



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/18/2018
 Invoice # 200335
 API# _____
 Foreman: KirkKallhoff

Customer: Anadarko Petroleum Corporation
Well Name: castle pines 19-1hz

County: Weld Consultant: dave
 State: Colorado Rig Name & Number: Cartel 88
 Distance To Location: 25
 Sec: 23 Units On Location: 4028/4033/4041
 Twp: 2N Time Requested: 200 am
 Range: 66W Time Arrived On Location: 1130 pm
 Time Left Location: 6:00pm

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>1,897</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1907</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:
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
Max Pressure: <u>2000</u>	<u>30 bbl with Die in 2nd 10</u>

Calculated Results	Displacement: <u>144.18 bbls</u>
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>1021.22</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: <u>1399.42 PSI</u>
Total Slurry Volume <u>1099.64</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry <u>195.85</u> bbls (Total Slurry Volume) X (.1781)	Displacement: <u>800.70 psi</u>
Sacks Needed <u>743</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>29.51 PSI</u>
Mix Water <u>130.91</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>830.21 psi</u>
	Differential Pressure: <u>569.21 psi</u>
	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>
	Total Water Needed: <u>315.09 bbls</u>

[Signature]
 Authorization To Proceed

SERIES 2000

