



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/4/2015  
 Invoice # 80442  
 API# 05-123-41970  
 Foreman: Calvin Reimers

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** Meguire 28C-16HZ

County: Weld Consultant: Sean / Chris  
 State: Colorado Rig Name & Number: Noble 2  
 Distance To Location: 28 Miles  
 Sec: 21 Units On Location: 4023-3104/4033-3203  
 Twp: 2N Time Requested: 730pm  
 Range: 65W Time Arrived On Location: 710pm  
 Time Left Location: 2:15am

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>1,824</u>	Cement Yield (cuft) : <u>1.49</u>
Total Depth (ft) : <u>1841</u>	Gallons Per Sack: <u>7.48</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>20%</u>
Conductor Length (ft) : <u>40</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.25</u>	BBL to Pit: <u>36</u>
Shoe Joint Length (ft) : <u>44</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>	Spacer Ahead Makeup
Max Pressure: <u>1750</u>	<u>30 bbls With Dye in 2nd 10 bbls</u>

Calculated Results	Pressure of cement in annulus
<b>Displacement:</b> <u>138.36 bbls</u> (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	<b>Hydrostatic Pressure:</b> <u>1345.66 PSI</u>
<b>cuft of Shoe</b> <u>19.29</u> <b>cuft</b> (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Pressure of the fluids inside casing</b>
<b>cuft of Conductor</b> <u>30.53</u> <b>cuft</b> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Displacement:</b> <u>767.37 psi</u>
<b>cuft of Casing</b> <u>1046.35</u> <b>cuft</b> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )	<b>Shoe Joint:</b> <u>32.78 psi</u>
<b>Total Slurry Volume</b> <u>1096.16</u> <b>cuft</b> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Total</b> <u>800.15 psi</u>
<b>bbls of Slurry</b> <u>195.23</u> <b>bbls</b> (Total Slurry Volume) X (.1781)	<b>Differential Pressure:</b> <u>545.51 psi</u>
<b>Sacks Needed</b> <u>736</u> <b>sk</b> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Collapse PSI:</b> <u>2020.00 psi</u>
<b>Mix Water</b> <u>131.02</u> <b>bbls</b> (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Burst PSI:</b> <u>3520.00 psi</u>
	<b>Total Water Needed:</b> <u>314.38 bbls</u>

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.



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