

## State 22-16 -- Revised Bradenhead Procedure

- 1 Call Foreman or Lead Operator at least 24 hr prior to rig move. If not already completed, 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 MIRU Slick line. Fish plunger if necessary and tag for PBTD (should be at 8222').
- 3 This well needs a gyro survey before any work is completed.
- 4 Prepare location for base beam rig.
- 5 Spot 12 jts of 2-3/8" 4.7# J-55 8RD EUE tbg.
- 6 Spot 50 jts of 1-1/4" 2.33# J-55 10rd IJ tbg.
- 7 Check wellhead for 5,000 psi rating. If wellhead is not rated to 5,000 psi, install one that is prior to completing job.
- 8 MIRU WO rig. Kill well with fresh water with biocide. ND wellhead, NU BOPs.
- 9 Run two 2" lines from starting head to return tanks
- 10 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, or 57,384-lb.
- 11 Unseat tbg hanger and LD tbg hanger and landing joint. Install rubber wiper in stripping head.
- 12 MIRU EMI equipment. TOOH with 2-3/8" tbg. EMI tbg while TOOH. Lay down joints with wall loss or penetrations >35%. Replace joints as necessary. Keep yellow and blue band tubing. Note joint number and depth of tubing leak(s) on production equipment failure report in OpenWells. Clearly mark all junk (red band) tubing sent to yard.
- 13 This well already has an RBP set at 7519'.
- 14 Pressure test RBP to 1,000 psi for 15 minutes. (Pressure test to make sure plug is set correctly)
- 15 ND bop, ND tubing head. Un land 4-1/2" csg string. NU double entry flange, NU BOP.
- 16 PU and TIH with 50 jts of 1-1/4" 2.33# J-55 10rd IJ tbg outside 4 1/2" csg to +/- 1500'. Circulate while TIH to condition hole.
- 17 MIRU Cement company.
- 18 Commence pumping cement job at pump rate of consisting 5 bbl fresh water, 20 bbl sodium meta silicate and 5 bbl fresh water; 39 bbl (165 sx) of Type III and 1/4 lb/sk cello-flake mixed at 14.8 ppg and 1.33 cuft/sk blended for a 3 hr pump time (Cement from 1500' to 794').
- 19 TOOH with 27 jts of 1-1/4" tbg and circulate 2x tubing volume or until cement cleans up. TOOH remaining 1-1/4" tbg and LD all 1-1/4" tbg.
- 20 Break lines and clean up with fresh water. RMDO cement company.
- 21 ND bop, ND dual entry flange. NU 2-3/8" tbg head and BOP.
- 22 Leave well shut in for 24 hours.
- 23 Circulate gas out of hole with fresh water with biocide.
- 24 MIRU wire line and run CCL/CBL/VDL from 1600' to 0'. If cement is not above 794', contact engineering for further instructions. RDMO wire line.
- 25 Pressure test csg to 5,000 psig for 15 minutes. If pressure does not hold, contact engineering for further support.
- 26 TIH with 2 3/8" tbg and retrieving head and tag sand above RBP. Circulate sand off RBP. Latch onto RBP at +/- 7519' and release RBP. TOOH standing back all 2 3/8" tbg and LD RBP.

- 27 TIH with 2-3/8" XN SN and 2-3/8" 4.7# J55 EUE tbg. Land tbg @ +/- 7980' (1 jt above top Codell perf). Broach tbg to XN nipple.
- 28 ND BOP, Install 7 1/16" x 5,000 psi tubing head adaptor with new 5,000 psi master valve threaded 2 3/8" connection. Make sure all wellhead valves are rated to 5,000 psi.
- 29 NU master valve and hydrotest tubing head to 5,000 psi for 15 minutes.
- 30 RMDO WO rig.
- 31 Clean location and swab well back to production. Notify field foreman/field coordinator of finished work and turn well back over to production team.