



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

Company ANTERO RESOURCES
Well Beech Run Forster 2H
Field Rabbit Ears
County Tyler
State WV

Company ANTERO RESOURCES
Well Beech Run Forster 2H
Field Rabbit Ears
County Tyler State WV
Location: API #: 47-095-02804

SEC TWP RGE
Permanent Datum GROUND LEVEL Elevation
Log Measured From KELLY BUSHING 25.5'
Drilling Measured From KELLY BUSHING
Other Services
Elevation
K.B.
D.F.
G.L.

Date	JANUARY 20, 2023	
Run Number	ONE	
Depth Driller	22,708'	
Depth Logger	6,808'	
Bottom Logged Interval	6,860'	
Top Log Interval	SURFACE	
Open Hole Size	NA	
Type Fluid	FRESH WATER	
Density / Viscosity	8.6 LBGAL	
Max. Recorded Temp.	141 DEG.F.	
Estimated Cement Top	3,300'	
Time Well Ready	12:15	
Time Logger on Bottom	12:50	
Equipment Number	116	
Location	CHARLEROI, PA	
Recorded By	M.MCNALLY	
Witnessed By	Bob Reed	
Borehole Record		
Run Number	Bit	From To
	Size	Weight
	From	From
		To
Tubing Record		
	Size	Weight
	From	From
		To
Casing Record		
	Size	Wgt/Ft
	Top	Bottom
Conductor String	28"	SURFACE SURFACE
Surface String	17 1/2"	982'
Intermediate String	12 1/4"	SURFACE SURFACE
Intermediate String	8 3/4"	3,395'
Production String	5.5"	6,217'
		22,708'

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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 -8
MARKER JOINT 6,077'-6,088'
MAIN PASS LOGGED WITH 1500 PSI
REPEAT PASS LOGGED WITH 0 PSI

THANK YOU FOR USING NINE ENERGY SERVICES

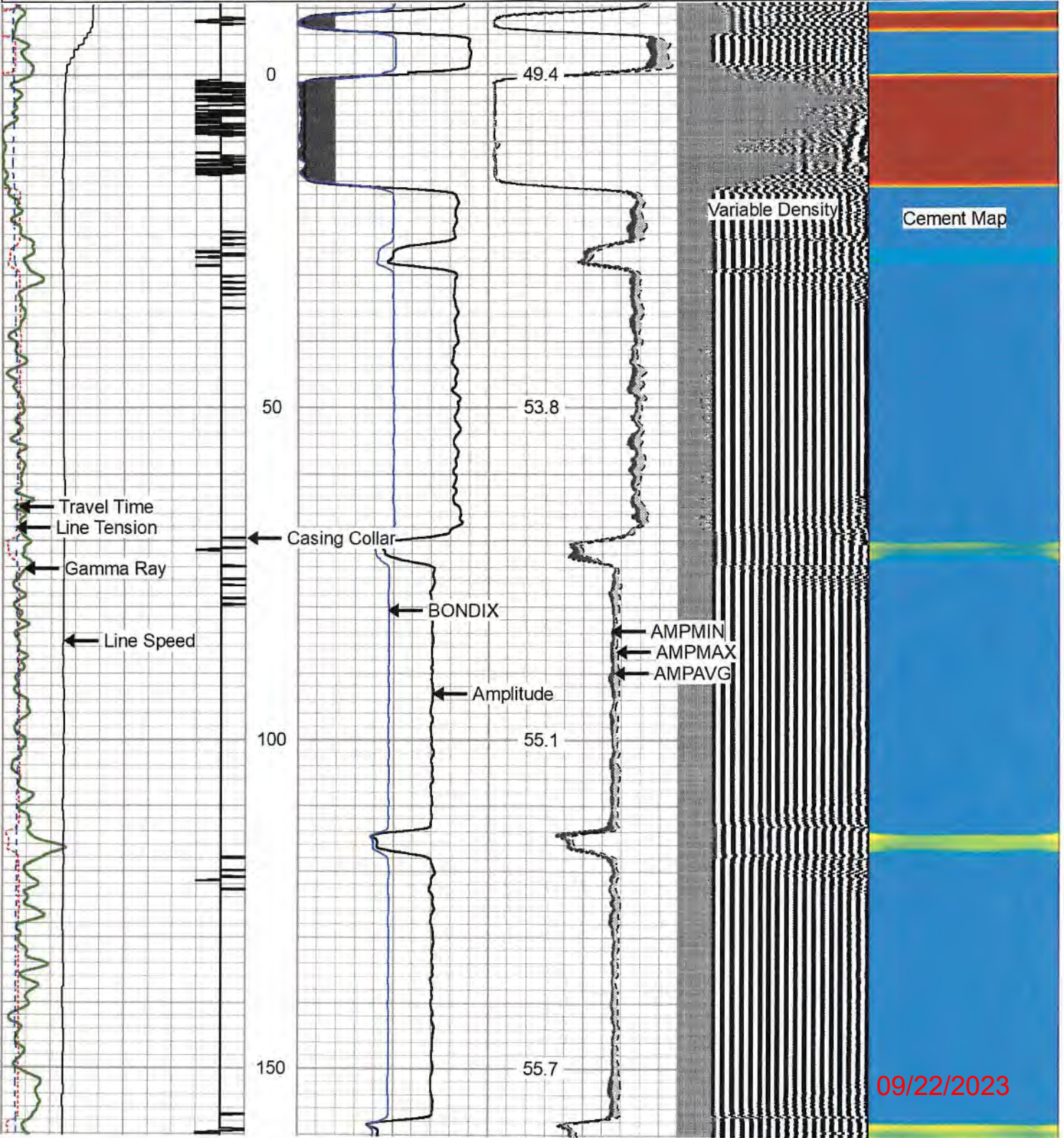


Main Pass 1500 PSI

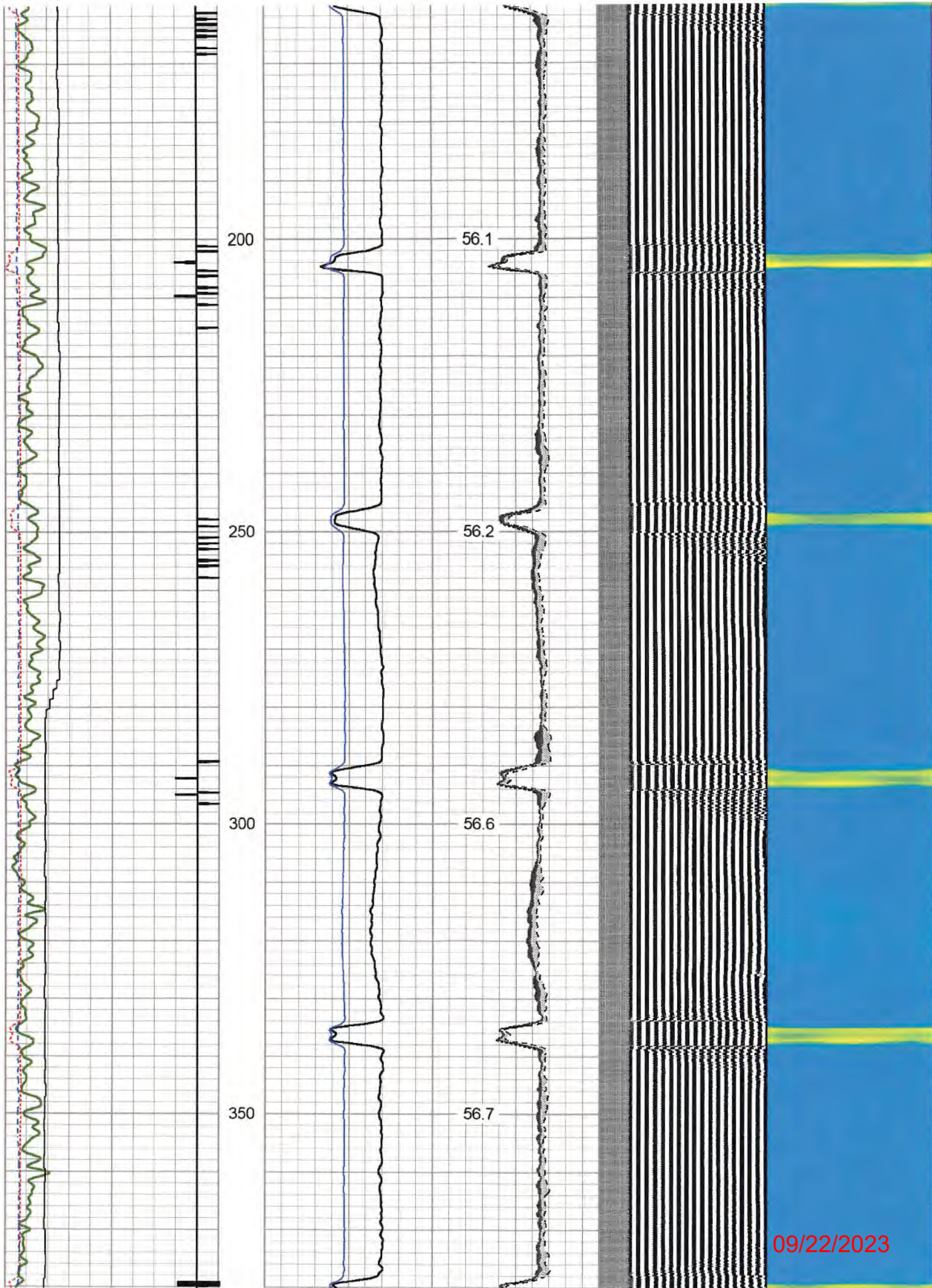
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Database File antero_forster_2h_rcbl_20_jan_2023.db
 Dataset Pathname forster2h/run1/pass4
 Presentation Format rcbl 2
 Dataset Creation Fri Jan 20 12:40:46 2023
 Charted by Depth in Feet scaled 1:240

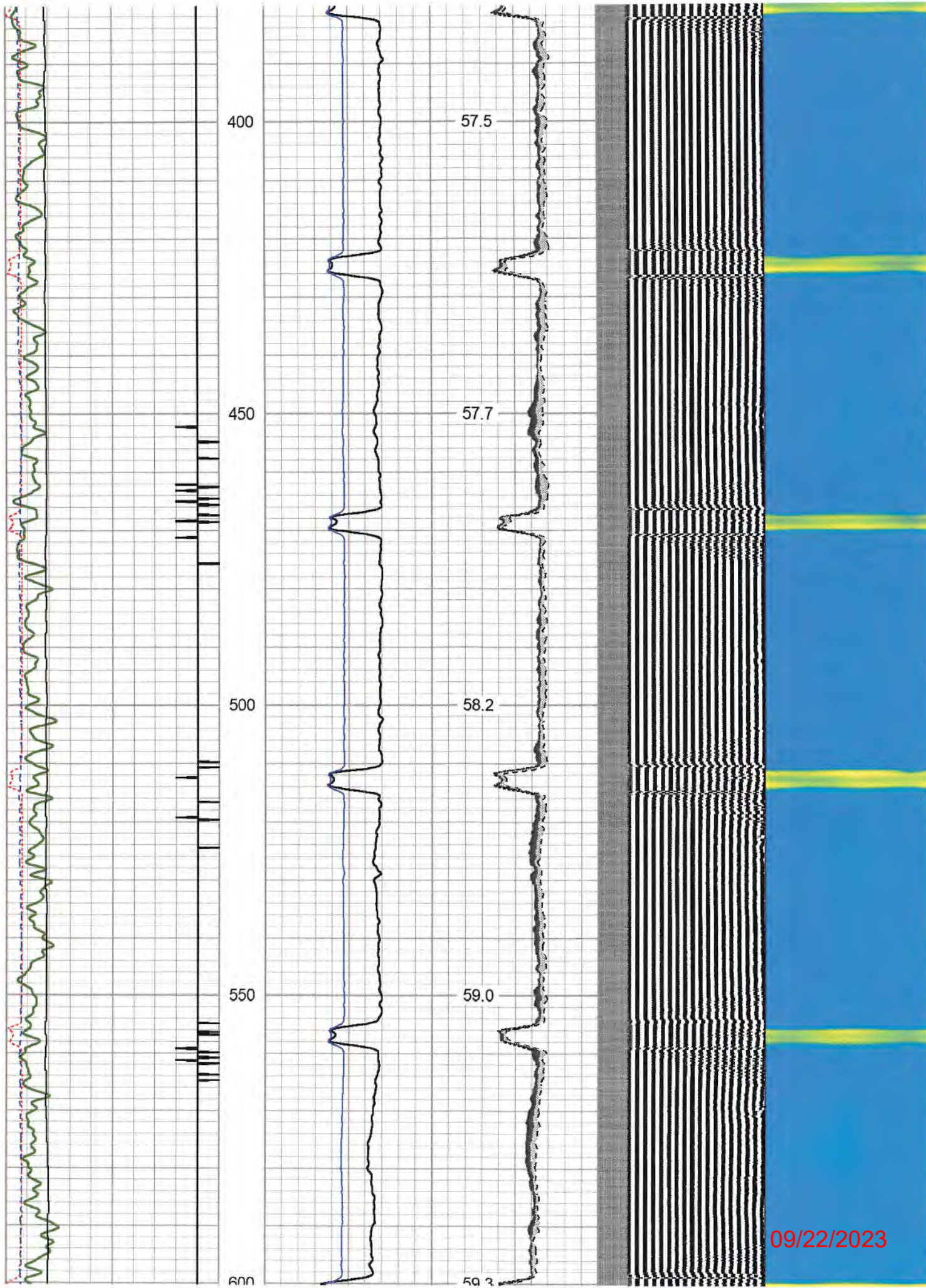
270	Travel Time (usec)	160	0	Amplitude (mV)	100	-5	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	AMPMAX	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150				-5	AMPAVG	150				
	Line Speed						TEMP					
-200	(ft/min)	200					(degF)					
0	Line Tension (lb)	5000										



