



Nine

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

Company ANTERO RESOURCES

Well REDWOOD 2H

Field WEST UNION

County DODDRIDGE State WV

Location: 39.256436, -80.791916 (ENTERANCE) API #: 47-017-06931

SEC TWP RGE

Permanent Datum GROUND LEVEL Elevation 25.5'

Log Measured From KELLY BUSHING

Drilling Measured From KELLY BUSHING

Elevation

K.B. 1155.5

D.F. 1145.5

G.L. 1121

Company ANTERO RESOURCES
Well REDWOOD 2H
Field WEST UNION
County DODDRIDGE
State WV

Date NOVEMBER 13, 2022

Run Number ONE

Depth Driller 14,072'

Depth Logger 6,835'

Bottom Logged Interval 6,824'

Top Log Interval SURFACE

Open Hole Size NA

Type Fluid FRESH WATER

Density / Viscosity 8.6 LB/GAL

Max. Recorded Temp. 150.0

Estimated Cement Top 3,540'

Time Well Ready UPON ARRIVAL

Time Logger on Bottom 14:50

Equipment Number 116

Location CHARLEROI, PA

Recorded By C. DRUMMOND

Witnessed By Keith Stansbury

Run Number

Bit From To

Size Weight

From To

Run Number

Bit From To

Size Weight

From To

<<< 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

LOG CORRELATED TO MARKER JOINT
DEPTH SHIFT -4
MARKER JOINT 5,381' - 5,392'
MAIN PASS LOGGED WITH 1500 PSI
REPEAT PASS LOGGED WITH 0 PSI

THANK YOU FOR USING NINE ENERGY SERVICES

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APR 24 2023

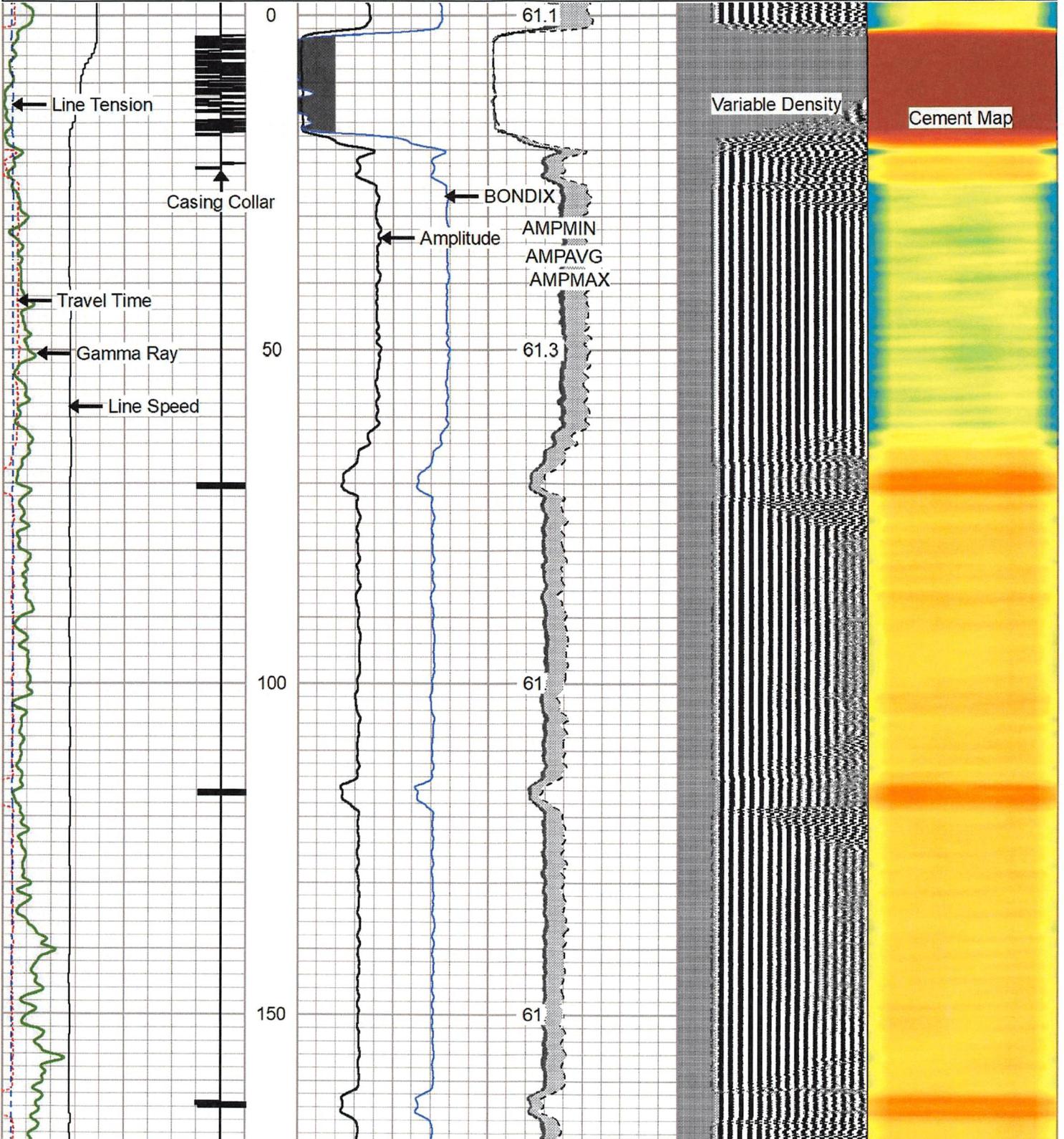
WV Department of
Environmental Protection

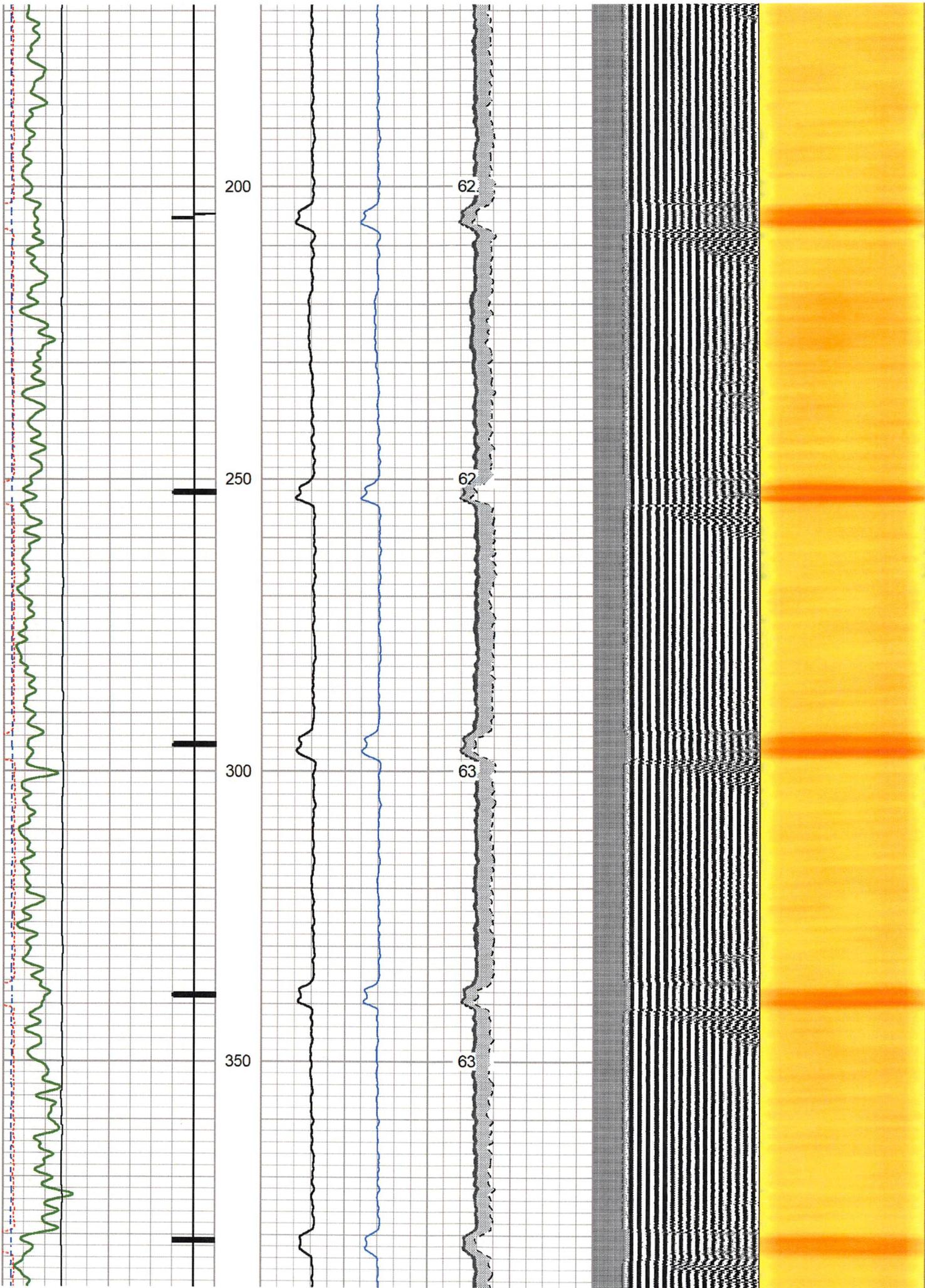


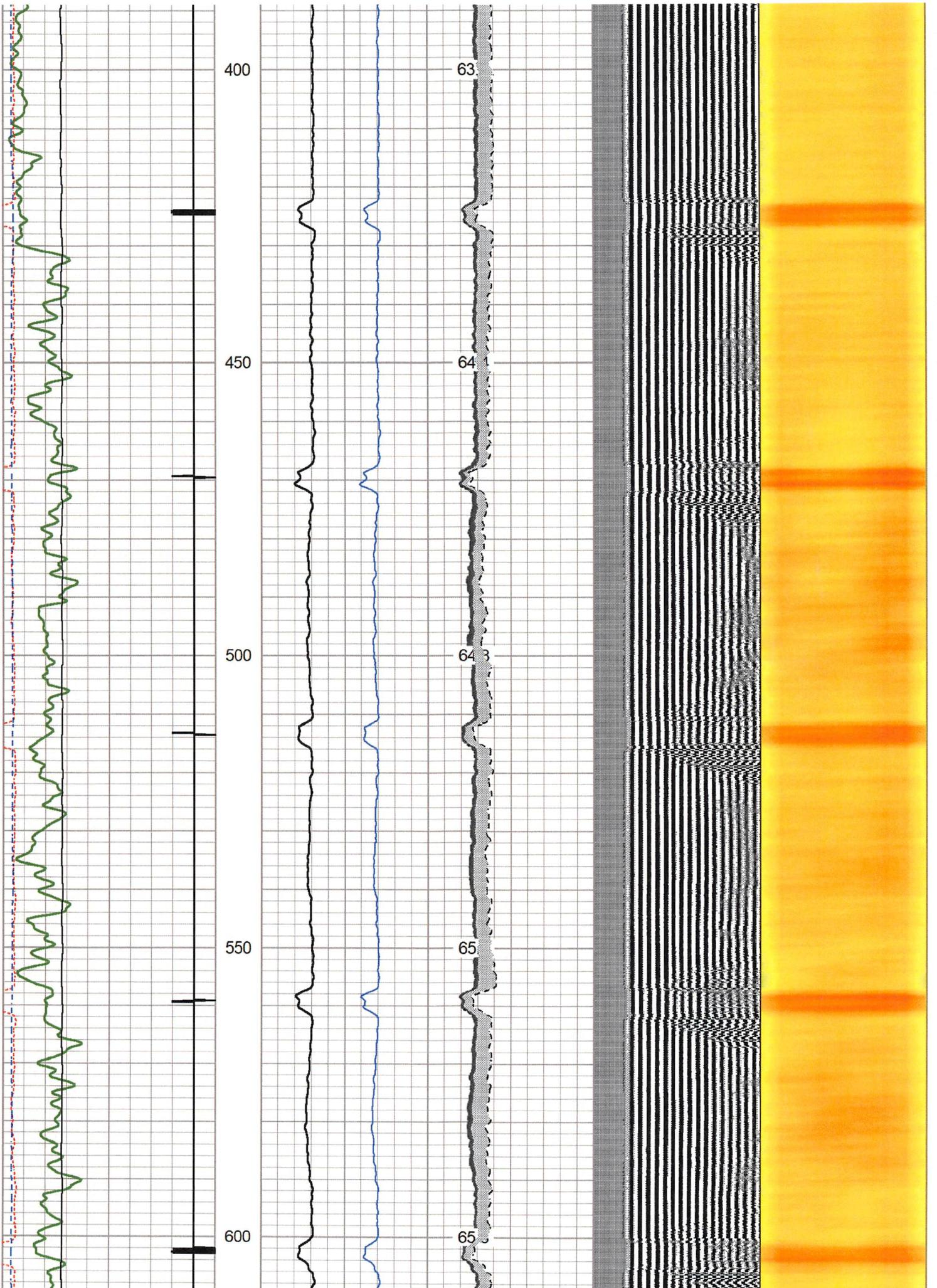
Main Pass 1500 PSI

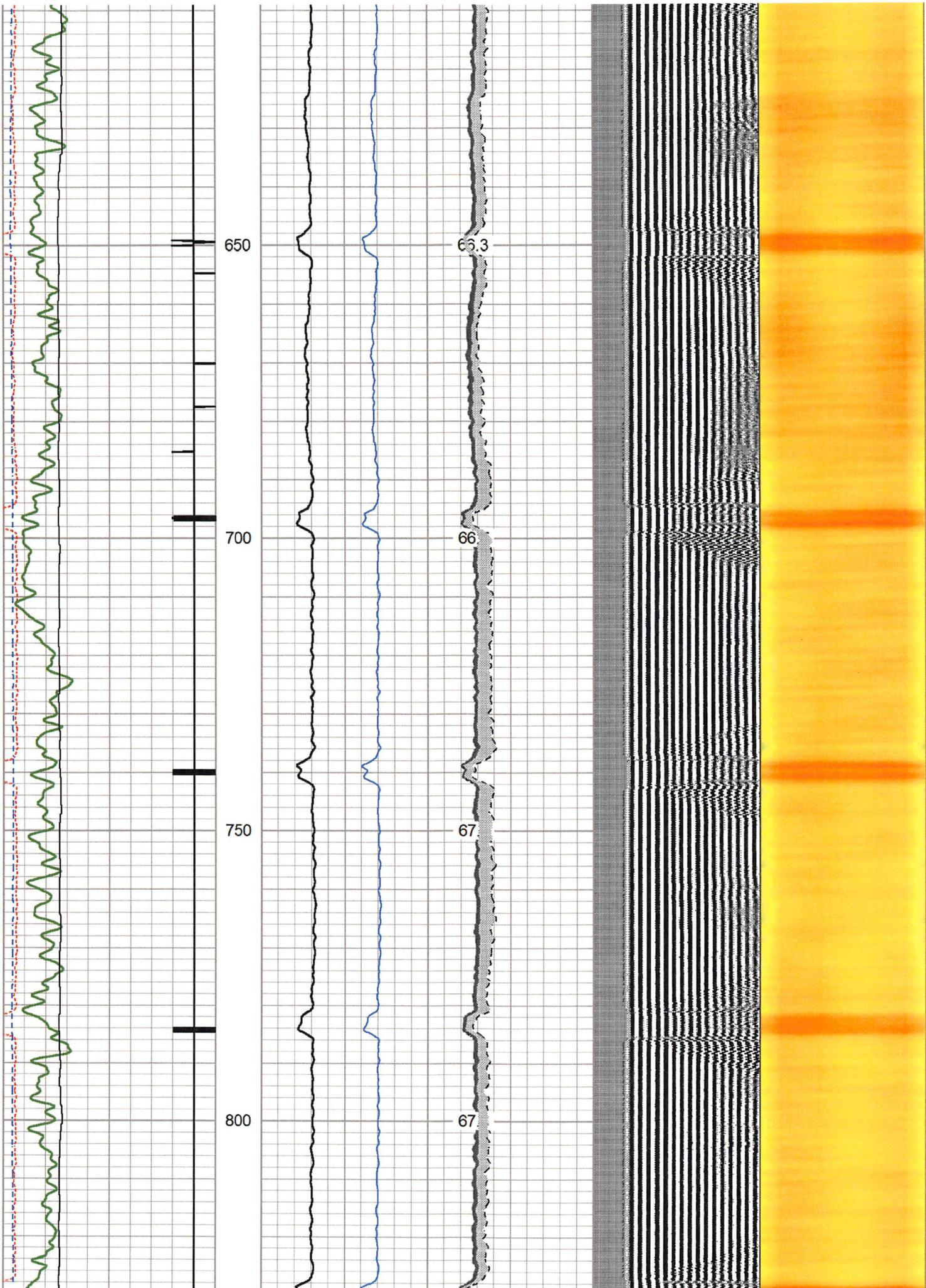
Database File antero_redwood_2h_rcbl_13_nov_2022.db
 Dataset Pathname pass6
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Sun Nov 13 14:55:57 2022
 Charted by Depth in Feet scaled 1:240

