



**Radial
Cement
Bond Log**

RECEIVED
Office of Oil and Gas
MAY 10 2023

WV Department of
Environmental Protection

Company	Antero Resources	Country	
Well	Reader 1H	Well	Reader 1H
Field	Wetzel	Field	Wetzel
County	Wetzel	County	Wetzel
State	WV	State	WV
Country		Country	
Location:	Furbee Pad		API #: 47-103-03496
Permanent Datum	SEC	TWP	RGE
Log Measured From		G/L	Elevation 30'
Drilling Measured From		K.B.	K.B. N/A
		K.B.	D.F. N/A
		K.B.	G.L. N/A
			Other Services GR CCL

Date	26/Nov/2022
Run Number	ONE
Depth Driller	22,522'
Depth Logger	7,378'
Bottom Logged Interval	7,370'
Top Log Interval	Surface
Open Hole Size	8.75"
Type Fluid	Brine
Density / Viscosity	9.8#
Max. Recorded Temp.	N/A
Estimated Cement Top	5,296'
Time Well Ready	08:10
Time Logger on Bottom	08:45
Equipment Number	116
Location	Charleroi, Pa
Recorded By	B.Lane / D.Josephik
Witnessed By	Mr. Mike Szabo

Casing Record	Borehole Record		Tubing Record				
	Bit	From	To	Size	Weight	From	To
Surface String	28"						
Prot. String	17.5"						
Production String	12.25"						
Liner	8.75"						
	5.5"						

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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 (6,238'-6,247') Per Well Schematic

Free Pipe = 71.9mv
Bonded Pipe = 3.4mv
ETOC = 5,296'

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GCT_FMWR	21.59		CableHead-Titan Titan Mark II Cablehead	1.00	1.68	2.00
mSec_Count	21.59					
RBT_Status	21.59					
Error_Ct	21.59					

				CENT-Probe169 1 11/16" Centralizer	3.17	1.69	10.00
RBT_HV	17.42						
WVFS8	12.93			RBT8-RADII-275C (RBT275C_Base) Probe 2.75" RADII 8 Sector Bond Tool	8.75	2.75	
WVFS7	12.93						
WVFS6	12.93						
WVFS5	12.93						
WVFS4	12.93						
WVFS3	12.93						
WVFS2	12.93						
WVFS1	12.93						
WVF3FT	12.93						
WVF5FT	11.93						
RBT_ACCZ	8.68						
RBT_ACCY	8.68						
RBT_ACCX	8.68						
WVFSYNC	8.68			CENT-Probe169 1 11/16" Centralizer	3.17	1.69	10.00
WVFCAL	8.68						
GCT_HV	5.51						
CCL\$2	4.29						
CCL\$1	4.29						
GR	2.72			GCacc-GC275-0BP0 (GC275-0BP0_base) Probe 2.75" Gamma Ray - CCL (6 magnet)	5.18	2.75	55.00
GCT_IntTemp	2.00						
				Plug-FA108-0000 1.38" Bull Plug	0.33	1.38	1.00

Dataset: antero_furbie_reader1h_rcbl_25-nov-2022.db: field/well/Main/pass_1
 Total length: 21.59 ft
 Total weight: 78.00 lb
 O.D.: 2.75 in



MAIN LOG

10/06/2023

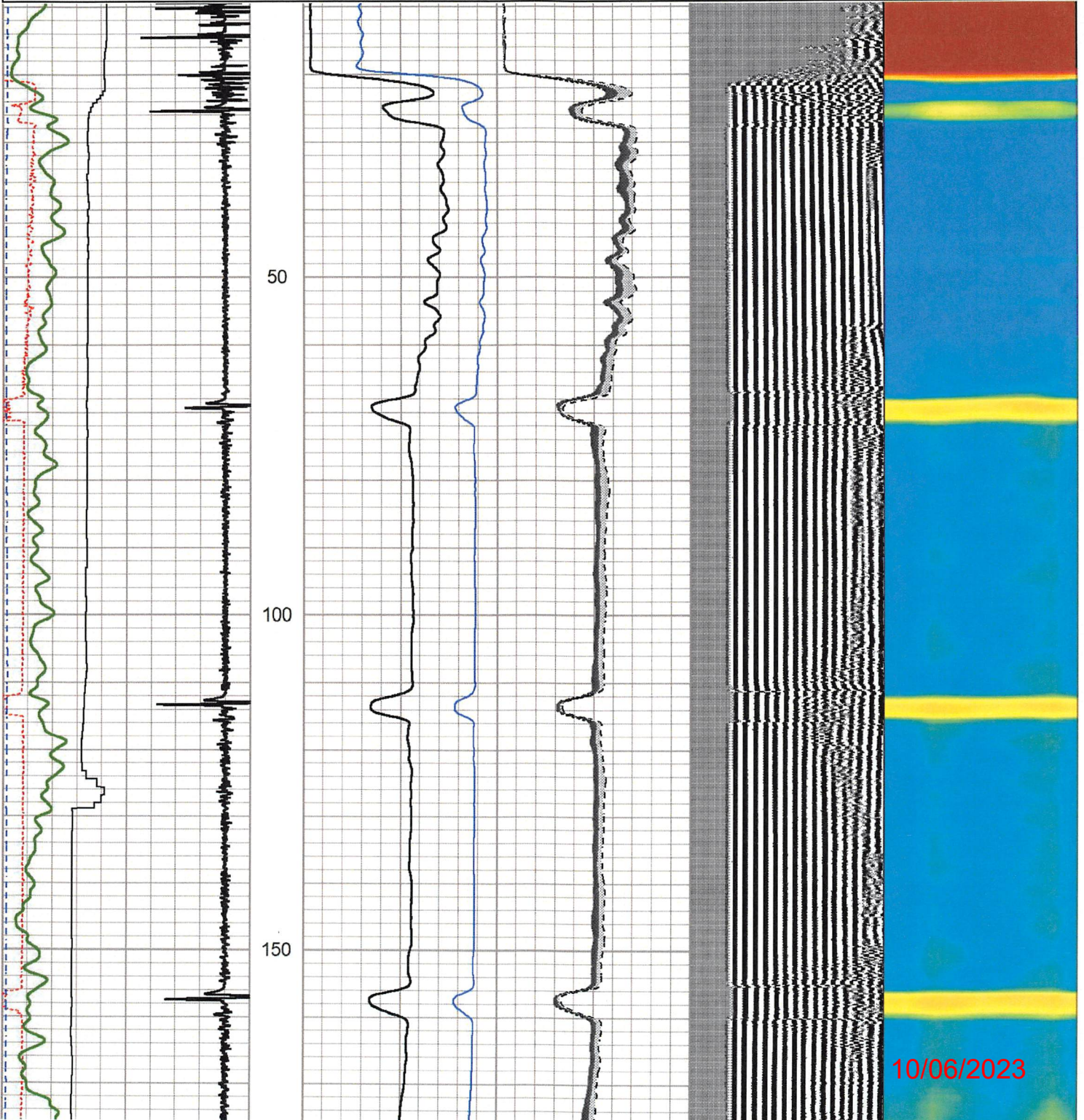
1500 PSI APPLIED

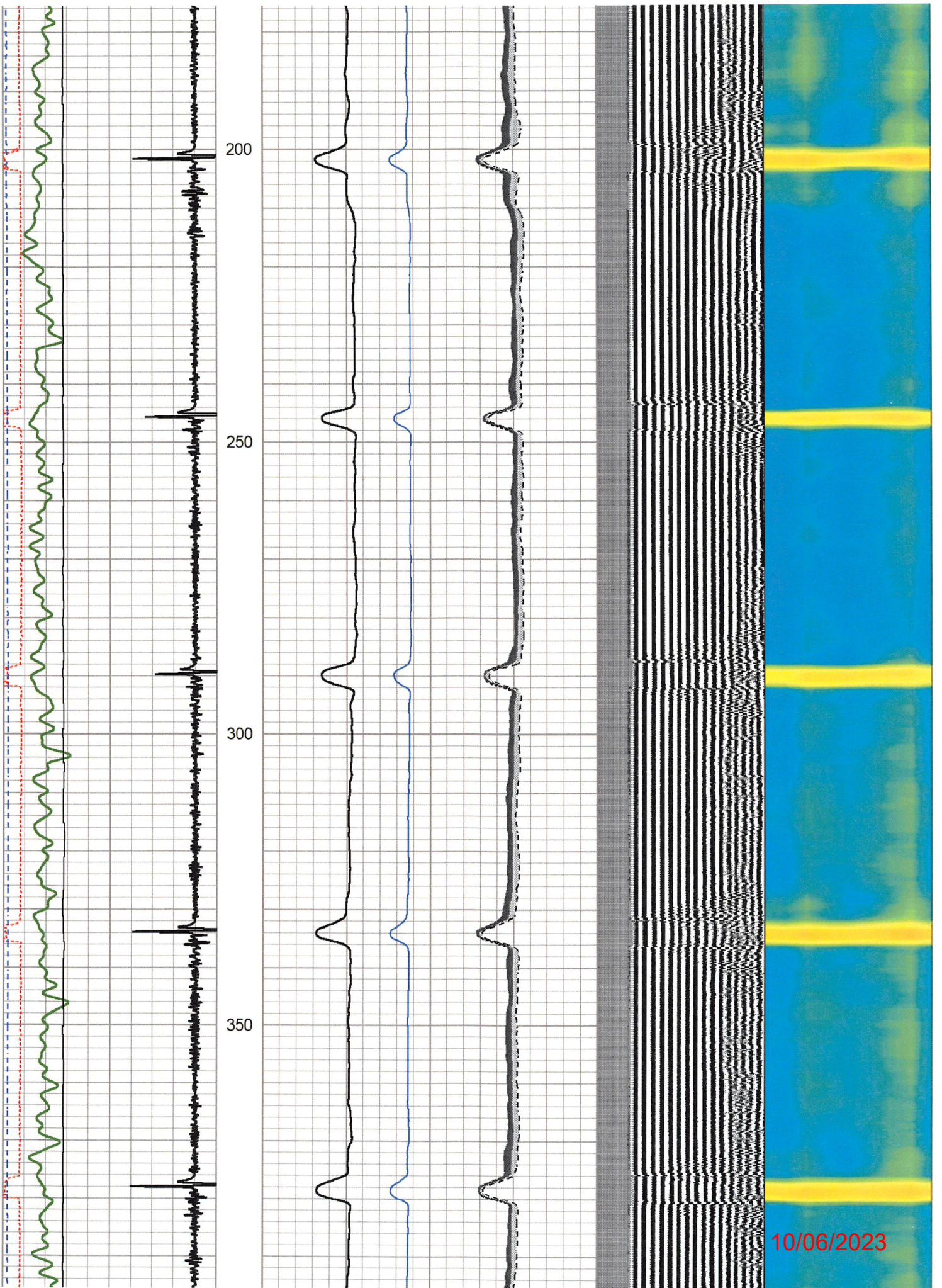
Database File d:\antero_furbee_reader1h_rcbl_25-nov-2022.db
 Dataset Pathname Main/pass_1
 Presentation Format rcbl-bond index for antero 1020
 Dataset Creation Sat Nov 26 09:45:38 2022
 Charted by Depth in Feet scaled 1:240

275	Travel Time (usec)	175
9	CCL\$1	-1
0	Gamma Ray (GAPI)	150
Line Speed		
-200	(ft/min)	200
0	Line Tension (lb)	5000

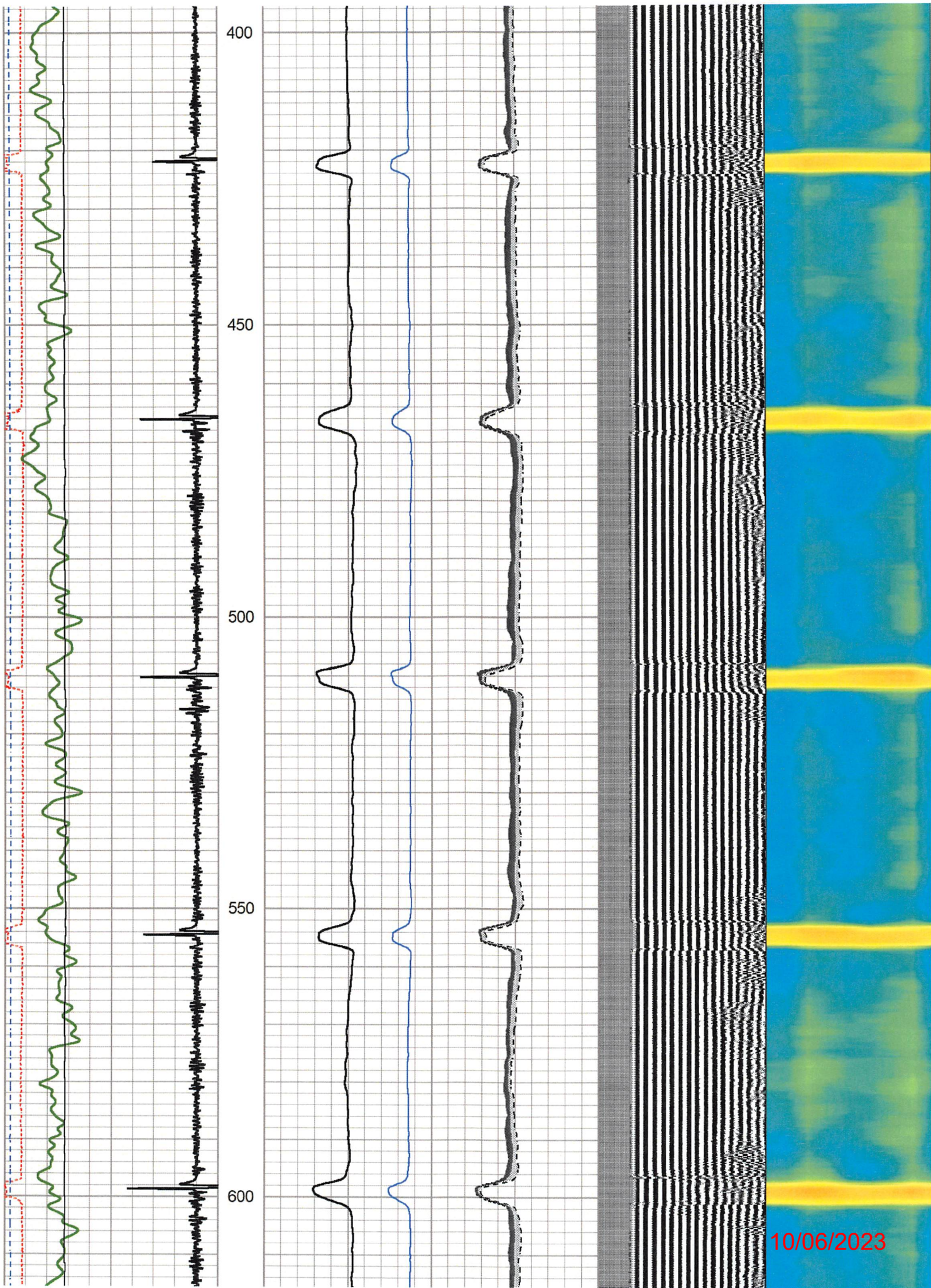
0	Amplitude (mV)	100	-5	AMPMIN	150
1	BONDIX	0	-5	AMPMAX	150
			-5	AMPAVG	150

