

RADIAL CEMENT BOND  
GAMMA RAY  
CCL

|                                  |              |                                |         |
|----------------------------------|--------------|--------------------------------|---------|
| Company                          |              | ANADARKO PETROLEUM CORPORATION |         |
| Well                             | FRANK 23-31  |                                |         |
| Field                            | WATTENBERG   |                                |         |
| County                           | WELD         | State                          | CO      |
| Location:                        |              | APL # : 05-123-24373           |         |
| SHL: 673' FSL & 2046' FWL SE/SW  |              | Other Services                 |         |
| LAT: 40.26460 & LONG: -104.93440 |              |                                |         |
| Permanent Datum                  | GL           | Elevation                      | 4930'   |
| Log Measured From                | KB 12'       |                                |         |
| Drilling Measured From           | KB           |                                |         |
| SEC 31                           | TWP 4N       | RGE 67W                        |         |
| Date                             | 3-9-2016     |                                |         |
| Run Number                       | ONE          |                                |         |
| Depth Driller                    | 7520'        |                                |         |
| Depth Logger                     | 6237'        |                                |         |
| Bottom Logged Interval           | 6233'        |                                |         |
| Top Log Interval                 | SURFACE      |                                |         |
| Open Hole Size                   | 7.875        |                                |         |
| Type Fluid                       | WATER        |                                |         |
| Density / Viscosity              | 1.0          |                                |         |
| Max. Recorded Temp.              | 171 DEG F    |                                |         |
| Estimated Cement Top             | 2670' & 469' |                                |         |
| Time Well Ready                  | N/A          |                                |         |
| Time Logger on Bottom            | N/A          |                                |         |
| Equipment Number                 | 4310         |                                |         |
| Location                         | GREELEY      |                                |         |
| Recorded By                      | N. BREHMER   |                                |         |
| Witnessed By                     | J. CHANDLER  |                                |         |
| Borehole Record                  |              | Tubing Record                  |         |
| Run Number                       | Bit          | From                           | To      |
|                                  |              | Size                           | Weight  |
|                                  |              | From                           | To      |
| Casing Record                    | Size         | Wgt/Ft                         | Top     |
| Surface String                   | 8.63         | 24#                            | SURFACE |
| Prot. String                     |              |                                |         |
| Production String                | 4.5          | 11.6#                          | SURFACE |
| Liner                            |              |                                | 7515'   |

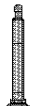
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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

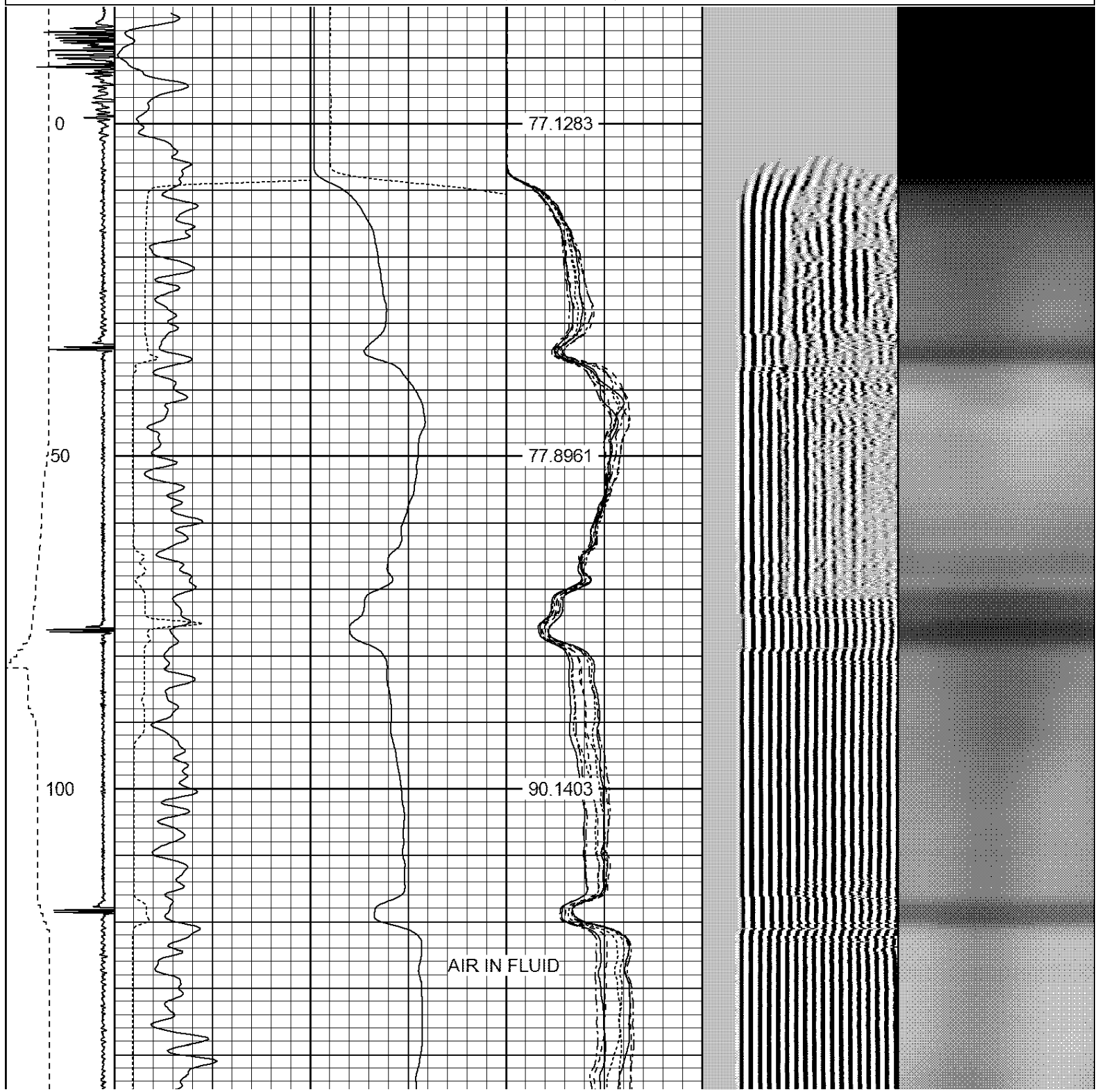
RAN CBL TO VERIFY CEMENT BOND  
HOLE WAS LOADED THE NIGHT BEFORE LOGGING  
CORRELATED 13' UP HOLE TO SCHLUMBERGER CBL 1-17-07  
CALIBRATED FREE PIPE@2260', 81mA IN 4.5"

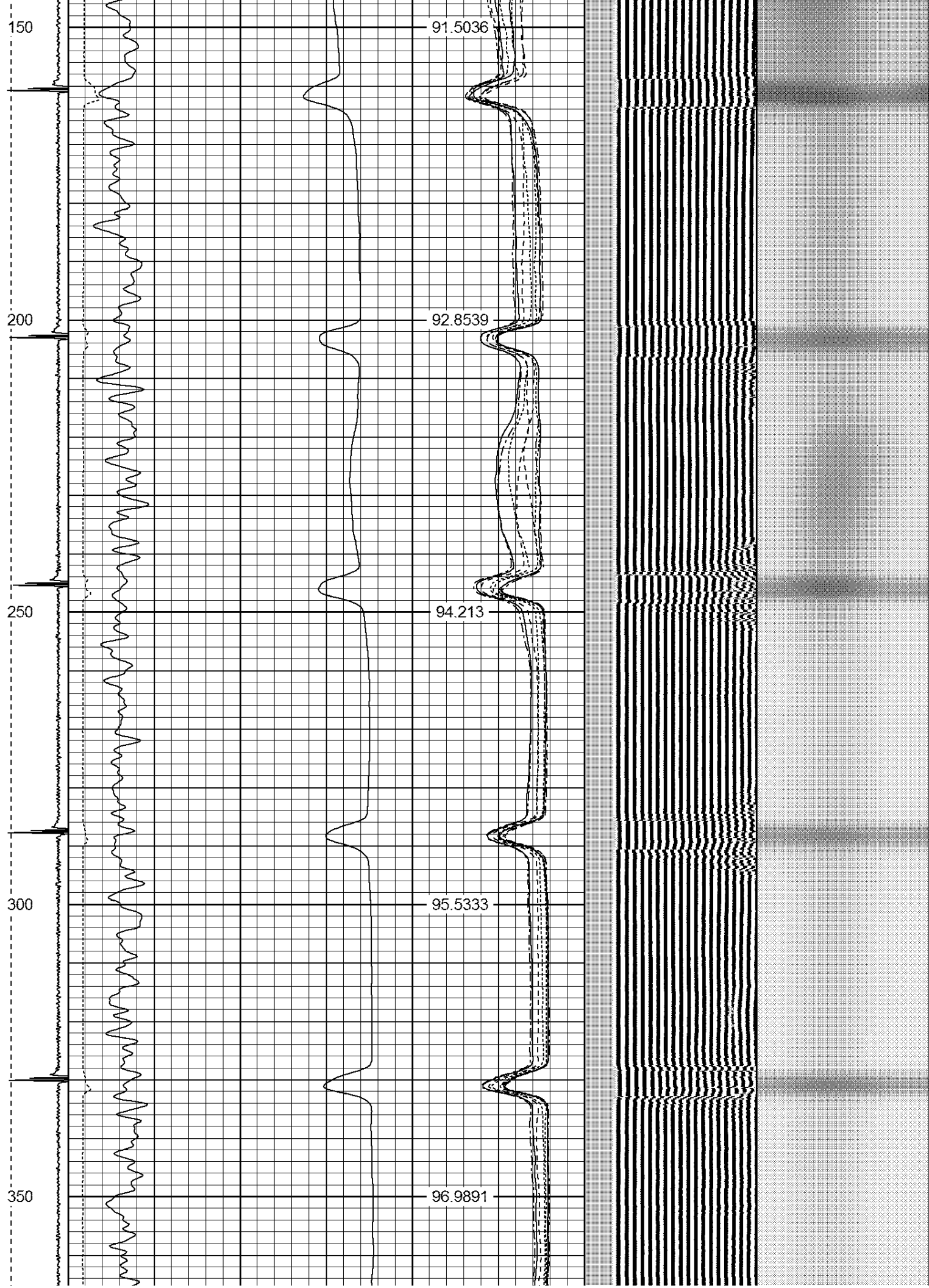
THANK YOU FOR USING IPS !!!!!!!

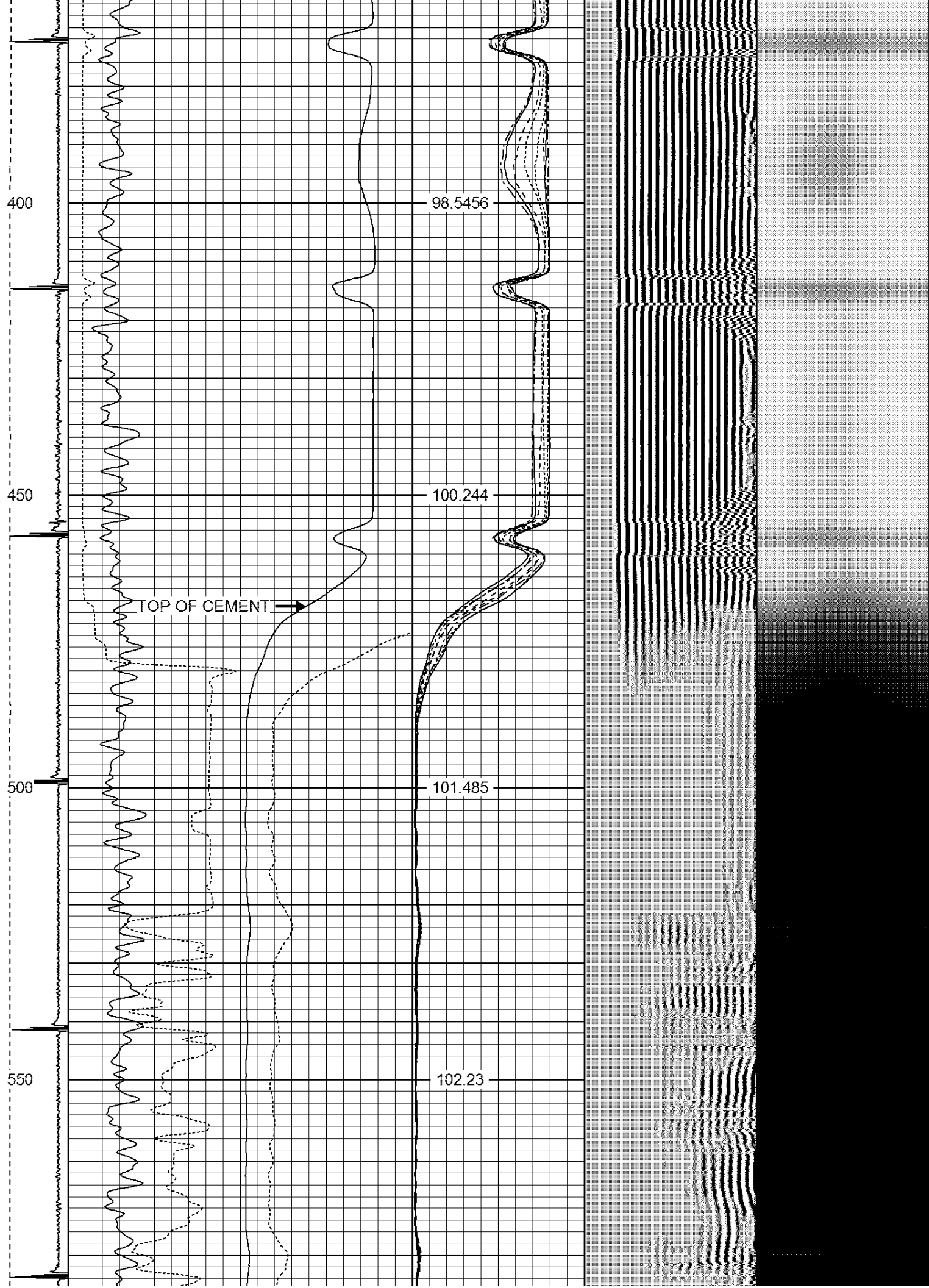
| Sensor | Offset (ft) | Schematic   | Description | Len (ft) | OD (in) | Wt (lb) |
|--------|-------------|---|-------------|----------|---------|---------|
|        |             |  | 1_4         | 1.00     | 1.36    | 5.00    |

