



Nine

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

Company Antero Resources

Well OXFD 13 FHS

Field N/A

County Doddridge

State West Virginia

Location: API #: 47-017-06632

Other Services

SEC TWP RGE

Elevation

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

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

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

Date 11-Feb-2020

Run Number One

Depth Driller N/A

Depth Logger 7,022 Ft.

Bottom Logged Interval 7,022 Ft. Surface

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 1,376 ft.

Time Well Ready 09:00

Time Logger on Bottom 14:53

Equipment Number 143

Location Marietta, Ohio

Recorded By Tom Weese

Witnessed By Jay

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

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String				
Prot. String				
Production String	5 1/2 in.	20 lbs.	Surface	N/A
Liner				

<<< Fold Here >>>

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 @ 6,386 - 6,397

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

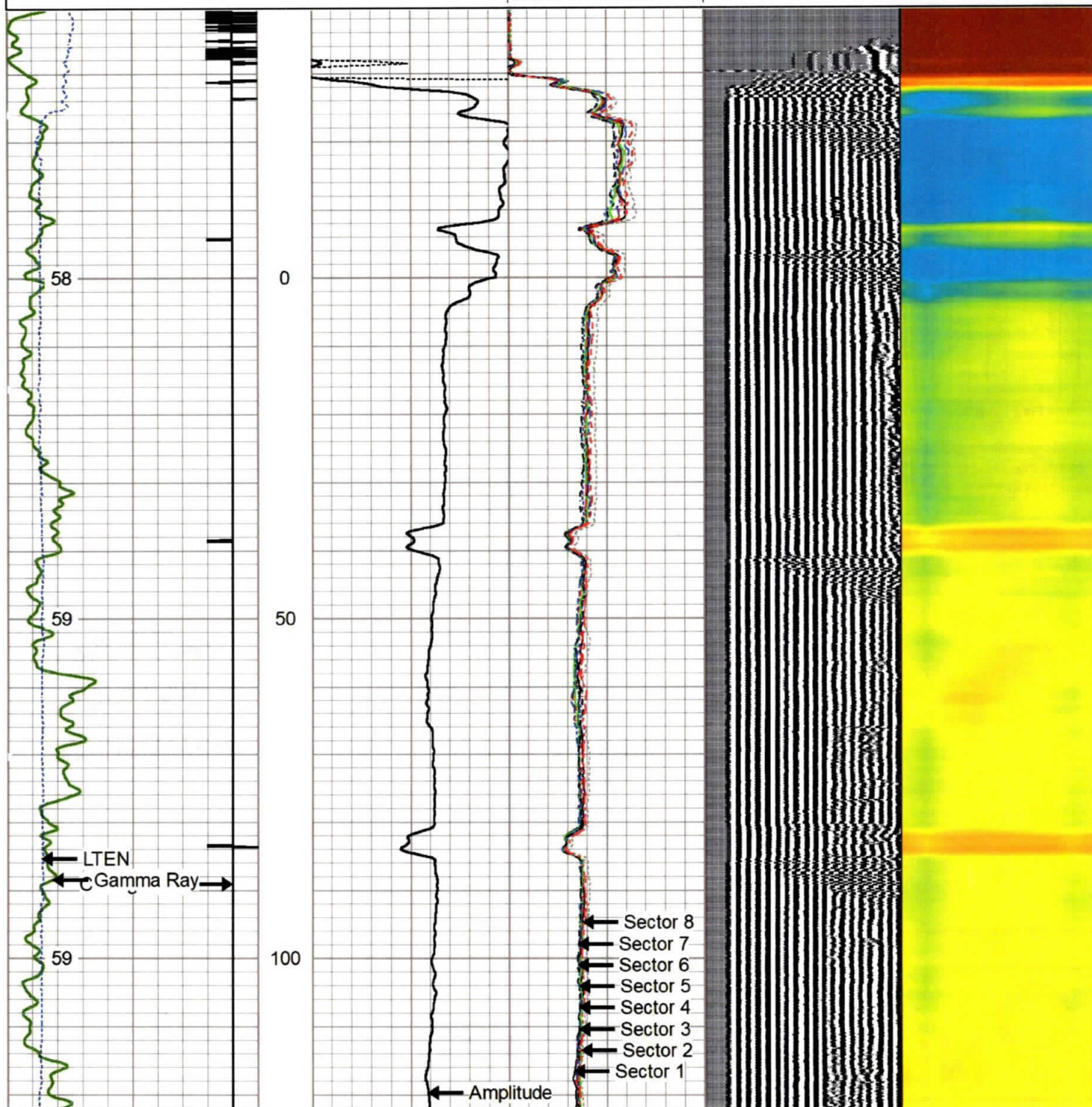
WV Department of
Environmental Protection

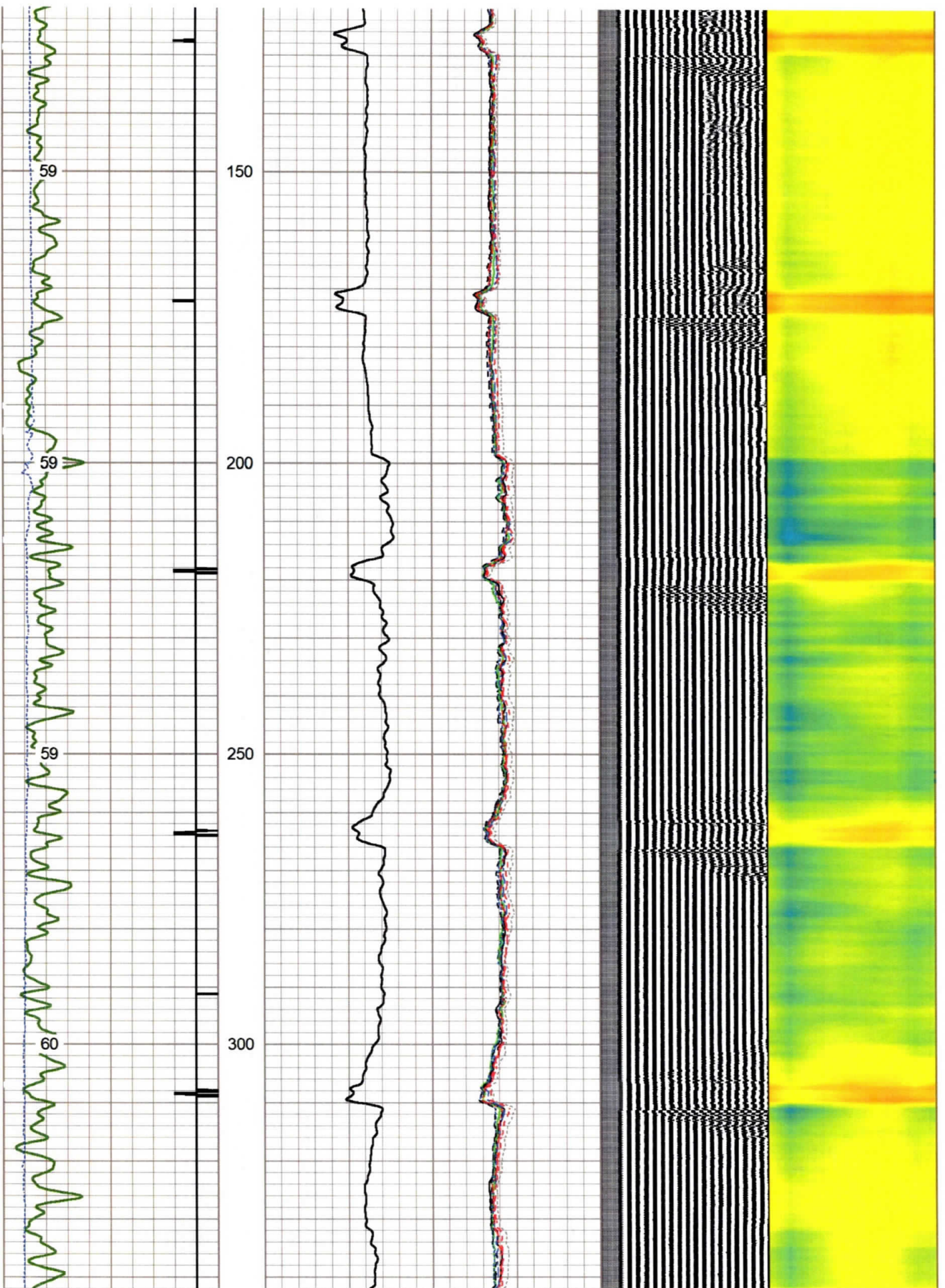


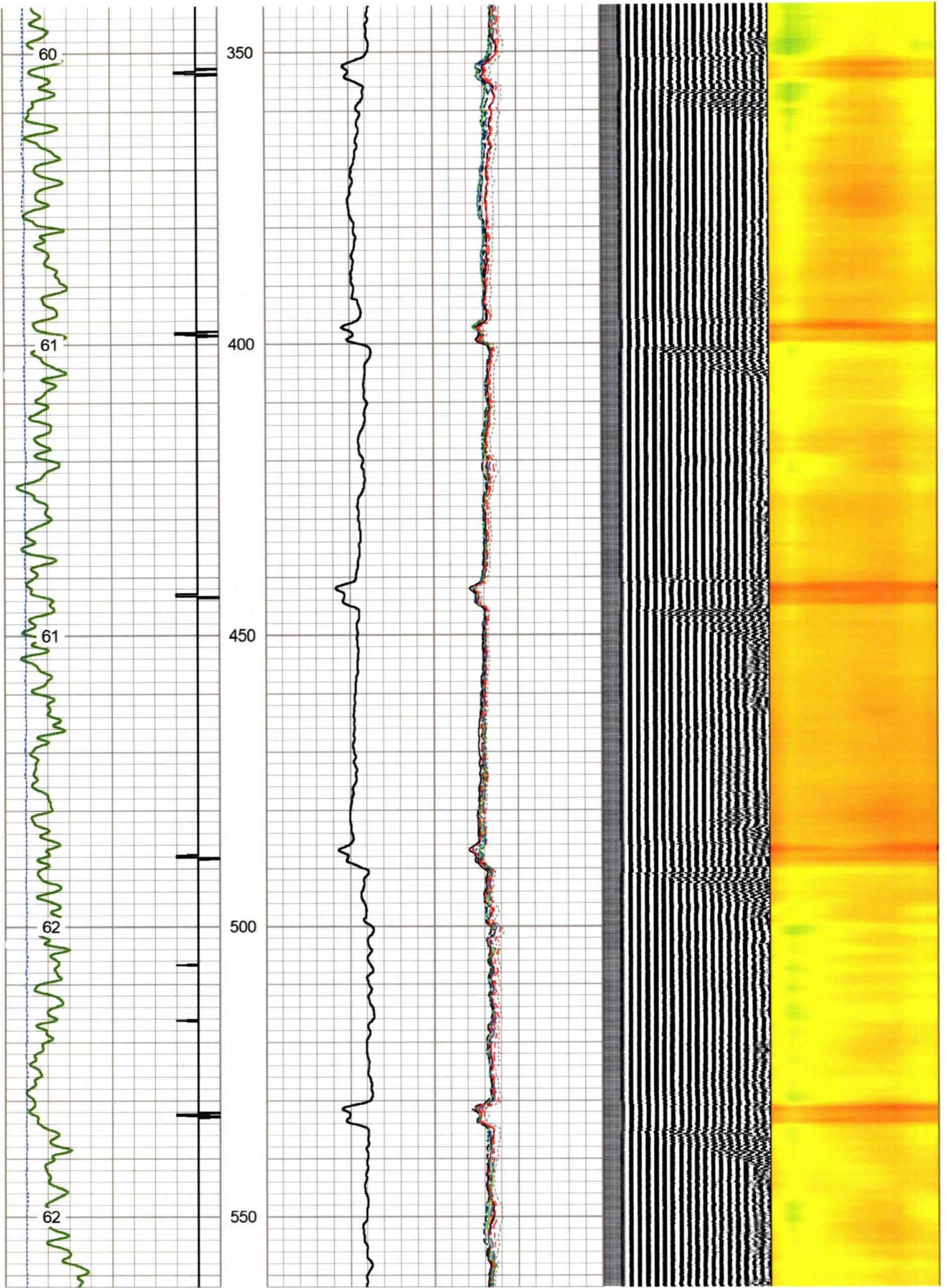
Main Pass 1500 PSI

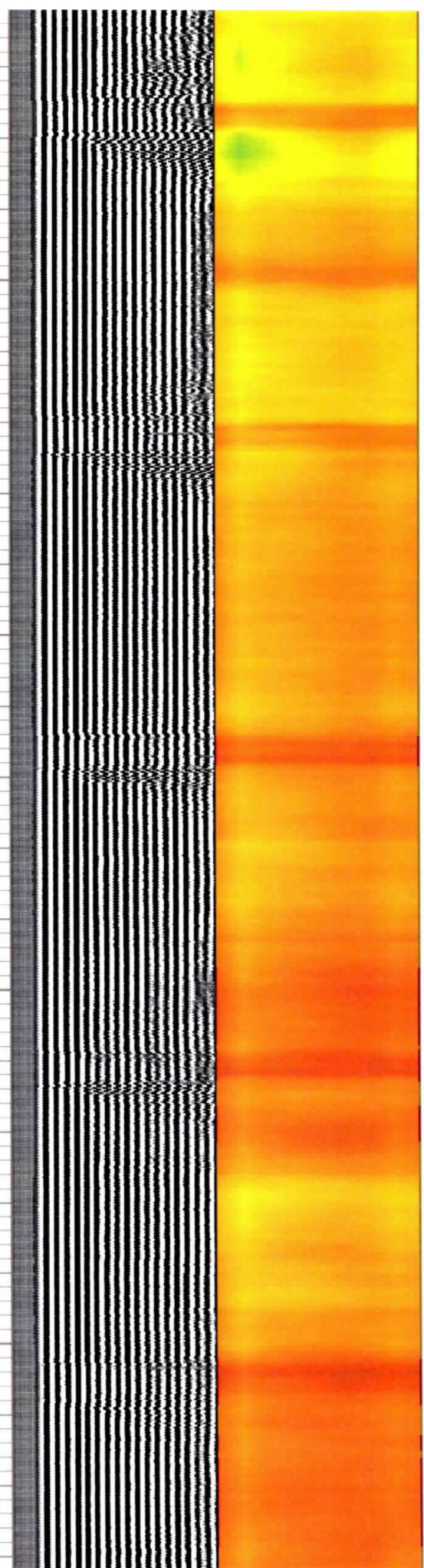
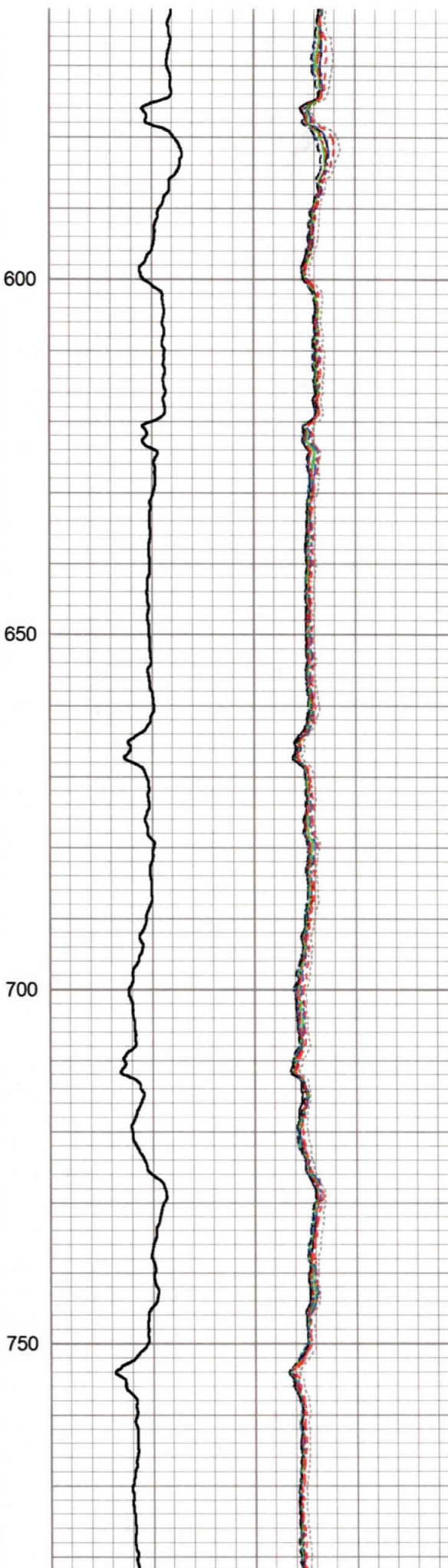
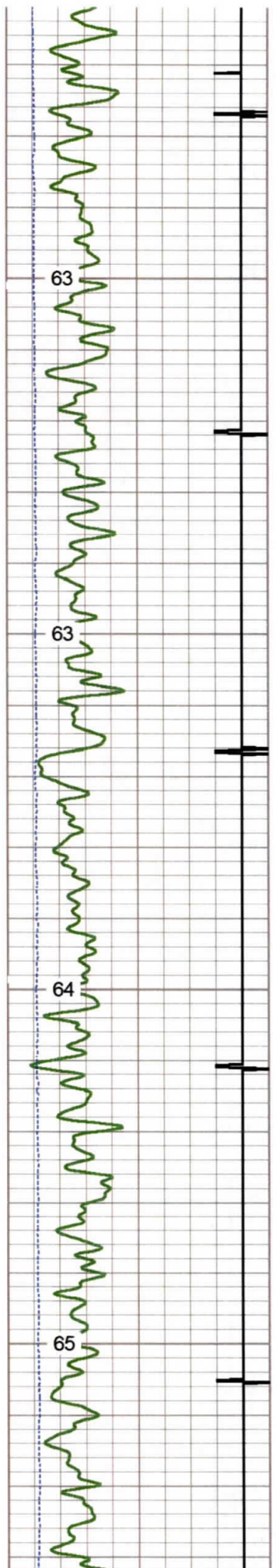
Database File antero_oxfd_13_fhs_rcbl_nineenergy_11_feb_2020.db
 Dataset Pathname Marcellus/OXFD_13_FHS/run1/Pass21.8
 Presentation Format scbl03
 Dataset Creation Wed Feb 12 05:49:04 2020
 Charted by Depth in Feet scaled 1:240

