



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/2/2017
 Invoice #: 666157
 API#: 05-123-44793
 Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
Well Name: Cannon 4N-4HZ

County: Weld
 State: Colorado
 Sec: 33
 Twp: 3N
 Range: 65W

Consultant: Matt
 Rig Name & Number: Cartel 88
 Distance To Location: 24 Miles
 Units On Location: 4023/4030/4035
 Time Requested: 14:30
 Time Arrived On Location: 14:00
 Time Left Location:

WELL DATA	
Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,874
Total Depth (ft) :	1885
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	45
Landing Joint (ft) :	10
Max Rate:	8
Max Pressure:	2000

Cement Data	
Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
Gallons Per Sack:	7.48
% Excess:	15%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	0.0
Fluid Ahead (bbls):	30.0
H2O Wash Up (bbls):	20.0
Spacer Ahead Makeup Dye in second 10 bbl	

Calculated Results	Displacement: 142.17 bbls
cuft of Shoe 19.53 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 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
cuft of Casing 1008.30 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of cement in annulus Hydrostatic Pressure: 1382.45 PSI
Total Slurry Volume 1088.88 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing Displacement: 788.63 psi Shoe Joint: 33.20 psi Total 821.83 psi
bbls of Slurry 193.93 bbls (Total Slurry Volume) X (.1781)	Differential Pressure: 560.62 psi
Sacks Needed 731 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Mix Water 130.15 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total Water Needed: 322.32 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.

Cannon 4Z-4HZ

