



# Nine

## Radial Cement Bond Variable Density Log Gamma Ray/CCL Temperature

RECEIVED  
Office of Oil and Gas  
AUG 21 2023  
WV Department of  
Environmental Protection

Country U.S.A.

Company Antero Resources  
Well Martindill 1H  
Field Marcellus  
County Tyler  
State WV

Country U.S.A.

Location: API #: 47-095-02813

Other Services

Company Antero Resources  
Well Martindill 1H  
Field Marcellus  
County Tyler  
State WV

SEC TWP RGE  
Permanent Datum Ground Level Elevation 937'  
Log Measured From Kelly Bushing 30'  
Drilling Measured From Kelly Bushing

Elevation  
K.B. 967'  
D.F. 967'  
G.L. 937'

Date 01-April-2023

Run Number ONE

Depth Driller 19,010'

Depth Logger 6,426'

Bottom Logged Interval 6,422'

Top Log Interval Surface

Open Hole Size NA

Type Fluid Fresh Water

Density / Viscosity 8.6 LB/GAL

Max. Recorded Temp. 138

Estimated Cement Top N/A

Time Well Ready 13:00

Time Logger on Bottom 13:55

Equipment Number 116

Location Charleroi, PA

Recorded By Calvin Drummond

Witnessed By Cory Porter

Run Number Bit From To Size Weight From To

Casing Record Size Wgt/Ft Top Bottom

Surface String 13.375" 54.5# Surface Surface 596'

Prod. String 9.625" 36# Surface Surface 3,319'

Production String 5.5 23# Surface Surface 19,010'

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

Comments

Log Correlated to Marker Joint at (5,293' - 5,303')  
Depth Correction +4

Main Pass 1500 PSI  
Repeat Pass 0 PSI

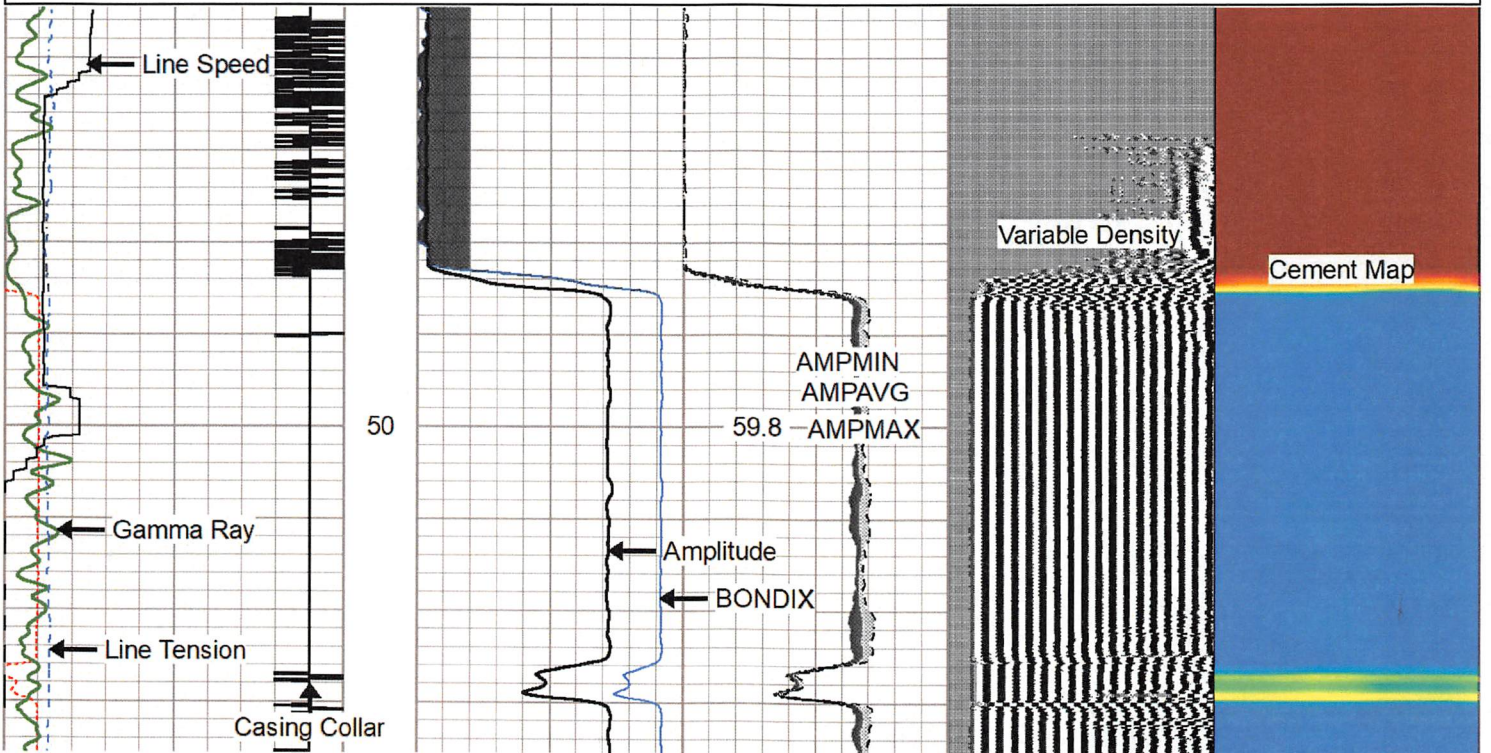
Thank You For Choosing Nine Energy Service Wireline.Charleroi,PA

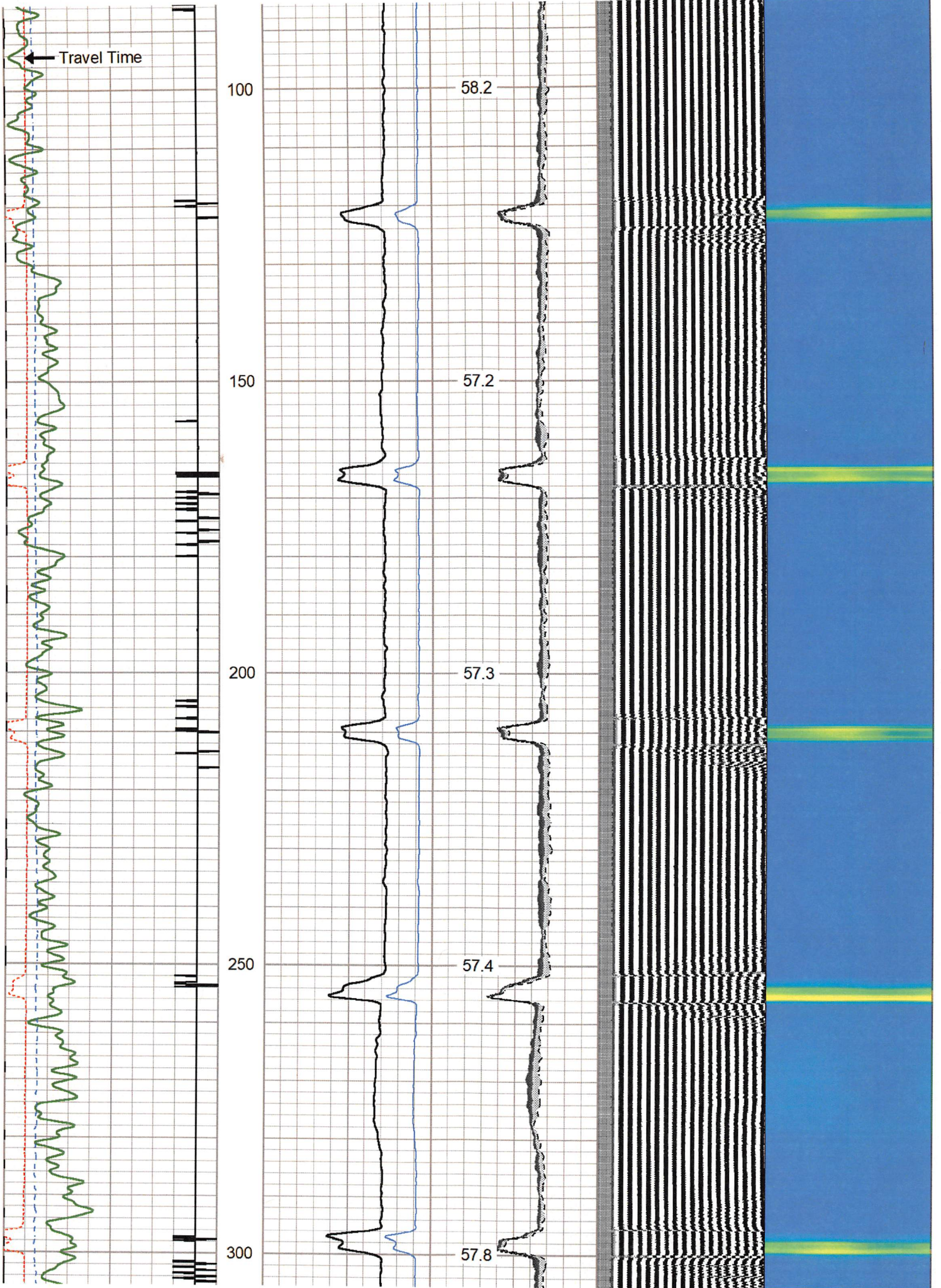


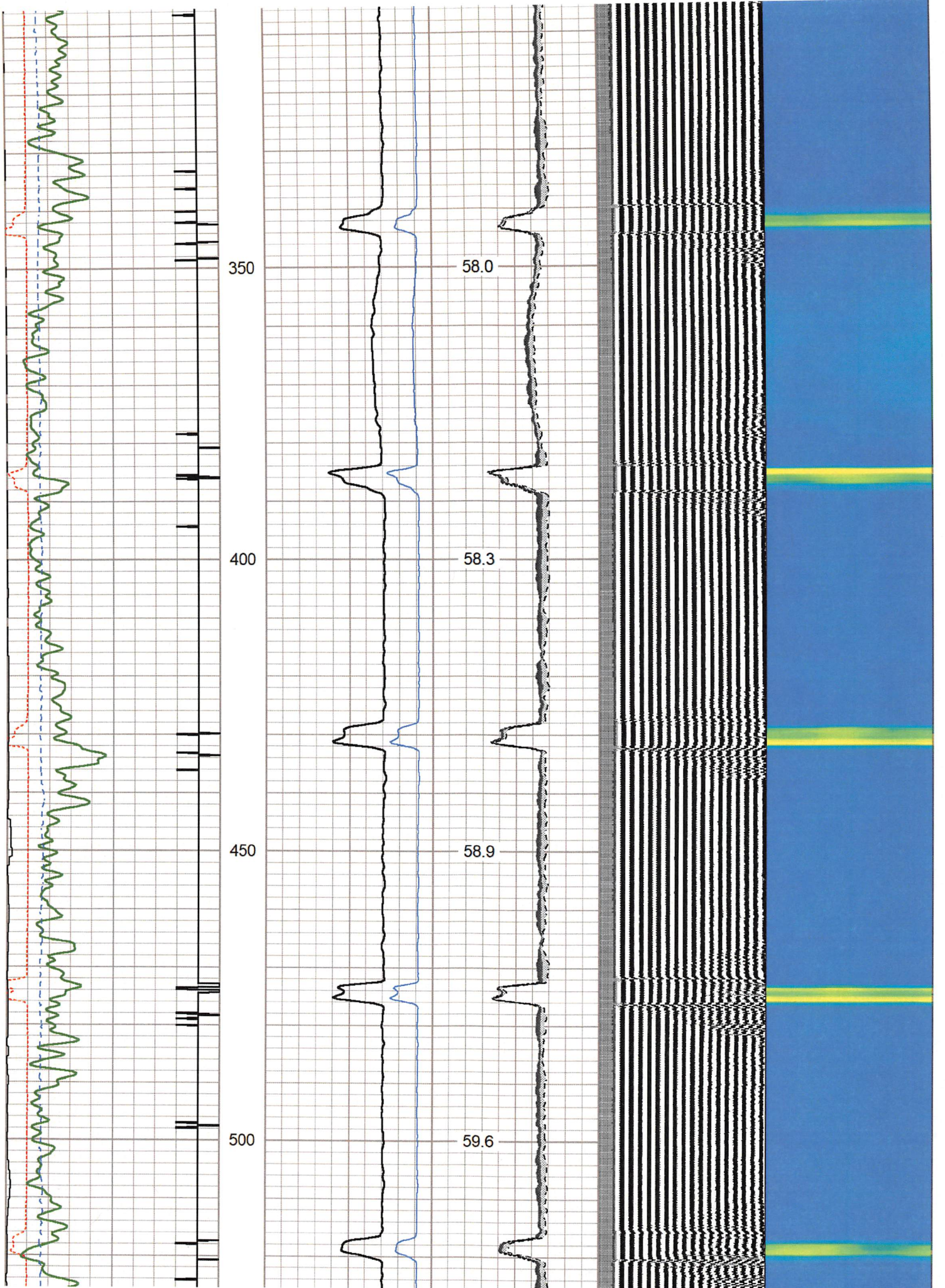
# Main Pass 1500 PSI

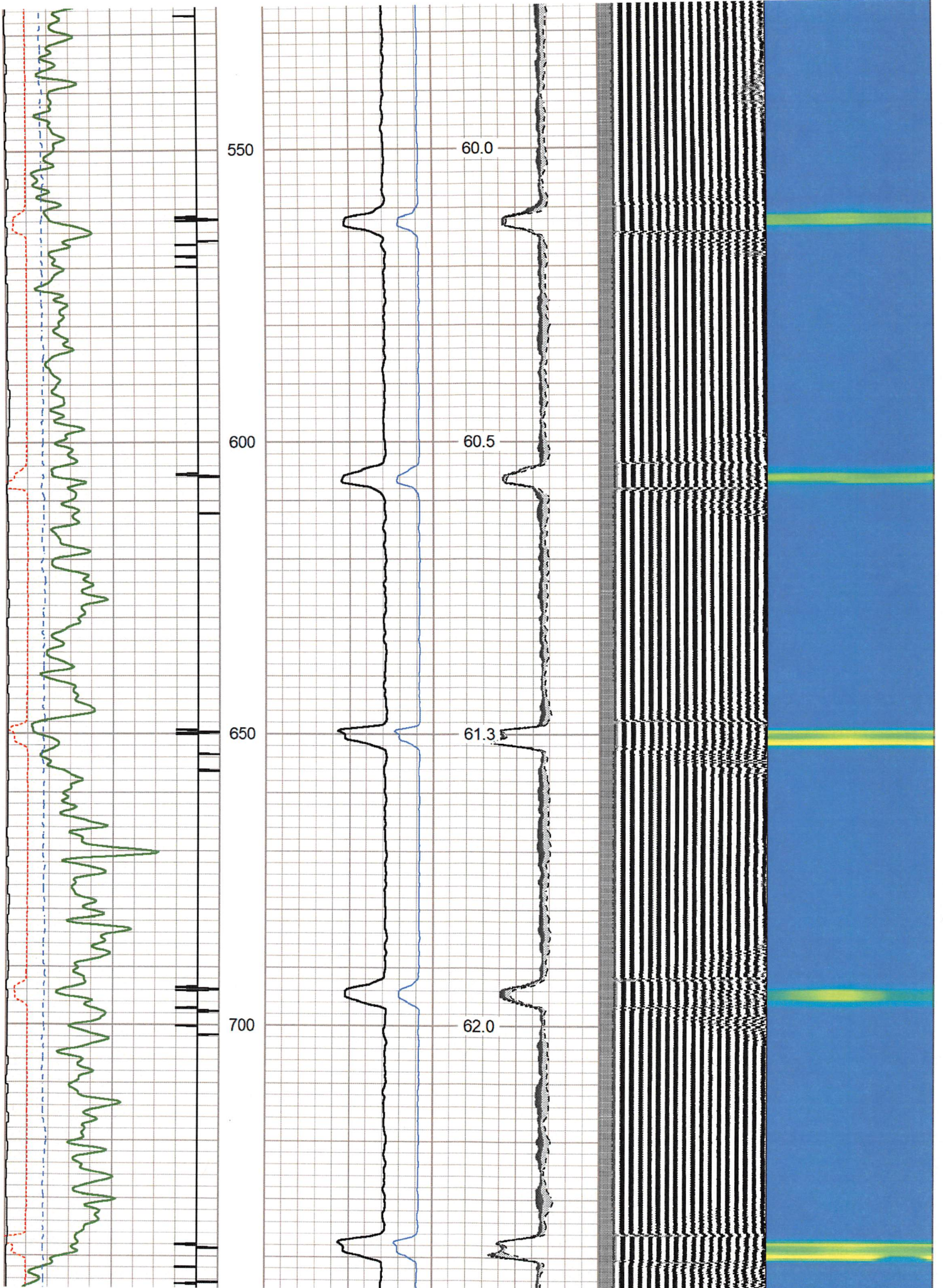
Database File antero\_martindill\_1h\_rcbl\_01\_april\_2023.db  
 Dataset Pathname pass6  
 Presentation Format rcbl-bond index for antero 1020  
 Dataset Creation Sat Apr 01 13:59:14 2023  
 Charted by Depth in Feet scaled 1:240

