



**Radial Cement Bond
Variable Density Log
W/Gamma Ray/CCL/Temp**

Company Antero Resources
Well Fleetwood 1H
Field River Front
County Tyler
State West Virginia

Company Antero Resources
Well Fleetwood 1H
Field River Front
County Tyler
State West Virginia

Location: SEC N/A TWP N/A RGE N/A
API #: 47-095-02730-0000
Other Services

Permanent Datum Ground Level Elevation
Log Measured From Kelly Bushing (30')
Drilling Measured From Kelly Bushing
Elevation
K.B. D.F. G.L.

| | | | | | |
|------------------------|---------------|---------------|---------|------------|--------|
| Date | July 12 2021 | One | | | |
| Run Number | 19,379 ft. | | | | |
| Depth Driller | 6,414 ft. | | | | |
| Depth Logger | 6,414 ft. | | | | |
| Bottom Logged Interval | Surface | | | | |
| Top Log Interval | N/A | | | | |
| Open Hole Size | Water | | | | |
| Type Fluid | N/A | | | | |
| Density / Viscosity | 139.1 Deg. F | | | | |
| Max. Recorded Temp. | 5,364 ft. | | | | |
| Estimated Cement Top | 15:30 | | | | |
| Time Well Ready | 16:18 | | | | |
| Time Logger on Bottom | Unit 133 | | | | |
| Equipment Number | Marietta Ohio | | | | |
| Location | Thomas Weese | | | | |
| Recorded By | Reggie | | | | |
| Witnessed By | | | | | |
| Borehole Record | | Tubing Record | | | |
| Run Number | Bit | From | To | Size | Weight |
| | | | | | From |
| | | | | | To |
| Casing Record | Size | Wt/Ft | Top | Bottom | |
| Surface String | 13 3/8 | 54# | Surface | 360 ft. | |
| Prot. String | 9 5/8 | 36# | Surface | 2562 ft. | |
| Production String | 5 1/2 | 20# | Surface | 19,379 ft. | |
| 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

Primary Log on Well

**Marker Joint @ 5,333 - 5,343 ft.
Correction to Pipe Tally Depth Shifted (+7)**

**Main Pass 1,500 psi
Repeat Pass 1,500 psi**

Thank You for Choosing Nine Energy Service Wireline. Marietta, Ohio



Main Pass 1500 psi

SM

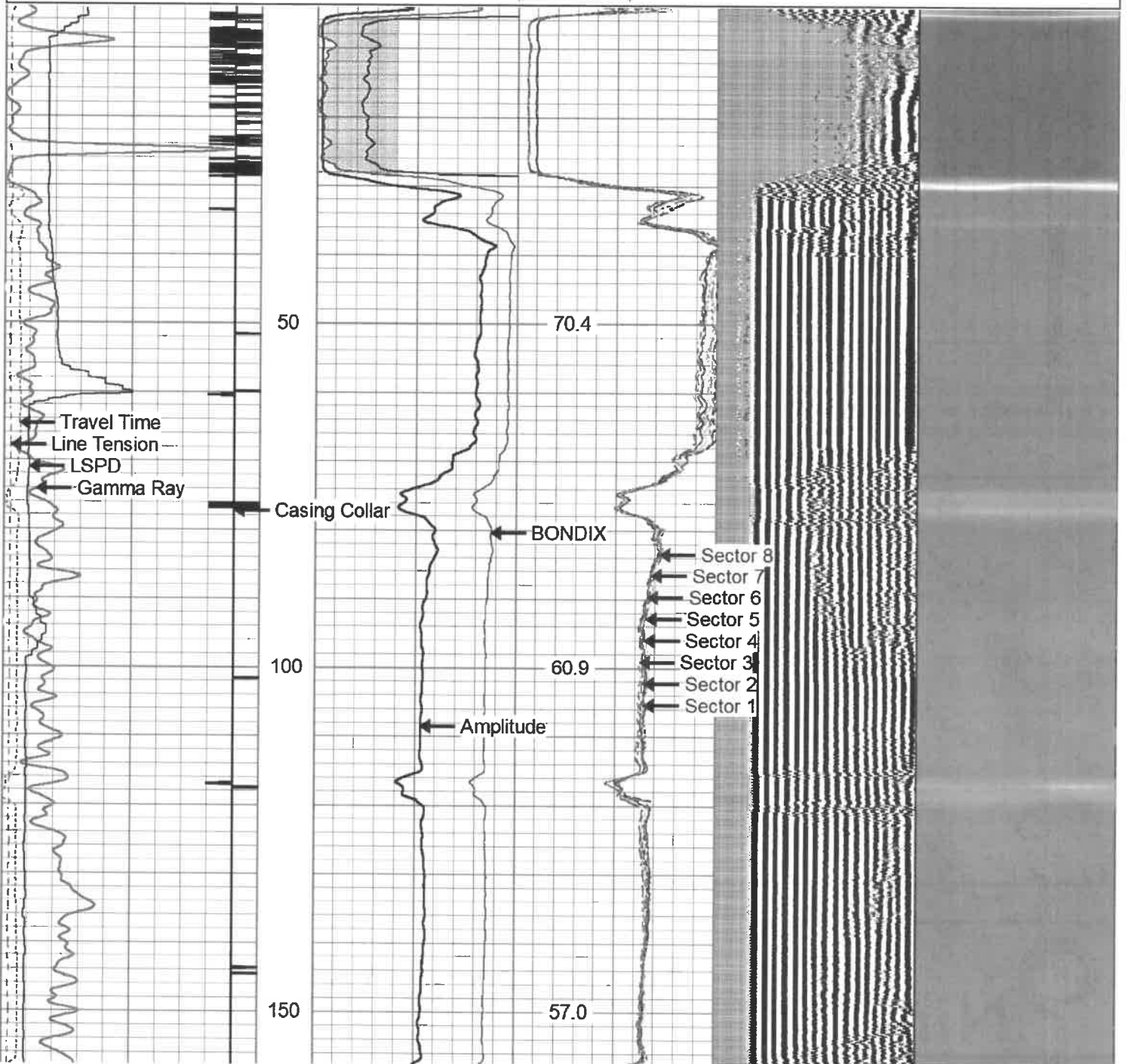
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 Dataset Pathname Marcellus/Fleetwood_1H/RCBL_1/pass4.2
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Tue Jul 13 18:58:38 2021
 Charted by Depth in Feet scaled 1:240

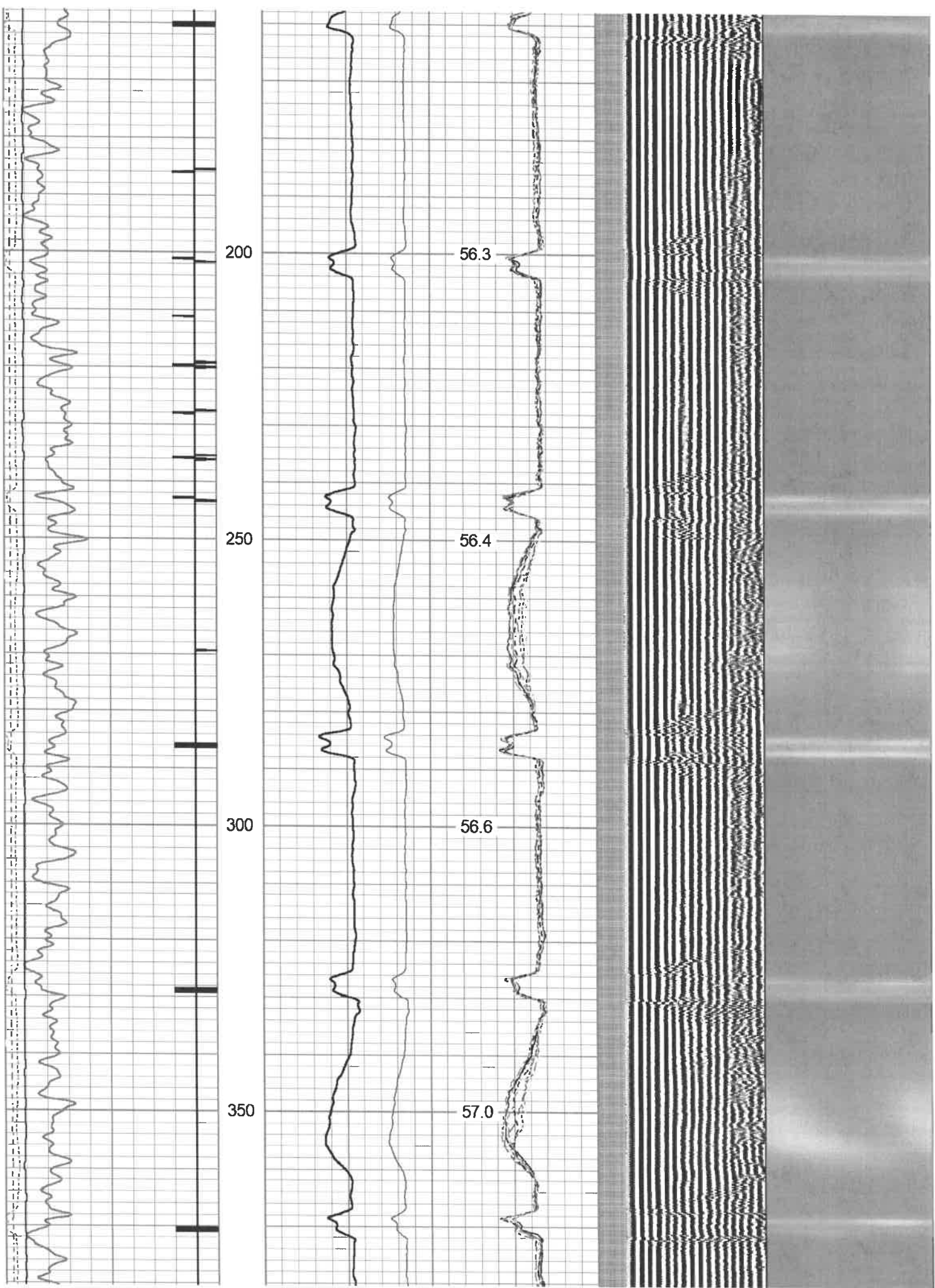
| | | |
|------|--------------------|------|
| 285 | Travel Time (usec) | 185 |
| 9 | Casing Collar | -1 |
| 0 | Gamma Ray (GAPI) | 150 |
| 0 | Line Tension (lb) | 5000 |
| -100 | LSPD (ft/min) | 100 |

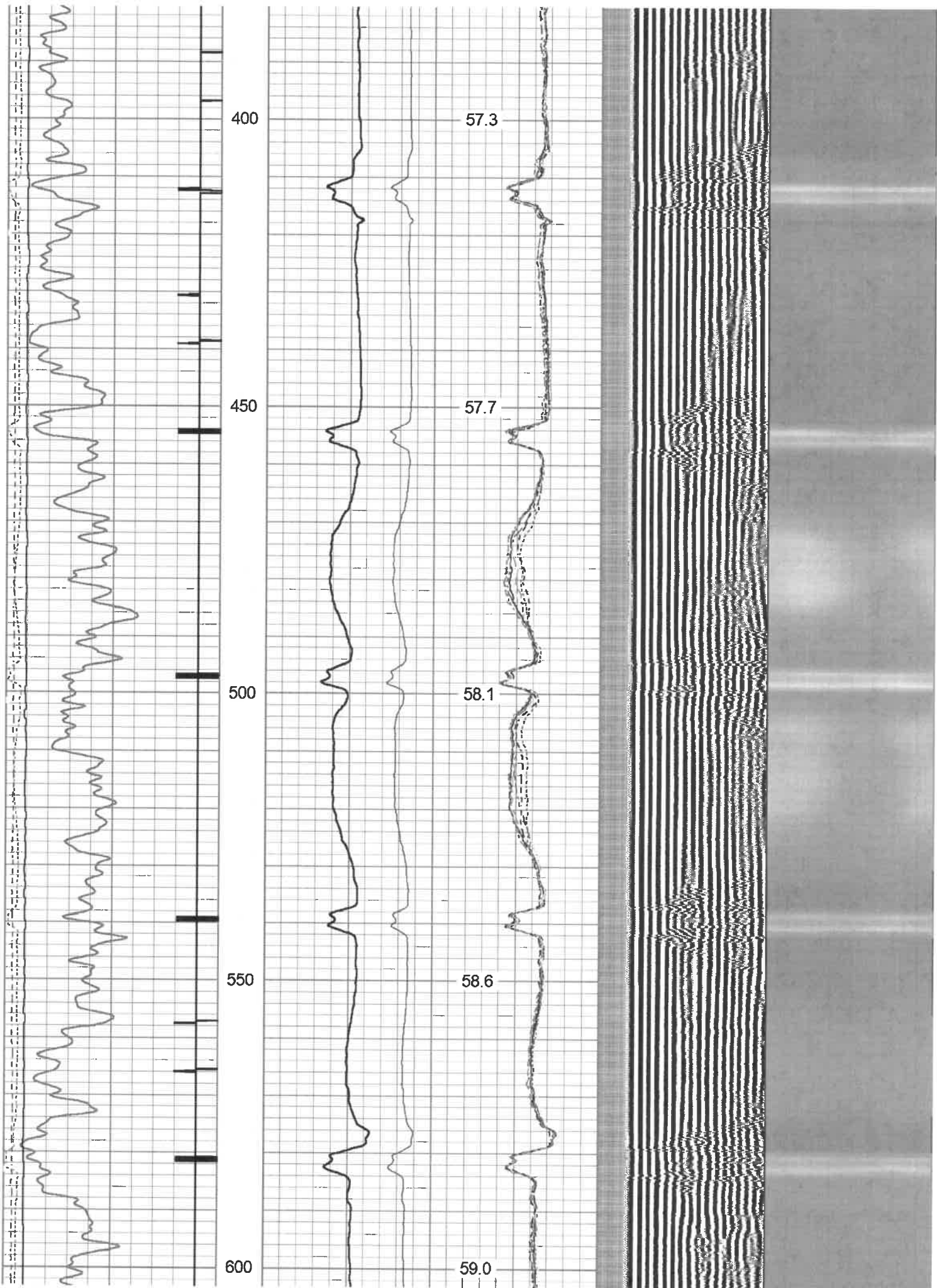
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|---|----------------|-----|----|----------|-----|
| 0 | Amplitude (mV) | 100 | -5 | Sector 1 | 150 |
| 1 | BONDIX | 0 | -5 | Sector 2 | 150 |
| 0 | AMPx10 (mV) | 10 | -5 | Sector 3 | 150 |
| | | | -5 | Sector 4 | 150 |
| | | | -5 | Sector 5 | 150 |
| | | | -5 | Sector 6 | 150 |
| | | | -5 | Sector 7 | 150 |
| | | | -5 | Sector 8 | 150 |

