



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

Company ANTERO
Well Margery Lemon 1H
Field RABBIT EARS
County TYLER 4709502703
State WEST VIRGINIA Country USA

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Field RABBIT EARS
County TYLER
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Location: API #: 47-095-02730-0000

SEC	TWP	RGE	Elevation 25'	Other Services
Permanent Datum	GL			K.B. N/A
Log Measured From	KB			D.F. N/A
Drilling Measured From	KB			G.L. N/A

Date	08-Jan-2021						
Run Number	ONE						
Depth Driller	19,056'						
Depth Logger	7,348'						
Bottom Logged Interval	7,390'						
Top Log Interval	SURFACE						
Open Hole Size	8.50"						
Type Fluid	FRESH WATER						
Density / Viscosity	8.4#						
Max. Recorded Temp.	150 Deg. F.						
Estimated Cement Top	4,410'						
Time Well Ready	13:15						
Time Logger on Bottom	13:47						
Equipment Number	TK-104 / P1.G2						
Location	CHARLEROI, PA						
Recorded By	Matt McNally						
Witnessed By	Ryan Rivera						
Borehole Record							
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record							
Surface String	Size	Wgt/Ft		Top	Bottom		
Prot String							
Production String	5 1/2"	20#		SURFACE	19,056'		
Liner							

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Office of Oil and Gas

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.

WV Department of
Environmental Protection

Comments

LOG CORRELATED TO MARKER JOINT @ 6,173' -6,185'
Depth Correction -18'

100%FREE PIPE=71.9mv
100%BOND=2.2mv

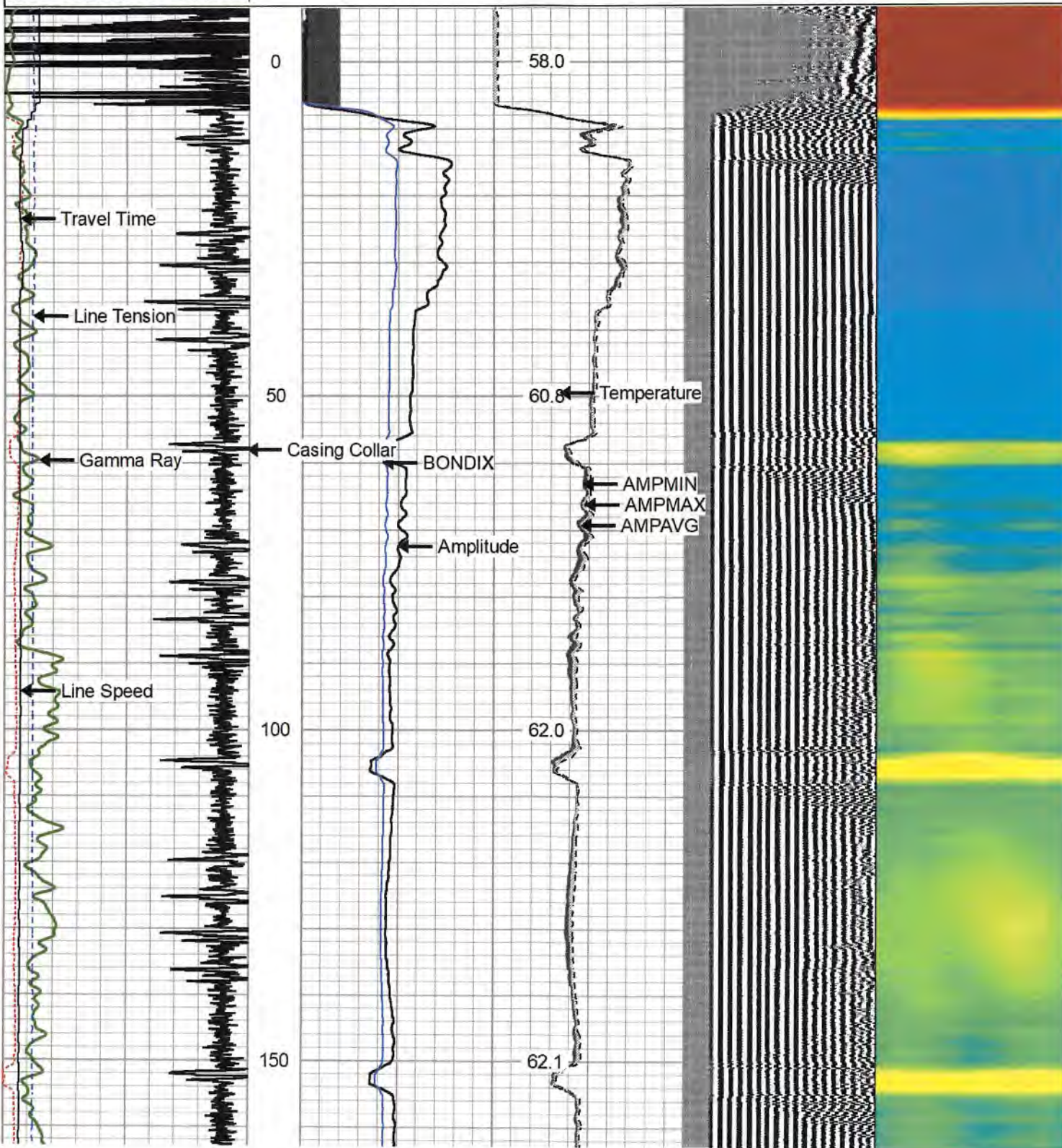
Thank You for Choosing Nine Energy Service.Charleroi, PA

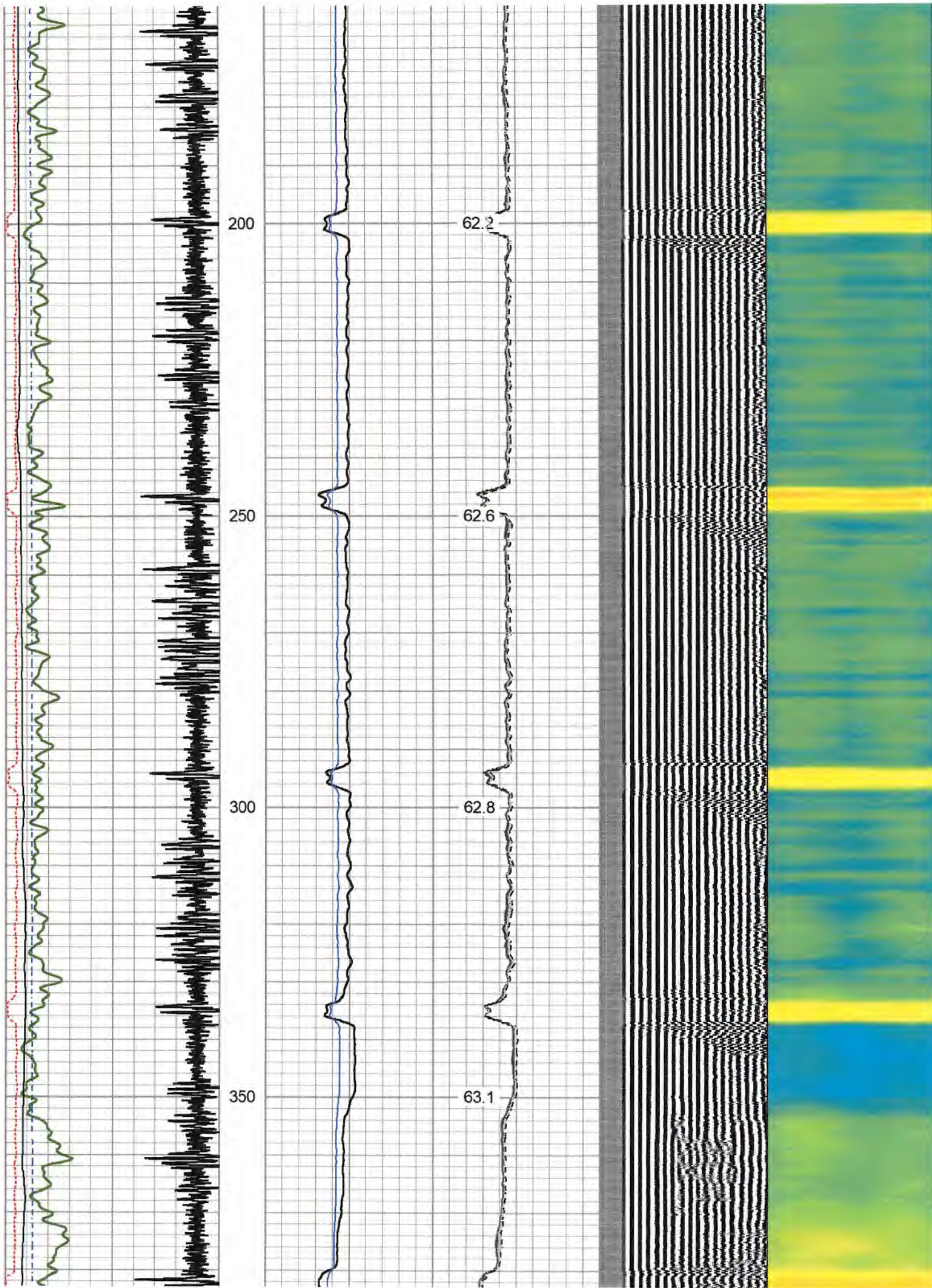


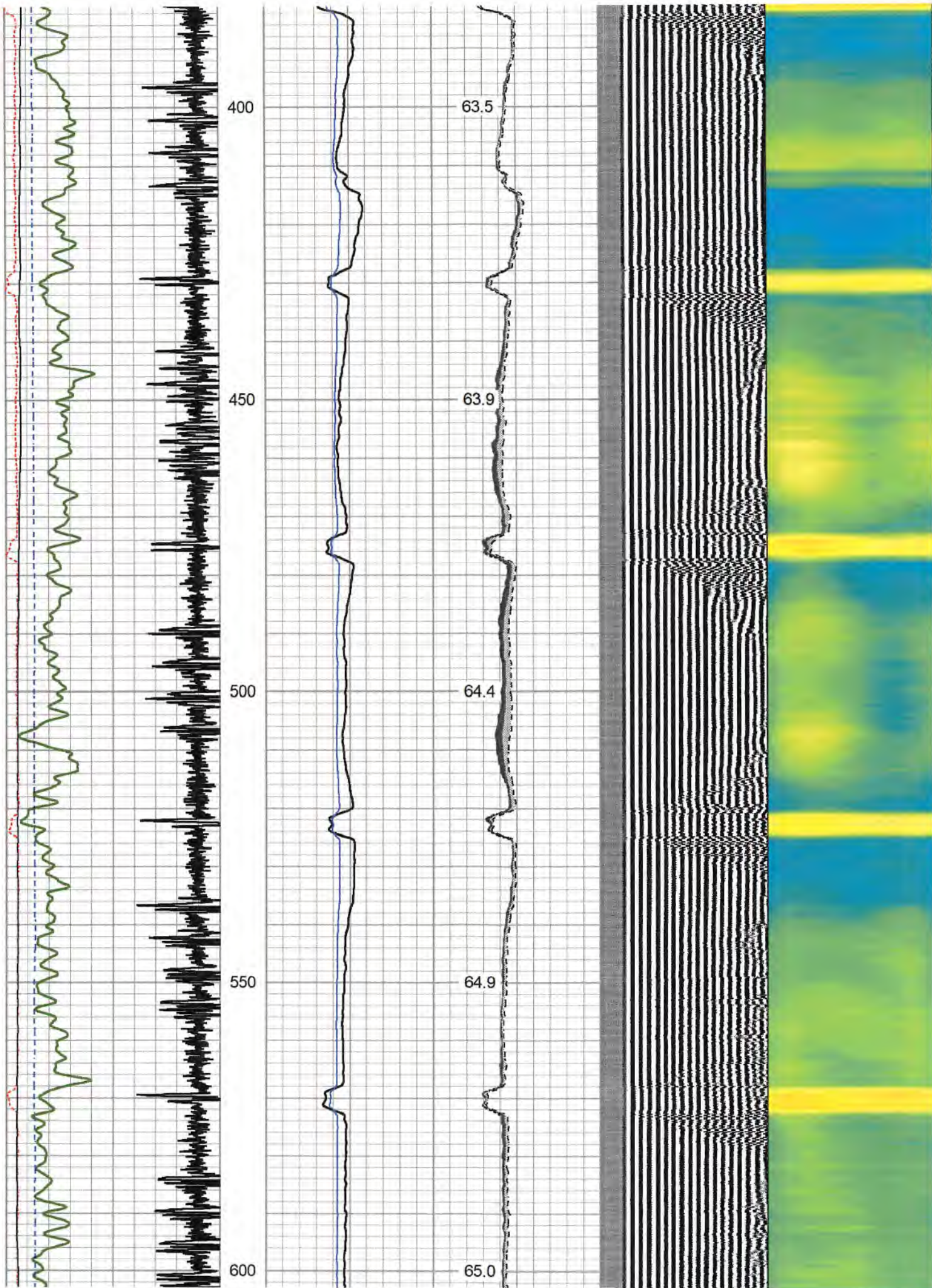
Main Pass 1,500 PSI

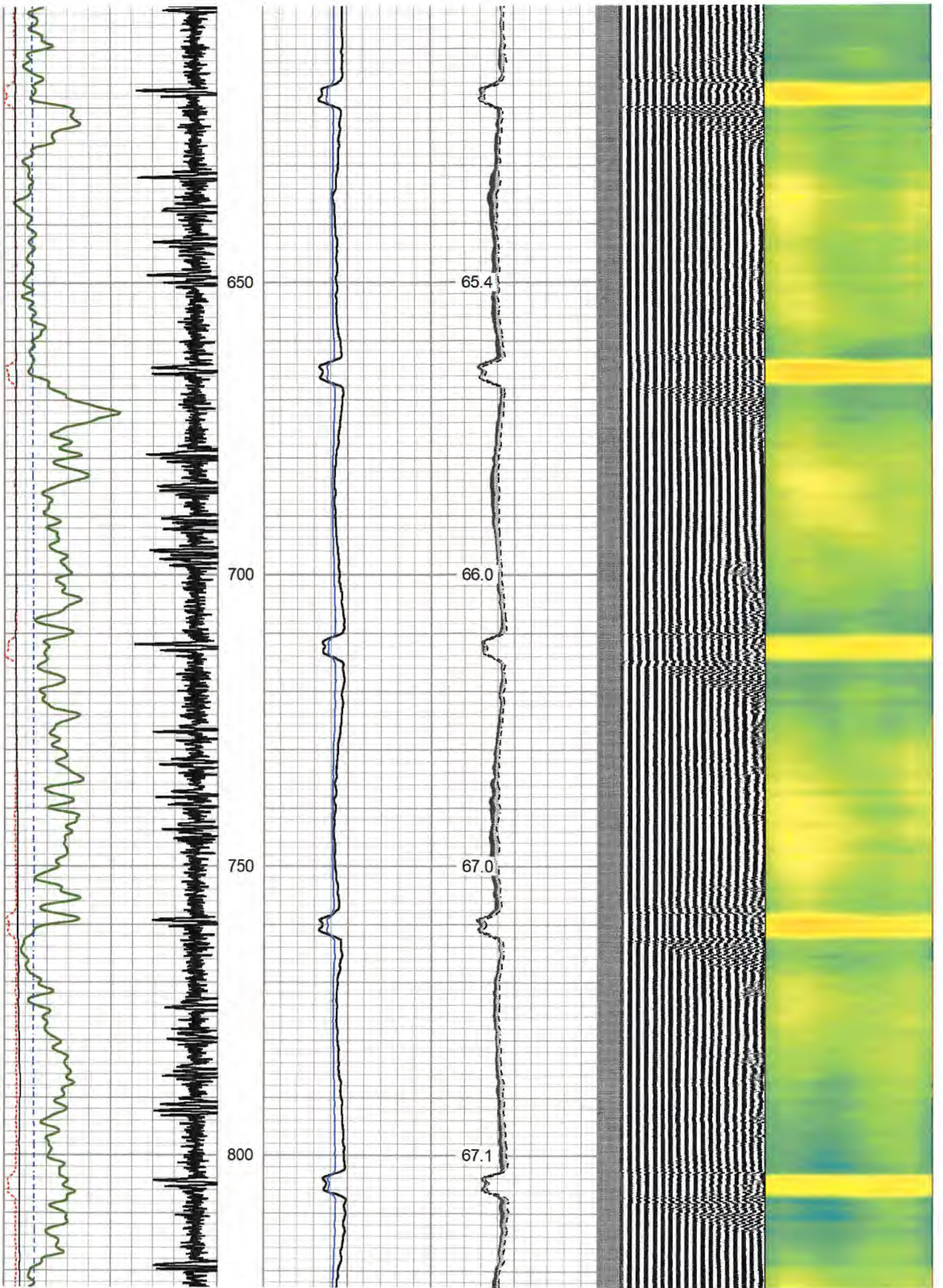
Database File antero_lemon_1h_rcbl_08_jan_2021.db
 Dataset Pathname rabbit_ears/Lemon1H/run1/pass4
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Fri Jan 08 13:45:15 2021
 Charted by Depth in Feet scaled 1:240

