



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/25/2018

Invoice #: 666367

API#: 05-123-47710

Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation

Well Name: Castle Pines 19-10HZ

County: Weld
State: Colorado

Sec: 8
Twp: 1N
Range: 65W

Consultant: Brian
Rig Name & Number: Cartel 88
Distance To Location: 25 Miles
Units On Location: 4023/4041/4035
Time Requested: 20:30
Time Arrived On Location: 18:45
Time Left Location:

| WELL DATA | Cement Data |
|----------------------------------|--------------------------------|
| Casing Size OD (in) : 9.625 | Cement Name: BFN III |
| Casing Weight (lb) : 36.00 | Cement Density (lb/gal) : 14.2 |
| Casing Depth (ft.) : 1,846 | Cement Yield (cuft) : 1.49 |
| Total Depth (ft) : 1836 | Gallons Per Sack: 7.48 |
| Open Hole Diameter (in.) : 13.50 | % Excess: 10% |
| Conductor Length (ft) : 80 | Displacement Fluid lb/gal: 8.3 |
| Conductor ID : 15.25 | BBL to Pit: |
| Shoe Joint Length (ft) : 43 | Fluid Ahead (bbls): 30.0 |
| Landing Joint (ft) : 10 | H2O Wash Up (bbls): 10.0 |
| Max Rate: 8 | Spacer Ahead Makeup |
| Max Pressure: 2000 | Dye in second 10 bbl |

| Calculated Results | Pressure of cement in annulus |
|---|--|
| cuft of Shoe 18.66 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft) | Displacement: 140.16 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint) |
| cuft of Conductor 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft) | Hydrostatic Pressure: 1361.79 PSI |
| cuft of Casing 949.41 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length) | Pressure of the fluids inside casing |
| Total Slurry Volume 1029.12 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing) | Displacement: 777.42 psi |
| bbls of Slurry 183.29 bbls (Total Slurry Volume) X (.1781) | Shoe Joint: 31.72 psi |
| Sacks Needed 691 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement) | Total 809.14 psi |
| Mix Water 123.01 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42 | Differential Pressure: 552.65 psi |
| | Collapse PSI: 2020.00 psi |
| | Burst PSI: 3520.00 psi |
| | Total Water Needed: 303.17 bbls |

X
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.

Castle Pines 19-10HZ

— PSI — Barrels / Minute — Lbs / Gallon

