



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

Company		Antero Resources					
Well		Roy 1H					
Field		River Front					
County		Tyler					
State		West Virginia					
Location:		API #: 47-095-02734-0000					
Other Services							
SEC		N/A TWP N/A RGE N/A					
Permanent Datum		Ground Level					
Log Measured From		Kelly Bushing (30')					
Drilling Measured From		Kelly Bushing					
Date		July 12 2021					
Run Number		One					
Depth Driller		15,982 ft. ft.					
Depth Logger		6,300 ft.					
Bottom Logged Interval		6,300 ft.					
Top Log Interval		Surface					
Open Hole Size		N/A					
Type Fluid		Water					
Density / Viscosity		N/A					
Max. Recorded Temp.		138.1 Deg. F					
Estimated Cement Top		4,786 ft.					
Time Well Ready		9.26					
Time Logger on Bottom		10:20					
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	Size	Vgt/Ft	Top	Bottom			
Surface String	13 3/8	54#	Surface	390 ft.			
Prot. String	9 5/8	36#	Surface	2593 ft.			
Production String	5 1/2	20#	Surface	15,982 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 @ 5,360 - 5,370 ft.
Correction to Pipe Tally Depth Shifted (+5)**

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

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

Database File antero_roy_1h_rcbl_july132021.db
 Dataset Pathname Marcellus/Roy_1H/RCBL_1/pass4.4
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Tue Jul 13 15:16:25 2021
 Charted by Depth in Feet scaled 1:240

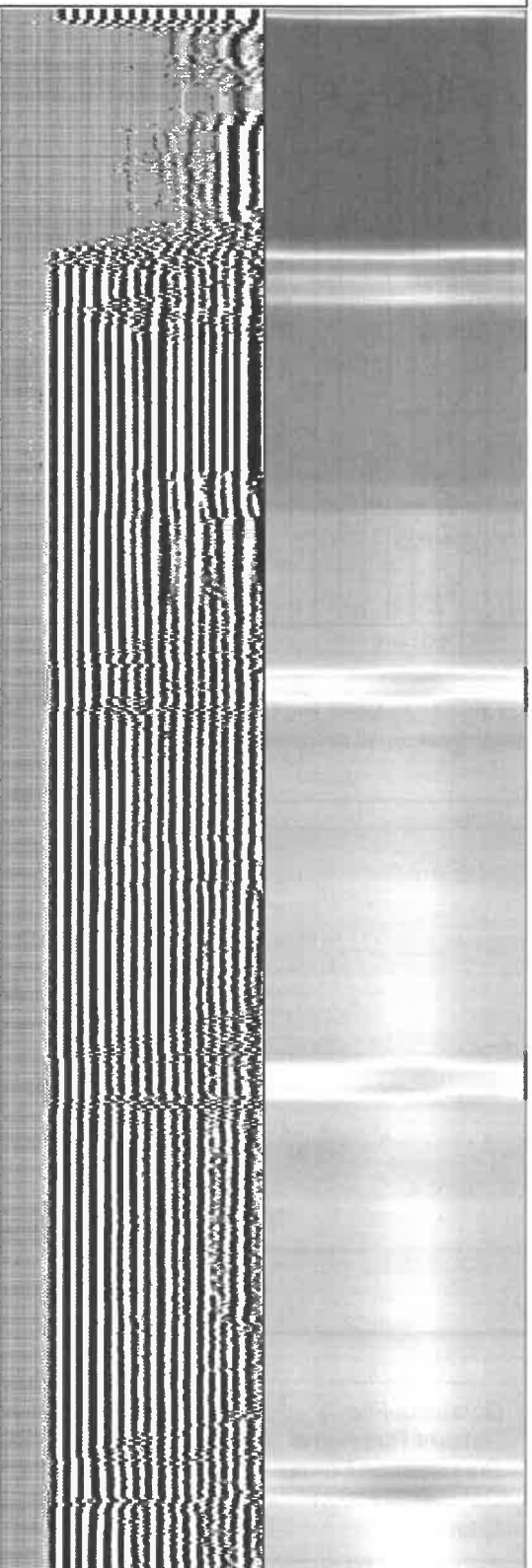
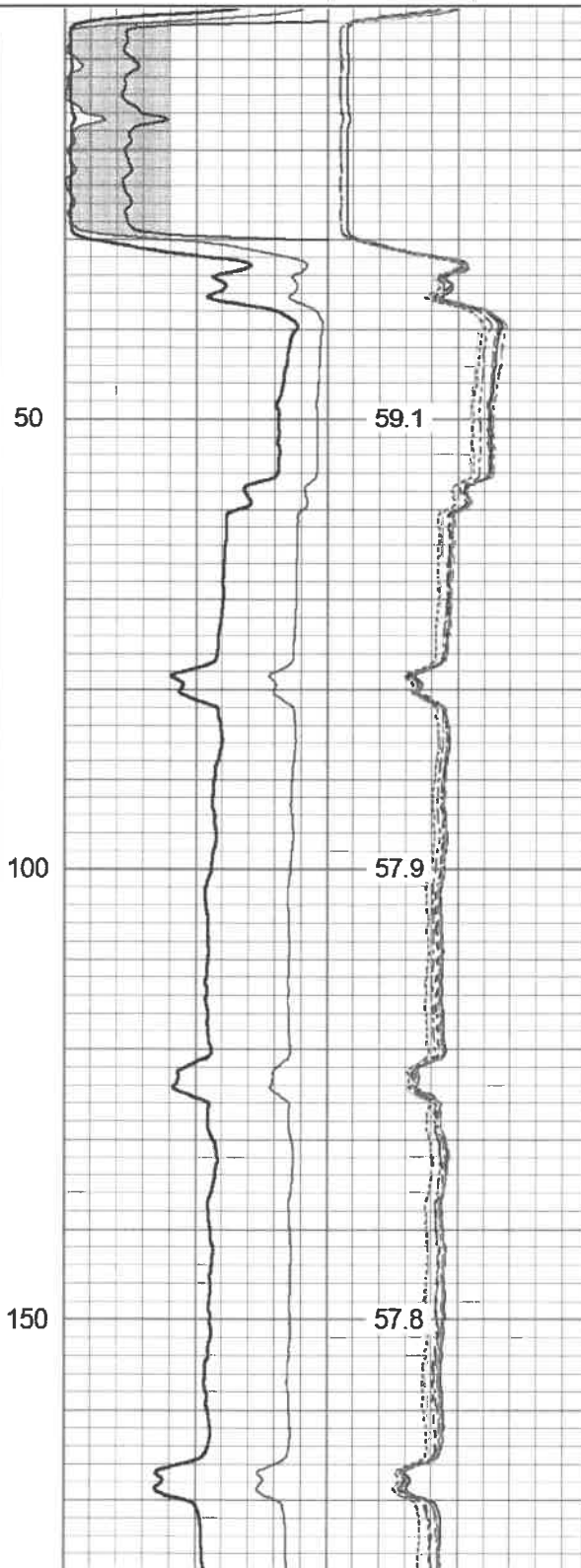
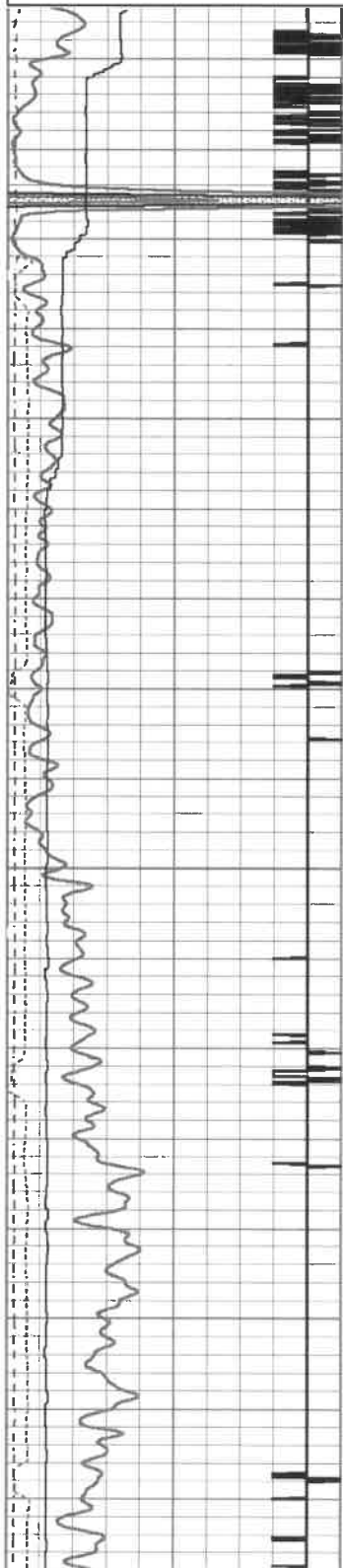
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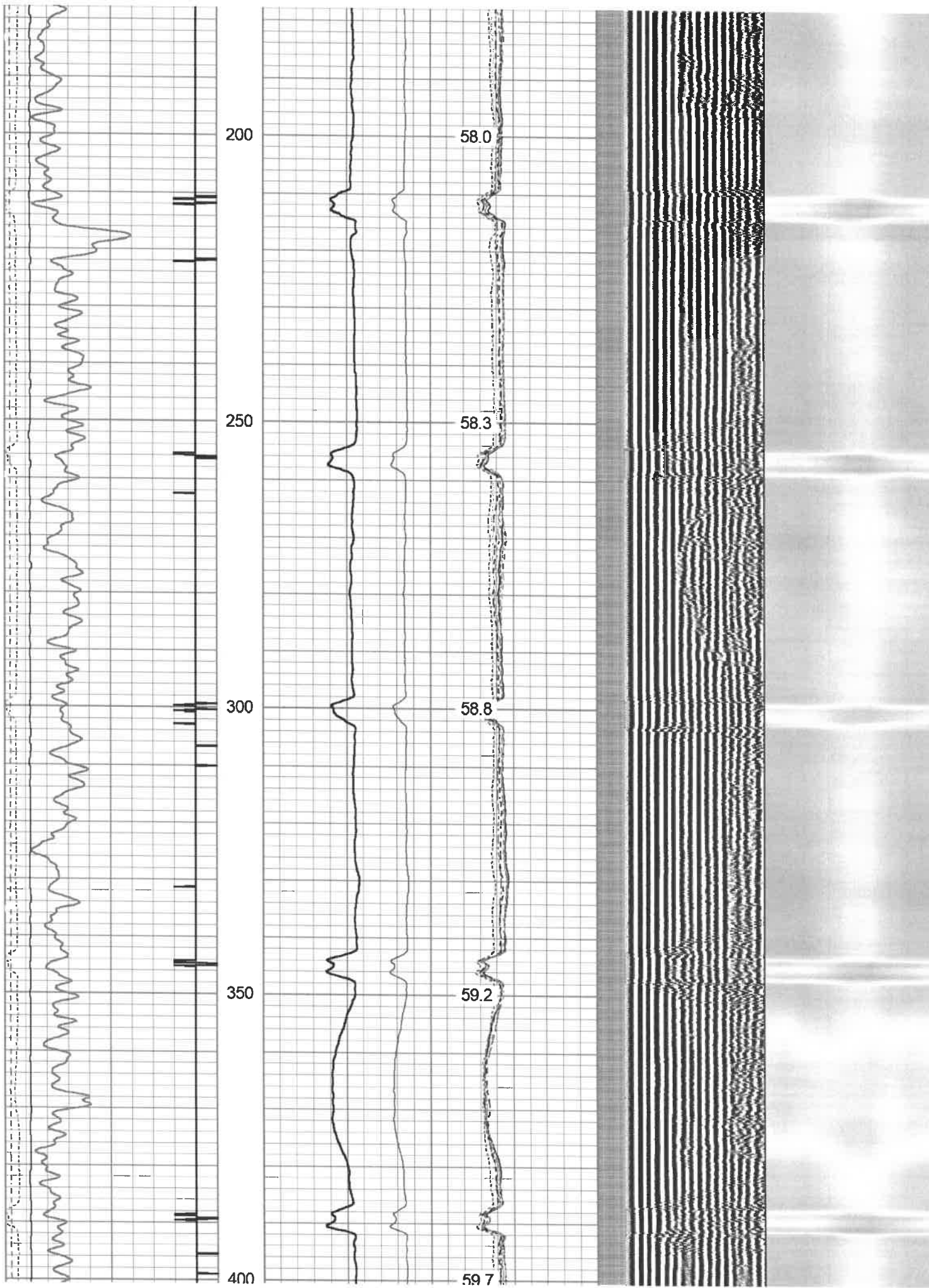
285	Travel Time (usec)	185
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000
-100	LSPD (ft/min)	100

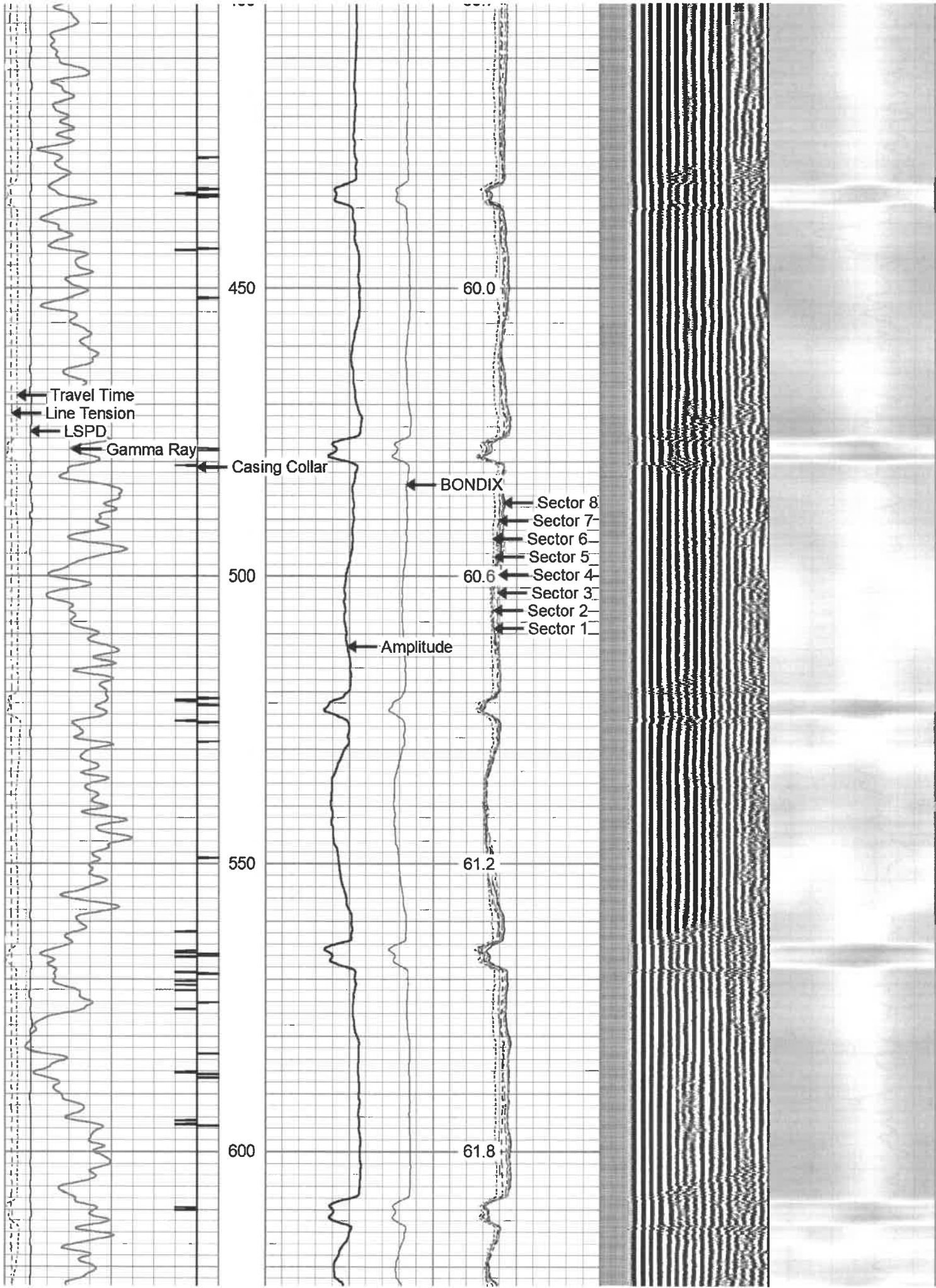
0	Amplitude (mV)	100	-5	Sector 1	150
1	BONDIX	0	-5	Sector 2	150
0	AMPx10 (mV)	10	-5	Sector 3	150
			-5	Sector 4	150
			-5	Sector 5	150
			-5	Sector 6	150
			-5	Sector 7	150
			-5	Sector 8	150

