

# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/11/2014  
 Invoice # 12292  
 API# 445564  
 Foreman: MONTE

Customer: encana  
 Well Name: billings 2c-18h

County: weld  
 State: colorado  
 Sec: 18  
 Twp: 3n  
 Range: 68w

Consultant: norman  
 Rig Name & Number: patterson 326  
 Distance To Location: 22.6  
 Units On Location: \_\_\_\_\_  
 Time Requested: \_\_\_\_\_  
 Time Arrived On Location: \_\_\_\_\_  
 Time Left Location: \_\_\_\_\_

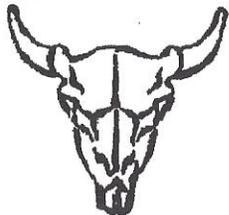
WELL DATA	Cement Data
Casing Size OD (in) : 9.6250	Cement Name: BFN III
Casing Weight (lb) : 40	Cement Density (lb/gal) : 15.2
Casing Depth (ft.) : 827	Cement Yield (cuft) : 1.27
Total Depth (ft) : 830	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 50%
Conductor Length (ft) : 84	Displacement Fluid lb/gal:
Conductor ID : 15.5	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls):
Landing Joint (ft) : 35	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	10 freesh 10 dye 10 fresh

Casing ID 8.835 Casing Grade J-55 only used

Calculated Results	Pressure of cement in annulus
<b>cuft of Shoe</b> 18.73 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Displacement:</b> 62.02 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
<b>cuft of Conductor</b> 67.63 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Hydrostatic Pressure:</b> 653.00 PSI
<b>cuft of Casing</b> 232.69 cuft (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</b> 319.05 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Displacement:</b> #N/A psi
<b>bbls of Slurry</b> 85.23 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	<b>Shoe Joint:</b> 34.74 psi
<b>Sacks Needed</b> 377 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Total</b> #N/A psi
<b>Mix Water</b> 52.85 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Differential Pressure:</b> #N/A psi
	<b>Collapse PSI:</b> 2570.00 psi
	<b>Burst PSI:</b> 3950.00 psi
	<b>Total Water Needed:</b> 72.85 bbls

X *Robert [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  
billings 2c-18h

INVOICE #  
LOCATION  
FOREMAN  
Date

12292  
weld  
MONTE  
1/11/2014

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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	12:45am															
MIRU	12:00															
CIRCULATE	1:05	0	1:48	0	0			0			0			0		
Drop Plug		10	1:50	200	10			10			10			10		
1:47		20	1:52	450	20			20			20			20		
		30	1:54	500	30			30			30			30		
		40	1:56	400	40			40			40			40		
M & P		50	1:58	500	50			50			50			50		
Time	Sacks	59.60	2:02	1000	60			60			60			60		
2:08-2:25	377	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		
		120			120			120			120			120		
% Excess	50%	130			130			130			130			130		
Mixed bbls	52.85	140			140			140			140			140		
Total Sacks	377	150			150			150			150			150		
bbl Returns	25															

Notes:

safty meeting, miru, pressure test per company man, circulate 30 bbls ahead with dye in 2nd 10. mix and pump 377 sks at 50% excess, drop plug and displace bbls 63  
drop plug and displace 59.2 bbls h2o,  
bump plug at 600 psi above lift pressure at 1000 psi at 2:02am pm, hold 5 min release pressure

X Robert [Signature]  
Work Performed

X \_\_\_\_\_  
Title

X \_\_\_\_\_  
Date