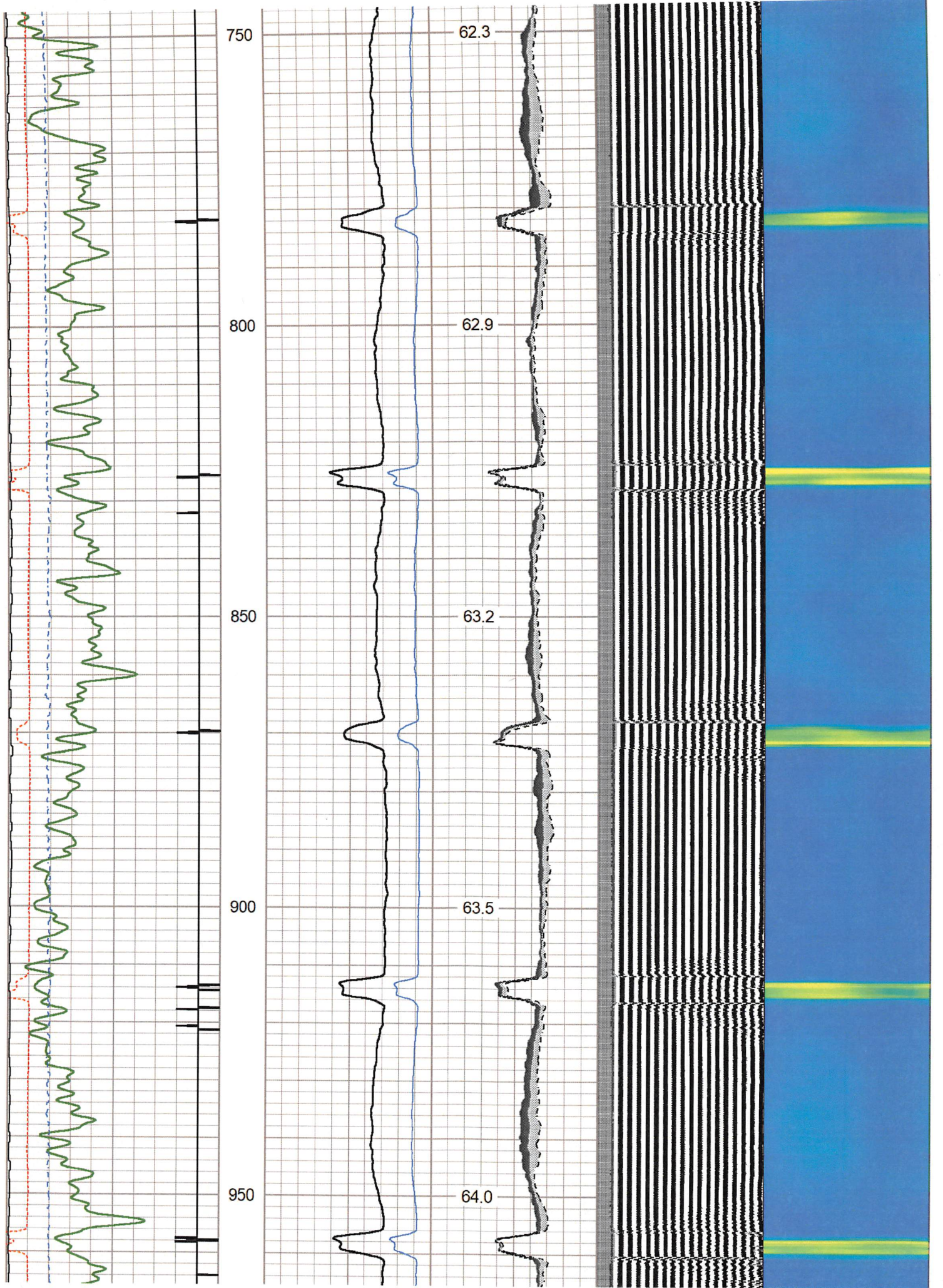
268	Travel Time (usec)	168	0	Amplitude (mV)	100	0	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	0	AMPMAX	150	300 (usec)	1200		
0	Gamma Ray (GAPI)	150	0	AMPAVG	150							
Line Speed			TEMP									
-100	(ft/min)	100	(degF)									
0	Line Tension (lb)	2000										

