

## HSR-Federal 9-36 – P&A Procedure

- 1 Call Foreman or Lead Operator at least 24 hr prior to rig move. 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 Provide notice of MIRU to COGCC field inspector as specified in approved Form 6.
- 3 Notify CDC when rig moves on location to generate workorder for flowline removal and one call for line locates.
- 4 Prepare location for base beam type rig.
- 5 Check and report surface casing pressure. If surface casing is not accessible at ground level, re-pipe so valve is at ground level.
- 6 NOTE: Well has coiled tubing string in hole and has previously been fished but was unsuccessful. See attached work summary. Plan to cleanout well as deep as possible and permanently abandon.
- 7 MI and spot a minimum of 240 jts of 1-1/4", 2.33#, J-55, 10RD IJ tubing to use as workstring.
- 8 Put Baker on will-call for upcoming cement jobs.
- 9 MIRU WO rig. Be prepared to fish coiled tubing string out of hole. Kill well as necessary, with water and biocide. ND wellhead. NU BOP's. Latch onto coil tubing string and POOH. Junk all recovered coiled tubing.
- 10 Once cleared with Evans engineering, move forward.
- 11 MIRU WL. PU and RIH with CIBP for 2-7/8", 6.5#. Set CIBP at +/- 7,061'. POOH and RDMO WL.
- 12 Pressure test CIBP to 2,000 psi for 15 minutes. If pressure test passes, proceed.
- 13 MIRU Vaughn Energy Services (VES). RIH to approx. 6,900' KB and run gyro survey to surface with stops every 100'. Forward gyro survey data to Sabrina Frantz and invoices to John Tonello. RDMO VES.
- 14 PU and TIH with 1-1/4" workstring open ended to just above CIBP.
- 15 MIRU cementing services.
- 16 Establish circulation pumping mud. Once circulation established, pump 10 sx Class G cmt w/ 35% silica flour and 0.2% R-3. Displace with mud to estimated TOC at 6,500'. PUH 1,000' and hang 1-1/4" tubing. Circulate with mud until returns are clean. P&SB entire tubing string.
- 17 WOC to set a minimum of 4 hours or overnight.
- 18 Spear into and unland the 2-7/8" production casing from the casing hanger. Stack out casing and then check 2-7/8" production casing stretch and use measured stretch distance to estimate TOC for 2-7/8" production casing.
- 19 RIH with jet cutter and cut production casing at 4,700'. TOO H and lay down 1 jt of 2-7/8" production casing. If unable to pull production casing contact engineer/COGCC for plugging modifications. If necessary, repeat jet cutting production casing in 100' increments until 2-7/8" production casing can be TOO H and laid down).

- 20 Once successful cut is made. PU 1 jt and circulate drilling mud (9ppg minimum and treated with biocide) until returns are seen at surface (Estimated volume is +/- 550 bbls, which is 1-1/4 times the hole volume) to ensure gas is circulated out of hole.
- 21 TOOH and lay down 2-7/8" production casing.
- 22 PU 1-1/4" tubing and TIH, landing EOT at 4,950' (100' below 2-7/8" production casing stub).
- 23 MIRU Baker cementing. Establish circulation pumping mud. Once circulation established, pump 20 bbls meta-silicate or seal bond followed by 350 SX Class G 15.8# cement with 0.25#/sk cello flake, displace with mud to 1/2 bbl short of estimated top of cement at 4,500' KB (1-1/4" 2.33# tubing capacity 0.00151 bbl/ft)
- 24 POOH with 1,500' so EOT at 3,000' KB. Circulate with mud until returns are clean. P&SB entire tubing string.
- 25 WOC to set a minimum of 4 hours or overnight.
- 26 RIH to tag top of cement plug with 1-1/4" open ended workstring. Record depth in OpenWells. POOH. If cement coverage inadequate, contact engineering for plugging modifications.
- 27 If tagged cement depth is adequate, proceed.
- 28 POOH and land end of tubing at 966' KB. Establish circulation pumping mud. Once circulation established, pump 175 SX Class G 15.8# cement with 2% CaCl. Estimated top of cement plug at 566' KB). Displace cement as necessary to 560' KB.
- 29 RDMO Baker. TOOH and LD 1-1/4" tubing.
- 30 WOC to set a minimum of 4 hours or overnight.
- 31 PU and TIH with 1-1/4" tubing open ended. Tag top of cement and record depth in OpenWells. TOOH with 1-1/4" tubing. \*\*\*If tagged cement was any deeper than 716', arrange cementers to pump additional cement to fill surface casing. If cement was tagged any shallower than 716', proceed.
- 32 MIRU WL. PU and RIH with CIBP for 8-5/8", 24# casing. Set CIBP at +/- 560' KB or as deep as possible. POOH. RDMO WL.
- 33 Pressure test CIBP to 1,000 psi for 15 minutes. If pressure test passes, proceed.
- 34 PUH with 1-1/4" tubing to just above CIBP.
- 35 MIRU cementing services. Spot 175 sx of Class G Cement with 2% CaCl (estimated top of cement plug at approx. 15' KB). RDMO cementers.
- 36 TOOH and lay down all but one stand of 1-1/4" tubing.
- 37 Allow cement to set a minimum of 4 hours or overnight.
- 38 PU and TIH with 1-1/4" tubing open ended. Tag top of cement and record depth in OpenWells. TOOH with 1-1/4" tubing. RDMO WO rig.
- 39 Wellsite supervisor turn all paper copies of cementing reports/invoices and logs in to Sabrina Frantz.
- 40 NOTE: During the job, wellsite supervisor should instruct the logging and cementing contractors to e-mail all logs, job reports/invoices to Sabrina Frantz.

- 41 Have excavation contractor notify One-Call to clear for digging around wellhead and flowline removal.
- 42 Check top of cement inside 8-5/8" surface casing. If cement is not of sufficient height (less than 25' below ground level), place redi-mix cement on will call.
- 43 Excavate hole around surface casing of sufficient size and depth to allow welder to cut off 8-5/8" surface casing at least 5' below ground level.
- 44 Have welder cut off 8-5/8" surface casing at least 5' below ground level.
- 45 If needed, MIRU ready cement mixer. Use 4,500 psi compressive strength redi-mix cement (sand and cement only, no gravel) to finish filling surface casing to top of cut off.
- 46 Have welder weld on steel marker plate. (Note: marker shall be labeled with well name and number, legal location (1/4 1/4 description) and API number.
- 47 Properly abandon flowlines as per Rule 1103.
- 48 Have excavation contractor back fill hole with native material. Clean up location and have leveled to plant any vegetation required.
- 49 Submit Form 6 to COGCC. Provide "As Plugged" wellbore diagram identifying the specific plugging completed.