



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/18/2014
 Invoice # 4501
 API# 05-123-39727
 Foreman: JASON KELEHER

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

County: Weld Consultant: RANDY
 State: Colorado Rig Name & Number: H&P 278
 Distance To Location: 22
 Sec: 20 Units On Location: 4031-3106/ 4024-3203
 Twp: 2N Time Requested: 430
 Range: 64W Time Arrived On Location: 330
 Time Left Location: 1100

WELL DATA	Cement Data
Casing Size OD (in) : <u>9.625</u>	Cement Name: <u>BFN III</u>
Casing Weight (lb) : <u>40.00</u>	Cement Density (lb/gal) : <u>15.2</u>
Casing Depth (ft.) : <u>1,070</u>	Cement Yield (cuft) : <u>1.27</u>
Total Depth (ft) : <u>1111</u>	Gallons Per Sack: <u>5.89</u>
Open Hole Diameter (in.) : <u>12.25</u>	% Excess: <u>27%</u>
Conductor Length (ft) : <u>140</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.25</u>	BBL to Pit: <u>33.0</u>
Shoe Joint Length (ft) : <u>42</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>29</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>7</u>	Spacer Ahead Makeup
Max Pressure: <u>2500</u>	<u>30BBL H2O W/KCL, Dye in 2nd 10</u>

Calculated Results	Pressure of cement in annulus
Casing ID <u>8.835</u> Casing Grade <u>J-55 only used</u>	Displacement: <u>80.15 bbls</u> (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe <u>17.88 cuft</u> (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus
cuft of Conductor <u>106.84 cuft</u> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: <u>844.78 PSI</u>
cuft of Casing <u>370.43 cuft</u> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume <u>495.15 cuft</u> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: <u>443.20 psi</u>
bbls of Slurry <u>88.19 bbls</u> (Total Slurry Volume) X (.1781)	Shoe Joint: <u>33.17 psi</u>
Sacks Needed <u>390 sk</u> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total <u>476.37 psi</u>
Mix Water <u>54.68 bbls</u> (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: <u>368.41 psi</u>
	Collapse PSI: <u>2570.00 psi</u>
	Burst PSI: <u>3950.00 psi</u>
	Total Water Needed: <u>184.83 bbls</u>

X Randy Bunke
 Authorization 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.



**Bison Oil Well Cementing
Single Cement Surface Pipe**

Customer
Well Name

EnCana Oil & Gas (USA) Inc.
DALE 4I-20H-0264

INVOICE #
LOCATION
FOREMAN
Date

4501
Weld
JASON KELEHER
8/18/2014

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DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI
Safety Meeting	830															
MIRU	730															
CIRCULATE	857	0	215	0	0			0			0			0		
Drop Plug		10	218	20	10			10			10			10		
926		20	222	40	20			20			20			20		
		30	224	90	30			30			30			30		
		40	226	150	40			40			40			40		
M & P		50	227	240	50			50			50			50		
Time	Sacks	60	229	310	60			60			60			60		
0905-0923	390	70	231	390	70			70			70			70		
		80	233	440	80			80			80			80		
		90	236	410	90			90			90			90		
		100	237	420	100			100			100			100		
		110	BUMP	1010	110			110			110			110		
% Excess	27%	120			120			120			120			120		
Mixed bbls	54.65	130			130			130			130			130		
Total Sacks	390	140			140			140			140			140		
bbl Returns	33	150			150			150			150			150		
Water Temp	69															

Notes:

The day

PRESSURE TESTED TO 2000 PSI AT 0853, PUMPED 30 BBL WATER 2ND 10 HAVING DYE AT 0857, MIXED AND PUMPED 390 SKS AT 15.2, 88.2 BBL AT 0905
SHUT DOWN AT 0923, DROPPED PLUG AT 0926, STARTED DISPLACEMENT AT 0927, PUMPED 80.1 BBL LANDING AT 490 PSI AND PRESSURED UP TO 1040
PSI, RELEASED PRESSURE AND CHECK FLOATS GOT .25 BBL BACK, REPRESSURED WELL AT 0953 TO 1500 PSI FOR 15 MINUTES AND RELEASED

X Randy Burke
Work Preformed

X _____
Title

X _____
Date