

HSR-LEAHY 10-9

PLUG AND ABANDON PROCEDURE

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- 1 NEEDS GYRO.
- 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. Request that they 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 SV and tag PBMD (last tagged at 7171'). Enter tag depth in OpenWells and contact Engineering to discuss potential changes. RUN GYRO from EOT at 7141' to surface, making stops every 100'. RDMO SL.
- 4 Prepare location for base beam rig.
- 5 Contact ARF and order 60 bbls of 9.0 ppg mud for stub plug (order ahead of time. Recorded Bradenhead pressure over 100 psi).
- 6 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 5/29/13 recorded Bradenhead pressure of 623 psi, blown down to 34 psi. 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.
- 7 Spot 25 jts of 2-3/8" 4.7# J-55 8RD EUE tbg.
- 8 MIRU WO rig. Attempt to circulate and kill well with fresh water and biocide. If unable to circulate, load csg and tbg with water. ND WH, NU BOP.
- 9 PU tbg to break any possible sand bridges. Do not exceed 80% of tubing tensile strength, or 57,360 lb. LD landing jt. TOOH with 2-3/8" tbg and LD.
- 10 Notify cementers of the needed volumes: 25 sx of Thermal 35 cement w/ 0.5% CFR-2, 0.25% FMC mixed at 15.6 ppg and 1.51 cf/sk (Niobrara plug); 105 sx of 0:1:0 Class G cement w/ 0.5% CFR-2, 0.2% FMC, 0.5% LWA, 0.25 pps polyflake mixed at 15.8 ppg and 1.15 cf/sk (Sussex suicide sqz); 125 sx of Type III cement w/ 0.3% CFL-3, 0.3% CFR-2, 0.25 pps polyflake and CaCl₂ mixed at 14.8 ppg and 1.33 cf/sk (FHM stub plug).
- 11 MIRU WL. RIH gauge ring for 4-1/2" 11.6# csg to 6790'.
- 12 RIH with 4-1/2" CIBP (4-1/2" 11.6#). Set CIBP at +/- 6780' (Collars at 6768' and 6800') and pressure test CIBP to 1000 psi for 15 minutes. If pressure test passes, RDMO WL.
- 13 RIH with 2-3/8" tbg while hydrotesting to 3000 psi and tag CIBP. PU and circulate thoroughly to remove gas from hole.
- 14 MIRU cement company. Spot 25 sx of Thermal 35 cement w/ 0.5% CFR-2, 0.25% FMC mixed at 15.6 ppg and 1.51 cf/sk (cement from 6780' to 6350' in 4-1/2" csg).
- 15 PUH to 6100'. Circulate fresh water with biocide to clear tbg.
- 16 TOOH. Stand back 4490' 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, 9 total holes). Shoot 1' of bottom squeeze holes at 4720'. PUH to 4460' and shoot 2' of top squeeze holes. POOH, RDMO WL.
- 18 RIH with 4-1/2" CICR (4-1/2" 11.6#) on 2-3/8" tbg and set at +/- 4490'. Establish circulation with fresh water and biocide and get bottoms up. 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 105 sx of 0:1:0 Class G cement w/ 0.5% CFR-2, 0.2% FMC, 0.5% LWA, 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, 8.25" avg open hole from caliper, 20% excess). Under displace by 3 bbls, sting out of CICR and dump remaining cement on CICR.
- 20 PUH to 4200' and circulate fresh water with biocide to clear tbg.
- 21 TOOH. Stand back 890' of 2-3/8" tbg and LD remainder.
- 22 MIRU WL. PU jet cutter and RIH to 790', cut 4-1/2" csg. Circulate to remove any gas 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 +/- 890', 100' inside 4-1/2" csg stub.
- 27 MIRU cement company. Establish circulation with fresh water and biocide and get bottoms up to remove gas. Pump 10 bbls SAPP, 20 bbls fresh water and biocide followed by 60 bbls 9.0 ppg mud. Cement with 125 sx of Type III cement w/ 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 890' to 420', 8.25" avg hole from SX caliper, adding 40% excess).
- 28 PUH to 80' and circulate fresh water and biocide to remove any excess cement.
- 29 TOOH with 2-3/8" tbg. WOC 4 hrs, tag plug. Tag needs to be 520' or higher. TOOH.
- 30 MIRU WL. RIH with 8-5/8" CIBP and set at 80'. RDMO WL and RDMO WO rig.
- 31 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.
- 32 Supervisor submit paper copies of all invoices, logs, and reports to Evans Engineering Specialist.
- 33 Excavation crew to notify One Call to clear excavation area around wellhead and for flowlines.
- 34 Capping crew will set and secure night cap on 8-5/8" casing head, restrain the casing head, pressure test CIBP to 500 psi with hydrotest pump, then remove night cap and casing head restraints.
- 35 Excavate hole around surface casing enough to allow welder to cut 8-5/8" casing minimum 5' below ground level.
- 36 Welder cut 8-5/8" casing minimum 5' below ground level.
- 37 MIRU Redi Cement mixer. Use 4500 psi compressive strength cement, (NO gravel) to fill stubout.
- 38 Spot weld on steel marker plate. Marker should contain Well name, Well number, legal location (1/4 1/4 descriptor) and API number.
- 39 Properly abandon flowlines per Rule 1103.
- 40 Obtain GPS location data as per COGCC Rule 215 and send to rscDJVendors@anadarko.com.
- 41 Back fill hole with fill. Clean location, level.
- 42 Submit Form 6 to COGCC ensuring to provide 'As performed' WBD identifying operations completed.