



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/21/2015
 Invoice # 80420
 API# 05-123-41552
 Foreman: Calvin Reimers

Customer: Anadarko Petroleum Corporation
Well Name: Carter 14N-33HZ

County: Weld Consultant: Bryan / Luke
 State: Colorado Rig Name & Number: Noble 2
 Distance To Location: 19 Miles
 Sec: 33 Units On Location: 4023-3104/3212/3204
 Twp: 2N Time Requested: 730am
 Range: 66W Time Arrived On Location: 550am
 Time Left Location: 11:45 AM

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>1,835</u>	Cement Yield (cuft) :	<u>1.49</u>
Total Depth (ft) :	<u>1852</u>	Gallons Per Sack:	<u>7.48</u>
Open Hole Diameter (in.) :	<u>13.50</u>	% Excess:	<u>20%</u>
Conductor Length (ft) :	<u>40</u>	Displacement Fluid lb/gal:	<u>8.3</u>
Conductor ID :	<u>16</u>	BBL to Pit:	<u>24</u>
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>15.0</u>
Max Rate:	<u>6</u>	Spacer Ahead Makeup	
Max Pressure:	<u>1750</u>	30 bbls With Dye in 2nd 10 bbls	

Calculated Results	Displacement:	139.36 bbls
cuft of Shoe <u>18.54</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>35.64</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus	
cuft of Casing <u>1052.95</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure:	<u>1353.96 PSI</u>
Total Slurry Volume <u>1107.12</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing	
bbls of Slurry <u>197.18</u> bbls (Total Slurry Volume) X (.1781)	Displacement:	<u>772.97 psi</u>
Sacks Needed <u>743</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint:	<u>31.51 psi</u>
Mix Water <u>132.33</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total	<u>804.47 psi</u>
	Differential Pressure:	<u>549.49 psi</u>
	Collapse PSI:	<u>2020.00 psi</u>
	Burst PSI:	<u>3520.00 psi</u>
	Total Water Needed:	<u>316.69 bbls</u>

X Luke Rain
 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

