



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

Company Antero Resources
Well Robert Lee 1H
Field Marcellus
County Tyler
State WV

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Well Robert Lee 1H
Field Marcellus
County Tyler State WV

Location: Rush Fork Pad Lat: 39.4167
Long: -80.9697
API #: 47-095-02558

Permanent Datum SEC TWP RGE
Log Measured From Kelly Bushing 25' A.P.D.
Drilling Measured From Kelly Bushing

Other Services
JB/GR 4.50"
Elevation
K.B. 1,011'
D.F. 1,010'
G.L. 986'

Date	22-Jun-19					
Run Number	One					
Depth Driller	22,910'					
Depth Logger	6,593'					
Bottom Logged Interval	6,593'					
Top Log Interval	Surface					
Open Hole Size	N/A					
Type Fluid	Water					
Density / Viscosity	N/A					
Max. Recorded Temp.	140 Deg.F.					
Estimated Cement Top	4,222'					
Time Well Ready	16:30					
Time Logger on Bottom	18:43					
Equipment Number	104 (P4) (G4)					
Location	Washington, PA					
Recorded By	Matt McNally					
Witnessed By	Marty Eicher					
Borehole Record						
Run Number	Bit	From To	Size	Weight	Tubing Record	
					From To	
Casing Record			Size	Wgt/ft	Top	Bottom
Surface String						
Prot. String						
Production String			5 1/2"	23 LBS	Surface	22,910'
Liner						
Marker Joint					5,450'	5,460'

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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 Kelly Bushing
Marker Joint found at (5,450' - 5,460')
Casing Tally Marker Joint at (4,854' - 4,863')

Main Pass Logged at 1,500 PSI
Repeat Pass Logged at 0 PSI

RECEIVED
Office of Oil and Gas
APR 07 2023
WV Department of
Environmental Protection

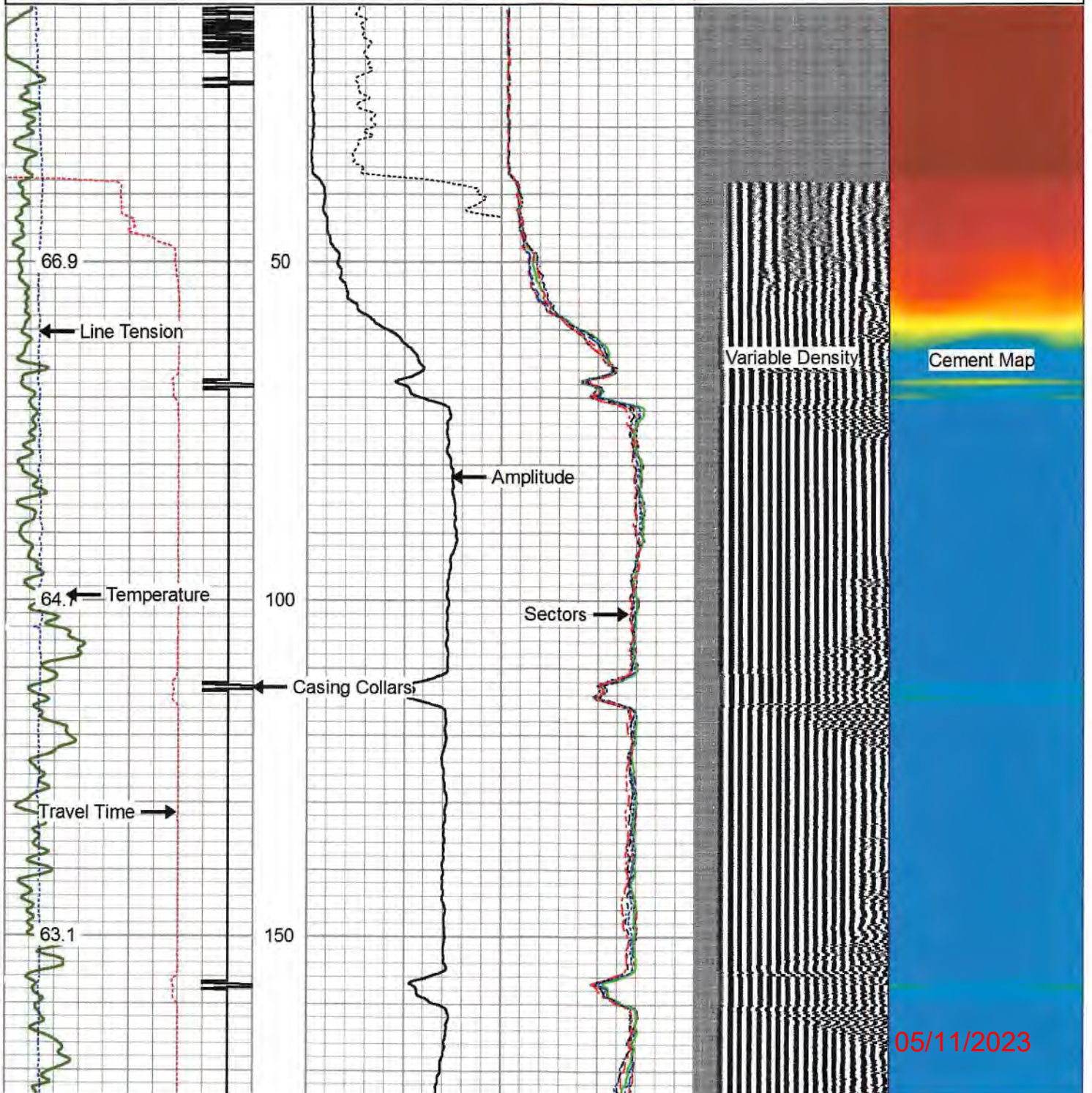
Thank you for using Nine Energy Wireline Service. Washington, PA

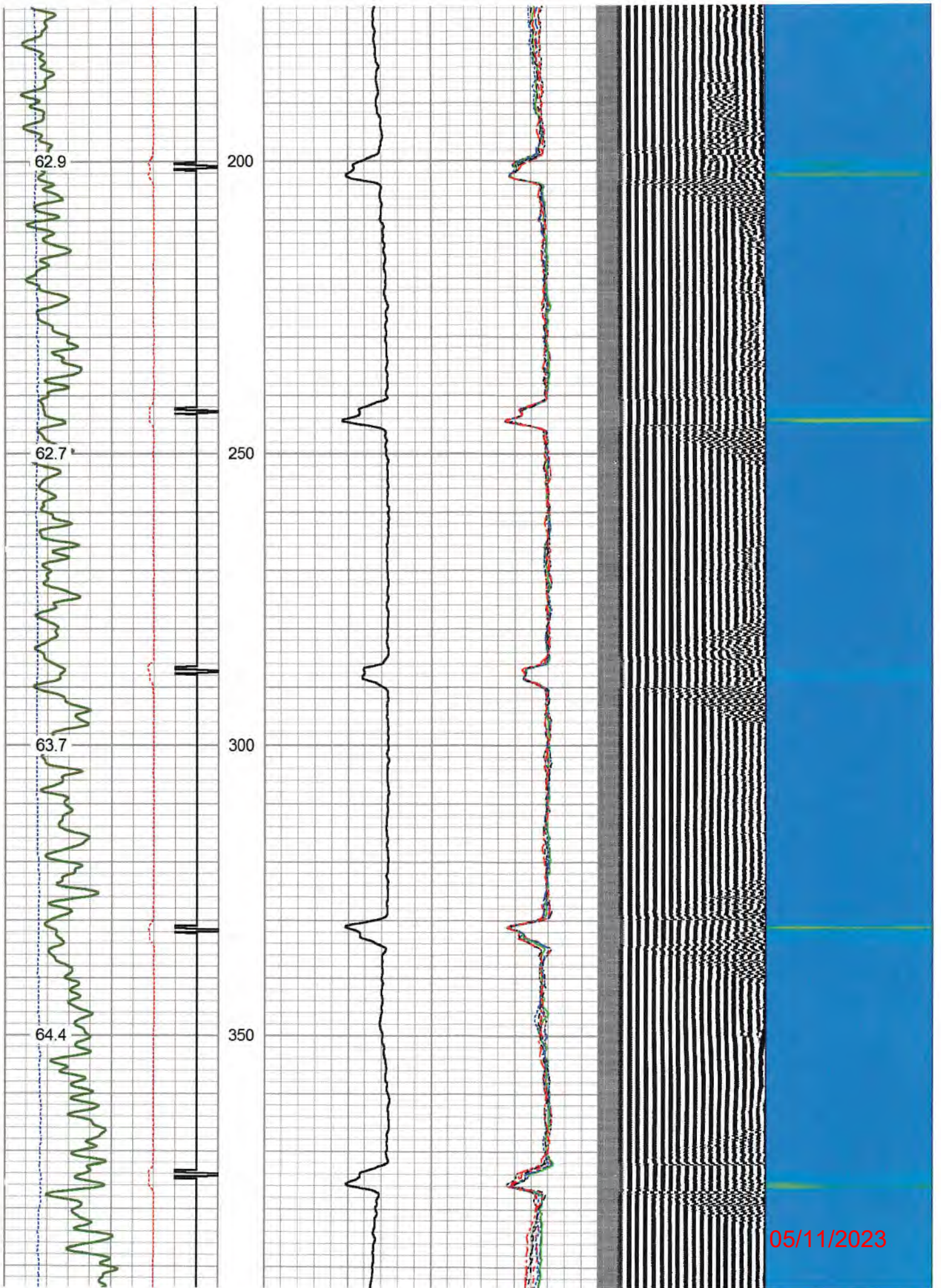


Main Pass 1,500 PSI

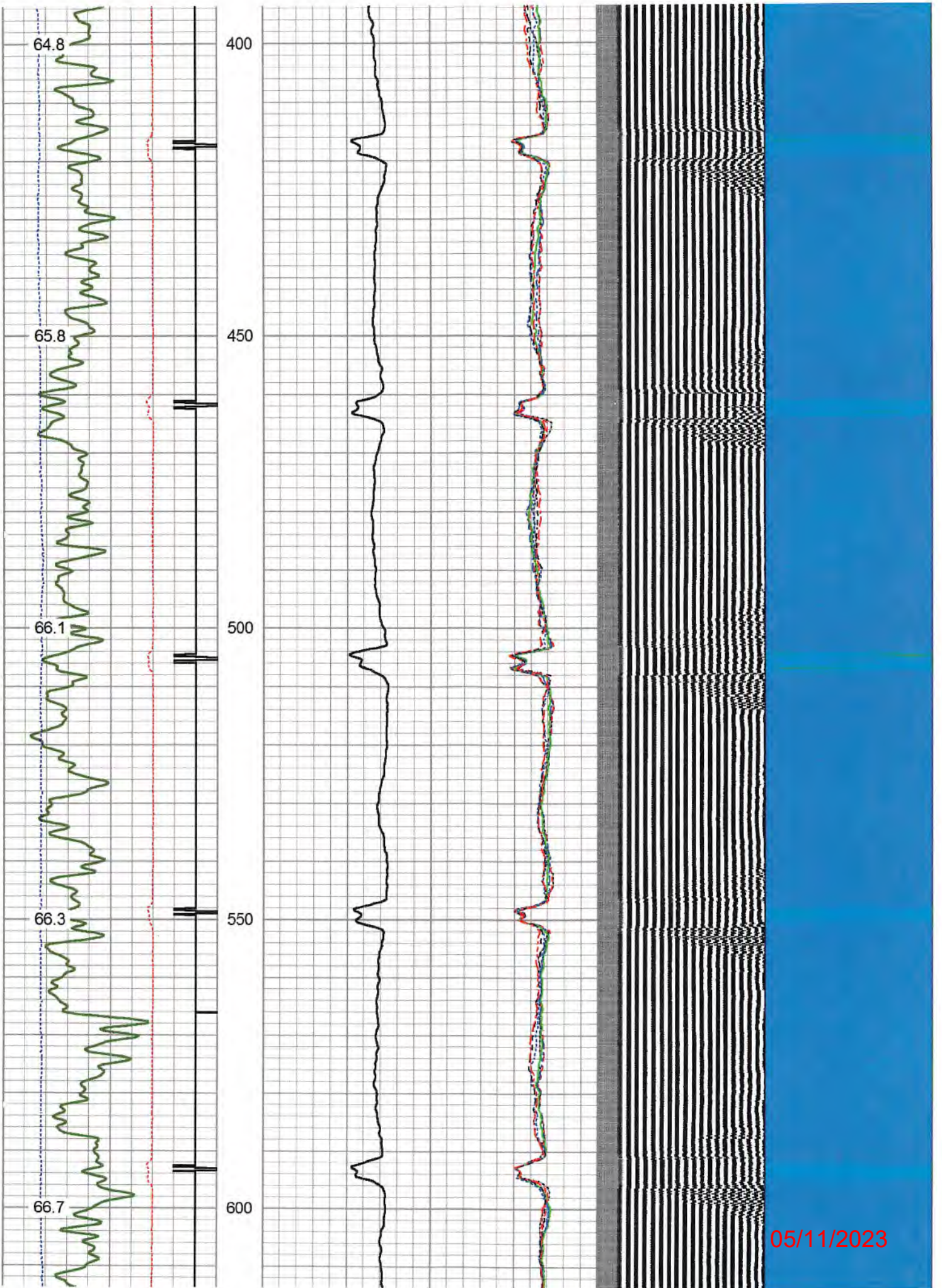
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 Dataset Pathname marcellus/1h/rcbl/pass10
 Presentation Format scbl03
 Dataset Creation Sat Jun 22 17:16:26 2019
 Charted by Depth in Feet scaled 1:240

400	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)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				
Temp						-5	Sector 5	150				
(degF)						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				

