



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/22/2018
 Invoice # 200251
 API# _____
 Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
Well Name: marrs 28n-10hz

County: Weld Consultant: levi
 State: Colorado Rig Name & Number: CARTEL 88
 Distance To Location: 34
 Sec: 22 Units On Location: 4028/4041/4024
 Twp: 1n Time Requested: 1230 pm
 Range: 67w Time Arrived On Location: 1200 pm
 Time Left Location: 5:30pm

| 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>1,866</u> | Cement Yield (cuft) : <u>1.48</u> |
| Total Depth (ft) : <u>1876</u> | Gallons Per Sack: <u>7.48</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>15.5</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>10.0</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 |
|--|--|
| cuft of Shoe <u>18.23</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft) | Displacement: <u>141.63</u> bbls (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) | Hydrostatic Pressure: <u>1376.55</u> PSI |
| cuft of Casing <u>1003.80</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length) | Pressure of the fluids inside casing |
| Total Slurry Volume <u>1086.44</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing) | Displacement: <u>786.47</u> psi |
| bbls of Slurry <u>193.49</u> bbls (Total Slurry Volume) X (.1781) | Shoe Joint: <u>30.98</u> psi |
| Sacks Needed <u>734</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement) | Total <u>817.46</u> psi |
| Mix Water <u>130.74</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42 | Differential Pressure: <u>559.09</u> psi |
| | Collapse PSI: <u>2020.00</u> psi |
| | Burst PSI: <u>3520.00</u> psi |
| | Total Water Needed: <u>312.36</u> bbls |

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

