



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

Company Antero Resources
Well Patty 2H
Field River Front
County Tyler
State West Virginia

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Well Patty 2H
Field River Front
County Tyler State West Virginia

Location: API #: 47-095-02733-0000 Other Services

Permanent Datum SEC N/A TWP N/A RGE N/A
Log Measured From Ground Level Elevation
Drilling Measured From Kelly Bushing (30') Kelly Bushing G.L.

Date July 13 2021

Run Number One

Depth Driller 16,044 ft.

Depth Logger 6,632 ft.

Bottom Logged Interval 6,632 ft.

Top Log Interval Surface

Open Hole Size N/A

Type Fluid Water

Density / Viscosity N/A

Max. Recorded Temp. 138.6 Deg. F

Estimated Cement Top 4,646 ft.

Time Well Ready 6:27

Time Logger on Bottom 7:33

Equipment Number Unit 133

Location Marietta Ohio

Recorded By Thomas Weese

Witnessed By James

Run Number

Bit From To Size Weight From To

Tubing Record

From To

Size Weight From To

Wgt/Ft

Top

Bottom

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

Surface

<<< 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 @ 5,514 - 5,524 ft.
Correction to Pipe Tally Depth Shifted (+6)**

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

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

Database File antero_patty_2h_rcbl_july132021.db
Dataset Pathname Marcellus/Patty_2H/RCBL_1/pass4.3
Presentation Format rcbl-bond index for antero 1020
Dataset Creation Tue Jul 13 15:07:40 2021
Charted by Depth in Feet scaled 1:240

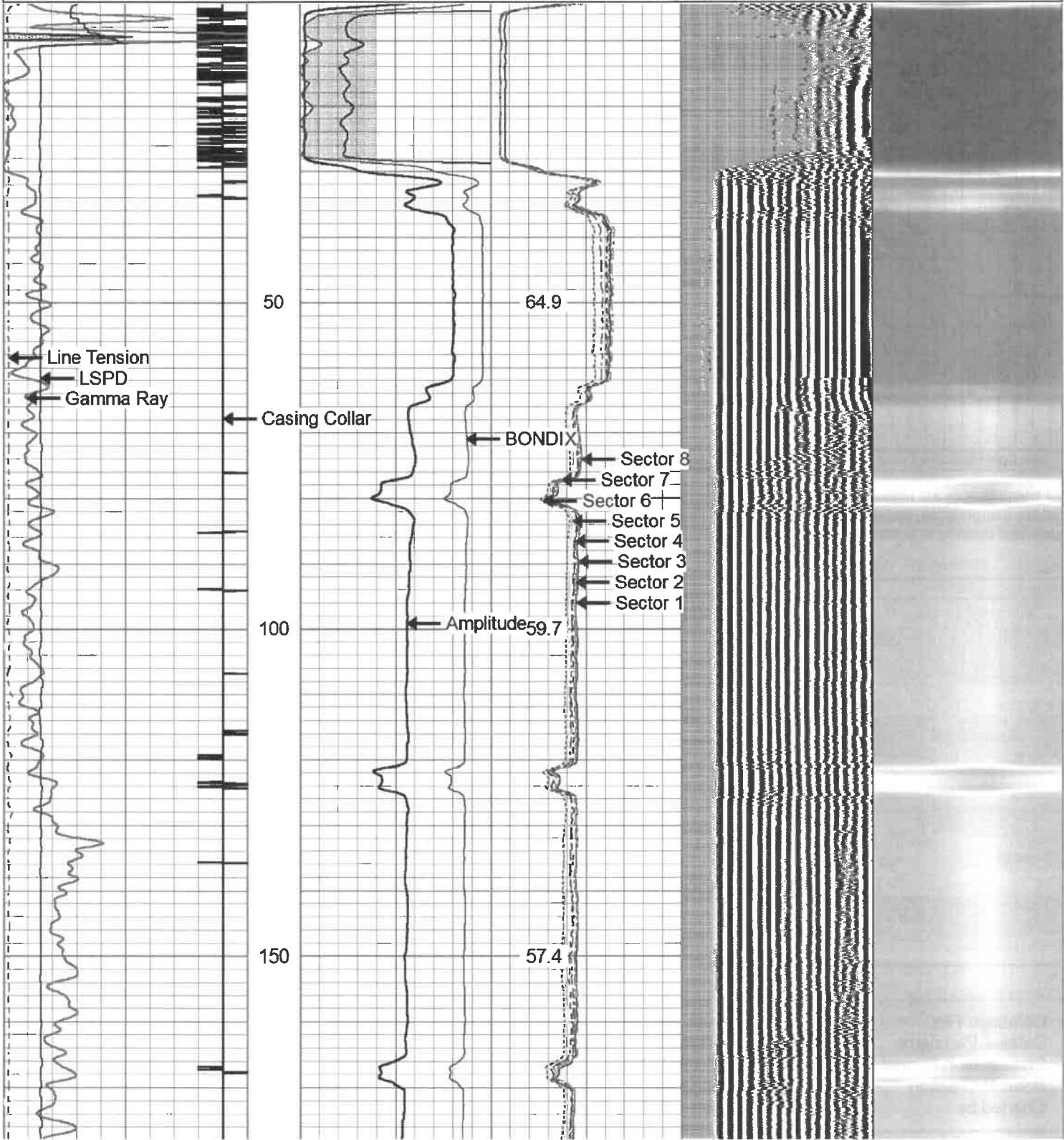
SM

265	Travel Time (usec)	165
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000
-100	LSPD (ft/min)	100

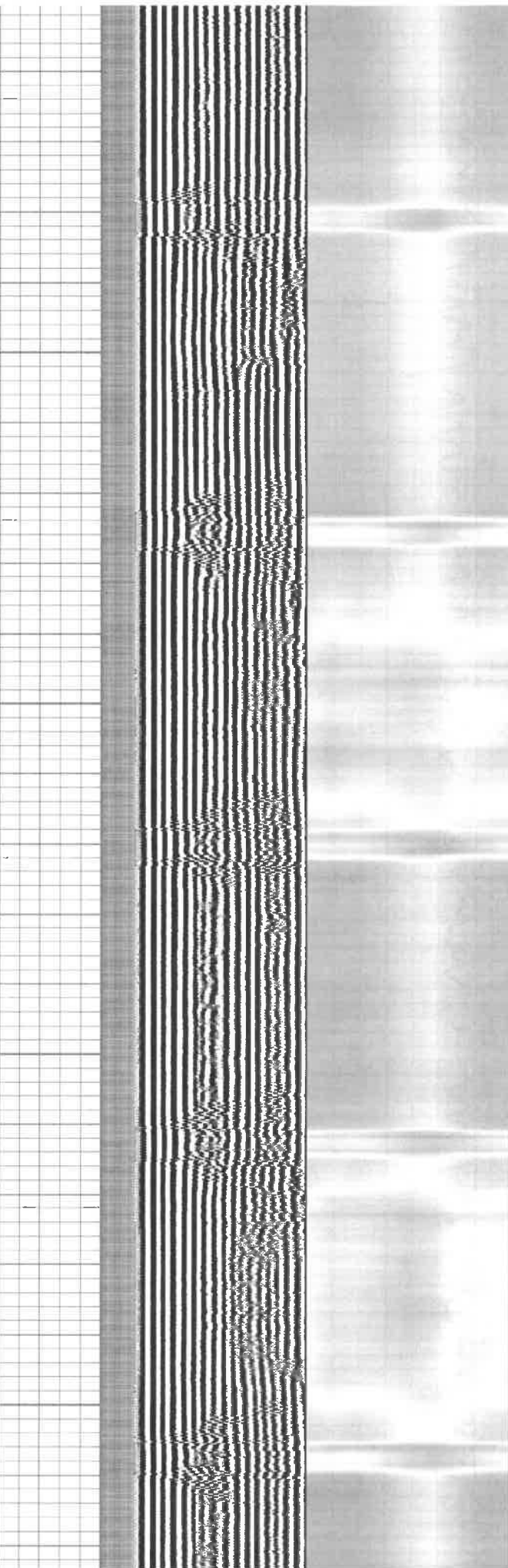
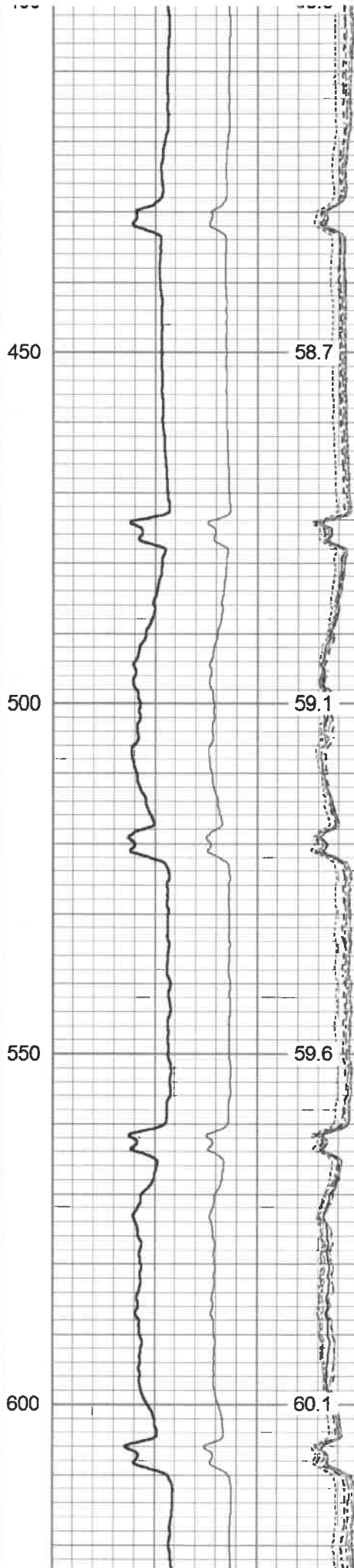
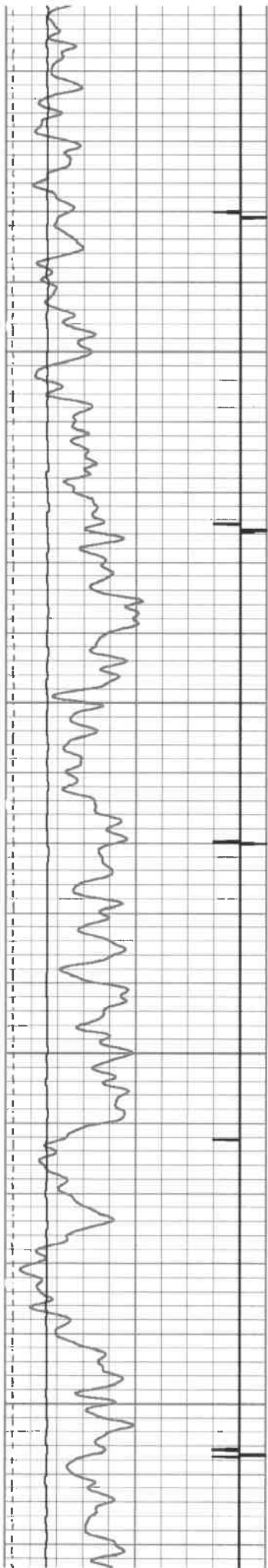
0	Amplitude (mV)	100	-5	Sector 1	150
1	BONDIX	0	-5	Sector 2	150
0	AMPx10 (mV)	10	-5	Sector 3	150
			-5	Sector 4	150
			-5	Sector 5	150
			-5	Sector 6	150
			-5	Sector 7	150
			-5	Sector 8	150

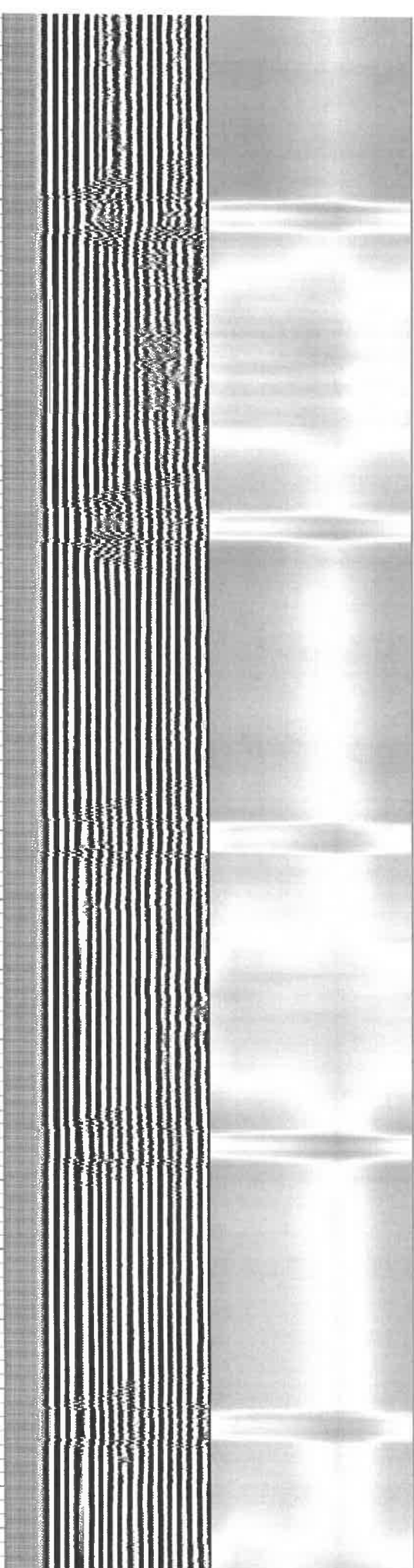
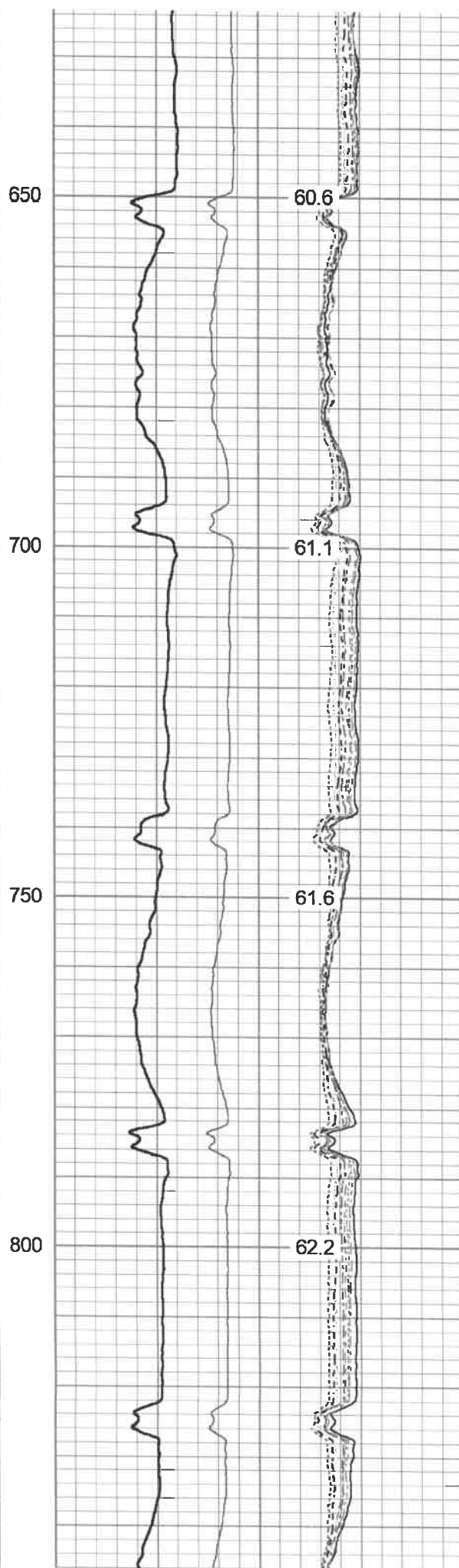
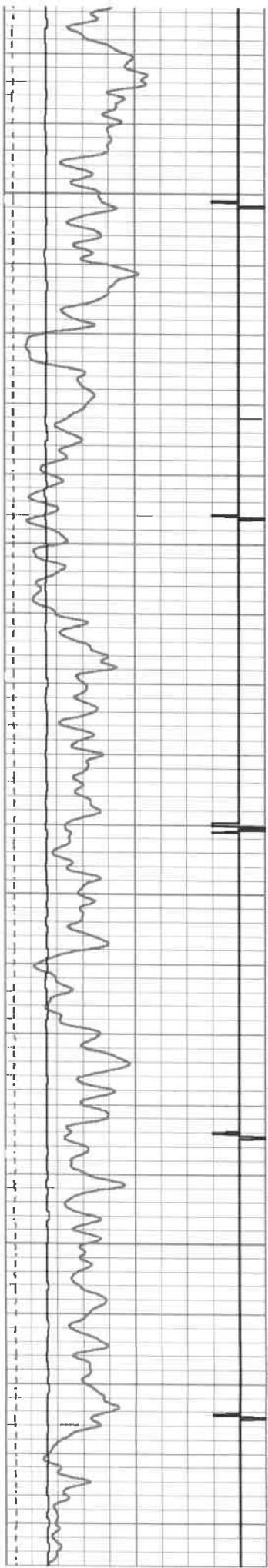
Variable Density 1 Cement Map 8
 200 (usec) 1200

