



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

Customer
Well Name

Noble Energy Inc.
Guttersen State DD30-715

Date
INVOICE #
LOCATION
FOREMAN

11/21/2019
200543
Weld
Kirk Kallhoff

Treatment Report Page 2

Amount Pumped	Time	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	116.4	800 pm	ARRIVE ON LOCATION			
Lead % Excess	10%	1100 pm	JSA			
Lead Sacks	549	1130 pm	JSA			
		1200 am	PRESSURE TEST			1000
		1201 am	SPACER AHEAD	5	30	200
Tail mixed bbls	13.81	1206 am	LEAD CEMENT	5	164.3	220
Tail % Excess	0%	1243 am	TAIL CEMENT	5	22.6	300
Tail Sacks	100	1252 am	SHUT DOWN			
		1256 am	DROP PLUG			
Total Sacks	649	1256 am	DISPLACEMENT	5	147.8	350
Water Temp	60	124 am	Bump Plug	3	147.8	780
bbl Returns	23	126 am	Casing TEST			1010
		141 am	Check Floats			
Notes:		200 am	RIG DOWN			
Montered well for		230 am	Leave Location			
30 Min. No top out						
Needed						

X

Work Performed

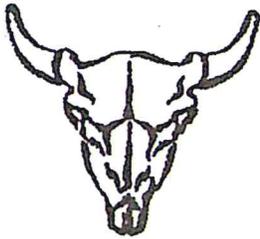
X

Title

X

Date

11-28-19



**Bison Oil Well Cementing
Tail & Lead**

Date: 11/21/2019

Invoice # 200543

API# 05-123-48667

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: Guttersen State DD30-715

County: Weld
State: Colorado

Sec: 30
Twp: 3N
Range: 63W

Consultant: tim

Rig Name & Number: H&P 321

Distance To Location: 26

Units On Location: 4047/4034/4039

Time Requested: 1000 pm

Time Arrived On Location: 800 pm

Time Left Location:

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 36</p> <p>Casing Depth (ft.) : 1,918</p> <p>Total Depth (ft) : 1963</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 110</p> <p>Conductor ID : 15.15</p> <p>Shoe Joint Length (ft) : 40</p> <p>Landing Joint (ft) : 35</p> <p>Sacks of Tail Requested 100</p> <p>HOC Tail (ft): 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8</p> <p>Max Pressure: 2500</p>	<p>Lead</p> <p>Cement Name: BFN III</p> <p>Cement Density (lb/gal) : 13.5</p> <p>Cement Yield (cuft) : 1.68</p> <p>Gallons Per Sack 8.90</p> <p>% Excess 10%</p> <p>Tail Type III</p> <p>Cement Name:</p> <p>Cement Density (lb/gal) : 15.2</p> <p>Cement Yield (cuft) : 1.27</p> <p>Gallons Per Sack: 5.80</p> <p>% Excess: 0%</p> <p>Fluid Ahead (bbls) 30.0</p> <p>H2O Wash Up (bbls) 20.0</p> <p>Spacer Ahead Makeup</p> <p>30 BBL ahead with Die in 2nd 10</p>

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1548.67 ft	Tail Cement Volume In Ann 127.00 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 756.88 cuft	Total Volume of Tail Cement 109.64 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 839.00 cuft	HOC Tail 224.33 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 164.37 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 549.35 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 116.41 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 585.23 PSI
Displacement 147.87 bbls	
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Collapse PSI: 2020.00 psi
Total Water Needed: 328.09 bbls	Burst PSI: 3520.00 psi

X Authorization To Proceed

