



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/15/2017  
 Invoice # 900080  
 API# 05-123-44413  
 Foreman: Corey B.

**Customer:** Anadarko Petroleum Corporation  
**Well Name:** BUTTERBALL 10N-34HZ

County: Weld Consultant: Matt  
 State: Colorado Rig Name & Number: 252  
 Distance To Location: 36  
 Sec: 10 Units On Location: 1027-3103/4020-3212/4019-321  
 Twp: 2N Time Requested: 200  
 Range: 67W Time Arrived On Location: 1245  
 Time Left Location: \_\_\_\_\_

WELL DATA	Cement Data
Casing Size OD (in) : <u>9.625</u>	Cement Name: <u>BFN III</u>
Casing Weight (lb) : <u>36.00</u>	Cement Density (lb/gal) : <u>14.2</u>
Casing Depth (ft.) : <u>1,839</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1849</u>	Gallons Per Sack: <u>7.49</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>15%</u>
Conductor Length (ft) : <u>80</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.25</u>	BBL to Pit:
Shoe Joint Length (ft) : <u>44</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>15</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>8bm</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	<u>30 bbl /2nd 10 BBL with Die</u>

Calculated Results	Displacement: <u>139.93 bbls</u>
<b>cuft of Shoe</b> <u>19.10</u> <b>cuft</b> (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> <u>61.05</u> <b>cuft</b> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	<b>Pressure of cement in annulus</b> <b>Hydrostatic Pressure:</b> <u>1356.63 PSI</u>
<b>cuft of Casing</b> <u>988.63</u> <b>cuft</b> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )	<b>Pressure of the fluids inside casing</b> <b>Displacement:</b> <u>773.97 psi</u> <b>Shoe Joint:</b> <u>32.46 psi</u> <b>Total</b> <u>806.43 psi</u>
<b>Total Slurry Volume</b> <u>1068.78</u> <b>cuft</b> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	<b>Differential Pressure:</b> <u>550.20 psi</u>
<b>bbls of Slurry</b> <u>190.35</u> <b>bbls</b> (Total Slurry Volume) X (.1781)	<b>Collapse PSI:</b> <u>2020.00 psi</u> <b>Burst PSI:</b> <u>3520.00 psi</u>
<b>Sacks Needed</b> <u>722</u> <b>sk</b> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	<b>Total Water Needed:</b> <u>318.71 bbls</u>
<b>Mix Water</b> <u>128.78</u> <b>bbls</b> (Sacks Needed) X (Gallons Per Sack) ÷ 42	

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  
BUTTERBALL 10N-34HZ

INVOICE #  
LOCATION  
FOREMAN  
Date

900080  
Weld  
Corey B.  
4/15/2017

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**DESCRIPTION OF JOB EVENTS**

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess 15%						
Mixed bbls 128.78						
Total Sacks 722	1245	What rig is doing upon Bison Arrival	Running Casing			
bbl Returns 23	1250	JSA	Bison Crew			
Water Temp 63	100	Rig up				
	415	Safety Meeting	Bison and Rig crew			
Notes:	455	Start Job				
	456	Pressure Test				
	458	Spacer Ahead	2nd 10 with die	5	30	80
	505	Lead Cement	14.2 ppg	7	190	140
	535	Shutdown				
	538	Drop Plug	Preloaded in plug container			
	540	Start Displacement		7	90	400
	602	Bump Plug	500 psi over final lift (1100psi)	2	139	540
	605	Floats Held	Held for 3 min			
	607	End Job				
	610	Rig Down				
	645	Leave Location				

X

*[Signature]* Bryan Brown

X

*[Signature]* Co-Man  
Title

X

*[Signature]* 4-15-17  
Date

Work Performed

# Butterball 10N-34HZ