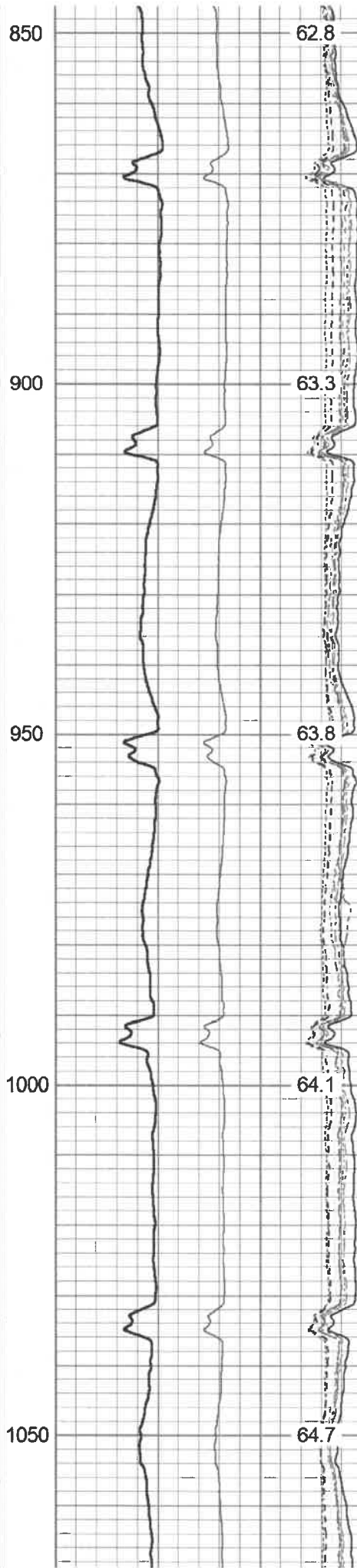
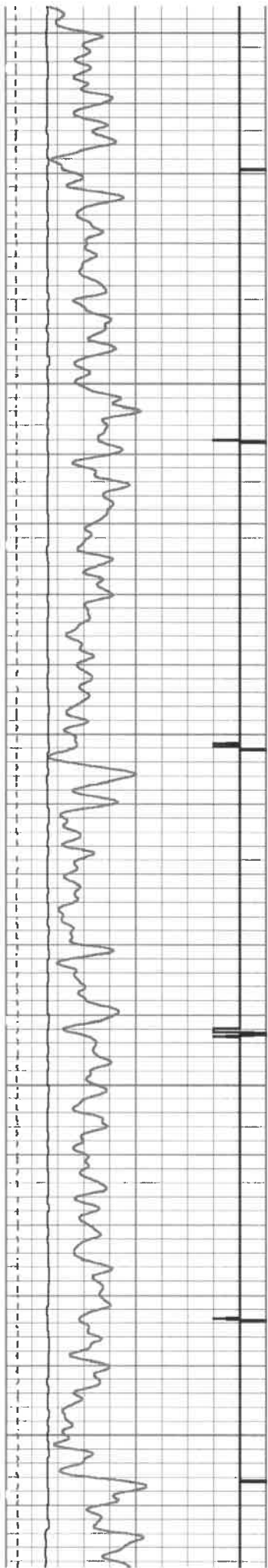
TEMP
(degF)











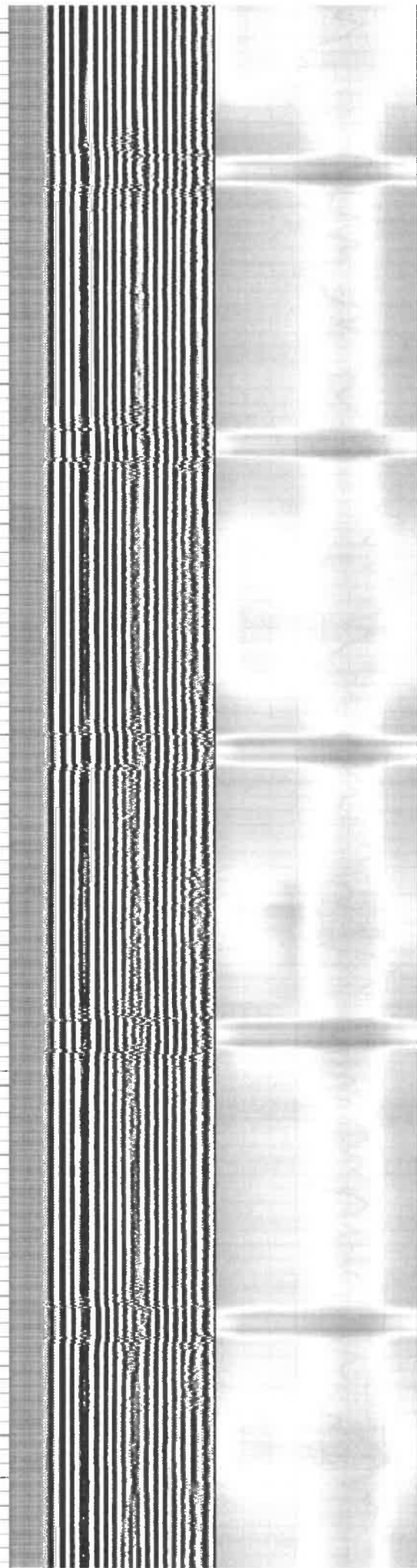
62.8

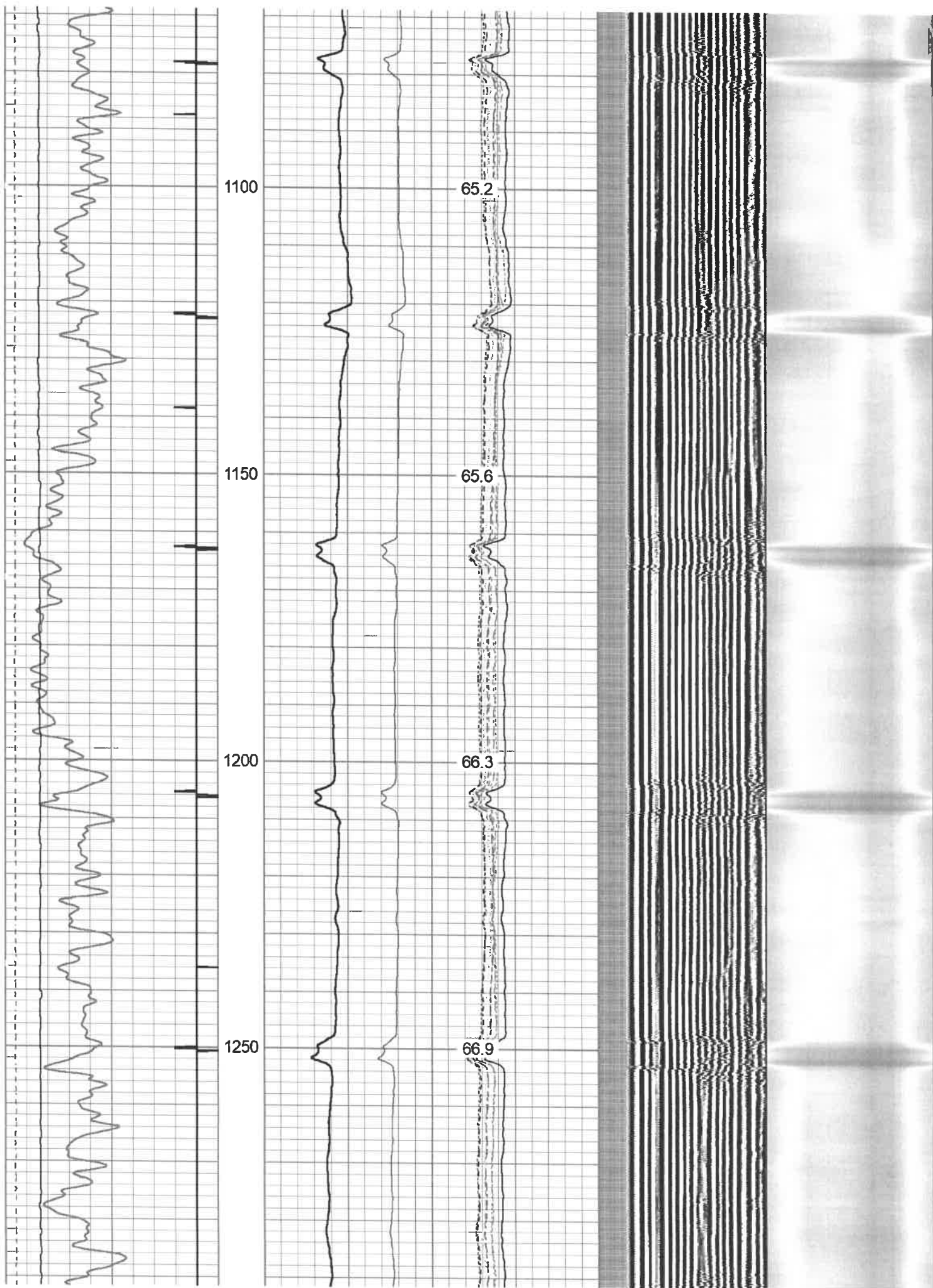
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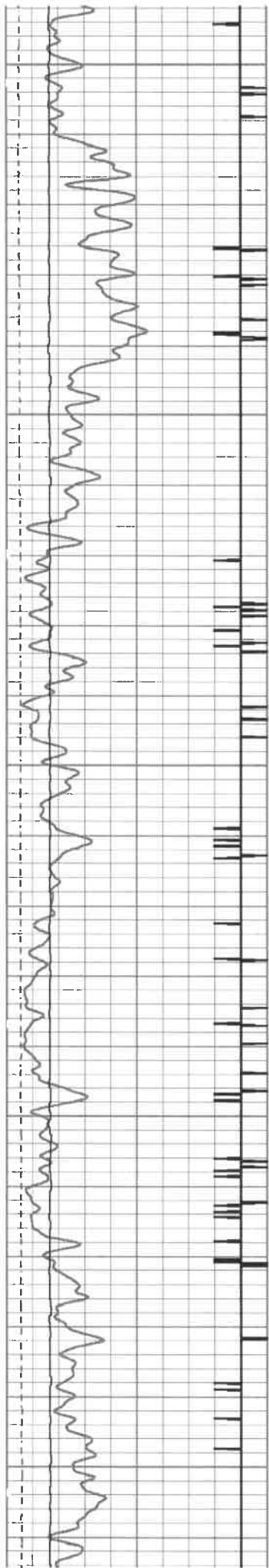
63.8

64.1

64.7







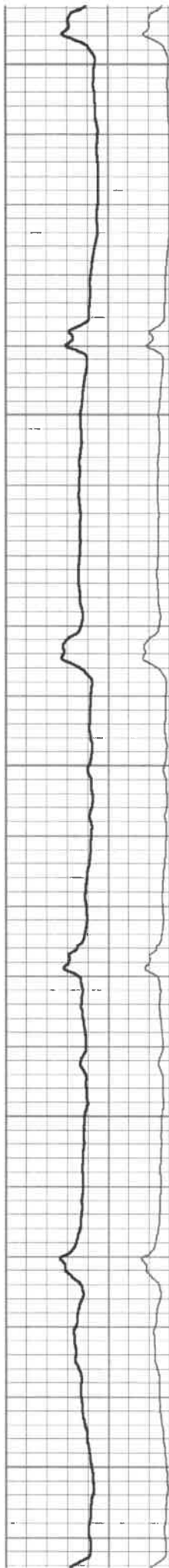
1300

1350

1400

1450

1500



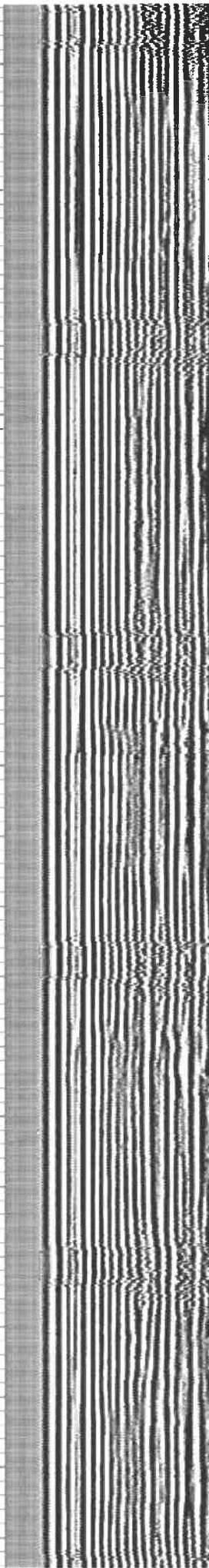
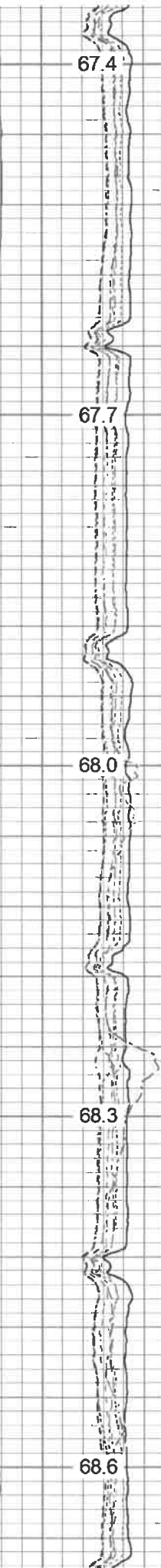
67.4

