



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 1/15/2016
 Invoice # 80565
 API# _____
 Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.
 Well Name: lynn lc 35-760

County: Weld
 State: Colorado
 Sec: 26
 Twp: 9n
 Range: 59 w

Consultant: cliff
 Rig Name & Number: H&P 343
 Distance To Location: _____
 Units On Location: 4023-3104/4020-3212
 Time Requested: 200 pm
 Time Arrived On Location: 130 pm
 Time Left Location: 9:00pm

WELL DATA	
Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	599
Total Depth (ft) :	640
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	100
Conductor ID :	16
Shoe Joint Length (ft) :	43
Landing Joint (ft) :	35
Max Rate:	
Max Pressure:	

Cement Data	
Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
Gallons Per Sack:	7.48
% Excess:	30%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	
Fluid Ahead (bbls):	40.0
H2O Wash Up (bbls):	10.0
Spacer Ahead Makeup	

Calculated Results	Displacement:	45.69 bbls
Casing ID: 8.921	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe: 18.66 cuft	Pressure of cement in annulus	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)	Hydrostatic Pressure:	441.88 PSI
cuft of Conductor: 89.10 cuft	Pressure of the fluids inside casing	
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Displacement:	239.74 psi
cuft of Casing: 317.04 cuft	Shoe Joint:	31.72 psi
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Total	271.46 psi
Total Slurry Volume: 424.80 cuft	Differential Pressure:	170.42 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Collapse PSI:	2020.00 psi
bbls of Slurry: 75.66 bbls	Burst PSI:	3520.00 psi
(Total Slurry Volume) X (.1781)	Total Water Needed:	146.46 bbls
Sacks Needed: 285 sk		
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		
Mix Water: 50.77 bbls		
(Sacks Needed) X (Gallons Per Sack) ÷ 42		

[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.