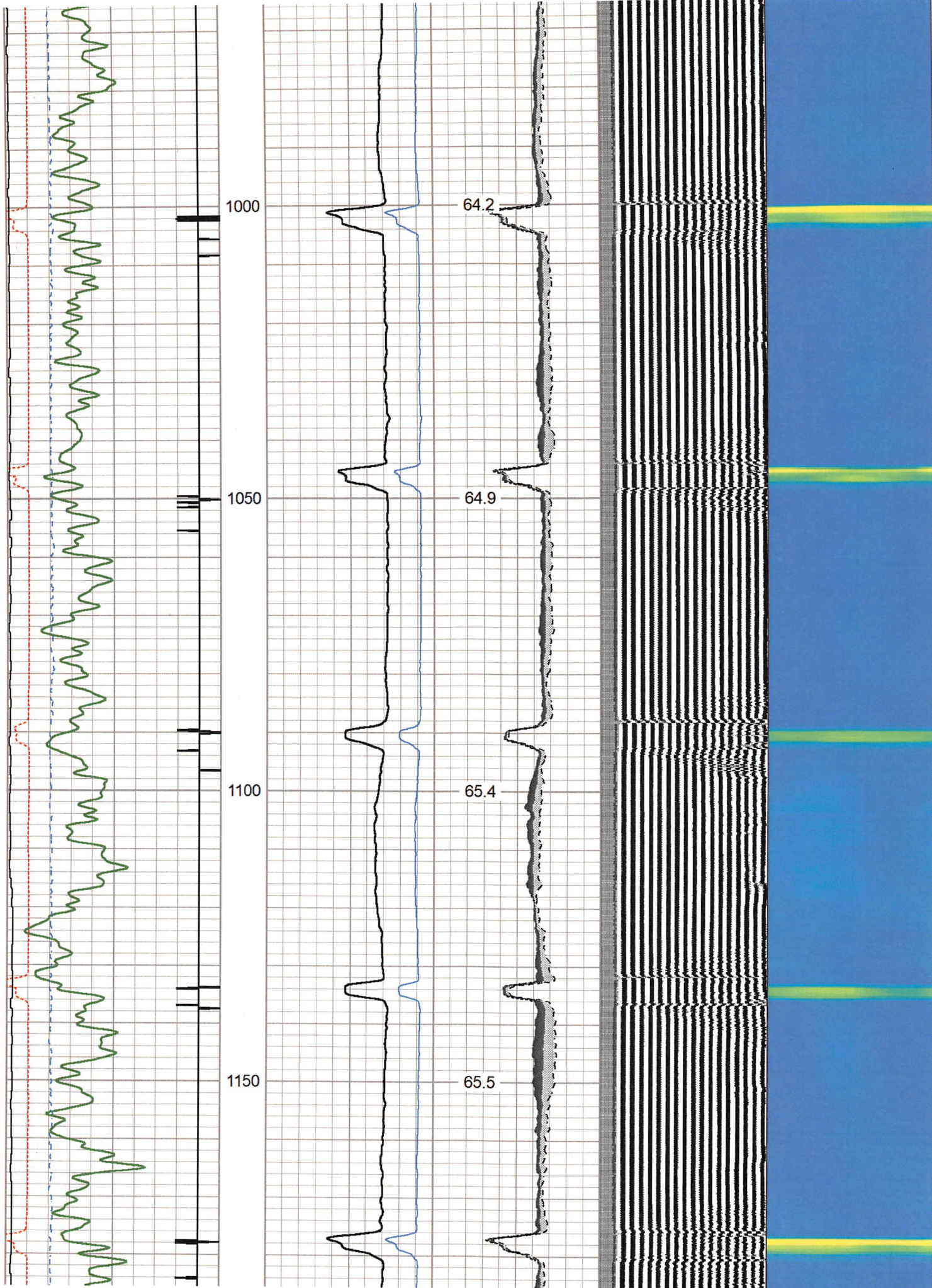


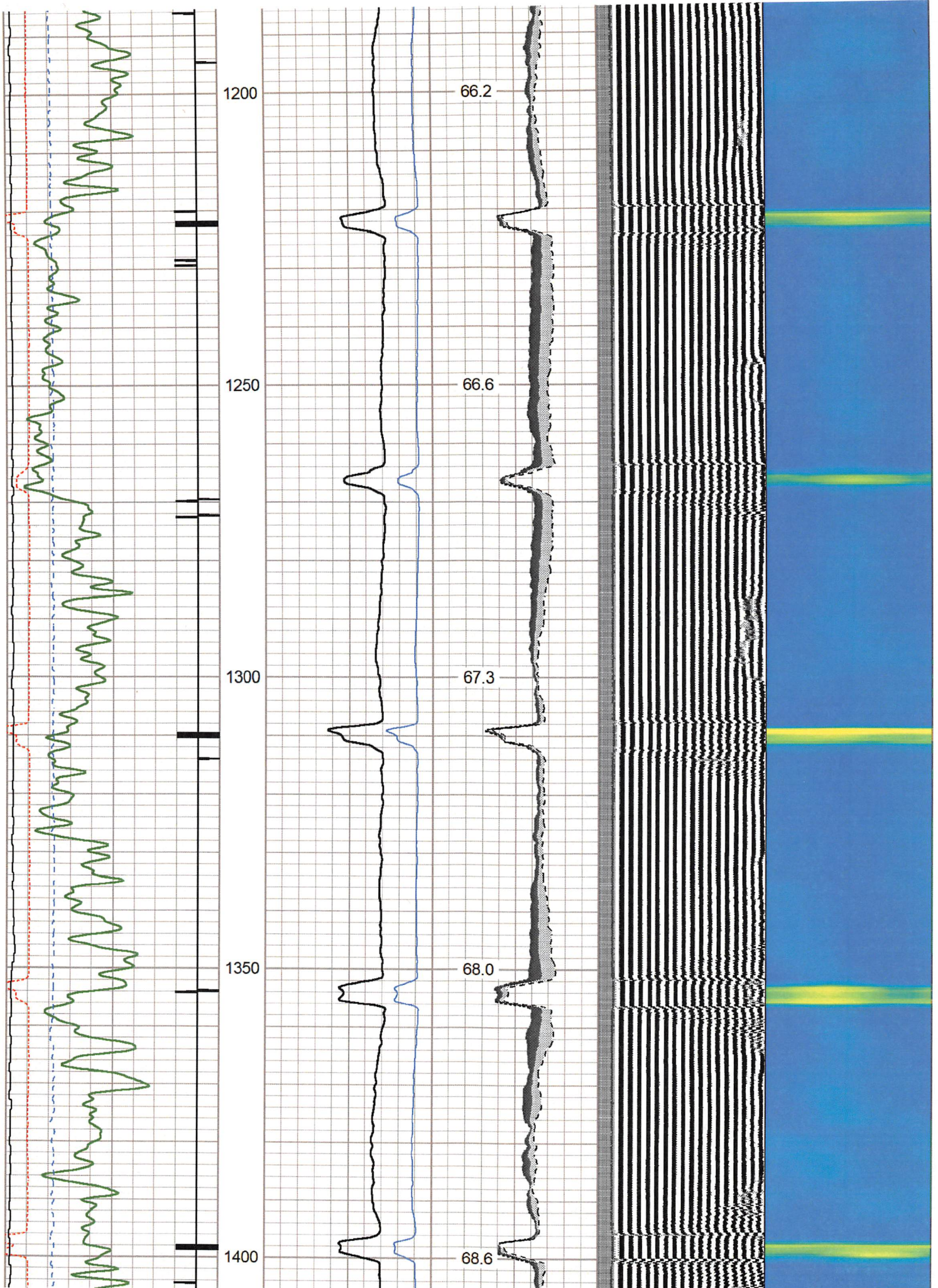




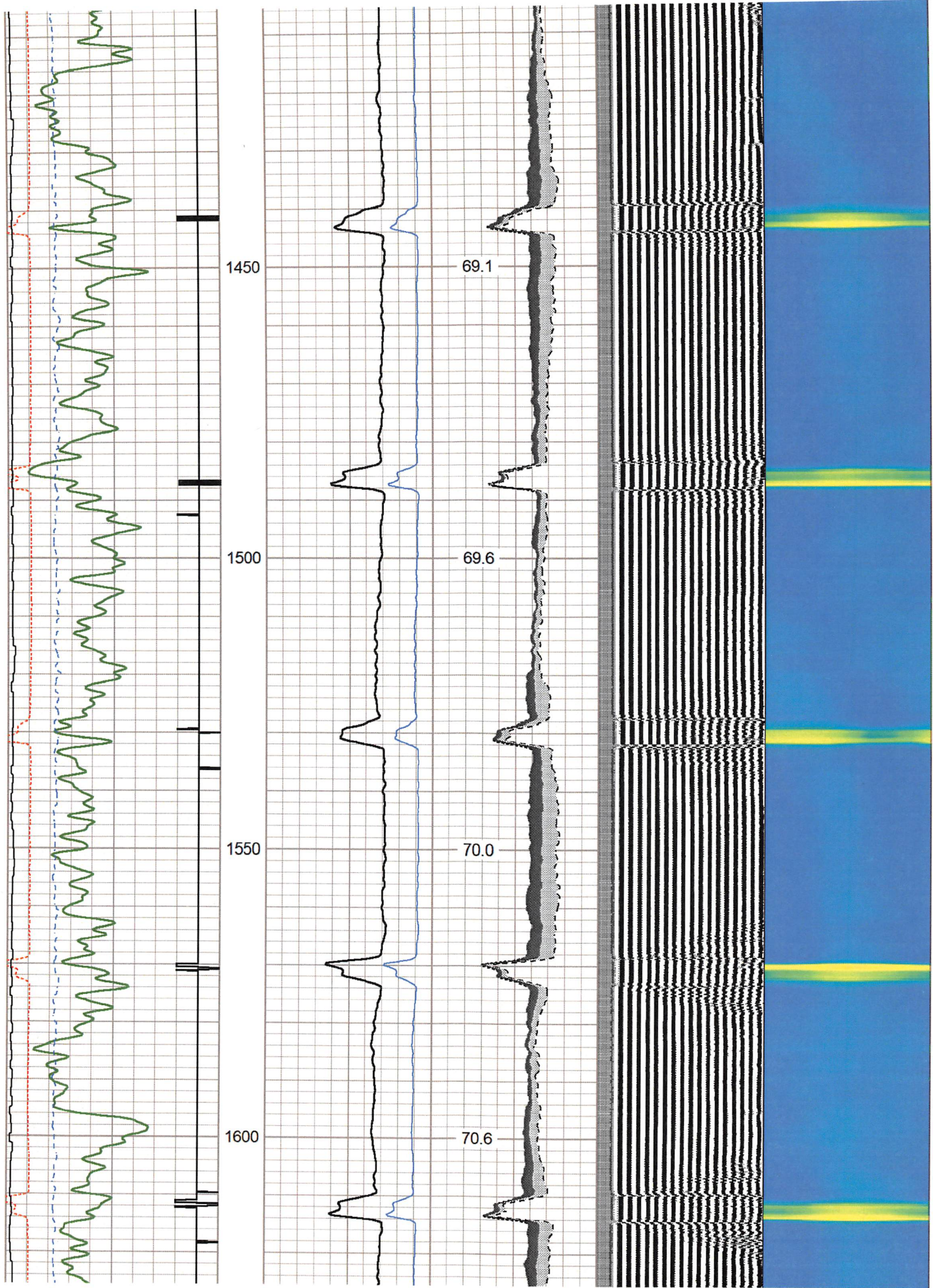


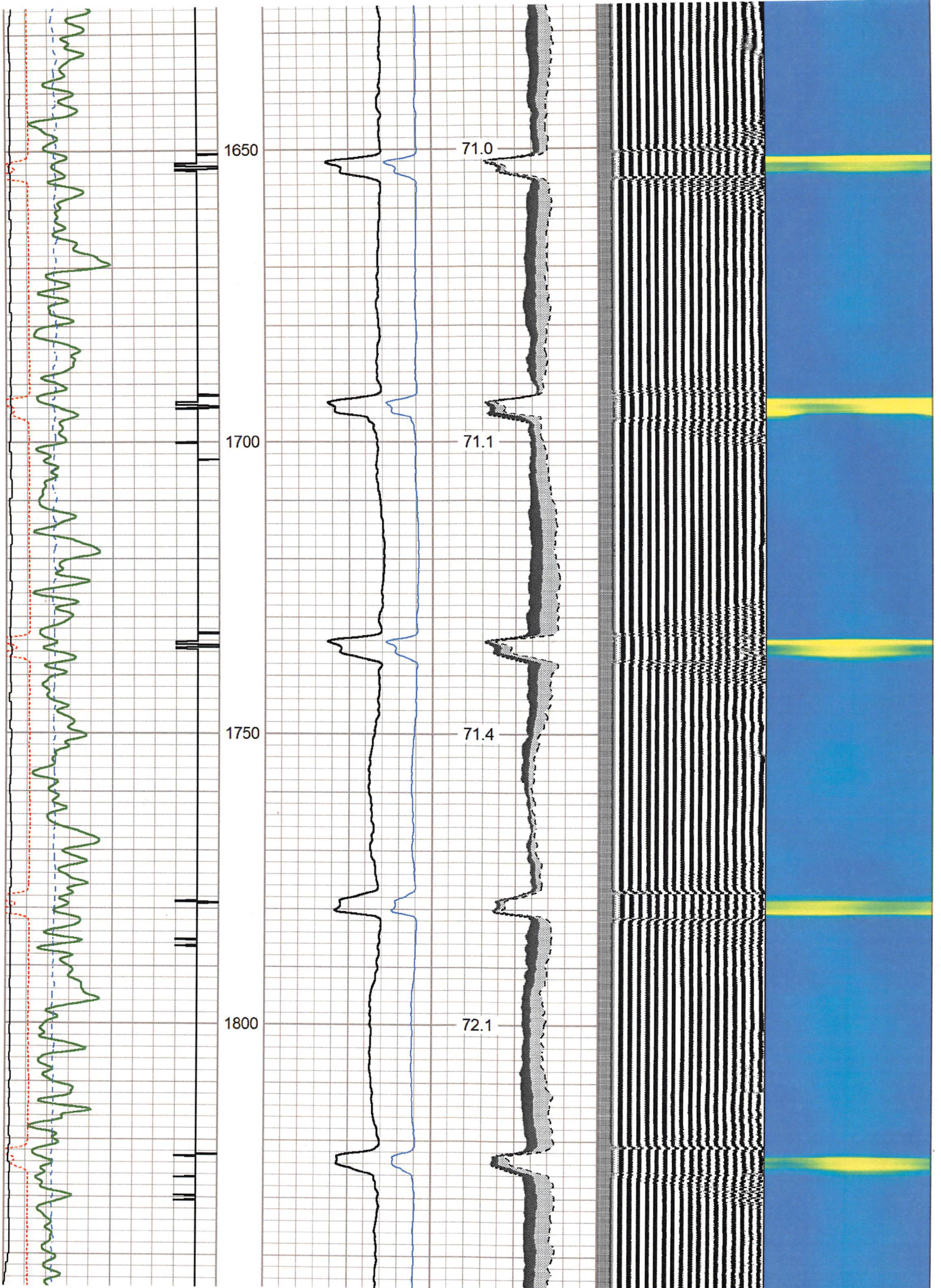


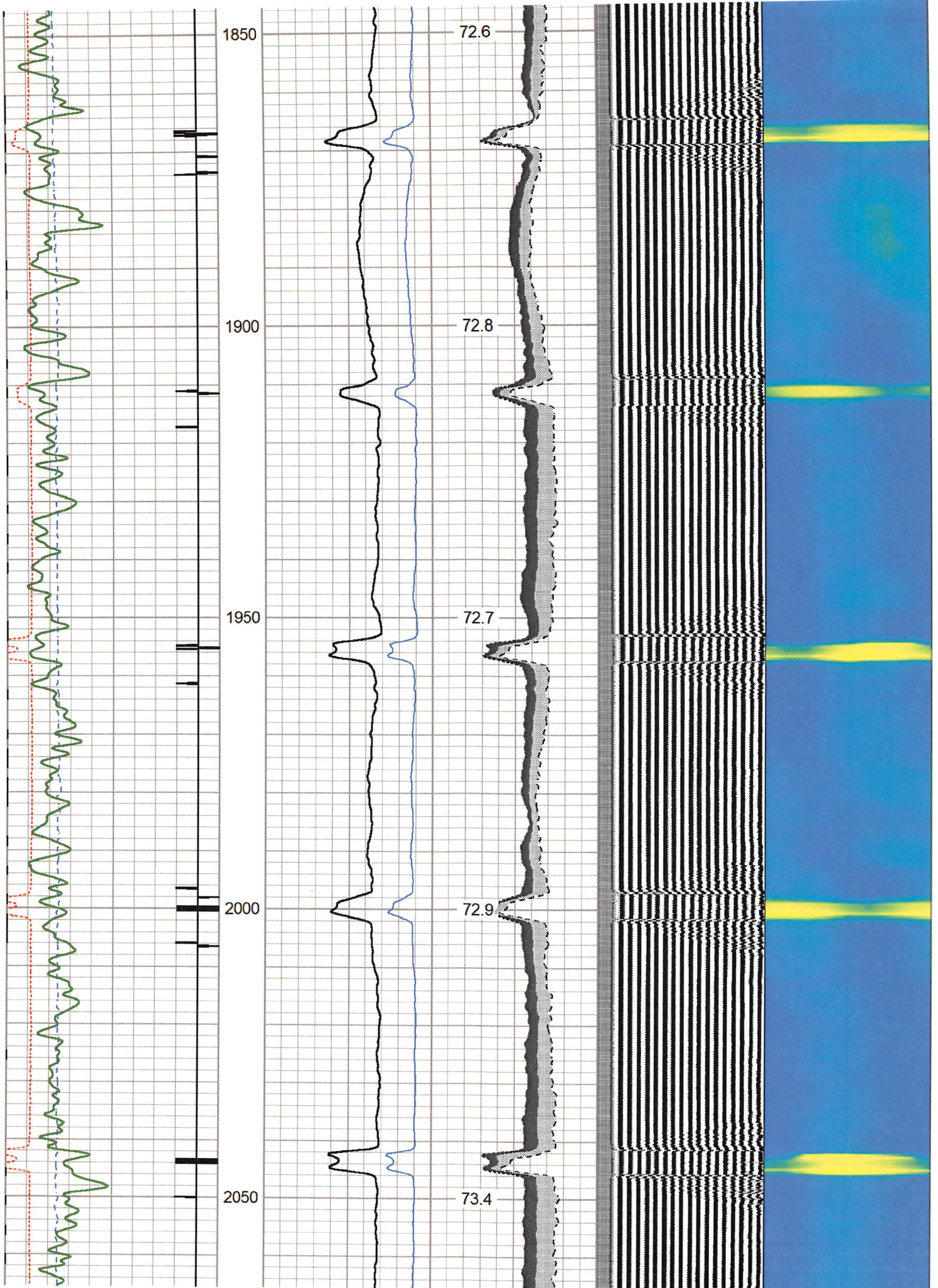


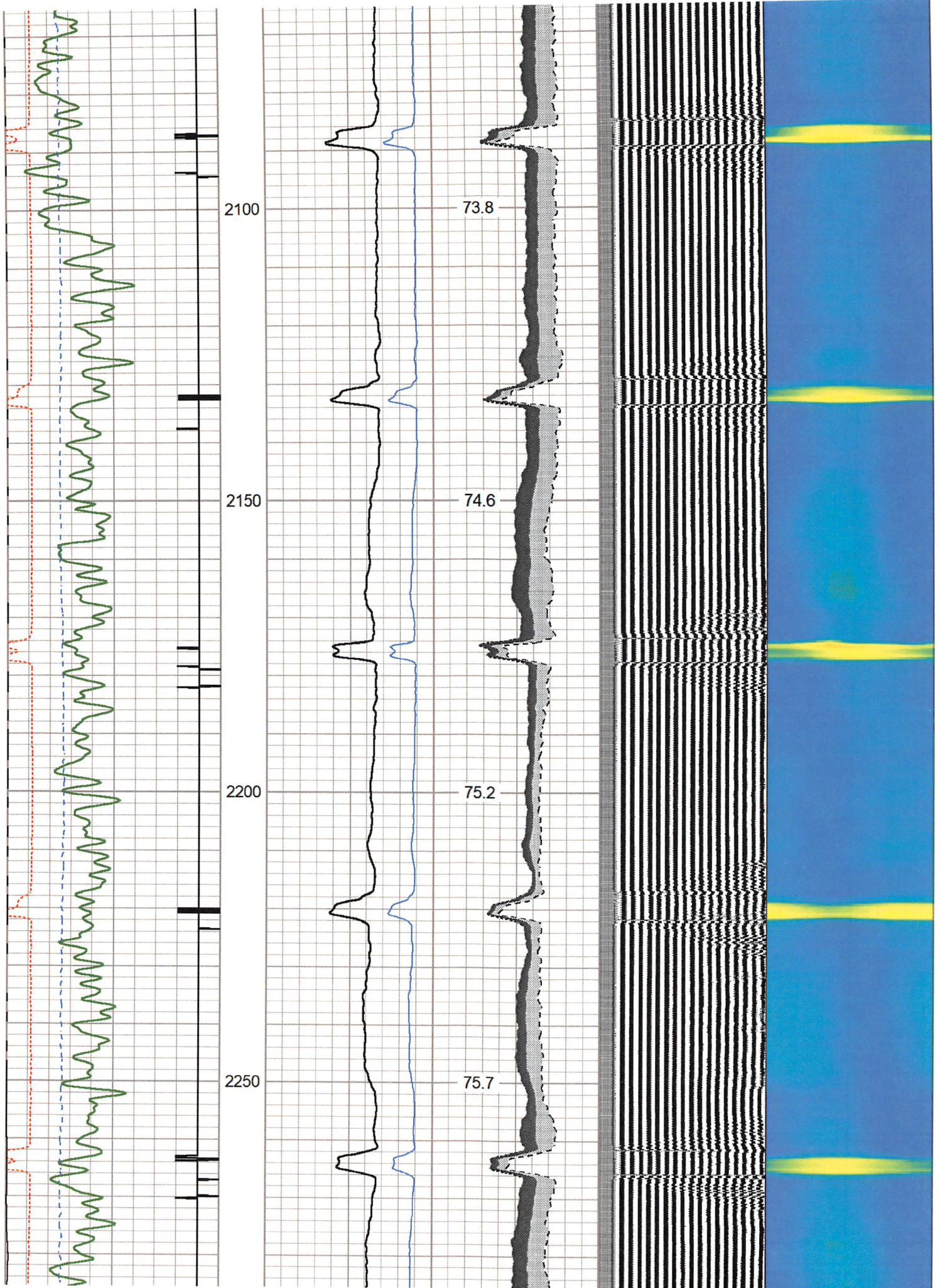


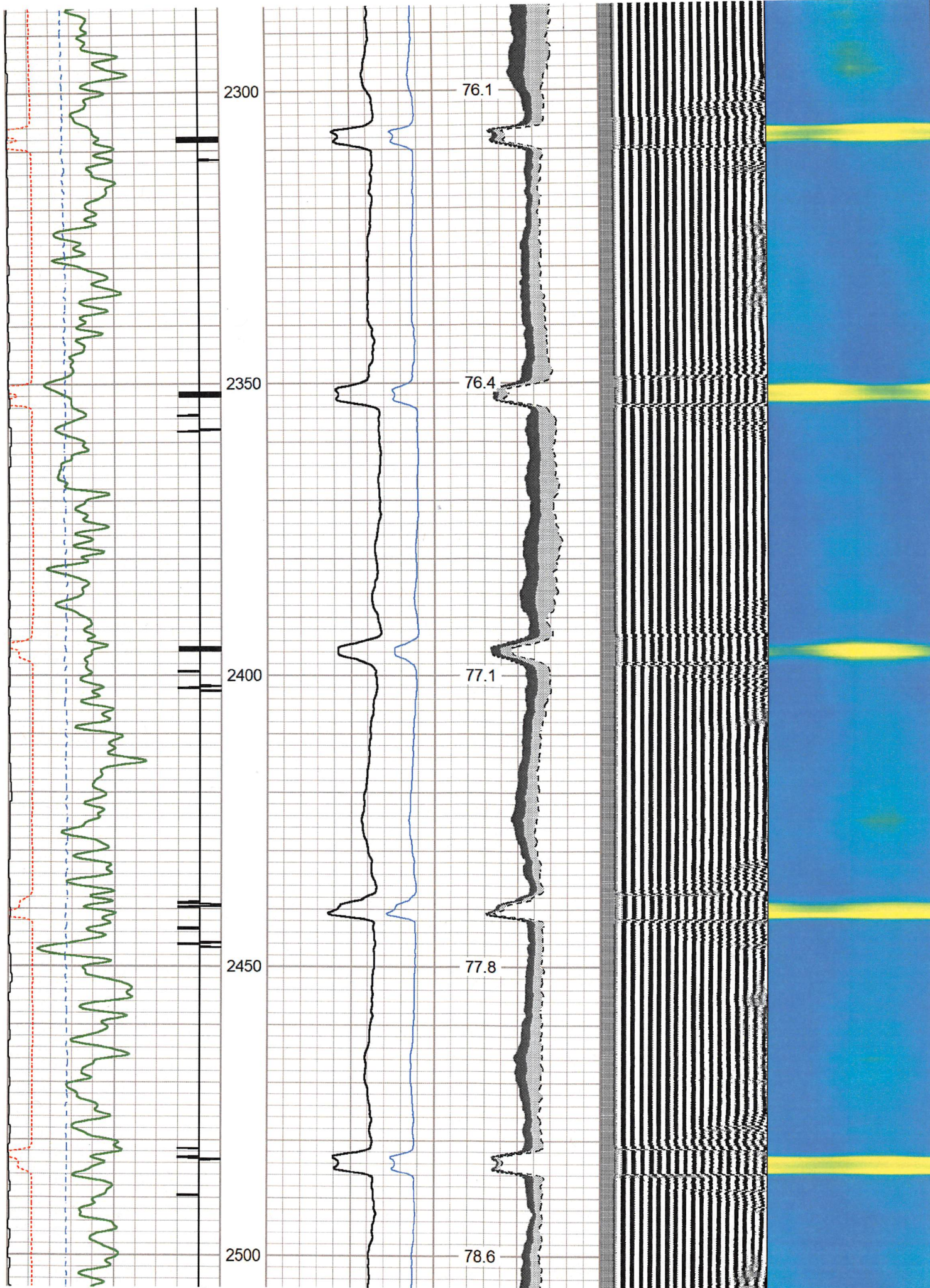


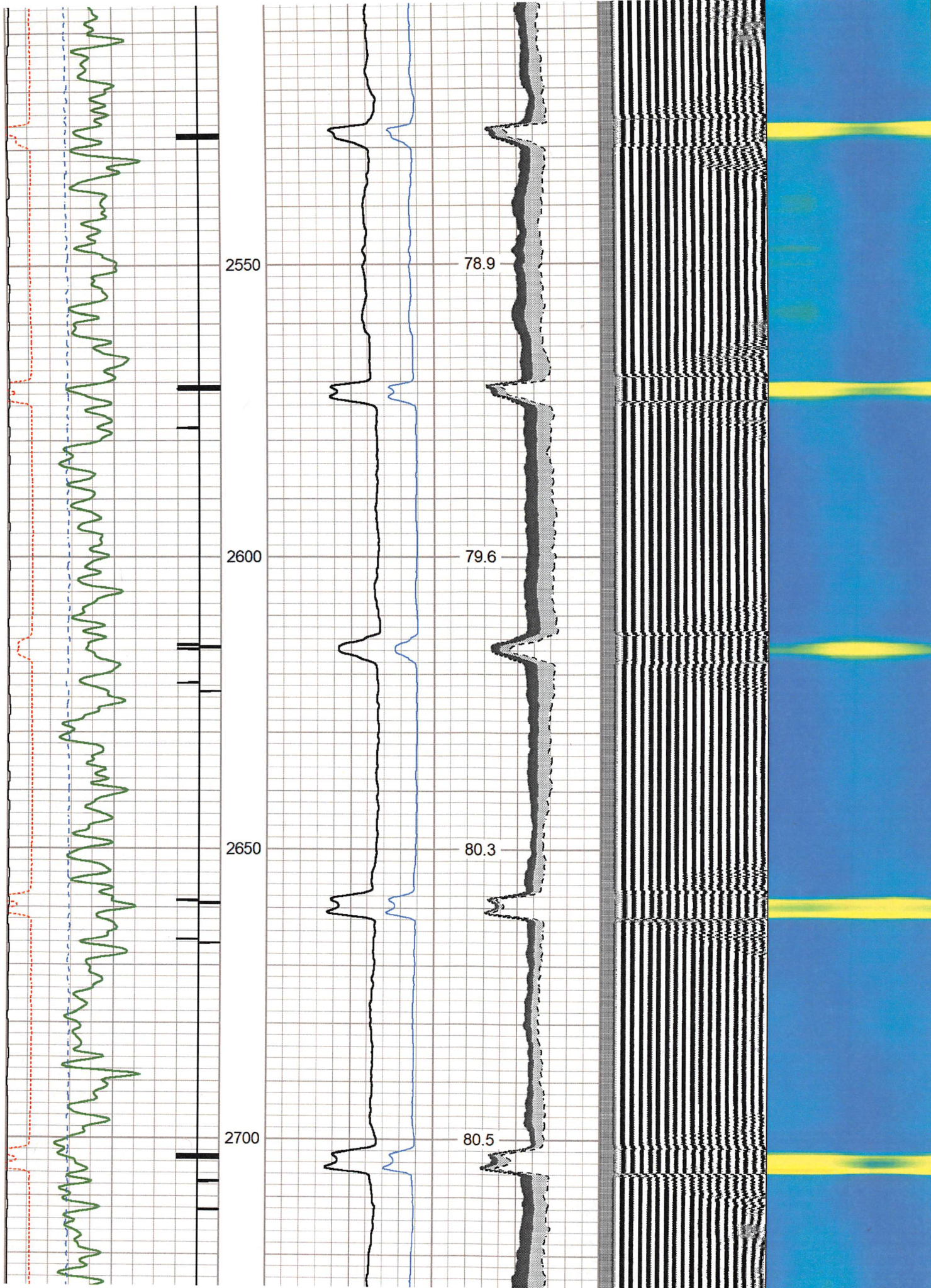


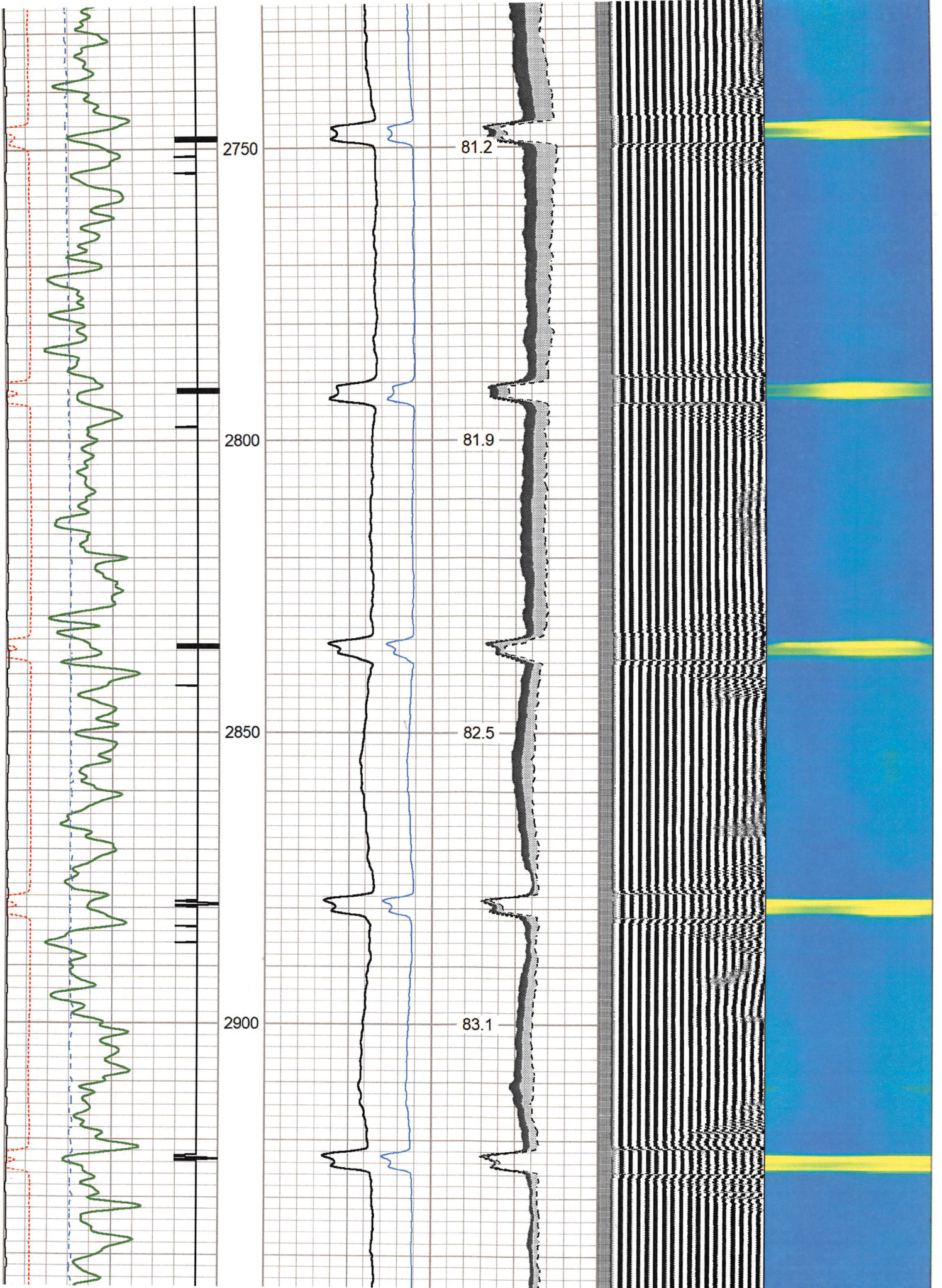


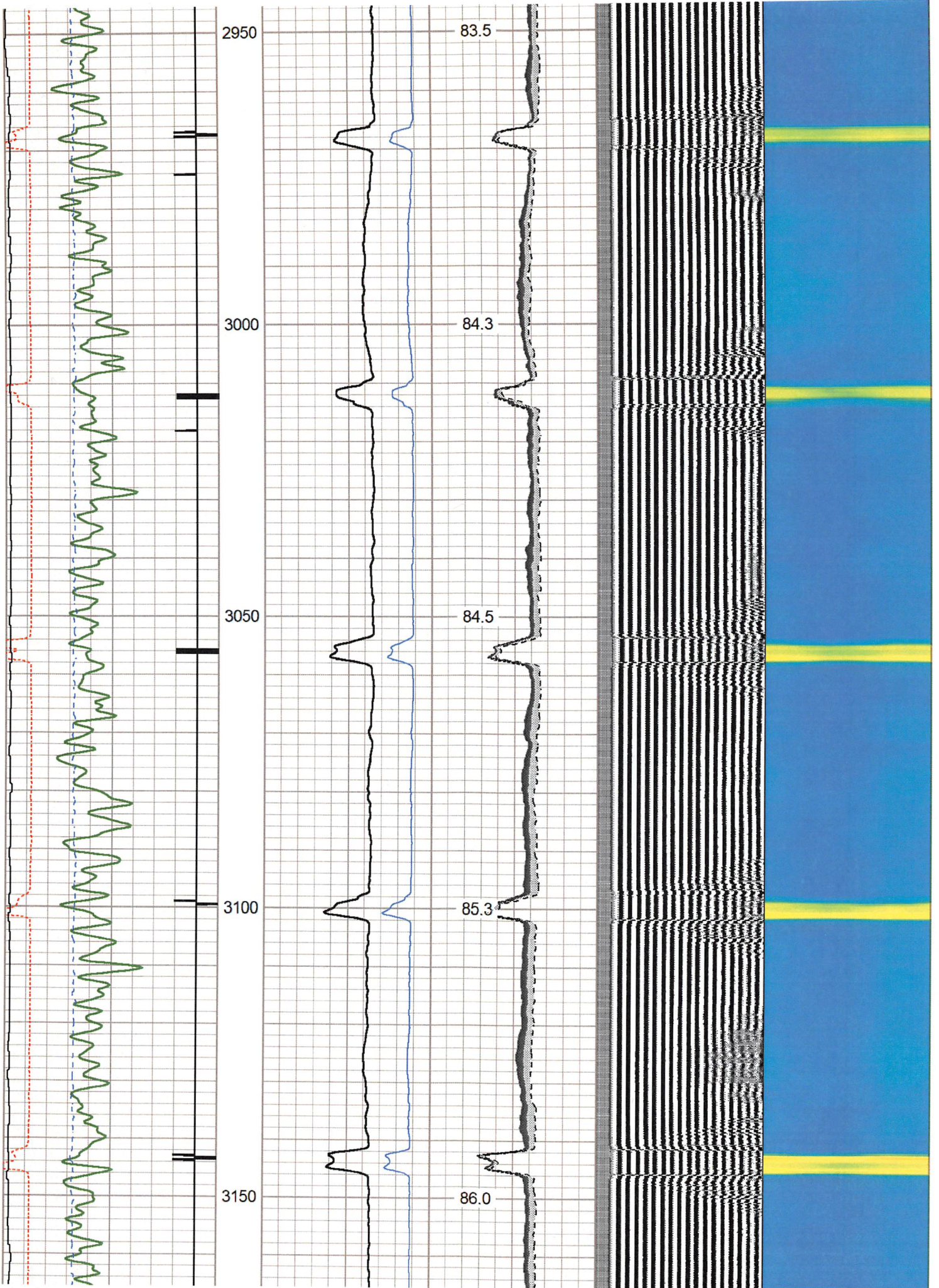




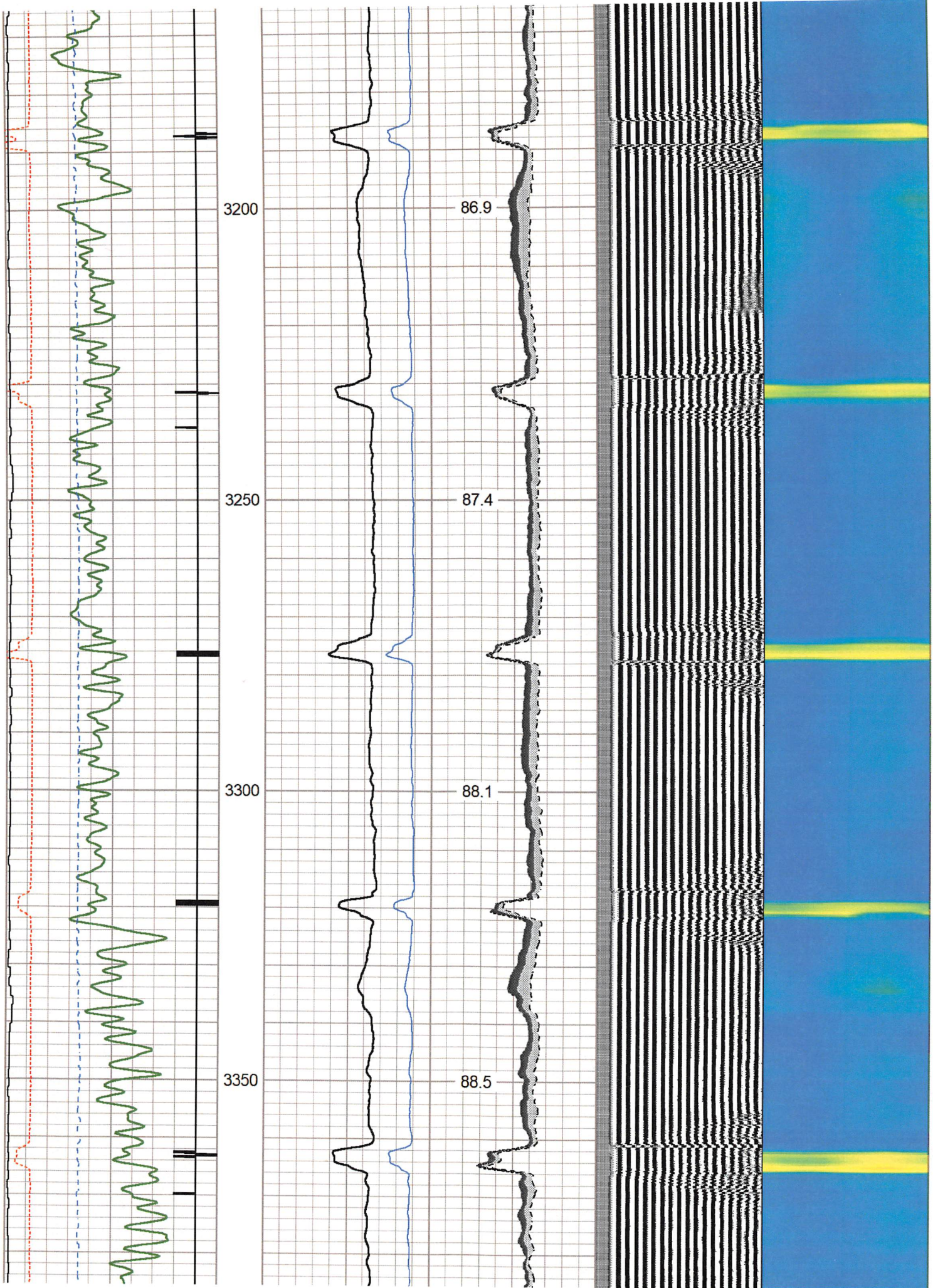


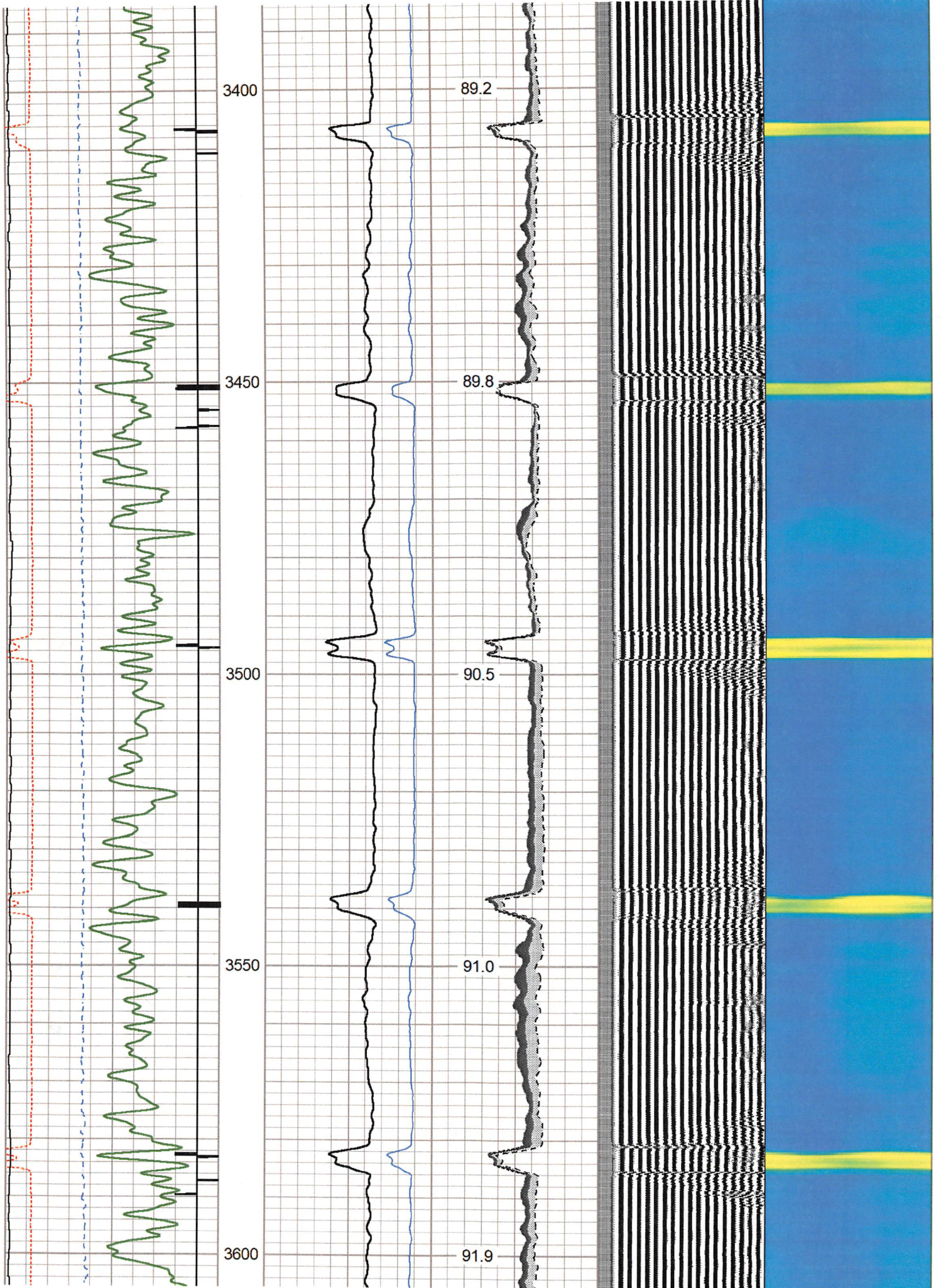


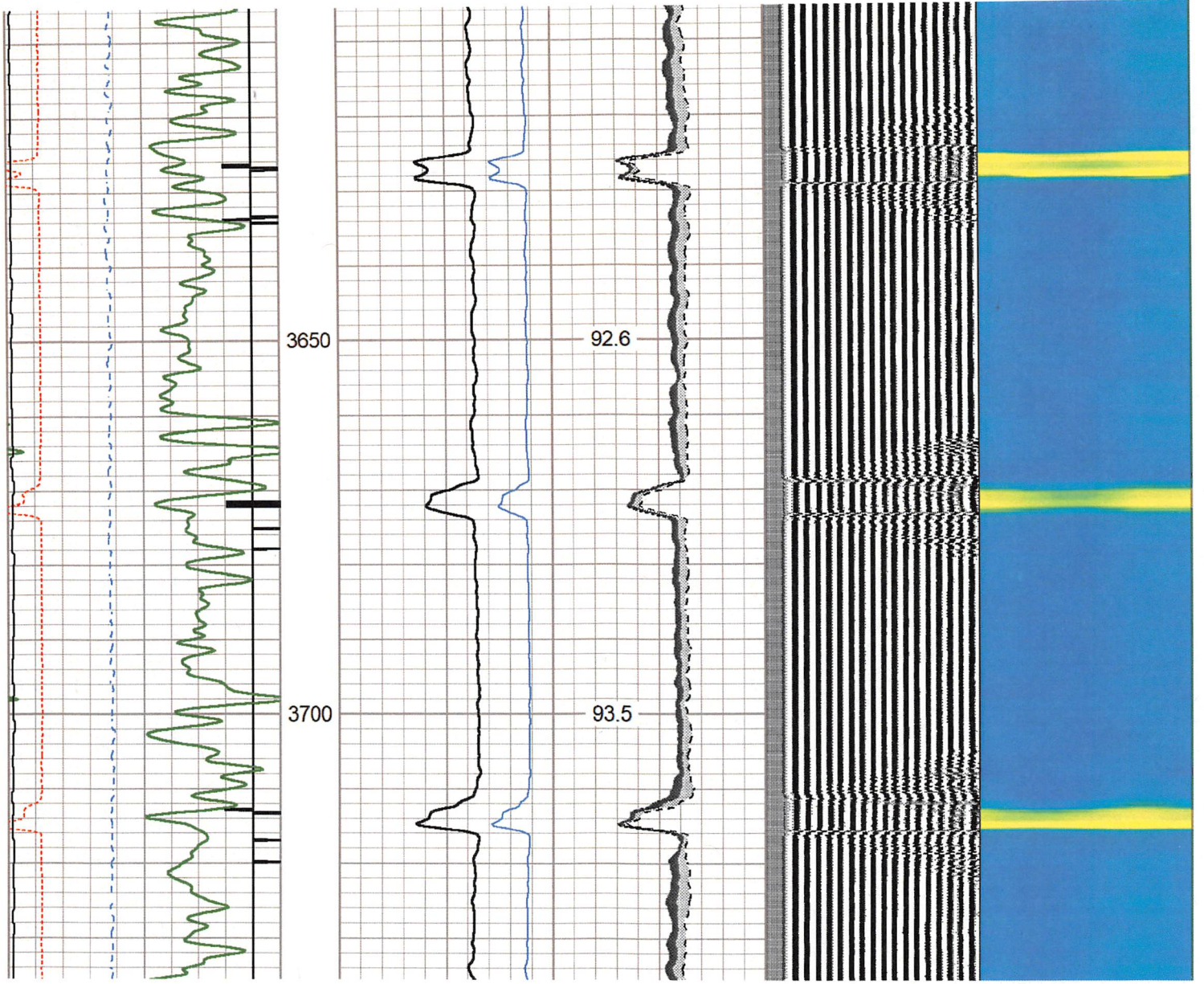


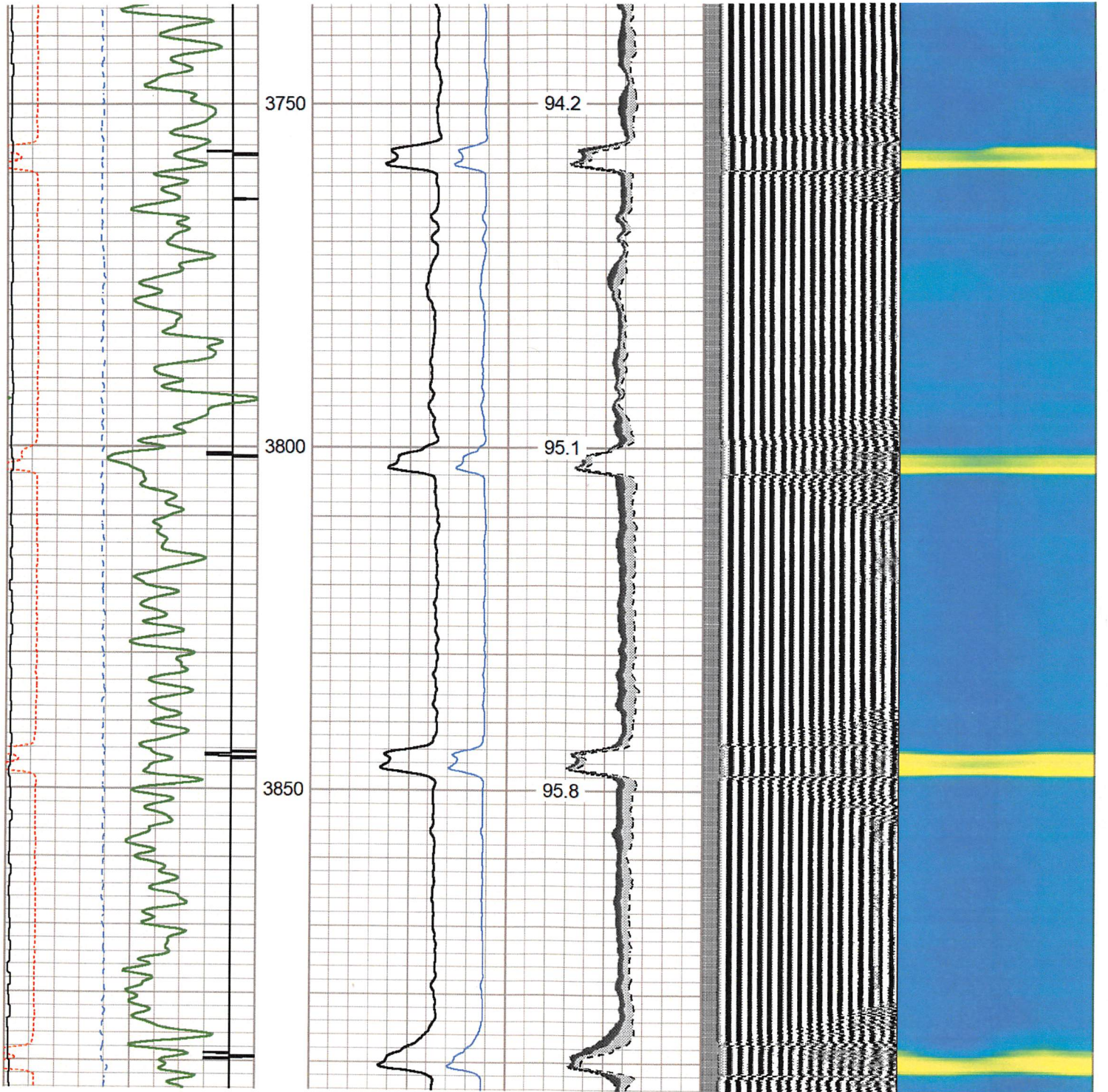


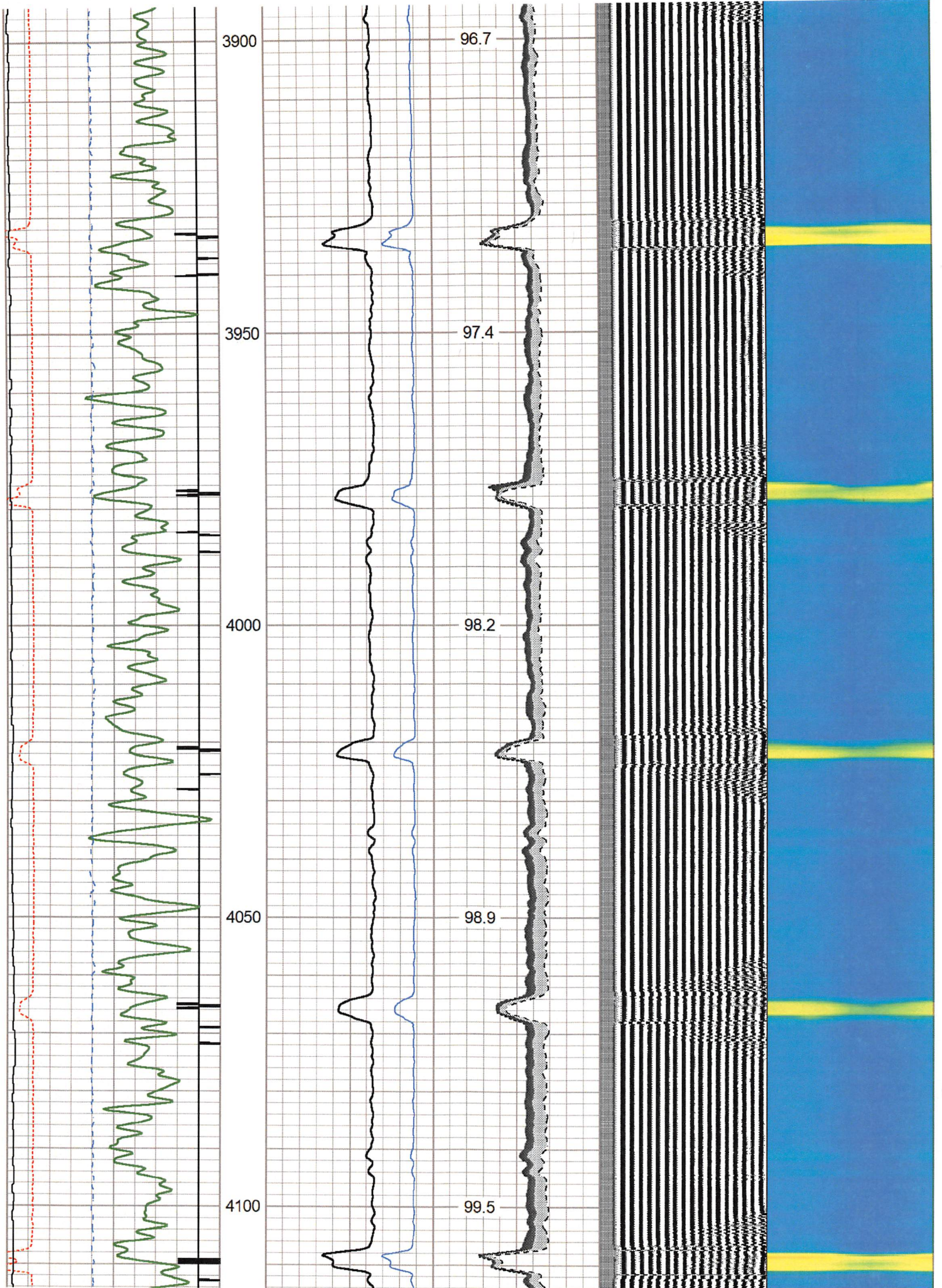


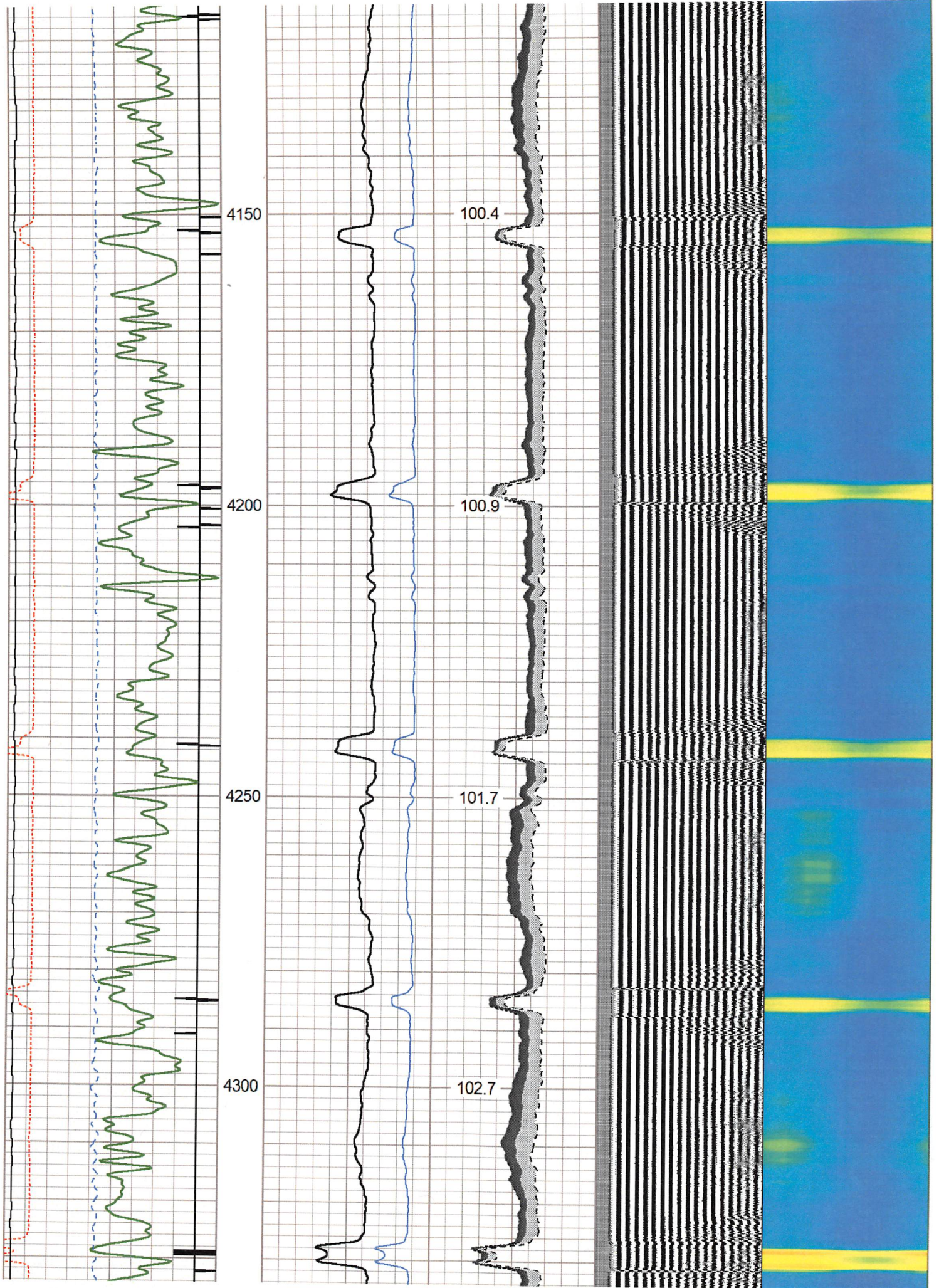


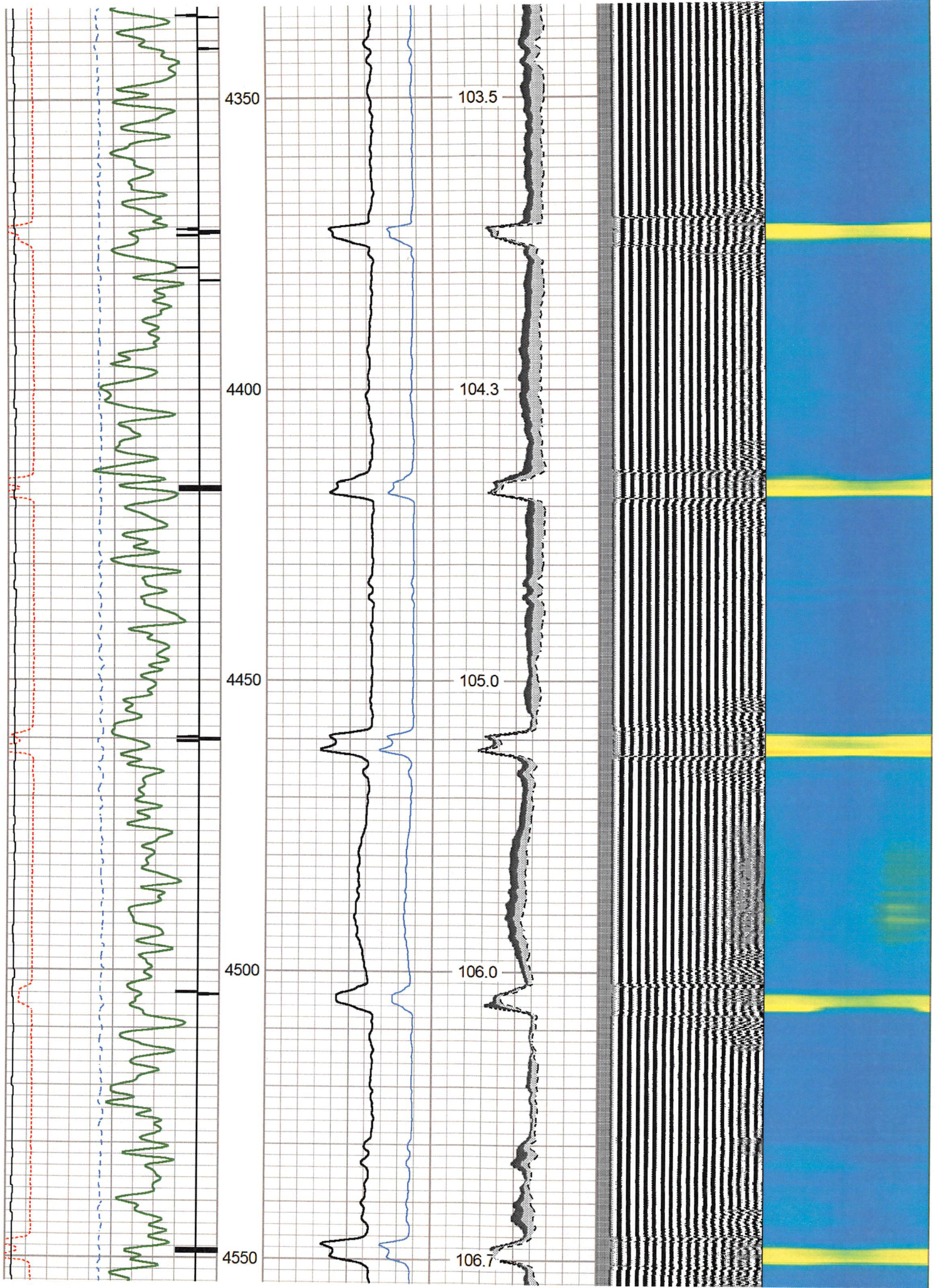


