



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 5/25/2014
 Invoice # 25002
 API# 05-123-38776
 Foreman: Calvin Reimers

Customer: Noble Energy Inc.
 Well Name: Trisha LC 29-73 HNB

County: Weld Consultant: Shane
 State: Colorado Rig Name & Number: H&P 326
 Distance To Location: 67 Miles
 Sec: 29 Units On Location: 4023-3104/4017-3205
 Twp: 9N Time Requested: 530pm
 Range: S9W Time Arrived On Location: 350pm
 Time Left Location: 7:45pm 1000pm

WELL DATA	Cement Data
Casing Size OD (in) : <u>9.625</u>	Cement Name: <u>BFN III</u>
Casing Weight (lb) : <u>36.00</u>	Cement Density (lb/gal) : <u>15.2</u>
Casing Depth (ft.) : <u>599</u>	Cement Yield (cuft) : <u>1.27</u>
Total Depth (ft) : <u>639</u>	Gallons Per Sack: <u>5.89</u>
Open Hole Diameter (in.) : <u>13.75</u>	% Excess: <u>10%</u>
Conductor Length (ft) : <u>100</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>16</u>	BBL to Pit: <u>11.0</u>
Shoe Joint Length (ft) : <u>45</u>	Fluid Ahead (bbls): <u>40.0</u>
Landing Joint (ft) : <u>34</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>7</u>	Spacer Ahead Makeup
Max Pressure: <u>2500</u>	<u>10bbls H2O+KCL+Dye in 2nd 10bbls</u>

Calculated Results	Pressure of cement in annulus
cuft of Shoe <u>19.35</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: <u>45.47</u> bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor <u>89.10</u> cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: <u>472.99</u> PSI
cuft of Casing <u>288.67</u> cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume <u>397.12</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: <u>239.06</u> psi
bbls of Slurry <u>70.73</u> bbls (Total Slurry Volume) X (.1781)	Shoe Joint: <u>35.21</u> psi
Sacks Needed <u>313</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total <u>274.27</u> psi
Mix Water <u>43.85</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: <u>198.72</u> psi
	Collapse PSI: <u>2020.00</u> psi
	Burst PSI: <u>3520.00</u> psi
	Total Water Needed: <u>149.32</u> bbls

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.



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INVOICE # 25002
LOCATION Weld
FOREMAN Calvin Reimers
Date 5/25/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	735pm	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	715pm	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
MIRU	807pm	0	844pm	80	0			0			0			0		
CIRCULATE		10	847pm	120	10			10			10			10		
Drop Plug		20	849pm	180	20			20			20			20		
834pm		30	850pm	230	30			30			30			30		
		40	853pm	250	40			40			40			40		
M & P		50	856pm	220	50			50			50			50		
Time	Sacks	60	Bump	350	60			60			60			60		
825pm	313	70			70			70			70			70		
840pm		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	10%	120			120			120			120			120		
Mixed bbls	43.85	130			130			130			130			130		
Total Sacks	313	140			140			140			140			140		
bbl Returns	11	150			150			150			150			150		
Water Temp	76.8															

Notes:

The day

1/2 bbl back on bleed off

[Signature]
Work Performed

x luss
Title

5/25/14
Date