



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/18/2017  
 Invoice # 900138  
 API# 05-123-44613  
 Foreman: Corey B.

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** RW 29N-5HZ

County: Weld Consultant: Matt  
 State: Colorado Rig Name & Number: Xtreme 22  
 Distance To Location: 28  
 Sec: 29 Units On Location: 1027/3103-4033/3212-4020/321  
 Twp: 3N Time Requested: 330  
 Range: 65W Time Arrived On Location: 230  
 Time Left Location: \_\_\_\_\_

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>1,857</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1867</u>	Gallons Per Sack: <u>7.40</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>10%</u>
Conductor Length (ft) : <u>80</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.25</u>	BBL to Pit:
Shoe Joint Length (ft) : <u>44</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>15</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>8</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	<u>30 bbl with Die in @nd 10</u>

Calculated Results	Pressure of cement in annulus
<b>Displacement:</b> <u>141.32 bbls</u> (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	<b>Hydrostatic Pressure:</b> <u>1369.91 PSI</u>
<b>cuft of Shoe</b> <u>19.10 cuft</u> (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Pressure of the fluids inside casing</b>
<b>cuft of Conductor</b> <u>61.05 cuft</u> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Displacement:</b> <u>781.73 psi</u>
<b>cuft of Casing</b> <u>955.32 cuft</u> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Shoe Joint:</b> <u>32.46 psi</u>
<b>Total Slurry Volume</b> <u>1035.47 cuft</u> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Total</b> <u>814.19 psi</u>
<b>bbls of Slurry</b> <u>184.42 bbls</u> (Total Slurry Volume) X (.1781)	<b>Differential Pressure:</b> <u>555.72 psi</u>
<b>Sacks Needed</b> <u>700 sk</u> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Collapse PSI:</b> <u>2020.00 psi</u>
<b>Mix Water</b> <u>123.27 bbls</u> (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Burst PSI:</b> <u>3520.00 psi</u>
	<b>Total Water Needed:</b> <u>314.59 bbls</u>

*[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.



# 29N-5HZ

