



# Bison Oil Well Cementing Tail & Lead

**Customer:** Noble Energy Inc.  
**Well Name:** Emmy State H25-751

**Date:** 7/28/2018  
**Invoice #** 900328  
**API#** 05-123-46977  
**Foreman:** Corey Barras

**County:** Weld  
**State:** Colorado  
**Sec:** 8  
**Twp:** 5N  
**Range:** 62W

**Consultant:** Matt Rosales  
**Rig Name & Number:** H&P 517  
**Distance To Location:** 23  
**Units On Location:** 4027/3103-4039/3214-4030/3215  
**Time Requested:** 2200  
**Time Arrived On Location:** 2130  
**Time Left Location:**

## WELL DATA

Casing Size (in) : 9.625  
Casing Weight (lb) : 36  
Casing Depth (ft.) : 1,927  
Total Depth (ft) : 1937  
Open Hole Diameter (in) : 13.50  
Conductor Length (ft) : 80  
Conductor ID : 15.15  
Shoe Joint Length (ft) : 44  
Landing Joint (ft) : 5

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

One or the other, cannot have quantity in both

**Max Rate:** 8  
**Max Pressure:** 2500

## Cement Data

### Lead

Cement Name: BFN III  
Cement Density (lb/gal) : 13.5  
Cement Yield (cuft) : 1.68  
Gallons Per Sack 8.90  
% Excess 15%

### Tail Type III

Cement Name:  
Cement Density (lb/gal) : 15.2  
Cement Yield (cuft) : 1.27  
Gallons Per Sack: 5.80  
% Excess: 0%

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

### Spacer Ahead Makeup

30 BBL ahead with Die in 2nd 10

|   |             |   |                |
|---|-------------|---|----------------|
| Casing ID   | 8.921       | Casing Grade  | J-55 only used |
| <b>Lead Calculated Results</b>  |             | <b>Tail Calculated Results</b>  |                |
| HOC of Lead   | 1621.22 ft  | Tail Cement Volume In Ann   | 127.00 cuft    |
| Casing Depth - HOC Tail   |             | (HOC Tail) X (OH Ann)   |                |
| Volume of Lead Cement   | 792.34 cuft | Total Volume of Tail Cement   | 107.90 Cuft    |
| HOC of Lead X Open Hole Ann   |             | (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)                                |                |
| Volume of Conductor   | 59.72 cuft  | bbls of Tail Cement   | 22.62 bbls     |
| (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   | 852.06 cuft | HOC Tail  | 220.78 ft      |
| (cuft of Lead Cement) + (Cuft of Conductor)   |             | (Tail Cement Volume) ÷ (OH Ann)   |                |
| bbls of Lead Cement   | 174.52 bbls | Sacks of Tail Cement  | 100.00 sk      |
| (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)                              |             | (Total Volume of Tail Cement) ÷ (Cement Yield)                                      |                |
| Sacks of Lead Cement  | 583.26 sk   | bbls of Tail Mix Water  | 13.81 bbls     |
| (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)                            |             | (Sacks of Tail Cement X Gallons Per Sack) ÷ 42                                      |                |
| bbls of Lead Mix Water  | 123.59 bbls | Pressure of cement in annulus   |                |
| (Sacks Needed) X (Gallons Per Sack) ÷ 42  |             | Hydrostatic Pressure  | 585.23 PSI     |
| Displacement  | 145.94 bbls |   |                |
| (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)   |             | Collapse PSI:   | 2020.00 psi    |
| Total Water Needed:   | 333.35 bbls | Burst PSI:  | 3520.00 psi    |

