

Reese 8-15: Bradenhead Remedial Cement, Annular Fill

- 1 Well has Gyro 2008
- 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. If pressure does not bleed off report findings to Evans engineering office to determine if we need to switch procedure to perf and squeeze or take other action.
- 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 8,212' on (12/7/2011). 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. Unseat landing joint and lay down (LD).
- 7 MIRU EMI services. EMI 2-3/8" TBG on TOOH and tally while standing back. Lay down 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 TIH with 2-3/8" TBG and RBP rated to 10,000 psi (4-1/2", 11.6#, I-80) and set at +/- 7,350' (reference JW Wireline CBL dated 4/21/2008 – collars are at 7,320' and 7,364').
- 9 Circulate out any gas and load hole. Pressure test RBP to 1,000 psi using water w/ biocide for 15 min. If pressure test fails, contact Evans office for possible change in procedure. Dump 2 sacks of sand onto RBP.
- 10 TOOH with 2-3/8" and SB.
- 11 ND BOP. Unland 4-1/2" production casing and NU double entry flange. 2008 vintage casing, don't pull with more than 150,000lbs
- 12 PU 69 jnts of 1-1/4" tbg. Run in annulus to 2,100' or as deep as possible while circulating. Contact engineering if unable to make depth.
- 13 Circulate until returns are clean.
- 14 Order and pump 60 bbls of 10# mud from Imperial. Don't displace with any fresh water to prevent unbalanced flow back.
- 15 Pull up annulus with 1-1/4" tbg so EOT at +/- 1,600'.
- 16 MIRU Sanjel cementing services (we are trying a group of experimental cement jobs with their SAP mud flush).
- 17 Mix & pump as follows: 5 bbls fresh water, 20 bbls SAP mud flush (mud cake removal chemical solution), 10 bbl fresh water spacer, 360 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 85.3 bbl of cement. Design is for coverage from 1,600' to 660' in 10.0" Borehole (has caliper log) and 120' in 8.1" ID surface casing with a 20% excess. See Calculation if necessary.

Raptor Stips well, in the Mt Bross Campaign

Bradenhead job due to form 17 results – no safety prep needed

NB top: 7,425' TOC: 2,875'

Closest HZ offset: unknown

NPV: 711M

Full Circle – Annular remedial cement job – No Safety Prep Needed

Reese 8-15: Bradenhead Remedial Cement, Annular Fill

- 18 POOH with 1-1/4" to +/- 300' and circulate until clean. Finish POOH.
- 19 Re-land 4-1/2" production casing immediately. NU 5000 psi tubing head and BOP. Shut in and WOC for 24 hours minimum.
- 20 PU and RIH w/ CCL-CBL-VDL tools and log from 1,700' to surface. NOTE: IF INSUFFICIENT CEMENT OR POOR BOND, CONTACT EVANS FOR NEW PROCEDURE. TOC should be at 680' or higher. 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.
- 21 POOH, RDMO wireline service company.
- 22 PU and TIH with RBP retrieving head and 2-3/8" tbg (4.7#/J-55/8rd EUE). Make EOT 7,320' or 1 jnt above the RBP. Tie in 8' Sub with landing donut on the tubing string and land with the sub accessible above the BOP. Engage BOP pipe rams.
- 23 Be sure casing valves and nipples are rated to 5,000 psi. Circulate out hole until completely loaded. Pressure test the csg and RBP to 1000 psi for 15 minutes.
- 24 MIRU hydrotester. Pressure test the csg and RBP through the top of the tbg sub to 5,000 psi for 15 minutes. If test fails contact Evans Engineering office for further instruction.
- 25 PUH, unland and LD landing donut and sub. Install 1 jnt of 2-3/8" 4.7# J-55 tbg. TIH, latch onto RBP and release. TOOH with tbg and RBP. SB tbg and laydown RBP.
- 26 PU and TIH with 2-3/8" NC, 2-3/8" XN profile nipple (make sure nipple is properly input into OpenWells), and 2-3/8" tbg.
- 27 Spot 6 jnts of 2-3/8" tbg for cleanout.
- 28 Cleanout to 8,212'.
- 29 PUH and land tubing with EOT at +/- 8,110' or about 1 joint above the JSND perfs (8,132' – 8,146').
- 30 PU 5,000 psi Flanged 7-1/16" x 2-1/16" EUE tubing head adapter, 2-16" EUE flanged 5,000 psi master valve with 2-3/8" EUE companion flange on top and 2-1/16" EUE flanged Lubricator.
- 31 ND BOP, NU WH with all flanged components.
- 32 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.
- 33 RU rig lubricator. Broach TBG to XN nipple. RD rig lubricator.
- 34 RDMO WO rig. Return well to production team.

