



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

Date: 8/7/2014
 Invoice # 55011
 API# _____
 Foreman: monte

Customer: Noble Energy Inc.
 Well Name: NCLP AA06-64-1HNC

County: Weld Consultant: ROBERT
 State: Colorado Rig Name & Number: h&p 277
 Distance To Location: 30.2
 Sec: 4 Units On Location: 4028-3102 4020-3212
 Twp: 6n Time Requested: 1:30am
 Range: 63w Time Arrived On Location: 12:40
 Time Left Location: _____

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>757</u>	Cement Yield (cuft) : <u>1.27</u>
Total Depth (ft) : <u>837</u>	Gallons Per Sack: <u>5.89</u>
Open Hole Diameter (in.) : <u>13.75</u>	% Excess: <u>20%</u>
Conductor Length (ft) : <u>124</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.6</u>	BBL to Pit: _____
Shoe Joint Length (ft) : <u>46</u>	Fluid Ahead (bbls): <u>50.0</u>
Landing Joint (ft) : <u>28</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>5</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	<u>10 fresh 10 dye 30 fresh</u>

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results	Displacement: 57.13 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe 19.97 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus
cuft of Conductor 101.93 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 597.73 PSI
cuft of Casing 399.46 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 521.36 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 306.57 psi
bbls of Slurry 92.85 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 36.32 psi
Sacks Needed 411 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 342.89 psi
Mix Water 57.57 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 254.84 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 184.70 bbls

X [Signature]
 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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Single Cement Surface Pipe**

Customer
Well Name

Noble Energy Inc.
NCLP AA06-64-1HNC

INVOICE #
LOCATION
FOREMAN
Date

55011
Weld
monte
8/7/2014

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DESCRIPTION OF JOB EVENTS

	Time	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLS	Time	PSI												
Safety Meeting	3:00															
MIRU	2:15															
CIRCULATE	3:23	0	3:58	0	0			0			0			0		
Drop Plug		10	4:03	80	10			10			10			10		
3:58		20	4:05	110	20			20			20			20		
		30	4:07	150	30			30			30			30		
		40	4:09	270	40			40			40			40		
M & P		50	4:12	320	50			50			50			50		
Time	Sacks	60	4:14	630	60			60			60			60		
3:34-3:55	411	70			70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	20%	120			120			120			120			120		
Mixed bbls	57.57	130			130			130			130			130		
Total Sacks	411	140			140			140			140			140		
bbl Returns	10	150			150			150			150			150		
Water Temp	66															

Notes:

Safety Meeting, miru, pressure test per company man circulate 50 bbls ahead with dye in 2nd 10, mix and pump 411 SKS cement at 20% excess, drop plug and displace 59.97 bbls at 4:14 Am, at 630 psi, 10 bbls to pit. Casing test 1000 psi 15 min

X Robert Mills
Work Performed

X WSS
Title

X 8-7-14
Date