



Nine

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

Company Antero Resources

Well OXFD 13 CHS

Field N/A

County Doddridge

State West Virginia

Location: API #: 47-017-06576

Other Services

SEC TWP RGE

Elevation

Permanent Datum Ground Level Elevation
Log Measured From Kelly Bushing 30 ft.
Drilling Measured From Kelly Bushing

K.B.
D.F.
G.L.

Company Antero Resources
Well OXFD 13 CHS
Field N/A
County Doddridge
State West Virginia

Date 12-Feb-2020

Run Number One

Depth Driller N/A

Depth Logger 7,090 ft.

Bottom Logged Interval 7,090 ft.

Top Log Interval Surface

Open Hole Size N/A

Type Fluid Water

Density / Viscosity N/A

Max. Recorded Temp. 152 Deg. F.

Estimated Cement Top 2,750 ft.

Time Well Ready 09:00

Time Logger on Bottom 11:35

Equipment Number 143

Location Marietta, Ohio

Recorded By Tom Weese

Witnessed By Jay

Run Number

Bit From To

Size From To

Weight From To

Wgt/Ft

Top Bottom

Surface String

Production String 5 1/2 in. 20 lbs. Surface N/A

Prot. String

Surface String

Casing Record

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 @ 6,407 - 6,418

Main Pass 1,500 PSI
Repeat Pass 0 PSI

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

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AUG 10 2020

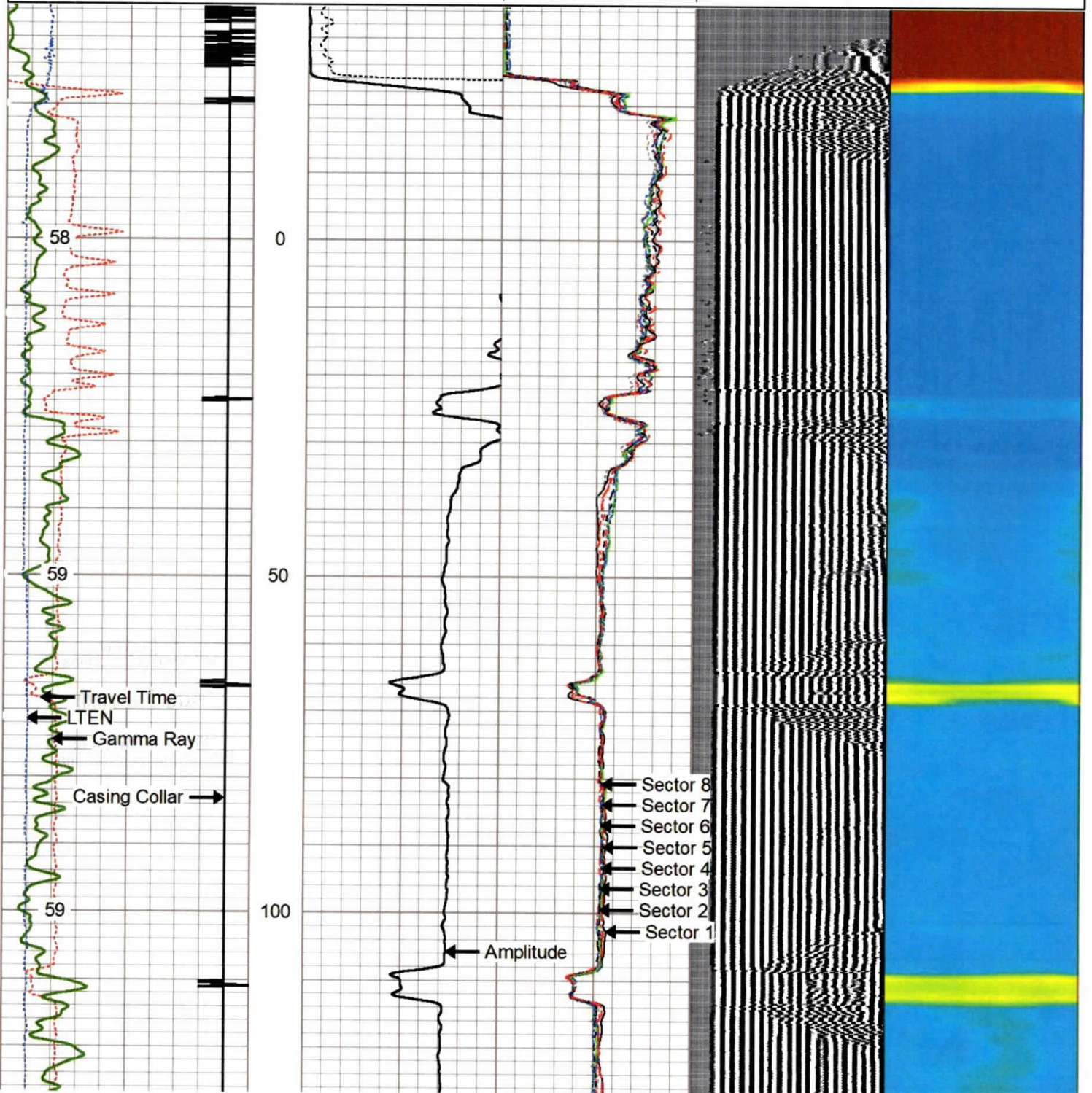
WV Department of
Environmental Protection

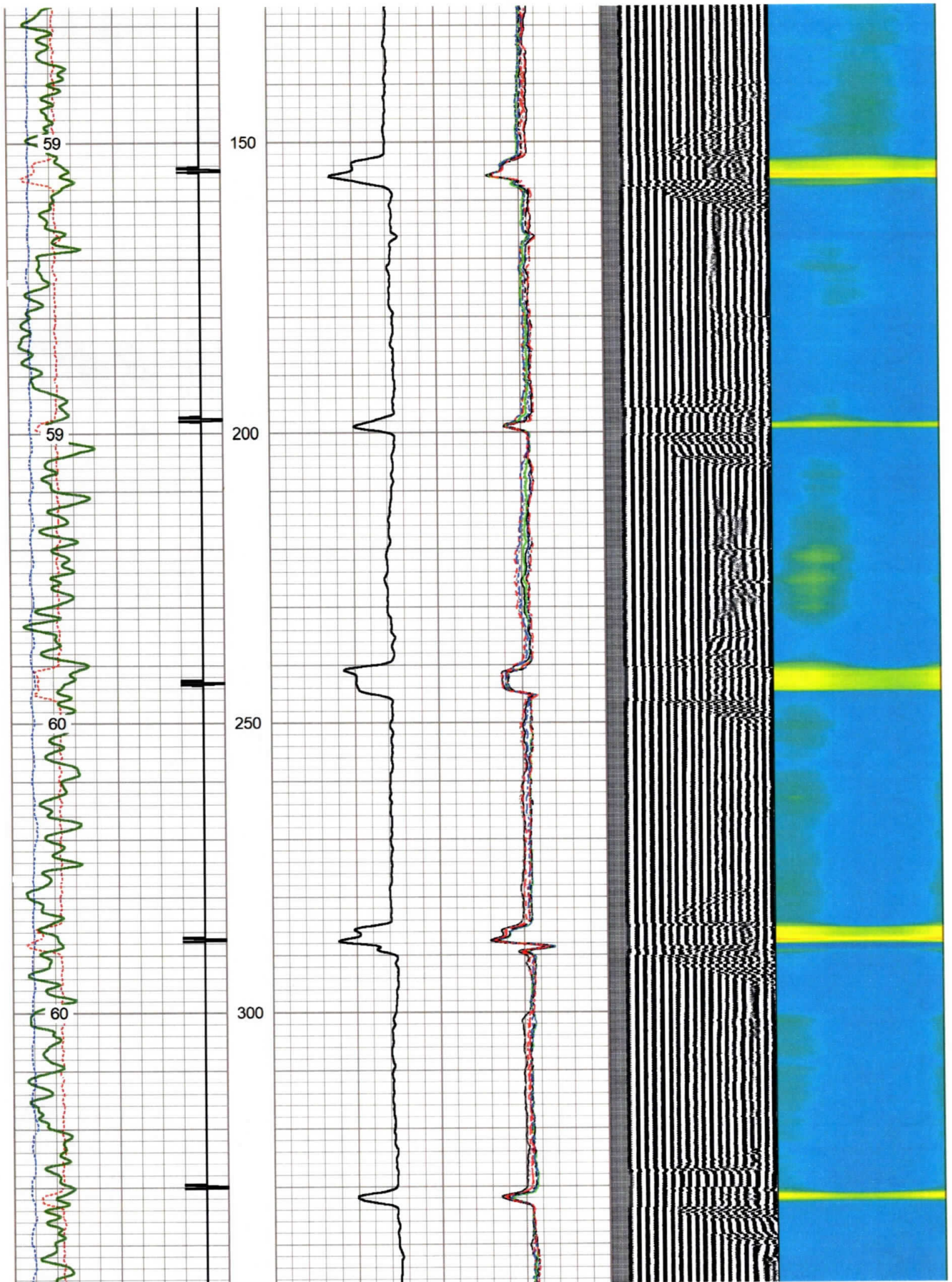


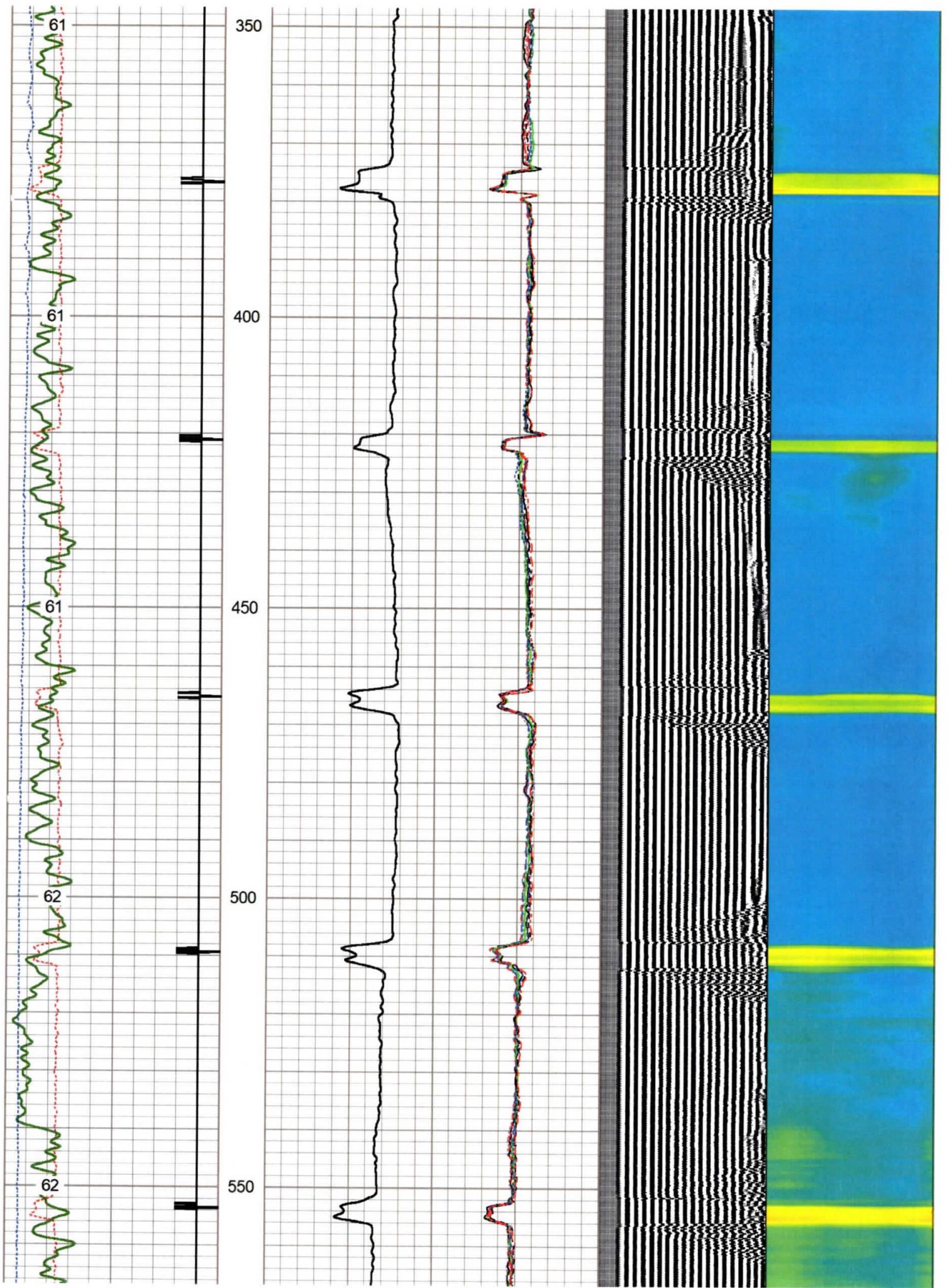
Main Pass 1,500 PSI

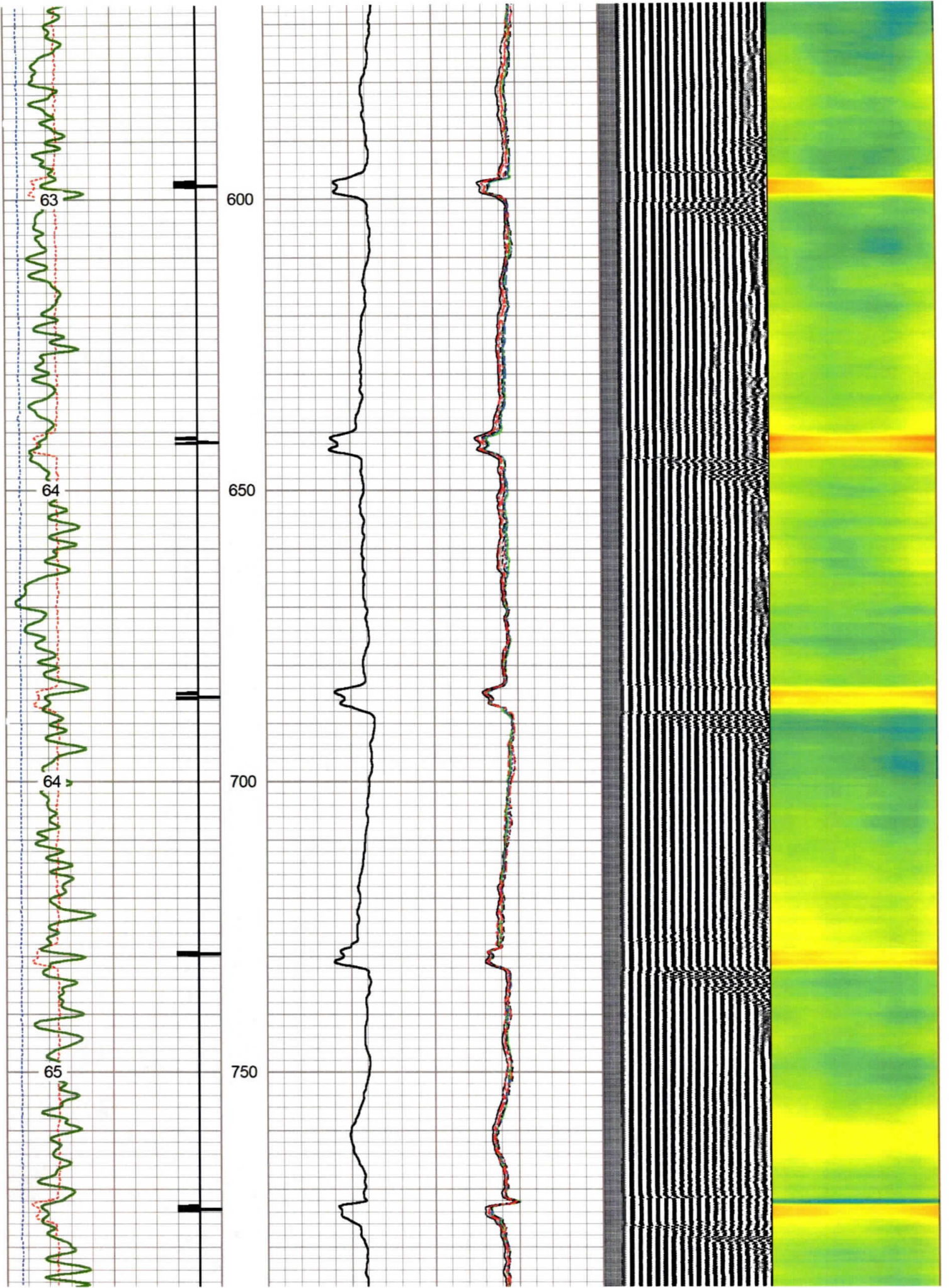
Database File antero_oxfd_13_chs_rcbl_nineenergy_12_feb_2020.db
 Dataset Pathname Marcellus/OXFD_13_CHS/run1/merge1.1
 Presentation Format scbl03
 Dataset Creation Wed Feb 12 21:52:02 2020
 Charted by Depth in Feet scaled 1:240

