



**Radial Cement Bond
Variable Density Log
W/ Temp/GammaRay/CCL**

Company Antero Resources
Well Possum 2H
Field Rabbit Ears
County Tyler
State West Virginia

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Well Possum 2H
Field Rabbit Ears
County Tyler State West Virginia

Location: API #: 47095026420000

Other Services
N/A

SEC N/A TWP N/A RGE N/A
Permanent Datum Ground Level Elevation
Log Measured From Kelly Bushing 25' A.P.D.
Drilling Measured From Kelly Bushing

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

Date	2-May-2020	
Run Number	One	
Depth Driller	22,845 ft.	
Depth Logger	7,144 ft.	
Bottom Logged Interval	7,144 ft. Surface	
Top Log Interval	Surface	
Open Hole Size	n/a	
Type Fluid	Freshwater	
Density / Viscosity	n/a	
Max. Recorded Temp.	158 deg F	
Estimated Cement Top	5,915 ft.	
Time Well Ready	07:00	
Time Logger on Bottom	07:30	
Equipment Number	132	
Location	Marietta, Ohio	
Recorded By	Tom Weese	
Witnessed By	Chris Young	
Borehole Record		
Run Number	Bit	From To
Tubing Record		
	Size	Weight From To
Casing Record	Size	Wgt/Ft Top Bottom
Surface String	13 3/8 in.	54.5# Surface 510 ft.
Prod. String	9 5/8 in.	36# Surface 2,707 ft.
Production String	5 1/2	23# Surface 22,845 ft.
Liner		
Marker Joint		6,231 ft. 6,241 ft.

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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

Log Correlated to Marker Joint at (6,231' - 6,241')
Depth Correction (-10)

Main Pass 0 PSI
Repeat Pass 0 PSI

Thank You For Using Nine Energy Wireline of Marietta, Ohio

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APR 03 2023

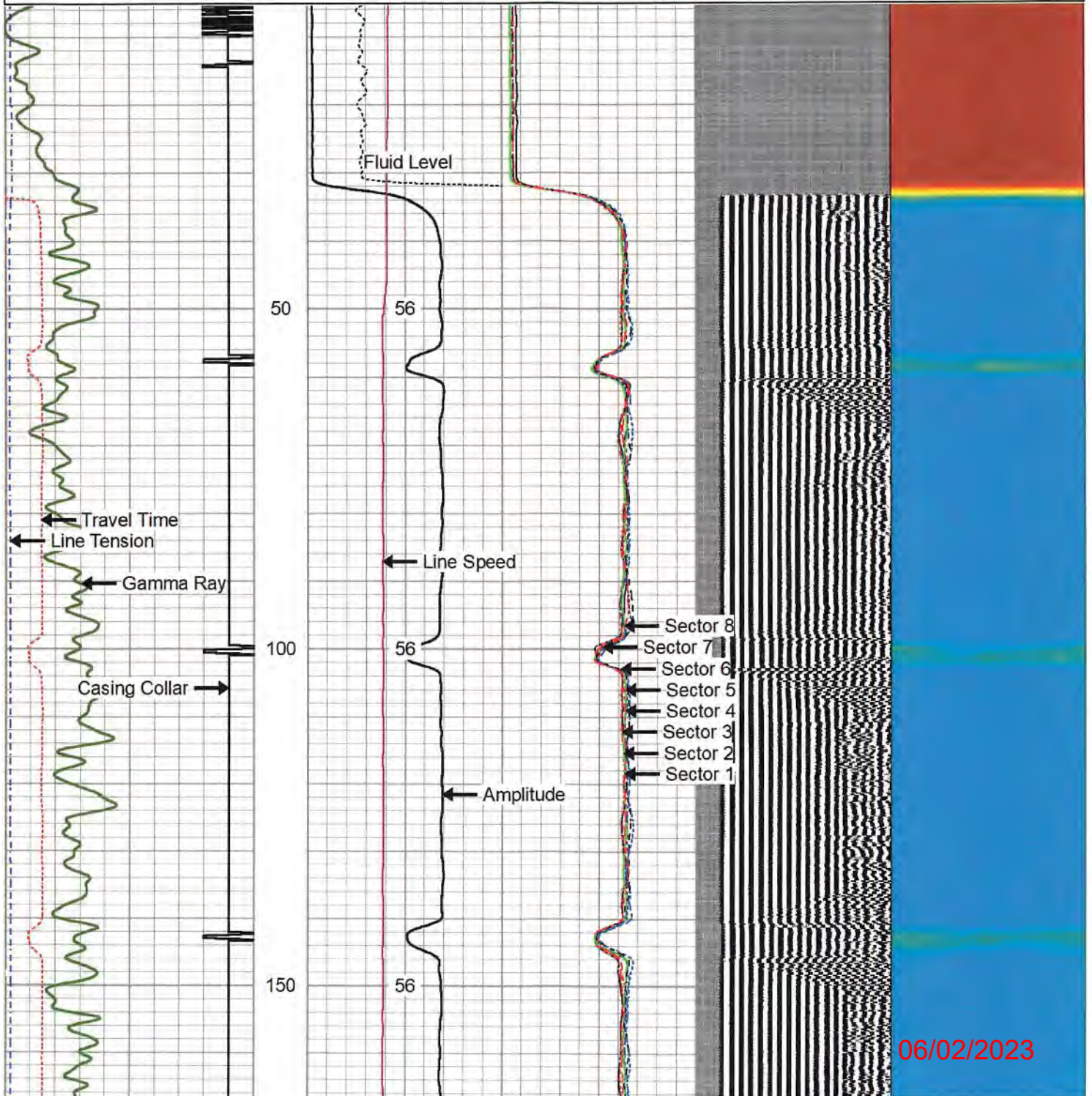
WV Department of
Environmental Protection



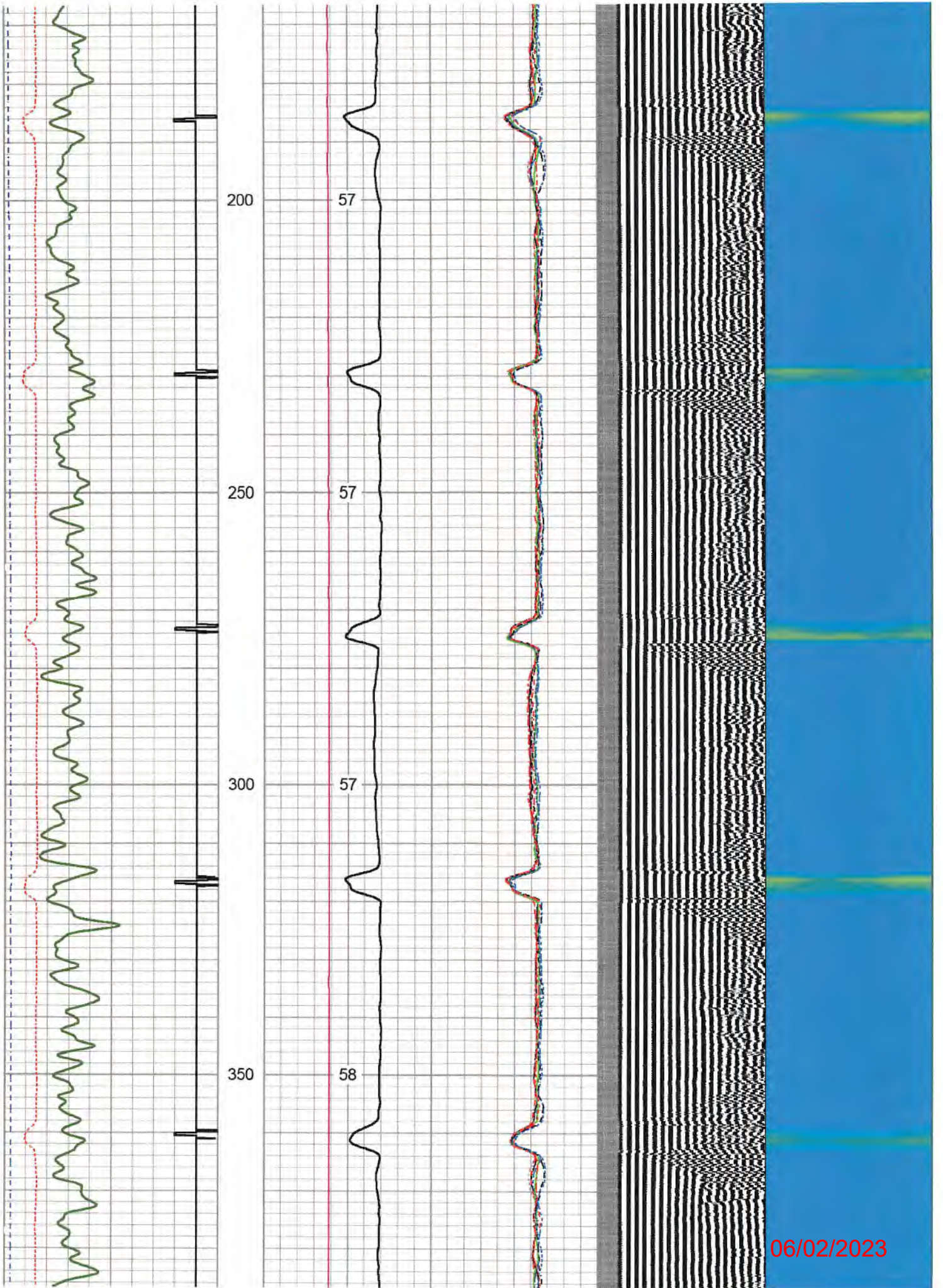
Main Pass 0 PSI

Database File antero_gamehengeeast_possum2h_rcbl_nineenergy_may_1_2020.db
 Dataset Pathname Rabbit_Ears/Possum_2H/RCBL_1/pass7.4
 Presentation Format 9rcbl
 Dataset Creation Sun May 03 06:18:06 2020
 Charted by Depth in Feet scaled 1:240

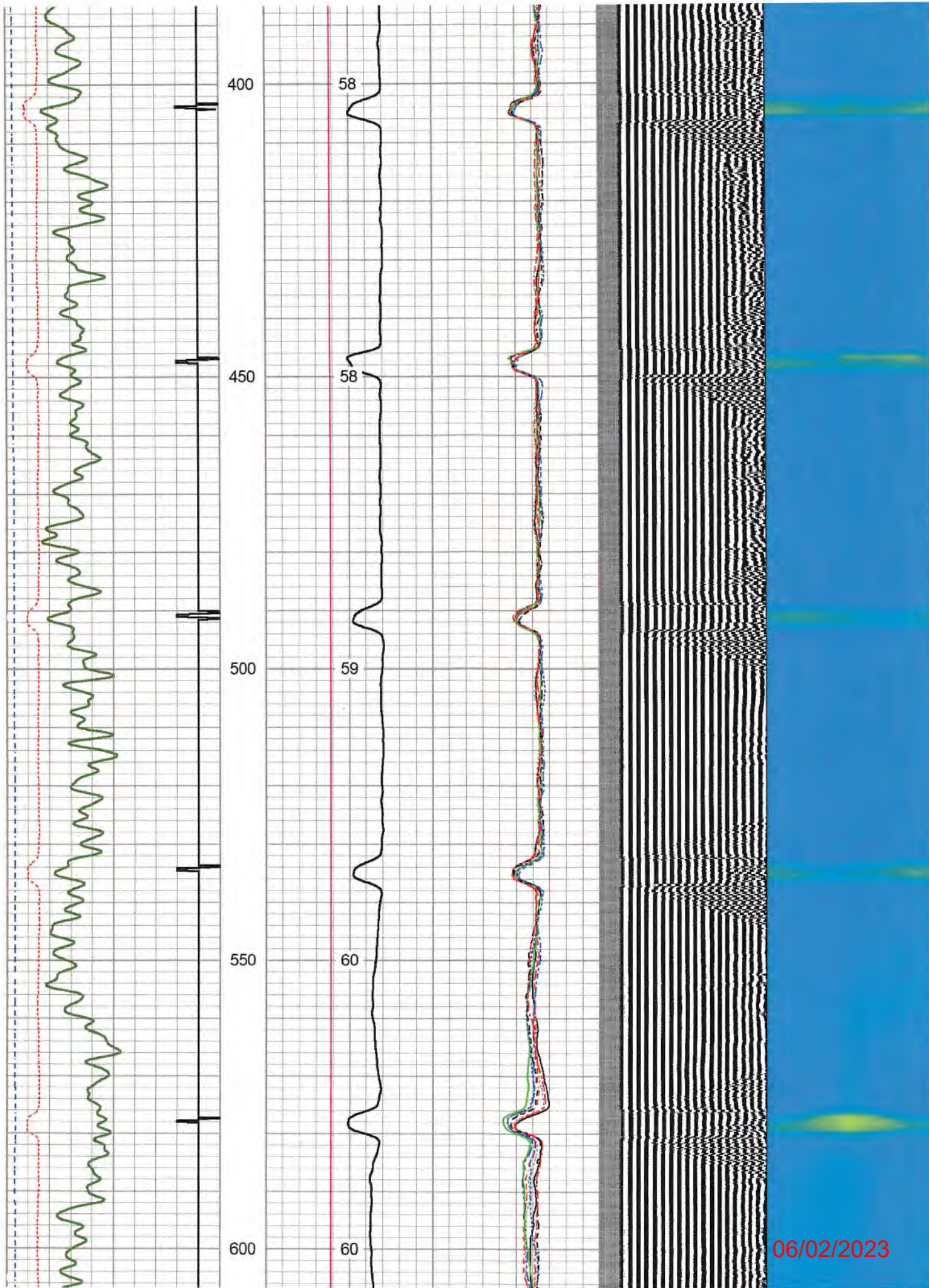
270	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	Sector 2	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	Line Tension (lb)	5000		Line Speed		-5	Sector 4	150				
			-500	(ft/min)	500	-5	Sector 5	150				
				TEMP		-5	Sector 6	150				
				(degF)		-5	Sector 7	150				
						-5	Sector 8	150				

