



RADIAL CEMENT BOND LOG

Company ANTERO Well VULCAN 2H Field RABBIT EARS County TYLER State WEST VIRGINIA	Country USA	Company ANTERO Well VULCAN 2H Field RABBIT EARS County TYLER State WEST VIRGINIA Country USA	
Location:		API #: 47-095-02702-0000	
		Other Services GR CCL TEMP	
		Elevation	
		K.B. N/A D.F. N/A G.L. N/A	
		SEC TWP RGE	Elevation 25'
Permanent Datum		GL	
Log Measured From		KB	
Drilling Measured From		KB	

Date	7-NOV-2020
Run Number	ONE
Depth Driller	21,510'
Depth Logger	6,820'
Bottom Logged Interval	6,873'
Top Log Interval	SURFACE
Open Hole Size	8.50"
Type Fluid	FRESH WATER
Density / Viscosity	8.4#
Max. Recorded Temp.	144 Deg. F.
Estimated Cement Top	
Time Well Ready	16:25
Time Logger on Bottom	17:30
Equipment Number	TK-127 / P2,G1
Location	CHARLEROI, PA
Recorded By	Matt McNally
Witnessed By	JERRAKO EVANS

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	17 1/2"	N/A	105'	391'
Prot. String				
Production String	5 1/2"	23#	SURFACE	21,510'
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

LOG CORRELATED TO MARKER JOINT @ 5614'-5625'

Depth Correction +5'

100%FREE PIPE=71.9mv

100%BOND=3.4mv

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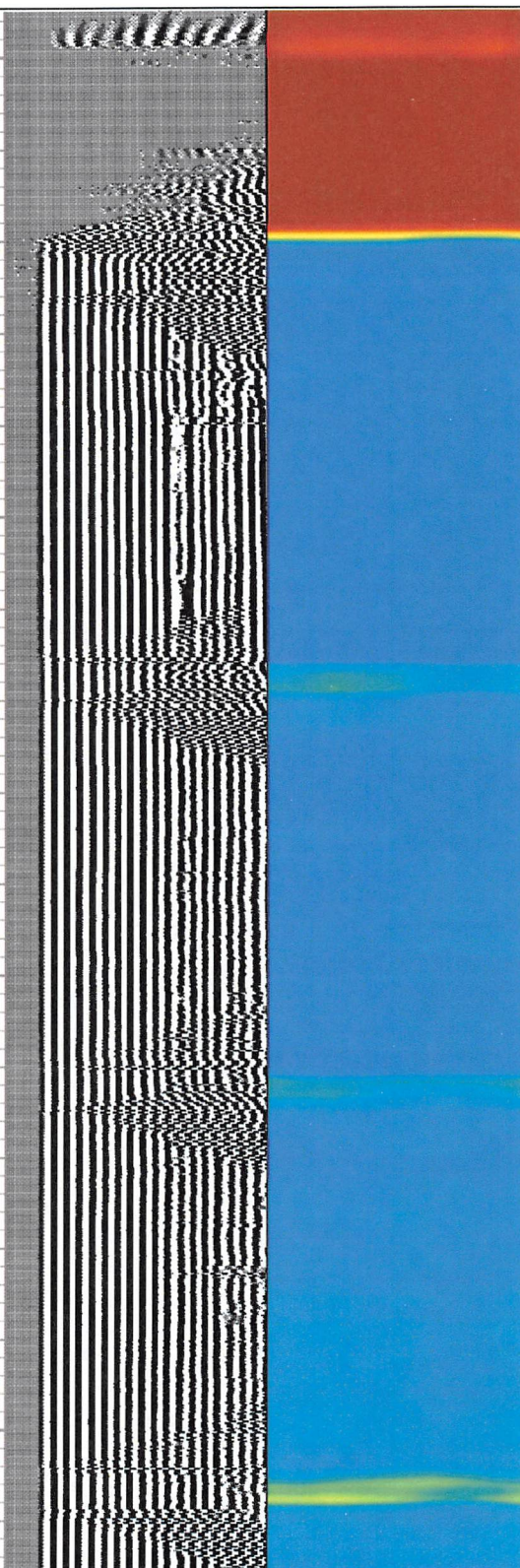
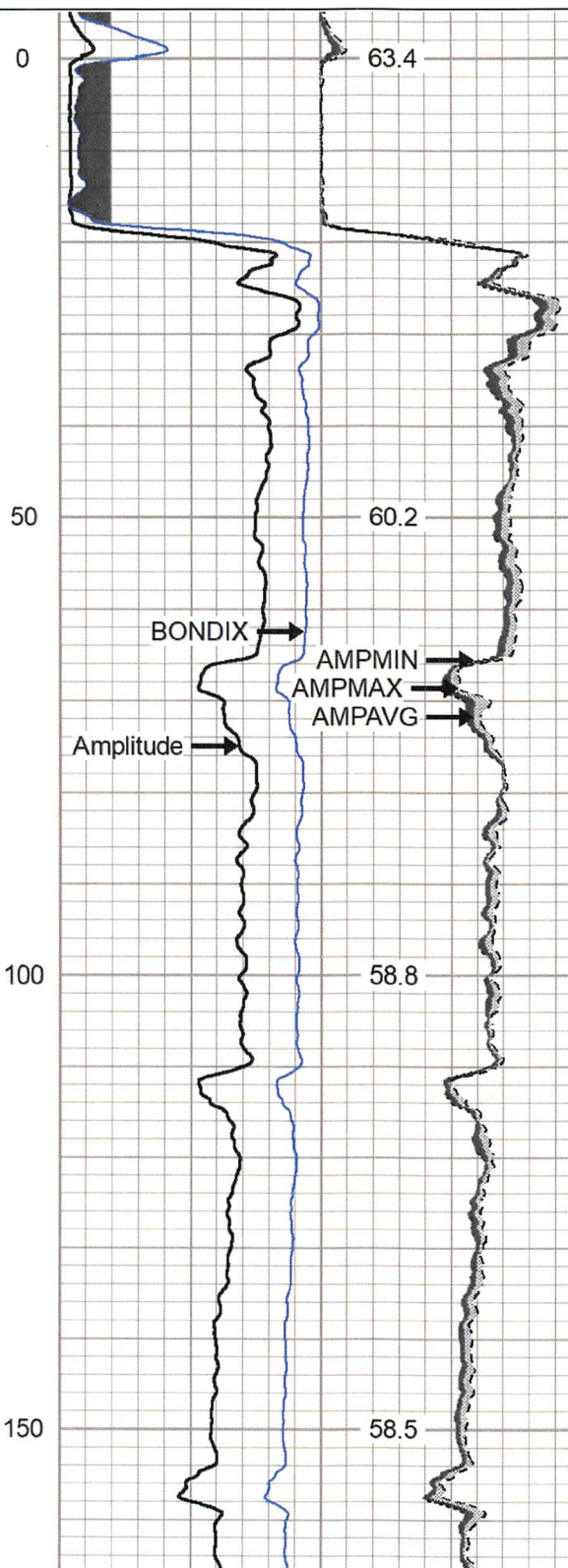
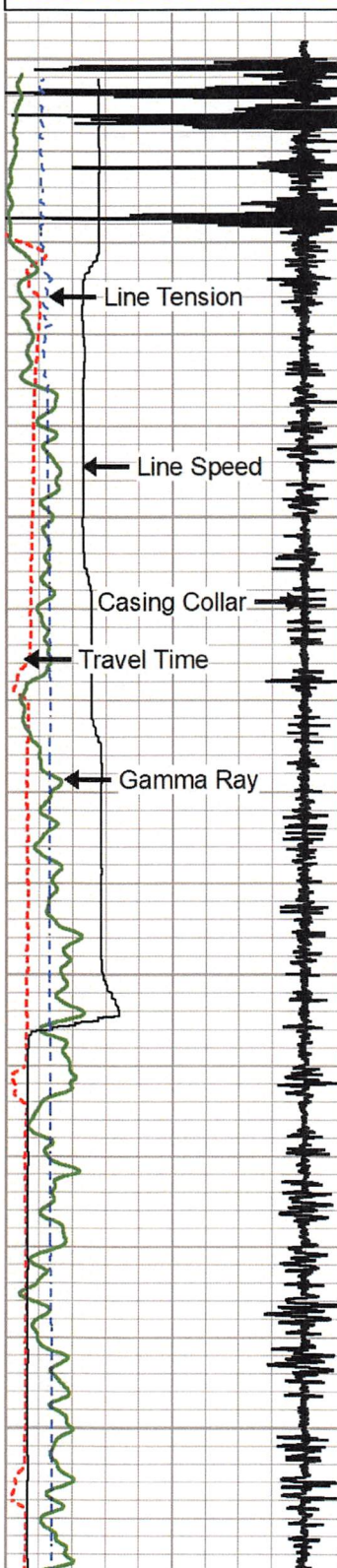
Main Pass 1,500 PSI

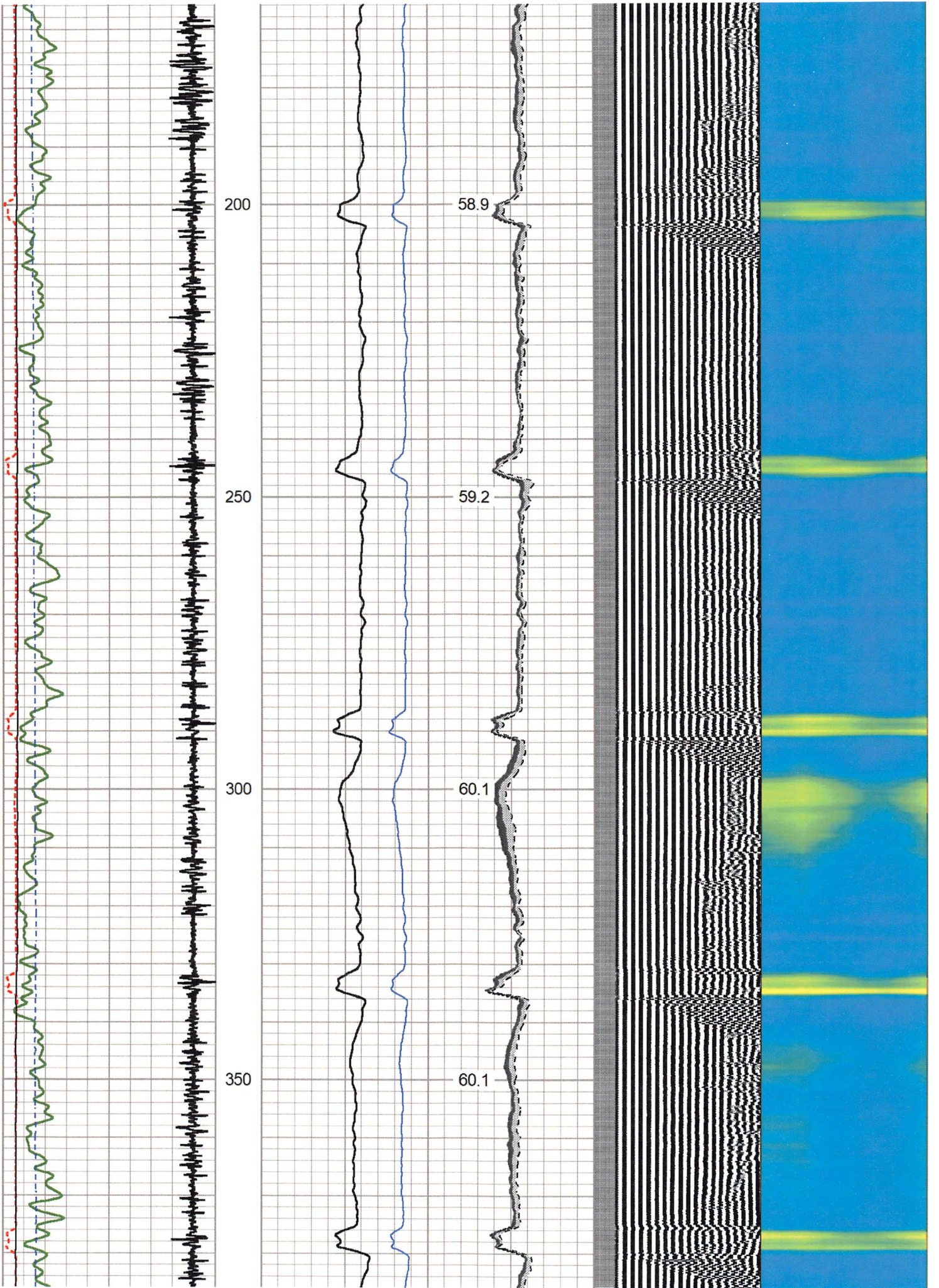
Database File antero_vulcan_2h_nov_7_2020_cbl.db
 Dataset Pathname pass12
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Sat Nov 07 17:39:17 2020
 Charted by Depth in Feet scaled 1:240

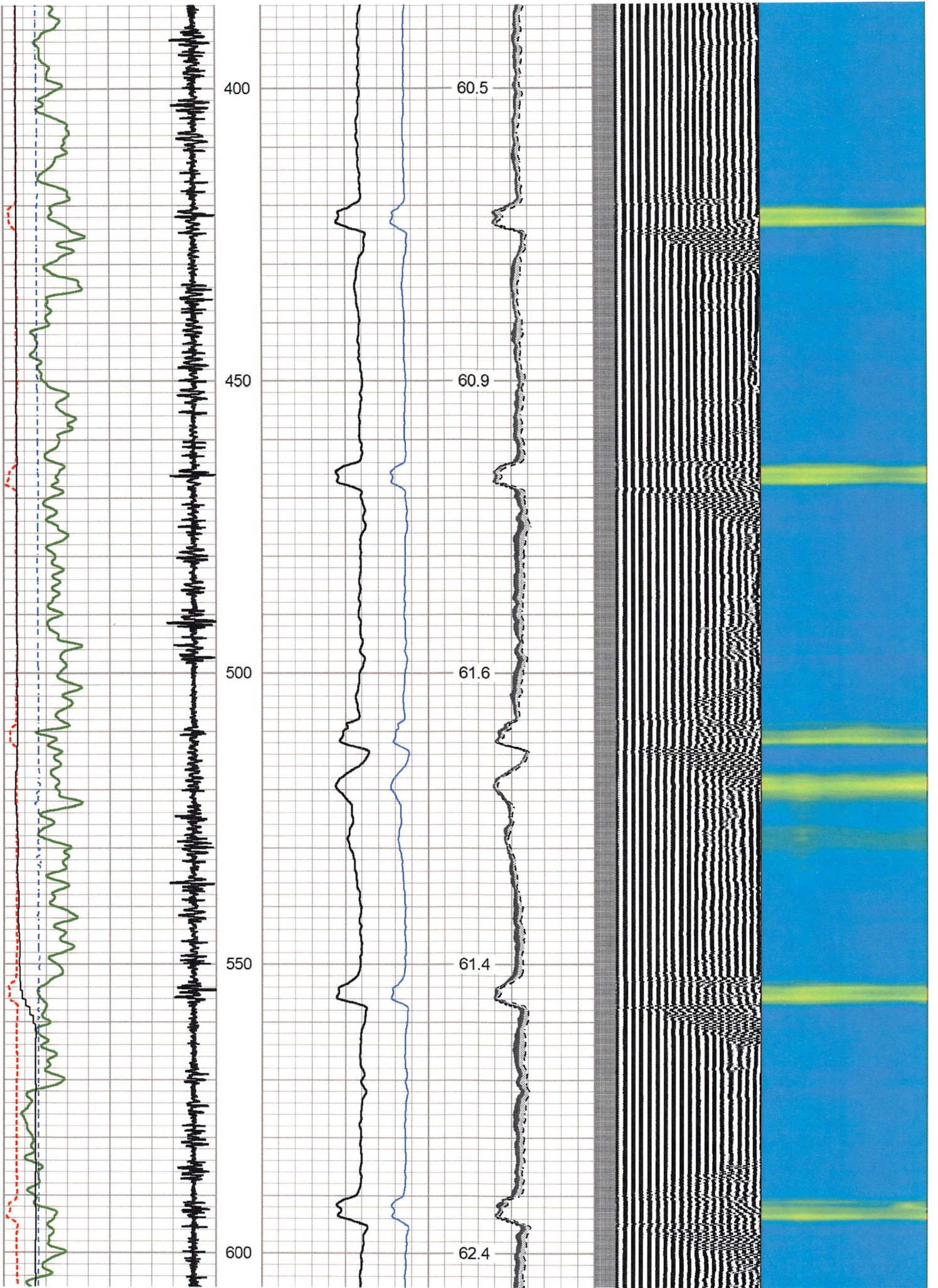
268	Travel Time (usec)	168
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
Line Speed		
-100	(ft/min)	100
0	Line Tension (lb)	2000