|   |       |  |  |      |      |       |
|---|-------|--|--|------|------|-------|
|   |       |  | PTS275                                       | 2.83 | 2.75 |       |
| HEADVOLT  | 16.13 |  |  |      |      |       |
| IntTemp   | 14.71 |  |  |      |      |       |
|   |       |  |  |      |      |       |
|   |       |  |  |      |      |       |
| WVF3FT  | 11.46 |  | RBT-Probe (Base)                             | 8.92 | 2.75 | 90.00 |
| WVFCAL  | 11.46 |  | Probe Radii Bond Tool with Digital Telemetry |      |      |       |
| WVFS1   | 11.46 |  |  |      |      |       |
| WVFS2   | 11.46 |  |  |      |      |       |
| WVFS3   | 11.46 |  |  |      |      |       |
| WVFS4   | 11.46 |  |  |      |      |       |
| WVFS5   | 11.46 |  |  |      |      |       |
| WVFS6   | 11.46 |  |  |      |      |       |
| WVFS7   | 11.46 |  |  |      |      |       |
| WVFS8   | 11.46 |  |  |      |      |       |
| WVF5FT  | 10.46 |  |  |      |      |       |
|   |       |  |  |      |      |       |
| CNLSC   | 6.00  |  | CNT-Probe_B (275)                            | 2.88 | 2.75 | 40.00 |
| CNSSC   | 5.17  |  | 6 bow centralizer                            |      |      |       |
|   |       |  |  |      |      |       |
| CCL   | 3.64  |  |  |      |      |       |
|   |       |  |  |      |      |       |
|   |       |  | GR-Probe (275)                               | 4.33 | 2.75 | 30.00 |
|   |       |  | Probe 2.75"                                  |      |      |       |
| GR  | 0.90  |  |  |      |      |       |
| Dataset: frank 23-31.db: field/well/run1/pass2<br>Total Length: 19.96 ft<br>Total Weight: 165.00 lb<br>O.D. 2.75 in |       |  |  |      |      |       |

|                  |     |     |           |           |      |   |            |     |         |       |     |   |     |      |   |            |   |   |  |  |
|------------------|-----|-----|-----------|-----------|------|---|------------|-----|---------|-------|-----|---|-----|------|---|------------|---|---|--|--|
| -9               | CCL | 1   | 200       | TT (usec) | 1000 | 0 | AMP (mV)   | 100 | 0       | AMPS1 | 100 | 200   | VDL | 1200 | 1   | Cement Map | 8 |   |  |  |
| LSPD<br>(ft/min) | 0   |     | GR (GAPI) |           | 200  | 0 | AMPx5 (mV) | 20  | 0       | AMPS2 | 100 |  |     | 100  |  |            |   | 1 |  |  |
|                  | 200 |     | GR (GAPI) |           | 400  | 0 |            |     | AMPS3   | 100   |     |   |     |      |   |            |   |   |  |  |
| 0                |     | 250 |           |           |      |   |            |     | 0       | AMPS4 | 100 |   |     |      |   |            |   |   |  |  |
|                  |     |     |           |           |      |   |            |     | 0       | AMPS5 | 100 |   |     |      |   |            |   |   |  |  |
|                  |     |     |           |           |      |   |            |     | 0       | AMPS6 | 100 |   |     |      |   |            |   |   |  |  |
|                  |     |     |           |           |      |   |            |     | 0       | AMPS7 | 100 |   |     |      |   |            |   |   |  |  |
|                  |     |     |           |           |      |   |            |     | 0       | AMPS8 | 100 |   |     |      |   |            |   |   |  |  |
|                  |     |     |           |           |      |   |            |     | IntTemp |       |     |   |     |      |   |            |   |   |  |  |
|                  |     |     |           |           |      |   |            |     | (degF)  |       |     |   |     |      |   |            |   |   |  |  |







600

102.752

650

103.276

700

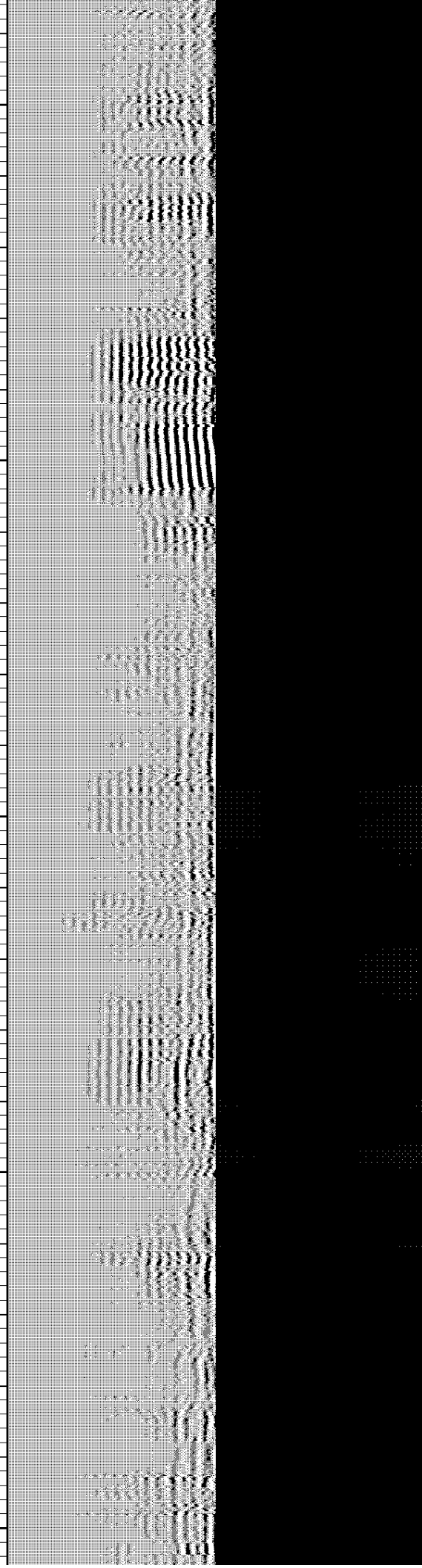
103.657

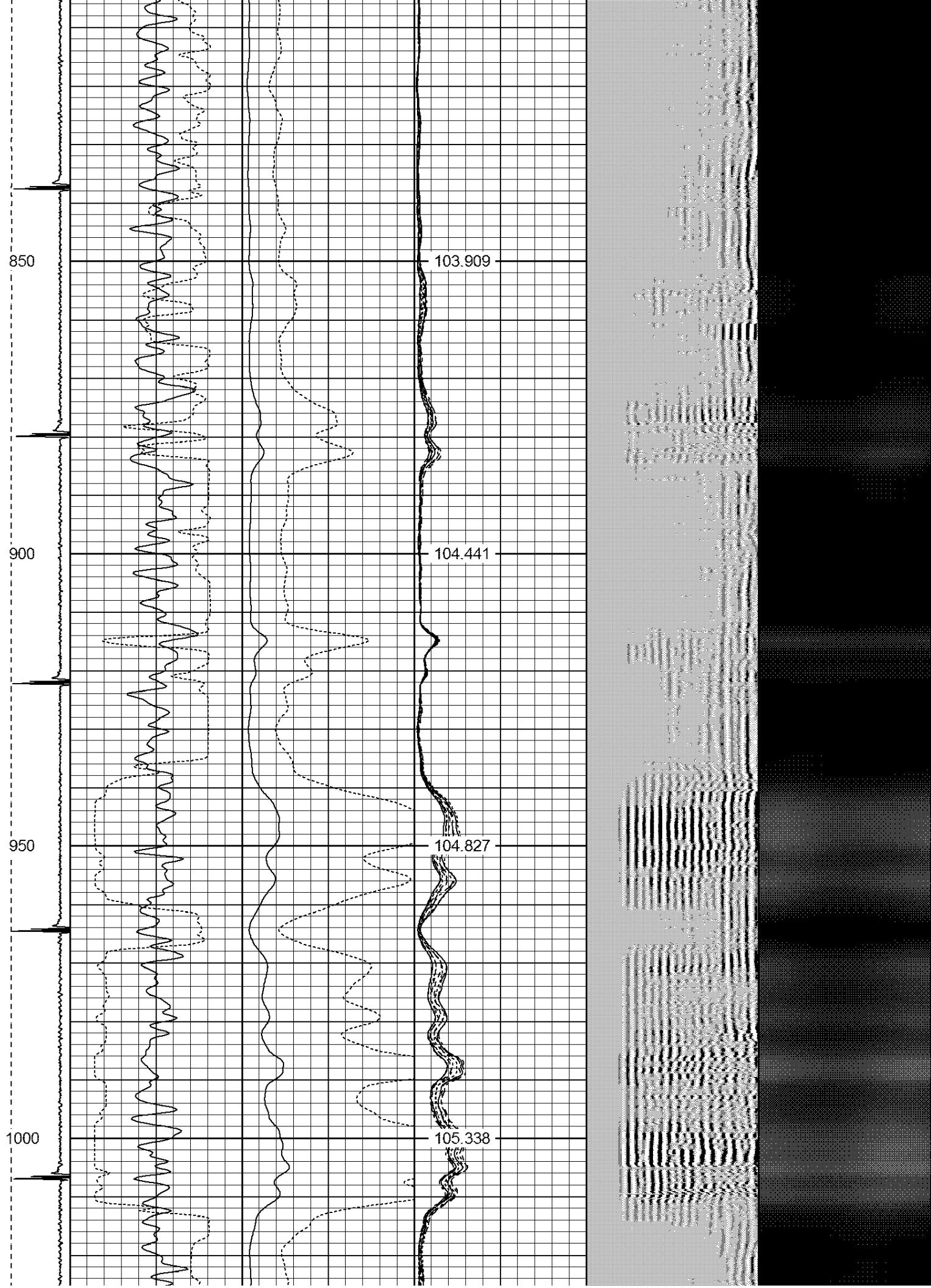
750

103.755

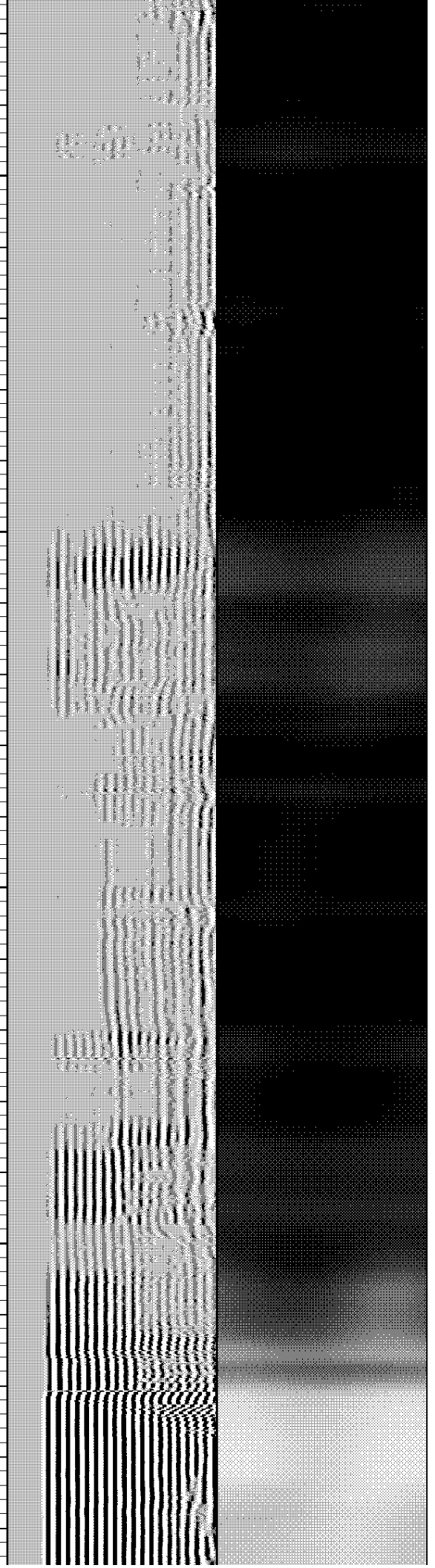
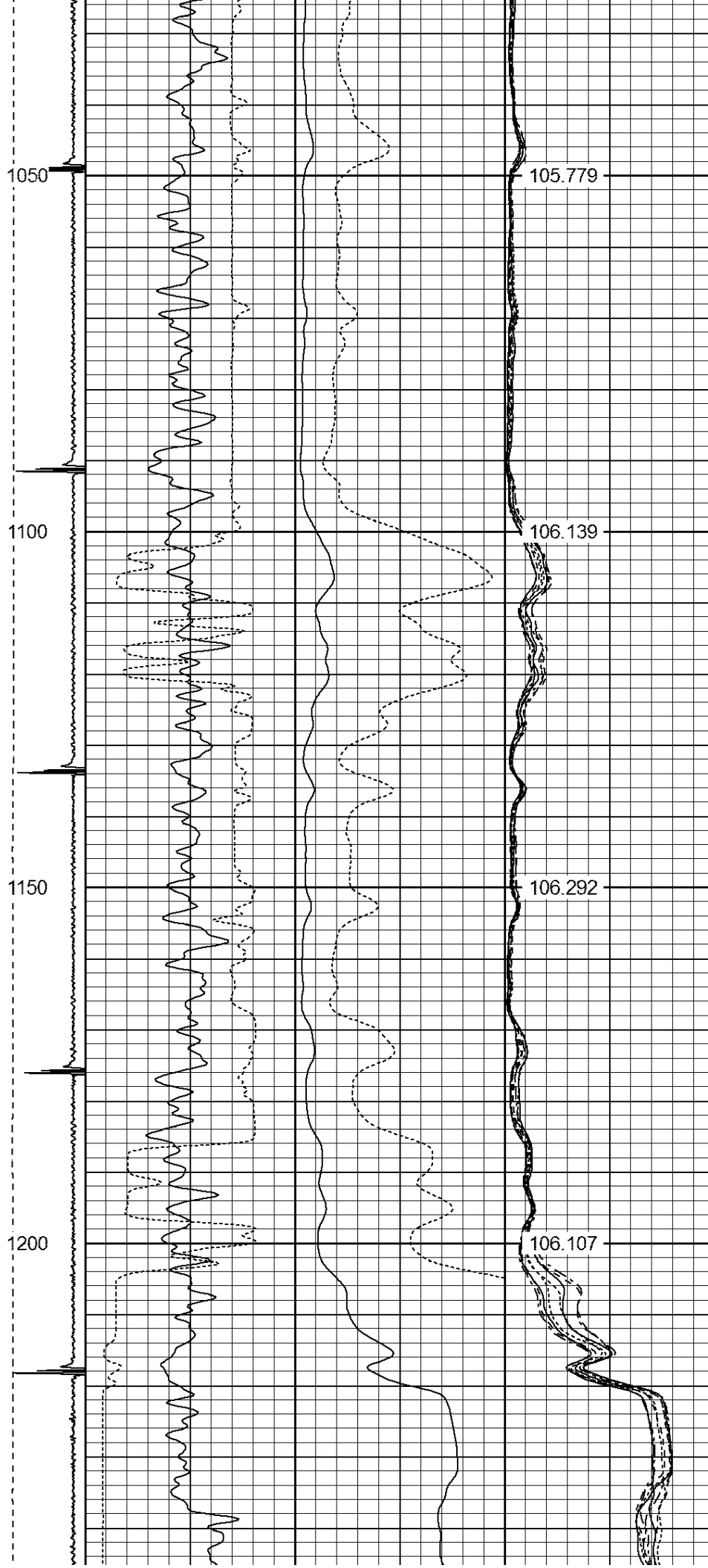
800

