



**Radial Cement Bond
Variable Density Log
W/Gamma/CCLTemp**

| | | | |
|------------------------|--|----------------------|--|
| Company | | Antero Resources | |
| Well | | Blizzard Pechora 1H | |
| Field | | Rabbit Ears | |
| County | | Tyler | |
| State | | WV | |
| Location: | | API #: 47-095-027240 | |
| SEC | | TWP | |
| RGE | | Elevation | |
| Permanent Datum | | Ground Level | |
| Log Measured From | | Kelly Bushing 25.5' | |
| Drilling Measured From | | Kelly Bushing | |
| Date | | 25-Jul-2021 | |
| Run Number | | One | |
| Depth Driller | | 24,128' | |
| Depth Logger | | 7,100' | |
| Bottom Logged Interval | | 7,100' | |
| Top Log Interval | | Surface | |
| Open Hole Size | | N/A | |
| Type Fluid | | Water | |
| Density / Viscosity | | N/A | |
| Max. Recorded Temp. | | 144 Deg. F. | |
| Estimated Cement Top | | 6,396' | |
| Time Well Ready | | 16:29 | |
| Time Logger on Bottom | | 17:00 | |
| Equipment Number | | 116 (P4) (G1) | |
| Location | | Charleroi, PA | |
| Recorded By | | Matt McNally | |
| Witnessed By | | Redgie Taylor | |
| Run Number | | Bit | |
| From | | To | |
| Size | | Weight | |
| From | | From | |
| To | | To | |
| Casing Record | | Size | |
| Surface String | | Wgt/Ft | |
| Prot. String | | Top | |
| Production String | | Bottom | |
| Liner | | 24,128' | |
| Marker | | 5,850' | |
| | | 5,860' | |

<<< 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

Log Correlated to Marker Joint at 5,850' - 5,860'
Depth Correction +8'

Main Pass 1,500 PSI
Repeat 0 PSI

Thank You for Choosing Nine Energy Service Wireline. Charleroi, PA

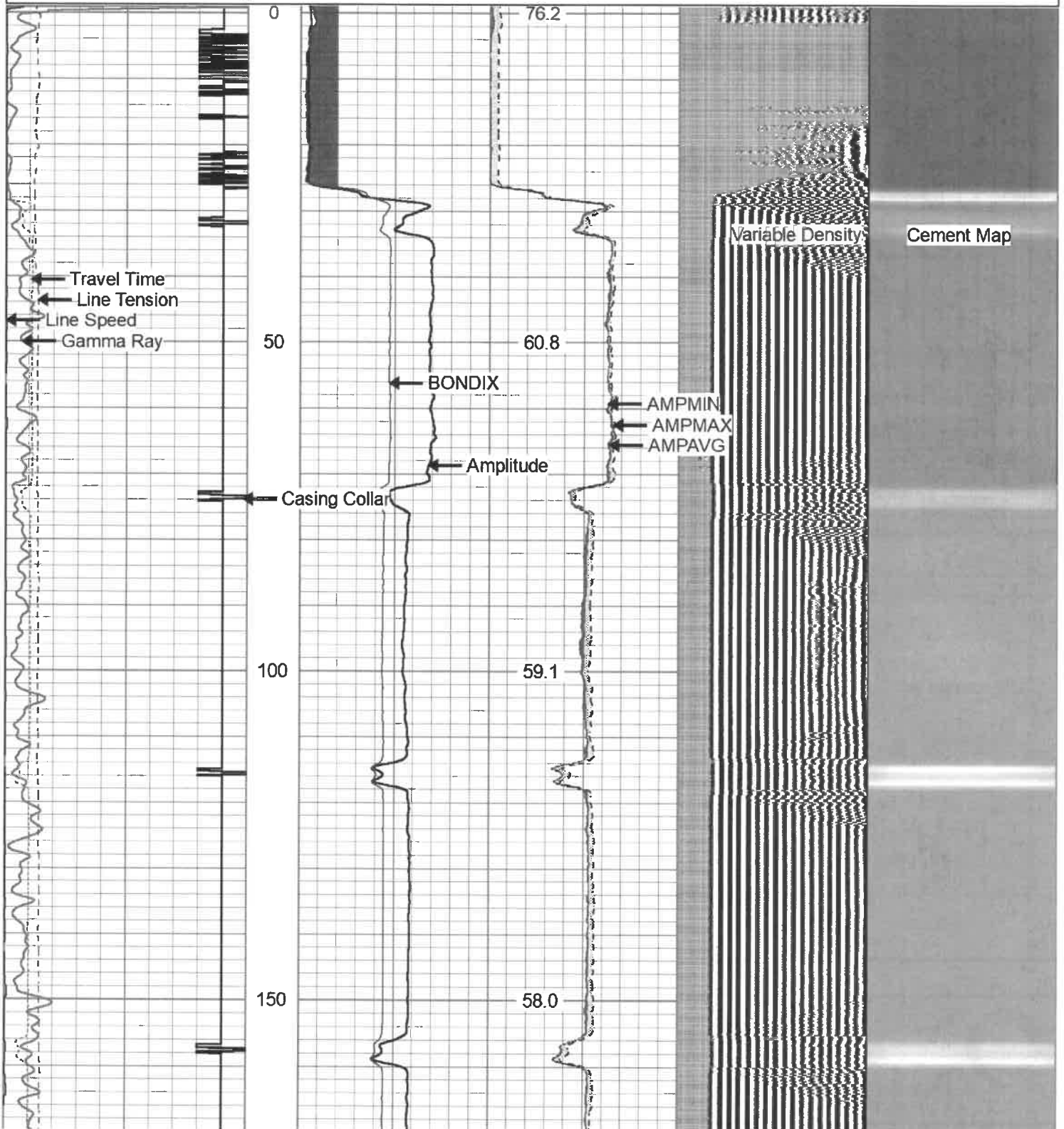


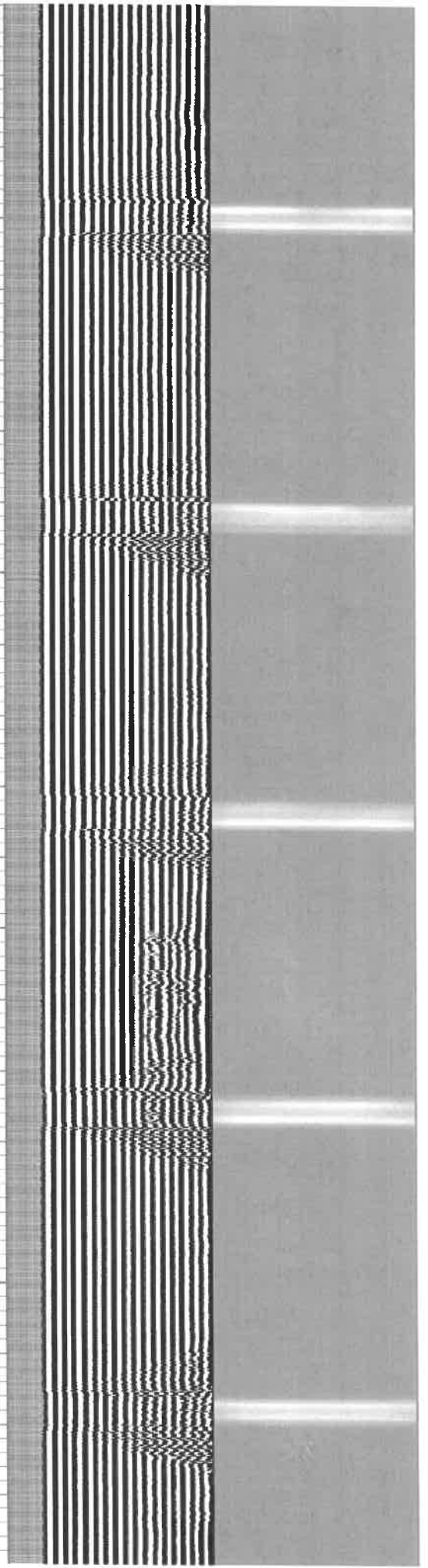
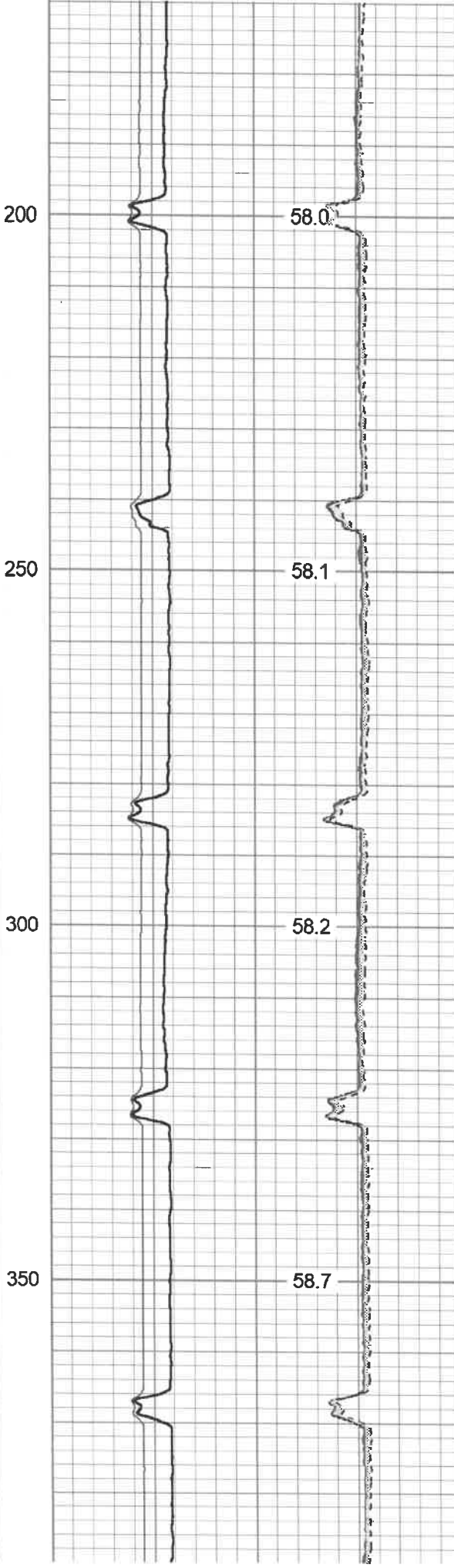
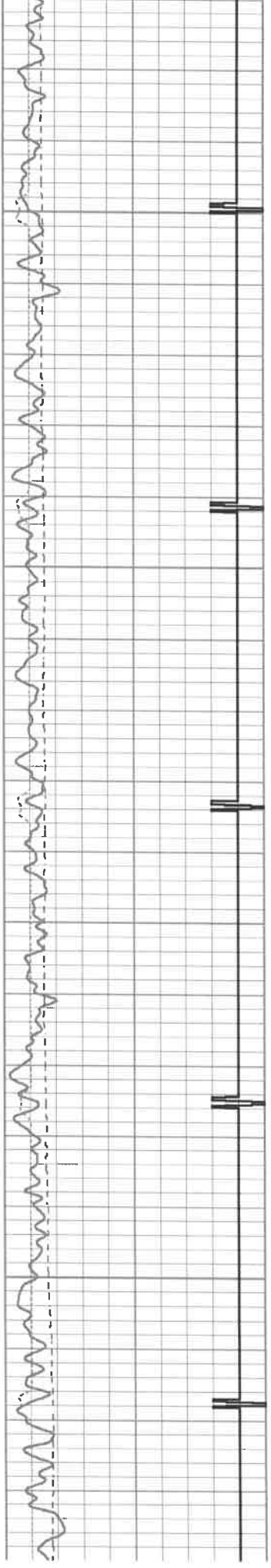
Main Pass 1,500 PSI

DM

Database File antero_blizzard_pechora_1h_rcbl_25_july_2021.db
 Dataset Pathname utiica/pechora_1h/run1/pass6.1
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Sun Jul 25 18:06:08 2021
 Charted by Depth in Feet scaled 1:240

| | | | | | | | | | | | | |
|------|--------------------|------|---|----------------|-----|---|--------|-----|------------------|------|------------|---|
| 270 | Travel Time (usec) | 160 | 0 | Amplitude (mV) | 100 | 0 | AMPMIN | 150 | Variable Density | 1 | Cement Map | 8 |
| 9 | Casing Collar | -1 | 1 | BONDIX | 0 | 0 | AMPMAX | 150 | 200 (usec) | 1200 | | |
| 0 | Gamma Ray (GAPI) | 150 | | | | 0 | AMPAVG | 150 | | | | |
| | Line Speed | | | | | | TEMP | | | | | |
| -100 | (ft/min) | 100 | | | | | (degF) | | | | | |
| 0 | Line Tension (lb) | 2000 | | | | | | | | | | |





200

58.0

250

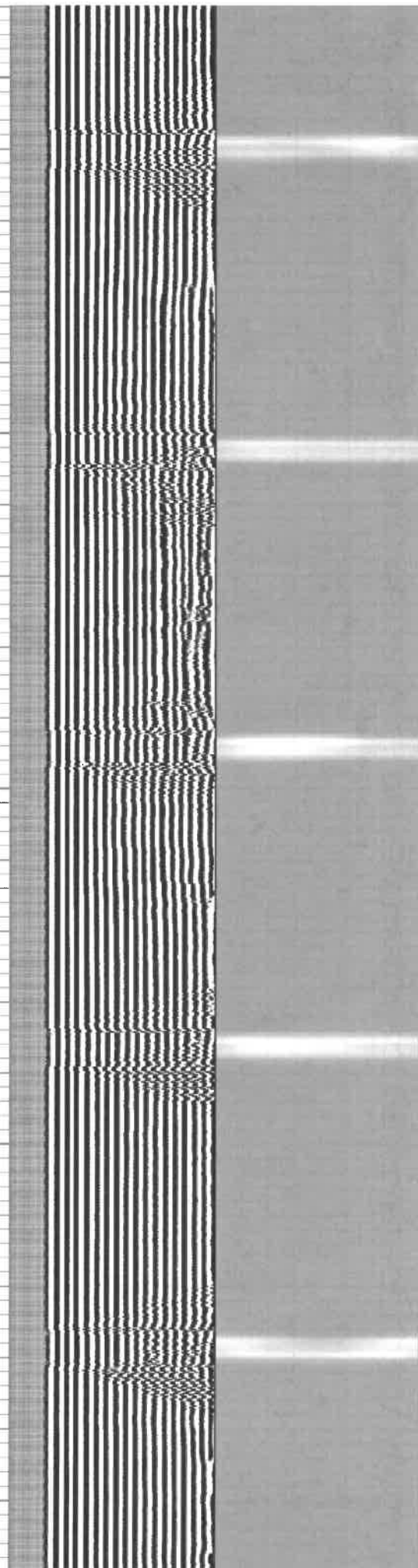
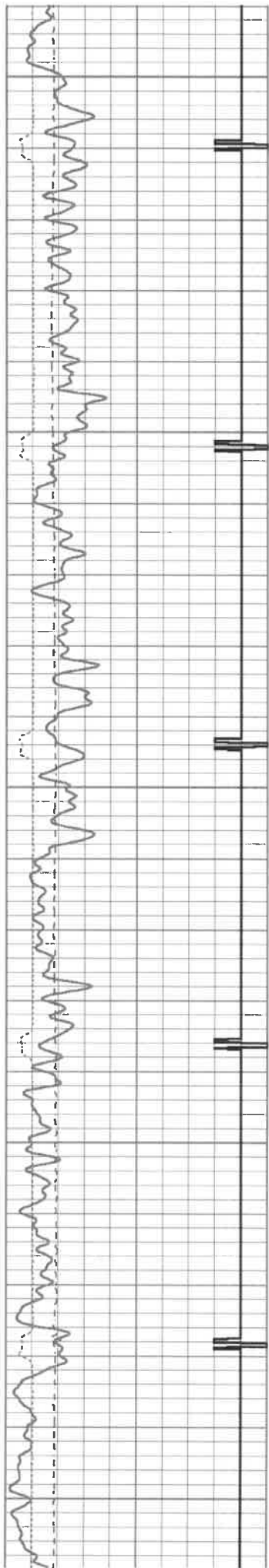
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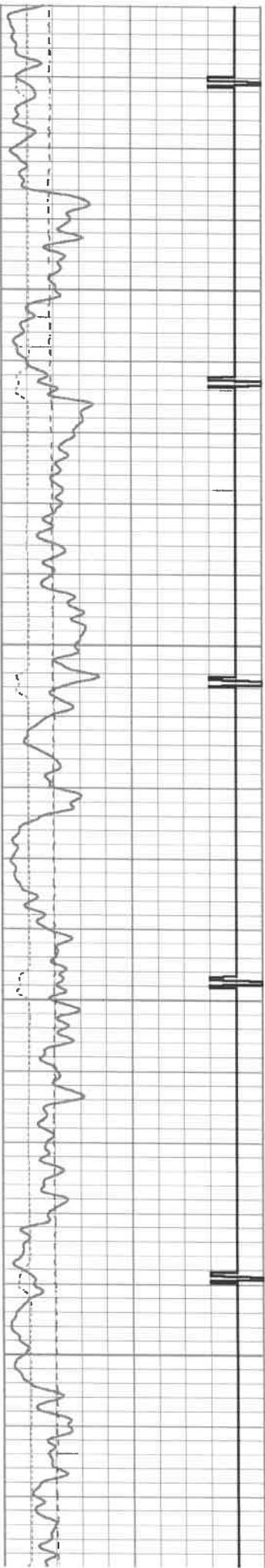
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58.2