67.7

68.0

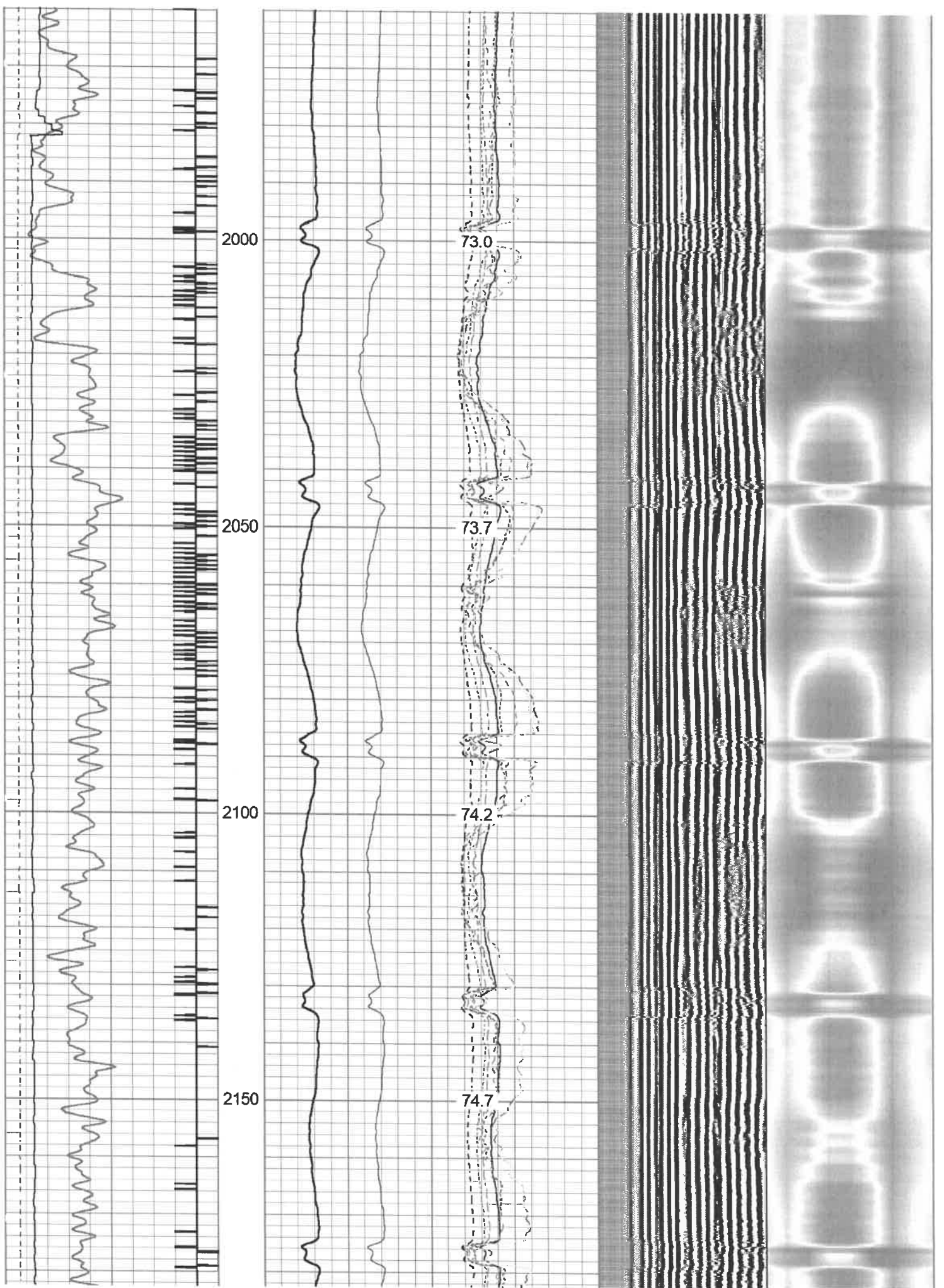
68.3

68.6

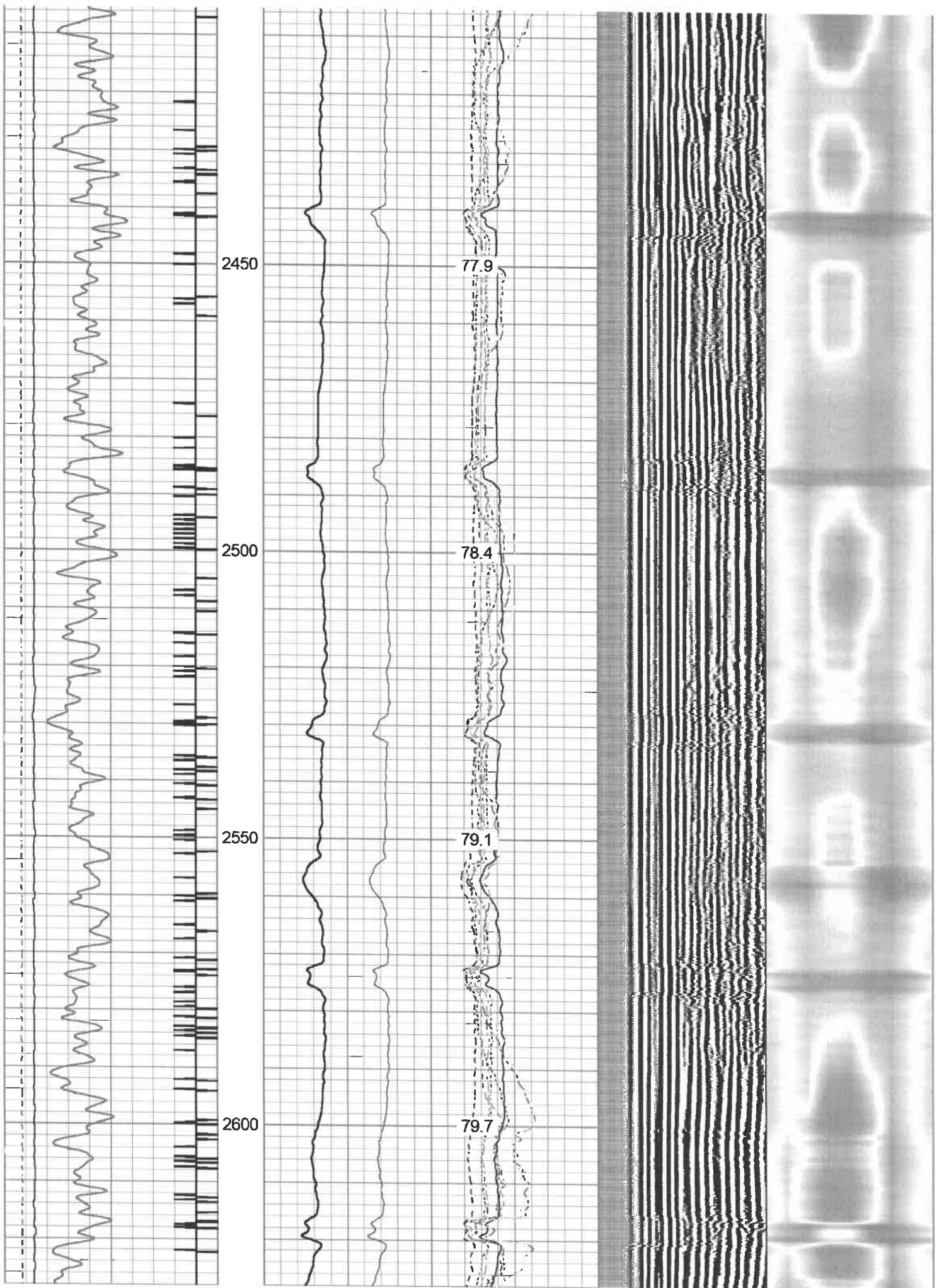


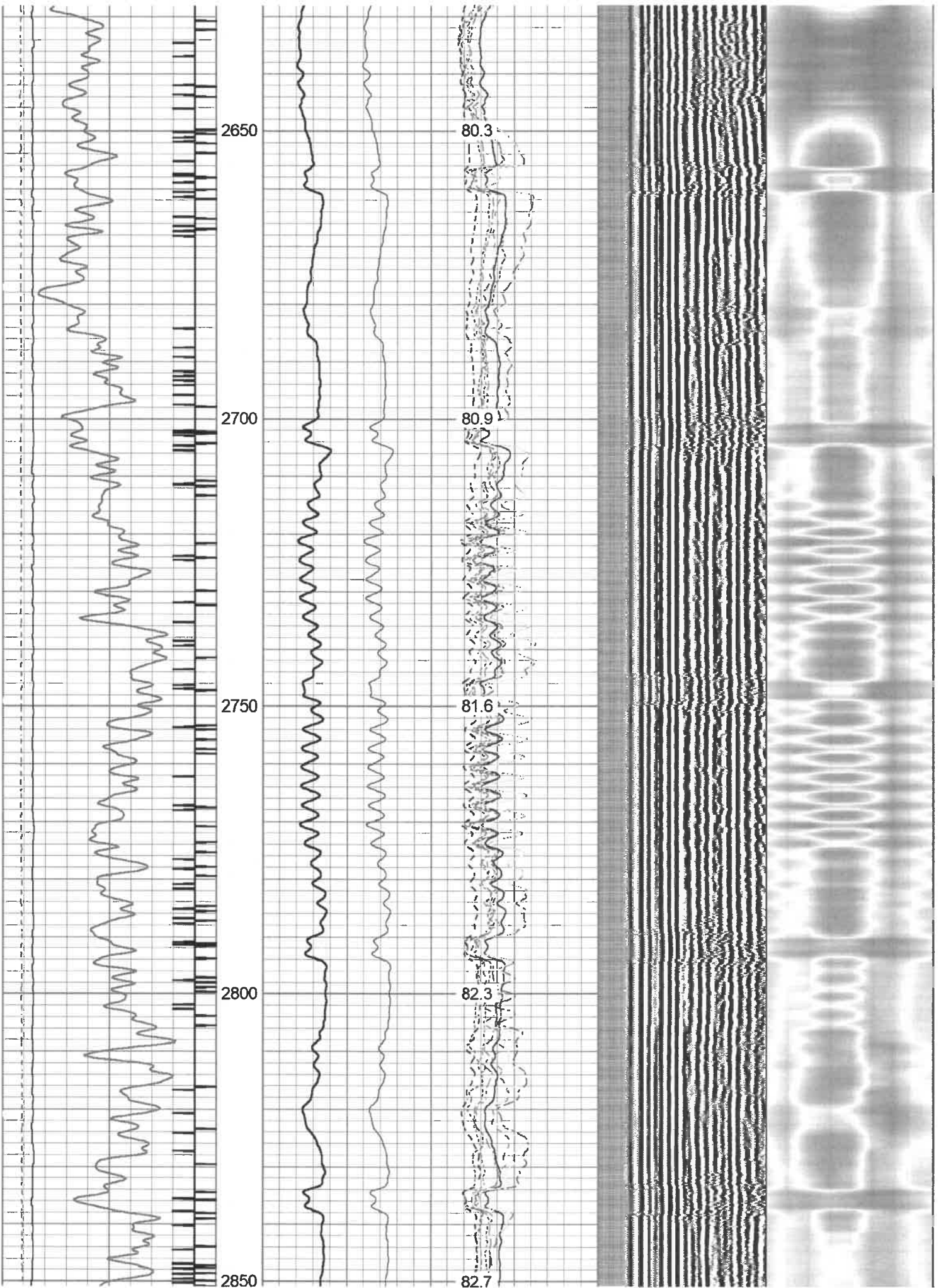


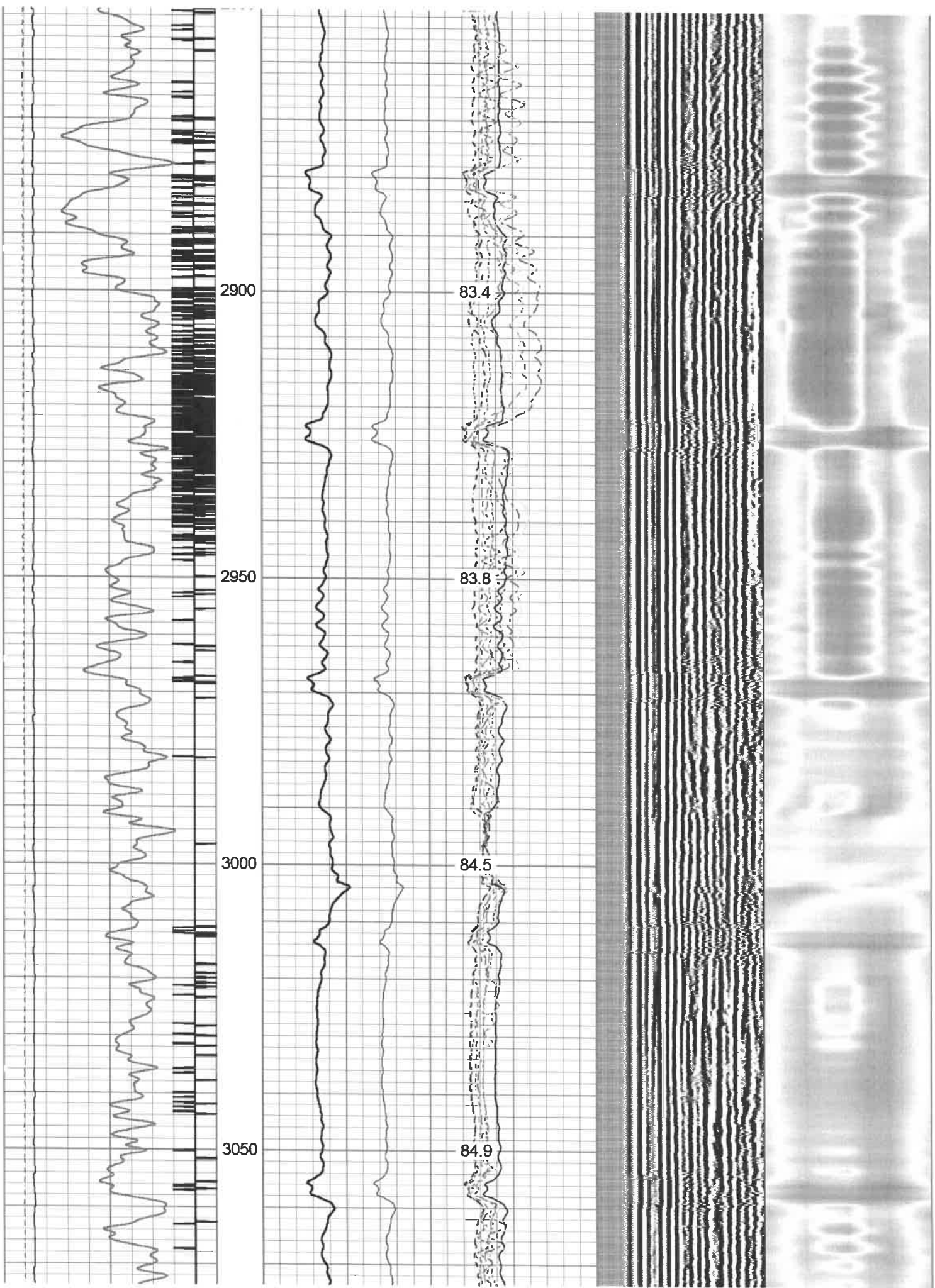


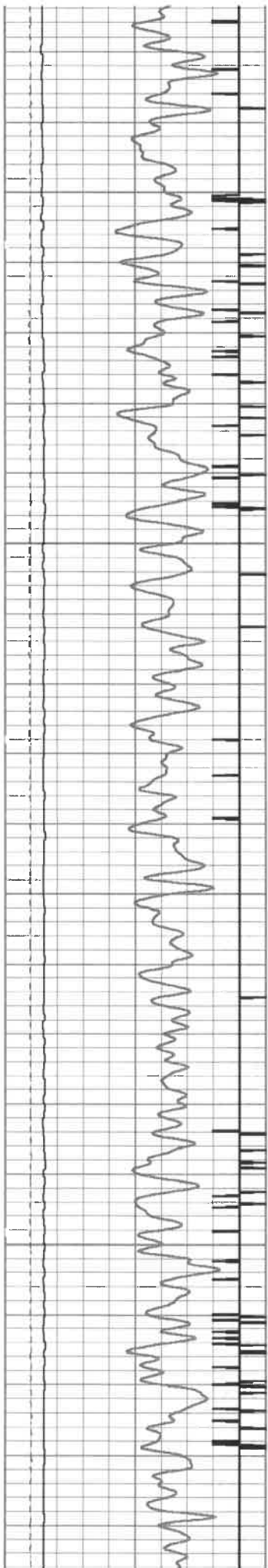










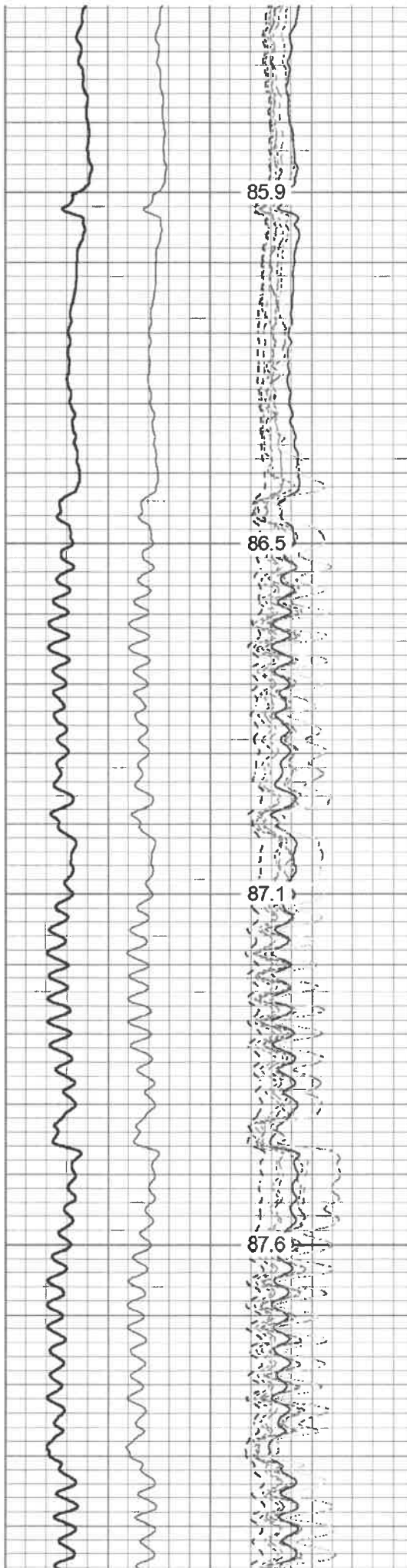


3100

3150

3200