103.598



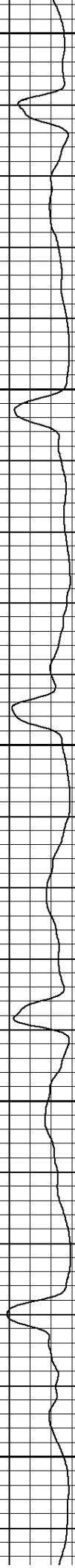
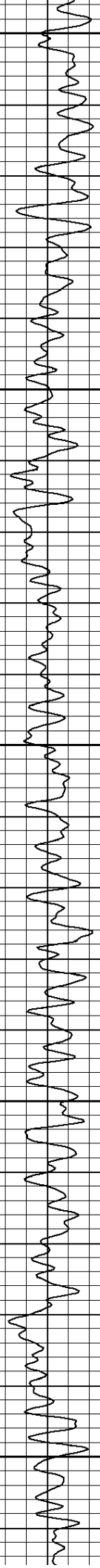




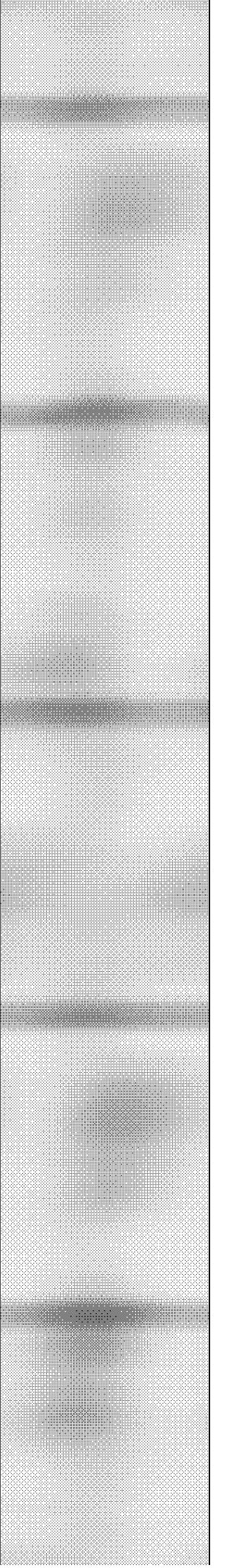
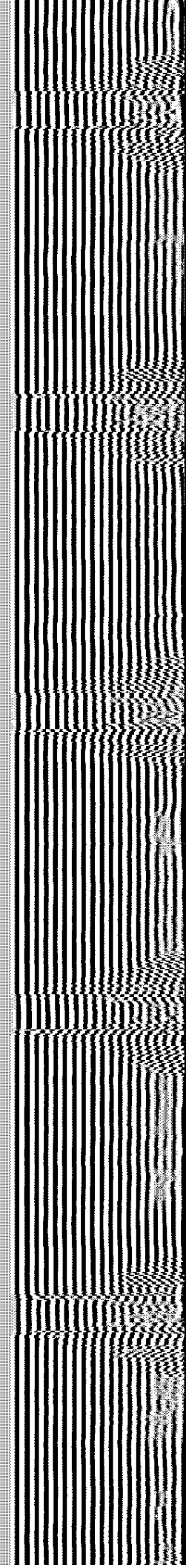
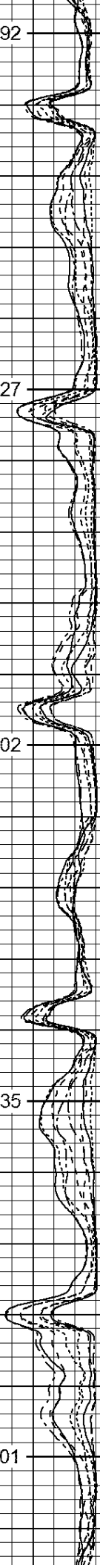


