



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/14/2014

Invoice # 45090

API# 05-123-40283

Foreman: JASON

Customer: EnCana Oil & Gas (USA) Inc.

Well Name: RUHL 1F-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: 4033-3107, 4022-3213

Time Requested: 1200

Time Arrived On Location: 2300

Time Left Location: 900

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.00
Casing Depth (ft) : 1,186
Total Depth (ft) : 1225
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 149
Conductor ID : 15.25
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 29

Max Rate: 7
Max Pressure: 1500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 15.2
Cement Yield (cuft) : 1.27
Gallons Per Sack: 5.89
% Excess: 28%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

30 BBL W/ KCL, DYE IN 2ND 10

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.23 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 113.71 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 414.08 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 546.01 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 97.25 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 430 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 60.29 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 88.90 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 936.47 PSI

Pressure of the fluids inside casing

Displacement: 492.92 psi

Shoe Joint: 33.81 psi

Total 526.73 psi

Differential Pressure: 409.74 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 199.19 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.



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

Customer
Well Name

EnCana Oil & Gas (USA) Inc.
RUHL 1F-32H-B264

INVOICE #
LOCATION
FOREMAN
Date

45090
Weld
JASON
12/14/2014

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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	545															
MIRU	330															
CIRCULATE	625	0	708	0	0			0			0			0		
Drop Plug		10			10			10			10			10		
705		20			20			20			20			20		
		30			30			30			30			30		
		40			40			40			40			40		
M & P		50			50			50			50			50		
Time	Sacks	60			60			60			60			60		
0634-0700	430	70			70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100	BUMP		100			100			100			100		
		110			110			110			110			110		
% Excess	28%	120			120			120			120			120		
Mixed bbls	60.3	130			130			130			130			130		
Total Sacks	430	140			140			140			140			140		
bbl Returns		150			150			150			150			150		
Water Temp	50															

Notes:

PRESSURE TEST TO 2000 PSI AT 0623, PUMPED 30 BBL WATER WITH DYE IN THE 2ND 10 AT 0625, MIXED AND PUMPED 430 SKS AT 15.2, 97.2 BBL
AT 0634, SHUT DOWN AT 0700, RIG DISPLACED PLUG DUE TO LOSING UPPER RADIATOR HOSE ON HYDROLIC MOTOR ON PUMP TRUCK.

X Pamela Burke
Work Performed

X _____
Title

X _____
Date