



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/11/2014
Invoice #: 45089
API#: 05-123-39765
Foreman: JASON KELEHER

Customer: Noble Energy Inc.
Well Name: NALEN STATE LD12-77-1BHN

County: Weld
State: Colorado
Sec: 1
Twp: 9N
Range: 58W

Consultant: DAVE
Rig Name & Number: H&P 273
Distance To Location: 82
Units On Location: 4023-3104/ 4024-3203
Time Requested: 1800
Time Arrived: 1700
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 1,206
Total Depth (ft) : 1239
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 100
Conductor ID : 15.25
Shoe Joint Length (ft) : 41
Landing Joint (ft) : 24

Max Rate: 7
Max Pressure: 2500

Cement Data

Cement Name: BEN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 25%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 40.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
40 BBL WATER, DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 17.86 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 76.31 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 675.41 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 769.58 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 137.06 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 516 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 91.99 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 91.87 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 889.35 PSI

Pressure of the fluids inside casing

Displacement: 502.08 psi

Shoe Joint: 30.36 psi

Total 532.43 psi

Differential Pressure: 356.92 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed 243.86 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

Noble Energy Inc.
NALEN STATE LD12-77-1BHN

INVOICE #
LOCATION
FOREMAN
Date

45089
Weld
JASON KELEHER
12/12/2014

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DESCRIPTION OF JOB EVENTS

	2200 2115 2240	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		0	2318	0	0			0			0			0		
MIRU		10	2320	40	10			10			10			10		
CIRCULATE		20	2323	50	20			20			20			20		
Drop Plug		30	2327	130	30			30			30			30		
2318		40	2329	220	40			40			40			40		
		50	2330	300	50			50			50			50		
M & P		60	2332	350	60			60			60			60		
Time		70	2333	360	70			70			70			70		
2250-2315	Sacks	80	2335	430	80			80			80			80		
		90	2338	360	90			90			90			90		
		100	2340	360	100			100			100			100		
		110	BUMP	1000	110			110			110			110		
% Excess		120			120			120			120			120		
Mixed bbls		130			130			130			130			130		
Total Sacks		140			140			140			140			140		
bbl Returns		150			150			150			150			150		
Water Temp																

Notes:

PERFORMED PRESSURE TEST TO 1500 PSI AT 2236, PUMPED 40 BBL WATER WITH DYE IN 2ND 10 AT 2240, MIXED AND PUMPED 516 SKS AT 14.2, 137 BBL AT 2250, SHUT DOWN AT 2315, STARTED DISPLACEMENT AT 2318, LANDED PLUG AT 360 PSI AT 2340 AND PRESSURED UP TO 1000 PSI, HELD FOR 15 MINUTES AND RELEASED, FLOATS HELD, GOT .5 BBL BACK

X *209 Sack*

X *CO-MAN*

X *12/12/17*