



BISON

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

Invoice

Date	Invoice #
9/20/2014	55026

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Heartland St.C31-78-11IN	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	PSI Test	1			
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	360	Sack		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	oz		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	5	qt		
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: 9/20/2014
Invoice #: 55026
API#:
Foreman: monte

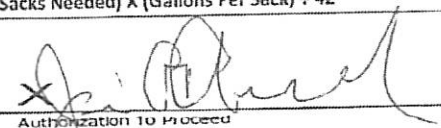
Customer: Noble Energy Inc.

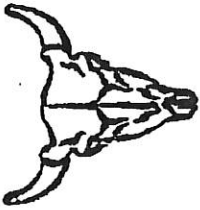
Well Name: Heartland State c31-78-1hn

County: Weld
State: Colorado
Sec: 25
Twp: 4n
Range: 65w

Consultant: Jimbo
Rig Name & Number: pd 828
Distance To Location: 9
Units On Location: 4028-3201 4020-3212
Time Requested: 1:00am
Time Arrived On Location: 12:10am
Time Left Location: 4:45

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) : 666	Cement Yield (cuft) : 1.27
Total Depth (ft) : 736	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 20%
Conductor Length (ft) : 90	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.6	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 50.0
Landing Joint (ft) : 19	H2O Wash Up (bbls): 20.0
Max Rate: 5	Spacer Ahead Makeup
Max Pressure: 2000	10 fresh 10 dye 30 fresh

Casing ID 8.921	Casing Grade J-55 only used
Calculated Results	Displacement: 49.55 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe 19.10 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus
cuft of Conductor 73.98 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 525.87 PSI
cuft of Casing 363.49 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 456.57 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 268.19 psi
bbls of Slurry 81.32 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 34.74 psi
Sacks Needed 360 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 302.94 psi
Mix Water 50.42 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 222.94 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 169.97 bbls
 Authorization to Proceed	
Customer 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**

Customer
Well Name

Noble Energy Inc.
Heartland State c31-78-1hn

INVOICE # 55026
LOCATION Weld
FOREMAN monte
Date 9/20/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	2:20 2:05 2:45	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	3:16	0	0			0			0			0		
MIRU		10	3:19	40	10			10			10			10		
CIRCULATE		20	3:21	150	20			20			20			20		
Drop Plug		30	3:23	160	30			30			30			30		
3:14		40	3:26	210	40			40			40			40		
M & P		50	3:32	420	50			50			50			50		
Time		60			60			60			60			60		
2:55-3:12	Sacks	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		
% Excess	20%	130			130			130			130			130		
Mixed bbls	50.42	140			140			140			140			140		
Total Sacks	360	150			150			150			150			150		
bbl Returns	12															
Water Temp	67															

Notes:

Safety Meeting, miru, pressure test per company man circulate 50 bbls ahead with dye in 2nd 10,

mix and pump 360 sks at 20 % excess. drop plug and displace 49.55 bbls h2o

cassing test 1000 lb 15 min (didnt hold at all)

X

X Supervisor
Title

X 9-19-14
Date

Work Performed