



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/24/2013  
 Invoice #: 12589  
 API#: \_\_\_\_\_  
 Foreman: Calvin Reimers

Customer: Bill Barrett  
 Well Name: Circle B 6-66-9-0461 CH

County: Weld  
 State: Colorado  
 Sec: 9  
 Twp: 6N  
 Range: 66W

Consultant: Pete  
 Rig Name & Number: Major 43  
 Distance To Location: 22 miles  
 Units On Location: 3106/3212  
 Time Requested: 600am  
 Time Arrived On Location: 500am  
 Time Left Location: 1000am

WELL DATA		Cement Data	
Casing Size OD (in) :	9.6250	Cement Name:	BFN III
Casing Weight (lb) :	36	Cement Density (lb/gal) :	15.2
Casing Depth (ft) :	794	Cement Yield (cuft) :	1.27
Total Depth (ft) :	800	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	13.50	% Excess:	70%
Conductor Length (ft) :		Displacement Fluid lb/gal:	8.3
Conductor ID :		BBL to Pit:	27.0
Shoe Joint Length (ft) :	45	Fluid Ahead (bbls):	
Landing Joint (ft) :		H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	2500	Is H2O with KCL+Dye in 2nd 10bbls	

Calculated Results		Displacement: 57.88 bbls	
<b>cuft of Shoe</b>	19.55 cuft	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		<b>Pressure of cement in annulus</b>	
<b>cuft of Conductor</b>	0.00 cuft	<b>Hydrostatic Pressure:</b> 626.69 PSI	
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		<b>Pressure of the fluids inside casing</b>	
<b>cuft of Casing</b>	387.89 cuft	<b>Displacement:</b> 322.80 psi	
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		<b>Shoe Joint:</b> 35.57 psi	
<b>Total Slurry Volume</b>	407.45 cuft	<b>Total</b> 358.37 psi	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		<b>Differential Pressure:</b> 268.32 psi	
<b>bbls of Slurry</b>	123.36 bbls	<b>Collapse PSI:</b> 2020.00 psi	
(Total Slurry Volume) X (.1781) X (% Excess Cement)		<b>Burst PSI:</b> 3520.00 psi	
<b>Sacks Needed</b>	545 sk	<b>Total Water Needed:</b> 96.49 bbls	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
<b>Mix Water</b>	76.49 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

X *[Signature]*  
 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.