



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/4/2019
 Invoice # 900412
 API# 05-069-50510
 Foreman: Corey Barras

Customer: Anadarko Petroleum Corporation

Well Name: Mae J 8-1HZ

County: Weld
 State: Colorado
 Sec: 25
 Twp: 5n
 Range: 68w

Consultant: Tyler
 Rig Name & Number: CARTEL 88
 Distance To Location: 20
 Units On Location: 4028/3103-4024/3214-4044/3205
 Time Requested: 330
 Time Arrived On Location: 100
 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>1,888</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1899</u>	Gallons Per Sack: <u>7.48</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>20%</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
Casing ID <u>8.921</u> Casing Grade <u>J-55 only used</u>	Displacement: <u>143.33 bbls</u>
cuft of Shoe <u>18.23 cuft</u> (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 cuft</u> (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus
cuft of Casing <u>1060.35 cuft</u> (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: <u>1392.78 PSI</u>
Total Slurry Volume <u>1139.63 cuft</u> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry <u>202.97 bbls</u> (Total Slurry Volume) X (.1781)	Displacement: <u>795.96 psi</u>
Sacks Needed <u>770 sk</u> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>30.98 psi</u>
Mix Water <u>137.14 bbls</u> (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>826.94 psi</u>
	Differential Pressure: <u>565.83 psi</u>
	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>
	Total Water Needed: <u>330.47 bbls</u>

X [Signature]
 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.

Mae J 8-1HZ

