



# BISON

Bison Oil Well Cementing Inc.  
1547 Gaylord Street  
Denver, CO 80206  
303-296-3010

## Invoice

Date	Invoice #
1/24/2015	35113

Bill To
Noble Energy Inc. Attn: Accounting 1625 Broadway Ste 2000 Denver, CO 80202

Location	Well Name & No.	Terms	Job Type		
Weld CO	Mahalo ST.AA09-75-111NB	Net 30	Surface Pipe		
Item	Description	Qty	U/M	Rate	Amount
Pump surface	PUMP Charge-surface pipe	1			
Discount 15%	Discount 15%				
MILEAGE	Mileage charge	360			
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1			
Discount 15%	Discount 15%				
Service Charge	PSI Charge	1			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	343	Sack		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	oz		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	6	qt		
Discount 15%	Discount 15%				
	Subtotal of Materials				

Please Remit Payment To:

Bison Oil Well Cementing, Inc.  
P.O. Box 29671  
Thornton, CO 80229

Subtotal

Sales Tax

Total

Balance Due



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/24/2015

Invoice # 35113

API#

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: mahalo state aa09-75-1hnb

County: Weld

State: Colorado

Sec:

Twp:

Range:

Consultant: martin

Rig Name & Number: pd 829

Distance To Location:

Units On Location: 4037-3103/4020-3212

Time Requested: 930 am

Time Arrived On Location: 830 am

Time Left Location: 1:45 pm

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft) : 814  
Total Depth (ft) : 845  
Open Hole Diameter (in.) : 13.50  
Conductor Length (ft) : 100  
Conductor ID : 16  
Shoe Joint Length (ft) : 43  
Landing Joint (ft) : 20

Max Rate:

Max Pressure:

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal) : 14.2  
Cement Yield (cuft) : 1.49  
Gallons Per Sack: 7.48  
% Excess: 30%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit:  
Fluid Ahead (bbls): 60.0  
H2O Wash Up (bbls): 10.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

cuft of Shoe 18.66 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)  
cuft of Conductor 89.10 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)  
cuft of Casing 453.64 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)  
Total Slurry Volume 561.40 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
bbls of Slurry 99.99 bbls  
(Total Slurry Volume) X (.1781)  
Sacks Needed 377 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
Mix Water 67.10 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 61.15 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

Hydrostatic Pressure: 600.49 PSI

## Pressure of the fluids inside casing

Displacement: 332.44 psi

Shoe Joint: 31.72 psi

Total 364.16 psi

Differential Pressure: 236.33 psi

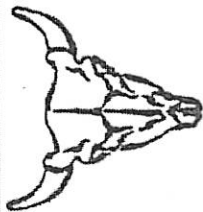
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Time to Set (min) 148 min

X *Memo*  
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.  
mahalo state aa09-75-1hnb

INVOICE #  
LOCATION  
FOREMAN  
Date

35113  
Weld  
Kirk Kallhoff  
1/24/2015

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	1123a 1015a 1155a	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI
Safety Meeting		0	1230p	10	0			0			0			0		
MIRU		10	1233p	60	10			10			10			10		
CIRCULATE		20	1235p	70	20			20			20			20		
Drop Plug		30	1237p	160	30			30			30			30		
1230 pm		40	1239p	230	40			40			40			40		
		50	1241p	290	50			50			50			50		
M & P		60	1244p	270	60			60			60			60		
Time	Sacks	70			70			70			70			70		
1208 pm	343	80			80			80			80			80		
1227 pm stop		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	16%	120			120			120			120			120		
Mixed bbls	61	130			130			130			130			130		
Total Sacks	343	140			140			140			140			140		
bbl Returns	13	150			150			150			150			150		
Water Temp																

Notes:

bumped plug at 1245pm 490 psi  
casing test 1000 psi 15 min

X   
Work Performed

X WSS  
Title

X 1-24-15  
Date