



# Bison Oil Well Cementing Tail & Lead

Date: 4/30/2018  
Invoice #: 200271  
API#  
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.  
Well Name: larson aa 19-630

County: Weld  
State: Colorado  
Sec: 16  
Twp: 2n  
Range: 64w  
Consultant: john  
Rig Name & Number: H&P 517  
Distance To Location: 15  
Units On Location: 1  
Time Requested: 1230 pm  
Time Arrived On Location: 1100 am  
Time Left Location:

## WELL DATA

Casing Size (in) : 9.625  
Casing Weight (lb) : 36  
Casing Depth (ft.) : 1,911  
Total Depth (ft) : 1956  
Open Hole Diameter (in) : 13.50  
Conductor Length (ft) : 110  
Conductor ID : 16  
Shoe Joint Length (ft) : 39  
Landing Joint (ft) : 35

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

One or the other, cannot have quantity in both

Max Rate: 8  
Max Pressure: 1500

## Cement Data

### Lead

Cement Name:  
Cement Density (lb/gal) : 13.5  
Cement Yield (cuft) : 1.7  
Gallons Per Sack : 9.00  
% Excess : 15%

### Tail

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

Fluid Ahead (bbls) : 50.0  
H2O Wash Up (bbls) : 20.0

### Spacer Ahead Makeup

50 BBL WATER DYE IN 2ND 10

Casing ID 8.921

Casing Grade J-55 only used

## Lead Calculated Results

HOC of Lead : 1540.78 ft  
Casing Depth - HOC Tail  
Volume of Lead Cement : 753.02 cuft  
HOC of Lead X Open Hole Ann  
Volume of Conductor : 98.01 cuft  
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X  
(Conductor Length ft)  
Total Volume of Lead Cement : 851.03 cuft  
(cuft of Lead Cement) + (Cuft of Conductor)  
bbls of Lead Cement : 174.30 bbls  
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)  
Sacks of Lead Cement : 575.70 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
bbls of Lead Mix Water : 123.36 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42  
Displacement : 147.41 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)  
Total Water Needed: 354.80 bbls

## Tail Calculated Results

Tail Cement Volume In Ann : 127.00 cuft  
(HOC Tail) X (OH Ann)  
Total Volume of Tail Cement : 110.07 Cuft  
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)  
bbls of Tail Cement : 22.62 bbls  
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)  
HOC Tail : 225.22 ft  
(Tail Cement Volume) ÷ (OH Ann)  
Sacks of Tail Cement : 100.00 sk  
(Total Volume of Tail Cement) ÷ (Cement Yield)  
bbls of Tail Mix Water : 14.02 bbls  
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42  
Pressure of cement in annulus  
Hydrostatic Pressure : 585.23 PSI  
Collapse PSI: 2020.00 psi  
Burst PSI: 3520.00 psi

X  
Authorization To Proceed

X 4-30-18  
Date



# SERIES 2000

