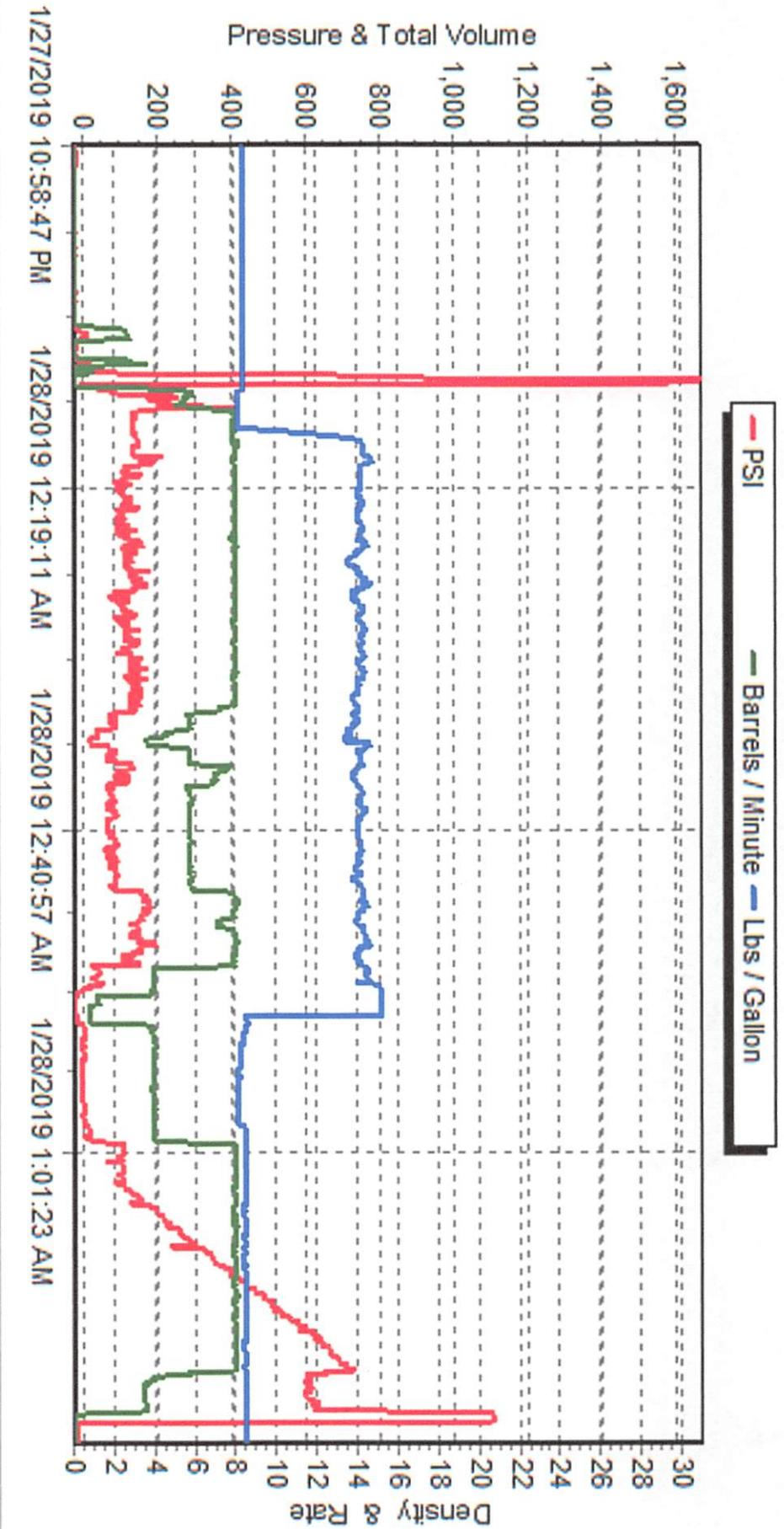


Buddy 7-10HZ





Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/27/2019
 Invoice # 606417
 API# 05-123-48447
 Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
Well Name: Buddy 7-10HZ

County: Weld Consultant: Dave
 State: Colorado Rig Name & Number: Cartel 88
 Sec: 8 Distance To Location: 35 Miles
 Twp: 1N Units On Location: 4045/4044/4030
 Range: 65W Time Requested: 22:00
 Time Arrived On Location: 20:45
 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>1,870</u>	Cement Yield (cuft) : <u>1.49</u>
Total Depth (ft) : <u>1880</u>	Gallons Per Sack: <u>7.48</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>5%</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>10.0</u>
Max Rate: <u>8</u>	Spacer Ahead Makeup
Max Pressure: <u>2000</u>	Dye in second 10 bbl

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results	Displacement: <u>142.02 bbls</u>
cuft of Shoe <u>18.66</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>918.57</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: <u>1379.50 PSI</u>
Total Slurry Volume <u>998.28</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry <u>177.79</u> bbls (Total Slurry Volume) X (.1781)	Displacement: <u>787.77 psi</u>
Sacks Needed <u>670</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>31.72 psi</u>
Mix Water <u>119.32</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>819.49 psi</u>
	Differential Pressure: <u>560.01 psi</u>
	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>
	Total Water Needed: <u>301.34 bbls</u>

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.