Variable Density	1	Cement Map	8
200 (usec)	1200		

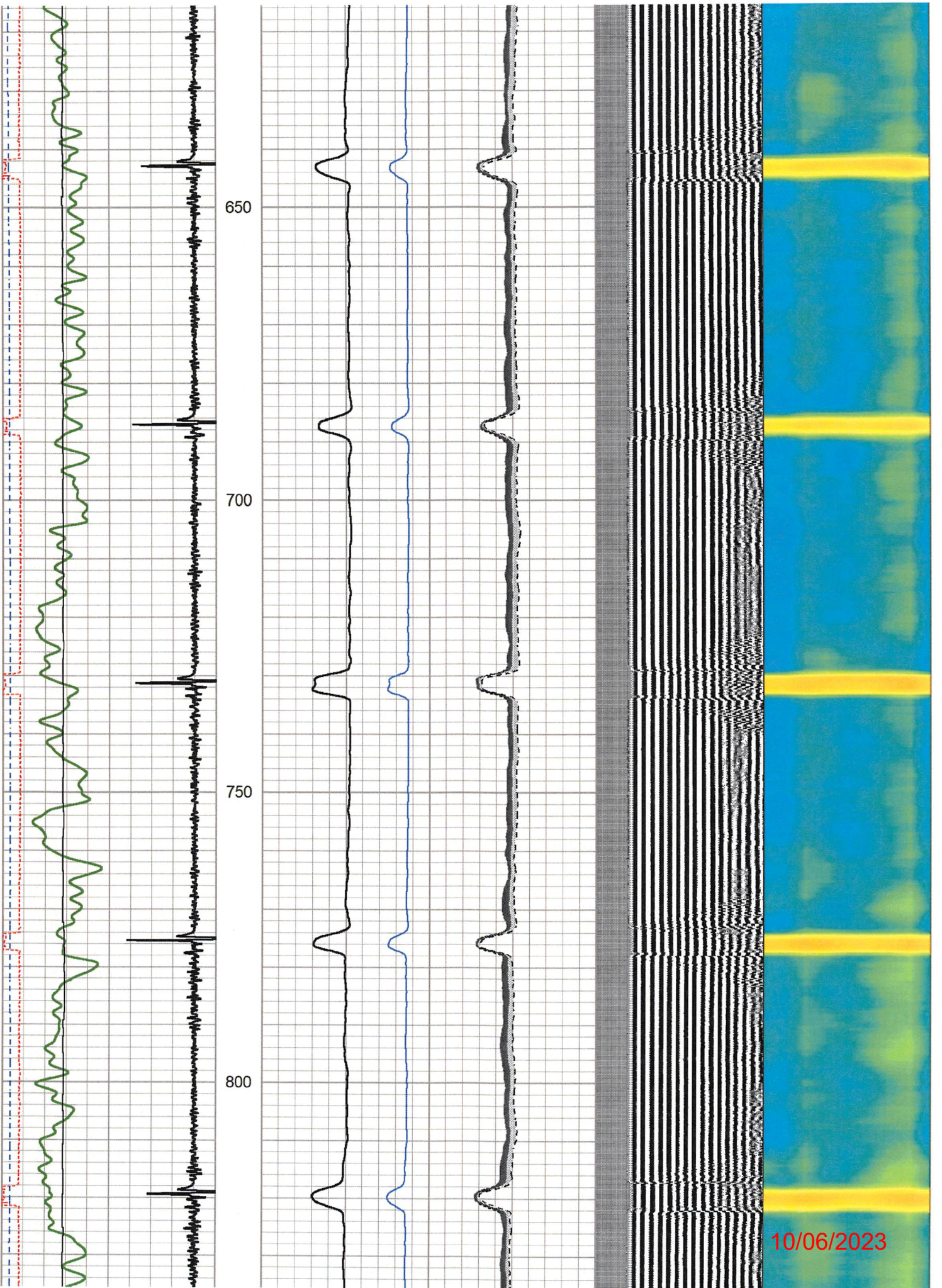




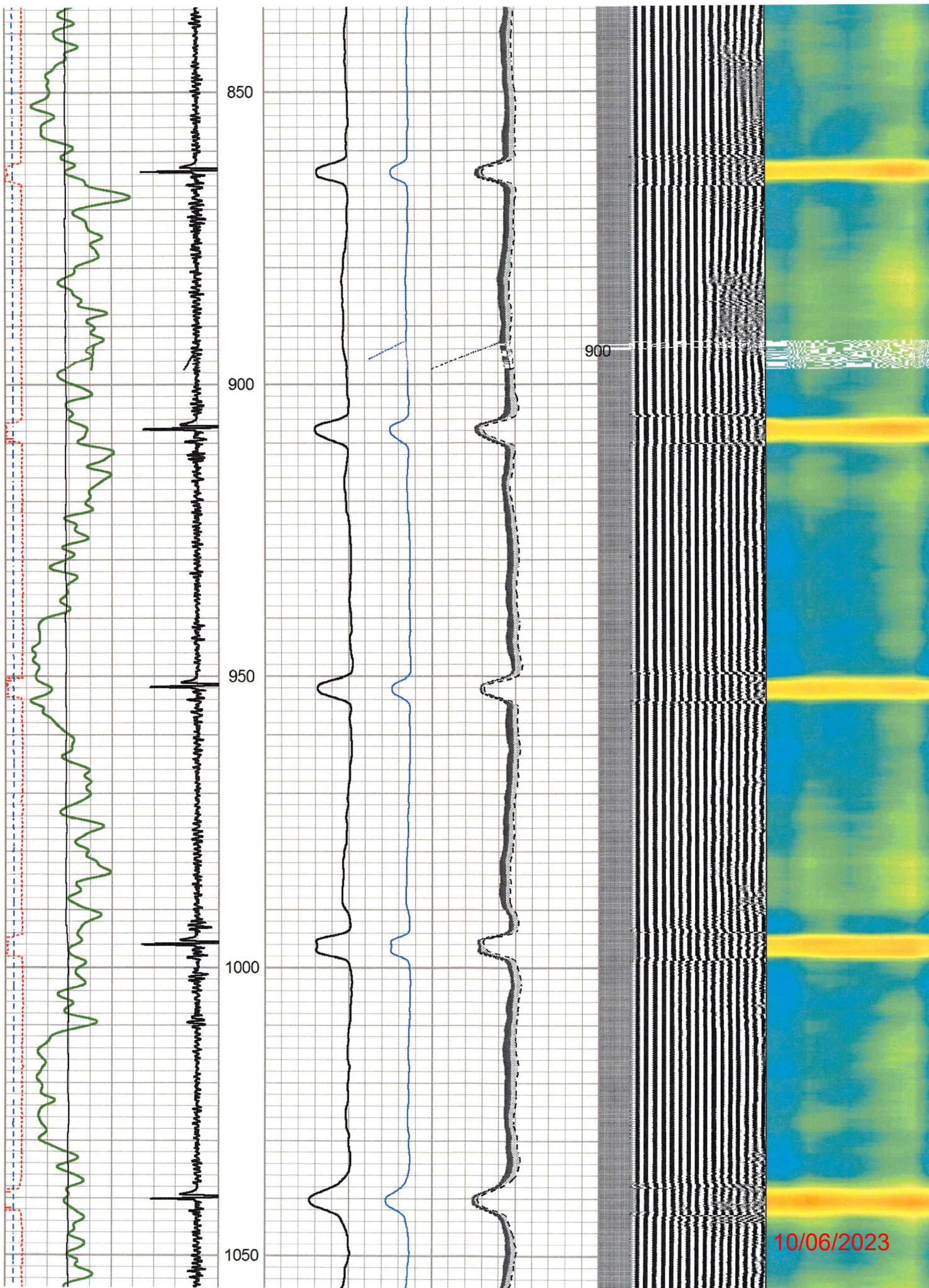
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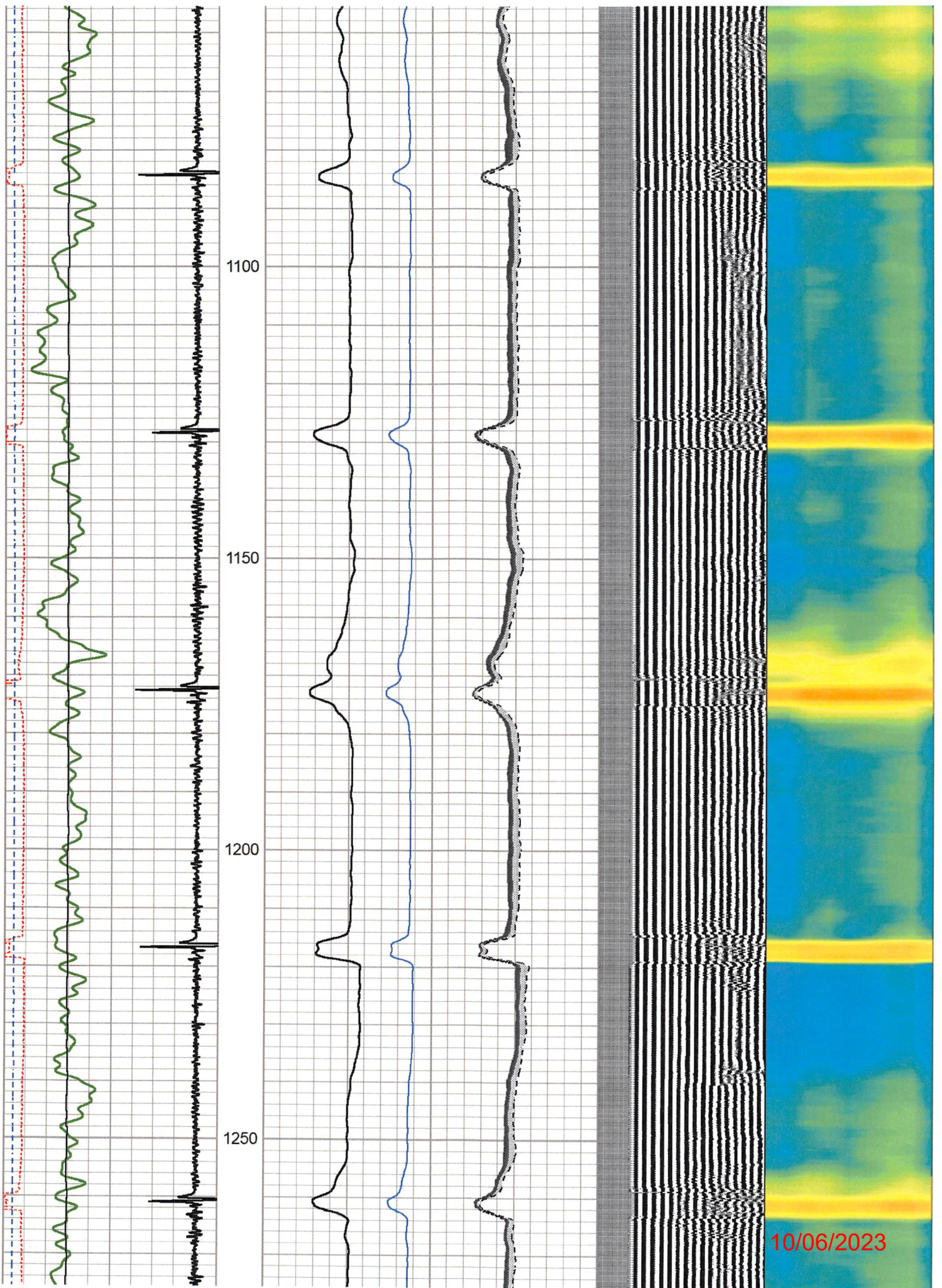


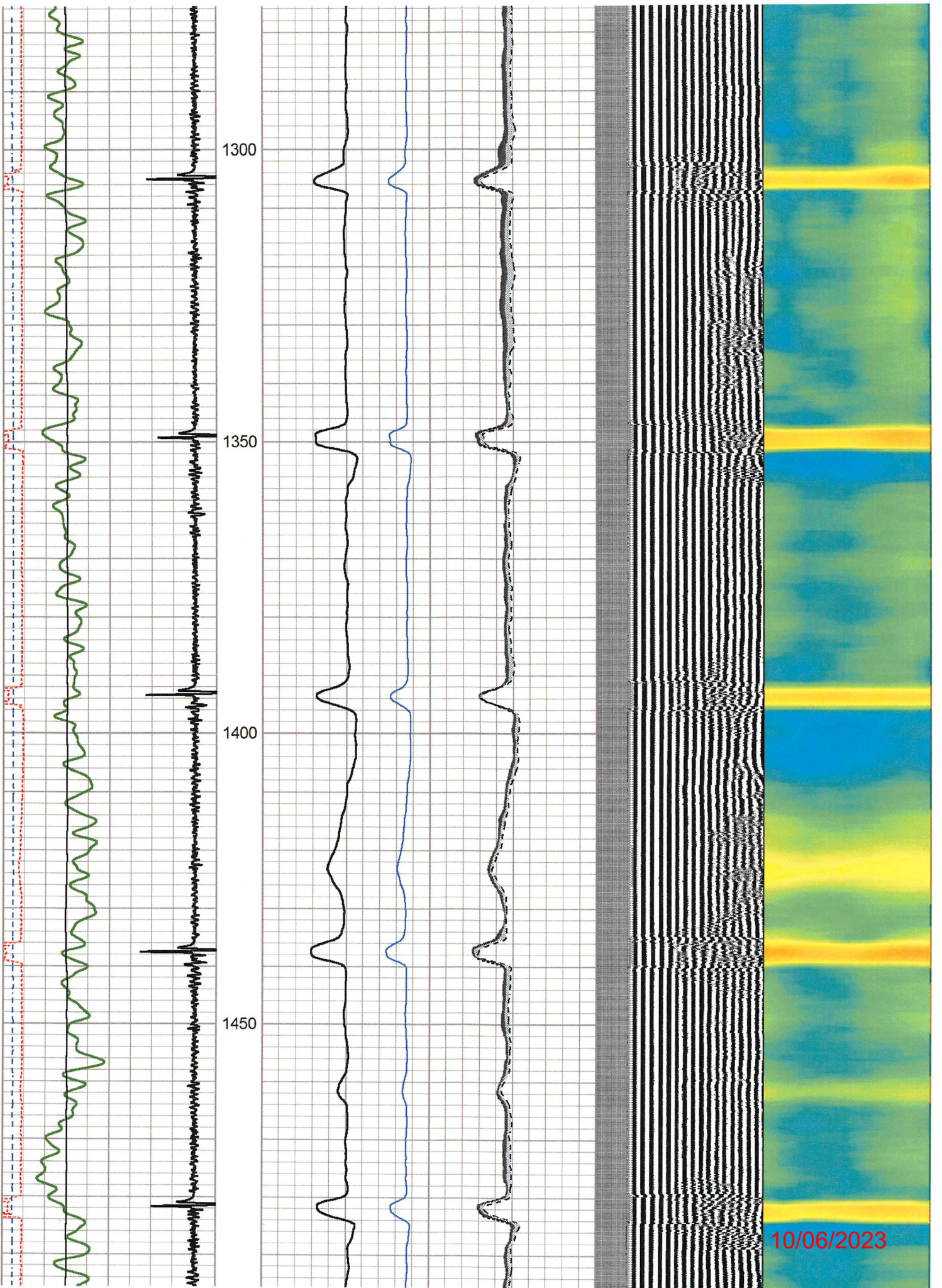
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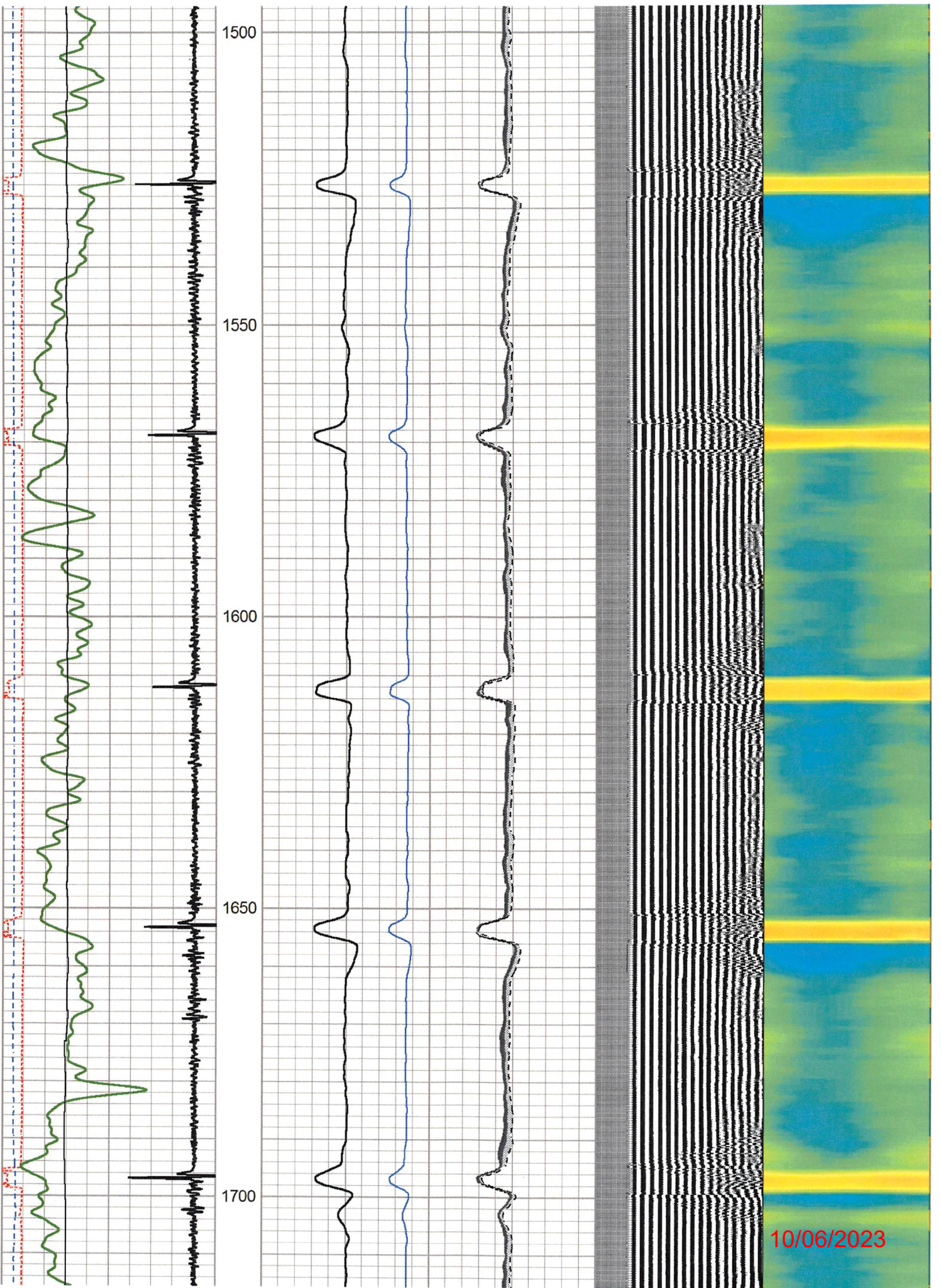