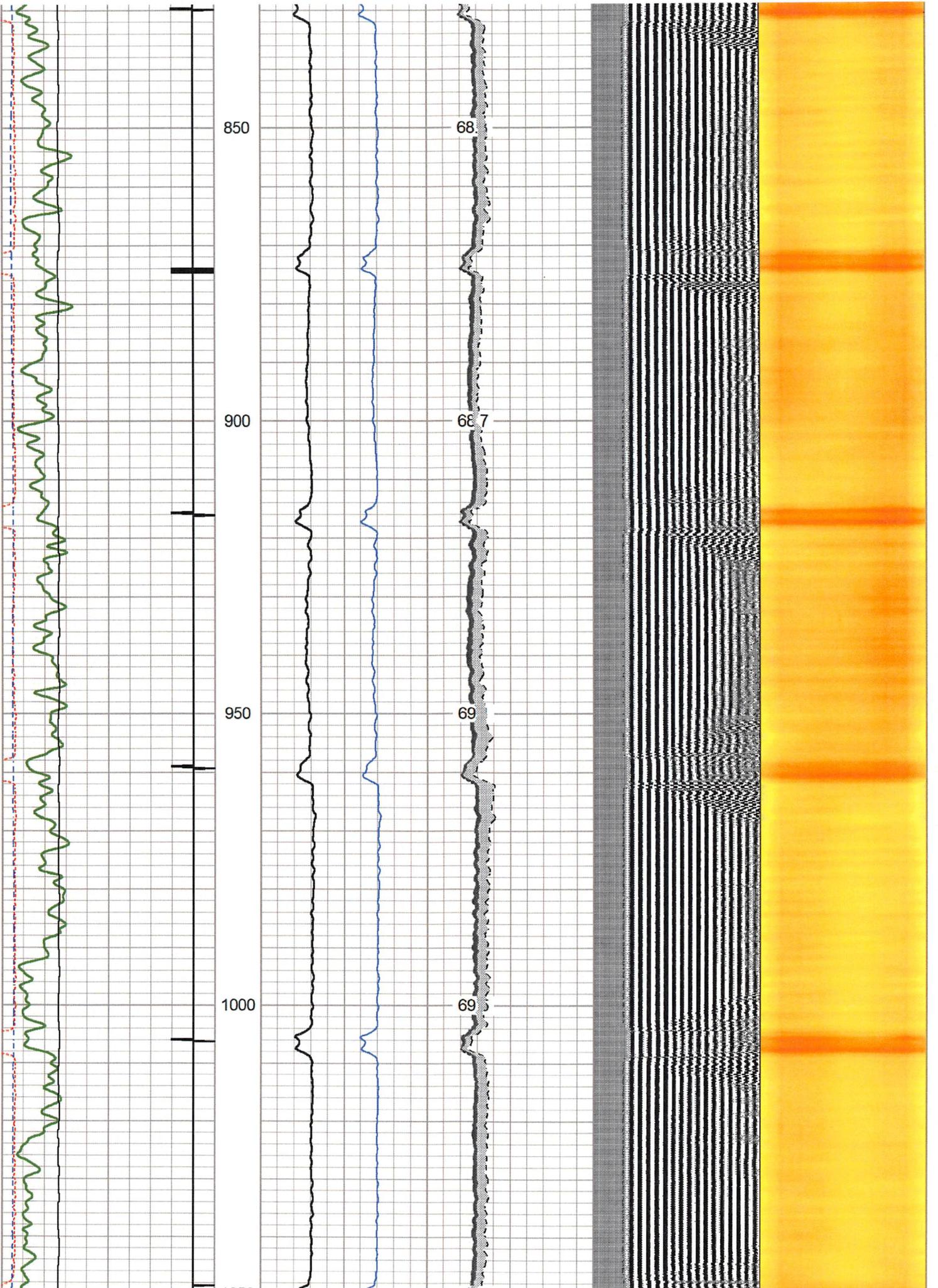
262	Travel Time (usec)	162	0	Amplitude (mV)	100	-5	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	AMPMAX	150	200 (usec)	1200		
0	Gamma Ray (GAPI)	150				-5	AMPAVG	150				
	Line Speed						TEMP					
-200	(ft/min)	200					(degF)					
0	Line Tension (lb)	5000										