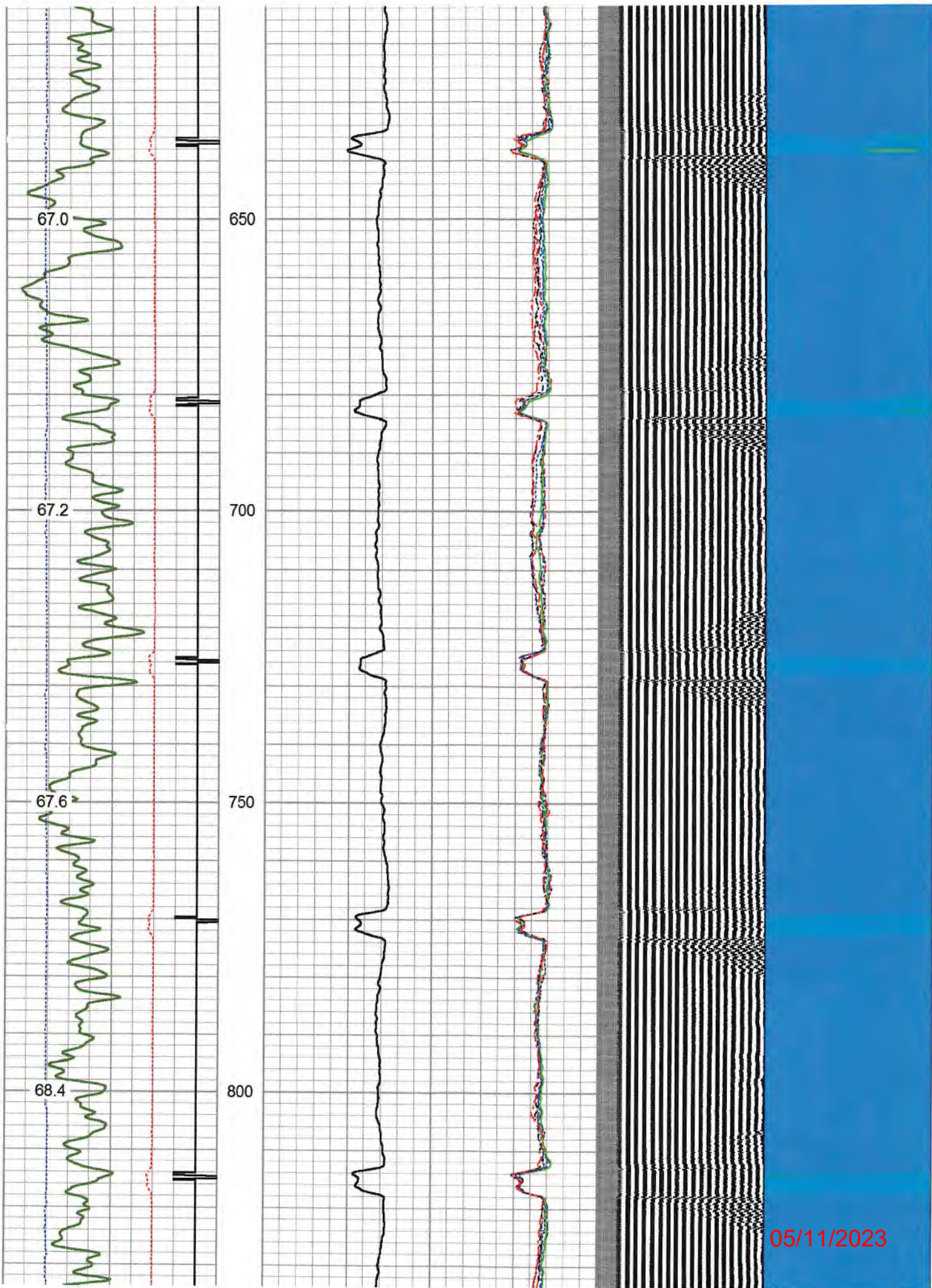


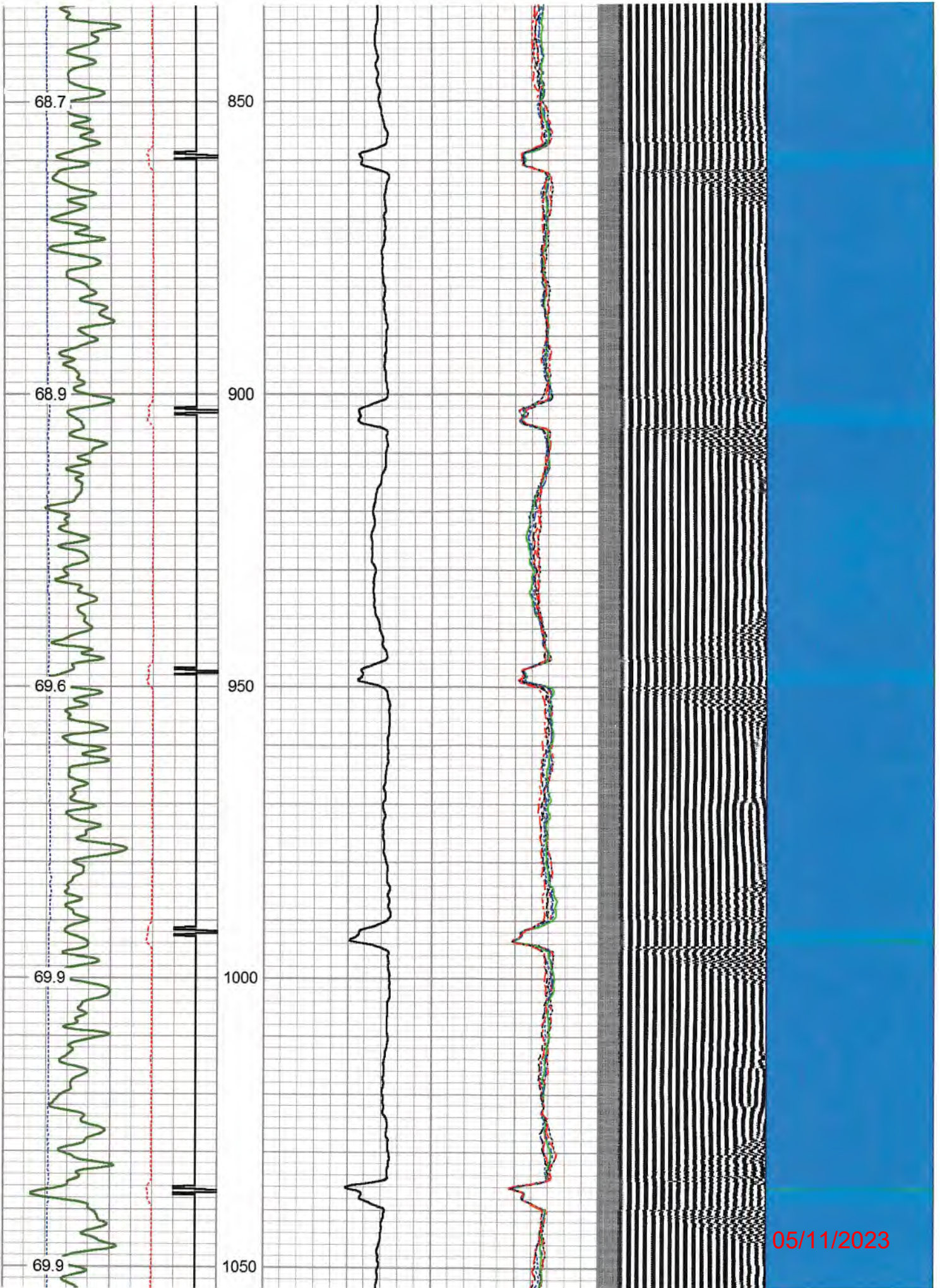


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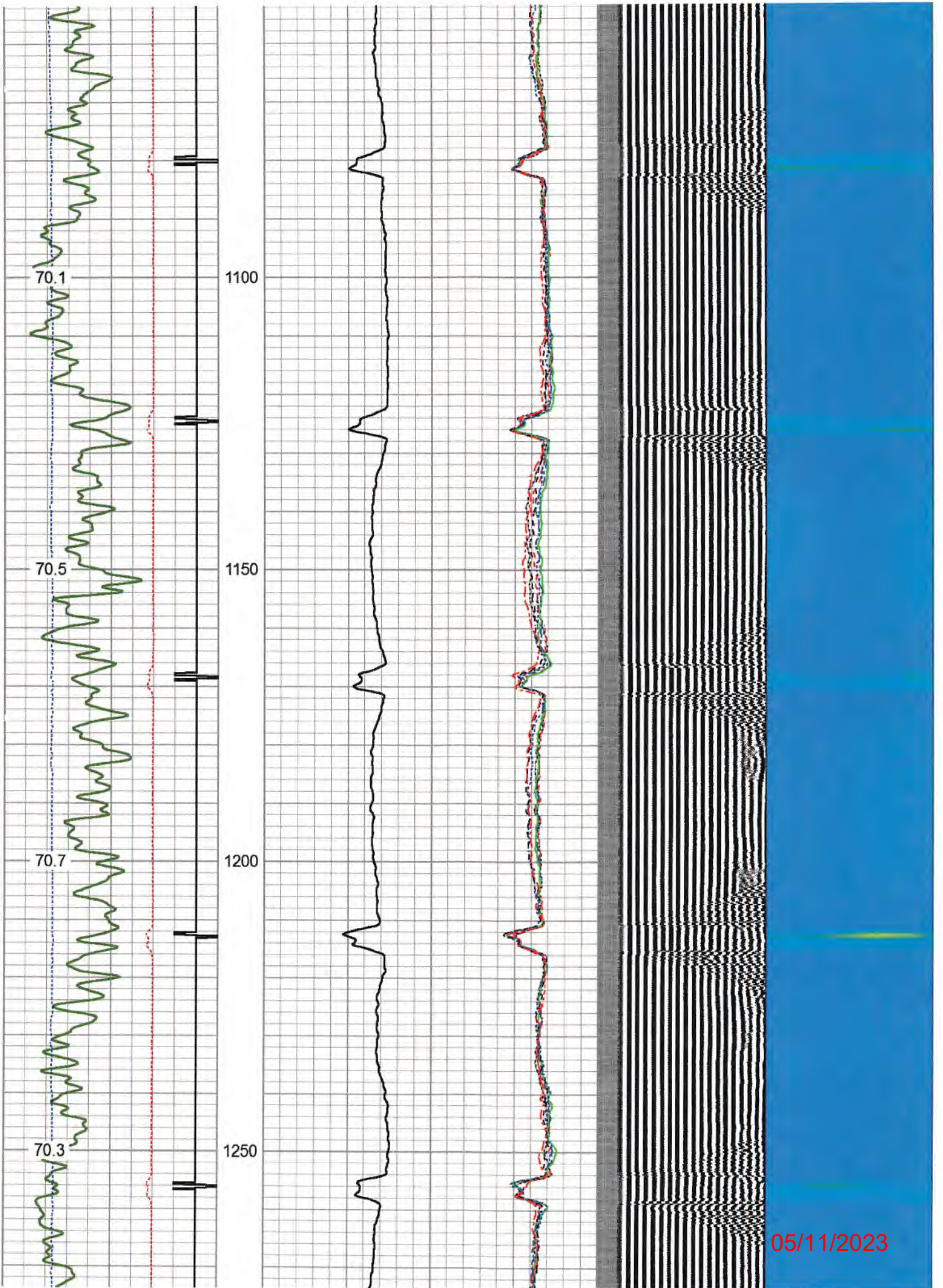


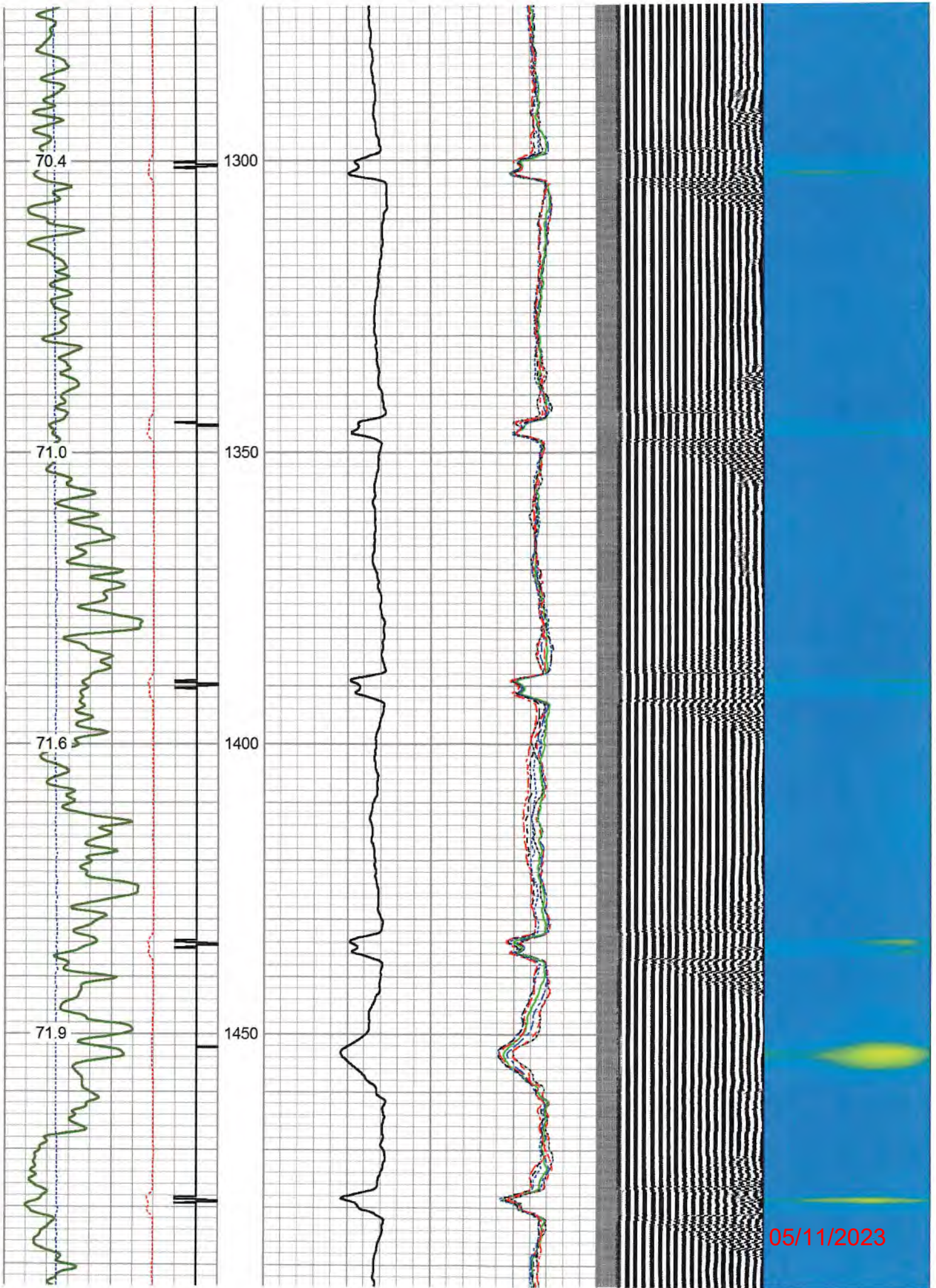
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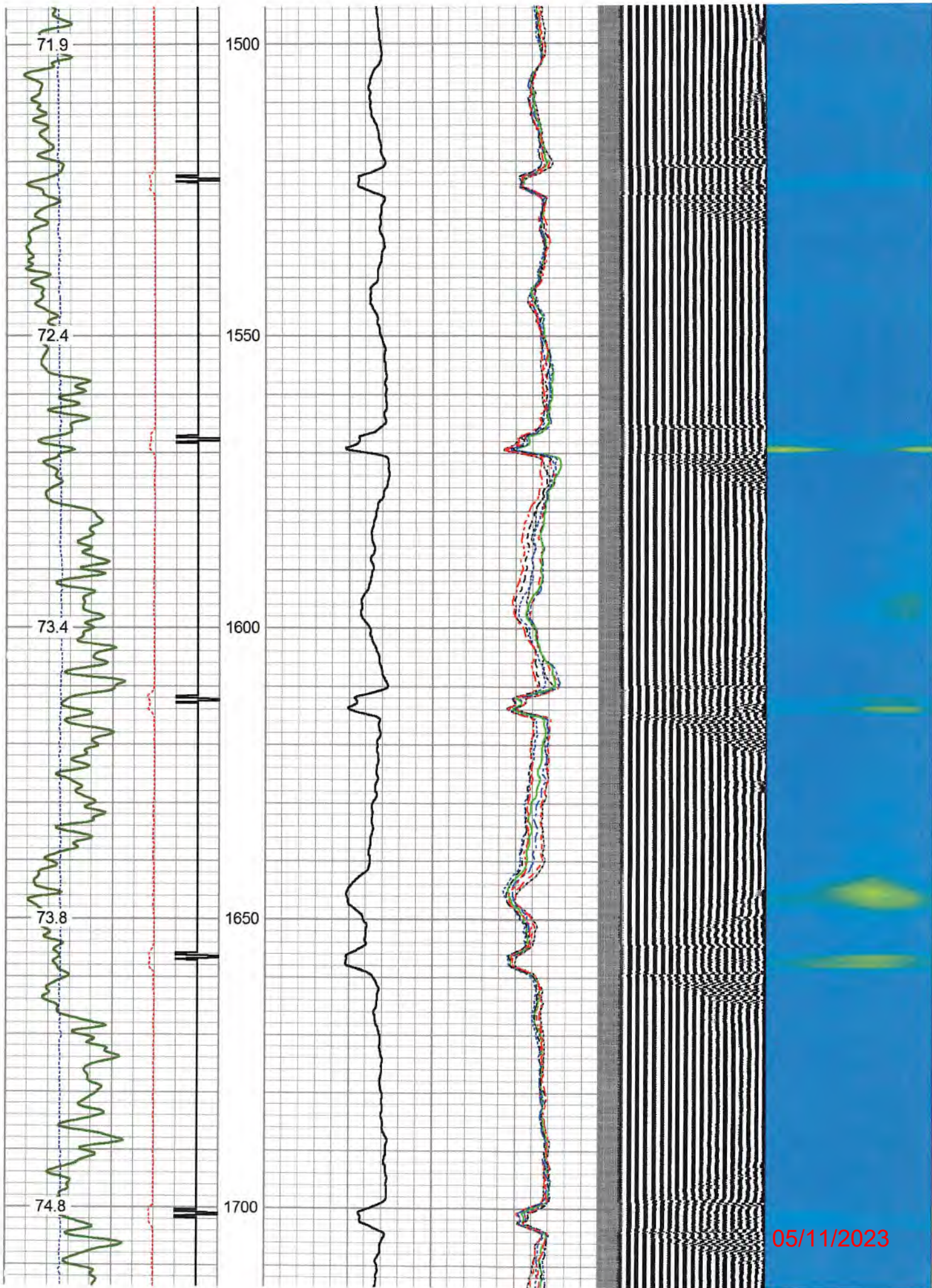