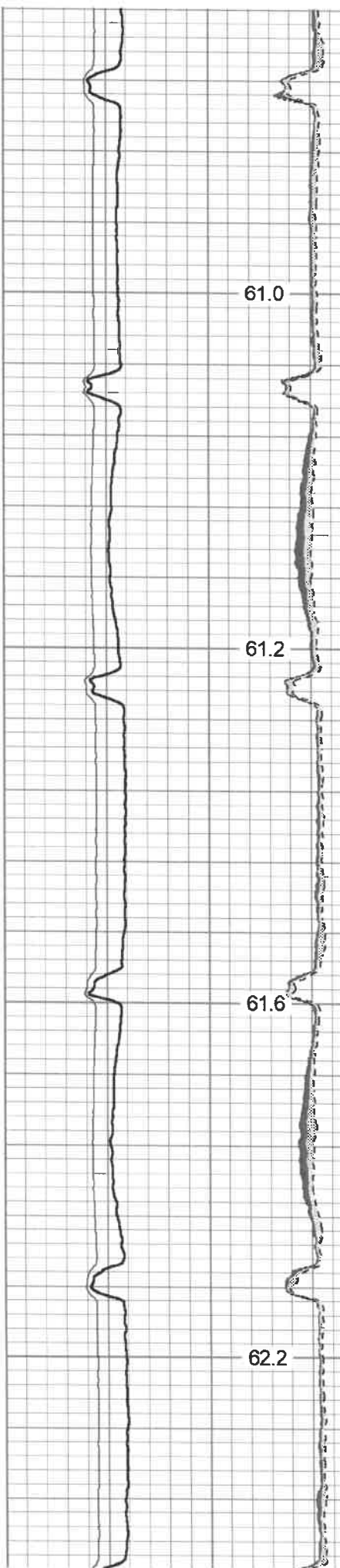
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58.7

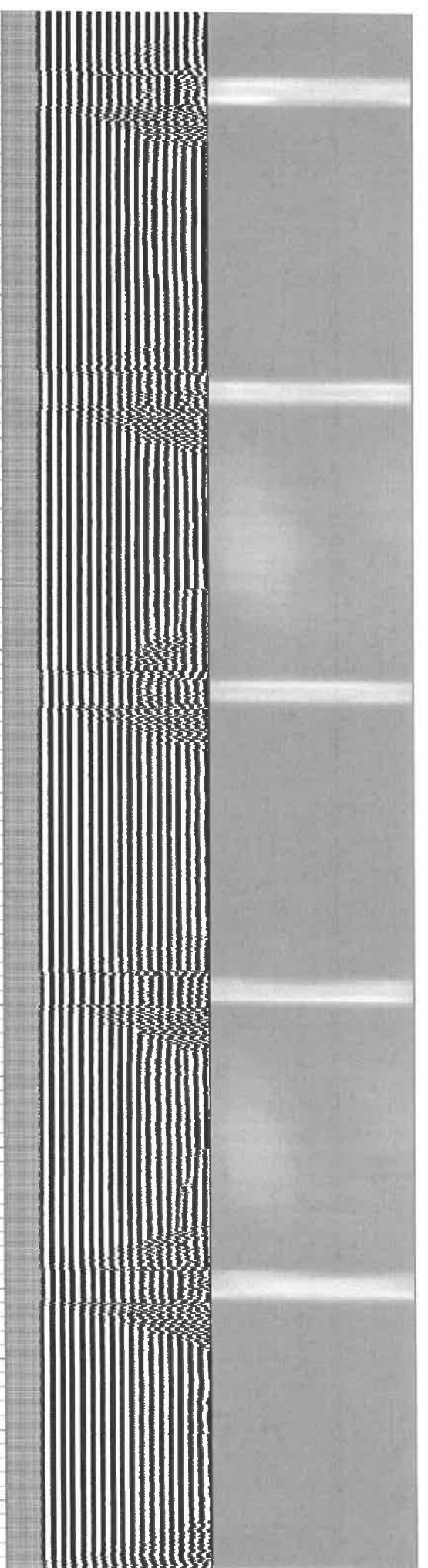


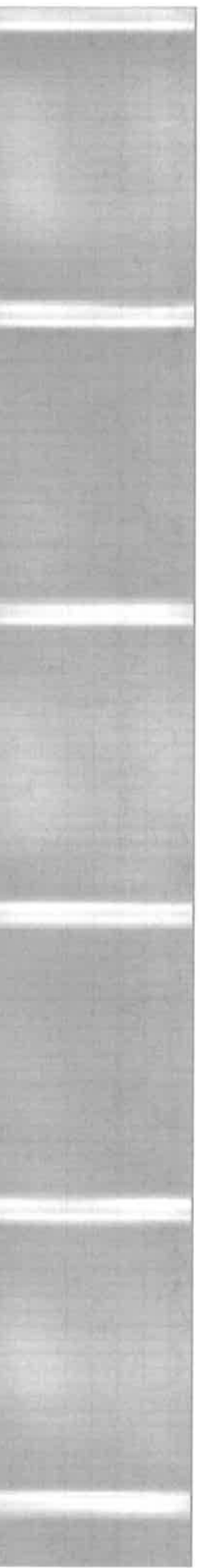
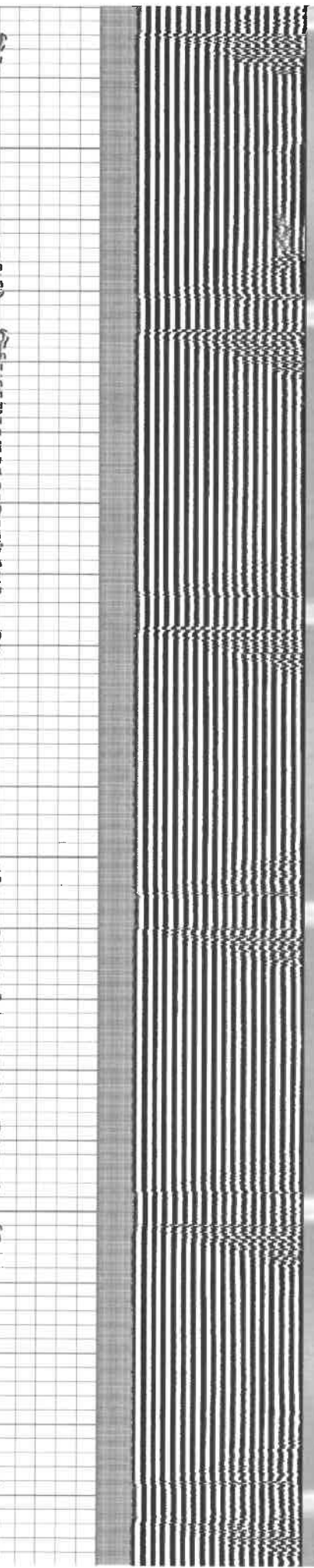
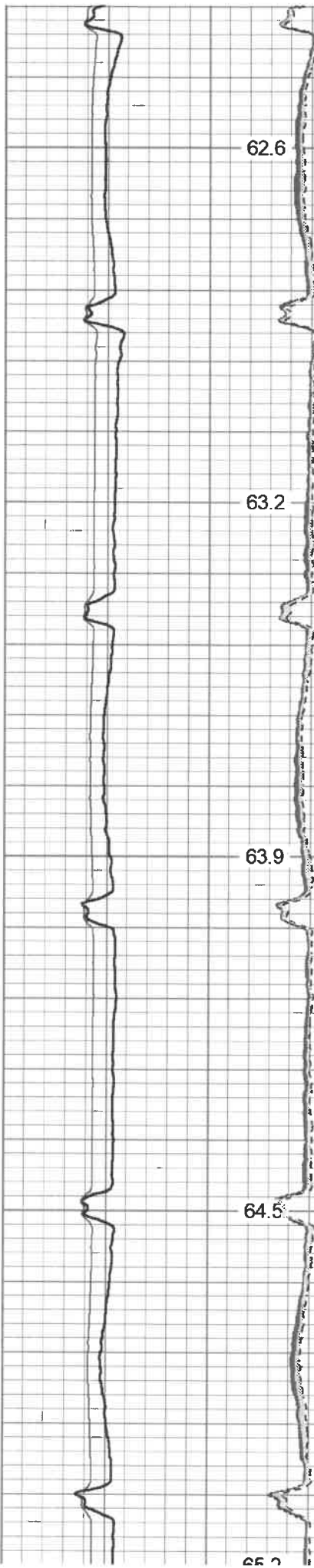
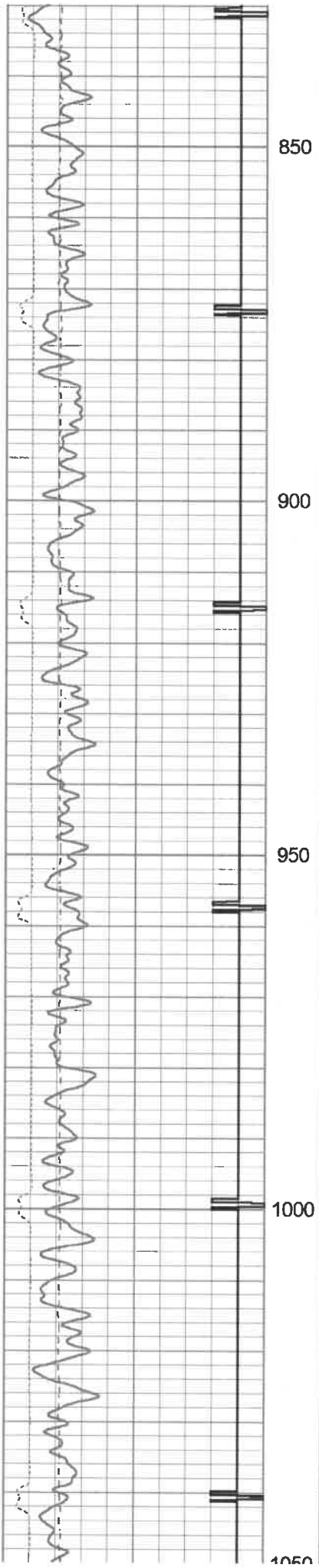