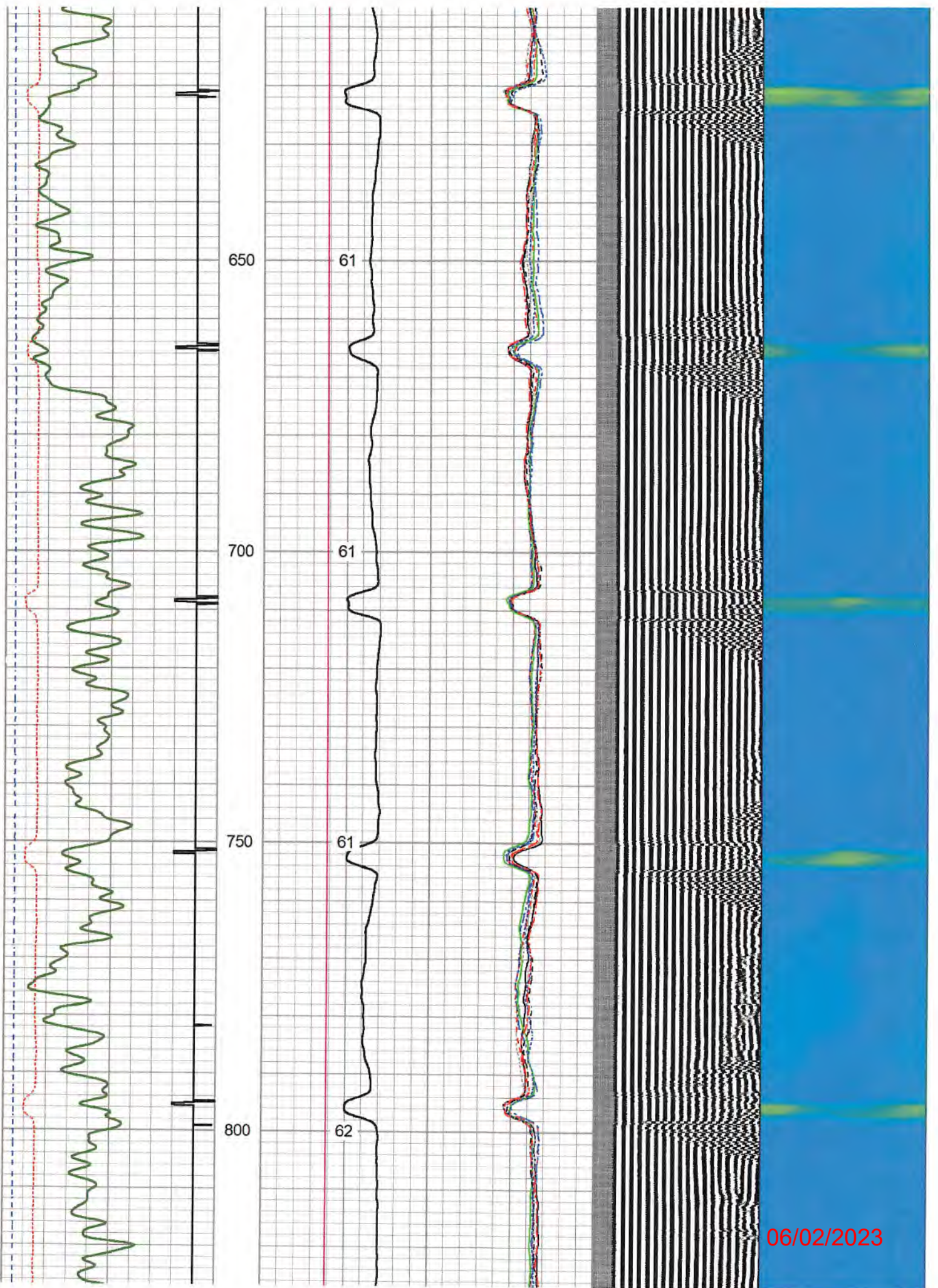


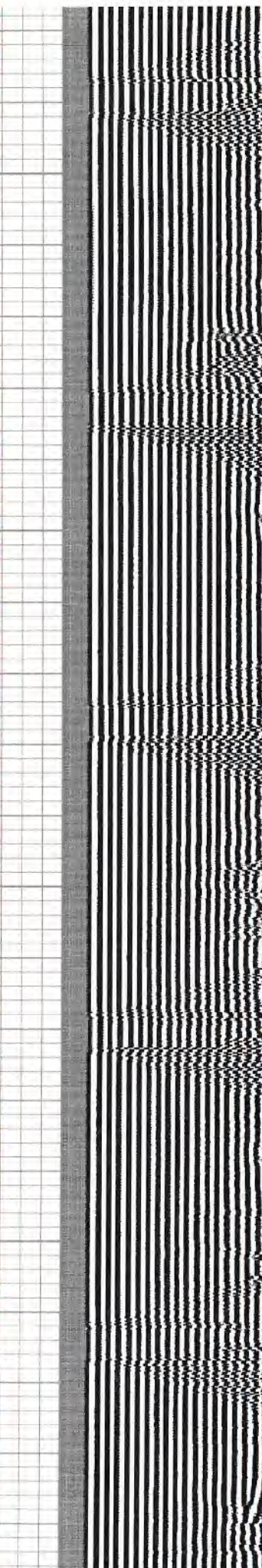
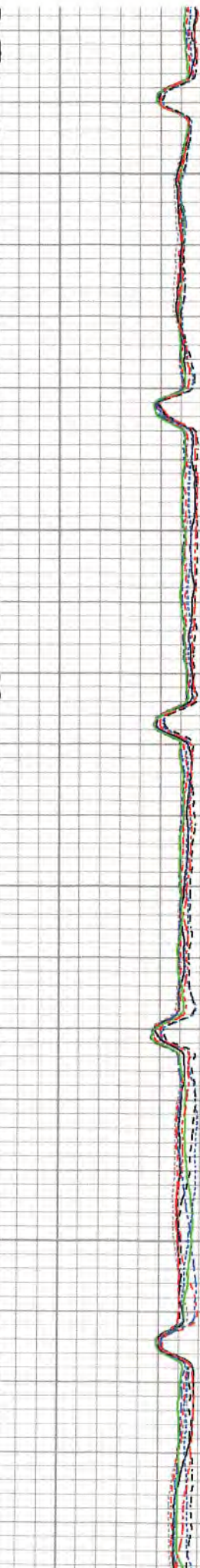
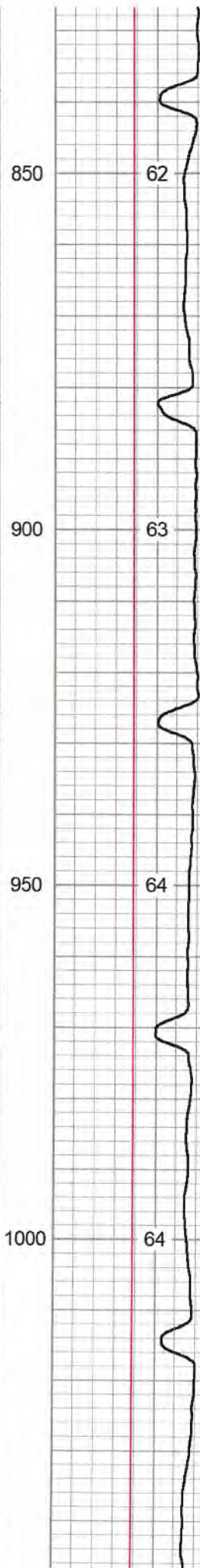
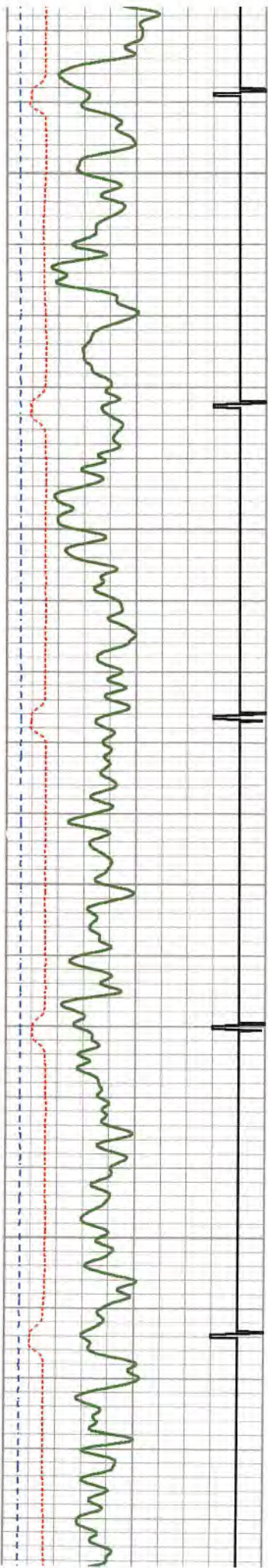
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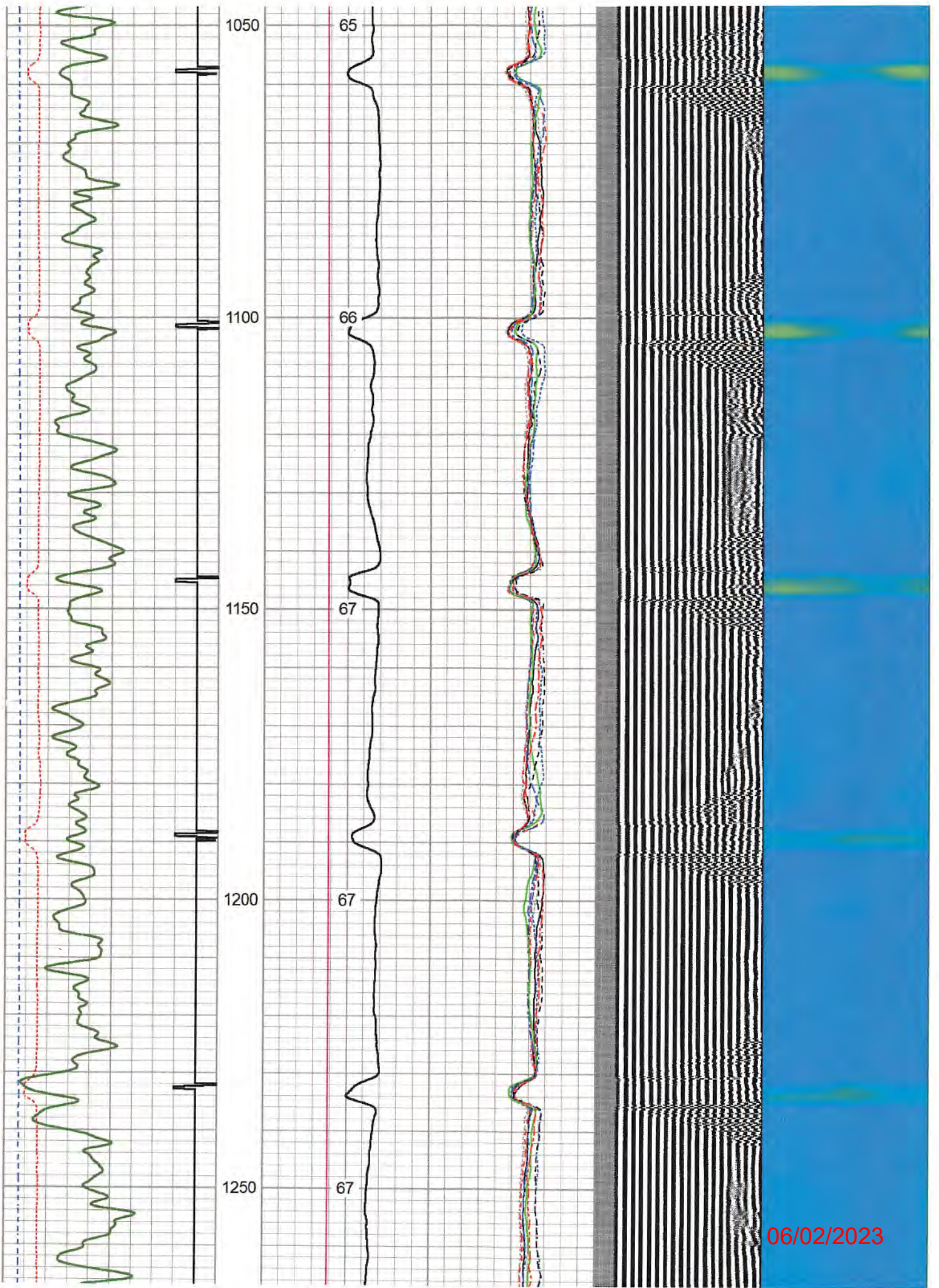
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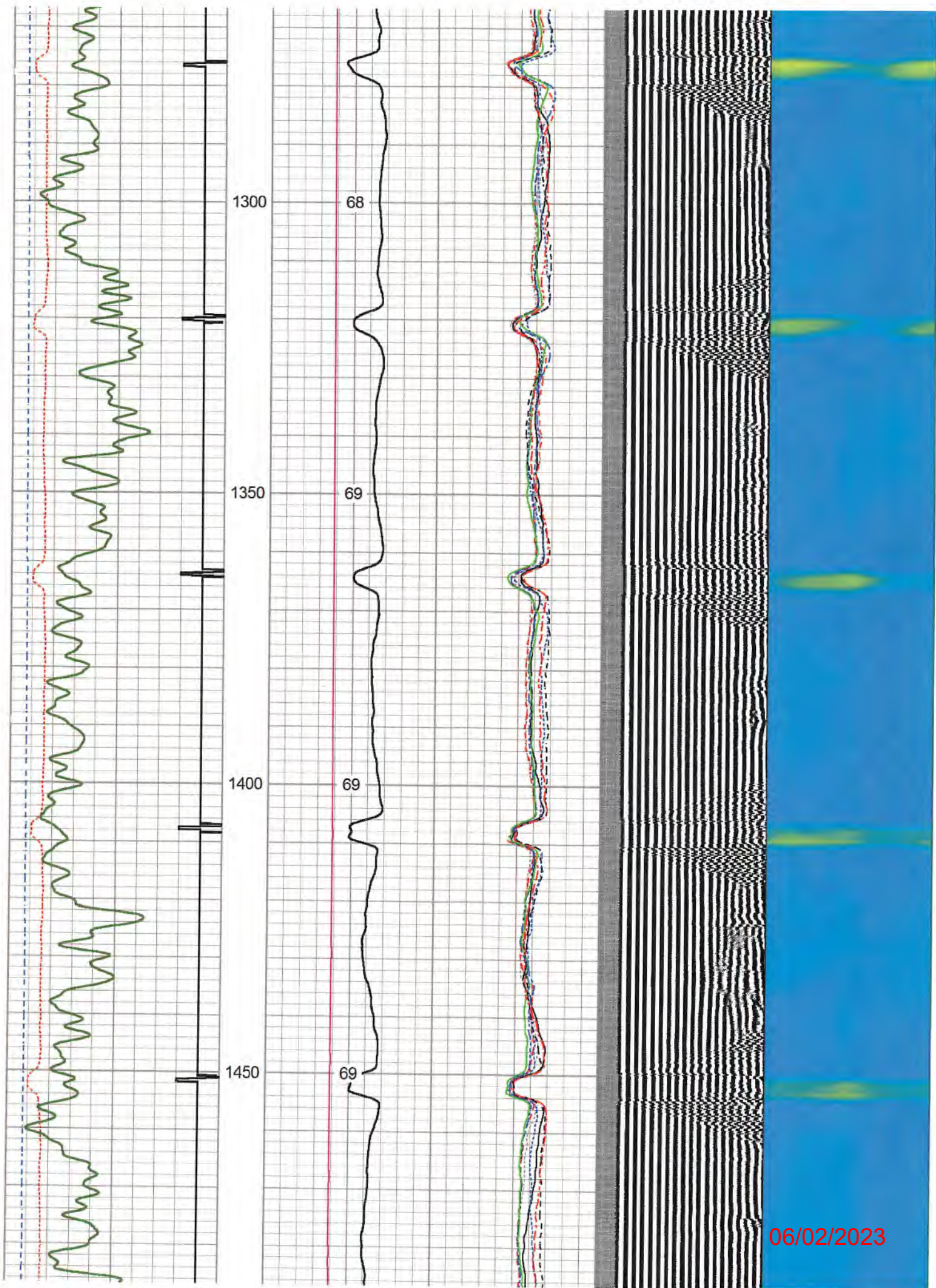


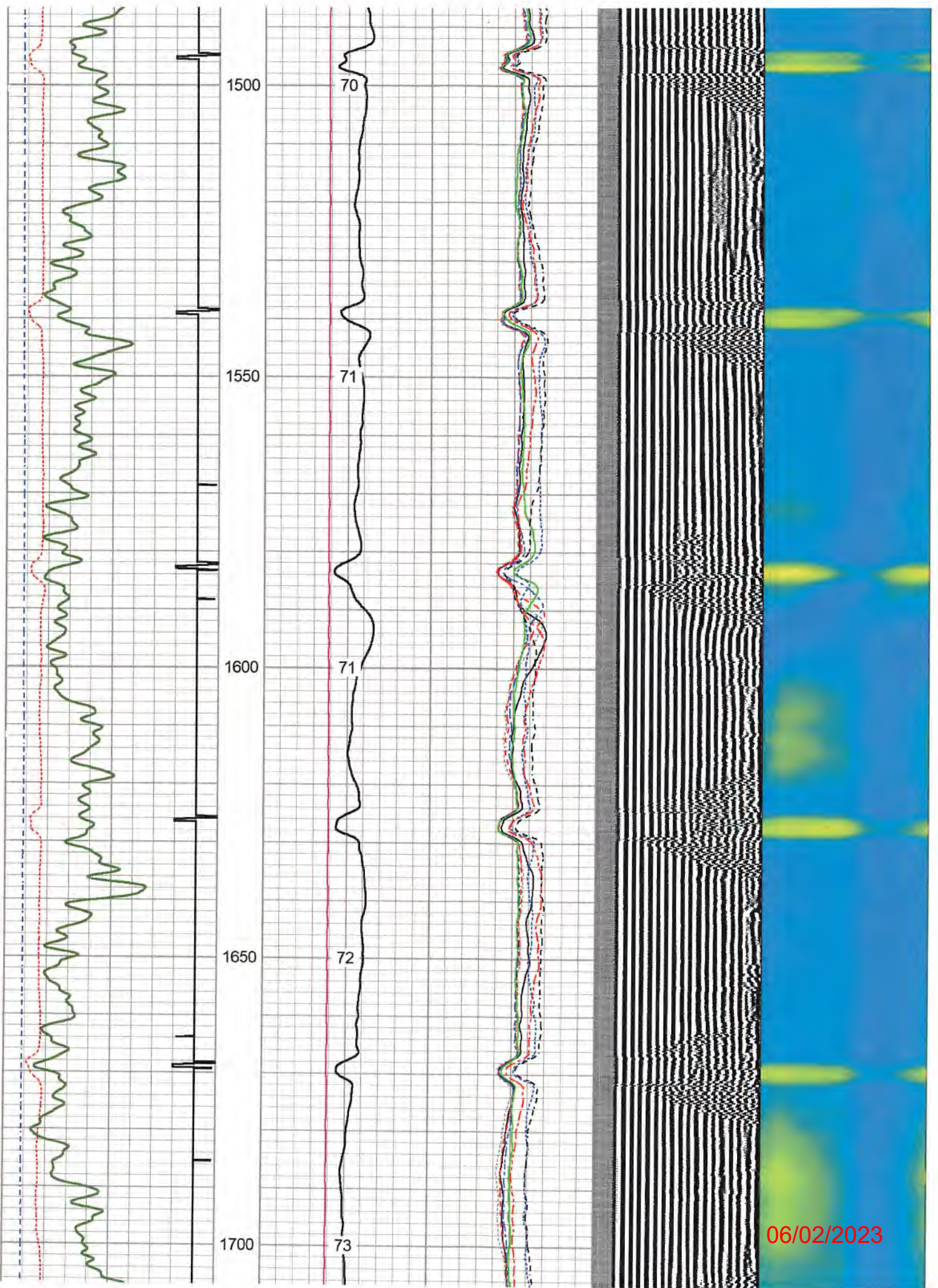


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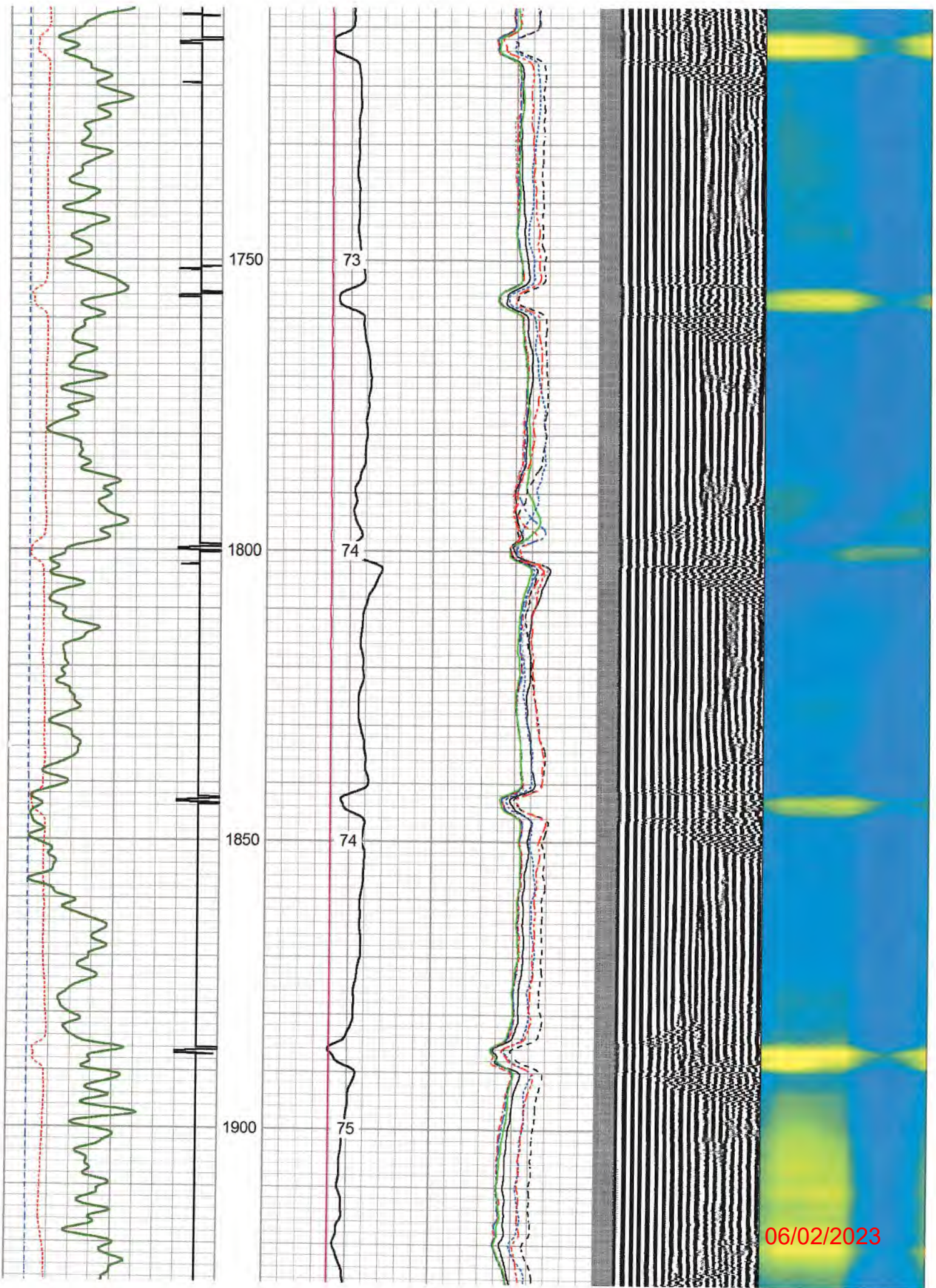


