



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

Company ANTERO RESOURCES
Well PHEBE 1H
Field WEST UNION
County DODDRIDGE
State WV

Company ANTERO RESOURCES
Well PHEBE 1H
Field WEST UNION
County DODDRIDGE
State WV

Location: API #: 47-017-06937

Other Services

SEC TWP RGE Elevation
Permanent Datum GROUND LEVEL Elevation 1334'
Log Measured From KELLY BUSHING 30'
Drilling Measured From KELLY BUSHING
K.B. 1,364'
D.F. 1,364'
G.L. 1,334'

JANUARY 11, 2023

ONE

ONE

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Date	JANUARY 11, 2023	
Run Number	ONE	
Depth Driller	22,728'	
Depth Logger	7,687'	
Bottom Logged Interval	SURFACE	
Top Log Interval	SURFACE	
Open Hole Size	NA	
Type Fluid	FRESH WATER	
Density / Viscosity	8.6 LB/GAL	
Max. Recorded Temp.	147.9	
Estimated Cement Top	3,334'	
Time Well Ready	UPON ARRIVAL	
Time Logger on Bottom	13:30	
Equipment Number	116	
Location	CHARLEROI, PA	
Recorded By	C. DRUMMOND	
Witnessed By	BRYAN HEMARD	
Borehole Record		
Run Number	Bit	From To
Tubing Record		
Run Number	Size	Weight From To
Casing Record		
Conductor String	Size	Wgt/Ft Top Bottom
Surface String	9.625"	36 LBS. SURFACE SURFACE
Intermediate String	5.5	23 LBS. SURFACE SURFACE
Production String		

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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

LOG CORRELATED TO MARKER JOINT
DEPTH SHIFT +1
MARKER JOINT 6,408' - 6,418'
MAIN PASS LOGGED WITH 1500 PSI
REPEAT PASS LOGGED WITH 0 PSI

THANK YOU FOR USING NINE ENERGY SERVICES

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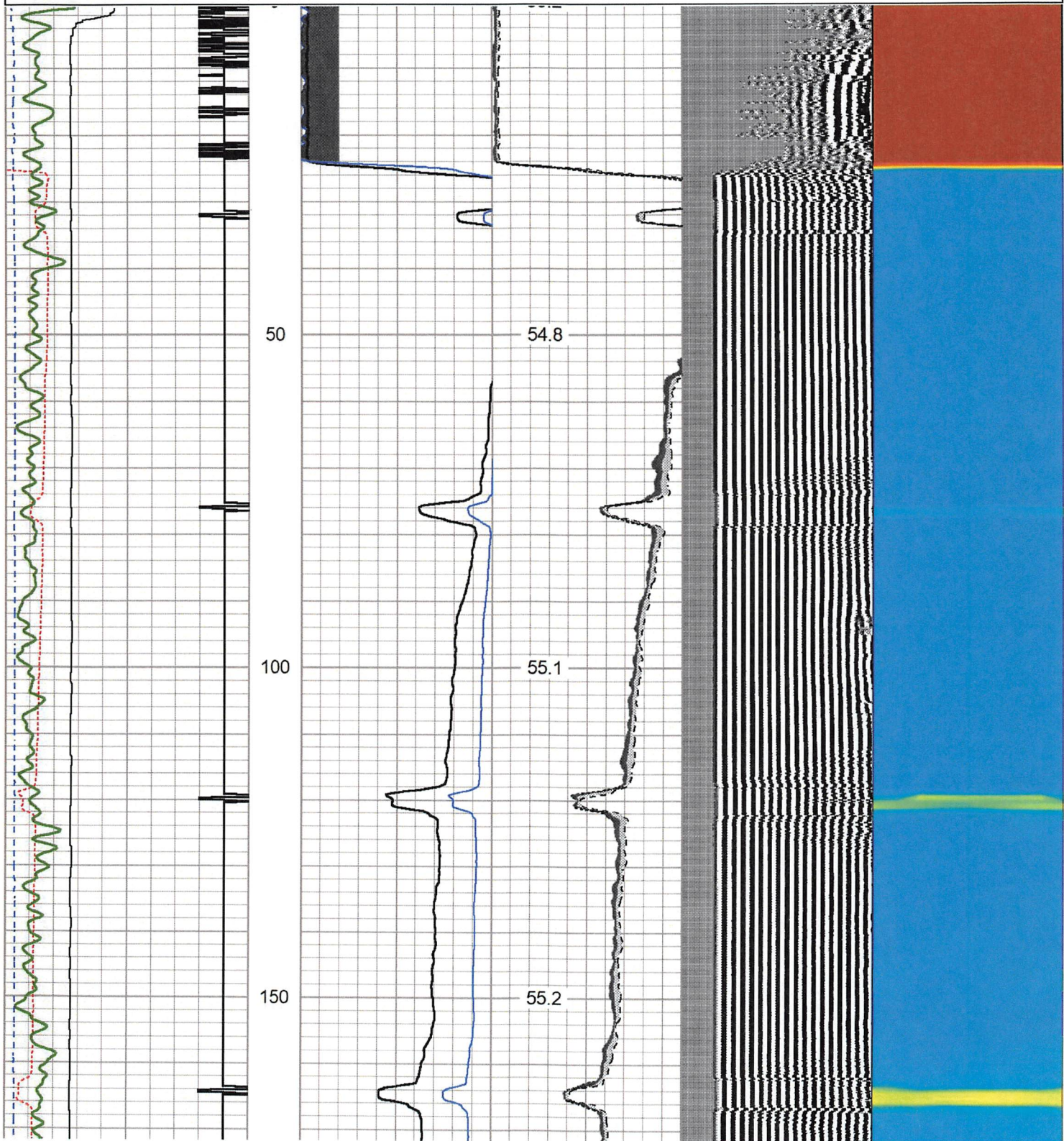
Main Pass 1500 PSI

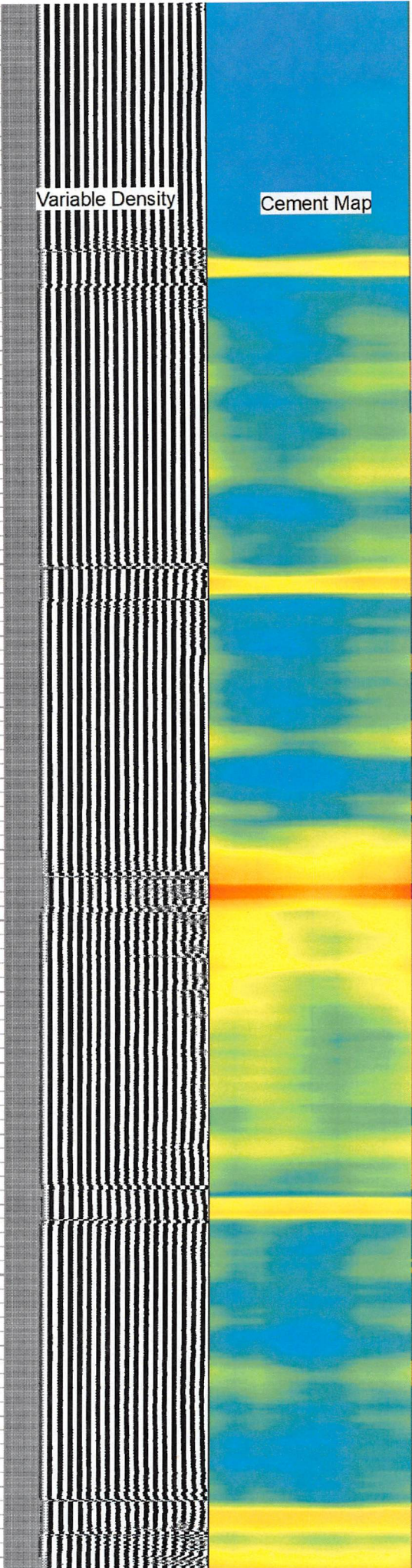
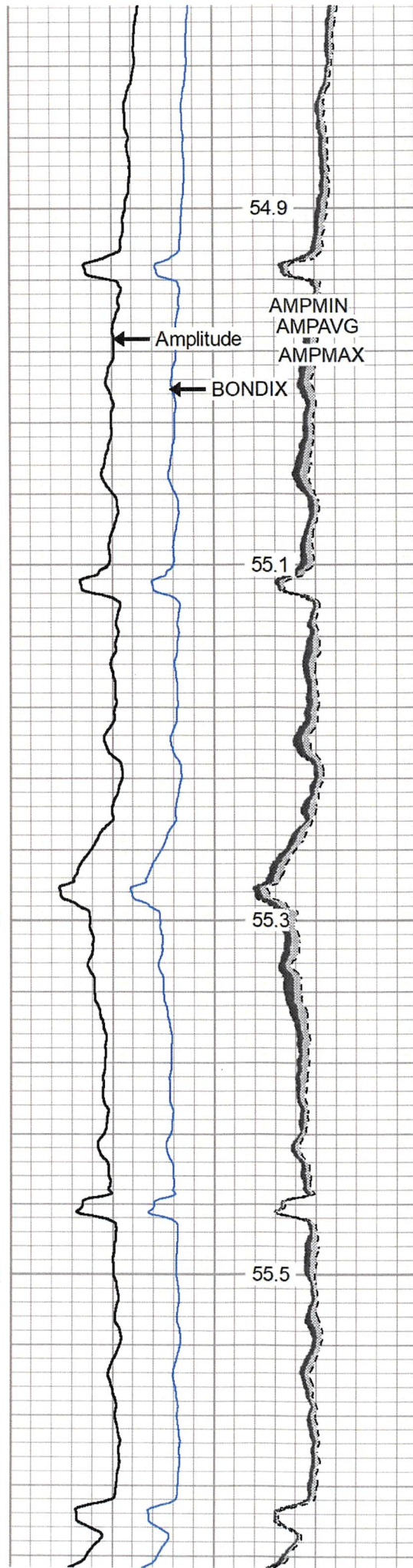
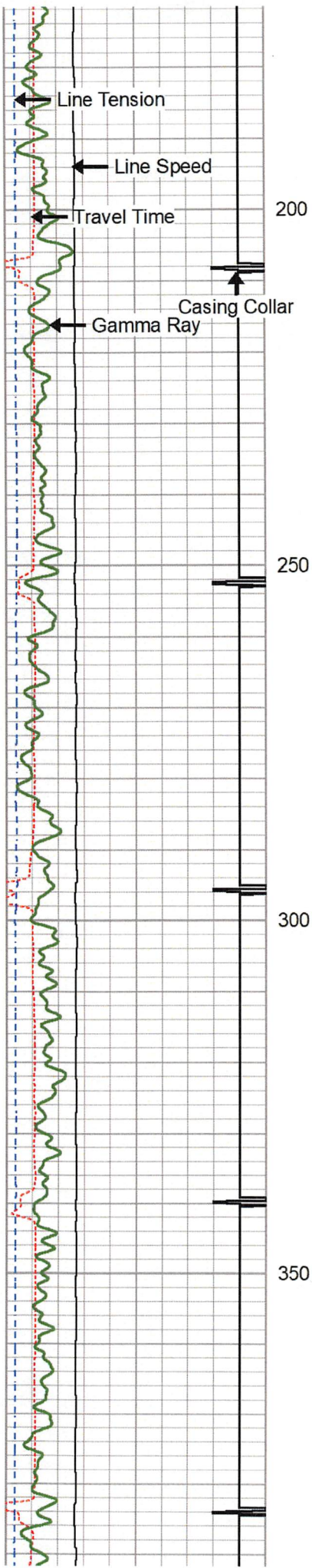
Database File antero_phebe_1h_rcbl_11_jan_2023.db
 Dataset Pathname pass6
 Presentation Format rcbl 2
 Dataset Creation Wed Jan 11 13:34:58 2023
 Charted by Depth in Feet scaled 1:240

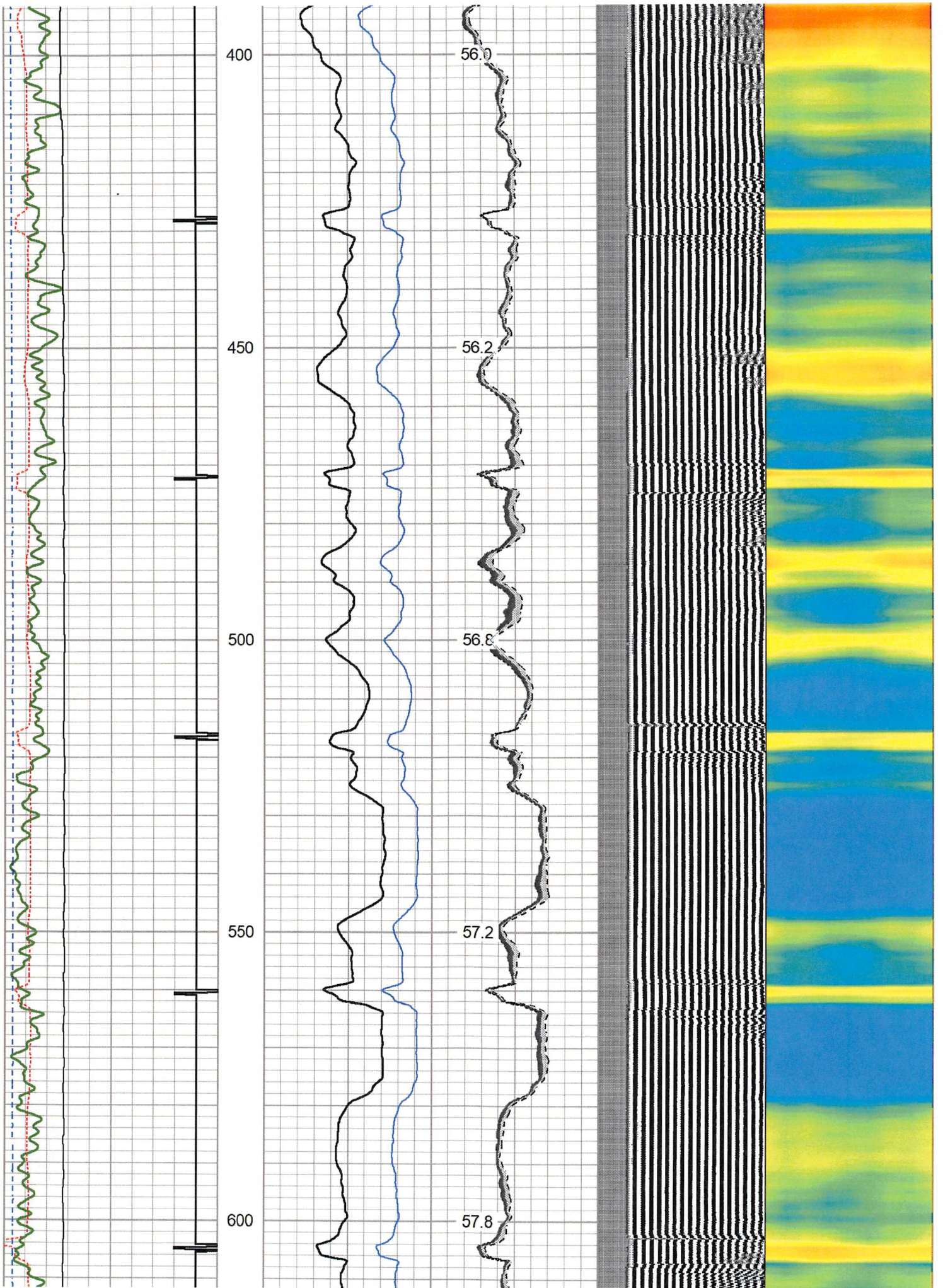
265	Travel Time (usec)	165
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
Line Speed		
-200	(ft/min)	200
0	Line Tension (lb)	5000

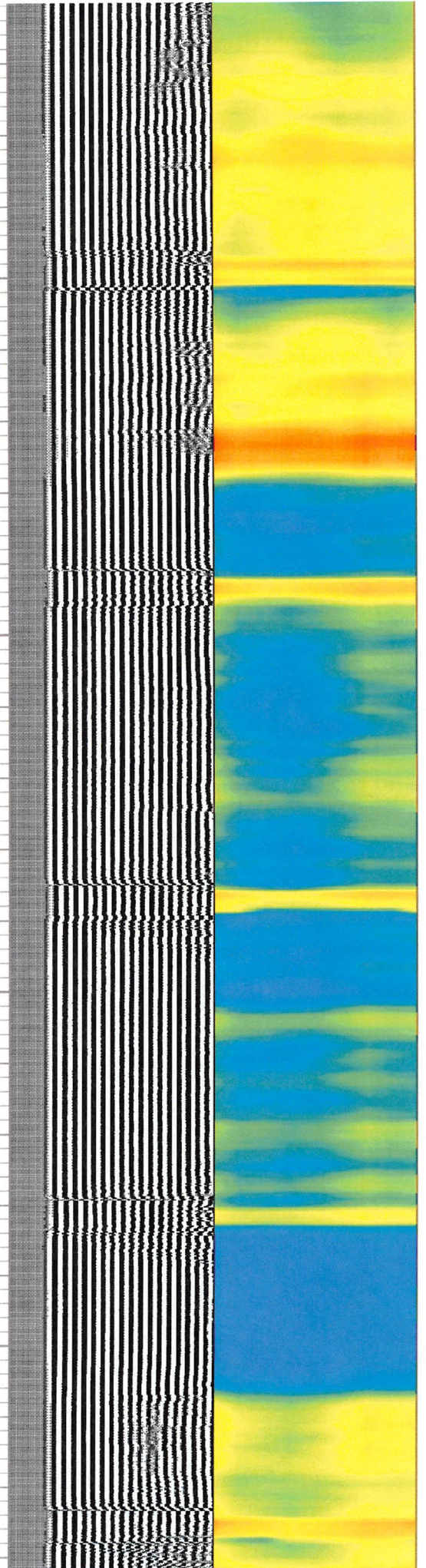
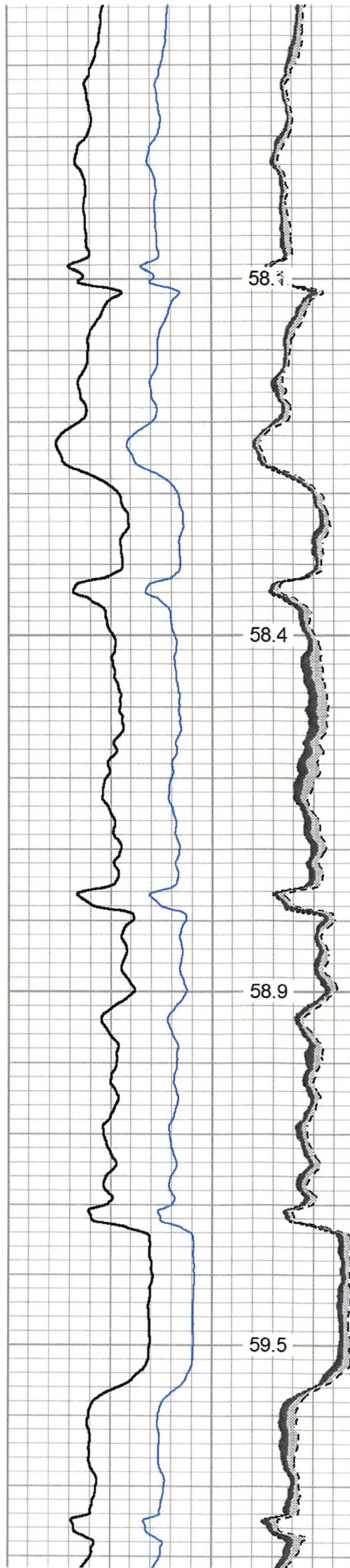
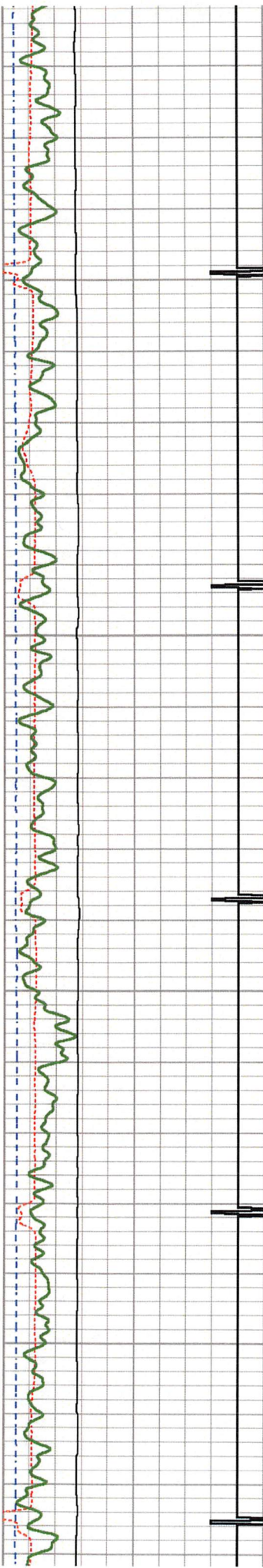
0	Amplitude (mV)	100	-5	AMPMIN	150
1	BONDIX	0	-5	AMPMAX	150
			-5	AMPAVG	150
TEMP					
(degF)					

