Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 1/1/2014
Invoice # 12610
API# 05-123-38181
Foreman: Calvin Reimers

Customer: Encana
Well Name: Rodman Bruntz 2B-26H-D266

County: Weld
State: Colorado

Sec: 26
Twp: 2N
Range: 66W

Consultant: Dave
Rig Name & Number: Ensign 124
Distance To Location: 23 Miles
Units On Location: 3106/3204
Time Requested: 730am
Time Arrived On Location: 610am
Time Left Location: 100pm

WELL DATA

Casing Size OD (in) :	9.6250
Casing Weight (lb) :	40
Casing Depth (ft.) :	1,206
Total Depth (ft) :	1229
Open Hole Diameter (in.) :	12.25
Conductor Length (ft) :	82
Conductor ID :	16
Shoe Joint Length (ft) :	45
Landing Joint (ft) :	16
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:	45%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	30.0
Fluid Ahead (bbls):	
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
30bbls+KCL+Dye in 2nd 10bbls

Casing ID 8.835 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 19.20 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 73.06 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 352.02 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 444.28 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 114.73 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 507 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 71.14 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 89.25 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 952.27 PSI

Pressure of the fluids inside casing

Displacement:	500.56 psi
Shoe Joint:	35.62 psi
Total	536.18 psi
Differential Pressure:	416.09 psi
Collapse PSI:	2570.00 psi
Burst PSI:	3950.00 psi
Total Water Needed:	91.14 bbls

X _____
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.