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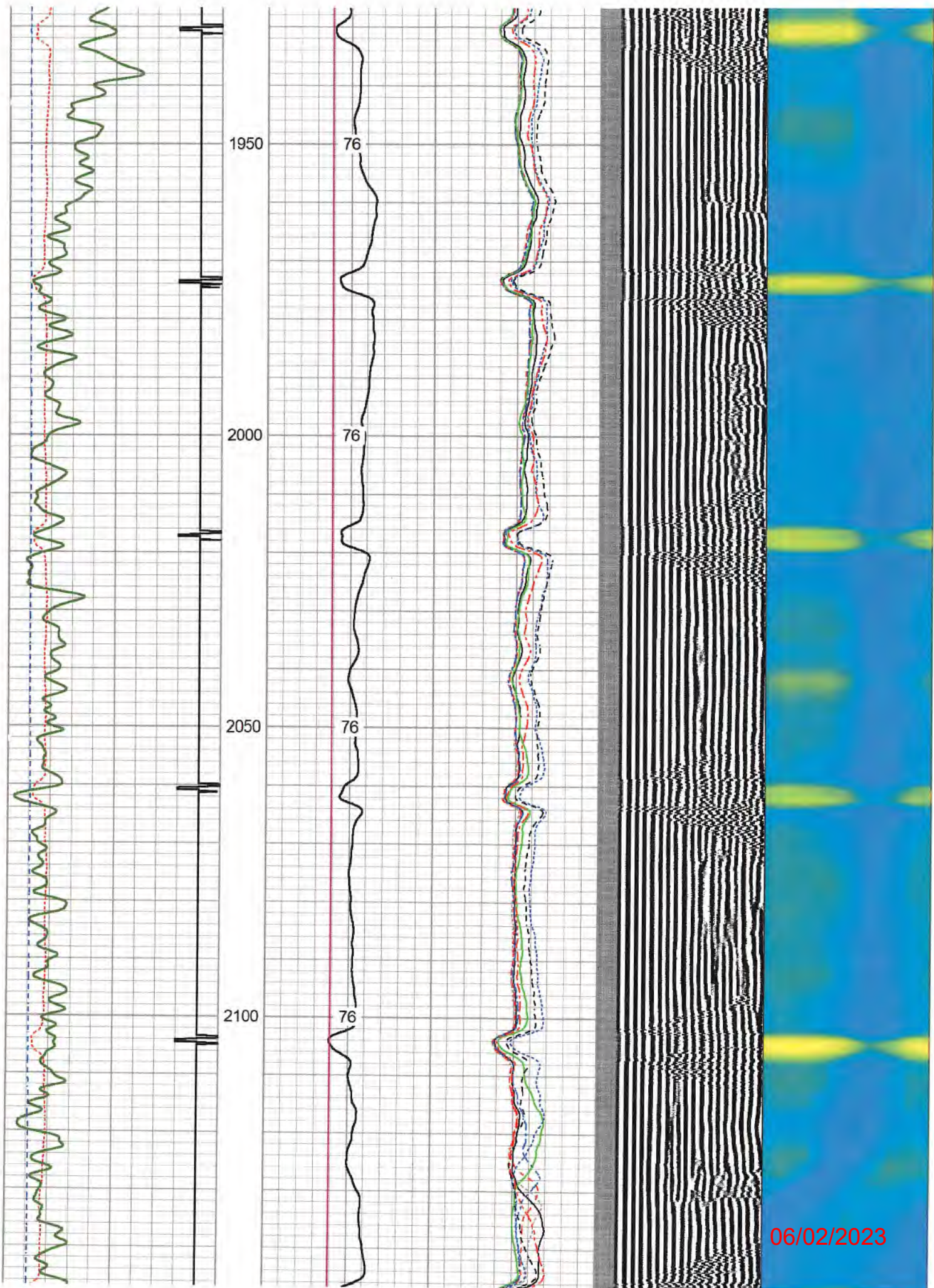




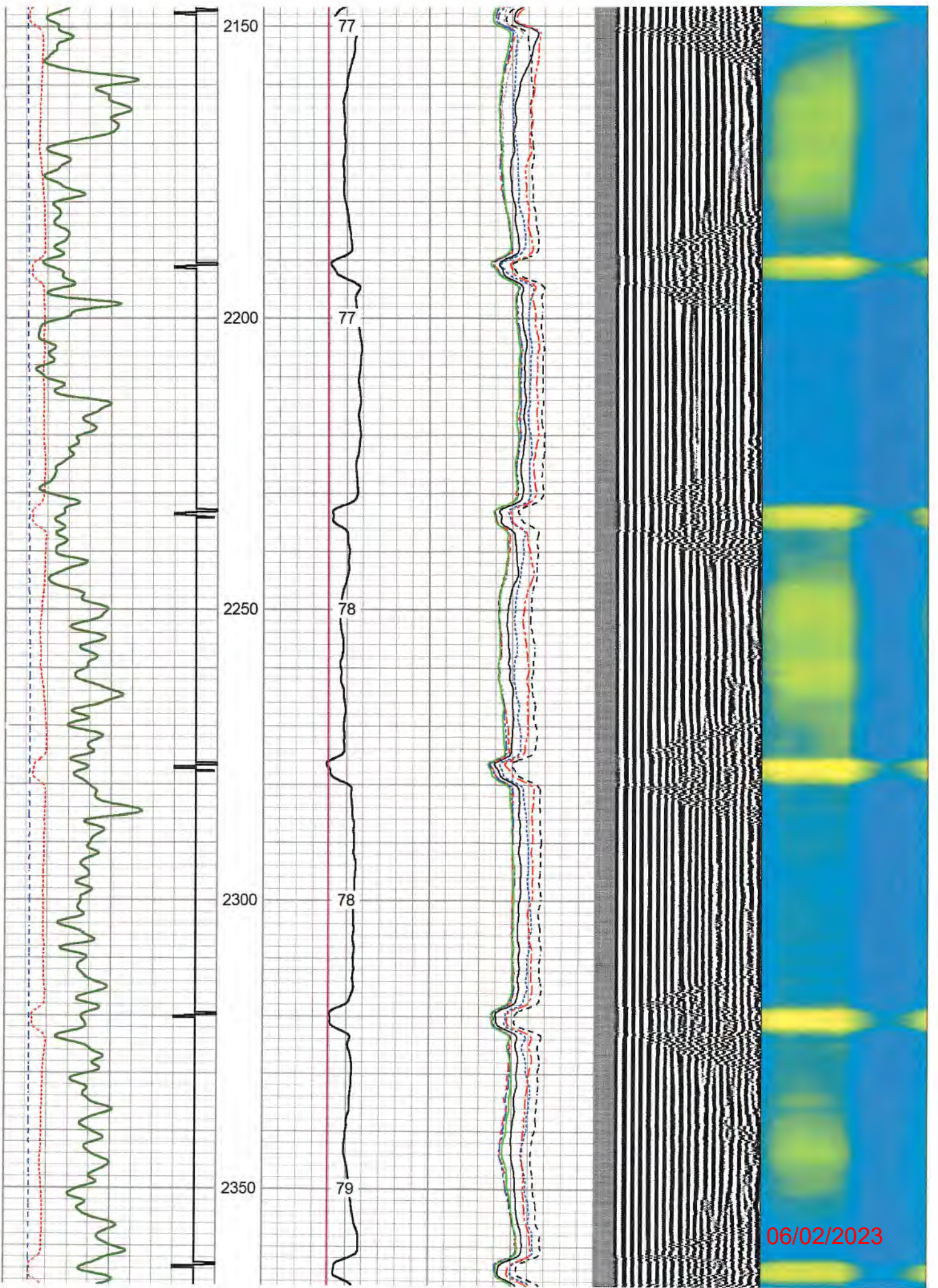
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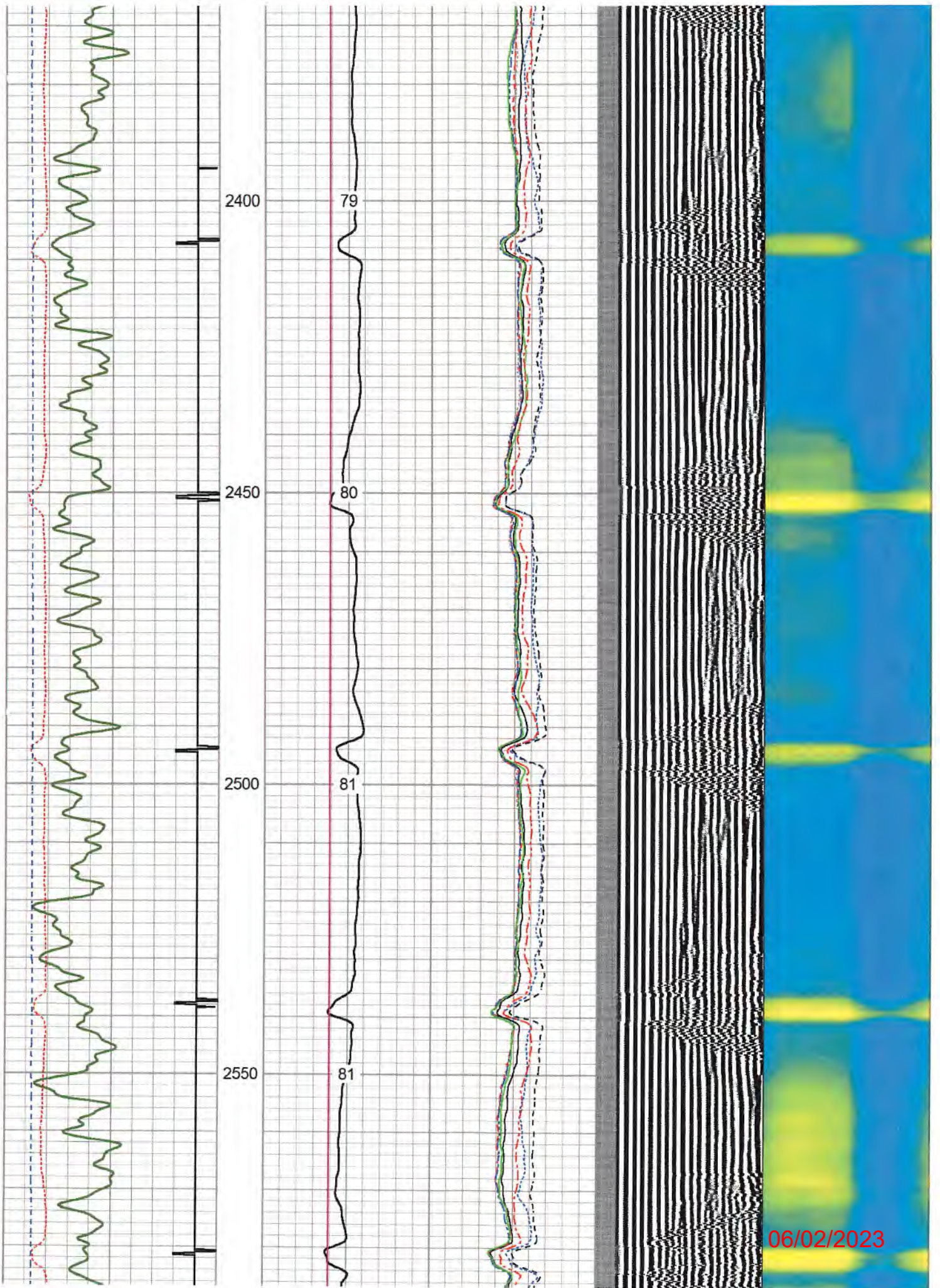
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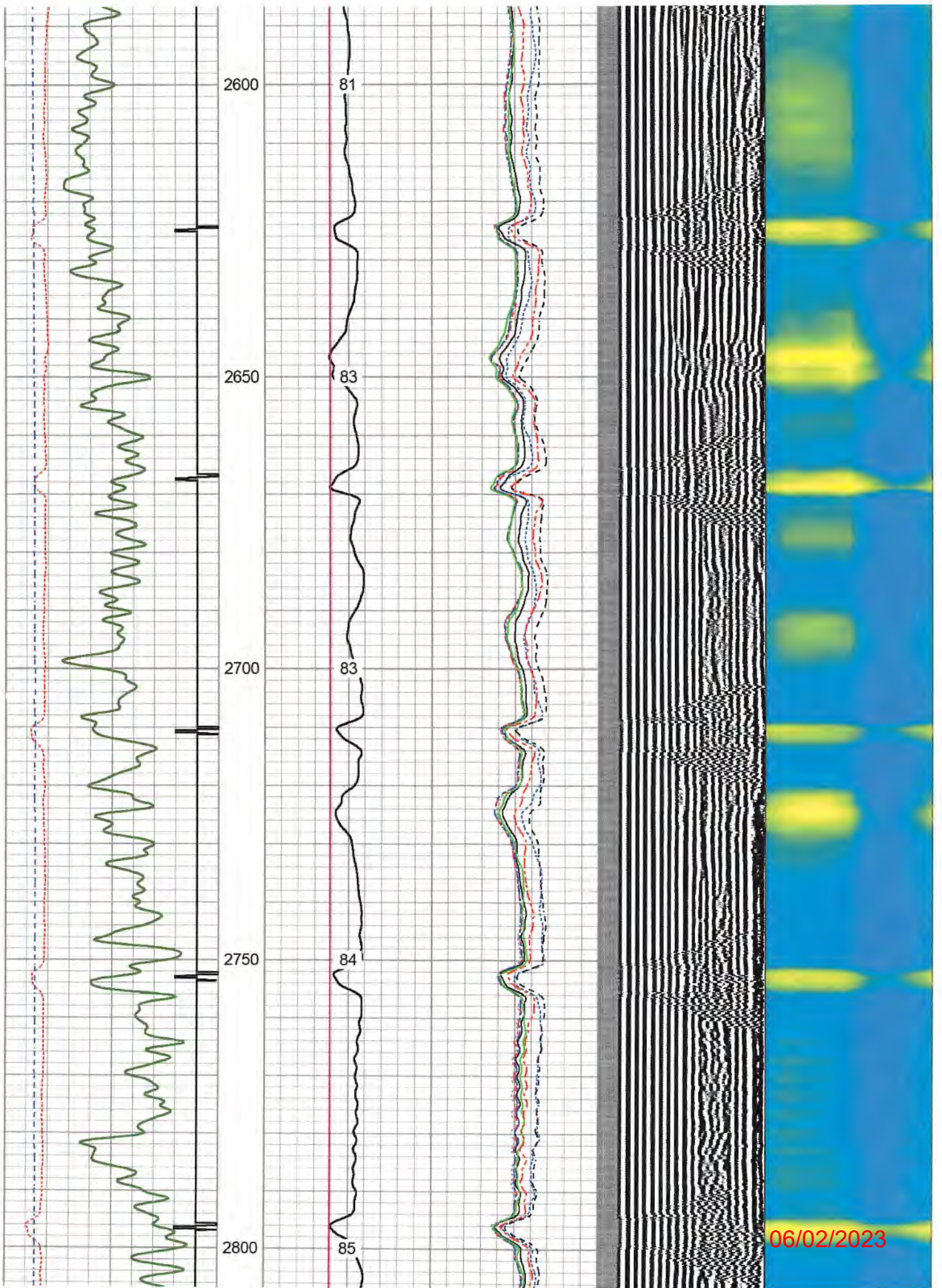


