



# Cement Bond Log Gamma Ray/CCL

Company EnCana Oil and Gas  
Well NELSON #1  
Field Wattenberg  
County Weld State CO

|                        |                           |   |                |   |
|------------------------|---------------------------|---|----------------|---|
| Company                | EnCana Oil and Gas        | Location:<br><br>1360 FSL 1510 FWL<br>SW NE SW<br>SEC 23 TWP 2N RGE 68W | Other Services |   |
| Well                   | NELSON #1                 |   |                |   |
| Field                  | Wattenberg                |   |                |   |
| County                 | Weld                      |   |                |   |
| State                  | CO                        |   |                |   |
| Permanent Datum        | Ground Level              | Elevation   | 4916'          | Elevation<br>K.B. 4926'<br>D.F. 4925'<br>G.L. 4916' |
| Log Measured From      | Kelly Bushing             |   |                |   |
| Drilling Measured From | 10' Above Permanent Datum |   |                |   |

Date 2-NOV-2015

|                        |                   |  |  |
|------------------------|-------------------|--|--|
| Run Number             | Six               |  |  |
| Depth Driller          | 8095'             |  |  |
| Depth Logger           | 4185'             |  |  |
| Bottom Logged Interval | 4185'             |  |  |
| Top Log Interval       | 3500'             |  |  |
| Open Hole Size         | 7 7/8"            |  |  |
| Type Fluid             | Water             |  |  |
| Density / Viscosity    | N/A               |  |  |
| Max. Recorded Temp.    | N/A               |  |  |
| Estimated Cement Top   | 3940'             |  |  |
| Time Well Ready        | Upon Arrival      |  |  |
| Time Logger on Bottom  | 7:00AM            |  |  |
| Equipment Number       | WL-61             |  |  |
| Location               | Ault, CO          |  |  |
| Recorded By            | Chris Blankenhorn |  |  |
| Witnessed By           | Carl Rayas        |  |  |

| 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#    | Surface | 425'   |
| Prot. String      |        |        |         |        |
| Production String | 4 1/2" | 11.6#  | Surface | 7910'  |
| 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 using Cutters Wireline!

Free Pipe Amplitude = 82mV

Log correlated to KB.

## Calibration Report

Database File: nelson\_1.db  
Dataset Pathname: pass76  
Dataset Creation: Mon Nov 02 08:06:47 2015 by Log Std Casedhole 09061

## SHOP CALIBRATION

Tue Oct 22 13:11:35 2013

|            | Counts/Sec. | Gain   | Offset | Jig | Units    |
|------------|-------------|--------|--------|-----|----------|
| Background | 34.8        |        |        |     | cps      |
| Calibrator | 273.0       |        |        |     | cps      |
|            |             | 0.8394 |        |     | GAPI/cps |

## PRIMARY VERIFICATION

Tue Oct 22 13:14:26 2013

|            |       |  |  |       |      |
|------------|-------|--|--|-------|------|
| Background | 29.3  |  |  |       | cps  |
| Calibrator | 226.5 |  |  |       | cps  |
| Difference |       |  |  | 197.2 | 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:          | 275                      |    |            |    |
| Tool Model:             | Probe                    |    |            |    |
| Performed:              | Mon Nov 02 07:51:41 2015 |    |            |    |
| Depth:                  | 1369.87                  | ft |            |    |
| Casing Diameter:        | 4.5                      | in |            |    |
|                         | 3' Spacing               |    | 5' Spacing |    |
| Signal Zero:            | 0.25                     |    | 0.25       | mV |
| Calibrated Amplitude:   | 81.1961                  |    | 81.1961    | mV |
| Reading at Signal Zero: | 0.0274902                |    | 0.0284912  | V  |
| Reading in Free Pipe:   | 0.961963                 |    | 0.883032   | V  |
| Gain:                   | 86.6222                  |    | 94.7247    |    |
| Offset:                 | -2.13127                 |    | -2.44882   |    |