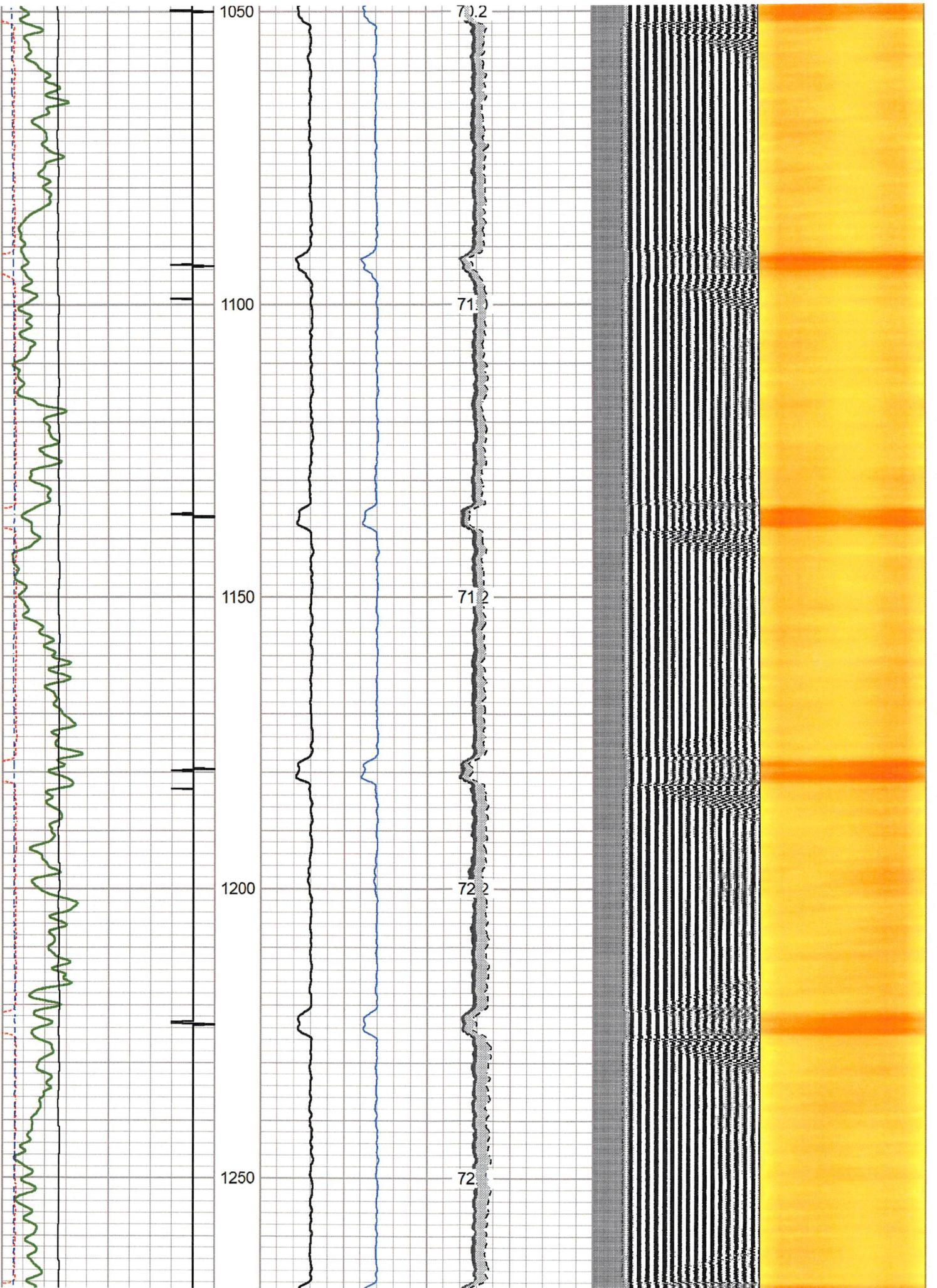


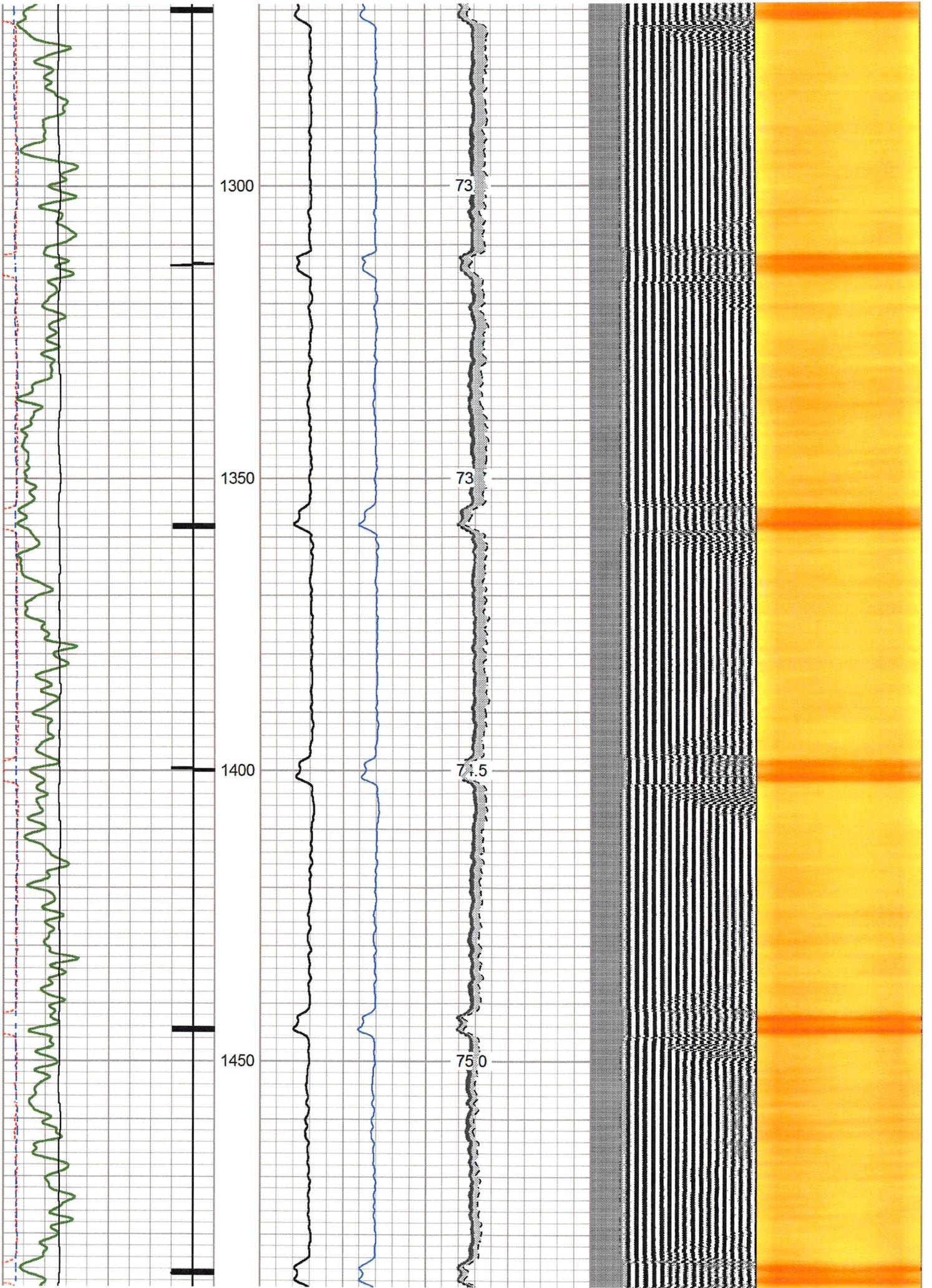


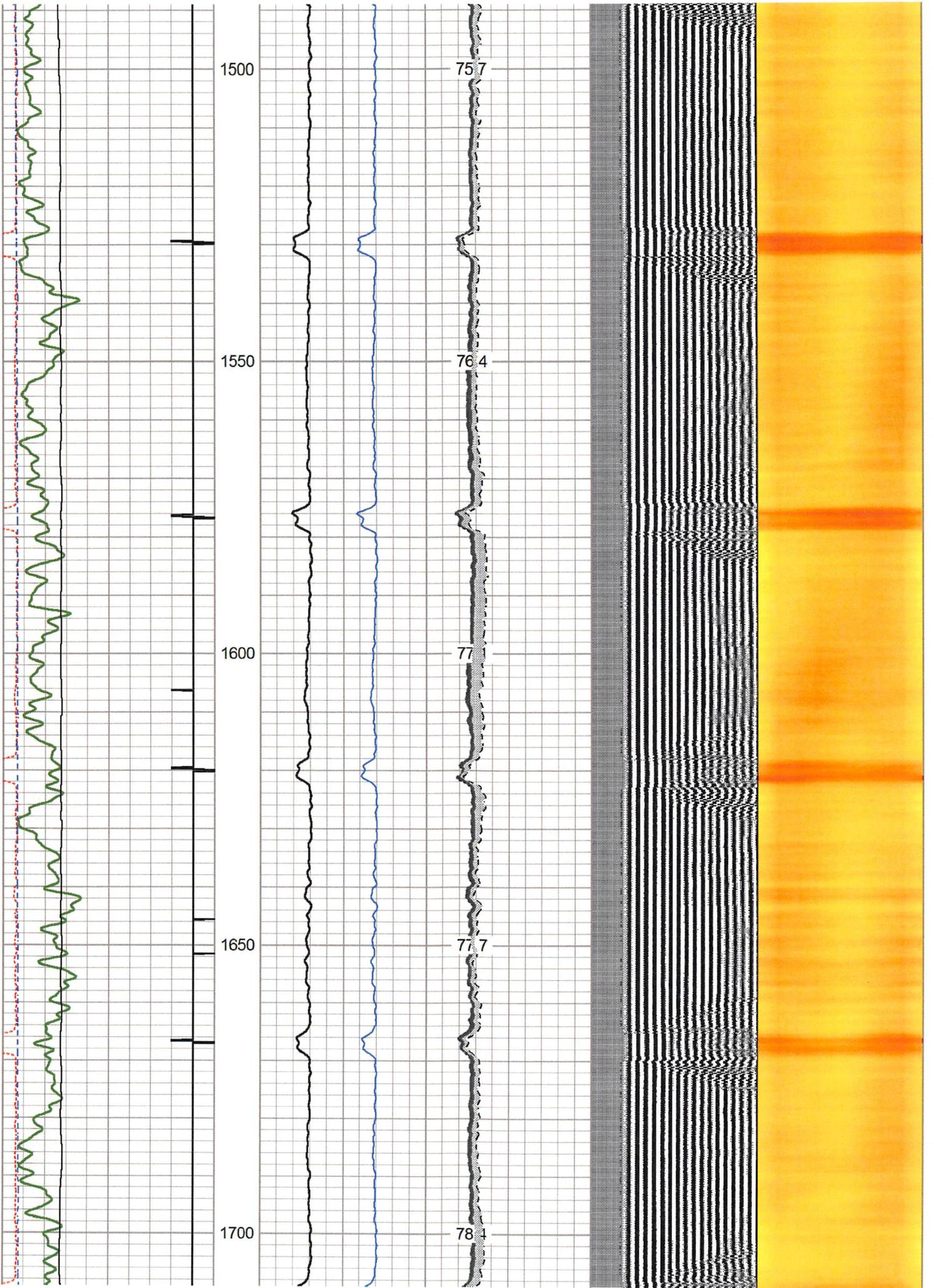


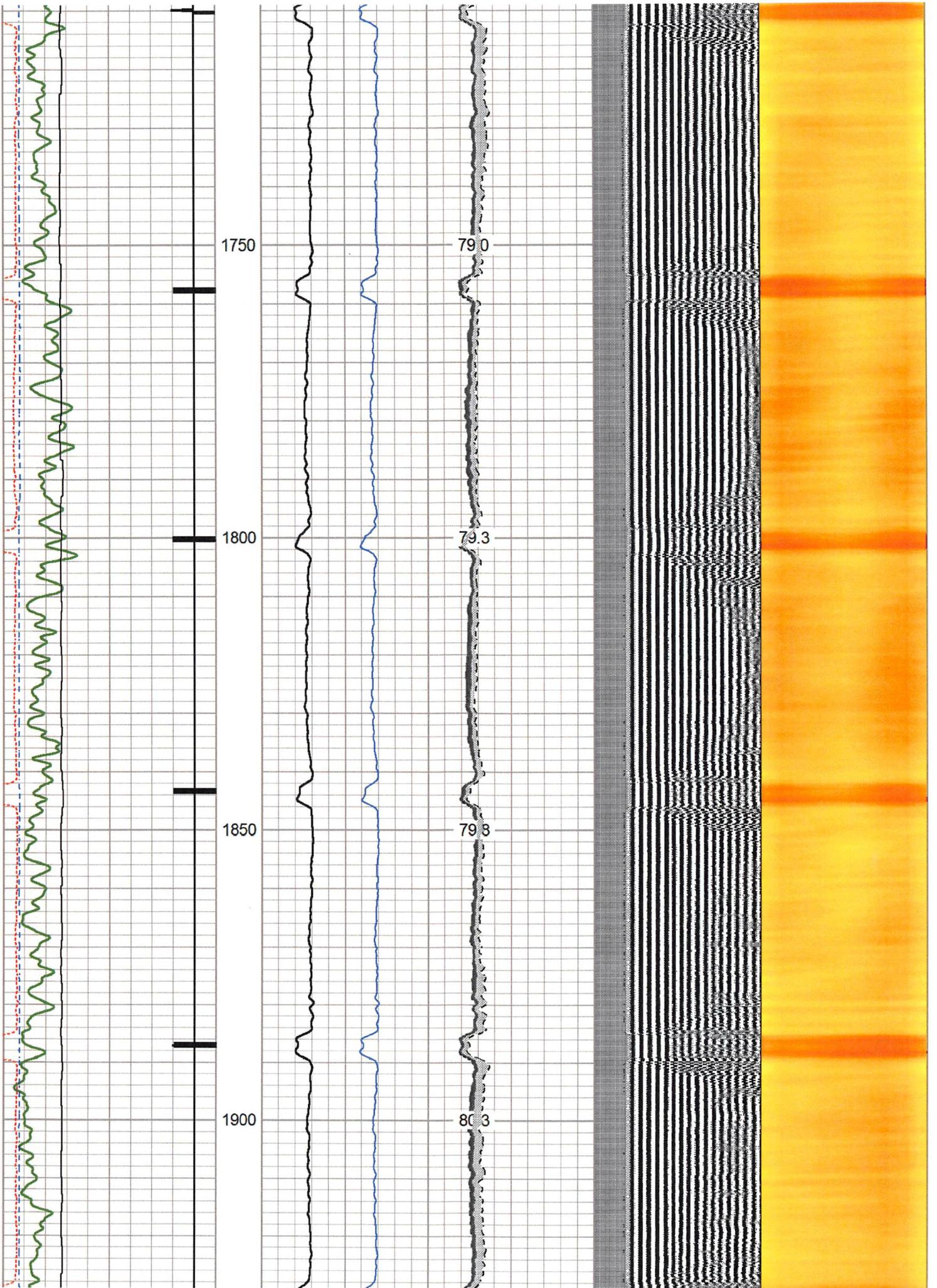


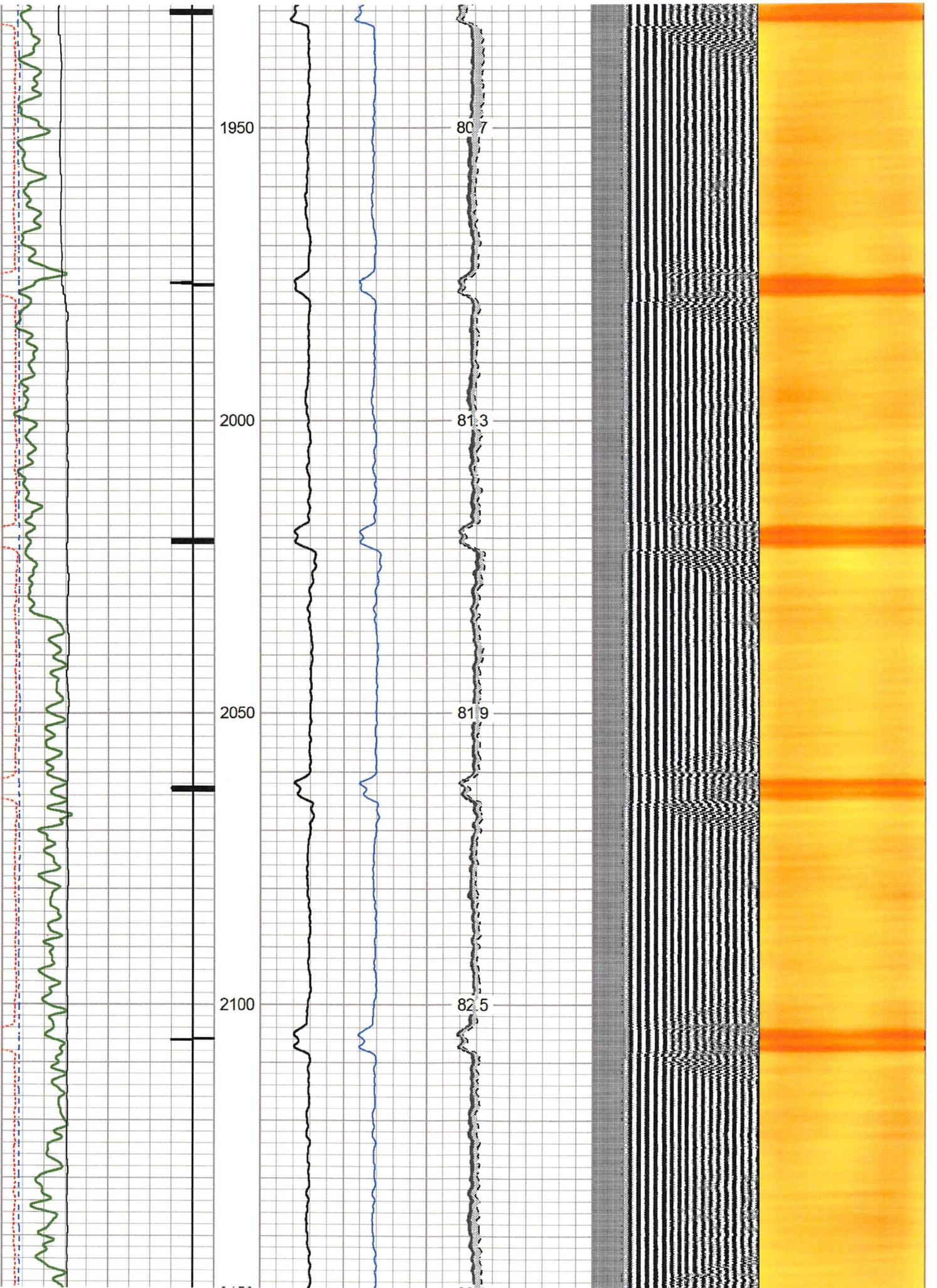


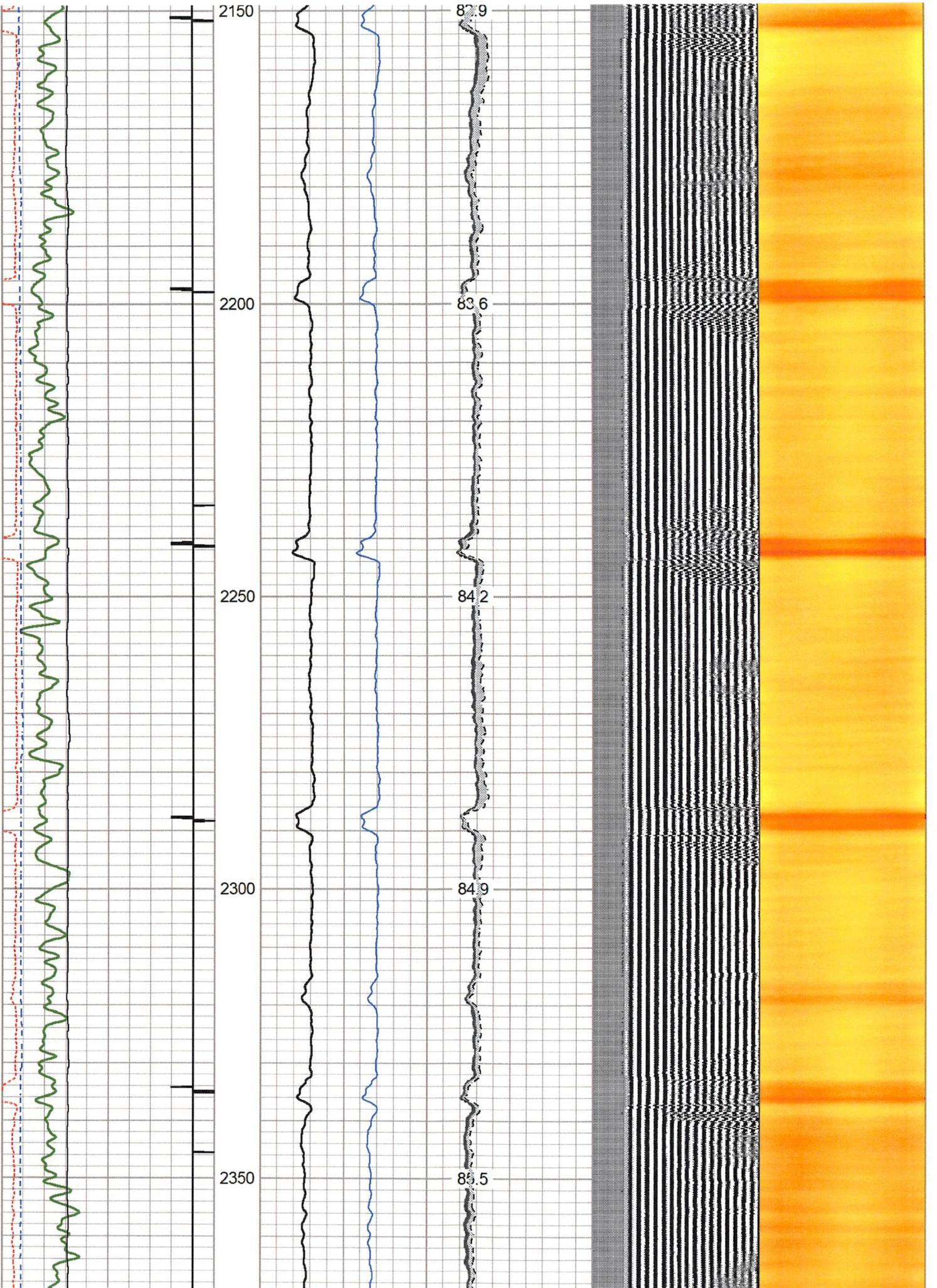


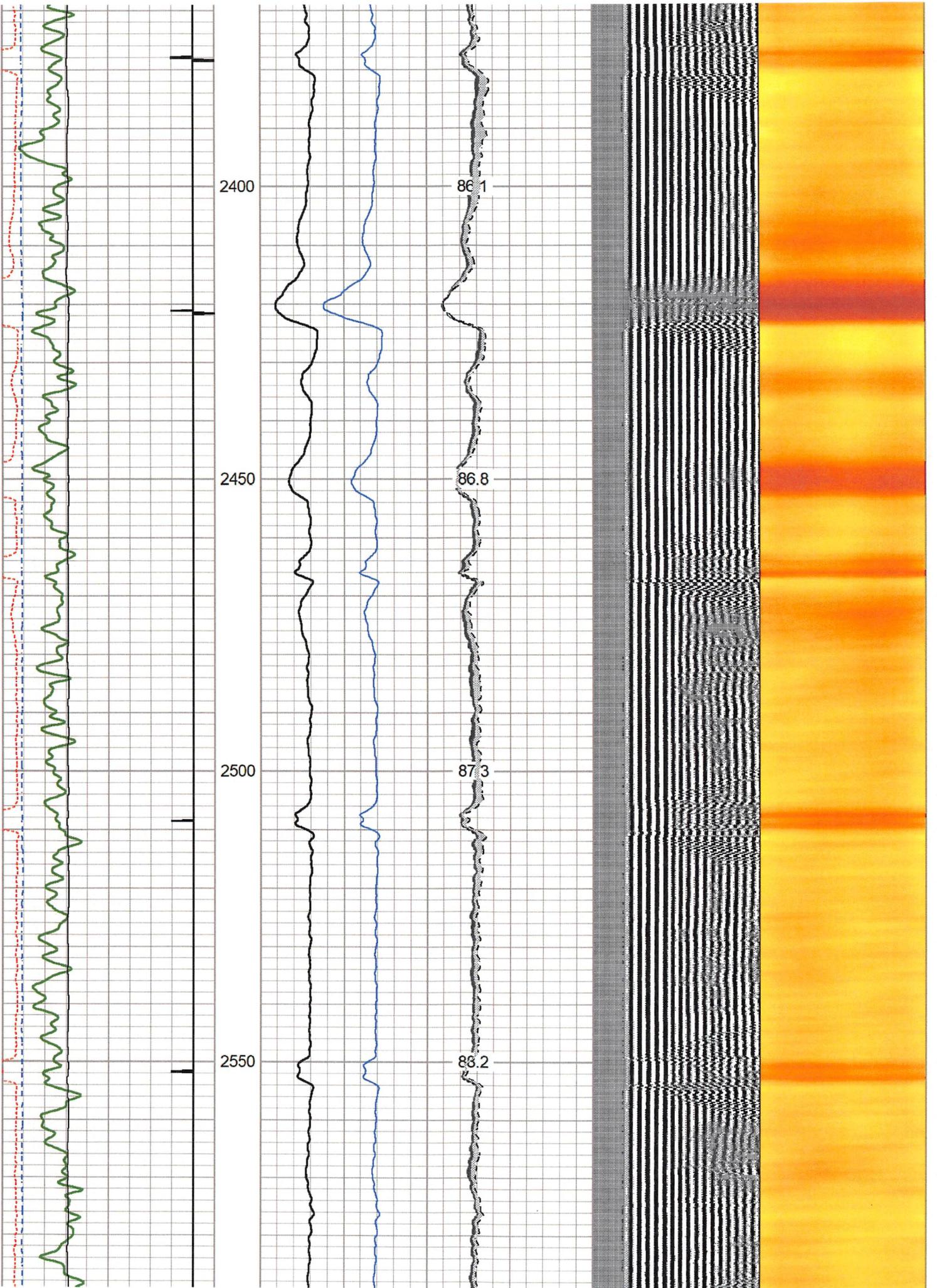