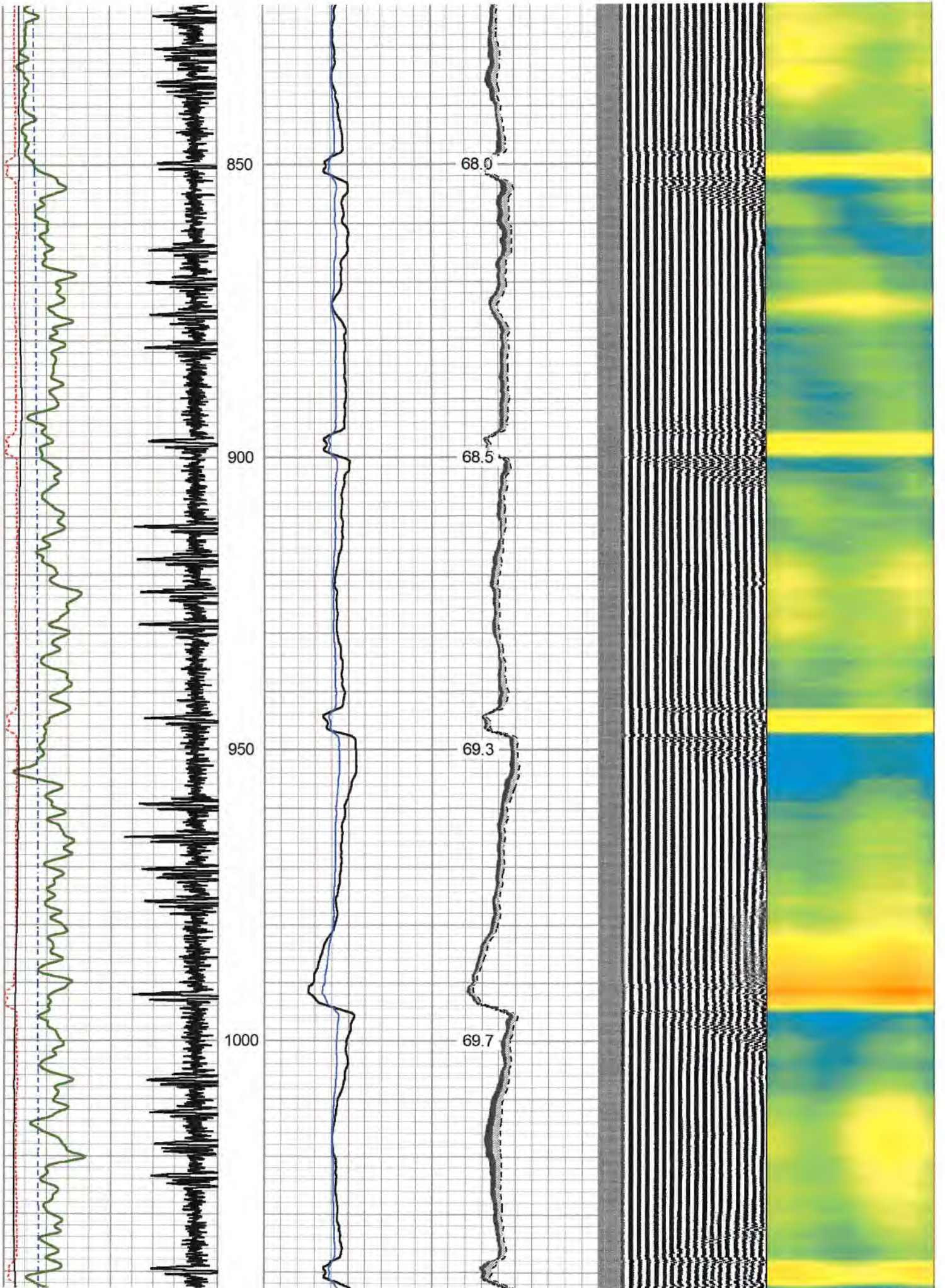
270	Travel Time (usec)	160	0	Amplitude (mV)	100	0	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	0	AMPMAX	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0			0	AMPAVG	150				
	Line Speed						TEMP					
-100	(ft/min)	100					(degF)					
0	Line Tension (lb)	2000										

