



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

Company Antero Resources

Well Roy 2H

Field River Front

County Tyler

State West Virginia

Location: API #: 47-095-02735-0000

Other Services

SEC N/A TWP N/A RGE N/A

Permanent Datum Ground Level Elevation
Log Measured From Kelly Bushing (30')
Drilling Measured From Kelly Bushing

Elevation
(K.B)
D.F.
G.L.

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

Date July 12 2021

Run Number One

Depth Driller 19,253 ft.

Depth Logger 6,325 ft.

Bottom Logged Interval 6,325 ft.

Top Log Interval Surface

Open Hole Size N/A

Type Fluid Water

Density / Viscosity N/A

Max. Recorded Temp. 138.8 Deg. F

Estimated Cement Top 4,597 ft.

Time Well Ready 12:37

Time Logger on Bottom 4,597 ft.

Equipment Number Unit 133

Location Marietta Ohio

Recorded By Thomas Weese

Witnessed By Reggie

Borehole Record

Run Number Bit From To Size Weight From To

Casing Record

Surface String Size 13 3/8 Wgt/Ft 54# Top Surface 358 ft. Bottom 2670 ft.

Prot. String Size 9 5/8 Wgt/Ft 36# Top Surface 2570 ft. Bottom 19,253 ft.

Production String Size 5 1/2 Wgt/Ft 20# Top Surface 19,253 ft. Bottom

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 @ 5,174 - 5,184 ft.
Correction to Pipe Tally Depth Shifted (+9)**

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

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

Database File antero_roy_2h_rcbl_july132021.db
Dataset Pathname pass6.1
Presentation Format rcbl-bond index for antero 1020
Dataset Creation Tue Jul 13 14:54:50 2021
Charted by Depth in Feet scaled 1:240

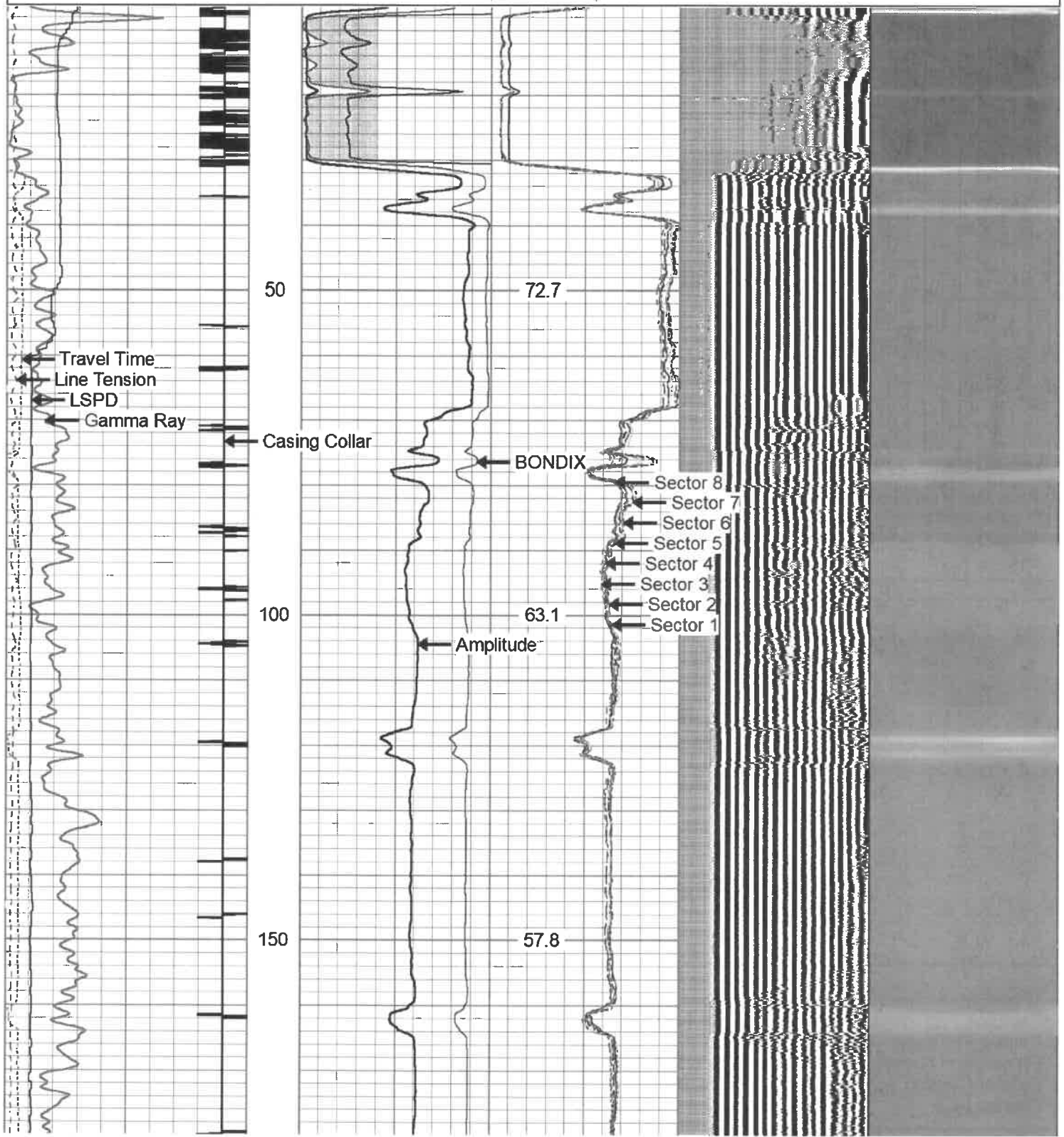
Sm

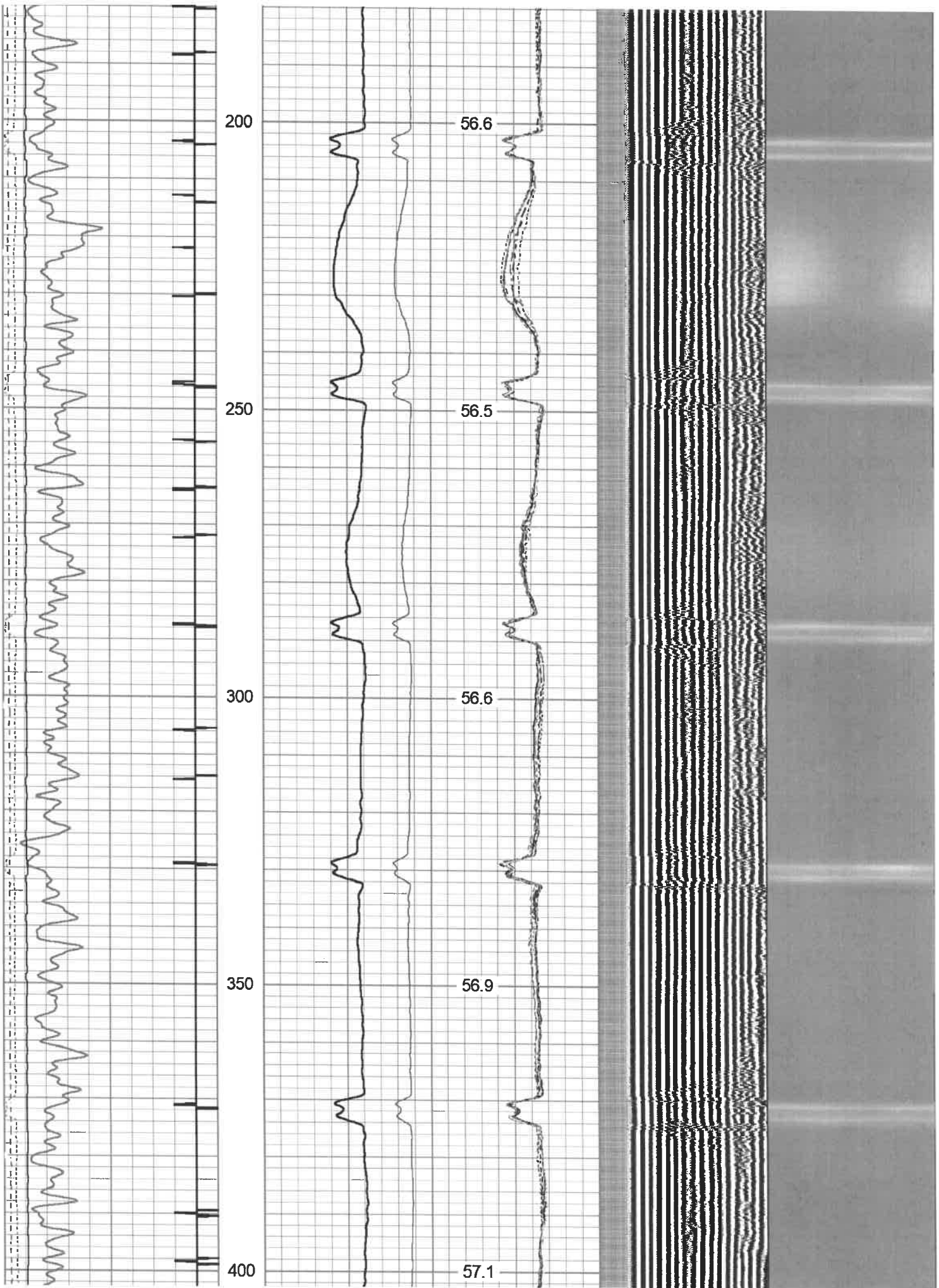
285	Travel Time (usec)	185
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000
-100	LSPD (ft/min)	100

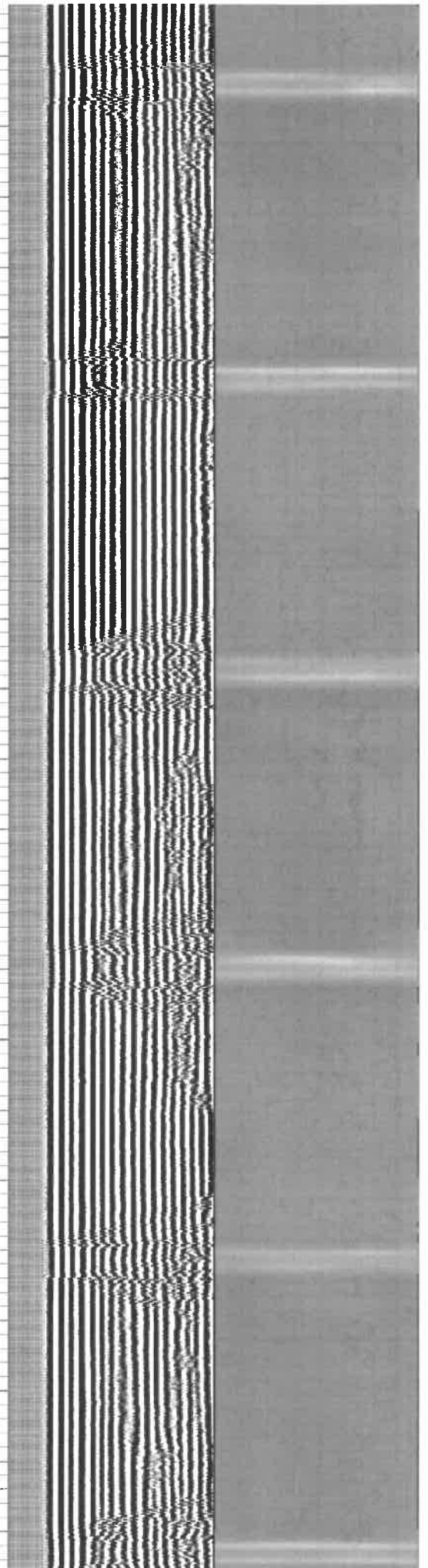
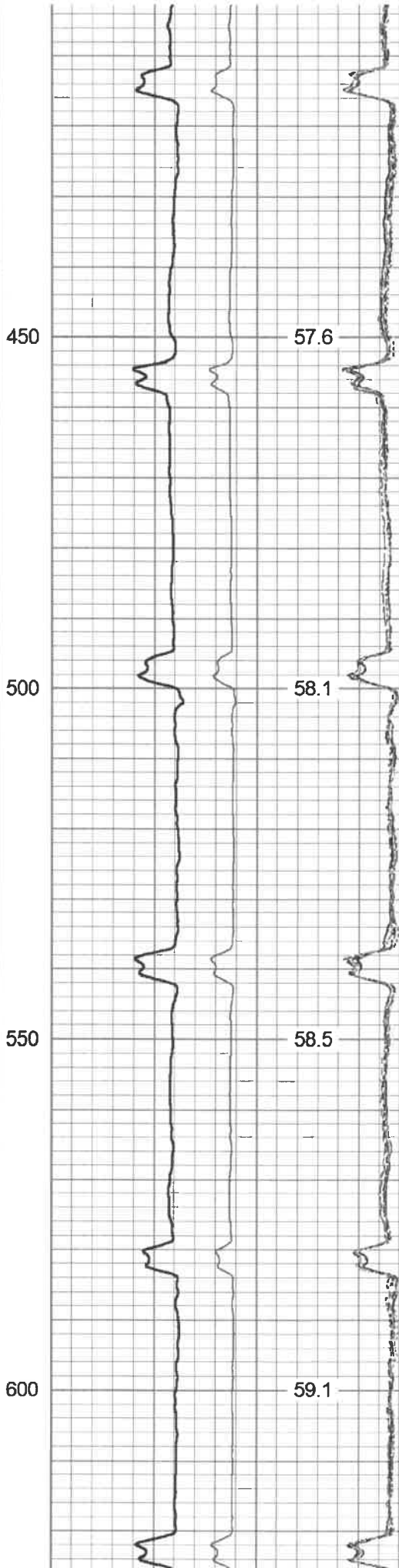
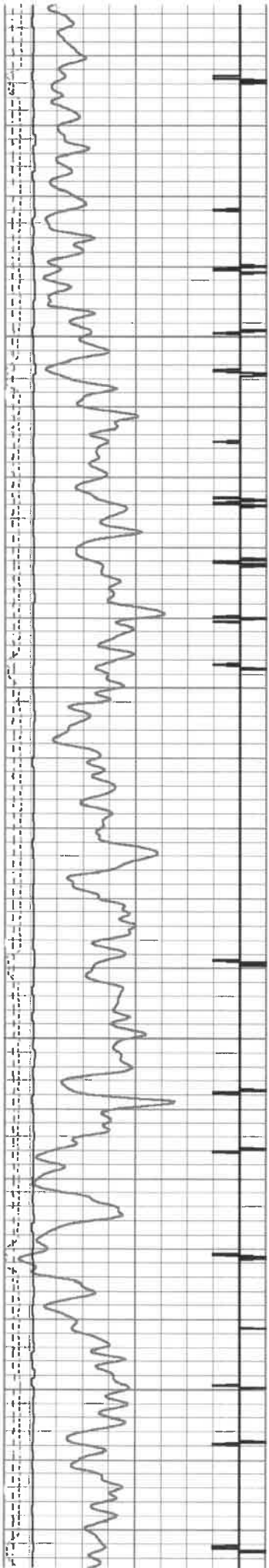
0	Amplitude (mV)	100	-5	Sector 1	150
1	BONDIX	0	-5	Sector 2	150
0	AMPx10 (mV)	10	-5	Sector 3	150
			-5	Sector 4	150
			-5	Sector 5	150
			-5	Sector 6	150
			-5	Sector 7	150
			-5	Sector 8	150

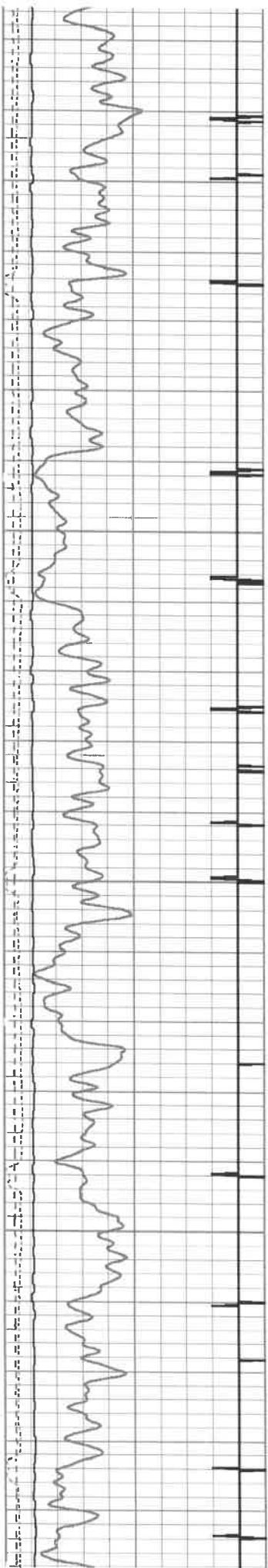
Variable Density 1 Cement Map 8
 200 (usec) 1200