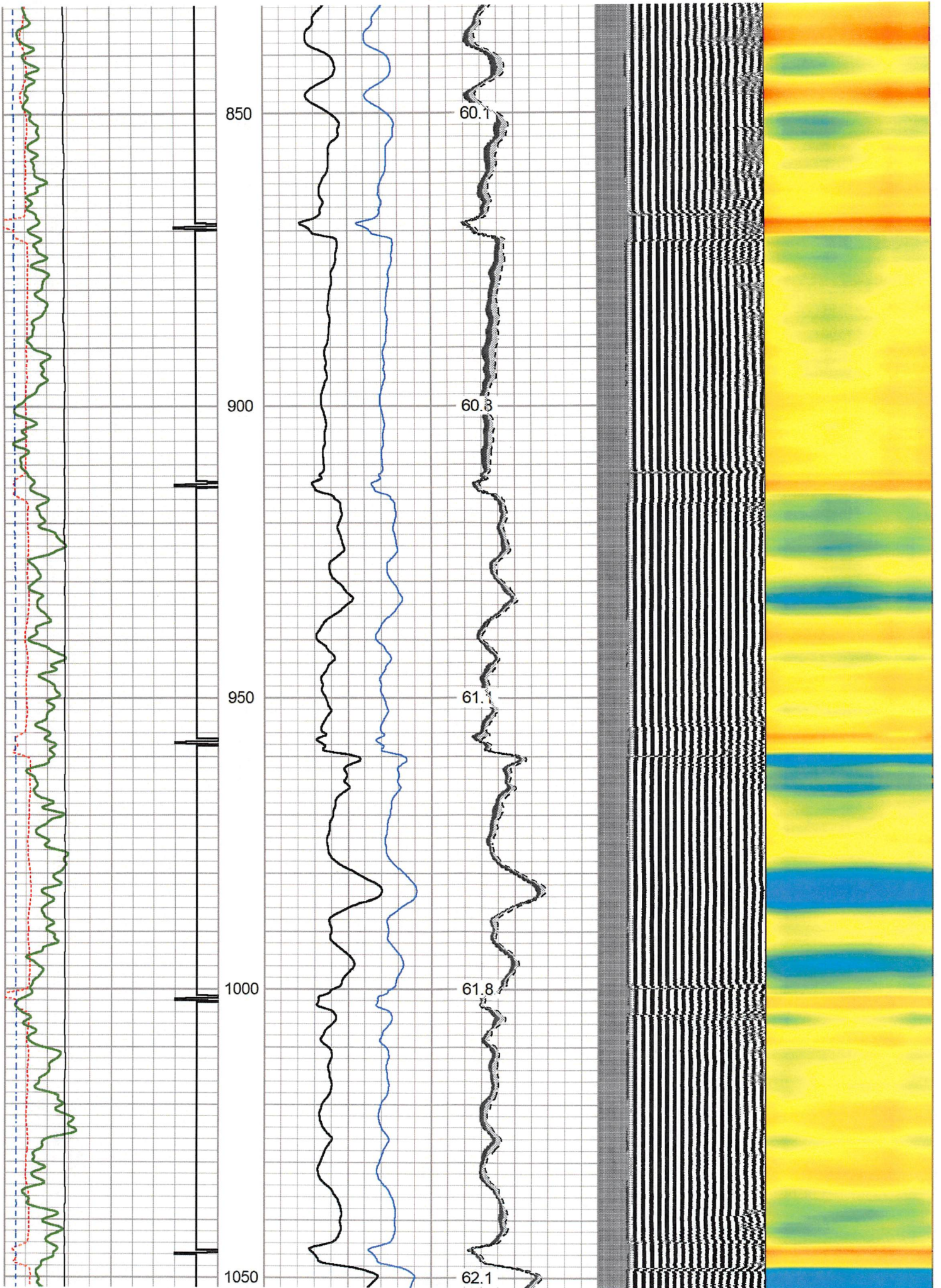
Variable Density 1 Cement Map 8
 200 (usec) 1200

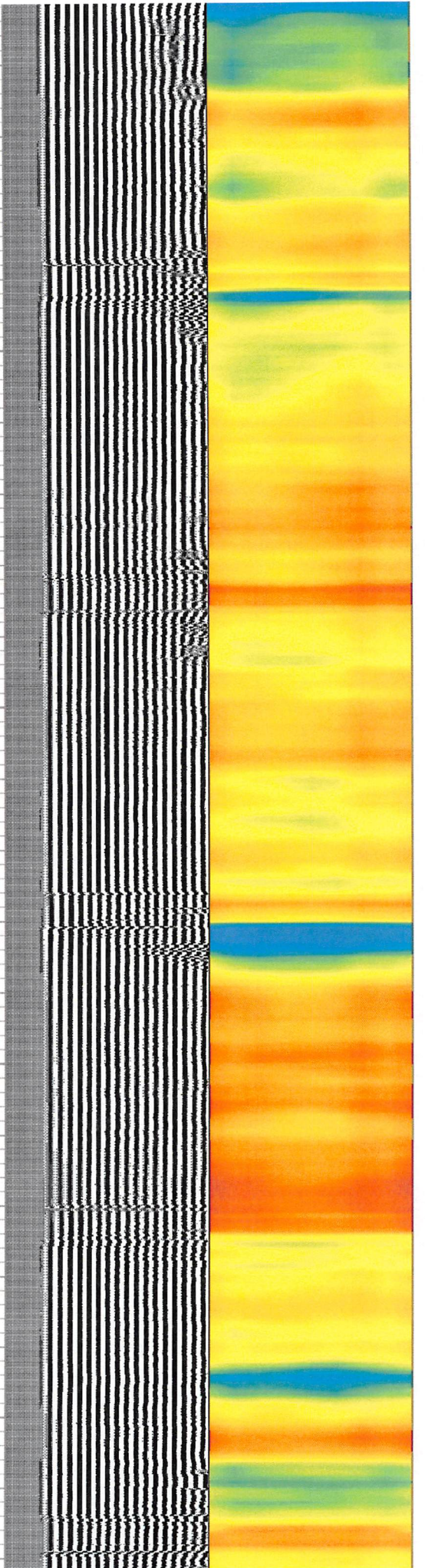
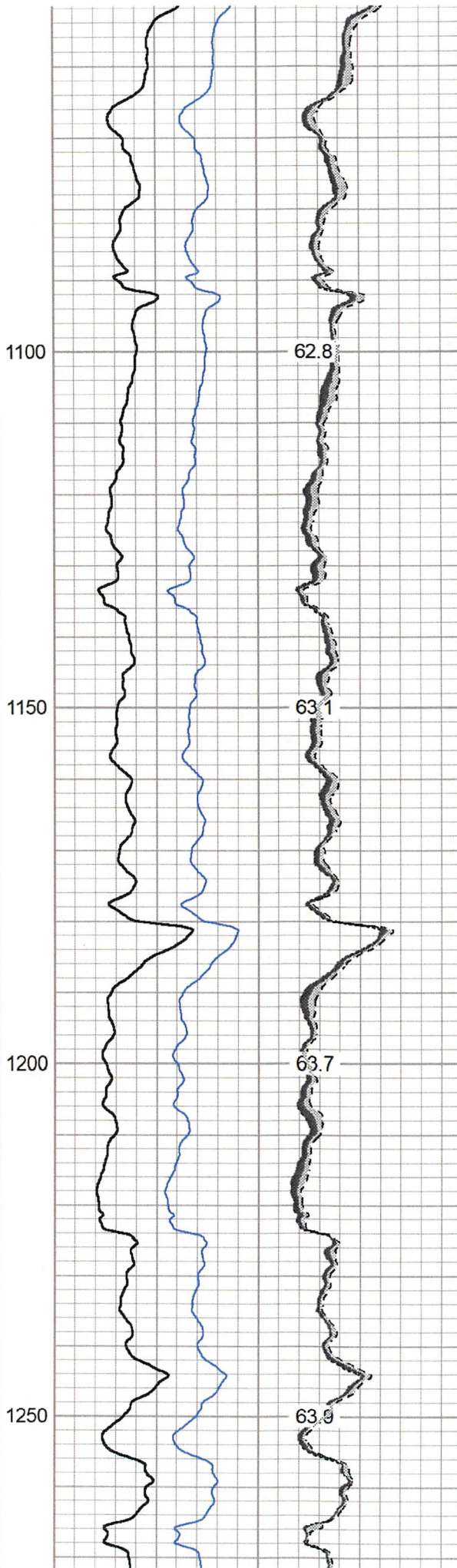
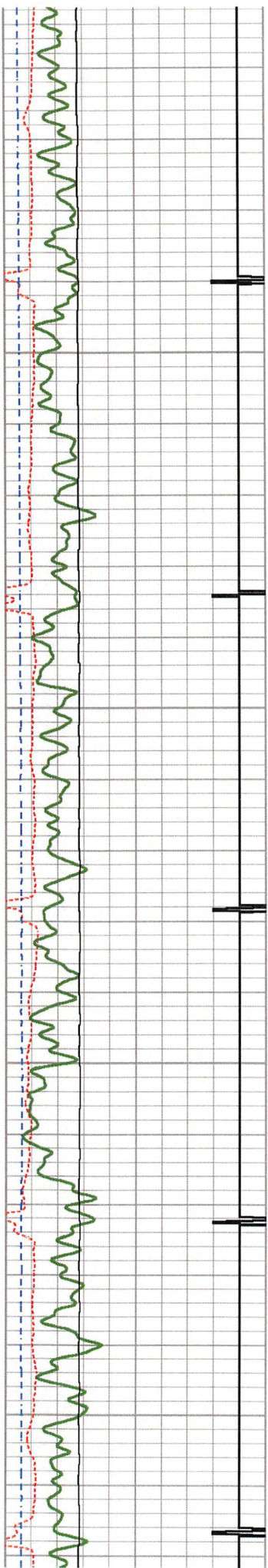


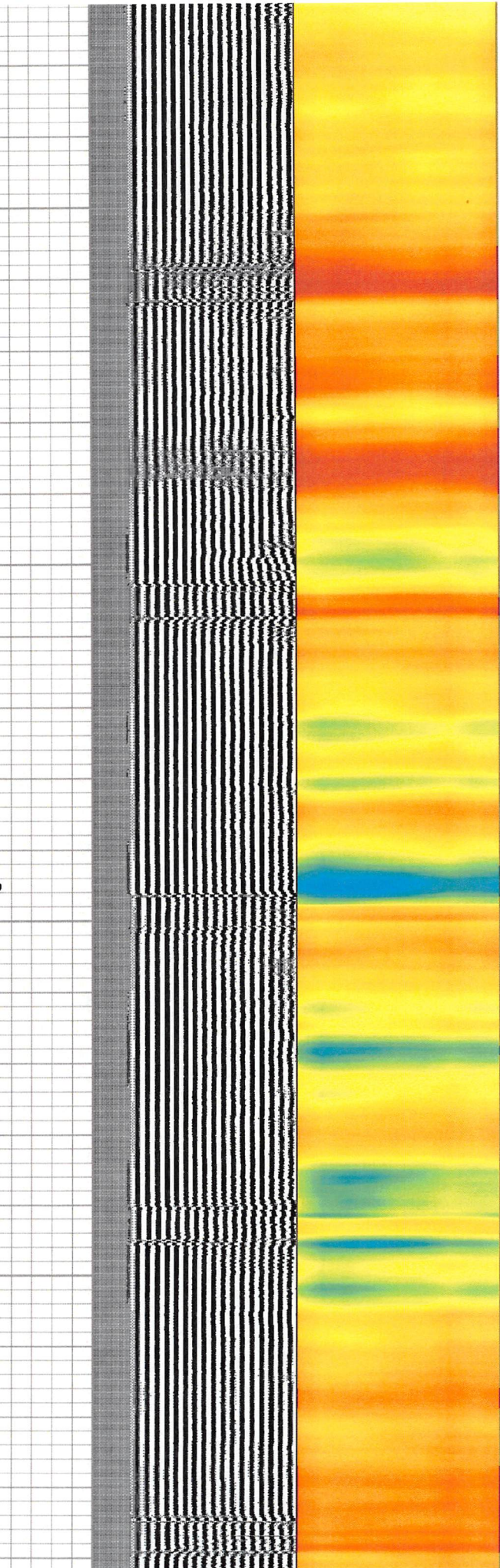
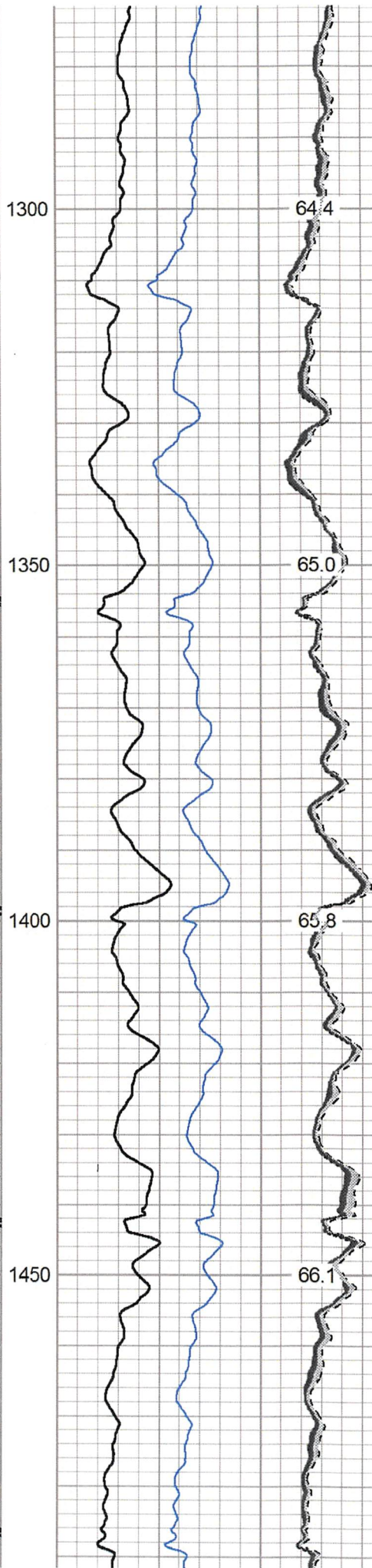
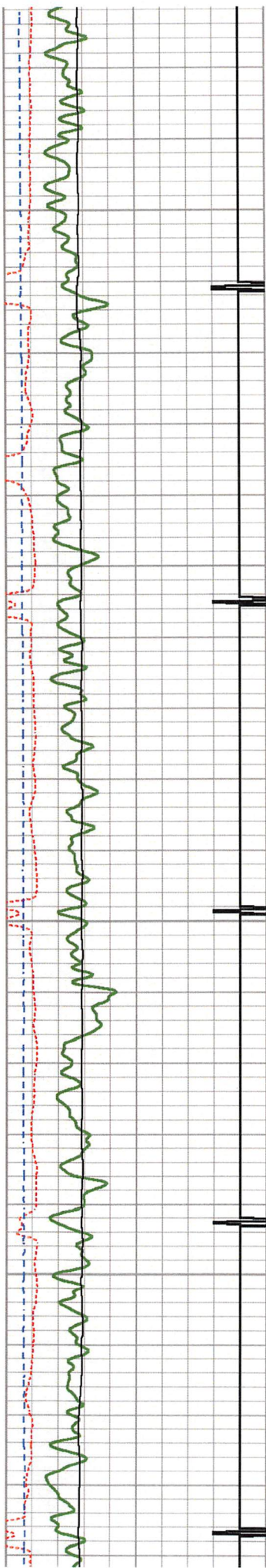












