



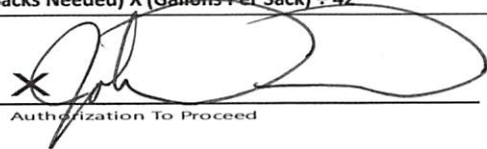
# Bison Oil Well Cementing Single Cement Surface Pipe

Date: 9/24/2016  
Invoice #: 666009  
API#: 05-123-43322  
Supervisor: Nick

Customer: Noble Energy Inc.  
Well Name: Ellie LD26-625

County: Weld  
State: Colorado  
Sec: 28  
Twp: 9N  
Range: 58W  
Consultant: John  
Rig Name & Number: 517  
Distance To Location: 64  
Units On Location: 3106/4028/4034/3202  
Time Requested: 8:00  
Time Arrived On Location: 7:30  
Time Left Location: 14:00

| WELL DATA                        | Cement Data                    |
|----------------------------------|--------------------------------|
| Casing Size OD (in) : 9.625      | Cement Name: BFN III           |
| Casing Weight (lb) : 36.00       | Cement Density (lb/gal) : 14.2 |
| Casing Depth (ft) : 1,931        | Cement Yield (cuft) : 1.49     |
| Total Depth (ft) : 1941          | Gallons Per Sack: 7.48         |
| Open Hole Diameter (in.) : 13.50 | % Excess: 15%                  |
| Conductor Length (ft) : 80       | Displacement Fluid lb/gal: 8.3 |
| Conductor ID : 15.5              | BBL to Pit: 23.0               |
| Shoe Joint Length (ft) : 43      | Fluid Ahead (bbls): 50.0       |
| Landing Joint (ft) : 5           | H2O Wash Up (bbls): 20.0       |
| Max Rate: 8                      | Spacer Ahead Makeup            |
| Max Pressure: 1500               | DYE IN secondT 10 BBL          |

|  |   |              |                |
|--|---|--------------|----------------|
| Casing ID  | 8.921   | Casing Grade | J-55 only used |
| Calculated Results   | Displacement: 145.50 bbls<br>(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint) |              |                |
| cuft of Shoe 18.66 cuft<br>(Casing ID Squared) X (.005454) X (Shoe Joint ft)   | Pressure of cement in annulus   |              |                |
| cuft of Conductor 64.40 cuft<br>(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)  | Hydrostatic Pressure: 1424.50 PSI   |              |                |
| cuft of Casing 1035.93 cuft<br>(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length )  | Pressure of the fluids inside casing  |              |                |
| Total Slurry Volume 1118.99 cuft<br>(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)  | Displacement: 814.07 psi  |              |                |
| bbls of Slurry 199.20 bbls<br>(Total Slurry Volume) X (.1781)  | Shoe Joint: 31.72 psi   |              |                |
| Sacks Needed 751 sk  | Total 845.79 psi  |              |                |
| Mix Water 133.75 bbls<br>(Sacks Needed) X (Gallons-Per Sack) ÷ 42  | Differential Pressure: 578.71 psi   |              |                |
|  | Collapse PSI: 2020.00 psi   |              |                |
|  | Burst PSI: 3520.00 psi  |              |                |
|  | Total Water Needed: 349.25 bbls   |              |                |
| <br>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. |   |              |                |

