



BISON

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

Invoice

Date	Invoice #
11/20/2013	12555

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Timbro State LD16-661N	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	420			
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1			
Discount 15%	Discount 15%				
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	506	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%				
	Subtotal of Materials				

Please Remit Payment To:

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

Subtotal		
Sales Tax (2.875%)		
Total		
Balance Due		

BISON OIL WELL CEMENTING, INC.

1738 Wynkoop St., Ste. 102
 Denver, Colorado 80202
 Phone: 303-296-3010
 Fax: 303-298-8143
 E-mail: bisonoil1@qwestoffice.net



SERVICE INVOICE

№ 12555

WELL NO. AND FARM <i>Timbro state LD 16-664A</i>	COUNTY <i>wpld</i>	STATE <i>CO</i>	DATE <i>11-20-13</i>
CHARGE TO <i>NOBLE</i>	WELL LOCATION SEC. <i>16</i> TWP. <i>9N</i> RANGE <i>5E</i>		CONTRACTOR <i>HWP 326</i>
	DELIVERED TO <i>127-104</i>		LOCATION <i>1 shop</i>
	SHIPPED VIA <i>3163-3263</i>		LOCATION <i>2/27-104</i>
	TYPE AND PURPOSE OF JOB <i>Surf Ace Pipe</i>		LOCATION <i>3 shop</i>
			WELL TYPE <i>Gas</i>

PRICE REFERENCE	DESCRIPTION	UNITS		UNIT PRICE	AMOUNT
		QTY.	MEAS.		
	<i>Pump charge</i>	<i>1</i>	<i>each</i>		
	<i>BFLT 3% RCA 1 25 lbs per sk BFLT-1</i>	<i>506</i>	<i>SKS</i>		
	<i>BLLT-1</i>	<i>5</i>	<i>QTS</i>		
	<i>mileage 1st person to mile man round trip</i>	<i>3</i>	<i>mi</i>		
	<i>Red Dye</i>	<i>10</i>	<i>oz</i>		
	<i>Date Acc</i>		<i>each</i>		

RIG NAME & NUMBER:
HWP 326

WELL NAME & NUMBER:
Timbro state LD 16-664A

AGE NUMBER:
139486

TASK (DRL, COMP, W/O, P&A):
DRL

EXP TYPE:

ACTG CODE:
1.1 0017

DOLLAR TOTAL BEING APPVD:
\$12107.10

FIELD APPROVAL DATE:
11/20/13

ROUTE TO APPROVER:
Dillon

TAX REFERENCES:

MAIL TO NOBLE ENERGY INC., ATTN: ACCOUNTS PAYABLE, 1625 BROADWAY, SUITE 2200, DENVER, CO 80202

If this account is not paid within 30 days of invoice date a FINANCE CHARGE will be made. Computed at a single monthly rate of 1 1/2% which is equal to an ANNUAL PERCENTAGE RATE OF 18%.

"TAXES WILL BE ADDED IN THE MONTHLY OFFICE" ATTACHED SIGNED FIELD TICKETS

[Signature]
Customer or His Agent

[Signature]
Bison Oil Well Cementing, Inc. Representative

TOTAL
SUBJECT TO CORRECTION

Customers hereby acknowledges and specifically agrees to the terms and conditions on this work order, including, without limitation, the provisions on the reverse side hereof which include the release and indemnity.



**Bison Oil Well Cementing
Tail & Lead**

Date: 11/19/2013

Invoice # 12555

API#

Foreman: kirk

Customer: Noble Energy

Well Name: timbro state ld 16-66

Consultant: chris

Rig Name & Number: h&p 326

Distance To Location:

Units On Location: 3103-3203

Time Requested: 430 am

Time Arrived On Location: 330 am

Time Left Location: 7:30 am

County: Weld

State: Colorado

Sec: 16

Twp: 9n

Range: 58w

WELL DATA

Casing Size (in) : 9.625
 Casing Weight (lb) : 36
 Casing Depth (ft) : 1,195
 Total Depth (ft) : 1235
 Open Hole Diameter (in) : 13.75
 Conductor Length (ft) : 90
 Conductor ID : 15.5
 Shoe Joint Length (ft) : 40
 Landing Joint (ft) : 30

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

One or the other, cannot have quantity in both

Max Rate:
 Max Pressure:

Cement Data

Lead

Cement Name:
 Cement Density (lb/gal) : 13.1
 Cement Yield (cuft) : 1.69
 Gallons Per Sack : 8.64
 % Excess : 30%

Tail

Cement Name:
 Cement Density (lb/gal) : 15.2
 Cement Yield (cuft) : 1.27
 Gallons Per Sack : 5.89
 % Excess : 20%

Fluid Ahead (bbls) : 91.6
 H2O Wash Up (bbls) : 20.0

Spacer Ahead Makeup

Casing ID	8 921	Casing Grade	1-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead	866.52 ft	Tail Cement Volume In Ann	127.00 cuft
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement	455.69 cuft	Total Volume of Tail Cement	109.64 Cuft
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor	72.46 cuft	bbls of Tail Cement	27.14 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	528.14 cuft	HOC Tail	208.48 ft
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement	122.28 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	406.26 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	83.57 bbls	Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure	813.20 PSI
Displacement	91.60 bbls		
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Collapse PSI:	2020.00 psi
Total Water Needed:	195.17 bbls	Burst PSI:	3520.00 psi

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.