



# RADIAL BOND LOG

Company ANTERO  
 Well ORNER UNIT 2H  
 Field MARCELLUS  
 County WETZEL State WV

Location: API #: 47103034290000  
 Other Services: GR, CCL  
 Elevation: K.B. 1338', D.F. 1337', G.L. 1308'  
 SEC TWP RGE  
 Permanent Datum GL Elevation 30'  
 Log Measured From KB  
 Drilling Measured From KB

Date	1-15-2022						
Run Number	ONE						
Depth Driller	24,066'						
Depth Logger	7,731'						
Bottom Logged Interval	7,718'						
Top Log Interval	SURFACE						
Open Hole Size	8.50"						
Type Fluid	PRODUCED						
Density / Viscosity	8.3#						
Max. Recorded Temp.	146°F						
Estimated Cement Top	6,990'						
Time Well Ready	1520						
Time Logger on Bottom	1612						
Equipment Number	TK 111						
Location	CHARLEROI, PA						
Recorded By	D. JOSEPHIK						
Witnessed By	REDGIE TAYLOR						
Borehole Record							
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record		Size	Wgt/Ft	Top	Bottom		
Surface String	13.375"	54.5#	SURFACE	662'			
Prot. String	9.625"	36#	SURFACE	2,678			
Production String	5.5"	23#	SURFACE	24,046'			
Liner							

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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 ( 6650'- 6660' ) PER CASING TALLY

100% FREE = 71.9MV  
 100% BOND = 2.2MV  
 ETOC = 6990'

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 WV Department of Environmental Protection

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CHD	23.96		CHD-Titan	1.02	1.44	1.00
CENT	22.94		Standard 1 7/16" Cable Head	1.44	1.44	1.00

				CENT-BC275-0000 Probe 2.75" Bowspring Centralizer	2.83	2.75	24.00
RBT HeadVolt	20.11 20.05						
Temp	17.20						
WVFS8	14.97			RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS7	14.97						
WVFS6	14.97						
WVFS5	14.97						
WVFS4	14.97						
WVFS3	14.97						
WVFS2	14.97						
WVFS1	14.97						
WVF3FT	14.97						
WVF5FT	13.97						
CENT	10.72						
WVFCAL	10.72						
HEADVOLT	10.72			CENT-BC275-0000 Probe 2.75" Bowspring Centralizer	2.83	2.75	24.00
GR	7.89						
CCL	6.98						
GR	5.64			GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
CENT	3.10						
				CENT-BC275-0000 Probe 2.75" Bowspring Centralizer	2.83	2.75	24.00
Bull_Plug	0.27			Bull_Plug-1_7/16_GO Titan 1 7/16" Female Bull Plug	0.27	1.44	1.00

Dataset: antero\_dogwood\_orner2h\_rcbl-1-15-22.db: field/well/RCBL/MAIN  
 Total length: 23.96 ft  
 Total weight: 221.00 lb  
 O.D.: 2.75 in



# MAIN LOG

1500 PSI APPLIED

Database File antero\_dogwood\_orner2h\_rcbl-1-15-22.db  
 Dataset Pathname RCBL/MAIN  
 Presentation Format rcbl 2  
 Dataset Creation Sat Jan 15 16:22:35 2022  
 Charted by Depth in Feet scaled 1:240

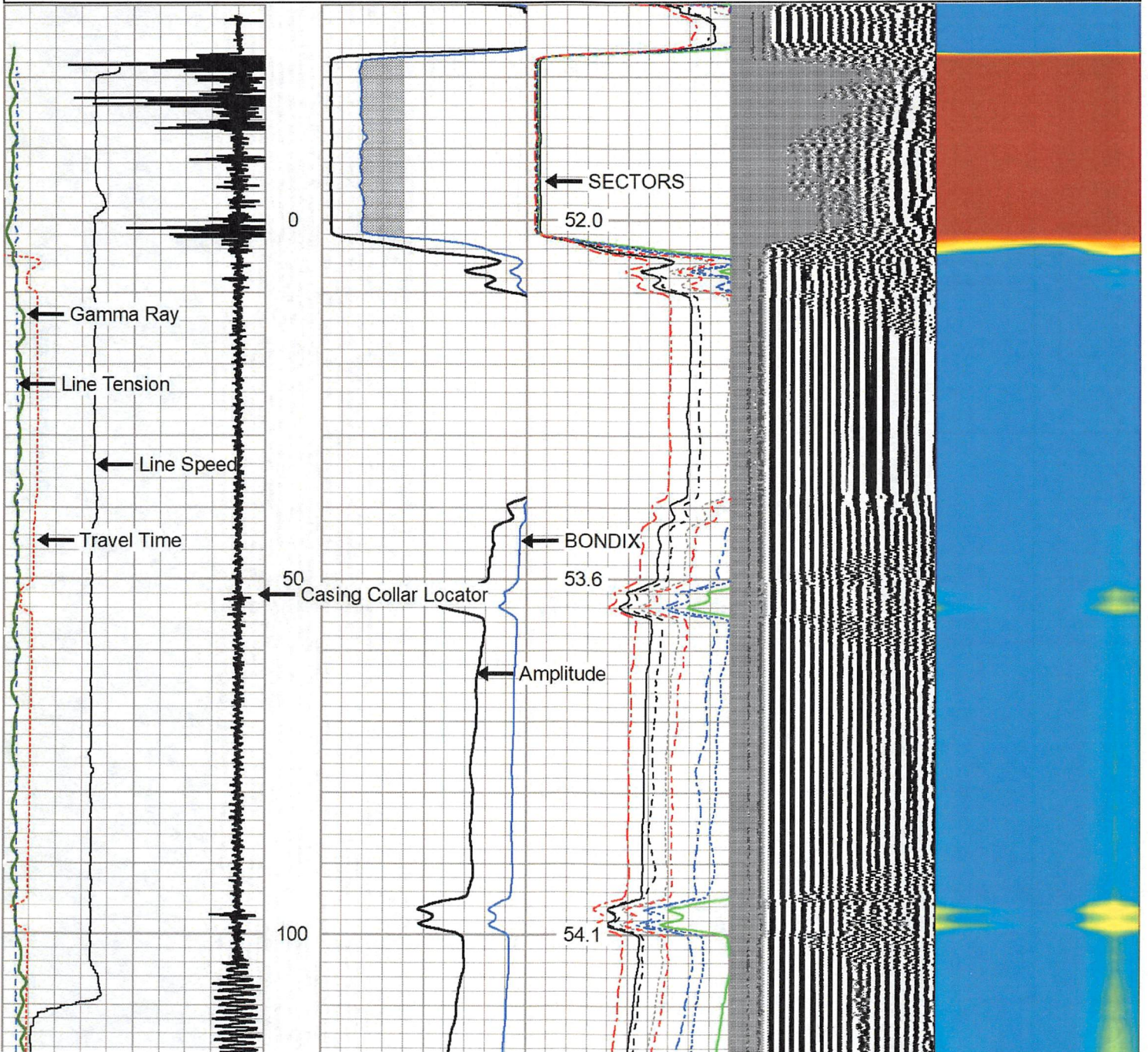
295	Travel Time (usec)	195
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000
-100	LSPD (ft/min)	100

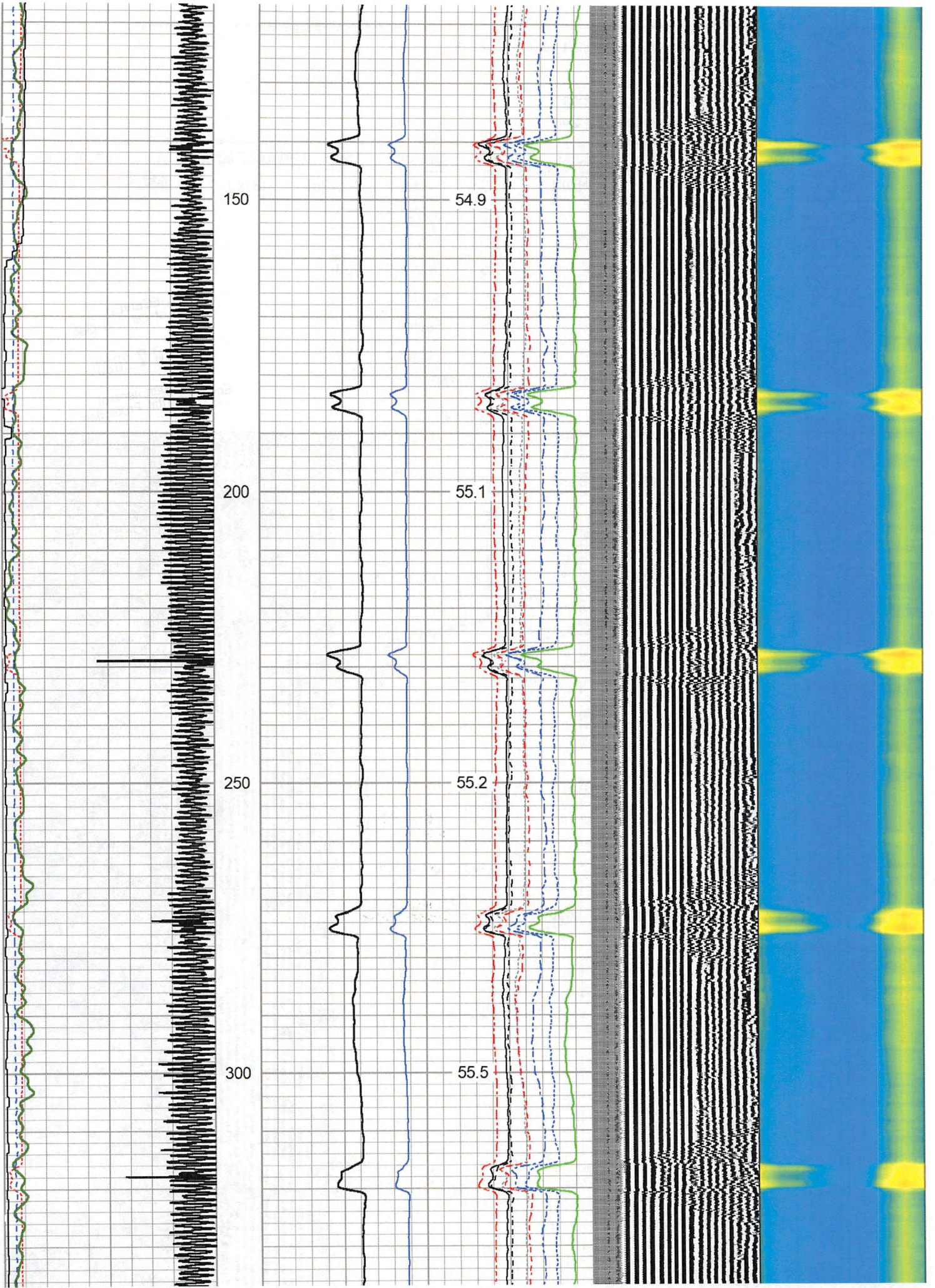
0	Amplitude (mV)	100	-5	Sector 1	150
1	BONDIX	0	-5	Sector 2	150
			-5	Sector 3	150
			-5	Sector 4	150
			-5	Sector 5	150
			-5	Sector 6	150
			-5	Sector 7	150
			-5	Sector 8	150

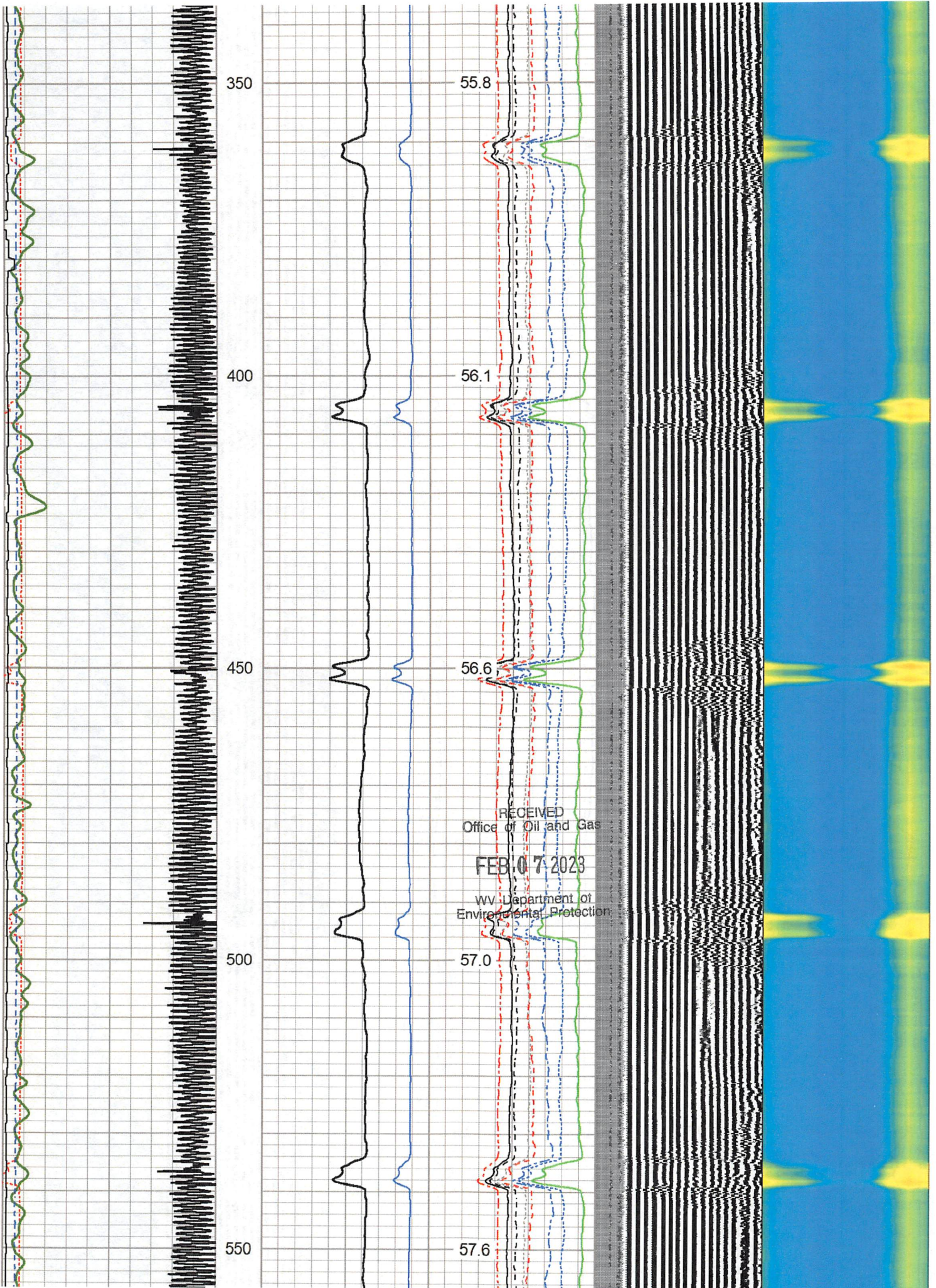
TEMP  
(degF)

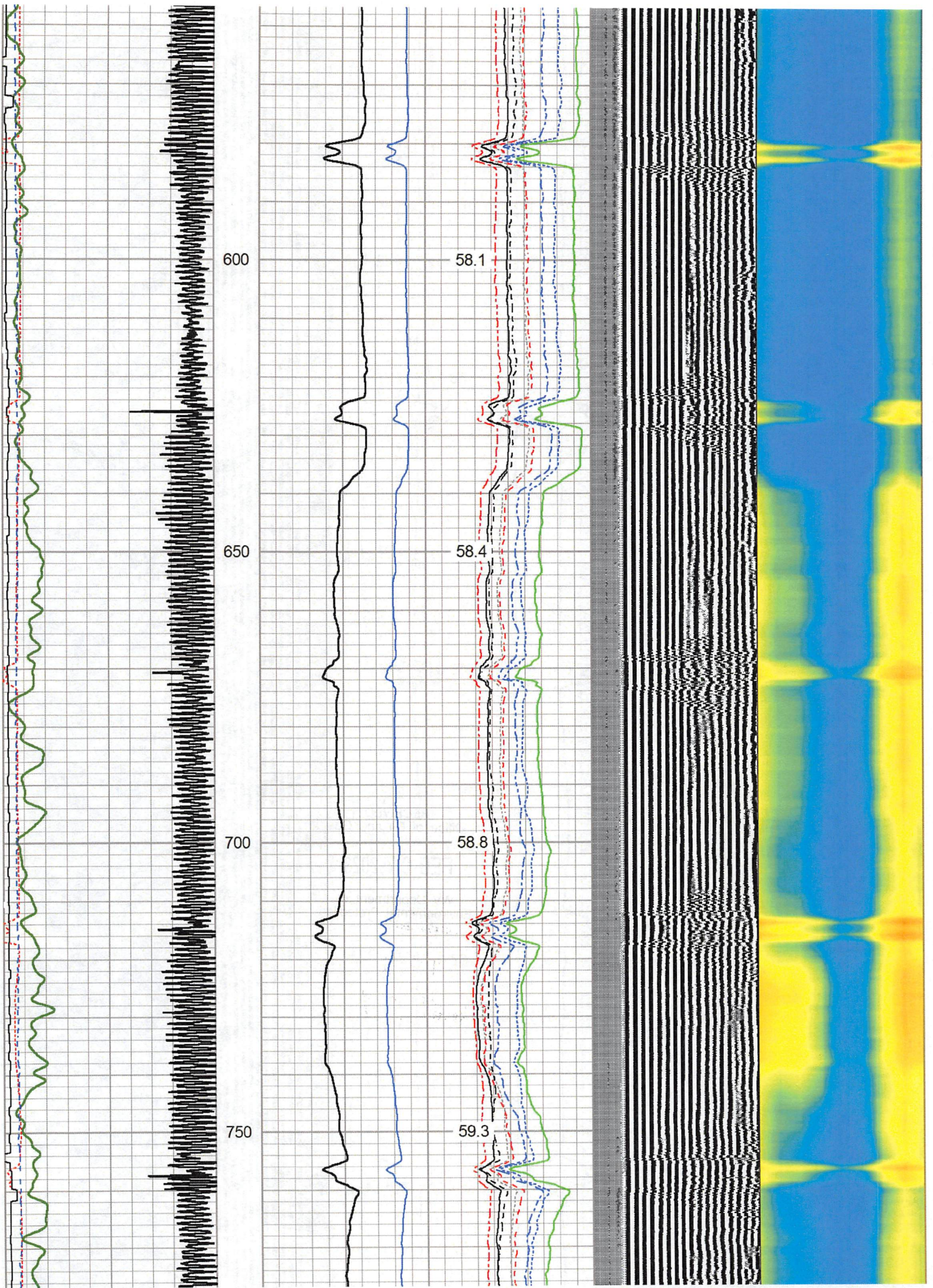
Variable Density 1 Cement Map 8  
200 (usec) 1200