1300

1350

1400

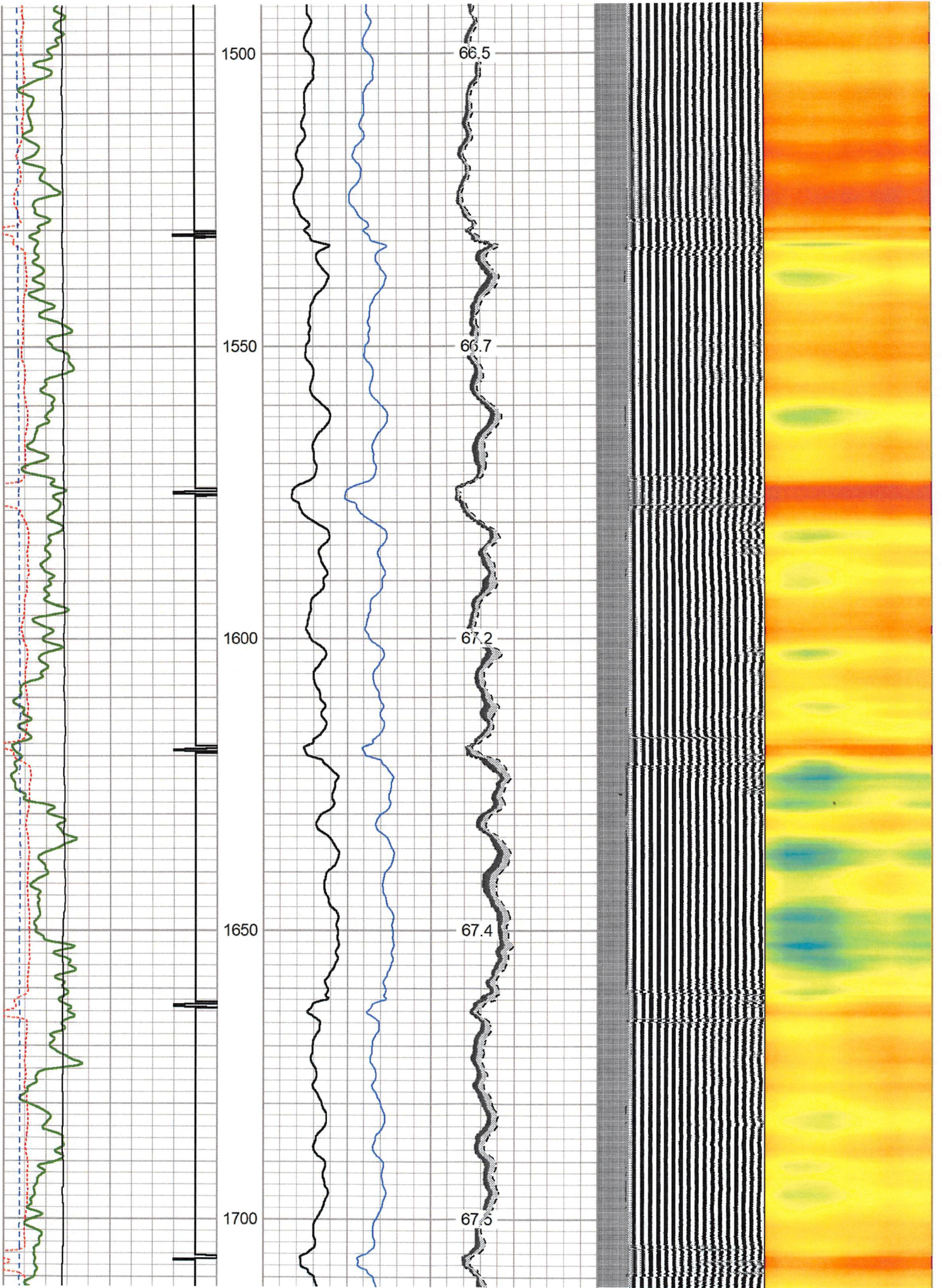
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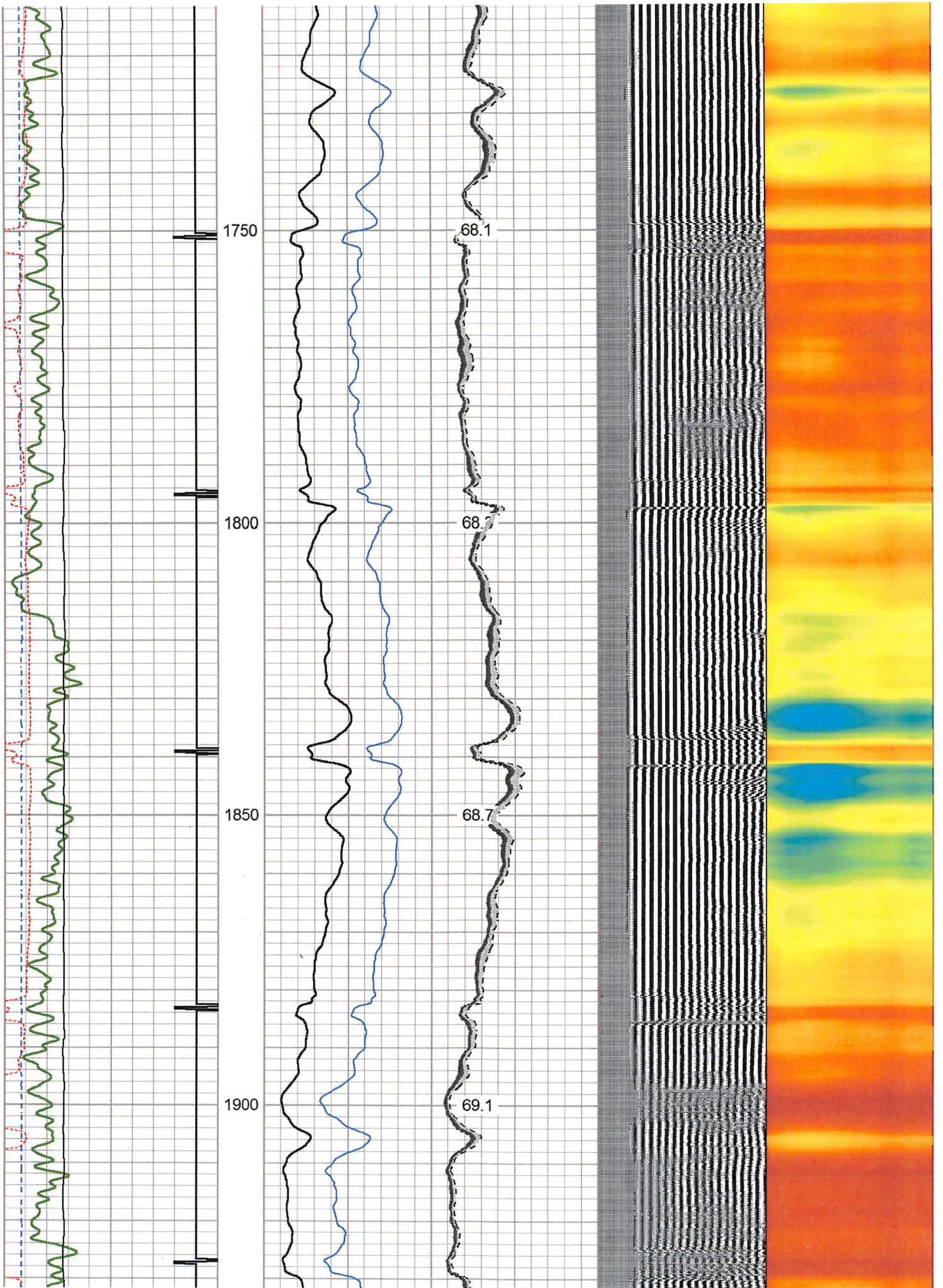
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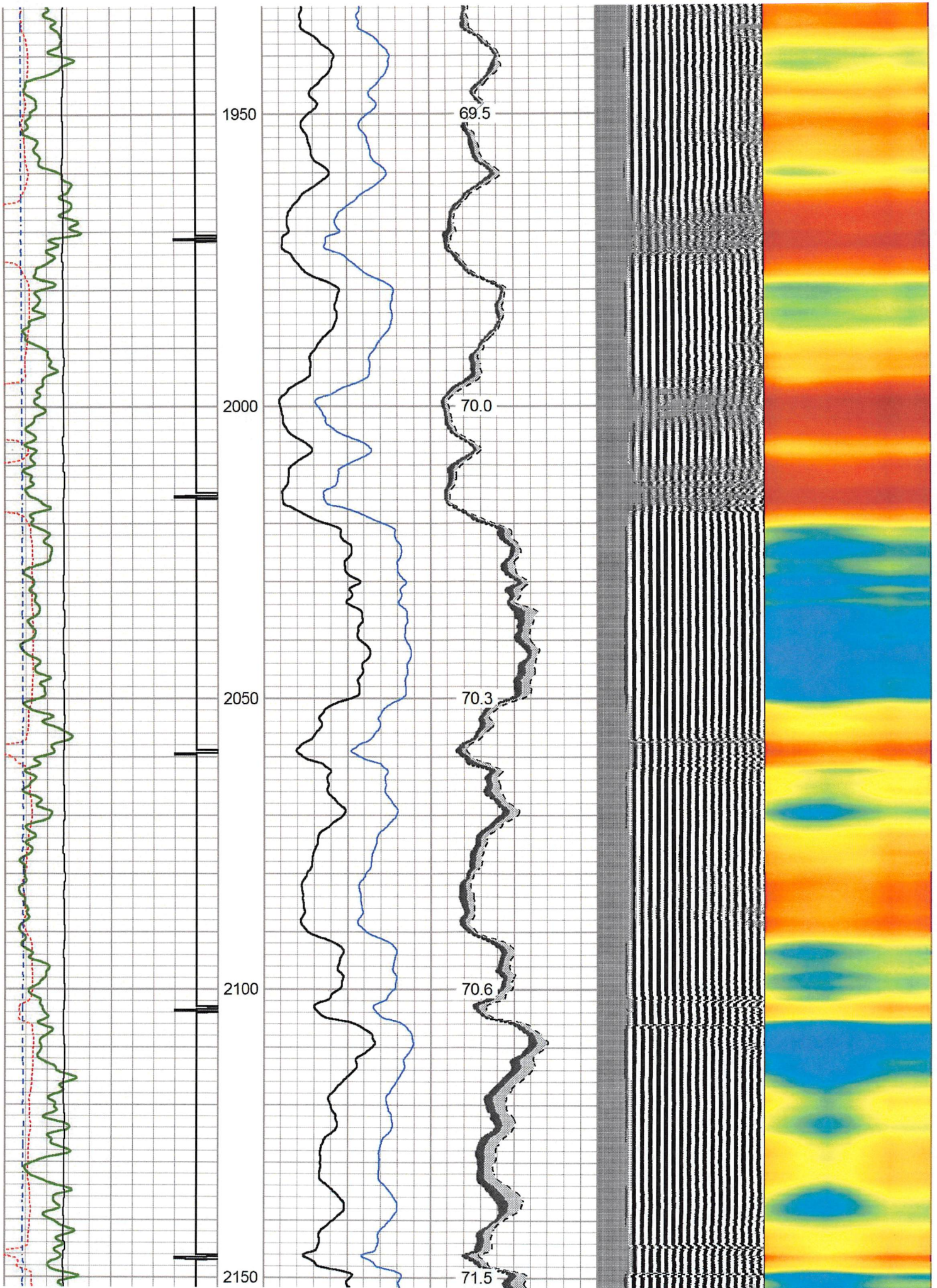
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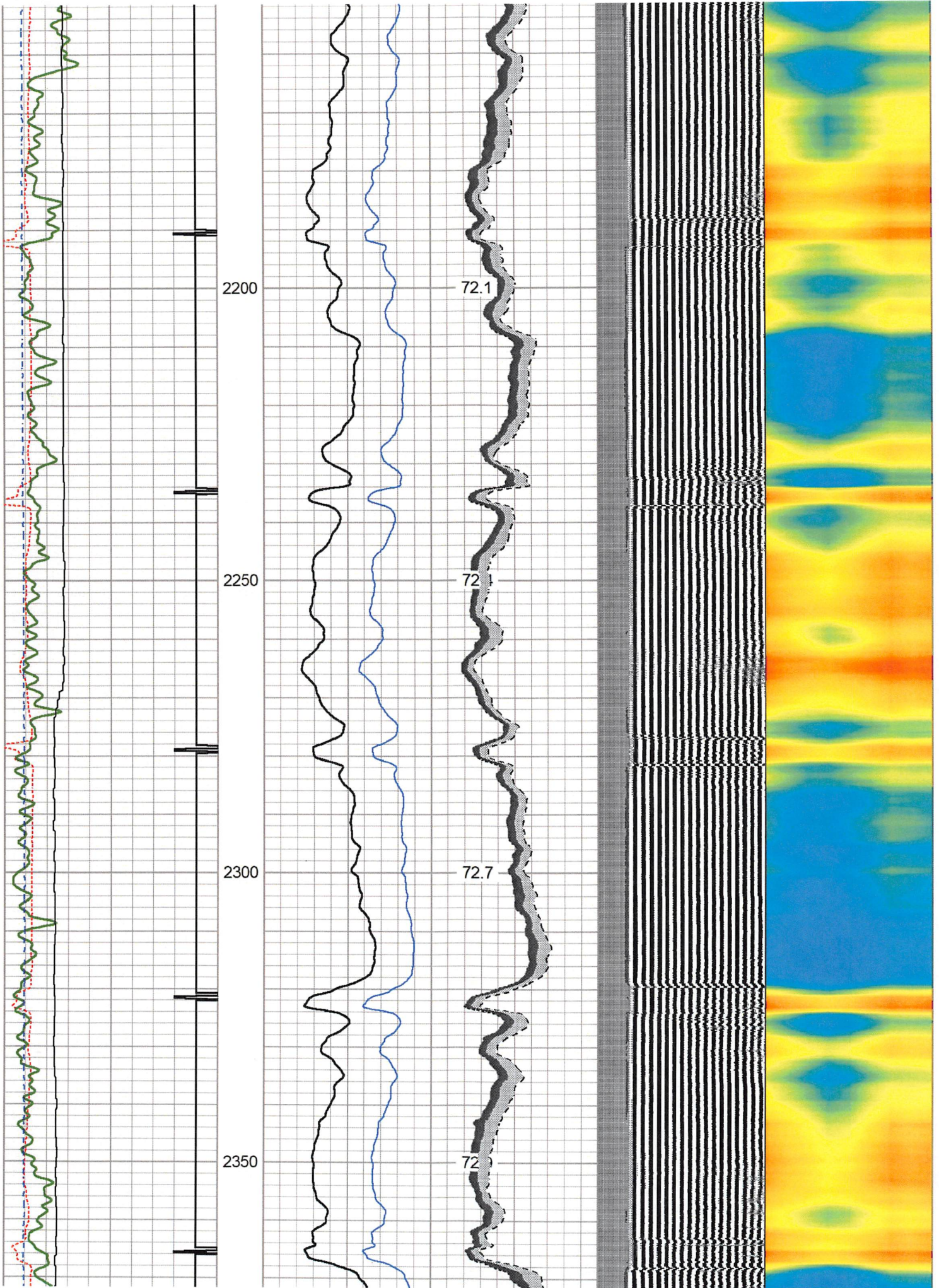
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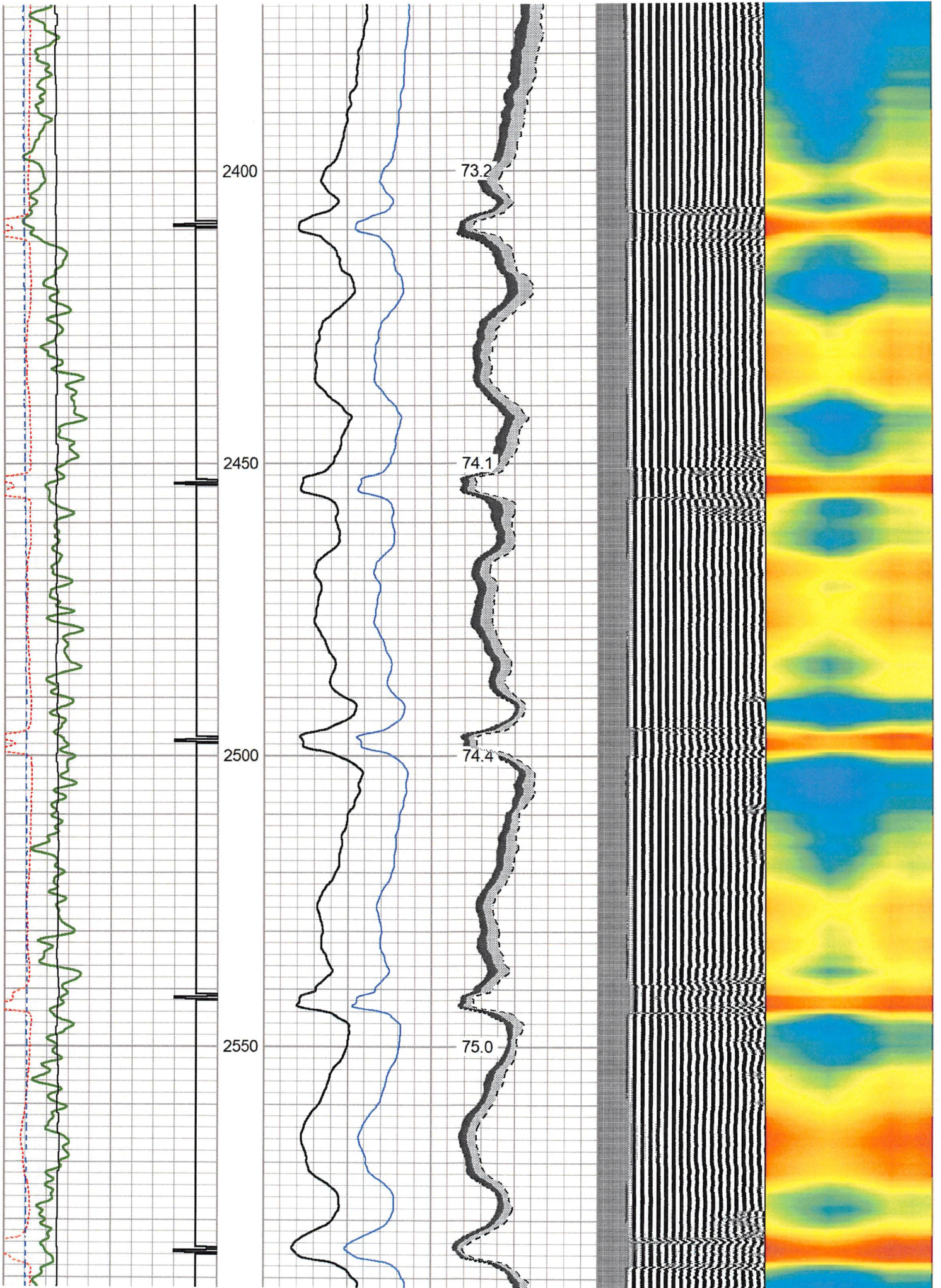
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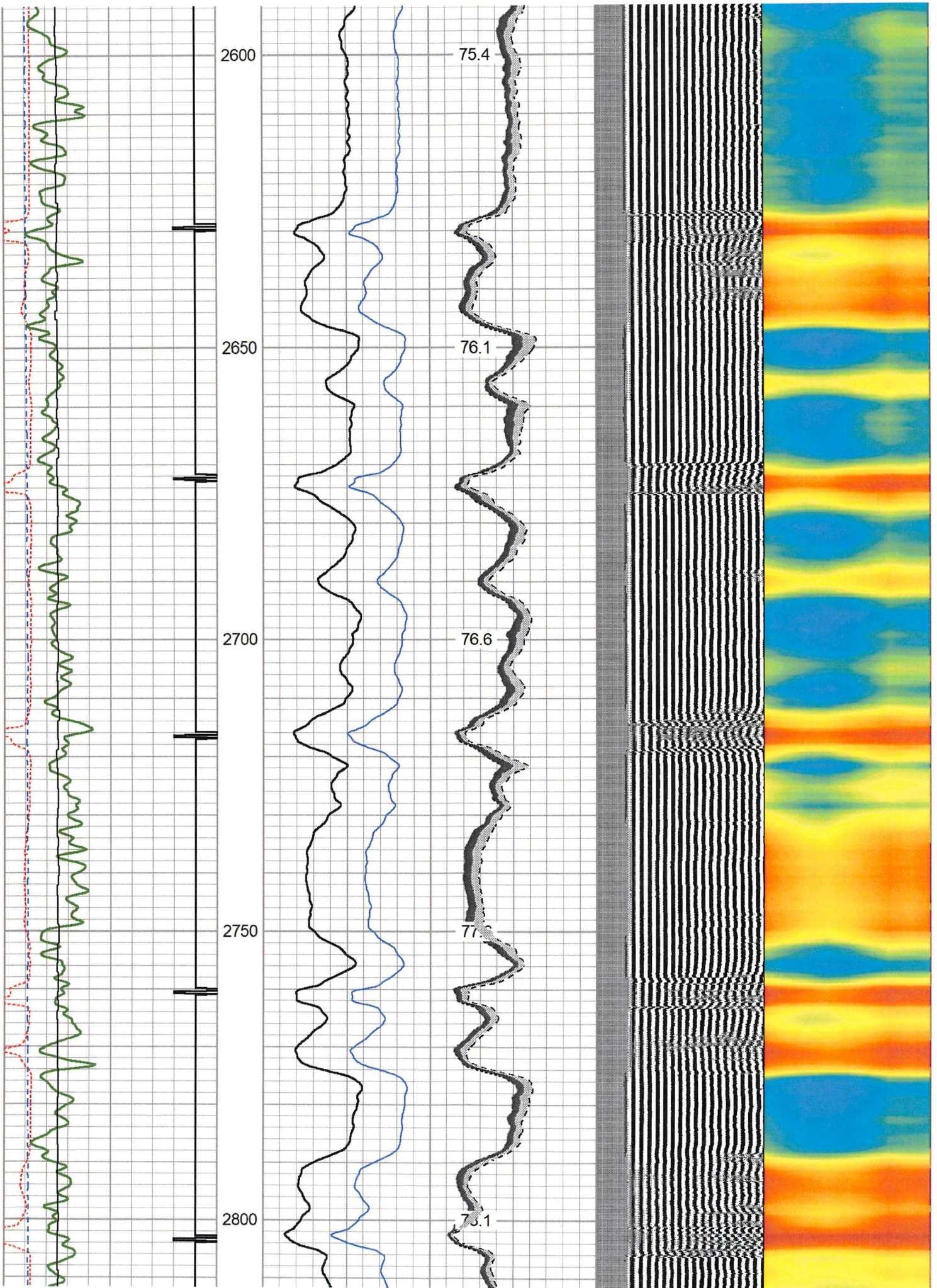


