



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/9/2016
 Invoice # 80518
 API# 05-123-42819
 Foreman: Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Lapp A15-620

County: Weld
 State: Colorado
 Sec: SWSW
 Twp: 136N
 Range: 64W

Consultant: dave
 Rig Name & Number: H&P524
 Distance To Location: 14miles
 Units On Location:
 Time Requested: 8/9/16 9:00am
 Time Arrived On Location: 8/9/16 8:00am
 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.) : 1,928	Cement Yield (cuft) : 1.49
Total Depth (ft) : 1922	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 1938.00	% Excess: 15%
Conductor Length (ft) : 80	Displacement Fluid lb/gal: 8.7
Conductor ID : 15.25	Fluid Ahead (bbls): 50.0
Shoe Joint Length (ft) : 43	H2O Wash Up (bbls): 20.0
Landing Joint (ft) : 3	
Max Rate: 8	Spacer Ahead Makeup
Max Pressure: 1700	10H2O, 10dye H2O, 30H2O

Calculated Results	Pressure of cement in annulus
cuft of Shoe 19.00 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 143.60 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: 1422.29 PSI
cuft of Casing 887.00 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing
Total Slurry Volume 1100.00 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Displacement: 851.83 psi
bbls of Slurry 196.00 bbls (Total Slurry Volume) X (.1781)	Shoe Joint: 31.72 psi
Sacks Needed 739 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total 883.55 psi
Mix Water 132.00 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Differential Pressure: 538.73 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 200.00 bbls

X
 Authorization To Proceed

