





# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/22/2015  
 Invoice #: 90008  
 API#: 05-123-41495  
 Foreman: Nick

Customer: Anadarko Petroleum Corporation  
 Well Name: English Farms 13N-9HZ

County: Weld  
 State: Colorado  
 Sec: 8  
 Twp: 1N  
 Range: 65W  
 Consultant: Luke  
 Rig Name & Number: Noble 2  
 Distance To Location: 20  
 Units On Location: 024/3210/4027/3106/3105/320  
 Time Requested: 10:00  
 Time Arrived On Location: 9:30  
 Time Left Location: 4:20

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.) : 1,833	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1843	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 10%
Conductor Length (ft) : 40	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 0.0
Shoe Joint Length (ft) : 42	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 10	H2O Wash Up (bbls): 20.0
Max Rate: 6	Spacer Ahead Makeup
Max Pressure: 1750	30 bbl dye in second 10

Calculated Results	Pressure of cement in annulus
<b>cuft of Shoe</b> 18.23 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Displacement:</b> 139.23 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
<b>cuft of Conductor</b> 30.53 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Hydrostatic Pressure:</b> 1352.20 PSI
<b>cuft of Casing</b> 963.92 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> 1012.68 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Displacement:</b> 772.25 psi <b>Shoe Joint:</b> 30.98 psi <b>Total</b> 803.23 psi
<b>bbls of Slurry</b> 180.36 bbls (Total Slurry Volume) X (.1781)	<b>Differential Pressure:</b> 548.98 psi
<b>Sacks Needed</b> 680 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Collapse PSI:</b> 2020.00 psi <b>Burst PSI:</b> 3520.00 psi
<b>Mix Water</b> 121.04 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Total Water Needed:</b> 310.27 bbls

X *Luke Rains*  
 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.

# English Farms 13N-9HZ