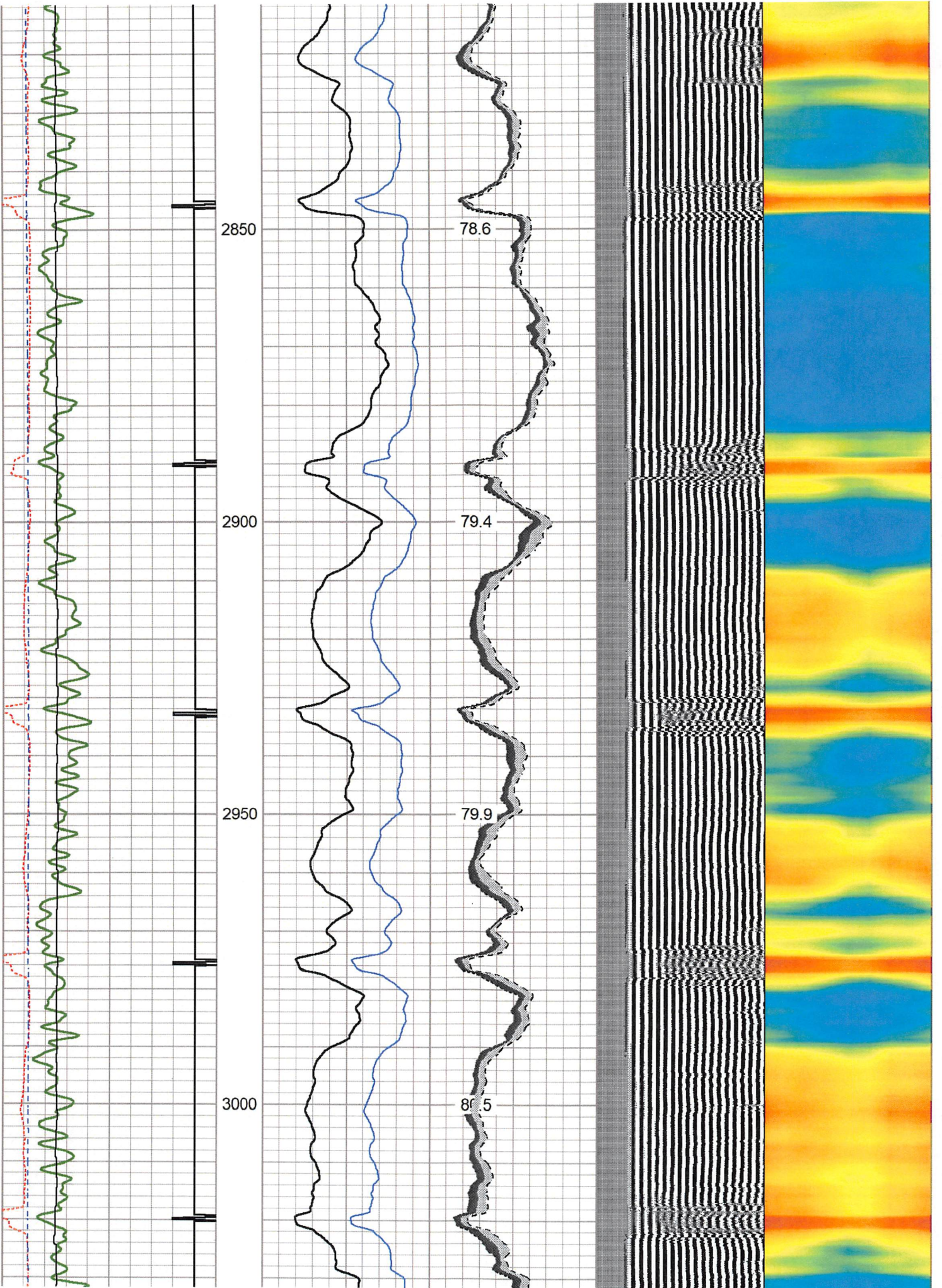


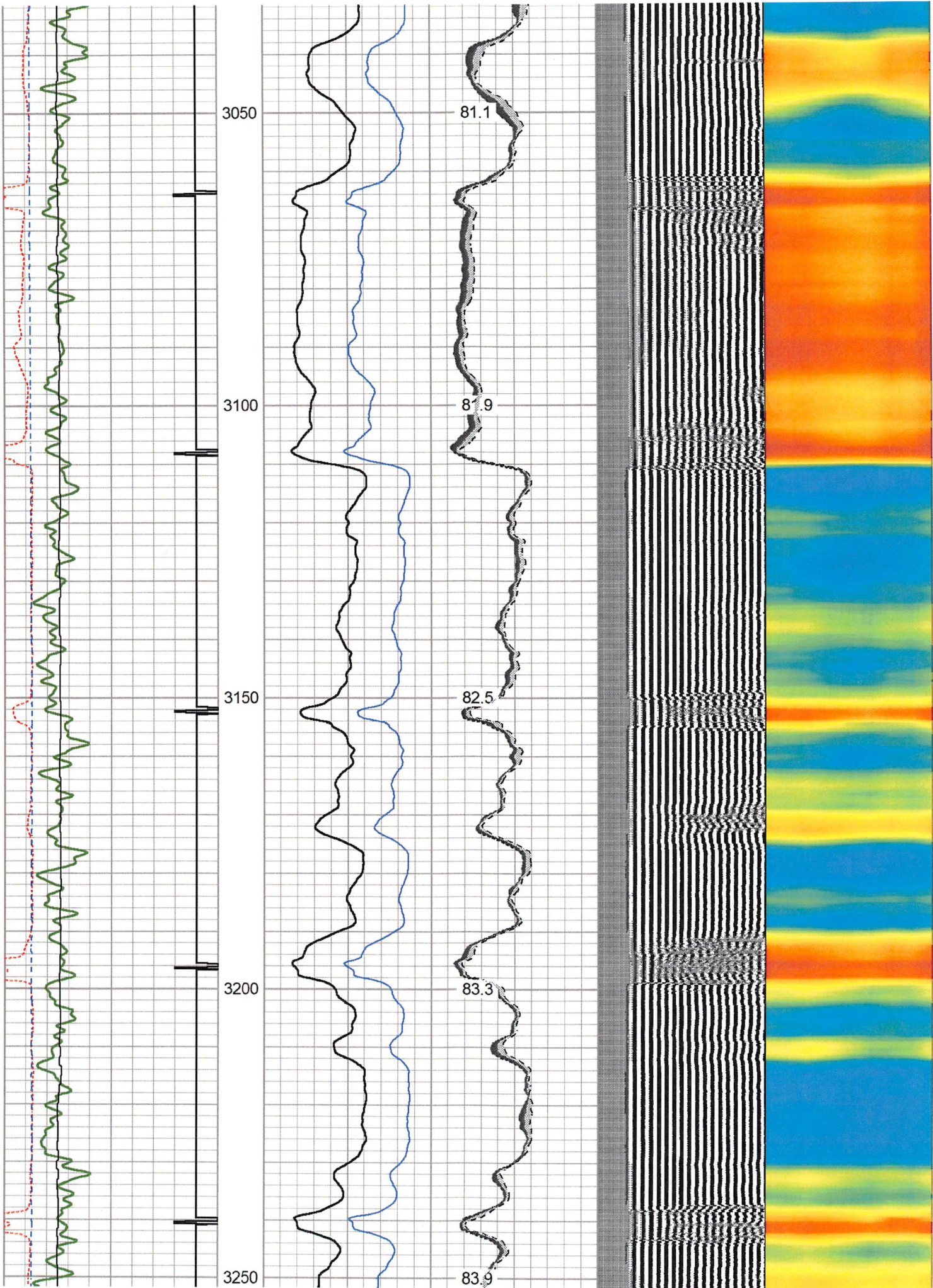


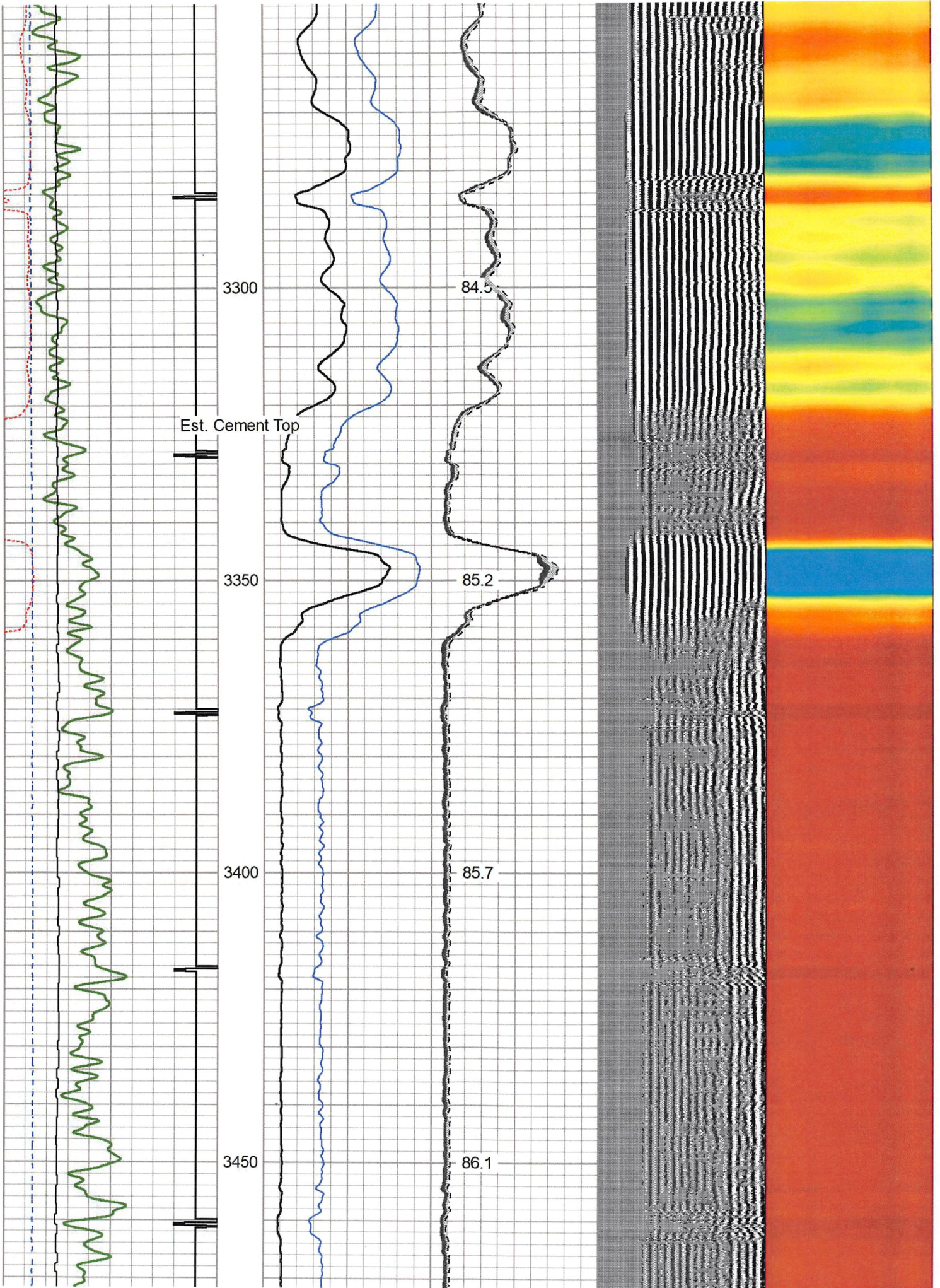


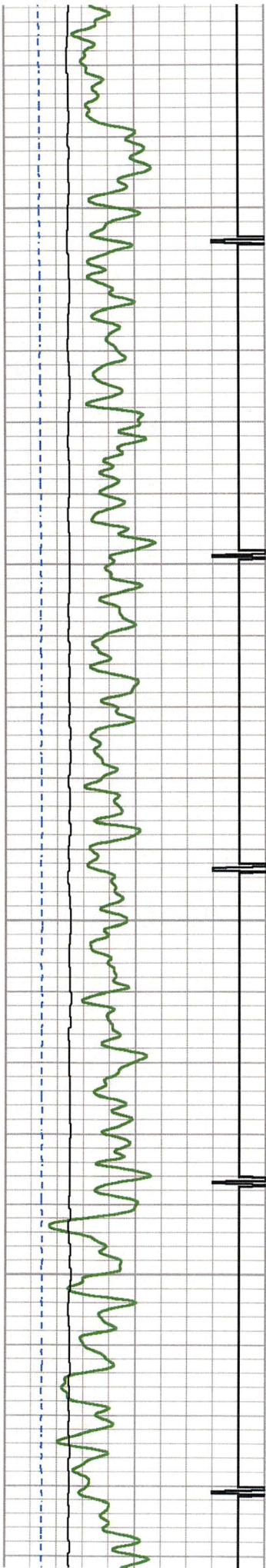










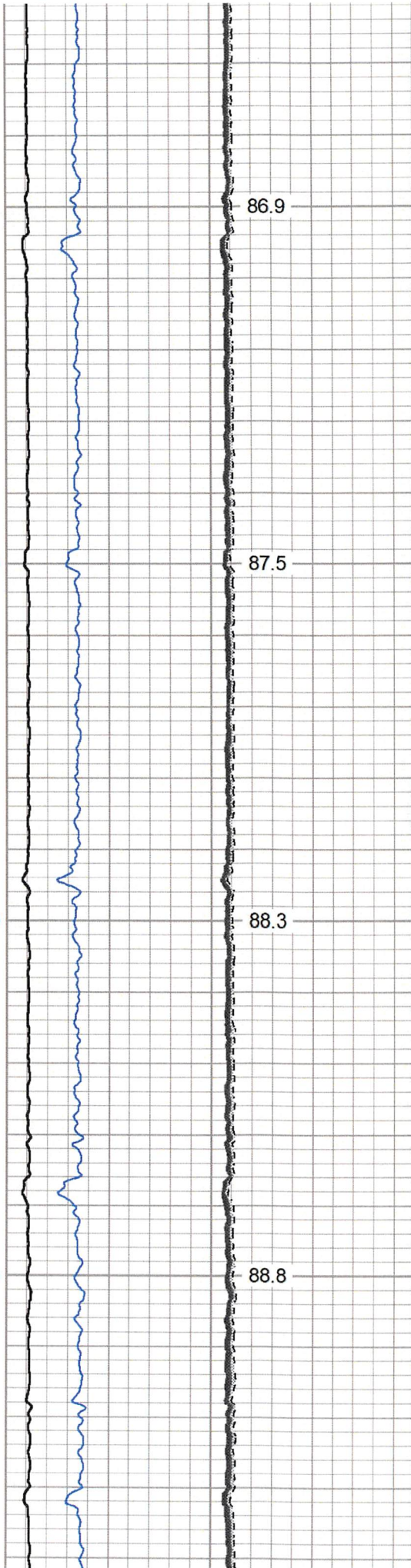


3500

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3600

3650

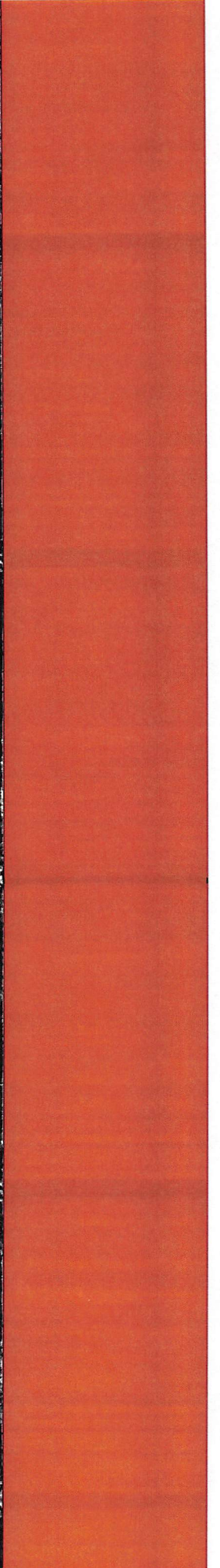
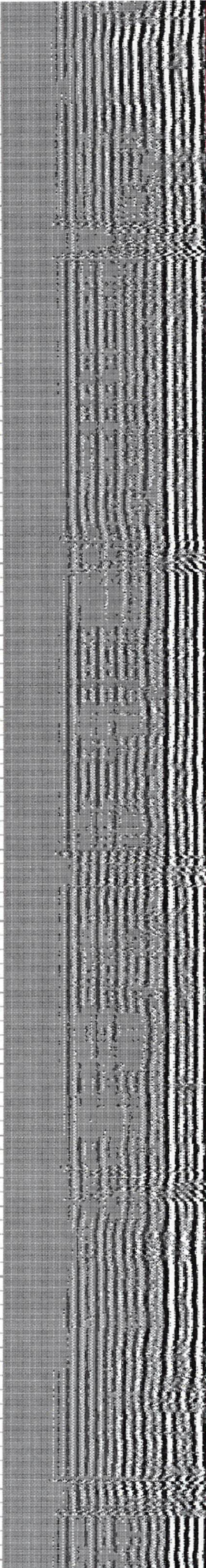


