



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/25/2017
 Invoice #: 666117
 API#: 05-123-43805
 Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation
 Well Name: Babcock 23N-33HZ

County: Weld
 State: Colorado
 Sec: 4
 Twp: 2N
 Range: 67W

Consultant: Lane/Sean
 Rig Name & Number: WMO 252
 Distance To Location: 26 Miles
 Units On Location: 4023/4024/4033
 Time Requested: 2:00
 Time Arrived On Location: 12:50
 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.) : 1,864	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1874	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 15%
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:	Spacer Ahead Makeup
Max Pressure:	

Calculated Results	Displacement: 141.47 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)	Pressure of cement in annulus Hydrostatic Pressure: 1375.07 PSI
cuft of Casing 1002.68 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: 784.75 psi Shoe Joint: 32.46 psi Total 817.21 psi
Total Slurry Volume 1082.83 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Differential Pressure: 557.86 psi
bbls of Slurry 192.85 bbls (Total Slurry Volume) X (.1781)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Sacks Needed 727 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total Water Needed: 320.90 bbls
Mix Water 129.43 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	

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.

Babcock 23N-33HZ

