



BISON

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

Invoice

Date	Invoice #
7/28/2014	35008

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Brook LC28-74-1AHNC	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	420			
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1			
Discount 15%	Discount 15%				
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	378	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	4	qt		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	10	oz		
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: 7/28/2014
Invoice # 35008
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: brook lc 28-74-1 ahna

County: Weld
State: Colorado

Sec: 28
Twp: 9n
Range: 59w

Consultant: mike m
Rig Name & Number: h&p 273
Distance To Location: 45
Units On Location: 4030-3103/4007-3211
Time Requested: 530 pm
Time Arrived On Location: 430 pm
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 592
Total Depth (ft) : 632
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 42
Landing Joint (ft) : 30

Max Rate:
Max Pressure:

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 15.2
Cement Yield (cuft) : 1.27
Gallons Per Sack: 5.89
% Excess: 30%
Displacement Fluid lb/gal: 8.3
BBL to Pit:
Fluid Ahead (bbls): 40.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.23 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 336.36 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 443.68 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 79.02 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 349 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 48.99 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 44.84 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 467.44 PSI

Pressure of the fluids inside casing

Displacement: 237.15 psi

Shoe Joint: 33.16 psi

Total 270.31 psi

Differential Pressure: 197.13 psi

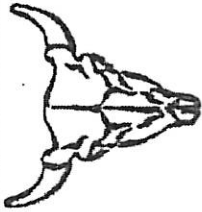
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 153.83 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 #
LOCATION
FOREMAN
Date

35008
Weld
Kirk Kallhoff
7/28/2014

Customer
Well Name

Noble Energy Inc.
brook lc 28-74-1 ahna

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	707pm 640pm 728pm	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5	
		BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs
Safety Meeting		0	801pm	10	0			0			0
MIRU		10	803pm	100	10			10			10
CIRCULATE		20	805pm	170	20			20			20
Drop Plug		30	807pm	240	30			30			30
801 pm		40	810pm	240	40			40			40
		50			50			50			50
M & P		60			60			60			60
Time	Sacks	70			70			70			70
737 pm	378	80			80			80			80
757 pm stop		90			90			90			90
		100			100			100			100
		110			110			110			110
% Excess	41%	120			120			120			120
Mixed bbls	53	130			130			130			130
Total Sacks	378	140			140			140			140
bbl Returns	17	150			150			150			150
Water Temp											

Notes:

bumped plug at 814 pm 450 psi

85.4 bbls slurry

X *Michael Maynard*
Work Performed

X *WSS*
Title

X *7-28-14*
Date