



**RADIAL CEMENT BOND  
GAMMA RAY  
VDL, CCL**

Company ANTERO RESOURCES CORPORATION  
Well WACO UNIT 2H  
Field MARCELLUS  
County RITCHIE  
State WV

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Field MARCELLUS  
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Location: API #: 47085103560000 Other Services

Permanent Datum	SEC	TWP	RGE	Elevation
Log Measured From				K.B.
Drilling Measured From				D.F.
				G.L.

Date	1-12-19			
Run Number	1			
Depth Driller	17577'			
Depth Logger	6868'			
Bottom Logged Interval	6868'			
Top Log Interval	SURFACE			
Open Hole Size	5.5" CASING			
Type Fluid	WATER			
Density / Viscosity	N/A			
Max. Recorded Temp.	138 DEG			
Estimated Cement Top	230'			
Time Well Ready	N/A			
Time Logger on Bottom	16:40			
Equipment Number	640		CREW	
Location	BRIDGEPORT WW		K NICHOLAS	
Recorded By	PAT DAVIDSON		J TATE	
Witnessed By	JOHN MAXWELL		J AMAN	

Borehole Record      Casing Record

Run Number	Bit	From	To	Size	Weight	From	To
				13.375		SURFACE	561'
				9.625		SURFACE	2578'
				5.5	23#	SURFACE	17577'

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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**

CBL IS CORRELATED TO PRODUCTION CASING TALLEY MARKER JOINT  
DEPTH SHIFTED 10' TO KB AFTER CORRELATION  
MARKER JOINT RECORDED AT 5664' TO 5675'  
BOTTOM HOLE TEMP 138 DEG  
LOG RAN UNDER PRESSURE @1500PSI



**MAIN PASS 1500 PSI**

Database File: f:\2019 antero\antero bison pad\antero\_waco2h.db  
 Dataset Pathname: pass7.1  
 Presentation Format: antero  
 Dataset Creation: Sat Jan 12 18:48:11 2019 by Calc 7.0 B1  
 Charted by: Depth in Feet scaled 1:240

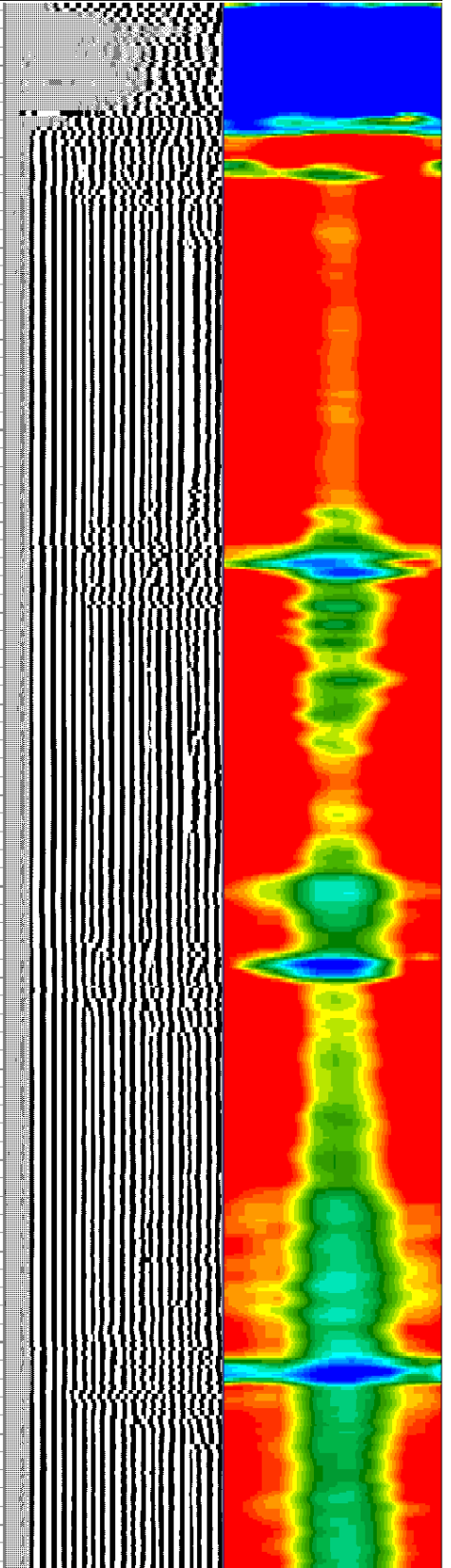
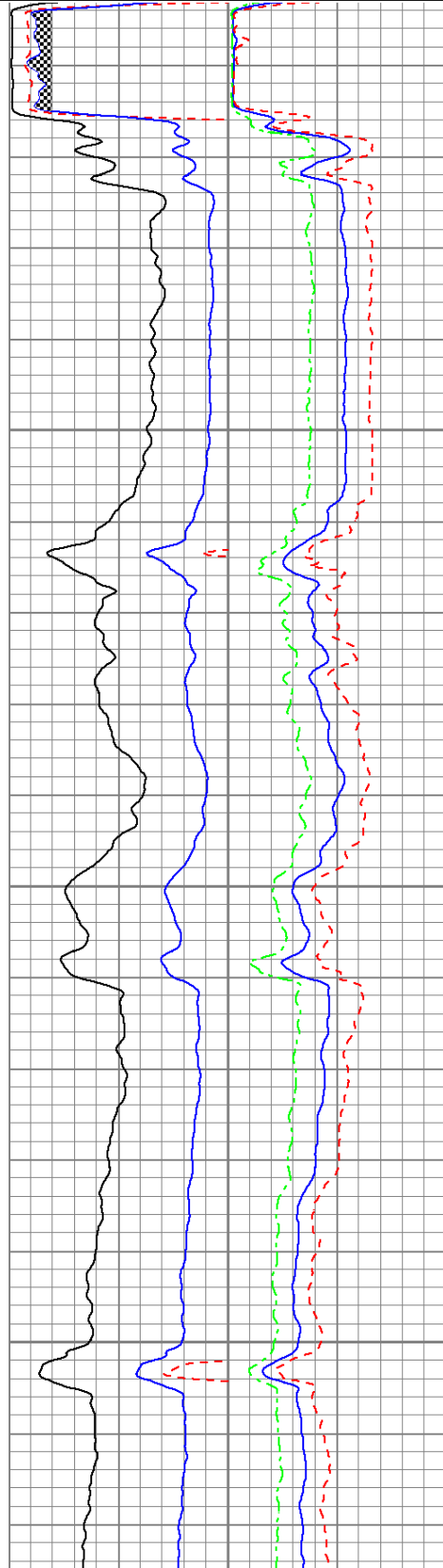
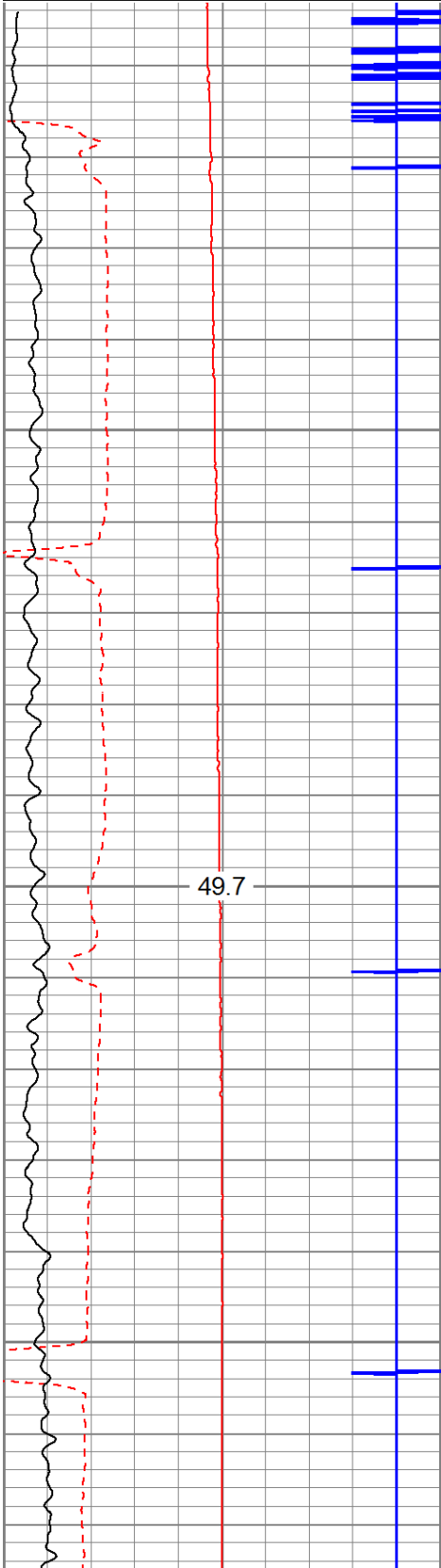
225	Travel Time (usec)	125
9	Casing Collars	-1
0	Gamma Ray	180
0	TEMP (degF)	100