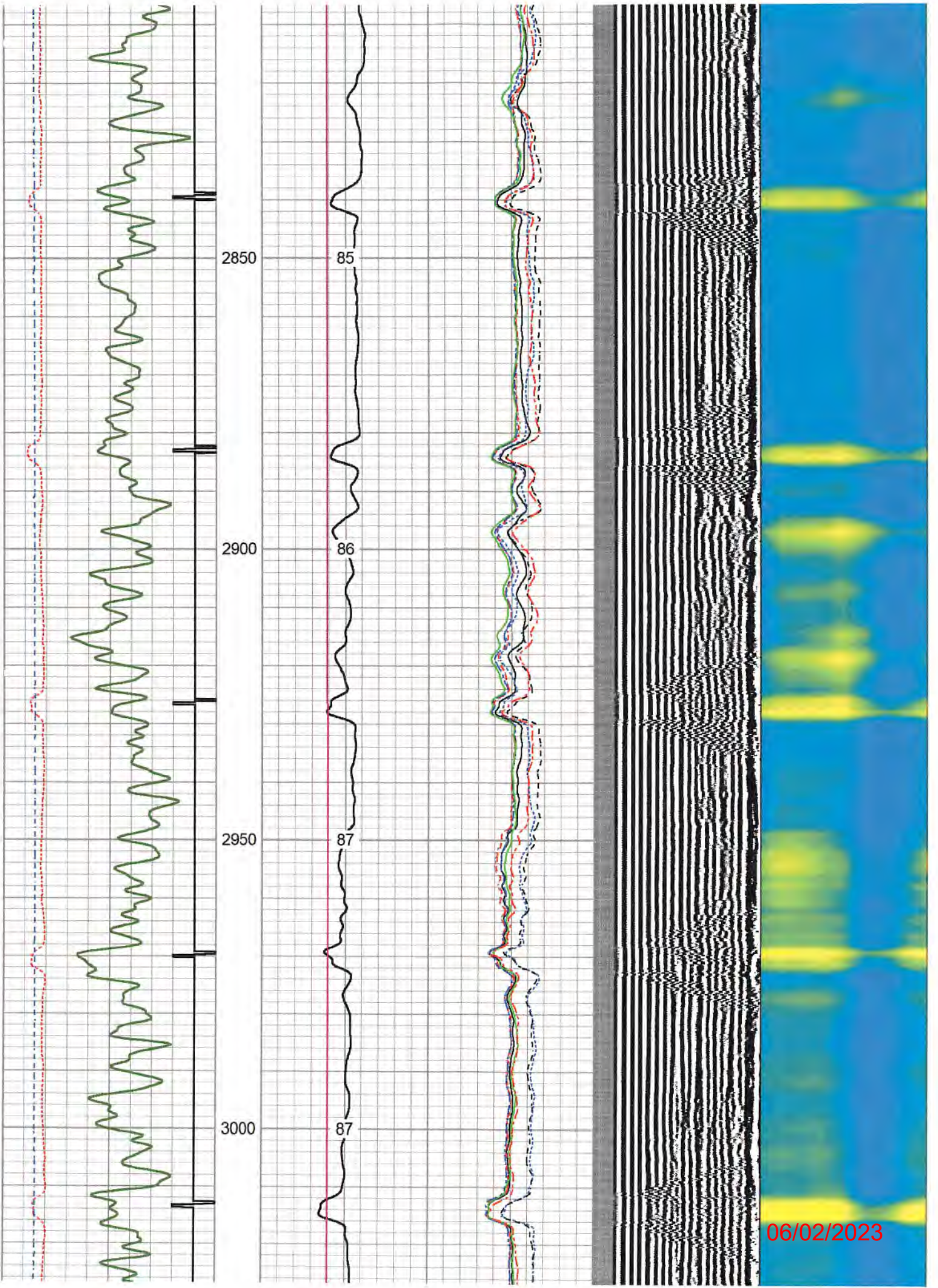
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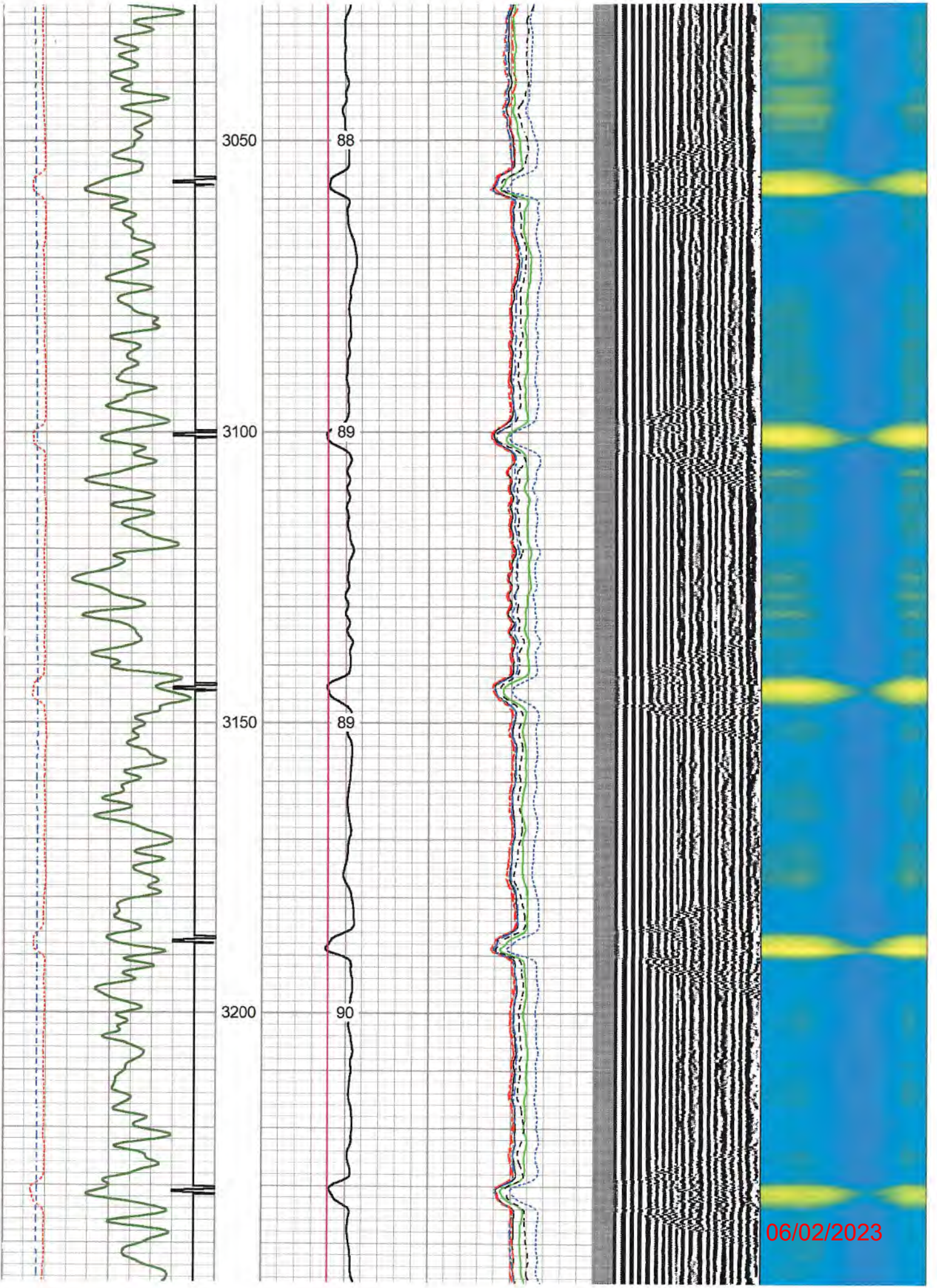
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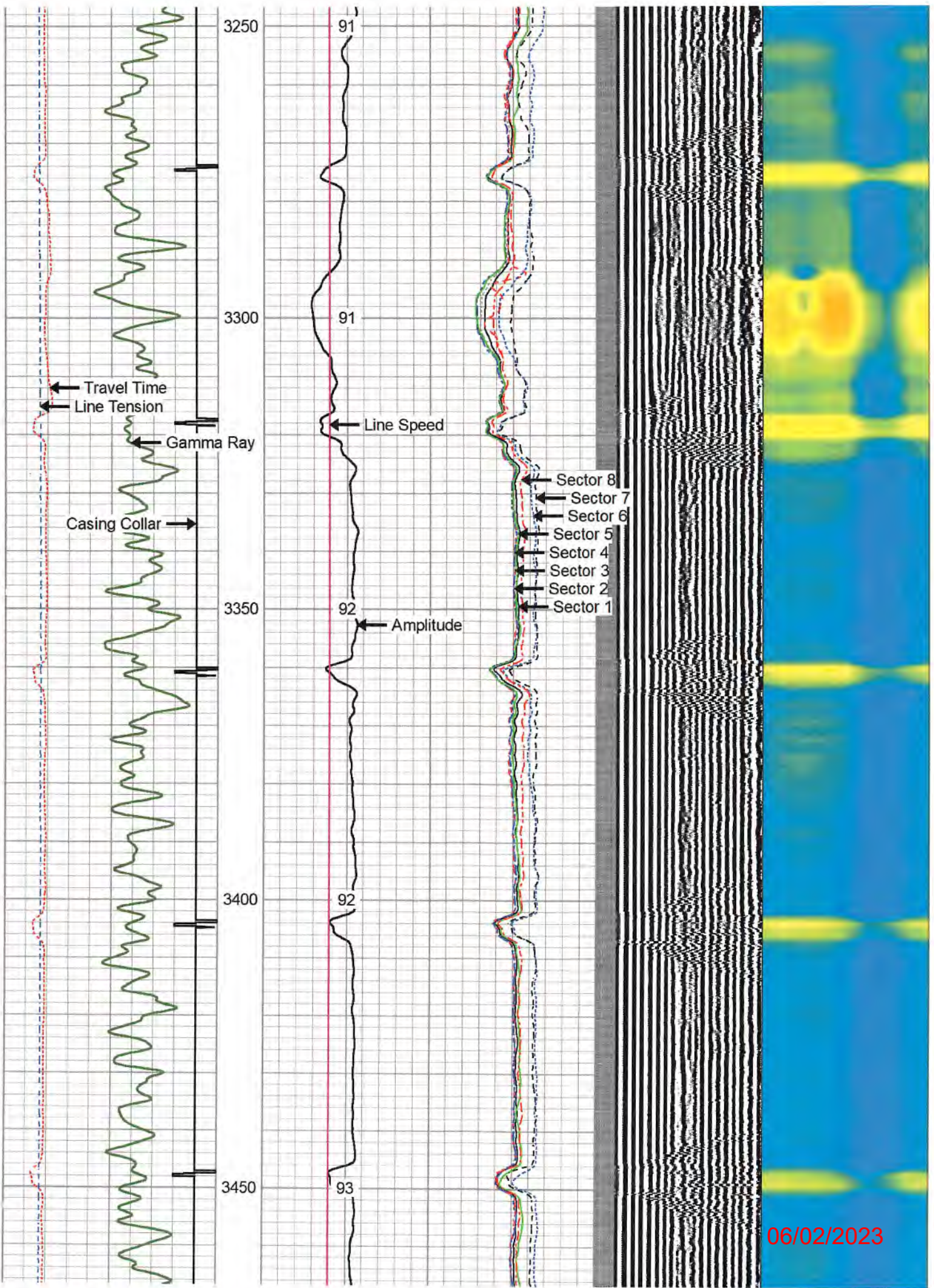


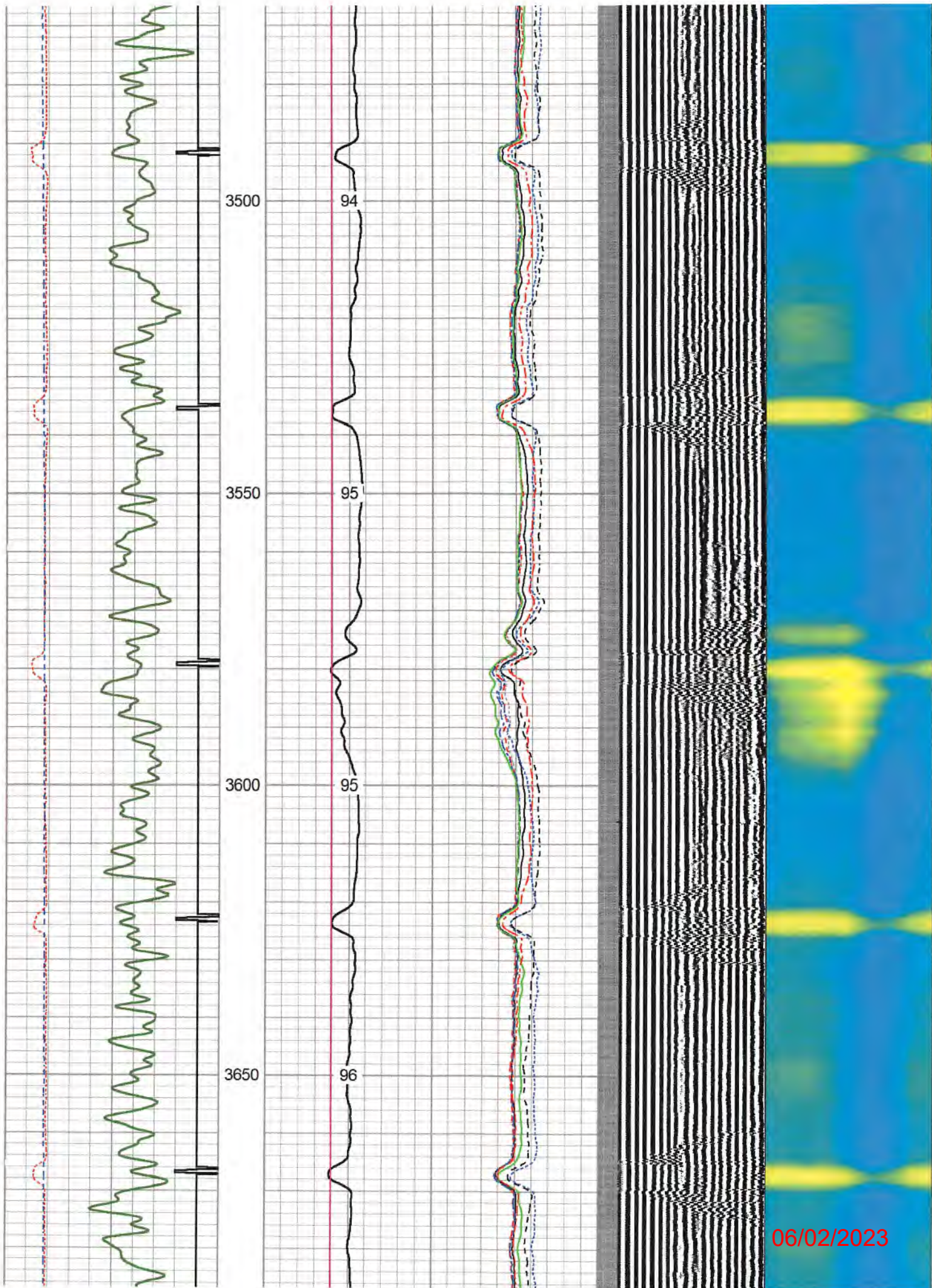


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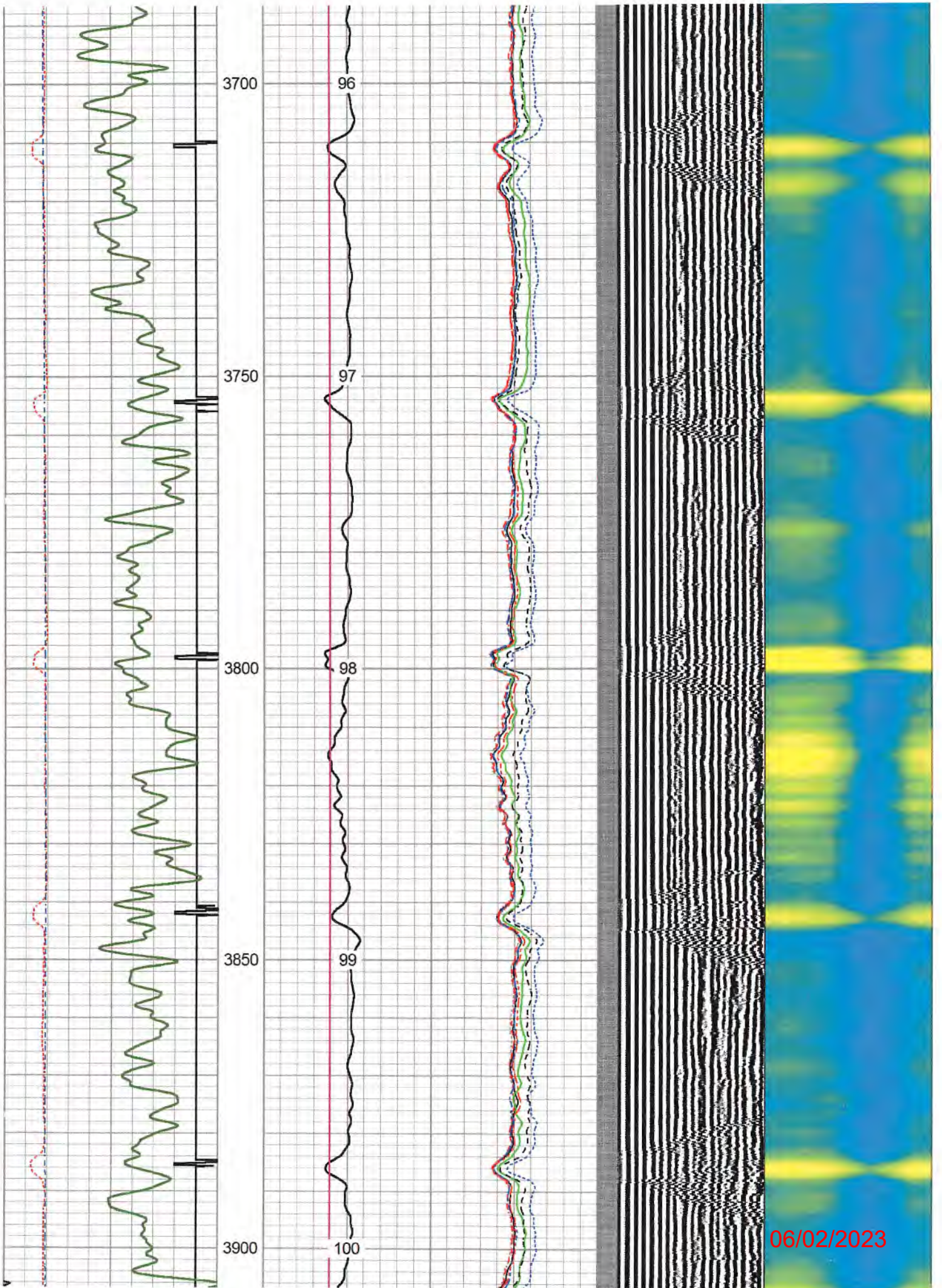


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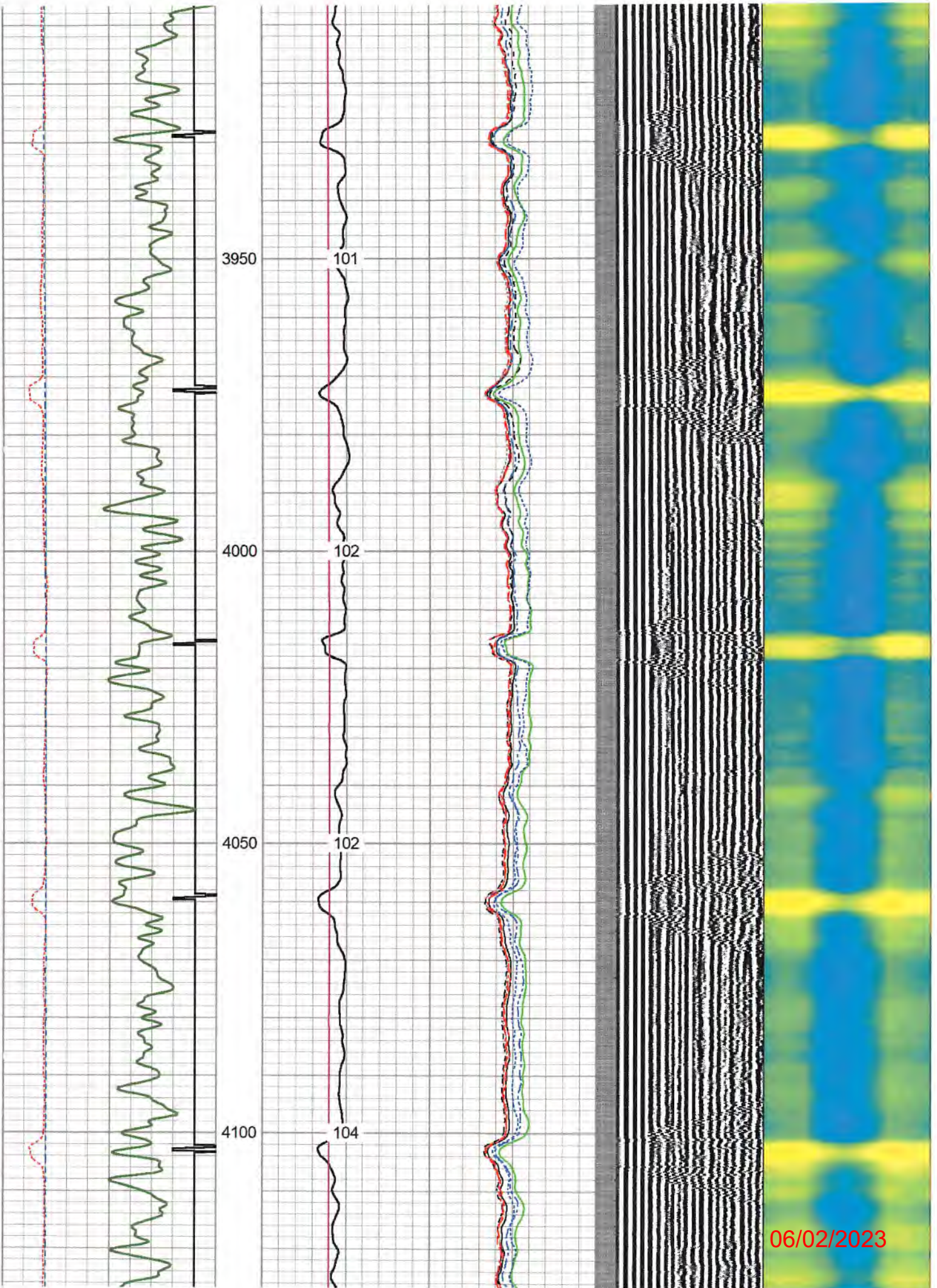




