



# BISON

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

## Invoice

Date	Invoice #
3/7/2014	12330

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 AA35-68-1A11NA	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%				
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	328	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
Total
Balance Due



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/7/2014  
Invoice #: 12330  
API#:   
Foreman: kirk

Customer: noble  
Well Name: wells ranch aa 35-68-1 ahna

County: weld  
State: Colorado  
Sec: 36  
Twp: 6n  
Range: 63w

Consultant: stetson  
Rig Name & Number: h&p 321  
Distance To Location:   
Units On Location: 3103-3204  
Time Requested: 1200 pm  
Time Arrived On Location: 1100 am  
Time Left Location:

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft) : 605  
Total Depth (ft) : 645  
Open Hole Diameter (in.) : 13.75  
Conductor Length (ft) : 100  
Conductor ID : 15.5  
Shoe Joint Length (ft) : 40  
Landing Joint (ft) : 34

Max Rate:   
Max Pressure:

## Cement Data

Cement Name: BFN 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 17.36 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 265.57 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)  
Total Slurry Volume 363.44 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
bbls of Slurry 84.15 bbls  
(Total Slurry Volume) X (.1781) X (% Excess Cement)  
Sacks Needed 372 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
Mix Water 52.17 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 46.31 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

Hydrostatic Pressure: 477.71 PSI

## Pressure of the fluids inside casing

Displacement: 243.62 psi

Shoe Joint: 31.58 psi

Total 275.20 psi

Differential Pressure: 202.51 psi

Collapse PSI: #N/A psi

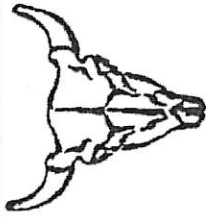
Burst PSI: #N/A psi

Total Water Needed: 118.48 bbls

X   
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

INVOICE #  
LOCATION  
FOREMAN  
Date

12330  
weld  
kirk  
3/7/2014

Customer  
Well Name

noble  
wells ranch aa 35-68-1 ahna

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting MIRU CIRCULATE Drop Plug 313 pm M & P Time	226 pm 100 pm 244 pm	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
		0	313 p	10	0			0			0			0		
		10	315 p	100	10			10			10			10		
		20	317 p	200	20			20			20			20		
		30	319 p	280	30			30			30			30		
		40	321 p	240	40			40			40			40		
		50			50			50			50			50		
		60			60			60			60			60		
		70			70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
		130			130			130			130			130		
		140			140			140			140			140		
		150			150			150			150			150		
% Excess	15%															
Mixed bbls	46															
Total Sacks	328															
bbl Returns	13															
Water Temp	0															

Notes:

bumped plug at 325 pm 410 psi 74.4 bbls slurry

X

X WSS  
Title

X 3-7-14  
Date