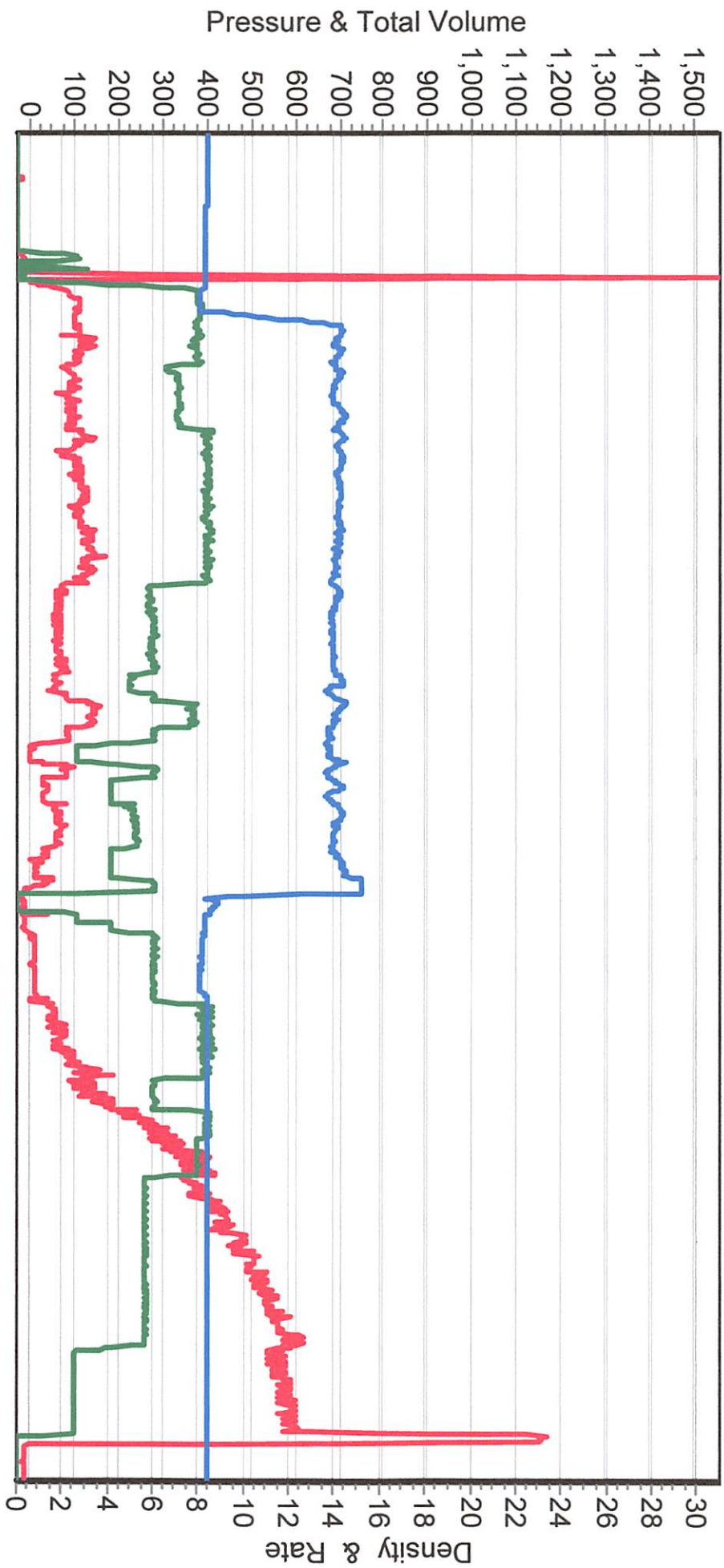


X 2-7-19  
Date

— PSI — Barrels / Minute — Lbs / Gallon





# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/7/2019  
Invoice #: 606427  
API#: 05-123-49243  
Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation

Well Name: MAB 15-8HZ

County: Weld  
State: Colorado  
Sec: 8  
Twp: 1N  
Range: 65W

Consultant: Dave  
Rig Name & Number: Cartel 88  
Distance To Location: 33 Miles  
Units On Location: 4045/4044/4030  
Time Requested: 13:30  
Time Arrived On Location: 12:35  
Time Left Location:

## WELL DATA

Casing Size OD (in) : 9.625  
Casing Weight (lb) : 36.00  
Casing Depth (ft.) : 1,932  
Total Depth (ft) : 1942  
Open Hole Diameter (in.) : 13.50  
Conductor Length (ft) : 80  
Conductor ID : 15.25  
Shoe Joint Length (ft) : 43  
Landing Joint (ft) : 10  
Max Rate: 8  
Max Pressure: 2000

## Cement Data

Cement Name: BFN III  
Cement Density (lb/gal) : 14.2  
Cement Yield (cuft) : 1.49  
Gallons Per Sack: 7.48  
% Excess: 10%  
Displacement Fluid lb/gal: 8.3  
BBL to Pit:  
Fluid Ahead (bbls): 30.0  
H2O Wash Up (bbls): 10.0  
Spacer Ahead Makeup  
Dye in second 10 bbl

Casing ID	8.921	Casing Grade	J-55 only used
<b>Calculated Results</b>		<b>Displacement: 146.81 bbls</b>	
<b>cuft of Shoe 18.66 cuft</b> (Casing ID Squared) X (.005454) X (Shoe Joint ft)		(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
<b>cuft of Conductor 61.05 cuft</b> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		<b>Pressure of cement in annulus</b>	
<b>cuft of Casing 995.64 cuft</b> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )		<b>Hydrostatic Pressure: 1425.24 PSI</b>	
<b>Total Slurry Volume 1075.35 cuft</b> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		<b>Pressure of the fluids inside casing</b>	
<b>bbls of Slurry 191.52 bbls</b> (Total Slurry Volume) X (.1781)		<b>Displacement: 814.50 psi</b>	
<b>Sacks Needed 722 sk</b> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		<b>Shoe Joint: 31.72 psi</b>	
<b>Mix Water 128.53 bbls</b> (Sacks Needed) X (Gallons Per Sack) ÷ 42		<b>Total 846.22 psi</b>	
		<b>Differential Pressure: 579.01 psi</b>	
		<b>Collapse PSI: 2020.00 psi</b>	
		<b>Burst PSI: 3520.00 psi</b>	
		<b>Total Water Needed: 315.34 bbls</b>	

x   
Authorization To Proceed