Anadarko Petroleum Corporation

Williams 36-20 BradenHead Procedure

1 Call Foreman or Lead Operator at least 24 hr prior to rig move. If not already completed, request that they catch and remove plunger, isolate production equipment and remove any automation equipment prior to the rig showing up. Install perimeter fence as needed.

2 MIRU slickline. Fish plunger from lubricator. RIH and pull the bumper spring and standing valve if necessary. RBIH with sinker bars and tag bottom. Report findings. PBTD (should be at 7794'). RDMO slickline.

3 Prepare location for base beam rig.

4 Spot 24 jts of 2-3/8" 4.7# J-55 8RD EUE tbg.

5 MIRU WO rig and auxiliary equipment. Check pressures. Rig up one 3" line from the casing head annulus to work tank. Kill well with fresh water. ND tree and adapter flange, NU BOP's.

6 PU 8-10' landing joint. TIW valve on top and screw into the tbg hanger. Back out the lock down pins and pull up on tbg string to break any possible sand bridges, unseat landing joint and lay down. Do not exceed 80% of tubing tensile strength, or **57,384-lb**. Clean out as necessary to 7794'.

7 MIRU EMI equipment. TOOH with 2-3/8" tbg. EMI tbg while TOOH. Lay down joints with wall loss or penetrations >35%. Replace joints as necessary. 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 yard.

8 MIRU wireline, NU lubricator and RIH with Gauge Ring to 6900', POOH.

9 RIH on wireline with 4.5" RBP (Retrievable Bridge Plug). Set RBP at +/- 6800' (Collars at 6785' and 6827'). POOH and Pressure test RBP to 2,000 psi for 15 minutes. ND lubricator.

10 ND BOP, ND tubing head. Install 4-1/2" 7.5K frac valve on 4-1/2" csg.

11 Dump bail 2 sx of sand on top of RBP and POOH.

12 NU lubricator, PU one 3-1/8" 1ft perf gun (3 SPF 0.58" 120° phasing) and RIH to 1750' (Collars at 1728' and 1770'), Fire gun and perforate 1ft.

13 POOH with wireline. RDMO wireline.

14 Establish circulation down csg up annulus and make certain well is dead.

15 NU cement head and RU cement services. Circulate 125 bbls (1.5 x annular volume) of 9.0ppg mud at 10bpm, followed by a 30bbl (5bbls water, 20bbls SMS, 5bbls water) spacer. Prepare to cement.

16 Mix and pump **~64bbls (235 sx)** of 14.0 ppg (1.53 cuft/sk) Type III w/cello-flake and CaCL2.

17 Shut down, Drop wiper plug and displace 1bbl of cement on top of wiper plug followed by 24 bbls of fresh water, break lines and clean. **Note: Under displace to within no more than 150ft of perfs,** catch final displacement pressure, shut in 4-1/2" frac valve.

18 ND cementing head and RDMO cement company.

19 Leave well shut in overnight.

20 ND 4-1/2" frac valve, NU BOP's. PU 3-7/8" bit and TIH with 2-3/8" tbg, rig up power swivel, tag cement and mill until past squeeze holes and TOOH.

21 MIRU wire line and run CCL-GR-CBL-VDL from 1900' to 200' past indicated TOC.

22 RDMO wireline.

23 ND BOP's, NU 4-1/2" 5000 psi tubing head with 2-5000 psi valves. NU BOP's to tubing head. Close the blind rams and pressure test squeeze holes to 1000 psi for 15 min.

