

UPRR 22 PAN AM "A" #2 Remedial Cement, Replace Wellhead, Production Packer

- 1 Well has a GYRO: 3/16/2012
- 2 Call Foreman or Field Coordinator 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. NOTE: Report surface casing pressure to engineer. If surface casing is not accessible at ground level, re-pipe so valve is at ground level.
- 3 Level location for base beam rig.
- 4 MIRU slickline service company. RIH to retrieve production equipment. RIH and tag for fill; last cleanout depth was 7,844' on 6/10/2011. Note tagged depth in OpenWells. RDMO slickline service company.
- 5 Place cement services on "will call" when rig moves on location to rig up.
- 6 MIRU Workover (WO) Rig. Control well with biocide treated water. Nipple Down (ND) Wellhead (WH) and Nipple Up (NU) Blow Out Preventer Equipment (BOPE). 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 MIRU E-Line service Company
- 9 PU and RIH with Gauge ring and junk basket combo for (4-1/2", 10.5/11.6#, K-55) CSG. Run Gauge ring to 7,050', POOH.
- 10 RIH w/ 10,000 psi rated from above and below CIBP (4-1/2", 10.5/11.6#, K-55) and set CIBP at 6,920' (Tie into Schlumberger Cement Bond Log with Perforating Summary dated 20-Nov-96). Pressure test CIBP and casing to 500 psi for 15 min. Note pass/fail in OpenWells. Dump 2 sacks of sand on CIBP.
- 11 PU & RIH with 3-1/8" guns and shoot squeeze holes at 6,840', then 6,700' (Tie into Schlumberger Cement Bond Log with Perforating Summary dated 20-Nov-96), using 3 SPF, 0.38" EHD, 33.65" penetration, 1' net, 6 total shots, 3 per perf depth. POOH with perf guns.
- 12 PU & RIH with CCL & CICR and set at 6,810'. RDMO E-Line service company. NOTE: CICR can be set on 2-3/8" TBG if desired.
- 13 MIRU Cementing Services. PU & RIH with CICR stinger on 2-3/8" TBG and sting into CICR at 6,810'.
- 14 Establish injection rate with water, keeping casing valve open for circulation. Once injection rate has been established, mix and pump 50 sks cement as follows: 14 bbl of cement (50/50 POZ "G" w/ 20% silica flour, 3% gel, 0.1% sodim metasilicate and 0.4% FL-52, Mixed at 13.5 ppf and 1.71 (yield) cuft/sk), displace with 25 bbl (leave approximately 1 bbl cement in tbg to be dumped on CICR while stinging out). Volumes calculated using 140' between 9.5" hole and 4-1/2" casing + 20% excess, with perfs @ 6,840' & 6,700' and CICR @ 6,840'
- 15 Sting out of CICR and dump remaining cement on CICR.
- 16 TOOH to have EOT at 5,700' (1,000' above top perf holes). Reverse circulate down csg an up tbg using biocide treated water, 2x tubing capacity and have clean returns (approximately 44 bbl if EOT is at 5,700').
- 17 WOC minimum 36 hours; TOOH with tbg, standing back.

Well needs 5,000 psi rated wellhead, Remedial Cement above NB,
Pressure test to 500 psi, and production packer installed

Associated well: APC FARLEY 15-23HZ pad

Gyro ran: 3/16/2012

TOC: 6,880'; NB top: 7,160'

Shortest Distance: 142'

NPV: \$301M; Well has squeeze holes @ 7000'

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- 18 ND BOP, ND existing tbg head off of 4-1/2" csg and install new WHI 5,000 psi flanged tubing head complete w/ 5,000 psi rated casing valves. Install 7-1/16", 5,000 psi tubing head adaptor w new 5,000 psi master valve w/ 2-3/8" 8rd threaded connection. (DO NOT PRESSURE TEST TBG HEAD UNTIL AFTER CBL IS RUN)
- 19 ND tubing head adaptor and master valve, NU BOP
- 20 PU & TIH with 3-7/8" bit (rock, blade, etc.) and 2-3/8" TBG. Drill out CIGR and cement to below perf holes at 6,840'. NOTE: IF CEMENT IS ABOVE PERF HOLES AT 6,700', TEST SEPERATLEY FROM PERF HOLES AT 6,840'.
- 21 Pressure test perf holes to 500 psi for 15 min.
- 22 MIRU E-Line service company.
- 23 PU and RIH w/ CCL-CBL-VDL tools and log from CIBP at 6,920' to surface. NOTE: TOC MUST BE ABOVE 6,760' (400' ABOVE TOP OF NIOBRARA FORMATION AT 7,160'). IF INSUFFICIENT CEMENT CONTACT EVANS OFFICE FOR NEW PROCEDURE.
- 24 POOH, RDMO E-Line service company.
- 25 Drill out CIBP at 6,920' and push to bottom if necessary
- 26 TOOH w/ 2-3/8" tbg and 3-7/8" bit, stand back tbg, LD bit
- 27 MIRU wireline service company.
- 28 PU 2-3/8" NC, 2-3/8" XN profile nipple (make sure nipple is properly input into Open Wells), 30 joints 2-3/8" TBG, Arrowset AS-1X packer rated to 10,000psi, 2-3/8" TBG and TIH (Hyrdotest TBG while RIH) set packer @ 6,910'. (EOT should be +/- 7,838')
- 29 Fill 2-3/8" to 4-1/2" annulus with biocide treated water. Pressure test to 500psi for 15 minutes.
- 30 ND BOP, NU WH, make sure all valves on TBG head are rated to 5,000psi (2 CSG valves & master valve).
- 31 Install 2-3/8" pup joint above master valve. Pressure test TBG head from below TBG head through master valve w/ hyrdotester to 5000psi.
- 32 RU rig lubricator. Broach TBG to SN. RD rig lubricator.
- 33 RDMO WO Rig.
- 34 Return well to production team.
- 35 END OF SAFETY PREP PROCEDURE, STEPS BELOW ARE FOR UNPREPPING WELL AFTER ALL COMPLETION ACTIVITIES ARE COMPLETE WITHIN 2000' AND NOTIFICATION IS SENT TO UN-PREP THE WELL.
- 36 When notification is sent to un-prep well, MIRU slickline service company. RIH and tag for fill. Note tagged depth in Open Wells.
- 37 Prep location for base beam equipped workover rig.
- 38 MIRU workover rig. Check well for pressure. Blow down pressure as needed.
- 39 ND WH, NU BOP.
- 40 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 re-dressed.

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- 41 PU and TIH w/ 2-3/8" NC, 2-3/8" XN profile nipple, 2-3/8" TBG (ensure Open Wells correctly reflects TBG configuration).
TIH and circulate clean to 7,987' (PBMD). Use nitrogen if/when necessary to assist with the J-sand cleanout. PUH to land tubing with EOT @ 7,838' (One joint above top J-sand perf)
- 42 RU rig lubricator. Broach TBG to SN. RD rig lubricator.
- 43 ND BOP. NU WH.
- 44 RDMOSU. Return well to production team.

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