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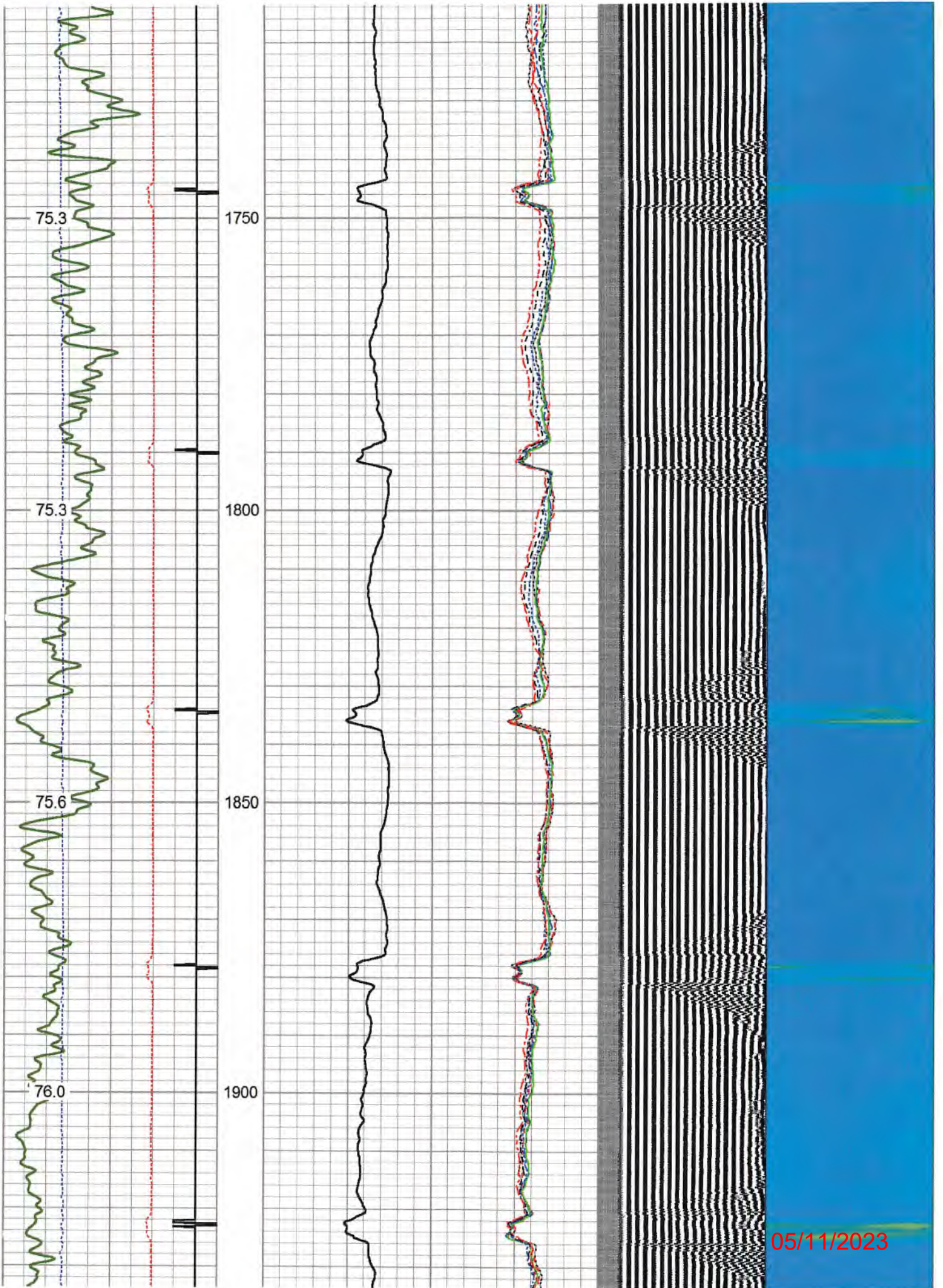




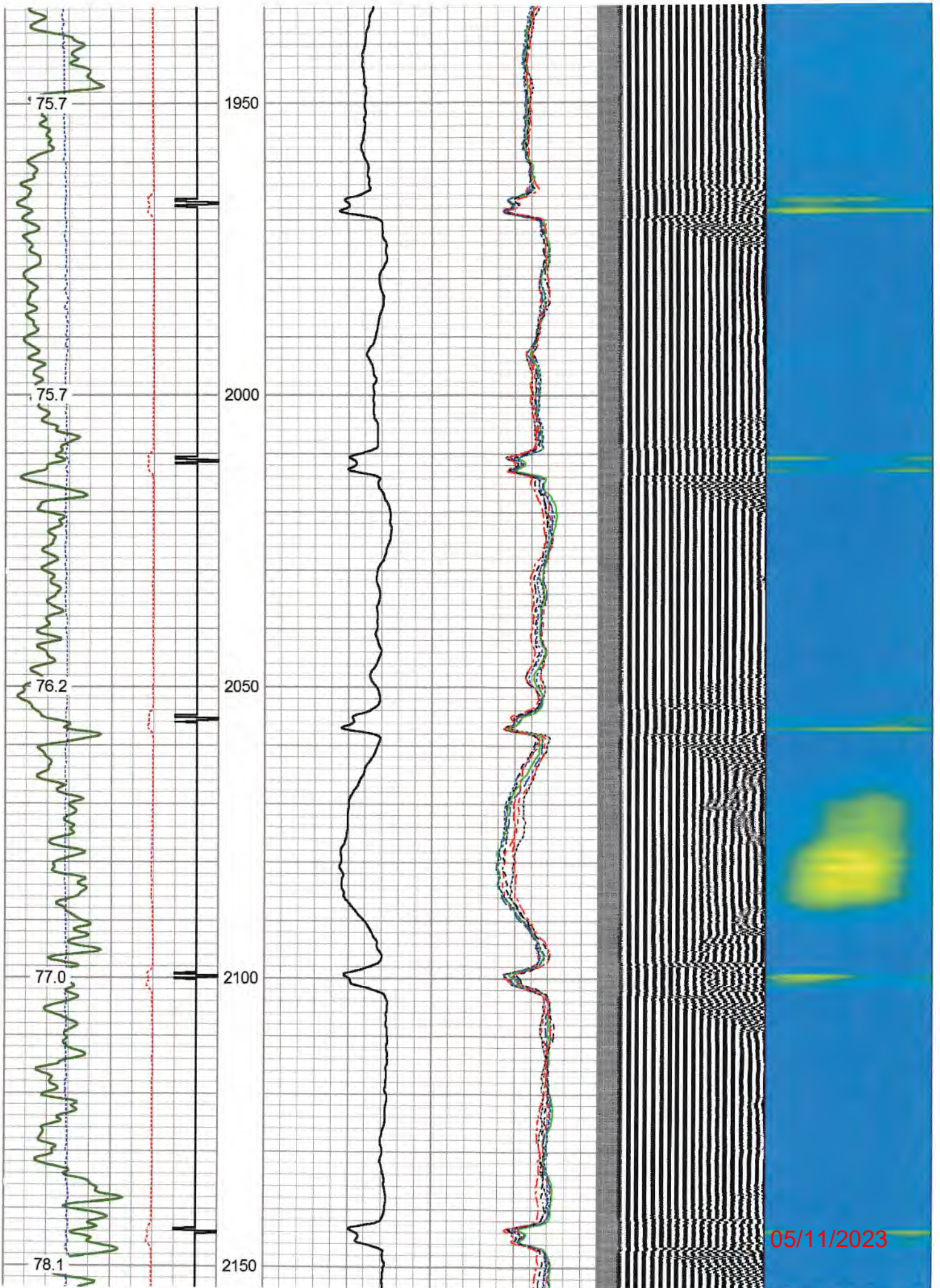
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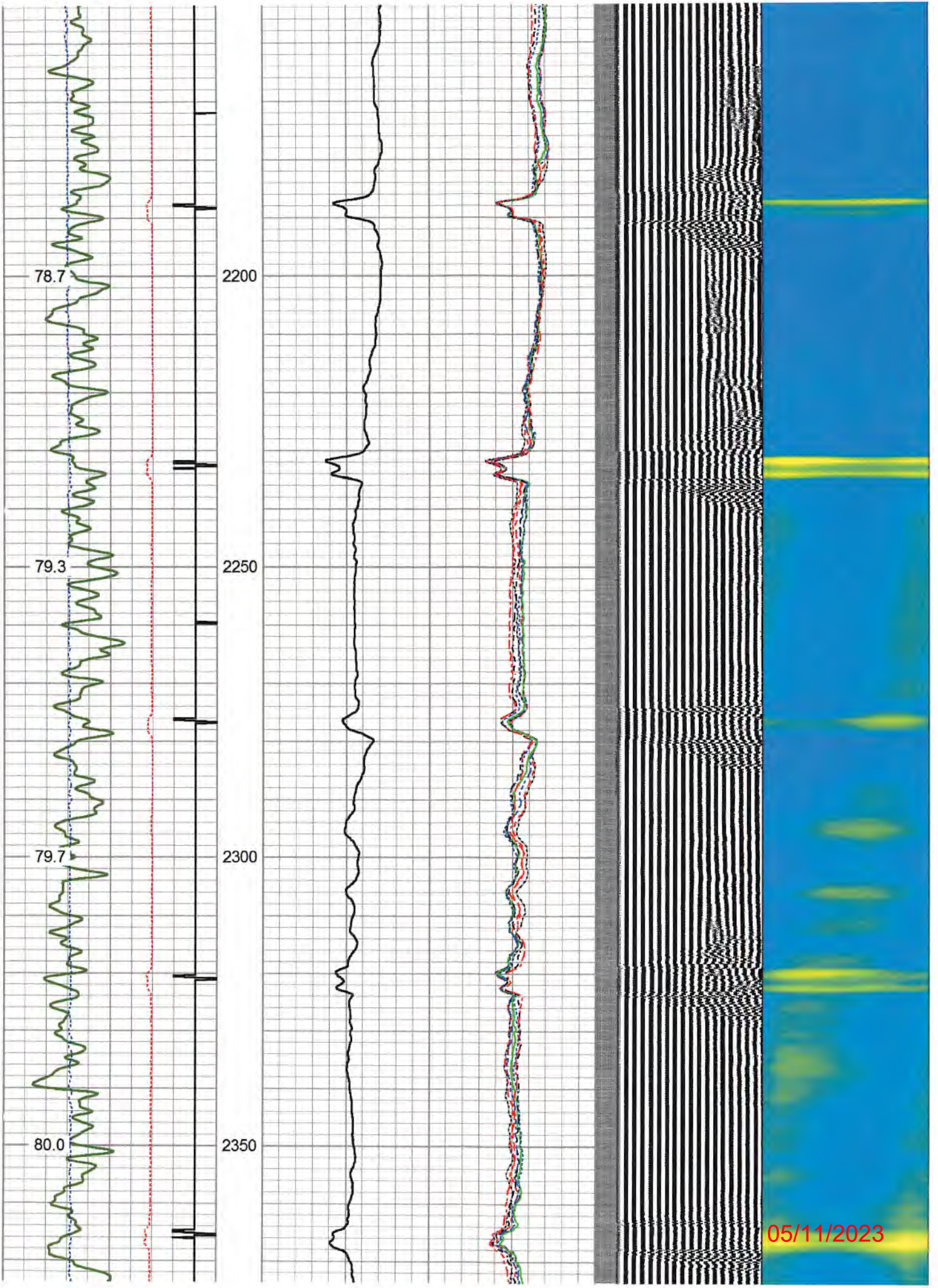


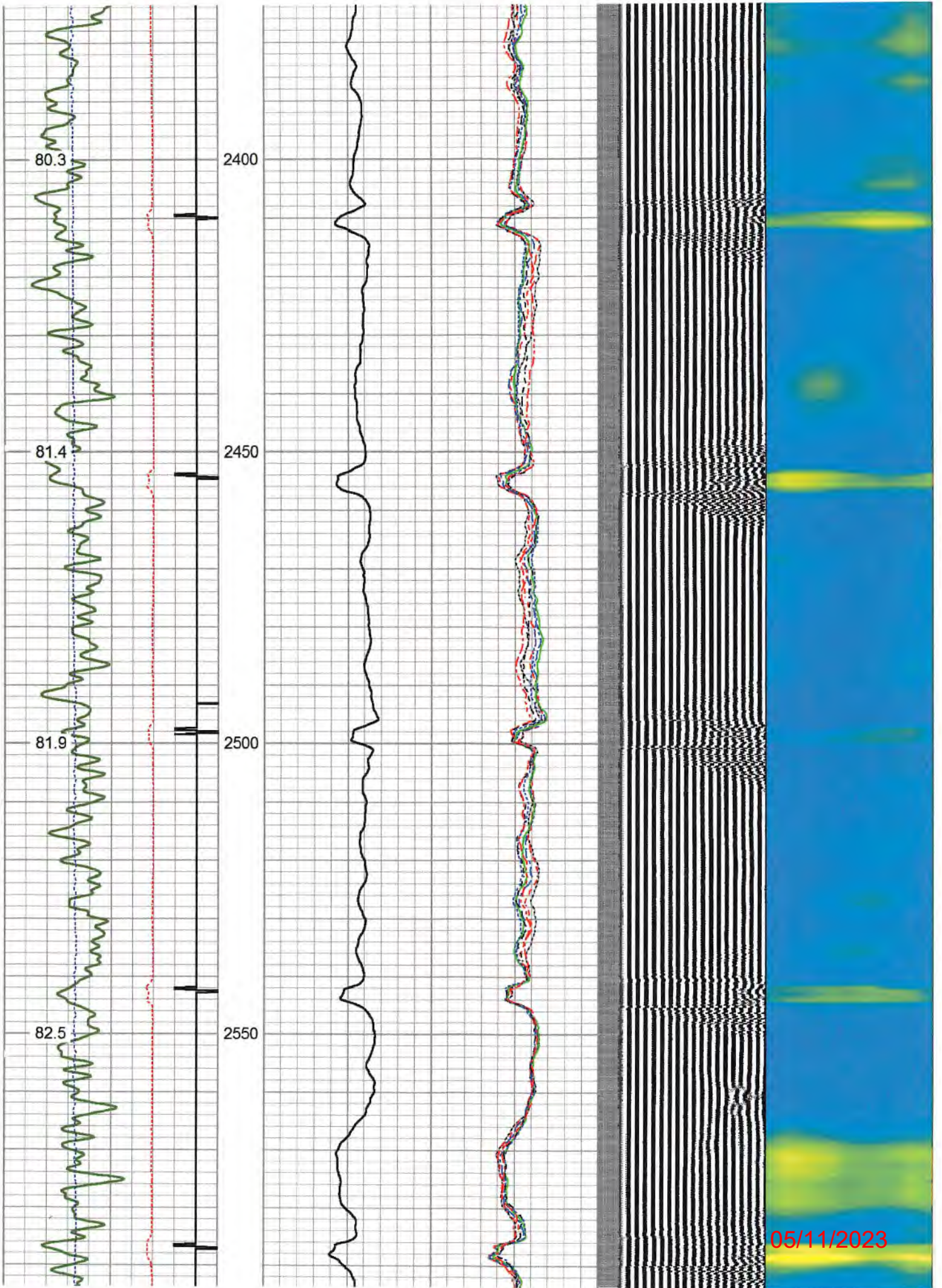
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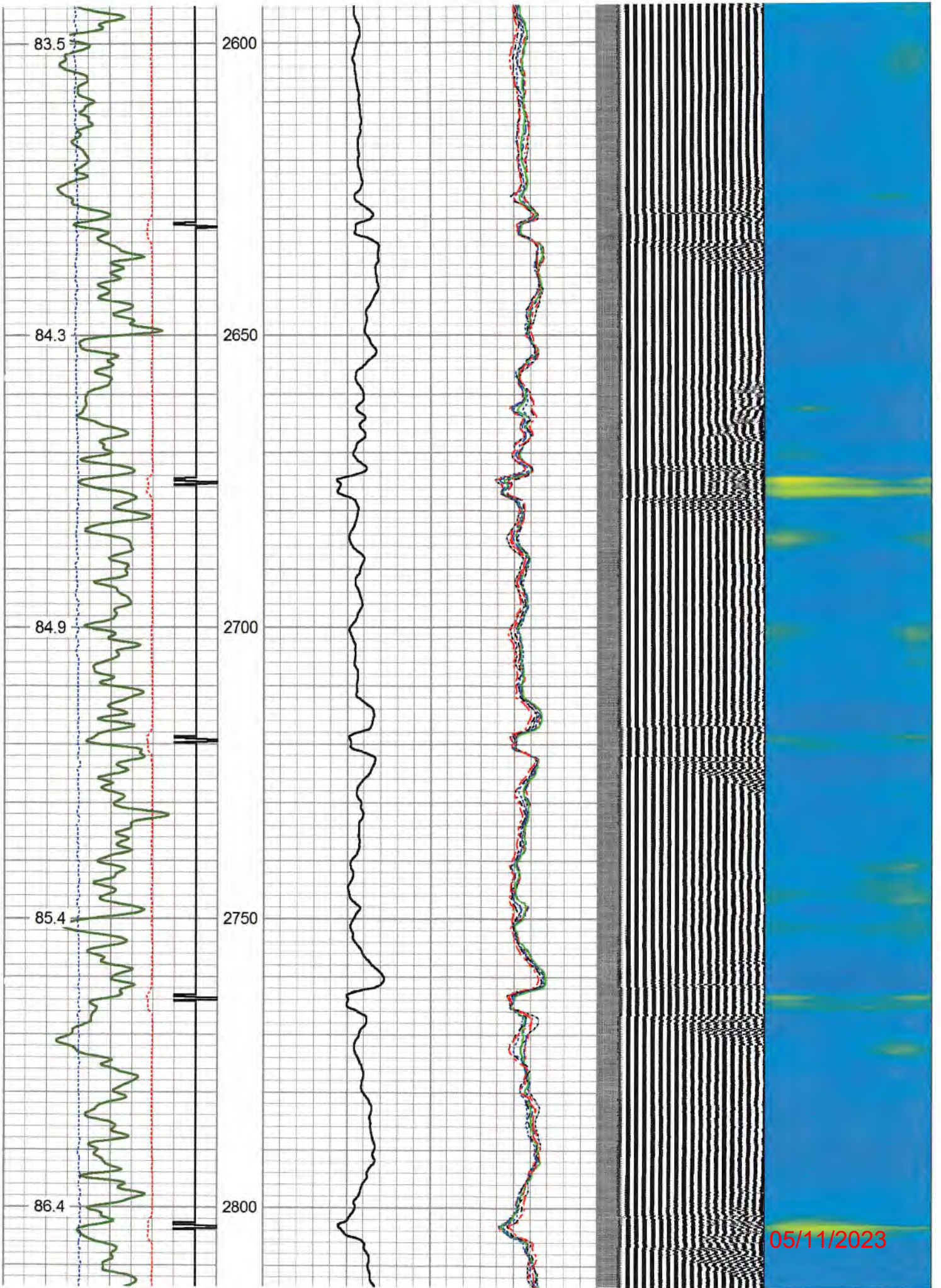