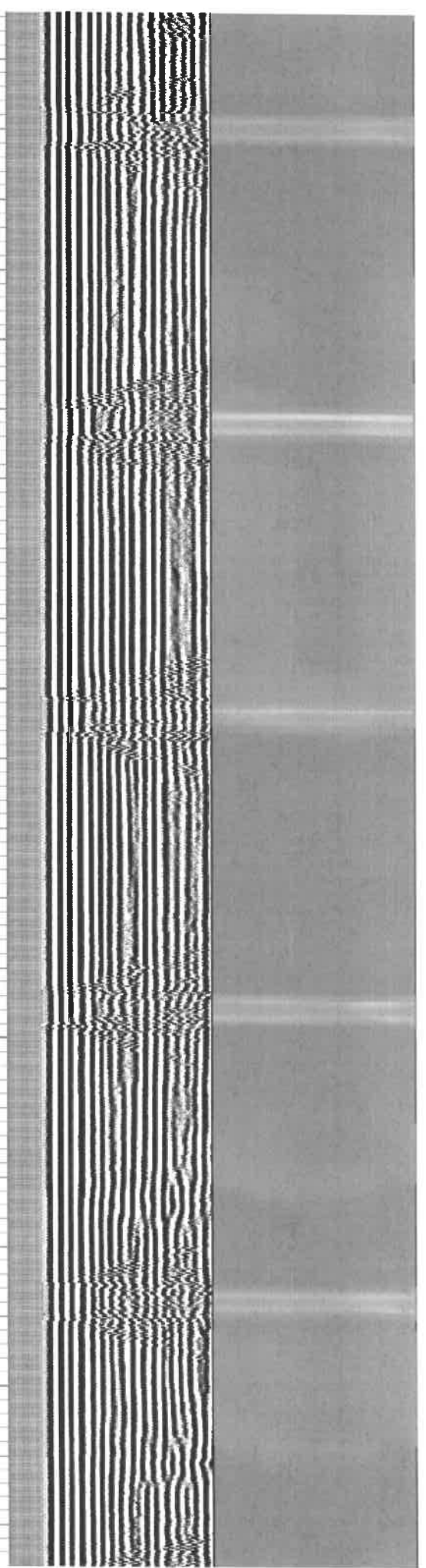
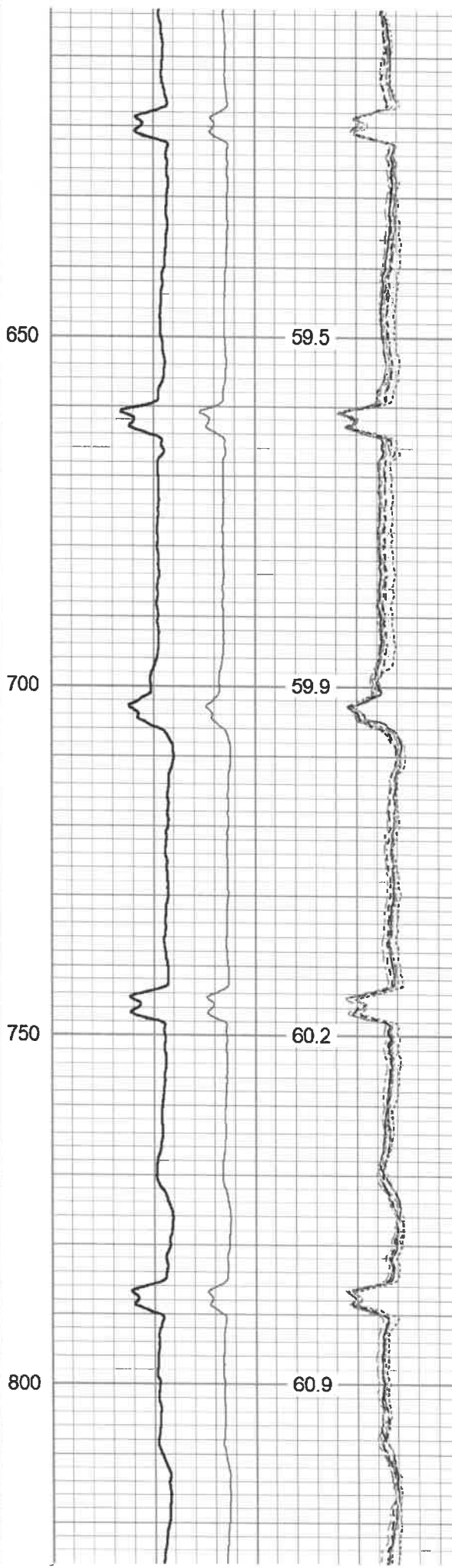
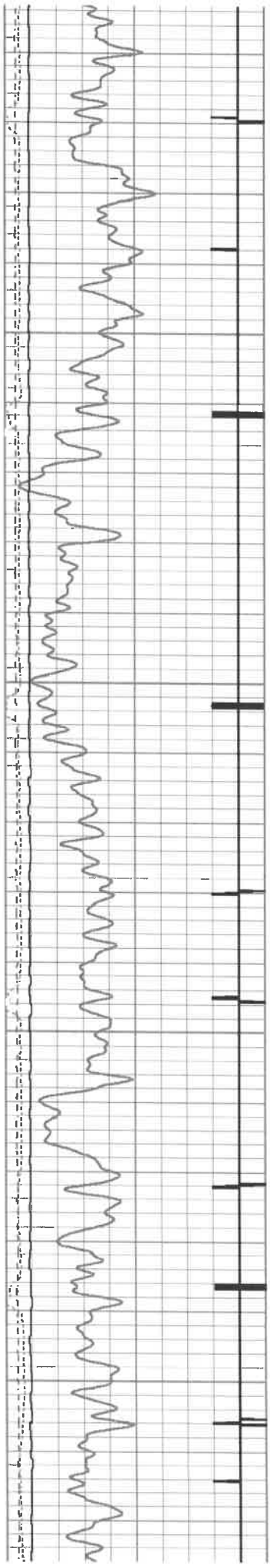
Variable Density 1 Cement Map 8
 200 (usec) 1200

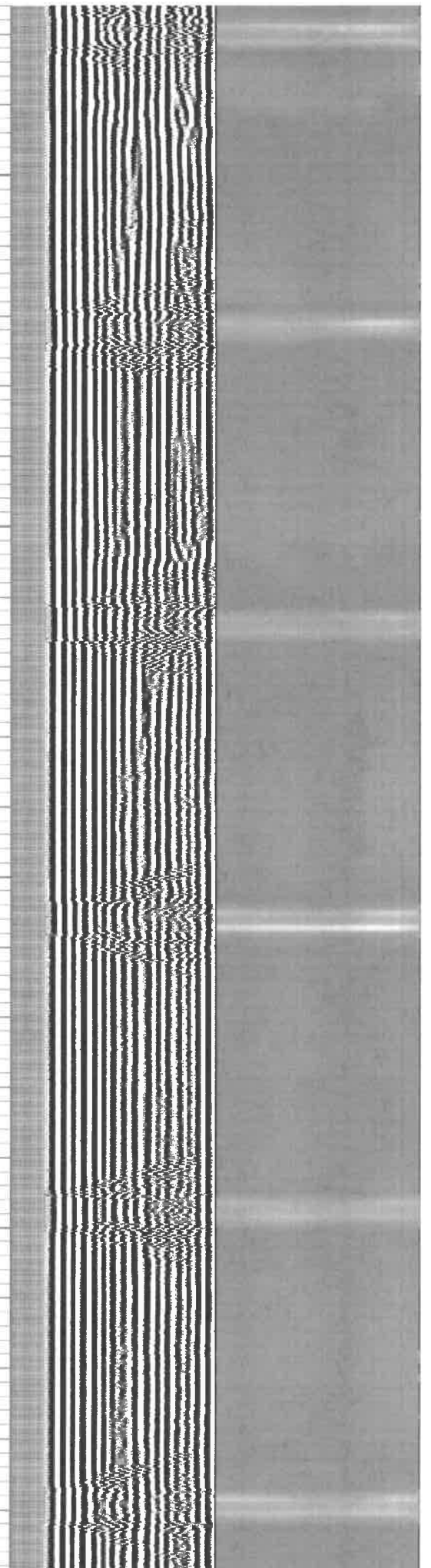
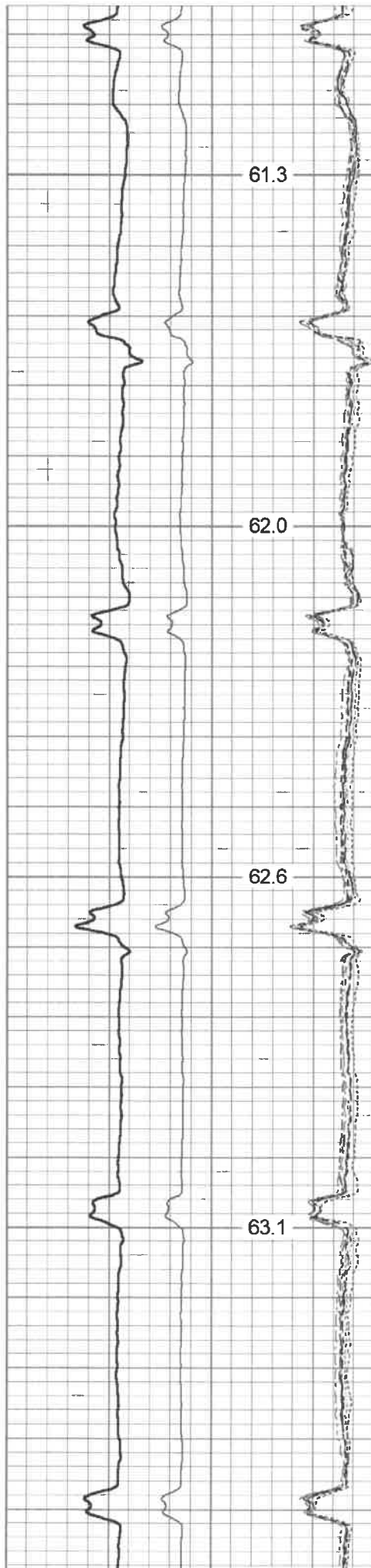
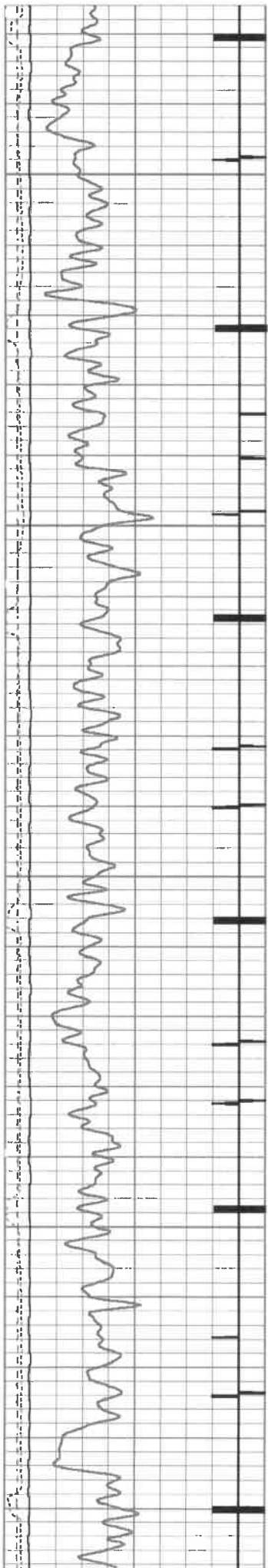
TEMP (degF)

