



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/22/2019
 Invoice #: 900426
 API#: 05-069-50493
 Foreman: Corey Barras

Customer: Anadarko Petroleum Corporation

Well Name: Cleland 15-4HZ

County: Weld
 State: Colorado
 Sec: 20
 Twp: 3n
 Range: 66w

Consultant: Tyler
 Rig Name & Number: CARTEL 88
 Distance To Location: 40
 Units On Location: 4028/3103-4024/3214-4044/3205
 Time Requested: 630
 Time Arrived On Location: 615
 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.) : 1,895	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1906	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 100%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit:
Shoe Joint Length (ft) : 42	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 8	H2O Wash Up (bbls): 20.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 BBL WATER, DYE IN 2ND 10

Calculated Results	Pressure of cement in annulus
Displacement: 143.87 bbls	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Shoe 18.23 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	
Pressure of cement in annulus	Hydrostatic Pressure: 1397.94 PSI
cuft of Conductor 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
Pressure of the fluids inside casing	Displacement: 798.98 psi
cuft of Casing 1774.09 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	
Shoe Joint: 30.98 psi	
Total Slurry Volume 1853.37 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Total 829.96 psi
bbls of Slurry 330.09 bbls (Total Slurry Volume) X (.1781)	Differential Pressure: 567.98 psi
Sacks Needed 1252 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi
Mix Water 223.02 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Burst PSI: 3520.00 psi
	Total Water Needed: 416.89 bbls

X *Tyler*
 Authorization To Proceed

Cleland 15-4HZ

