



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/17/2017
 Invoice #: 666165
 API#: 05-123-44754
 Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
Well Name: RW 15N-32HZ

County: Weld
 State: Colorado
 Sec: 29
 Twp: 3N
 Range: 65W

Consultant: Sean
 Rig Name & Number: Cartel 88
 Distance To Location: 28 Miles
 Units On Location: 4023/4030/4035
 Time Requested: 21:30
 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.) : 1,843	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1852	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 2%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.25	BBL to Pit:
Shoe Joint Length (ft) : 44	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

Calculated Results	Pressure of cement in annulus
cuft of Shoe 19.10 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 139.85 bbls (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)	Hydrostatic Pressure: 1359.58 PSI
cuft of Casing 878.86 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 959.01 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 775.69 psi
bbls of Slurry 170.80 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 32.46 psi
Sacks Needed 644 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 808.15 psi
Mix Water 114.63 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 551.43 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 304.48 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.

RW 15N-32HZ

