



# Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy  
Well Name: Rohn State LD10-64-HN

Date: 10/19/2014  
Invoice #: 12155  
API#: \_\_\_\_\_  
Foreman: Monte Bedeaux

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

Consultant: John  
Rig Name & Number: pd 829  
Distance To Location: 76.9  
Units On Location: 4028/3102 4018-3204  
Time Requested: 4:00pm  
Time Arrived On Location: 3:00pm  
Time Left Location: 8:30 PM

## WELL DATA

Casing Size (in) : 9.625  
Casing Weight (lb) : 36  
Casing Depth (ft) : 1,190  
Total Depth (ft) : 1216  
Open Hole Diameter (in) : 13.50  
Conductor Length (ft) : 100  
Conductor ID : 15.6  
Shoe Joint Length (ft) : 45  
Landing Joint (ft) : 19

Sacks of Tail Requested : 100  
HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate: 4.5  
Max Pressure: 2000

## Cement Data

### Lead

Cement Name: \_\_\_\_\_  
Cement Density (lb/gal) : 13.1  
Cement Yield (cuft) : 1.69  
Gallons Per Sack : 8.64  
% Excess : 35%

### Tail

Cement Name: \_\_\_\_\_  
Cement Density (lb/gal) : 15.2  
Cement Yield (cuft) : 1.27  
Gallons Per Sack : 5.89  
% Excess: 0%

Fluid Ahead (bbls) : 30.0  
H2O Wash Up (bbls) : 20.0

Spacer Ahead Makeup  
10 fresh 10 dye 10 fresh

Casing ID

8.921

Casing Grade

J-55 only used

## Lead Calculated Results

HOC of Lead : 851.11 ft  
Casing Depth - HOC Tail  
Volume of Lead Cement : 415.96 cuft  
HOC of Lead X Open Hole Ann  
Volume of Conductor : 82.20 cuft  
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X  
(Conductor Length ft)  
Total Volume of Lead Cement : 498.16 cuft  
(cuft of Lead Cement) + (Cuft of Conductor)  
bbls of Lead Cement : 119.78 bbls  
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)  
Sacks of Lead Cement : 397.94 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
bbls of Lead Mix Water : 81.86 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42  
Displacement : 89.98 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)  
Total Water Needed : 235.86 bbls

## Tail Calculated Results

Tail Cement Volume In Ann : 127.00 cuft  
(HOC Tail) X (OH Ann)  
Total Volume of Tail Cement : 107.47 Cuft  
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)  
bbls of Tail Cement : 22.62 bbls  
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)  
HOC Tail : 219.89 ft  
(Tail Cement Volume) ÷ (OH Ann)  
Sacks of Tail Cement : 100.00 sk  
(Total Volume of Tail Cement) ÷ (Cement Yield)  
bbls of Tail Mix Water : 14.02 bbls  
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42  
Pressure of cement in annulus  
Hydrostatic Pressure : 809.80 PSI  
Collapse PSI: 2020.00 psi  
Burst PSI: 3520.00 psi

X \_\_\_\_\_ Tyler B. Hark  
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  
Two Cement Surface Pipe**

Customer  
Well Name

Noble Energy  
Rohn State LD10-64-HN

Date 10/19/2014  
INVOICE # 12155  
LOCATION Weld  
FOREMAN Monte Bedeaux  
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**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	5:30															
MIRU	3:15															
CIRCULATE	6:15	0	6:55	0	0			0			0			0		
Drop Plug		10	7:00	20	10			10			10			10		
6:55		20	7:02	20	20			20			20			20		
		30	7:04	100	30			30			30			30		
		40	7:06	110	40			40			40			40		
M & P		50	7:08	220	50			50			50			50		
Time	Sacks	60	7:10	220	60			60			60			60		
6:20-6:55	500	70	7:12	320	70			70			70			70		
		80	7:14	340	80			80			80			80		
		90	7:16	650	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
Lead mixed bbls	82.35	130			130			130			130			130		
Lead % Excess	36%	140			140			140			140			140		
Lead Sacks	400	150			150			150			150			150		
<b>Notes:</b>																
Tail mixed bbls	14.02	safty meeting, miru, pressure test per company man, circulate 30 bbls ahead with dye in 2nd 10, mix and pump 400 sks lead, 13.1, 1.69 yield, 8.64 h2o														
Tail % Excess	0%	mix and pump 100 sks tail at 15.2, 1.27, 5.89, drop plug and displace 88.82 bbls h2o. Bump plug at m at 10psi, bumped plug														
Tail Sacks	100	cassing test 1000 psi 15 min														
Total Sacks	500															
Water Temp	53															
bbl Returns	40															

X Work Performed

X Title

X 10-19-14 Date