Bison Oil Well Cementing
Single Cement Surface Pipe

Date:	5/5/2015
Invoice #	80037
API#	05-123-40675
Foreman:	Calvin Reimers

Customer: Noble Energy Inc.

Well Name: Todd LC 25-760

County:	Weld	Consultant:	Jhon D
State:	Colorado	Rig Name & Number:	H&P 326
		Distance To Location:	68 Miles
Sec:	25	Units On Location:	4023-3104/4024-3204
Twp:	9N	Time Requested:	230am
Range:	59W	Time Arrived On Location:	145am
		Time Left Location:	5:15 am

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,368
Total Depth (ft) :	1408
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	100
Conductor ID :	16
Shoe Joint Length (ft) :	43
Landing Joint (ft) :	34
Max Rate:	7
Max Pressure:	2500

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:	39
Fluid Ahead (bbls):	50.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup

50bbls With Dye in Last 10bbls

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 18.88 cuft

(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 89.10 cuft

(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing [illegible]53 cuft

(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 913.51 cuft

(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 162.70 bbls

(Total Slurry Volume) X (.1781)

Sacks Needed 613 sk

(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 109.19 bbls

(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 104.99 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1009.07 PSI

Pressure of the fluids inside casing

Displacement: 571.04 psi

Shoe Joint: 32.08 psi

Total 603.13 psi

Differential Pressure: 405.94 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 284.18 bbls

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.

Bison Oil Well Cementing
Single Cement Surface Pipe

Customer	Noble Energy Inc.
Well Name	Todd LC 25-760

INVOICE #	80037
LOCATION	Weld
FOREMAN	Calvin Reimers
Date	5/5/2015

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	30%	220am	MIRU				
Mixed bbls	109.19	251am	JSA				
Total Sacks	613	312am	Pressure Test	Test Lines	0.5	1	1000
bbl Returns	39	314am	Spacer Ahead	50 BBLS With Dye in Last 10 BBLS	6	50	160
Water Temp	53.7	323am	Cement	14.2 ppg 613 sks	6.5	162.7	200
		352am	Shutdown				
Notes:		354am	Drop Plug				
		355am	Start Displacement		6	104.99	450
		417am	End Displacement		1		390
		417am	Pressure Test Casing	417am 1010psi to 432am 1020psi			1010
		432am	Floats Held				
		435am	Rig Down				
		515am	Leave Location				

X _____ Work Preformed

X WSS Title

X May 5, 2015 Date