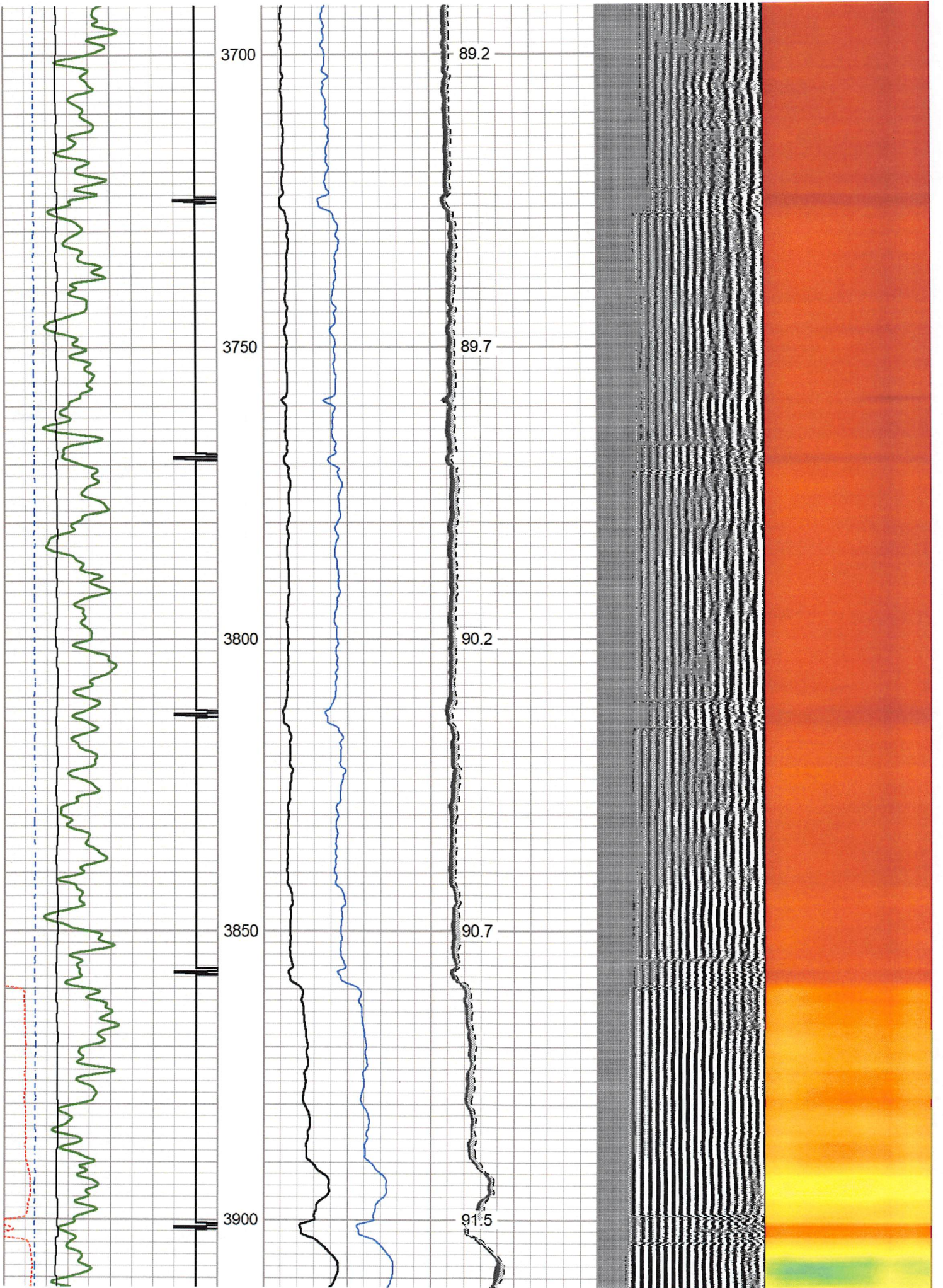
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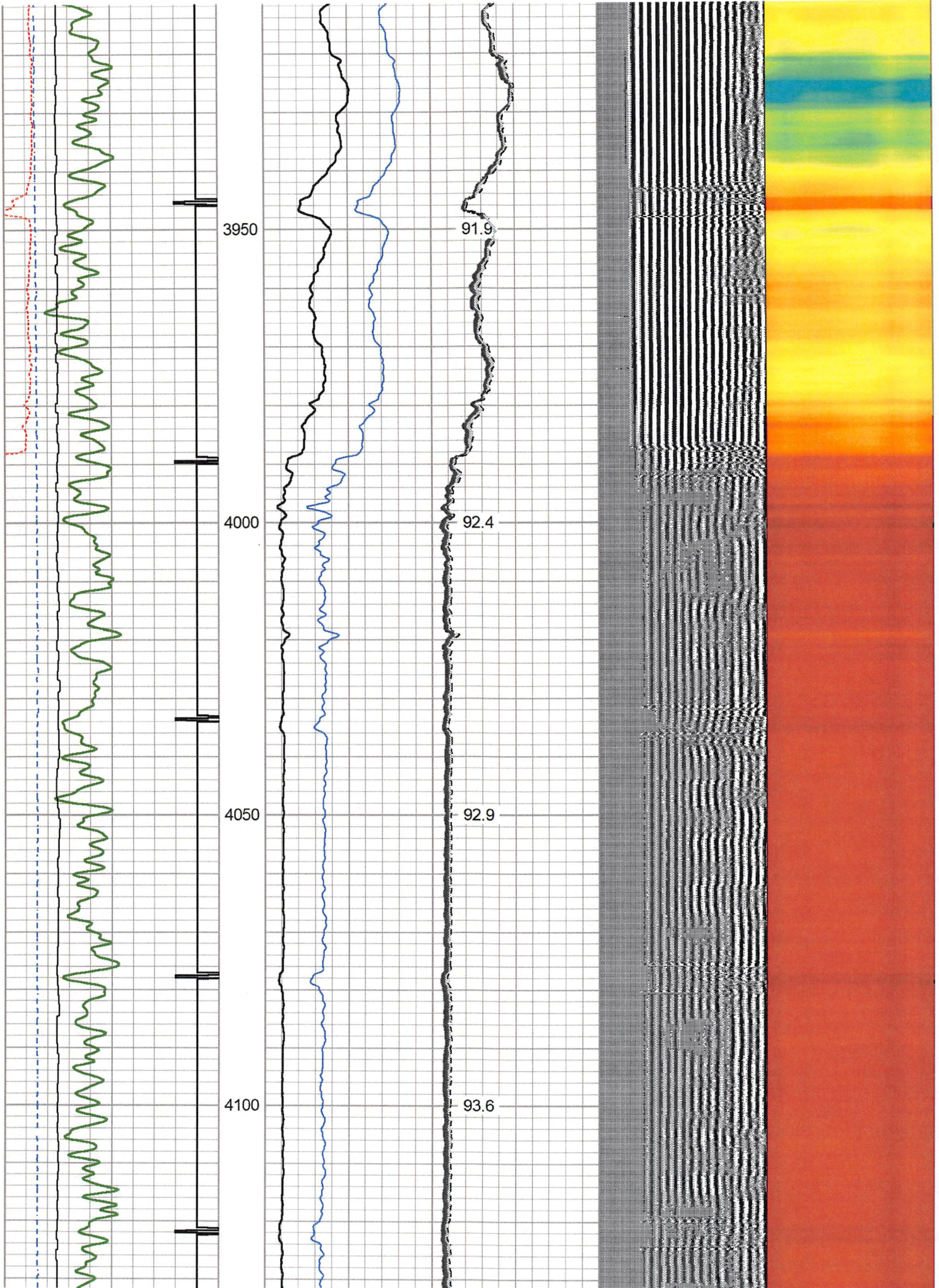
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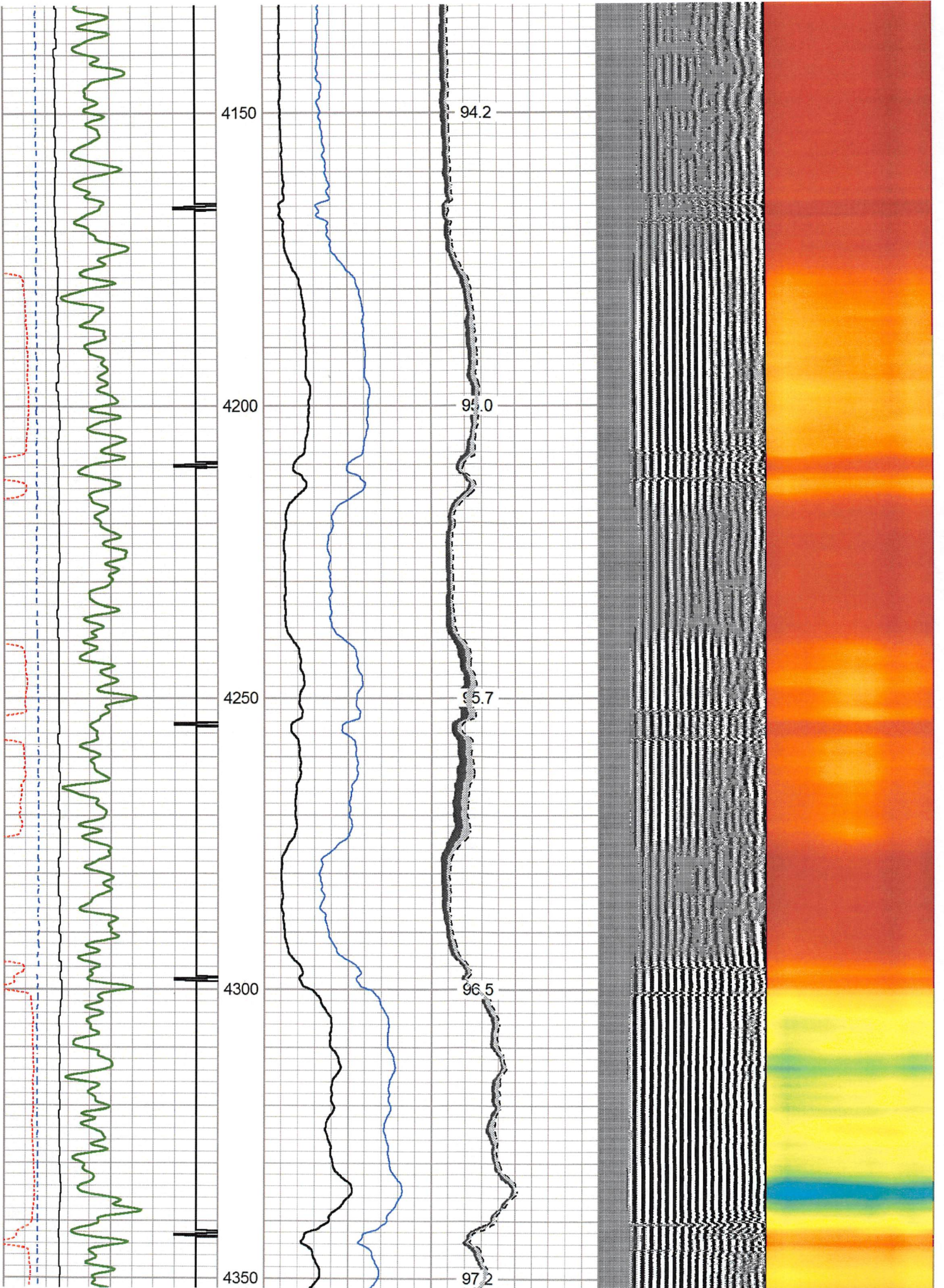
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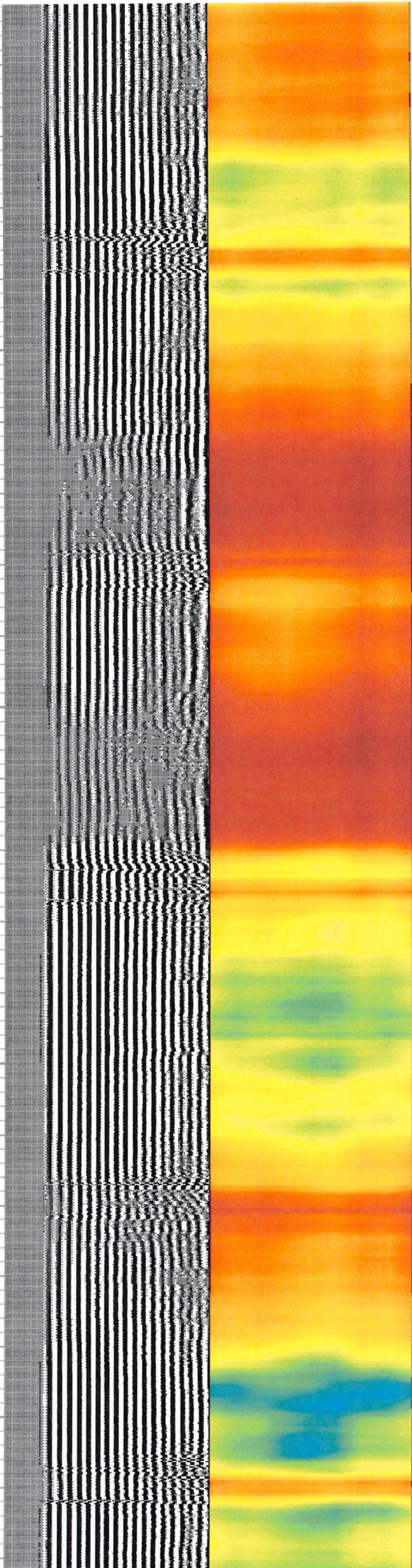
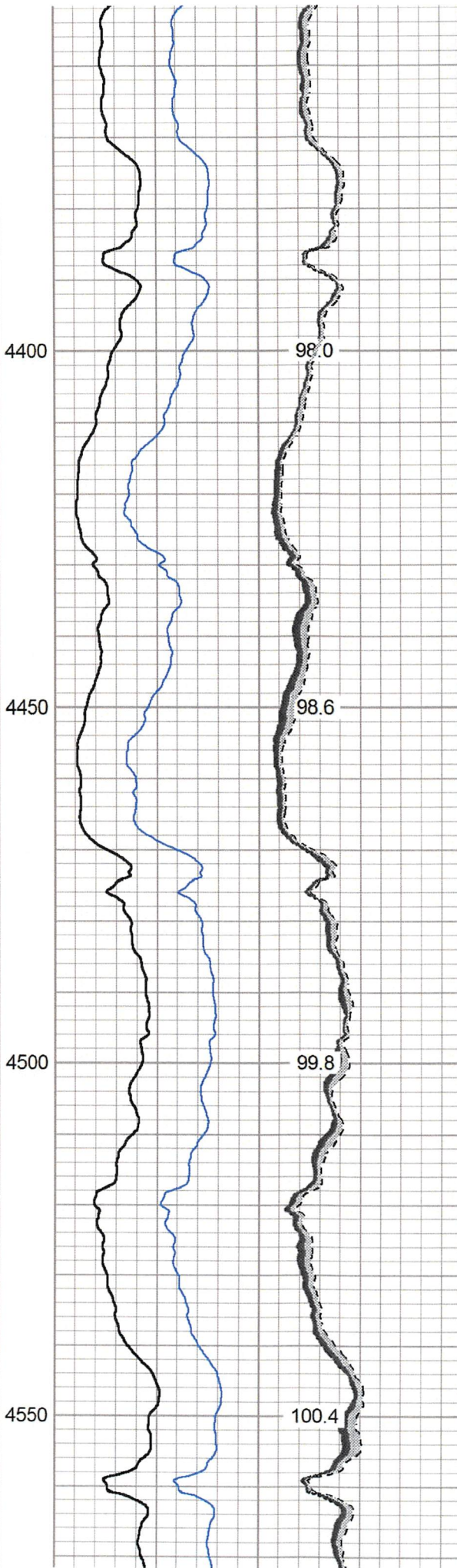
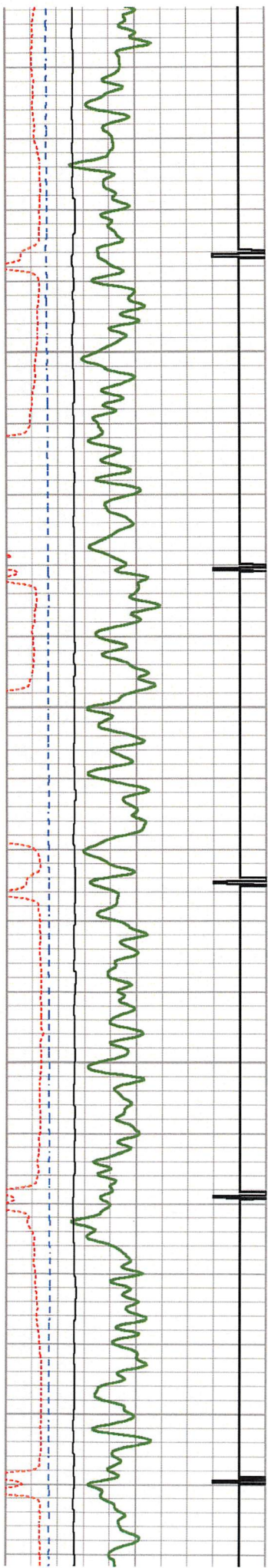
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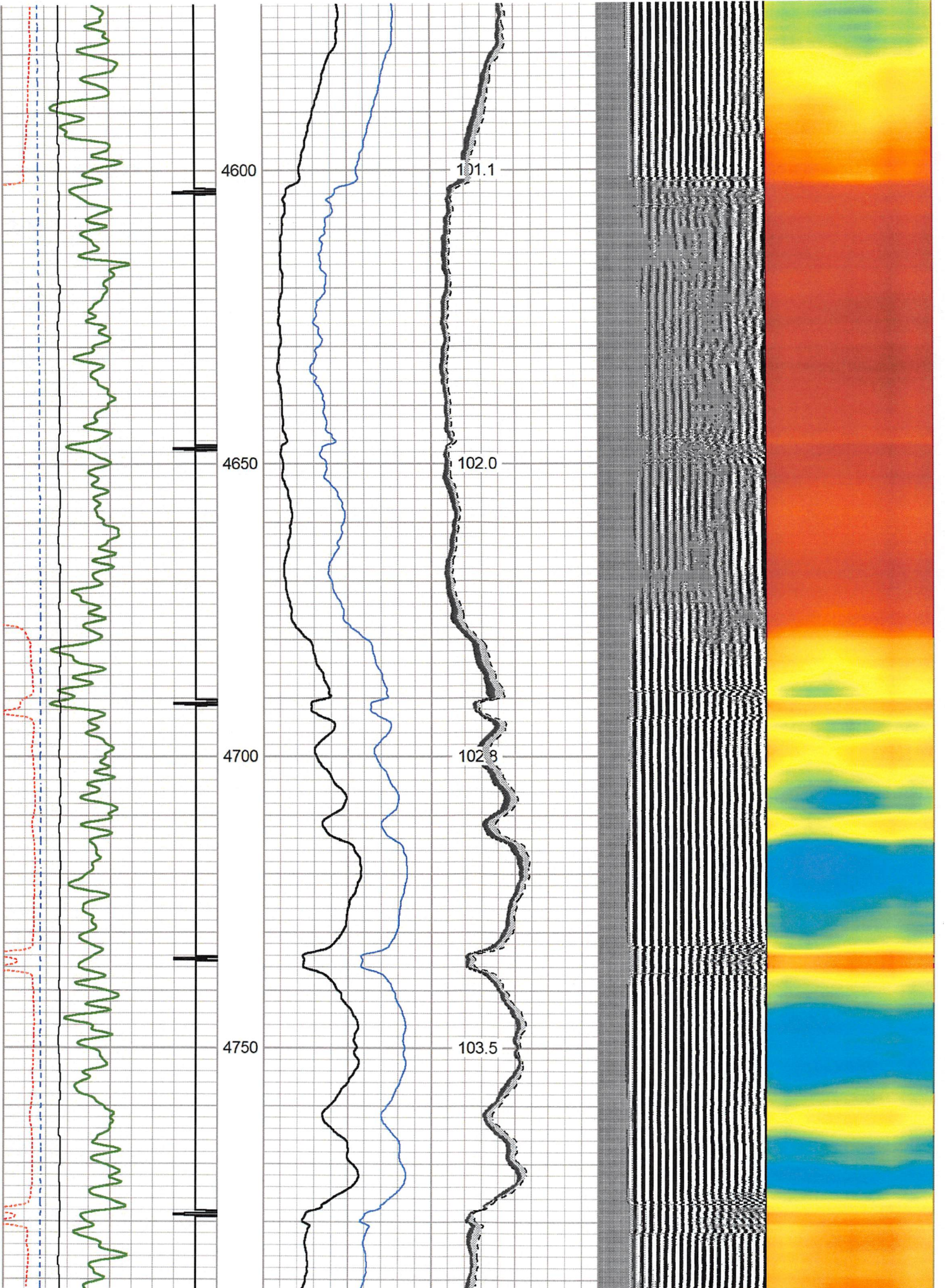


