



BISON

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

Invoice

Date	Invoice #
1/25/2014	12273

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 AA21-63HN	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%				
HOURS	Wait Time	1			
Service Charge	Casing Test	1			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend-Lead	442	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	7	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: 1/25/2014
Invoice # 12273
API#
Foreman: Kirk

Customer: noble
Well Name: wells ranch aa 21-63hn

County: weld
State: Colorado
Sec: 21
Twp: 6n
Range: 63w

Consultant: mike
Rig Name & Number: h&p 322
Distance To Location:
Units On Location: 3103-3204
Time Requested: 130 am
Time Arrived On Location: 1200 am
Time Left Location: 6:30 am

WELL DATA

Casing Size OD (in) : 9.6250
Casing Weight (lb) : 36
Casing Depth (ft) : 929
Total Depth (ft) : 962
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 15.5
Shoe Joint Length (ft) : 42
Landing Joint (ft) : 28

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 18.10 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 435.96 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 534.56 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 123.77 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)
Sacks Needed 547 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 76.74 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 70.76 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 733.54 PSI

Pressure of the fluids inside casing

Displacement: 382.59 psi

Shoe Joint: 32.93 psi

Total 415.51 psi

Differential Pressure: 318.03 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 96.74 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

12273
weld
Kirk
1/25/2014

Customer
Well Name

noble
wells ranch aa 21-63hn

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	Safety Meeting MIRU CIRCULATE Drop Plug 520 am M & P	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
408am		0	520	10	0			0			0			0		
335am		10	523	80	10			10			10			10		
443am		20	525	80	20			20			20			20		
		30	526	160	30			30			30			30		
		40	528	240	40			40			40			40		
		50	530	320	50			50			50			50		
		60	532	390	60			60			60			60		
		70	538	330	70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
		130			130			130			130			130		
		140			140			140			140			140		
		150			150			150			150			150		
% Excess				5%												
Mixed bbls				62												
Total Sacks				442												
bbl Returns				12												

Notes:

bumped plug at 538 am 450 psi 99.9 bbls slurry

[Signature]
Work Performed

[Signature]
Title

X 1-25-14
Date