

WADDLE 24-5L: Dual Stage Annular Fill (Bradenhead)

- 1 Well needs dual stage annular fill from 4830' to 3990' and 1090' to 400' due to high Bradenhead pressure.
- 2 Well has gyro 10/29/2014.
- 3 Call Foreman and Field Coordinator 24 hours before rig up to communicate activity and to isolate any production equipment (remove plunger, wellhead automation, etc.). Prepare to move base beam rig onto location. Install perimeter fence if needed.
- 4 Check and report surface casing pressure. If valves are not accessible at ground level, re-plumb so valve is at ground level.
- 5 MIRU slickline. RIH to retrieve production equipment and tag for fill (CO to PBMD ~ 7832' in 2006). Note tagged depth in OpenWells. RDMO slickline.
- 6 MIRU WO rig. Spot 5030' (~158jts) of 1.66" 2.33 J-55 10RD IJ tbg. Spot additional 60' (2jts) of 2-1/16" 3.25# J-55 10RD IJ tbg to clean out to liner top @ 7369'.
- 7 Kill well as necessary with water and biocide. Attach a hardline from the bradenhead/surface casing valve to a flowback tank and blow down any Bradenhead pressure. (Last Form 17 was performed 09/2015. Bradenhead static pressure was 342 psi and surfacing casing produced zero fluid during test and blew down to 187 psi in 60 min. Pressure built back up to 194 psi in 15 min). If pressure does not blow down within 1 hour contact engineer, otherwise proceed.
- 8 ND wellhead. NU BOP.
- 9 PU 8-10' pup joint with TIW valve on top and screw into the tbg hanger. Back out the lock down pins and pull up on the tubing string to break any possible sand bridges. (Do not exceed 80% of tubing tensile strength, or 49,070 lbs.) Unseat and LD the landing joint.
- 10 MIRU EMI services. EMI 2-1/16" tbg (226 joints landed at 7350') while TOO H and tally while standing back. Lay down joints that have greater than 35% penetration or wall loss. Replace all joints that fail EMI testing. Document joint numbers and depth of bad tubing and create a Production Equipment Failure report in OpenWells. RDMO EMI services.
- 11 PU 7,000 psi rated from above and below RBP (3.5", 7.7#, M-75) retrieving head, and 2-1/16" tubing. Set RBP at +/- 6170' (collars located at 6149' and 6191').
- 12 Release tbg from RBP and circulate all gas out of the hole. Pumping water with biocide, pressure test RBP and production casing to 1000 psi for 15 minutes. If pressure test passes, proceed; otherwise contact engineering. (Last pressure test >20 yrs ago but not on record)
- 13 Circulate 2 sx of sand on top of RBP and TOO H and SB 2-1/16" tubing.
- 14 ND BOP. ND wellhead. Screw 3-1/2" pup joint into production casing and un-land 3-1/2" production casing. NU double entry flange and BOP. Install 1.66" pipe rams.
- 15 PU 5030' of 1.66" 2.33# J-55 10RD IJ tubing and TIH between the 3-1/2" production casing and 8-5/8" surface casing/open hole to +/- 5030'. Make 2 sweeps of Alcomer 74L while TIH. (annular volume ~ 360bbl @ 5030')
- 16 Circulate with the rig pump to condition the hole or until well is completely dead. Pump a final sweep of ALcomer 74L (~360bbls) at 5030'. Circulate a minimum of 1.5 annular volumes and ensure well is dead. If not able to circulate dead, contact engineering.
- 17 Spot 20 bbl of 10.0 ppg mud and TOO H to 4830'.
- 18 MIRU cementing services. Establish circulation and pump 30 bbl (5 bbls of water, 20 bbls of sodium metasilicate, and 5 bbls water) spacer, **390 sx Poz:G cement with 0.6% CFL-2 + 0.5% CFR + 0.6% SMS + 0.2% SPC-2 + 0.4% LTR mixed at 14.6 ppg and 1.12 cf/sk.** (based on 9-1/2" hole size + 20% excess from 4830'-3990'). Plan for 6 hour pump time.
- 19 PUH to +/- 3700' with 1.66" 2.3# J-55 10RD IJ tubing. Circulate with freshwater 1.5 times the hole volume (~390bbls) or until returns are clean.
- 20 TOO H with 1.66" 2.3# J-55 10RD IJ tubing until EOT is at 1090' and LD extra tbg.
- 21 Establish circulation and pump, **230 sx Type III cement with 0.3% CFL-3 + 0.3% CFR-2 + 0.25 lb/sk Polyflake and CaCl₂ as deemed necessary mixed at 14.8ppg 1.33 cuft/sx yield.** (based on 9" hole size + 20% excess from 1090'-509')

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and 109' between 8-5/8" 23# surface casing and 3-1/2" 7.7# production casing). Attempt to cement from 1090'-400'. Plan for 3 hour pump time.

- 22 TOO H with 1.66" 2.3# J-55 10RD IJ tubing until EOT is at 200' and LD extra tbg. Circulate with freshwater 1.5 times the hole volume or until returns are clean. RDMO cementing services.
- 23 TOO H and LD all 1.66" 2.3# J-55 10RD IJ tubing. ND BOP and double entry flange. Use 3-1/2" pup joint to re-land 3-1/2" casing. NU BOP. Install 2-1/16" pipe rams. Shut well in and WOC for a minimum of 24hrs.
- 24 MIRU wireline and run **CCL-GR-CBL-VDL from +/- 6150' to surface**. If the cement is not at or above 3995' over the Sussex interval and at or above the depth 409', 100' over the surface casing shoe, contact engineer. RDMO wireline services. In addition to normal handling, of logs/job summaries, email copies of all cement job logs/job summaries and invoices to DJVendors@anadarko.com within 24 hrs of the completion of the job.
- 25 PU and TIH with retrieving head and 2-1/16" tubing. Circulate sand off of RBP. Latch onto and release RBP at +/- 6170'. Circulate gas out of hole. TOO H standing back all 2-1/16" tubing and LD RBP.
- 26 PU 2-1/16" NC, 2-1/16" XN nipple (be sure nipple is correctly input into OpenWells), and 2-1/16" 3.25# J-55 tbg to surface. Circulate out fill if necessary and land EOT at +/- 7,250' (1 joint above top Codell perms).
- 27 RU rig lubricator. Broach tubing to XN seating nipple. RD rig lubricator. ND BOP.
- 28 Install 7-1/16" flanged 5000 psi tubing head adaptor with 2-1/16" studded top, 2-1/16" flanged 5000 psi master valve, flanged 5000 psi 2-1/16" plunger lubricator (side outlets threaded). Make sure all wellhead valves are rated to 5,000 psi and all nipples are XXH. Document wellhead components in an OpenWells wellhead report.
- 29 Install 2-3/8" pup joint above the master valve. Pressure test the tubing head from below the tubing head through the master valve to 5,000 psi using hydrotester. If wellhead does not pressure test, replace wellhead/ wellhead valves as necessary with 5,000 psi rated equipment.
- 30 NU WH. RDMO WO rig. Return well to production team.