



BISON

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

Invoice

Date	Invoice #
1/21/2015	25132

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.AA09-76-1A1NB	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 Charge	1			
HOURS	Wait Time	3.5			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	351	Sack		
Discount 15%	Discount 15%				
Rhodamine Dye	Rhodamine Liquid Dye	16	oz		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	6	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: 1/21/2015
Invoice #: 25132
API#: 05-123-39125
Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Mahalo State AA 09-76-1AHNB

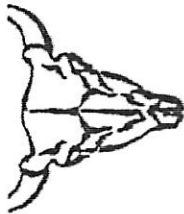
County: Weld
State: Colorado
Sec: 9
Twp: 6N
Range: 63W
Consultant: Charles
Rig Name & Number: H&P 322
Distance To Location: 32 Miles
Units On Location: 4023-3104/4035-3204
Time Requested: 1145am
Time Arrived On Location: 1145am
Time Left Location: 715pm

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.) :	837	Cement Yield (cuft) :	1.49
Total Depth (ft) :	866	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	15%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	16	BBL to Pit:	15.0
Shoe Joint Length (ft) :	45	Fluid Ahead (bbls):	60.0
Landing Joint (ft) :	31	H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	2500	60bbls H2O+Dye in 2nd 10bbls	

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 63.63 bbls	
cuft of Shoe	19.57 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:	617.57 PSI
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Pressure of the fluids inside casing	
cuft of Casing	414.31 cuft	Displacement:	341.53 psi
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Shoe Joint:	33.26 psi
Total Slurry Volume	522.98 cuft	Total	374.79 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure:	242.78 psi
bbls of Slurry	93.14 bbls	Collapse PSI: 2020.00 psi	
(Total Slurry Volume) X (.1781)		Burst PSI: 3520.00 psi	
Sacks Needed	351 sk	Total Water Needed: 206.14 bbls	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	62.51 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

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.



SINGLE CEMENT SURFACE PIPE

Single Cement Surface Pipe

Customer
Well NameNoble Energy Inc.
Mahalo State AA 09-76-1AHNBINVOICE #
LOCATION
FOREMAN
Date42122
Weld
Calvin Reimers
1/21/2015

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	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	452pm														
MIRU	430pm														
CIRCULATE	529pm														
Drop Plug															
603pm															
M & P															
Time															
541pm	Sacks	60	617pm	230	60		60			60			60		
559pm		351	70	618pm	250	70	70			70			70		
			80	Bump	440	80	80			80			80		
			90			90	90			90			90		
			100			100	100			100			100		
			110			110	110			110			110		
% Excess	20%		120			120	120			120			120		
Mixed bbls	65.28		130			130	130			130			130		
Total Sacks	367		140			140	140			140			140		
bbl Returns	15		150			150	150			150			150		
Water Temp	79.1														

Notes:

The day

1/2 bbl Back on Bleed Off

Casing PSI Test 619pm 1000psi to 634pm 1010psi

X

X WSS
TitleX 1/21/15
Date

Work Performed