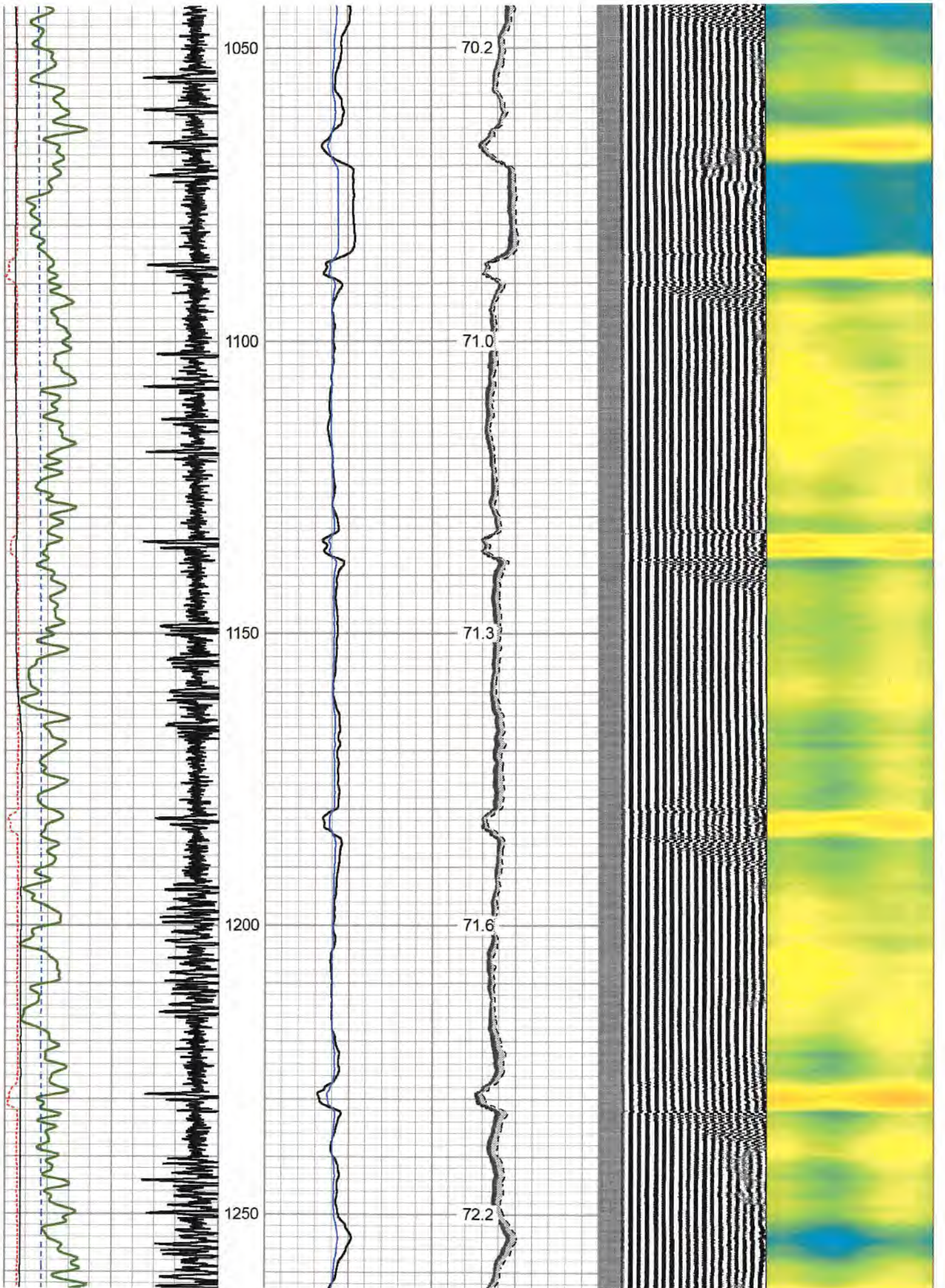


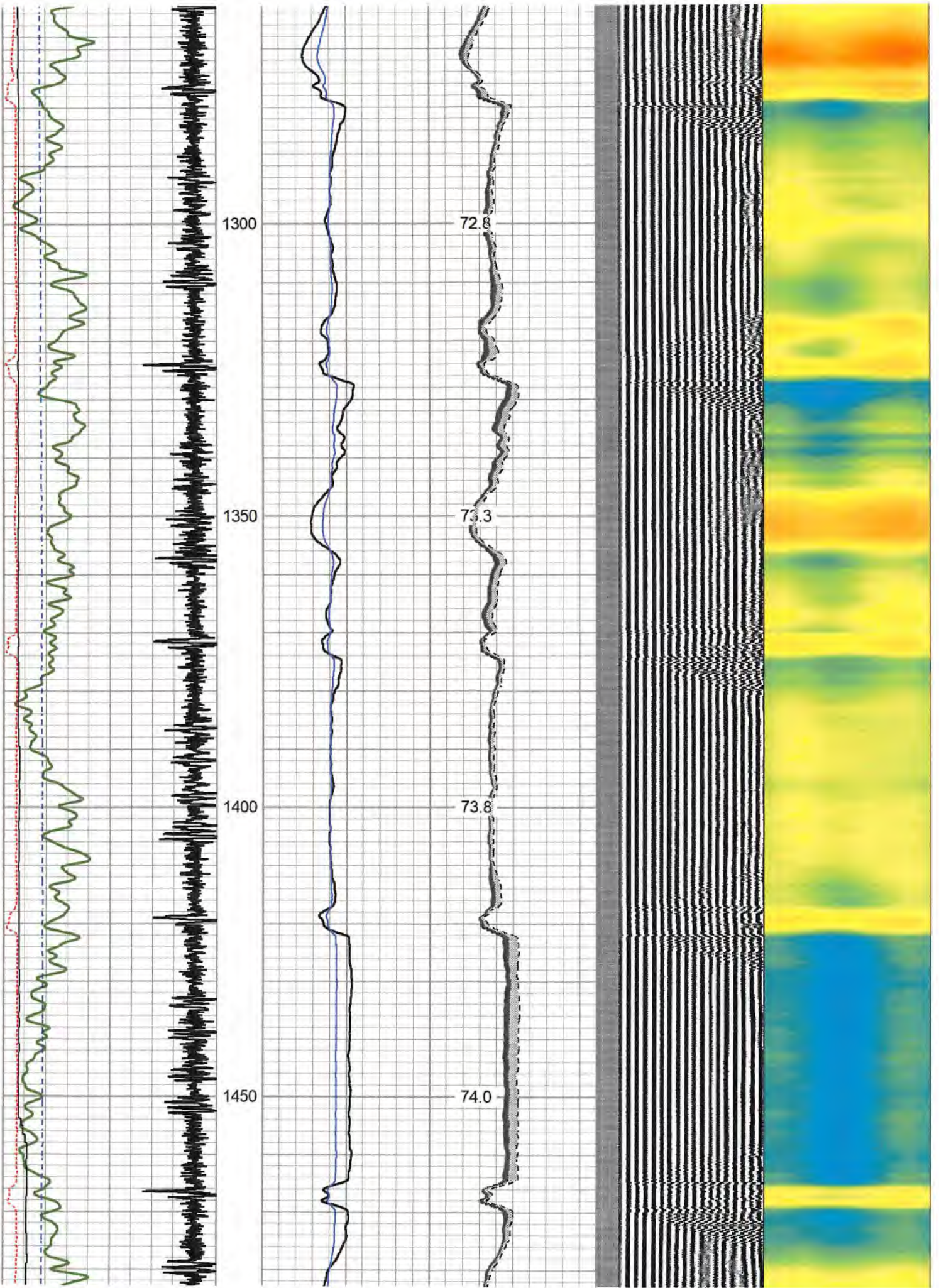


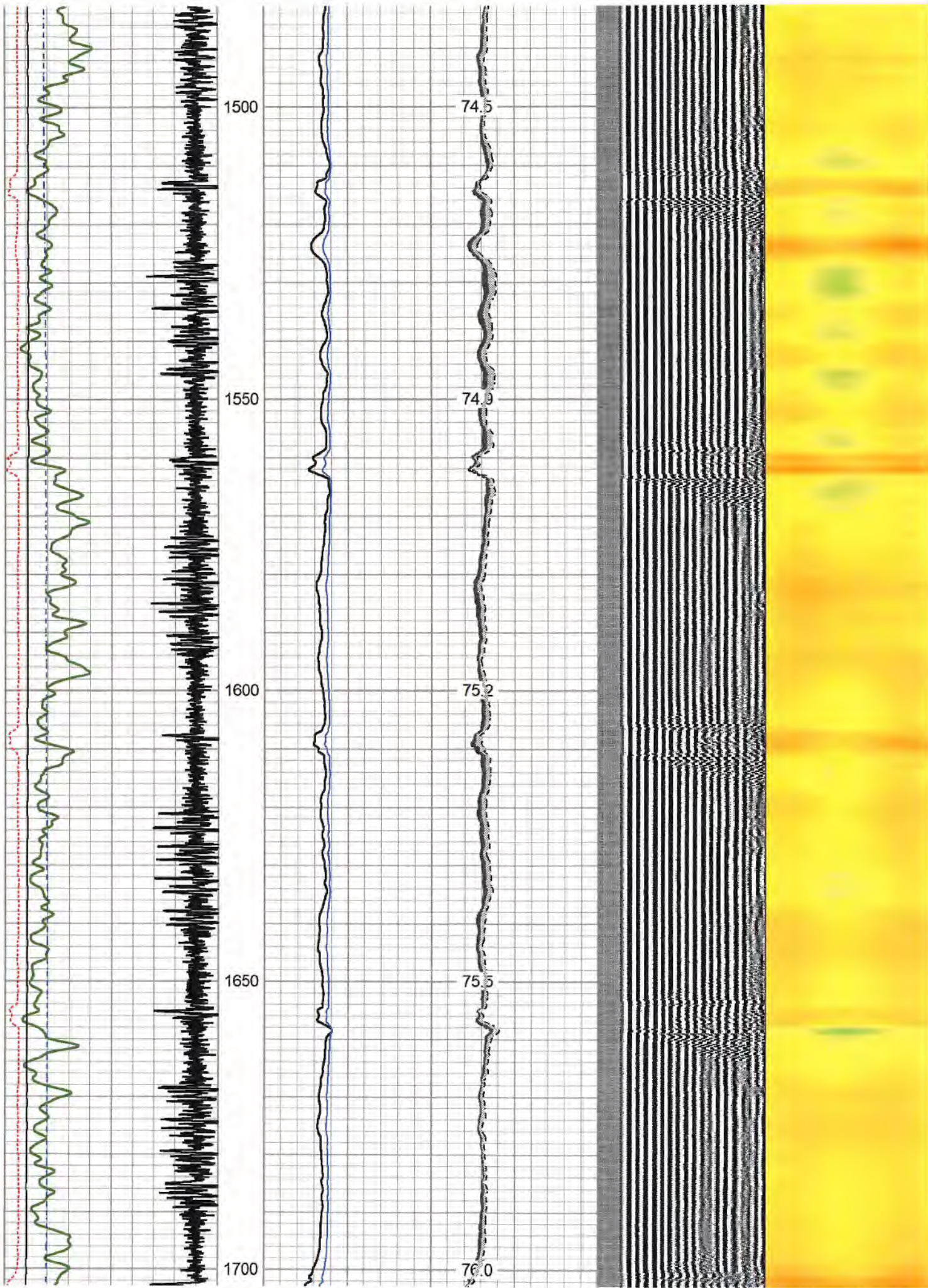


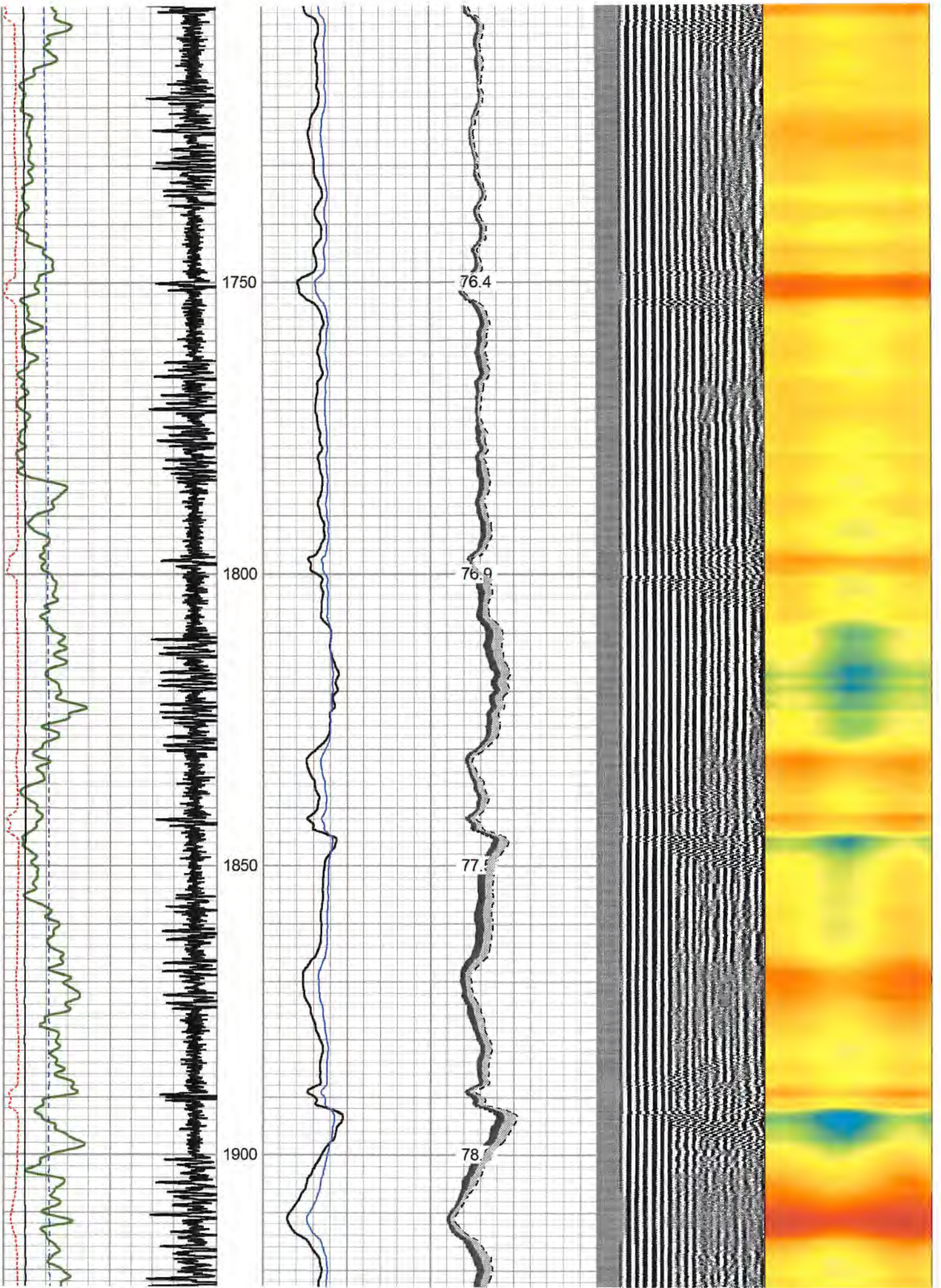


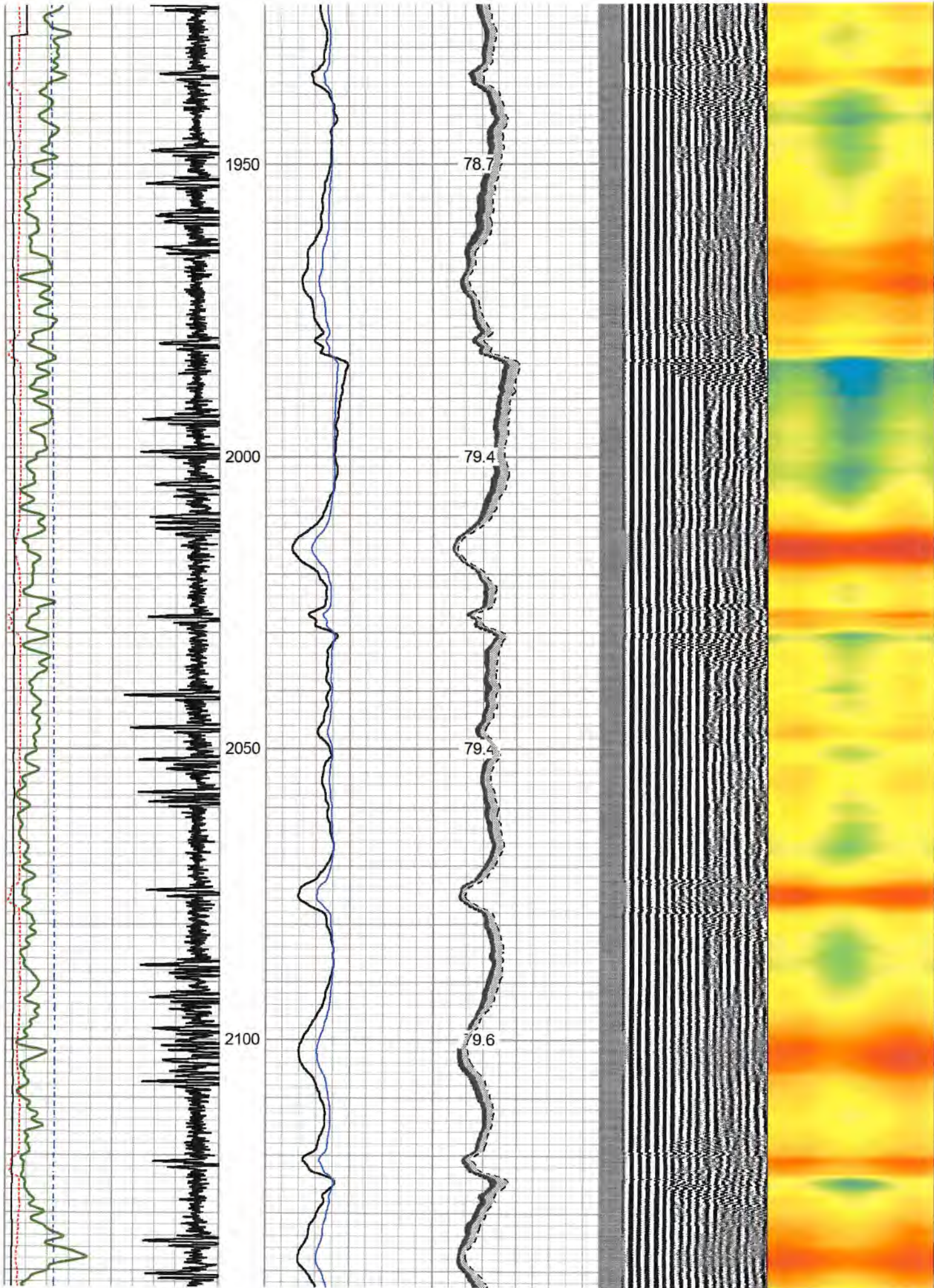


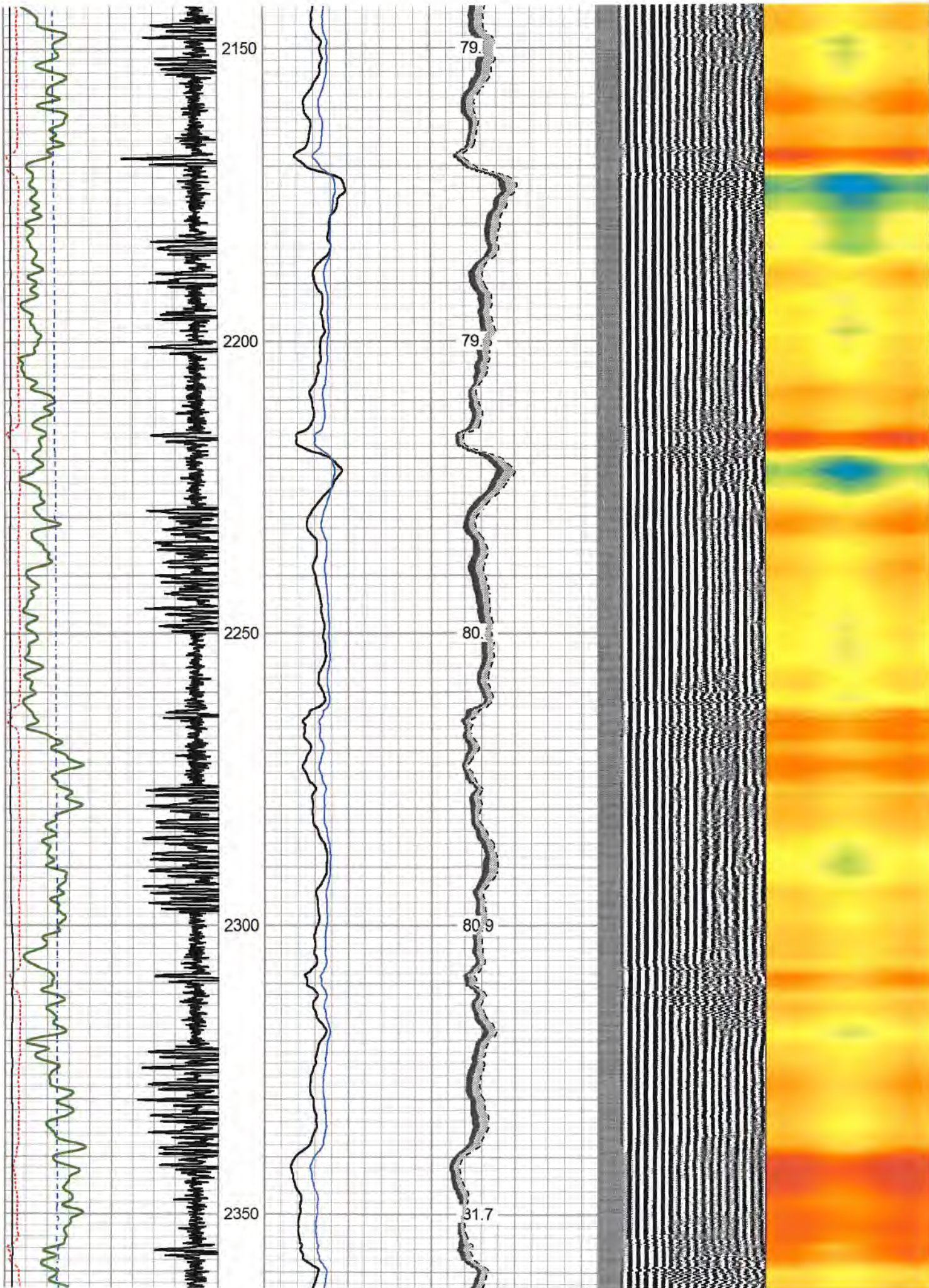


