



**RADIAL CEMENT BOND LOG
VARIABLE DENSITY LOG
GAMMA/CCL/TEMP**

Company Antero Resources
Well Leap 2H
Field Rabbit Ears
County Tyler
State WV

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Well Leap 2H
Field Rabbit Ears
County Tyler State WV

Location: API #: 47-095-02819

Other Services

SEC	TWP	RGE	Elevation
Permanent Datum	Ground Level	Elevation	1,223'
Log Measured From	Kelly Bushing 30'		K.B. 1,253'
Drilling Measured From	Kelly Bushing		D.F. 1,253'
			G.L. 1,223'

Date	02/17/2023		
Run Number	ONE		
Depth Driller	23,110'		
Depth Logger	6,944'		
Bottom Logged Interval	6,940'		
Top Log Interval	Surface		
Open Hole Size	NA		
Type Fluid	Fresh Water		
Density / Viscosity	8.6 LB/GAL		
Max. Recorded Temp.	140.0 DEG.F.		
Estimated Cement Top	5,480'		
Time Well Ready	Arrival		
Time Logger on Bottom	16:25		
Equipment Number	116		
Location	Charleroi, PA		
Recorded By	Calvin Drummond		
Witnessed By	Jerrako Evans		
Borehole Record			
Run Number	Bit	From	To
Tubing Record			
	Size	Weight	To
Casing Record	Size	Wgt/Ft	Top
Conductor String	20"	78.67#	Surface
Surface String	13.375"	54.5#	Surface
Intermediate String	9.625"	36#	Surface
Intermediate String			Surface
Production String	5.5"	23#	Surface
			Bottom

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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
DEPTH SHIFT -0.5'
MARKER JOINT 6,009.4' - 6019'

MAIN PASS LOGGED WITH 1500 PSI
REPEAT PASS LOGGED WITH 0 PSI

ESTIMATED CEMENT TOP 5,480'

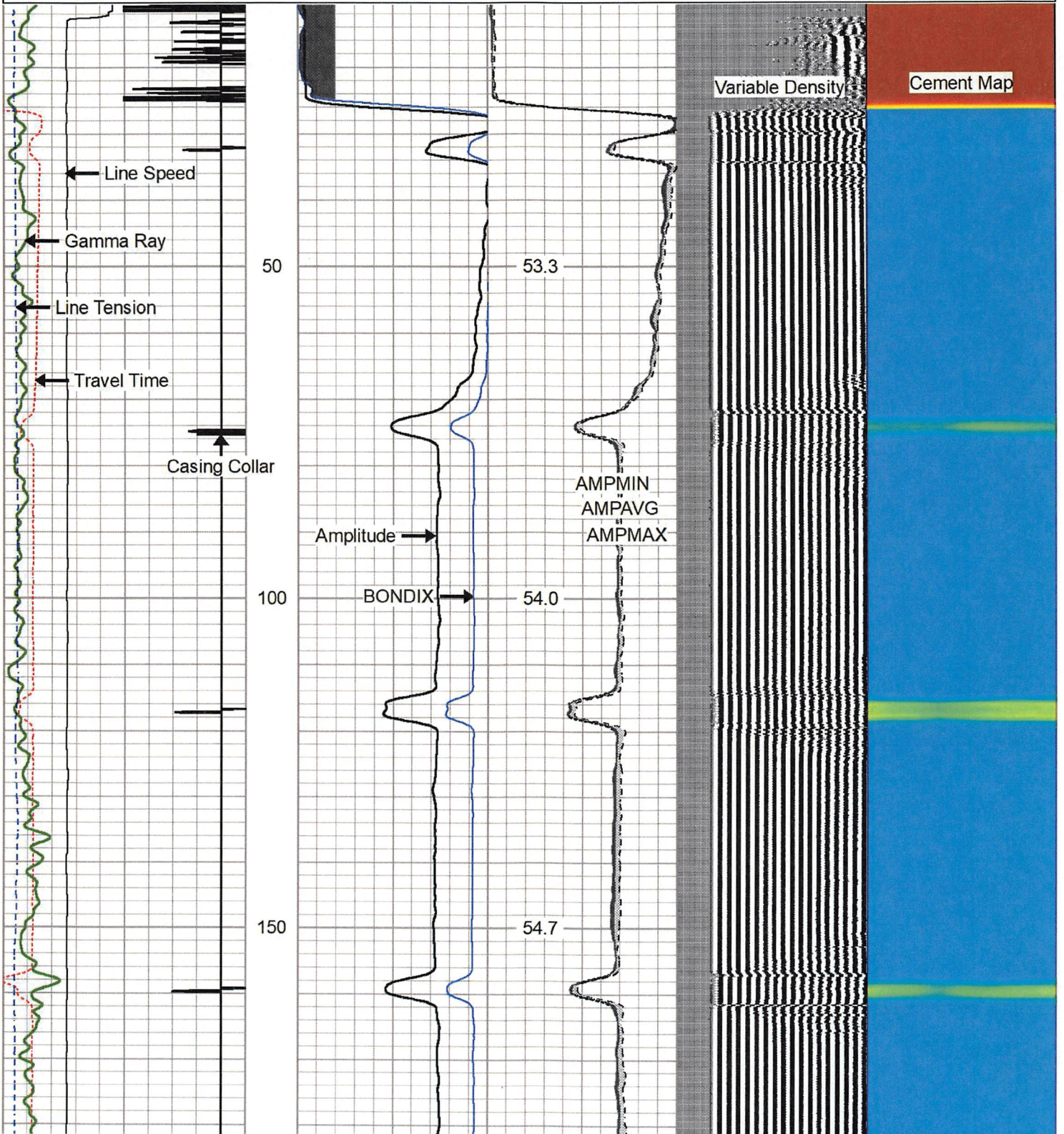
THANK YOU FOR USING NINE ENERGY SERVICES

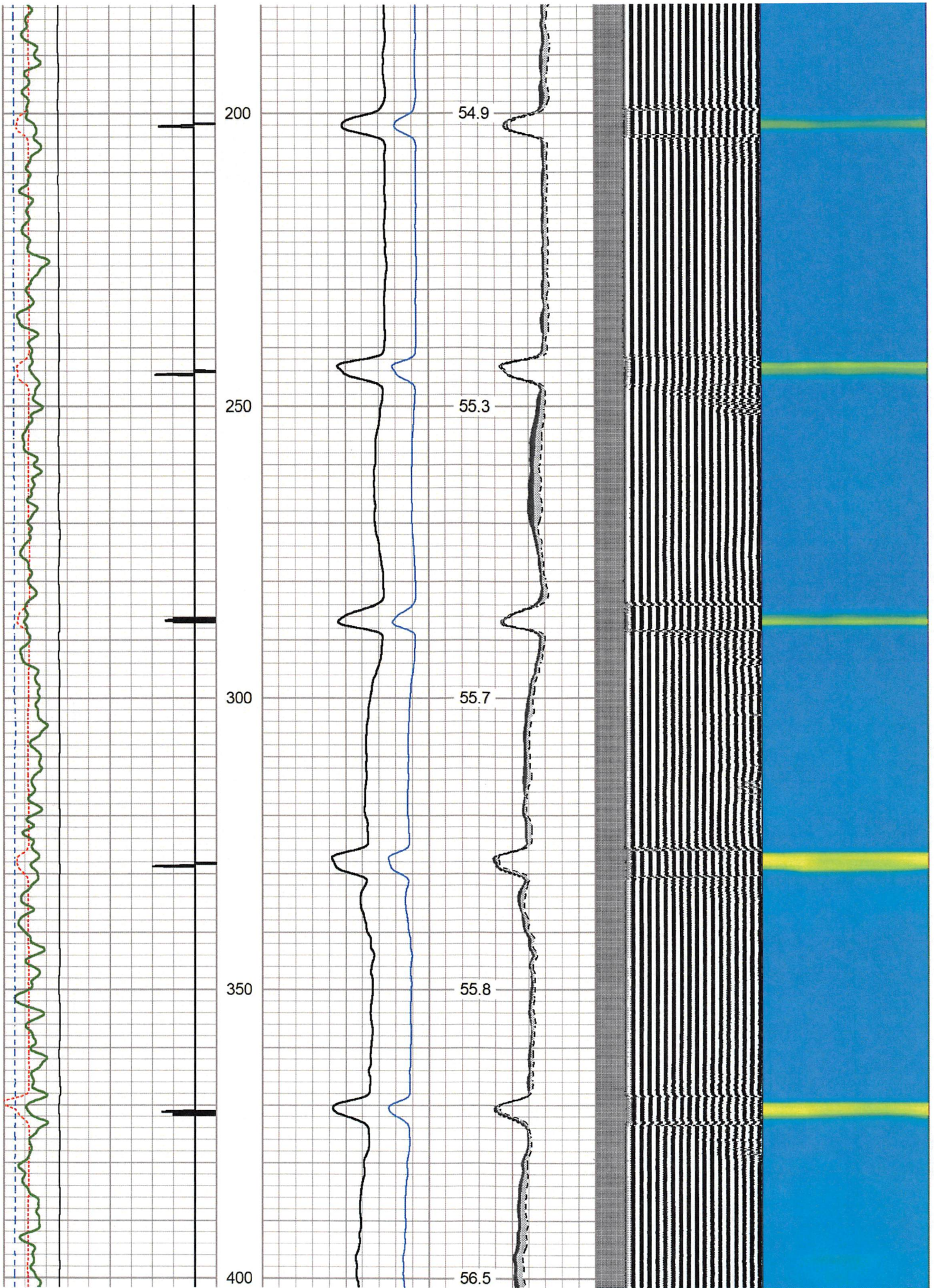


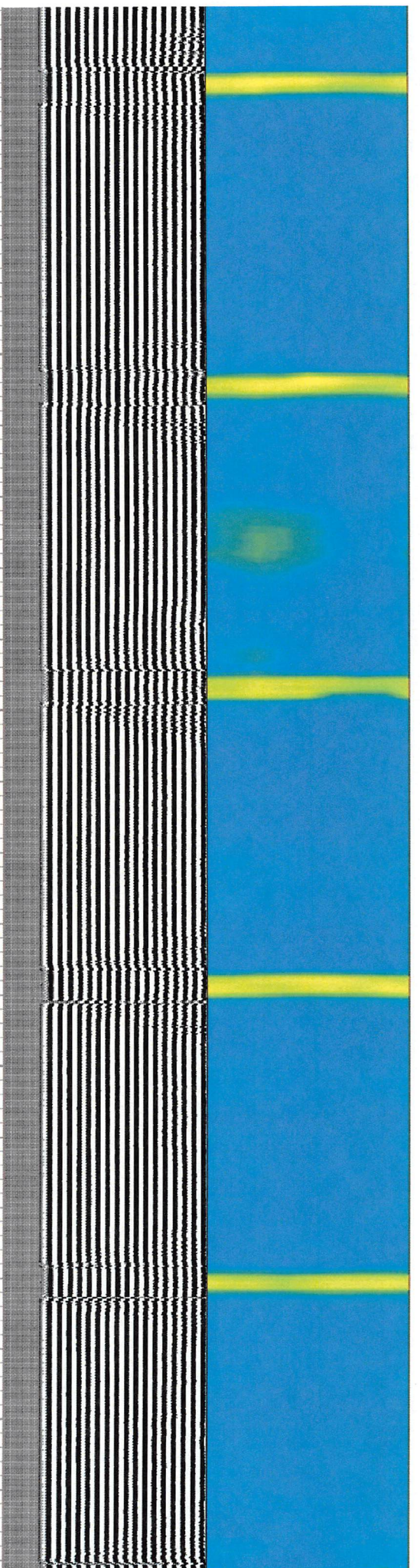
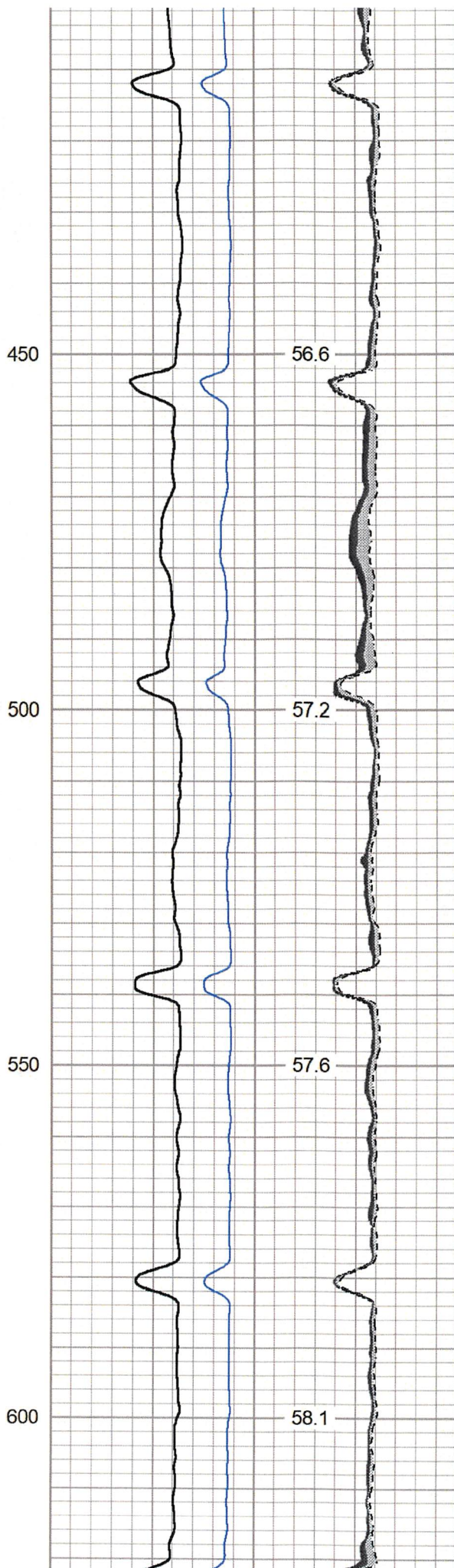
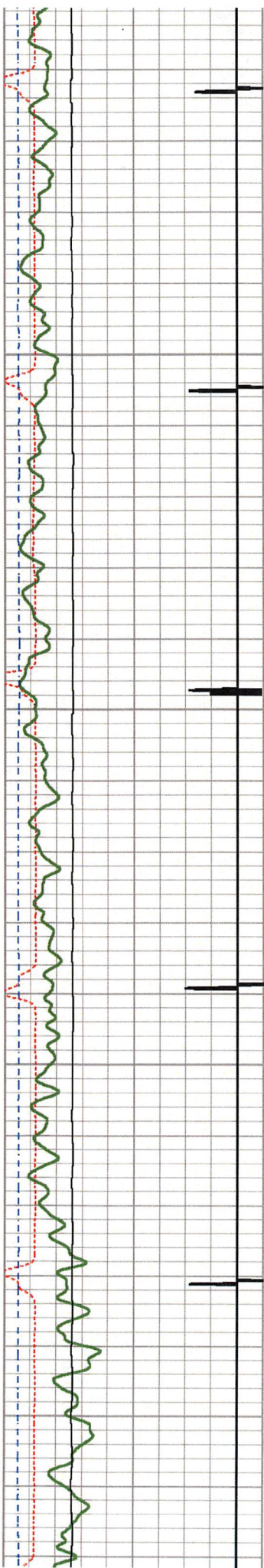
Main Pass 1500 PSI

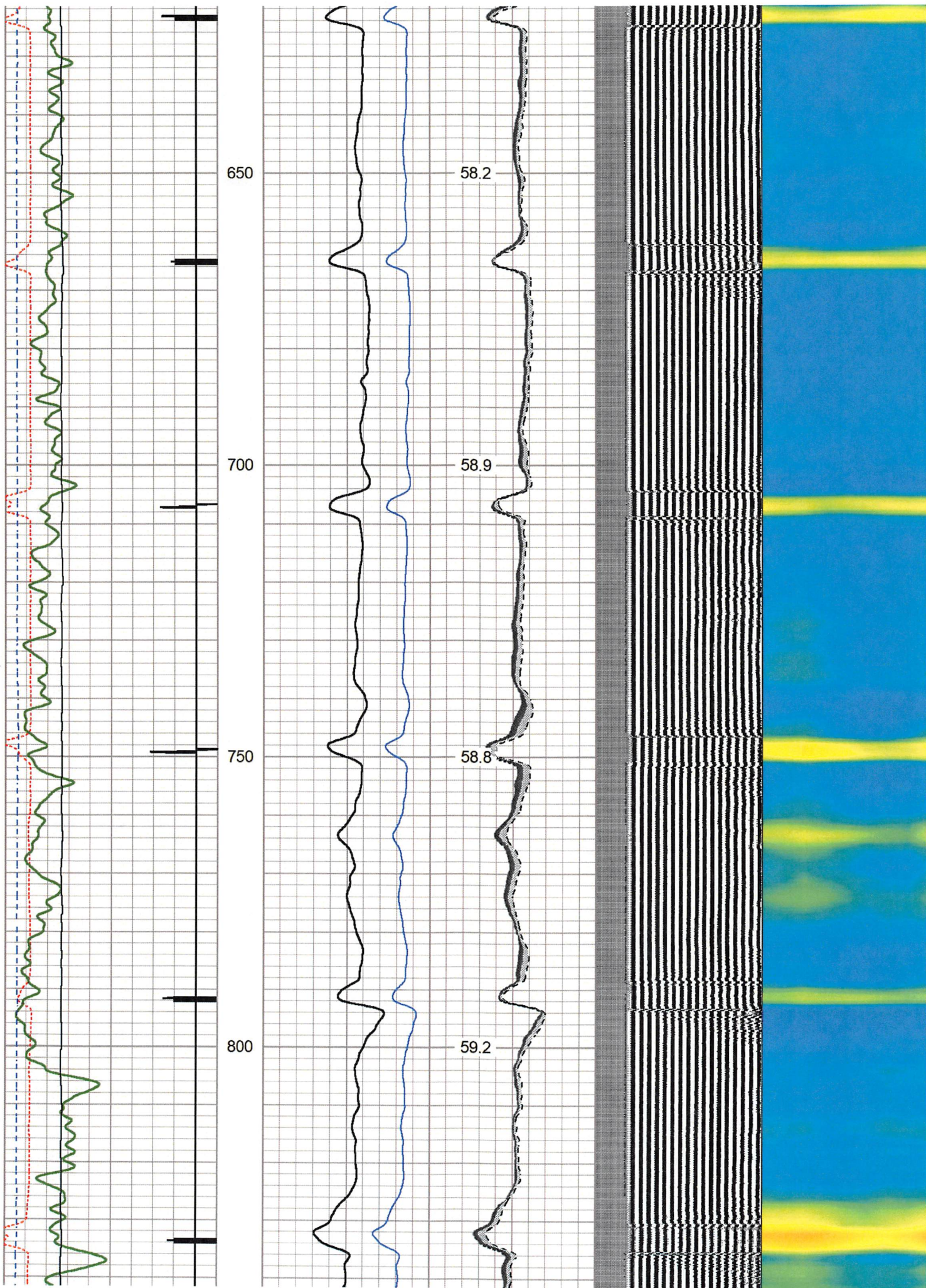
Database File antero_leap_2h_rcbl_17_feb_2023.db
 Dataset Pathname pass6
 Presentation Format rcbl 2
 Dataset Creation Fri Feb 17 16:32:12 2023
 Charted by Depth in Feet scaled 1:240

