SUPERIOR WELL SERVICES

# CEMENT BOND LOG
# GAMMA RAY C C L
# V D L

Company Noble Energy INC.
Well PURCELL PC GK11-10
Field Wattenberg / Grover
County Weld
State Colorado

| | |
|---|---|
| Company | Noble Energy INC. |
| Well | PURCELL PC GK11-10 |
| Field | Wattenberg / Grover |
| County | Weld |
| State | Colorado |

Location: API #: 05123323740000
1980' FSL & 1980' FEL NW SE
LAT: 40.93432 DEG
LONG: -104.17001 DEG
SEC 11 TWP 11N RGE 61W

Other Services

| | | | |
|---|---|---|---|
| Permanent Datum | GL | Elevation 5286 | Elevation<br>K.B. 5299<br>D.F. 5298<br>G.L. 5286 |
| Log Measured From | KB 13' | | |
| Drilling Measured From | KB | | |

| | |
|---|---|
| Date | January 24th, 2011 |
| Run Number | ONE |
| Depth Driller | 7851 |
| Depth Logger | 7753 |
| Bottom Logged Interval | 7752 |
| Top Log Interval | 1100 |
| Casing Size | 5 1/2" |
| Type Fluid | Water |
| Max. Recorded Temp. | 242 deg F |
| Estimated Cement Top | 1370 |
| Time Well Ready | Mast Truck |
| Time Logger On Bottom | AM |
| Unit Number | 3344 |
| Tool Size / ID Number | 2.75 Tool 2 GRN |
| Location | Platteville, CO |
| Recorded By | K. Monaghan |
| Witnessed By | S. Amrstrong |

| 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" | 24 lb/ft J-55 | Surface | 1257 |
| Prot. String | | | | |
| Production String | 5 1/2' | 17 lb/ft N-80 | Surface | 7844.5 |
| Liner | | | | |

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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 Superior Well Services!!!
API# 05-123-323740000
Correlated to H.E.S's
Spectral Density / Dual Spaced Neutron / Array Compensated / True Resistivity / Gamma Ray
Dated: January 12th, 2011
Directions: 136 & 95, S 2MI, W 3/10, S 7/10 INTO

| | |
|---|---|
| Database File: | cblpurcell pc gk11-10.db |
| Dataset Pathname: | pass4 |
| Presentation Format: | nuexbond |
| Dataset Creation: | Mon Jan 24 11:16:27 2011 by Log Std Casedhole 10081 |
| Charted by: | Depth in Feet scaled 1:240 |