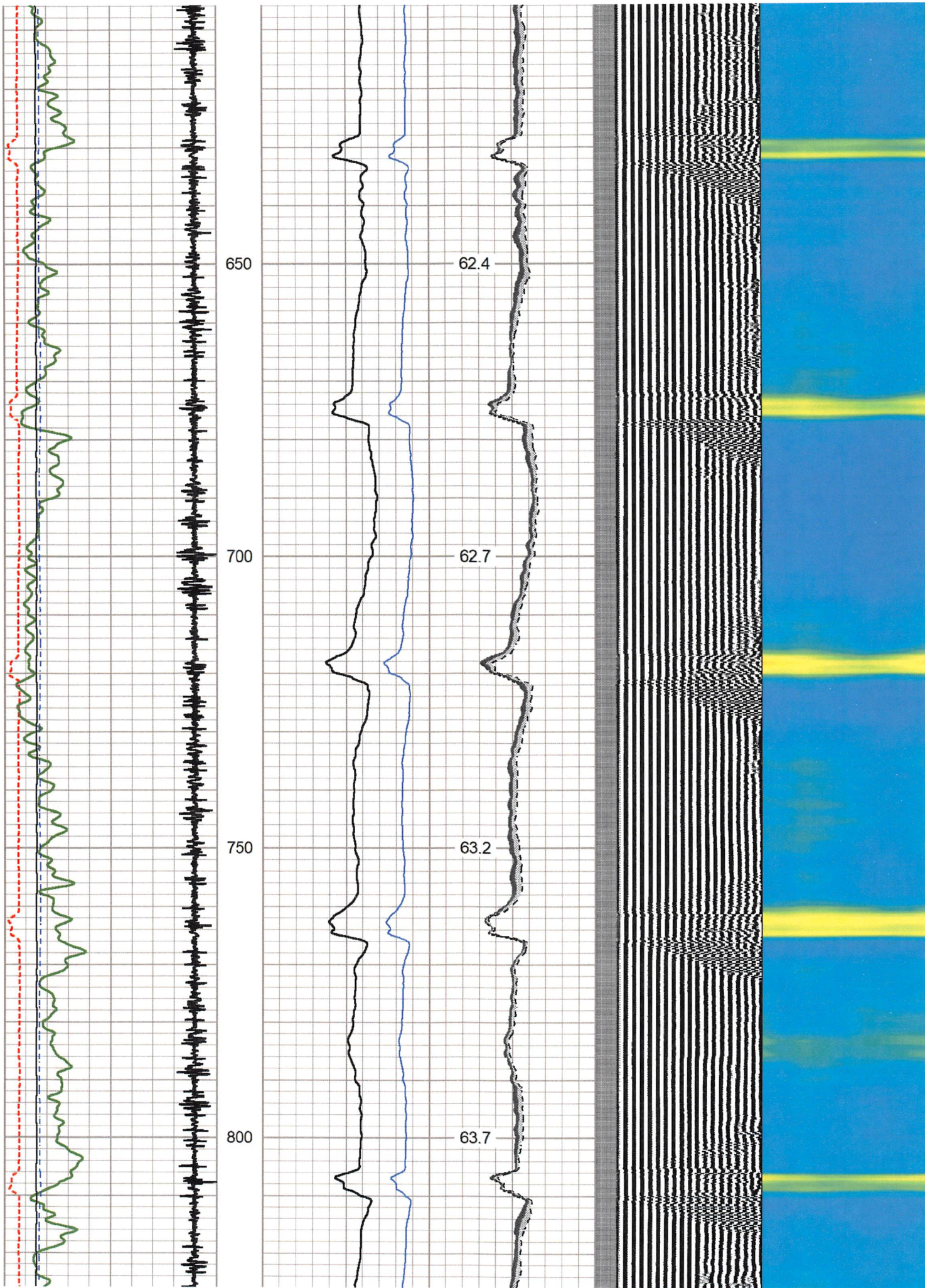
0	Amplitude (mV)	100
1	BONDIX	0
0	AMPMIN	150
0	AMPMAX	150
0	AMPAVG	150
TEMP		
(degF)		

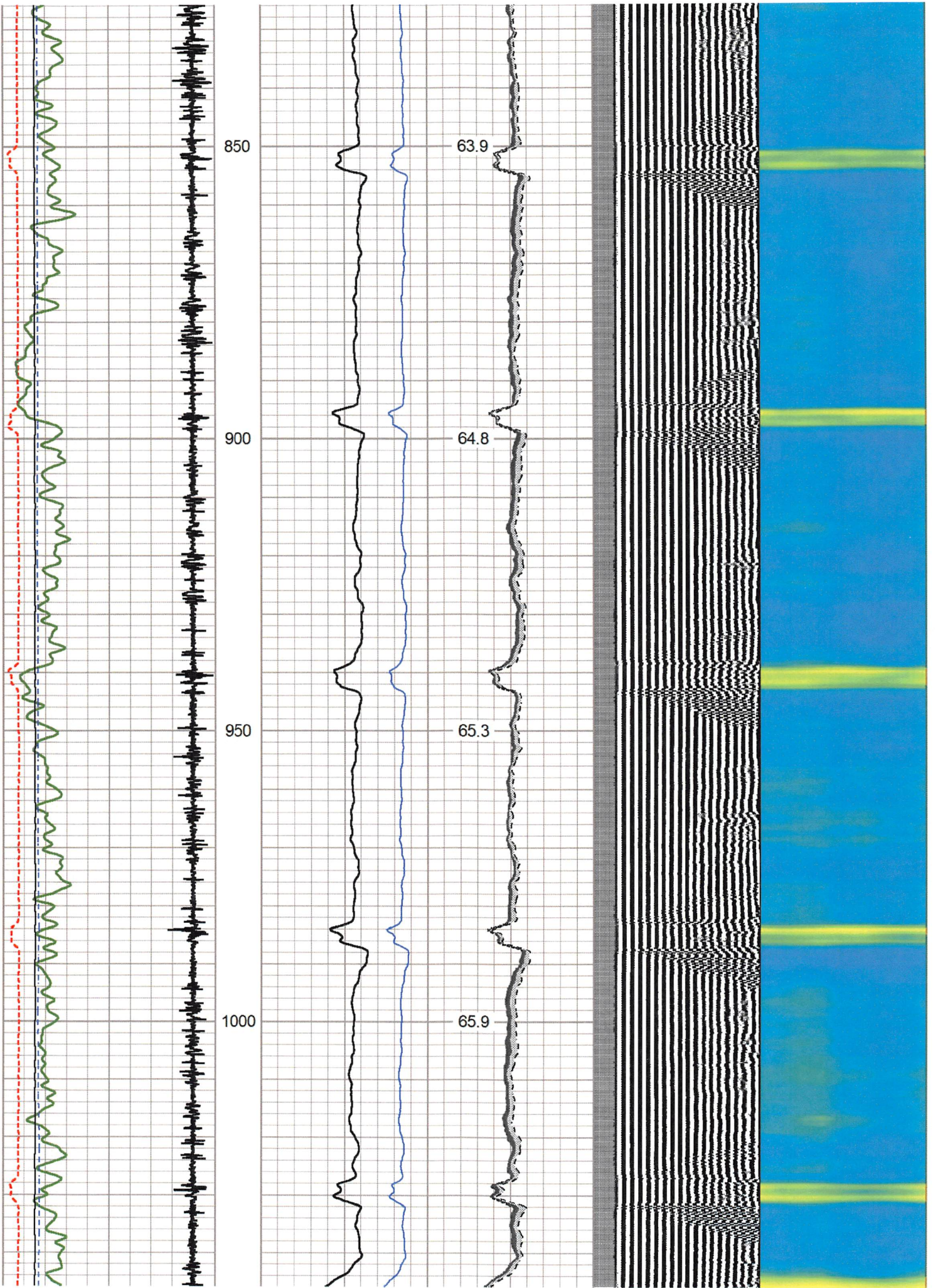
Variable Density 1 Cement Map 8
 200 (usec) 1200

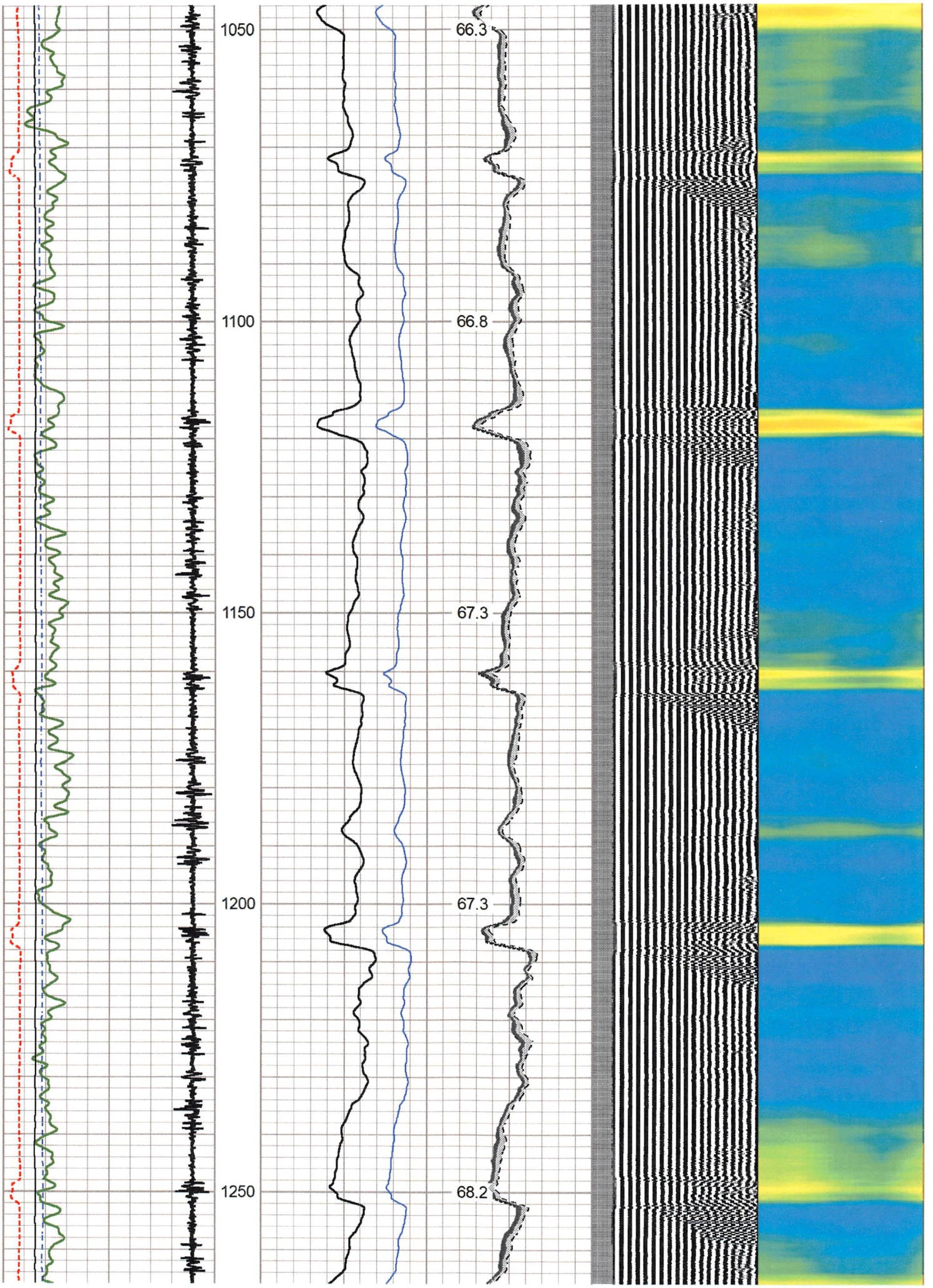


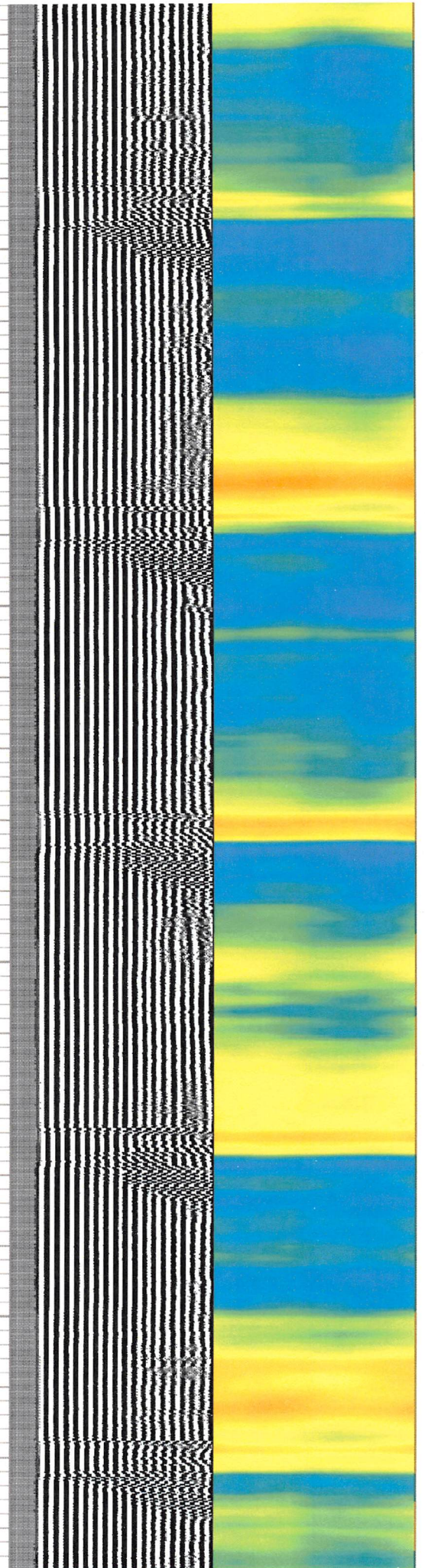
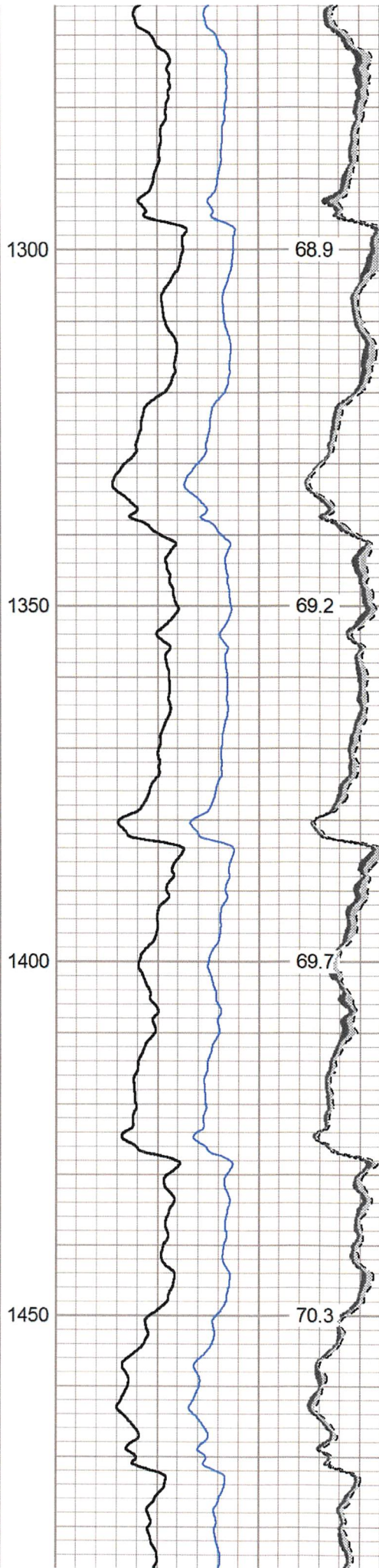
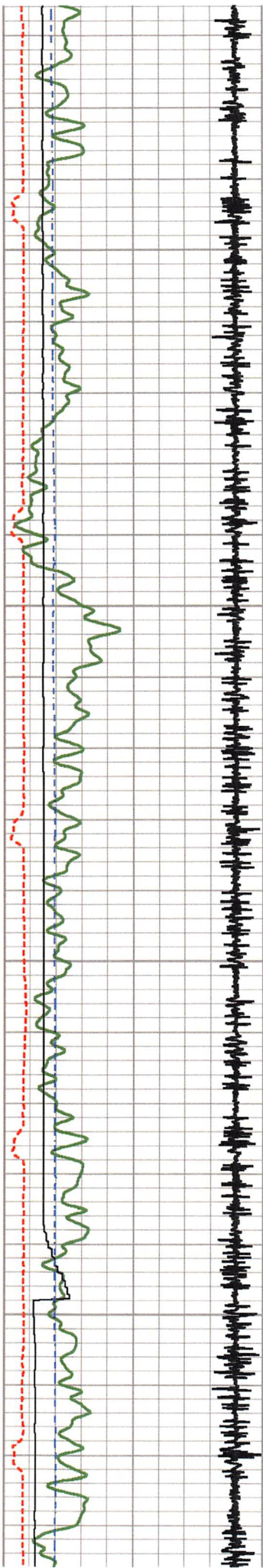


