



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/2/2014  
Invoice #: 12218  
API#: 05-123-38443  
Foreman: Calvin Reimers

Customer: Encana  
Well Name: Bohrer 2G-19H-E368

County: Weld  
State: Colorado  
Sec: 19  
Twp: 3N  
Range: 68W  
Consultant: Norm  
Rig Name & Number: Patterson 326  
Distance To Location: 22 Miles  
Units On Location: 3104/3204  
Time Requested: 930am  
Time Arrived On Location: 815am  
Time Left Location: 12:00pm

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 40.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft) : 834	Cement Yield (cuft) : 1.27
Total Depth (ft) : 880	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 50%
Conductor Length (ft) : 84	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.5	BBL to Pit: 29
Shoe Joint Length (ft) : 46	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 35	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	30bbls H2O+Kcl+Dye in 2nd 10bbls

Casing ID	8.835	Casing Grade	J-55 only used
<b>Calculated Results</b>		<b>Displacement: 62.37 bbls</b> (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
<b>cuft of Shoe 19.72 cuft</b> (Casing ID Squared) X (.005454) X (Shoe Joint ft)		<b>Pressure of cement in annulus</b>	
<b>cuft of Conductor 67.63 cuft</b> (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		<b>Hydrostatic Pressure: 658.43 PSI</b>	
<b>cuft of Casing 352.27 cuft</b> (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		<b>Pressure of the fluids inside casing</b>	
<b>Total Slurry Volume 439.62 cuft</b> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		<b>Displacement: 339.58 psi</b>	
<b>bbls of Slurry 78.30 bbls</b> (Total Slurry Volume) X (.1781)		<b>Shoe Joint: 36.58 psi</b>	
<b>Sacks Needed 346 sk</b> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		<b>Total 376.16 psi</b>	
<b>Mix Water 48.54 bbls</b> (Sacks Needed) X (Gallons Per Sack) ÷ 42		<b>Differential Pressure: 282.27 psi</b>	
		<b>Collapse PSI: 2570.00 psi</b>	
		<b>Burst PSI: 3950.00 psi</b>	
		<b>Total Water Needed: 160.91 bbls</b>	

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**

Customer  
Well Name

Encana  
Bohrer 2G-19H-E368

INVOICE #  
LOCATION  
FOREMAN  
Date

12218  
Weld  
Calvin Reimers  
5/2/2014

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**DESCRIPTION OF JOB EVENTS**

Safety Meeting	954am	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
MIRU	830am															
CIRCULATE	1016am	0	1046am	100	0			0			0			0		
Drop Plug		10	1049am	120	10			10			10			10		
1045am		20	1051am	220	20			20			20			20		
		30	1052am	330	30			30			30			30		
		40	1054am	390	40			40			40			40		
M & P		50	1056am	430	50			50			50			50		
Time	Sacks	60	1058am	400	60			60			60			60		
1024am	346	70	1101am	350	70			70			70			70		
1042am		80	Bump	950	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	48.54	130			130			130			130			130		
Total Sacks	346	140			140			140			140			140		
bbl Returns	29	150			150			150			150			150		
Water Temp	62															

Notes:

The day

1/2bbl Back on Bleed off

X

Work Preformed

X

Title

X

Date