



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/12/2014
Invoice #: 25101
API#: 05-123-40282-00
Foreman: Calvin Reimers

Customer: EnCana Oil & Gas (USA) Inc.
Well Name: Ruhl 1D-32H-B264

County: Weld
State: Colorado
Sec: 32
Twp: 2N
Range: 64W
Consultant: Randy
Rig Name & Number: H&P 278
Distance To Location: 24 Miles
Units On Location: 4023-3104/4034-3211
Time Requested: 800am
Time Arrived On Location: 650am
Time Left Location: 3:30pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.00
Casing Depth (ft.) : 1,185
Total Depth (ft) : 1220
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 124
Conductor ID : 16
Shoe Joint Length (ft) : 46
Landing Joint (ft) : 30

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: 25%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 10
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 19.68 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 110.48 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 415.18 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 545.34 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 97.13 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 429 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 60.22 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 88.56 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 935.33 PSI

Pressure of the fluids inside casing

Displacement: 490.83 psi

Shoe Joint: 36.50 psi

Total 527.33 psi

Differential Pressure: 408.00 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 198.78 bbls

X *Randy Burke*
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.



Disposal Well Cementing
Single Cement Surface Pipe

Customer
Well Name

EnCana Oil & Gas (USA) Inc.
Ruhl 1D-32H-B264

INVOICE #
LOCATION
FOREMAN
Date

25101
Weld
Calvin Reimers
12/12/2014

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DESCRIPTION OF JOB EVENTS

Safety Meeting	1259pm	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
MIRU	1205pm															
CIRCULATE	139pm	0	208pm	90	0			0			0			0		
Drop Plug		10	211pm	60	10			10			10			10		
207pm		20	213pm	60	20			20			20			20		
		30	215pm	100	30			30			30			30		
		40	217pm	240	40			40			40			40		
M & P		50	219pm	250	50			50			50			50		
Time	Sacks	60	221pm	380	60			60			60			60		
145pm	429	70	223pm	470	70			70			70			70		
204pm		80	224pm	470	80			80			80			80		
		90	227pm	440	90			90			90			90		
		100	Bump	990	100			100			100			100		
		110			110			110			110			110		
% Excess	25%	120			120			120			120			120		
Mixed bbls	60.22	130			130			130			130			130		
Total Sacks	429	140			140			140			140			140		
bbl Returns	10	150			150			150			150			150		
Water Temp	72.1															

Notes:

The day

1/2 bbl Back on Bleed Off

Casing PSI Test 229pm 1510psi to 244pm 1520psi

X Randy Burke
Work Performed

X _____
Title

X _____
Date