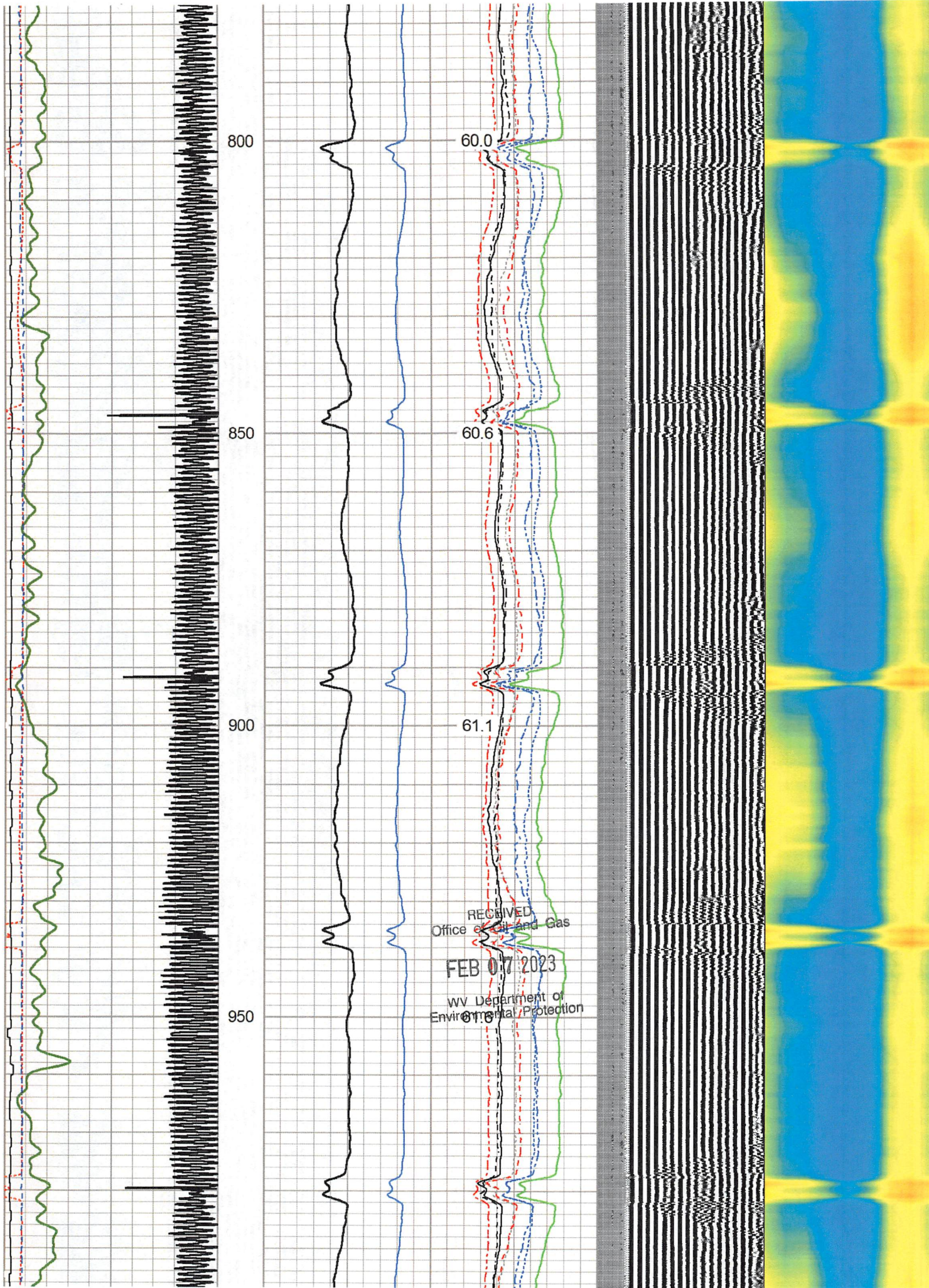
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800

850

900

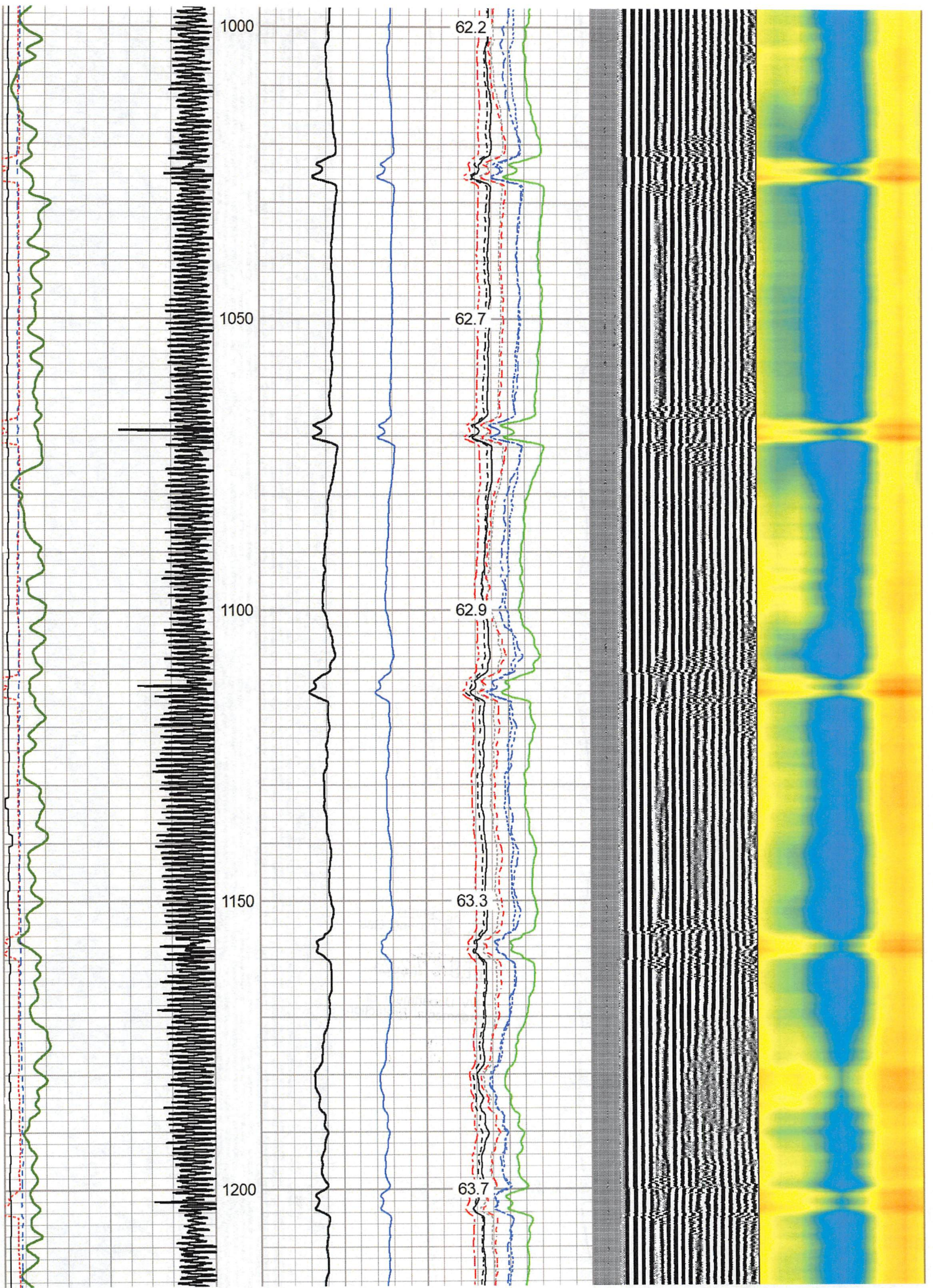
950

60.0

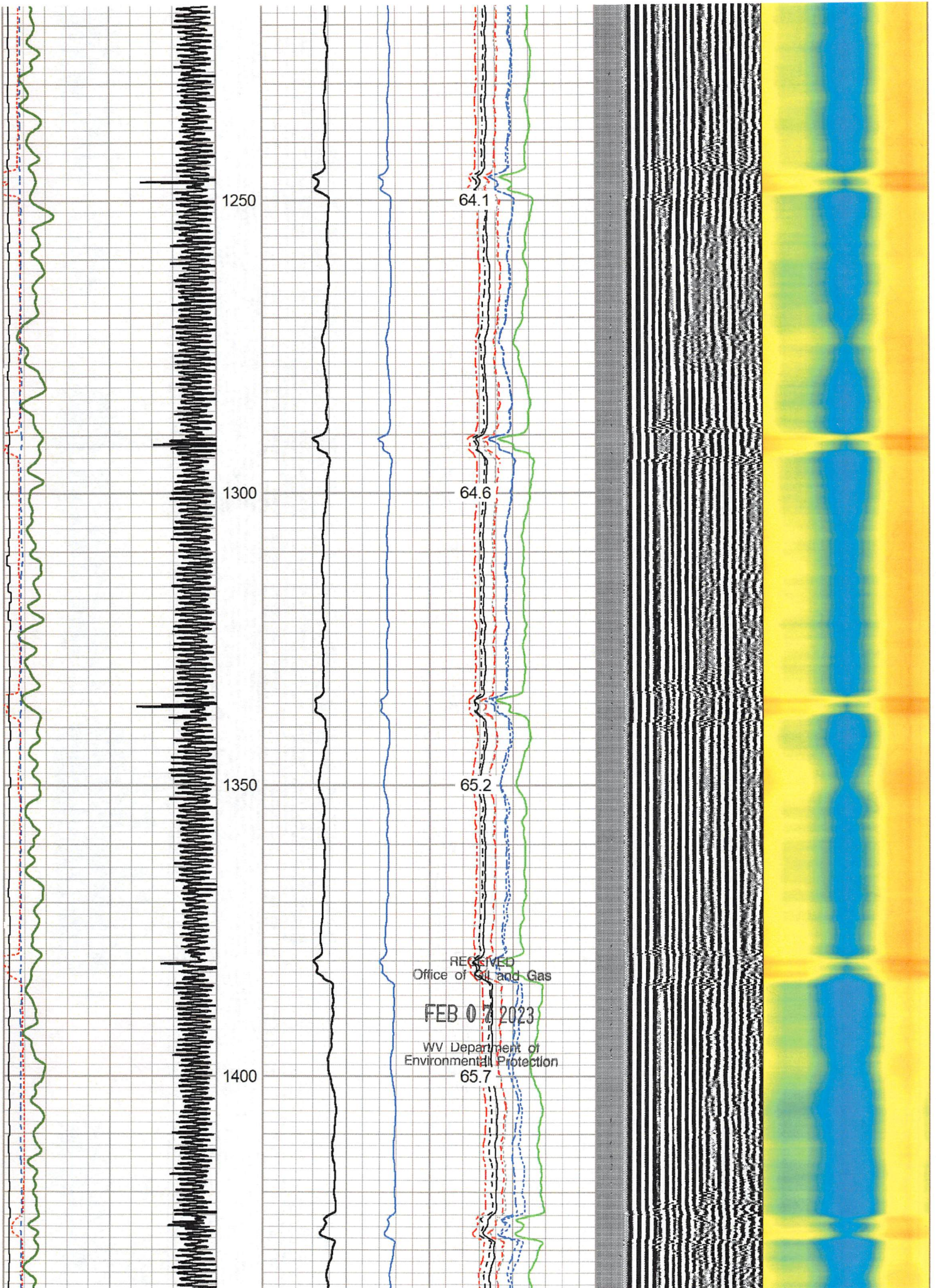
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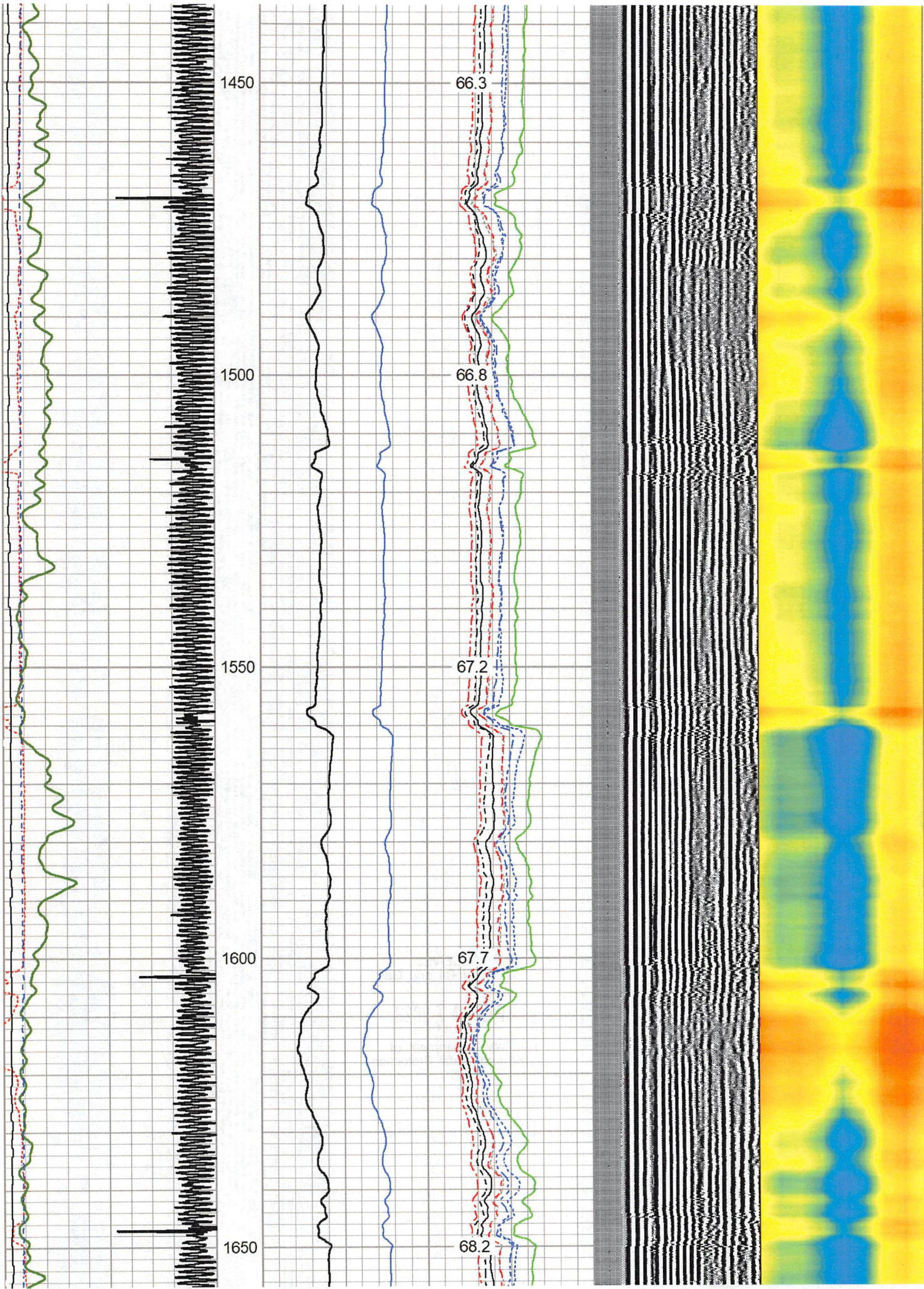
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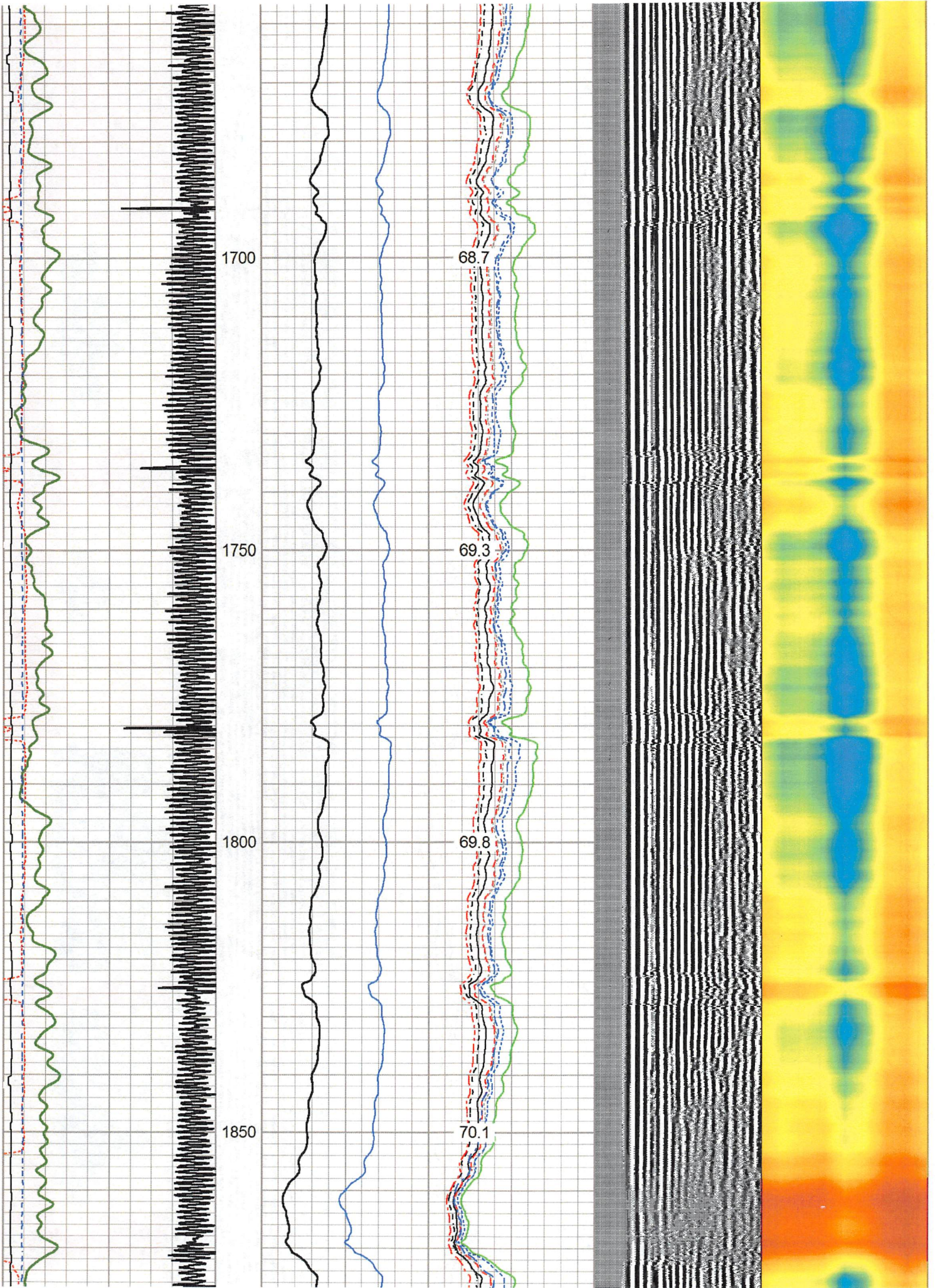
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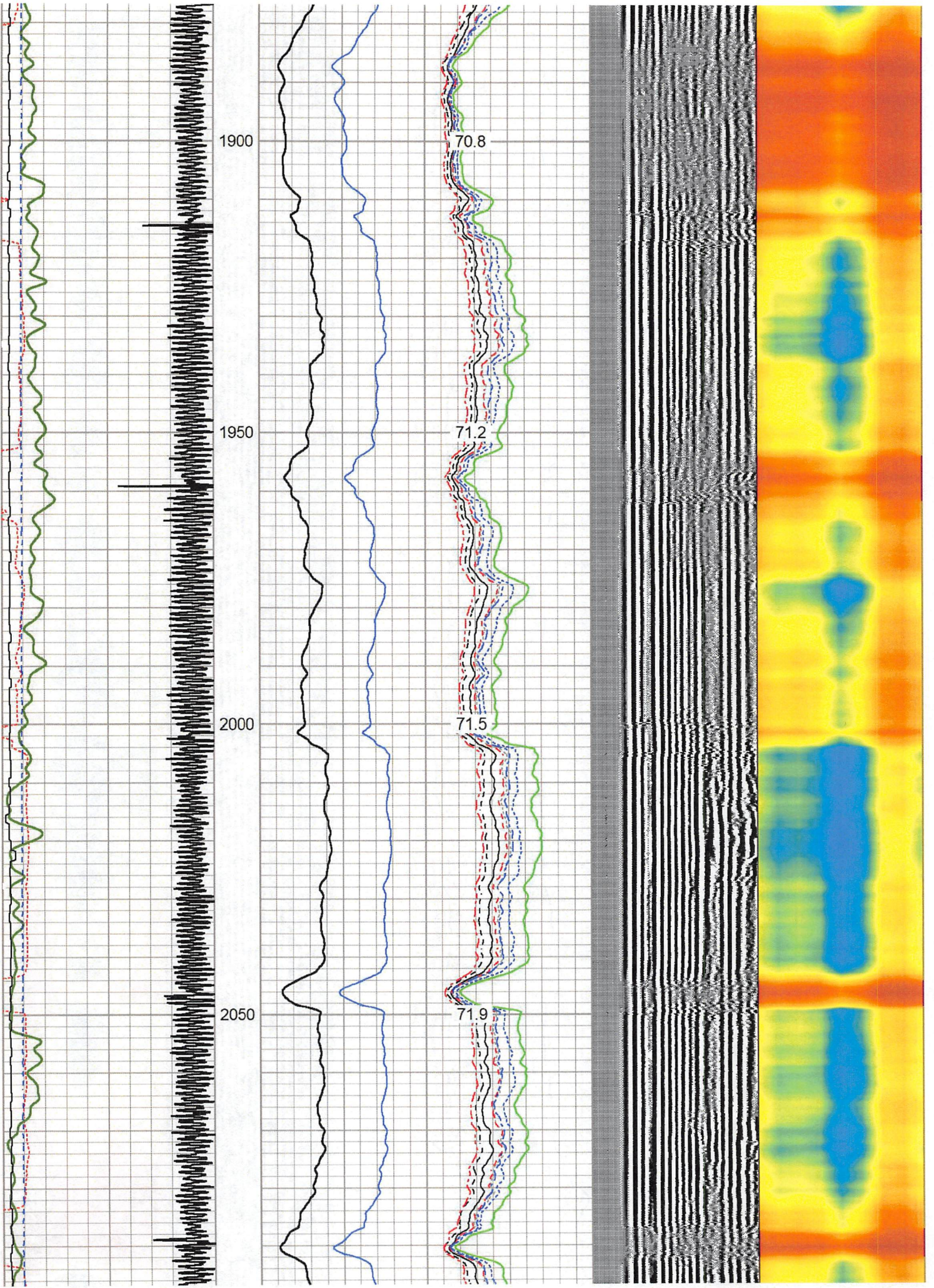