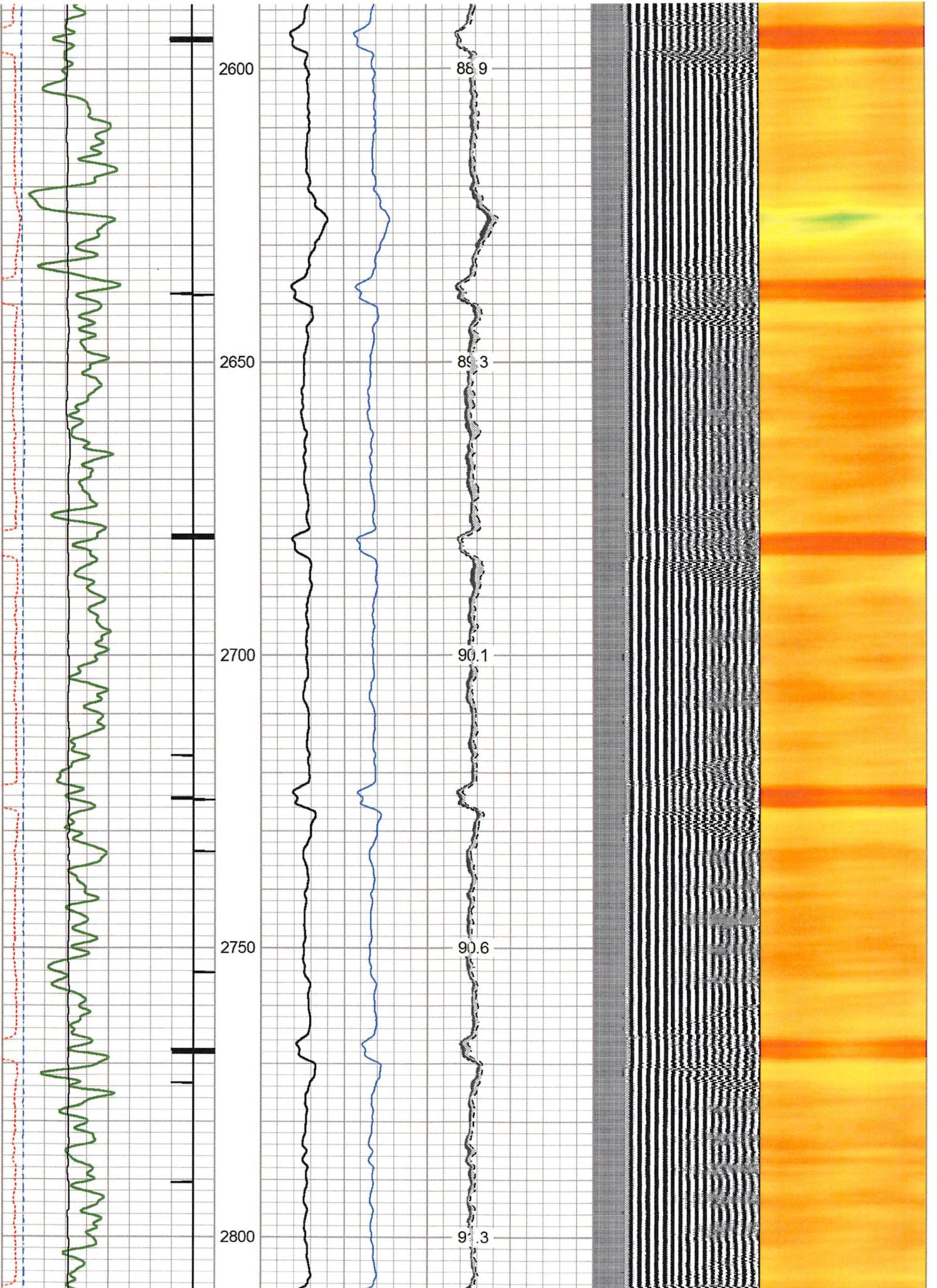


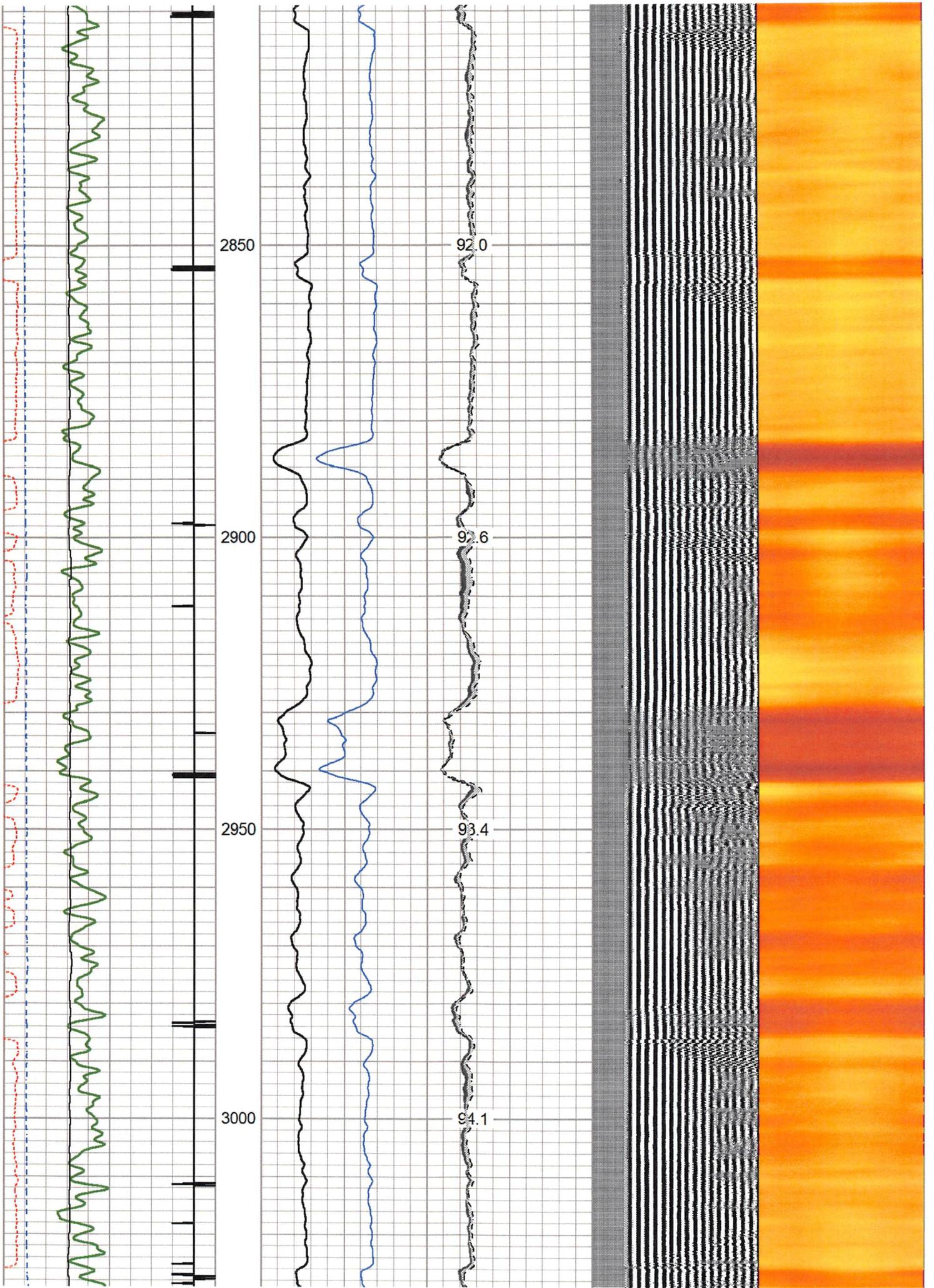


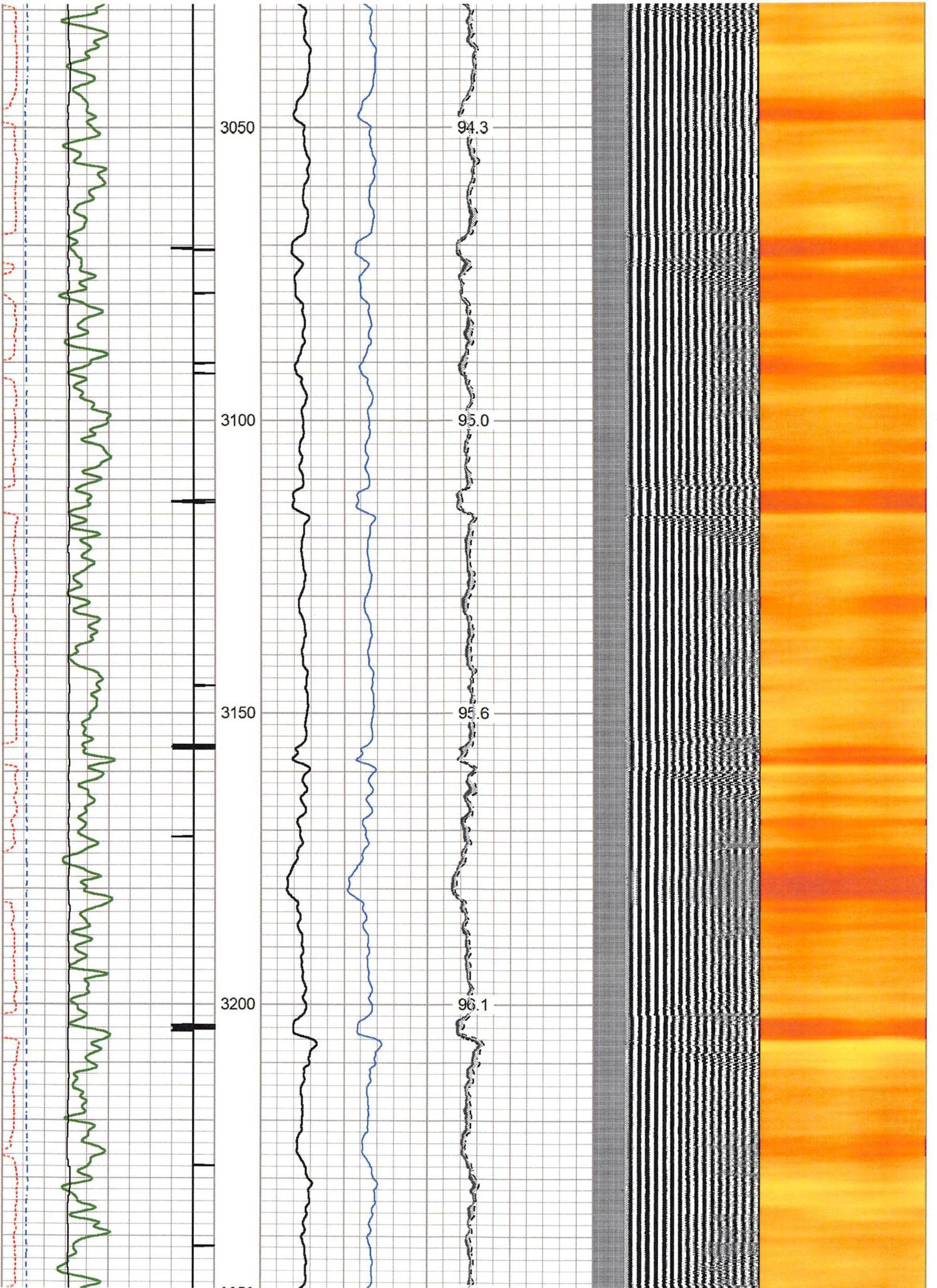


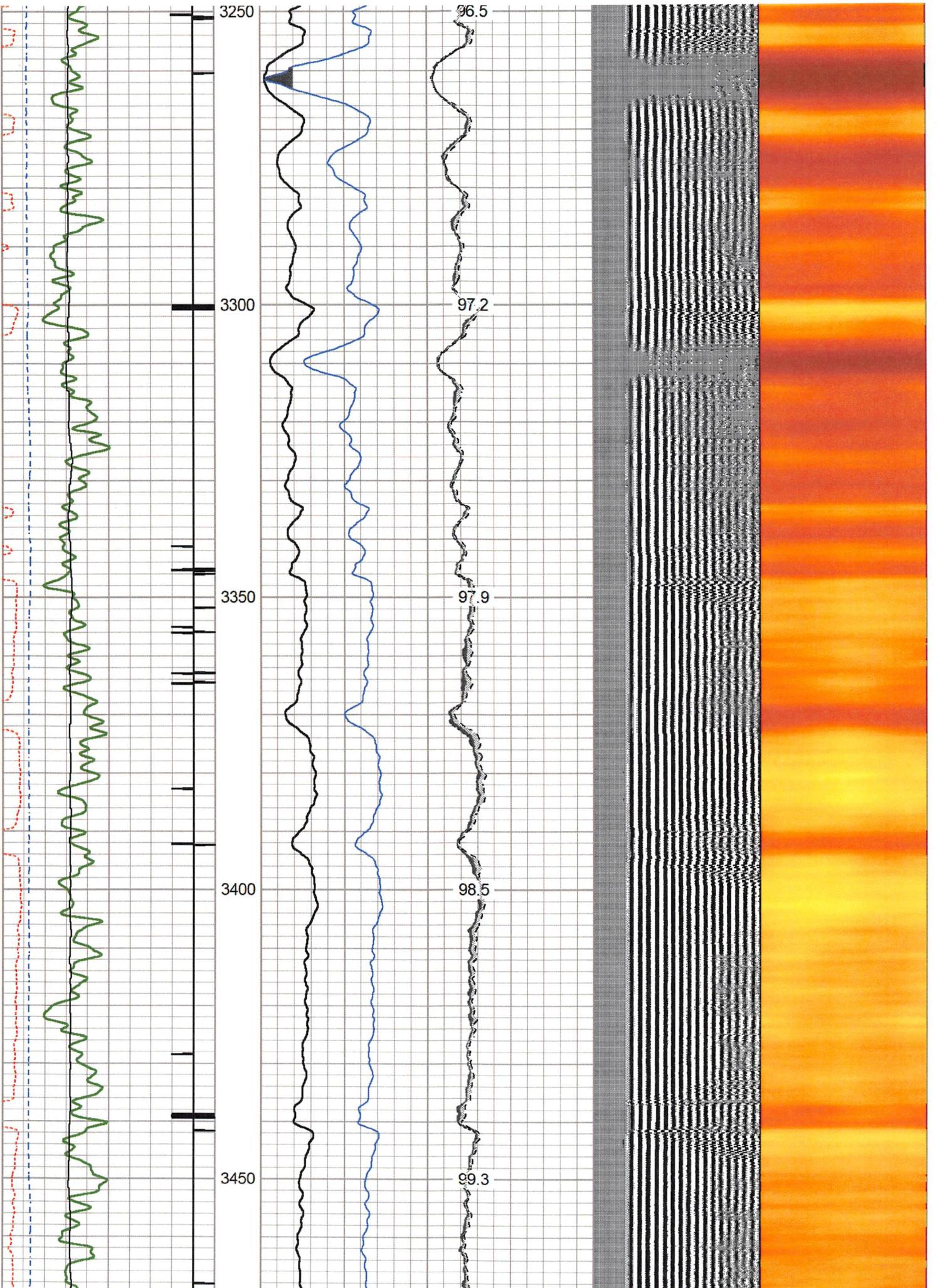


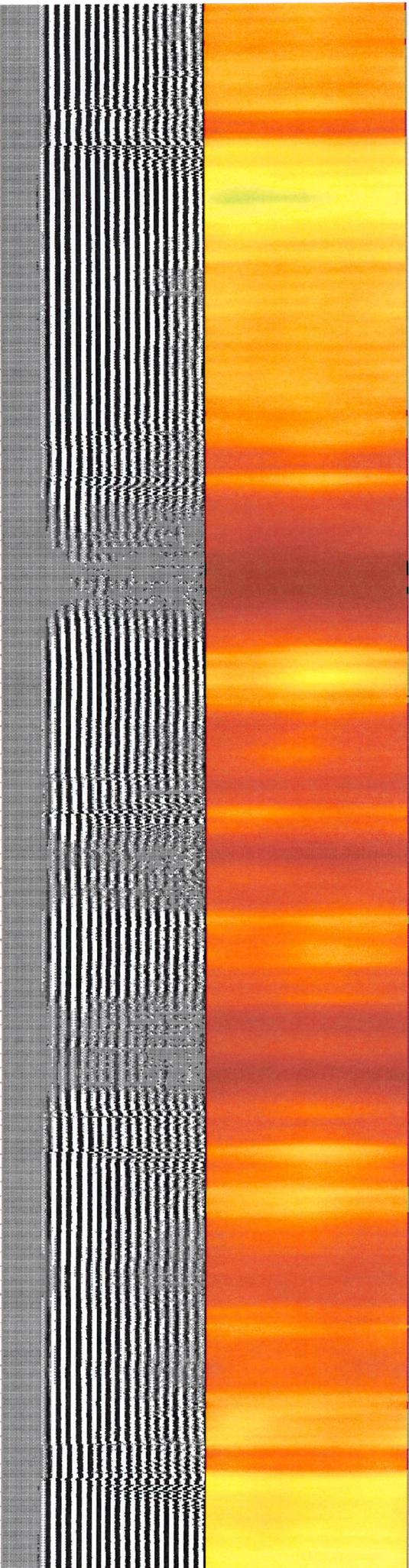
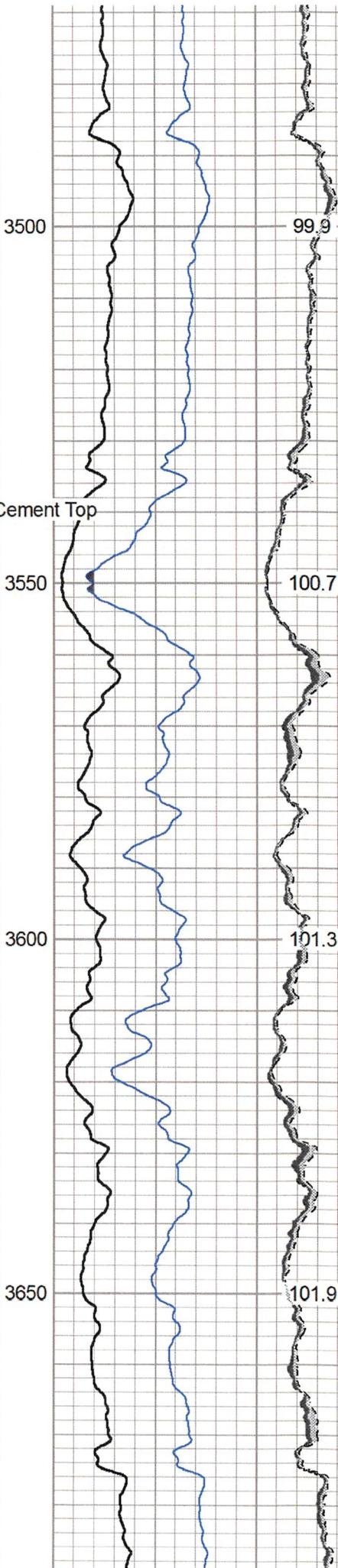
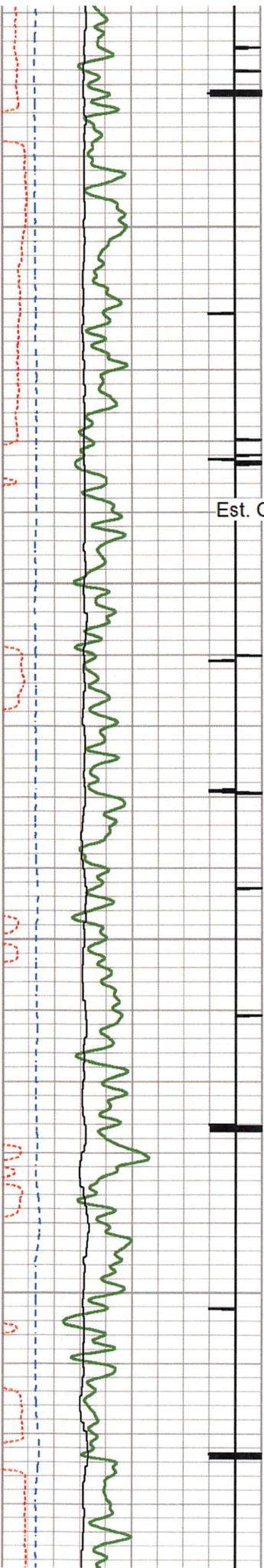


