



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/1/2017
 Invoice #: 900039
 API#: 05-123-44032
 Foreman: JASON

Customer: Anadarko Petroleum Corporation
Well Name: WHISTON 40N-33HZ

County: Weld
 State: Colorado
 Consultant: SEAN
 Rig Name & Number: WM 252
 Distance To Location: 26
 Units On Location: 4027-3103,4033-3213,4032-3213
 Sec: 4
 Twp: 2N
 Range: 67W
 Time Requested: 300
 Time Arrived On Location: 130
 Time Left Location: 730

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.) : 1,871	Cement Yield (cuft) : 1.48
Total Depth (ft) : 1881	Gallons Per Sack: 7.49
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: 28.0
Shoe Joint Length (ft) : 45	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 15	H2O Wash Up (bbls): 20.0
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 2000	30 BBL WATER DYE IN 2ND 10

Calculated Results	Displacement: 142.34 bbls
cuft of Shoe 19.32 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 1006.44 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of cement in annulus Hydrostatic Pressure: 1380.01 PSI
Total Slurry Volume 1086.81 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing Displacement: 787.41 psi Shoe Joint: 32.84 psi Total: 820.25 psi
bbls of Slurry 193.56 bbls (Total Slurry Volume) X (.1781)	Differential Pressure: 559.76 psi
Sacks Needed 734 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Collapse PSI: 2020.00 psi Burst PSI: 3520.00 psi
Mix Water 130.96 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total Water Needed: 323.29 bbls

[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.

WHISTON 40N-33HZ SURFACE

