

Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/19/2014

Invoice # 35058

API#

Foreman: Kirk Kallhoff

Customer: EnCana Oil & Gas (USA) Inc.

Well Name: grant elmquist 2c-14h-c268

County: Weld

State: Colorado

Sec: 14

Twp: 2n

Range: 68w

Consultant: dennis

Rig Name & Number: ensign 135

Distance To Location: 22

Units On Location: 4030-3103/3106-3212

Time Requested: 830 am

Time Arrived On Location: 715 am

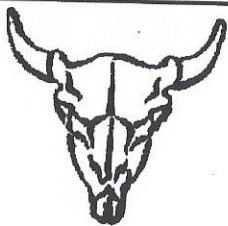
Time Left Location: 10:30pm

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.) :	840	Cement Yield (cuft) :	1.27
Total Depth (ft) :	868	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 :	16	BBL to Pit:	
Shoe Joint Length (ft) :	44	Fluid Ahead (bbls):	30.0
Landing Joint (ft) :	18	H2O Wash Up (bbls):	20.0
Max Rate:		Spacer Ahead Makeup	
Max Pressure:			

Calculated Results	Displacement:	61.72 bbls
cuft of Shoe 18.73 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Conductor 89.10 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus	
cuft of Casing 347.63 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: 663.26 PSI	
Total Slurry Volume 455.46 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing	
bbls of Slurry 81.12 bbls (Total Slurry Volume) X (.1781)	Displacement: 343.22 psi	
Sacks Needed 359 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: 34.74 psi	
Mix Water 50.29 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total 377.96 psi	
	Differential Pressure: 285.30 psi	
	Collapse PSI: 2570.00 psi	
	Burst PSI: 3950.00 psi	
	Total Water Needed: 162.01 bbls	

x Dennis Jacob
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 Oil & Gas (USA) Inc.
grant elmquist 2c-14h-c268

INVOICE #
LOCATION
FOREMAN
Date

35058
Weld
Kirk Kallhoff
10/19/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		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
Safety Meeting	836pm	0	918pm	10	0			0			0			0		
MIRU	745pm	10	920pm	70	10			10			10			10		
CIRCULATE	850pm	20	922pm	120	20			20			20			20		
Drop Plug		30	924pm	230	30			30			30			30		
918 pm		40	926pm	320	40			40			40			40		
		50	928pm	360	50			50			50			50		
M & P		60	932pm	380	60			60			60			60		
Time	Sacks	70			70			70			70			70		
857 pm	359	80			80			80			80			80		
918 pm stop		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	50%	120			120			120			120			120		
Mixed bbls	50.4	130			130			130			130			130		
Total Sacks	359	140			140			140			140			140		
bbl Returns	24	150			150			150			150			150		
Water Temp																

Notes:

bumped plug at 933 pm 560 psi 81.1 bbls slurry

casing test 1500 psi 15 min

X [Signature]
Work Performed

X 10/19/14
Title

X 10-19-14
Date