



Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy Inc.
Well Name: Larson AA19-624

Date: 5/6/2018
Invoice #: 900290
API#: 05-123-45508
Foreman: Corey Barras

County: Weld
State: Colorado
Sec: 8
Twp: 5N
Range: 62W

Consultant: Matt Rosales
Rig Name & Number: H&P 517
Distance To Location: 15
Units On Location: 4027/3103-4032/3203
Time Requested: 330
Time Arrived On Location: 245
Time Left Location:

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 36
Casing Depth (ft.) : 1,933
Total Depth (ft) : 1944
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.15
Shoe Joint Length (ft) : 48
Landing Joint (ft) : 6

Sacks of Tail Requested 100
HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate: 8
Max Pressure: 2500

Cement Data

Lead

Cement Name: BFN III
Cement Density (lb/gal) : 13.5
Cement Yield (cuft) : 1.68
Gallons Per Sack 8.90
% Excess 15%

Tail Type III

Cement Name:
Cement Density (lb/gal) : 15.2
Cement Yield (cuft) : 1.27
Gallons Per Sack: 5.80
% Excess: 0%

Fluid Ahead (bbls) 30.0
H2O Wash Up (bbls) 20.0

Spacer Ahead Makeup

50 BBL ahead with Die in 2nd 10

Casing ID	8.921	Casing Grade	J-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead	1629.77 ft	Tail Cement Volume In Ann	127.00 cuft
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement	796.52 cuft	Total Volume of Tail Cement	106.17 Cuft
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor	59.72 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	856.24 cuft	HOC Tail	217.23 ft
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement	175.37 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	586.12 sk	bbls of Tail Mix Water	13.81 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
bbls of Lead Mix Water	124.20 bbls	Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure	585.23 PSI
Displacement	146.17 bbls		
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Collapse PSI:	2020.00 psi
Total Water Needed:	334.19 bbls	Burst PSI:	3520.00 psi

X
Authorization To Proceed

X 5-6-18
Date

Larson AA19-624