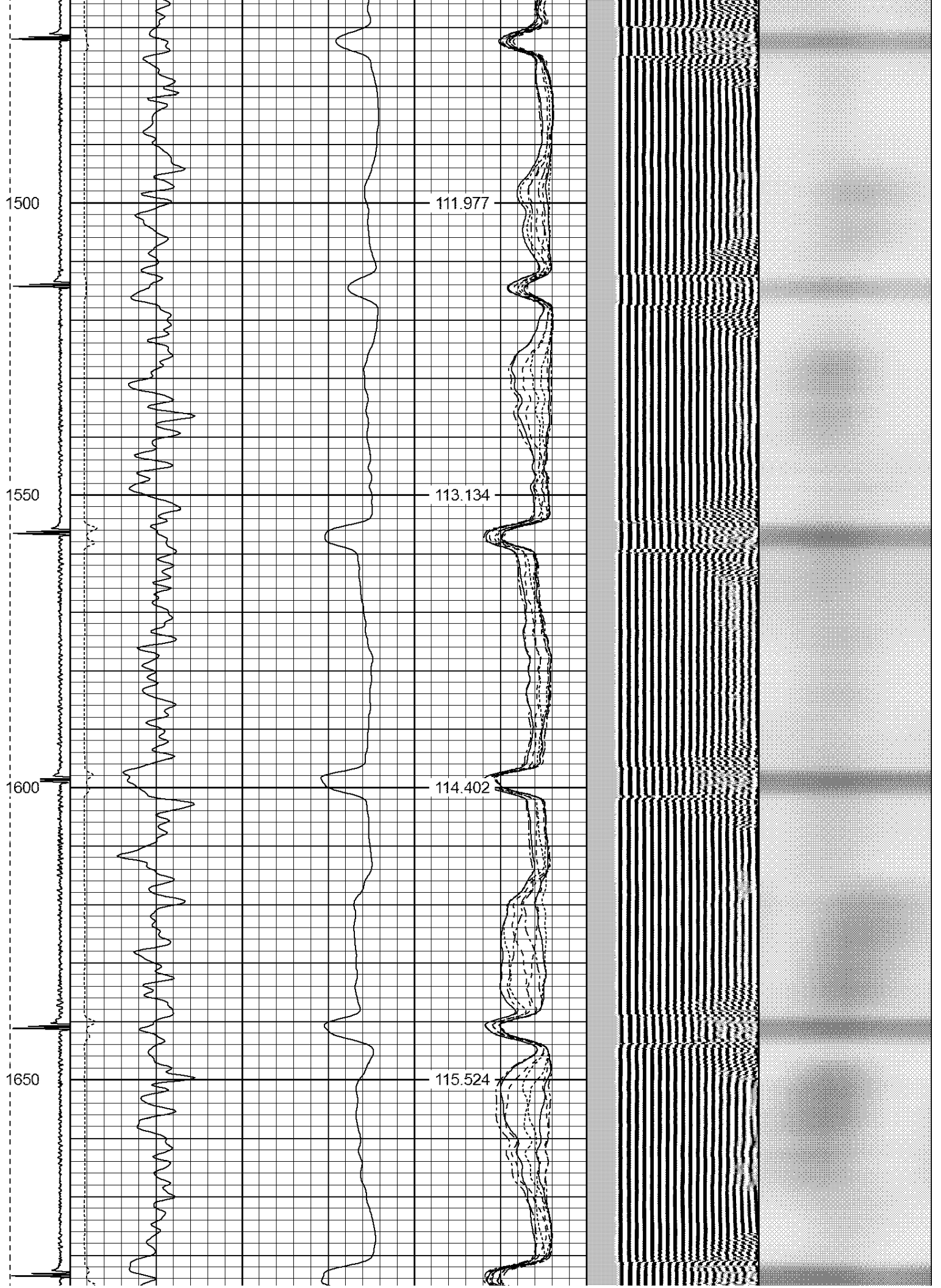


1250  
1300  
1350  
1400  
1450

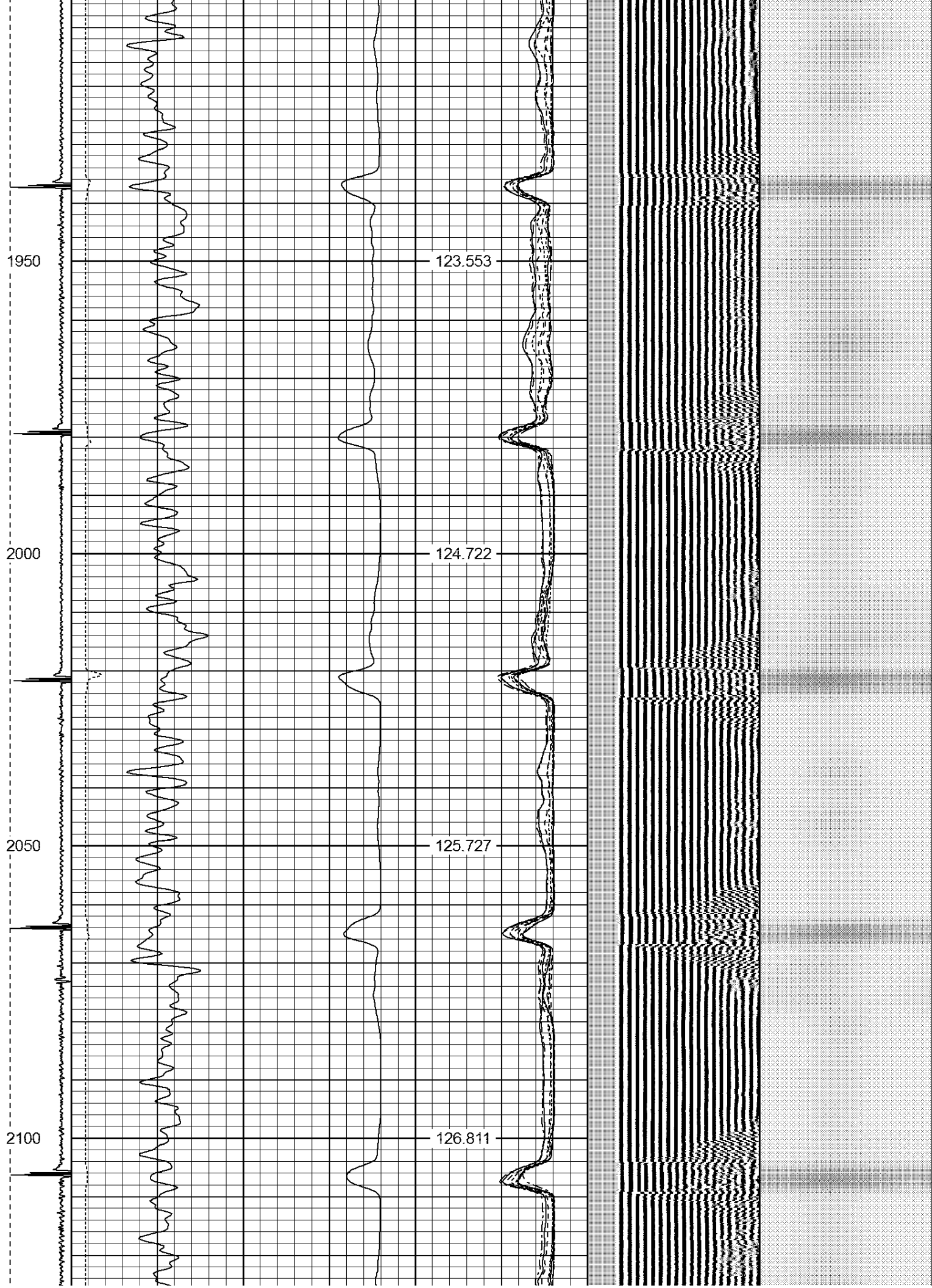


106.692  
107.627  
108.702  
109.735  
110.901

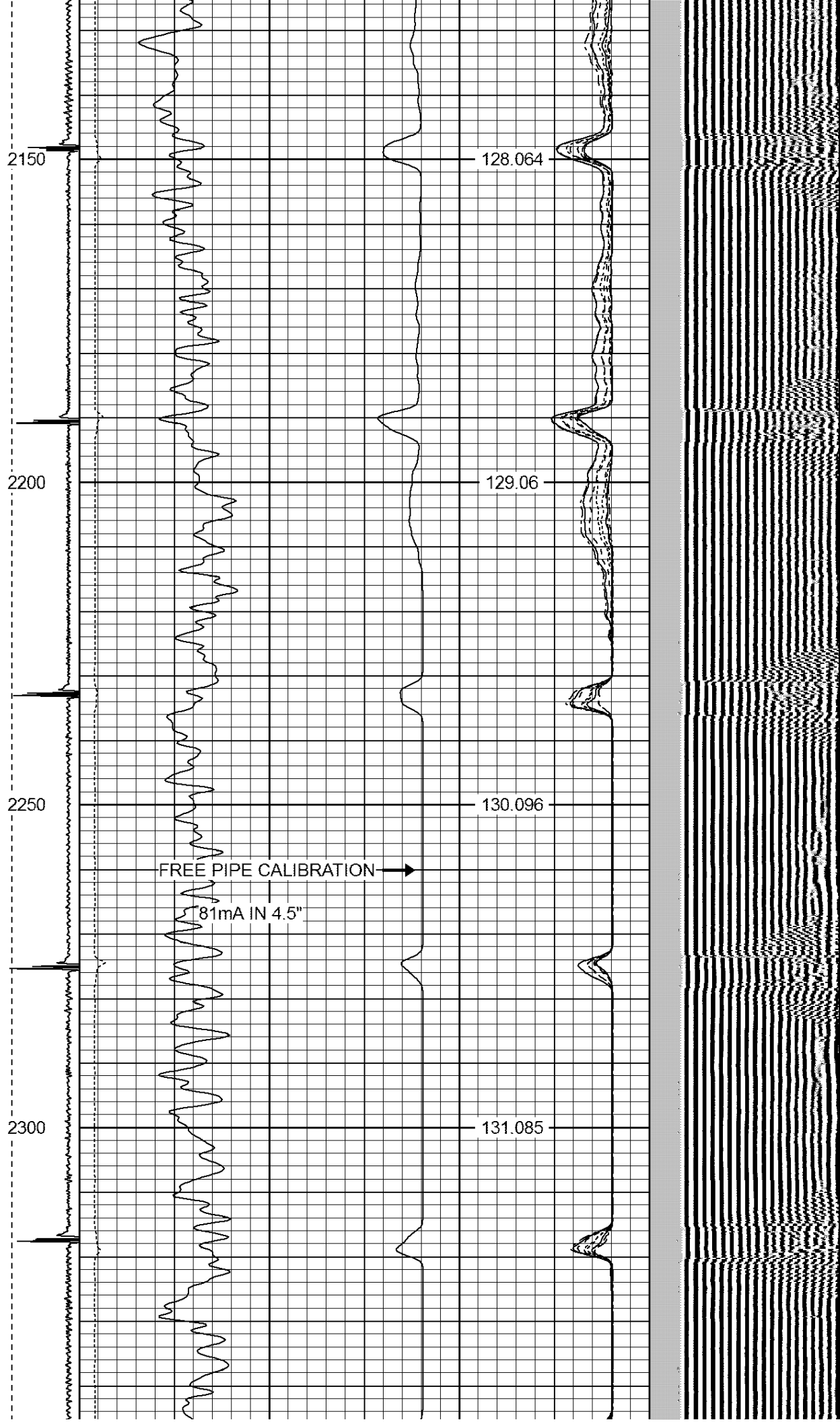






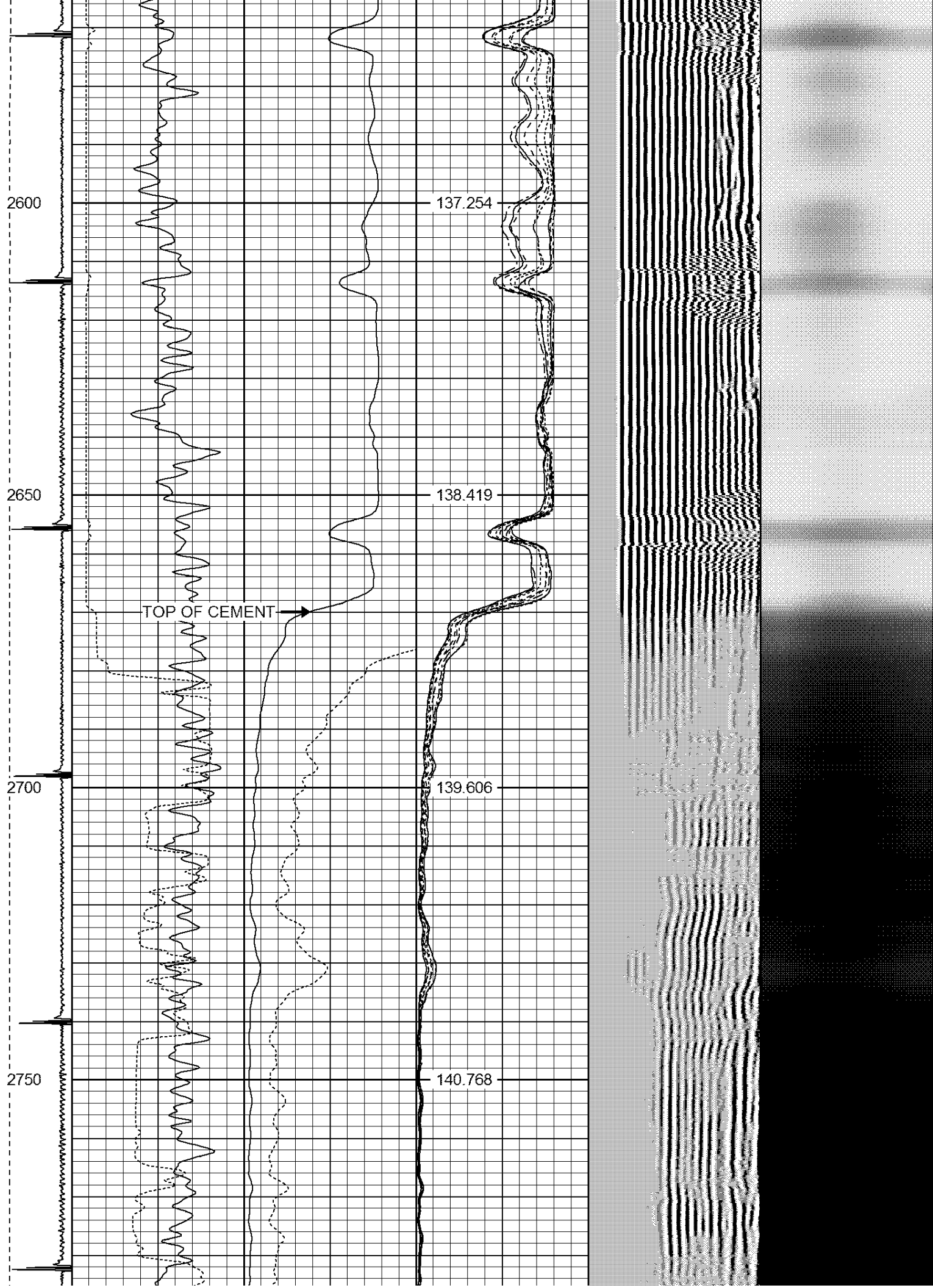