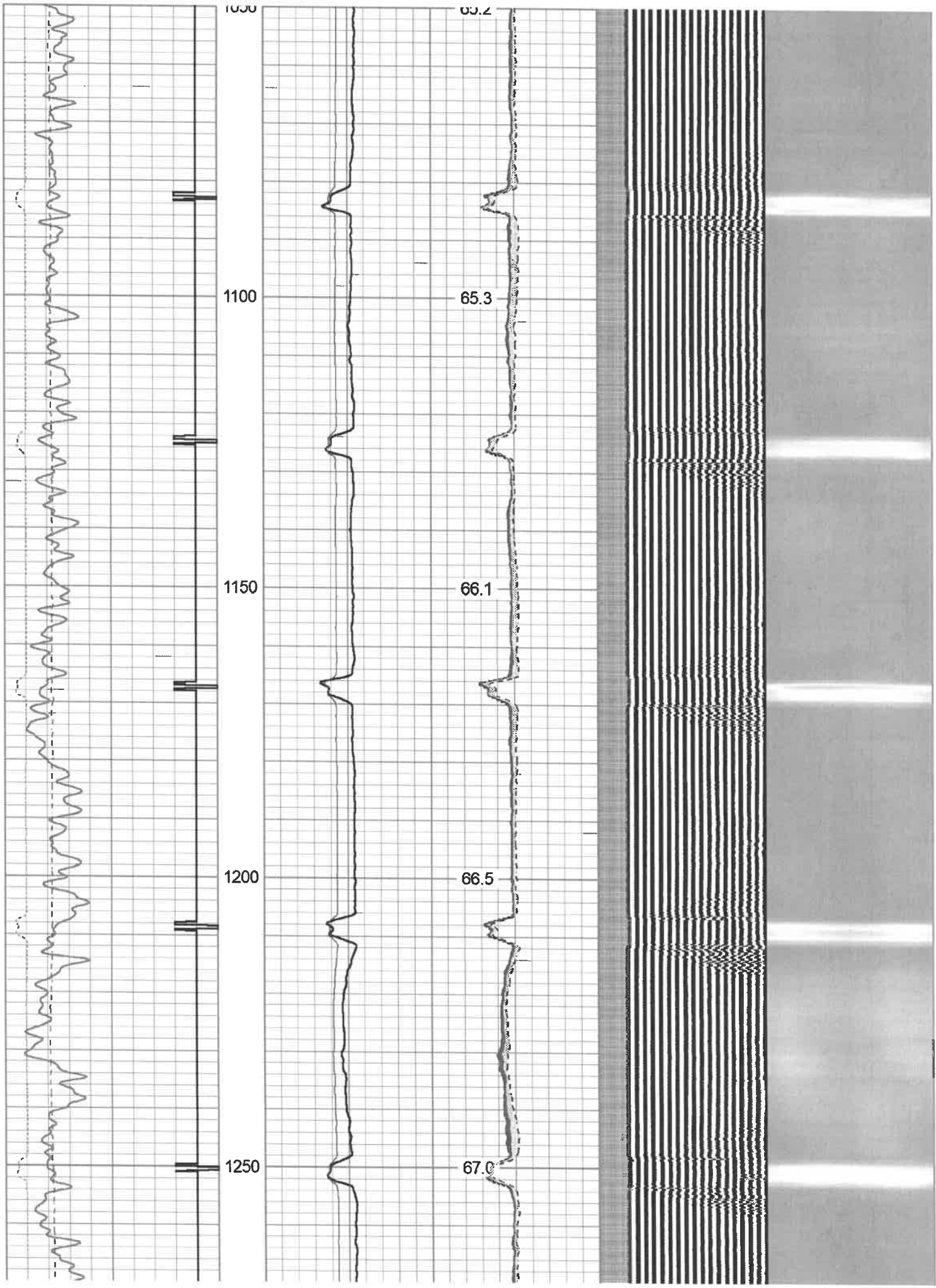
650
700
750
800

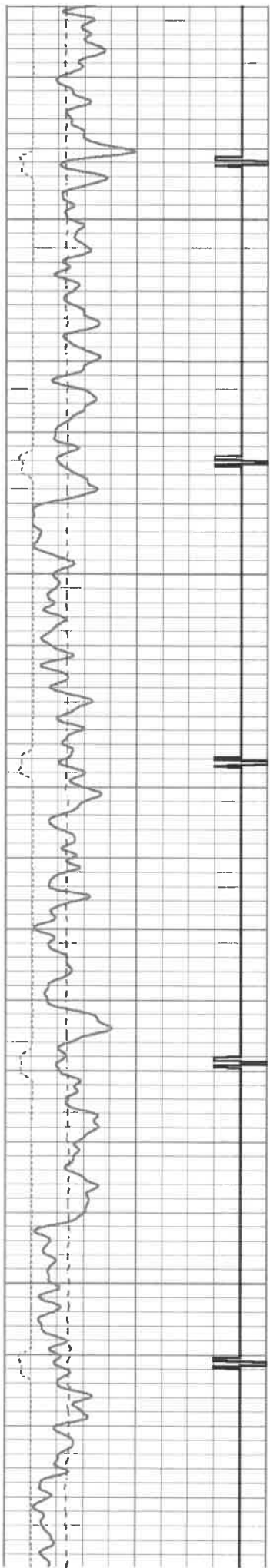


61.0
61.2
61.6
62.2







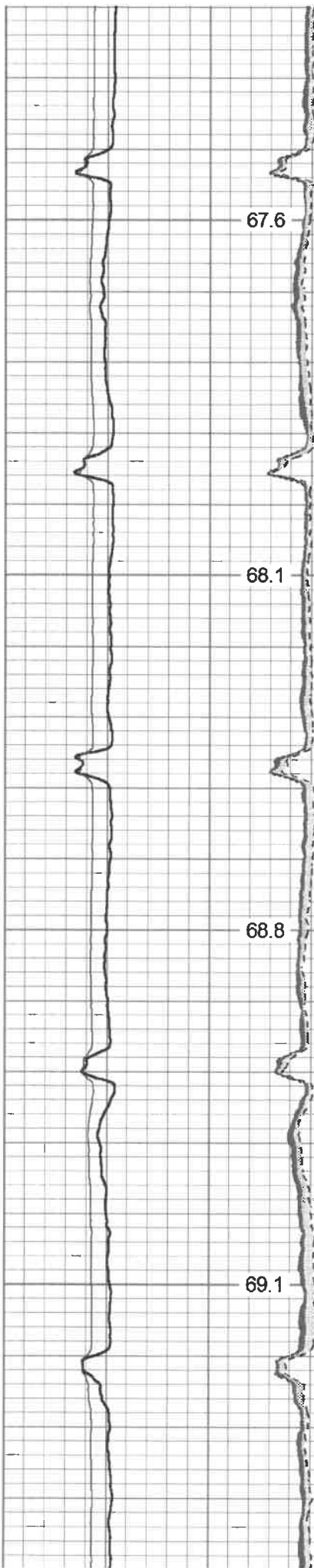


1300

1350

1400

1450

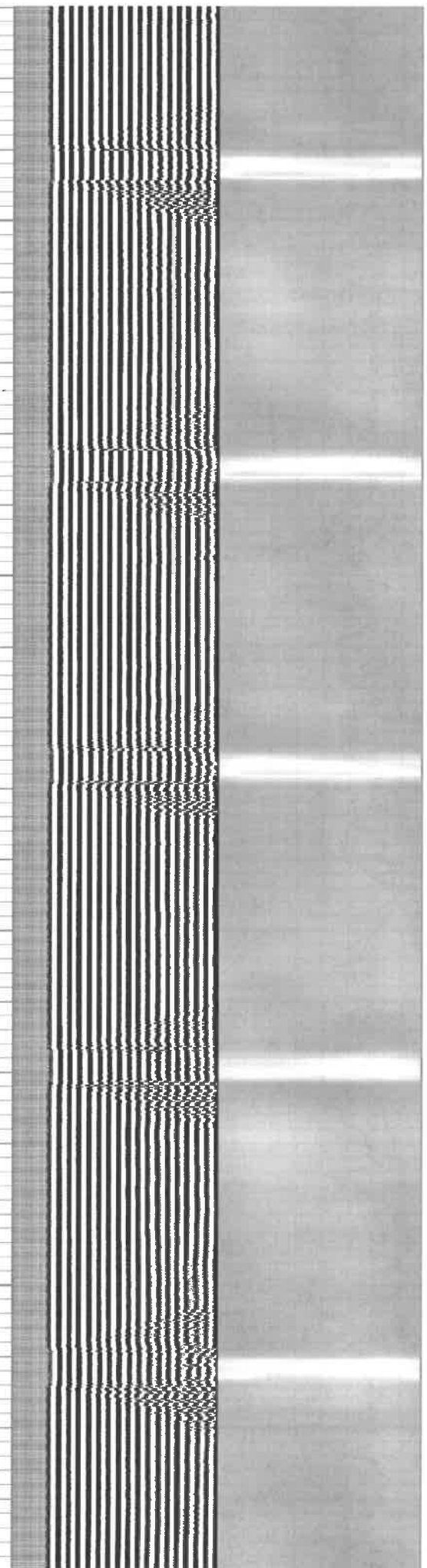


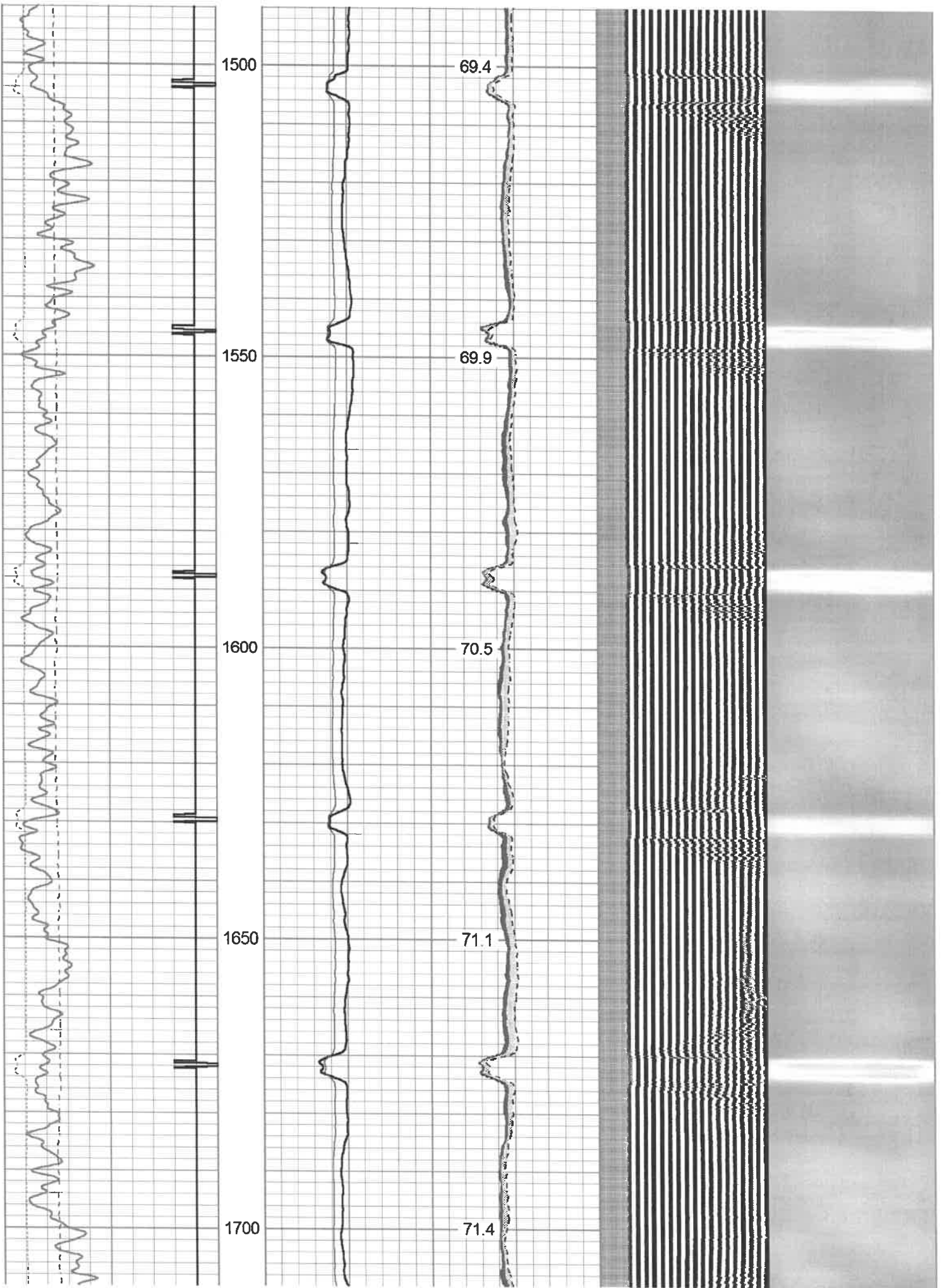
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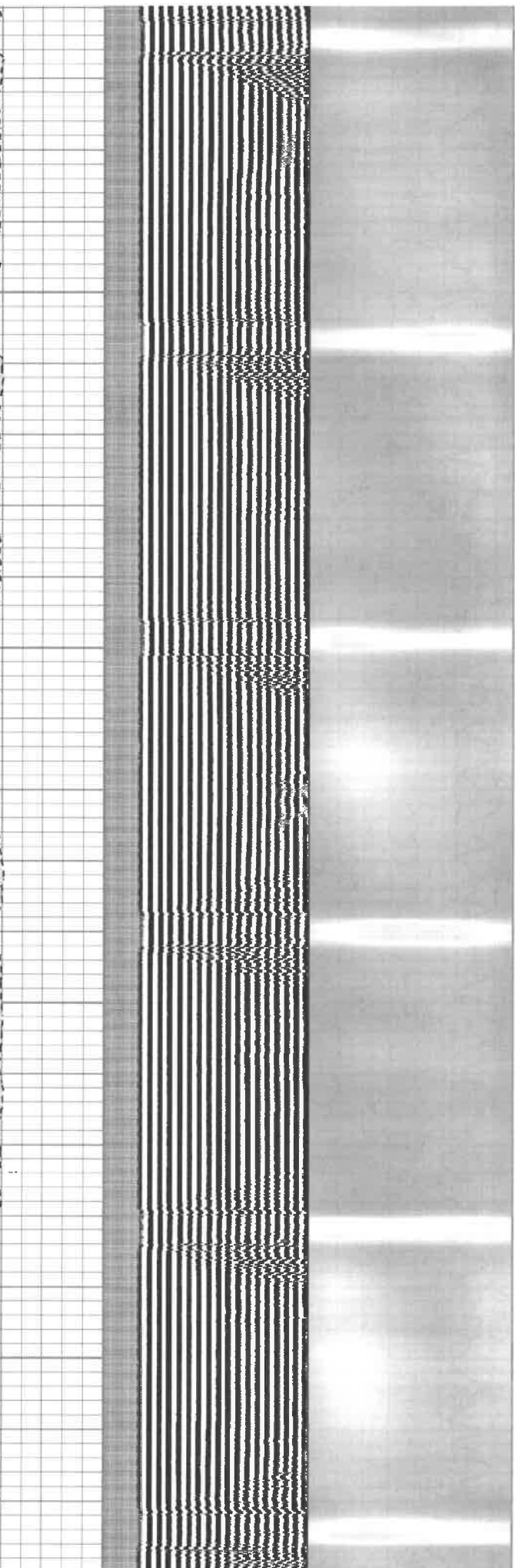