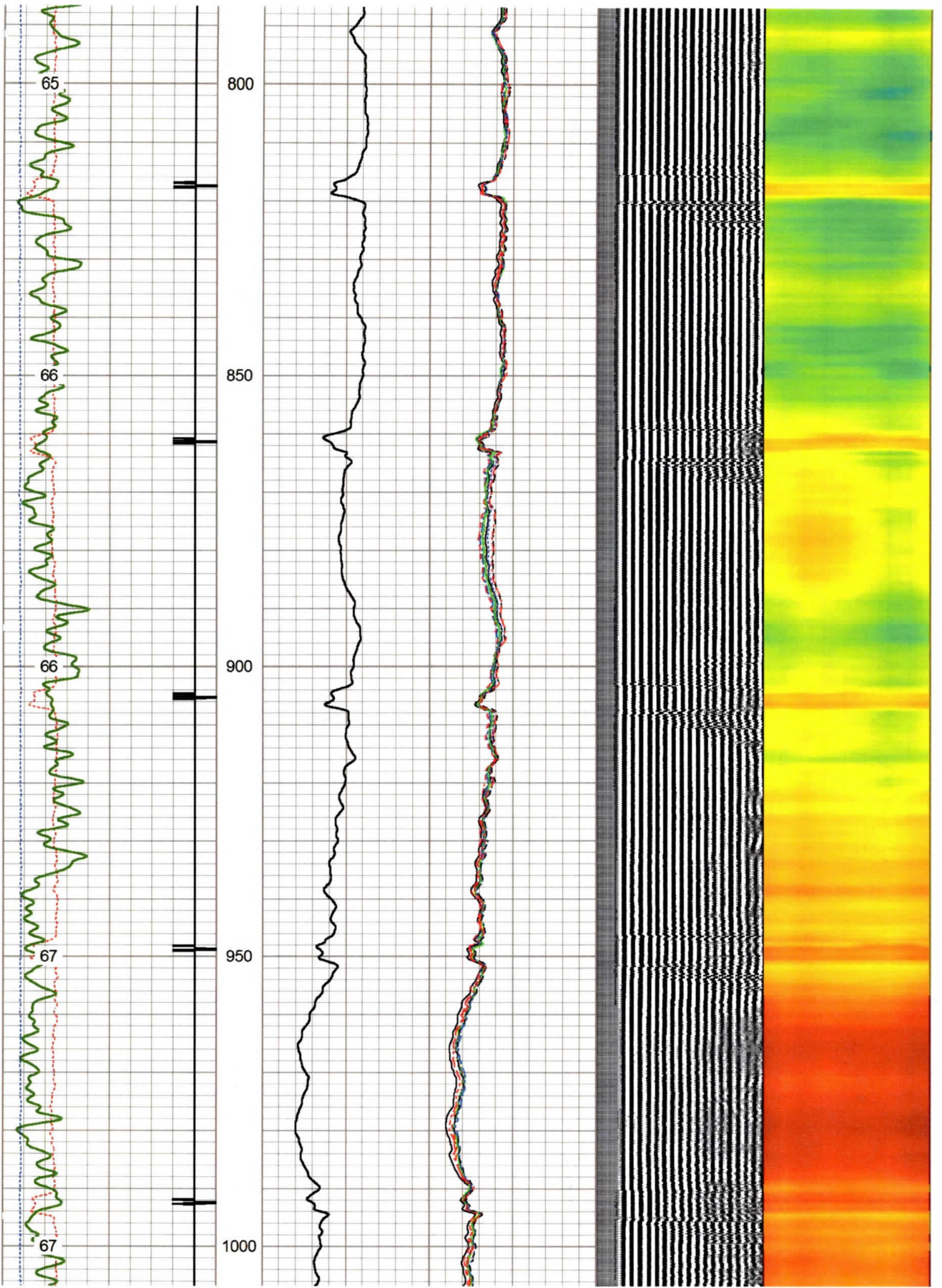
250	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
Casing Collar			Amplified Amplitude			-5	Sector 2	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500										
Temp (degF)												
						-5	Sector 4	150				
						-5	Sector 5	150				
						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				