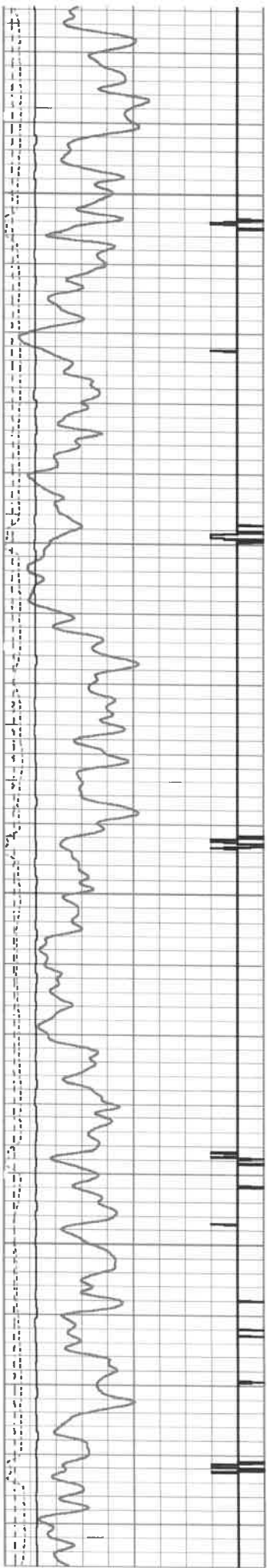
Variable Density 1 Cement Map 8
 200 (usec) 1200

TEMP
(degF)







