

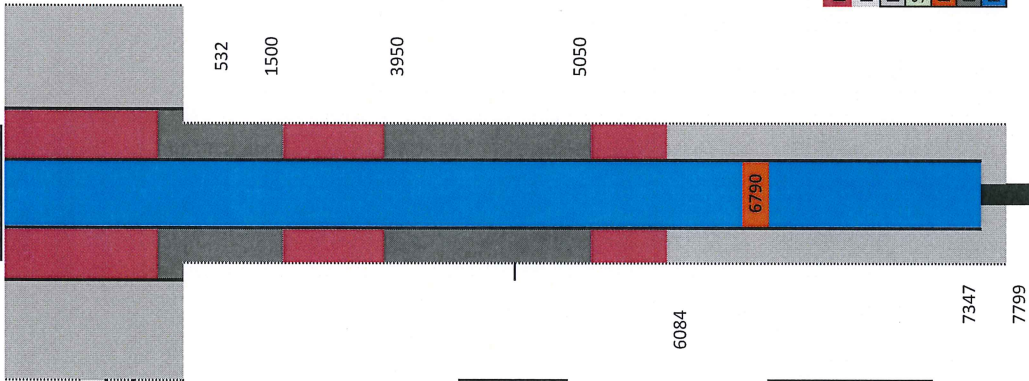
Clack 1-2A – Bradenhead Procedure

- 1 Call Wattenberg IOC (970-506-5980) at least 24 hrs 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 Slick line. Fish plunger if necessary and tag PBMD (Should be 7799').
- 3 A gyro survey of this well will need to be completed before any work begins. Email results of gyro survey to engineering for review prior to un-landing casing in step #15.
- 4 Prepare location for base beam rig.
- 5 Spot 25 jts of 2-3/8" 4.7# J-55 8RD EUE tbg.
- 6 Spot 175 jts of 1-1/4" 2.33# J-55 10rd IJ tbg.
- 7 Check wellhead for 5,000 psi rating. If wellhead is not rated to 5,000 psi, install one that is prior to completing the job.
- 8 MIRU WO rig. Kill well with fresh water with biocide. ND wellhead, NU BOP.
- 9 Run two 2" lines from starting head to return tanks.
- 10 PU 8-10' landing joint with TIW safety valve on top and screw into the tbg hanger. Back out the lock down pins and pull up on the tbg string to break any possible sand bridges. Do not exceed 80% of tubing tensile strength, or 57,384-lb.
- 11 Unseat tbg hanger and LD tbg hanger and landing joint. Install rubber wiper in stripping head.
- 12 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. Keep yellow and blue band tubing. Note joint number and depth of tubing leak(s) on production equipment failure report in OpenWells. Clearly mark all junk (red band) tubing sent to yard.
- 13 PU and TIH with 226 jts of 2-3/8" 4.7# J55 tbg with 4.5" RBP (4.5" 11.6# I-70). Set RBP at +/- 6790' (Collars at 6772' and 6806'). Spot 2 sx sand on top of RBP. TOOH. SB tbg.
- 14 Pressure test RBP to 1,000 psi for 15 minutes. (Pressure test to make sure plug is set correctly)
- 15 ND BOP, ND tubing head. Un land 4-1/2" 11.6 I-70# csg. NU double entry flange, NU BOP.
- 16 PU and TIH with 175 jts of 1-1/4" 2.33# J-55 10rd IJ tbg outside 4 1/2" csg to +/- 5250'.
- 17 Circulate 366 bbls with rig pump (Circulate at least 1.5x annular volume from 5250').
- 18 TOOH with 7 jts 1-1/4" tbg to 5050'.
- 19 MIRU Cement company. Commence pumping cement job consisting 20 bbl fresh water, 20 bbl sodium meta silicate and 5 bbl fresh water; 61 bbl (310 sx) of G" with 1/4 lb/sk cello-flake mixed at 14.6 ppg and 1.12 cuft/sk blended for a 6 hr pump time (Cement from +/- 5050' to 3950').
- 20 TOOH with 46 jts of 1-1/4" 2.33# to +/- 3670' and circulate 2x tbg volume to clean up.
- 21 TOOH with 72 jts of 1-1/4" 2.33# to +/- 1500'.
- 22 If both cement stages cannot be pumped the same day, circulate 1.5x annular volume from 1500' prior to pumping 2nd stage.
- 23 Commence pumping cement job at max rate achievable consisting 5 bbl fresh water, 20 bbl sodium meta silicate and 5 bbl fresh water; 54 bbl (270 sx) of Type III with 1/4 lb/sk cell-flake mixed at 14.8 ppg and 1.33 cuft/sk blended for a 3 hr pump time (Cement from 1500' to 532').
- 24 TOOH with remaining 1-1/4" 2.33# and LD.
- 25 Break lines and clean up with fresh water. RMDO cement company.
- 26 ND BOP, ND double entry flange, re-land 4-1/2" I70 csg NU BOP.

- 27 Leave well shut in for minimum of 24 hours.
- 28 MIRU wire line and run CCL-GR-CBL-VDL from 5250' to 0'. If Sh/Sx cement plug is not above 3950' or Fox Hill plug is not above 532', contact engineering for further instructions. RDMO wire line.
- 29 Pressure test casing to 5,000 psig. If pressure test does not hold call engineering.
- 30 TIH with 2-3/8" tbg and retrieving head and tag sand above RBP @ +/- 6790'. Circulate sand off RBP, latch onto RBP and TOOH. SB tbg, LD RBP.
- 31 PU and TIH with 12 jts 1-1/4" 2.33# tbg, 2-3/8" XN, 221 jts 2-3/8" tbg. Land 1-1/4" tbg @ +/- 7630' (1 jt above top J-Sand perf).
- 32 ND BOP, NU master valve.
- 33 Install 7 1/16" x 5,000 psi tubing head adaptor with new 5,000 psi master valve threaded 2 3/8" connection. Make sure all wellhead valves are rated to 5,000 psi.
- 34 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 with hydro tester. NU 5k wellhead.
- 35 RDMO WO rig. Return well to production team.
- 36 Clean location and swab well back to production. Notify field foreman/field coordinator of finished work and turn well back over to production team.

Existing

KB=10'
Clack 1-2A
API#0512316540



8-5/8" 24#/ft L-55 STC	
12-1/4"	
Surface casing	632
Fox Hills Base	241

Sussex Top	No perfs	4150
Shannon Base	No perfs	5000

TOC 6084

Niobrara Top	6913-7089	6913
Codell Top	7206-7225	7205
J Sand Top	7666-7698	7653

4-1/2" 11.6 #/ft L-70 LTC

2-7/8" 6.5# N-80

Type III	Fox Hill Plug	
	Wellbore Diameter (in)	8.25
	Hole/Csg Capacity (ft3/ft)	0.26
	Cement Coverage Height (ft)	968
	Cement Volume (ft3)	252
	20% Excess (ft3)	303
	Cement Vol (bbl)	54
	Sx	268
	Circ Volume (bbl)	105

G"	Shannon/Sussex Plug	
	Wellbore Diameter (in)	8.25
	Hole/Csg Capacity (ft3/ft)	0.26
	Cement Coverage (ft)	1100.00
	Cement Volume (ft3)	286.85
	20% Excess (ft3)	344.23
	Cement Vol (bbl)	61.31
	Sx	307
	Circ Volume (bbl)	366

Mud
New Cement
Existing cement
Sand Plug
RBP
New Cement
Fresh Water w/ Bio