



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

Company Antero Resources
Well Flames 2H
Field North Canton
County Tyler
State West Virginia

Company Antero Resources
Well Flames 2H
Field North Canton
County Tyler
State West Virginia

Location: API #: 47095026020000

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	30-Apr-20	
Run Number	One	
Depth Driller	18,931 ft.	
Depth Logger	6,990 ft.	
Bottom Logged Interval	6,990 ft. Surface	
Top Log Interval	Surface	
Open Hole Size	n/a	
Type Fluid	Freshwater	
Density / Viscosity	n/a	
Max. Recorded Temp.	166 deg F	
Estimated Cement Top	3,834 ft.	
Time Well Ready	07:00	
Time Logger on Bottom	13:52	
Equipment Number	132	
Location	Marietta, Ohio	
Recorded By	Tom Weese	
Witnessed By	Chris Young	
Borehole Record		
Run Number	Bit	From To
Tubing Record		
Run Number	Weight	From To
Casing Record		
Surface String	Size	WGVft
Prot. String	9 5/8 in.	54.5 #
Production String	5 1/2	20#
Liner		
Marker Joint	5,739 ft.	5,749 ft.

<<< Fold Here >>>

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 (5,739' - 5,749')
Depth Correction (-3)

Main Pass 0 PSI
Repeat Pass 0 PSI

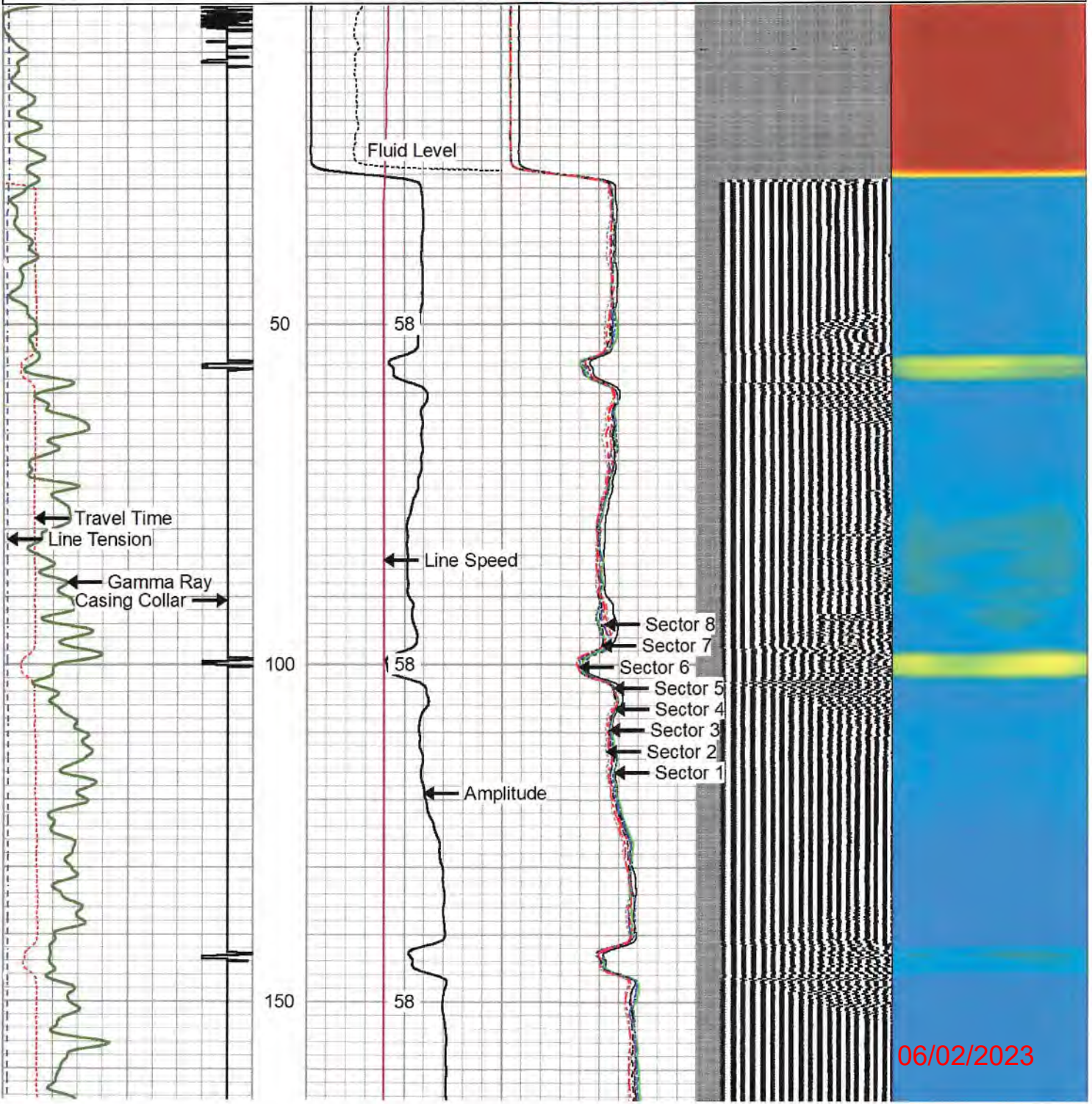
Thank You For Using Nine Energy Wireline of Marietta, Ohio



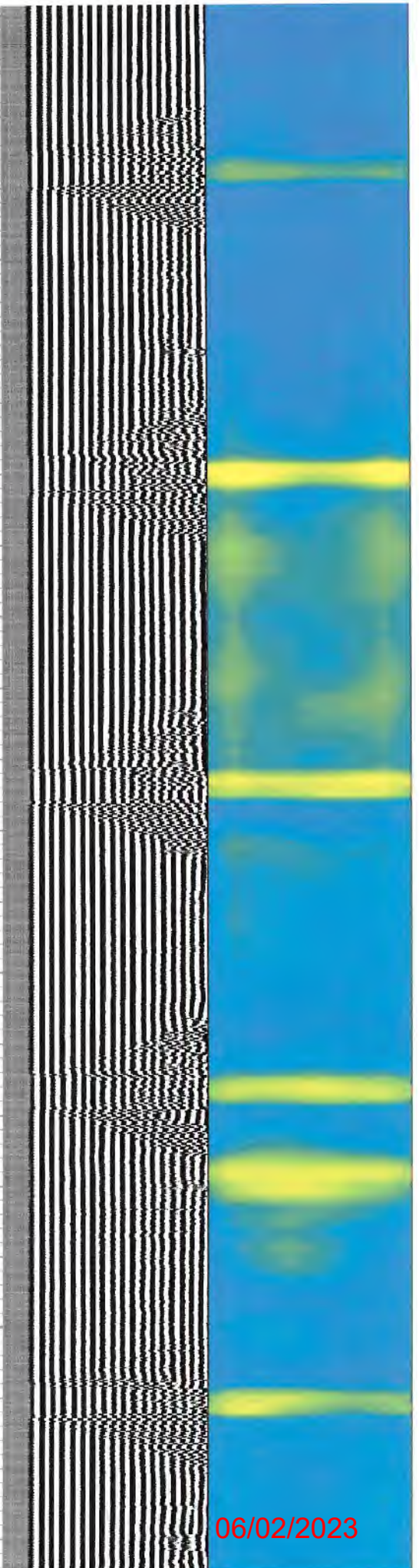
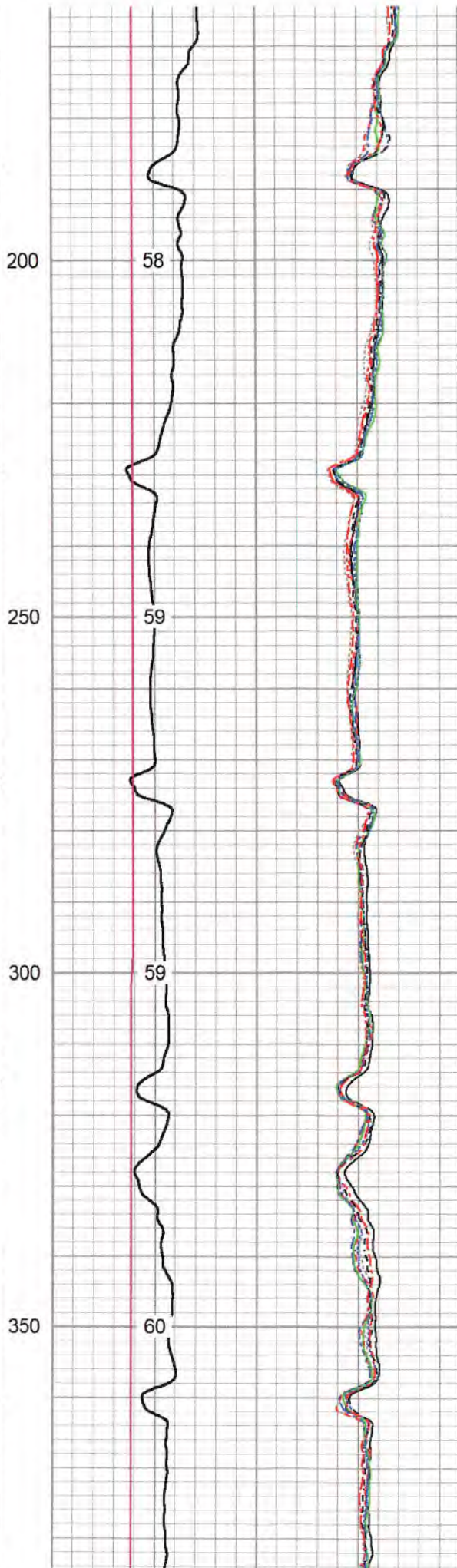
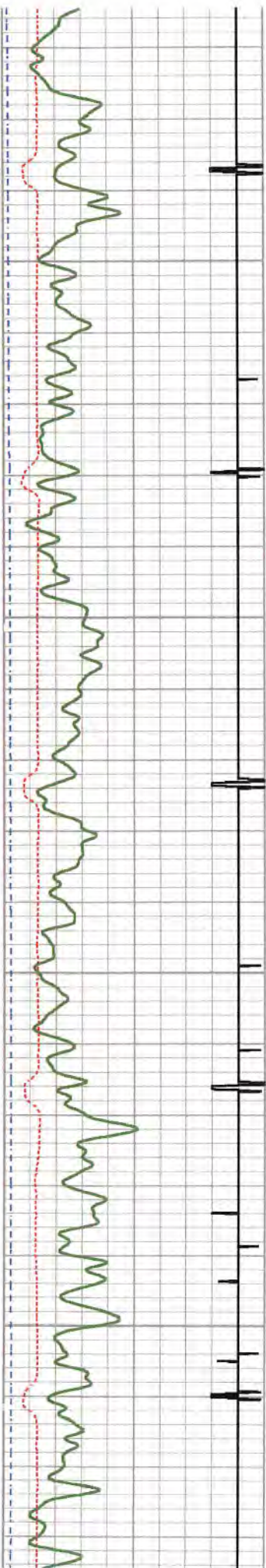
Main Pass 0 PSI

Database File antero_coloradowest_flames_2h_rcbl_nineenergy_apr_30_2020.db
 Dataset Pathname Marcellus/Flames_2H/RCBL_1/pass4
 Presentation Format 9rcbl
 Dataset Creation Thu Apr 30 12:52:42 2020
 Charted by Depth in Feet scaled 1:240

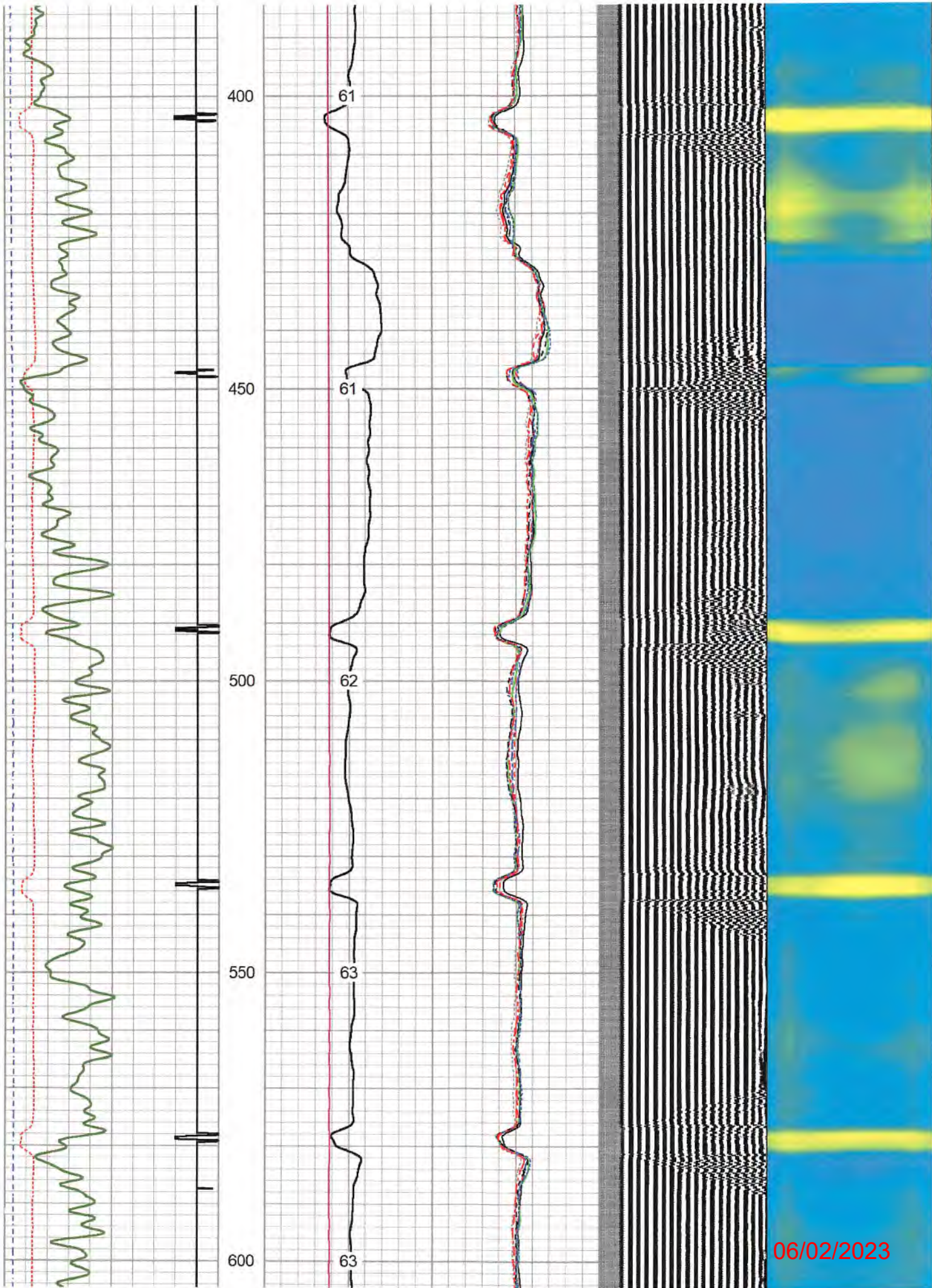
270	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	Sector 2	150	200	(usec)		
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	Line Tension (lb)	5000		Line Speed		-5	Sector 4	150				
			-500	(ft/min)	500	-5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



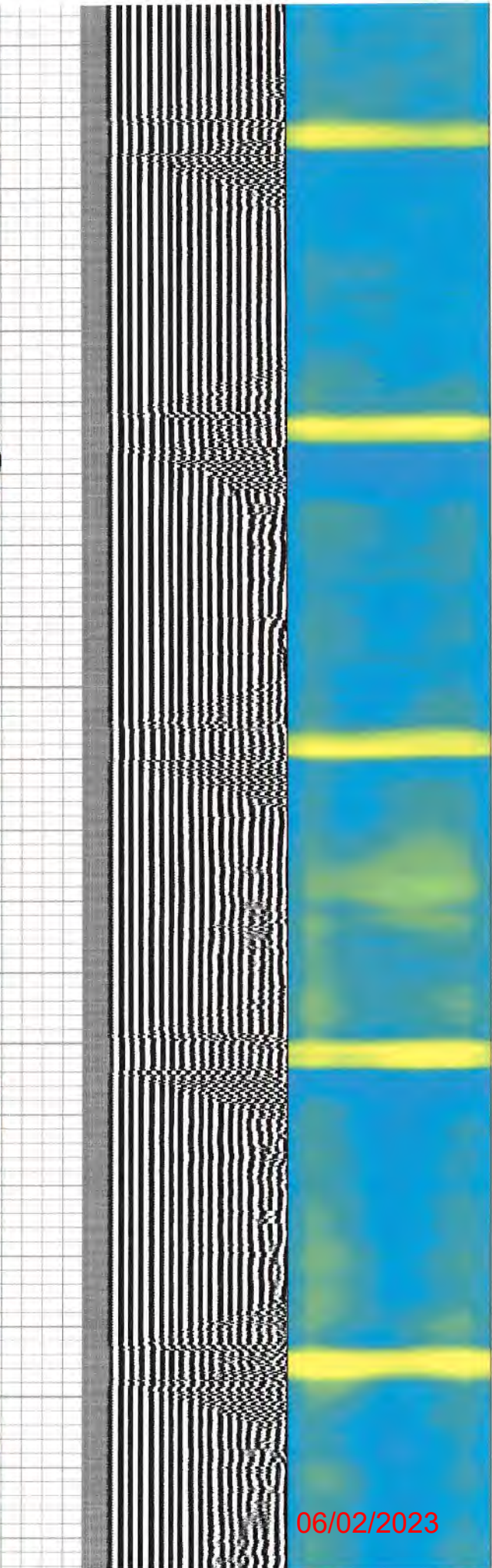
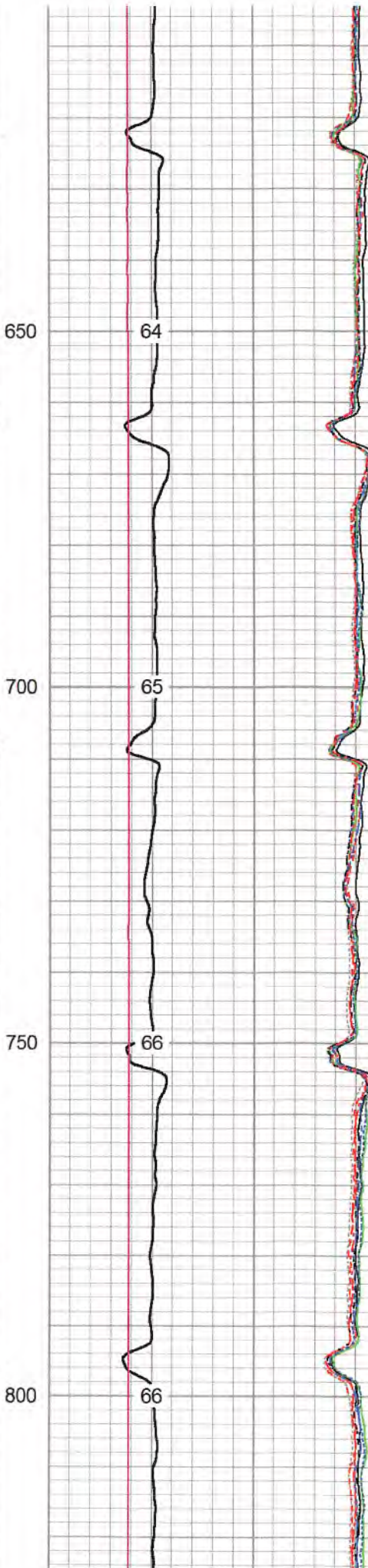
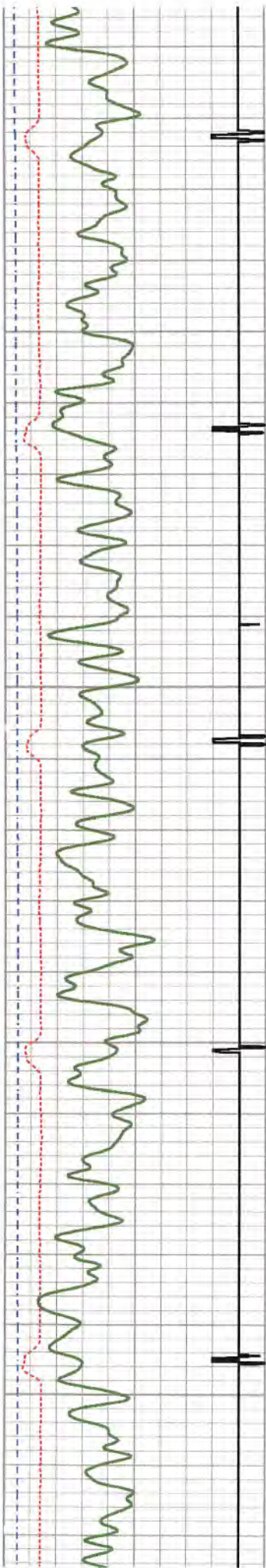
06/02/2023



