



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 6/17/2017
 Invoice #: 666151
 API#: 05-123-42274
 Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
 Well Name: FL Greens 28C-5HZ

County: Weld
 State: Colorado
 Sec: 8
 Twp: 1N
 Range: 66W

Consultant: Alan M
 Rig Name & Number: Precision 461
 Distance To Location: 36 Miles
 Units On Location: 4023/4030/4035
 Time Requested: 4:00
 Time Arrived On Location: 4:20
 Time Left Location:

WELL DATA	
Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,866
Total Depth (ft) :	1876
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	44
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:	3.0
Fluid Ahead (bbls):	30.0
H2O Wash Up (bbls):	20.0
Spacer Ahead Makeup	
Dye in second 10 bbl	

Calculated Results	Displacement: 141.63 bbls
cuft of Shoe 19.10 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 1003.80 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of cement in annulus Hydrostatic Pressure: 1376.55 PSI
Total Slurry Volume 1083.95 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing Displacement: 785.61 psi Shoe Joint: 32.46 psi Total 818.07 psi
bbls of Slurry 193.05 bbls (Total Slurry Volume) X (.1781)	Differential Pressure: 558.48 psi
Sacks Needed 727 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Mix Water 129.56 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total Water Needed: 321.19 bbls

X Alan M. Madson
 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.

FL Greens 28C-5HZ