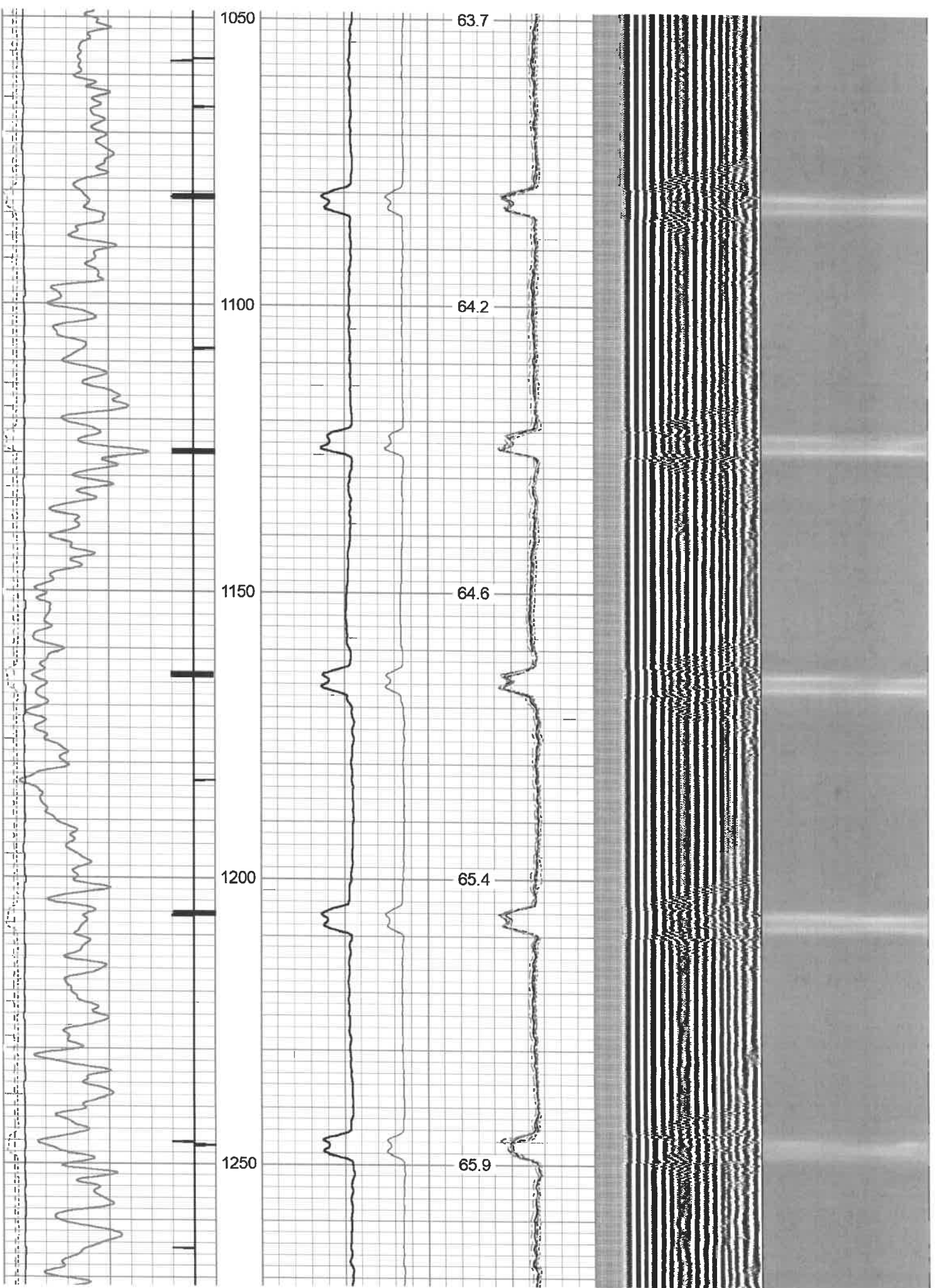


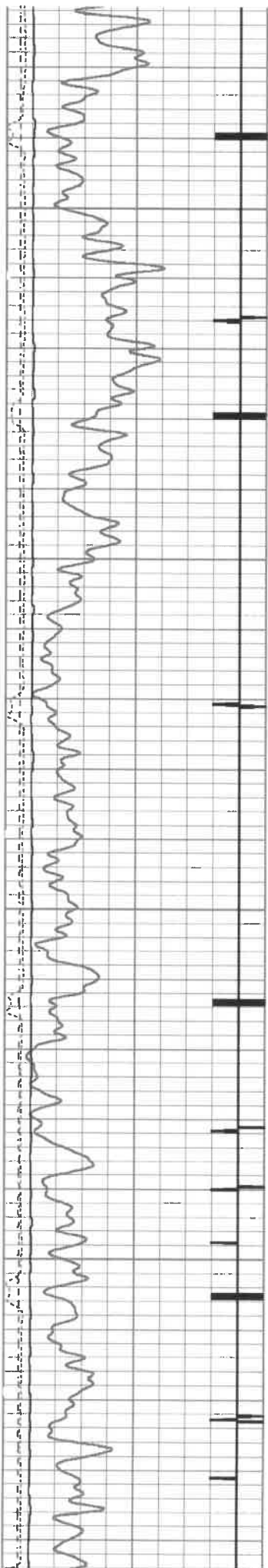










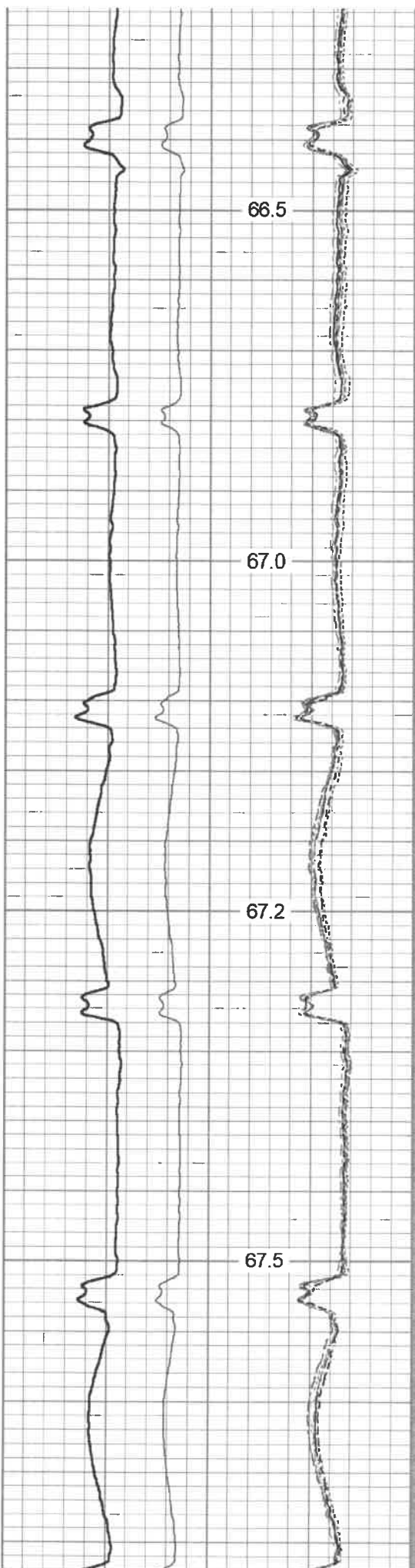


1300

1350

1400

1450

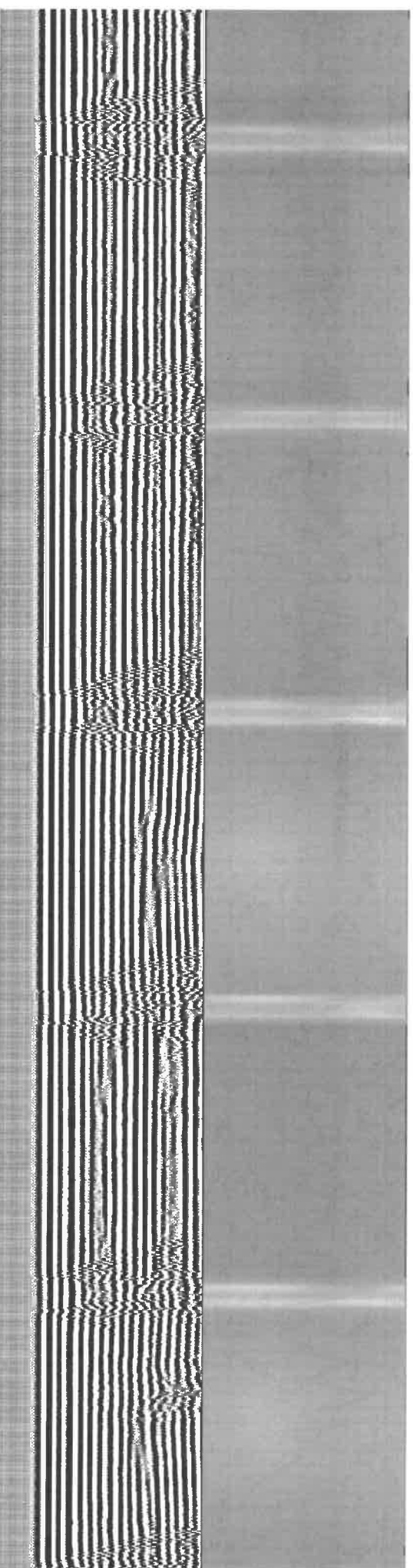


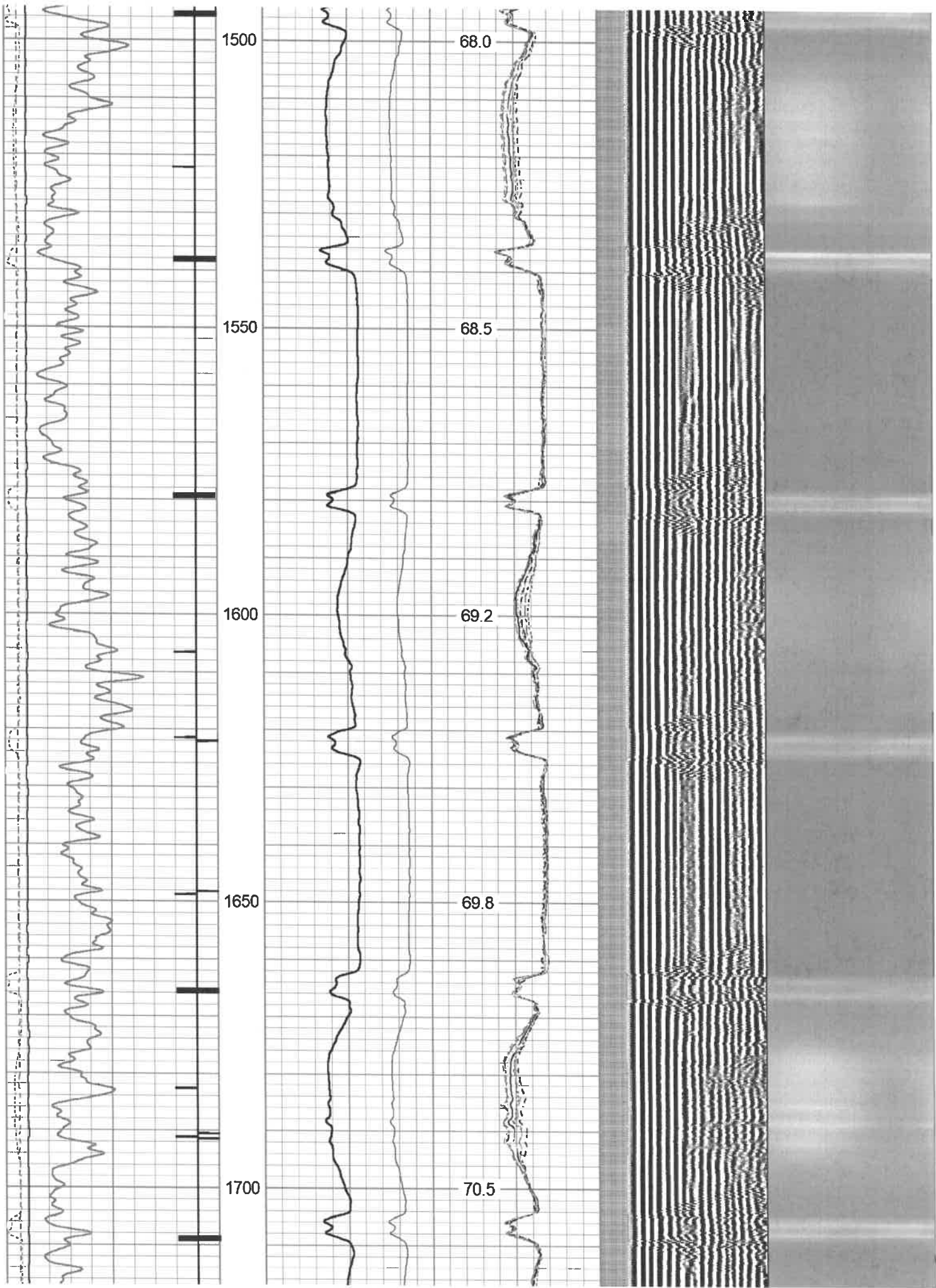
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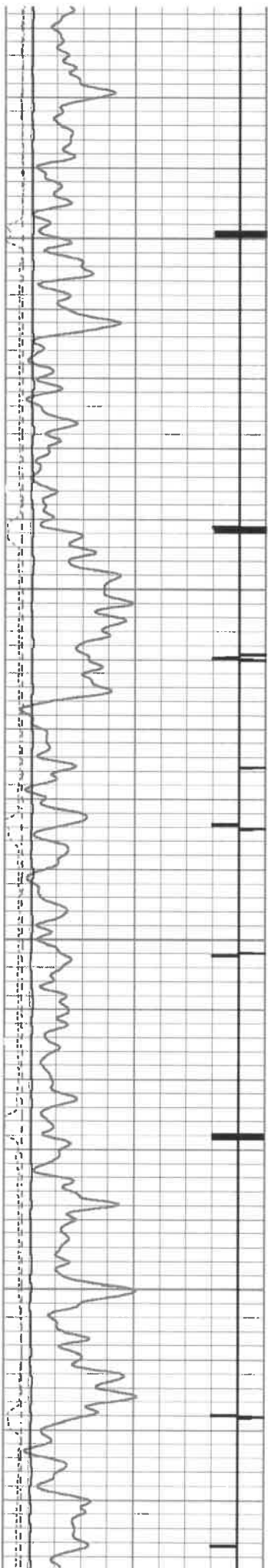
67.0

