Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 8/22/2014
Invoice # 45021
API# 05-123-39723
Foreman: JASON KELEHER

Customer: EnCana Oil & Gas (USA) Inc.

Well Name: DALE 4E-20H-0264

County: Weld
State: Colorado

Sec: 20
Twp: 2N
Range: 64W

Consultant: RANDY
Rig Name & Number: H&P 278
Distance To Location: 22
Units On Location: 4031-3106/ 4033-3210
Time Requested: 900
Time Arrived On Location: 800
Time Left Location: 1230

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	40.00
Casing Depth (ft.) :	1,095
Total Depth (ft) :	1136
Open Hole Diameter (in.) :	12.25
Conductor Length (ft) :	140
Conductor ID :	15.25
Shoe Joint Length (ft) :	46
Landing Joint (ft) :	29
Max Rate:	7
Max Pressure:	2500

Cement Data

Cement Name: BFN III

Cement Density (lb/gal) :	15.2
Cement Yield (cuft) :	1.27
Gallons Per Sack:	5.89
% Excess:	17%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	28.0
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
30BBL H2O W/KCL, Dye in 2nd 10

Casing ID 8.835 Casing Grade J-55 only used

Calculated Results

cuft of Shoe (Casing ID Squared) X (.005454) X (Shoe Joint ft)	19.68	cuft
cuft of Conductor (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	106.84	cuft
cuft of Casing (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	349.40	cuft
Total Slurry Volume (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	475.92	cuft
bbls of Slurry (Total Slurry Volume) X (.1781)	84.76	bbls
Sacks Needed (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	375	sk
Mix Water (Sacks Needed) X (Gallons Per Sack) ÷ 42	52.55	bbls

Displacement: 81.75 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 864.76 PSI

Pressure of the fluids inside casing

Displacement:	452.30 psi
Shoe Joint:	36.50 psi
Total	488.79 psi
Differential Pressure:	375.97 psi
Collapse PSI:	2570.00 psi
Burst PSI:	3950.00 psi
Total Water Needed:	184.30 bbls

x Randy Burke
Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.

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LOCATION	Weld
FOREMAN	JASON KELEHER
Date	8/22/2014

Customer	EnCana Oil & Gas (USA) Inc.
Well Name	DALE 4E-20H-0264

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DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
Safety Meeting	930	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
MIRU	800	0	1040	0	0			0			0			0		
CIRCULATE	1004	10	1042	40	10			10			10			10		
Drop Plug		20	1044	40	20			20			20			20		
1039		30	1046	180	30			30			30			30		
		40	1050	280	40			40			40			40		
M & P		50	1052	500	50			50			50			50		
Time	Sacks	60	1054	570	60			60			60			60		
1010-1036	375	70	1056	620	70			70			70			70		
		80	1058	490	80			80			80			80		
		90	1100	520	90			90			90			90		
		100	BUMP	1040	100			100			100			100		
		110			110			110			110			110		
% Excess	17%	120			120			120			120			120		
Mixed bbls	52.55	130			130			130			130			130		
Total Sacks	375	140			140			140			140			140		
bbl Returns	28	150			150			150			150			150		
Water Temp	65															

Notes:

The day

PRESSURE TESTED TO 2000 PSI AT 1001, PUMPED 30 BBL WATER 2ND 10 HAVING DYE AT 1004, MIXED AND PUMPED 375 SKS AT 15.2, 84.7 BBL AT 1010

SHUT DOWN AT 1036, DROPPED PLUG AT 1039, STARTED DISPLACEMENT AT 1040, PUMPED 81 BBL LANDING AT 520 PSI AND PRESSURED UP TO 1040

PSI AT 1100, RELEASED PRESSURE AFTER HOLDING FOR 2 MINUTES AND CHECK FLOATS GOT .5 BBL BACK, REPRESSURED WELL AT 1107 TO 1500 PSI FOR

15 MINUTES AND RELEASED

X Randy Burke
Work Preformed

X
Title

X
Date