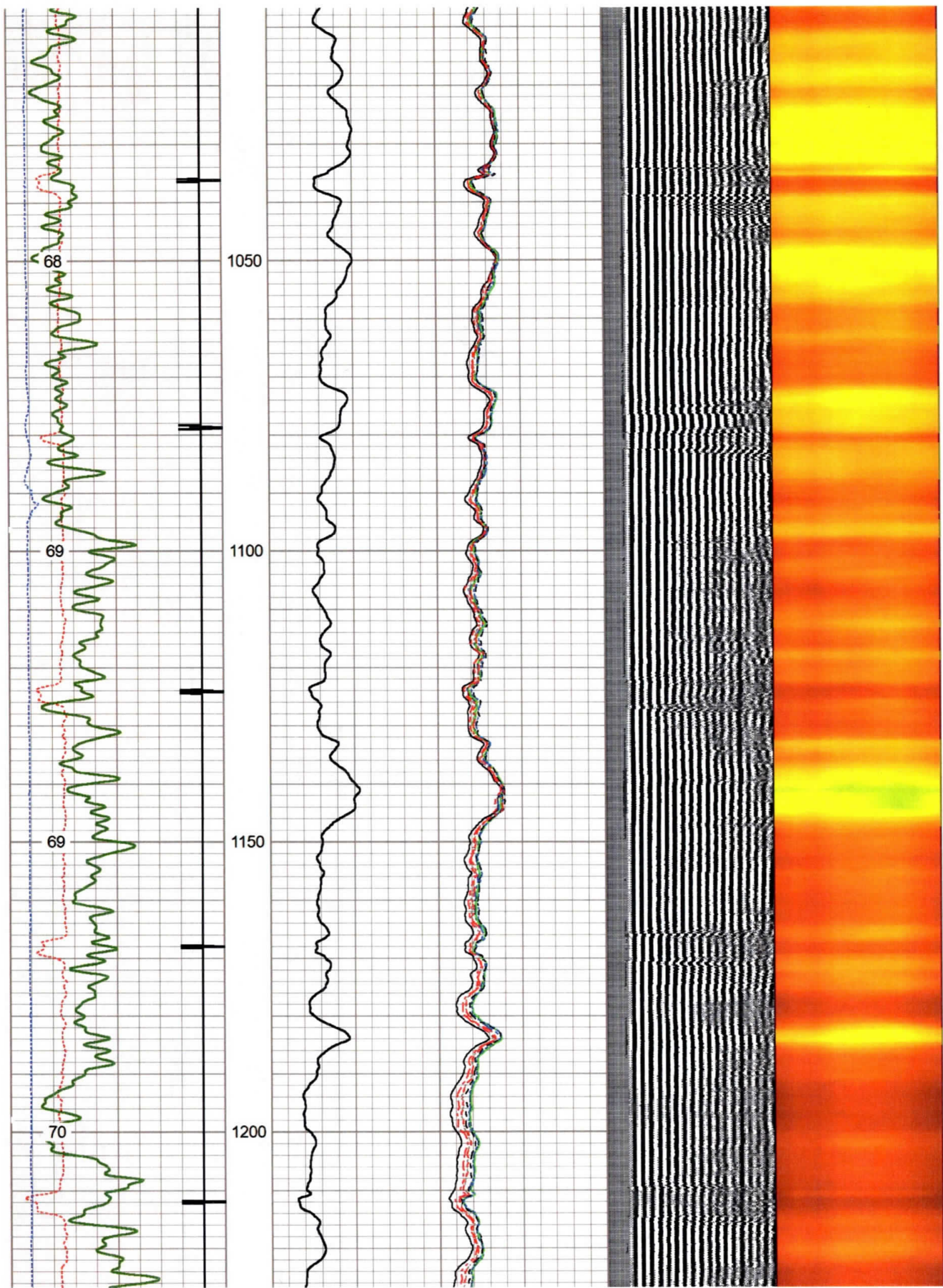


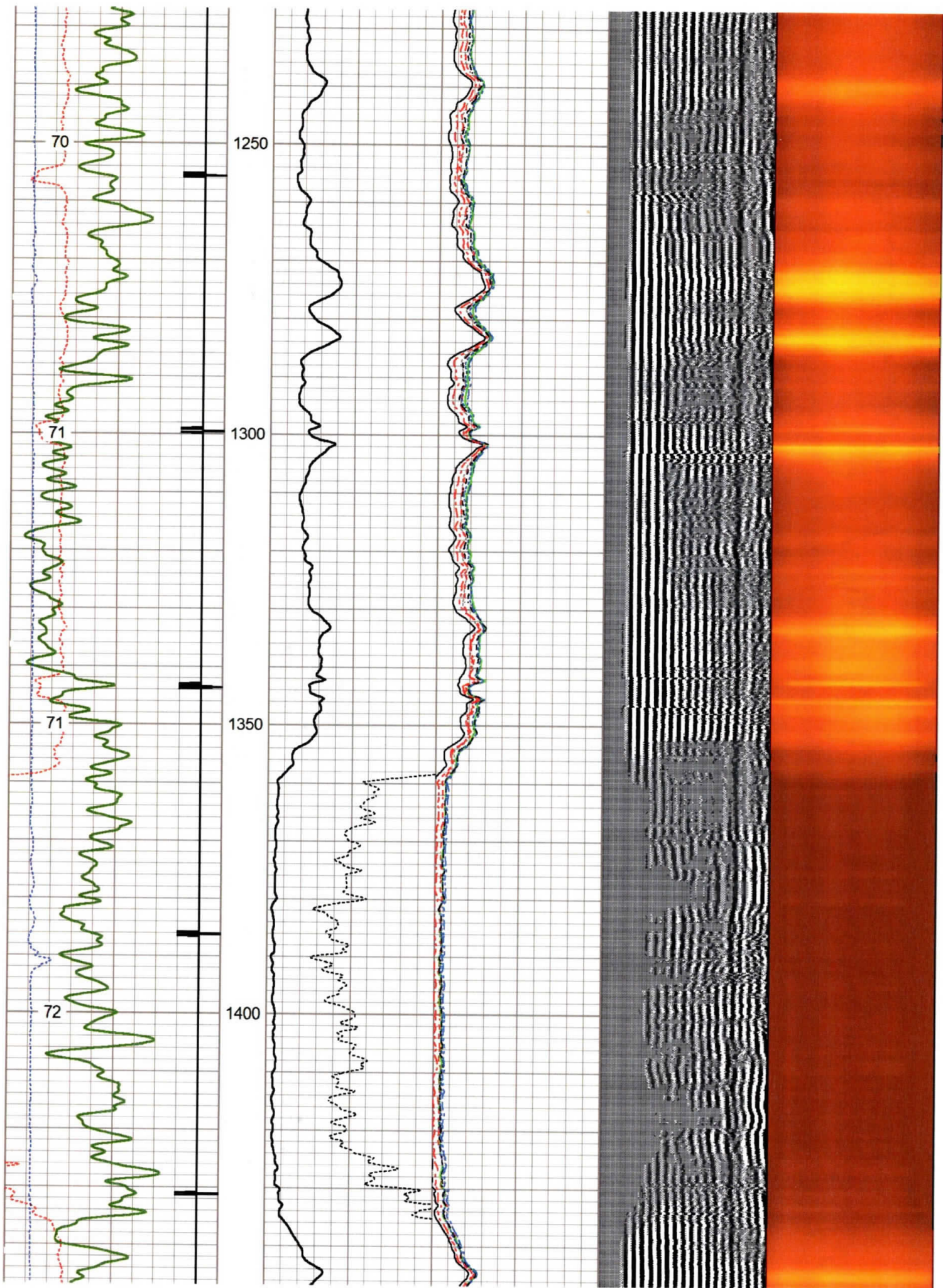


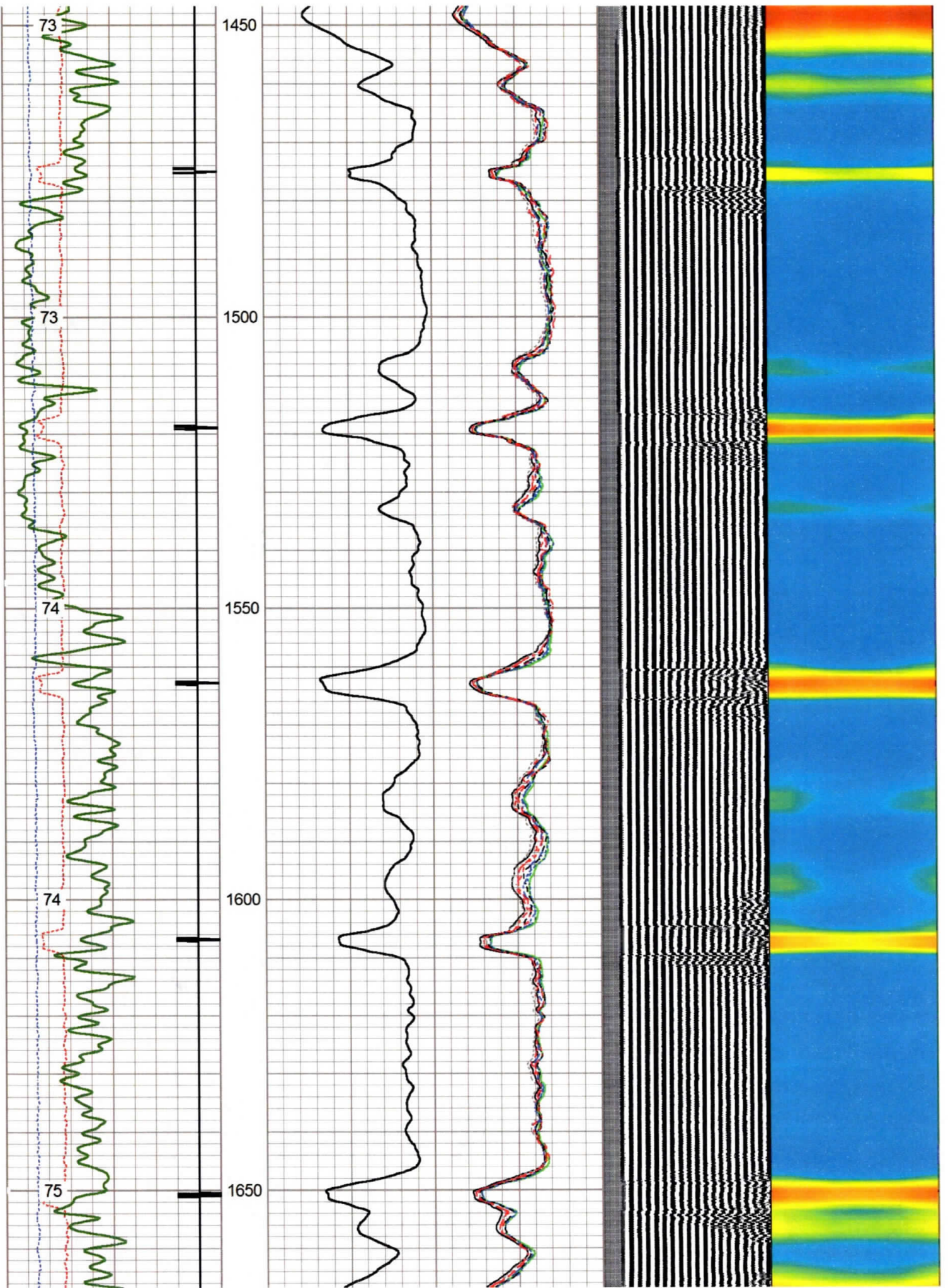


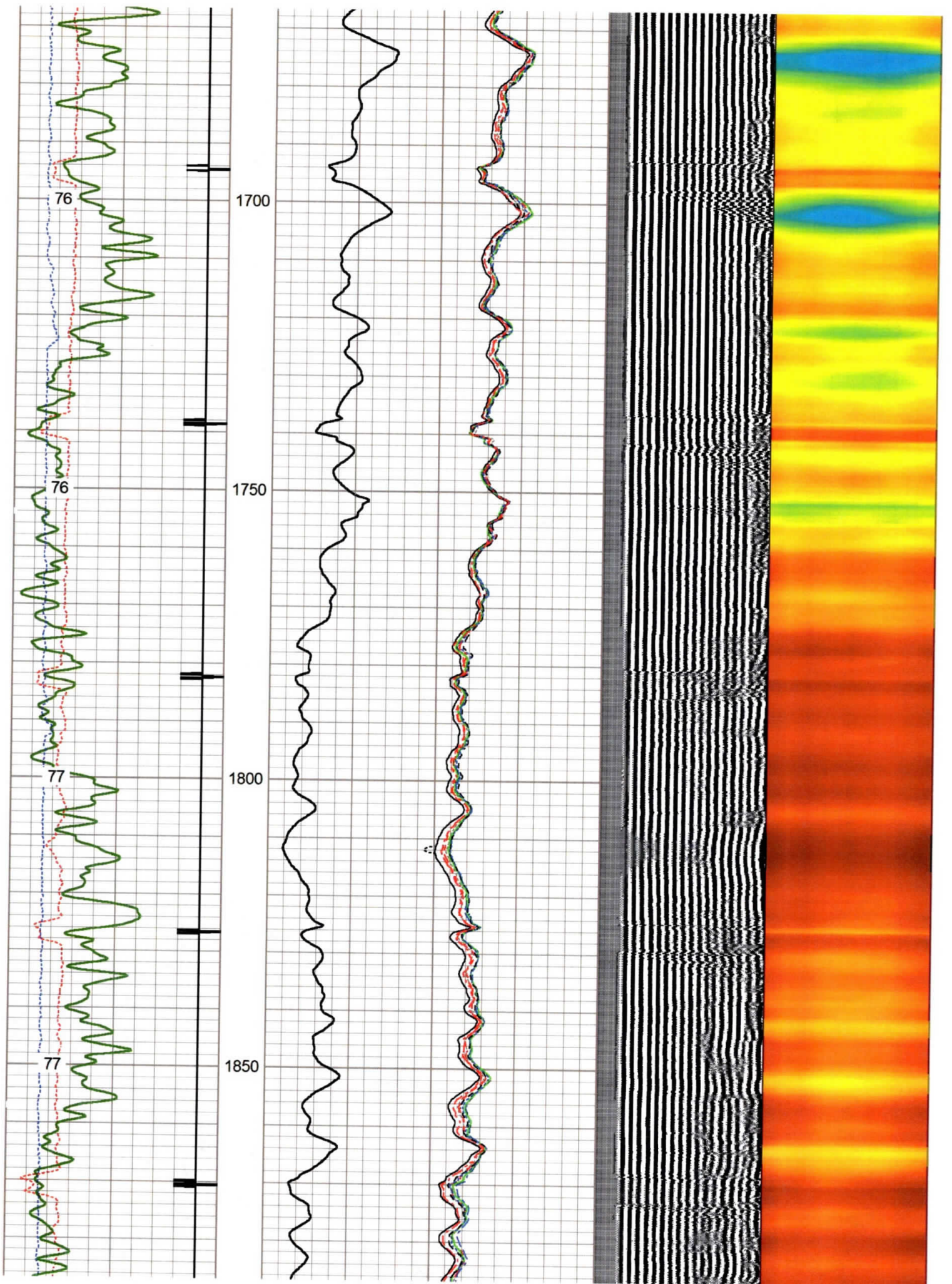


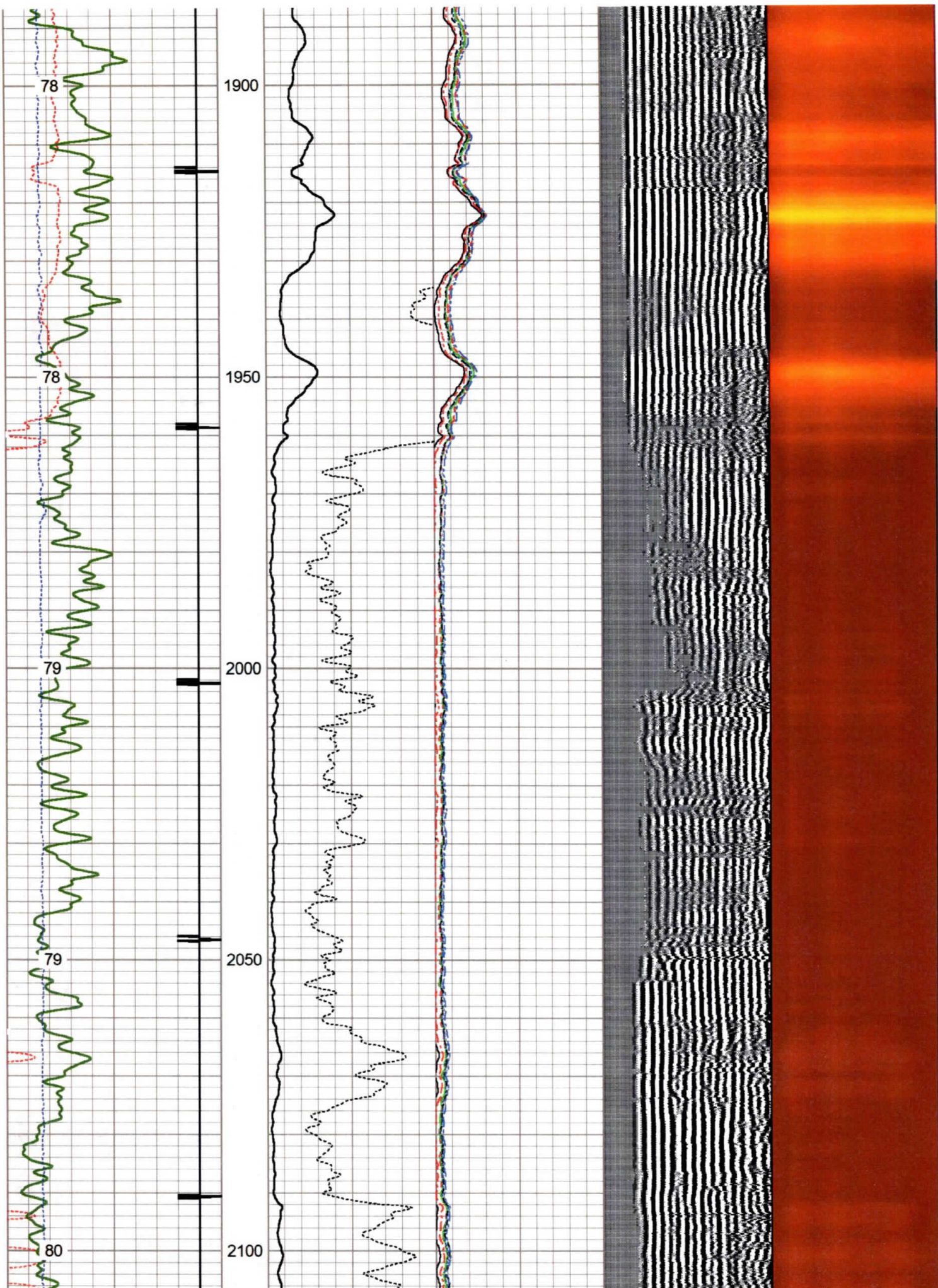


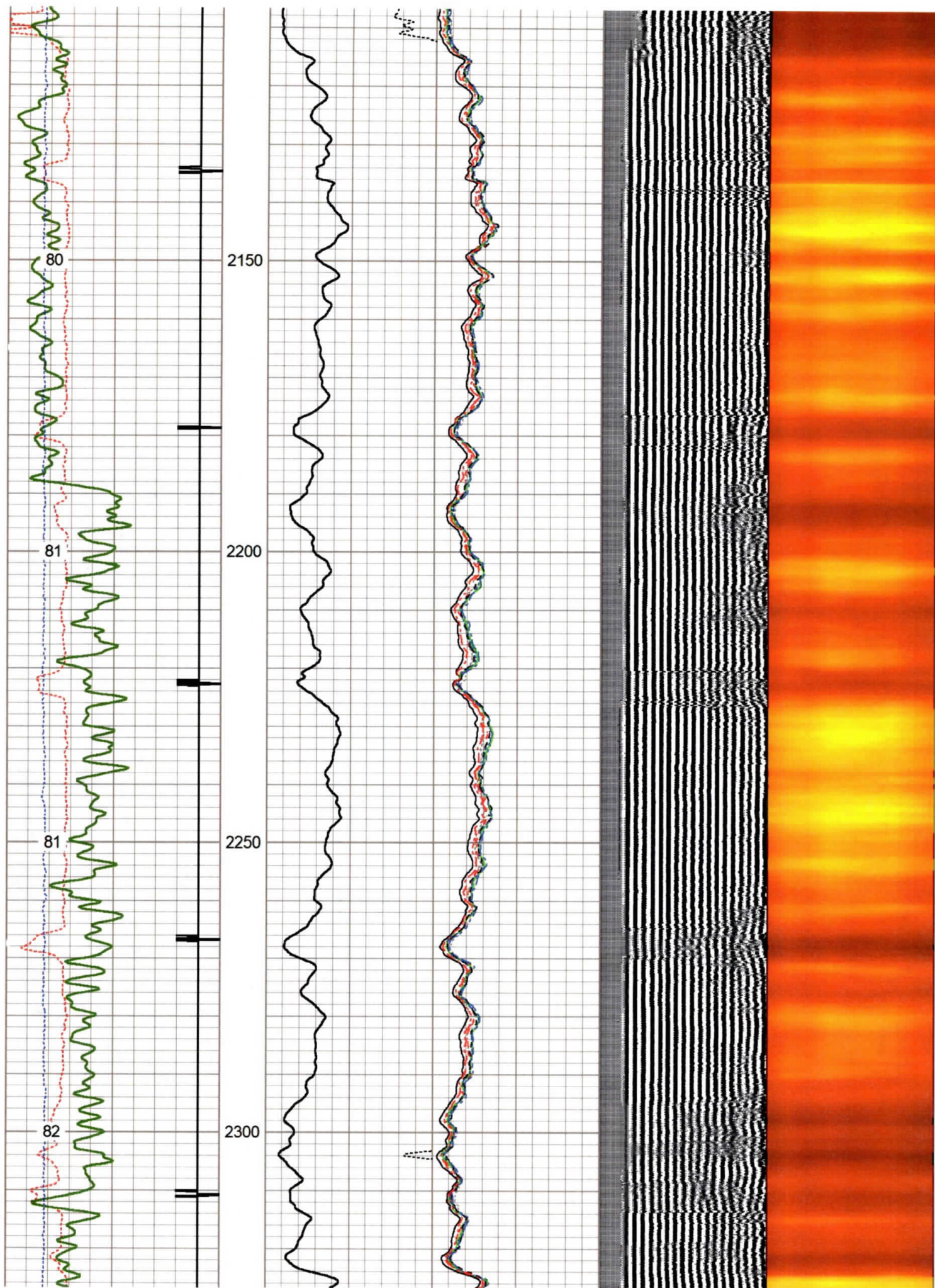


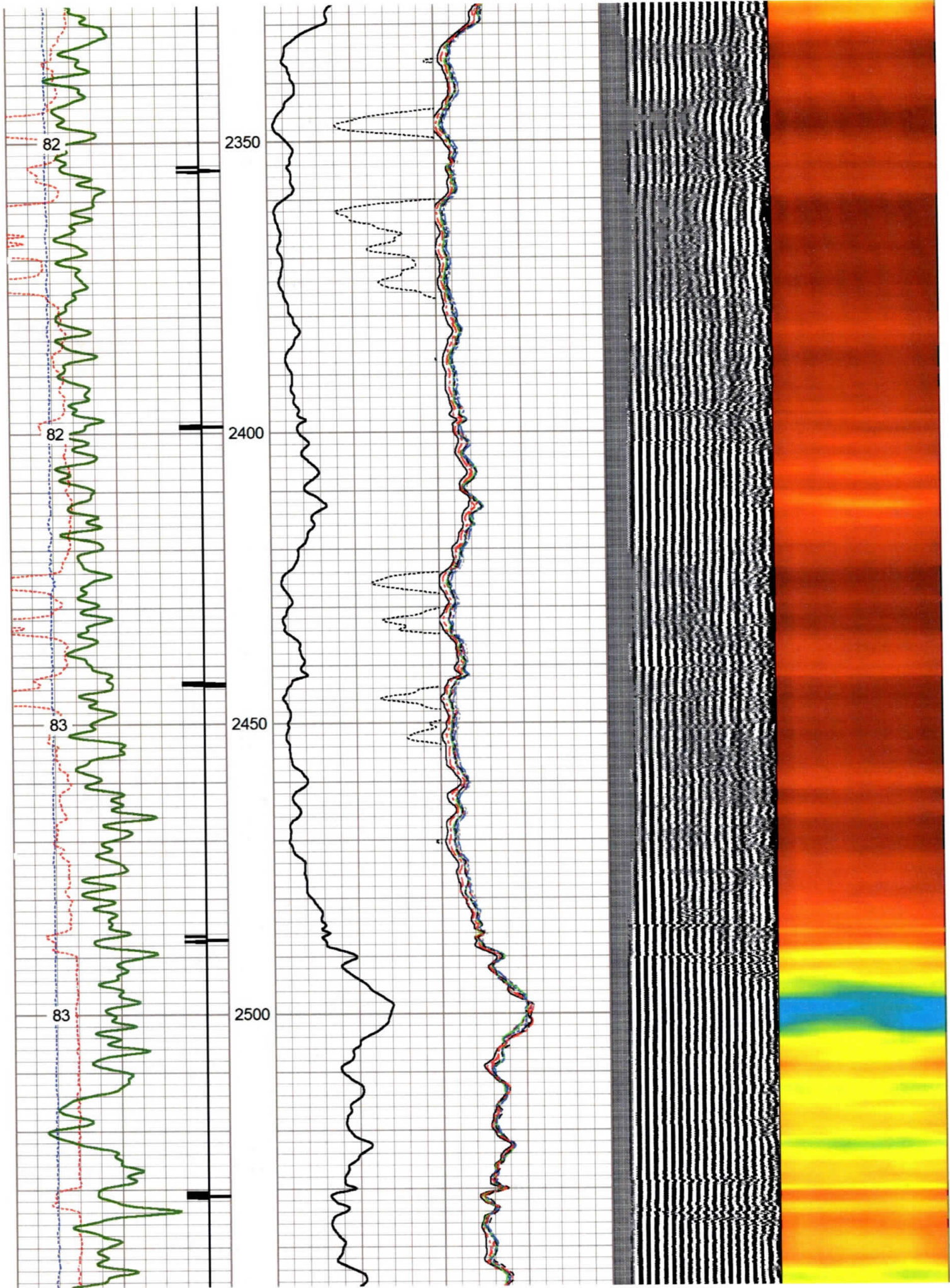


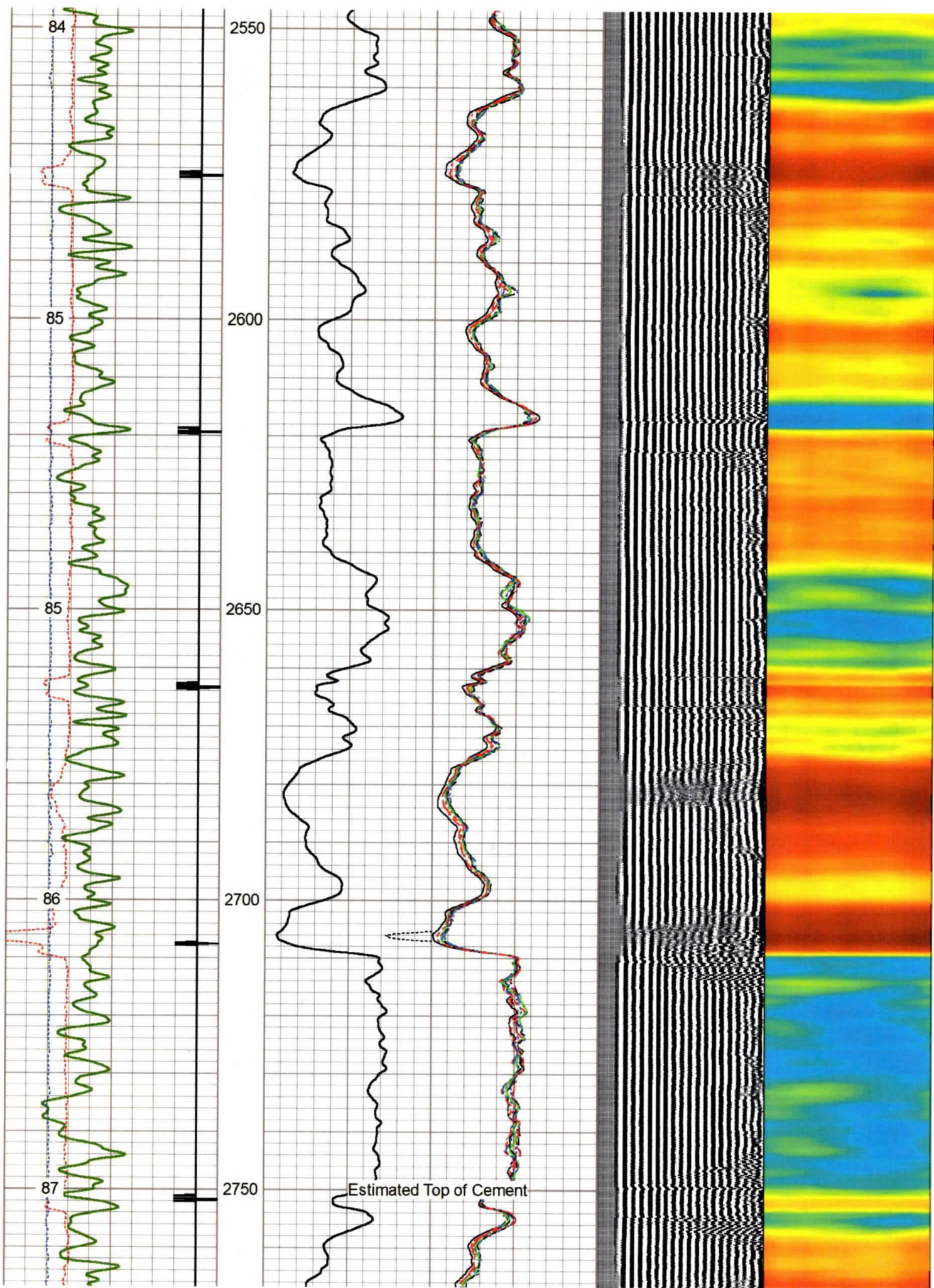


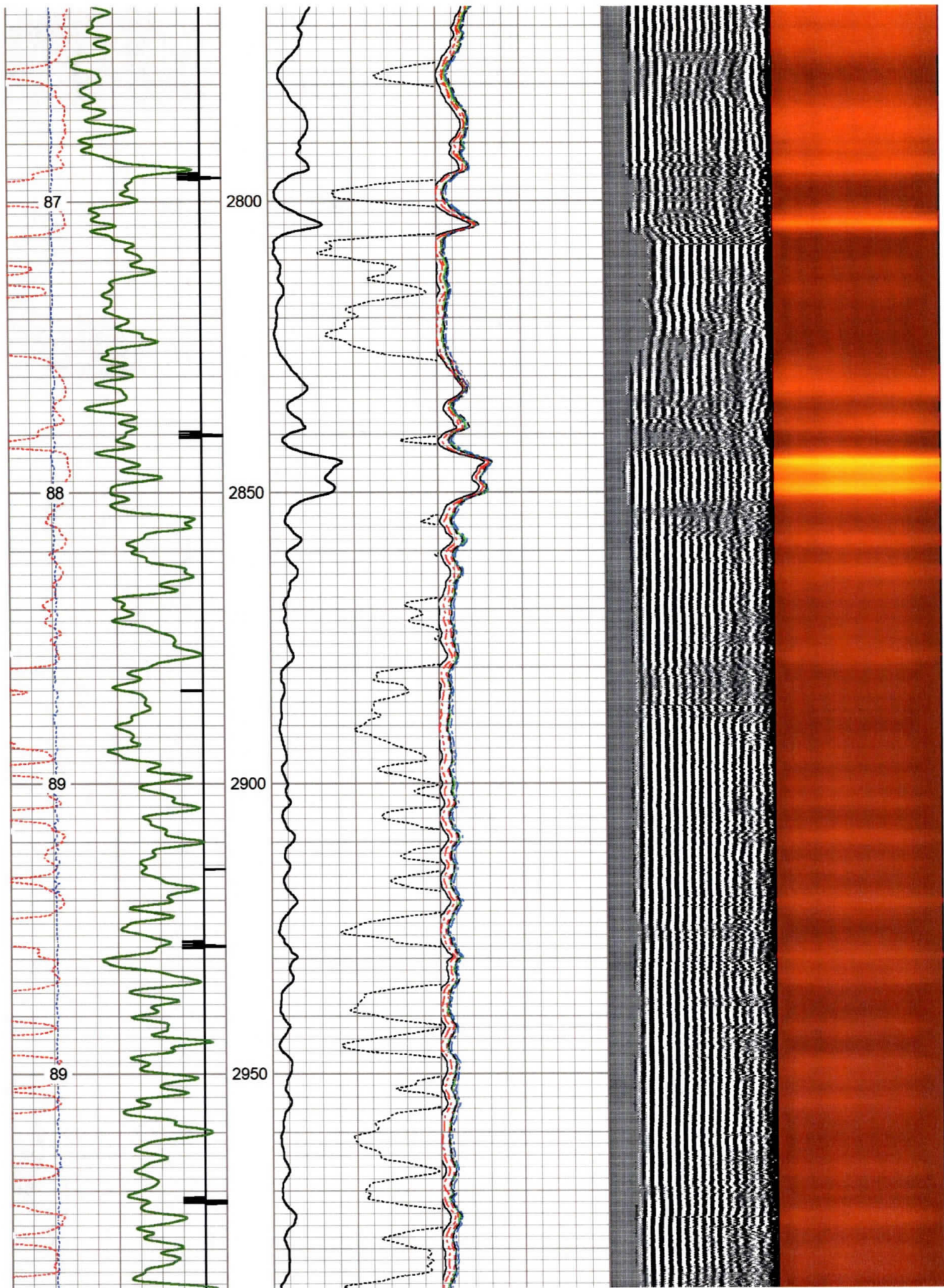


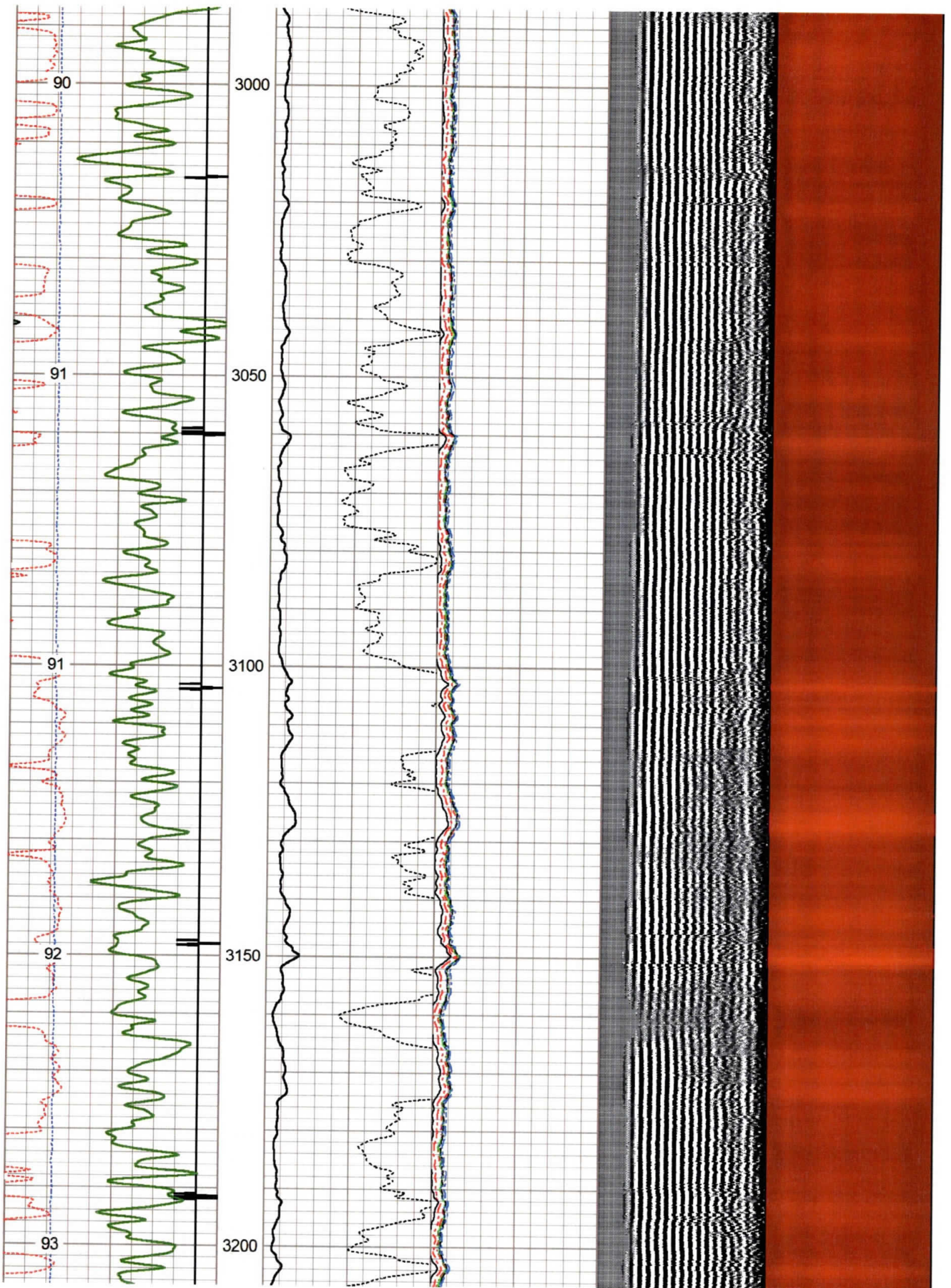


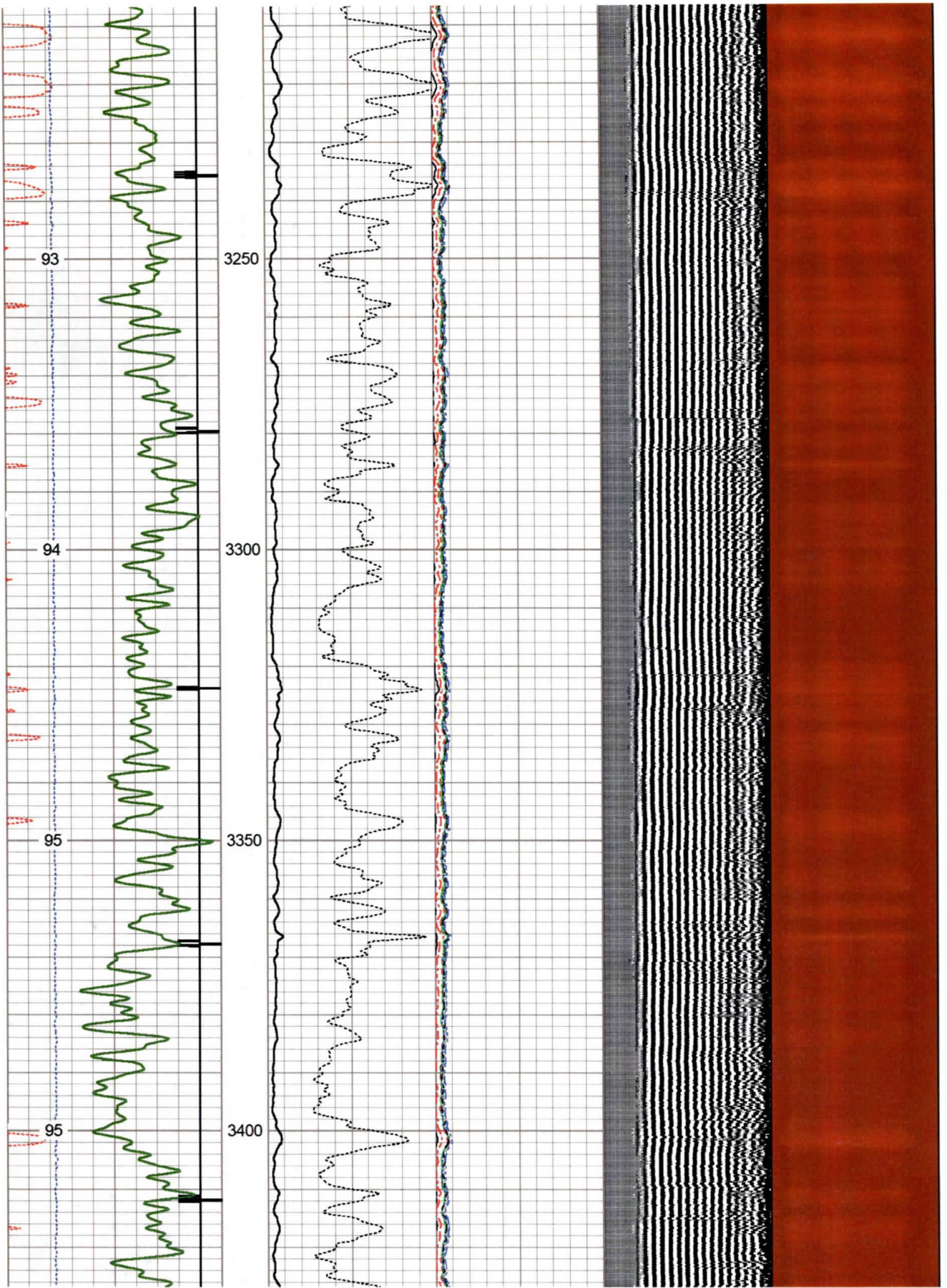


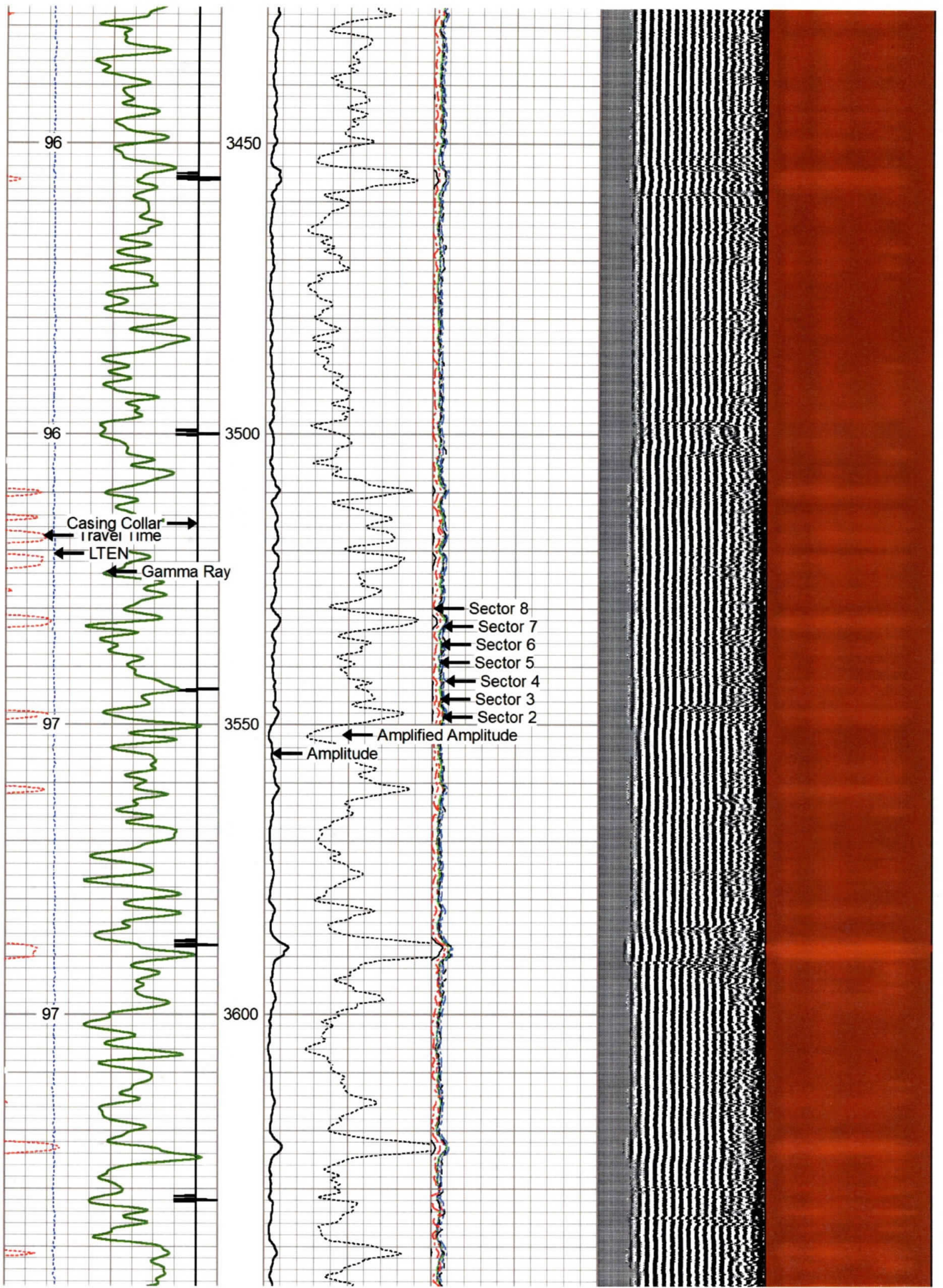


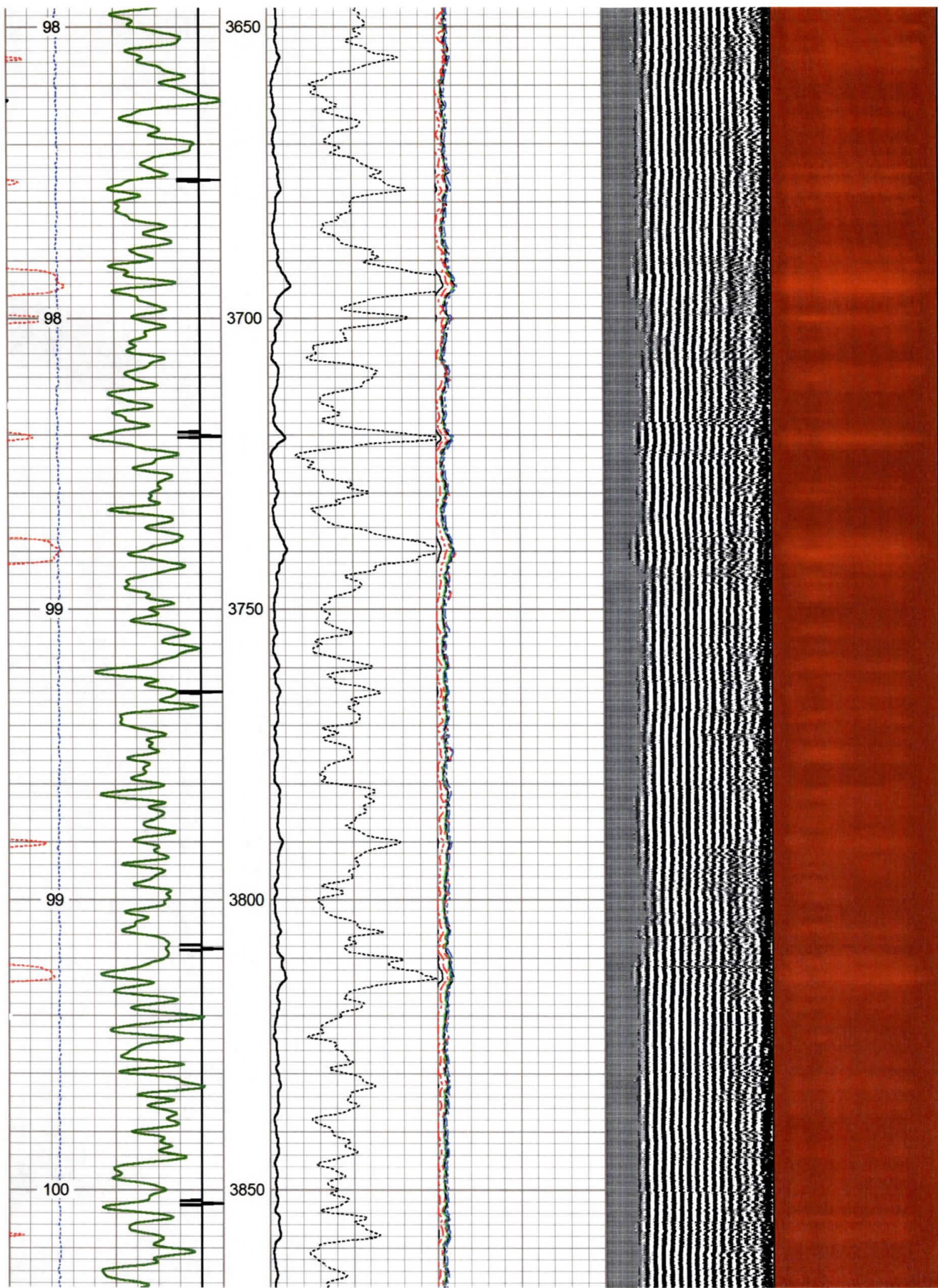


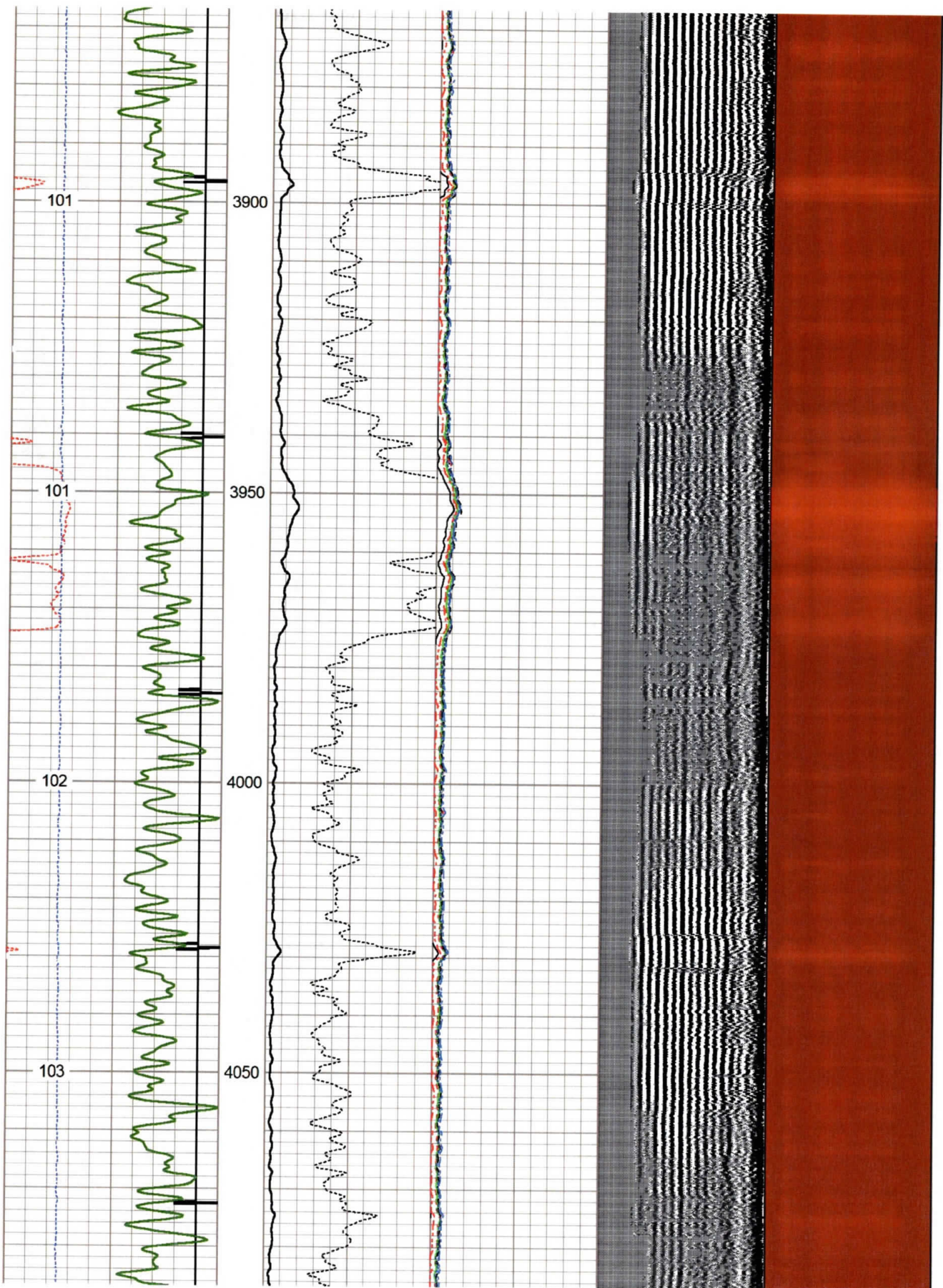


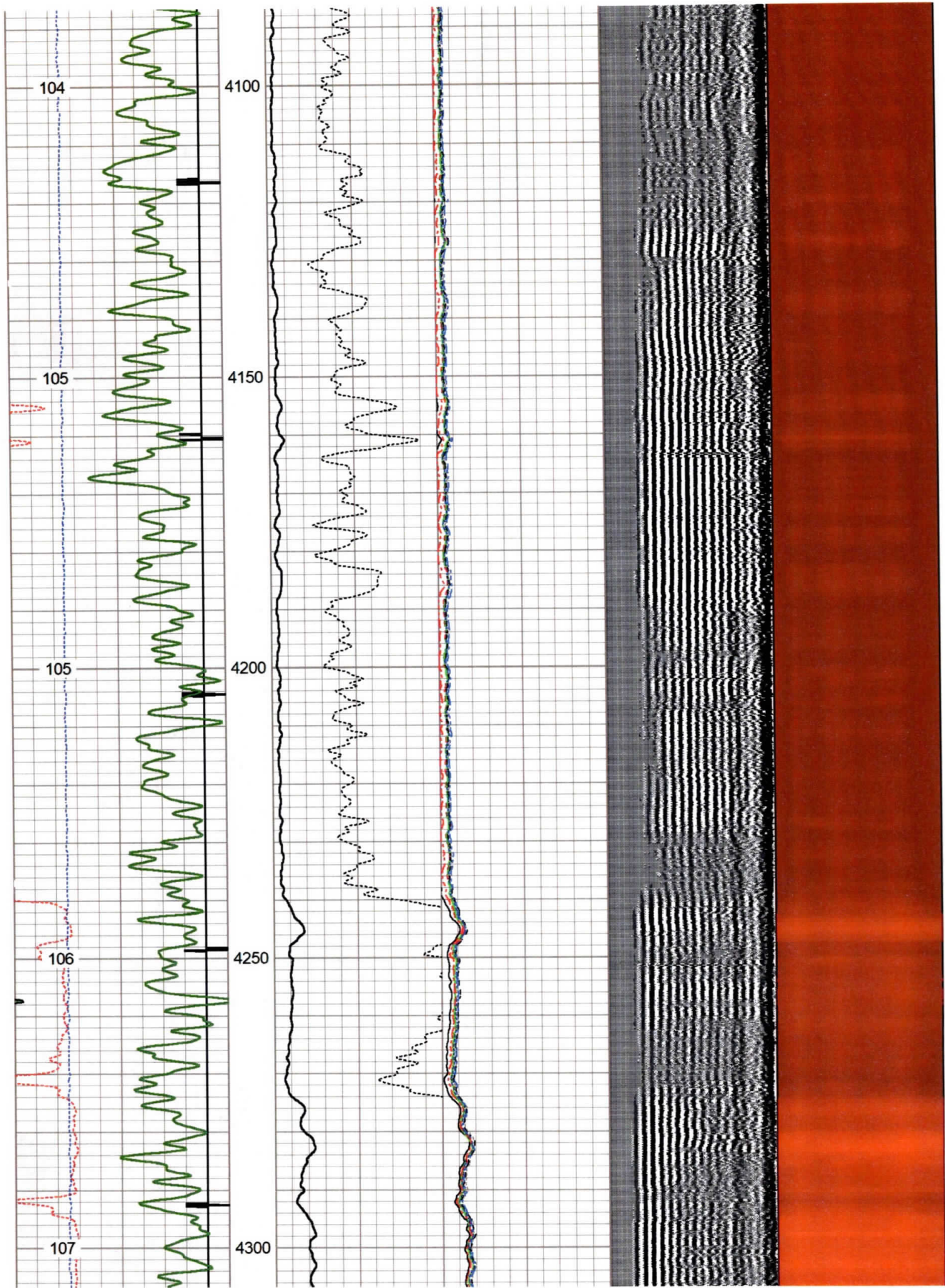


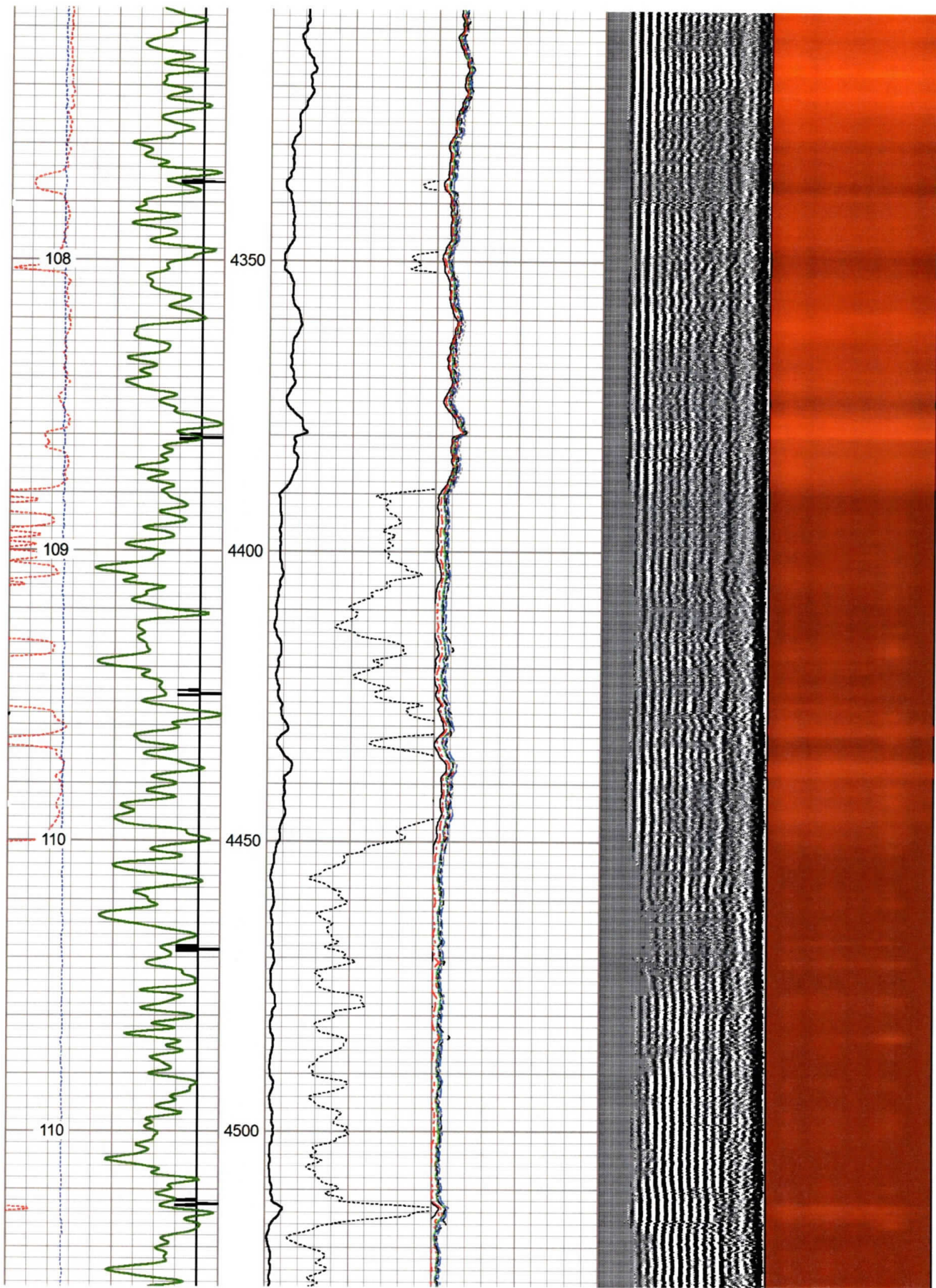


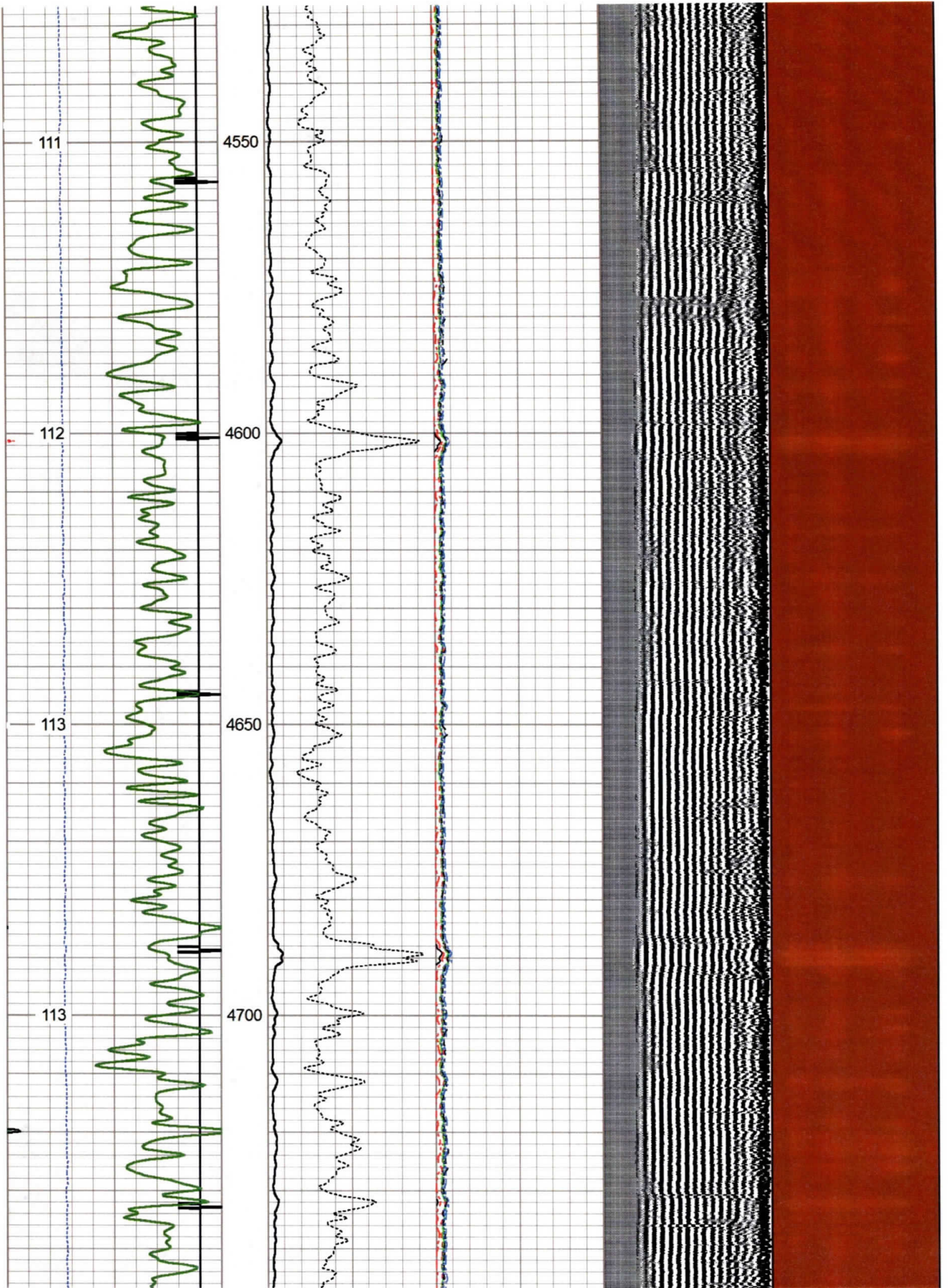


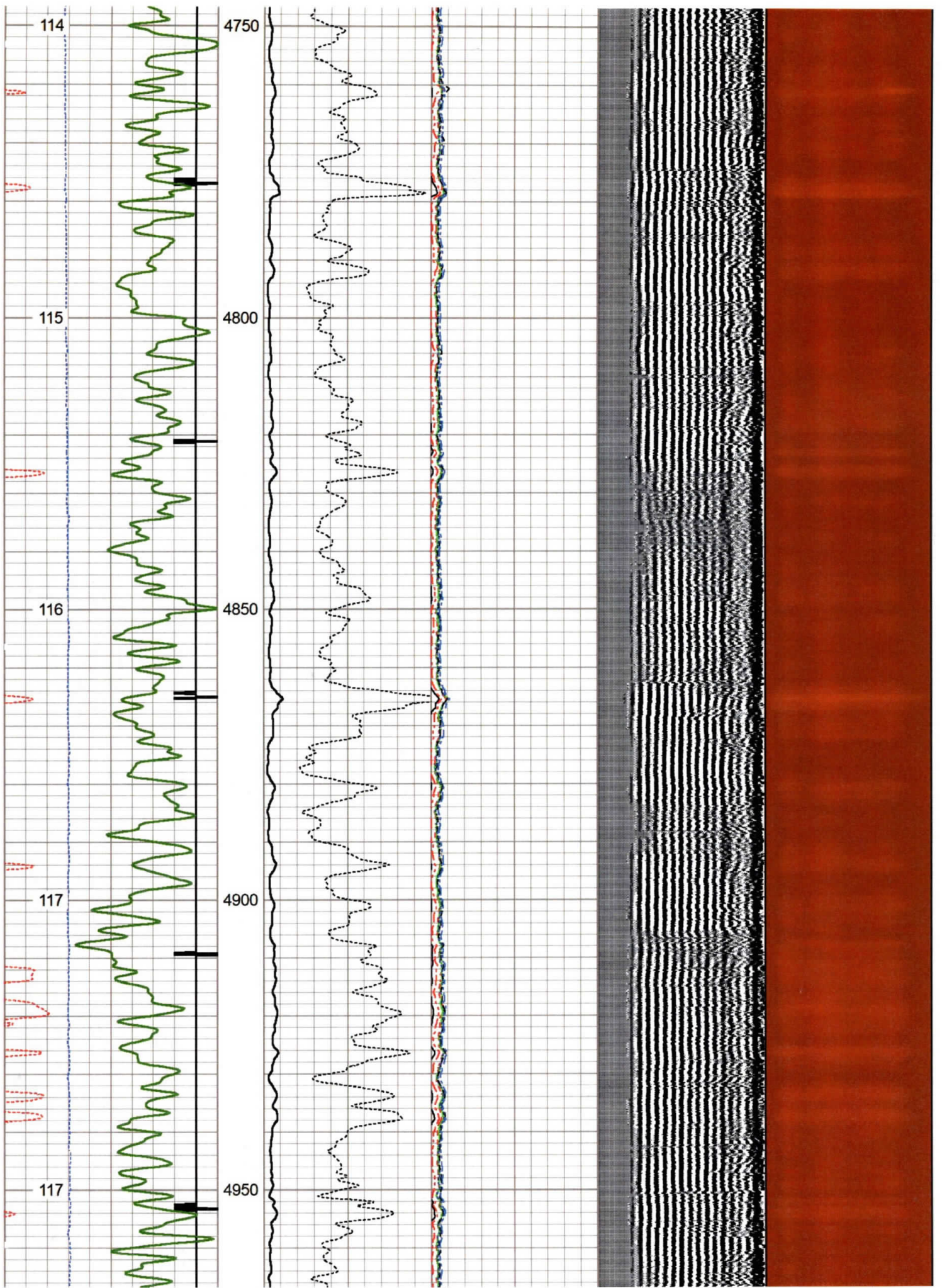


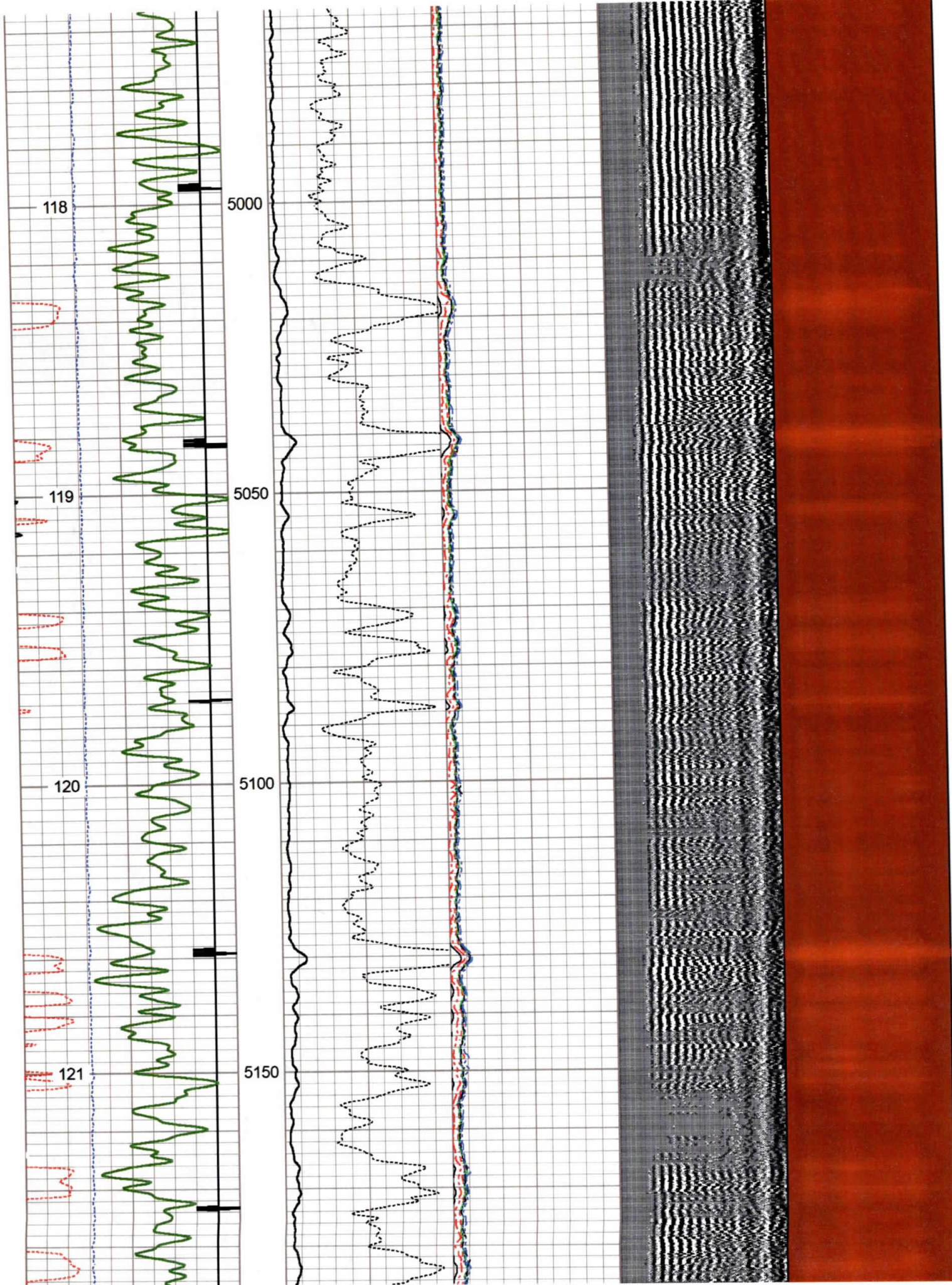