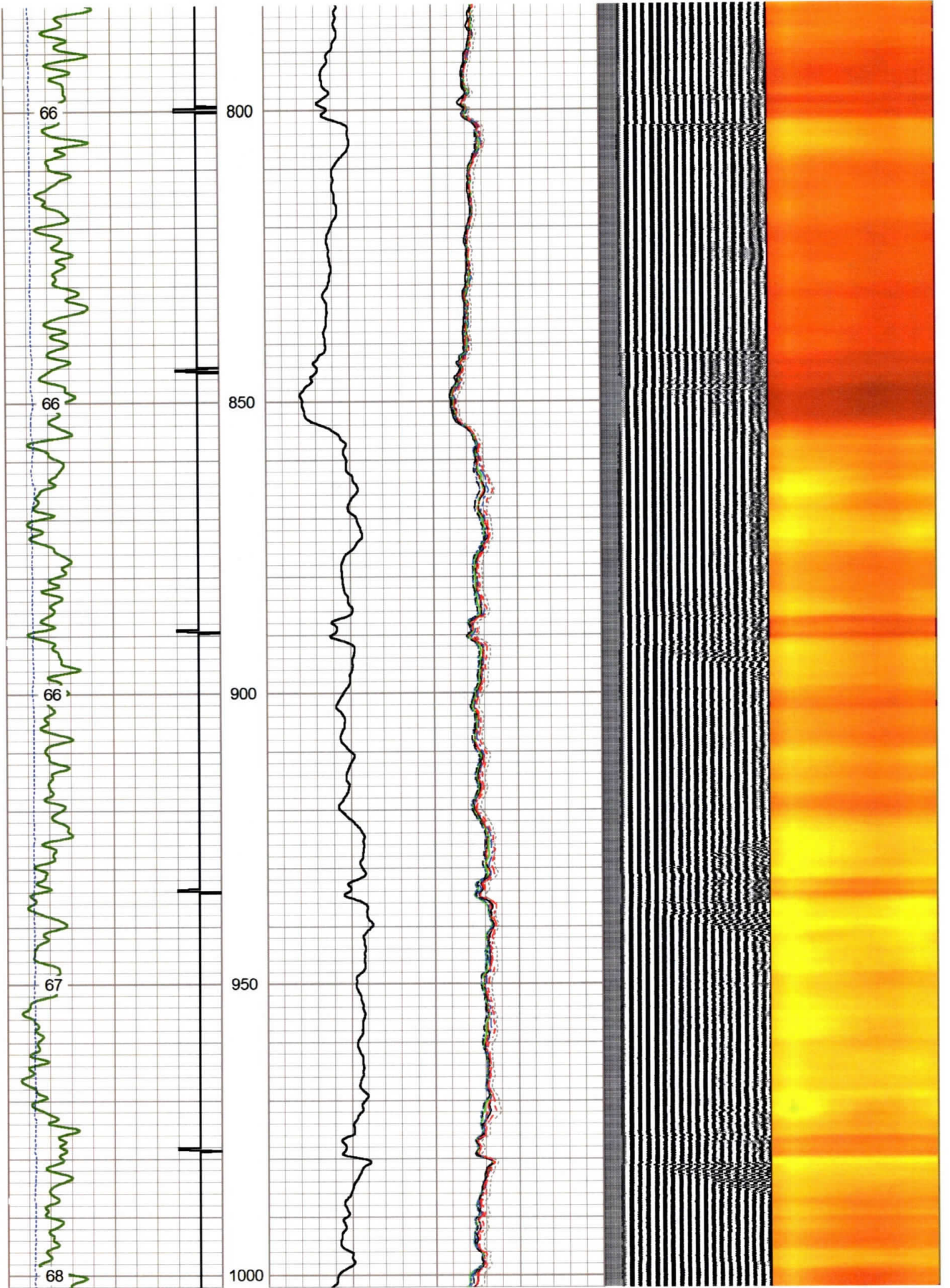
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Casing Collar			Amplified Amplitude			-5	Sector 2	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				
Temp (degF)						-5	Sector 5	150				
						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				

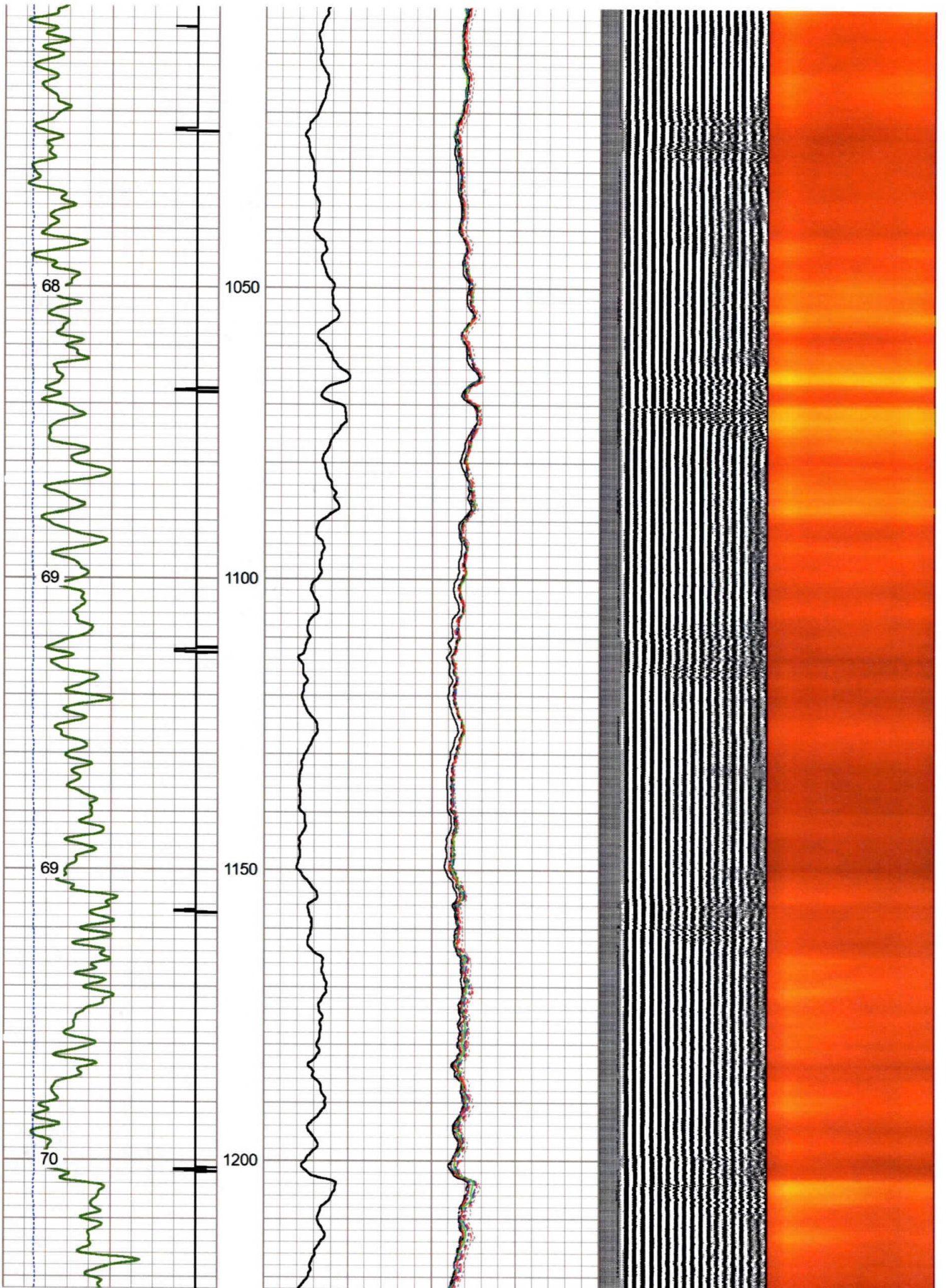


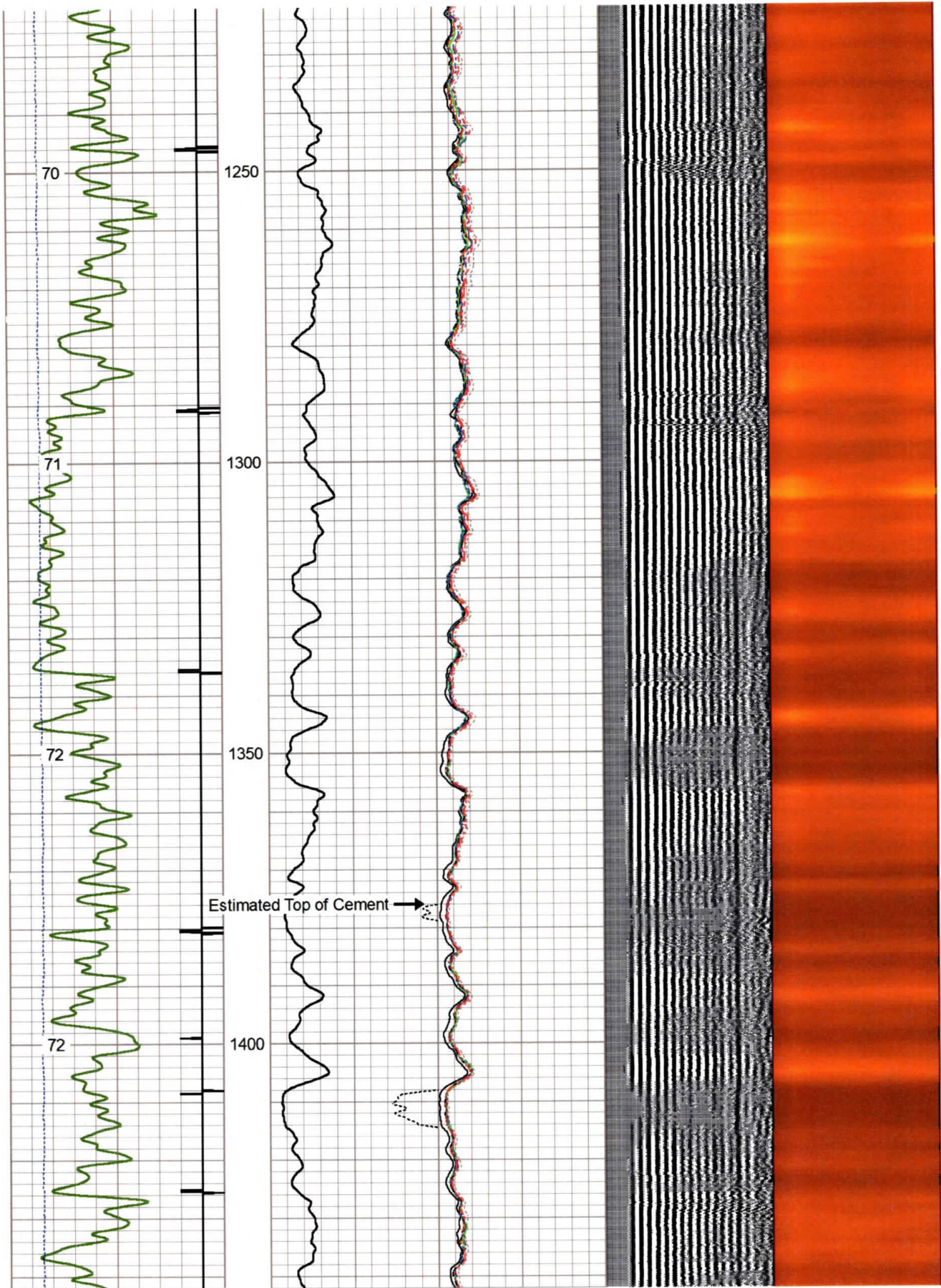


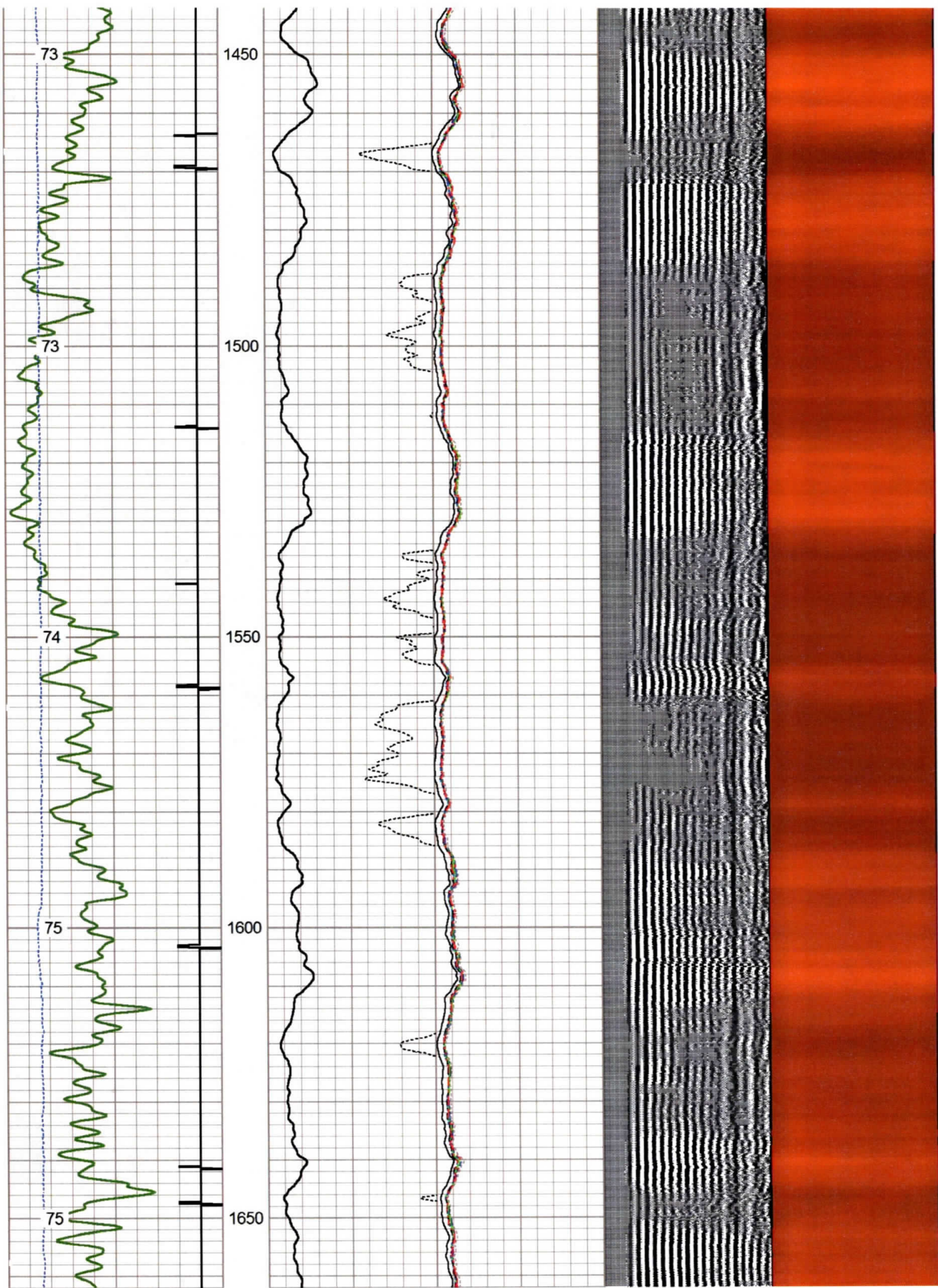


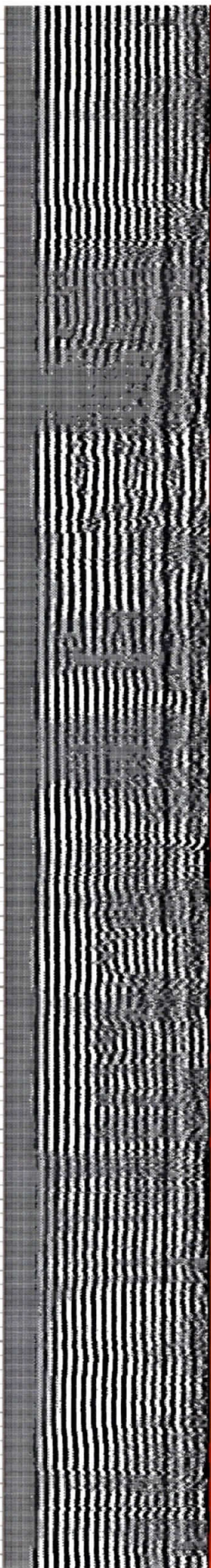
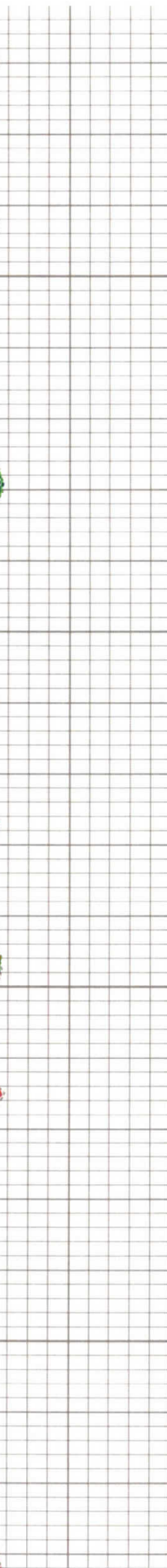
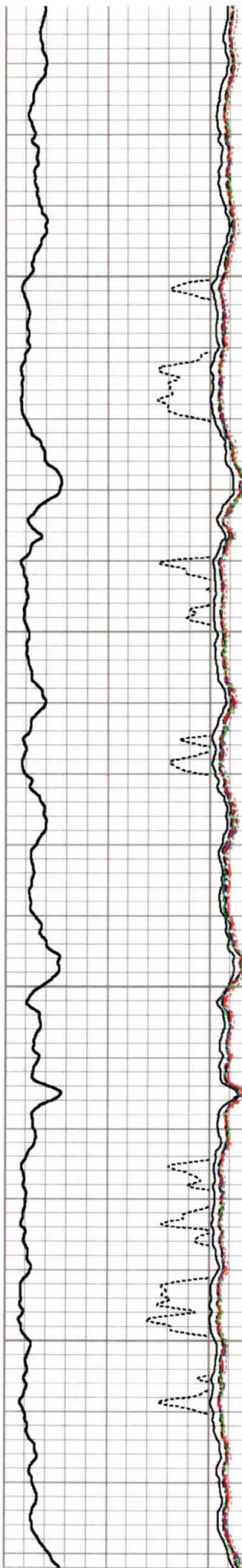
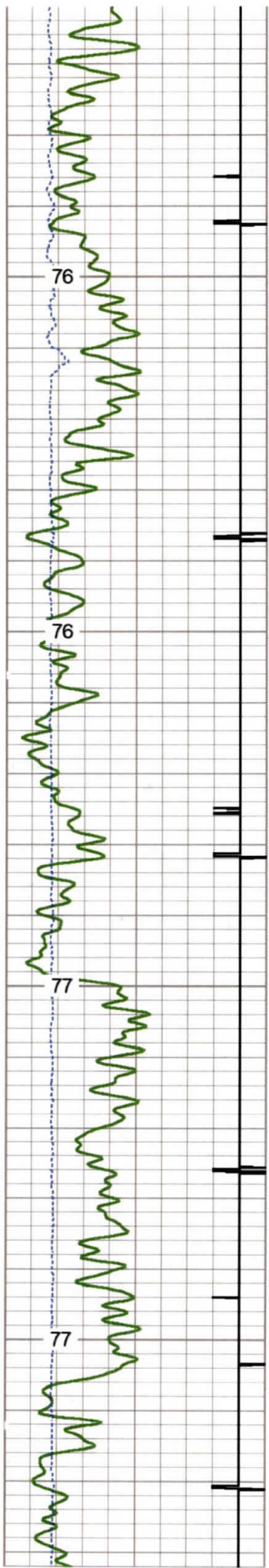