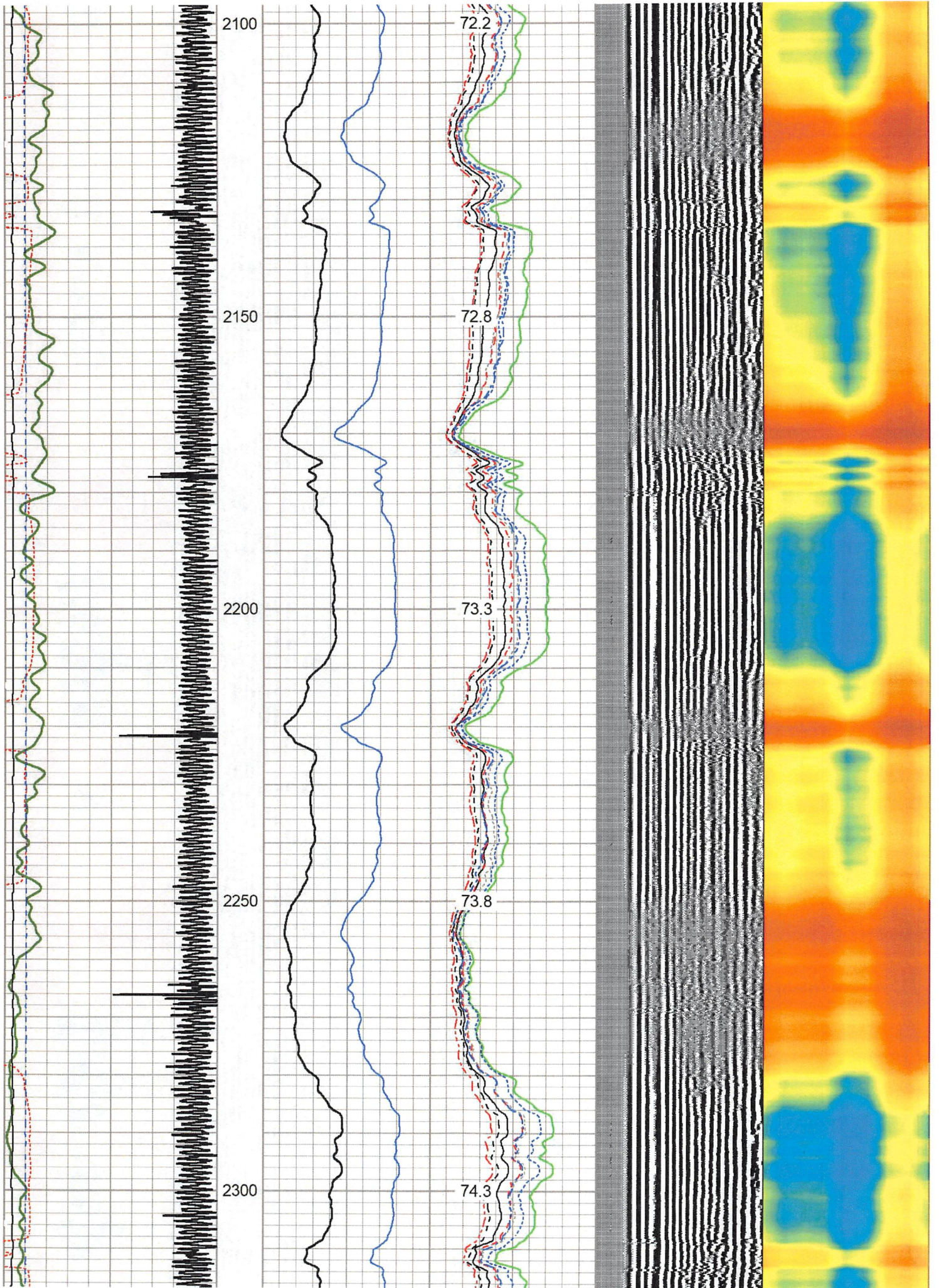


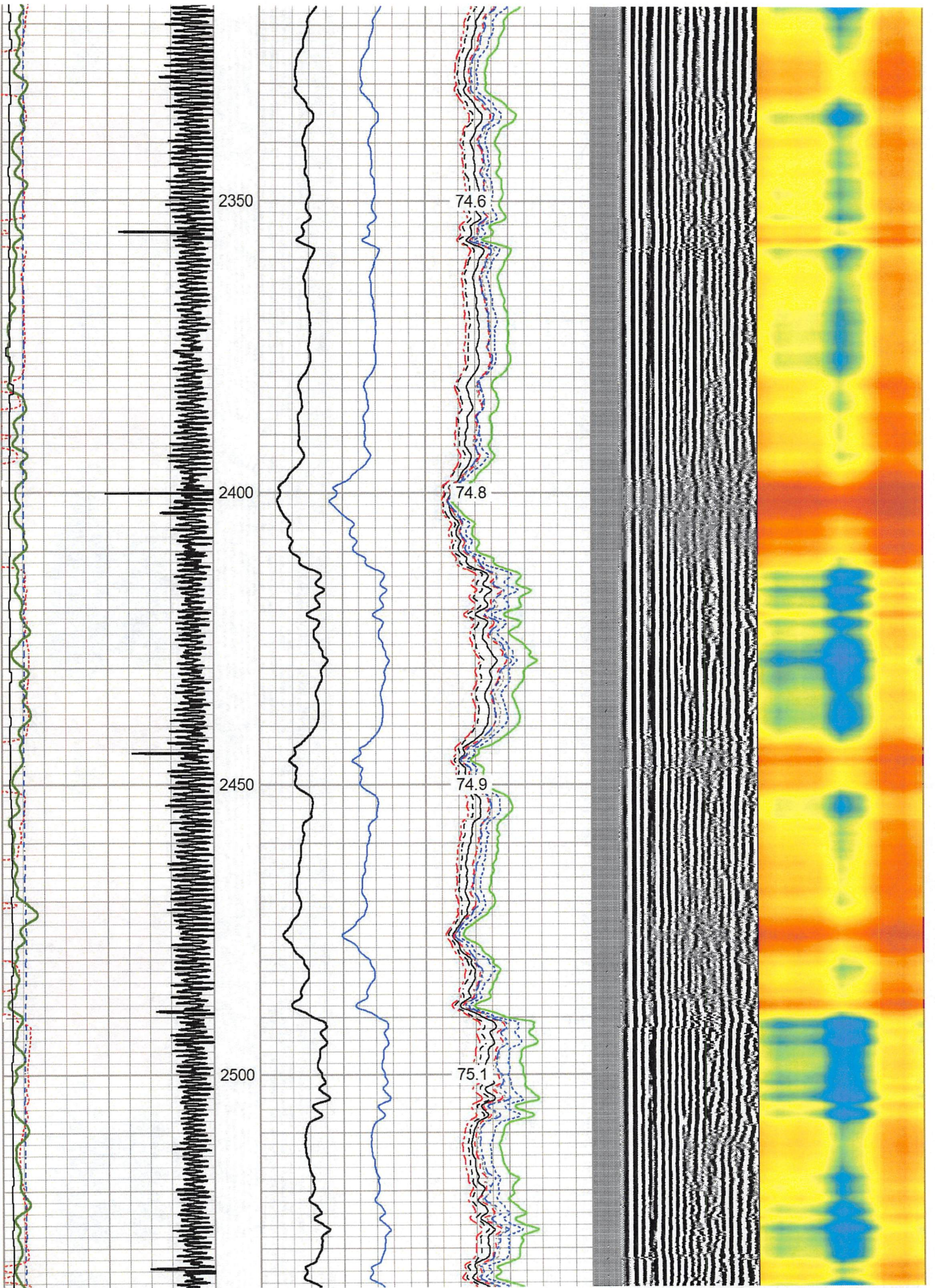


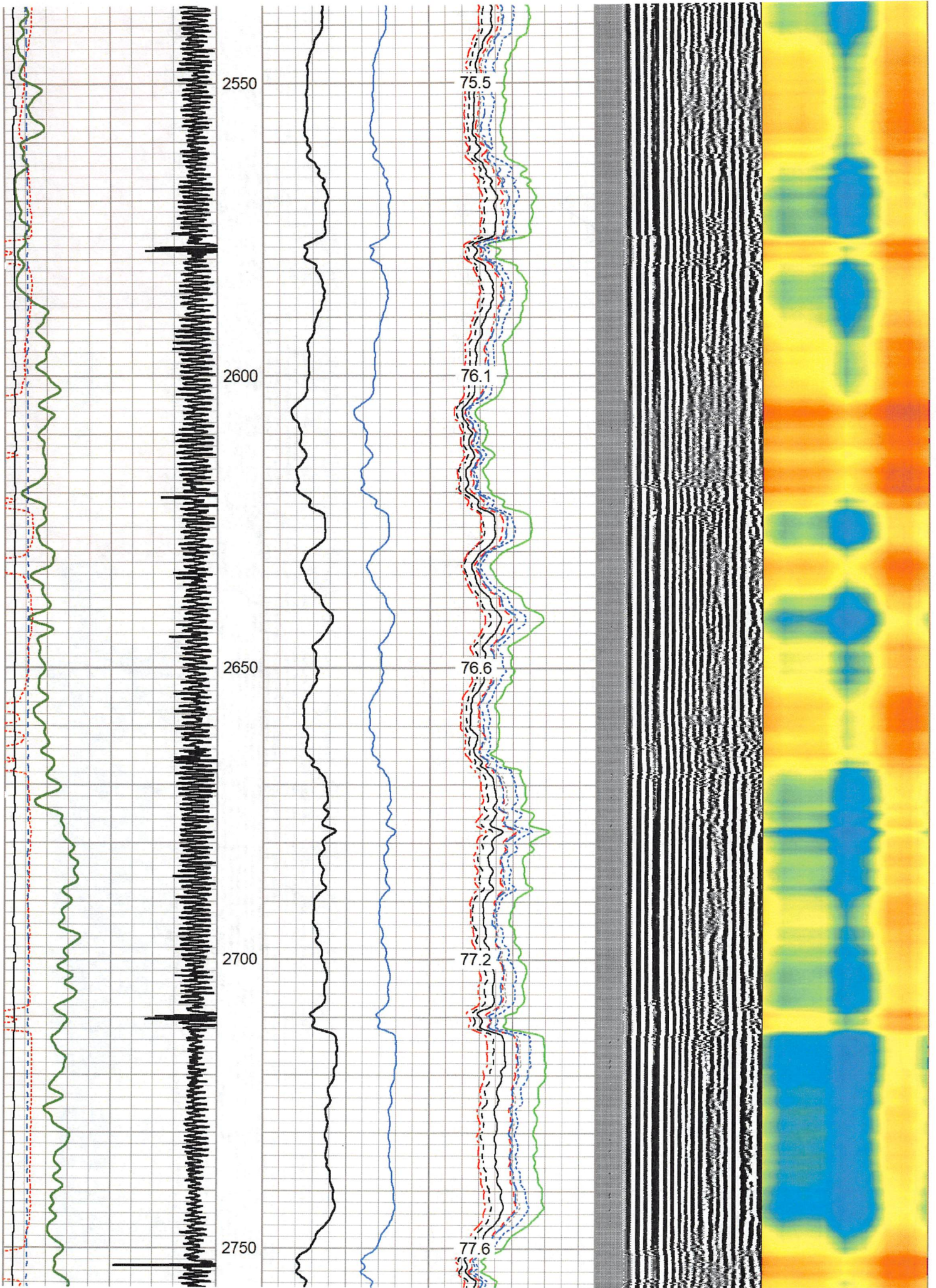


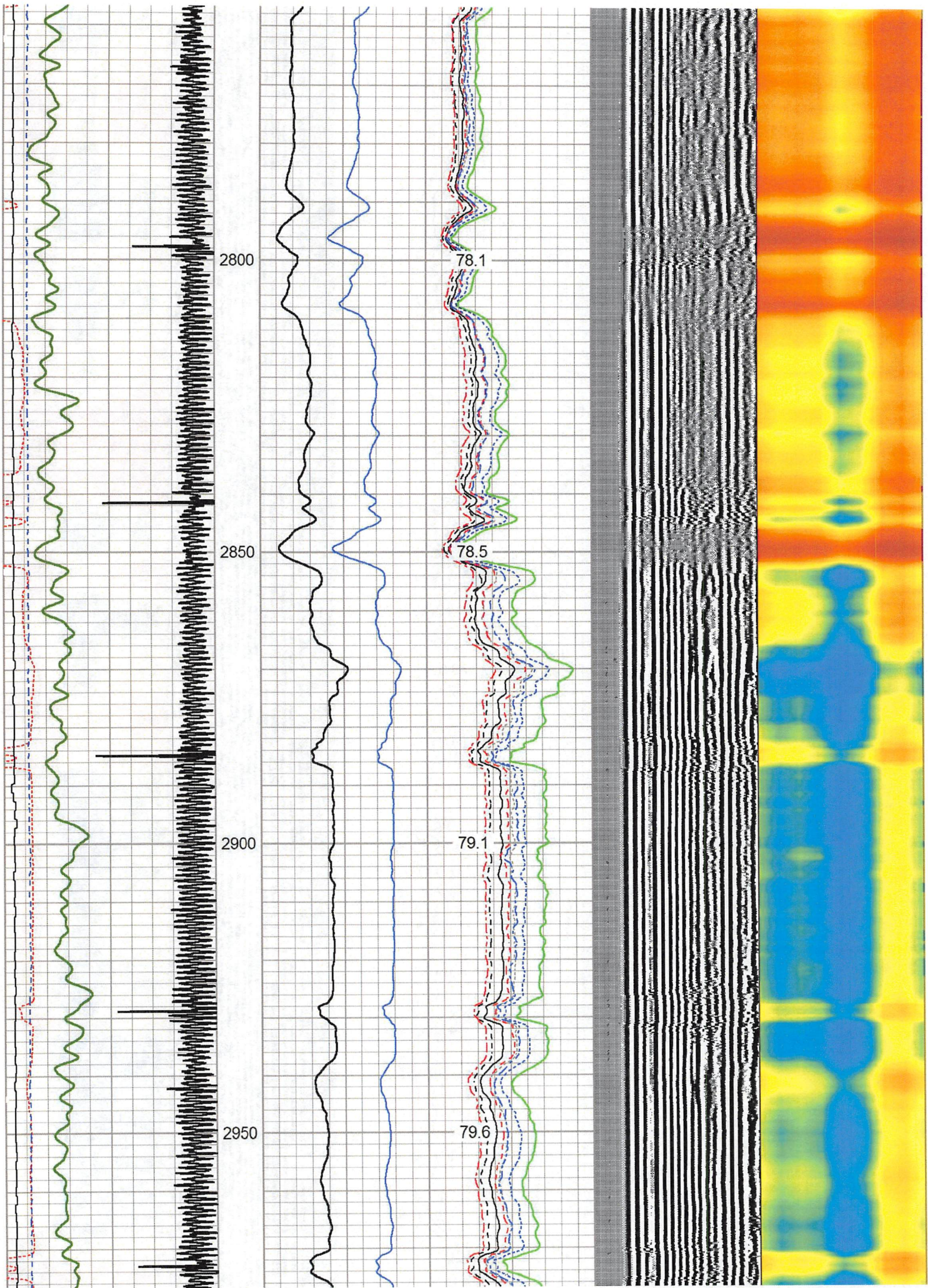




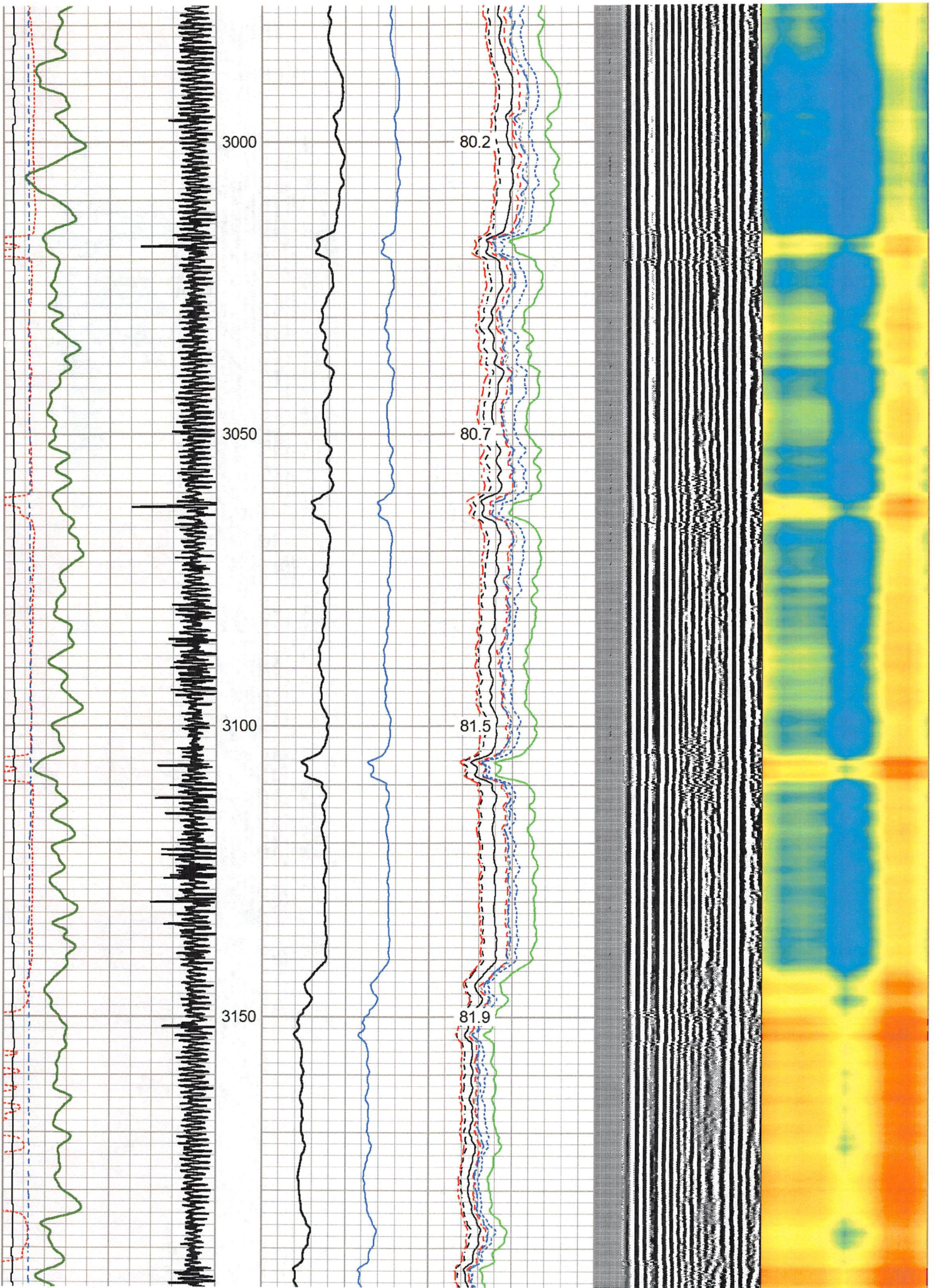


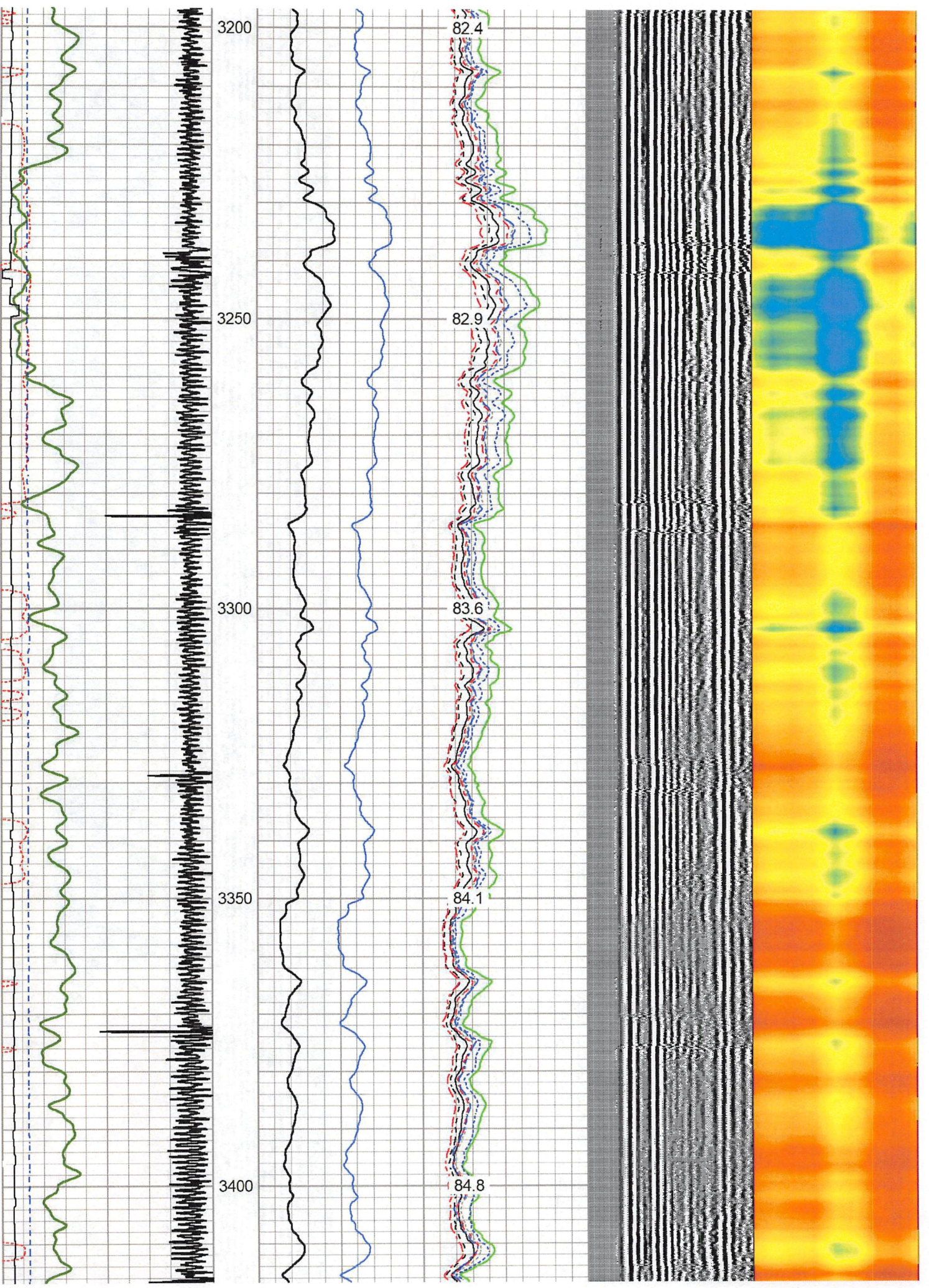