3250

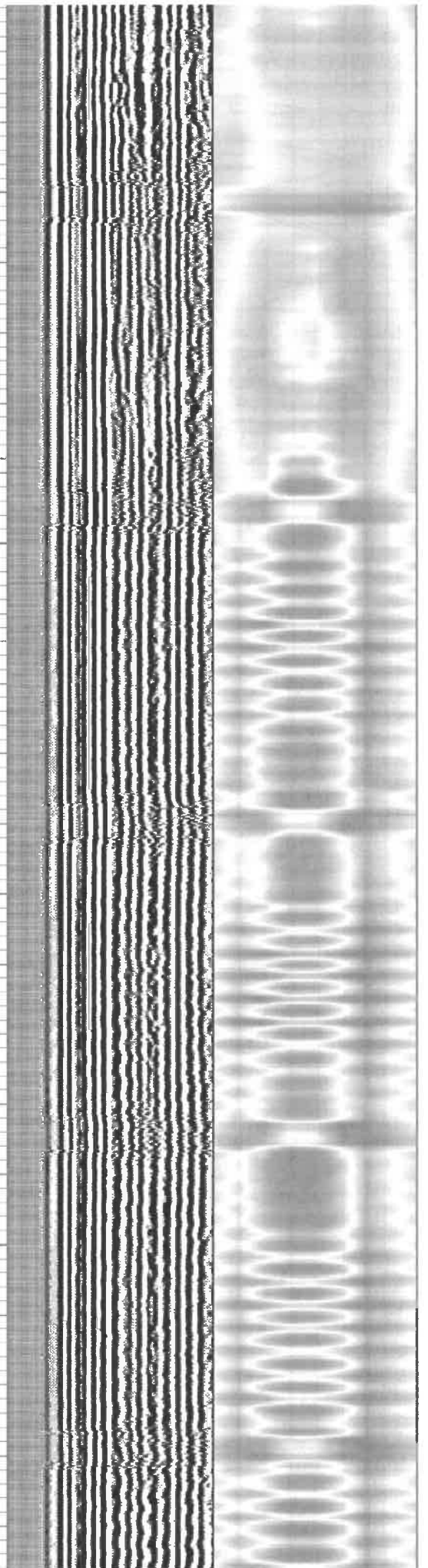


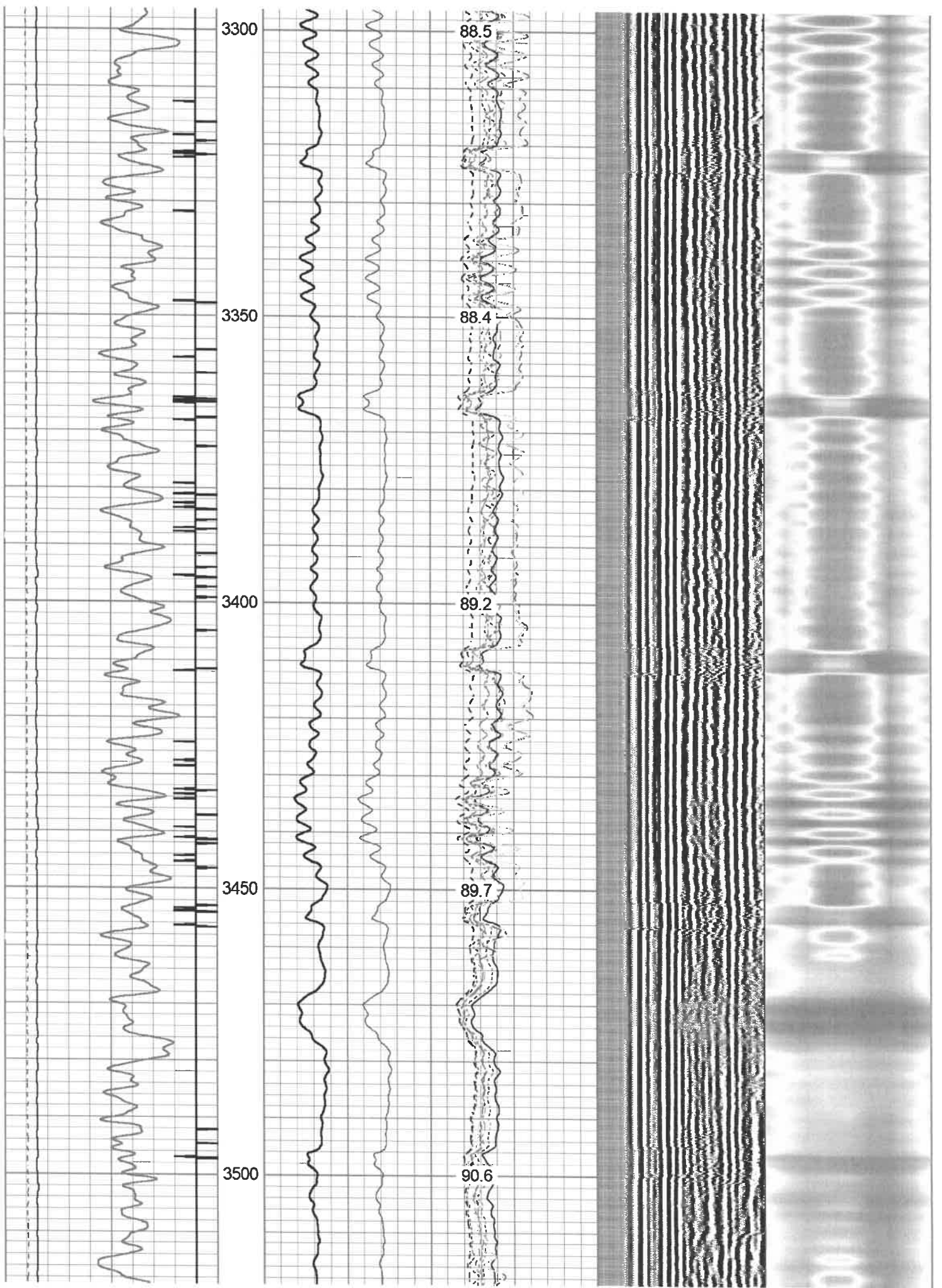
85.9

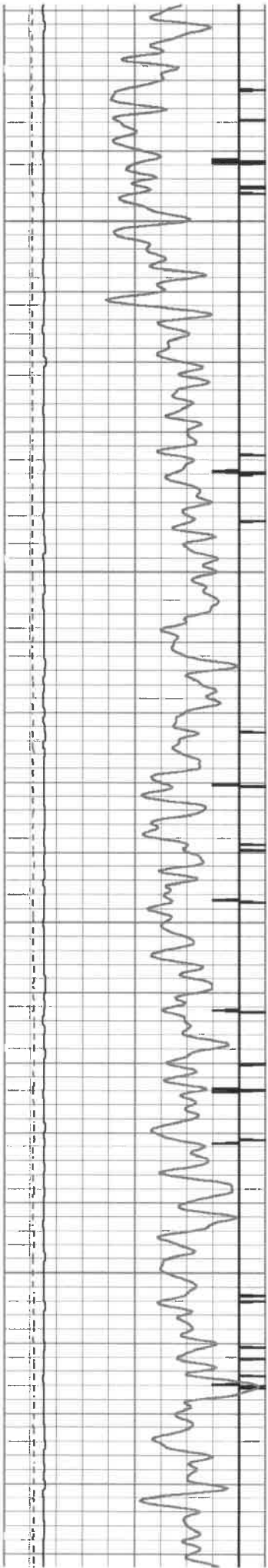
86.5

87.1

87.6





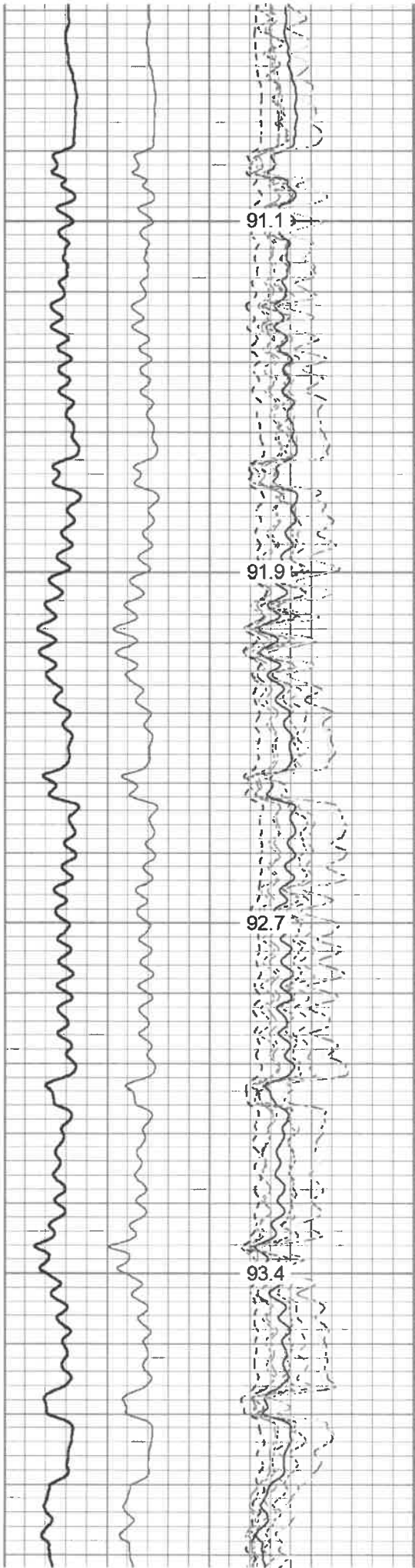


3550

3600

3650

3700

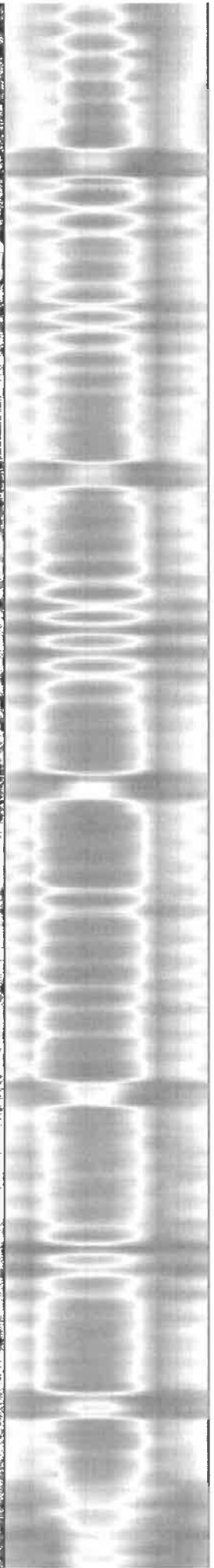
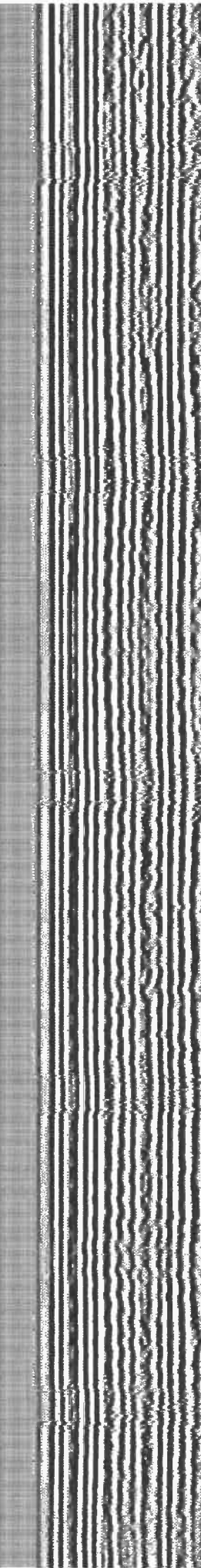


