



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/5/2014
 Invoice #: 12145
 API#: 05-123-38448
 Foreman: Lee Sharp

Customer: Encana
 Well Name: Bohrer 2C-19H E-368

County: Adams
 State: Colorado
 Consultant: NORMAN M.
 Rig Name & Number: Paterson 326
 Distance To Location:
 Units On Location: 4027-3106;4018-3203
 Time Requested: 6:30 AM
 Time Arrived On Location: 5:20 AM
 Time Left Location:

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 40.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft.) : 879	Cement Yield (cuft) : 1.27
Total Depth (ft) : 893	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 50%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.5	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 35	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	30=10F+ 10D+ 10F

Casing ID: 8.835 Casing Grade: J-55 only used

Calculated Results	Pressure of cement in annulus
cuft of Shoe 18.76 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 65.96 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 80.51 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 694.06 PSI
cuft of Casing 243.97 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 343.23 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 360.01 psi
bbls of Slurry 91.69 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Shoe Joint: 34.79 psi
Sacks Needed 405 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 394.80 psi
Mix Water 56.85 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 299.26 psi
	Collapse PSI: #N/A psi
	Burst PSI: #N/A psi
	Total Water Needed: 172.81 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 2C-19H E-368

INVOICE #
LOCATION
FOREMAN
Date

12145
Adams
Lee Sharp
5/5/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLs	Time	PSI												
Safety Meeting	7:00															
MIRU	6:50															
CIRCULATE	7:22	0	7:55		0			0			0			0		
Drop Plug		10	8:00	180	10			10			10			10		
8:00		20	8:02	280	20			20			20			20		
		30	8:04	360	30			30			30			30		
		40	8:06	400	40			40			40			40		
M & P		50	8:07	450	50			50			50			50		
Time	Sacks	60	8:10	410	60			60			60			60		
7:30	377	70	8:14	990	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	33%	120			120			120			120			120		
Mixed bbls	53	130			130			130			130			130		
Total Sacks	378	140			140			140			140			140		
bbl Returns	29	150			150			150			150			150		
Water Temp	80															

Notes:

Job went well... Plug indicator switch was in wrong position, it did not show plug left. Removed the top of dropper to check plug. Plug landed at 8:14 at calculated D

Treatment report calculations not correct.....377 sacks 52.8 mix bbl 63.16 bbl displacement 85.27 bbl slurry 50% excess

15.2 lb/gal; 5.89 gal/sk; 1.27 yield

annulus factor .3132; casing cap .0758; conductor annulus factor.7842

X AM [Signature]
Work Performed

X _____
Title

X _____
Date