



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/29/2014  
Invoice #: 12217  
API#: 05-123-38085  
Foreman: Calvin Reimers

Customer: Encana  
Well Name: Edith Ann-Duckworth 4H-21H

County: Weld  
State: Colorado  
Sec: 22  
Twp: 2N  
Range: 68W  
Consultant: Chris  
Rig Name & Number: Patterson 272  
Distance To Location: 25 Miles  
Units On Location: 3104/3204  
Time Requested: 800am  
Time Arrived On Location: 630am  
Time Left Location: 1:00 pm

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 40.00  
Casing Depth (ft) : 932  
Total Depth (ft) : 974  
Open Hole Diameter (in.) : 12.25  
Conductor Length (ft) : 82  
Conductor ID : 15.6  
Shoe Joint Length (ft) : 46  
Landing Joint (ft) : 35

Max Rate: 7  
Max Pressure: 2500

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal) : 15.2  
Cement Yield (cuft) : 1.27  
Gallons Per Sack: 5.89  
% Excess: 38%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit: 18  
Fluid Ahead (bbls): 30.0  
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup  
.30bbls H2O+KCL+Dye in 2nd 10bbls

Casing ID

8.835

Casing Grade

J-55 only used

## Calculated Results

**cuft of Shoe** 19.78 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

**cuft of Conductor** 67.41 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

**cuft of Casing** 266.07 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

**Total Slurry Volume** 353.26 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

**bbls of Slurry** 86.63 bbls  
(Total Slurry Volume) X (.1781) X (% Excess Cement)

**Sacks Needed** 383 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

**Mix Water** 53.71 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 69.79 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 735.58 PSI

## Pressure of the fluids inside casing

**Displacement:** 381.65 psi

**Shoe Joint:** 36.68 psi

**Total** 418.33 psi

**Differential Pressure:** 317.24 psi

**Collapse PSI:** #N/A psi

**Burst PSI:** #N/A psi

**Total Water Needed:** 173.50 bbls

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  
Edith Ann-Duckworth 4H-21H

INVOICE #  
LOCATION  
FOREMAN  
Date

12217  
Weld  
Calvin Reimers  
4/29/2014

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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	1040am															
MIRU	905am															
CIRCULATE	1115am	0	1144am	60	0			0			0			0		
Drop Plug		10	1148am	90	10			10			10			10		
1143am		20	1149am	120	20			20			20			20		
		30	1151am	210	30			30			30			30		
		40	1152am	320	40			40			40			40		
M & P		50	1154am	370	50			50			50			50		
Time	Sacks	60	1156am	420	60			60			60			60		
1121am	383	70	1200pm	380	70			70			70			70		
1140am		80	Bump	890	80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	38%	120			120			120			120			120		
Mixed bbls	53.71	130			130			130			130			130		
Total Sacks	383	140			140			140			140			140		
bbl Returns	18	150			150			150			150			150		
Water Temp	49.2															

Notes:

The day

Float Held

1/2 bbl back on bleed off

X

Work Performed

X

Title

X

Date