

Engineer: Alex Caravaggio  
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## Annular Fill (Bradenhead), 5K PT, and WH

### PIZ 16-23

- 1 Well needs a single stage annular fill from 1050' to 500' to mitigate bradenhead issues, 5K casing pressure test and WH change.
- 2 Well has gyro survey on 10/15/2014.
- 3 MIRU Slickline. Pull bumper spring and tag bottom. Record tag depth in Open Wells. RD slickline.
- 4 Prepare location for base beam equipped rig. Install perimeter fence as needed.
- 5 Check and record bradenhead pressure. If bradenhead valve is not accessible, re-plumb so that valve is above GL. Blow down bradenhead and re-check pressure the next day. Repeat until pressure stays at 0 psi.
- 6 MIRU WO rig. Spot 25 jts of 2-3/8" 4.7# J-55 tbg and 1200' of 1.66" 2.33# J-55 tubing.
- 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. 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. Unseat and LD the landing joint.
- 10 MIRU EMI services. EMI 2-3/8" tbg (landed at 7690') while TOOH 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 and RIH with (4.5", 11.6#) Bit and Scraper on 2-3/8" tbg to 7220'. TOOH. SB all 2-3/8" tbg. LD bit and scraper.
- 12 PU 10,000 psi rated from above and below RBP (4.5", 11.6#), retrieving head, and 2-3/8" tubing. Set RBP at +/- 7210'.
- 13 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.
- 14 Stack out tubing on RBP and ND BOP.
- 15 ND existing tbg head, NU new 5,000 psi flanged tbg head complete with 5,000 psi rated casing valves. NU BOP.
- 16 PU on 2-3/8" tbg string and LD one joint of 2-3/8" tbg.
- 17 PU landing joint and land tbg in the new tbg head with a mandrel. ND BOP. NU WH with 5,000 psi flanged master valve. Ensure master valve is closed.
- 18 MIRU hydrotester. Pressure test the casing to 5,000 psi for 15 minutes. If pressure test fails, contact engineering. Bleed pressure off. RDMO hydrotesters.
- 19 ND WH. NU BOP. Unland 2-3/8" tbg with landing joint. LD landing joint and mandrel.
- 20 Dump and spot 2 sx of sand on top of RBP. TOOH and SB 2-3/8" tubing.
- 21 ND BOP. ND wellhead. Un-land casing using a casing spear, not a lifting sub. Max pull shall be 100,000#. If unable to unland, contact Engineering. NU double entry flange and BOP. Install 1.66" pipe rams.
- 22 PU 1.66" 2.33# J-55 10RD tubing and TIH between the 4-1/2" production casing and 8-5/8" surface casing/open hole to 1050' while continuously circulating. Make 2 sweeps of DF 20-20 while TIH. (annular volume ~ 43 bbl @ 1050') If unable to make it to 1050' call Engineering.
- 23 Circulate with the rig pump to condition the hole or until well is completely dead. Pump a final sweep of DF 20-20 at 1050' (annular volume ~43 bbls). Circulate a minimum of 1.5 annular volumes and ensure well is dead. If not able to circulate dead, contact engineering.
- 24 MIRU cementing services. Establish circulation and pump 20 bbl (5 bbls of water, 10 bbls of sodium silicate, and 5 bbls water) spacer, **GasBLOK 185 sx (215 cf) 15.8 ppg 1.16 yield.** (based on 7.88" hole size + 60% excess from 1050'-844' and from 844' to 500' between 8-5/8" 24# surface casing and 4-1/2" 11.6# production casing). Attempt to cement from 1050'-500'. Plan for 3 hour pump time.

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- 25 TOO H with 1.66" 2.3# J-55 10RD IJ tubing until EOT is at 300' and LD extra tbg. Circulate with freshwater 1.5 times the hole volume or until returns are clean. RDMO cementing services.
- 26 TOO H and LD all 1.66" 2.3# J-55 10RD IJ tubing. ND BOP and double entry flange. Use 4-1/2" casing spear to re-land 4-1/2" casing. NU WH and BOP. Install 2-3/8" pipe rams. Shut well in and WOC for a minimum of 24hrs.
- 27 MIRU wireline and run **CCL-GR-CBL-VDL from +/- 4500' (below the original TOC) to surface**. If the cement is not at or above 794', 50' inside 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](mailto:DJVendors@anadarko.com) within 24 hrs of the completion of the job.
- 28 PU and TIH with retrieving head and 2-3/8" tubing.
- 29 Circulate sand off of RBP. Pressure test casing to 1000 psi for 15 minutes. Latch onto and release RBP at +/- 7210'. Circulate gas out of hole. TOO H standing back all 2-3/8" tubing and LD RBP.
- 30 PU & TIH with a 2-3/8" NC, 2-3/8" XN nipple, and 2-3/8" tbg to surface.
- 31 RU rig lubricator. Broach tubing to XN seating nipple. RD rig lubricator. ND BOP.
- 32 Install 7-1/16" flanged 5000 psi tubing head adaptor with 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.
- 33 Install 2-1/16" 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.
- 34 NU WH. RDMO WO rig. Return well to production team.