



# Bison Oil Well Cementing Tail & Lead

Customer: NOBLE  
Well Name: ROHN STATE LD10-63-1HN

Date: 10/15/2014  
Invoice #: 45053  
API#: 05-123-37623  
Foreman: JASON KELEHER

County: Weld  
State: Colorado  
Sec: 9  
Twp: 9N  
Range: 58W

Consultant: DAVE  
Rig Name & Number: H&P 273  
Distance To Location: 80  
Units On Location: 3  
Time Requested: 1500  
Time Arrived On Location: 1400  
Time Left Location: 2030

## WELL DATA

Casing Size (in) : 9.625  
Casing Weight (lb) : 36  
Casing Depth (ft) : 1,186  
Total Depth (ft) : 1220  
Open Hole Diameter (in) : 13.50  
Conductor Length (ft) : 100  
Conductor ID : 15.25  
Shoe Joint Length (ft) : 45  
Landing Joint (ft) : 29

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

One or the other, cannot have quantity in both

Max Rate: 7  
Max Pressure: 2000

## Cement Data

### Lead

Cement Name: BFN III  
Cement Density (lb/gal) : 13.1  
Cement Yield (cuft) : 1.69  
Gallons Per Sack : 8.64  
% Excess : 27%

### Tail

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

Fluid Ahead (bbls) : 40.0  
H2O Wash Up (bbls) : 20.0

### Spacer Ahead Makeup

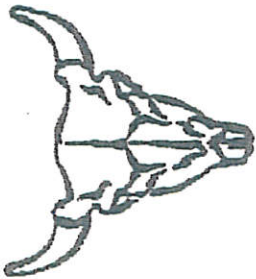
40 BBL WATER W/KCL, 2ND 10 W/DYE

Casing ID	8.921	Casing Grade	J-55 only used
<b>Lead Calculated Results</b>		<b>Tail Calculated Results</b>	
HOC of Lead	836.86 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)	107.43 Cuft
Volume of Lead Cement	409.00 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)	219.82 ft
Volume of Conductor	76.31 cuft	Sacks of Tail Cement (Total Volume of Tail Cement) ÷ (Cement Yield)	100.00 sk
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		bbls of Tail Mix Water (Sacks of Tail Cement X Gallons Per Sack) ÷ 42	14.02 bbls
Total Volume of Lead Cement (cuft of Lead Cement) + (Cuft of Conductor)	485.31 cuft	Pressure of cement in annulus	
bbls of Lead Cement (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	109.34 bbls	Hydrostatic Pressure	806.86 PSI
Sacks of Lead Cement (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	363.27 sk	Collapse PSI:	2020.00 psi
bbls of Lead Mix Water (Sacks Needed) X (Gallons Per Sack) ÷ 42	74.73 bbls	Burst PSI:	3520.00 psi
Displacement (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	90.41 bbls		
Total Water Needed	239.16 bbls		

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

Date 10/15/2014  
INVOICE # 45053  
LOCATION Weld  
FOREMAN JASON KELEHER

Customer NOBLE  
Well Name ROHN STATE LD10-63-1HN

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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	1820	0	1919	0	0			0			0			0		
MIRU	1745	10	1921	30	10			10			10			10		
CIRCULATE	1843	20	1924	50	20			20			20			20		
Drop Plug		30	1928	70	30			30			30			30		
		40	130	150	40			40			40			40		
		50	1932	220	50			50			50			50		
		60	1935	290	60			60			60			60		
		70	1938	360	70			70			70			70		
		80	1939	440	80			80			80			80		
		90	1944	360	90			90			90			90		
		100	BUMP	890	100			100			100			100		
		110			110			110			110			110		
		120			120			120			120			120		
		130			130			130			130			130		
		140			140			140			140			140		
		150			150			150			150			150		
Lead mixed bbls	74.6															
Lead % Excess	26%															
Lead Sacks	363															

### Notes:

PERFORMED PRESSURE TEST TO 1500 PSI AT 1840, PUMPED 40 BBL WATER WITH DYE IN THE 2ND 10 AT 1843, MIXED AND PUMPED 363 SKS AT 13.1, 109.3 BBLs AT 1852, MIXED AND PUMPED 100 SKS AT 15.2, 22.6 BBL AT 1911, SHUT DOWN AT 1916, DROPPED PLUG AT 1919, STARTED DISPLACEMENT AT 1919, LANDED PLUG AT 360 PSI AT 1944 AND PRESSURE UP 890 PSI AND HELD FOR 2 MINUTES, RELEASED PRESSURE AND GOT .5 BBL BACK

Tail mixed bbls 14.02  
Tail % Excess 0%  
Tail Sacks 100  
Total Sacks 463  
Water Temp 56  
bbl Returns 19

X *Jason Keleher*  
Work Performed

X X  
Title Date