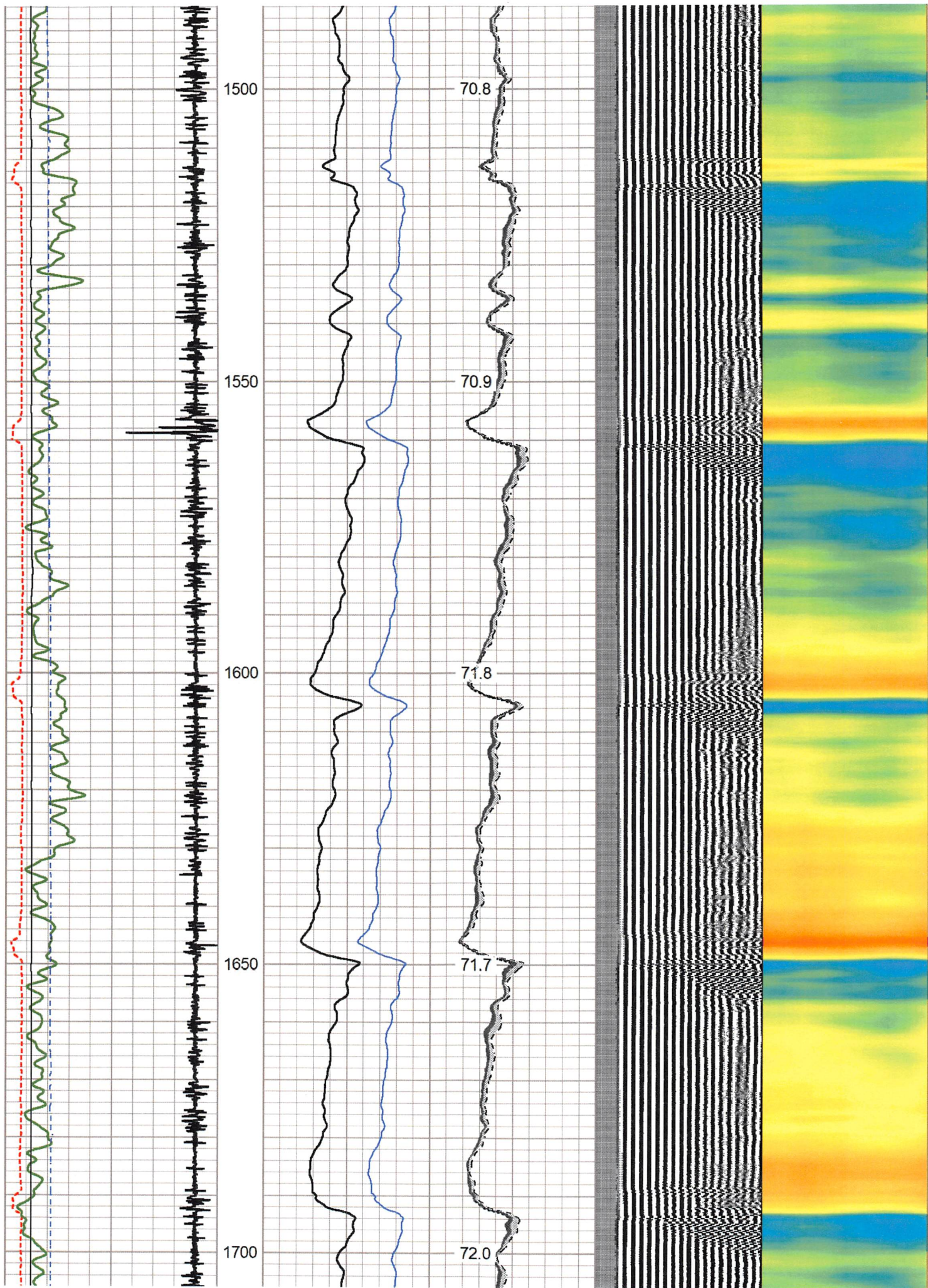


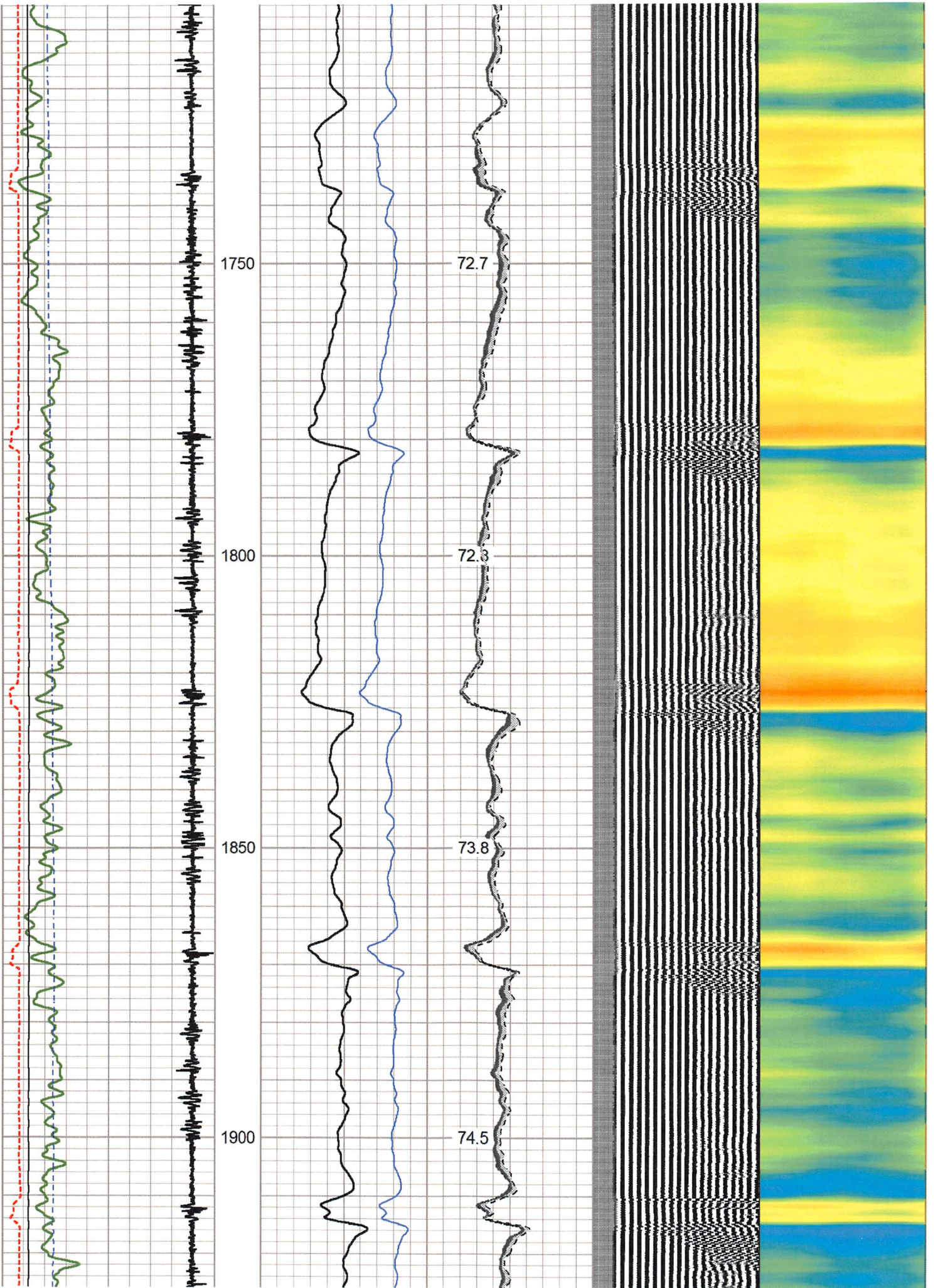


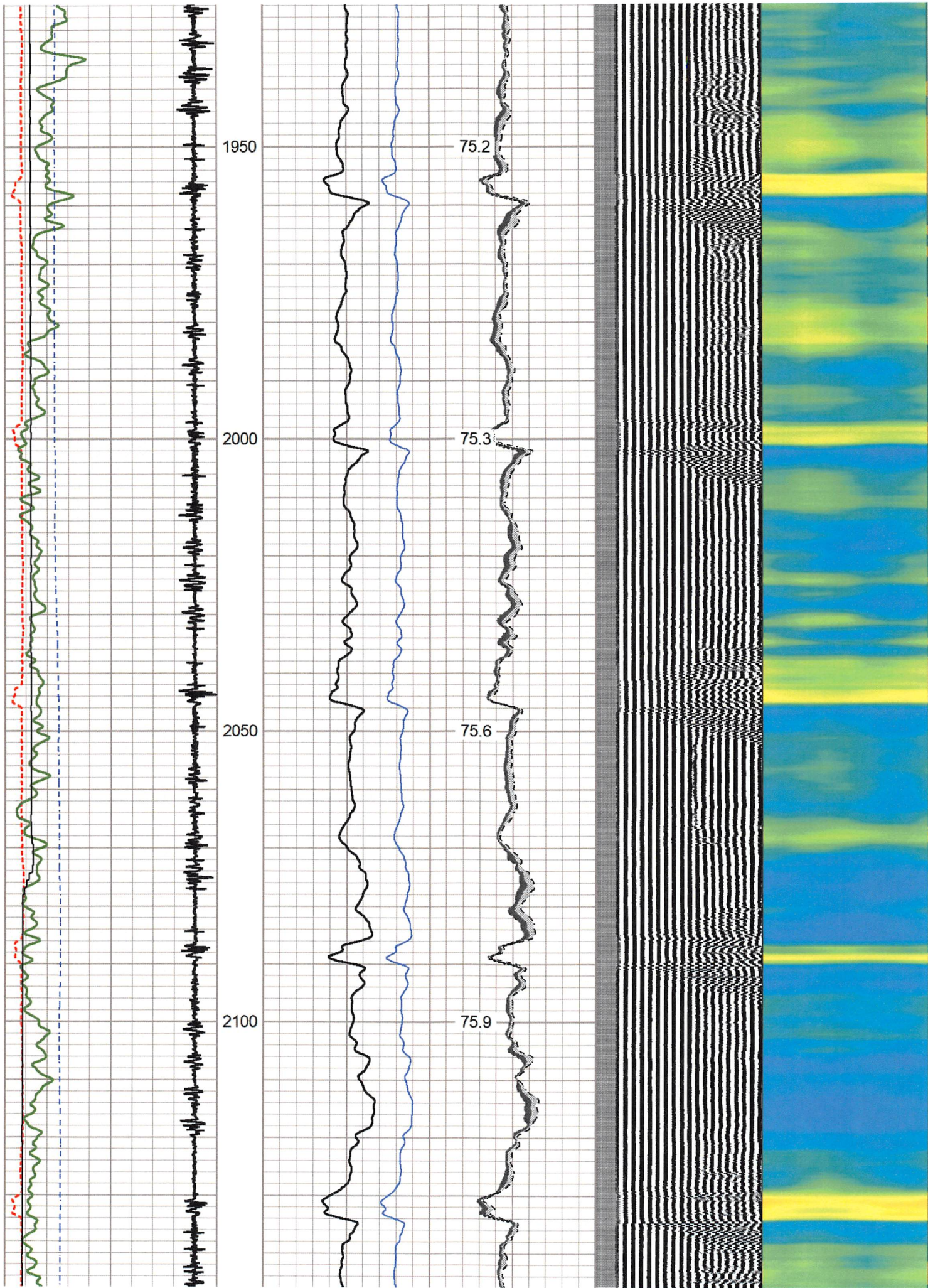


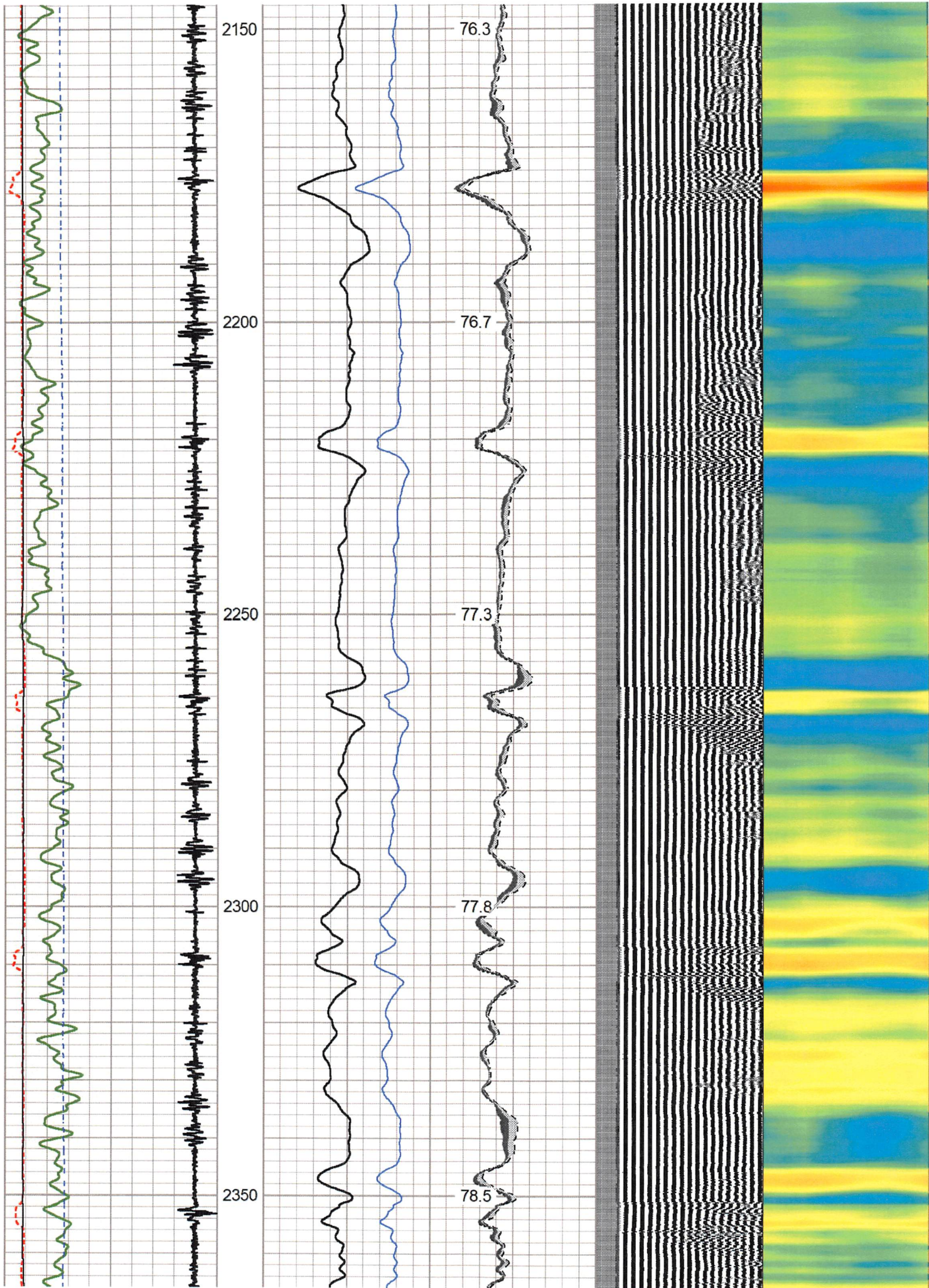


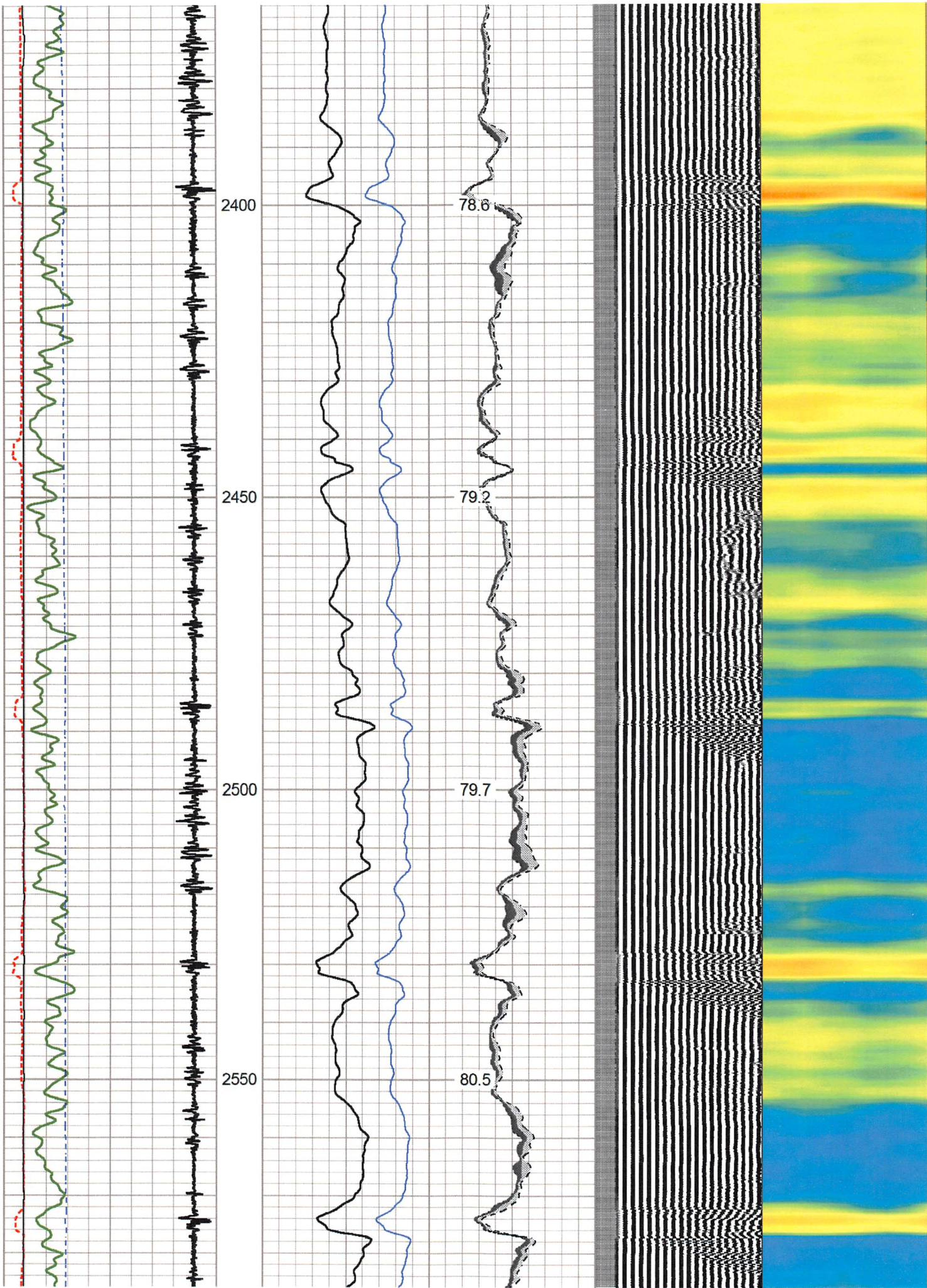


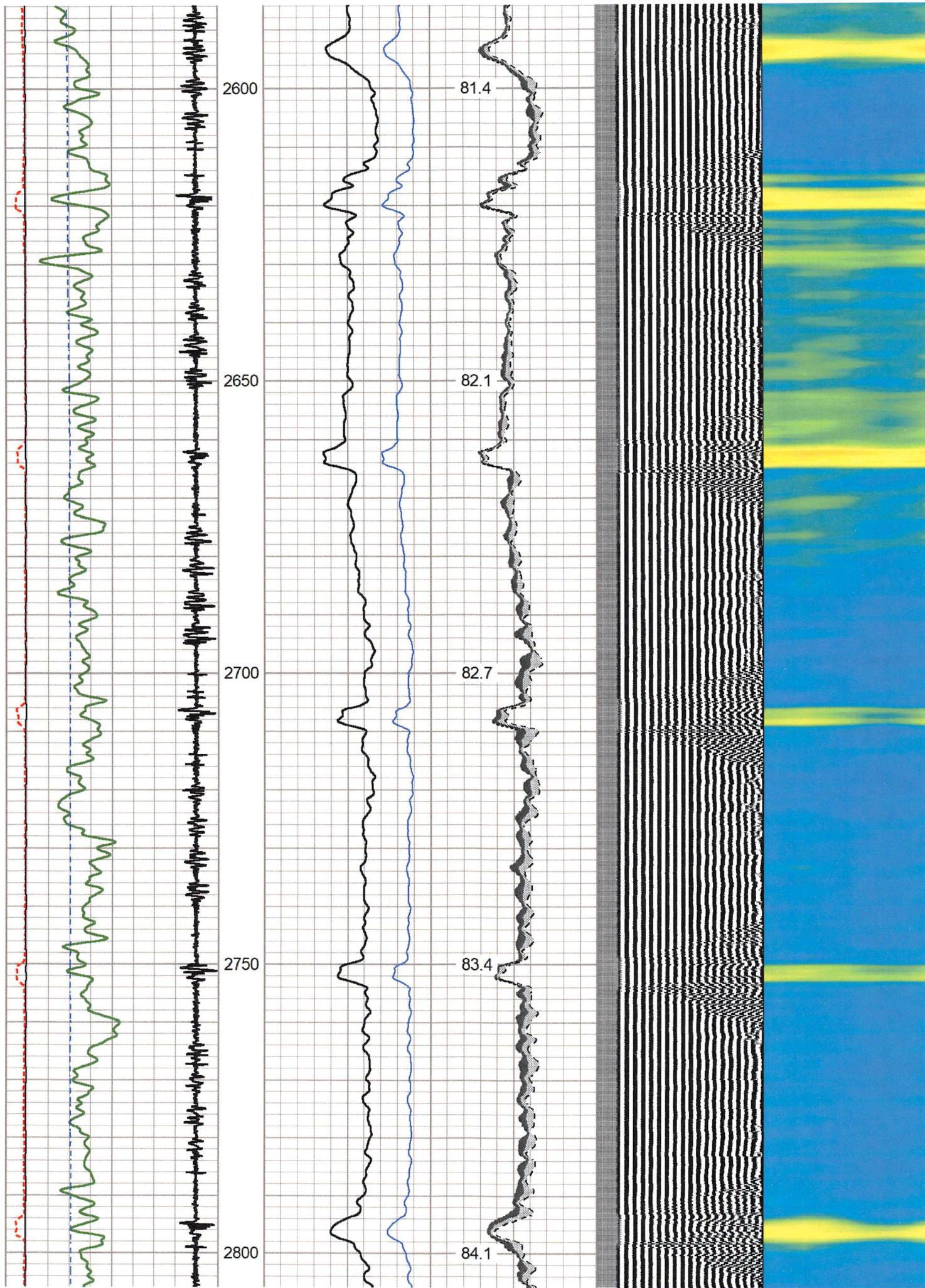


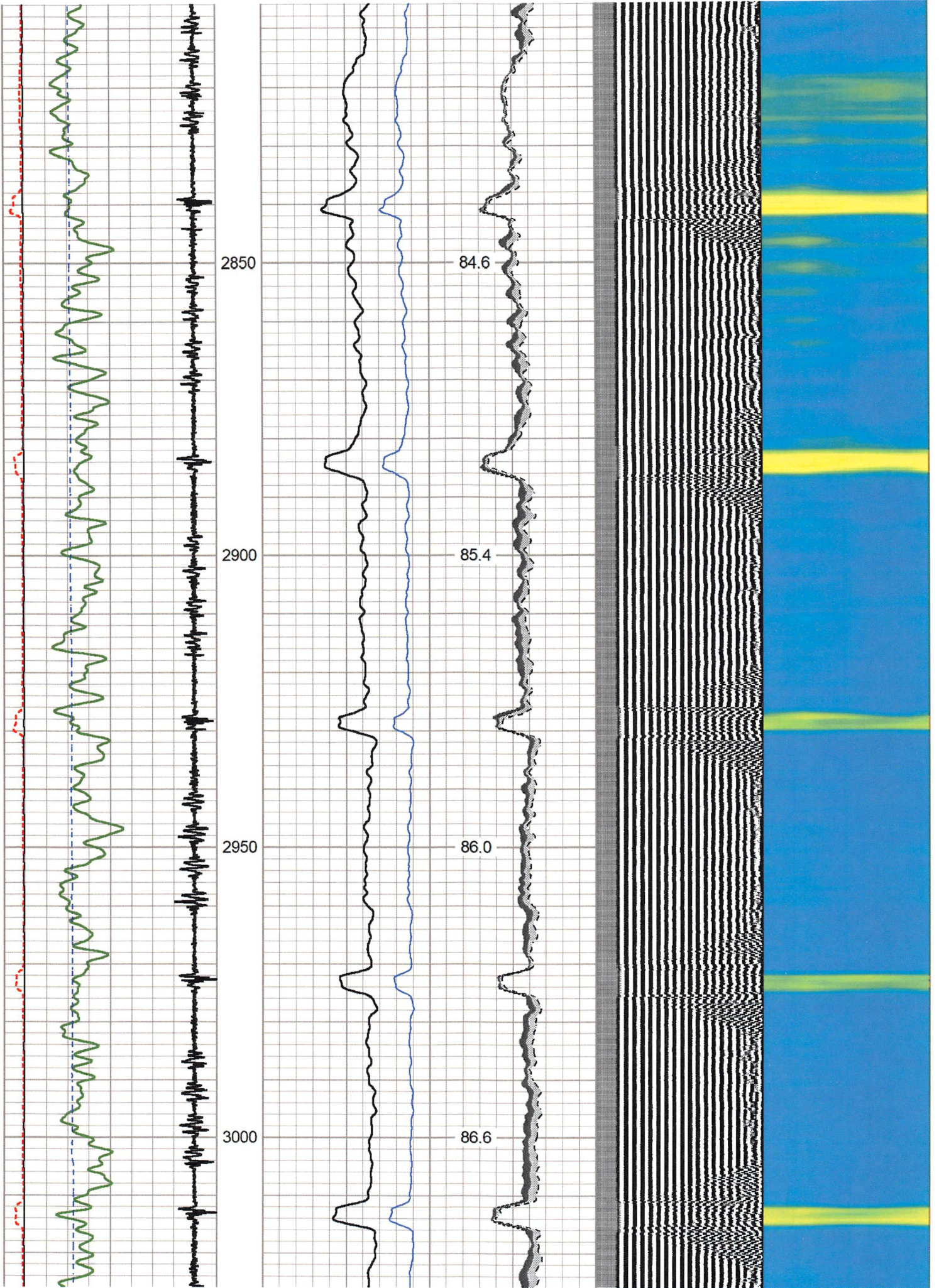


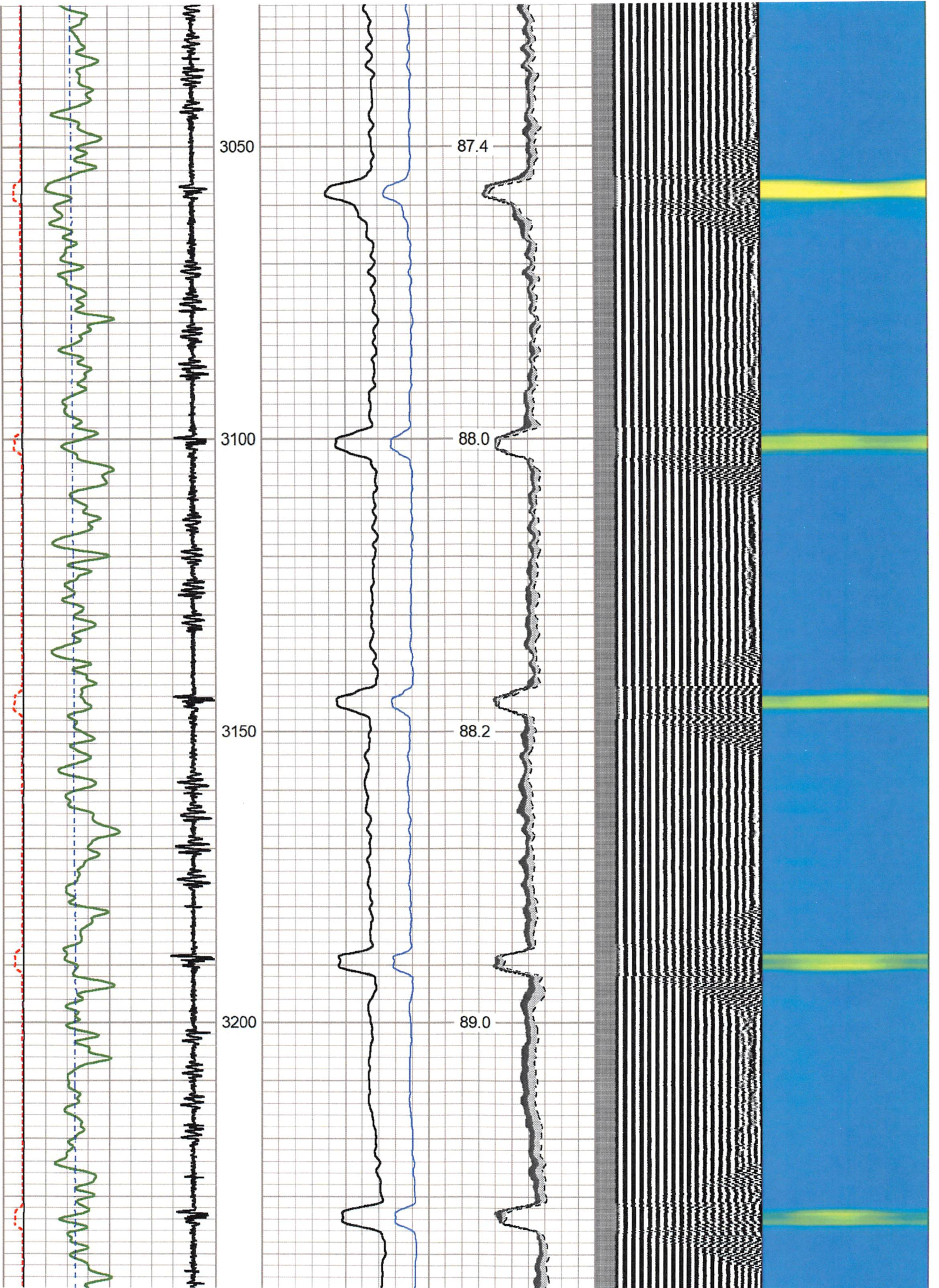


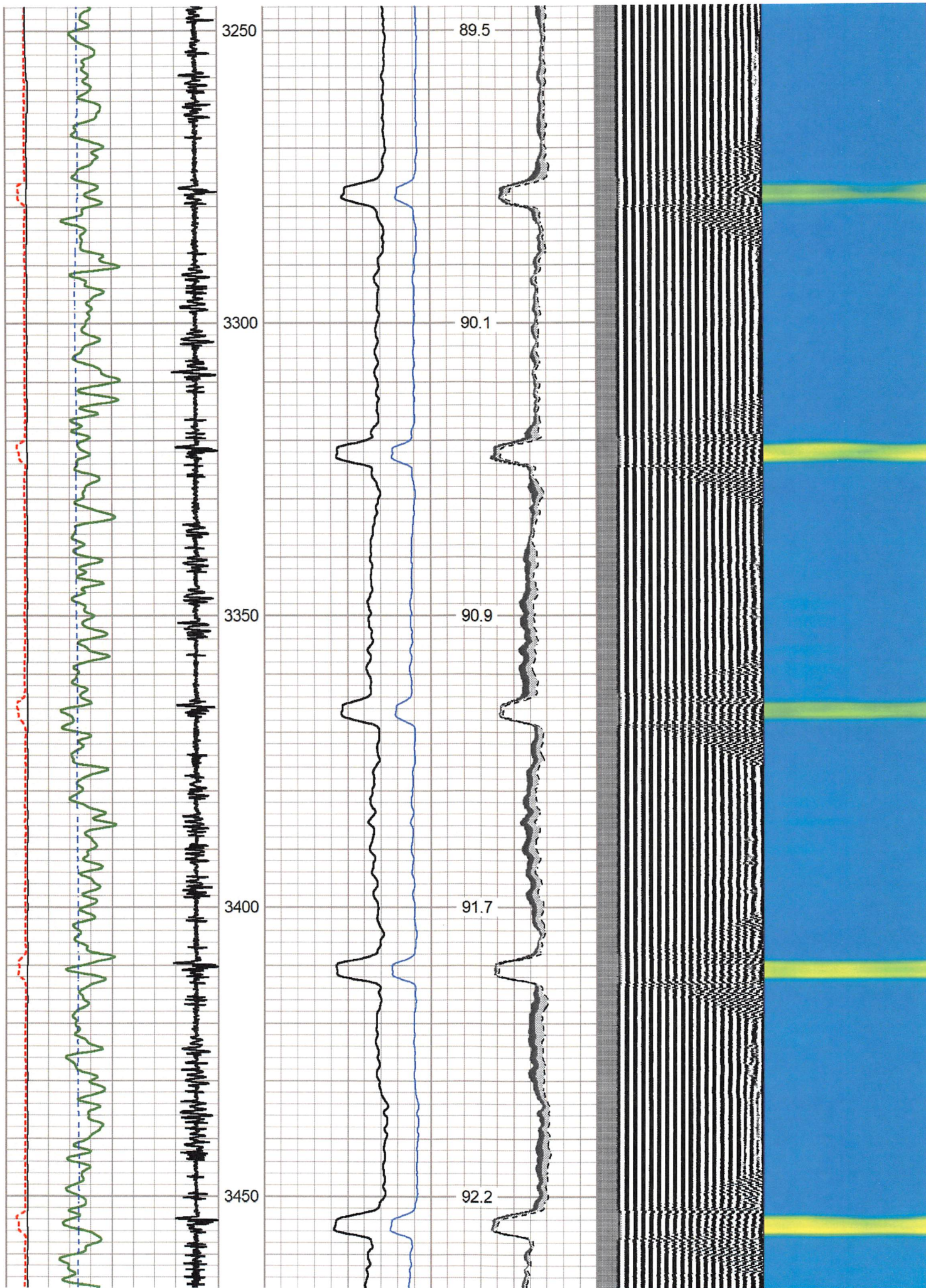


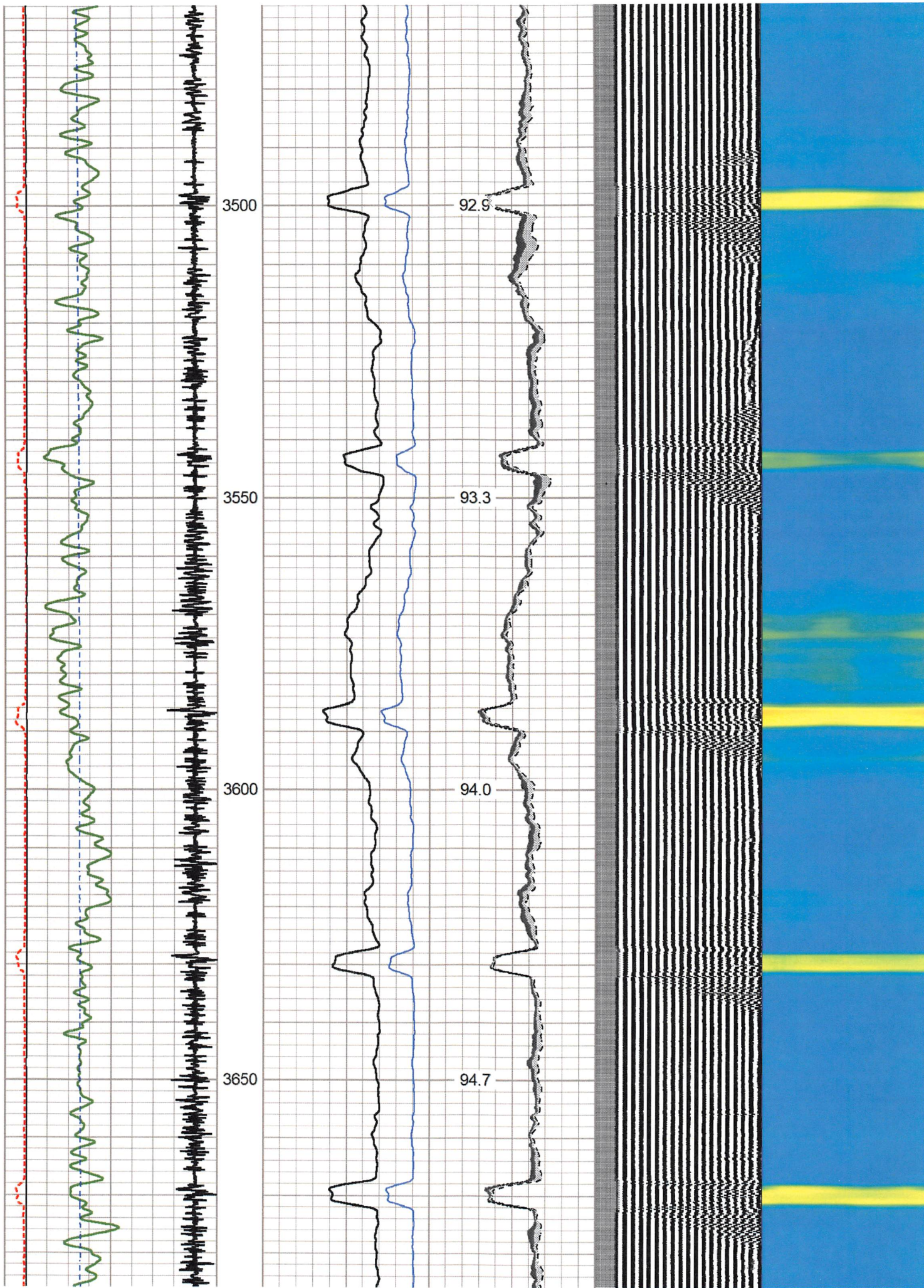


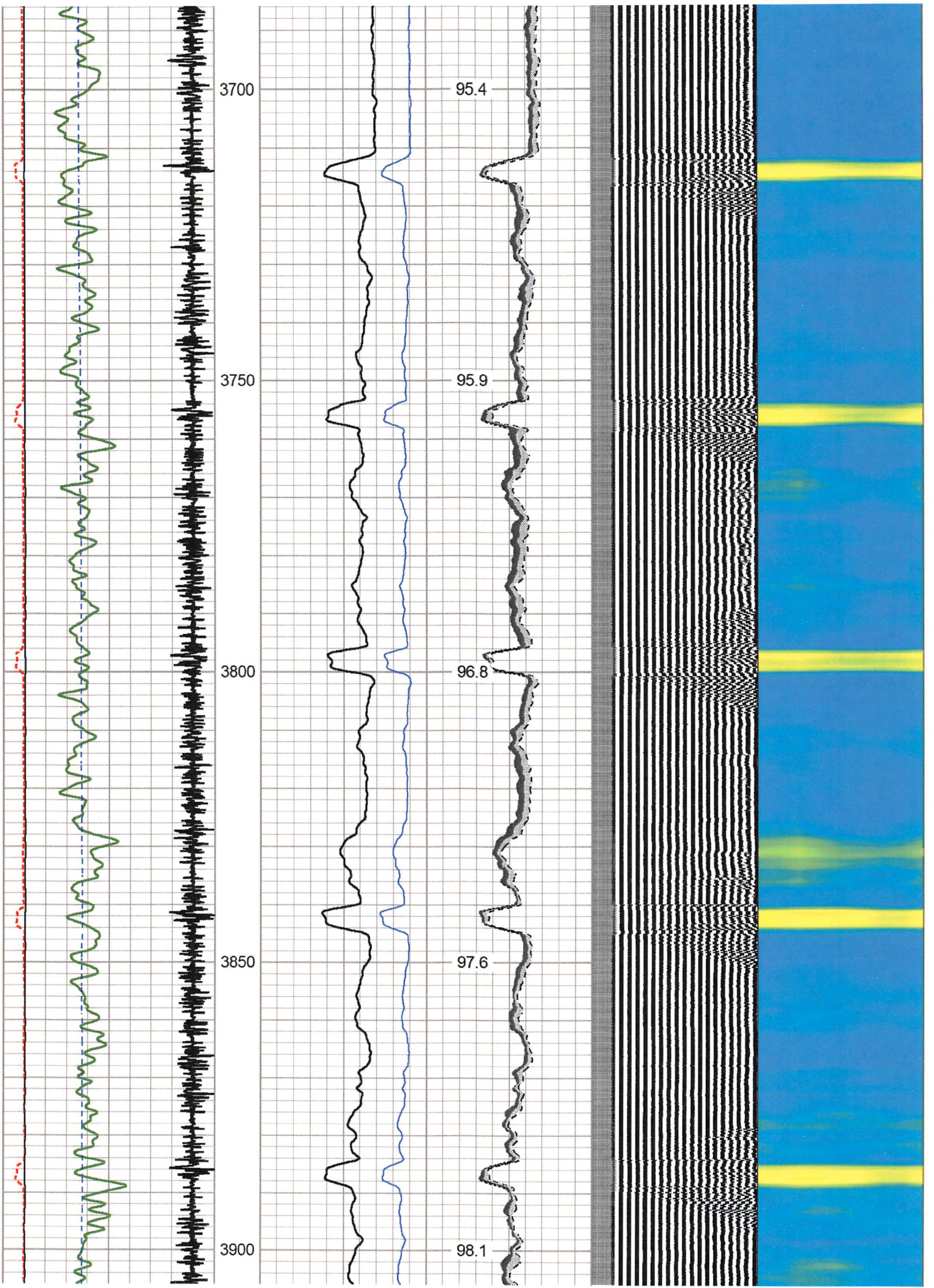


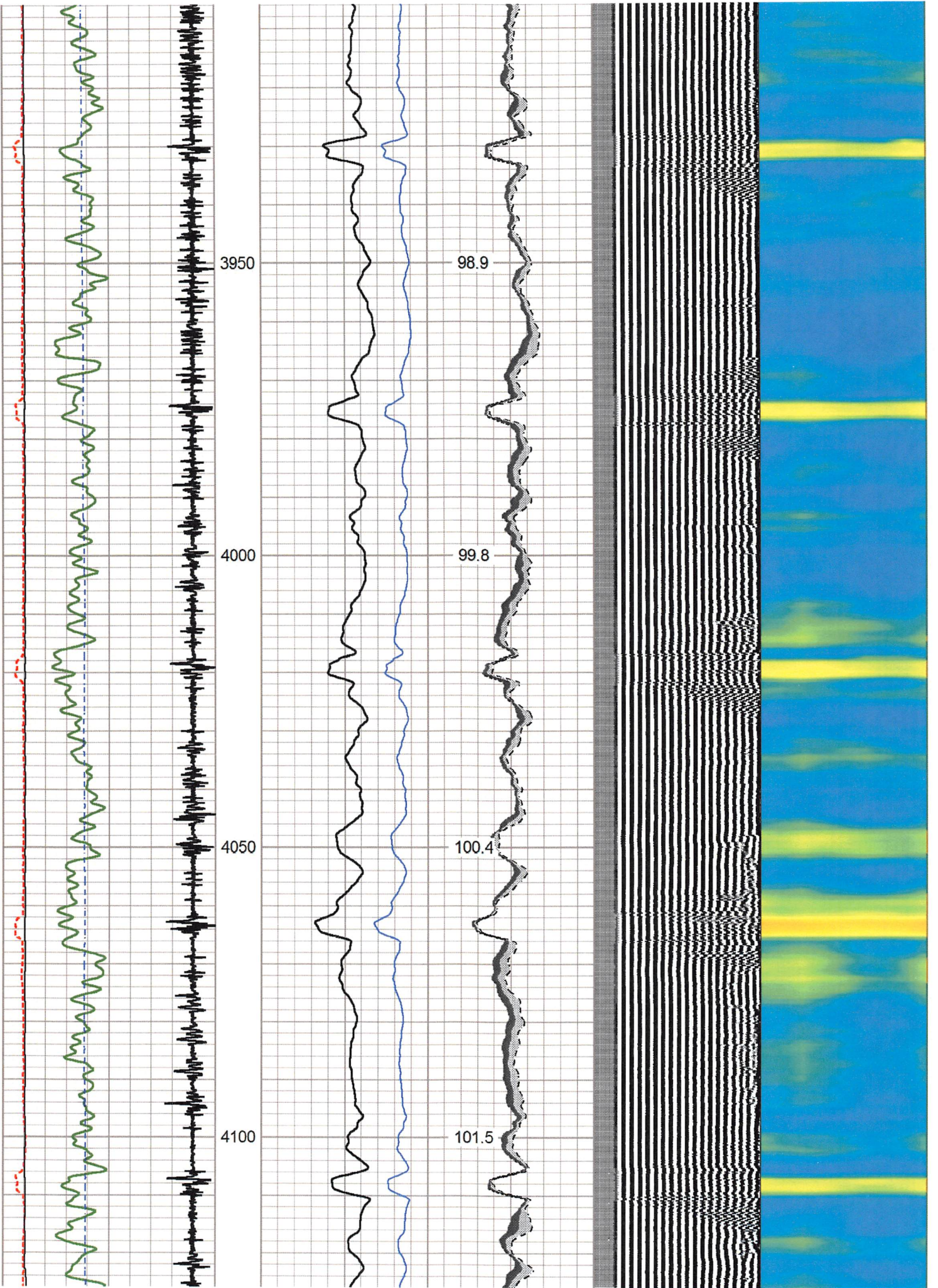


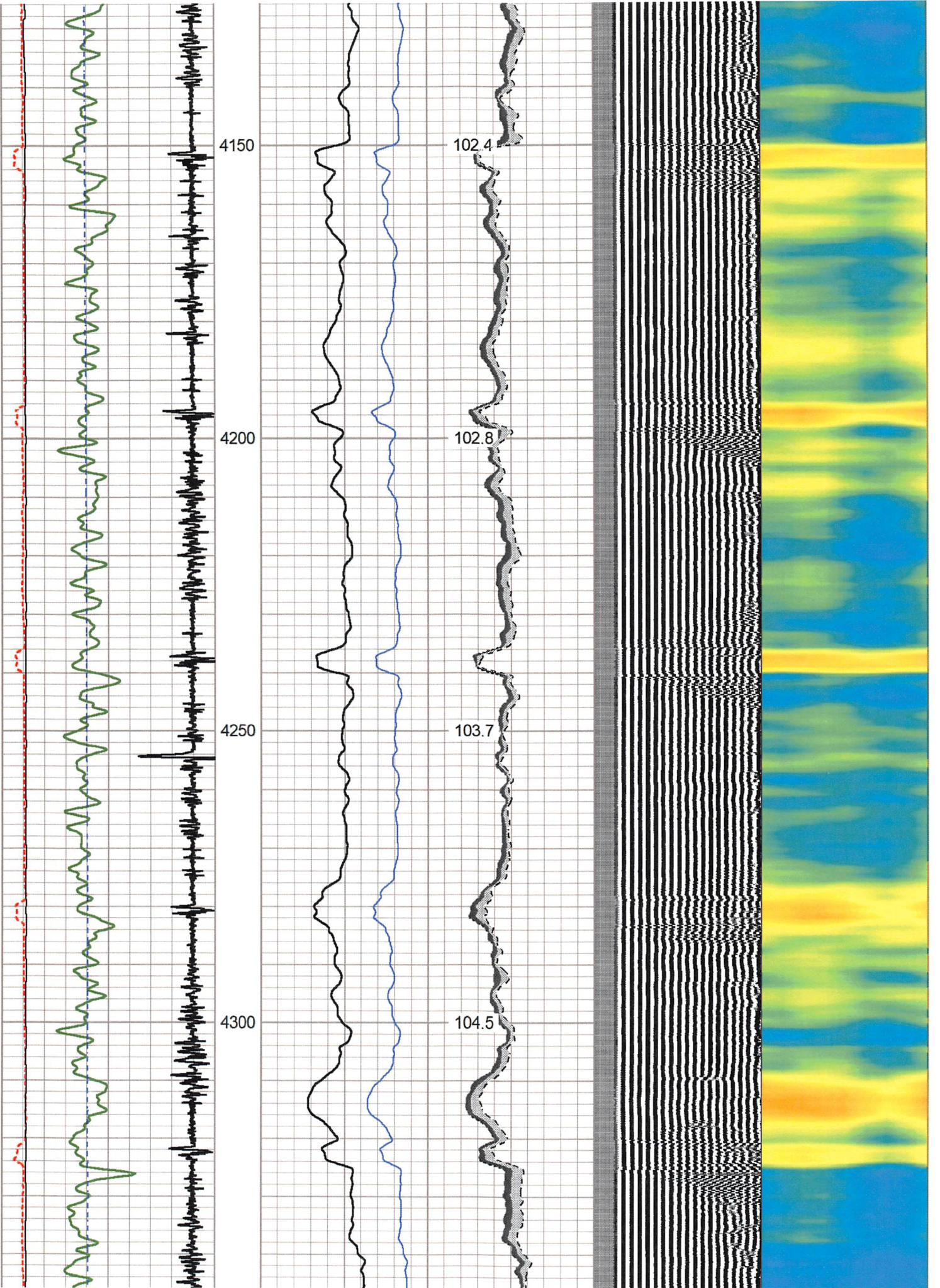


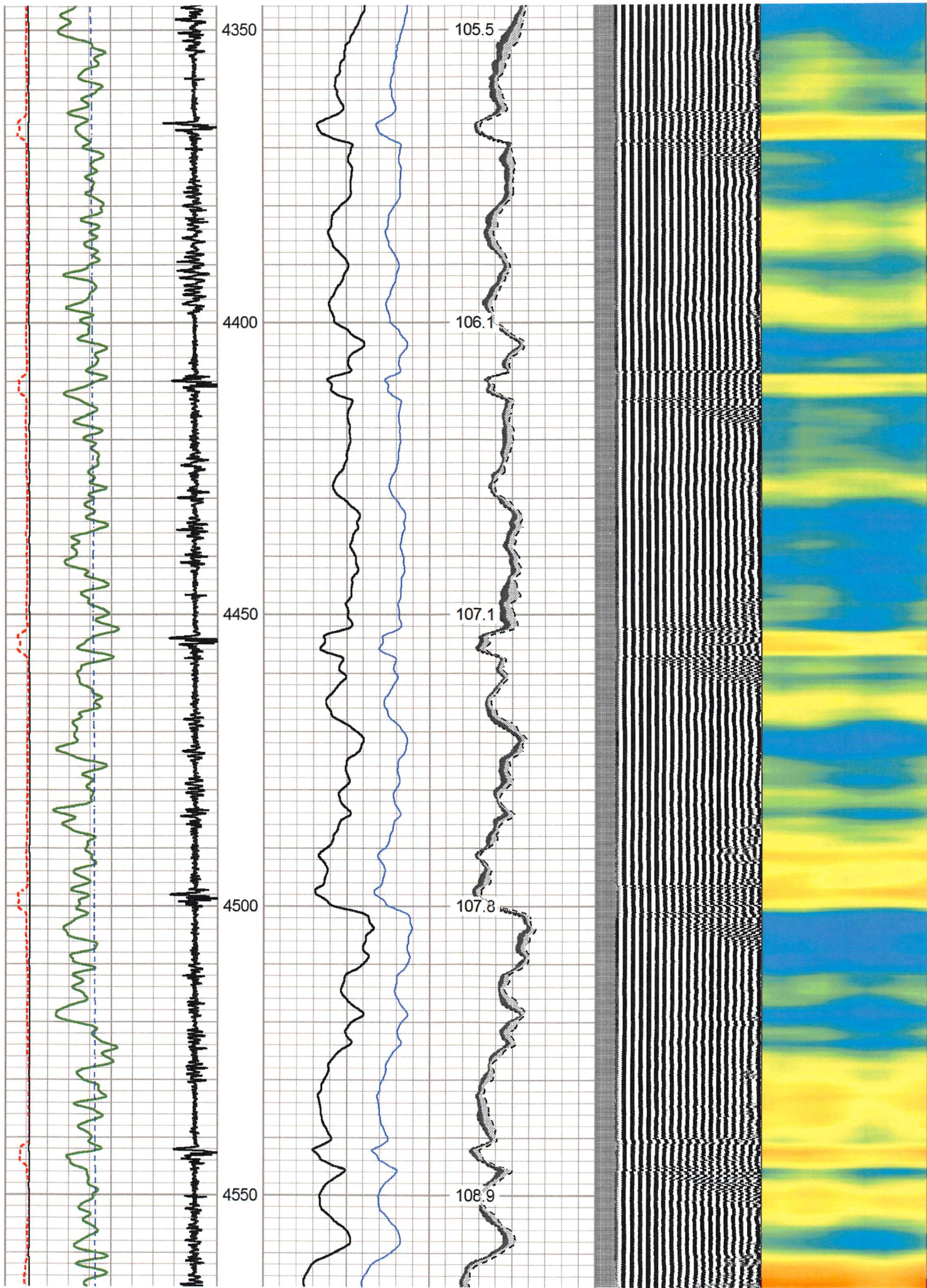


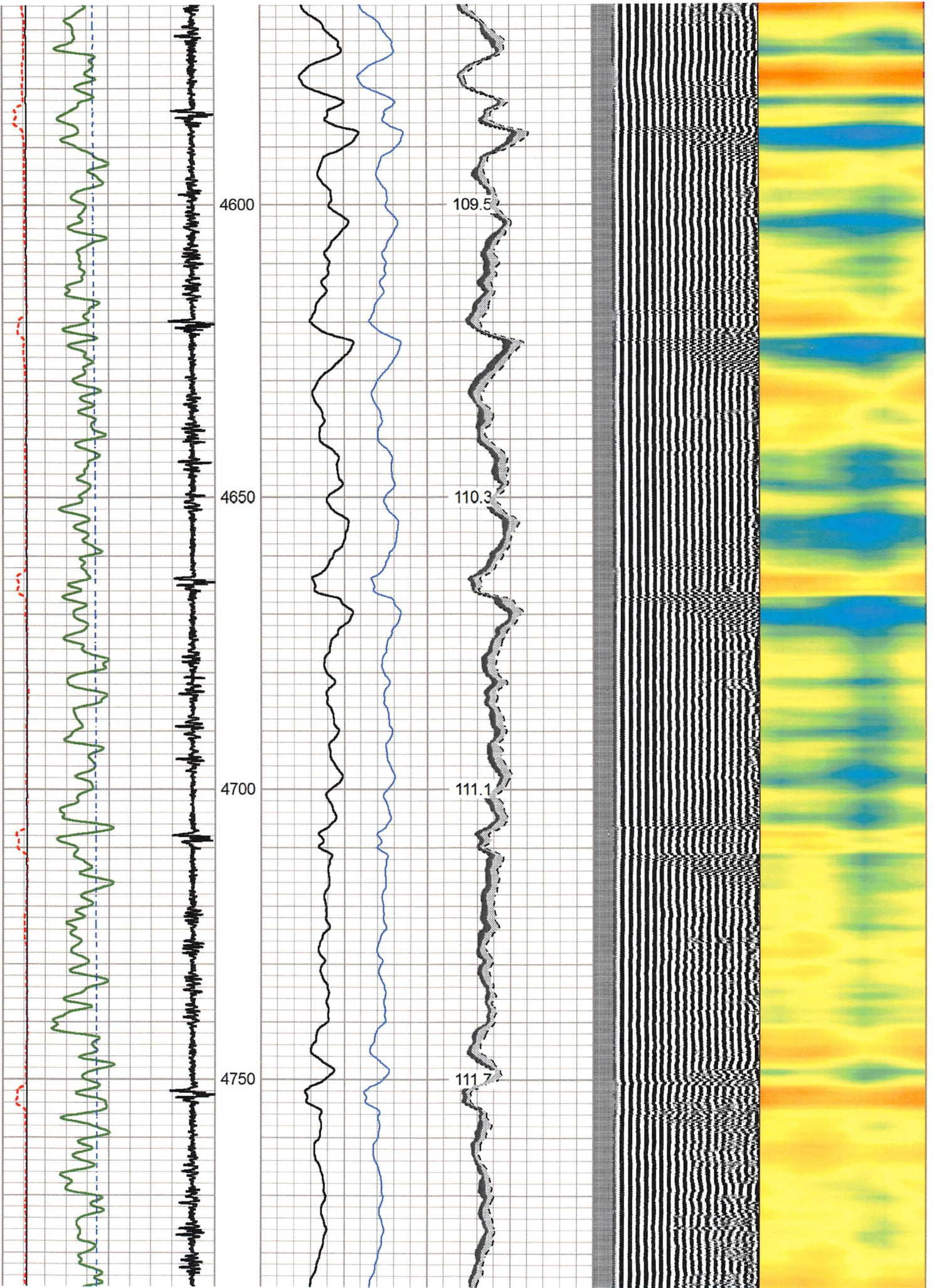


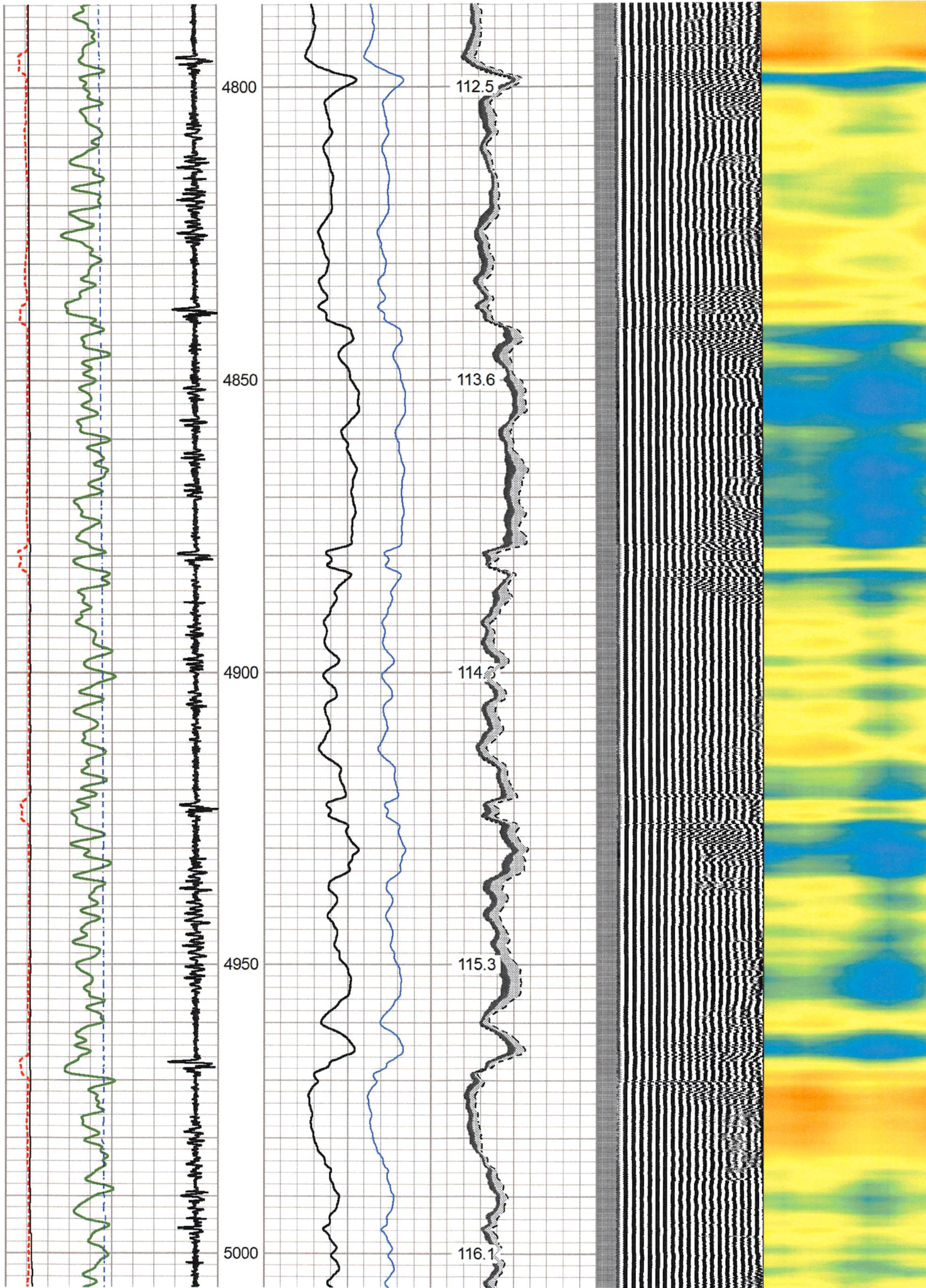


