



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

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

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

Location: API #: 47-095-02731-0000 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.

Date	July 12 2021
Run Number	One
Depth Driller	19,657 ft.
Bottom Logger	6,700 ft.
Bottom Logged Interval	6,700 ft.
Top Log Interval	Surface
Open Hole Size	N/A
Type Fluid	Water
Density / Viscosity	N/A
Max. Recorded Temp.	139.1 Deg. F
Estimated Cement Top	4,516 ft.
Time Well Ready	17:50
Time Logger on Bottom	21:20
Equipment Number	Unit 133
Location	Marietta Ohio
Recorded By	Thomas Weese
Witnessed By	Reggie

Borehole Record		Tubing Record					
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record							
Surface String	13 3/8			54#		Surface	412 ft.
Prot. String	9 5/8			36#		Surface	2,752 ft.
Production String	5 1/2			20#		Surface	19,657 ft.
Liner							

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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

Primary Log on Well
Marker Joint @ 5,681 - 5,691 ft.
Correction to Pipe Tally Depth Shifted (+10)

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

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

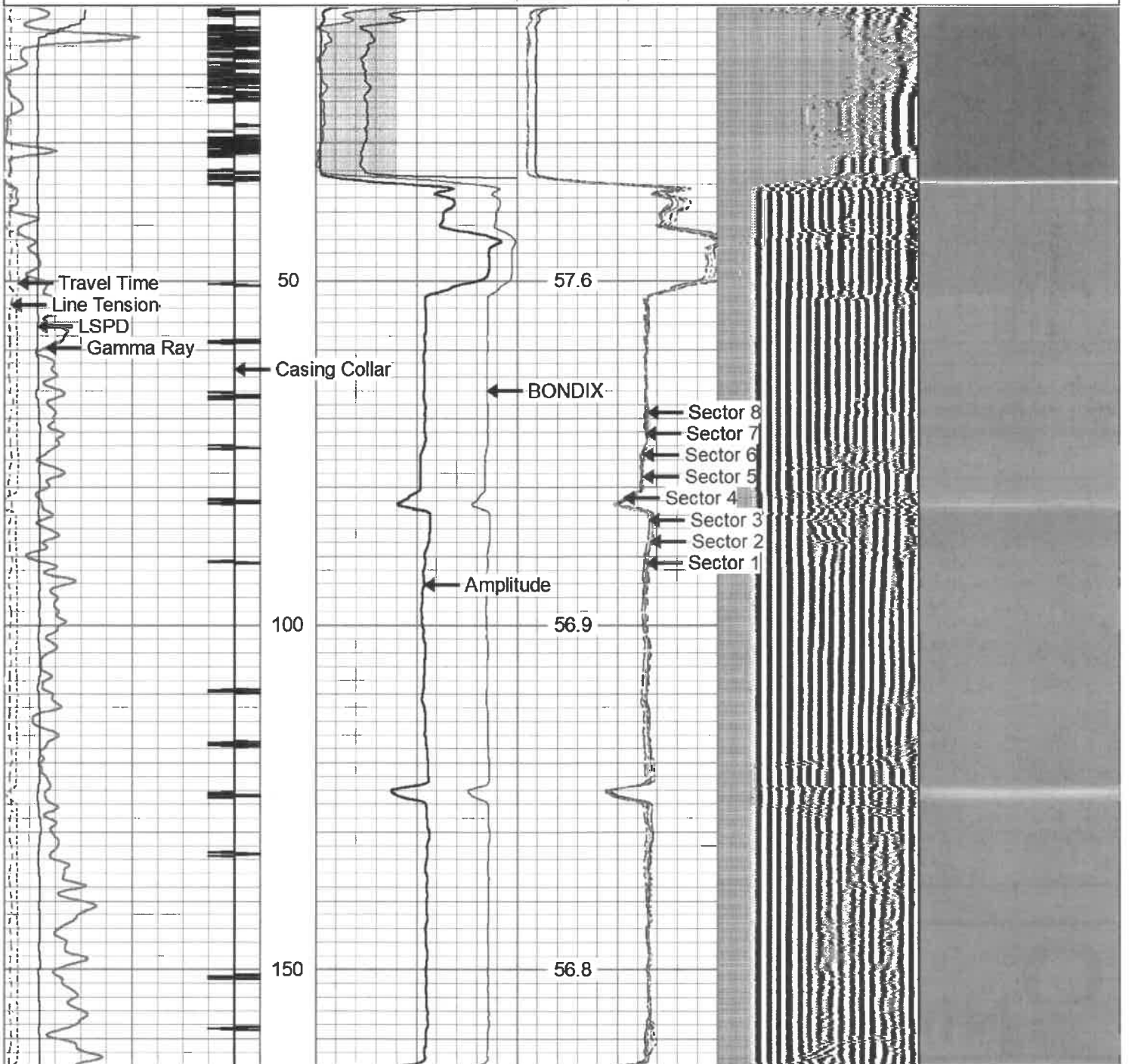


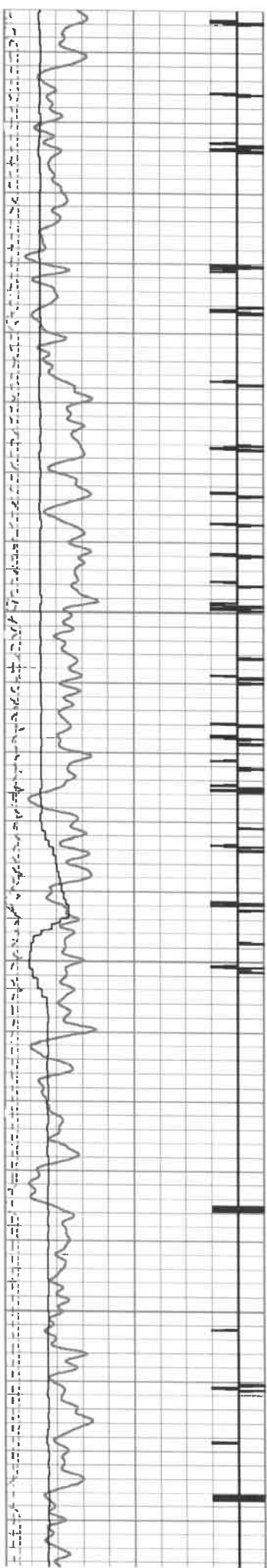
Main Pass 1500 psi

SM

Database File antero_fleetwood_2h_rcbl_july132021.db
 Dataset Pathname Marcellus/Fleetwood_2H/RCBL_1/pass4.3
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Tue Jul 13 21:10:57 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	(usec)	1200		
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)					



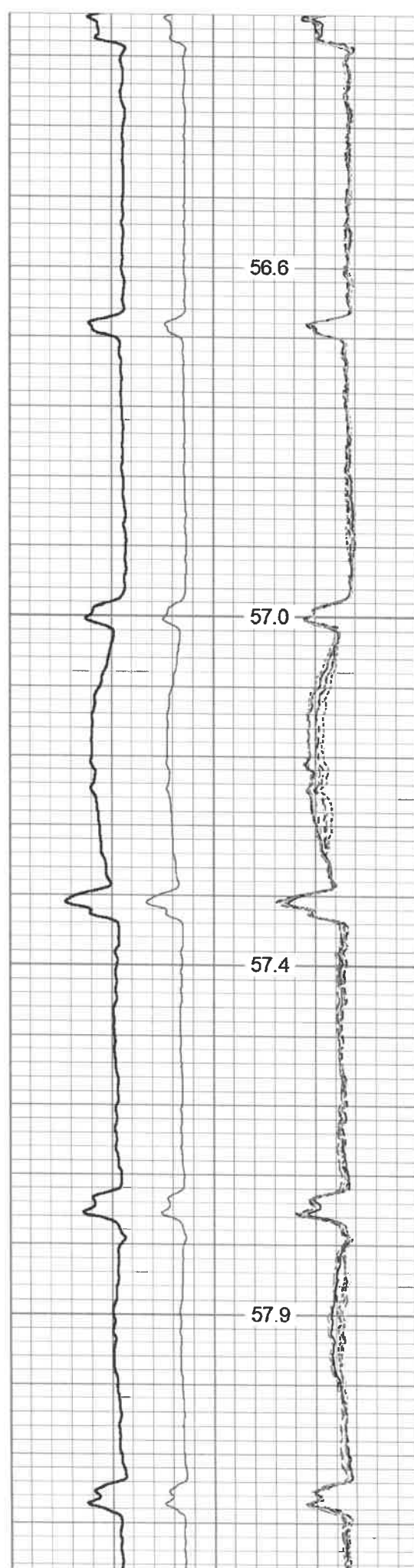


200

250

300

350

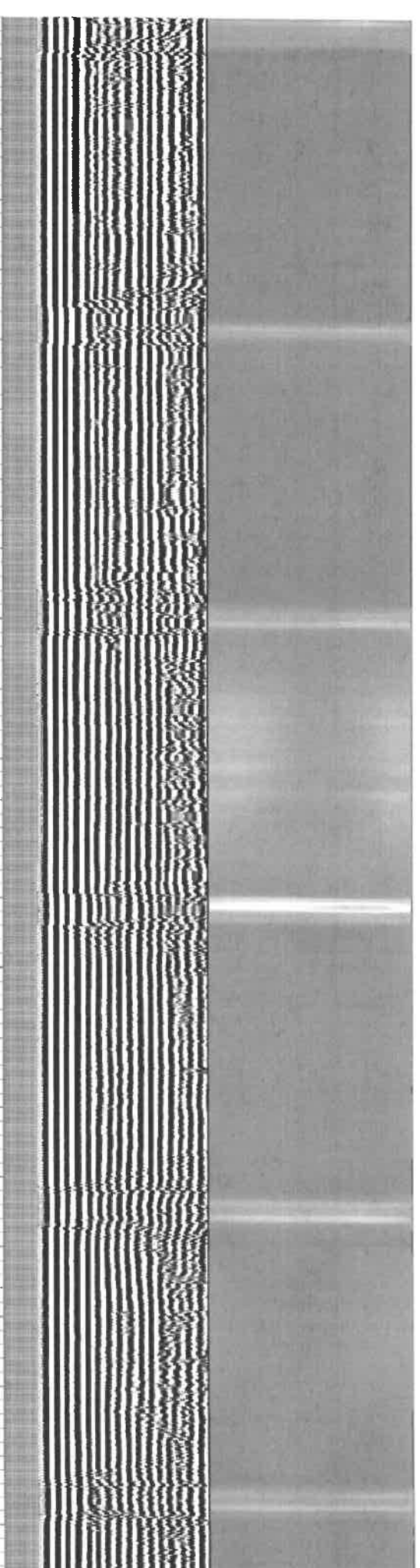


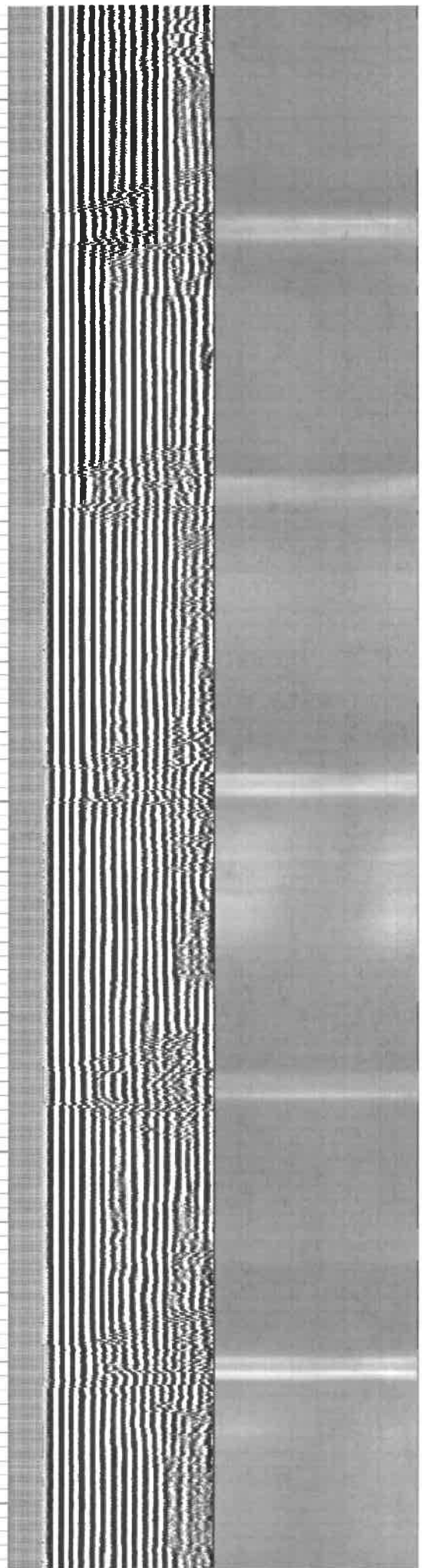
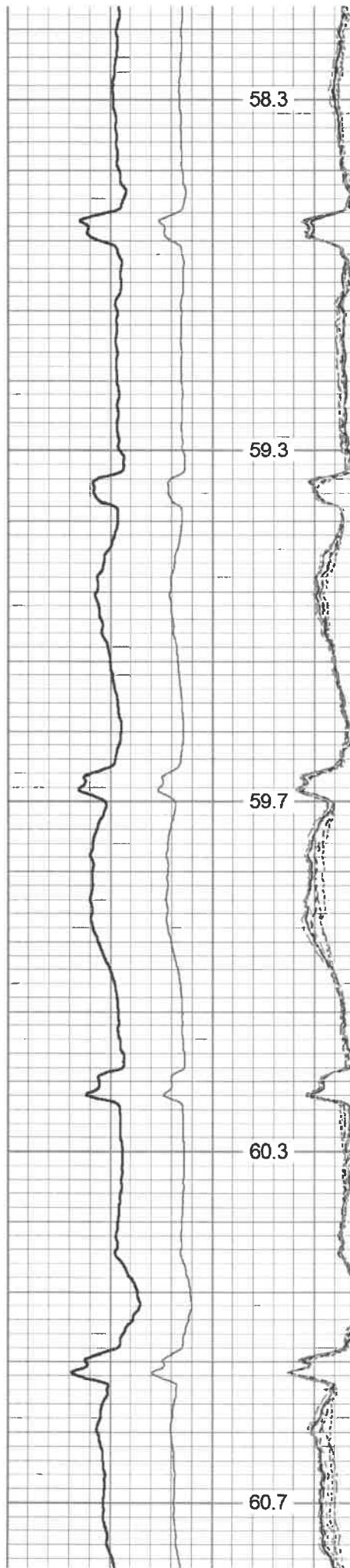
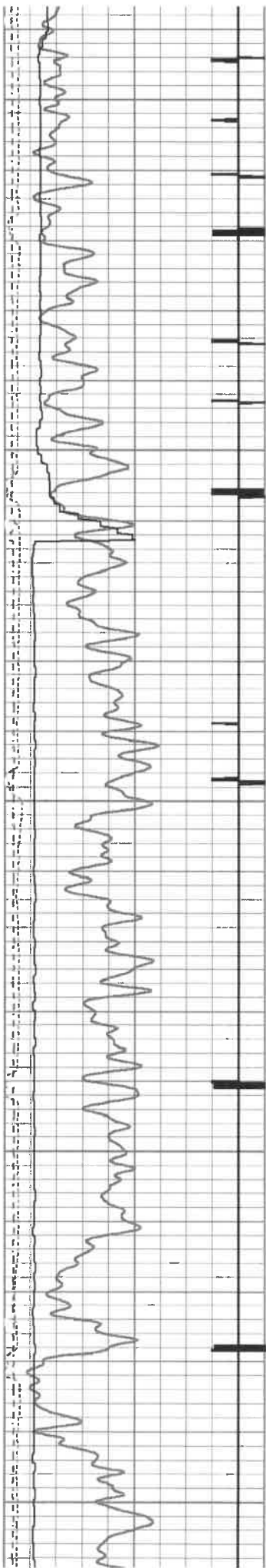
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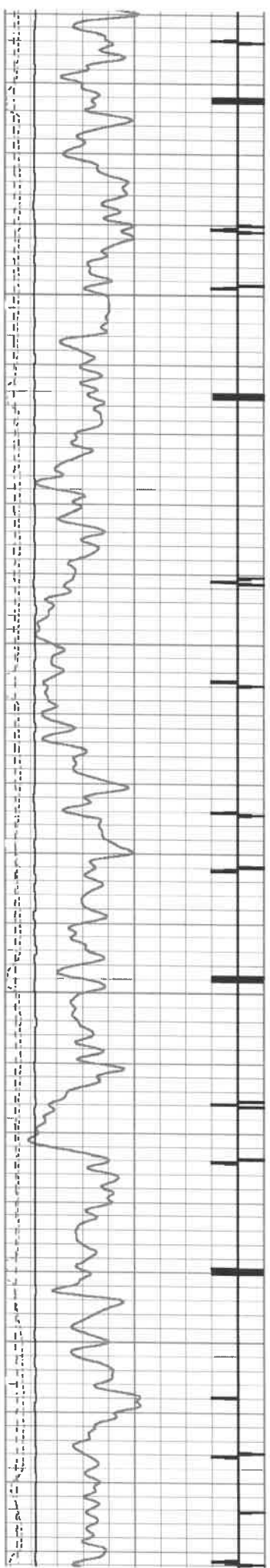
57.0