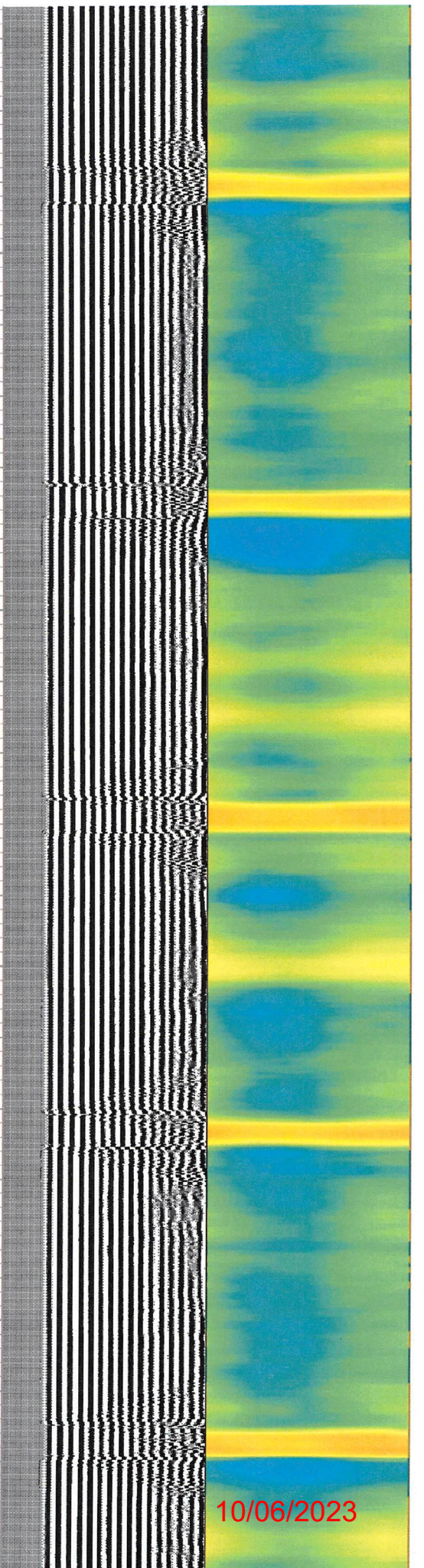
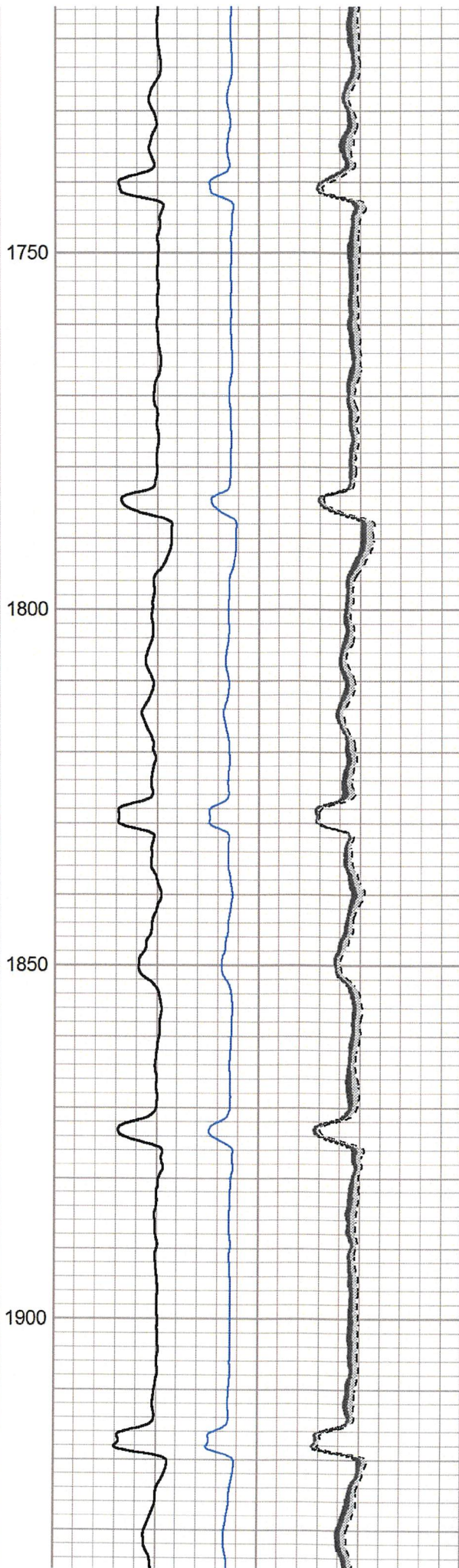
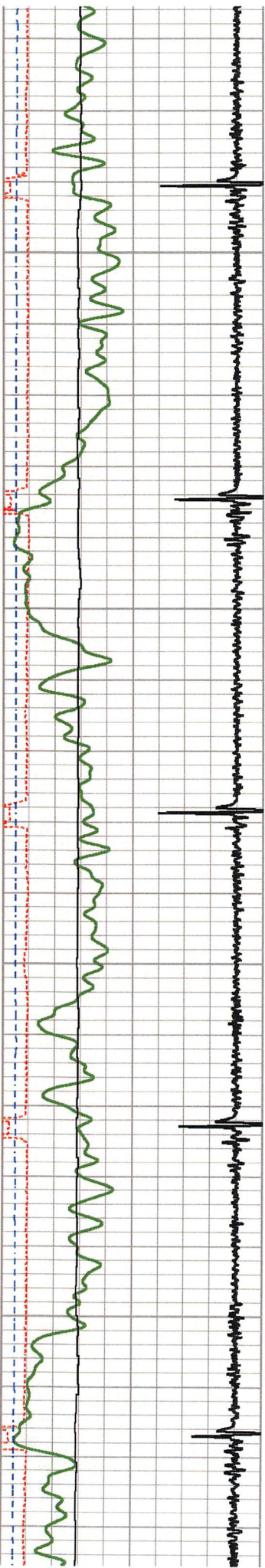
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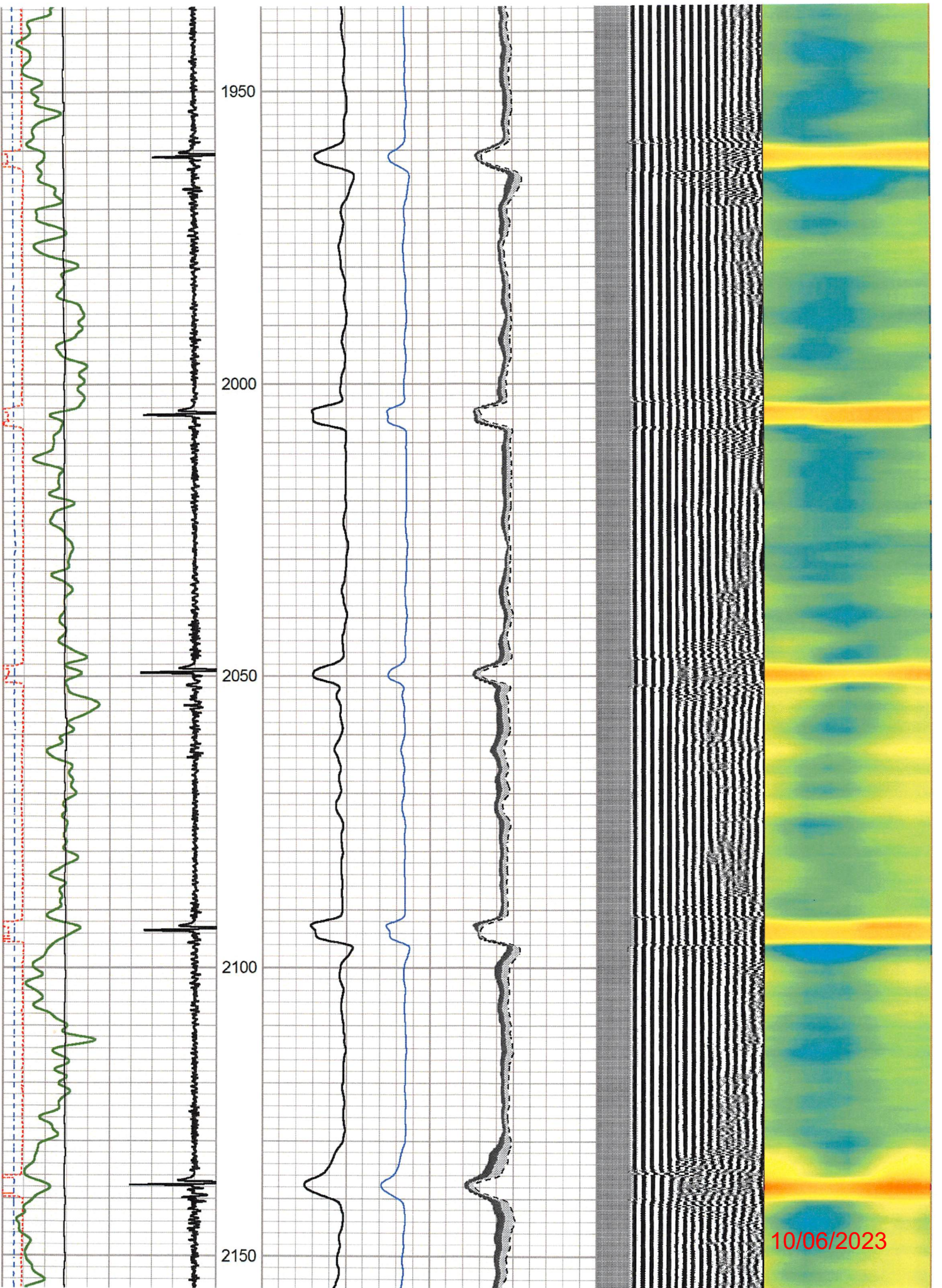


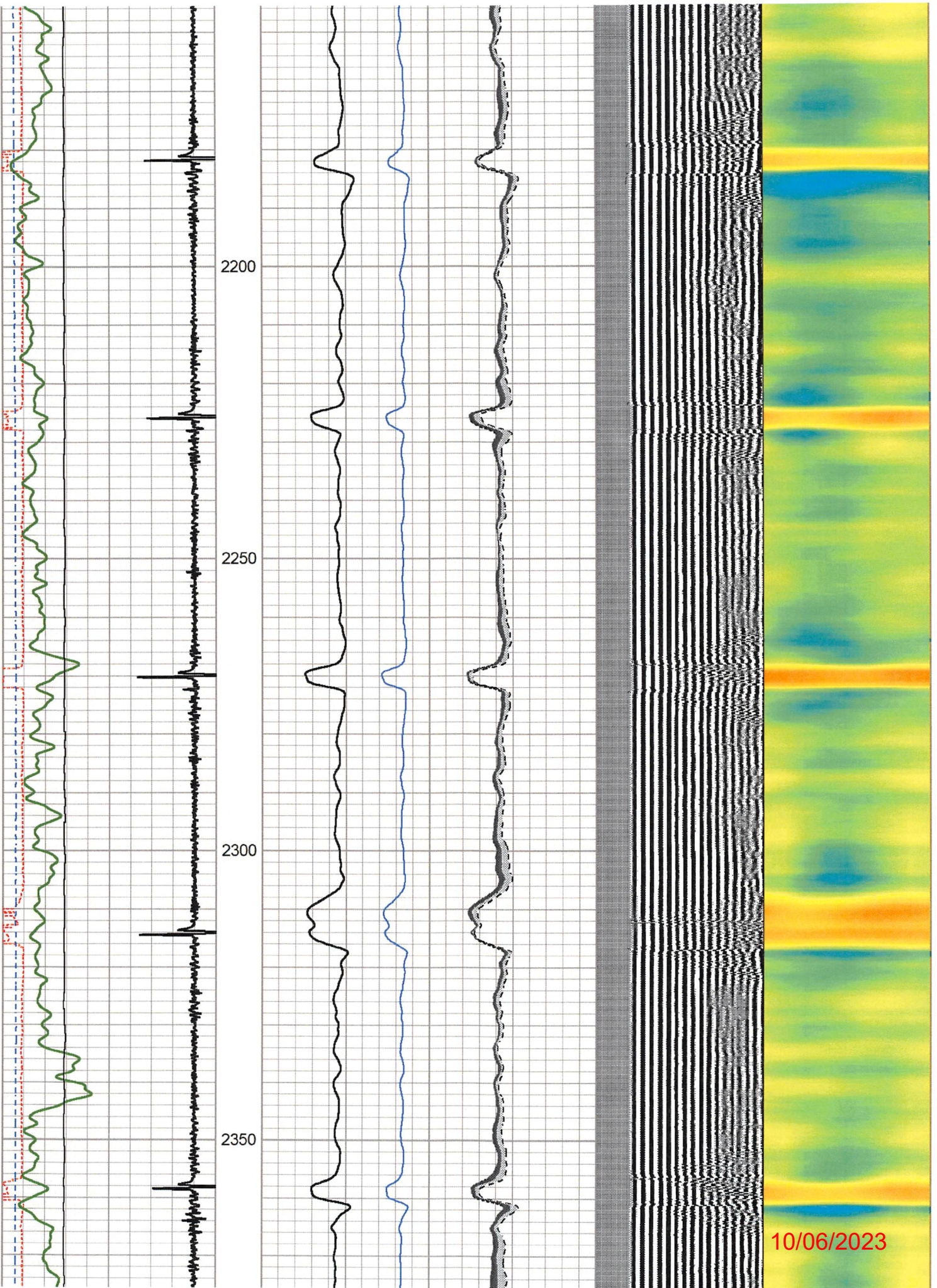




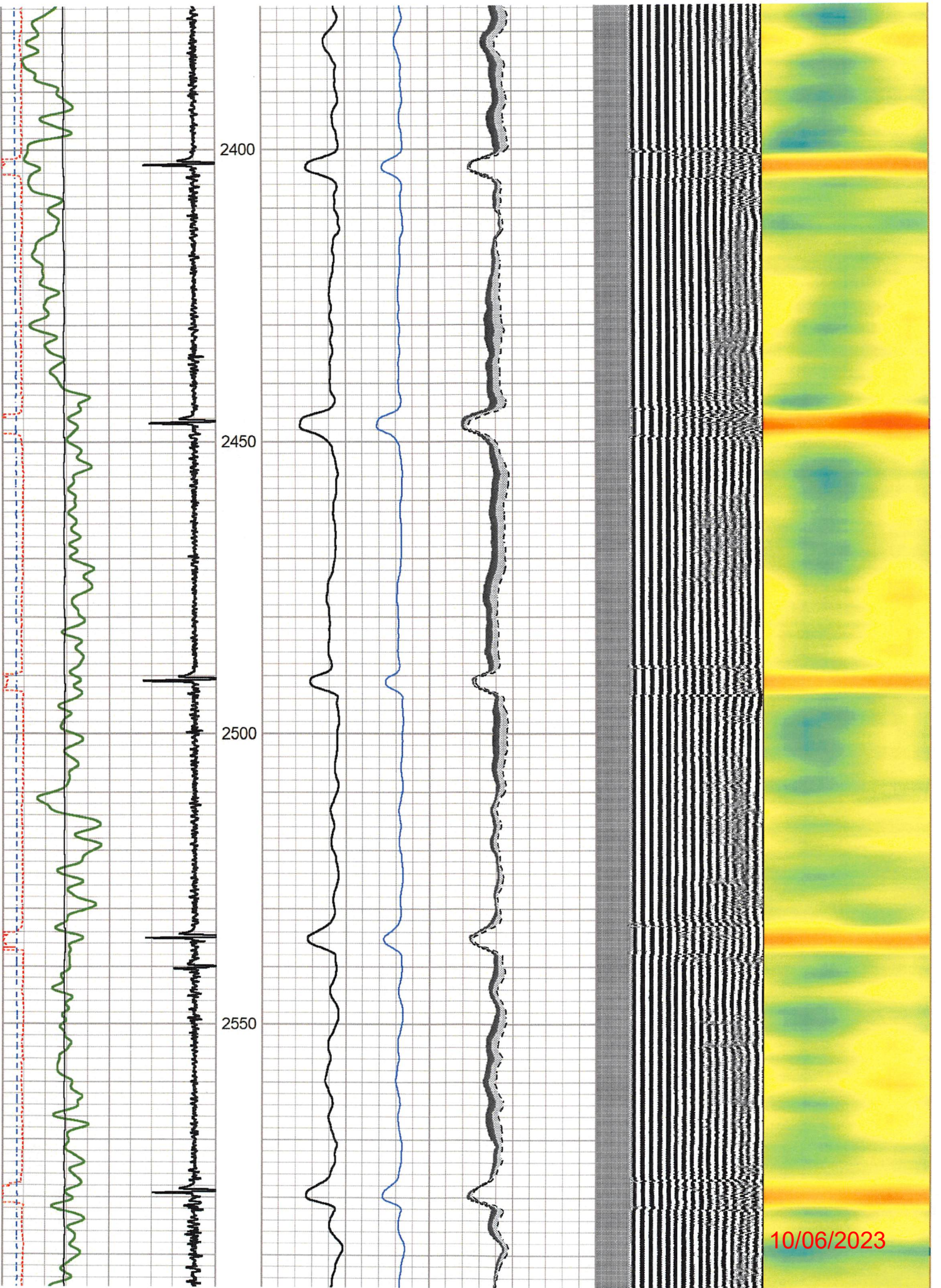


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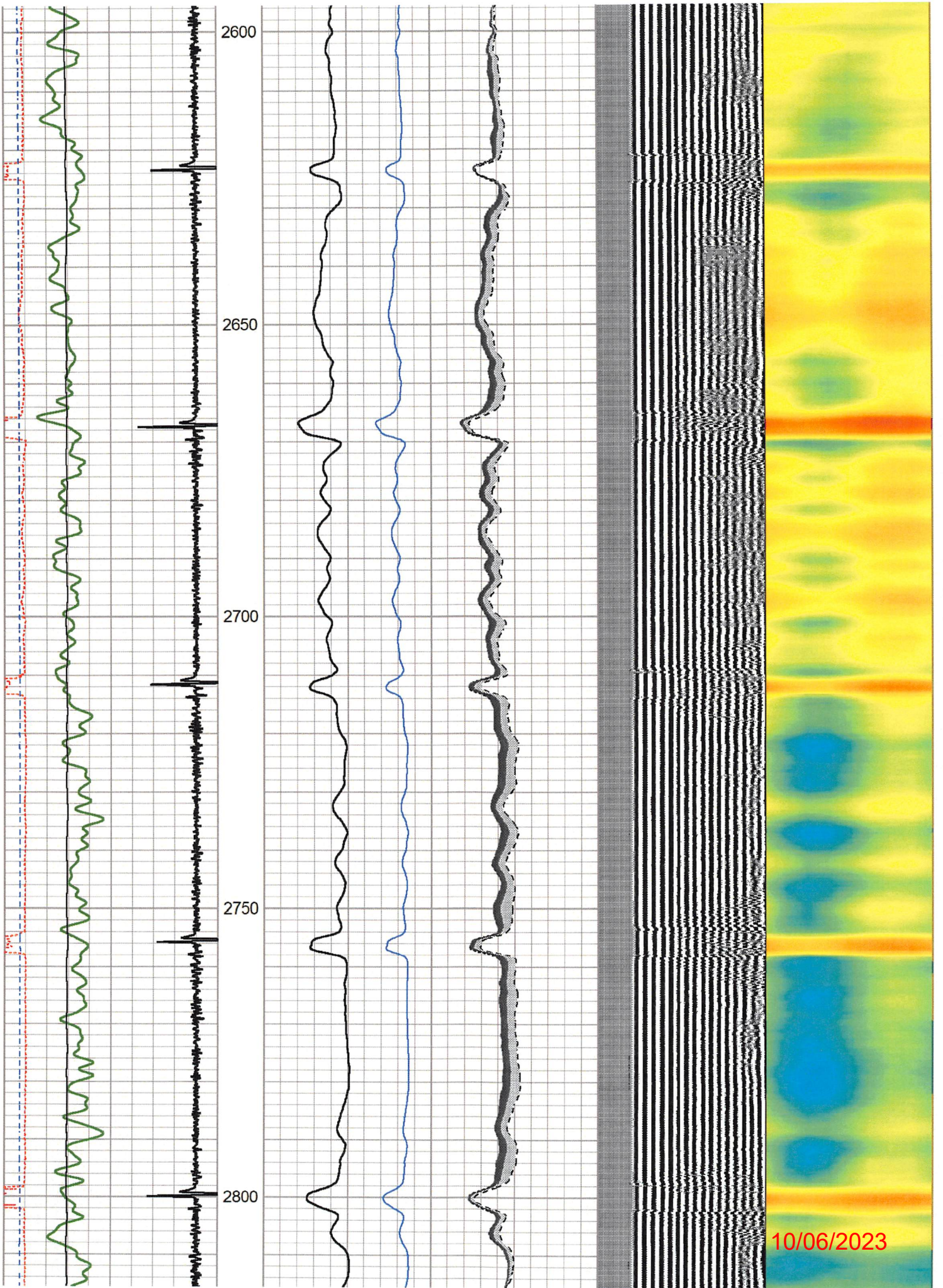


