



Bison Oil Well Cementing Tail & Lead

Date: 3/11/2017

Invoice # 666091

API# 05-123-43873

Foreman: Nick Vigil

Customer: Noble Energy Inc.

Well Name: Wells Ranch State AA33-750

County: Weld

State: Colorado

Sec: 21

Twp: 6N

Range: 63W

Consultant: John

Rig Name & Number: H&P 517

Distance To Location: 19 Miles

Units On Location: 4023/4034/4032

Time Requested: 7:00

Time Arrived On Location: 6:55

Time Left Location:

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 36
Casing Depth (ft.) : 1,928
Total Depth (ft) : 1938
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 48
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 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) 50.0
H2O Wash Up (bbls) 20.0

Spacer Ahead Makeup

Dye in 2nd 10 bbl

Casing ID

8.921

Casing Grade

J-55 only used

Lead Calculated Results

HOC of Lead 1625.77 ft
Casing Depth - HOC Tail
Volume of Lead Cement 794.56 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 855.61 cuft
(cuft of Lead Cement) + (Cuft of Conductor)
bbls of Lead Cement 175.24 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)
Sacks of Lead Cement 578.80 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
bbls of Lead Mix Water 124.03 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42
Displacement 145.71 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)
Total Water Needed: 353.76 bbls

Tail Calculated Results

Tail Cement Volume In Ann 127.00 cuft
(HOC Tail) X (OH Ann)
Total Volume of Tail Cement 106.17 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 217.23 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

John Drakota
Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.



Bison Oil Well Cementing Two Cement Surface Pipe

Customer
Well Name

Noble Energy Inc.
Wells Ranch State AA33-750

Date _____

3/11/2017

INVOICE #

666091

LOCATION

Weld

FOREMAN

Nick Vigil

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

[illegible]

X

Signature _____

X

Title

X

Date _____