



# Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy  
Well Name: Rhon State LD10-68-hn

Date: 10/10/2014  
Invoice #: 12151  
API#  
Foreman: Monte Bedeaux

County: Weld  
State: Colorado  
Sec: 9  
Twp: 9n  
Range: 58w

Consultant: gary  
Rig Name & Number: pd 828  
Distance To Location: 76.7  
Units On Location: 4028/3102 4022-3213  
Time Requested: 3:00pm  
Time Arrived On Location: 2:30pm  
Time Left Location:

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625 Casing Weight (lb) : 36 Casing Depth (ft) : 1201 Total Depth (ft) : 1210 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 117 Conductor ID : 15.6 Shoe Joint Length (ft) : 39 Landing Joint (ft) : 19</p> <p>Sacks of Tail Requested : 100 HOC Tail (ft): 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 4.5 Max Pressure: 2000</p>	<p><b>Lead</b></p> <p>Cement Name: Cement Density (lb/gal) : 13.1 Cement Yield (cuft) : 1.69 Gallons Per Sack : 8.64 % Excess : 40%</p> <p><b>Tail</b></p> <p>Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack : 5.89 % Excess : 0%</p> <p>Fluid Ahead (bbls) : 40.0 H2O Wash Up (bbls) : 20.0</p> <p><b>Spacer Ahead Makeup</b> 10 fresh 10 dye 20 fresh</p>

Casing ID : 8.921	Casing Grade : J-55 only used
<b>Lead Calculated Results</b>	<b>Tail Calculated Results</b>
HOC of Lead : 839.78 ft	Tail Cement Volume In Ann : 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement : 410.42 cuft	Total Volume of Tail Cement : 110.07 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor : 96.18 cuft	bbls of Tail Cement : 22.62 bbls
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
Total Volume of Lead Cement : 506.60 cuft	HOC Tail : 225.22 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement : 126.32 bbls	Sacks of Tail Cement : 100.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement : 419.67 sk	bbls of Tail Mix Water : 14.02 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water : 86.33 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure : 817.28 PSI
Displacement : 91.29 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2020.00 psi
Total Water Needed: 251.65 bbls	Burst PSI: 3520.00 psi

X   
Authorization To Proceed



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

Customer  
Well Name

Noble Energy  
Rhon State LD10-68-hn

Date 10/10/2014  
INVOICE # 12151  
LOCATION Weld  
FOREMAN Monte Bedeaux

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	4:45															
MIRU	4:15															
CIRCULATE	5:06	0		0	0			0			0			0		
Drop Plug		10			10			10			10			10		
5:48		20			20			20			20			20		
		30			30			30			30			30		
		40			40			40			40			40		
M & P		50			50			50			50			50		
Time	Sacks	60			60			60			60			60		
5:10-5:45	520	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		
		120			120			120			120			120		
Lead mixed bbls	86.33	130			130			130			130			130		
Lead % Excess	40%	140			140			140			140			140		
Lead Sacks	420	150			150			150			150			150		
<b>Notes:</b>																
Tail mixed bbls	14.02	safty meeting, miru, pressure test per company man, circulate 40 bbls ahead with dye in 2nd 10, mix and pump 420 sks lead, 13.1, 1.69 yield, 8.64 h2o														
Tail % Excess	0%	mix and pump 100 sks tall at 15.2, 1.27, 5.89, drop plug and displace 91.29 bbls h2o. Bump plug at 6:14 at 660 psi,														
Tail Sacks	100	cassing test 1000 psi 15 min														
Total Sacks	520															
Water Temp	55.9															
bbl Returns	37															

X *Monte Bedeaux*  
Work Preformed

X WSS  
Title

X 10/10/14  
Date