Main Pass @ 0 PSI

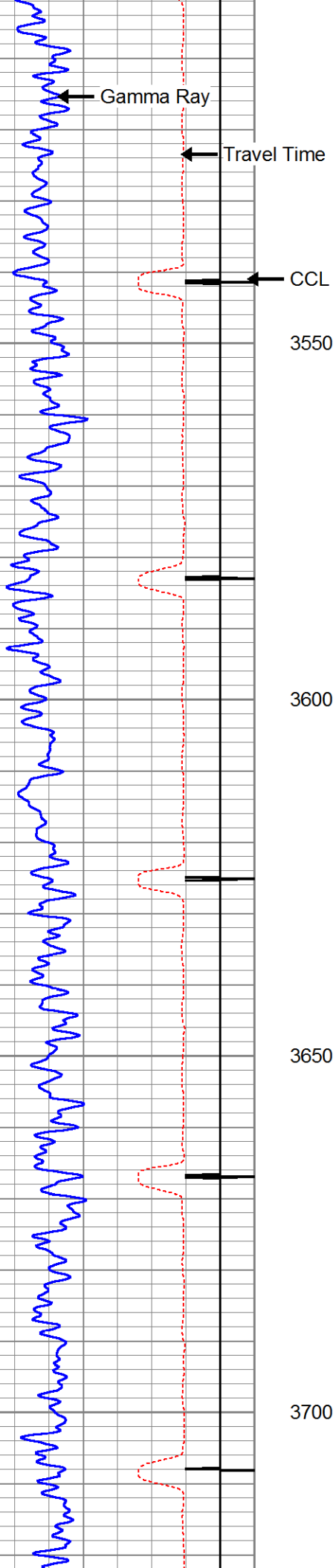
|                      |   |
|----------------------|---|
| Database File:       | nelson_1.db   |
| Dataset Pathname:    | pass76  |
| Presentation Format: | cbl_dr  |
| Dataset Creation:    | Mon Nov 02 07:06:47 2015 by Log Std Casedhole 09061 |
| Charted by:          | Depth in Feet scaled 1:240                          |

|     |                    |     |   |                          |     |     |                  |      |
|-----|--------------------|-----|---|--------------------------|-----|-----|------------------|------|
| 425 | Travel Time (usec) | 200 | 0 | Amplified Amplitude (mV) | 10  | 200 | Variable Density | 1200 |
| 9   | Collar Locator     | -1  | 0 | Amplitude (mV)           | 100 |     |                  |      |
| 0   | Gamma Ray (GAPI)   | 250 |   |                          |     |     |                  |      |