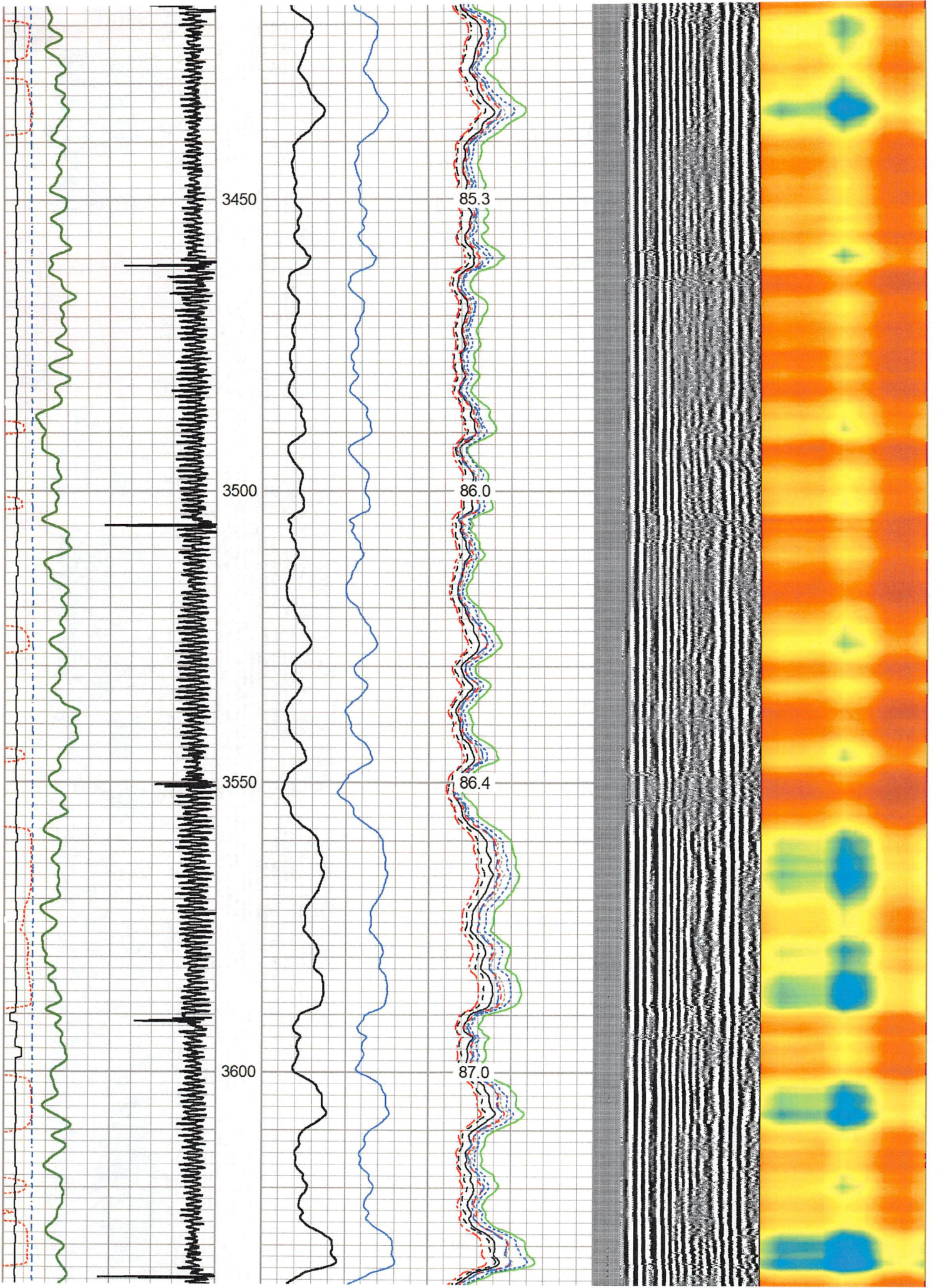


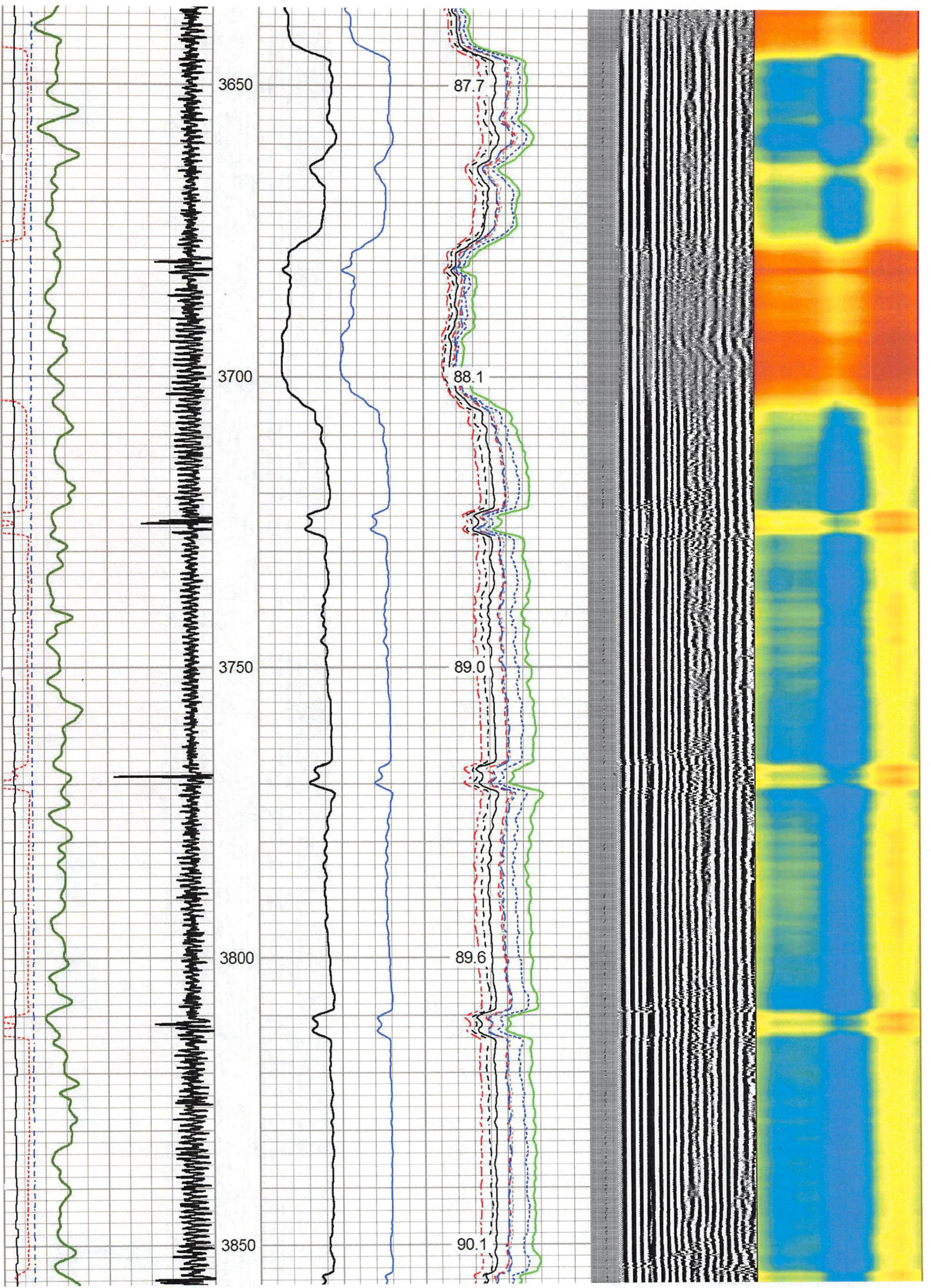


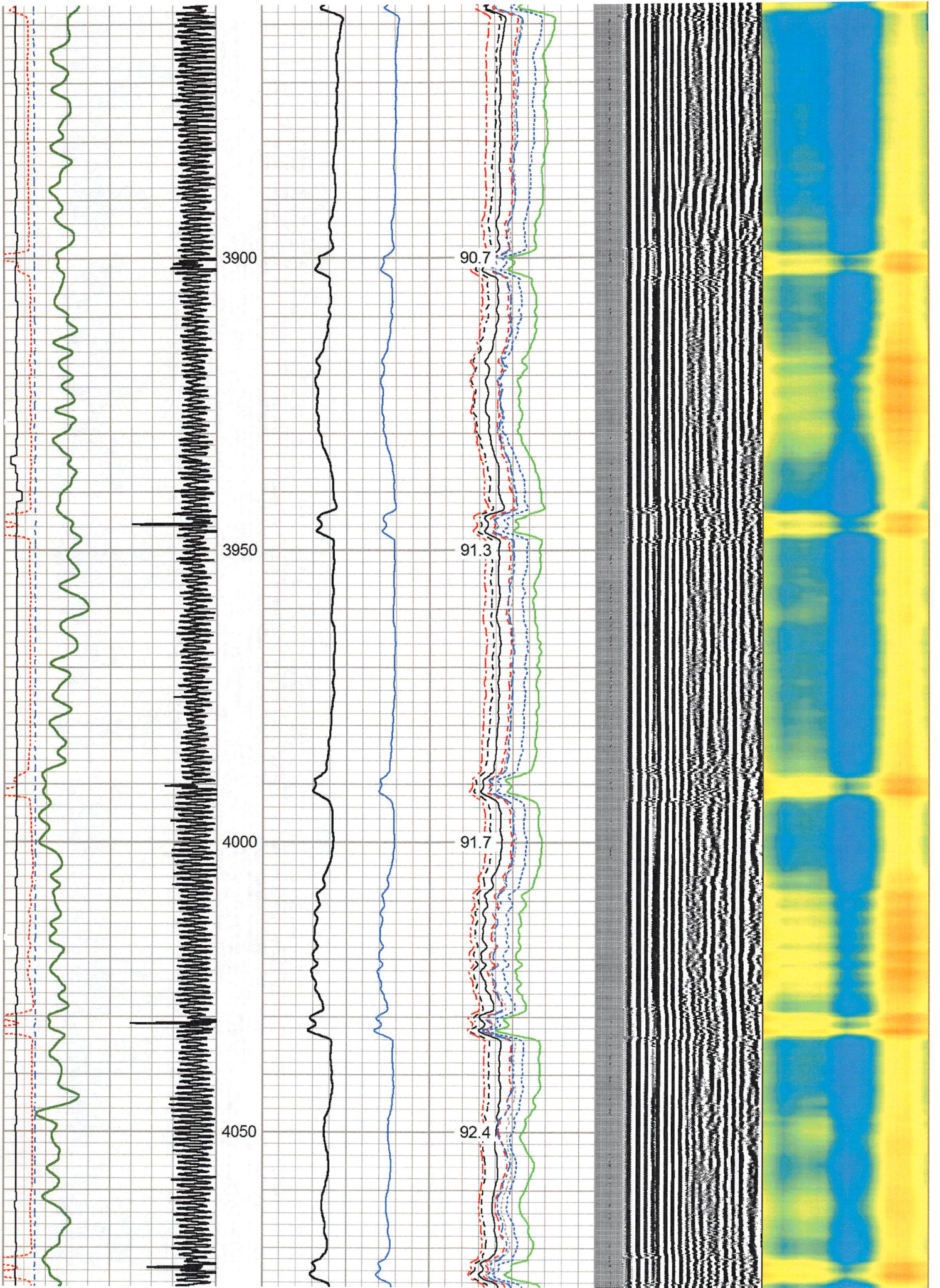


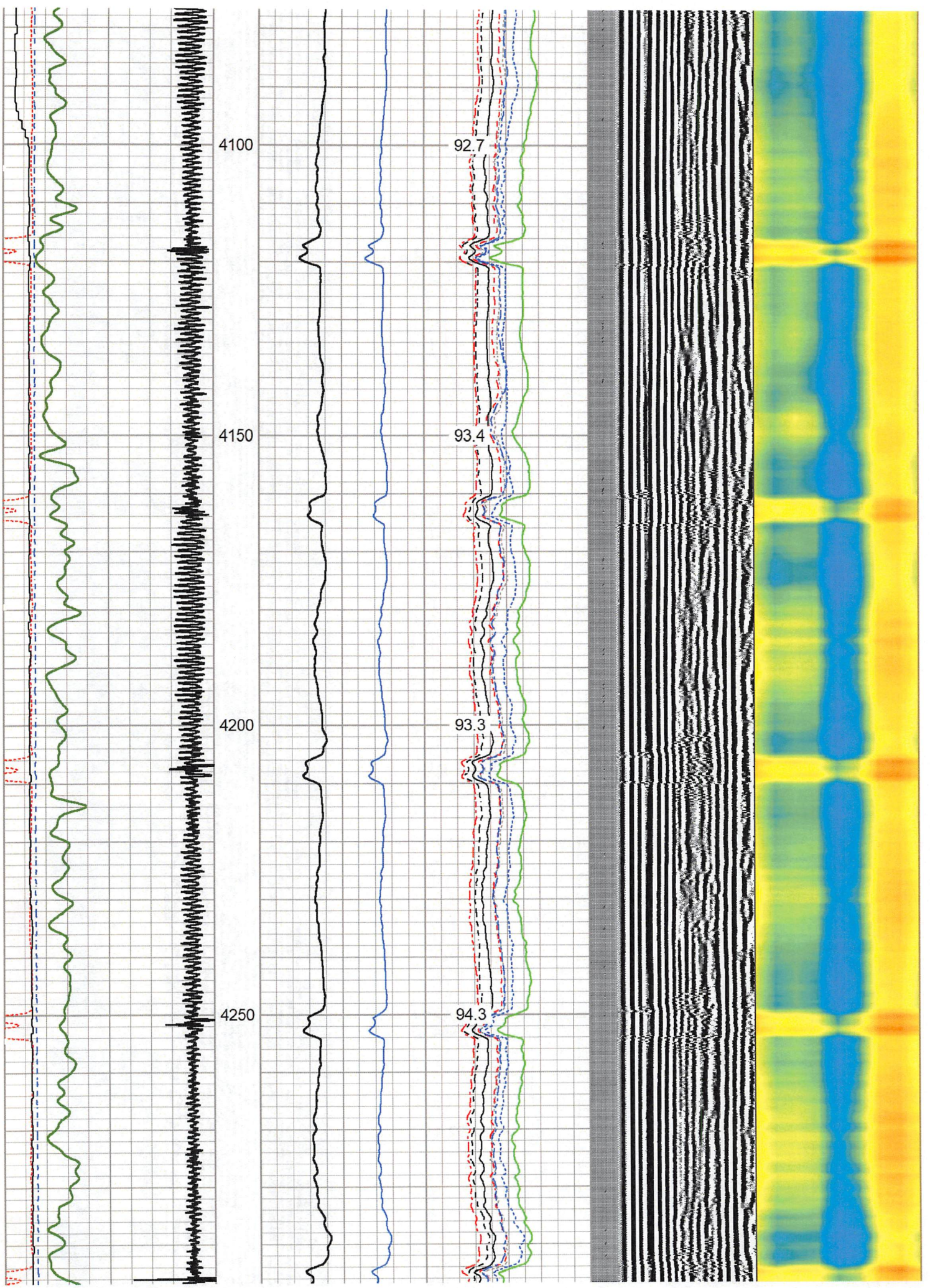


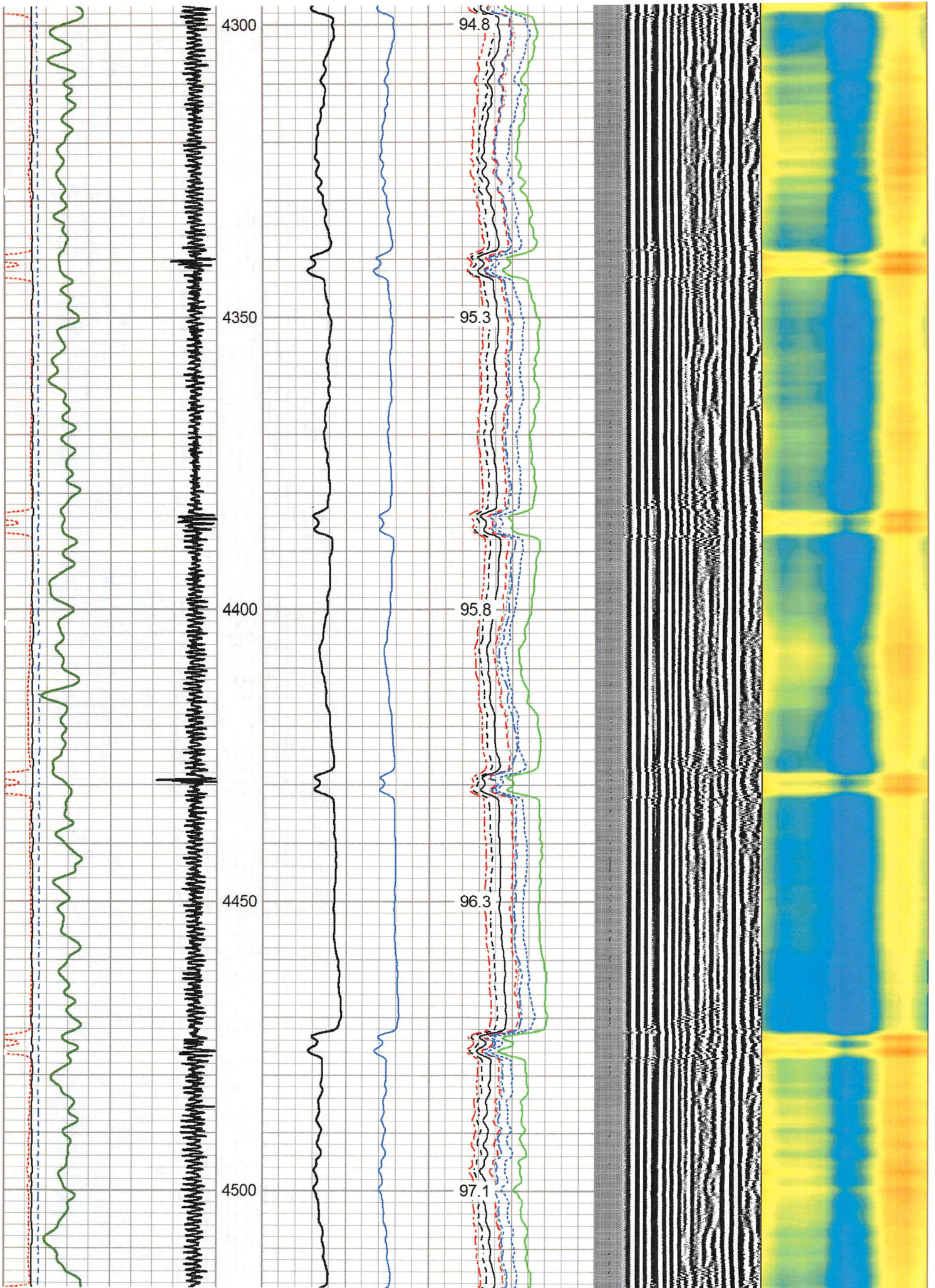


