

## West Farm 5-14A: Niobrara Squeeze/Production Packer/Replace WH

- 1 Well needs Niobrara squeeze, production packer, and a WH rated to 5000 psi.
- 2 Call automation removal group 24 hours before rig up to isolate any production equipment (remove plunger, wellhead automation, etc.). Prepare to move base beam rig onto location. Install fence if needed.
- 3 Check and report surface casing pressure. If valve is not accessible at ground level, re-plumb so valve is at ground level.
- 4 MIRU slickline. RIH to retrieve production equipment and tag for fill. Last tagged depth on 3/23/2010 was 7579'. Note tagged depth in OpenWells. RDMO slickline.
- 5 MIRU WO rig. Kill well as necessary with water and biocide. ND wellhead. NU BOP.
- 6 Unland 2-3/8" tbg and lay down landing joint.
- 7 MIRU EMI services. EMI 2-3/8" tbg while TOO H and tally while standing back. Lay down joints that have greater than 35% penetration or wall loss. Replace all joints that fail EMI testing. Document joint numbers and depth of bad tubing and create a Production Equipment Failure report in OpenWells. RDMO EMI services.
- 8 PU 4 1/2" CIBP and RIH on 2 3/8" tbg. Set CIBP @ 6810' (collars @ 6794' and 6836')
- 9 Release tbg from CIBP and circulate all gas out of the hole. Pumping water with biocide, pressure test CIBP and production casing to 1,000 psi for 15 minutes. If pressure test passes, proceed; otherwise contact engineering.
- 10 Bleed off pressure and TOO H standing back all 2 3/8" tbg. Load hole with biocide treated water.
- 11 MIRU WL. PU and RIH with 3-1/8" guns and shoot squeeze holes at 6610' using 3 SPF, 0.42" EHD, 120 deg phasing. RD WL.
- 12 PU and TIH with CICR, and 2-3/8" tbg and set CICR at 6570' (collars at 6584' and 6542').
- 13 MIRU cementing services. Establish injection rate with water and pump 100 sx Poz:G:Gel + 20% silica, 0.4% CFL-3 + 0.4% CHR-2 + 0.1% SMS mixed at 13.5 ppg and 1.66 cuft/sx. (cement volumes based on 400' of 8" hole with 20% excess). Displace cement to the CICR using 24 bbl of water. Sting out of CICR. RDMO cementing services.
- 14 Reverse circulate using or until returns are clean.
- 15 TOO H and stand back all 2-3/8" tbg. Allow cement to set up per cement company recommendations.
- 16 PU and TIH with 3-7/8" blade bit and 2-3/8" tbg to CICR. Drill out CICR and cement past lower perfs at 6610' and pressure test to 1000 psi for 15 minutes. If pressure test passes, drop down to 6810' and drill up CIBP. If PT fails, contact engineering.
- 17 TOO H and stand back all 2-3/8" tubing. LD 3-7/8" bit. Load hole with biocide treated water.
- 18 MIRU wireline services. RIH with CCL-GR-CBL-VDL. Log from +/- 6810' (depth of CIBP) to surface. Email results to Evans Engineering. If the cement is not above 6456' contact engineer. RDMO wireline services.
- 19 ND BOP.
- 20 ND existing tubing head off the 4.5" casing and install new WHI 5,000 psi flanged tubing head complete with 5,000 psi rated casing valves and XXH nipples.
- 21 NU BOP.
- 22 PU and TIH with 3-7/8" blade bit and 2-3/8" tbg to CIBP at +/- 6810'. Drill out CIBP.
- 23 TOO H and stand back all 2-3/8" tubing. LD 3-7/8" bit.
- 24 PU 2-3/8" NC, 2-3/8" XN nipple (be sure nipple is correctly input into OpenWells), 23 joints of 2-3/8" 4.7# J-55 tbg, Arrowset AS-1X packer rated to 10,000 psi for 4-1/2", 11.6#/ft casing, and 2-3/8" tbg to surface. Set packer at +/- 6,820'. Land EOT at +/- 7531' (1 joint above the top J-sand perfs).
- 25 Load 2-3/8" x 4-1/2" annulus with biocide treated water and pressure test to 1,000 psi for 15 minutes to be sure packer is set properly.
- 26 RU rig lubricator. Broach tubing to seating nipple. RD rig lubricator. ND BOP.
- 27 Install 7-1/16" x 5,000 psi tubing head adaptor with new 5,000 psi master valve with flanged 2-3/8" connection. Make sure all wellhead valves are rated to 5,000 psi and nipples are XXH.
- 28 Install 2-3/8" pup joint above the master valve. Pressure test the tubing head from below the tubing head through the master valve to 5,000 psi using hydrotester.
- 29 RDMO WO rig. Return well to production team.
- 30 END OF SAFETY PREP STEPS. BELOW ARE STEPS FOR UN-PREPPING THE WELL

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- 31 When notification is sent to un-prepare the well, MIRU WO rig. Kill well as necessary with water and biocide. ND wellhead. NU BOP.
- 32 Unland 2-3/8" tubing and lay down landing joint.
- 33 Release Arrowset AS-1X packer and TOOH standing back all 2-3/8" tubing and LD packer. Return packer to shop it was purchased from and have the packer redressed.
- 34 If sand fill was tagged above 7622' (depth of bottom J sand perfs) on initial safety prep, then either reverse circulate to cleanout well to PBMD at +/- 7688'. Otherwise proceed to next step.
- 35 PU 2-3/8" NC, 2-3/8" XN nipple (be sure nipple is correctly input into OpenWells), and 2-3/8" 4.7# J-55 tubing to surface. Land EOT at +/- 7531' (1 joint above top J Sand perfs).
- 36 RU rig lubricator. Broach tubing to XN seating nipple. RD rig lubricator. ND BOP. NU WH.
- 37 Install 7-1/16" x 5,000 psi tubing head adaptor and 5,000 psi master valve with flanged 2-3/8" connection. Make sure all wellhead valves are rated to 5,000 psi, and nipples are XXH.
- 38 Install 2-3/8" pup joint above the master valve. Pressure test the tubing head from below the tubing head through the master valve to 5,000 psi using hydrotester. If wellhead does not pressure test, replace wellhead/ wellhead valves as necessary with 5,000 psi rated equipment.
- 39 NU WH. RDMO WO rig. Return well to production team.