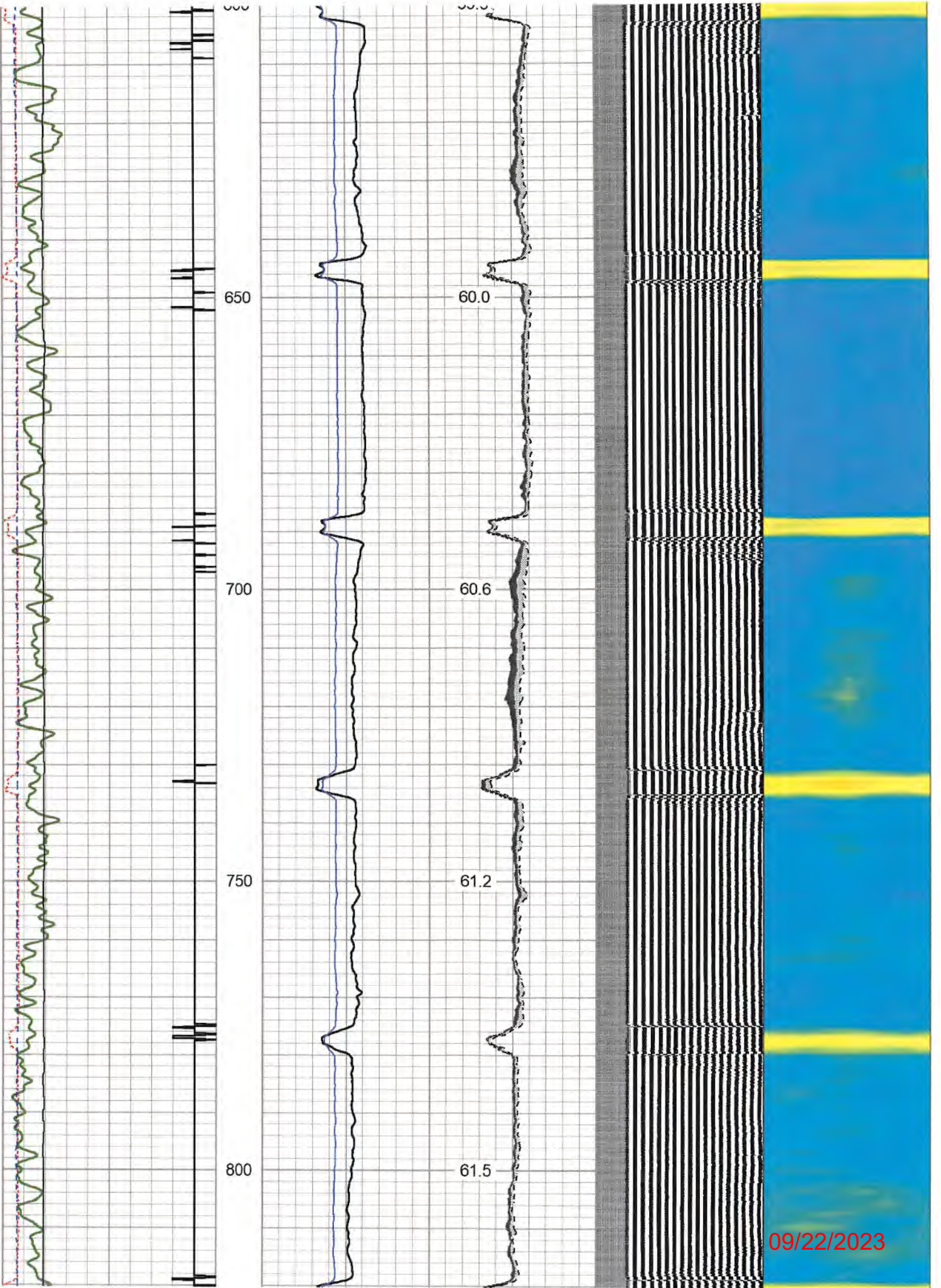
09/22/2023



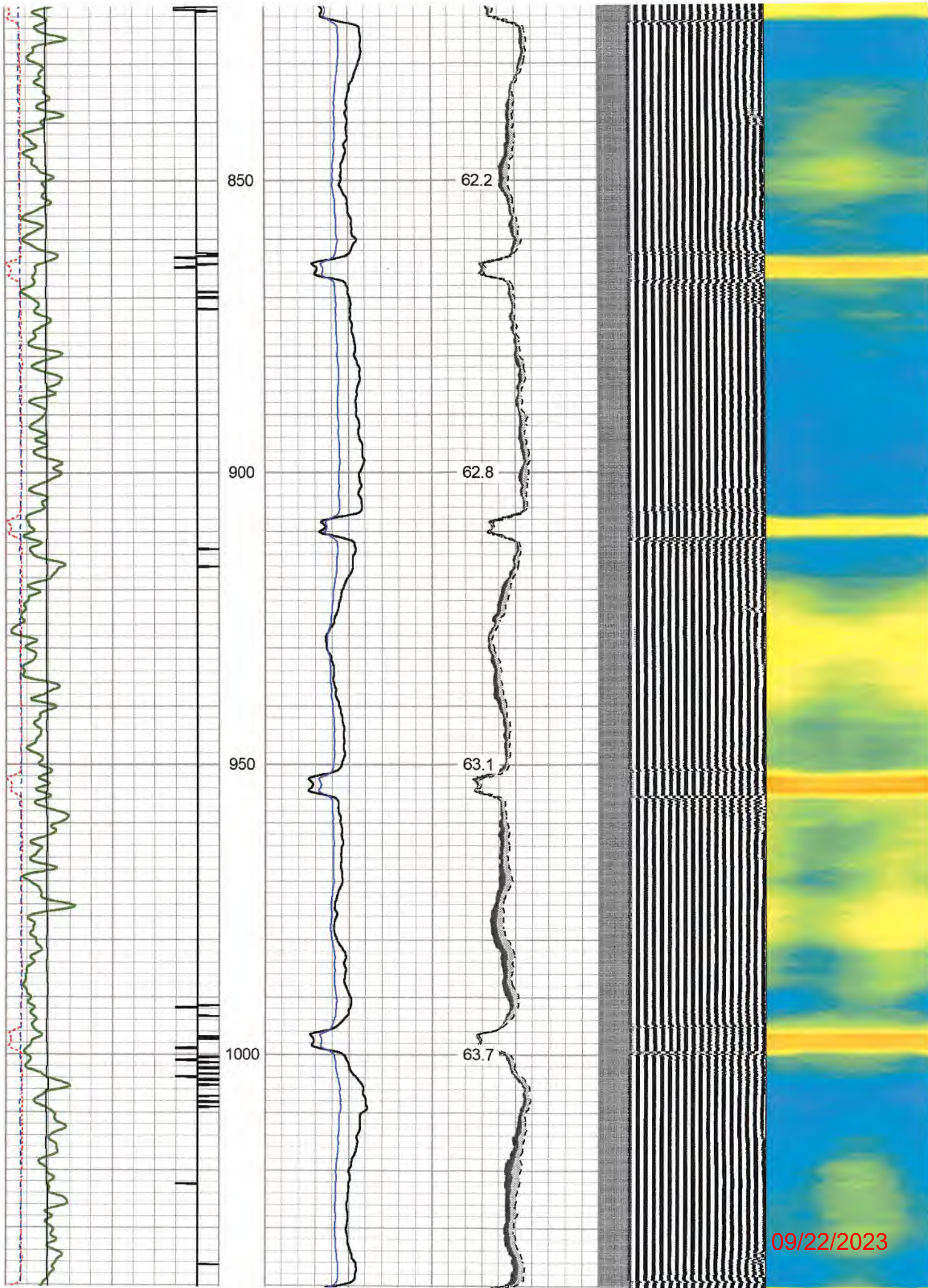
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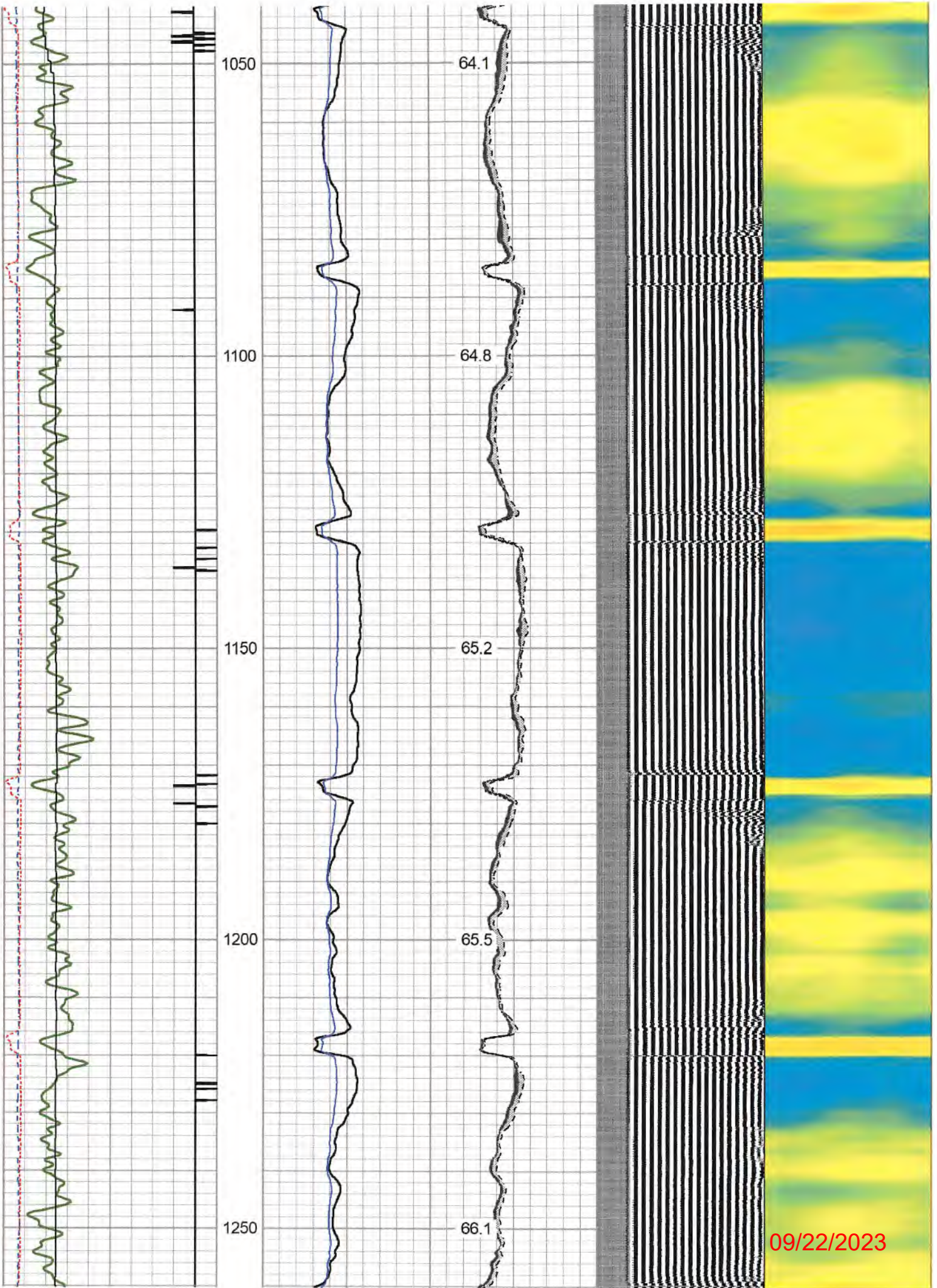


