



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/9/2014
Invoice #: 45087
API#: 05-123-45087
Foreman: JASON

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

County: Weld
State: Colorado
Sec: 32
Twp: 2N
Range: 64W

Consultant:
Rig Name & Number: H&P 278
Distance To Location: 24
Units On Location: 4031-3106, 4022-3213
Time Requested: 2000
Time Arrived On Location: 1930
Time Left Location: 1300

WELL DATA

Casing Size OD (in): 9.625
Casing Weight (lb): 40.00
Casing Depth (ft): 1,191
Total Depth (ft): 1230
Open Hole Diameter (in.): 12.25
Conductor Length (ft): 149
Conductor ID: 15.25
Shoe Joint Length (ft): 46
Landing Joint (ft): 29

Max Rate: 7
Max Pressure: 1500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal): 15.2
Cement Yield (cuft): 1.27
Gallons Per Sack: 5.89
% Excess: 27%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 24.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
30 BBL W/ KCL, DYE IN 2ND 10

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.70 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 113.71 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 413.51 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 546.92 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 97.41 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 431 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 60.39 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 89.02 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 940.52 PSI

Pressure of the fluids inside casing

Displacement: 493.64 psi

Shoe Joint: 36.53 psi

Total 530.18 psi

Differential Pressure: 410.34 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 199.42 bbls

X *Andy 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.



**Bison Oil Well Cementing
Single Cement Surface Pipe**

Customer
Well Name

EnCana Oil & Gas (USA) Inc.
RUHL 1A-32H-B264

INVOICE #
LOCATION
FOREMAN
Date

45087
Weld
JASON
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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	945													0		
MIRU	830							0			0			10		
CIRCULATE	1046	0	1116	0	0			10			10			20		
Drop Plug		10	1119	10	10			20			20			30		
1116		20	1122	20	20			30			30			40		
		30	1125	40	30			40			40			50		
		40	1127	150	40			50			50			60		
M & P		50	1129	230	50			60			60			70		
Time	Sacks	60	1131	300	60			70			70			80		
1053-1112	431	70	1133	340	70			80			80			90		
		80	1135	370	80			90			90			100		
		90	1139	330	90			100			100			110		
		100	BUMP	820	100			110			110			120		
		110			110			120			120			130		
% Excess	27%	120			120			130			130			140		
Mixed bbls	60.4	130			130			140			140			150		
Total Sacks	431	140			140			150			150					
bbl Returns	24	150			150											
Water Temp	40															

Notes:

PRESSURE TEST TO 2000 PSI AT 1044, PUMPED 30 BBL WATER WITH DYE IN THE 2ND 10 AT 1046, MIXED AND PUMPED 431 SKS AT 15.2, 97.4 BBL AT 1053, SHUT DOWN AT 1112, STARTED DISPLACEMENT AT 1116, PLUG LANDED AT 330 PSI AT 1139 AND PRESSURED UP TO 820 PSI, HELD FOR 2 MINUTES AND PRESSURED UP TO 1500 PSI FOR 15 MINUTES FOR CASING TEST, RELEASED PRESSURE, FLOATS HELD, GOT .75 BBL BACK

X

Randy Bunker

Work Performed

X

Title

X

Date