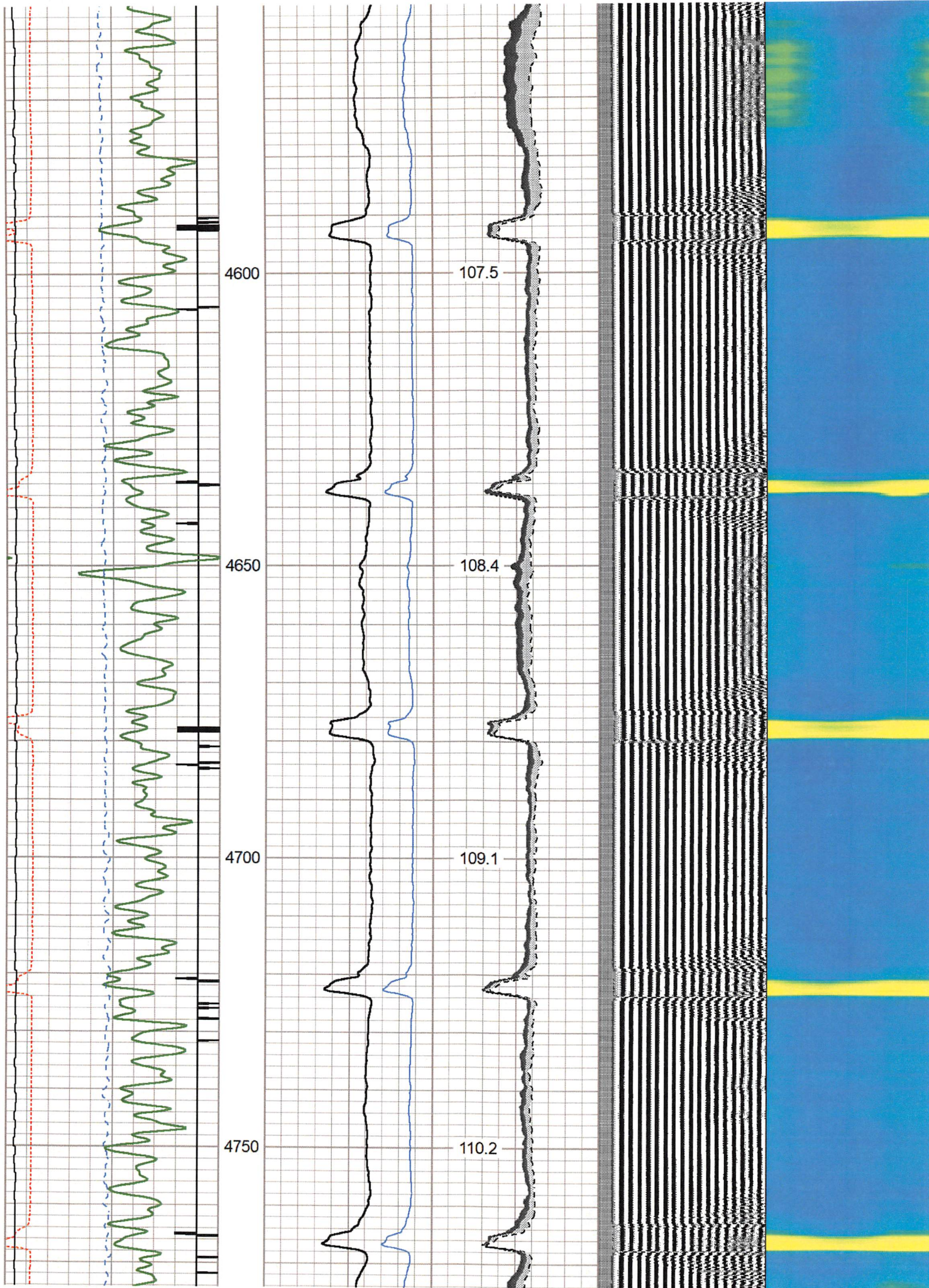




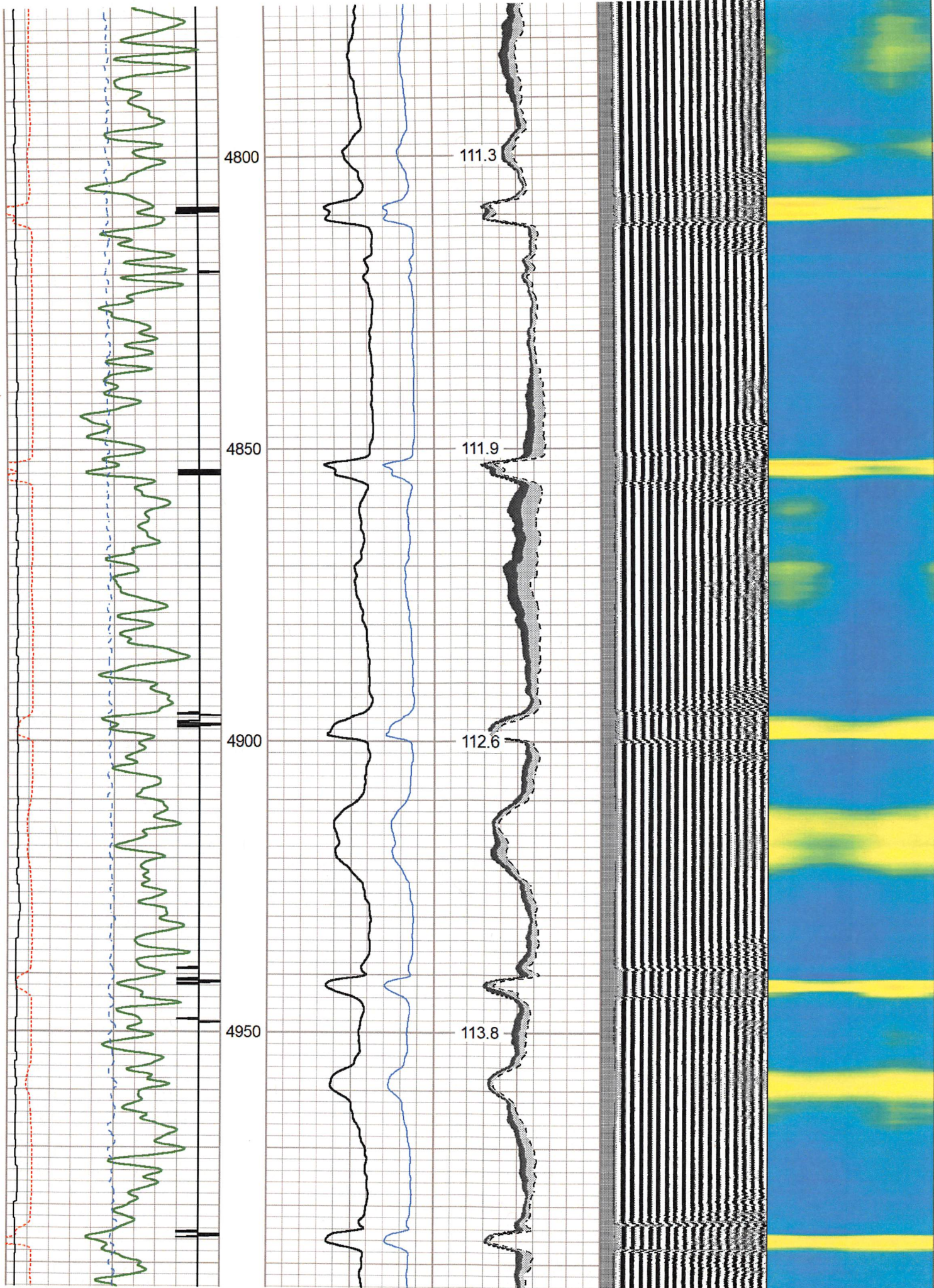


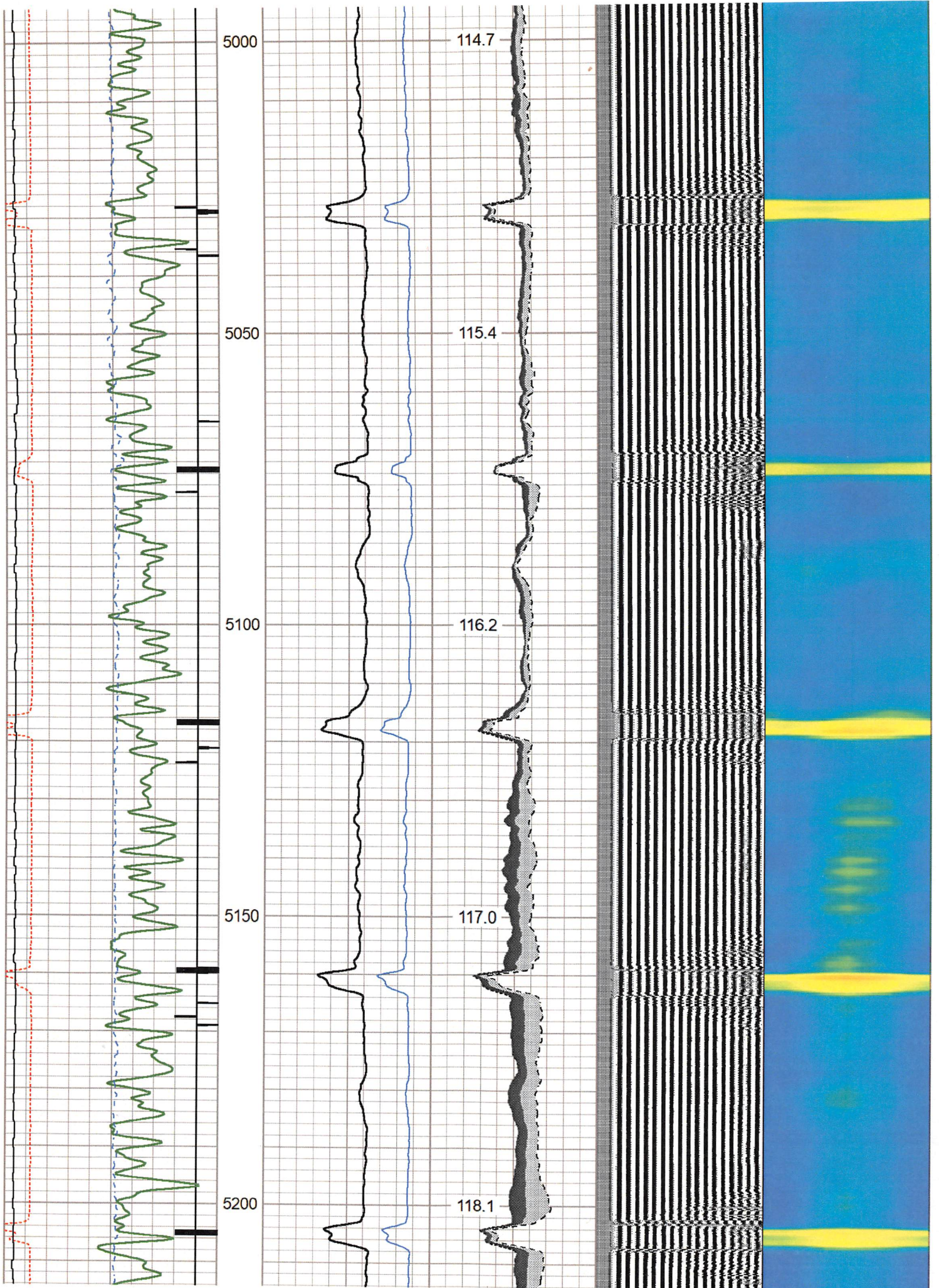


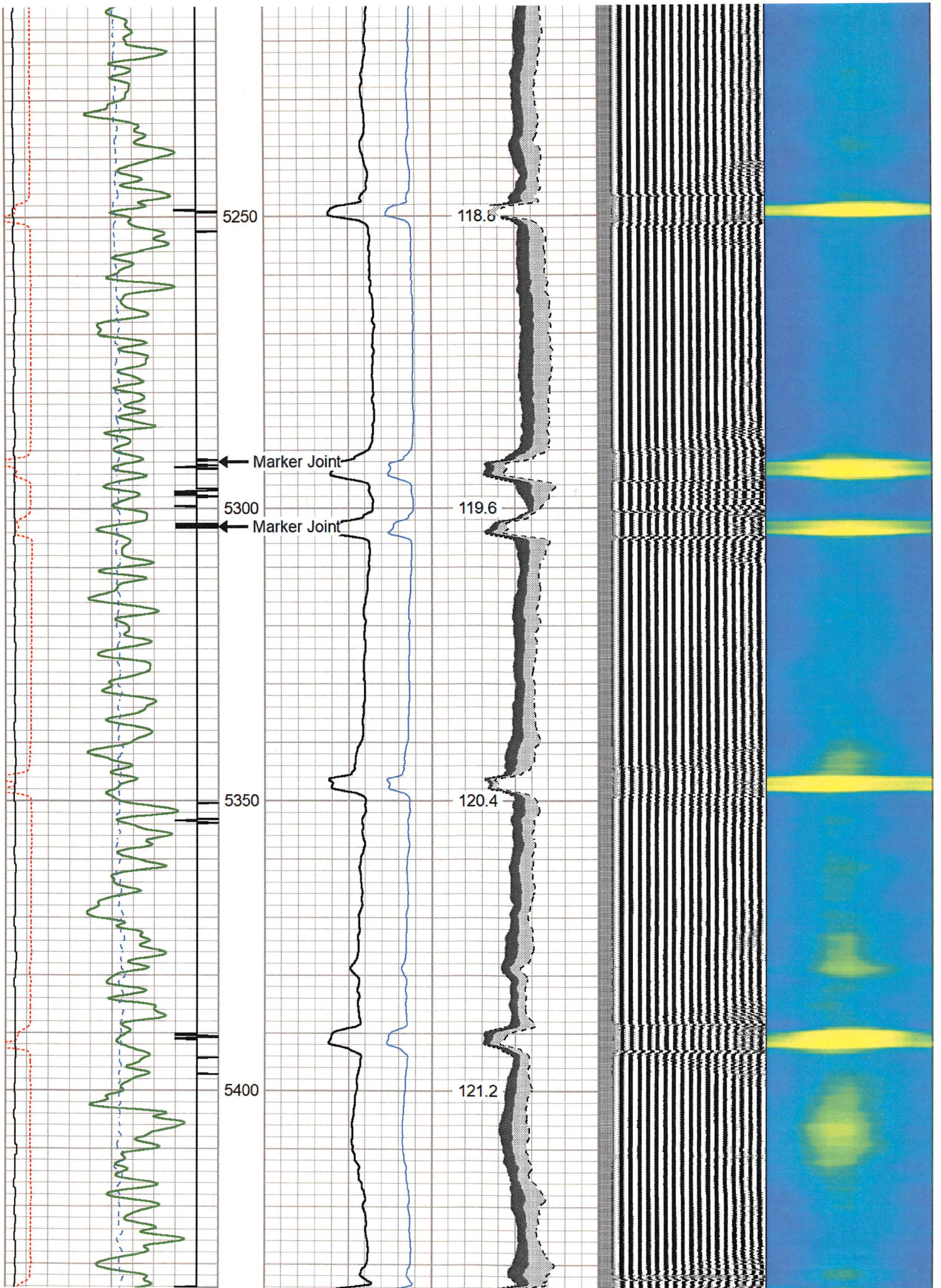


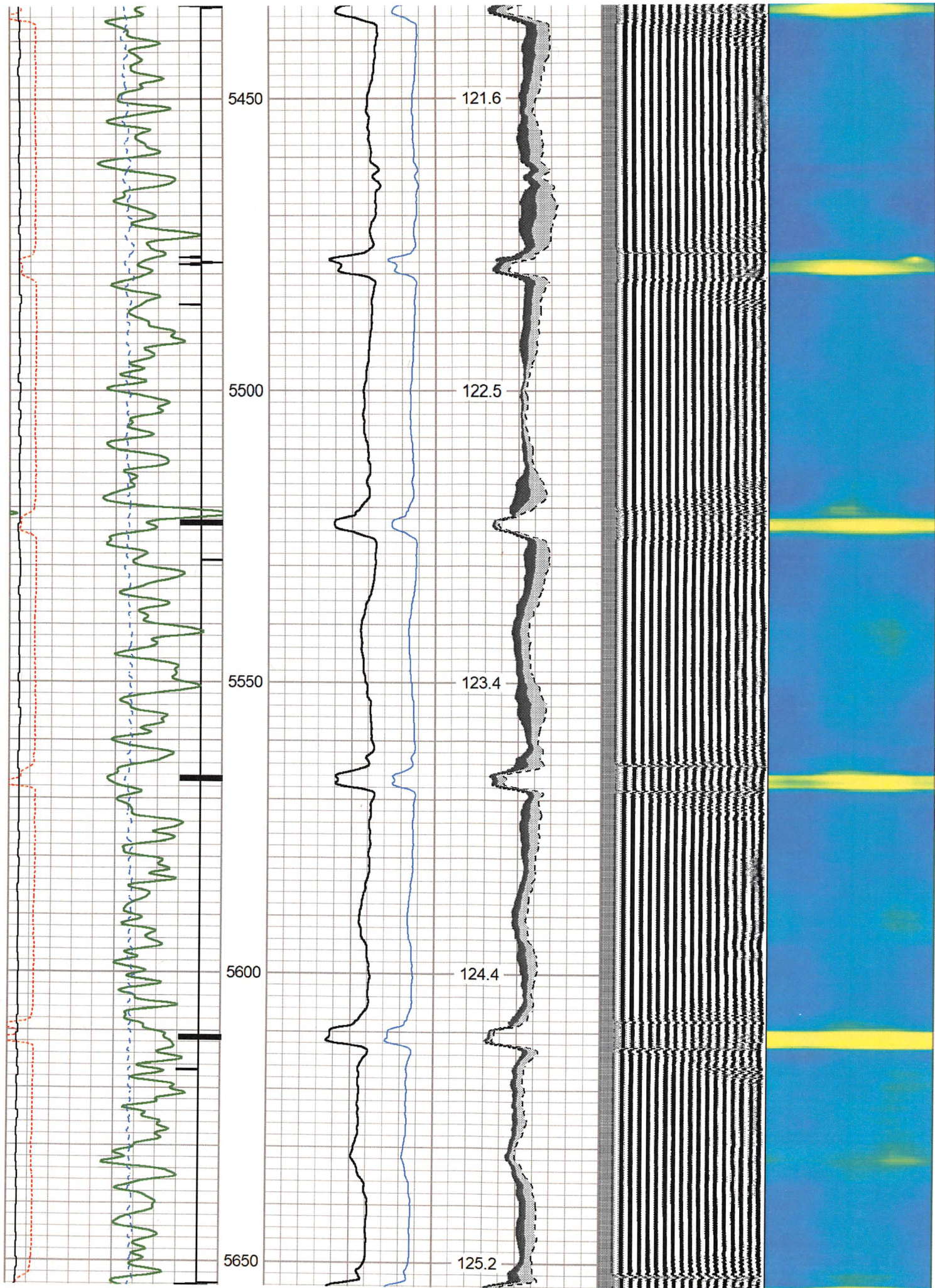


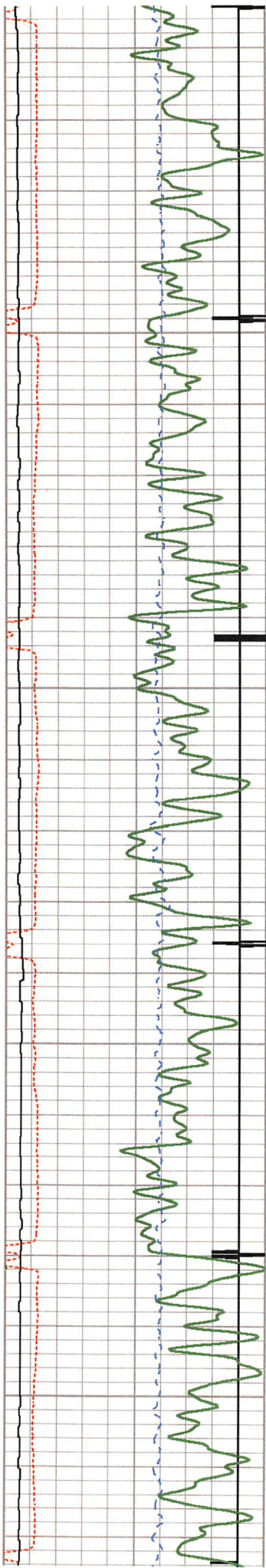










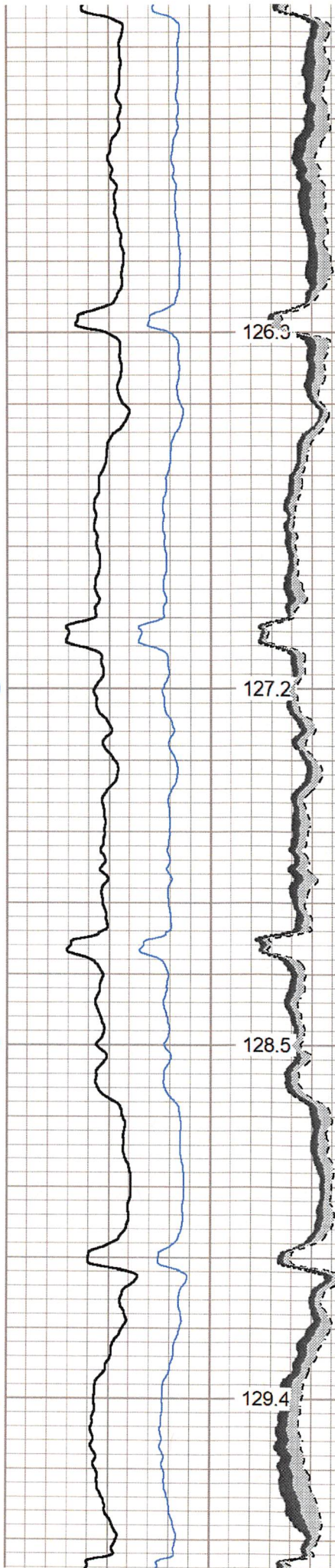


5700

5750

5800

5850

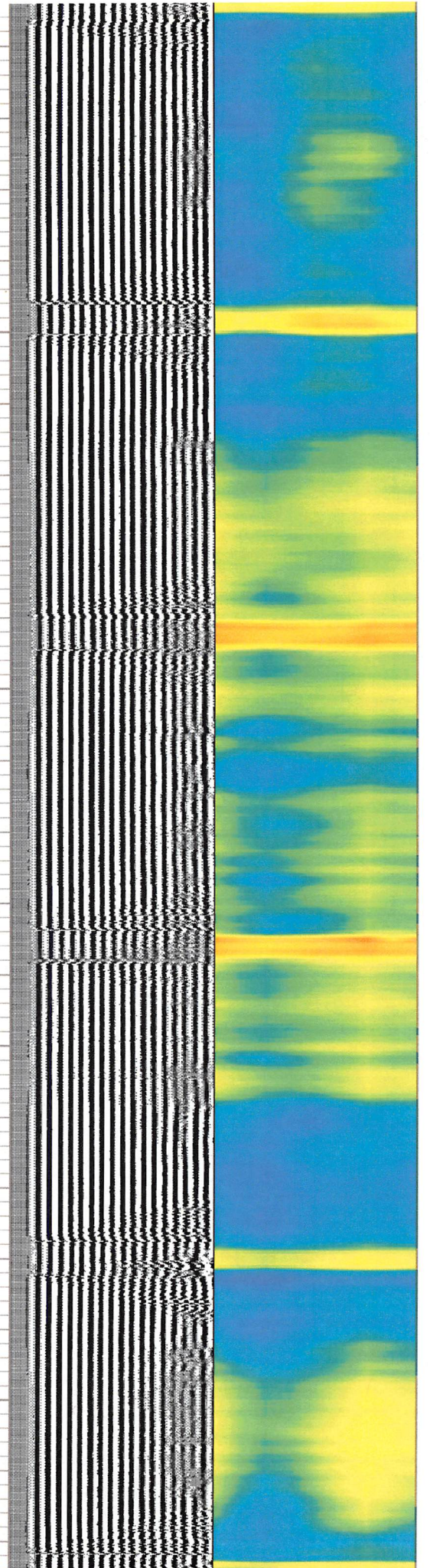


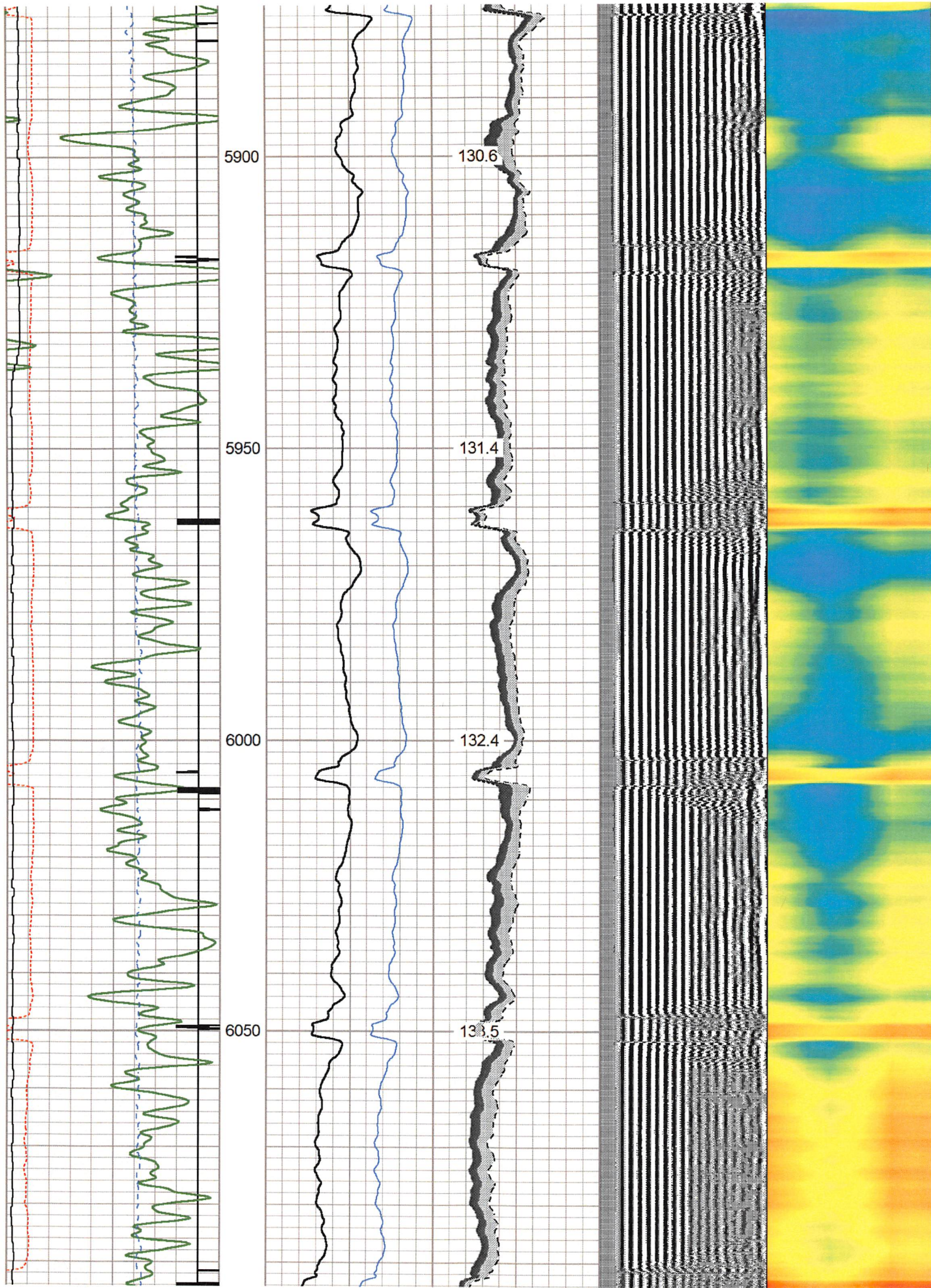
126.3

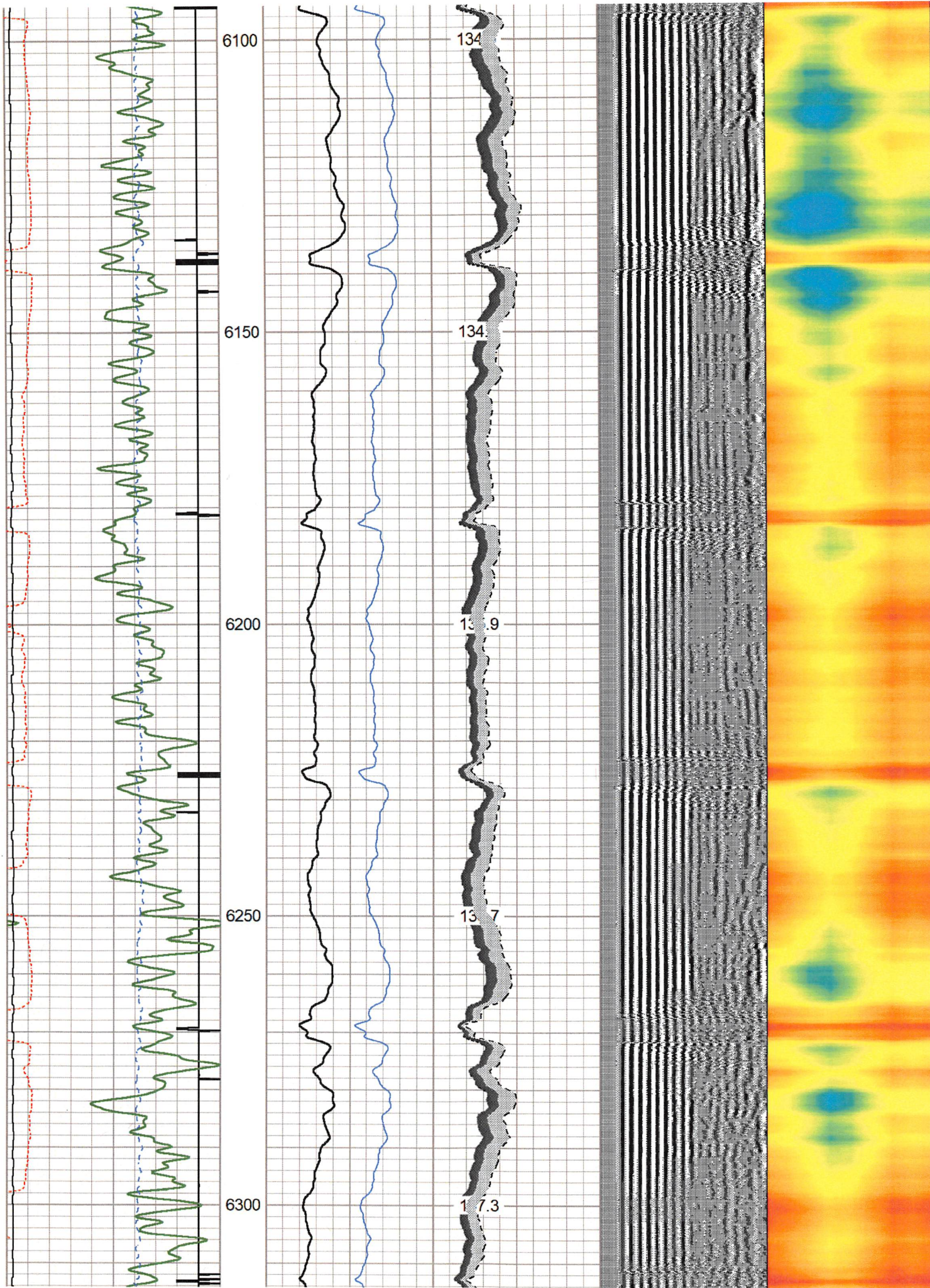
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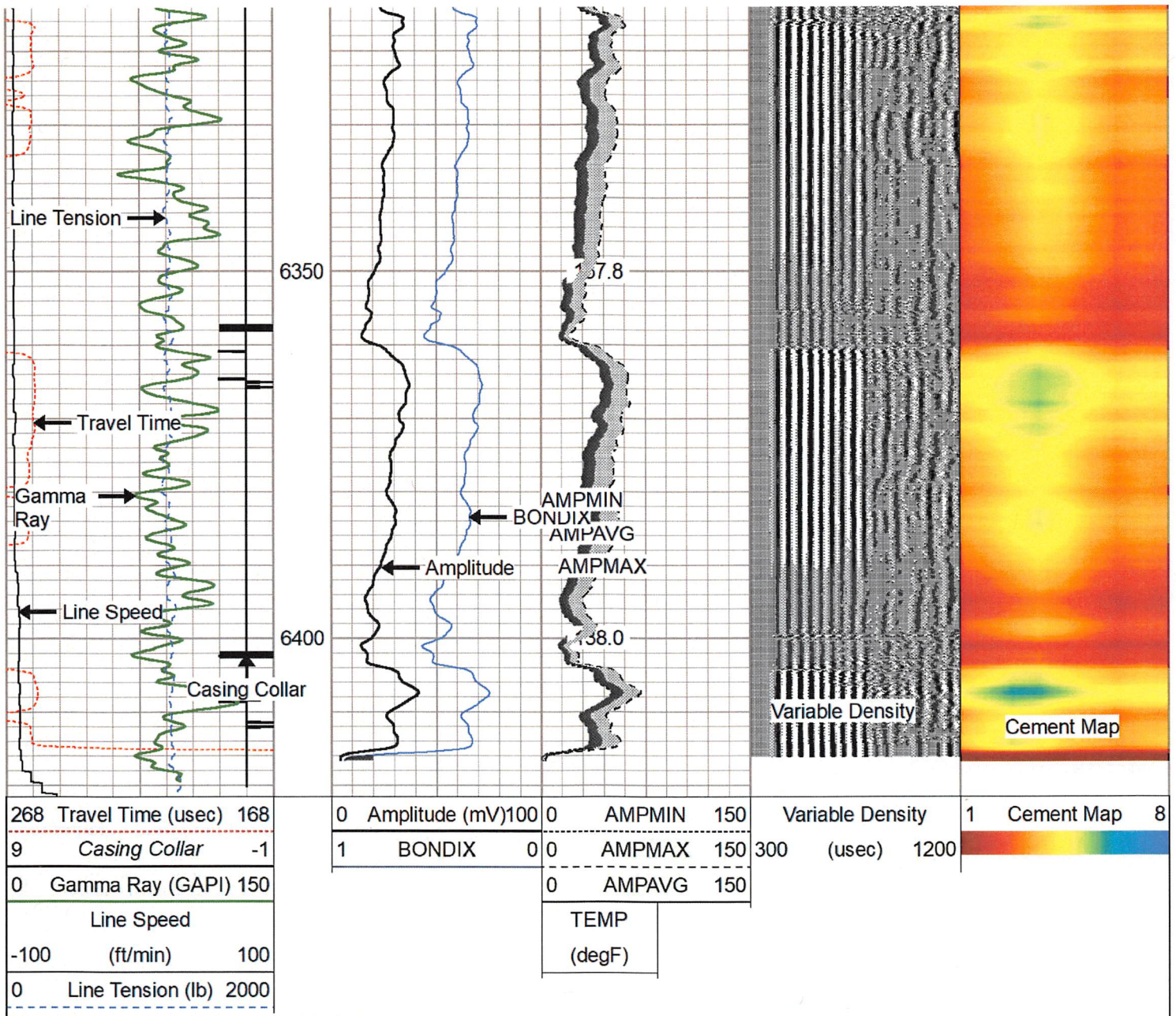
128.5

129.4



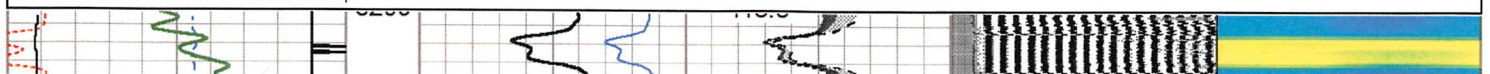
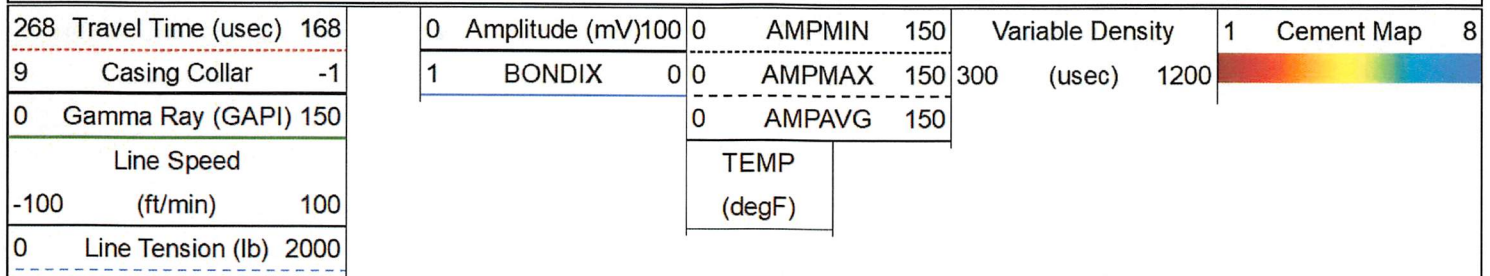




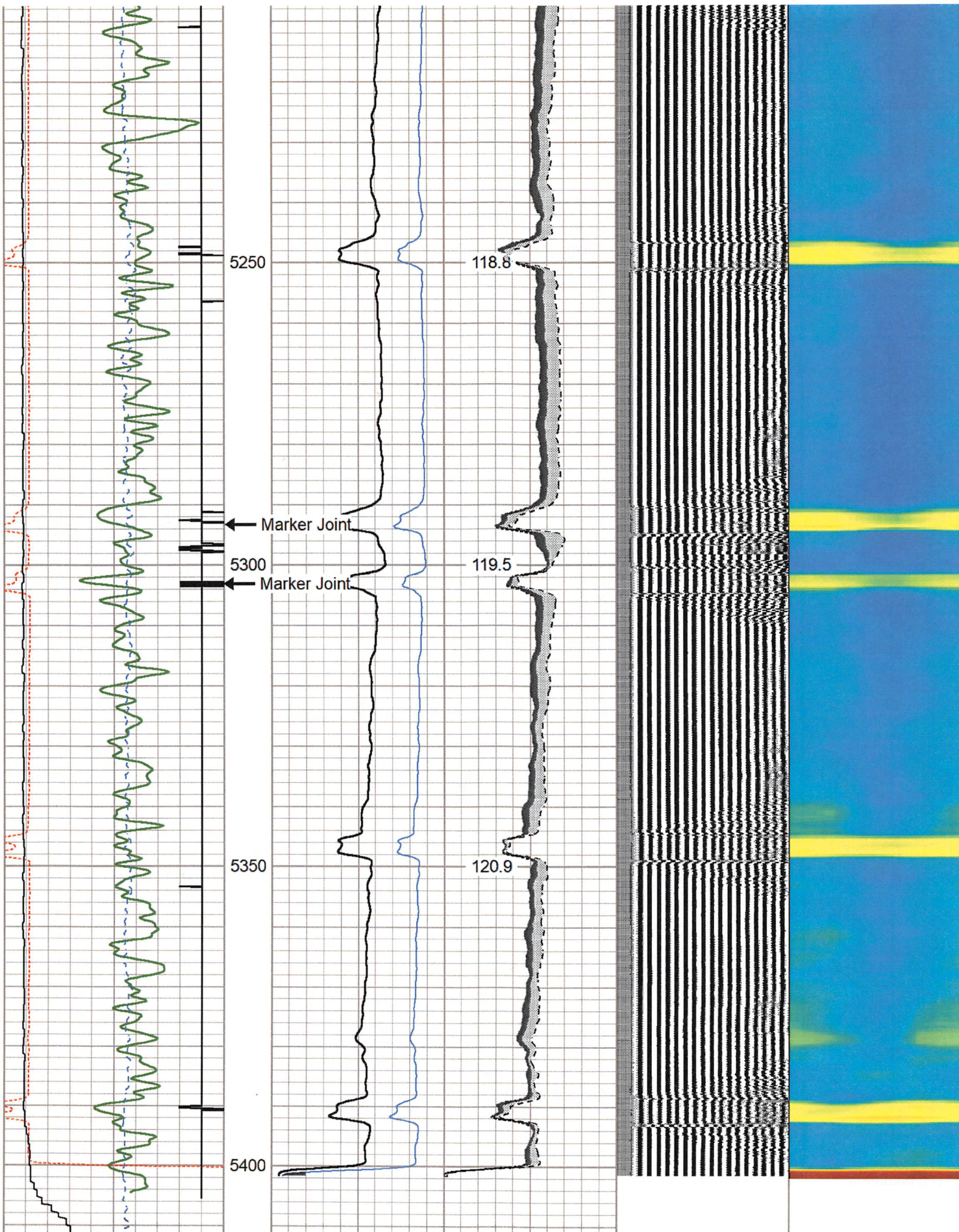