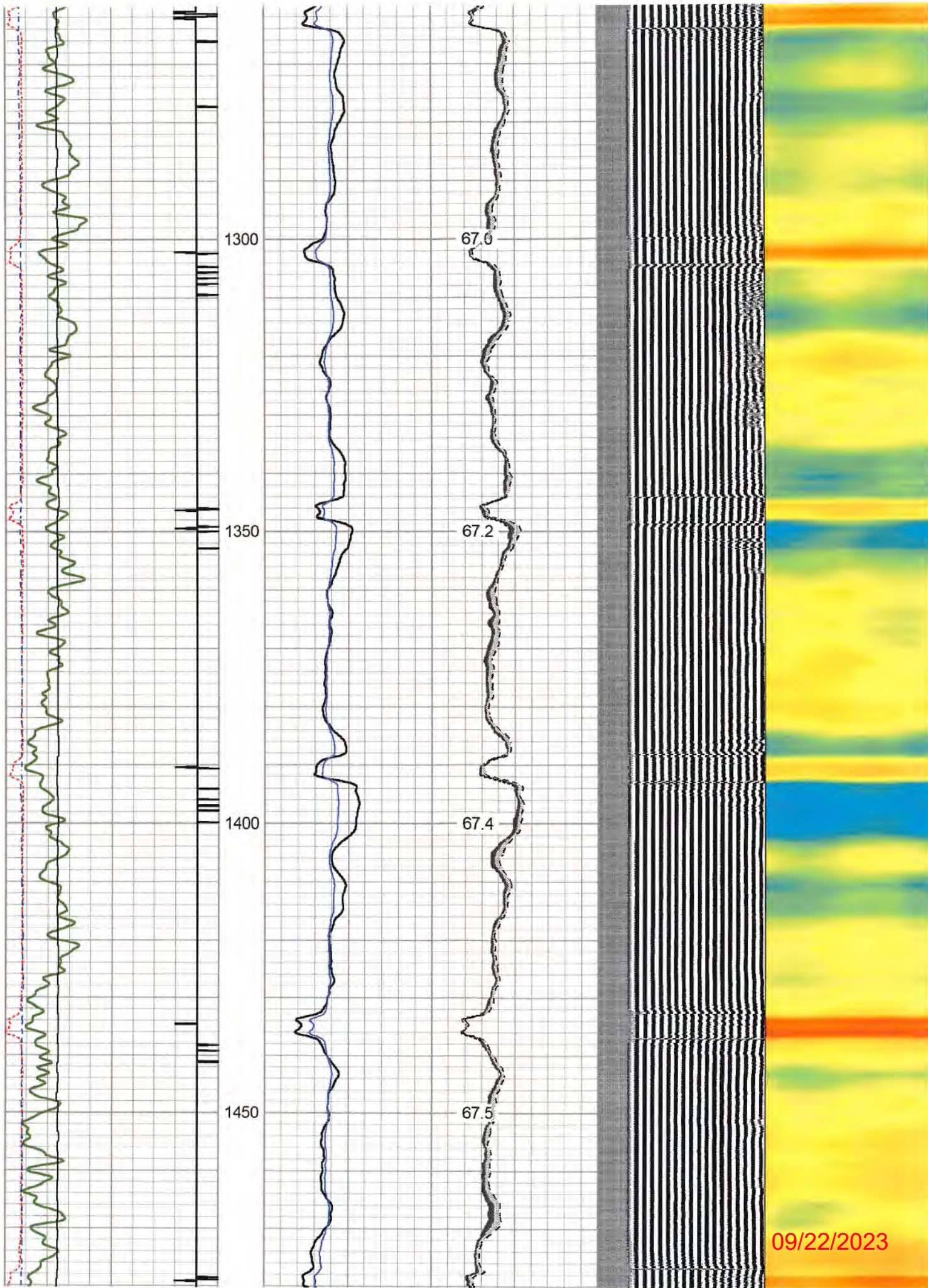
09/22/2023

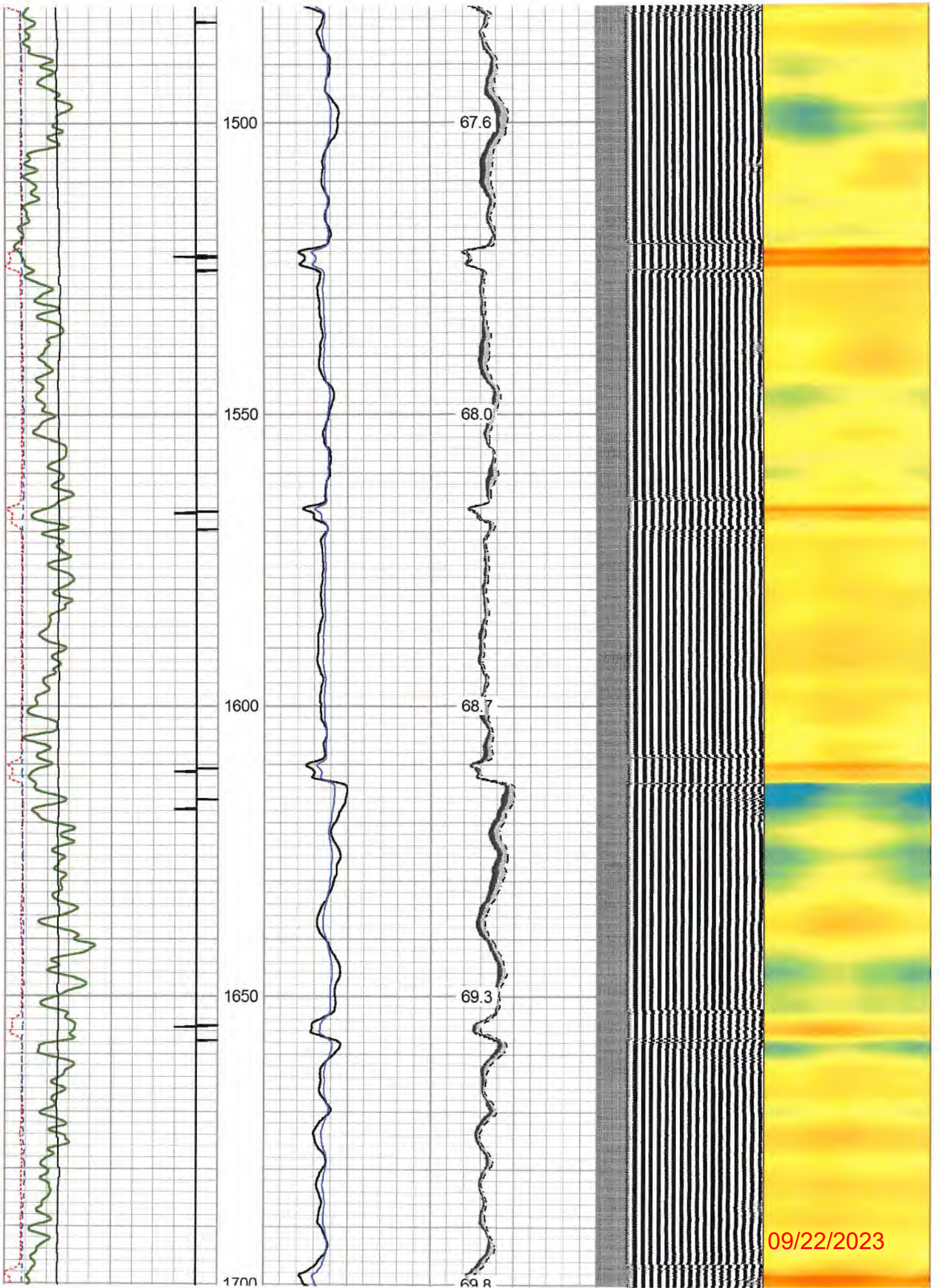


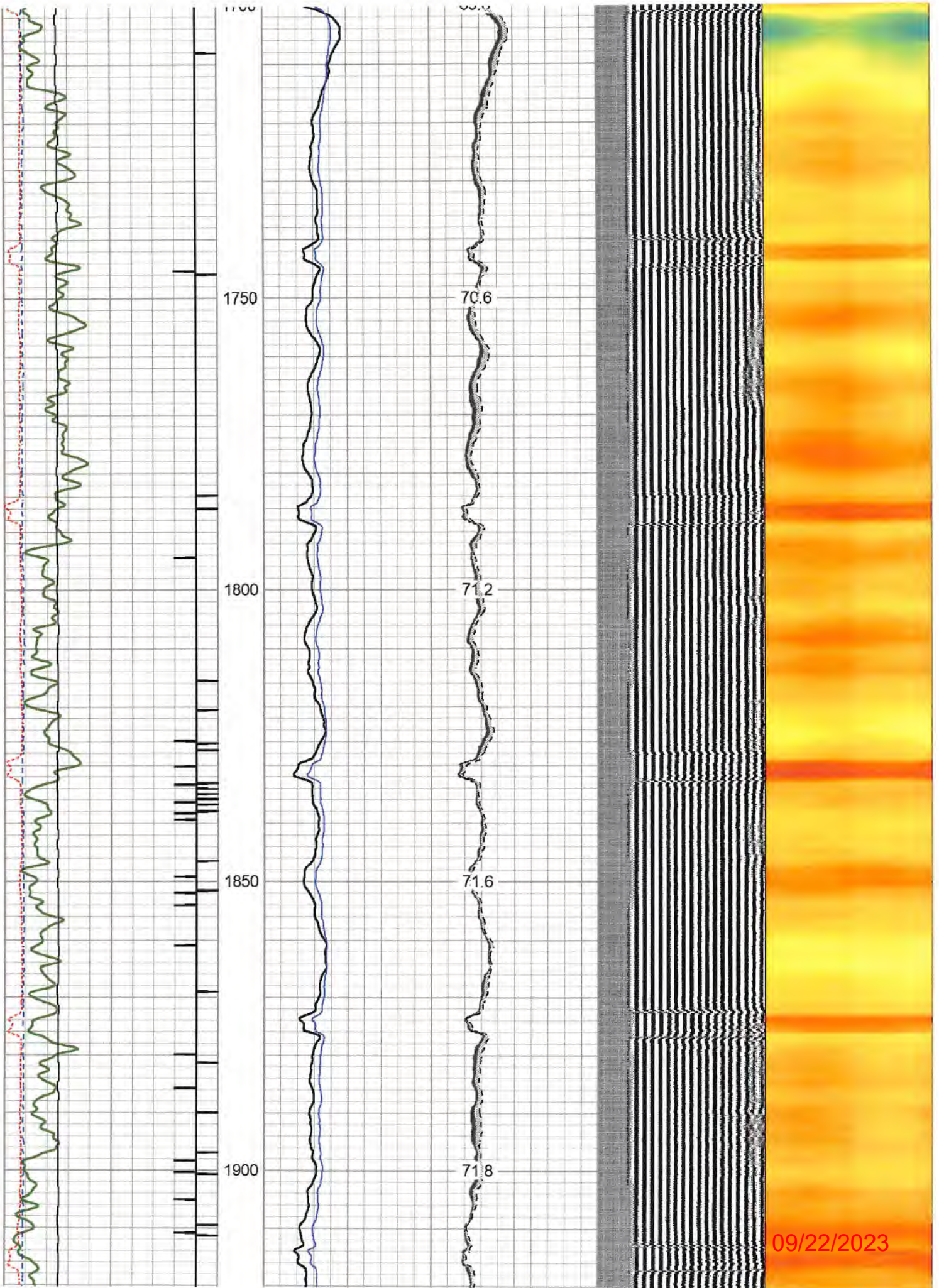
09/22/2023



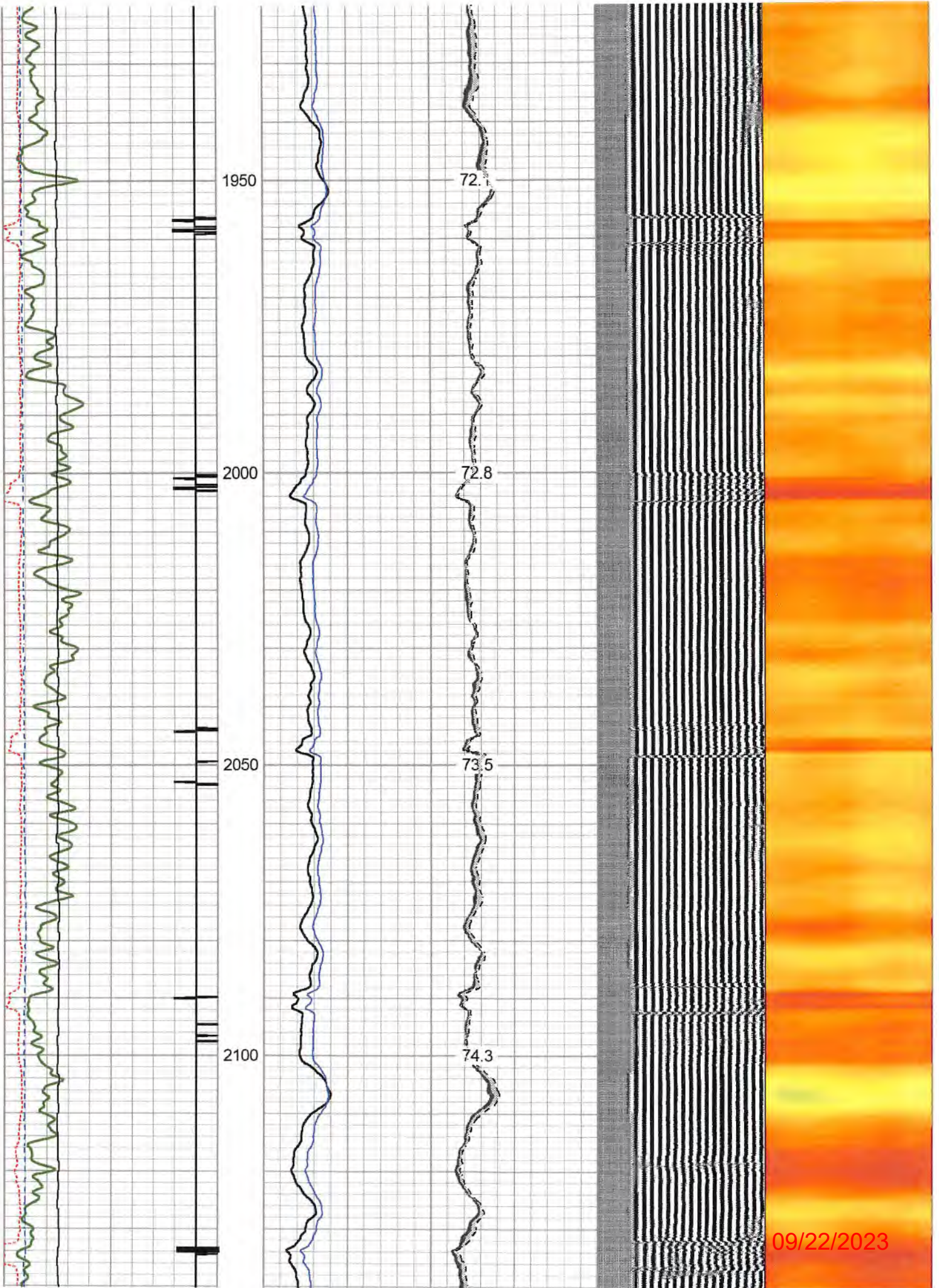


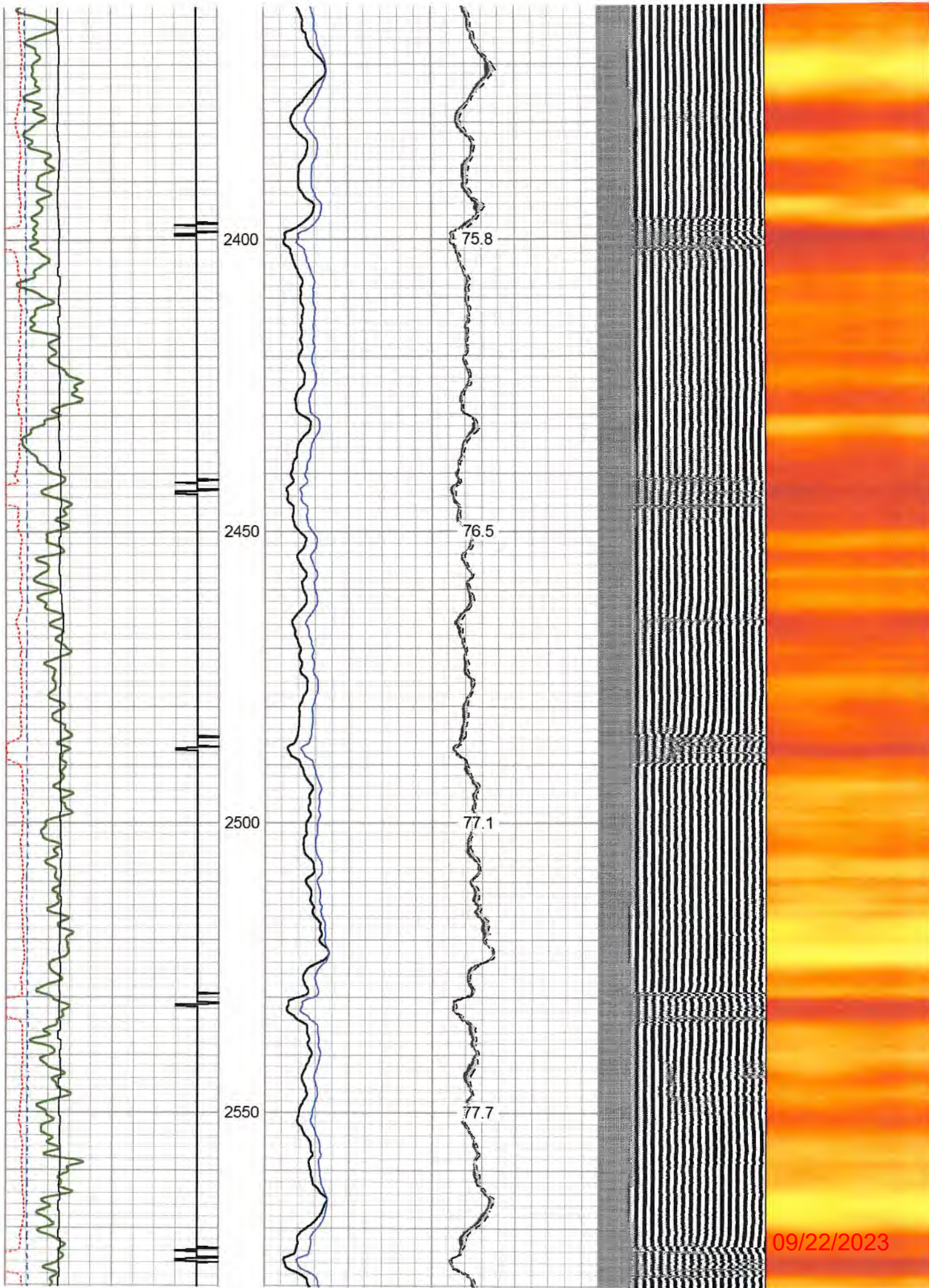




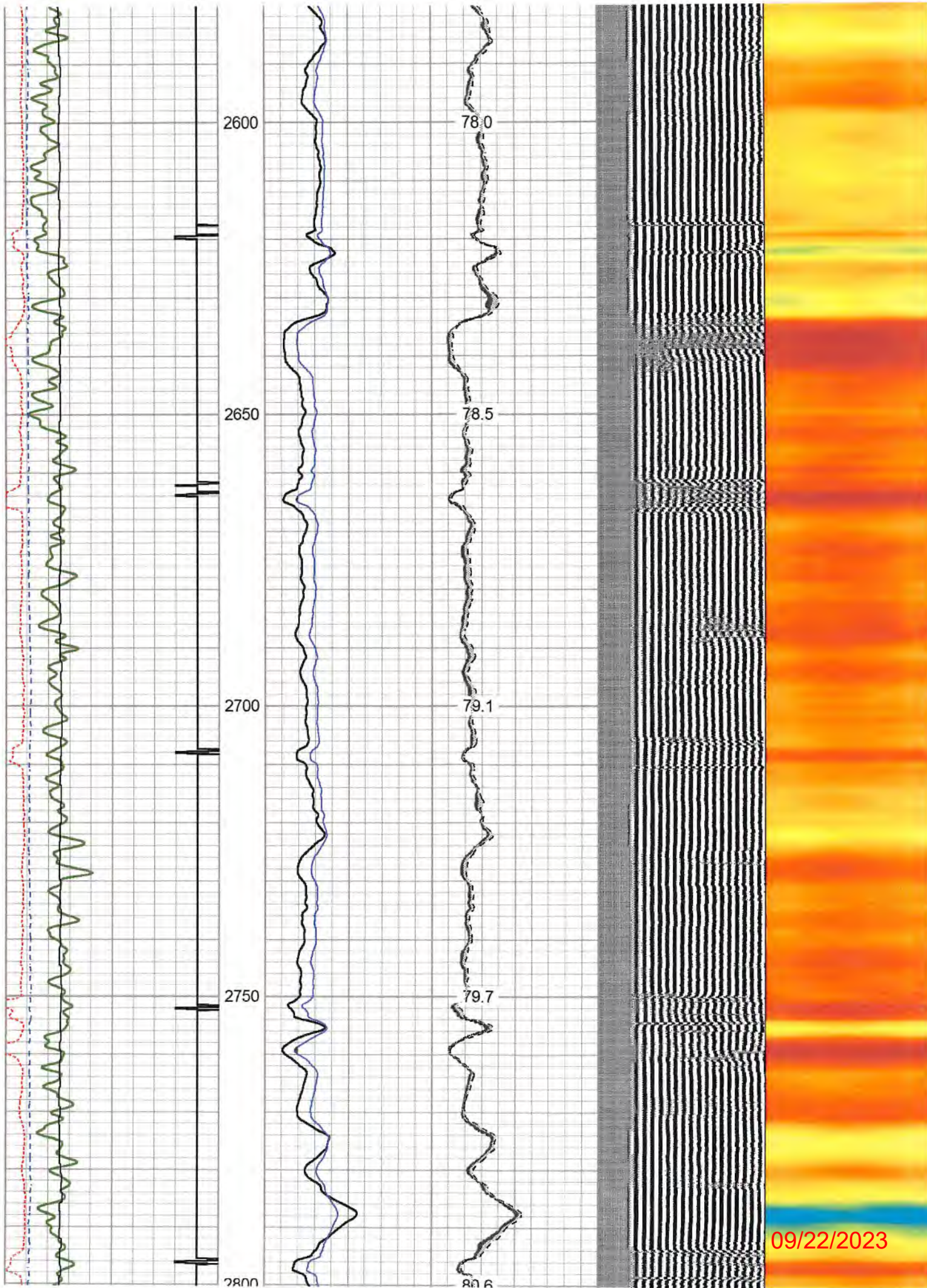


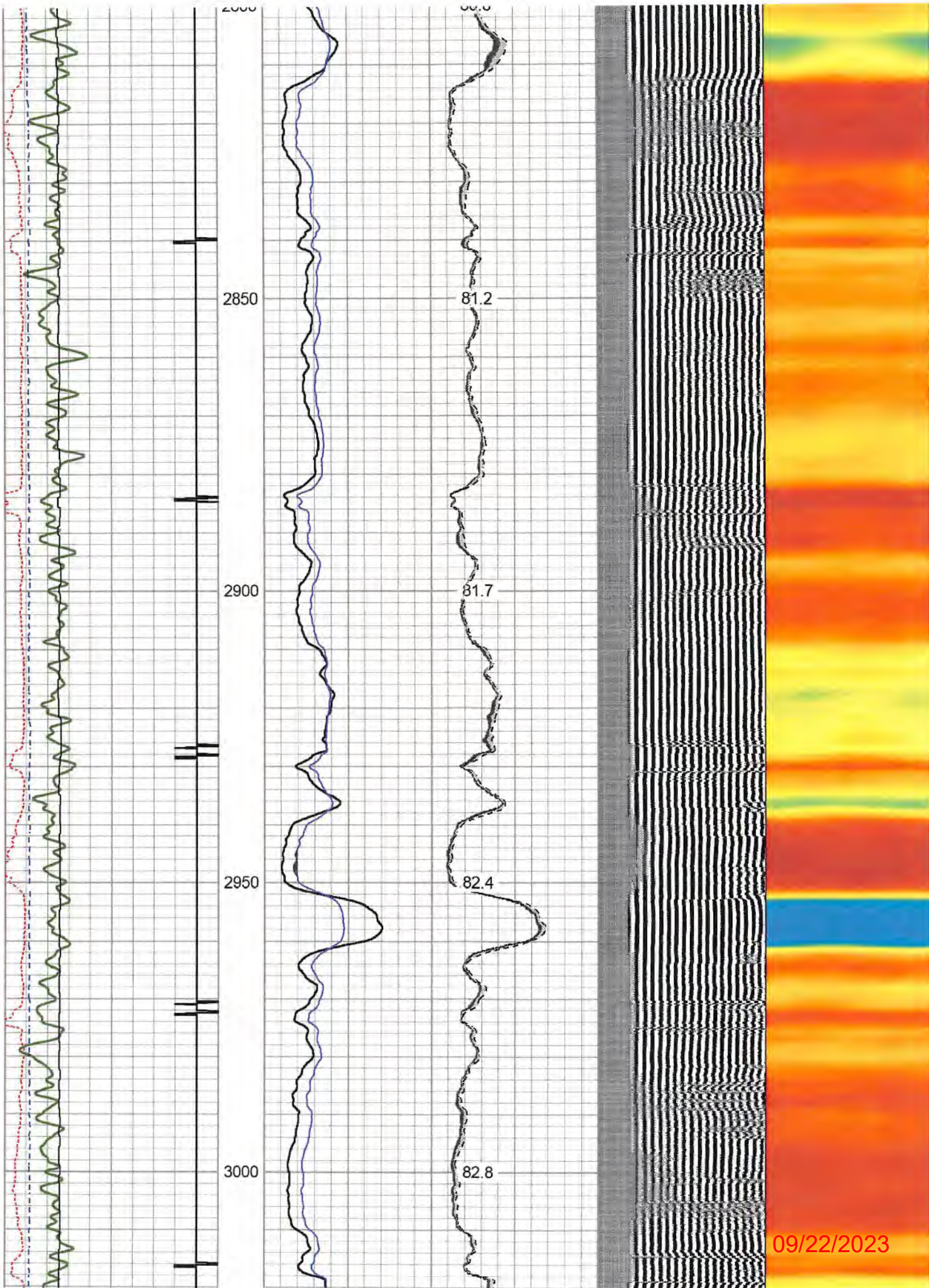
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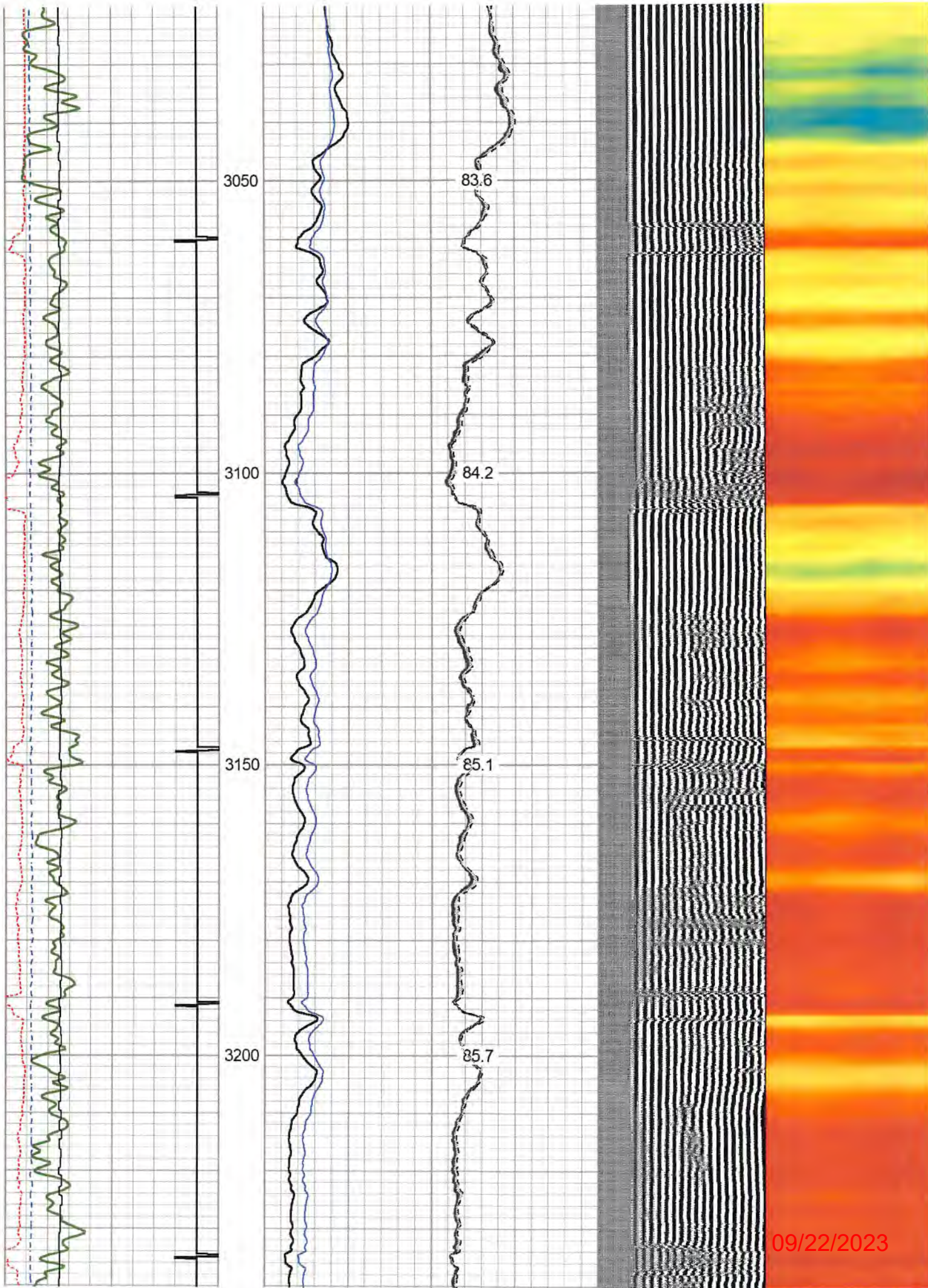


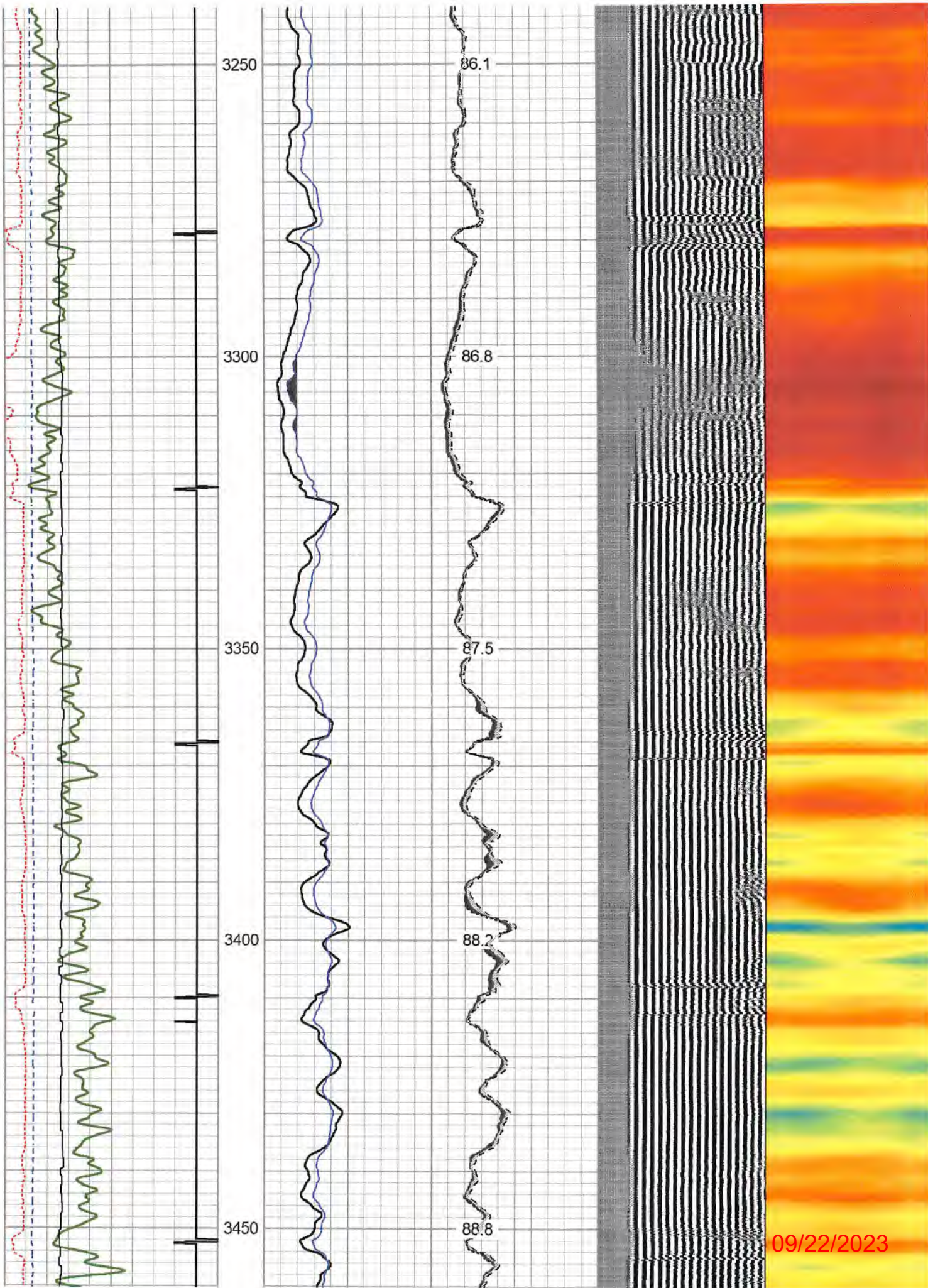


