



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/3/2017
 Invoice # 666223
 API# 05-123-44203
 Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
Well Name: LEINWEBER 36N-11HZ

County: Weld
 State: Colorado
 Sec: 11
 Twp: 1N
 Range: 67W

Consultant: Sean
 Rig Name & Number: Cartel 88
 Distance To Location: 30 Miles
 Units On Location: 4023/4040/4039
 Time Requested: 1:30
 Time Arrived On Location: 1:00
 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>1,507</u>	Cement Yield (cuft) : <u>1.49</u>
Total Depth (ft) : <u>1517</u>	Gallons Per Sack: <u>7.48</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>43</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>10</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>8</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	Dye in second 10 bbl

Calculated Results	Pressure of cement in annulus
Casing ID: <u>8.921</u>	Casing Grade: <u>J-55 only used</u>
cuft of Shoe <u>18.66</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: <u>113.95</u> bbls (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>802.03</u> cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: <u>1111.71</u> PSI
Total Slurry Volume <u>881.74</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry <u>157.04</u> bbls (Total Slurry Volume) X (.1781)	Displacement: <u>631.25</u> psi
Sacks Needed <u>592</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>31.72</u> psi
Mix Water <u>105.39</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>662.97</u> psi
	Differential Pressure: <u>448.74</u> psi
	Collapse PSI: <u>2020.00</u> psi
	Burst PSI: <u>3520.00</u> psi
	Total Water Needed: <u>269.34</u> bbls

X Sean Vigil
 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.

LEINWEBER 36N-11HZ