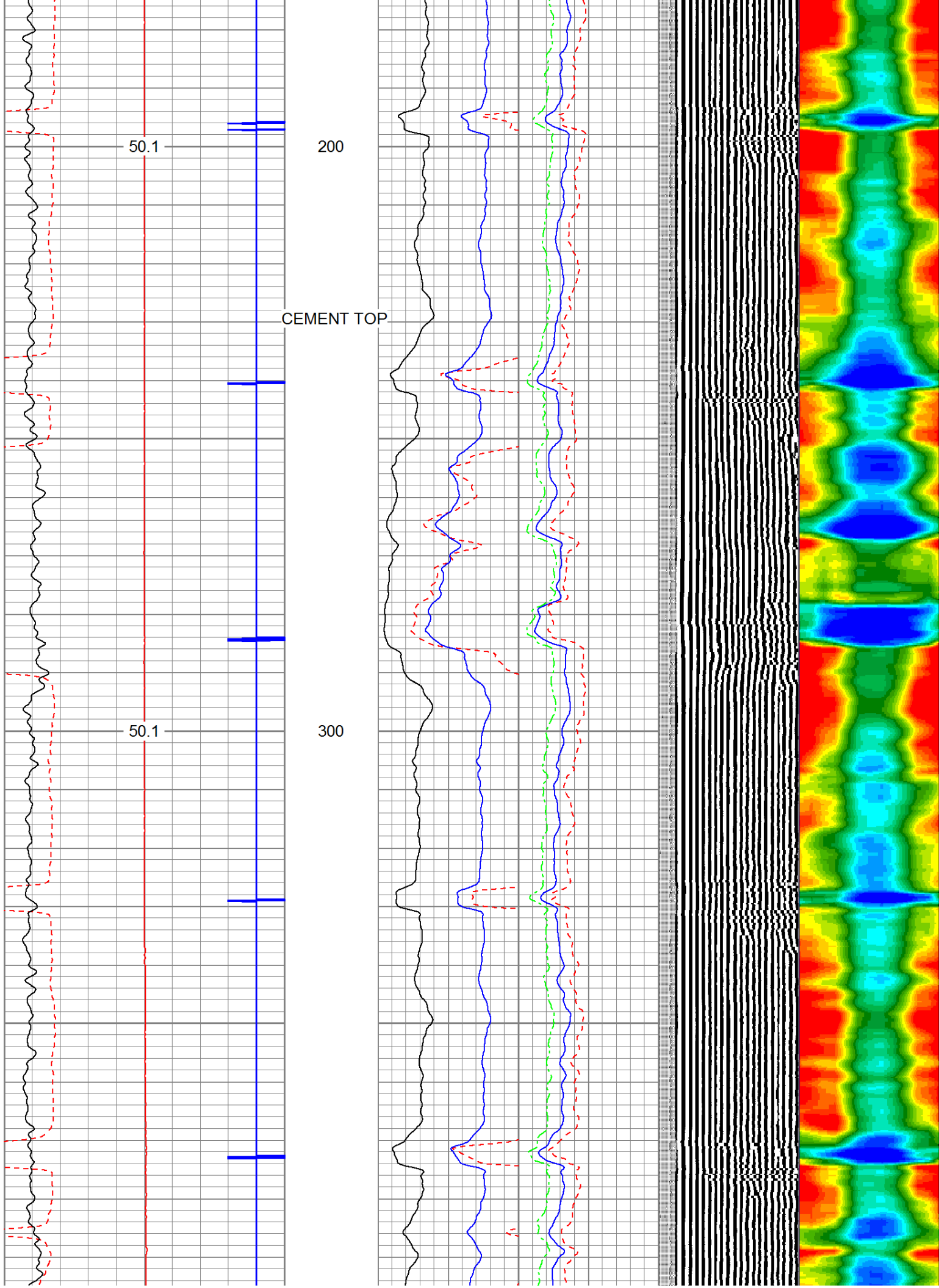
Amplitude	0	Amp Avg	150
(mV)	100	Amp Max	150
AmpX5 (mV)	20	Amp Min	150
BONDIX	0		

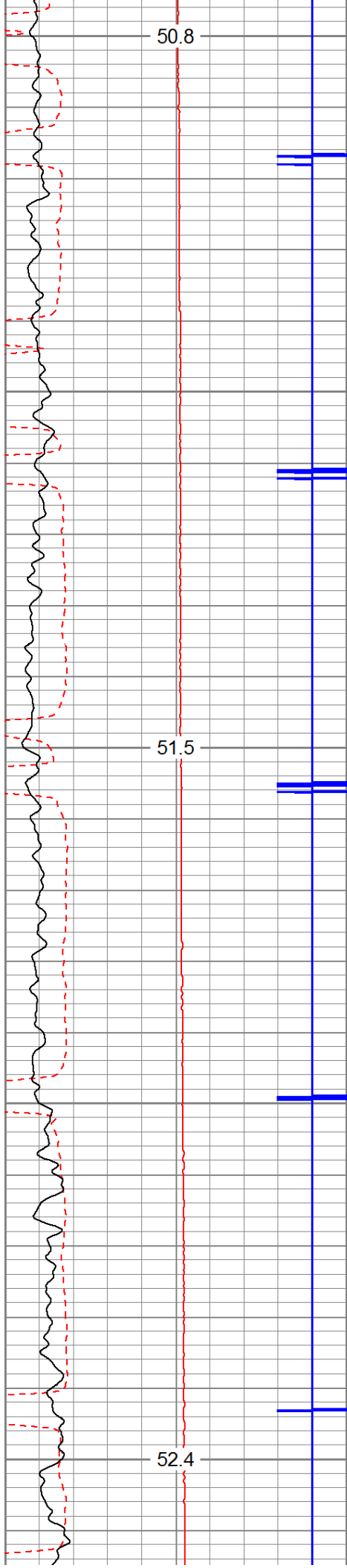
200 VDL 1200 1 Sector Map 12  
 20 60



TEMP (degF)



