

Bison Oil Well Cementing Tail & Lead

Date: 1/1/2021

Invoice # 200649

API# 05-123-50797

Foreman: Kirk Kallhoff

Customer: Noble Energy Inc.

Well Name: reveille a35-725

County: Weld

State: Colorado

Sec: 35

Twp: 6N

Range: 64W

Consultant: dave

Rig Name & Number: H&P 517

Distance To Location: 10

Units On Location: 4028/4033

Time Requested: 1200 pm

Time Arrived On Location: 1030 pm

Time Left Location: 4:00 pm

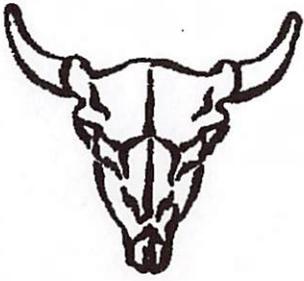
WELL DATA	Cement Data
<p>Casing Size (in) : <u>9.625</u></p> <p>Casing Weight (lb) : <u>36</u></p> <p>Casing Depth (ft.) : <u>1,900</u></p> <p>Total Depth (ft) : <u>1944</u></p> <p>Open Hole Diameter (in) : <u>13.50</u></p> <p>Conductor Length (ft) : <u>110</u></p> <p>Conductor ID : <u>15.5</u></p> <p>Shoe Joint Length (ft) : <u>42</u></p> <p>Landing Joint (ft) : <u>2</u></p> <p>Sacks of Tail Requested <u>100</u></p> <p>HOC Tail (ft): <u>0</u></p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: <u>8</u></p> <p>Max Pressure: <u>2500</u></p>	<p>Lead</p> <p>Cement Name: <u>BFN III</u></p> <p>Cement Density (lb/gal) : <u>13.5</u></p> <p>Cement Yield (cuft) : <u>1.68</u></p> <p>Gallons Per Sack <u>8.90</u></p> <p>% Excess <u>10%</u></p> <p>Tail Type III</p> <p>Cement Name: <u>Type III</u></p> <p>Cement Density (lb/gal) : <u>15.2</u></p> <p>Cement Yield (cuft) : <u>1.27</u></p> <p>Gallons Per Sack: <u>5.89</u></p> <p>% Excess: <u>0%</u></p> <p>Fluid Ahead (bbls) <u>30.0</u></p> <p>H2O Wash Up (bbls) <u>20.0</u></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 <u>1565.44 ft</u>	Tail Cement Volume In Ann <u>127.00 cuft</u>
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement <u>765.08 cuft</u>	Total Volume of Tail Cement <u>108.77 Cuft</u>
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor <u>88.56 cuft</u>	bbls of Tail Cement <u>22.62 bbls</u>
(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 <u>853.64 cuft</u>	HOC Tail <u>222.56 ft</u>
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement <u>167.24 bbls</u>	Sacks of Tail Cement <u>100.00 sk</u>
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement <u>558.93 sk</u>	bbls of Tail Mix Water <u>14.02 bbls</u>
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water <u>118.44 bbls</u>	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure <u>585.23 PSI</u>
Displacement <u>143.78 bbls</u>	Collapse PSI: <u>2020.00 psi</u>
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Burst PSI: <u>3520.00 psi</u>
Total Water Needed: <u>326.24 bbls</u>	

17 Centralizers

X Authorization To Proceed



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

Customer
Well Name

Noble Energy Inc.
reveille a35-725

Date
INVOICE #
LOCATION
FOREMAN

1/1/2021
200649
Weld
Kirk Kallhoff

Treatment Report Page 2

Amount Pumped	Time	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	118.4	1030 am	ARRIVE ON LOCATION			
Lead % Excess	10%	1245 pm	JSA			
Lead Sacks	559	1215 pm	JSA			
		1249 pm	PRESSURE TEST			750
		1250 pm	SPACER AHEAD	6	30	180
Tail mixed bbls	14	1255 pm	LEAD CEMENT	5.5	167.2	290
Tail % Excess	0%	130 pm	TAIL CEMENT	6	22.6	200
Tail Sacks	100	135 pm	SHUT DOWN			
		140 pm	DROP PLUG			
Total Sacks	659	140 pm	DISPLACEMENT	6	143.7	300
Water Temp	60	210 pm	Bump Plug	3	143.7	680
bbl Returns	20	211 pm	Casing TEST			1010
		226 pm	Check Floats			0
Notes:		340 pm	RIG DOWN			
Montered well for		300 pm	Leave Location			
20 Min. No top out						
Needed						

X [Signature]
Work Performed

X CO MAN
Title

X 1-1-21
Date

SERIES 2000

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