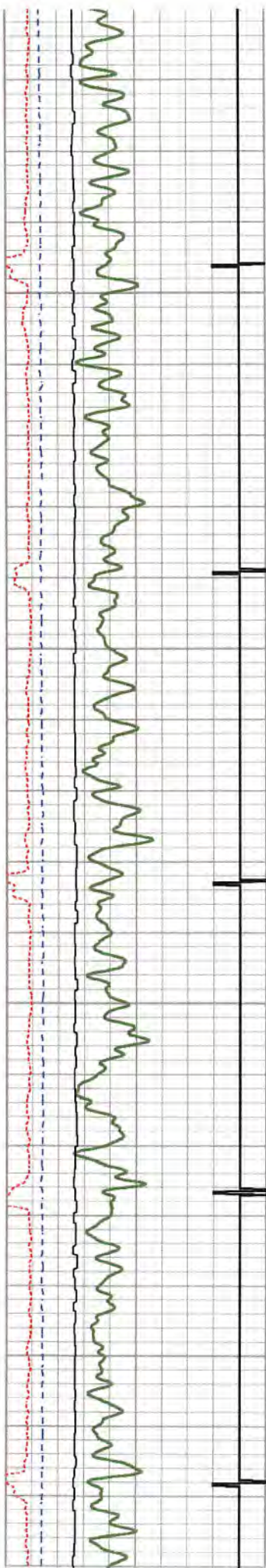
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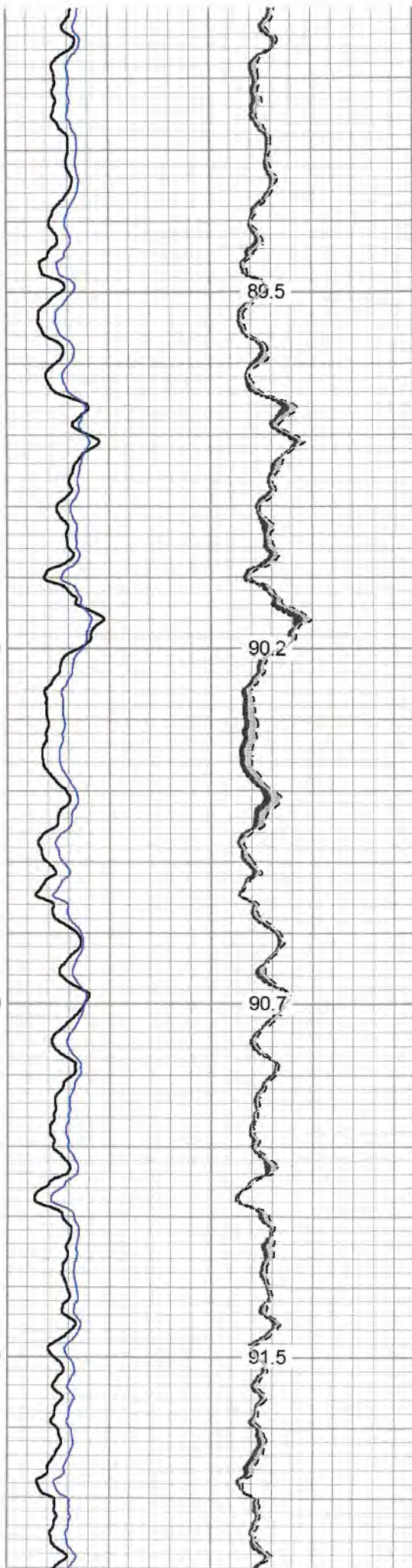


3500

3550

3600

3650

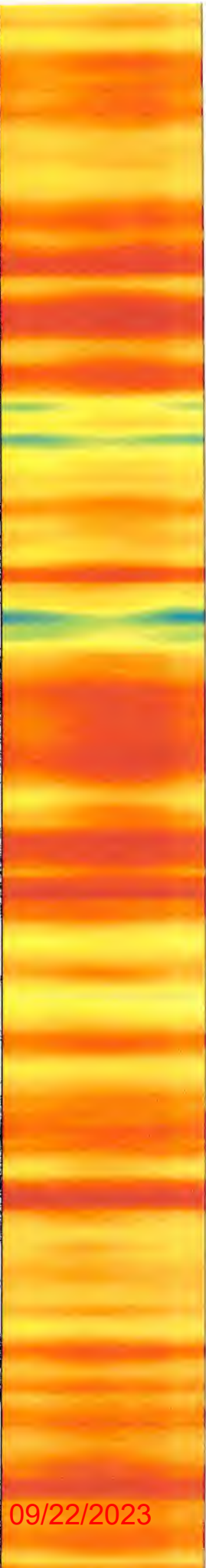
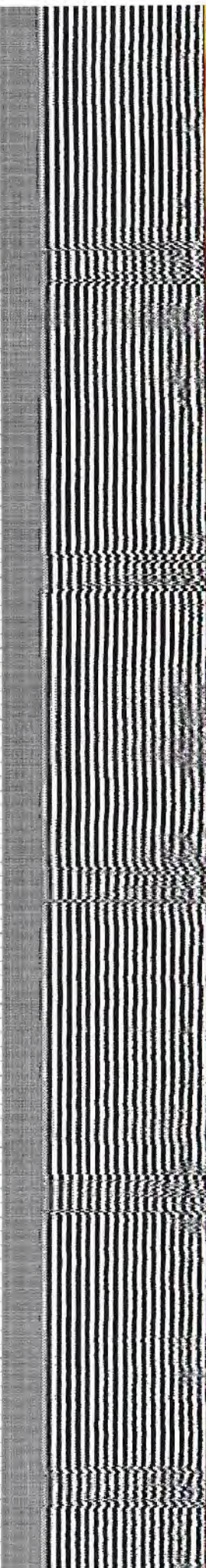


89.5

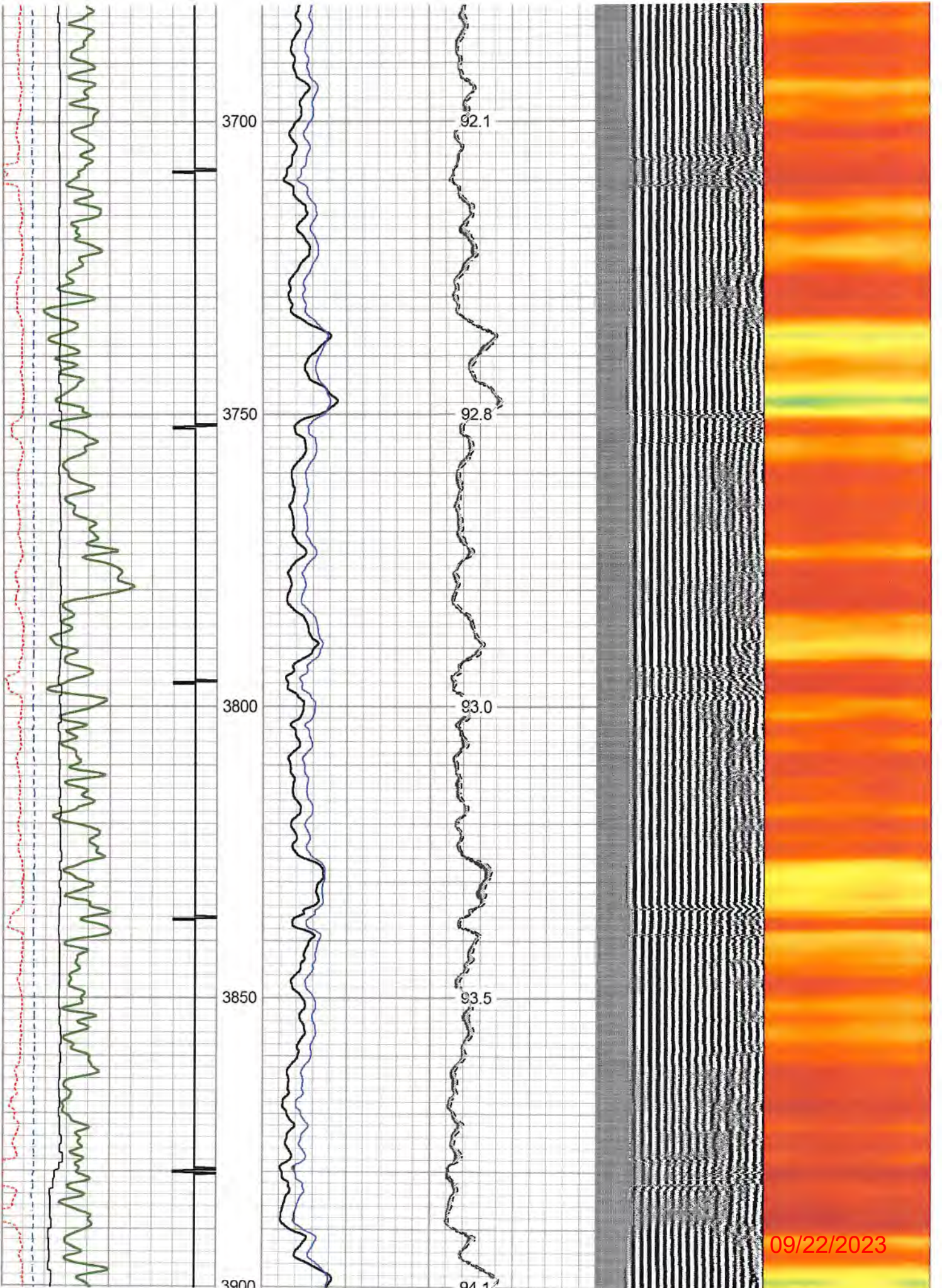
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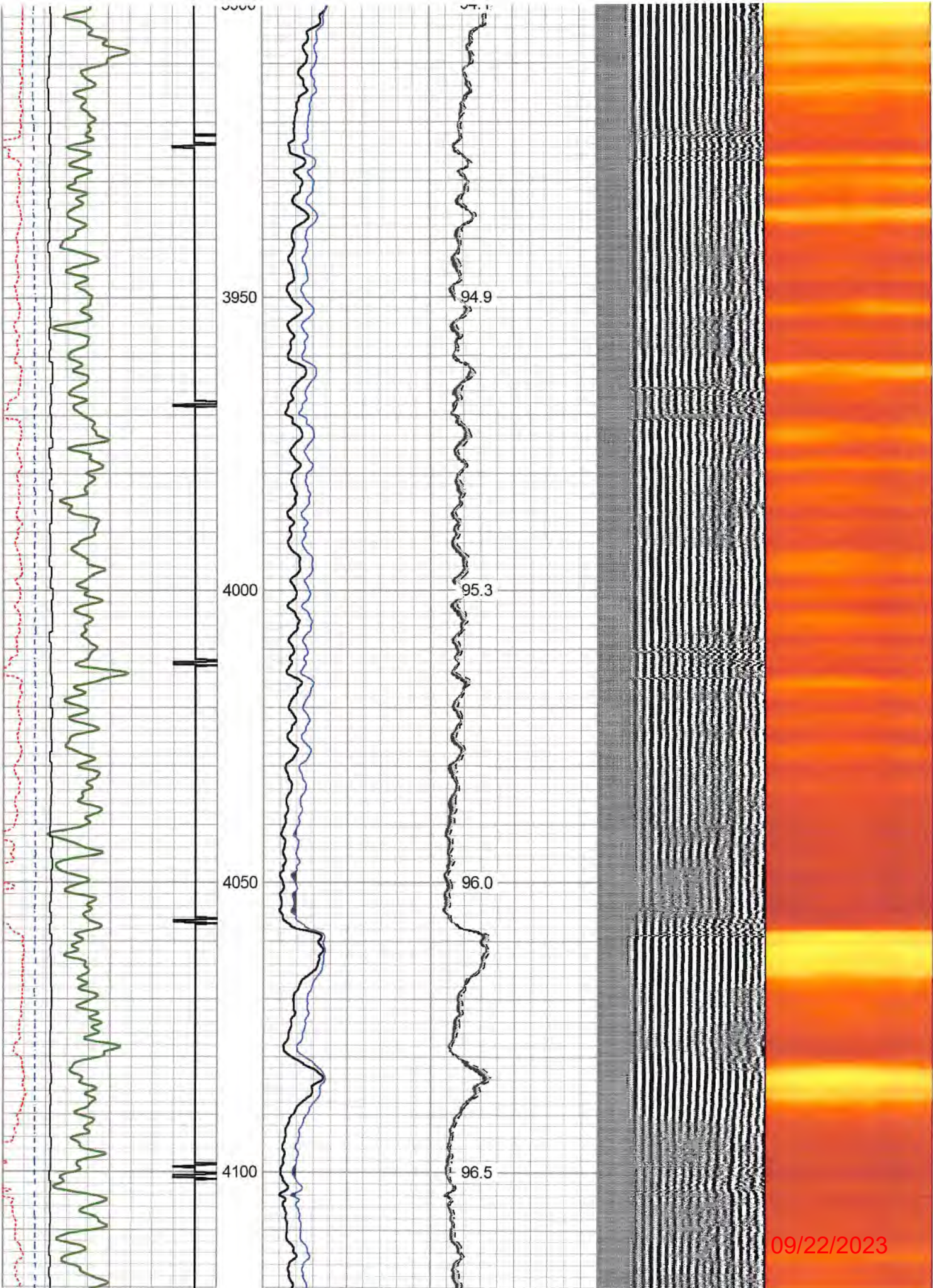
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91.5