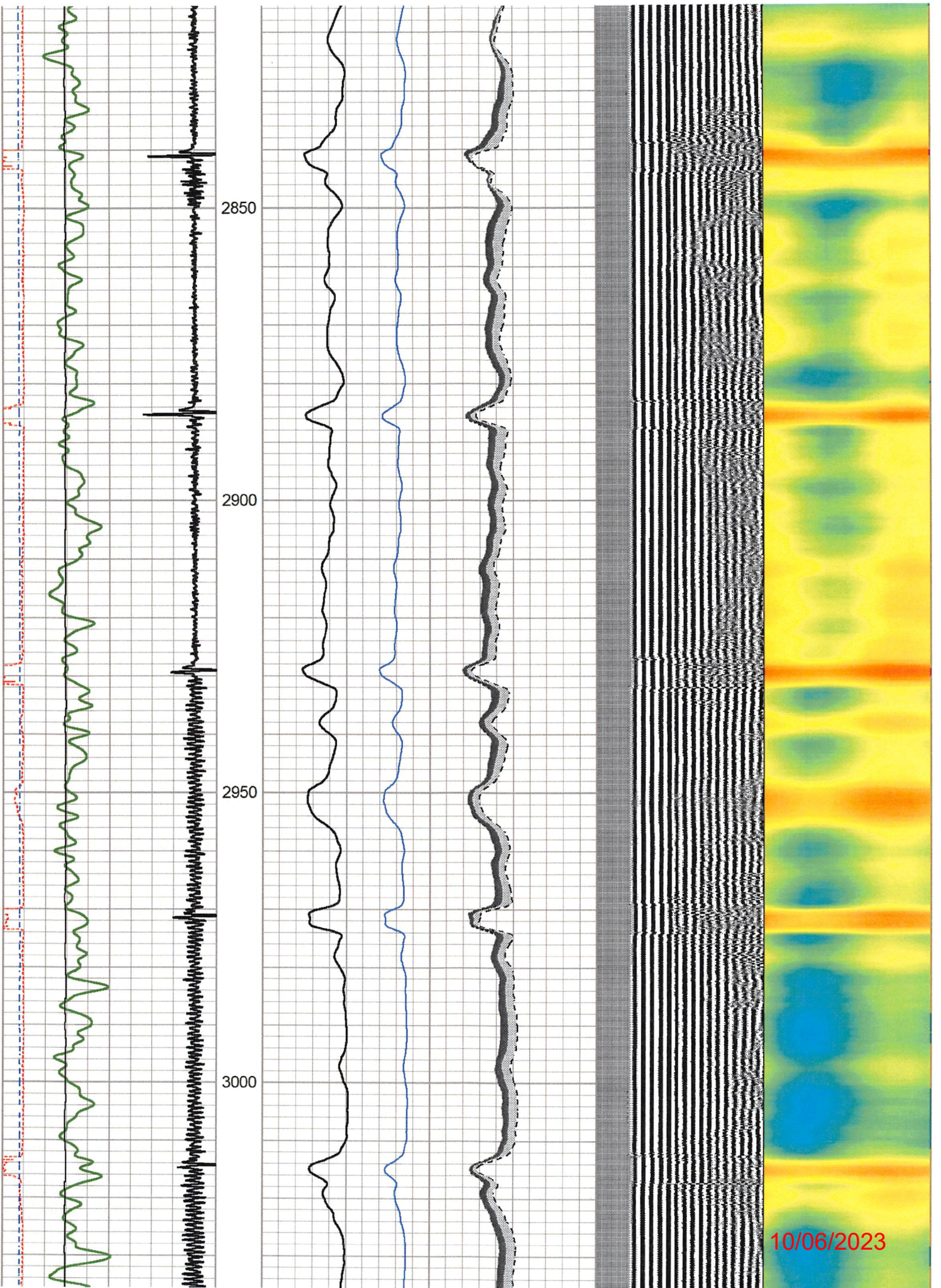


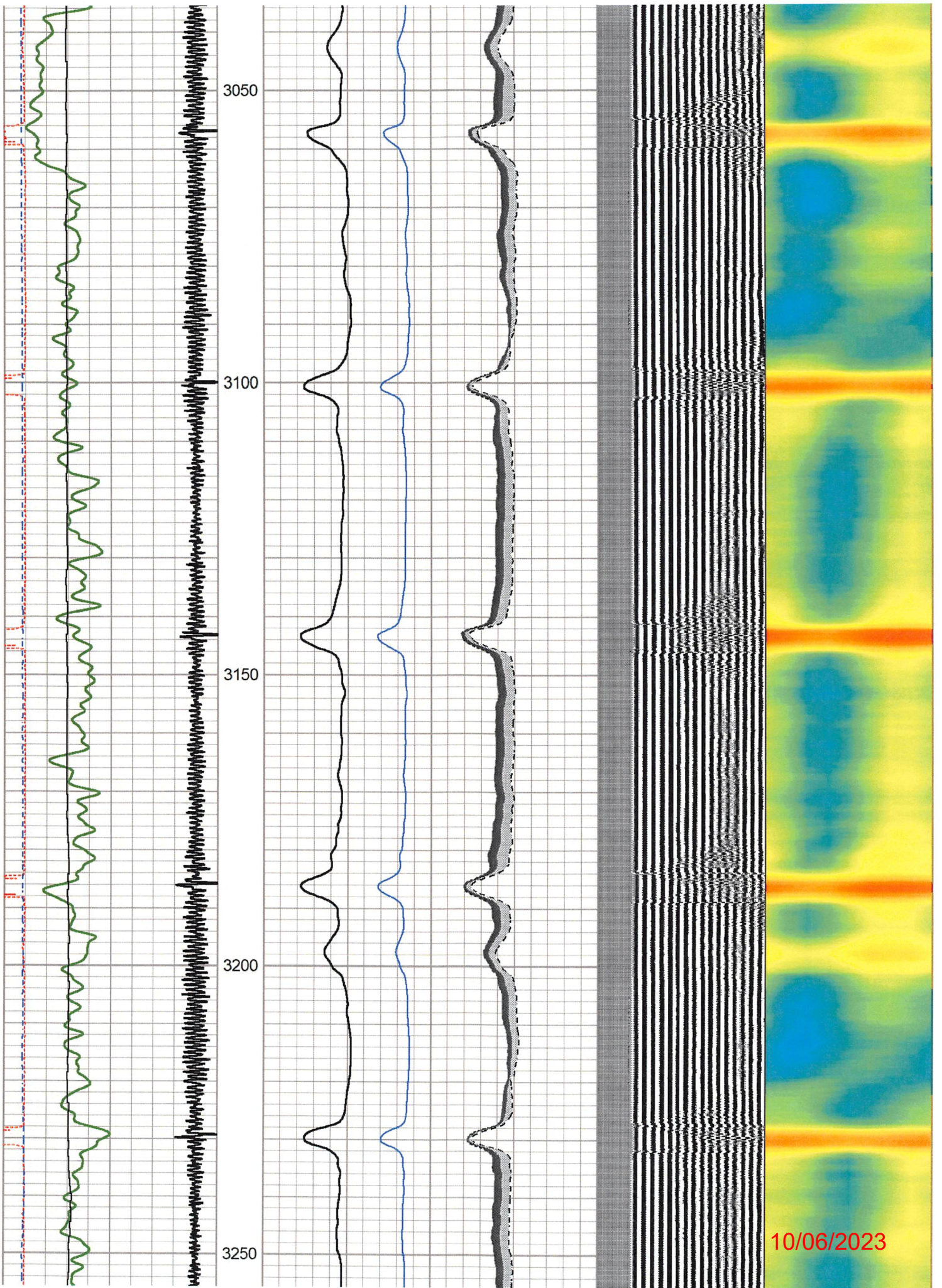
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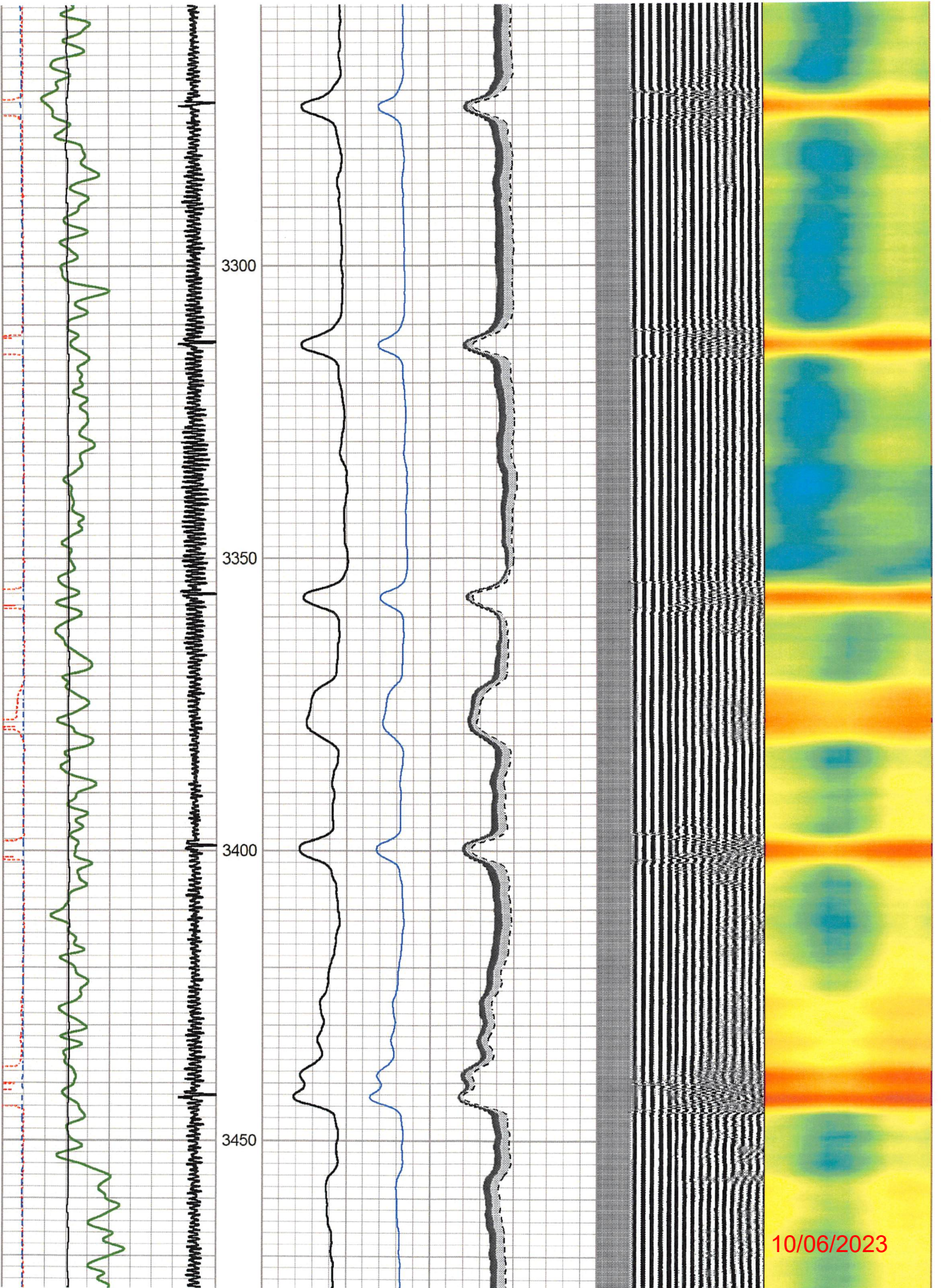


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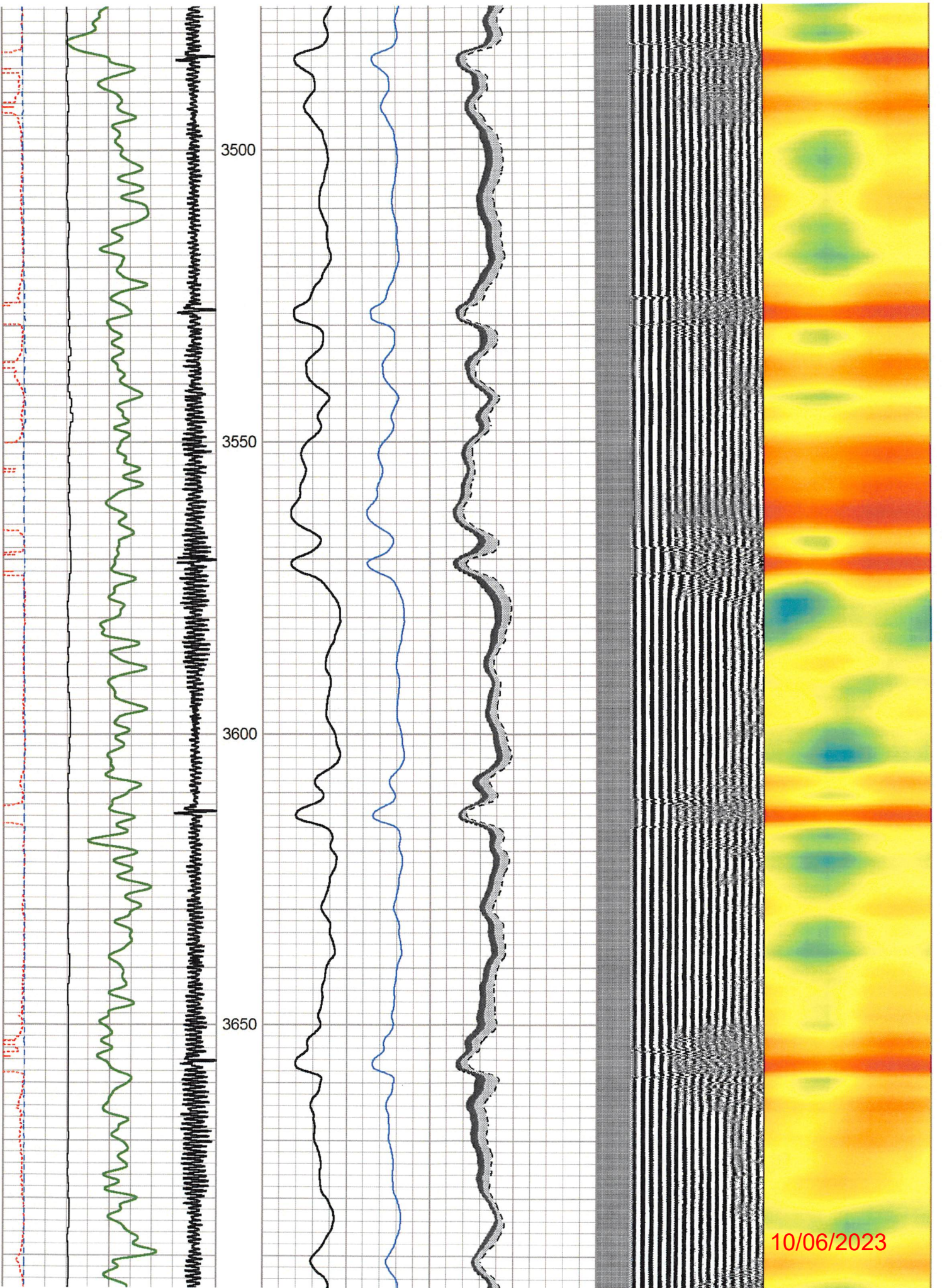








