



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 11/12/2017
 Invoice #: 666229
 API#: 05-123-45498
 Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
Well Name: Yellowhammer 34C-17HZ

County: Weld
 State: Colorado
 Sec: 8
 Twp: 1N
 Range: 68W

Consultant: Sean/Levi
 Rig Name & Number: Cartel 88
 Distance To Location: 42 Miles
 Units On Location: 4023/4040/4039
 Time Requested: 20:30
 Time Arrived On Location: 20:30
 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.) : 1,846	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1856	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 : 15.25	BBL to Pit: 0.0
Shoe Joint Length (ft) : 42	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 10	H2O Wash Up (bbls): 20.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	Dye in second 10 bbl

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results	Pressure of cement in annulus
Displacement: 140.24 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
cuft of Conductor 61.05 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Hydrostatic Pressure: 1361.79 PSI
cuft of Casing 906.25 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 985.53 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 777.85 psi
bbls of Slurry 175.52 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 30.98 psi
Sacks Needed 661 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 808.83 psi
Mix Water 117.80 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 552.96 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 308.03 bbls

X *Sean Vigil*
 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.

Yellowhammer 34C-17HZ