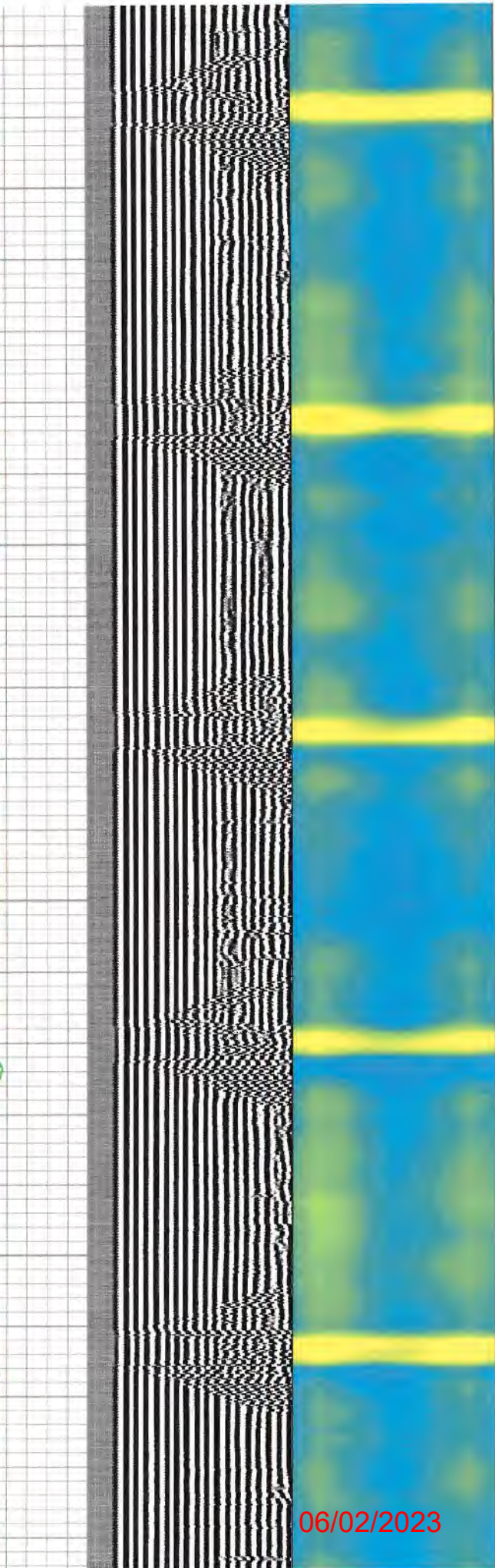
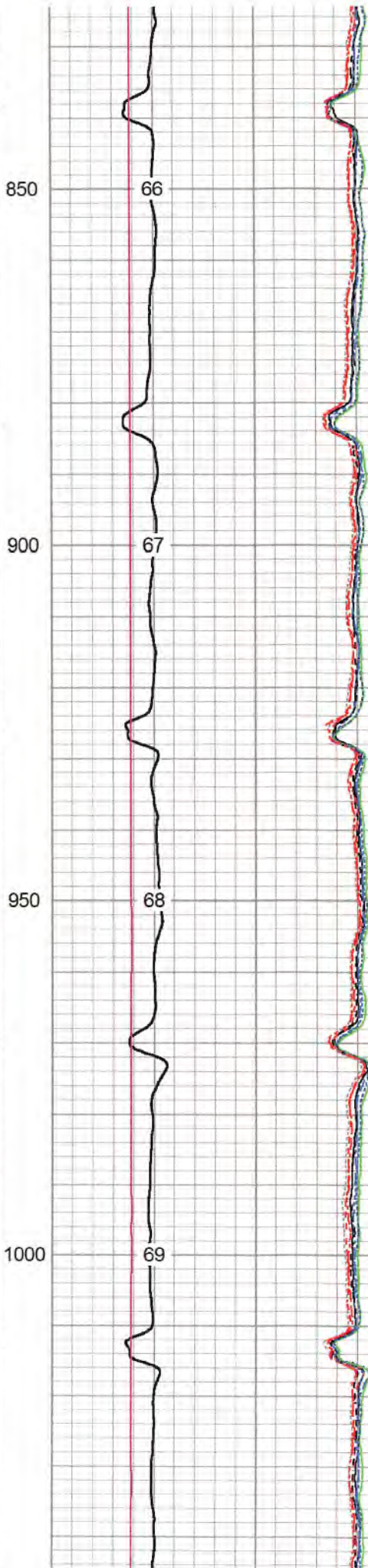
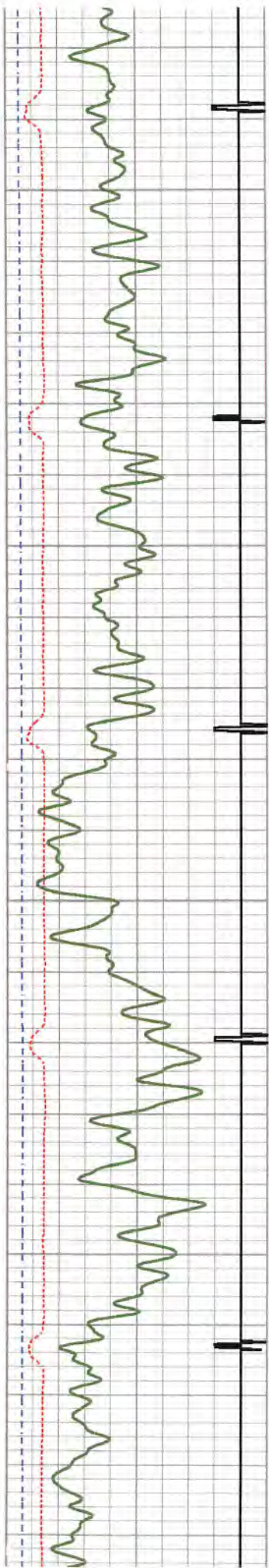
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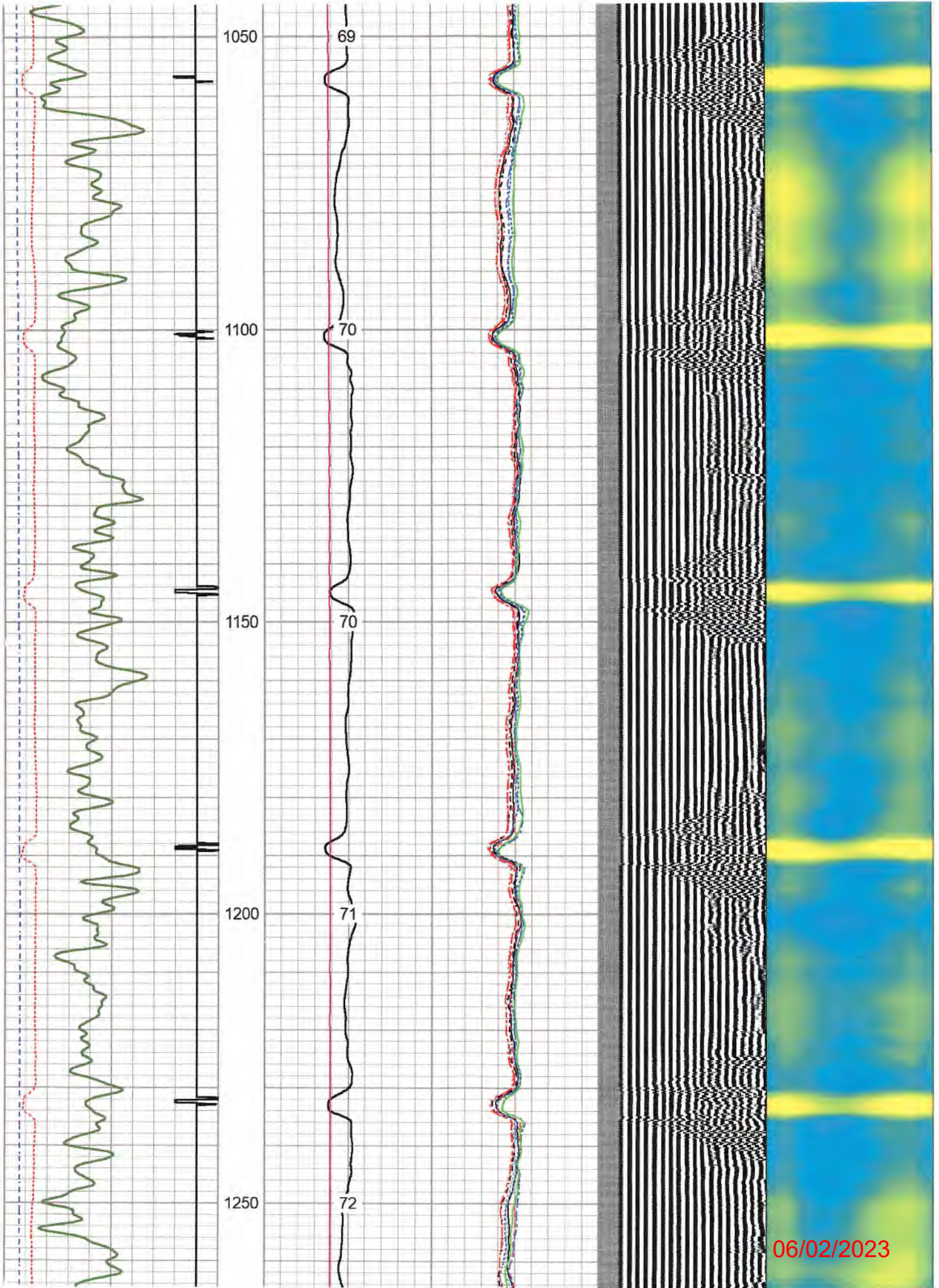
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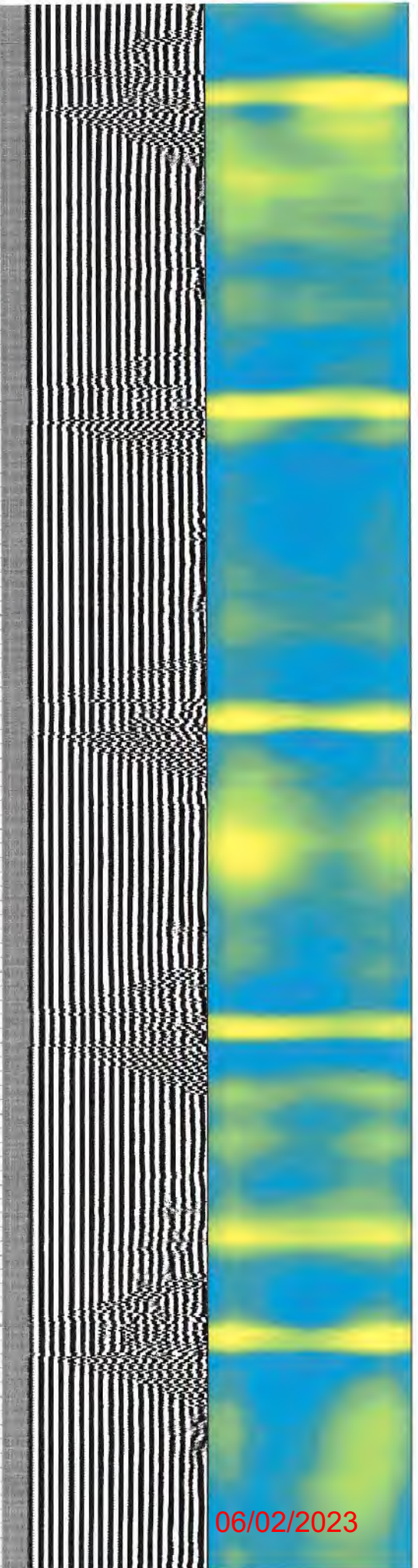
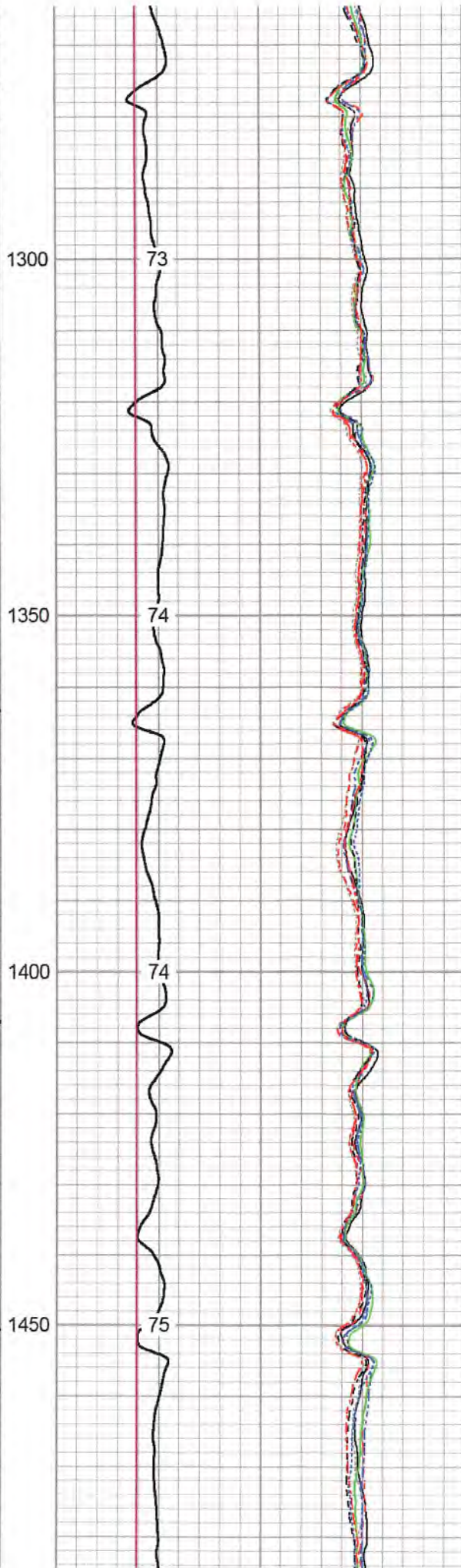
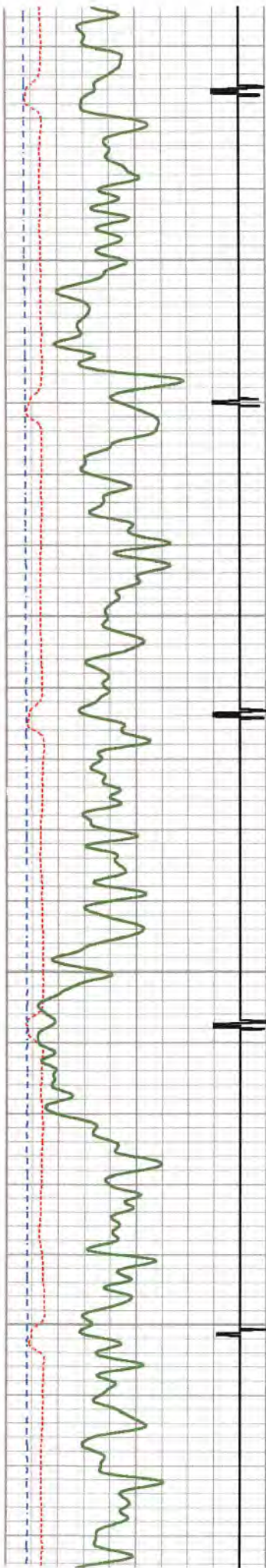
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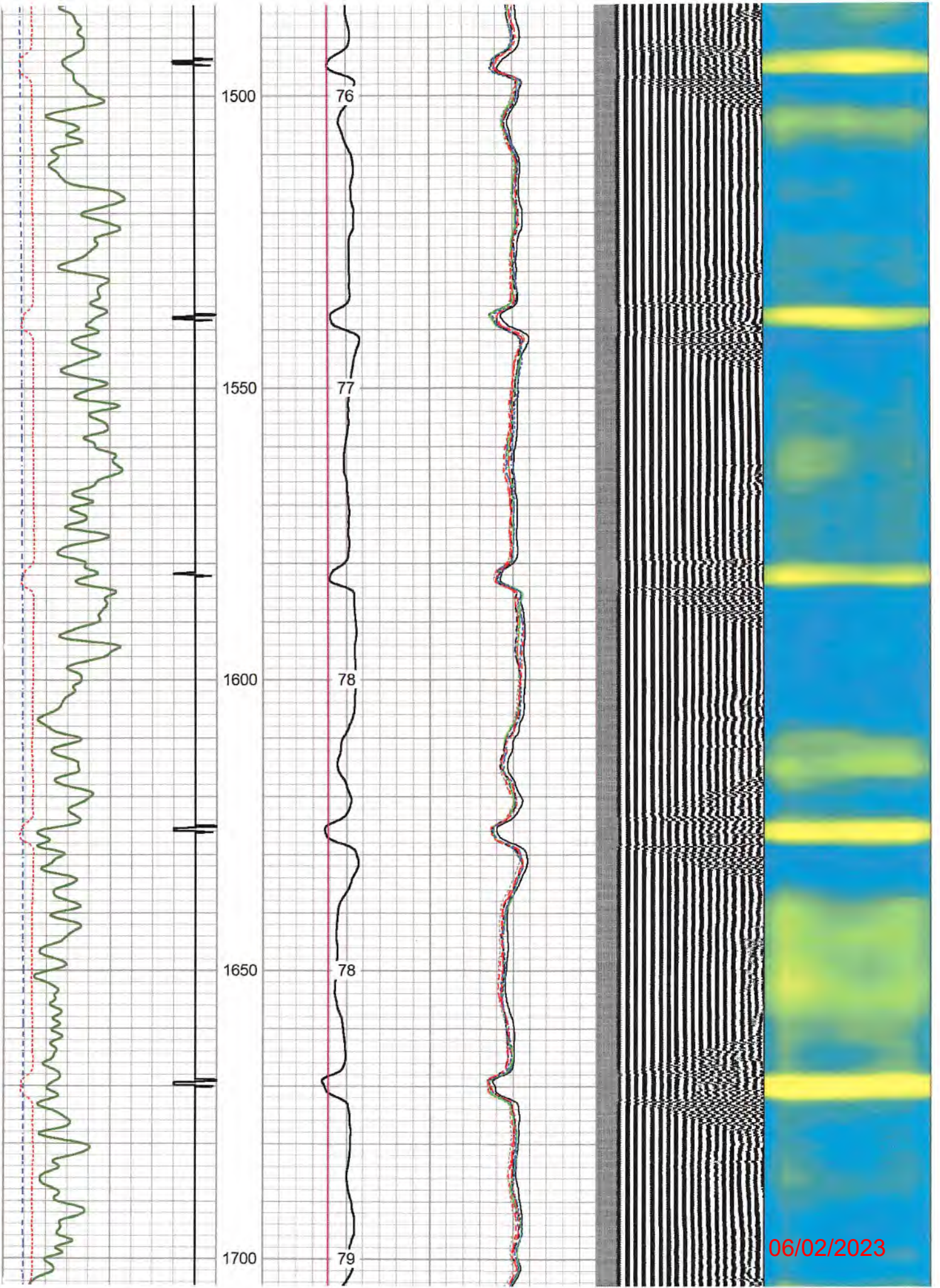
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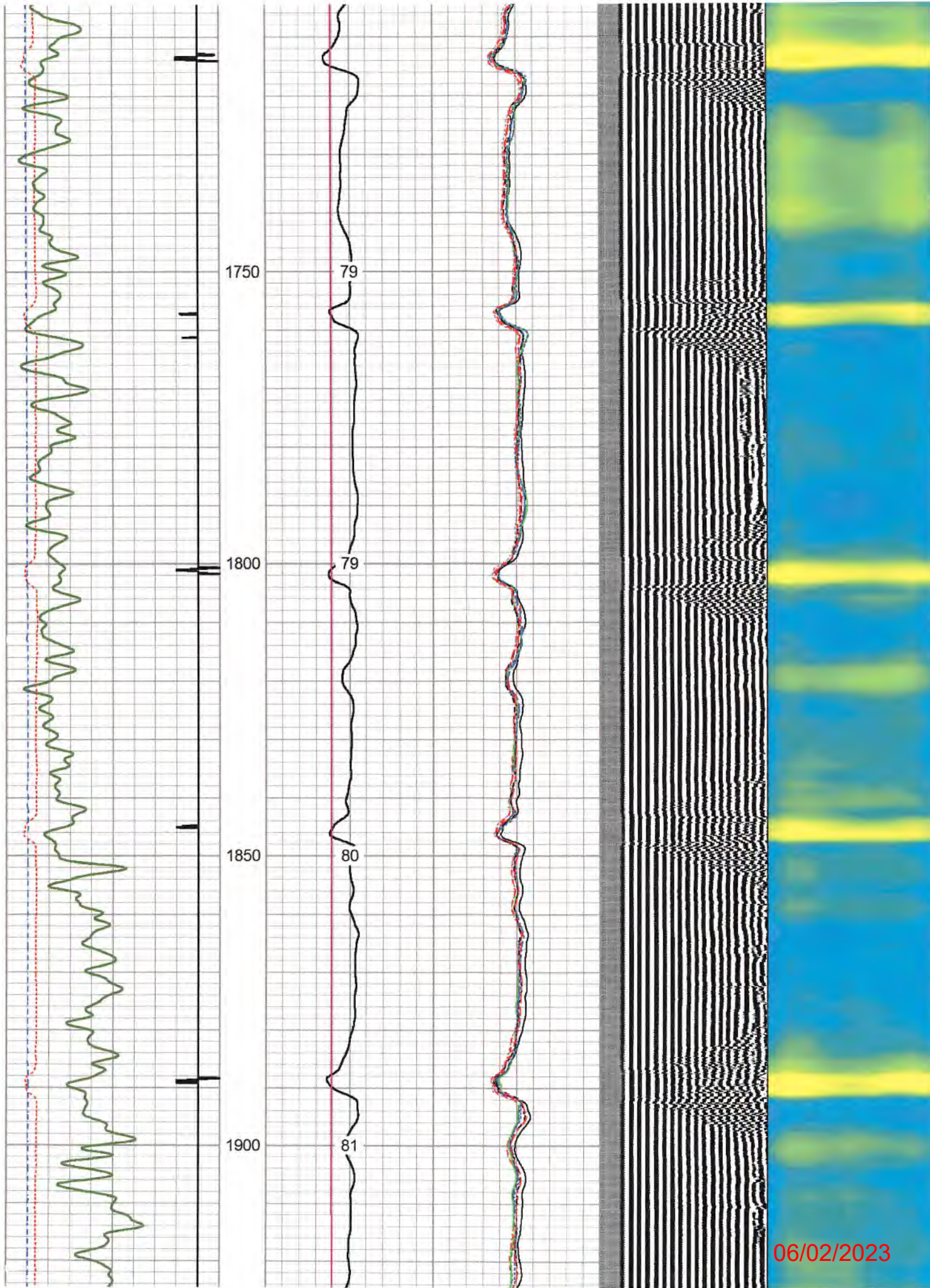
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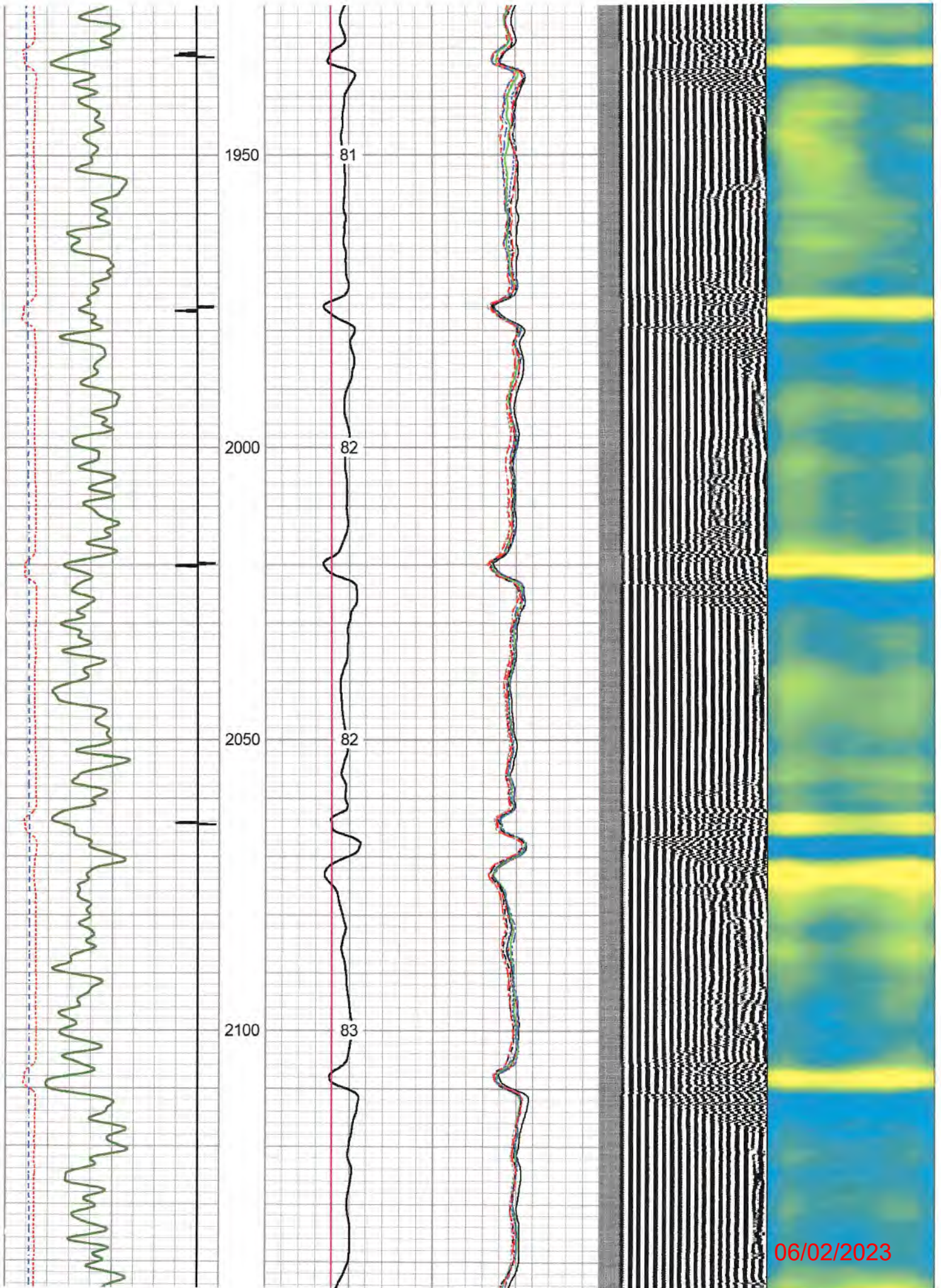
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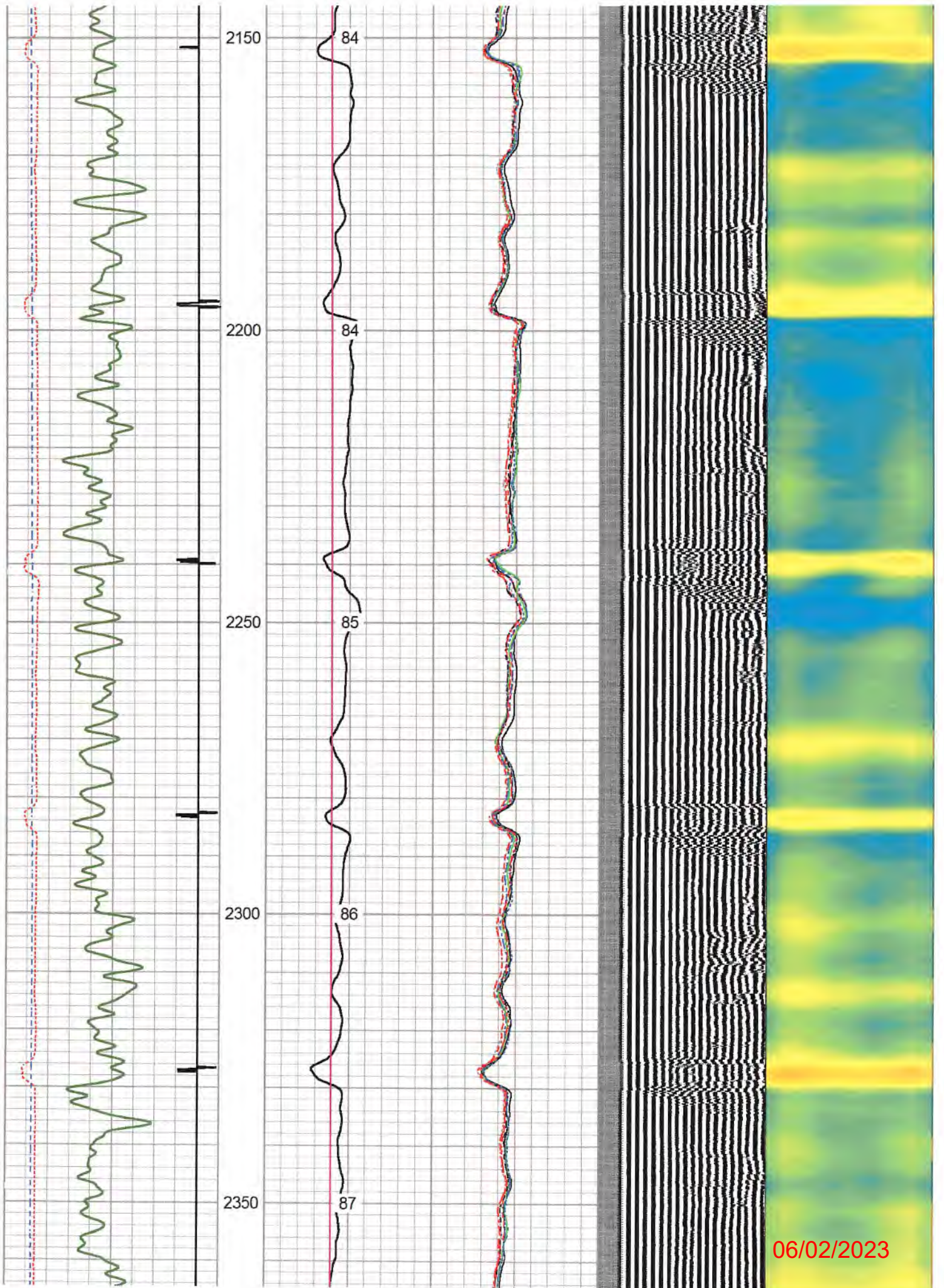