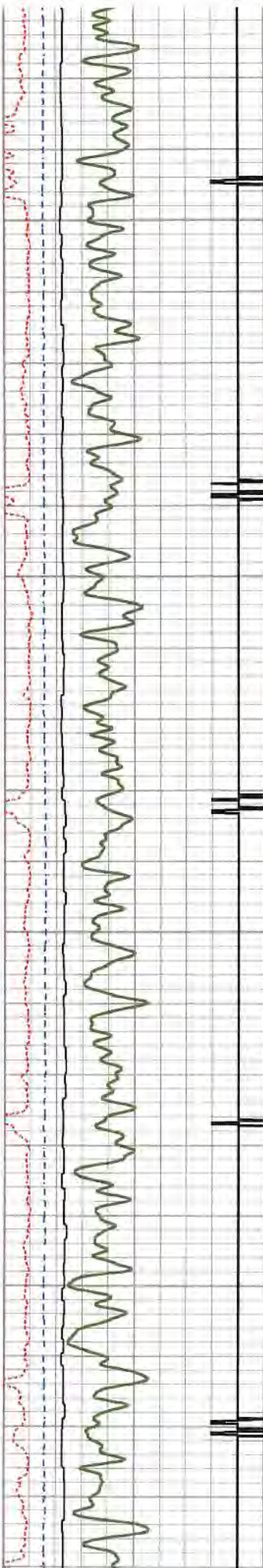


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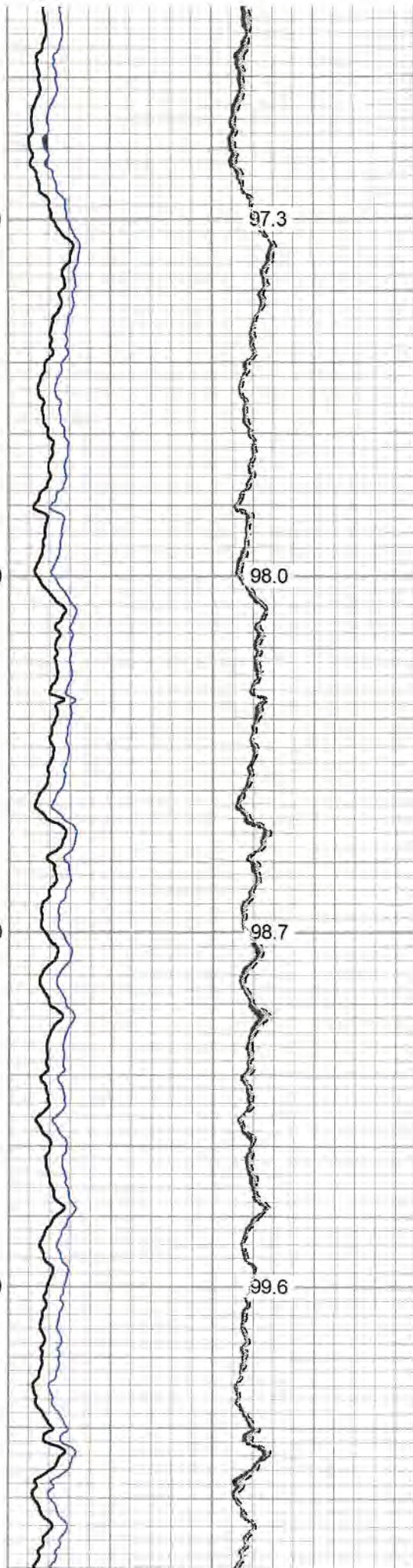


4150

4200

4250

4300

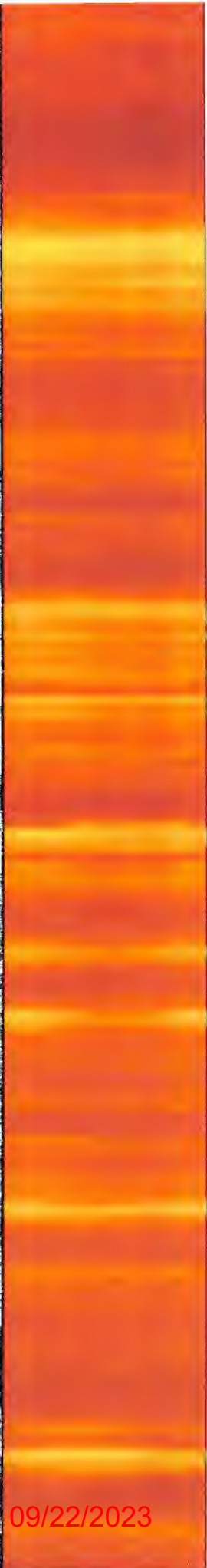
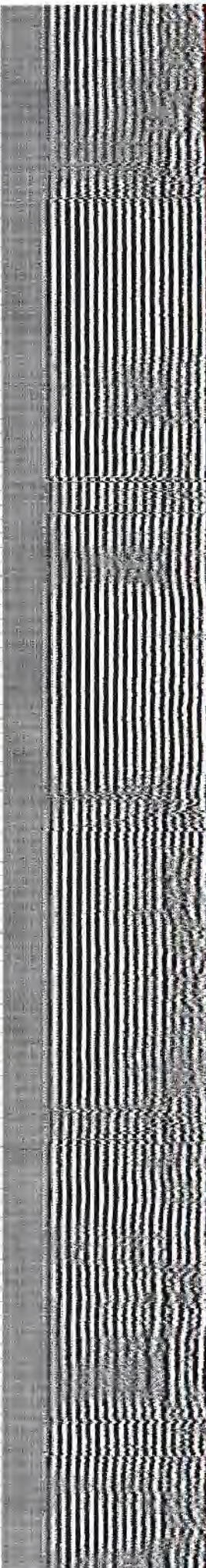


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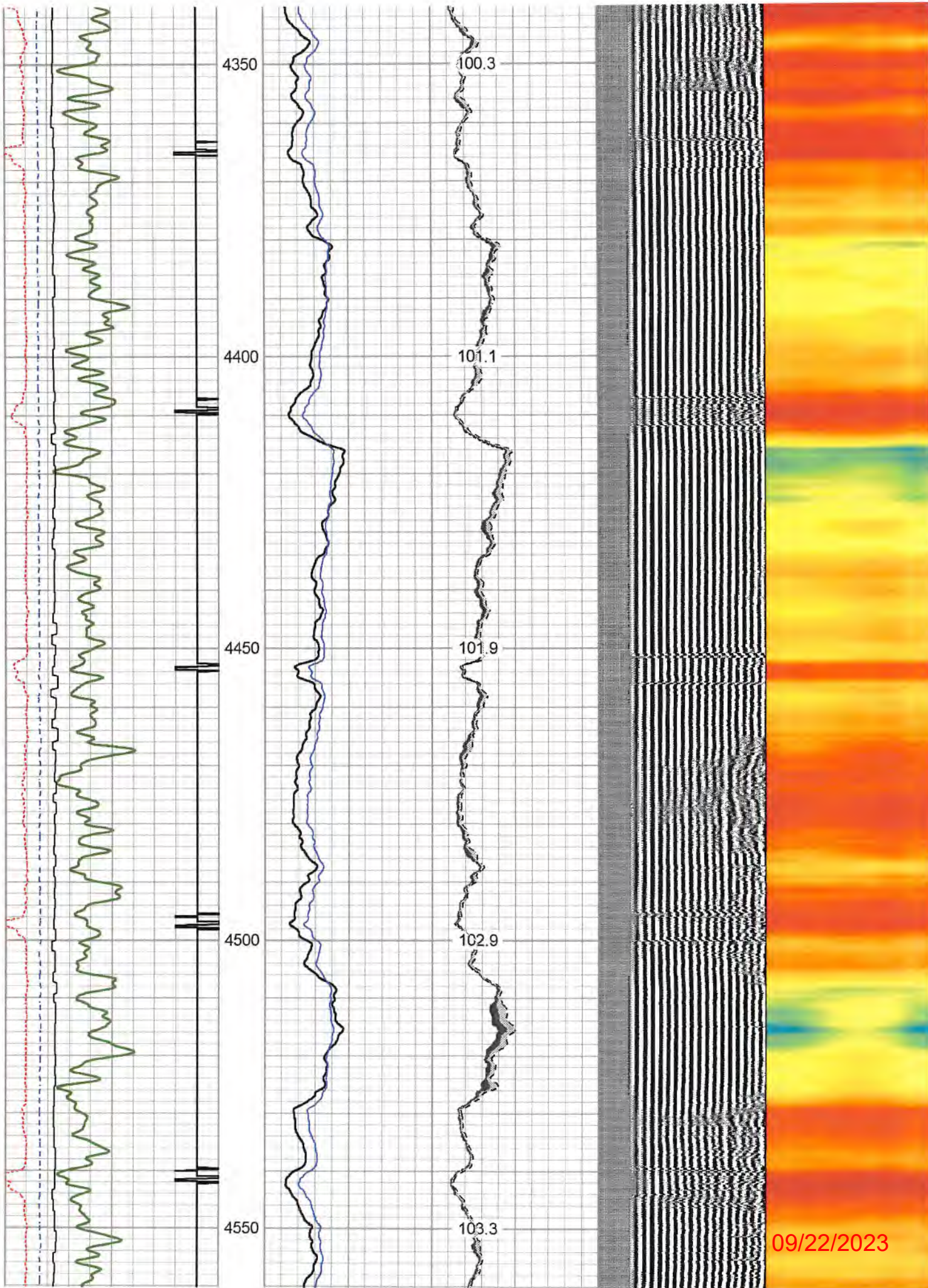
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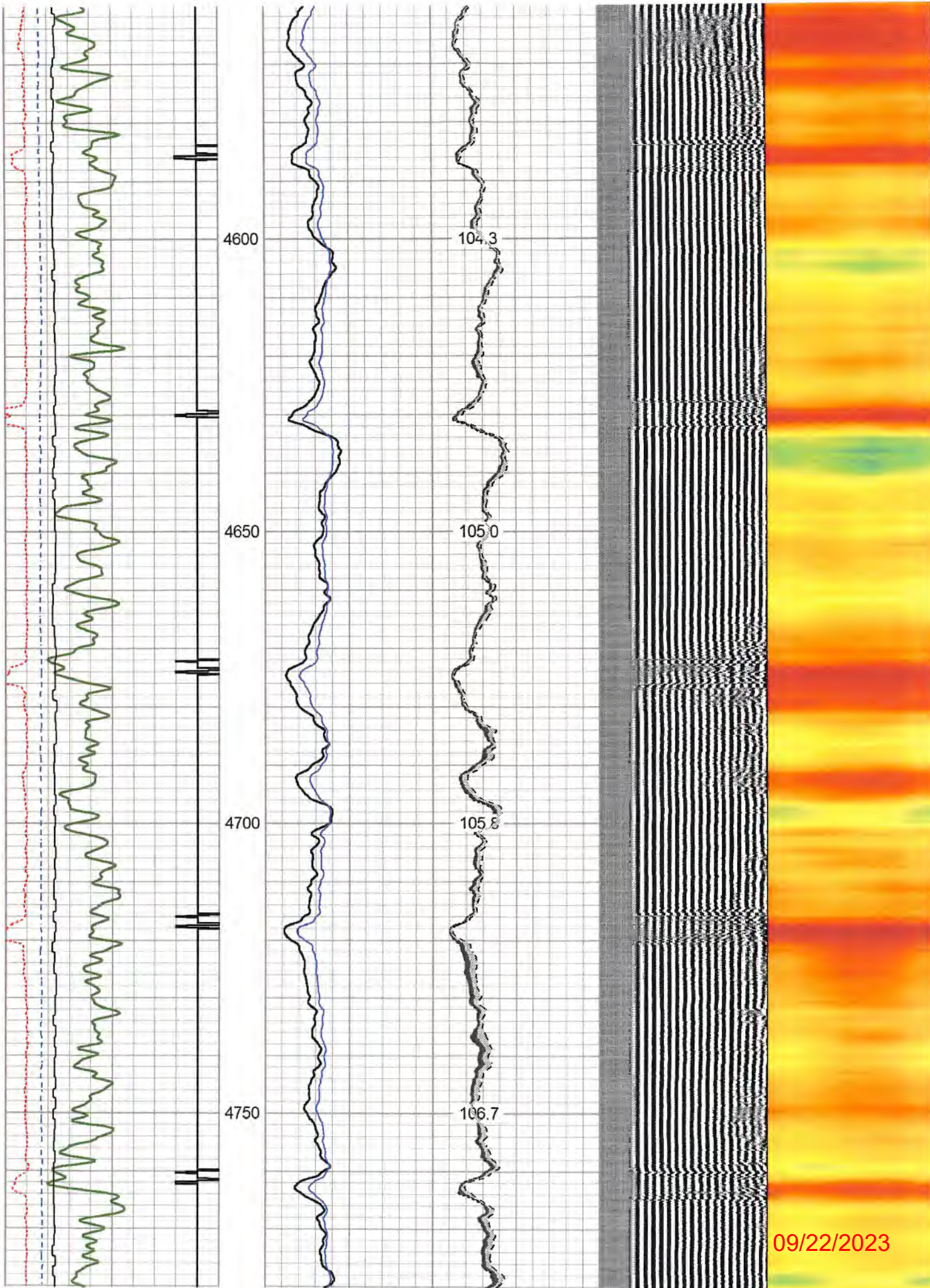
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99.6

