



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/5/2017
 Invoice # 900169
 API# 05-123-43469
 Foreman: Corey B.

Customer: Anadarko Petroleum Corporation
Well Name: Wagner 28N-E10HZ

County: Weld Consultant: Matt
 State: Colorado Rig Name & Number: Cartel 88
 Distance To Location: 30
 Sec: 22 Units On Location: 027/3103-4033/3212-4020/321
 Twp: 1N Time Requested: 130
 Range: 67W Time Arrived On Location: 1230
 Time Left Location: _____

WELL DATA	
Casing Size OD (in) :	<u>9.625</u>
Casing Weight (lb) :	<u>36.00</u>
Casing Depth (ft.) :	<u>1,853</u>
Total Depth (ft) :	<u>1863</u>
Open Hole Diameter (in.) :	<u>13.50</u>
Conductor Length (ft) :	<u>80</u>
Conductor ID :	<u>15.25</u>
Shoe Joint Length (ft) :	<u>44</u>
Landing Joint (ft) :	<u>15</u>
Max Rate:	<u>8</u>
Max Pressure:	<u>2000</u>

Cement Data	
Cement Name:	<u>BFN III</u>
Cement Density (lb/gal) :	<u>14.2</u>
Cement Yield (cuft) :	<u>1.48</u>
Gallons Per Sack:	<u>7.40</u>
% Excess:	<u>5%</u>
Displacement Fluid lb/gal:	<u>8.3</u>
BBL to Pit:	<u>30.0</u>
Fluid Ahead (bbls):	<u>30.0</u>
H2O Wash Up (bbls):	<u>20.0</u>
Spacer Ahead Makeup	<u>30 bbl with Die in @nd 10</u>

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results	
cuft of Shoe	19.10 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)	
cuft of Conductor	61.05 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
cuft of Casing	909.84 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	
Total Slurry Volume	989.99 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	
bbls of Slurry	176.32 bbls
(Total Slurry Volume) X (.1781)	
Sacks Needed	669 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
Mix Water	117.86 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42	

Displacement:	141.01 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
Pressure of cement in annulus	
Hydrostatic Pressure:	1366.96 PSI
Pressure of the fluids inside casing	
Displacement:	780.01 psi
Shoe Joint:	32.46 psi
Total	812.47 psi
Differential Pressure:	554.49 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	308.87 bbls

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
Wagner 28N-E10HZ

INVOICE #
LOCATION
FOREMAN
Date

900169
Weld
Corey B.
9/5/2017

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DESCRIPTION OF JOB EVENTS

Amount Pumped	Time	Event	Description	Rate	BBLs	Pressure
% Excess 5%	1230	What rig is doing upon Bison Arrival	Running casing			
Mixed bbls 117.86	1240	JSA	Bison Crew			
Total Sacks 669	1250	Rig up				
bbl Returns 12	205	Safety Meeting	Bison and Rig crew			
Water Temp 65	225	Start Job				
	227	Pressure Test				
Notes:						
	230	Spacer Ahead	2nd 10 with die	5	30	70
	235	Lead Cement	14.2 ppg	6	176	90
	310	Shutdown				
	312	Drop Plug	Preloaded in plug container			
	313	Start Displacement		7	90	360
	340	Bump Plug	500 over final lift 1100 psi	2	141	520
	342	Floats Held	Held for 2 MIN with 1/2 bll back			
	345	End Job				
	350	Rig Down				
	415	Leave Location				

X [Signature]
Work Performed

X Co-Man
Title

X 9-5-17
Date

Wagner 28N-E10HZ