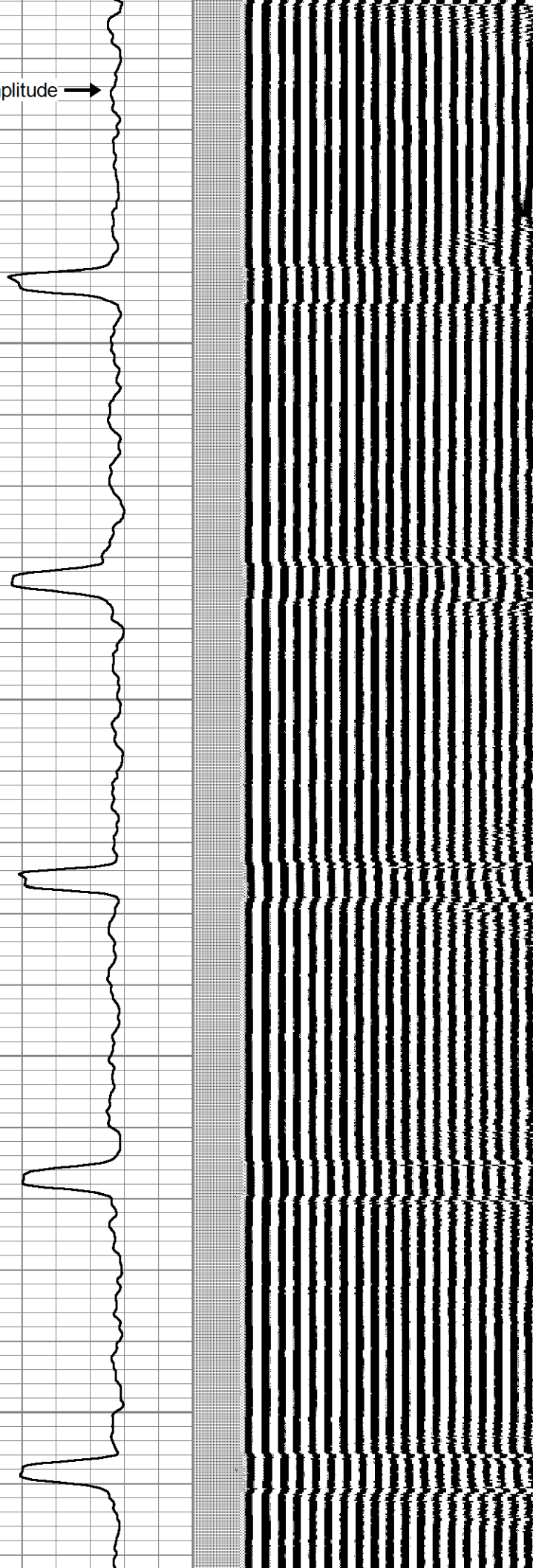


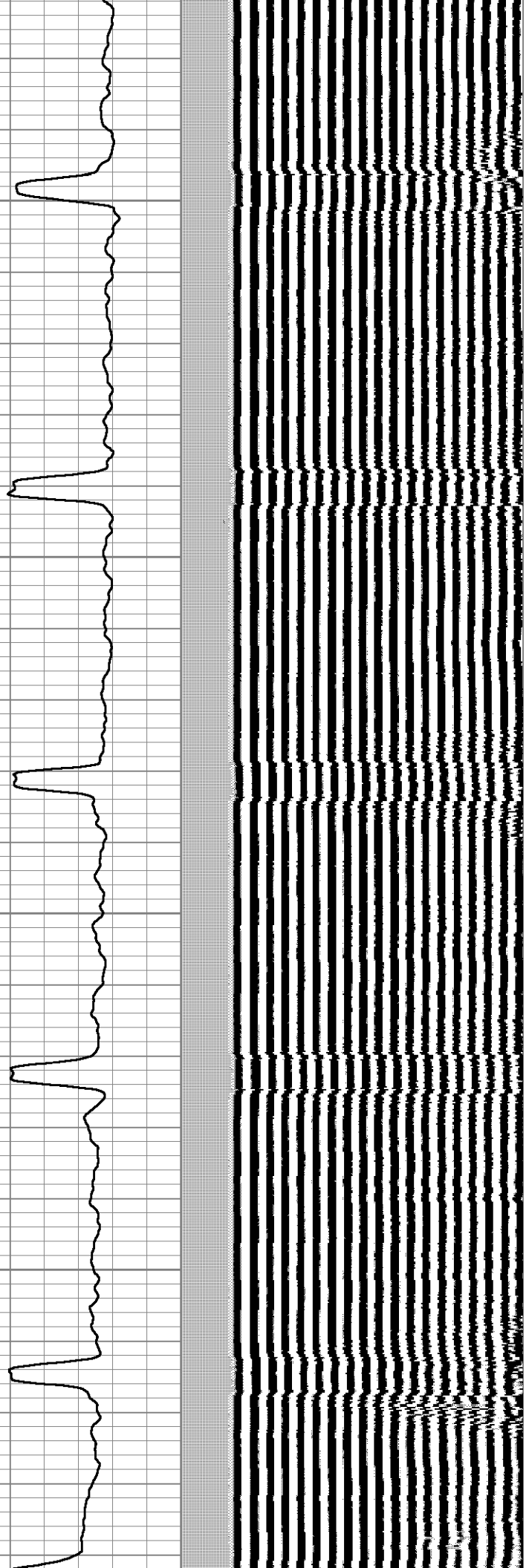