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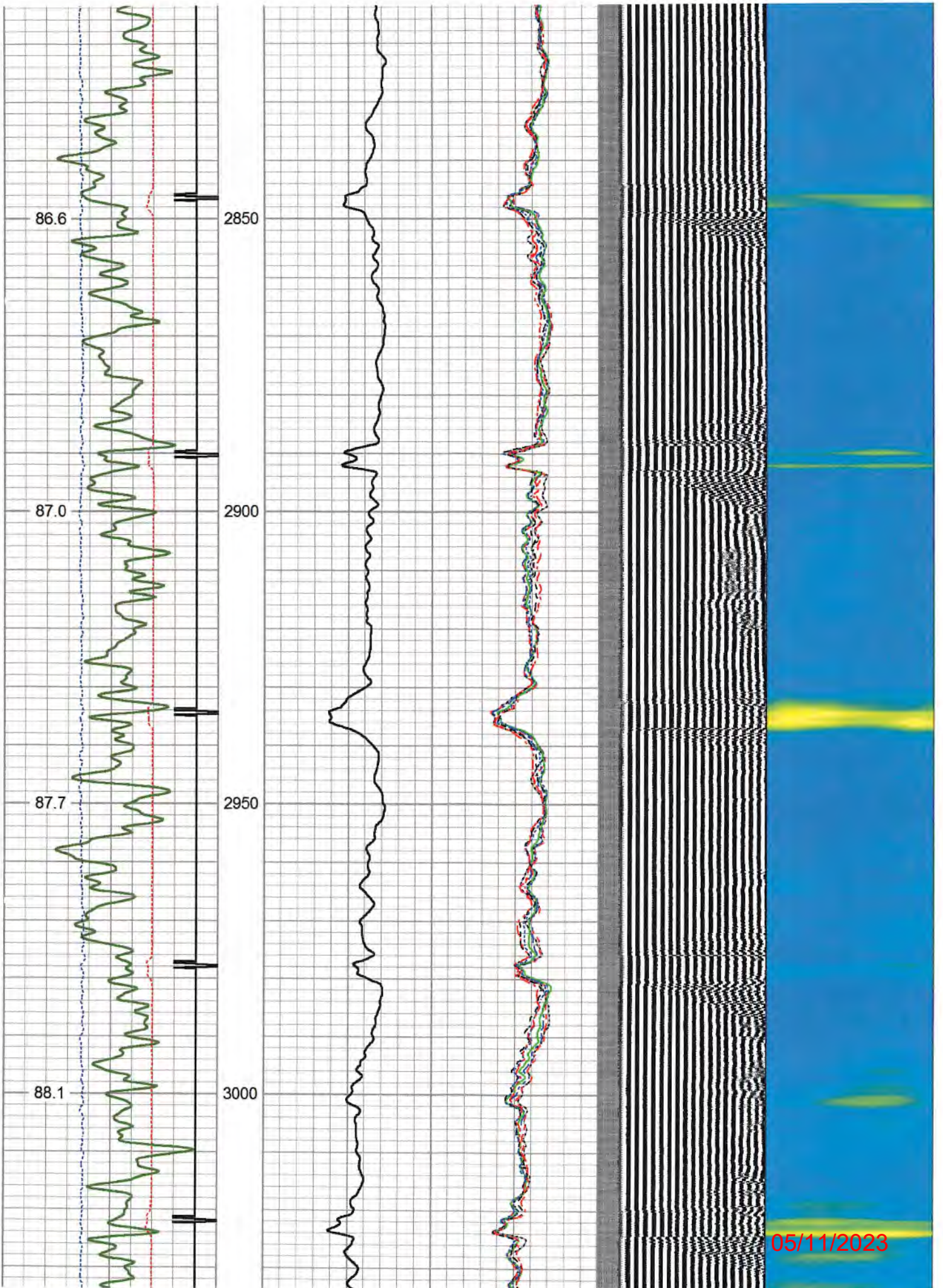


