUH to 150' and circulate fresh water with biocide to clear csg.
- 32 WOC 4 hrs (or per cement company recommendation), tag plug. Tag needs to be 400' or higher. TOO H.
- 33 MIRU WL. RIH with 8-5/8" CIBP and set at 80'. Pressure test to 1000 psi for 15 min. If pressure holds, RDMO WL and RDMO WO rig.
- 34 Instruct cementing and wireline contractors to e-mail copies of all job logs/job summaries and invoices to rscDJVendors@anadarko.com within 24 hrs of the completion of the job.
- 35 Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
- 36 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 37 Excavate hole around surface casing enough to allow welder to cut 8-5/8" casing minimum 5' below ground level.
- 38 Welder cut 8-5/8" casing minimum 5' below ground level.
- 39 MIRU Redi Cement mixer. Use 4500 psi compressive strength cement, (NO gravel) to fill stubout.
- 40 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 41 Properly abandon flowlines per Rule 1103. File electronic Form 42 once abandonment complete.
- 42 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 43 Back fill hole with fill. Clean location, level.
- 44 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.