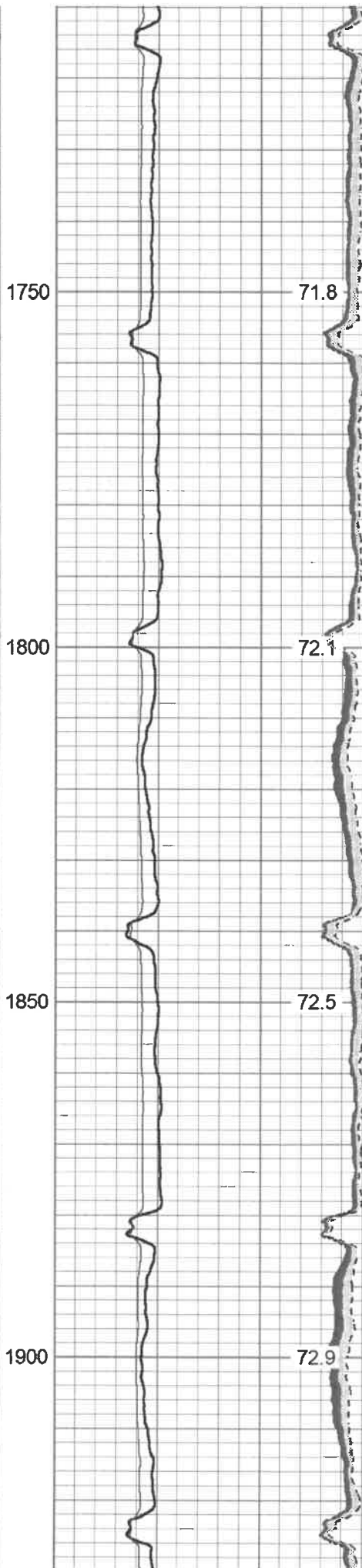
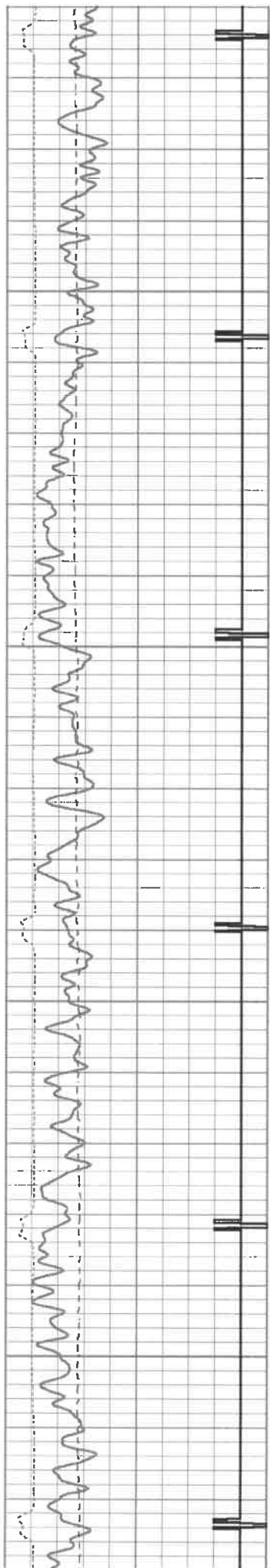
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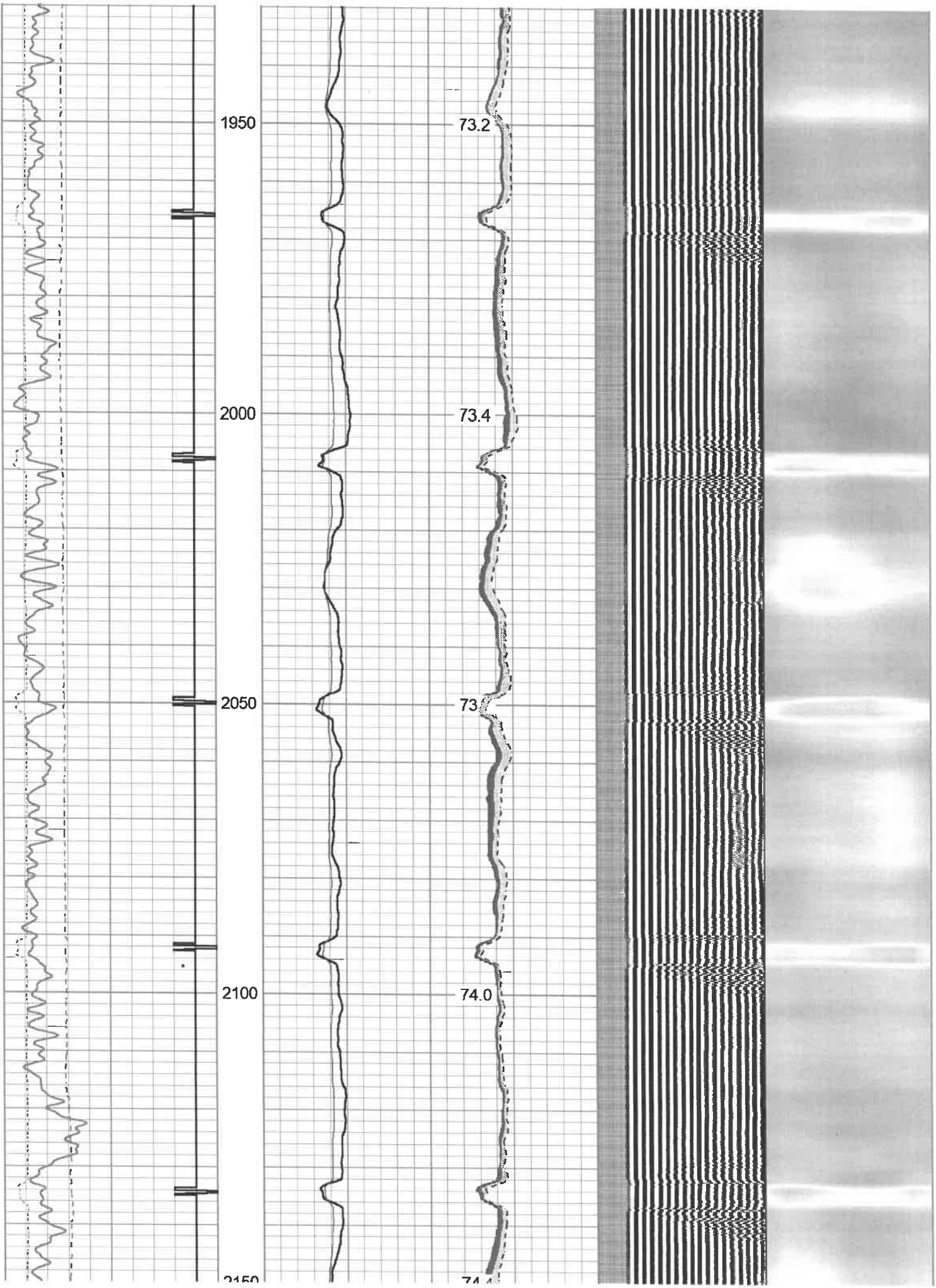
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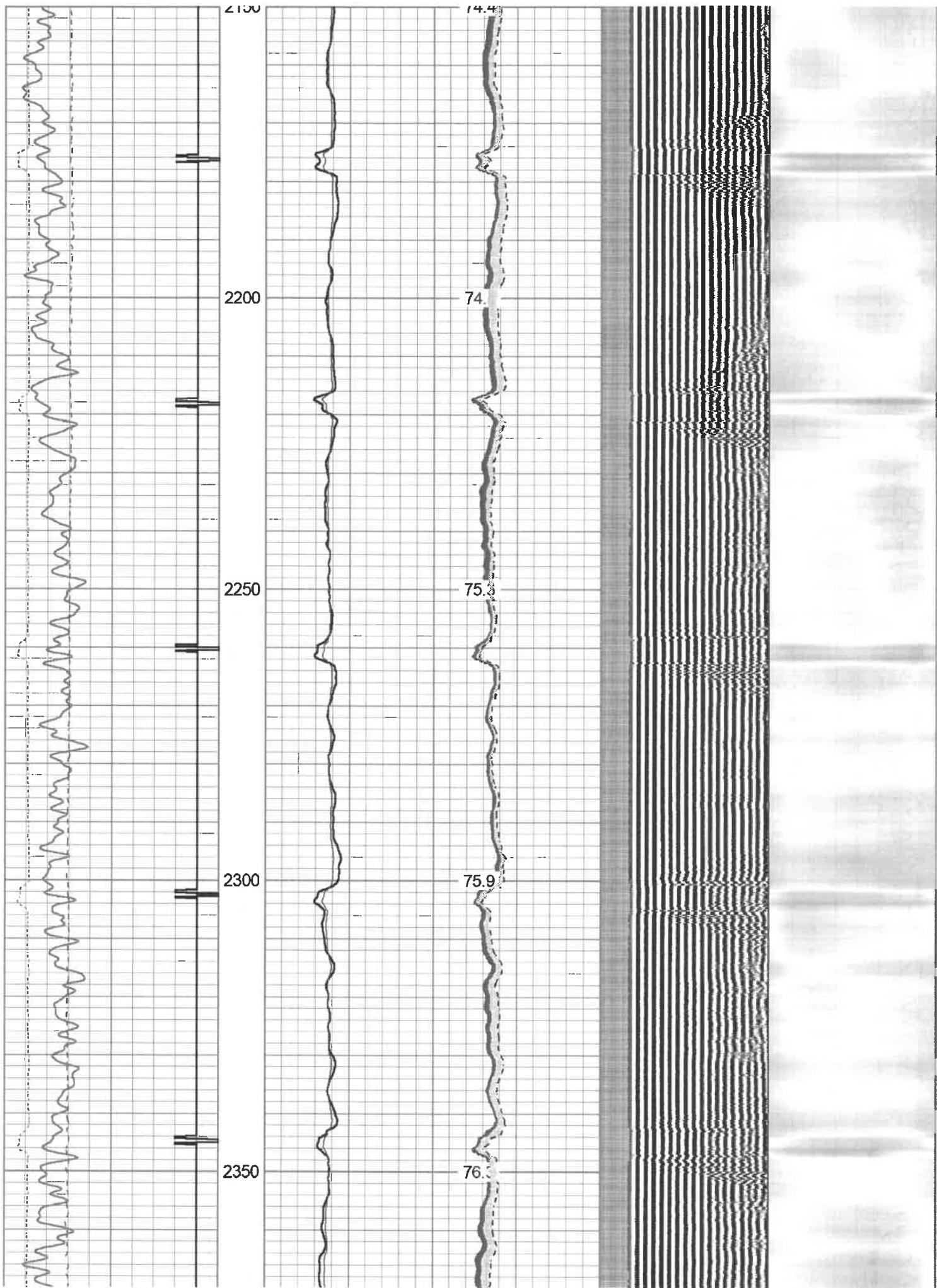
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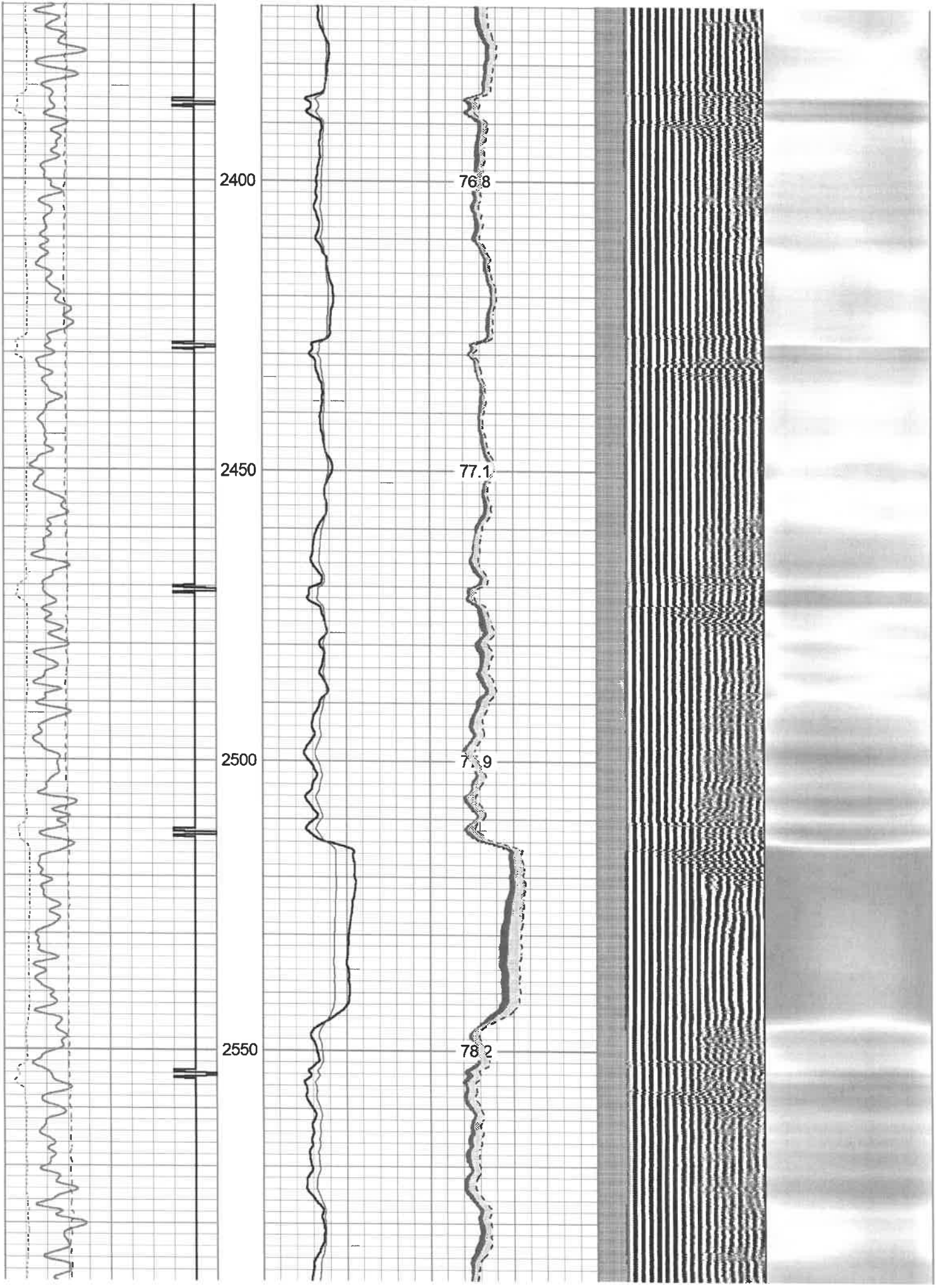


