



# Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy  
Well Name: fiscus federal ld 15-77-1hn

Date: 11/3/2014  
Invoice #: 12188  
API#:   
Foreman: kirk

County: Weld  
State: Colorado  
Sec: 9  
Twp: 9n  
Range: 58w

Consultant: tawn  
Rig Name & Number: pd 828  
Distance To Location:   
Units On Location: 4030-3103/4017-3211  
Time Requested: 830 pm  
Time Arrived On Location: 800 pm  
Time Left Location:

## WELL DATA

Casing Size (in) 9.625  
Casing Weight (lb) 36  
Casing Depth (ft) 1,181  
Total Depth (ft) 1211  
Open Hole Diameter (in) 13.50  
Conductor Length (ft) 100  
Conductor ID 16  
Shoe Joint Length (ft) 44  
Landing Joint (ft) 20

Sacks of Tail Requested 100  
HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate:   
Max Pressure:

## Cement Data

### Lead

Cement Name: bfn III 3%  
Cement Density (lb/gal) : 13.1  
Cement Yield (cuft) : 1.69  
Gallons Per Sack 8.64  
% Excess 25%

### Tail

Cement Name: bfn III 3%  
Cement Density (lb/gal) : 15.2  
Cement Yield (cuft) : 1.27  
Gallons Per Sack: 5.89  
% Excess: 0%

Fluid Ahead (bbls) 30.0  
H2O Wash Up (bbls) 20.0

### Spacer Ahead Makeup

Casing ID	8.921	Casing Grade	J-55 only used
<b>Lead Calculated Results</b>		<b>Tail Calculated Results</b>	
HOC of Lead	840.22 ft	Tail Cement Volume In Ann	127.00 cuft
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement	410.64 cuft	Total Volume of Tail Cement	107.90 Cuft
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor	89.10 cuft	bbls of Tail Cement	22.62 bbls
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)	
Total Volume of Lead Cement	499.74 cuft	HOC Tail	220.78 ft
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement	111.25 bbls	Sacks of Tail Cement	100.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)		(Total Volume of Tail Cement) ÷ (Cement Yield)	
Sacks of Lead Cement	369.63 sk	bbls of Tail Mix Water	14.02 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
bbls of Lead Mix Water	76.04 bbls	Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure	803.67 PSI
Displacement	89.44 bbls		
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Collapse PSI:	2020.00 psi
Total Water Needed:	126.04 bbls	Burst PSI:	3520.00 psi

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  
Two Cement Surface Pipe**

Customer  
Well Name

Noble Energy  
fiscus federal id 15-77-1hn

Date

11/3/2014

INVOICE #

12188

LOCATION

Weld

FOREMAN

kirk

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**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	1005pm															
AIRU	940pm															
CIRCULATE	1025pm	0	1104pm	10	0			0			0			0		
Drop Plug		10	1107pm	50	10			10			10			10		
1104 pm		20	1111pm	80	20			20			20			20		
		30	1113pm	80	30			30			30			30		
		40	1115pm	120	40			40			40			40		
		50	1117pm	180	50			50			50			50		
M & P		60	1119pm	240	60			60			60			60		
Time	Sacks	70	1121pm	300	70			70			70			70		
1033 pm	469	80	1123pm	360	80			80			80			80		
1101 pm stop		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
Lead mixed bbls	76	130			130			130			130			130		
Lead % Excess	25%	140			140			140			140			140		
Lead Sacks	369	150			150			150			150			150		
<b>Notes:</b>																
tail mixed bbls	14	BUMPED PLUG at 1127 pm 520 PSI 111.2 bbls slurry lead 22.6 bbls slurry tail.														
tail % Excess	0%	casing test 1000 psi 15 min														
tail Sacks	100															
total Sacks	469															
tbl Returns	17															

Work Performed

X WSS  
Title

X 11-3-14  
Date