

**Bison Oil Well Cementing****Tail & Lead**

Date: 1/24/2018

Invoice # 900257

API# 05-123-44604

Foreman: Corey Barras

Customer: Noble Energy Inc.

Well Name: Centennial State G34-657 (275)

County: Weld

State: Colorado

Sec: 8

Twp: 5N

Range: 62W

Consultant:

Matt

Rig Name & Number:

H&P 517

Distance To Location:

20

Units On Location:

4027/3103-4032/3203

Time Requested:

2130

Time Arrived On Location:

2045

Time Left Location:

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 36
Casing Depth (ft.) : 1,946
Total Depth (ft) : 1956
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 45
Landing Joint (ft) : 4

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) 50.0
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

HOC of Lead 1642.11 ft
Casing Depth - HOC Tail
Volume of Lead Cement 802.55 cuft
HOC of Lead X Open Hole Ann
Volume of Conductor 61.05 cuft
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X
(Conductor Length ft)
Total Volume of Lead Cement 863.60 cuft
(cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement 176.88 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement 591.15 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water 125.27 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement 147.26 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)
Total Water Needed: 356.33 bbls

Tail Calculated Results

Tail Cement Volume In Ann 127.00 cuft
(HOC Tail) X (OH Ann)
Total Volume of Tail Cement 107.47 Cuft
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
bbls of Tail Cement 22.62 bbls
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
HOC Tail 219.89 ft
(Tail Cement Volume) ÷ (OH Ann)
Sacks of Tail Cement 100.00 sk
(Total Volume of Tail Cement) ÷ (Cement Yield)
bbls of Tail Mix Water 13.81 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
Pressure of cement in annulus
Hydrostatic Pressure 585.23 PSI
Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Authorization To Proceed

x 2/12/18
Date

Centennial State G34-675