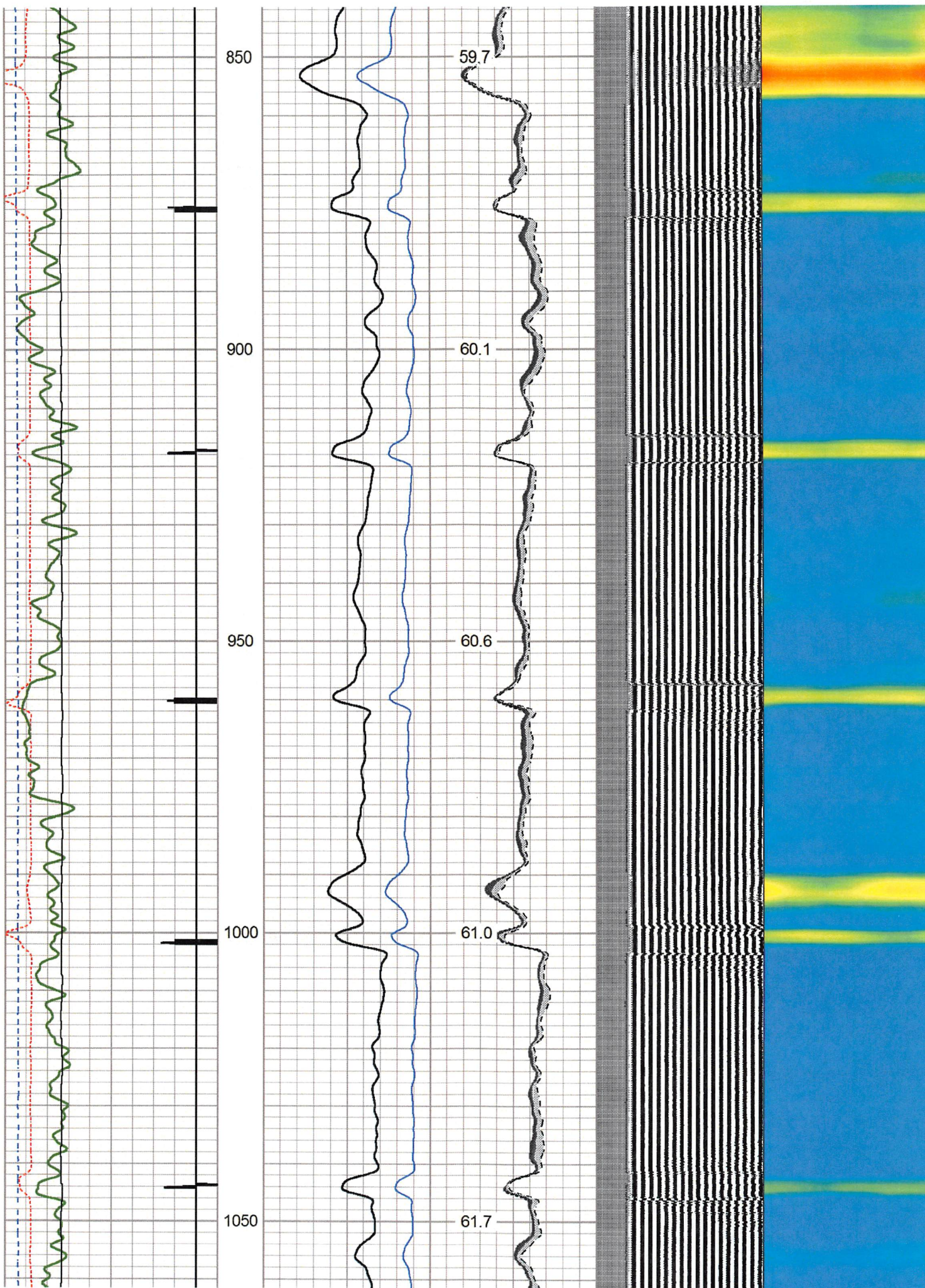
270	Travel Time (usec)	160	0	Amplitude (mV)	100	-5	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	AMPMAX	150	200 (usec)	1200		
0	Gamma Ray (GAPI)	150				-5	AMPAVG	150				
	Line Speed						TEMP					
-200	(ft/min)	200					(degF)					
0	Line Tension (lb)	5000										