57.4

57.9





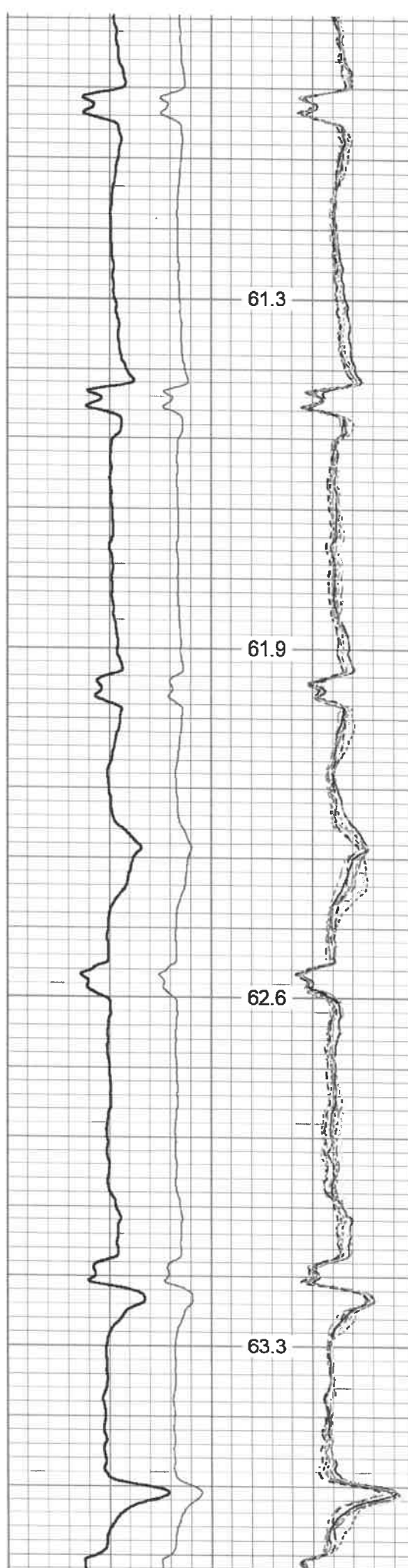


650

700

750

800

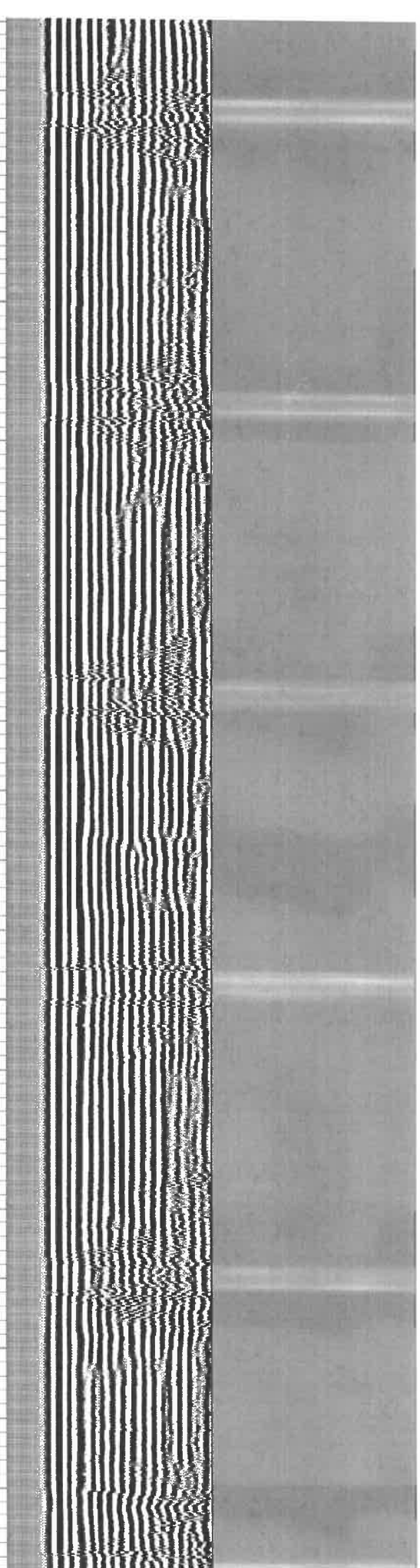


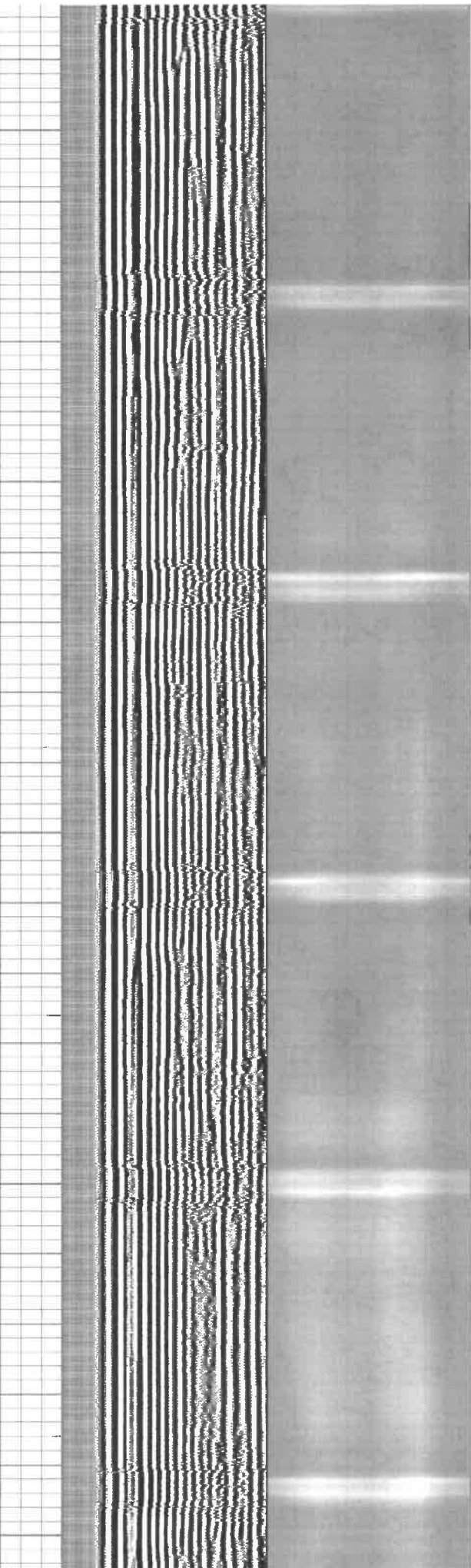
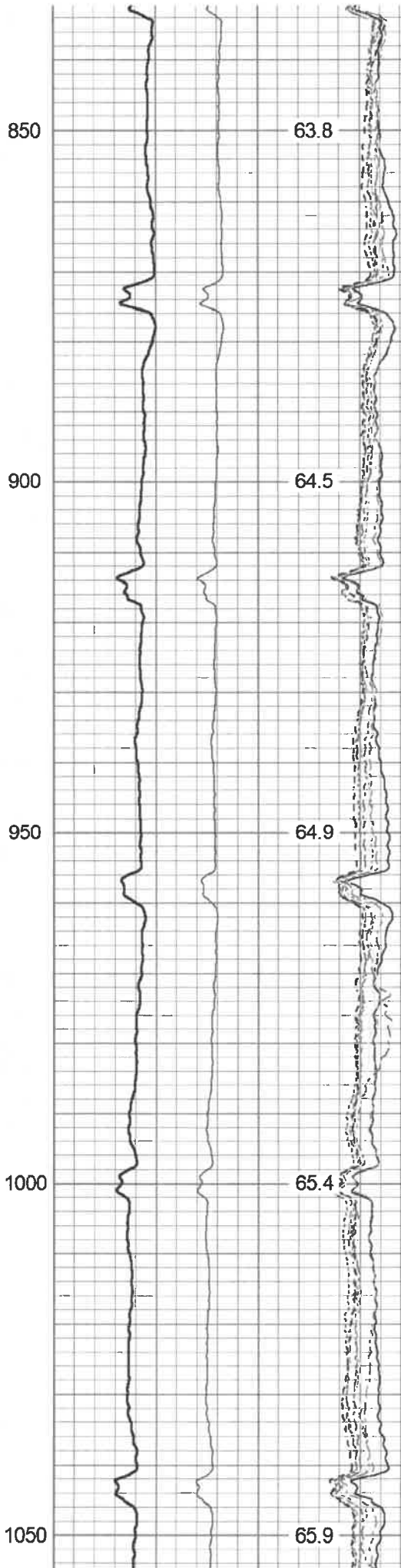
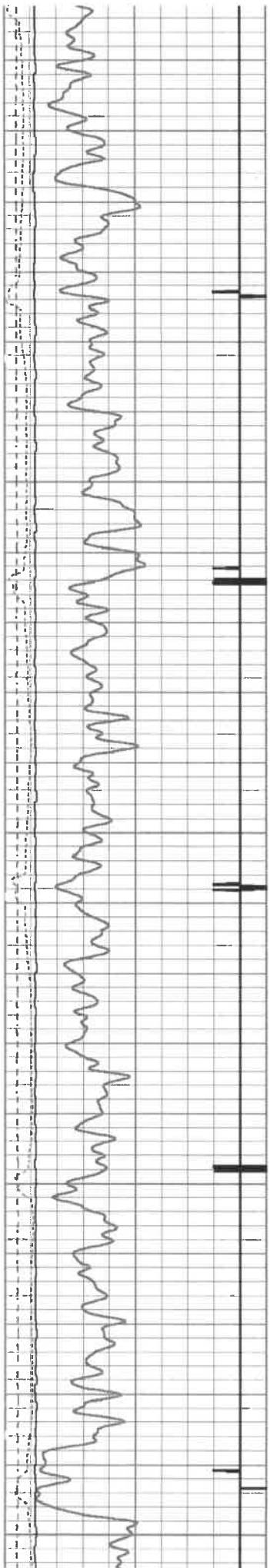
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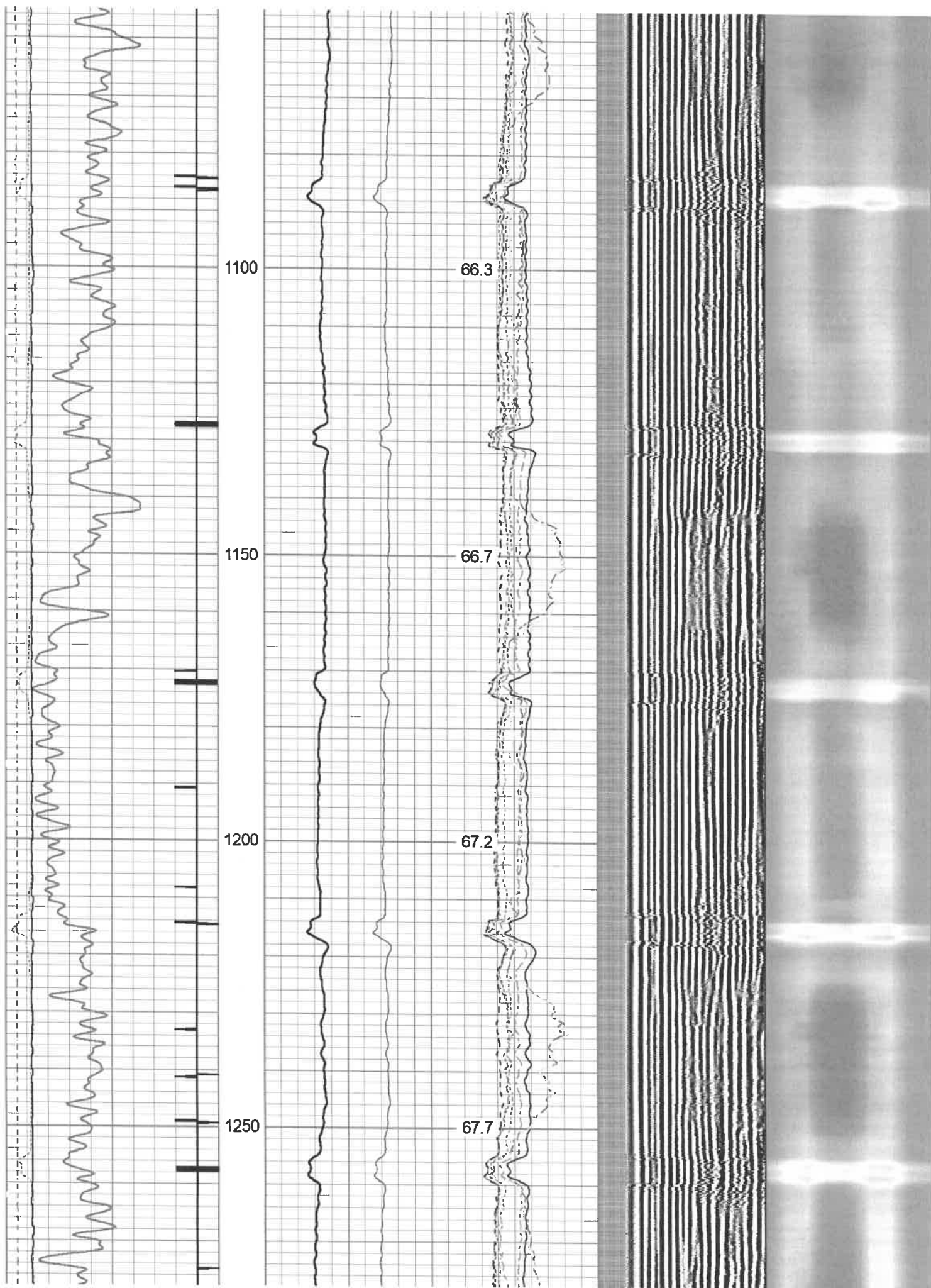
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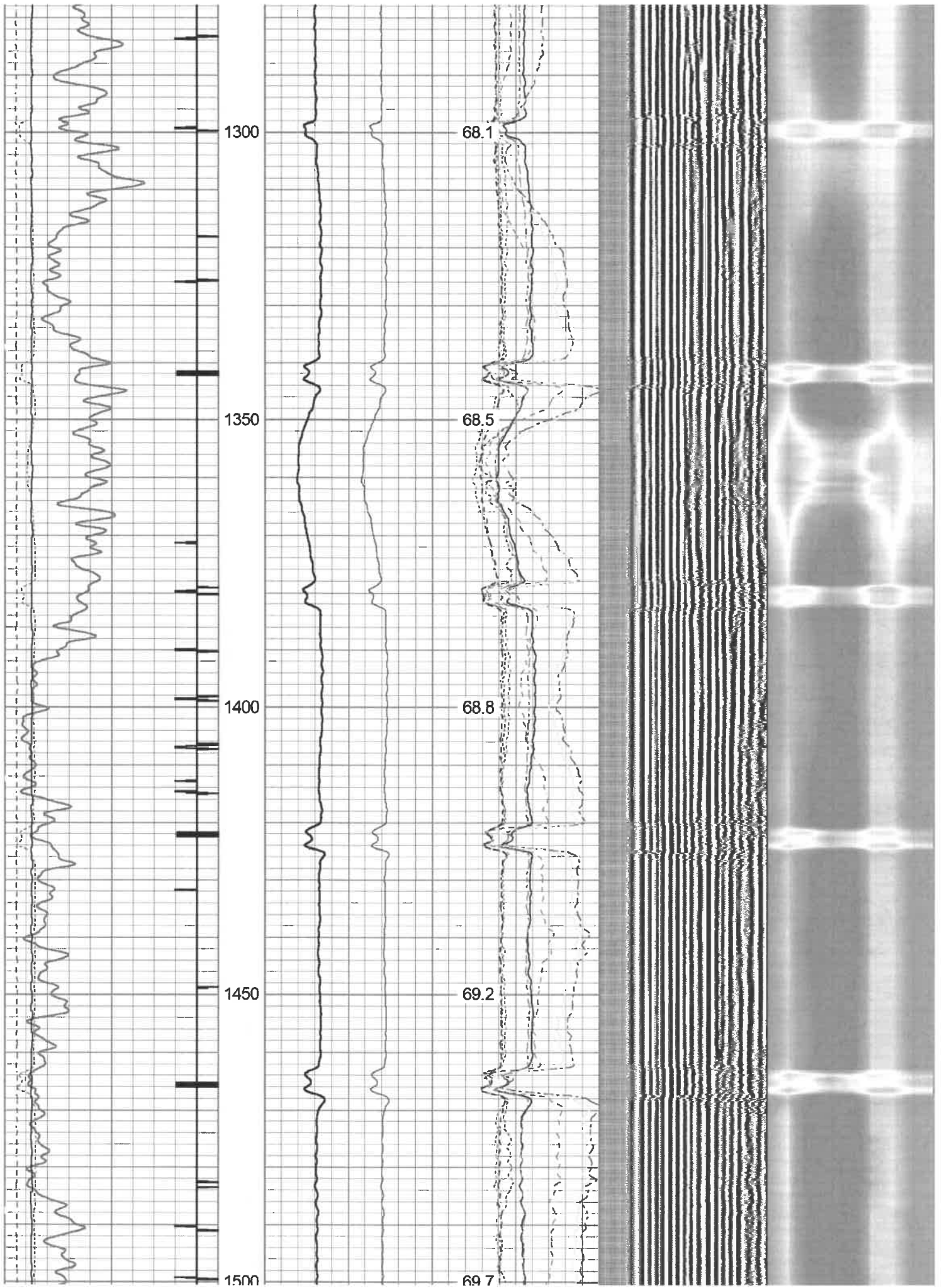
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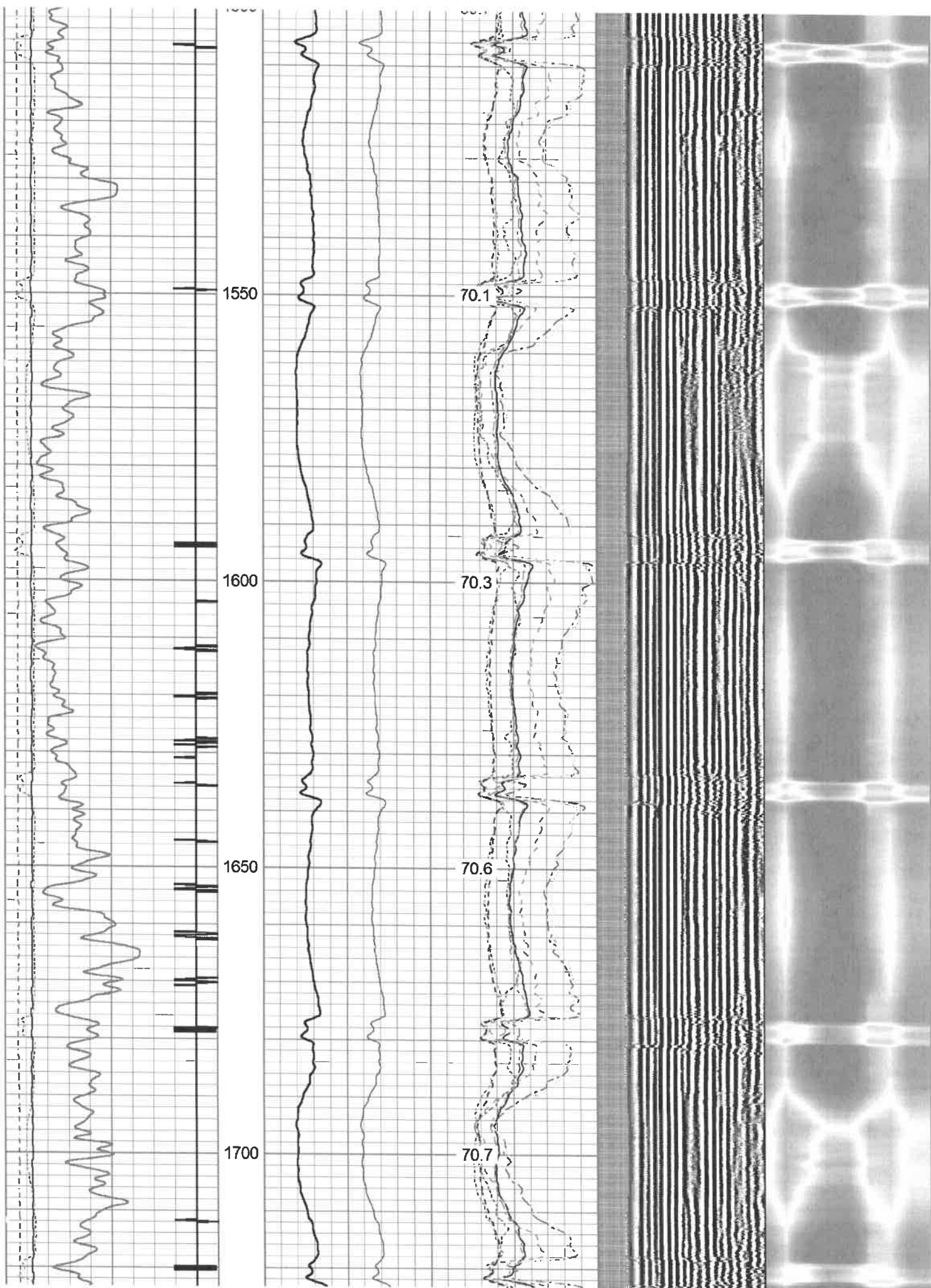
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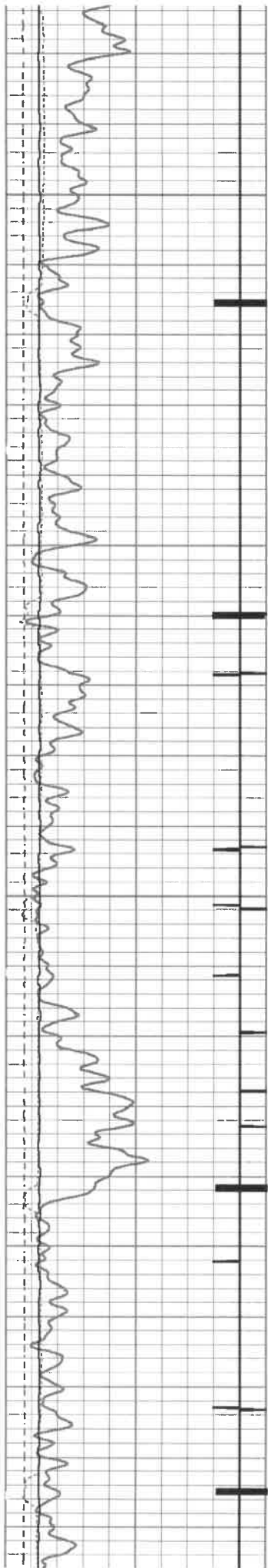