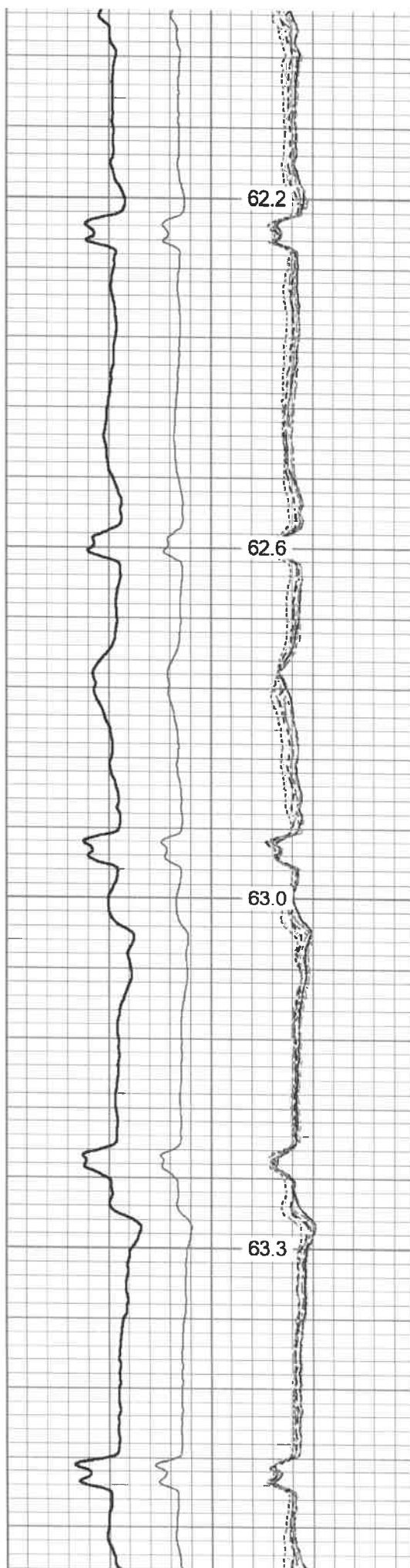


650

700

750

800

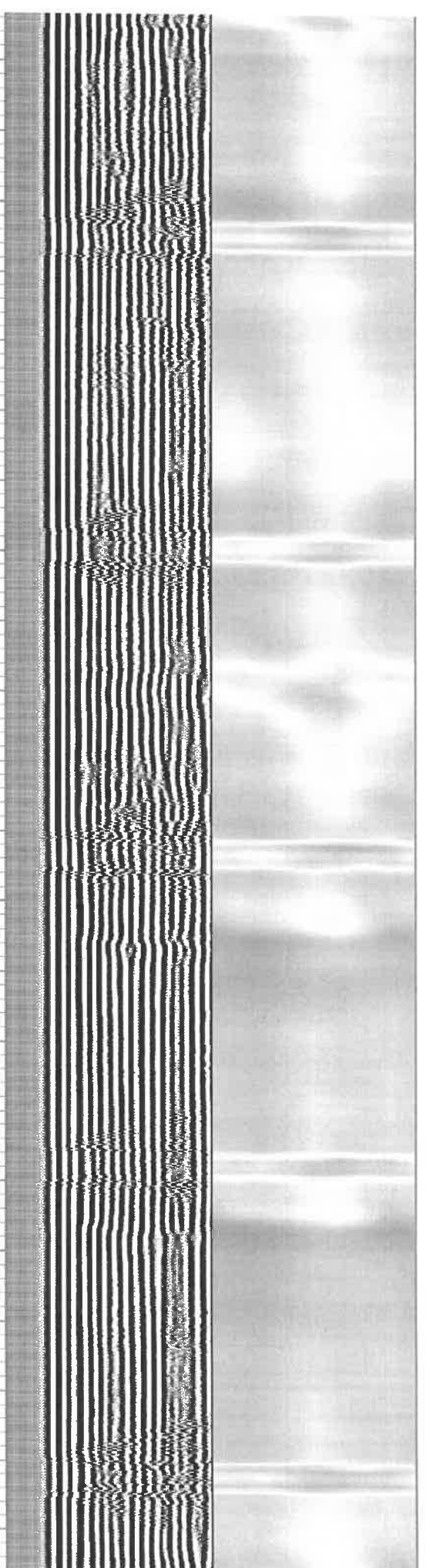


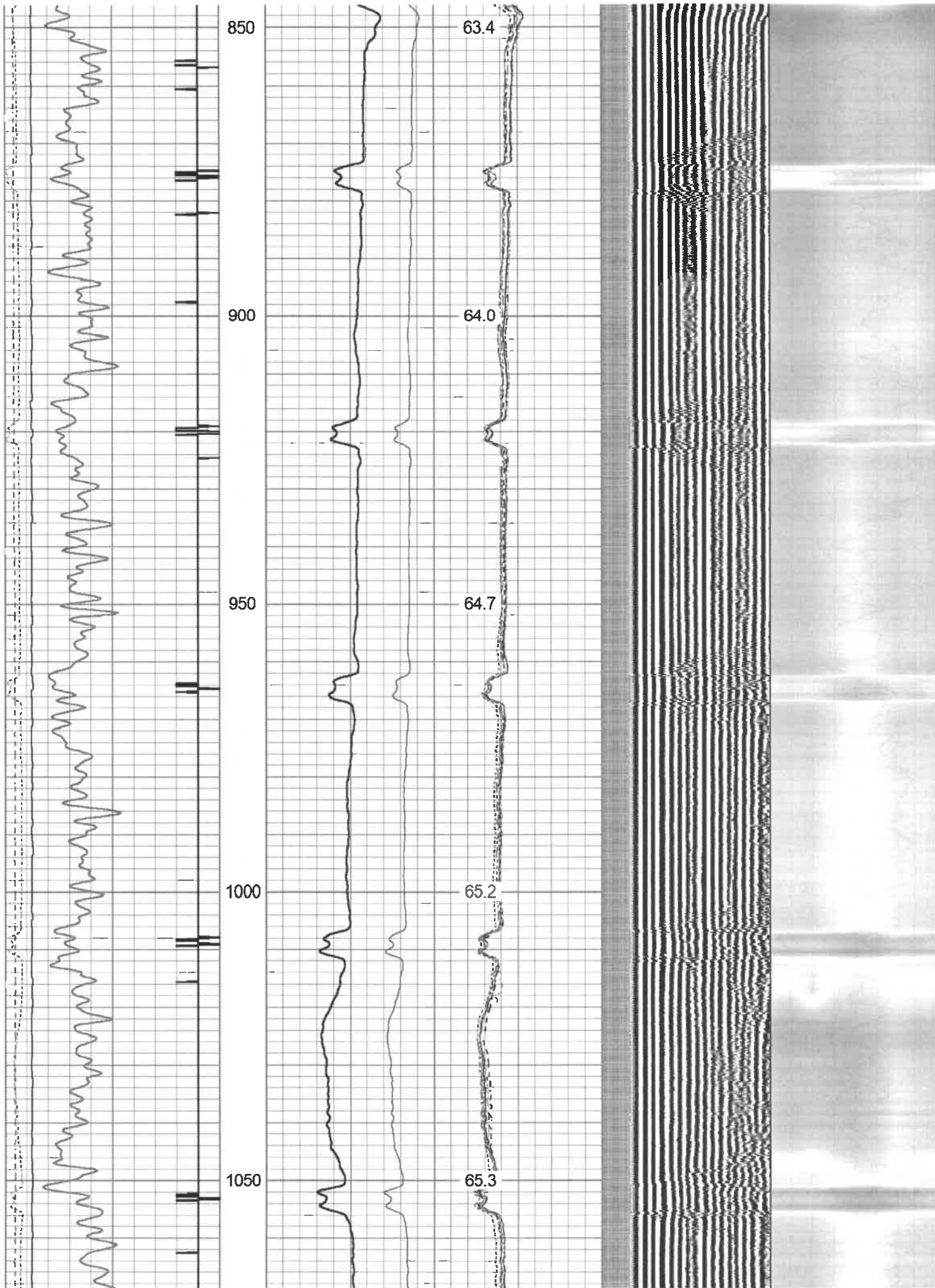
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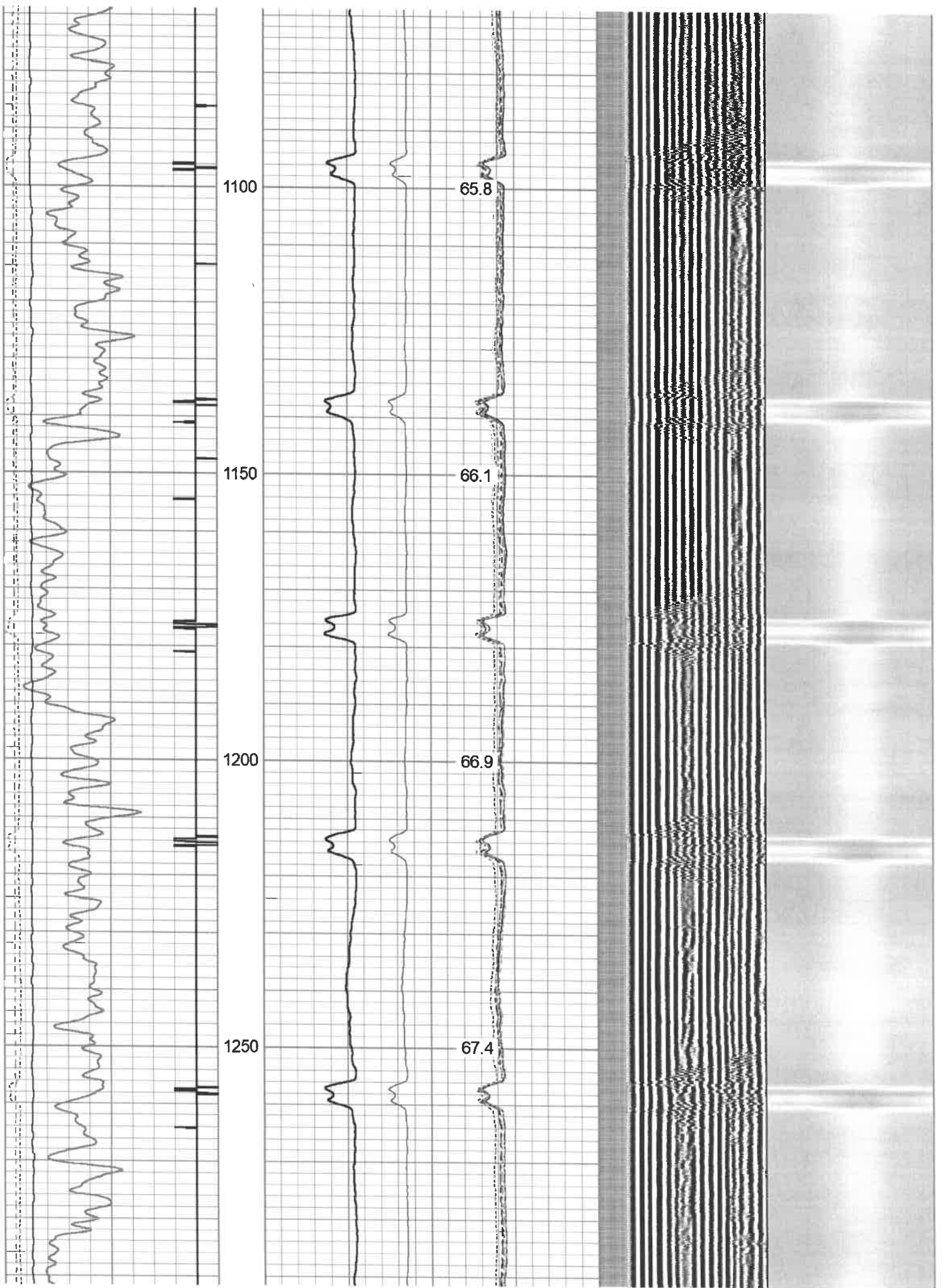
