



BISON

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

Invoice

Date	Invoice #
2/7/2014	12281

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Wells Ranch AA35-65-1AHNA	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	480			
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1			
Discount 15%	Discount 15%				
HOURS	Wait Time	18			
Service Charge	Winterization Charge	1			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	385	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: 2/7/2014
Invoice #: 12281
API#:
Foreman: Kirk

Customer: noble
Well Name: wells ranch aa 35-65-1ahna

County: weld
State: Colorado
Sec: 36
Twp: 6n
Range: 63w

Consultant: jim b
Rig Name & Number: h&p 343
Distance To Location:
Units On Location: 3103-3210
Time Requested: 1130 pm
Time Arrived On Location: 1030 pm
Time Left Location: 9:30 pm

WELL DATA

Casing Size OD (in) : 9.6250
Casing Weight (lb) : 36
Casing Depth (ft) : 597
Total Depth (ft) : 632
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 15.5
Shoe Joint Length (ft) : 41
Landing Joint (ft) : 25

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):
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 17.80 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 80.51 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 261.36 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 359.67 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 83.27 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)
Sacks Needed 368 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 51.63 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 44.92 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 471.39 PSI

Pressure of the fluids inside casing

Displacement: 239.74 psi

Shoe Joint: 32.37 psi

Total 272.11 psi

Differential Pressure: 199.28 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 71.63 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

INVOICE # 12281
LOCATION weld
FOREMAN Kirk
Date 2/7/2014

Customer
Well Name

noble
wells ranch aa 35-65-1ahna

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	735pm														
MIRU	700pm														
CIRCULATE	809pm														
Drop Plug															
840 pm															
M & P															
Time															
817 pm	Sacks	385													
838 pm stop															
% Excess	36%														
Mixed bbls	54														
Total Sacks	385														
bbl Returns															

Notes:

bumped plug at 852 pm 500 psi 87 bbls slurry

X

X Title

X 2-7-14
Date

Work Performed