



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/22/2018
 Invoice #: 300194
 API#: 05-123-47712
 Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation

Well Name: CASTLE PINE 19-5HZ

County: Weld
 State: Colorado
 Sec: 19
 Twp: 2N
 Range: 66W

Consultant: BRYAN
 Rig Name & Number: CARTEL 88
 Distance To Location: 25
 Units On Location: 1028-3106,4039-3214,4030-3215
 Time Requested: 1000
 Time Arrived On Location: 830
 Time Left Location: 1300

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.) : 1,874	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1884	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: 11.0
Shoe Joint Length (ft) : 43	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 5	H2O Wash Up (bbls): 10.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 BBL WATER, DYE IN 2ND 10

Calculated Results	Pressure and Displacement
Displacement: 141.96 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
Pressure of cement in annulus	
Hydrostatic Pressure: 1382.49 PSI	
Pressure of the fluids inside casing	
Displacement: 789.63 psi	
Shoe Joint: 31.54 psi	
Total 821.16 psi	
Differential Pressure: 561.33 psi	
Collapse PSI: 2020.00 psi	
Burst PSI: 3520.00 psi	
Total Water Needed: 307.60 bbls	
cuft of Shoe 18.56 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	
cuft of Conductor 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
cuft of Casing 964.49 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	
Total Slurry Volume 1044.10 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	
bbls of Slurry 185.95 bbls (Total Slurry Volume) X (.1781)	
Sacks Needed 705 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
Mix Water 125.64 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	

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 PINE 19-5HZ SURFACE