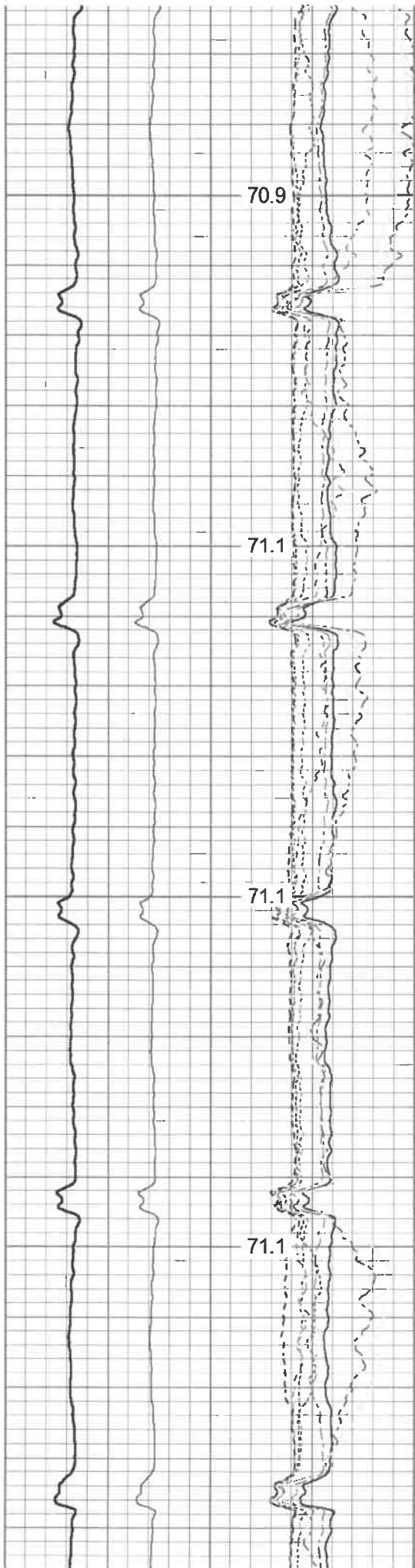


1750

1800

1850

1900

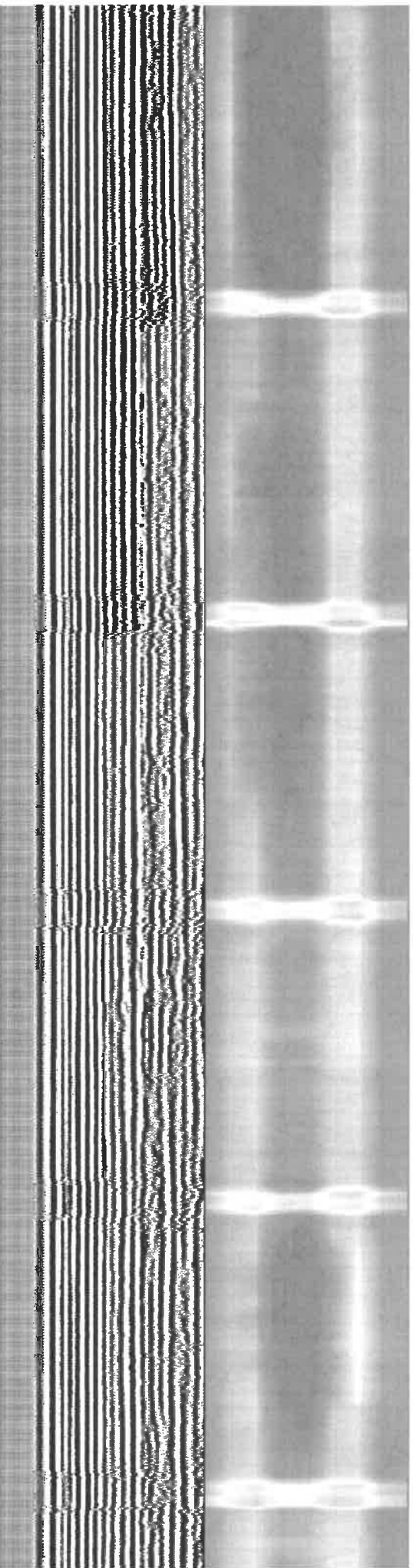


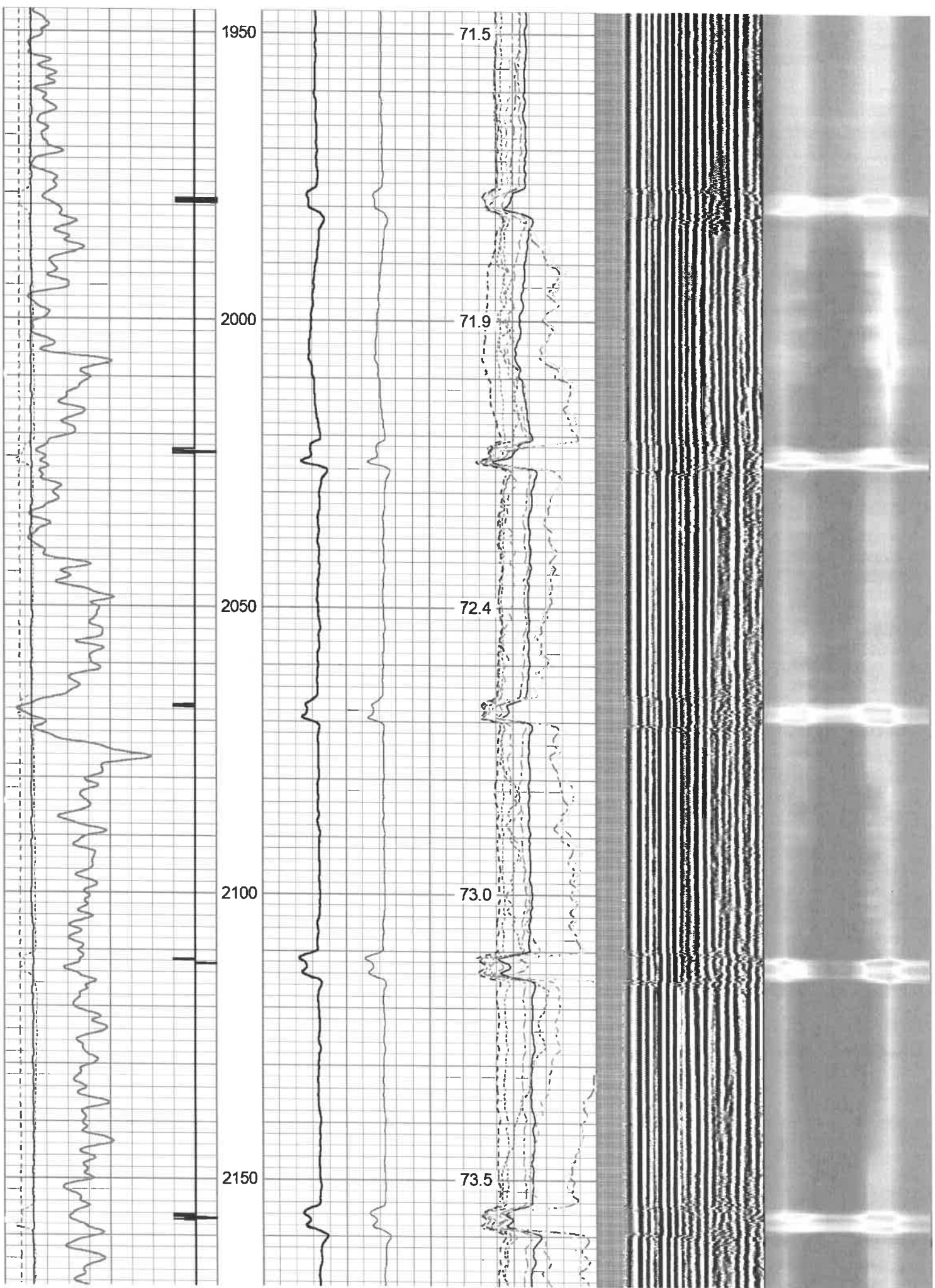
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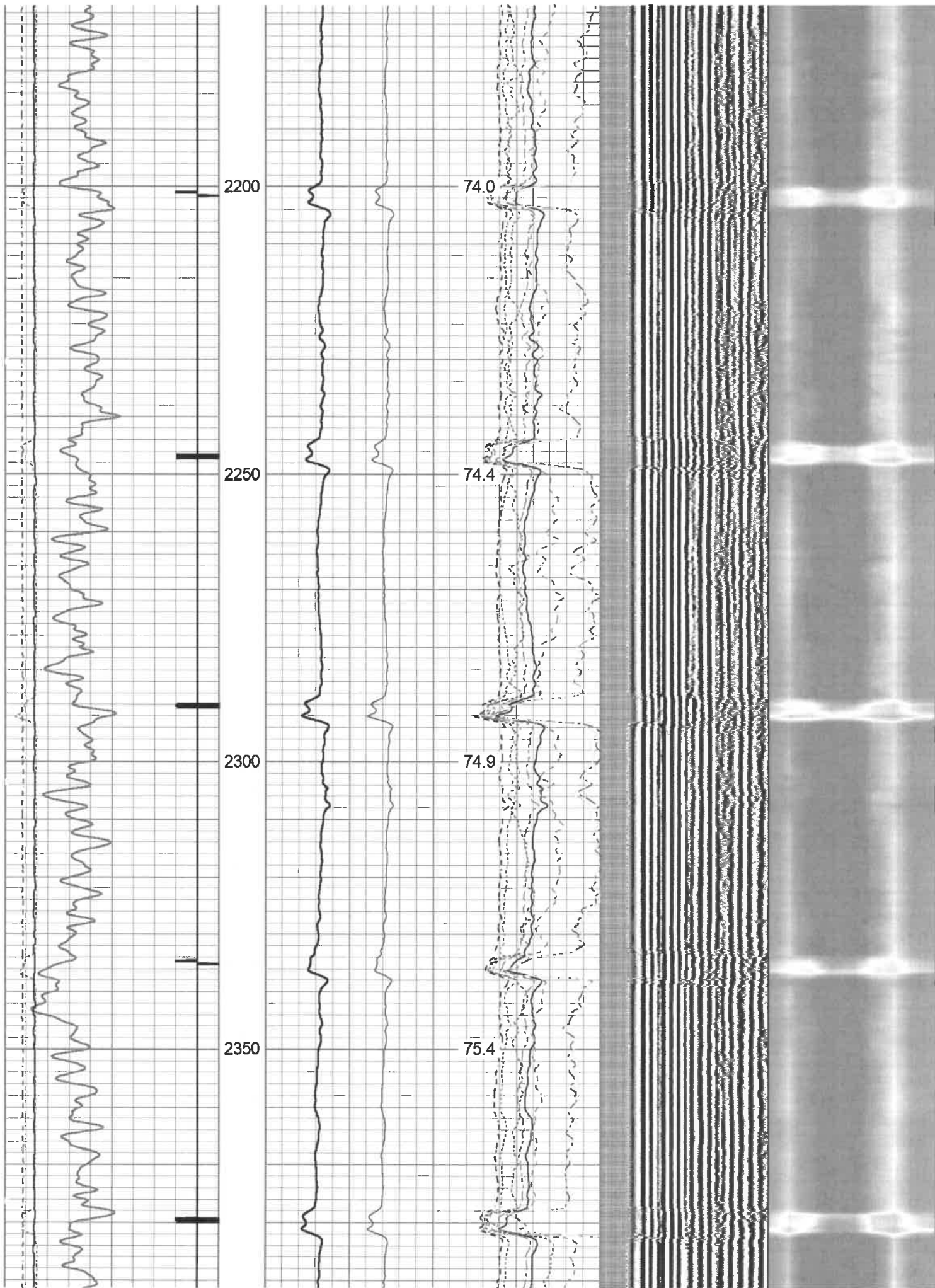
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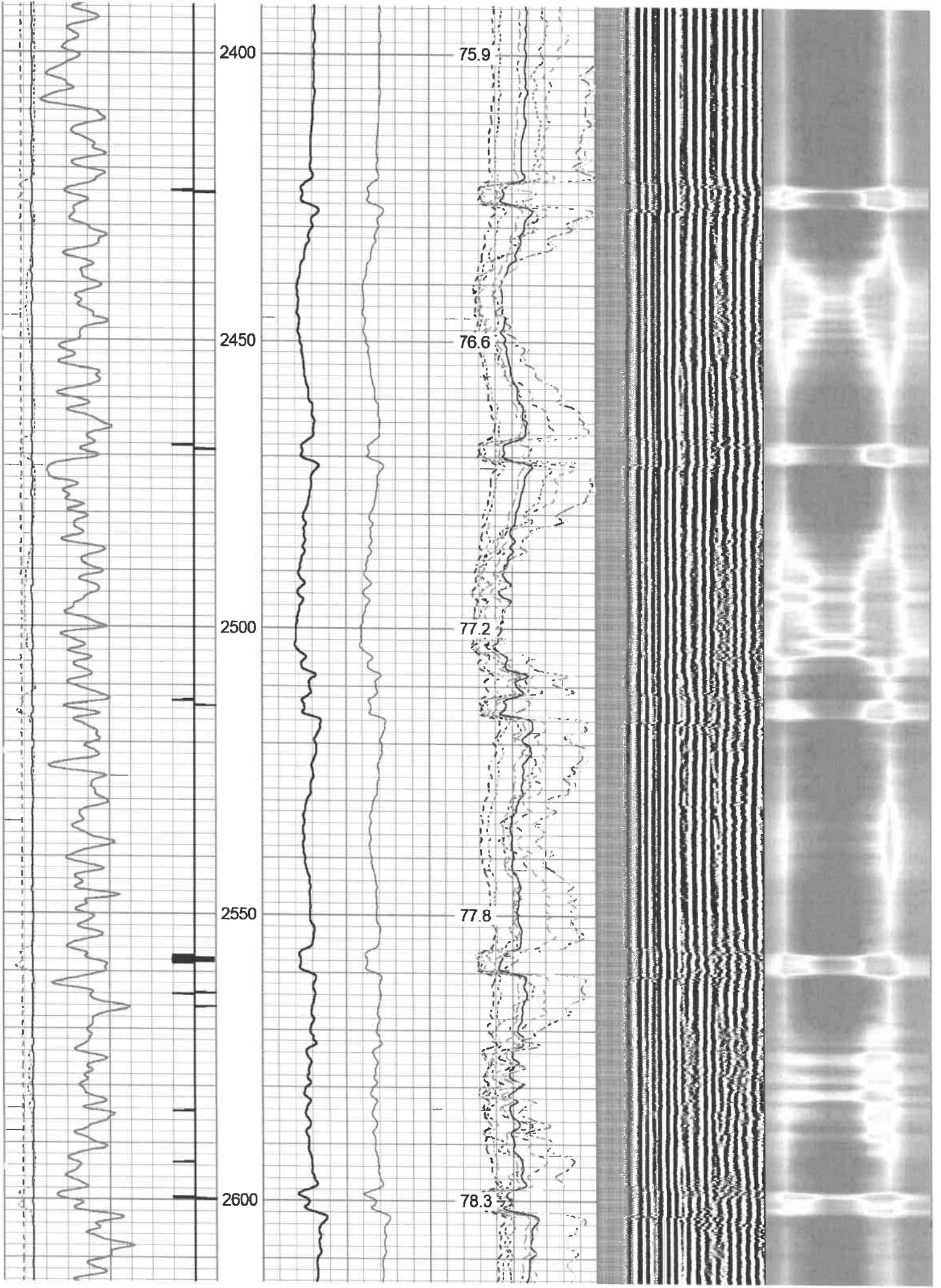
