



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/7/2015
 Invoice # 35101
 API# _____
 Foreman: Kirk Kallhoff

Customer: EnCana Oil & Gas (USA) Inc.
Well Name: file 3h-32h

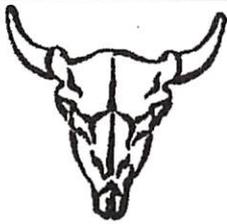
County: Weld Consultant: norman
 State: Colorado Rig Name & Number: paterson 326
 Sec: 32 Distance To Location: 30
 Twp: 2n Units On Location: 4030-3103/4032-3211
 Range: 68w Time Requested: 100 pm
 Time Arrived On Location: 1230 pm
 Time Left Location: 6:00pm

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>806</u>	Cement Yield (cuft) : <u>1.27</u>
Total Depth (ft) : <u>860</u>	Gallons Per Sack: <u>5.89</u>
Open Hole Diameter (in.) : <u>12.25</u>	% Excess: <u>50%</u>
Conductor Length (ft) : <u>100</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>16</u>	BBL to Pit: _____
Shoe Joint Length (ft) : <u>42</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>35</u>	H2O Wash Up (bbls): <u>10.0</u>
Max Rate: _____	Spacer Ahead Makeup _____
Max Pressure: _____	

Calculated Results	Pressure of cement in annulus
cuft of Shoe <u>17.88</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: <u>60.58</u> bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor <u>89.10</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: <u>636.42</u> PSI
cuft of Casing <u>331.66</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume <u>438.63</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: <u>329.42</u> psi
bbls of Slurry <u>78.12</u> bbls (Total Slurry Volume) X (.1781)	Shoe Joint: <u>33.16</u> psi
Sacks Needed <u>345</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total <u>362.59</u> psi
Mix Water <u>48.44</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: <u>273.83</u> psi
	Collapse PSI: <u>2570.00</u> psi
	Burst PSI: <u>3950.00</u> psi
	Total Water Needed: <u>149.02</u> bbls

X [Signature]
 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.
file 3h-32h

INVOICE #
LOCATION
FOREMAN
Date

35101
Weld
Kirk Kallhoff
1/7/2015

Treatment Report Page 2

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	414pm															
MIRU	330pm															
CIRCULATE	433pm	0	504pm	10	0			0			0			0		
Drop Plug		10	507pm	100	10			10			10			10		
504 pm		20	509pm	190	20			20			20			20		
		30	511pm	270	30			30			30			30		
		40	514pm	330	40			40			40			40		
M & P		50	516pm	410	50			50			50			50		
Time	Sacks	60	519pm	350	60			60			60			60		
440 pm	345	70			70			70			70			70		
501 pm stop		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	48.4	130			130			130			130			130		
Total Sacks	345	140			140			140			140			140		
bbl Returns	14	150			150			150			150			150		
Water Temp																

Notes:

plug did not bump
floats held

X Phil Tuzick
Work Performed

X By Supervisor
Title

X 1-7-15
Date