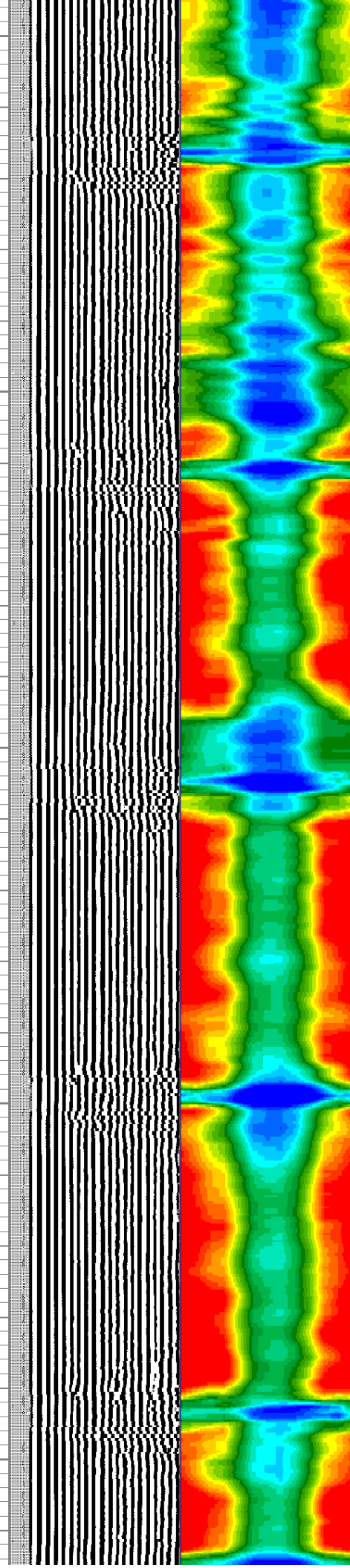
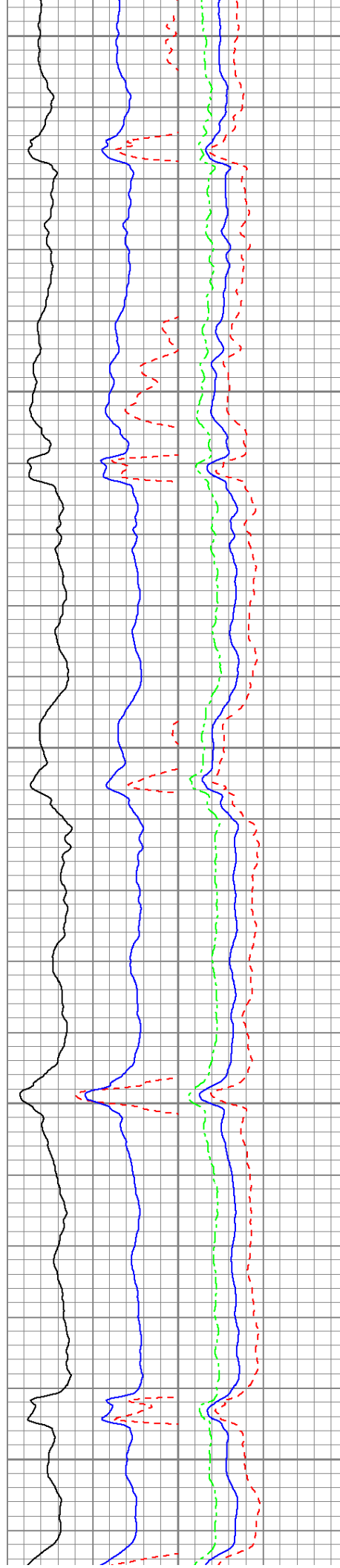