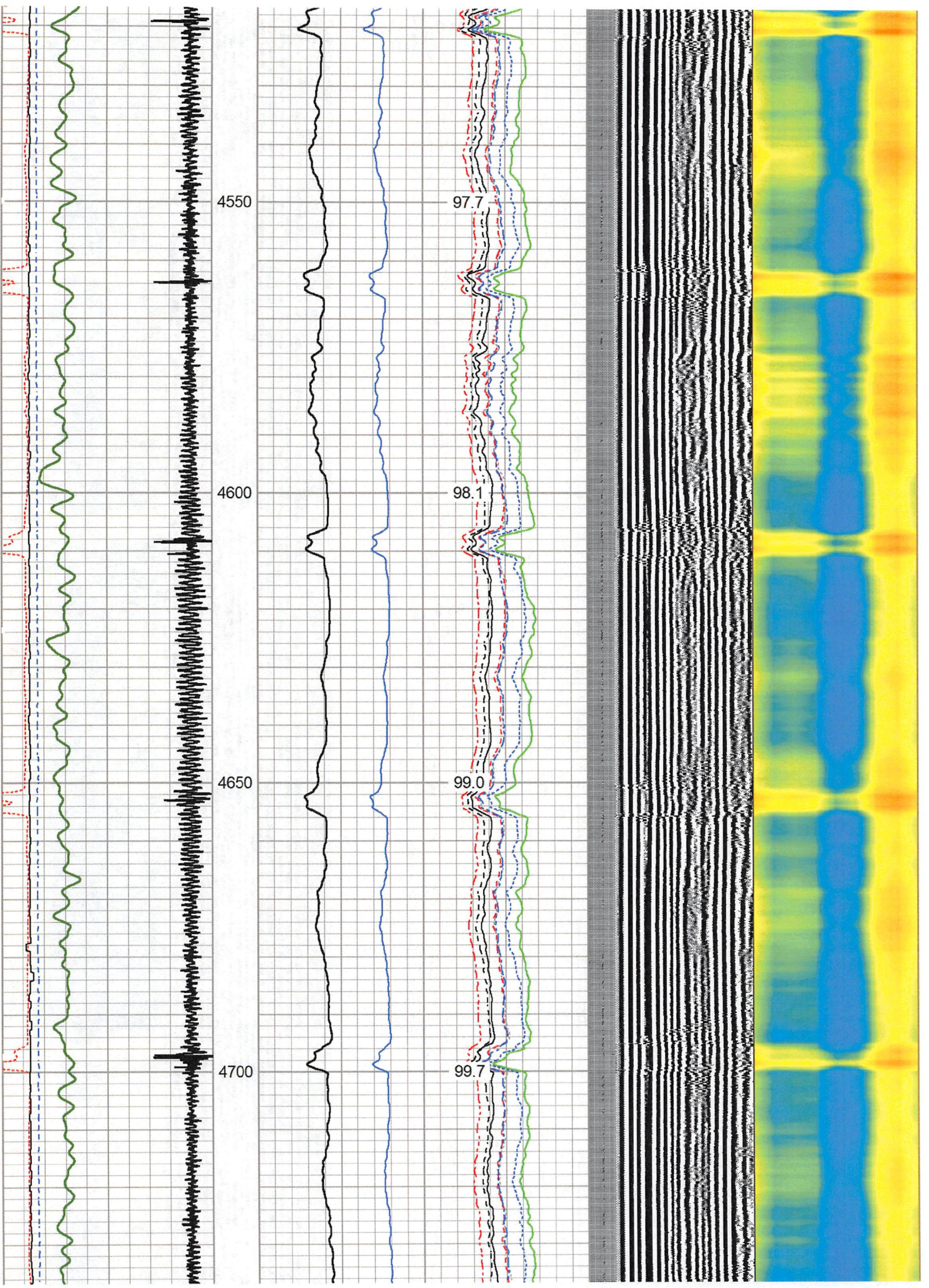




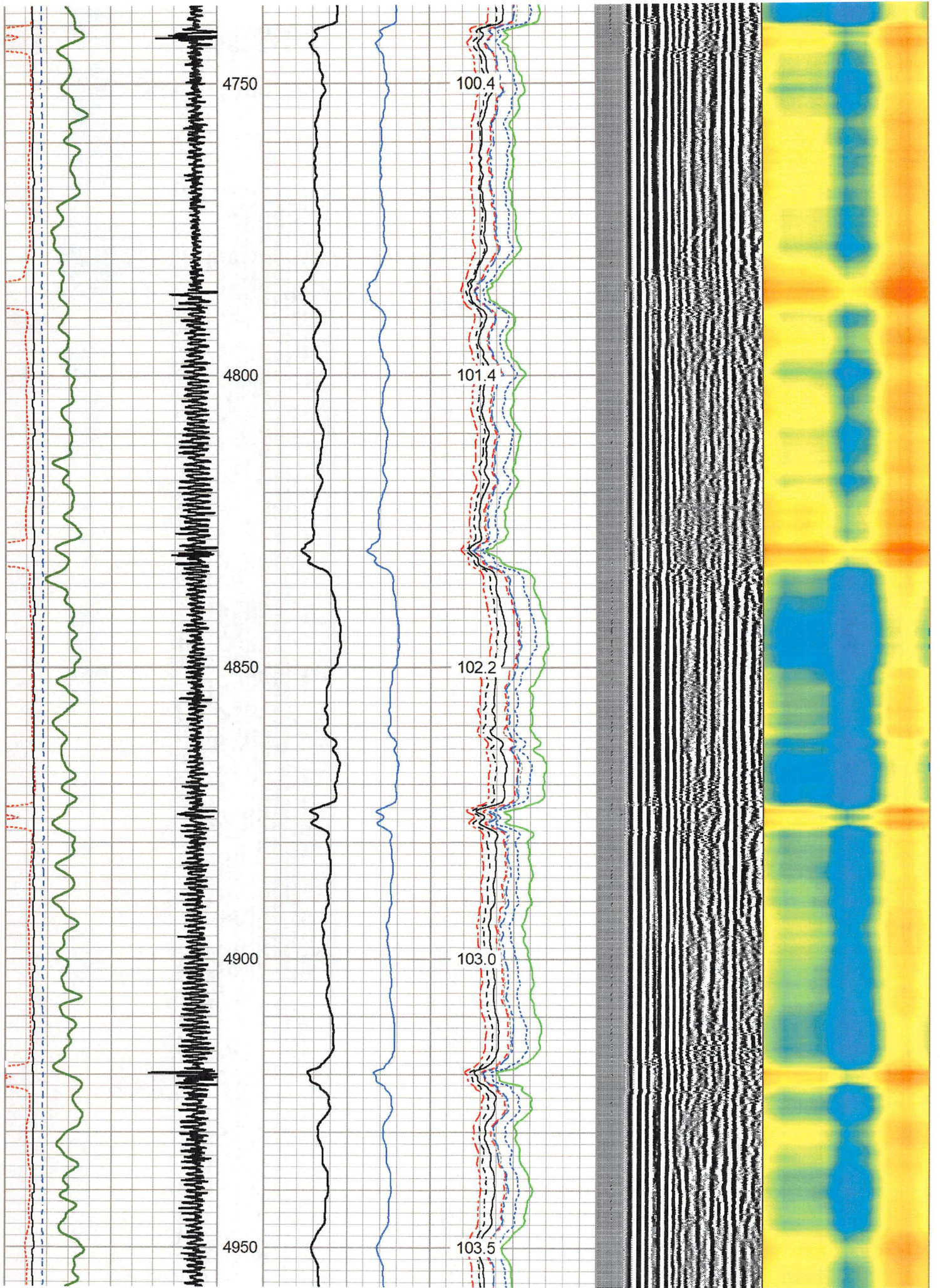


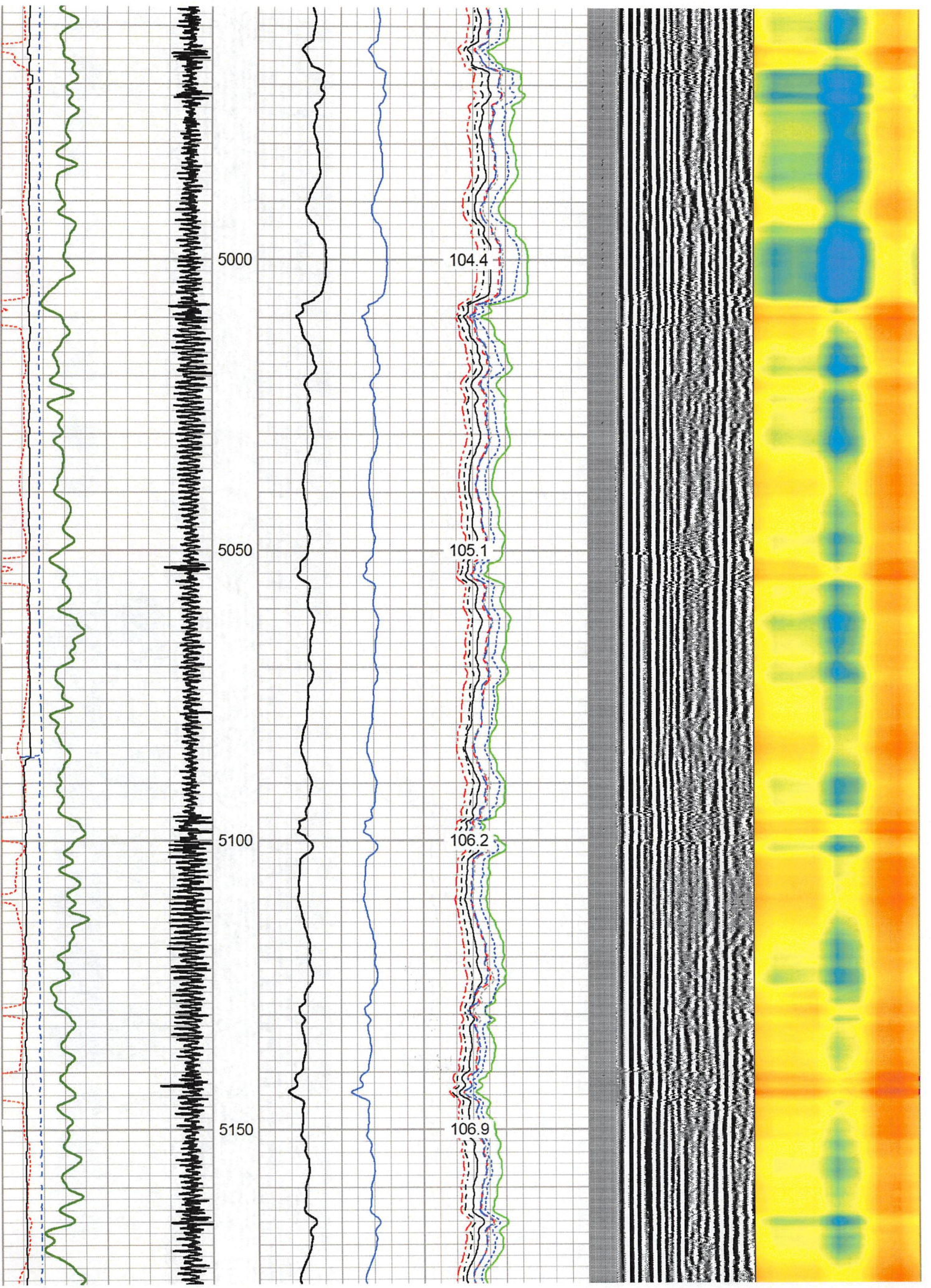


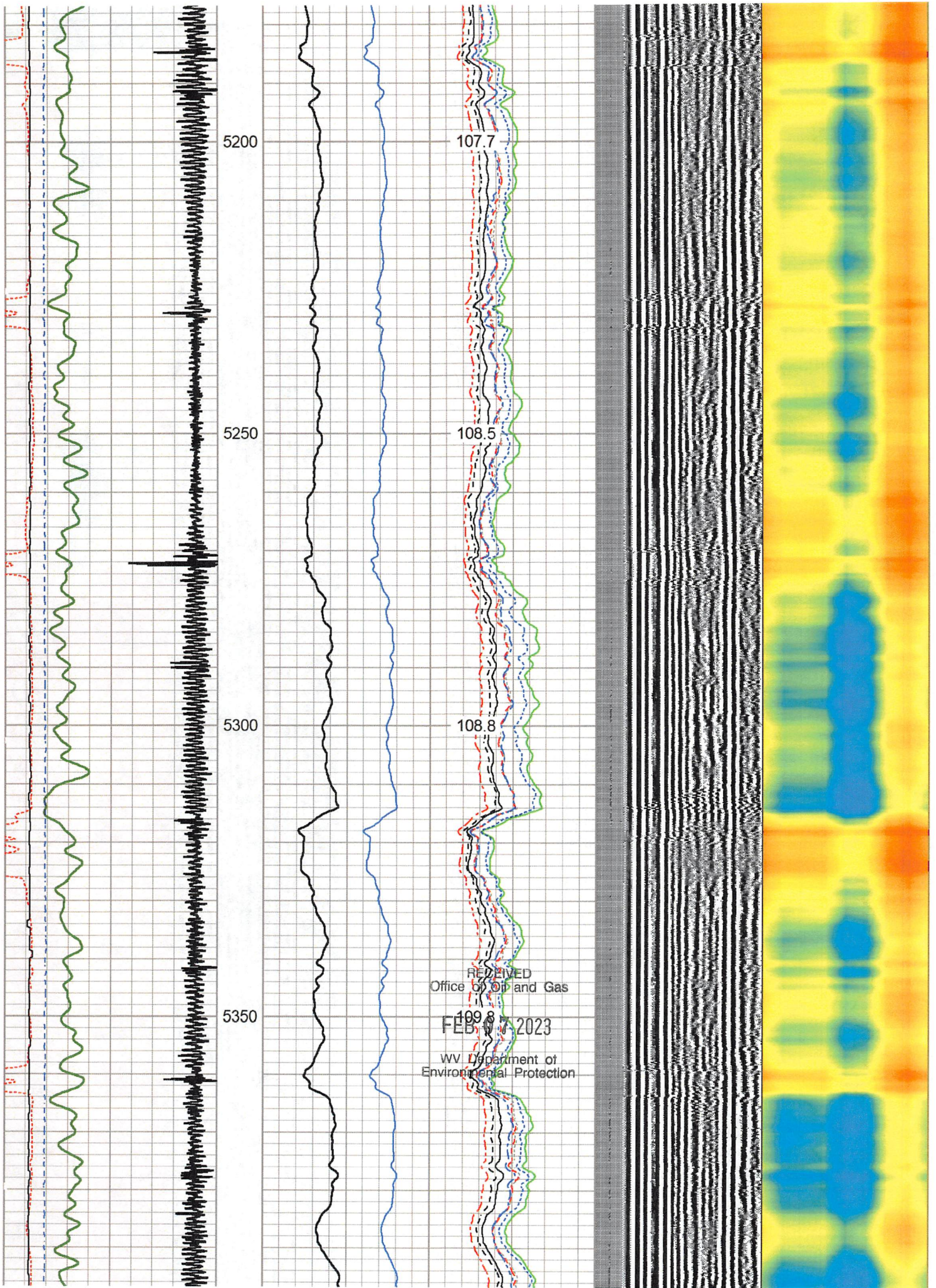




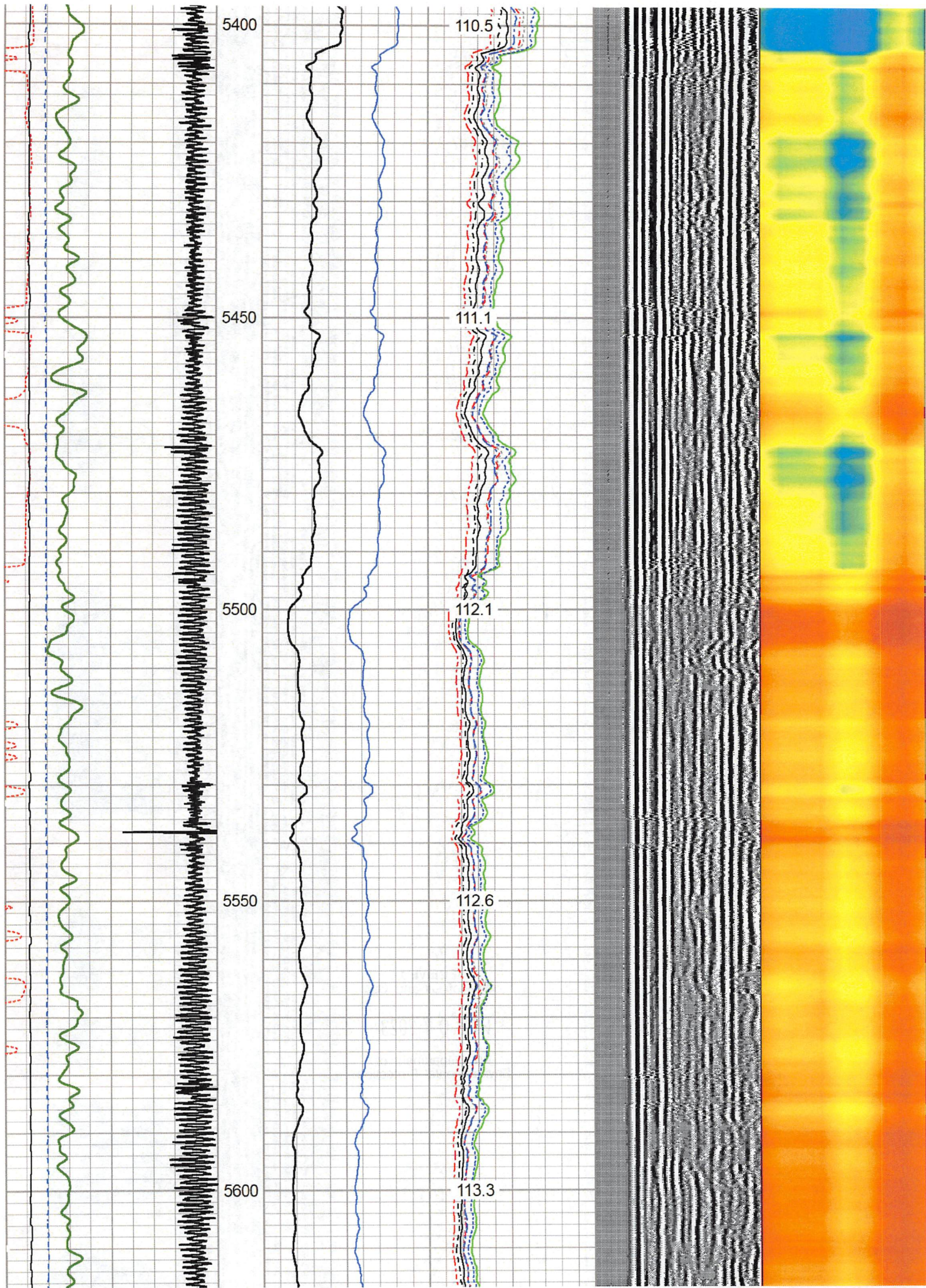


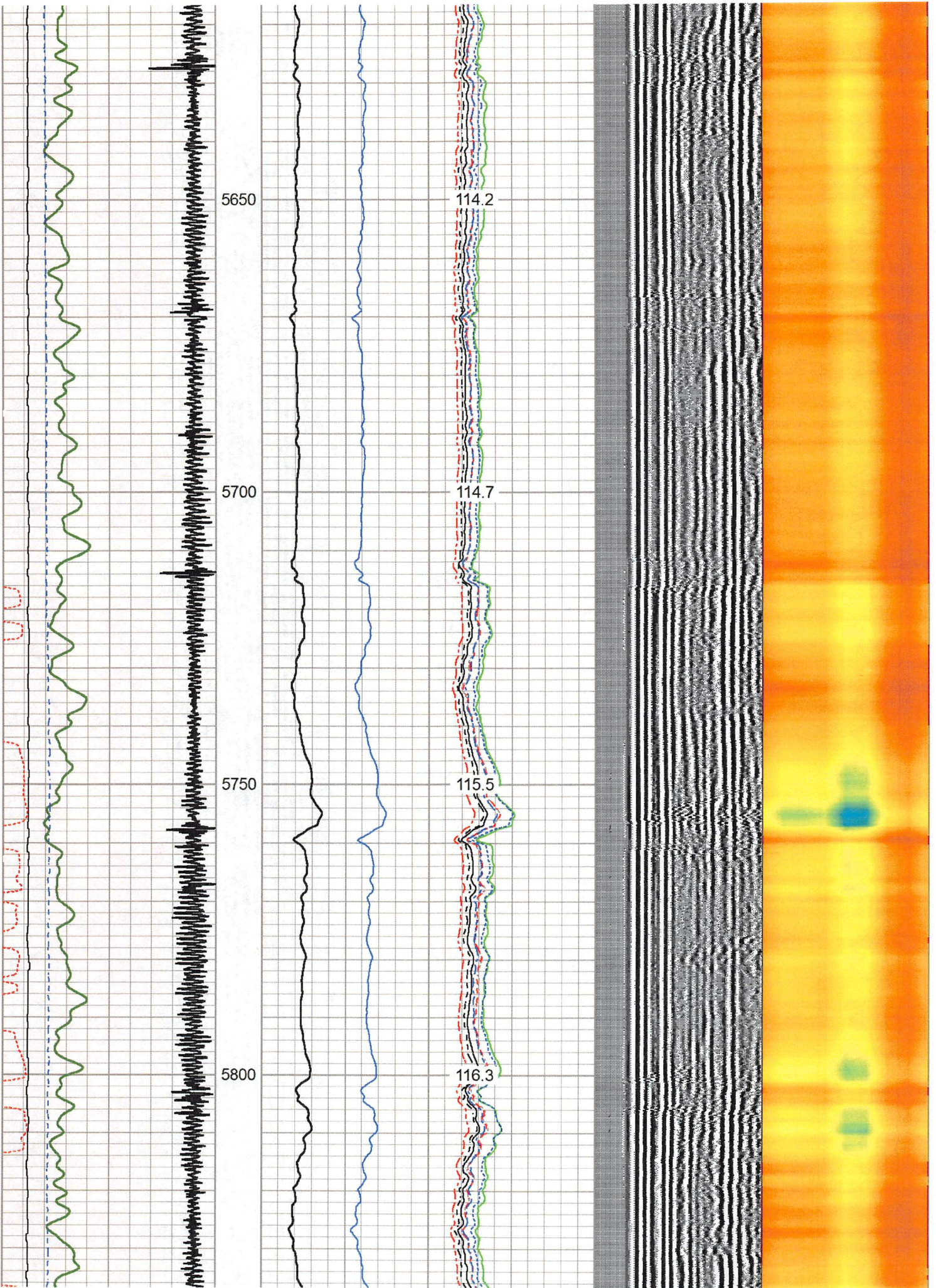


