



# Bison Oil Well Cementing Tail & Lead

Date: 4/24/2018

Invoice #: 300118

API#: 05-123-45550

Foreman: JASON KELEHER

Customer: Noble Energy Inc.

Well Name: LARSON AA19-635

County: Weld

State: Colorado

Sec: 24

Twp: 6N

Range: 64w

Consultant: JON

Rig Name & Number: H&P 517

Distance To Location: 15

Units On Location: 31,023,203

Time Requested: 1600

Time Arrived On Location: 1500

Time Left Location: 2130

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 36</p> <p>Casing Depth (ft.) : 1,953</p> <p>Total Depth (ft) : 1963</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) : 44</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) : 30.0</p> <p>H2O Wash Up (bbls) : 20.0</p> <p><b>Spacer Ahead Makeup</b></p> <p>30BBL WATER DYE IN 2ND 10</p>

Casing ID: 8.921 Casing Grade: J-55 only used

Lead Calculated Results	Tail Calculated Results
<b>HOC of Lead</b> : 1617.58 ft	<b>Tail Cement Volume In Ann</b> : 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
<b>Volume of Lead Cement</b> : 790.56 cuft	<b>Total Volume of Tail Cement</b> : 107.73 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
<b>Volume of Conductor</b> : 61.05 cuft	<b>bbls of Tail Cement</b> : 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)
<b>Total Volume of Lead Cement</b> : 851.61 cuft	<b>HOC Tail</b> : 220.42 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
<b>bbls of Lead Cement</b> : 174.42 bbls	<b>Sacks of Tail Cement</b> : 100.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
<b>Sacks of Lead Cement</b> : 576.09 sk	<b>bbls of Tail Mix Water</b> : 14.02 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
<b>bbls of Lead Mix Water</b> : 123.45 bbls	<b>Pressure of cement in annulus</b>
(Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Hydrostatic Pressure</b> : 585.23 PSI
<b>Displacement</b> : 148.00 bbls	<b>Collapse PSI:</b> 2020.00 psi
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	<b>Burst PSI:</b> 3520.00 psi
<b>Total Water Needed:</b> 335.47 bbls	

X Authorization To Proceed



# LARSON AA19-635 SURFACE