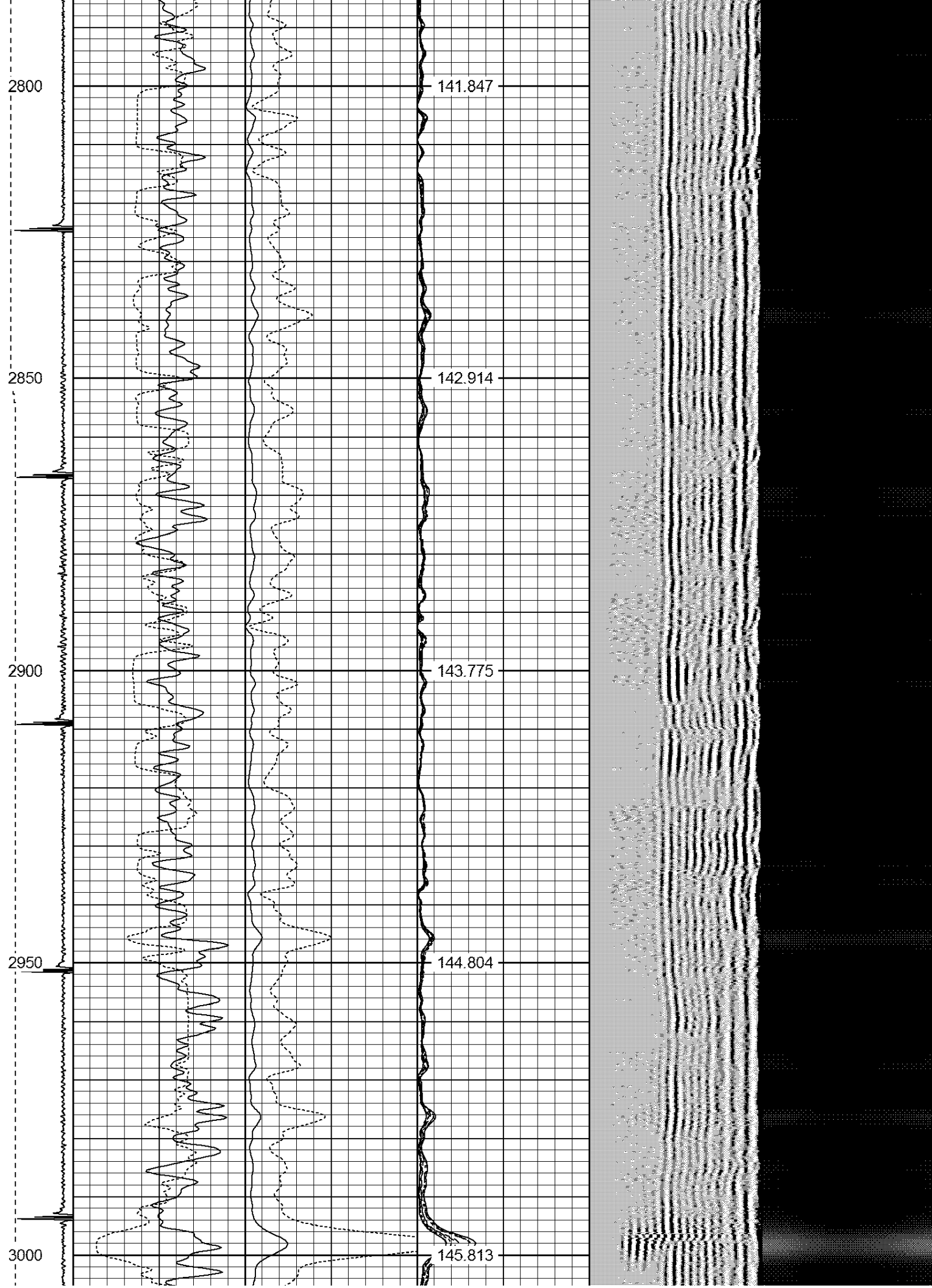












3050

146.791

3100

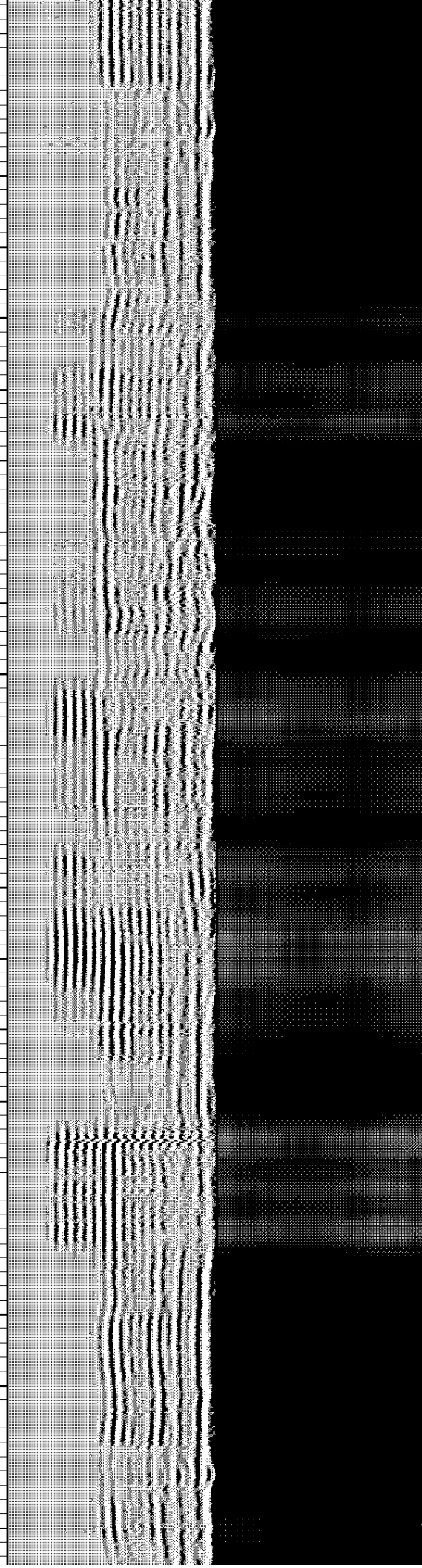
147.729

3150

148.87

3200

149.711



3250

150.794

3300

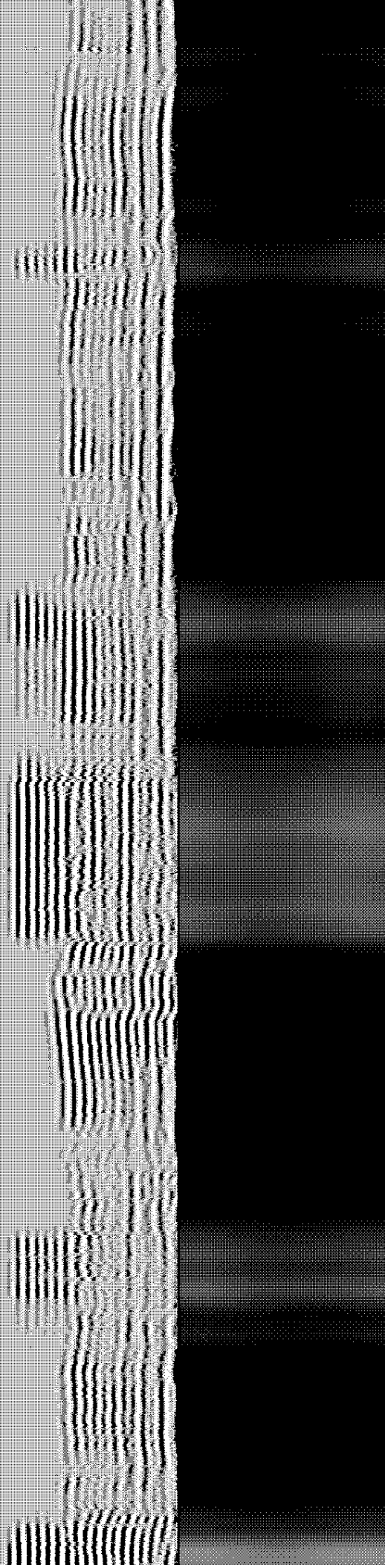
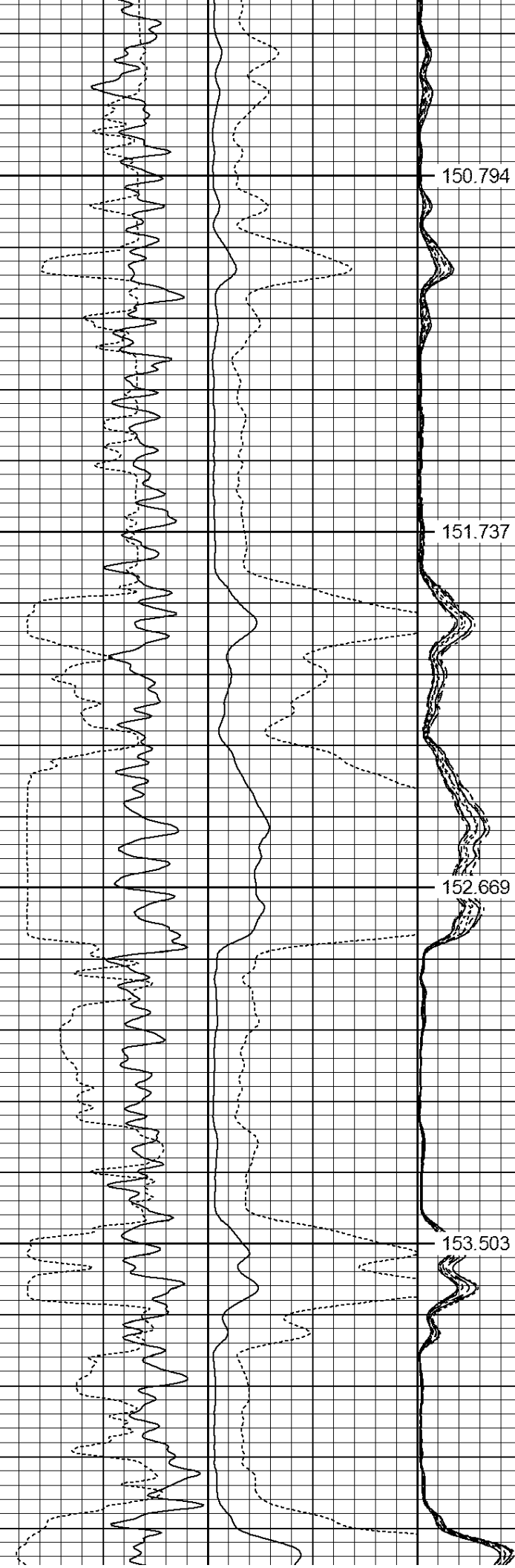
151.737