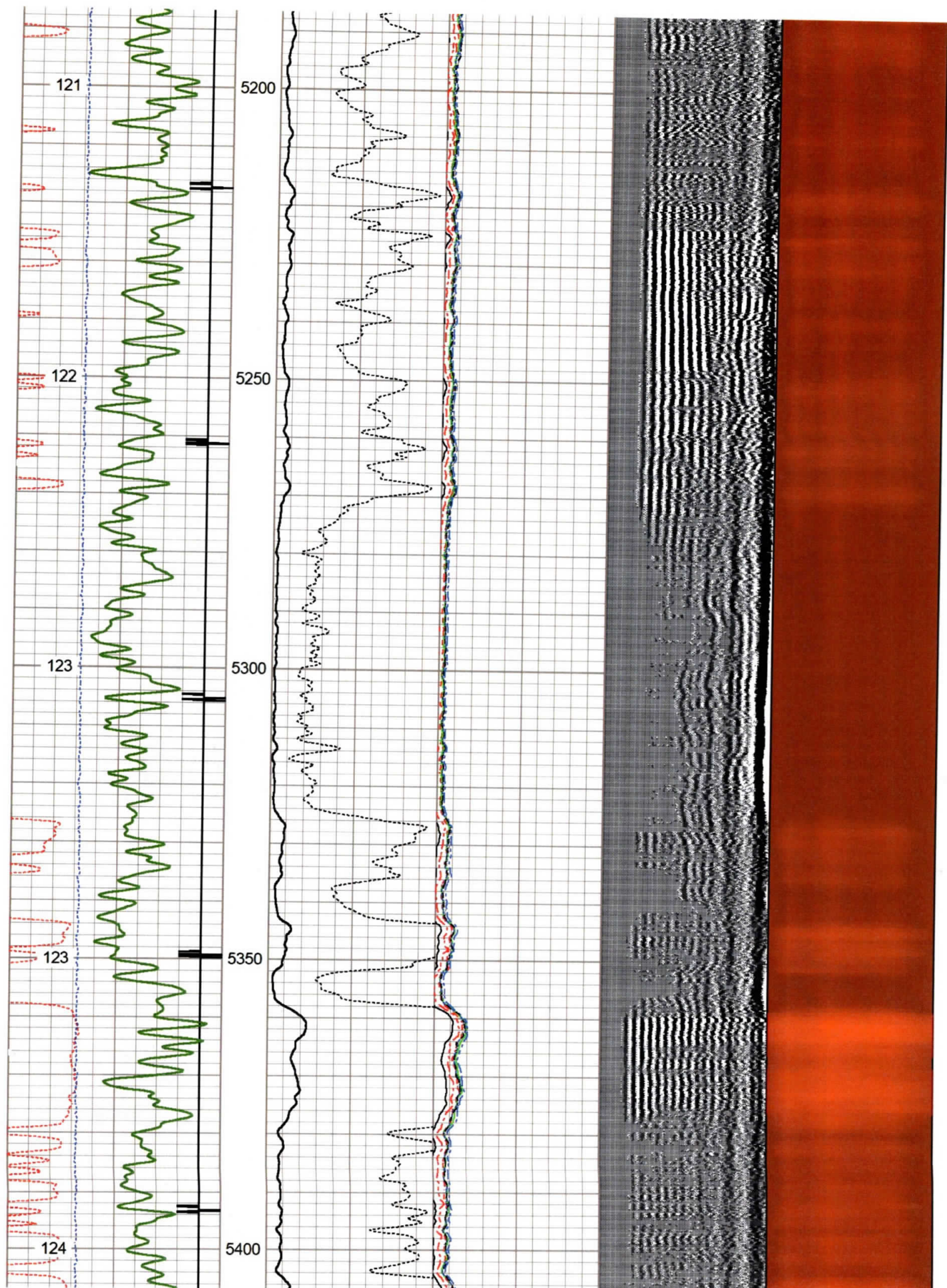


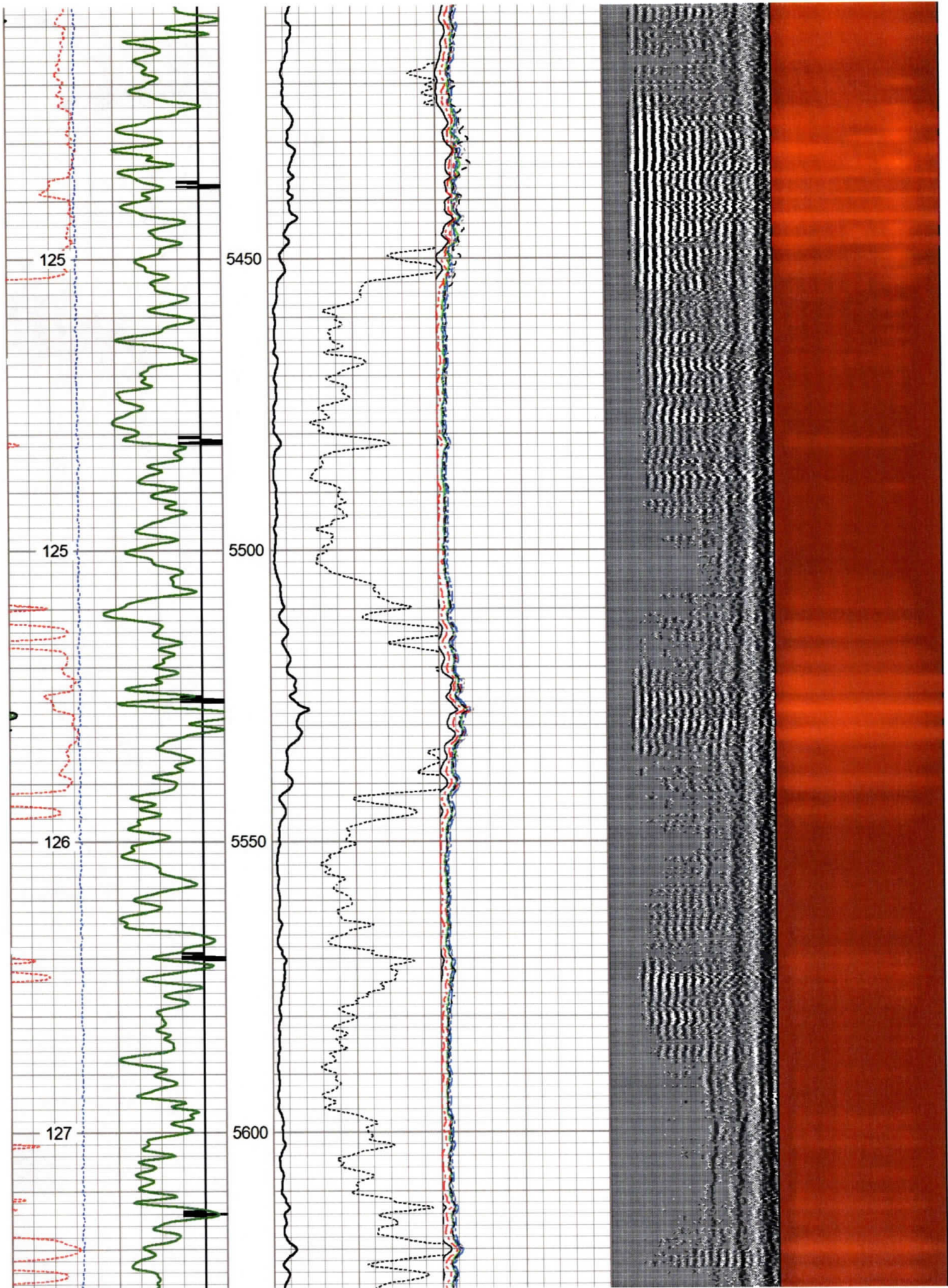


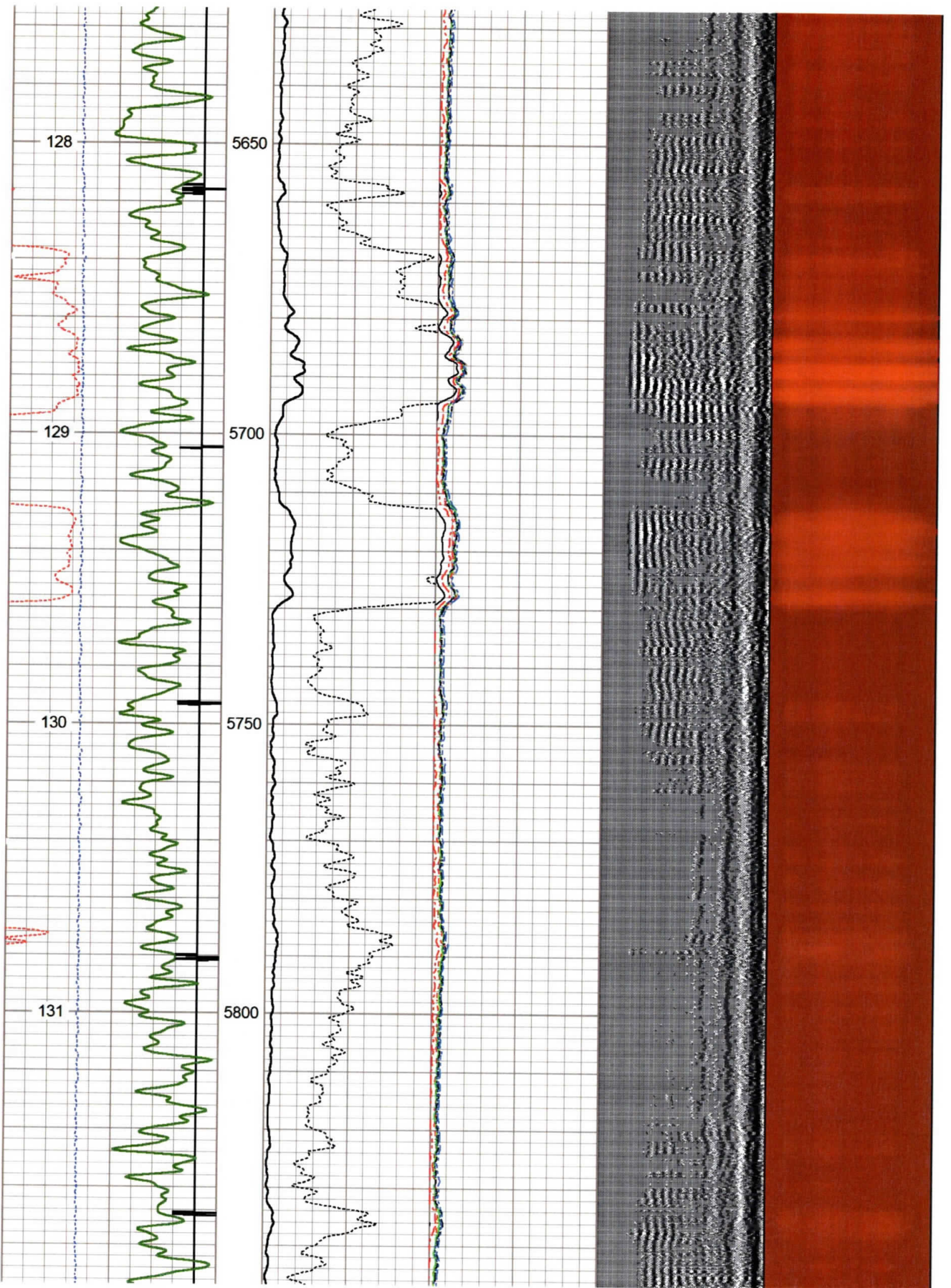


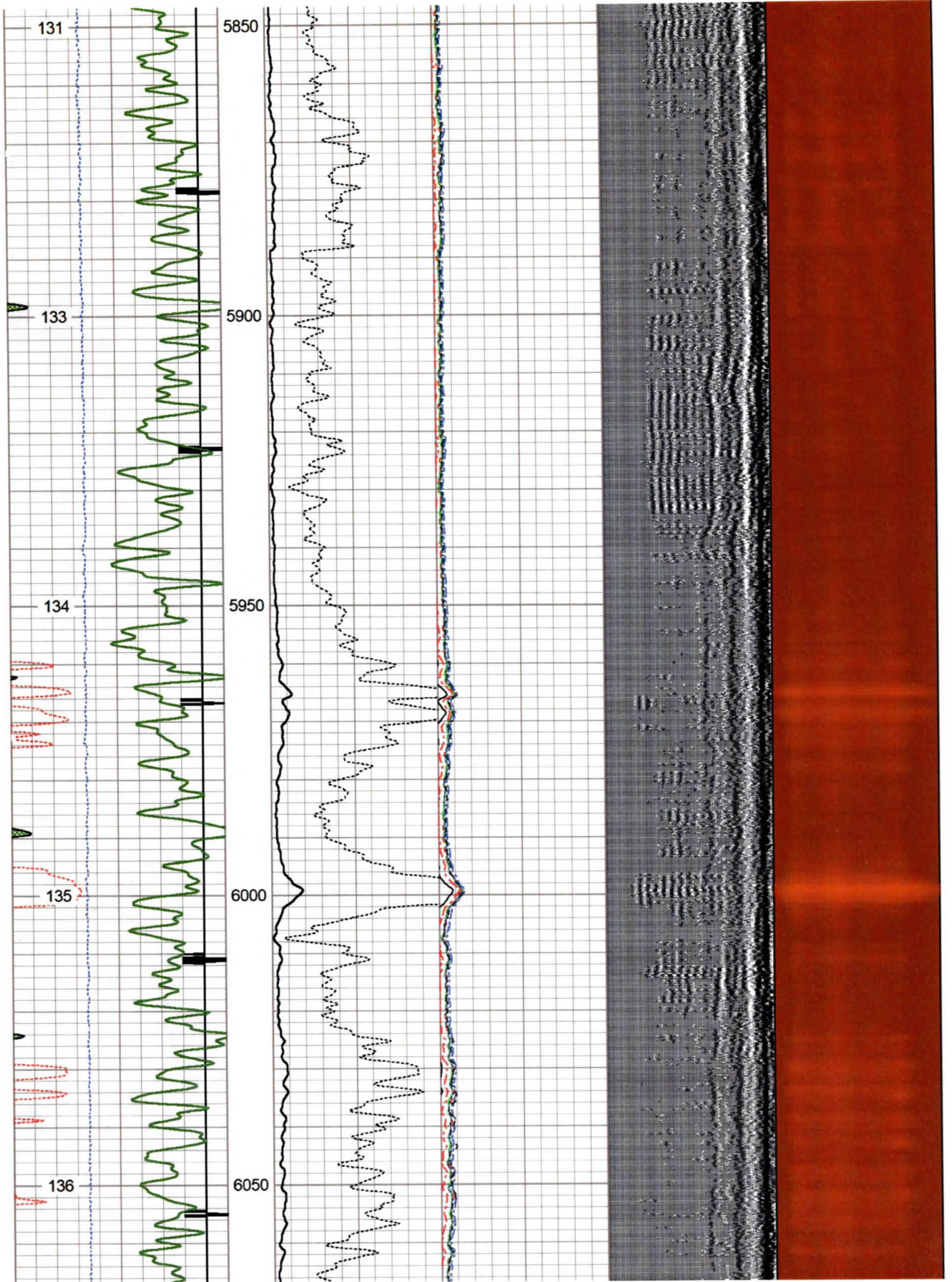


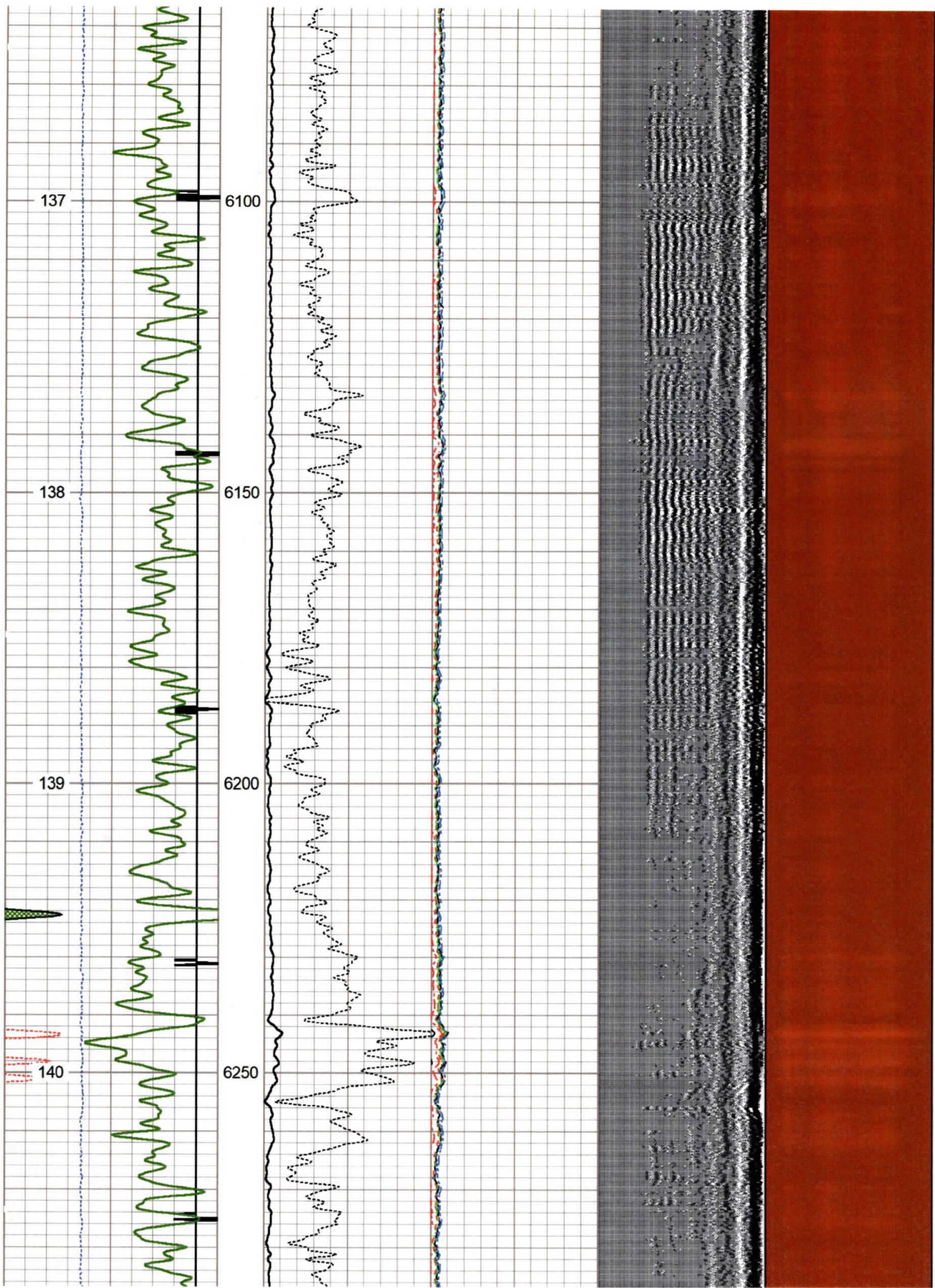


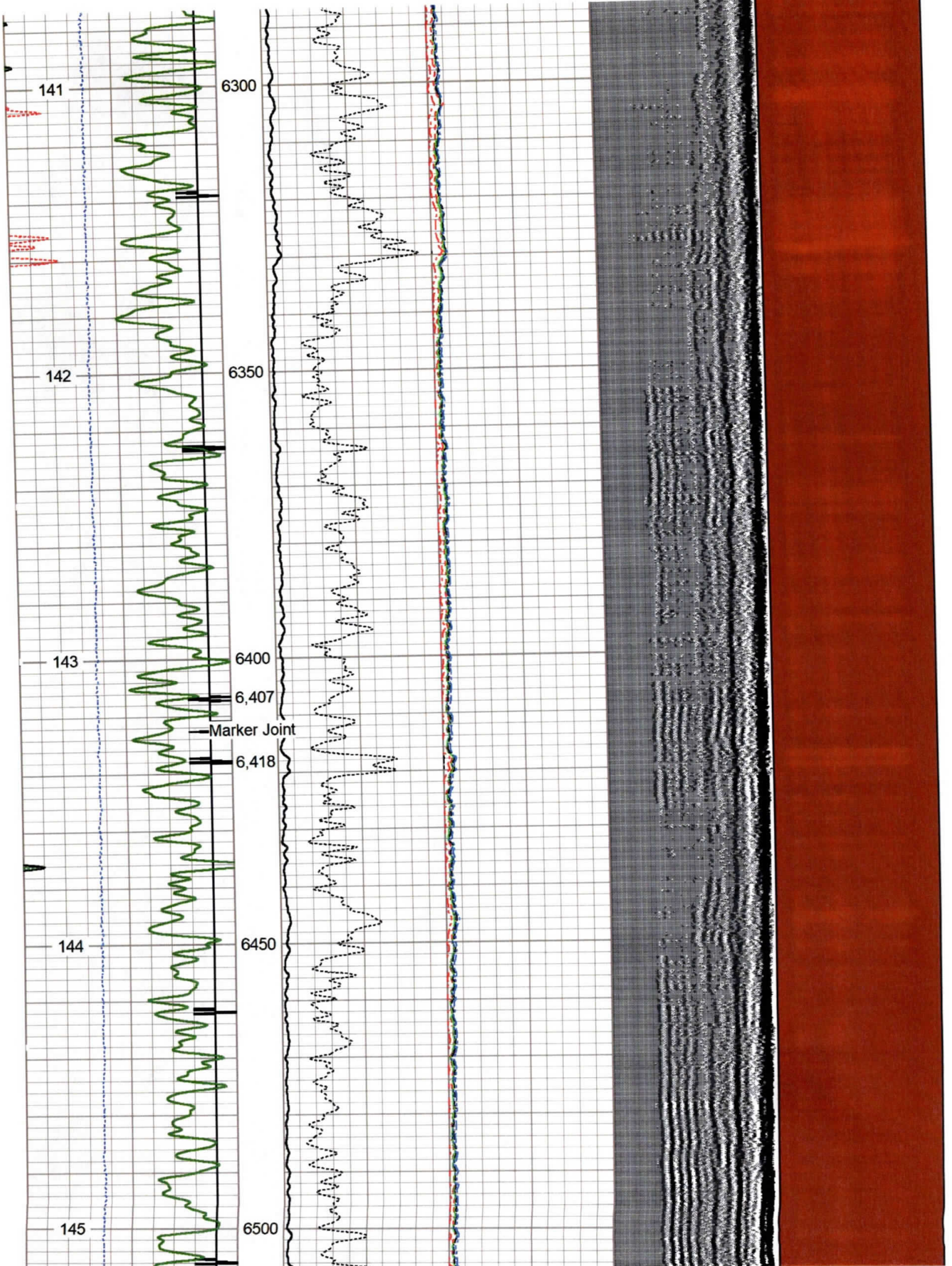


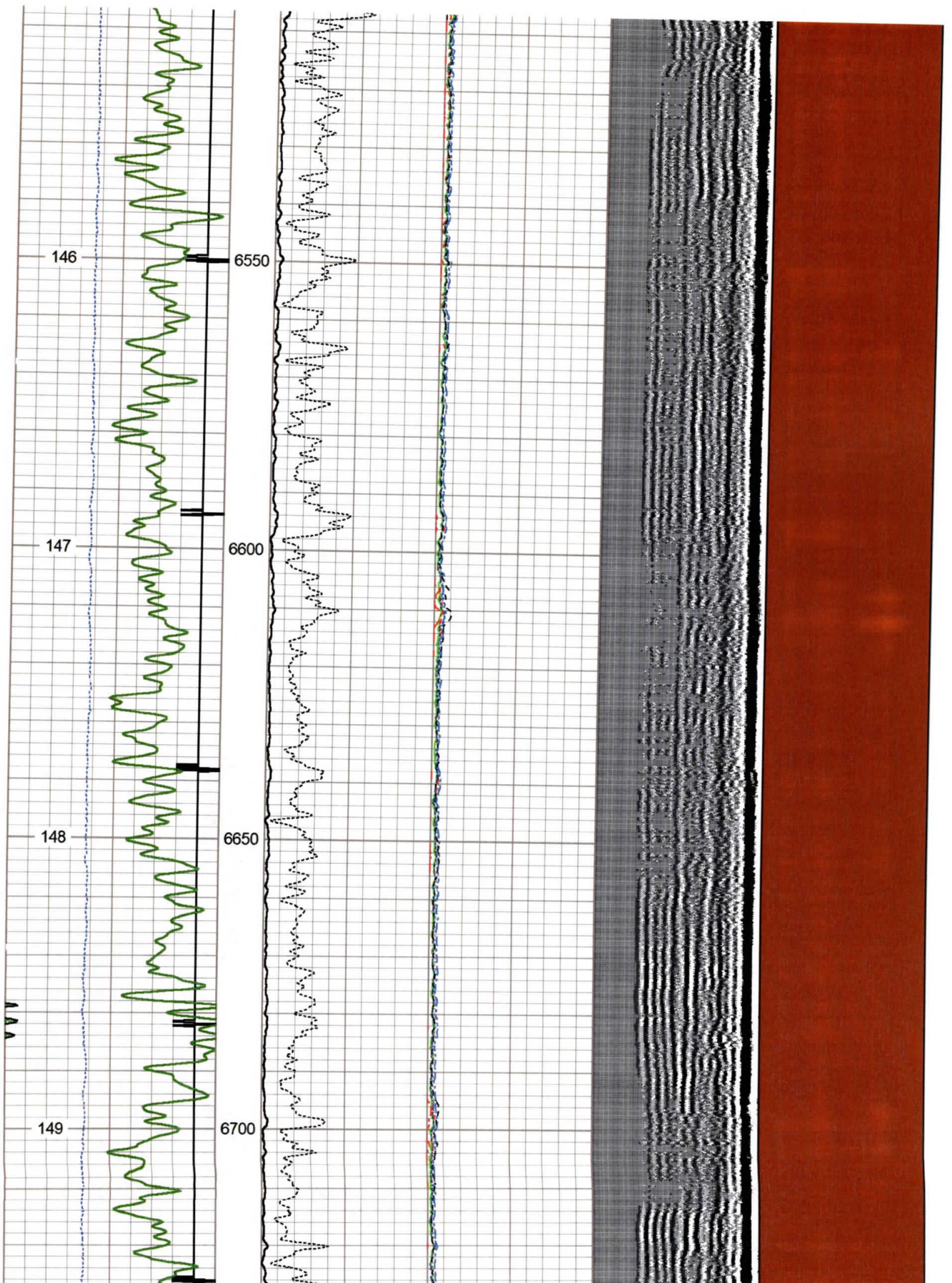


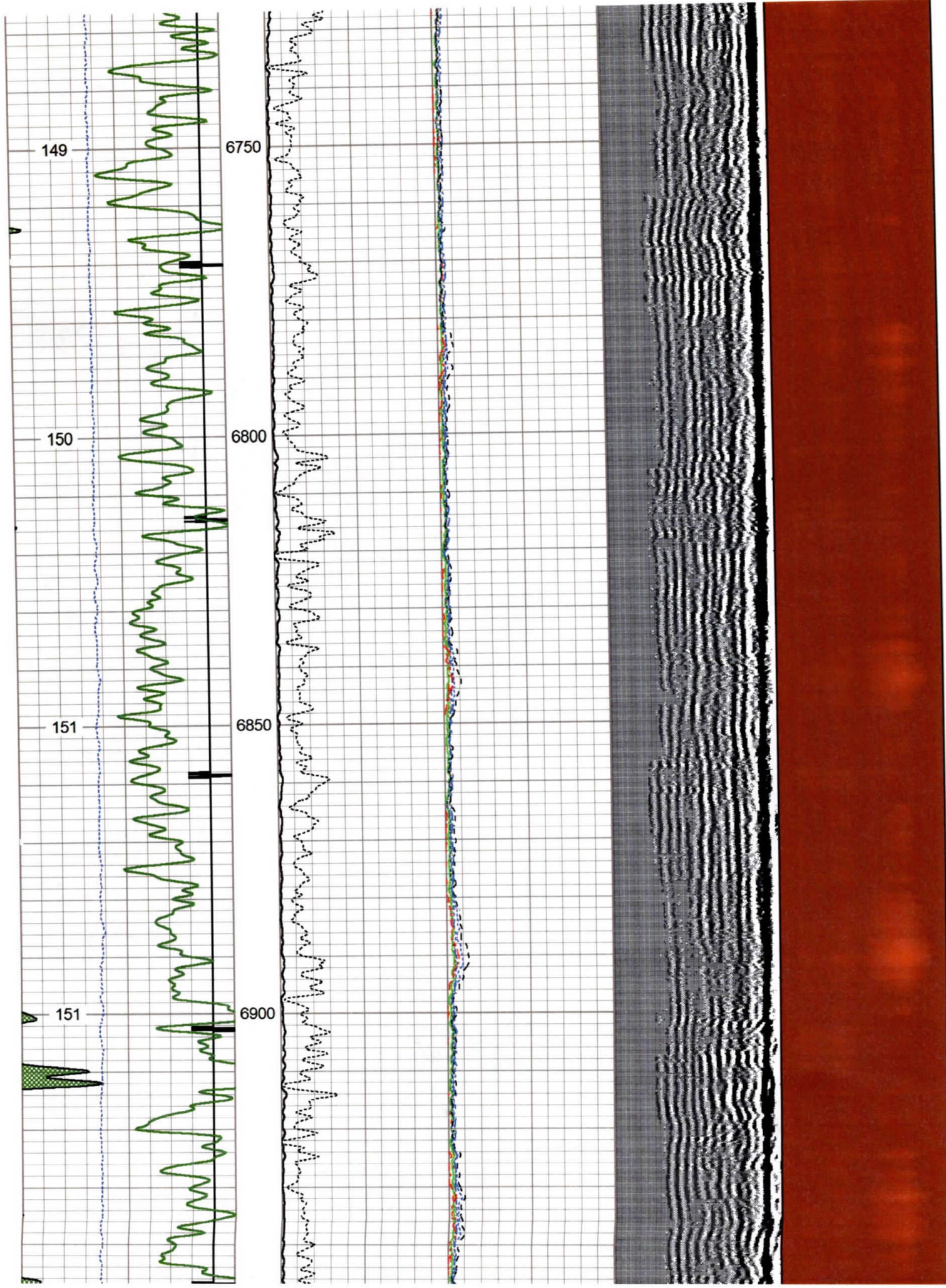


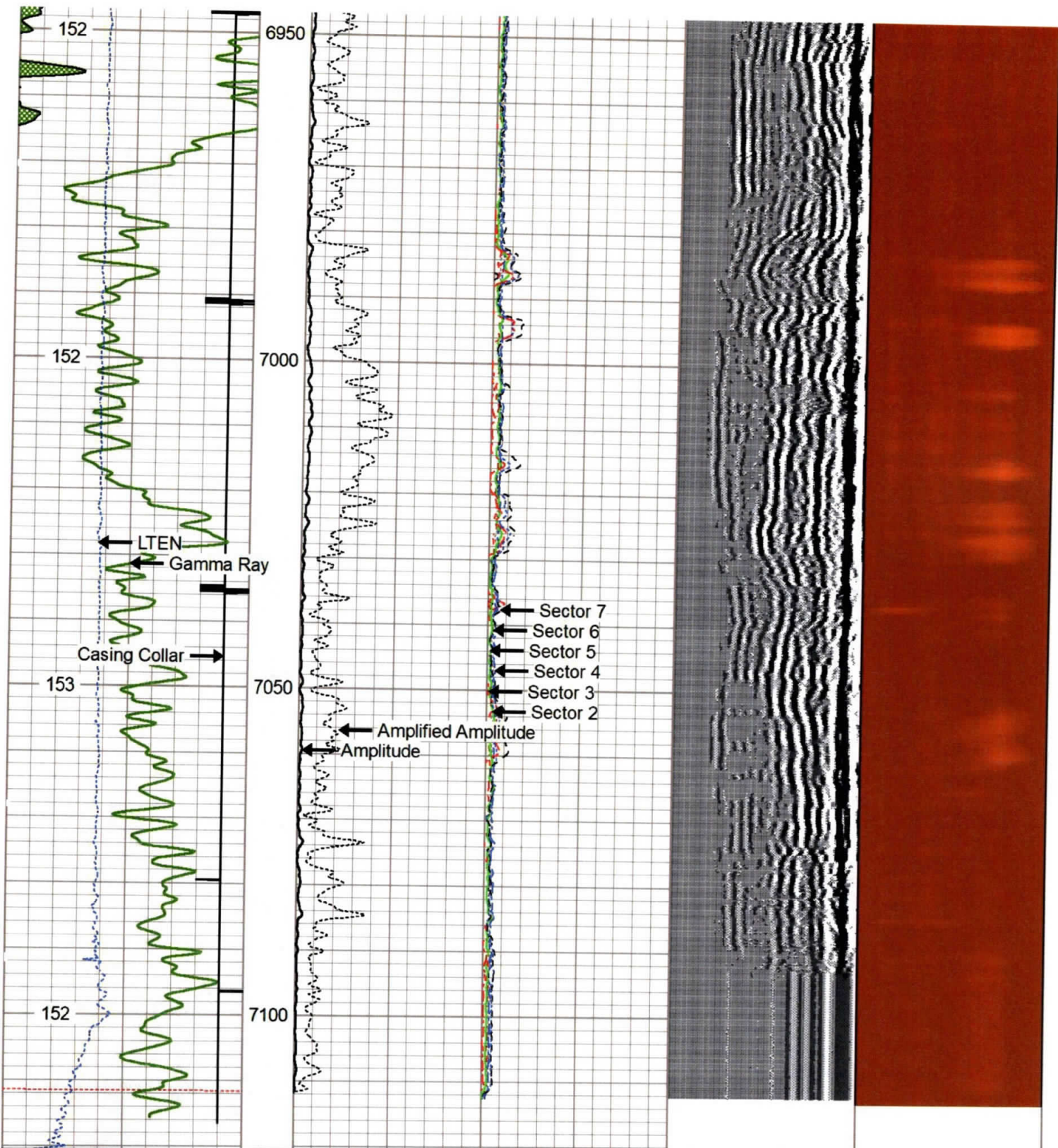












250	Travel Time (usec)	200
Casing Collar		
0	Gamma Ray (GAPI)	150
0	LTEN (lb)	2500
Temp	(degF)	

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

Variable Density	1	Cement Map	8
200	(usec)		1200

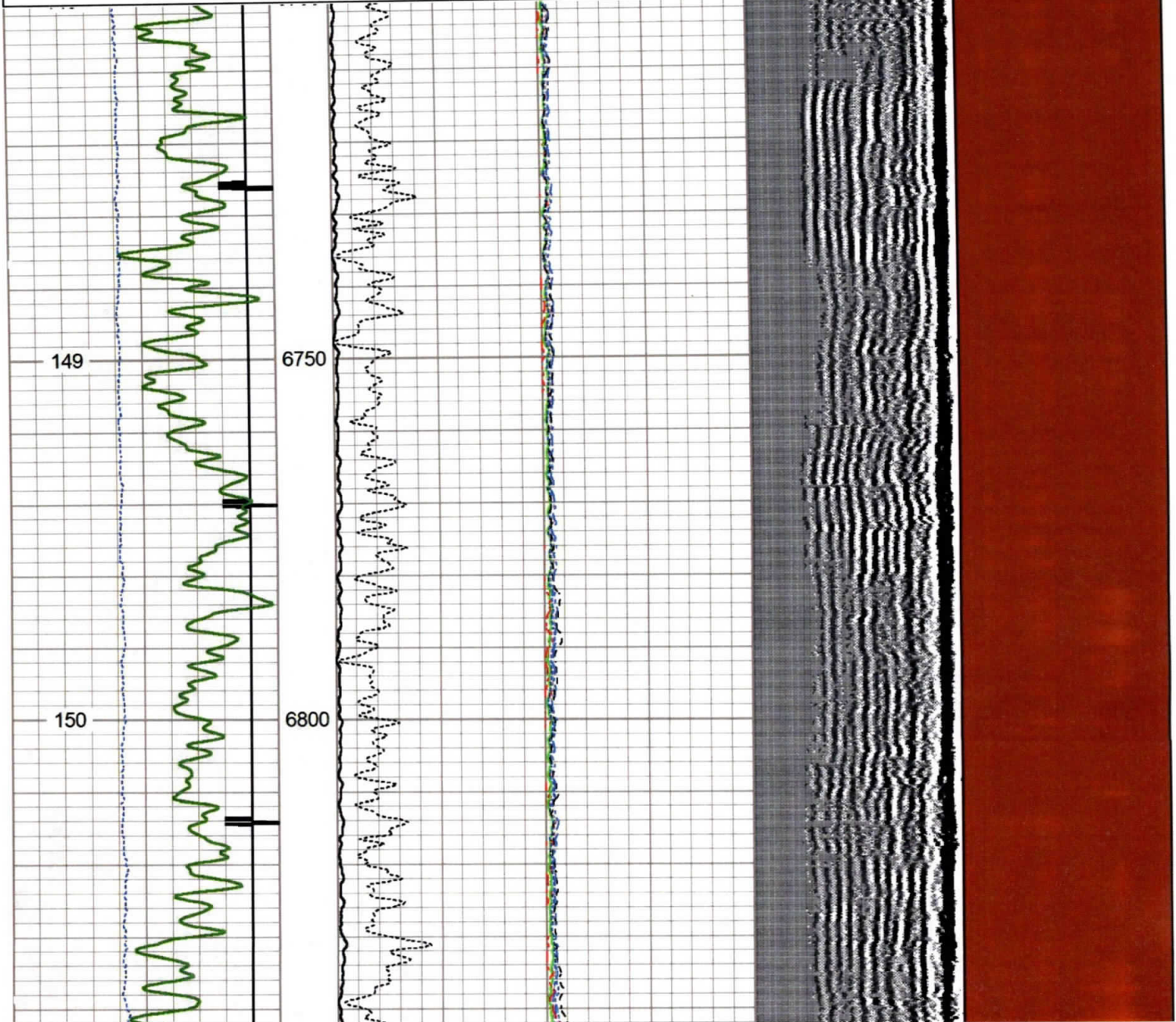


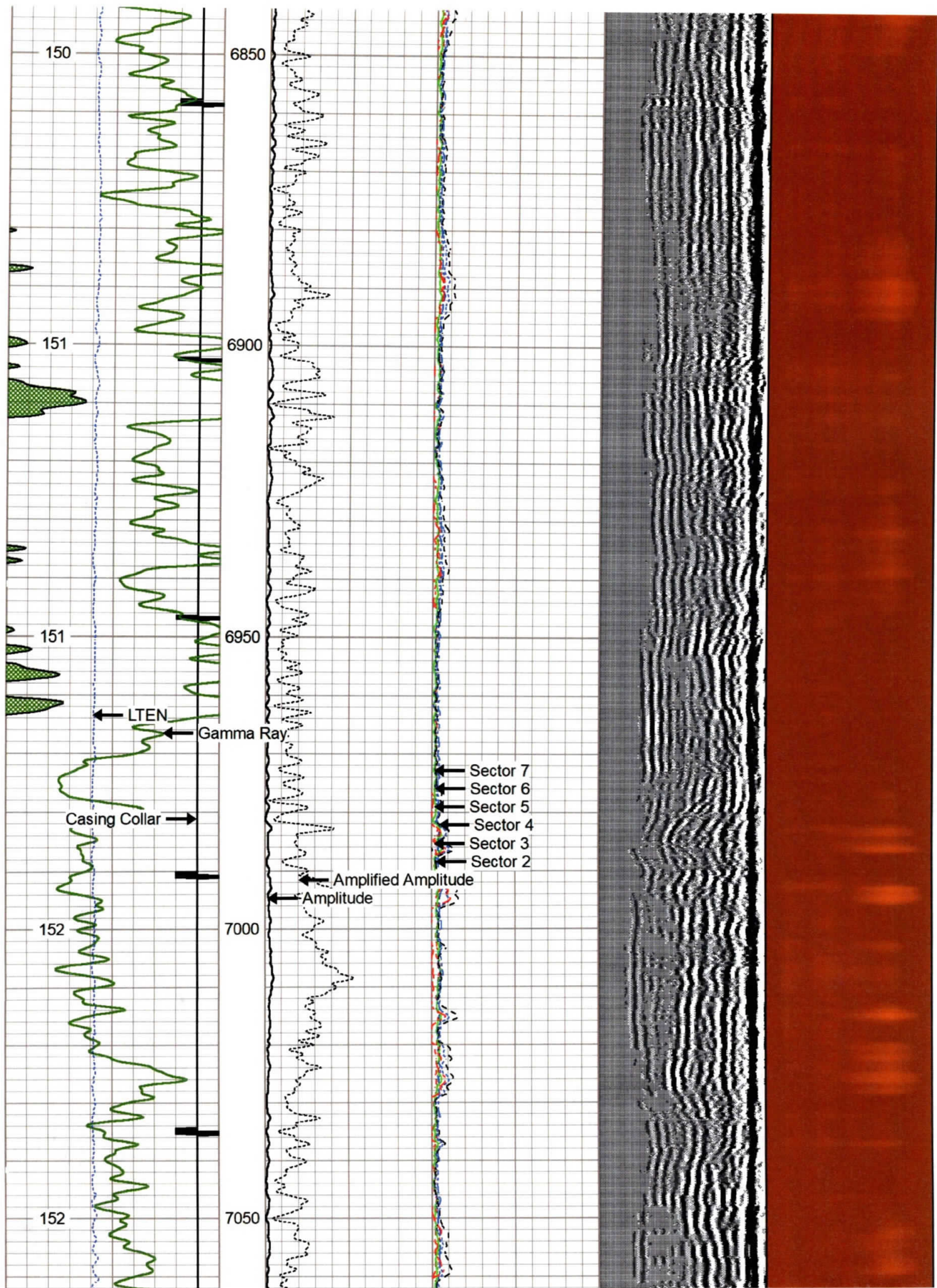


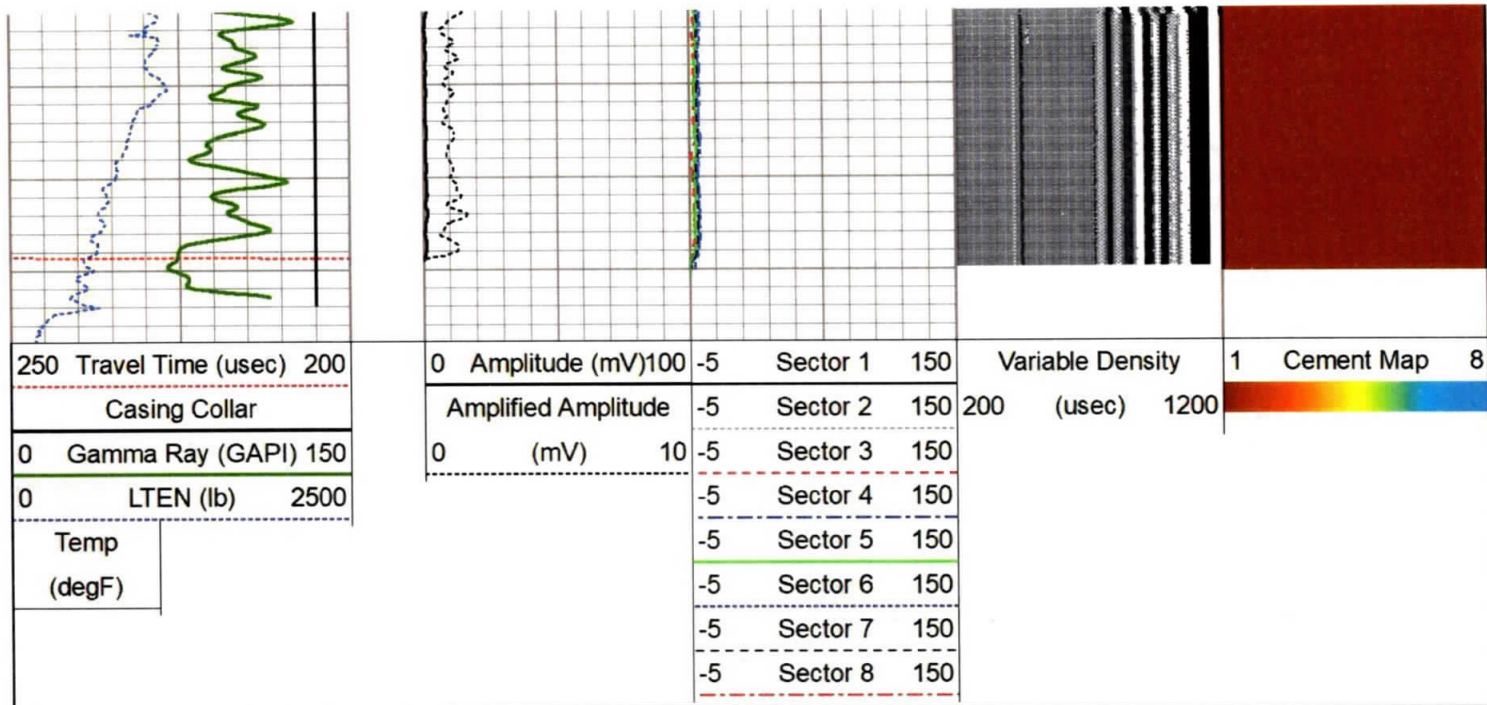
Repeat Pass 0 PSI

Database File antero_oxfd_13_chs_rcbl_nineenergy_12_feb_2020.db
 Dataset Pathname Marcellus/OXFD_13_CHS/run1/pass2.1