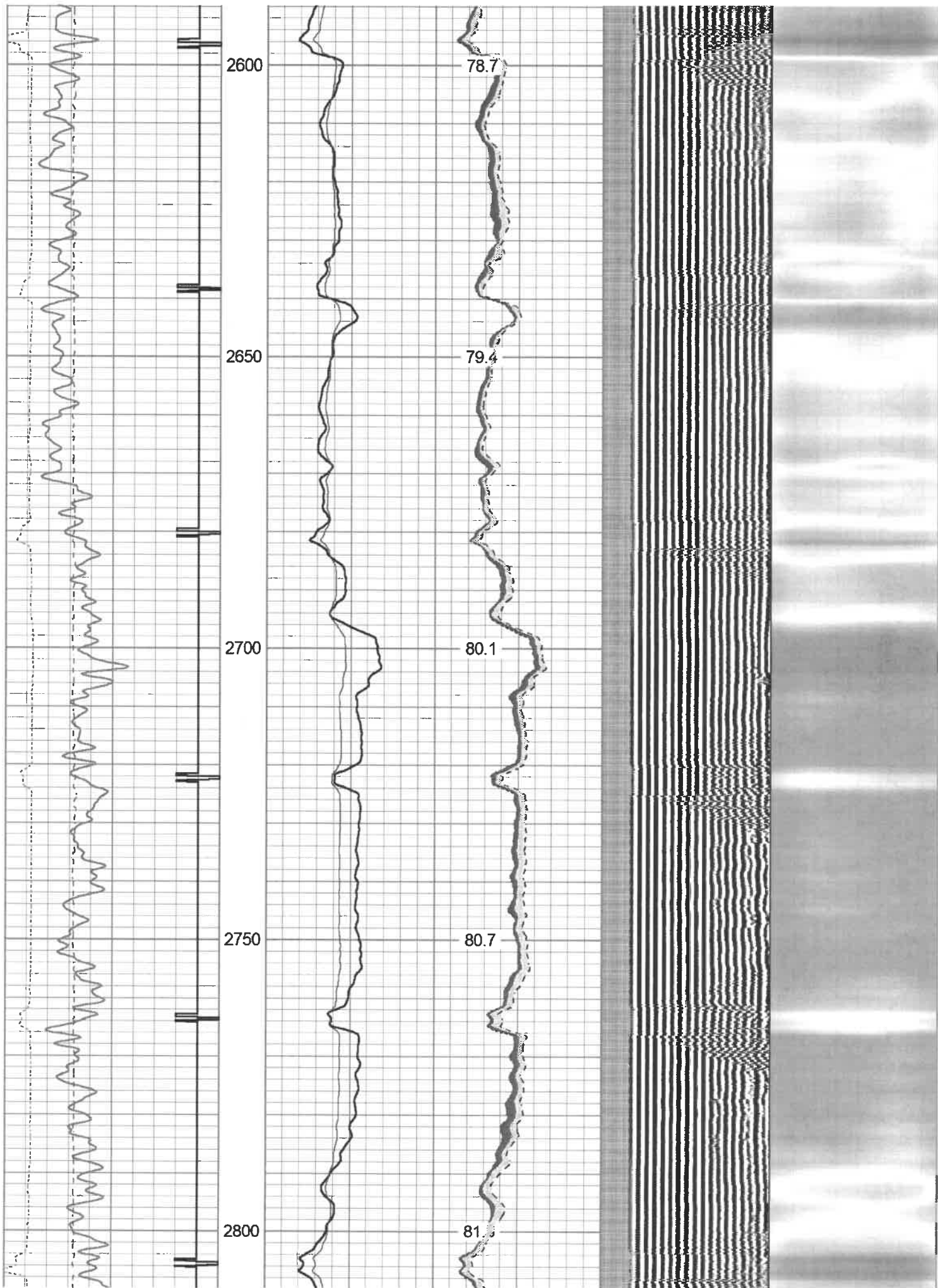




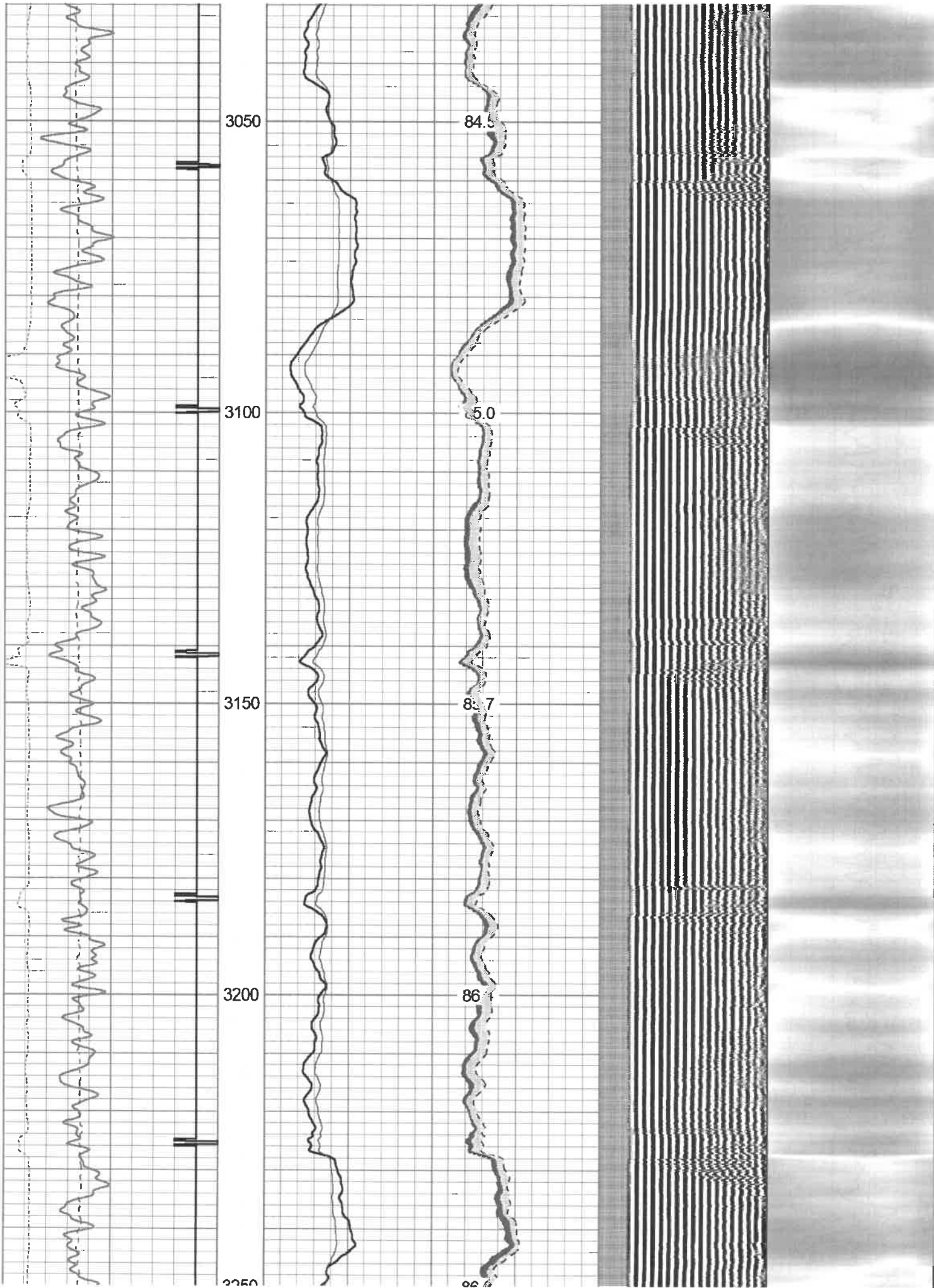


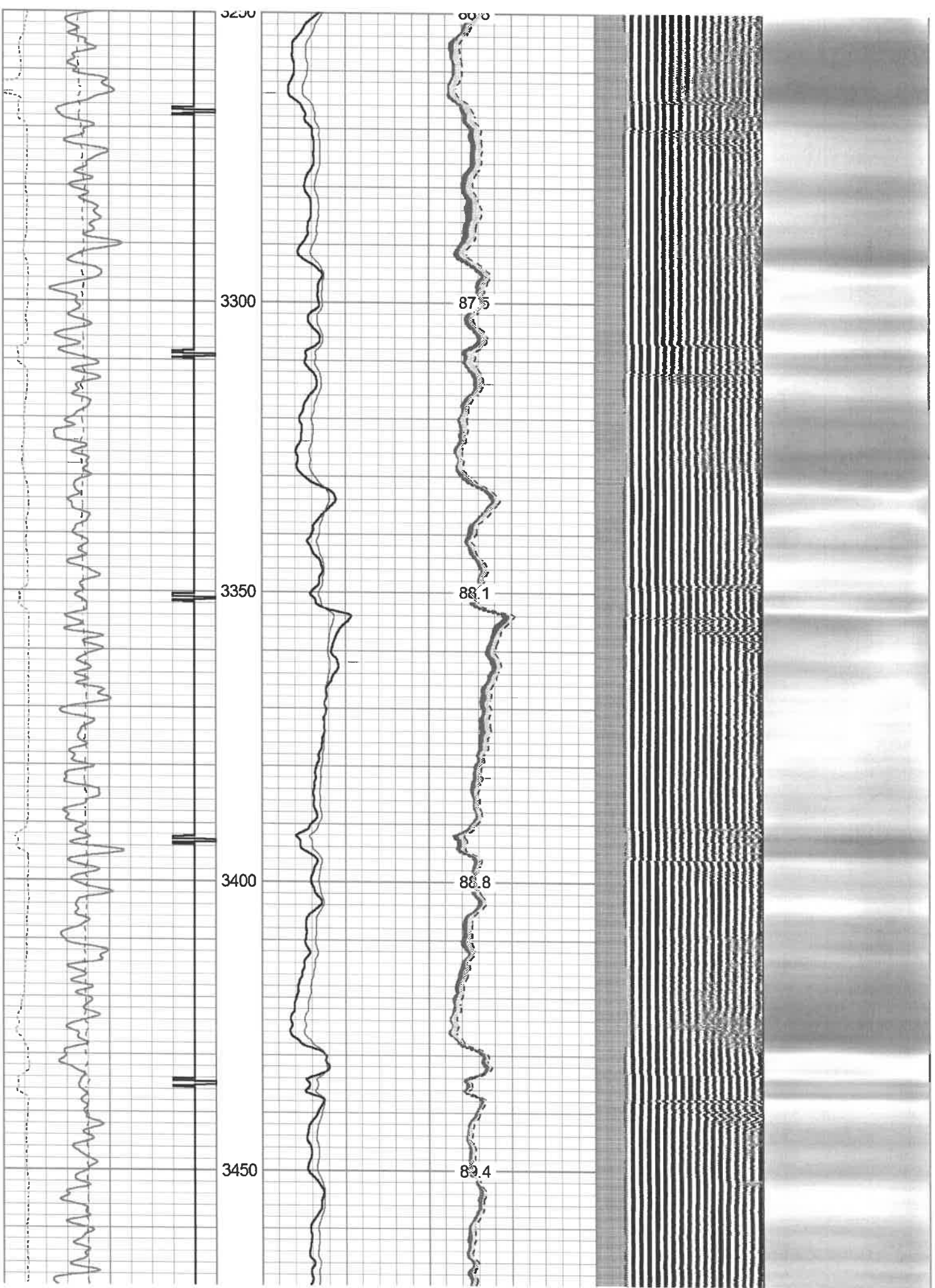


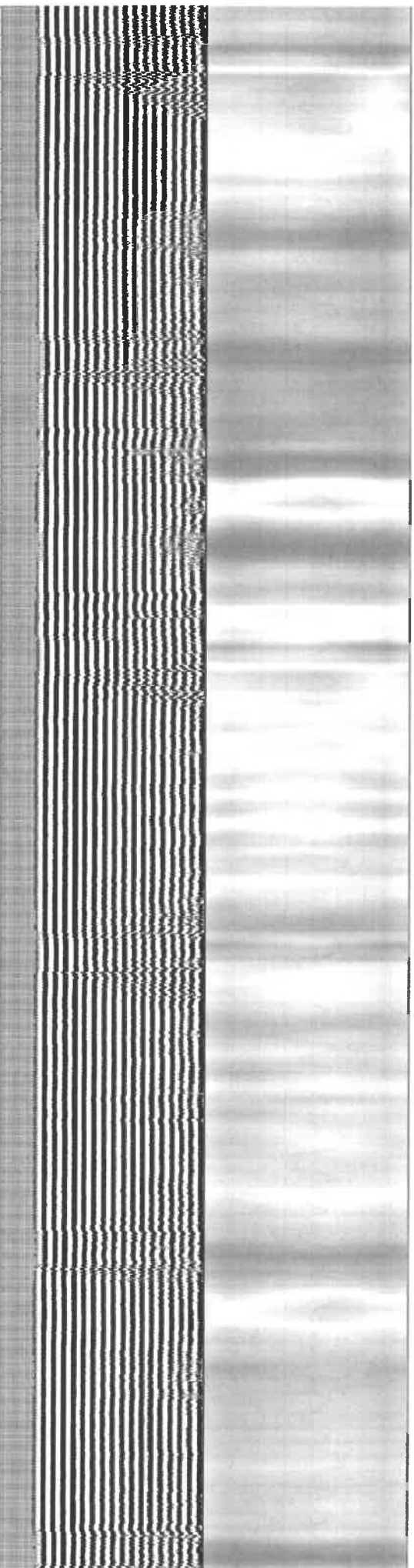
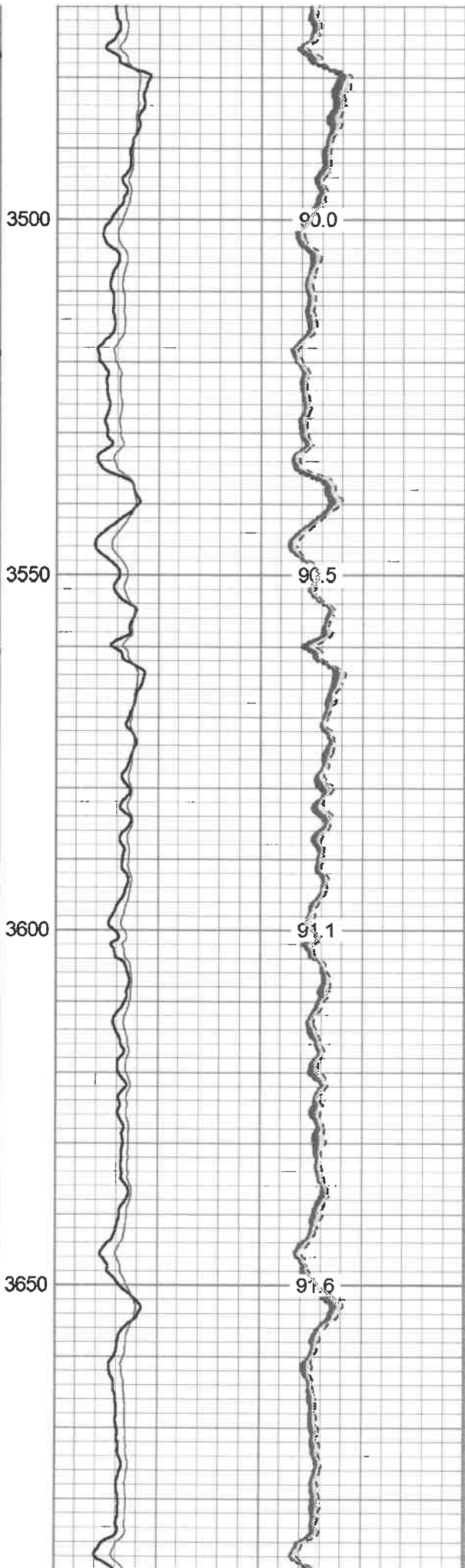
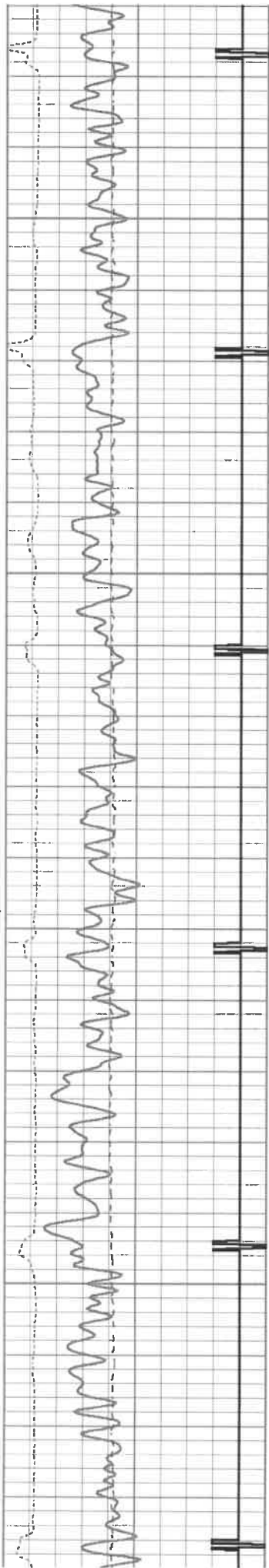




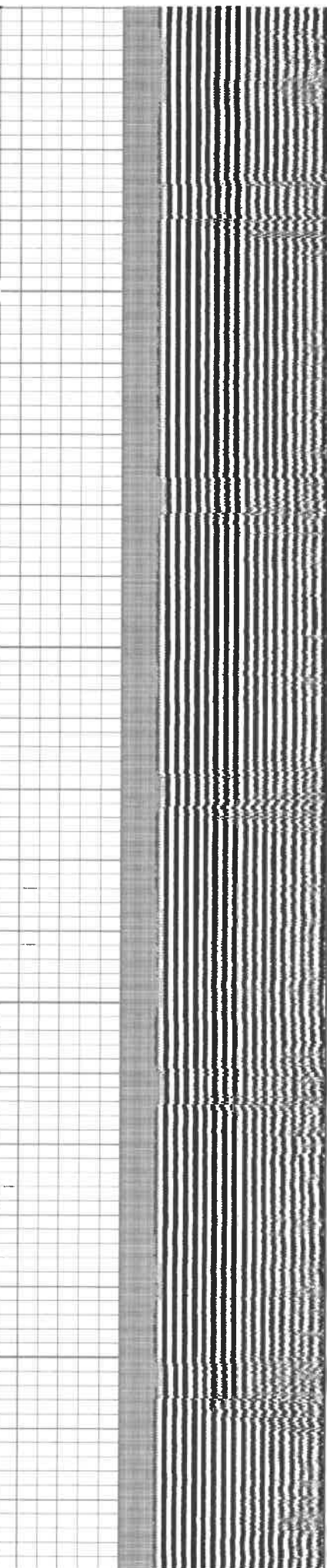
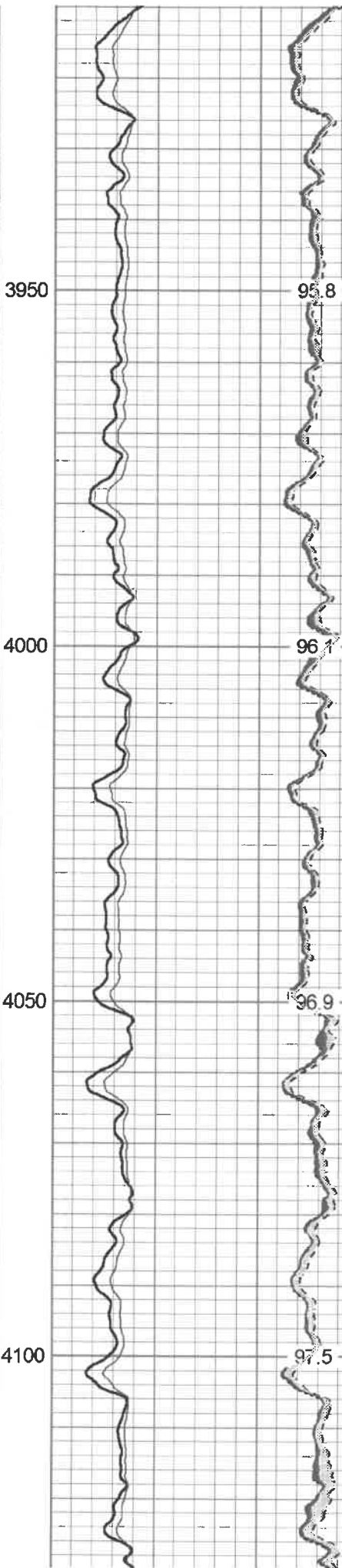
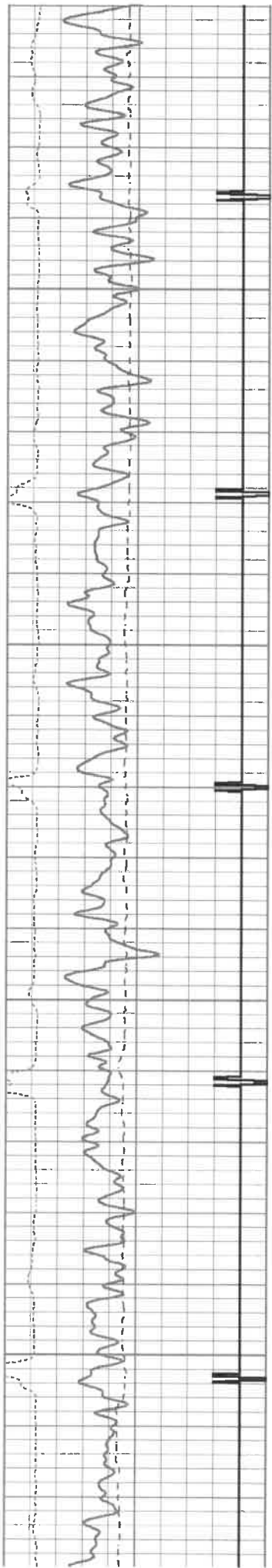


