



Bison Oil Well Cementing Tail & Lead

Date: 9/16/2018

Invoice # 300188

API# 05-123-44958

Foreman: JASON KELEHER

Customer: Noble Energy Inc.

Well Name: WELLS RANCH BB09-649

County: Weld

State: Colorado

Sec: 11

Twp: 5N

Range: 63W

Consultant: DAVE

Rig Name & Number: H&P 321

Distance To Location: 24

Units On Location: -3103,4039-3214,4030-3215

Time Requested: 400

Time Arrived On Location: 230

Time Left Location: 1030

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 36
Casing Depth (ft.) : 1,938
Total Depth (ft) : 1948
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 49
Landing Joint (ft) : 5

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

One or the other, cannot have quantity in both

Max Rate: 8
Max Pressure: 1500

Cement Data

Lead

Cement Name:
Cement Density (lb/gal) : 13.5
Cement Yield (cuft) : 1.7
Gallons Per Sack 9.00
% Excess 15%

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

30 BBL WATER DYE IN 2ND 10

Casing ID

8.921

Casing Grade

J-55 only used

Lead Calculated Results

HOC of Lead 1720.46 ft
Casing Depth - HOC Tail
Volume of Lead Cement 921.95 cuft
HOC of Lead X Open Hole Ann
Volume of Conductor 60.64 cuft
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X
(Conductor Length ft)
Total Volume of Lead Cement 982.44 cuft
(cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement 175.00 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement 578.00 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water 123.80 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement 146.30 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe
Length)
Total Water Needed: 189.00 bbls

Tail Calculated Results

Tail Cement Volume in Ann 106.12 cuft
(HOC Tail) X (OH Ann)
Total Volume of Tail Cement 127.00 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 217.24 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 460.00 PSI
Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

X [Signature]

Authorization To Proceed

Date _____

WELLS RANCH BB09-649 SURFACE