67.2

67.5







1750

1800

850

900

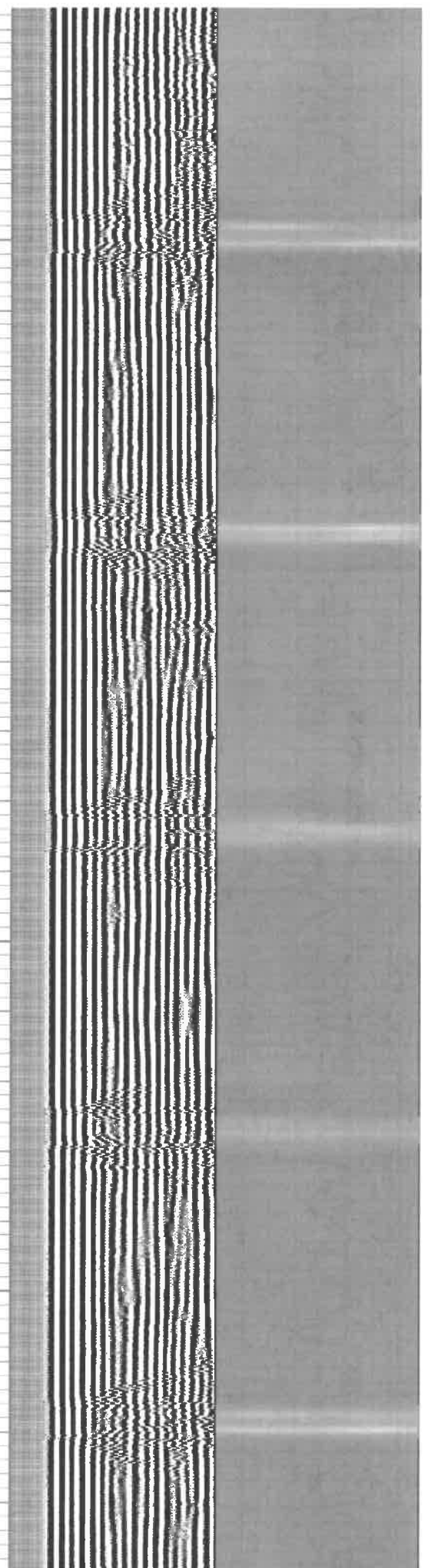


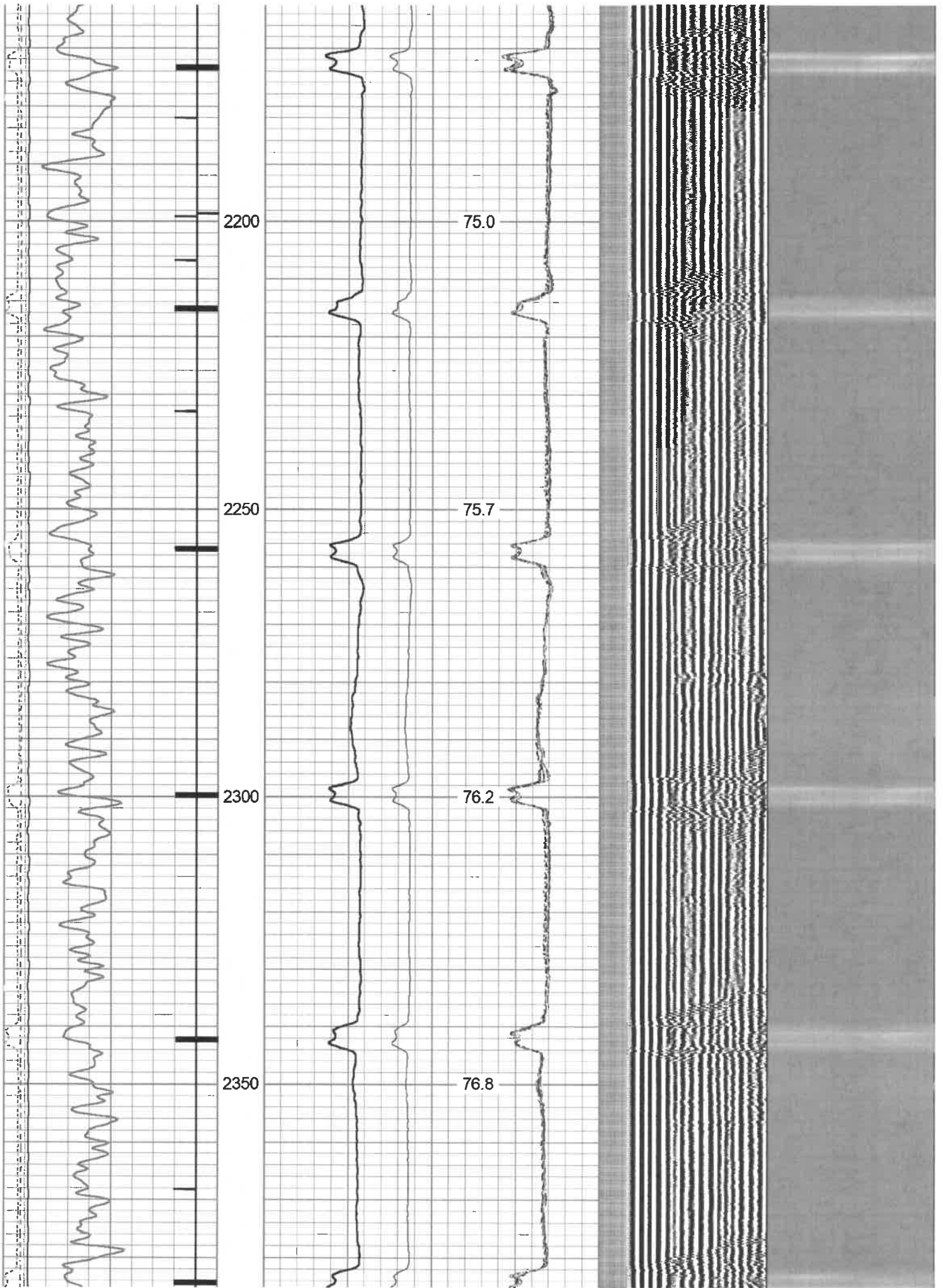
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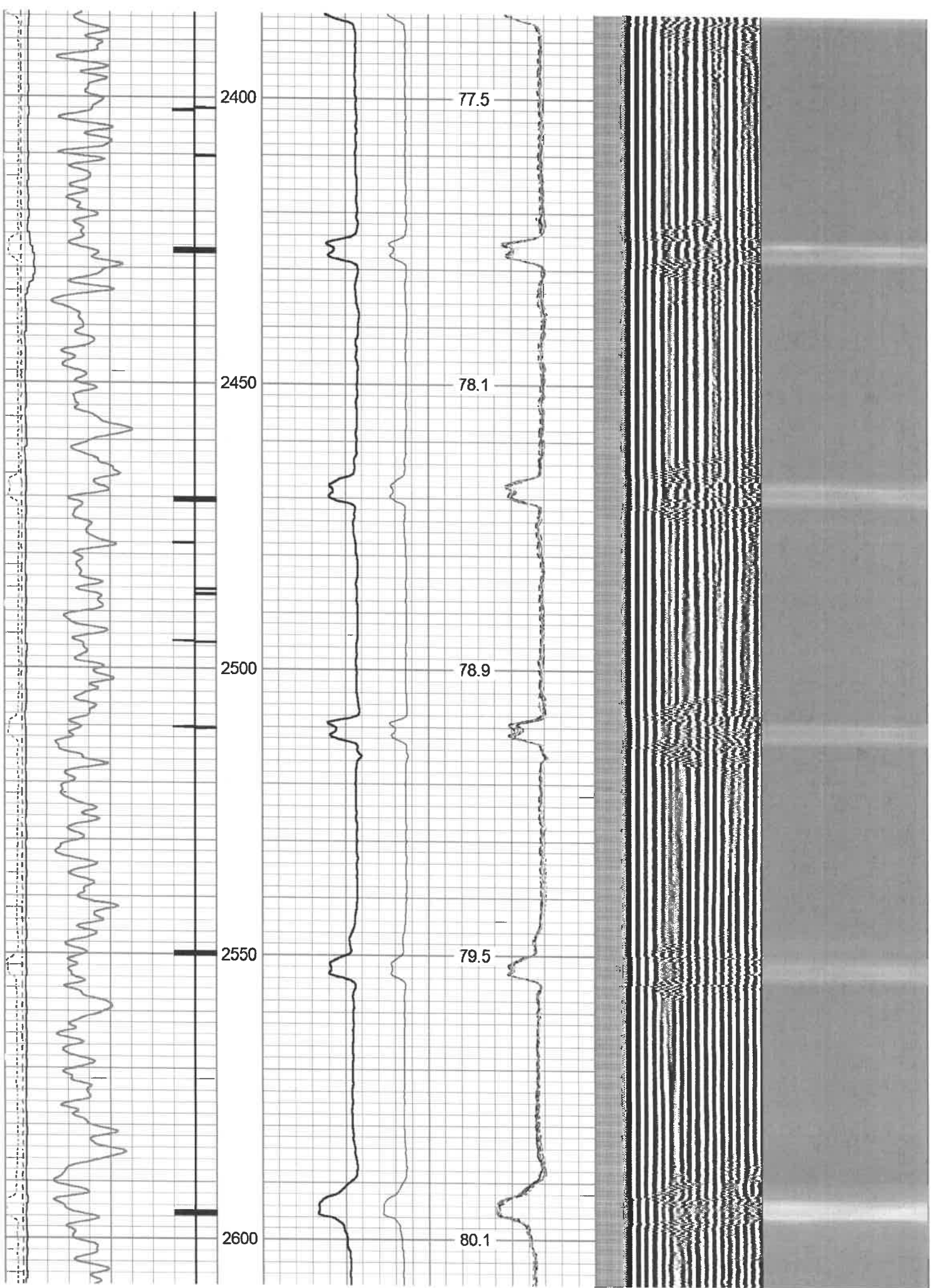
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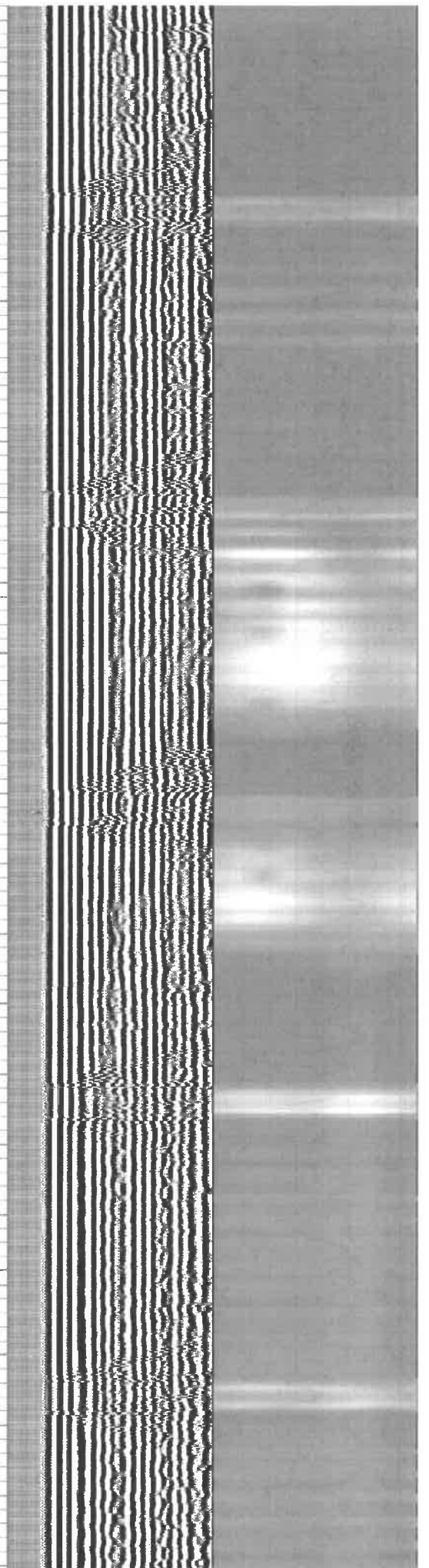
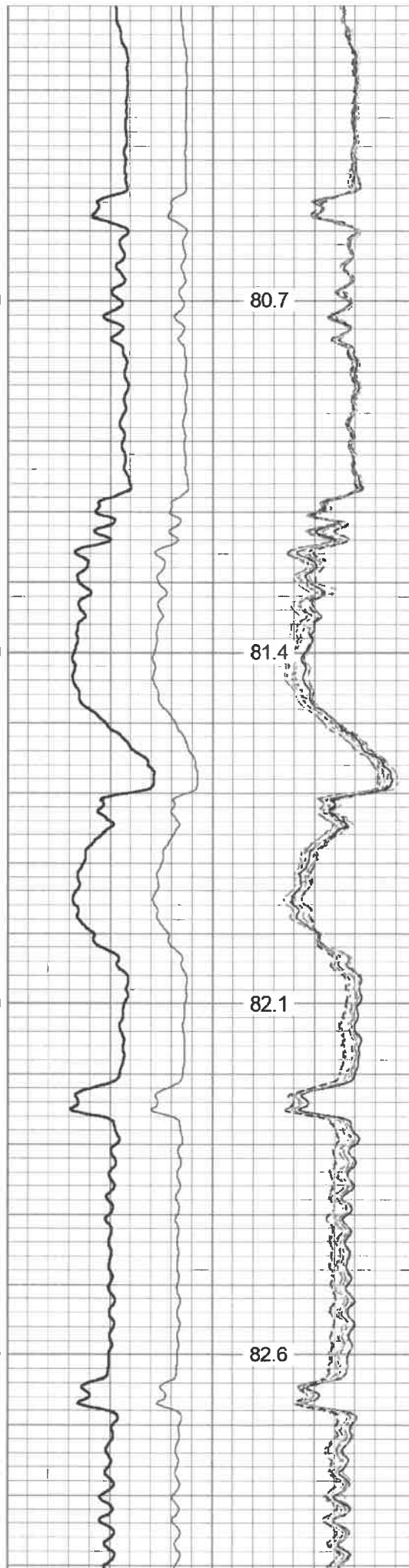
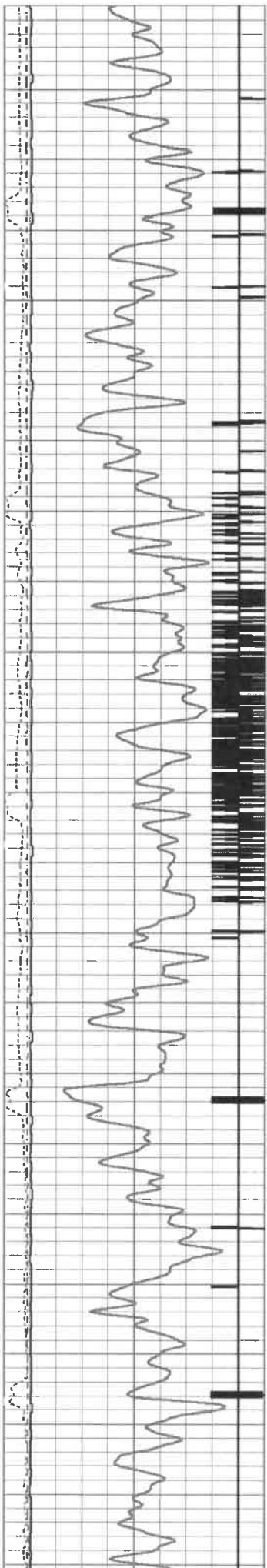
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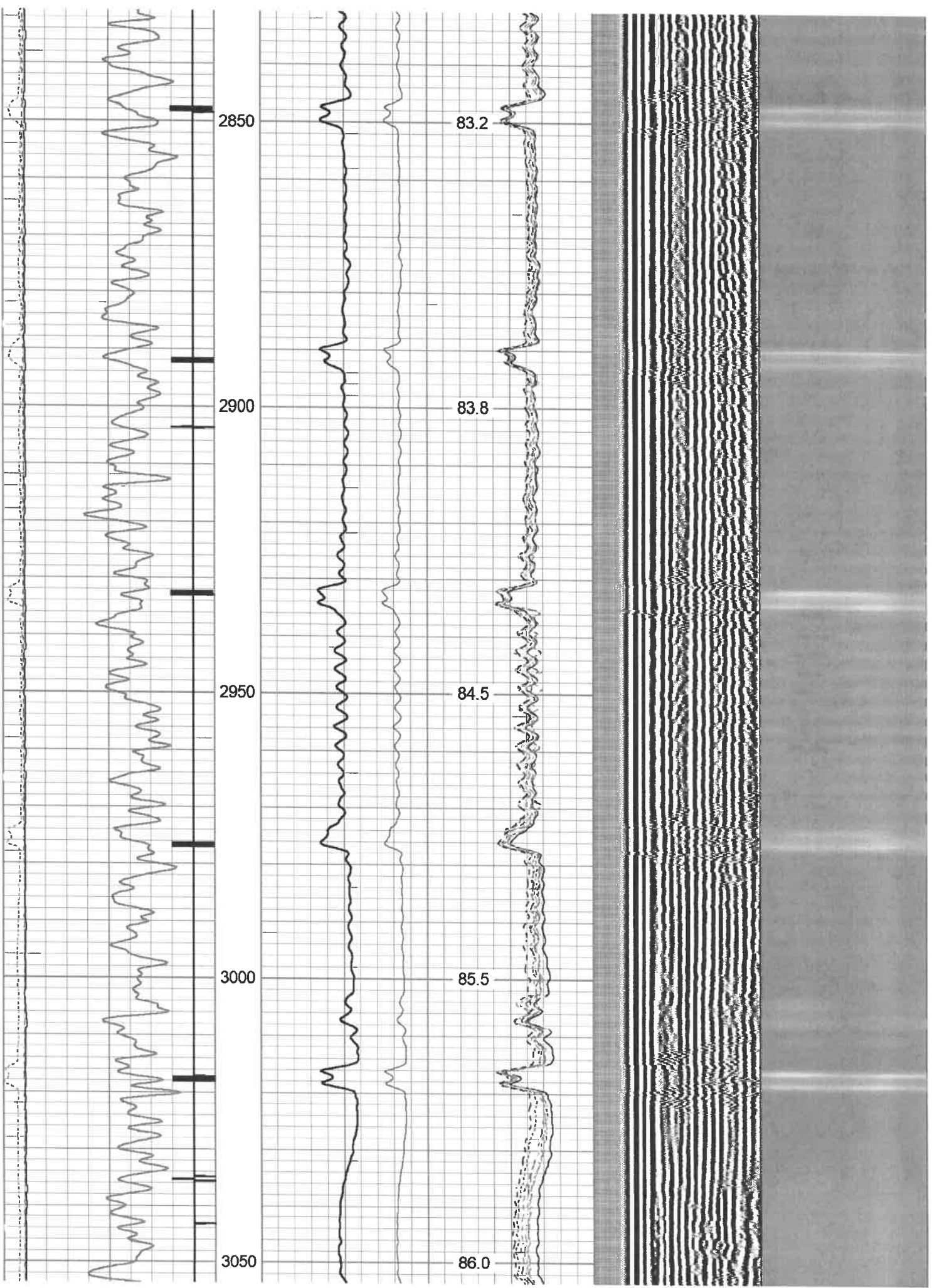
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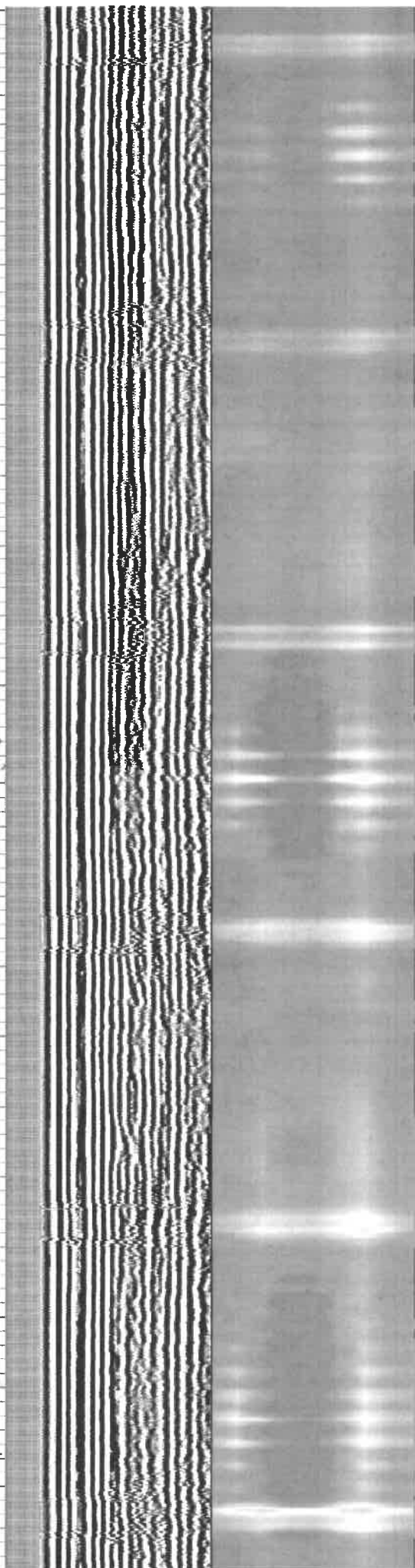
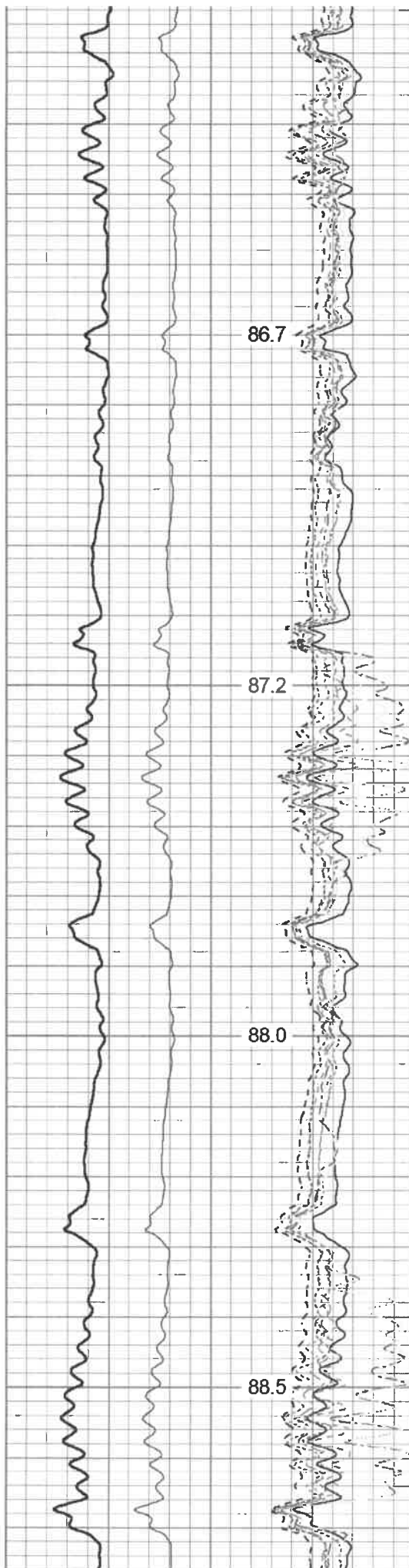
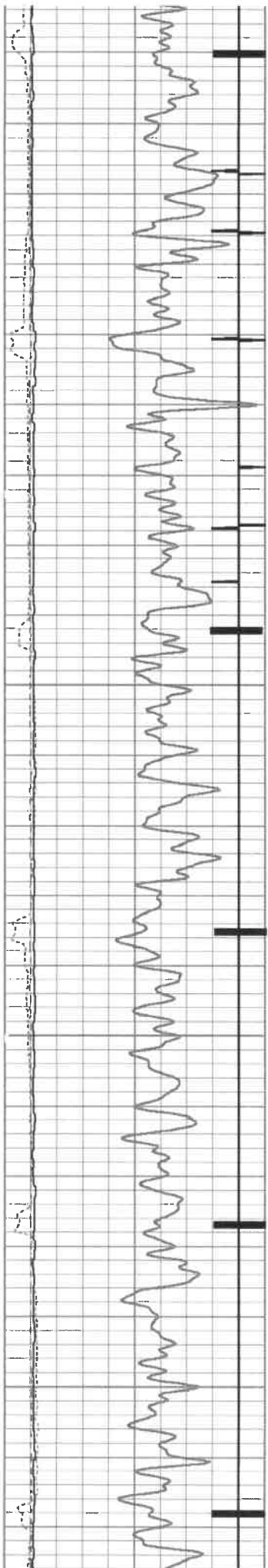