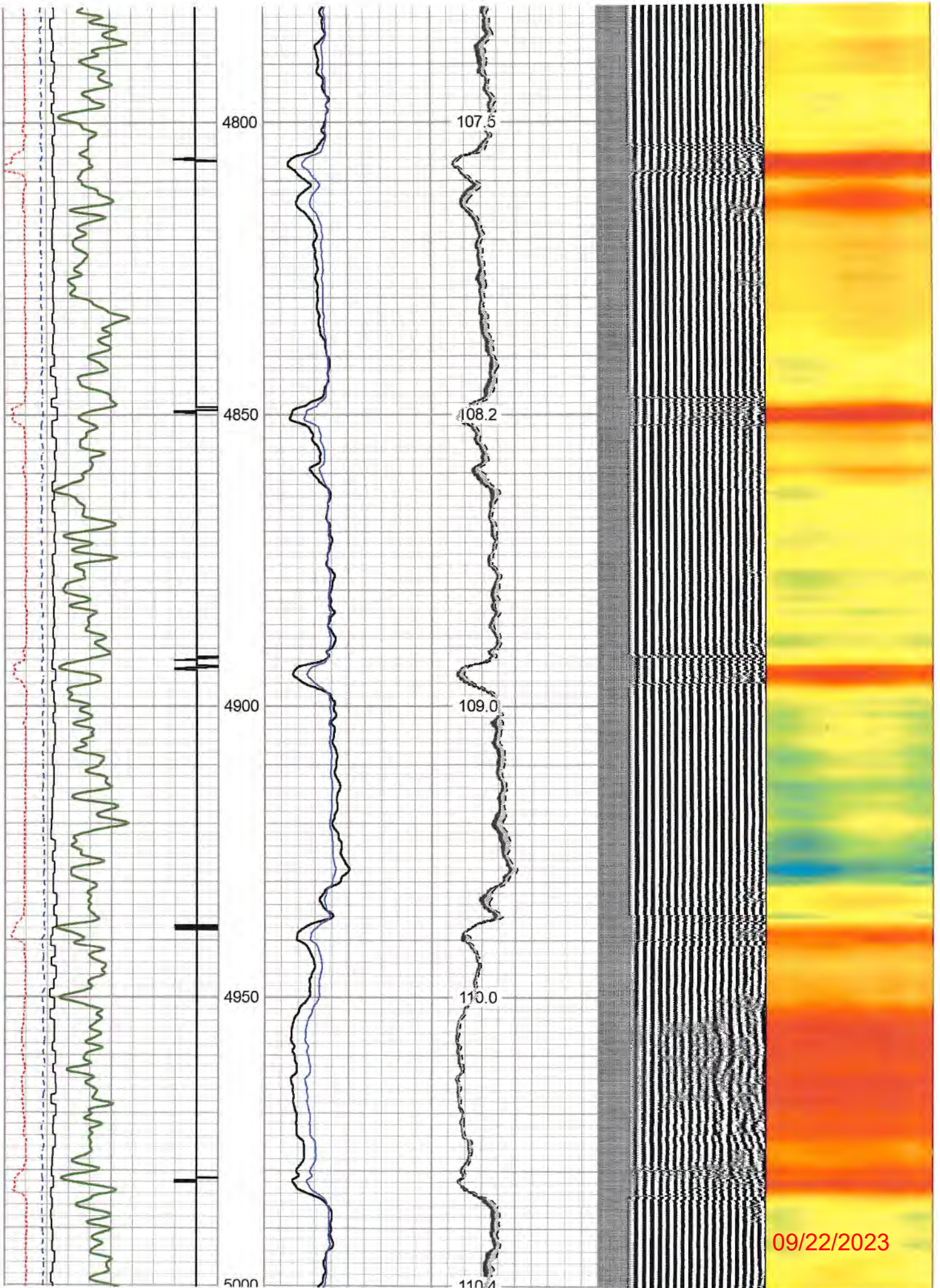


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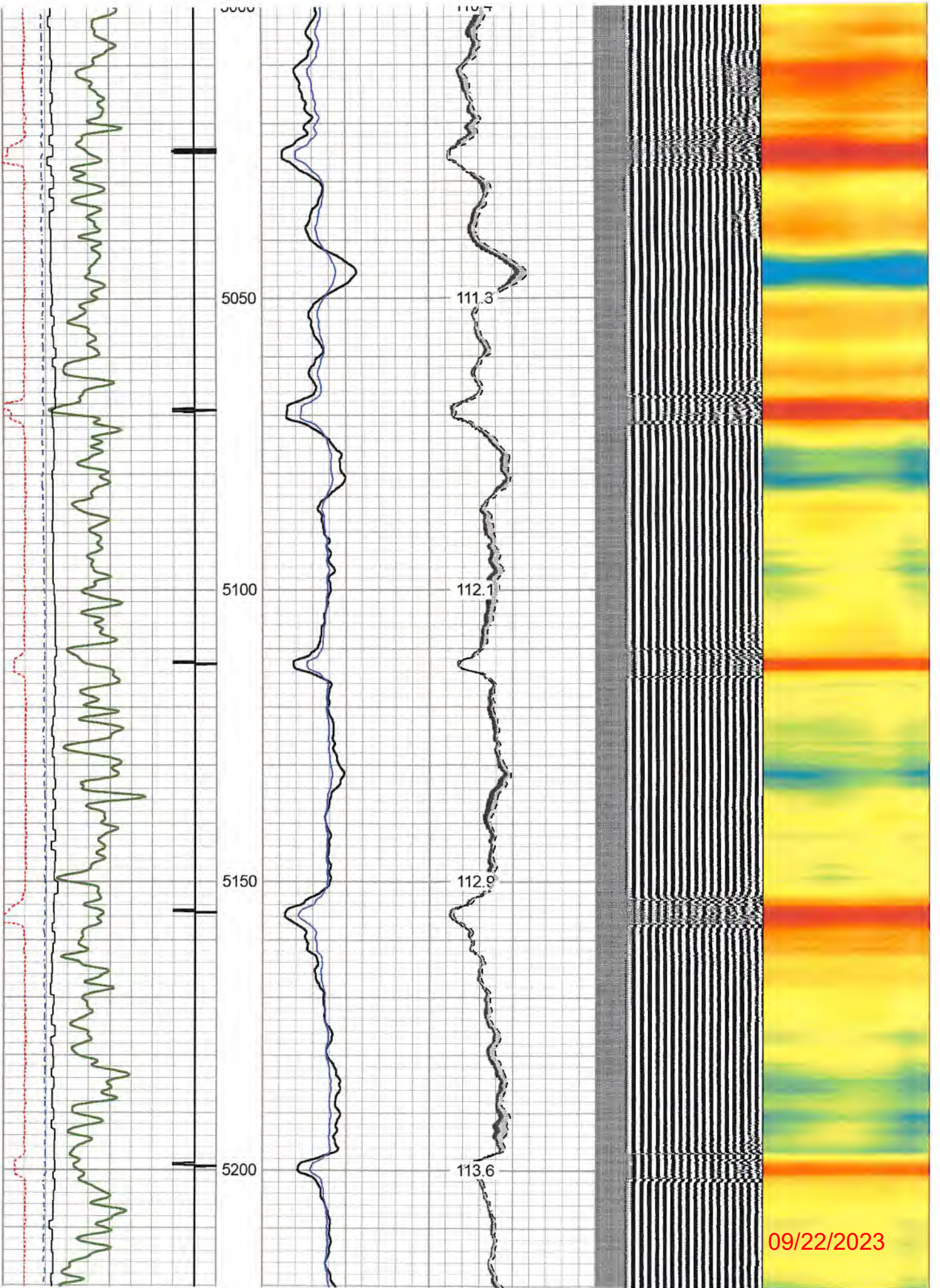


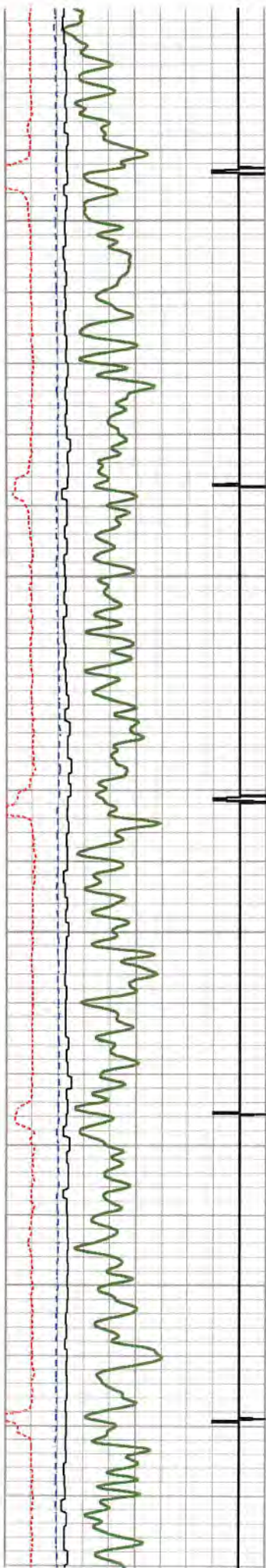


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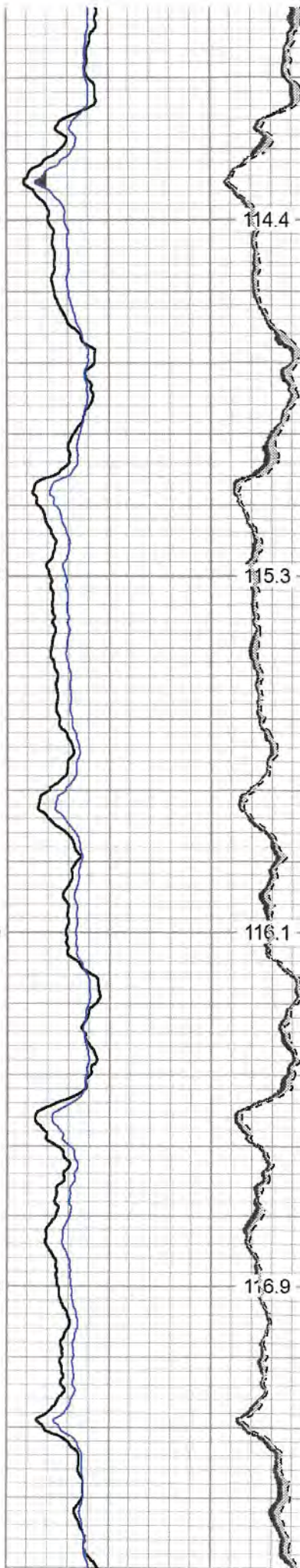


5250

5300

5350

5400

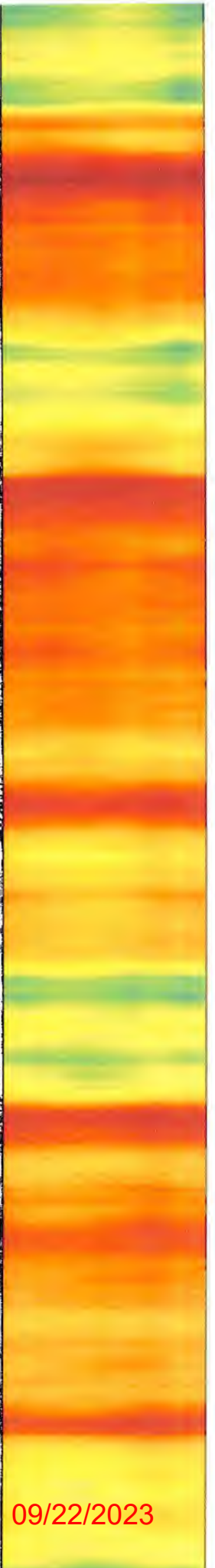
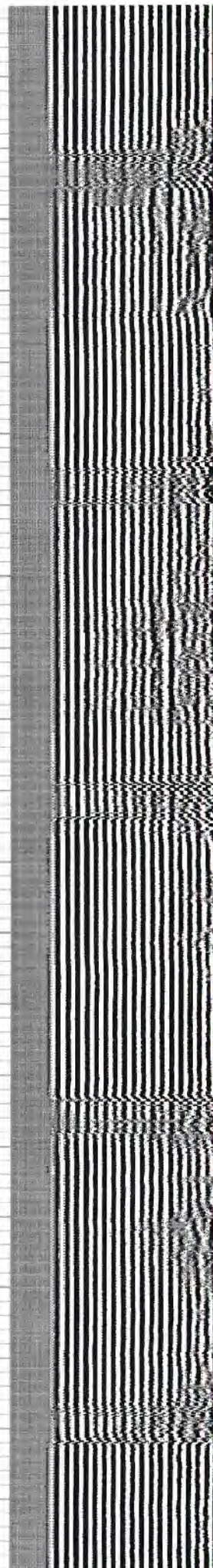


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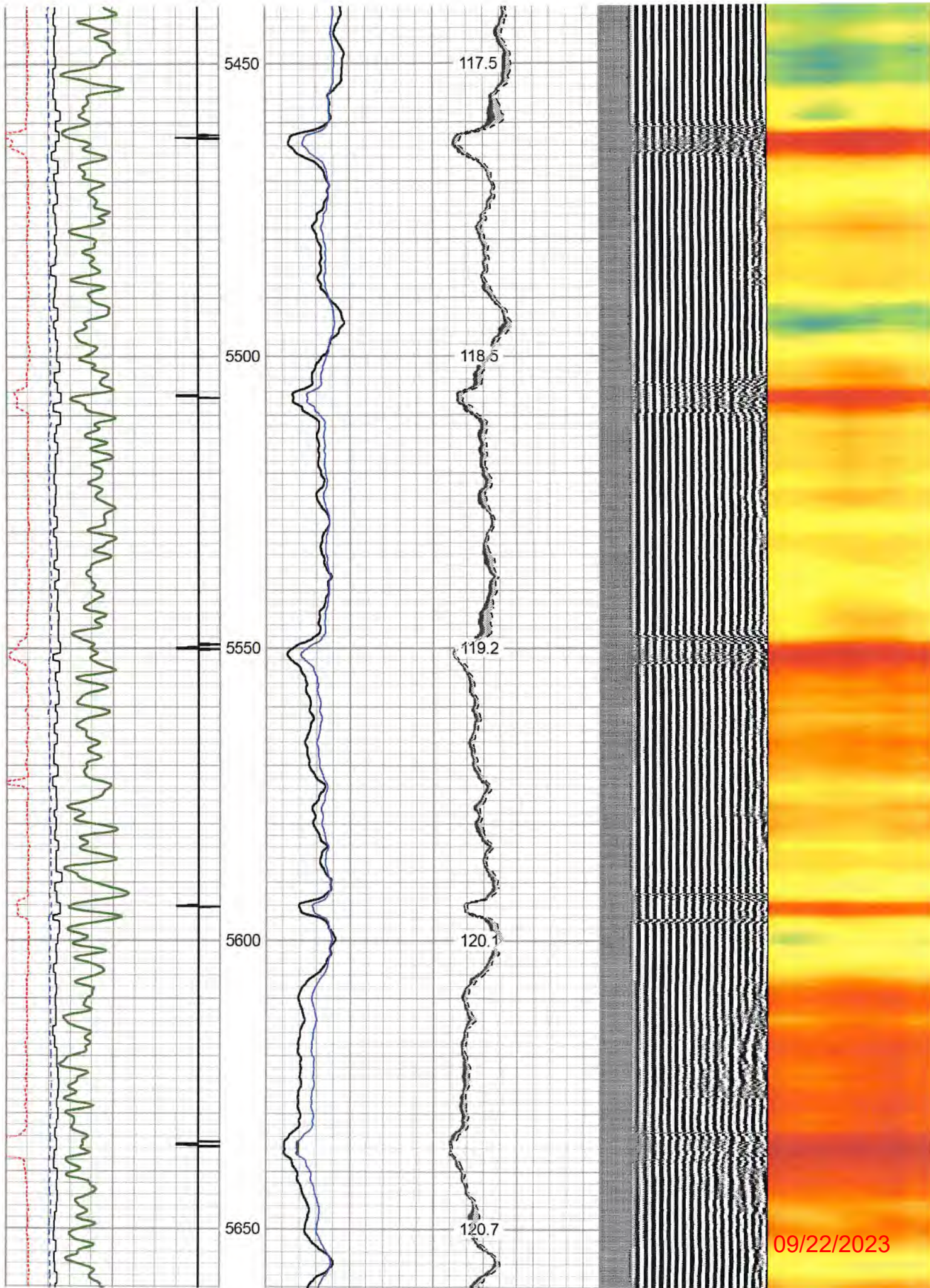
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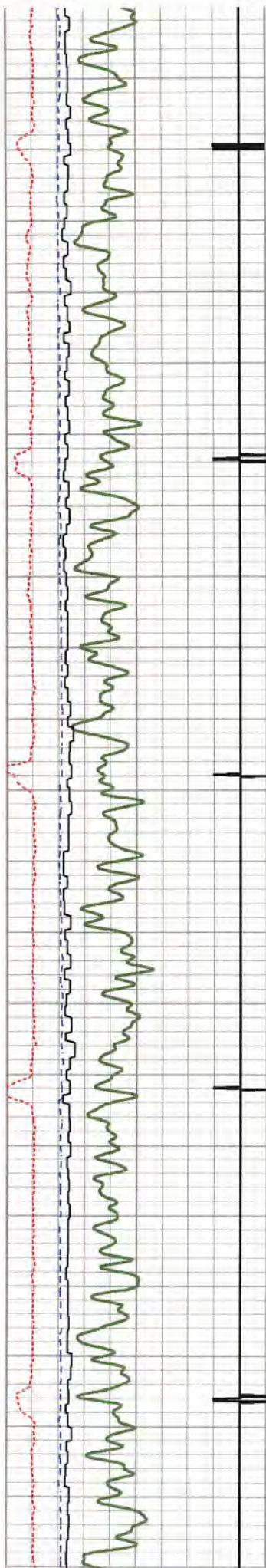
116.1

