



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/11/2014
Invoice #: 65039
API#: 05 123 40281
Foreman: Lee Sharp

Customer: EnCana Oil & Gas (USA) Inc.
Well Name: ruhl1C-32h-b264

County: Weld
State: Colorado
Sec: 32
Twp: 2n
Range: 64w

Consultant: Randy
Rig Name & Number: H&P 278
Distance To Location: 24
Units On Location: 4031-3106/
Time Requested: 11:00 AM
Time Arrived On Location: 10:45 AM
Time Left Location:

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 40.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft) : 1,210	Cement Yield (cuft) : 1.27
Total Depth (ft) : 1220	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 25%
Conductor Length (ft) : 120	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.625	BBL to Pit: 13.0
Shoe Joint Length (ft) : 46	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 0	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	10F+10D+10F=30BBL

Casing ID: 8.835	Casing Grade: J-55 only used
Calculated Results	Displacement: 88.23 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe 19.74 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus
cuft of Conductor 99.15 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 955.42 PSI
cuft of Casing 426.71 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 545.60 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 501.74 psi
bbls of Slurry 97.17 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 36.61 psi
Sacks Needed 430 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 538.35 psi
Mix Water 60.25 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 417.07 psi
	Collapse PSI: 2570.00 psi
	Burst PSI: 3950.00 psi
	Total Water Needed: 198.48 bbls
<div>X <u>Randy Burke</u> Authorization to Proceed</div> <p>Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.</p>	



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

Customer
Well Name

EnCana Oil & Gas (USA) Inc.
ruh11C-32h-b264

INVOICE #
LOCATION
FOREMAN
Date

65039
Weld
Lee Sharp
12/11/2014

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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	14:00															
MIRU	13:45															
CIRCULATE	14:30	0	15:03		0			0			0			0		
Drop Plug		10	15:05	20	10			10			10			10		
15:03		20	15:07	20	20			20			20			20		
		30	15:10	60	30			30			30			30		
		40	15:12	300	40			40			40			40		
M & P		50	15:14	375	50			50			50			50		
Time	Sacks	60	15:16	500	60			60			60			60		
14:40-15:03	430	70	15:19	500	70			70			70			70		
		80	15:21	550	80			80			80			80		
		90	Land	1000	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
% Excess	24%	130			130			130			130			130		
Mixed bbls	60	140			140			140			140			140		
Total Sacks	428	150			150			150			150			150		
bbl Returns	10															
Water Temp	100															

Notes:

The day

X

Randy Suke
Work Performed

X

Title

X

Date

12/11/14