



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/27/16
Invoice # 80522
API# 05-123-42820
Foreman: Matthew Rosales

Customer: Noble Energy Inc.

Well Name: Lapp A15-629

County: Weld
State: Colorado

Sec: SWSW
Twp: 136N
Range: 64W

Consultant: Derrick
Rig Name & Number: H&P 524
Distance To Location: 14
Units On Location: 3106
Time Requested: 3:00am
Time Arrived On Location: 12:45am
Time Left Location:

WELL DATA

Casing Size OD (in): 9.625
Casing Weight (lb): 36.00
Casing Depth (ft.): 1,912
Total Depth (ft): 1921
Open Hole Diameter (in.): 13.50
Conductor Length (ft): 80
Conductor ID: 15.25
Shoe Joint Length (ft): 45
Landing Joint (ft): 3

Max Rate: 8
Max Pressure: 1700

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: 8.3
Fluid Ahead (bbls): 50.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup

10H2O, 10Dye, 30H2O

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.00 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 61.05 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 880.00 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1091.00 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 194.00 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 733 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 132.00 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 144.30 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1410.26 PSI

Pressure of the fluids inside casing

Displacement: 804.89 psi

Shoe Joint: 33.20 psi

Total 838.08 psi

Differential Pressure: 572.18 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 300.00 bbls

X *Derrick Dwyer*
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.