30 Gamma Ray (GAPI) 130
30 CCL -1.5
340 TT3 (usec) 240

0 Amplified Amplitude (mV) 20
0 Amplitude (mV) 100

200 VDL 1200

30 Gamma Ray (GAPI) 130
30 CCL -1.5
340 TT3 (usec) 240

0 Amplified Amplitude (mV) 20
0 Amplitude (mV) 100

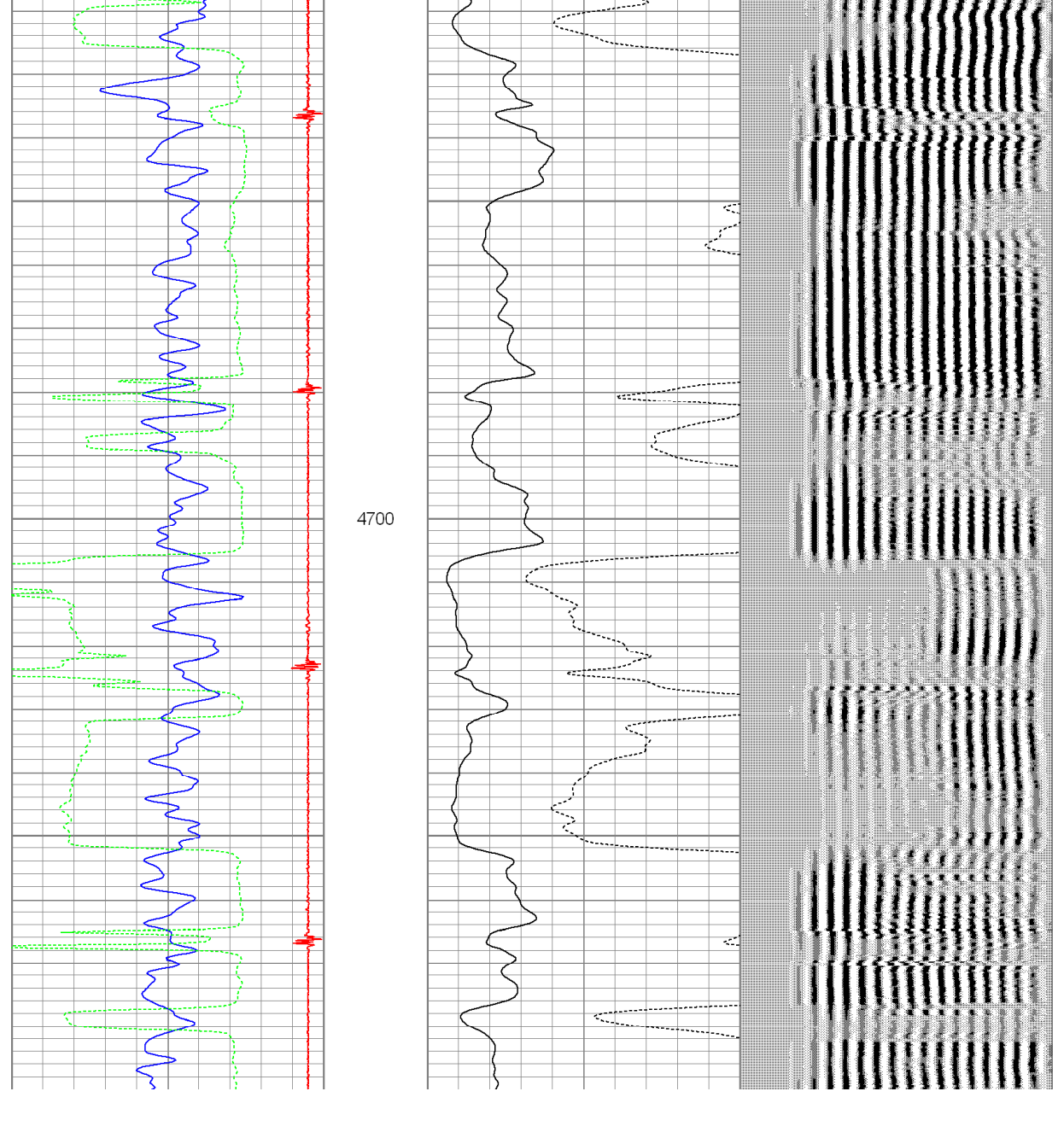
200 VDL 1200

| | |
|---|---|
| Database File: | cblpurcell pc gk11-10.db |
| Dataset Pathname: | pass3 |
| Presentation Format: | nuexbond |
| Dataset Creation: | Mon Jan 24 10:54:25 2011 by Log Std Casedhole 10081 |
| Charted by: | Depth in Feet scaled 1:240 |

