



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/21/2016

Invoice # 80478

API# 05-123-42136

Foreman: Matthew

Customer: Noble Energy Inc.

Well Name: Wells Ranch AF 05-625

County: Weld

State: Colorado

Sec: 5

Twp: 5N

Range: 62W

Consultant:

Rig Name & Number: H&P 343

Distance To Location: 24

Units On Location: 4027/3106

Time Requested: 2:30am 3.21.16

Time Arrived On Location:

Time Left Location:

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft.) : 1,930  
Total Depth (ft) : 1961  
Open Hole Diameter (in.) : 13.50  
Conductor Length (ft) : 104  
Conductor ID : 15.25  
Shoe Joint Length (ft) : 41  
Landing Joint (ft) : 5  
  
Max Rate: 7  
Max Pressure: 1500

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal) : 14.2  
Cement Yield (cuft) : 1.49  
Gallons Per Sack: 7.48  
% Excess: 15%  
Displacement Fluid lb/gal: 8.7  
BBL to Pit: 18.0  
Fluid Ahead (bbls): 50.0  
H2O Wash Up (bbls): 20.0  
  
Spacer Ahead Makeup  
40Water , 10 Dye

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

**cuft of Shoe** 17.62 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)  
**cuft of Conductor** 79.37 cuft  
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)  
**cuft of Casing** 1022.35 cuft  
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )  
**Total Slurry Volume** 1119.34 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
**bbls of Slurry** 201.70 bbls  
(Total Slurry Volume) X (.1781)  
**Sacks Needed** 751 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
**Mix Water** 133.75 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 148.00 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 1423.76 PSI

## Pressure of the fluids inside casing

**Displacement:** 853.82 psi

**Shoe Joint:** 29.95 psi

**Total** 883.77 psi

**Differential Pressure:** 539.99 psi

**Collapse PSI:** 2020.00 psi

**Burst PSI:** 3520.00 psi

**Total Water Needed:** 210.00 bbls

X Charles Collier  
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 Single Cement Surface Pipe

Customer  
Well Name

Noble Energy Inc.  
Wells Ranch AF 05-625

INVOICE #  
LOCATION  
FOREMAN  
Date

80478  
Weld  
Matthew  
3/21/2016

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## DESCRIPTION OF JOB EVENTS

[illegible]

|X

Work Preformed

X  
Title

X  
Date