

## USA 19-36 BRADENHEAD PROCEDURE

- 1 Level location for base beam rig.
- 2 Call Foreman or Field Coordinator before rig up to catch plunger, isolate production equipment, and ask if replacement parts/equipment are requested. Operations need to hook up the Bradenhead pressure and bleed off the pressure before the rig gets on location.
- 3 Check and report surface casing pressure. If surface casing is not accessible at ground level, re-lumb so valve is at ground level.
- 4 Spot a minimum of 25 jts 2-3/8", 4.7#, J-55 EUE TBG for replacement and 131 jts 1-1/4", 2.33#/ft, J-55 10rd IJ for annular cement job.
- 5 MIRU slicklines. Fish production equipment as necessary and tag fill. Note tagged depth in OpenWells. Last tagged/clean out depth was 7535' on 7/29/08 (Bottom Codell perf: 7430'). RDMO slickline.
- 6 MIRU WO rig. Kill well, as necessary, with biocide treated fresh water. ND WH. NU BOPE.
- 7 Unseat landing joint and lay down.
- 8 MIRU EMI services. (LAST EMI DATE: unknown). TOO H with 2-3/8" TBG. EMI on TOO H. LD joints with wall loss or penetrations > 35%. Replace joints as necessary. \*\*Keep yellow & blue band tubing. Note joint number and depth of tubing leak(s) on PRODUCTION EQUIPMENT FAILURE REPORT IN OPEN WELLS.
- 9 TIH with 2-3/8" TBG & RBP suitable for 4.5", 11.6#, I-80 casing. Set RBP at 4120'. (Collars at 4100' & 4142').
- 10 Circulate gas out of well and pressure test RBP & CSG to 2000 psi for 15 min. Dump 2 sx sand on top of RBP & TOO H while standing back TBG.
- 11 ND BOPE. ND WH. Unland 4-1/2" casing. NU double entry flange.
- 12 PU 1-1/4", 2.3#/ft J-55 10rd IJ tubing and TIH outside 4-1/2" casing and open hole & tag top of cement (~3790'). Circulate with biocide treated fresh water on TIH to clean annulus.
- 13 MIRU cement services. Mix and pump cement job as follows: Freshwater spacer, 20 bbls Sodium Metasilicate, 770 sx 15.8 ppg neat Class G cement with 1/4#/sx cello-flake. The cement is to be retarded for 125 degF for a six hour pump time. (Attempt to cement from 3790' to 960').
- 14 TOO H with 45 stands and stand back in derrick to end of tubing at +/- 950' and circulate 2 times the tubing volume to clear tubing of any residual cement.
- 15 Trip out of the hole with tubing and shut in overnight.
- 16 Rig down cementing services.
- 17 Land 4-1/2" CSG. ND double entry flange. NU wellhead. SDFN to WOC.
- 18 MIRU wireline services.
- 19 PU and RIH with CCL-GR-CBL-VDL. Run from 3800' to surface, or the top of cement. RDMO wireline. If the cement is not above 960' then contact engineer.
- 20 PU and TIH with 2-3/8" TBG & retrieving head. Circulate sand off RBP, latch RBP and TOO H standing back TBG & laying down retrieving head and RBP.
- 21 If clean out is not necessary, skip to the next step. PU and TIH with bailer (hydrostatic or bulldog) and clean out to at least 7460'. (Bottom Codell perf 7430') TOO H and SB 2-3/8" TBG & LD bailer.

APC USA FED 16-36HZ PAD. Estimated start date: 5 Dec 13

Deviation report in OpenWells, no gyro needed.

Nio top: 7138'; TOC: 3790'; NPV: 300M; No known casing issues

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- 22 PU and TIH with NC, XN profile nipple, and 2-3/8" TBG and land well at 7385', which is approximately 1 joint above the top Codell perf.
- 23 RU rig lubricator. Broach tubing to XN nipple. RD rig lubricator.
- 24 ND BOPE. NU WH. RDMO WO Rig.
- 25 Clean location and swab if necessary. Notify Foreman or Field Coordinator of completed workover operations and turn well over to production team.

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