

Camp UPRR 41-25A: Remedial Cement Squeezes for COA, Production Packer

- 1 Well has Gyro 2011
- 2 Call IOC (970.506.5980) before rig up to isolate production equipment. Catch and remove plunger. Enter plunger into PLUNGER DATABASE. Call 24 hours prior to the rig moving onto location so that any automation equipment can be removed prior to the rig showing up. Install fence if needed. If surface casing is not accessible at ground level, re-pipe so valve is at ground level.
- 3 Check for surface casing pressure, bleed off as necessary.
- 4 Level location for base beam rig.
- 5 MIRU Cable slickline service company. RIH to retrieve production equipment. RIH and tag for fill, last cleanout to 8064' on 8/10/2012. Note tagged depth in OpenWells.
- 6 MIRU Workover (WO) Rig. Control well with biocide treated water. Nipple Down (ND) Wellhead (WH) and Nipple Up (NU) Blow Out Preventer Equipment (BOP). Function test and document BOP.
- 7 MIRU EMI services. EMI 2-3/8" TBG and 1-1/4" TBG on TOOH and tally while standing back 2-3/8" and lay down 1-1/4". Lay down, label with red band, and return to yard joints with wall loss or penetrations > 35%. Replace bad joints as necessary. Note joint number and depth of bad tubing and create Production Equipment Failure Report in OpenWells. RDMO EMI services.
- 8 PU and TIH with 2-3/8" TBG and RBP rated to 10,000 psi (4-1/2", 15.1# - ID is 3.826", unknown grade - likely and 80 grade) and set at +/- 7,135' (reference IPS Wireline CBL dated 3/3/2012 – collars are at 7,125' and 7,151').
- 9 Circulate out any gas and load hole with casing valves open. Pressure test csg and RBP to 1,000 psi using water w/ biocide for 15 minutes. If test fails contact Evans for instructions. Dump 2 sacks of sand onto RBP.
- 10 TOOH with 2-3/8" and SB.
- 11 MIRU Wireline company. PU & RIH with two 3-1/8" guns and shoot squeeze holes at 4300' (collars unknown) and 5175' (collars unknown). Using 2 SPF, 0.5", 1' net, 4 total shots, 2 per perf depth phased at 180 degrees. POOH with perf guns. RDMO wireline service company
- 12 PU and TIH with CICR, set at +/- 4350' (collars unknown) within a few feet to keep calculations accurate. Establish injection rate and pressure, keeping casing valve open for circulation. If injection rate can't be established CONTACT EVANS FOR UPDATES.
- 13 Circulate until returns are clean.
- 14 MIRU Baker cementing services (we are doing a trial with baker's 14.2# cement).
- 15 Have an extra 10 sks of the cement mix below (for a total of 530 sks) on site and ready to mix to place balance plug over top perfs
- 16 Mix & pump as follows: 10 bbls SAP mud flush (mud cake removal chemical solution), 5 bbl water, 10 bbl SMS, 10 bbl fresh water spacer, 520 sks Poz class G cement, 1/4#/sk Cello Flake, 0.4% Sodium Metasilicate, 0.4% FL-52, 0.1% CD-32 & 2% bentonite mixed at 14.2 ppg and yield of 1.26 cuft/sk (CaCl2 amounts as determined by cementing service company for a 3 hour pumping time) for a total of 116.6 bbl of cement. Design is for coverage from 5175' to 4295' in 11" Borehole (has no caliper log) with a 30% excess. See Calculation if necessary.
- 17 Over-displace with 25 bbls of fresh water.
- 18 Sting out of CICR & PUH to +/- 4200' and circulate clean. TIH to 4320'.
- 19 Mix and pump the 10 sks (2.17 bbls) of remaining 14.2ppg cement to spot over the top perfs. Displace with 16.5 bbls of fresh water.

Prep for APC Cruickshank 6-24 HZ operations
COA for foxhills and Sussex cement coverage
NB top: 7211' TOC: 6468'
Closest HZ offset: 493'

