



**Bison Oil Well Cementing
Tail & Lead**

Date: 10/24/2018

Invoice # 300212

API# 05-123-47690

Foreman: JASON KELEHER

Customer: Noble Energy Inc.

Well Name: INDEPENDENCE D30-758

County: Weld
State: Colorado

Sec: 19
Twp: 3N
Range: 64W

Consultant: GARY
Rig Name & Number: H&P 517
Distance To Location: 22
Units On Location: -3103,4035-3213,4033-3205
Time Requested: 1230
Time Arrived On Location: 1130
Time Left Location: 1930

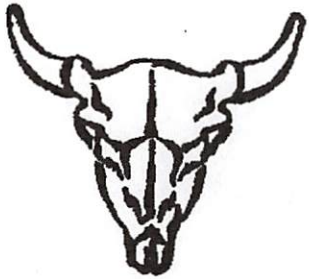
WELL DATA	Cement Data
<p>Casing Size (in) : 9.625 Casing Weight (lb) : 36 Casing Depth (ft.) : 1,956 Total Depth (ft) : 1966 Open Hole Diameter (in) : 13.50 Conductor Length (ft) : 80 Conductor ID : 15.25 Shoe Joint Length (ft) : 41 Landing Joint (ft) : 5</p> <p>Sacks of Tail Requested 100 HOC Tail (ft): 0</p> <p>One or the other, cannot have quantity in both</p> <p>Max Rate: 8 Max Pressure: 1500</p>	<p>Lead Cement Name: Cement Density (lb/gal) : 13.5 Cement Yield (cuft) : 1.7 Gallons Per Sack 9.00 % Excess 15%</p> <p>Tail Cement Name: Cement Density (lb/gal) : 15.2 Cement Yield (cuft) : 1.27 Gallons Per Sack: 5.89 % Excess: 0%</p> <p>Fluid Ahead (bbls) 50.0 H2O Wash Up (bbls) 20.0</p> <p>Spacer Ahead Makeup 50 BBL WATER DYE IN 2ND 10</p>

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results	
HOC of Lead	1732.67 ft
Casing Depth - HOC Tail	
Volume of Lead Cement	928.81 cuft
HOC of Lead X Open Hole Ann	
Volume of Conductor	61.04 cuft
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	
Total Volume of Lead Cement	989.33 cuft
(cuft of Lead Cement) + (Cuft of Conductor)	
bbls of Lead Cement	176.20 bbls
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	
Sacks of Lead Cement	582.00 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	
bbls of Lead Mix Water	124.70 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42	
Displacement	148.40 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	
Total Water Needed:	190.00 bbls

Tail Calculated Results	
Tail Cement Volume In Ann	109.10 cuft
(HOC Tail) X (OH Ann)	
Total Volume of Tail Cement	127.00 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	223.33 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	460.00 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.
INDEPENDENCE D30-758**

Date: **10/24/2018**
 INVOICE #: **300212**
 LOCATION: **Weld**
 FOREMAN: **JASON KELEHER**

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	124.7	1130	ARRIVE ON LOCATION			
Lead % Excess	15%	1345	MIRU			
Lead Sacks	582	1440	PRE JOB SAFETY MEETING			
		1510	PRESSURE TEST LINES			1500
		1513	SPACER AHEAD	5	50	150
Tail mixed bbls	14	1522	LEAD CEMENT	4	176.2	70
Tail % Excess	0%	1557	TAIL CEMENT	4	22.6	100
Tail Sacks	100	1602	SHUT DOWN			
		1608	DROP PLUG			
Total Sacks	675	1608	DISPLACEMENT	2	148.4	540
Water Temp	60	1632	BUMP PLUG			1068
bbl Returns	39	1650	CHECK FLOATS			945
		1850	RIG DOWN			
Notes:		1930	LEAVE LOCATION			
			monitered well no top off			
		1800	CEMENT	1	17.8	0
			79 SKS TYPE III CMT MIXED AT 15.2 W/ 2% CC FILLED CELLAR WITH CEMENT			

X May Stapleton
Signature

X WSS
Title

X 10/24/18
Date

INDEPENDENCE D30-758 SURFACE