10/06/2023



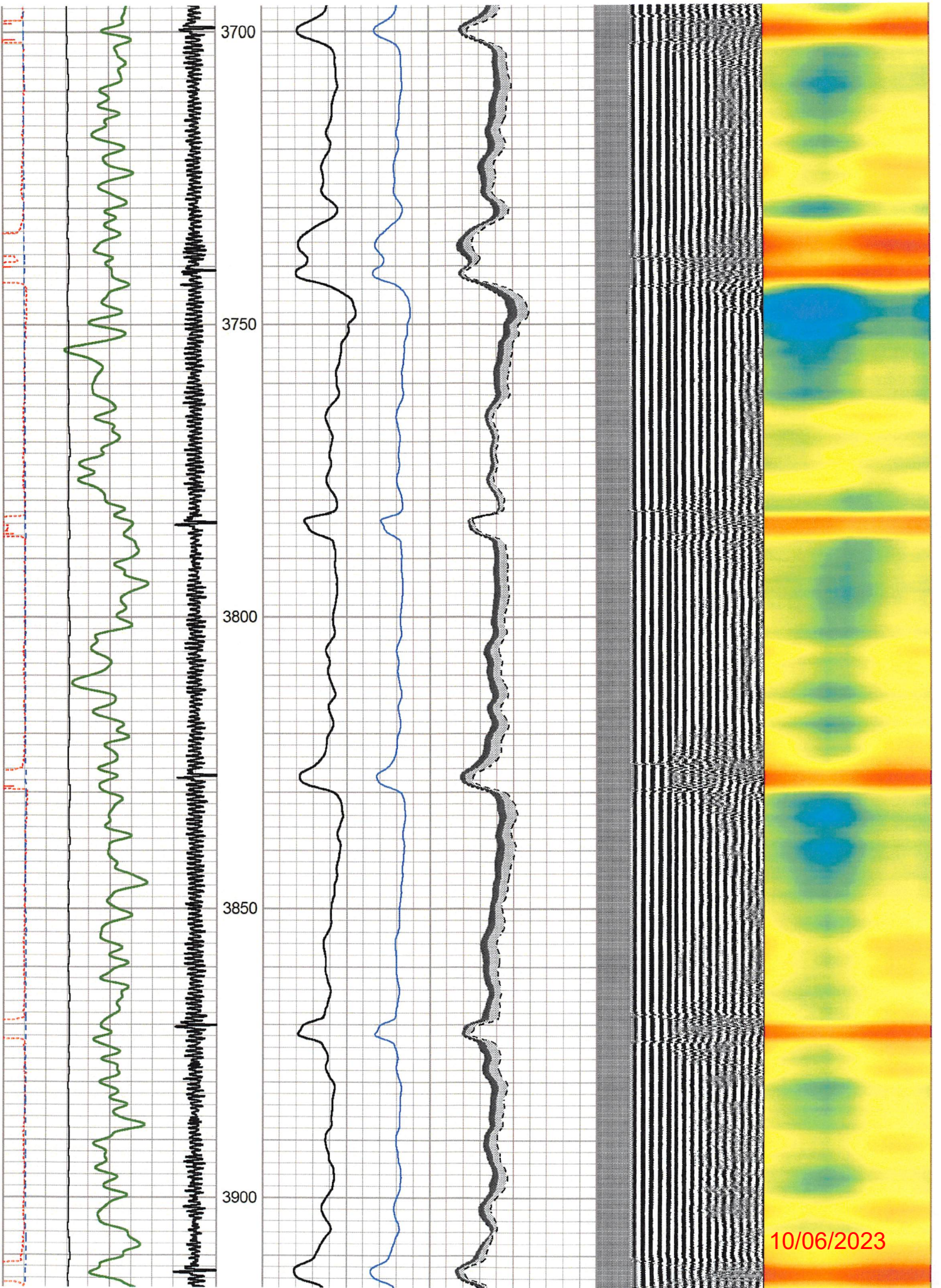
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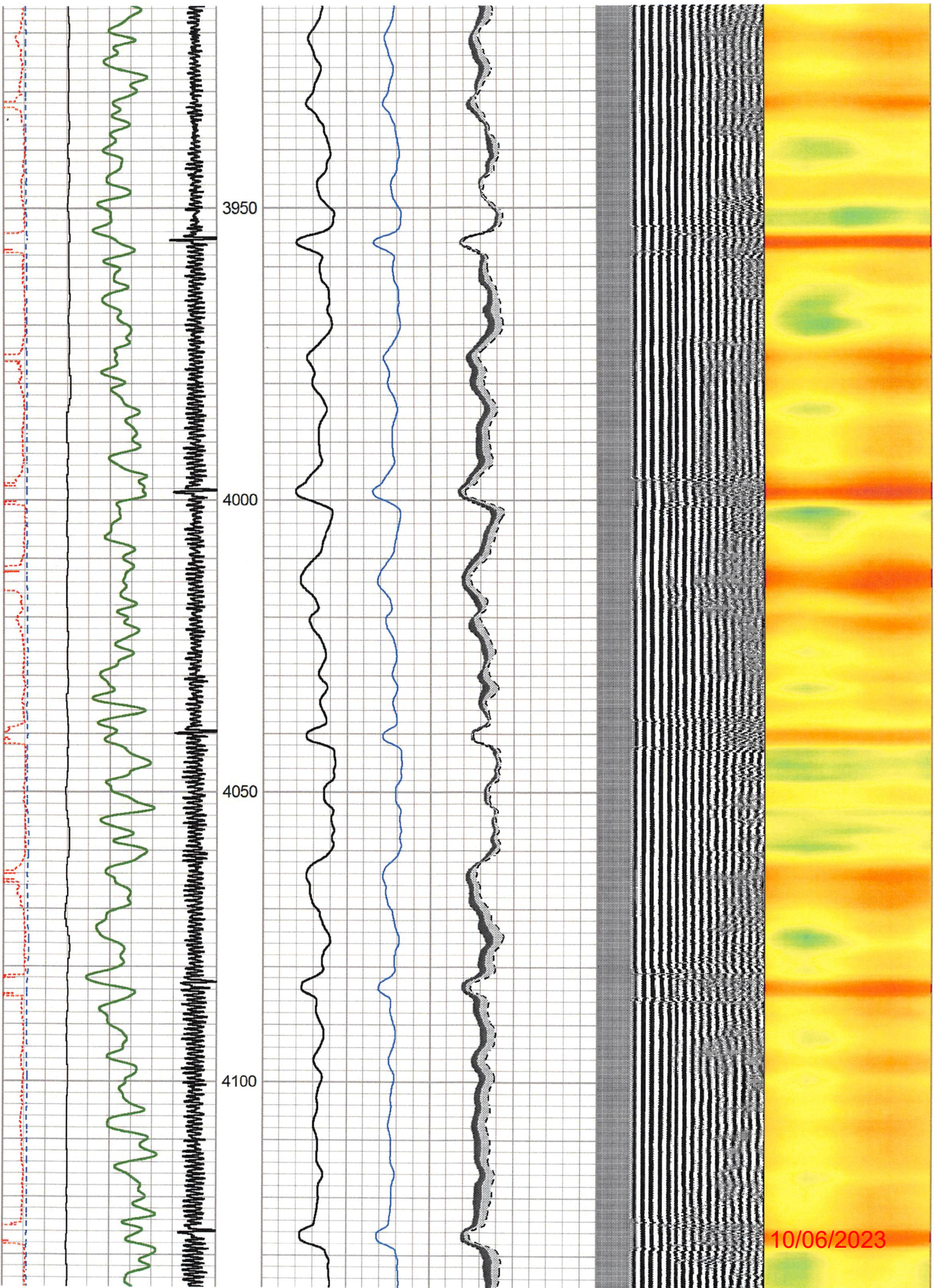
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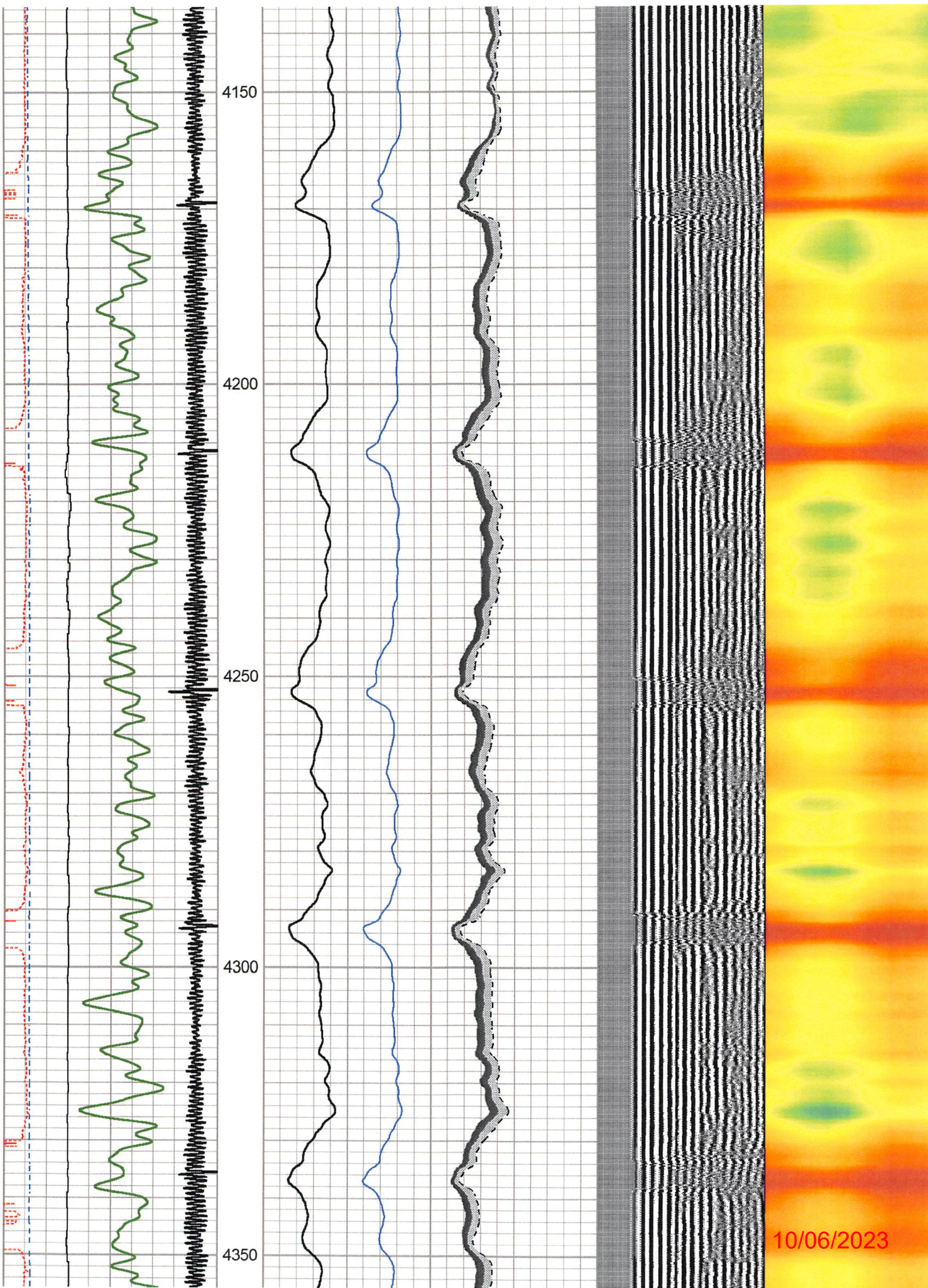
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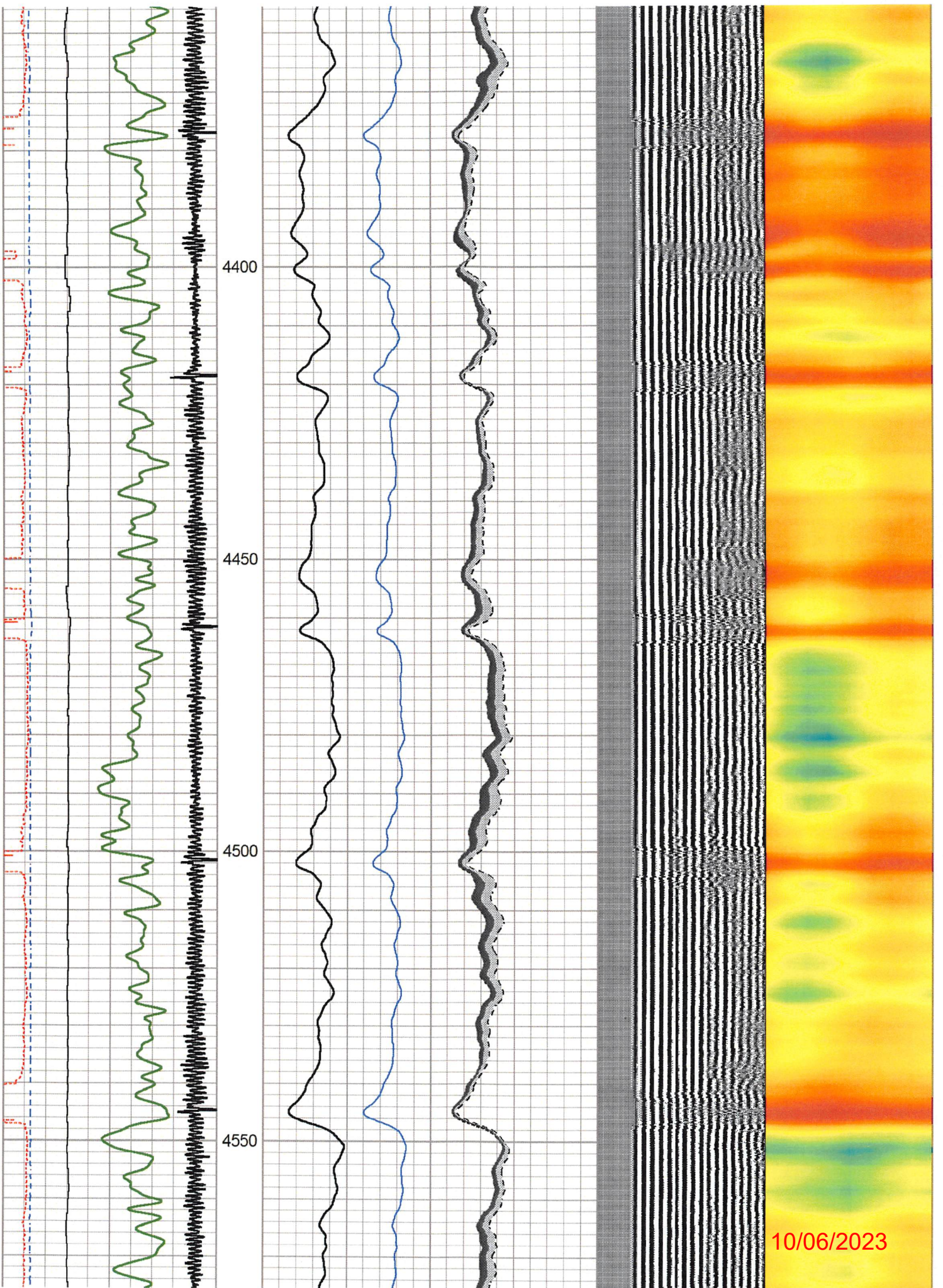
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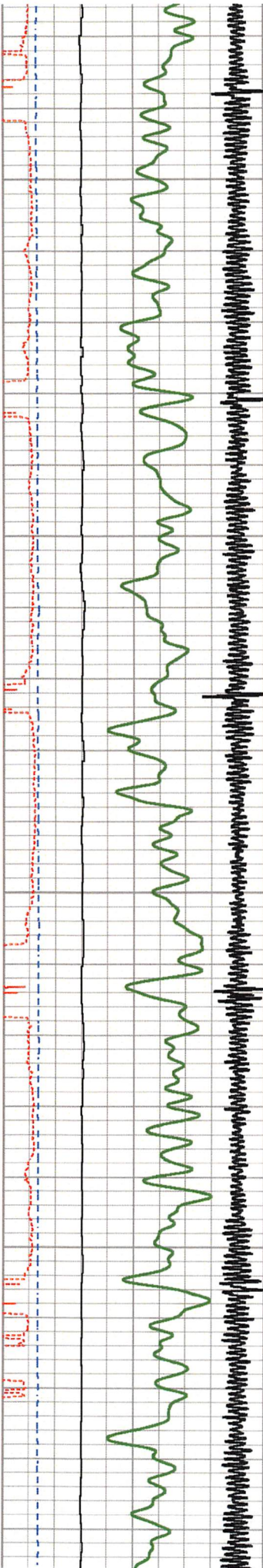
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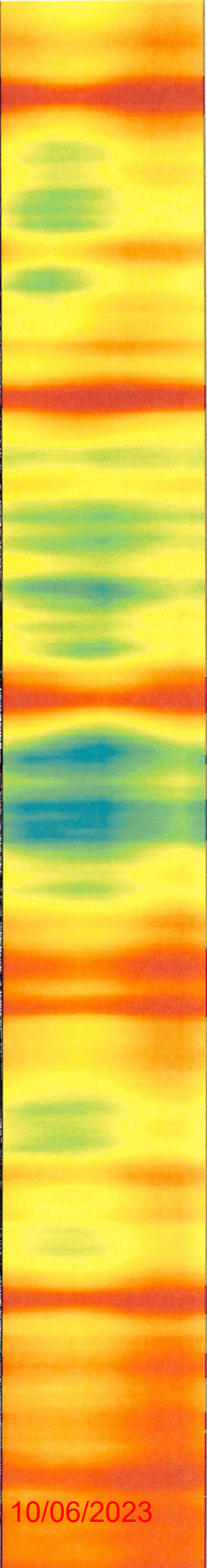
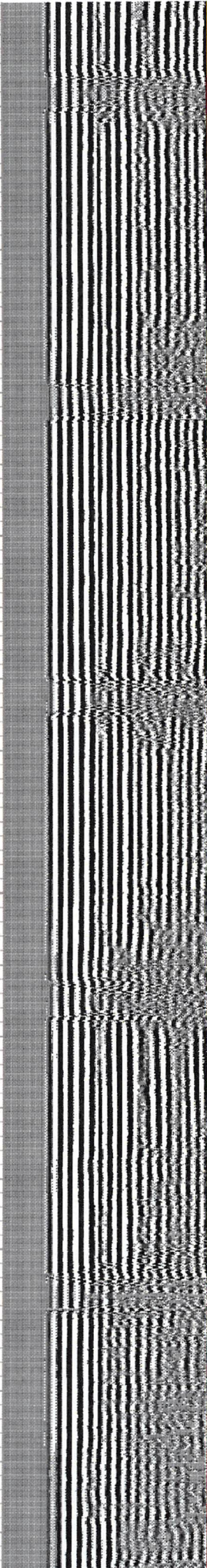
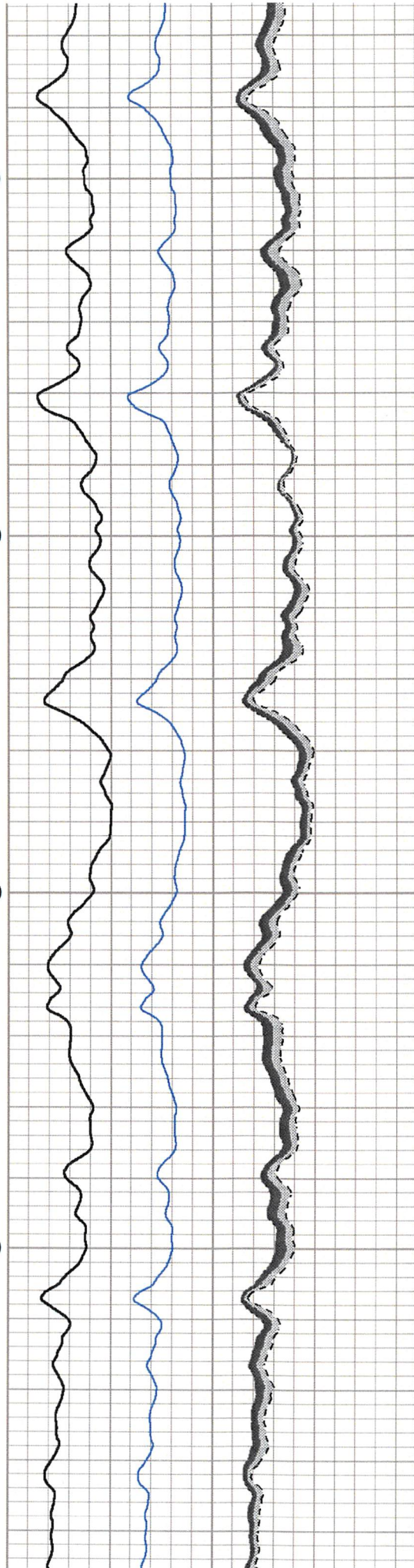