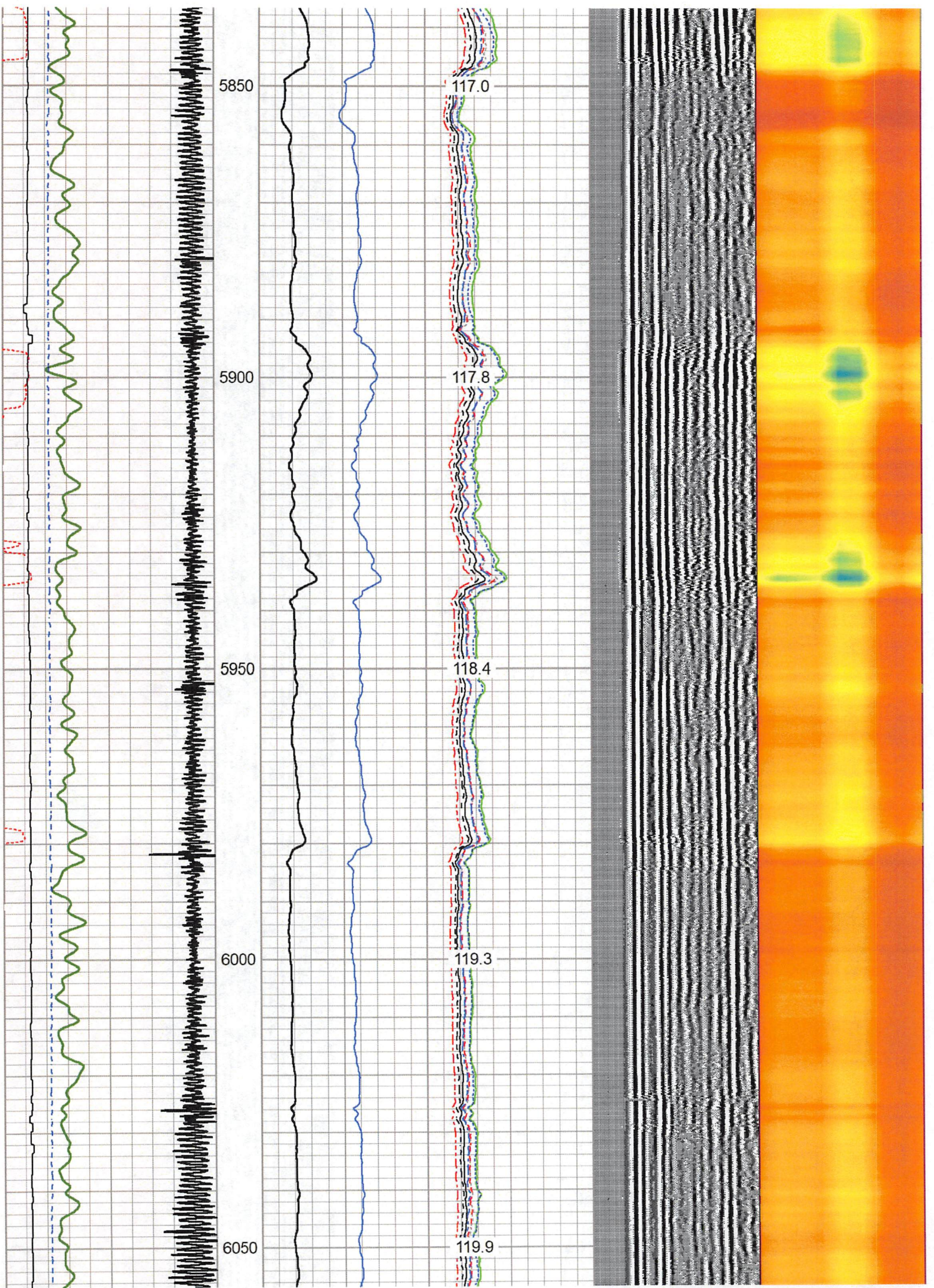




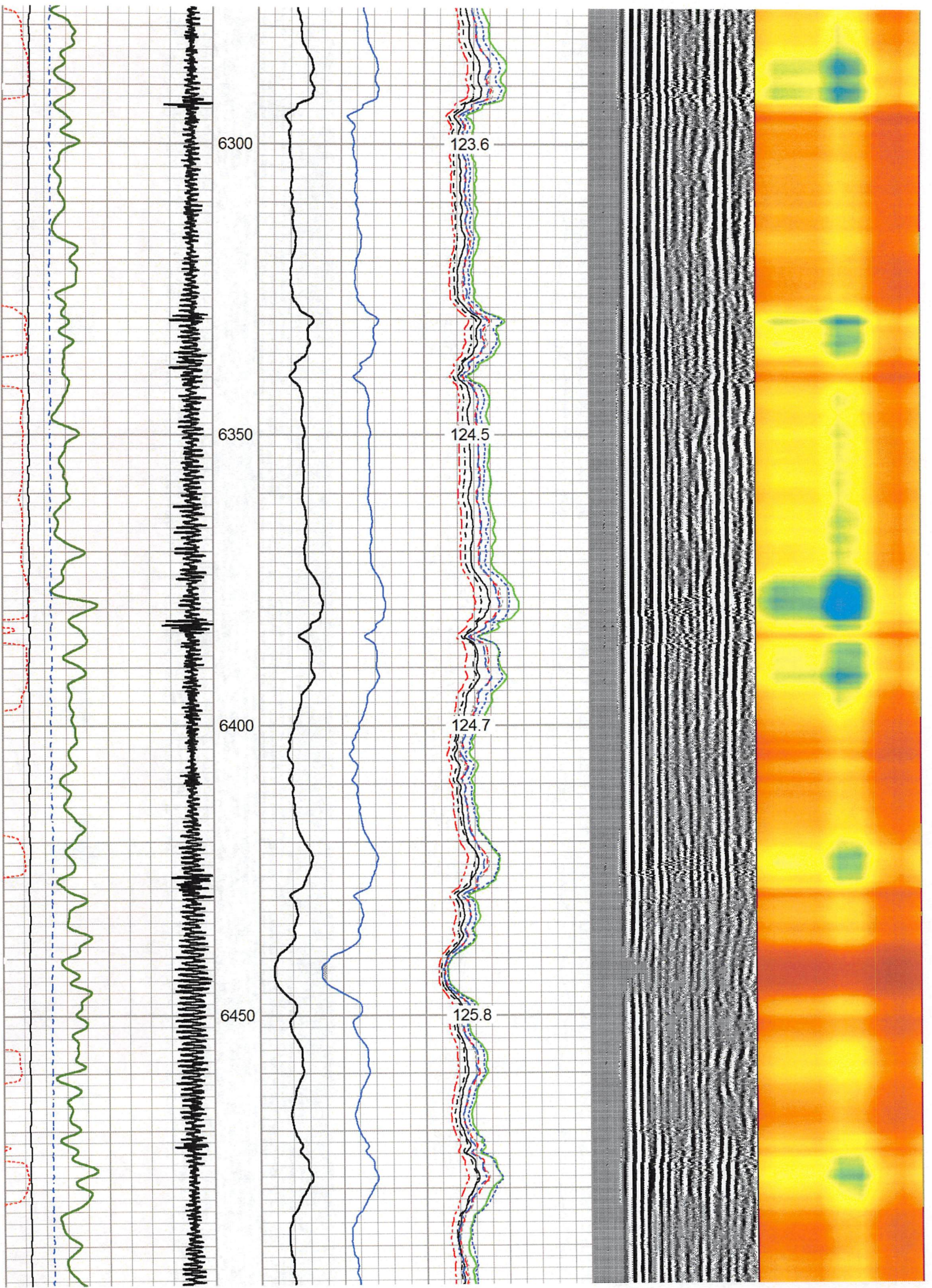
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109.8  
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Environmental Protection



