

## Copper 31-15 Bradenhead Procedure

- 1 GYRO ran on 6/9/08.
- 2 Call Foreman or Lead Operator at least 24 hrs 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.
- 3 MIRU slickline. Fish plunger from lubricator. RIH and pull the bumper spring and standing valve if necessary. RBIH with sinker bars and tag bottom. Report findings. PBMD should be at 7651'. RDMO slickline.
- 4 Prepare location for base beam rig.
- 5 Spot a minimum of 25 jts of 2-3/8", 4.7#, J-55, EUE tbg for replacement and 55 jts 1-1/4", 2.33#/ft, J-55, 10rd IJ for annular cement job.
- 6 MIRU WO rig and auxiliary equipment. Check pressures. Rig up 2" line from the casing head annulus to work tank. Kill well with fresh water. ND tree and adapter flange, NU BOP's.
- 7 PU 8-10' landing joint. TIW valve on top and screw into the tbg hanger. Back out the lock down pins and pull up on tbg string to break any possible sand bridges, unseat landing joint and lay down. Do not exceed 80% of tubing tensile strength, or **57,380-lb**. Clean out as necessary to 7651'.
- 8 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. Note joint number and depth of tubing leak(s) on production equipment failure report in Open Wells. Clearly mark all junk (red band) tubing sent to yard.
- 9 TIH with 2-3/8" tbg and 4.5" RBP. Set RBP @ +/- 7260', (collars are at 7230' and 7274'). Pressure test RBP to 5000 psi. Spot 2sx of sand on top of RBP and TOOH.
- 10 Bleed off pressure to 1000 psi. MIRU wireline and run CCL-GR-CBL-VDL from **3500' to surface. Make sure to run under 1000 psi**. Call Evans Engineering to discuss TOC and if it is at least below 1700' (**Do not move on to next step until Engineering is contacted**). 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.
- 11 ND BOP's, ND wellhead, Un-land 4 1/2" casing, NU dual entry flange, NU BOP.
- 12 PU 1-1/4" 2.3#/ft J-55 10rd IJ tubing, and TIH outside 4-1/2" casing in open hole to ~1700'. Circulate with the rig pump while TIH to clean up the annulus. Use sweeps as necessary until clean returns are seen. Make sure no pressure is present on bradenhead before moving on to the next step. If gas is detected, contact engineering to discuss plan moving forward.
- 13 Contact Imperial mud (min of 24hrs. in advance) to bring out 40bbbls of 10.0ppg mud. Pump 40bbbls of mud at 1700'. Leave 1-1/4" tbg full of mud to avoid wet trip and PUH to 1300' to displace cement.
- 14 MIRU cement services. Pump 5 bbls water, 10 bbls mud flush and 5 bbls water. Prepare to cement.
- 15 Mix and pump **130sx (~30.8bbbls)** of 14.8 ppg (1.33 cuft/sk) Type III w/ 1/4 lb/sk cello-flake. The cement is to be retarded for 80 °F and 3 hour pump time. Design is for coverage from ~1300' to ~713'.
- 16 TOOH ~29 joints to ~400' and reverse circulate 2 times the tubing volume of water or until clean

returns are seen. TOOH with 1-1/4" tubing.

- 17 RDMO cementing company.
- 18 ND BOP. ND dual entry flange and crossover. Pick up and land 4-1/2" casing in slips. NU new 4-1/2" 5000 psi tubing head with 2-5000 psi valves. **Make sure to use new style flanged well head equipment.** NU BOP's to tubing head.
- 19 Leave well shut in for ~24hrs.
- 20 MIRU wireline and run CCL-GR-CBL-VDL from **2000' to surface**. If top of cement is below 713' notify Engineering. In addition to normal handling of logs/job summaries, email copies of all cement job logs/job summaries and invoices to [rscDJVendors@anadarko.com](mailto:rscDJVendors@anadarko.com) within 24 hours of the completion of the job.
- 21 RDMO wireline.
- 22 PU and TIH with 2-3/8" tbg and retrieving head. Circulate sand off RBP at @ +/-7651'. TOOH with RBP and SB tbg.
- 23 TIH with 2-3/8" NC, 2-3/8" XN SN and 2-3/8" 4.7# J55 EUE tbg, circulate out fill if necessary to 7651'. Land tbg @ +/- 7516' (1 jt above top Codell perf).
- 24 Broach tubing to seating nipple. ND BOP's, NU master valve and tubing head adaptor. Hydrotest tubing head to 5000 psi for 15 minutes.
- 25 RDMO WO rig.
- 26 Clean location and swab well back to production. Notify Field Foreman/Field Coordinator of finished work and turn well back over to production team.