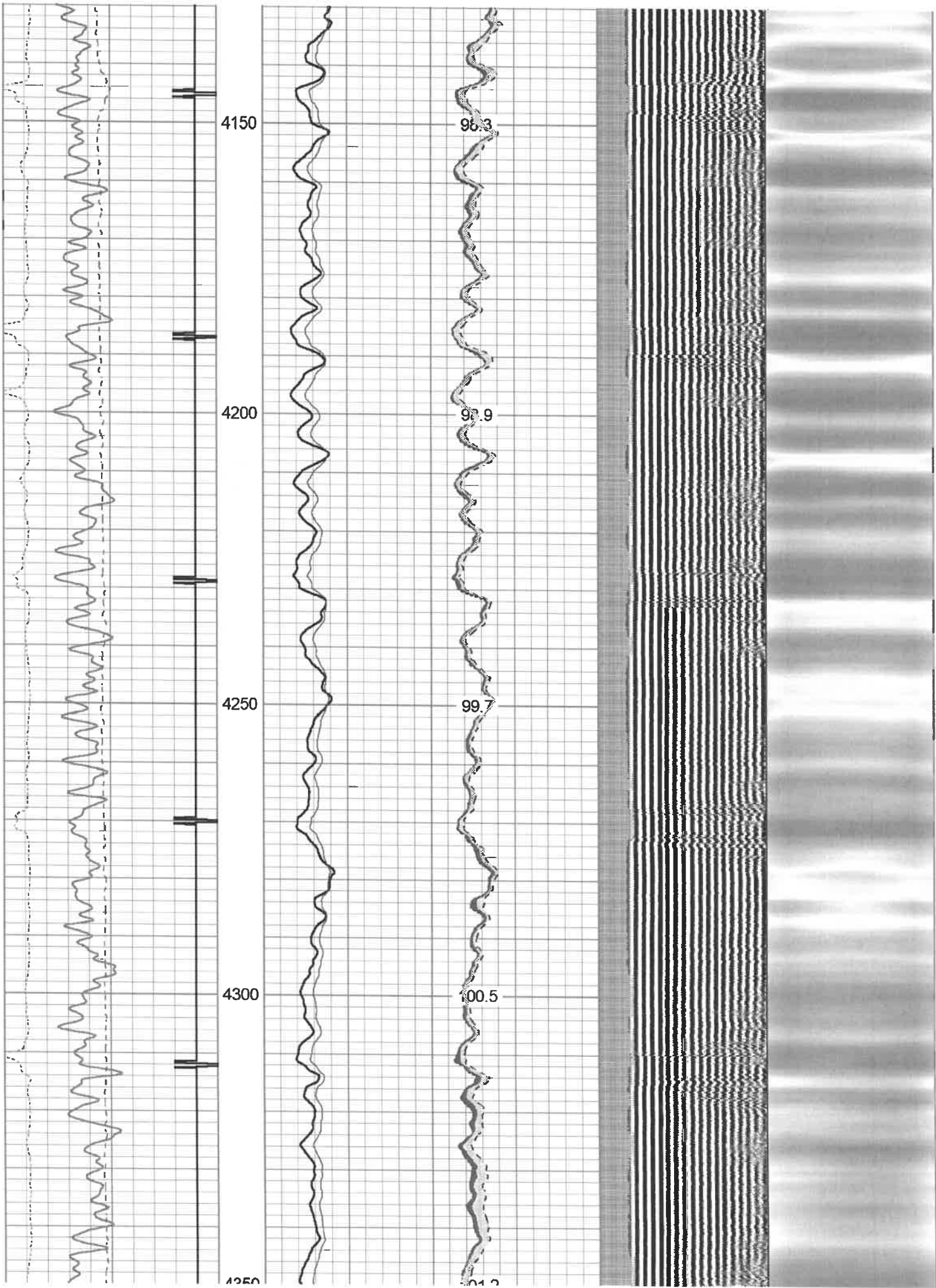


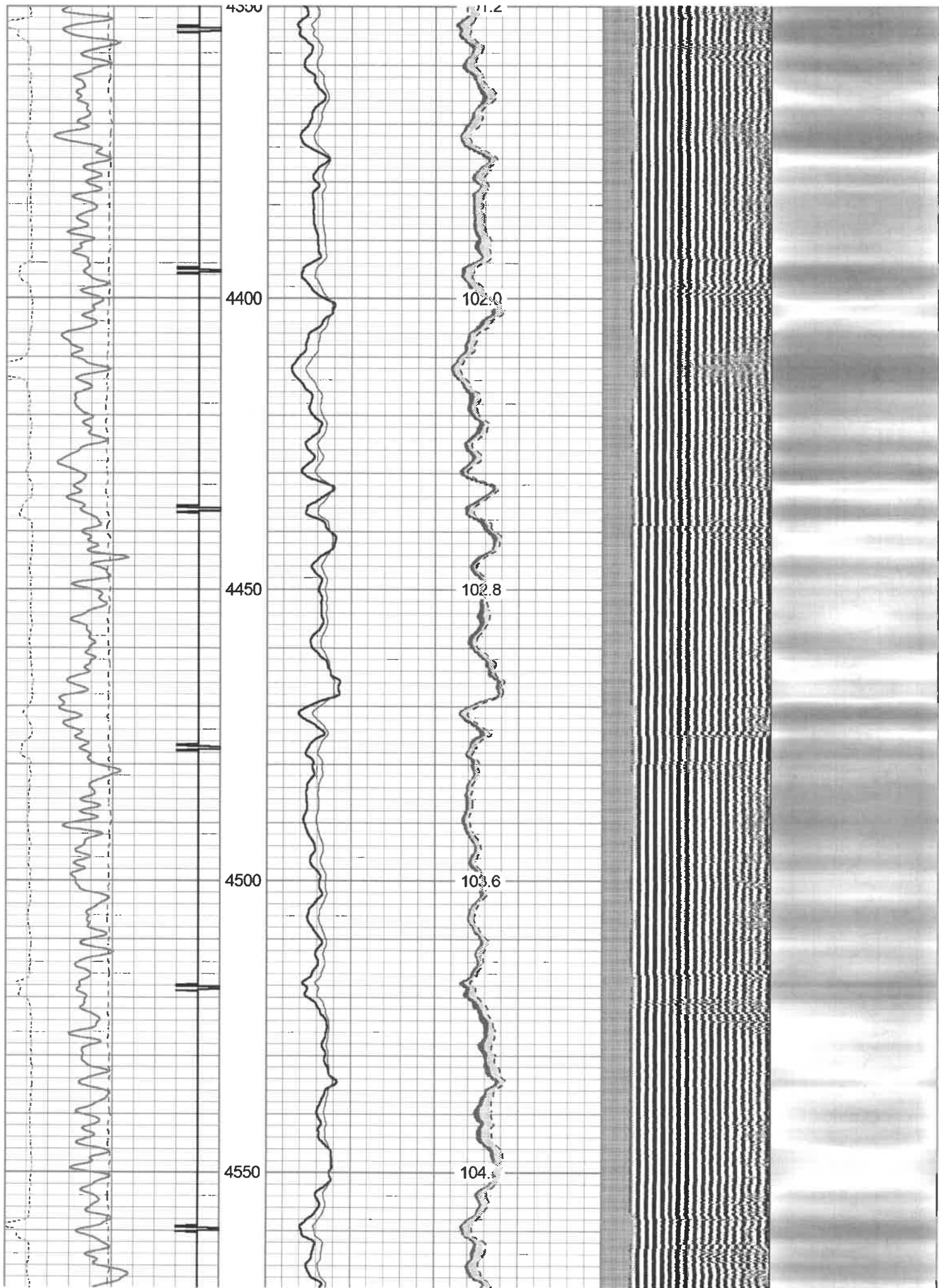






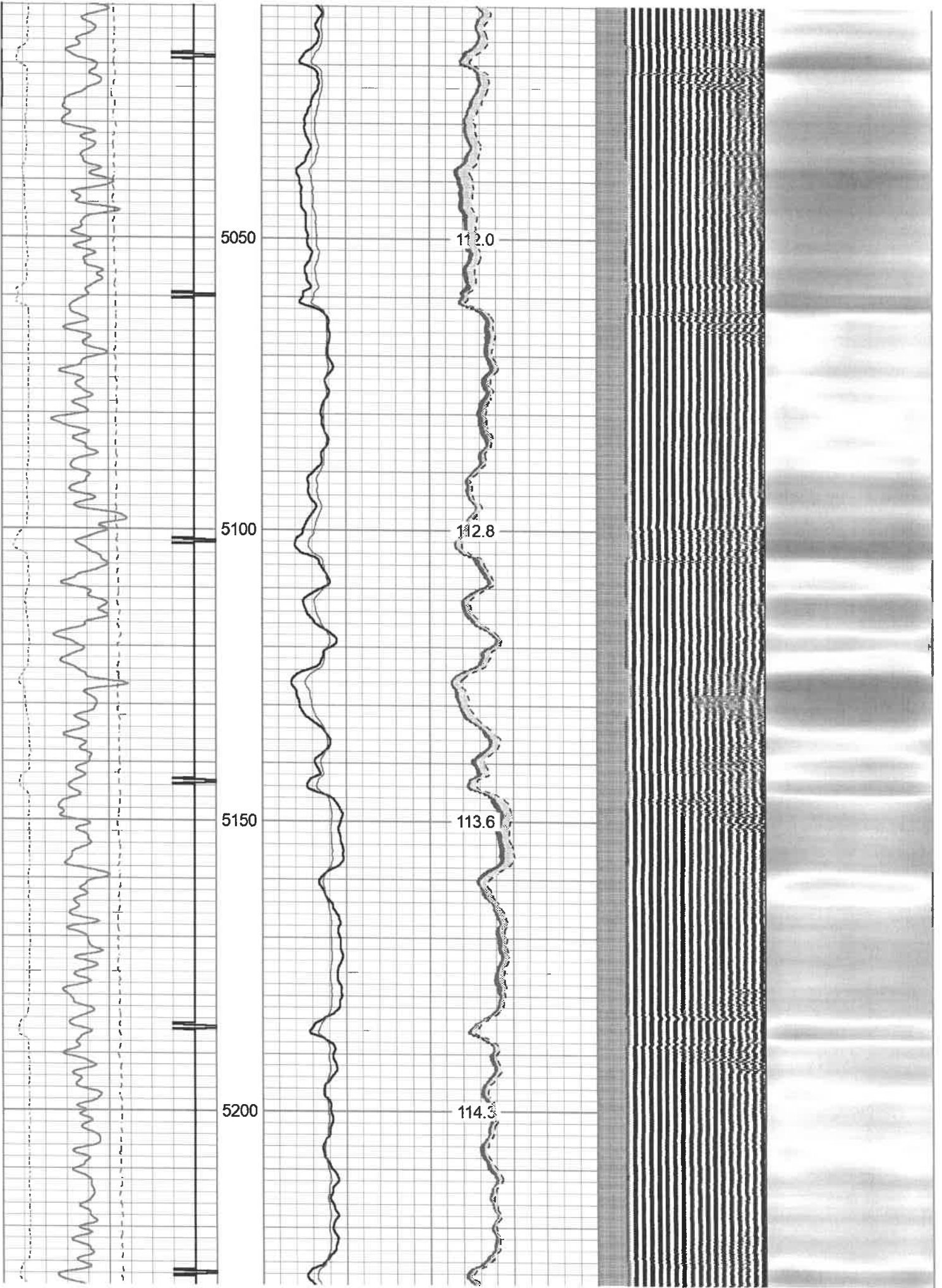


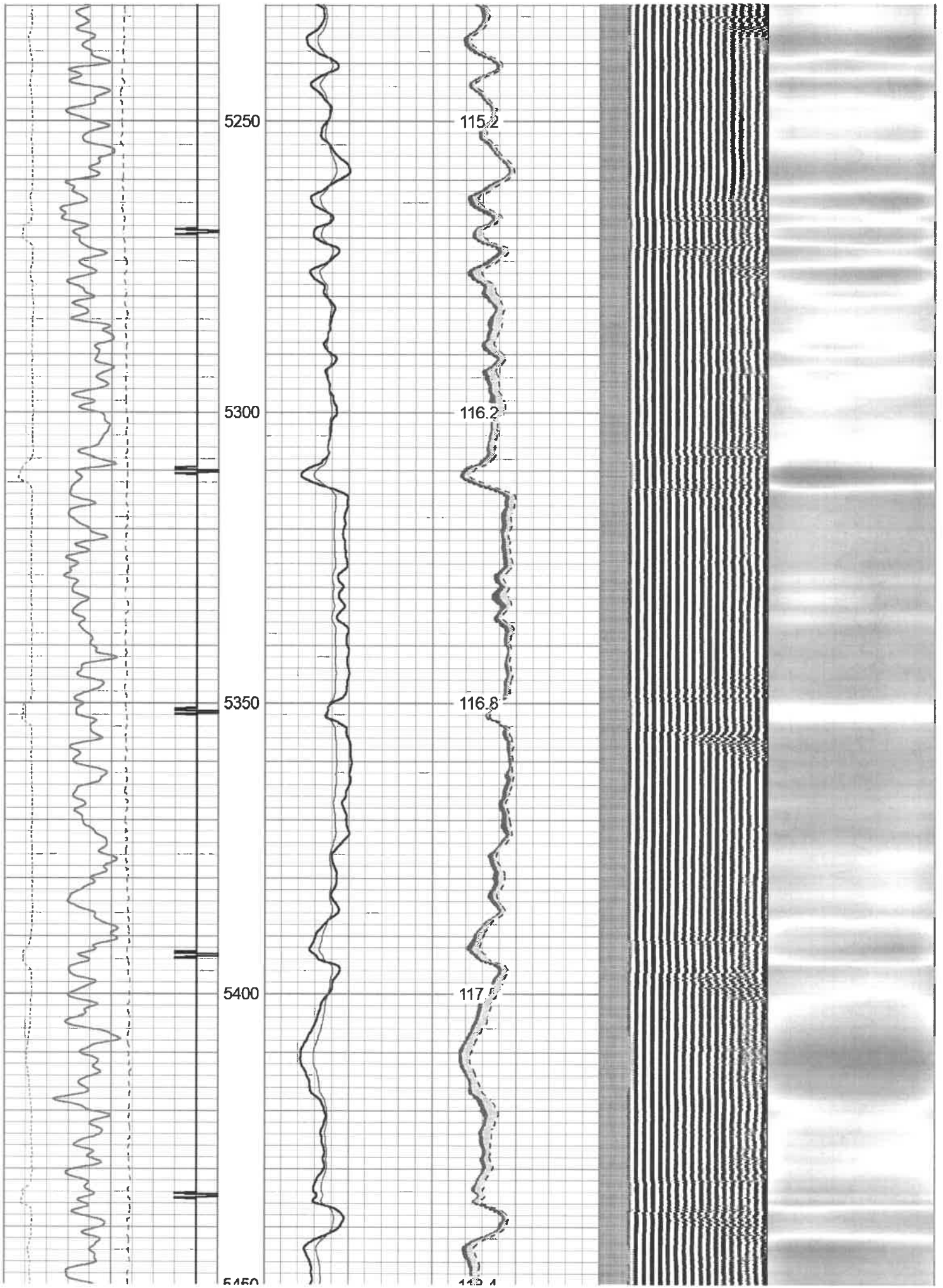


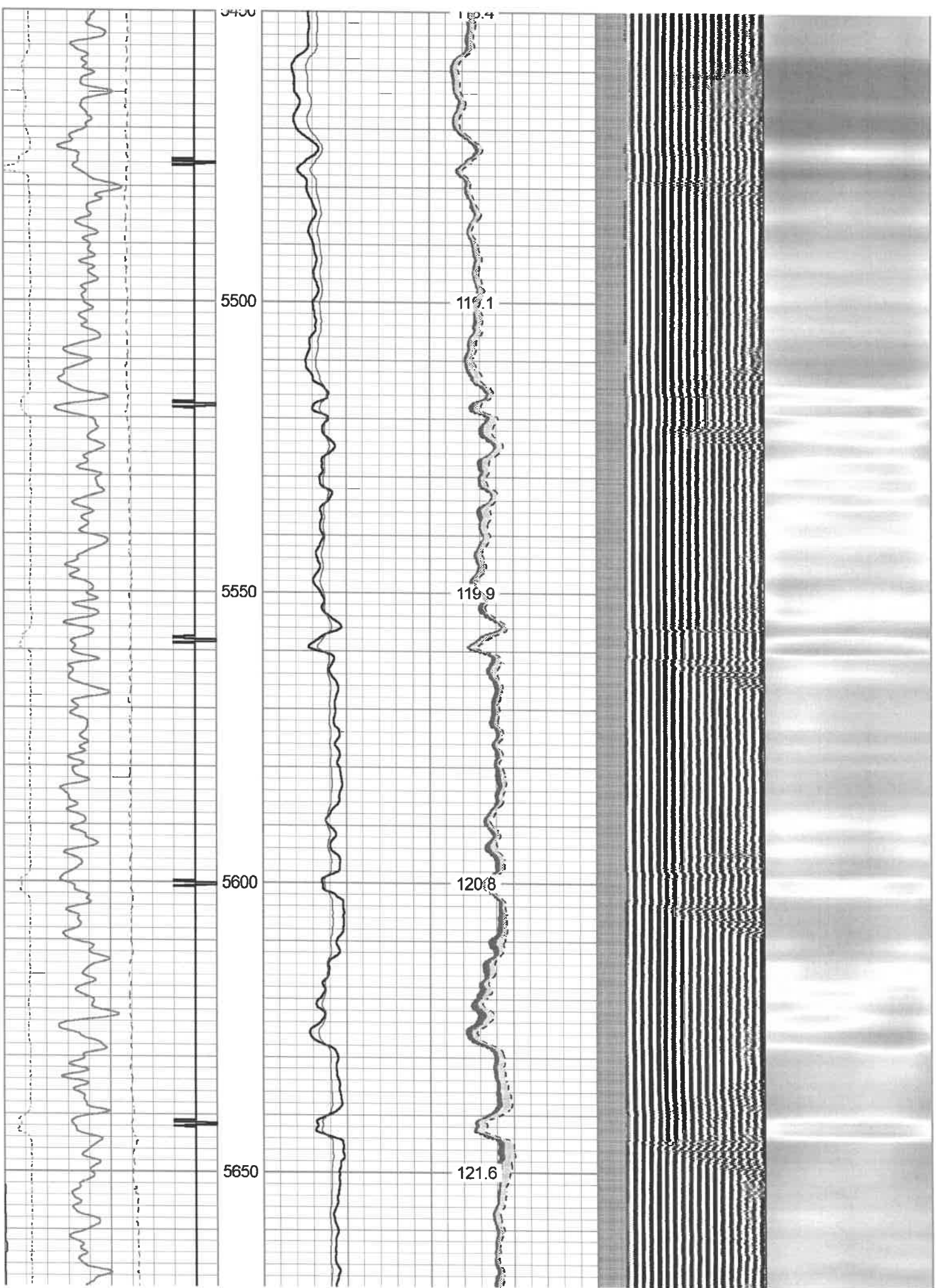


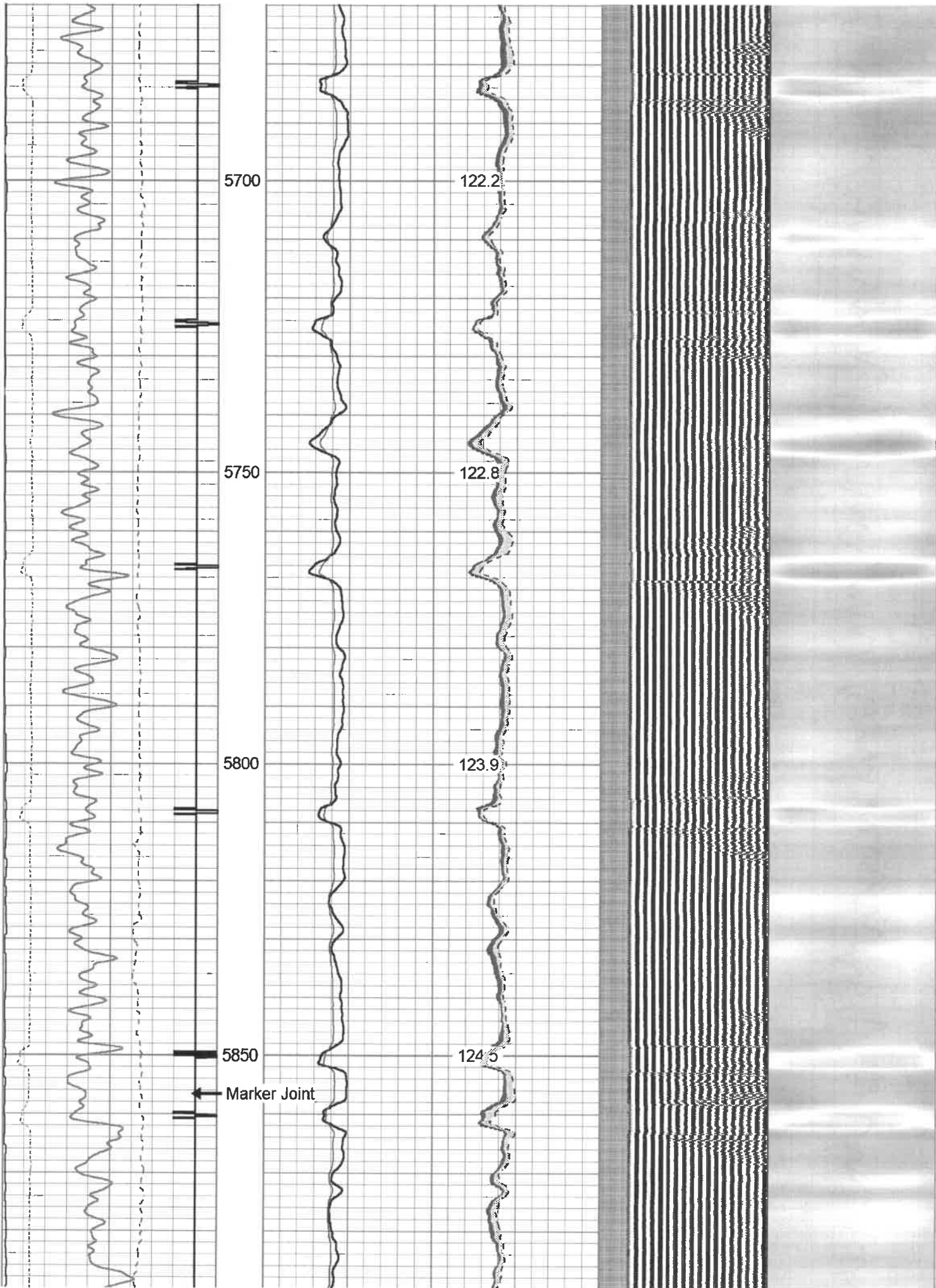


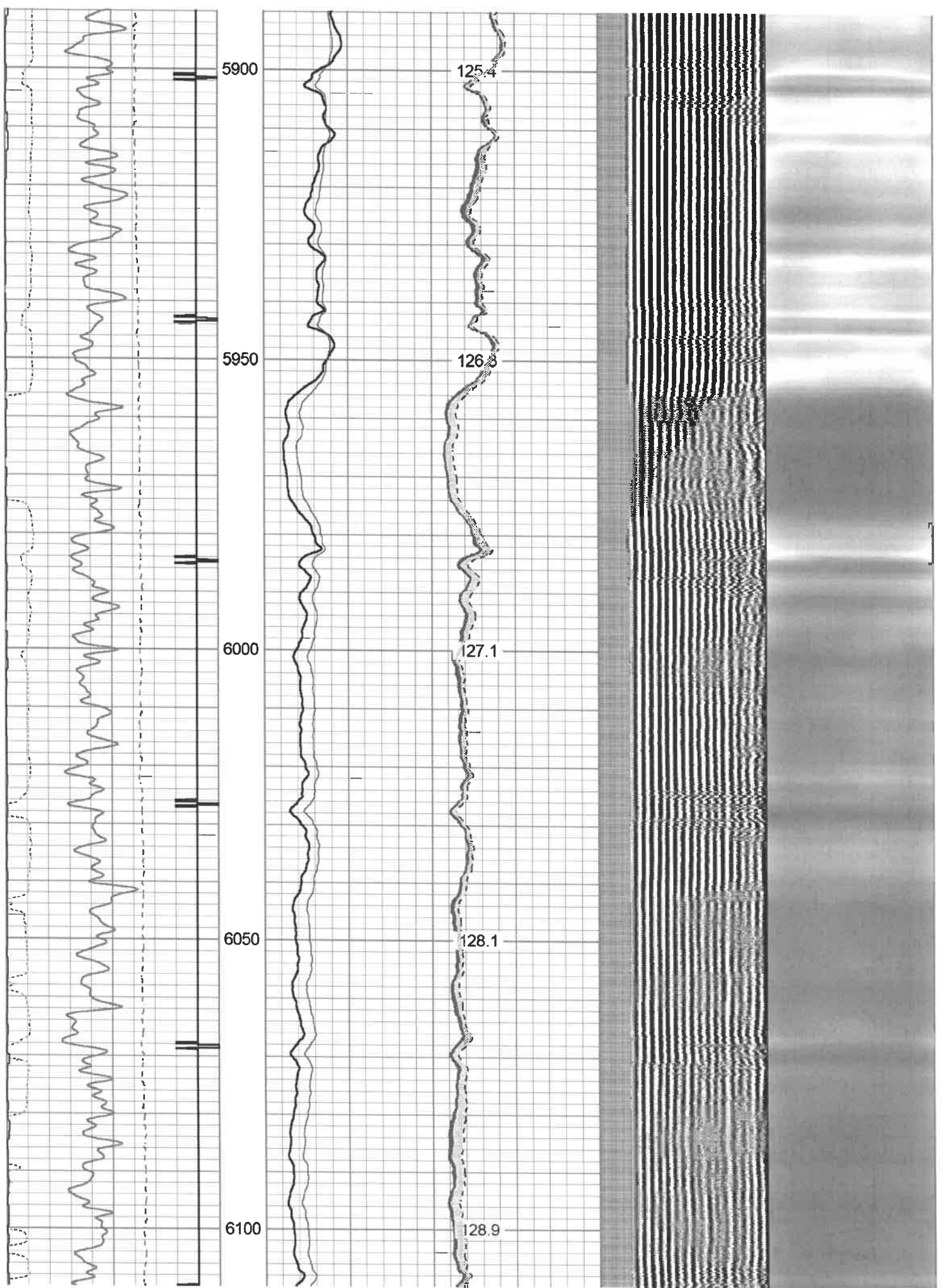


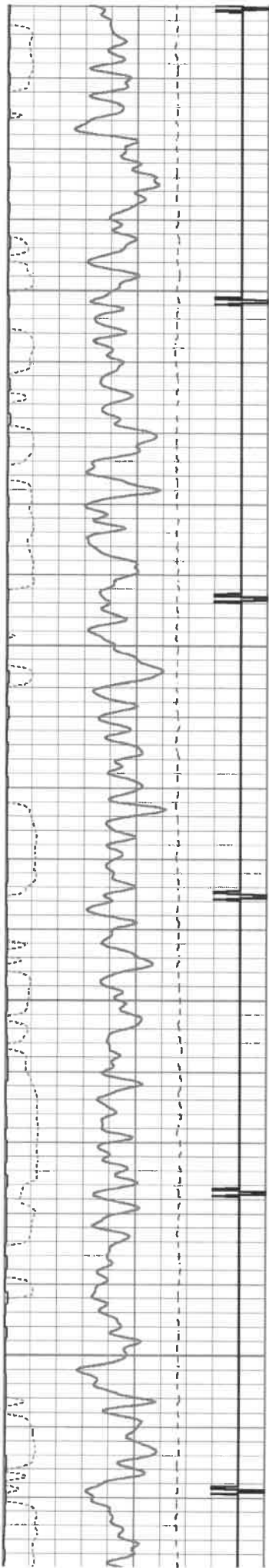










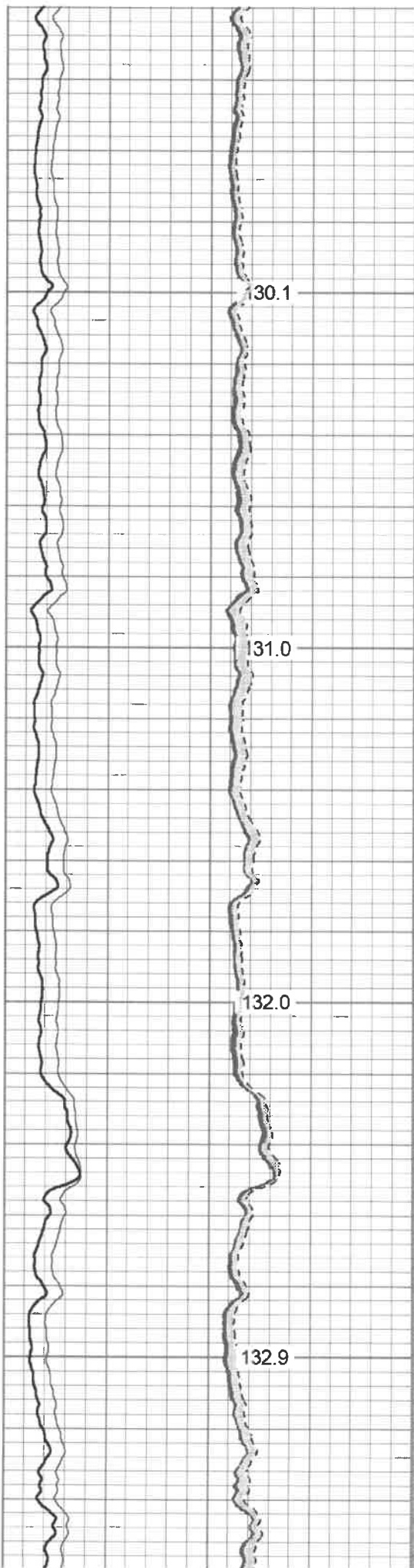


6150

6200

6250

6300

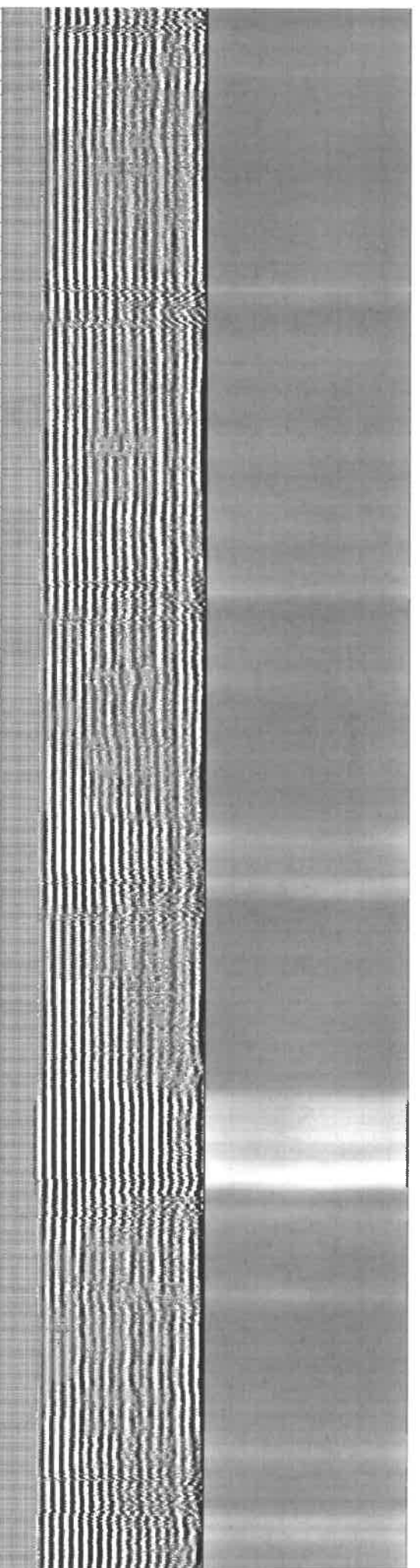


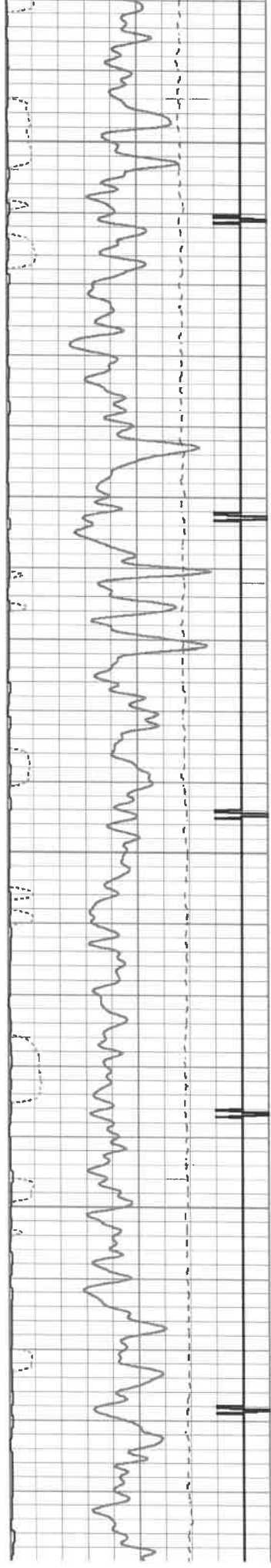