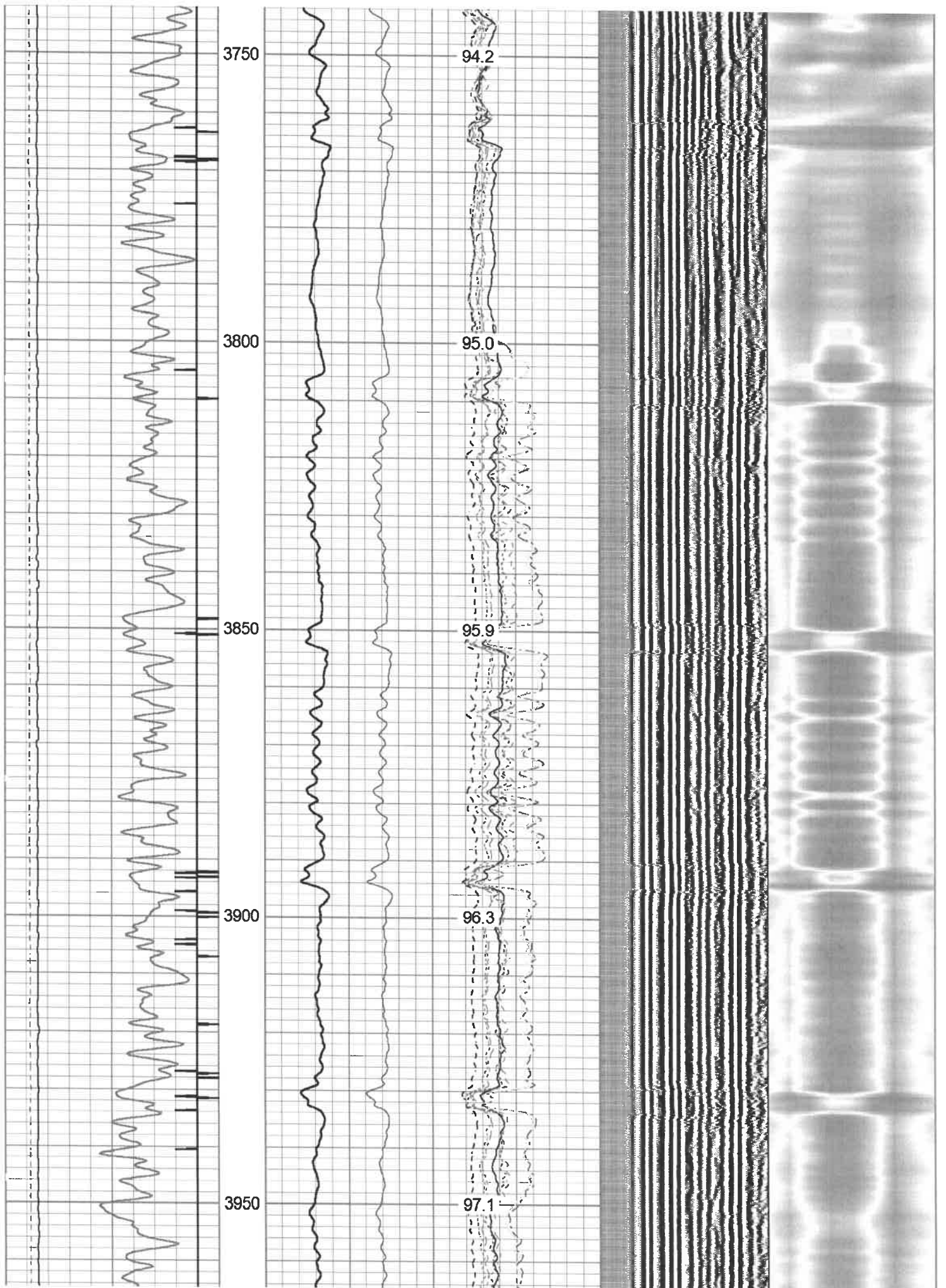
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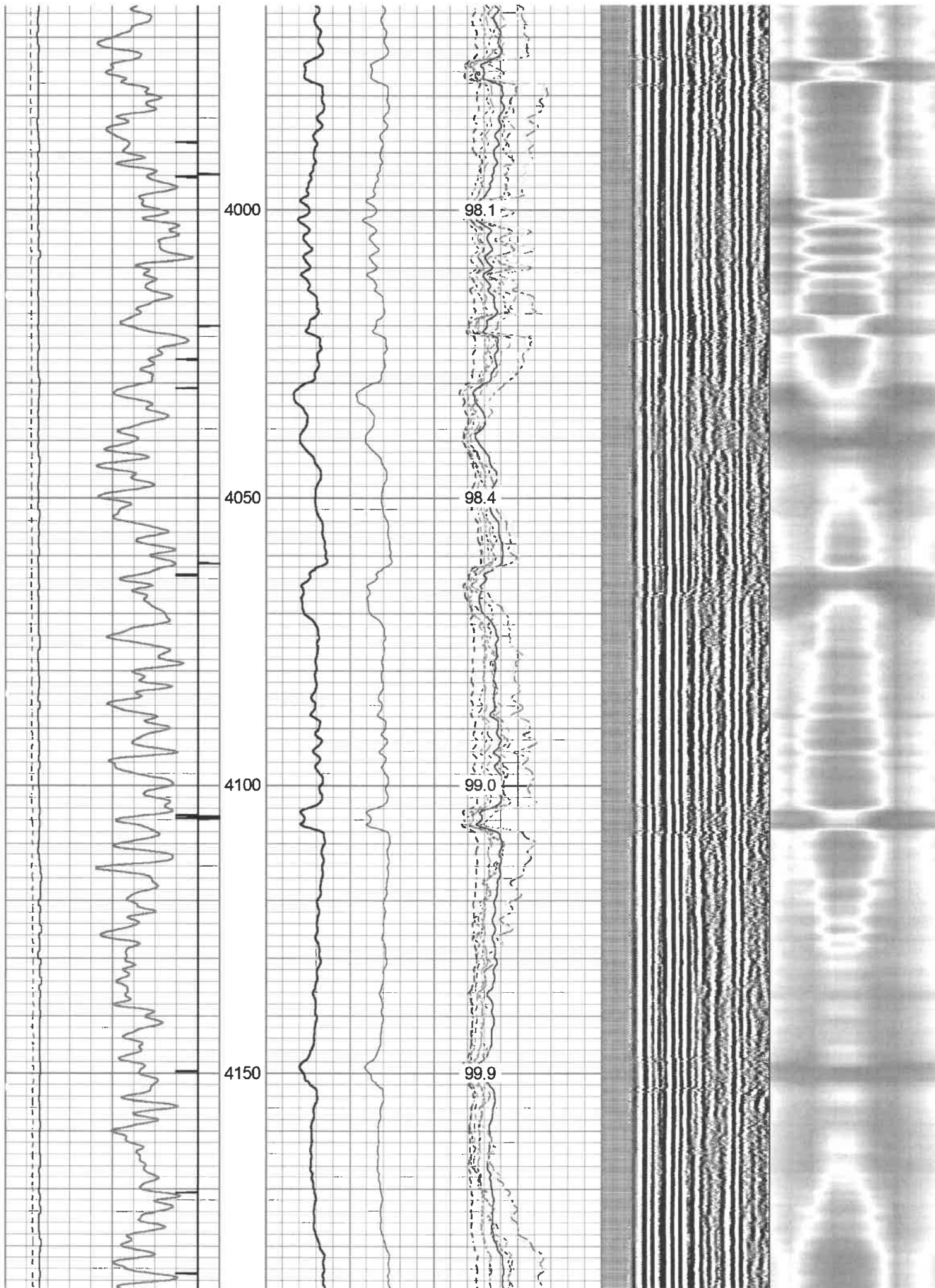
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92.7

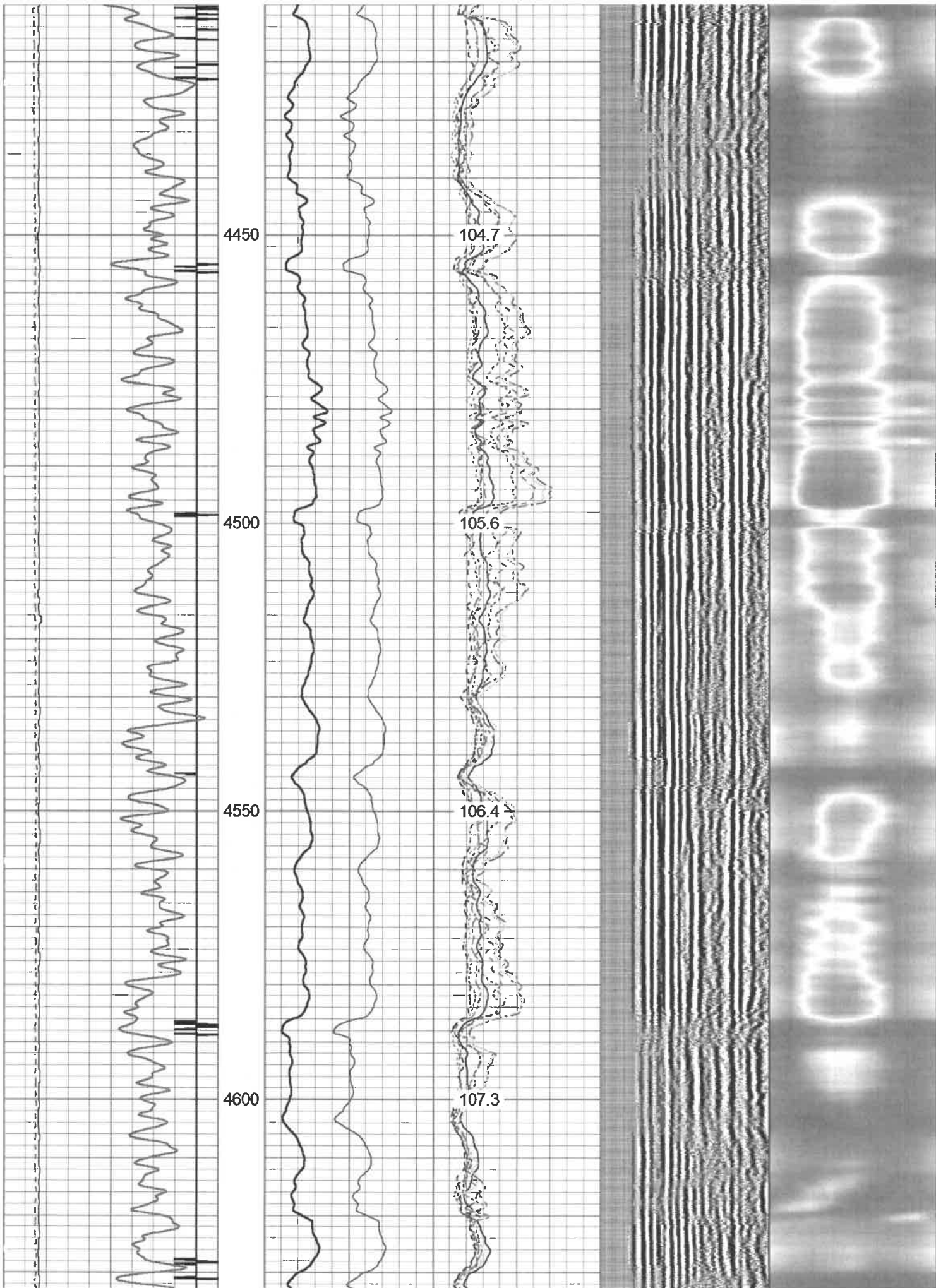
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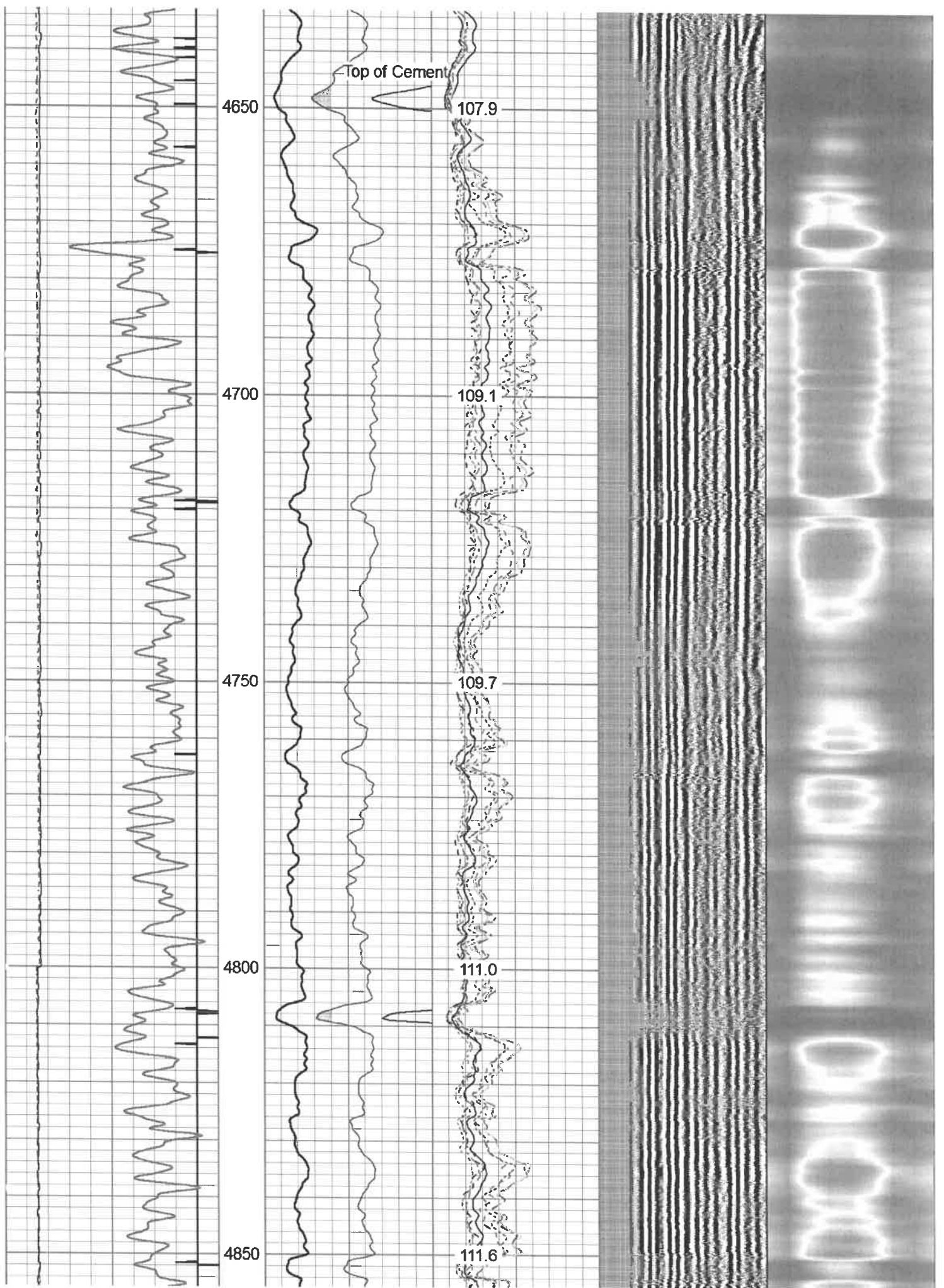


