



Bison Oil Well Cementing Tail & Lead

Date: 3/24/2018

Invoice # 606474

API# 05-123-48163

Supervisor: Nick Vigil

Customer: Noble Energy Inc.

Well Name: Wells Ranch State AA36-683

County: Weld

State: Colorado

Sec: 19

Twp: 6N

Range: 63W

Consultant: Chris

Rig Name & Number: H&P 517

Distance To Location: 24 miles

Units On Location: 4045/4032

Time Requested: 22:00

Time Arrived On Location: 21:00

Time Left Location:

WELL DATA

Casing Size (in) : 9.625
 Casing Weight (lb) : 36
 Casing Depth (ft.) : 1,901
 Total Depth (ft) : 1941
 Open Hole Diameter (in) : 13.50
 Conductor Length (ft) : 80
 Conductor ID : 15.25
 Shoe Joint Length (ft) : 49
 Landing Joint (ft) :

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

One or the other, cannot have quantity in both

Max Rate: 8
 Max Pressure: 2000

Cement Data

Lead

Cement Name:
 Cement Density (lb/gal) : 13.5
 Cement Yield (cuft) : 1.7
 Gallons Per Sack 9.00
 % Excess 10%

Tail

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

Dye in second 10 bbl

Casing ID

8.921

Casing Grade

J-55 only used

Lead Calculated Results

HOC of Lead 1601.66 ft
 Casing Depth - HOC Tail
 Volume of Lead Cement 782.78 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 843.83 cuft
 (cuft of Lead Cement) + (Cuft of Conductor)
 bbls of Lead Cement 165.31 bbls
 (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
 Sacks of Lead Cement 546.01 sk
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
 bbls of Lead Mix Water 117.00 bbls
 (Sacks Needed) X (Gallons Per Sack) ÷ 42
 Displacement 143.39 bbls
 (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe
 Length)
 Total Water Needed: 324.42 bbls

Tail Calculated Results

Tail Cement Volume In Ann 127.00 cuft
 (HOC Tail) X (OH Ann)
 Total Volume of Tail Cement 105.73 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 216.34 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 14.02 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

X

Authorization To Proceed

Wells Ranch State AA36-683