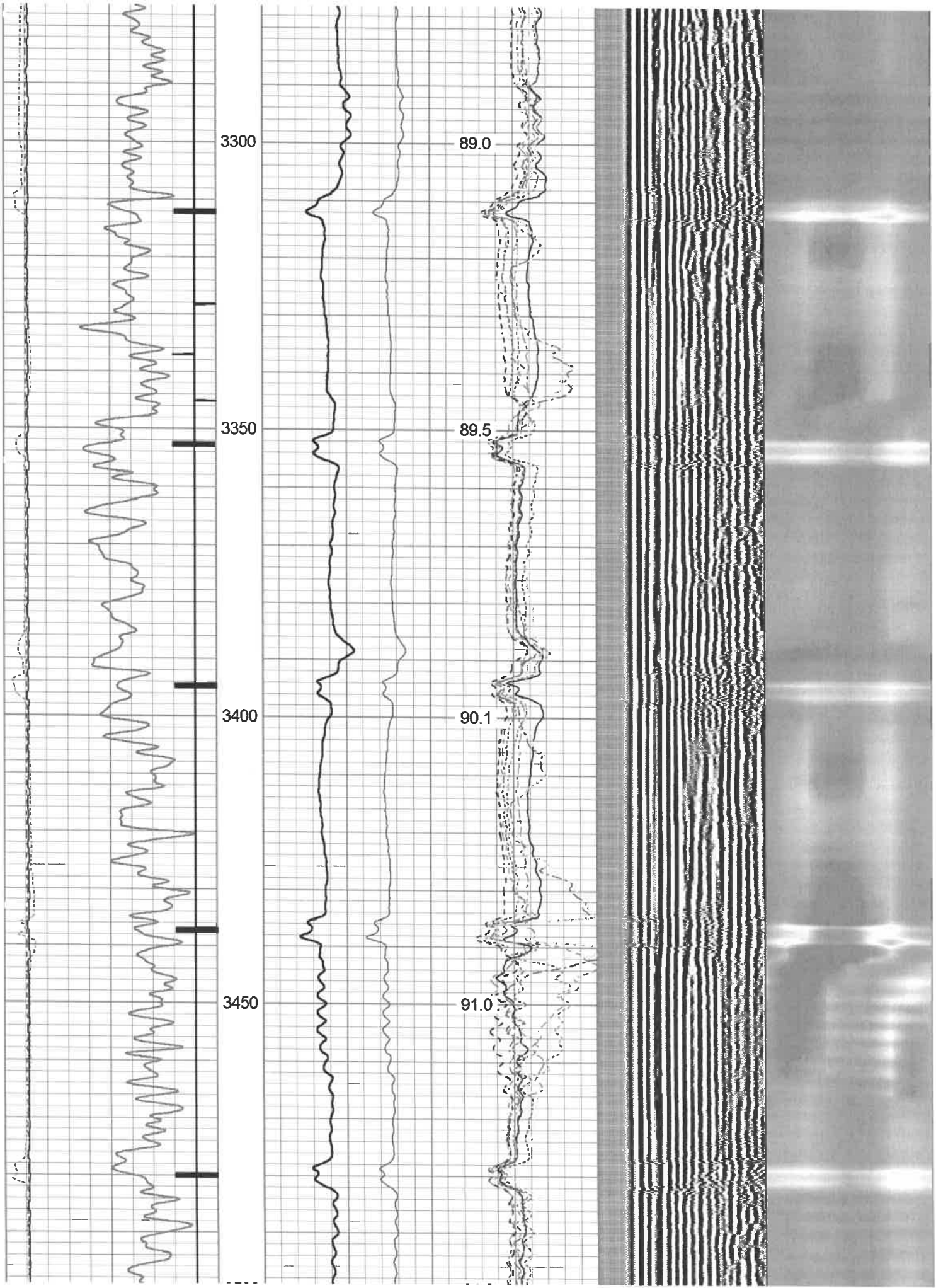


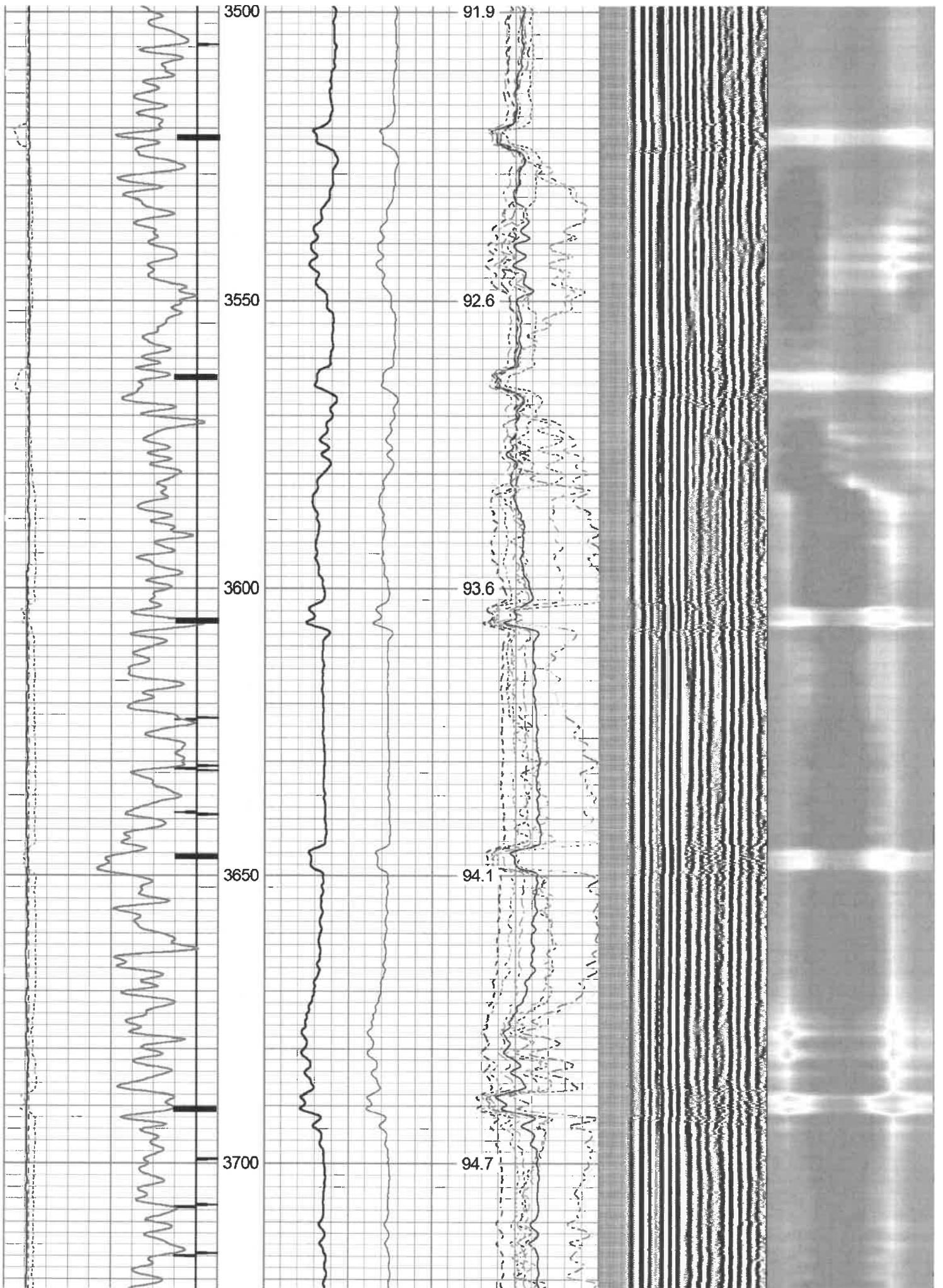


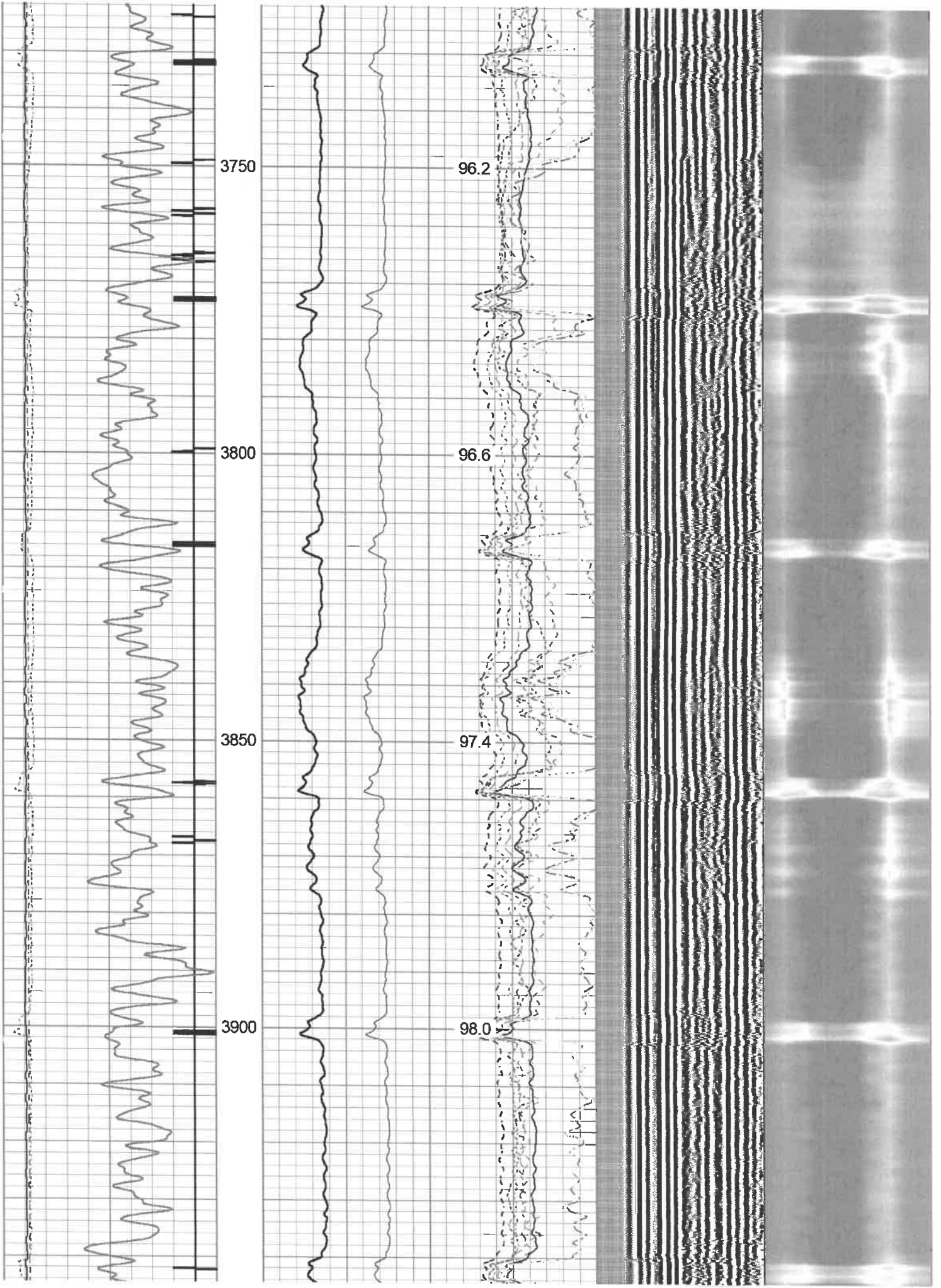


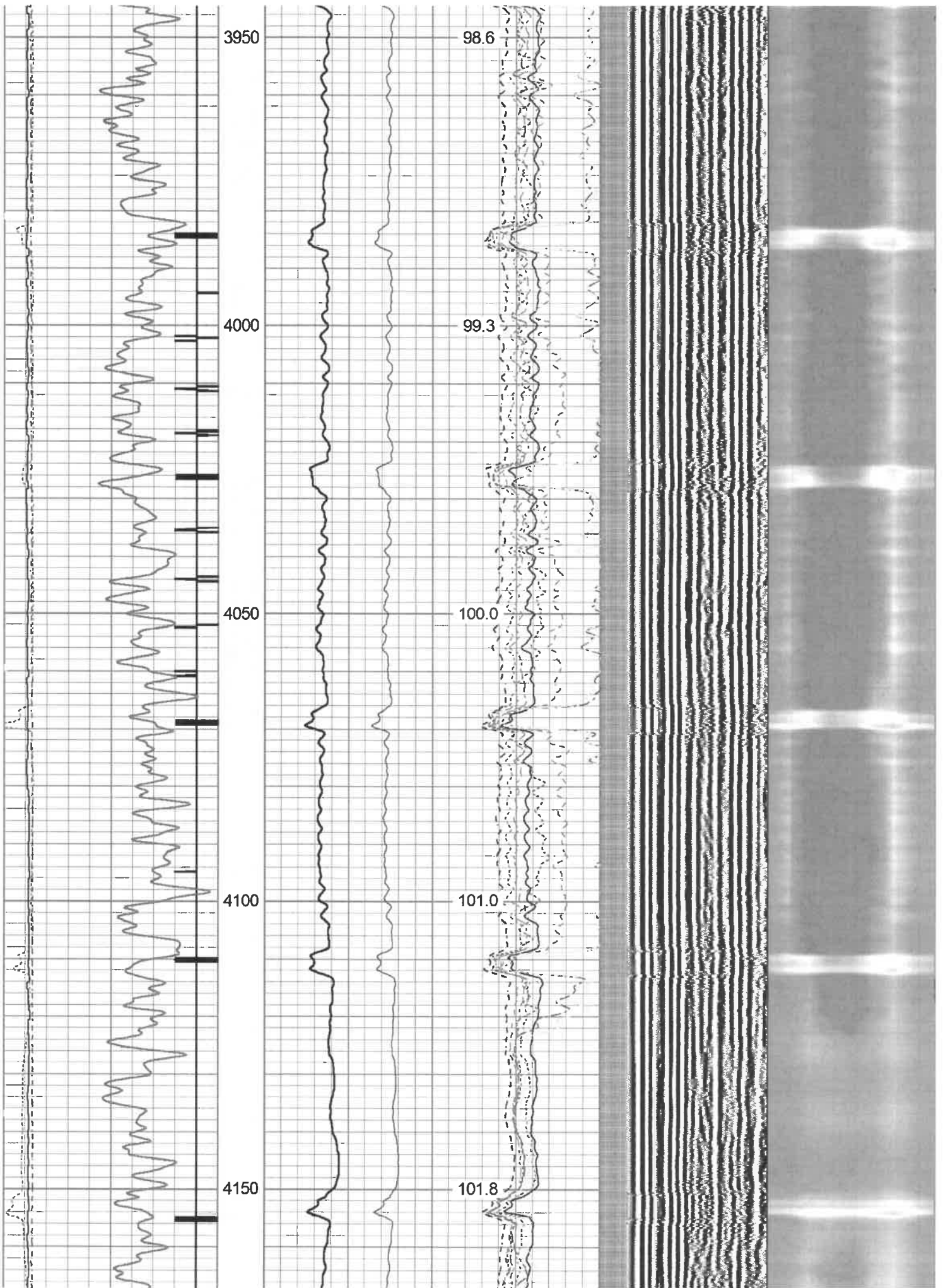


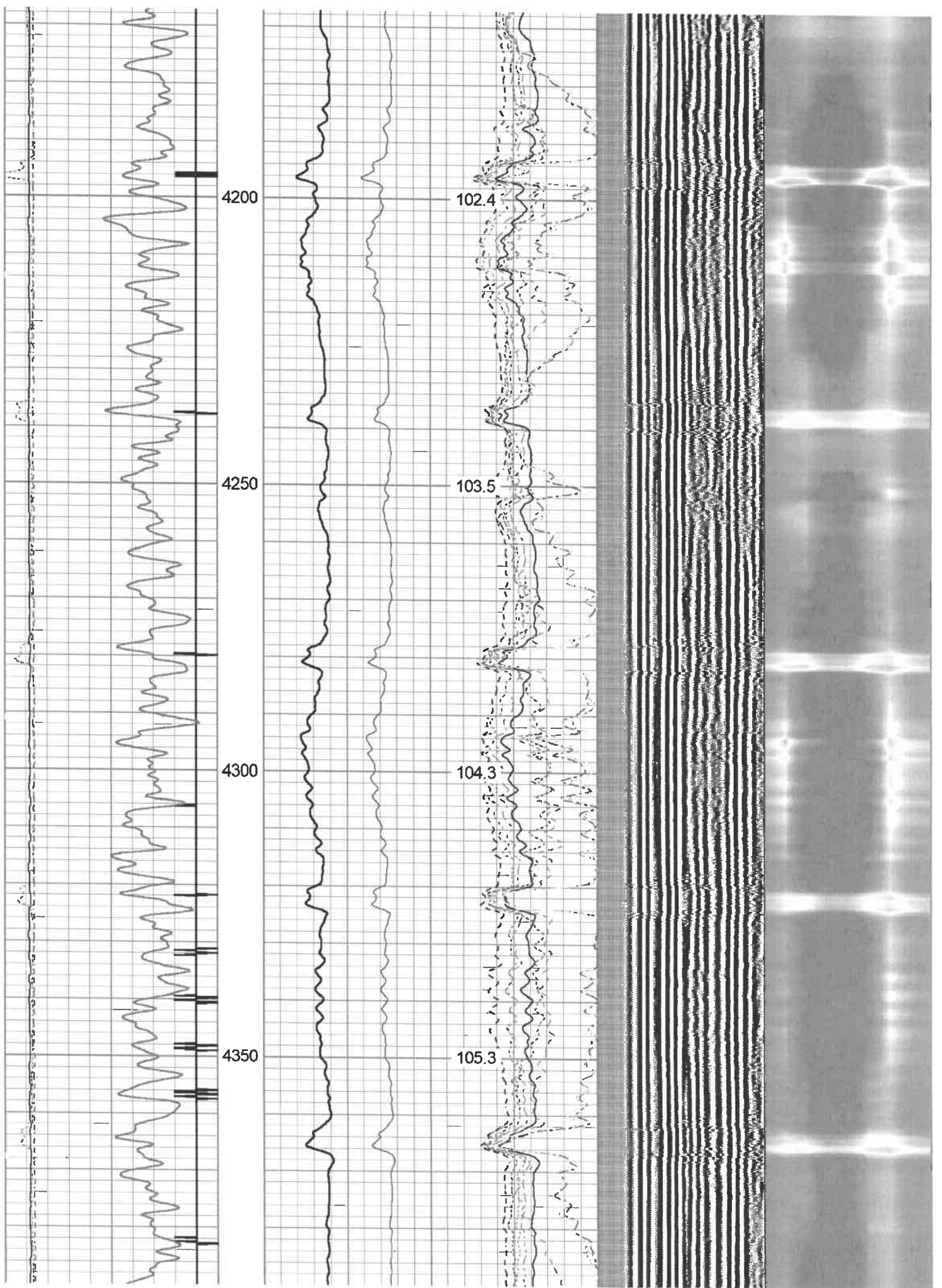


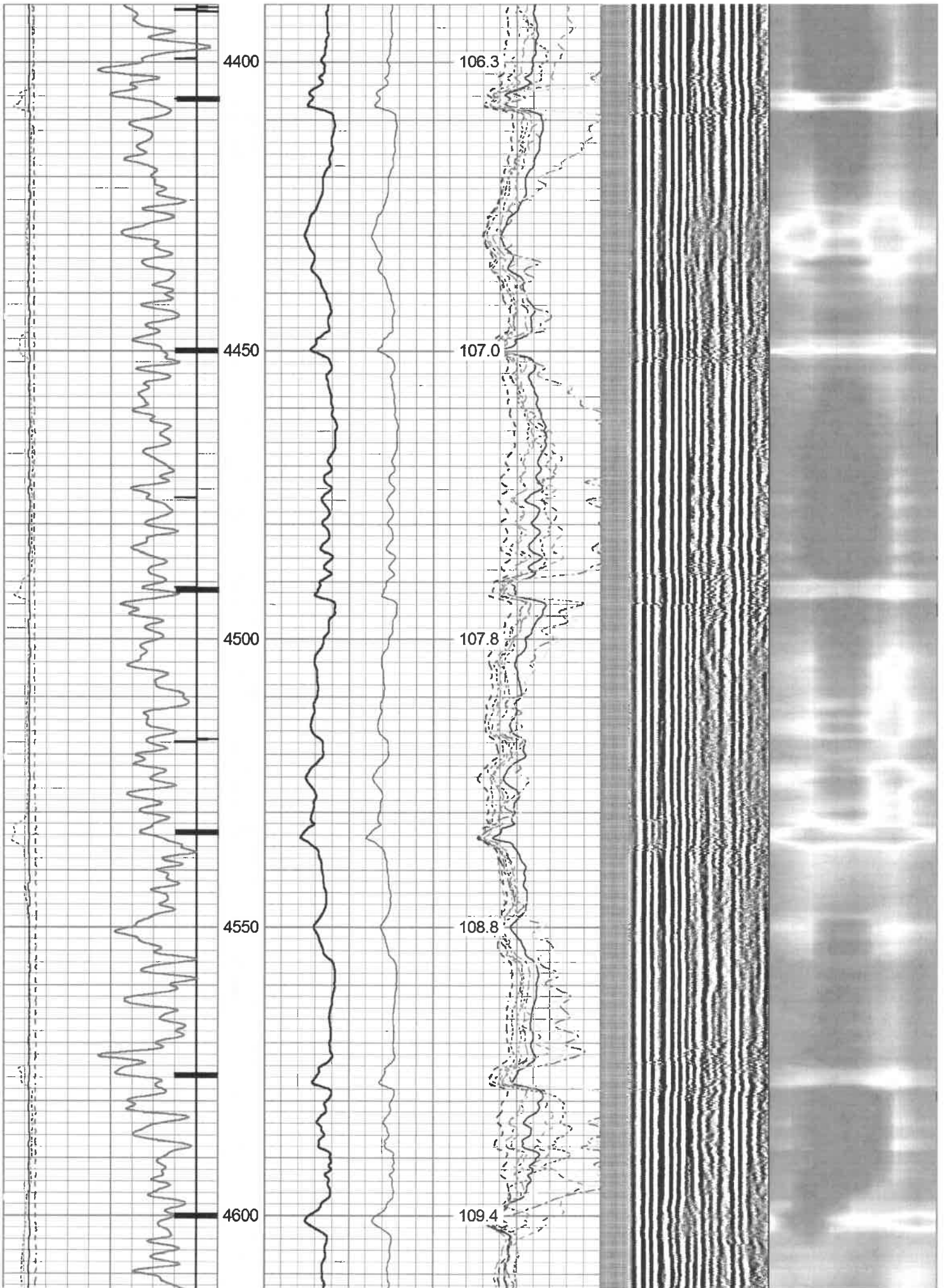


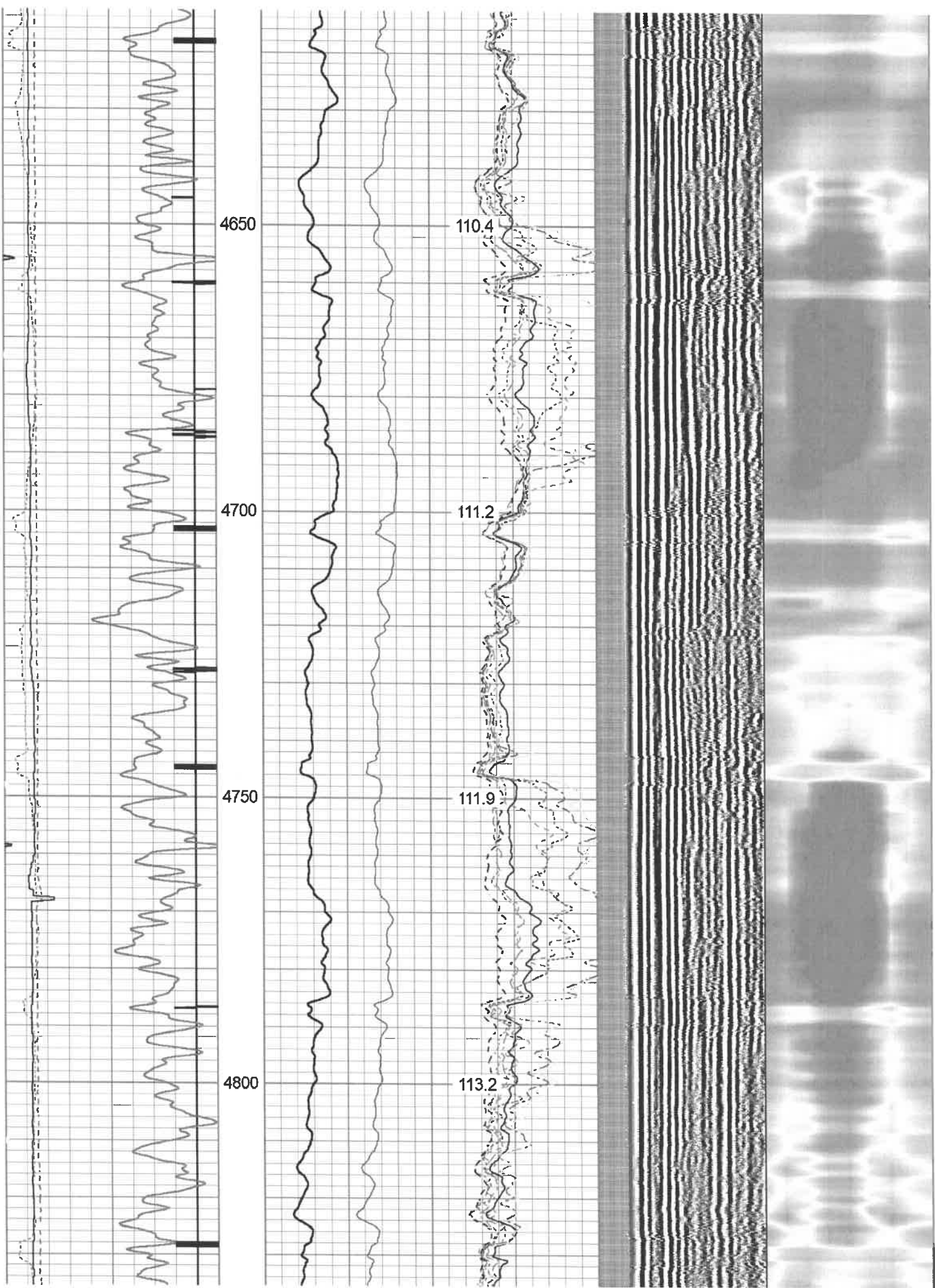


