



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/5/2019
 Invoice # 900363
 API# 05-123-50073
 Foreman: Corey Barras

Customer: Anadarko Petroleum Corporation

Well Name: Sarchet 21-5 HZ

County: Weld
 State: Colorado
 Sec: 21
 Twp: 3n
 Range: 66w

Consultant: Bryan
 Rig Name & Number: CARTEL 88
 Distance To Location: 21
 Units On Location: 4028/3103-4024/3201-4023/4016
 Time Requested: 130
 Time Arrived On Location: 1230
 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>1,877</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1887</u>	Gallons Per Sack: <u>7.48</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>15.25</u>	BBL to Pit: _____
Shoe Joint Length (ft) : <u>42</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>8</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>8</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	<u>30 BBL WATER, DYE IN 2ND 10</u>

Calculated Results	Pressure of cement in annulus
cuft of Shoe <u>18.23</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: <u>142.48</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 Hydrostatic Pressure: <u>1384.66</u> PSI
cuft of Casing <u>966.07</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: <u>791.22</u> psi
Total Slurry Volume <u>1045.35</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Shoe Joint: <u>30.98</u> psi
bbls of Slurry <u>186.18</u> bbls (Total Slurry Volume) X (.1781)	Total <u>822.20</u> psi
Sacks Needed <u>706</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Differential Pressure: <u>562.46</u> psi
Mix Water <u>125.79</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Collapse PSI: <u>2020.00</u> psi
	Burst PSI: <u>3520.00</u> psi
	Total Water Needed: <u>318.27</u> bbls

X _____
 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.

Sarchet 21-5HZ