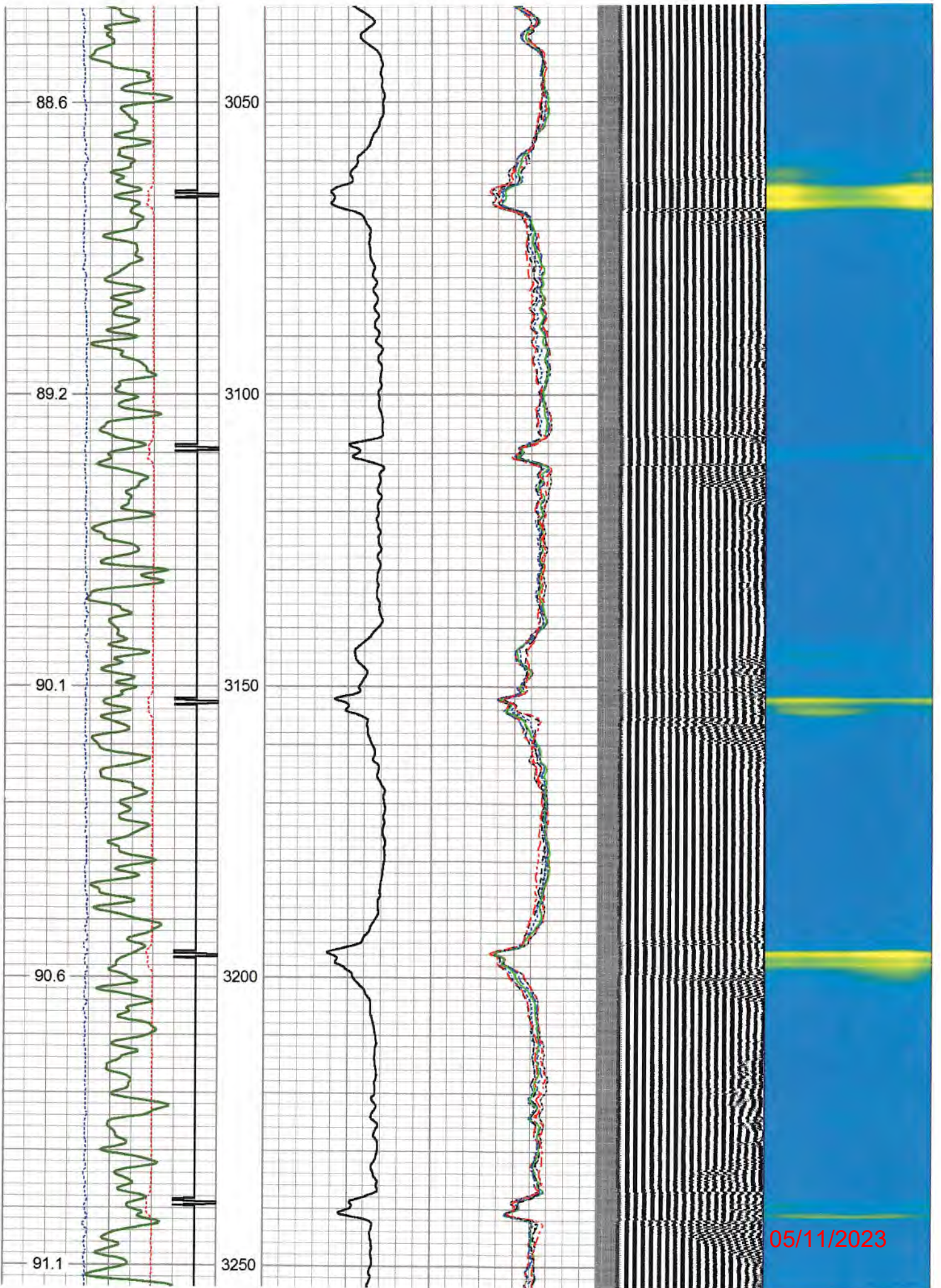


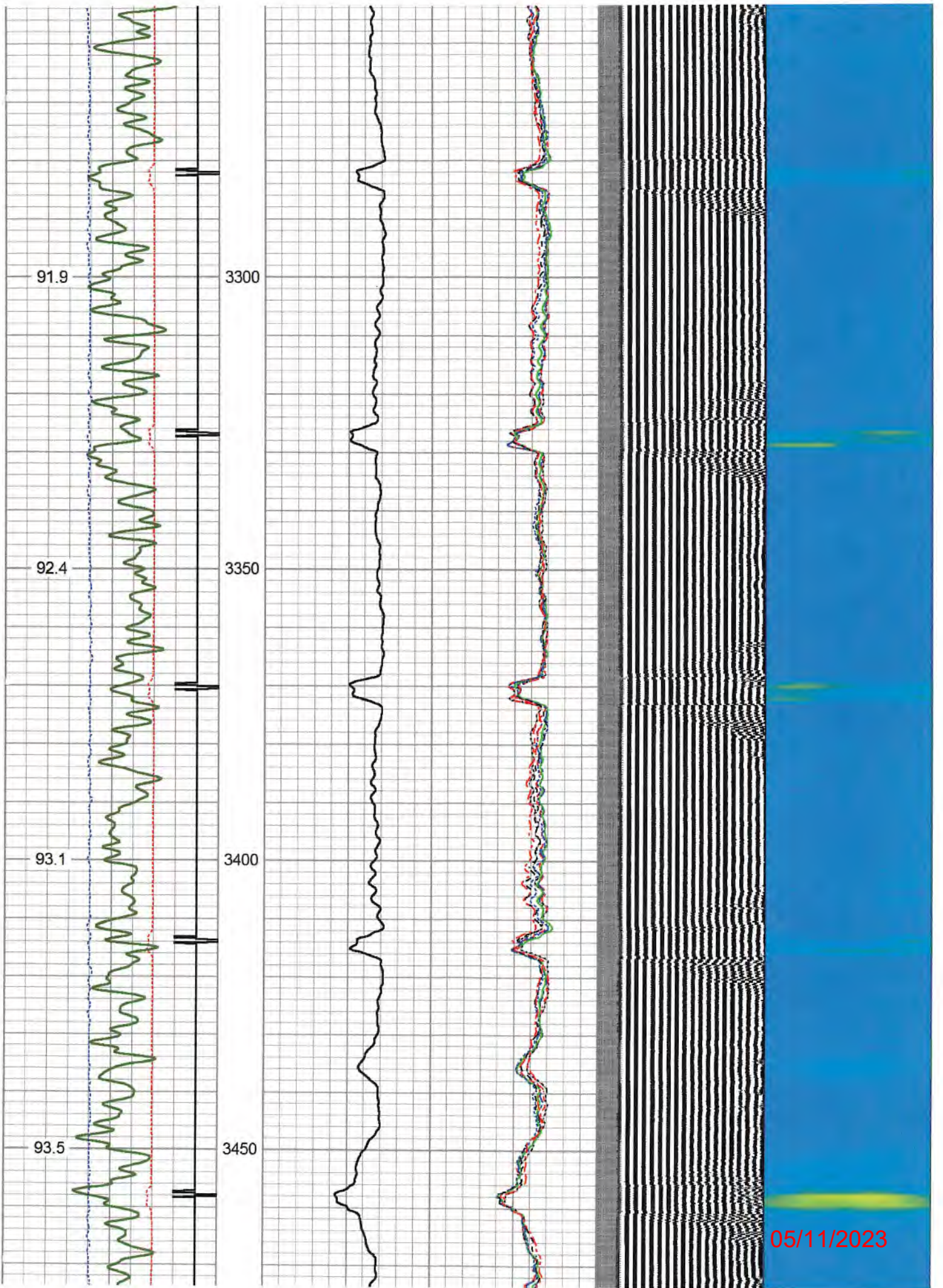


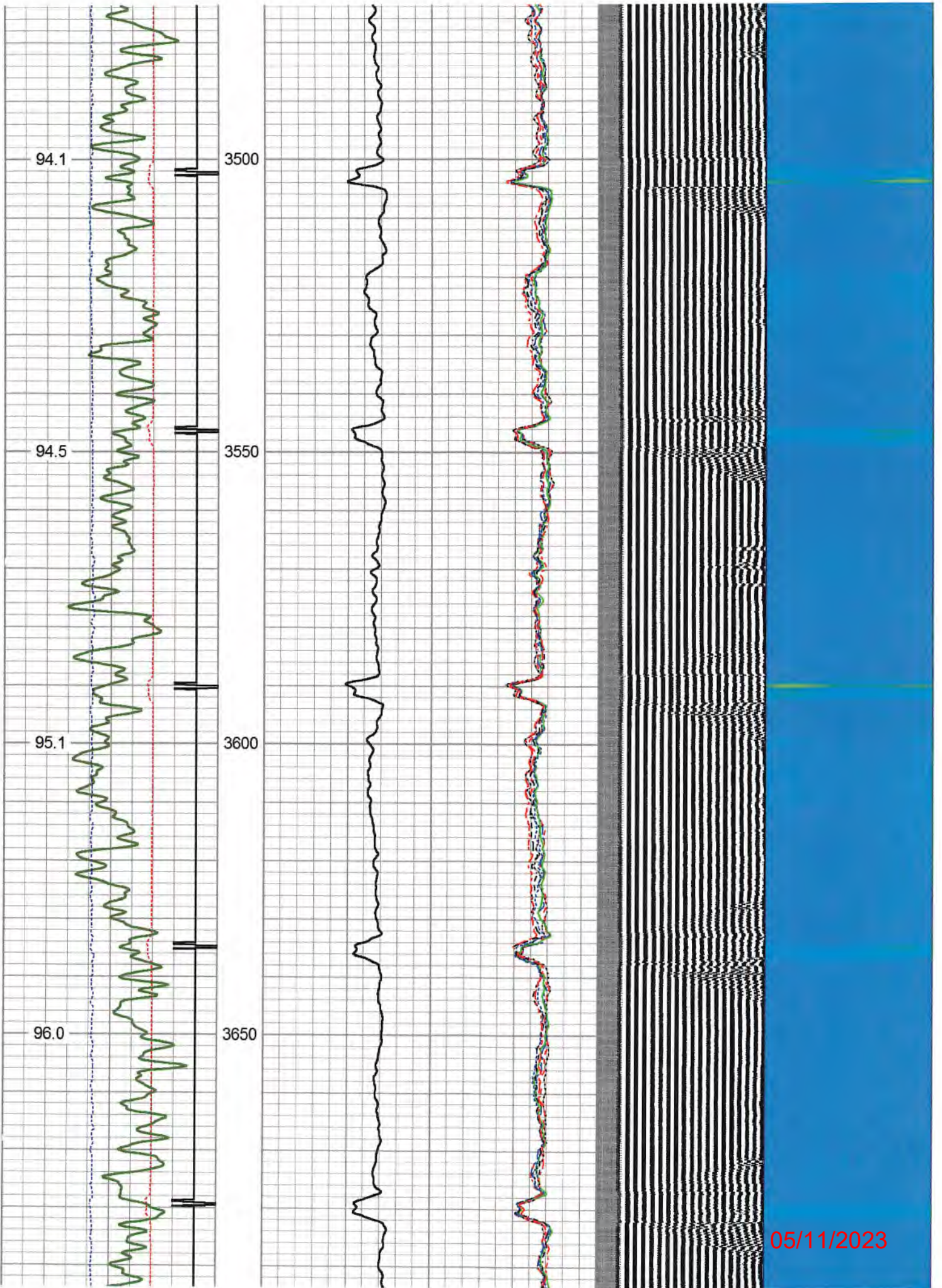


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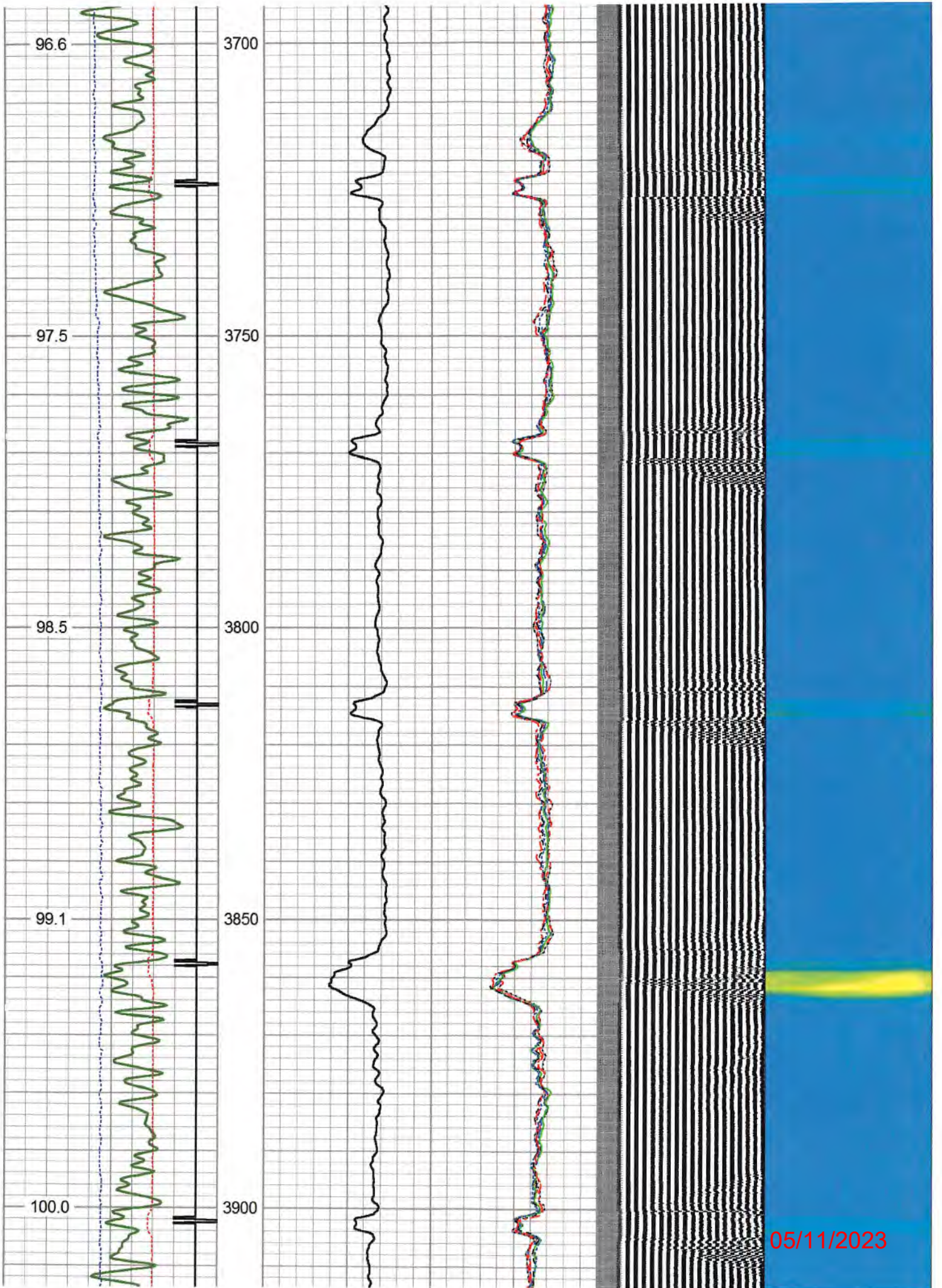


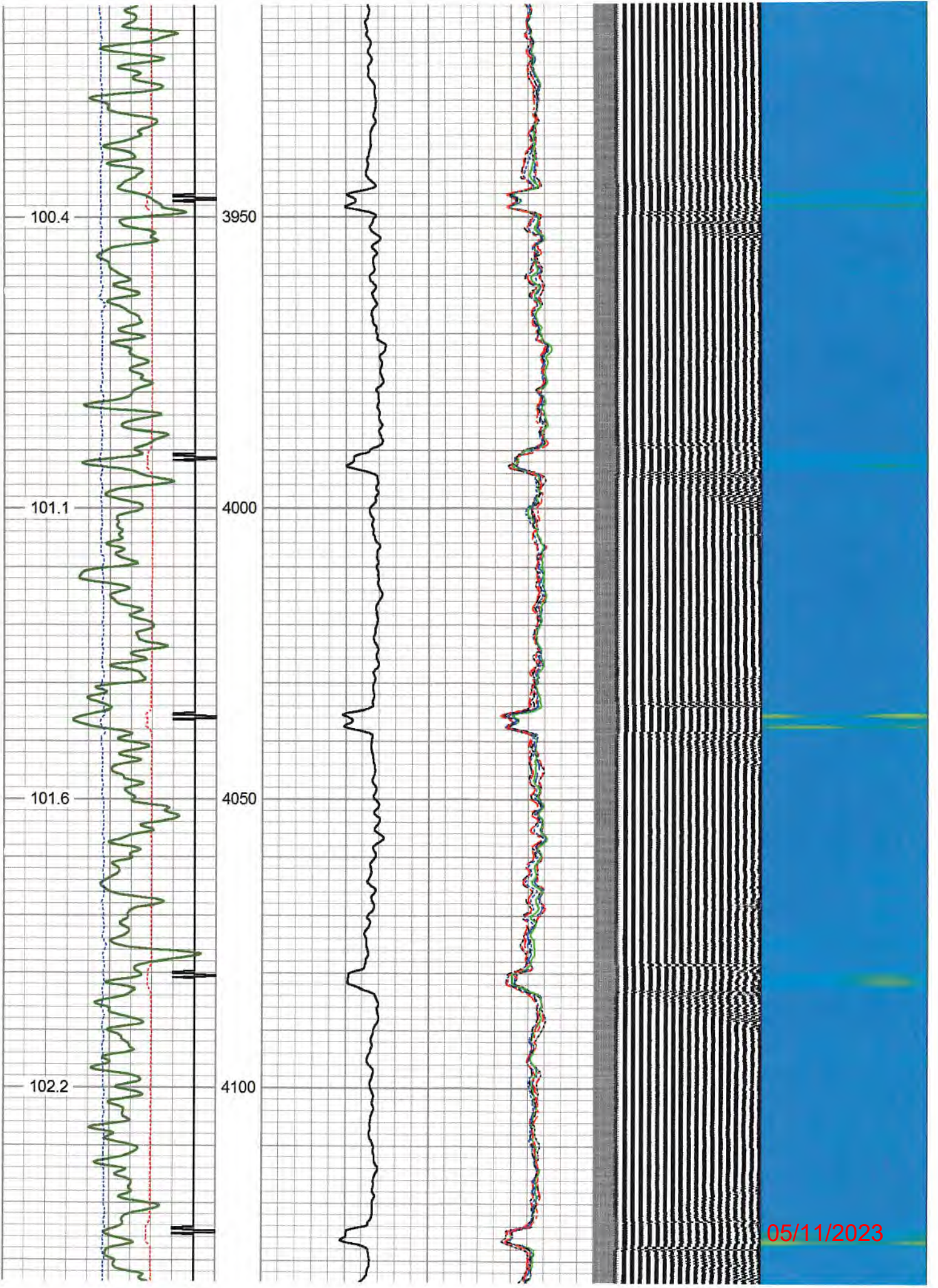




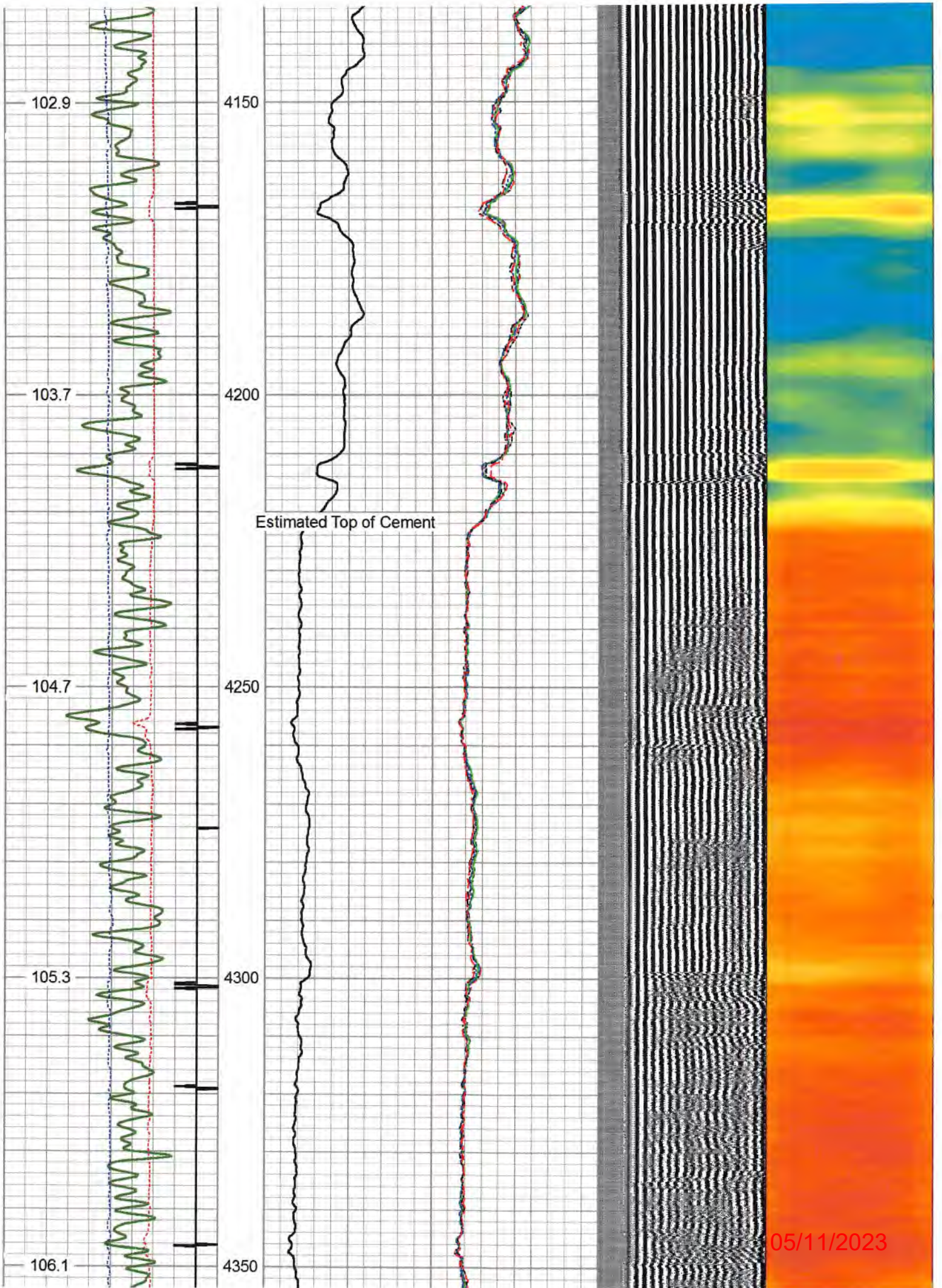


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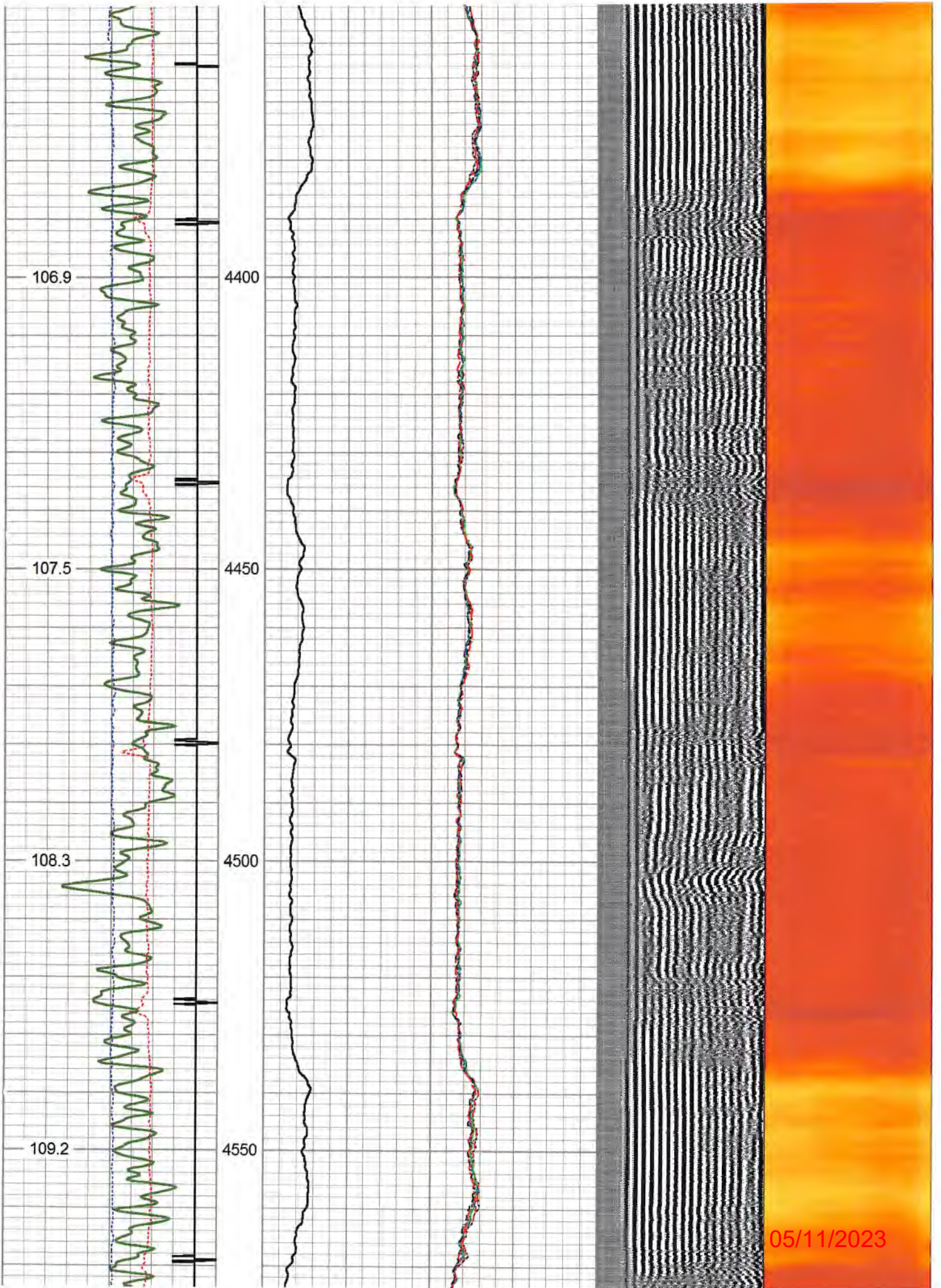




