



BISON

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

Invoice

Date	Invoice #
11/1/2013	12678

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Crow Creek St. AC36-73-1H	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	380			
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%				
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 (2.0%)	
Total	
Balance Due	



Bison Oil Well Cementing Single Cement Surface Pipe

Invoice # 12678
API# 139132
Foreman: JH

Customer: NOBLE
Well Name: CROW CREEK AC36-731HN

County: Weld County
State: Colorado
Sec: 36
Twp: 7N
Range: 63W

Consultant: CASEY
Rig Name & Number: HP 277
Distance To Location: 60 MIN
Units On Location: 31,044,017,119
Time Requested: 23:00
Time Arrived On Location: 7PM
Time Left Location: 3AM

WELL DATA

Casing Size OD (in) : 9.6250
Casing Weight (lb) : 36
Casing Depth (ft) : 621
Total Depth (ft) : 631
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 104
Conductor ID : 15.5
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 24

Max Rate: 6
Max Pressure: 1500

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: 16
Fluid Ahead (bbls):
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
10, 10 DYE, 20

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.75 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 83.73 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 271.88 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 374.36 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 86.68 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)
Sacks Needed 383 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 53.74 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 46.52 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 490.34 PSI

Pressure of the fluids inside casing

Displacement: 249.14 psi

Shoe Joint: 34.11 psi

Total 283.25 psi

Differential Pressure: 207.09 psi

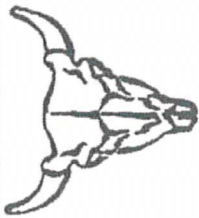
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 73.74 bbls

X *[Signature]*
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

12678
Weld County
JH

Customer
Well Name

NOBLE
CROW CREEK AC36-731HN

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	0	309	40	0			0			0			0		
MIRU	10	316	230	10			10			10			10		
CIRCULATE	20	318	260	20			20			20			20		
Drop Plug	30	320	300	30			30			30			30		
309am	40	322	380	40			40			40			40		
M & P	50	326	810	50			50			50			50		
Time	60			60			60			60			60		
start248	70			70			70			70			70		
stop307	80			80			80			80			80		
	90			90			90			90			90		
	100			100			100			100			100		
	110			110			110			110			110		
% Excess	120			120			120			120			120		
Mixed bbls	130			130			130			130			130		
Total Sacks	140			140			140			140			140		
	150			150			150			150			150		
bbl Returns	16														

Notes:

pressure test held at 1010 for 15 mins with 16 bbl returns

Robert Sticks
Work Performed

X
Title

X
Date