



# BISON

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

## Invoice

Date	Invoice #
1/18/2014	12644

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Marie D04-73-111N	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%				
HOURS	Wait Time	2.5			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend-Lead	385	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	5	qt		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	10	oz		
Discount 15%	Discount 15%				
Sugar	Sugar	50	lb		
	Subtotal of Materials				

Please Remit Payment To:

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

Subtotal	
Sales Tax (2.9%)	
Total	
Balance Due	



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/18/2014  
Invoice #: 12644  
API#  
Foreman: Kirk

Customer: noble  
Well Name: marie d04-73-1hn

County: weld  
State: Colorado  
Sec: 4  
Twp: 3n  
Range: 64w

Consultant: johnny  
Rig Name & Number: h&p 343  
Distance To Location:  
Units On Location: 3103-3204  
Time Requested: 600 am  
Time Arrived On Location: 500 am  
Time Left Location: 12:30pm

## WELL DATA

Casing Size OD (in): 9.6250  
Casing Weight (lb): 36  
Casing Depth (ft): 660  
Total Depth (ft): 698  
Open Hole Diameter (in.): 13.75  
Conductor Length (ft): 100  
Conductor ID: 15.5  
Shoe Joint Length (ft): 39  
Landing Joint (ft): 28

Max Rate:  
Max Pressure:

## Cement Data

Cement Name: BEN III  
Cement Density (lb/gal): 15.2  
Cement Yield (cuft): 1.27  
Gallons Per Sack: 5.89  
% Excess: 30%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit:  
Fluid Ahead (bbls):  
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

cuft of Shoe 17.08 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)  
cuft of Conductor 80.51 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)  
cuft of Casing 294.50 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)  
Total Slurry Volume 392.09 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
bbls of Slurry 90.78 bbls  
(Total Slurry Volume) X (.1781) X (% Excess Cement)  
Sacks Needed 401 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
Mix Water 56.28 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 50.15 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

Hydrostatic Pressure: 521.14 PSI

## Pressure of the fluids inside casing

Displacement: 267.61 psi

Shoe Joint: 31.08 psi

Total 298.69 psi

Differential Pressure: 222.45 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 76.28 bbls

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  
marie d04-73-1hn

INVOICE #  
LOCATION  
FOREMAN  
Date

12644  
weld  
Kirk  
1/18/2014

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	0	1126	20	0			0			0			0		
MIRU	10	1128	120	10			10			10			10		
CIRCULATE	20	1130	170	20			20			20			20		
Drop Plug	30	1132	230	30			30			30			30		
1126 am	40	1134	280	40			40			40			40		
	50	1139	240	50			50			50			50		
M & P	60			60			60			60			60		
Time	70			70			70			70			70		
1103 am	80			80			80			80			80		
1123 am stop	90			90			90			90			90		
	100			100			100			100			100		
	110			110			110			110			110		
% Excess	120			120			120			120			120		
Mixed bbls	130			130			130			130			130		
Total Sacks	140			140			140			140			140		
	150			150			150			150			150		
bbl Returns															

Notes:

bumped plug at 1139 am 400 psi 87 bbls slurry

*[Signature]*  
Work Performed

X *[Signature]*  
Title

X 1-18-14  
Date