



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/3/2015
 Invoice # 65065
 API# 05-123-39266
 Foreman: Lee Sharp

Customer: EnCana Oil & Gas (USA) Inc.
Well Name: Sprague 3C-9H-N267

County: Weld Consultant: Chris
 State: Colorado Rig Name & Number: Patterson
 Distance To Location: 22
 Sec: _____ Units On Location: 4027-3106/
 Twp: _____ Time Requested: 10:30
 Range: _____ Time Arrived On Location: 10:20
 Time Left Location: 3:15

WELL DATA	Cement Data
Casing Size OD (in) : <u>9.625</u>	Cement Name: <u>BFN III</u>
Casing Weight (lb) : <u>36.00</u>	Cement Density (lb/gal) : <u>15.2</u>
Casing Depth (ft.) : <u>859</u>	Cement Yield (cuft) : <u>1.27</u>
Total Depth (ft) : <u>875</u>	Gallons Per Sack: <u>5.89</u>
Open Hole Diameter (in.) : <u>12.25</u>	% Excess: <u>50%</u>
Conductor Length (ft) : <u>114</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15</u>	BBL to Pit: <u>2025</u>
Shoe Joint Length (ft) : <u>43</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>0</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: _____	Spacer Ahead Makeup
Max Pressure: _____	

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results	Pressure Calculations
cuft of Shoe <u>18.59</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: <u>63.10</u> bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor <u>82.30</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus Hydrostatic Pressure: <u>678.27</u> PSI
cuft of Casing <u>349.98</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: <u>351.92</u> psi
Total Slurry Volume <u>450.86</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Shoe Joint: <u>33.82</u> psi
bbls of Slurry <u>80.30</u> bbls (Total Slurry Volume) X (.1781)	Total <u>385.74</u> psi
Sacks Needed <u>355</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Differential Pressure: <u>292.53</u> psi
Mix Water <u>49.79</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Collapse PSI: <u>2020.00</u> psi
	Burst PSI: <u>3520.00</u> psi
	Total Water Needed: <u>162.88</u> bbls

[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.
Sprague 3C-9H-N267

INVOICE #
LOCATION
FOREMAN
Date

65065
Weld
Lee Sharp
2/3/2015

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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	12:45															
MIRU	12:10															
CIRCULATE	1:33	0	2:04		0			0			0			0		
Drop Plug		10	2:07	60	10			10			10			10		
2:04		20	2:09	70	20			20			20			20		
		30	2:12	190	30			30			30			30		
		40	2:14	290	40			40			40			40		
M & P		50	2:16	320	50			50			50			50		
Time	Sacks	60	2:19	300	60			60			60			60		
1:40-2:00	355	70	2:21	land	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	49.8	130			130			130			130			130		
Total Sacks	355	140			140			140			140			140		
bbl Returns	40.25	150			150			150			150			150		
Water Temp	100															

Notes:

The day

Job completed with no issues

plug landed on calculated

final lift 300 psi land 770 psi held for 2:26 pm

Floats checked and held

X

[Signature]

Work Performed

X

WSH

Title

X

2-3-15

Date