X

Authorization To Proceed



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

Customer  
Well Name

Noble Energy Inc.  
Emmy State H25-751

Date  
INVOICE #  
LOCATION  
FOREMAN

7/28/2018  
900328  
Weld  
Corey Barras

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| Amount Pumped           |        | Time     | Event              | Description                            | Rate | BBLs | Pressure |
|-------------------------|--------|----------|--------------------|--|------|------|----------|
| Lead mixed bbls         | 123.59 | 2130     | ARRIVE ON LOCATION | ASSESS LOCATION                        |      |      |          |
| Lead % Excess           | 15%    | 2300     | JSA                | Bison/SPOT EQUIPMENT IN                |      |      |          |
| Lead Sacks              | 583    | 1205 235 | JSA                | Bison and Rig Crew                     |      |      |          |
|                         |        | 1207 237 | PRESSURE TEST      | PRESSURE TEST TO 1500 PSI              |      |      | 1500     |
|                         |        | 1210 240 | SPACER AHEAD       | WATER 5.                               | 6    | 30   | 180      |
| Tail mixed bbls         | 13.81  | 1216 245 | LEAD CEMENT        | CEMENT MIXED AT 13.5 PPC PG. See Notes | 6    | 174  | 190      |
| Tail % Excess           | 0%     | 320      | TAIL CEMENT        | CEMENT MIXED AT 15.2 PPC PG.           | 6    | 22.6 | 210      |
| Tail Sacks              | 100    | 326      | SHUT DOWN          |  |      |      |          |
|                         |        | 328      | DROP PLUG          | PLUG PRELOADED                         |      |      |          |
| Total Sacks             | 683    | 330      | DISPLACEMENT       | RIG DISPLACE                           | 7    | 145  | 540      |
| Water Temp              | 58     | 352      | Bump Plug          |  |      |      | 1065     |
| bbl Returns             | 44     | 353      | Casing TEST        | Held for 15 Min.                       |      |      |          |
|                         |        | 408      | Check Floats       | FLOATS I held 2.5 BBL Back             |      |      |          |
| Notes:                  |        | 445      | RIG DOWN           |  |      |      |          |
| Montered well for       |        | 515      | Leave Location     |  |      |      |          |
| 20 Min. No top out      |        |          |                    |  |      |      |          |
| Needed                  |        |          |                    |  |      |      |          |
|                         |        |          |                    |  |      |      |          |
| Pump Truck went         |        |          |                    |  |      |      |          |
| Down Called for Another |        |          |                    |  |      |      |          |
| After 35 BBL of Cement  |        |          |                    |  |      |      |          |
| Pumped /Rig Rolled Hole |        |          |                    |  |      |      |          |
| and Bison Started       |        |          |                    |  |      |      |          |
| Cement Job over         |        |          |                    |  |      |      |          |
|                         |        |          |                    |  |      |      |          |
|                         |        |          |                    |  |      |      |          |
|                         |        |          |                    |  |      |      |          |
|                         |        |          |                    |  |      |      |          |

X  
Work Preformed

X  
Title

X  
Date



# Bison Oil Well Cementing Tail & Lead

## Cementing Customer Satisfaction Survey

|              |                    |
|--------------|--------------------|
| Service Date | 7/28/2018          |
| Well Name    | Emmy State H25-751 |
| County       | Weld               |
| State        | Colorado           |
| SEC          | 8                  |
| TWP          | 5N                 |
| RNG          | 62W                |

|                |                   |
|----------------|-------------------|
| Invoice Number | 900328            |
| API #          | 05-123-46977      |
| Job Type       | Two Cement        |
| Company Name   | Noble Energy Inc. |

Customer Representative

Supervisor Name J Corey Barras

| Employee Name (Including Supervisor) |  |
|--------------------------------------|--|
| Corey B                              |  |
| Monte B.                             |  |
| Chris W.                             |  |
| Terry R.                             |  |
| Kirk / Dave S.                       |  |

| Exposure Hours (Per Employee) |  |
|-------------------------------|--|
| 8                             |  |
| 8                             |  |
| 8                             |  |
| 8                             |  |
| 8                             |  |
| 40                            |  |

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               |
|----------------------|------------------------|
| <input type="text"/> | Personnel -            |
| <input type="text"/> | Equipment -            |
| <input type="text"/> | Job Design -           |
| <input type="text"/> | Product/Material -     |
| <input type="text"/> | Health & Safety -      |
| <input type="text"/> | Environmental -        |
| <input type="text"/> | Timeliness -           |
| <input type="text"/> | Condition/Appearance - |
| <input type="text"/> | 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:

THE INFORMATION HEREIN IS CORRECT -

X

Customer Representative's Signature

DATE: \_\_\_\_\_

Any additional Customer Comments or HSE concerns should be described on the back of this form

## Emmy State H25-751