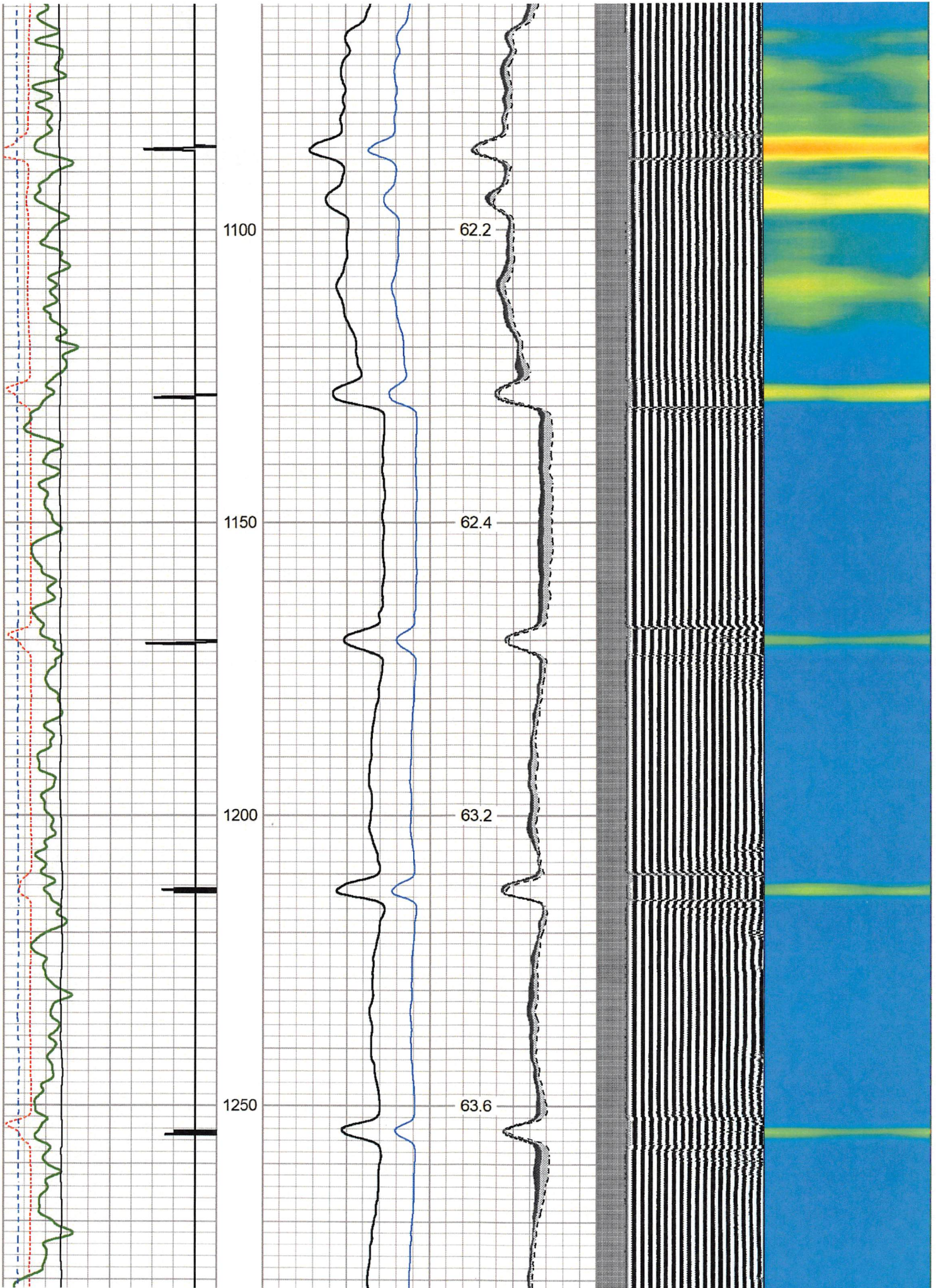


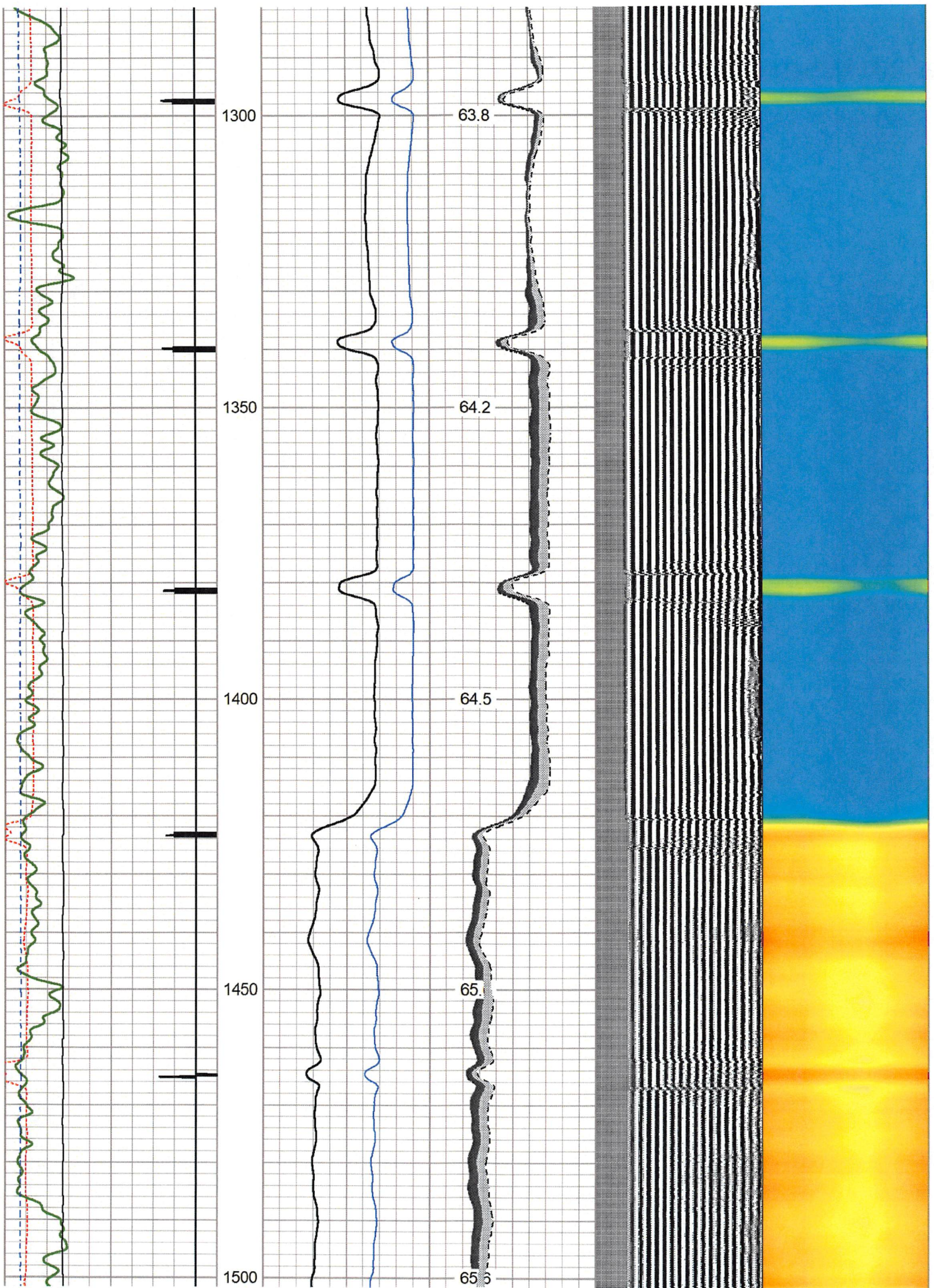


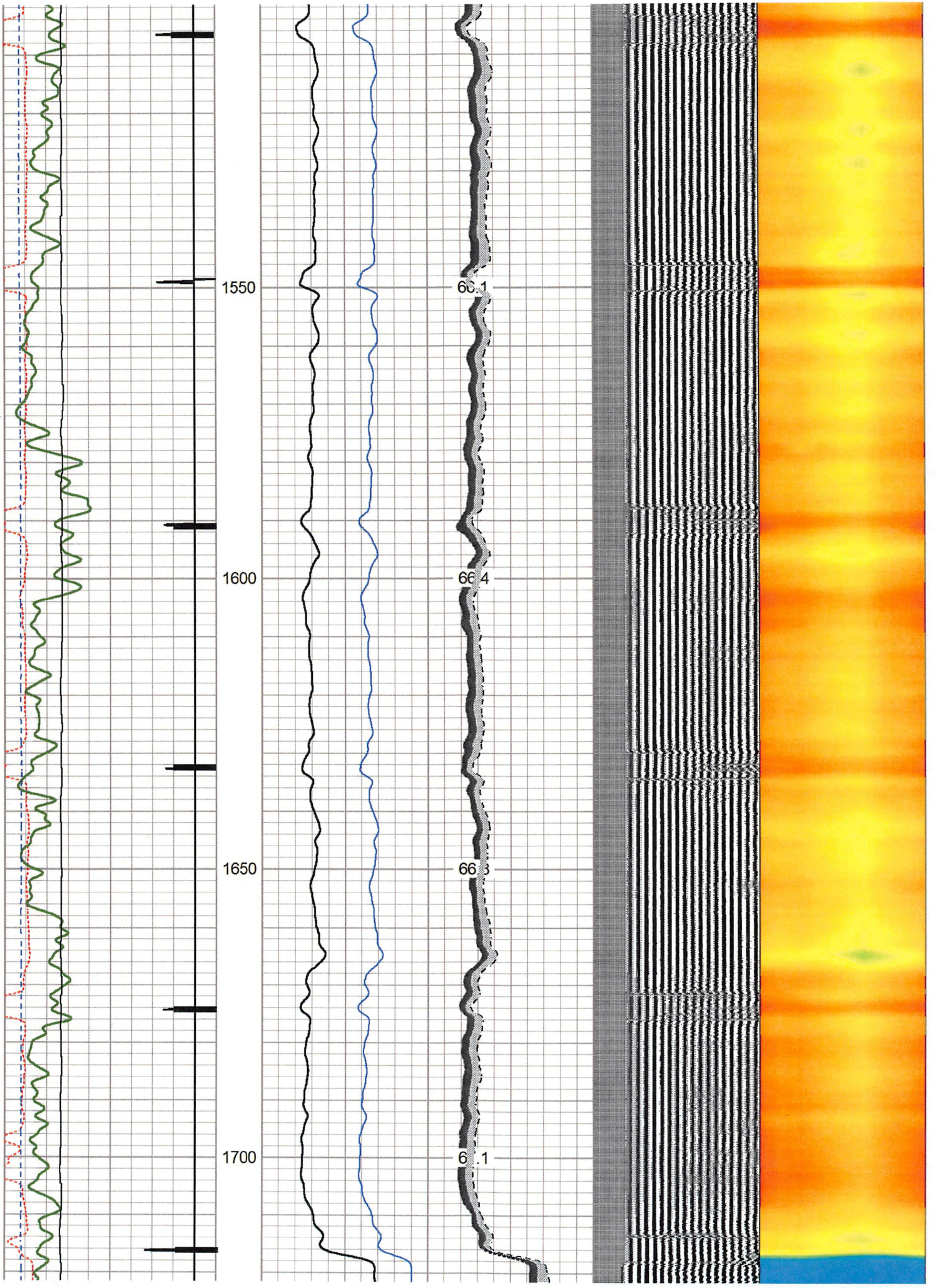


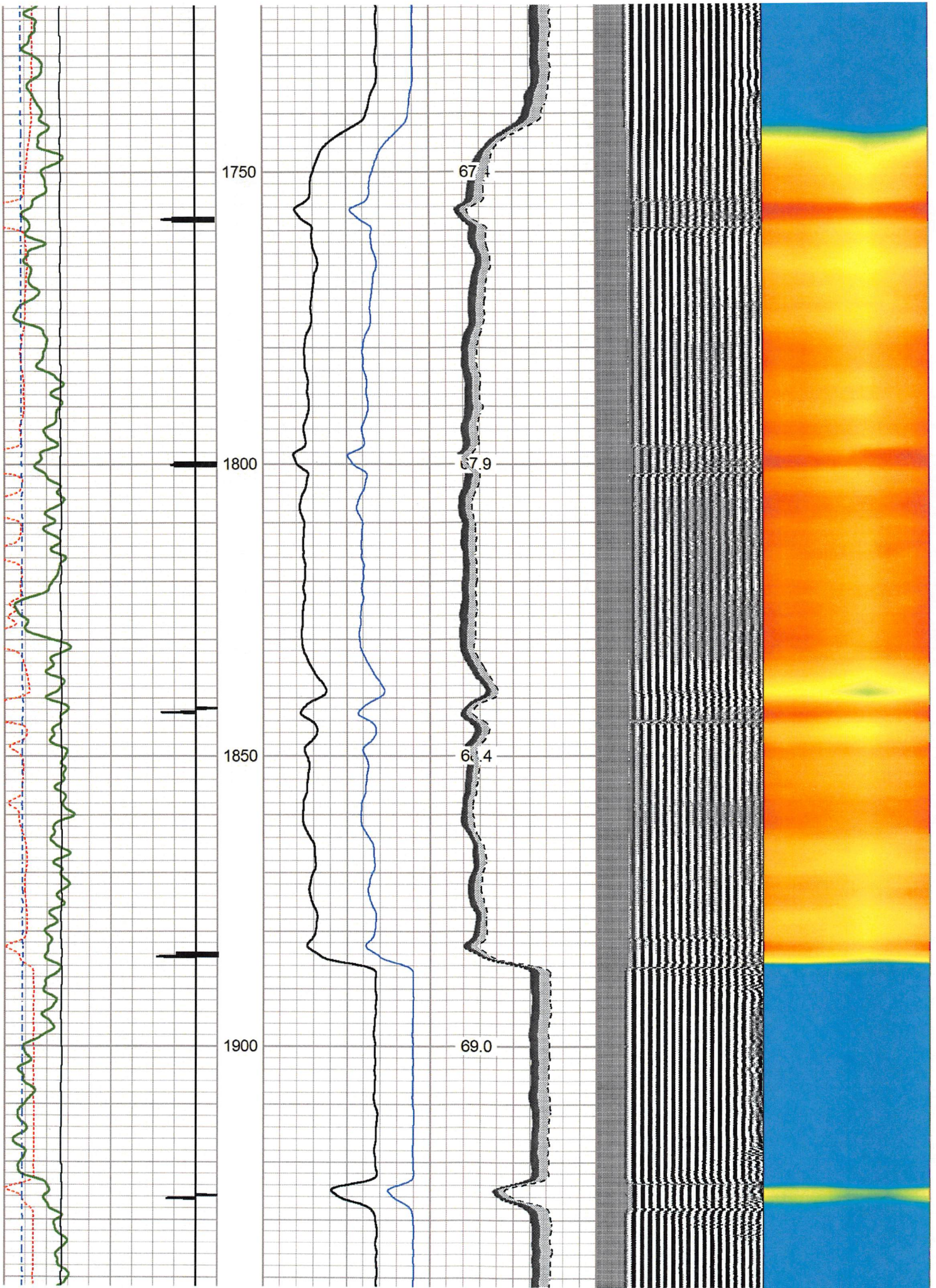


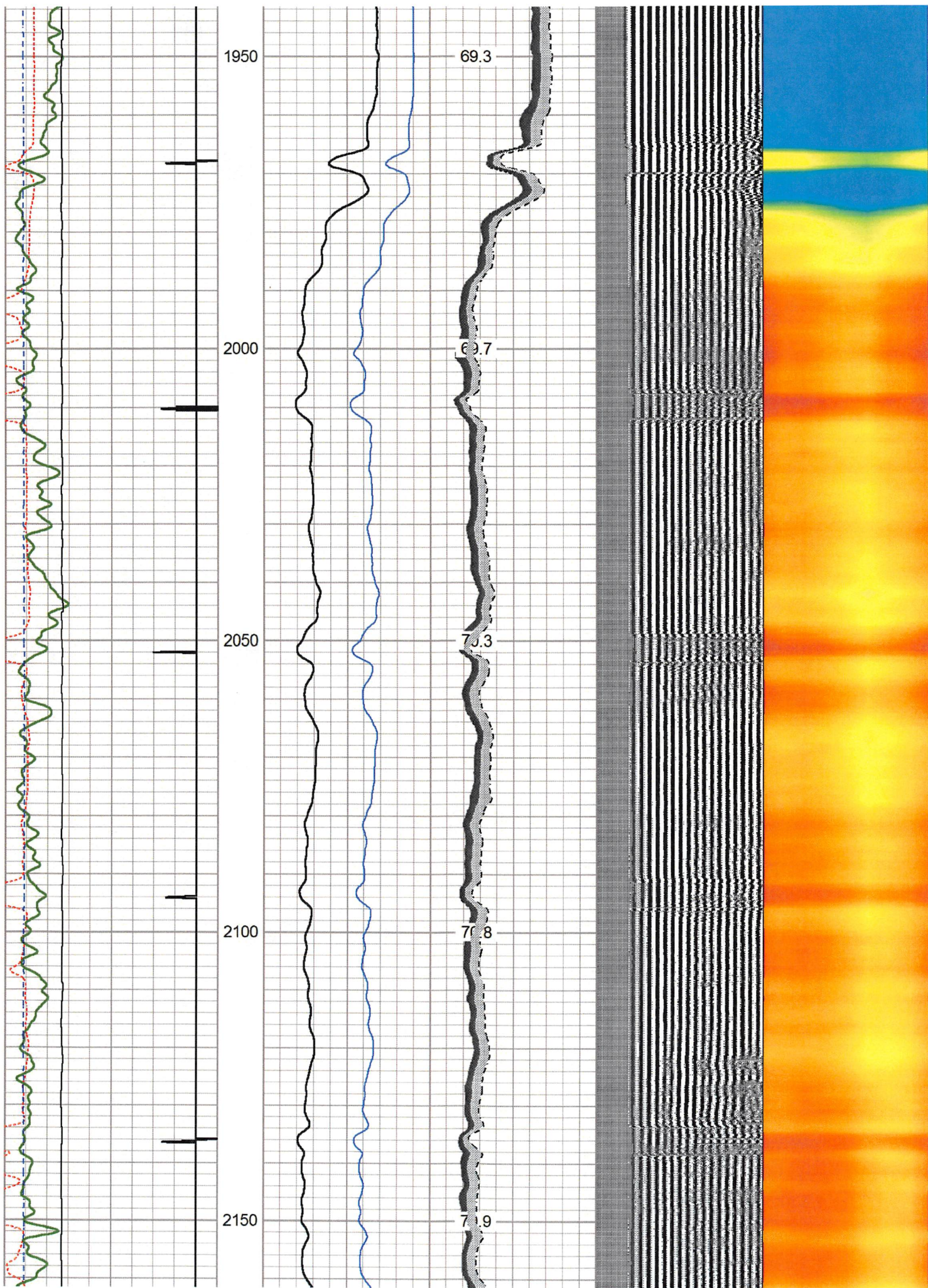


