



BISON

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

Invoice

Date	Invoice #
1/18/2015	25129

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-AA09-73-1HNC	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			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	367	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: 1/18/2015
Invoice #: 25129
API#: 05-123-39021
Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Mahalo State AA 09-73-1HNC

County: Weld
State: Colorado
Sec: 4
Twp: 6N
Range: 63W
Consultant: Tawn/John T
Rig Name & Number: PD 828
Distance To Location: 32 Miles
Units On Location: 4023-3104/4034-3211
Time Requested: 800am
Time Arrived On Location: 740am
Time Left Location: 1145am

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 818
Total Depth (ft) : 839
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 42
Landing Joint (ft) : 21

Max Rate: 7
Max Pressure: 2500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 25%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 20.0
Fluid Ahead (bbls): 60.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
60bbls H2O+Dye in 2nd 10bbls

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.41 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 89.10 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 438.62 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 546.13 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 97.26 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 367 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 65.28 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 61.56 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 603.42 PSI

Pressure of the fluids inside casing

Displacement: 334.40 psi

Shoe Joint: 31.29 psi

Total 365.70 psi

Differential Pressure: 237.72 psi

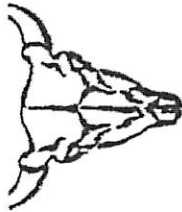
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 206.83 bbls

X *Calvin Reimers*
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.



DISCOUNT WELL SERVICES
Single Cement Surface Pipe

INVOICE #
LOCATION
FOREMAN
Date

WELD
Calvin Reimers
1/18/2015

Customer
Well Name

Noble Energy Inc.
Mahalo State AA 09-73-1HNC

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI	BBS	Time	PSI
Safety Meeting	954am	0	1024am	80	0			0			0			0		
MIRU	857am	10	1027am	60	10			10			10			10		
CIRCULATE	955am	20	1029am	60	20			20			20			20		
Drop Plug		30	1032am	140	30			30			30			30		
1023am		40	1034am	290	40			40			40			40		
		50	1035am	320	50			50			50			50		
M & P		60	1038am	230	60			60			60			60		
Time	Sacks	70	1040am	230	70			70			70			70		
1007am	367	80	Bump	500	80			80			80			80		
1020am		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
% Excess	25%	130			130			130			130			130		
Mixed bbls	65.28	140			140			140			140			140		
Total Sacks	367	150			150			150			150			150		
bbl Returns	20															
Water Temp	73.3															

Notes:

The day

1/2 bbl Back on Bleed Off

Casing PSI Test 1041am 1050psi to 1056am 1040psi

X *1 am [Signature]*

X WSS

X 1/18/15
Date

Work Performed