Bison Oil Well Cementing
Tail & Lead

Date:	11/26/2020
Invoice #	200640
API#	05-123-48948

Customer: Noble Energy Inc.
Well Name: Guttersen D09-765

Foreman: Matthew Rosales

County:	Weld	**Consultant:** Dave
State:	Colorado	**Rig Name & Number:** H&P 517
		Distance To Location: 19
		Units On Location: 402,840,334,044
Sec:	33	**Time Requested:** 3:30pm
Twp:	4N	**Time Arrived On Location:** 2:00pm
Range:	64W	**Time Left Location:** 7:00pm

WELL DATA

Casing Size (in) :	9.625
Casing Weight (lb) :	36
Casing Depth (ft.) :	1,896
Total Depth (ft) :	1936
Open Hole Diameter (in) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	43
Landing Joint (ft) :	2

Sacks of Tail Requested	100
HOC Tail (ft):	0

One or the other, cannot have quantity in both

Max Rate:	8
Max Pressure:	900

Cement Data

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:	5.89
% Excess:	0%

Fluid Ahead (bbls)	30.0
H20 Wash Up (bbls)	20.0

Spacer Ahead Makeup

30 BBL ahed with Die in 2nd 10

Casing ID	8.921	Casing Grade	J-55 only used

Lead Calculated Results

HOC of Lead — 1592.12 ft
Casing Depth - HOC Tail

Volume of Lead Cement — 778.12 cuft
HOC of Lead X Open Hole Ann

Volume of Conductor — 61.05 cuft
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

Total Volume of Lead Cement — 839.17 cuft
(cuft of Lead Cement) + (Cuft of Conductor)

bbls of Lead Cement — 164.40 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)

Sacks of Lead Cement — 549.46 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

bbls of Lead Mix Water — 116.43 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement — 143.38 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)

Total Water Needed: — 323.83 bbls

Tail Calculated Results

Tail Cement Volume In Ann — 127.00 cuft
(HOC Tail) X (OH Ann)

Total Volume of Tail Cement — 108.34 Cuft
(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)

bbls of Tail Cement — 22.62 bbls
(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)

HOC Tail — 221.67 ft
(Tail Cement Volume) ÷ (OH Ann)

Sacks of Tail Cement — 100.00 sk
(Total Volume of Tail Cement) ÷ (Cement Yield)

bbls of Tail Mix Water — 14.02 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42

Pressure of cement in annulus

Hydrostatic Pressure — 585.23 PSI

Collapse PSI: — 2020.00 psi
Burst PSI: — 3520.00 psi

Centralizers: 18

X _[signature]_
Authorization To Proceed

Bison Oil Well Cementing
Two Cement Surface Pipe

Date	11/26/2020
INVOICE #	200640
LOCATION	Weld
FOREMAN	Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Guttersen D09-765

Treatment Report Page 2

Amount Pumped		Time	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	164.4	2:00pm	ARRIVE ON LOCATION	ASSESS LOCATION			
Lead % Excess	10%	4:00pm	JSA	Bison/SPOT EQUIPMENT IN			
Lead Sacks	550	4:10pm	JSA	Bison and Rig Crew			
		5:10pm	PRESSURE TEST	PRESSURE TEST TO 1000 PSI			
		5:11pm	SPACER AHEAD	Fresh Wi.	6.5	10	100
Tail mixed bbls	22	5:12pm	SPACER AHEAD	DYE SPACER	6.5	10	90
Tail % Excess	0%	5:14pm	SPACER AHEAD	FRESH WATER	6.4	10	110
Tail Sacks	100	5:14pm	LEAD CEMENT	13.5#/GAL, 1.7YIELD, 9GAL/SK, 550SACKS	5	164.4	190
		5:48pm	TAIL CEMENT	15.2#/GAL, 1.27YIELD, 5.8GAL/SK, 100SACKS	7.3	22.6	310
Total Sacks	550	5:55pm	SHUTDOWN				
Water Temp	60	5:57pm	DROP PLUG				
bbl Returns	33.2	5:58pm	DISPLACEMENT	Fresh Water Displace by Bison	6.4	143.2	510
		6:22pm	BUMP PLUG		2.7		510-670
Notes:		6:23pm	PRESSURE TEST CASING	PRESSURE UP TO 1000PSI MONITOR 15MIN	0.5	0.5	1010-1070
Montered well for		6:38pm	CHECK FLOATS	Floats Held 2bbls back from bleed off			
20 Min. No top out		6:45pm	END JOB				
		6:50pm	PRERIG DOWN SAFETY MEET				
		6:55pm	RIG DOWN				
		7:00pm	LEAVE LOCATION				

X _(signature)_
Work Preformed

X Co-mtn
Title

X 11-26-20
Date

Guttersen D09-765

Legend: PSI — Barrels / Minute — Lbs / Gallon — Stage Volume