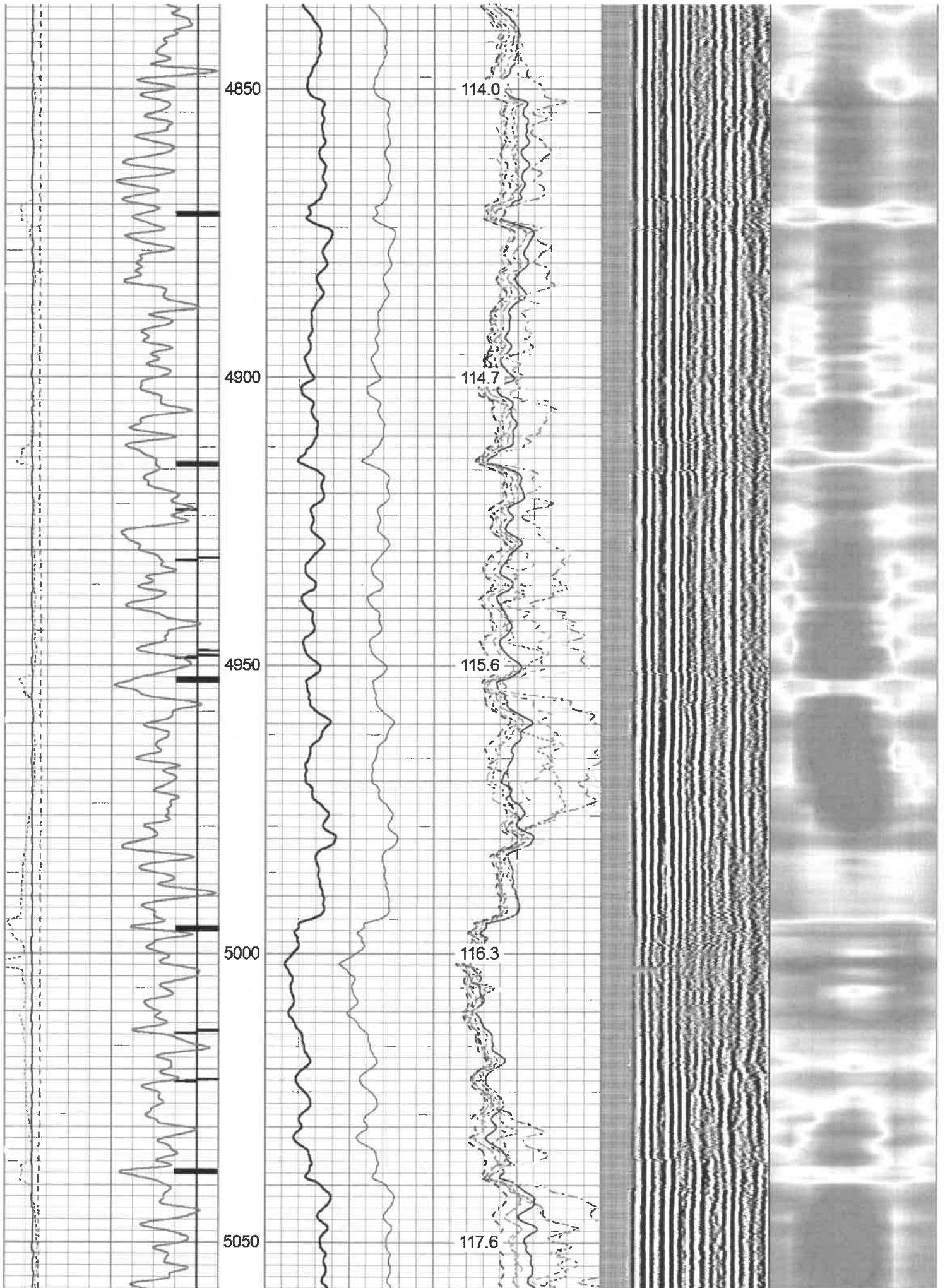


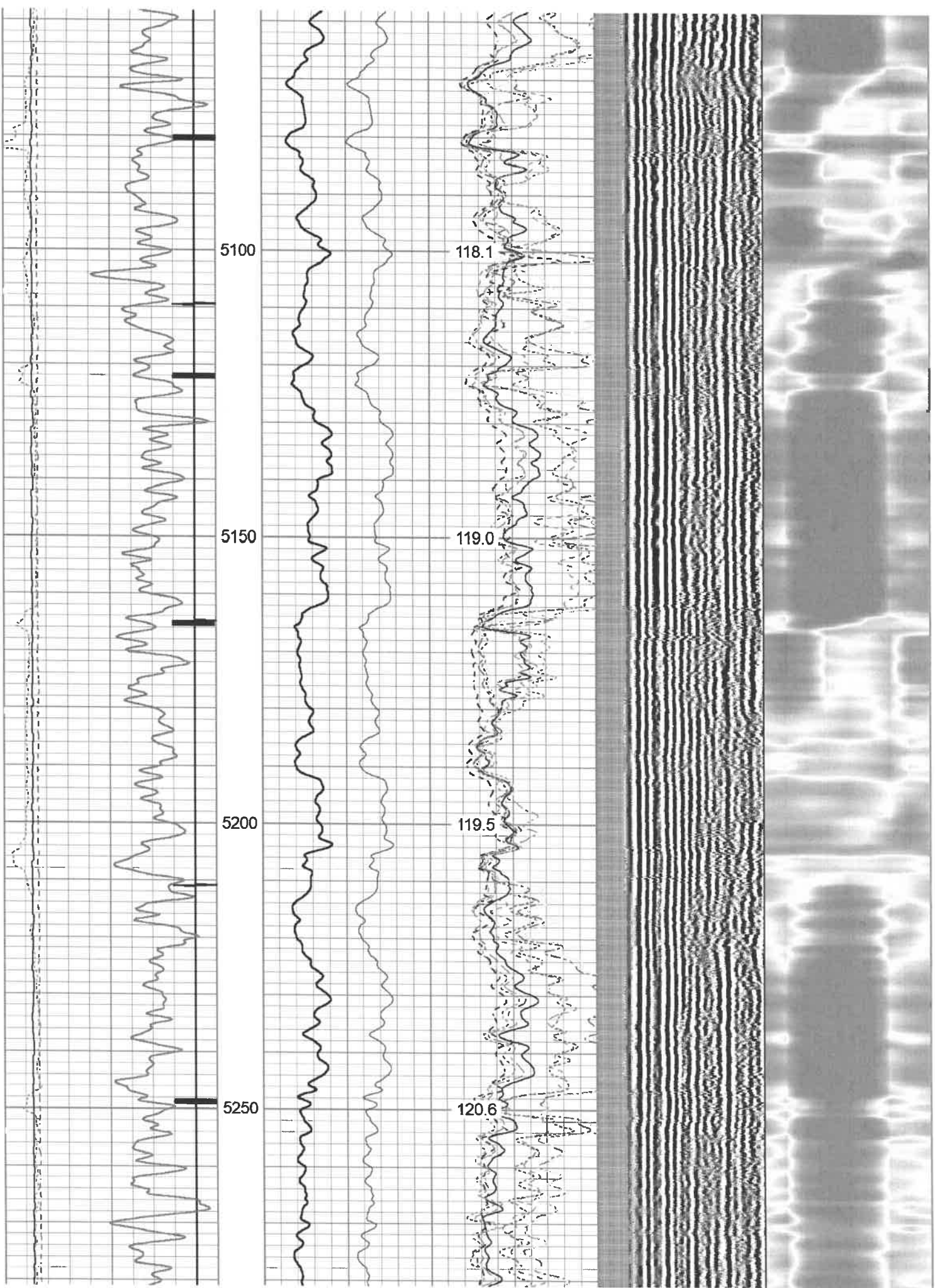


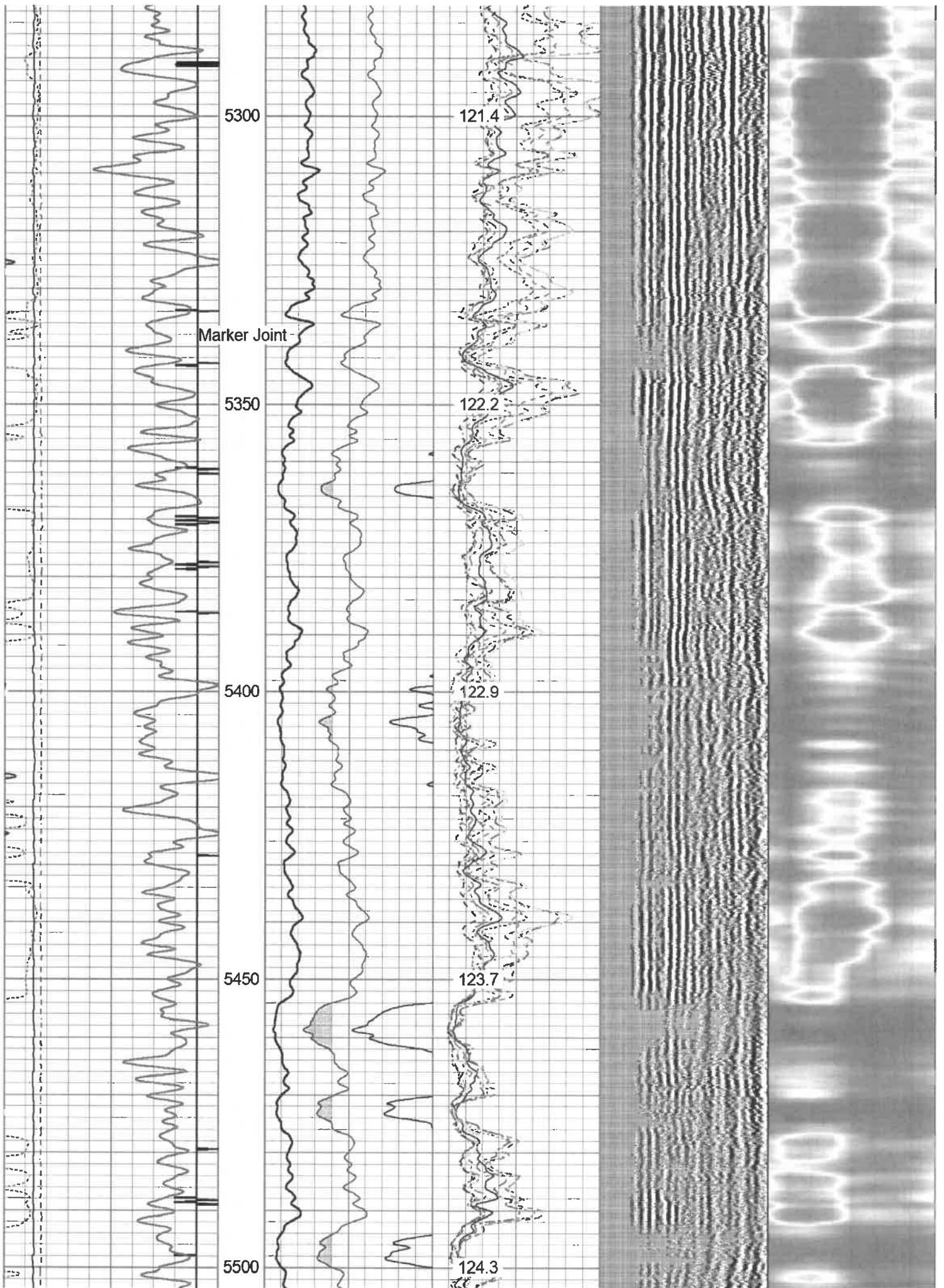


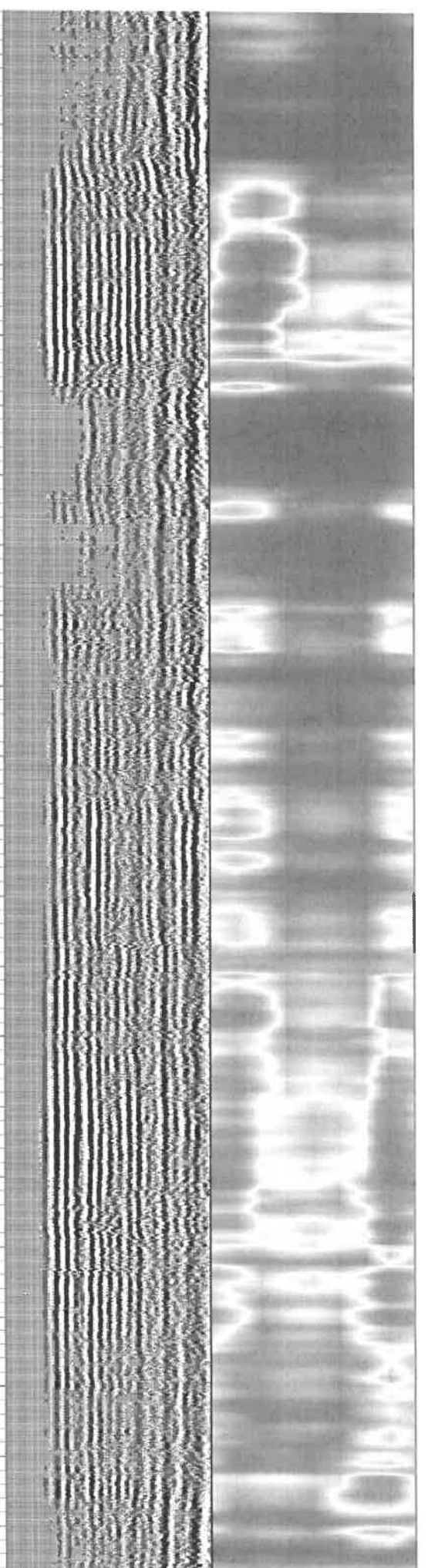
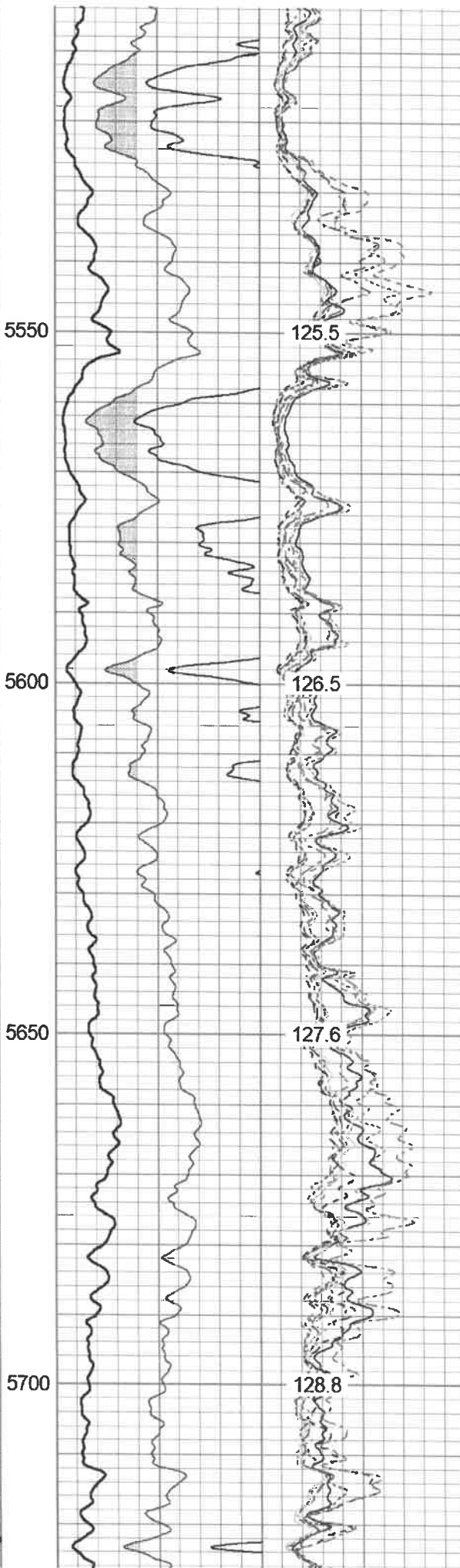
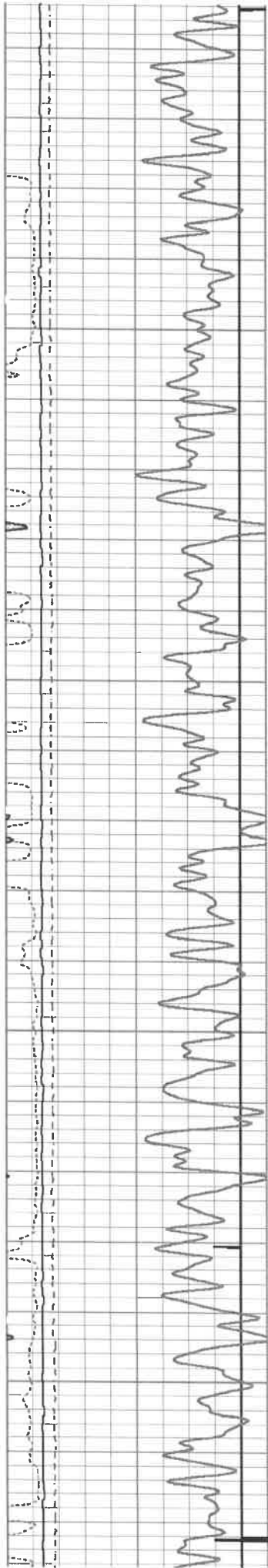


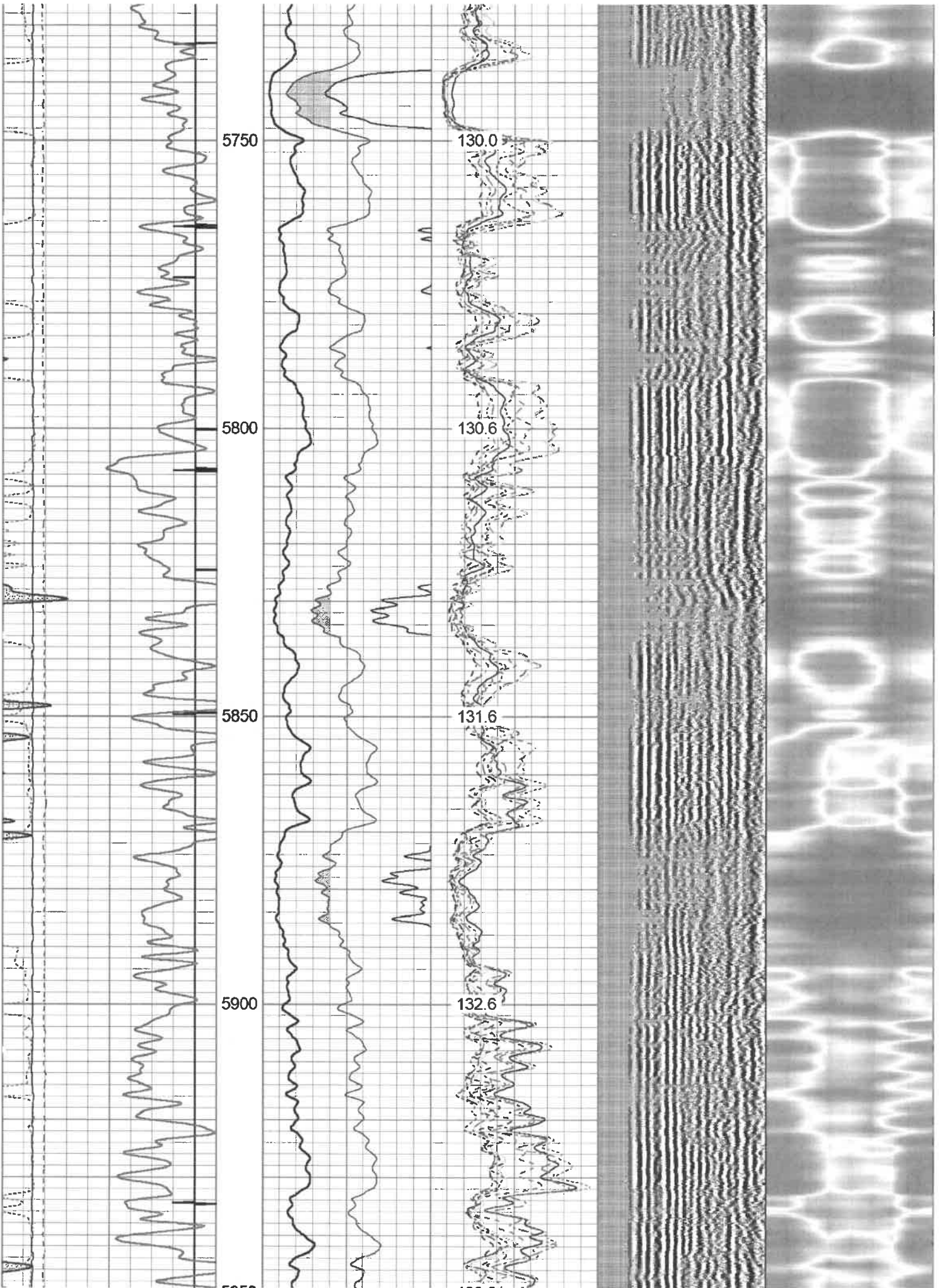


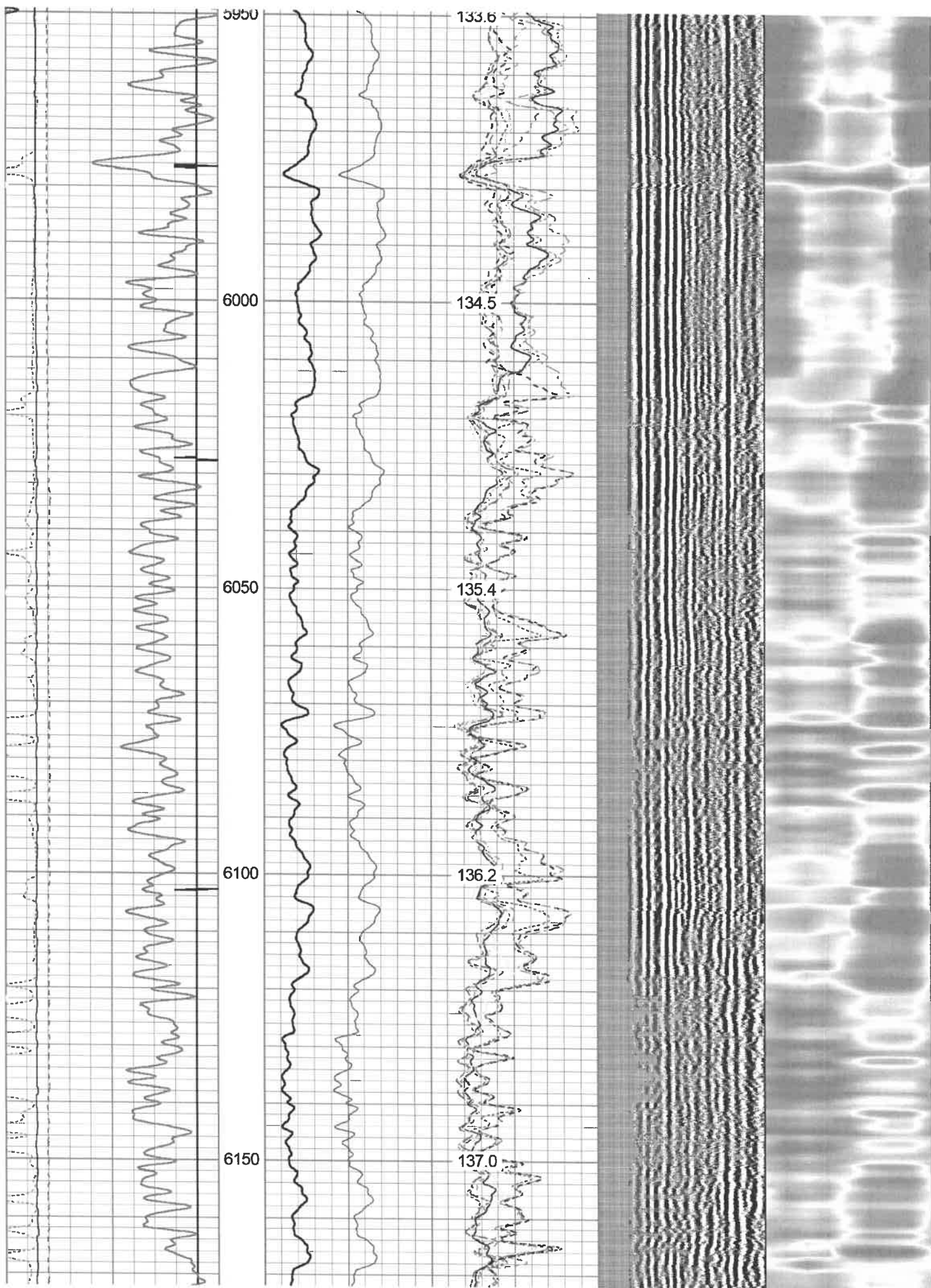


