



# BISON

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

## Invoice

Date	Invoice #
1/5/2015	45102

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Mahalo St. AA09-78-1B1NB	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%				
HOURS	Wait Time	4			
Service Charge	Winterization Charge	1			
Service Charge	PSI Charge	1			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	311	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



# Bison Oil Well Cementing Single Cement Surface Pipe

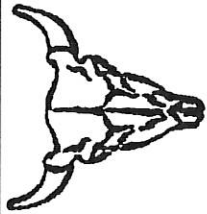
Date: 1/5/2015  
Invoice # 45102  
API# 05-123-39120  
Foreman: JASON KELEHER

Customer: Noble Energy Inc.  
Well Name: MAHALO STATE AA09-78-1BHN8

County: Weld  
State: Colorado  
Sec: 4  
Twp: 6N  
Range: 63W  
Consultant: MIKE  
Rig Name & Number: H&P 322  
Distance To Location: 33  
Units On Location: 4031-3107/ 4020-3212  
Time Requested: 400  
Time Arrived On Location: 330  
Time Left Location: 1200

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 14.2
Casing Depth (ft) : 853	Cement Yield (cuft) : 1.49
Total Depth (ft) : 881	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 0%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 10.0
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls): 40.0
Landing Joint (ft) : 29	H2O Wash Up (bbls): 20.0
Max Rate: 6	Spacer Ahead Makeup
Max Pressure: 1000	40 BBL WATER W/ DYE IN 2ND 10

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results	Displacement: 64.85 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)		
cuft of Shoe 18.67 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of cement in annulus		
cuft of Conductor 76.31 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 629.15 PSI		
cuft of Casing 367.94 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing		
Total Slurry Volume 462.93 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 349.18 psi		
bbls of Slurry 82.45 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 31.74 psi		
Sacks Needed 311 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 380.92 psi		
Mix Water 55.33 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 248.23 psi		
	Collapse PSI: 2020.00 psi		
	Burst PSI: 3520.00 psi		
	Total Water Needed: 180.18 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.			



Bison Oil Well Cementing  
Single Cement Surface Pipe

INVOICE # 45102  
LOCATION Weld  
FOREMAN JASON KELEHER  
Date 1/5/2015

Customer  
Well Name Noble Energy Inc.  
MAHALO STATE AA09-78-1BHNB

Treatment Report Page 2


DESCRIPTION OF JOB EVENTS


	800 700 937	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	1016	0	0			0			0			0		
MIRU		10	1019	40	10			10			10			10		
CIRCULATE		20	1021	40	20			20			20			20		
Drop Plug		30	1024	70	30			30			30			30		
1016		40	1028	110	40			40			40			40		
M & P		50	1032	250	50			50			50			50		
Time	Sacks	60	1034	280	60			60			60			60		
0954-1014	311	70	1036	300	70			70			70			70		
		80	BUMP	630	80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	0%	120			120			120			120			120		
Mixed bbls	55.3	130			130			130			130			130		
Total Sacks	311	140			140			140			140			140		
bbl Returns	10	150			150			150			150			150		
Water Temp	45															

Notes:

PUMPED 60 BBL WATER W/ DYE IN 2ND 10 AT 0937, MIXED AND PUMPED 311 SKS AT 14.2, 82.5 BBL AT 0954, SHUT DOWN AT 1014, STARTED  
DISPLACEMENT AT 1016, LANDED PLUG AT 300 PSI AT 1036 AND PRESSURED UP TO 630 PSI, HELD FOR 1 MINUTE AND PRESSURED UP TO 1010 PSI  
AND HELD FOR 15 MINUTES, RELEASED PRESSURE AND AND GOT .5 BBL BACK AND FLOATS HELD

X   
Work Performed

X   
Title

X   
Date