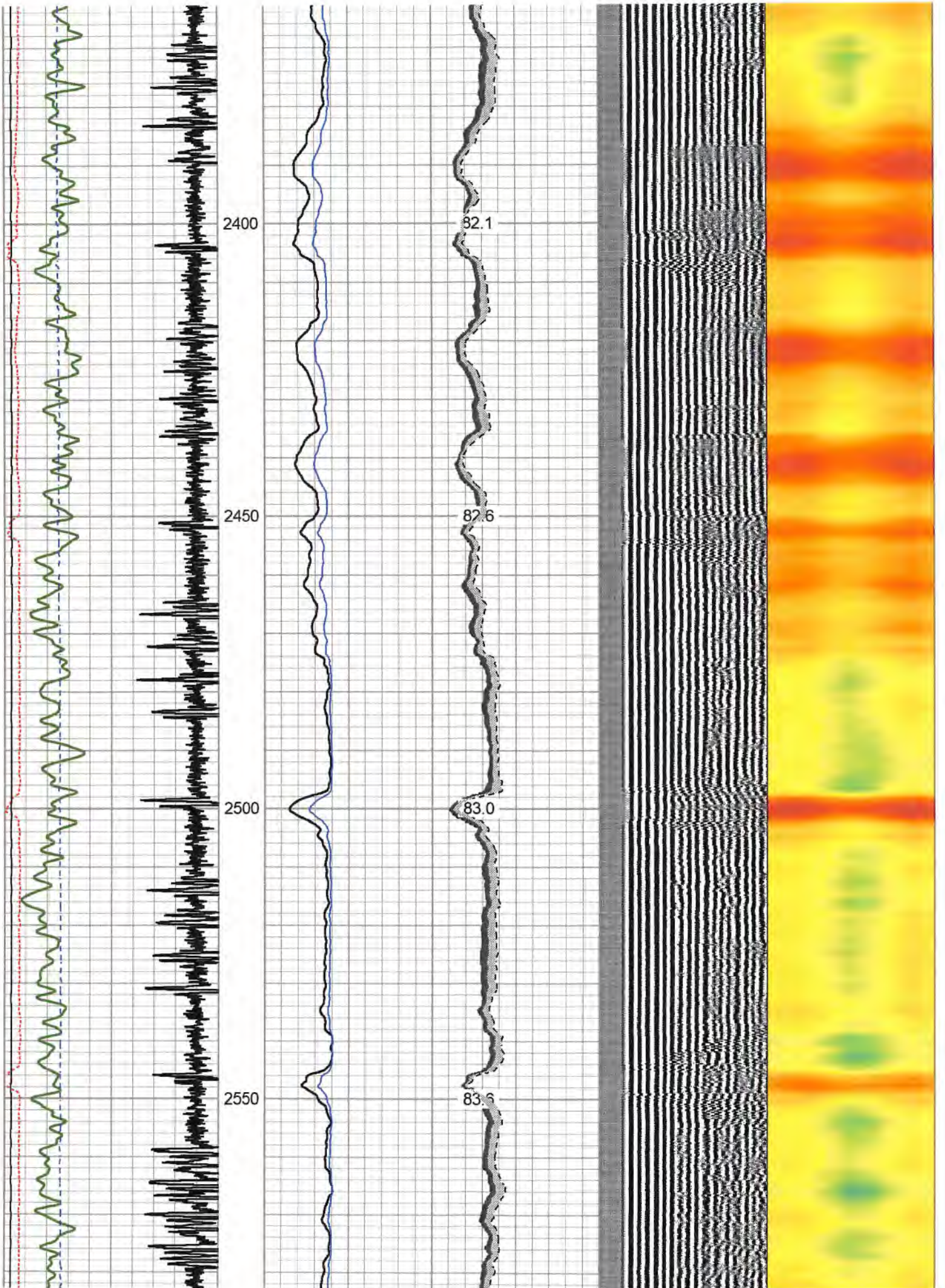


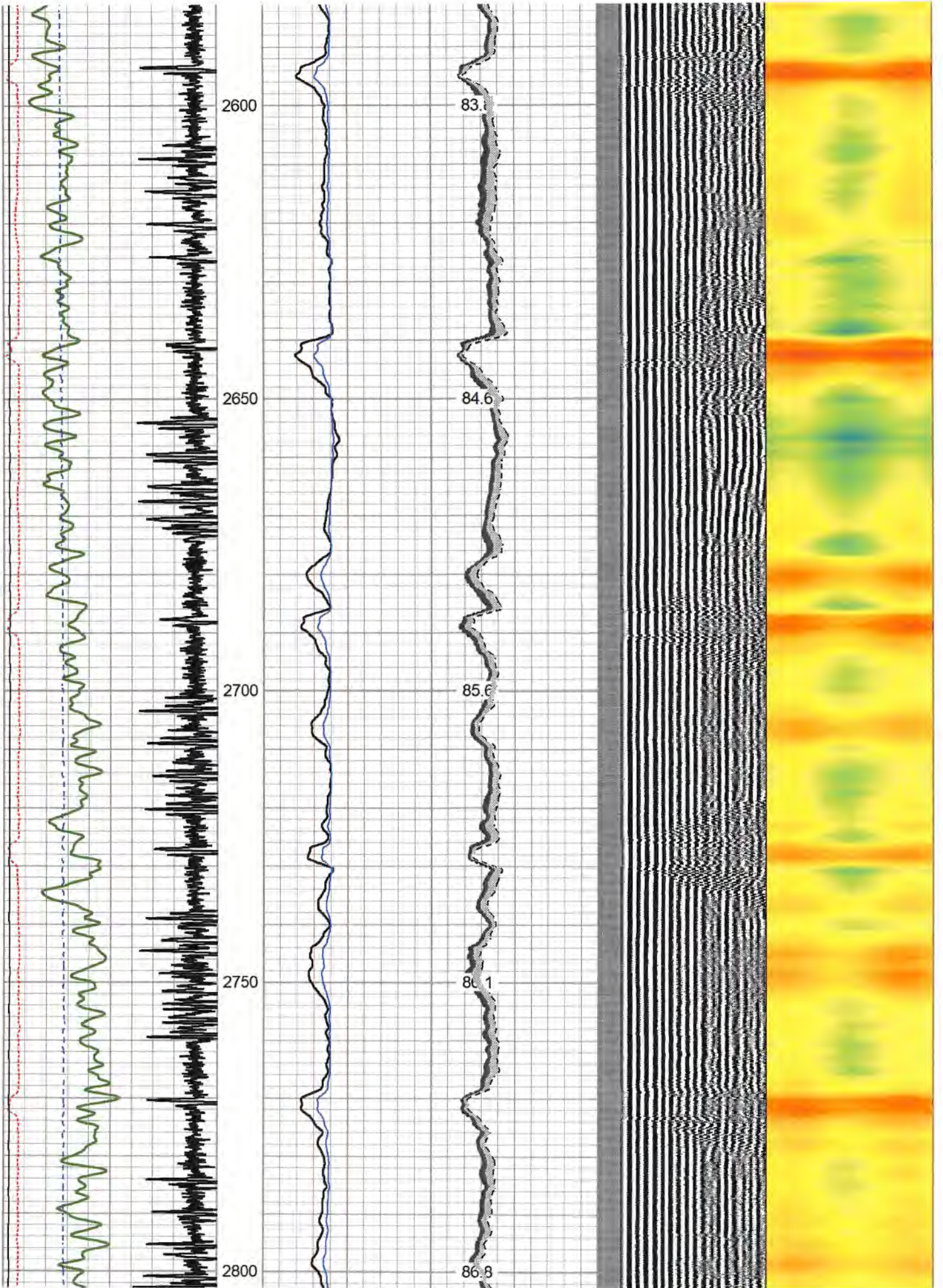


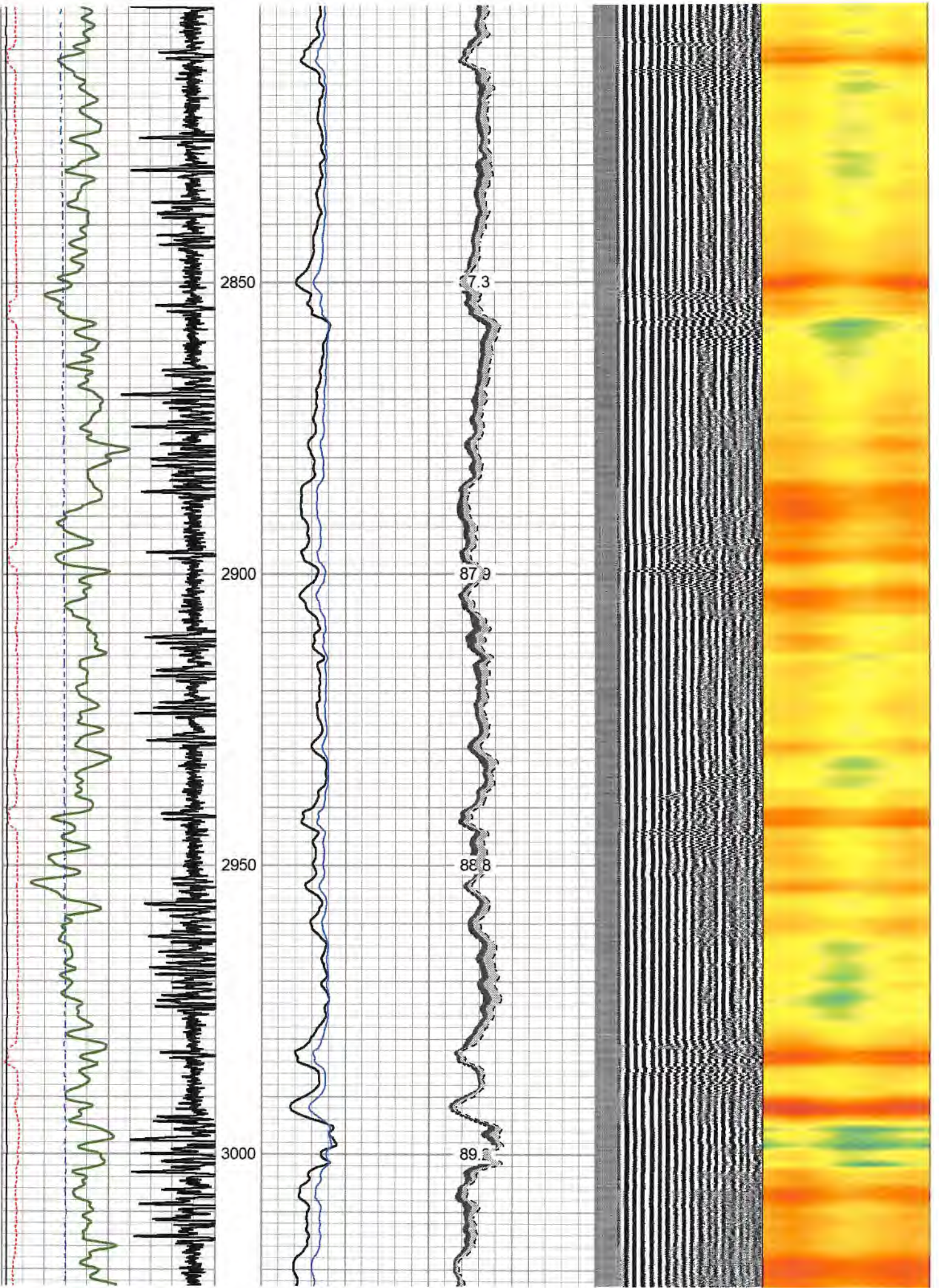


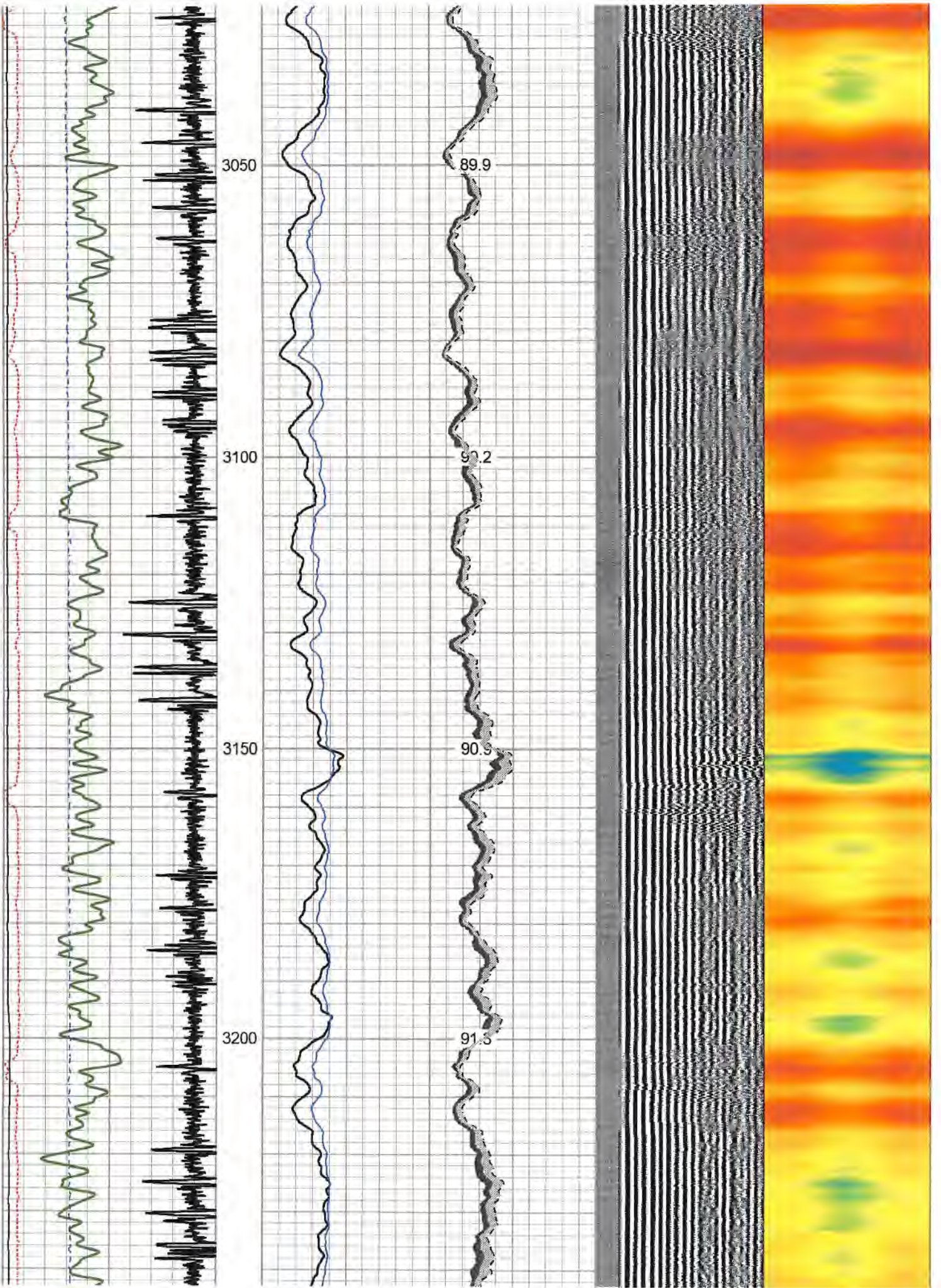


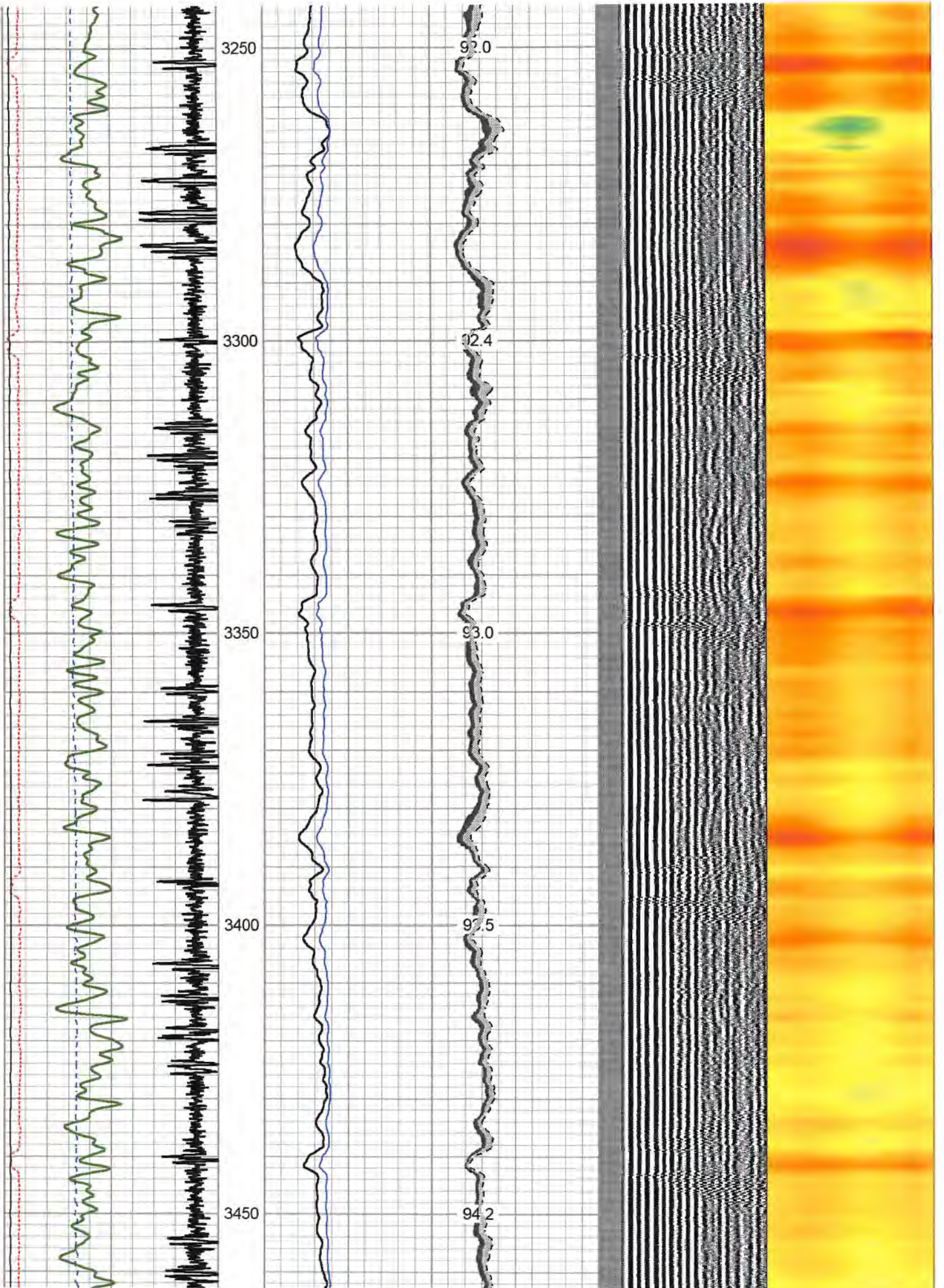


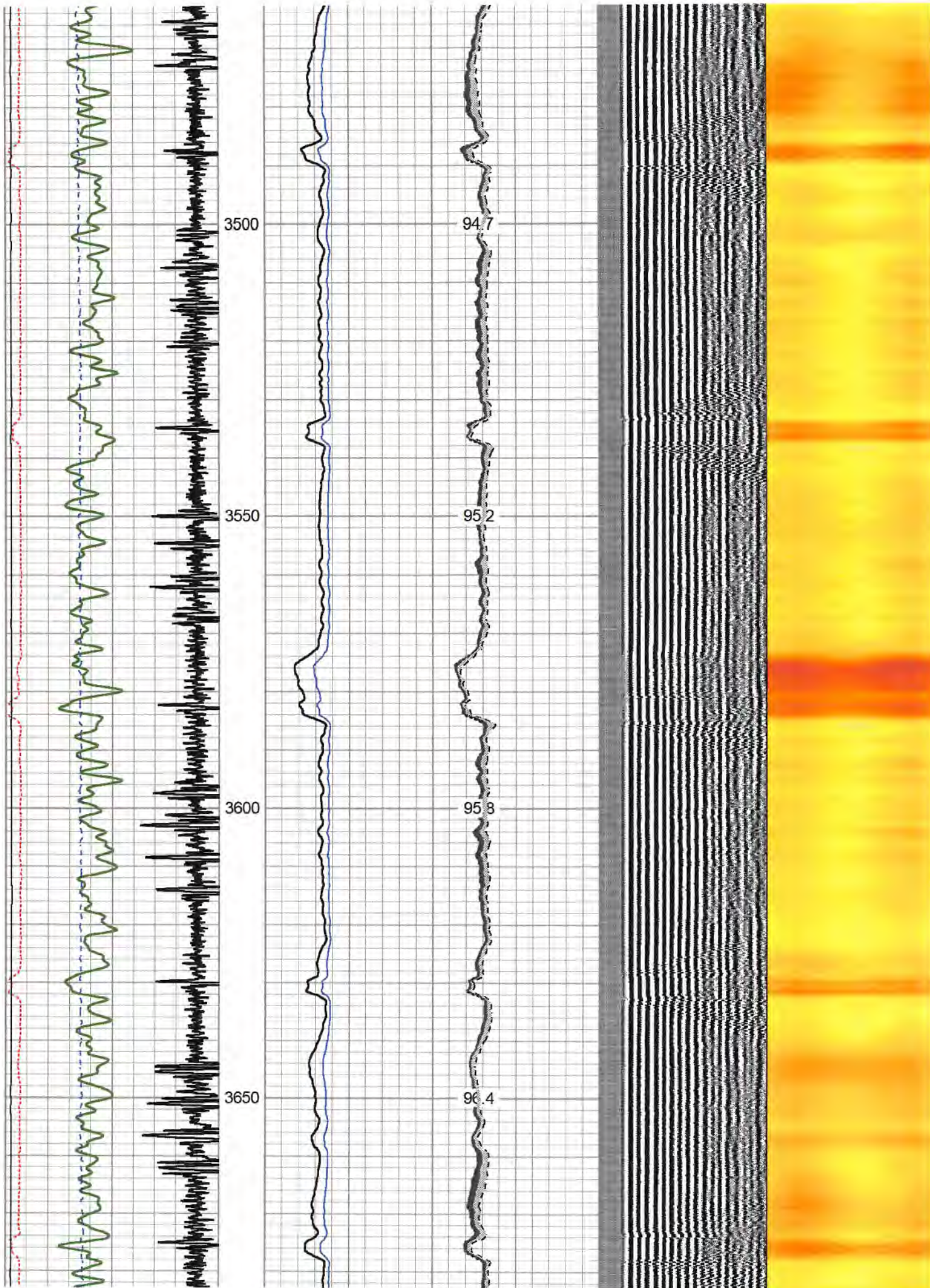


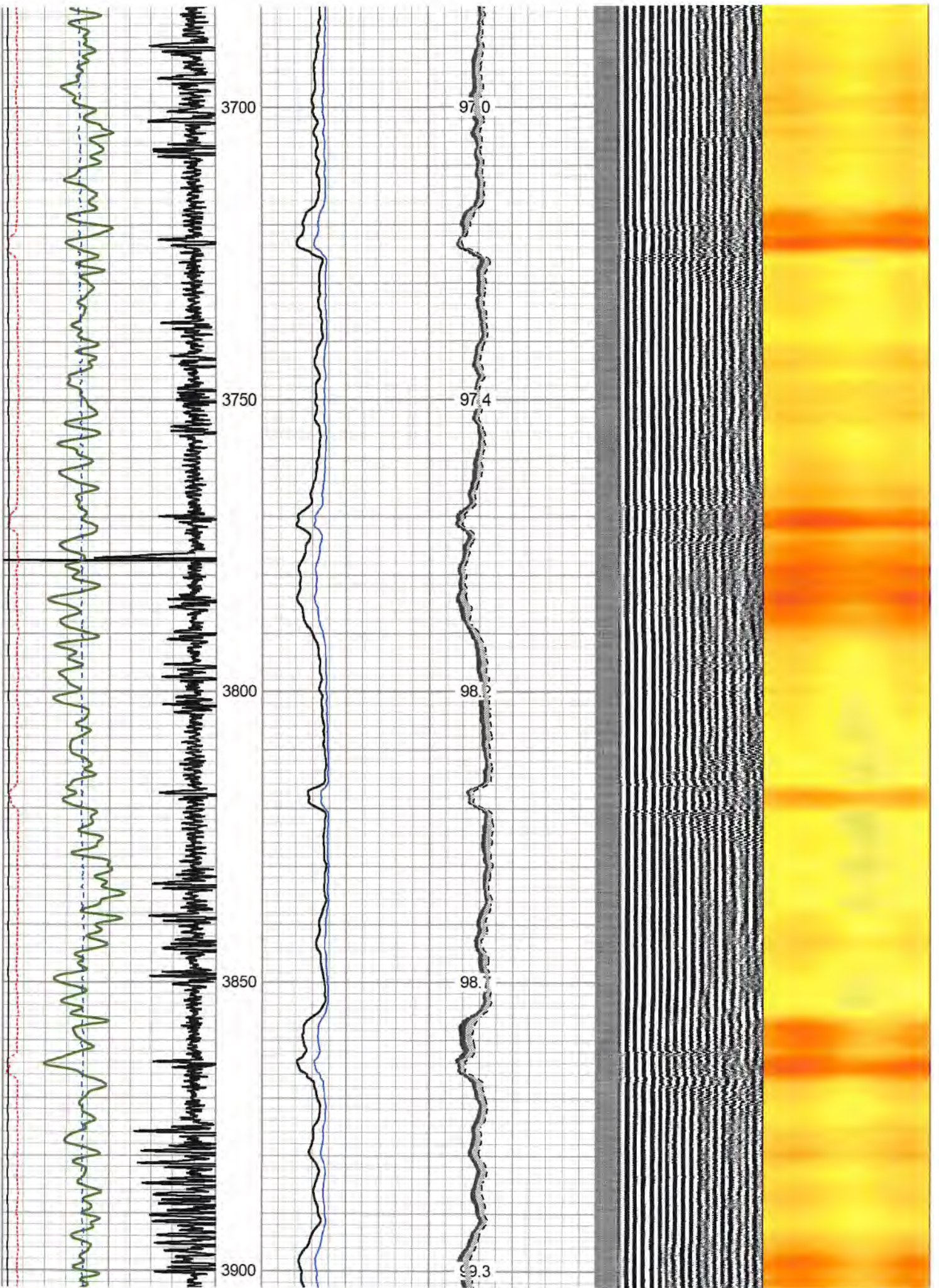