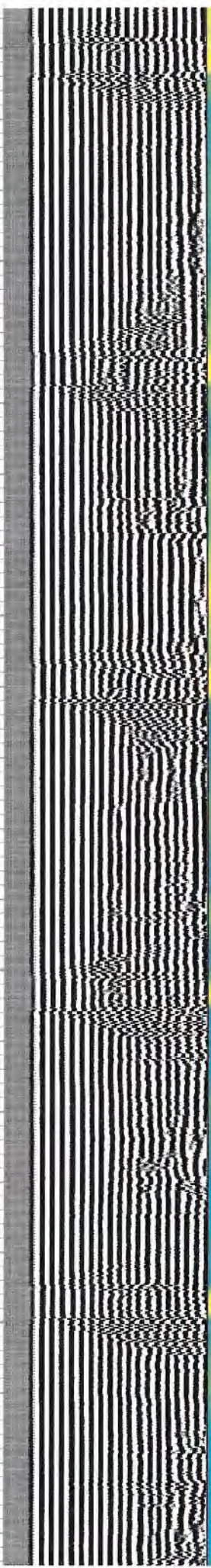
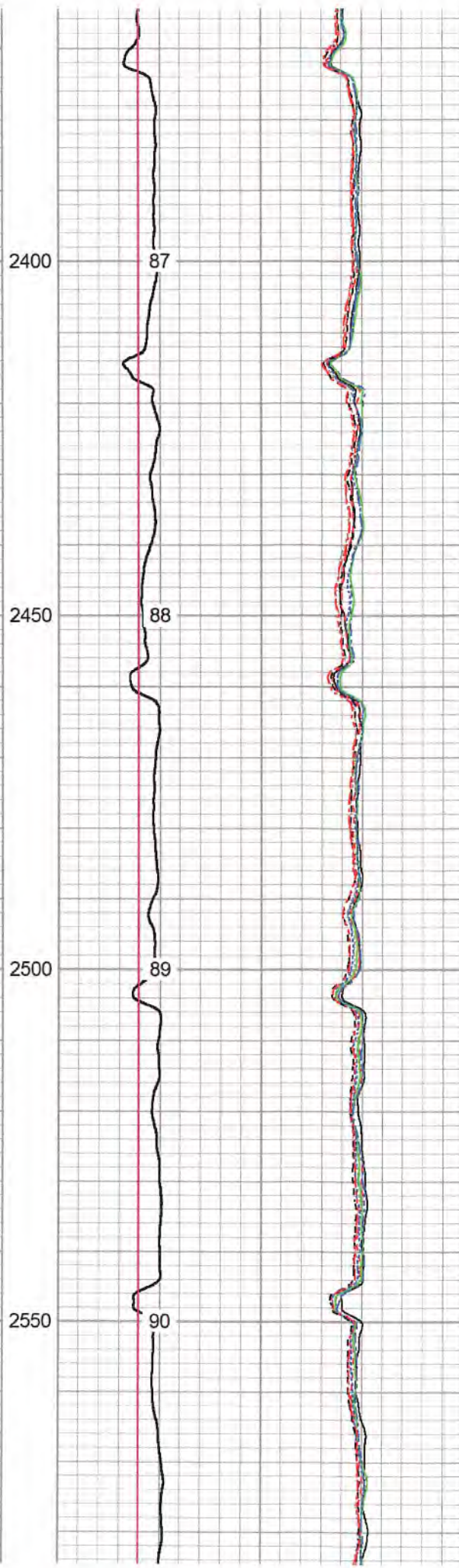
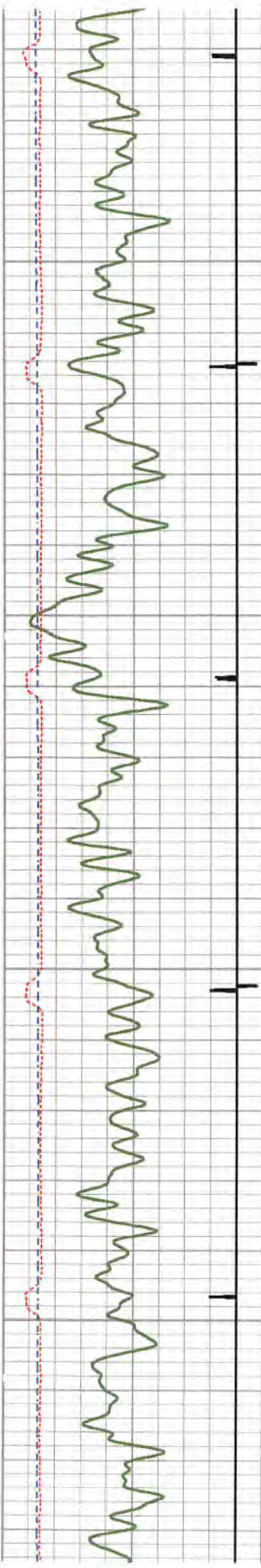
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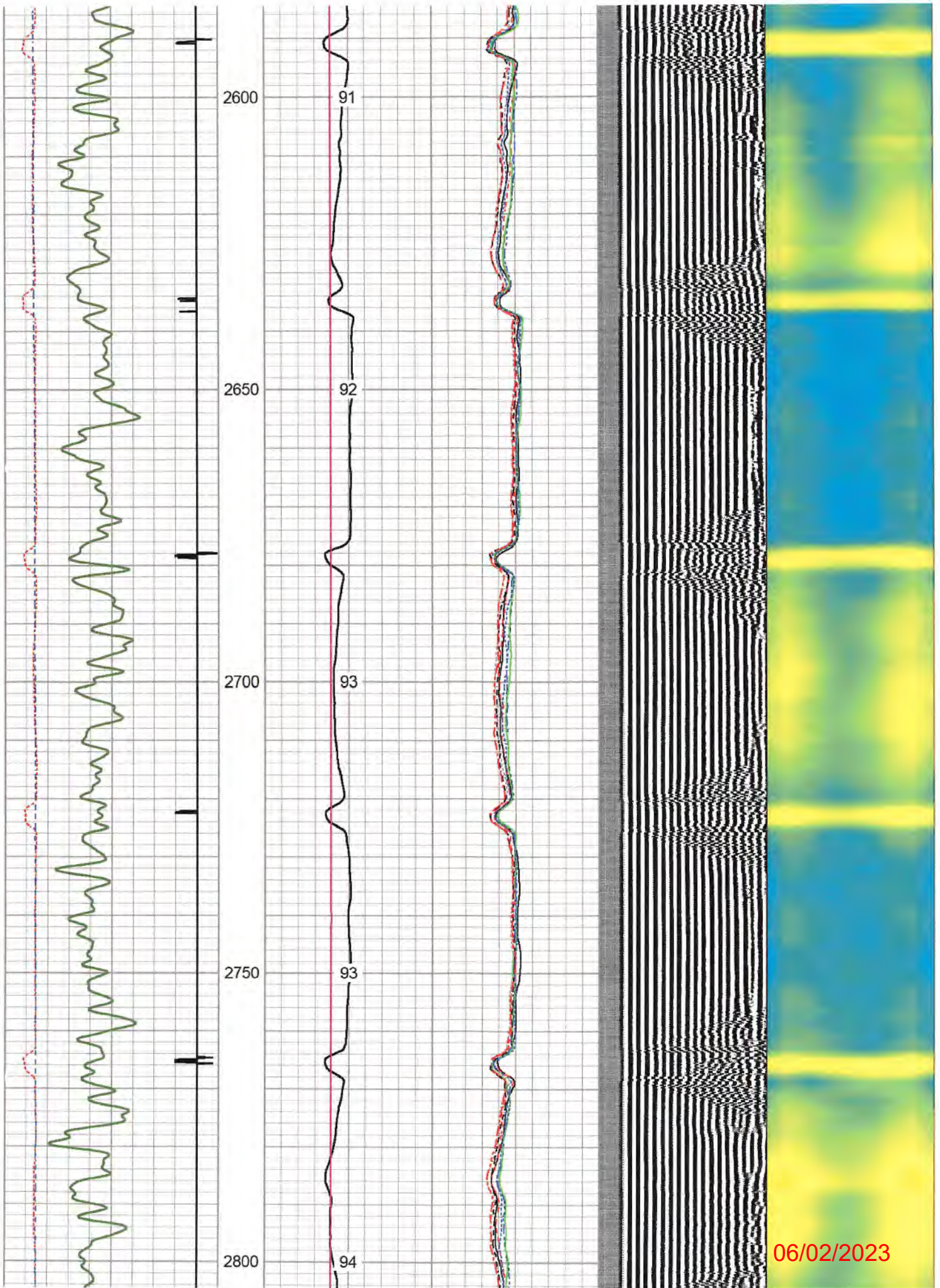
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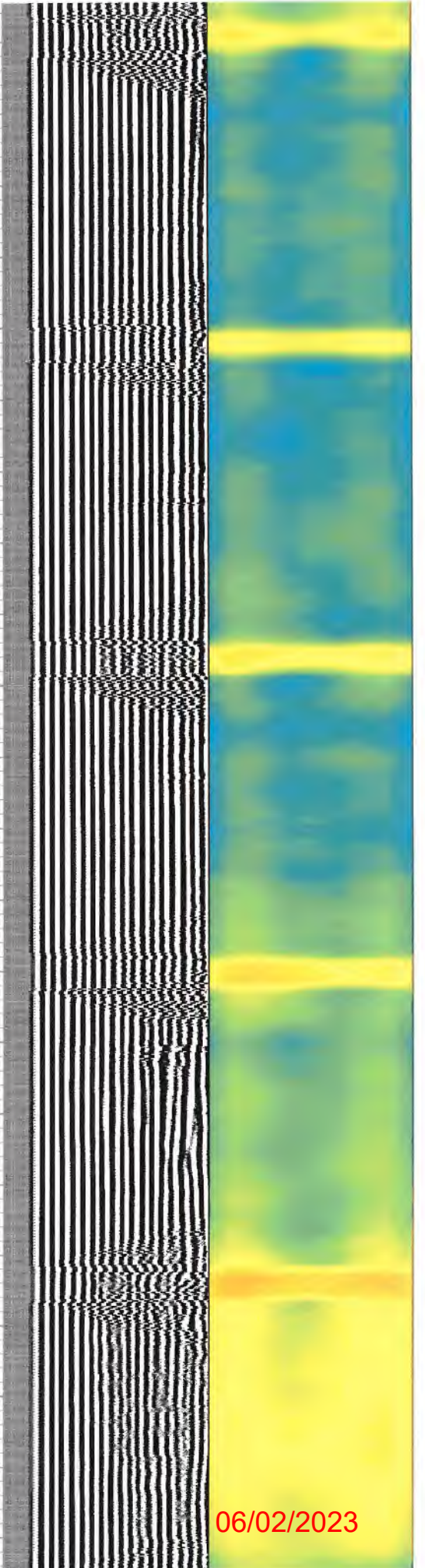
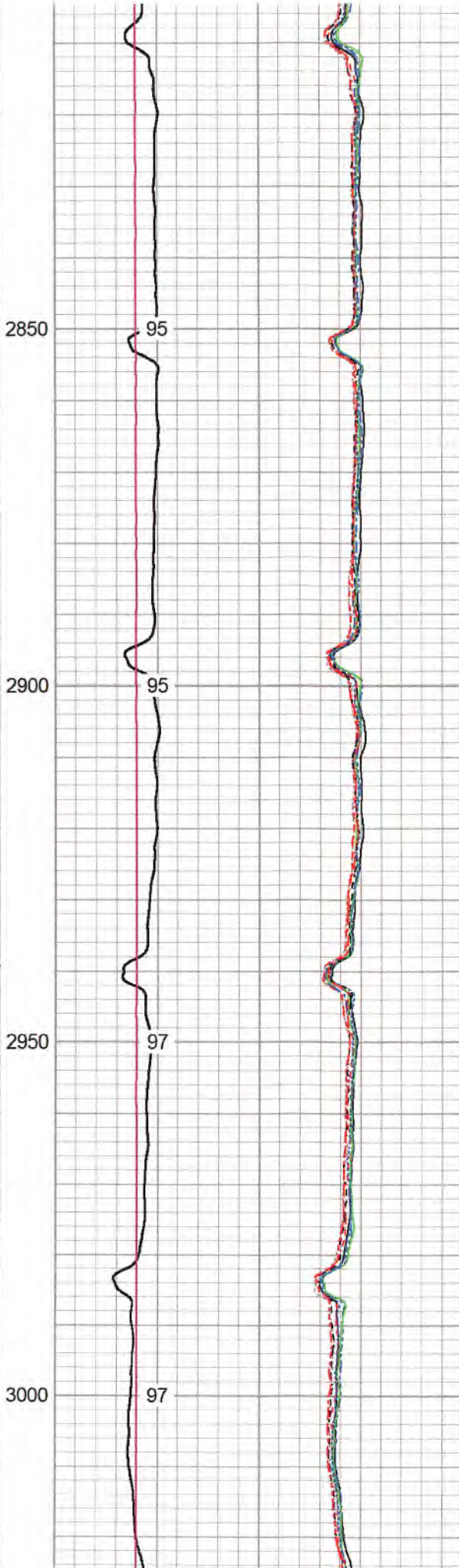
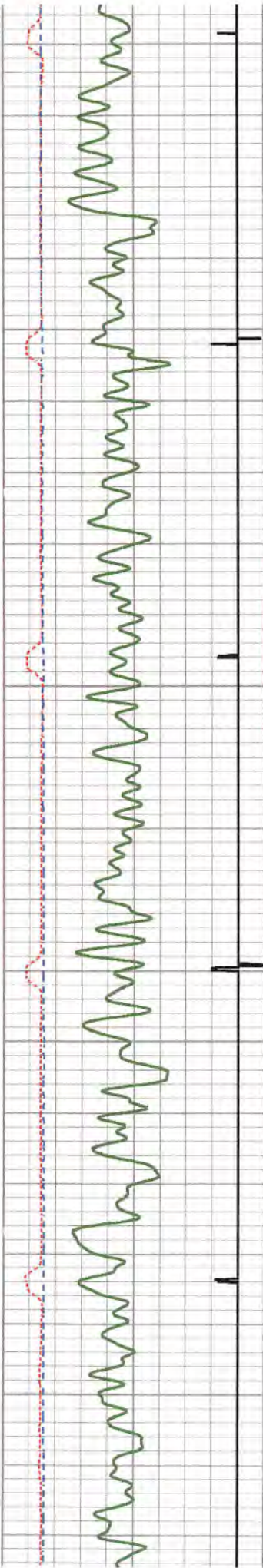