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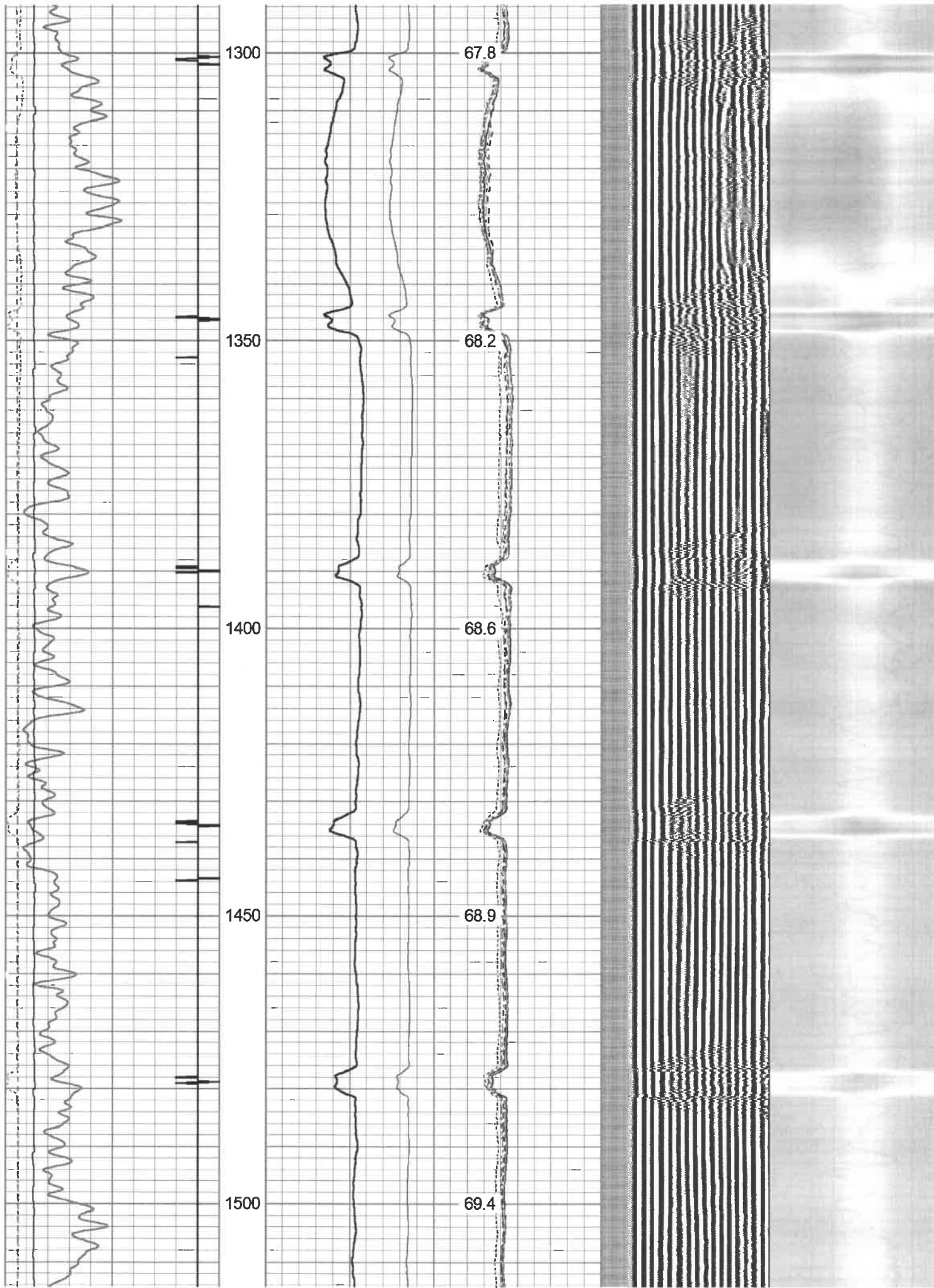
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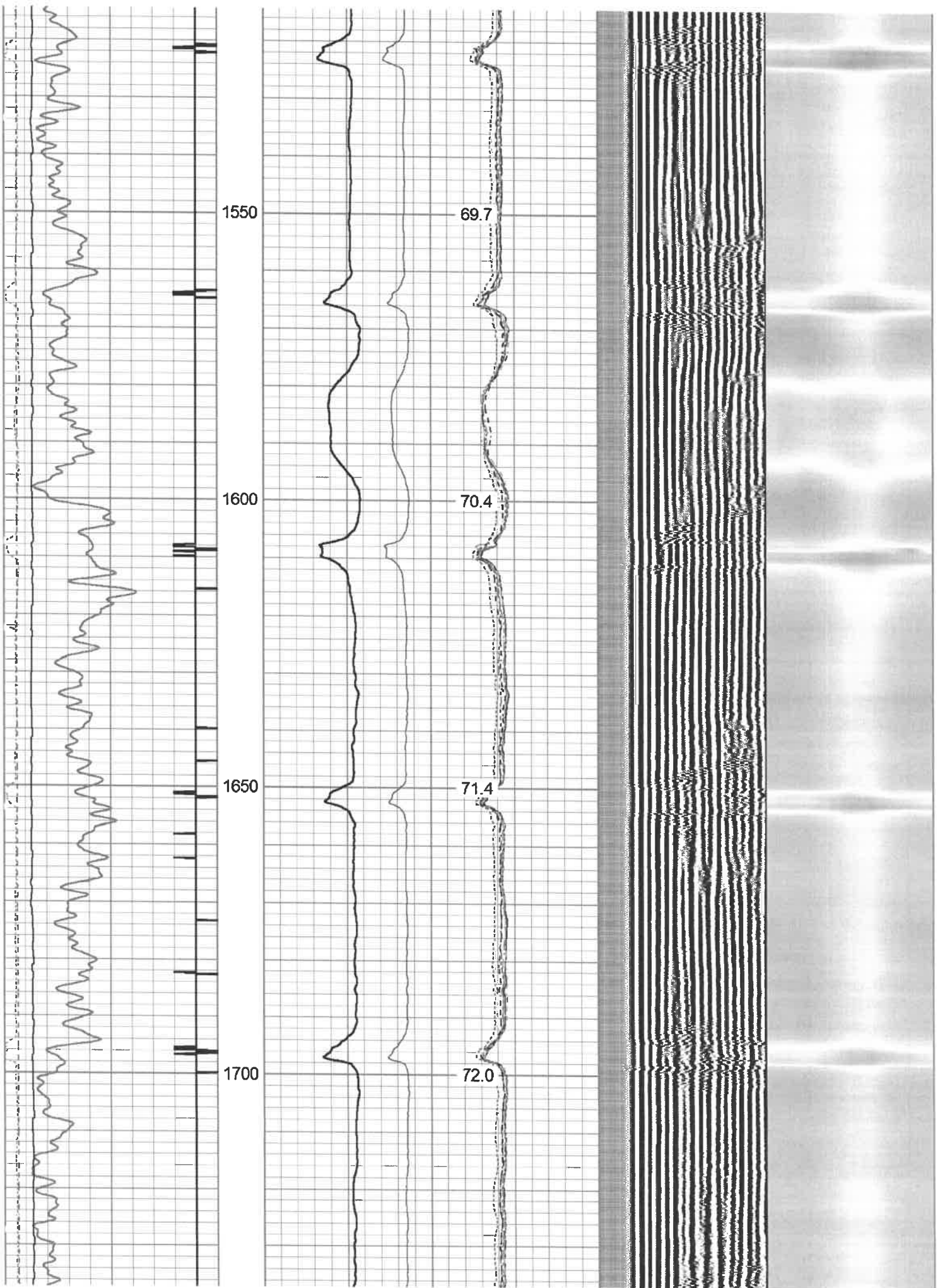
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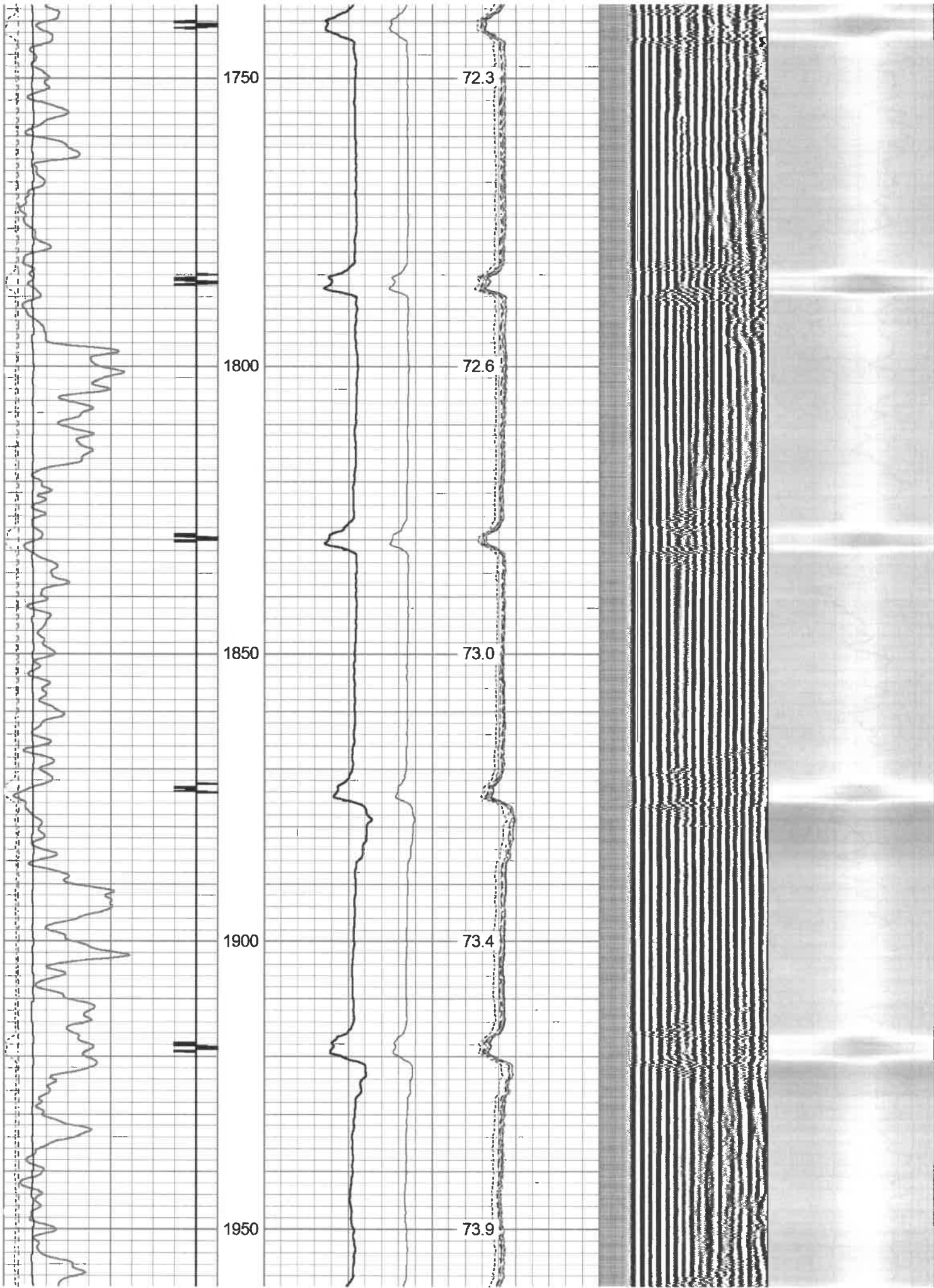