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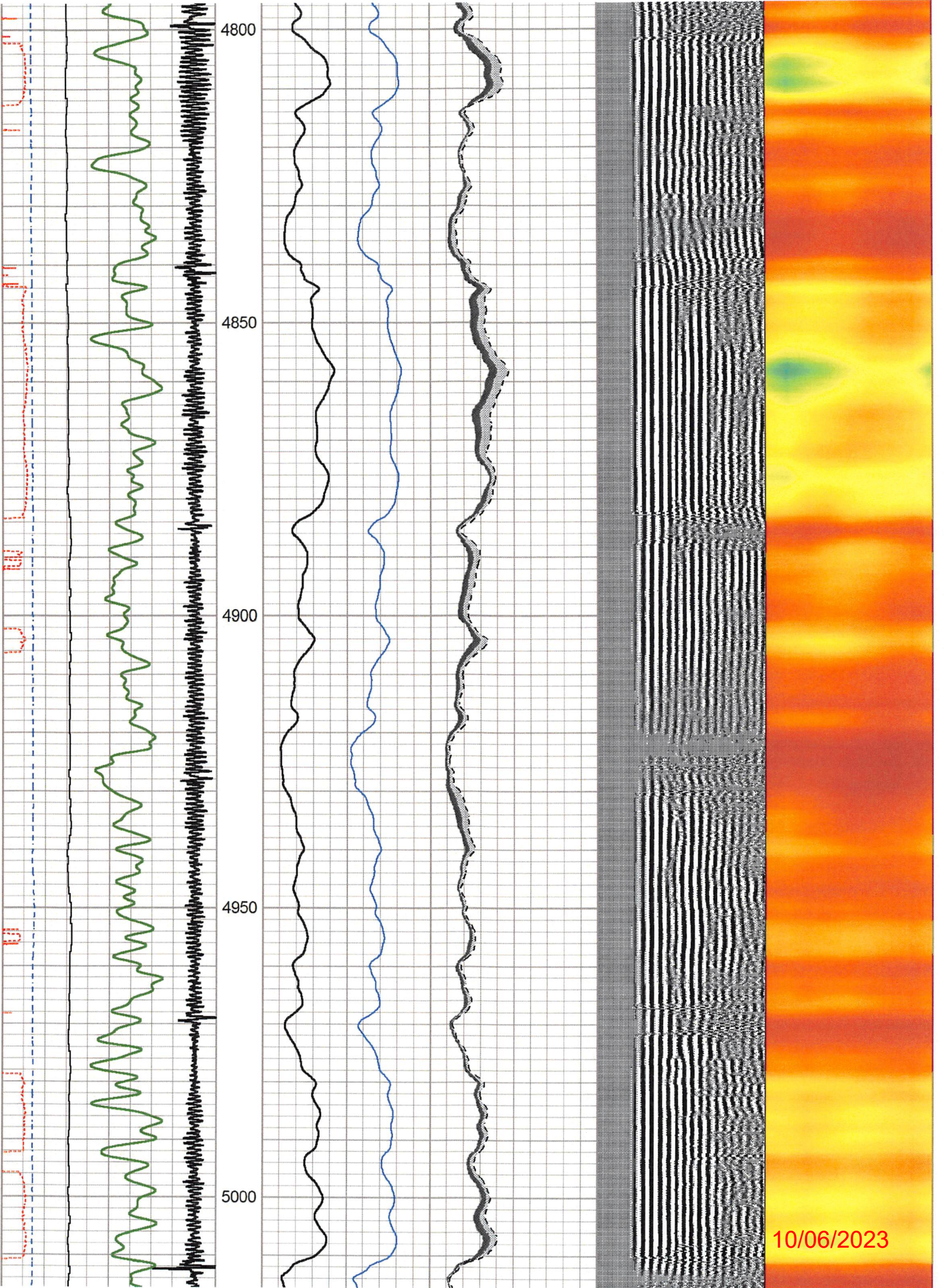
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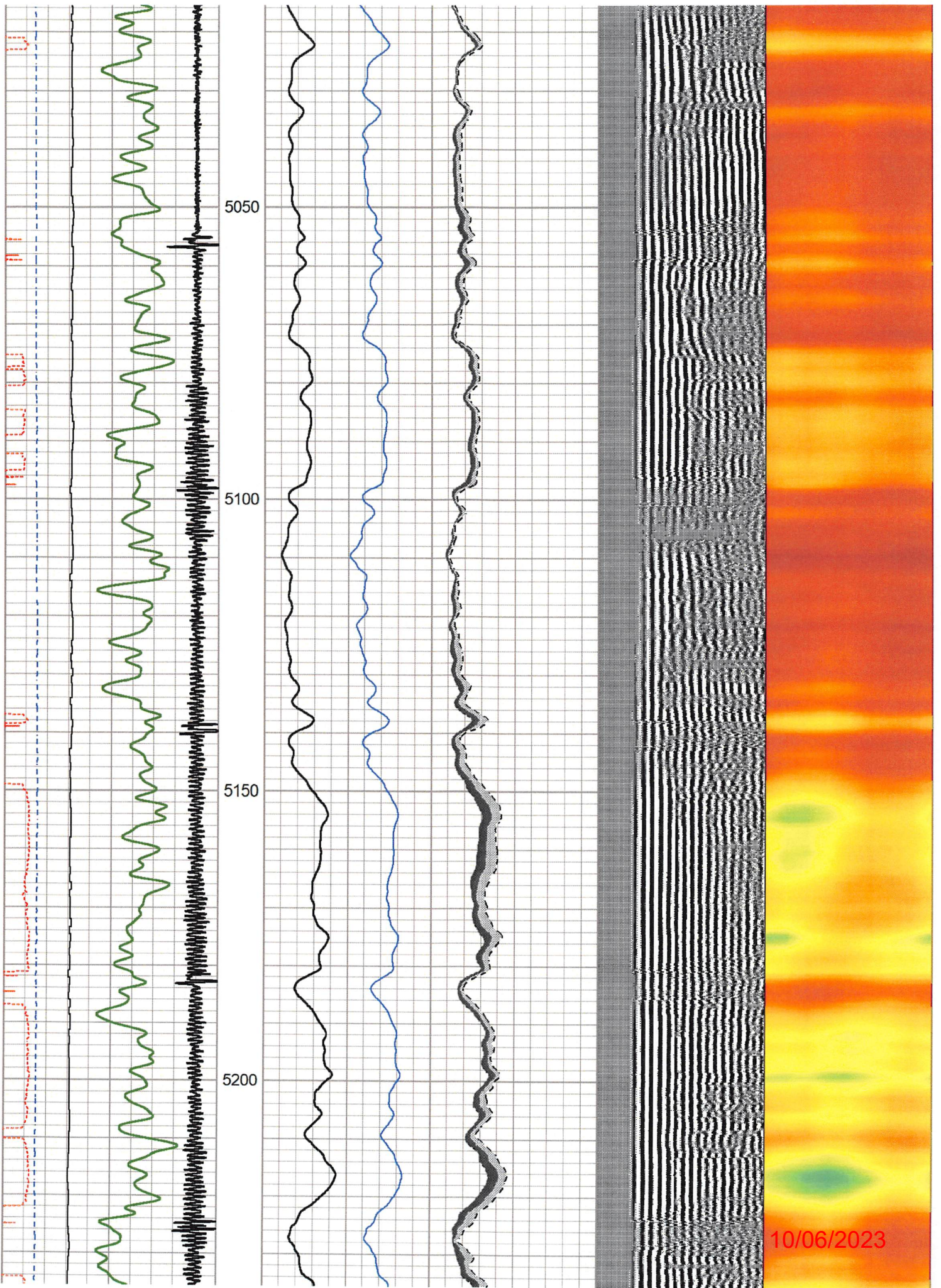
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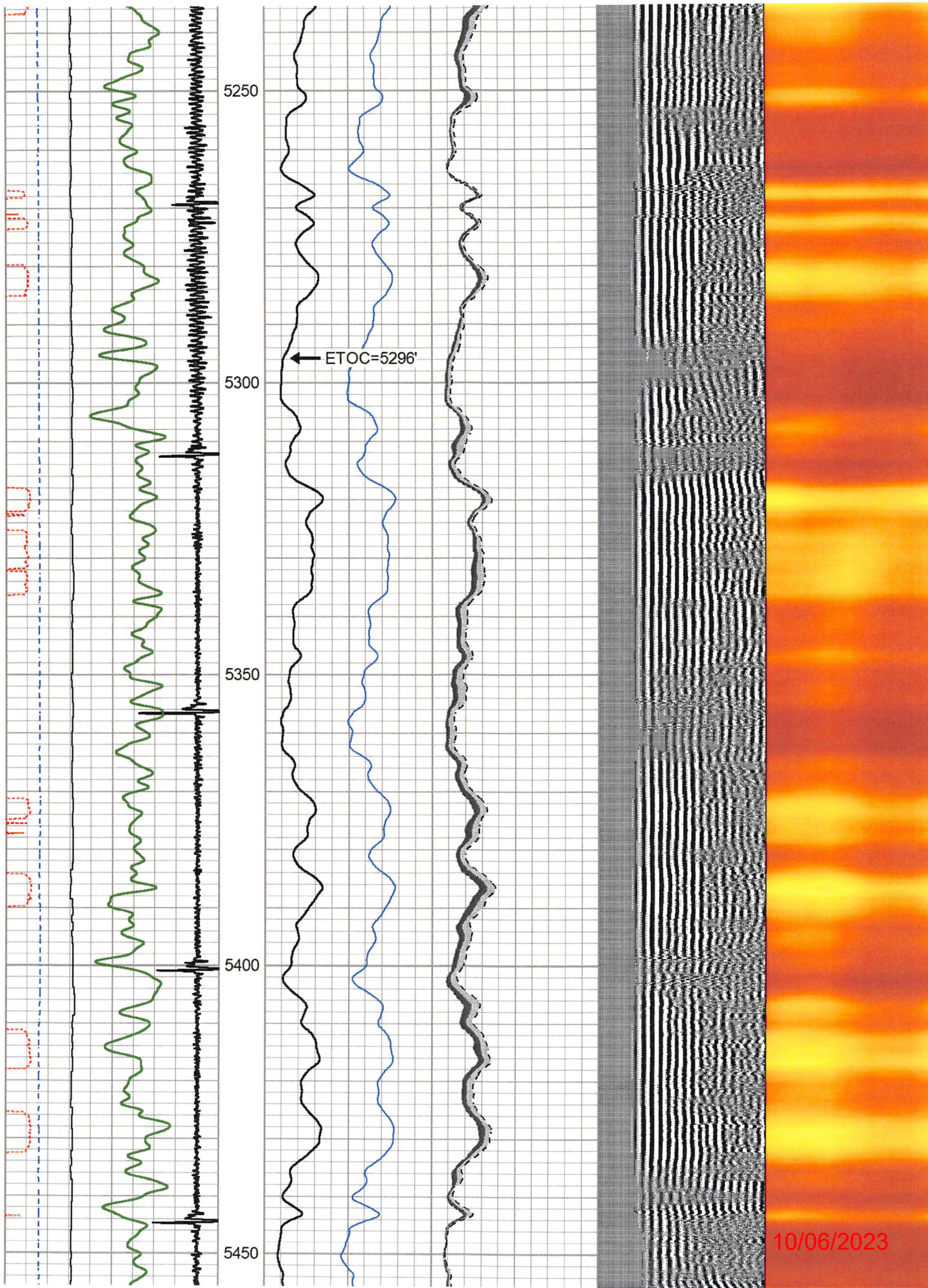
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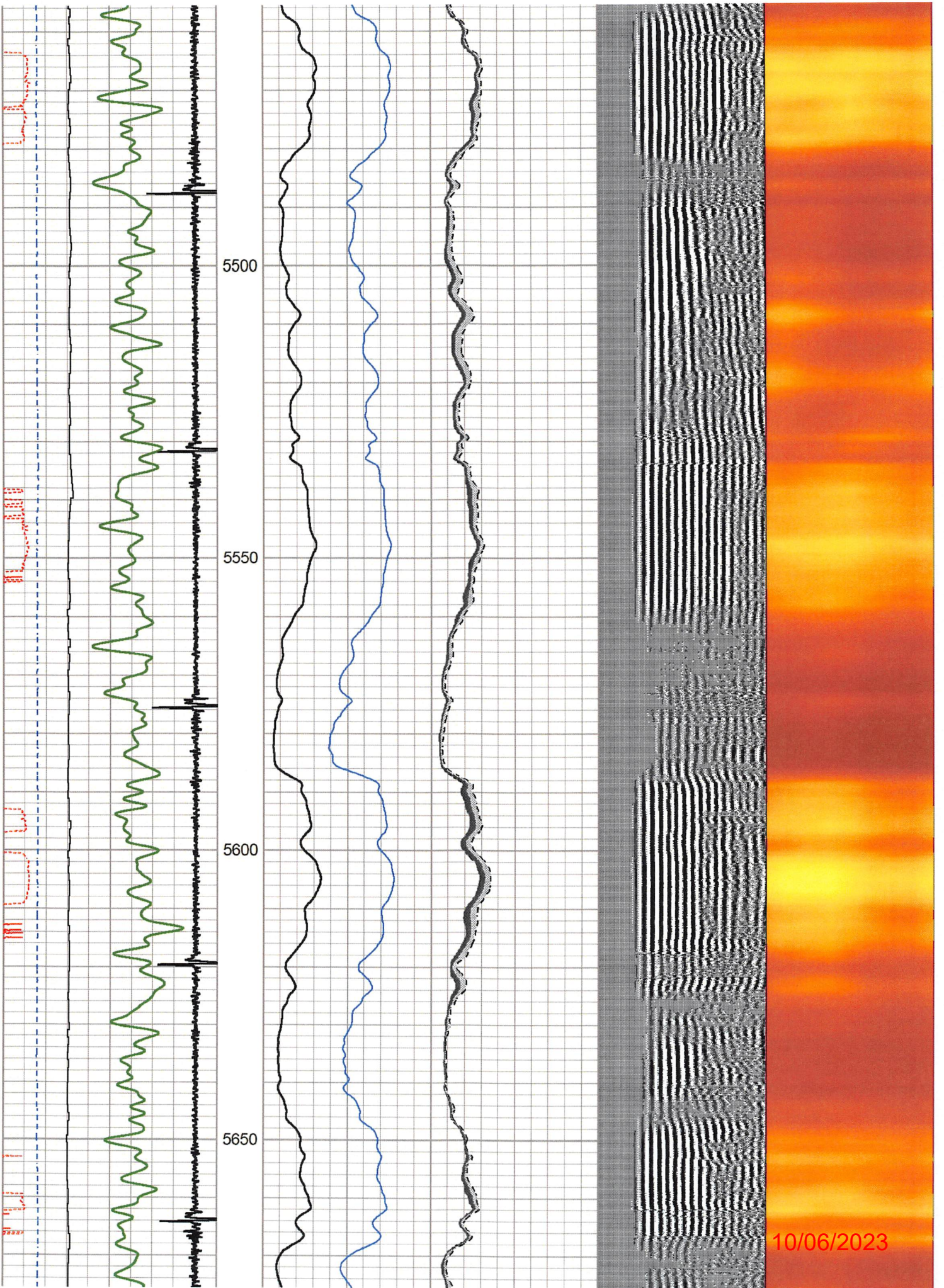
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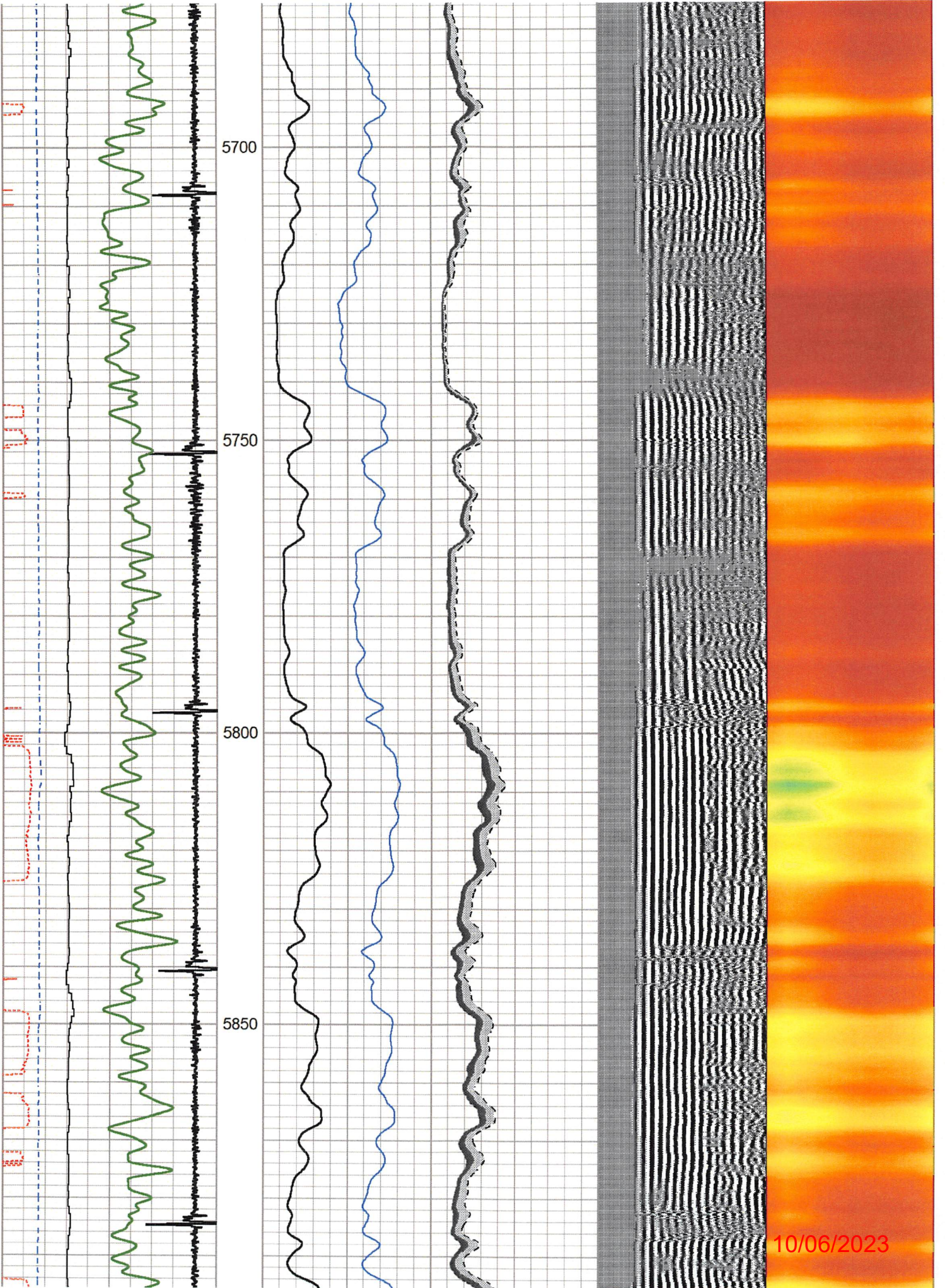
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10/06/2023

