



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/7/2014  
 Invoice #: 25006  
 API#: 05-123-38155  
 Foreman: Calvin Reimers

Customer: Noble Energy Inc.  
 Well Name: Resolute E 25-63-1HN

County: Weld  
 State: Colorado  
 Sec: 26  
 Twp: 6N  
 Range: 65W

Consultant: Tawn B.  
 Rig Name & Number: PD 828  
 Distance To Location: 16 Miles  
 Units On Location: 4023-3104/4020-3205  
 Time Requested: 530pm  
 Time Arrived On Location: 330pm  
 Time Left Location: 700pm

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft.) : 568	Cement Yield (cuft) : 1.27
Total Depth (ft) : 594	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 40%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 16	BBL to Pit: 22.0
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 22	H2O Wash Up (bbls): 20.0
Max Rate: 7	Spacer Ahead Makeup
Max Pressure: 2500	10bbls H2O+KCL+Dye in 2nd 10bbls

Calculated Results	Pressure of cement in annulus
<b>cuft of Shoe</b> 19.29 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Displacement:</b> 42.24 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
<b>cuft of Conductor</b> 89.10 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Hydrostatic Pressure:</b> 448.88 PSI
<b>cuft of Casing</b> 344.92 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Pressure of the fluids inside casing</b>
<b>Total Slurry Volume</b> 453.31 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Displacement:</b> 225.96 psi <b>Shoe Joint:</b> 35.10 psi <b>Total:</b> 261.05 psi
<b>bbls of Slurry</b> 80.73 bbls (Total Slurry Volume) X (.1781)	<b>Differential Pressure:</b> 187.83 psi
<b>Sacks Needed</b> 357 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Collapse PSI:</b> 2020.00 psi <b>Burst PSI:</b> 3520.00 psi
<b>Mix Water</b> 50.06 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Total Water Needed:</b> 152.30 bbls

*[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.



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

Customer  
Well Name

Noble Energy Inc.  
Resolute E 25-63-1HN

INVOICE #  
LOCATION  
FOREMAN  
Date

25006  
Weld  
Calvin Reimers  
6/7/2014

Treatment Report Page 2

**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	510pm															
MIRU	440pm															
CIRCULATE	527pm	0	553pm	100	0			0			0			0		
Drop Plug		10	556pm	190	10			10			10			10		
552pm		20	557pm	240	20			20			20			20		
		30	559pm	270	30			30			30			30		
		40	601pm	250	40			40			40			40		
M & P		50	604pm	220	50			50			50			50		
Time	Sacks	60	Bump	440	60			60			60			60		
535pm	357	70			70			70			70			70		
550pm		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	40%	120			120			120			120			120		
Mixed bbls	50.06	130			130			130			130			130		
Total Sacks	357	140			140			140			140			140		
bbl Returns	22	150			150			150			150			150		
Water Temp	75.2															

Notes:

The day

1/2 bbl Back on Bleed off

Casing PSI Test 605pm 1000psi to 620pm 1050psi

X AKC  
Work Performed

X W.S.S  
Title

X 6-7-14  
Date