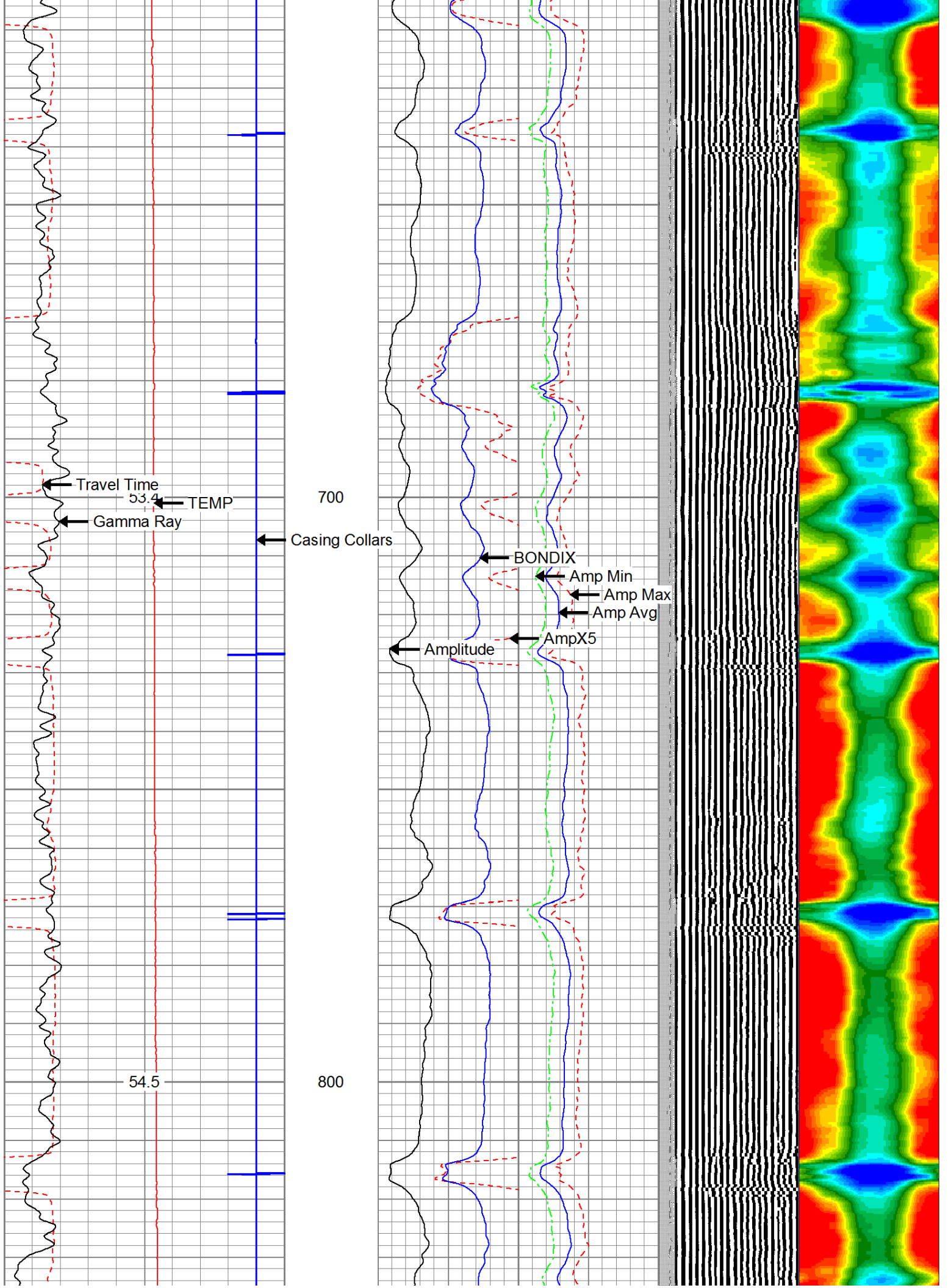


400

500

600





Travel Time

53.4

TEMP

Gamma Ray

700

Casing Collars

BONDIX

Amp Min

Amp Max

Amp Avg

