



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/1/2014

Invoice # 12134

API#

Foreman: LEE SHARP

Customer: ENCANA

Well Name: EDITH ANN- DUCKWORTH 4C-21H

County: WELD

State: Colorado

Sec:

Twp:

Range:

Consultant: CHRIS

Rig Name & Number: PATTERSON 272

Distance To Location: 26

Units On Location: 4027-3106;

Time Requested: 8:00 PM

Time Arrived On Location: 7:45 PM

Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625

Casing Weight (lb) : 40.00

Casing Depth (ft.) : 893

Total Depth (ft) : 900

Open Hole Diameter (in.) : 12.25

Conductor Length (ft) : 100

Conductor ID : 15.5

Shoe Joint Length (ft) : 47

Landing Joint (ft) : 40

Max Rate:

Max Pressure:

Cement Data

Cement Name: BFN III

Cement Density (lb/gal) : 15.2

Cement Yield (cuft) : 1.27

Gallons Per Sack: 5.89

% Excess: 45%

Displacement Fluid lb/gal: 8.3

BBL to Pit: 0.0

Fluid Ahead (bbls): 30.0

H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

30BBL KCL10FR, 10 DYE, 10 FR

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 20.01 cuft

(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 80.51 cuft

(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 248.35 cuft

(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 348.87 cuft

(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 90.09 bbls

(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 398 sk

(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 55.86 bbls

(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 67.18 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 705.11 PSI

Pressure of the fluids inside casing

Displacement: 364.78 psi

Shoe Joint: 37.11 psi

Total 401.89 psi

Differential Pressure: 303.22 psi

Collapse PSI: #N/A psi

Burst PSI: #N/A psi

Total Water Needed: 173.04 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 4C-21H

INVOICE #
LOCATION
FOREMAN
Date

12134
WELD
LEE SHARP
4/2/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
MIRU	10:50	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
CIRCULATE	10:30	0	12:05	130	0			0			0			0		
Drop Plug	11:30	10	12:06	180	10			10			10			10		
	12:06	20	12:08	180	20			20			20			20		
		30	12:09	260	30			30			30			30		
		40	12:11	380	40			40			40			40		
M & P		50	12:13	380	50			50			50			50		
Time	Sacks	60	12:15	500	60			60			60			60		
11:35	392	70	12:17	1000	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	43%	120			120			120			120			120		
Mixed bbls	55	130			130			130			130			130		
Total Sacks	392	140			140			140			140			140		
bbl Returns	22	150			150			150			150			150		
Water Temp	60															

Notes:

The day

X

Work Preformed

x Francis Bowe
Title

x 4-2-14
Date