3350

152.669

3400

153.503



3450

154.431

3500

155.314

3550

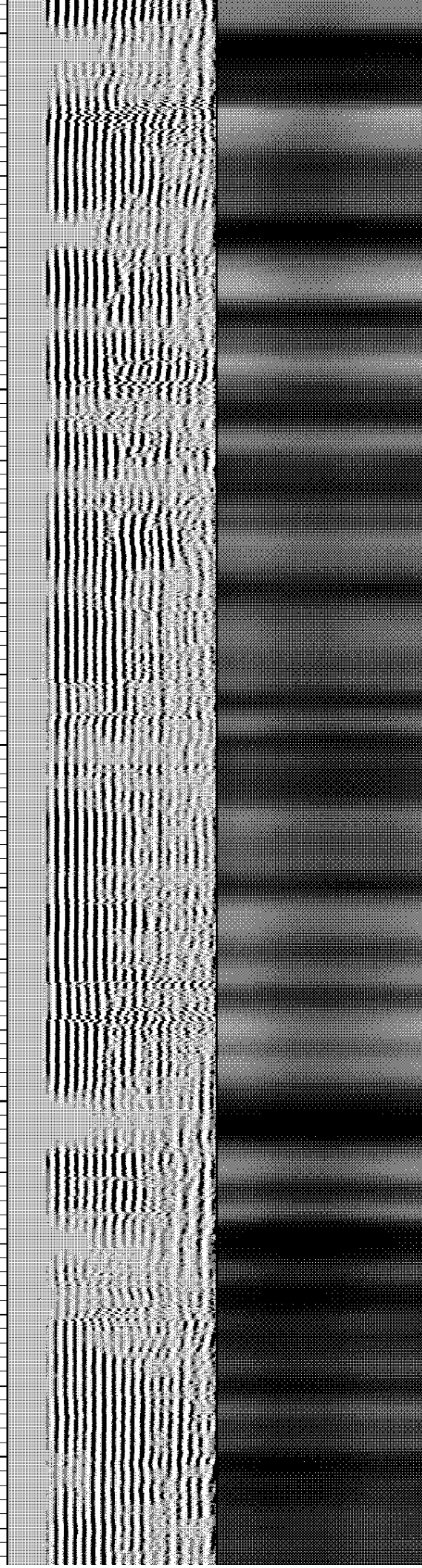
156.098

3600

156.917

3650

157.736





3700

158.381

3750

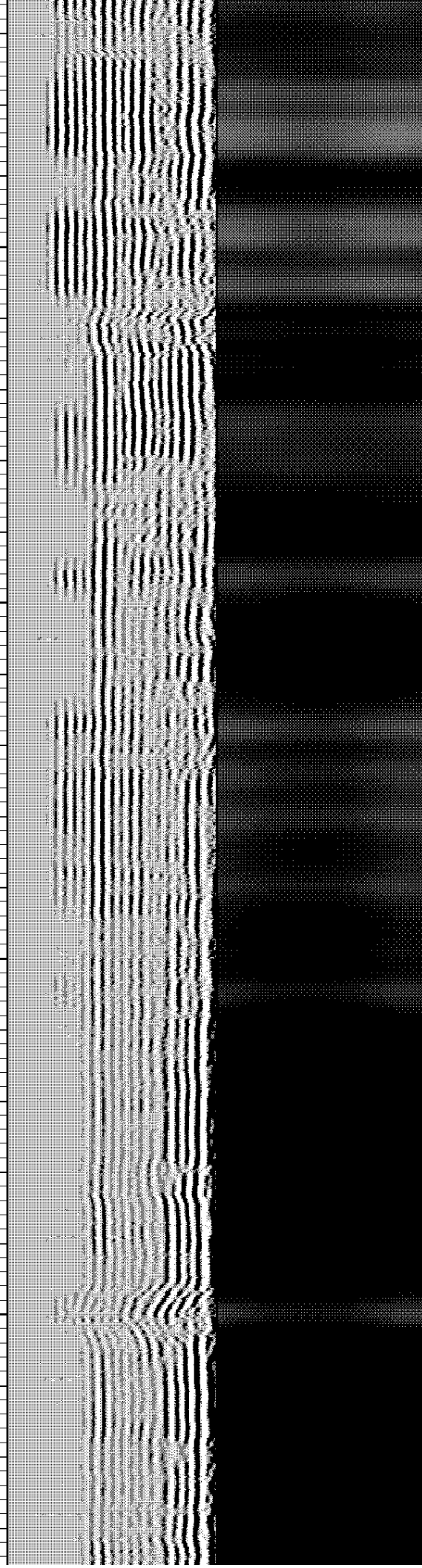
159.021

3800

159.788

3850

160.526





3900

161.133

3950

162.173

4000

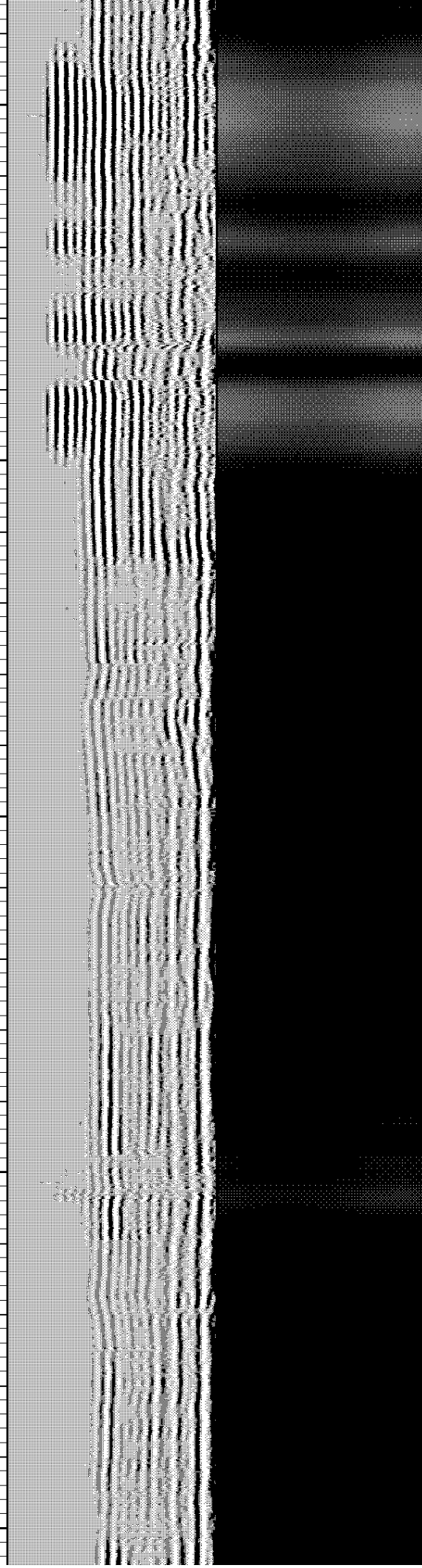
162.928

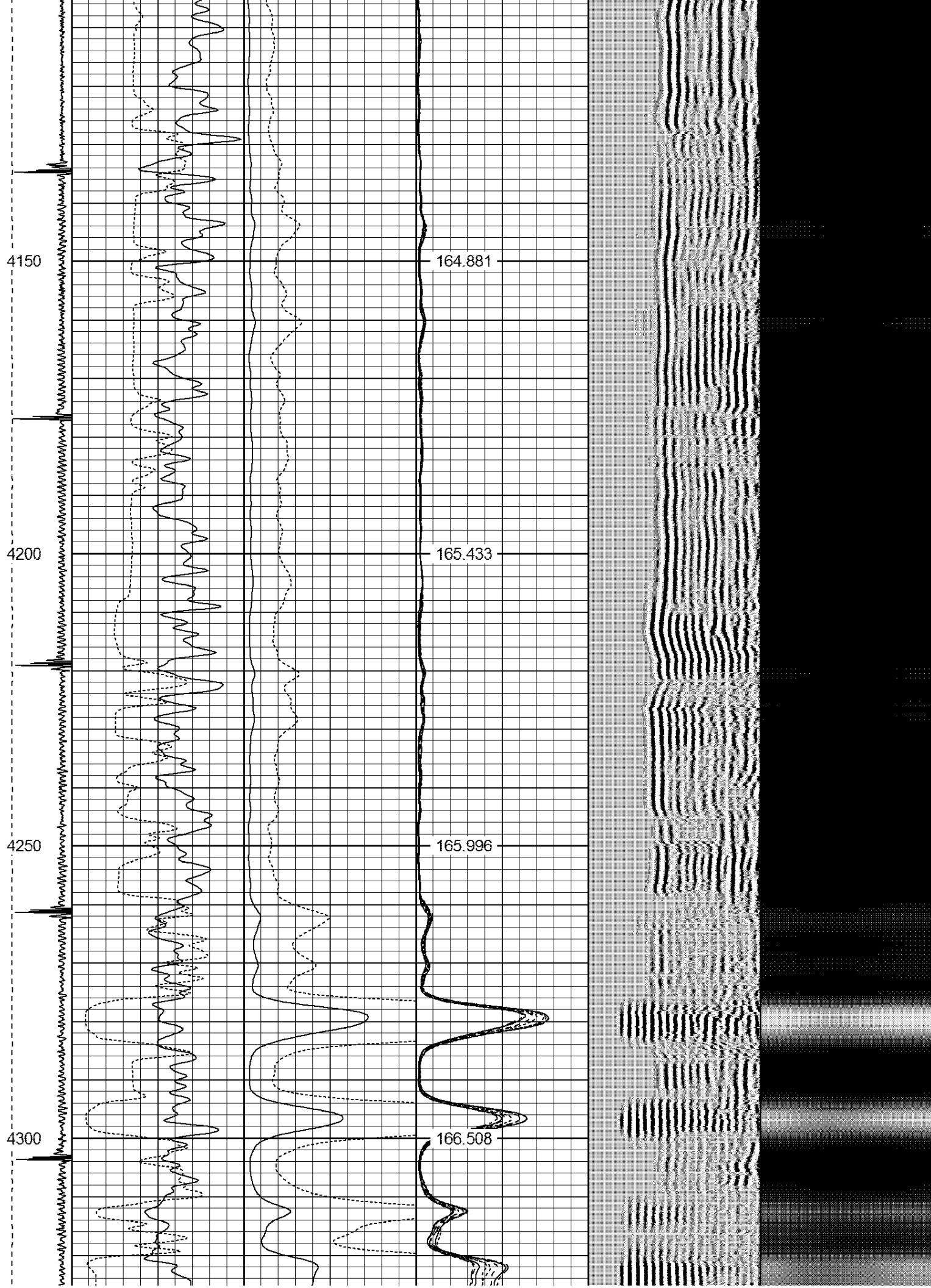
4050

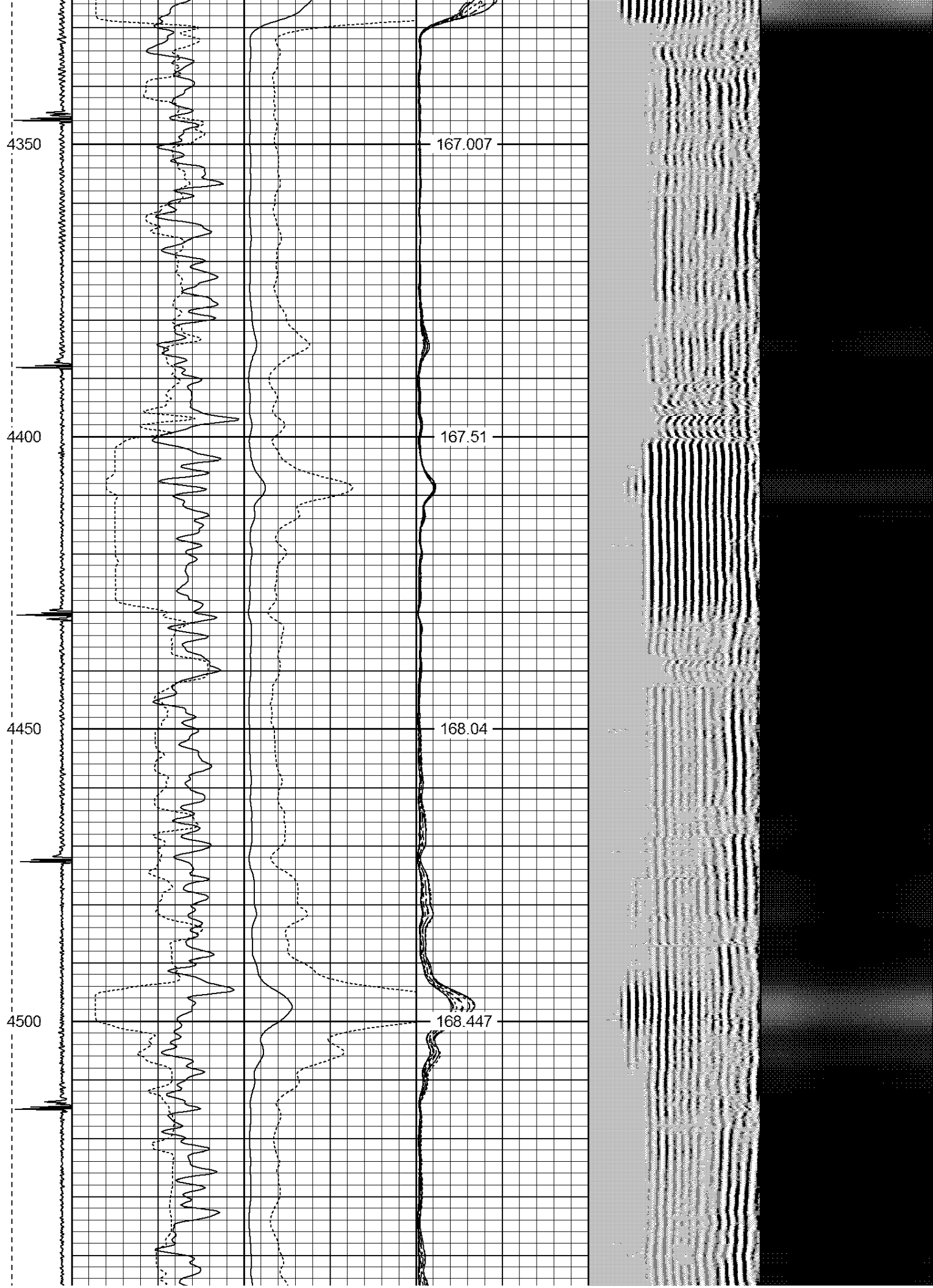
163.635

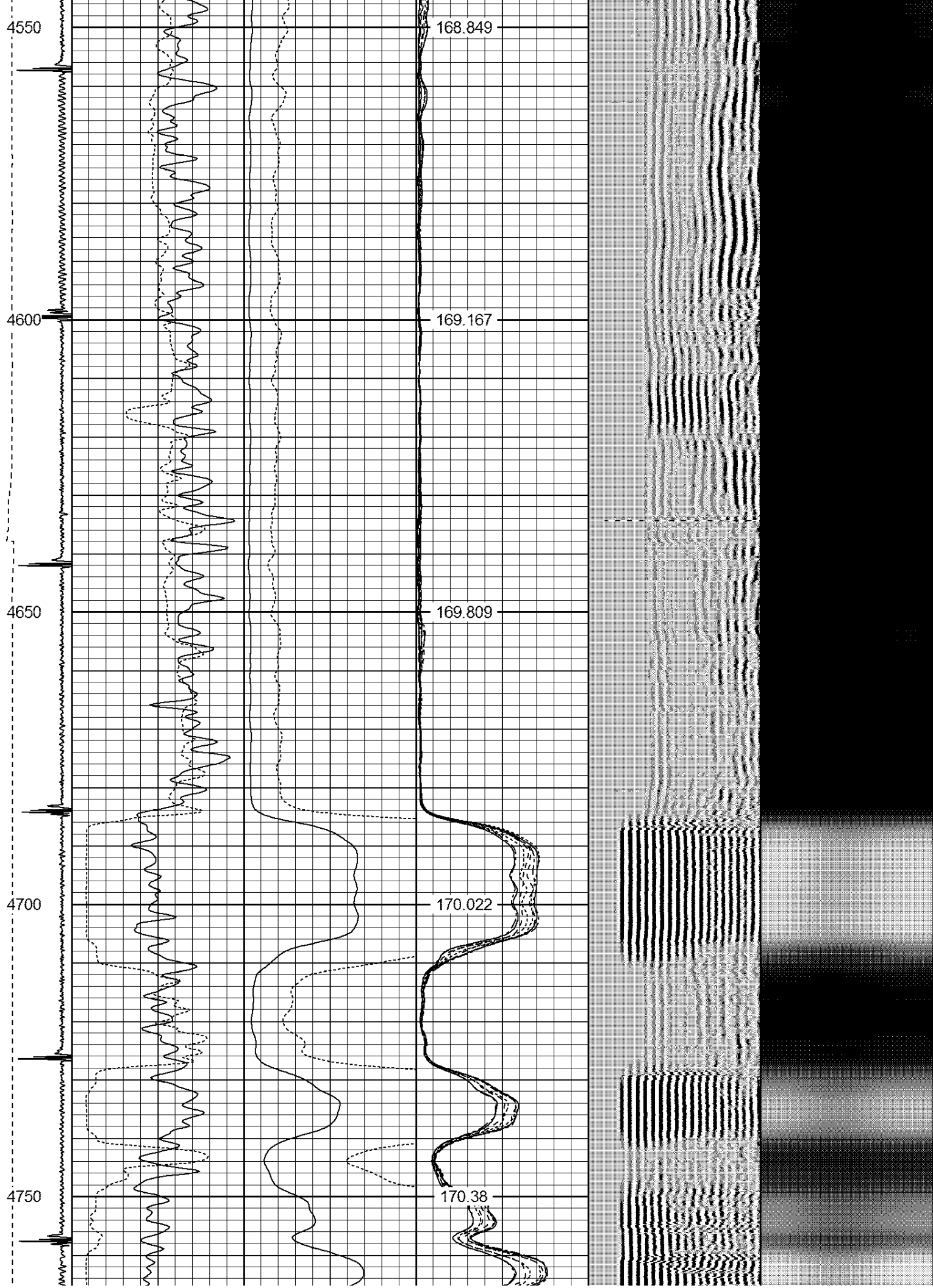
4100

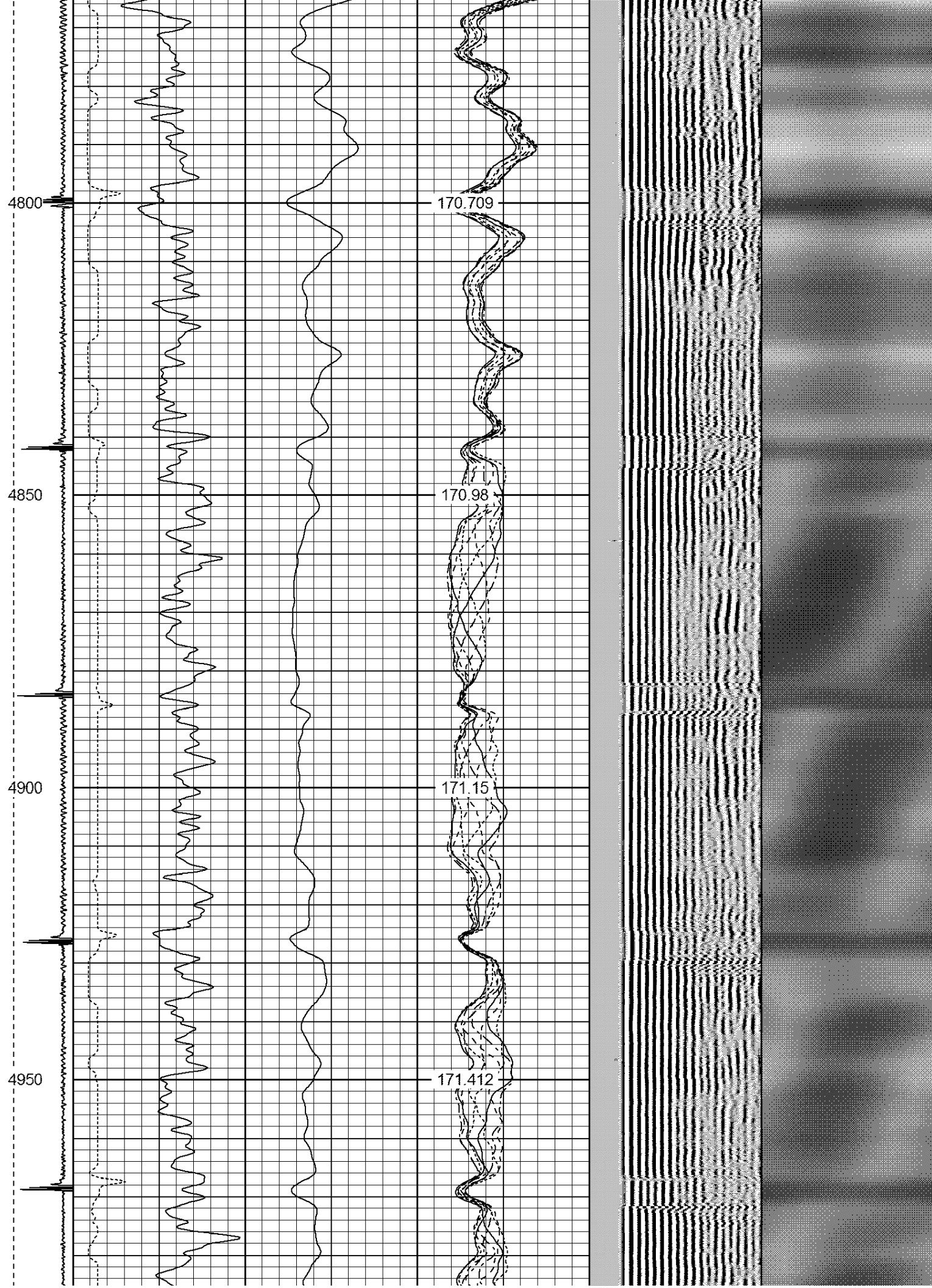
164.263



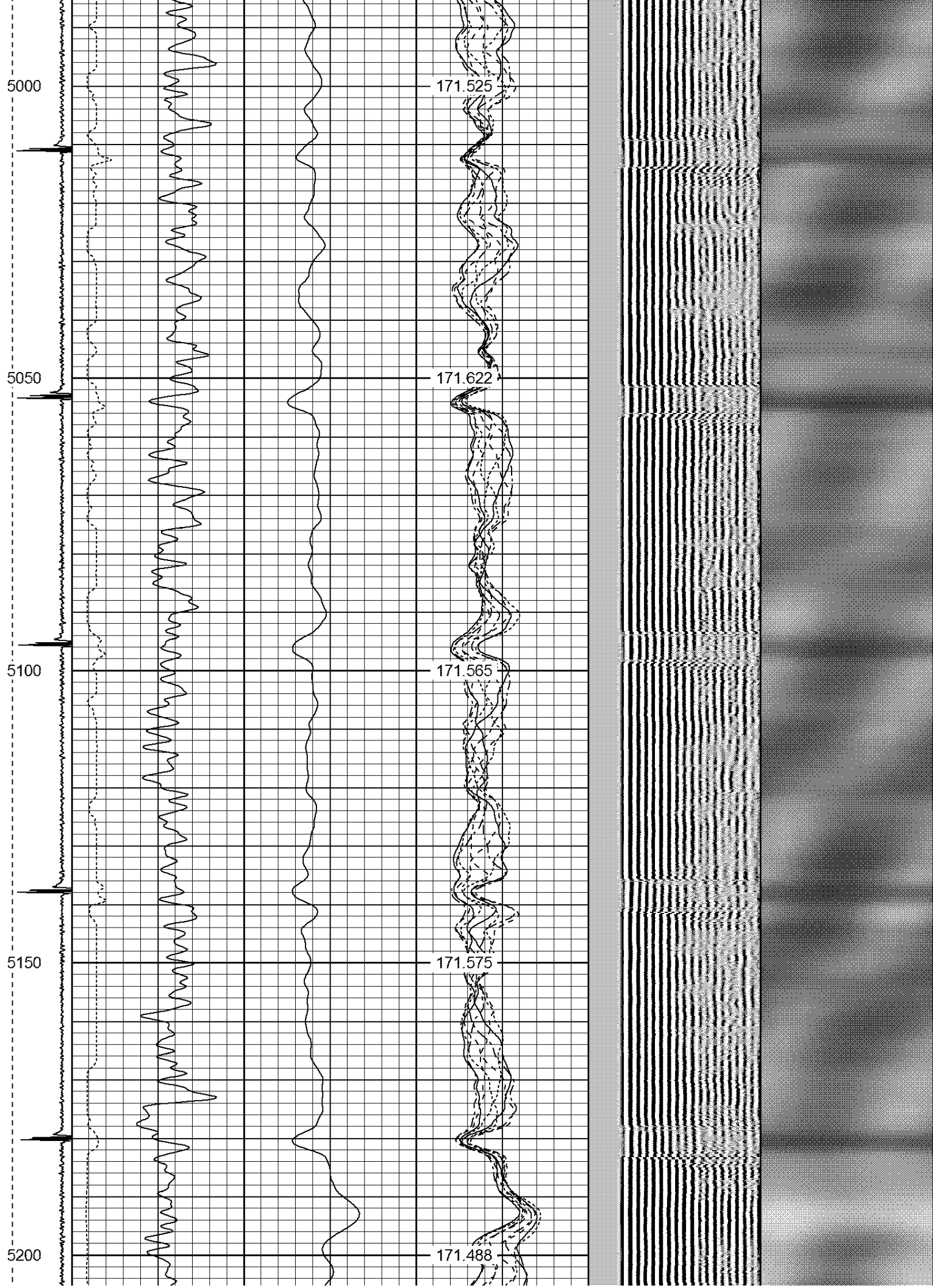




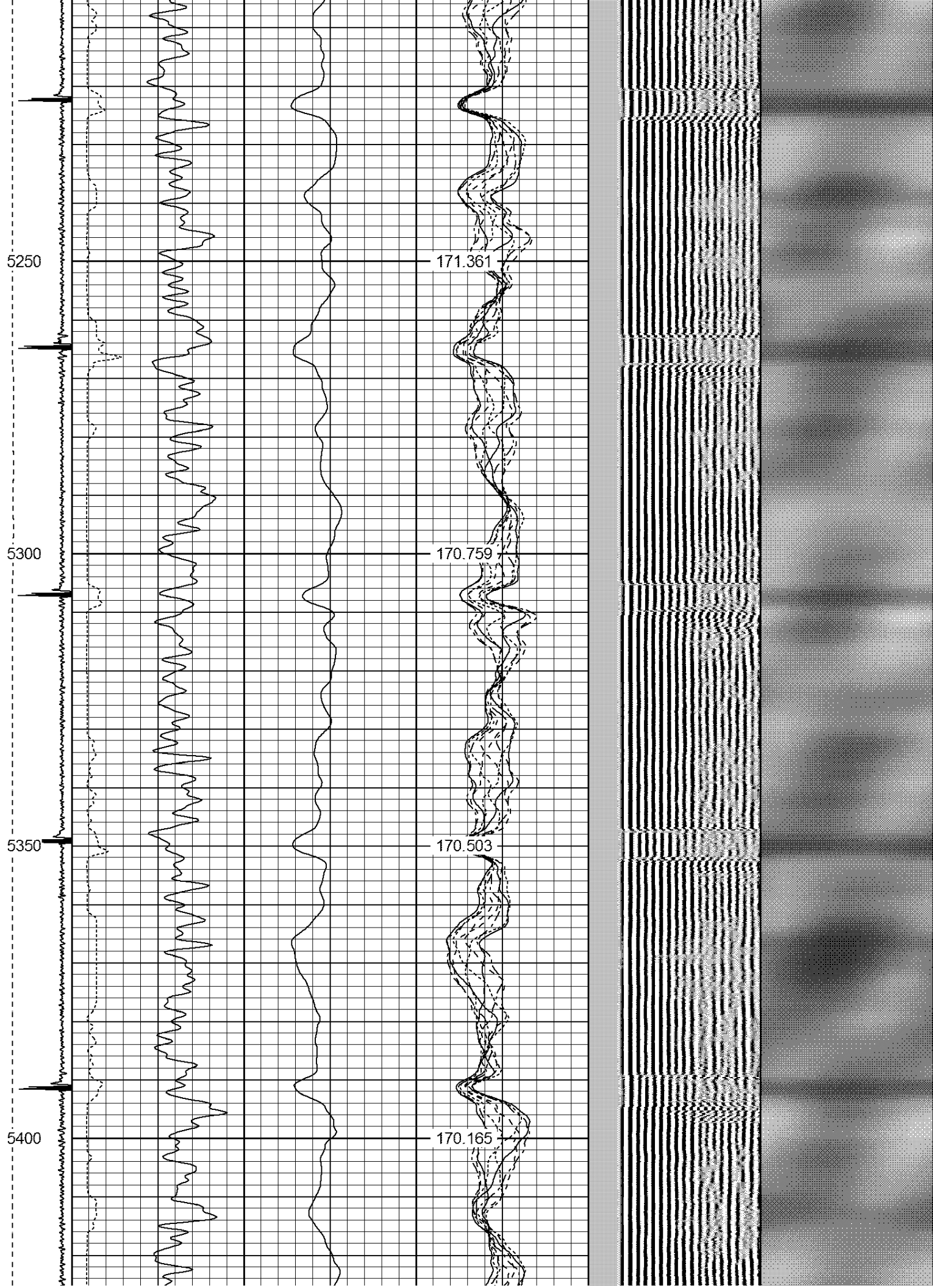


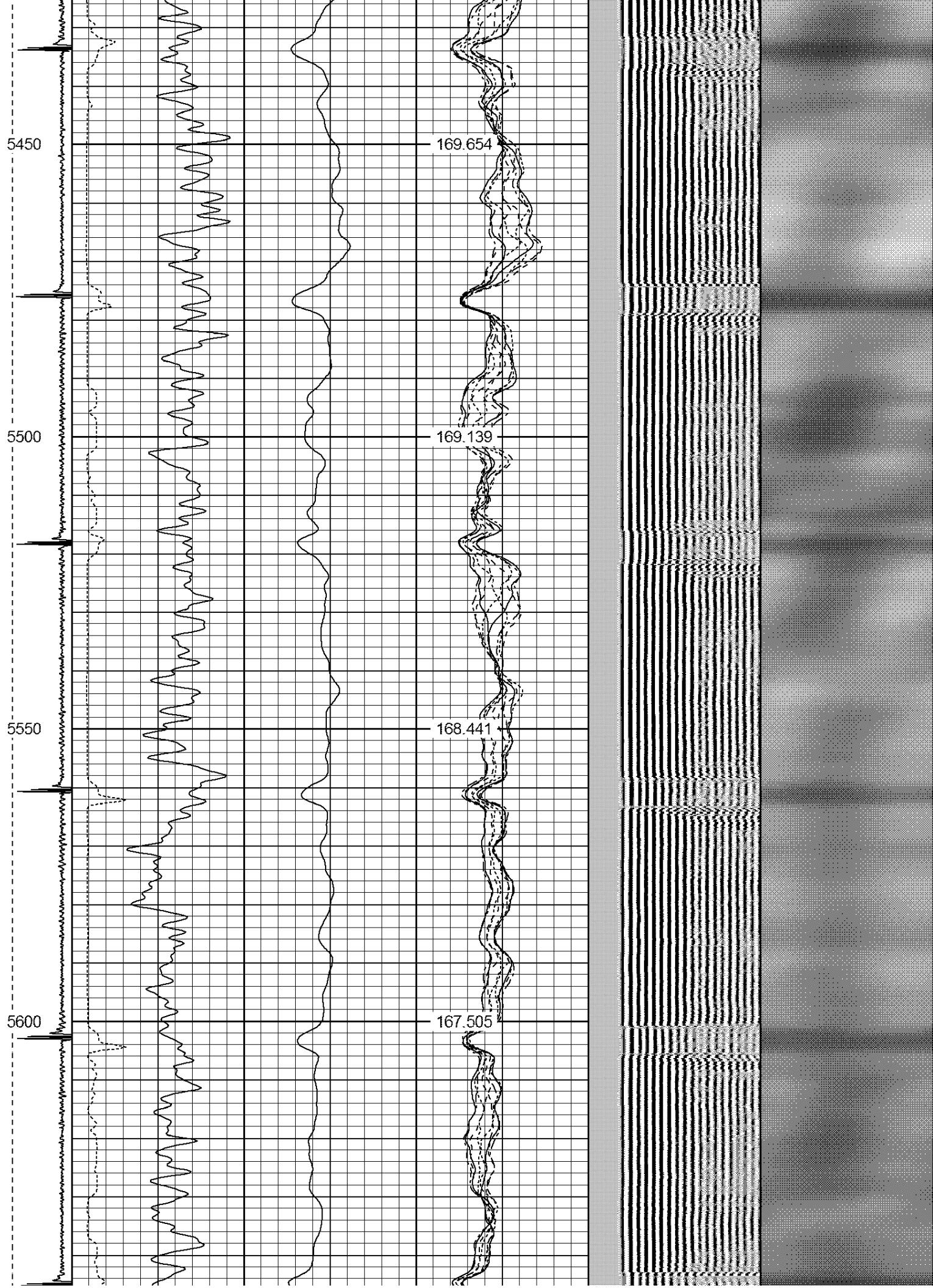


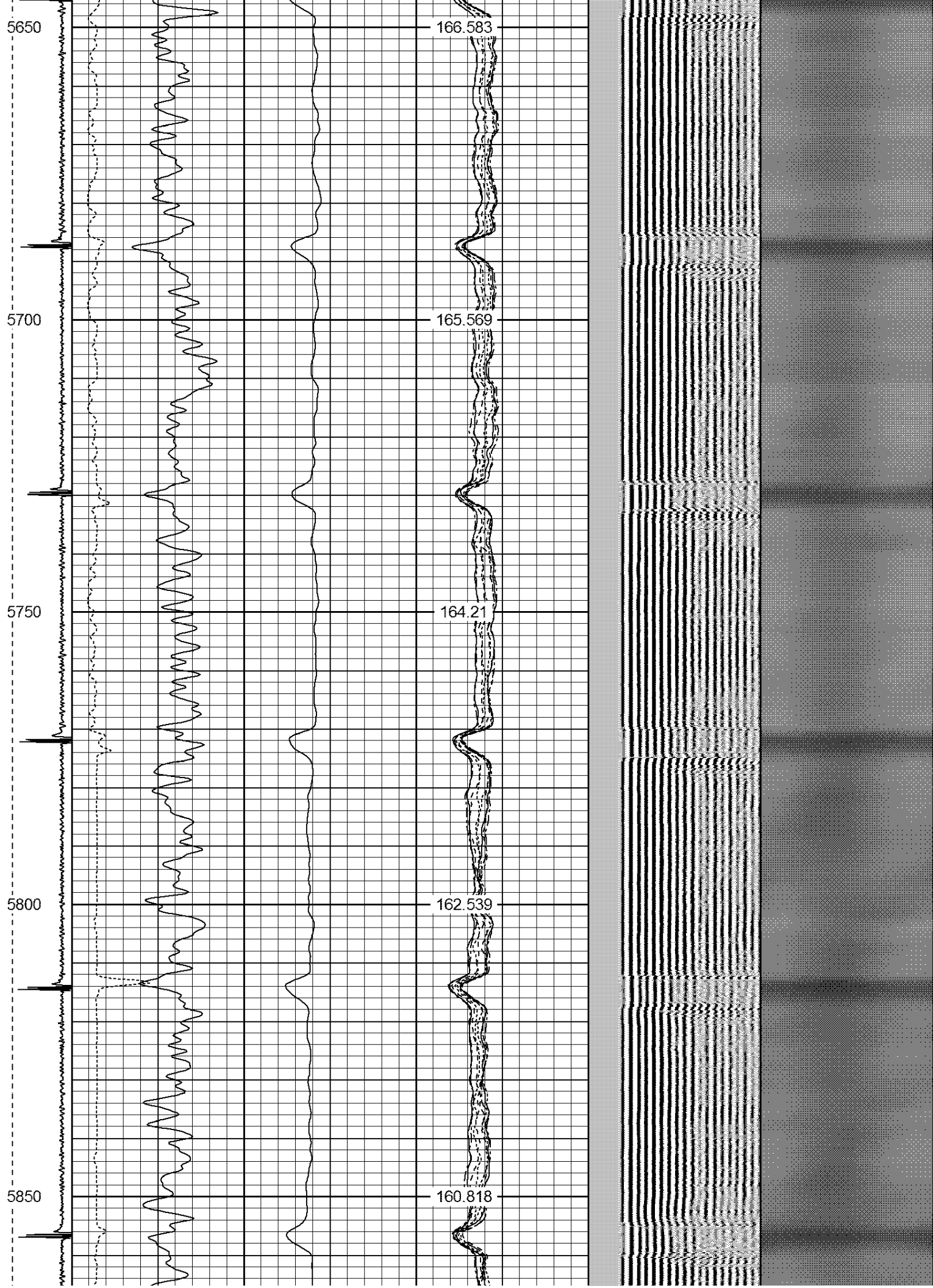




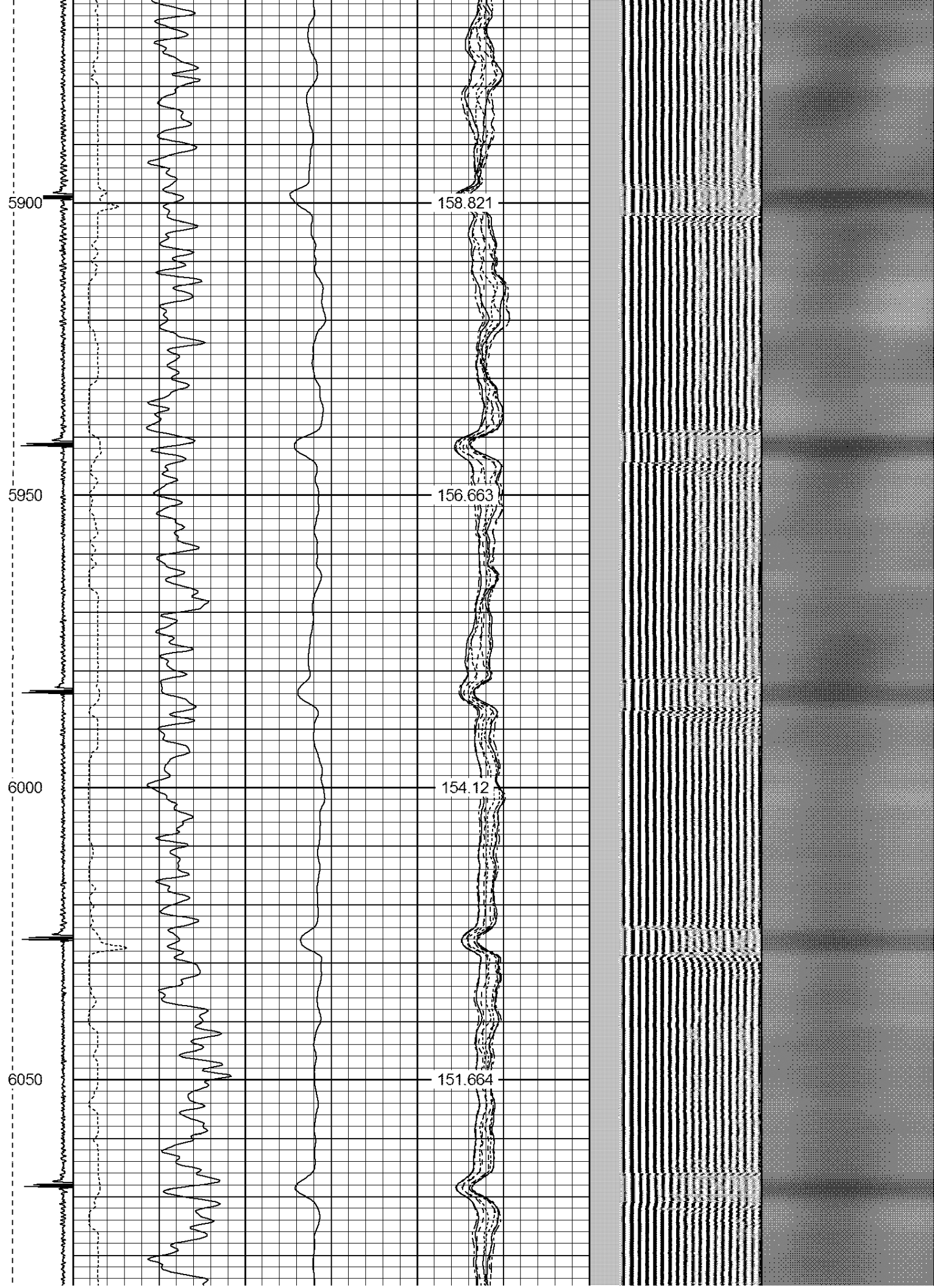


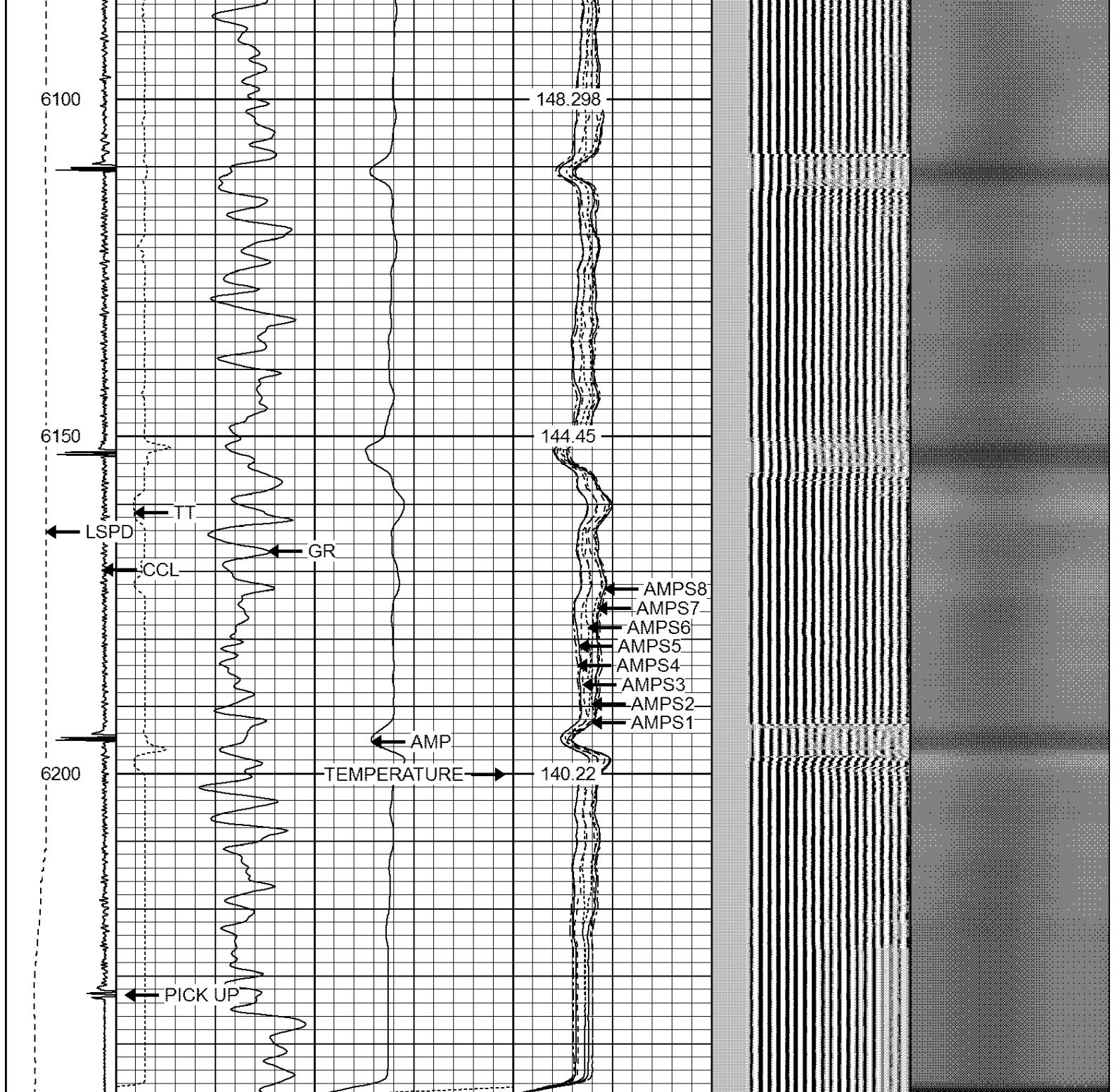












|          |     |   |     |           |      |   |            |     |   |       |     |     |     |      |     |            |   |
|----------|-----|---|-----|-----------|------|---|------------|-----|---|-------|-----|-----|-----|------|-----|------------|---|
| -9       | CCL | 1 | 200 | TT (usec) | 1000 | 0 | AMP (mV)   | 100 | 0 | AMPS1 | 100 | 200 | VDL | 1200 | 1   | Cement Map | 8 |
| LSPD     |     |   | 0   | GR (GAPI) | 200  | 0 | AMPx5 (mV) | 20  | 0 | AMPS2 | 100 |     |     |      | 100 |            | 1 |
| (ft/min) |     |   | 200 | GR (GAPI) | 400  |   |            |     | 0 | AMPS3 | 100 |     |     |      |     |            |   |
| 0        | 250 |   |     |           |      |   |            |     | 0 | AMPS4 | 100 |     |     |      |     |            |   |
|          |     |   |     |           |      |   |            |     | 0 | AMPS5 | 100 |     |     |      |     |            |   |
|          |     |   |     |           |      |   |            |     | 0 | AMPS6 | 100 |     |     |      |     |            |   |
|          |     |   |     |           |      |   |            |     | 0 | AMPS7 | 100 |     |     |      |     |            |   |

|                   |       |     |
|-------------------|-------|-----|