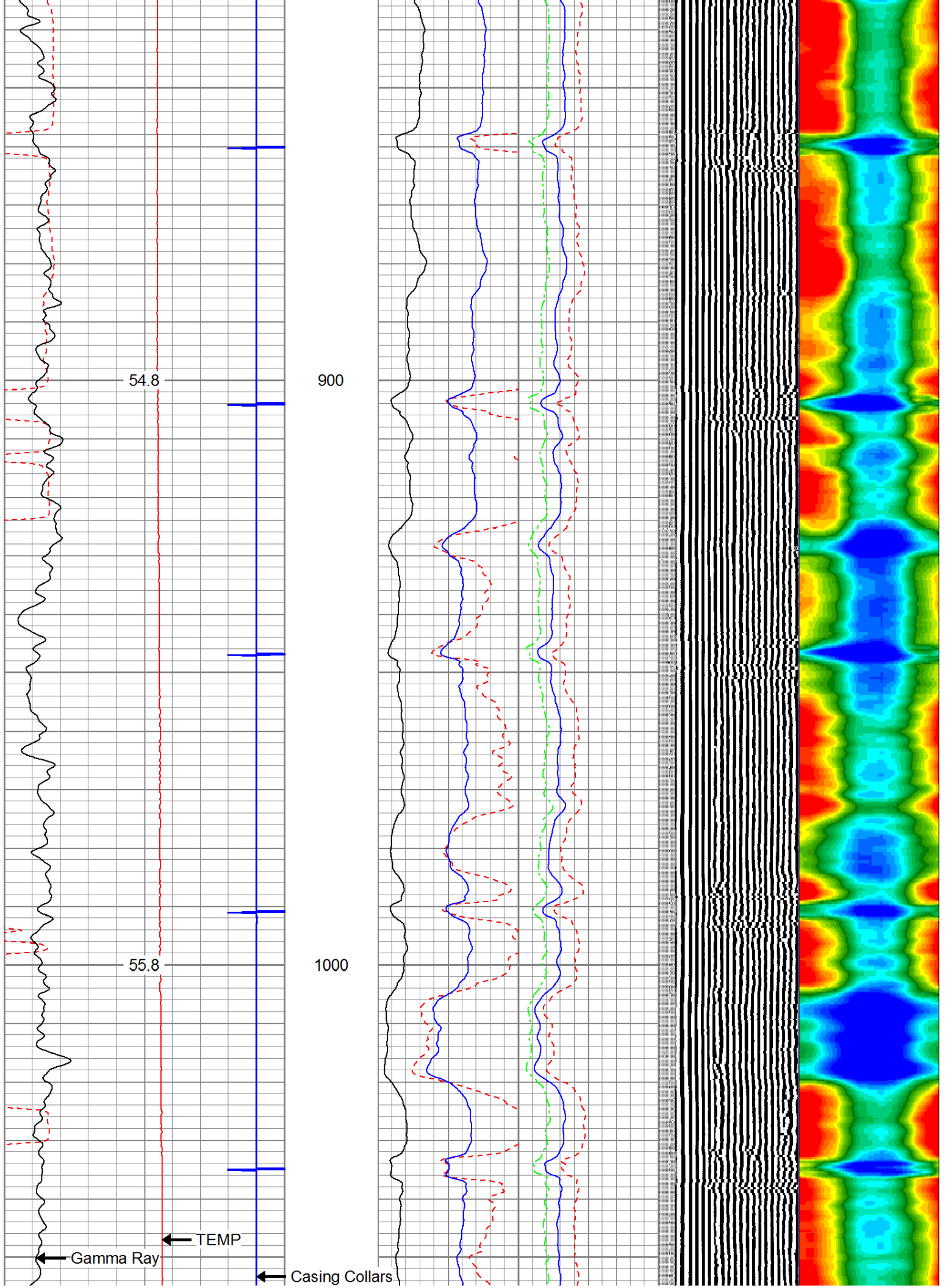
Amplitude

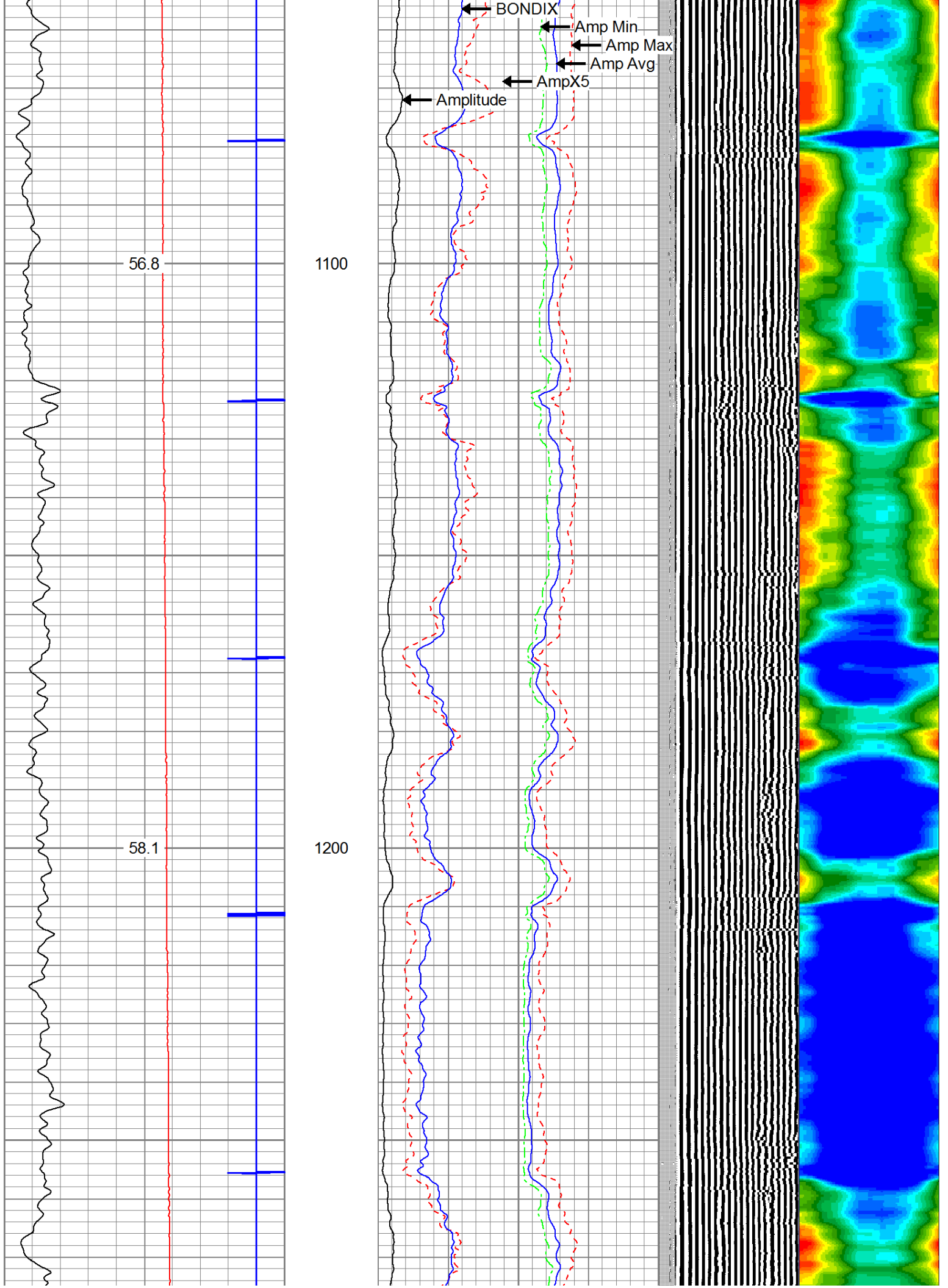
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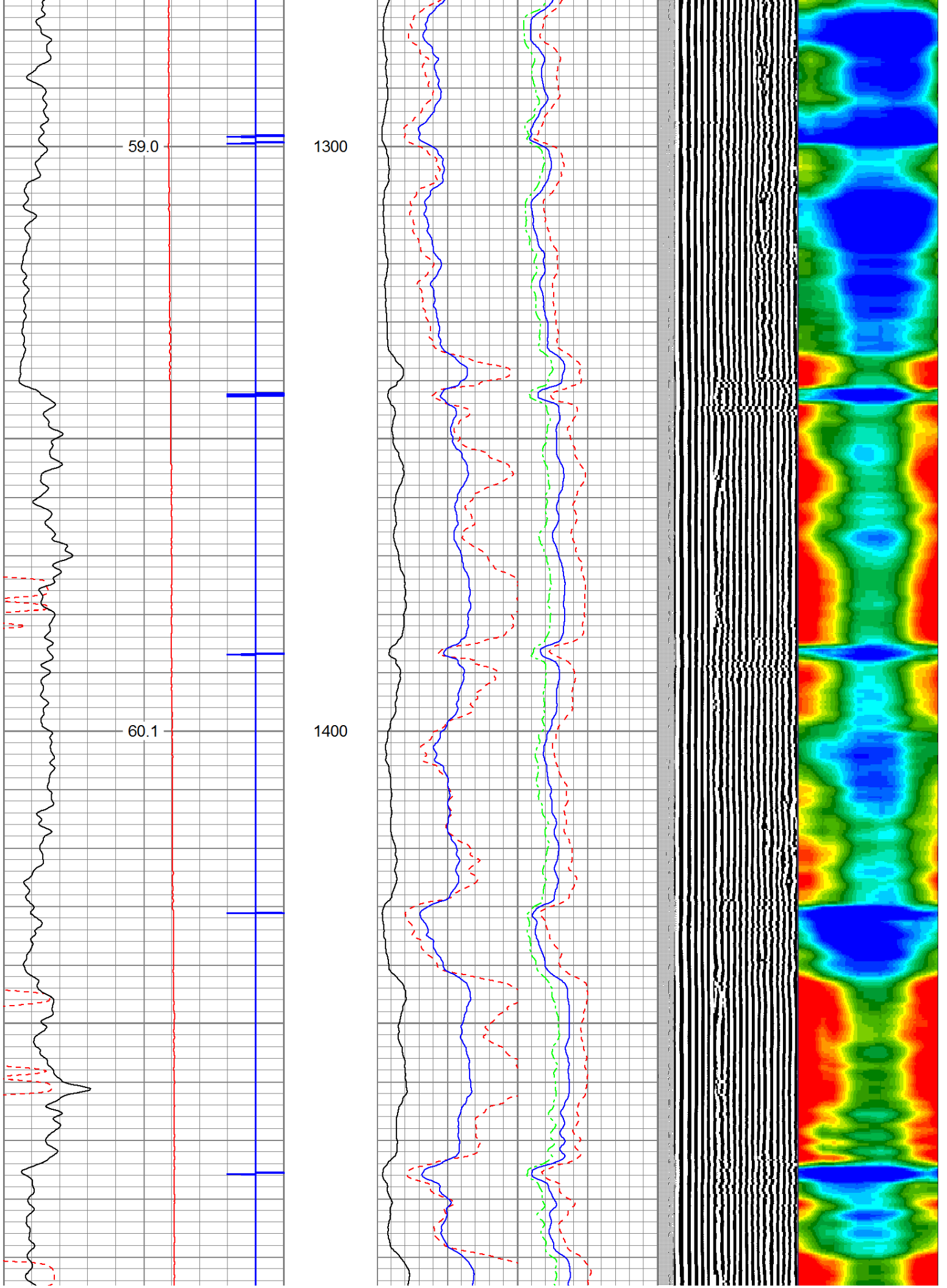
54.5