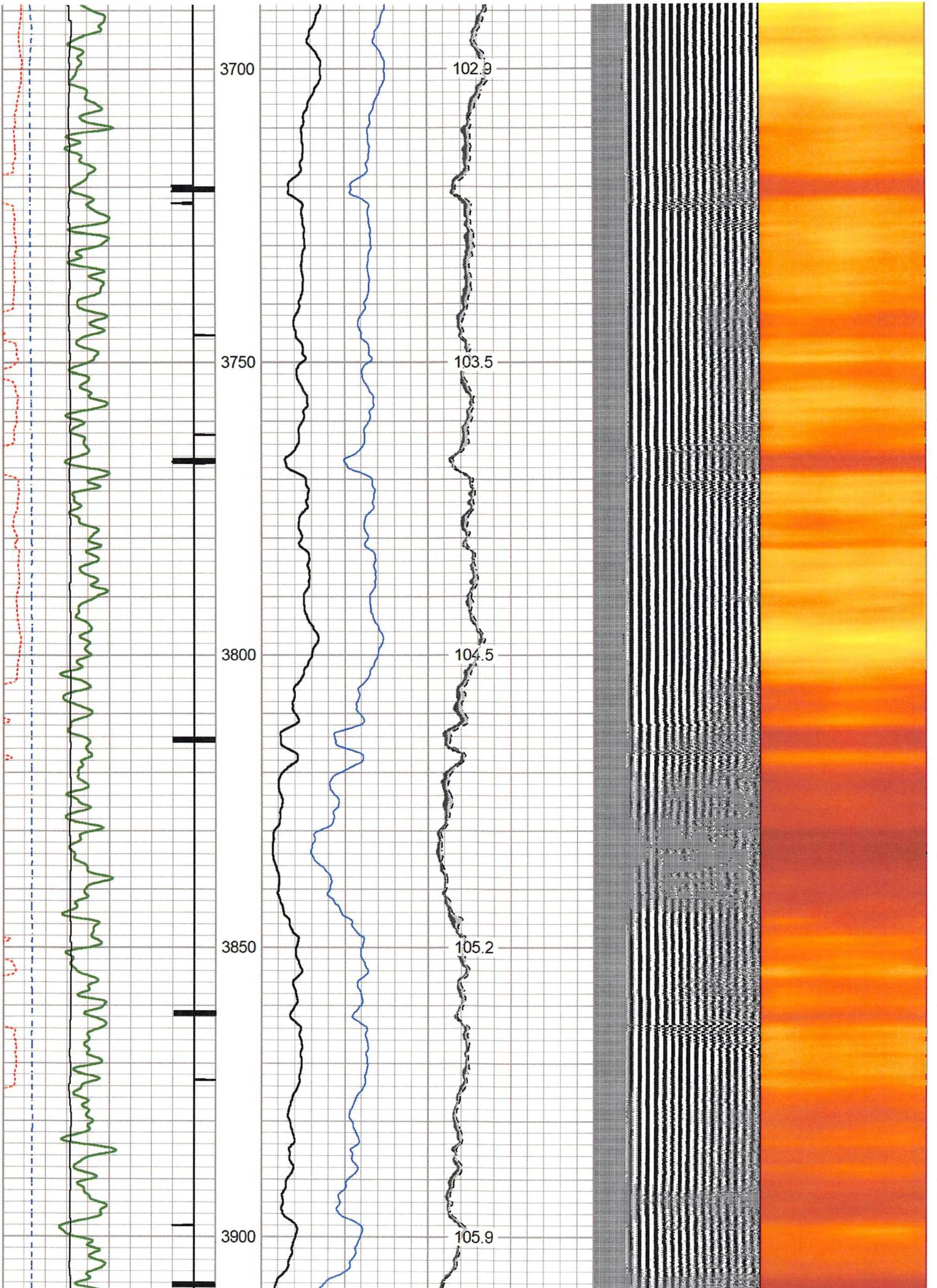


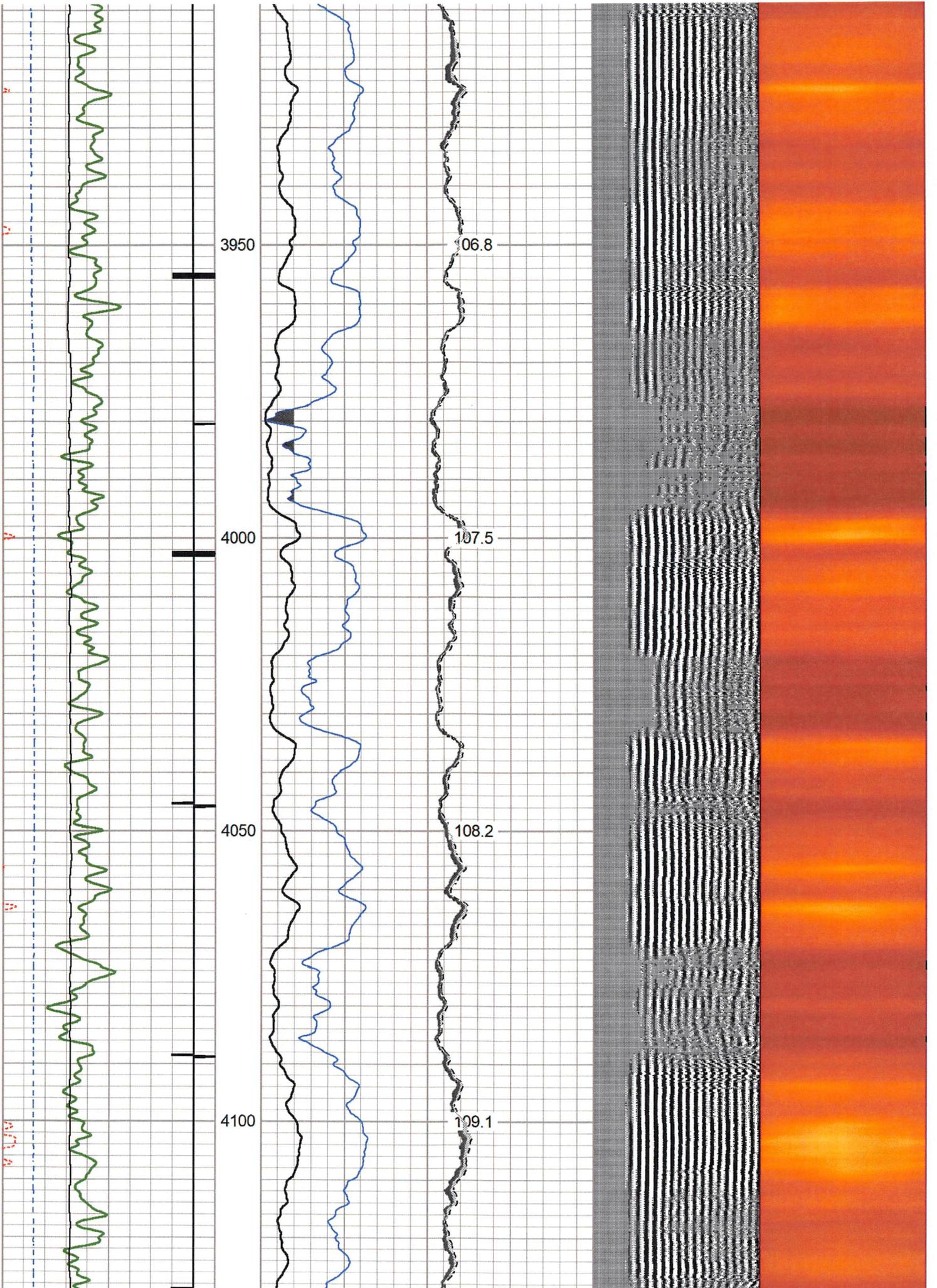


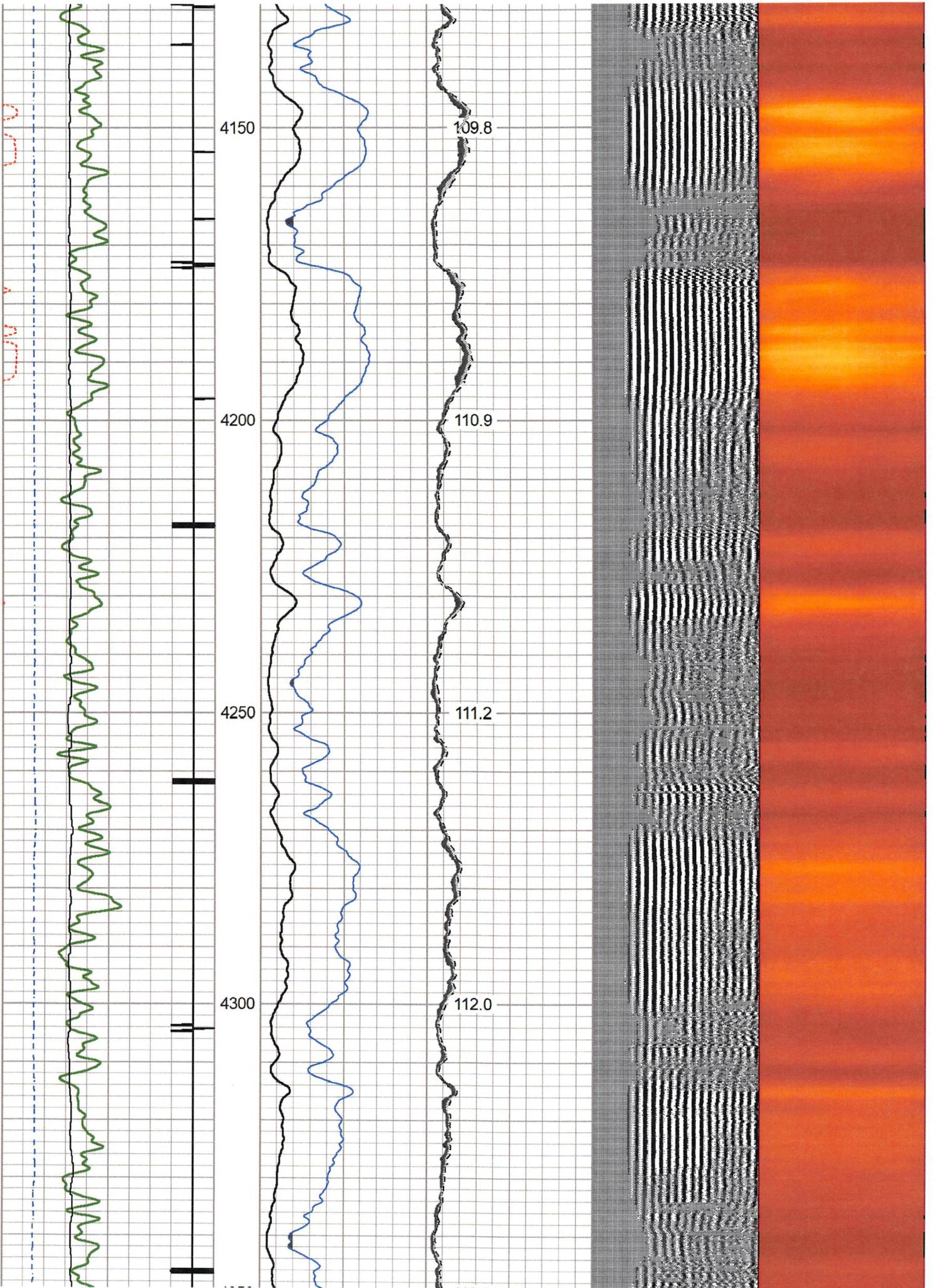


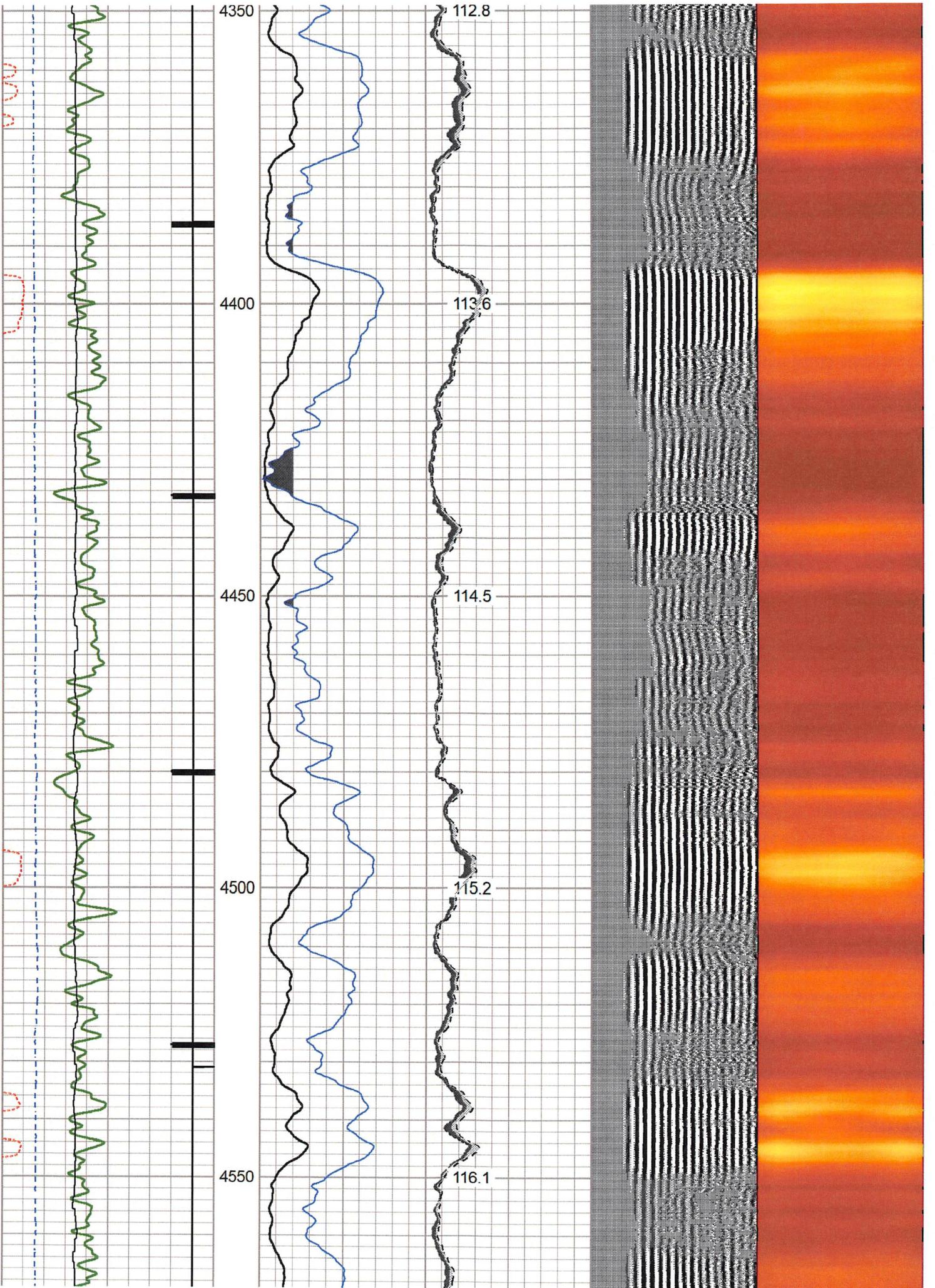


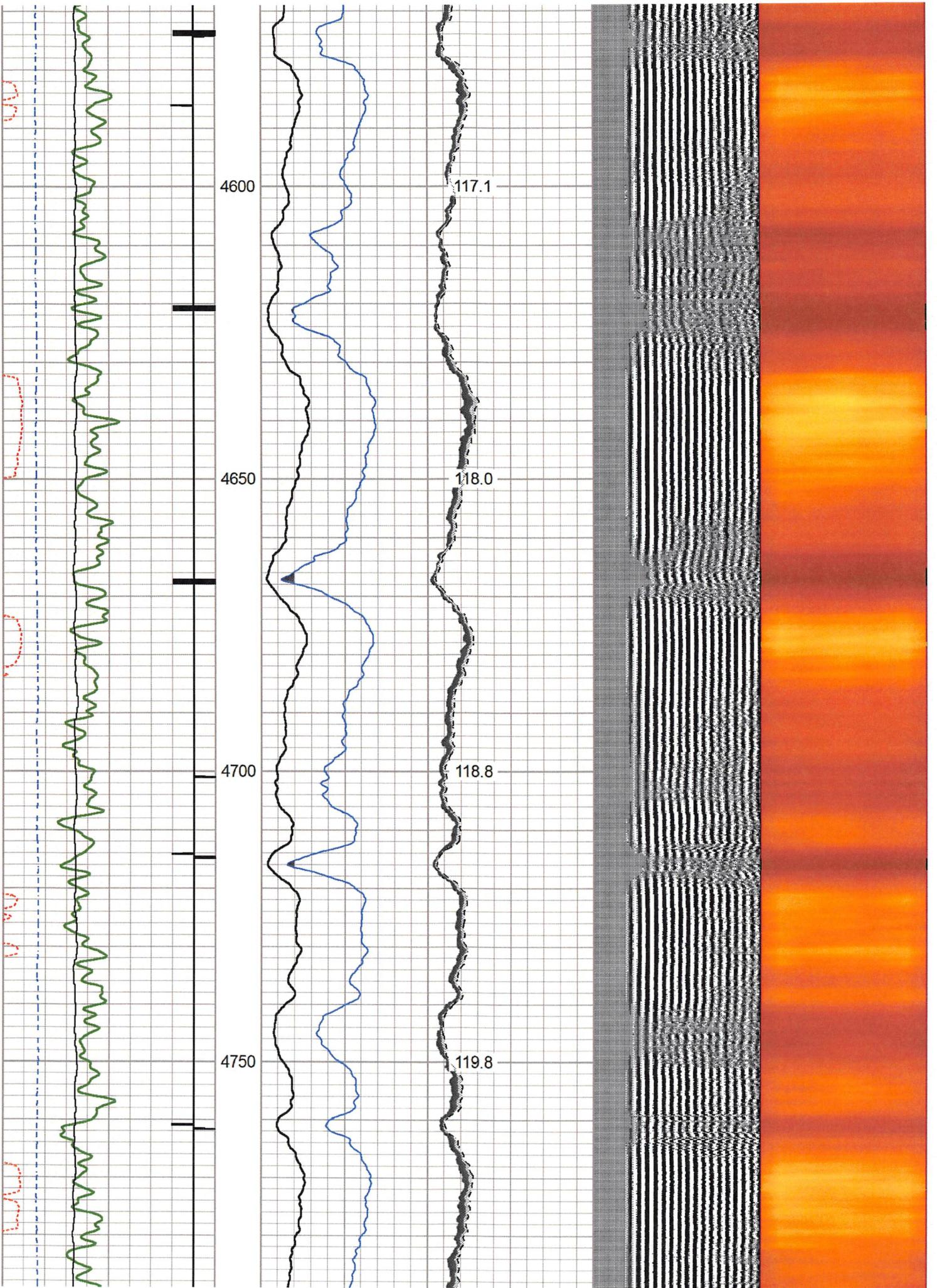


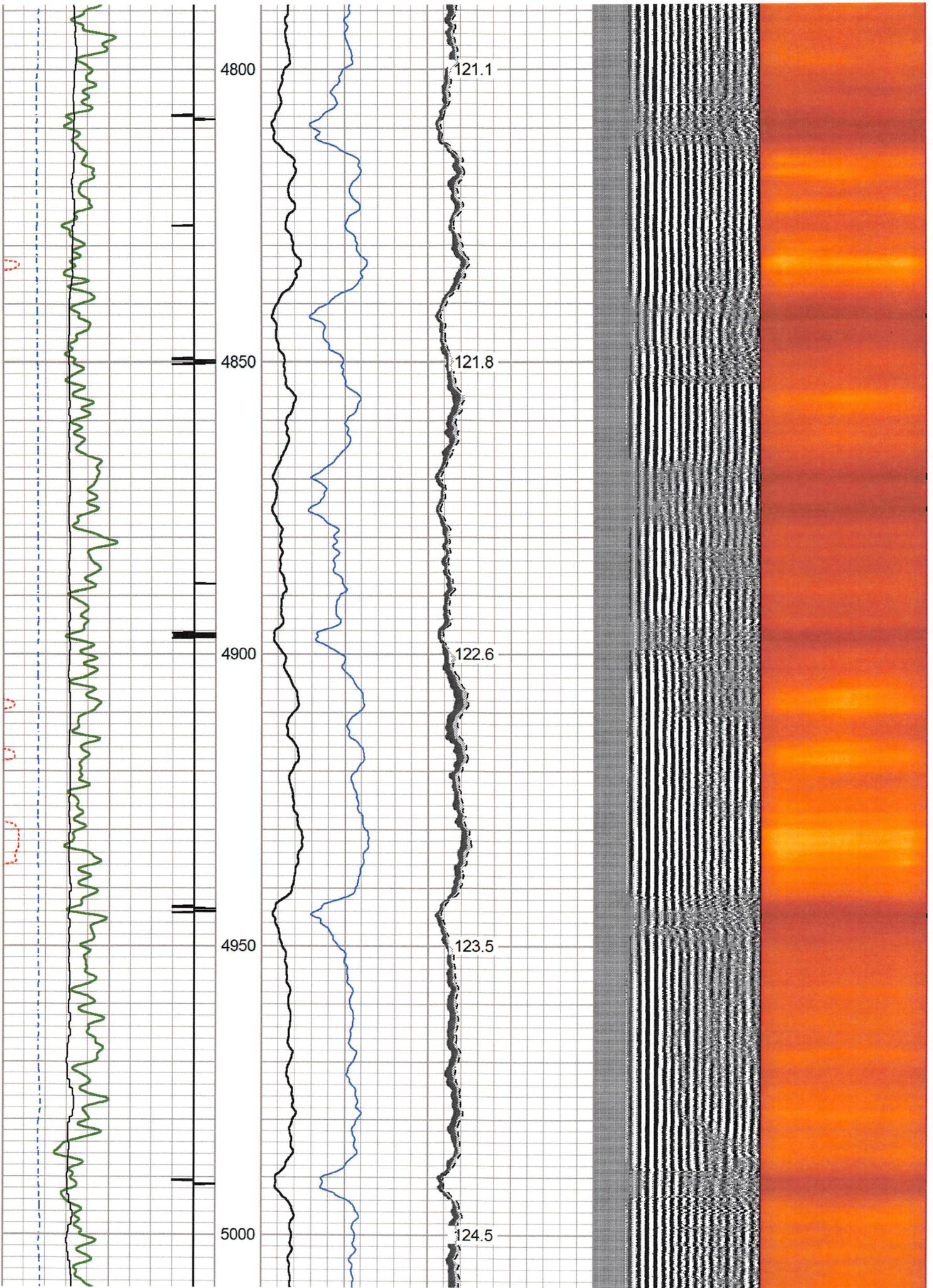


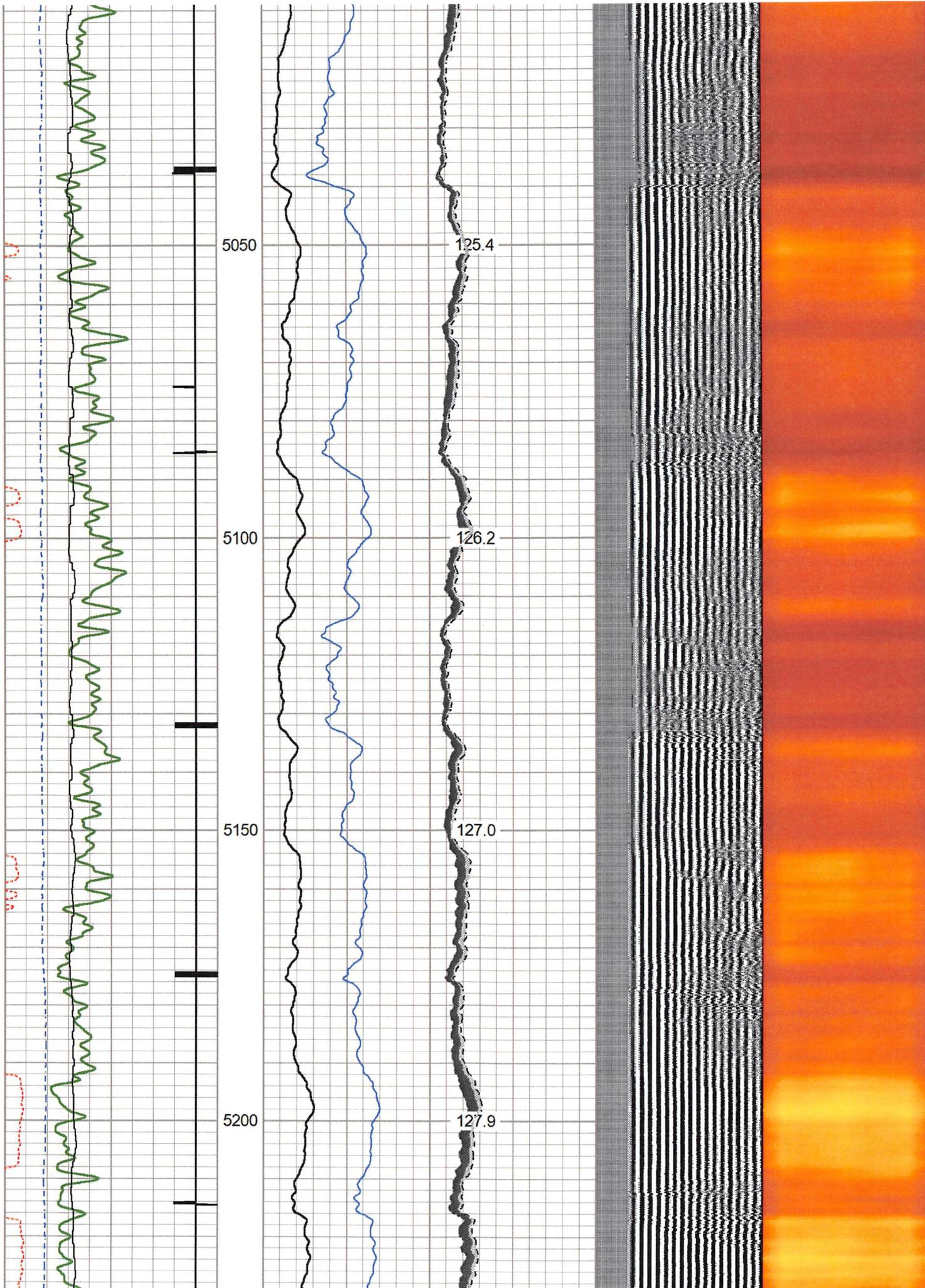