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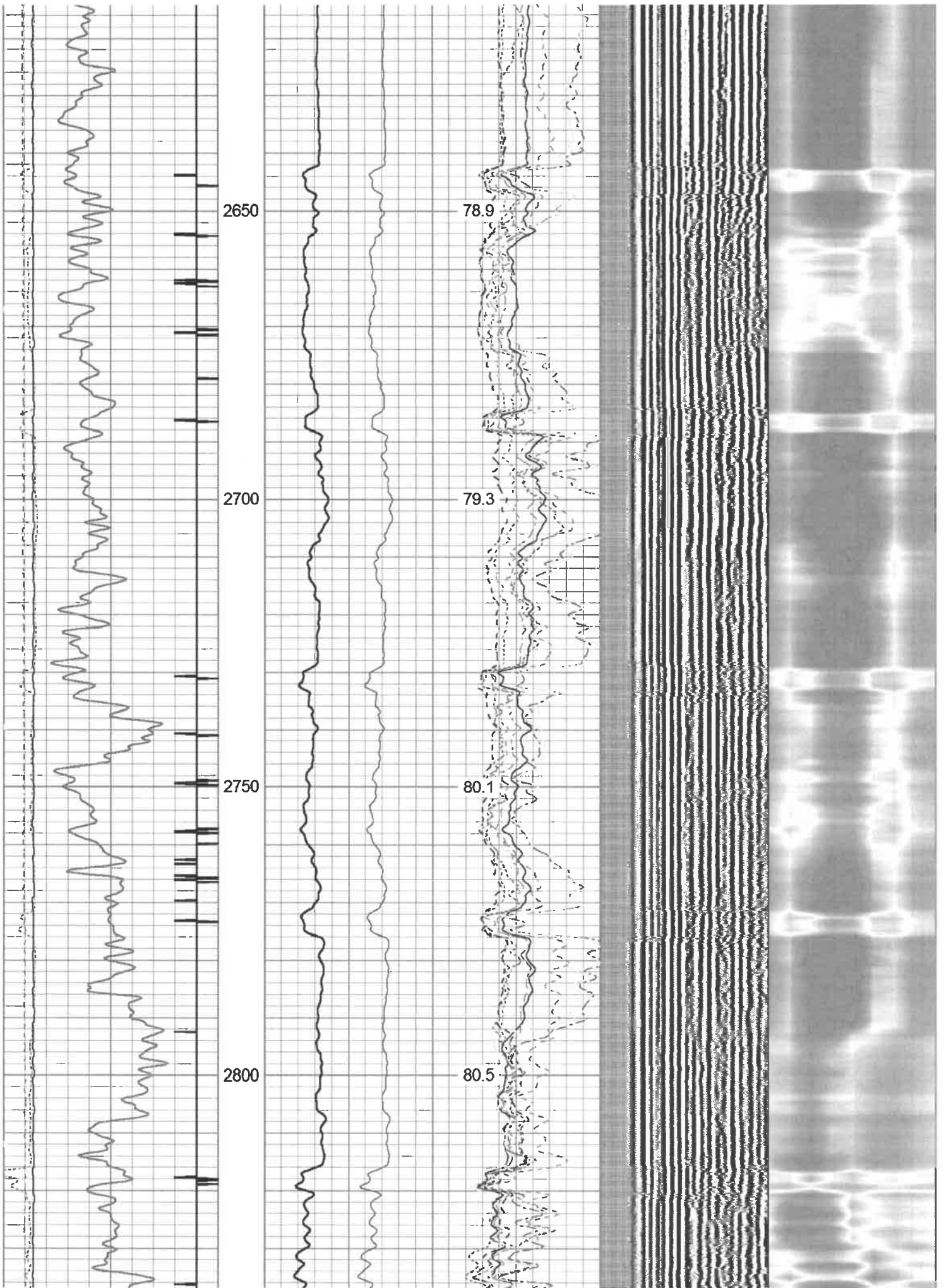
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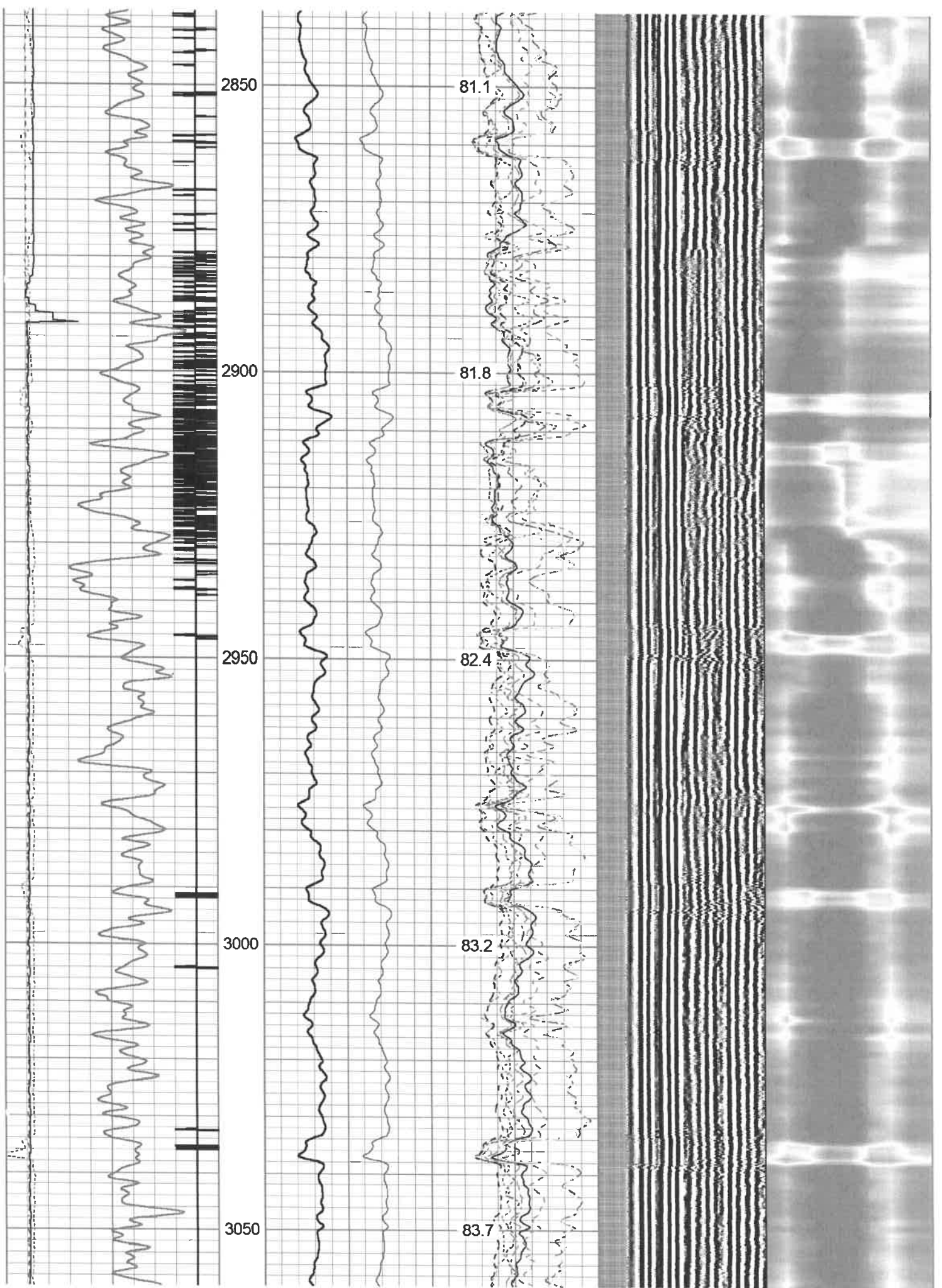


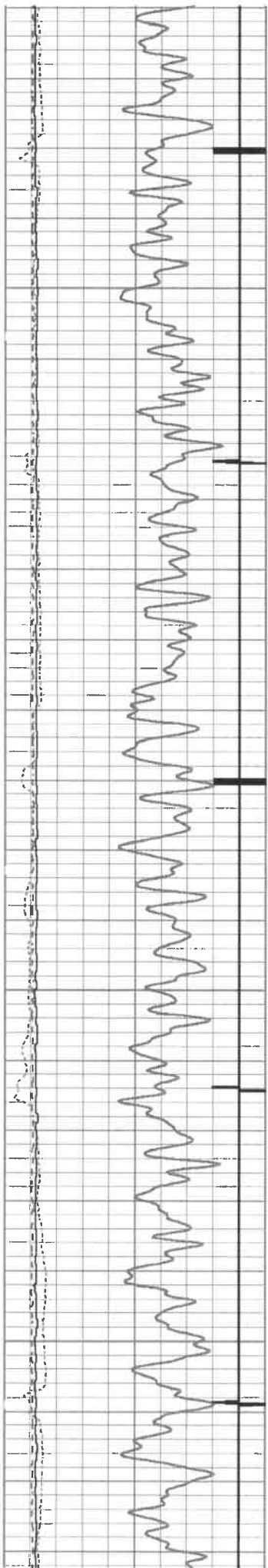










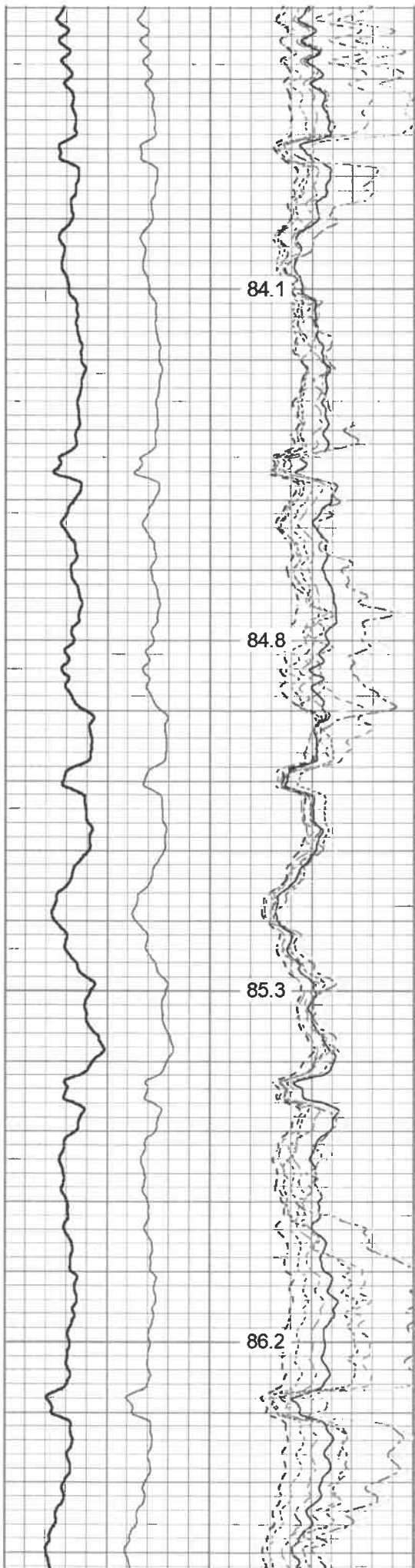


3100

3150

3200

3250

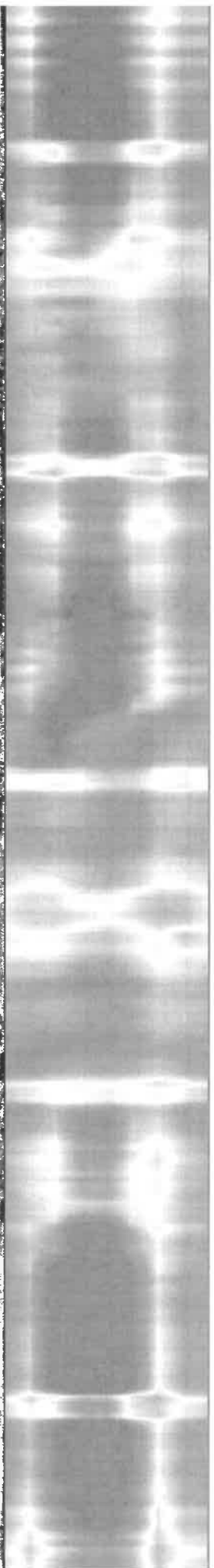
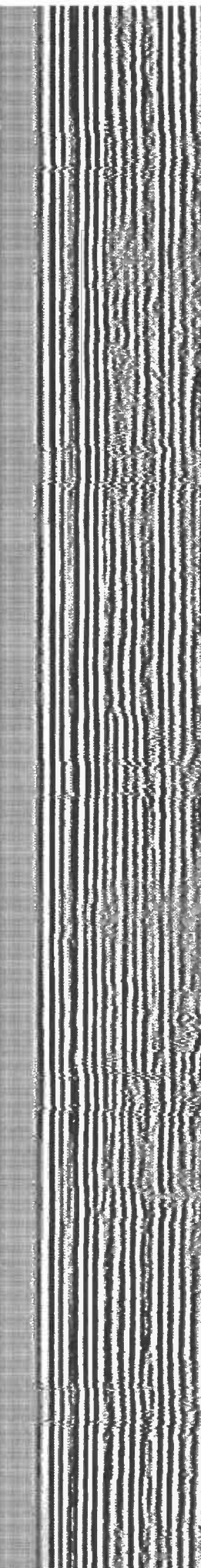


