

Johnnie Ulrich Unit 1

PLUG AND ABANDON PROCEDURE

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- 1 Well needs gyro and CBL.
- 2 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.
- 3 MIRU SL, VES Gyro. Fish bumper spring, and if necessary, run a tbg end locator (records don't indicate where EOT is). Tag PBMD (should be +/- 7673'). Enter tag depth in OpenWells and contact Engineering to discuss potential changes. RUN GYRO from EOT to surface, making stops every 100'. RDMO SL.
- 4 Prepare location for base beam rig.
- 5 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 3/26/15 recorded 82 psi of Bradenhead pressure, blown down to a whisper. 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.
- 6 Spot 25 jts of 2-3/8" 4.7# J-55 EUE tbg (well records are incomplete, unsure of tbg status. More tbg may be required).
- 7 MIRU WO rig. Circulate and kill well with fresh water and biocide. If unable to circulate, load tbg and csg with fresh water and biocide. ND WH, NU BOP.
- 8 PU tbg to break any possible sand bridges. Do not exceed 80% of tubing tensile strength, or 57,360 lb. LD landing jt. TOO H with 2-3/8" tbg. PU bit and scraper and RIH to +/- 7540'. TOO H, LD bit and scraper.
- 9 Notify cementers of the needed volumes: 130 sx of 1:1:3 Poz:G:Gel cement with 20% silica, 0.4% CFL-3, 0.4% CFR-2, and 0.1% SMS mixed at 13.5 ppg and 1.66 cf/sk (Niobrara suicide sqz); 240 sx of 0:1:0 Class G cement with 0.5% CFR-2, 0.2% FMC, 0.5% LWA, and 0.25 pps polyflake mixed at 15.8 ppg and 1.15 cf/sk (Shannon suicide squeeze); 605 sx of Type III cement with 0.3% CFL-3, 0.3% CFR-2, 0.25 pps polyflake and CaCl₂ mixed at 14.8 ppg and 1.33 cf/sk (Fox Hills stub plug).
- 10 TIH with 4-1/2" CIBP (4-1/2" 10.5#) and 2-3/8" tbg while hydrotesting to 3000 psi. Set CIBP at +/- 7530'. Circulate thoroughly w/ fresh water and biocide (we need to ensure all gas is out of the hole for a good CBL). Pressure test CIBP to 1000 psi for 15 minutes. If pressure test passes, TOO H and SB 6430' 2-3/8" tbg, LD remainder; otherwise, contact engineering.
- 11 Well does not have CBL. MIRU WL, PU and RIH w/ CCL-GR-CBL-VDL. Run log from 7530' to surface and send results to engineering to discuss. Dump 2 sx cement on bridge plug.
- 12 **Steps/depths could change based on outcome of CBL** PU and RIH with two perf guns and CCL inside 4-1/2" csg (3-1/8", 3 spf, "Big Hole" 0.6" EHD, 7" penetration, 120 deg phasing, 3' net, 6 total holes). Shoot 1' of bottom squeeze holes at 6800'. PUH to 6400' and shoot 2' of top squeeze holes. POOH, RDMO WL.
- 13 TIH with 4-1/2" CICR (4-1/2" 10.5#) on 2-3/8" tbg and set at +/- 6430'. Establish circulation with fresh water and biocide and get bottoms up. If unable to circulate, contact Evans Engineering.
- 14 MIRU cement company. Pump 130 sx of 1:1:3 Poz:G:Gel cement with 20% silica, 0.4% CFL-3, 0.4% CFR-2, and 0.1% SMS mixed at 13.5 ppg and 1.66 cf/sk (cement from 6800' to 6400' inside and outside 4-1/2" csg, 9" avg hole from caliper, adding 20% excess). Under displace by 3 bbls (13 sx), sting out of CICR and dump remaining cement on CICR.
- 15 PUH to 6100'. Circulate fresh water with biocide to clear tbg and remove gas from hole.
- 16 TOO H. Stand back 4470' of 2-3/8" tbg and LD remainder.

- 17 MIRU WL. PU and RIH with two perf guns and CCL inside 4-1/2" csg (3-1/8", 3 spf, "Big Hole" 0.6" EHD, 7" penetration, 120 deg phasing, 3' net, 6 total holes). Shoot 1' of bottom squeeze holes at 4740'. PUH to 4440' and shoot 2' of top squeeze holes. POOH, RDMO WL.
- 18 TIH with 4-1/2" CICR (4-1/2" 10.5#) on 2-3/8" tbg and set at +/- 4470'. Establish circulation with fresh water and biocide. If unable to circulate, contact Evans Engineering.
- 19 MIRU cement company. Pump 5 bbls fresh water, 20 bbls sodium metasilicate, and 5 bbls fresh water followed with 240 sx of 0:1:0 Class G cement with 0.5% CFR-2, 0.2% FMC, 0.5% LWA, and 0.25 pps polyflake mixed at 15.8 ppg and 1.15 cf/sk (cement from 50' below base of Shannon to 200' above top of Shannon, 11.75" hole from caliper, adding 20% excess). Under displace by 3 bbls (13 sx), sting out of CICR and dump remaining cement on CICR.
- 20 PUH to 4000' and circulate fresh water with biocide to clear tbg.
- 21 TOOH. Stand back 1030' of tbg and LD remainder.
- 22 MIRU WL. PU jet cutter and RIH to 930', cut 4-1/2" csg. Circulate to remove any gas and old mud from wellbore. RDMO WL.
- 23 ND BOP, ND tbg head. NU BOP on surface csg with 4-1/2" pipe rams. Install 3000 psi ball valves on csg head outlets. Install choke or choke manifold on one outlet.
- 24 TOOH with 4-1/2" csg and LD.
- 25 Uninstall 4-1/2" pipe rams on BOP and install 2-3/8" pipe rams.
- 26 TIH with 2-3/8" tbg to +/- 1030', 100' inside 4-1/2" csg stub.
- 27 MIRU cement company. Establish circulation with fresh water and biocide and get bottoms up. Pump 10 bbls SAPP, 20 bbls fresh water and biocide followed with 605 sx of of Type III cement with 0.3% CFL-3, 0.3% CFR-2, 0.25 pps polyflake and CaCl₂ mixed at 14.8 ppg and 1.33 cf/sk (cement from 1030' to 80', 9.5" avg hole from caliper, adding 20% excess).
- 28 TOOH with 2-3/8" tbg and circulate with fresh water and biocide at ~95'. WOC 4 hrs, tag plug. Tag needs to be 120' or higher. TOOH, LD.
- 29 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.
- 30 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.
- 31 Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
- 32 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 33 Excavate hole around surface casing enough to allow welder to cut 8-5/8" casing minimum 5' below ground level.
- 34 Welder cut 8-5/8" casing minimum 5' below ground level.
- 35 MIRU Redi Cement mixer. Use 4500 psi compressive strength cement, (NO gravel) to fill stubout.
- 36 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 37 Properly abandon flowlines per Rule 1103.
- 38 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 39 Back fill hole with fill. Clean location, level.
- 40 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.