



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/11/2014
Invoice #: 65014
API#
Foreman: Lee Sharp

Customer: EnCana Oil & Gas (USA) Inc.
Well Name: Billings 3C-18H

County: Weld
State: Colorado
Sec: 18
Twp: 3N
Range: 68W

Consultant: Mike
Rig Name & Number: Patterson 326
Distance To Location: 22
Units On Location: 4020-3212;4031-3106
Time Requested: 2:00
Time Arrived On Location: 1:40
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.63
Casing Depth (ft.) : 868
Total Depth (ft) : 890
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 155
Conductor ID : 15.25
Shoe Joint Length (ft) : 47
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: 50%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
10F+10D+10F= 30bbl

Casing ID

8.799

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.77 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 118.29 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X
(Conductor Length ft)
cuft of Casing 334.71 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing
Depth - Conductor Length)
Total Slurry Volume 472.77 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 84.20 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 372 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 52.21 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 61.72 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe
Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 684.98 PSI

Pressure of the fluids inside casing

Displacement: 353.85 psi

Shoe Joint: 36.98 psi

Total 390.84 psi

Differential Pressure: 294.14 psi

Collapse PSI: #N/A psi

Burst PSI: #N/A psi

Total Water Needed: 163.93 bbls

X
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**

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Well Name

EnCana Oil & Gas (USA) Inc.
Billings 3C-18H

INVOICE #
LOCATION
FOREMAN
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Weld
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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	3:44															
MIRU	3:20															
CIRCULATE	3:59	0	4:34		0			0			0			0		
Drop Plug		10	4:37	40	10			10			10			10		
4:34		20	4:40	140	20			20			20			20		
		30	4:45	230	30			30			30			30		
		40	4:47	350	40			40			40			40		
M & P		50	4:49	400	50			50			50			50		
Time	Sacks	60	4:52	270	60			60			60			60		
4:05-4:32	372	70	Land	350	70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	50%	120			120			120			120			120		
Mixed bbls	52.21	130			130			130			130			130		
Total Sacks	372	140			140			140			140			140		
bbl Returns	26	150			150			150			150			150		
Water Temp	55															

Notes:

plug landed 3/4 bbl above calculated. Final lift 350 PSI bumped to 500 PSI held for 2 minutes. Increased pressure to 1500 psi for casing test, released checked floats rig down

Tuck had density meter issues, mixed job using cement scales

X

Work Performed

X

Title

X

Date