TEMP
(degF)







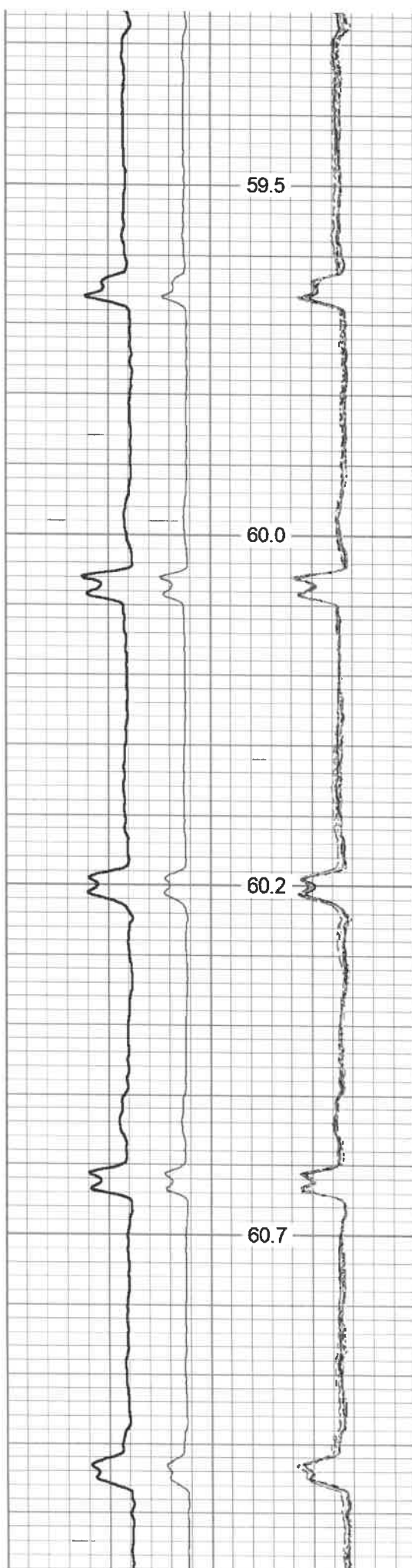


650

700

750

800

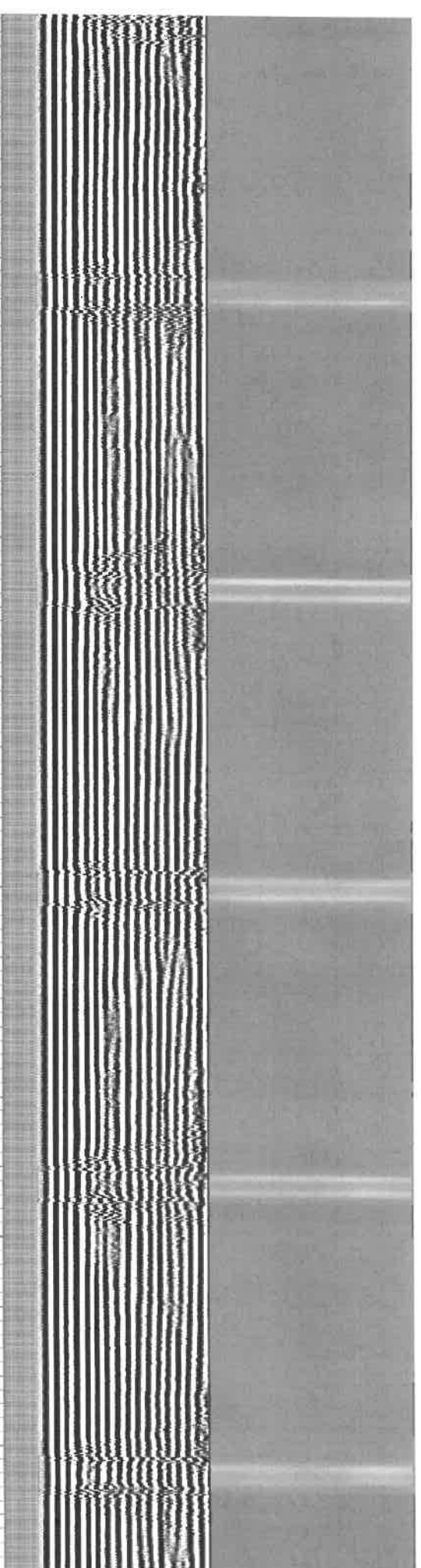


59.5

60.0

60.2

60.7

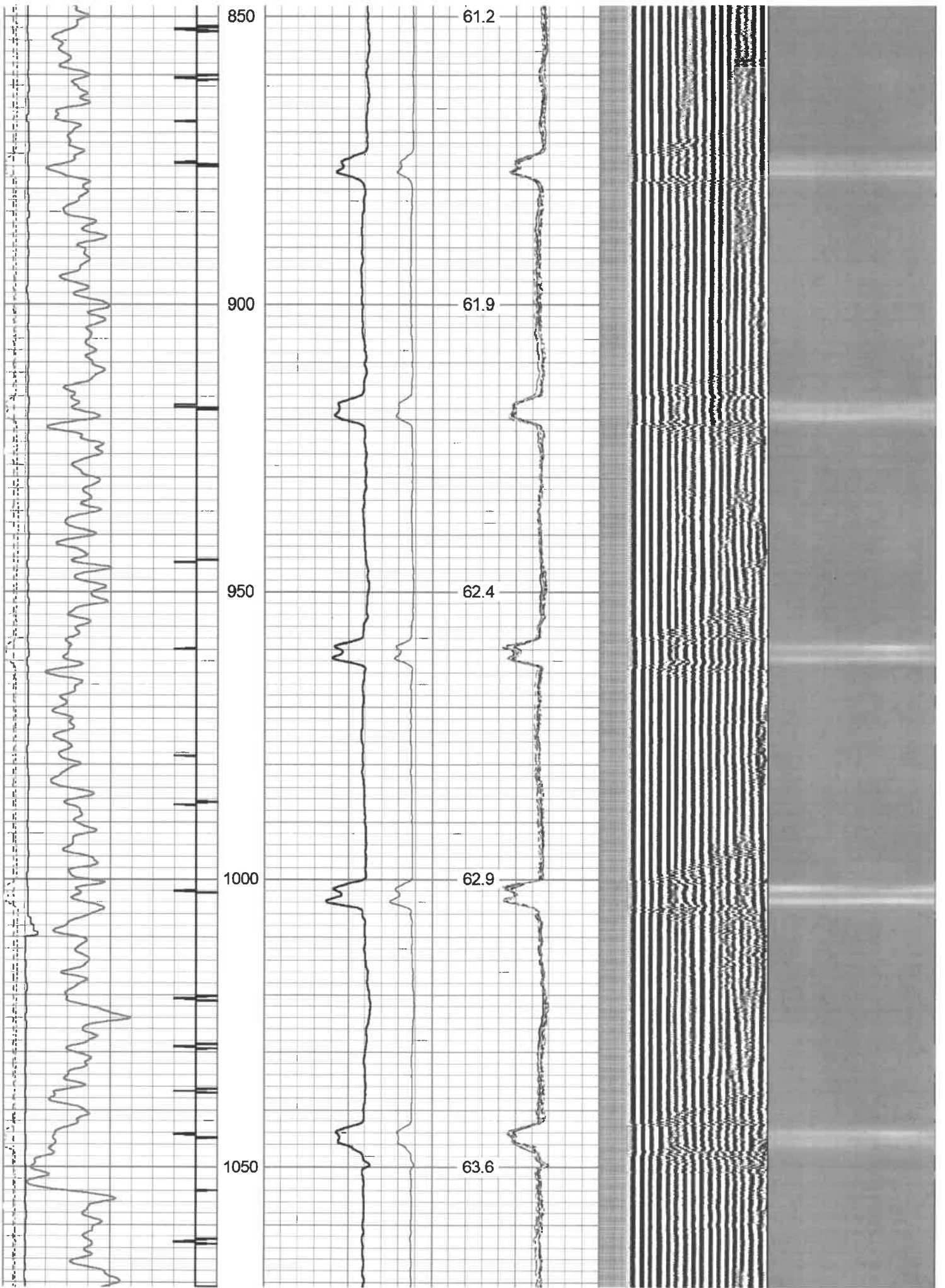


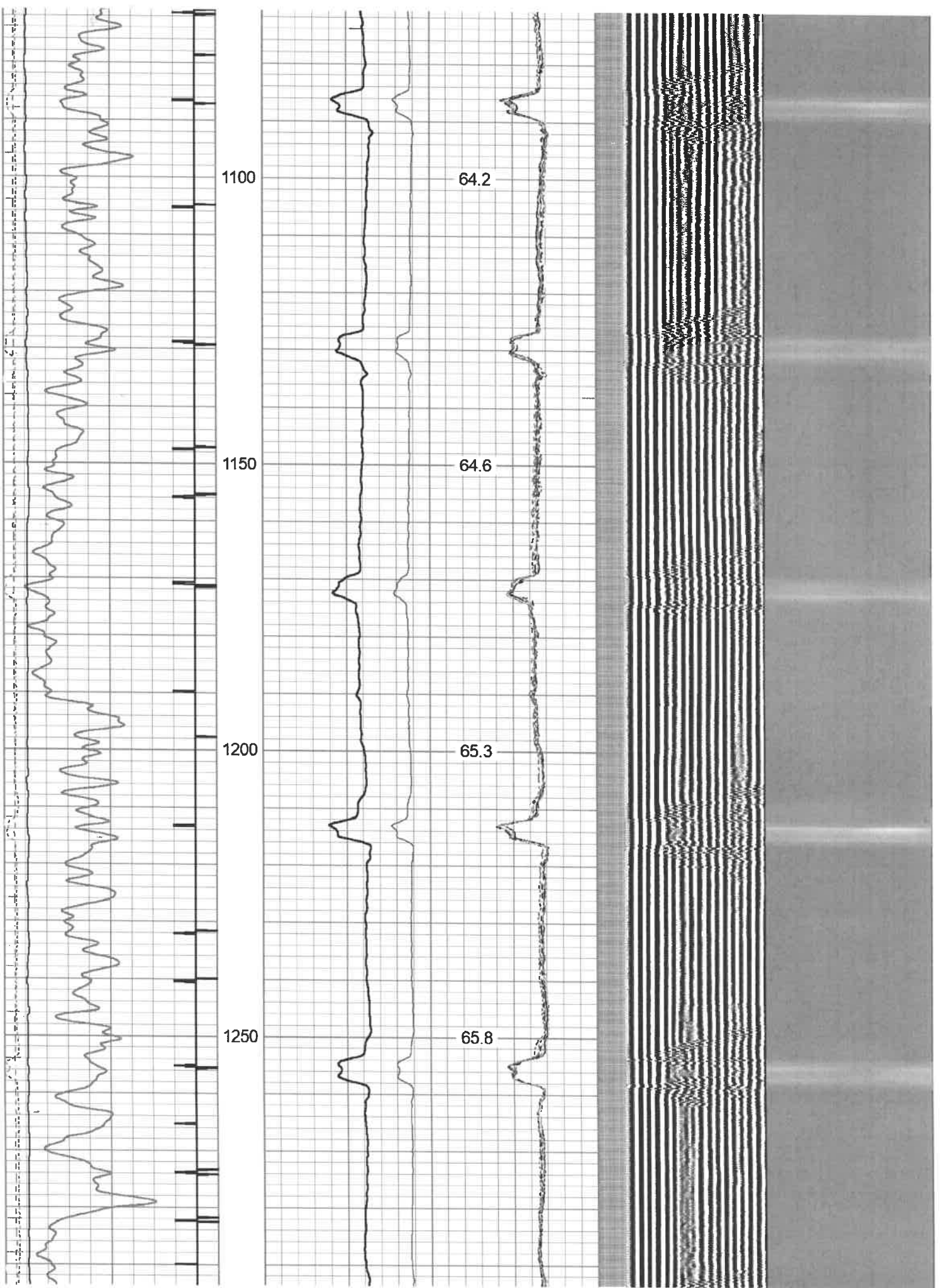
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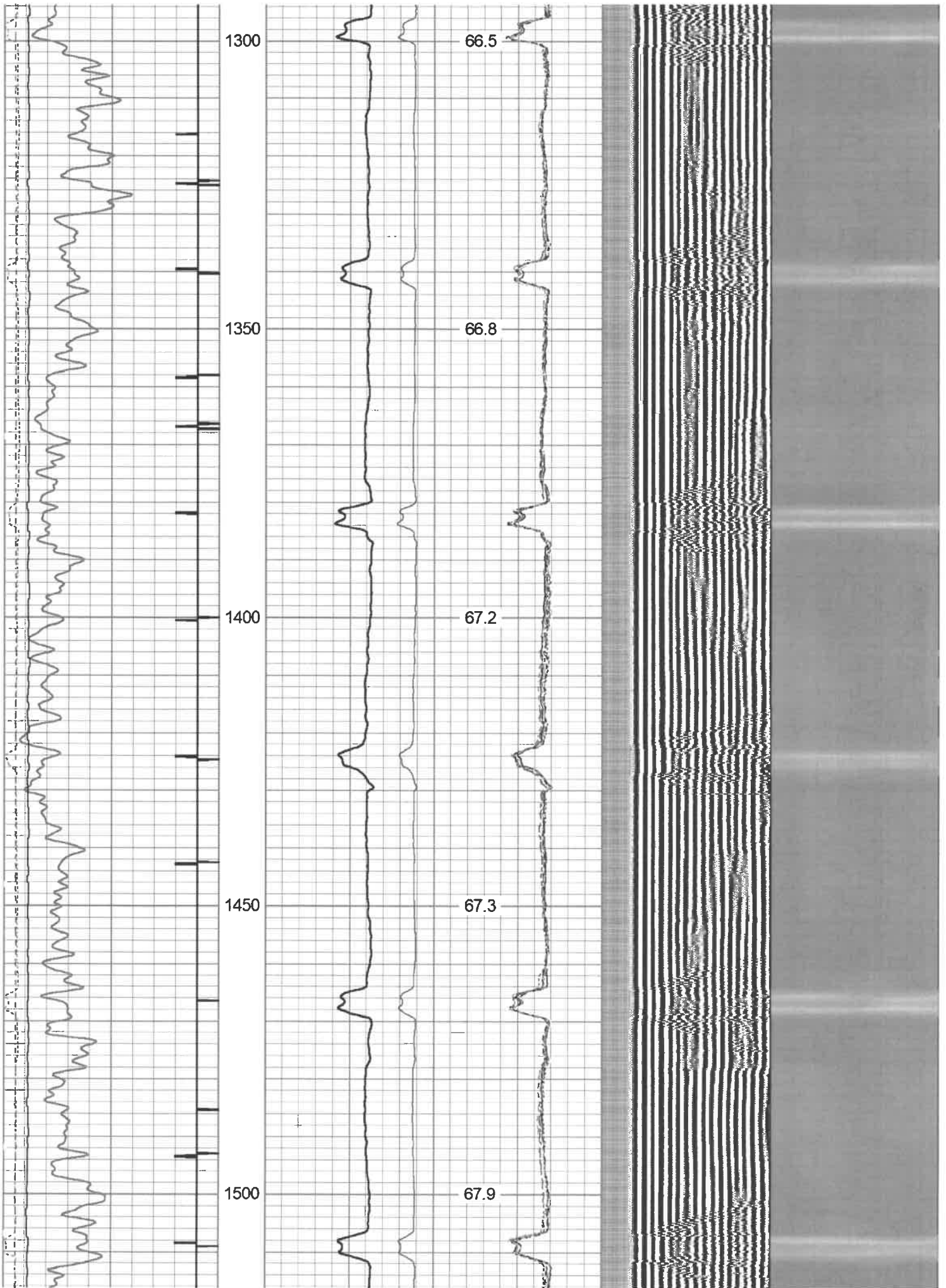
