



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/9/2015  
Invoice #: 90004  
API#: 05-123-41210  
Foreman: Nick

Customer: Noble Energy Inc.

Well Name: Wells Ranch AA11-682

County: Weld  
State: Colorado  
Sec: 11  
Twp: 6N  
Range: 63W  
Consultant: Josh  
Rig Name & Number: H&P 321  
Distance To Location: 60  
Units On Location: 4029/3101/4024/3210  
Time Requested: 8:00  
Time Arrived On Location: 6:15  
Time Left Location: 0:45

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft) : 629  
Total Depth (ft) : 638  
Open Hole Diameter (in.) : 13.50  
Conductor Length (ft) : 100  
Conductor ID : 15.25  
Shoe Joint Length (ft) : 41  
Landing Joint (ft) : 34

Max Rate: 6  
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: 30%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit: 17.0  
Fluid Ahead (bbls): 40.0  
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup  
DYE IN SECOND 10 BBL

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

**cuft of Shoe** 17.99 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

**cuft of Conductor** 76.31 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

**cuft of Casing** 335.97 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

**Total Slurry Volume** 471.64 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

**bbls of Slurry** 84.00 bbls  
(Total Slurry Volume) X (.1781)

**Sacks Needed** 317 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

**Mix Water** 56.46 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 45.73 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 463.87 PSI

## Pressure of the fluids inside casing

**Displacement:** 253.25 psi

**Shoe Joint:** 30.58 psi

**Total** 283.83 psi

**Differential Pressure:** 180.03 psi

**Collapse PSI:** 2020.00 psi

**Burst PSI:** 3520.00 psi

**Total Water Needed:** 162.19 bbls

X   
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 AA11-682

INVOICE #  
LOCATION  
FOREMAN  
Date

90004  
Weld  
Nick  
6/9/2015

Treatment Report Page 2

## DESCRIPTION OF JOB EVENTS

[illegible]

1x

Work Preformed

X

Title

x

Date \_\_\_\_\_