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131.0

132.0

132.9





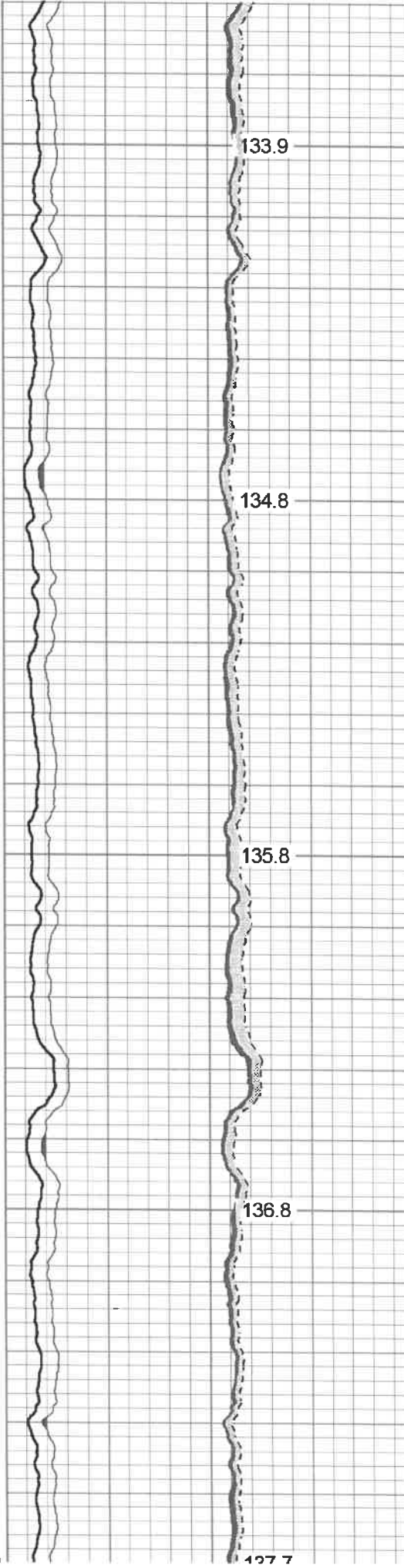
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6400

6450

6500

6550



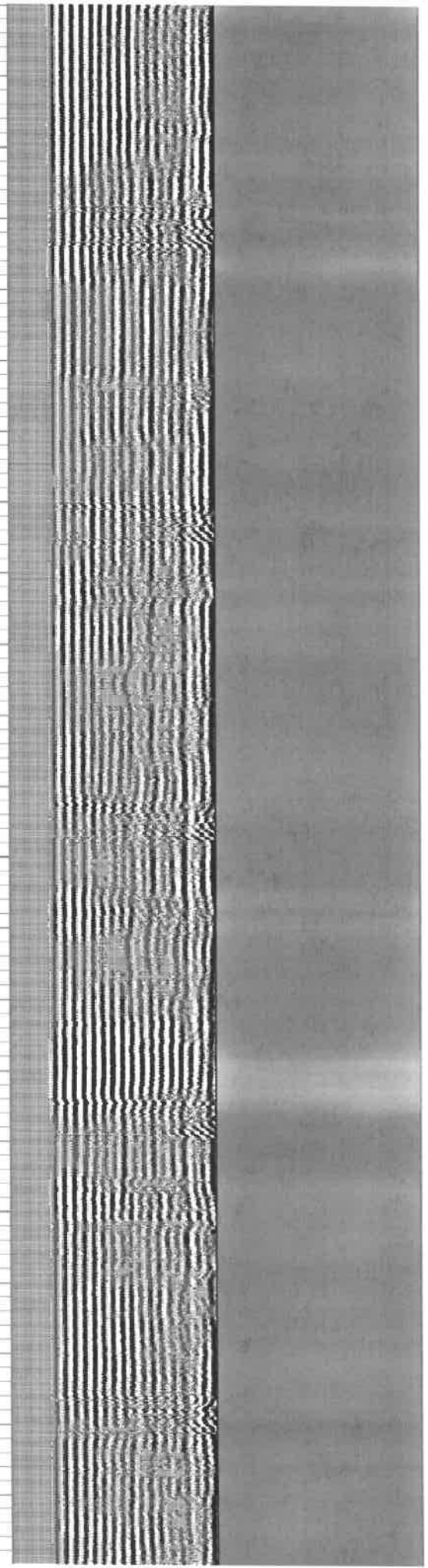
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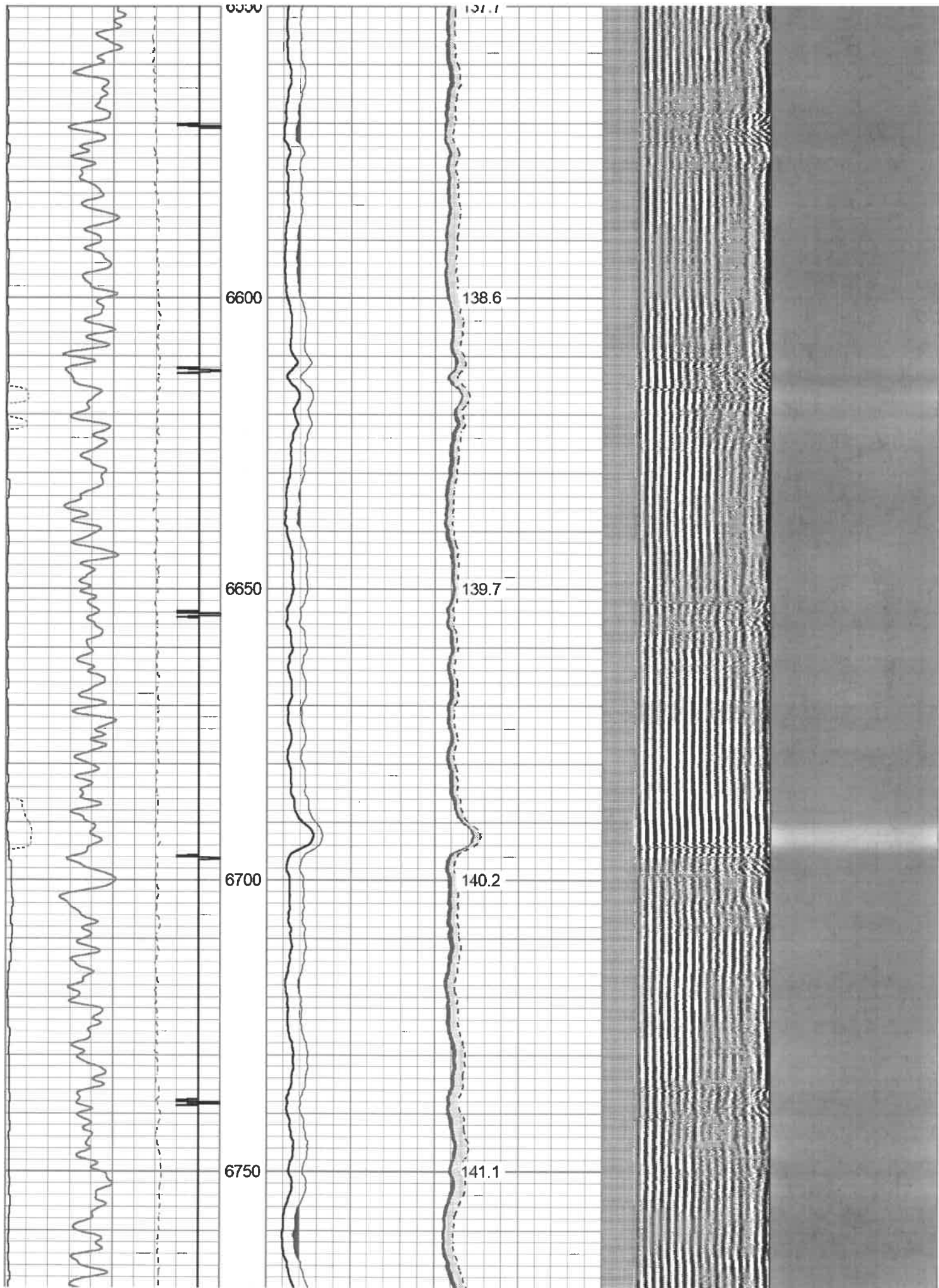
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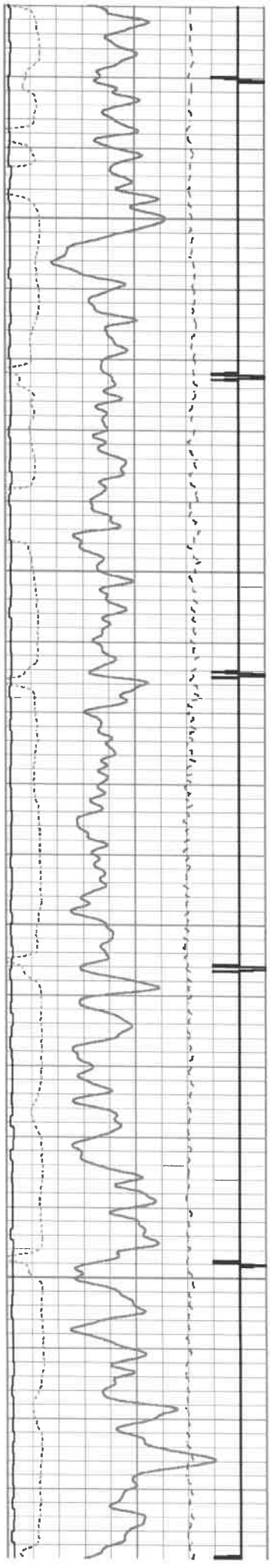
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136.8