116.9



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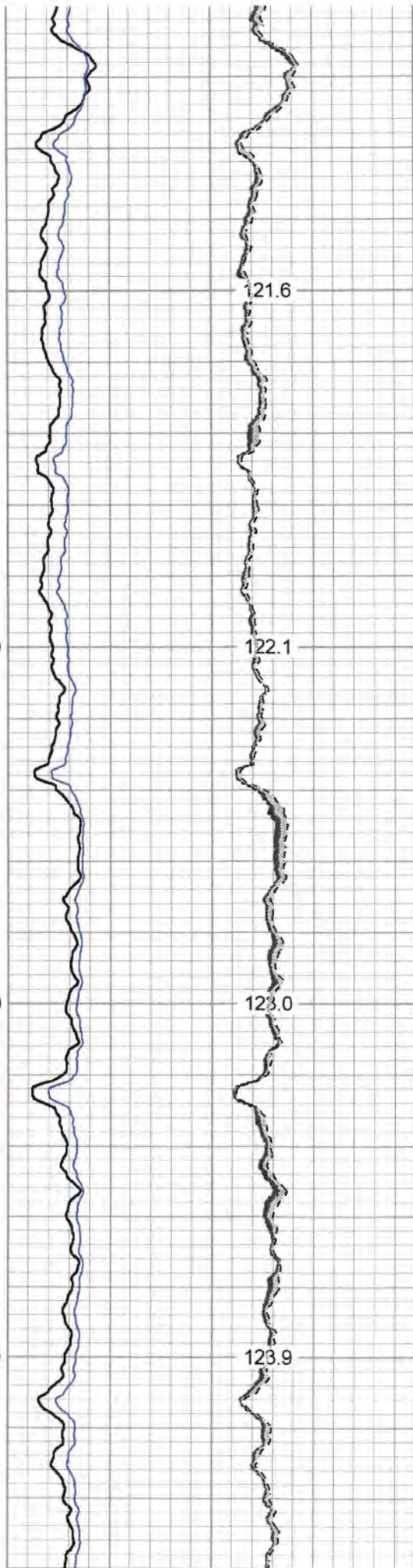


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5850

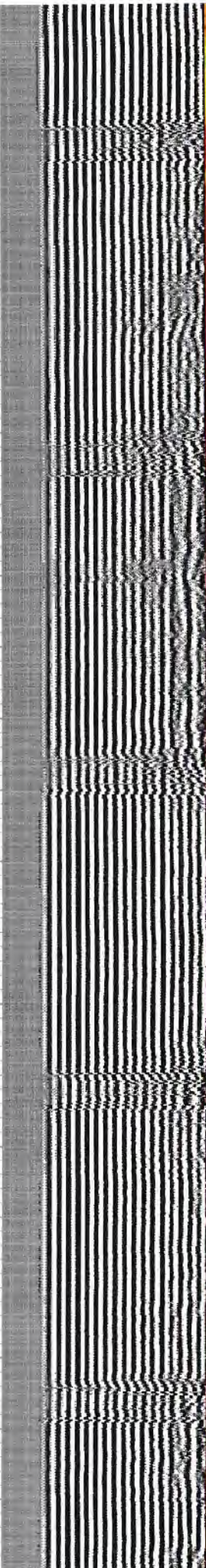


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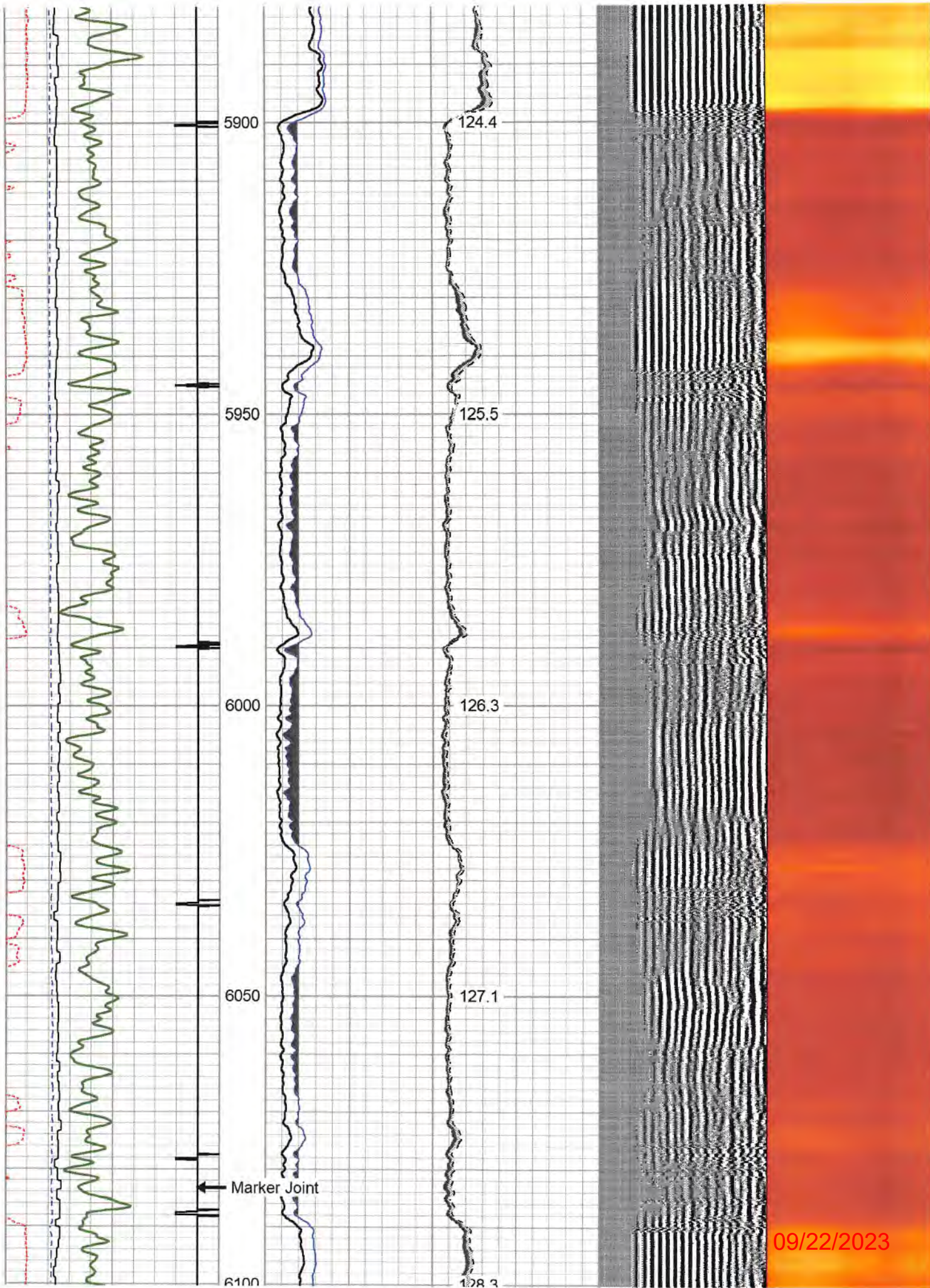
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123.0

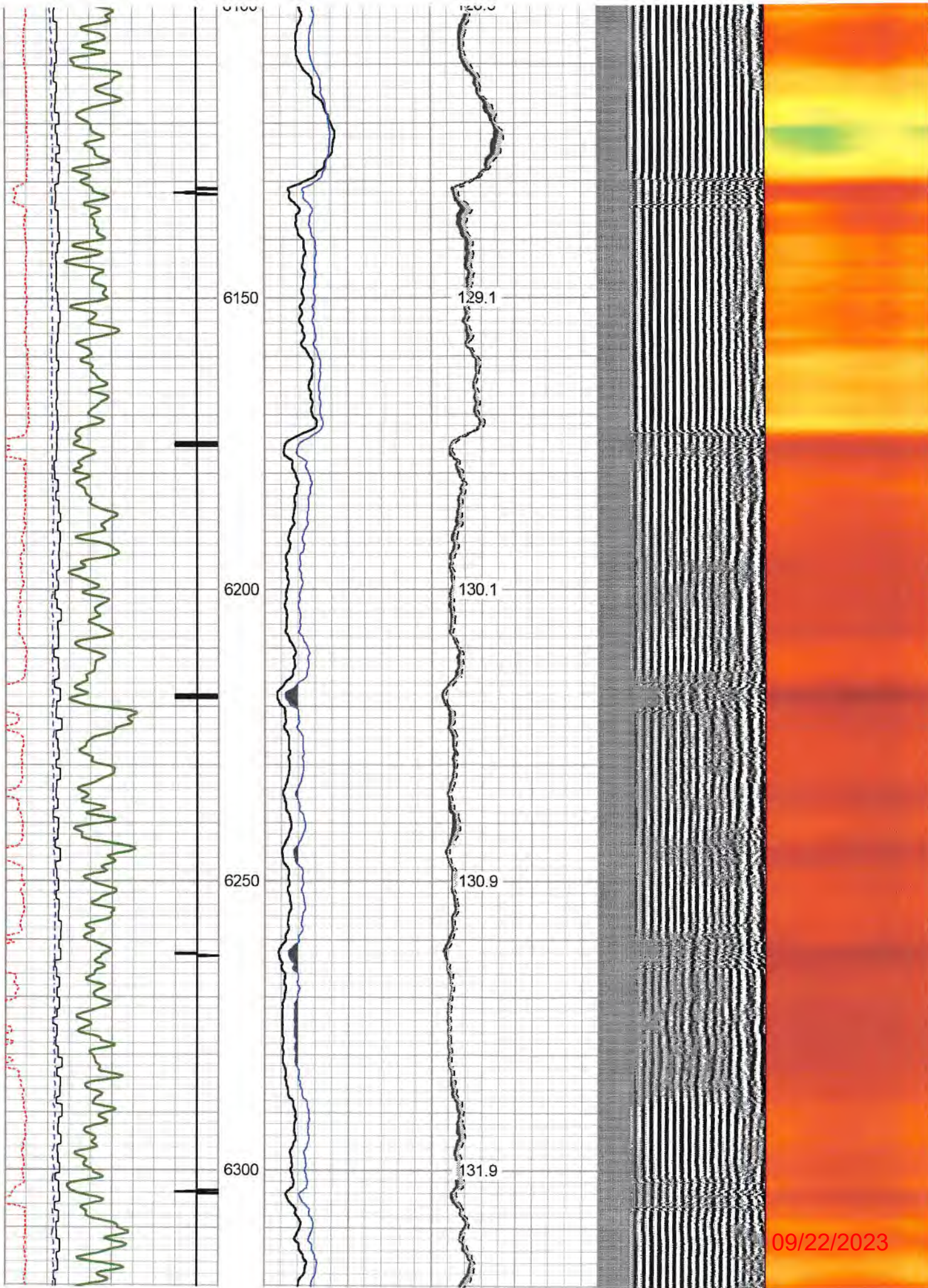
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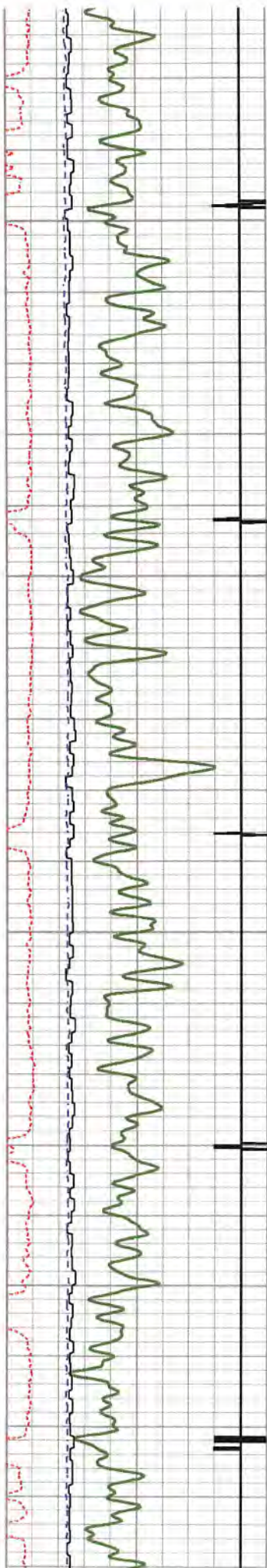
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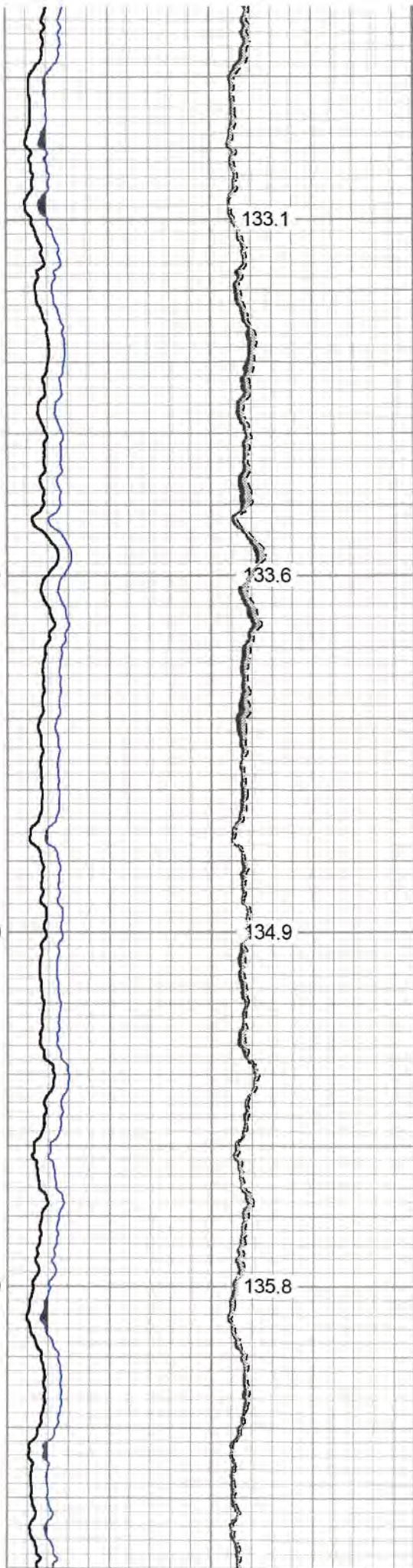


