

Weld 21-2 Annular Fill and Packer

- 1 Call the IOC at 970-506-5980 before rig up to isolate production equipment. Call 24 hours prior to the rig moving onto location so that any automation equipment can be removed prior to the rig showing up. Install fence if needed. NOTE: Report surface casing pressure to engineer. If surface casing is not accessible at ground level, re-pipe so valve is at ground level.
- 2 Level location for base beam rig.
- 3 Spot 55 jts of 1-1/4" 2.33# J-55 10rd IJ tbg.
- 4 MIRU slickline. RIH and tag for fill. If production equipment found, retrieve. Note tagged depth in OpenWells. RDMO slickline. Last tagged depth was 7557' on 3/15/2010.
- 5 RDMO wireline services company.
- 6 MIRU WO Rig. Control well with biocide treated water. ND WH and NU BOP. Function test and document. Unseat landing joint and LD.
- 7 PU 8-10' landing joint with TIW safety valve on top and screw into the tbg hanger. Back out the lock down pins and pull up on the tbg string to break any possible sand bridges. Do not exceed 80% of tubing tensile strength which is 57,600-lb.
- 8 MIRU EMI services. TOOH with 2-3/8" TBG. EMI on TOOH. LD joints with wall loss or penetrations > 35%. Replace joints as necessary. **Keep yellow & blue band tubing. Note joint number and depth of bad joints on PRODUCTION EQUIPMENT FAILURE REPORT IN OPEN WELLS. Last EMI was 3/16/2010- 8 joints tested bad. RDMO EMI services.
- 9 If no scale or build up is witnessed on TBG string, proceed to next step. If excessive scale and build up is witnessed on TBG string, PU 4.5", 11.6#, I-80 casing scraper and TIH on 2-3/8 TBG to 7170'.
- 10 PU and TIH 10,000 psi rated RBP above and below (4.5", 11.6#, I-80) and set RBP at +/- 7115' (collars located at 7095' and 7138').
- 11 Pressure test RBP to 1,000 psi for 15 minutes.
- 12 Dump 2 sks sand on top of RBP. POOH.
- 13 ND bop, ND tubing head. Unland 4-1/2" csg string. NU double entry flange, NU BOP. Function test and document.
- 14 PU and TIH with 1-1/4" 2.33# J-55 10rd IJ tbg outside 4 1/2" csg to +/- 1700'. Run two 2" or one 3" line(s) from starting head to return tanks. If unable to achieve at least 1 bbl/min return, call engineering for alternate procedure. Circulate with freshwater treated with biocide to clean up annulus while TIH. Continue to circulate with rig pump until clean returns are seen. Use sweeps as needed to clean up wellbore.
- 15 PUH to 1500'.
- 16 MIRU Cement company.
- 17 Commence pumping cement job at pump rate of consisting 5 bbl fresh water spacer, 48.2 bbl (203.6 sx) of Type III + with 0.5% CaCl₂ at 14.8 ppg and 1.33 cuft/sk blended for a 3 hr pump time (design is for cement from 1500' to 850').
- 18 TOOH with 1-1/4" tbg until EOT is at +/- 700' and circulate 2x tubing volume or until cement cleans up. TOOH remaining 1-1/4" tbg and LD all 1-1/4" tbg.
- 19 Break lines and clean up with fresh water. RMDO cement company.
- 20 ND bop, ND dual entry flange. NU 2-3/8" tbg head and BOP. Function test and document.
- 21 Leave well shut overnight.
- 22 Circulate gas out of hole with fresh water with biocide.
- 23 MIRU wireline and run CCL-GR-CBL-VDL from 1600' to surface. Verify with Evans Engineering that new TOC is at 850' or higher. In addition to normal handling of logs/job summaries, email copies of all cement job logs/job summaries and invoices to rscDJVendors@anadarko.com within 24 hours of the completion of the job.

Well is to be worked in preparation for Vogl State 13-36HZ Pad w/estimated start date of 3/15/2015.

Current TBG head is rated to 5000 psi.

Nio top: 7168'; TOC: 3410'; 1683' away from nearest frac.

Most recent CSG pressure test: N/A

Perfs at 7176'-7452'

Well to have production packer set in hole during offset fracs. Cement design is for coverage from 1500' to 850' in a 9" hole with 20% excess.

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- 24 RDMO wireline.
- 25 PU and TIH with 2-3/8" TBG to sand above RBP at 7115'. Reverse circulate clean and latch onto RBP, unseat RBP.
- 26 TOOH while standing back 2-3/8" TBG and laying down retrieving head and RBP.
- 27 MIRU hydrotester.
- 28 PU & TIH with 2-3/8" NC, 2-3/8" XN profile nipple, 2-3/8" TBG to set EOT (tail string) at +/- 7400' (approx. 1 jt above top CODELL perf), Arrowset AS-1X packer (4.6", 11.6#, I-80, 10k psi rated), and 2-3/8" TBG to surface. Hydrotest tubing to 6000 psi while TIH. Set packer at 4028' (collars at 4006' and 4049').
- 29 Load backside with biocide treated water and pressure test packer to 1000 psi for 15 min.
- 30 ND BOP, NU WH. Ensure all valves on WH are rated to minimum 5000 psi and update WH as necessary using new 7-1/16" x 2-1/16" 5000 psi tubing head adaptor and new flanged 5000 psi master valve with 2-3/8" EUE companion flange on top. Ensure a new R-46 gasket is installed on WH.
- 31 Hydrotest TBG head and master valve to 5000 psi. If pressure test fails, call Evans office for alternate procedures.
- 32 RDMO hydrotester. RDMO WO rig.
- 33 Return well to production team.
- 34 END OF SAFETY PREP STEPS. BELOW ARE STEPS FOR UN-PREPPING THE WELL.
- 35 Call the IOC at 970-506-5980 before rig up to isolate production equipment. Catch and remove plunger. Call 24 hours prior to the rig moving onto location so that any automation equipment can be removed prior to the rig showing up. Install fence if needed. NOTE: Report surface casing pressure to engineer. If surface casing is not accessible at ground level, re-pipe so valve is at ground level.
- 36 MIRU slickline. RIH and tag for fill. If production equipment found, retrieve. Note tagged depth in OpenWells. RDMO slickline.
- 37 When notification is sent to un-prep well, MIRU WO rig.
- 38 Control well with biocide treated water.
- 39 ND WH. NU BOP. Function test and document.
- 40 Release Arrowset AS-1X packer. Wait 15 minutes for sealing elements to relax. TOOH with 2-3/8" TBG, Arrowset packer, XN profile nipple, and NC while standing back TBG and laying down packer.
- 41 Return packer to shop were purchased and have redressed.
- 42 PU & TIH with 2-3/8" NC, 2-3/8" XN profile nipple (ensure nipple is input into OpenWells), and 2-3/8" TBG.
- 43 If cleanout is not necessary, skip to the next step. If fill is encountered above 7452' (bottom CODELL perf), circulate clean with biocide treated water to 7557'.
- 44 PUH and land TBG at +/- 7000', which is approximately 1 joint above the top CODELL perf.
- 45 ND BOPE, NU WH. Ensure all valves on WH are rated to minimum 5000 psi and update WH as necessary to flanged style WH. Ensure a new R-46 gasket is installed on WH.
- 46 MIRU hydrotester. Pressure test TBG head to 5000 psi for 15 minutes. After successful pressure test, proceed. RDMO hydrotester.
- 47 RU rig lubricator. Broach TBG to XN. RD rig lubricator.
- 48 RDMO WO rig. Notify the IOC at 970-506-5980 of completed workover operations. Return well to production team.

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