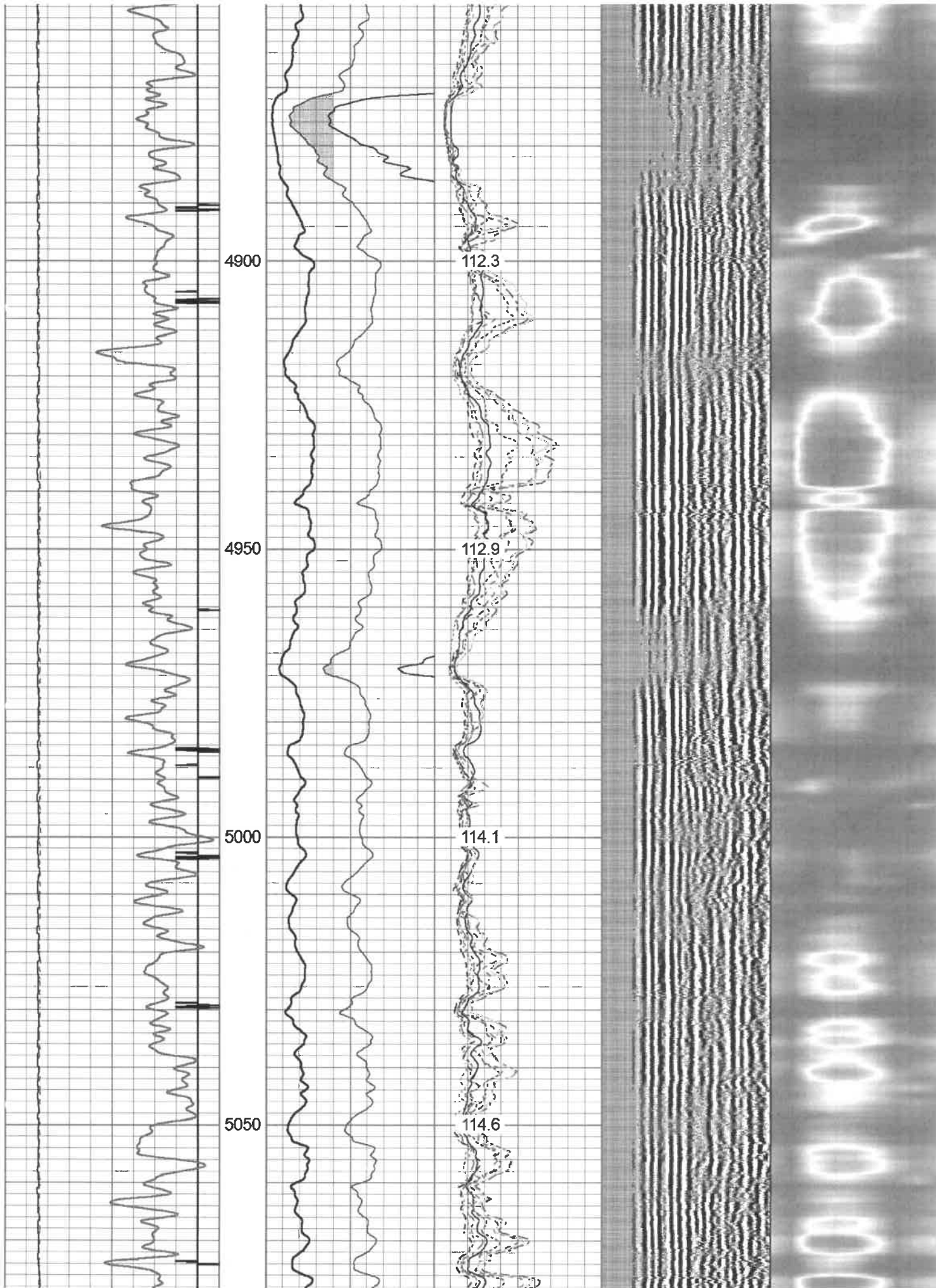


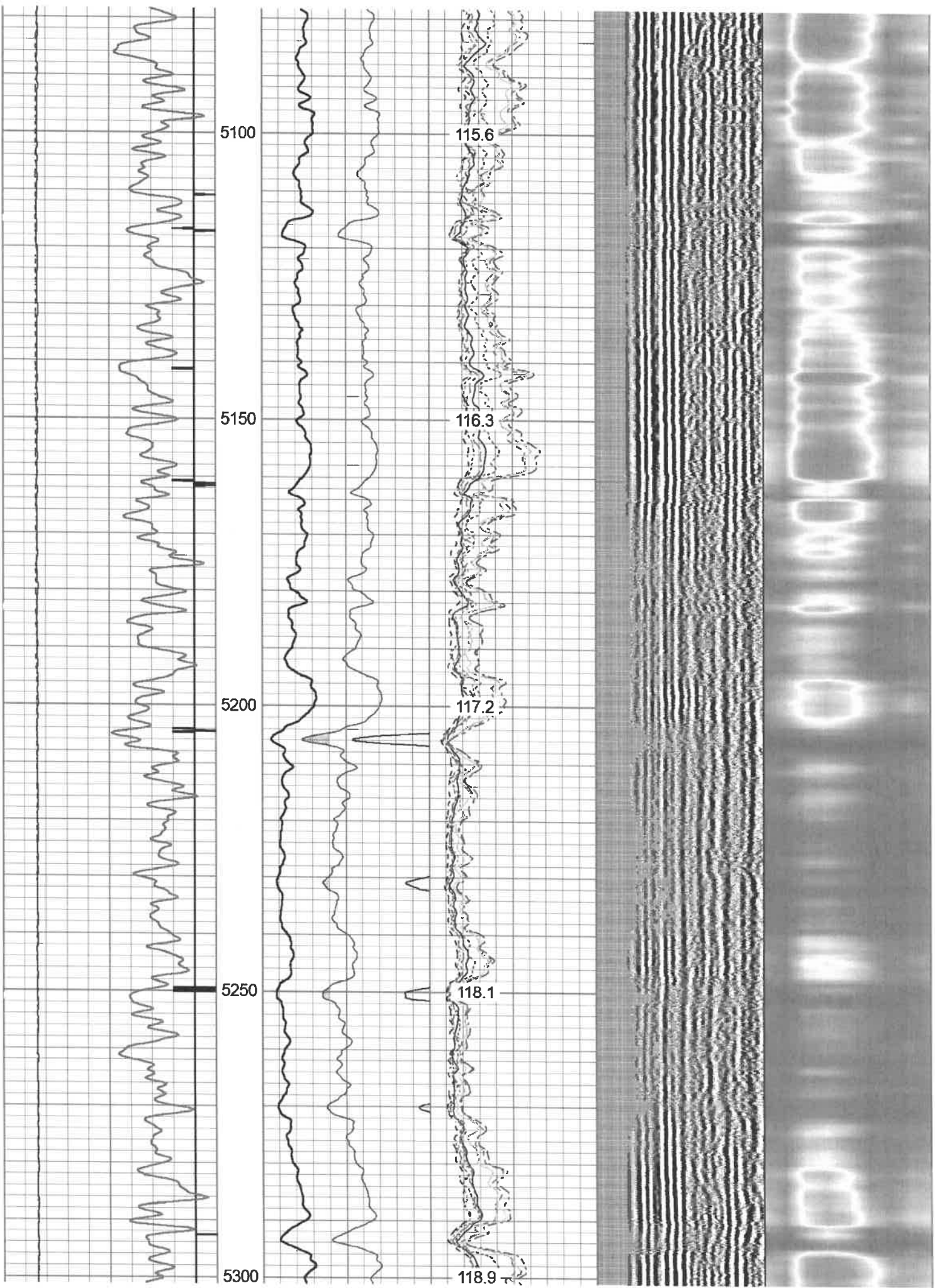


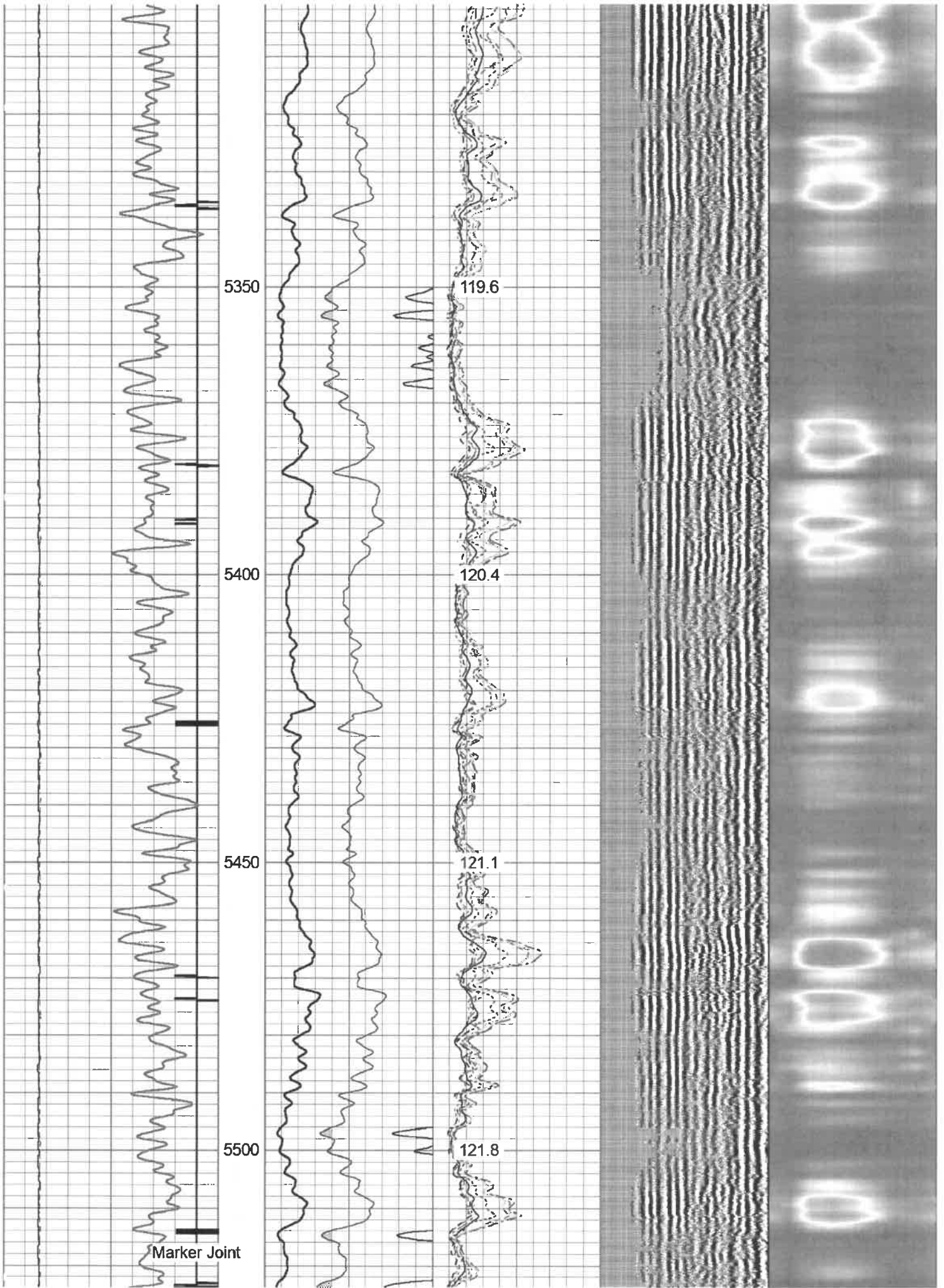


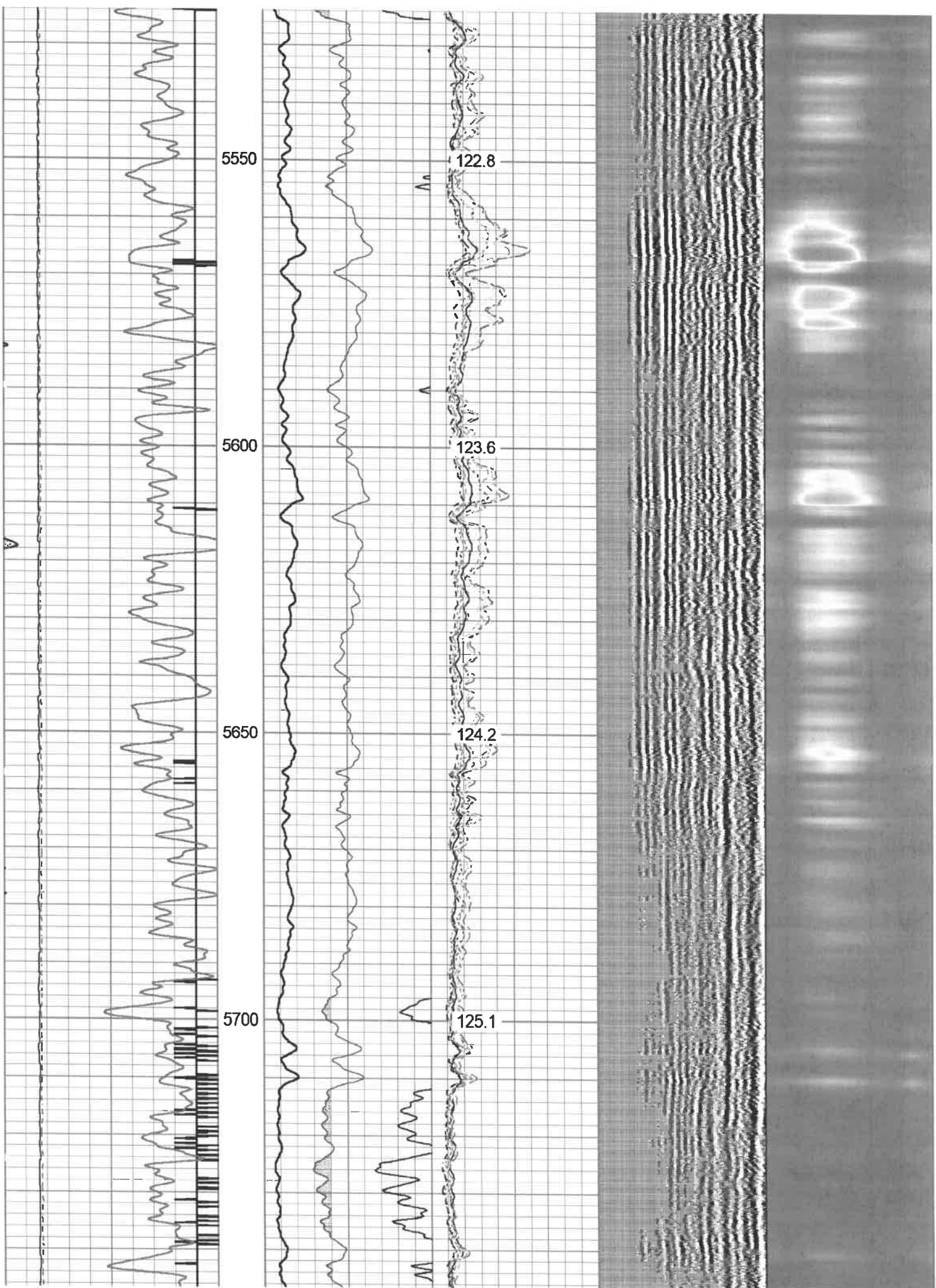


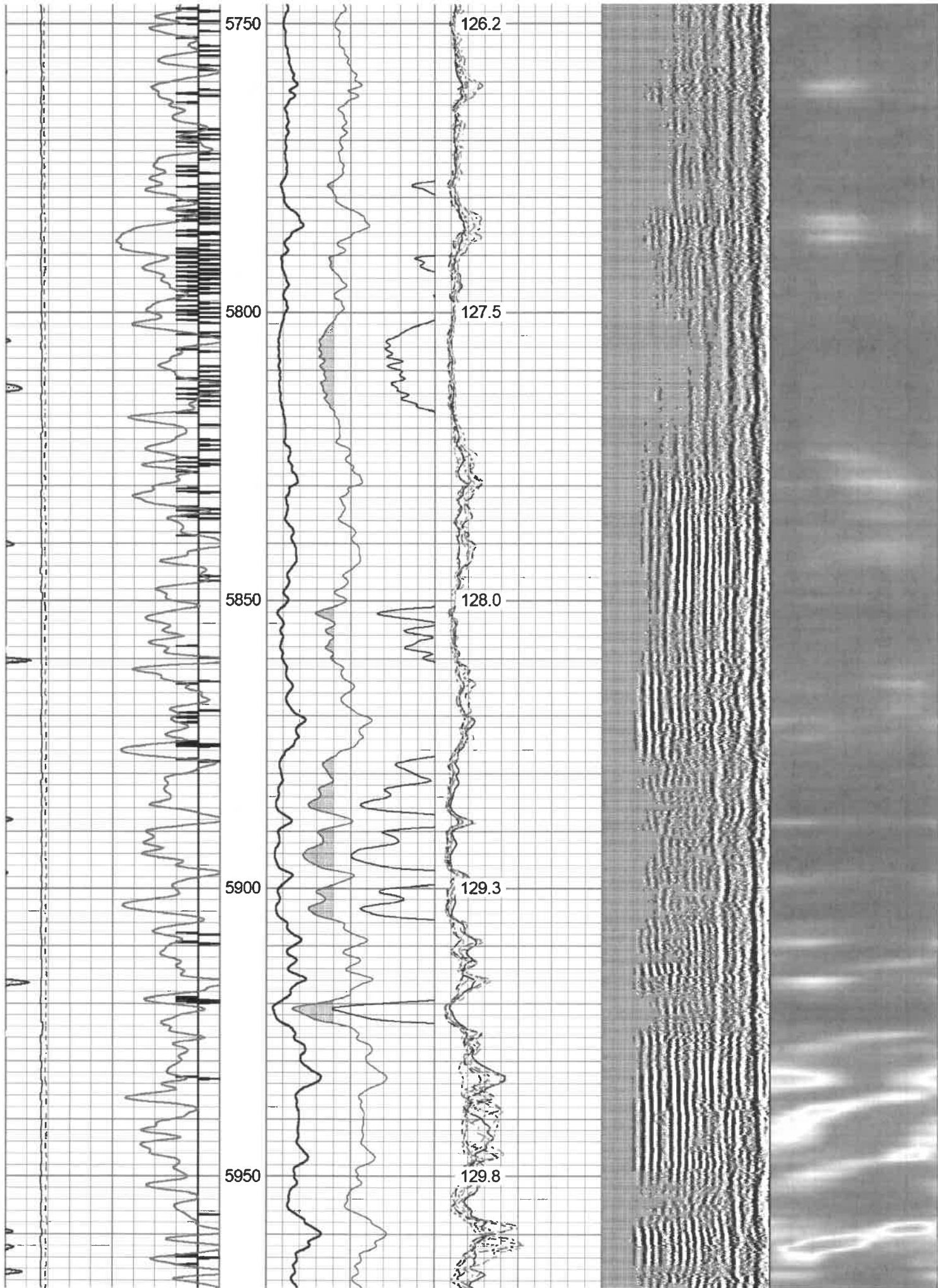


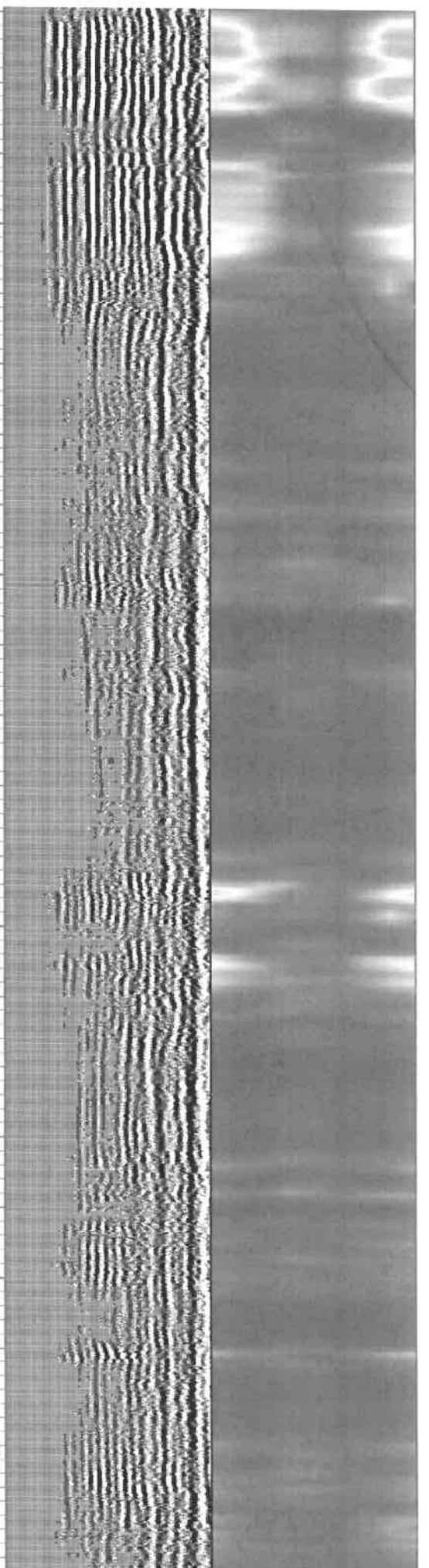
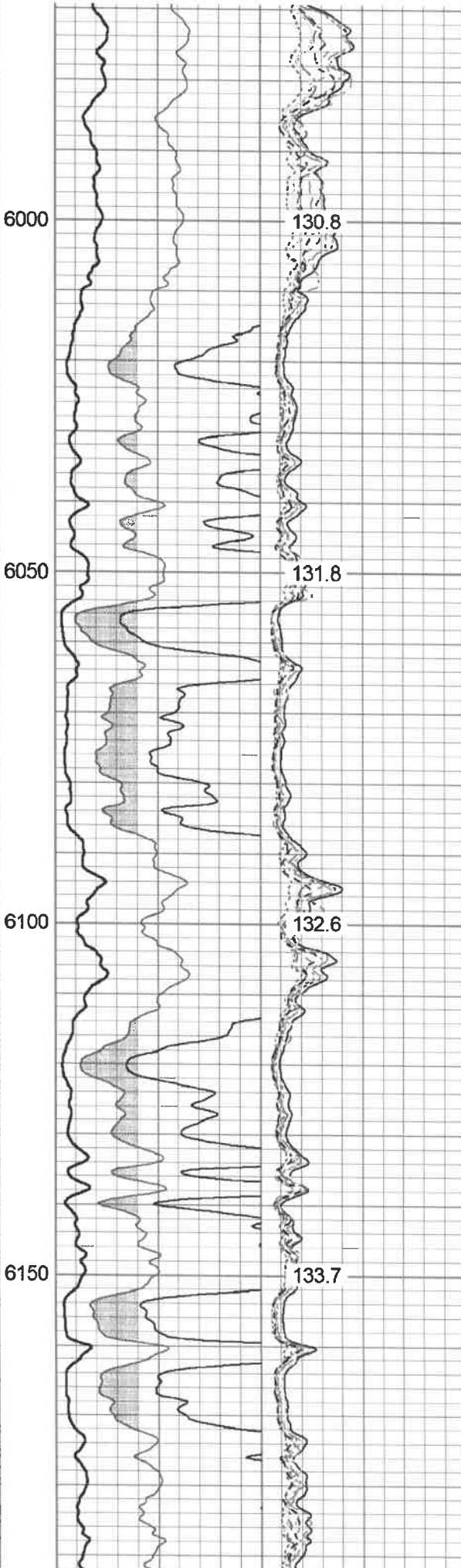
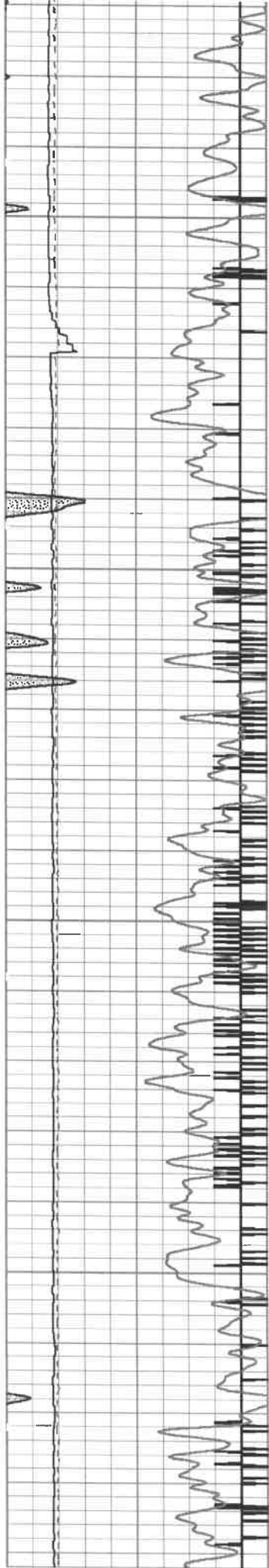


