



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/9/2015
Invoice #: 90038
API#: 05-123-41788
Supervisor: Nick

Customer: Noble Energy Inc.
Well Name: Wells Ranch AE 32-615

County: Weld
State: Colorado
Sec: 32
Twp: 6N
Range: 62W
Consultant: Michael Pino
Rig Name & Number: H&P 273
Distance To Location: 60
Units On Location: 3102/4028/4022/3215
Time Requested: 18:00
Time Arrived On Location: 16:30
Time Left Location: 23:45

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 630
Total Depth (ft) : 637
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 104
Conductor ID : 15.25
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 5

Max Rate: 7
Max Pressure: 1500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 25%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 18.0
Fluid Ahead (bbls): 40.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
DYE IN SECOND 10 BBL

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.66 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 79.37 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 329.81 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 427.84 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 76.20 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 287 sk
Mix Water 51.11 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 45.10 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 464.75 PSI

Pressure of the fluids inside casing

Displacement: 253.10 psi

Shoe Joint: 31.72 psi

Total 284.82 psi

Differential Pressure: 179.93 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 156.21 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.

Date _____