



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/16/2017
 Invoice #: 200199
 API#
 Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
 Well Name: yellowhammer 13n-17hz

County: Weld
 State: Colorado
 Sec: 11
 Twp: 1n
 Range: 67w

Consultant: matt
 Rig Name & Number: CARTEL 88
 Distance To Location: 42
 Units On Location: 4028/4040/4032
 Time Requested: 400 pm
 Time Arrived On Location: 215 pm
 Time Left Location: 7:00 pm

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.) : 1,865	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1875	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 5%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.5	BBL to Pit:
Shoe Joint Length (ft) : 41	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 8	H2O Wash Up (bbls): 10.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 BBL WATER, DYE IN 2ND 10

Calculated Results	Displacement: 141.63 bbls
cuft of Shoe 17.80 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 64.40 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus Hydrostatic Pressure: 1375.81 PSI
cuft of Casing 916.00 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: 786.47 psi Shoe Joint: 30.25 psi Total 816.72 psi
Total Slurry Volume 998.20 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Differential Pressure: 559.09 psi
bbls of Slurry 177.78 bbls (Total Slurry Volume) X (.1781)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Sacks Needed 674 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total Water Needed: 301.75 bbls
Mix Water 120.12 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	

X *Sean [Signature]*
 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.

WATER

SERIES 2000

