



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/2/2015

Invoice # 80526

API#

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: kidd Id22-780

County: Weld

State: Colorado

Sec: 17

Twp: 5n

Range: 63w

Consultant: tawn

Rig Name & Number: H&P 326

Distance To Location:

Units On Location: 4029-3106/4035-3211

Time Requested: 930 pm

Time Arrived On Location: 800 pm

Time Left Location: 1:30 pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 755
Total Depth (ft) : 765
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 38
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): 60.0
H2O Wash Up (bbls): 10.0

Spacer Ahead Makeup

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 16.49 **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 416.15 **cuft**
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 521.74 **cuft**
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 92.92 **bbls**
(Total Slurry Volume) X (.1781)
Sacks Needed 350 **sk**
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 62.36 **bbls**
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 58.14 **bbls**

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 556.96 **PSI**

Pressure of the fluids inside casing

Displacement: 309.16 **psi**

Shoe Joint: 28.03 **psi**

Total 337.19 **psi**

Differential Pressure: 219.77 **psi**

Collapse PSI: 2020.00 **psi**

Burst PSI: 3520.00 **psi**

Total Water Needed: 190.50 **bbls**

X *I am [Signature]*
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.

Date _____