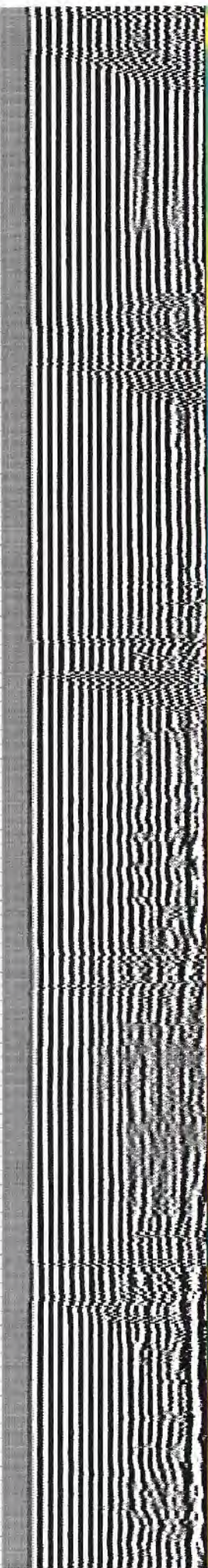
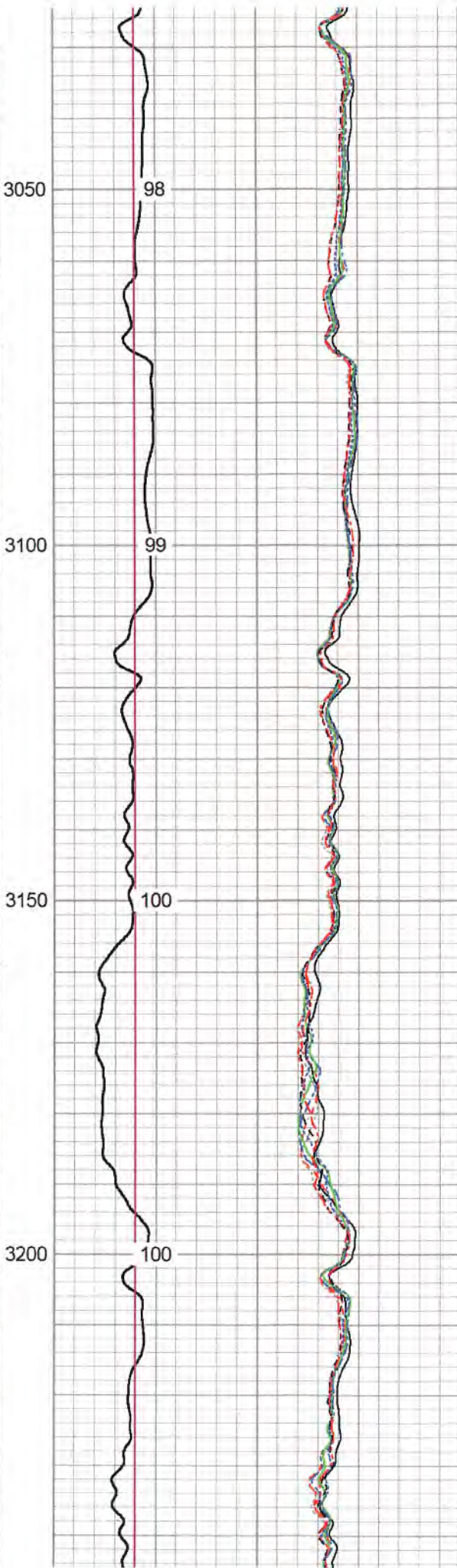
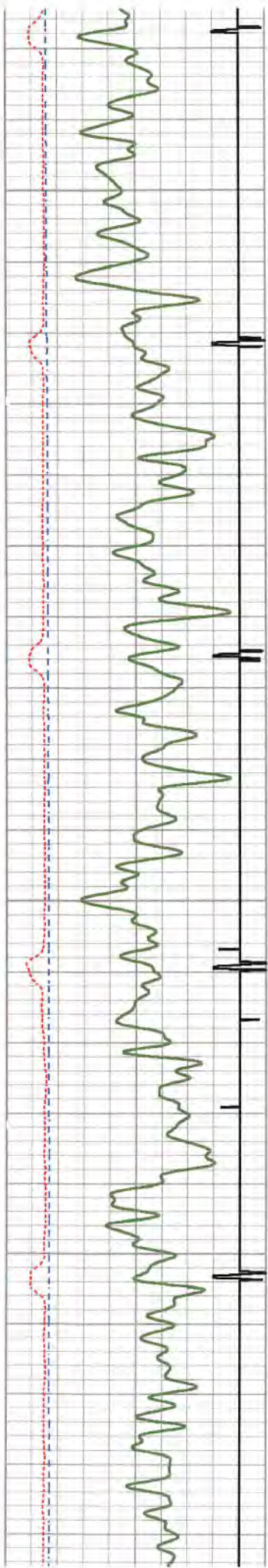


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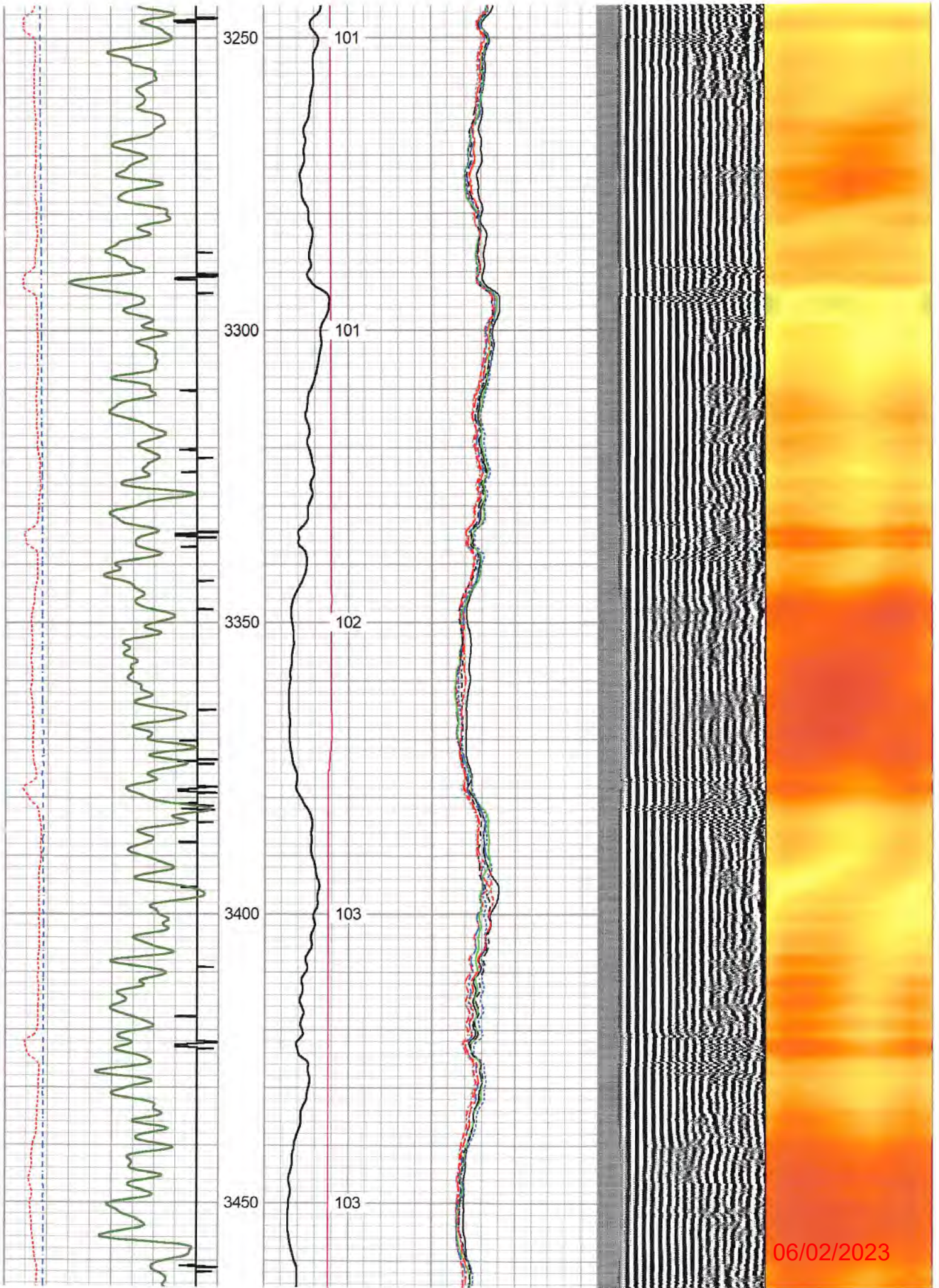