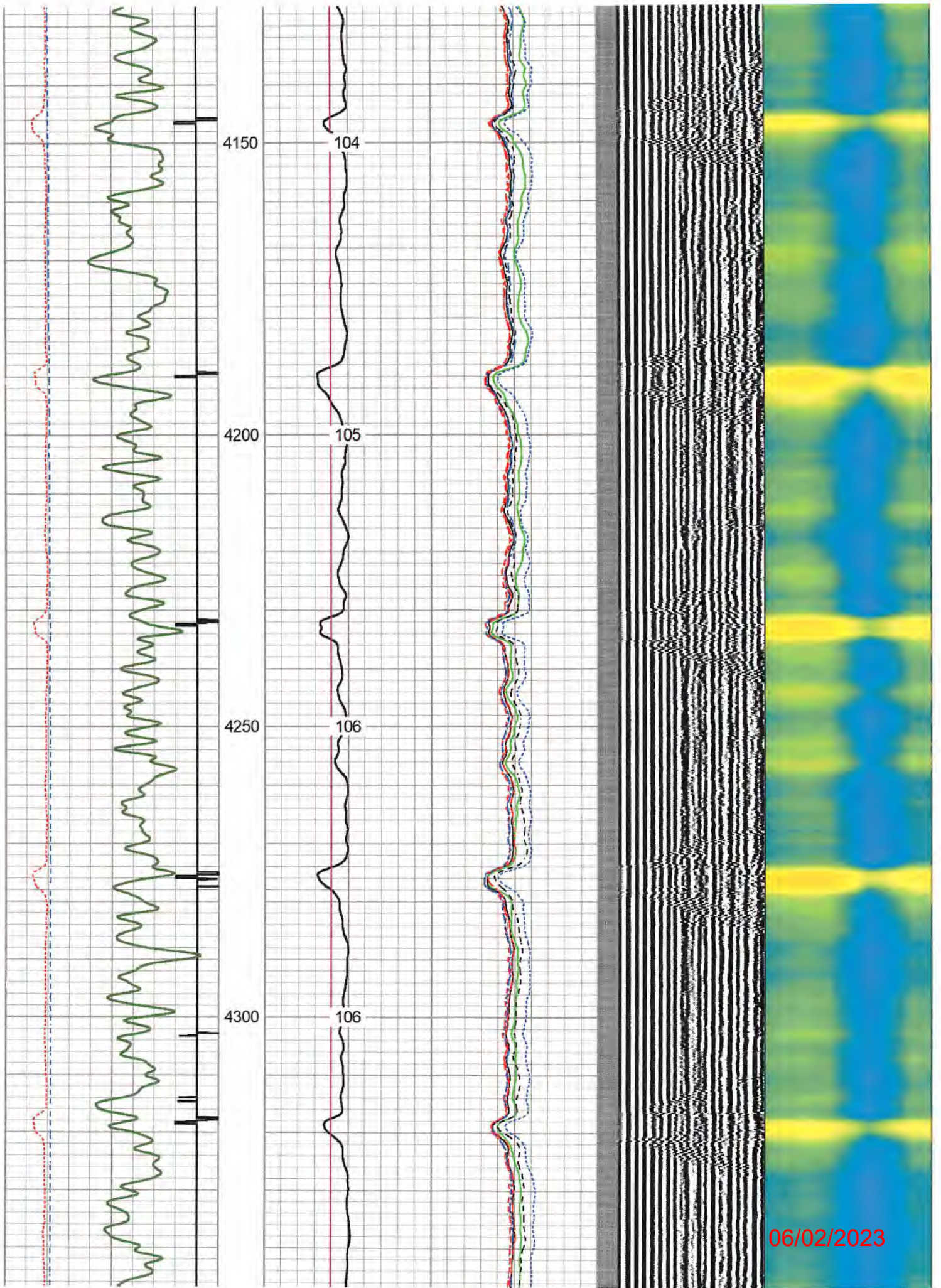
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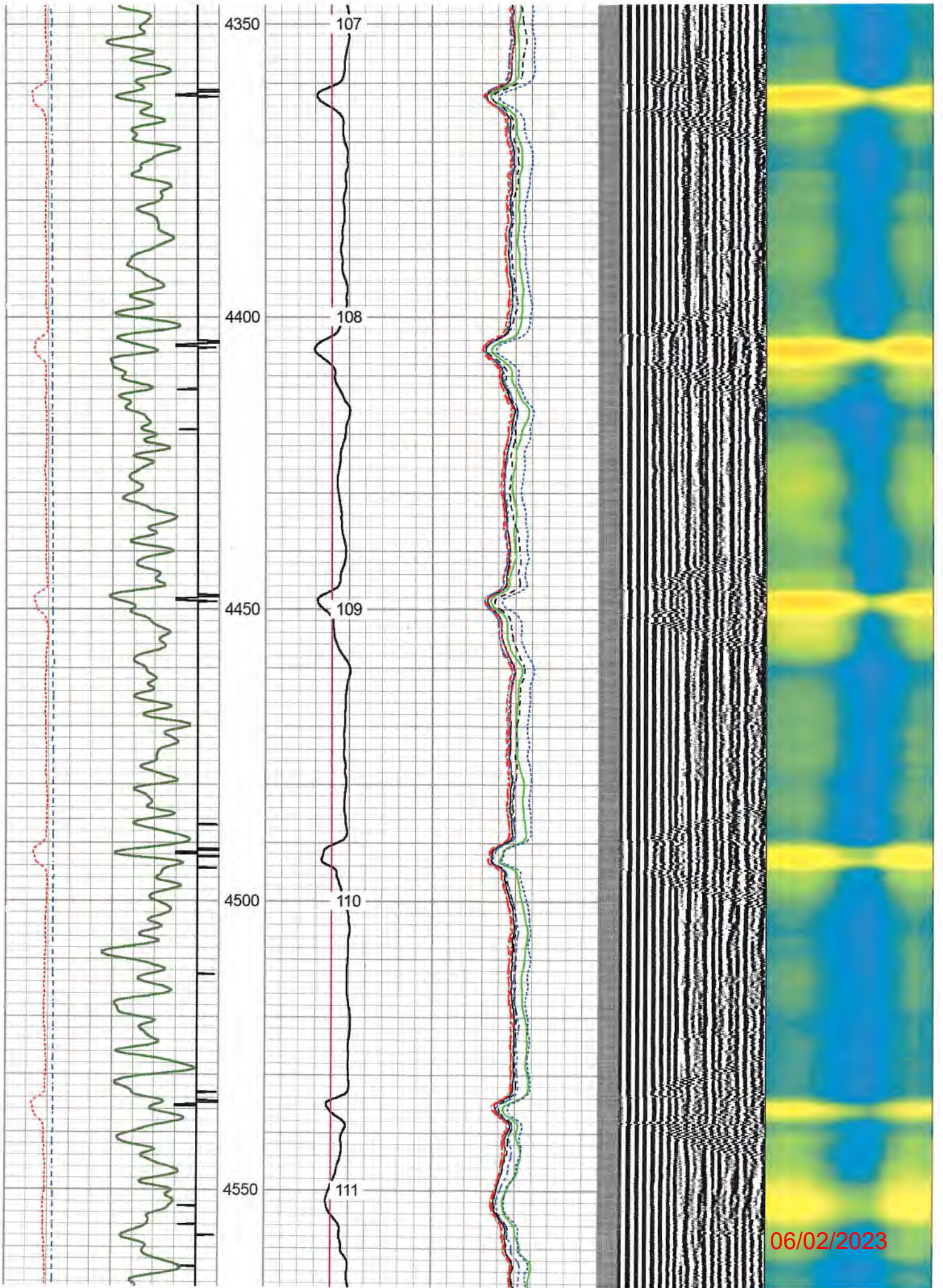
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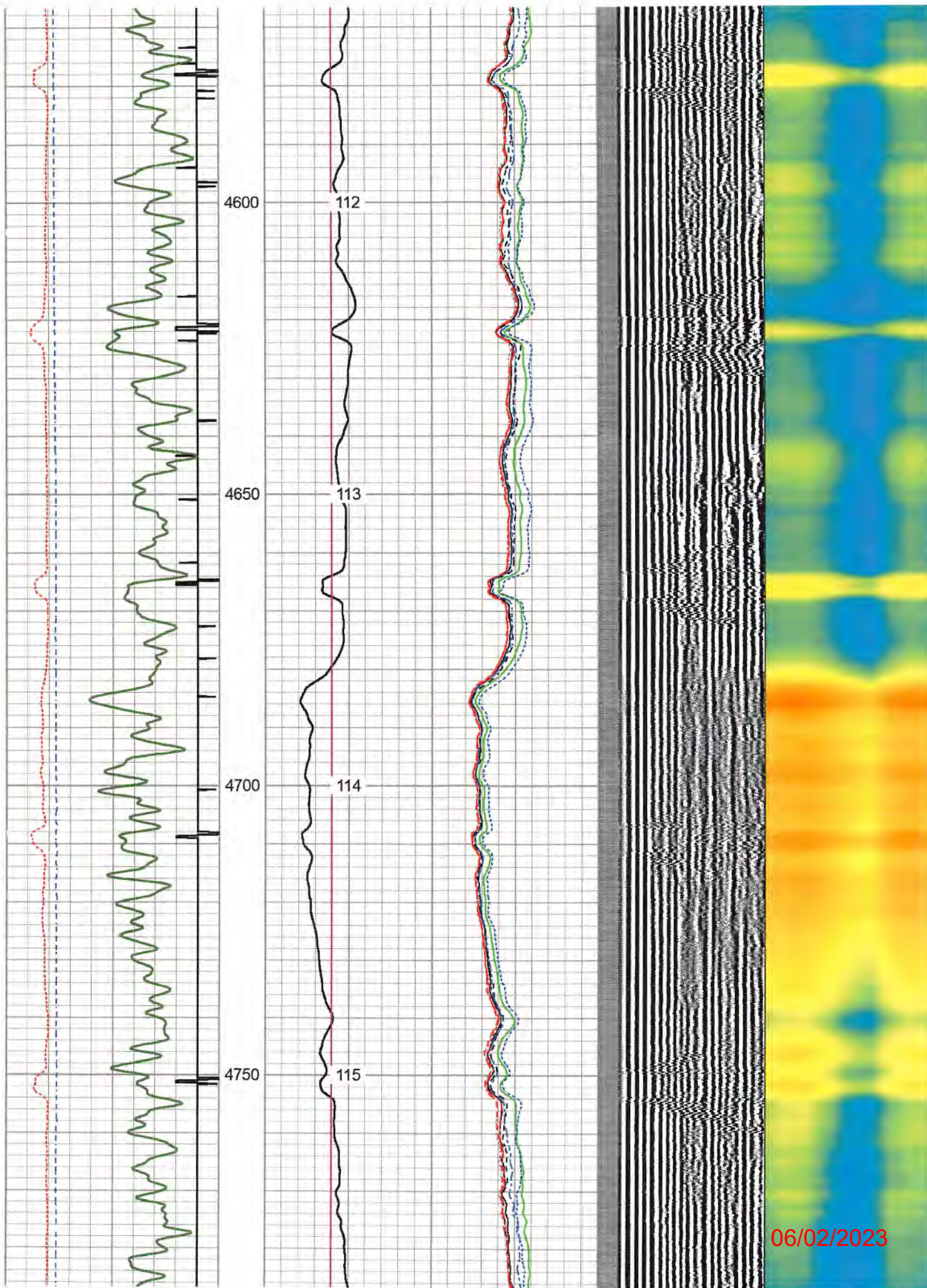


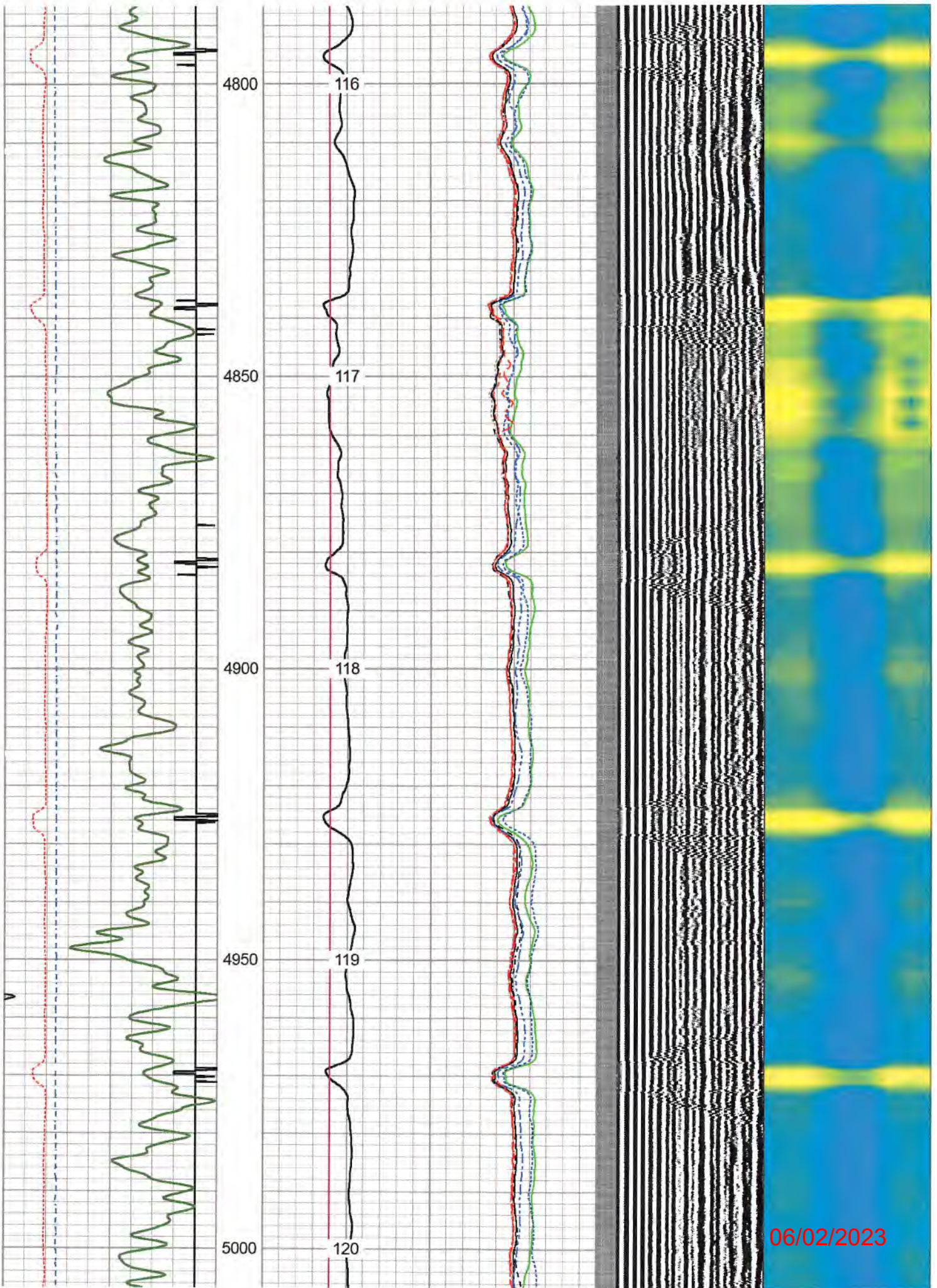
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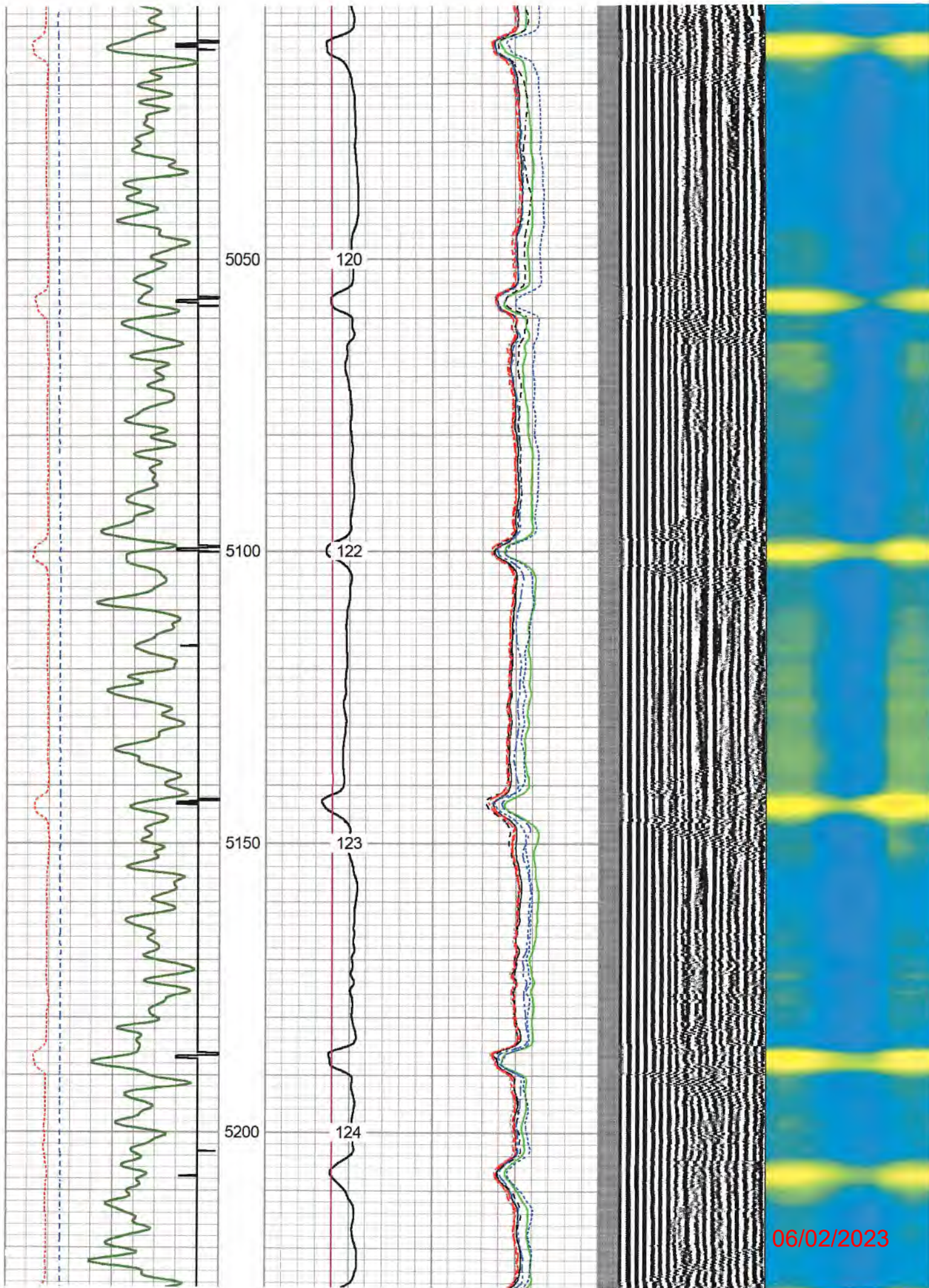


