



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/7/2014
Invoice # 25006
API# 05-123-38155
Foreman: Calvin Reimers

Customer: Noble Energy Inc.
Well Name: Resolute E 25-63-1HN

County: Weld
State: Colorado
Sec: 26
Twp: 6N
Range: 65W
Consultant: Tawn B.
Rig Name & Number: PD 828
Distance To Location: 16 Miles
Units On Location: 4023-3104/4020-3205
Time Requested: 530pm
Time Arrived On Location: 330pm
Time Left Location: 700pm

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 568
Total Depth (ft) : 594
Open Hole Diameter (in.) : 13.75
Conductor Length (ft) : 100
Conductor ID : 16
Shoe Joint Length (ft) : 44
Landing Joint (ft) : 22

Max Rate: 7
Max Pressure: 2500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 15.2
Cement Yield (cuft) : 1.27
Gallons Per Sack: 5.89
% Excess: 40%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 22.0
Fluid Ahead (bbls): 40.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
10bbls H2O+KCL+Dye in 2nd 10bbls

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 19.29 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 344.92 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 453.31 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 80.73 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 357 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 50.06 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 42.24 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
Pressure of cement in annulus
Hydrostatic Pressure: 448.88 PSI
Pressure of the fluids inside casing
Displacement: 225.96 psi
Shoe Joint: 35.10 psi
Total 261.05 psi
Differential Pressure: 187.83 psi
Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi
Total Water Needed: 152.30 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.

X 6-7-14
Date