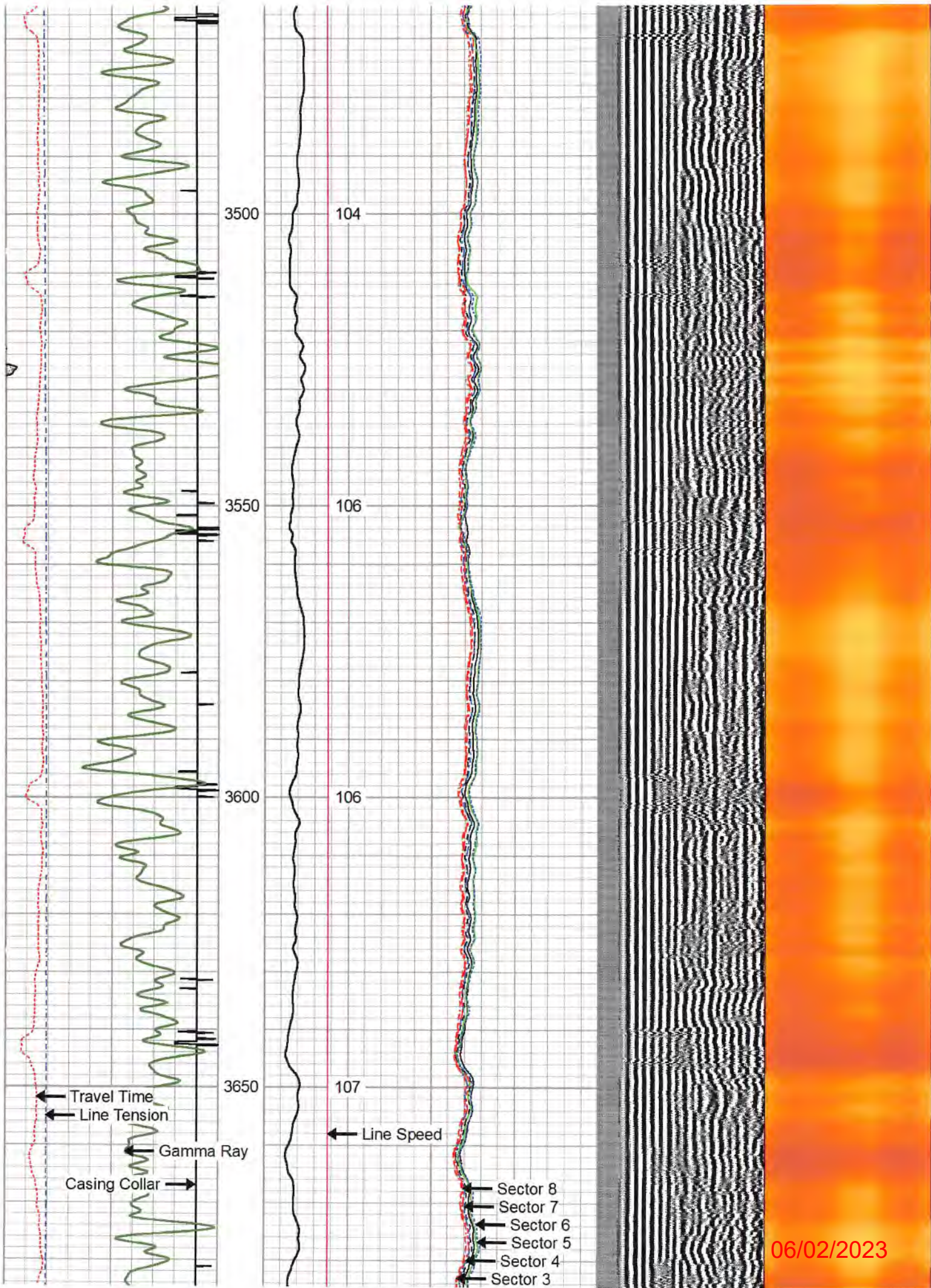
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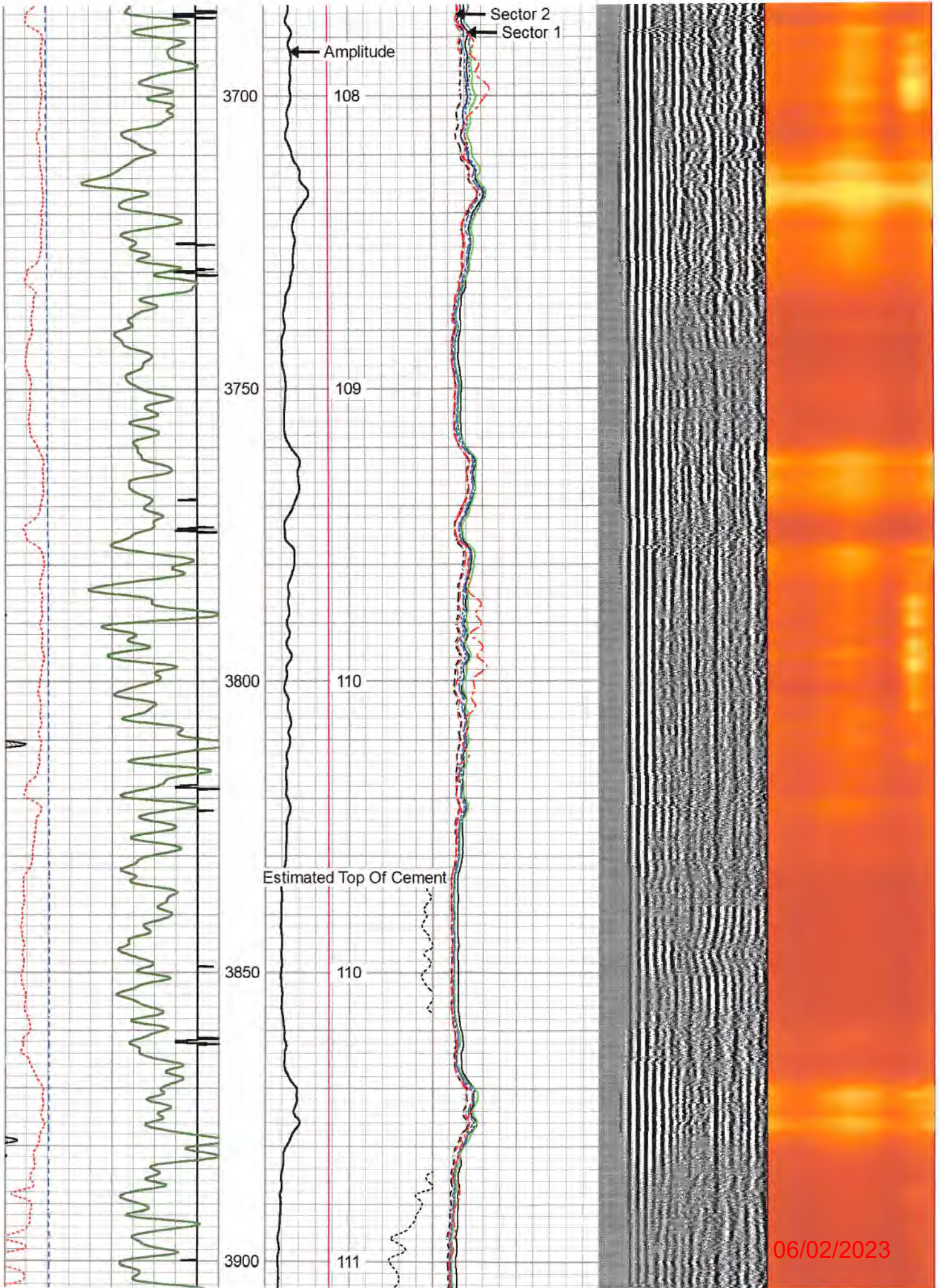
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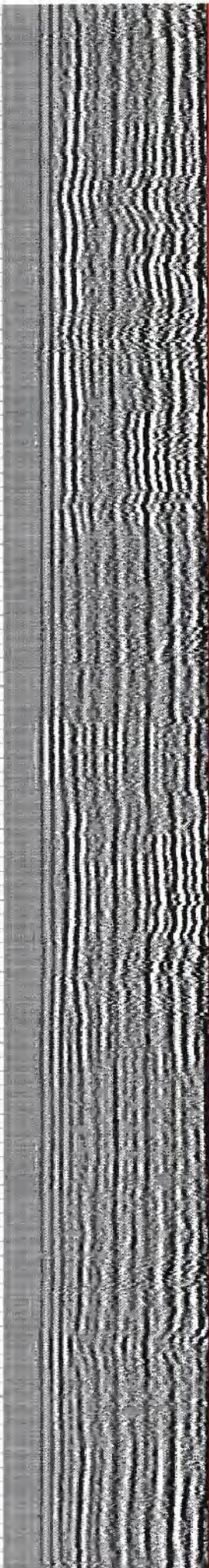
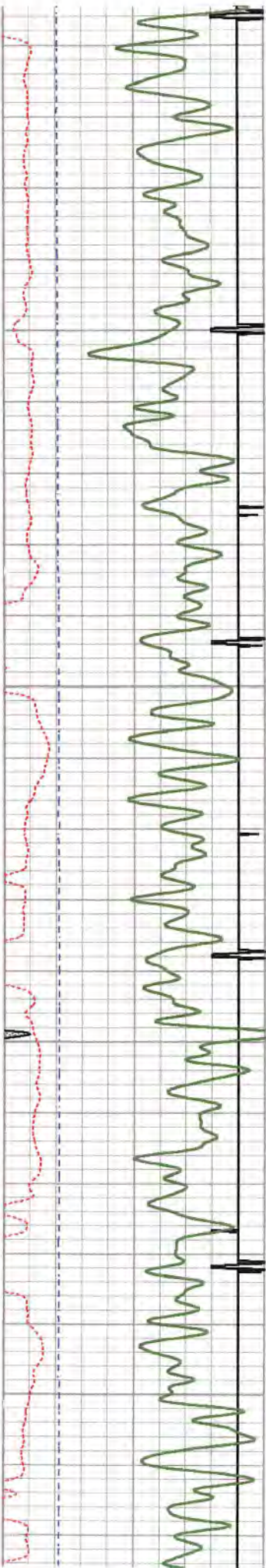


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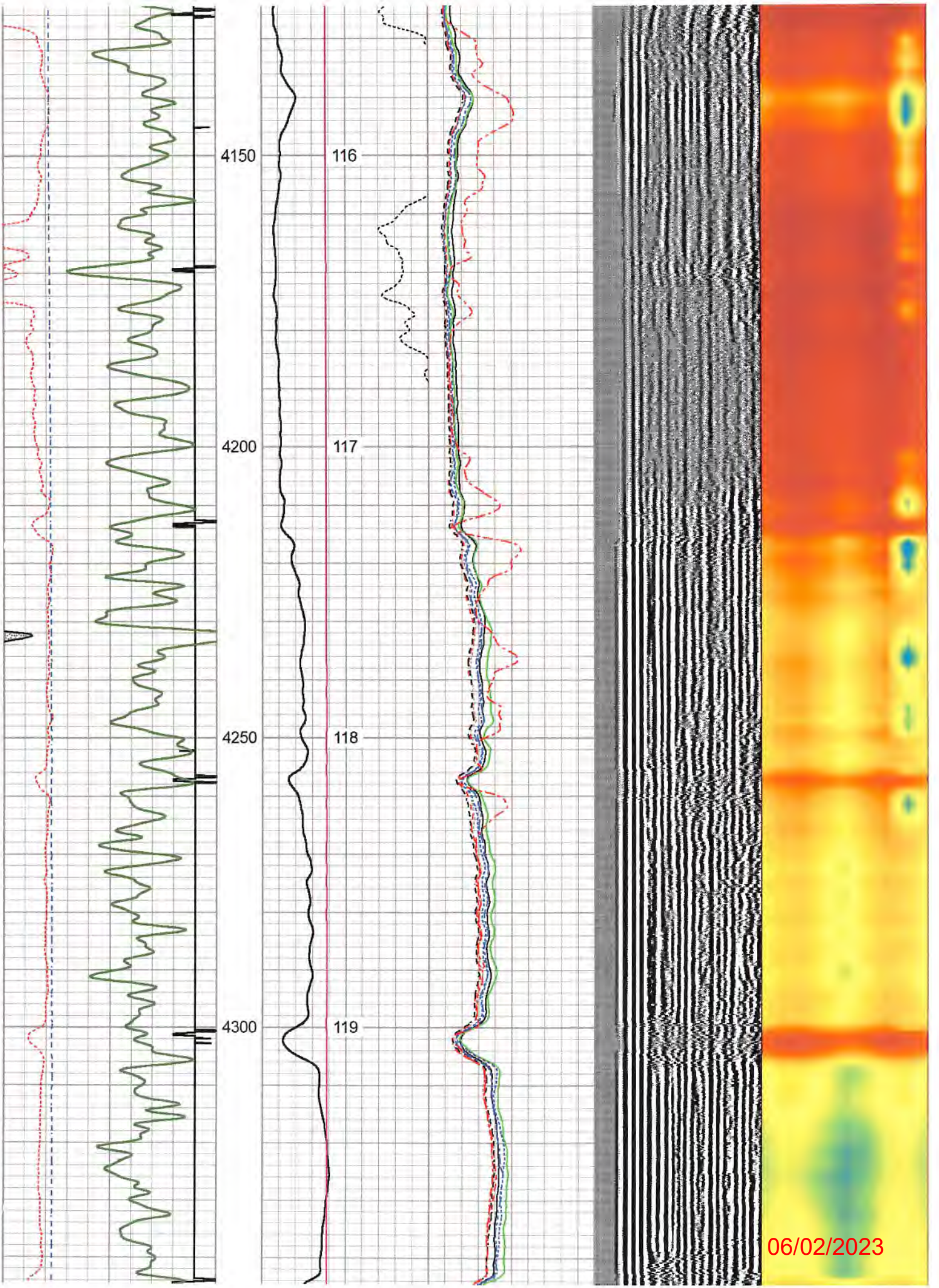


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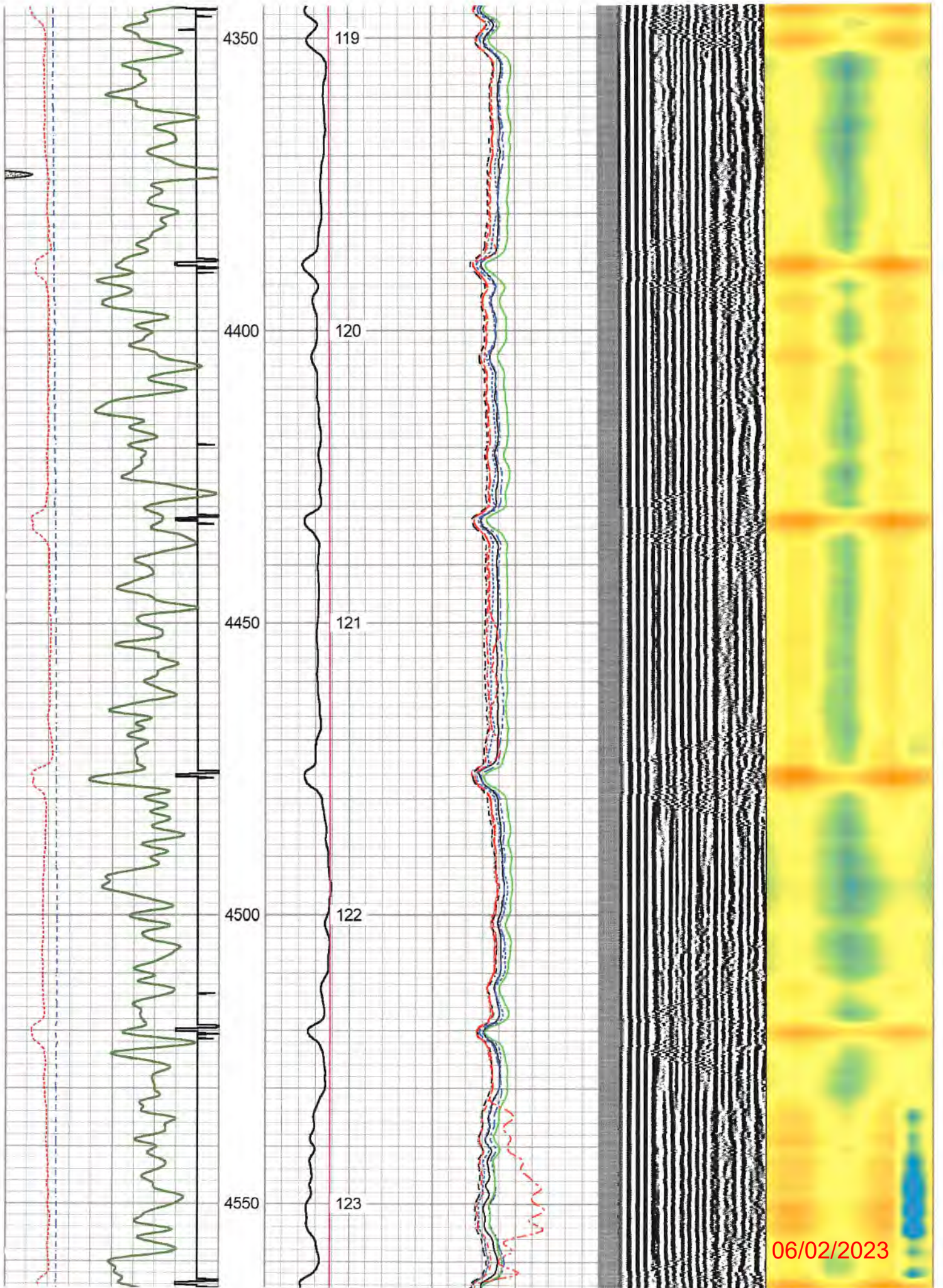