 Presentation Format scbl03
 Dataset Creation Wed Feb 12 21:59:20 2020
 Charted by Depth in Feet scaled 1:240

250	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
Casing Collar			Amplified Amplitude			-5	Sector 2	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				
Temp						-5	Sector 5	150				
(degF)						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				
						-5	Sector 8	150				
						-5	Sector 8	150				







Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero_oxfd_13_chs_rcbl_nineenergy_12_feb_2020.db
 Dataset Marcellus/OXFD_13_CHS/run1/merge1.1/_vars_

Top - -48.00 ft

BHTEMP_Src	BOREID	BOTTEMP	CASEID	CASEOD	CASETHCK	CASEWGHT	MAXAMPL
TEMP	in	degF	in	in	in	lb/ft	mV
0	0	0	0	0	0	0	0
MINAMPL	MINATTN	PERFS	PPT	SRFTEMP	TDEPTH		
mV	db/ft	No	uSec	degF	ft		
0	0	No	0	0	0		

-48.00 ft - 6400.00 ft

BHTEMP_Src	BOREID	BOTTEMP	CASEID	CASEOD	CASEWGHT	MINAMPL	MINATTN
TEMP	in	degF	in	in	lb/ft	mV	db/ft
TEMP	7.875	100	5.012	5.5	11.5	1	0.8

6400.00 ft - 7120.50 ft

7120.50 ft - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEID	CASEOD	CASEWGHT	MINAMPL	MINATTN
TEMP	in	degF	in	in	lb/ft	mV	db/ft
TEMP	0	0	0	0	0	0	0

Variable Description

BHTEMP_Src : BHTEMP Input Source Selector
 BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEID : Casing I.D.
 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_oxfd_13_chs_rcbl_nineenergy_12_feb_2020.db
 Dataset Pathname Marcellus/OXFD_13_CHS/run1/merge1.1
 Dataset Creation Wed Feb 12 21:52:02 2020

Gamma Ray Calibration Report

Serial Number: FW1211-86
 Tool Model: Probe
 Performed: Mon Feb 03 13:18:32 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: 638.408 ft