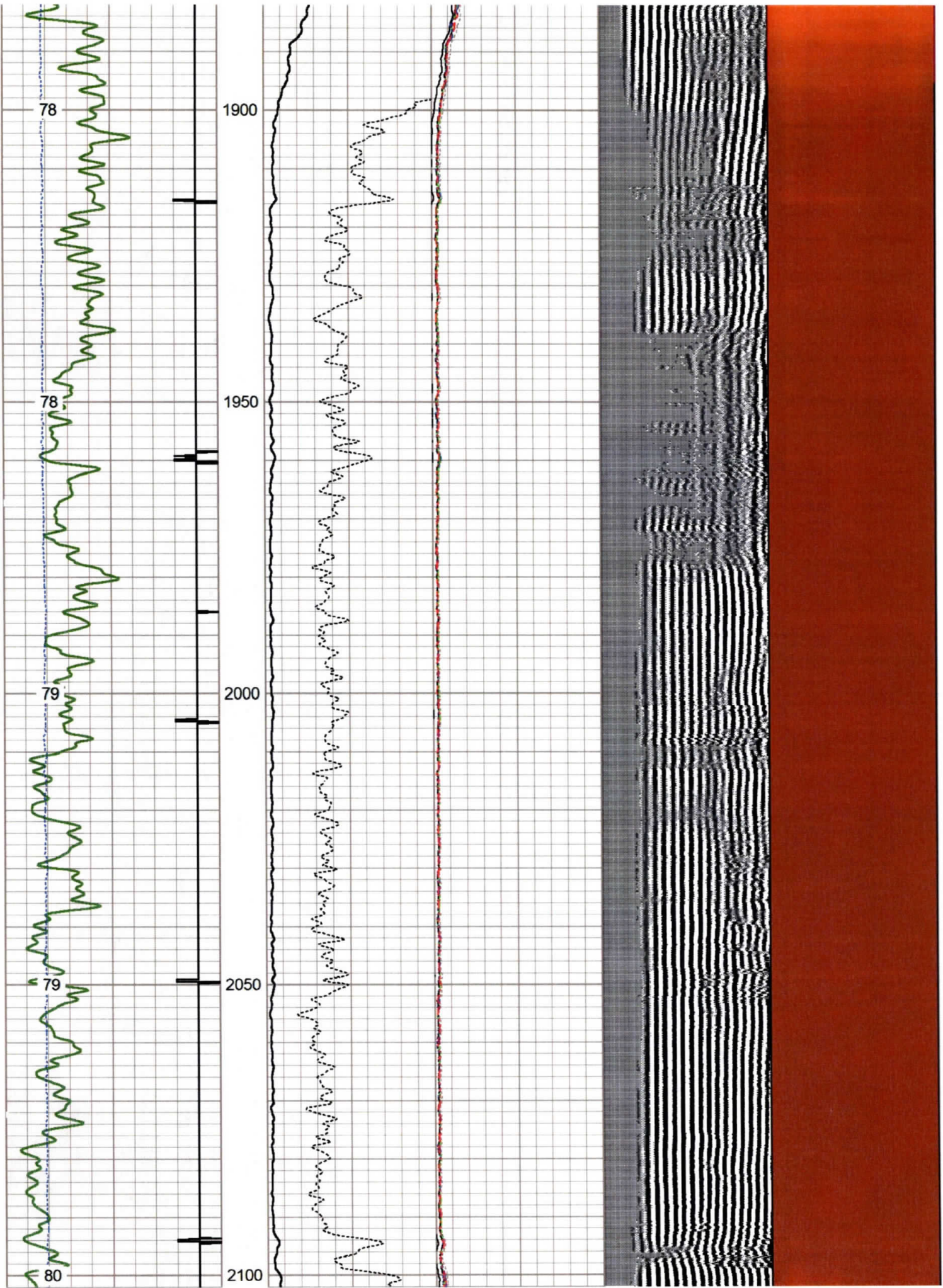


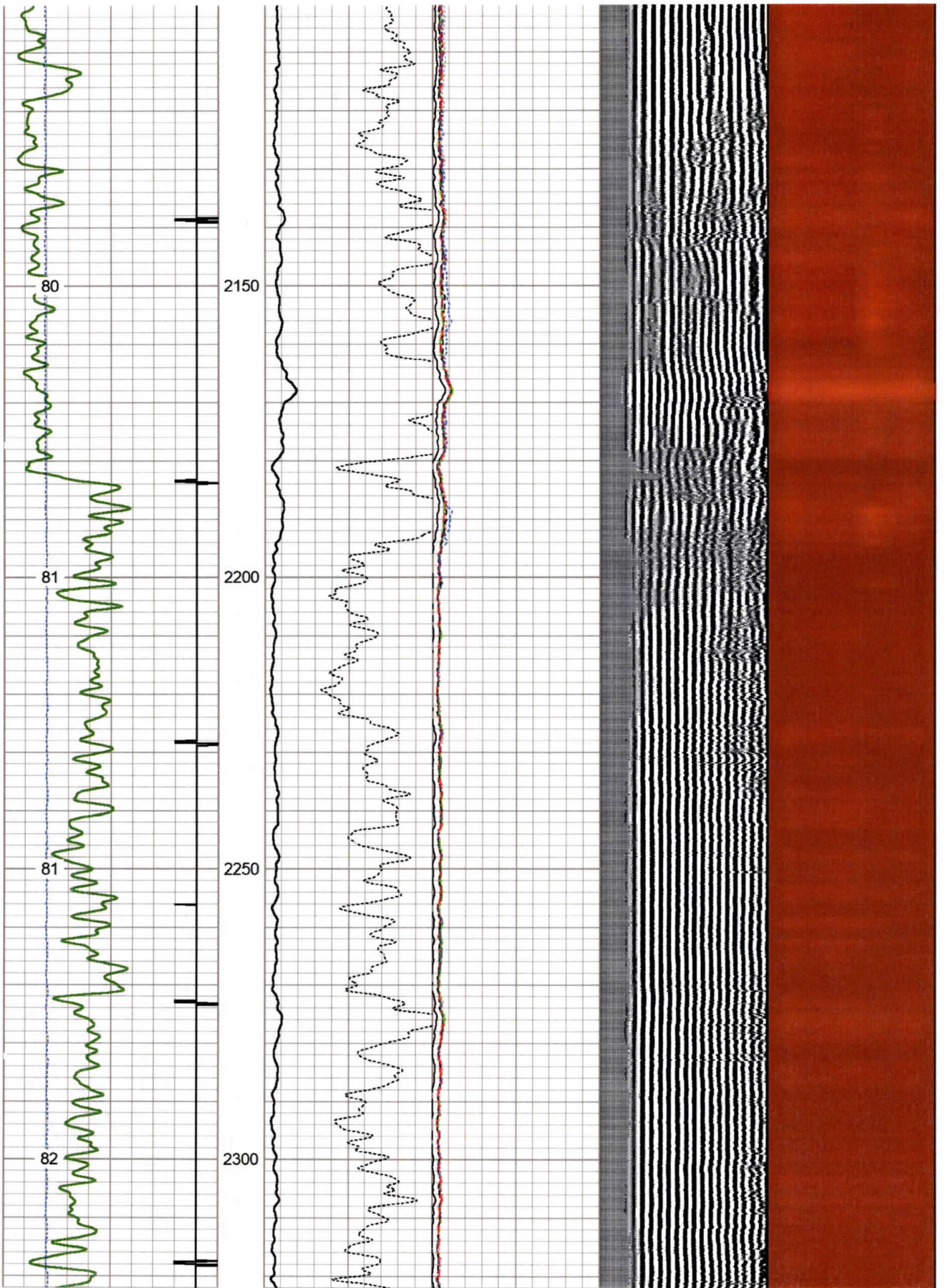


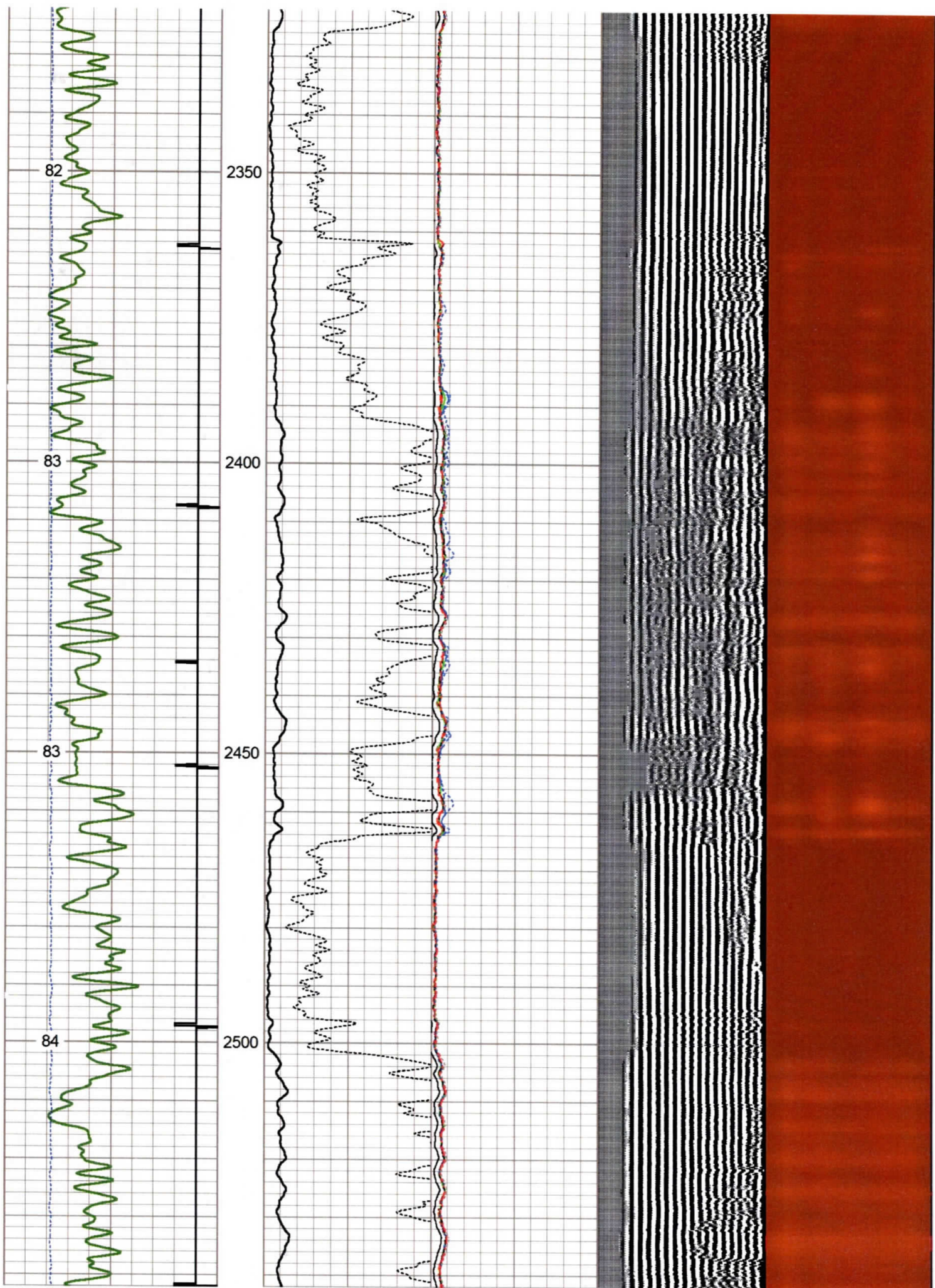


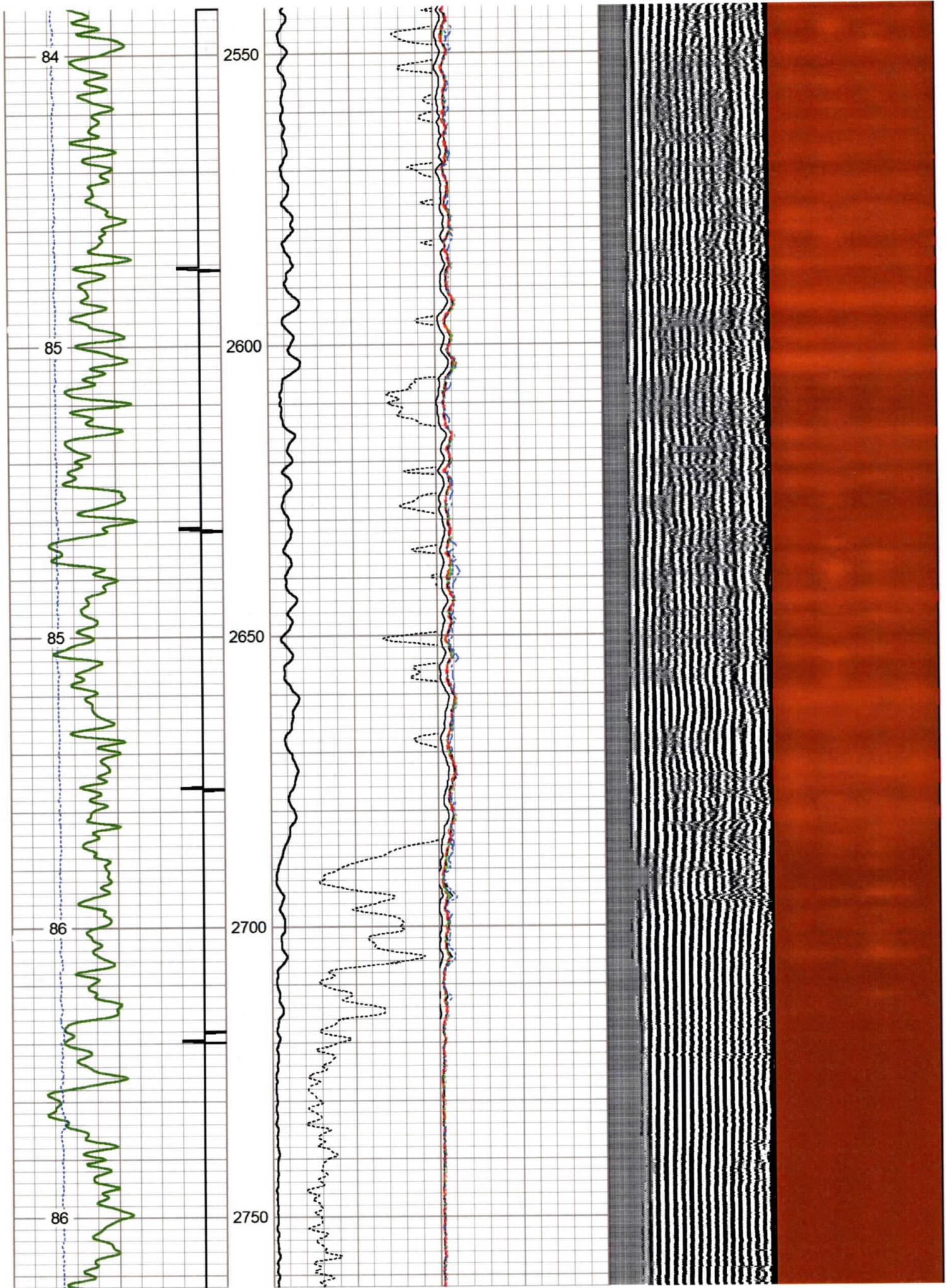


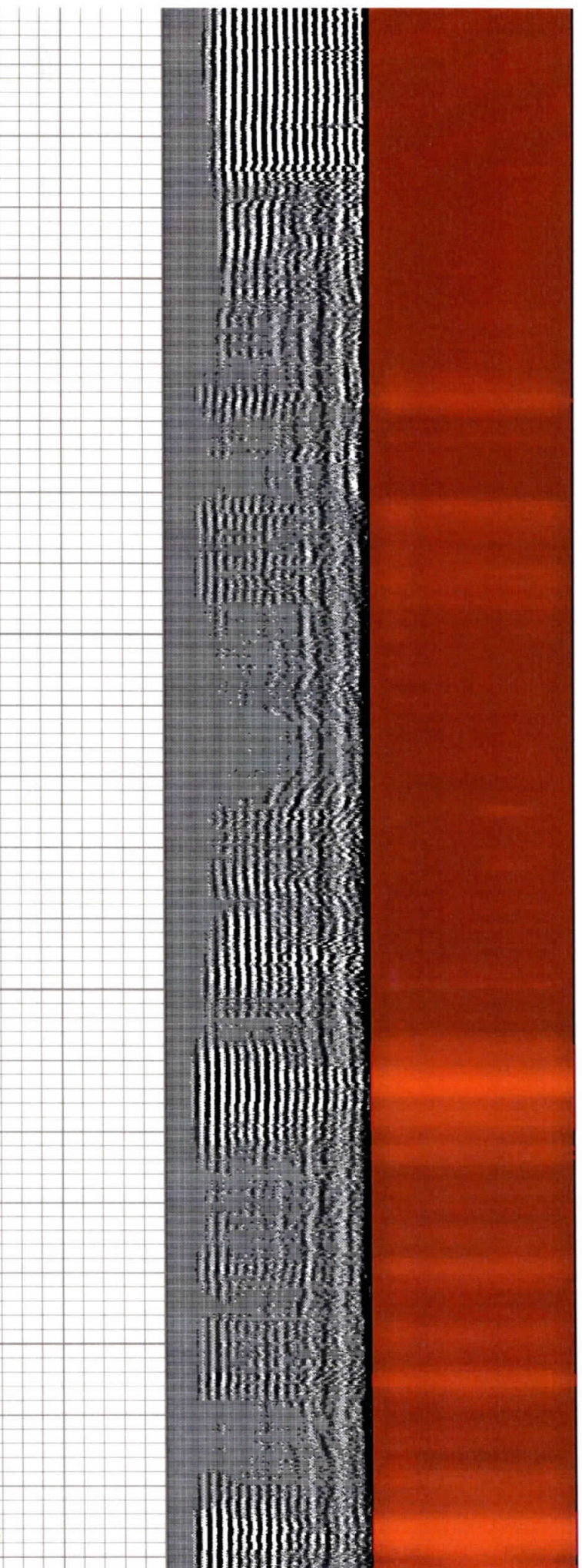
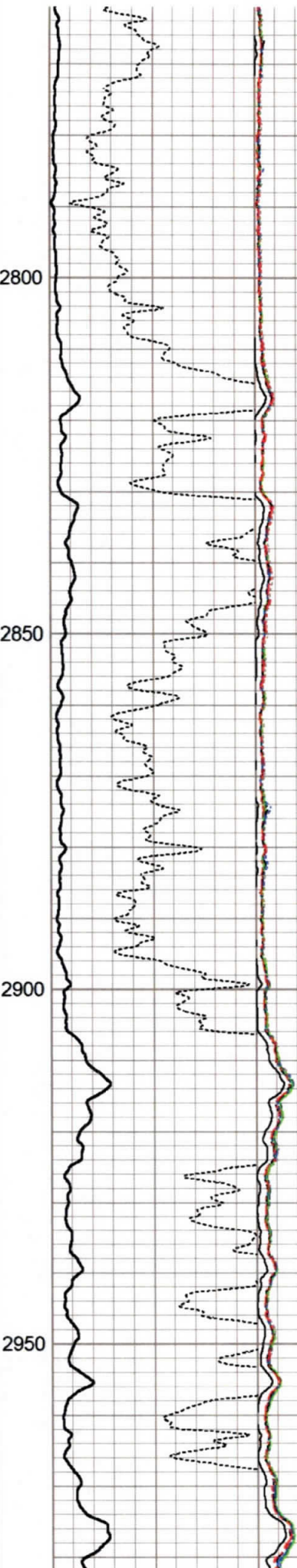
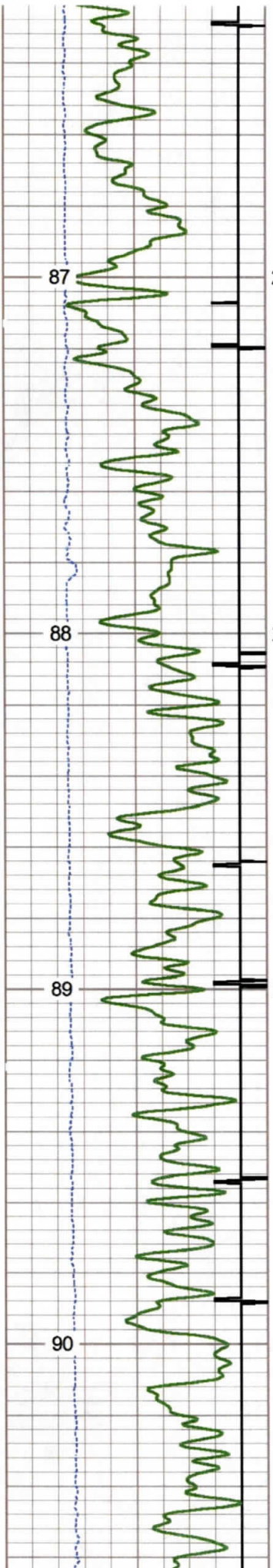


