



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/13/2014

Invoice #: 65041

API#

Foreman: Lee Sharp

Customer: EnCana Oil & Gas (USA) Inc.

Well Name: Ruhl 1E-32H-B264

County: Weld

State: Colorado

Sec:

Twp:

Range:

Consultant:

Rig Name & Number: H&P 278

Distance To Location: 26

Units On Location: 4031-3106/4024-3203

Time Requested: 3:00am

Time Arrived On Location: 2:30am

Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
 Casing Weight (lb) : 40.00
 Casing Depth (ft.) : 1,219
 Total Depth (ft) : 1229
 Open Hole Diameter (in.) : 12.25
 Conductor Length (ft) : 110
 Conductor ID : 15.625
 Shoe Joint Length (ft) : 46
 Landing Joint (ft) : 0

Max Rate:

Max Pressure:

Cement Data

Cement Name: BFN III
 Cement Density (lb/gal) : 15.2
 Cement Yield (cuft) : 1.27
 Gallons Per Sack: 5.89
 % Excess: 25%
 Displacement Fluid lb/gal: 8.3
 BBL to Pit: 14.0
 Fluid Ahead (bbls): 15.0
 H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

30bbl 10F 10D 10F

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.69 cuft
 (Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 90.89 cuft
 (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 434.14 cuft
 (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 544.72 cuft
 (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 97.01 bbls
 (Total Slurry Volume) X (.1781)

Sacks Needed 429 sk
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 60.15 bbls
 (Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 88.92 bbls
 (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 962.52 PSI

Pressure of the fluids inside casing

Displacement: 505.67 psi

Shoe Joint: 36.51 psi

Total: 542.18 psi

Differential Pressure: 420.34 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 184.07 bbls

X Randy Bunker
 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.
Ruhl 1E-32H-B264

INVOICE #
LOCATION
FOREMAN
Date

65041
Weld
Lee Sharp
12/13/2014

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DESCRIPTION OF JOB EVENTS

	Time	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	6:00															
MIRU	5:30															
CIRCULATE	6:50	0	7:22		0			0			0			0		
Drop Plug		10	7:25	200	10			10			10			10		
	7:22				20	7:27	200	20			20			20		
					30	7:30	225	30			30			30		
					40	7:32	300	40			40			40		
M & P					50	7:34	350	50			50			50		
Time	Sacks	60	7:36	475	60			60			60			60		
6:55-7:22	428	70	7:38	525	70			70			70			70		
		80	7:40	600	80			80			80			80		
		90	Land	1025	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	25%	120			120			120			120			120		
Mixed bbls	60	130			130			130			130			130		
Total Sacks	428	140			140			140			140			140		
bbl Returns	14	150			150			150			150			150		
Water Temp	50															

Notes:

The day

Job went smoothly with one issue, micromotion failed to read. Did not loose power displayed zeros for duration of job.

Casing test began @ 7:46 1500 psi released at 8:01 floats held with a bbl return.

X Randy Rube
Work Performed

X _____
Title

X _____
Date