



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/24/2017  
 Invoice # 666190  
 API# 05-123-43477  
 Foreman: Nick Vigil

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** Wagner 26C-10HZ

County: Weld Consultant: Matt/Brian  
 State: Colorado Rig Name & Number: Cartel 88  
 Sec: 22 Distance To Location: 34 Miles  
 Twp: 1N Units On Location: 4023/4020/4041  
 Range: 67W Time Requested: 1:30  
 Time Arrived On Location: 12:30  
 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>1,859</u>	Cement Yield (cuft) : <u>1.49</u>
Total Depth (ft) : <u>1868</u>	Gallons Per Sack: <u>7.48</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>45</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>10</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>8</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	Dye in second 10 bbl

Calculated Results	Displacement: <u>141.01 bbls</u>
<b>cuft of Shoe</b> <u>19.53 cuft</u> (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>61.05 cuft</u> (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>956.39 cuft</u> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	<b>Hydrostatic Pressure:</b> <u>1371.38 PSI</u>
<b>Total Slurry Volume</b> <u>1036.98 cuft</u> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Pressure of the fluids inside casing</b>
<b>bbls of Slurry</b> <u>184.69 bbls</u> (Total Slurry Volume) X (.1781)	<b>Displacement:</b> <u>782.16 psi</u>
<b>Sacks Needed</b> <u>696 sk</u> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Shoe Joint:</b> <u>33.20 psi</u>
<b>Mix Water</b> <u>123.95 bbls</u> (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Total</b> <u>815.36 psi</u>
	<b>Differential Pressure:</b> <u>556.03 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>314.96 bbls</u>

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.



# Wagner 26C-10HZ

