



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/21/2019
 Invoice # 200439
 API# _____
 Foreman: KirkKallhoff

Customer: Anadarko Petroleum Corporation

Well Name: mc 3-4hz

County: Weld
 State: Colorado
 Sec: 8
 Twp: 1n
 Range: 65w

Consultant: tyler
 Rig Name & Number: Cartel 88
 Distance To Location: 38
 Units On Location: 4047/4030/4034
 Time Requested: 600 am
 Time Arrived On Location: 300 am
 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>7.40</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>10%</u>
Conductor Length (ft) : <u>80</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>19.125</u>	BBL to Pit: _____
Shoe Joint Length (ft) : <u>41</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
Max Pressure: <u>2000</u>	<u>30 bbl with Die in 2nd 10</u>

Calculated Results	Pressure of cement in annulus
Displacement: <u>139.62</u> bbls	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe <u>17.80</u> cuft	Pressure of cement in annulus
(Casing ID Squared) X (.005454) X (Shoe Joint ft)	Hydrostatic Pressure: <u>1356.63</u> PSI
cuft of Conductor <u>119.17</u> cuft	Pressure of the fluids inside casing
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Displacement: <u>775.26</u> psi
cuft of Casing <u>945.64</u> cuft	Shoe Joint: <u>30.25</u> PSI
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Total <u>805.51</u> psi
Total Slurry Volume <u>1082.61</u> cuft	Differential Pressure: <u>551.12</u> psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Collapse PSI: <u>2020.00</u> psi
bbls of Slurry <u>192.81</u> bbls	Burst PSI: <u>3520.00</u> psi
(Total Slurry Volume) X (.1781)	Total Water Needed: <u>308.50</u> bbls
Sacks Needed <u>731</u> sk	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
Mix Water <u>128.88</u> bbls	
(Sacks Needed) X (Gallons Per Sack) ÷ 42	

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.

SERIES 2000

