



# Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy Inc.  
Well Name: Guttersen D25-753

Date: 9/8/2019  
Invoice # 900406  
API# 05-123-48628  
Foreman: Corey Barras

County: Weld Consultant: Gary  
State: Colorado Rig Name & Number: H&P 321  
Distance To Location: 27  
Units On Location: 4028/3203-4032/3203  
Sec: 25 Time Requested: 2030  
Twp: 3n Time Arrived On Location: 1900  
Range: 64w Time Left Location:

WELL DATA	Cement Data
Casing Size (in) : <u>9.625</u> Casing Weight (lb) : <u>36</u> Casing Depth (ft.) : <u>1,918</u> Total Depth (ft) : <u>1928</u> Open Hole Diameter (in) : <u>13.50</u> Conductor Length (ft) : <u>80</u> Conductor ID : <u>15.25</u> Shoe Joint Length (ft) : <u>44</u> Landing Joint (ft) : <u>30</u>  Sacks of Tail Requested <u>100</u> HOC Tail (ft): <u>0</u> One or the other, cannot have quantity in both  Max Rate: <u>8</u> Max Pressure: <u>1500</u>	<b>Lead</b> Cement Name: Cement Density (lb/gal) : <u>13.5</u> Cement Yield (cuft) : <u>1.7</u> Gallons Per Sack <u>9.00</u> % Excess <u>10%</u>  <b>Tail</b> Cement Name: Cement Density (lb/gal) : <u>15.2</u> Cement Yield (cuft) : <u>1.27</u> Gallons Per Sack: <u>5.89</u> % Excess: <u>0%</u>  Fluid Ahead (bbls) <u>30.0</u> H2O Wash Up (bbls) <u>20.0</u>  <b>Spacer Ahead Makeup</b> <u>30BBL WATER DYE IN 2ND 10</u>

Casing ID <u>8.921</u>	Casing Grade <u>J-55 only used</u>
Lead Calculated Results	Tail Calculated Results
HOC of Lead <u>1587.22 ft</u>	Tail Cement Volume In Ann <u>127.00 cuft</u>
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement <u>775.72 cuft</u>	Total Volume of Tail Cement <u>107.90 Cuft</u>
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - ( Shoe Length X Shoe Joint Ann)
Volume of Conductor <u>61.05 cuft</u>	bbls of Tail Cement <u>22.62 bbls</u>
(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 <u>836.77 cuft</u>	HOC Tail <u>220.78 ft</u>
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement <u>163.93 bbls</u>	Sacks of Tail Cement <u>100.00 sk</u>
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement <u>541.44 sk</u>	bbls of Tail Mix Water <u>14.02 bbls</u>
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water <u>116.02 bbls</u>	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure <u>585.23 PSI</u>
Displacement <u>144.86 bbls</u>	
(Casing ID Squared) X (.0009714) X (Casing Depth) - (Shoe Length)	
Total Water Needed: <u>324.91 bbls</u>	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>

X

*[Signature]*  
Authorization To Proceed



## Bison Oil Well Cementing Two Cement Surface Pipe

Customer  
Well Name

Noble Energy Inc.  
Guttersen D25-753

Date  
INVOICE #  
LOCATION  
FOREMAN

Treatment Report Page 2

9/8/2019

900406

Weld

Corey Barras

## DESCRIPTION OF JOB EVENTS

[illegible]

*[Handwritten signature]*

X

Work Preformed

WSS  
Title

X

Title

9/8/19  
Date

Date \_\_\_\_\_

## Guttersen D25-753

