



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/20/2015  
Invoice #: 80563  
API#:   
Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.  
Well Name: ann lc 34-765

County: Weld  
State: Colorado  
Sec: 25  
Twp: 6n  
Range: 68w  
Consultant: charles  
Rig Name & Number: H&P 273  
Distance To Location:   
Units On Location: 4031-3106/4032-3215  
Time Requested: 900 am  
Time Arrived On Location: 730 am  
Time Left Location: 12:30 pm

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft) : 600  
Total Depth (ft) : 645  
Open Hole Diameter (in.) : 13.50  
Conductor Length (ft) : 100  
Conductor ID : 16  
Shoe Joint Length (ft) : 43  
Landing Joint (ft) : 35

Max Rate:   
Max Pressure:

## 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:   
Fluid Ahead (bbls): 40.0  
H2O Wash Up (bbls): 10.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

## Calculated Results

**cuft of Shoe** 18.66 cuft  
(Casing ID Squared) X (.005454) X (Shoe Joint ft)  
**cuft of Conductor** 89.10 cuft  
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)  
**cuft of Casing** 317.67 cuft  
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)  
**Total Slurry Volume** 425.43 cuft  
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  
**bbls of Slurry** 75.77 bbls  
(Total Slurry Volume) X (.1781)  
**Sacks Needed** 286 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
**Mix Water** 50.85 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42

**Displacement:** 45.77 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

## Pressure of cement in annulus

**Hydrostatic Pressure:** 442.62 PSI

## Pressure of the fluids inside casing

**Displacement:** 240.17 psi

**Shoe Joint:** 31.72 psi

**Total** 271.89 psi

**Differential Pressure:** 170.73 psi

**Collapse PSI:** 2020.00 psi

**Burst PSI:** 3520.00 psi

**Total Water Needed:** 146.62 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.



Noble Energy Inc.  
ann lc 34-765

INVOICE #  
LOCATION  
FOREMAN  
Date

80563  
Weld  
Kirk Kallhoff  
12/20/2015

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### DESCRIPTION OF JOB EVENTS

X   
Work Performed

X WSS

X 12-20-15  
Date