NPV: 262M

Prep and produce, Foxhills and Sussex remedial cement

Camp UPRR 41-25A: Remedial Cement Squeezes for COA, Production Packer

- 20 PUH to 4000' and circulate clean. TOOH and SB tbg.
- 21 Shut in overnight if necessary
- 22 MIRU Wireline company. PU & RIH with two 3-1/8" guns and shoot squeeze holes at 1052' (collars at 1041' and 1066') and 1820' (collars unknown). Using 2 SPF, 0.5", 1' net, 4 total shots, 2 per perf depth. POOH with perf guns. RDMO wireline service company
- 23 PU and TIH with CICR, set at +/- 1160' (collars at 1146' and 1173') within a few feet to keep calculations accurate. Establish injection rate and pressure, keeping casing valve open for circulation. If injection rate can't be established CONTACT EVANS FOR UPDATES.
- 24 Circulate until returns are clean.
- 25 MIRU cementing services.
- 26 Have an extra 10 sks of the cement mix below (for a total of 445 sks) on site and ready to mix to place balance plug over top perfs
- 27 Mix & pump as follows: 10 bbls SAP mud flush (mud cake removal chemical solution), 5 bbl water, 10 bbl SMS, 10 bbl fresh water spacer, 435 sks Type III cement, 1/4#/sk Cello Flake, mixed at 14.8 ppg and yield of 1.33 cuft/sk (CaCl₂ amounts as determined by cementing service company for a 3 hour pumping time) for a total of 102.9 bbl of cement. Design is for coverage from 1820' to 1052' in 11" Borehole (has no caliper log) with a 30% excess. See Calculation if necessary.
- 28 Displace with 11 bbls of fresh water.
- 29 Sting out of CICR & PUH to +/- 950' and circulate clean. TIH to 1075'.
- 30 Mix and pump the 10 sks (2.3 bbls) of remaining 14.8 ppg Type III cement to spot over the top perfs. Displace with 3.9 bbls of fresh water.
- 31 PUH to 800' and circulate clean. TOOH and SB tbg.
- 32 Shut in and WOC for 72 hrs.
- 33 PU and TIH with 3-3/4" bit on drill collars and 2-3/8" tbg. Drill out past the CICR to 1200'. Watch the drill rate and returns to be sure cement has enough strength.
- 34 Pressure test through the bit to 1000 psi for 15 minutes. If test fails contact Evans engineering office to update procedure.
- 35 Continue to drill out cement above bottom perfs (at 1820') until fall through. Pressure test to 1000 psi for 15 minutes. If test fails contact Evans engineering office to update procedure.
- 36 Continue to drill out cement above perfs (at 4300') and CICR until fall through or 4400'. Pressure test to 1000 psi for 15 minutes. If test fails contact Evans engineering office to update procedure.
- 37 Continue to drill out cement above bottom perfs (at 5175') until fall through. Pressure test to 1000 psi for 15 minutes. If test fails contact Evans engineering office to update procedure.
- 38 MIRU Wireline services.
- 39 PU and RIH w/ CCL-CBL-VDL tools and log from 5200' to surface. NOTE: IF INSUFFICIENT CEMENT OR POOR BOND, CONTACT EVANS. Clear with Evans engineering and email logs to Jacob.Barker@Anadarko.com before proceeding. Email copies of logs, summaries and invoices to rscDJVendors@Anadarko.com within 24hrs.
- 40 PU and TIH with RBP retrieving head and 2-3/8" tbg. Clean off RBP. Latch onto RBP and release. TOOH with tbg and RBP. SB tbg and laydown RBP.

Prep for APC Cruickshank 6-24 HZ operations

COA for foxhills and Sussex cement coverage

NB top: 7211' TOC: 6468'

Closest HZ offset: 493'

NPV: 262M

Prep and produce, Foxhills and Sussex remedial cement

Camp UPRR 41-25A: Remedial Cement Squeezes for COA, Production Packer

- 41 PU and TIH with 2-3/8" NC, 2-3/8" XN profile nipple (make sure nipple is properly input into OpenWells), +/- 1000' of 2-3/8" tbg (32 jnts should land EOT will be 1-2 jnt above top of liner), Arrowset AS-1X packer rated to 10,000 psi (4-1/2", 15.1#, unknown grade), and 2-3/8" tbg to surface and Hydrotest to 6,000 psi while TIH. Set packer at 6500' (collars at 6488' and 6516').
- 42 Fill 2-3/8" to 4-1/2" annulus w/ biocide treated water. Pressure test to 1000 psi for 15 min.
- 43 RU rig lubricator. Broach TBG to XN nipple. RD Lubricator.
- 44 ND BOP, NU WH tree with all flanged, 5,000 psi components. Be sure casing valves and nipples are rated to 5,000 psi.
- 45 Install 2-3/8" pup joint above master valve. Pressure test WH from below TBG head through master valve w/ hydrotester to 5,000 psi.
- 46 RDMO WO rig. Return well to production team.
- 47 END OF SAFETY PREP STEPS, STEPS BELOW ARE FOR UN-PREPPING THE WELL.
- 48 When notification sent to un-prep well, MIRU slickline service company. RIH and tag for fill. Note tagged depth in OpenWells.
- 49 MIRU WO Rig.
- 50 ND WH. NU BOP.
- 51 Unset Arrowset AS-1X packer and TOOH w/ 2-3/8" tbg, Arrowset packer, XN profile nipple, and NC. Stand back tbg, LD packer. Return Packer to shop it was purchased from and have it redressed.
- 52 PU and TIH w/ 12 jnts 1-1/4" tbg, 1-1/4" x 2-3/8" crossover, 2-3/8" NC, 2-3/8" XN profile nipple, 2-3/8" tbg. Land EOT at +/- 7,910' (one joint to of JS perfs). Be sure OpenWells correctly reflects tbg configuration.
- 53 RU rig lubricator. Broach tbg to seating nipple. RD rig lubricator.
- 54 ND BOP. NU wellhead.
- 55 Install 2-3/8" pup joint above master valve. Pressure test TBG head from below TBG head through master valve w/ hydrotester to 5,000 psi.
- 56 RDMOSU. Return well to production team.

Prep for APC Cruickshank 6-24 HZ operations

COA for foxhills and Sussex cement coverage

NB top: 7211' TOC: 6468'

Closest HZ offset: 493'

NPV: 262M

Prep and produce, Foxhills and Sussex remedial cement