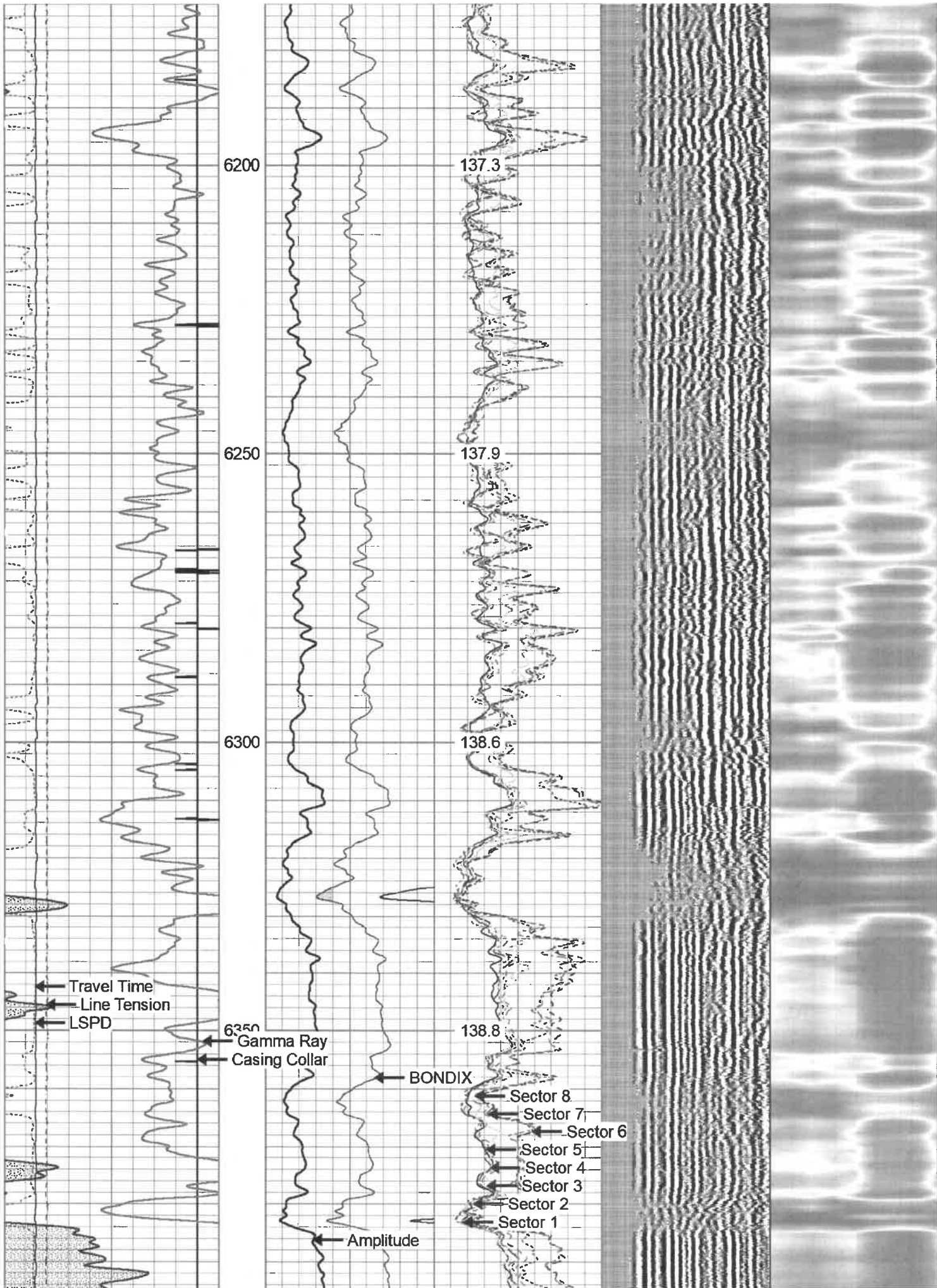


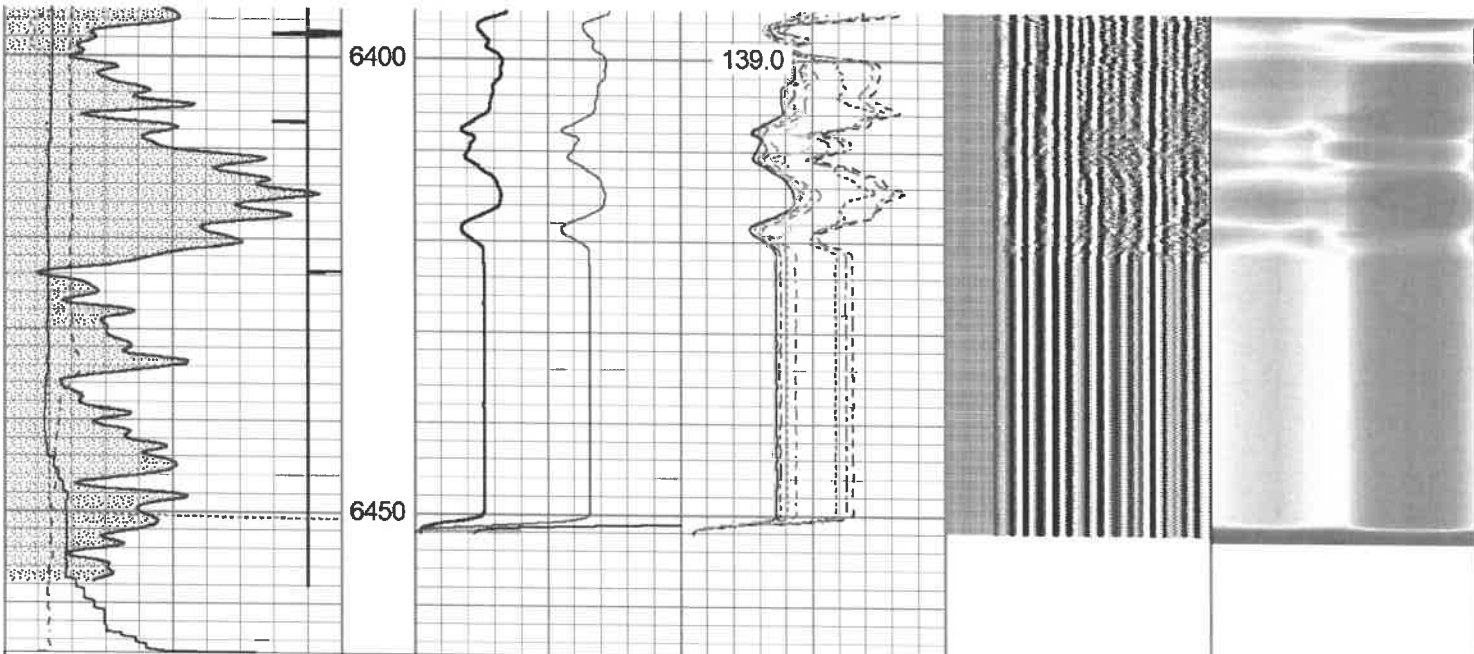












| | | |
|------|--------------------|------|
| 285 | Travel Time (uSec) | 185 |
| 9 | Casing Collar | -1 |
| 0 | Gamma Ray (GAPI) | 150 |
| 0 | Line Tension (lb) | 5000 |
| -100 | LSPD (ft/min) | 100 |

