



BISON

Invoice

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

Date	Invoice #
11/22/2013	12556

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	NCLP PC AA04-68-11N	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 Winter ...	BFN III Blend	437	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	5	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 (2.8%)		
Total		
Balance Due		



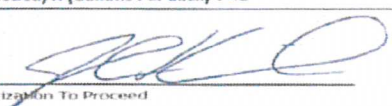
**Bison Oil Well Cementing
Single Cement Surface Pipe**

Date: 11/22/2013
 Invoice #: 17556
 API#
 Foreman: kirk

Customer: noble
 Well Name: nclp pc aa 04-68-1hn

County: weld
 State: Colorado
 Sec: 4
 Twp: 6n
 Range: 63w
 Consultant: josh
 Rig Name & Number: h&p 321
 Distance To Location:
 Units On Location: 3102-3206
 Time Requested: 600 pm
 Time Arrived On Location: 600pm
 Time Left Location: 11:30 pm

WELL DATA	Cement Data
Casing Size OD (in) : 9.6250	Cement Name: BFN III
Casing Weight (lb) : 36	Cement Density (lb/gal) : 15.2
Casing Depth (ft) : 725	Cement Yield (cuft) : 1.27
Total Depth (ft) : 769	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 13.75	% Excess: 30%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.5	BBL to Pit:
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls):
Landing Joint (ft) : 34	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	

Calculated Results	Pressure of cement in annulus
<p>Casing ID: 8.921 Casing Grade: J-55 only used</p> <p>cuft of Shoe 18.66 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)</p> <p>cuft of Conductor 80.51 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)</p> <p>cuft of Casing 328.68 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)</p> <p>Total Slurry Volume 427.85 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)</p> <p>bbls of Slurry 99.06 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)</p> <p>Sacks Needed 438 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)</p> <p>Mix Water 61.42 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42</p>	<p>Displacement: 55.35 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)</p> <p>Hydrostatic Pressure: 572.46 PSI</p> <p>Pressure of the fluids inside casing</p> <p>Displacement: 294.07 psi</p> <p>Shoe Joint: 33.95 psi</p> <p>Total 328.02 psi</p> <p>Differential Pressure: 244.44 psi</p> <p>Collapse PSI: 2020.00 psi</p> <p>Burst PSI: 3520.00 psi</p> <p>Total Water Needed: 81.42 bbls</p>
<p>X  Authorization To Proceed</p>	
<p>Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.</p>	

