



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/19/2013
Invoice # 12569
API#
Foreman: Kirk

Customer: encana
Well Name: rodman bruntz 2a-26h

County: weld
State: Colorado
Sec: 26
Twp: 2n
Range: 66w
Consultant: paul
Rig Name & Number: ensign 124
Distance To Location:
Units On Location: 3103-3211
Time Requested: 400 am
Time Arrived On Location: 215 am
Time Left Location: 7:00 am

WELL DATA

Casing Size OD (in) : 9.6250
Casing Weight (lb) : 40
Casing Depth (ft.) : 1,197
Total Depth (ft) : 1220
Open Hole Diameter (in.) : 12.25
Conductor Length (ft) : 93
Conductor ID : 15.5
Shoe Joint Length (ft) : 43
Landing Joint (ft) : 13

Max Rate:
Max Pressure:

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

Spacer Ahead Makeup

Casing ID

8.835

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.31 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 74.87 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 345.75 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 438.93 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 109.44 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 484 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 67.86 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 88.49 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 945.15 PSI

Pressure of the fluids inside casing

Displacement: 497.58 psi

Shoe Joint: 33.95 psi

Total 531.54 psi

Differential Pressure: 413.62 psi

Collapse PSI: 2570.00 psi

Burst PSI: 3950.00 psi

Total Water Needed: 87.86 bbls

Paul Carey
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.