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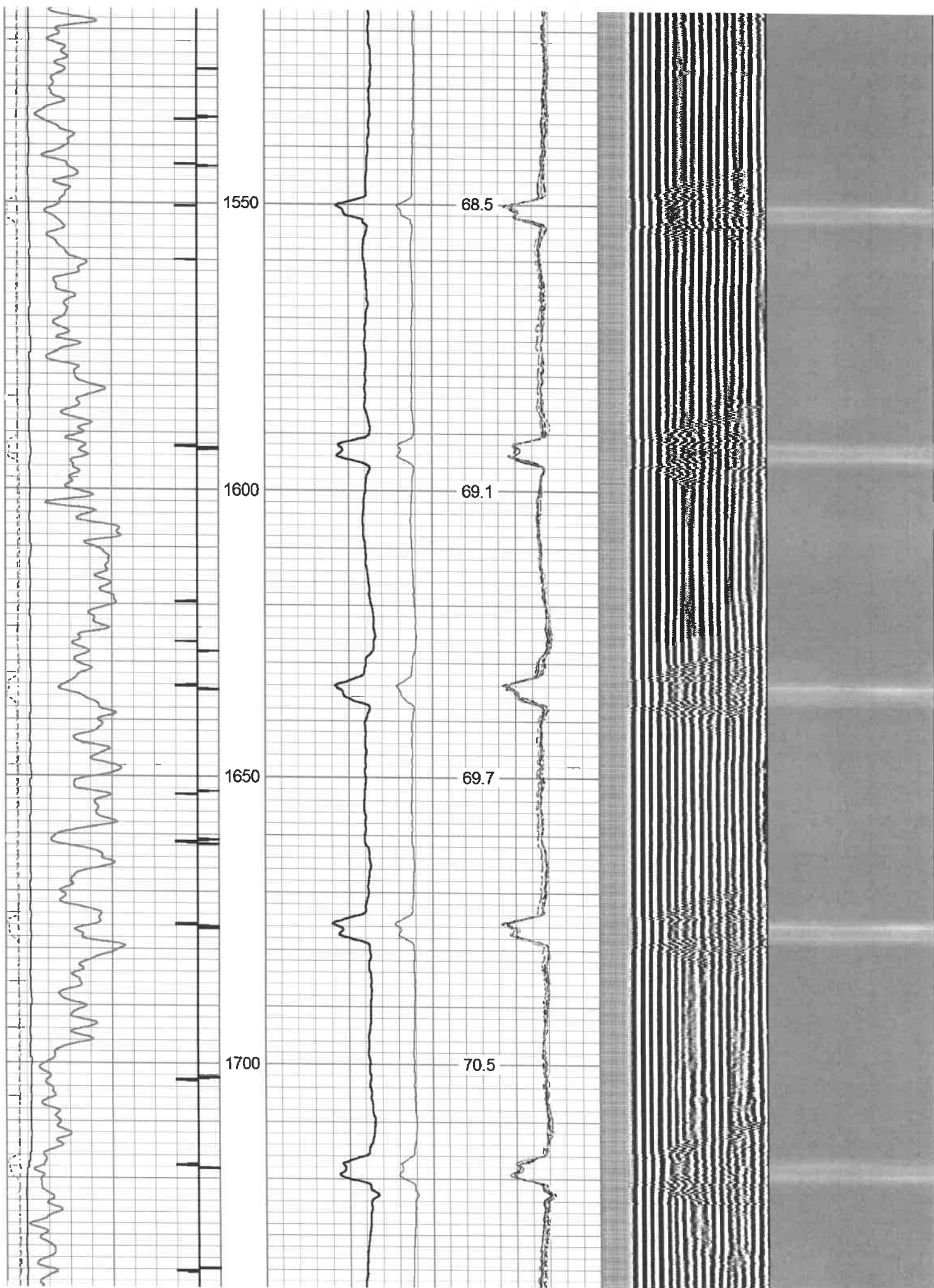
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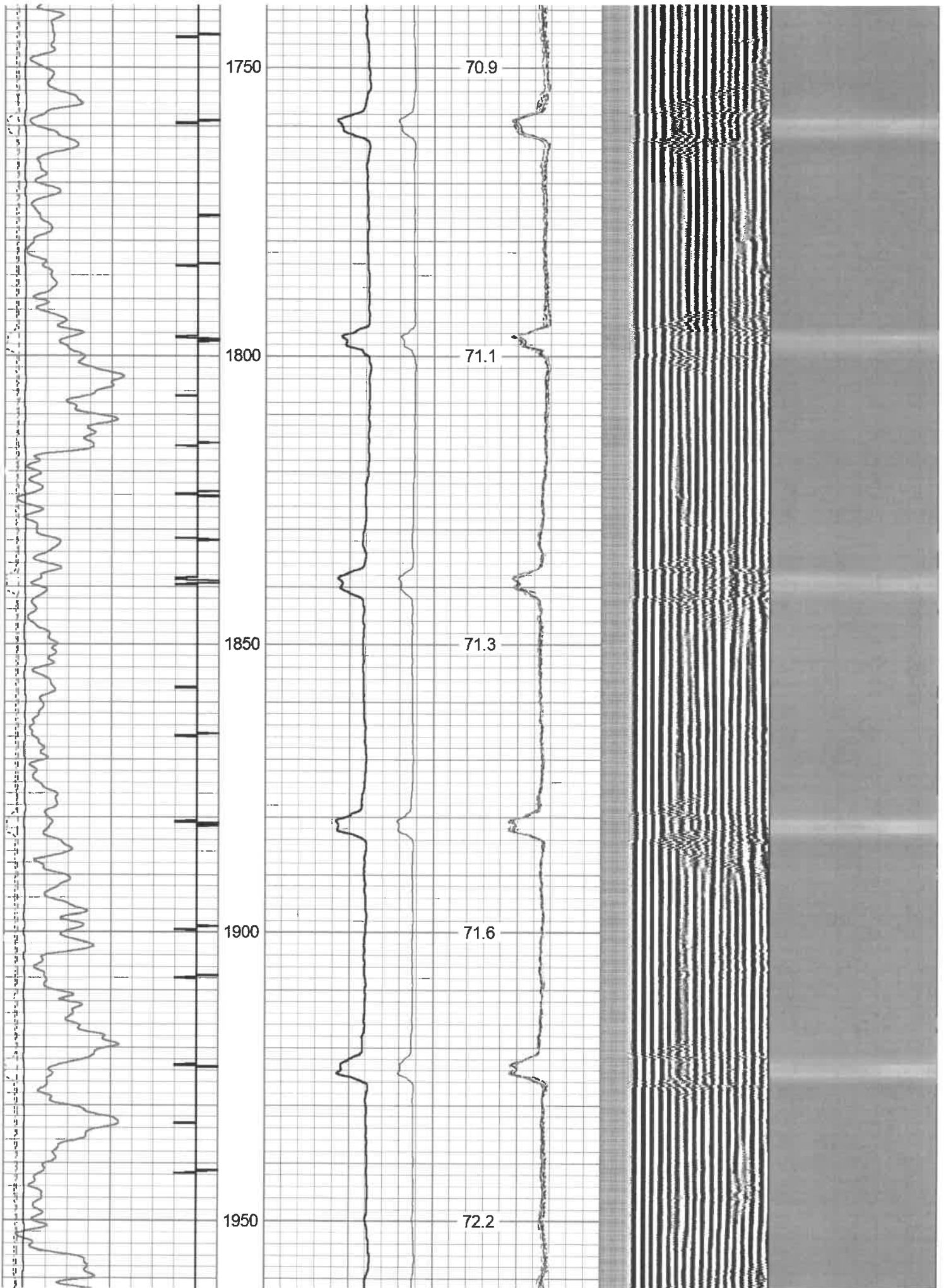
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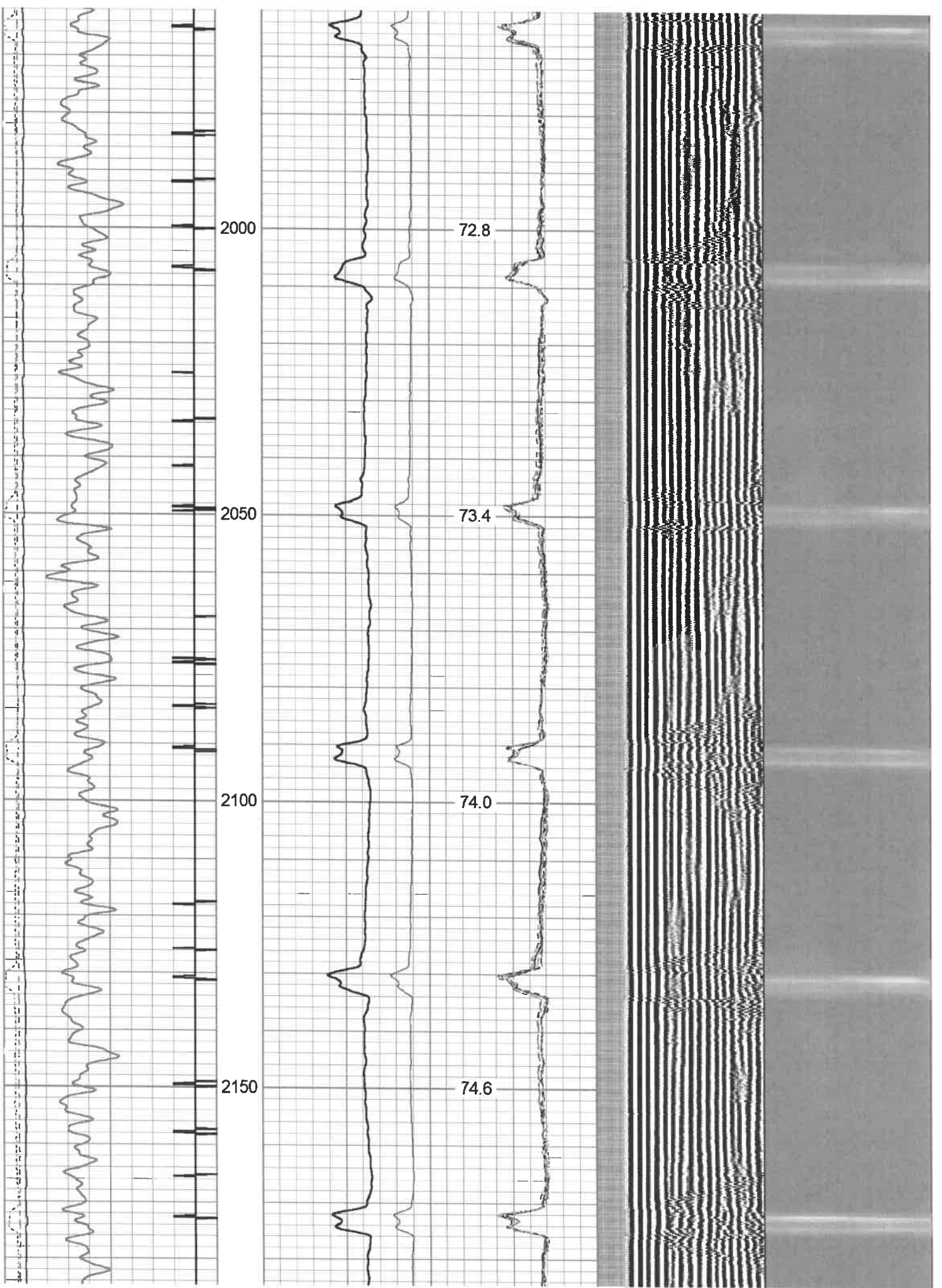


