



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/23/2014
Invoice # 12184
API#
Foreman: kirk

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

County: weld
State: Colorado
Sec: 21
Twp: 2N
Range: 68W
Consultant: Lenord
Rig Name & Number: Patterson272
Distance To Location:
Units On Location: 3106-3210
Time Requested: 1030AM
Time Arrived On Location: 945AM
Time Left Location: 12:45 pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.00
Casing Depth (ft) : 924
Total Depth (ft) : 966
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 100
Conductor ID : 15.5
Shoe Joint Length (ft) : 46
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: 35%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 15.0

Spacer Ahead Makeup

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.58 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 258.06 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 358.15 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 86.11 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 381 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 53.39 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 68.85 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 729.59 PSI

Pressure of the fluids inside casing

Displacement: 378.58 psi

Shoe Joint: 36.32 psi

Total 414.90 psi

Differential Pressure: 314.69 psi

Collapse PSI: #N/A psi

Burst PSI: #N/A psi

Total Water Needed: 167.24 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 4G-21H

INVOICE #
LOCATION
FOREMAN
Date

12184
weld
kirk
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DESCRIPTION OF JOB EVENTS

Safety Meeting		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
MIRU	1050am	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
CIRCULATE	1000am	0	1145am	0	0			0			0			0		
Drop Plug	1109am	10	1148am	80	10			10			10			10		
	1145am	20	1150am	80	20			20			20			20		
		30	1152am	160	30			30			30			30		
		40	1154am	260	40			40			40			40		
M & P		50	1155am	350	50			50			50			50		
Time	Sacks	60	1157am	370	60			60			60			60		
1115am	381	70			70			70			70			70		
1142am stop		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	35%	120			120			120			120			120		
Mixed bbls	53.4	130			130			130			130			130		
Total Sacks	381	140			140			140			140			140		
bbl Returns	18	150			150			150			150			150		
Water Temp																

Notes:

bumped plug at 1159 am 850 psi 86.1 bbls slurry

X 
Work Performed

X 
Title

X 4-23-14
Date