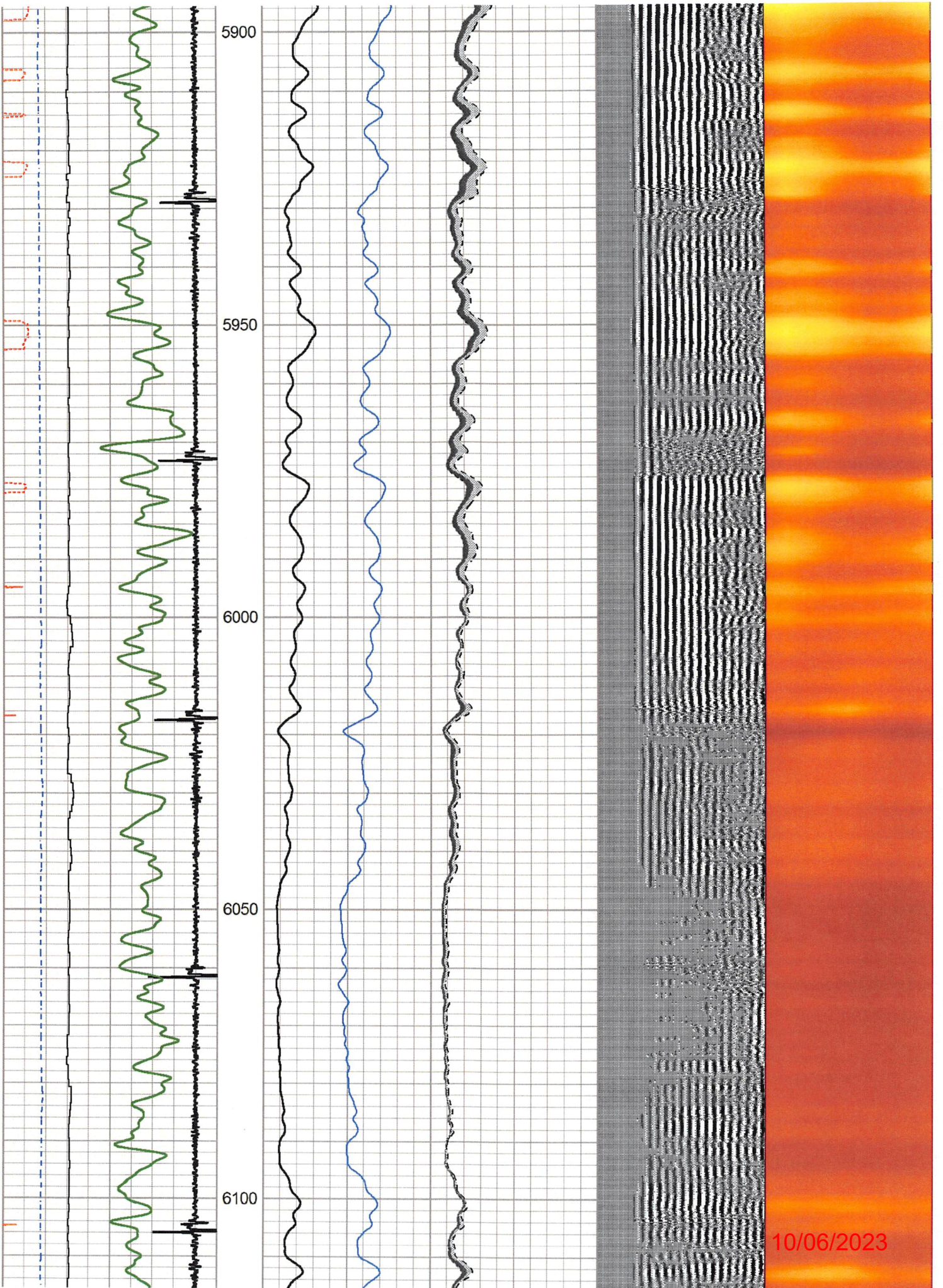


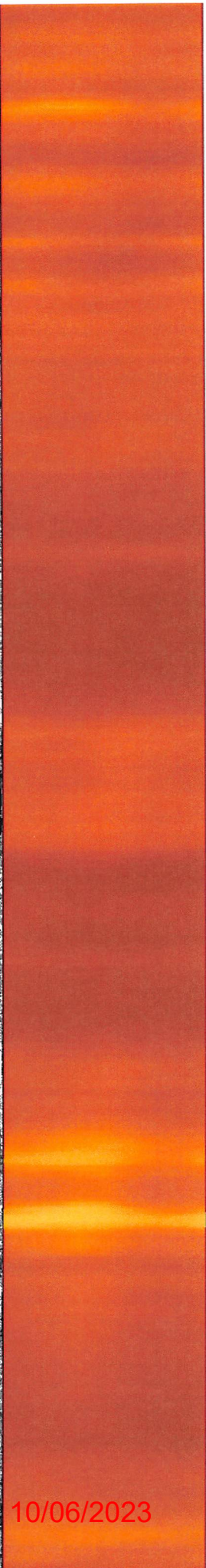
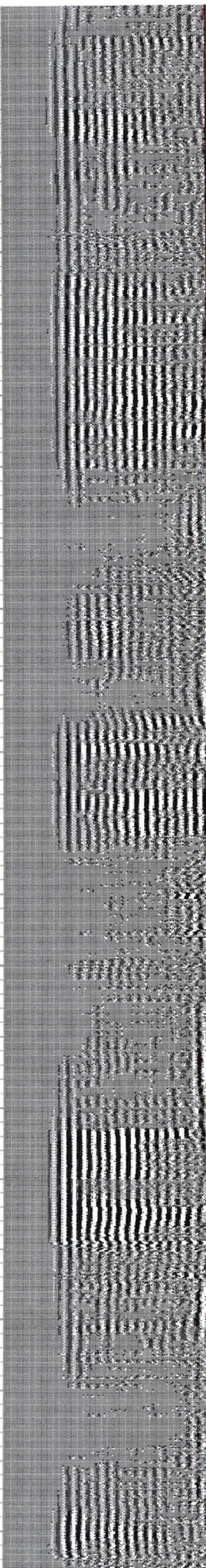
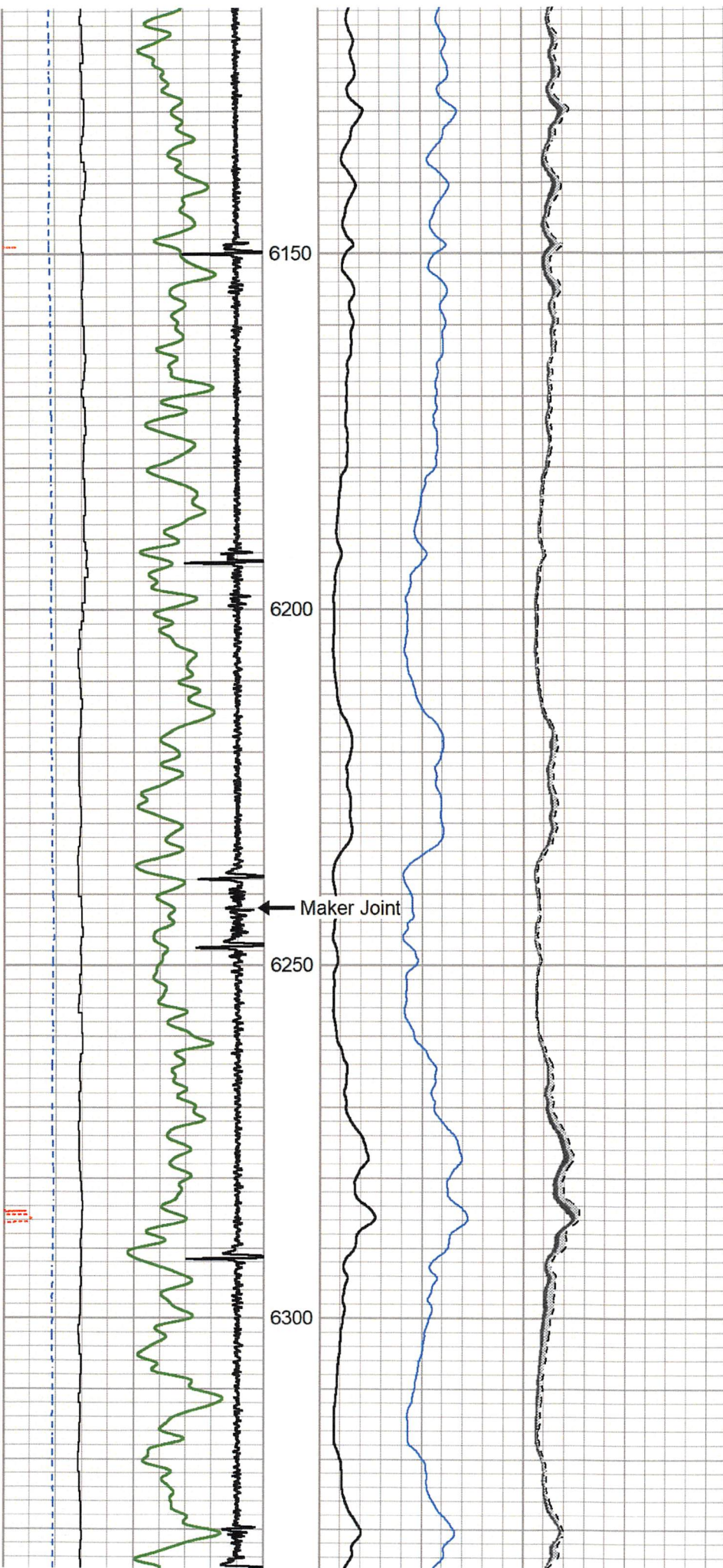


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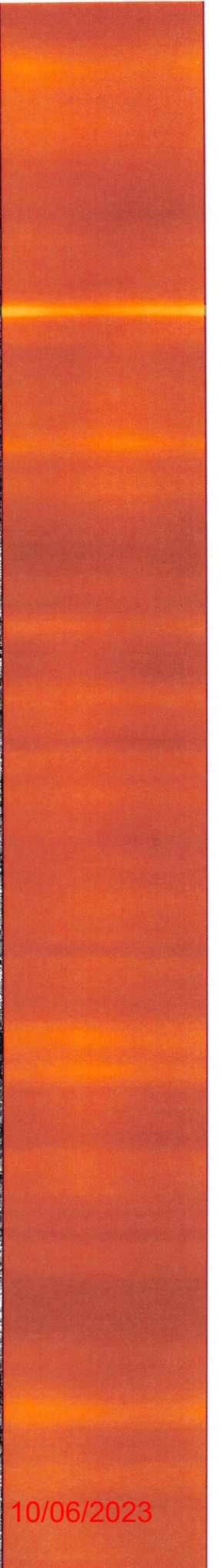
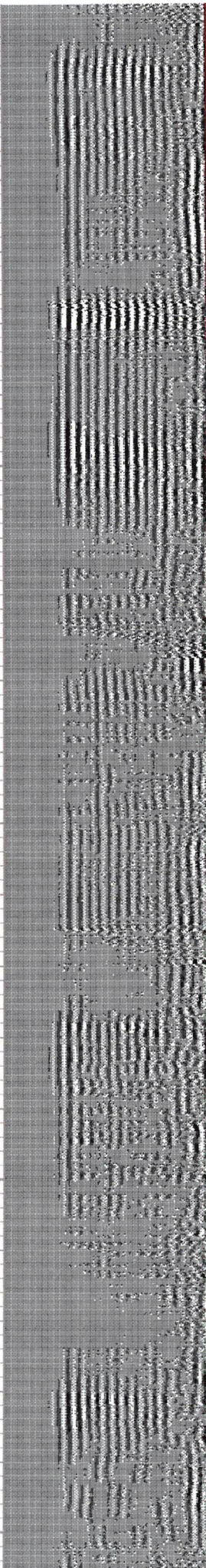
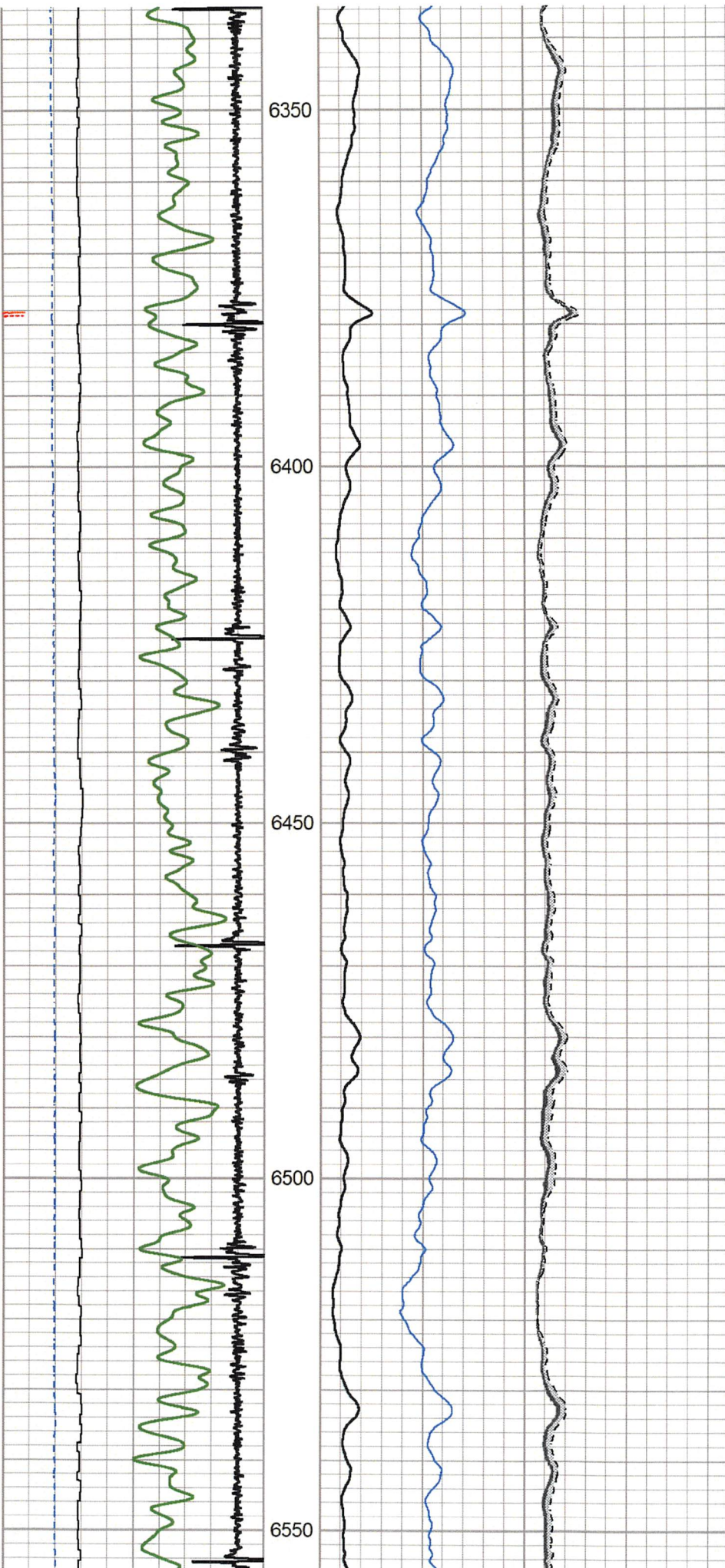


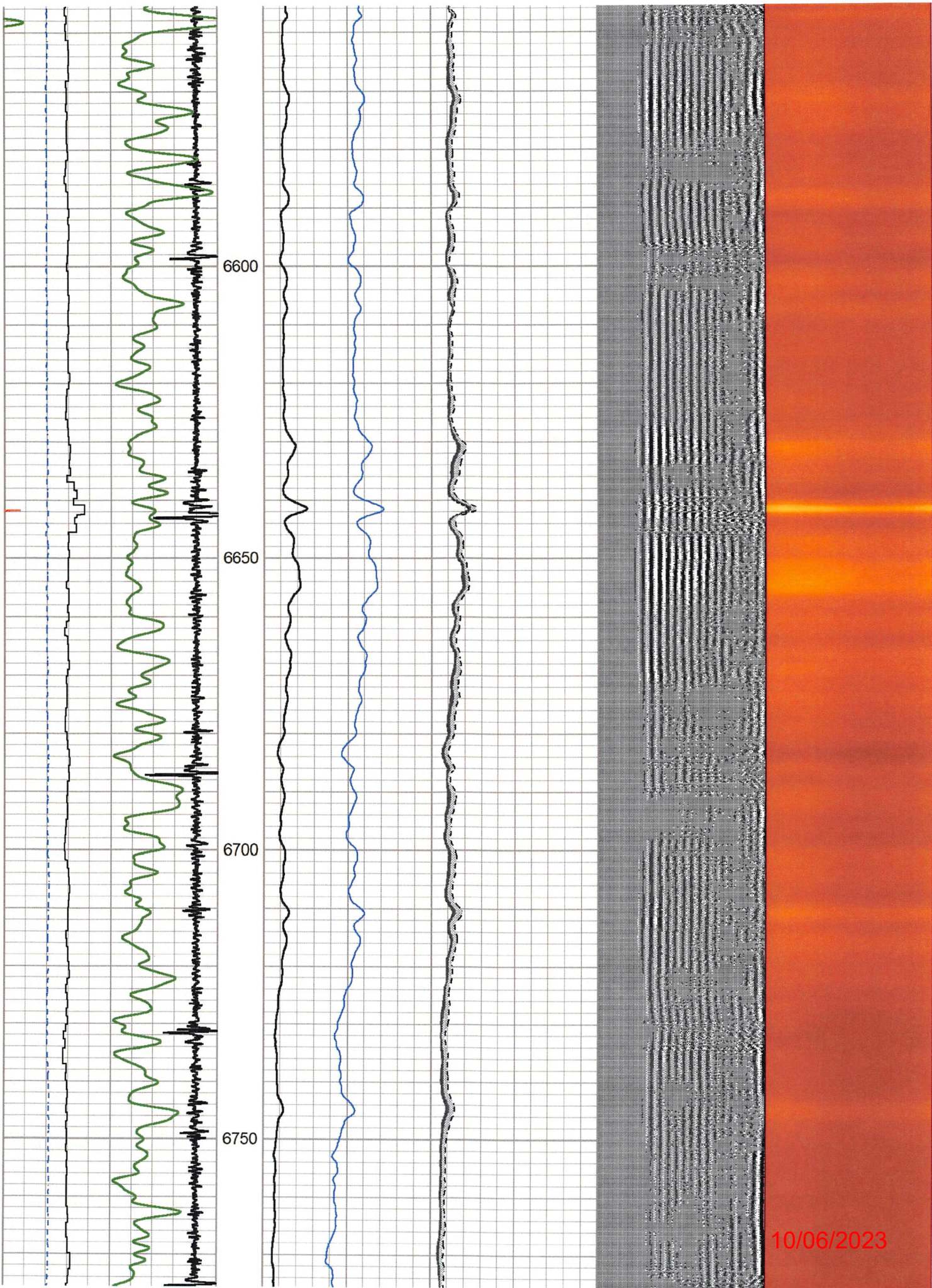
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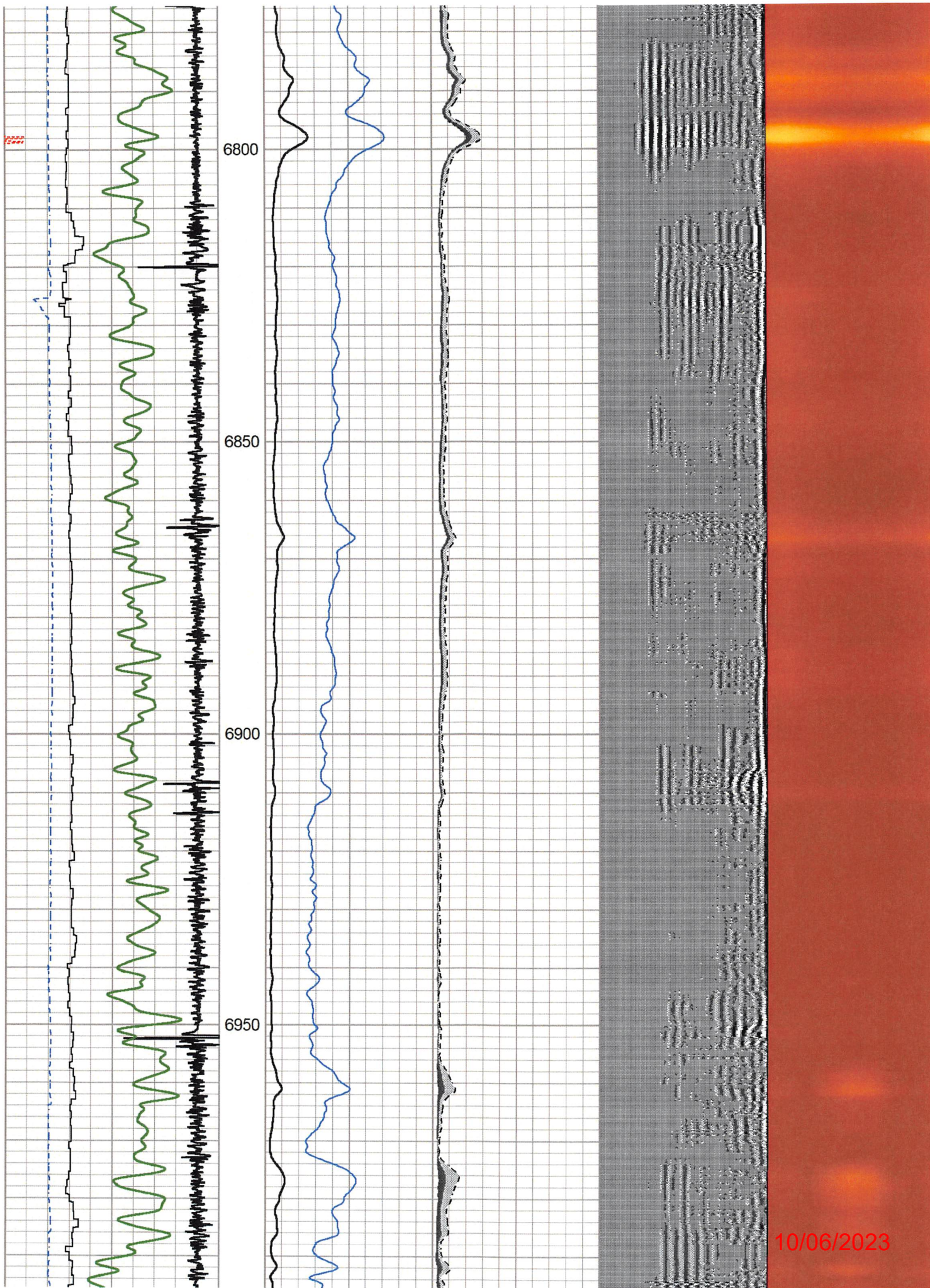