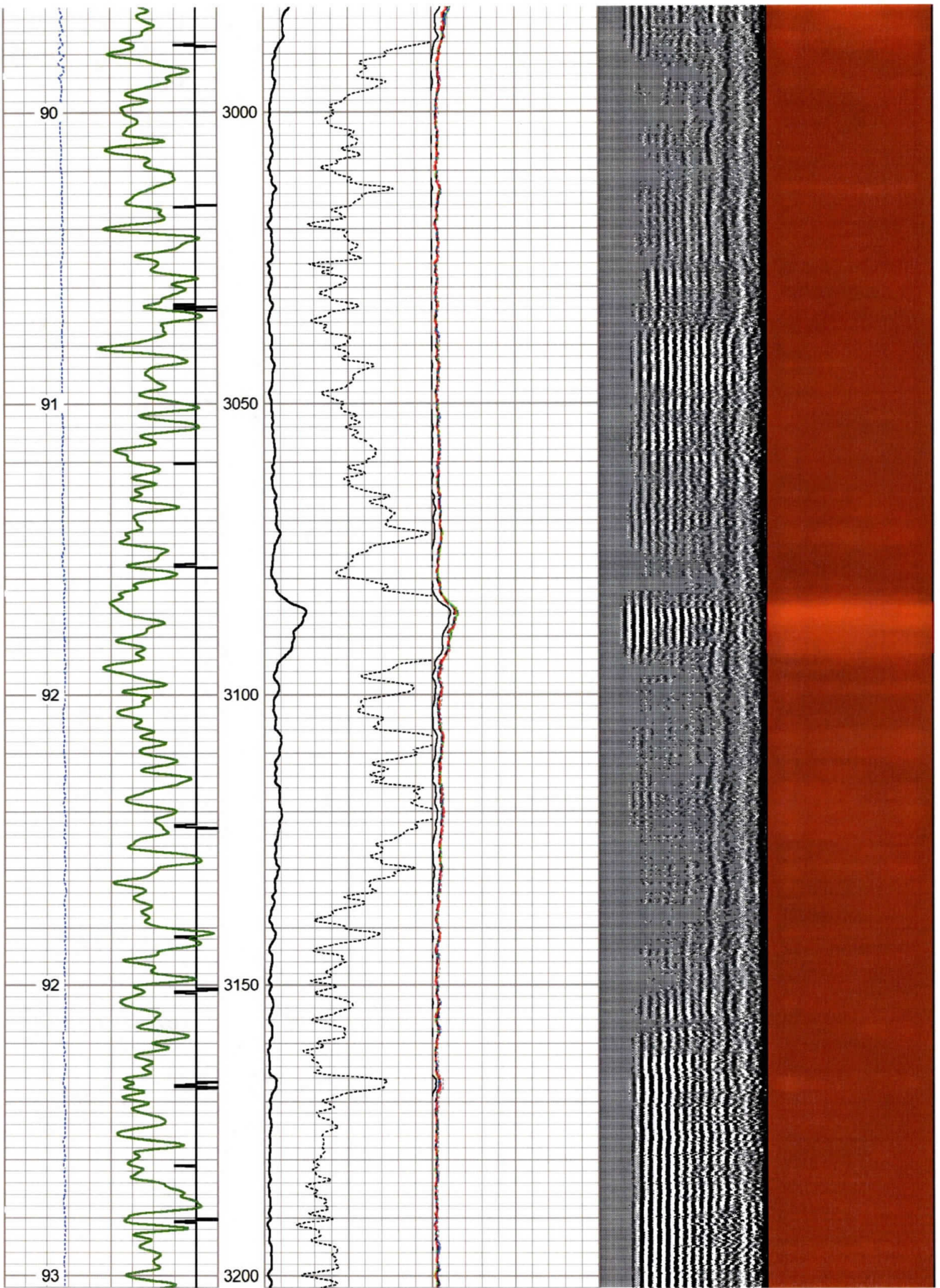


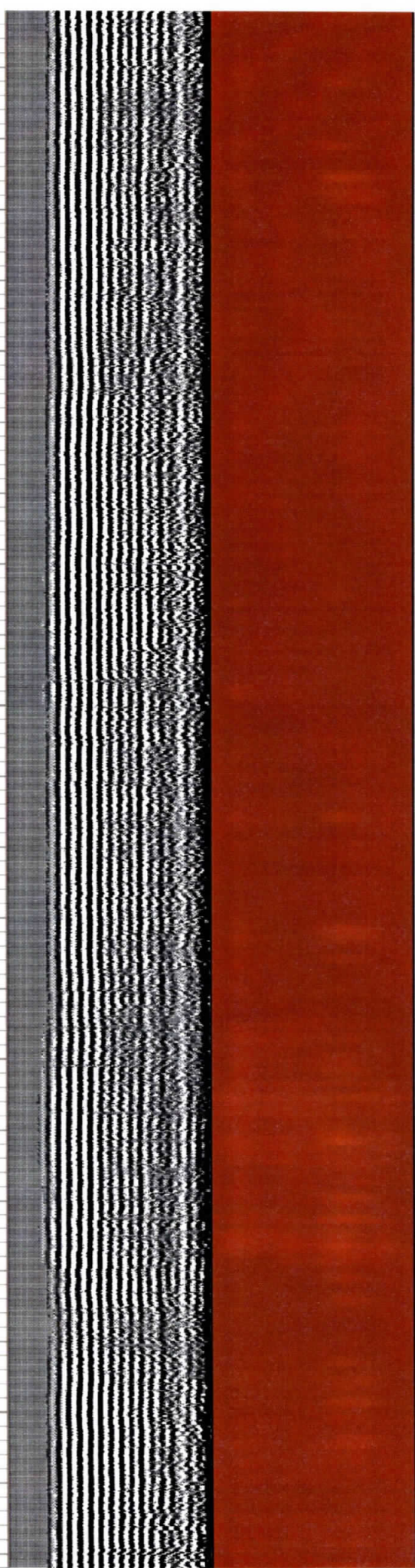
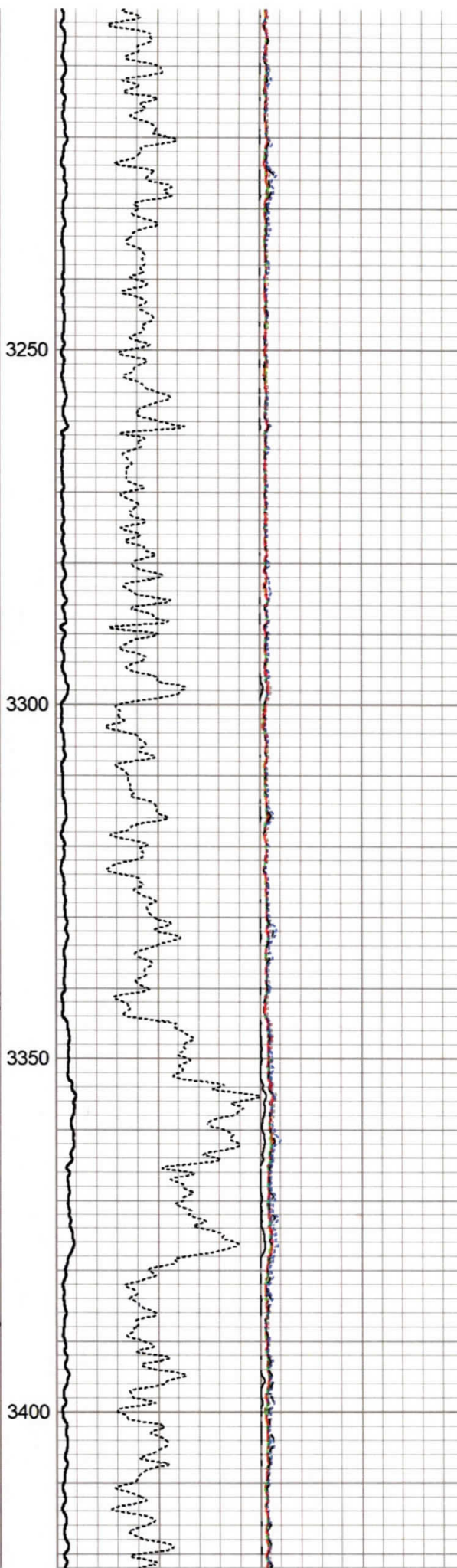
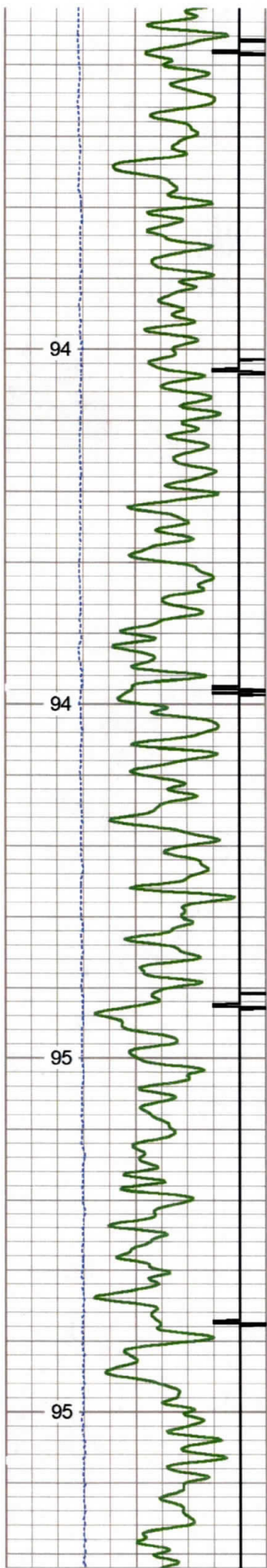