| 0                 | AMPS8 | 100 |
| IntTemp<br>(degF) |       |     |

### Calibration Report

Database File: frank 23-31.db  
Dataset Pathname: pass2  
Dataset Creation: Wed Mar 09 19:57:48 2016 by Log 7.0 B1

#### Gamma Ray Calibration Report

Serial Number: 275  
Tool Model: Probe  
Performed: Tue Sep 23 07:13:12 2014

Calibrator Value: 100.0 GAPI

Background Reading: 35.0 cps  
Calibrator Reading: 160.0 cps

Sensitivity: 1.0000 GAPI/cps

#### Compensated Neutron Calibration Report

Serial Number: 275  
Tool Model: Probe\_B

CALIBRATION Wed Jul 30 08:47:19 2008

| Detector    | Readings    | Target   | Normalization |
|-------------|-------------|----------|---------------|
| Short Space | 5001.20 cps | 0.00 cps | 1.0000        |
| Long Space  | 1029.31 cps | 0.00 cps | 1.0000        |

#### PRE-SURVEY VERIFICATION

|    | Detector    | Readings | Measured | Target |
|----|-------------|----------|----------|--------|
| 1) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |
| 2) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       |        |
| 3) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       |        |

#### POST-SURVEY VERIFICATION

|    | Detector    | Readings | Measured | Target |
|----|-------------|----------|----------|--------|
| 1) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |
| 2) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |
| 3) | Short Space | cps      |          |        |
|    | Long Space  | cps      | pu       | pu     |

#### Segmented Cement Bond Log Calibration Report

Serial Number: Base  
Tool Model: Probe

Calibration Casing Diameter: 4.500 in  
Calibration Depth: 195.617 ft



Master Calibration, performed Tue Mar 08 20:07:23 2016:

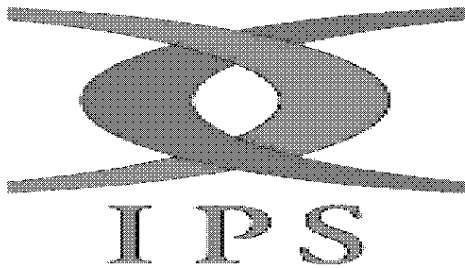
|     | Raw (v) |       | Calibrated (mv) |        | Results |        |
|-----|---------|-------|-----------------|--------|---------|--------|
|     | Zero    | Cal   | Zero            | Cal    | Gain    | Offset |
| 3'  | 0.003   | 2.500 | 2.000           | 81.196 | 31.712  | 1.915  |
