



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/17/2016
 Invoice # 666032
 API# 05-123-42630
 Foreman: Nick

Customer: Anadarko Petroleum Corporation
Well Name: Jaguar Fed 6S-35HZ

County: Weld
 State: Colorado
 Sec: 23
 Twp: 1N
 Range: 67W

Consultant: Jason Laub
 Rig Name & Number: Extreme 24
 Distance To Location: 33 miles
 Units On Location: 4023,3104,4022,3215,4020,3214
 Time Requested: 12:30
 Time Arrived On Location: 23:50
 Time Left Location: 7:30

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>1,880</u>	Cement Yield (cuft) : <u>1.49</u>
Total Depth (ft) : <u>1889</u>	Gallons Per Sack: <u>7.48</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>15%</u>
Conductor Length (ft) : <u>90</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.25</u>	BBL to Pit: <u>12.0</u>
Shoe Joint Length (ft) : <u>42</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>0</u>	H2O Wash Up (bbls): <u>20.0</u>
Max Rate: <u>8</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	Dye in the second 10 bbl

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>142.05</u> bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor <u>68.68</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: <u>1386.51</u> PSI
cuft of Casing <u>1005.77</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume <u>1092.68</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: <u>792.30</u> psi
bbls of Slurry <u>194.61</u> bbls (Total Slurry Volume) X (.1781)	Shoe Joint: <u>30.98</u> psi
Sacks Needed <u>733</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total <u>823.28</u> psi
Mix Water <u>130.60</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: <u>563.23</u> psi
	Collapse PSI: <u>2020.00</u> psi
	Burst PSI: <u>3520.00</u> psi
	Total Water Needed: <u>322.66</u> bbls



Authorization To Proceed

Jaguar 6S-35HZ

