



Bison Oil Well Cementing  
Tail & Lead

Customer: Noble Energy  
Well Name: ATWATER STATE LD 01-76-1AHN

Date: 10/31/2014  
Invoice #: 16023  
API#: 05-123-39761  
Foreman: Lee Sharp

County: Weld  
State: Colorado  
Sec: 1  
Twp: 9N  
Range: 58W

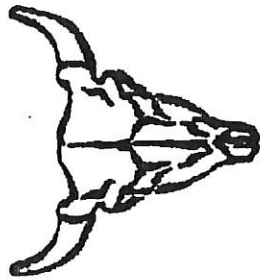
Consultant: Justin  
Rig Name & Number: H&P 273  
Distance To Location: 81  
Units On Location:  
Time Requested: 3:00  
Time Arrived On Location: 2:15  
Time Left Location:

| WELL DATA                                      | Cement Data                        |
|--|------------------------------------|
| Total Depth (ft): 1235                         | Lead                               |
| Open Hole Diameter (in): 15.75                 | Cement Name: BENTON                |
|  | Cement Density (lb/gal): 14.5      |
|  | Cement Yield (cuft): 1.04          |
|  | Gallons Per Sack: 2.34             |
|  | % Excess: 25%                      |
|  | Tail                               |
|  | Cement Name: BENTON                |
|  | Cement Density (lb/gal): 14.5      |
|  | Cement Yield (cuft): 1.04          |
|  | Gallons Per Sack: 2.34             |
|  | % Excess: 25%                      |
| Sacks of Tail Requested: 100                   | Fluid Ahead (bbls)                 |
| HOC Tail (ft):                                 | H2O Wash Up (bbls): 20.0           |
| One or the other, cannot have quantity in both |                                    |
| Max Rate:                                      | Spacer Ahead Makeup                |
| Max Pressure:                                  | 400psi = 100' + 100' + 100' + 100' |

| Lead Calculated Results   | Tail Calculated Results   |
|---|---|
| Casing ID: 8.921  | Casing Grade: J-55 only used  |
| Lead Depth - HOC Tail   | (HOC Tail) X (OH Ann)   |
| HOC of Lead X Open Hole Ann   | (HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)                                |
| (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) |
| (cuft of Lead Cement) ÷ (cuft of Conductor)   | (Tail Cement Volume) ÷ (OH Ann)   |
| (Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)                              | (Total Volume of Tail Cement) ÷ (Cement Yield)                                      |
| (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)                            | (Sacks of Tail Cement X Gallons Per Sack) ÷ 42                                      |
| (Sacks Needed) X (Gallons Per Sack) ÷ 42  | Pressure of cement in annulus   |
| (Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)   |   |

X   
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  
ATWATER STATE LD 01-76-1AHN

Date  
10/31/2014  
INVOICE #  
16023  
LOCATION  
Weld  
FOREMAN  
Lee Sharp

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## DESCRIPTION OF JOB EVENTS

|                 | 12:33 AM<br>12:00<br>1:47 | Displace 1 |      | Displace 2 |      | Displace 3 |     | Displace 4 |      | Displace 5 |      |
|-----------------|---------------------------|------------|------|------------|------|------------|-----|------------|------|------------|------|
|                 |                           | BBLs       | Time | PSI        | BBLs | Time       | PSI | BBLs       | Time | BBLs       | Time |
| Safety Meeting  |                           | 0          | 2:37 |            | 0    |            |     | 0          |      | 0          |      |
| MIRU            |                           | 10         | 2:42 | 60         | 10   |            |     | 10         |      | 10         |      |
| CIRCULATE       |                           | 20         | 2:44 | 180        | 20   |            |     | 20         |      | 20         |      |
| Drop Plug       |                           | 30         | 2:48 | 160        | 30   |            |     | 30         |      | 30         |      |
|                 |                           | 40         | 2:51 | 240        | 40   |            |     | 40         |      | 40         |      |
|                 |                           | 50         | 2:53 | 290        | 50   |            |     | 50         |      | 50         |      |
| M & P           |                           | 60         | 2:55 | 350        | 60   |            |     | 60         |      | 60         |      |
| Time            |                           | 70         | 2:57 | 420        | 70   |            |     | 70         |      | 70         |      |
| 1:57-2:35       | 490                       | 80         | 2:59 | 460        | 80   |            |     | 80         |      | 80         |      |
|                 |                           | 90         | 3:02 | 400        | 90   |            |     | 90         |      | 90         |      |
|                 |                           | 100        | Land | 1030       | 100  |            |     | 100        |      | 100        |      |
|                 |                           | 110        |      |            | 110  |            |     | 110        |      | 110        |      |
|                 |                           | 120        |      |            | 120  |            |     | 120        |      | 120        |      |
|                 |                           | 130        |      |            | 130  |            |     | 130        |      | 130        |      |
|                 |                           | 140        |      |            | 140  |            |     | 140        |      | 140        |      |
|                 |                           | 150        |      |            | 150  |            |     | 150        |      | 150        |      |
| Lead mixed bbls | 80                        |            |      |            |      |            |     |            |      |            |      |
| Lead % Excess   |                           |            |      |            |      |            |     |            |      |            |      |
| Lead Sacks      |                           |            |      |            |      |            |     |            |      |            |      |

### Notes:

arrived at 2:30, rig having issues MIRU @ 12 am completed JSA began to prime lines rig noticed a leak at hose thread half union. Call a shutdown when I stroke the wing half of connection the nipple in thread half broke. Rig wrote up as a near miss and we swapped the entire hose. Both I and Company Man reported all activity to supper and choices made there after. Following hose swap job went as planned. 40 bbl head, 117 bbl lead slurry 22 bbl tail slurry. All mixed with tpey III cement. Plug landed on calculated at 1030 PSI, floats held. Rig down and cleaned up.

Tail mixed bbls 14

Tail % Excess

Tail Sacks

Total Sacks

Water Temp 64

bbl Returns 25

2220

X *WSS*

X *11/1/14*

Date

Title

Work Performed