



Bison Oil Well Cementing
Tail & Lead

Date: 9/30/2017

Invoice #: 900182

API#: 05-123-45236

Foreman: Corey B.

Customer: Noble Energy Inc.

Well Name: Hullabaloo State Y21-763

County: Weld
State: Colorado

Sec: 16
Twp: 2N
Range: 64W

Consultant: Matt
Rig Name & Number: H&P 517
Distance To Location: 31
Units On Location: 4027/3103-4040/3201-4032/3203
Time Requested: 1630
Time Arrived On Location: 1520
Time Left Location:

WELL DATA	Cement Data
<p>Casing Size (in) : 9.625</p> <p>Casing Weight (lb) : 36</p> <p>Casing Depth (ft.) : 2,010</p> <p>Total Depth (ft) : 2020</p> <p>Open Hole Diameter (in) : 13.50</p> <p>Conductor Length (ft) : 80</p> <p>Conductor ID : 15.25</p> <p>Shoe Joint Length (ft) : 42</p> <p>Landing Joint (ft) : 4</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 : 15%</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) : 50.0</p> <p>H2O Wash Up (bbls) : 20.0</p> <p>Spacer Ahead Makeup</p> <p>50 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 : 1703.44 ft	Tail Cement Volume In Ann (HOC Tail) X (OH Ann) : 127.00 cuft
Casing Depth - HOC Tail	Total Volume of Tail Cement (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann) : 108.77 Cuft
Volume of Lead Cement : 832.52 cuft	bbls of Tail Cement (HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess) : 22.62 bbls
HOC of Lead X Open Hole Ann	HOC Tail (Tail Cement Volume) ÷ (OH Ann) : 222.56 ft
Volume of Conductor : 61.05 cuft	Sacks of Tail Cement (Total Volume of Tail Cement) ÷ (Cement Yield) : 100.00 sk
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	bbls of Tail Mix Water (Sacks of Tail Cement X Gallons Per Sack) ÷ 42 : 13.81 bbls
Total Volume of Lead Cement (cuft of Lead Cement) + (Cuft of Conductor) : 893.57 cuft	Pressure of cement in annulus
bbls of Lead Cement (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess) : 183.02 bbls	Hydrostatic Pressure : 585.23 PSI
Sacks of Lead Cement (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement) : 610.00 sk	Collapse PSI: 2020.00 psi
bbls of Lead Mix Water (Sacks Needed) X (Gallons Per Sack) ÷ 42 : 129.26 bbls	Burst PSI: 3520.00 psi
Displacement (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length) : 152.44 bbls	
Total Water Needed: 365.51 bbls	

Ray Stetson

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.



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

Customer
Well Name

Noble Energy Inc.
Hullabaloo State Y21-763

Date
INVOICE #
LOCATION
FOREMAN

9/30/2017
900182
Weld
Corey B.

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls 129.62	1520	ARRIVE ON LOCATION	ASSESS LOCATION			
Lead % Excess 15%	1730	JSA	Bison/SPOT EQUIPMENT IN			
Lead Sacks 610	1820	JSA	Bison and Rig Crew			
	1915	PRESSURE TEST	PRESSURE TEST TO 1500 PSI			1500
	1922	SPACER AHEAD	WATER SUPPLIED BY RIG, DYE IN 2ND 10	5	50	50
	1930	LEAD CEMENT	CEMENT MIXED AT 13.5 PPG PG 583 sks	5	183	90
Tail mixed bbls 13.81	2010	TAIL CEMENT	CEMENT MIXED AT 15.2 PPG 100 SKS	5	22.6	70
Tail % Excess 0%	2020	SHUT DOWN				
Tail Sacks 100	2022	DROP PLUG	PLUG PRELOADED			
	2025	DISPLACEMENT	RIG DISPLACE	1	152	430
Water Temp 67	2050	BUMP PLUG				700
bbl Returns 34	2052	CASING TEST	DONE B\y rig for 15min			1030
	2115	CHECK FLOATS	FLOATS I Held w/2 2 BBL back			
Notes:	2215	RIG DOWN	PRE RIG DOWN MEETING			
Montered well for	2245	Leave Location				
30 Min. No top out						
Needed						

x Navy Steptor
Work Preformed

x WSS
Title

x 9/30/17
Date



Bison Oil Well Cementing Tail & Lead

Cementing Customer Satisfaction Survey

Service Date	9/30/2017
Well Name	Hullabaloo State Y21-763
County	Weld
State	Colorado
SEC	16
TWP	2N
RNG	64W

Invoice Number	900182
API #	05-123-45236
Job Type	Two Cement
Company Name	Noble Energy Inc.

Customer Representative

Supervisor Name J Corey Barras

Employee Name (Including Supervisor)	Exposure Hours (Per Employee)
Corey B	5.5
Monte B.	5.5
Nash N.	5.5
Jesse R.	5.5
Dave S.	5.5
Total Exposure Hours	27.5

Did we encounter any problems on this job? Yes No

To Be Completed By Customer

Rating/Description

- 5 - Superior Performance (Established new quality/performance standards)
 - 4 - Exceeded Expectation (Provided more than what was required/expected)
 - 3 - Met Expectations (Did what was expected)
 - 2 - Below Expectations (Job problems/failures occurred - *Recovery made)
 - 1 - Poor Performance (Job problems/failures occurred - *Some recovery made)
- *Recovery: resolved issue(s) on jobsite in a timely and professional manner

RATING	CATEGORY	CUSTOMER SATISFACTION RATING
_____	Personnel -	Did our personnel perform to your satisfaction?
_____	Equipment -	Did our equipment perform to your satisfaction?
_____	Job Design -	Did we perform the job to the agreed upon design?
_____	Product/Material -	Did our products and materials perform as you expected?
_____	Health & Safety -	Did we perform in a safe and careful manner (Pre/post mtgs, PPE, TSMR, etc..)?
_____	Environmental -	Did we perform in an environmentally sound manner (spills, leaks, cleanup, etc..)?
_____	Timeliness -	Was job performed as scheduled (On time to site, accessible to customers, completed when expected)?
_____	Condition/Appearance -	Did the equipment condition and appearance meet your expectations?
_____	Communication -	How well did our personnel communicate during mobilization, rig up and job execution?

Please Circle:

Yes No Did an accident or injury occur?
 Yes No Did an injury requiring medical treatment occur?
 Yes No Did a first-aid injury occur?
 Yes No Did a vehicle accident occur?
 Yes No Was a post-job safety meeting held?

Please Circle:

Yes No Was a pre-job safety meeting held?
 Yes No Was a job safety analysis completed?
 Yes No Were emergency services discussed?
 Yes No Did environmental incident occur?
 Yes No Did any near misses occur?

Additional Comments:

THE INFORMATION HEREIN IS CORRECT -

X [Signature]

 Customer Representative's Signature

DATE: 9/30/17

Hullabaloo State Y21-763