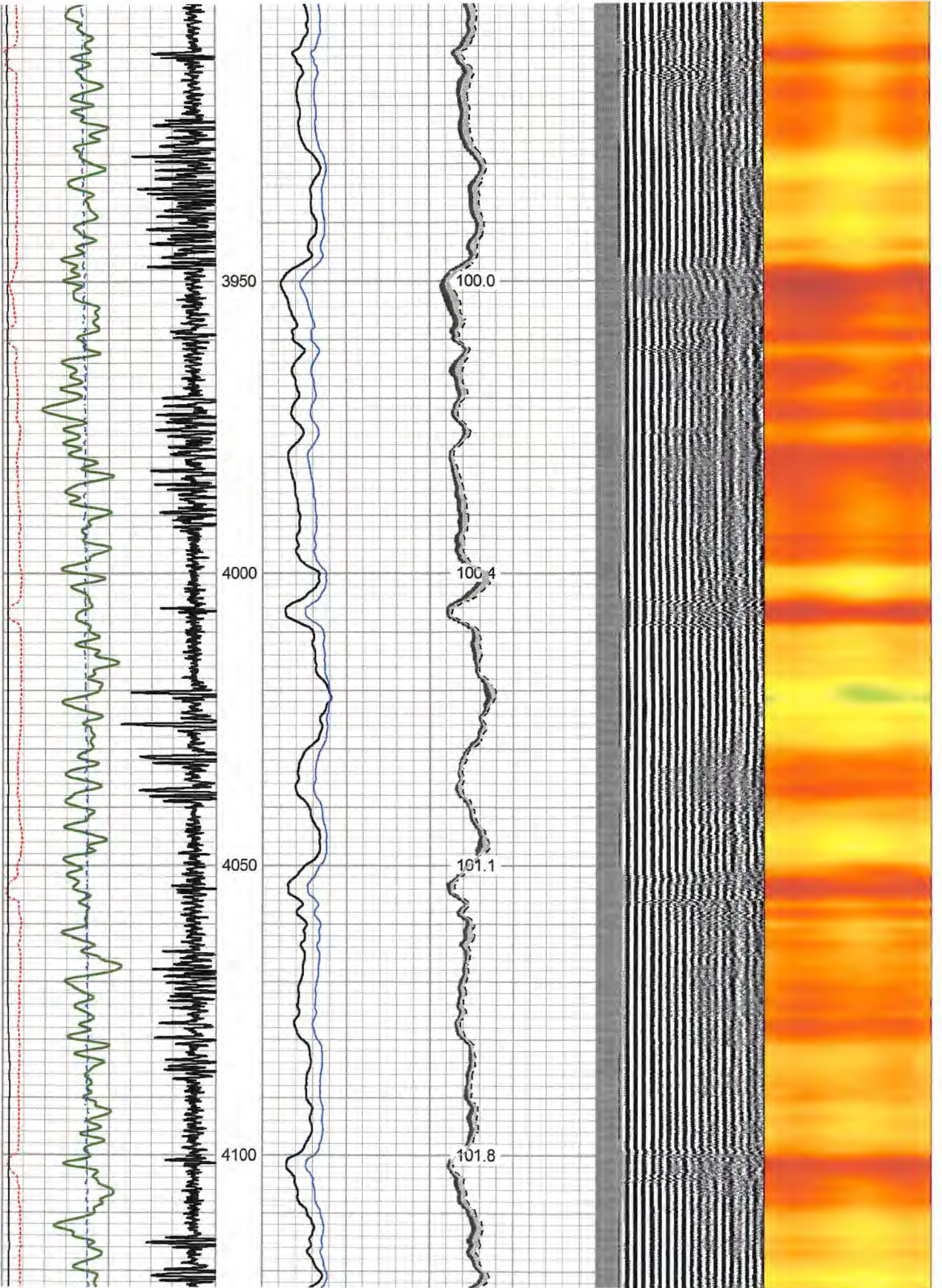


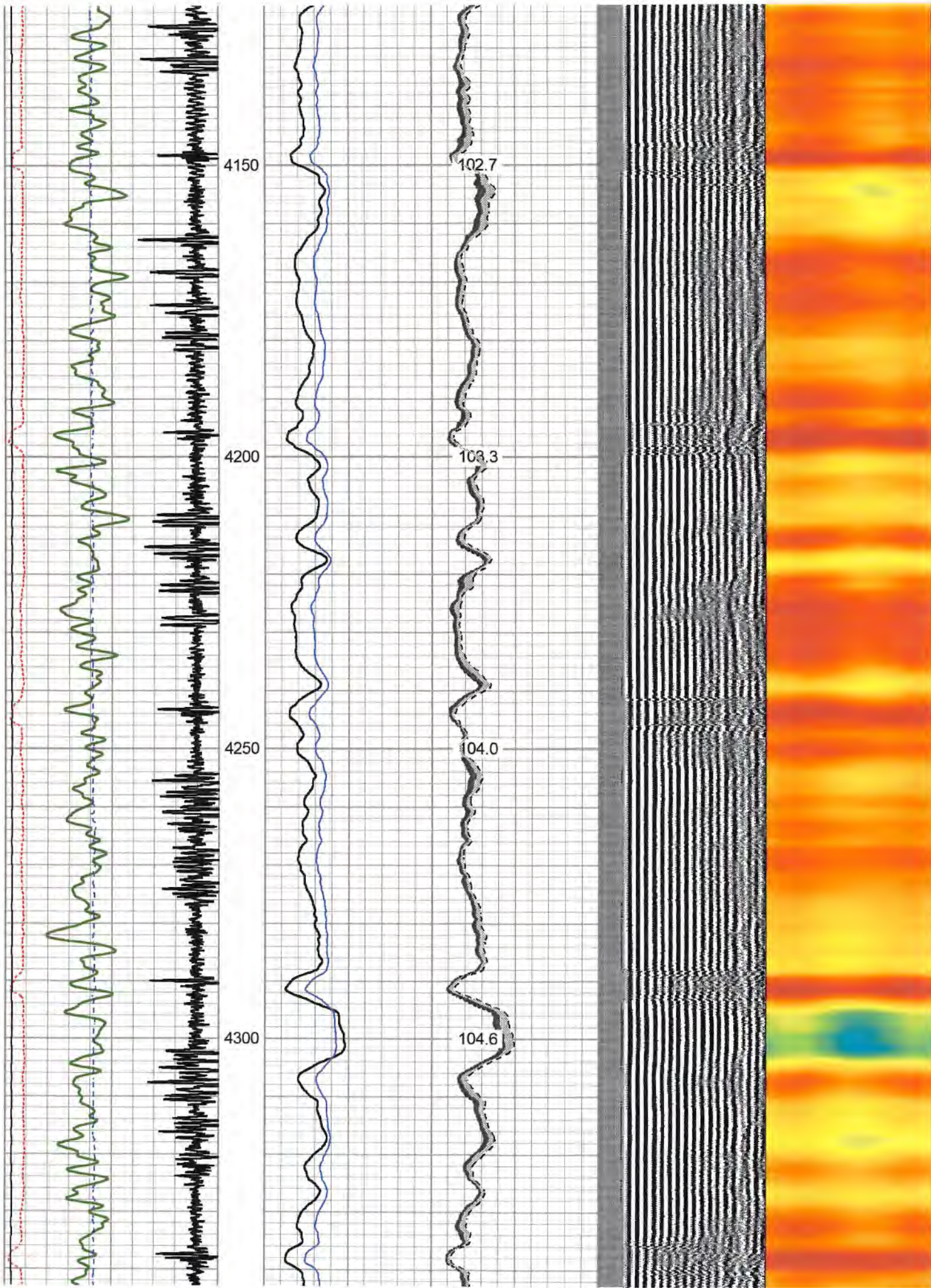


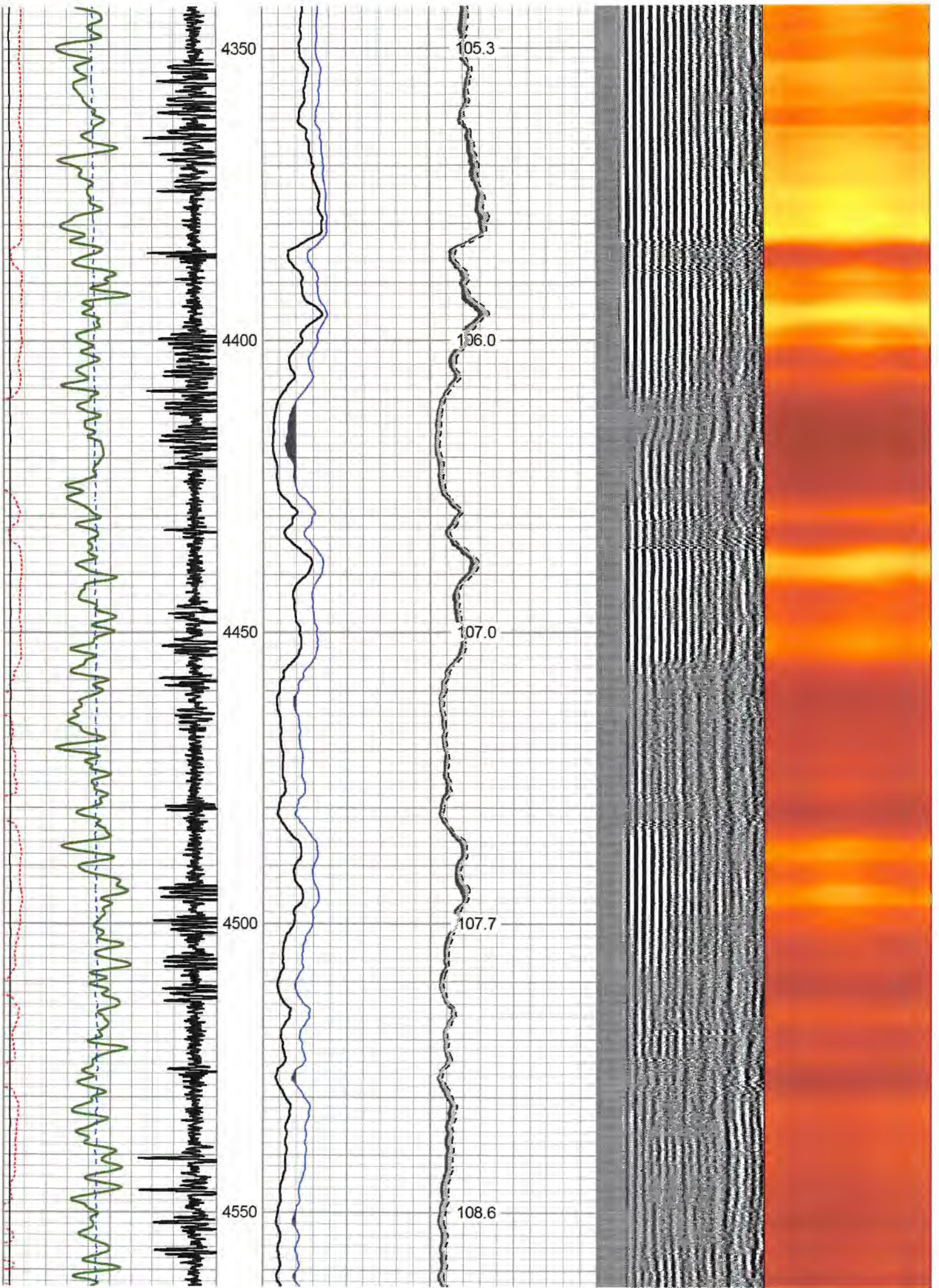


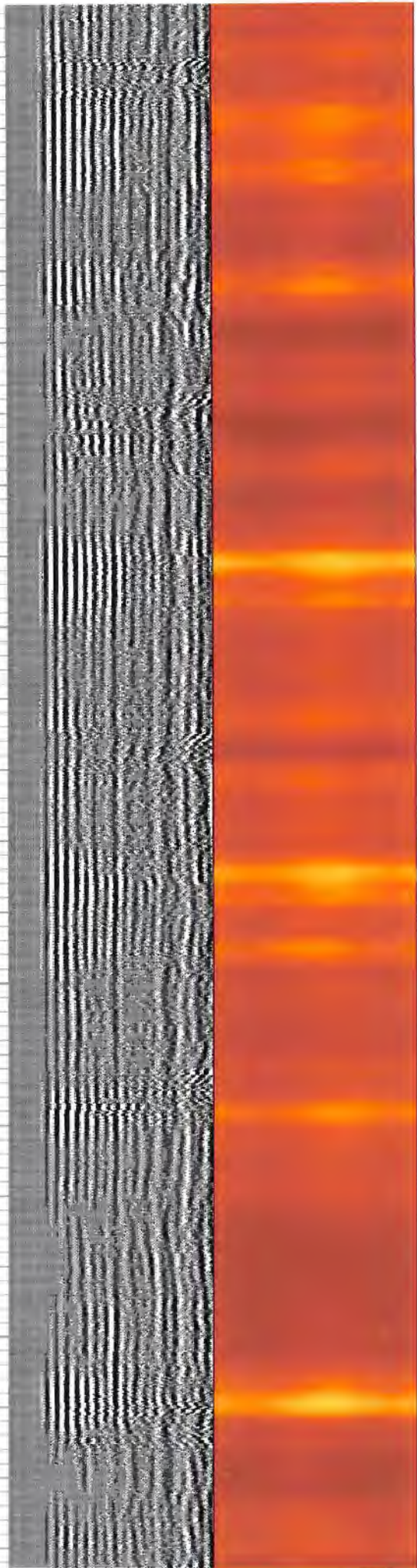
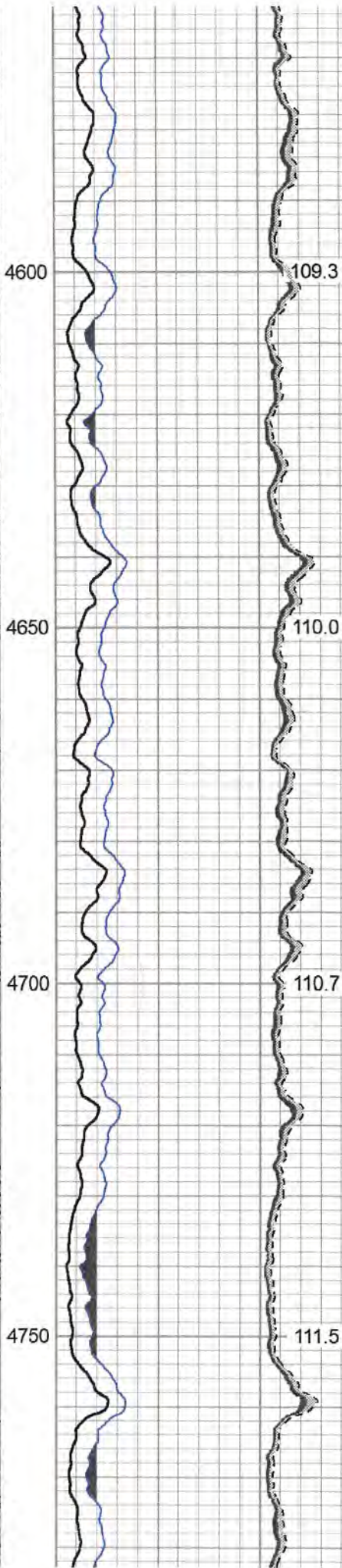
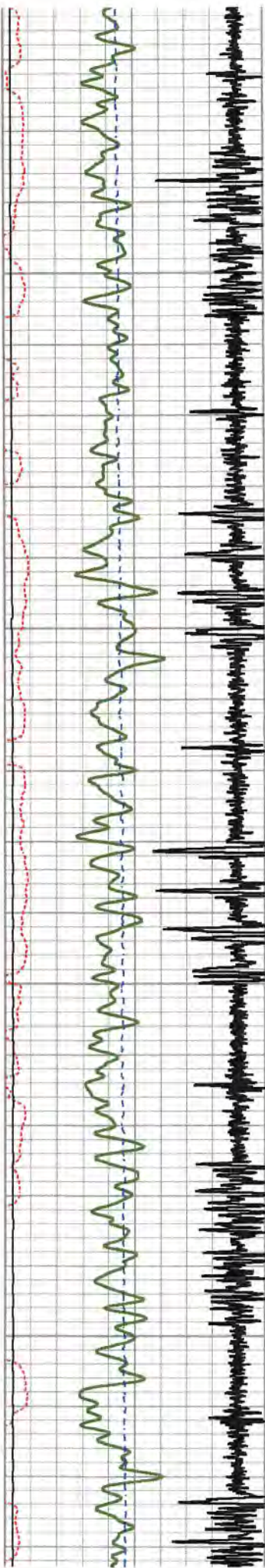


