



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/29/2016
Invoice # 80523
API# 05-123-43293
Foreman: Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Harper LD21-655

County: Weld
State: Colorado
Sec: SWSW
Twp: 136N
Range: 64W

Consultant: John Drahota
Rig Name & Number: H&P 517
Distance To Location: 60
Units On Location: 3106
Time Requested: 5:00pm
Time Arrived On Location: 4:00pm
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 1,934
Total Depth (ft) : 1944
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
40H2O, 10Dye

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 20.00 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 890.00 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing
Depth - Conductor Length)
Total Slurry Volume 1104.00 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 197.00 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 741 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: 1426.71 PSI

Pressure of the fluids inside casing

Displacement: 814.50 psi

Shoe Joint: 33.20 psi

Total 847.70 psi

Differential Pressure: 579.01 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 300.00 bbls

X

John Drahota

Authorization To Proceed

Date _____