



Bison Oil Well Cementing Tail & Lead

Date: 10/19/2016

Invoice # 666023

API# 05-123-43479

Foreman: Nick Vigil

Customer: Noble Energy Inc.

Well Name: Riley LD19-722

County: Weld
State: Colorado

Sec: 19
Twp: 9N
Range: 58W

Consultant: Stetson/Justin
Rig Name & Number: H&P 524
Distance To Location: 66 miles
Units On Location: 3104/3215/3214
Time Requested: 21:00
Time Arrived On Location: 21:00
Time Left Location: 1:00

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625 Casing Weight (lb) : 40 Casing Depth (ft.) : 1,920 Total Depth (ft) : 1930 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 80 Conductor ID : 15.25 Shoe Joint Length (ft) : 48 Landing Joint (ft) : 0</p> <p>Sacks of Tail Requested 100 HOC Tail (ft): 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8 Max Pressure: 2000</p>	<p>Lead</p> <p>Cement Name: Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.7 Gallons Per Sack 9.00 % Excess 15%</p> <p>Tail</p> <p>Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack: 5.89 % Excess: 0%</p> <p>Fluid Ahead (bbls) 50.0 H2O Wash Up (bbls) 20.0</p> <p>Spacer Ahead Makeup Dye in second 10 bbl</p>

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1621.95 ft	Tail Cement Volume In Ann 127.00 cuft
Volume of Lead Cement 792.70 cuft	Total Volume of Tail Cement 106.57 Cuft
Volume of Conductor 61.05 cuft	bbls of Tail Cement 22.62 bbls
Total Volume of Lead Cement 853.75 cuft	HOC Tail 218.05 ft
bbls of Lead Cement 174.86 bbls	Sacks of Tail Cement 100.00 sk
Sacks of Lead Cement 577.54 sk	bbls of Tail Mix Water 14.02 bbls
bbls of Lead Mix Water 123.76 bbls	Pressure of cement in annulus
Displacement 141.90 bbls	Hydrostatic Pressure 585.23 PSI
Total Water Needed: 349.68 bbls	Collapse PSI: 2570.00 psi
	Burst PSI: 3950.00 psi

X
Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.

