



# Bison Oil Well Cementing Tail & Lead

Date: 5/17/2018  
invoice # 300133  
API# 05-123-45516  
Foreman: JASON KELEHER

Customer: Noble Energy Inc.  
Well Name: LARSON A23-656

County: Weld  
State: Colorado  
Sec: 19  
Twp: 6N  
Range: 63W  
Consultant: RICK  
Rig Name & Number: H&P 321  
Distance To Location: 15  
Units On Location: 4044-3102,4032-3202  
Time Requested: 2230  
Time Arrived On Location: 2130  
Time Left Location: 500

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 36</p> <p>Casing Depth (ft.) : 1,921</p> <p>Total Depth (ft) : 1961</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 80</p> <p>Conductor ID : 15.25</p> <p>Shoe Joint Length (ft) : 45</p> <p>Landing Joint (ft) : 35</p> <p>Sacks of Tail Requested : 100</p> <p>HOC Tail (ft): 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8</p> <p>Max Pressure: 1500</p>	<p><b>Lead</b></p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 13.5</p> <p>Cement Yield (cuft) : 1.7</p> <p>Gallons Per Sack : 9.00</p> <p>% Excess : 15%</p> <p><b>Tail</b></p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 15.2</p> <p>Cement Yield (cuft) : 1.27</p> <p>Gallons Per Sack: 5.89</p> <p>% Excess: 0%</p> <p>Fluid Ahead (bbls) : 50.0</p> <p>H2O Wash Up (bbls) : 20.0</p> <p>Spacer Ahead Makeup</p> <p>30BBL WATER DYE IN 2ND 10</p>

Casing ID	8.921	Casing Grade	J-55 only used
<b>Lead Calculated Results</b>		<b>Tail Calculated Results</b>	
HOC of Lead	1586.06 ft	Tail Cement Volume In Ann	127.00 cuft
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement	775.16 cuft	Total Volume of Tail Cement	107.49 Cuft
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor	61.05 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	836.21 cuft	HOC Tail	219.94 ft
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement	171.27 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	565.67 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	121.21 bbls	Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure	585.23 PSI
Displacement	148.00 bbls		
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Collapse PSI:	2020.00 psi
Total Water Needed:	353.24 bbls	Burst PSI:	3520.00 psi

X Rich Oakley  
Authorization To Proceed



Customer  
Well Name

Noble Energy Inc.  
LARSON A23-656

Date  
INVOICE #  
LOCATION  
FOREMAN

5/17/2018

300133

Weld

JASON KELEHER

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## DESCRIPTION OF JOB EVENTS

X \_\_\_\_\_  
Signature

X				
Title				

X \_\_\_\_\_  
Date \_\_\_\_\_



# LARSON A23-656 SURFACE

