



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/9/2018
 Invoice # 200327
 API# _____
 Foreman: KirkKallhoff

Customer: Anadarko Petroleum Corporation
Well Name: hendu 23-11hz

County: Weld
 State: Colorado
 Sec: 23
 Twp: 2N
 Range: 66W

Consultant: dave
 Rig Name & Number: Cartel 88
 Distance To Location: 30
 Units On Location: 4028/4030/4033
 Time Requested: 300 am
 Time Arrived On Location: 1230 am
 Time Left Location: 7:30am

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>7.40</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:	<u>30.0</u>
Shoe Joint Length (ft) :	<u>40</u>	Fluid Ahead (bbls):	<u>30.0</u>
Landing Joint (ft) :	<u>8</u>	H2O Wash Up (bbls):	<u>10.0</u>
Max Rate:	<u>8</u>	Spacer Ahead Makeup	<u>30 bbl with Die in 2nd 10</u>
Max Pressure:	<u>2000</u>		

Calculated Results	Displacement:	138.69 bbls
cuft of Shoe <u>17.36</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>1059.73</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing	
bbls of Slurry <u>188.74</u> bbls (Total Slurry Volume) X (.1781)	Displacement: <u>770.09 psi</u>	
Sacks Needed <u>716</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>29.51 PSI</u>	
Mix Water <u>126.16</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>799.60 psi</u>	
	Differential Pressure: <u>547.44 psi</u>	
	Collapse PSI: <u>2020.00 psi</u>	
	Burst PSI: <u>3520.00 psi</u>	
	Total Water Needed: <u>304.85 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.