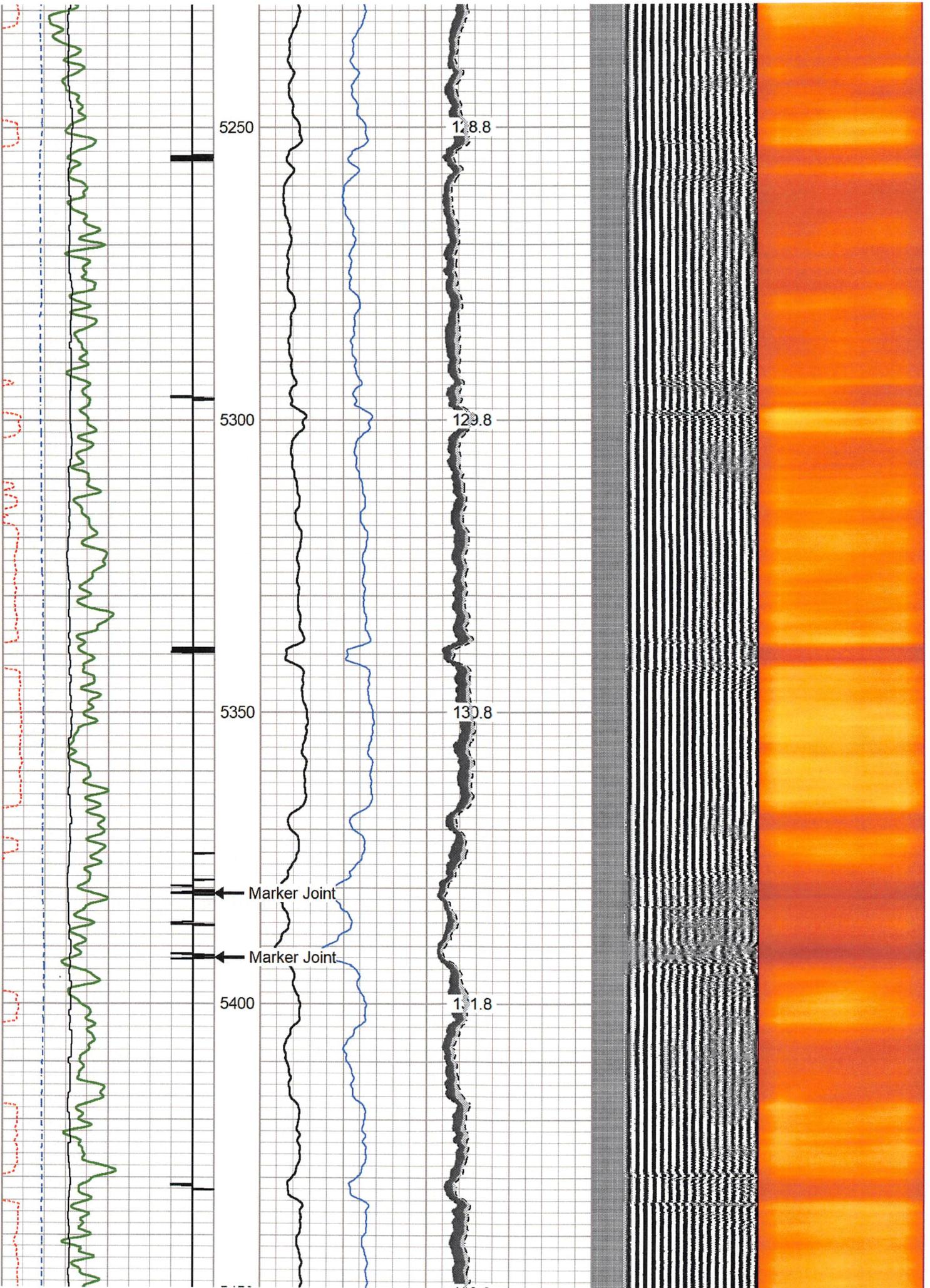


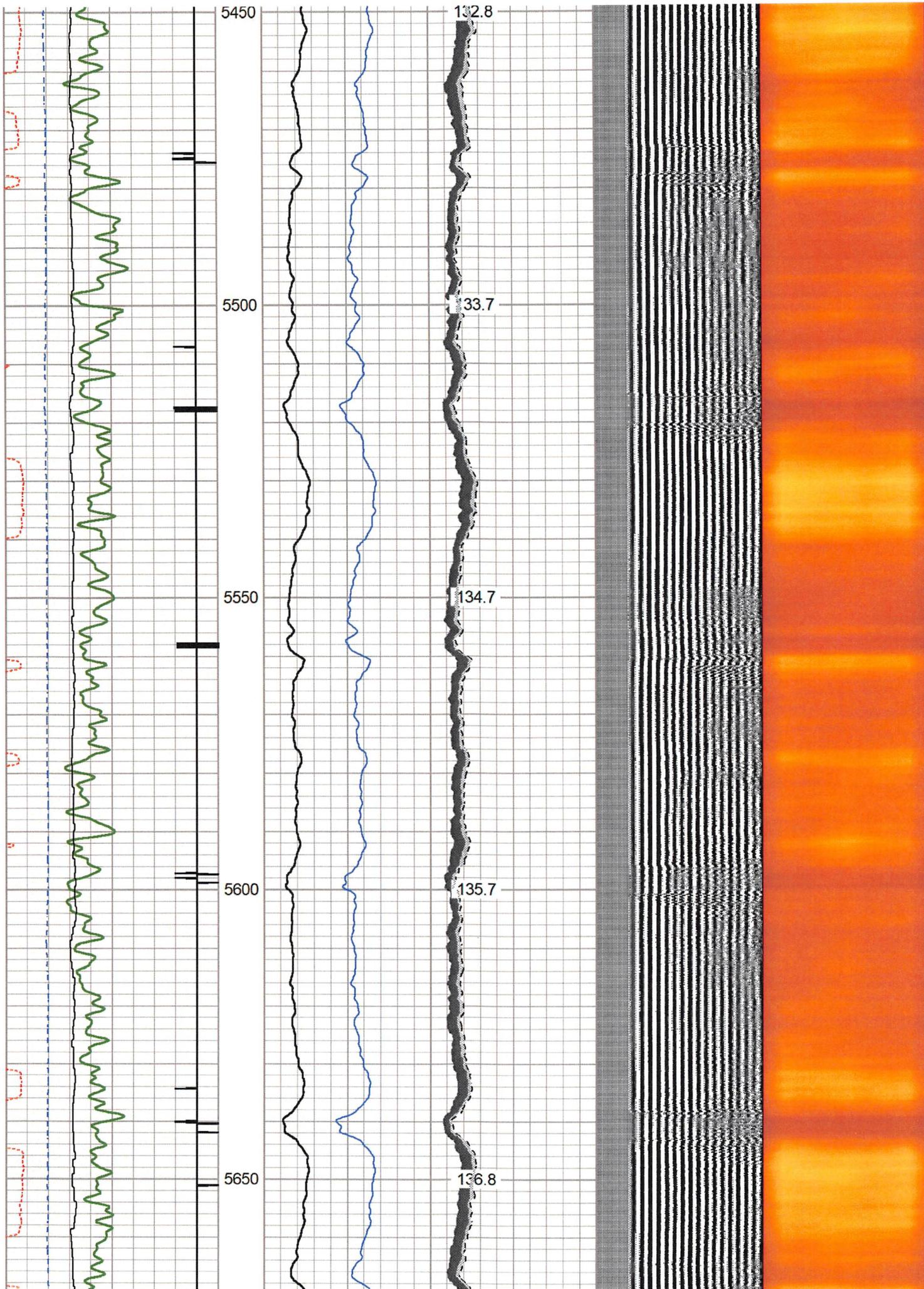


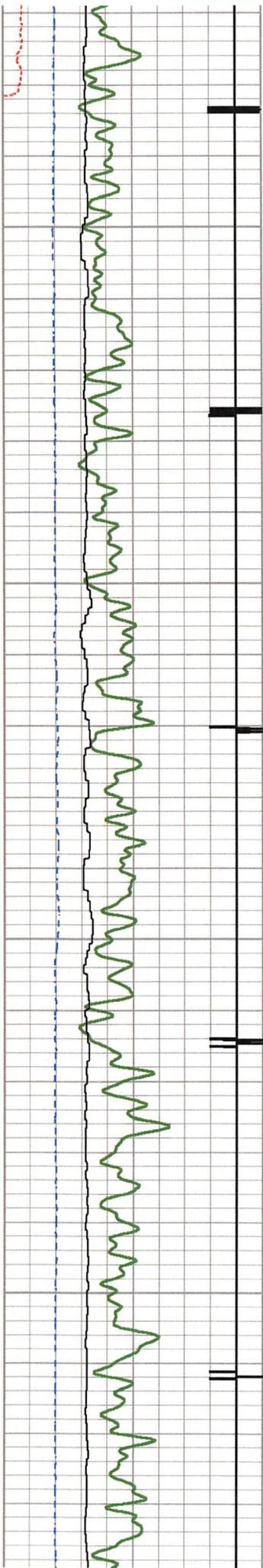










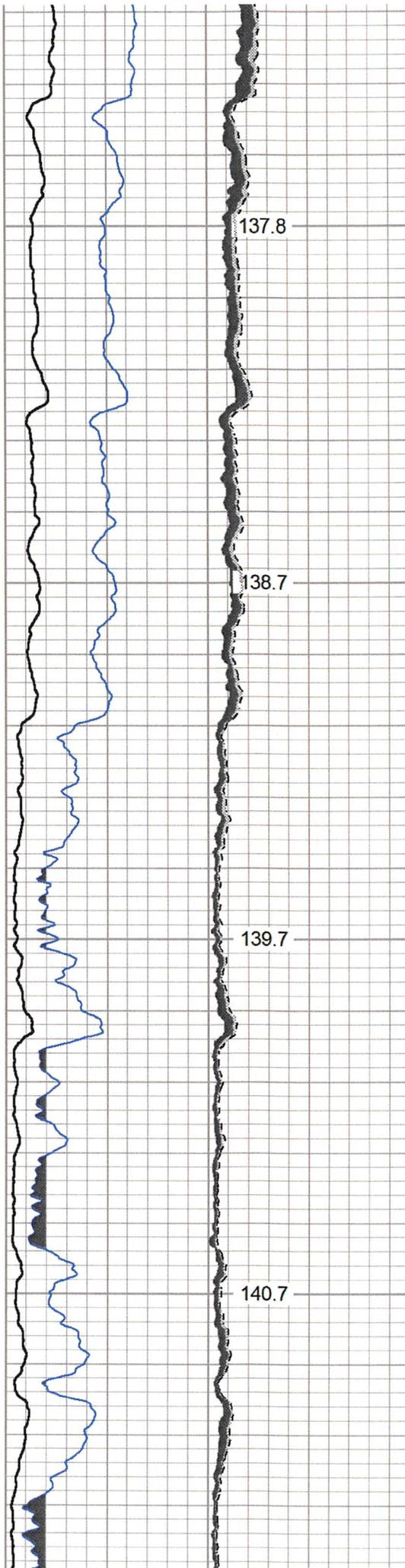


5700

5750

5800

5850

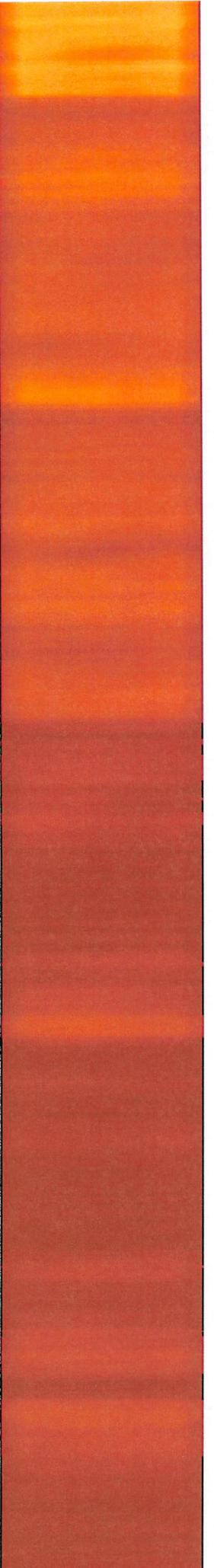
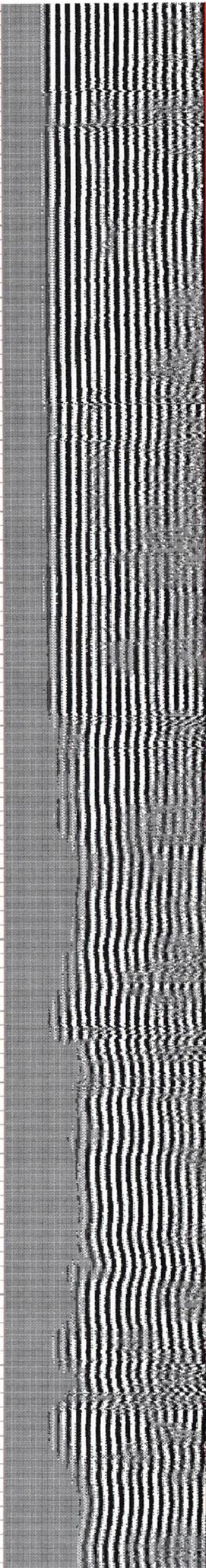


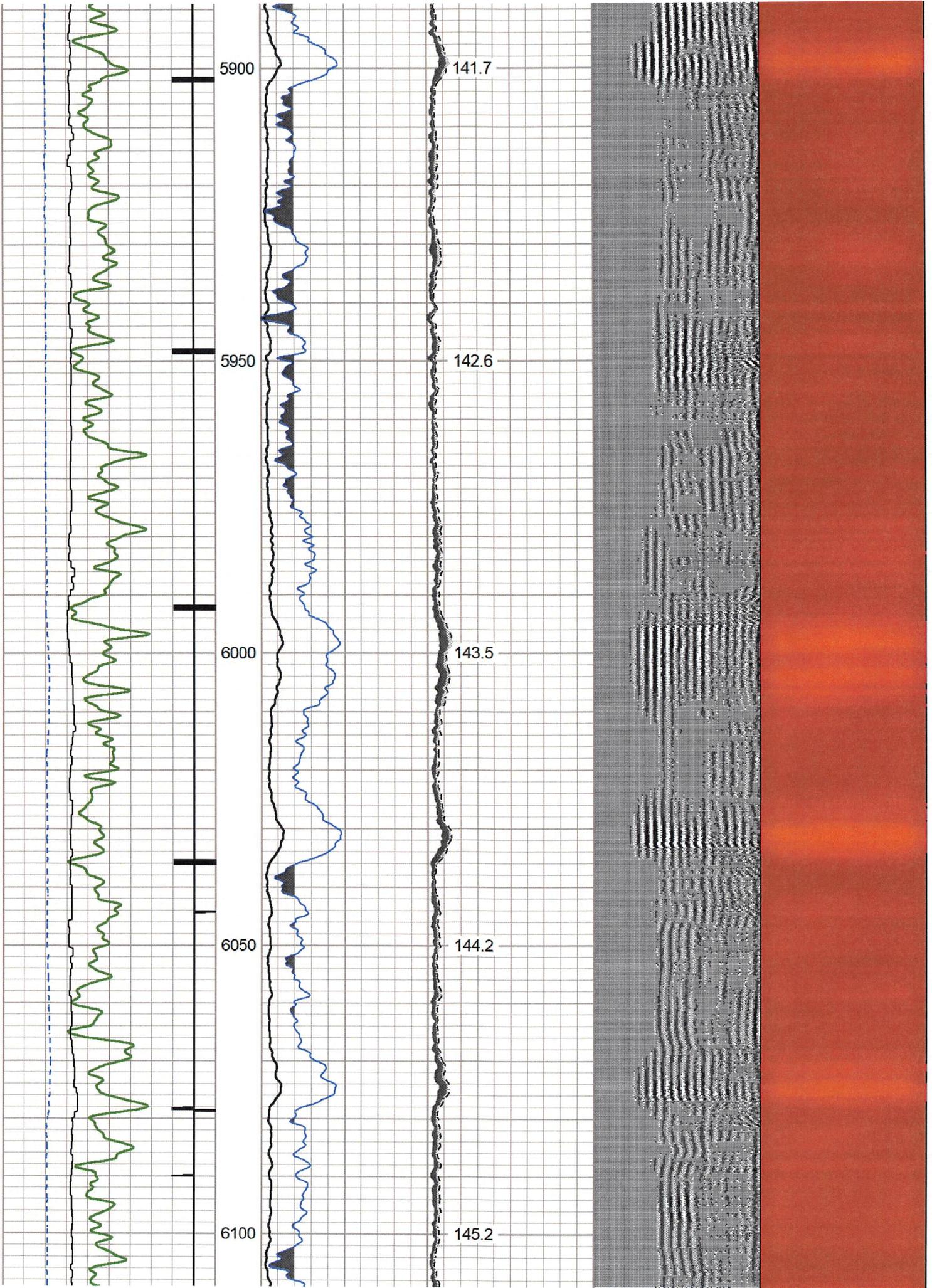
137.8

