



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/9/2017  
 Invoice #: 900147  
 API#: 05-123-43571  
 Foreman: Corey B.

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** Norden 27C-14HZ

County: Weld  
 State: Colorado  
 Consultant: Matt  
 Rig Name & Number: Cartel 88  
 Distance To Location: 32  
 Units On Location: 027/3103-4033/3212-4020/321  
 Sec: 14  
 Twp: 1N  
 Range: 67W  
 Time Requested: 500  
 Time Arrived On Location: 415  
 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.) : 1,892	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1902	Gallons Per Sack: 7.40
Open Hole Diameter (in.) : 13.50	% Excess: 5%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 15	H2O Wash Up (bbls): 20.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 bbl with Die in @nd 10

Calculated Results	Displacement: 144.03 bbls
<b>cuft of Shoe</b> 19.10 cuft (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> 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Pressure of cement in annulus</b> <b>Hydrostatic Pressure: 1395.73 PSI</b>
<b>cuft of Casing</b> 929.86 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )	<b>Pressure of the fluids inside casing</b> <b>Displacement: 796.82 psi</b> <b>Shoe Joint: 32.46 psi</b> <b>Total 829.28 psi</b>
<b>Total Slurry Volume</b> 1010.01 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Differential Pressure: 566.45 psi</b>
<b>bbls of Slurry</b> 179.88 bbls (Total Slurry Volume) X (.1781)	<b>Collapse PSI: 2020.00 psi</b> <b>Burst PSI: 3520.00 psi</b>
<b>Sacks Needed</b> 682 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Total Water Needed: 314.26 bbls</b>
<b>Mix Water</b> 120.24 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	

X   
 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.



**Bison Oil Well Cementing  
Single Cement Surface Pipe**

Customer  
Well Name

Anadarko Petroleum Corporation
Norden 27C-14HZ

INVOICE #  
LOCATION  
FOREMAN  
Date

900147
Weld
Corey B.
8/9/2017

Treatment Report Page 2

**DESCRIPTION OF JOB EVENTS**

Amount Pumped	Time	Event	Description	Rate	BBLs	Pressure
% Excess 5%	415	What rig is doing upon Bison Arrival	Running casing			
Mixed bbls 120.24	420	JSA	Bison Crew			
Total Sacks 682	430	Rig up				
bbl Returns 8	730	Safety Meeting	Bison and Rig crew			
Water Temp 60	800	Start Job				
	802	Pressure Test				
Notes:						
	804	Spacer Ahead	2nd 10 with die	5	30	50
	810	Lead Cement	14.2 ppg	6	179	50
	845	Shutdown				
	848	Drop Plug	Preloaded in plug container			
	850	Start Displacement		7	90	280
	915	Bump Plug	500 over final lift 1060 psi	2	144	500
	917	Floats Held	Held for 2 MIN with 1/2 bll back			
	919	End Job				
	925	Rig Down				
	950	Leave Location				

X Jan Ailly  
Work Performed

X WSC  
Title

X 8/9/17  
Date

# Norden 27C-14HZ

