



**Bison Oil Well Cementing
Tail & Lead**

Date: 7/12/2020
 Invoice # 200612
 API# 05-123-48641
 Foreman: Matthew Rosales

Customer: Noble Energy Inc.
 Well Name: Guttersen YY06-756

County: Weld Consultant: Dave
 State: Colorado Rig Name & Number: H&P 517
 Distance To Location: 29
 Units On Location: 4047/4024/4034
 Time Requested: 11:00am
 Time Arrived On Location: 9:00am
 Time Left Location: 2:30pm
 Sec: 30
 Twp: 3N
 Range: 63W

WELL DATA	Cement Data
Casing Size (in) : 9.625 Casing Weight (lb) : 36 Casing Depth (ft.) : 1.933 Total Depth (ft) : 1943 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 80 Conductor ID : 15.5 Shoe Joint Length (ft) : 44 Landing Joint (ft) : 30 Sacks of Tail Requested : 100 HOC Tail (ft): 0 <small>One or the other, cannot have quantity in both</small> Max Rate: 8 Max Pressure: 2500	Lead Cement Name: BFN III Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.68 Gallons Per Sack : 8.90 % Excess : 10% Tail Type III Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack: 5.80 % Excess: 0% Fluid Ahead (bbls) : 30.0 H2O Wash Up (bbls) : 20.0 Spacer Ahead Makeup 30 BBL ahead with Die in 2nd 10

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1602.22 ft	Tail Cement Volume In Ann 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 875.70 cuft	Total Volume of Tail Cement 107.90 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 64.40 cuft	bbbls of Tail Cement 22.62 bbbls
(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 940.10 cuft	HOC Tail 220.78 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbbls of Lead Cement 167.00 bbbls	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 553.00 sk	bbbls of Tail Mix Water 13.81 bbbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbbls of Lead Mix Water 118.00 bbbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 146.00 bbbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2020.00 psi
Total Water Needed: 327.81 bbbls	Burst PSI: 3520.00 psi

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.



Two Cement Surface Pipe

Customer Well Name Noble Energy Inc.
Guttersen YY06-756

Date 7/12/2020
 INVOICE # 200612
 LOCATION Weld
 FOREMAN Matthew Rosales

Treatment Report Page 2

Amount Pumped		Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	167	9:00am	ARRIVE ON LOCATION			
Lead % Excess	10%	11:am	JSA			
Lead Sacks	553	11:45am	JSA			
		12:19pm	PRESSURE TEST	0.5	0.5	
		12:20pm	SPACER AHEAD	6.5	30	70
Tail mixed bbls	22	12:25pm	LEAD CEMENT	6..	167	170
Tail % Excess	0%	12:57pm	TAIL CEMENT	7	22.6	220
Tail Sacks	100	1:05pm	SHUT DOWN			
		1:08pm	DROP PLUG			
Total Sacks	652	1:10pm	DISPLACEMENT	7.3	146	470
Water Temp	60	1:30pm	Bump Plug	1.8		470
bbl Returns	35	1:41pm	Casing TEST	1.8	0.5	1080
		1:56pm	Check Floats			
Notes:		2:20pm	RIG DOWN			
Montered well for		2:30pm	Leave Location			
20 Min. No top out						
Needed						
2.5bbl back after						
bleed off of casing test						

X 
 Work Performed

X CO MAN
 Title

X 7/12/2020
 Date

Noble Energy Guttersen YY06-756

— PSI — Barrels / Minute — Lbs / Gallon