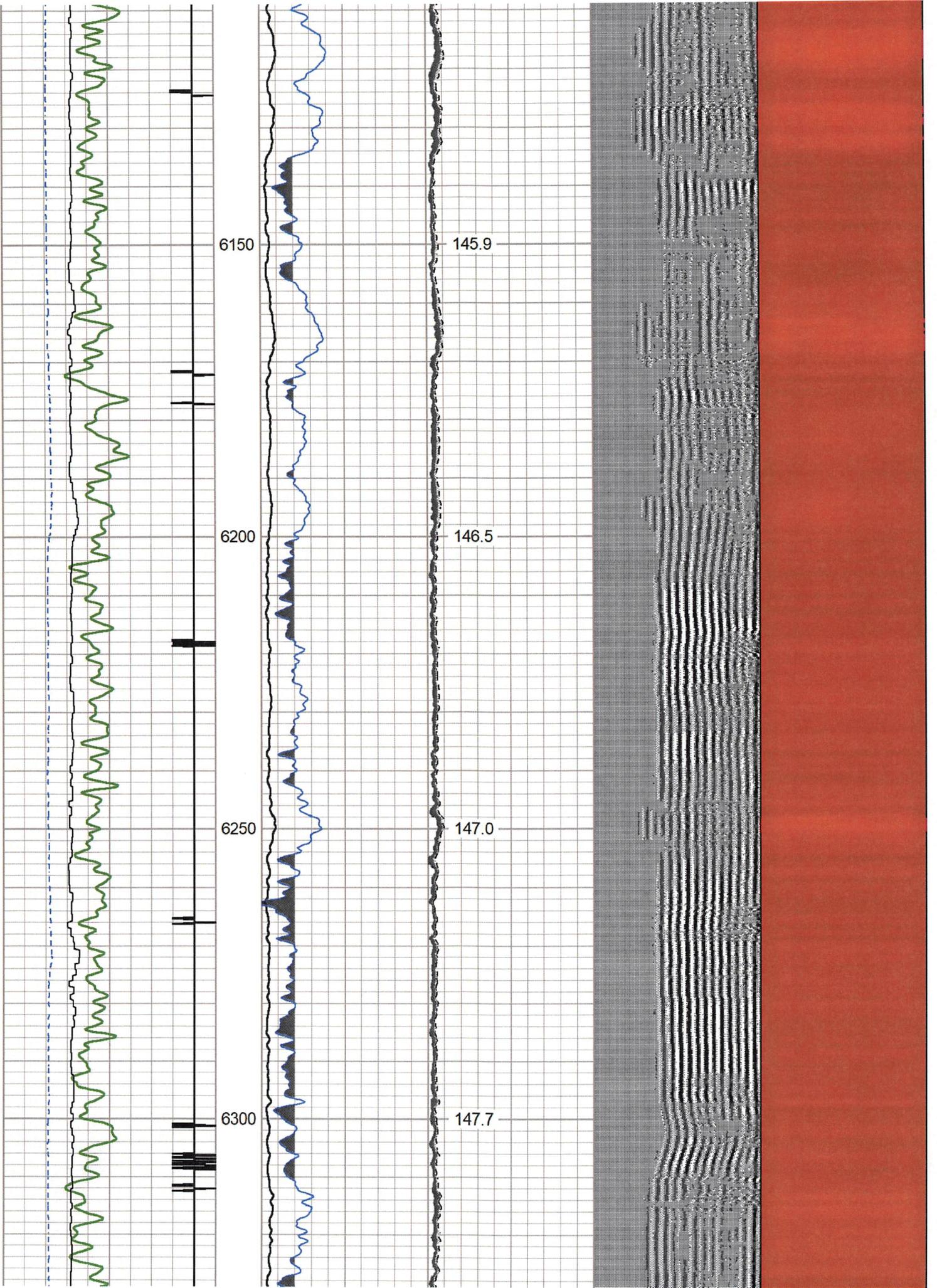
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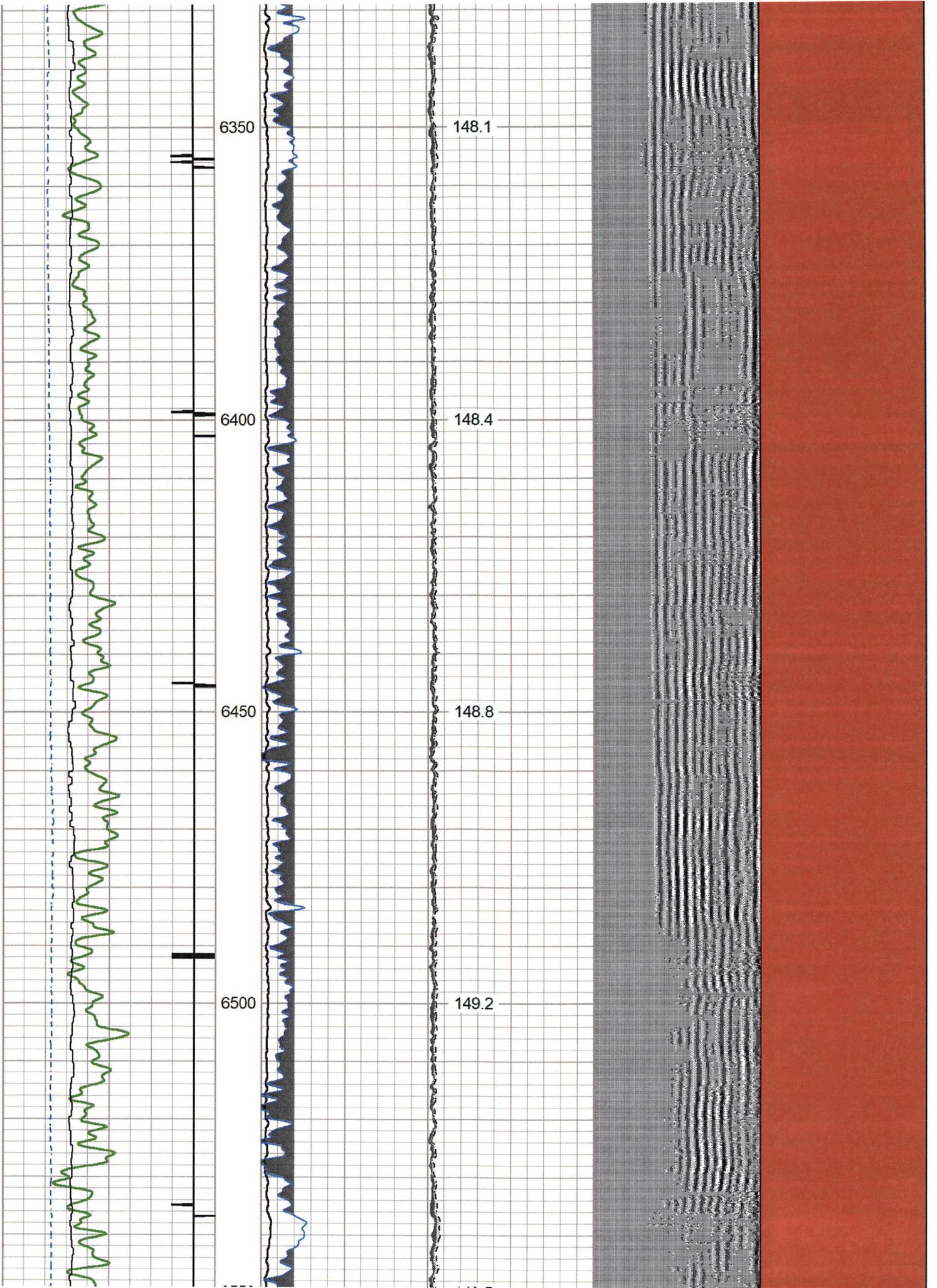
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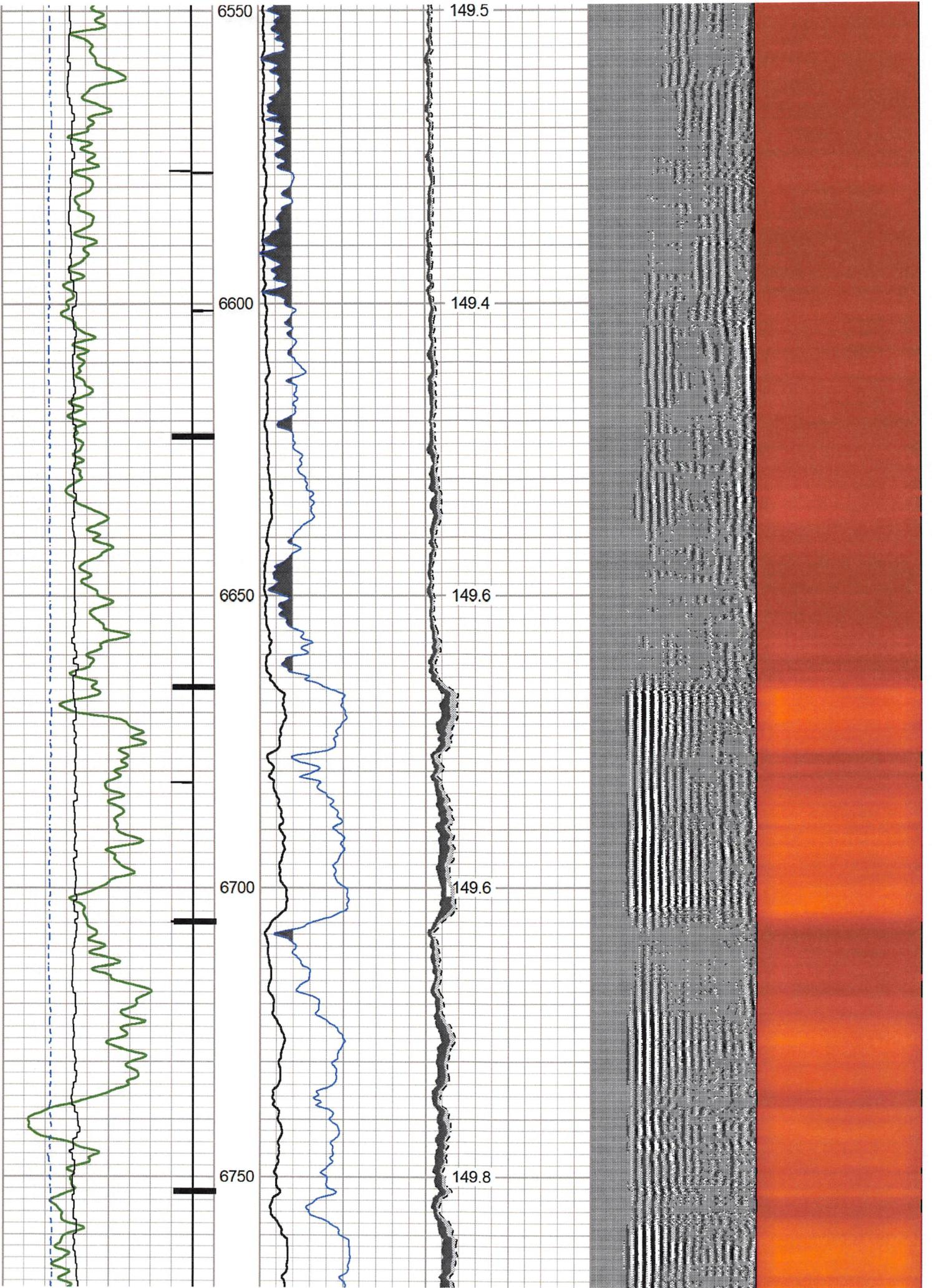
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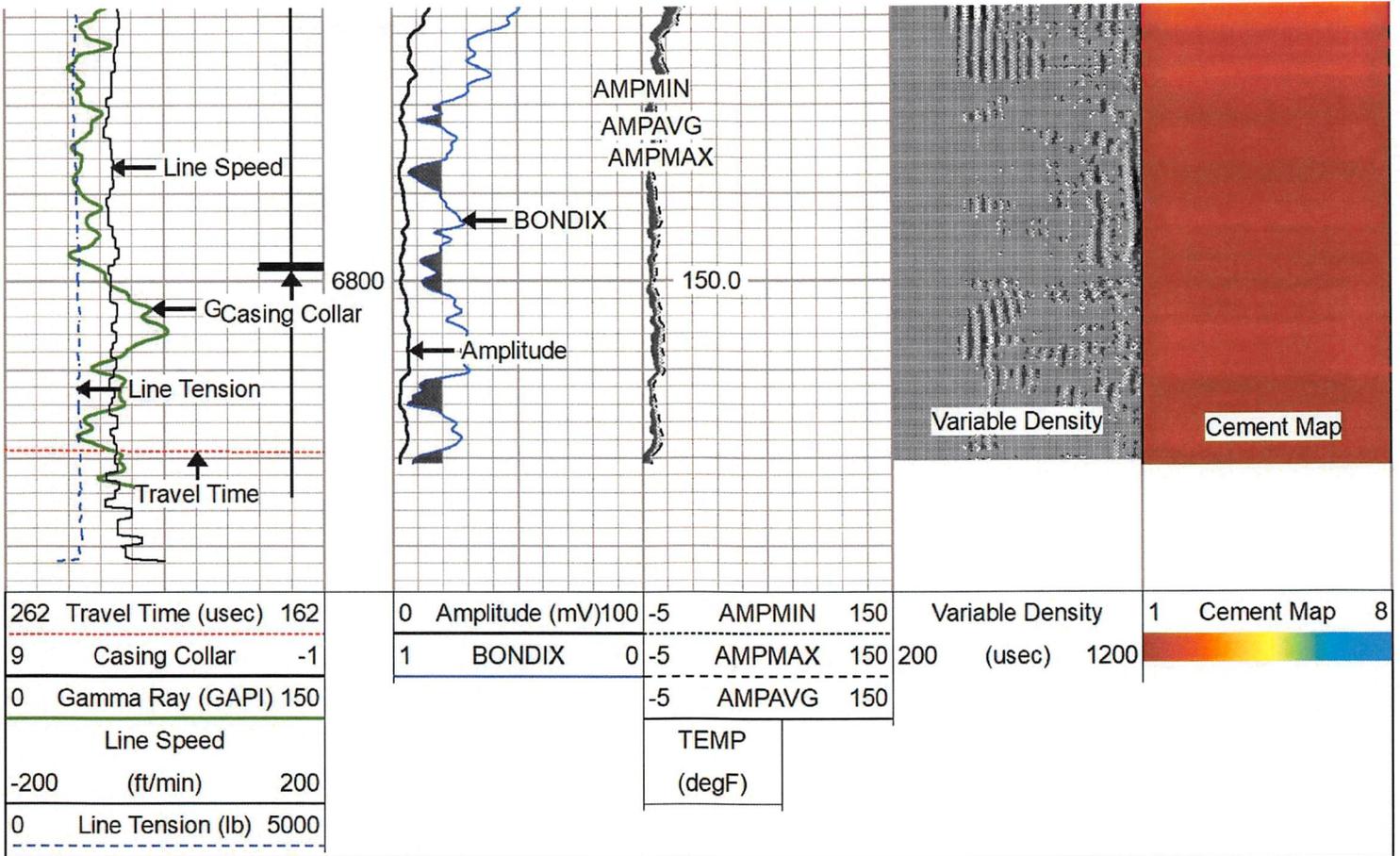