137.7





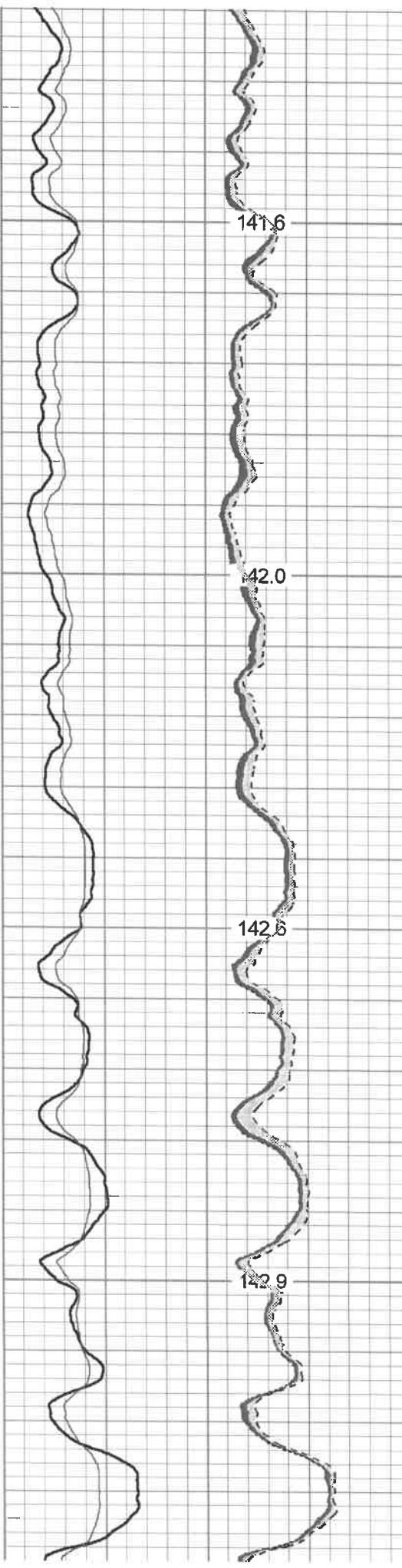


6800

6850

6900

6950

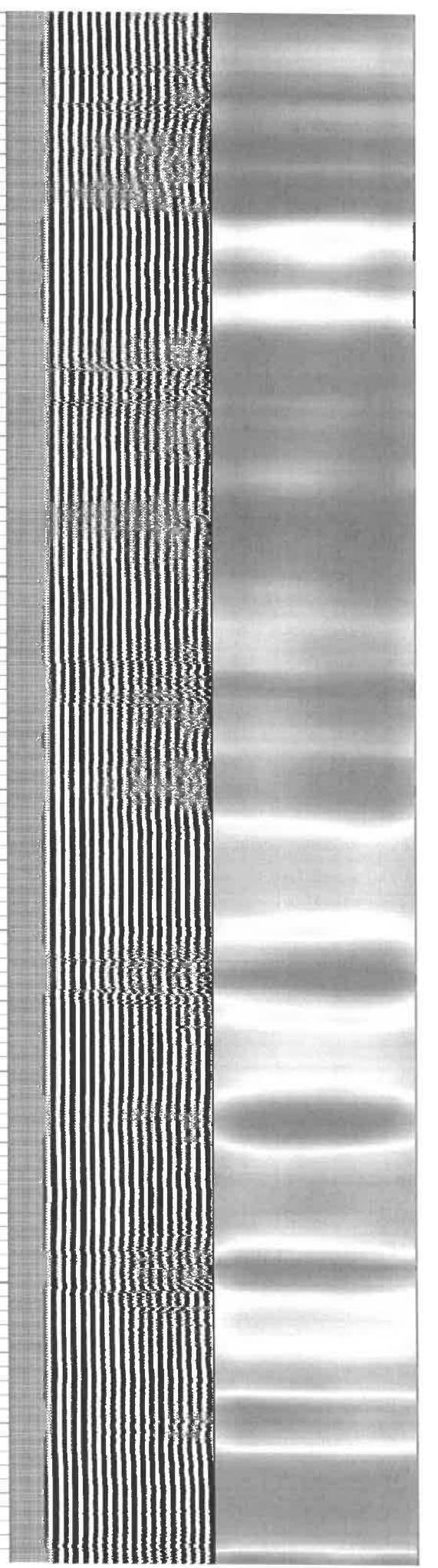


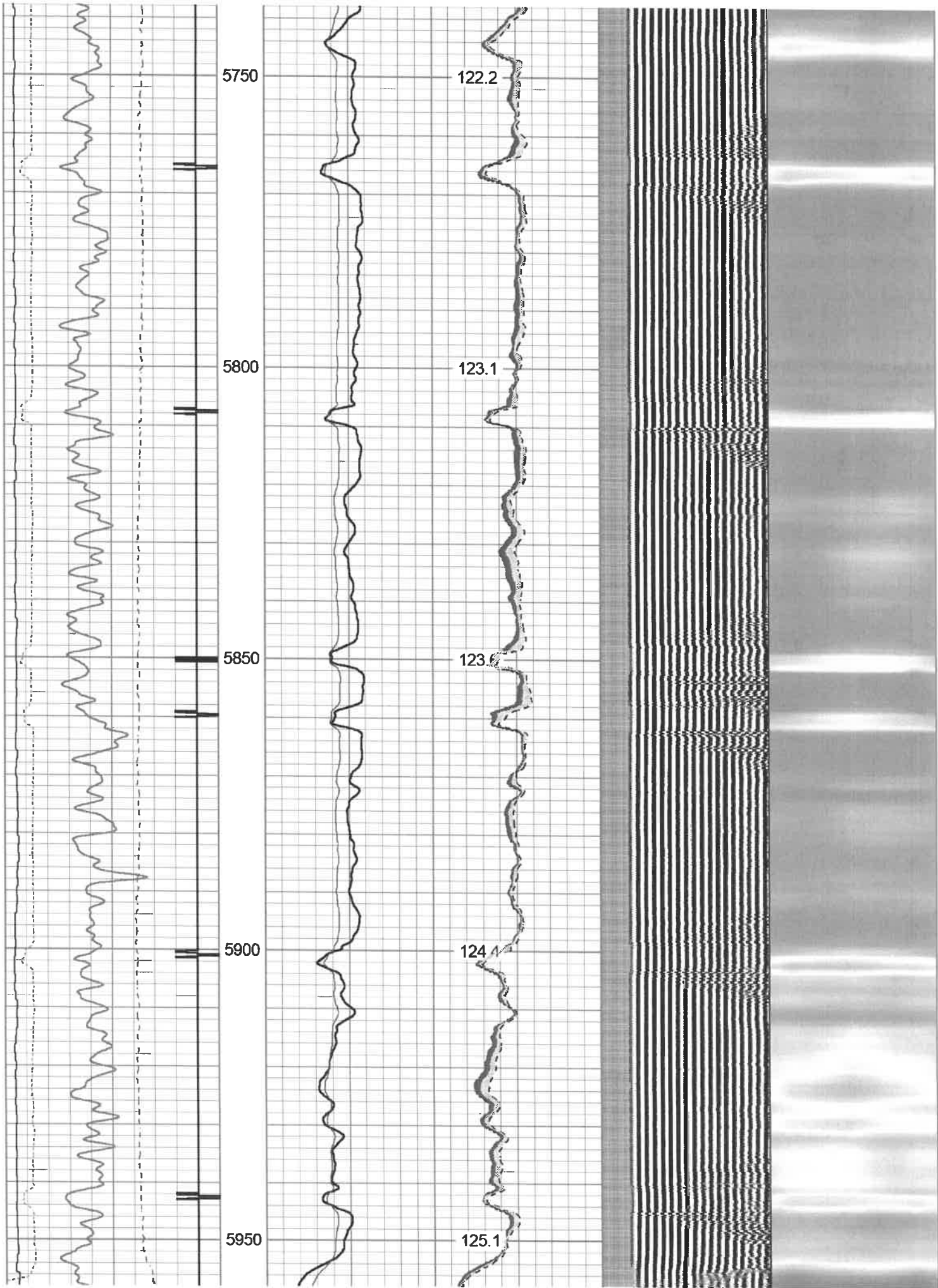
141.6

142.0

142.6

142.9





| | | | | | |
|----------------------------|---------------------|--------------|------------------|--------------|---|
| 270 Travel Time (usec) 160 | 0 Amplitude (mV)100 | 0 AMPMIN 150 | Variable Density | 1 Cement Map | 8 |
| 9 Casing Collar -1 | 1 BONDIX 0 | 0 AMPMAX 150 | 200 (usec) 1200 | | |
| 0 Gamma Ray (GAPI) 150 | | 0 AMPAVG 150 | | | |
| Line Speed | | TEMP | | | |
| -100 (ft/min) 100 | | (degF) | | | |
| 0 Line Tension (lb) 2000 | | | | | |

Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero_blizzard_pechora_1h_rcbl_25_july_2021.db
Dataset utiica/pechora_1h/run1/pass6.1/_vars_

Top - Bottom

| | | | | | | | |
|------------------|--------------|-----------------|-----------------|----------------|-------------------|---------------|---------------|
| BHTEMP_Src | BOREID in | BOTTEMP degF | CASEOD in | CASETHCK in | CASEWGHT lb/ft | MAXAMPL mV | MINAMPL mV |
| TEMP | 7.875 | 143 | 5.5 | 0.415 | 23 | 71.9 | 3.4 |
| MINATTN db/ft | PERFS | PPT usec | SRFTEMP degF | TDEPTH ft | | | |
| 9.6 | No | 260 | 85 | 7104 | | | |

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_blizzard_pechora_1h_rcbl_25_july_2021.db
Dataset Pathname utiica/pechora_1h/run1/pass6.1
Dataset Creation Sun Jul 25 18:06:08 2021

Gamma Ray Calibration Report

Serial Number: FW1211-86
Tool Model: Probe
Performed: Sun Jul 25 14:29:09 2021

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.5000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1312-32
Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in
Calibration Depth: 180.275 ft

Master Calibration, performed (Derived):


| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|---------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.000 | 1.200 | 3.400 | 71.921 | 57.090 | 3.396 |
| CAL | -0.027 | 1.462 | | | | |
| 5' | -0.002 | 1.119 | 3.400 | 71.921 | 61.109 | 3.525 |
| SUM | | | | | | |
| S1 | 0.000 | 1.268 | 0.000 | 100.000 | 78.845 | -0.006 |
| S2 | -0.005 | 1.157 | 0.000 | 100.000 | 86.100 | 0.406 |
| S3 | 0.000 | 1.146 | 0.000 | 100.000 | 87.232 | -0.006 |
| S4 | -0.001 | 1.149 | 0.000 | 100.000 | 86.978 | 0.096 |
| S5 | -0.001 | 1.177 | 0.000 | 100.000 | 84.844 | 0.126 |
| S6 | -0.006 | 1.251 | 0.000 | 100.000 | 79.549 | 0.481 |
| S7 | -0.003 | 1.283 | 0.000 | 100.000 | 77.727 | 0.258 |
| S8 | -0.002 | 1.277 | 0.000 | 100.000 | 78.162 | 0.149 |

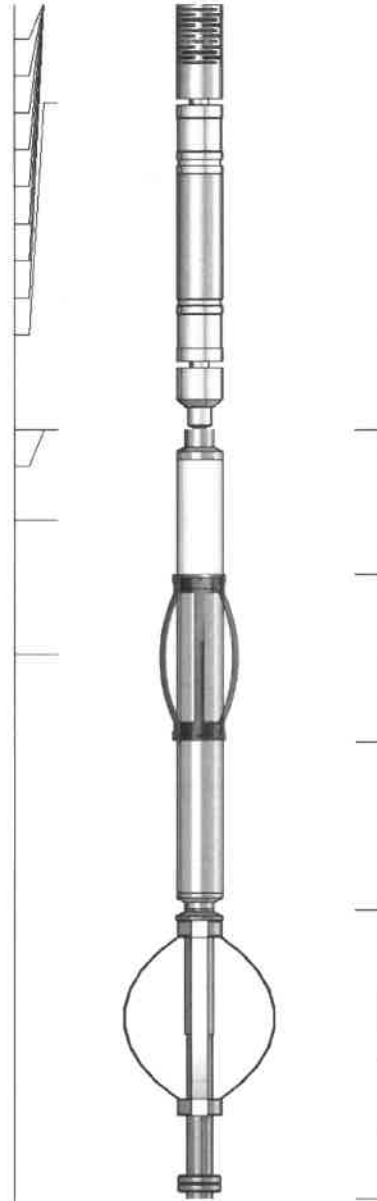
Internal Reference Calibration, performed (Not Performed):

| | Raw (v) | | Calibrated (v) | | Results | |
|-----|---------|-------|----------------|-------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | -0.027 | 1.462 | 1.000 | 0.000 |

Air Zero Calibration, performed Sun Jul 25 13:23:14 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) |
|--------|-------------|---|---|-------------|-----------|-------------|
| Temp | 14.14 |  | CHD-Titan Standard 1 7/16" Cable Head | 1.02 | 1.44 | 1.00 |
| | | | CENT-Overbody Antelope (SP-919-0233) | 1.67 | 4.88 | 5.00 |
| | | | RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub | 9.39 | 2.75 | 90.00 |
| WVESR | 11 01 | | | | | |

| | | | | | | |
|---------------|-------|---|--|------|------|-------|
| WVFS8 | 11.91 |  | | | | |
| WVFS7 | 11.91 | | | | | |
| WVFS6 | 11.91 | | | | | |
| WVFS5 | 11.91 | | | | | |
| WVFS4 | 11.91 | | | | | |
| WVFS3 | 11.91 | | | | | |
| WVFS2 | 11.91 | | | | | |
| WVFS1 | 11.91 | | | | | |
| WV3FT | 11.91 | | | | | |
| WV5FT | 10.91 | | | | | |
| HeadVolt | 7.66 | | | | | |
| WVFCAL | 7.66 | | | | | |
| CCL | 6.75 | | | | | |
| GR | 5.42 | | | | | |
| | | | CENT-Overbody Antelope (SP-919-0233) | 1.67 | 4.88 | 5.00 |
| | | | GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray | 4.78 | 2.75 | 57.00 |
| | | | CENT-Probe275 2.75" Centralizer | 2.88 | 2.75 | 20.00 |
| Dataset: | | antero_blizzard_pechora_1h_rcbl_25_july_2021.db: utiica/pechora_1h/run1/pass6.1 | | | | |
| Total length: | | 18.07 ft | | | | |
| Total weight: | | 178.00 lb | | | | |
| O.D.: | | 4.88 in | | | | |

| | | |
|---|----------------|---------------------|
|  | Company | Antero Resources |
| | Well | Blizzard Pechora 1H |
| | Field | Rabbit Ears |
| | County | Tyler |
| | State | WV |