



# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 8/11/2015  
Invoice #: 90023  
API#: 05-123-41585  
Supervisor: Nick

Customer: Noble Energy Inc.  
Well Name: Greyson LD 28-767

County: Weld  
State: Colorado  
Sec: 28  
Twp: 9N  
Range: 58W

Consultant: Johnny Sanchez  
Rig Name & Number: H&P 343  
Distance To Location: 60  
Units On Location: 3102/4028/4016/3211  
Time Requested: 7:00  
Time Arrived On Location: 5:50  
Time Left Location: 11:20

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) :	1,101	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1135	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	20%
Conductor Length (ft) :	100	Displacement Fluid lb/gal:	8.3
Conductor ID :	15.25	BBL to Pit:	27.0
Shoe Joint Length (ft) :	44	Fluid Ahead (bbls):	80.0
Landing Joint (ft) :	29	H2O Wash Up (bbls):	20.0
Max Rate:	7	Spacer Ahead Makeup	
Max Pressure:	1500	DYE IN SECOND 10 BBL	

Casing ID	8.921	Casing Grade	J-55 only used
<b>Calculated Results</b>		Displacement:	83.40 bbls
cuft of Shoe	19.10 cuft	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)	
(Casing ID Squared) X (.005454) X (Shoe Joint ft)		<b>Pressure of cement in annulus</b>	
cuft of Conductor	76.31 cuft	Hydrostatic Pressure:	812.21 PSI
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)		<b>Pressure of the fluids inside casing</b>	
cuft of Casing	488.53 cuft	Displacement:	455.76 psi
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )		Shoe Joint:	32.46 psi
Total Slurry Volume	701.80 cuft	Total	488.22 psi
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)		Differential Pressure:	323.99 psi
bbls of Slurry	125.00 bbls	Collapse PSI:	
(Total Slurry Volume) X (.1781)		Burst PSI:	
Sacks Needed	470 sk	Total Water Needed:	
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		267.10 bbls	
Mix Water	83.70 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.



INVOICE #	LOCATION	Supervisor	Date

90023	Weld	Nick	8/11/201
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Customer  
Well Name

Noble Energy Inc.  
Greyson LD 28-767

### DESCRIPTION OF JOB EVENTS

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X Indy Sad  
Work performed

X WKS

X B. H. 15  
Date