



# BISON

Bison Oil Well Cementing Inc.  
1547 Gaylord Street  
Denver, CO 80206  
303-296-3010

## Invoice

| Date       | Invoice # |
|------------|-----------|
| 12/30/2013 | 12545     |

| Bill To   |
|---|
| Noble Energy Inc.<br>Attn: Accounting<br>1625 Broadway Ste 2000<br>Denver, CO 80202 |

| Location             | Well Name & No.          | Terms  | Job Type     |      |        |
|----------------------|--------------------------|--------|--------------|------|--------|
| Weld CO              | Castor Federal LD15-74HN | Net 30 | Surface Pipe |      |        |
| Item                 | Description              | Qty    | U/M          | Rate | Amount |
| Pump surface         | PUMP Charge-surface pipe | 1      |              |      |        |
| Discount 15%         | Discount 15%             |        |              |      |        |
| MILEAGE              | Mileage charge           | 480    |              |      |        |
| Discount 15%         | Discount 15%             |        |              |      |        |
| Data Acquisition ... | Data Acquisition Charge  | 1      |              |      |        |
| Discount 15%         | Discount 15%             |        |              |      |        |
| HOURS                | Wait Time                | 5      |              |      |        |
|                      | Subtotal of Services     |        |              |      |        |
| BFN III Winter ...   | BFN III Blend            | 529    | Sack         |      |        |
| Discount 15%         | Discount 15%             |        |              |      |        |
| KCL Mud Flush        | (BHS 117)                | 5      | qt           |      |        |
| Discount 15%         | Discount 15%             |        |              |      |        |
| Dye - 4880           | Dye (Hot Pink 4880)      | 16     | oz           |      |        |
| Discount 15%         | Discount 15%             |        |              |      |        |
|                      | Subtotal of Materials    |        |              |      |        |

Please Remit Payment To:

Bison Oil Well Cementing, Inc.  
P.O. Box 29671  
Thornton, CO 80229

|                  |  |
|------------------|--|
| Subtotal         |  |
| Sales Tax (2.9%) |  |
| Total            |  |
| Balance Due      |  |



# Bison Oil Well Cementing Tail & Lead

Customer: noble  
Well Name: castorfederal15-74hn

Date: 12/30/2013  
Invoice #: 12545  
API#: 445564  
Foreman: monte

County: Weld  
State: Colorado  
Sec: 15  
Twp: 9n  
Range: 58w

Consultant: john  
Rig Name & Number: h & p 326  
Distance To Location: 80.3  
Units On Location: 3  
Time Requested: 3:30am  
Time Arrived On Location: 3:00am  
Time Left Location: 11:45 am

## WELL DATA

Casing Size (in) 9.625  
Casing Weight (lb) 36  
Casing Depth (ft) 1,227  
Total Depth (ft) 1238  
Open Hole Diameter (in) 13.75  
Conductor Length (ft) 130  
Conductor ID 15.5  
Shoe Joint Length (ft) 44  
Landing Joint (ft) 30

Sacks of Tail Requested 100  
HOC Tail (ft) 0

One or the other, cannot have quantity in both

Max Rate:  
Max Pressure:

## Cement Data

### Lead

Cement Name:  
Cement Density (lb/gal) 13.1  
Cement Yield (cuft) 1.69  
Gallons Per Sack 8.64  
% Excess 30%

### 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

40 fresh 10 dye

Casing ID

8.931

Casing Grade

J-55 only used

## Lead Calculated Results

HOC of Lead 862.16 ft  
Casing Depth - HOC Tail  
Volume of Lead Cement 453.40 cuft  
HOC of Lead X Open Hole Ann  
Volume of Conductor 104.66 cuft  
(Conductor ID Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)  
Total Volume of Lead Cement 558.05 cuft  
(cuft of Lead Cement) + (Cuft of Conductor)  
bbls of Lead Cement 129.21 bbls  
(Total cuft of Lead Cement) X (.1781) X (1+Lead Excess)  
Sacks of Lead Cement 429.27 sk  
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)  
bbls of Lead Mix Water 88.31 bbls  
(Sacks Needed) X (Gallons Per Sack) ÷ 42  
Displacement 93.73 bbls  
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)  
Total Water Needed: 138.31 bbls