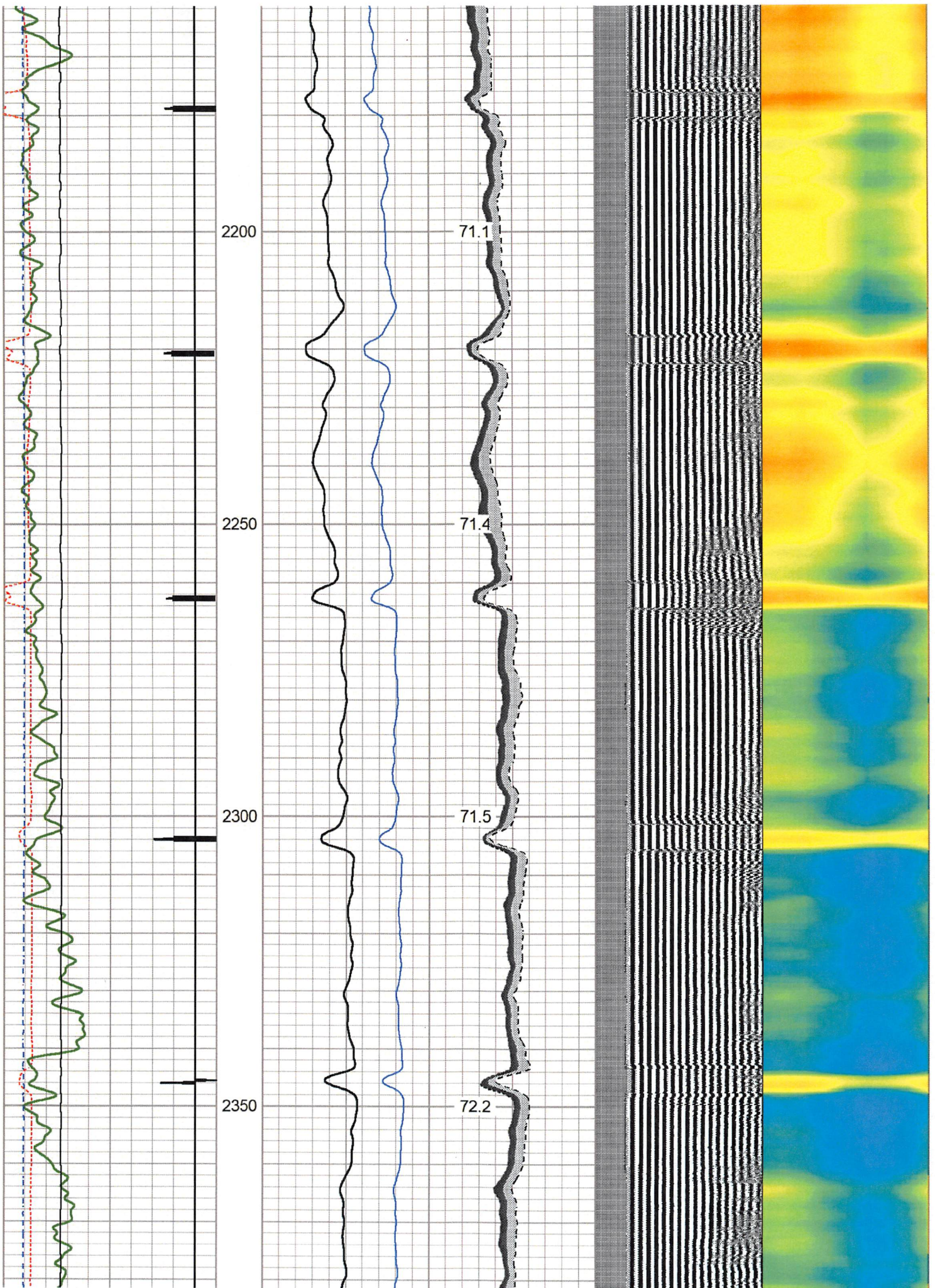


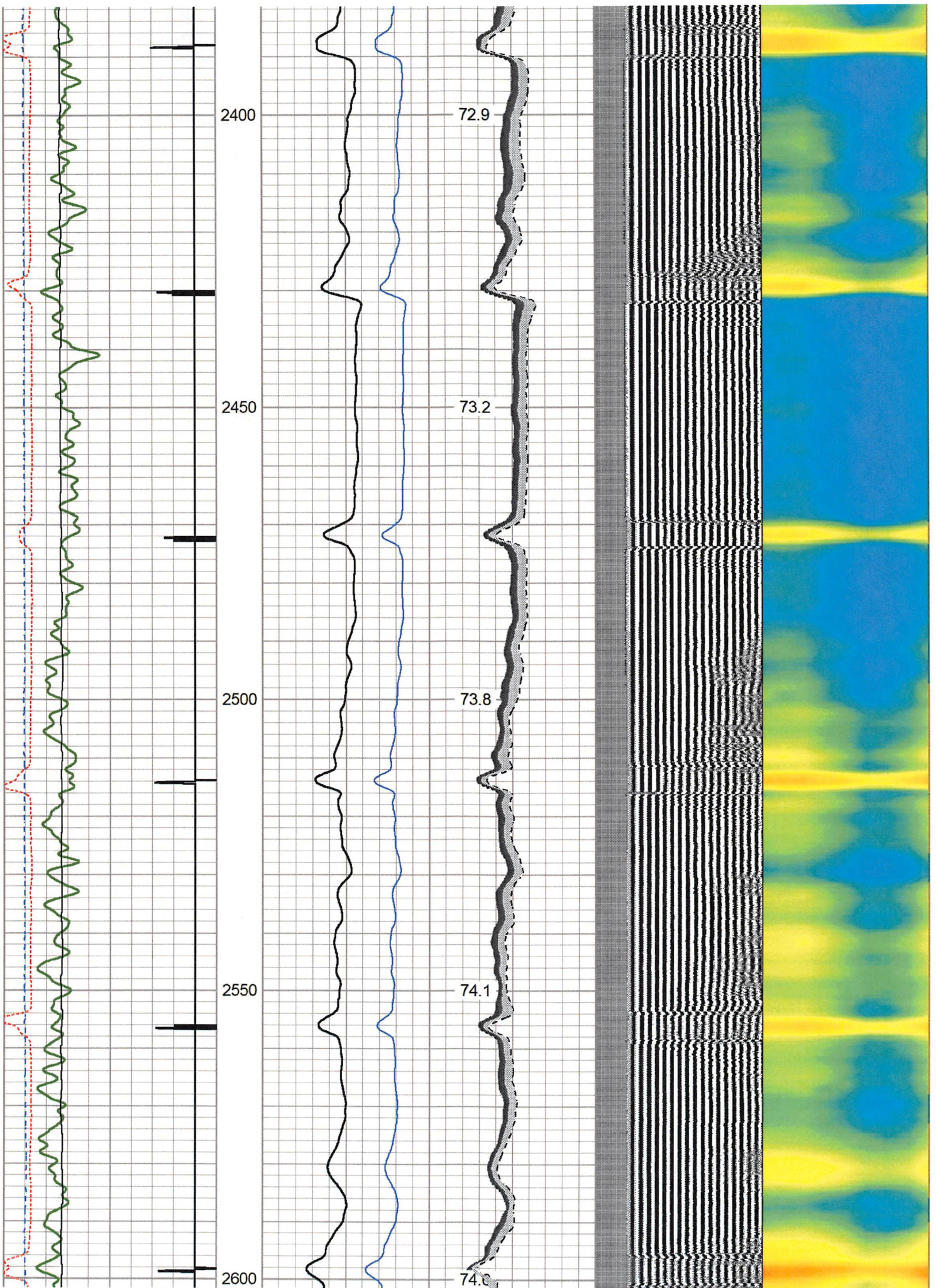


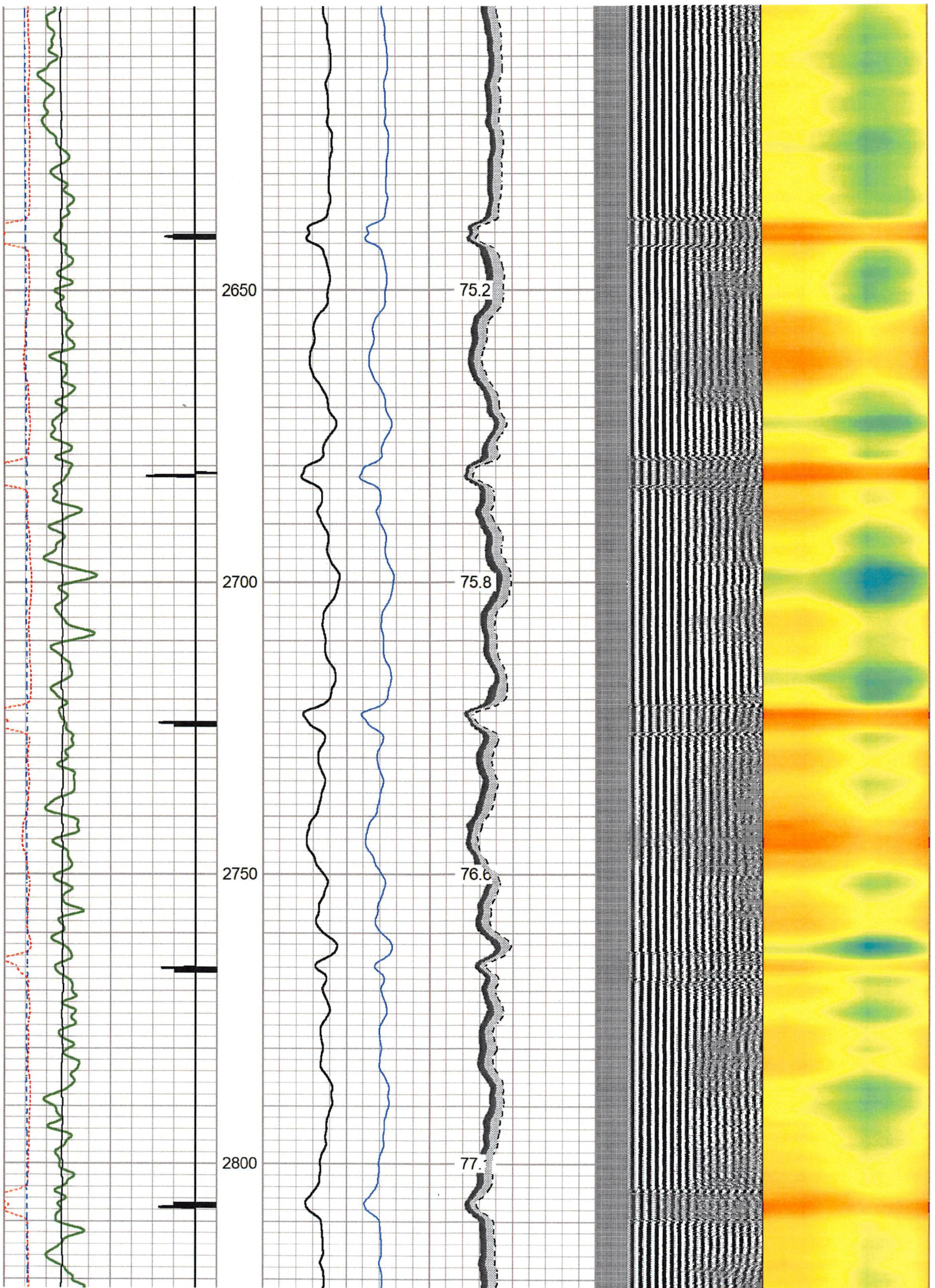


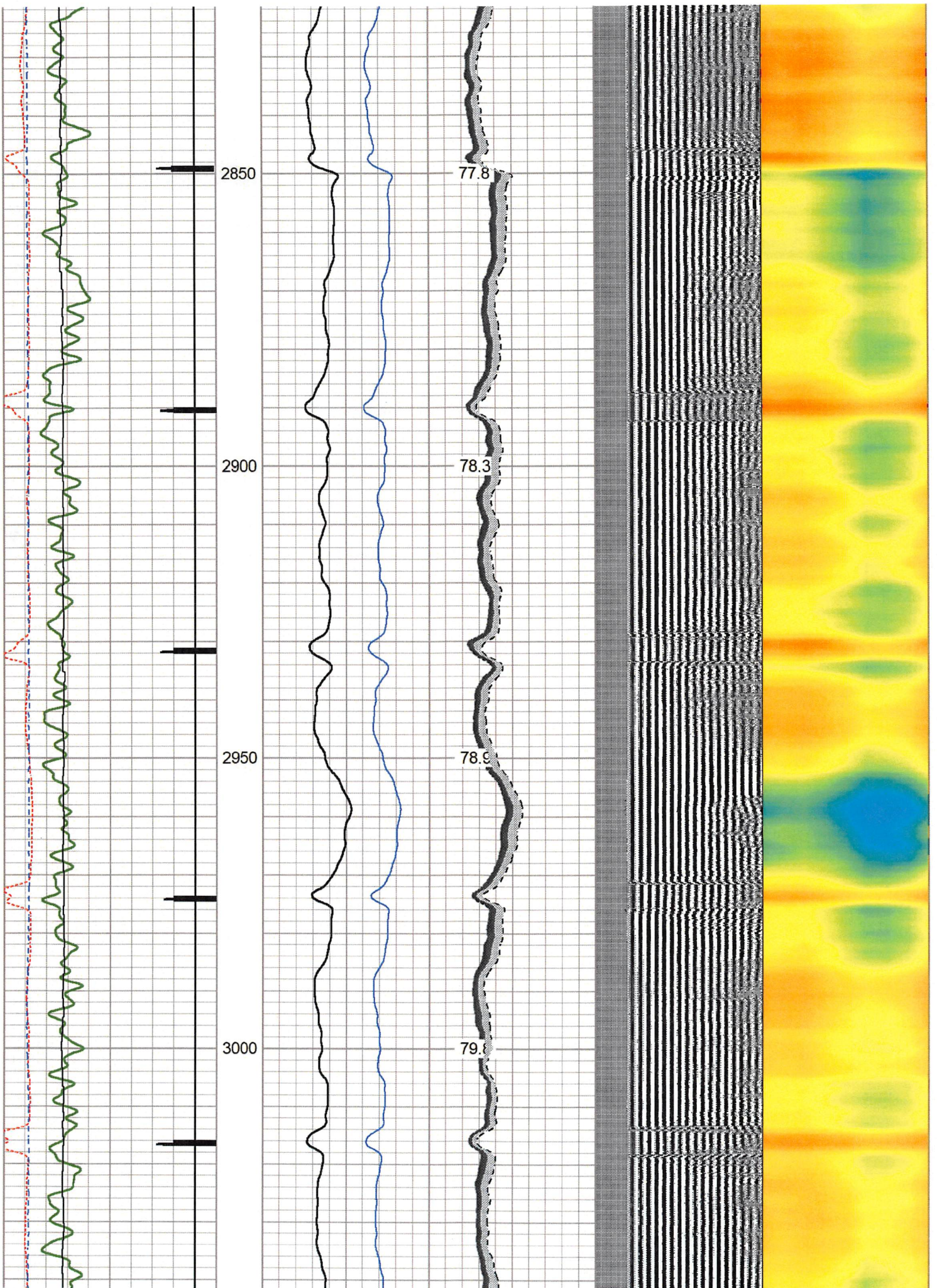


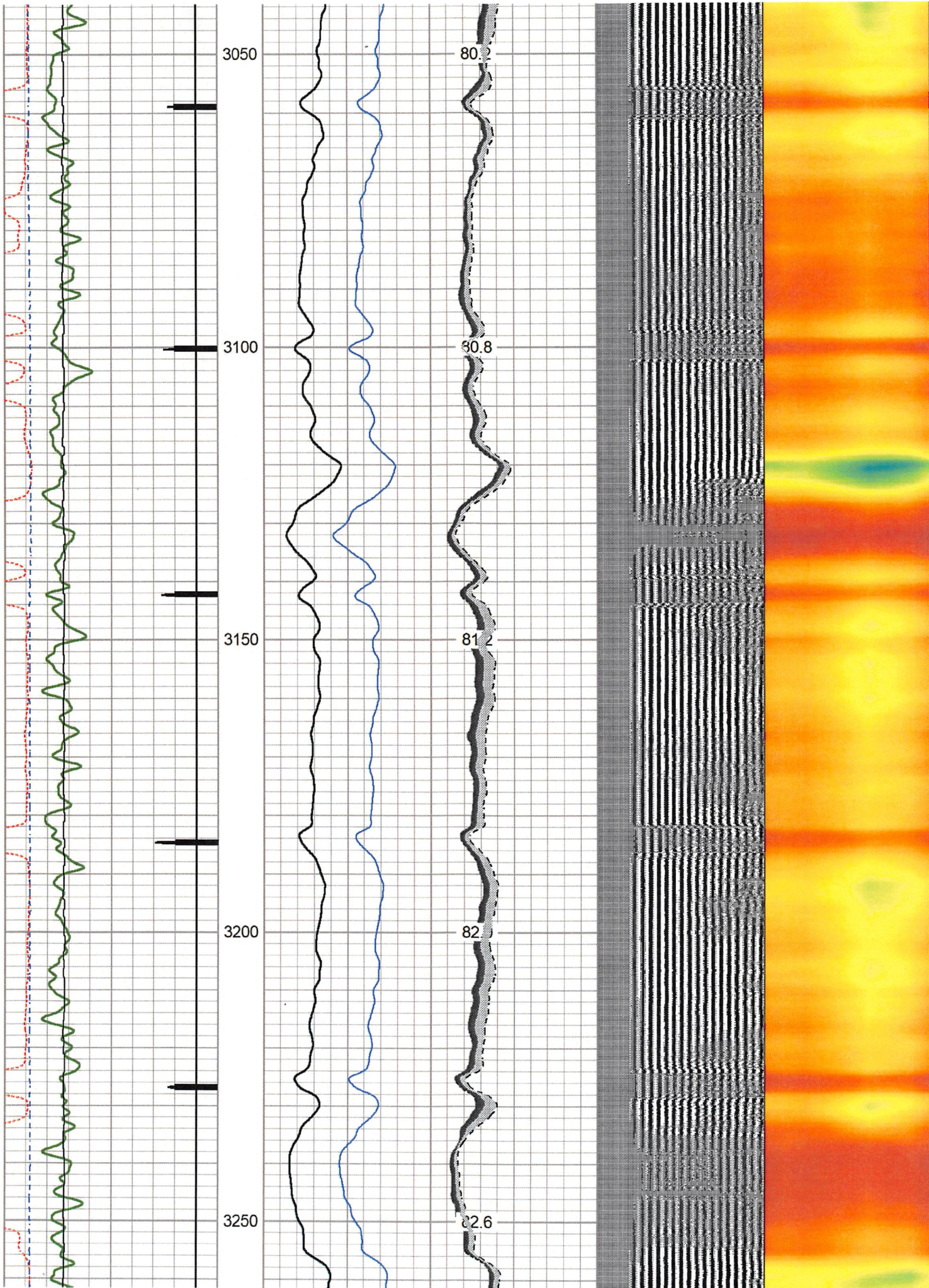