6350

6400

6450

6500

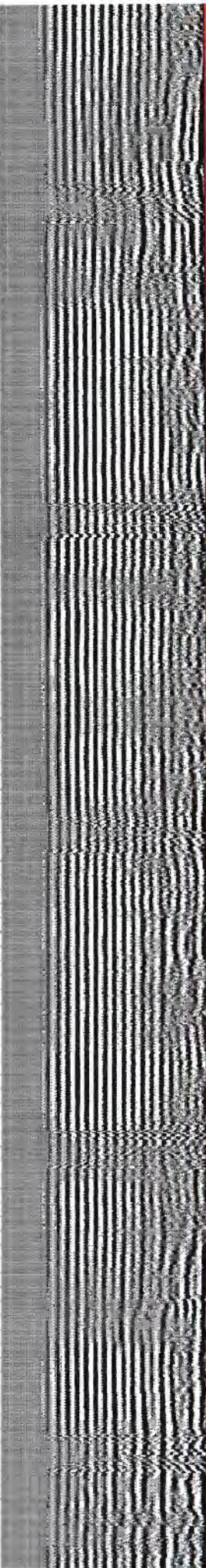


133.1

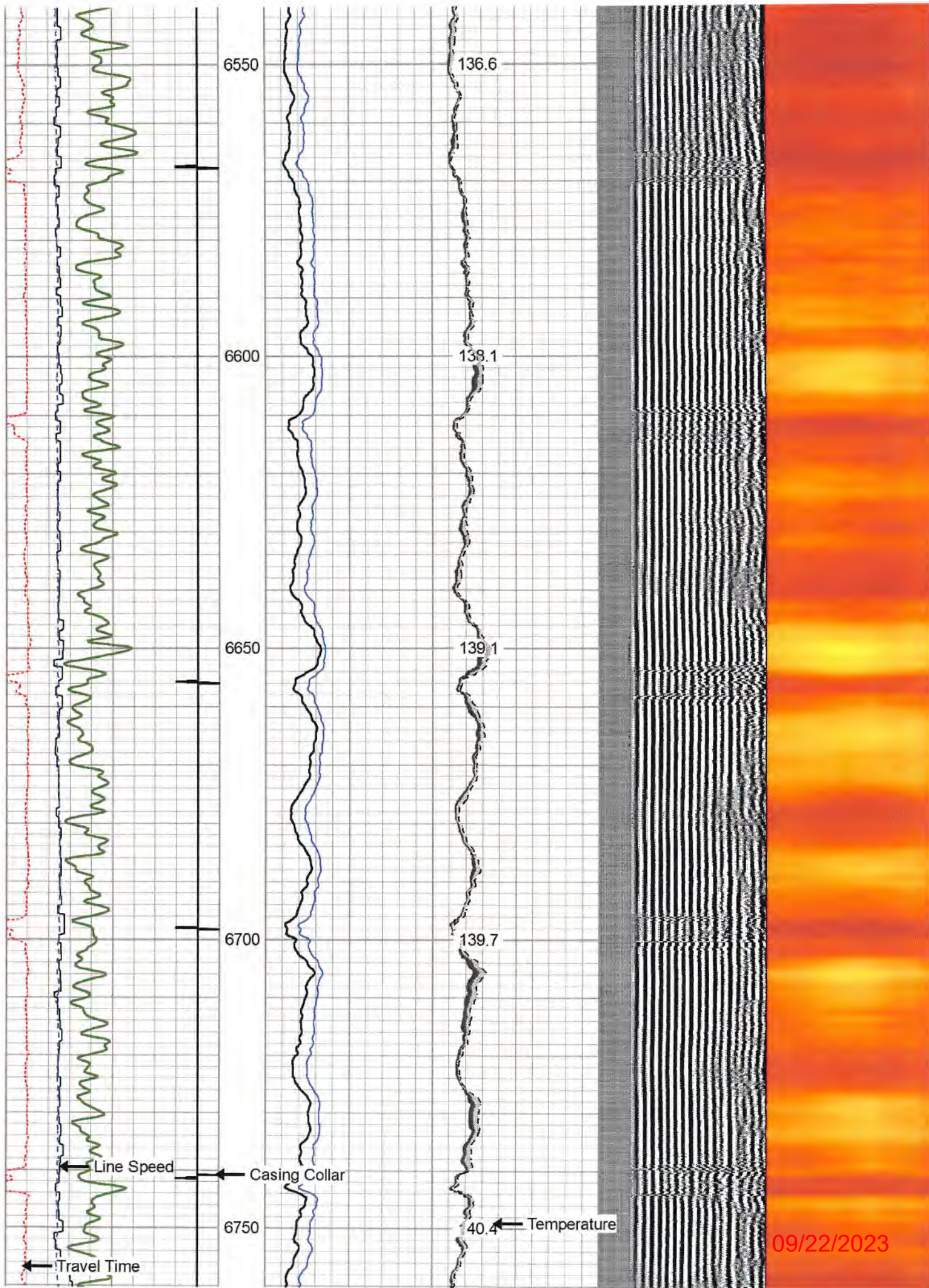
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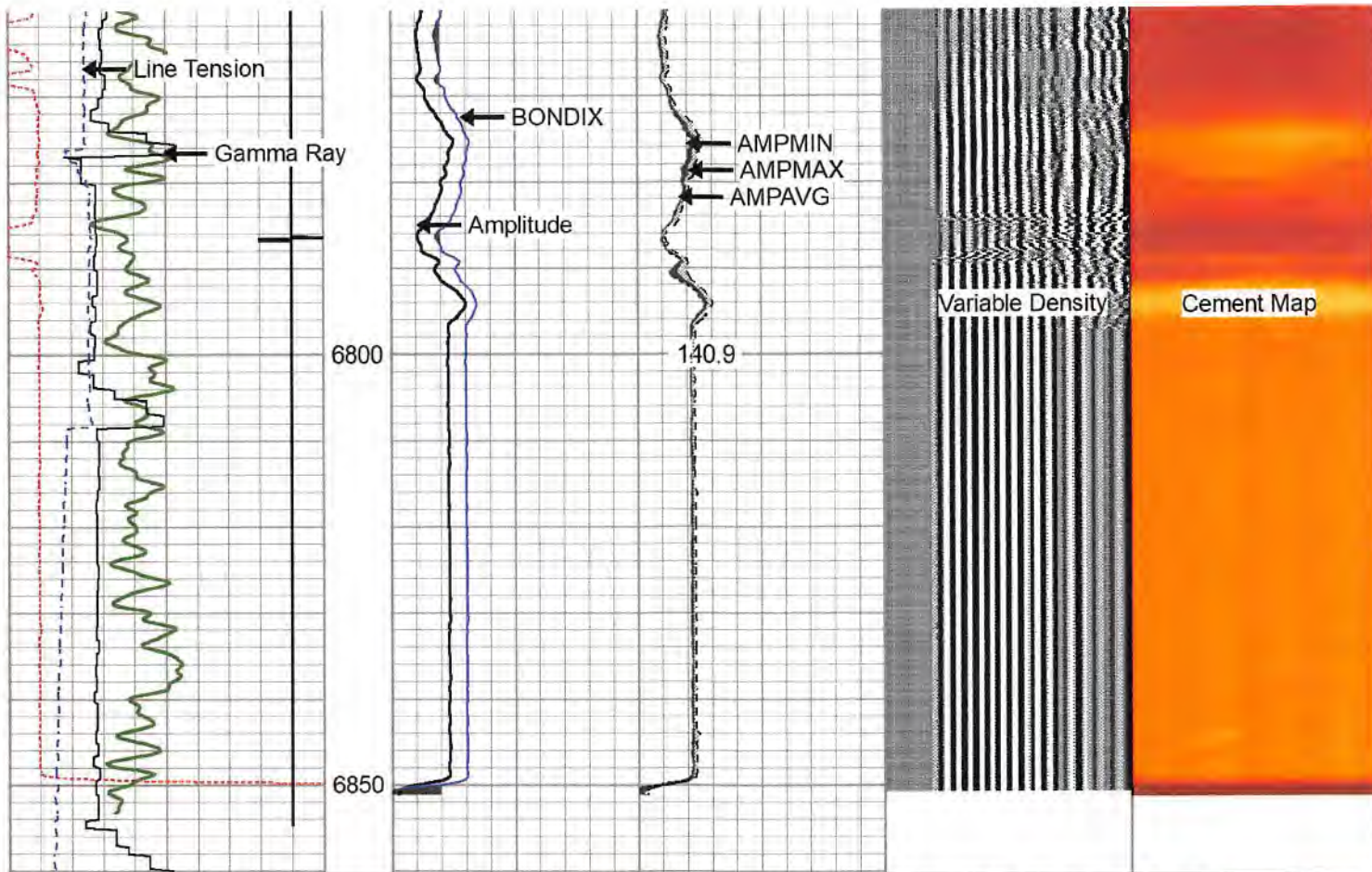
134.9

135.8



09/22/2023





270	Travel Time (usec)	160	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										



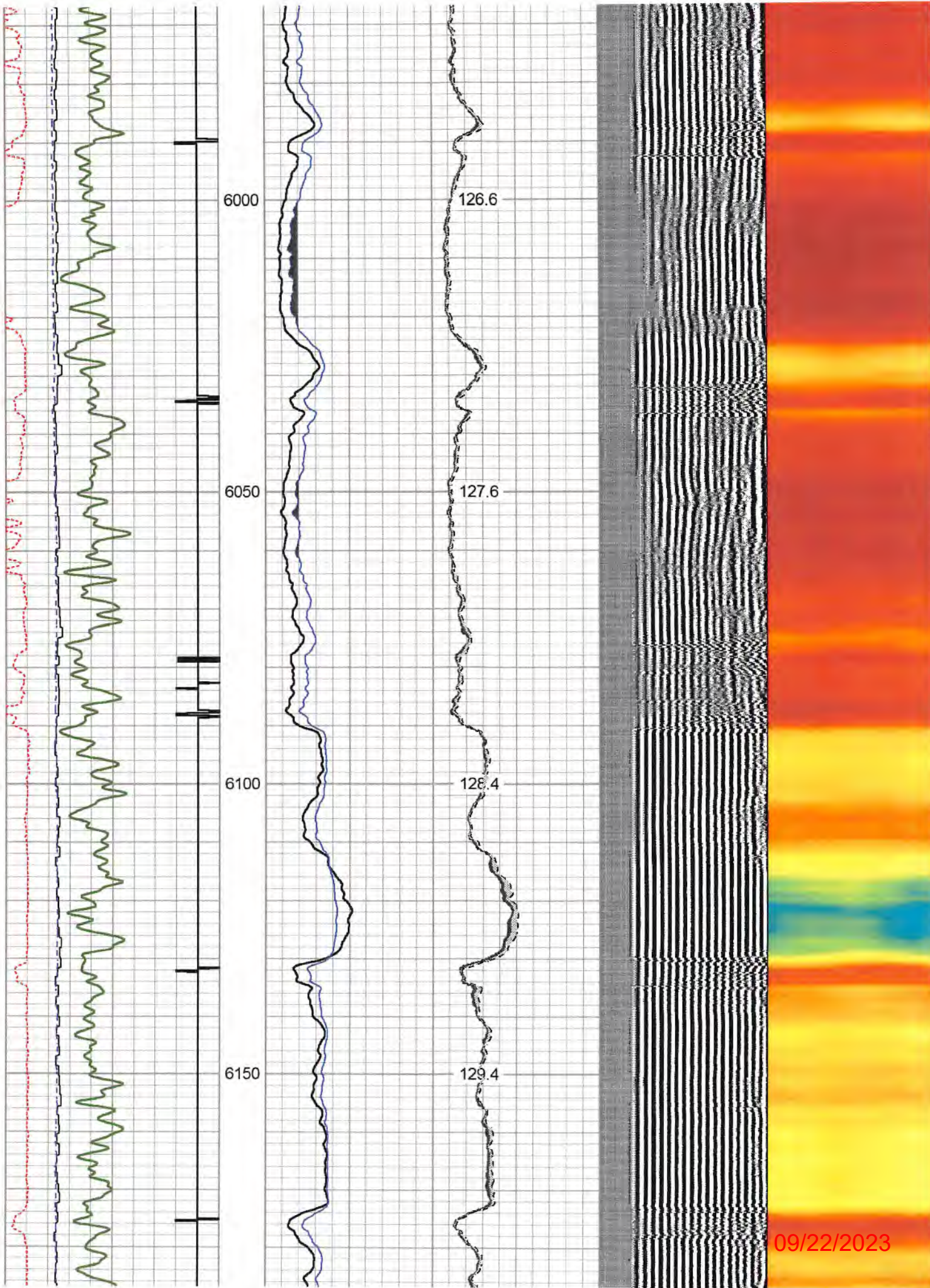
Repeat Pass 0 PSI

Database File antero_forster_2h_rcbl_20_jan_2023.db
 Dataset Pathname forster2h/run1/pass2
 Presentation Format rcbl 2
 Dataset Creation Fri Jan 20 12:33:55 2023
 Charted by Depth in Feet scaled 1:240

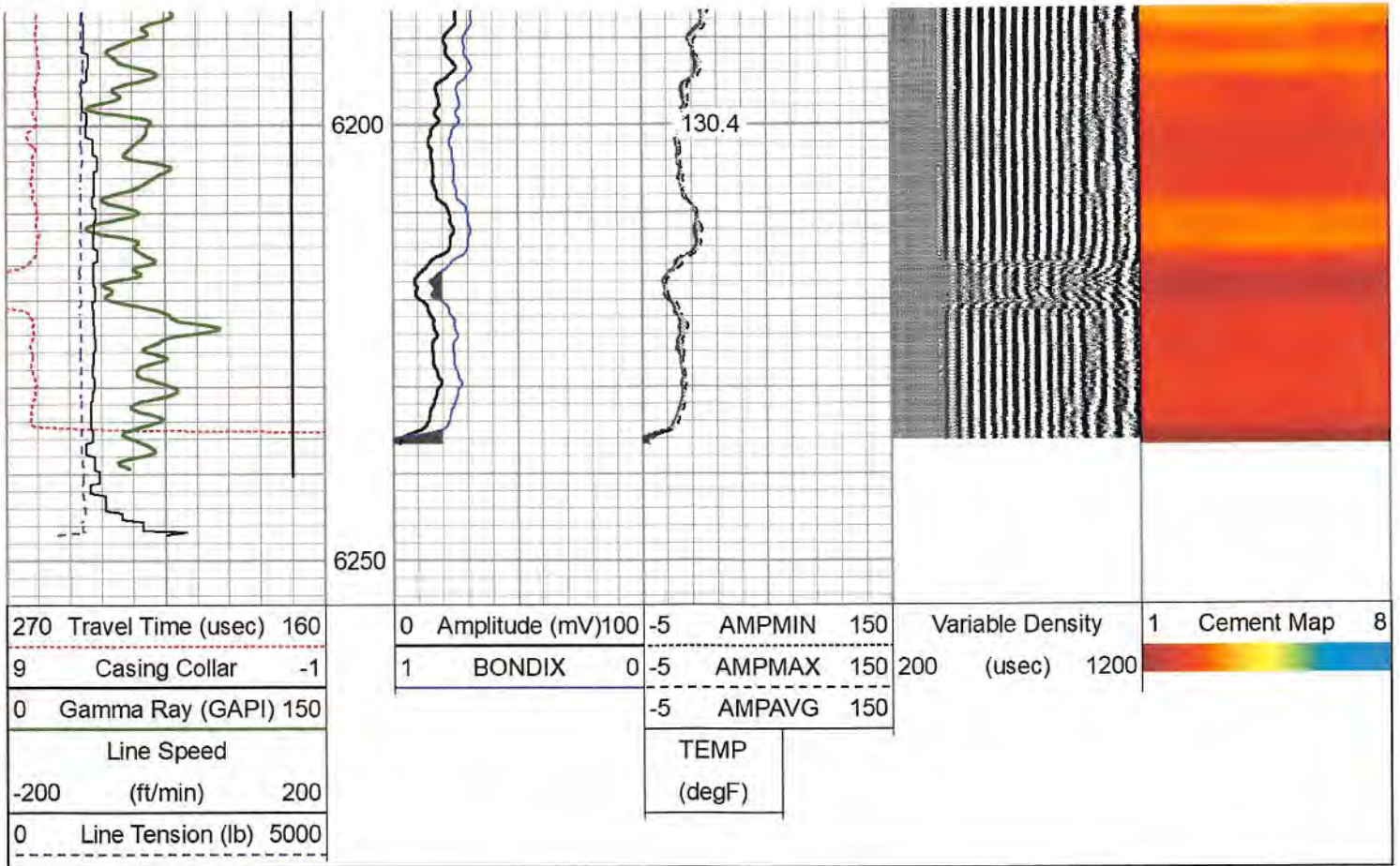
270	Travel Time (usec)	160	0	Amplitude (mV)	100	-5	AMPMIN	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	AMPMAX	150	200 (usec)	1200		
0	Gamma Ray (GAPI)	150				-5	AMPAVG	150				
	Line Speed						TEMP					
-200	(ft/min)	200					(degF)					
0	Line Tension (lb)	5000										



09/22/2023



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Log Variables

Database: C:\ProgramData\Warrion\Data\antero_forster_2h_rcbl_20_jan_2023.db
 Dataset: field/forster2h/run1/pass4/_vars_

Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
	in	degF	in	in	lb/ft	mV	mV
TEMP	7.875	139	5.5	0.415	23	71.9	3.4

MINATTN	PERFS	PPT	SRFTEMP	TDEPTH
db/ft		uSec	degF	ft
9.6	No	260	32	6740

Variable Description

BHTEMP_Src : BHTEMP Input Source Selector	MINAMPL : Minimum Amplitude
BOREID : Borehole I.D.	MINATTN : Minimum Attenuation
BOTTEMP : Bottom Hole Temperature	PERFS : Perforation Flag
CASEOD : Casing O.D.	PPT : Predicted Pipe Time
CASETHCK : Casing Thickness	SRFTEMP : Surface Temperature
CASEWGHT : Casing Weight	TDEPTH : Total Depth
MAXAMPL : Maximum Amplitude	

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JUN 23 2023

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Environmental Protection

Calibration Report

Database File	antero_forster_2h_rcbl_20_jan_2023.db
Dataset Pathname	forster2h/run1/pass4
Dataset Creation	Fri Jan 20 12:40:46 2023

Gamma Ray Calibration Report

Serial Number:	FW1211-86	09/22/2023
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: 3640.717 ft

Master Calibration, performed Fri Jan 20 08:15:41 2023:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	0.931	3.400	71.921	74.291	2.775
CAL	1.464	1.466				
5'	-0.006	0.770	3.400	71.921	88.258	3.933
SUM						
S1	0.075	0.942	0.000	100.000	115.262	-8.629
S2	-0.004	0.861	0.000	100.000	115.569	0.450
S3	-0.001	0.880	0.000	100.000	113.511	0.087
S4	-0.002	0.929	0.000	100.000	107.435	0.223
S5	0.001	0.973	0.000	100.000	102.872	-0.085
S6	-0.004	0.982	0.000	100.000	101.343	0.455
S7	-0.004	0.967	0.000	100.000	102.957	0.452
S8	-0.005	0.920	0.000	100.000	108.040	0.578


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	1.464	1.466	1.000	0.000

Air Zero Calibration, performed Fri Jan 20 07:41:47 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	

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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			CHD-Titan	1.02	1.44	1.00

09/22/2023

HeadVolt	16.95		Standard 1 /16" Cable Head				
			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						
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		

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JUN 23 2023
WV Department of
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Dataset: antero_forster_2h_rcbl_20_jan_2023.db: field/forster2h/run1/pass4
 Total length: 18.03 ft
 Total weight: 182.00 lb
 O.D.: 4.88 in

09/22/2023



Well	Beech Run Forster 2H
Field	Rabbit Ears
County	Tyler
State	WV

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