





# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/13/2019

Invoice # 200552

API#

Foreman: Terry Richey

**Customer:** Anadarko Petroleum Corporation

**Well Name:** Windsock 21-10HZ

County: Weld

State: Colorado

Sec: 21

Twp: 1n

Range: 68w

Consultant: Dave

Rig Name & Number: Cartel 88

Distance To Location: 84

Units On Location: 4047/4027

Time Requested: 5:00am

Time Arrived On Location: 3:45am

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.) : 1,876	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1886	Gallons Per Sack: 7.40
Open Hole Diameter (in.) : 13.50	% Excess: 10%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit: 22.0
Shoe Joint Length (ft) : 41	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 8	H2O Wash Up (bbls): 10.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 bbl with Die in 2nd 10

Calculated Results	Pressure of cement in annulus
<b>cuft of Shoe</b> 17.80 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Displacement:</b> 142.48 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
<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> 1383.93 PSI
<b>cuft of Casing</b> 965.53 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> 1044.38 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Displacement:</b> 791.22 psi
<b>bbls of Slurry</b> 186.00 bbls (Total Slurry Volume) X (.1781)	<b>Shoe Joint:</b> 30.25 PSI
<b>Sacks Needed</b> 706 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Total</b> 821.46 psi
<b>Mix Water</b> 124.33 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> 306.81 bbls

X   
Authorization To Proceed

# Windsock 21-10HZ

— PSI — Barrels / Minute — Lbs / Gallon