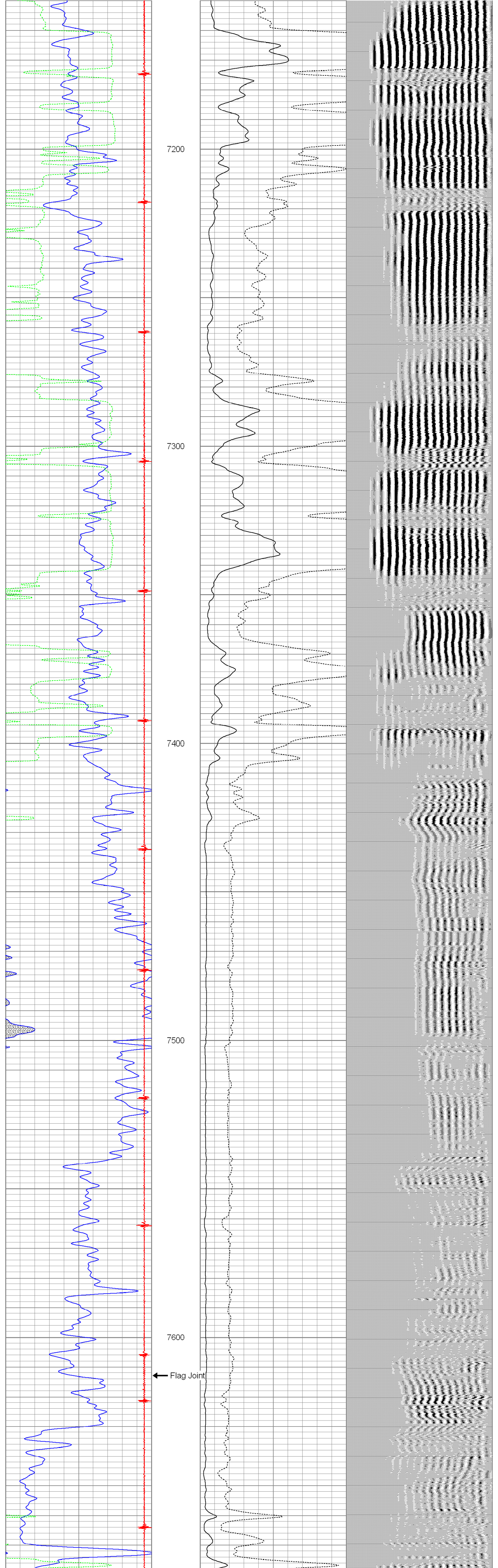
0 Gamma Ray (GAPI) 150
30 CCL -1.5
340 TT3 (usec) 240

0 Amplified Amplitude (mV) 20
0 Amplitude (mV) 100

200 VDL 1200



Database File: cblpurcell pc gk11-10.db
Dataset Pathname: pass2
Presentation Format: nuexbond
Dataset Creation: Mon Jan 24 10:47:03 2011 by Log Std Casedhole 10081
Charted by: Depth in Feet scaled 1:240



## Calibration Report

Database File: cblpurcell pc gk11-10.db
Dataset Pathname: pass4
Dataset Creation: Mon Jan 24 11:16:27 2011 by Log Std Casedhole 10081

### Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | 234GR-328 | |
| Tool Model: | TekcoGR | |
| Performed: | Thu Aug 02 12:04:45 2007 | |
| Calibrator Value: | 1.0 | GAPI |
| Background Reading: | 0.0 | cps |
| Calibrator Reading: | 1.0 | cps |
| Sensitivity: | 0.8000 | GAPI/cps |

### Segmented Cement Bond Log Calibration Report

| | | |
|---|---|---|
| Serial Number: | 234B35C-8013 | |
| Tool Model: | TEKCO | |
| Calibration Casing Diameter: | 5.500 | in |
| Calibration Depth: | 653.675 | ft |

Master Calibration, performed Mon Jan 24 08:34:26 2011:

| | Raw (v) | | Calibrated (mv) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | -0.010 | 1.478 | 0.900 | 71.921 | 47.727 | 1.360 |
| CAL | -0.012 | 0.399 | | | | |
| 5' | -0.010 | 1.418 | 0.900 | 71.921 | 49.735 | 1.374 |
| SUM | | | | | | |
| S1 | | | | | | |
| S2 | | | | | | |
| S3 | | | | | | |
| S4 | | | | | | |
| S5 | | | | | | |
| S6 | | | | | | |
| S7 | | | | | | |
| S8 | | | | | | |

Internal Reference Calibration, performed Mon Jan 24 08:35:28 2011:

| | Raw (v) | | Calibrated (v) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | -0.012 | 0.399 | -0.012 | 0.399 | 0.998 | 0.000 |

Air Zero Calibration, performed Mon Jan 24 08:28:23 2011:

| | Raw (v) | Calibrated (v) | Results |
|---|---|---|---|
| | Zero | Zero | Offset |
| 3' | 0.000 | 0.000 | 0.000 |
| 5' | 0.000 | 0.000 | 0.000 |
| SUM | | | |
| S1 | | | |
| S2 | | | |
| S3 | | | |
| S4 | | | |
| S5 | | | |
| S6 | | | |
| S7 | | | |
| S8 | | | |