Master Calibration, performed Wed Feb 12 09:02:16 2020:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.086	0.738	1.000	71.921	92.839	-1.019
CAL	0.606	1.008				
5'	0.030	0.659	1.000	71.921	112.723	-2.364
SUM						
S1	0.067	0.722	0.000	71.921	109.712	-7.346
S2	0.045	0.824	0.000	71.921	92.332	-4.156
S3	0.052	0.777	0.000	71.921	99.170	-5.175
S4	0.021	0.743	0.000	71.921	99.558	-2.072
S5	0.048	0.712	0.000	71.921	108.336	-5.177
S6	0.037	0.685	0.000	71.921	110.919	-4.094
S7	0.037	0.675	0.000	71.921	112.804	-4.176
S8	0.092	0.708	0.000	71.921	116.752	-10.796

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.606	1.008	1.000	0.000

Air Zero Calibration, performed Wed Feb 12 07:58:38 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

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)
			CHD-Titan Titan 1 7/16" GO Cablehead	1.00	1.44	5.00
Temp	11.27		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
			RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS8	9.03					
WVFS7	9.03					
WVFS6	9.03					
WVFS5	9.03					
WVFS4	9.03					
WVFS3	9.03					
WVFS2	9.03					
WVFS1	9.03					
WVF3FT	9.03					
WVF5FT	8.03					
HeadVolt	4.78					
WVFCAL	4.78					
CCL	3.88					
GR	2.54		GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
			CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00

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Office of Oil and Gas
AUG 10 2020
WV Department of
Environmental Protection



Dataset:	antero_oxfd_13_chs_rcbl_nineenergy_12_feb_2020.db: Marcellus/OXFD_13_CHS/run1/merge1.1
Total length:	15.17 ft
Total weight:	162.00 lb
O.D.:	4.88 in



Company	Antero Resources
Well	OXFD 13 CHS
Field	N/A
County	Doddridge
State	West Virginia