



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/7/2015  
 Invoice # 80048  
 API# 05-123-41501-00  
 Foreman: Calvin Reimers

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** English Farms 15N-8HZ

County: Weld Consultant: Don / Tobin  
 State: Colorado Rig Name & Number: Extreme 24  
 Distance To Location: 22 Miles  
 Sec: 8 Units On Location: 4023-3104/4030-3203  
 Twp: 1N Time Requested: 930am  
 Range: 65W Time Arrived On Location: 810am  
 Time Left Location: 6:45 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>1,850</u>	Cement Yield (cuft) : <u>1.49</u>
Total Depth (ft) : <u>1876</u>	Gallons Per Sack: <u>7.48</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>25%</u>
Conductor Length (ft) : <u>43</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>16</u>	BBL to Pit: <u>34</u>
Shoe Joint Length (ft) : <u>41</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>19</u>	H2O Wash Up (bbls): <u>10.0</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 Calculations
<b>cuft of Shoe</b> <u>17.89</u> <b>cuft</b> (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Displacement:</b> <u>141.33</u> <b>bbls</b> (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
<b>cuft of Conductor</b> <u>38.31</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>Hydrostatic Pressure:</b> <u>1364.96</u> <b>PSI</b>
<b>cuft of Casing</b> <u>1104.09</u> <b>cuft</b> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Pressure of the fluids inside casing</b> <b>Displacement:</b> <u>780.04</u> <b>psi</b>
<b>Total Slurry Volume</b> <u>1160.29</u> <b>cuft</b> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Shoe Joint:</b> <u>30.40</u> <b>psi</b>
<b>bbls of Slurry</b> <u>206.65</u> <b>bbls</b> (Total Slurry Volume) X (.1781)	<b>Total</b> <u>810.44</u> <b>psi</b>
<b>Sacks Needed</b> <u>779</u> <b>sk</b> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Differential Pressure:</b> <u>554.52</u> <b>psi</b>
<b>Mix Water</b> <u>138.69</u> <b>bbls</b> (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Collapse PSI:</b> <u>2020.00</u> <b>psi</b>
	<b>Burst PSI:</b> <u>3520.00</u> <b>psi</b>
	<b>Total Water Needed:</b> <u>320.01</u> <b>bbls</b>

X [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

— PSI      — Barrels / Minute   — Barrels      — Lbs / Gallon      — Stage Volume

