



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/21/2014
Invoice # 65021
API# 05-123-37647
Foreman: Lee Sharp

Customer: EnCana Oil & Gas (USA) Inc.

Well Name: Grant Elmquist 2G-14H-C268

County: Weld
State: Colorado

Sec: 14
Twp: 2N
Range: 68W

Consultant: Dennis E
Rig Name & Number: Ensing 135
Distance To Location: 22
Units On Location: 4031-3106; 4020-3212
Time Requested: 7:00am
Time Arrived On Location: 6:00
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.00
Casing Depth (ft.) : 837
Total Depth (ft) : 847
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 98
Conductor ID : 15.6
Shoe Joint Length (ft) : 47
Landing Joint (ft) : 0

Max Rate:
Max Pressure: 2000

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): 15.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
10+ 10D+ 10 = 30bbl

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 20.15 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 80.56 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X
(Conductor Length ft)
cuft of Casing 347.16 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing
Depth - Conductor Length)
Total Slurry Volume 447.86 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 79.76 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 353 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 49.45 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 59.88 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe
Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 660.90 PSI

Pressure of the fluids inside casing

Displacement: 340.50 psi

Shoe Joint: 37.36 psi

Total 377.86 psi

Differential Pressure: 283.04 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 144.33 bbls

X *[Signature]*
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 2G-14H-C268

INVOICE #
LOCATION
FOREMAN
Date

65021
Weld
Lee Sharp
10/21/2014

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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	11:00															
MIRU	10:30															
CIRCULATE	11:24	0	11:50		0			0			0			0		
Drop Plug		10	11:53	40	10			10			10			10		
11:50		20	11:56	80	20			20			20			20		
		30	11:59	250	30			30			30			30		
		40	12:01	360	40			40			40			40		
		50	12:04	410	50			50			50			50		
M & P		60	12:07	440	60			60			60			60		
Time	Sacks	70			70			70			70			70		
11:30-11:47	353	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		
% Excess	51%	130			130			130			130			130		
Mixed bbls	49.82	140			140			140			140			140		
Total Sacks	355	150			150			150			150			150		
bbl Returns	23															
Water Temp	68															

Notes:

The day

Plug landed on calculated. Pump 900 psi @ 12:07 casing test @ 12:14 1510psi release @ 12:28

X

Work Preformed

Dennis E. [Signature]

X

Title

Enclosure

X

Date

10-21-14