



**Bison Oil Well Cementing  
Tail & Lead**

Date: 7/16/2018

Invoice # 666337

API# 05-123-46762

Supervisor: Nick Vigil

Customer: Noble Energy Inc.

Well Name: Hurley H26-736

Consultant: Tim

County: Weld

Rig Name & Number: H&P 517

State: Colorado

Distance To Location: 23 miles

Sec: 19

Units On Location: 4023/4032

Twp: 6N

Time Requested: 1:30

Range: 63W

Time Arrived On Location: 0:00

Time Left Location:

**WELL DATA**

Casing Size (in) : 9.625  
 Casing Weight (lb) : 36  
 Casing Depth (ft.) : 1,930  
 Total Depth (ft) : 1940  
 Open Hole Diameter (in) : 13.50  
 Conductor Length (ft) : 80  
 Conductor ID : 15.25  
 Shoe Joint Length (ft) : 45  
 Landing Joint (ft) :

Sacks of Tail Requested 100  
 HOC Tail (ft): 0

One or the other, cannot have quantity in both

Max Rate: 8  
 Max Pressure: 2000

**Cement Data**

**Lead**

Cement Name:  
 Cement Density (lb/gal) : 13.5  
 Cement Yield (cuft) : 1.7  
 Gallons Per Sack 9.00  
 % Excess 15%

**Tail**

Cement Name:  
 Cement Density (lb/gal) : 15.2  
 Cement Yield (cuft) : 1.27  
 Gallons Per Sack: 5.89  
 % Excess: 0%

Fluid Ahead (bbls) 30.0  
 H2O Wash Up (bbls) 20.0

**Spacer Ahead Makeup**

Dye in second 10 bbl

Casing ID

8.921

Casing Grade

J-55 only used

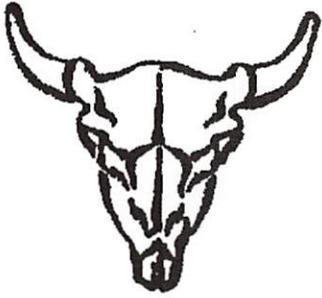
**Lead Calculated Results**

HOC of Lead 1621.11 ft  
 Casing Depth - HOC Tail  
 Volume of Lead Cement 792.28 cuft  
 HOC of Lead X Open Hole Ann  
 Volume of Conductor 61.05 cuft  
 (Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X  
 (Conductor Length ft)  
 Total Volume of Lead Cement 853.33 cuft  
 (cuft of Lead Cement) + (Cuft of Conductor)  
 bbls of Lead Cement 174.78 bbls  
 (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)  
 Sacks of Lead Cement 577.26 sk  
 (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
 bbls of Lead Mix Water 123.70 bbls  
 (Sacks Needed) X (Gallons Per Sack) ÷ 42  
 Displacement 146.41 bbls  
 (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)  
 Total Water Needed: 334.13 bbls

**Tail Calculated Results**

Tail Cement Volume In Ann 127.00 cuft  
 (HOC Tail) X (OH Ann)  
 Total Volume of Tail Cement 107.47 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 219.89 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 585.23 PSI  
 Collapse PSI: 2020.00 psi  
 Burst PSI: 3520.00 psi

X Authorization To Proceed



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

Customer: Noble Energy Inc.  
Well Name: Hurley H26-736

Date: 7/16/2018  
INVOICE #: 666337  
LOCATION: Weld  
FOREMAN: Nick Vigil

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**DESCRIPTION OF JOB EVENTS**

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	174.7	0:00	Arrive On Location			
Lead % Excess	15%	0:05	Well Site Assessment			
Lead Sacks	577	1:40	Rig Up Equipment			
		1:50	JSA	Held safety meeting with all personell involved in job.		
		2:02	Test Lines	Pressure tested lines to 1500 psi.		
		2:04	Spacer Ahead	Fresh water with dye in second 10 bbls.	6.4	30
Tail mixed bbls	22.6	2:09	Lead Cement	7.4	174.7	230
Tail % Excess	0%	2:36	Tail Cement	7.4	22.6	270
Tail Sacks	100		Shut Down			
Total Sacks	677	2:42	Drop Plug			
Water Temp	60	2:43	Displace			
bbl Returns	42	3:17	Bump Plug			
		3:18	Casing Test	Pressured up casing to 1000 psi and held for 15 min.		
		3:33	Check Floats			
		3:40	End Job			
		3:45	Rig Down Equipment			
		4:00	Crew Left Location			

X Signature

X Title

X 7/16/18 Date



# Bison Oil Well Cementing Tail & Lead

## Cementing Customer Satisfaction Survey

Service Date	7/16/2018
Well Name	Hurley H26-736
County	Weld
State	Colorado
SEC	19
TWP	6N
RNG	63W

Invoice Number	666337
API #	05-123-46762
Job Type	Surface Pipe
Company Name	Noble Energy Inc.

Customer Representative: Tim

Supervisor Name: Nick Vigil

Employee Name (Including Supervisor)
Nick V.
Belino M.
Jose R.
Aaron C.
Bryon R.

Exposure Hours (Per Employee)
4
4
4
4
4
4
20

Total Exposure Hours

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

<u>3.5</u>	Personnel -
<u>3.5</u>	Equipment -
<u>3.5</u>	Job Design -
<u>3.5</u>	Product/Material -
<u>3.5</u>	Health & Safety -
<u>3.5</u>	Environmental -
<u>3.5</u>	Timeliness -
<u>3.5</u>	Condition/Appearance -
<u>3.5</u>	Communication -

#### CUSTOMER SATISFACTION RATING

- Did our personnel perform to your satisfaction?
- Did our equipment perform to your satisfaction?
- Did we perform the job to the agreed upon design?
- Did our products and materials perform as you expected?
- Did we perform in a safe and careful manner (Pre/post mtgs, PPE, TSMR, etc..)?
- Did we perform in an environmentally sound manner (spills, leaks, cleanup, etc..)?
- Was job performed as scheduled (On time to site, accessible to customers, completed when expected)?
- Did the equipment condition and appearance meet your expectations?
- 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:

Good job as usual !!

THE INFORMATION HEREIN IS CORRECT -

X [Signature]  
Customer Representative's Signature

DATE:

7/16/18

# Hurley H26-736

