



BISON

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

Invoice ✓

Date	Invoice #
9/25/2014	12144a

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

Location	Well Name & No.	Terms	Job Type		
Weld CO	Rohn State LD10-67-1HNA	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	465			
Discount 15%	Discount 15%				
Data Acquisition ...	Data Acquisition Charge	1			
Discount 15%	Discount 15%				
Service Charge	PSI Test	1			
HOURS	Wait Time	2			
	Subtotal of Services				
BFN III Summer ...	BFN III Blend	473	Sack		
Discount 15%	Discount 15%				
KCL Mud Flush	(BHS 117)	4	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



Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy
Well Name: Rhon State LD10-67-1hna

Date: 9/25/2014
Invoice #: 12142
API#: _____
Foreman: Monte Bedeaux

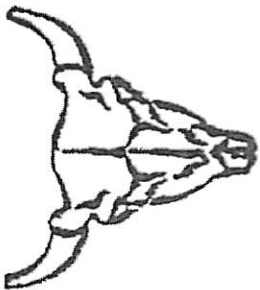
County: Weld Consultant: jw
State: Colorado Rig Name & Number: h&p 326
Sec: 4 Distance To Location: 77.3
Twp: 9n Units On Location: 3123-3202 4022-3203
Range: 58w Time Requested: 8:30am
Time Arrived On Location: 7:30am
Time Left Location: 3:00PM

WELL DATA	Cement Data
Casing Size (in) : <u>9.625</u> Casing Weight (lb) : <u>36</u> Casing Depth (ft.) : <u>1,181</u> Total Depth (ft) : <u>1221</u> Open Hole Diameter (in) : <u>13.50</u> Conductor Length (ft) : <u>100</u> Conductor ID : <u>15.6</u> Shoe Joint Length (ft) : <u>41</u> Landing Joint (ft) : <u>34</u> Sacks of Tail Requested : <u>100</u> HOC Tail (ft): <u>0</u> One or the other, cannot have quantity in both Max Rate: <u>4.5</u> Max Pressure: <u>2000</u>	Lead Cement Name: Cement Density (lb/gal) : <u>13.1</u> Cement Yield (cuft) : <u>1.69</u> Gallons Per Sack : <u>8.64</u> % Excess : <u>30%</u> Tail Cement Name: Cement Density (lb/gal) : <u>15.2</u> Cement Yield (cuft) : <u>1.27</u> Gallons Per Sack: <u>5.89</u> % Excess: <u>0%</u> Fluid Ahead (bbls) : <u>30.0</u> H2O Wash Up (bbls) : <u>20.0</u> Spacer Ahead Makeup <u>10 fresh 10 dye 10 fresh</u>

Casing ID	8.921	Casing Grade	J-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead	823.56 ft	Tail Cement Volume In Ann (HOC Tail) X (OH Ann)	127.00 cuft
Casing Depth - HOC Tail		Total Volume of Tail Cement (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	109.20 Cuft
Volume of Lead Cement	402.50 cuft	bbls of Tail Cement (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)	22.62 bbls
HOC of Lead X Open Hole Ann		HOC Tail (Tail Cement Volume) ÷ (OH Ann)	223.44 ft
Volume of Conductor (Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	82.20 cuft	Sacks of Tail Cement (Total Volume of Tail Cement) ÷ (Cement Yield)	100.00 sk
Total Volume of Lead Cement (cuft of Lead Cement) + (Cuft of Conductor)	484.70 cuft	bbls of Tail Mix Water (Sacks of Tail Cement X Gallons Per Sack) ÷ 42	14.02 bbls
bbls of Lead Cement (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	112.22 bbls	Pressure of cement in annulus	
Sacks of Lead Cement (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	372.84 sk	Hydrostatic Pressure	803.67 PSI
bbls of Lead Mix Water (Sacks Needed) X (Gallons Per Sack) ÷ 42	76.70 bbls		
Displacement (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	90.75 bbls		
Total Water Needed:	231.47 bbls	Collapse PSI:	2020.00 psi
		Burst PSI:	3520.00 psi

X JW Inoh

Authorization To Proceed



Bison Oil Well Cementing
Two Cement Surface Pipe

Customer
Well Name

Noble Energy
Rhon State LD10-67-1hna

Date 9/25/2014
INVOICE # 12142
LOCATION Weld
FOREMAN Monte Bedeaux
Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	12:15 11:25 12:40	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	1:23	0	0			0			0			0		
MIRU		10	1:25	20	10			10			10			10		
CIRCULATE		20	1:27	20	20			20			20			20		
Drop Plug		30	1:29	60	30			30			30			30		
1:20		40	1:31	60	40			40			40			40		
M & P		50	1:33	160	50			50			50			50		
Time		60	1:35	210	60			60			60			60		
12:45-1:15	Sacks 473	70	1:37	270	70			70			70			70		
		80	1:39	310	80			80			80			80		
		90	1:43	940	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
Lead mixed bbls	76.7	130			130			130			130			130		
Lead % Excess	30%	140			140			140			140			140		
Lead Sacks	373	150			150			150			150			150		

Notes:

Tail mixed bbls	14.02	safety meeting, miru, pressure test per company man, circulate 30 bbls ahead with dye in 2nd 10, mix and pump 373 sks lead, 13.1, 1.69 yield, 8.64 h2o														
Tail % Excess	0%	mix and pump 100 sks tail at 15.2, 1.27, 5.89. drop plug and displace 90.70 bbls h2o. Bump plug at 1:45m at 940 psi, raise to 1000 lb, hold 15 min														
Tail Sacks	100															
Total Sacks	473															
Water Temp	68															
bbl Returns	27															

X JWS
Work Performed

X W.S.S.
Title

X 9-25-14
Date