



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/22/2015

Invoice # 80534

API#

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: wells ranch ae 32-650

County: Weld

State: Colorado

Sec: 25

Twp: 6n

Range: 68w

Consultant: cliff

Rig Name & Number: H&P 321

Distance To Location:

Units On Location: 4029-3106/4020-3205

Time Requested: 600 pm

Time Arrived On Location: 500 pm

Time Left Location: 8:15 pm

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.) : 618	Cement Yield (cuft) : 1.49
Total Depth (ft) : 623	Gallons Per Sack: 7.48
Open Hole Diameter (in.) : 13.50	% Excess: 30%
Conductor Length (ft) : 100	Displacement Fluid lb/gal: 8.3
Conductor ID : 16	BBL to Pit:
Shoe Joint Length (ft) : 39	Fluid Ahead (bbls): 50.0
Landing Joint (ft) : 35	H2O Wash Up (bbls): 10.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	

Casing ID	8.921	Casing Grade	J-55 only used
Calculated Results		Displacement: 47.47 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
cuft of Shoe	16.93 cuft	Pressure of cement in annulus	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		Hydrostatic Pressure: 455.90 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: 249.65 psi	
cuft of Casing	329.11 cuft	Shoe Joint: 28.77 psi	
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)		Total 278.42 psi	
Total Slurry Volume	435.13 cuft	Differential Pressure: 177.47 psi	
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Collapse PSI: 2020.00 psi	
bbls of Slurry	77.50 bbls	Burst PSI: 3520.00 psi	
(Total Slurry Volume) X (.1781)		Total Water Needed: 159.48 bbls	
Sacks Needed	292 sk		
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)			
Mix Water	52.01 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.