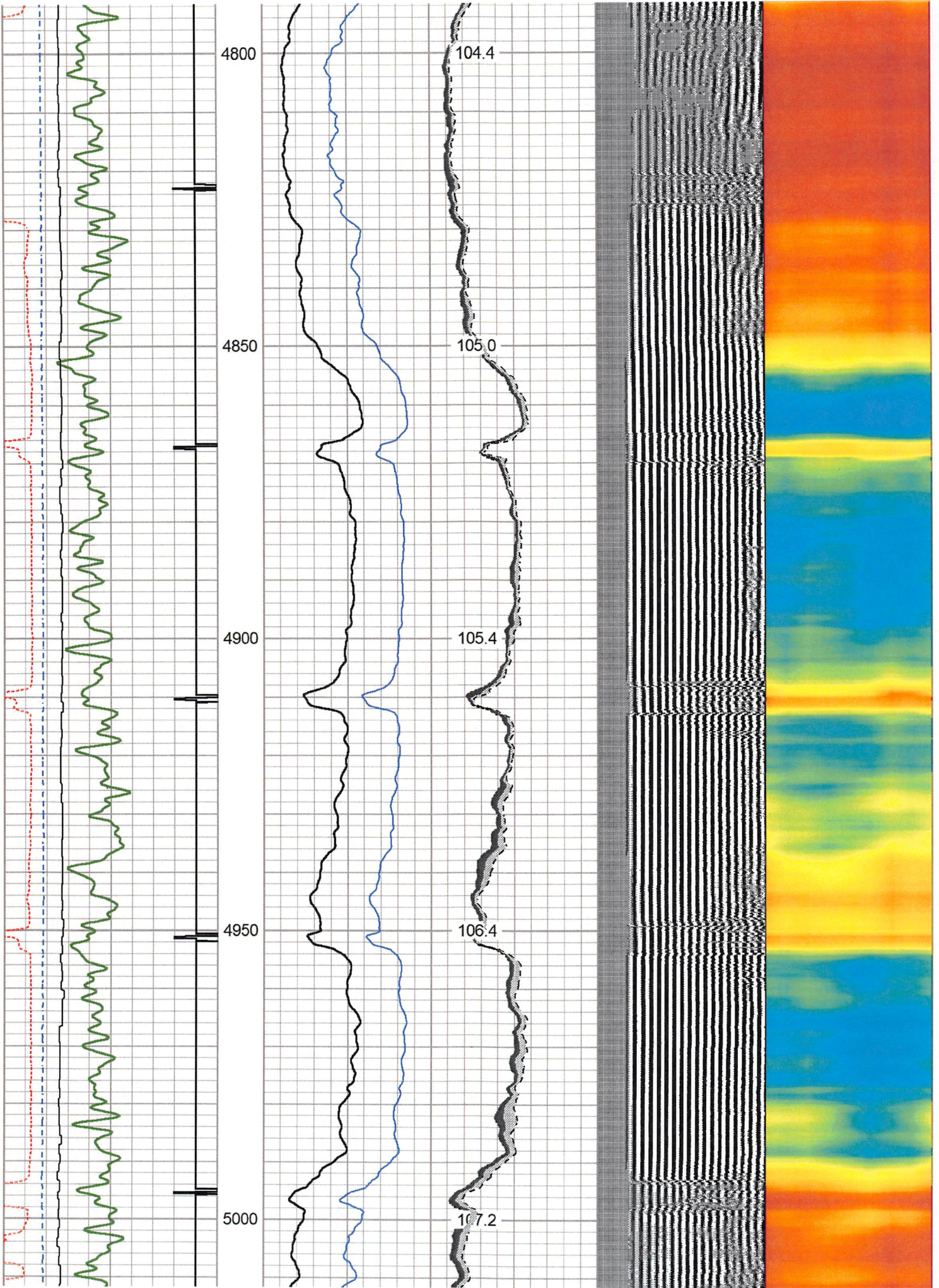


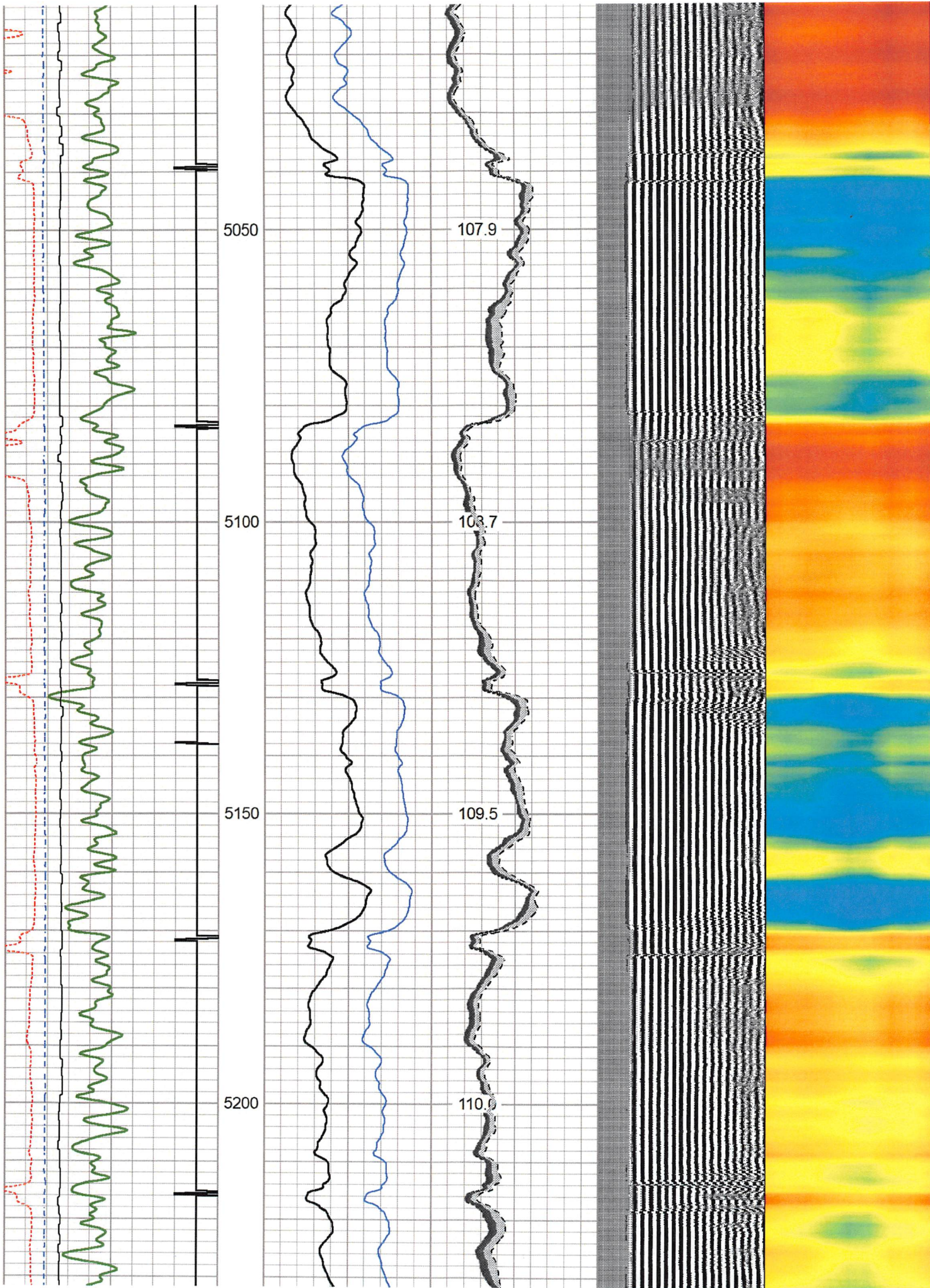


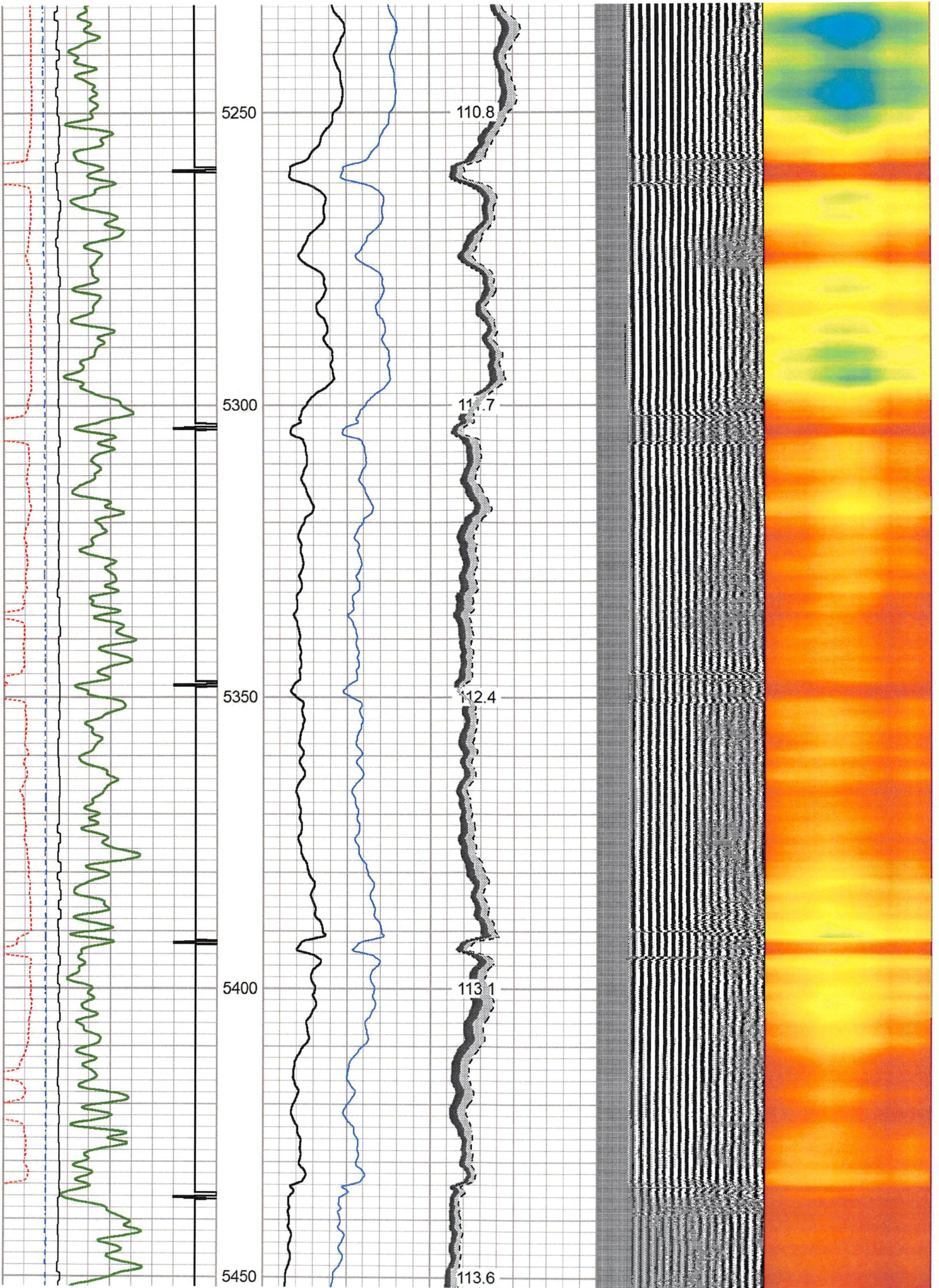


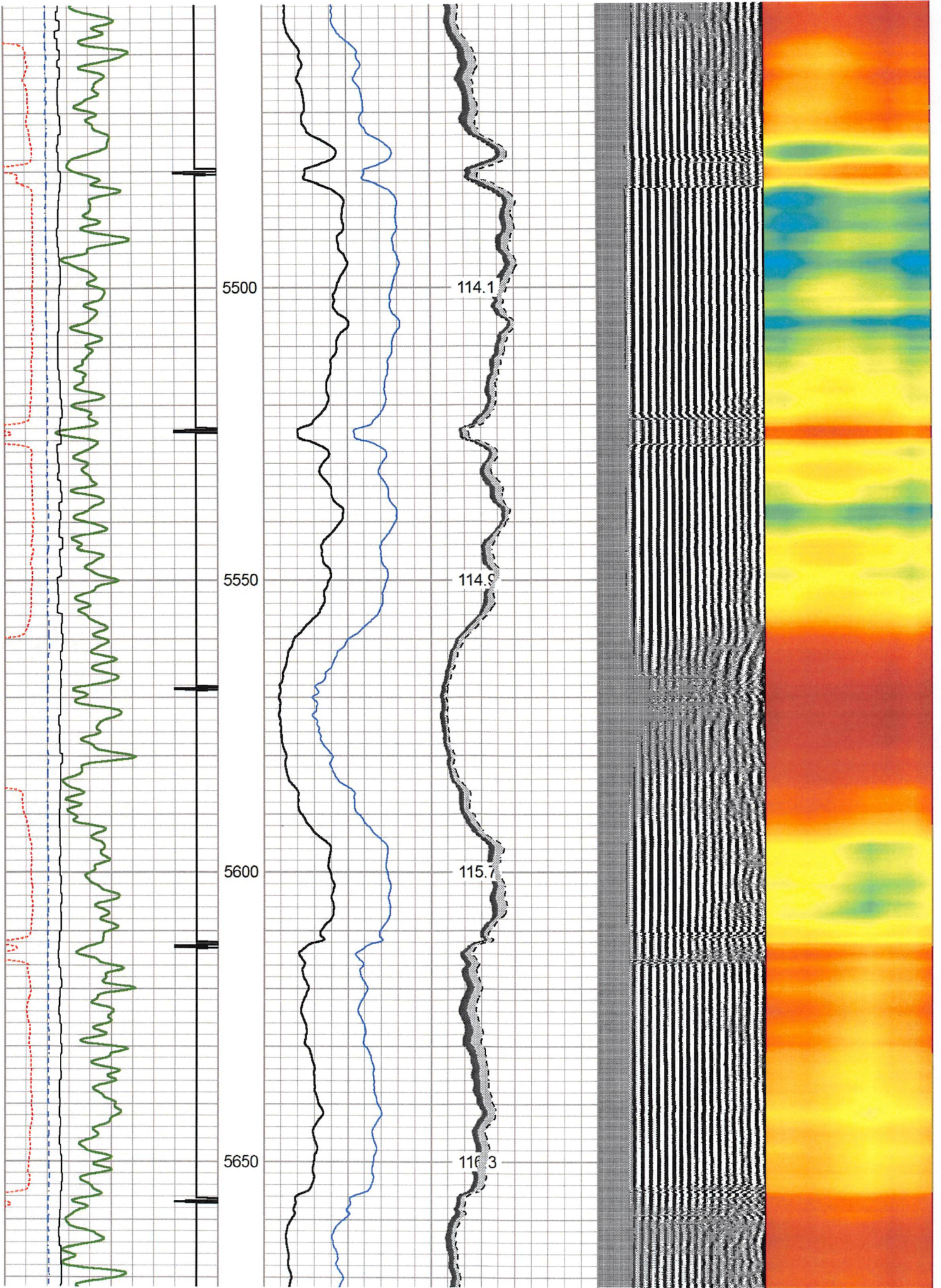


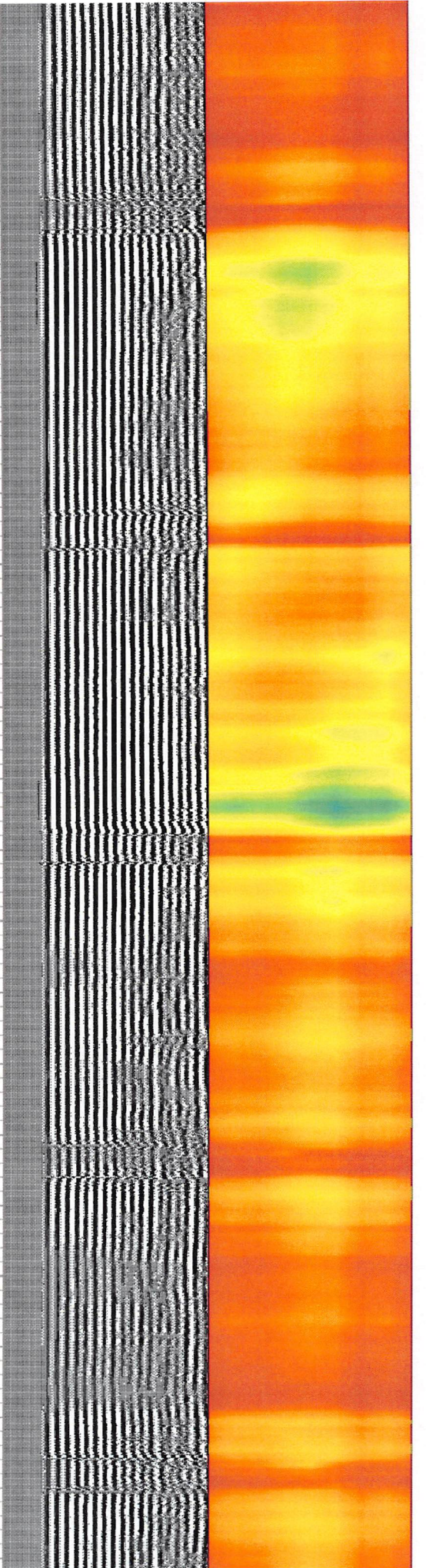
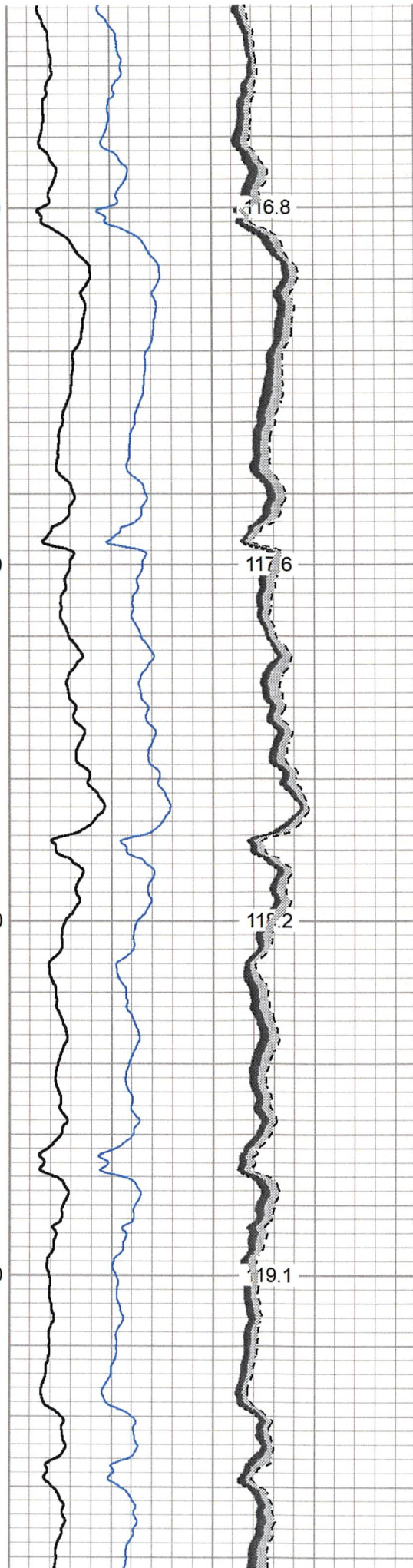
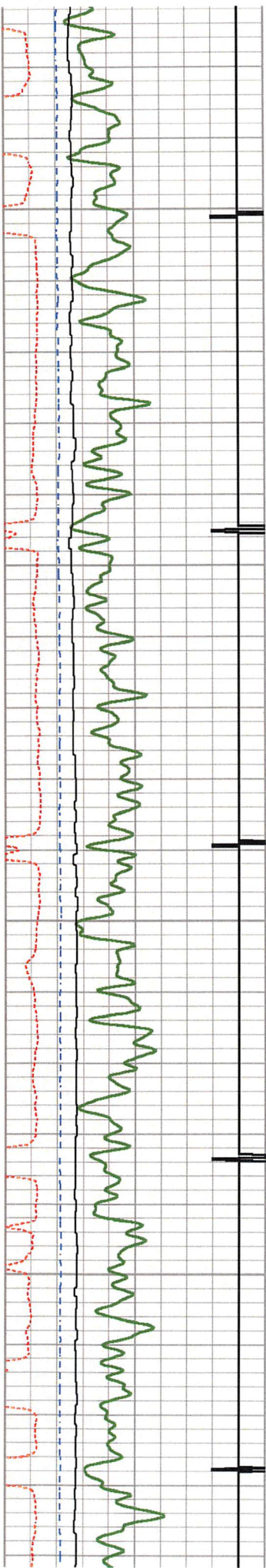