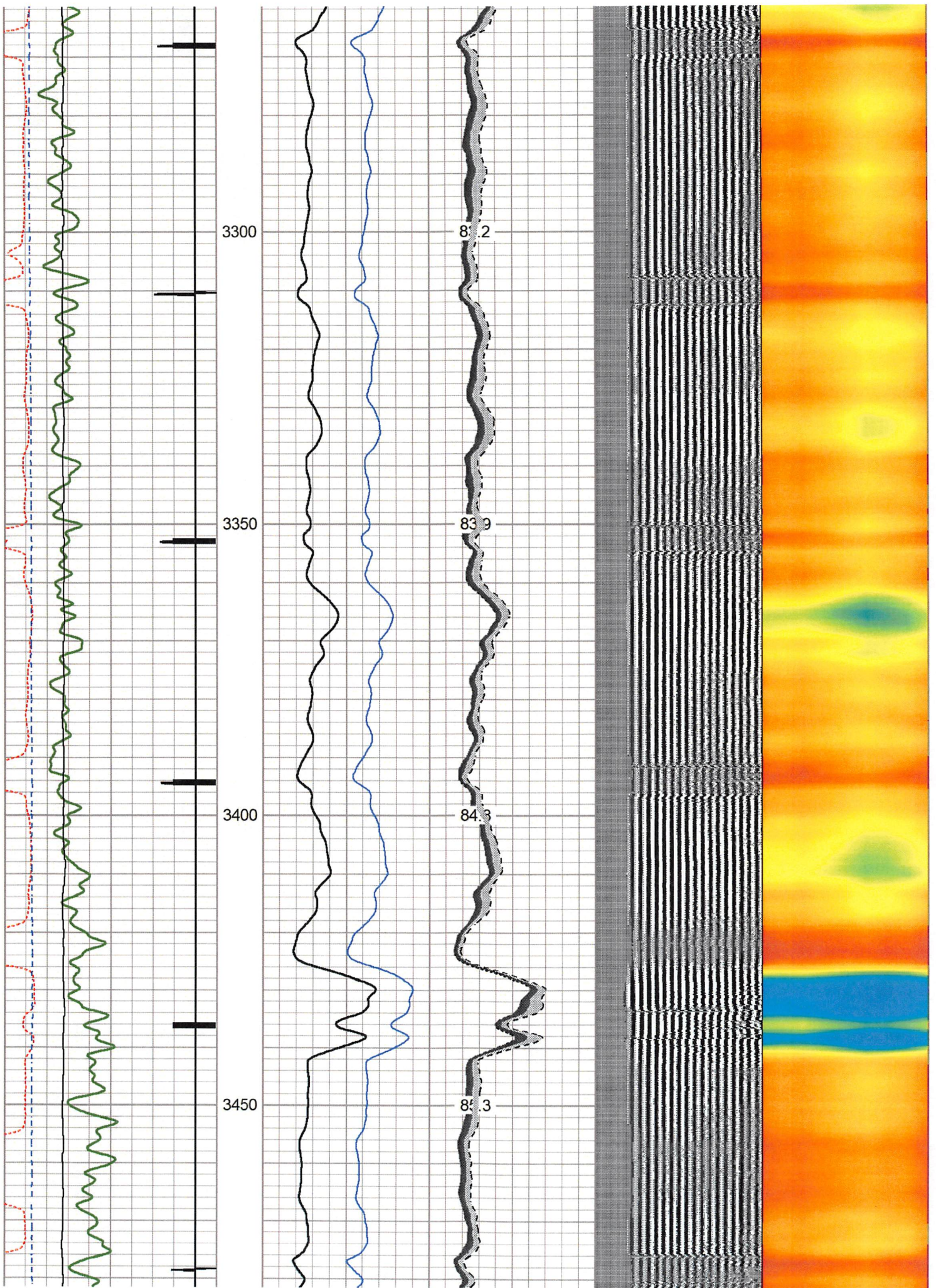


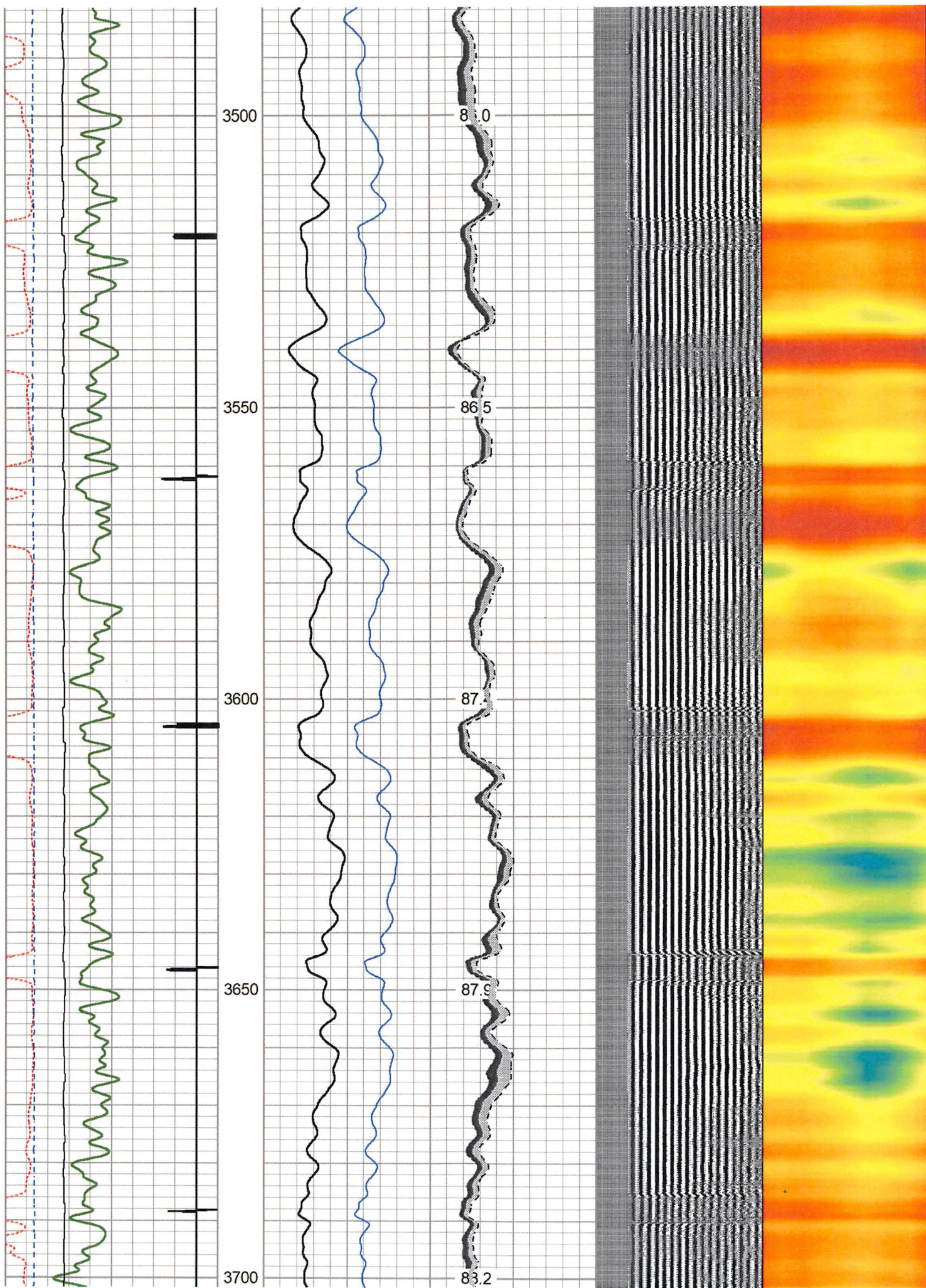


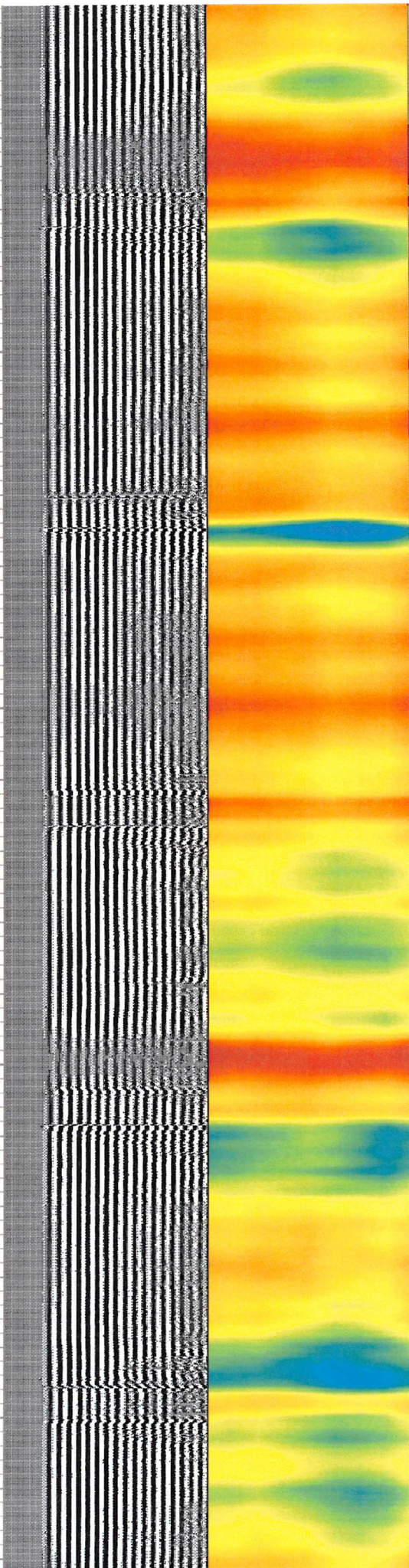
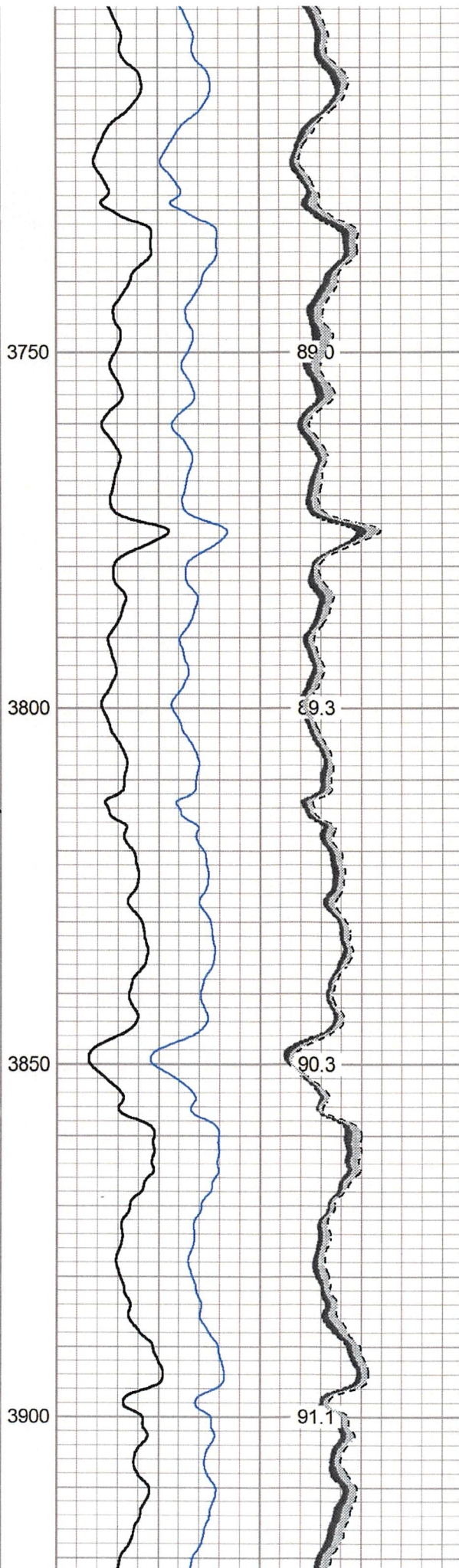
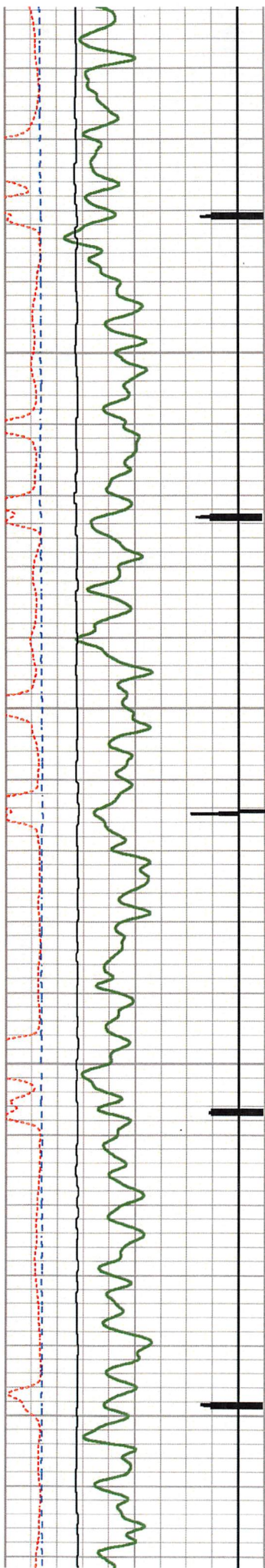


