



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/6/2014
Invoice #: 12174
API#:
Foreman: kirk

Customer: encana
Well Name: edith ann duckworth 4d-21h

County: weld
State: Colorado
Sec: 21
Twp: 2n
Range: 68w

Consultant: kalab
Rig Name & Number: patterson 272
Distance To Location:
Units On Location: 3103-3210
Time Requested: 1230 am
Time Arrived On Location: 1030 pm
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.00
Casing Depth (ft.) : 914
Total Depth (ft) : 954
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 100
Conductor ID : 15.5
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 30

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: 40%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls):
H2O Wash Up (bbls): 15.0

Spacer Ahead Makeup

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.14 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 254.93 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 353.57 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 88.16 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 390 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 54.66 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 68.35 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 721.69 PSI

Pressure of the fluids inside casing

Displacement: 375.73 psi

Shoe Joint: 33.64 psi

Total 409.37 psi

Differential Pressure: 312.33 psi

Collapse PSI: #N/A psi

Burst PSI: #N/A psi

Total Water Needed: 138.01 bbls

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
edith ann duckworth 4d-21h

INVOICE #
LOCATION
FOREMAN
Date

12174
weld
kirk
4/7/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting MIRU CIRCULATE Drop Plug 245 am M & P Time 224 am 242 am stop % Excess Mixed bbls Total Sacks bbl Returns Water Temp	153am	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	125am	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
	217am	0	245am	10	0			0			0			0		
		10	247am	70	10			10			10			10		
		20	249am	140	20			20			20			20		
		30	251am	250	30			30			30			30		
		40	253am	330	40			40			40			40		
		50	255am	380	50			50			50			50		
		60	257am	390	60			60			60			60		
		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		
		130			130			130			130			130		
		140			140			140			140			140		
		150			150			150			150			150		

Notes:

bumped plug at 302 am 870 psi 88.1 bbls slurry

X

Work Preformed

X

Title

X

Date