



Bison Oil Well Cementing Tail & Lead

Date: 8/9/2019
Invoice # 200494
API#
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
Well Name: slw ranch state bb 07-615

County: Weld
State: Colorado
Sec: 7
Twp: 5N
Range: 63W

Consultant: john
Rig Name & Number: H&P 517
Distance To Location: 20
Units On Location: 4047/4033/4027
Time Requested: 600 am
Time Arrived On Location: 400 am
Time Left Location:

WELL DATA	Cement Data
Casing Size (in) : 9.625 Casing Weight (lb) : 36 Casing Depth (ft) : 1,891 Total Depth (ft) : 1936 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 110 Conductor ID : 15.5 Shoe Joint Length (ft) : 41 Landing Joint (ft) : 35 Sacks of Tail Requested : 100 HOC Tail (ft) : 0 One or the other, cannot have quantity in both Max Rate: 8 Max Pressure: 2500	Lead Cement Name: BFN III Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.68 Gallons Per Sack : 8.90 % Excess : 10% Tail Type III Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack : 5.89 % Excess: 0% Fluid Ahead (bbls) : 30.0 H2O Wash Up (bbls) : 20.0 Spacer Ahead Makeup 30 BBL ahead with Die in 2nd 10

Lead Calculated Results	Tail Calculated Results
HOC of Lead : 1522.56 ft	Tail Cement Volume In Ann : 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement : 744.12 cuft	Total Volume of Tail Cement : 109.20 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor : 88.56 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 : 832.67 cuft	HOC Tail : 223.44 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement : 163.13 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 : 545.20 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 : 115.53 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure : 585.23 PSI
Displacement : 145.71 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	
Total Water Needed: 325.27 bbls	
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi

X
Authorization To Proceed

Date _____

SERIES 2000

