



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/23/2018
 Invoice #: 300196
 API#: 05-123-47720
 Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation
Well Name: CASTLE PINE 19-7HZ

County: Weld
 State: Colorado
 Consultant: LEVI
 Rig Name & Number: CARTEL 88
 Distance To Location: 25
 Units On Location: 4028-3106,4039-3214,4035-3214
 Time Requested: 1830
 Time Arrived On Location: 1730
 Time Left Location: 2100

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.) : 1,831	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1841	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: 7.0
Shoe Joint Length (ft) : 41	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
cuft of Shoe 17.75 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 138.78 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)	Pressure of cement in annulus
cuft of Casing 941.36 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: 1350.76 PSI
Total Slurry Volume 1020.17 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry 181.69 bbls (Total Slurry Volume) X (.1781)	Displacement: 771.87 psi
Sacks Needed 689 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: 30.17 psi
Mix Water 122.76 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total 802.05 psi
	Differential Pressure: 548.71 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 301.54 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 PINE 19-7HZ SURFACE