# Repeat Pass 0 PSI

Database File antero\_martindill\_1h\_rcbl\_01\_april\_2023.db  
 Dataset Pathname pass4  
 Presentation Format rcbl-bond index for antero 1020  
 Dataset Creation Sat Apr 01 13:42:36 2023  
 Charted by Depth in Feet scaled 1:240







268	Travel Time (usec)	168
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150

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

Variable Density  
300 (usec) 1200

1 Cement Map 8



Line Speed		
-100 (ft/min)		100
0	Line Tension (lb)	2000

TEMP
(degF)

# Log Variables

Database: C:\ProgramData\Warrior\Data\antero\_martindill\_1h\_rcbl\_01\_april\_2023.db  
 Dataset: field/well/run1/pass6/\_vars\_

## Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in	degF	in	in	lb/ft	mV	mV
	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	55	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\_martindill\_1h\_rcbl\_01\_april\_2023.db  
 Dataset Pathname pass6  
 Dataset Creation Sat Apr 01 13:59:14 2023

### Gamma Ray Calibration Report

Serial Number: FW1211-86  
 Tool Model: Probe  
 Performed: Sat Apr 1 08:08:22 2023

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: 251.442 ft

Master Calibration, performed Sat Apr 1 13:16:14 2023:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.005	0.410	3.400	71.921	165.231	4.183
CAL	0.657	0.649				
5'	-0.006	0.428	3.400	71.921	157.915	4.410

SUM							
S1	0.007	0.374	0.000	100.000	272.540	-1.973	
S2	-0.009	0.378	0.000	100.000	258.521	2.228	
