



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/19/2014

Invoice # 45020

API# 05-123-39725

Foreman: JASON KELEHER

Customer: EnCana Oil & Gas (USA) Inc.

Well Name: DALE 4H-20H-0264

County: Weld

State: Colorado

Sec: 20

Twp: 2N

Range: 64W

Consultant: RANDY

Rig Name & Number: H&P 278

Distance To Location: 12

Units On Location: 4031-3106/ 4017-3211

Time Requested: 1200

Time Arrived On Location: 1100

Time Left Location: 2230

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 40.00
Casing Depth (ft) : 1,078
Total Depth (ft) : 1119
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 140
Conductor ID : 15.25
Shoe Joint Length (ft) : 46
Landing Joint (ft) : 29

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: 17%

Displacement Fluid lb/gal: 8.3

BBL to Pit: 22.0

Fluid Ahead (bbls): 30.0

H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

30BBL H2O W/KCL, Dye in 2nd 10

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.69 cuft

(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 106.84 cuft

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

cuft of Casing 343.21 cuft

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

Total Slurry Volume 469.73 cuft

(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 83.66 bbls

(Total Slurry Volume) X (.1781)

Sacks Needed 370 sk

(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 51.87 bbls

(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 80.47 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 851.39 PSI

Pressure of the fluids inside casing

Displacement: 444.98 psi

Shoe Joint: 36.52 psi

Total 481.50 psi

Differential Pressure: 369.89 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 182.34 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 Oil & Gas (USA) Inc.
DALE 4H-20H-0264

INVOICE #
LOCATION
FOREMAN
Date

45020
Weld
JASON KELEHER
8/19/2014

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DESCRIPTION OF JOB EVENTS

Safety Meeting	1945	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
MIRU	1900	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
CIRCULATE	2024	0	2054	0	0			0			0			0		
Drop Plug		10	2056	30	10			10			10			10		
2053		20	2059	50	20			20			20			20		
		30	2102	80	30			30			30			30		
		40	2104	310	40			40			40			40		
M & P		50	2106	490	50			50			50			50		
Time	Sacks	60	2108	540	60			60			60			60		
2031-2050	370	70	2110	520	70			70			70			70		
		80	2113	540	80			80			80			80		
		90	BUMP	1110	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	17%	120			120			120			120			120		
Mixed bbls	51.85	130			130			130			130			130		
Total Sacks	370	140			140			140			140			140		
bbl Returns	22	150			150			150			150			150		
Water Temp	65															

Notes:

The day

PRESSURE TESTED TO 2000 PSI AT 2019, PUMPED 30 BBL WATER 2ND 10 HAVING DYE AT 2024, MIXED AND PUMPED 370 SKS AT 15.2, 83.6 BBL AT 2031
SHUT DOWN AT 2050, DROPPED PLUG AT 2053, STARTED DISPLACEMENT AT 2054, PUMPED 80 BBL LANDING AT 540 PSI AND PRESSURED UP TO 1110
PSI AT 2113, RELEASED PRESSURE AFTER HOLDING FOR 2 MINUTES AND CHECK FLOATS GOT .5 BBL BACK, REPRESSURED WELL AT 2120 TO 1500 PSI FOR
15 MINUTES AND RELEASED

X

Work Performed

X

Title

Consultant

X

Date

8-19-14