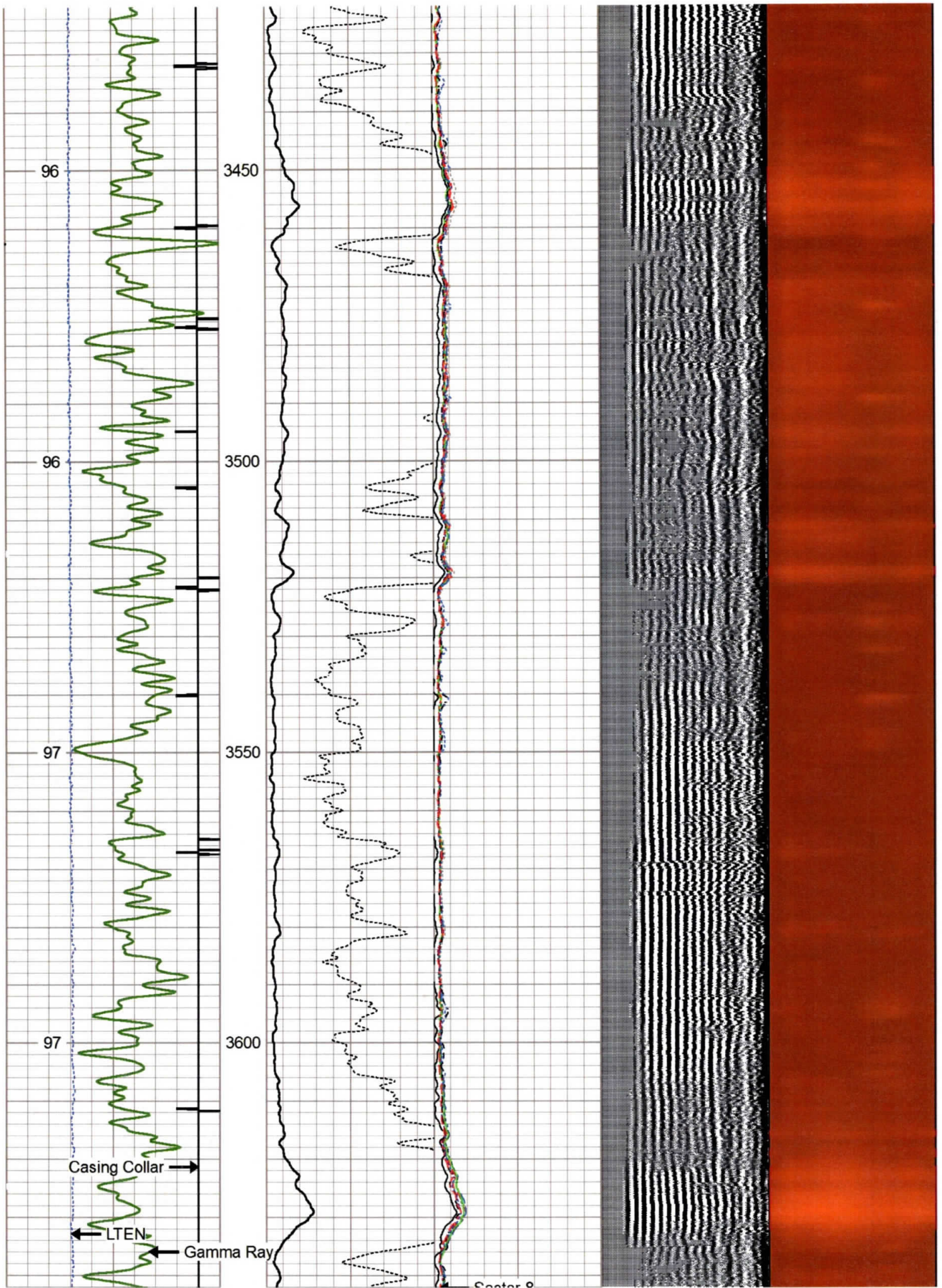


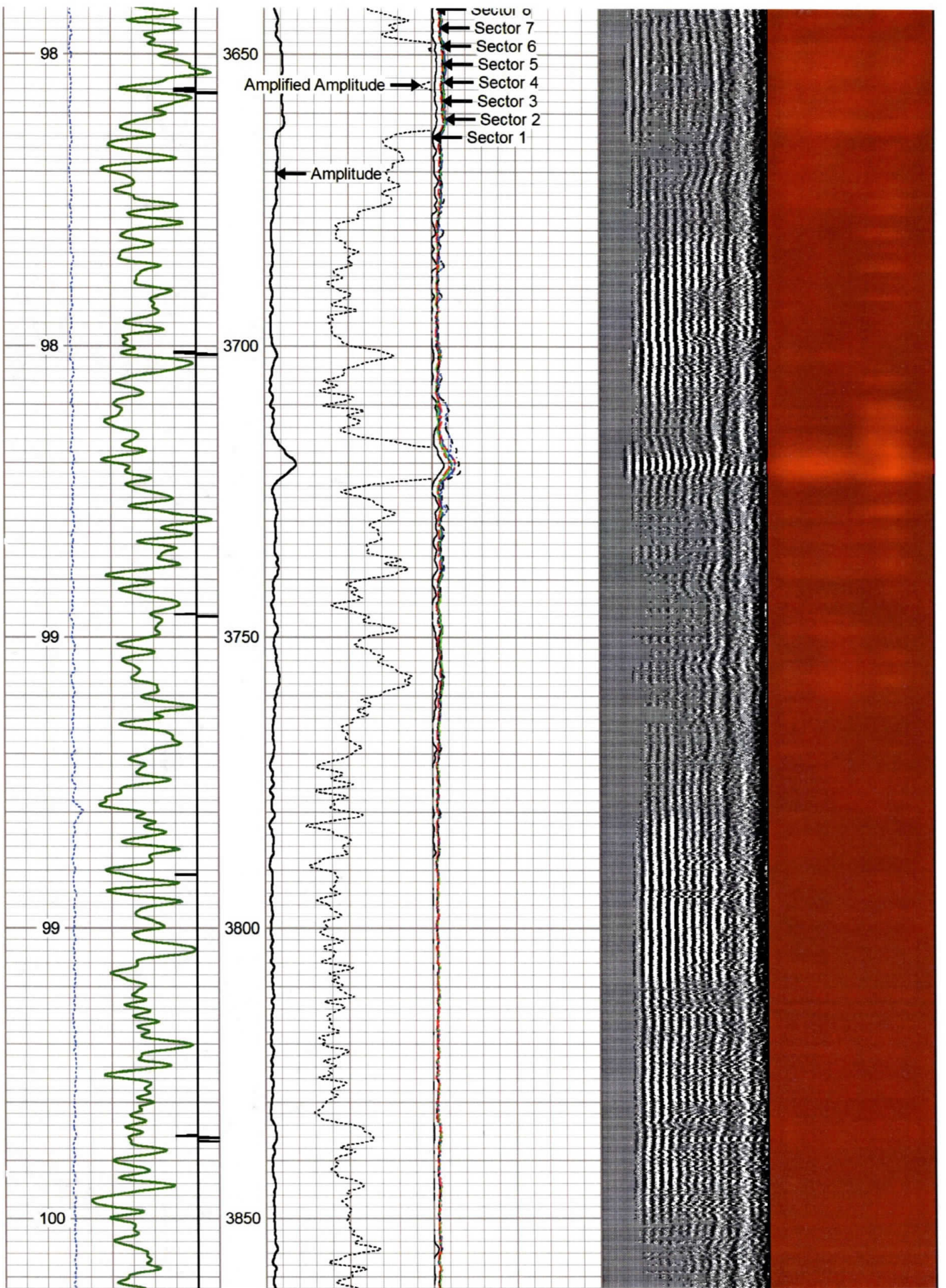


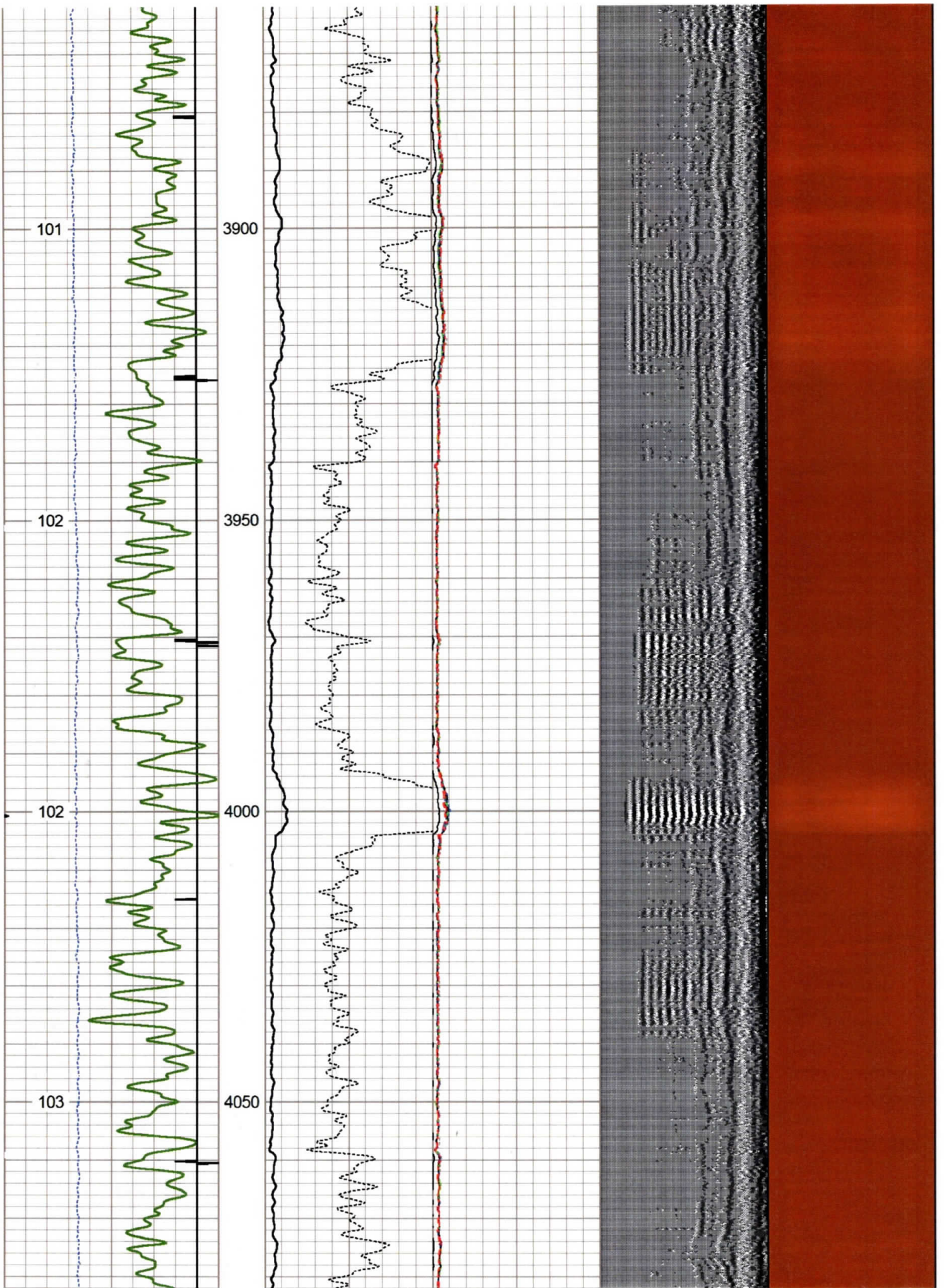


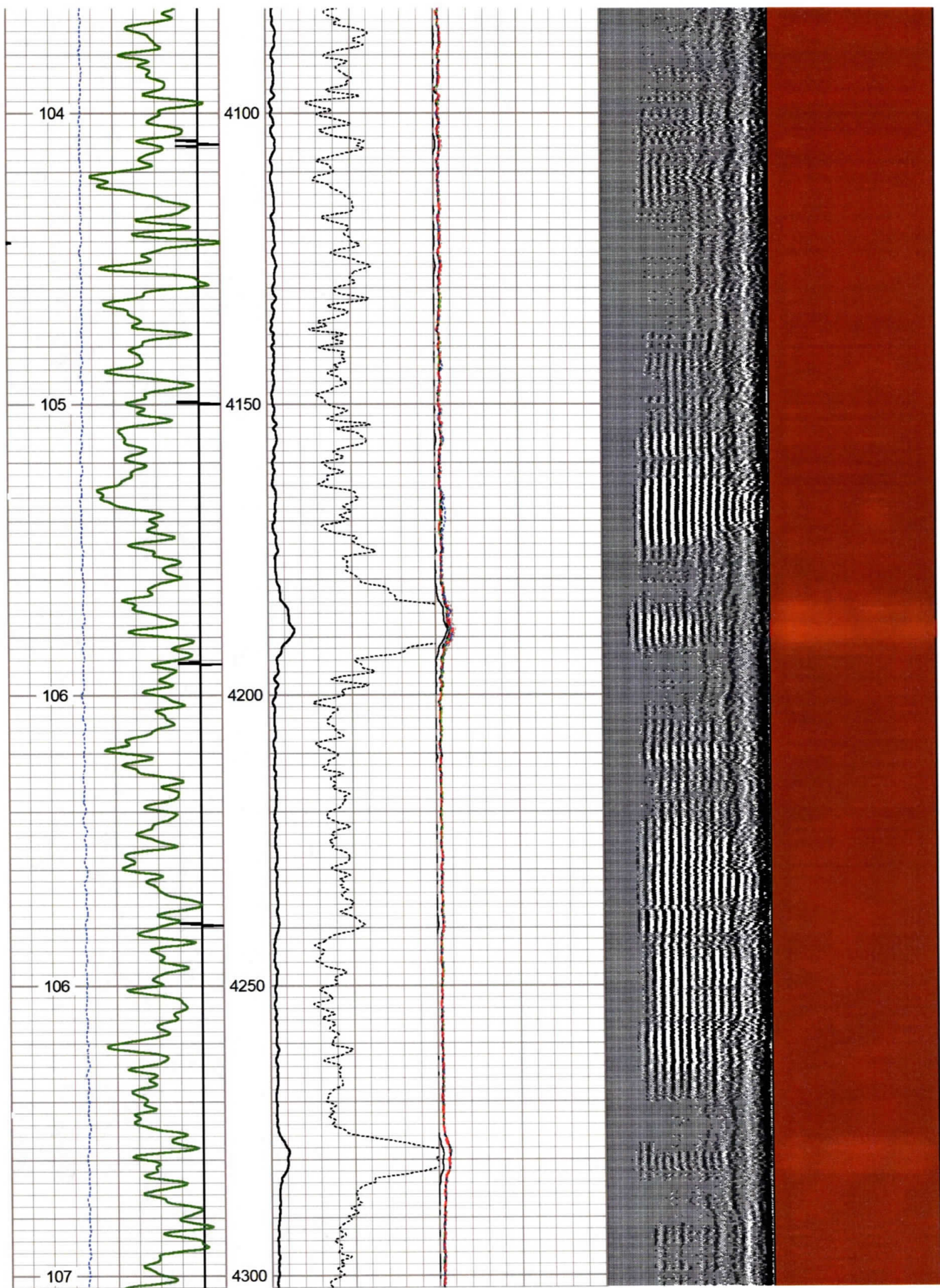


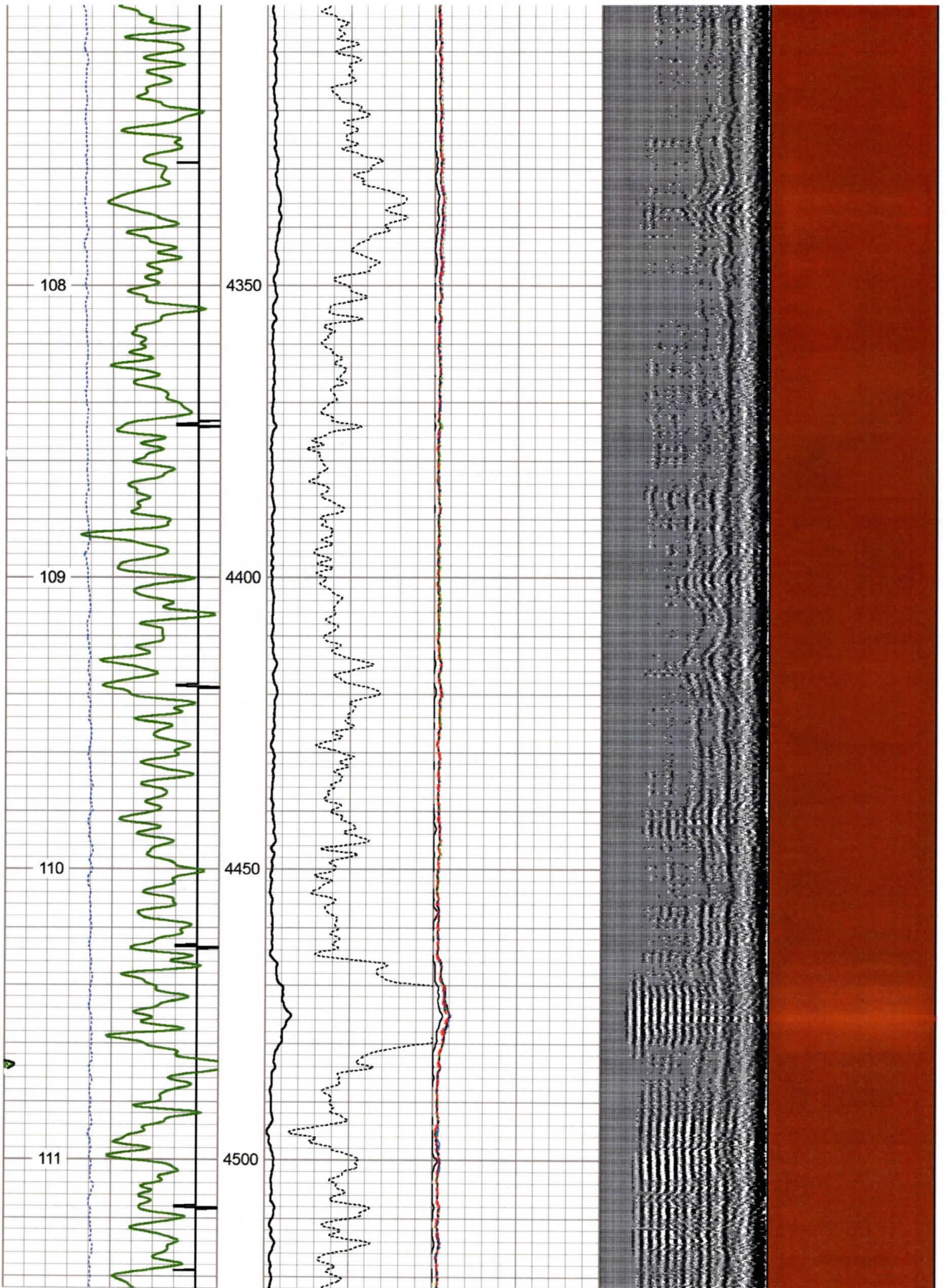


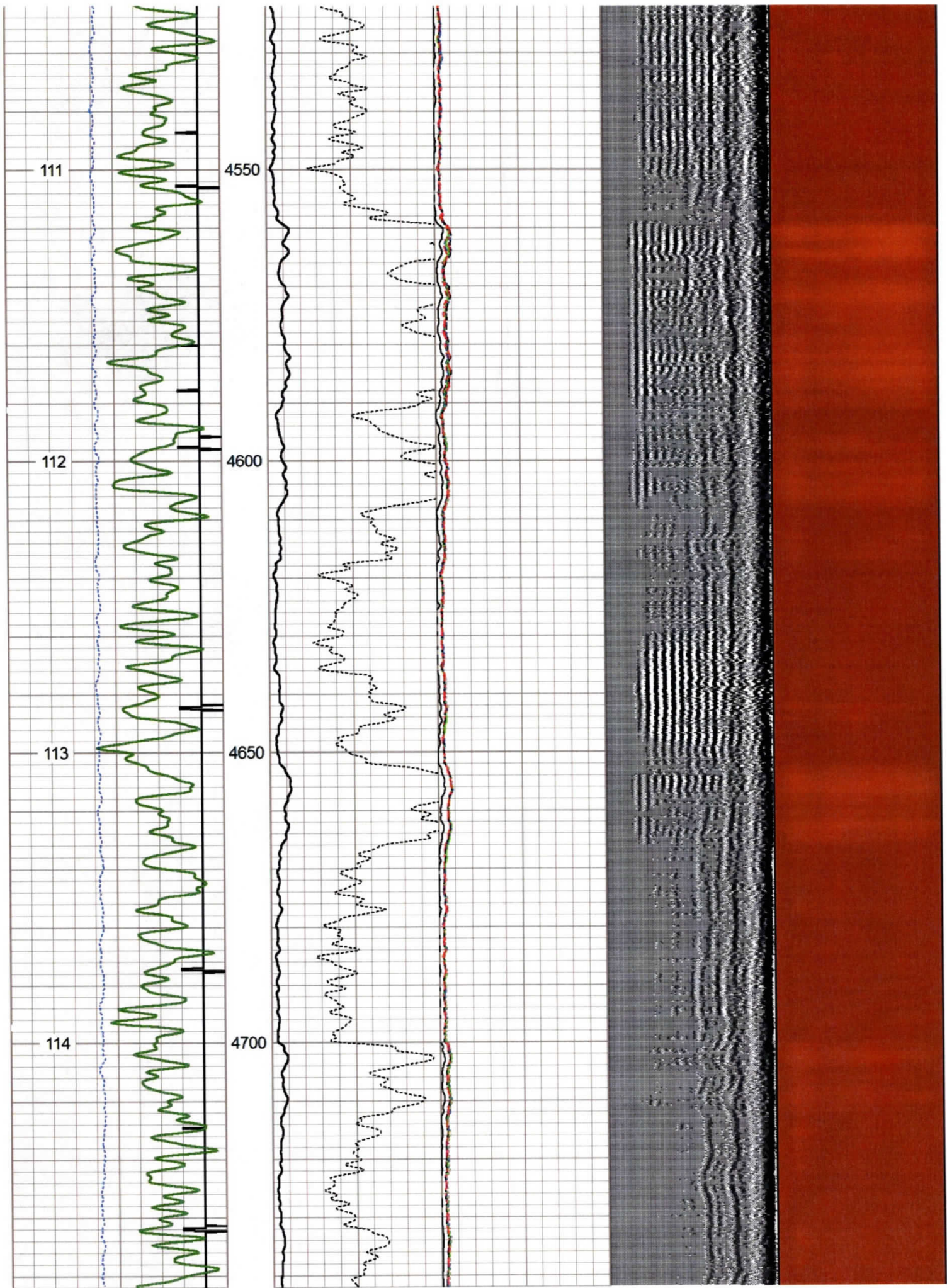


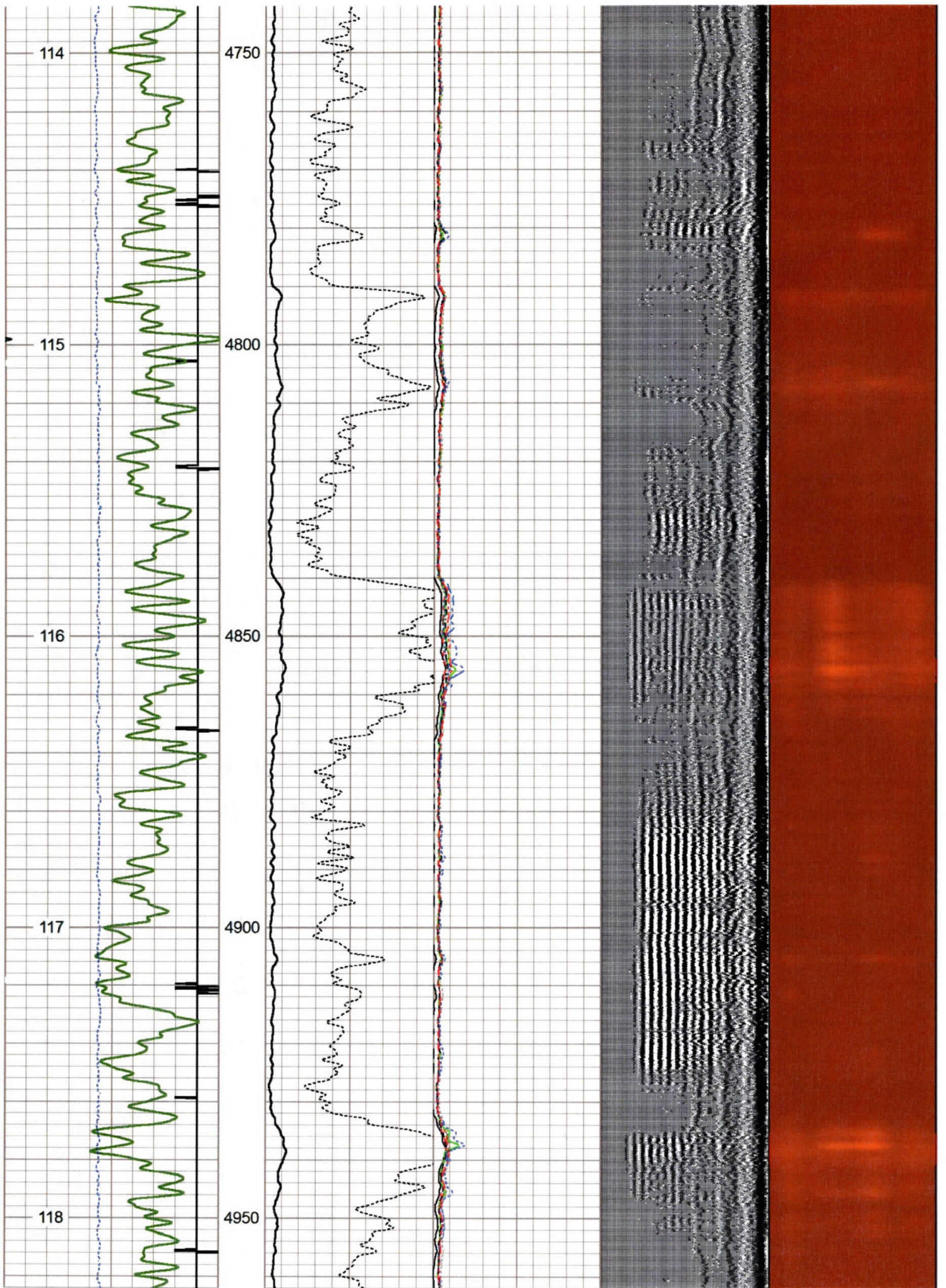


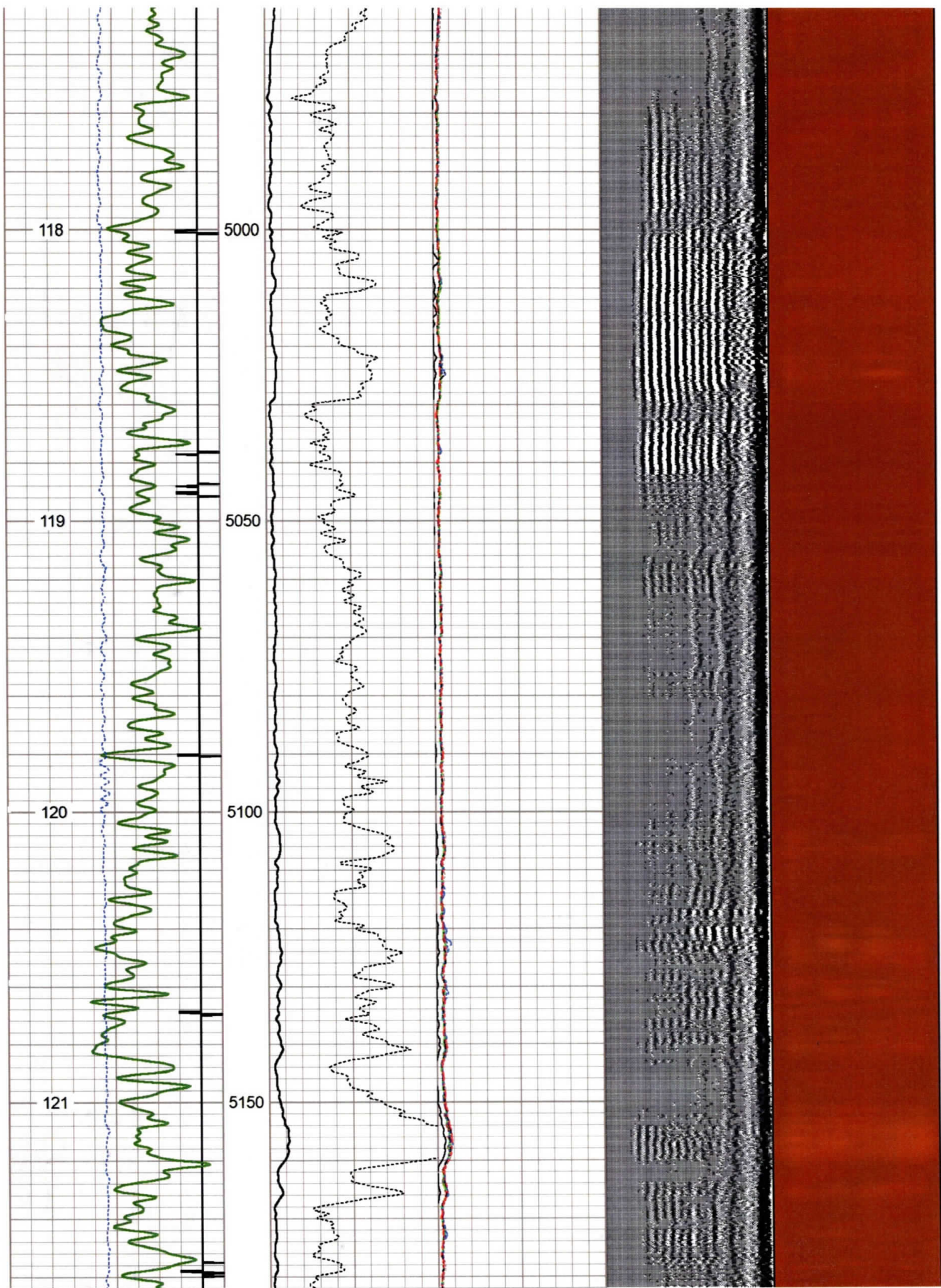


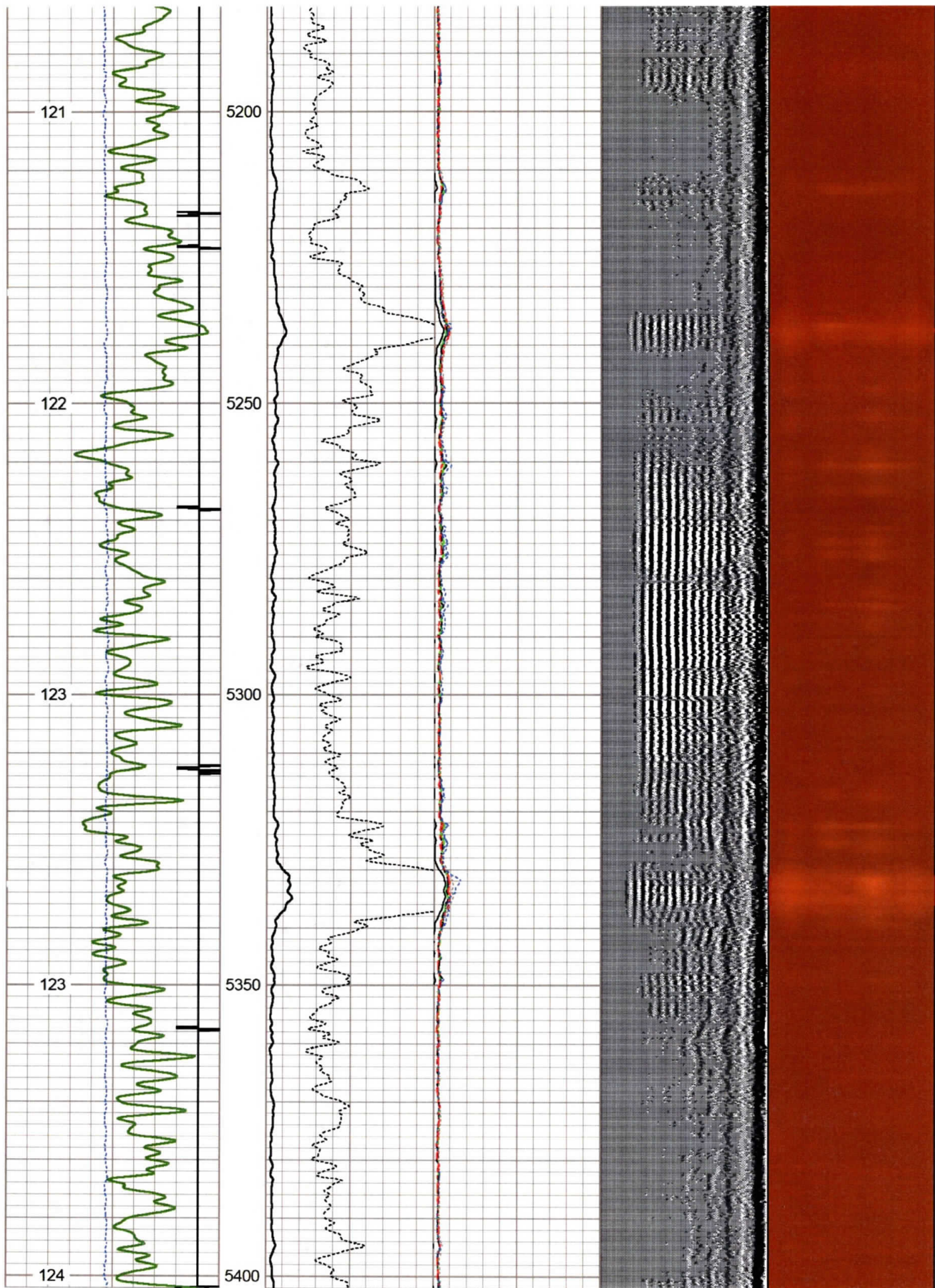


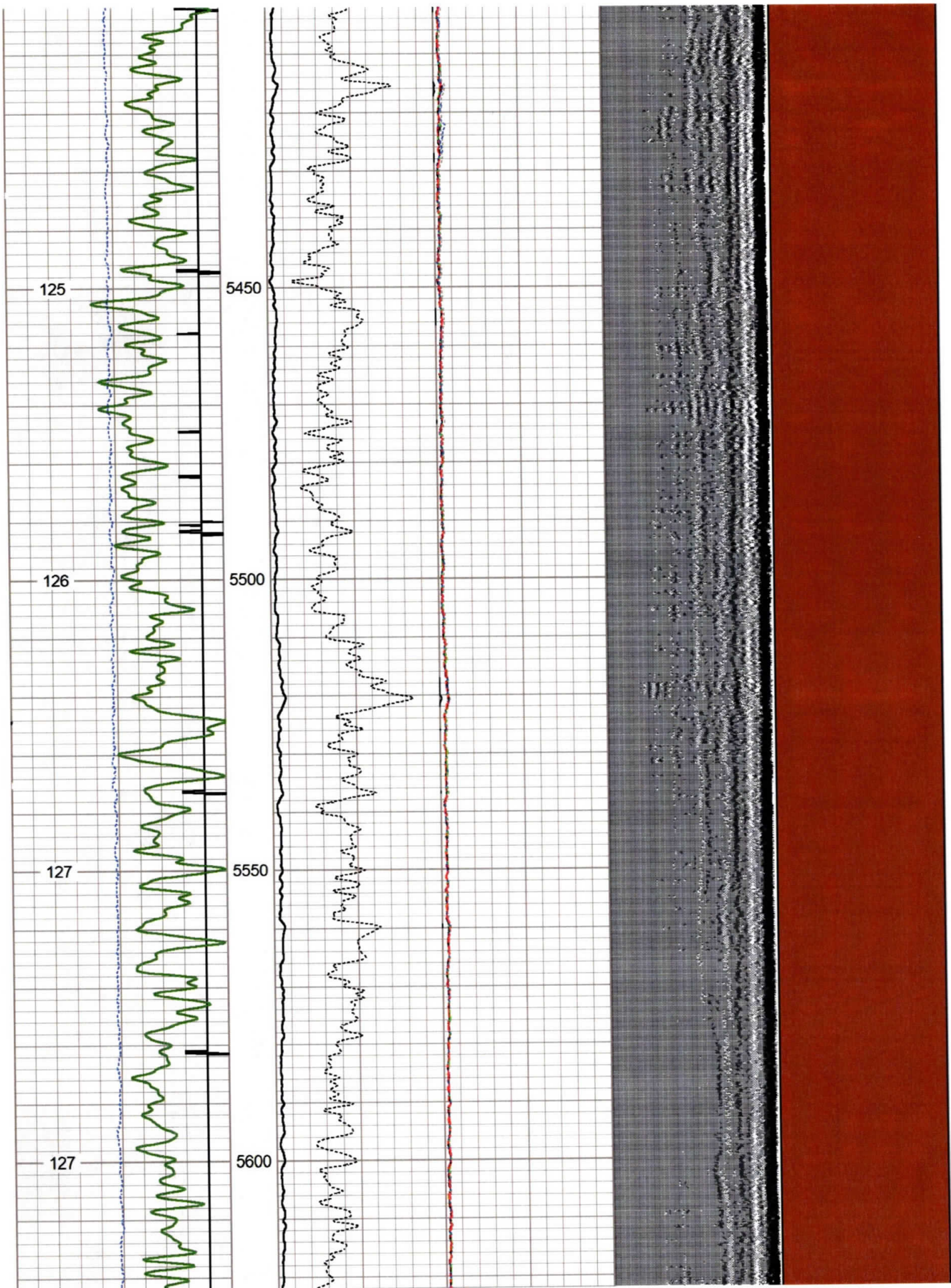


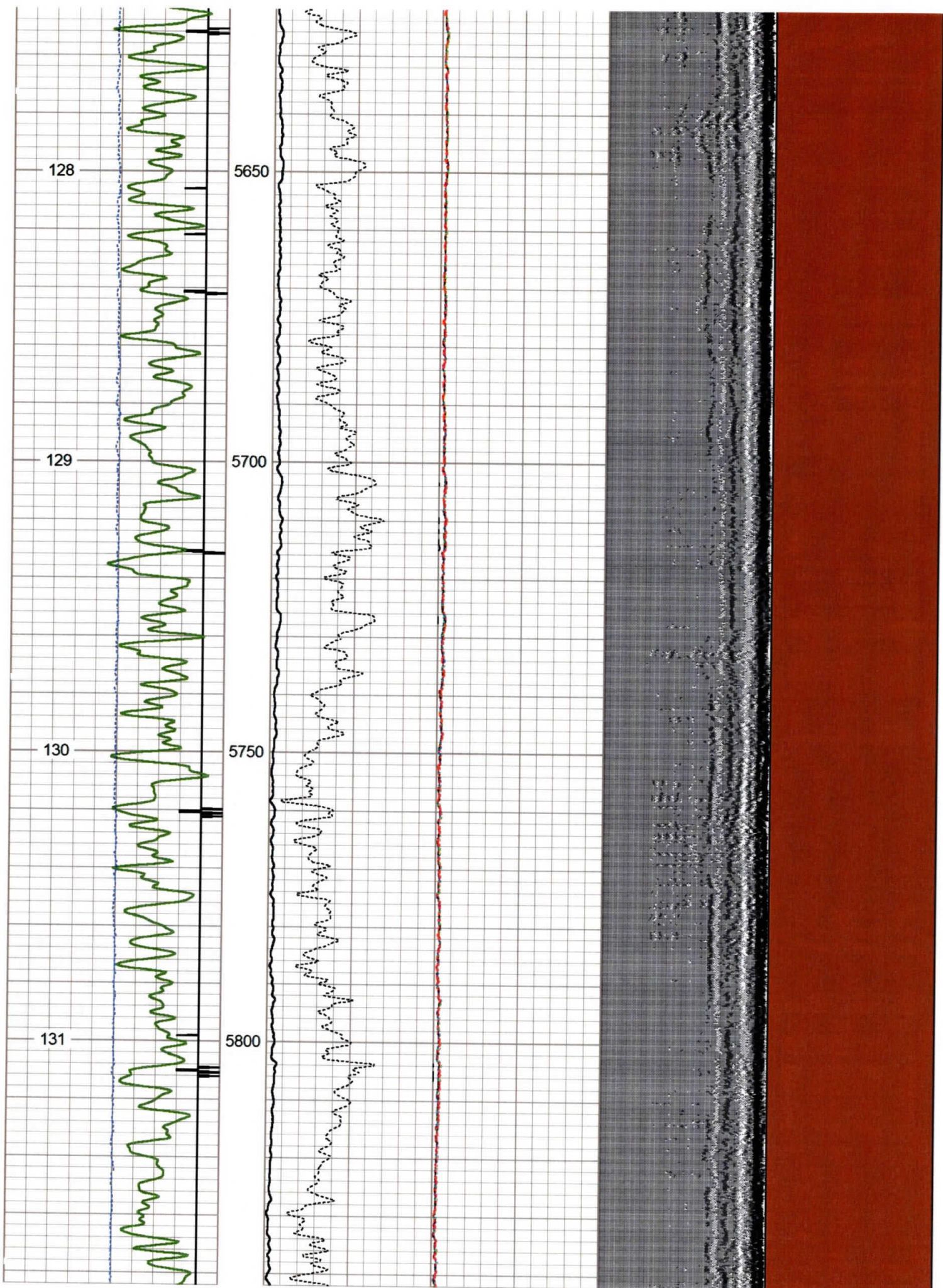


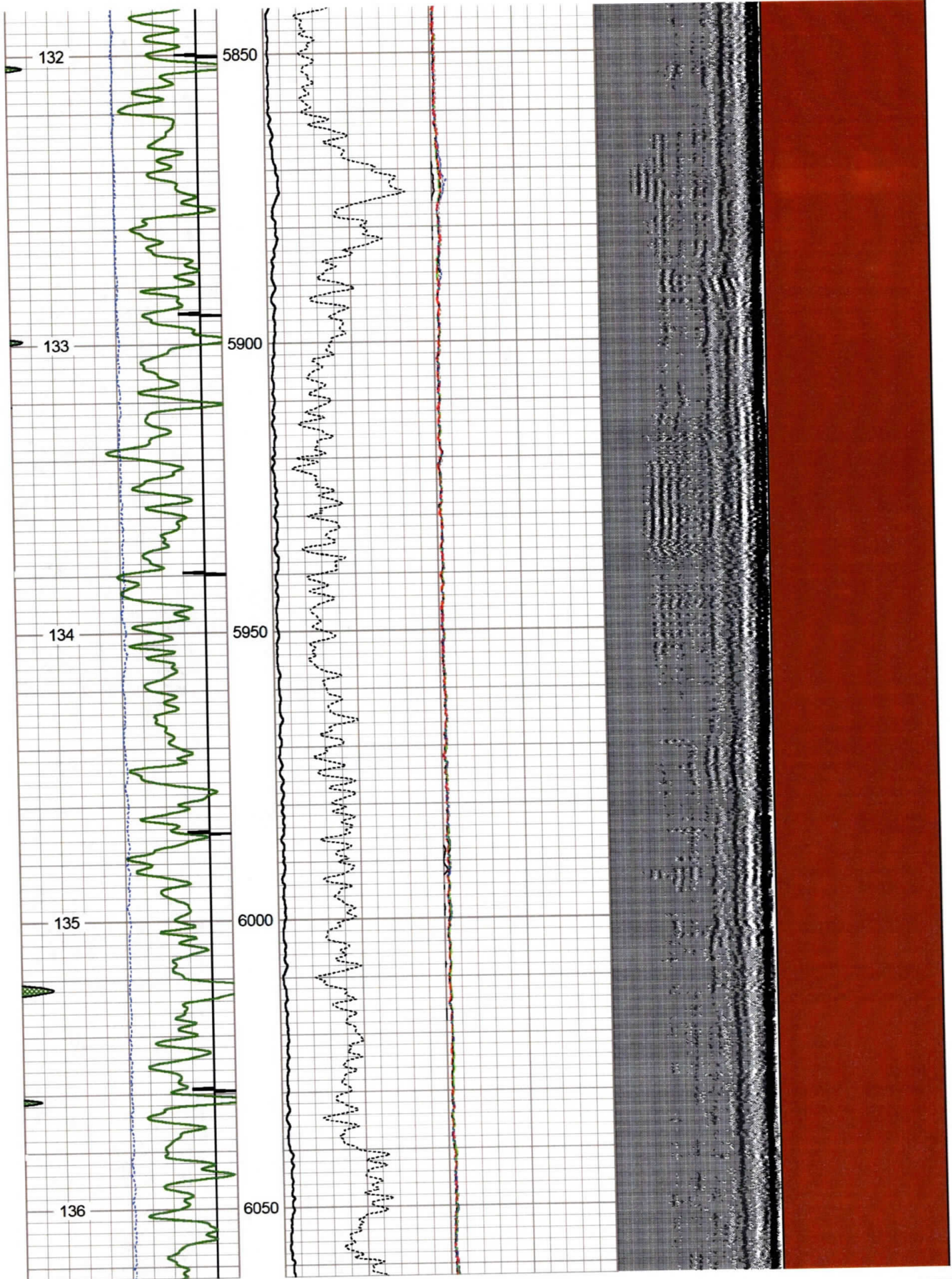


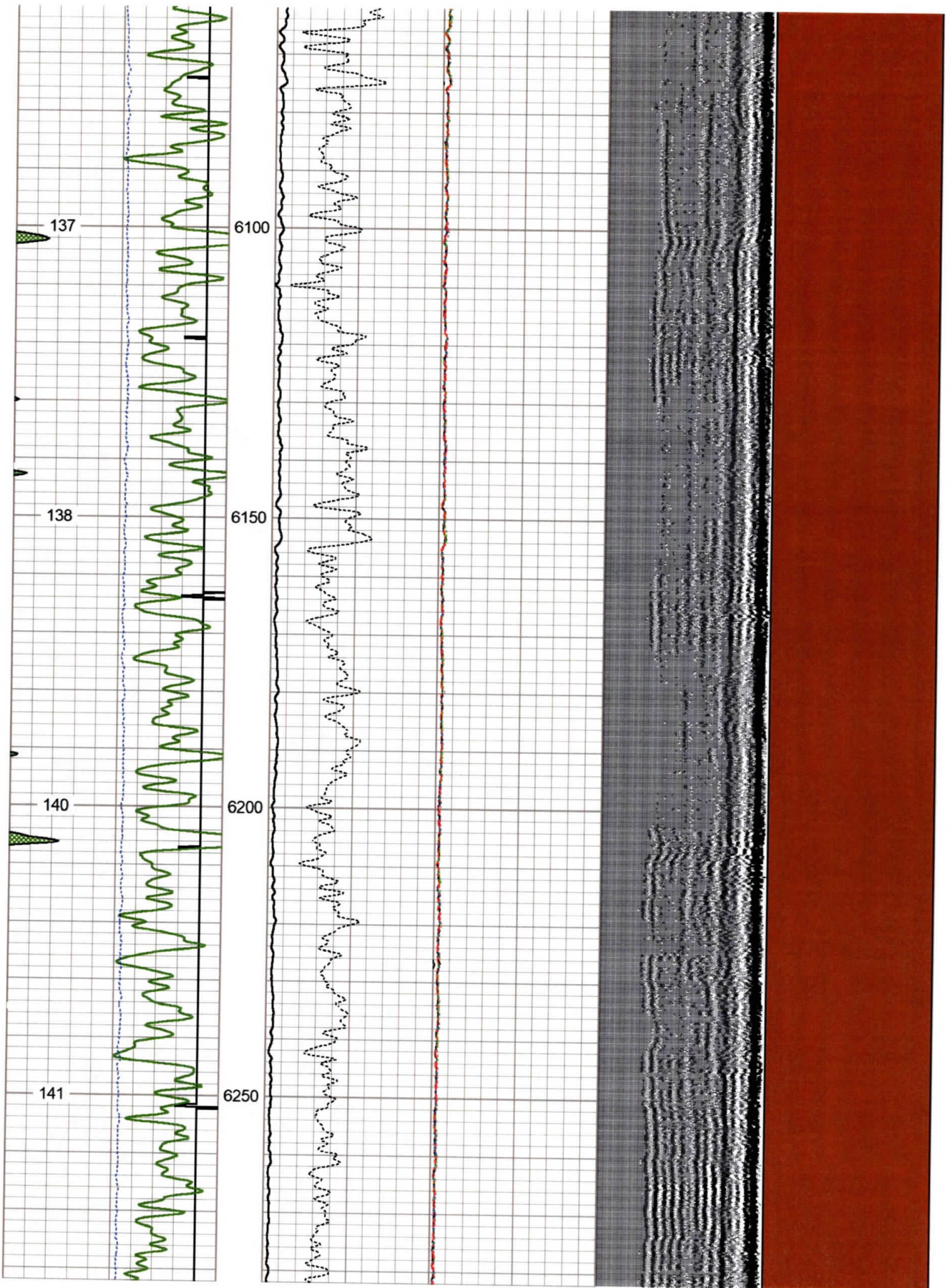


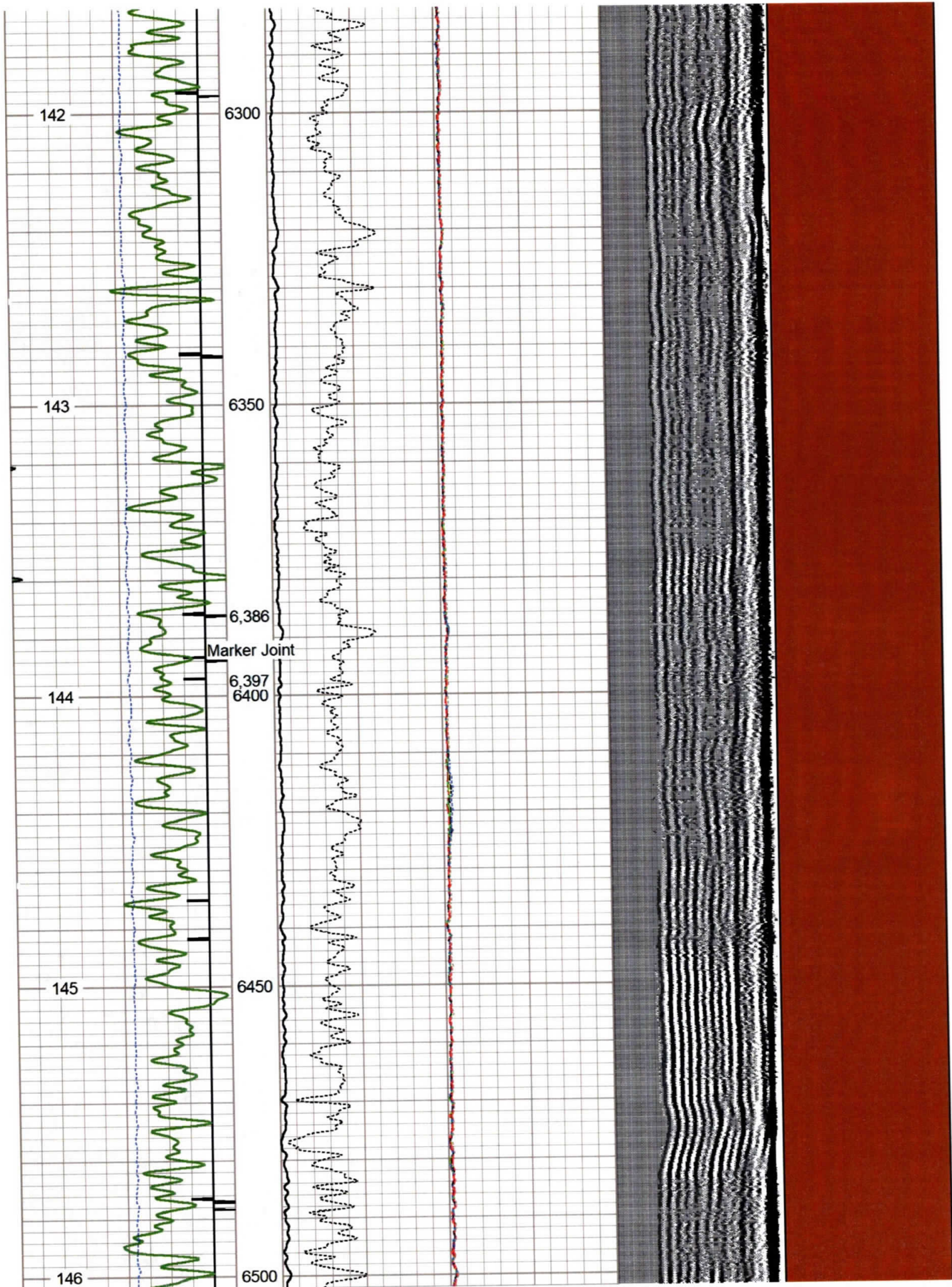


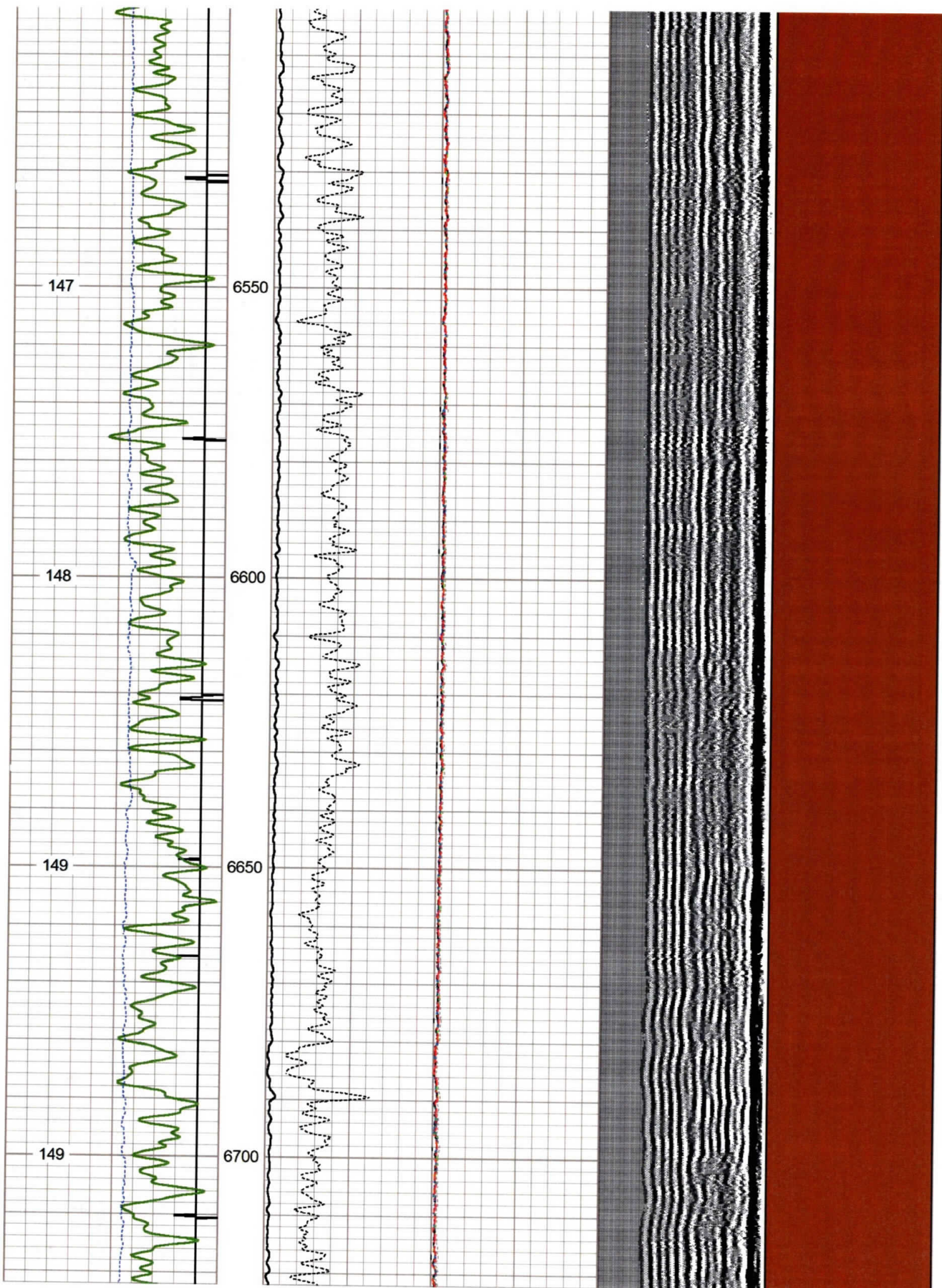


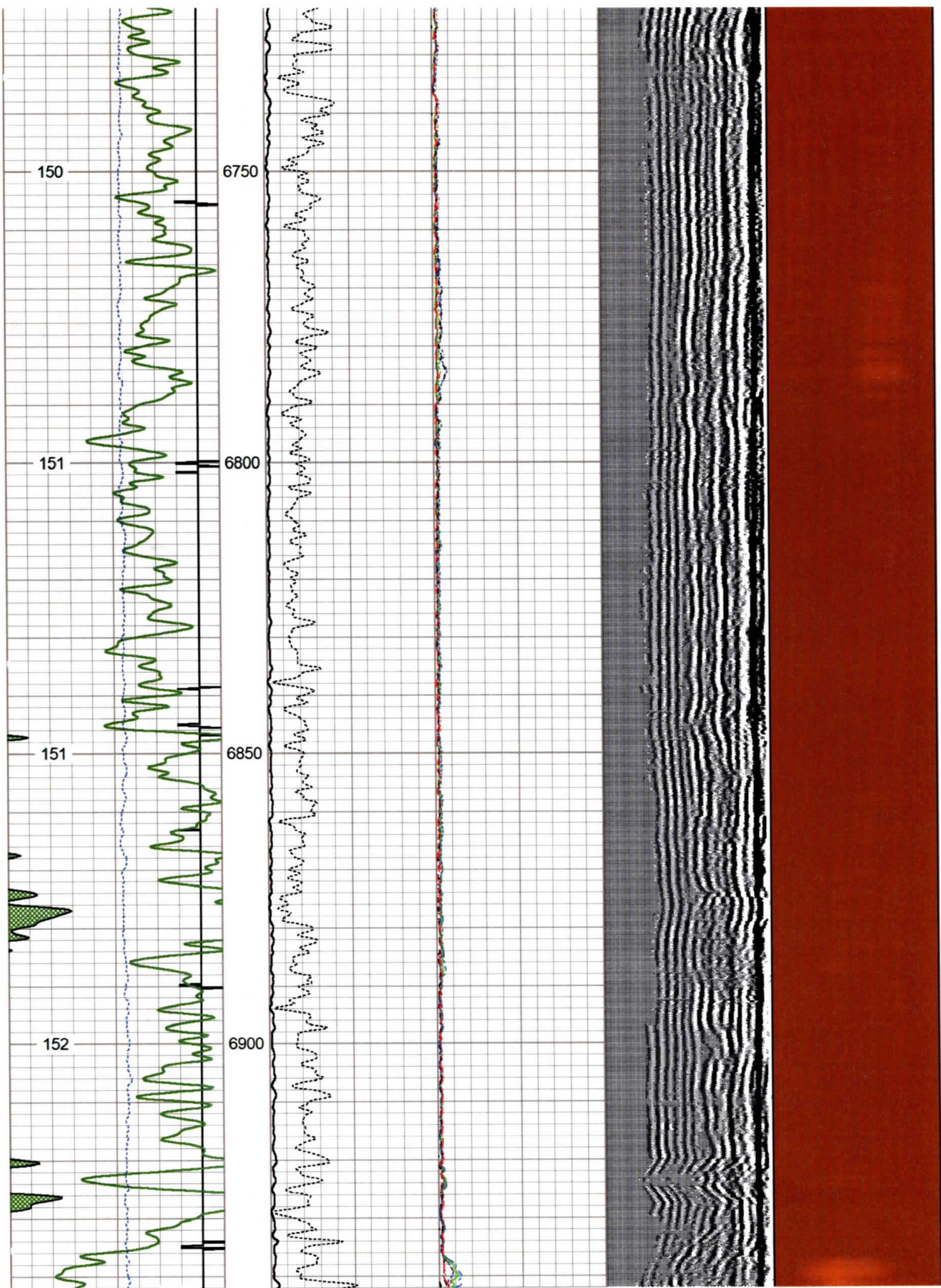


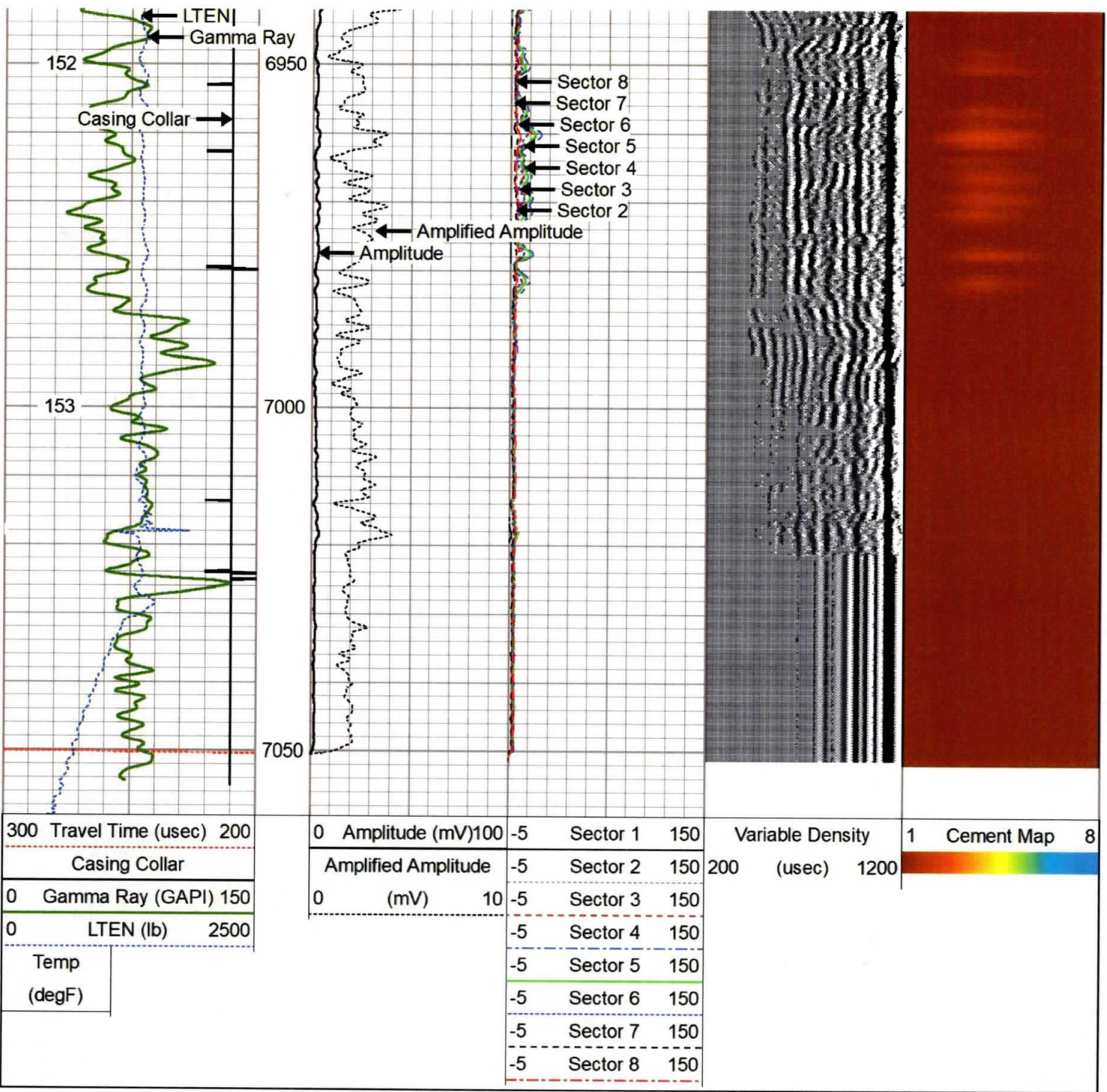















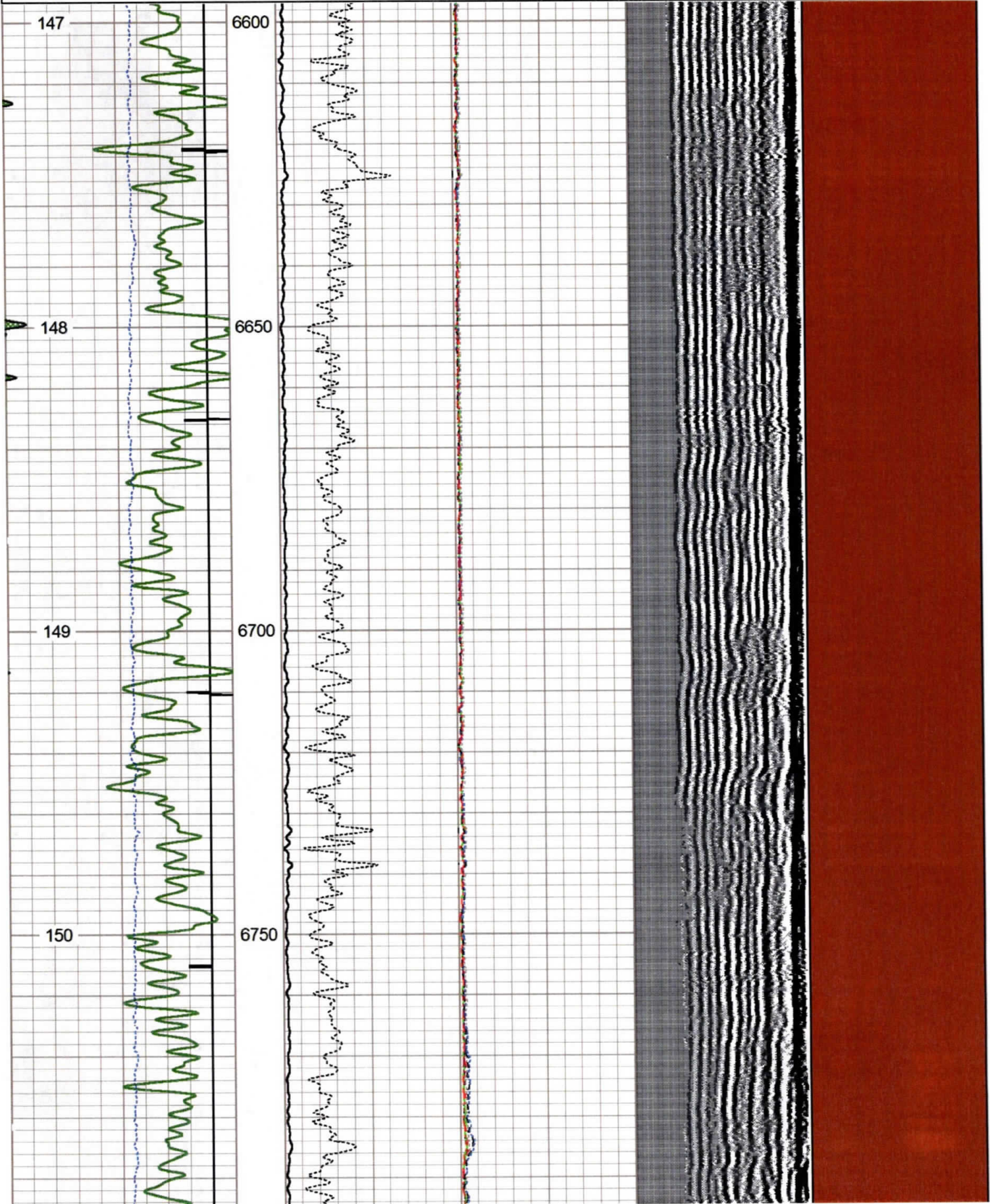
Repeat Pass 0 PSI