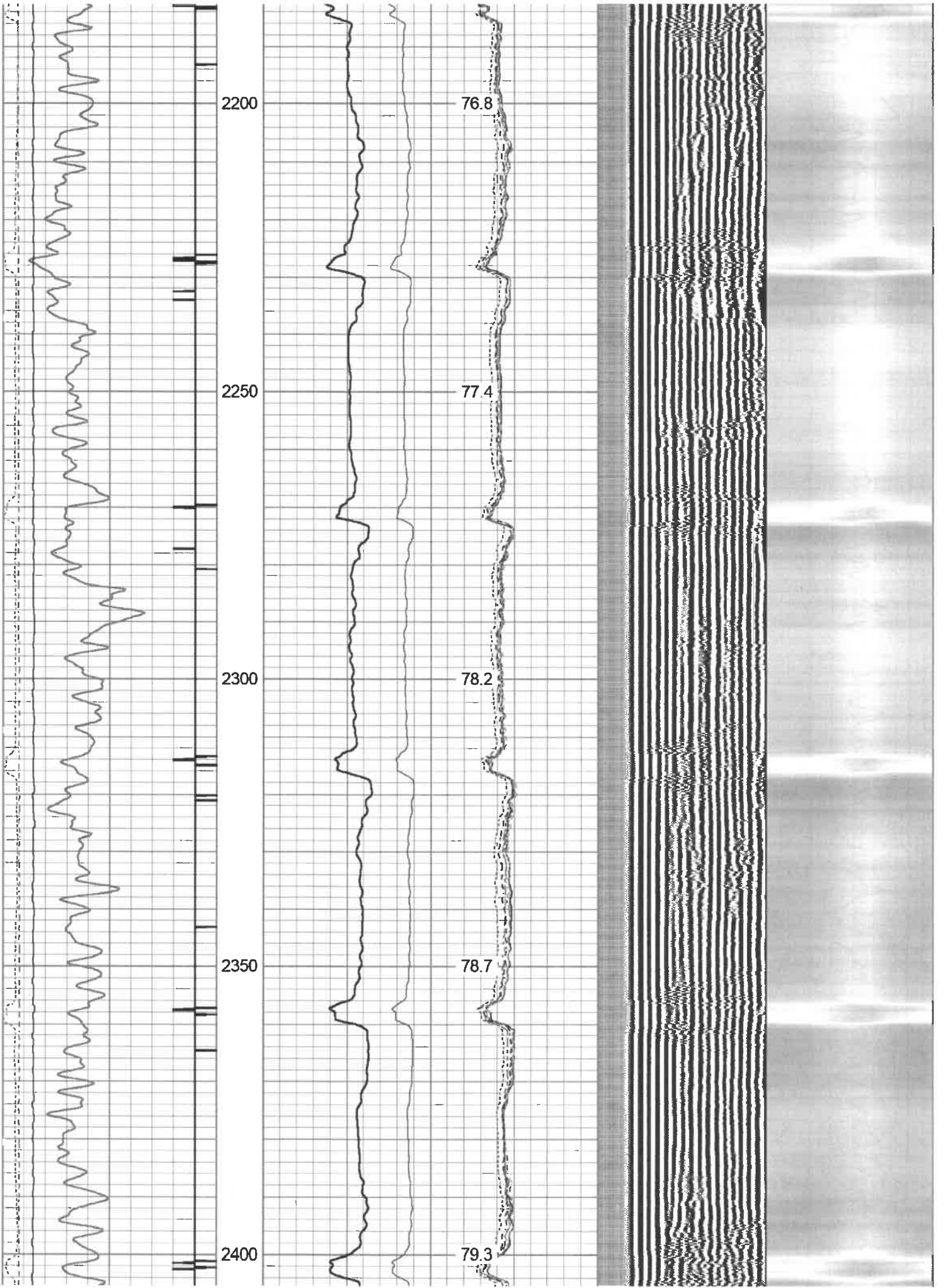




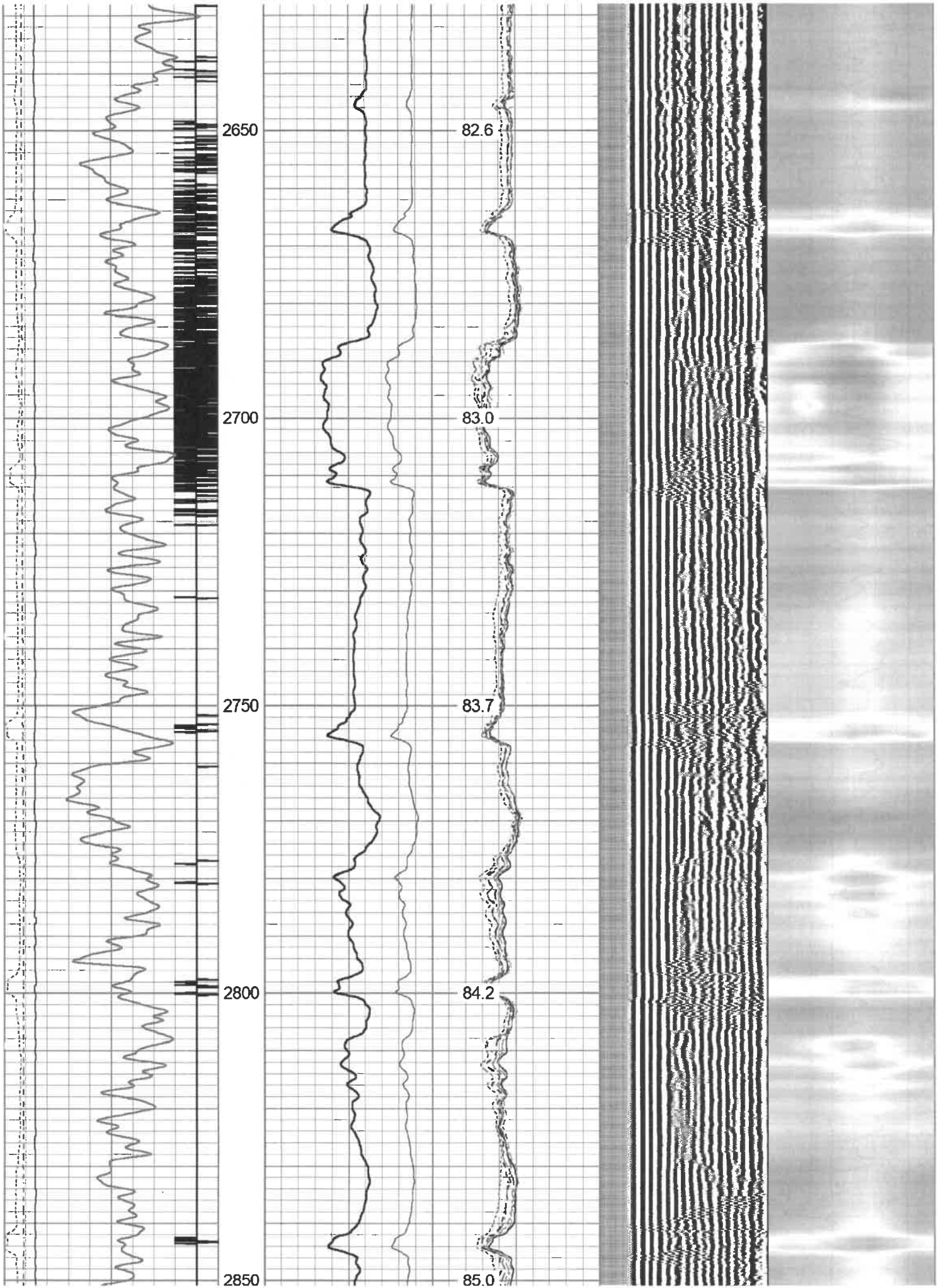


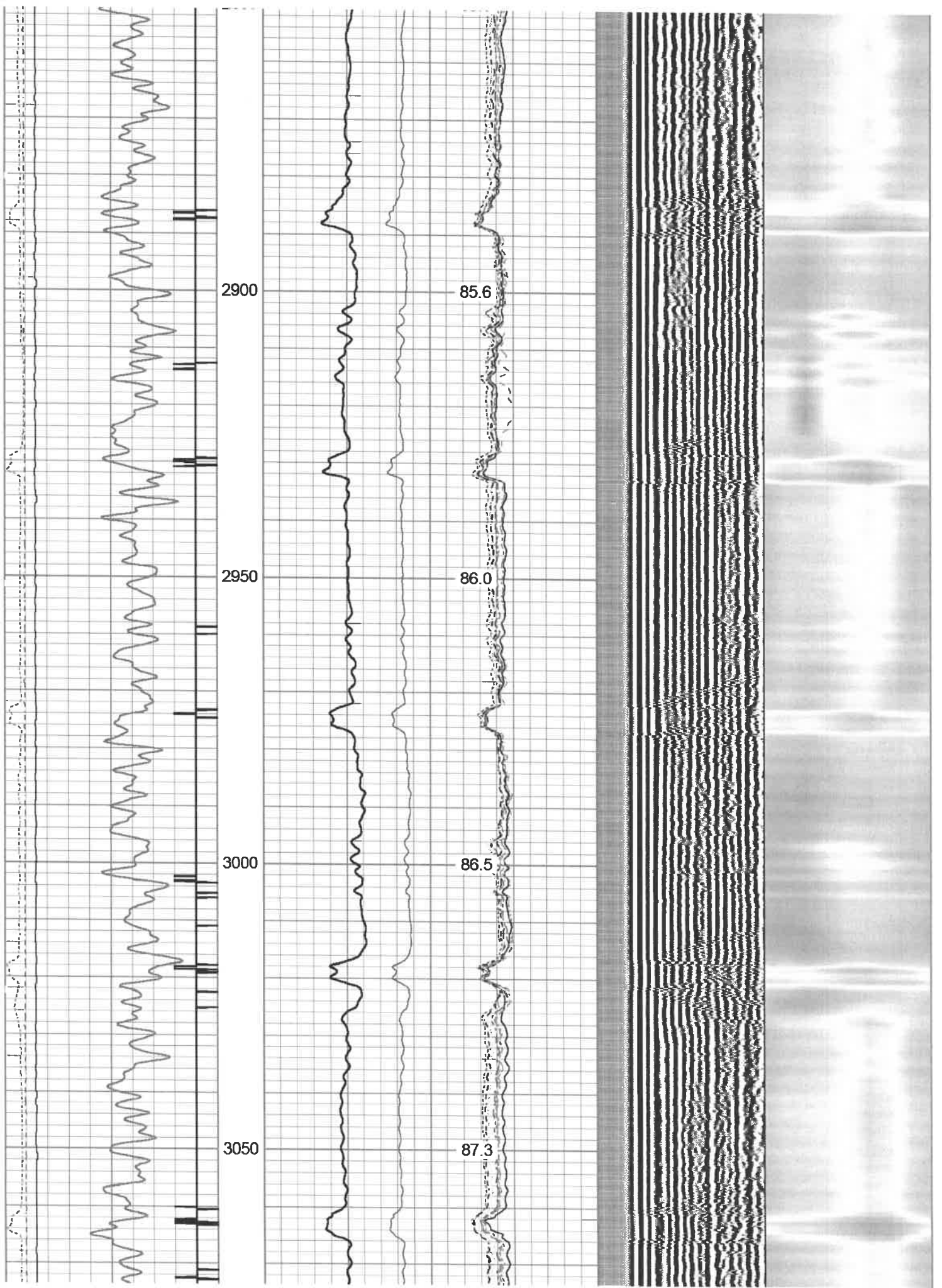


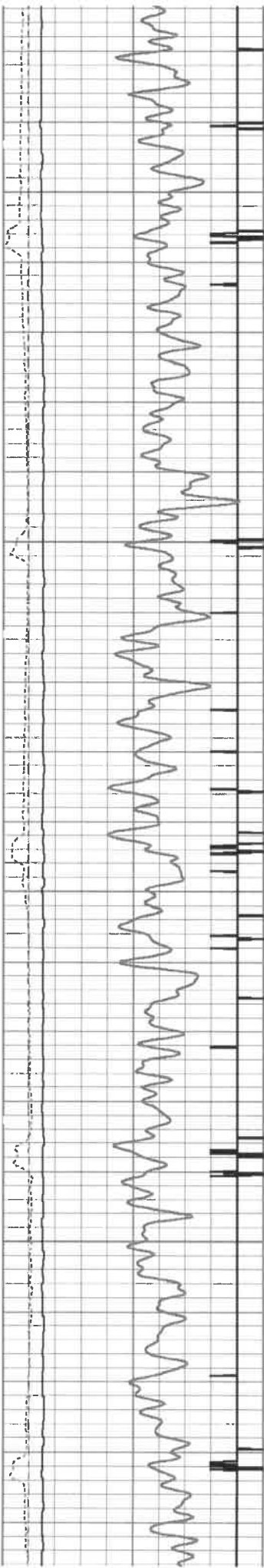










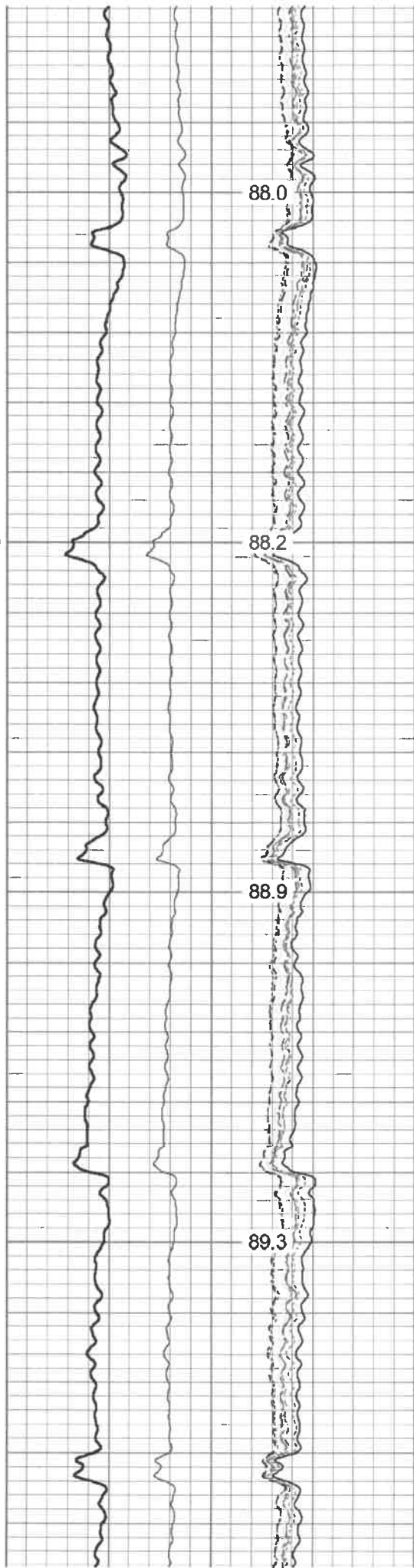


3100

3150

3200

3250

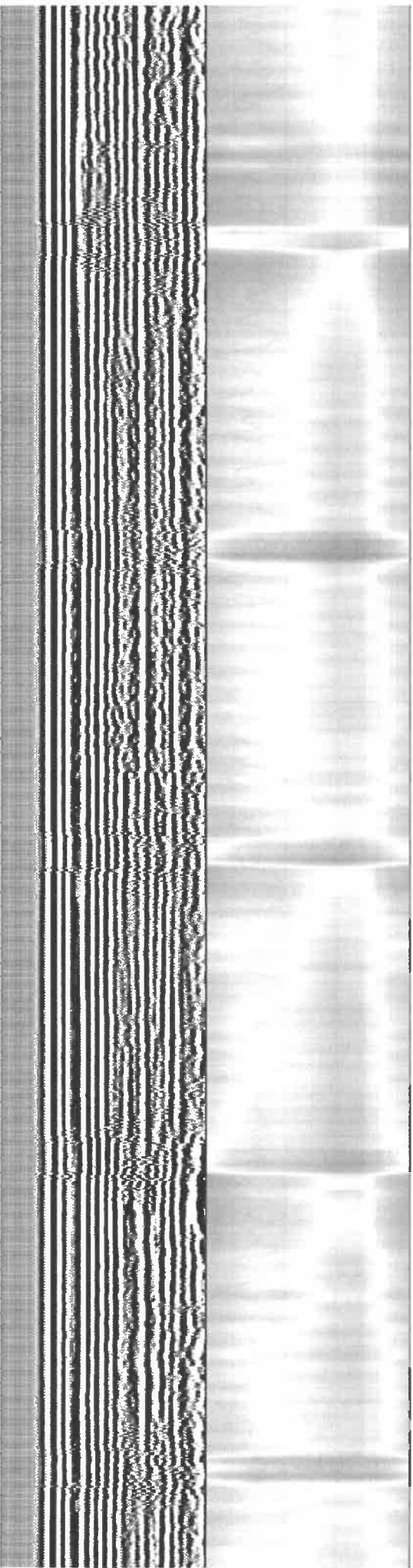


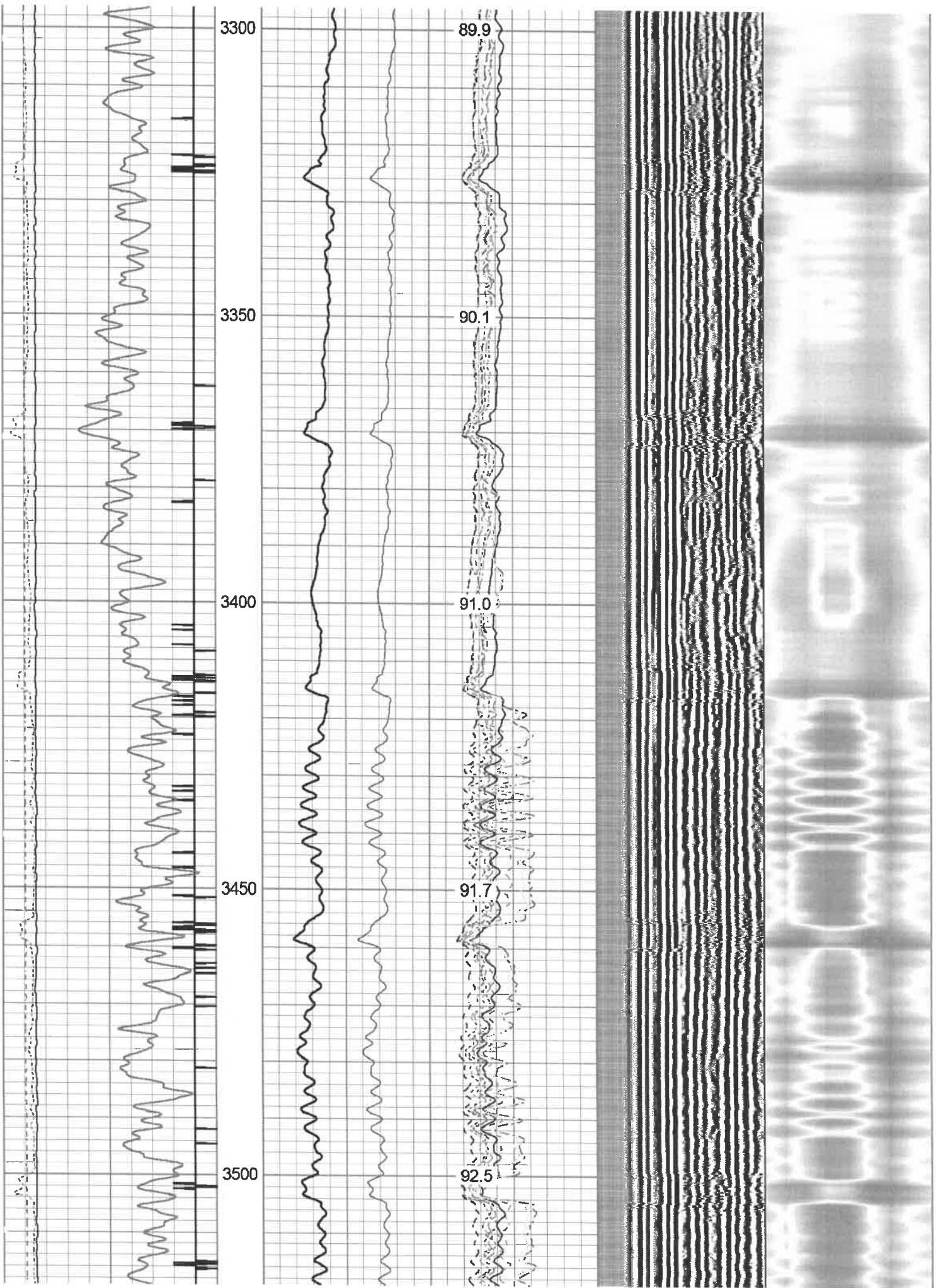
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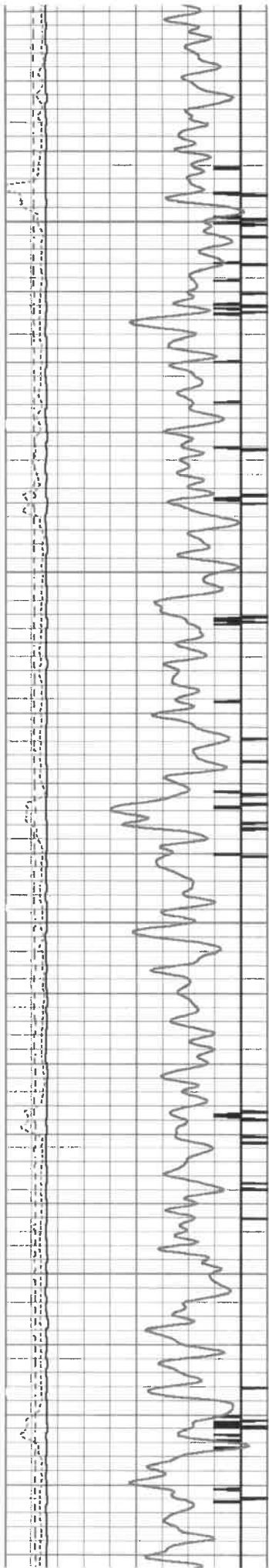
