



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/24/2017
 Invoice #: 200202
 API#: _____
 Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
Well Name: papa jo 2-25-28n 8hz

County: Weld
 State: Colorado
 Consultant: bryan
 Rig Name & Number: CARTEL 88
 Distance To Location: 42
 Units On Location: 4028/4031/4035
 Time Requested: 600 am
 Time Arrived On Location: 400 am
 Time Left Location: 10:45 am

| WELL DATA | |
|----------------------------|-------|
| Casing Size OD (in) : | 9.625 |
| Casing Weight (lb) : | 36.00 |
| Casing Depth (ft.) : | 1,855 |
| Total Depth (ft) : | 1865 |
| Open Hole Diameter (in.) : | 13.50 |
| Conductor Length (ft) : | 80 |
| Conductor ID : | 15.5 |
| Shoe Joint Length (ft) : | 41 |
| Landing Joint (ft) : | 8 |
| Max Rate: | 8 |
| Max Pressure: | 2000 |

| Cement Data | |
|-----------------------------|---------|
| Cement Name: | BFN III |
| Cement Density (lb/gal) : | 14.2 |
| Cement Yield (cuft) : | 1.48 |
| Gallons Per Sack: | 7.48 |
| % Excess: | 5% |
| Displacement Fluid lb/gal: | 8.3 |
| BBL to Pit: | |
| Fluid Ahead (bbls): | 30.0 |
| H2O Wash Up (bbls): | 10.0 |
| Spacer Ahead Makeup | |
| 30 BBL WATER, DYE IN 2ND 10 | |

| Calculated Results | Displacement: 140.86 bbls |
|--|---|
| cuft of Shoe 17.80 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 64.40 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft) | |
| cuft of Casing 910.87 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length) | Pressure of cement in annulus Hydrostatic Pressure: 1368.43 PSI |
| Total Slurry Volume 993.07 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing) | Pressure of the fluids inside casing Displacement: 782.16 psi Shoe Joint: 30.25 psi Total 812.41 psi |
| bbls of Slurry 176.87 bbls (Total Slurry Volume) X (.1781) | |
| Sacks Needed 671 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement) | Differential Pressure: 556.03 psi |
| Mix Water 119.50 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42 | Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi |
| | Total Water Needed: 300.36 bbls |

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.

SERIES 2000

