



Anadarko Petroleum Corp.  
Evans Office  
4000 Burlington Avenue  
Evans, CO 80620  
970-330-0614

## Workover Authorization

Prognosis Writer: Leila Shahryari

Prognosis Date:

SEC FOUR 21-4

STIP:

START:

END:

WINS ID: 15945

AREA S S37 Location: NWNW Section 4 Township: 1N Range: 68

Workover Type: BRADENHEAD

SubActivity Type:

Estimated Cost: \$77,500.00

Estimated BOE increase:

Payout (months): NA

Latest YE NPV @ 10%: \$674,253

Current LOE:

Incremental LOE:

Workorder Number: 88413193

State Form: FORM 4

Approved:

APC223 Approved:

Working interest: NB-CD 50.063307%

Comments:

Well has problems with bradenhead pressure. The bradenhead pressure needs to be removed.

Approved	Leila Shahriari	Date	9/11/13	Area Engineer
Approved	Not Zennad	Date	9/11/13	Engineering Manager
Approved	[Signature]	Date	9/11/13	Area Superintendent

#### Sec Four 21-4

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 through hardline to a tank and bleed off the pressure before the rig gets on location.
3. Check and report surface casing pressure prior to bleeding off. If surface casing is not accessible at ground level, re-plumb so valve is at ground level.
4. If the tubinghead is not rated to 5000 psi then replace the wellhead and all the valves and fittings to make the tubinghead good to 5000 psi.
5. Spot a minimum of 12 jts of 2-3/8", 4.7#, J-55, EUE tbg for replacement and 85 jts 1-1/4", 2-33#/ft, J-55, 10rd IJ for annular cement job.
6. MIRU WO rig. Kill well, as necessary, with freshwater treated with biocide. ND wellhead. NU BOP.
7. MIRU slickline. Fish plunger if necessary and tag for PBTD (8032'). RDMO slickline.
8. PUH with tubing string to break any possible sand bridges, unseat landing joint and lay down. Do not exceed tubing tensile strength of 57,384 lbs (80% of upset joint yield strength).
9. MIRU "EMI". TOOH with 2-3/8" tubing. EMI tubing while TOOH. Lay down 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. Clearly mark all junk (red band) tubing sent to the yard.
10. TIH with 2-3/8" tbg and 4.5" RBP and packer (4.5" csg 11.6#, I-80). Set RBP @ +/-7610', (60' above NB perms @ 7670'-7789', collars are at 7589' and 7630'). Pressure test the RBP and casing to 5000 psi. spot 2 sx of sand on top of RBP and trip out of the hole with Packer.
11. Hydrotest casing with 5000 psi for 15 min. above RBP.
12. ND BOP's. ND wellhead. Un-land 4 1/2" casing string. NU double entry flange. NU BOP.
13. PU 1-1/4" 2.3#/ft J-55 10rd IJ tubing, and TIH outside 4-1/2" casing in open hole to 2450' (Existing TOC @ 2524'). Circulate with freshwater treated with biocide to clean up annulus while TIH.
14. MIRU cement services and water truck containing fresh water for cementing. Circulate on bottom with freshwater treated with biocide until returns clean up with rig pump.
15. Rig up cement trucks.
16. Pump **100 Bbls** of 9 ppg drilling mud followed with 5 Bbls. freshwater and cement job consisting of 20 Bbls Sodium Metasilicate followed by **405 sx**, 8" hole w/ 20% excess (Cement from 2450'-700') 15.8 ppg, 1.15 cuft/sx neat Class G cement with 1/4 #/sx cello-flake. The cement to be retarded for 125 degree Fahrenheit for six hour pump time.
17. Trip out of the hole with 1-1/4" tubing to 400'. Reverse circulate the tubing clean with drilling mud. Trip out of the hole laying down tubing.
18. ND BOP. ND double entry flange and crossover. Pick up and land 4-1/2" casing in slips. NU tubing head. NU BOP SDFN to WOC.
19. MIRU wireline services.

20. PU and RIH with CCL-GR-CBL-VDL. Run from 2500' to surface or the top of cement, to verify cement coverage. Notify the Engineer of the top of cement. RDMO wireline.
21. PU and TIH with 2-3/8" tbg and retrieving head. Circulate sand off RBP at @ +/-7610'. TOOH with RBP and standing back tubing.
22. Bail if the need be.
23. TIH 2-3/8" NC, 2-3/8" SN, and 2-3/8" 6.5# J-55 EUE 8rd tubing. Land tubing at +/- 7874' or 1 joint above the top Codell perforation (7904-7924).
24. Broach tubing to seating nipple. ND BOPs. NU master valve and tubing head adaptor and install 3' pup joint above master valve. Hydrotest tubinghead assembly to 3000 psi for 15 mins. RDMO WO Rig.
25. RDMO WO Rig.
26. Clean location and swab well back to production, if necessary. Notify Foreman/Field Coordinator of finished work and turn well over to production team.