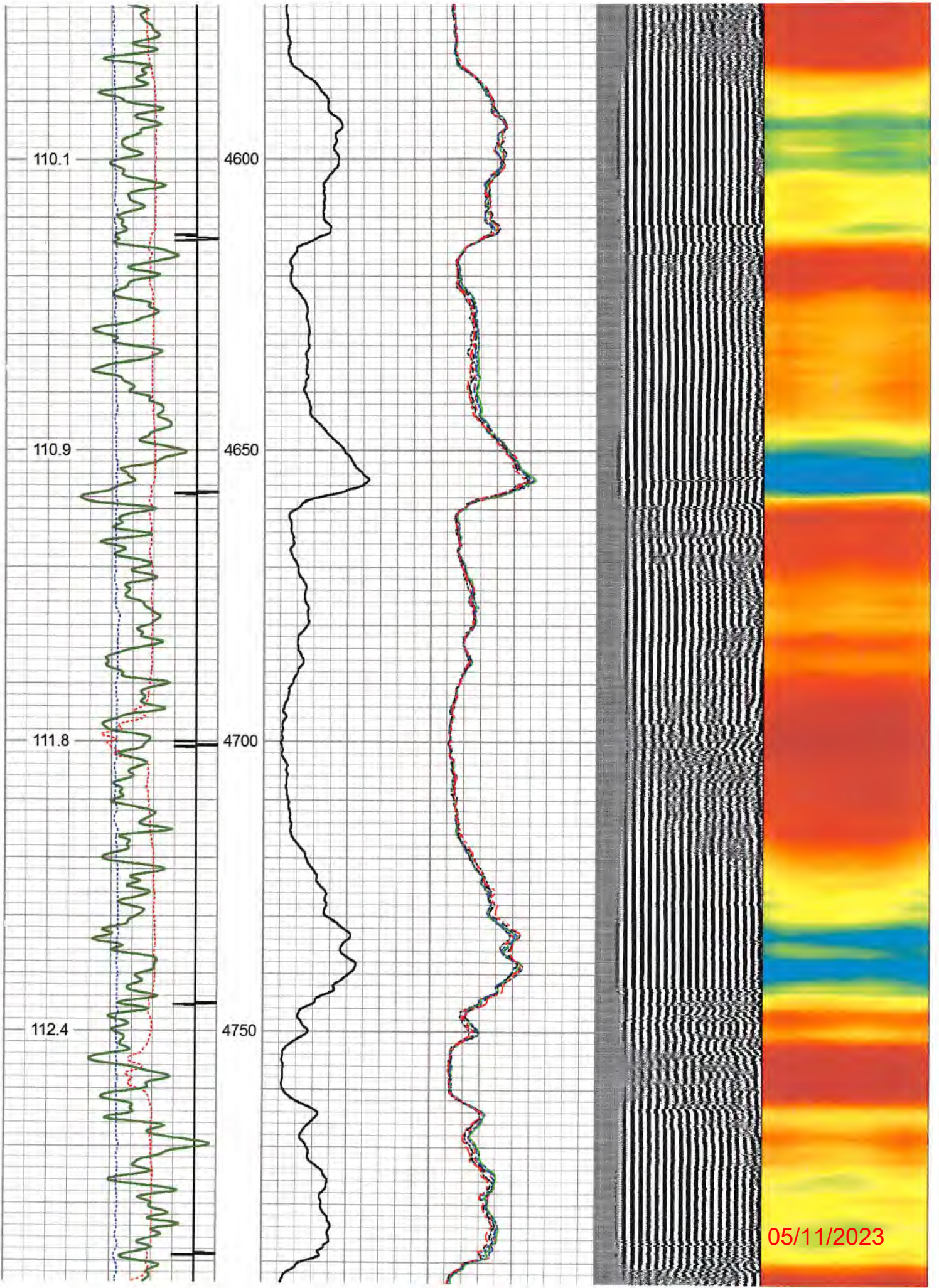
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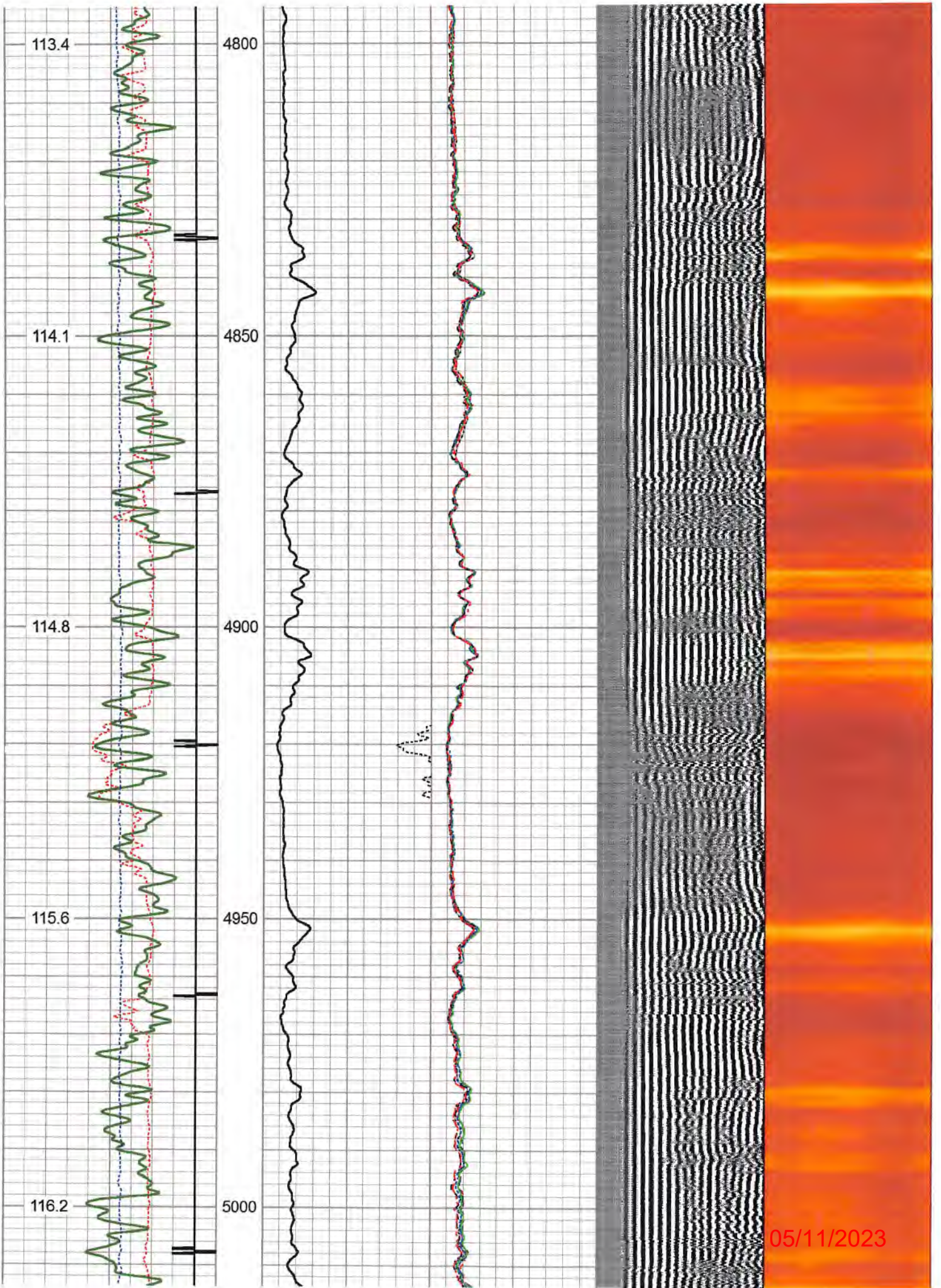
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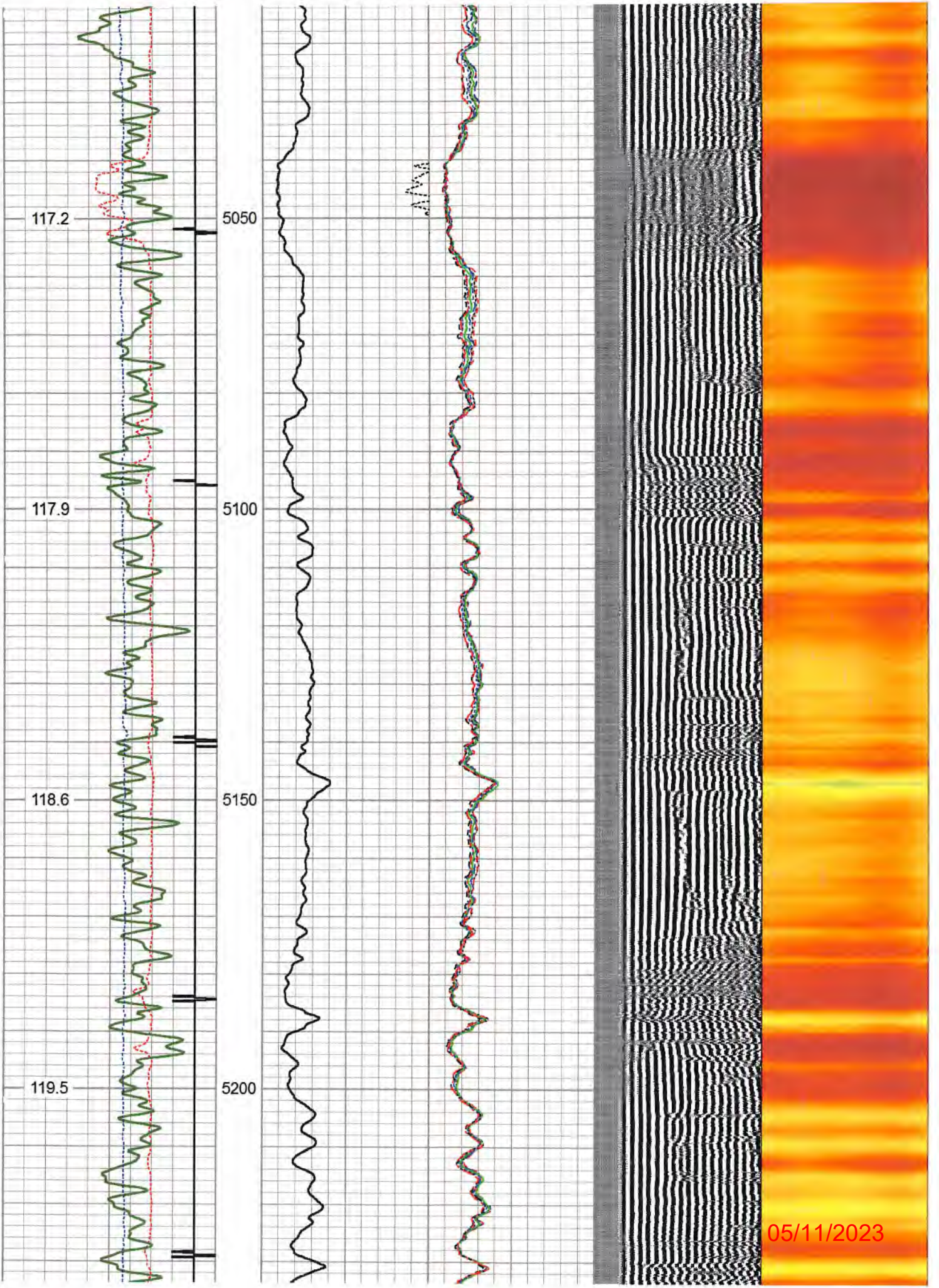


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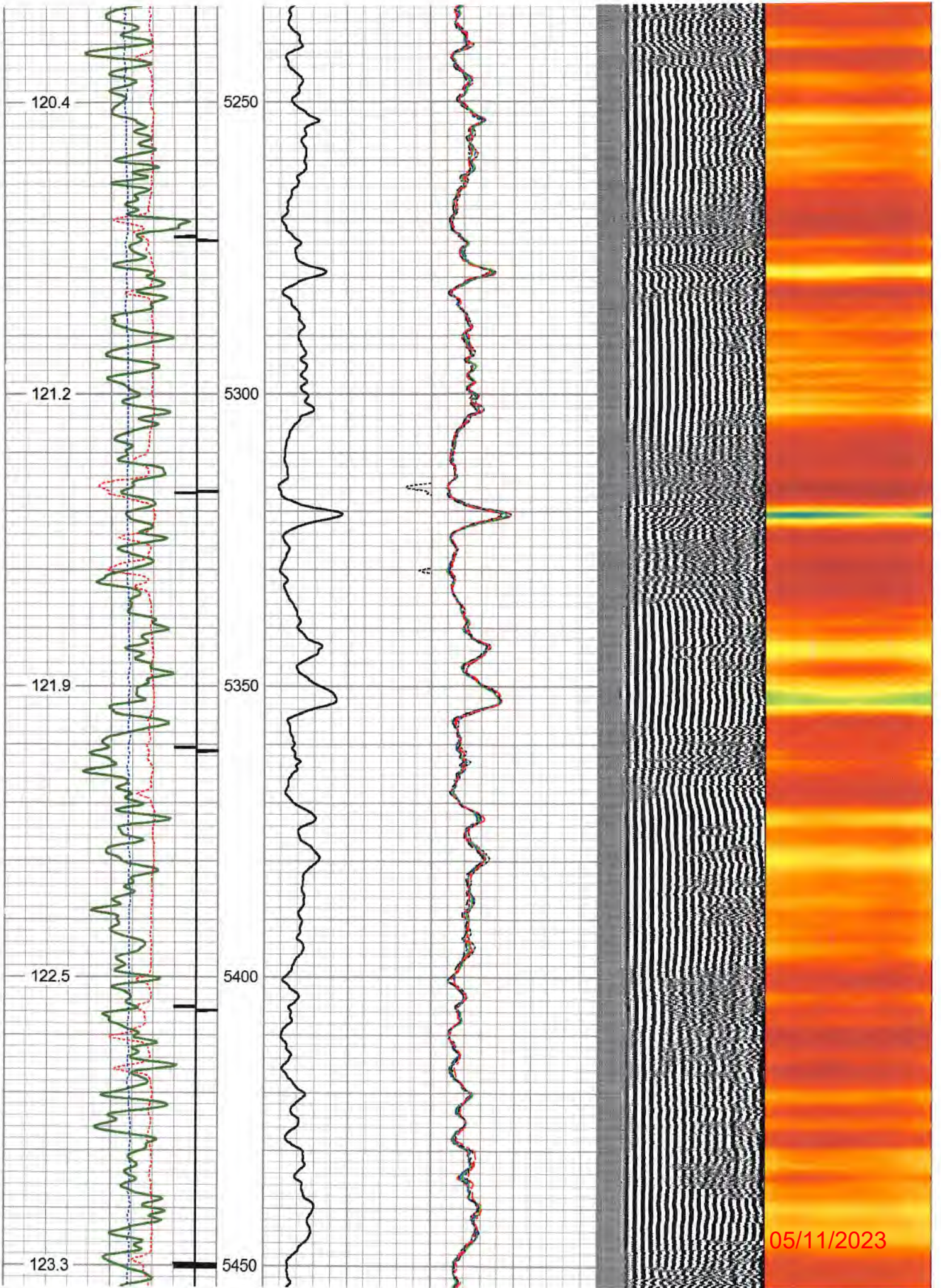