88.2

88.9

89.3





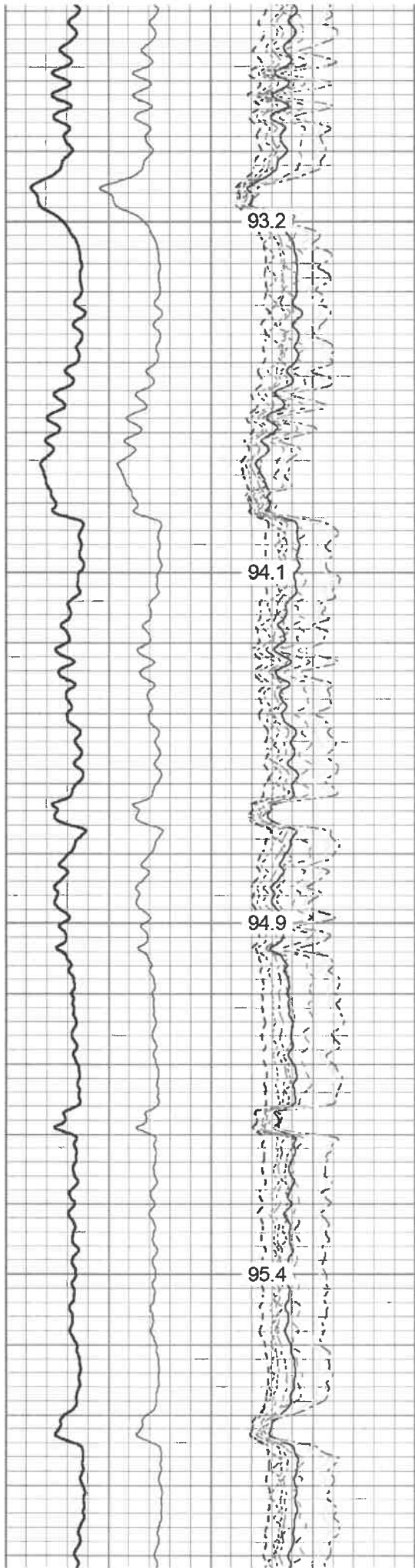


3550

3600

3650

3700

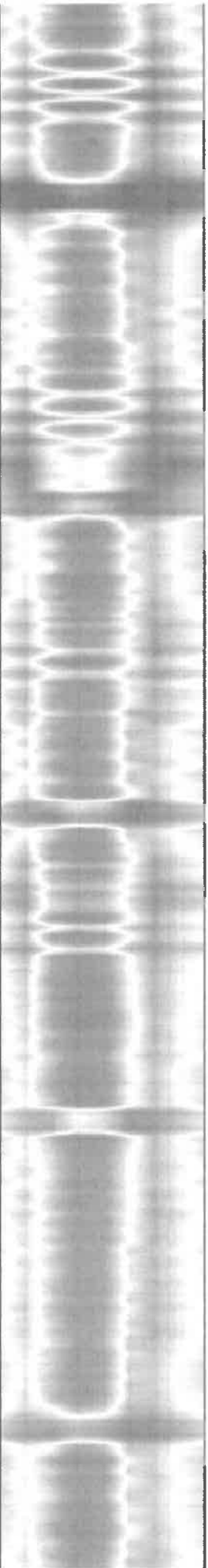
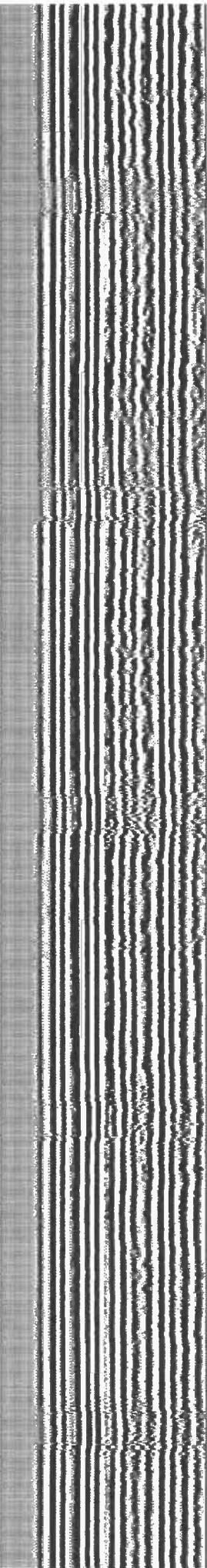


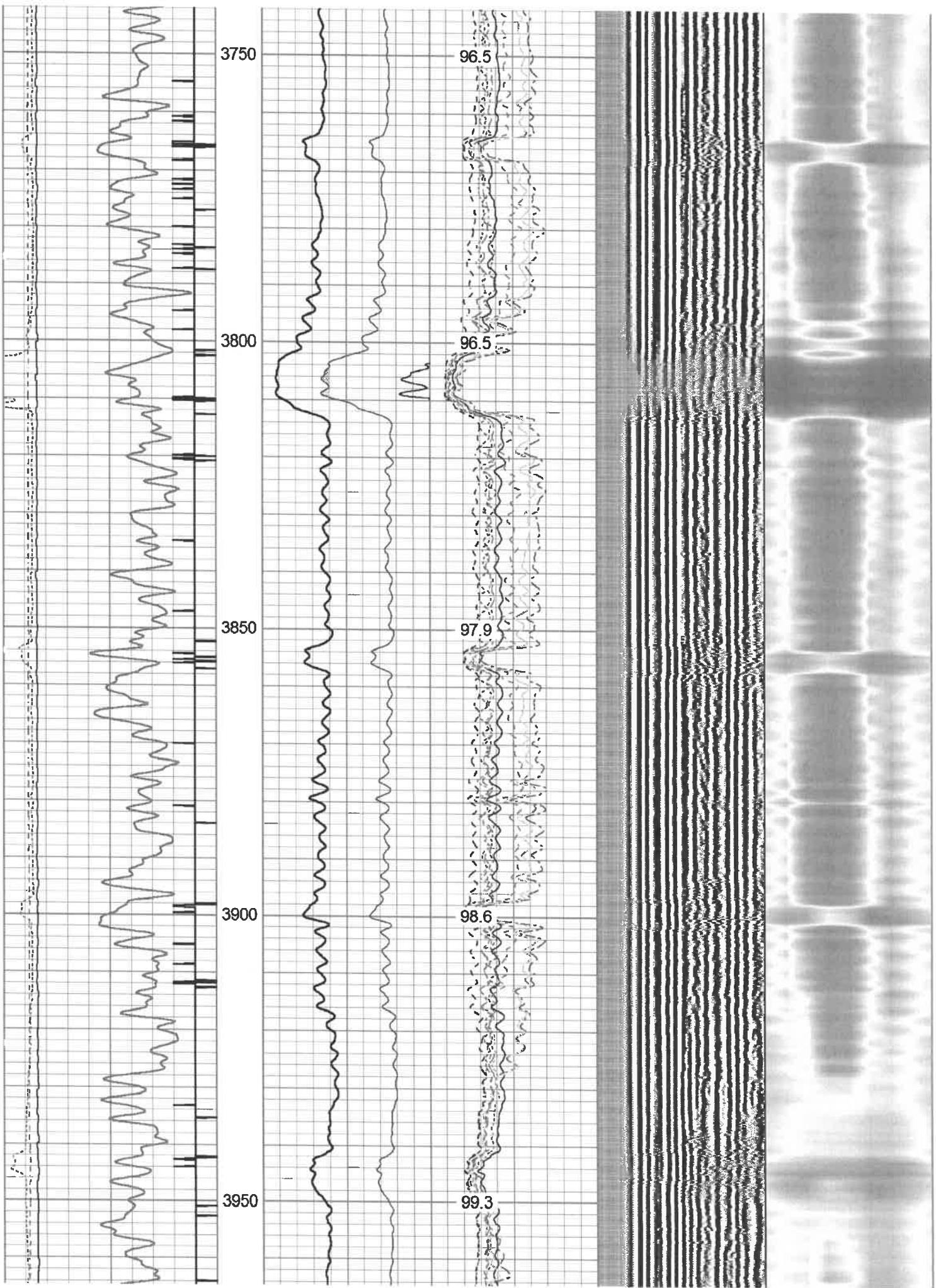
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94.1

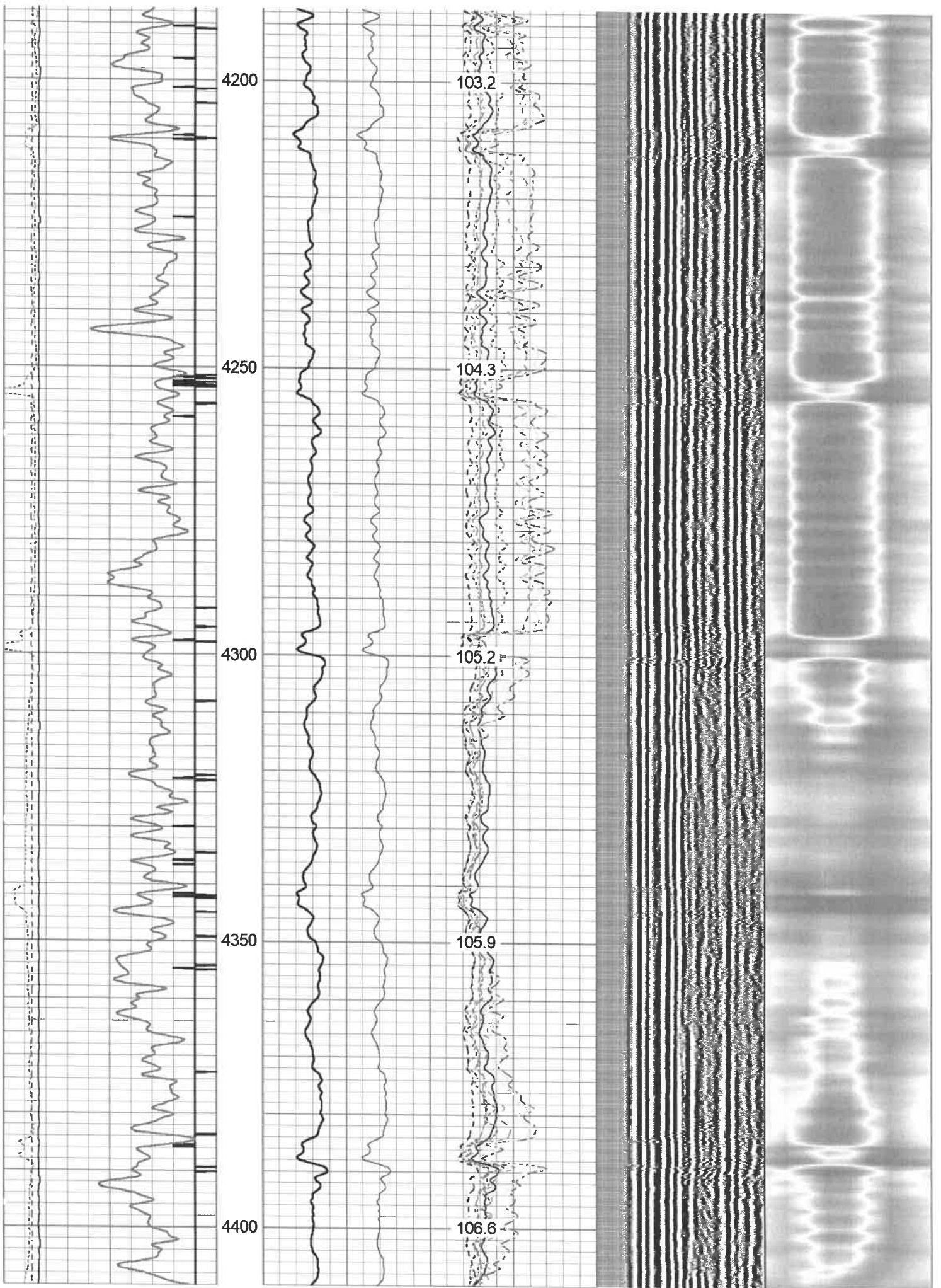
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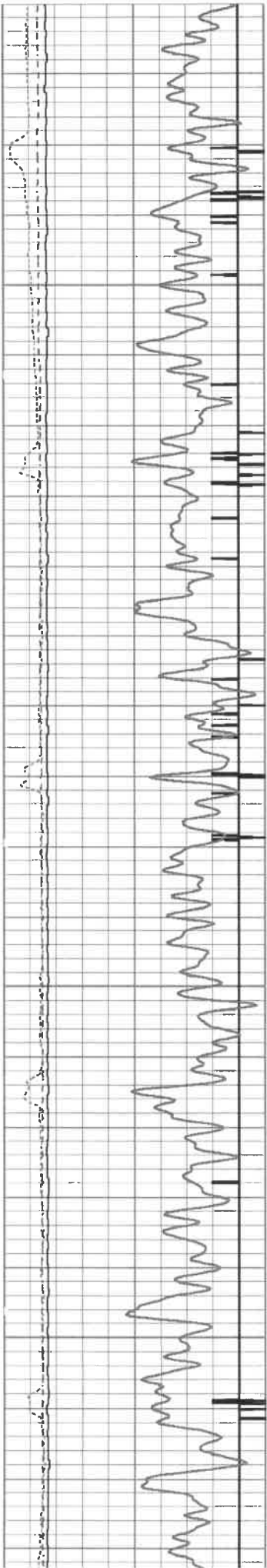
95.4









