

Bison Oil Well Cementing  
Two Cement Surface Pipe

Customer: Noble Energy Inc.  
Well Name: Guttersen Y05-749

Date: 1/7/2020  
INVOICE #: 900463  
LOCATION: Weld  
FOREMAN: Corey Barras

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	116.2	2300	ARRIVE ON LOCATION			
Lead % Excess	10%	100	MIRU			
Lead Sacks	542	135	PRE JOB SAFETY MEETING			
		205	PRESSURE TEST LINES			1200
		207	bbls ahead			
Tail mixed bbls	14	214	LEAD CEMENT	6	30	120
Tail % Excess	0%	244	TAIL CEMENT	6	164.2	190
Tail Sacks	100	256	SHUT DOWN	4	22.6	110
		257	DROP PLUG			
Total Sacks	642	258	DISPLACEMENT	7	70	320
Water Temp	68	324	BUMP PLUG			
bbl Returns	24	340	CHECK FLOATS	2	143.7	1070
		400	RIG DOWN			
Notes:	430	430	LEAVE LOCATION			
			monitered well no top off			

*[Signature]*  
X

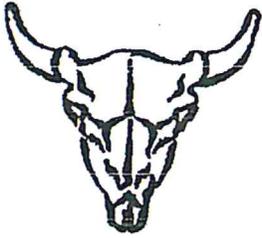
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1-8-20  
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Work Preformed

Title

Date



**Bison Oil Well Cementing  
Tail & Lead**

Date: 1/7/2020  
 Invoice # 900463  
 AFE # 206404  
 Foreman: Corey Barras

Customer: Noble Energy Inc.  
 Well Name: Guttersen Y05-749

County: Weld Consultant: Jim  
 State: Colorado Rig Name & Number: H&P 321  
 Distance To Location: 21  
 Units On Location: 4028/3103-4020/3203-4032/3212  
 Time Requested: 1200  
 Time Arrived On Location: 2300  
 Time Left Location: \_\_\_\_\_

Sec: 29  
 Twp: 3N  
 Range: 64W

WELL DATA	Cement Data
Casing Size (in) : <u>9.625</u> Casing Weight (lb) : <u>36</u> Casing Depth (ft.) : <u>1,897</u> Total Depth (ft) : <u>1937</u> Open Hole Diameter (in) : <u>13.50</u> Conductor Length (ft) : <u>80</u> Conductor ID : <u>15.25</u> Shoe Joint Length (ft) : <u>38</u> Landing Joint (ft) : <u>0</u>  Sacks of Tail Requested <u>100</u> HOC Tail (ft): <u>0</u> <small>One or the other, cannot have quantity in both</small>  Max Rate: <u>8</u> Max Pressure: <u>1500</u>	<b>Lead</b> Cement Name: Cement Density (lb/gal) : <u>13.5</u> Cement Yield (cuft) : <u>1.7</u> Gallons Per Sack <u>9.00</u> % Excess <u>10%</u>  <b>Tail</b> Cement Name: Cement Density (lb/gal) : <u>15.2</u> Cement Yield (cuft) : <u>1.27</u> Gallons Per Sack: <u>5.89</u> % Excess: <u>0%</u>  Fluid Ahead (bbls) <u>30.0</u> H2O Wash Up (bbls) <u>20.0</u>  <b>Spacer Ahead Makeup</b> <u>30BBL WATER DYE IN 2ND 10</u>

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results	Tail Calculated Results
HOC of Lead <u>1590.89 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>777.52 cuft</u>	Total Volume of Tail Cement <u>110.51 Cuft</u>
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor <u>61.05 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>838.57 cuft</u>	HOC Tail <u>226.11 ft</u>
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement <u>164.28 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>542.60 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>116.27 bbls</u>	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure <u>585.23 PSI</u>
Displacement <u>143.70 bbls</u>	
(Casing ID Squared) X (.0009714) X (Casing Depth) - (Shoe Length)	Collapse PSI: <u>2020.00 psi</u>
Total Water Needed: <u>324.00 bbls</u>	Burst PSI: <u>3520.00 psi</u>

X Jim [Signature]  
 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.

# Guttersen Y05-749

— PSI      — Barrels / Minute   — Barrels      — Lbs / Gallon

