



# BISON

## Invoice

Date	Invoice #
6/17/2014	12267

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

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Steadfast E27-62-HIN	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 Summer ...	BFN III Blend	318	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	4	qt		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	oz		
Discount 15%	Discount 15%				
	Subtotal of Materials				

Please Remit Payment To:

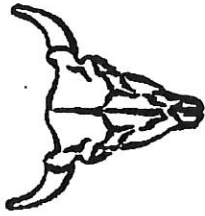
Bison Oil Well Cementing, Inc.  
P.O. Box 29671  
Thornton, CO 80229

Subtotal

Sales Tax

Total

Balance



Bison Oil Well Cementing  
Single Cement Surface Pipe

12267
weld
monte
6/17/2014

INVOICE #  
LOCATION  
FOREMAN  
Date

noble
resolute 25-63-14N

Customer  
Well Name

Treatment Report Page 2

Steadfast E27-02-14N

DESCRIPTION OF JOB EVENTS

	3:50 3:10 4:20	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	4:57	10	0			0			0			0		
MIRU		10	4:59	20	10			10			10			10		
CIRCULATE		20	5:00	120	20			20			20			20		
Drop Plug		30	5:02	170	30			30			30			30		
4:55		40	5:05	320	40			40			40			40		
		40	5:07	630	50			50			50			50		
M & P		60			60			60			60			60		
Time	Sacks	70			70			70			70			70		
4:37-4:53	318	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		
% Excess	0%	130			130			130			130			130		
Mixed bbls	44.6	140			140			140			140			140		
Total Sacks	318	150			150			150			150			150		
bbl Returns	30															
Water Temp	77															

Notes:

safety meeting. Miru, pressure test per company man. Circulate 40 bbls ahead with dye in 2nd 10, mix and pump 318 bbls at 15.2 lb at 30 excess, drop plug and displace bump plug at 4:10 pm at 630 psi 30 bbls back

*May Stopton*

X

6-17-14



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/17/2014  
Invoice #: 12267  
API#:   
Foreman: monte

Customer: noble

Well Name: ~~resolute 25-63-1ha~~ *stead fast E27-62-1HN*

County: weld  
State: colorado  
Sec: 26  
Twp: 6n  
Range: 65w

Consultant: devin  
Rig Name & Number: persision 828  
Distance To Location: 21,9  
Units On Location: 4028-3102/4022-3205  
Time Requested: 3:00pm  
Time Arrived On Location: 2:00  
Time Left Location:

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft) : 542	Cement Yield (cuft) : 1.27
Total Depth (ft) : 597	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 30%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.6	BBL to Pit: 0.0
Shoe Joint Length (ft) : 45	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 23	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	10 fresh 10 dye 20 fresh

Casing ID 8.921	Casing Grade J-55 only used
<b>Calculated Results</b>	Displacement: 40.20 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe 19.53 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Pressure of cement in annulus</b>
cuft of Conductor 82.20 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 427.96 PSI
cuft of Casing 302.17 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )	<b>Pressure of the fluids inside casing</b>
Total Slurry Volume 403.91 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 214.30 psi
bbls of Slurry 71.94 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 35.53 psi
Sacks Needed 318 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 249.83 psi
Mix Water 44.60 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 178.13 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 144.80 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.	