



BISON

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

Invoice

Date	Invoice #
11/27/2013	12557

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Crow Creet St. AD31-79HN	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	2			
	Subtotal of Services				
BFN III Winter ...	BFN III Blend	341	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 (2.9%)	
Total	
Balance Due	



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/27/2013

Invoice # 12557

API#

Foreman: Kirk

Customer: noble

Well Name: crow creek state ad 31-79hn

County: weld

State: Colorado

Sec: 36

Twp: 7n

Range: 63w

Consultant: robert

Rig Name & Number: h&p 277

Distance To Location:

Units On Location: 3103-3212

Time Requested: 230 am

Time Arrived On Location: 1230 am

Time Left Location: 8:30 am

WELL DATA

Casing Size OD (in) : 9.6250
 Casing Weight (lb) : 36
 Casing Depth (ft) : 598
 Total Depth (ft) : 636
 Open Hole Diameter (in.) : 13.75
 Conductor Length (ft) : 100
 Conductor ID : 15.5
 Shoe Joint Length (ft) : 43
 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 (bbbls):
 H2O Wash Up (bbbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.66 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 261.89 cuft
 (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
 Total Slurry Volume 361.06 cuft
 (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
 bbbls of Slurry 83.60 bbbls
 (Total Slurry Volume) X (.1781) X (% Excess Cement)
 Sacks Needed 370 sk
 (Total Slurry Volume) + (Cement Yield) X (% Excess Cement)
 Mix Water 51.83 bbbls
 (Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 45.07 bbbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 472.18 PSI

Pressure of the fluids inside casing

Displacement: 239.31 psi

Shoe Joint: 33.95 psi

Total 273.26 psi

Differential Pressure: 198.92 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 71.83 bbbls

x
 Authorization To Proceed

Customers hereby acknowledge 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
crow creek state ad 31-79hm

INVOICE #
LOCATION
FOREMAN
Date

12557
weld
Kirk
11/27/2013

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	619	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLs	Time	PSI												
Safety Meeting	430															
MIRU	707	0	739	20	0		0		0		0		0			
CIRCULATE		10	742	80	10		10		10		10		10			
Drop Plug		20	744	140	20		20		20		20		20			
		30	746	190	30		30		30		30		30			
		40	748	220	40		40		40		40		40			
M & P		50			50		50		50		50		50			
Time		60			60		60		60		60		60			
Sacks		70			70		70		70		70		70			
7:15 am		80			80		80		80		80		80			
7:36 am stop		90			90		90		90		90		90			
		100			100		100		100		100		100			
		110			110		110		110		110		110			
% Excess		120			120		120		120		120		120			
Mixed bbls	20%	130			130		130		130		130		130			
Total Sacks	47.8	140			140		140		140		140		140			
bbl Returns	341	150			150		150		150		150		150			

Notes:

bumped plug at 7:52 am 360psi

X *[Signature]*
Title

X *[Signature]*
Title

X 11-27-13
Date