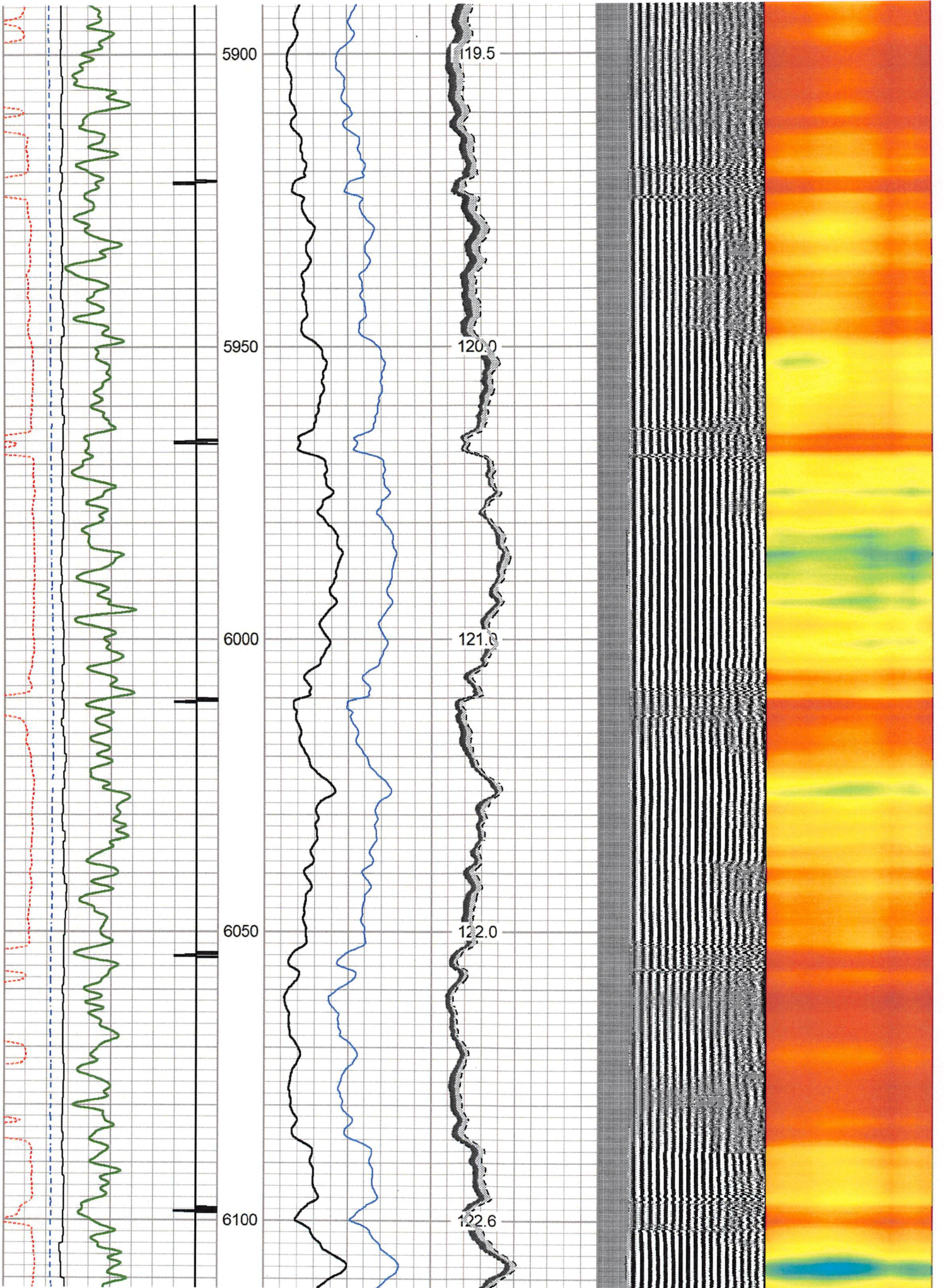


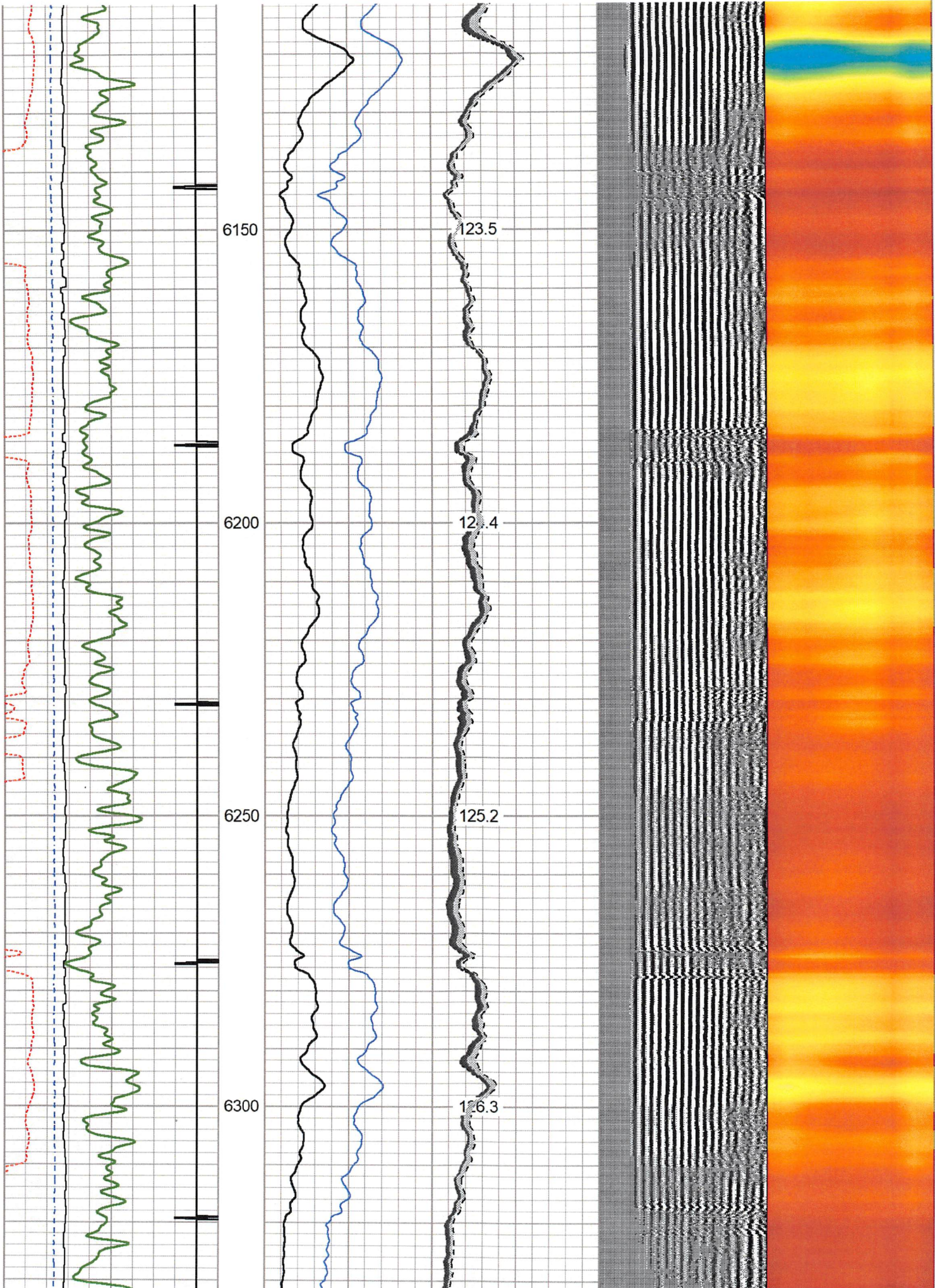


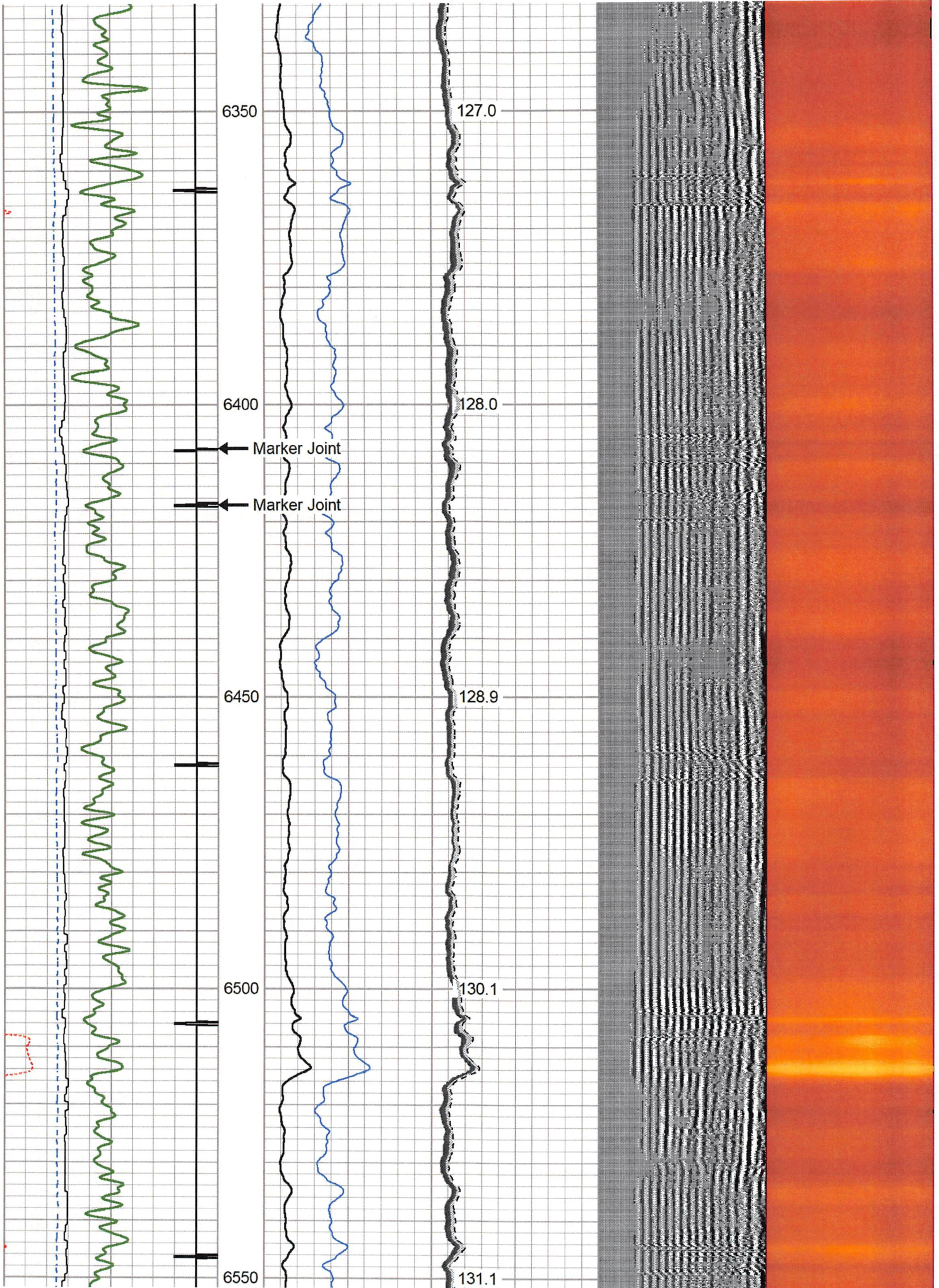


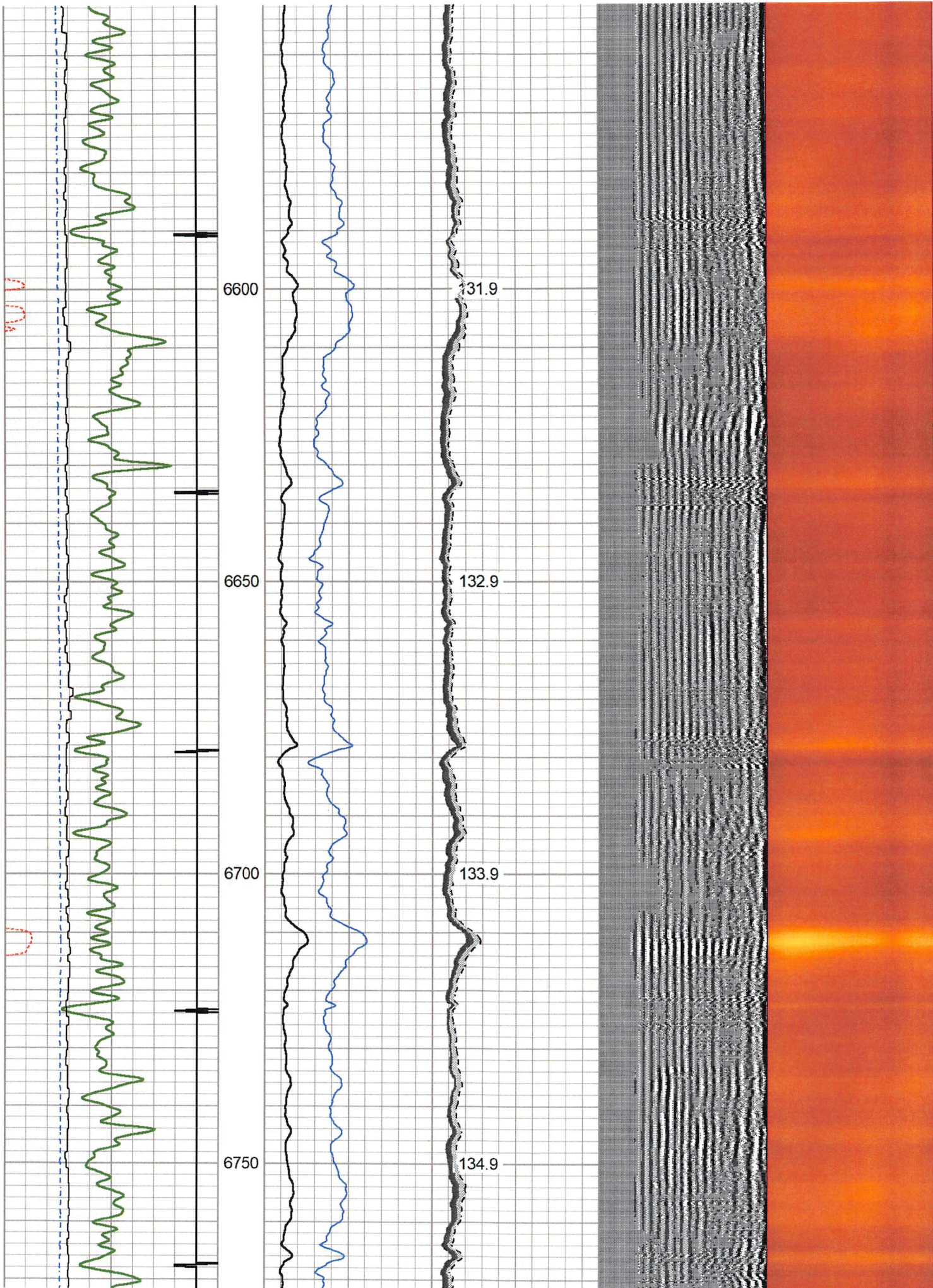


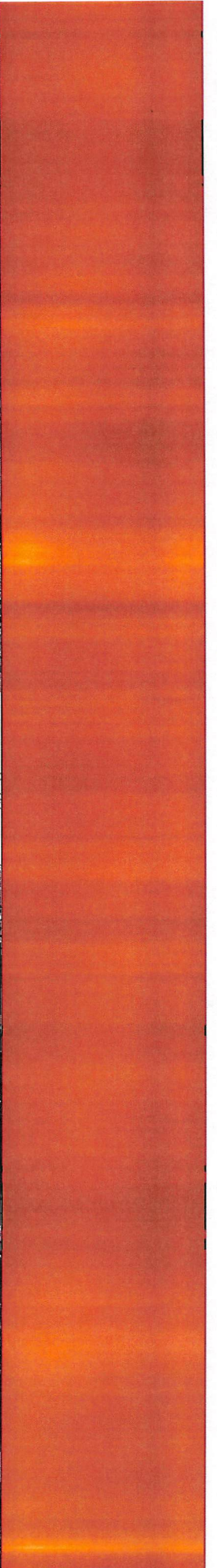
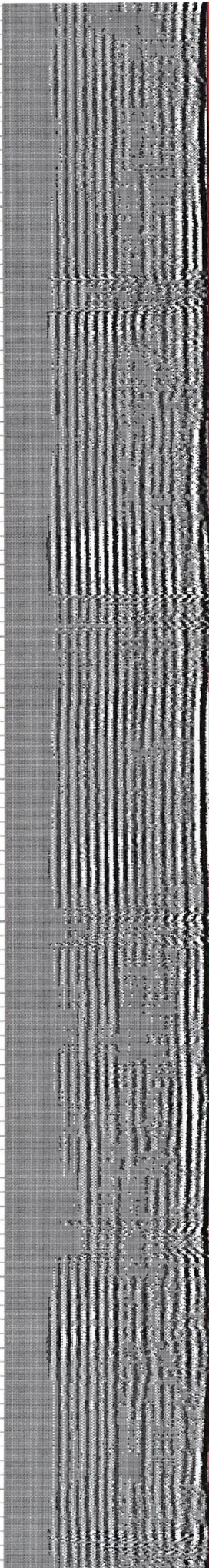
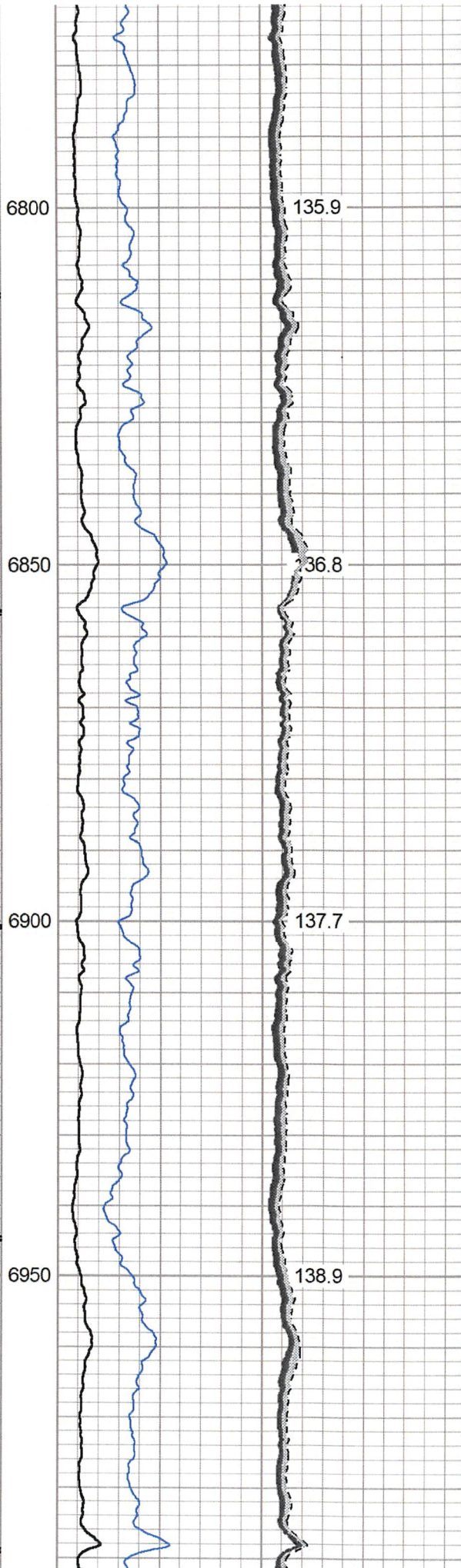
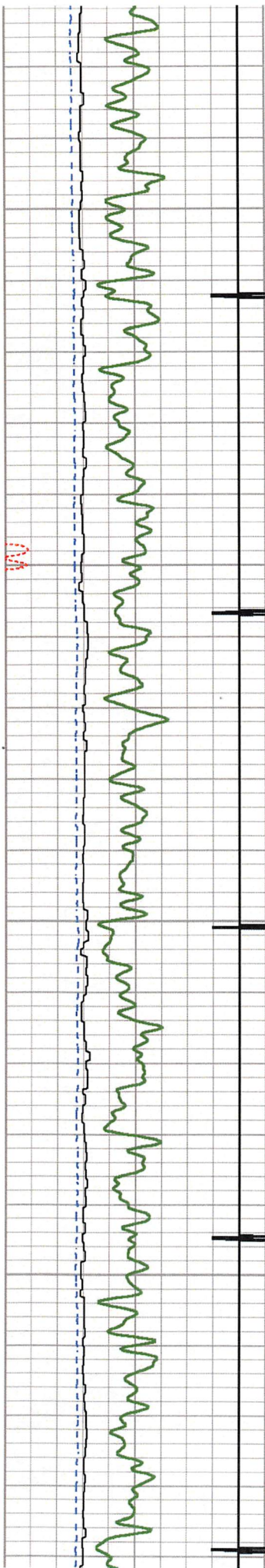