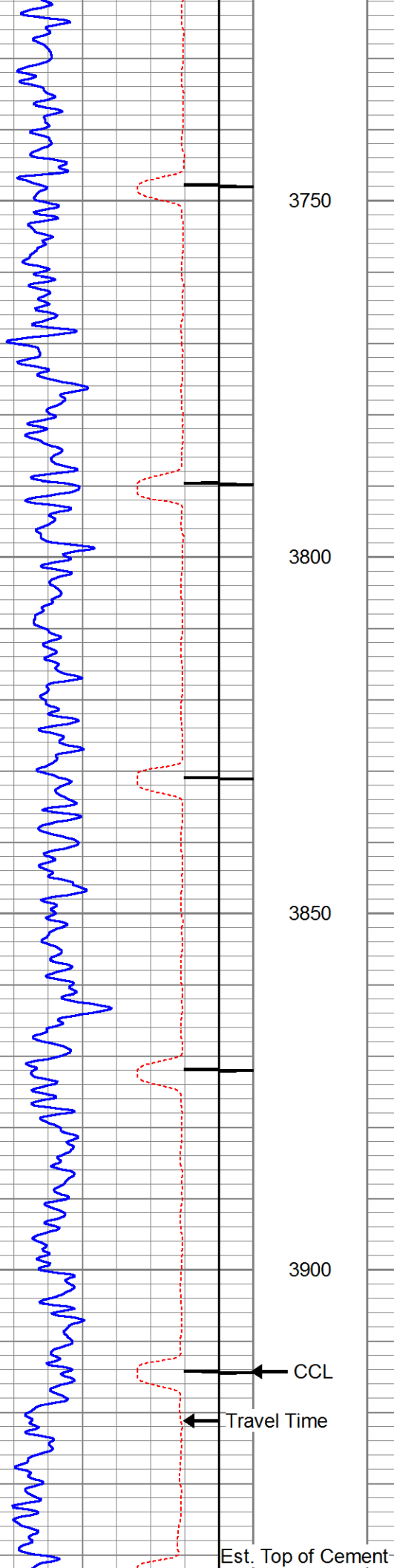
3500