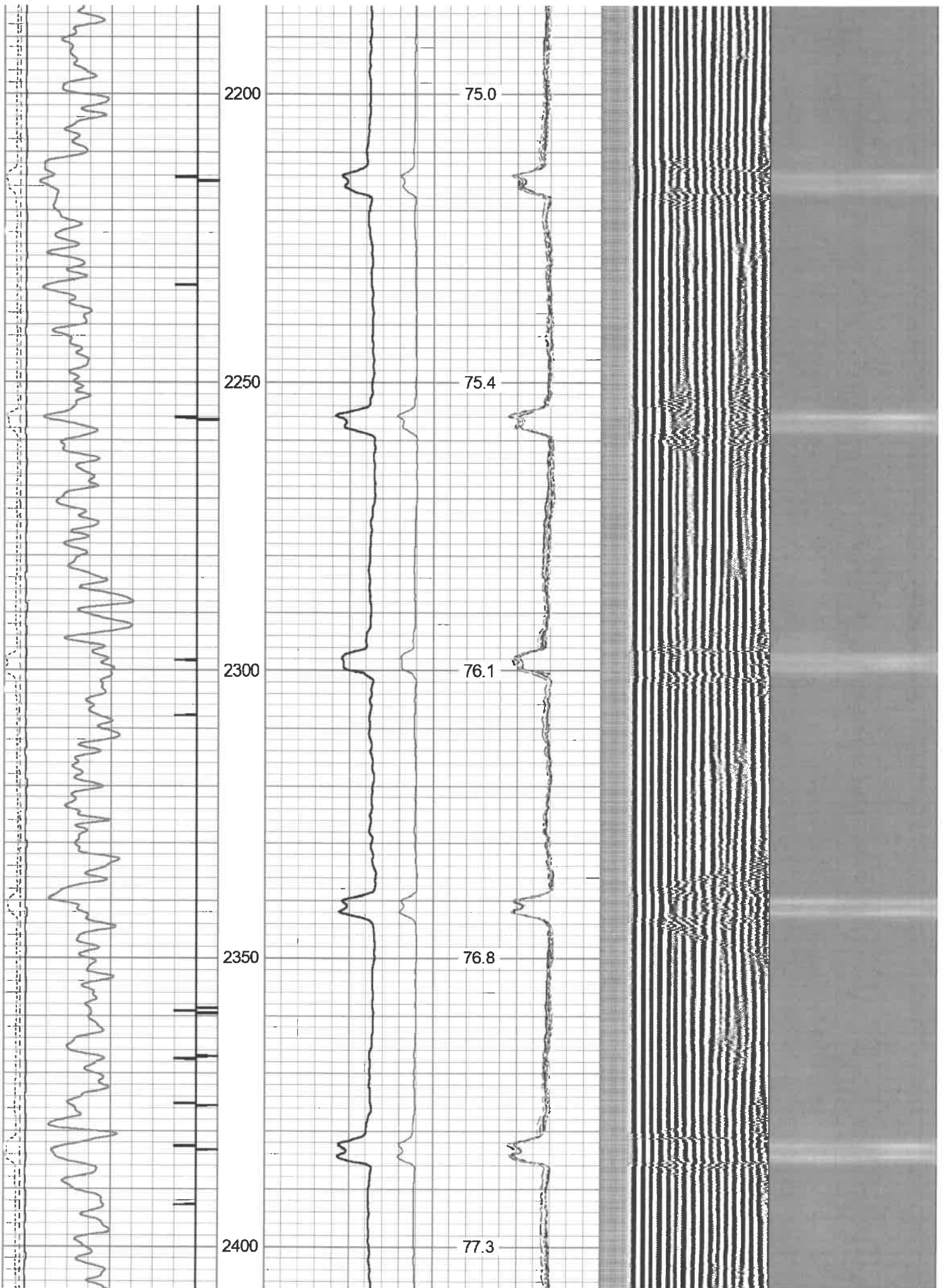


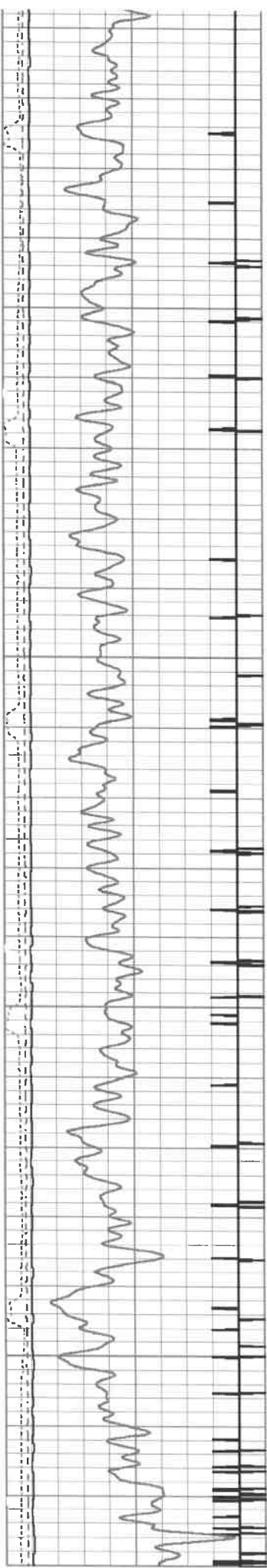










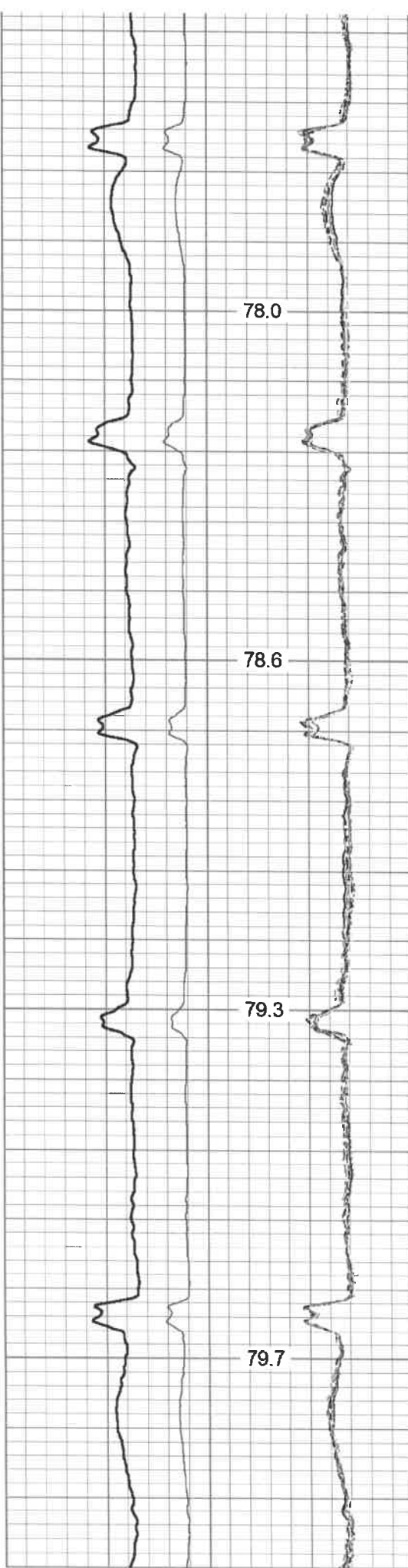


2450

2500

2550

2600

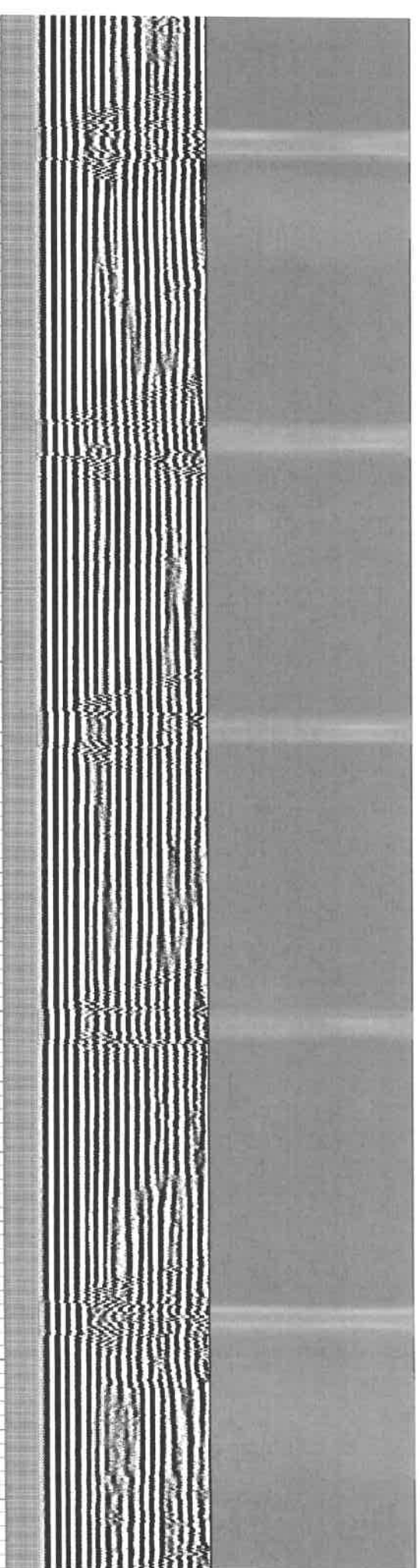


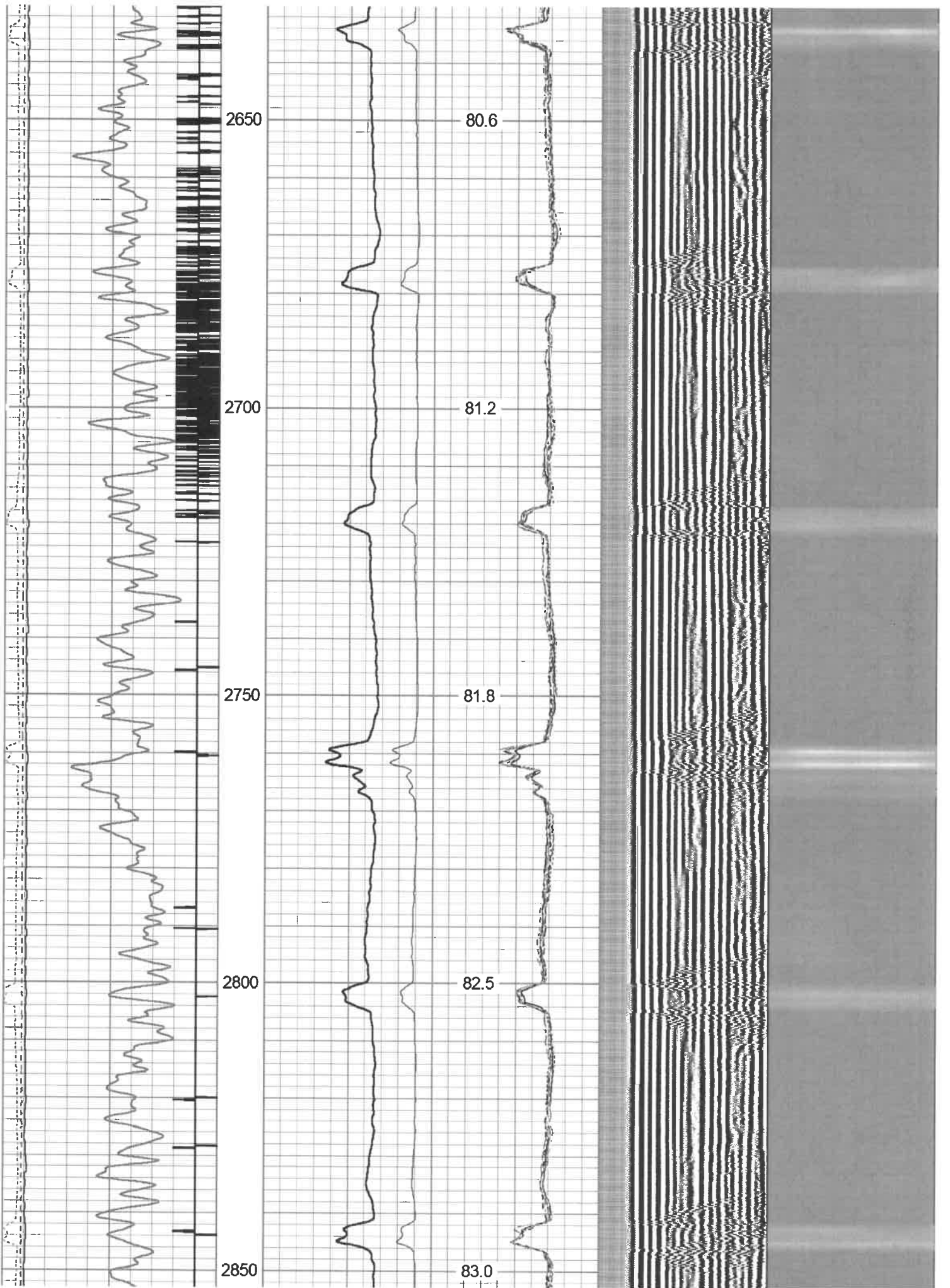
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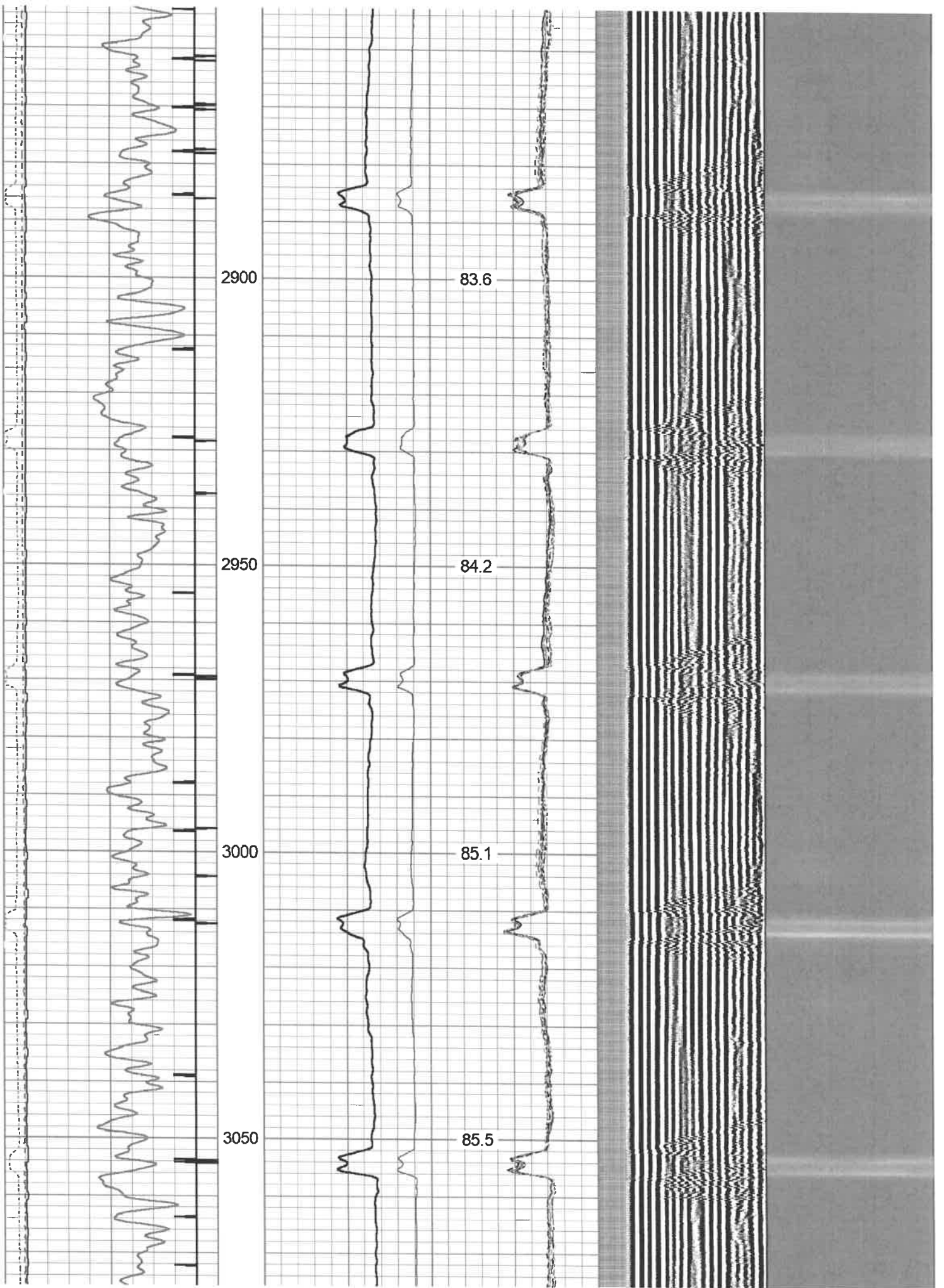
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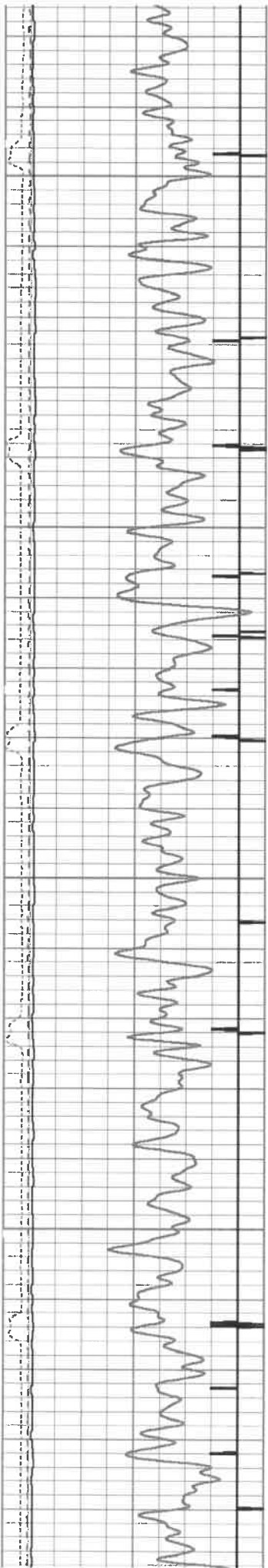
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79.7