Raptor Stips well, in the Mt Bross Campaign



Bradenhead job due to form 17 results – no safety prep needed

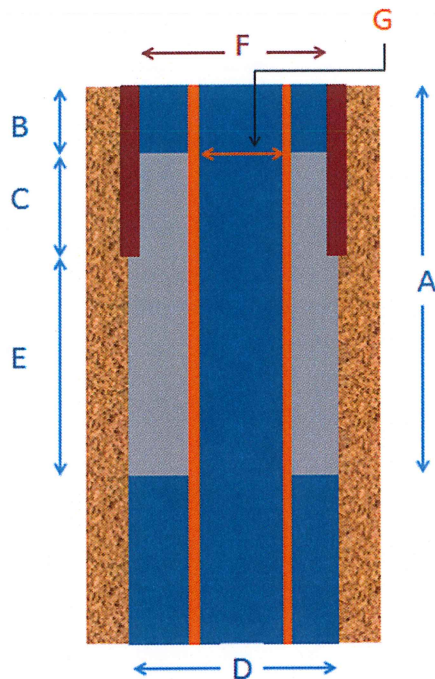
NB top: 7,425' TOC: 2,875'

Closest HZ offset: unknown

NPV: 711M

Full Circle – Annular remedial cement job – No Safety Prep Needed

 SURFACE CASING
 PRODUCTION CASING



INPUTS (not from KB)

Geometry

Cement Base Depth (ft)	A	1630
Cement Top (ft)	B	661
Surface Casing Depth (ft)	C	780
Bore Hole Diameter (in)	D	10
Cement in Bore Hole (ft)	E	850
Surface Casing ID (in)	F	8.1
Production Casing OD (in)	G	4.5

Cement Details

Cement Yield (cuft/sack)	CY	1.33
Excess (%)	EX	20

OUTPUT

Total Volume (BBL)	85.28
Total Volume (cubic feet)	478.79
# Sacks or Cement	359.99

Common tubular specs

Description	ID (inches)
8.625", 24#	8.097
5.5", 17#	4.892
5.5", 15.5#	4.95
4.5", 11.6#	4
4.5", 10.5#	4.052
3.5", 7.7#	3.068
2.875", 6.5#	2.441
2.375", 4.7#	1.995
2.0625", 3.25#	1.751

EQUATIONS USED

Upper and Lower Section Volumes (cuft)

$$Volume_{in\ surface\ casing} = 0.005454 * (F^2 - G^2) * (C - B)$$

$$Volume_{in\ bore\ hole} = 0.005454 * (D^2 - G^2) * (A - B)$$

Upper and Lower Section Volumes (bbl)

$$Volume_{in\ surface\ casing} = 0.000971 * (F^2 - G^2) * (C - B)$$

$$Volume_{in\ bore\ hole} = 0.000971 * (D^2 - G^2) * (A - B)$$

Total Cement Volume

$$Total\ Volume = \frac{100 + EX}{100} * (Volume_{in\ surface\ casing} + Volume_{in\ bore\ hole})$$

Sacks of Cement

$$\# of\ Sacks = \frac{Total\ Volume_{in\ BBLs}}{CY} * 5.6150$$

or

$$\# of\ Sacks = \frac{Total\ Volume_{in\ CUFT}}{CY}$$