24 PU and TIH with 2-3/8" tbg and retrieving head. Circulate sand off RBP at +/- 6800'. TOOH with RBP and SB tbg.

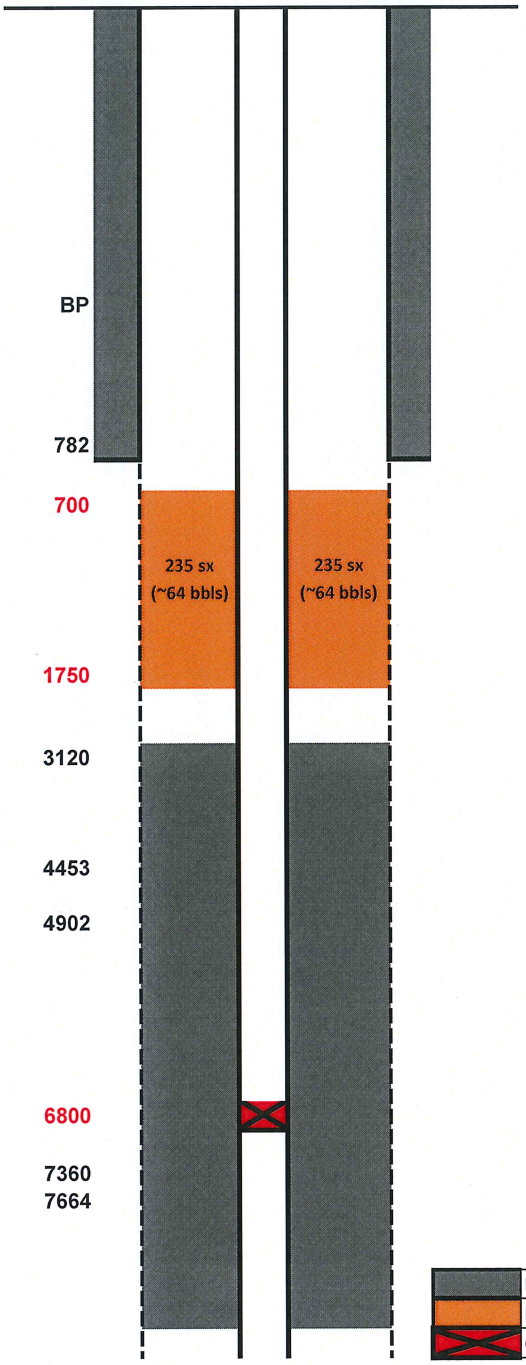
25 TIH with 2-3/8" NC, 2-3/8" XN SN and 2-3/8" 4.7# J55 EUE tbg, circulate out fill if necessary to 7794'. Land tbg @ +/- 7631'.

26 Broach tubing to seating nipple. ND BOP's, NU master valve and tubing head adaptor. Hydrotest tubing head to 5000 psi for 15 minutes.

27 RDMO WO rig.

28 Clean location and swab well back to production. Notify field foreman/field coordinator of finished work and turn well back over to production team.

Williams 36-20 05-123-28067 Proposed WBD
(Bradenhead)
7-7/8" Prod Hole



Between 8-5/8" Casing 24# and 4.5" casing	0.24715	ft^3/ft
Between 8-5/8" Casing 24# and 4.5" casing	0.04402	bbl/ft
7 7/8" Open hole and 4.5" casing	0.2278	ft^3/ft
7 7/8" Open hole and 4.5" casing	0.0406	bbl/ft
8" Open hole and 4.5" casing	0.2386	ft^3/ft
8" Open hole and 4.5" casing	0.0425	bbl/ft
8.5" Open hole and 4.5" casing	0.2836	ft^3/ft
8.5" Open hole and 4.5" casing	0.05051	bbl/ft
9" Open hole and 4.5" casing	0.3313	ft^3/ft
9" Open hole and 4.5" casing	0.0590	bbl/ft
10" Open hole and 4.5" casing	0.4350	ft^3/ft
10" Open hole and 4.5" casing	0.0775	bbl/ft
10.5" Open hole and 4.5" casing	0.4909	ft^3/ft
10.5" Open hole and 4.5" casing	0.0874	bbl/ft
11" Open hole and 4.5" casing	0.5495	ft^3/ft
11" Open hole and 4.5" casing	0.0979	bbl/ft
12.5" Open hole and 4.5" casing	0.7417	ft^3/ft
12.5" Open hole and 4.5" casing	0.1321	bbl/ft
Class Cement yield (zone 1, SX/SH) 15.8ppg	1.15	ft^3/ft
Class Cement yield (zone 2, Fox Hills) 14ppg	1.53	ft^3/ft

0.2	Excess

Zone 2 (Fox Hills)

(0.2836*(1750 - 700'))/1.53 * 1.2 = 235 sx

(0.05051*(1750 - 700')) * 1.2 = 64 bbls

Existing Cement
Proposed Cement
CBP