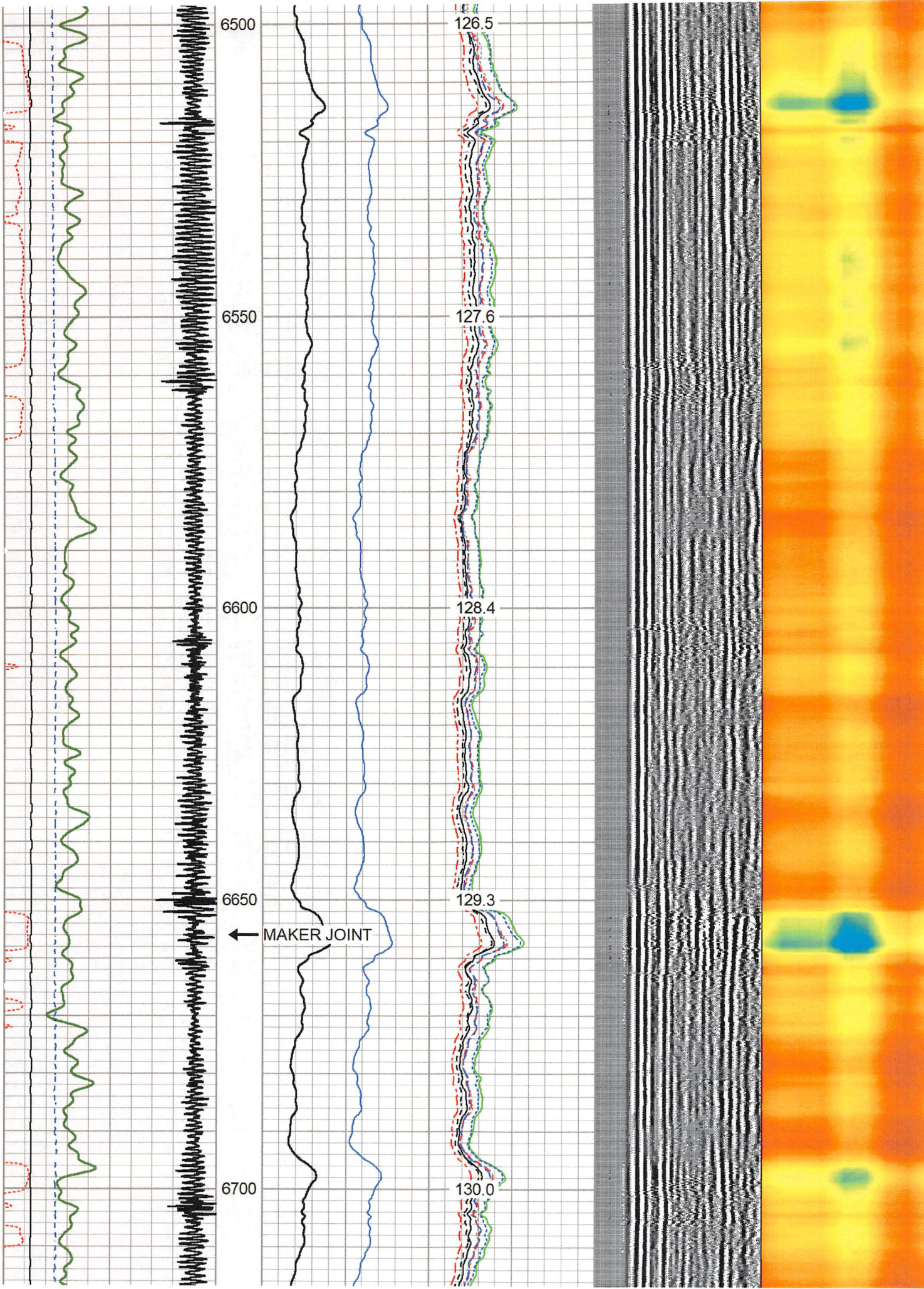


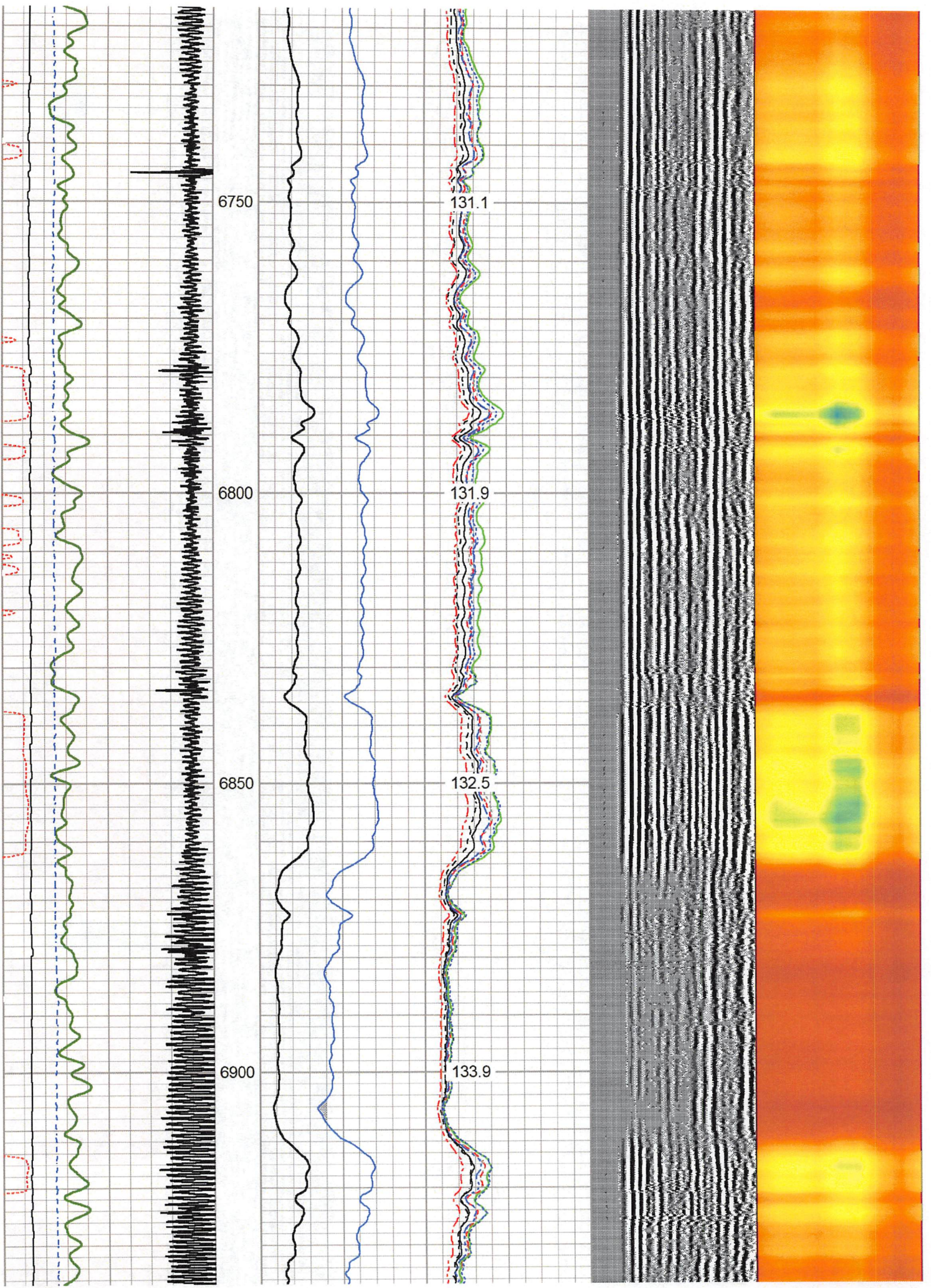












6750

6800

6850

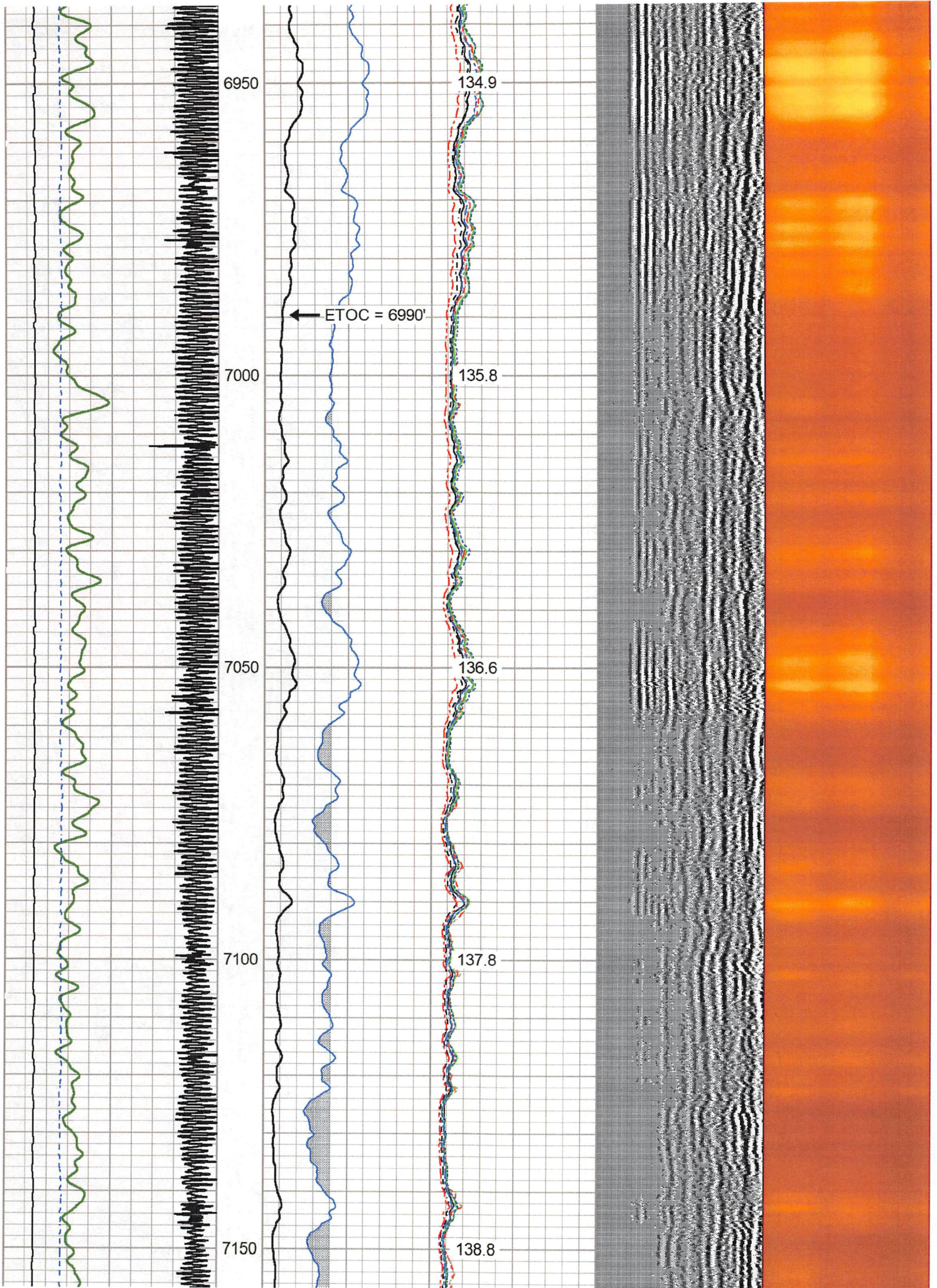
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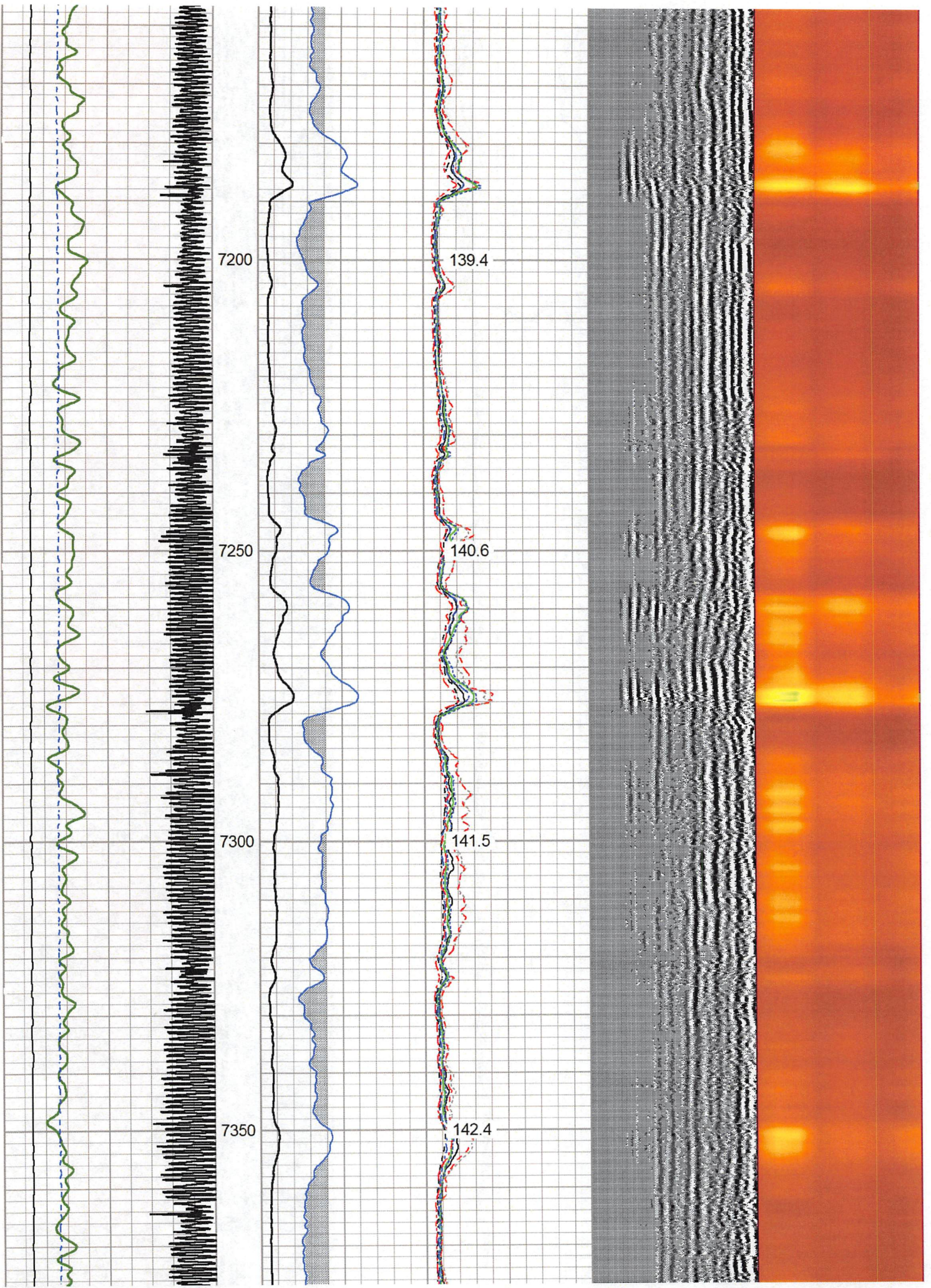
131.1