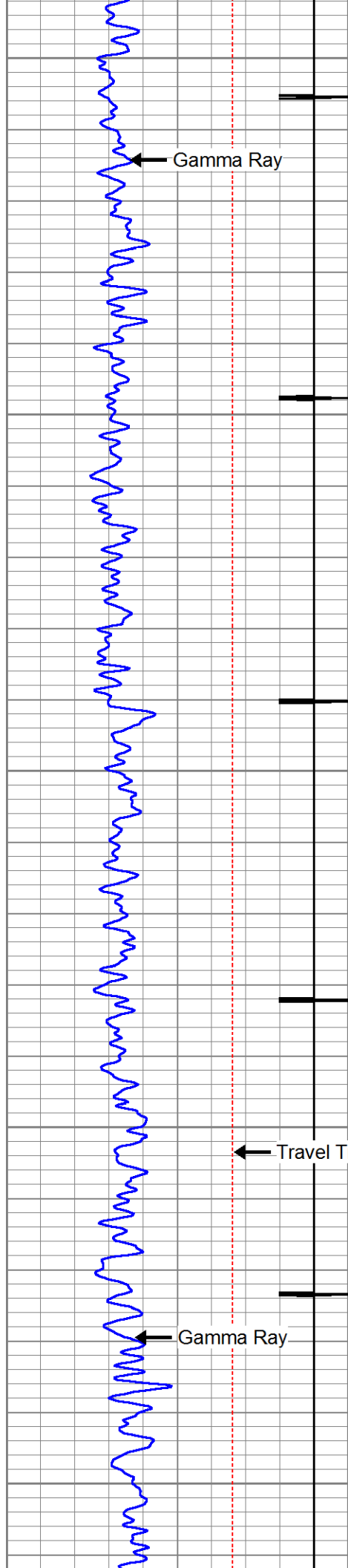




Amplitude →







3950

Gamma Ray

4000

4050

4100

Travel Time

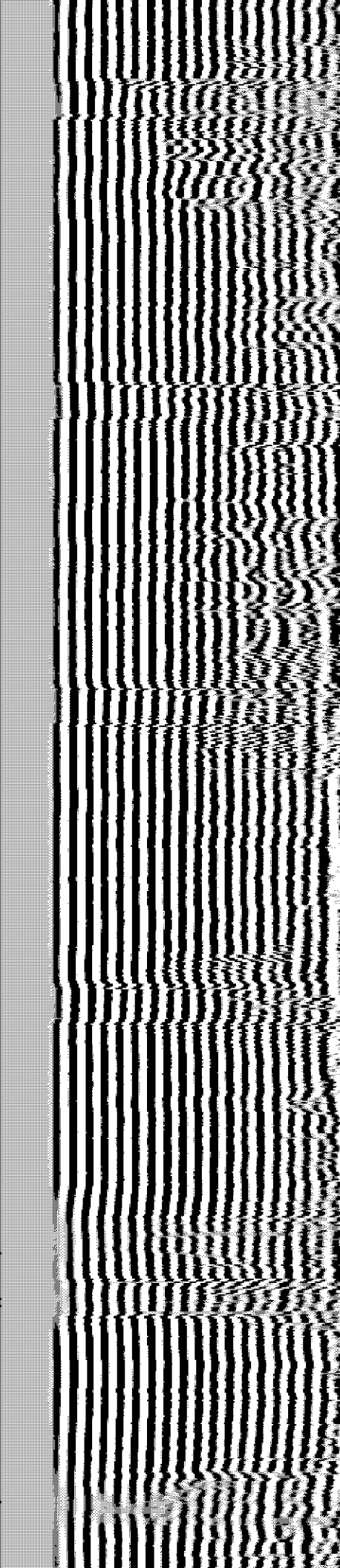
Gamma Ray

4150