800

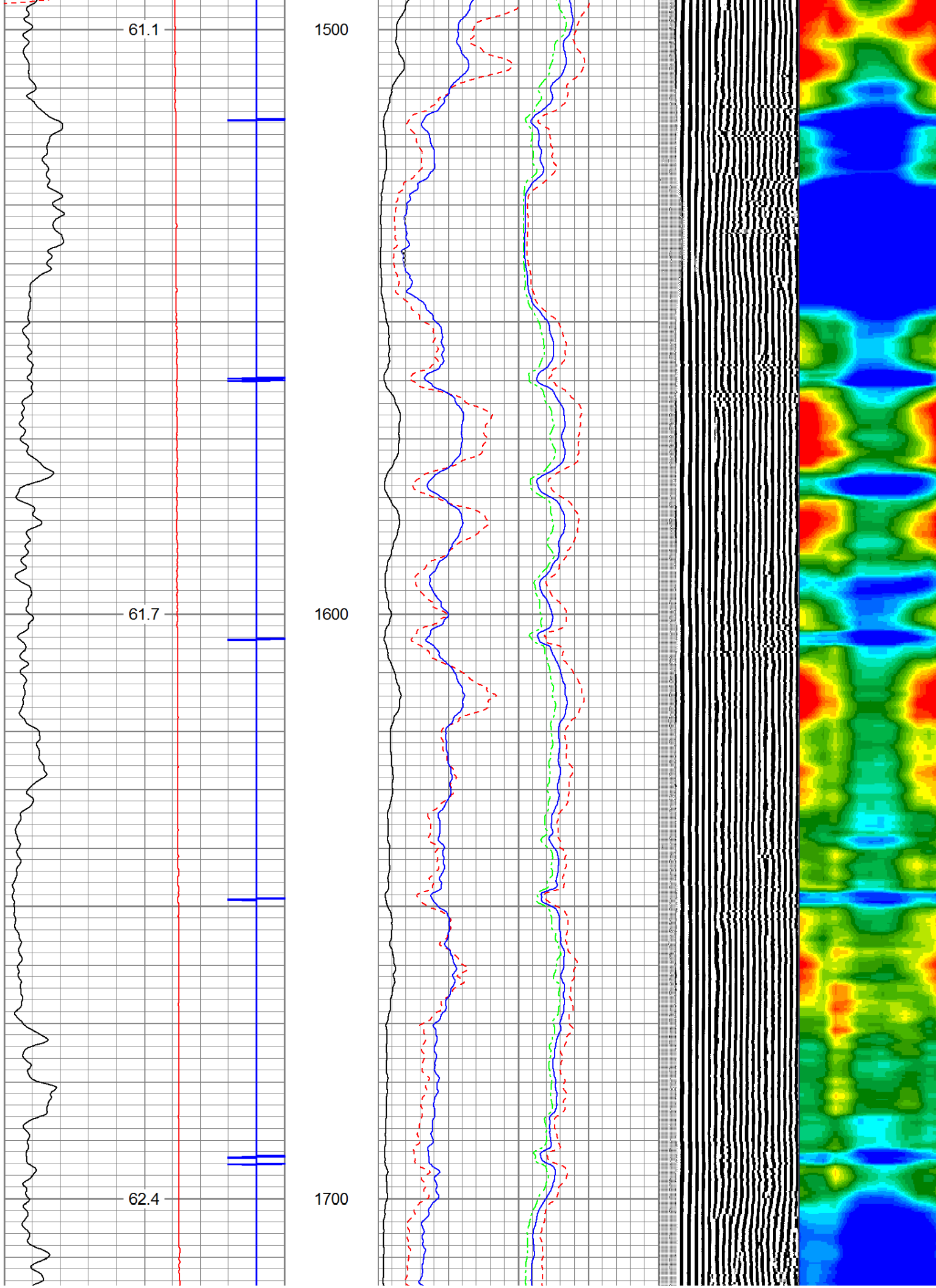


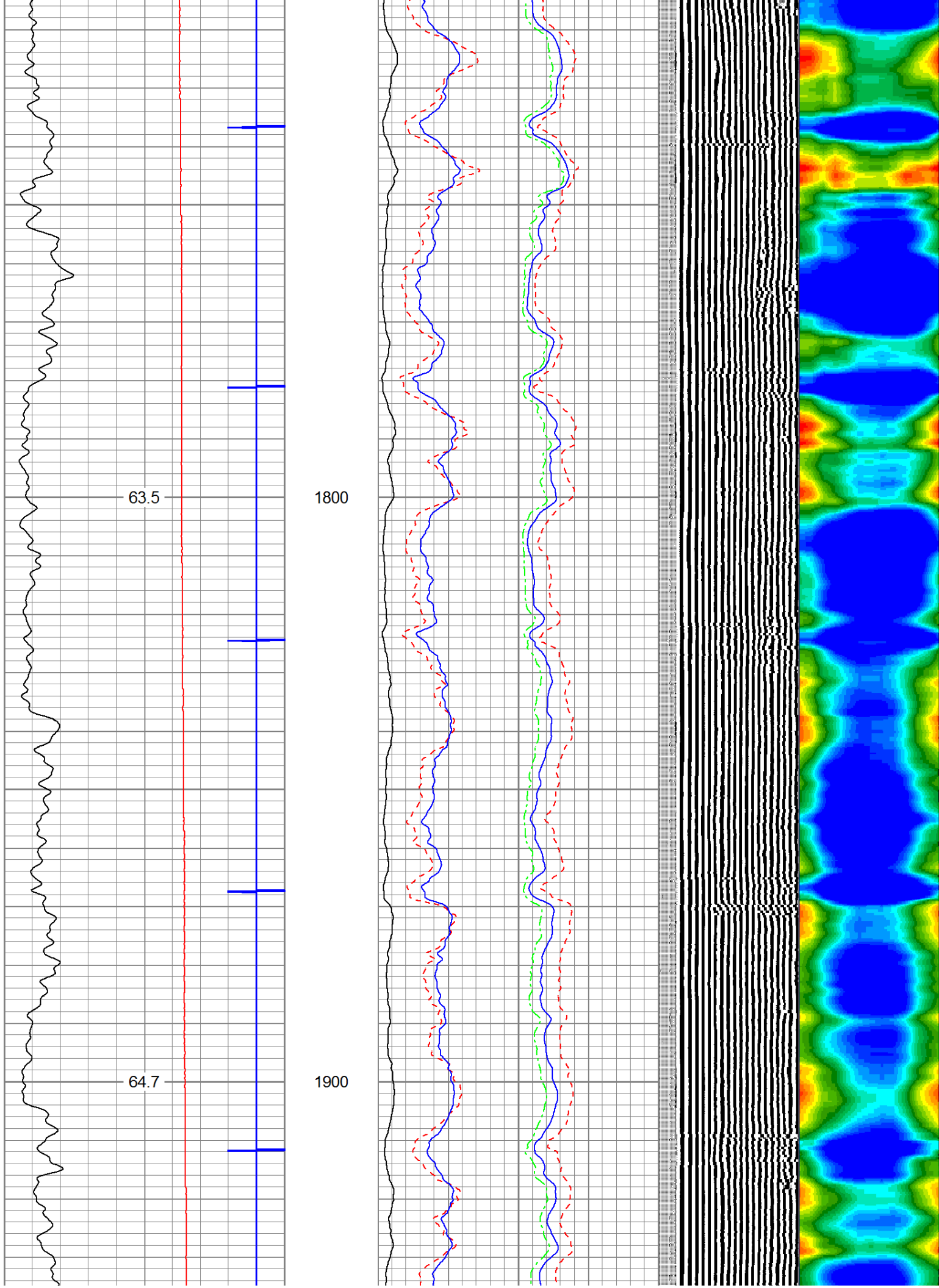


