



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/20/2014
 Invoice #: 25072
 API#: 05-123-37645
 Foreman: Calvin Reimers

Customer: EnCana Oil & Gas (USA) Inc.
 Well Name: Grant Elmquist 2F-14H-C268

County: Weld
 State: Colorado
 Sec: 14
 Twp: 2N
 Range: 68W

Consultant: Dennie E / Dennis Z
 Rig Name & Number: Ensign 135
 Distance To Location: 21 Miles
 Units On Location: 4023-3104/3105-3210
 Time Requested: 730pm
 Time Arrived On Location: 600pm
 Time Left Location: 10:00pm

WELL DATA

Casing Size OD (in) : 9.625
 Casing Weight (lb) : 40.00
 Casing Depth (ft.) : 826
 Total Depth (ft) : 851
 Open Hole Diameter (in.) : 12.25
 Conductor Length (ft) : 93
 Conductor ID : 16
 Shoe Joint Length (ft) : 48
 Landing Joint (ft) : 18
 Max Rate: 7
 Max Pressure: 2500

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: 22
 Fluid Ahead (bbls): 30.0
 H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
 30bbls H2O+Dye in 2nd 10bbls

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 20.35 cuft
 (Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 82.86 cuft
 (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 344.37 cuft
 (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 447.58 cuft
 (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 79.71 bbls
 (Total Slurry Volume) X (.1781)

Sacks Needed 352 sk
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 49.42 bbls
 (Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 60.38 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 652.26 PSI

Pressure of the fluids inside casing

Displacement: 335.57 psi

Shoe Joint: 37.74 psi

Total 373.31 psi

Differential Pressure: 278.94 psi

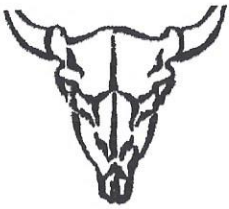
Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 159.80 bbls

X *Dennie Jacoby*
 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 2F-14H-C268

INVOICE #
LOCATION
FOREMAN
Date

25072
Weld
Calvin Reimers
10/20/2014

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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	755pm															
MIRU	730pm															
CIRCULATE	825pm	0	847pm	50	0			0			0			0		
Drop Plug		10	849pm	80	10			10			10			10		
846pm		20	851pm	110	20			20			20			20		
		30	853pm	220	30			30			30			30		
		40	854pm	300	40			40			40			40		
		50	856pm	350	50			50			50			50		
M & P		60	900pm	290	60			60			60			60		
Time	Sacks	60	900pm	290	60			60			60			60		
831pm	352	70	Bump	830	70			70			70			70		
844pm		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	50%	130			130			130			130			130		
Mixed bbls	49.42	140			140			140			140			140		
Total Sacks	352	150			150			150			150			150		
bbl Returns	22															
Water Temp	58.1															

Notes:

The day

1/2 bbl back on bleed off

Casing PSI Test 901pm 1520psi to 916pm 1550psi

X D. J. [Signature]
Work Performed

X Walls [Signature]
Title

X 10/20/14
Date