



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/13/2017  
 Invoice #: 666160  
 API#: 05-123-44619  
 Foreman: Nick Vigil

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** RW 2N-5HZ

County: Weld  
 State: Colorado  
 Sec: 29  
 Twp: 3N  
 Range: 65W

Consultant: Travis  
 Rig Name & Number: Xtreme 22  
 Distance To Location: 28 Miles  
 Units On Location: 4023/4030/4035  
 Time Requested: 11:00  
 Time Arrived On Location: 10:40  
 Time Left Location:

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 36.00	Cement Density (lb/gal) : 14.2
Casing Depth (ft.) : 1,880	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1889	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 15%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 0.0
Shoe Joint Length (ft) : 45	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 17	H2O Wash Up (bbls): 20.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	Dye in second 10 bbl

Calculated Results	Pressure of cement in annulus
<b>Displacement:</b> 143.17 bbls	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
<b>cuft of Shoe</b> 19.53 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Pressure of cement in annulus</b>
<b>cuft of Conductor</b> 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Hydrostatic Pressure:</b> 1386.88 PSI
<b>cuft of Casing</b> 1011.67 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )	<b>Pressure of the fluids inside casing</b>
<b>Total Slurry Volume</b> 1092.25 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Displacement:</b> 791.22 psi
<b>bbls of Slurry</b> 194.53 bbls (Total Slurry Volume) X (.1781)	<b>Shoe Joint:</b> 33.20 psi
<b>Sacks Needed</b> 733 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Total</b> 824.41 psi
<b>Mix Water</b> 130.55 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Differential Pressure:</b> 562.46 psi
	<b>Collapse PSI:</b> 2020.00 psi
	<b>Burst PSI:</b> 3520.00 psi
	<b>Total Water Needed:</b> 323.73 bbls

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.



# RW 2N-5HZ

