

# BISON OIL WELL CEMENTING, INC.

1738 Wynkoop St., Ste. 102  
 Denver, Colorado 80202  
 Phone: 303-296-3010  
 Fax: 303-298-8143  
 E-mail: bisonoil1@qwestoffice.net



## 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>well</i>	WELL LOCATION SEC. <i>36</i> TWP. <i>7N</i> RANGE <i>63W</i>		CONTRACTOR <i>H&amp;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>BFW III 3% BCCA-1.25 lbs per sk BFLY-1</i>	<i>380</i>	<i>SKS</i>		
	<i>mileage 1<sup>st</sup> permit</i>				
	<i>BFLY-1</i>				
	<i>Red Dye</i>				
	<i>Data Arc</i>				
	<i>Casing test</i>				

**BIG NAME & NUMBER** *315*  
*H&P*

**AFE NUMBER**

**TASK (DRL, COMP., WOP&A)**  
*DRLg1*

**EXP TYPE**

**STG CODE**

**DOLLAR TOTAL BEING APPROV'D**

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

**ROUTE TO APPROVER**  
*ARON 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		Cement Data	
Casing Size OD (in) :	9.6250	Cement Name:	BFN III
Casing Weight (lb) :	36	Cement Density (lb/gal) :	15.2
Casing Depth (ft.) :	619	Cement Yield (cuft) :	1.27
Total Depth (ft) :	649	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	13.75	% Excess:	30%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	15.5	BBL to Pit:	
Shoe Joint Length (ft) :	41	Fluid Ahead (bbls):	
Landing Joint (ft) :	25	H2O Wash Up (bbls):	20.0
Max Rate:		Spacer Ahead Makeup	
Max Pressure:			

Calculated Results			Casing Grade J-55 only used	
<b>cuft of Shoe</b>	<b>17.80</b>	<b>cuft</b>	<b>Displacement:</b>	<b>46.62 bbls</b>
(Casing ID Squared) X (.005454) X (Shoe Joint ft)			(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
<b>cuft of Conductor</b>	<b>80.51</b>	<b>cuft</b>	<b>Pressure of cement in annulus</b>	
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)			<b>Hydrostatic Pressure:</b>	<b>488.76 PSI</b>
<b>cuft of Casing</b>	<b>272.93</b>	<b>cuft</b>	<b>Pressure of the fluids inside casing</b>	
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)			<b>Displacement:</b>	<b>249.22 psi</b>
<b>Total Slurry Volume</b>	<b>371.24</b>	<b>cuft</b>	<b>Shoe Joint:</b>	<b>32.37 psi</b>
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)			<b>Total</b>	<b>281.60 psi</b>
<b>bbls of Slurry</b>	<b>85.95</b>	<b>bbls</b>	<b>Differential Pressure:</b>	<b>207.17 psi</b>
(Total Slurry Volume) X (.1781) X (% Excess Cement)			<b>Collapse PSI:</b>	<b>2020.00 psi</b>
<b>Sacks Needed</b>	<b>380</b>	<b>sk</b>	<b>Burst PSI:</b>	<b>3520.00 psi</b>
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			<b>Total Water Needed:</b>	<b>73.29 bbls</b>
<b>Mix Water</b>	<b>53.29</b>	<b>bbls</b>		
(Sacks Needed) X (Gallons Per Sack) ÷ 42				
<p>X <i>Steve [Signature]</i> Authorization To Proceed</p>				
<p>Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.</p>				