BISON

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

Invoice

Date	Invoice #
6/17/2014	12267

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

Location	Well Name & No.	Terms	Job Type
Weld CO	Steadfast E27-62-HN	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	318	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	4	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 Ta	
Total	
Balance	

Bison Oil Well Cementing
Single Cement Surface Pipe

INVOICE #	12267
LOCATION	weld
FOREMAN	monte
Date	6/17/2014

Customer: noble
Well Name: ~~resolute e25-63-1hn~~ Steadfast E27-62-1HN

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
Safety Meeting	3:50	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
MIRU	3:10	0	4:57	10	0			0			0			0		
CIRCULATE	4:20	10	4:59	20	10			10			10			10		
Drop Plug		20	5:00	120	20			20			20			20		
4:55		30	5:02	170	30			30			30			30		
		40	5:05	320	40			40			40			40		
M & P		~~40~~ 50	5:07	630	50			50			50			50		
Time	**Sacks**	60			60			60			60			60		
4:37-4:53	318	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		
% Excess	0%	120			120			120			120			120		
Mixed bbls	44.6	130			130			130			130			130		
Total Sacks	318	140			140			140			140			140		
bbl Returns	30	150			150			150			150			150		
Water Temp	77															

Notes:

safty meeting. Miru, pressure test per company man. Circulate 40 bbls ahead with dye in 2nd 10, mix and pump 318 bbls at 15.2 lb at 30 excess, drop plug and displa

bump plug at 4:10 pm at 630 psi 30 bbls back

x Gary Stapleton
Work Preformed

x
Title

x 6-17-14
Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 6/17/2014
Invoice # 12267
API#
Foreman: monte

Customer: noble
Well Name: ~~resolute e25-63-1hn~~ Steadfast E27-62-1HN

County: weld
State: colorado
Sec: 26
Twp: 6n
Range: 65w

Consultant: devin
Rig Name & Number: persision 828
Distance To Location: 21,9
Units On Location: 4028-3102/4022-3205
Time Requested: 3:00pm
Time Arrived On Location: 2:00
Time Left Location:

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	542
Total Depth (ft) :	597
Open Hole Diameter (in.) :	13.75
Conductor Length (ft) :	100
Conductor ID :	15.6
Shoe Joint Length (ft) :	45
Landing Joint (ft) :	23
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:	0.0
Fluid Ahead (bbls):	40.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
10 fresh 10 dye 20 fresh

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe (Casing ID Squared) X (.005454) X (Shoe Joint ft)	19.53	cuft
cuft of Conductor (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	82.20	cuft
cuft of Casing (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	302.17	cuft
Total Slurry Volume (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	403.91	cuft
bbls of Slurry (Total Slurry Volume) X (.1781)	71.94	bbls
Sacks Needed (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	318	sk
Mix Water (Sacks Needed) X (Gallons Per Sack) ÷ 42	44.60	bbls

Displacement: (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	40.20 bbls
Pressure of cement in annulus	
Hydrostatic Pressure:	427.96 PSI
Pressure of the fluids inside casing	
Displacement:	214.30 psi
Shoe Joint:	35.53 psi
Total	249.83 psi
Differential Pressure:	178.13 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	144.80 bbls

x 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.