135.9

136.8

137.7

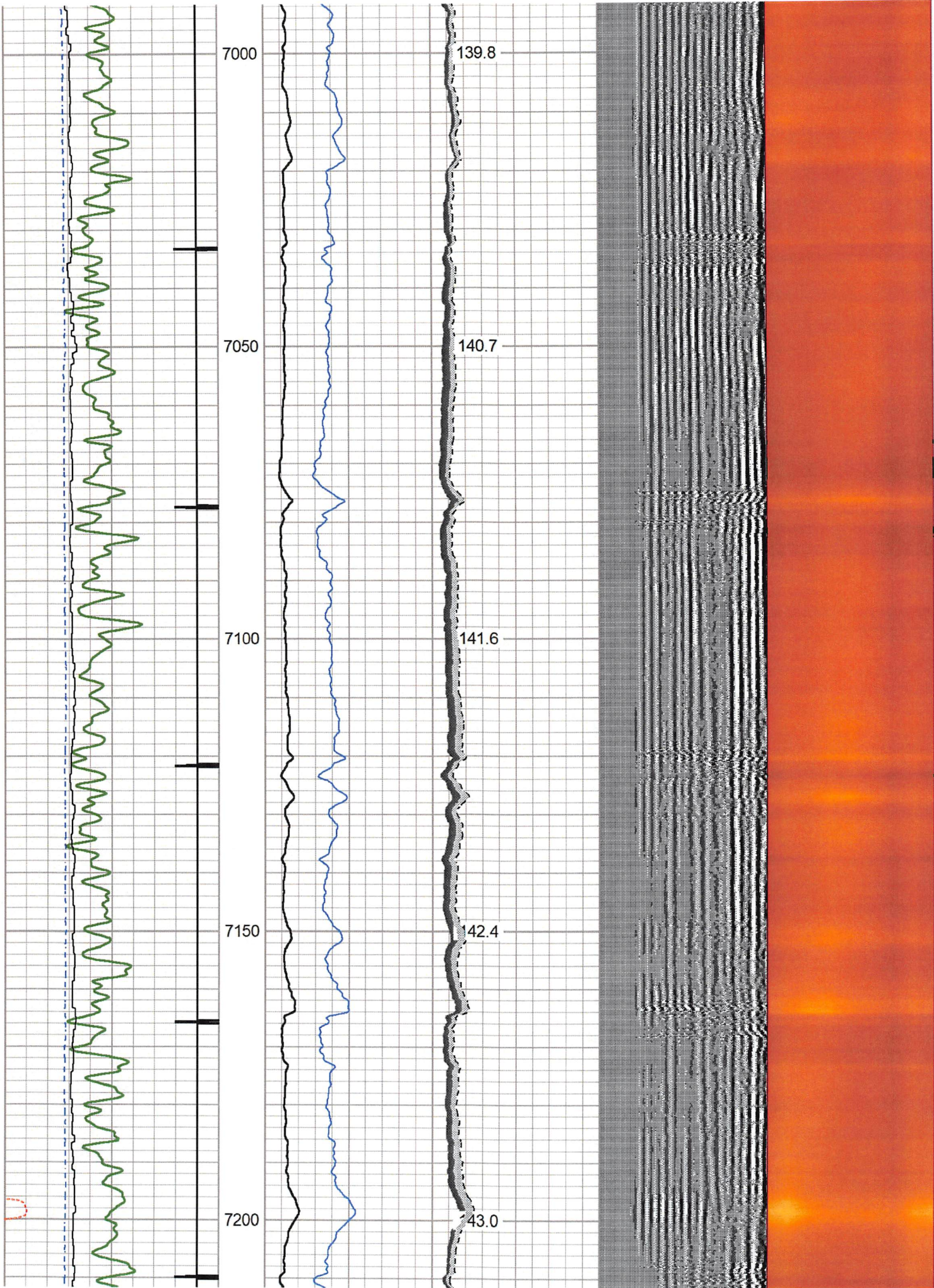
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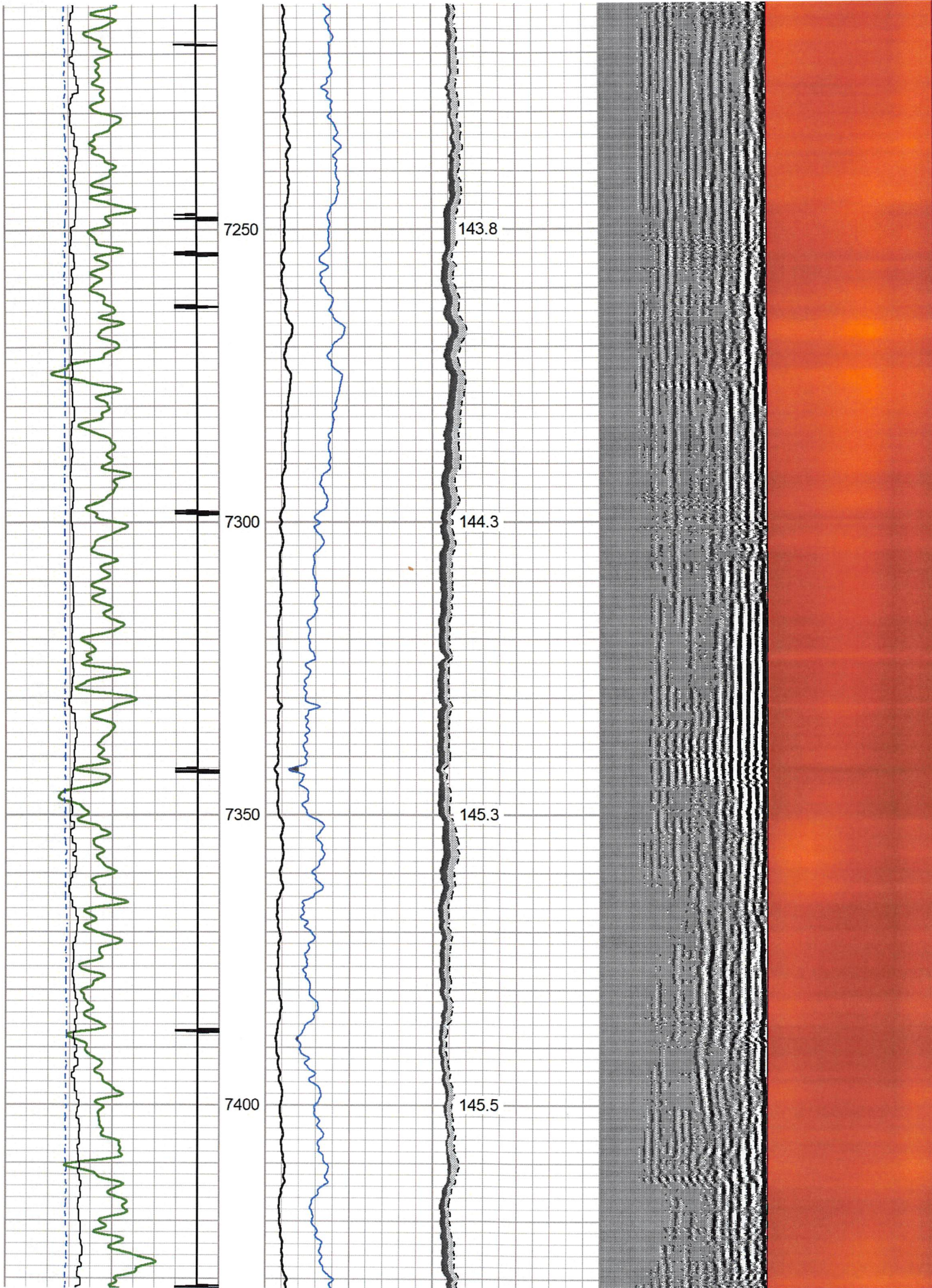
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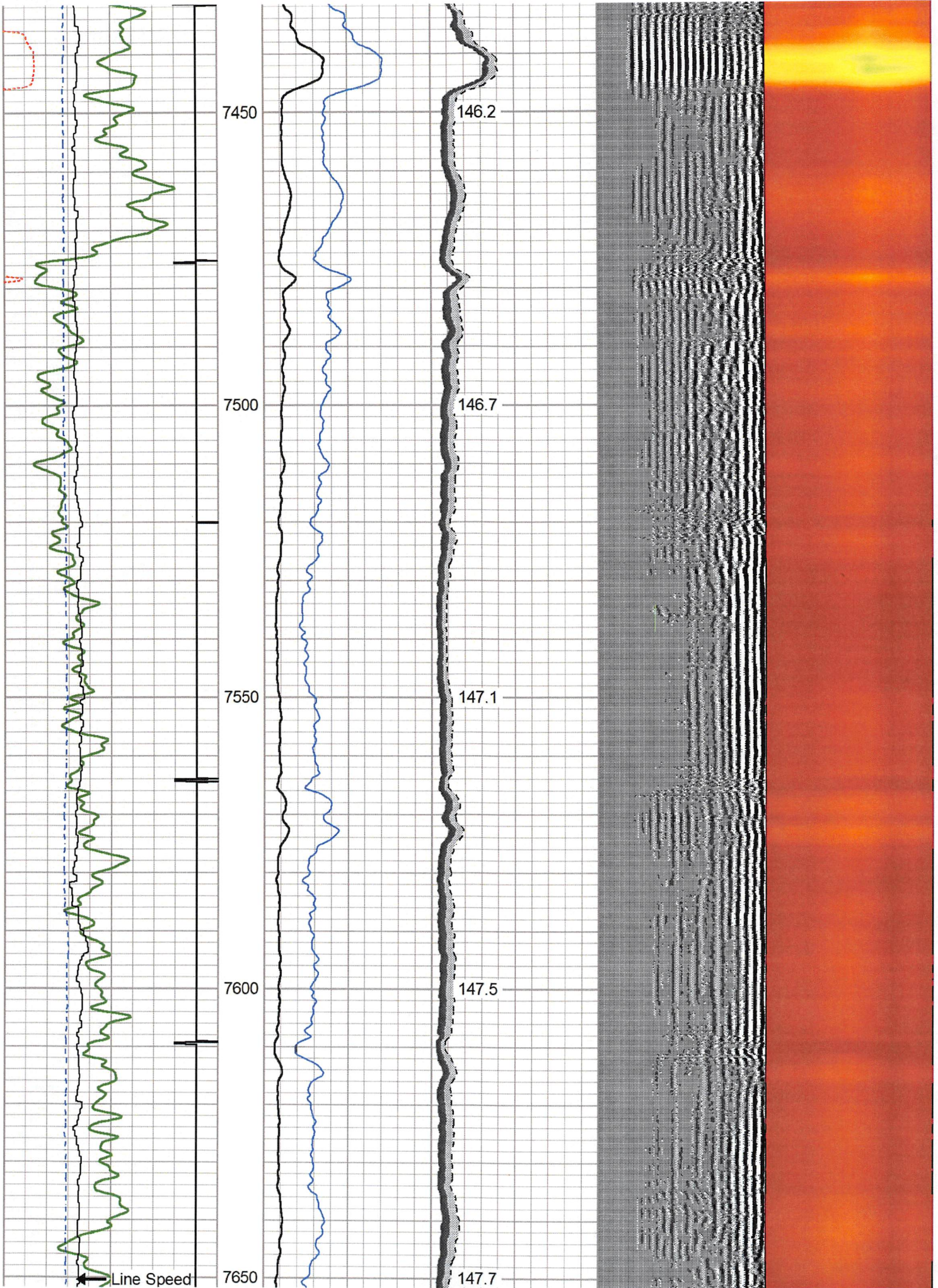
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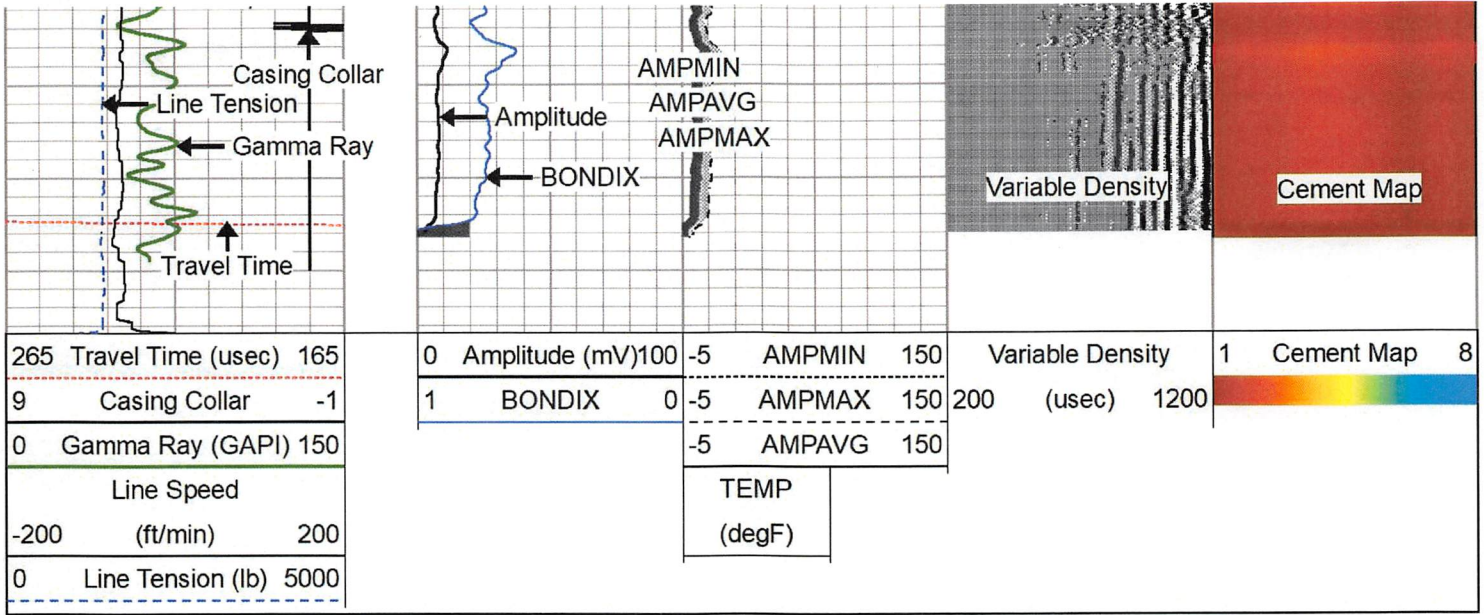
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6950



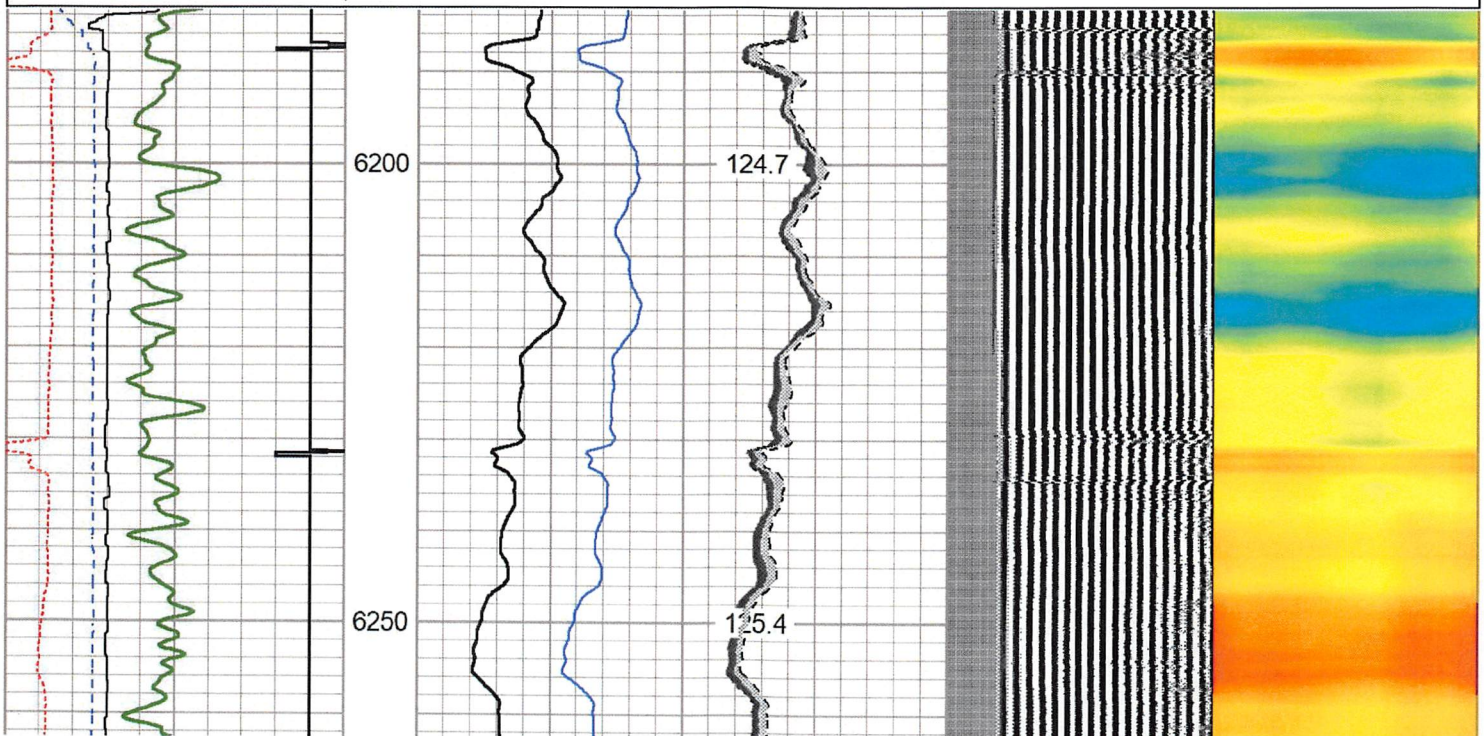
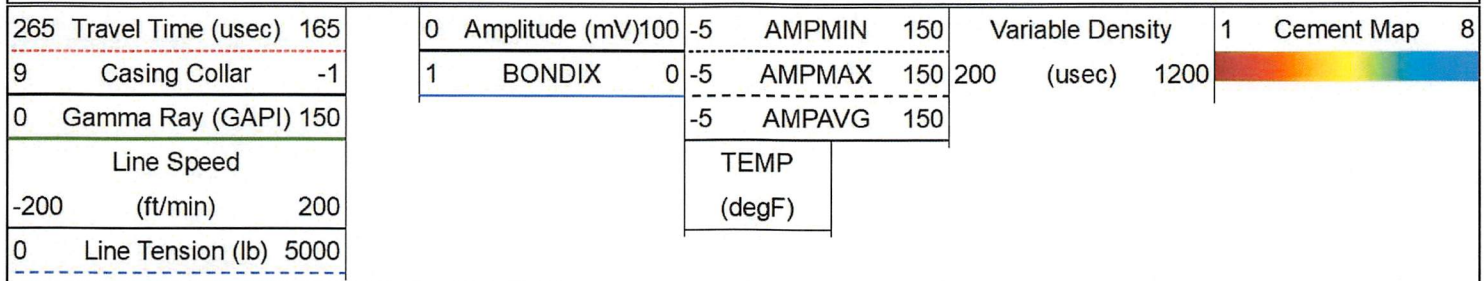


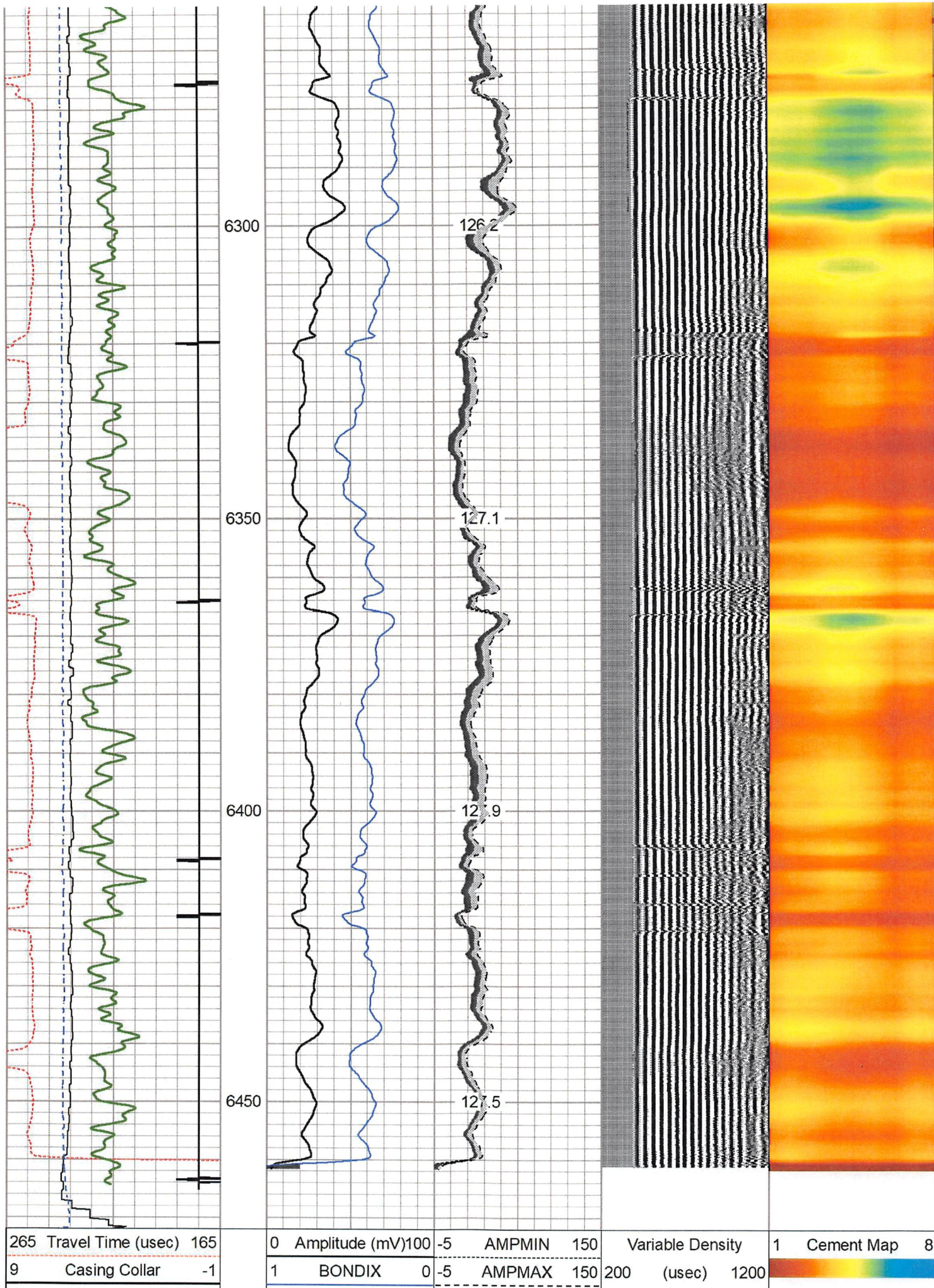





Repeat Pass 0 PSI

Database File antero_phebe_1h_rcbl_11_jan_2023.db
 Dataset Pathname pass4
 Presentation Format rcbl 2
 Dataset Creation Wed Jan 11 13:12:28 2023
 Charted by Depth in Feet scaled 1:240





0	Gamma Ray (GAPI) 150
Line Speed	
-200	(ft/min) 200
0	Line Tension (lb) 5000

-5	AMPAVG	150
TEMP		
(degF)		

Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero_phebe_1h_rcbl_11_jan_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	0.415	23	71.9	3.4
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft		usec	degF	ft			
0.8	No	260	48	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_phebe_1h_rcbl_11_jan_2023.db
 Dataset Pathname pass6
 Dataset Creation Wed Jan 11 13:34:58 2023

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

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Segmented Cement Bond Log Calibration Report

Serial Number: 2.75"
 Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 550.250 ft

Master Calibration, performed Wed Jan 11 12:50:08 2023:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	0.590	3.400	71.921	116.901	2.983
CAI	0.998	0.999				

5'	-0.003	0.587	3.400	71.921	116.163	3.787
SUM						
S1	0.068	0.600	0.000	100.000	188.032	-12.796
S2	-0.005	0.550	0.000	100.000	180.337	0.876
S3	-0.002	0.582	0.000	100.000	171.066	0.411
S4	-0.002	0.608	0.000	100.000	163.929	0.376
S5	-0.003	0.622	0.000	100.000	160.038	0.445
S6	-0.006	0.618	0.000	100.000	160.373	0.953
S7	0.006	0.603	0.000	100.000	167.310	-0.950
S8	-0.007	0.578	0.000	100.000	170.923	1.237

Internal Reference Calibration, performed Wed Nov 23 14:17:52 2011:

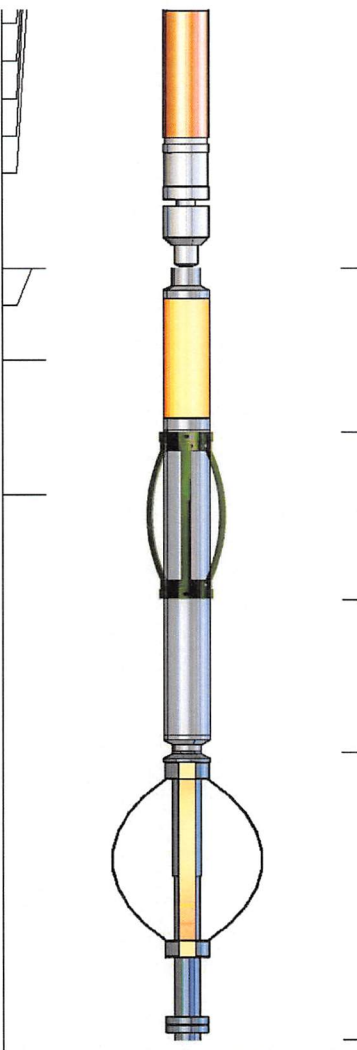
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.998	0.999	1.000	0.000

Air Zero Calibration, performed Wed Jan 11 09:18:23 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)
HeadVolt	16.95		CHD-Titan Standard 1 7/16" Cable Head	1.02	1.44	1.00
			CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
Temp	14.10		RBT-Probe275T (2.75") Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS8	11.86					
WVFS7	11.86					
WVFS6	11.86					
WVFS5	11.86					
WVFS4	11.86					

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WVFS3	11.86					
WVFS2	11.86					
WVFS1	11.86					
WVF3FT	11.86					
WVF5FT	10.86					
WVFCAL	7.61					
HEADVOLT	7.61					
CCL	6.71					
GR	5.38		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
			Centralizer-Probe_2.75 Bowspring Centralizer	2.83	2.75	24.00

Dataset: antero_phebe_1h_rcbl_11_jan_2023.db: field/well/run1/pass6
 Total length: 18.03 ft
 Total weight: 182.00 lb
 O.D.: 4.88 in

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