



BISON

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

Invoice

Date	Invoice #
9/3/2014	55021

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.H01-73-IHN	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	435	Sack		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	oz		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	4	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 Due



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/3/2014
Invoice #: 55021
API#:
Foreman: monte

Customer: Noble
Well Name: heartland state h01-73-1hn

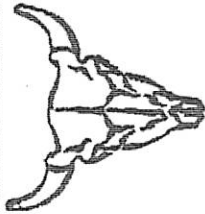
County: Weld
State: Colorado
Sec: 25
Twp: 4n
Range: 65w
Consultant: Roger
Rig Name & Number: pd 829
Distance To Location: 10
Units On Location: 4028-3201 4017-3211
Time Requested: 3:00pm
Time Arrived On Location: 2:30am
Time Left Location: 6:30

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) : 716	Cement Yield (cuft) : 1.27
Total Depth (ft) : 726	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 40%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.6	BBL to Pit:
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 19	H2O Wash Up (bbls): 20.0
Max Rate: 5	Spacer Ahead Makeup
Max Pressure: 2000	10 fresh 10 dye 20 fresh

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results	Displacement:	53.50 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)			
cuft of Conductor	65.76	cuft	
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)			
cuft of Casing	468.25	cuft	
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)			
Total Slurry Volume	552.67	cuft	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)			
bbls of Slurry	98.43	bbls	
(Total Slurry Volume) X (.1781)			
Sacks Needed	435	sk	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	61.03	bbls	
(Sacks Needed) X (Gallons Per Sack) ÷ 42			
	Pressure of cement in annulus		
	Hydrostatic Pressure:	565.35 PSI	
	Pressure of the fluids inside casing		
	Displacement:	290.18 psi	
	Shoe Joint:	33.95 psi	
	Total	324.14 psi	
	Differential Pressure:	241.22 psi	
	Collapse PSI:	2020.00 psi	
	Burst PSI:	3520.00 psi	
	Total Water Needed:	174.53 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

Customer
Well Name

Noble
heartland state h01-73-1hn

INVOICE #
LOCATION
FOREMAN
Date

55021
Weld
monte
9/3/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	4:00 3:05 4:26	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5	
		BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS
Safety Meeting	4:00	0	5:03	0	0			0			0
MIRU	3:05	10	5:05	20	10			10			10
CIRCULATE	4:26	20	5:07	150	20			20			20
Drop Plug		30	5:09	150	30			30			30
5:00		40	5:11	270	40			40			40
M & P		50	5:13	270	50			50			50
Time		60	5:14	490	60			60			60
4:36-4:58	Sacks	70			70			70			70
		80			80			80			80
		90			90			90			90
		100			100			100			100
		110			110			110			110
% Excess	40%	120			120			120			120
Mixed bbls	61.03	130			130			130			130
Total Sacks	435	140			140			140			140
bbl Returns	4	150			150			150			150
Water Temp	66										

Notes:

Safety Meeting, miru, pressure test per company man circulate 40 bbls ahead with dye in 2nd 10,

mix and pump 435 sks at 40 % excess. drop plug and displace 53.5 bbls h2o

cassing test 1000 lb for 15 min

X

X WJS
Title

X 9/3/14
Date