



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/10/2017
 Invoice # 900077
 API# 05-123-44410
 Foreman: Corey B.

Customer: Anadarko Petroleum Corporation
Well Name: BUTTERBALL 11N-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: 1000
 Range: 67W Time Arrived On Location: 1000
 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>1,826</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1836</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>138.92 bbls</u>
cuft of Shoe <u>19.10</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor <u>61.05</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus
cuft of Casing <u>981.32</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: <u>1347.04 PSI</u>
Total Slurry Volume <u>1061.47</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry <u>189.05</u> bbls (Total Slurry Volume) X (.1781)	Displacement: <u>768.36 psi</u>
Sacks Needed <u>717</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>32.46 psi</u>
Mix Water <u>127.90</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>800.82 psi</u>
	Differential Pressure: <u>546.22 psi</u>
	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>
	Total Water Needed: <u>316.82 bbls</u>

X [Signature]
 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 11N-34HZ

INVOICE #
LOCATION
FOREMAN
Date

900077
Weld
Corey B.
4/10/2017

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DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	15%					
Mixed bbls	127.9					
Total Sacks	717	1000	What rig is doing upon Bison Arrival			
bbl Returns	22	1005	JSA			
Water Temp	62	1015	Rig up			
Notes:	1230	Safety Meeting	Bison and Rig crew			
	1320	Start Job				
	1322	Pressure Test				
	1324	Spacer Ahead	2nd 10 with die	5	30	100
	1327	Lead Cement	14.2 ppg	6	189	150
	1402	Shutdown				
	1405	Drop Plug	Preloaded in plug container			
	1408	Start Displacement		7	90	480
	1427	Bump Plug	500 psi over final lift (1120psi)	2	139	550
	1430	Floats Held	Held for 3 min			
	1432	End Job				
	1335	Rig Down				
	1515	Leave Location				

X ESB / Bryan Brown
Work Performed

X CO. Man
Title

X 4-10-17
Date