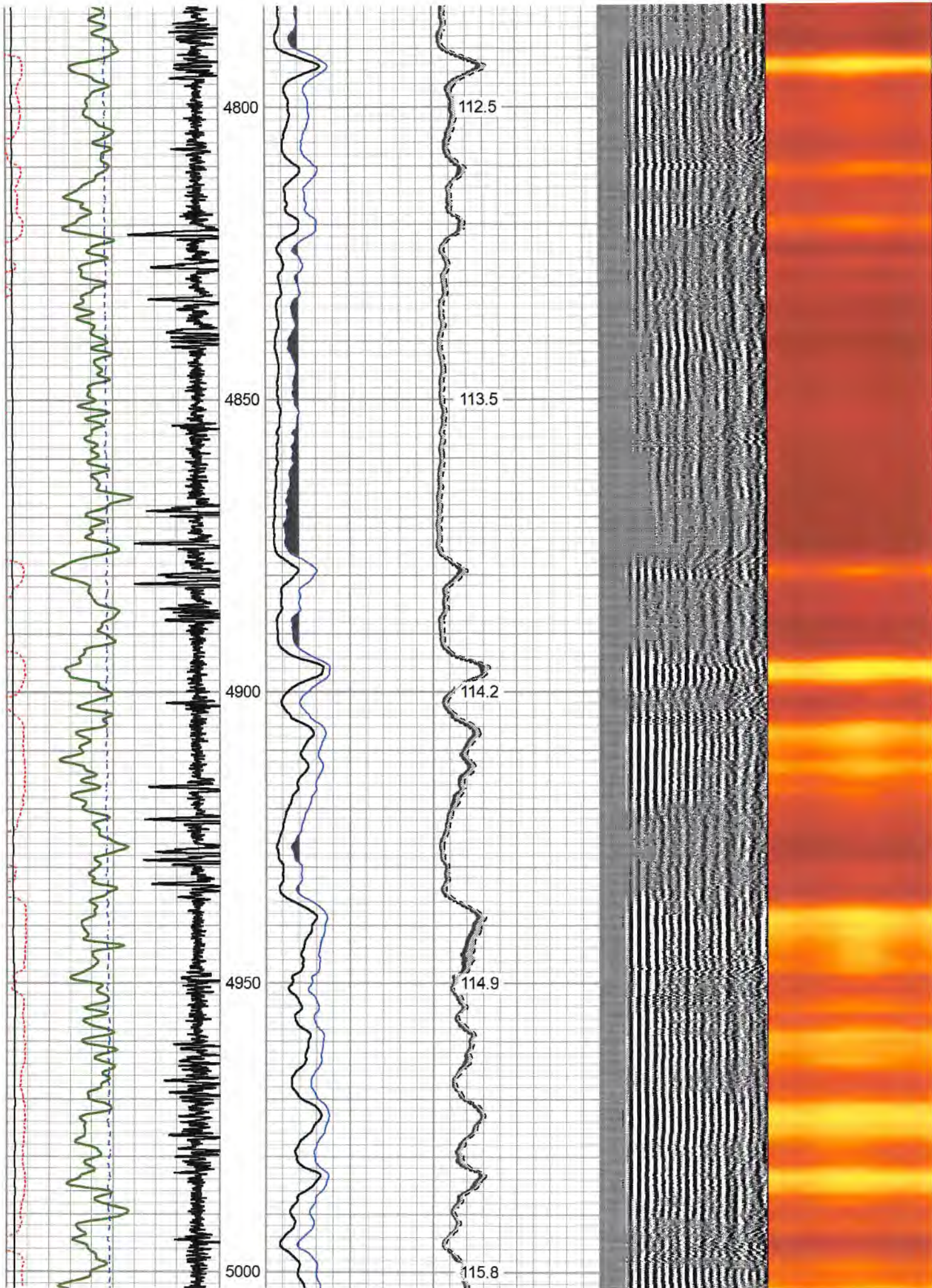


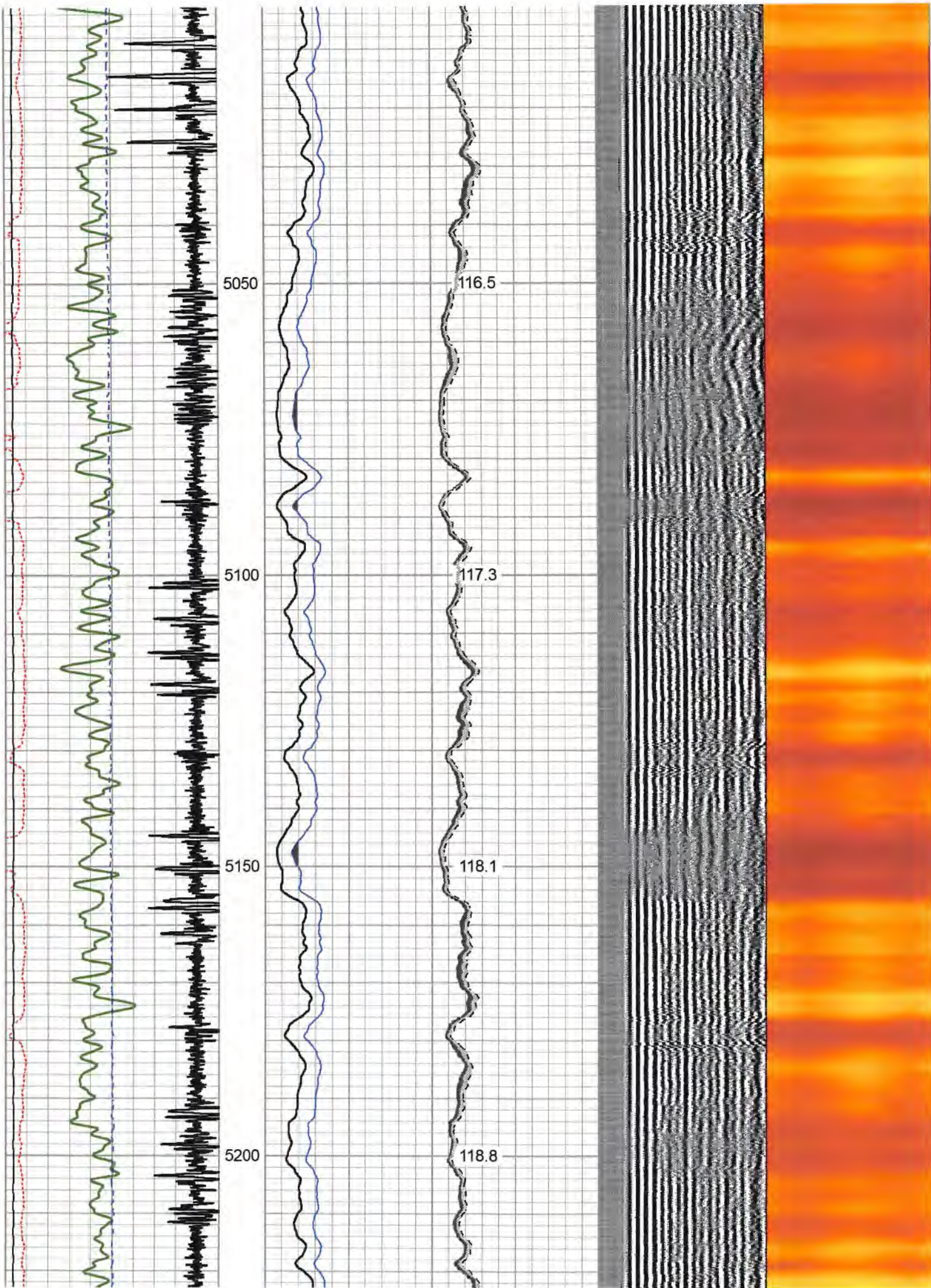


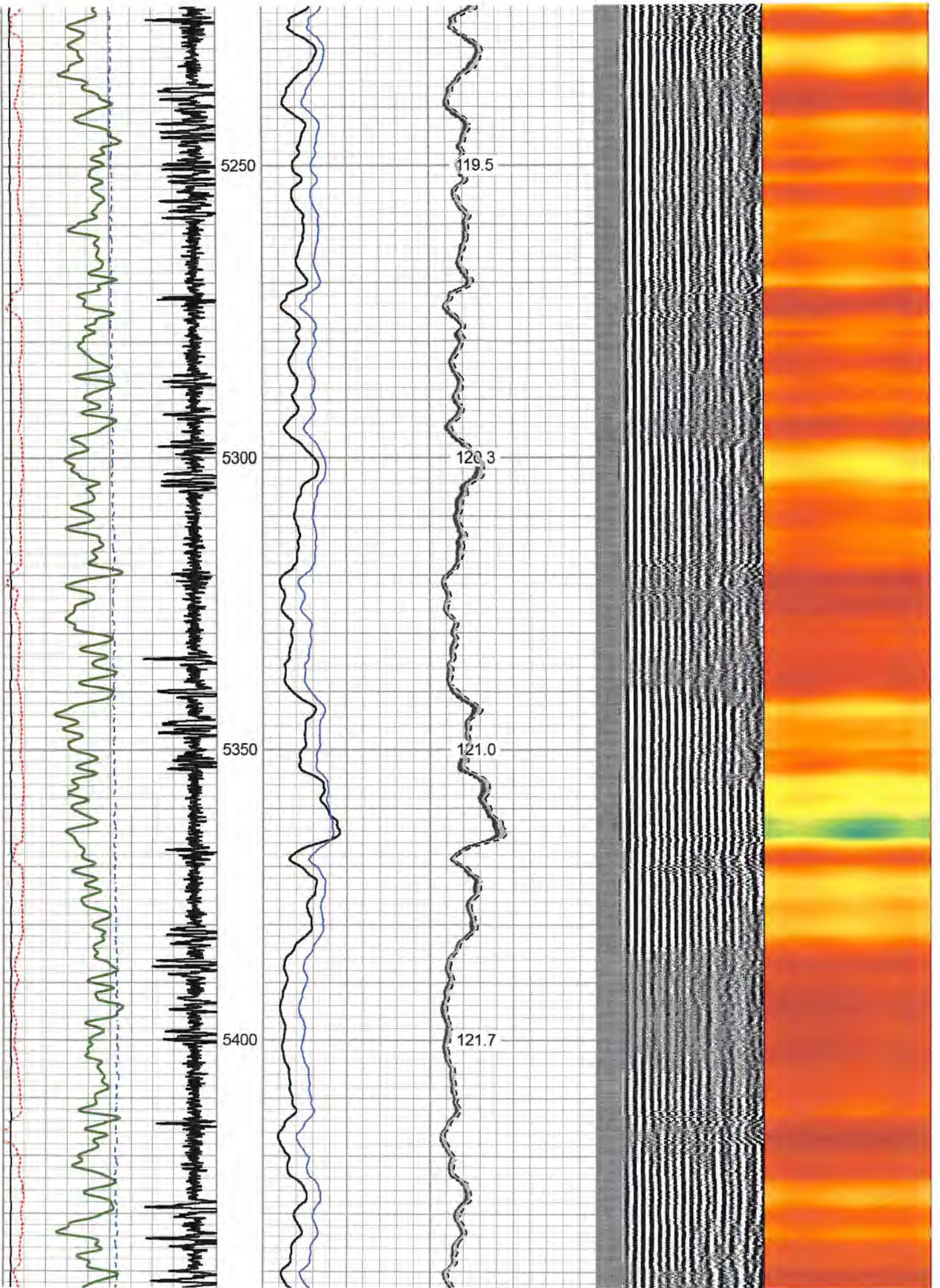


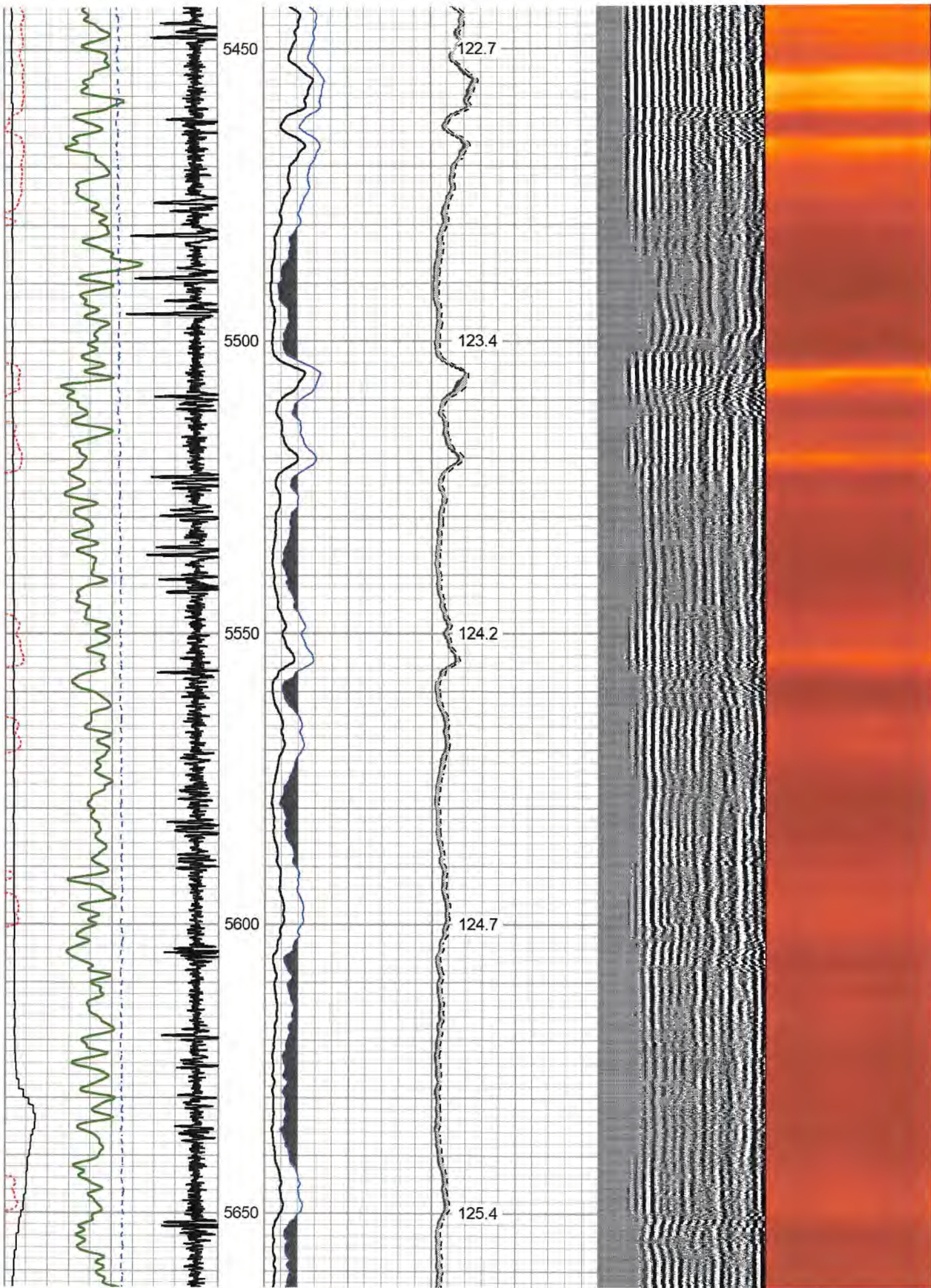


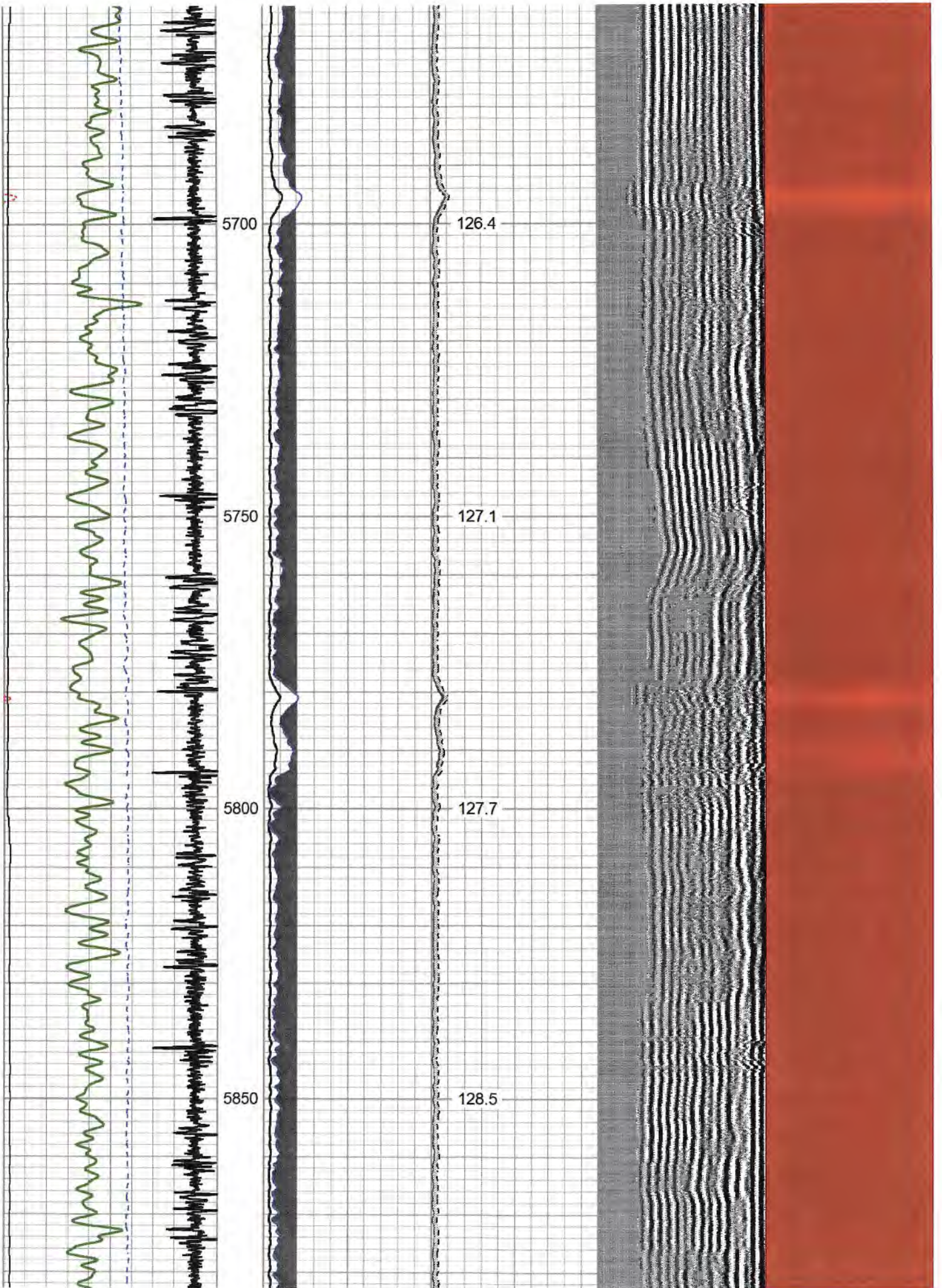


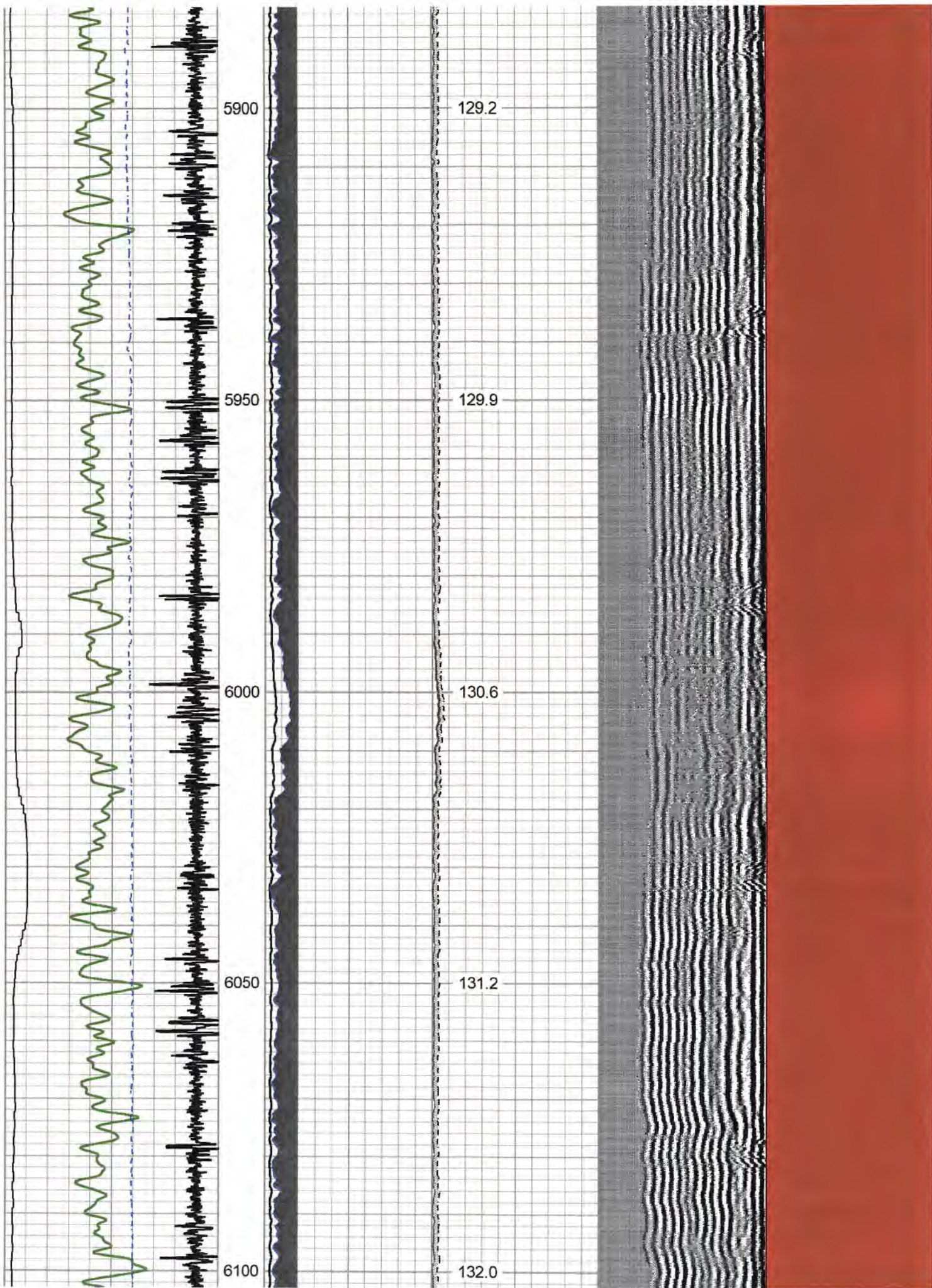


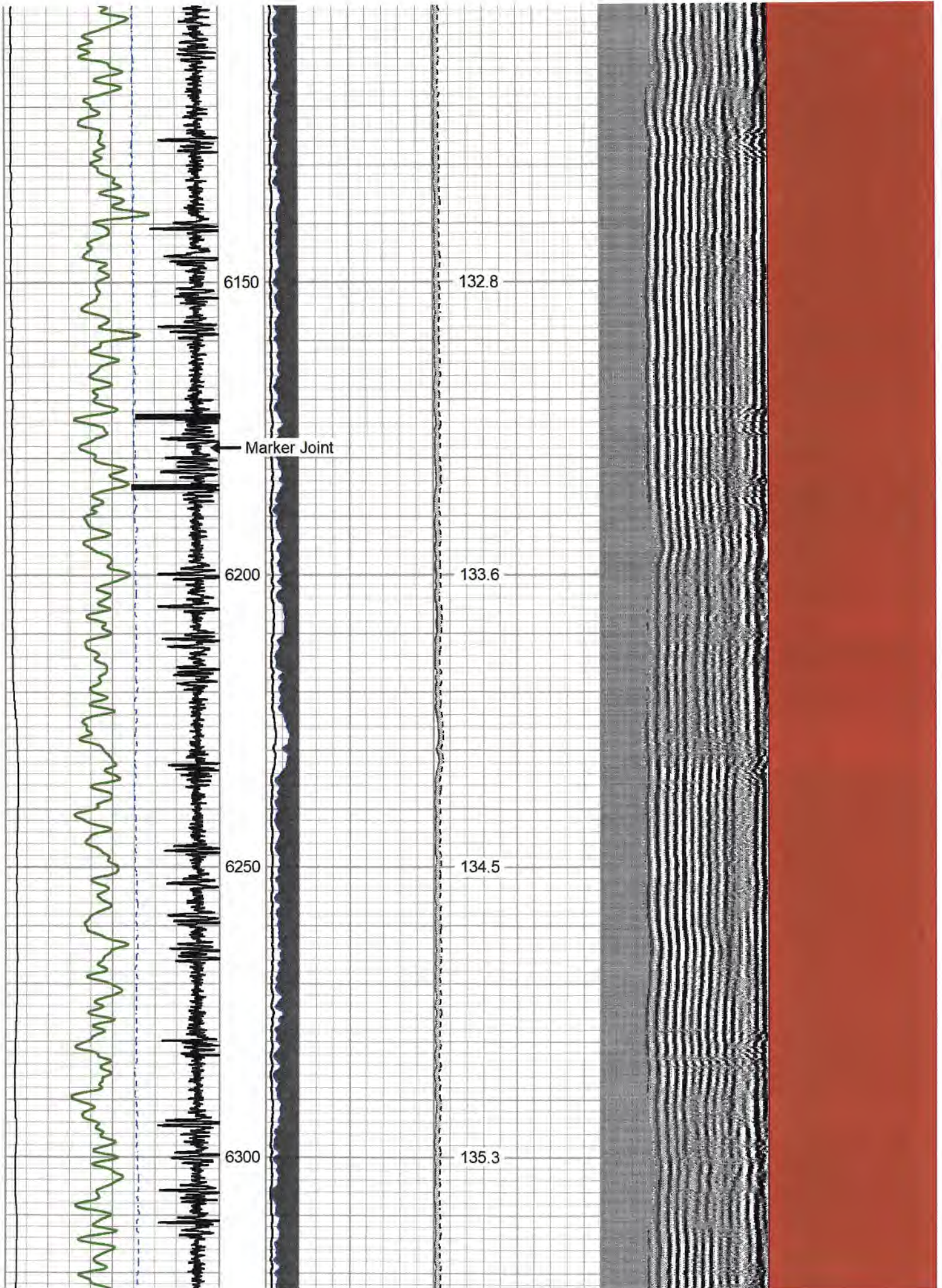


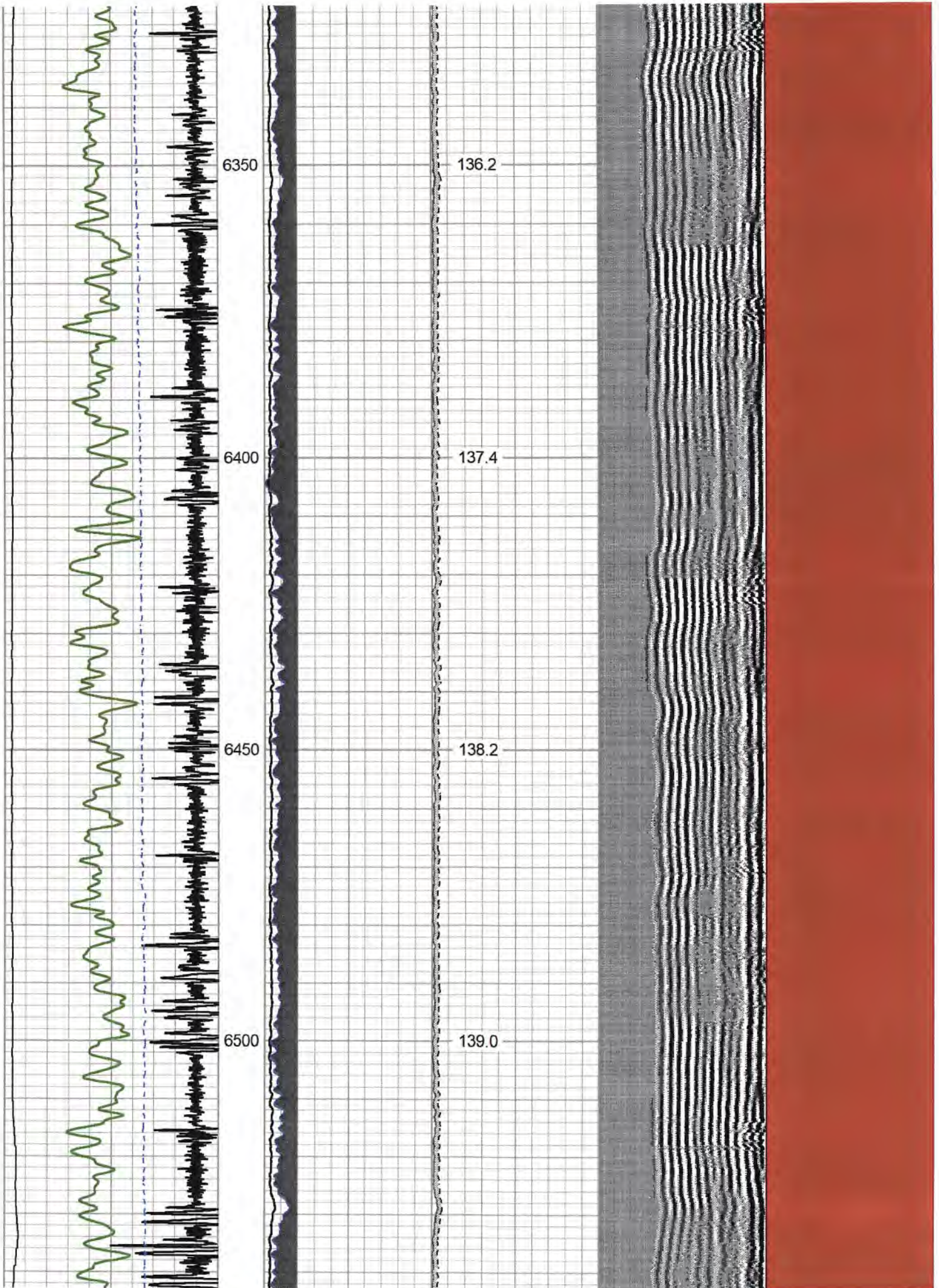


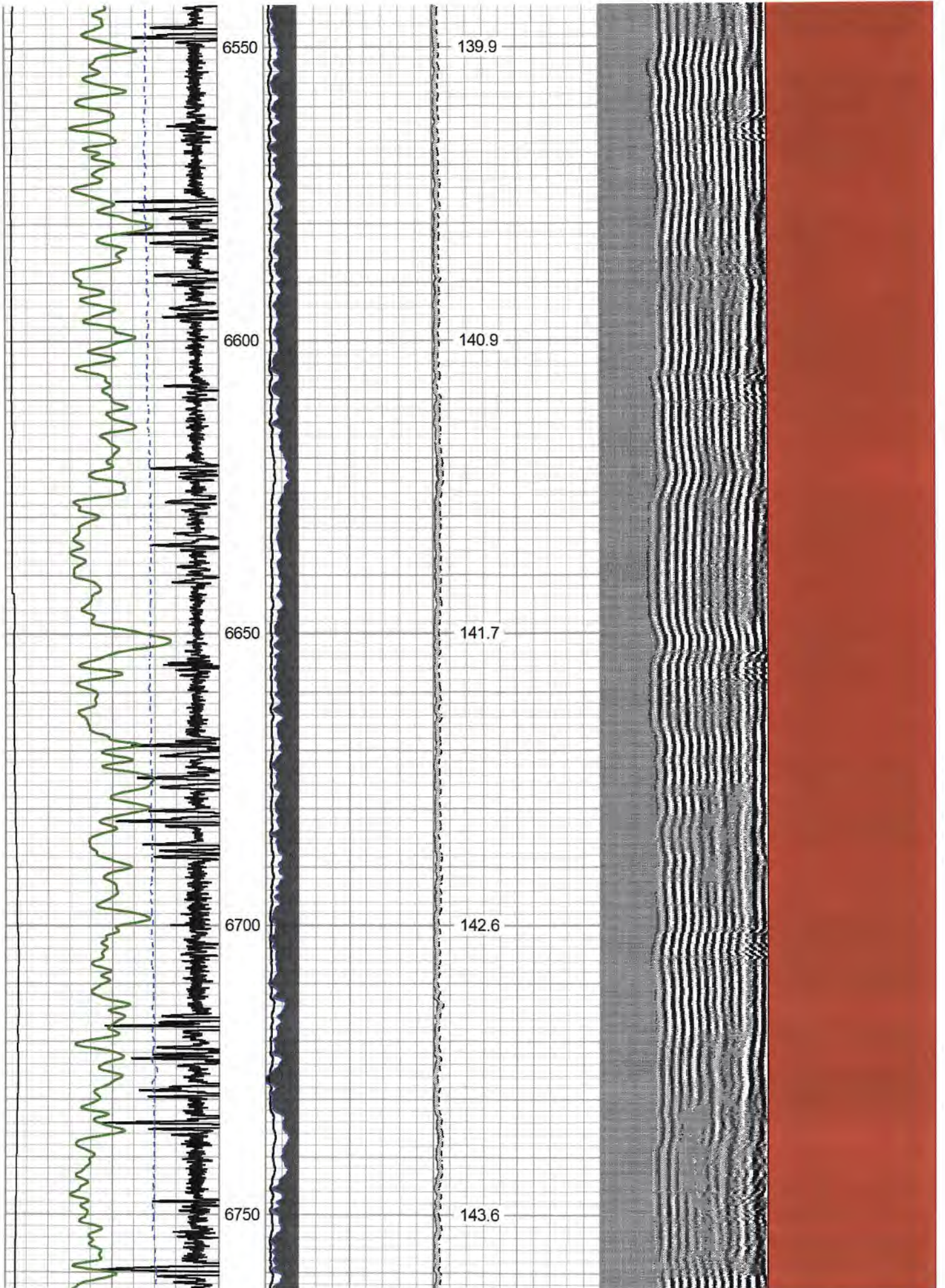


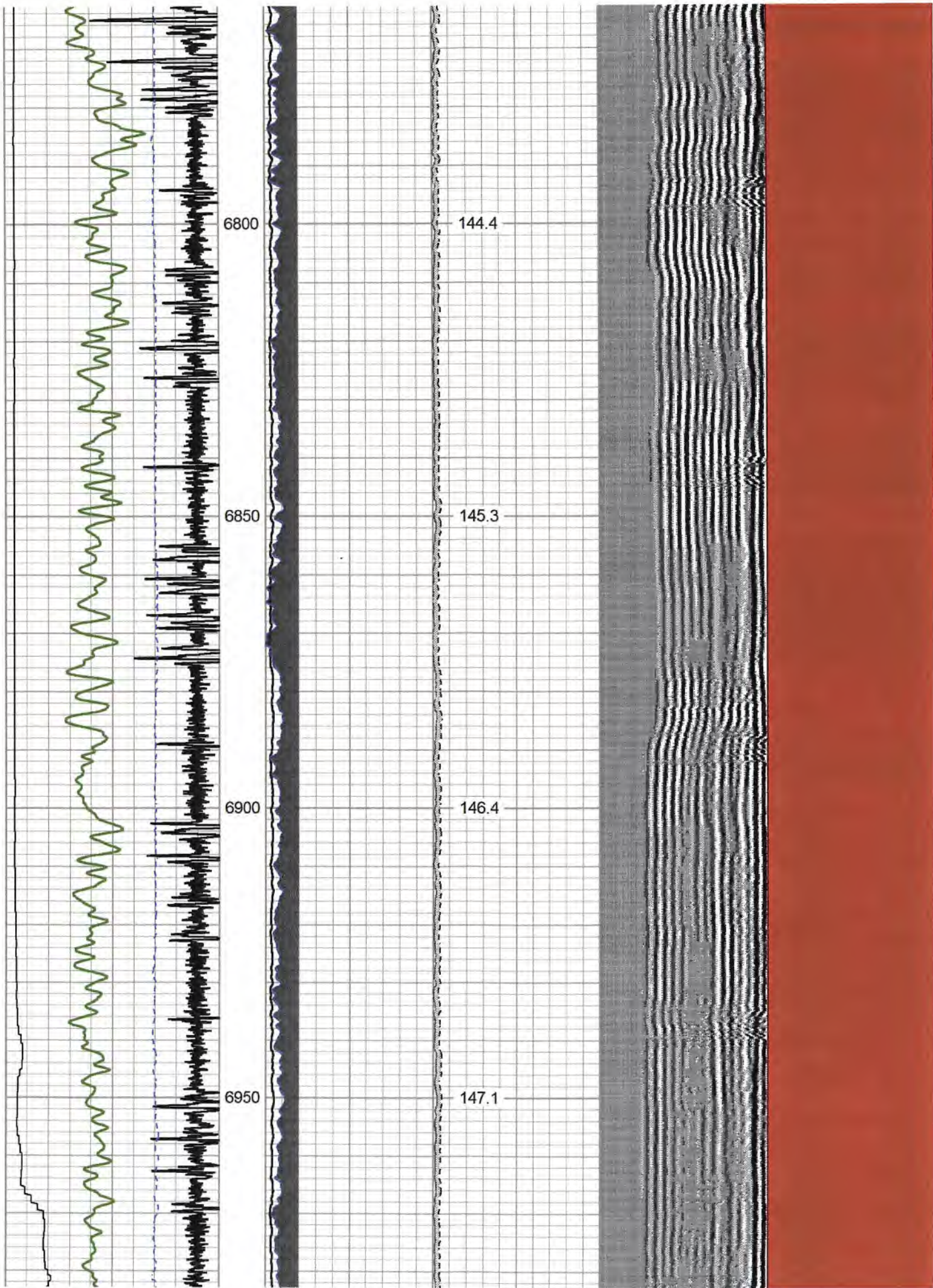


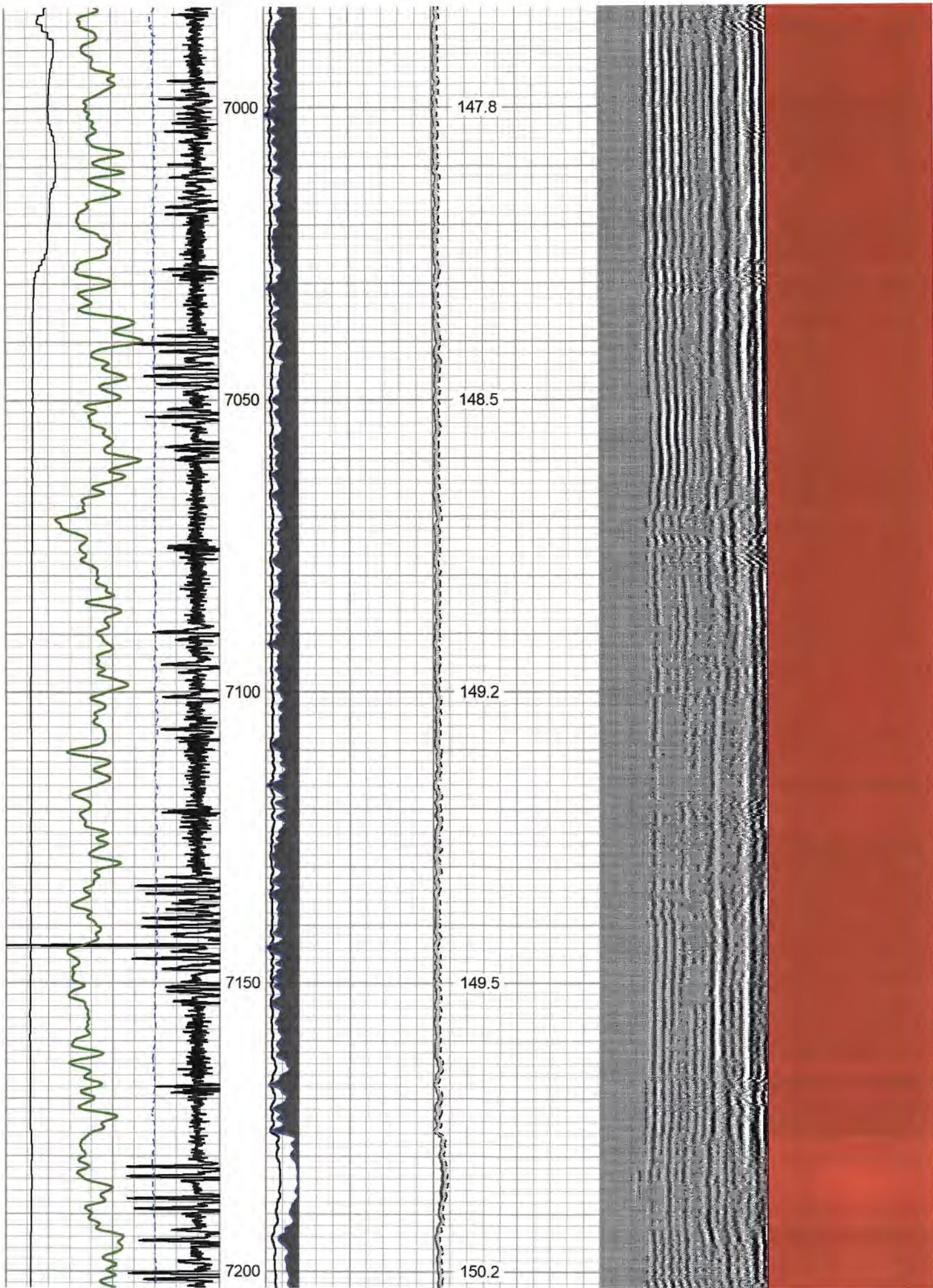










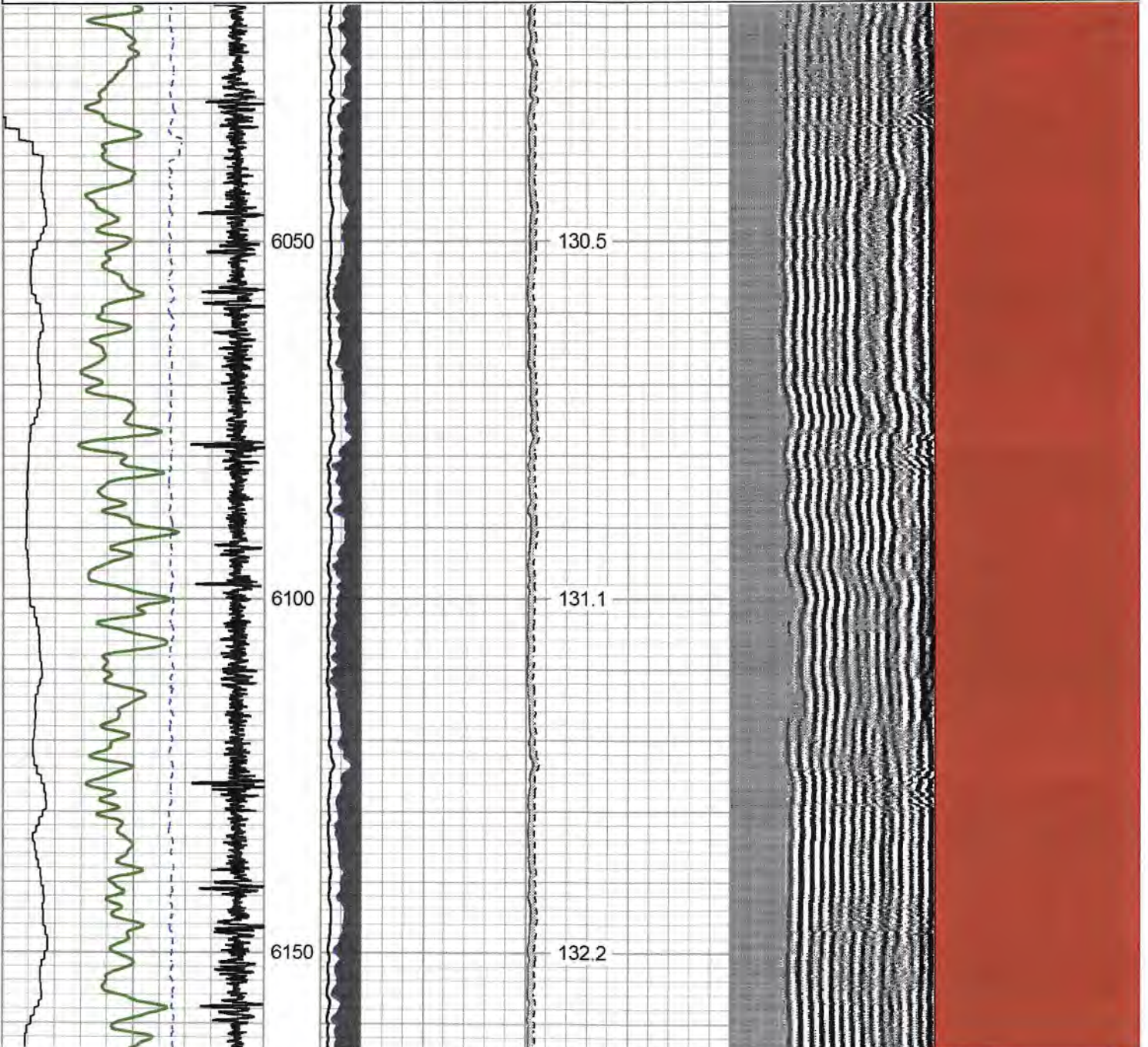


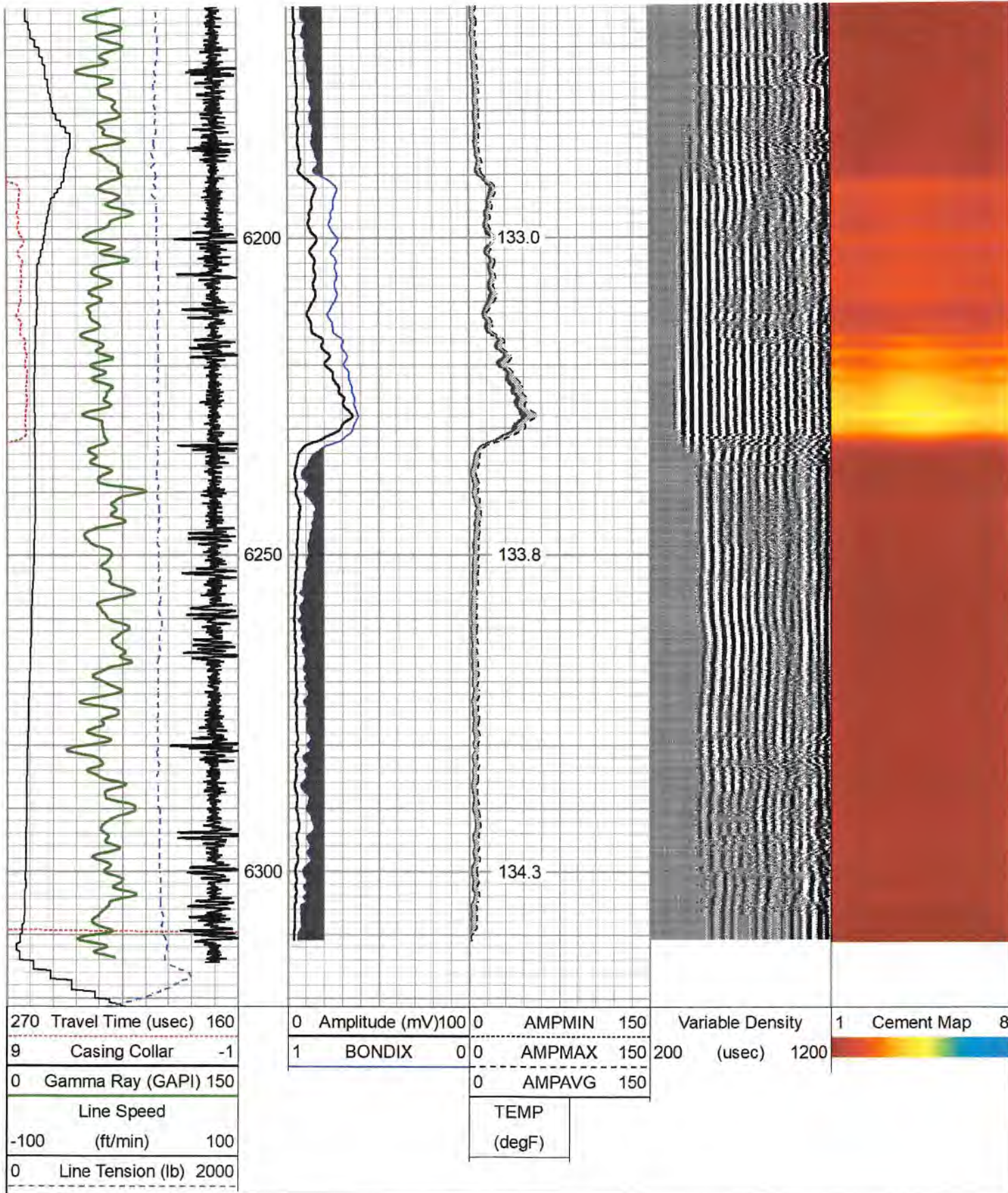


Repeat Pass 1,500 PSI

Database File antero_lemon_1h_rcbl_08_jan_2021.db
Dataset Pathname rabbit_ears/Lemon1H/run1/pass2
Presentation Format rcbl-bond index for antero 1020
Dataset Creation Fri Jan 08 13:35:13 2021
Charted by Depth in Feet scaled 1:240

270	Travel Time (usec)	160	0	Amplitude (mV)	100	0	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	0	AMPMAX	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	AMPAVG	150	0	TEMP					
	Line Speed						(degF)					
-100	(ft/min)	100										
0	Line Tension (lb)	2000										





Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero_lemon_1h_rcbl_08_jan_2021.db
 Dataset rabbit_ears/Lemon1H/run1/pass4/_vars_

Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
	in	degF	in	in	lb/ft	mV	mV
TEMP	7.875	150	5.5	0.361	20	71.9	2.2

MINATTN db/ft 10.8	PERFS No	PPT usec 261	SRFTEMP degF 36	TDEPTH ft 7348
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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_lemon_1h_rcbl_08_jan_2021.db
Dataset Pathname rabbit_ears/Lemon1H/run1/pass4
Dataset Creation Fri Jan 08 13:45:15 2021

Gamma Ray Calibration Report

Serial Number: FW1211-86
Tool Model: Probe
Performed: Mon Nov 30 11:58:15 2020

Calibrator Value: 1.0 GAPI
Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.5000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1312-32
Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in
Calibration Depth: 115.425 ft

Master Calibration, performed Fri Jan 08 10:39:23 2021:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.015	0.996	2.200	71.921	68.939	3.242
CAL	0.081	0.845				
5'	-0.015	0.891	2.200	71.921	76.918	3.359
SUM						
S1	-0.015	1.036	0.000	100.000	95.160	1.415
S2	-0.014	1.056	0.000	100.000	93.488	1.266
S3	-0.011	1.052	0.000	100.000	94.048	1.050
S4	-0.012	1.015	0.000	100.000	97.390	1.164
S5	-0.013	0.991	0.000	100.000	99.647	1.249
S6	-0.013	0.962	0.000	100.000	102.594	1.297
S7	-0.015	0.941	0.000	100.000	104.564	1.570
