



Bison Oil Well Cementing Tail & Lead

Date: 2/5/2021
Invoice # 200671
AFE # _____
Foreman: Terry Richey

Customer: Noble Energy Inc.
Well Name: REVEILLE A33-720

County: Weld
State: Colorado

Sec: 34
Twp: 6N
Range: 64W

Consultant: Charles
Rig Name & Number: H&P 517
Distance To Location: 10
Units On Location: 4028/3103-4020/3203 4025/3214
Time Requested: 600 pm
Time Arrived On Location: 430 pm
Time Left Location: _____

WELL DATA	Cement Data
<p>Casing Size (in) : <u>9.625</u> Casing Weight (lb) : <u>36</u> Casing Depth (ft.) : <u>1,893</u> Total Depth (ft) : <u>1938</u> Open Hole Diameter (in) : <u>13.50</u> Conductor Length (ft) : <u>110</u> Conductor ID : <u>15.5</u> Shoe Joint Length (ft) : <u>41</u> Landing Joint (ft) : <u>2</u></p> <p>Sacks of Tail Requested <u>100</u> HOC Tail (ft): <u>0</u></p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: <u>8</u> Max Pressure: <u>700</u></p>	<p>Lead Cement Name: _____ Cement Density (lb/gal) : <u>13.5</u> Cement Yield (cuft) : <u>1.68</u> Gallons Per Sack <u>8.90</u> % Excess <u>10%</u></p> <p>Tail 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: _____</p> <p>Fluid Ahead (bbls) <u>30.0</u> H2O Wash Up (bbls) <u>20.0</u></p> <p>Spacer Ahead Makeup <u>30BBL WATER DYE IN 2ND 10</u></p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead <u>1556.73 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>760.82 cuft</u>	Total Volume of Tail Cement <u>109.41 Cuft</u>
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor <u>88.56 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>849.38 cuft</u>	HOC Tail <u>223.87 ft</u>
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement <u>166.40 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>556.14 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>117.85 bbls</u>	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure <u>585.23 PSI</u>
Displacement <u>143.17 bbls</u>	
(Casing ID Squared) X (.0009714) X (Casing Depth) - (Shoe Length)	
Total Water Needed: <u>325.04 bbls</u>	

Centralizers: 18

X

[Signature]

Authorization To Proceed

Date _____

SERIES 2000