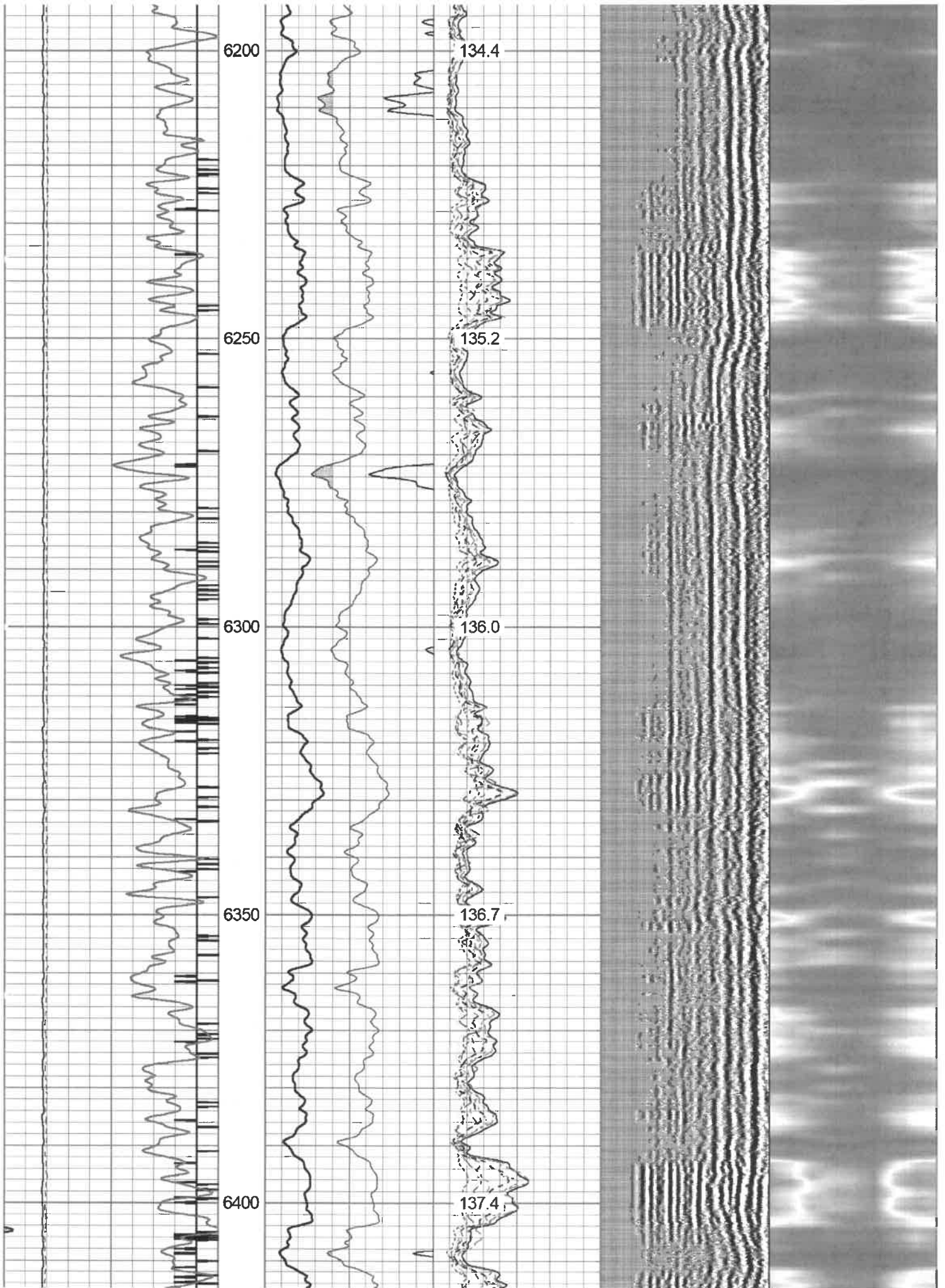


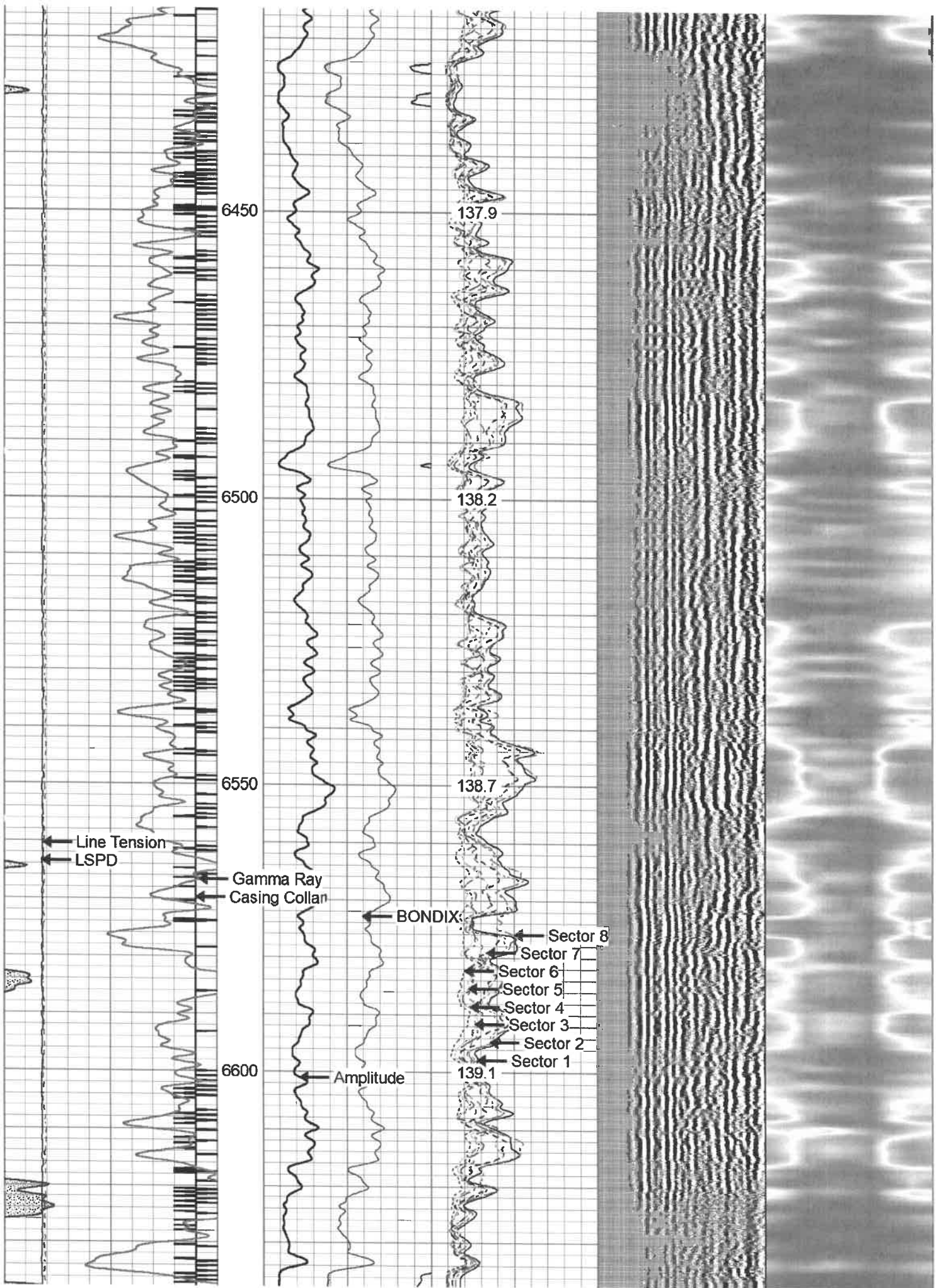


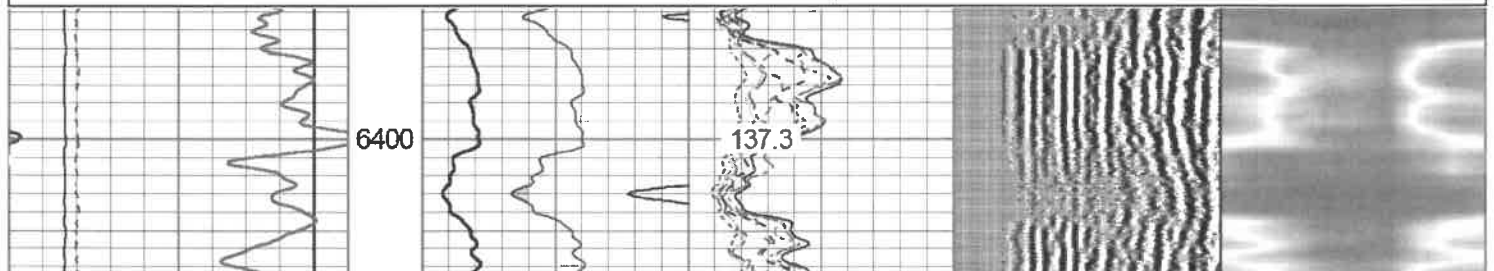
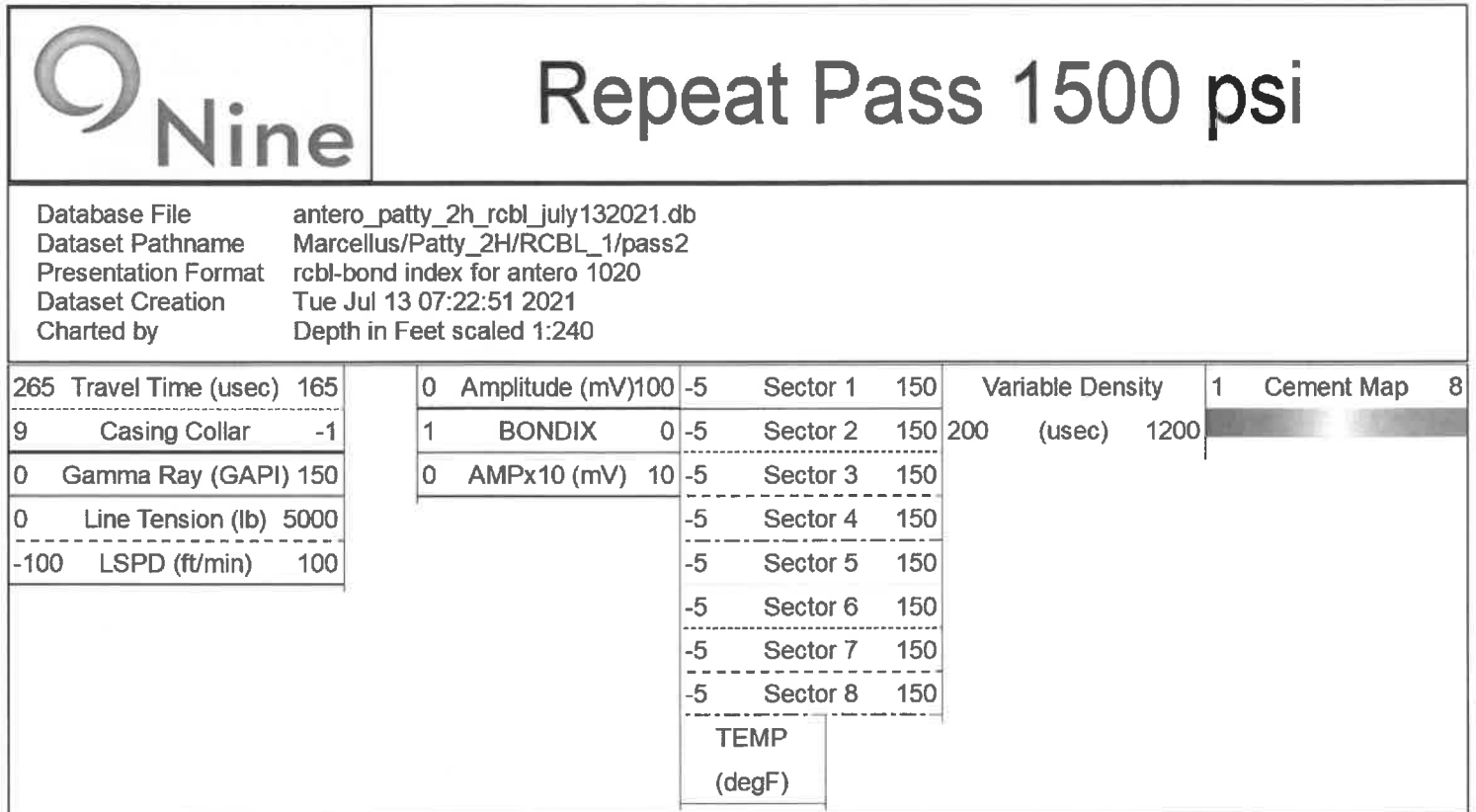
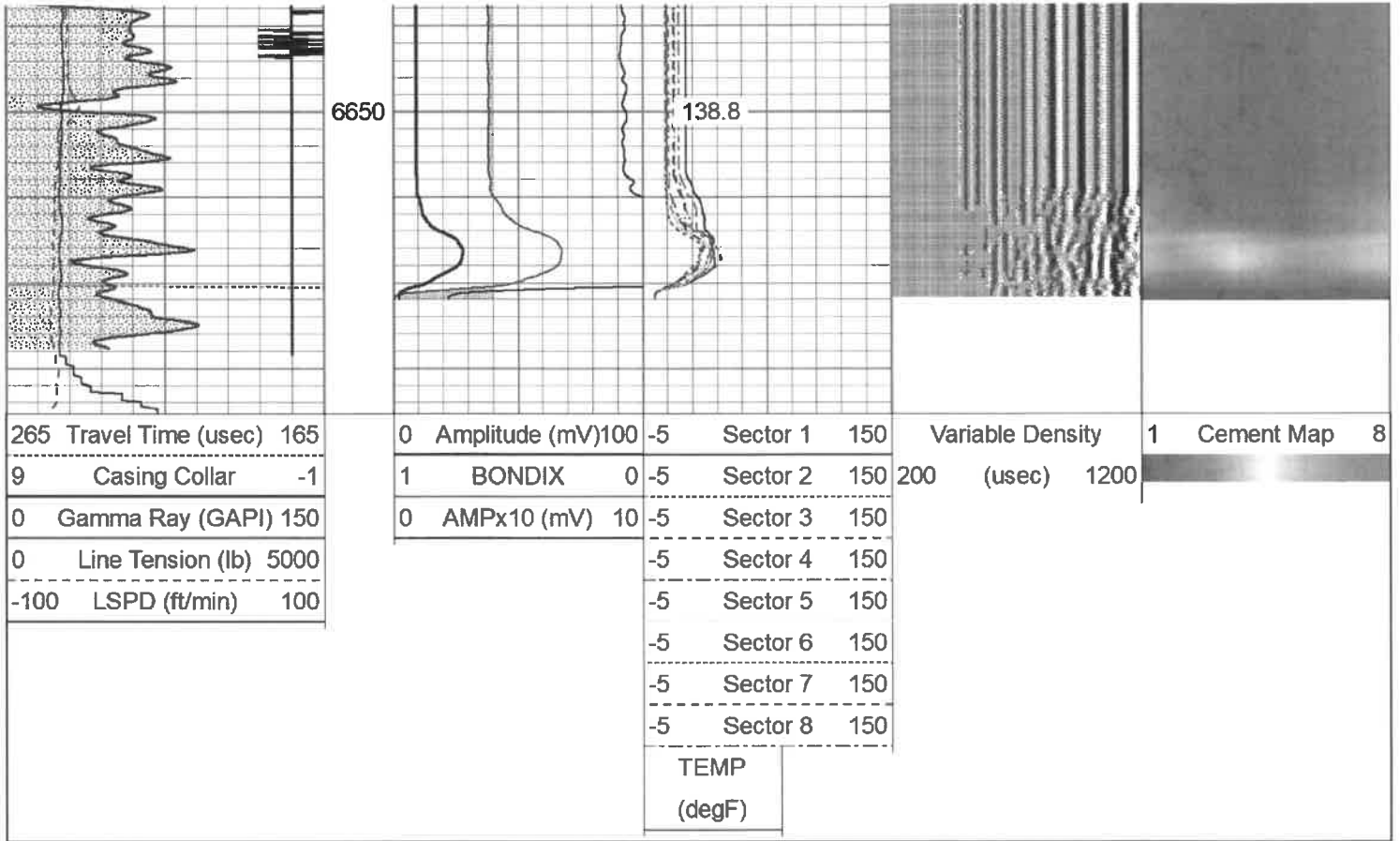


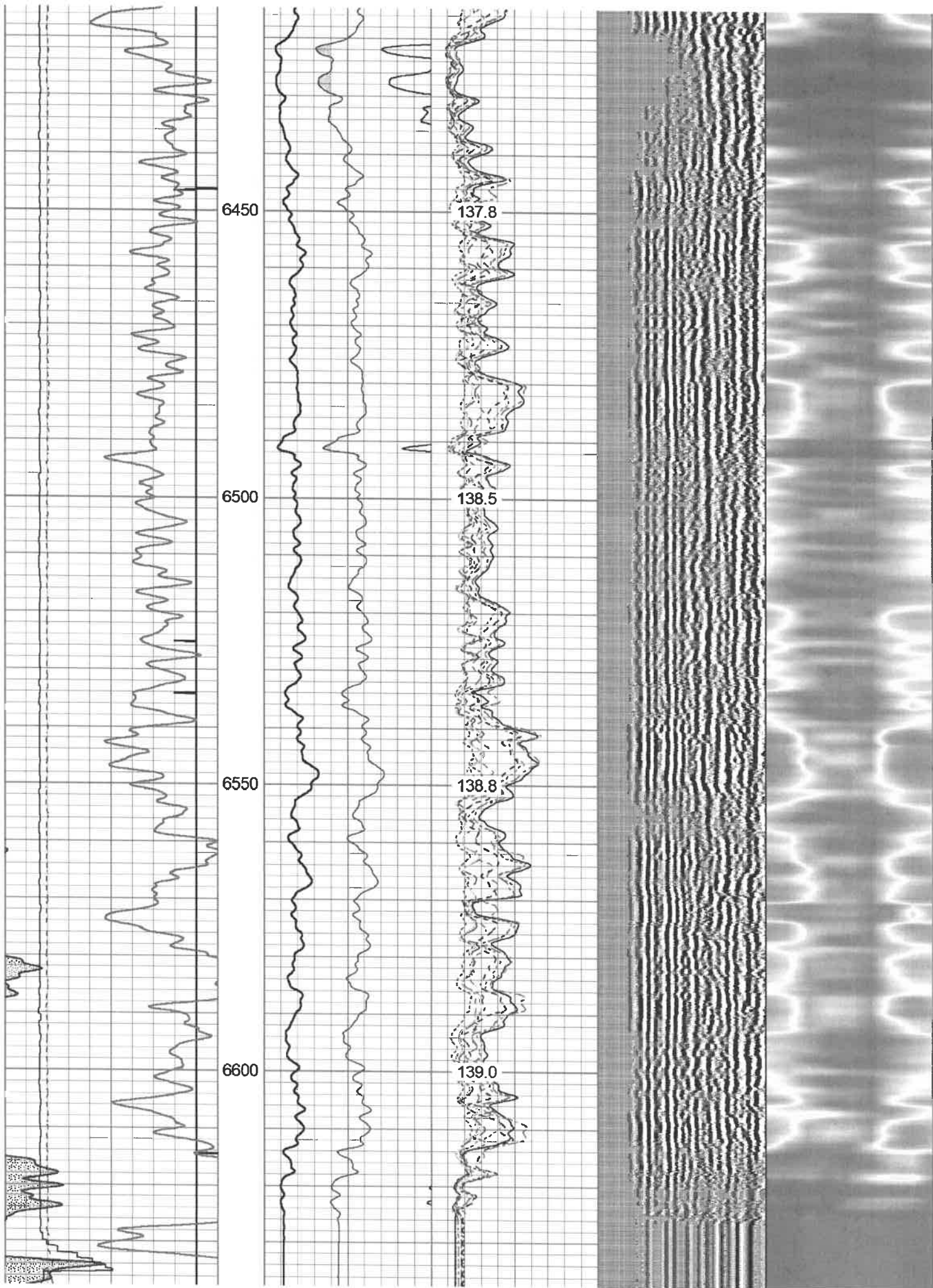


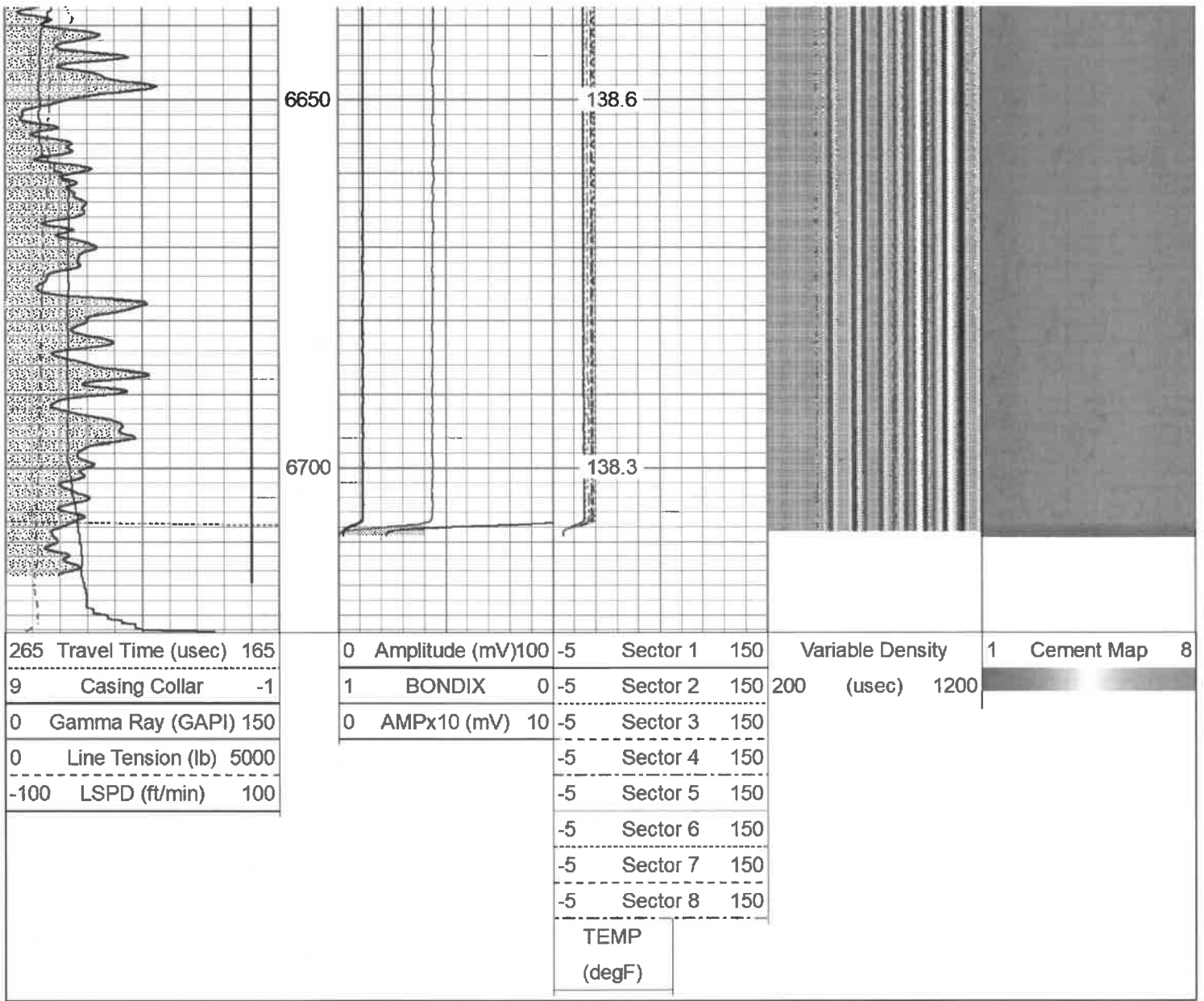












Log Variables

Database: C:\ProgramData\Warrior\Data\antero_patty_2h_rcbl_july132021.db
 Dataset: Marcellus/Patty_2H/RCBL_1/pass4/_vars_

Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
	in	degF	in	in	lb/ft	mV	mV
TEMP	7.875	100	5.5	0.376	20	72	2.2
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft		usec	degF	ft			
0.8	No	0	0	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_patty_2h_rcbl_july132021.db
 Dataset Pathname Marcellus/Patty_2H/RCBL_1/pass4
 Dataset Creation Tue Jul 13 07:32:52 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: 4.000 ft

Master Calibration, performed Tue Jul 13 06:46:44 2021:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.238	2.200	71.921	56.307	2.200
CAL	0.000	0.764				
5'	0.000	1.766	2.200	71.921	39.469	2.200
SUM						