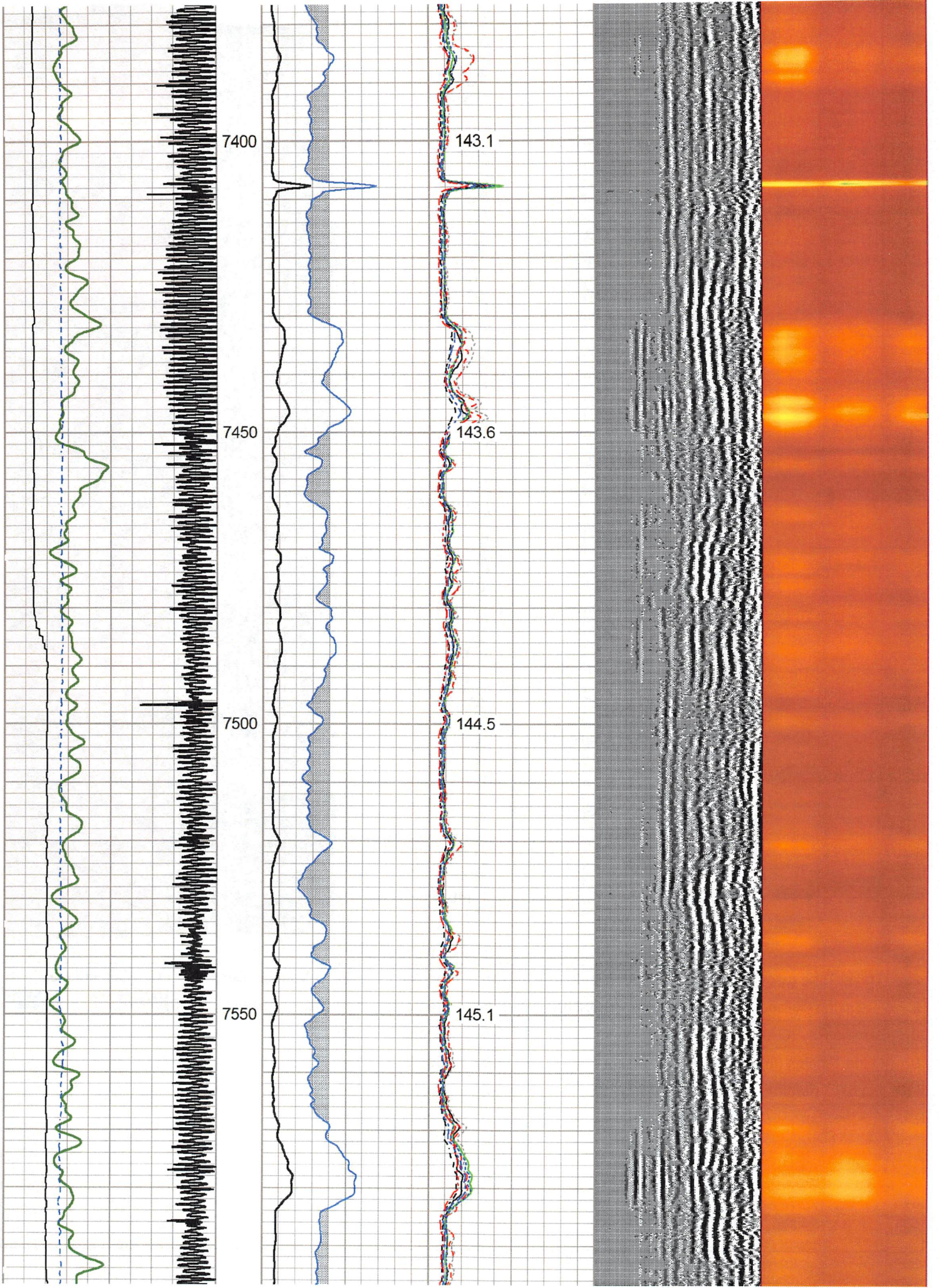
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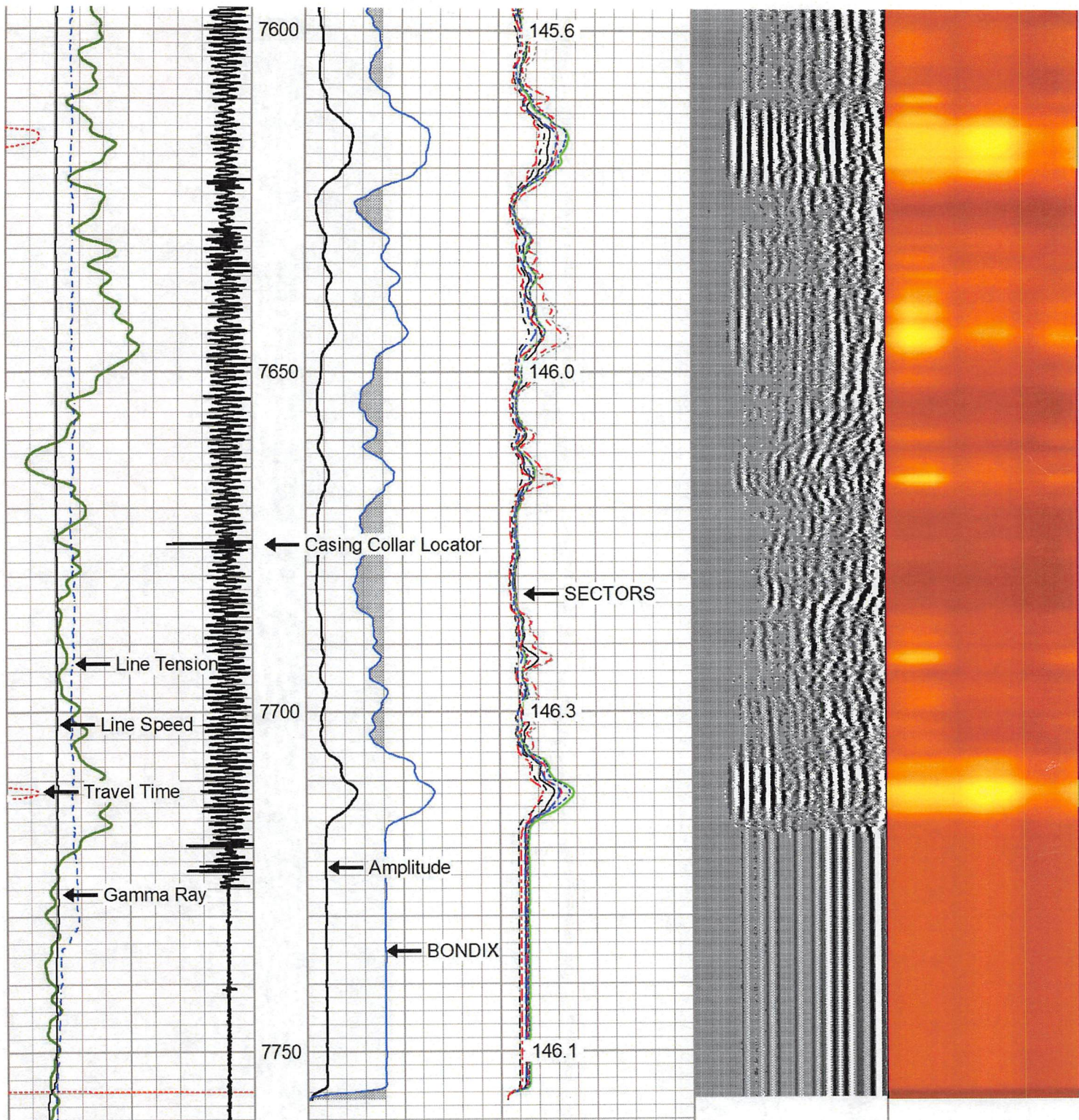
132.5

133.9









295	Travel Time (usec)	195	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1	1	BONDIX	0	-5	Sector 2	150		200		(usec)
0	Gamma Ray (GAPI)	150				-5	Sector 3	150				
0	Line Tension (lb)	5000				-5	Sector 4	150				
-100	LSPD (ft/min)	100				-5	Sector 5	150				
						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				
							TEMP					
							(degF)					



# REPEAT PASS

1500 PSI APPLIED

Database File antero\_dogwood\_orner2h\_rcbl-1-15-22.db  
 Dataset Pathname RCBL/REPEAT  
 Presentation Format rcbl 2  
 Dataset Creation Sat Jan 15 16:14:09 2022  
 Charted by Depth in Feet scaled 1:240

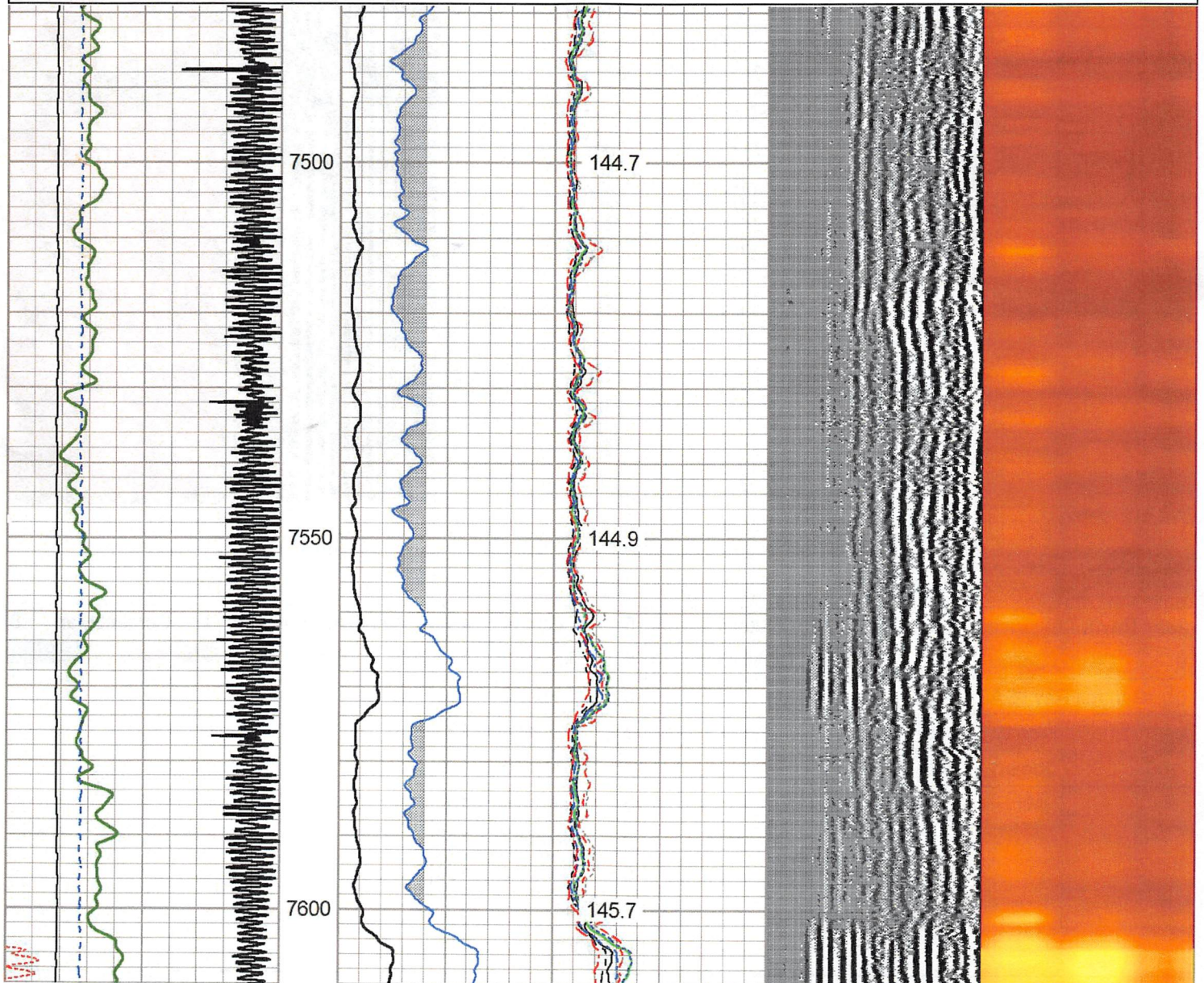
295	Travel Time (usec)	195
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000
-100	LSPD (ft/min)	100

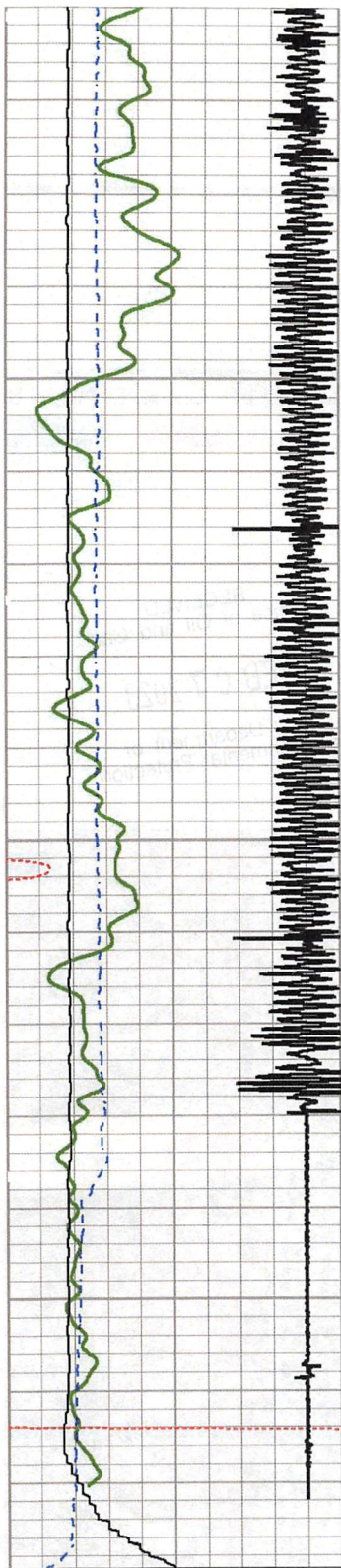
0	Amplitude (mV)	100	-5	Sector 1	150
1	BONDIX	0	-5	Sector 2	150
			-5	Sector 3	150
			-5	Sector 4	150
			-5	Sector 5	150
			-5	Sector 6	150
			-5	Sector 7	150
			-5	Sector 8	150

Variable Density 1 Cement Map 8  
 200 (usec) 1200

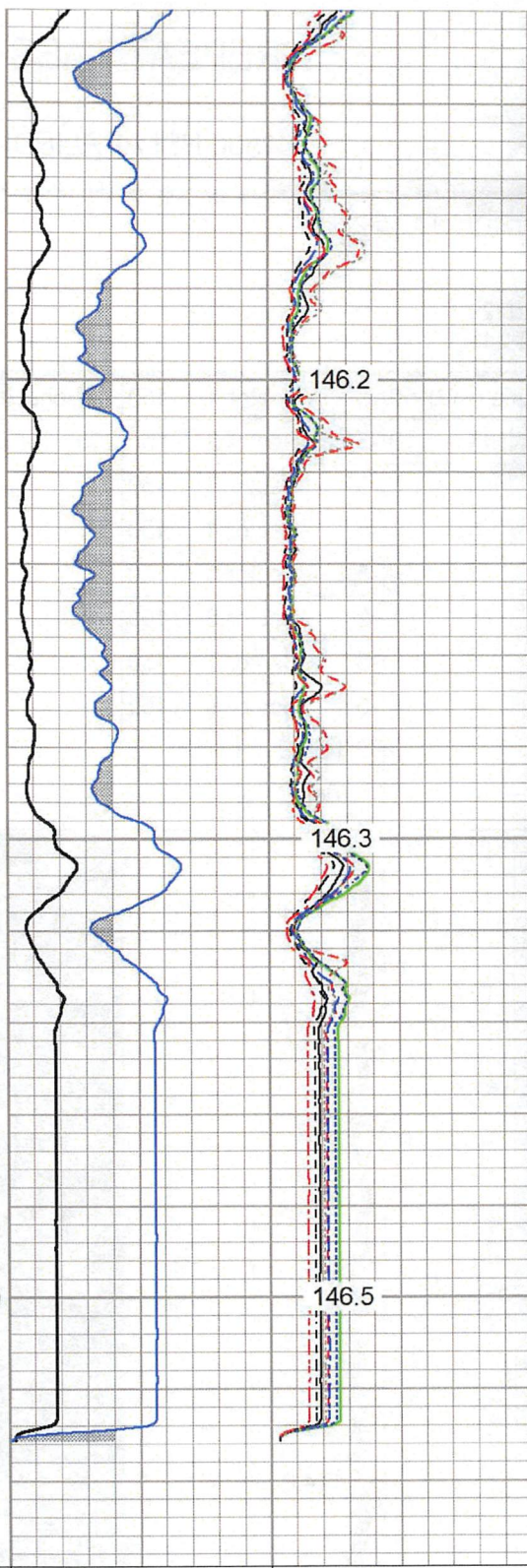
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**FEB 07 2023**  
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 Environmental Protection

TEMP  
(degF)



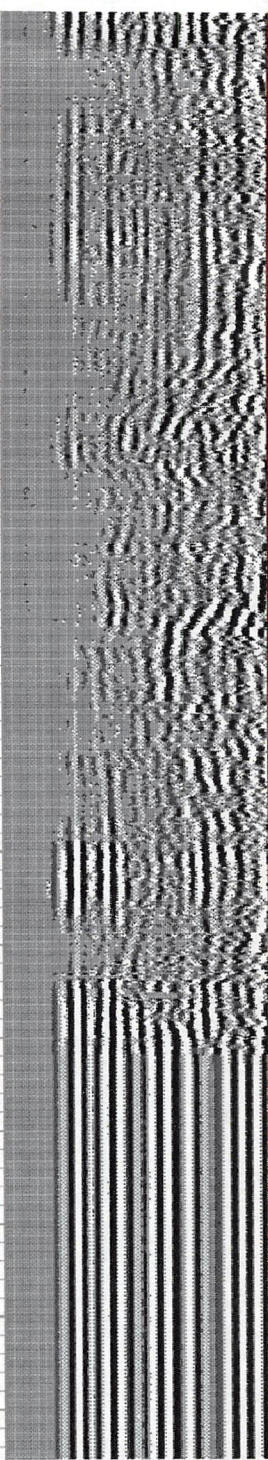


295	Travel Time (uSec)	195
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000
-100	LSPD (ft/min)	100

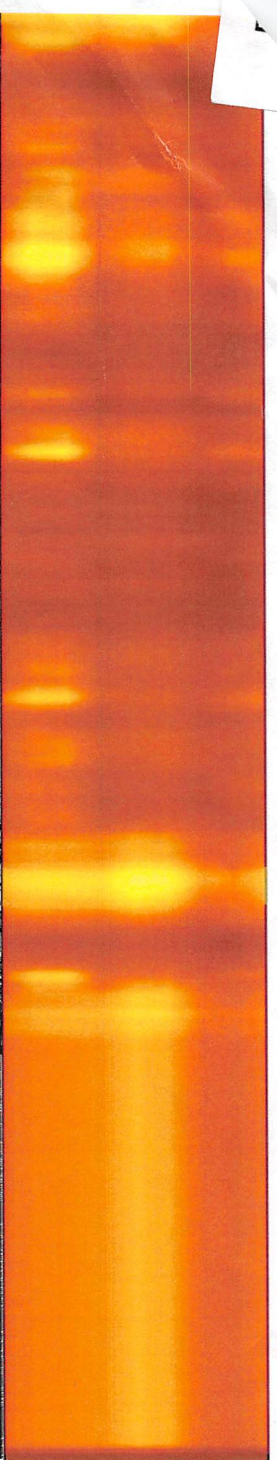


0	Amplitude (mV)	100	-5	Sector 1	150
1	BONDIX	0	-5	Sector 2	150
			-5	Sector 3	150
			-5	Sector 4	150
			-5	Sector 5	150
			-5	Sector 6	150
			-5	Sector 7	150
			-5	Sector 8	150

TEMP  
(degF)



Variable Density  
200 (uSec) 1200



1 Cement Map 8



# Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero\_dogwood\_orner2h\_rcbl-1-15-22.db  
 Dataset field/well/RCBL/MAIN/\_vars\_

## Top - Bottom

BHTEMP_Src TEMP	BOREID in 7.875	BOTTEMP degF 100	CASEOD in 5.5	CASETHCK in 0	CASEWGHT lb/ft 23	MAXAMPL mV 71.9	MINAMPL mV 2.2
MINATTN db/ft 0.8	PERFS No	PPT usec 260	SRFTEMP degF 0	TDEPTH ft 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\_dogwood\_orner2h\_rcbl-1-15-22.db  
 Dataset Pathname RCBL/MAIN  
 Dataset Creation Sat Jan 15 16:22:35 2022

### Gamma Ray Calibration Report

Serial Number: FW1211-86  
 Tool Model: Probe  
 Performed: Sun Aug 29 01:22:07 2021

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: FW1312-32  
 Tool Model: Probe275T

Calibration Casing Diameter: 5.500 in  
 Calibration Depth: 366.267 ft

Master Calibration, performed Sat Jan 15 15:39:37 2022:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.001	1.336	2.200	71.921	52.156	2.258
CAL	-0.001	0.861				
5'	-0.001	1.627	2.200	71.921	42.825	2.251
SUM						
S1	-0.001	1.590	0.000	100.000	62.854	0.072
S2	-0.001	1.244	0.000	100.000	80.316	0.094
S3	-0.001	1.178	0.000	100.000	84.775	0.095
S4	-0.001	1.181	0.000	100.000	84.620	0.096
S5	-0.001	1.178	0.000	100.000	84.620	0.096


S5	-0.001	1.176	0.000	100.000	84.939	0.097
S6	-0.001	1.330	0.000	100.000	75.114	0.089
S7	-0.001	1.654	0.000	100.000	60.409	0.078
S8	-0.001	1.820	0.000	100.000	54.907	0.060

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.001	0.861	1.000	0.000

Air Zero Calibration, performed Sat Jan 15 12:04:54 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	
S6	0.000		0.000		0.000	
S7	0.000		0.000		0.000	
S8	0.000		0.000		0.000	

	Company	ANTERO
	Well	ORNER UNIT 2H
	Field	MARCELLUS
	County	WETZEL
	State	WV