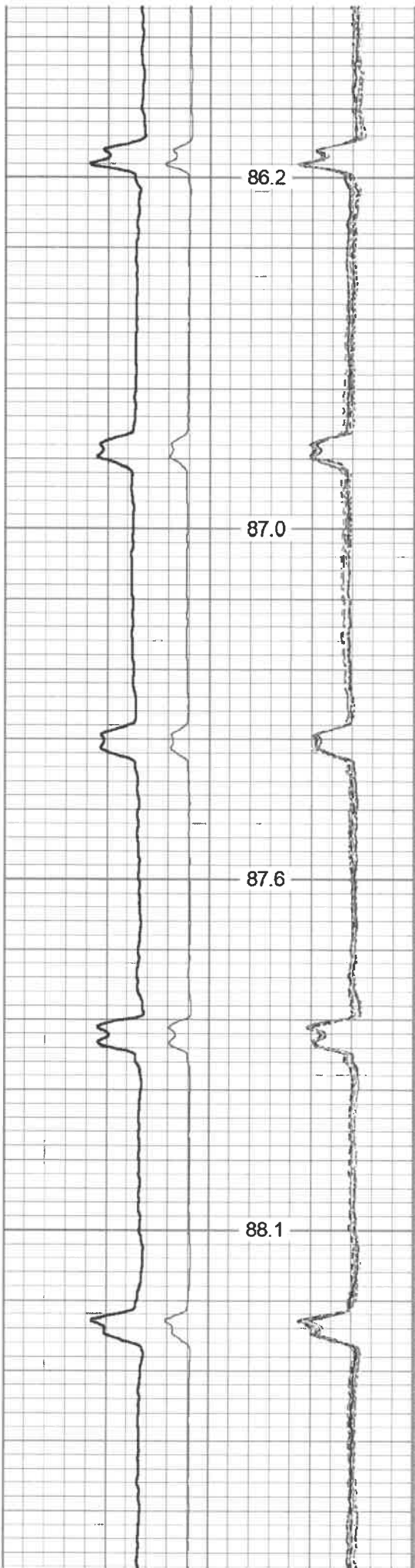


3100

3150

3200

3250

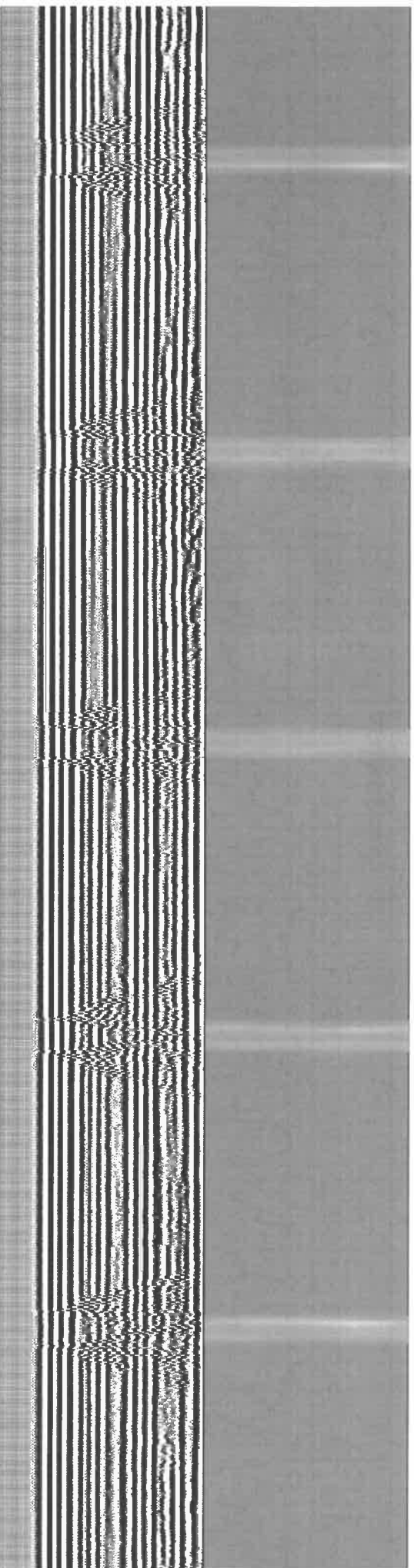


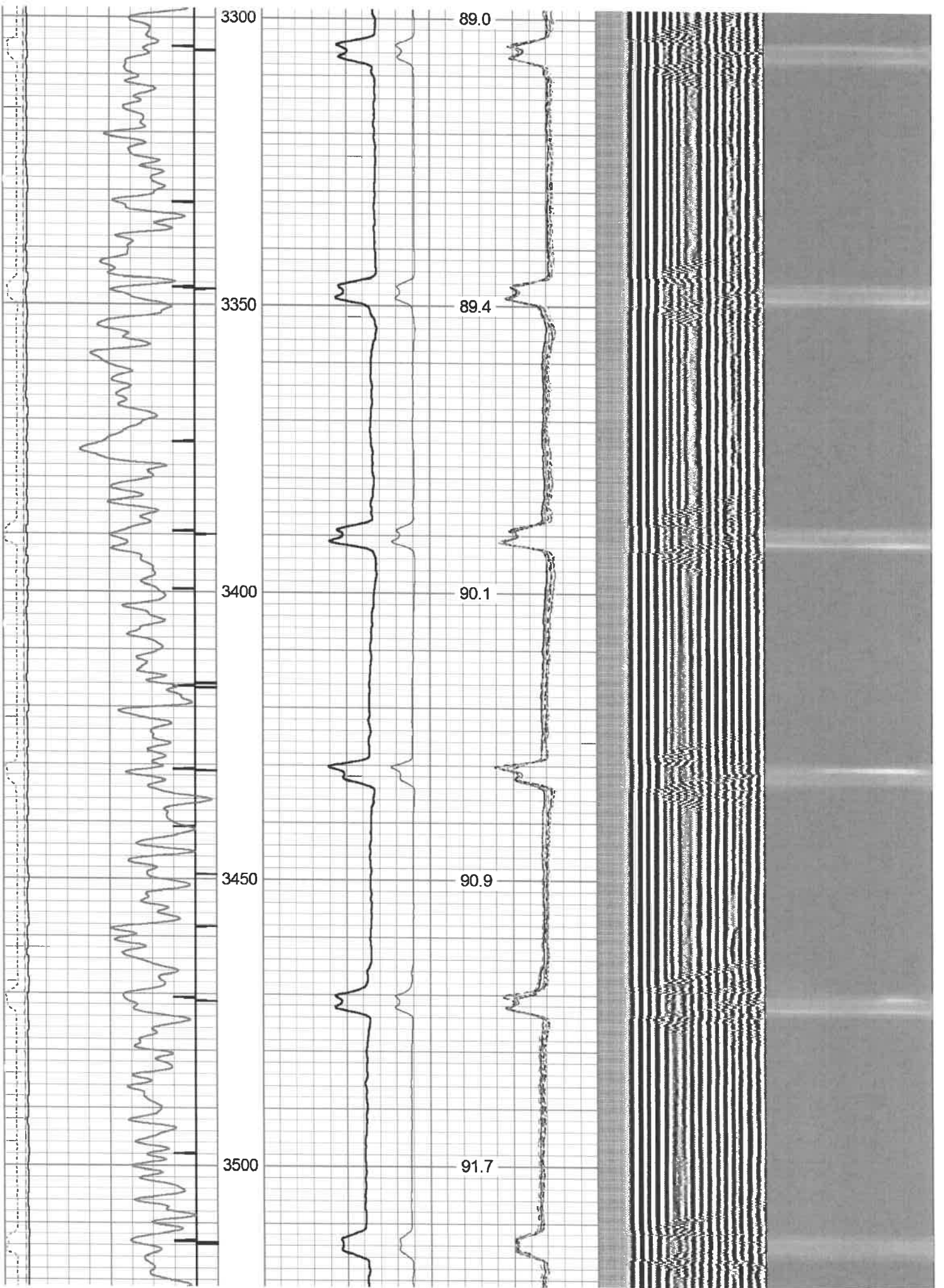
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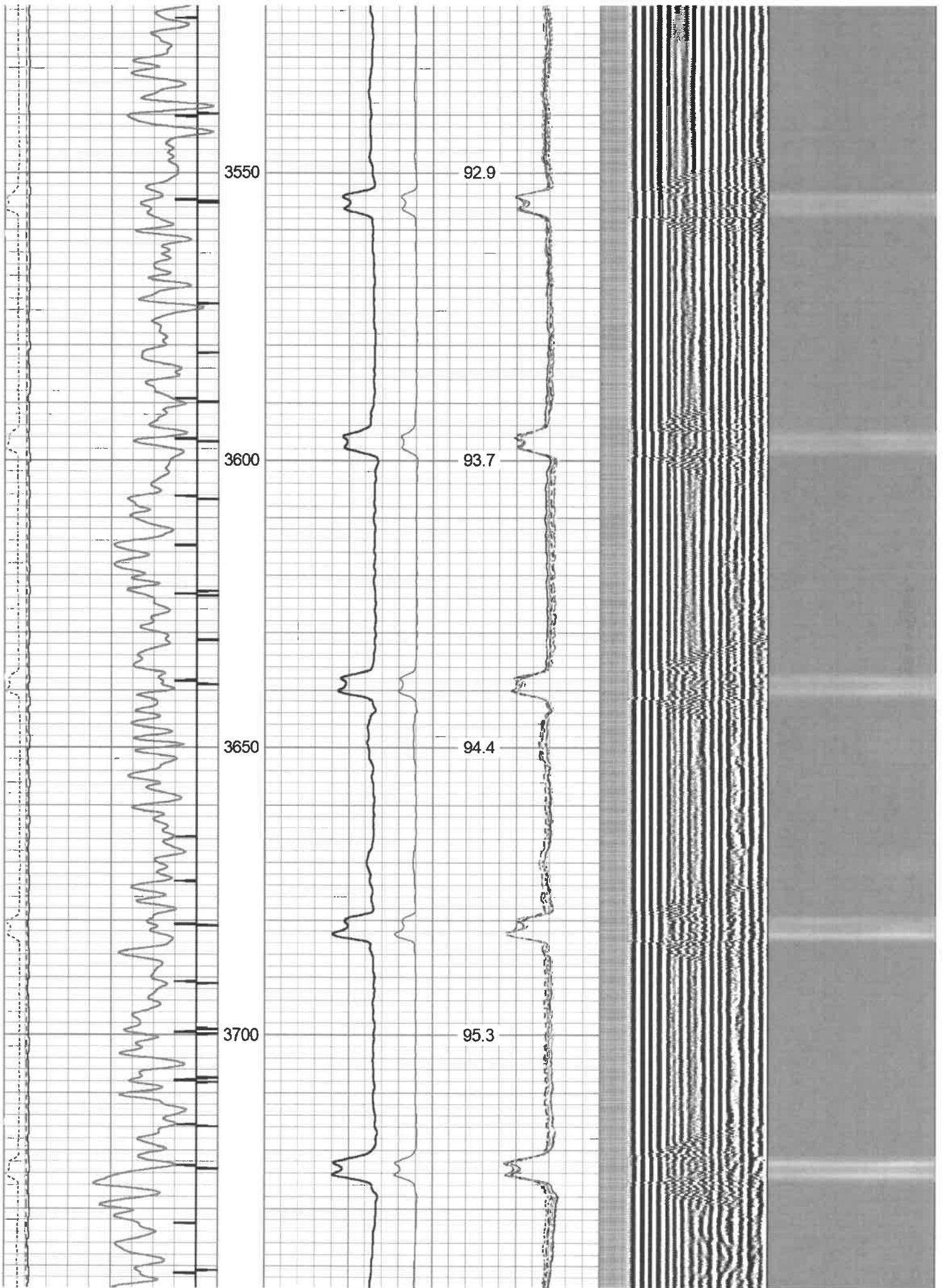
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87.6

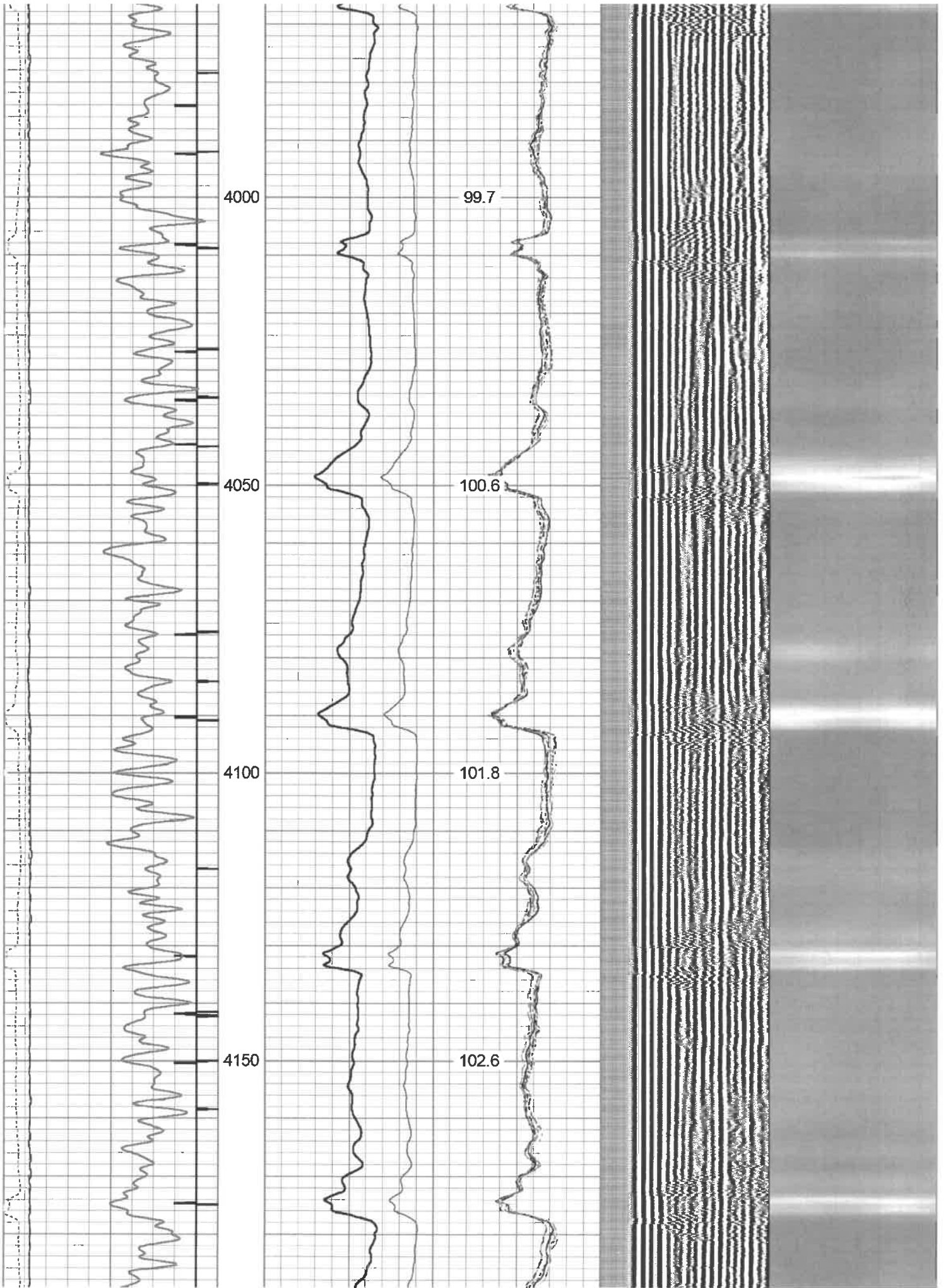
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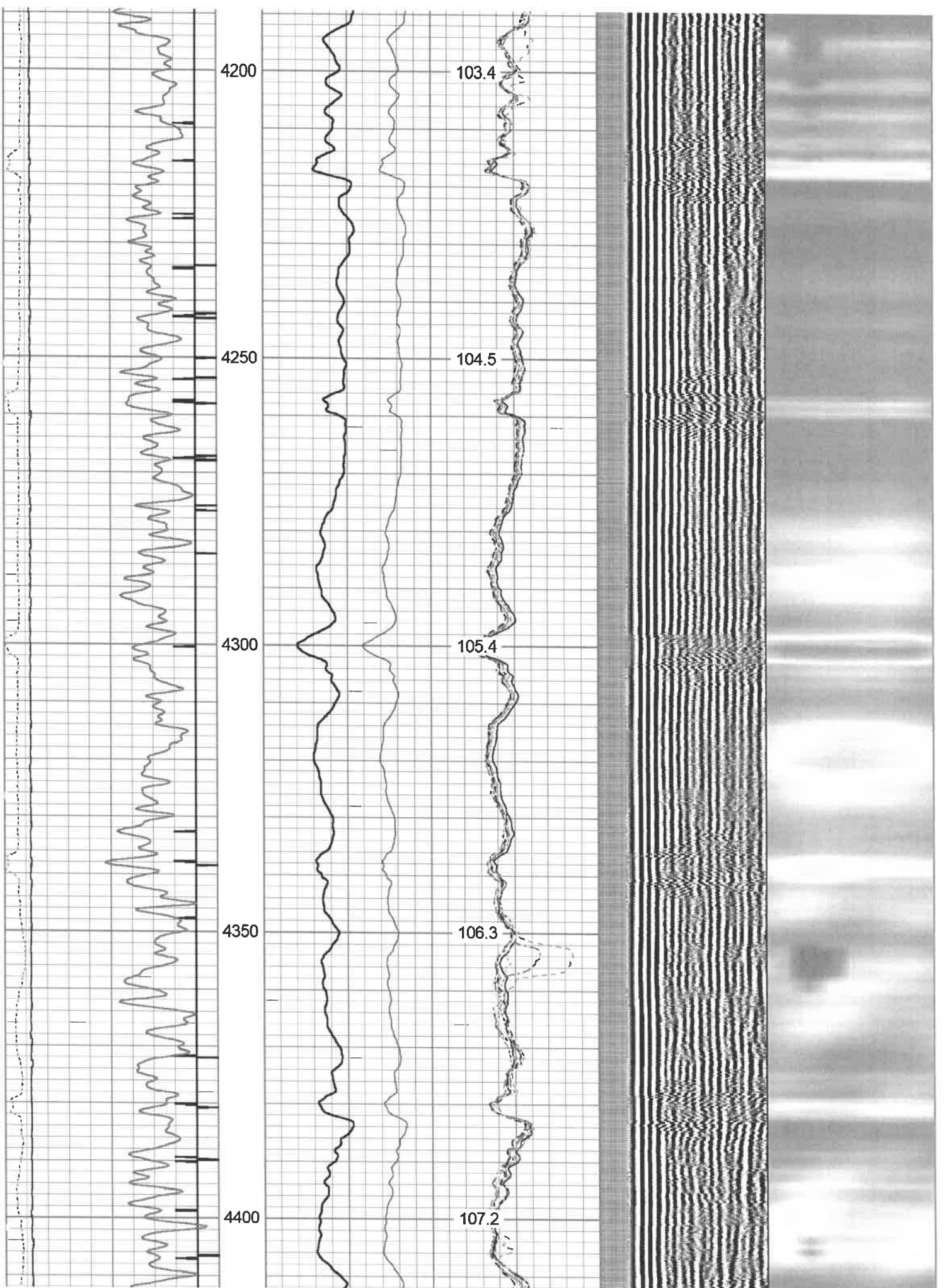


