



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/6/2017  
 Invoice #: 300113  
 API#: 05-123-43570  
 Foreman: JASON KELEHER

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** NORDEN 28N-14HZ

County: Weld  
 State: Colorado  
 Sec: 14  
 Twp: 1N  
 Range: 67W

Consultant: BRYAN  
 Rig Name & Number: CARTEL 88  
 Distance To Location: 32  
 Units On Location: 4027-3103,4030-3215,4024-3215  
 Time Requested: 1200  
 Time Arrived On Location: 2230  
 Time Left Location: 800

WELL DATA	
Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,865
Total Depth (ft) :	1875
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	45
Landing Joint (ft) :	8
Max Rate:	8
Max Pressure:	2000

Cement Data	
Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.48
Gallons Per Sack:	7.48
% Excess:	10%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	19.0
Fluid Ahead (bbls):	30.0
H2O Wash Up (bbls):	20.0
Spacer Ahead Makeup	30 BBL WATER, DYE IN 2ND 10

Calculated Results	Displacement: 141.34 bbls
<b>cuft of Shoe</b> 19.44 cuft (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</b> 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
<b>cuft of Casing</b> 959.62 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Pressure of cement in annulus</b> <b>Hydrostatic Pressure:</b> 1375.81 PSI
<b>Total Slurry Volume</b> 1040.11 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Pressure of the fluids inside casing</b> <b>Displacement:</b> 784.84 psi <b>Shoe Joint:</b> 33.03 psi <b>Total</b> 817.88 psi
<b>bbls of Slurry</b> 185.24 bbls (Total Slurry Volume) X (.1781)	<b>Differential Pressure:</b> 557.93 psi
<b>Sacks Needed</b> 703 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Collapse PSI:</b> 2020.00 psi <b>Burst PSI:</b> 3520.00 psi
<b>Mix Water</b> 125.16 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Total Water Needed:</b> 316.50 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.



# NORDEN 28N-14HZ SURFACE

