



Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy Inc.
Well Name: Reveille A35-772

Date: 12/31/2020
Invoice # 900496
AFE # 208300
Foreman: Corey Barras
05-123-50796

County: Weld
State: Colorado
Sec: 35
Twp: 6N
Range: 64W

Consultant: Jim
Rig Name & Number: H&P 517
Distance To Location: 10
Units On Location: 4028/3103-4020/3203 4025/3214
Time Requested: 1200
Time Arrived On Location: 2330
Time Left Location: 430

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 36</p> <p>Casing Depth (ft.) : 1,903</p> <p>Total Depth (ft) : 1944</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) : 42</p> <p>Landing Joint (ft) : 0</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>Lead</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 : 10%</p> <p>Tail</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>Spacer Ahead Makeup</p> <p>30BBL WATER DYE IN 2ND 10</p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1600.44 ft	Tail Cement Volume In Ann 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 782.18 cuft	Total Volume of Tail Cement 108.77 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 843.23 cuft	HOC Tail 222.56 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 165.20 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 545.62 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 116.92 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 143.86 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) - (Shoe Length)	Collapse PSI: 2020.00 psi
Total Water Needed: 324.80 bbls	Burst PSI: 3520.00 psi

17 Centralizers

X
Authorization To Proceed

12-31-20
Date

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