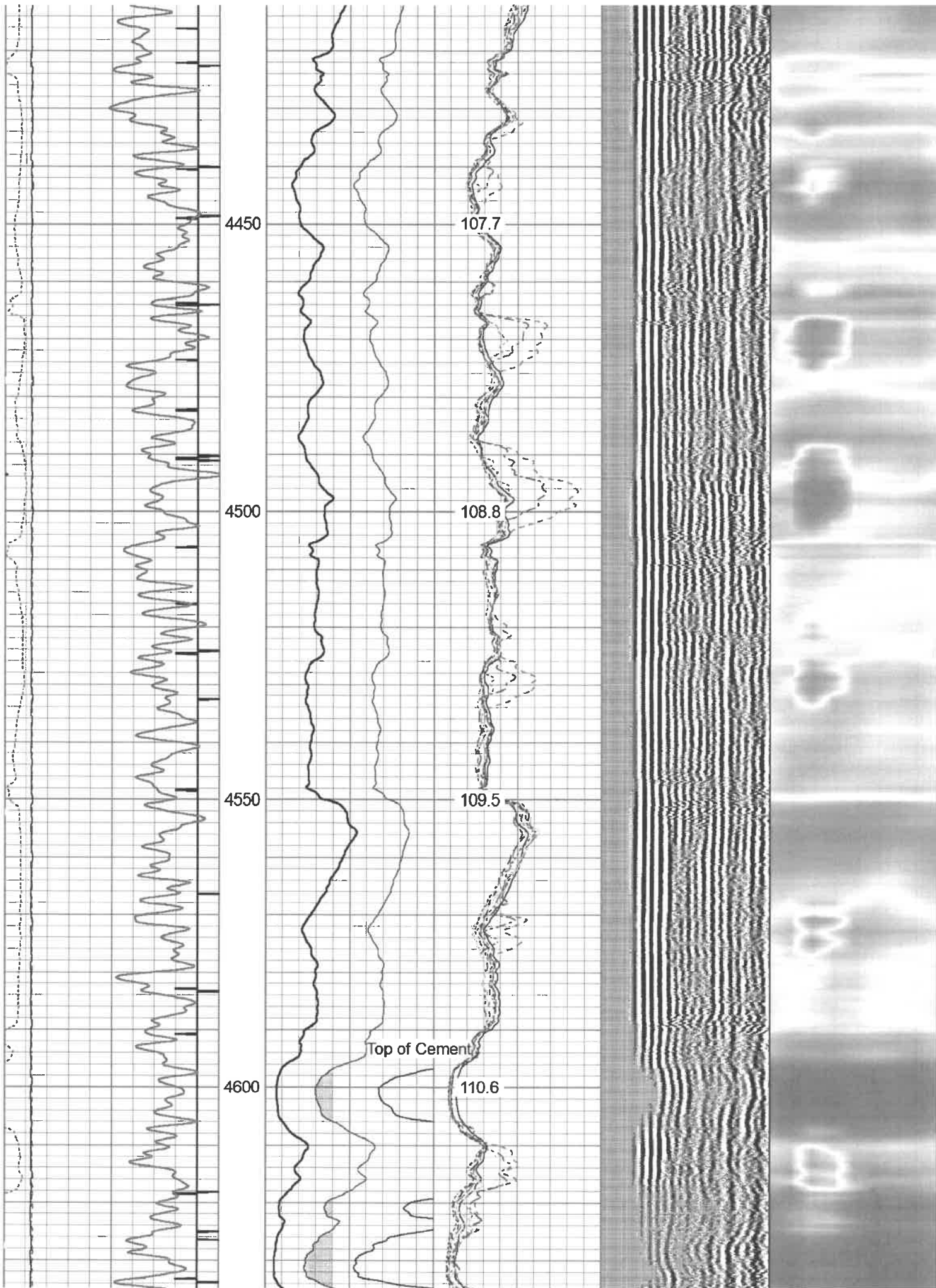


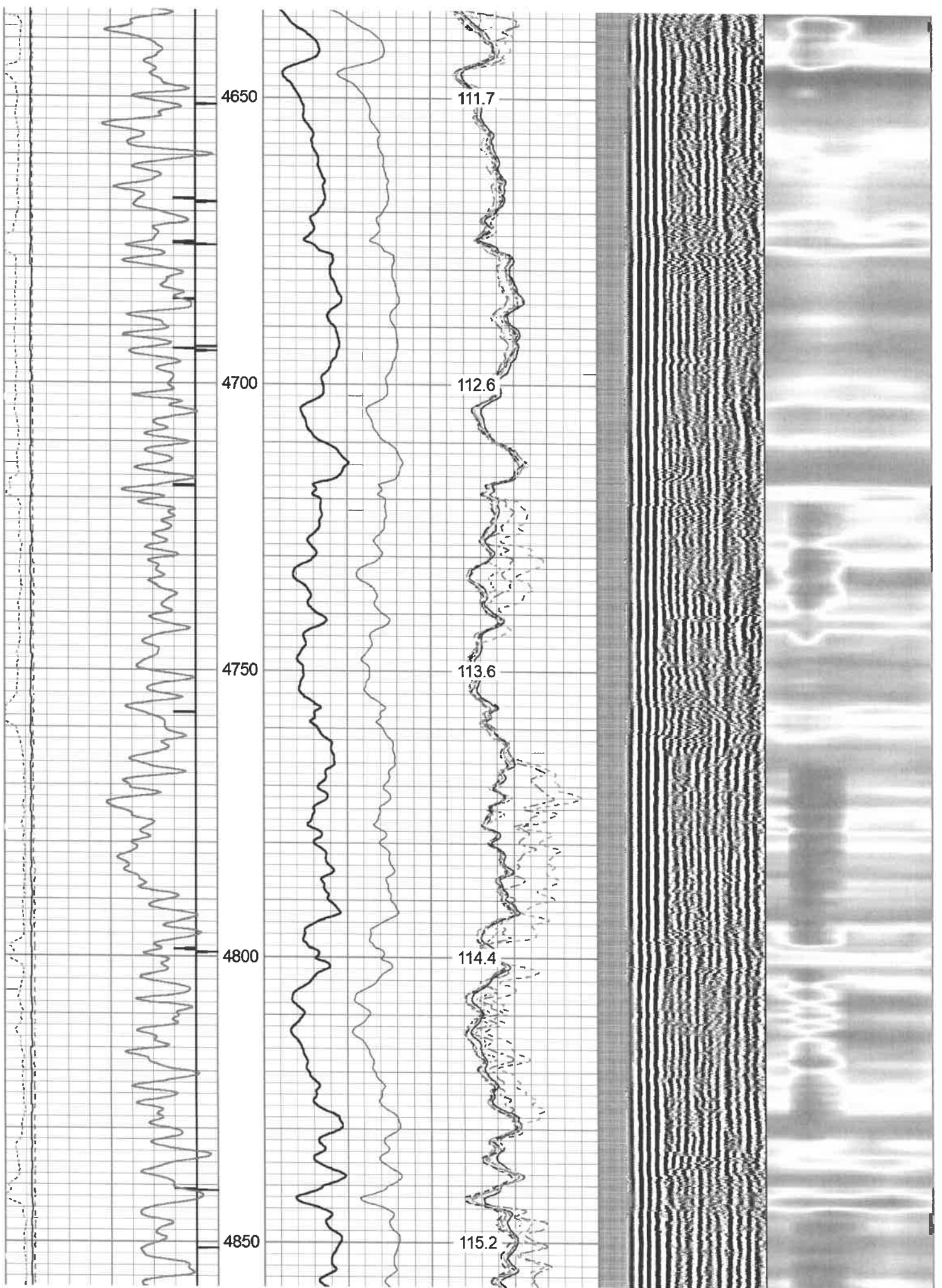


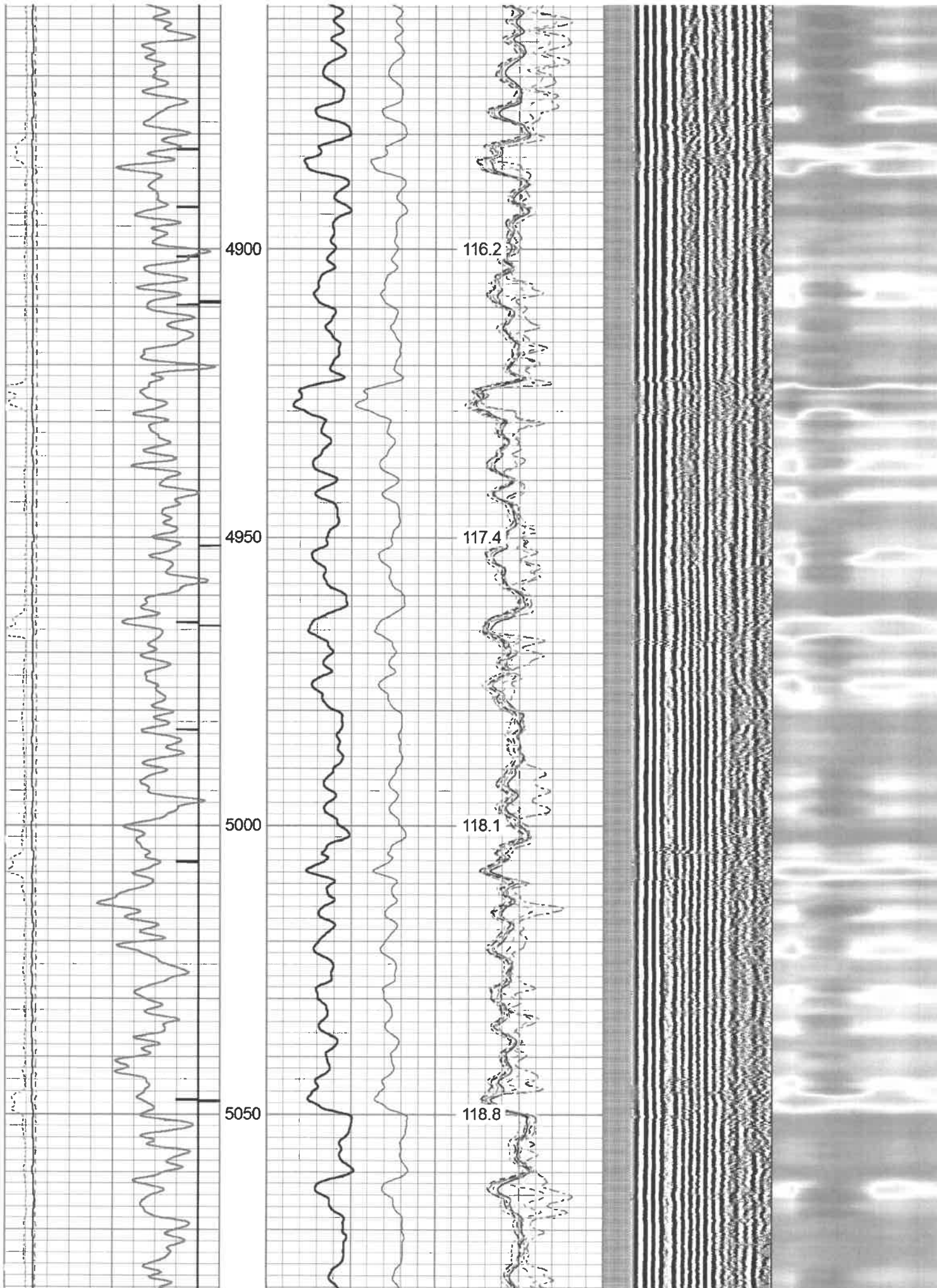


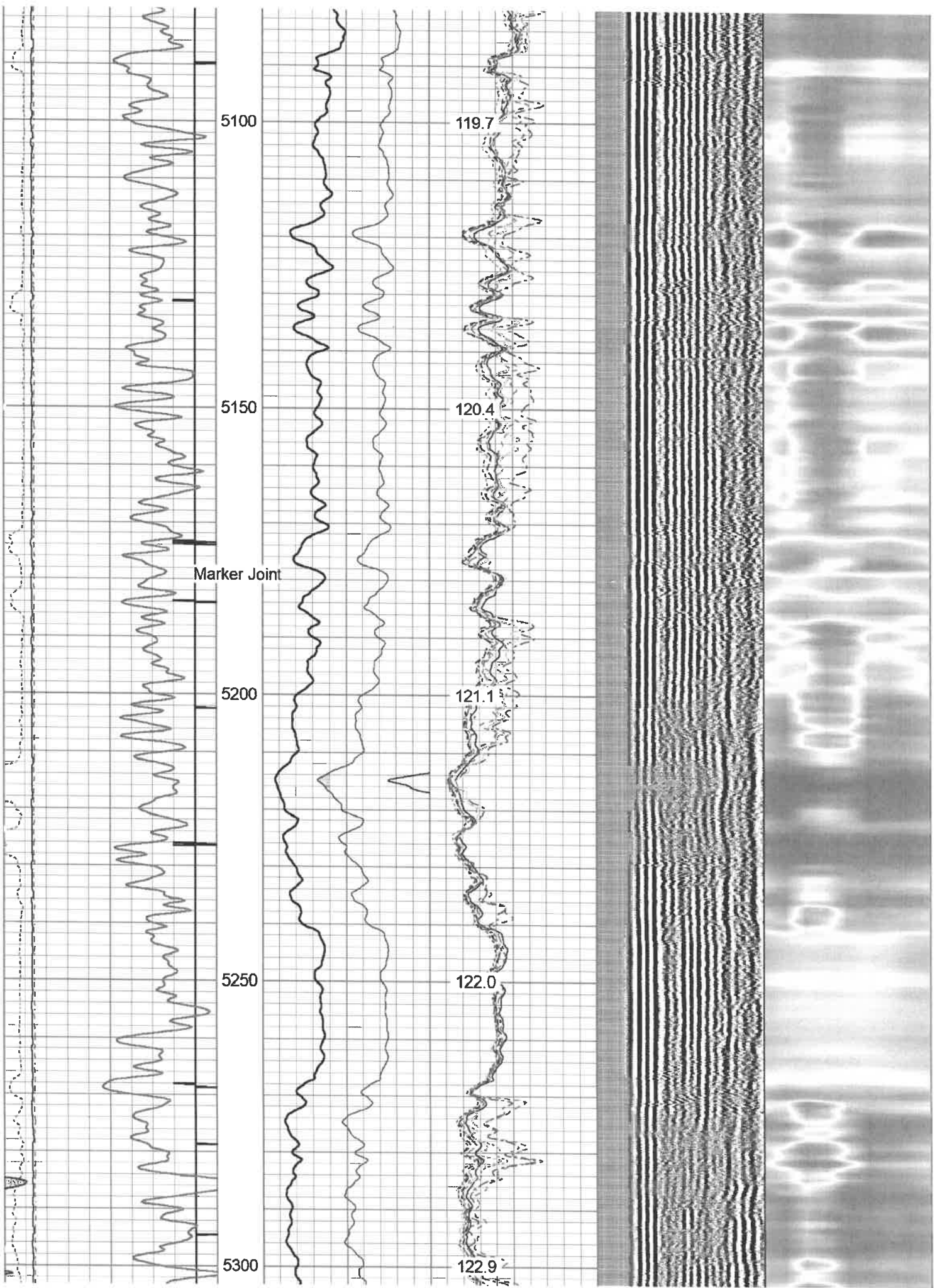


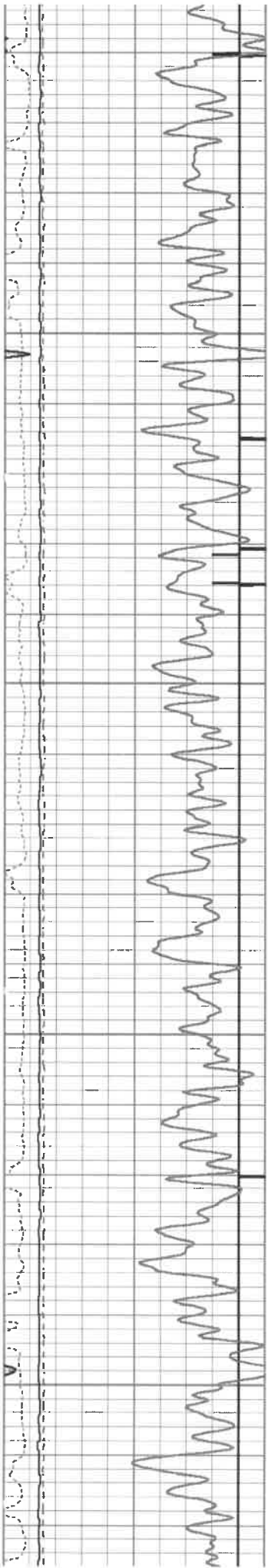










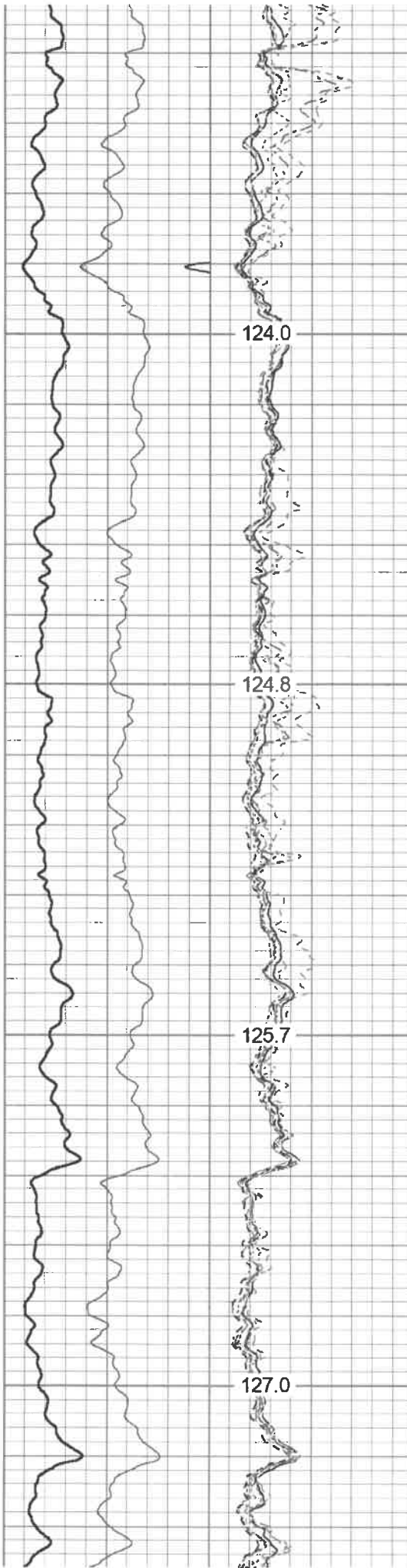


5350

5400

5450

5500

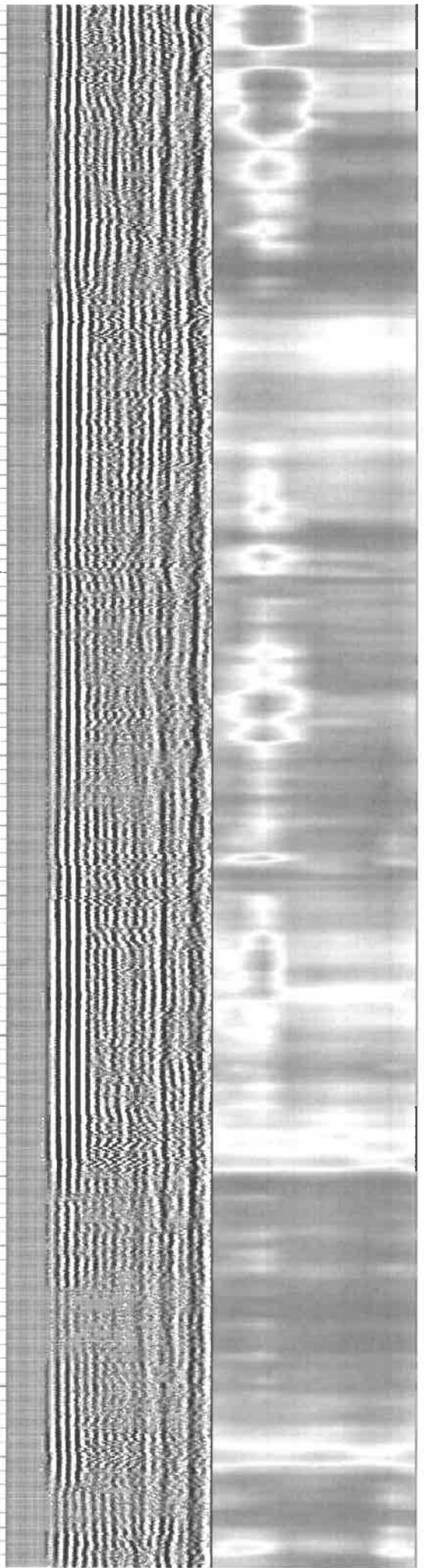