S8	-0.013	0.971	0.000	100.000	101.663	1.335

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

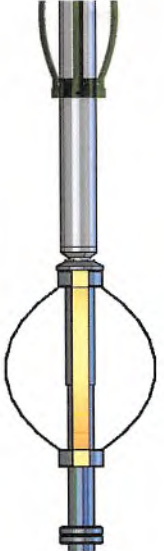
Raw (v)	Calibrated (v)	Results
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	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.081	0.845	1.000	0.000

Air Zero Calibration, performed Fri Jan 08 09:44:33 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)
HeadVolt	16.99		CHD-Titan Titan 1 7/16" GO Cablehead	1.00	1.44	5.00
Temp	14.14		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
WVFS8	11.91		RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS7	11.91					
WVFS6	11.91					
WVFS5	11.91					
WVFS4	11.91					
WVFS3	11.91					
WVFS2	11.91					
WVFS1	11.91					
WVF3FT	11.91					
WVF5FT	10.91					
WVFCAL HEADVOLT	7.66 7.66					
CCL	6.75					
CB	5.42					

GR	3.42		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
			GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
			CENT-Probe275 2.75" Centralizer	2.88	2.75	20.00

Dataset: antero_lemon_1h_rcbl_08_jan_2021.db: rabbit_ears/Lemon1H/run1/pass4
 Total length: 18.05 ft
 Total weight: 182.00 lb
 O.D.: 4.88 in

	Company	ANTERO	
	Well	Margery Lemon 1H	
	Field	RABBIT EARS	
	County	TYLER	
	State	WEST VIRGINIA	Country