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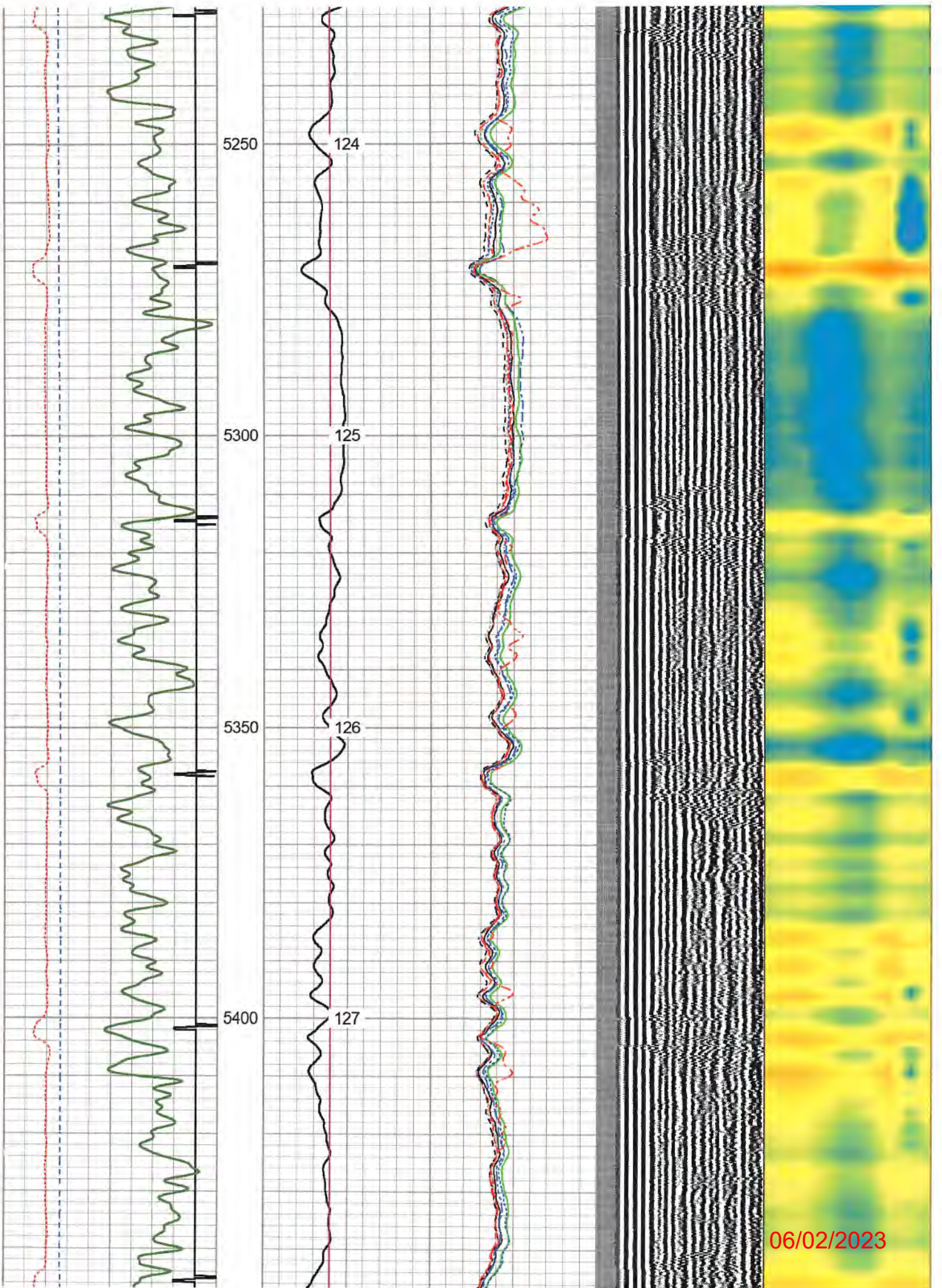




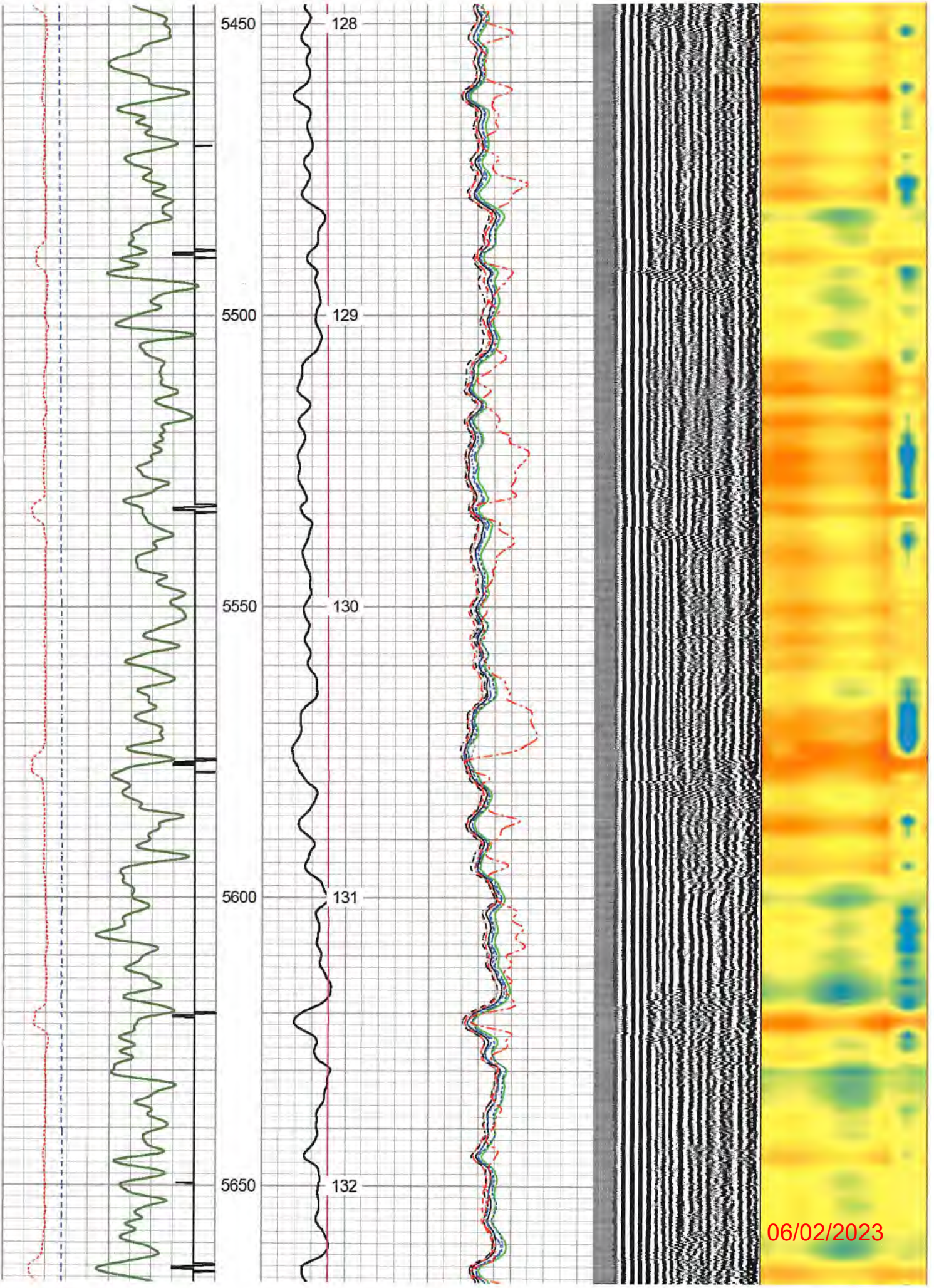


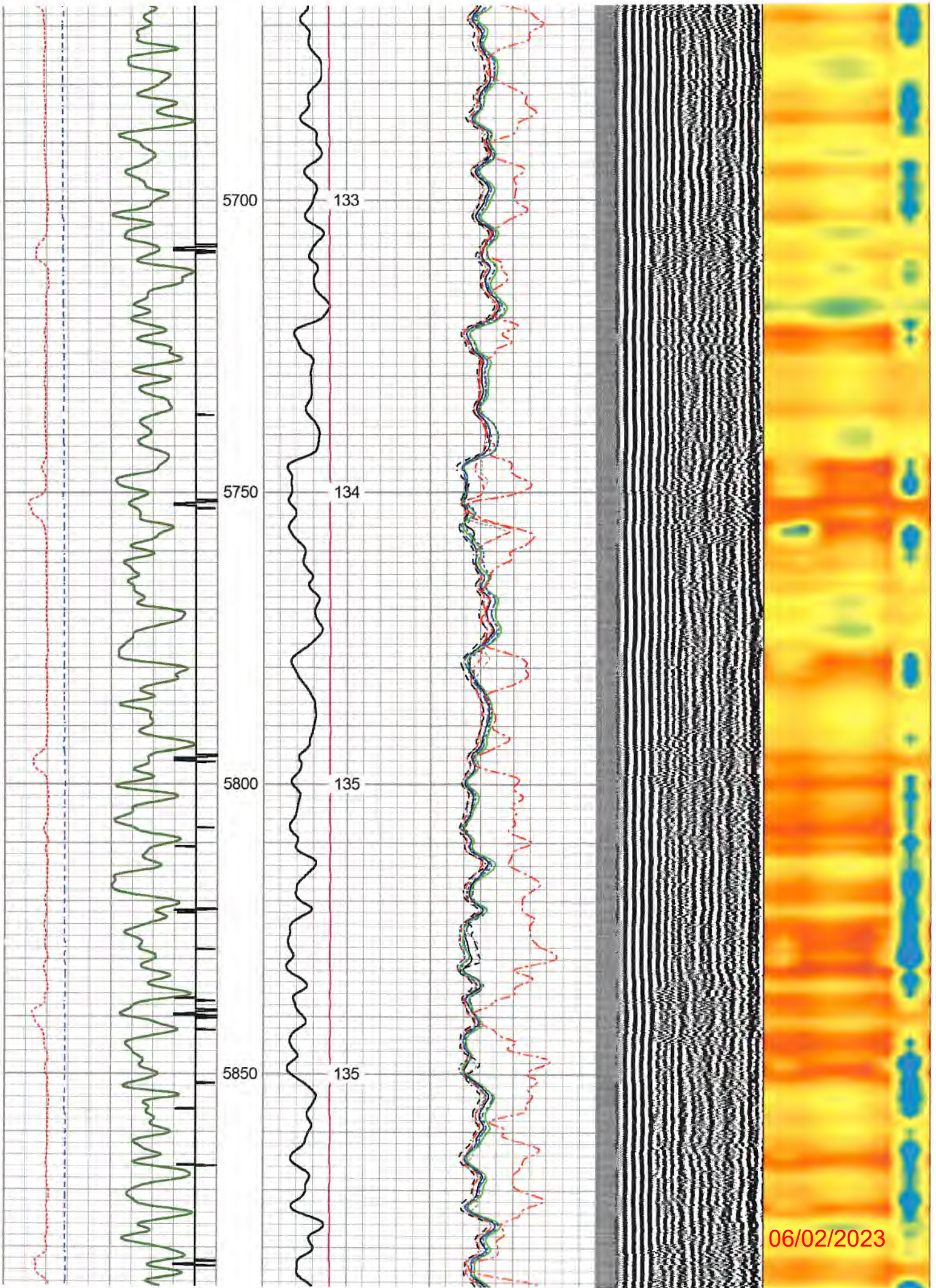


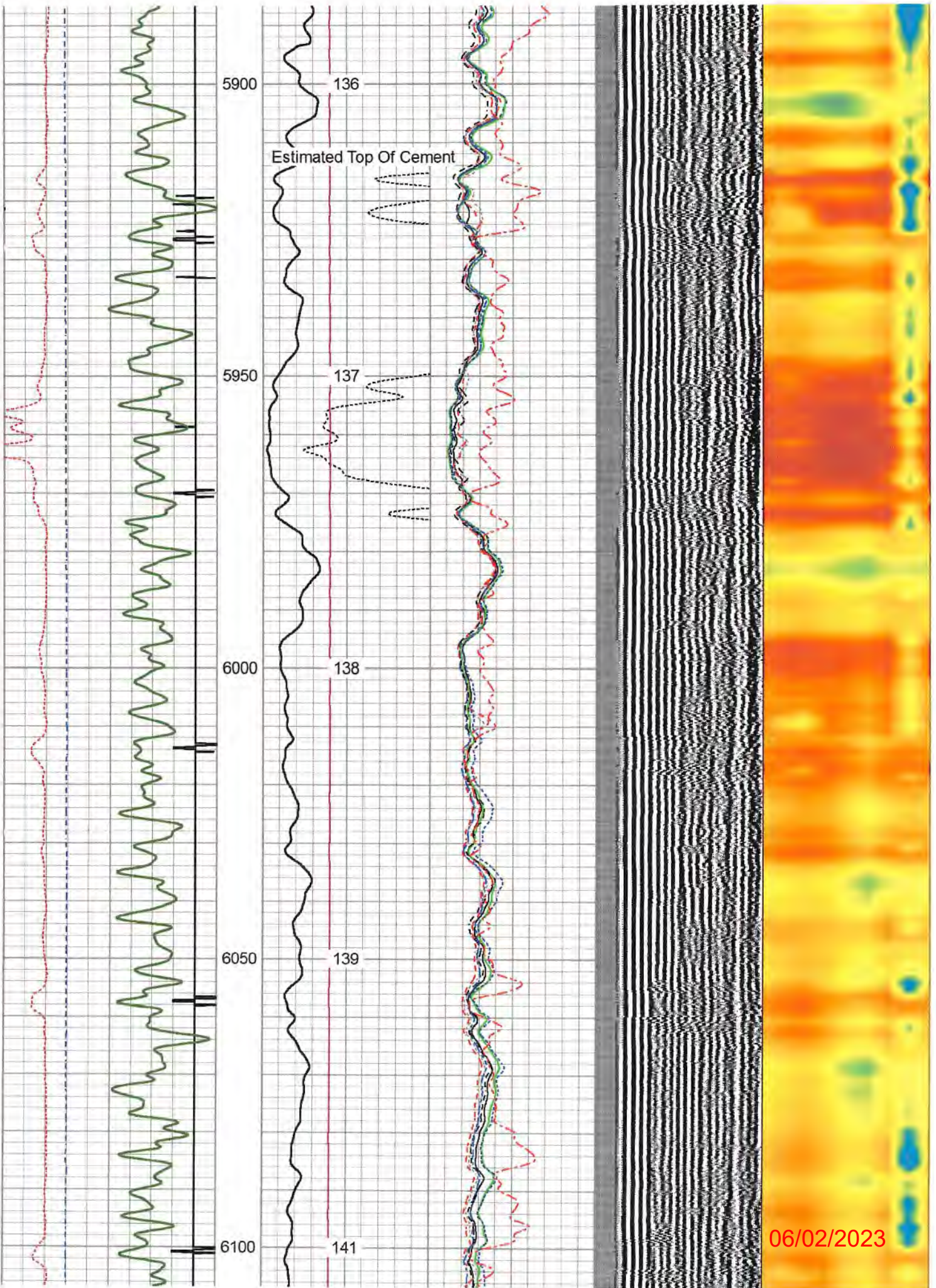
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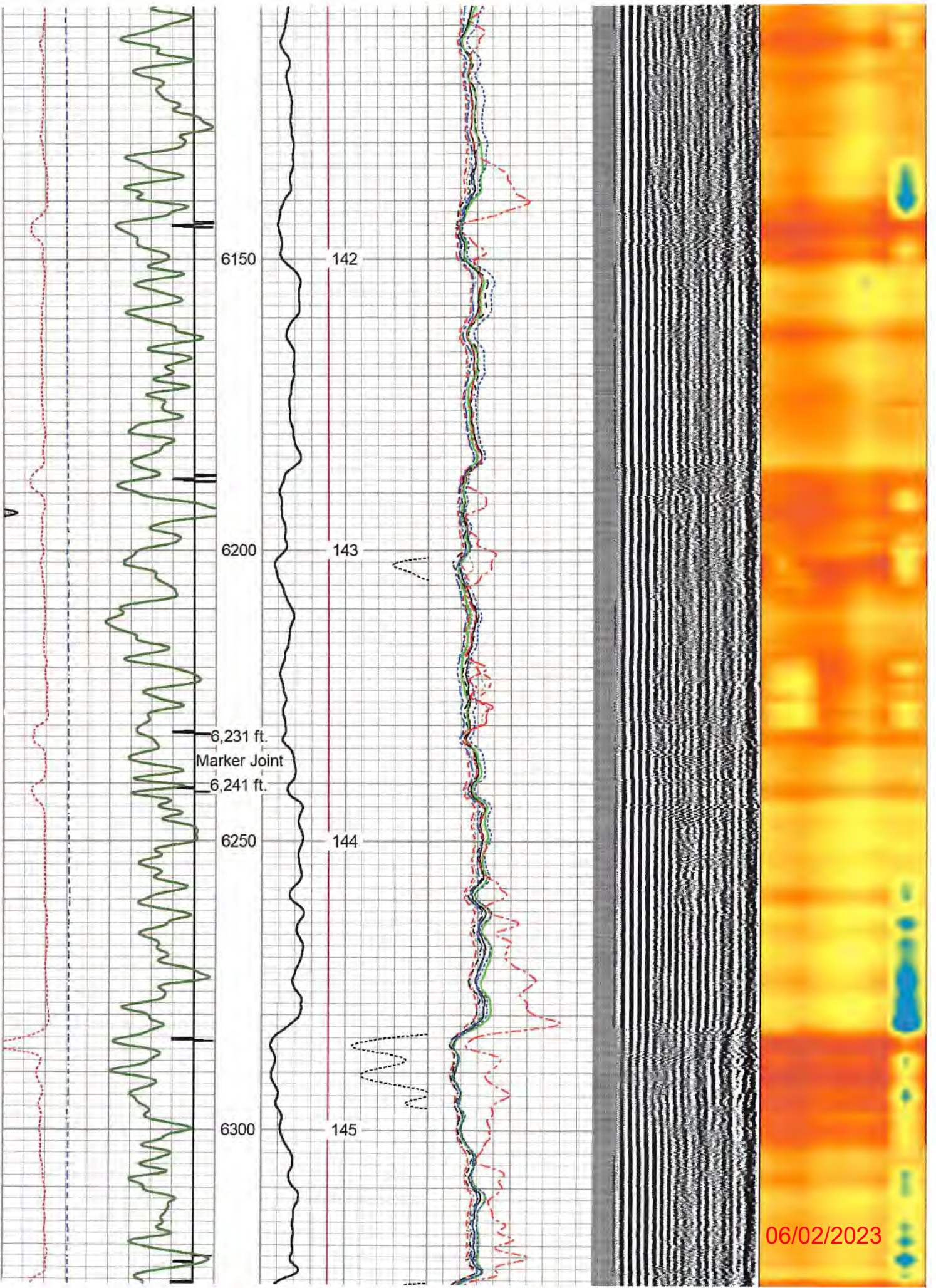


