



# BISON

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

## Invoice

Date	Invoice #
6/24/2014	12075a

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Rico LC29-72-111NA	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%				
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	314	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	5	qt		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	16	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: 6/24/2014

Invoice # 12075

API# 05-123-38619

Foreman: JASON

Customer: NOBLE

Well Name: RICO LC29-72-1HNA

County: Weld County

State: Colorado

Sec: 29

Twp: 9N

Range: 59W

Consultant: SHANE

Rig Name & Number: H&P 326

Distance To Location: 67

Units On Location: 4024-3106, 4022-3205

Time Requested: 1330

Time Arrived On Location: 1300

Time Left Location: 1700

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft) : 586  
Total Depth (ft) : 627  
Open Hole Diameter (in.) : 13.75  
Conductor Length (ft) : 100  
Conductor ID : 15.25  
Shoe Joint Length (ft) : 44  
Landing Joint (ft) : 31  
  
Max Rate: 7  
Max Pressure: 2500

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal) : 15.2  
Cement Yield (cuft) : 1.27  
Gallons Per Sack: 5.89  
% Excess: 19%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit: 13.0  
Fluid Ahead (bbls): 45.0  
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup  
45 BBL H2O+KCL+DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

cuft of Shoe 18.90 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)  
cuft of Conductor 76.31 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)  
cuft of Casing 304.16 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)  
Total Slurry Volume 399.38 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
bbls of Slurry 84.64 bbls  
(Total Slurry Volume) X (.1781) X (% Excess Cement)  
Sacks Needed 314 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
Mix Water 44.10 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 44.33 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

Hydrostatic Pressure: 462.73 PSI

## Pressure of the fluids inside casing

Displacement: 233.91 psi

Shoe Joint: 34.39 psi

Total 268.29 psi

Differential Pressure: 194.44 psi

Collapse PSI: 2020.00 psi

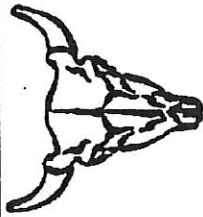
Burst PSI: 3520.00 psi

Total Water Needed: 153.44 bbls

X

Authorization To Proceed

Customers hereby acknowledge and specifically agree 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  
RICO LC29-72-1HNA

INVOICE #  
LOCATION  
FOREMAN  
Date

12075  
Weld County  
JASON  
6/24/2014

Treatment Report Page 2

**DESCRIPTION OF JOB EVENTS**

	1445 1315	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		0	1537	0	0			0			0			0		
MIRU		10	1540	90	10			10			10			10		
CIRCULATE		20	1542	150	20			20			20			20		
Drop Plug		30	1546	260	30			30			30			30		
1536		40	1548	320	40			40			40			40		
		50	1551	280	50			50			50			50		
M & P		60	BUMP	550	60			60			60			60		
Time	Sacks	70			70			70			70			70		
1518-1533	314	80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	0%	120			120			120			120			120		
Mixed bbls	44	130			130			130			130			130		
Total Sacks	314	140			140			140			140			140		
bbl Returns	13	150			150			150			150			150		
Water Temp	75															

Notes:

The day

PUMPED 45 BBL H2O AHEAD, 2ND 10 WITH DYE, MIX AND PUMP 314 SKS AT 15.2, 71 BBLs OF SLURRY, RELEASED PRESSURE AND GOT .5 BBLs BACK

X

X

X

Work Performed

Title

Date