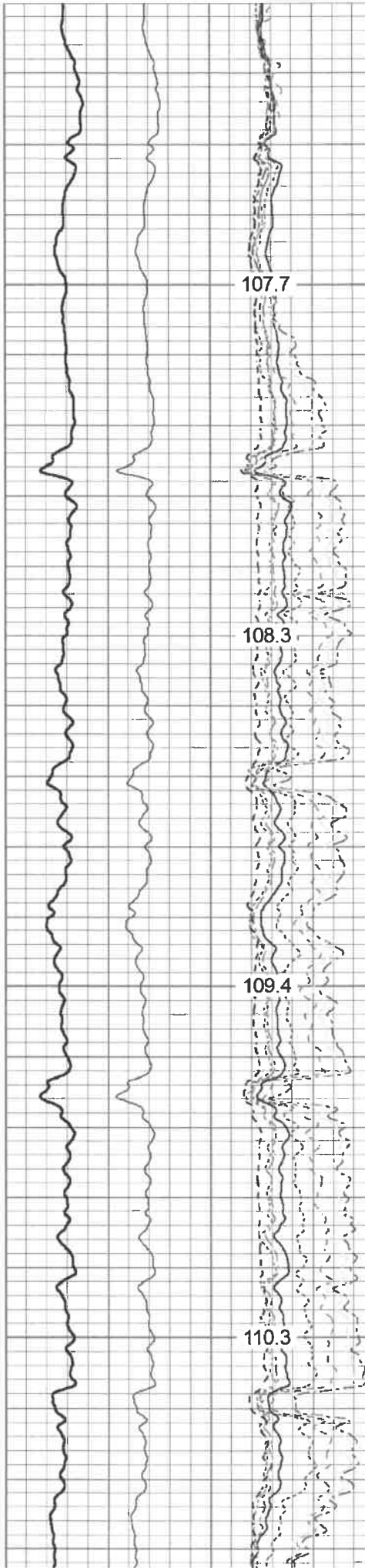


4450

4500

4550

4600

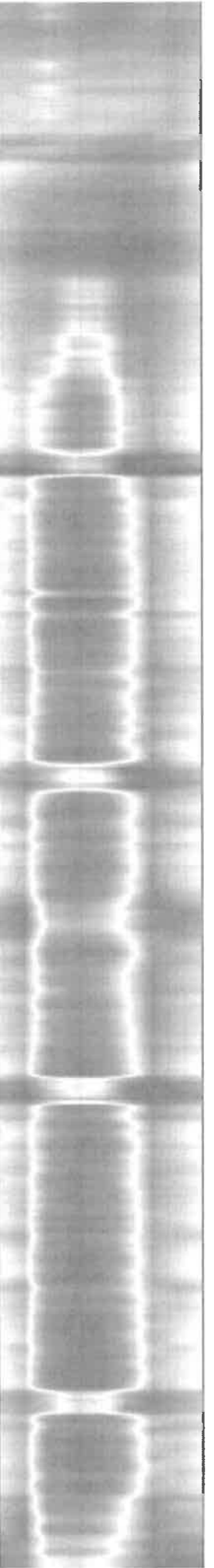
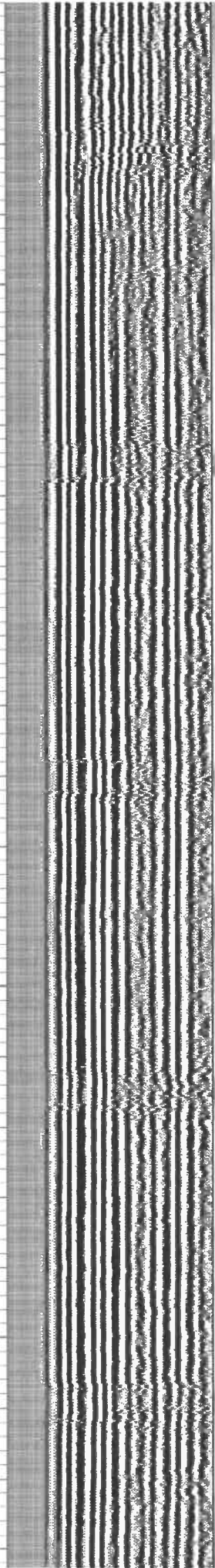


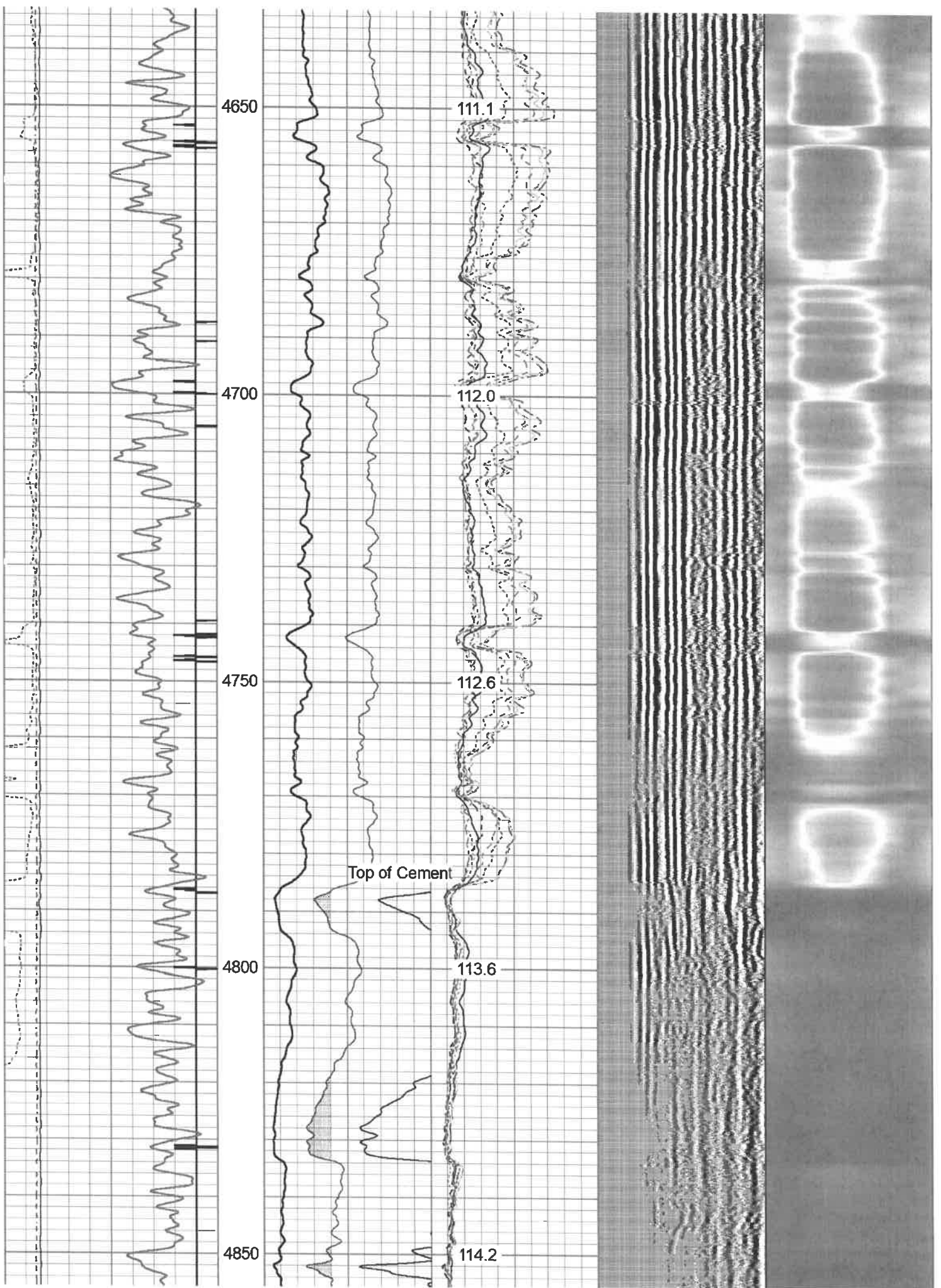
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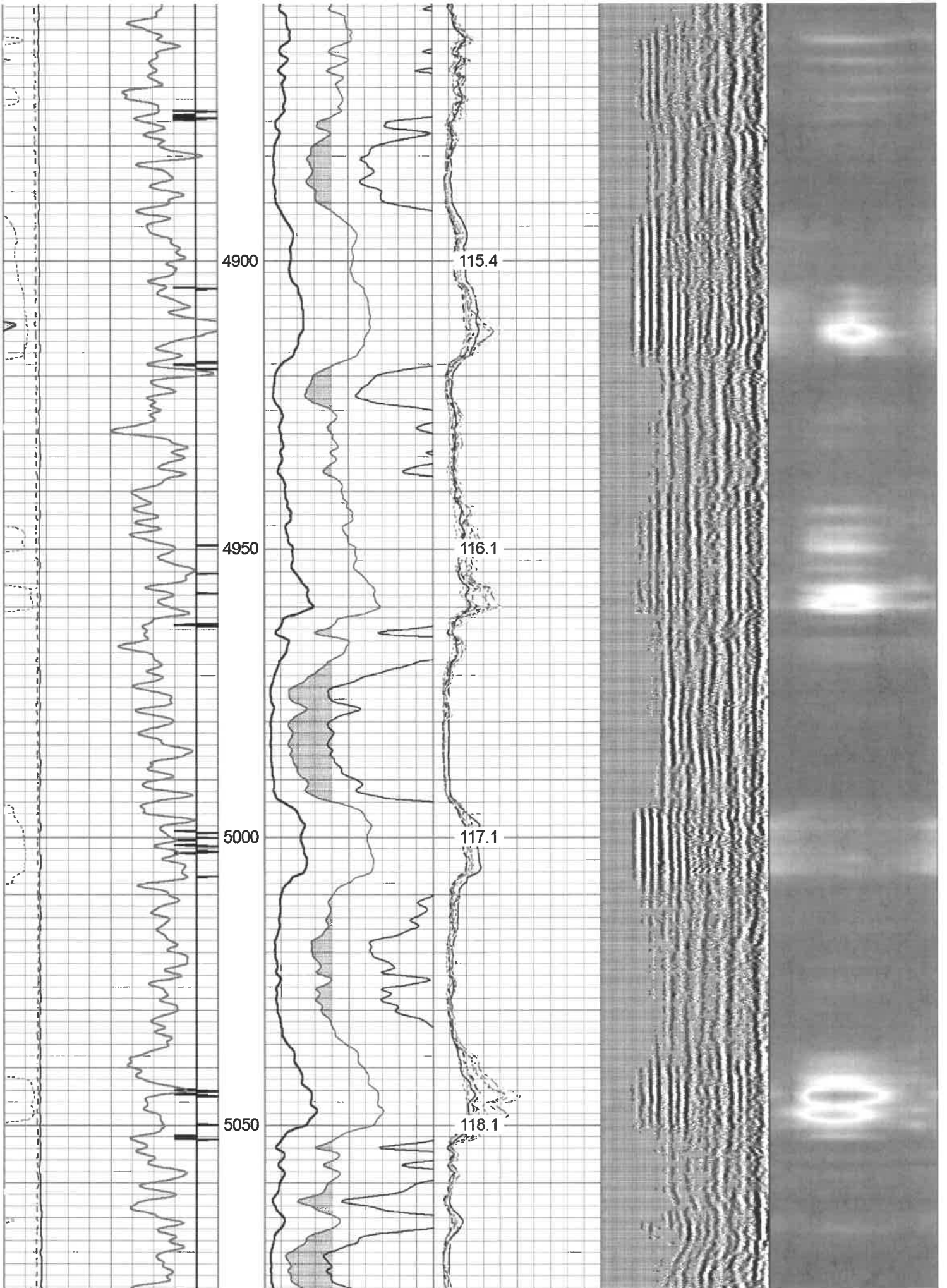
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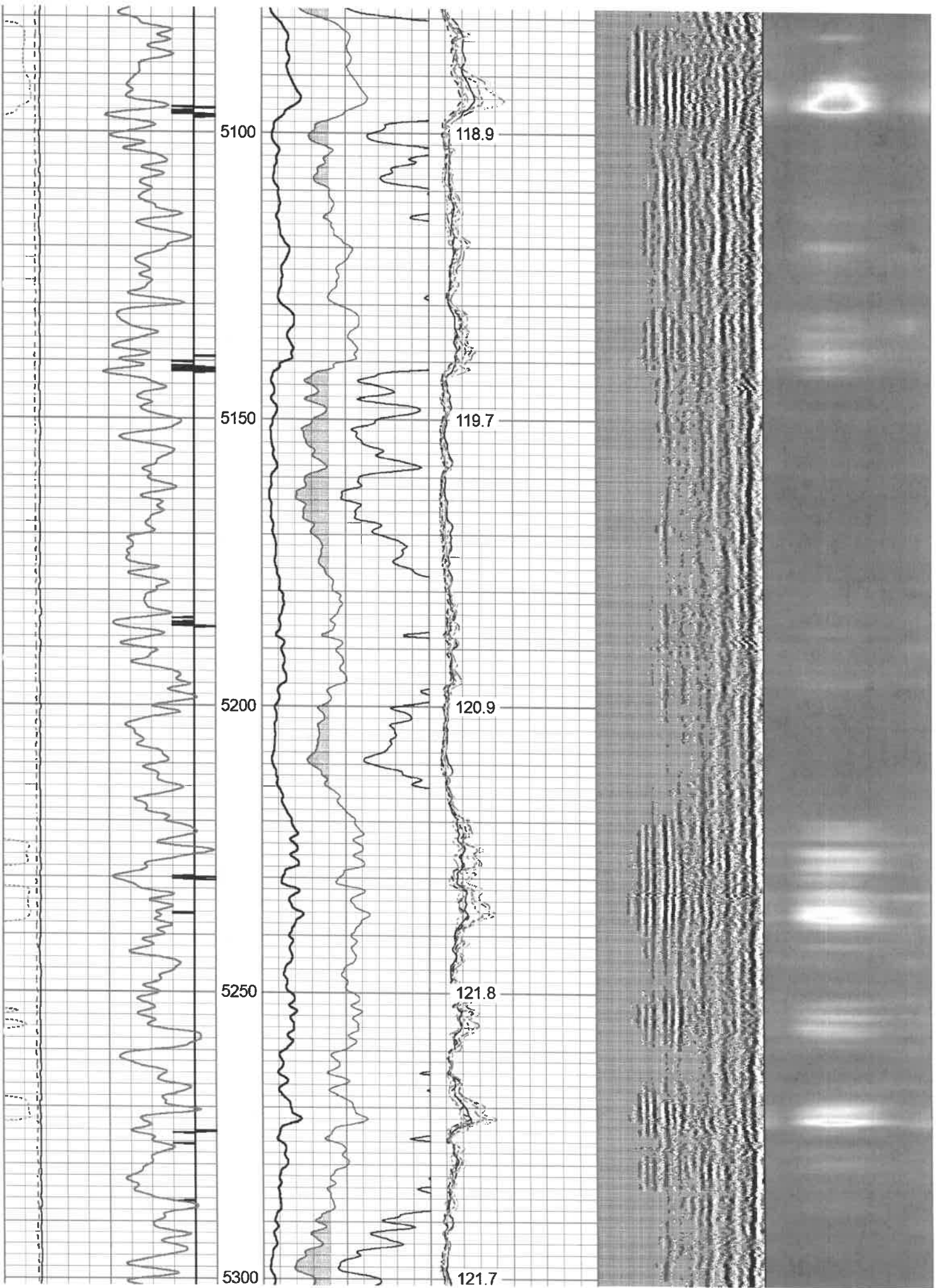
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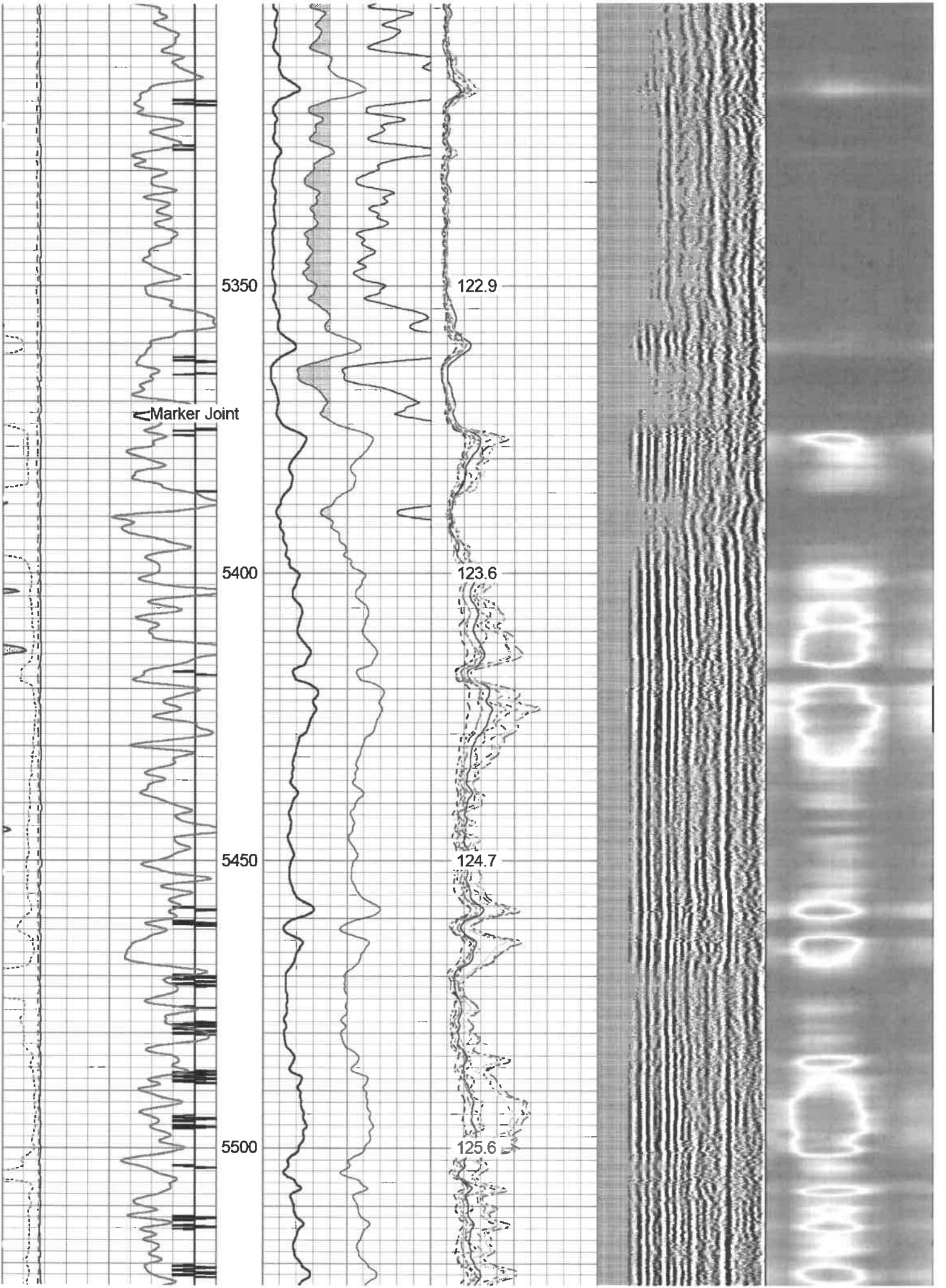
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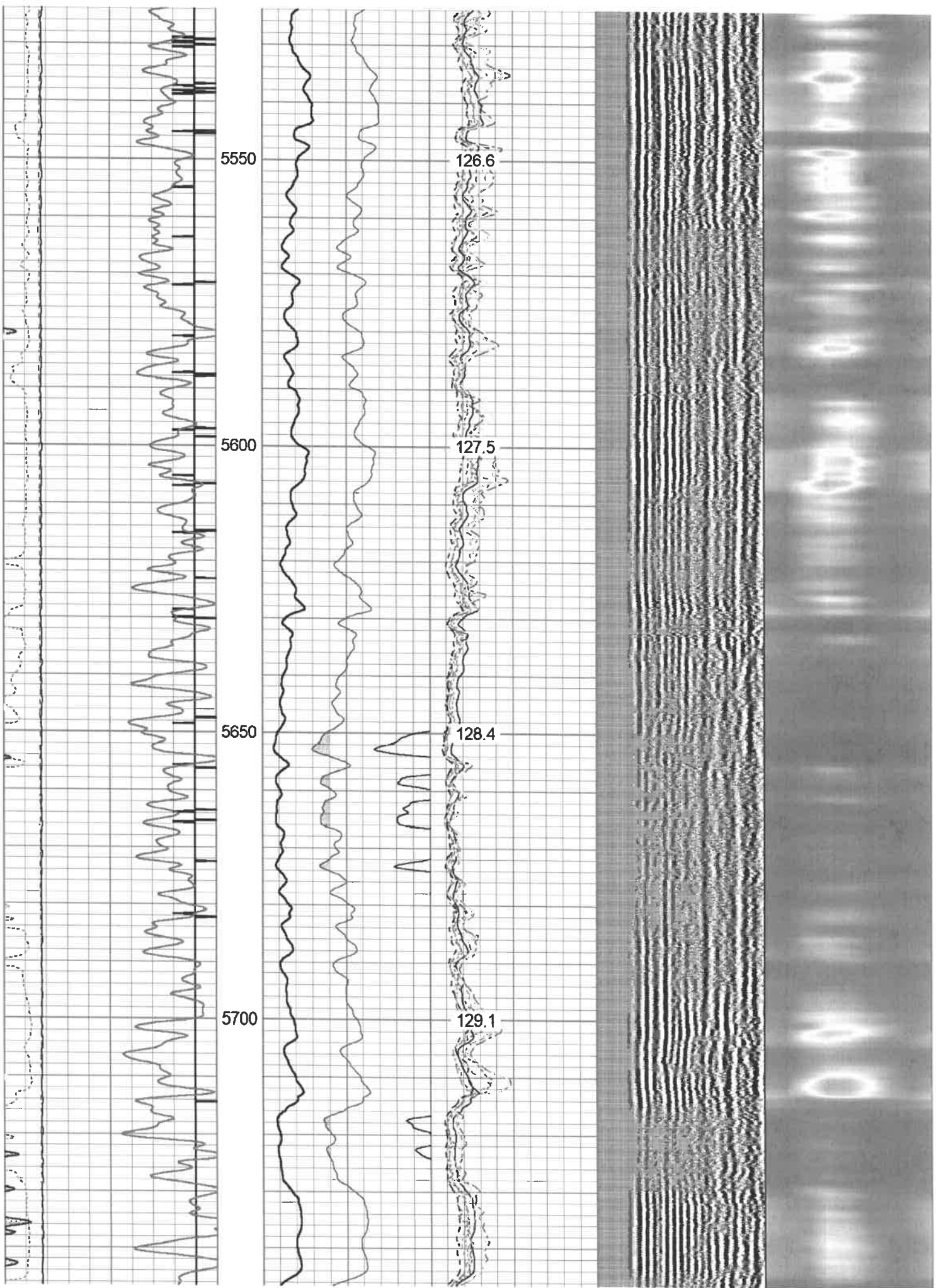


