



BISON

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

Invoice

Date	Invoice #
1/7/2014	12631

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 AA21-62-1H1	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			
HOURS	Wait Time	3			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	431	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	7	qt		
Discount 15%	Discount 15%				
Dye - Blue	Dye Blue	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 Due



Bison Oil Well Cementing Single Cement Surface Pipe

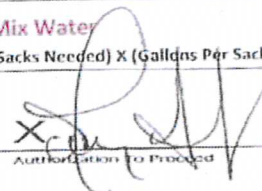
Date: 1/1/2014
 Invoice #: 12631
 API#: 05-123-37598
 Foreman: Calvin Reimers

Customer: Noble
 Well Name: Wells Ranch State AA 21-62-1HN

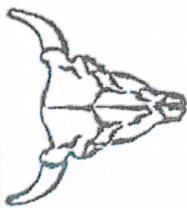
County: Weld
 State: Colorado
 Sec: 21
 Twp: 6N
 Range: 63W

Consultant: Jeremy
 Rig Name & Number: H&P 322
 Distance To Location: 30 Miles
 Units On Location: 3106/3211
 Time Requested: 730am
 Time Arrived On Location: 630am
 Time Left Location: 230pm

WELL DATA		Cement Data	
Casing Size OD (in) :	9.6250	Cement Name:	BFN III
Casing Weight (lb) :	36	Cement Density (lb/gal) :	15.2
Casing Depth (ft) :	936	Cement Yield (cuft) :	1.27
Total Depth (ft) :	970	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	13.75	% Excess:	0%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	16	BBL to Pit:	12.0
Shoe Joint Length (ft) :	43	Fluid Ahead (bbls):	
Landing Joint (ft) :	30	H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	2500	70bbls H2O+kcl+Dye in 2nd 10bbls	

Calculated Results			Displacement: 71.37 bbls	
cuft of Shoe	18.66	cuft	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)			Pressure of cement in annulus	
cuft of Conductor	89.10	cuft	Hydrostatic Pressure:	739.10 PSI
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)			Pressure of the fluids inside casing	
cuft of Casing	439.66	cuft	Displacement:	385.07 psi
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)			Shoe Joint:	33.94 psi
Total Slurry Volume	547.42	cuft	Total	419.01 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)			Differential Pressure:	320.09 psi
bbls of Slurry	97.49	bbls	Collapse PSI:	2020.00 psi
(Total Slurry Volume) X (.1781) X (% Excess Cement)			Burst PSI:	3520.00 psi
Sacks Needed	431	sk	Total Water Needed:	80.45 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)				
Mix Water	60.45	bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42				
 Calvin Reimers 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 # 12631
 LOCATION Weld
 FOREMAN Calvin Reimers
 Date 1/7/2014

Customer Noble
 Well Name Wells Ranch State AA 21-62-1HN

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	1145am 1005am 1227pm	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5			
		BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI
Safety Meeting		0	103pm	50									
MIRU		10	106pm	120									
CIRCULATE		20	108pm	110									
Drop Plug		30	110pm	190									
102pm		40	112pm	290									
M & P		50	113pm	390									
Time	Sacks	60	115pm	450									
1240pm	431	70	117pm	350									
1259pm		80	118pm	350									
		90	Bump	520									
		100											
		110											
		120											
% Excess	0%	130											
Mixed bbls	60.45	140											
Total Sacks	431	150											

bbl Returns ¹²

Notes:

The day

Float Held

Casing PSI Test 120pm 1000psi to 135pm 1000psi

Water Temp 55

_____ Title

_____ Date