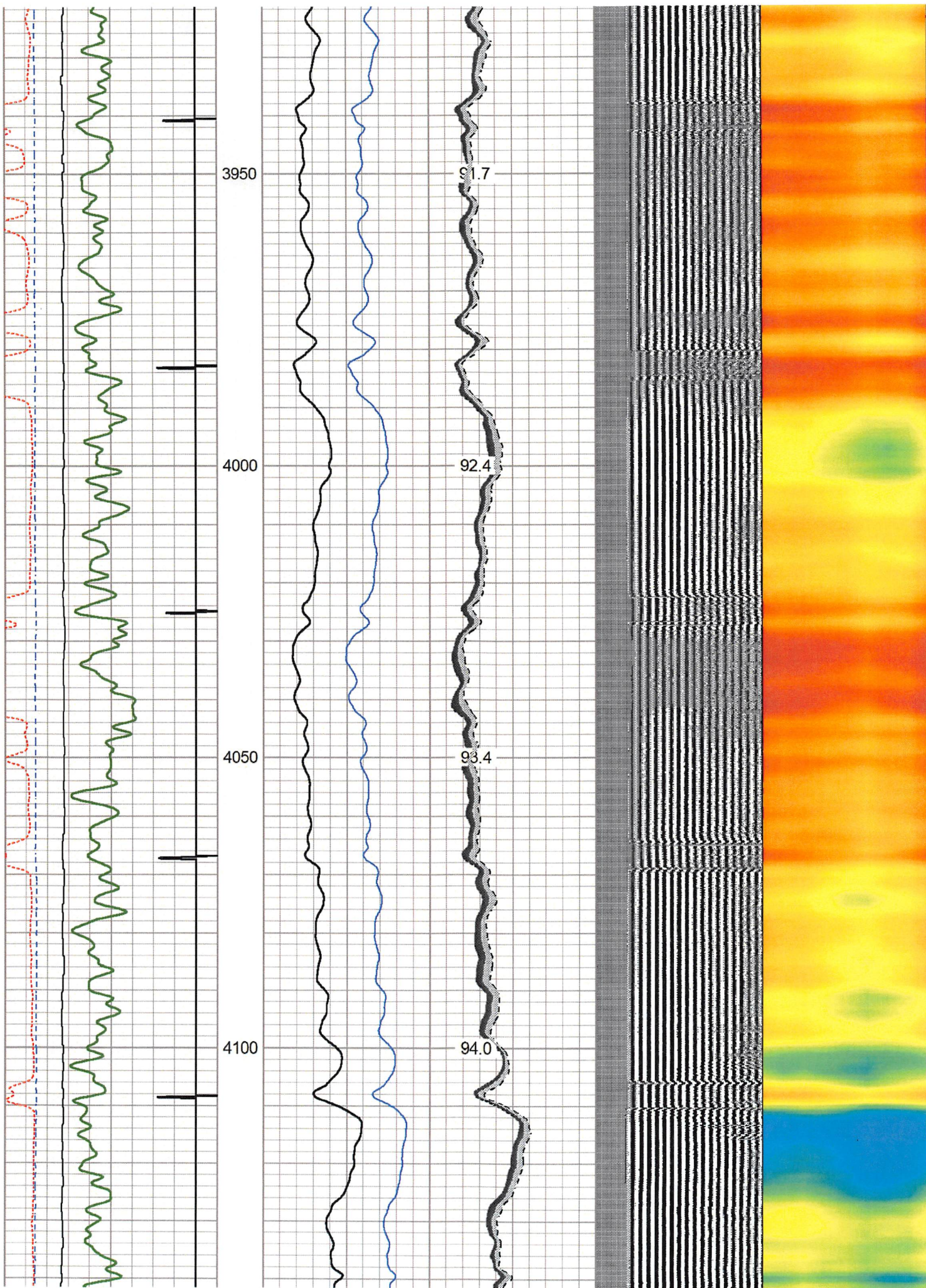


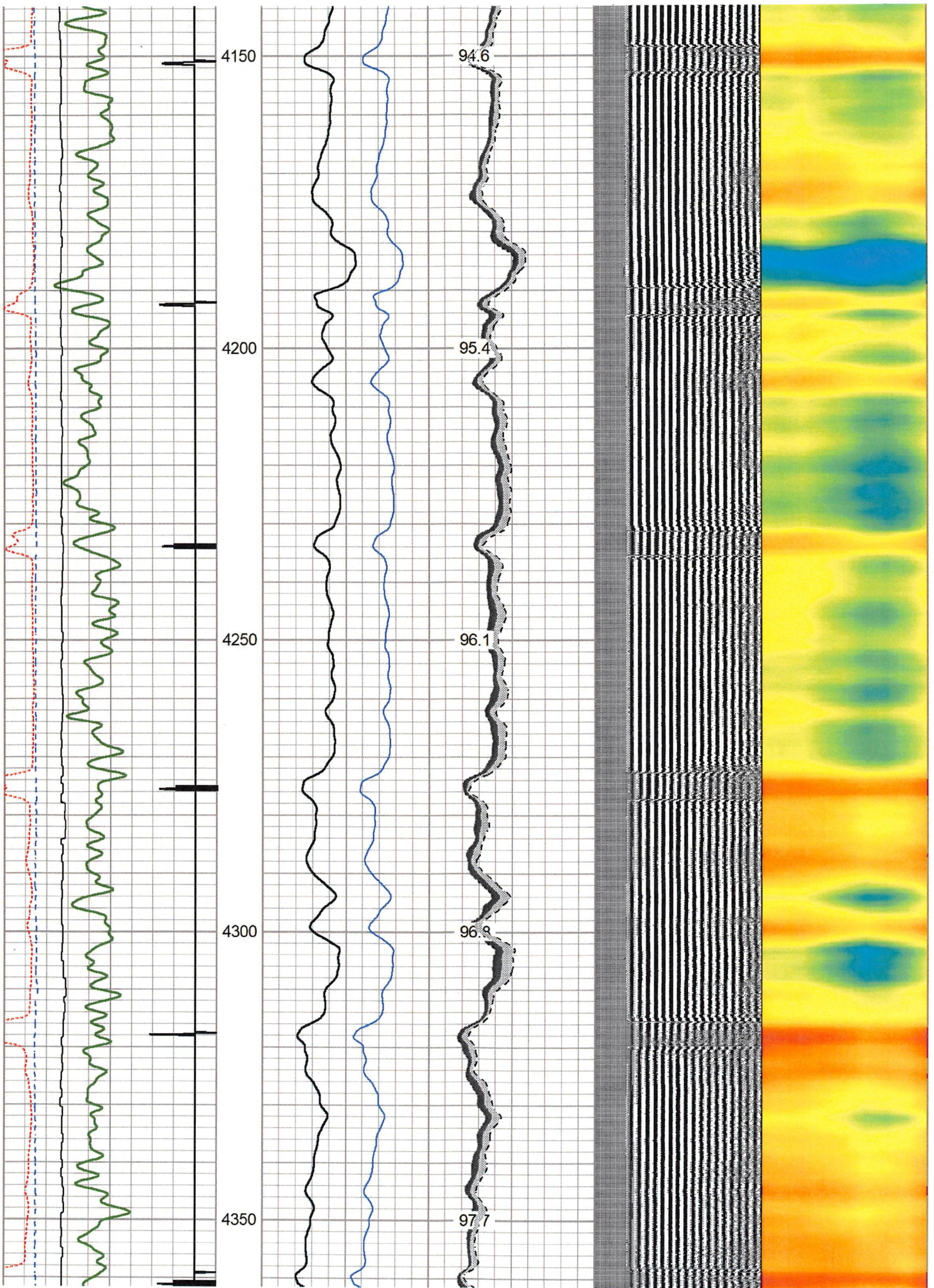


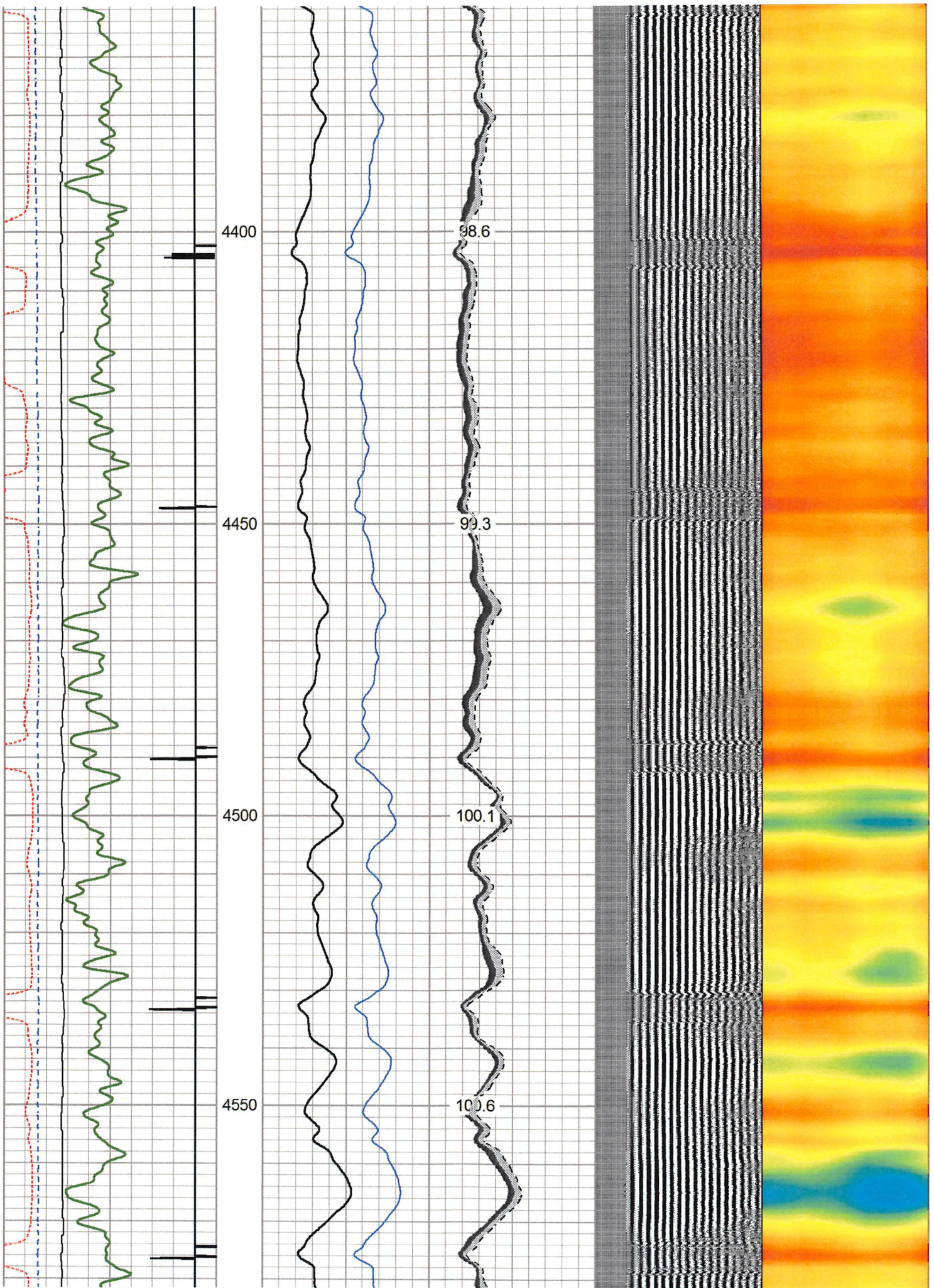


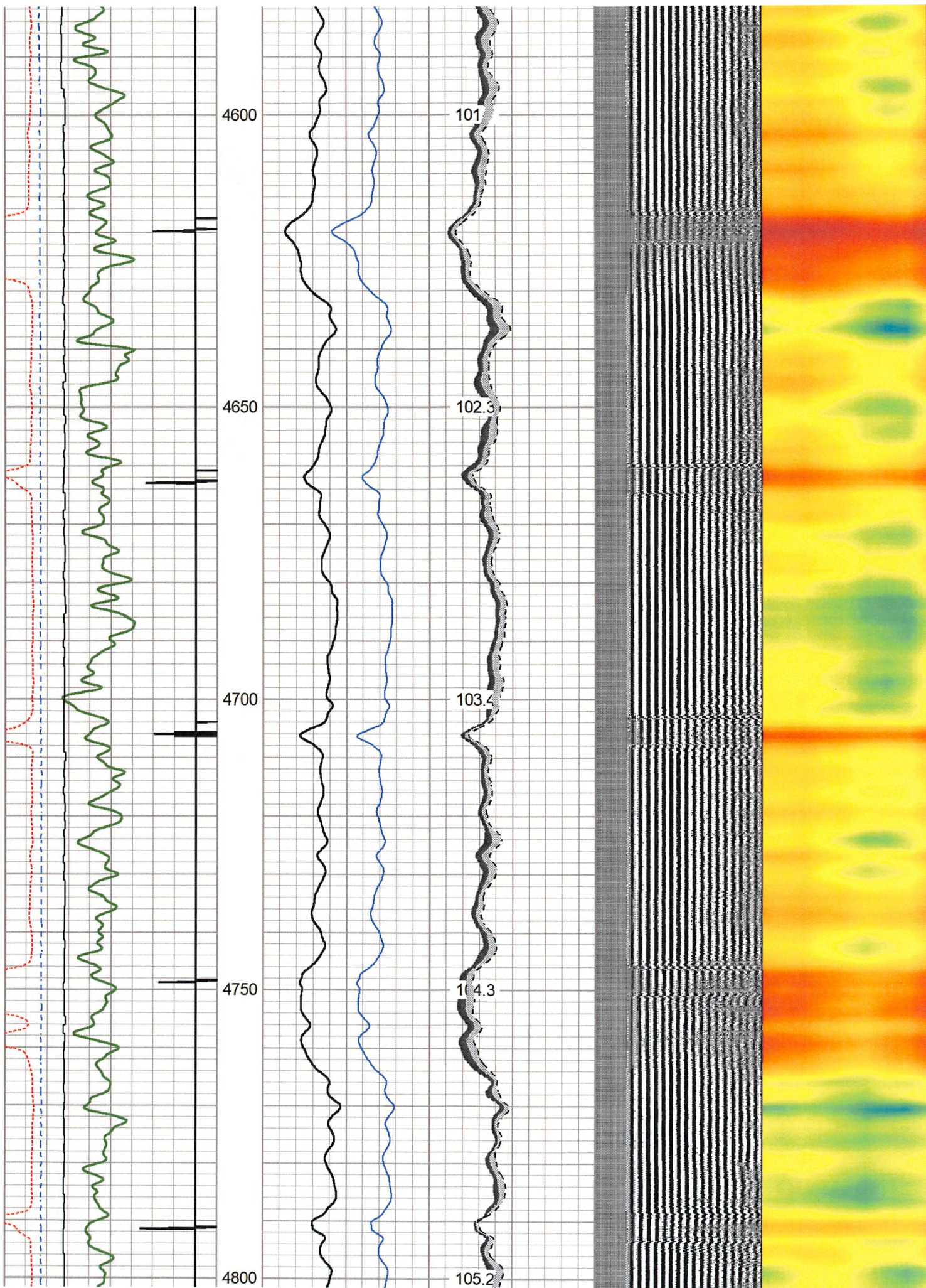


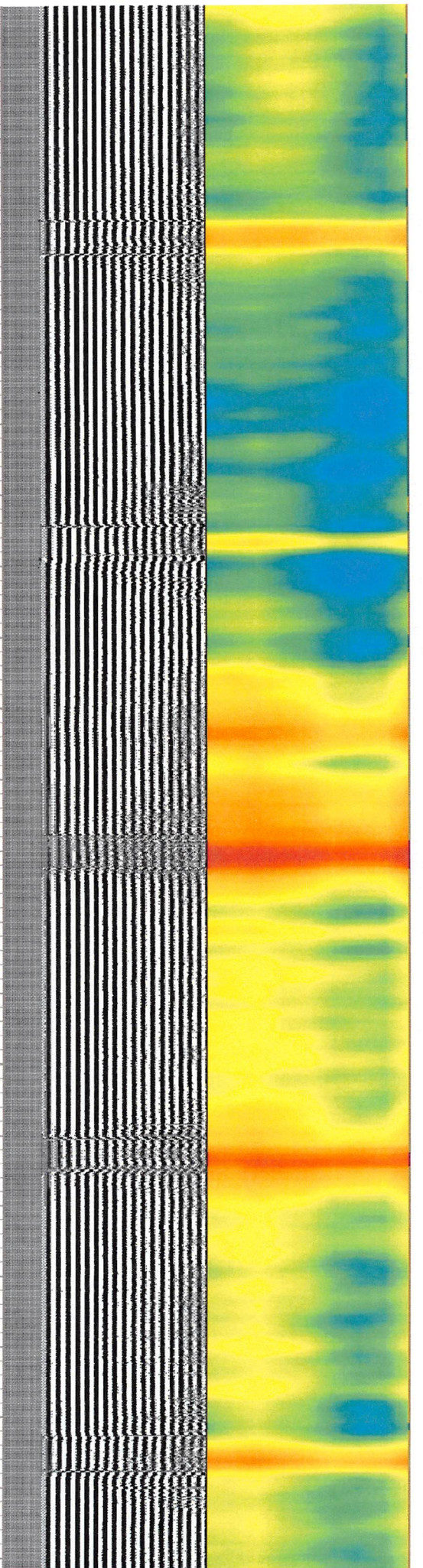
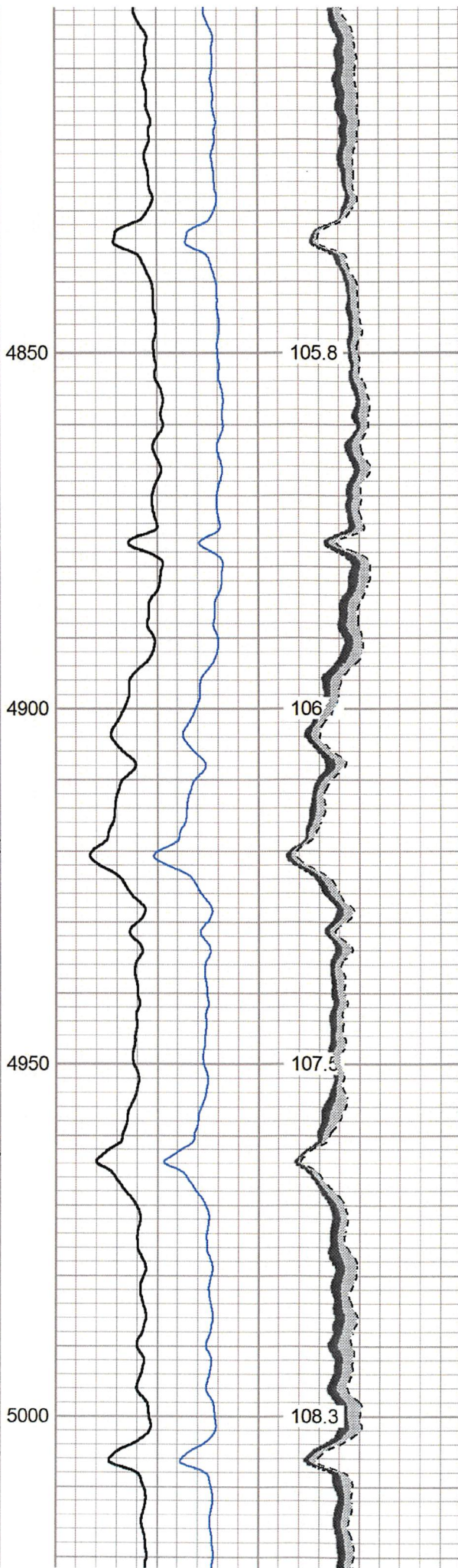
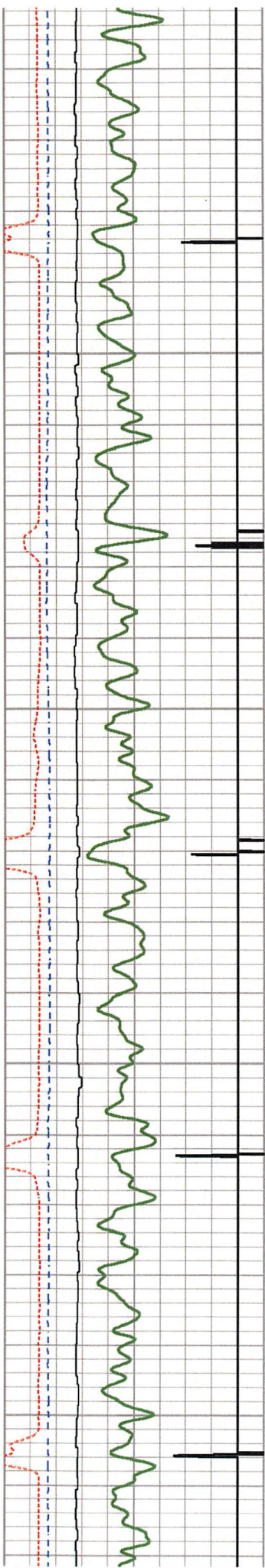


