



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/13/2018
 Invoice # 200222
 API# _____
 Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
Well Name: hergenreder 32n-4hz

County: Weld
 State: Colorado
 Sec: 32
 Twp: 3n
 Range: 68w

Consultant: levi
 Rig Name & Number: CARTEL 88
 Distance To Location: 30
 Units On Location: 4028/4035/4030
 Time Requested: 700 am
 Time Arrived On Location: 500 am
 Time Left Location: 12:15pm

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>2,275</u>	Cement Yield (cuft) :	<u>1.48</u>
Total Depth (ft) :	<u>2285</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>15.5</u>	BBL to Pit:	<u>30.0</u>
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>10.0</u>
Max Rate:	<u>8</u>	Spacer Ahead Makeup	
Max Pressure:	<u>2000</u>	30 BBL WATER, DYE IN 2ND 10	

Calculated Results	Displacement:	173.25 bbls
cuft of Shoe <u>18.23</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>64.40</u> cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus	
cuft of Casing <u>1126.40</u> cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure:	<u>1678.27 PSI</u>
Total Slurry Volume <u>1209.03</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing	
bbls of Slurry <u>215.33</u> bbls (Total Slurry Volume) X (.1781)	Displacement:	<u>962.83 psi</u>
Sacks Needed <u>817</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint:	<u>30.98 psi</u>
Mix Water <u>145.49</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total	<u>993.81 psi</u>
	Differential Pressure:	<u>684.46 psi</u>
	Collapse PSI:	<u>2020.00 psi</u>
	Burst PSI:	<u>3520.00 psi</u>
	Total Water Needed:	<u>358.74 bbls</u>

X Kirk Kallhoff
 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.

SERIES 2000