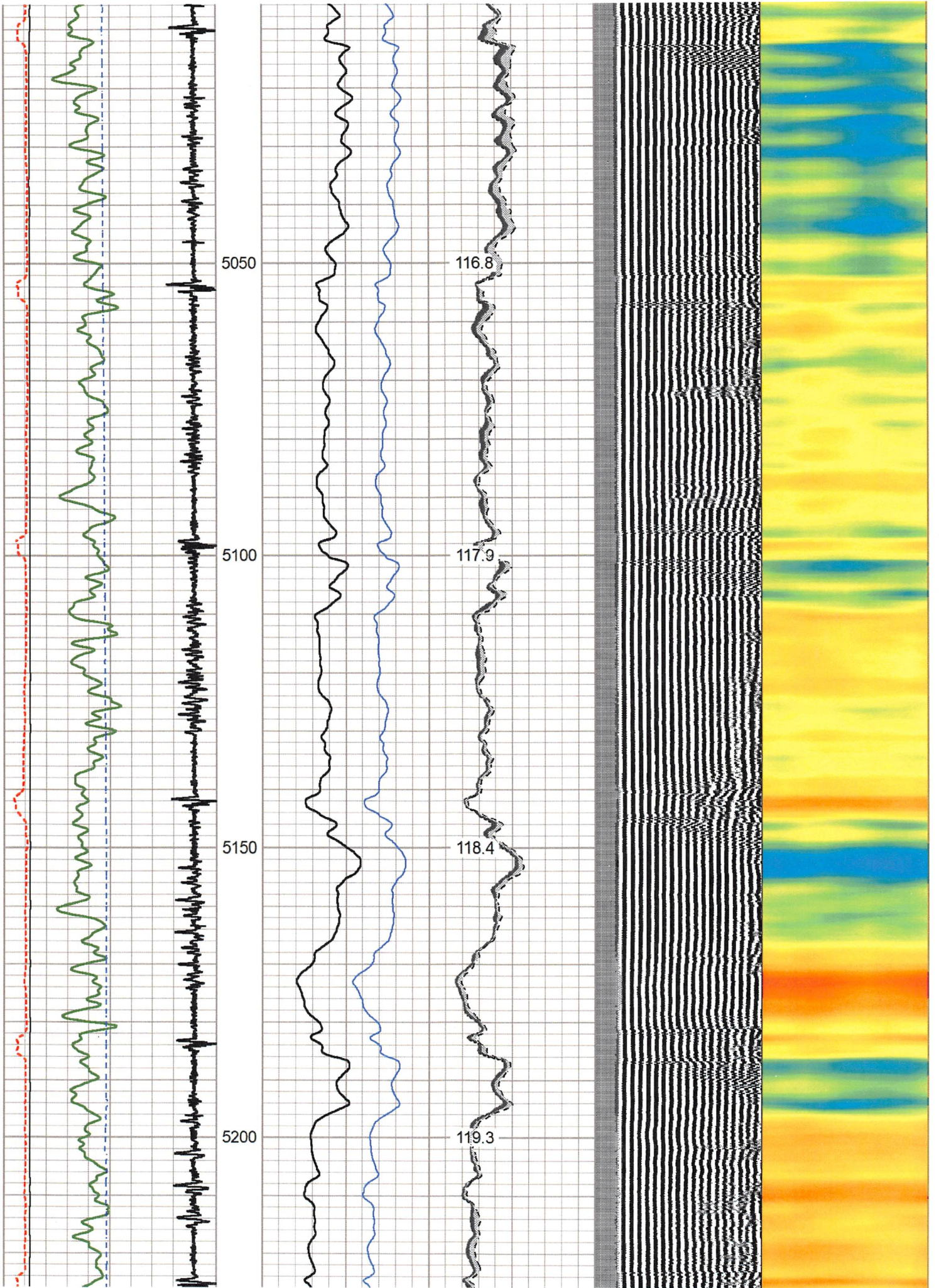


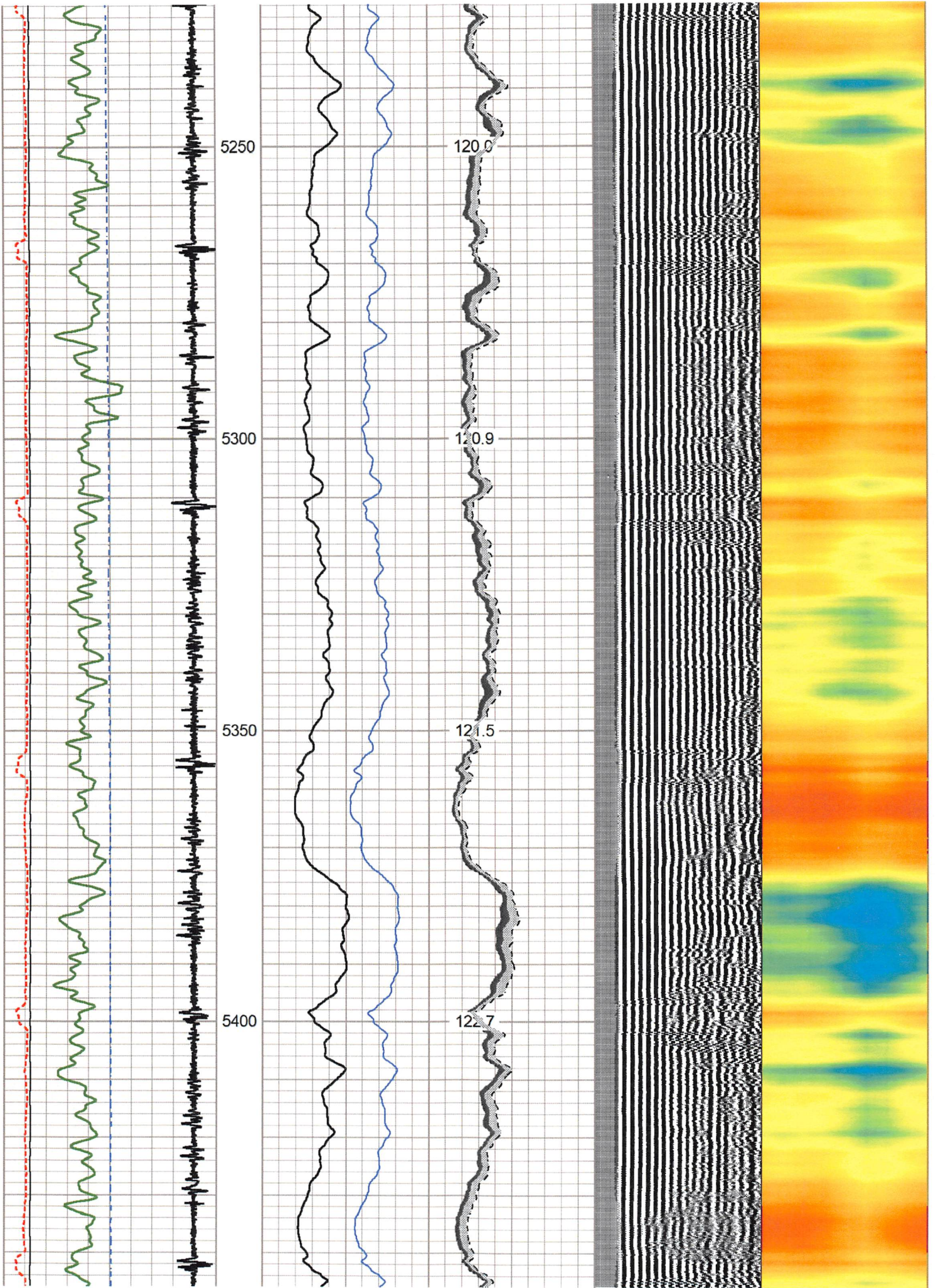


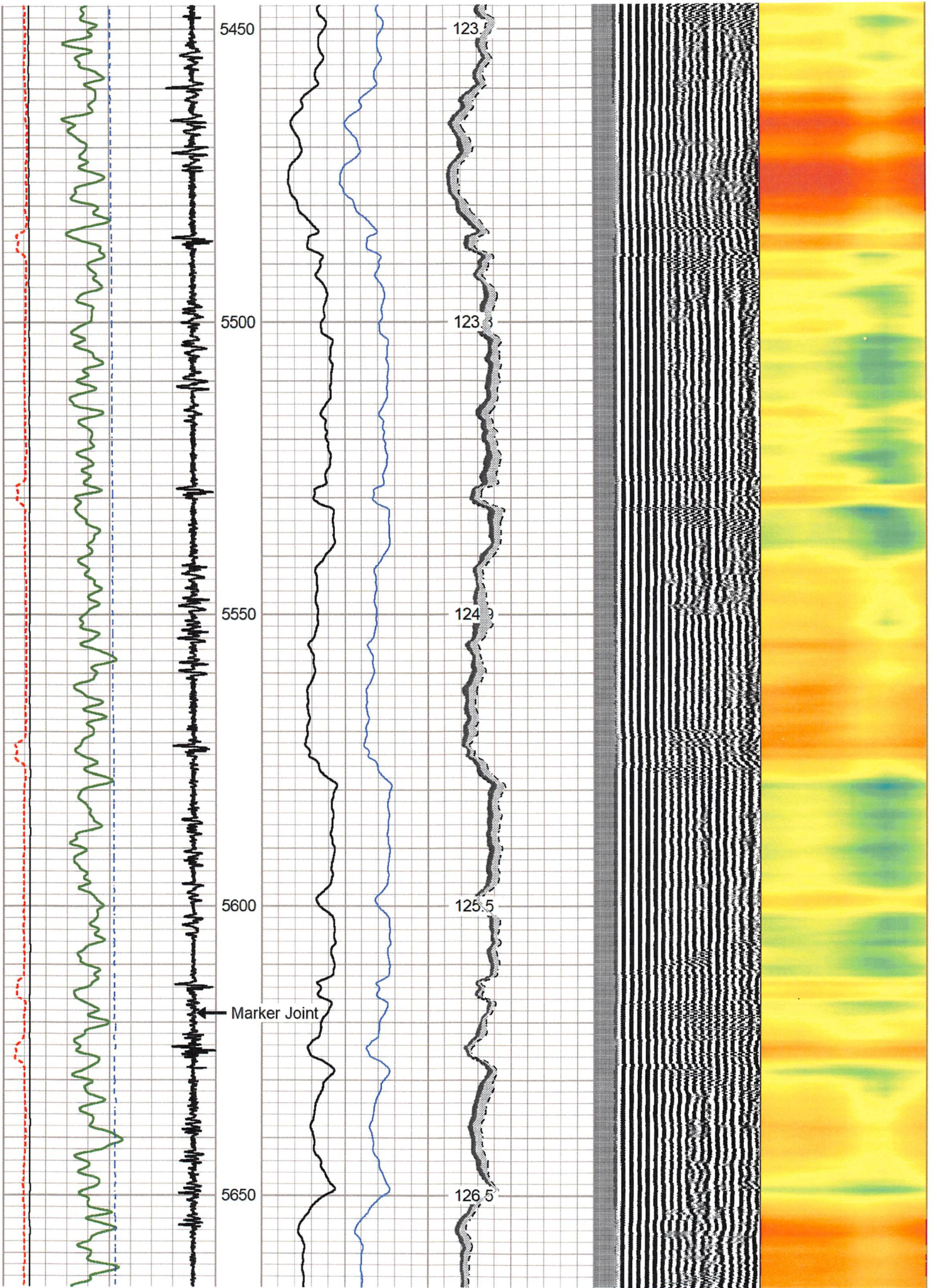


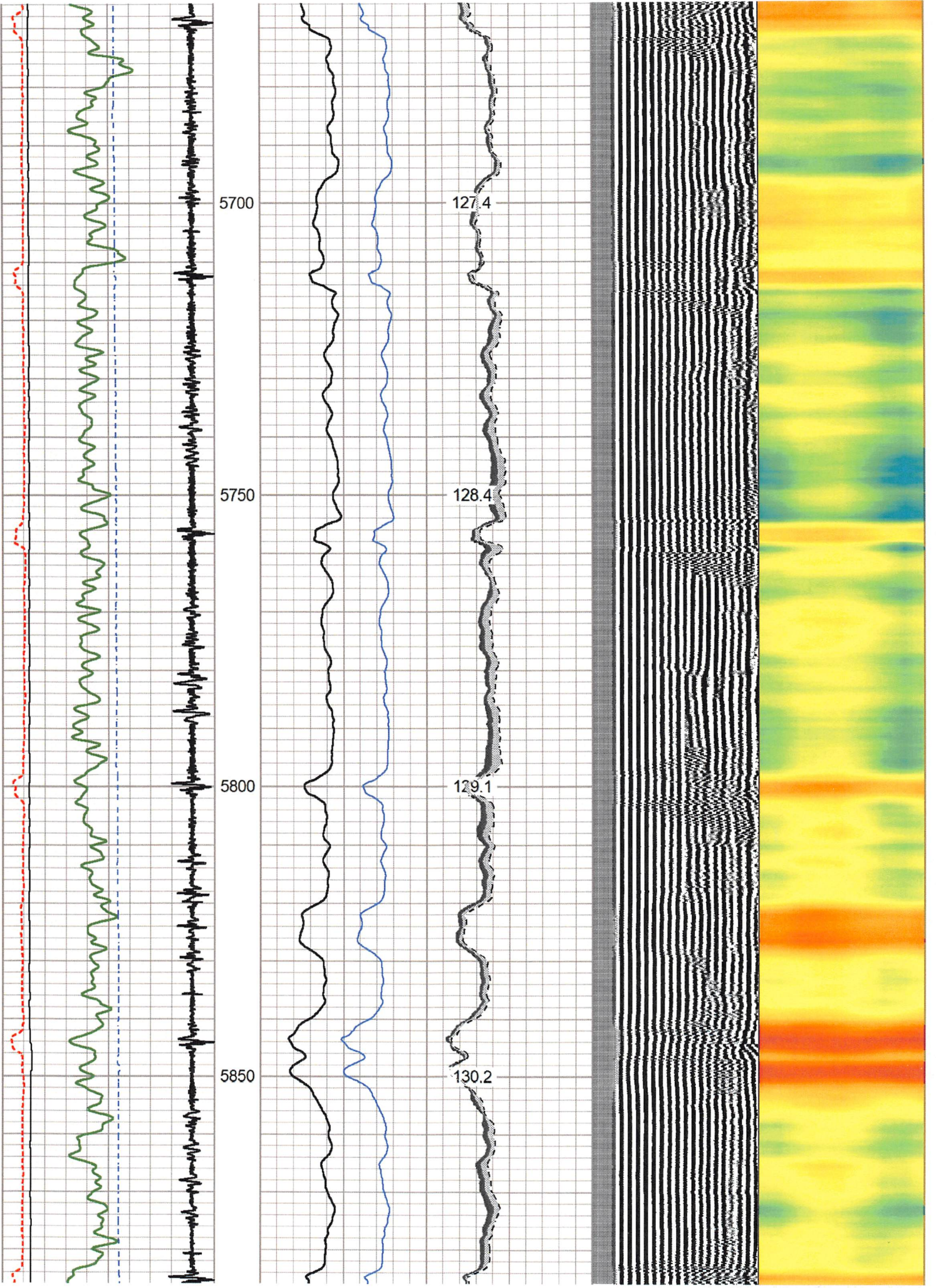


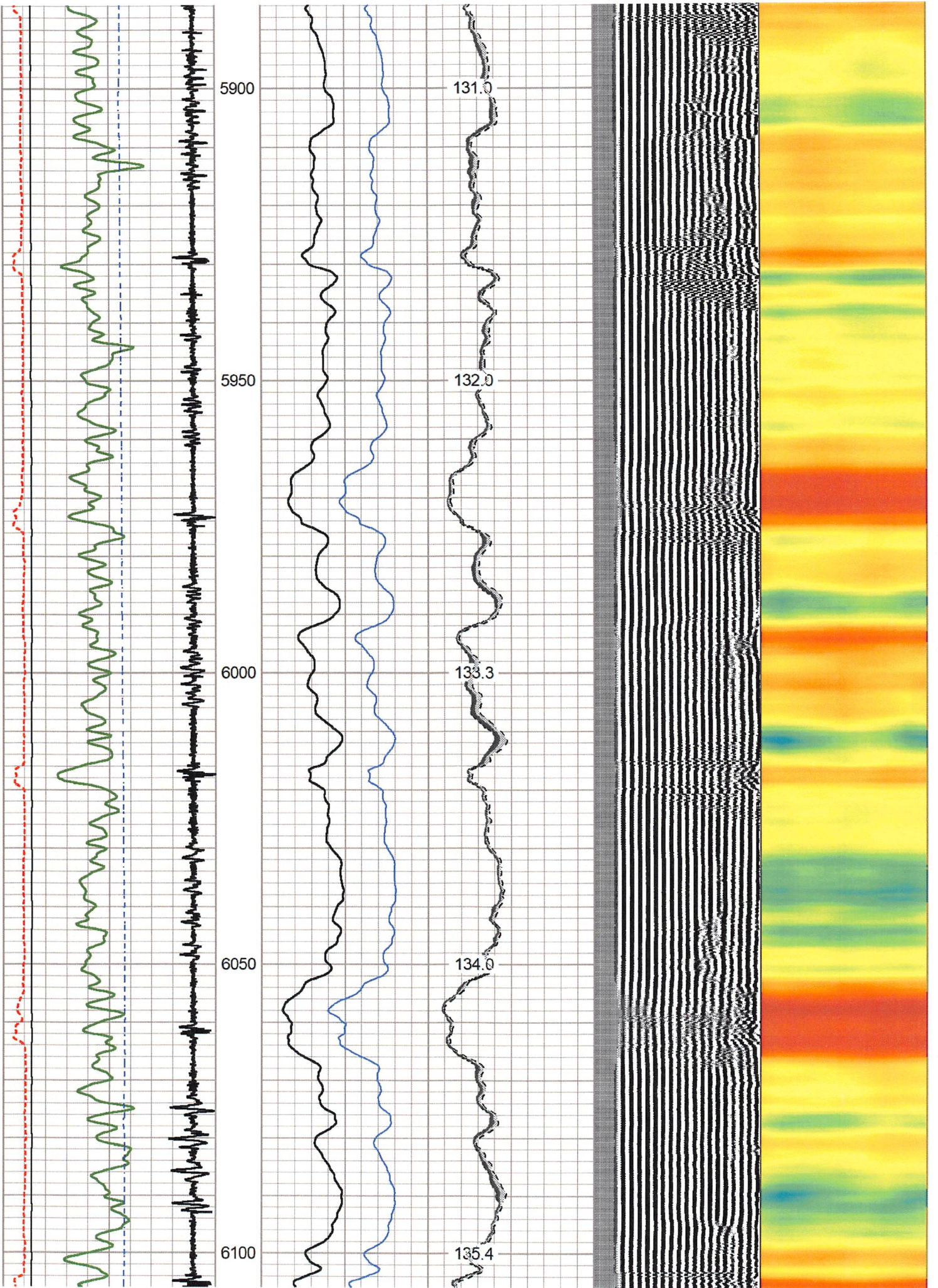


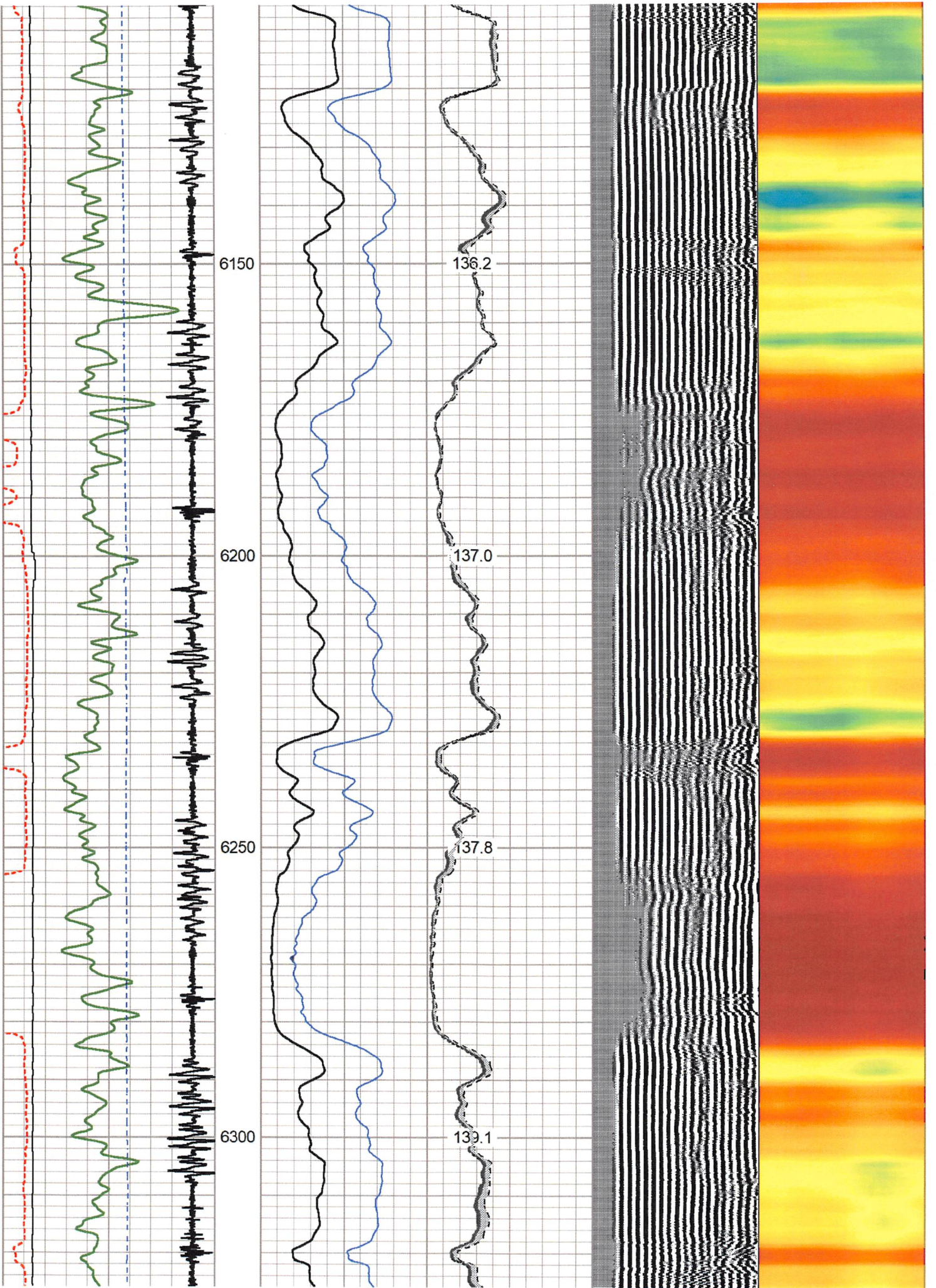


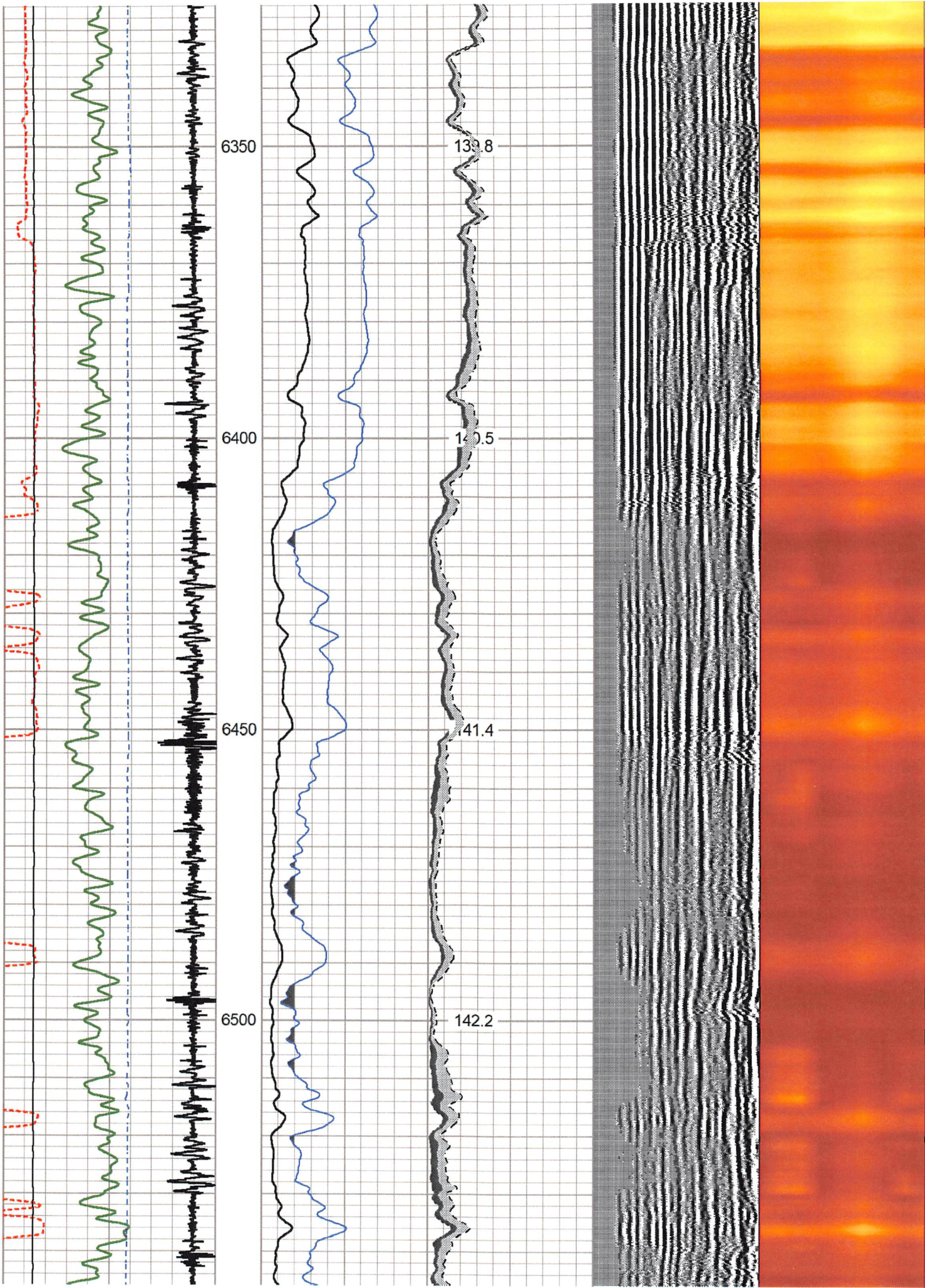


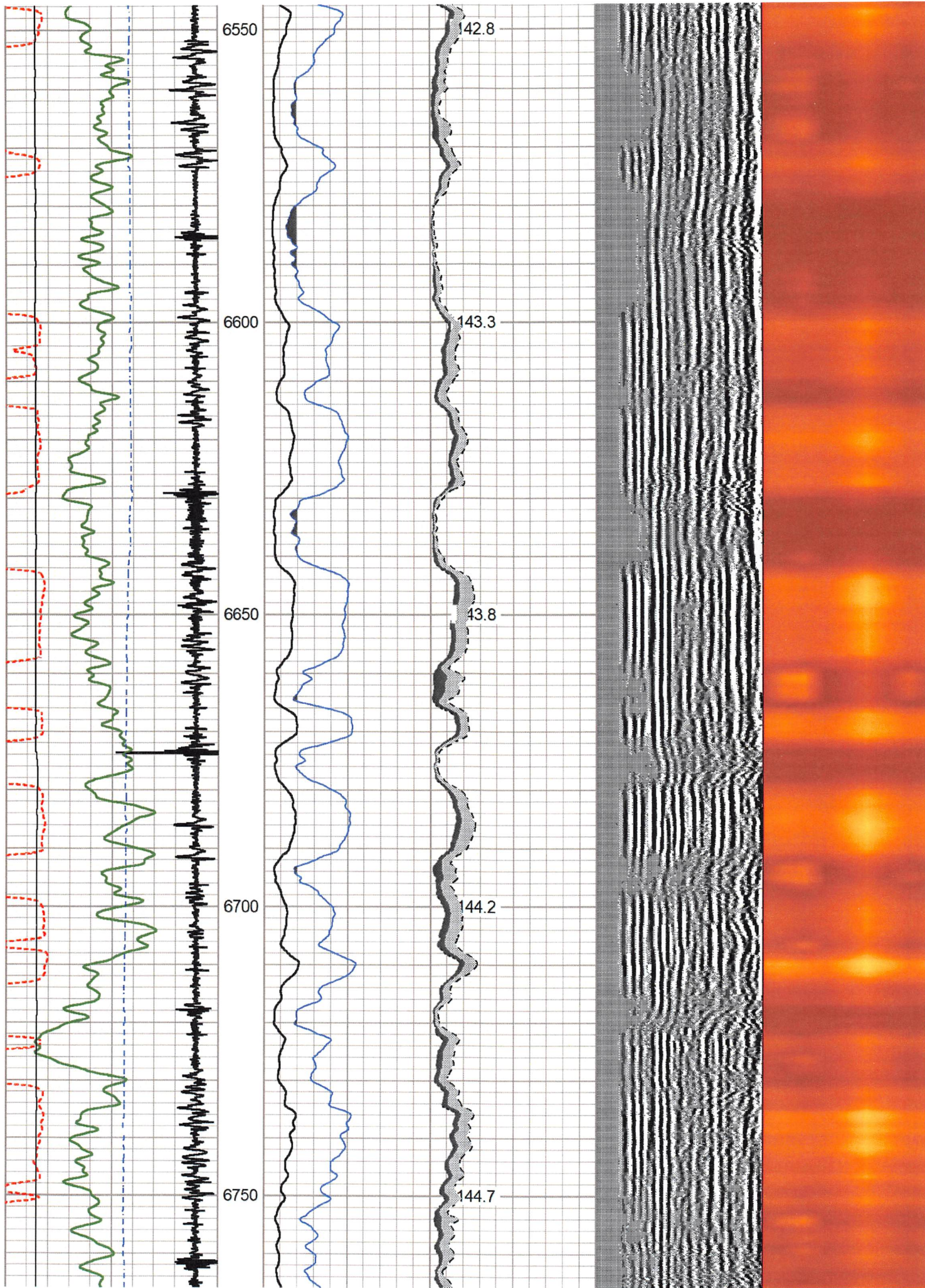


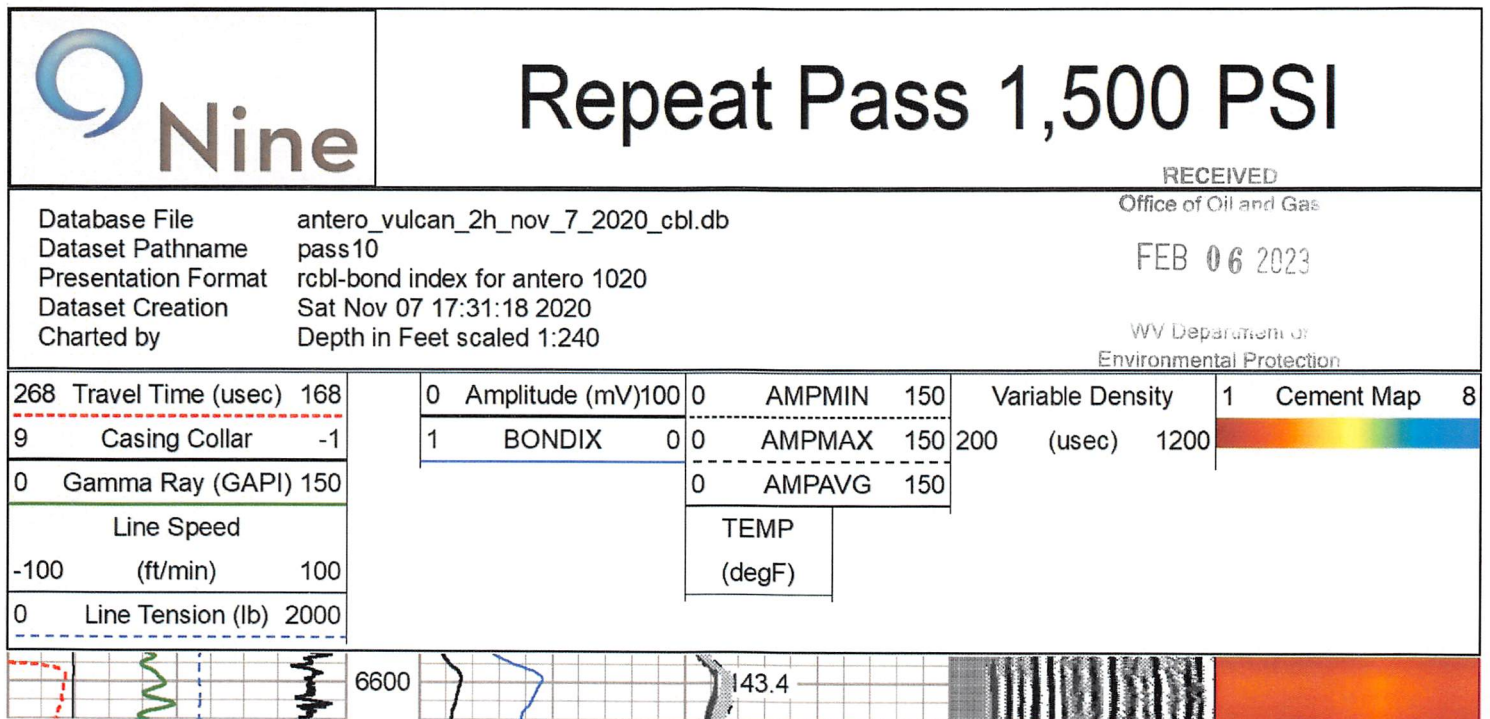
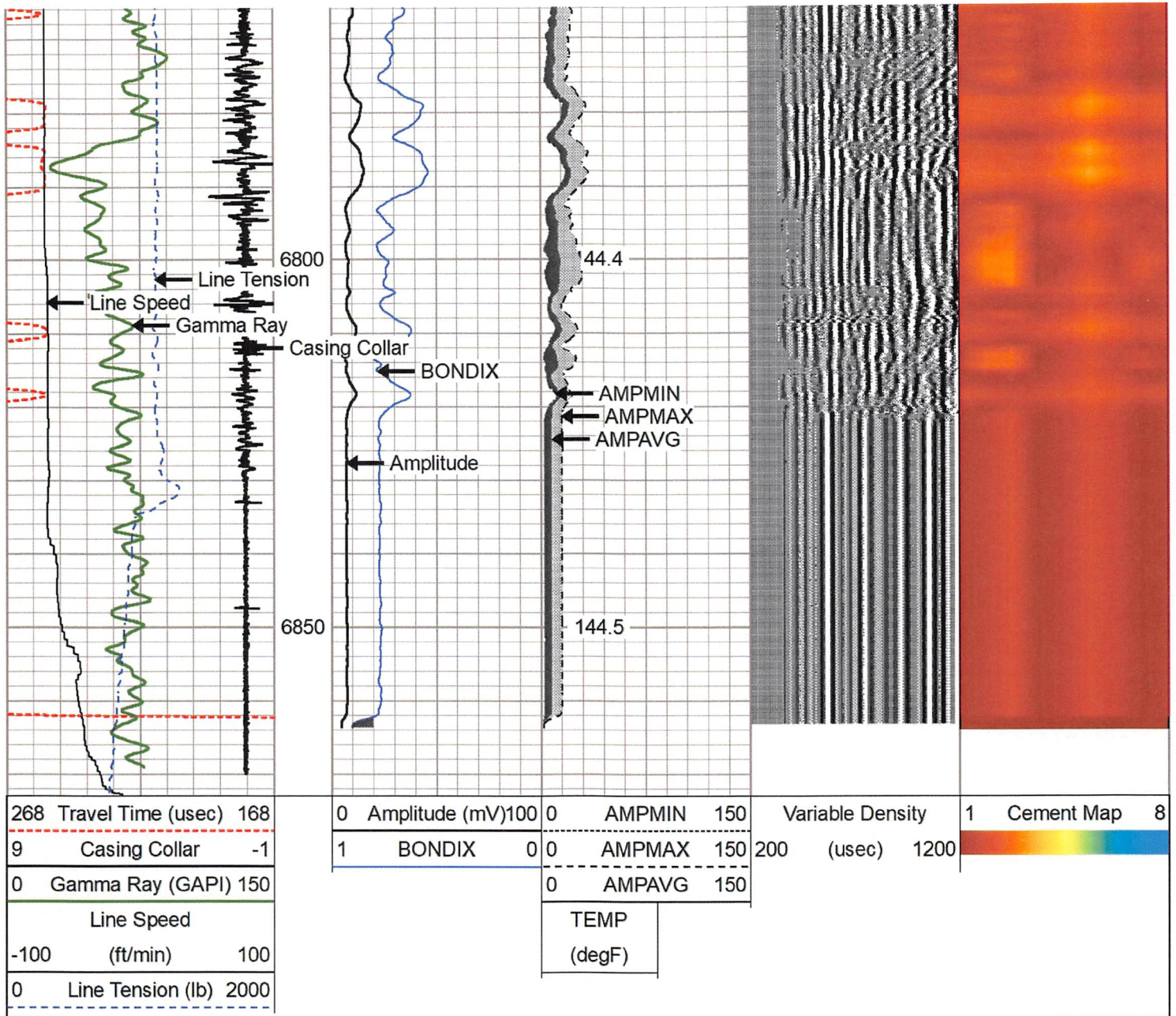


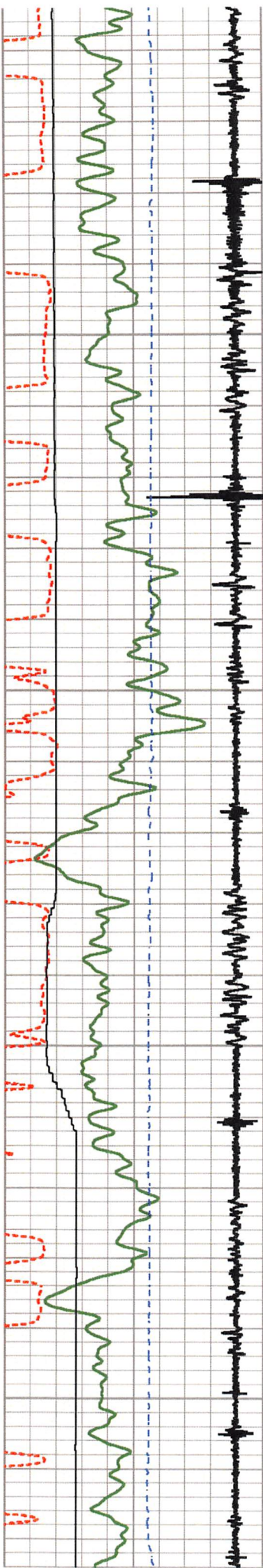










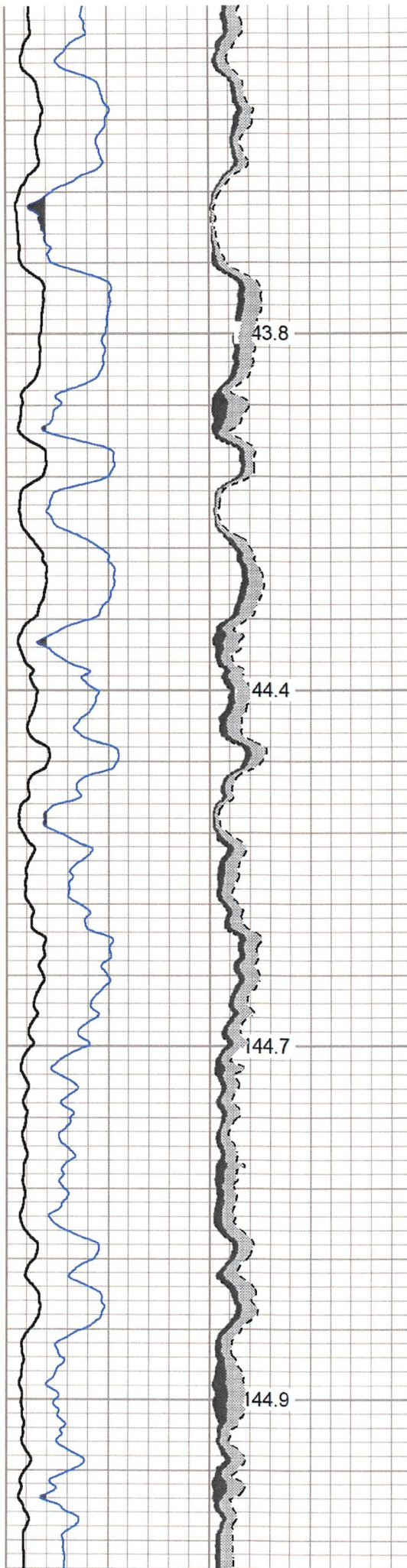


6650

6700

6750

6800

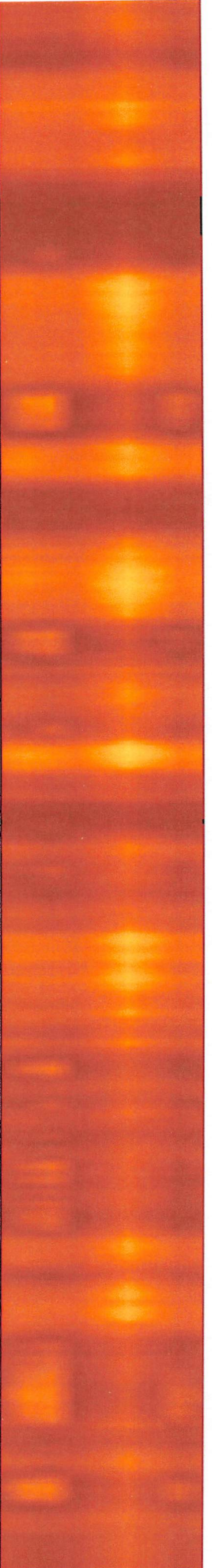
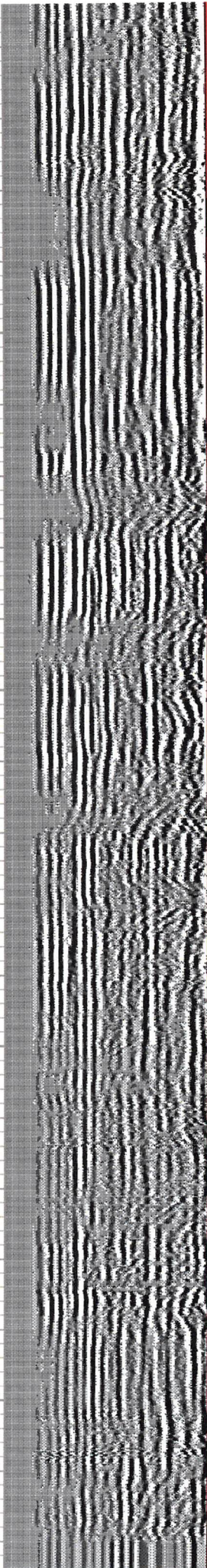


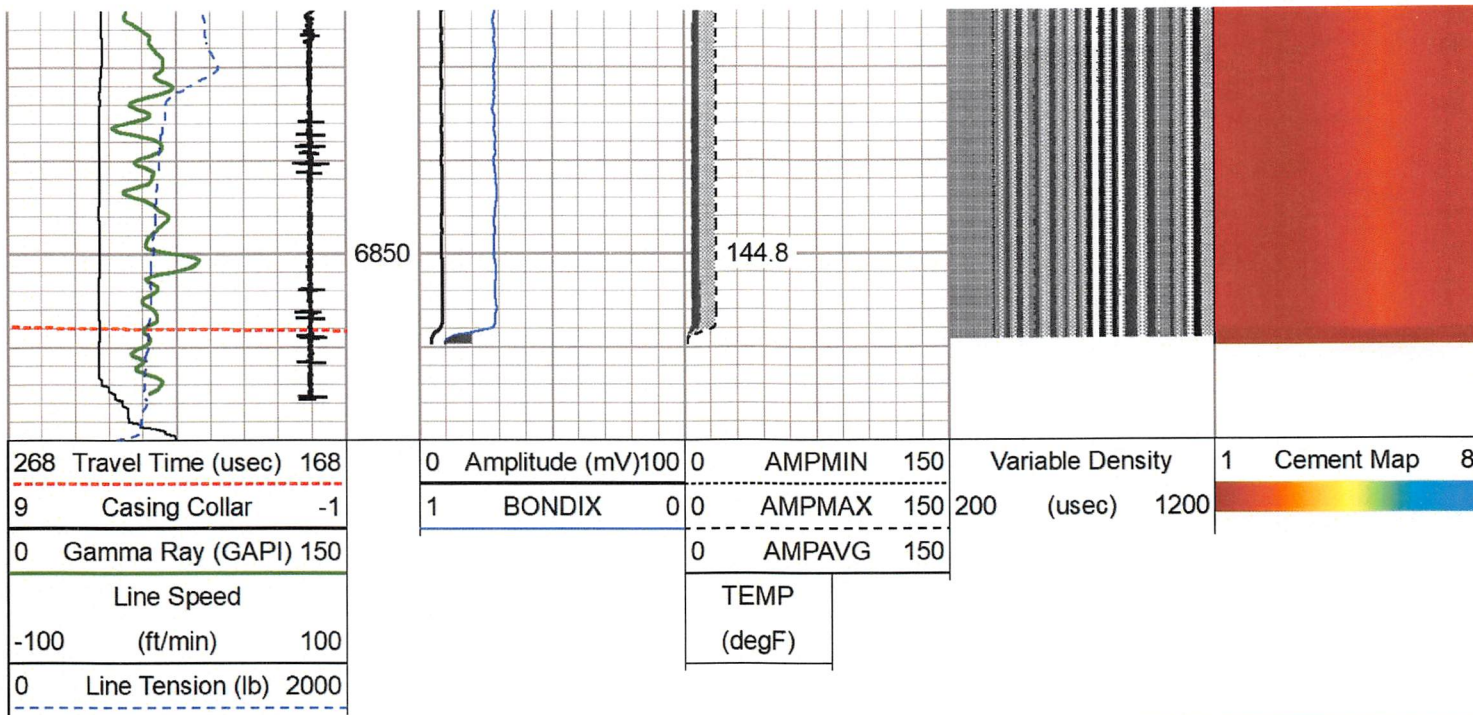
43.8

44.4

44.7

44.9





Log Variables