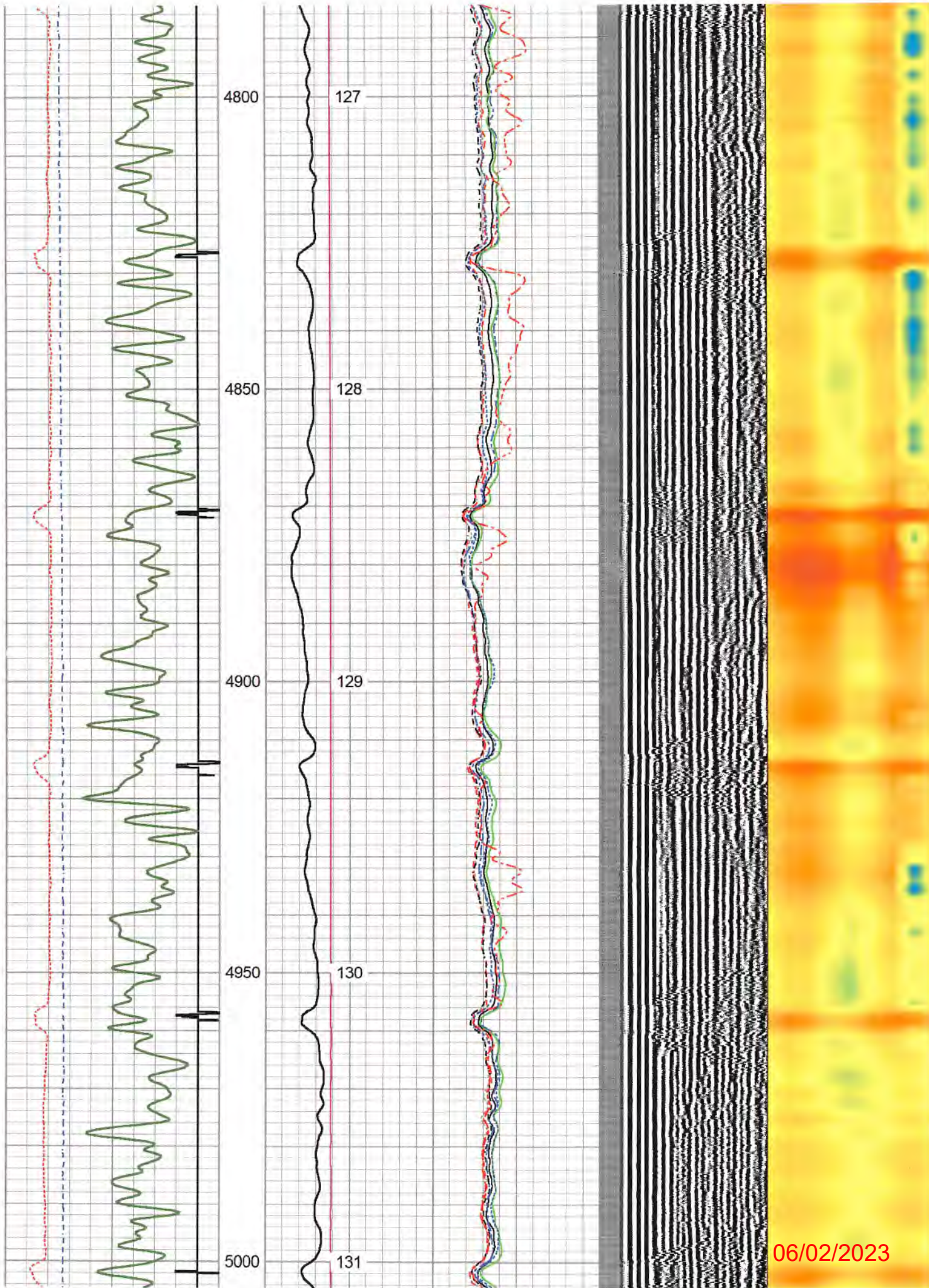


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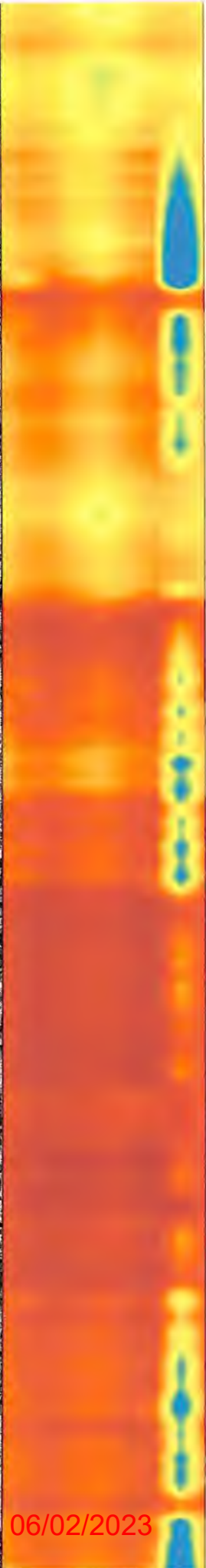
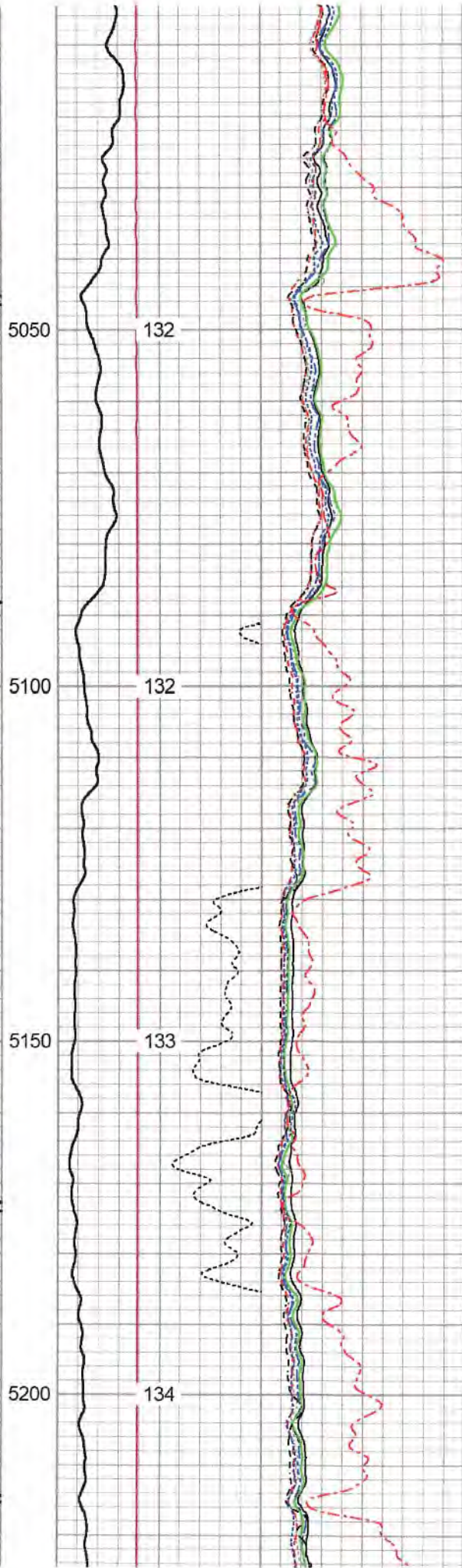
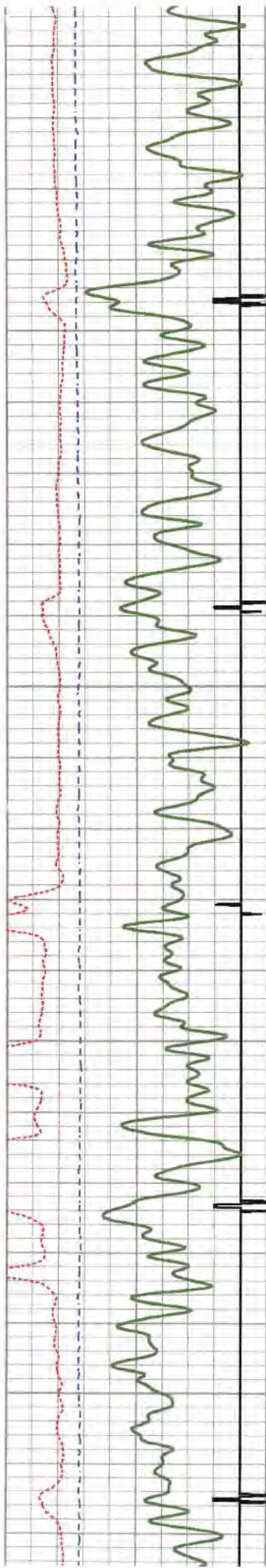


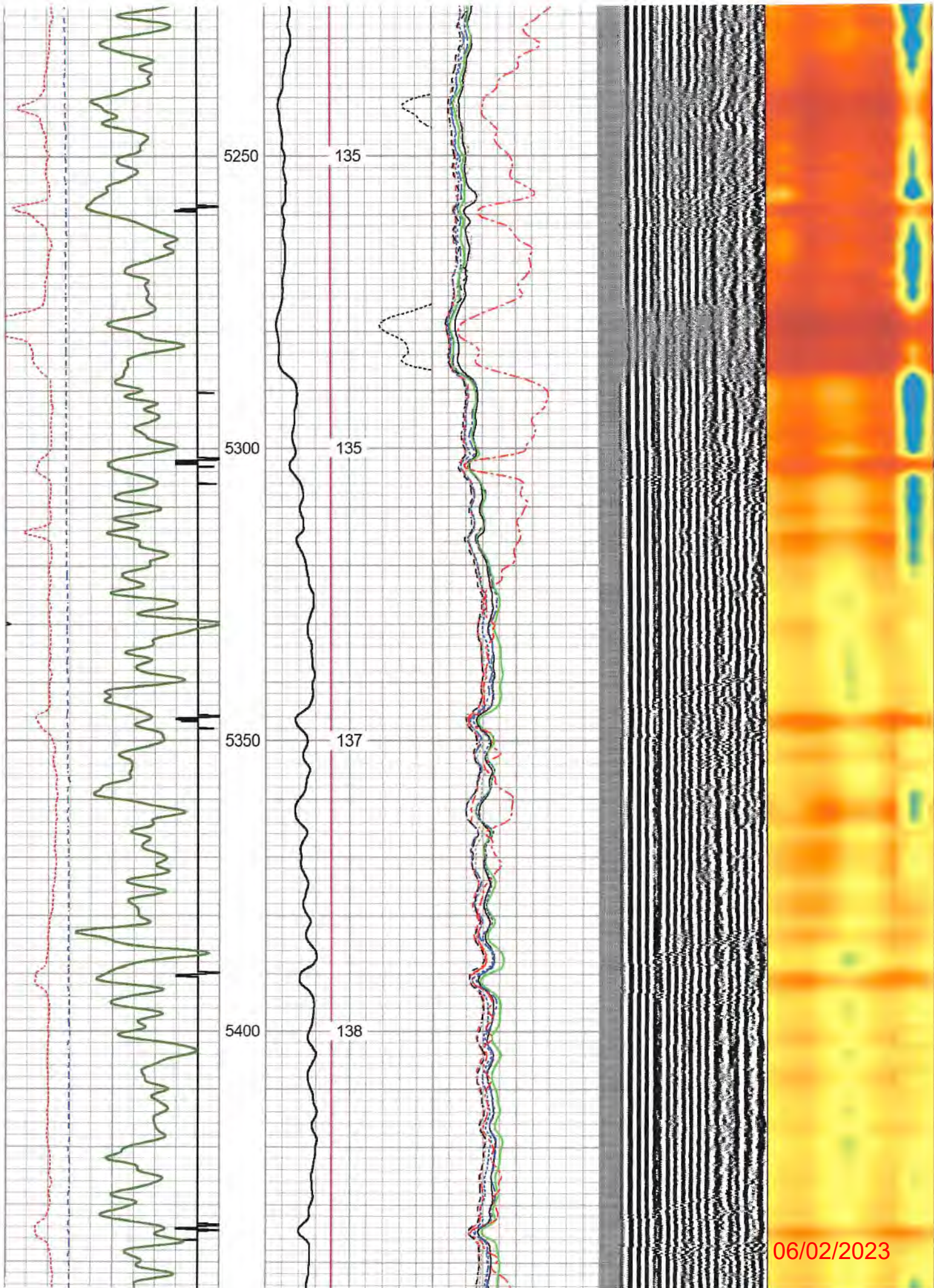
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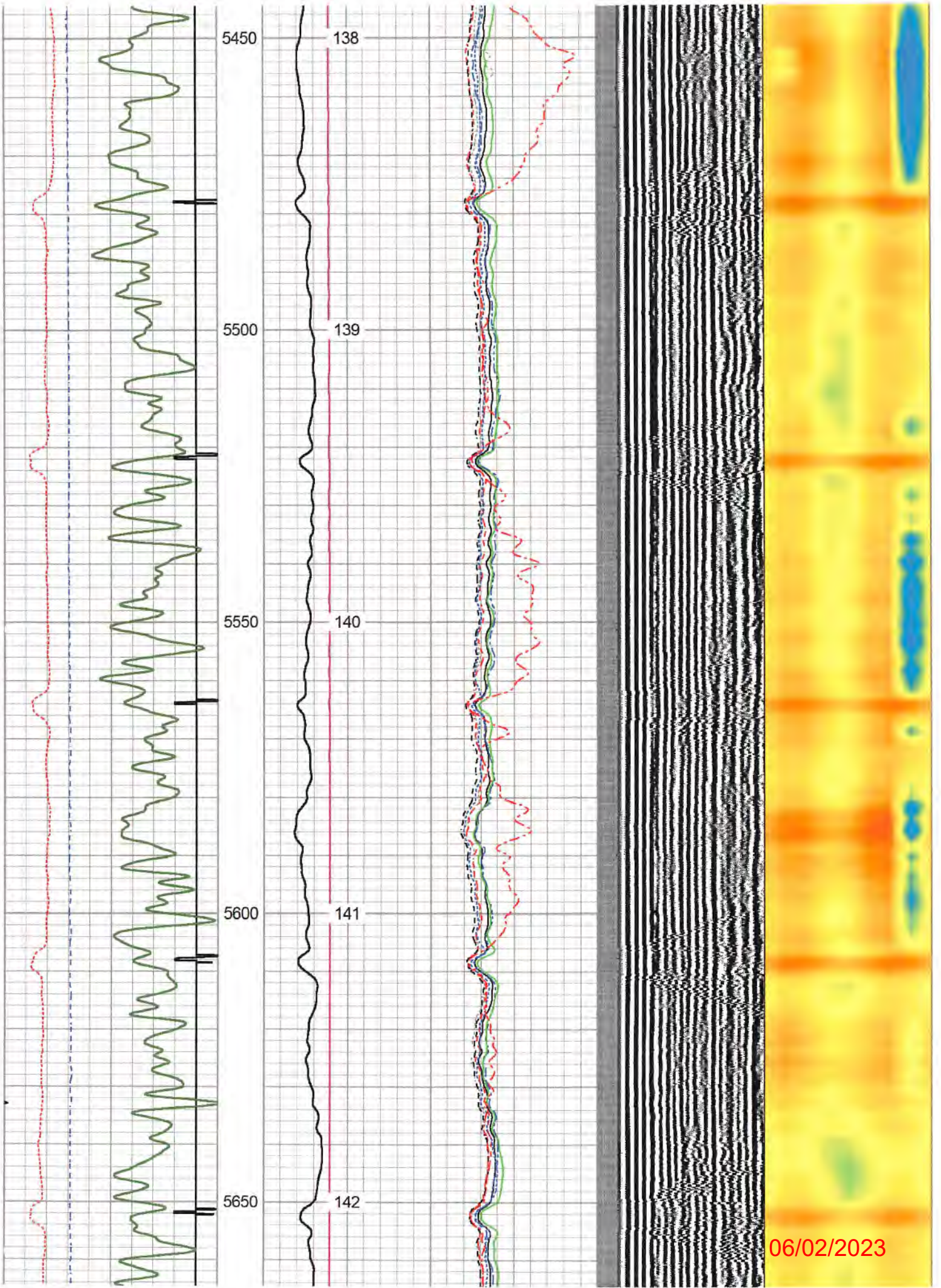




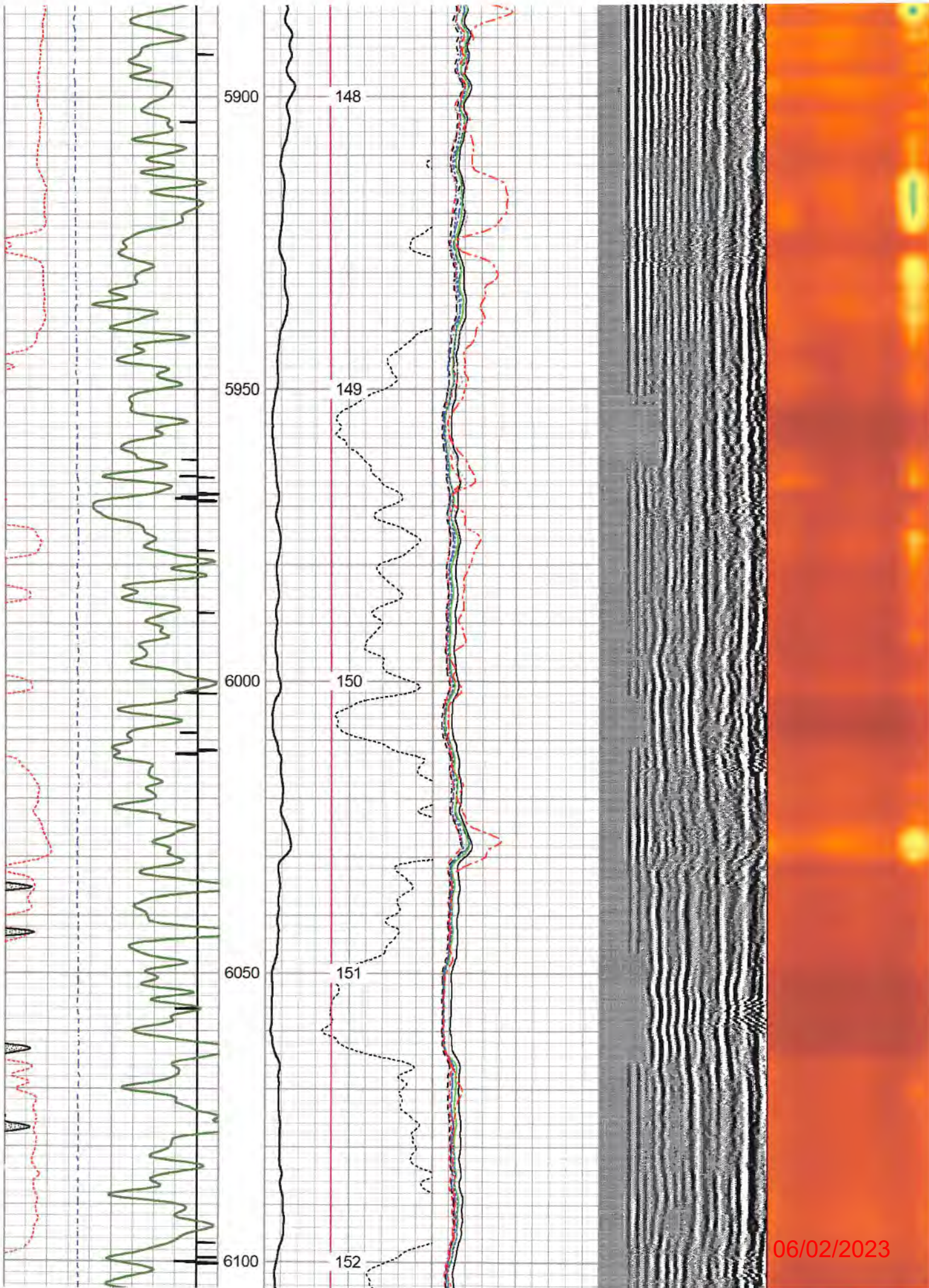
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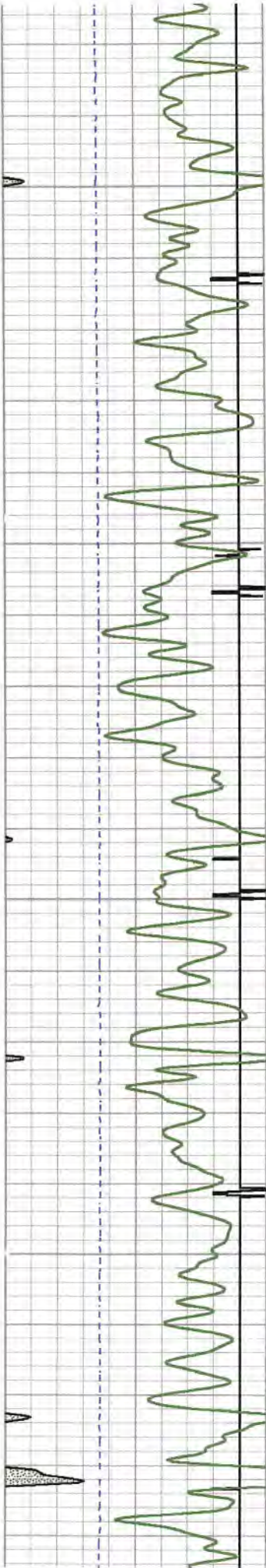