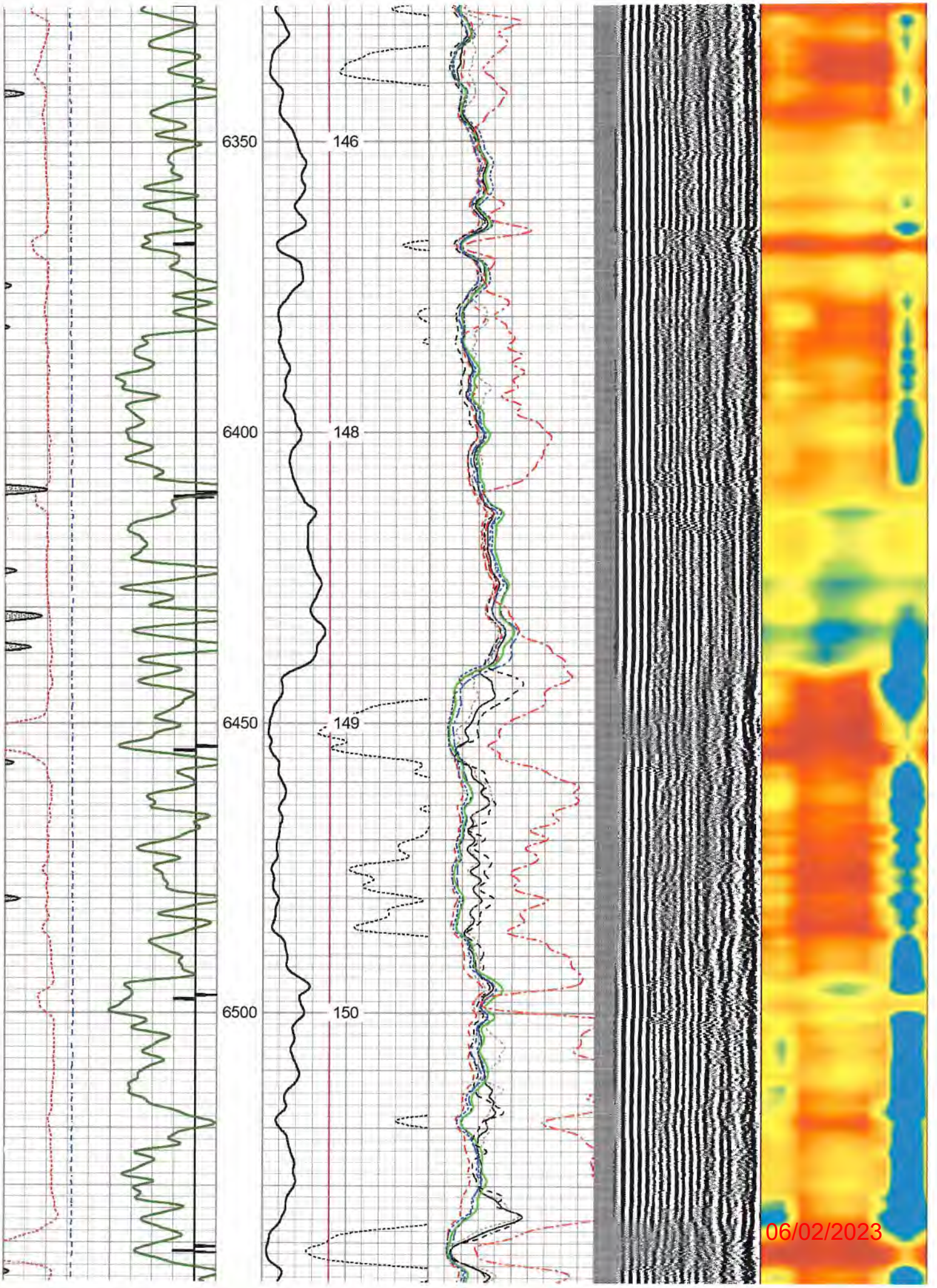
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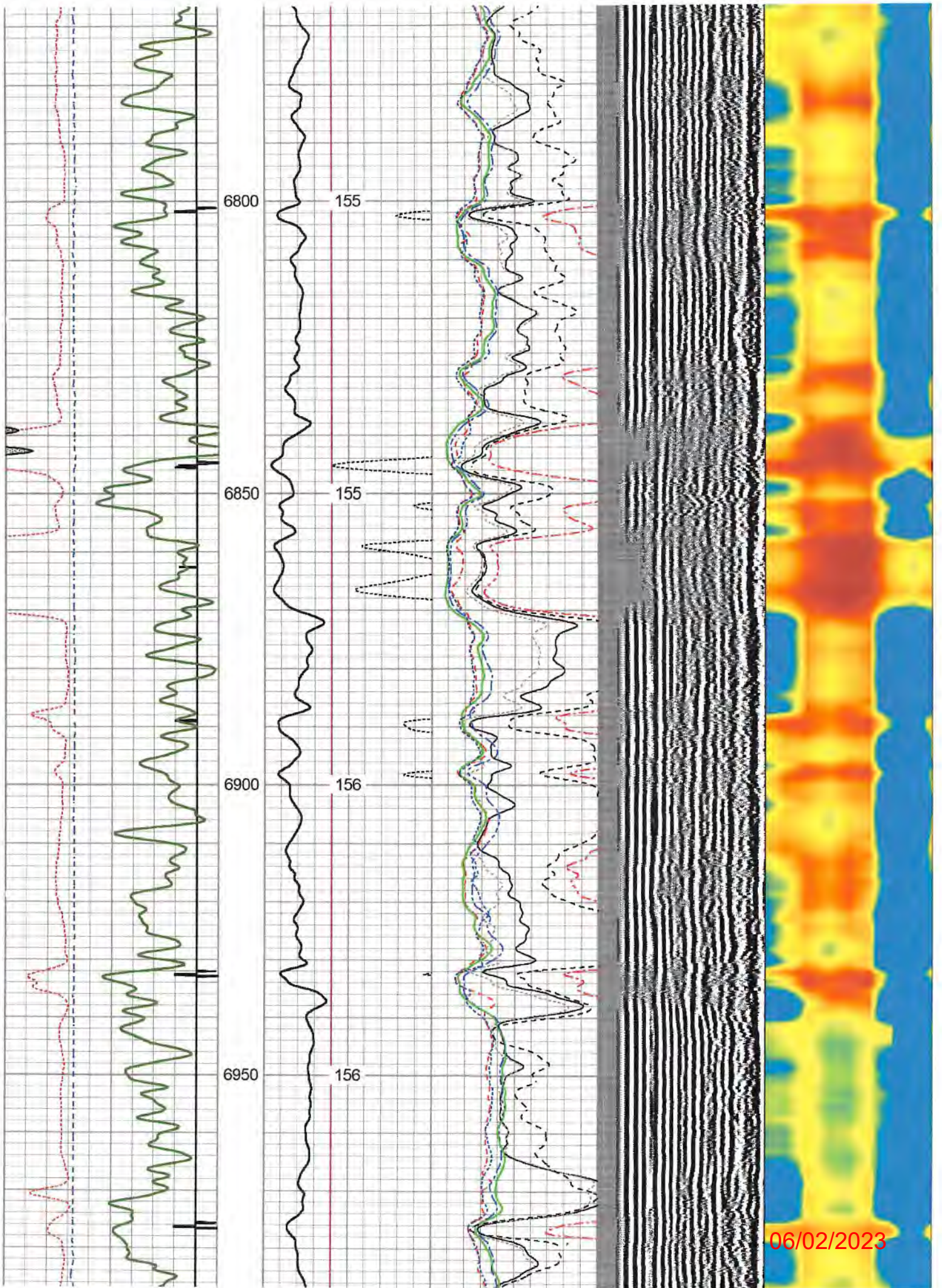




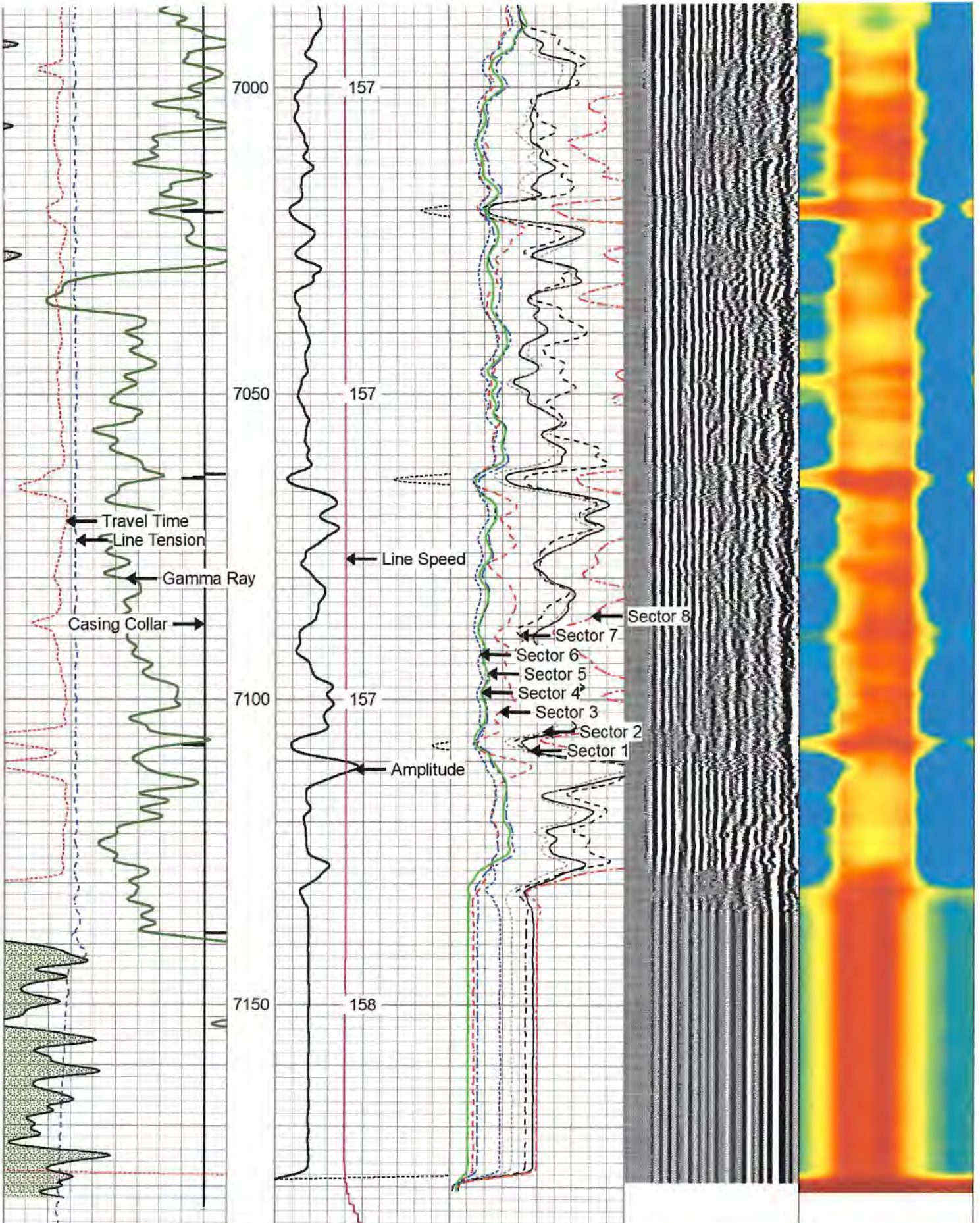




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270	Travel Time (usec)	200
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000

0	Amplitude (mV)	100	-5	Sector 1	150
	Amplified Amplitude		-5	Sector 2	150
0	(mV)	10	-5	Sector 3	150
	Line Speed		-5	Sector 4	150

Variable Density	1	Cement Map	8
200	(usec)	1200	

06/02/2023

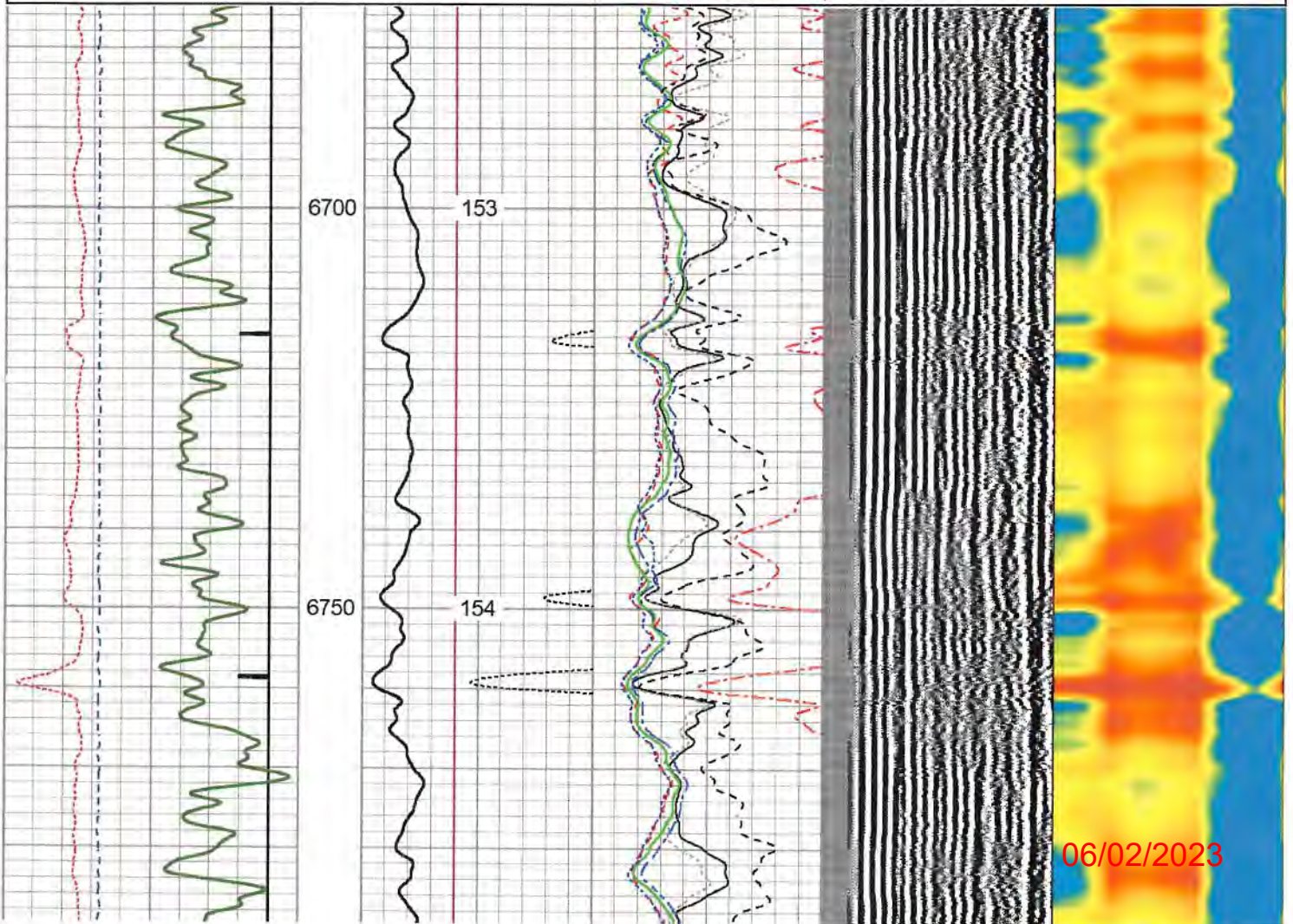
-500	(ft/min)	500	-5	Sector 5	150
	TEMP		-5	Sector 6	150
	(degF)		-5	Sector 7	150
			-5	Sector 8	150