S1	0.000	1.251	2.200	100.000	78.164	2.200
S2	0.000	1.169	2.200	100.000	83.682	2.200
S3	0.000	1.171	2.200	100.000	83.518	2.200
S4	0.000	1.217	2.200	100.000	80.363	2.200
S5	0.000	1.284	2.200	100.000	76.192	2.200
S6	0.000	1.354	2.200	100.000	72.226	2.200
S7	0.000	1.354	2.200	100.000	72.219	2.200
S8	0.000	1.283	2.200	100.000	76.226	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)	
CHD	20.86		CHD-Titan Standard 1 7/16" Cable Head	1.02	1.44	1.00	
RBT HeadVolt	19.84 19.78						
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						
WVF3FT	14.70						
WVF5FT	13.70						
CENT WVFCAL HEADVOLT	10.45 10.45 10.45			CENT-BC275-0000 Probe 2.75" Bowspring Centralizer	2.83	2.75	24.00
GR	7.61						
CCL	6.71						
GR	5.38			GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
CENT	2.83			CENT-BC275-0000 Probe 2.75" Bowspring Centralizer	2.83	2.75	24.00

Dataset:	antero_patty_2h_rcbl_july132021.db: Marcellus/Patty_2H/RCBL_1/pass4
Total length:	20.86 ft
Total weight:	196.00 lb
O.D.:	2.75 in



Nine

Company	Antero Resources
Well	Patty 2H
Field	River Front
County	Tyler
State	West Virginia