



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/20/2014  
 Invoice # 65019  
 API# \_\_\_\_\_  
 Foreman: Lee Sharp

**Customer:** EnCana Oil & Gas (USA) Inc.  
**Well Name:** Grant Elmquist 2E-14H-C268

County: Weld  
 State: Colorado  
 Sec: 28  
 Twp: 3N  
 Range: 68W

Consultant: Dennis E  
 Rig Name & Number: Ensing 135  
 Distance To Location: 22  
 Units On Location: 4031-3106;  
 Time Requested: 6:30 AM  
 Time Arrived On Location: 5:50 AM  
 Time Left Location: \_\_\_\_\_

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>844</u>	Cement Yield (cuft) : <u>1.27</u>
Total Depth (ft) : <u>850</u>	Gallons Per Sack: <u>5.89</u>
Open Hole Diameter (in.) : <u>12.25</u>	% Excess: <u>50%</u>
Conductor Length (ft) : <u>93</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.6</u>	BBL to Pit: _____
Shoe Joint Length (ft) : <u>49</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 <u>10+10d+10=30bbl</u>
Max Pressure: _____	

Calculated Results	Pressure of cement in annulus
<b>Displacement:</b> <u>60.27 bbls</u> (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	<b>Hydrostatic Pressure:</b> <u>666.03 PSI</u>
<b>cuft of Shoe</b> <u>20.73</u> <b>cuft</b> (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Pressure of the fluids inside casing</b>
<b>cuft of Conductor</b> <u>76.45</u> <b>cuft</b> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Displacement:</b> <u>342.71 psi</u> <b>Shoe Joint:</b> <u>38.45 psi</u> <b>Total</b> <u>381.15 psi</u>
<b>cuft of Casing</b> <u>352.56</u> <b>cuft</b> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Differential Pressure:</b> <u>284.87 psi</u>
<b>Total Slurry Volume</b> <u>449.74</u> <b>cuft</b> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Collapse PSI:</b> <u>2570.00 psi</u> <b>Burst PSI:</b> <u>3950.00 psi</u>
<b>bbls of Slurry</b> <u>80.10</u> <b>bbls</b> (Total Slurry Volume) X (.1781)	<b>Total Water Needed:</b> <u>159.93 bbls</u>
<b>Sacks Needed</b> <u>354</u> <b>sk</b> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
<b>Mix Water</b> <u>49.66</u> <b>bbls</b> (Sacks Needed) X (Gallons Per Sack) ÷ 42	

X Dennis E. Elmer  
 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.  
Grant Elmquist 2E-14H-C268

INVOICE #  
LOCATION  
FOREMAN  
Date

65019  
Weld  
Lee Sharp  
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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	7:30															
MIRU	7:00															
CIRCULATE	7:57	0	8:36		0			0			0			0		
Drop Plug		10	8:36	30	10			10			10			10		
8:31		20	8:39	90	20			20			20			20		
		30	8:42	320	30			30			30			30		
		40	8:45	340	40			40			40			40		
M & P		50	8:47	390	50			50			50			50		
Time	Sacks	60	8:50	1460	60			60			60			60		
8:07-8:26	353	70			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	23	150			150			150			150			150		
Water Temp	68															

Notes:

Plug landed 1 bbl early, final lift 380 psi landed @ 1460. Casing test started @8:59 1500 psi 9:14 1490psi

Denseometer went down, mixed job with scales every scaled sample wieghted about 15.2

X D. Daniels  
Work Performed

X Encana Rep  
Title

X  
Date