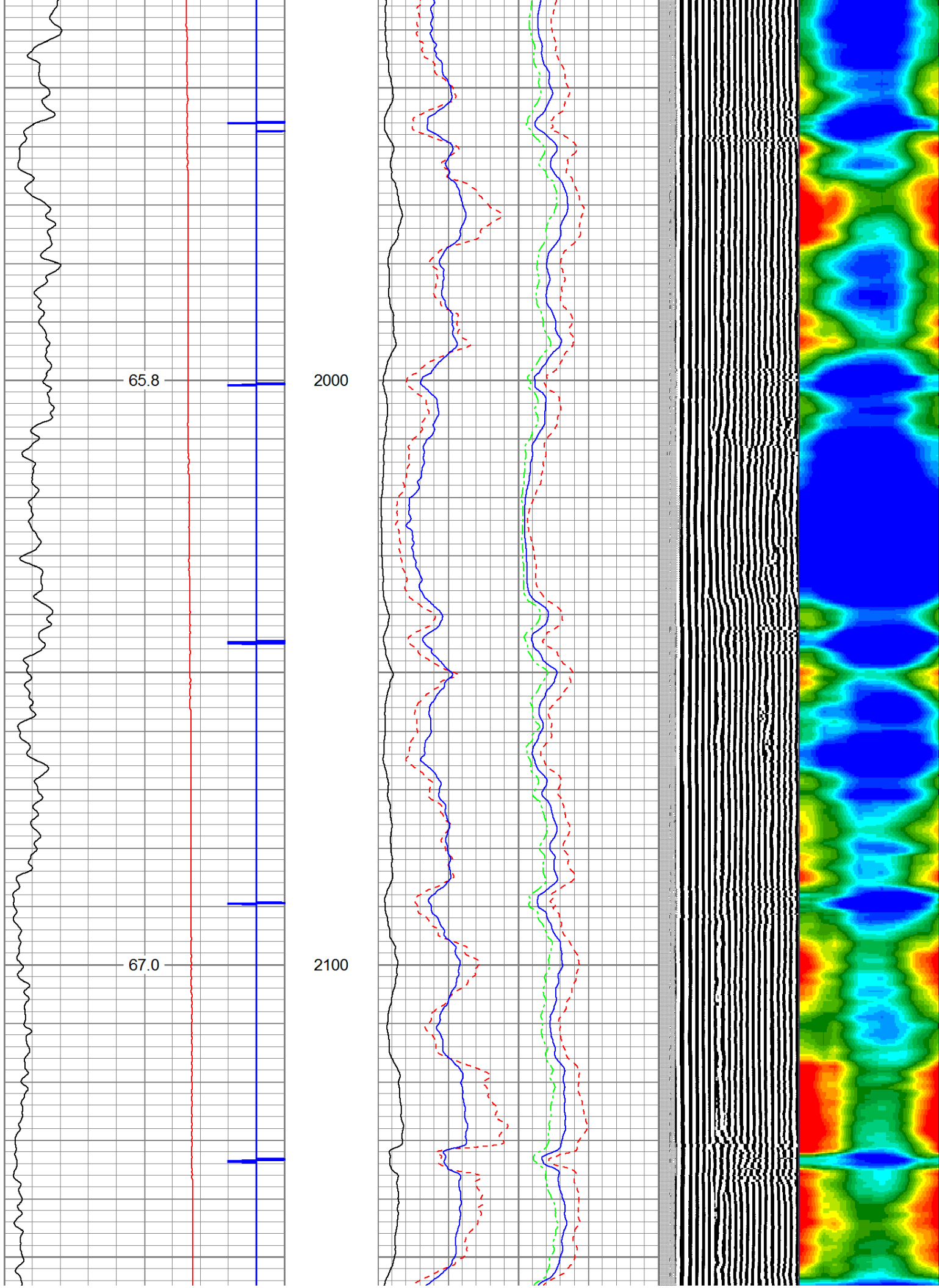


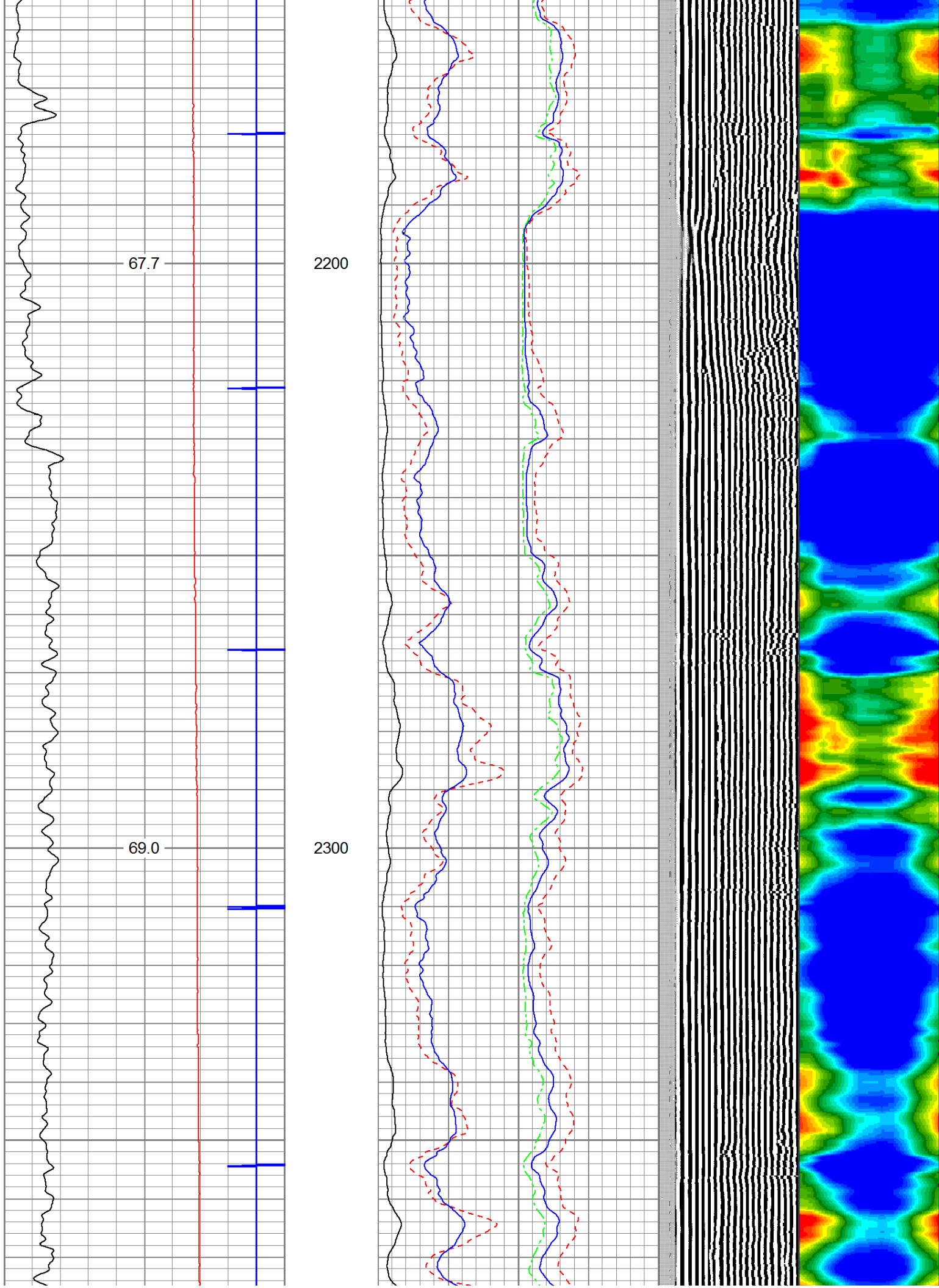


