



# BISON

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

## Invoice

Date	Invoice #
12/30/2013	12609

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Wells Ranch St. AA28-69HN	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	Casing PSI Test	1			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	421	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	7	qt		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	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

Total

Balance D



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/30/2013  
Invoice #: 12609  
API#: 05-123 38140  
Foreman: Calvin Reimers

Customer: Noble  
Well Name: Wells Ranch State AA 28-69HN

County: Weld  
State: Colorado

Sec: 21  
Twp: 6N  
Range: 63W

Consultant: Charles  
Rig Name & Number: H&P 322  
Distance To Location: 31 Miles  
Units On Location: 3106/3204  
Time Requested: 230pm  
Time Arrived On Location: 230pm  
Time Left Location: 615pm

## WELL DATA

Casing Size OD (in): 9.6250  
Casing Weight (lb): 36  
Casing Depth (ft): 909  
Total Depth (ft): 942  
Open Hole Diameter (in): 13.75  
Conductor Length (ft): 100  
Conductor ID: 16  
Shoe Joint Length (ft): 47  
Landing Joint (ft): 30

Max Rate: 7  
Max Pressure: 2500

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal): 15.2  
Cement Yield (cuft): 1.27  
Gallons Per Sack: 5.89  
% Excess: 0%  
Displacement Fluid lb/gal: 8.3  
DBL to Pit: 9.0  
Fluid Ahead (bbls):  
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup  
10bbls H2O+KCL+Dye in 2nd 10bbls

Casing ID

8.921

Casing Grade

J 55 only used

## Calculated Results

cuft of Shoe 20.24 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 425.27 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing  
Depth - Conductor Length)  
Total Slurry Volume 534.60 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
bbls of Slurry 95.21 bbls  
(Total Slurry Volume) X (.1781) X (% Excess Cement)  
Sacks Needed 421 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
Mix Water 59.03 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Authorization To Proceed

Displacement: 68.97 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe  
Joint)

## Pressure of cement in annulus

Hydrostatic Pressure: 717.49 PSI

## Pressure of the fluids inside casing

Displacement: 371.70 psi

Shoe Joint: 36.81 psi

Total 408.52 psi

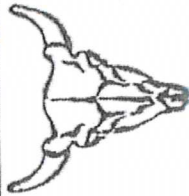
Differential Pressure: 308.98 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 79.03 bbls

Customers hereby acknowledge and specifically agree 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

INVOICE # 12609  
LOCATION Weld  
FOREMAN Calvin Reimers  
Date 12/30/2013

Customer Noble  
Well Name Wells Ranch State AA 28-69HN

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	322pm														
MIRU	230pm														
CIRCULATE	345pm														
Drop Plug															
429pm															
M & P															
Time	Sacks														
402pm	421														
426pm															
% Excess															
Mixed bbls	59.03														
Total Sacks	421														
bbl Returns															

Notes:

The day

Float Held

Casing PSI Test 446pm 1000psi to 501pm 990psi

X

X

X 12/30/13  
Date

Work Performed