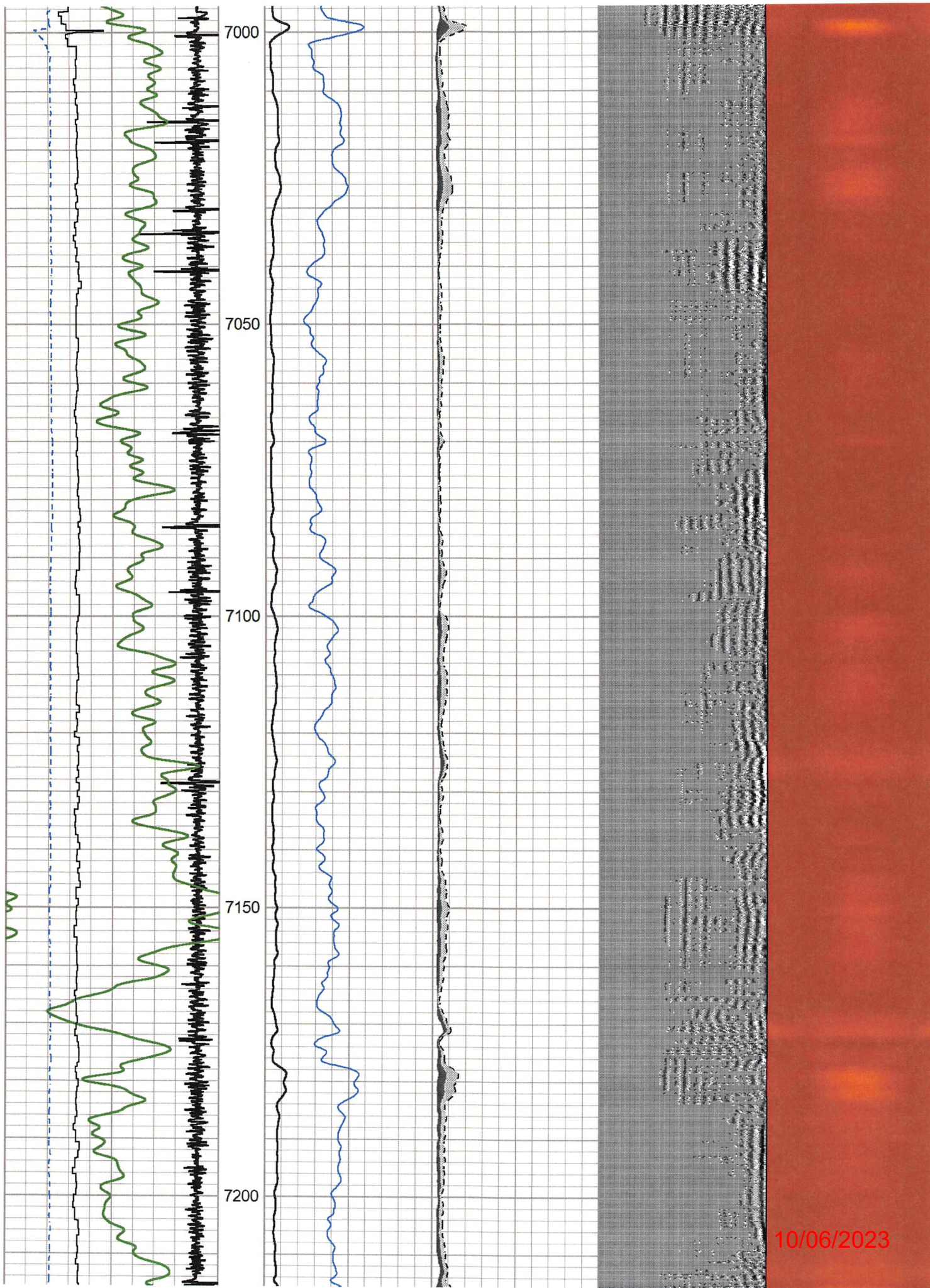
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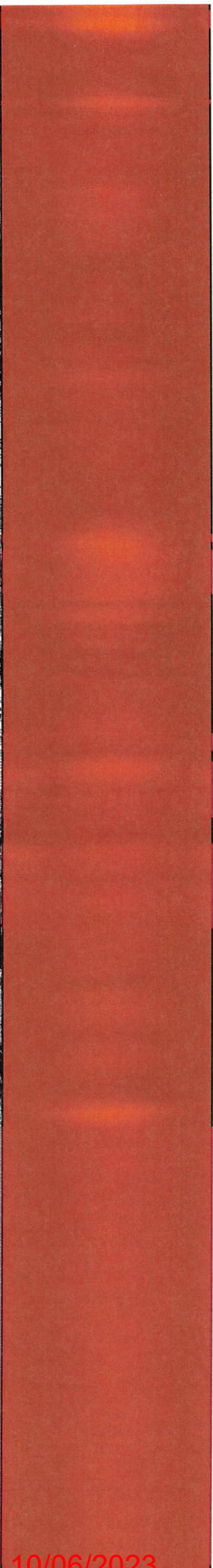
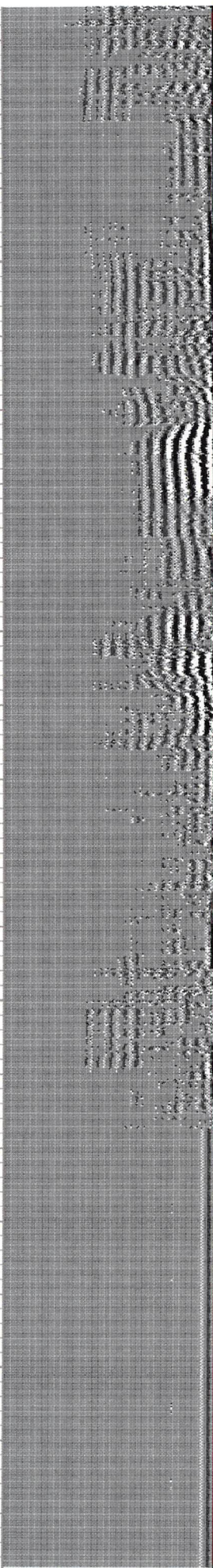
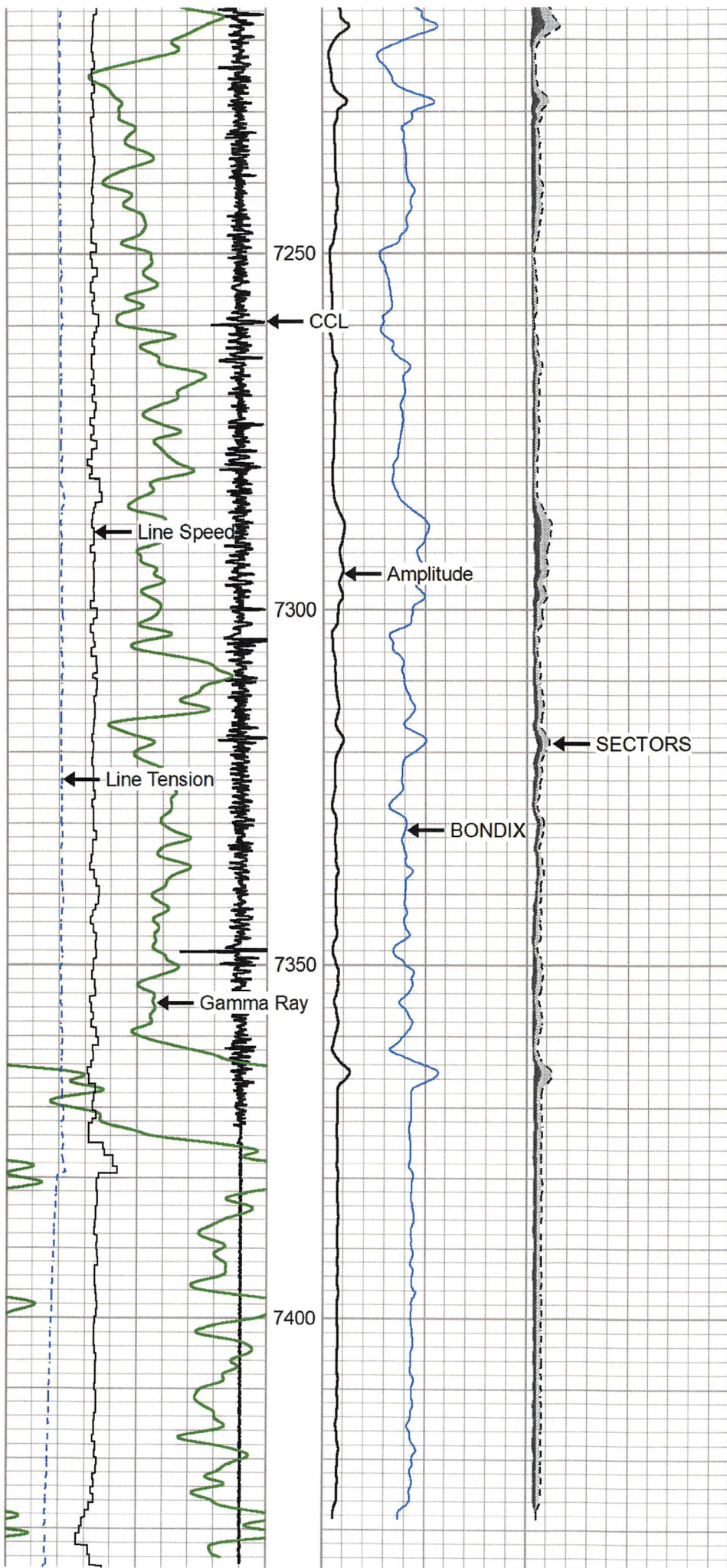





10/06/2023







275	Travel Time (usec)	175	0	Amplitude (mV)	100	-5	AMPMIN	150	Variable Density	1	Cement Map	8
9	CCL\$1	-1	1	BONDIX	0	-5	AMPMAX	150	200 (usec)	1200		
0	Gamma Ray (GAPI)	150				-5	AMPAVG	150				
Line Speed												
-200	(ft/min)	200										
0	Line Tension (lb)	5000										

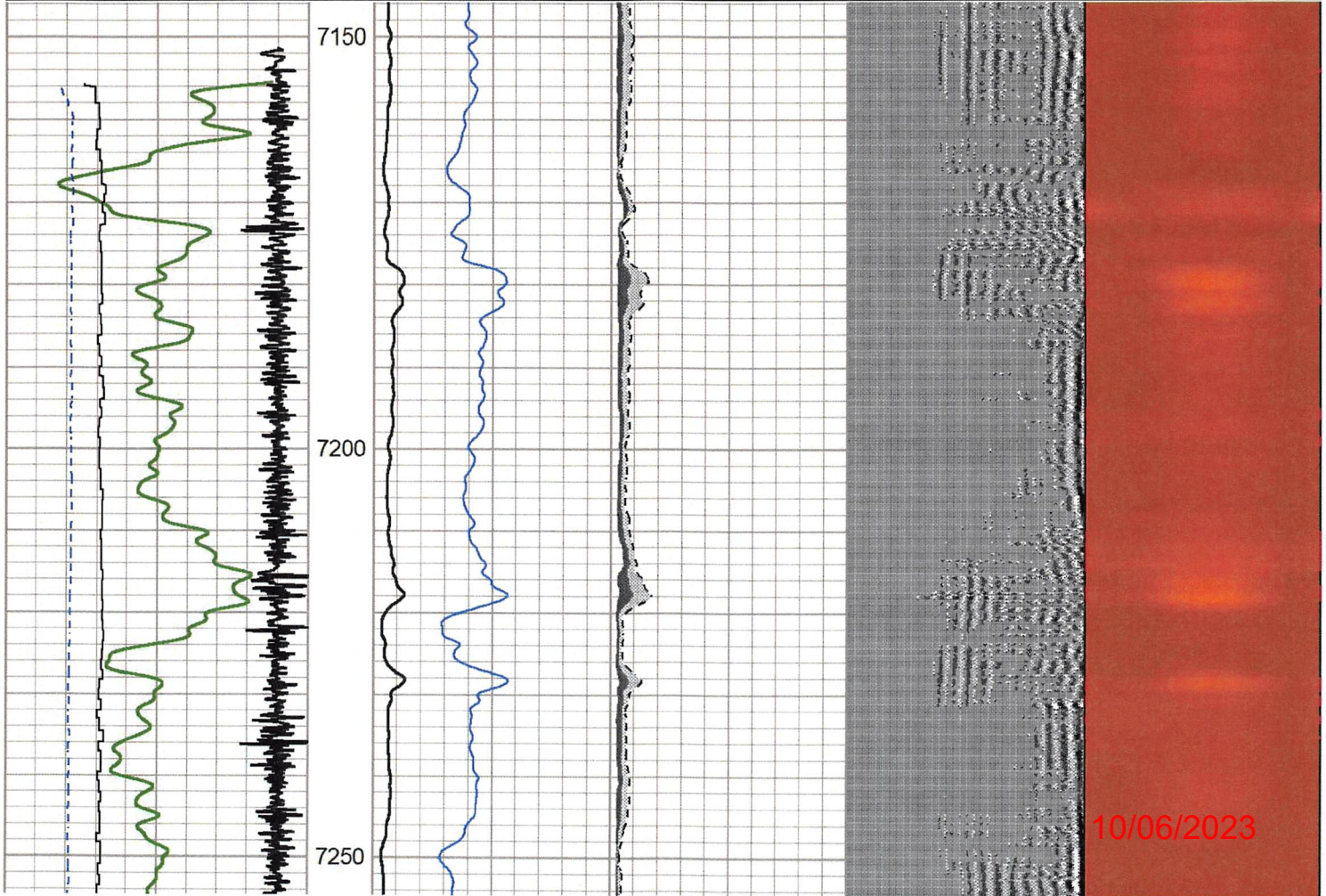


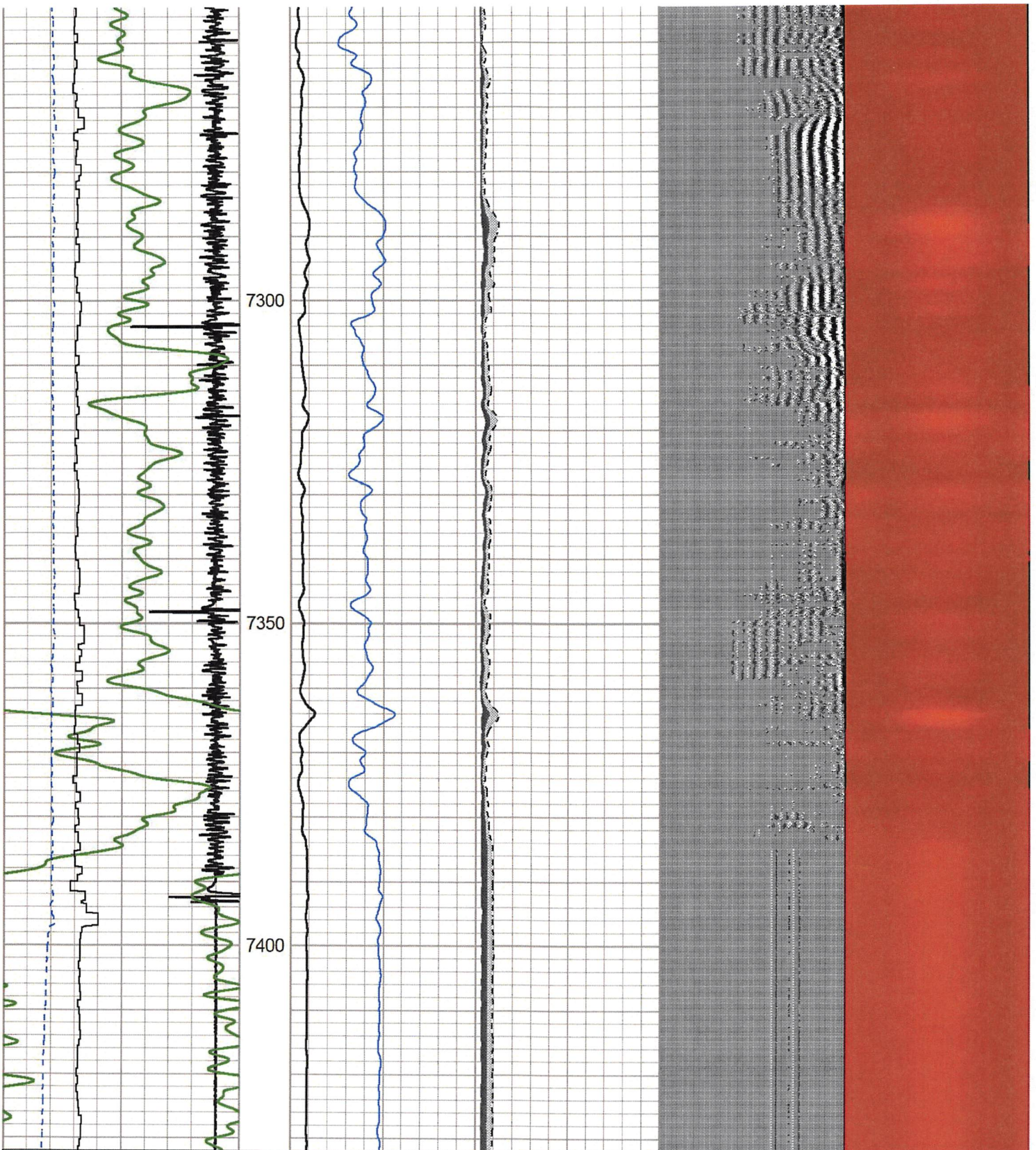
REPEAT LOG

1500 PSI APPLIED

Database File: d:\antero_furbee_reader1h_rcbl_25-nov-2022.db
 Dataset Pathname: REPEAT/pass_6
 Presentation Format: prb_rbt8
 Dataset Creation: Sat Nov 26 09:38:49 2022
 Charted by: Depth in Feet scaled 1:240

275	Travel Time (usec)	175	0	Amplitude (mV)	100	-5	AMPMIN	150	Variable Density	1	Cement Map	8
9	CCL\$1	-1	1	BONDIX	0	-5	AMPMAX	150	200 (usec)	1200		
0	Gamma Ray (GAPI)	150				-5	AMPAVG	150				
Line Speed												
-200	(ft/min)	200										
0	Line Tension (lb)	5000										





275	Travel Time (usec)	175
9	CCL\$1	-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

Variable Density	1	Cement Map	8
(usec)	200		1200

10/06/2023

Calibration Report

Gamma Ray Calibration Report

Serial Number: GC275-0BP0_base
 Tool Model: GC275-0BP0
 Performed: (Not Performed)

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 1.0000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: RBT275C_Base
 Tool Model: RADII-275C

Calibration Casing Diameter: 5.500 in
 Calibration Depth: -818.908 ft

Master Calibration, performed Sat Nov 26 07:21:29 2022:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.009	0.315	3.400	71.921	211.151	5.372
CAL	-0.009	1.829				
5'	-0.009	0.327	3.400	71.921	203.888	5.304
SUM						
S1	-0.010	0.341	0.000	100.000	285.525	2.729
S2	-0.009	0.343	0.000	100.000	283.392	2.660
S3	-0.009	0.336	0.000	100.000	289.952	2.676
S4	-0.010	0.337	0.000	100.000	288.086	2.792
S5	-0.009	0.327	0.000	100.000	297.318	2.780
S6	-0.009	0.319	0.000	100.000	304.626	2.845
S7	-0.010	0.318	0.000	100.000	305.034	2.960
S8	-0.009	0.324	0.000	100.000	299.843	2.796

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.009	1.829	1.000	0.000

Air Zero Calibration, performed Fri Nov 25 09:53:20 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	

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S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000

Inclinometer Calibration Report

Performed: Mon Jan 24 10:23:58 2022

	Low Read.	High Read.	Low Ref.	High Ref.	
X Accelerometer	-918.00	908.00	-1.00	1.00	gee
Y Accelerometer	-941.00	887.00	-1.00	1.00	gee
Z Accelerometer	1.35	894.18	0.00	1.00	gee



Company Antero Resources

Well Reader 1H

Field Wetzel

County Wetzel

State WV

Country