



BISON

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

Invoice

Date	Invoice #
7/14/2014	35000

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Brook LC28-75-1BHNC	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	364	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



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/13/2014
Invoice #: 35000
API#:
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: brook lc 28-75-1 bhnc

County: Weld
State: Colorado
Sec: 28
Twp: 9n
Range: 59w

Consultant: mike p
Rig Name & Number: h&p 273
Distance To Location: 35
Units On Location: 4030-3103/4020-3212
Time Requested: 1130 pm
Time Arrived On Location: 1045 pm
Time Left Location: 3:00 am

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 588
Total Depth (ft) : 628
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 333.62 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 440.95 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 78.53 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 347 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 48.69 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 44.53 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 464.28 PSI

Pressure of the fluids inside casing

Displacement: 235.42 psi

Shoe Joint: 33.16 psi

Total 268.59 psi

Differential Pressure: 195.70 psi

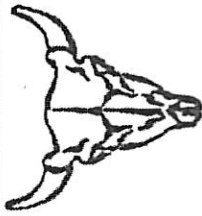
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 153.22 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 Energy Inc.
brook lc 28-75-1 bhnc

INVOICE #
LOCATION
FOREMAN
Date

35000
Weld
Kirk Kallhoff
7/14/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	117am 1245am 129am	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5	
		BBLs	Time	BBLs	Time	BBLs	Time	BBLs	Time	BBLs	Time
Safety Meeting		0	207am	0		0		0		0	
MIRU		10	210am	10		10		10		10	
CIRCULATE		20	212am	20		20		20		20	
Drop Plug		30	214am	30		30		30		30	
207am		40	217am	40		40		40		40	
		50		50		50		50		50	
M & P		60		60		60		60		60	
Time	Sacks	70		70		70		70		70	
141 am	364	80		80		80		80		80	
204 am stop		90		90		90		90		90	
		100		100		100		100		100	
		110		110		110		110		110	
% Excess	36%	120		120		120		120		120	
Mixed bbls	51	130		130		130		130		130	
Total Sacks	364	140		140		140		140		140	
bbl Returns	19	150		150		150		150		150	
Water Temp											

Notes:

bumped plug at 220 am 450 psi

82.3 bbls slurry

X

X

X 7-14-14
Date

Work Performed