Bison Oil Well Cementing
Tail & Lead

Date: 7/11/2020
Invoice # 200610
API# 05-123-48642
Foreman: Matthew Rosales

Customer: Noble Energy Inc.
Well Name: Guttersen YY06-775

County: Weld
State: Colorado
Sec: 30
Twp: 3N
Range: 63W

Consultant: Dave
Rig Name & Number: H&P 517
Distance To Location: 29
Units On Location: 4047/4024/4034
Time Requested: 12:00pm
Time Arrived On Location: 10:00am
Time Left Location:

WELL DATA

Casing Size (in) :	9.625
Casing Weight (lb) :	36
Casing Depth (ft.) :	1,887
Total Depth (ft) :	1942
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

One or the other, cannot have quantity in both

Max Rate:	8
Max Pressure:	2500

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:	5.80
% 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 1556.22 ft
Casing Depth - HOC Tail

Volume of Lead Cement 760.57 cuft
HOC of Lead X Open Hole Ann

Volume of Conductor 64.40 cuft
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

Total Volume of Lead Cement 938.00 cuft
(cuft of Lead Cement) + (Cuft of Conductor)

bbls of Lead Cement 166.58 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)

Sacks of Lead Cement 552.00 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

bbls of Lead Mix Water 118.00 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement 143.50 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)

Total Water Needed: 323.71 bbls

Tail Calculated Results

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

Total Volume of Tail Cement 107.90 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 220.78 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 13.81 bbls
(Sacks of Tail Cement X Gallons Per Sack) ÷ 42

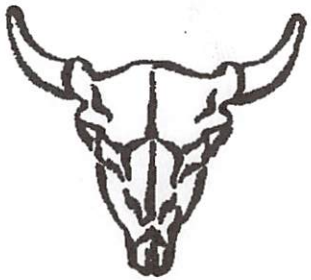
Pressure of cement in annulus

Hydrostatic Pressure 585.23 PSI

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

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	Noble Energy Inc.
Well Name	Guttersen YY06-775

Date	7/11/2020
INVOICE #	200610
LOCATION	Weld
FOREMAN	Matthew Rosales

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Amount Pumped			Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	165	10:00pm	ARRIVE ON LOCATION	ASSESS LOCATION			
Lead % Excess	10%	12:30	JSA	Bison/SPOT EQUIPMENT IN			
Lead Sacks	552	12:50 PM	JSA	Bison and Rig Crew			
		1:20pm	PRESSURE TEST	PRESSURE TEST TO 1700 PSI	0.5	0.5	1780
		1:22pm	SPACER AHEAD	WATER S. .	6.3	30	170
Tail mixed bbls	22	1:25pm	LEAD CEMENT	CEMENT MIXED AT 13.5 PPG PG.	6..4	167.2	160
Tail % Excess	0%	1:53pm	TAIL CEMENT	CEMENT MIXED AT 15.2 PPG PG.	6.5	22.6	280
Tail Sacks	100	1:57pm	SHUT DOWN				
		2:00pm	DROP PLUG				
Total Sacks	652	2:02pm	DISPLACEMENT	Fresh Water Displace Bison	7.2	143.5	580
Water Temp	60	2:30pm	Bump Plug		2.4		690
bbl Returns	25	2:31pm	Casing TEST	1000 psi 15 min	0.5	0.5	1030
		2:46pm	Check Floats	FLOATS HELD 2 BBL BACK			
Notes:		3:15pm	RIG DOWN	PRE RIG DOWN MEETING			
Montered well for		3:30pm	Leave Location				
20 Min. No top out							
Needed							
2.00bbl back after							
bleed off of casing test							

X _____ Work Preformed

X COMAN Title

X 7-11-2020 Date

Noble Energy
Guttersen YY06-775