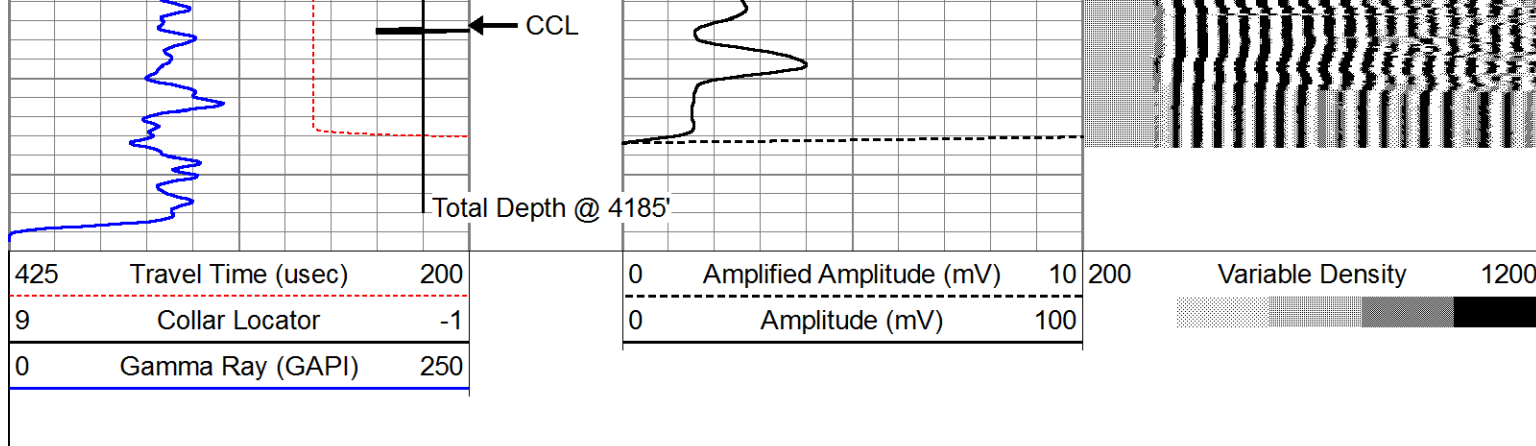
Amplitude

Amplified Amplitude

Amplitude

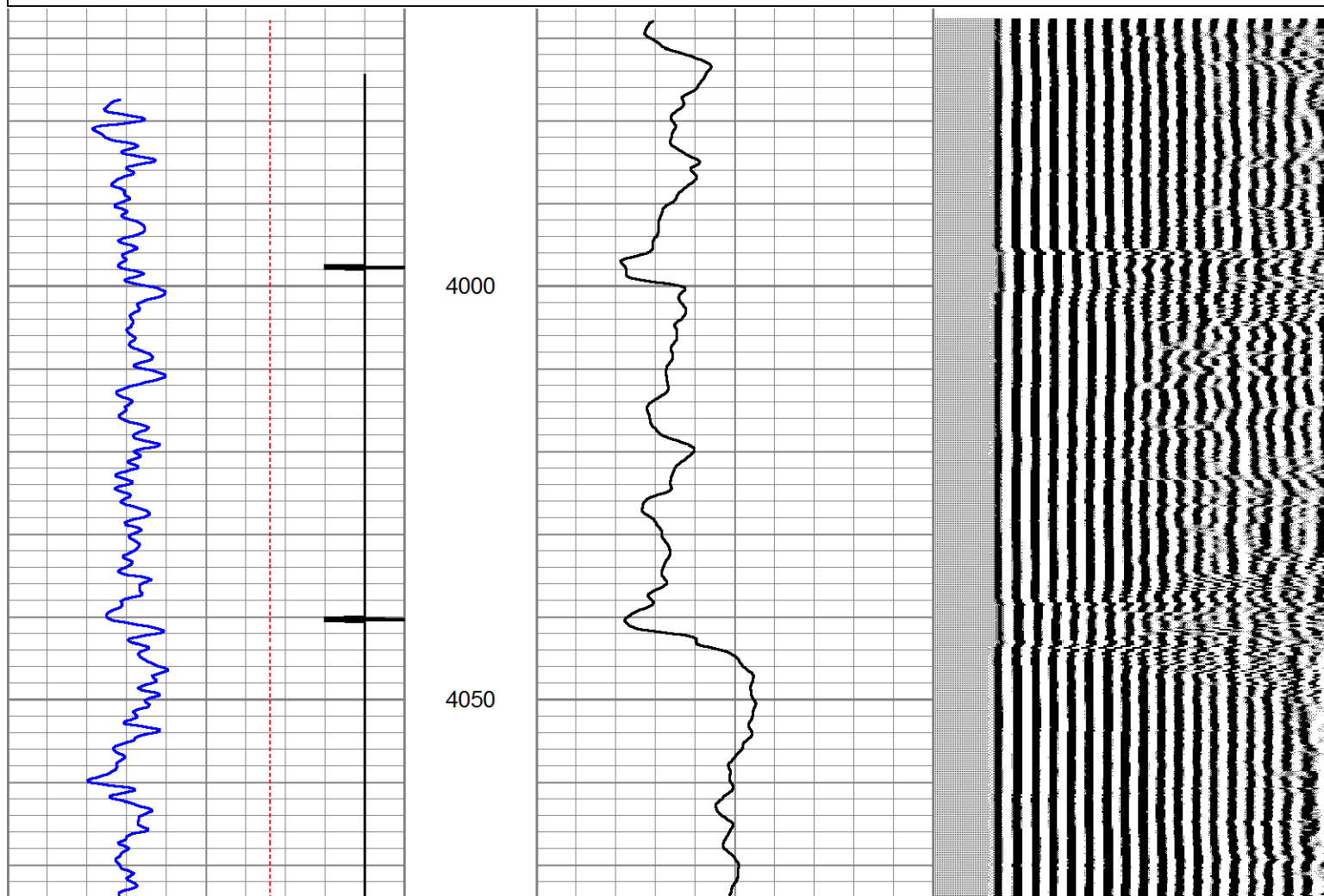
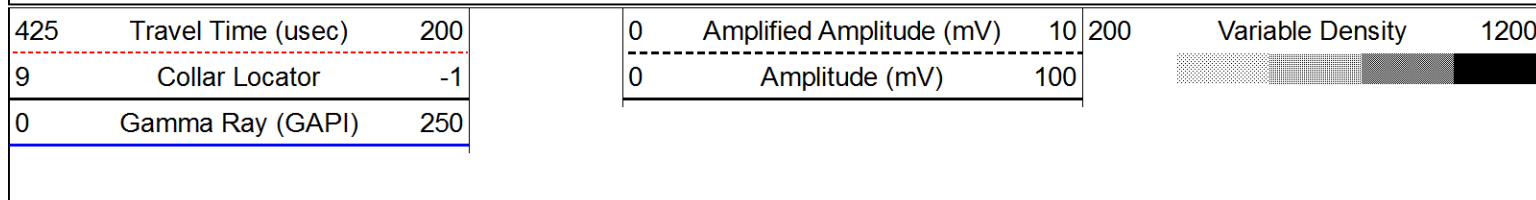