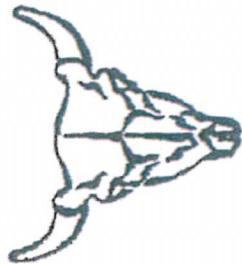
## Tail Calculated Results

Tail Cement Volume in Ann 127.00 cuft  
(HOC Tail) X (OH Ann)  
Total Volume of Tail Cement 107.72 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 204.84 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 834.97 PSI  
Collapse PSI: 2020.00 psi  
Burst PSI: 3520.00 psi

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

Date 12/39/2013

INVOICE # 12545

LOCATION Weld

FOREMAN monte

Customer noble

Well Name castorfederal15-74hn

Treatment Report Page 2

## DESCRIPTION OF JOB EVENTS

|                 | Displace 1 |       |     | Displace 2 |      |     | Displace 3 |      |     | Displace 4 |      |     | Displace 5 |      |     |
|-----------------|------------|-------|-----|------------|------|-----|------------|------|-----|------------|------|-----|------------|------|-----|
|                 | BBLs       | Time  | PSI | BBLs       | Time | PSI | BBLs       | Time | PSI | BBLs       | Time | PSI | BBLs       | Time | PSI |
| Safety Meeting  | 0          | 10:25 | 40  | 0          |      |     | 0          |      |     | 0          |      |     | 0          |      |     |
| MIRU            | 10         | 10:27 | 130 | 10         |      |     | 10         |      |     | 10         |      |     | 10         |      |     |
| CIRCULATE       | 20         | 10:29 | 120 | 20         |      |     | 20         |      |     | 20         |      |     | 20         |      |     |
| Drop Plug       | 30         | 10:31 | 150 | 30         |      |     | 30         |      |     | 30         |      |     | 30         |      |     |
|                 | 40         | 10:33 | 200 | 40         |      |     | 40         |      |     | 40         |      |     | 40         |      |     |
|                 | 50         | 10:35 | 260 | 50         |      |     | 50         |      |     | 50         |      |     | 50         |      |     |
| M & P           | 60         | 10:37 | 300 | 60         |      |     | 60         |      |     | 60         |      |     | 60         |      |     |
| Time            | 70         | 10:39 | 350 | 70         |      |     | 70         |      |     | 70         |      |     | 70         |      |     |
| 1000-10:25      | 80         | 10:41 | 350 | 80         |      |     | 80         |      |     | 80         |      |     | 80         |      |     |
|                 | 90         | 10:44 | 320 | 90         |      |     | 90         |      |     | 90         |      |     | 90         |      |     |
|                 | 100        | 10:45 | 610 | 100        |      |     | 100        |      |     | 100        |      |     | 100        |      |     |
|                 | 110        |       |     | 110        |      |     | 110        |      |     | 110        |      |     | 110        |      |     |
|                 | 120        |       |     | 120        |      |     | 120        |      |     | 120        |      |     | 120        |      |     |
|                 | 130        |       |     | 130        |      |     | 130        |      |     | 130        |      |     | 130        |      |     |
|                 | 140        |       |     | 140        |      |     | 140        |      |     | 140        |      |     | 140        |      |     |
|                 | 150        |       |     | 150        |      |     | 150        |      |     | 150        |      |     | 150        |      |     |
| Lead mixed bbls | 88.3       |       |     |            |      |     |            |      |     |            |      |     |            |      |     |
| Lead % Excess   | 30%        |       |     |            |      |     |            |      |     |            |      |     |            |      |     |
| Lead Sacks      | 429        |       |     |            |      |     |            |      |     |            |      |     |            |      |     |

### Notes:

circulate 50 bbls ahead with dye in last 10 mix and pump 429 sks lead cement, 13.1, 1.69 yield, 8.64 h2o  
mix and pump 100 sks tail cement at 15.2, 1.27 yield, 5.89 h2o  
displace 91.7 bbls h2o, bump plug 10:43am at 610 psi, hold 5 min, release pressure wash up rig down  
31 bbls back to pit  
#VALUE!

|                 |       |
|-----------------|-------|
| Tail mixed bbls | 14.02 |
| Tail % Excess   | 0%    |
| Tail Sacks      | 100   |
| Total Sacks     | 529   |
| bbl Returns     | 31    |

X

X Co-Man

X 12/30/13

Work Performed

Title

Date