Database: C:\ProgramData\Warrior\Data\antero_vulcan_2h_nov_7_2020_cbl.db
 Dataset: field/well/run1/pass12/_vars_

Top - Bottom							
BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in	degF	in	in	lb/ft	mV	mV
	8.5	144	5.5	0	23	71.9	3.4
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft		uSec	degF	ft			
0.8	No	260	0	6873			

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_vulcan_2h_nov_7_2020_cbl.db	
Dataset Pathname	pass12	
Dataset Creation	Sat Nov 07 17:39:17 2020	
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Gamma Ray Calibration Report		
FEB 06 2023		
Serial Number:	FW1211-86	
Tool Model:	Probe	
Performed:	Sun Sep 13 14:03:29 2020	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.5000	GAPI/cps

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Segmented Cement Bond Log Calibration Report

Serial Number: FW1312-32
Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in
Calibration Depth: 3096.883 ft

Master Calibration, performed Sat Nov 07 16:53:55 2020:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.021	1.101	3.400	71.921	61.067	4.678
CAL	-0.021	1.619				
5'	-0.021	0.999	3.400	71.921	67.183	4.800
SUM						
S1	-0.021	1.091	0.000	100.000	89.935	1.875
S2	-0.021	1.098	0.000	100.000	89.392	1.868
S3	-0.021	1.111	0.000	100.000	88.312	1.852
S4	-0.021	1.109	0.000	100.000	88.545	1.843
S5	-0.021	1.117	0.000	100.000	87.859	1.839
S6	-0.021	1.141	0.000	100.000	86.054	1.795
