



BISON

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

Invoice

Date	Invoice #
7/18/2014	35001

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Five Rivers K09-67-111N	Net 30	Surface Pipe		
Item	Description	Qty	U/M	Rate	Amount
Pump surface	PUMP Charge-surface pipe	1		1,400.00	1,400.00
Discount 15%	Discount 15%				
MILEAGE	Mileage charge	360		1.30	468.00
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1		725.00	725.00
Discount 15%	Discount 15%				
Service Charge	PSI Test	1		300.00	300.00
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	353	Sack	21.00	7,413.00
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	4	qt	21.00	84.00
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	10	oz	10.00	100.00
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



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/18/2014
Invoice # 35001
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: five rivers k09-67-1hn

County: Weld
State: Colorado
Sec: 9
Twp: 4n
Range: 66w
Consultant: lane
Rig Name & Number: h&p 330
Distance To Location: 10
Units On Location: 4030-3103/4020-3212
Time Requested: 130 pm
Time Arrived On Location: 1215 pm
Time Left Location: 5:15 pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 596
Total Depth (ft) : 636
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 45
Landing Joint (ft) : 30

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 (bbls): 40.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.53 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 89.10 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 339.09 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 447.72 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 79.74 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 353 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 49.44 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 44.92 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 470.60 PSI

Pressure of the fluids inside casing

Displacement: 237.58 psi

Shoe Joint: 35.53 psi

Total 273.11 psi

Differential Pressure: 197.49 psi

Collapse PSI: 2020.00 psi

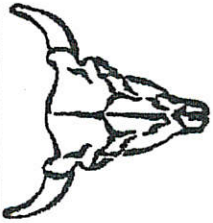
Burst PSI: 3520.00 psi

Total Water Needed: 154.35 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.



Bison Oil Well Cementing
Single Cement Surface Pipe

INVOICE #
LOCATION
FOREMAN
Date

35001
Weld
Kirk Kallhoff
7/18/2014

Customer
Well Name

Noble Energy Inc.
five rivers k09-67-1hn

Treatment Report Page 2

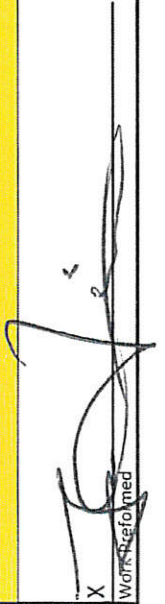
DESCRIPTION OF JOB EVENTS

	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
Safety Meeting	300pm														
MIRU	230pm														
CIRCULATE	325pm														
Drop Plug															
356 pm															
M & P															
Time	Sacks														
335 pm	353														
353 pm stop															
% Excess	30%														
Mixed bbls	49.5														
Total Sacks	353														
bbl Returns	12														
Water Temp															

Notes:

bumped plug at 409 pm 400 psi 79.7 bbls slurry

casing test 1000 psi for 15 min

X 

X WSS
Title

X 7-18-14
Date