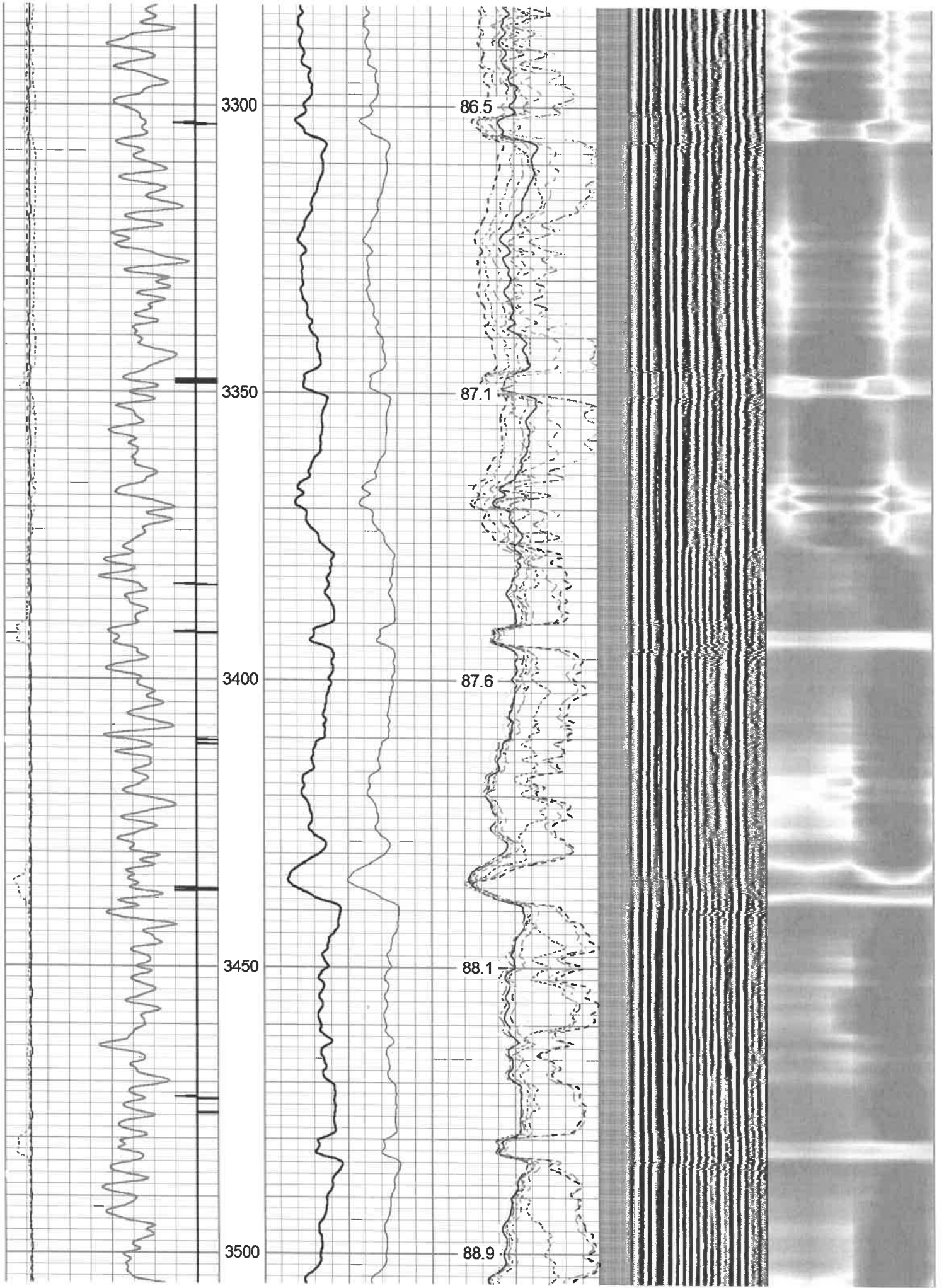
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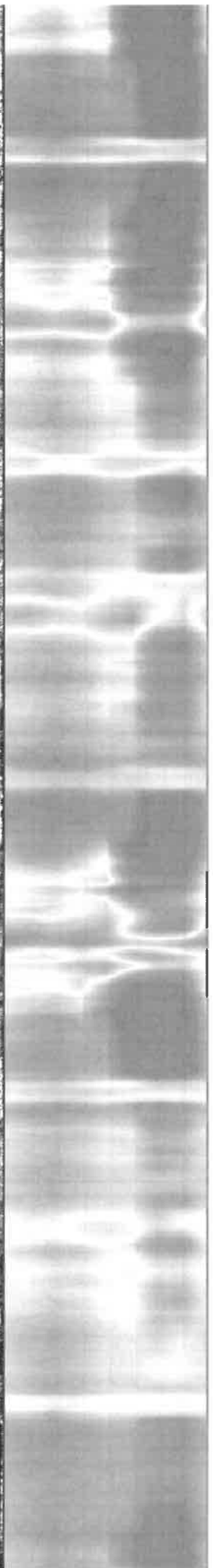
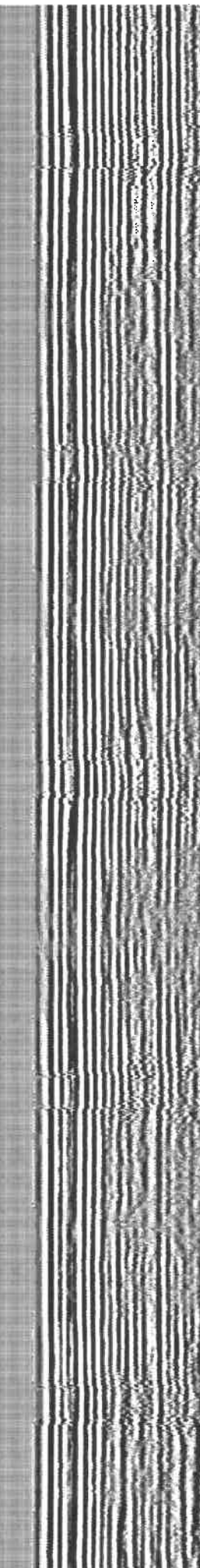
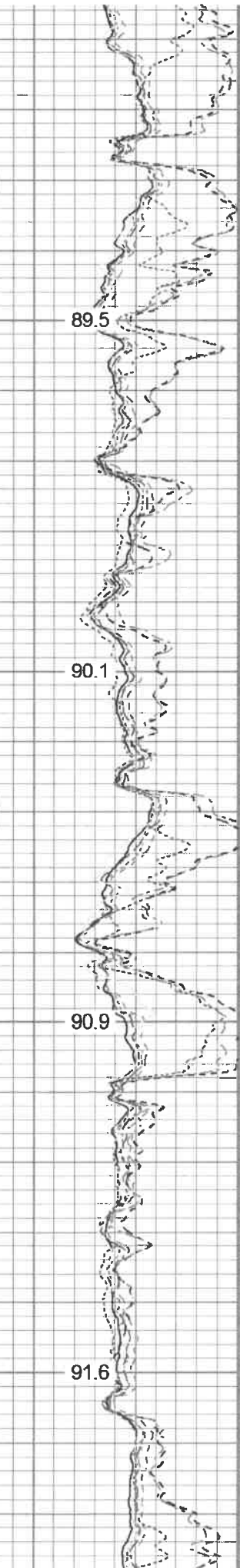
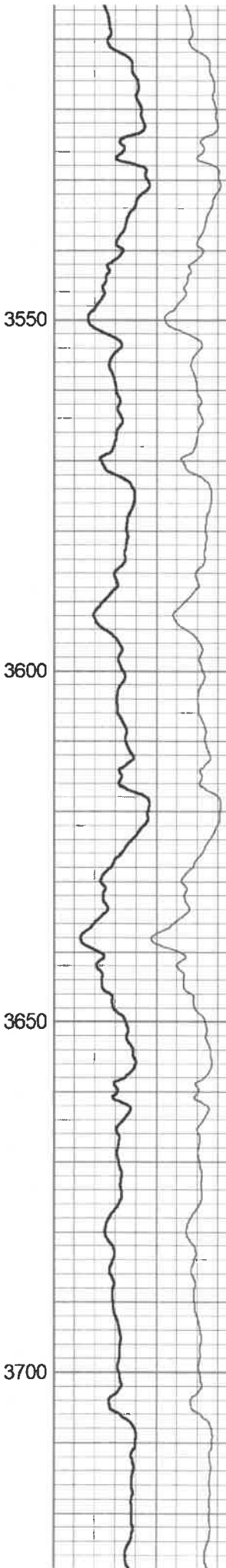
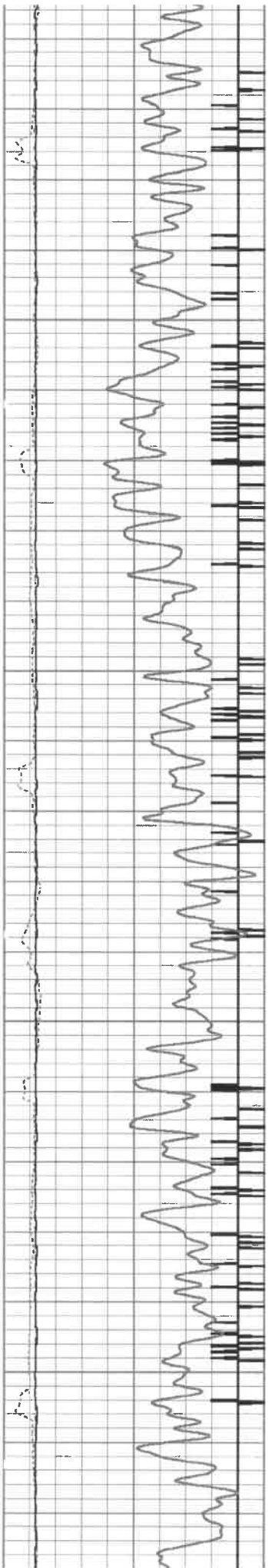
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85.3

