



BISON

Invoice

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

Date	Invoice #
4/18/2014	12182

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Chandler St. D15-72-111N	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 Test	1			
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	423	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	5	qt		
Discount 15%	Discount 15%				
Dye - 4880	Dye (Hot Pink 4880)	10	oz		
Discount 15%	Discount 15%				
Sugar	Sugar	100	lb		
	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: 4/18/2014
 Invoice #: 12182
 API#: _____
 Foreman: kirk

Customer: noble
 Well Name: chandler state d 15-72-1hn

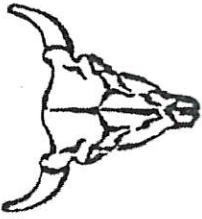
County: weld Consultant: erick
 State: Colorado Rig Name & Number: pd 829
 Distance To Location: _____
 Sec: 15 Units On Location: 3103-3204
 Twp: 3n Time Requested: 500 am
 Range: 64w Time Arrived On Location: 345 am
 Time Left Location: 8:45pm

WELL DATA	Cement Data
Casing Size OD (in) : <u>9.625</u>	Cement Name: <u>BFN III</u>
Casing Weight (lb) : <u>36.00</u>	Cement Density (lb/gal) : <u>15.2</u>
Casing Depth (ft.) : <u>641</u>	Cement Yield (cuft) : <u>1.27</u>
Total Depth (ft) : <u>672</u>	Gallons Per Sack: <u>5.89</u>
Open Hole Diameter (in.) : <u>13.75</u>	% Excess: <u>30%</u>
Conductor Length (ft) : <u>100</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.5</u>	BBL to Pit: _____
Shoe Joint Length (ft) : <u>43</u>	Fluid Ahead (bbls): <u>50.0</u>
Landing Joint (ft) : <u>20</u>	H2O Wash Up (bbls): <u>15.0</u>
Max Rate: _____	Spacer Ahead Makeup
Max Pressure: _____	

Calculated Results	Pressure of cement in annulus
Displacement: <u>47.78</u> bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	Hydrostatic Pressure: <u>506.13</u> PSI
cuft of Shoe <u>18.66</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Pressure of the fluids inside casing
cuft of Conductor <u>80.51</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Displacement: <u>257.85</u> psi
cuft of Casing <u>284.50</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Shoe Joint: <u>33.95</u> psi
Total Slurry Volume <u>383.67</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Total <u>291.80</u> psi
bbls of Slurry <u>88.83</u> bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Differential Pressure: <u>214.33</u> psi
Sacks Needed <u>393</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: <u>#N/A</u> psi
Mix Water <u>55.08</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Burst PSI: <u>#N/A</u> psi
	Total Water Needed: <u>167.85</u> bbls

X [Signature]
 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**

Customer
Well Name

noble
chandler state d 15-72-1hn

INVOICE #
LOCATION
FOREMAN
Date

12182
weld
kirk
4/18/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	608am 500am 650am	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		0	726am	10	0		0			0			0			
MIRU		10	728am	120	10		10			10			10			
CIRCULATE		20	730am	180	20		20			20			20			
Drop Plug		30	732am	240	30		30			30			30			
726 am		40	734am	260	40		40			40			40			
M & P		50			50		50			50			50			
Time		60			60		60			60			60			
659 am		70			70		70			70			70			
723 am stop		80			80		80			80			80			
		90			90		90			90			90			
		100			100		100			100			100			
		110			110		110			110			110			
		120			120		120			120			120			
% Excess	40%	130			130		130			130			130			
Mixed bbls	59.3	140			140		140			140			140			
Total Sacks	423	150			150		150			150			150			
bbl Returns	21															
Water Temp																

Notes:

bumped plug at 738 am 450 psi 95.6 bbls slurry

casing test 1000 psi for 15 min

X FRANK ANGLANO
Title

X 4-18-14
Date

Work Performed