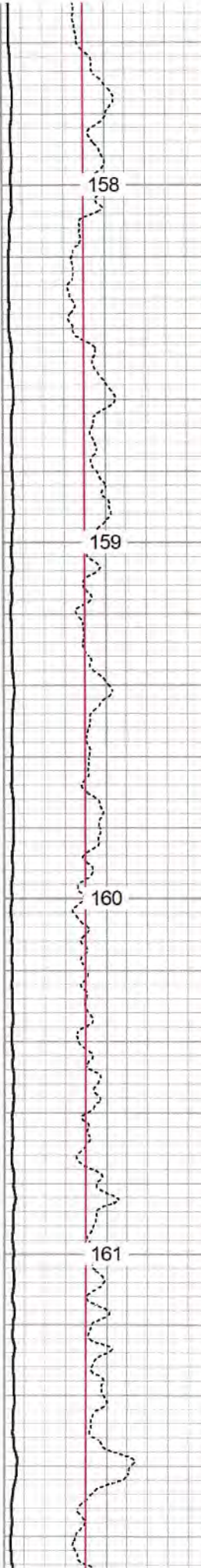
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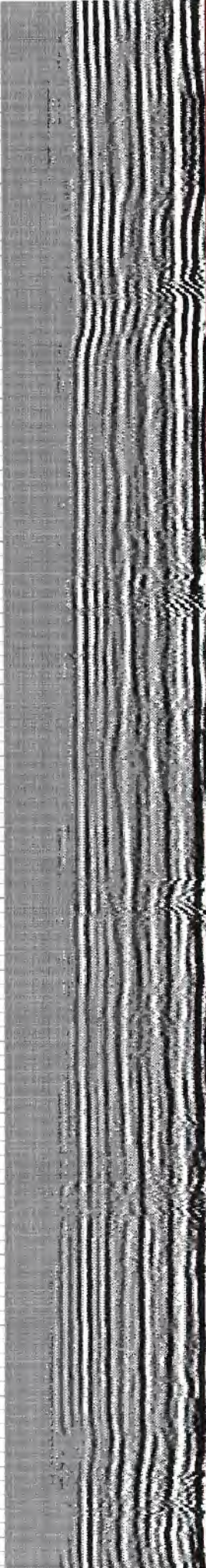
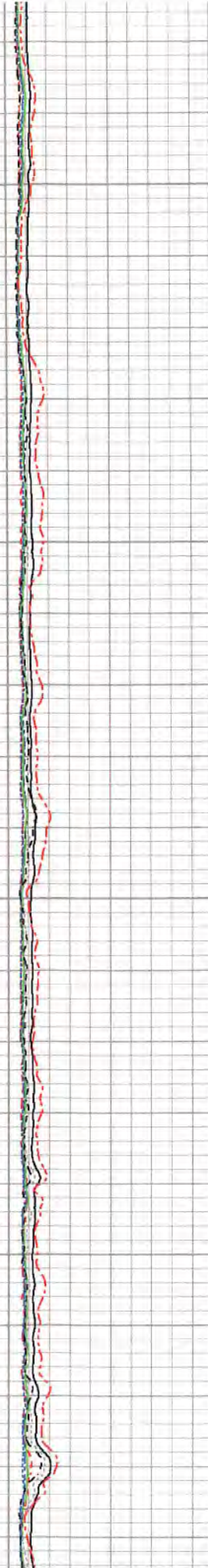
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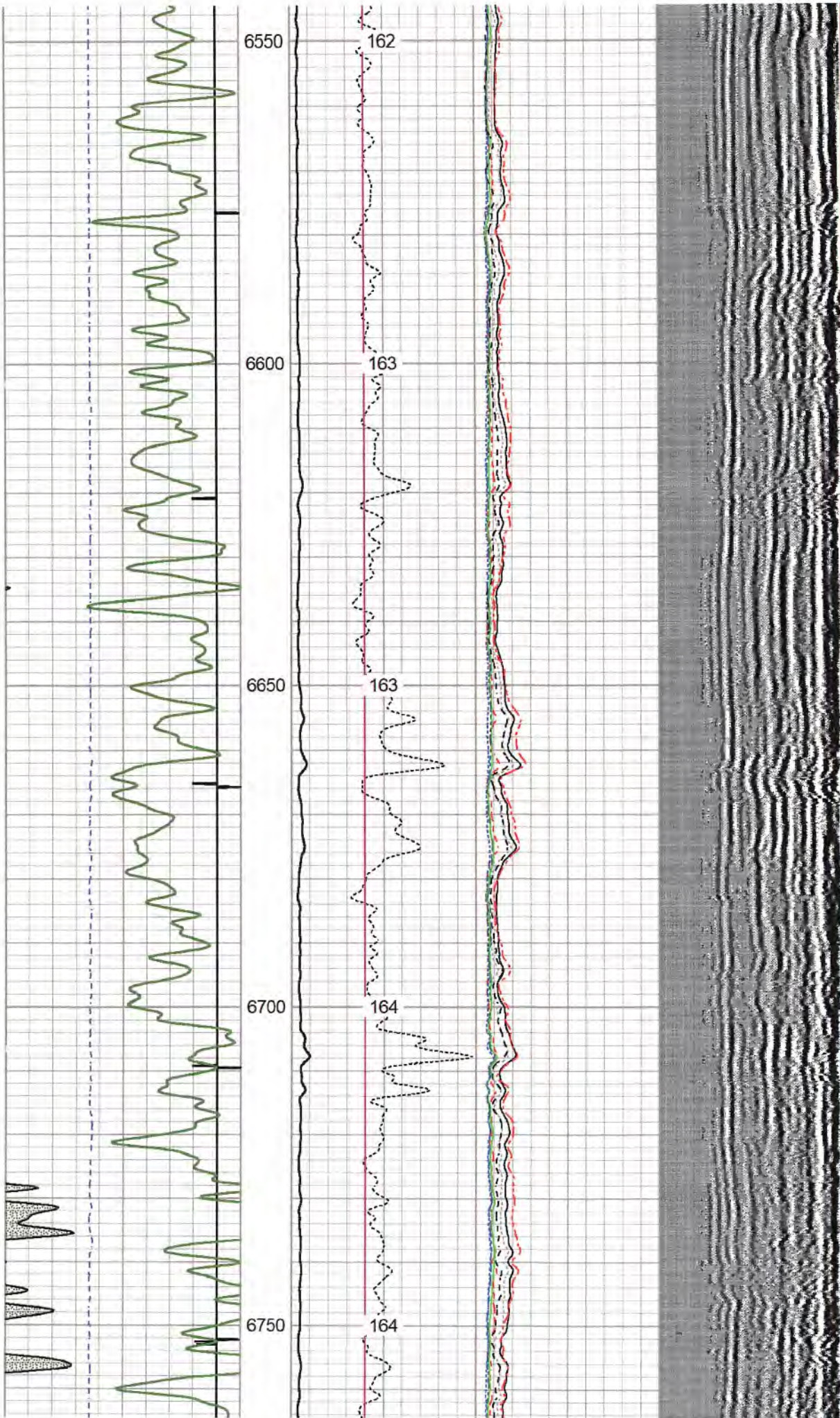
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6400
6450
6500



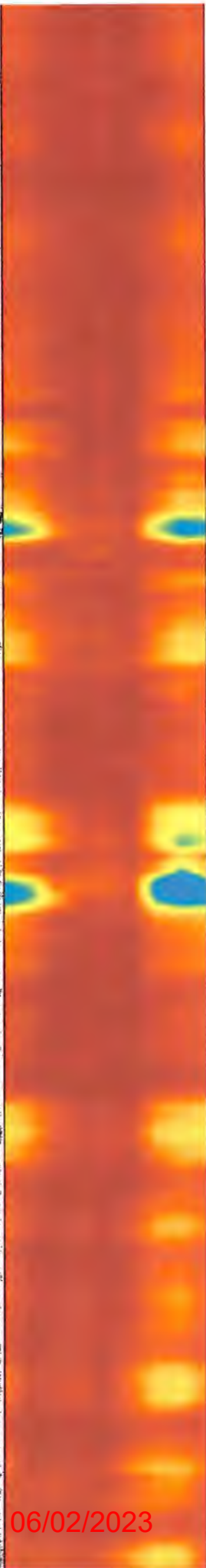
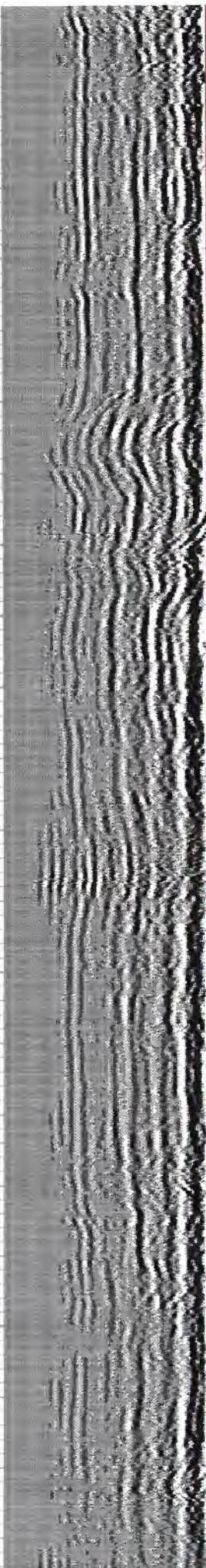
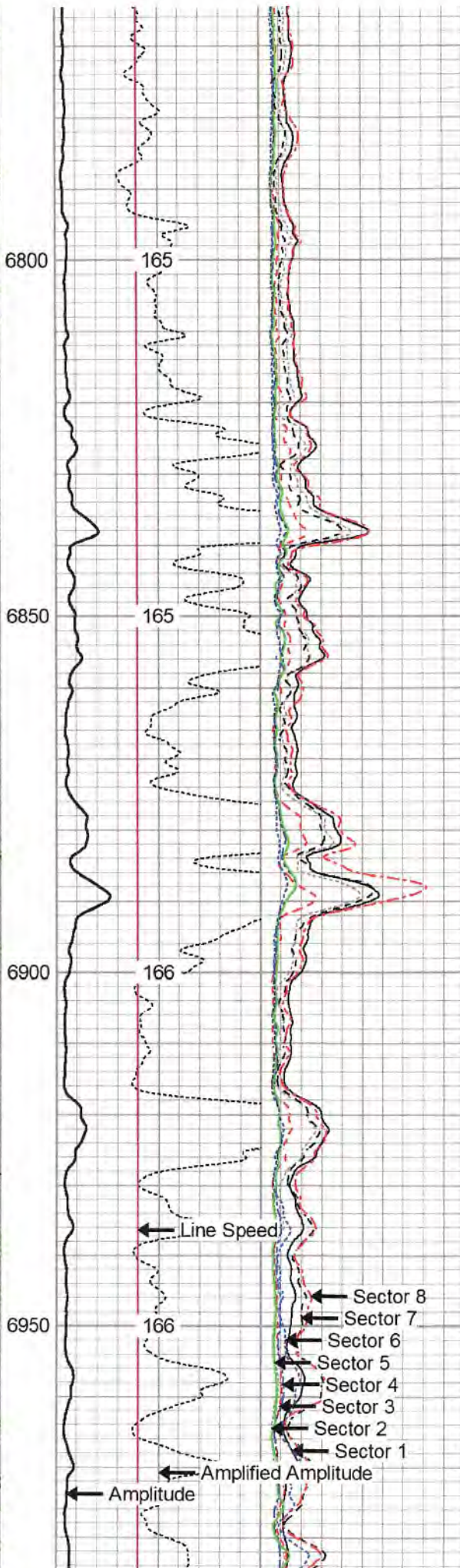
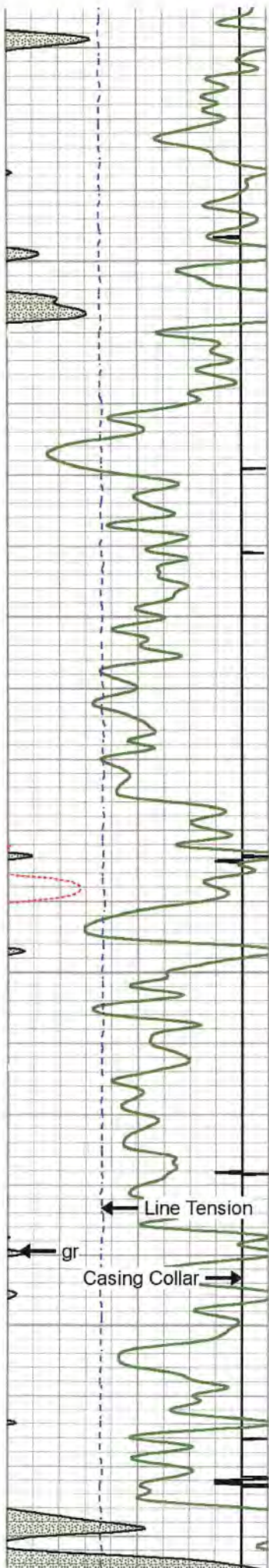
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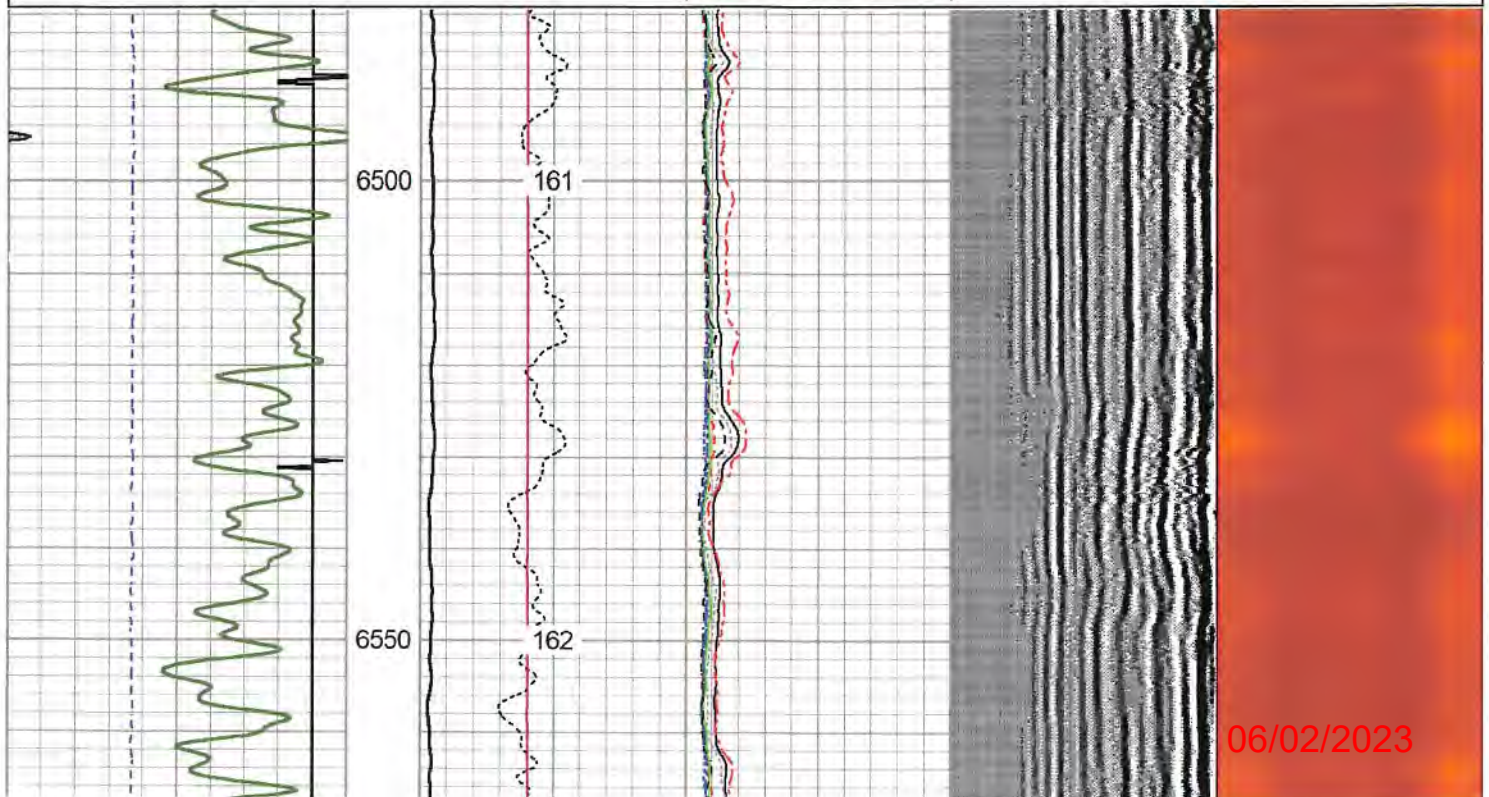
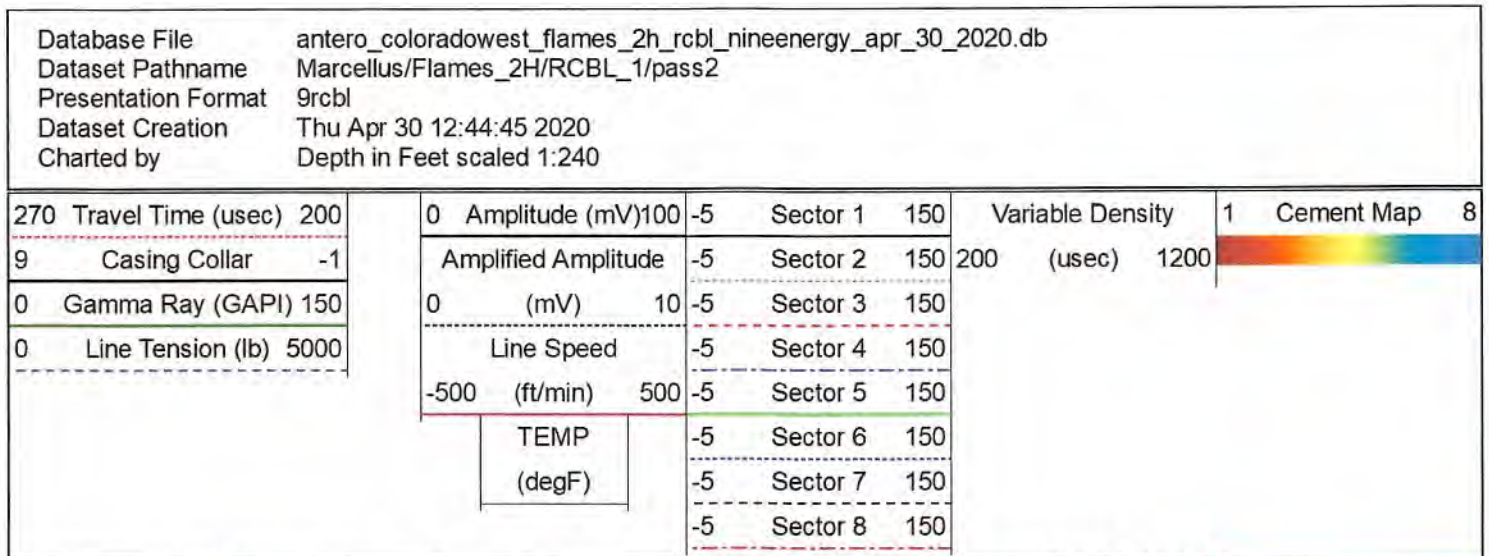
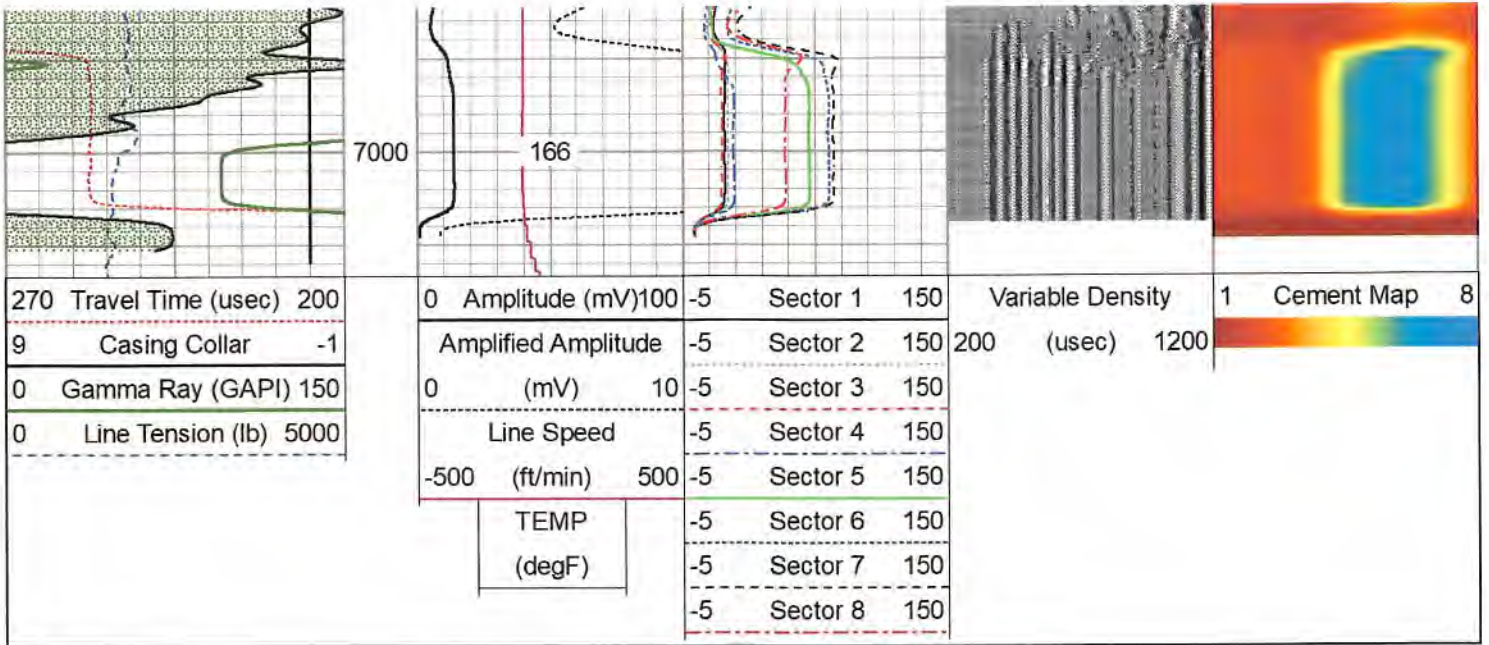
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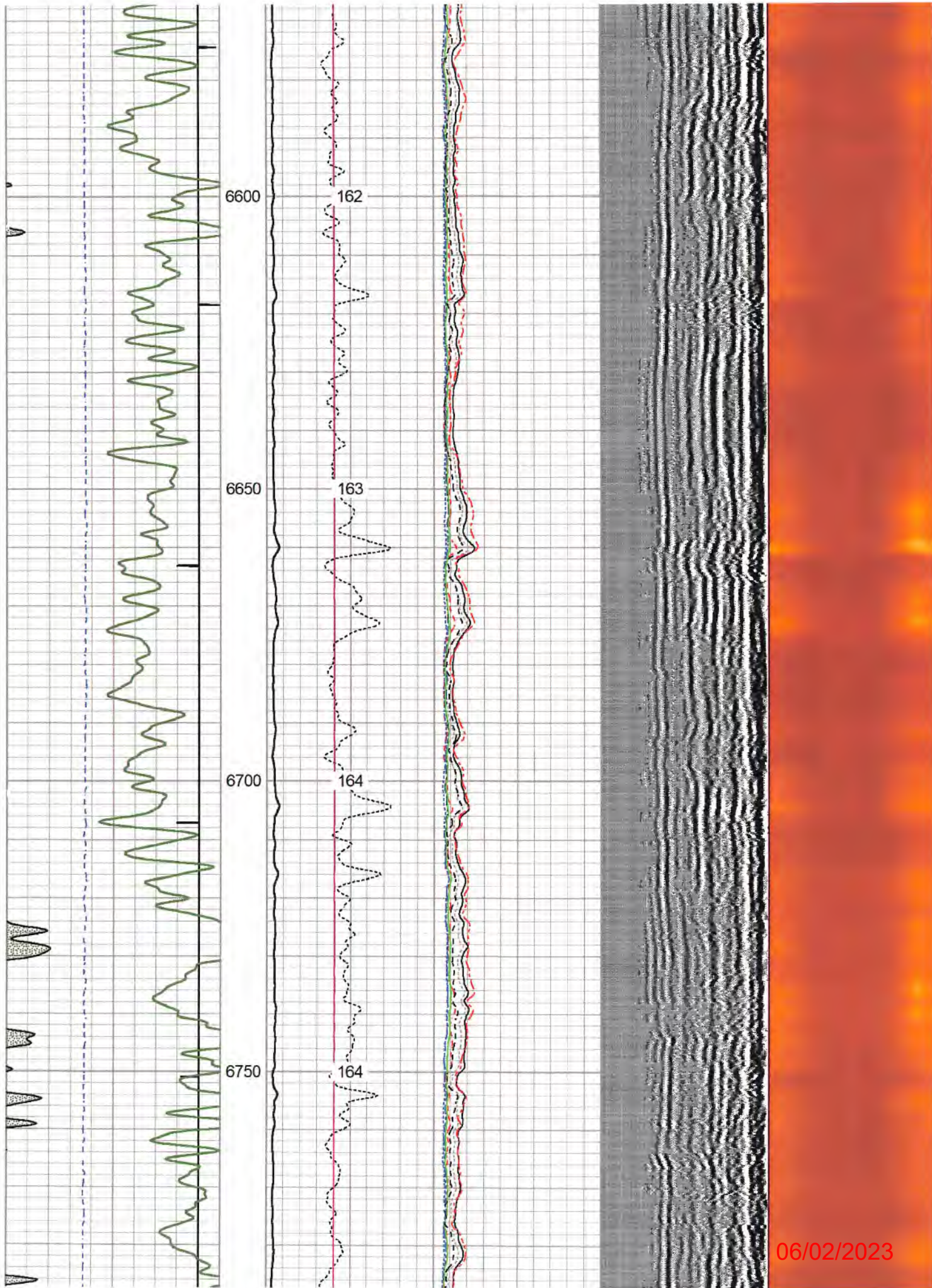


