



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/2/2015  
 Invoice # 80414  
 API# 05-069-06481  
 Foreman: Calvin Reimers

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** Encore 26N-12HZ

County: Larimer  
 State: Colorado  
 Sec: 12  
 Twp: 5N  
 Range: 68W

Consultant: Sean  
 Rig Name & Number: Noble 2  
 Distance To Location: 23 Miles  
 Units On Location: 4023-3104/3210/3211  
 Time Requested: 300pm  
 Time Arrived On Location: 1215pm  
 Time Left Location: 5:45 pm

WELL DATA		Cement Data	
Casing Size OD (in) :	<u>9.625</u>	Cement Name:	<u>BFN III</u>
Casing Weight (lb) :	<u>36.00</u>	Cement Density (lb/gal) :	<u>14.2</u>
Casing Depth (ft.) :	<u>1,851</u>	Cement Yield (cuft) :	<u>1.49</u>
Total Depth (ft) :	<u>1868.26</u>	Gallons Per Sack:	<u>7.48</u>
Open Hole Diameter (in.) :	<u>13.50</u>	% Excess:	<u>15%</u>
Conductor Length (ft) :	<u>40</u>	Displacement Fluid lb/gal:	<u>8.3</u>
Conductor ID :	<u>16</u>	BBL to Pit:	<u>29</u>
Shoe Joint Length (ft) :	<u>42</u>	Fluid Ahead (bbls):	<u>30.0</u>
Landing Joint (ft) :	<u>10</u>	H2O Wash Up (bbls):	<u>15.0</u>
Max Rate:	<u>6</u>	<b>Spacer Ahead Makeup</b>	
Max Pressure:	<u>1750</u>	<b>30 bbls With Dye in 2nd 10 bbls</b>	

Calculated Results	Displacement:	140.68 bbls
<b>cuft of Shoe</b> <u>18.04</u> <b>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</b> <u>35.64</u> <b>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</b> <u>1018.00</u> <b>cuft</b> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Hydrostatic Pressure:</b>	<u>1365.67 PSI</u>
<b>Total Slurry Volume</b> <u>1071.68</u> <b>cuft</b> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Pressure of the fluids inside casing</b>	
<b>bbls of Slurry</b> <u>190.87</u> <b>bbls</b> (Total Slurry Volume) X (.1781)	<b>Displacement:</b>	<u>780.30 psi</u>
<b>Sacks Needed</b> <u>719</u> <b>sk</b> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Shoe Joint:</b>	<u>30.67 psi</u>
<b>Mix Water</b> <u>128.09</u> <b>bbls</b> (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Total</b>	<u>810.97 psi</u>
	<b>Differential Pressure:</b>	<u>554.70 psi</u>
	<b>Collapse PSI:</b>	<u>2020.00 psi</u>
	<b>Burst PSI:</b>	<u>3520.00 psi</u>
	<b>Total Water Needed:</b>	<u>313.77 bbls</u>

*Sean [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.



# SERIES 2000

