



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/12/2017  
 Invoice #: 900208  
 API#: 05-123-45493  
 Foreman: Corey Barras

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** Yellowhammer 34N-17HZ

County: Weld  
 State: Colorado  
 Consultant: Matt  
 Rig Name & Number: Cartel 88  
 Distance To Location: 42  
 Sec: 8  
 Units On Location: 4  
 Twp: 1N  
 Time Requested: 230  
 Range: 68W  
 Time Arrived On Location: 210  
 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.) : 1,860	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1870	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:
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 2nd 10

Calculated Results	Pressure of cement in annulus
<b>cuft of Shoe</b> 19.10 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	<b>Displacement:</b> 141.55 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> 1372.12 PSI
<b>cuft of Casing</b> 956.93 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> 1037.08 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Displacement:</b> 783.02 psi
<b>bbls of Slurry</b> 184.70 bbls (Total Slurry Volume) X (.1781)	<b>Shoe Joint:</b> 32.46 psi
<b>Sacks Needed</b> 701 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Total</b> 815.48 psi
<b>Mix Water</b> 123.46 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	<b>Differential Pressure:</b> 556.64 psi
	<b>Collapse PSI:</b> 2020.00 psi
	<b>Burst PSI:</b> 3520.00 psi
	<b>Total Water Needed:</b> 315.01 bbls

X *Sam M...*  
 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  
Yellowhammer 34N-17HZ

INVOICE #  
LOCATION  
FOREMAN  
Date

900208  
Weld  
Corey Barras  
11/12/2017

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**DESCRIPTION OF JOB EVENTS**

Amount Pumped	Time	Event	Description	Rate	BBLs	Pressure
% Excess 10%	210	What rig is doing upon Bison Arrival	Running Casing			
Mixed bbls 123.46	215	JSA	Bison Crew			
Total Sacks 701	225	Rig up				
bbl Returns 21	415	Safety Meeting	Bison and Rig crew			
Water Temp 58	455	Start Job				
	457	Pressure Test				
Notes:						
	500	Spacer Ahead	2nd 10 with die	6	30	90
	505	Lead Cement	14.2 ppg	6	184	70
	540	Shutdown				
	542	Drop Plug	Preloaded in plug container			
	544	Start Displacement		7	90	400
	608	Bump Plug	500 over final lift (1080 PSI)	2	141	520
	610	Floats Held	Held for 2 MIN with .5 bll back			
	612	End Job				
	615	Rig Down				
	700	Leave Location				

X [Signature]  
Work Performed

X APC  
Title

X 11/12/17  
Date

# Yellowhammer 34N-17HZ