124.0

124.8

125.7

127.0

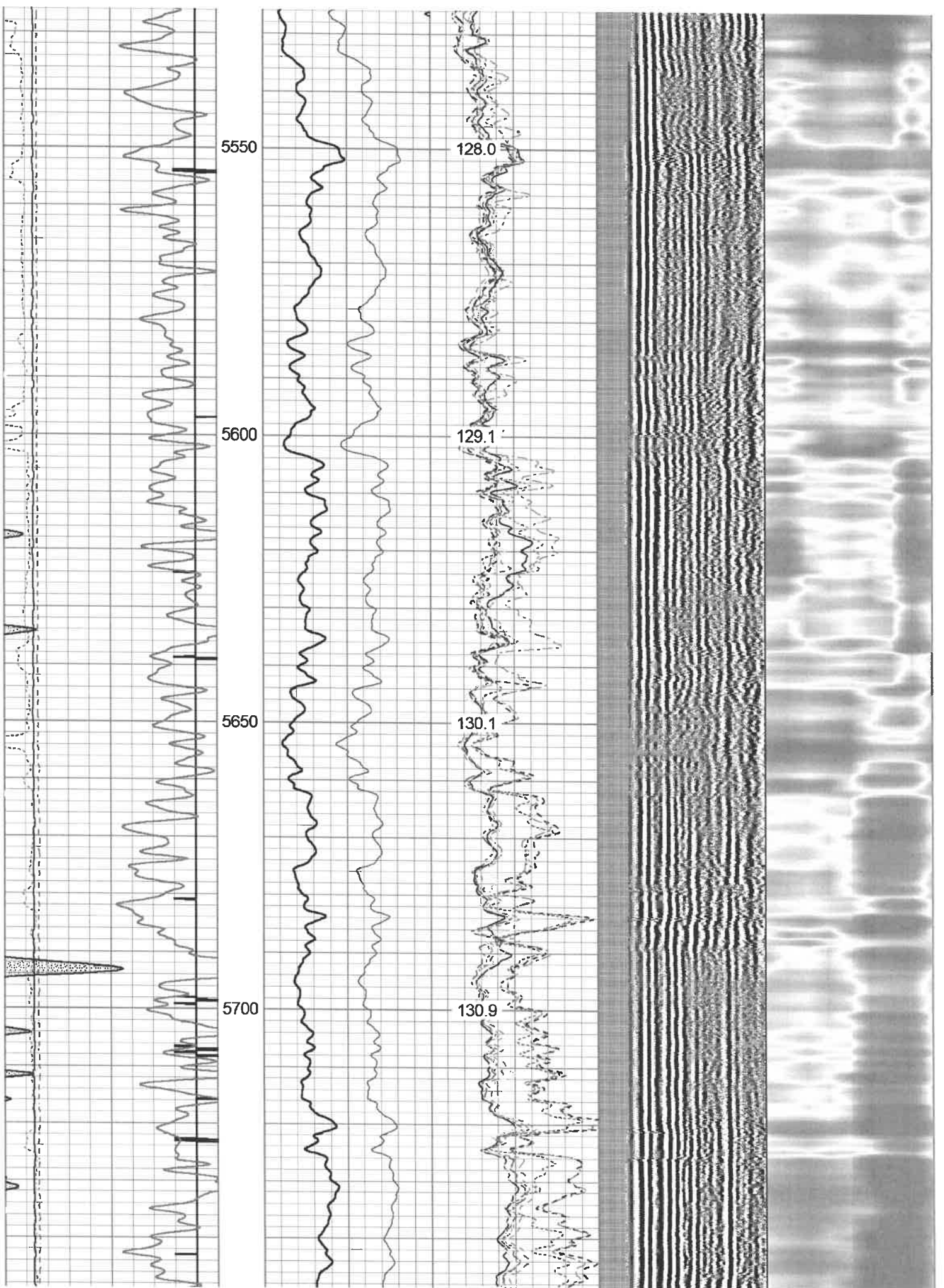


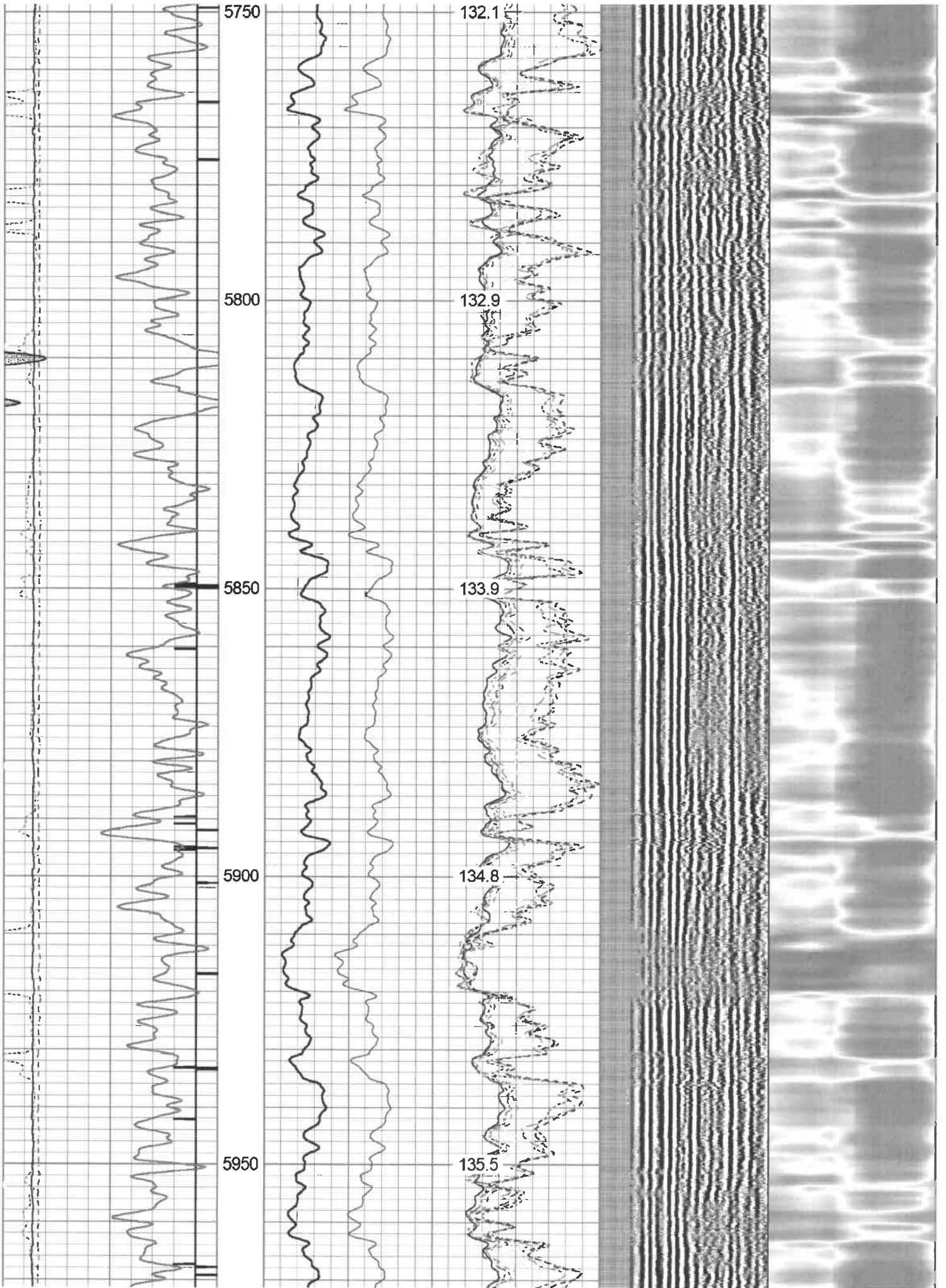
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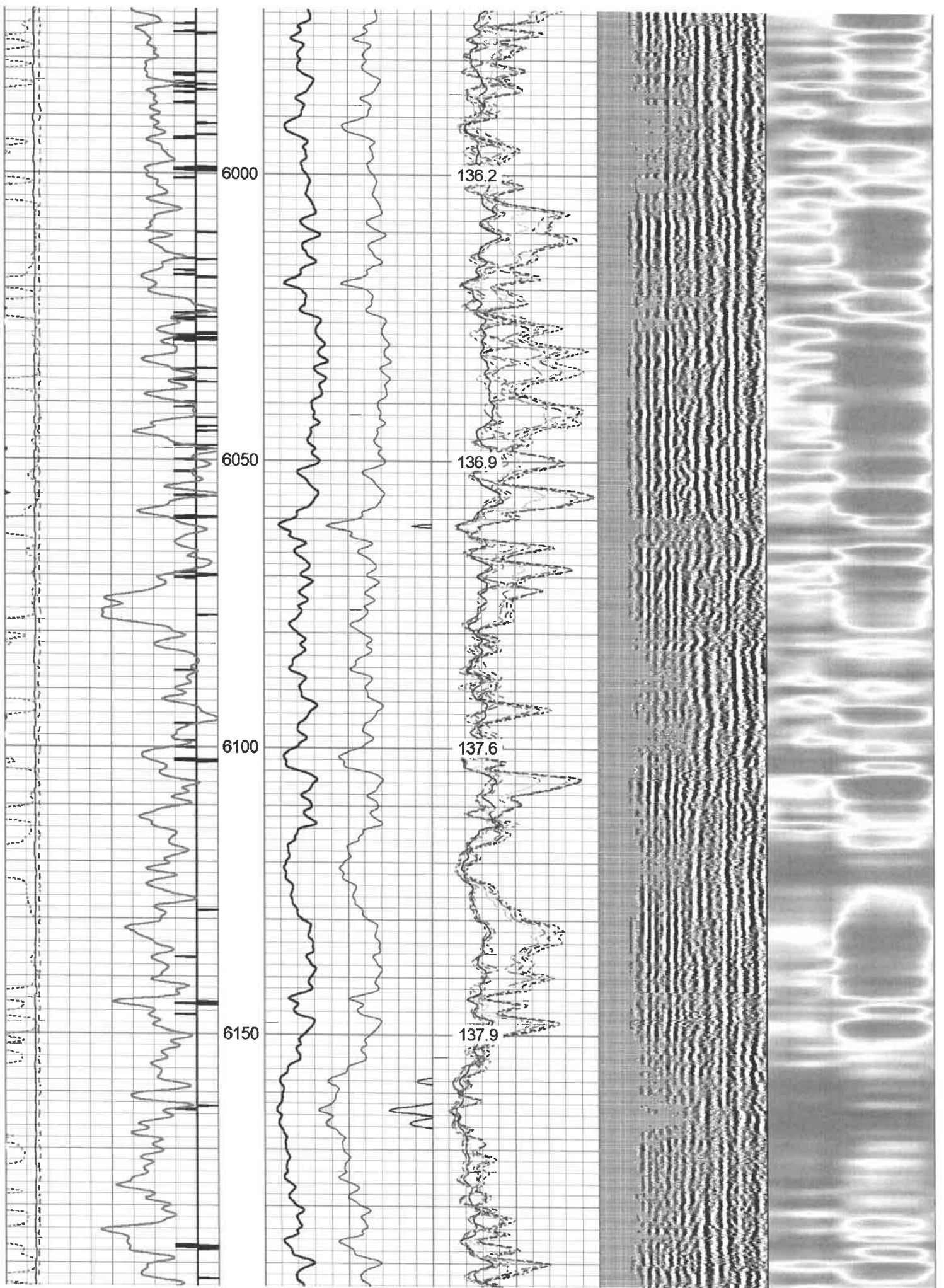
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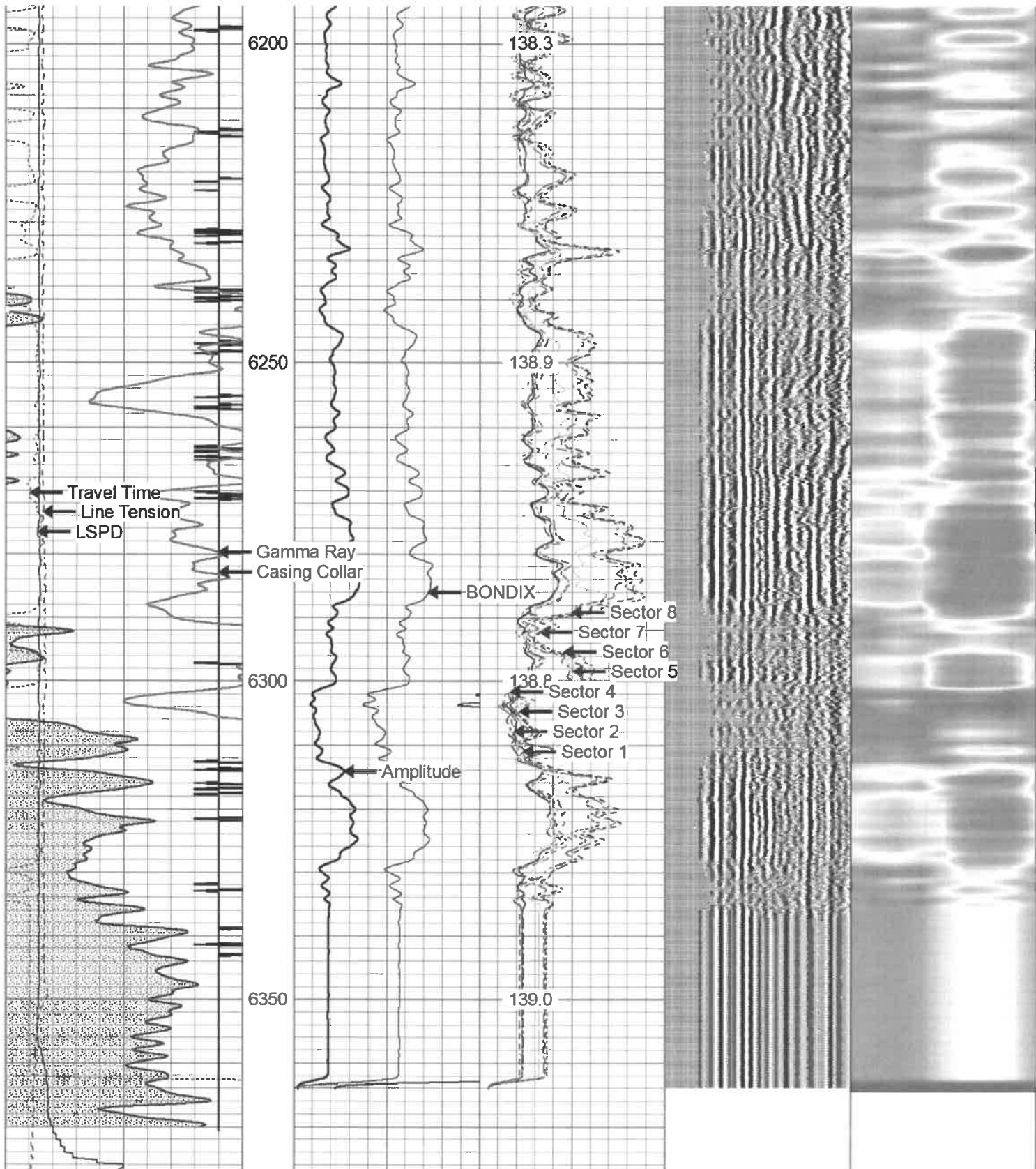
125.7

