BISON

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

Invoice

Date	Invoice #
5/30/2014	12061

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

Location	Well Name & No.	Terms	Job Type
Weld CO	Resolute E25-63HN	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%				
Service Charge	Casing PSI test	1			
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	323	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 D	

Bison Oil Well Cementing
Single Cement Surface Pipe

Date:	5/30/2014
Invoice #	12061
API#	05-123-38158
Foreman:	JASON

Customer: NOBLE

Well Name: RESOLUTE E25-63HN

County:	Weld County	Consultant:	GARY STAPELTON
State:	Colorado	Rig Name & Number:	PRECISON 828
		Distance To Location:	19
Sec:	26	Units On Location:	4022-3106, 4027-3212
Twp:	6N	Time Requested:	1130
Range:	65W	Time Arrived On Location:	1030
		Time Left Location:	1400

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	600
Total Depth (ft) :	634
Open Hole Diameter (in.) :	13.75
Conductor Length (ft) :	100
Conductor ID :	15.25
Shoe Joint Length (ft) :	42
Landing Joint (ft) :	23
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:	20%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	10.0
Fluid Ahead (bbls):	50.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup

50 BBL H2O+KCL+DYE IN 2ND 10

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 18.32 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 315.53 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 410.16 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 87.66 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 323 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 45.29 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 44.90 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 473.76 PSI

Pressure of the fluids inside casing

Displacement:	240.51 psi
Shoe Joint:	33.32 psi
Total	273.83 psi
Differential Pressure:	199.93 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	160.19 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

Customer	NOBLE
Well Name	RESOLUTE E25-63HN

INVOICE #	12061
LOCATION	Weld County
FOREMAN	JASON
Date	5/30/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting	1200
MIRU	1120
CIRCULATE	
Drop Plug	
1254	
M & P	

Time	Sacks
1237-1251	323

% Excess	0%
Mixed bbls	45.2
Total Sacks	322
bbl Returns	10
Water Temp	64

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
0	1254	0	0			0			0			0		
10	1256	70	10			10			10			10		
20	1258	140	20			20			20			20		
30	1301	220	30			30			30			30		
40	1305	260	40			40			40			40		
50	BUMP	590	50			50			50			50		
60			60			60			60			60		
70			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		

Notes:

The day

PUMPED 50 BBL H2O AHEAD, MIX AND PUMP 323 SKS AT 15.2, 73 BBLS OF SLURRY, PRESSURE TEST CASING FOR 150 MINUTES AT 1000 PSI, .5 BBL BACK WHEN PRESSURE RELEASED

x Tony Stapleton
Work Preformed

x WSS
Title

x 5-30-14
Date