S3	-0.008	0.401	0.000	100.000	244.815	1.937	
S4	-0.007	0.432	0.000	100.000	227.809	1.677	
S5	-0.008	0.445	0.000	100.000	220.886	1.790	
S6	-0.009	0.437	0.000	100.000	223.831	2.093	
S7	0.001	0.418	0.000	100.000	239.764	-0.190	
S8	-0.012	0.397	0.000	100.000	244.559	2.914	

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.657	0.649	1.000	0.000

Air Zero Calibration, performed Sat Apr 1 08:20:07 2023:

	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)
Centralizer	32.54		CABLE_HEADS-TITAN_1_7/16	1.04	1.44	4.00
Centralizer	21.47					
CABLE_HEADS	18.07					
RBT	17.03					
HeadVolt	16.97					
Centralizer	16.13		Centralizer-2.75_Overbody	1.67	3.12	5.00
Temp	14.12		RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS8	11.89					
WVFS7	11.89					
WVFS6	11.89					
WVFS5	11.89					
WVFS4	11.89					
WVFS3	11.89					

WVFS2	11.89					
WVFS1	11.89					
WV3FT	11.89					
WV5FT	10.89					
GR	7.64					
WVFCAL	7.64					
HEADVOLT	7.64					
CCL	6.73					
Centralizer	5.86					
GR	5.40		GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
			Centralizer-2.75_Overbody	1.67	3.12	5.00
Centralizer	2.86		Centralizer-Titan_2.75 Bowspring Centralizer	2.86	2.75	35.00

Dataset: antero\_martindill\_1h\_rcbl\_01\_april\_2023.db: field/well/run1/pass6  
 Total length: 18.07 ft  
 Total weight: 206.00 lb  
 O.D.: 3.12 in



Company Antero Resources  
 Well Martindill 1H  
 Field Marcellus  
 County Tyler  
 State WV

Country U.S.A.