86.2







89.5

90.1

90.9

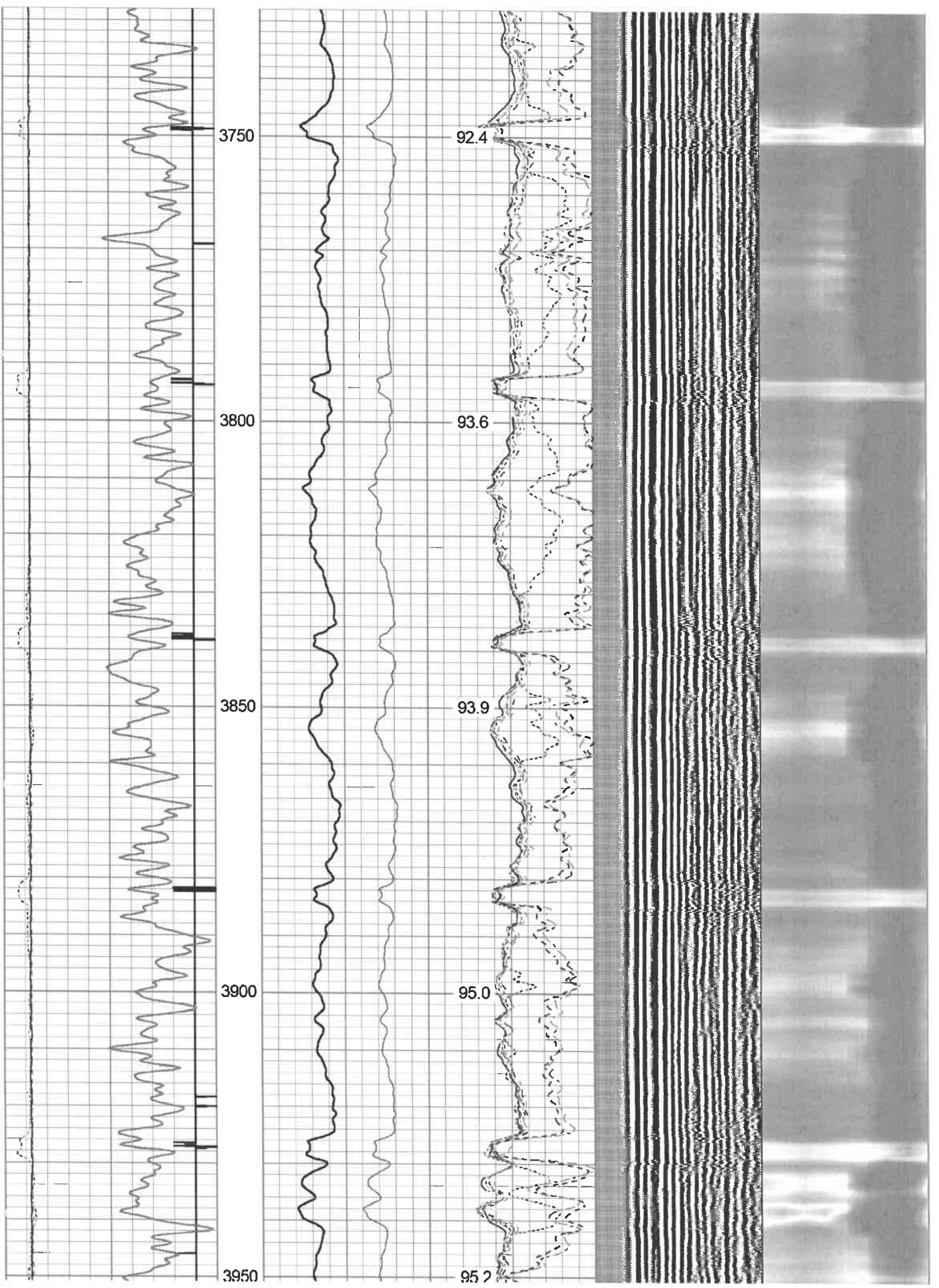
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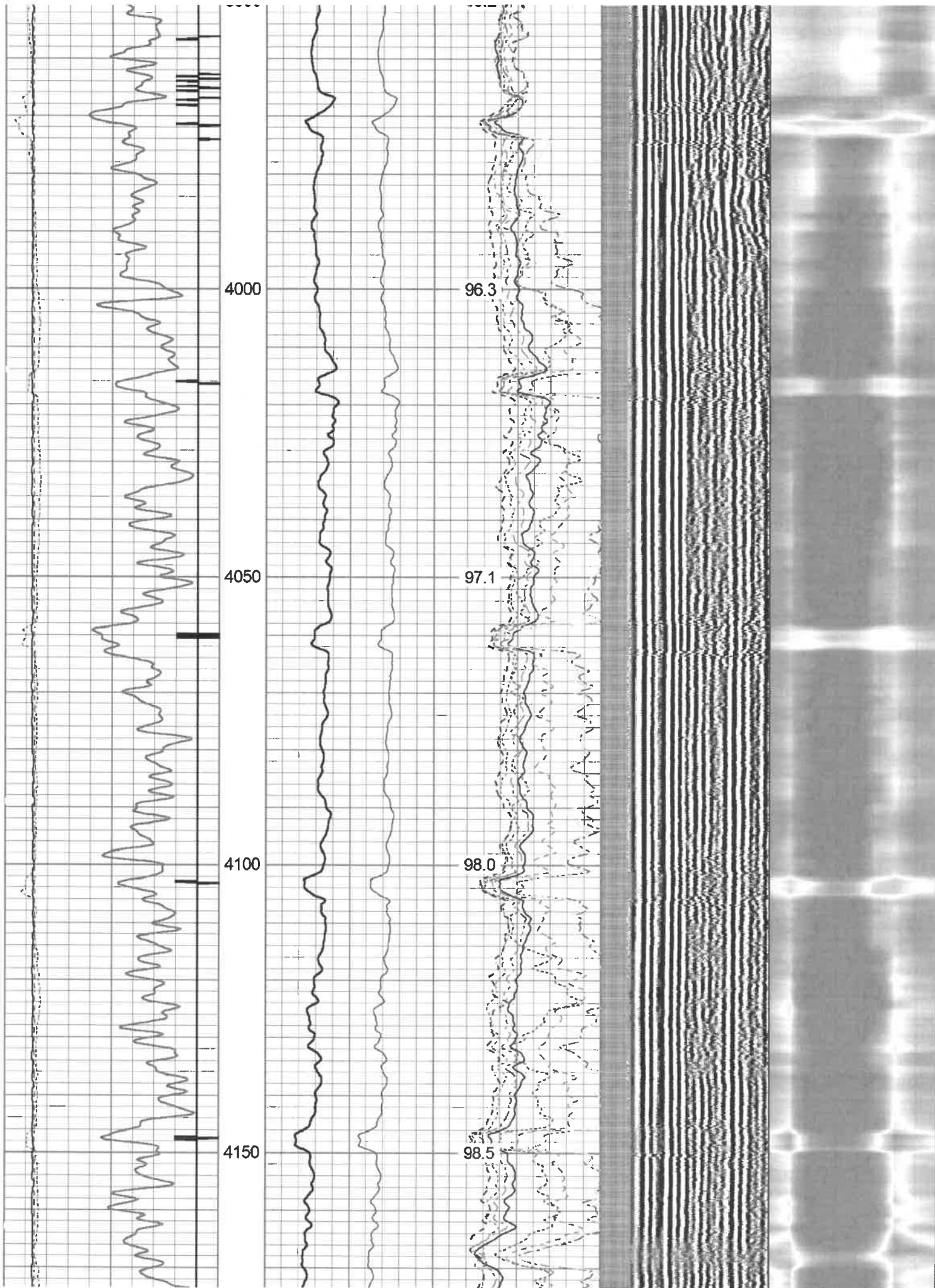
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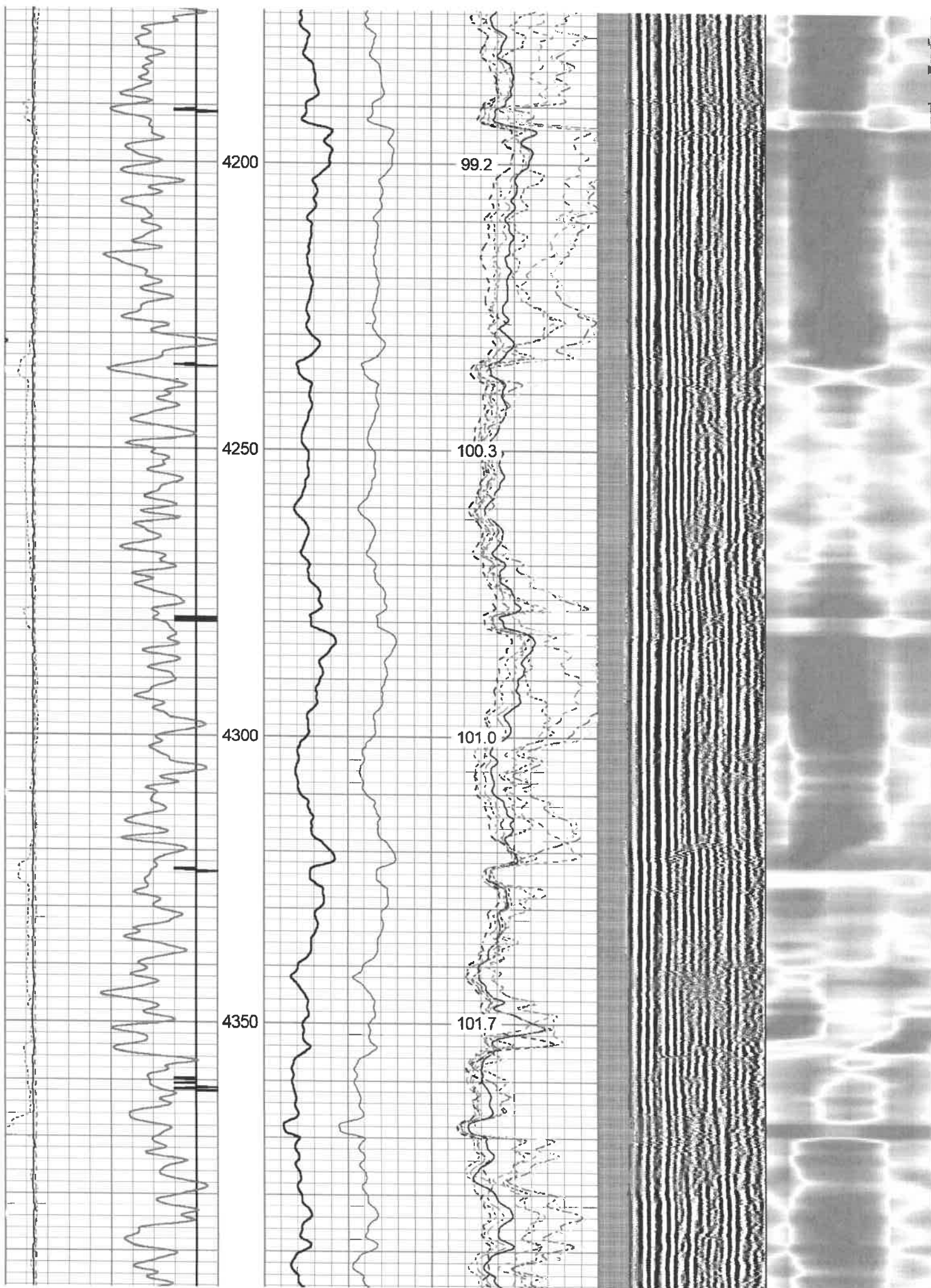
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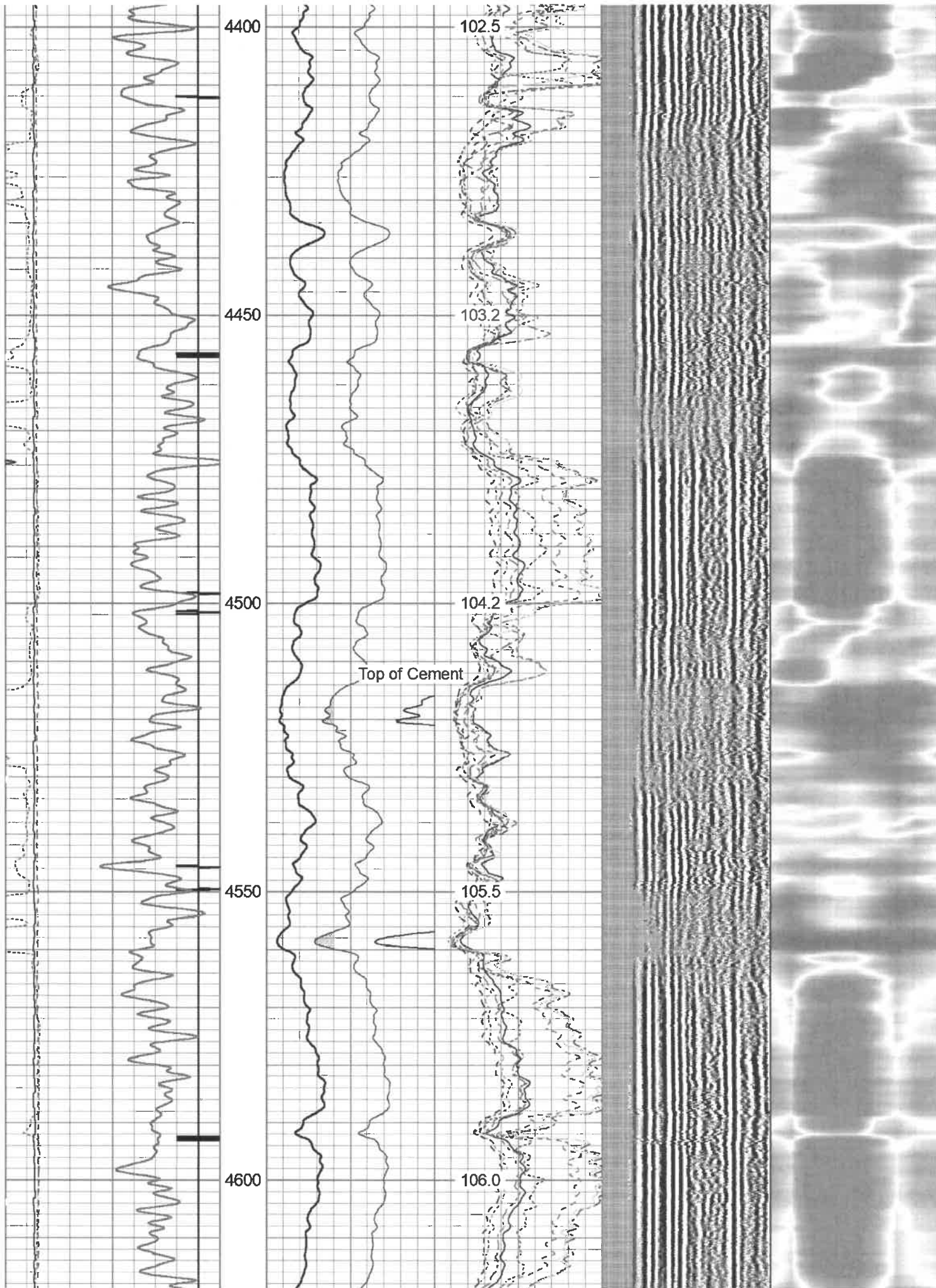
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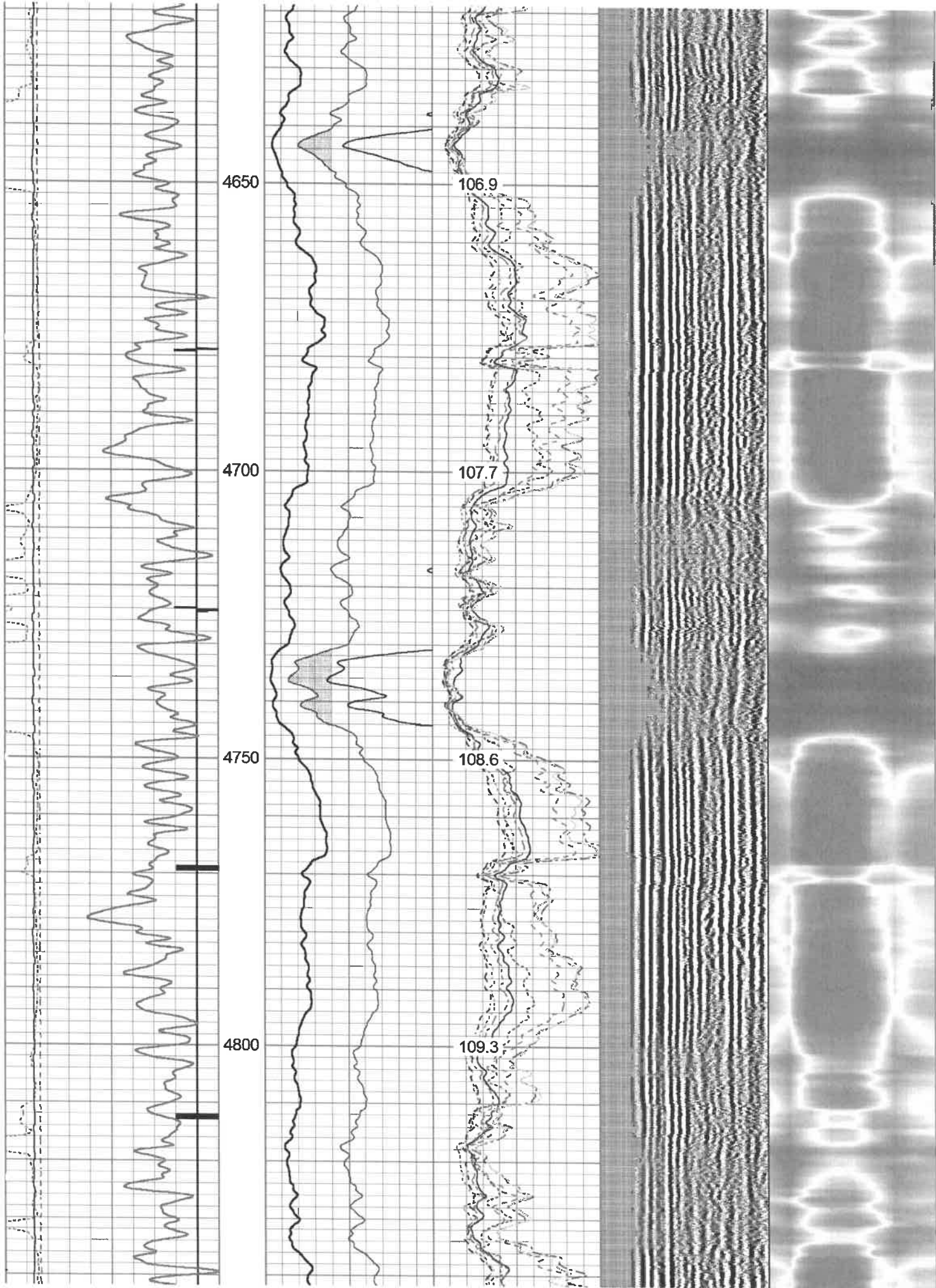
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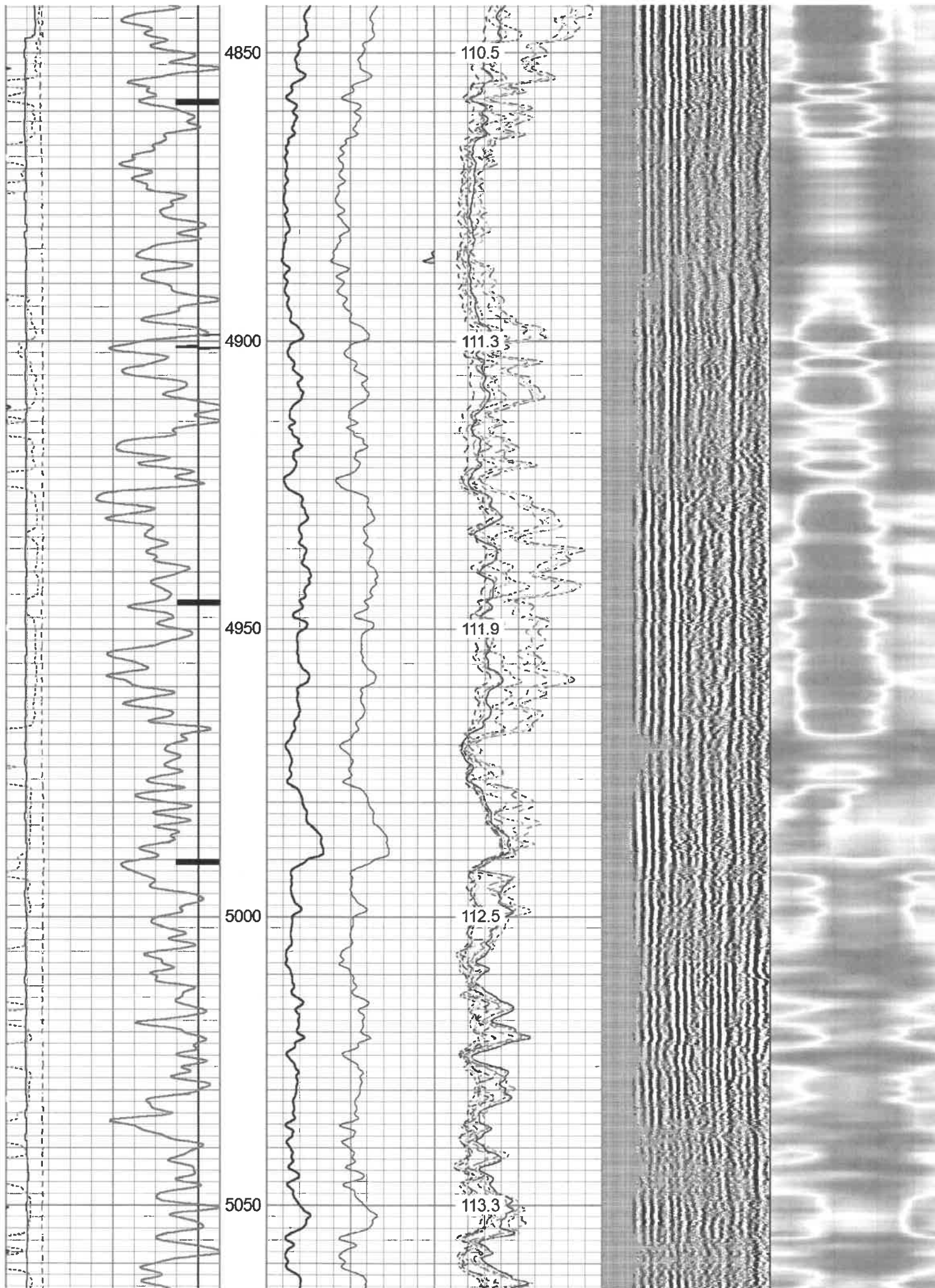