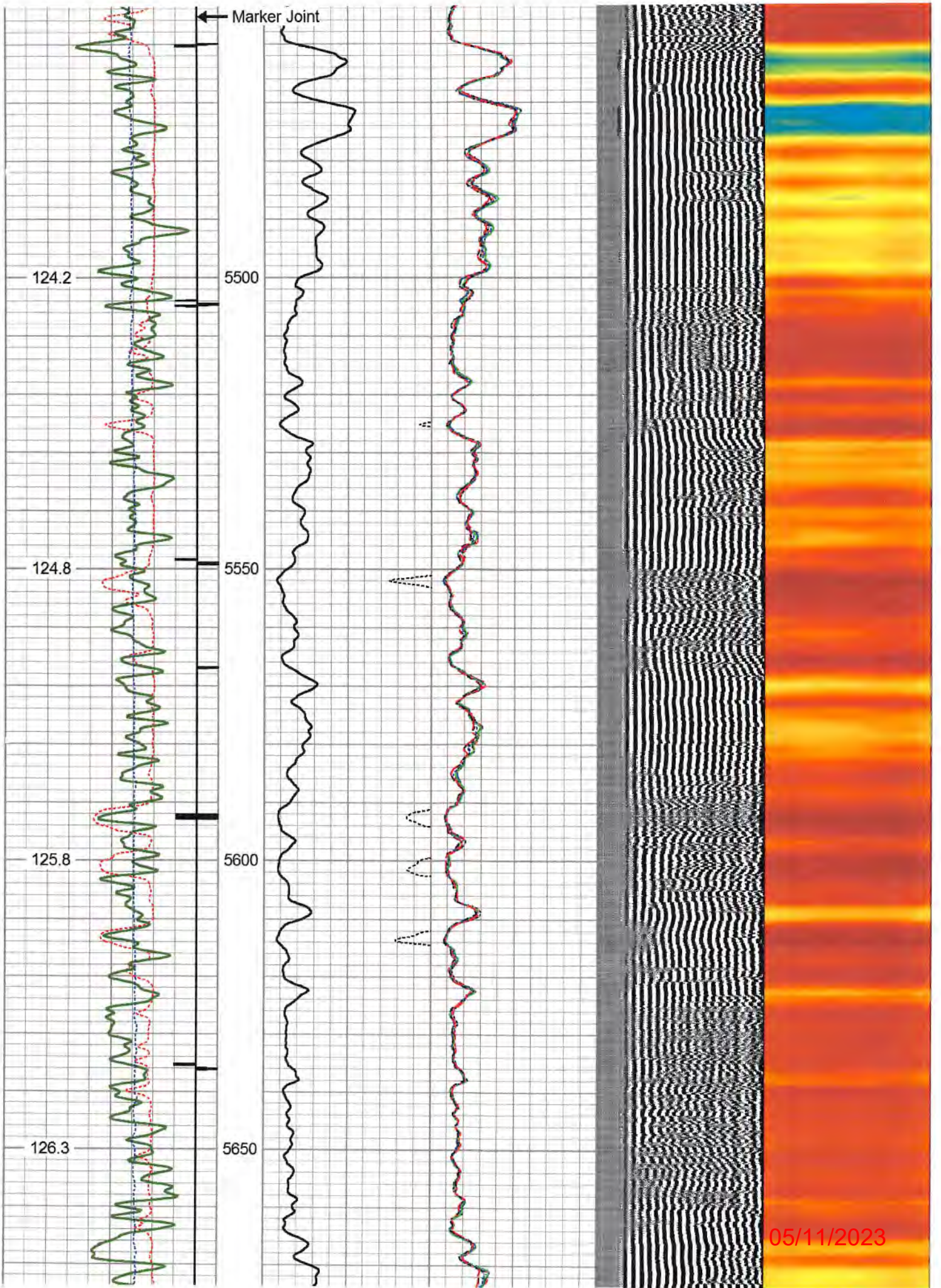
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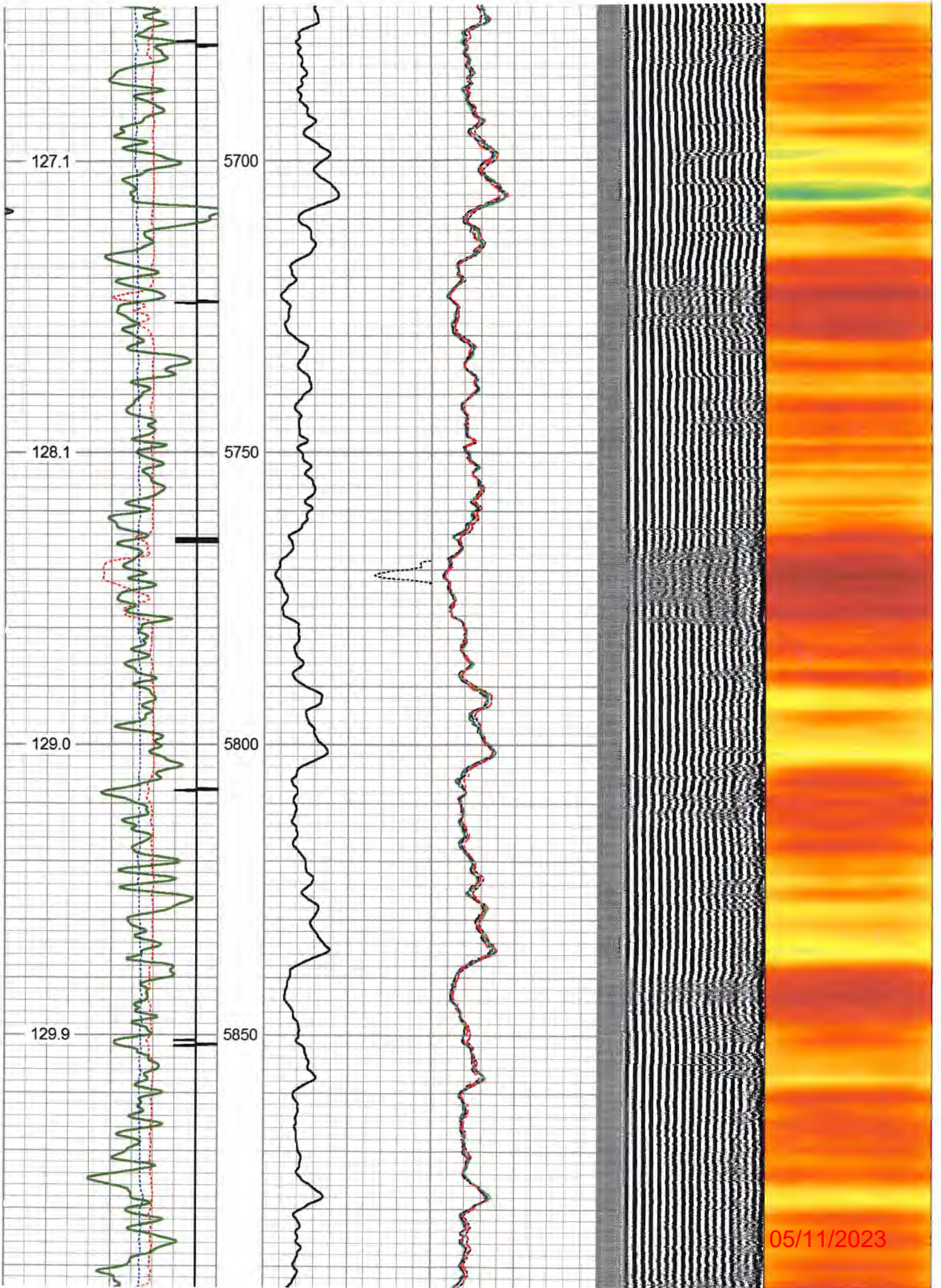


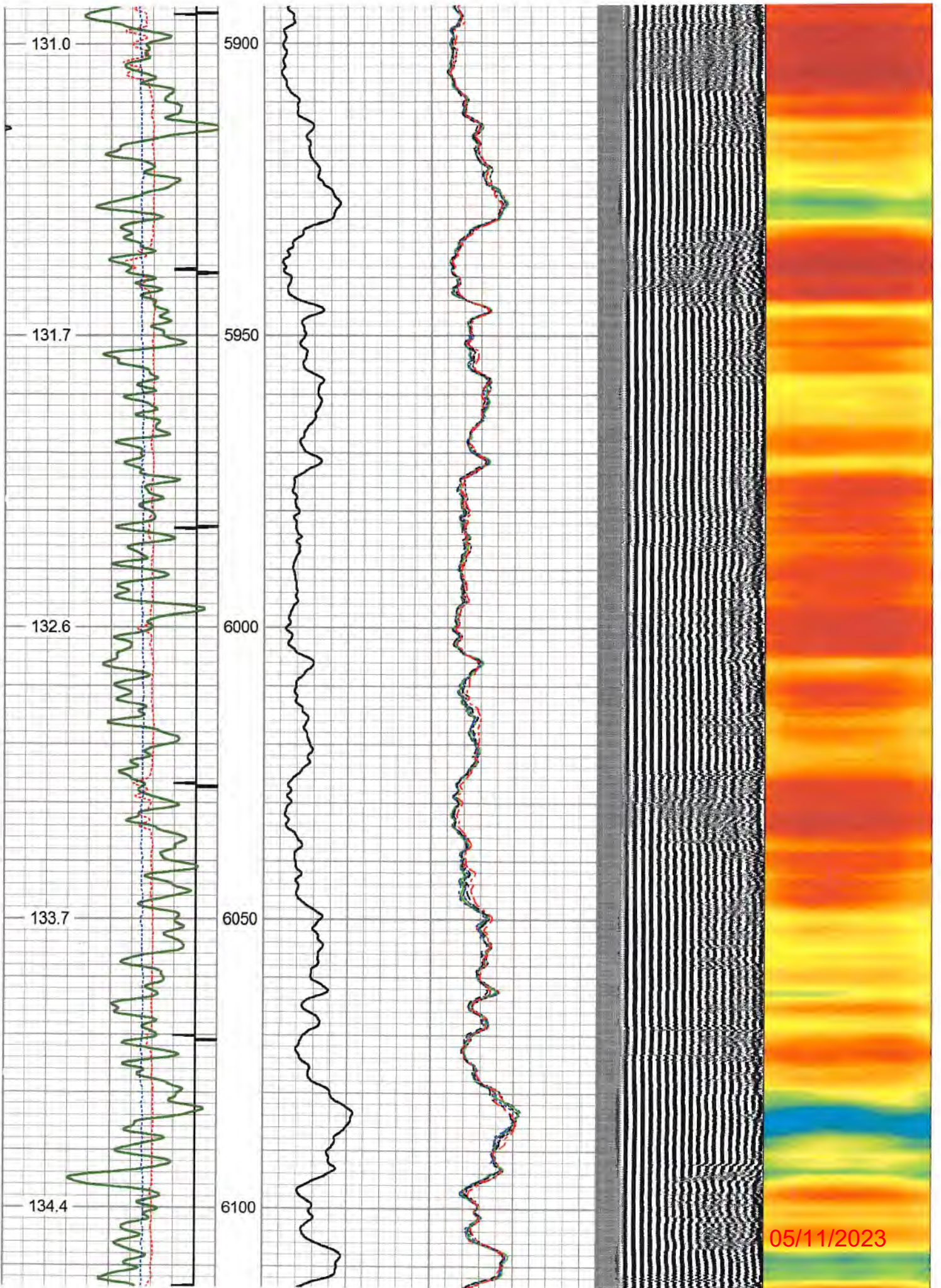


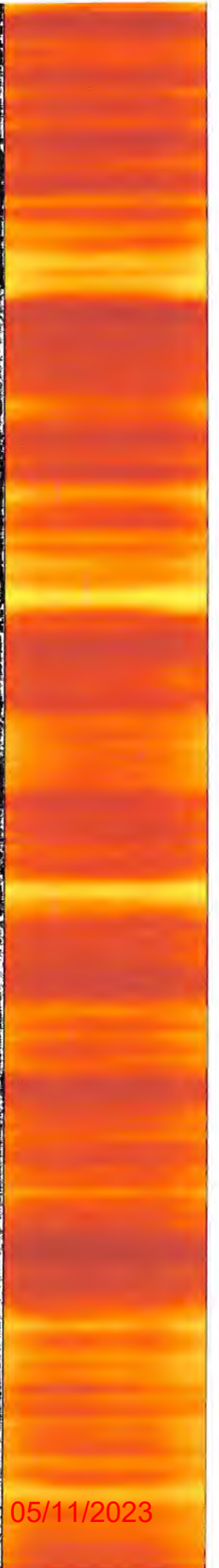
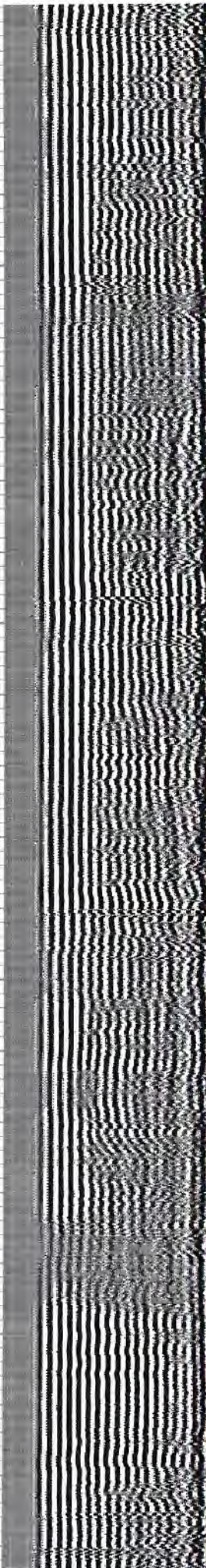
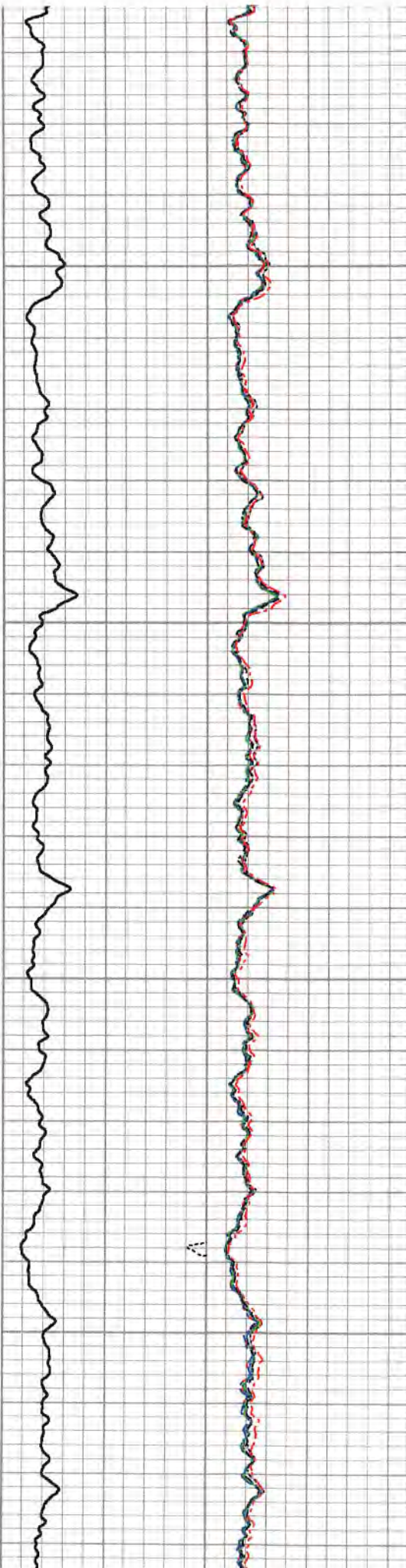
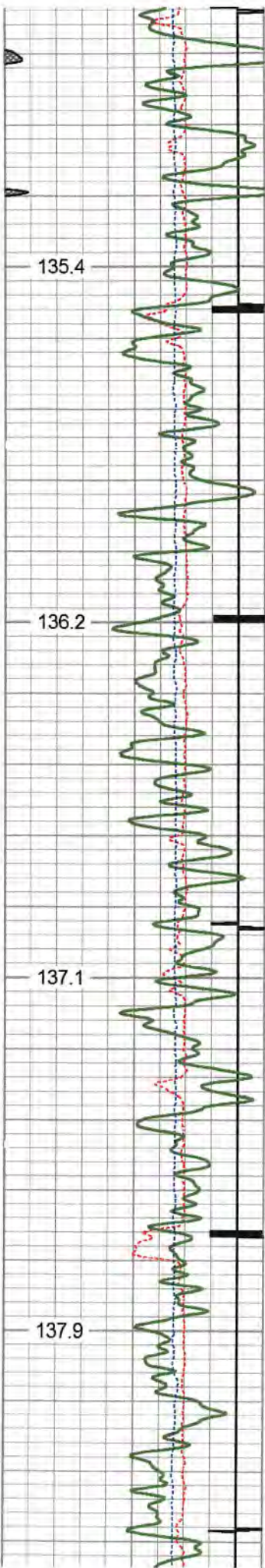
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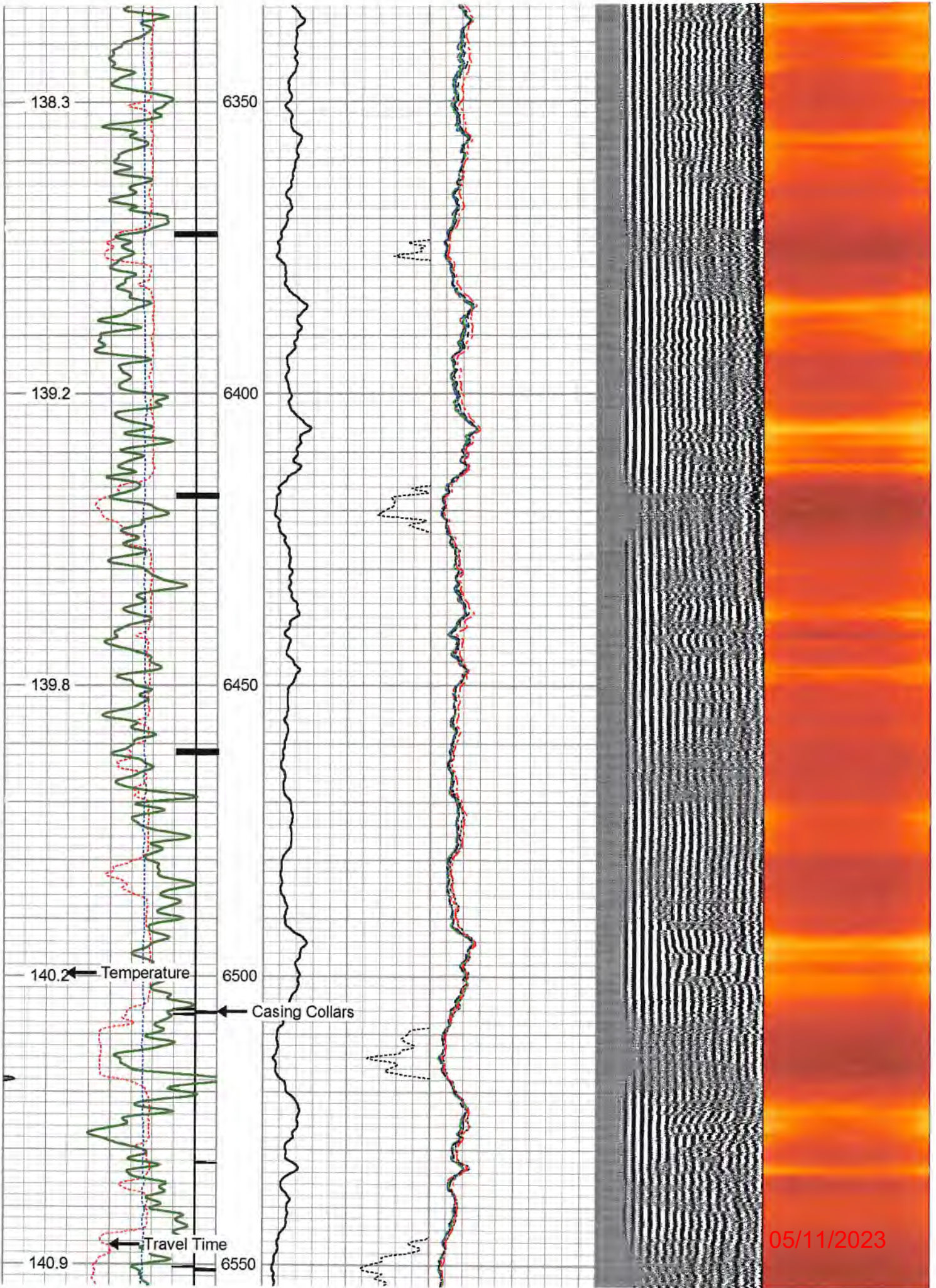