| | | | | | |
|---|----------------|-----|----|----------|-----|
| 0 | Amplitude (mV) | 100 | -5 | Sector 1 | 150 |
| 1 | BONDIX | 0 | -5 | Sector 2 | 150 |
| 0 | AMPx10 (mV) | 10 | -5 | Sector 3 | 150 |
| | | | -5 | Sector 4 | 150 |
| | | | -5 | Sector 5 | 150 |
| | | | -5 | Sector 6 | 150 |
| | | | -5 | Sector 7 | 150 |
| | | | -5 | Sector 8 | 150 |

| | | | |
|------------------|------|------------|---|
| Variable Density | 1 | Cement Map | 8 |
| 200 (uSec) | 1200 | | |

TEMP
(degF)



Repeat Pass 1500 psi

Database File antero_fleetwood_1h_rcbl_july132021.db
 Dataset Pathname Marcellus/Fleetwood_1H/RCBL_1/pass2
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Tue Jul 13 16:12:38 2021
 Charted by Depth in Feet scaled 1:240

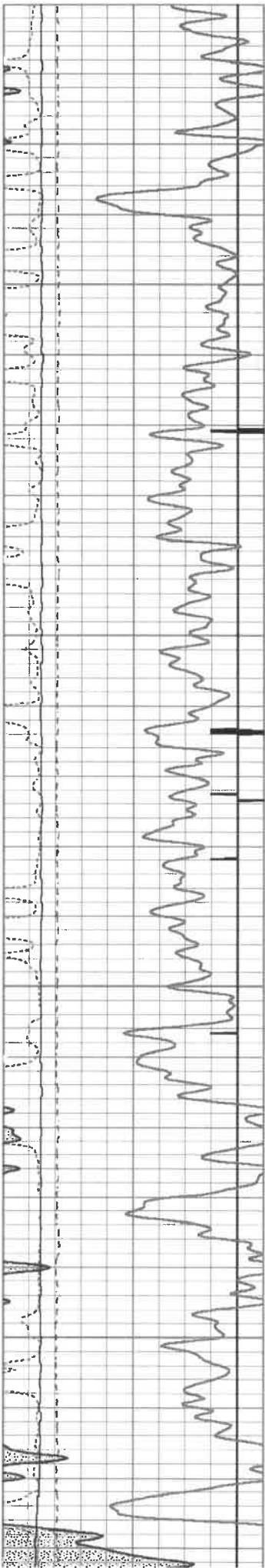
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| 285 | Travel Time (uSec) | 185 |
| 9 | Casing Collar | -1 |
| 0 | Gamma Ray (GAPI) | 150 |
| 0 | Line Tension (lb) | 5000 |
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| 0 | AMPx10 (mV) | 10 | -5 | Sector 3 | 150 |
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| | | | -5 | Sector 5 | 150 |
| | | | -5 | Sector 6 | 150 |
| | | | -5 | Sector 7 | 150 |
| | | | -5 | Sector 8 | 150 |

| | | | |
|------------------|------|------------|---|
| Variable Density | 1 | Cement Map | 8 |
| 200 (uSec) | 1200 | | |

TEMP
(degF)



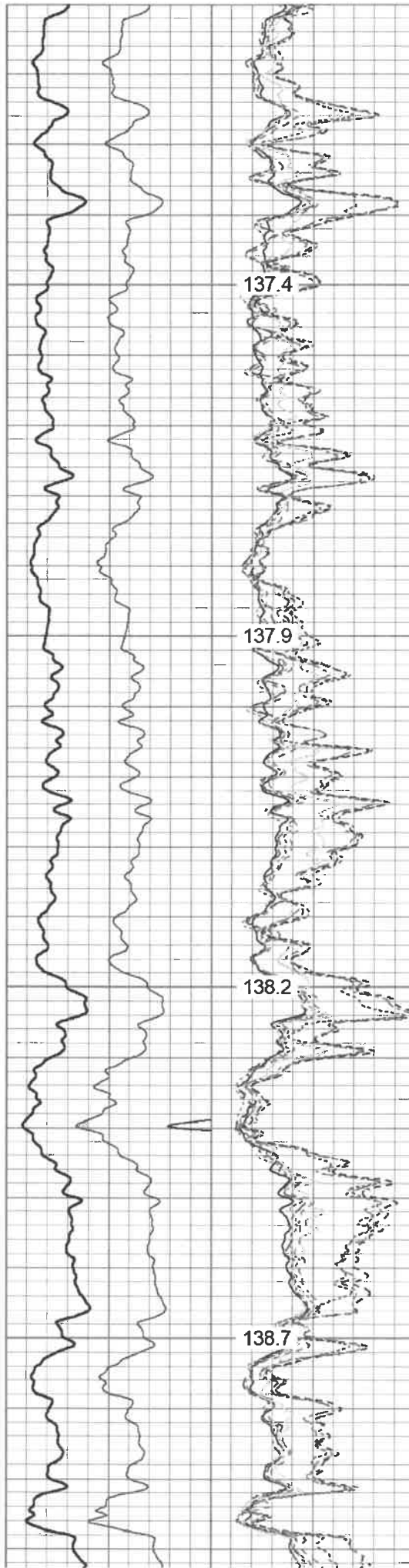


6200

6250

6300

6350

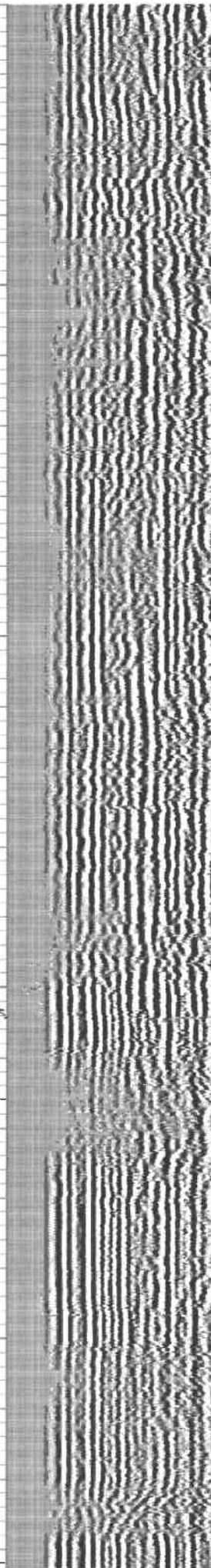


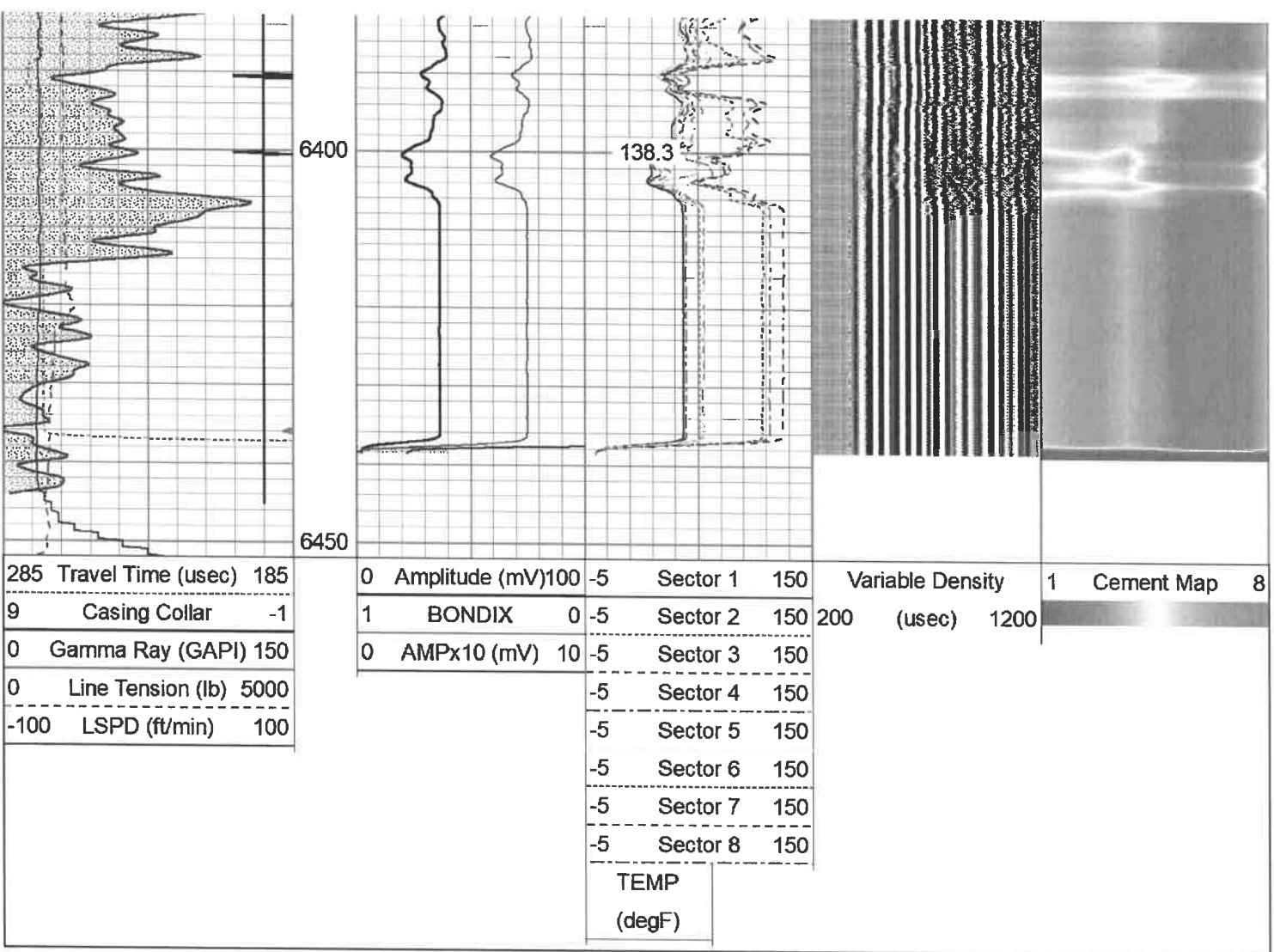
137.4

137.9

138.2

138.7





Log Variables

Database: C:\ProgramData\Warrior\Data\antero_fleetwood_1h_rcbl_july132021.db
 Dataset: Marcellus/Fleetwood_1H/RCBL_1/pass4.2/_vars_

Top - Bottom

| | | | | | | | |
|--------------|-------------|-------------|-----------|-------------|-------------|----------|-----------|
| BHTEMP_Src | BOREID | BOTTEMP | CASEOD | CASETHCK | CASEWGHT | MAXAMPL | MINAMPL |
| TEMP | in 7.875 | degF 100 | in 5.5 | in 0.376 | lb/ft 20 | mV 72 | mV 2.2 |
| MINATTN | PERFS | PPT | SRFTEMP | TDEPTH | | | |
| db/ft 0.8 | No | usec 0 | degF 0 | ft 0 | | | |

Variable Description

BHTEMP_Src : BHTEMP Input Source Selector
 BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEOD : Casing O.D.
 CASETHCK : Casing Thickness
 CASEWGHT : Casing Weight
 MAXAMPL : Maximum Amplitude

MINAMPL : Minimum Amplitude
 MINATTN : Minimum Attenuation
 PERFS : Perforation Flag
 PPT : Predicted Pipe Time
 SRFTEMP : Surface Temperature
 TDEPTH : Total Depth

Calibration Report

Database File antero_fleetwood_1h_rcbl_july132021.db
 Dataset Pathname Marcellus/Fleetwood_1H/RCBL_1/pass4.2
 Dataset Creation Tue Jul 13 18:58:38 2021

Gamma Ray Calibration Report

Serial Number: FW1211-86
 Tool Model: Probe
 Performed: Mon Feb 03 15:18:32 2014

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: FW1312-32
 Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 1196.875 ft

Master Calibration, performed Tue Jul 13 15:47:10 2021:

| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.000 | 0.707 | 2.200 | 71.921 | 76.635 | 2.200 |
| CAL | 0.000 | 0.764 | | | | |
| 5' | 0.000 | 0.935 | 2.200 | 71.921 | 70.603 | 2.200 |
| SUM | | | | | | |
| S1 | 0.000 | 0.796 | 2.200 | 100.000 | 122.871 | 2.200 |
| S2 | 0.000 | 0.735 | 2.200 | 100.000 | 133.011 | 2.200 |
| S3 | 0.000 | 0.759 | 2.200 | 100.000 | 128.786 | 2.200 |
| S4 | 0.000 | 0.738 | 2.200 | 100.000 | 132.479 | 2.200 |
| S5 | 0.000 | 0.700 | 2.200 | 100.000 | 139.692 | 2.200 |
| S6 | 0.000 | 0.727 | 2.200 | 100.000 | 134.489 | 2.200 |
| S7 | 0.000 | 0.813 | 2.200 | 100.000 | 120.313 | 2.200 |
| S8 | 0.000 | 0.803 | 2.200 | 100.000 | 121.850 | 2.200 |

Internal Reference Calibration, performed (Not Performed):

| | Raw (v) | | Calibrated (v) | | Results | |
|-----|---------|-------|----------------|-------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | 0.000 | 0.764 | 1.000 | 0.000 |

Air Zero Calibration, performed Mon Jul 12 14:48:42 2021:

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

| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb) | |
|----------|-------------|-----------|---|-------------|-----------|-------------|--|
| | | | CENT-BC275-0000 Probe 2.75" Bowspring Centralizer | 2.83 | 2.75 | 24.00 | |
| | | | CHD-Titan Standard 1 7/16" Cable Head | 1.02 | 1.44 | 1.00 | |
| Temp | 16.93 | | | | | | |
| | | | RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub | 9.39 | 2.75 | 90.00 | |
| WVFS8 | 14.70 | | | | | | |
| WVFS7 | 14.70 | | | | | | |
| WVFS6 | 14.70 | | | | | | |
| WVFS5 | 14.70 | | | | | | |
| WVFS4 | 14.70 | | | | | | |
| WVFS3 | 14.70 | | | | | | |
| WVFS2 | 14.70 | | | | | | |
| WVFS1 | 14.70 | | | | | | |
| WV3FT | 14.70 | | | | | | |
| WV5FT | 13.70 | | | | | | |
| HeadVolt | 10.45 | | | | | | |
| WVFCAL | 10.45 | | | | | | |
| | | | CENT-BC275-0000 Probe 2.75" Bowspring Centralizer | 2.83 | 2.75 | 24.00 | |
| CCL | 6.71 | | | | | | |
| GR | 5.38 | | GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray | 4.78 | 2.75 | 57.00 | |
| | | | CENT-BC275-0000 Probe 2.75" Bowspring Centralizer | 2.83 | 2.75 | 24.00 | |

Dataset: antero_fleetwood_1h_rcbl_july132021.db: Marcellus/Fleetwood_1H/RCBL_1/pass4.2
Total length: 23.69 ft

Total weight: 220.00 lb
O.D.: 2.75 in



Nine

| | |
|---------|------------------|
| Company | Antero Resources |
| Well | Fleetwood 1H |
| Field | River Front |
| County | Tyler |
| State | West Virginia |