



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/2/2016
 Invoice #: 80517
 API#: 05-123-42812
 Foreman: Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Lapp A15-613

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

Consultant: Derrick
 Rig Name & Number: H&P524
 Distance To Location: 14miles
 Units On Location:
 Time Requested: 4:00pm
 Time Arrived On Location: 3:00pm
 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.) :	1,912	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1922	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	12.25	% 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	Displacement:	144.50 bbls
(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	Hydrostatic Pressure:	1410.48 PSI
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		Pressure of the fluids inside casing	
cuft of Casing	564.00 cuft	Displacement:	844.60 psi
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Shoe Joint:	31.72 psi
Total Slurry Volume	729.00 cuft	Total	876.32 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure:	534.16 psi
bbls of Slurry	130.00 bbls	Collapse PSI:	2020.00 psi
(Total Slurry Volume) X (.1781)		Burst PSI:	3520.00 psi
Sacks Needed	489 sk	Total Water Needed:	200.00 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	87.00 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42			

Matthew Rosales
 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.