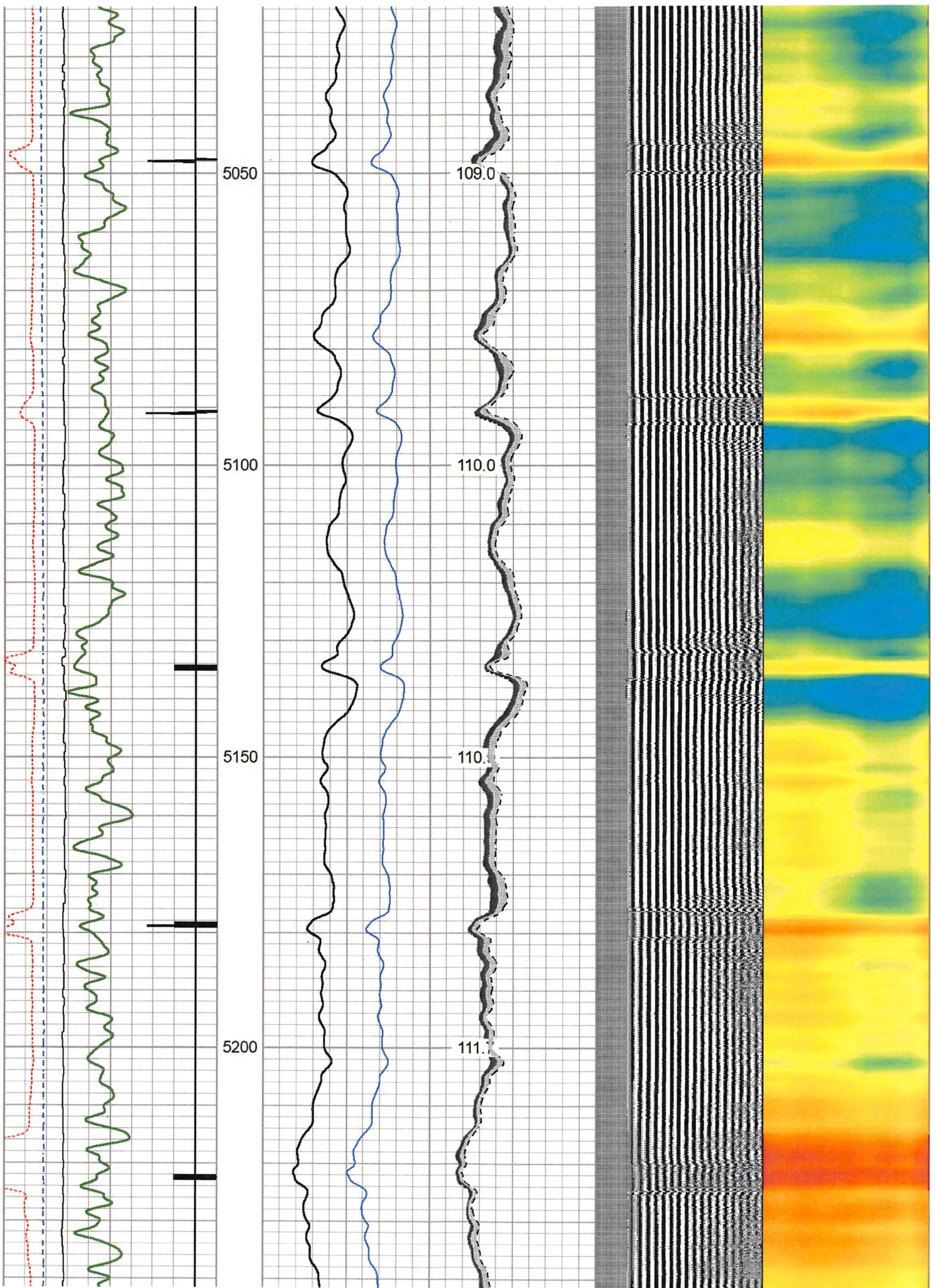


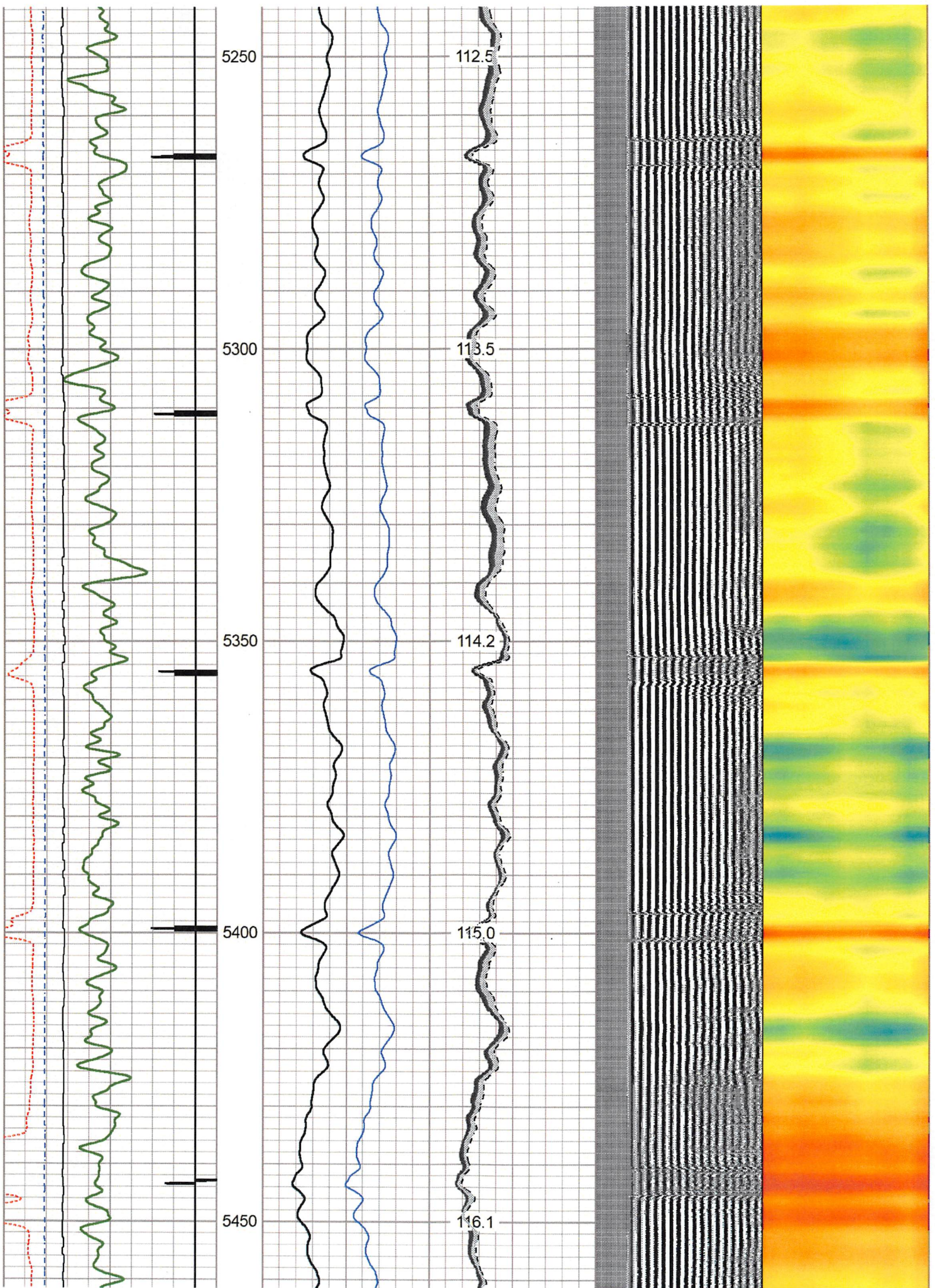


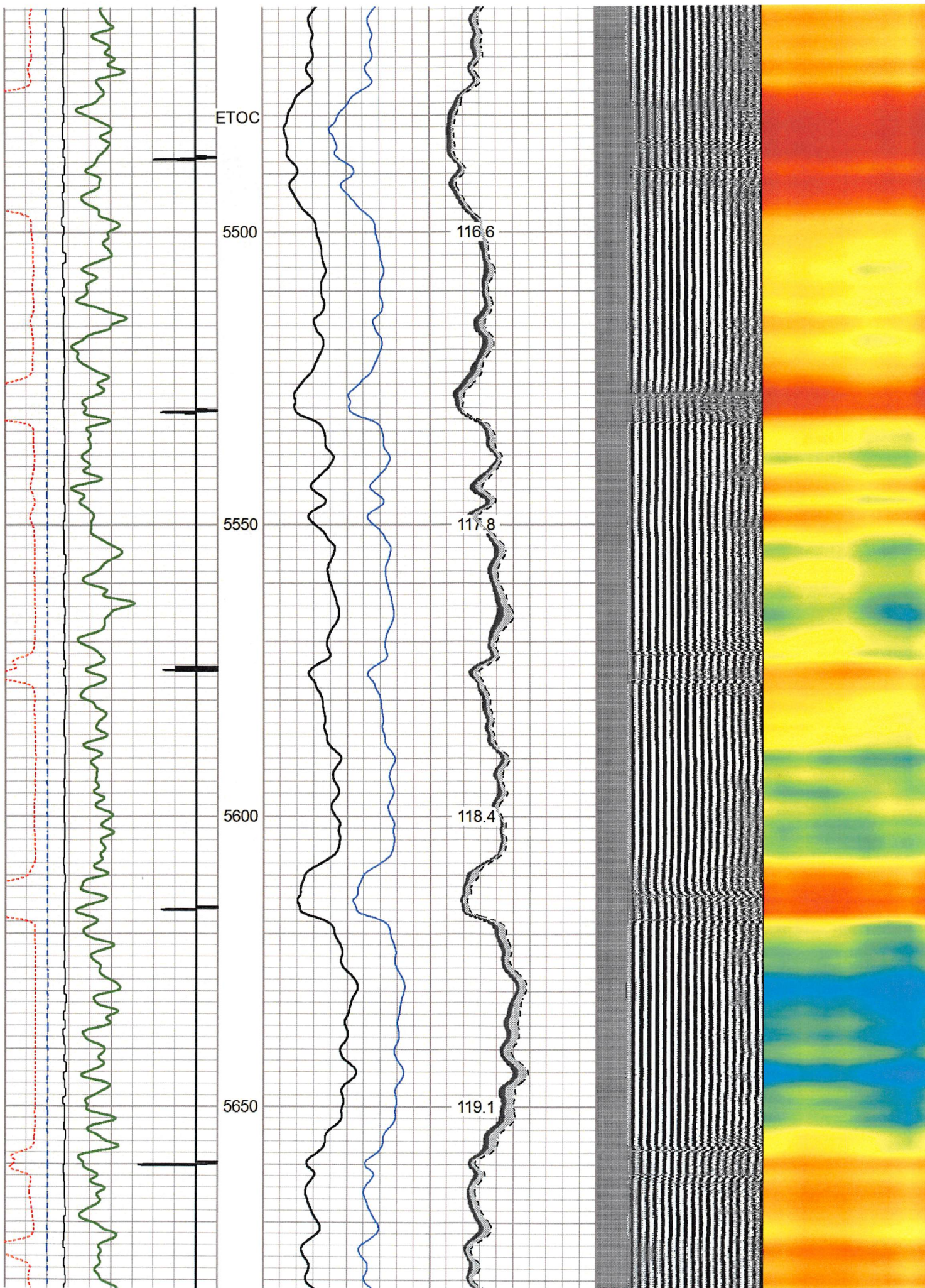


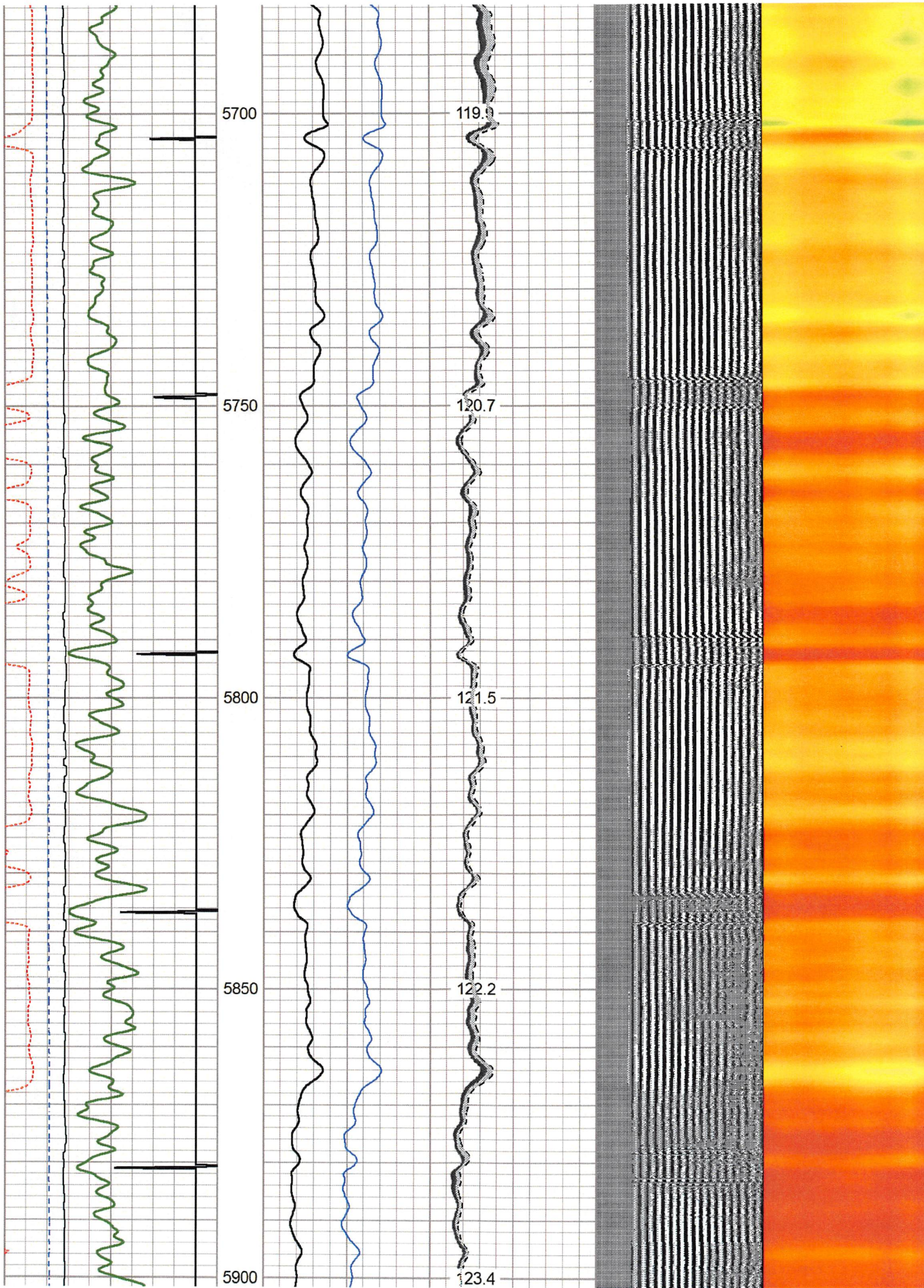


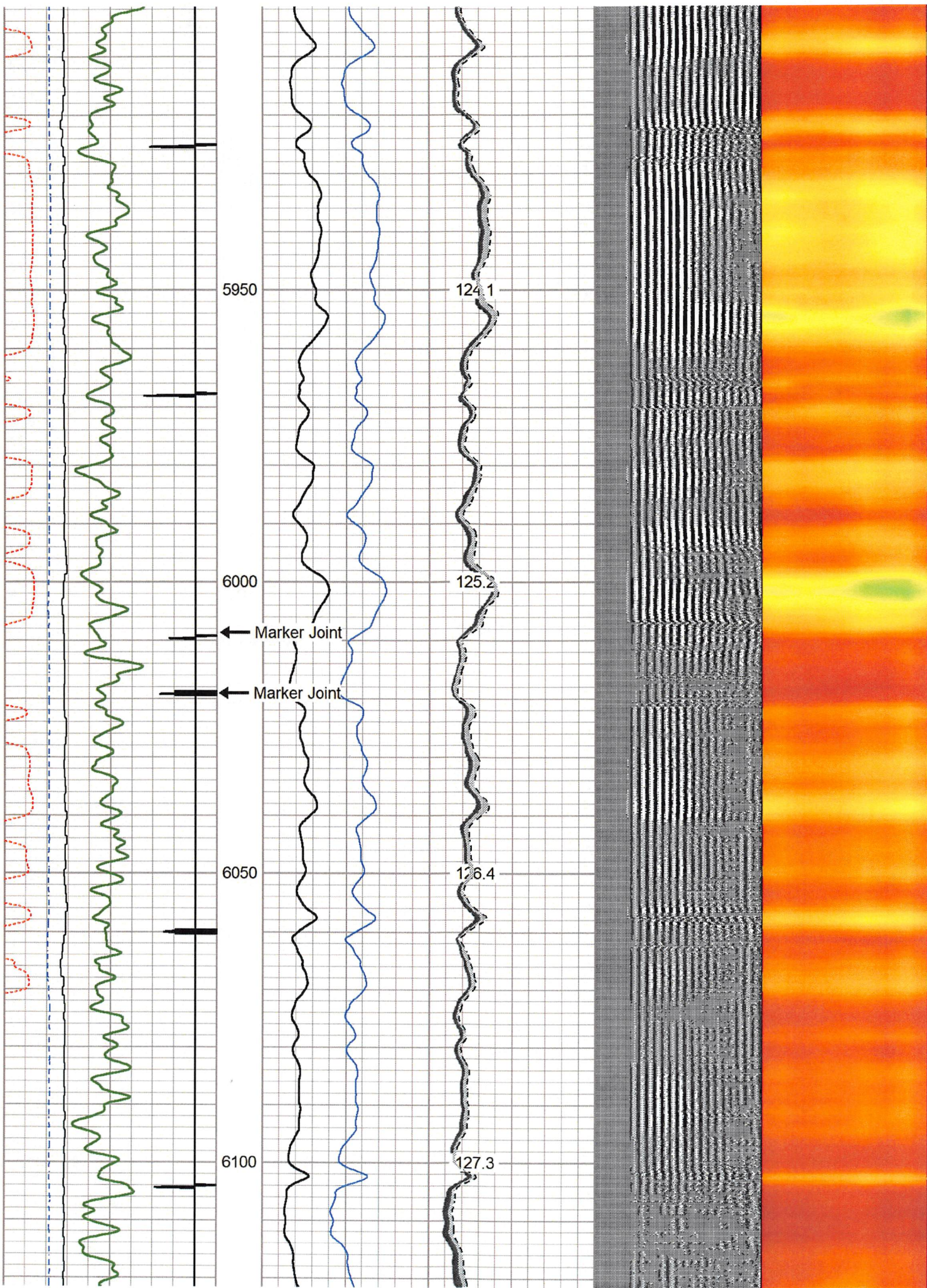


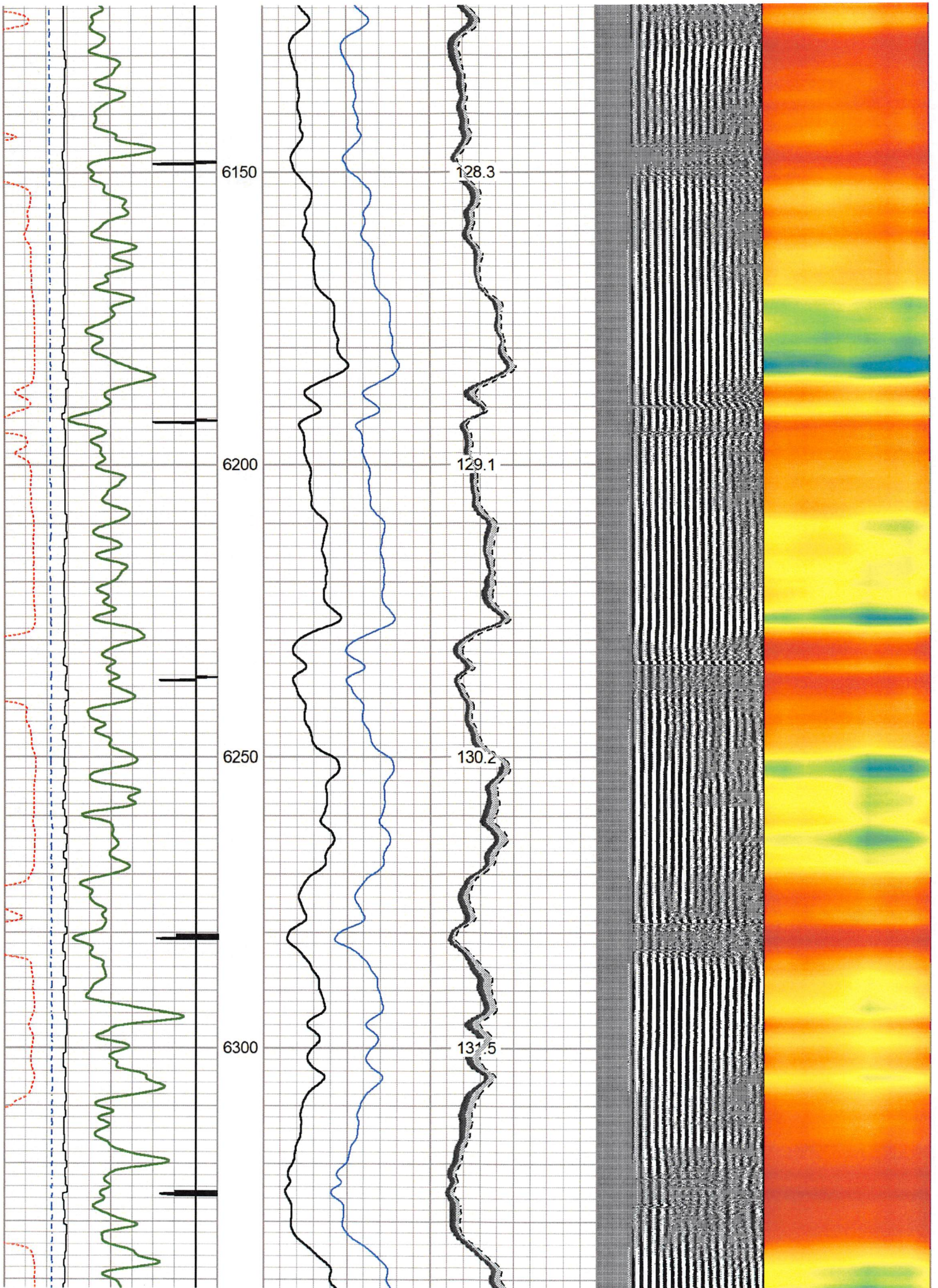


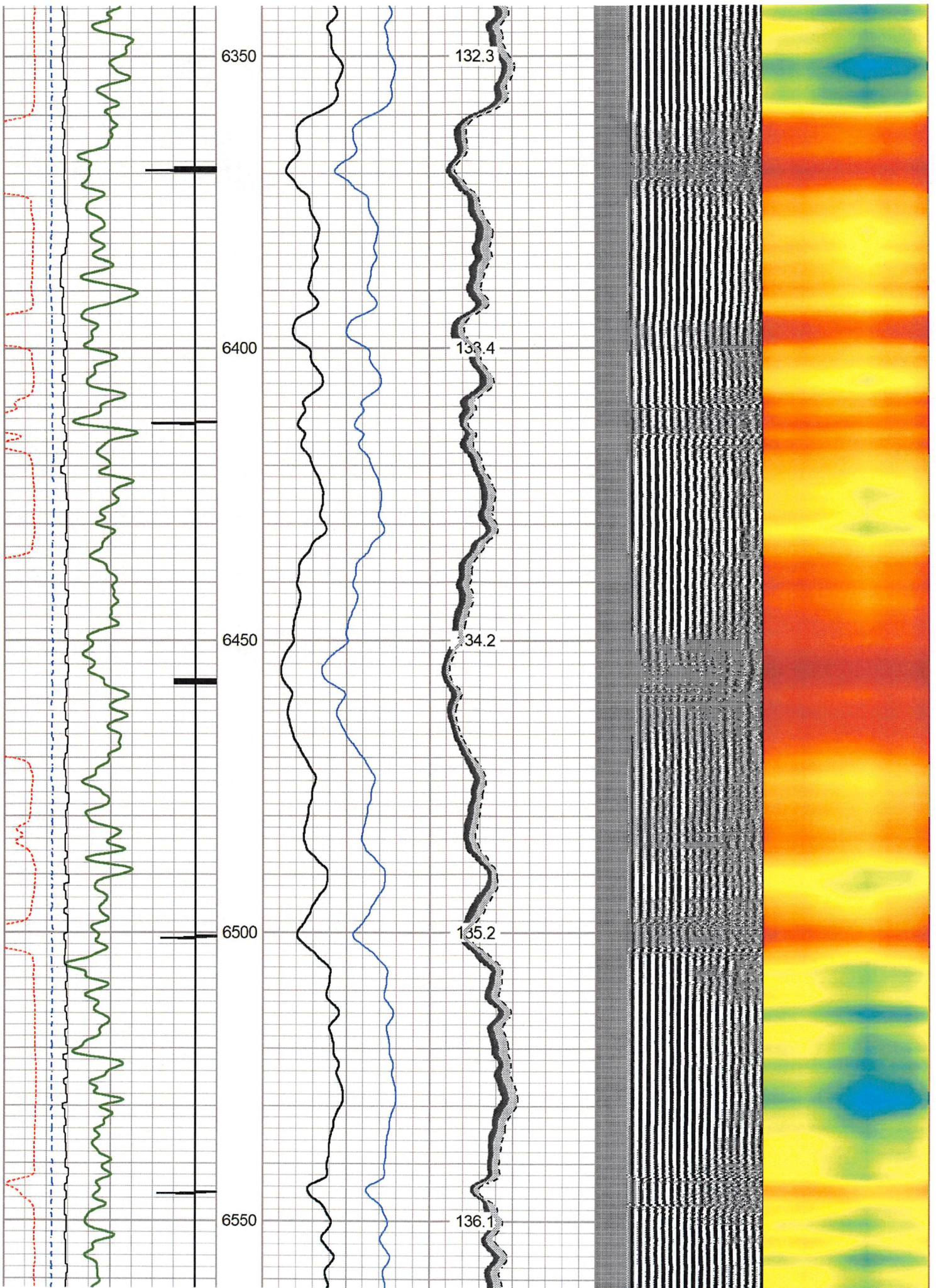


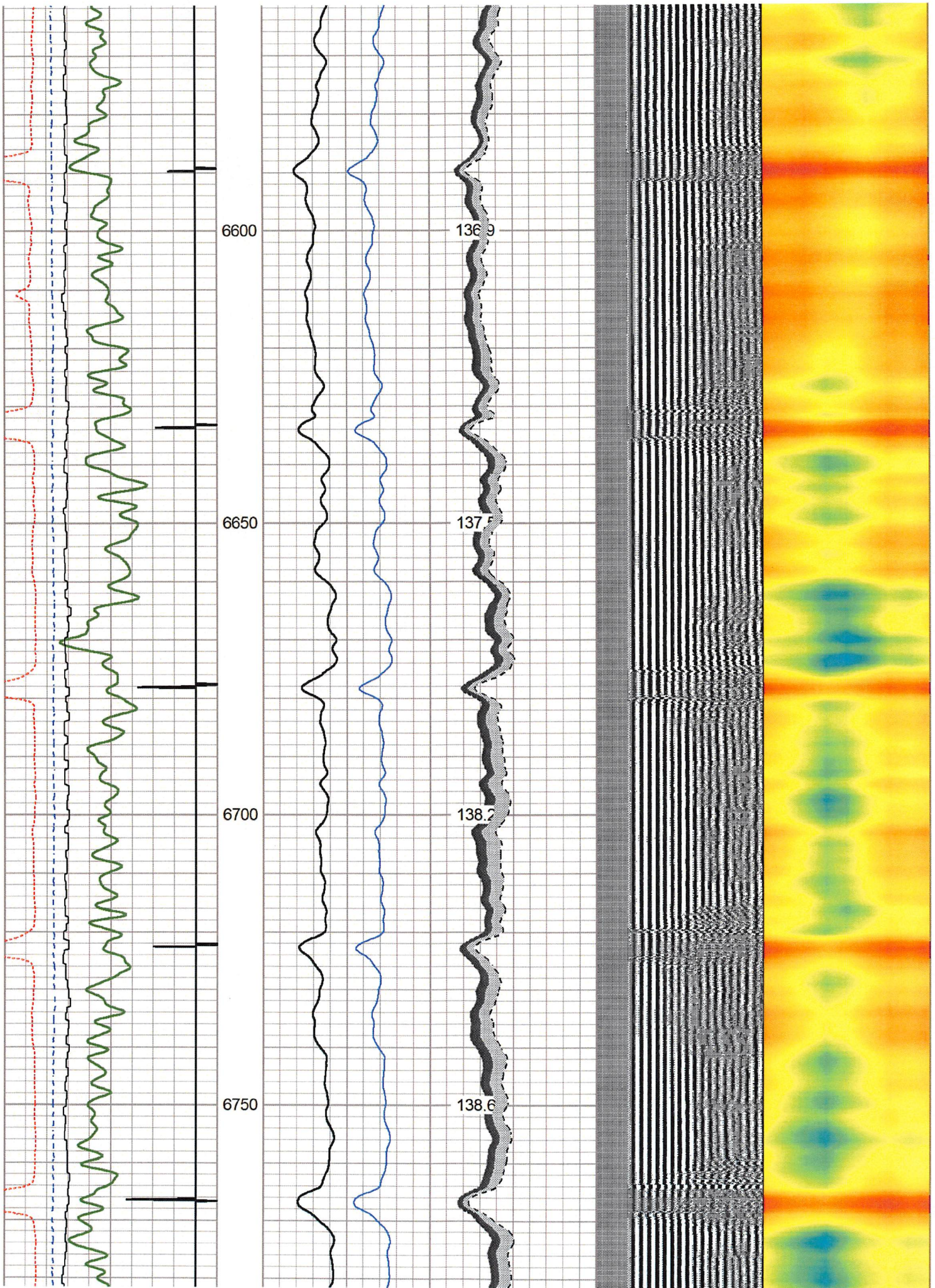


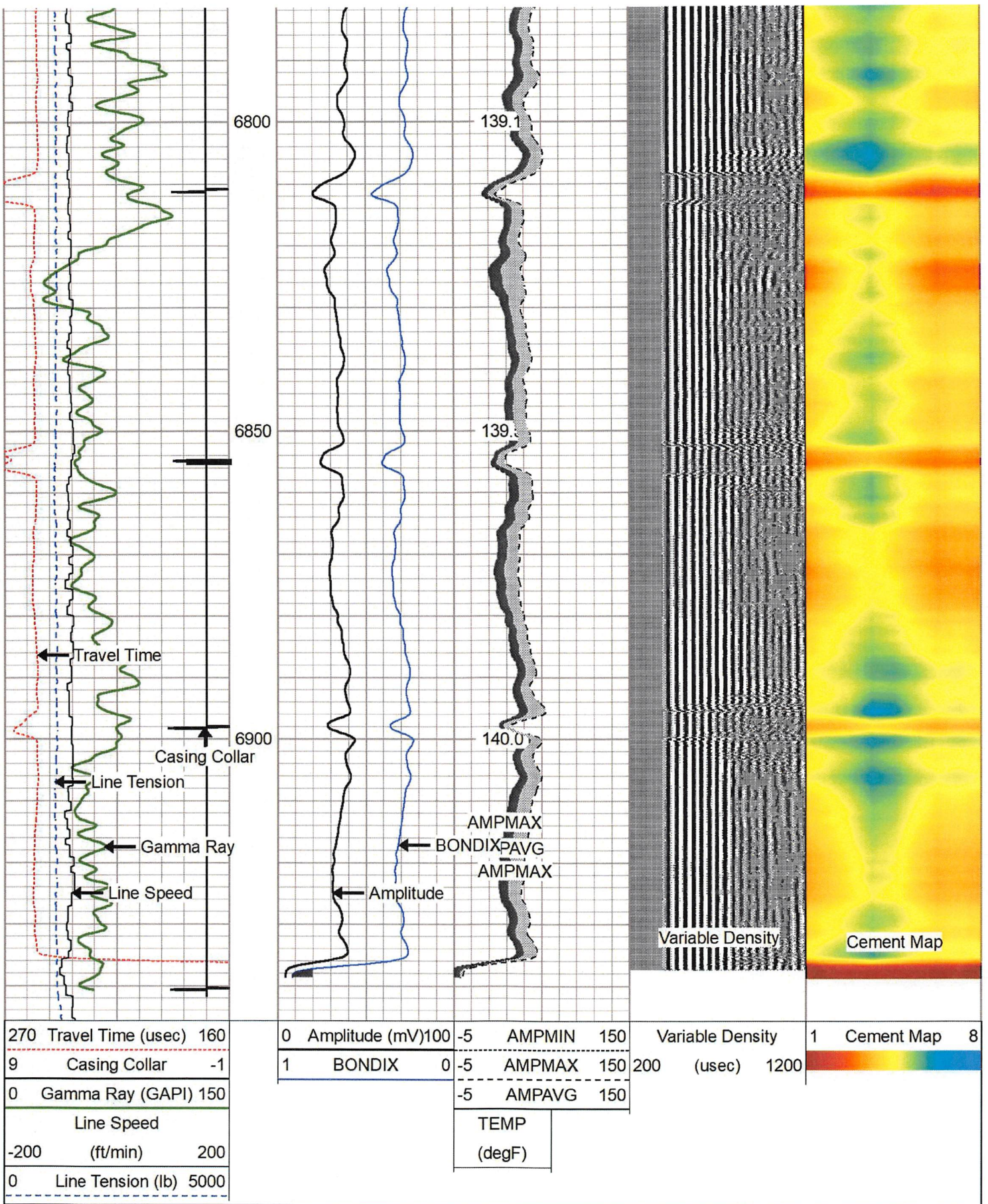








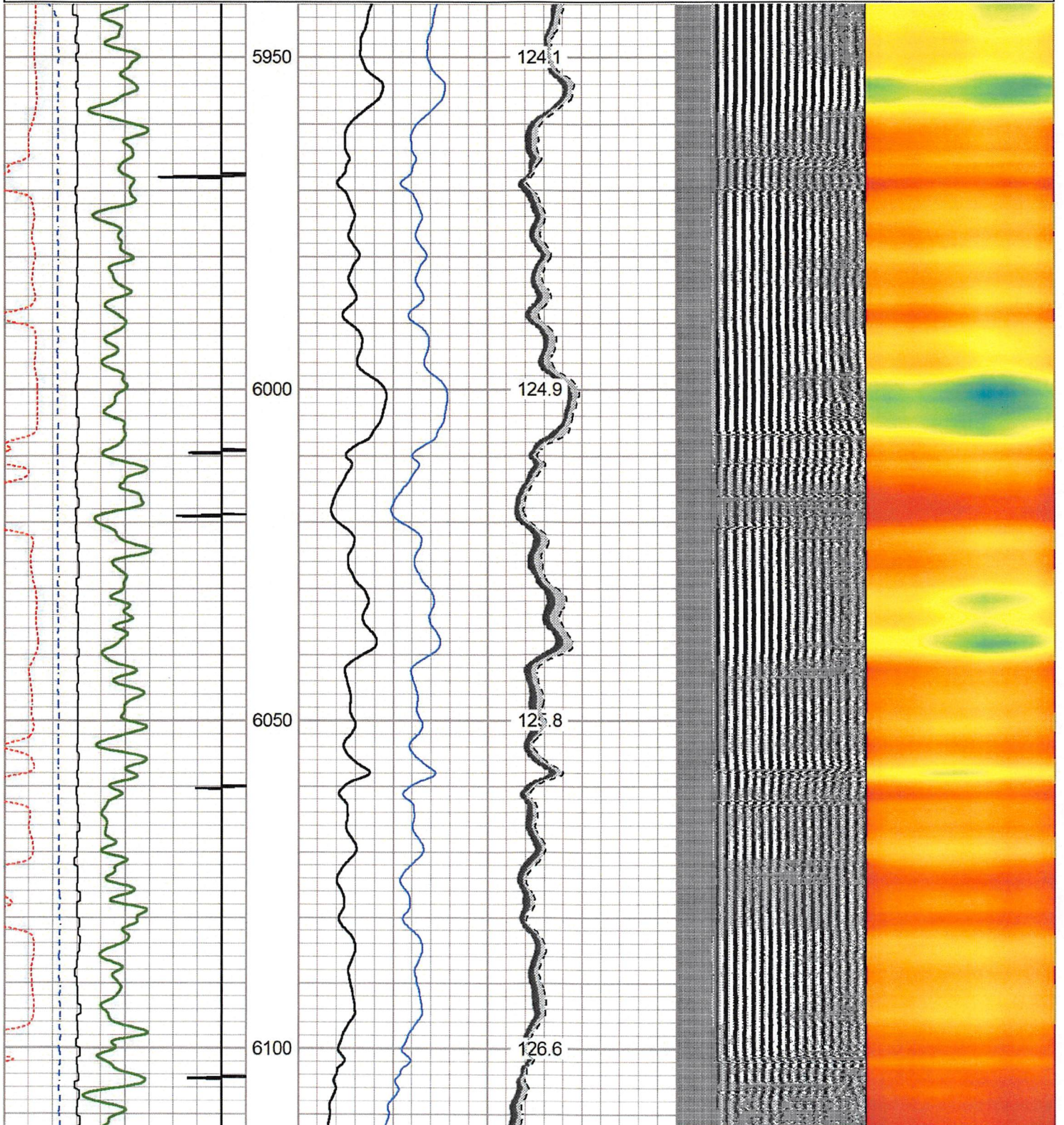


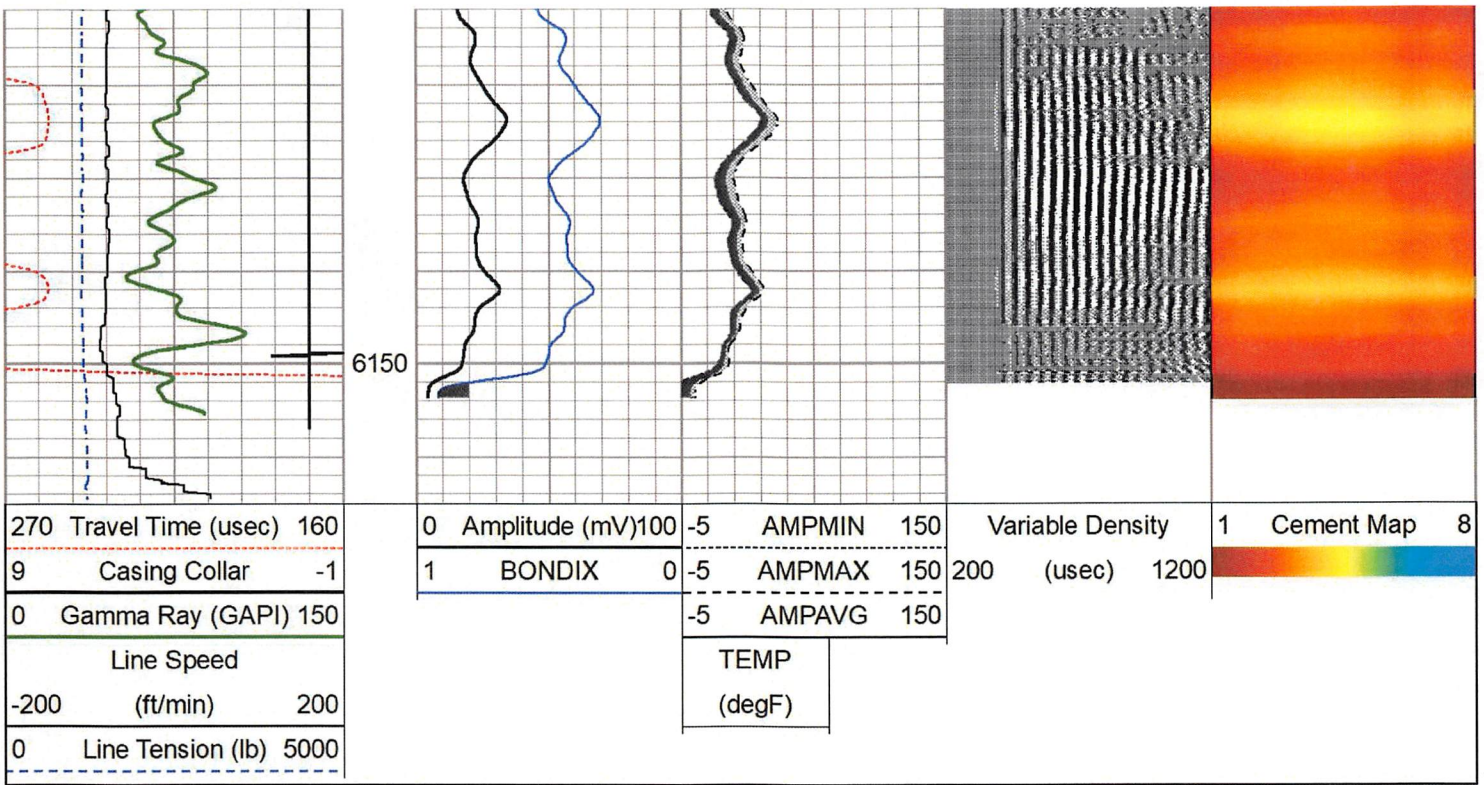


Repeat Pass 0 PSI

Database File antero_leap_2h_rcbl_17_feb_2023.db
 Dataset Pathname pass4
 Presentation Format rcbl 2
 Dataset Creation Fri Feb 17 16:10:45 2023
 Charted by Depth in Feet scaled 1:240

270	Travel Time (usec)	160	0	Amplitude (mV)	100	-5	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	AMPMAX	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150				-5	AMPAVG	150				
	Line Speed						TEMP					
-200	(ft/min)	200					(degF)					
0	Line Tension (lb)	5000										





Log Variables

Database: C:\ProgramData\Warrior\Data\antero_leap_2h_rcbl_17_feb_2023.db
 Dataset: field/well/run1/pass6/_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	23	71.9	3.4
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft		usec	degF	ft			
0.8	No	260	37	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_leap_2h_rcbl_17_feb_2023.db
 Dataset Pathname pass6
 Dataset Creation Fri Feb 17 16:32:12 2023

Gamma Ray Calibration Report

Serial Number: 275
 Tool Model: Probe
 Performed: Wed Feb 08 02:25:37 2023

Calibrator Value: 100.0 GAPI

Background Reading: 35.0 cps
 Calibrator Reading: 160.0 cps

Sensitivity: 0.5000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: 2.75"
 Tool Model: Probe275T
 Calibration Casing Diameter: 5.500 in
 Calibration Depth: 250.708 ft

