



**Bison Oil Well Cementing
Tail & Lead**

Date: 11/17/2014

Invoice # 25095

API# 05-123-37940

Foreman: Calvin Reimers

Customer: Noble Energy Inc.

Well Name: Oscar Y 10-72-1HN

Consultant: Robert

County: Weld

Rig Name & Number: H&P 277

State: Colorado

Distance To Location: 27 Miles

Sec: 10

Units On Location: 4023-3104/4020-3212

Twp: 2N

Time Requested: 800pm

Range: 64W

Time Arrived On Location: 605pm

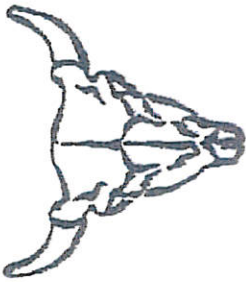
Time Left Location: 9:30pm

WELL DATA	Cement Data
Casing Size (in) : 9.625 Casing Weight (lb) : 36 Casing Depth (ft) : 1,129 Total Depth (ft) : 1160 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 100 Conductor ID : 16 Shoe Joint Length (ft) : 42 Landing Joint (ft) : 28 Sacks of Tail Requested : 100 HOC Tail (ft) : 0 <small>One or the other, cannot have quantity in both</small> Max Rate : 7 Max Pressure : 2500	Lead Cement Name: BFN III Cement Density (lb/gal) : 13.1 Cement Yield (cuft) : 1.84 Gallons Per Sack : 10.06 % Excess : 25% Tail Cement Name: BFN III Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack : 5.89 % Excess : 0% Fluid Ahead (bbls) : 86.2 H2O Wash Up (bbls) : 20.0 Spacer Ahead Makeup 50bbls H2O+Dye in 2nd 10bbls

Lead Calculated Results	Tail Calculated Results
HOC of Lead : 778.63 ft	Tail Cement Volume In Ann : 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement : 380.54 cuft	Total Volume of Tail Cement : 108.88 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor : 89.10 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 : 469.64 cuft	HOC Tail : 222.78 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement : 104.87 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 : 320.00 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 : 76.65 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure : 585.23 PSI
Displacement : 86.24 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2020.00 psi
Total Water Needed : 283.16 bbls	Burst PSI: 3520.00 psi

X *Robert Reimers*
 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 Inc.
Oscar Y 10-72-1HN

Date
INVOICE #
LOCATION
FOREMAN

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5	
	BBLS	Time	BBLS	Time	BBLS	Time	BBLS	Time	BBLS	Time
Safety Meeting	701pm									
MIRU	605pm									
CIRCULATE	742pm									
Drop Plug										
	811pm									
M & P										
Time										
Sacks										
750pm	420									
808pm										
Lead mixed bbls	76.65									
Lead % Excess	25%									
Lead Sacks	320									

Notes:

Tail mixed bbls	14.02
Tail % Excess	0%
Tail Sacks	100
Total Sacks	420
Water Temp	72.5
bbl Returns	26

X *Robert Nichols*

X WSS

X 12-5-14

Work Performed

Title

Date