



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/4/2014
Invoice #: 12190
API#
Foreman: kirk

Customer: encana
Well Name: bohrer 2d-19h

County: weld
State: Colorado
Sec: 19
Twp: 3N
Range: 68W

Consultant: norman
Rig Name & Number: patterson 326
Distance To Location: 50
Units On Location: 3103-3211
Time Requested: 630 pm
Time Arrived On Location: 500 pm
Time Left Location: 8:30 pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.00
Casing Depth (ft) : 844
Total Depth (ft) : 893
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 112
Conductor ID : 16
Shoe Joint Length (ft) : 44
Landing Joint (ft) : 35

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: 50%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.73 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 99.79 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 343.87 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 462.39 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 82.35 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 364 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 51.06 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 63.31 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 666.42 PSI

Pressure of the fluids inside casing

Displacement: 344.94 psi

Shoe Joint: 34.74 psi

Total 379.69 psi

Differential Pressure: 286.74 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 164.37 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
bohrer 2d-19h

INVOICE #
LOCATION
FOREMAN
Date

12190
weld
kirk
5/4/2014

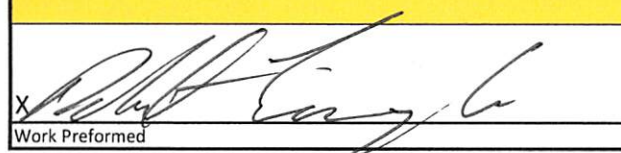
Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting MIRU CIRCULATE Drop Plug 709 pm M & P Time Sacks 649 pm 705 pm stop % Excess Mixed bbls Total Sacks bbl Returns Water Temp	626pm 530pm 642pm 0% 51 364 25	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
		0	709pm	10	0			0			0			0		
		10	712pm	70	10			10			10			10		
		20	714pm	130	20			20			20			20		
		30	716pm	240	30			30			30			30		
		40	718pm	300	40			40			40			40		
		50	720pm	340	50			50			50			50		
		60	722pm	330	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 726 pm 930 psi 82.3 bbls slurry

X 
Work Performed

X _____
Title

X 5-4-14
Date