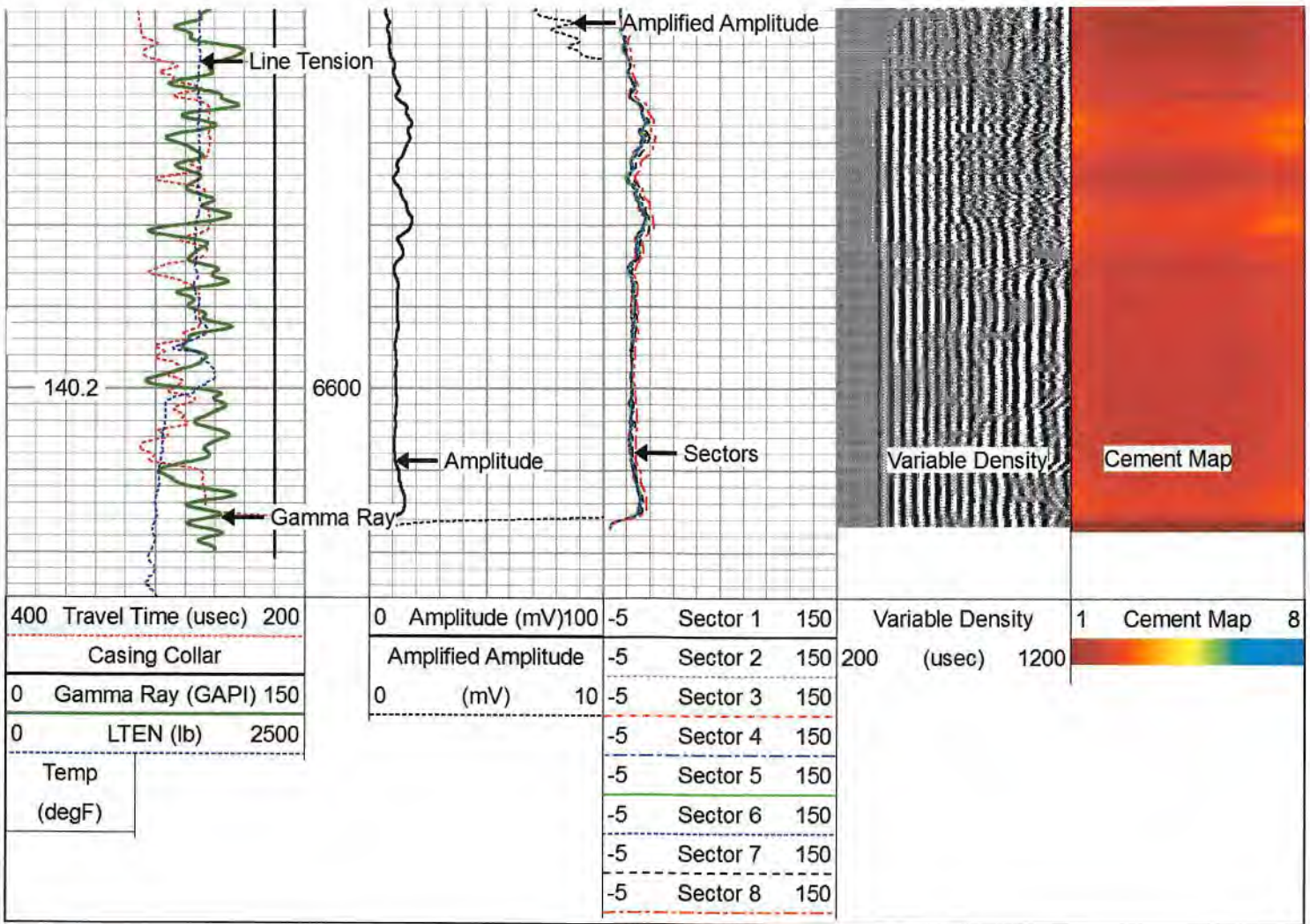








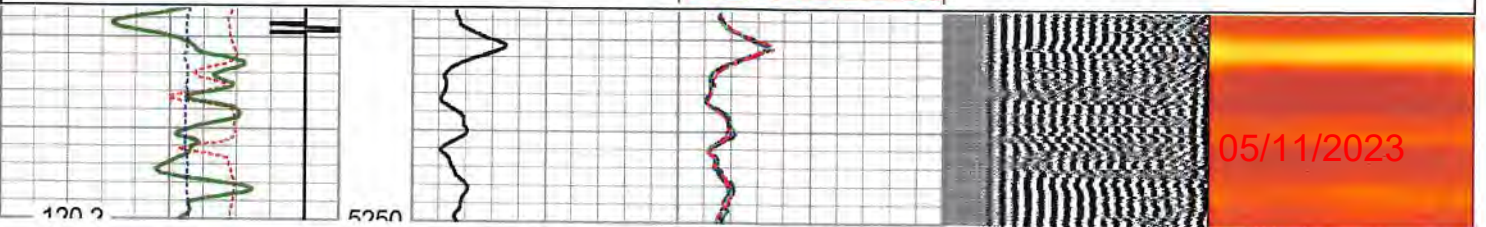


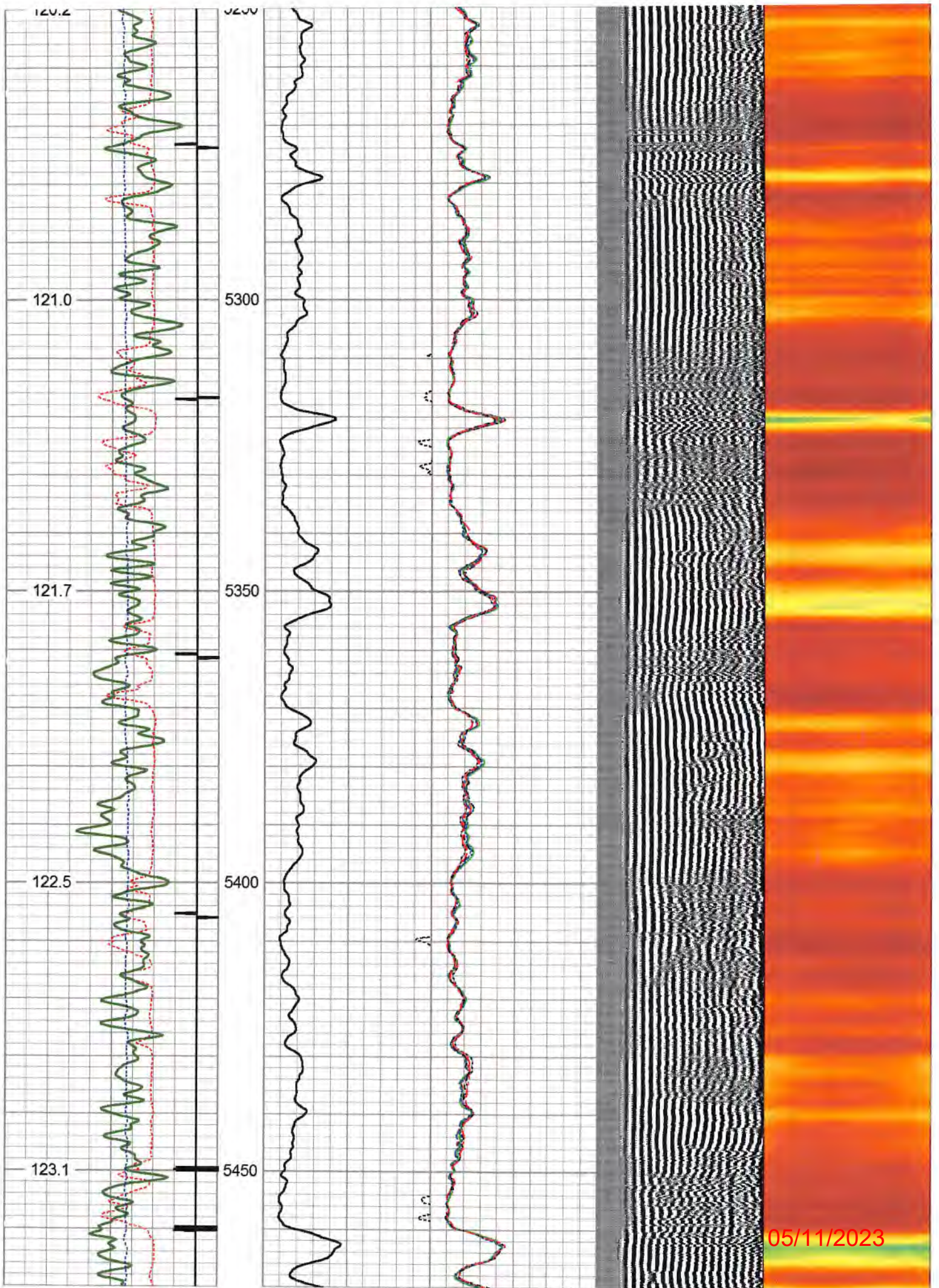


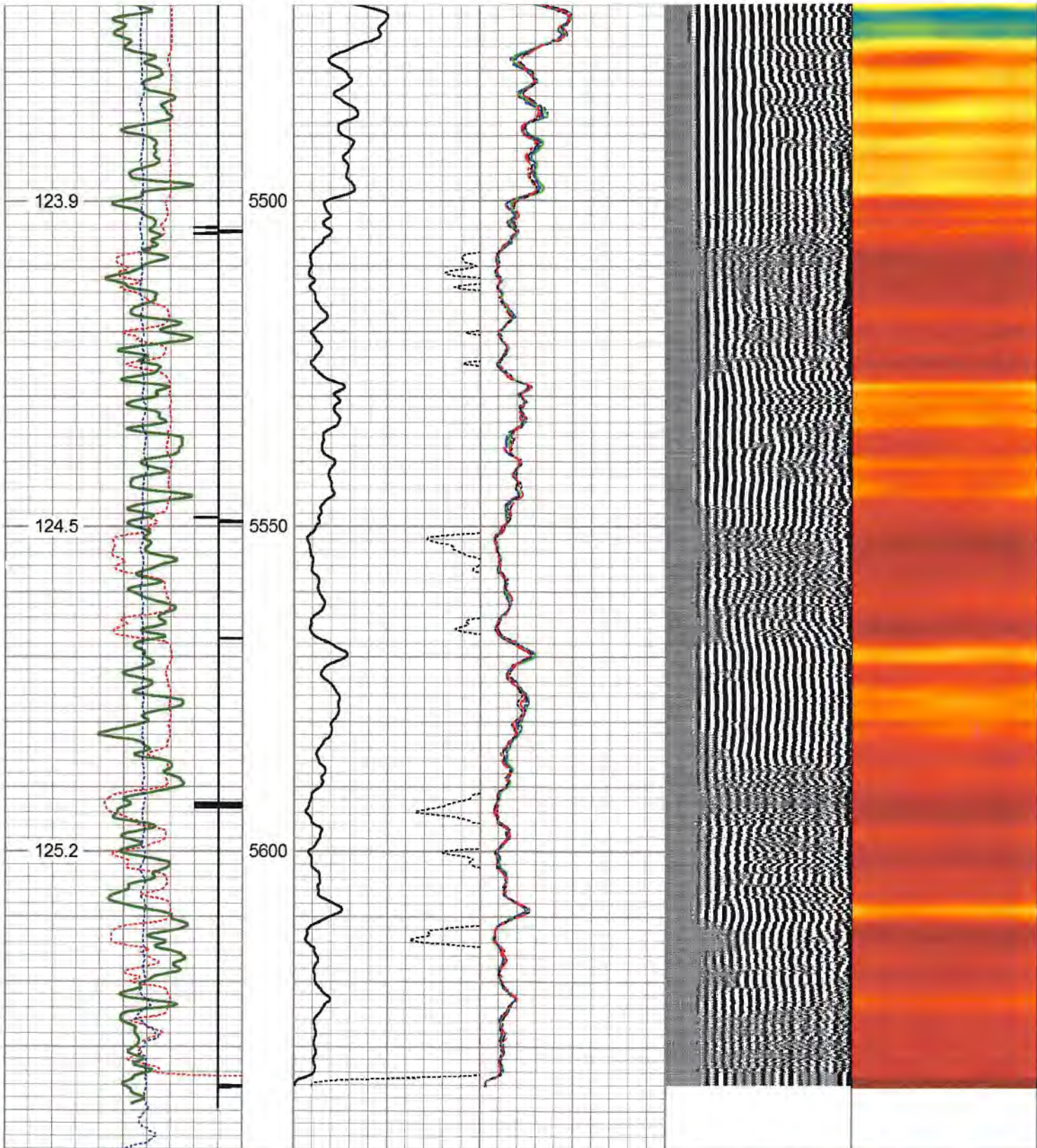

Repeat Pass 0 PSI

Database File: antero_robert_lee_1h_rcbl_22_jun_19.db
 Dataset Pathname: marcellus/1h/rcbl/pass6
 Presentation Format: scbl03
 Dataset Creation: Sat Jun 22 17:02:55 2019
 Charted by: Depth in Feet scaled 1:240

400	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)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				
Temp						-5	Sector 5	150				
(degF)						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				







400	Travel Time (usec)	200
Casing Collar		
0	Gamma Ray (GAPI)	150
0	LTEN (lb)	2500
Temp (degF)		

0	Amplitude (mV)	100	-5	Sector 1	150
Amplified Amplitude					
0	(mV)	10	-5	Sector 2	150

-5 Sector 3 150					

-5 Sector 4 150					

-5 Sector 5 150					

-5 Sector 6 150					

-5 Sector 7 150					

-5 Sector 8 150					

Variable Density	1	Cement Map	8
200	(usec)	1200	

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Calibration Report

Database File antero_robert_lee_1h_rcbl_22_jun_19.db
 Dataset Pathname marcellus/1h/rcbl/pass10
 Dataset Creation Sat Jun 22 17:16:26 2019

Gamma Ray Calibration Report

Serial Number: FW1211-86
 Tool Model: Probe
 Performed: Sun May 19 12:22:44 2019

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 0.7000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1312-32
 Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 644.733 ft

Master Calibration, performed Sat Jun 22 16:44:49 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.001	0.925	1.000	71.921	76.770	0.946
CAL	-0.046	1.885				
5'	0.005	0.827	1.000	71.921	86.317	0.555
SUM						
S1	0.076	0.969	0.000	100.000	112.000	-8.505
S2	0.008	0.889	0.000	100.000	113.397	-0.851
S3	0.002	0.870	0.000	100.000	115.152	-0.221
S4	0.000	0.869	0.000	100.000	115.174	-0.030
S5	0.002	0.891	0.000	100.000	112.501	-0.207
S6	0.003	0.950	0.000	100.000	105.582	-0.286
S7	0.003	0.973	0.000	100.000	103.065	-0.302
S8	0.002	0.978	0.000	100.000	102.426	-0.209

Internal Reference Calibration, performed (Not Performed):


	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.046	1.885	1.000	0.000

Air Zero Calibration, performed Sat Jun 22 12:51:05 2019:

	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	

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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	16.99		CHD-Titan Titan 1 7/16" GO Cablehead	1.00	1.44	5.00
Temp	14.14		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
WVFS8	11.91		RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS7	11.91					
WVFS6	11.91					
WVFS5	11.91					
WVFS4	11.91					
WVFS3	11.91					
WVFS2	11.91					
WVFS1	11.91					
WVF3FT	11.91					
WVF5FT	10.91					
WVFCAL HEADVOLT	7.66 7.66					
CCL	6.75					
GR	5.42		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
		GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00	
		CENT-Probe275 2.75" Centralizer	2.88	2.75	20.00	

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Dataset:	antero_robert_lee_1h_rcbl_22_jun_19.db: marcellus/1h/rcbl/pass10
Total length:	18.05 ft
Total weight:	182.00 lb
O.D.:	4.88 in



Company	Antero Resources
Well	Robert Lee 1H
Field	Marcellus
County	Tyler
State	WV