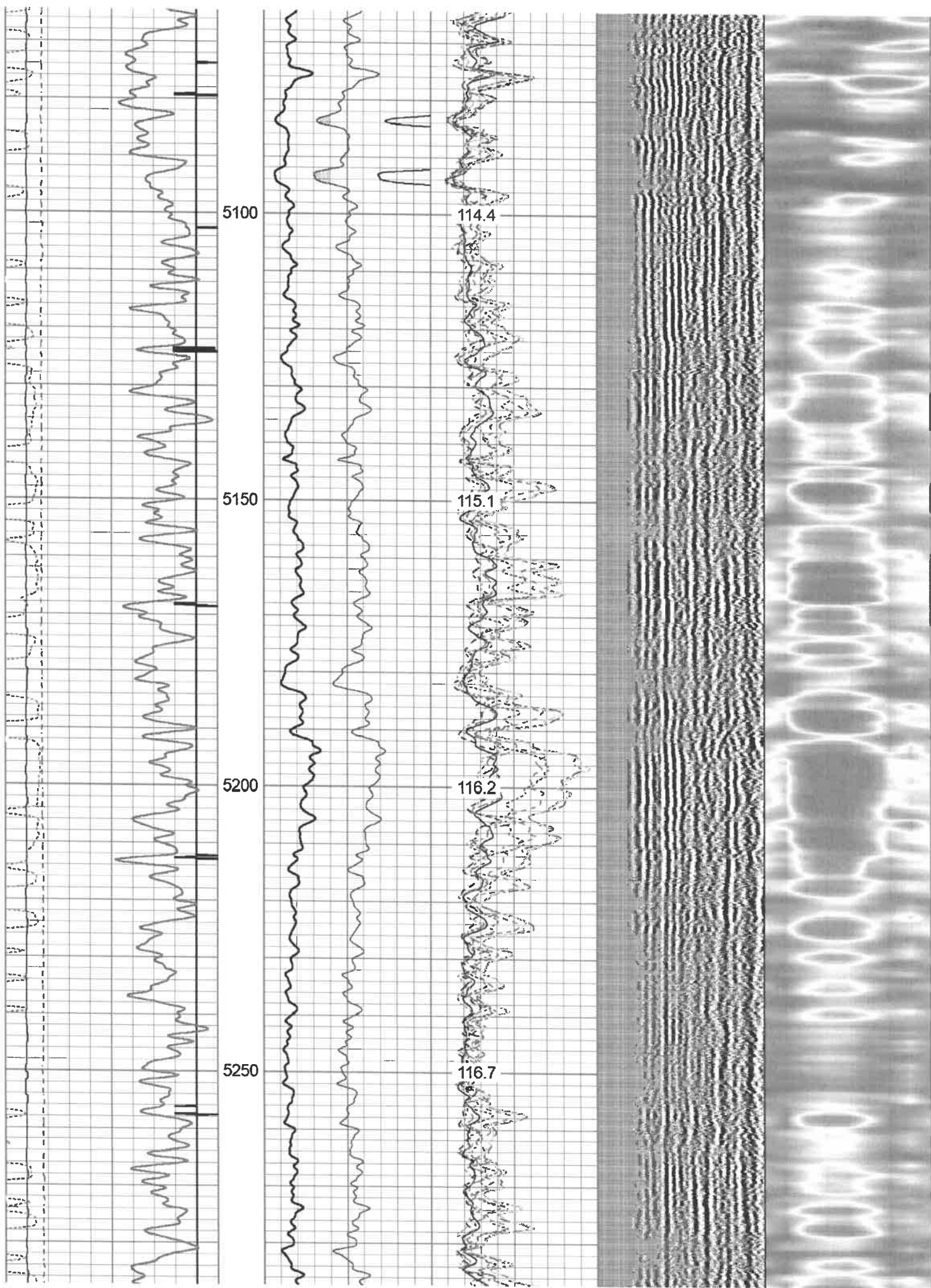


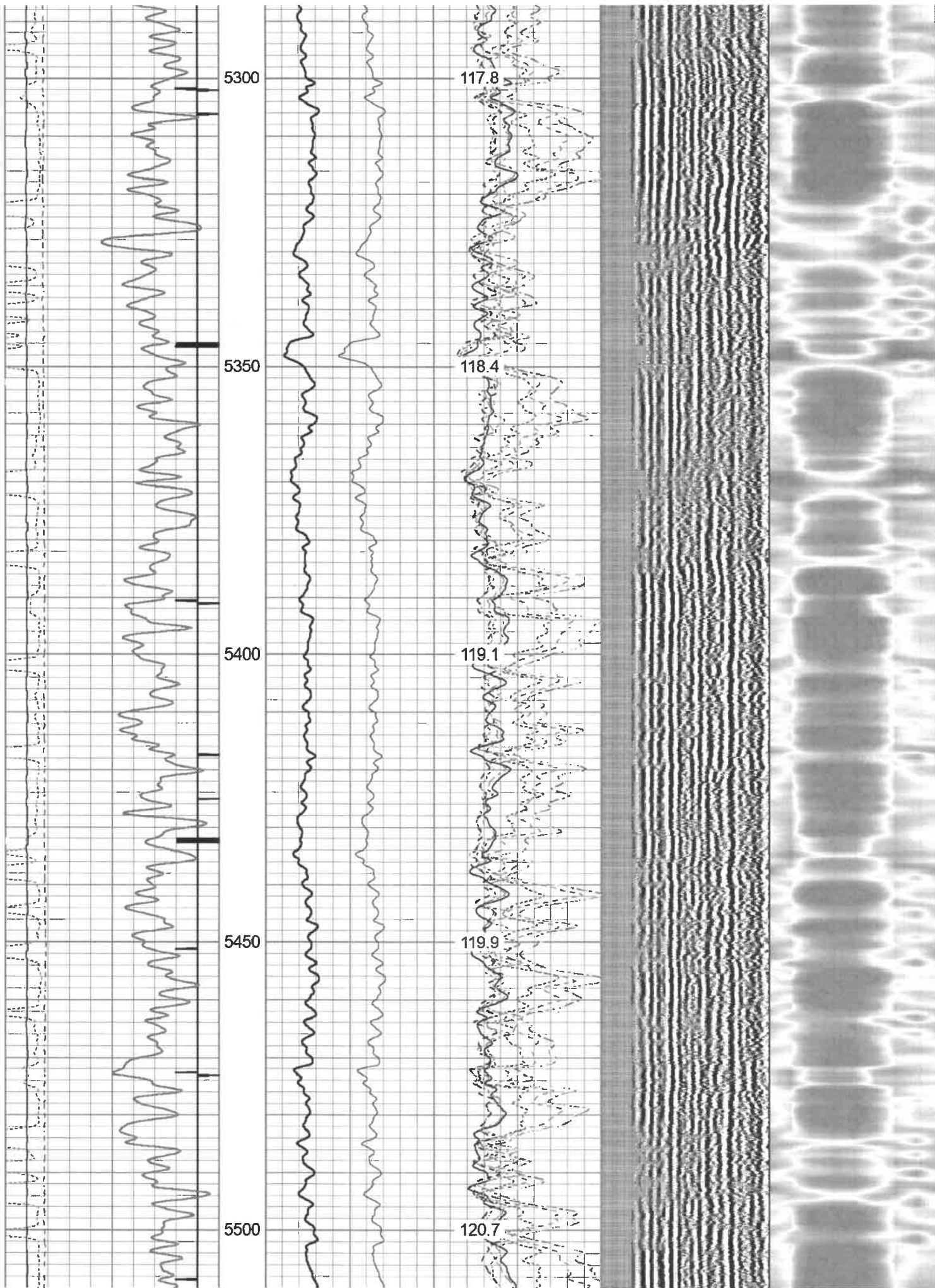


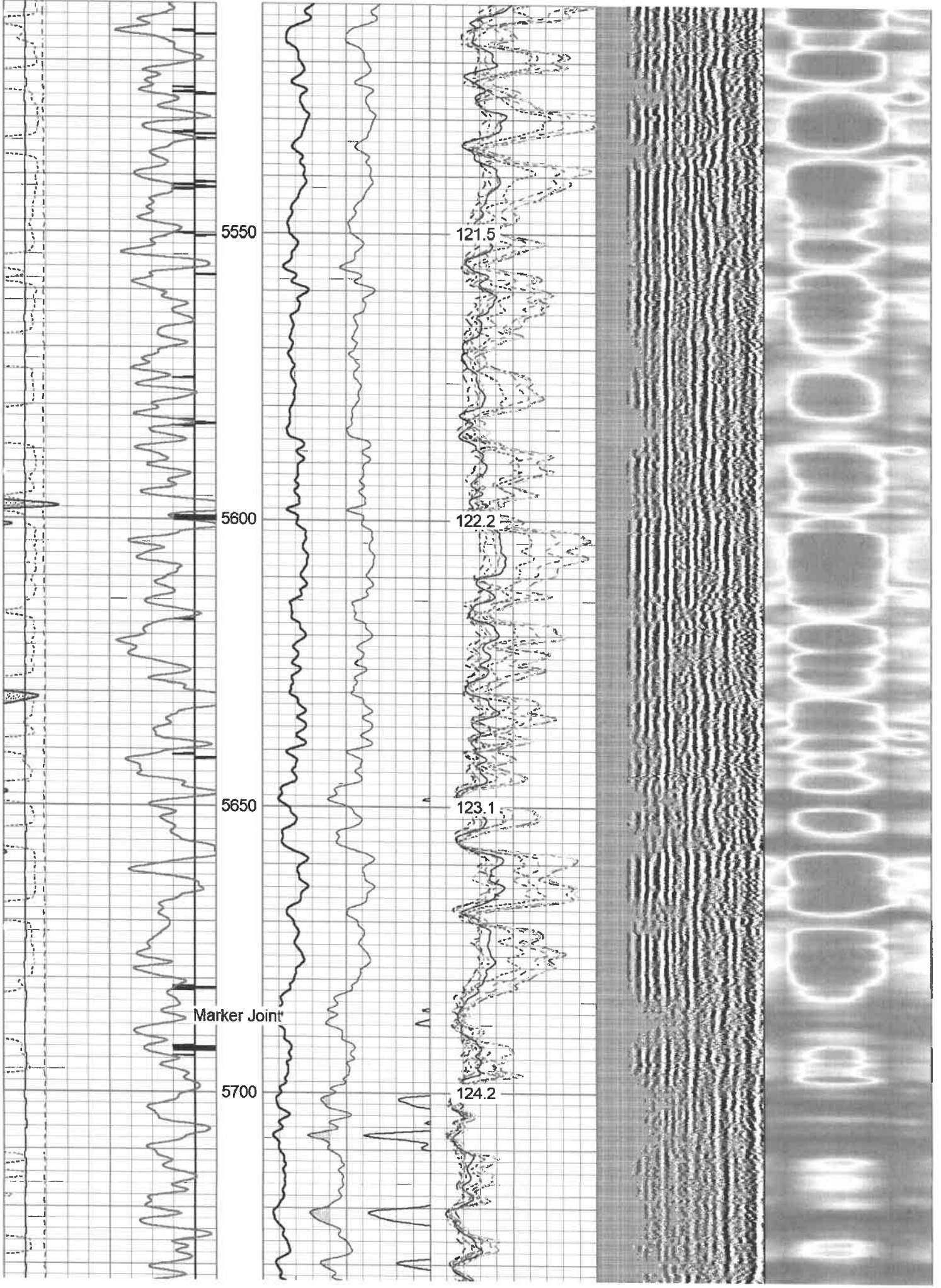


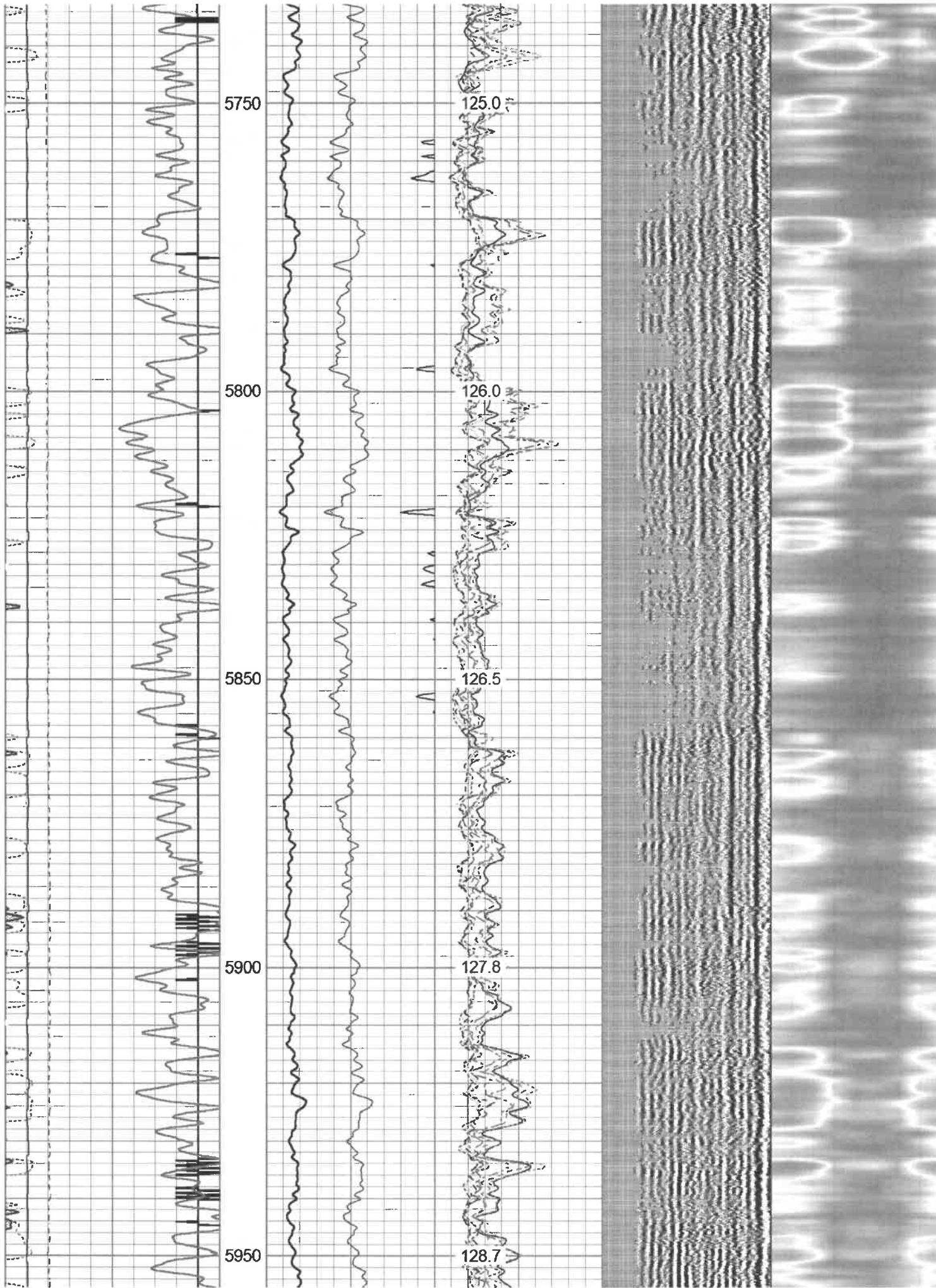


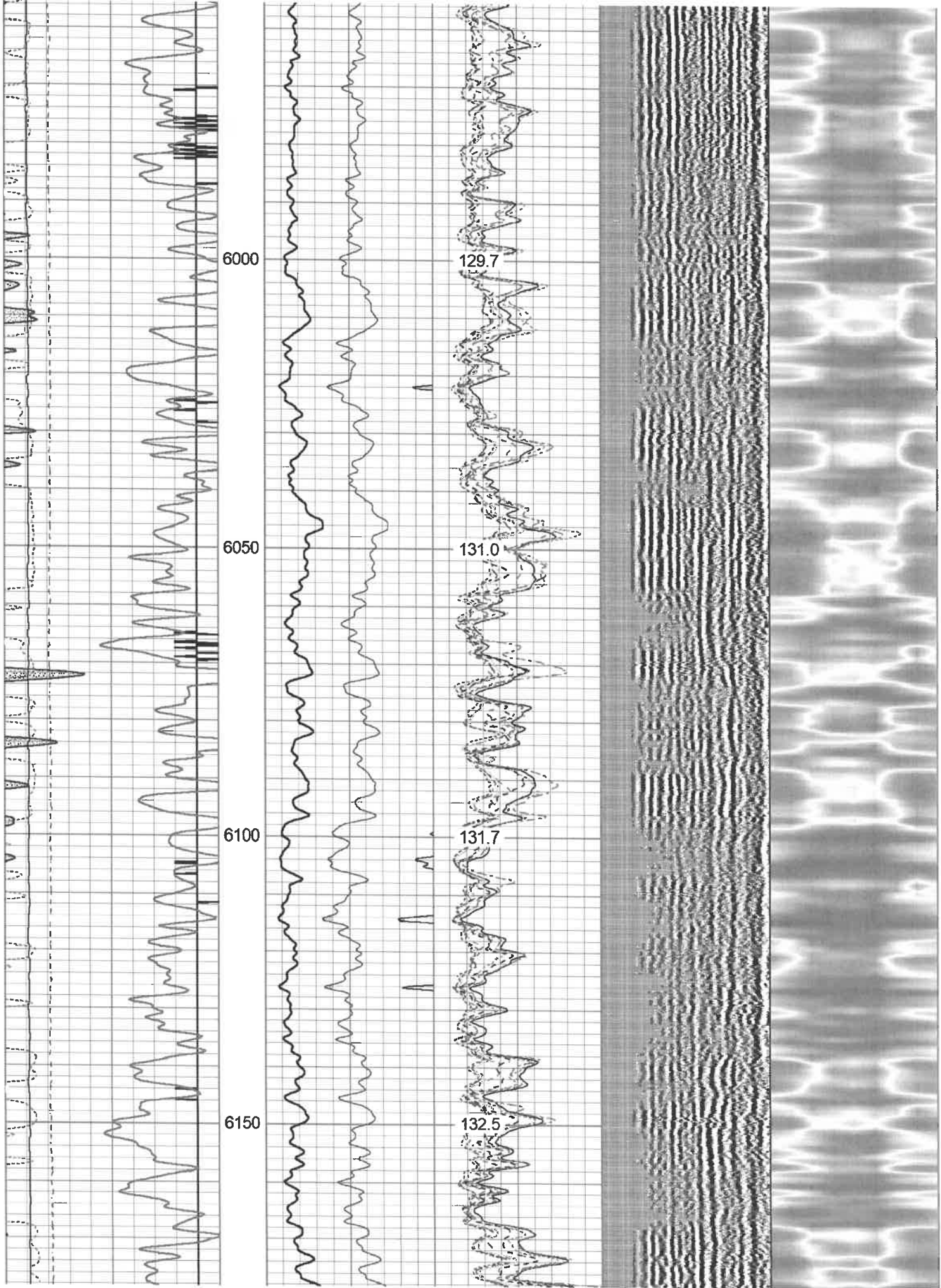


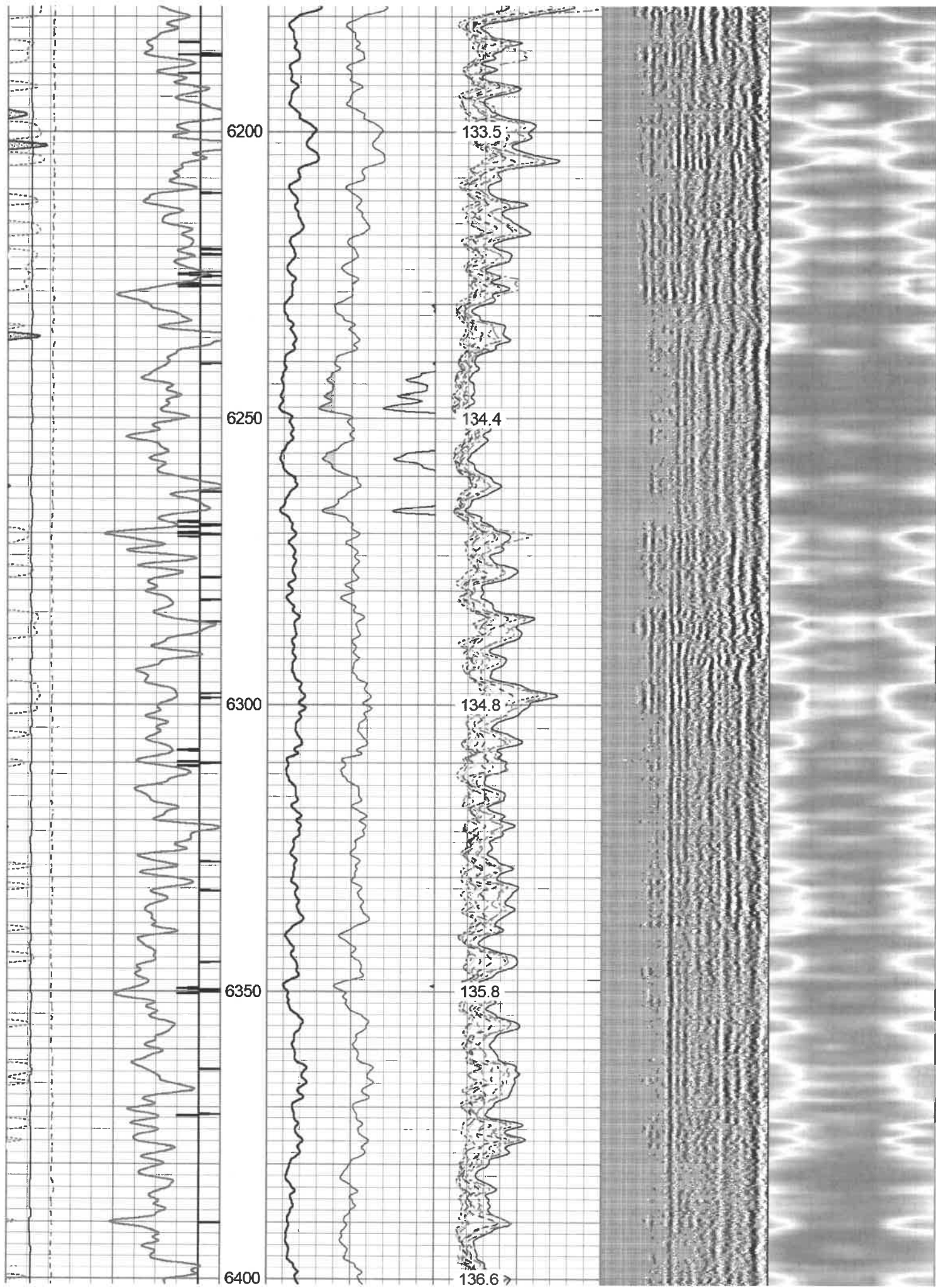


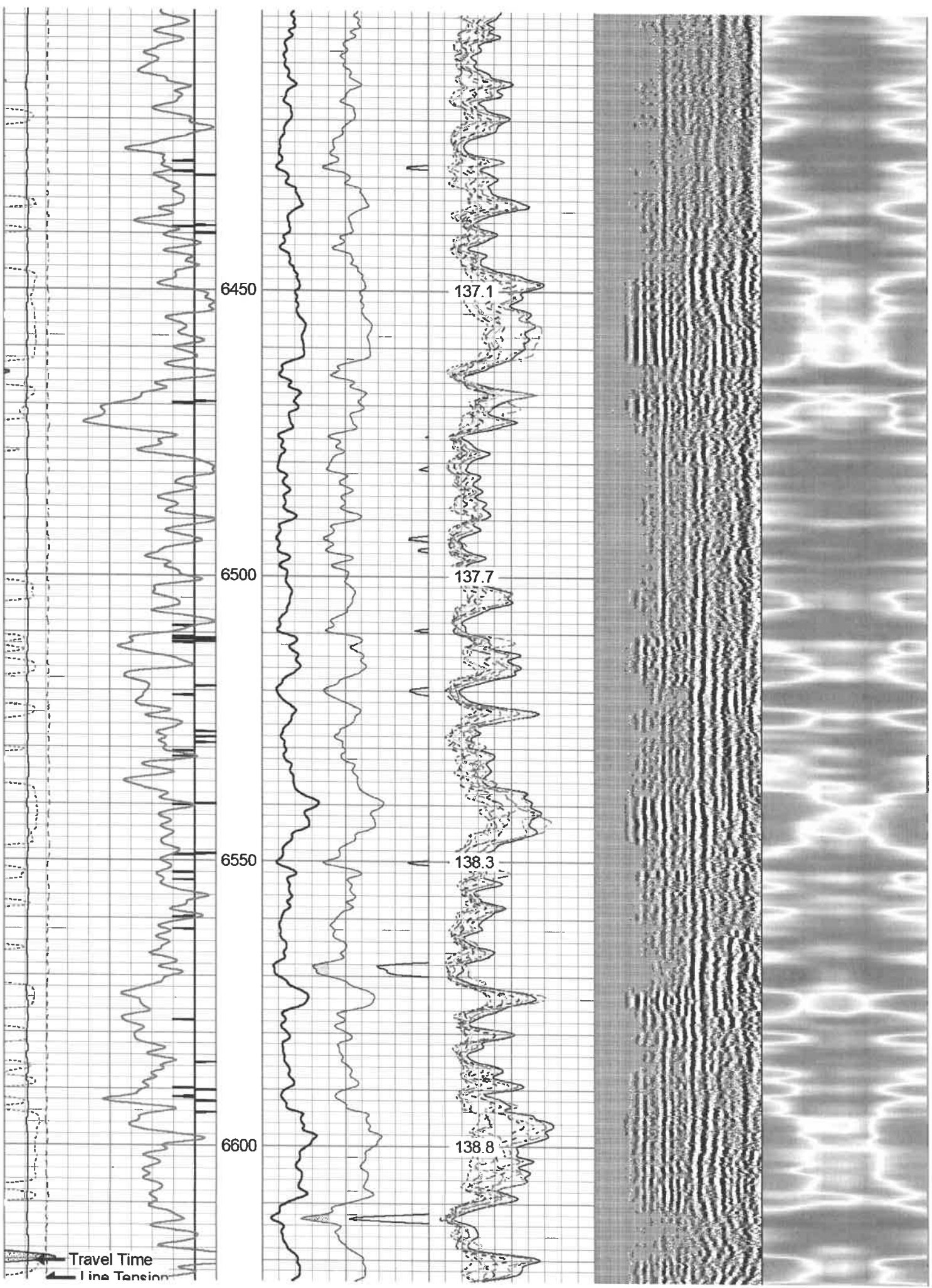


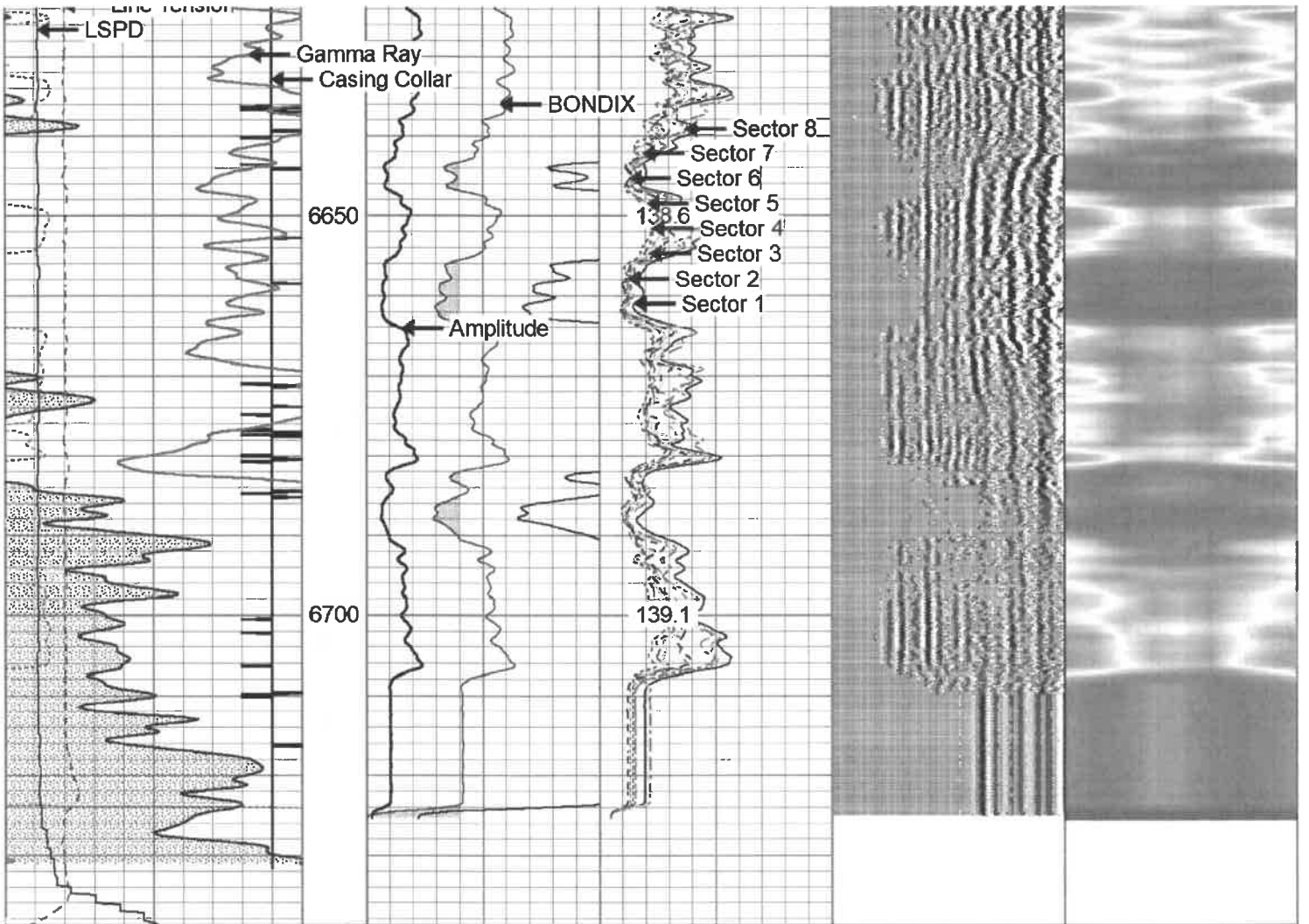












285	Travel Time (usec)	185
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000
-100	LSPD (ft/min)	100

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_2h_rcbl_july132021.db
 Dataset Pathname Marcellus/Fleetwood_2H/RCBL_1/pass2
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Tue Jul 13 19:26:50 2021
 Charted by Depth in Feet scaled 1:240

285	Travel Time (usec)	185
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150

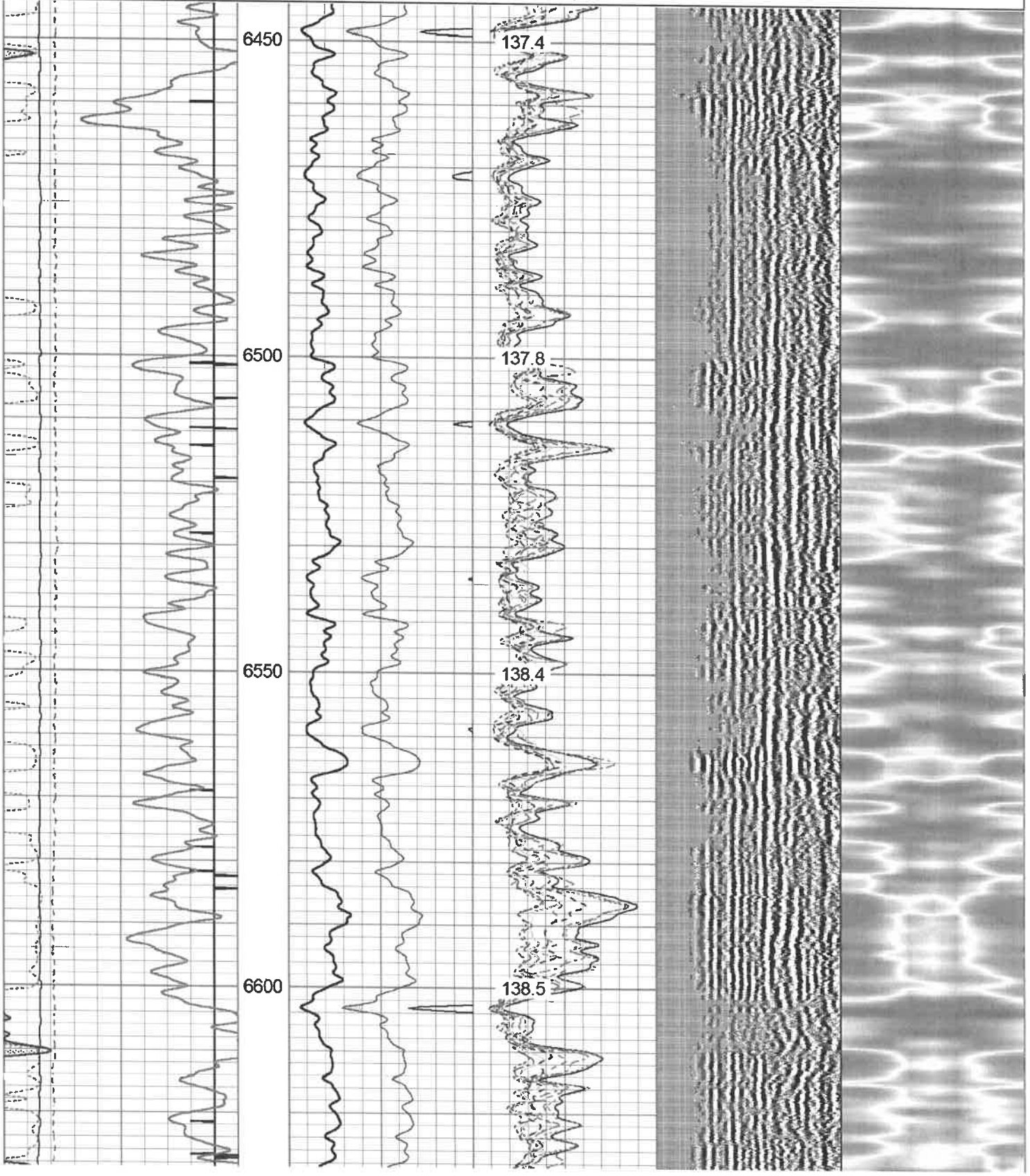
0	Amplitude (mV)	100	-5	Sector 1	150
1	BONDIX	0	-5	Sector 2	150
0	AMPx10 (mV)	10	-5	Sector 3	150

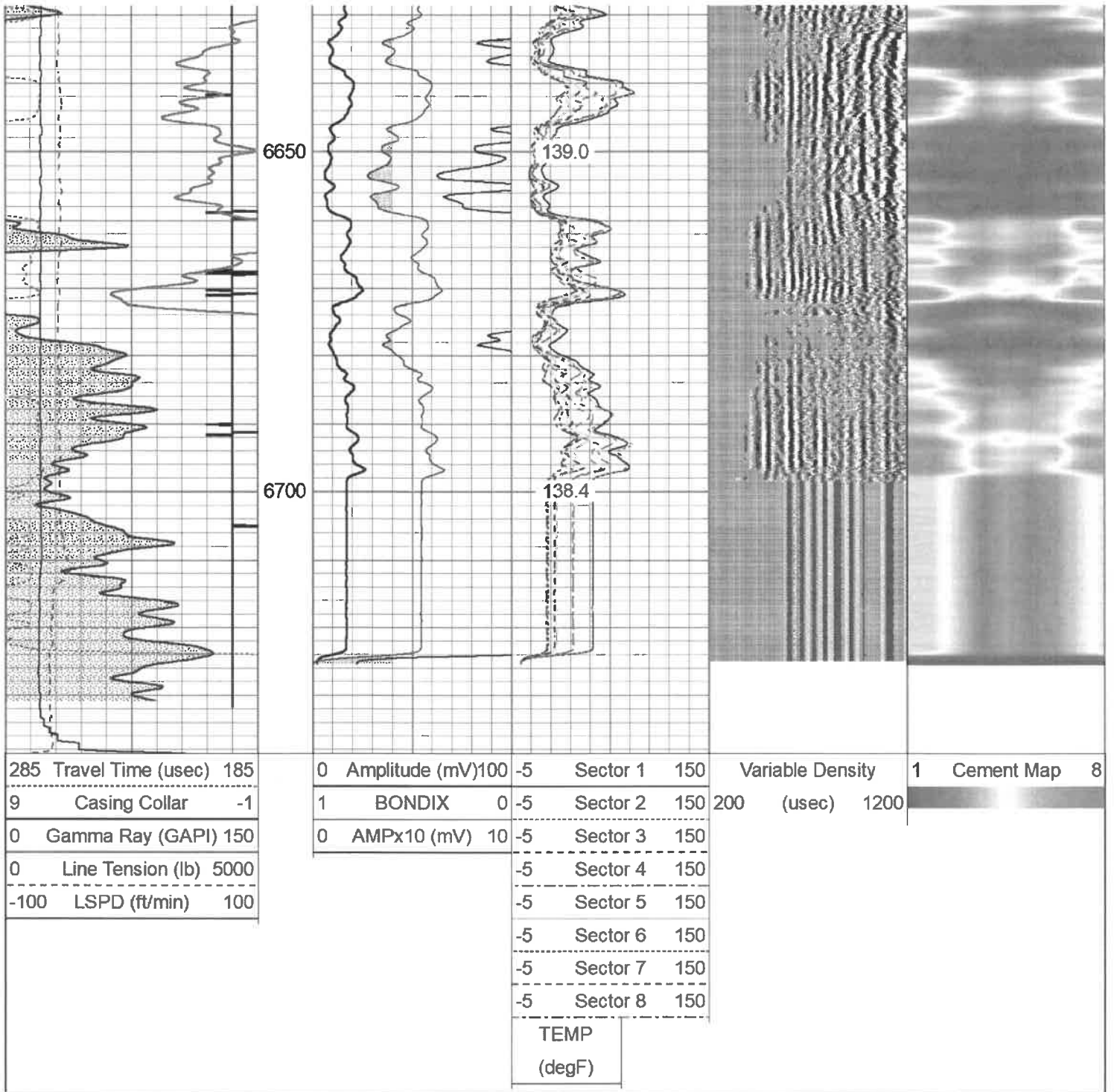
Variable Density	1	Cement Map	8
200 (usec)	1200		

Gamma Ray (GAPI) 100
 0 Line Tension (lb) 5000
 -100 LSPD (ft/min) 100

0	AMFAD (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	-5	Sector 8	150

TEMP
(degF)





Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero_fleetwood_2h_rcbl_july132021.db
 Dataset Marcellus/Fleetwood_2H/RCBL_1/pass4.3/_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
 MINAMPL : Minimum Amplitude

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

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

Calibration Report

Database File antero_fleetwood_2h_rcbl_july132021.db
 Dataset Pathname Marcellus/Fleetwood_2H/RCBL_1/pass4.3
 Dataset Creation Tue Jul 13 21:10:57 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	77.635	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_fleetwood_2h_rcbl_july132021.db: Marcellus/Fleetwood_2H/RCBL_1/pass4.3
Total length: 23.69 ft
Total weight: 220.00 lb
O.D.: 2.75 in



Nine

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