




Customer  
Well Name

Noble Energy Inc.  
Guttersen Y05-756

Date  
INVOICE #  
LOCATION  
FOREMAN

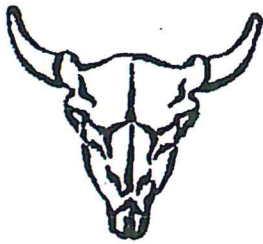
1/8/2020
200558
Weld
Kirk Kallhoff

Treatment Report Page 2

X   
Work Performed

X COMAN  
Title

X 1-8-20  
Date



# Bison Oil Well Cementing Tail & Lead

Customer: Noble Energy Inc.  
Well Name: Guttarsen Y05-756

Date: 1/8/2020  
Invoice #: 200558  
API#: 05-123-48046  
Foreman: Kirk Kallhoff

County: Weld  
State: Colorado  
Sec: 29  
Twp: 3N  
Range: 64W

Consultant: dave  
Rig Name & Number: H&P 321  
Distance To Location: 21  
Units On Location: 4047/4020  
Time Requested: 230 pm  
Time Arrived On Location: 1230 pm  
Time Left Location: 6:30 pm

WELL DATA		Cement Data	
Casing Size (in) :	9.625	<b>Lead</b>	
Casing Weight (lb) :	36	Cement Name:	BFN III
Casing Depth (ft.) :	1,895	Cement Density (lb/gal) :	13.5
Total Depth (ft) :	1940	Cement Yield (cuft) :	1.68
Open Hole Diameter (in) :	13.50	Gallons Per Sack	8.90
Conductor Length (ft) :	110	% Excess	10%
Conductor ID :	15.15		
Shoe Joint Length (ft) :	41	<b>Tail</b>	<b>Type III</b>
Landing Joint (ft) :	35	Cement Name:	
		Cement Density (lb/gal) :	15.2
		Cement Yield (cuft) :	1.27
		Gallons Per Sack:	5.80
		% Excess:	0%
Sacks of Tail Requested	100	<b>Fluid Ahead (bbls)</b>	30.0
HOC Tail (ft):	0	<b>H2O Wash Up (bbls)</b>	20.0
One or the other, cannot have quantity in both			
<b>Max Rate:</b>	8	<b>Spacer Ahead Makeup</b>	
<b>Max Pressure:</b>	2500	30 BBL ahead with Die in 2nd 10	

Casing ID	8.921	Casing Grade	J-55 only used
Lead Calculated Results		Tail Calculated Results	
HOC of Lead	1526.56 ft	Tail Cement Volume In Ann	127.00 cuft
Casing Depth - HOC Tail		(HOC Tail) X (OH Ann)	
Volume of Lead Cement	746.07 cuft	Total Volume of Tail Cement	109.20 Cuft
HOC of Lead X Open Hole Ann		(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)	
Volume of Conductor	82.12 cuft	bbls of Tail Cement	22.62 bbls
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)		(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)	
Total Volume of Lead Cement	828.19 cuft	HOC Tail	223.44 ft
(cuft of Lead Cement) + (Cuft of Conductor)		(Tail Cement Volume) ÷ (OH Ann)	
bbls of Lead Cement	162.25 bbls	Sacks of Tail Cement	100.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)		(Total Volume of Tail Cement) ÷ (Cement Yield)	
Sacks of Lead Cement	542.27 sk	bbls of Tail Mix Water	13.81 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)		(Sacks of Tail Cement X Gallons Per Sack) ÷ 42	
bbls of Lead Mix Water	114.91 bbls	Pressure of cement in annulus	
(Sacks Needed) X (Gallons Per Sack) ÷ 42		Hydrostatic Pressure	585.23 PSI
Displacement	146.02 bbls		
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)		Collapse PSI:	2020.00 psi
Total Water Needed:	324.74 bbls	Burst PSI:	3520.00 psi

X Authorization To Proceed



## SERIES 2000

— PSI — Barrels / Minute — Lbs / Gallon