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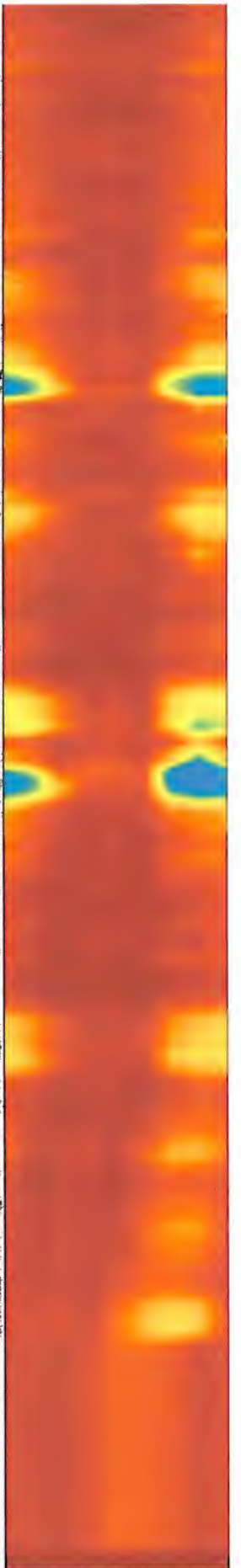
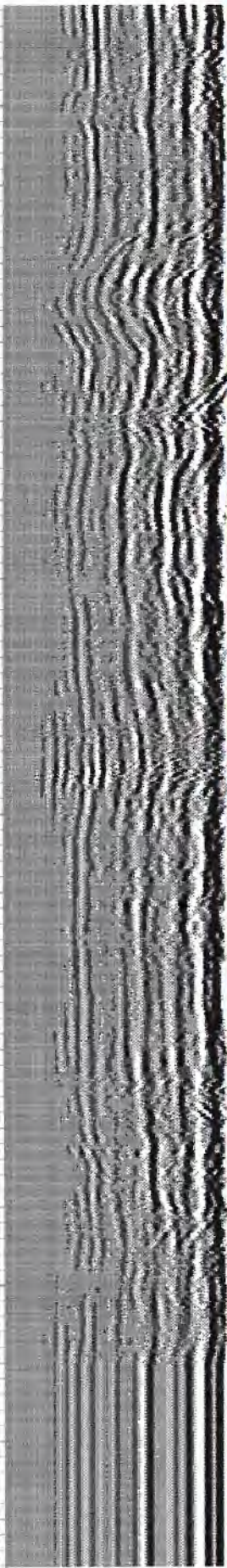
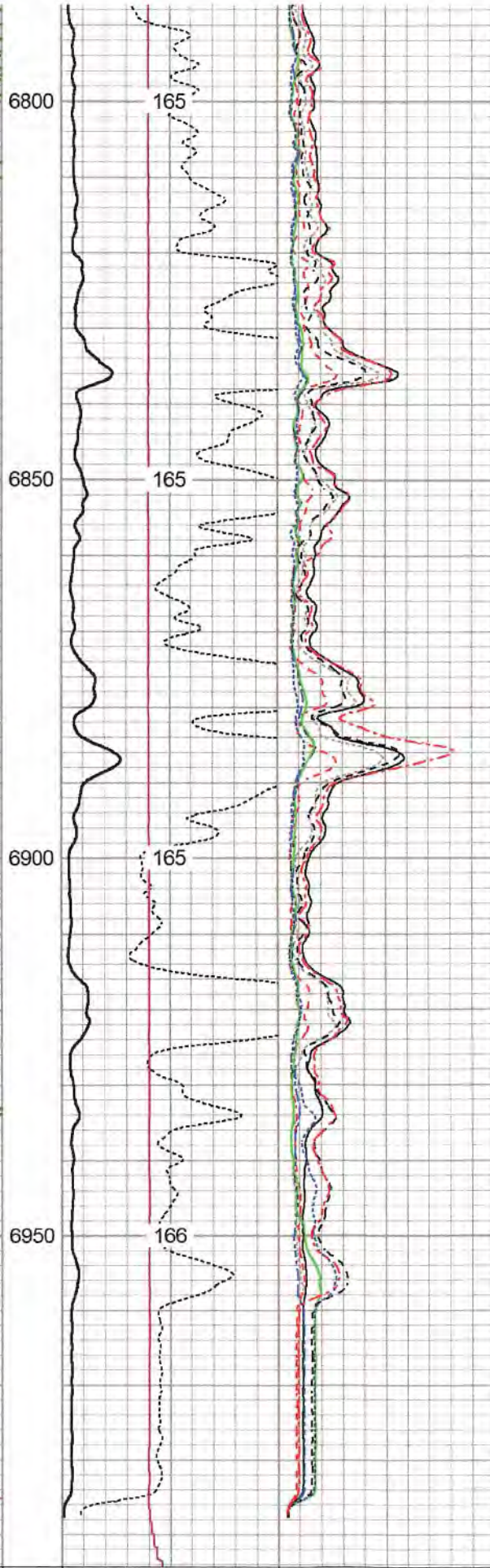
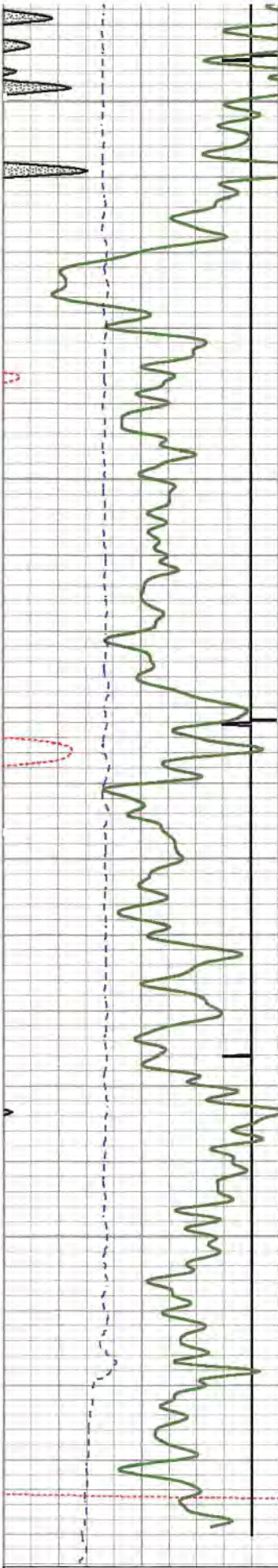


06/02/2023





06/02/2023



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

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

Variable Density	1	Cement Map	8
200 (usec)	1200		

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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	

Log Variables DatabaseC:\ProgramData\Warrrior\Data\antero_coloradowest_flames_2h_rcbl_nineenergy_apr_30
Dataset Marcellus/Flames_2H/RCBL_1/pass4/_vars_

Top - Bottom							
BHTEMP_Src	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV
TEMP	7.875	148	5.5	0.361	20	71.9	2.2
MINATTN db/ft	PERFS	PPT usec	SRFTEMP degF	TDEPTH ft			
0.8	No	0	0	0			

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	

Calibration Report

Database File antero_coloradowest_flames_2h_rcbl_nineenergy_apr_30_2020.db
Dataset Pathname Marcellus/Flames_2H/RCBL_1/pass4
Dataset Creation Thu Apr 30 12:52:42 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:	225.917	ft

Master Calibration, performed Thu Apr 30 10:35:14 2020:

Raw (v)		Calibrated (mv)		Results
Zero	Cal	Zero	Cal	06/02/2023
				Gain Offset



3'	0.017	0.865	2.200	71.921	105.212	0.834
CAL	0.994	0.997				
5'	0.015	0.861	2.200	71.921	112.418	0.960
SUM						
S1	0.051	0.881	2.200	100.000	147.874	1.790
S2	0.008	0.857	2.200	100.000	145.249	1.262
S3	0.007	0.844	2.200	100.000	146.897	1.365
S4	0.007	0.849	2.200	100.000	146.123	1.389
S5	0.008	0.856	2.200	100.000	145.264	1.290
S6	0.007	0.863	2.200	100.000	144.333	1.365
S7	0.006	0.856	2.200	100.000	145.143	1.463
S8	0.007	0.857	2.200	100.000	145.113	1.403

Internal Reference Calibration, performed (Not Performed):

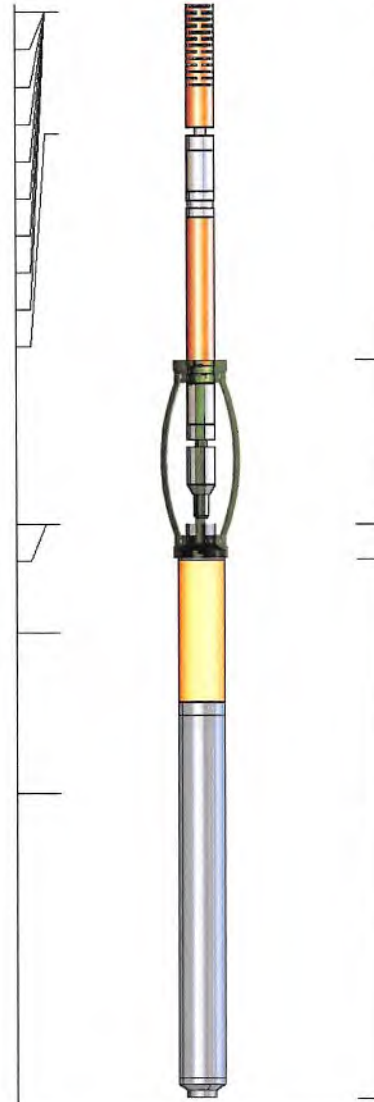
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.994	0.997	1.000	0.000

Air Zero Calibration, performed Thu Apr 30 06:34:50 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)
HeadVolt	14.11		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
			CHD-Titan Titan 1 7/16" GO Cablehead	1.00	1.44	5.00
Temp	11.27		RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00

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WVFS8	9.03		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
WVFS7	9.03					
WVFS6	9.03					
WVFS5	9.03					
WVFS4	9.03					
WVFS3	9.03					
WVFS2	9.03					
WVFS1	9.03					
WVF3FT	9.03					
WVF5FT	8.03					
WVFCAL	4.78					
HEADVOLT	4.78					
CCL	3.88					
GR	2.54					

Dataset: antero_coloradowest_flames_2h_rcbl_nineenergy_apr_30_2020.db: Marcellus/Flames_2H/RCBL_1/pass4
 Total length: 15.17 ft
 Total weight: 162.00 lb
 O.D.: 4.88 in

	Company	Antero Resources
	Well	Flames 2H
	Field	North Canton
	County	Tyler
	State	West Virginia