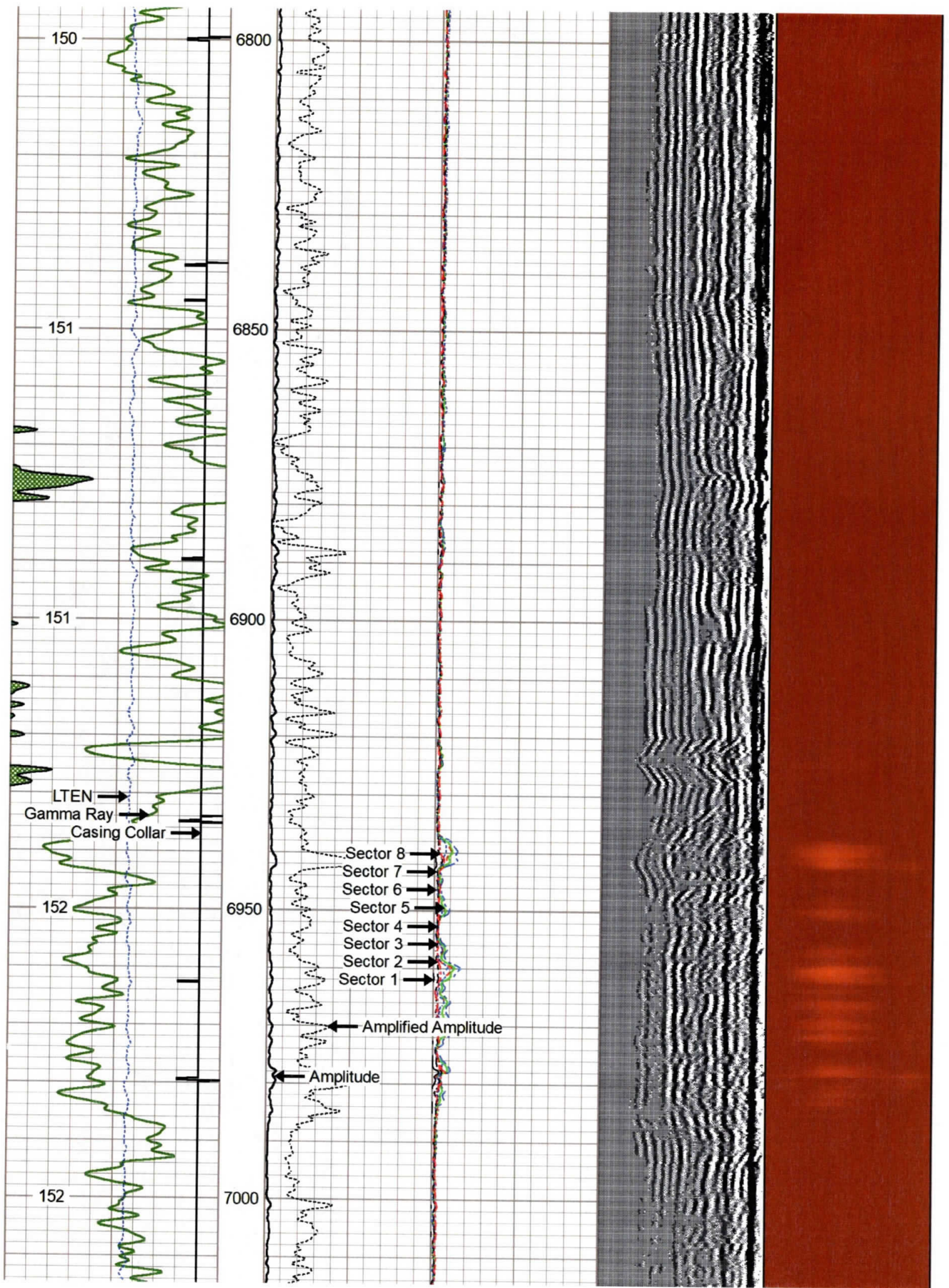
Database File	antero_oxfd_13_fhs_rcbl_nineenergy_11_feb_2020.db		
Dataset Pathname	Marcellus/OXFD_13_FHS/run1/Pass22		
Presentation Format	scbl03		
Dataset Creation	Wed Feb 12 05:37:54 2020		
Charted by	Depth in Feet scaled 1:240		

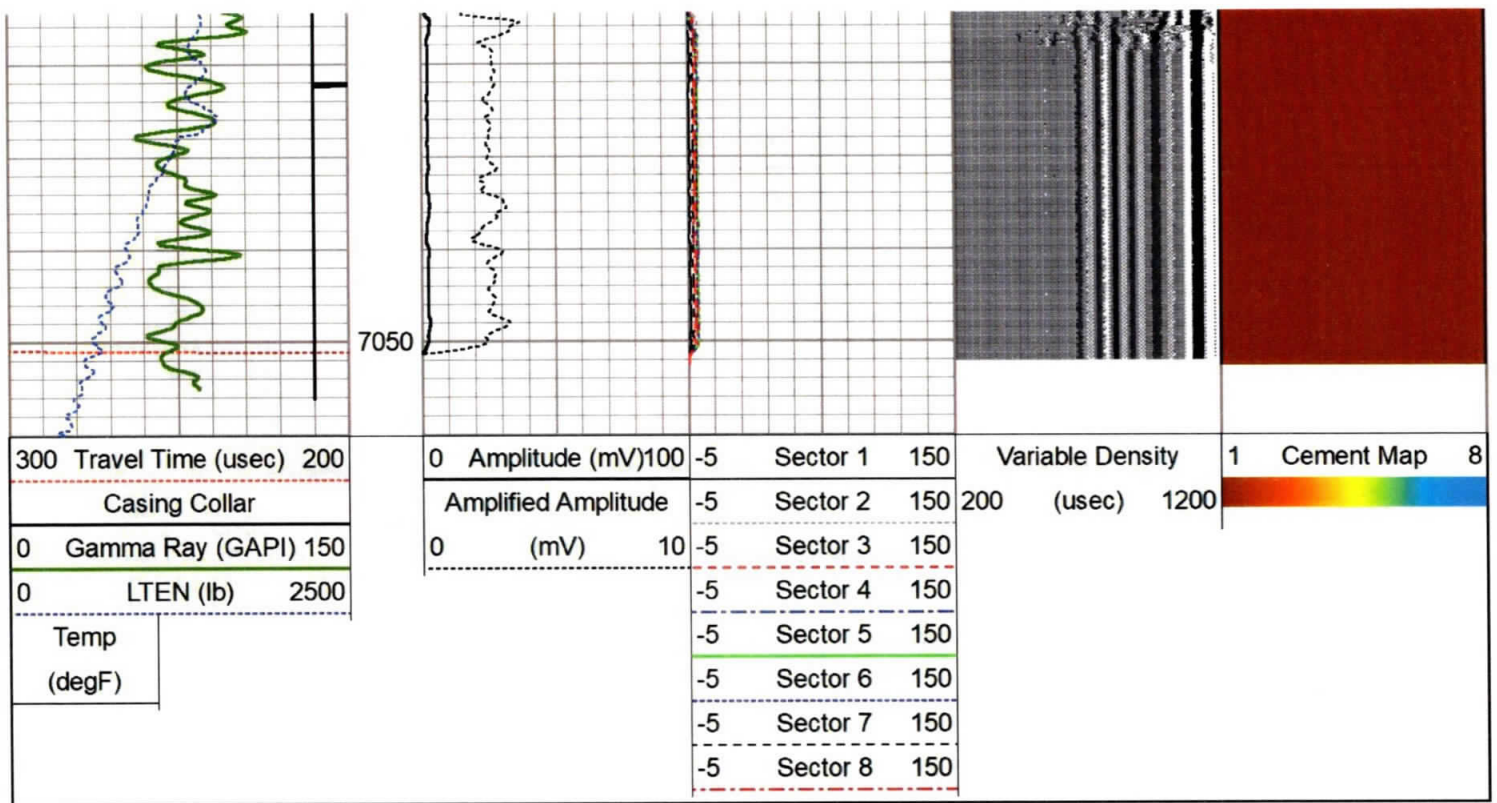
300	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
	Casing Collar			Amplified Amplitude		-5	Sector 2	150	200	(usec)		
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				

Temp
(degF)

-5	Sector 5	150
-5	Sector 6	150
-5	Sector 7	150
-5	Sector 8	150







Log Variables

Database: C:\ProgramData\Warrior\Data\antero_oxfd_13_fhs_rcbl_nineenergy_11_feb_2020.db
 Dataset Marcellus/OXFD_13_FHS/run1/Pass21.8/_vars_

Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in 7.875	degF 100	in 5.5	in 0	lb/ft 20	mV 72	mV 1