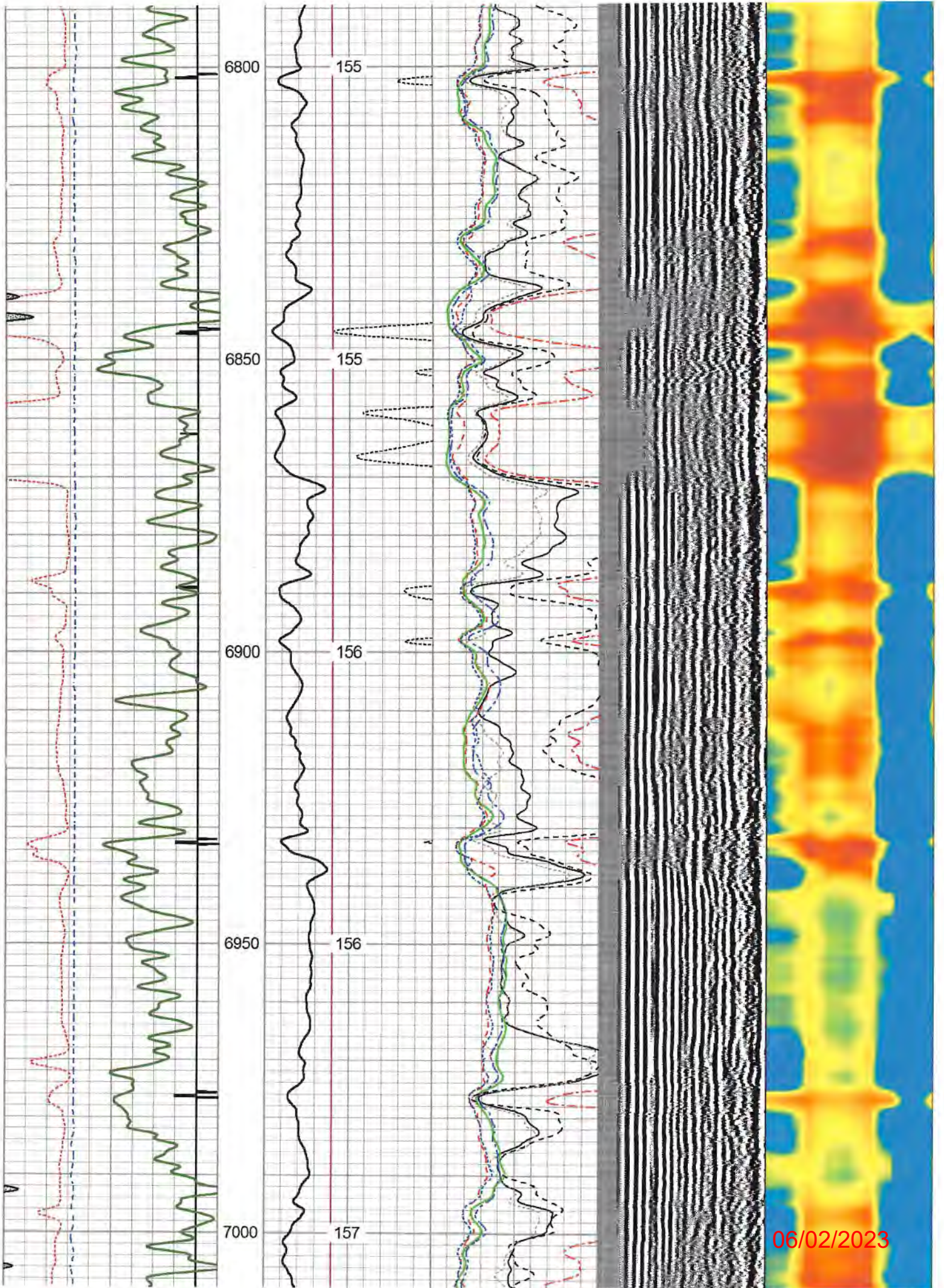


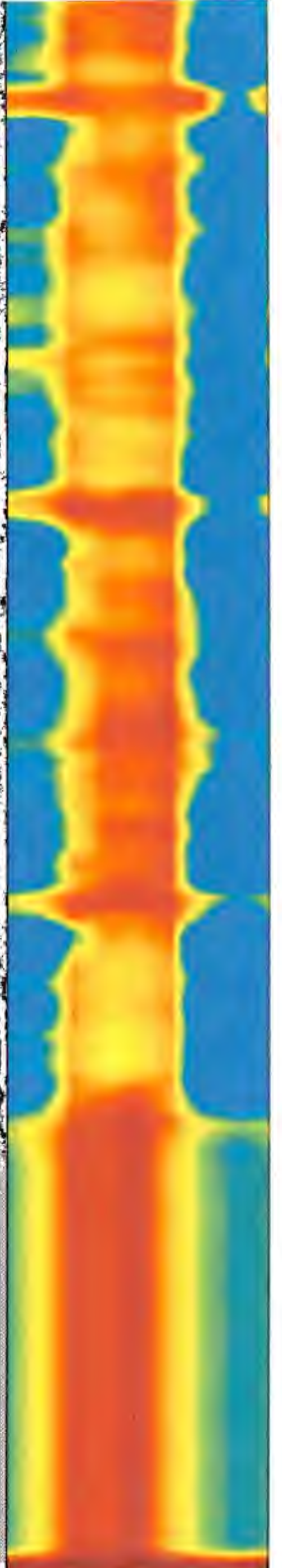
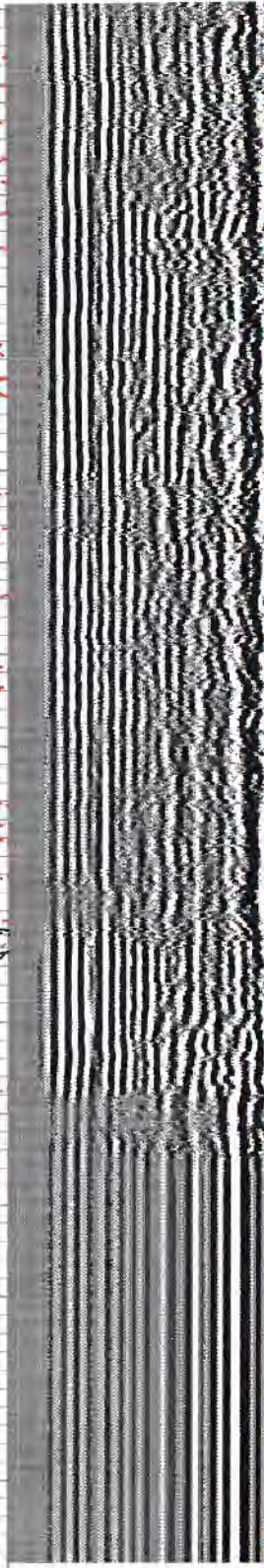
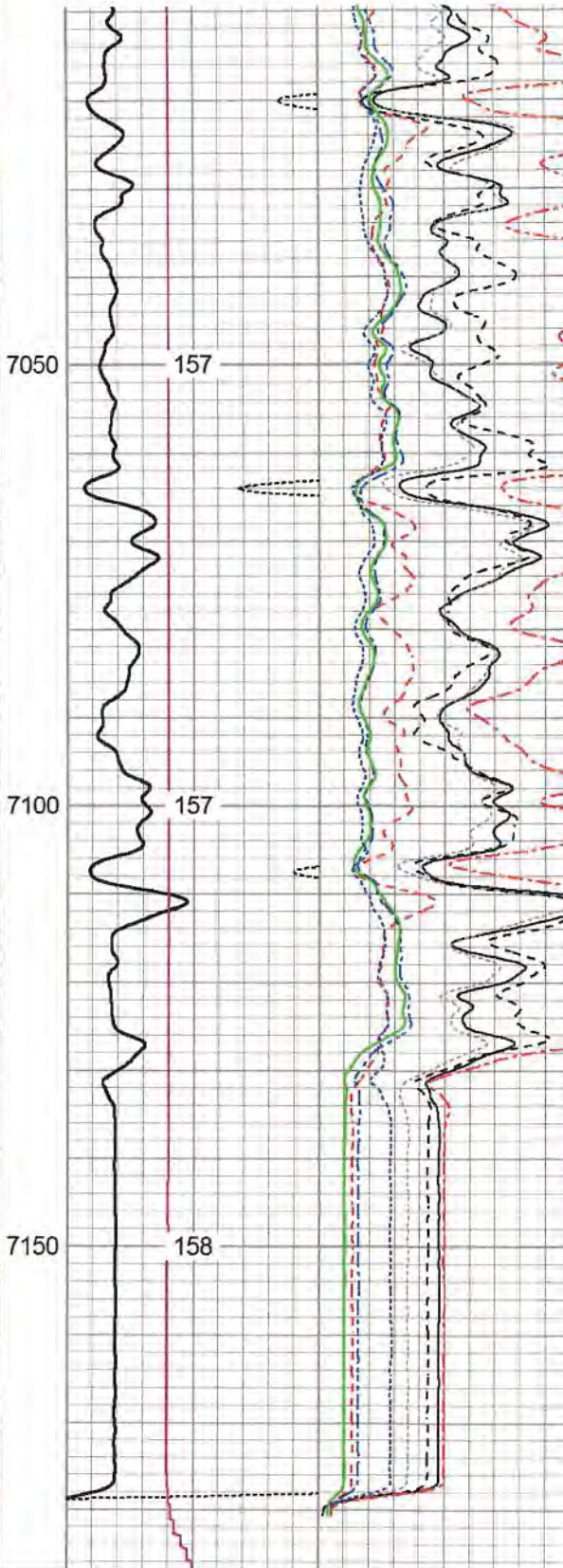
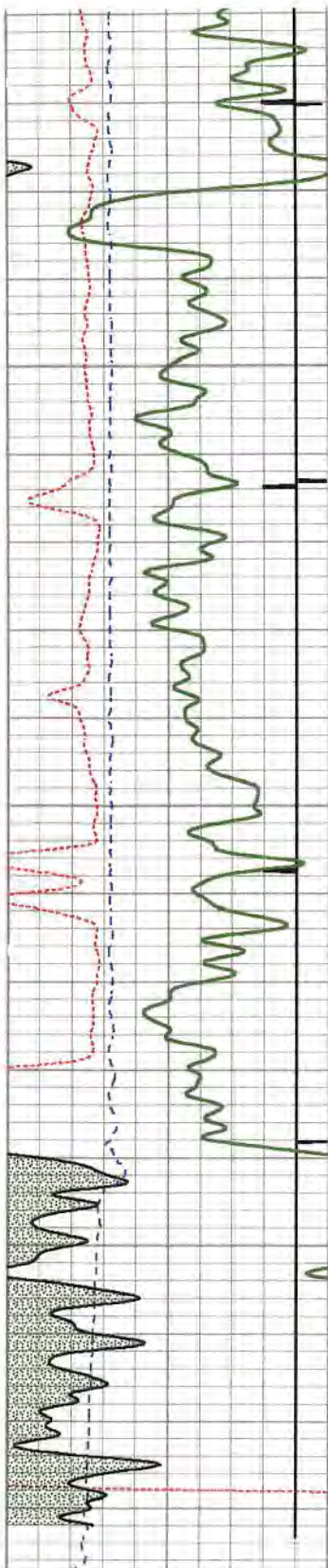
Repeat Pass 0 PSI

Database File antero_gamehengeeast_possum2h_rcbl_nineenergy_may_1_2020.db
 Dataset Pathname Rabbit_Ears/Possum_2H/RCBL_1/pass2.4
 Presentation Format 9rcbl
 Dataset Creation Sun May 03 06:23:52 2020
 Charted by Depth in Feet scaled 1:240

270	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	Sector 2	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	Line Tension (lb)	5000		Line Speed		-5	Sector 4	150				
			-500	(ft/min)	500	-5	Sector 5	150				
				TEMP		-5	Sector 6	150				
				(degF)		-5	Sector 7	150				
						-5	Sector 8	150				







270	Travel Time (usec)	200
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000

0	Amplitude (mV)	100	-5	Sector 1	150
	Amplified Amplitude		-5	Sector 2	150
0	(mV)	10	-5	Sector 3	150
	Line Speed		-5	Sector 4	150
-500	(ft/min)	500	-5	Sector 5	150
	TEMP		-5	Sector 6	150
	(degF)		-5	Sector 7	150
			-5	Sector 8	150

Variable Density	1	Cement Map	8
200	(usec)	1200	

06/02/2023

Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero_gamehengeeast_possum2h_rcbl_nineenergy_may
Dataset Rabbit_Ears/Possum_2H/RCBL_1/pass7.4/_vars_

Top - Bottom

BHTEMP_Src TEMP	BOREID in 7.875	BOTTEMP degF 150	CASEOD in 5.5	CASETHCK in 0.415	CASEWGHT lb/ft 23	MAXAMPL mV 72	MINAMPL mV 3.4
MINATTN db/ft 9.6	PERFS No	PPT usec 0	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_gamehengeeast_possum2h_rcbl_nineenergy_may_1_2020.db
Dataset Pathname Rabbit_Ears/Possum_2H/RCBL_1/pass7.4
Dataset Creation Sun May 03 06:18:06 2020

Gamma Ray Calibration Report

Serial Number: FW1211-86
Tool Model: Probe
Performed: Thu Dec 19 22:27:19 2019

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: 58.692 ft

Master Calibration, performed Sat May 02 06:47:52 2020:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.204	0.787	3.400	71.921	135.581	0.575
CAL	1.008	1.010				
5'	0.016	0.885	3.400	71.921	138.899	2.128
SUM						
S1	0.051	0.904	3.400	100.000	183.231	-2.347
S2	0.009	0.876	3.400	100.000	181.373	2.410
S3	0.006	0.860	3.400	100.000	183.134	2.692
S4	0.006	0.873	3.400	100.000	181.385	2.754
S5	0.006	0.876	3.400	100.000	180.976	0.740

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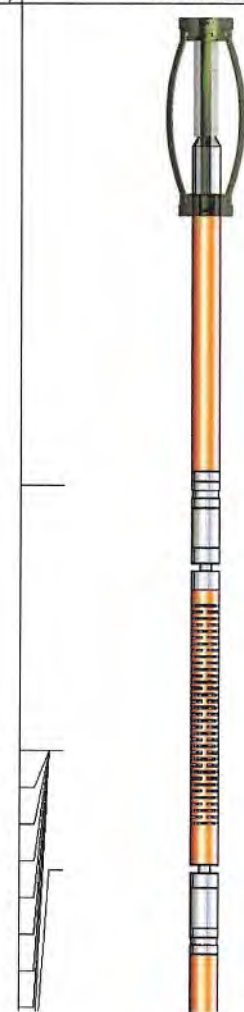
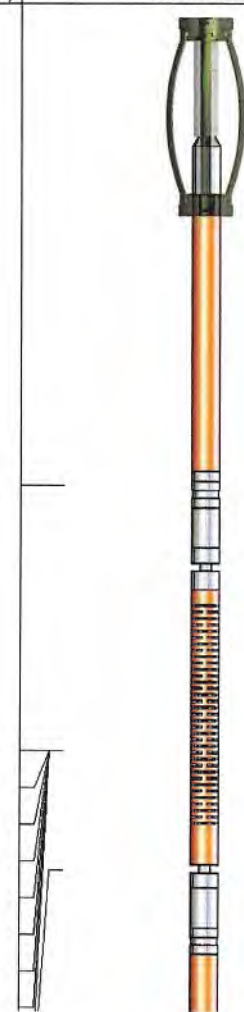
S5	0.000	0.870	3.400	100.000	180.370	2.730
S6	0.007	0.882	3.400	100.000	180.377	2.663
S7	0.006	0.873	3.400	100.000	181.487	2.713
S8	0.006	0.883	3.400	100.000	180.145	2.738

Internal Reference Calibration, performed (Not Performed):

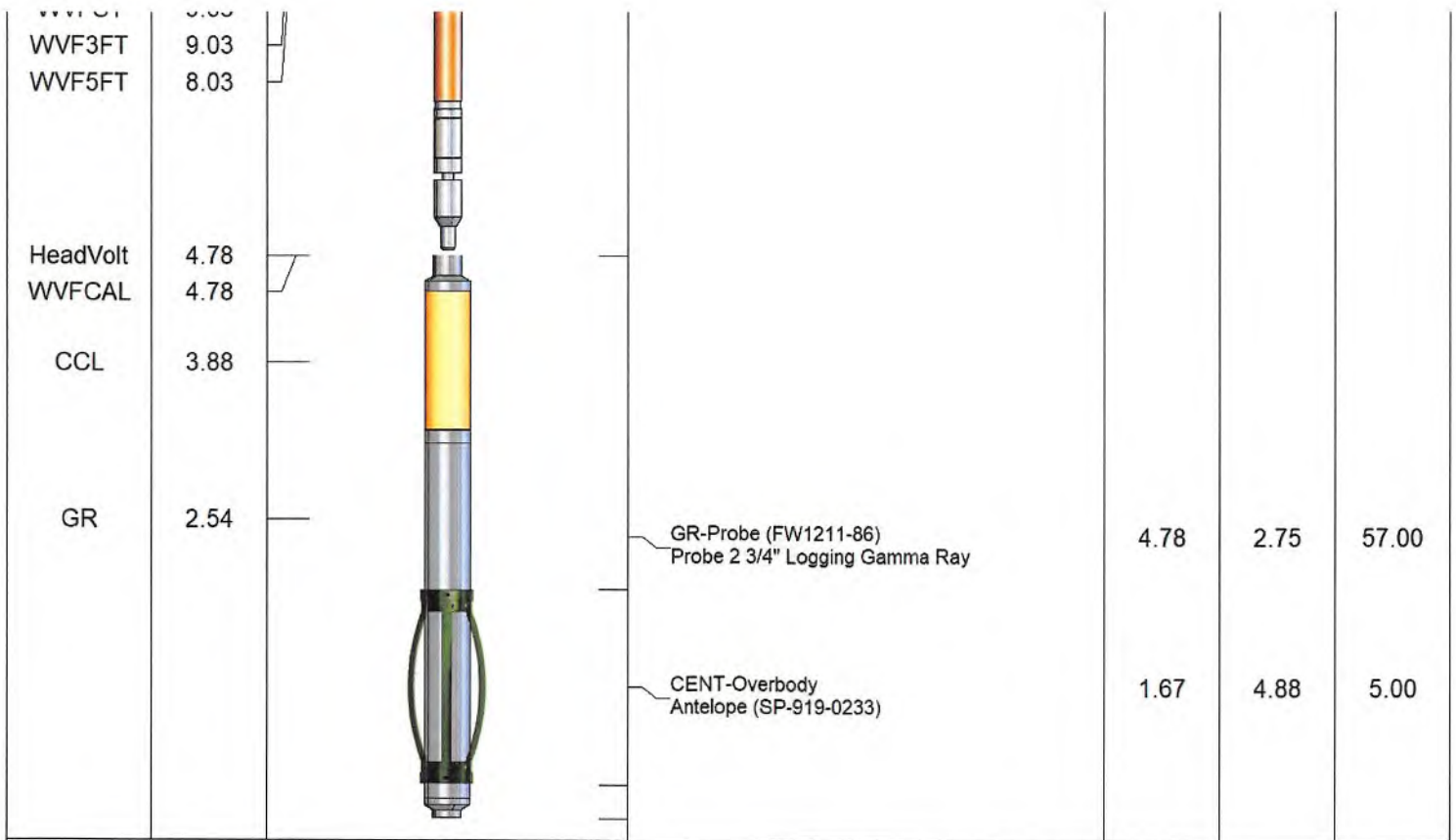
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	1.008	1.010	1.000	0.000

Air Zero Calibration, performed Sat May 02 06:23:05 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
			CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
Temp	11.27		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					

06/02/2023



Dataset: antero_gamehengeeast_possum2h_rcbl_nineenergy_may_1_2020.db: Rabbit_Ears/Possum_2H/RCBL_1/pass7.4
 Total length: 15.17 ft
 Total weight: 162.00 lb
 O.D.: 4.88 in

	Company	Antero Resources
	Well	Possum 2H
	Field	Rabbit Ears
	County	Tyler
	State	West Virginia

RECEIVED
 Office of Oil and Gas
 APR 03 2023
 WV Department of
 Environmental Protection

06/02/2023