

BISON OIL WELL CEMENTING, INC.

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SERVICE INVOICE

Nº 12748

WELL NO. AND FARM <i>Crow Creek State AC 36-7644</i>	COUNTY <i>weld</i>	STATE <i>CO</i>	DATE <i>10-15-13</i>
CHARGE TO <i>NOSE</i>	WELL LOCATION SEC. <i>36</i> TWP. <i>7N</i> RANGE <i>63W</i>		CONTRACTOR <i>H&P 315</i>
DELIVERED TO <i>392-74</i>		LOCATION <i>1 Shop</i>	CODE
SHIPPED VIA <i>3/03-3214</i>		LOCATION <i>2 392-74</i>	CODE
TYPE AND PURPOSE OF JOB <i>Sur Face Pipe</i>		LOCATION <i>3 Shop</i>	CODE
		WELL TYPE <i>6.5</i>	CODE

PRICE REFERENCE	DESCRIPTION	UNITS		UNIT PRICE	AMOUNT
		QTY.	MEAS.		
	<i>Pump charge</i>				
	<i>BFA III 3% BCCA-1.25 lbs per sk BFLY-1</i>	<i>380</i>	<i>SFS</i>		
	<i>mileage 1st permit 6 miles per permit</i>				
	<i>BFLY-1</i>				
	<i>Prod Dye</i>				
	<i>Data Arc</i>				
	<i>X-raying test</i>				

RIG NAME & NUMBER *H&P 315*

AFE NUMBER *0RL91*

TASK (DRL, COMP., WOP&A)

EXP TYPE

STG CODE

DOLLAR TOTAL BEING APP'D

FIELD APPROVAL DATE *mid Nov 10/15/13*

ROUTE TO APPROVER *ARRON DUNCAN*

MAIL TO: NOBLE ENERGY INC.
ATTN: ACCOUNTS PAYABLE
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
NO INVOICE WILL BE PAID W/O ALL ATTACHED SIGNED FIELD TICKETS

If this account is not paid within 30 days of invoice date a FINANCE CHARGE will be made. Computed at a single monthly rate of 1 1/4% which is equal to an ANNUAL PERCENTAGE RATE OF 18%.

TAX REFERENCES

"TAXES WILL BE ADDED AT CORPORATE OFFICE"

TOTAL

SUBJECT TO CORRECTION

mil Haleb
Customer or His Agent

[Signature]
Bison Oil Well Cementing, Inc. Representative

Customers hereby acknowledges and specifically agrees to the terms and conditions on this work order, including, without limitation, the provisions on the reverse side hereof which include the release and indemnity.



Bison Oil Well Cementing Single Cement Surface Pipe

Invoice # 12748

API#

Foreman: Kirk Kallhoff

Customer: noble

Well Name: crow creek state ac 36-76hn

County: Weld County

State: Colorado

Sec: 36

Twp: 7n

Range: 63w

Consultant: steve

Rig Name & Number: h&p 315

Distance To Location:

Units On Location: 3103-3214

Time Requested: 400pm

Time Arrived On Location: 400pm

Time Left Location: 8:00 PM

WELL DATA

Casing Size OD (in) : 9.6250
Casing Weight (lb) : 36
Casing Depth (ft) : 619
Total Depth (ft) : 649
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 15.5
Shoe Joint Length (ft) : 41
Landing Joint (ft) : 25

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):
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 17.80 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 80.51 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 272.93 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 371.24 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 85.95 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)
Sacks Needed 380 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 53.29 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 46.62 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 488.76 PSI

Pressure of the fluids inside casing

Displacement: 249.22 psi

Shoe Joint: 32.37 psi

Total 281.60 psi

Differential Pressure: 207.17 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 73.29 bbls

X 
Authorization To Proceed

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