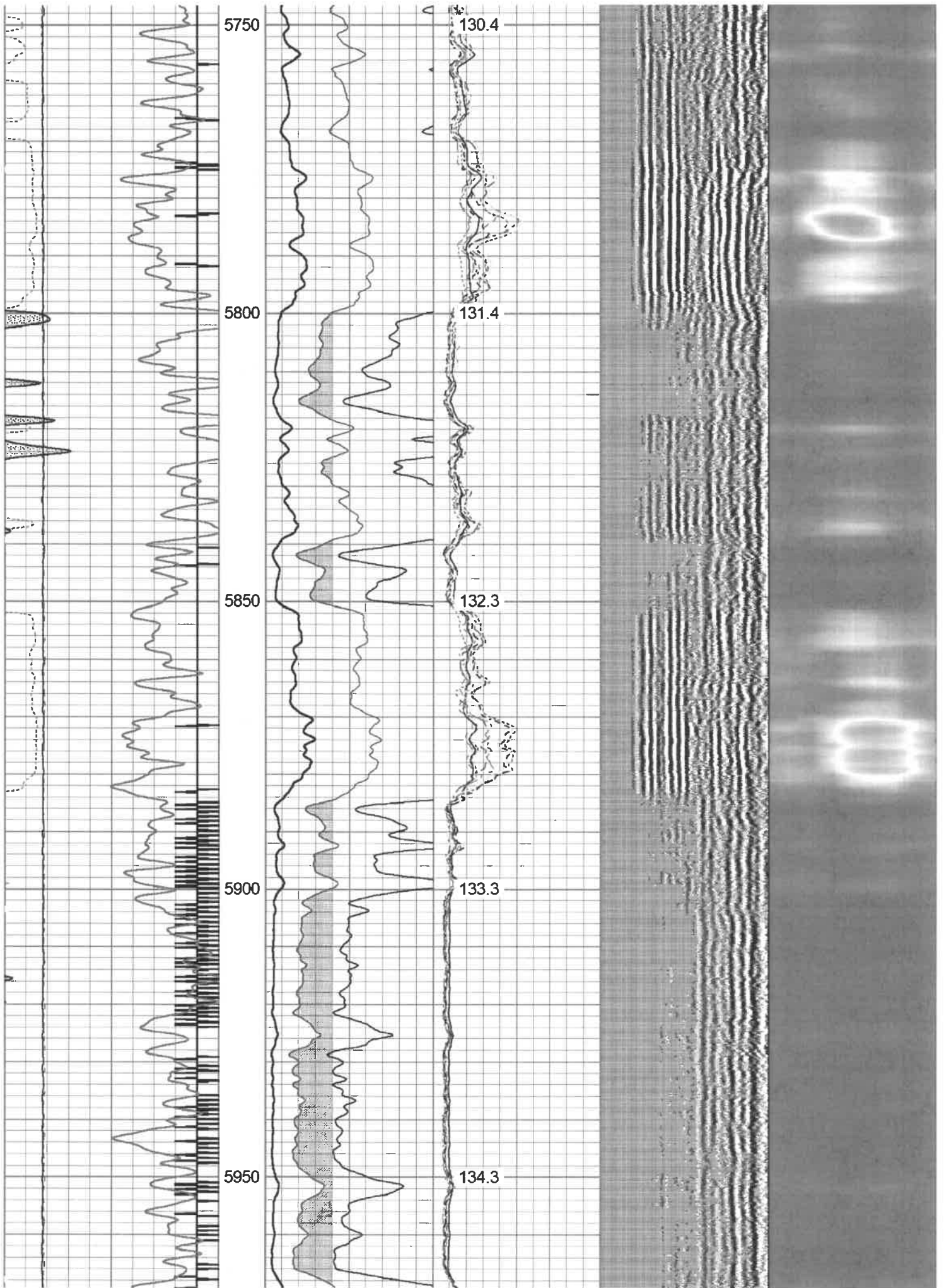


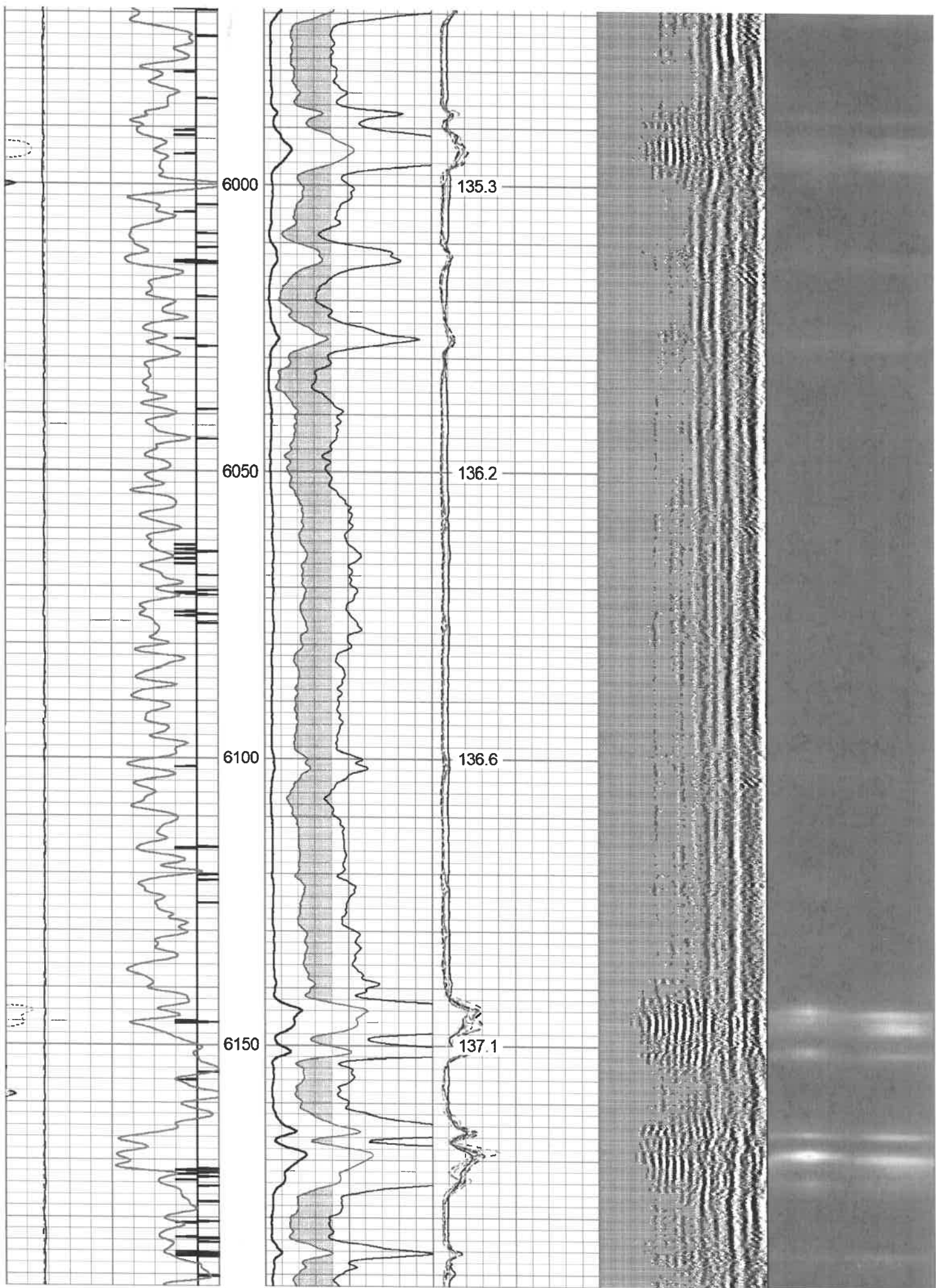


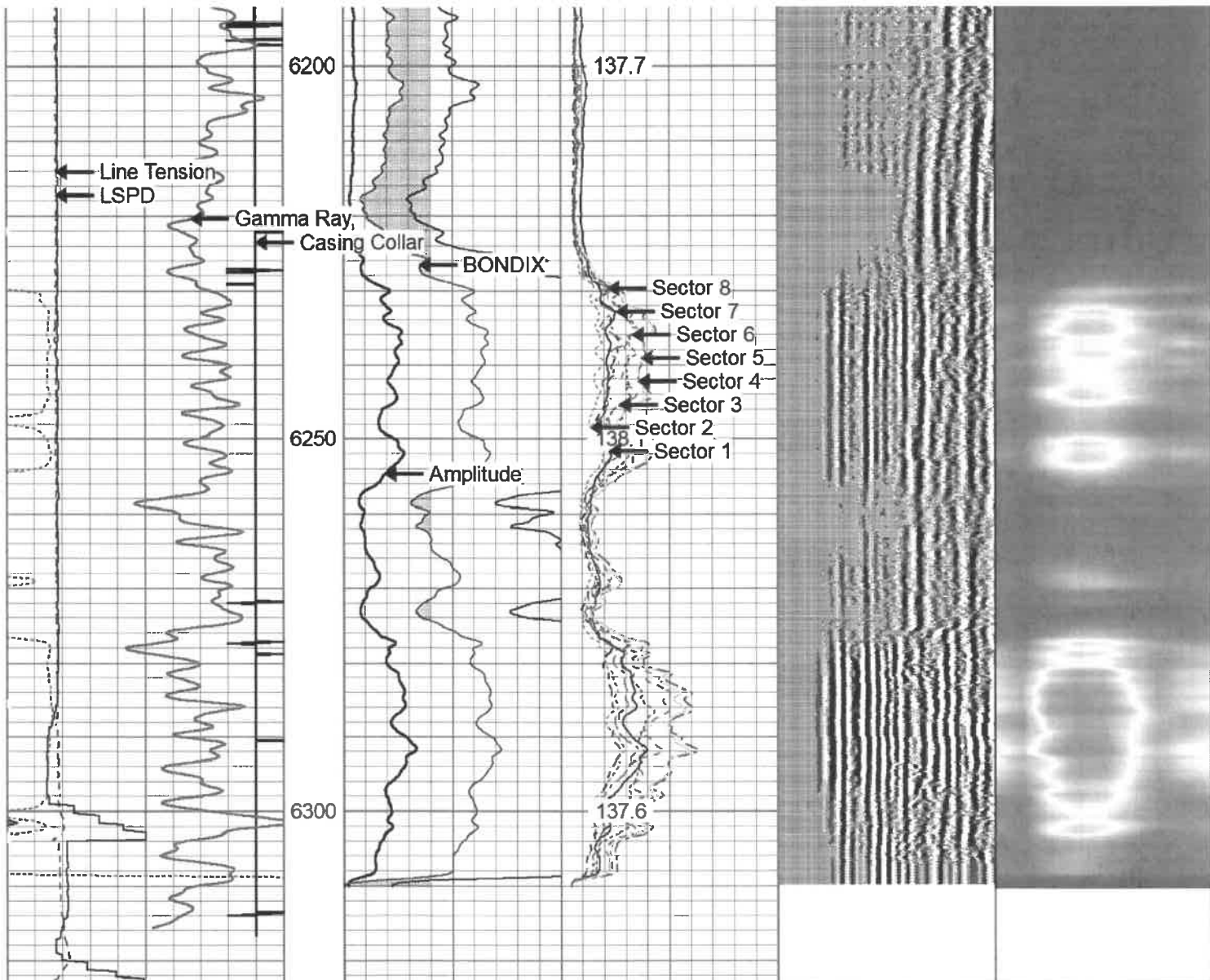












285	Travel Time (usec)	185	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	Sector 2	150	200 (usec)	1200		
0	Gamma Ray (GAPI)	150	0	AMPx10 (mV)	10	-5	Sector 3	150				
0	Line Tension (lb)	5000				-5	Sector 4	150				
-100	LSPD (ft/min)	100				-5	Sector 5	150				
						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				
							TEMP					
							(degF)					

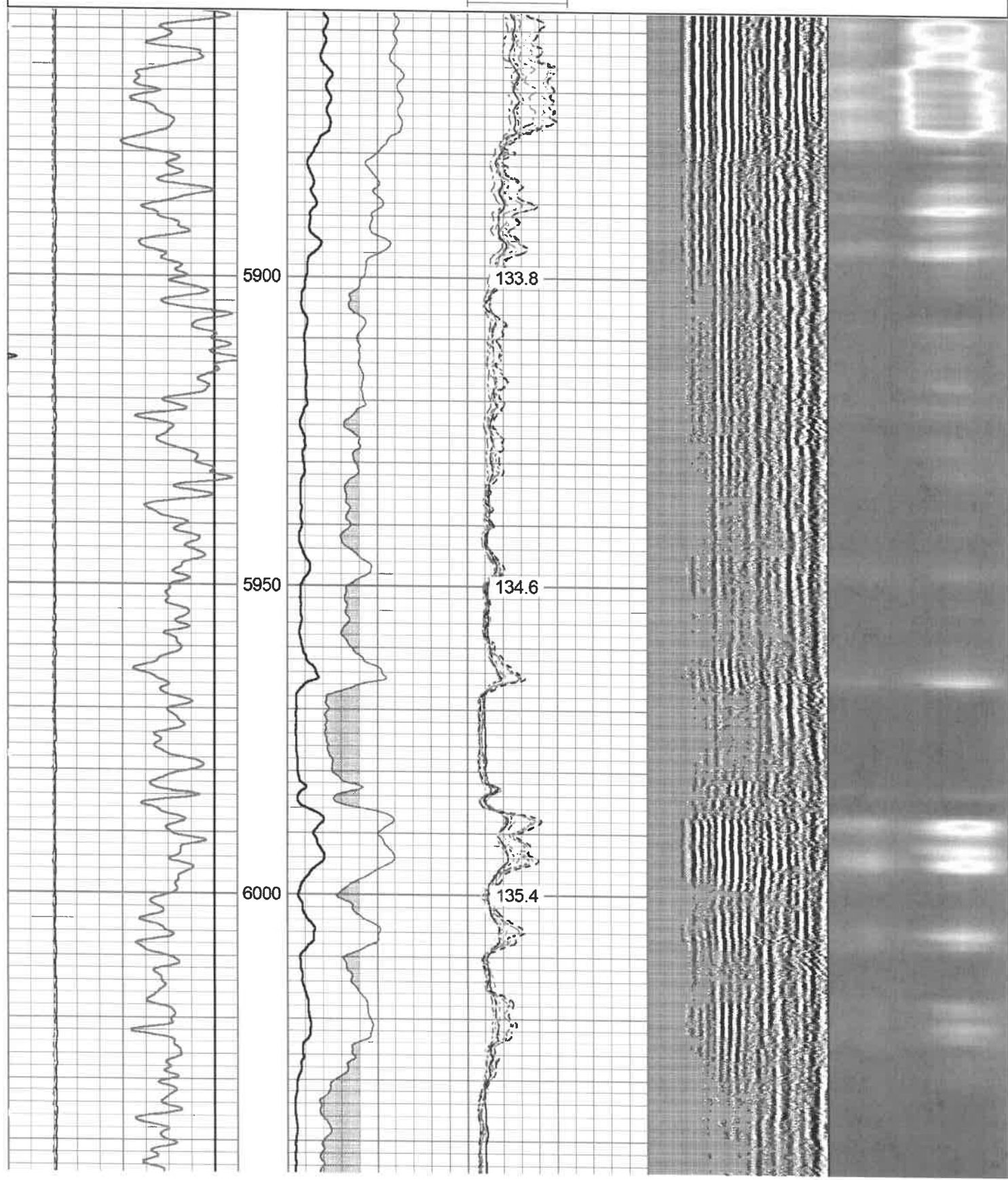
Database File antero_roy_1h_rcbl_july132021.db
 Dataset Pathname Marcellus/Roy_1H/RCBL_1/pass2
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Tue Jul 13 10:08:37 2021
 Charted by Depth in Feet scaled 1:240

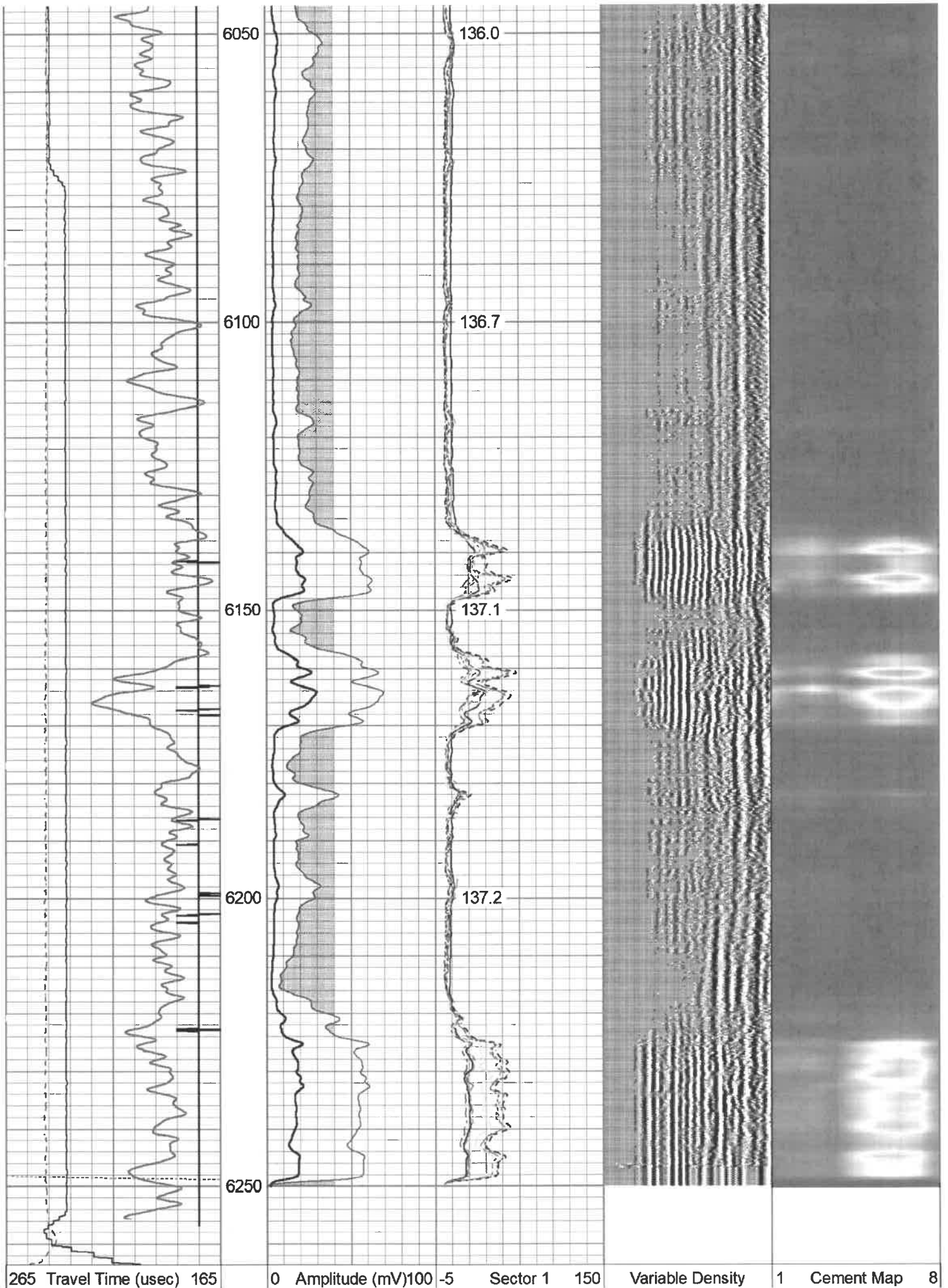
265	Travel Time (usec)	165	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	Sector 2	150	200 (usec)	1200		
0	Gamma Ray (GAPI)	150				-5	Sector 3	150				

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

-5 Sector 4 150
-5 Sector 5 150
-5 Sector 6 150
-5 Sector 7 150
-5 Sector 8 150

TEMP
(degF)





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

1	BONDIX	0	-5	Sector 2	150	200	(usec)	1200
			-5	Sector 3	150			
			-5	Sector 4	150			
			-5	Sector 5	150			
			-5	Sector 6	150			
			-5	Sector 7	150			
			-5	Sector 8	150			
				TEMP				
				(degF)				

Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero_roy_1h_rcbl_july132021.db
 Dataset Marcellus/Roy_1H/RCBL_1/pass4.4/_vars_

Top - Bottom

BHTEMP_Src TEMP	BOREID in 7.875	BOTTEMP degF 100	CASEOD in 5.5	CASETHCK in 0.376	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	MINAMPL : Minimum Amplitude
BOREID : Borehole I.D.	MINATTN : Minimum Attenuation
BOTTEMP : Bottom Hole Temperature	PERFS : Perforation Flag
CASEOD : Casing O.D.	PPT : Predicted Pipe Time
CASETHCK : Casing Thickness	SRFTEMP : Surface Temperature
CASEWGHT : Casing Weight	TDEPTH : Total Depth
MAXAMPL : Maximum Amplitude	

Calibration Report

Database File antero_roy_1h_rcbl_july132021.db
 Dataset Pathname Marcellus/Roy_1H/RCBL_1/pass4.4
 Dataset Creation Tue Jul 13 15:16:25 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 09:52:43 2021:


	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.238	2.200	71.921	76.307	2.200
CAL	0.000	0.764				
5'	0.000	1.766	2.200	71.921	49.469	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)
Temp	16.93		CHD-Titan Standard 1 7/16" Cable Head	1.02	1.44	1.00
			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_1h_rcbl_july132021.db: Marcellus/Roy_1H/RCBL_1/pass4.4
 Total length: 20.86 ft
 Total weight: 196.00 lb
 O.D.: 2.75 in

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