127.0









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
(usec)	200		1200

TEMP
(degF)

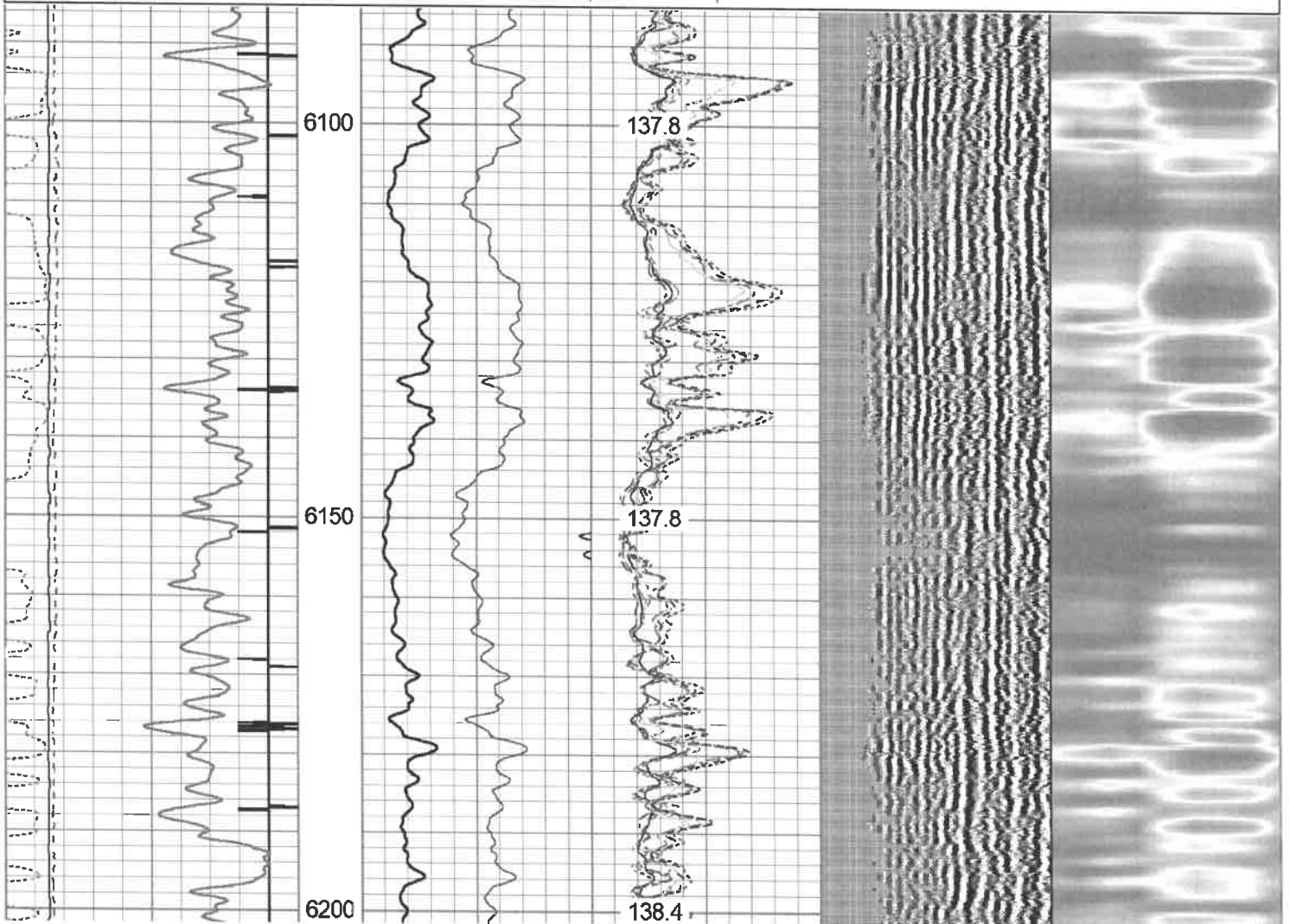


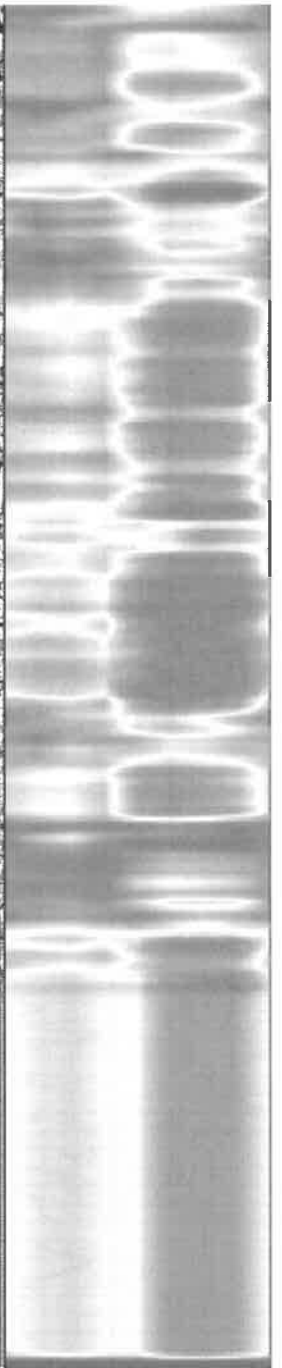
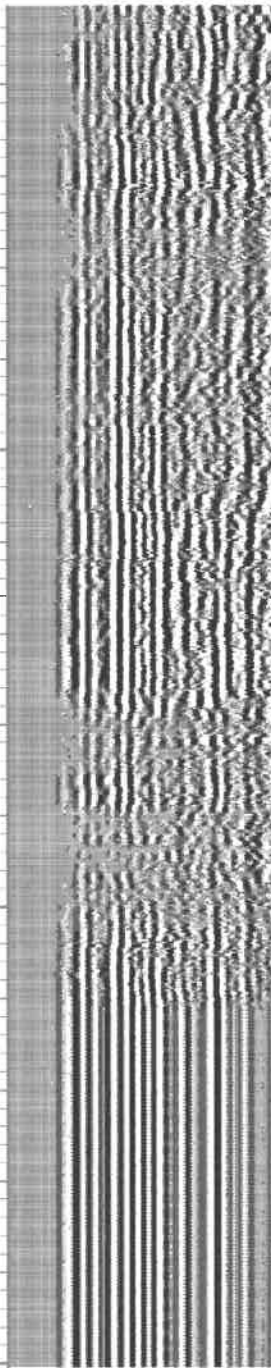
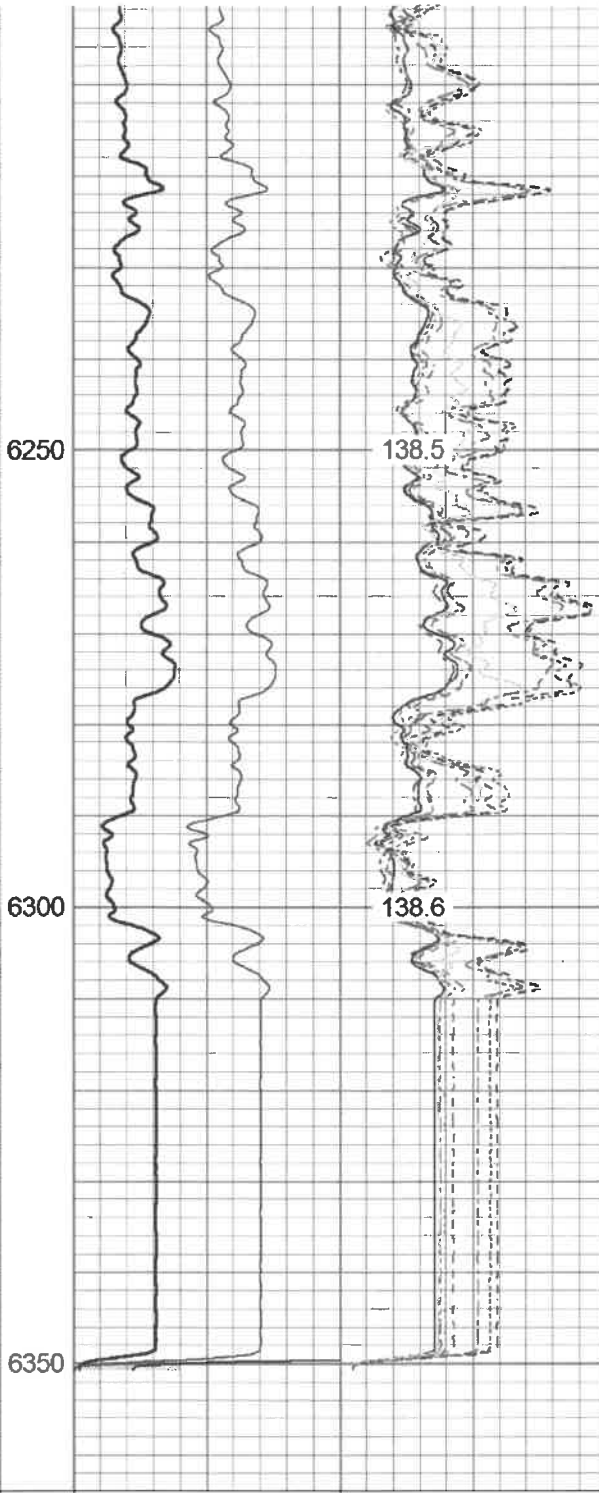
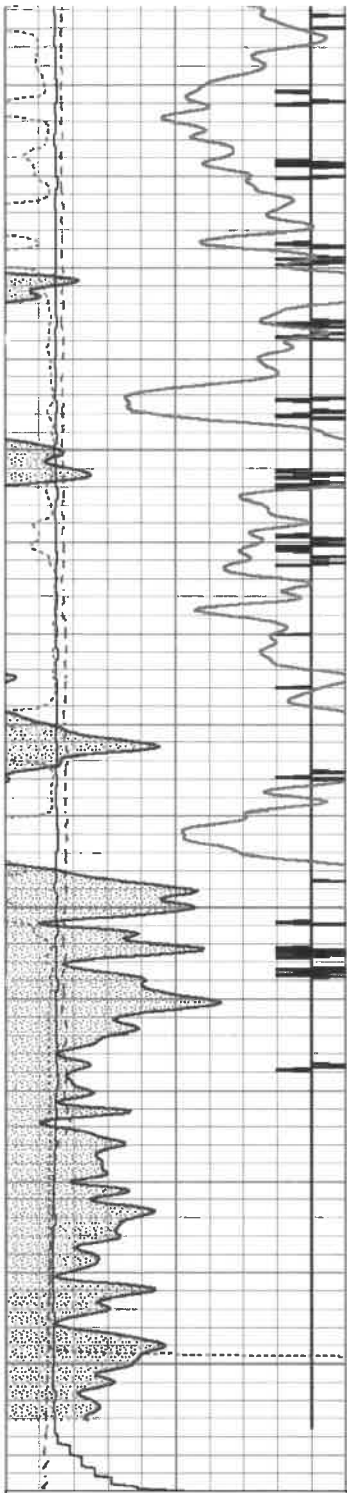
Repeat Pass 1500 psi

Database File antero_roy_2h_rcbl_july132021.db
 Dataset Pathname pass4
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Tue Jul 13 13:22:01 2021
 Charted by Depth in Feet scaled 1:240

285	Travel Time (usec)	185	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	Sector 2	150		200		(usec)
0	Gamma Ray (GAPI)	150	0	AMPx10 (mV)	10	-5	Sector 3	150				
0	Line Tension (lb)	5000				-5	Sector 4	150				
-100	LSPD (ft/min)	100				-5	Sector 5	150				
						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				

TEMP
(degF)





285	Travel Time (GAPI)	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
200 (usec) 1200

1 Cement Map 8

TEMP
(degF)

Top - Bottom

BHTEMP_Src TEMP	BOREID in 7.875	BOTTEMP degF 100	CASEOD in 5.5	CASETHCK in 0.361	CASEWGHT lb/ft 20	MAXAMPL mV 72	MINAMPL mV 2.2
MINATTN db/ft 0.8	PERFS No	PPT usec 0	SRFTEMP degF 0	TDEPTH 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_roy_2h_rcbl_july132021.db
 Dataset Pathname pass6.1
 Dataset Creation Tue Jul 13 14:54:50 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 13:08:51 2021:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.707	2.200	71.921	85.635	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

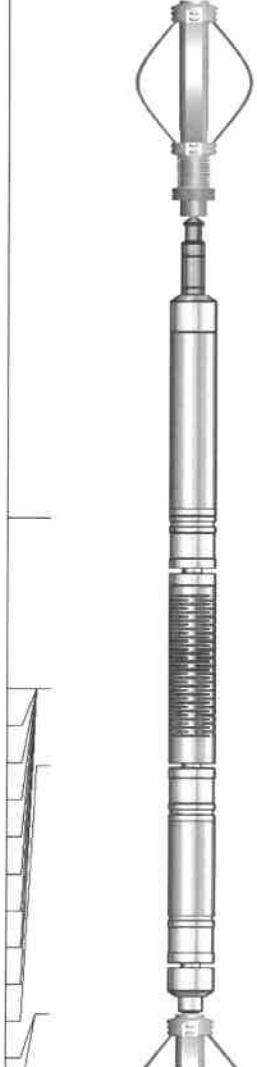
S8 0.000 0.803 2.200 100.000 121.850 2.200


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					
WVF3FT	14.70					
WVF5FT	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_roy_2h_rcbl_july132021.db: field/well/run1/pass6.1
 Total length: 23.69 ft
 Total weight: 220.00 lb
 O.D.: 2.75 in

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