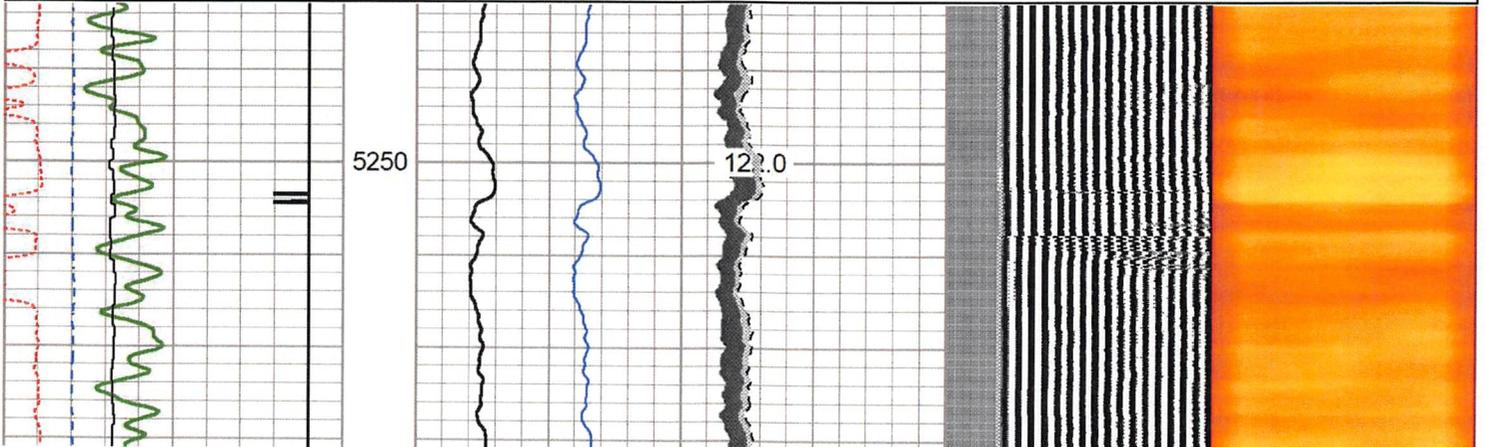
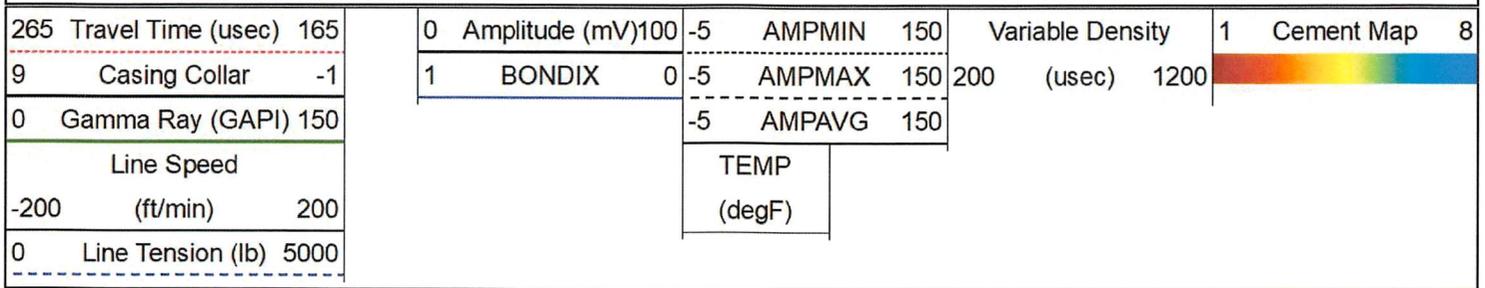


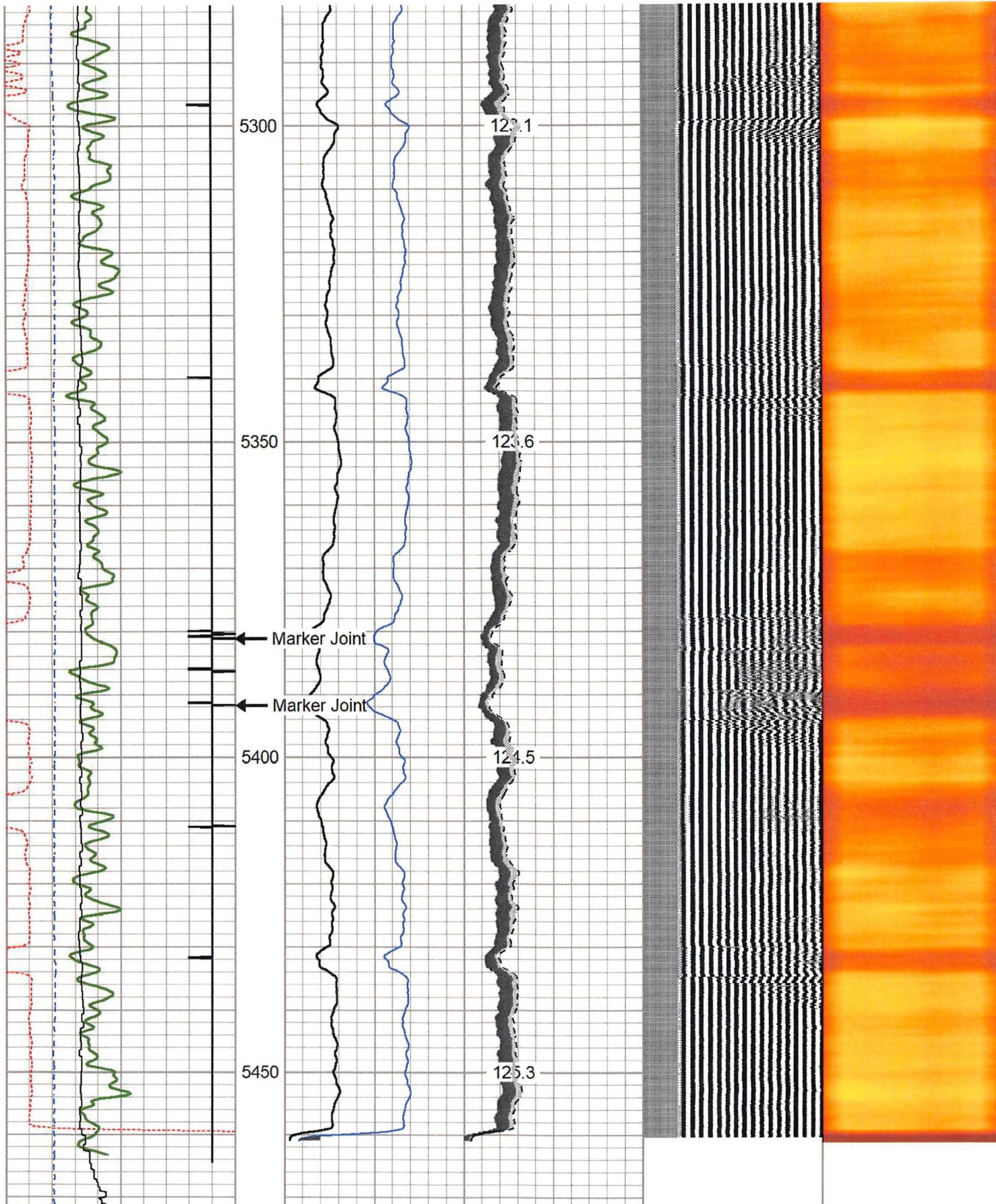





Repeat Pass 0 PSI

Database File antero_redwood_2h_rcbl_13_nov_2022.db
 Dataset Pathname pass4
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Sun Nov 13 14:44:27 2022
 Charted by Depth in Feet scaled 1:240





265	Travel Time (usec)	165
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
Line Speed		
-200	(ft/min)	200
0	Line Tension (lb)	5000

0	Amplitude (mV)	100	-5	AMPMIN	150
1	BONDIX	0	-5	AMPMAX	150
			-5	AMPAVG	150
TEMP					
(degF)					

Variable Density	1	Cement Map	8
200	(usec)	1200	



Log Variables

Database: C:\ProgramData\Warrior\Data\antero_redwood_2h_rcbl_13_nov_2022.db
 Dataset: field/well/run1/pass6/_vars_

Top - Bottom

BHTEMP_Src TEMP	BOREID in 7.875	BOTTEMP degF 100	CASEOD in 5.5	CASETHCK in 0	CASEWGHT lb/ft 20	MAXAMPL mV 71.9	MINAMPL mV 2.2
MINATTN db/ft 0.8	PERFS No	PPT usec 261	SRFTEMP degF 0	TDEPTH 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_redwood_2h_rcbl_13_nov_2022.db
 Dataset Pathname pass6
 Dataset Creation Sun Nov 13 14:55:57 2022

Gamma Ray Calibration Report

Serial Number: FW1211-86
 Tool Model: Probe
 Performed: Sun Nov 13 11:04:25 2022

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: 2.75"
 Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 185.392 ft

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Master Calibration, performed Sun Nov 13 11:51:14 2022:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.006	0.497	2.200	71.921	138.613	2.965
CAL	0.837	0.842				
5'	-0.002	0.515	2.200	71.921	134.900	2.505
SUM						
S1	0.014	0.263	0.000	100.000	402.456	-5.650
S2	-0.002	0.512	0.000	100.000	194.400	0.411
S3	-0.005	0.515	0.000	100.000	192.359	0.923
S4	0.005	0.520	0.000	100.000	100.738	0.850

S4	-0.003	0.520	0.000	100.000	190.750	0.639
S5	-0.003	0.512	0.000	100.000	193.907	0.637
S6	-0.004	0.519	0.000	100.000	191.295	0.696
S7	-0.004	0.561	0.000	100.000	176.860	0.764
S8	-0.004	0.553	0.000	100.000	179.311	0.803

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	0.837	0.842	1.000	0.000

Air Zero Calibration, performed Sun Nov 13 08:37:25 2022:

	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	17.53		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	14.68		RBT-Probe275T (2.75") Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS8	12.45					
WVFS7	12.45					
WVFS6	12.45					
WVFS5	12.45					
WVFS4	12.45					
WVFS3	12.45					
WVFS2	12.45					
WVFS1	12.45					
WVFS3FT	12.45					
WVFS5FT	11.45					

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WV Department of
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WVFCAL	8.20					
HEADVOLT	8.20					
CCL	7.29					
GR	5.96		GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray Centralizer-2.75_Overbody	4.78	2.75	57.00
			Centralizers-5419-312-S600 Titan 3 1/8" Adjustable Centralizer	1.67	3.12	5.00
				3.42	3.13	34.00

Dataset: antero_redwood_2h_rcbl_13_nov_2022.db: field/well/run1/pass6
 Total length: 18.61 ft
 Total weight: 192.00 lb
 O.D.: 3.13 in

	Company	ANTERO RESOURCES
	Well	REDWOOD 2H
	Field	WEST UNION
	County	DODDRIDGE
	State	WV

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