| CAL | 1.454   | 2.500 |                 |        |         |        |
| 5'  | 0.003   | 2.500 | 2.000           | 81.196 | 31.712  | 1.916  |
| SUM |         |       |                 |        |         |        |
| S1  | 0.005   | 2.500 | 0.500           | 81.000 | 32.269  | 0.328  |
| S2  | 0.004   | 2.500 | 0.500           | 81.000 | 32.246  | 0.385  |
| S3  | 0.005   | 2.500 | 0.500           | 81.000 | 32.258  | 0.354  |
| S4  | 0.004   | 2.500 | 0.500           | 81.000 | 32.251  | 0.372  |
| S5  | 0.003   | 2.500 | 0.500           | 81.000 | 32.235  | 0.412  |
| S6  | 0.004   | 2.500 | 0.500           | 81.000 | 32.256  | 0.359  |
| S7  | 0.007   | 2.500 | 0.500           | 81.000 | 32.285  | 0.286  |
| S8  | 0.005   | 2.500 | 0.500           | 81.000 | 32.267  | 0.331  |

Internal Reference Calibration, performed Tue Jun 05 07:53:42 2012:

|     | Raw (v) |       | Calibrated (v) |       | Results |        |
|-----|---------|-------|----------------|-------|---------|--------|
|     | Zero    | Cal   | Zero           | Cal   | Gain    | Offset |
| CAL | 0.000   | 0.000 | 1.454          | 2.500 | 1.000   | 0.000  |

Air Zero Calibration, performed Wed Mar 09 19:12:53 2016:

|     | Raw (v) |  | Calibrated (v) |  | Results |  |
|-----|---------|--|----------------|--|---------|--|
|     | Zero    |  | Zero           |  | Offset  |  |
| 3'  | 0.009   |  | 0.000          |  | -0.006  |  |
| 5'  | 0.011   |  | 0.000          |  | -0.009  |  |
| SUM |         |  |                |  |         |  |
| S1  | 0.011   |  | 0.000          |  | -0.006  |  |
| S2  | 0.010   |  | 0.000          |  | -0.006  |  |
| S3  | 0.007   |  | 0.000          |  | -0.002  |  |
| S4  | 0.006   |  | 0.000          |  | -0.002  |  |
| S5  | 0.008   |  | 0.000          |  | -0.005  |  |
| S6  | 0.008   |  | 0.000          |  | -0.004  |  |
| S7  | 0.009   |  | 0.000          |  | -0.002  |  |
| S8  | 0.006   |  | 0.000          |  | -0.001  |  |



Company ANADARKO PETROLEUM CORPORATION  
 Well FRANK 23-31  
 Field WATTENBERG  
 County WELD  
 State CO