S7	-0.021	1.126	0.000	100.000	87.158	1.838
S8	-0.021	1.117	0.000	100.000	87.869	1.835

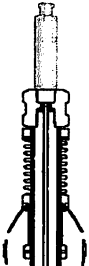
Internal Reference Calibration, performed Thu Sep 27 16:01:58 2018:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.021	1.619	1.000	0.000

Air Zero Calibration, performed Sat Nov 07 10:29:21 2020:

	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	

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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			CHD-Titan Titan 1 7/16" GO Cablehead	1.00	1.44	5.00
			CENT-Titr275Adj Titan 2 3/4" Adjustable Centralizer	2.75	2.75	35.00

HeadVolt	16.86					
Temp	14.02					
WVFS8	11.78		RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS7	11.78					
WVFS6	11.78					
WVFS5	11.78					
WVFS4	11.78					
WVFS3	11.78					
WVFS2	11.78					
WVFS1	11.78					
WVF3FT	11.78					
WVF5FT	10.78					
WVFCAL	7.53					
HEADVOLT	7.53					
			CENT-Titn275Adj Titan 2 3/4" Adjustable Centralizer	2.75	2.75	35.00
CCL	3.88					
GR	2.54		GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00

Dataset: antero_vulcan_2h_nov_7_2020_cbl.db: field/well/run1/pass12
 Total length: 20.67 ft
 Total weight: 222.00 lb
 O.D.: 2.75 in

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Company ANTERO
 Well VULCAN 2H
 Field RABBIT EARS
 County TYLER
 State WEST VIRGINIA

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Country USA