Master Calibration, performed Fri Feb 17 15:50:14 2023:


	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.005	0.329	3.400	71.921	205.342	4.448
CAL	0.556	0.558				
5'	-0.009	0.323	3.400	71.921	206.803	5.175
SUM						
S1	0.031	0.329	0.000	100.000	335.875	-10.562
S2	-0.009	0.300	0.000	100.000	323.156	2.970
S3	-0.008	0.314	0.000	100.000	310.491	2.562
S4	-0.008	0.324	0.000	100.000	301.742	2.361
S5	-0.008	0.346	0.000	100.000	282.220	2.239
S6	-0.010	0.355	0.000	100.000	274.365	2.653
S7	-0.004	0.344	0.000	100.000	287.893	1.065
S8	-0.008	0.322	0.000	100.000	302.802	2.417

Internal Reference Calibration, performed Wed Nov 23 14:17:52 2011:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.556	0.558	1.000	0.000

Air Zero Calibration, performed Fri Feb 17 11:38:43 2023:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Gain	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)
HeadVolt	18.52		CHD-Titan Standard 1 7/16" Cable Head	1.02	1.44	1.00

			Centralizer-2.75_Overbody	1.67	3.12	5.00
Temp	15.67					
			RBT-Probe275T (2.75") Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS8	13.44					
WVFS7	13.44					
WVFS6	13.44					
WVFS5	13.44					
WVFS4	13.44					
WVFS3	13.44					
WVFS2	13.44					
WVFS1	13.44					
WVF3FT	13.44					
WVF5FT	12.44					
WVFCAL	9.19					
HEADVOLT	9.19					
CCL	7.56					
			Centralizer-2.75_Overbody	1.67	3.12	5.00
GR	6.23		GR-Probe (275) Probe 2 3/4" Logging Gamma Ray	5.50	2.75	57.00
			Centralizers-5419-312-S600 Titan 3 1/8" Adjustable Centralizer	3.42	3.13	34.00
			Bull_Plug-1_7/16_GO Titan 1 7/16" Female Bull Plug	0.27	1.44	1.00

Dataset: antero_leap_2h_rcbl_17_feb_2023.db: field/well/run1/pass6
 Total length: 19.60 ft
 Total weight: 193.00 lb
 O.D.: 3.13 in



Nino

Company Antero Resources
 Well Leap 2H
 Field Rabbit Ears
 County Tyler

