



**Bison Oil Well Cementing
Tail & Lead**

Date: 7/14/2019

Invoice # 200475

API# _____

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: slw ranch state bb 07-678

County: Weld
State: Colorado

Sec: 87
Twp: 5N
Range: R2W63W

Consultant: john
Rig Name & Number: H&P 517
Distance To Location: 20
Units On Location: 4047/4023/4030
Time Requested: 830 am
Time Arrived On Location: 630 am
Time Left Location: 2:00pm

WELL DATA

Casing Size (in) : 9.625
Casing Weight (lb) : 36
Casing Depth (ft.) : 1,910
Total Depth (ft) : 1955
Open Hole Diameter (in) : 13.50
Conductor Length (ft) : 110
Conductor ID : 15.5
Shoe Joint Length (ft) : 44
Landing Joint (ft) : 3

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: 5.89
% Excess: 0%

Fluid Ahead (bbls) 30.0
H2O Wash Up (bbls) 20.0

Spacer Ahead Makeup
30 BBL ahead with Die in 2nd 10

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results	
HOC of Lead	1576.22 ft
Casing Depth - HOC Tail	
Volume of Lead Cement	770.35 cuft
HOC of Lead X Open Hole Ann	
Volume of Conductor	88.56 cuft
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
Total Volume of Lead Cement	858.90 cuft
(cuft of Lead Cement) + (Cuft of Conductor)	
bbls of Lead Cement	168.27 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	
Sacks of Lead Cement	562.38 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
bbls of Lead Mix Water	119.17 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42	
Displacement	144.47 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	
Total Water Needed:	327.67 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	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



Authorization To Proceed



**Bison Oil Well Cementing
Two Cement Surface Pipe**

Customer
Well Name

Noble Energy Inc.
slw ranch state bb 07-678

Date
INVOICE #
LOCATION
FOREMAN

7/14/2019
200475
Weld
Kirk Kallhoff

Treatment Report Page 2

Amount Pumped	Time	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	119.1	630 am	ARRIVE ON LOCATION			
Lead % Excess	10%	1000 am	JSA			
Lead Sacks	562	1050 am	JSA			
		1126 am	PRESSURE TEST			800
		1127 am	SPACER AHEAD	6	30	180
Tail mixed bbls	14	1132 am	LEAD CEMENT	5	168.2	190
Tail % Excess	0%	1211 pm	TAIL CEMENT	6	22.6	310
Tail Sacks	100	1218 pm	SHUT DOWN			
		1224 pm	DROP PLUG			
Total Sacks	662	1224 pm	DISPLACEMENT	6	144.5	300
Water Temp	60	1251 pm	Bump Plug		144.5	880
bbl Returns	25	1253 pm	Casing TEST			1010
		108 pm	Check Floats			
Notes:		130 pm	RIG DOWN			
Montered well for		200 pm	Leave Location			
20 Min. No top out						
Needed						

X 
Work Performed

X _____
Title

X 7-14-19
Date

SERIES 2000

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