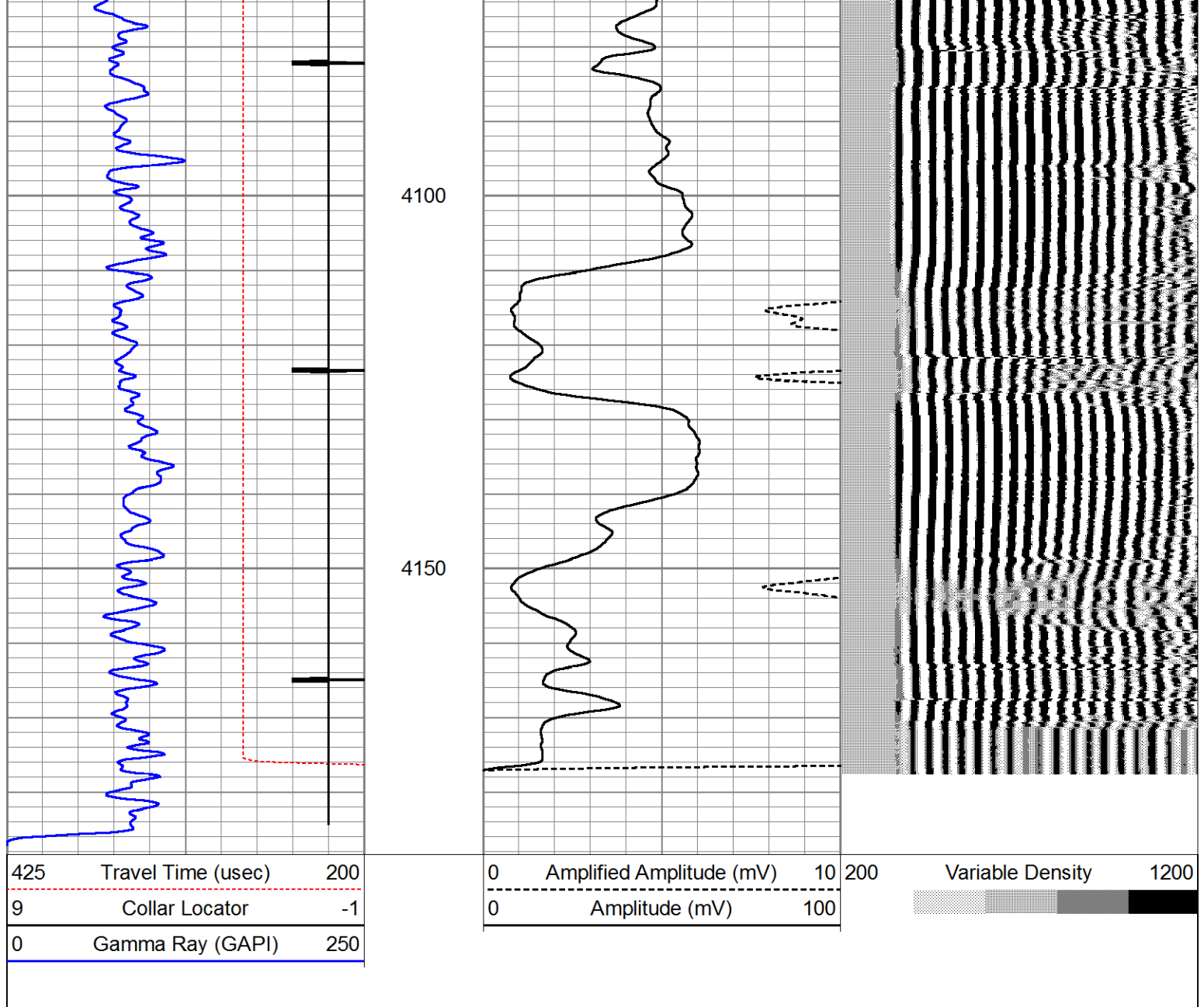




Repeat Pass @ 0 PSI

Database File: nelson\_1.db  
 Dataset Pathname: pass75  
 Presentation Format: cbl\_dr  
 Dataset Creation: Mon Nov 02 07:02:40 2015 by Log Std Casedhole 09061  
 Charted by: Depth in Feet scaled 1:240





| Sensor | Offset (ft) | Schematic | Description                          | Len (ft) | OD (in) | Wt (lb) |
|--------|-------------|-----------|--------------------------------------|----------|---------|---------|
|        |             |           | 1.4375CHD<br>Titan Cable Head 1 7/16 | 1.00     | 1.44    | 10.00   |
|        |             |           | PTS275                               | 2.83     | 2.75    |         |

|  |       |  |  |      |      |       |
|--|-------|--|--|------|------|-------|
| WVF3   | 11.79 |  | CBL-Probe (275)<br>Probe 2.75" Dual Receiver Bond          | 8.92 | 2.75 | 60.00 |
| WVF5   | 10.79 |  |  |      |      |       |
|  |       |  | PTS275   | 2.83 | 2.75 |       |
| CCL  | 3.92  |  |  |      |      |       |
| GR   | 2.42  |  | GR-GCT_C3 (FW1304-53)<br>Probe Digital Gamma CCL Corrosion | 4.77 | 2.75 | 50.00 |
| <div>Dataset: nelson_1.db: field/well/run1/pass76</div> <div>Total Length: 20.35 ft</div> <div>Total Weight: 120.00 lb</div> <div>O.D. 2.75 in</div> |       |  |  |      |      |       |



|         |                    |
|---------|--------------------|
| Company | EnCana Oil and Gas |
| Well    | NELSON #1          |
| Field   | Wattenberg         |
| County  | Weld               |
| State   | CO                 |