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft 0.8	No	usec 0	degF 0	ft 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_oxfd_13_fhs_rcbl_nineenergy_11_feb_2020.db
 Dataset Pathname Marcellus/OXFD_13_FHS/run1/Pass21.8
 Dataset Creation Wed Feb 12 05:49:04 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: 2323.375 ft

Master Calibration, performed Tue Feb 11 14:36:01 2020:

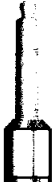
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.090	1.000	1.000	71.921	90.930	-5.014
CAL	0.090	1.000				
5'	0.090	1.000	0.000	71.921	105.034	-7.113
SUM						
S1	0.090	1.000	0.000	72.000	79.121	-5.121
S2	0.090	1.000	0.000	72.000	79.121	-5.121
S3	0.090	1.000	0.000	72.000	79.121	-5.121
S4	0.090	1.000	0.000	72.000	79.121	-5.121
S5	0.090	1.000	0.000	72.000	79.121	-5.121
S6	0.090	1.000	0.000	72.000	79.121	-5.121
S7	0.090	1.000	0.000	72.000	79.121	-5.121
S8	0.090	1.000	0.000	72.000	79.121	-5.121

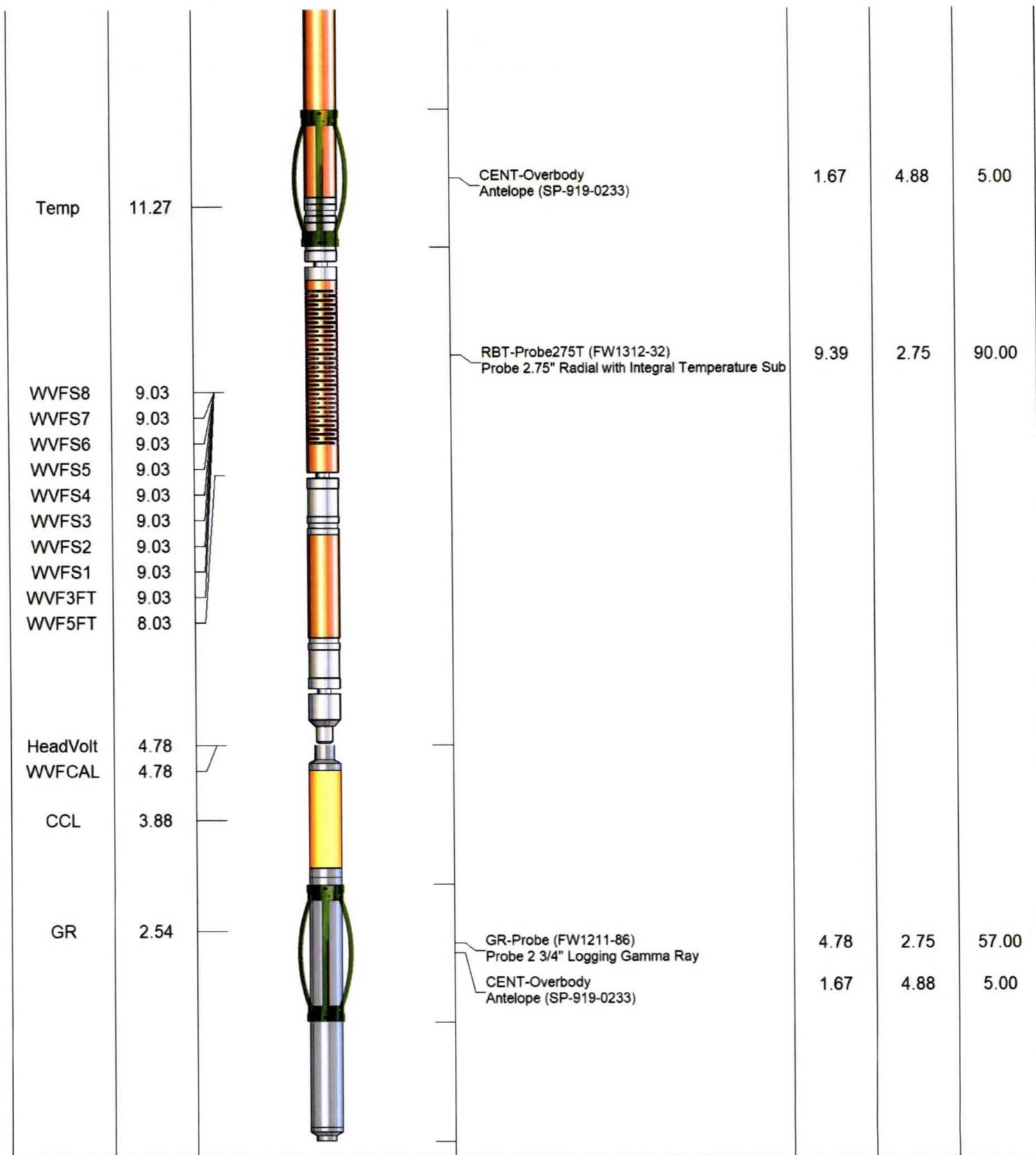
Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	1.007	0.979	1.000	0.000

Air Zero Calibration, performed Tue Feb 11 08:55:01 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

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



Dataset: antero_oxfd_13_fhs_rcbl_nineenergy_11_feb_2020.db: Marcellus/OXFD_13_FHS/run1/Pass21.8
 Total length: 15.17 ft
 Total weight: 162.00 lb
 O.D.: 4.88 in

RECEIVED
Office of Oil and Gas

AUG 10 2020

Company Antero Resources
 Well OXFD 13 FHS
 Field N/A
 County

WV Department of
Environmental Protection



Antero Resources

INine

County
State

Locarage
West Virginia