



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/18/2016
 Invoice # 80477
 API# 05-123-40602
 Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Remoral LC 34-725

County: Weld Consultant: _____
 State: Colorado Rig Name & Number: H&P 273
 Distance To Location: 56 Miles
 Sec: 34 Units On Location: 4023-3104/4032-3214
 Twp: 9N Time Requested: 1100pm
 Range: 59W Time Arrived On Location: 900pm
 Time Left Location: 500am

WELL DATA

Casing Size OD (in) : 9.625
 Casing Weight (lb) : 36.00
 Casing Depth (ft.) : 609
 Total Depth (ft) : 642
 Open Hole Diameter (in.) : 13.50
 Conductor Length (ft) : 100
 Conductor ID : 16
 Shoe Joint Length (ft) : 45
 Landing Joint (ft) : 29
 Max Rate: 7
 Max Pressure: 1750

Cement Data

Cement Name: BFN III
 Cement Density (lb/gal) : 14.2
 Cement Yield (cuft) : 1.49
 Gallons Per Sack: 7.48
 % Excess: 20%
 Displacement Fluid lb/gal: 8.3
 BBL to Pit: 8.0
 Fluid Ahead (bbls): 40.0
 H2O Wash Up (bbls): 10.0

Spacer Ahead Makeup

40 bbl H2O+Dye in 2nd 10 bbls

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 19.53 **cuft**
 (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

cuft of Conductor 89.10 **cuft**
 (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 298.45 **cuft**
 (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 407.07 **cuft**
 (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 72.50 **bbls**
 (Total Slurry Volume) X (.1781)

Sacks Needed 273 **sk**
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 48.66 **bbls**
 (Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 45.85 **bbls**
 (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 449.17 **PSI**

Pressure of the fluids inside casing

Displacement: 243.14 **psi**

Shoe Joint: 33.19 **psi**

Total 276.33 **psi**

Differential Pressure: 172.84 **psi**

Collapse PSI: 2020.00 **psi**

Burst PSI: 3520.00 **psi**

Total Water Needed: 144.51 **bbls**

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.

