



BISON

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

Invoice

Date	Invoice #
6/8/2014	12065

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Tohoma E22-69HC	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			
HOURS	Wait Time	3			
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	358	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: 6/8/2014
Invoice #: 12065
API#: 05-123-3886
Foreman: JASON

Customer: NOBLE
Well Name: TOHOMA E22-69HC

County: Weld County
State: Colorado
Sec: 23
Twp: 6N
Range: 65W

Consultant: TYLER
Rig Name & Number: PRECISION 829
Distance To Location: 19
Units On Location: 4027-3106, 4024-3203
Time Requested: 130
Time Arrived On Location: 2345
Time Left Location: 645

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 604
Total Depth (ft) : 661
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) :
Conductor ID :
Shoe Joint Length (ft) : 45
Landing Joint (ft) : 19

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: 37%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 5.0
Fluid Ahead (bbls): 40.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
40 BBL H2O+KCL+DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.63 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 0.00 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 435.03 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 454.66 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 110.94 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)
Sacks Needed 358 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 50.20 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 44.62 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 476.78 PSI

Pressure of the fluids inside casing

Displacement: 240.86 psi

Shoe Joint: 35.71 psi

Total 276.56 psi

Differential Pressure: 200.21 psi

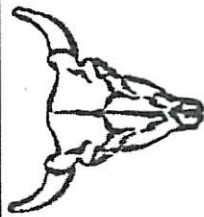
Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 154.83 bbls

Tyler D. Hule
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
Date

12065
Weld County
JASON
6/8/2014

Customer
Well Name

NOBLE
TOHOMA E22-69HC

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	415 215	Displace 1		Displace 2		Displace 3		Displace 4		Displace 5	
		BBLs	Time	PSI	BBLs	Time	PSI	BBLs	Time	PSI	BBLs
Safety Meeting											
MIRU		0	519	0	0			0			0
CIRCULATE		10	522	70	10			10			10
Drop Plug		20	524	170	20			20			20
518		30	527	170	30			30			30
		40	530	210	40			40			40
M & P		50	541	220	50			50			50
Time	Sacks	60	BUMP	360	60			60			60
0454-0515	358	70			70			70			70
		80			80			80			80
		90			90			90			90
		100			100			100			100
		110			110			110			110
% Excess	0%	120			120			120			120
Mixed bbls	50.2	130			130			130			130
Total Sacks	358	140			140			140			140
bbl Returns	5	150			150			150			150
Water Temp	68										

Notes:

The day

PUMPED 40 BBL H2O AHEAD, SECOND 10 WITH DYE, MIX AND PUMP 358 SKS AT 15.2, 81 BBLs OF SLURRY, PERFORMED CASING TEST-1000 PSI FOR

15 MINUTES, RELEASED PRESSURE AND GOT .5 BBLs BACK

X

X WSS
Title

X 6-8-14
Date

Work Performed