



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.