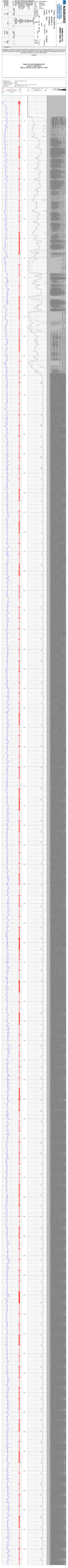

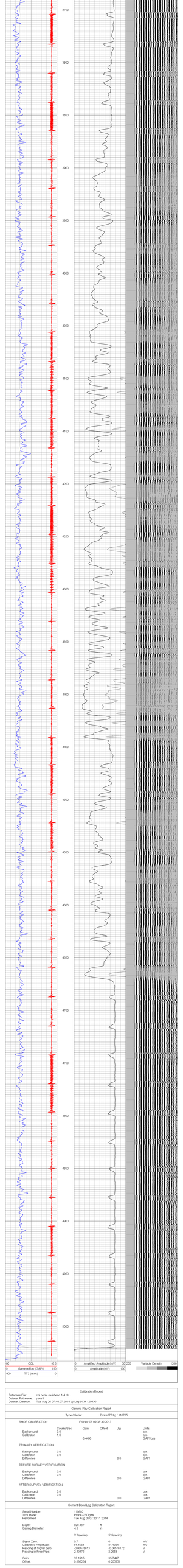

**NABORS**
**COMPLETION & PRODUCTION SERVICES CO.**

# GAMMA RAY CCL CEMENT BOND VDL

| | |
|---|---|
| Company | NOBLE ENERGY INC. |
| Well | MUIRHEAD 1-4 |
| Field | WATTENBERG |
| County | WELD |
| State | COLORADO |

Company NOBLE ENERGY INC.
Well MUIRHEAD 1-4
Field WATTENBERG
County WELD State COLORADO
Location: API #: 0512313129
SE/NW
SEC 1 TWP 4N RGE 65W
Other Services

| | | | | |
|---|---|---|---|---|
| Permanent Datum | GL | Elevation | 4772 | Elevation<br>K.B. 4772<br>D.F. 4771<br>G.L. 4761 |
| Log Measured From | KB | | | |
| Drilling Measured From | KB | | | |

| | |
|---|---|
| Date | AUGUST 26, 2014 |
| Run Number | ONE |
| Depth Driller | 7195 |
| Depth Logger | 5000 |
| Bottom Logged Interval | 5000 |
| Top Log Interval | SURFACE |
| Open Hole Size | 7-7/8 |
| Type Fluid | WATER |
| Density / Viscosity | N/A |
| Max. Recorded Temp. | N/A |
| Estimated Cement Top | SURFACE |
| Time Well Ready | LEED RIG |
| Time Logger on Bottom | 2-3/4 PROBE |
| Equipment Number | 4838 |
| Location | 45 |
| Recorded By | GREG NOLAN |
| Witnessed By | ALLEN MILLER |

| Borehole Record | | | Tubing Record | | | |
|---|---|---|---|---|---|---|
| Run Number | Bit | From | To | Size | Weight | From | To |
| | | | | | | | |

| Casing Record | Size | Wgt/Ft | Top | Bottom |
|---|---|---|---|---|
| Surface String | 8-5/8 | | SURFACE | 344 |
| Prot. String | | | | |
| Production String | 4-1/2 | | SURFACE | TD |
| Liner | | | | |

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

## Comments

THANK YOU FOR CHOOSING NCPS!!!
LOG NOT CORRELATED
WCR 47 & WCR 50, E.2, SE.2, RIGHT AT Y INTO

| | |
|---|---|
| Database File: | cbl noble muirhead 1-4.db |
| Dataset Pathname: | pass3 |
| Presentation Format: | noble en |
| Dataset Creation: | Tue Aug 26 07:44:07 2014 by Log SCH 120430 |
| Charted by: | Depth in Feet scaled 1:240 |

Calibration Report

Database File: cbl noble muirhead 1-4.db
Dataset Pathname: pass3
Dataset Creation: Tue Aug 26 07:44:07 2014 by Log SCH 120430

Gamma Ray Calibration Report

Type / Serial: Probe275dig / 110785

| | Counts/Sec. | Gain | Offset | Jig | Units |
|---|---|---|---|---|---|
| SHOP CALIBRATION | Fri Nov 08 09:38:30 2013 | | | | |
| Background | 0.0 | | | | cps |
| Calibrator | 1.0 | | | | cps |
| | | 0.4400 | | | GAPI/cps |
| PRIMARY VERIFICATION | | | | | |
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |
| BEFORE SURVEY VERIFICATION | | | | | |
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |
| AFTER SURVEY VERIFICATION | | | | | |
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

Cement Bond Log Calibration Report

Serial Number: 110802
Tool Model: Probe275Digital
Performed: Tue Aug 26 07:33:11 2014

Depth: 929.467 ft
Casing Diameter: 4.5 in

| | 3' Spacing | 5' Spacing | |
|---|---|---|---|
| Signal Zero: | 0.7 | 0 | mV |
| Calibrated Amplitude: | 81.1961 | 81.1961 | mV |
| Reading at Signal Zero: | -0.00578613 | -0.00576172 | V |
| Reading in Free Pipe: | 2.49475 | 2.2658 | V |
| Gain: | 32.1915 | 35.7447 | |
| Offset: | 0.886264 | 0.205951 | |