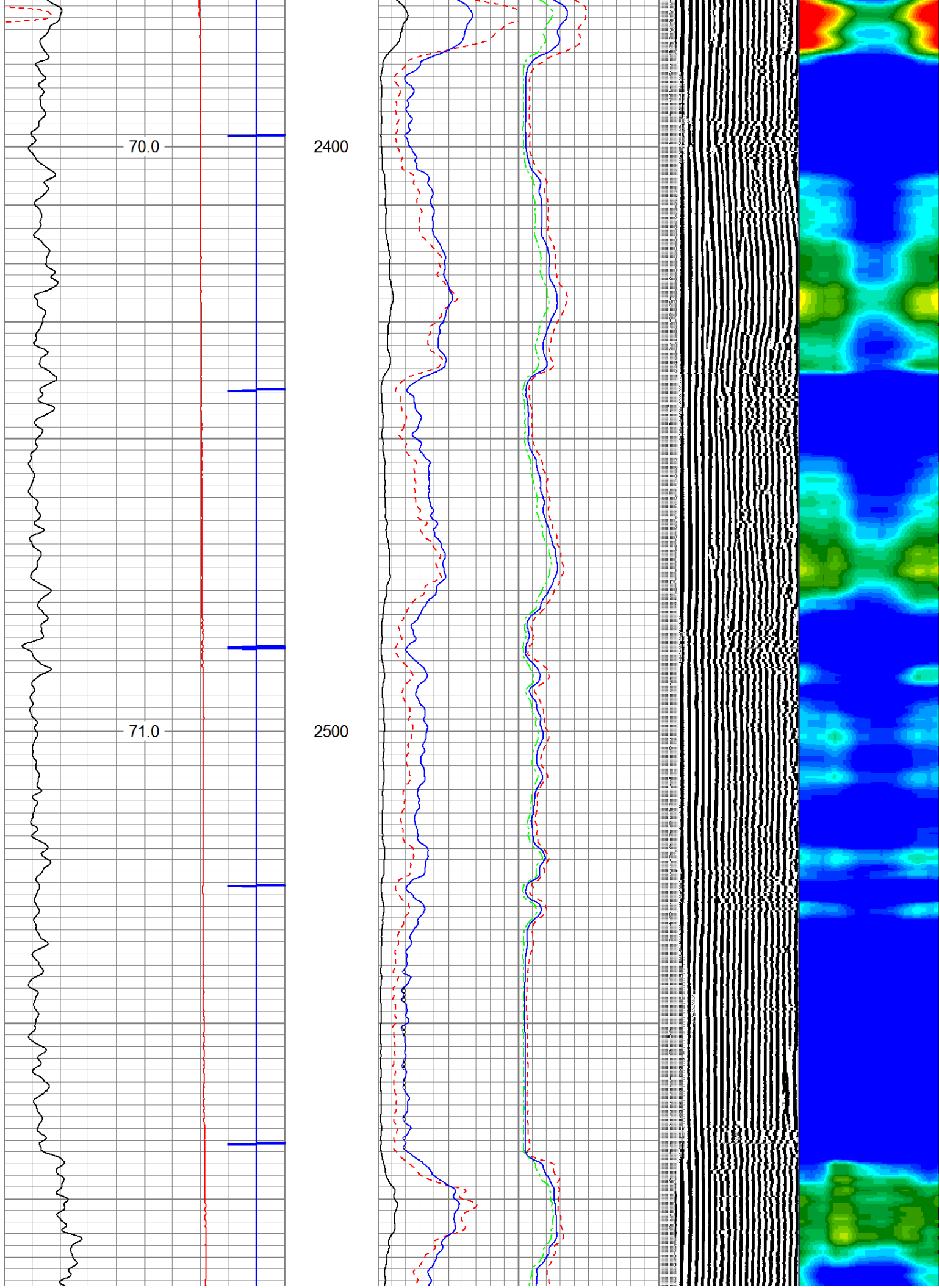




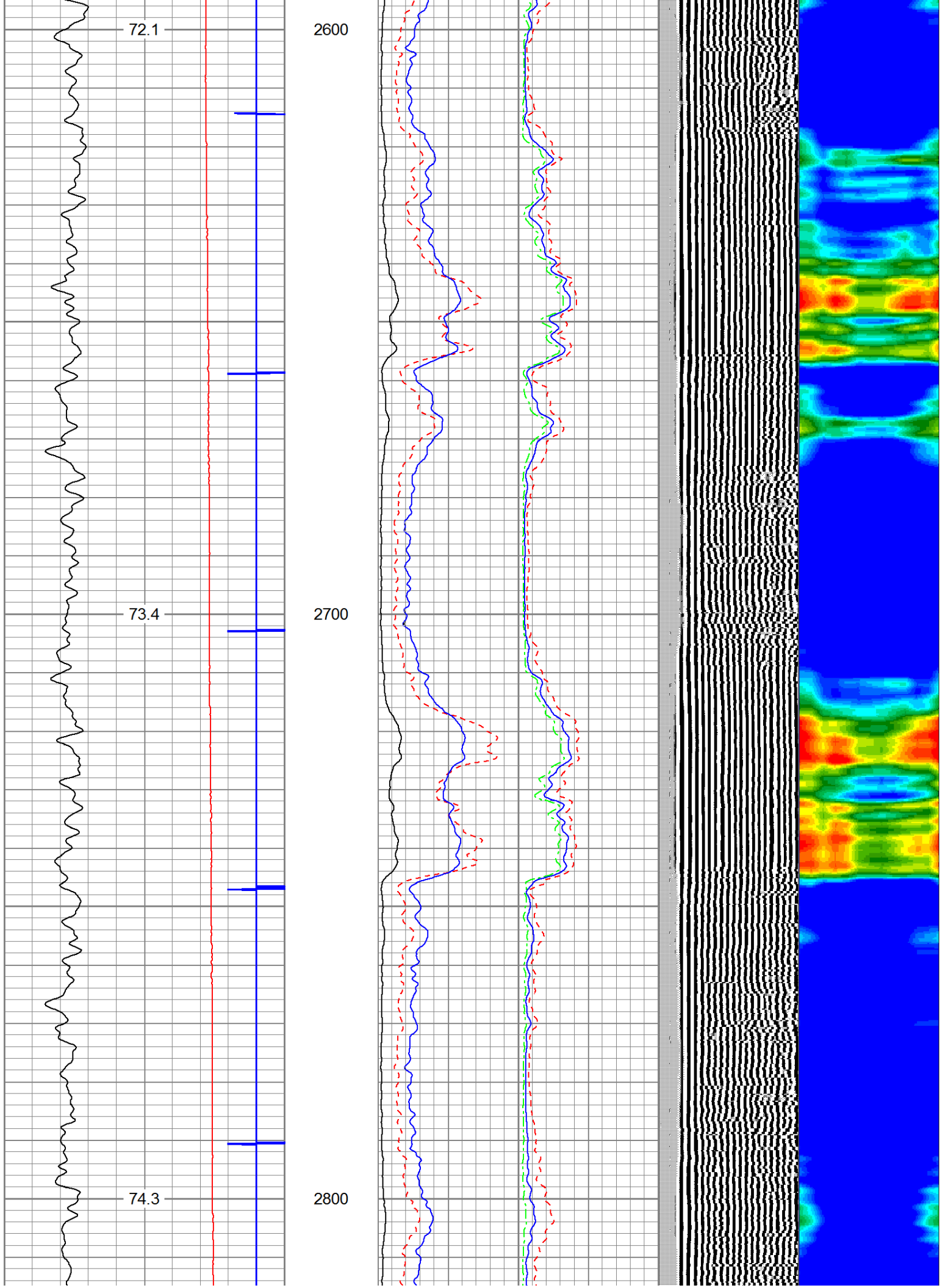


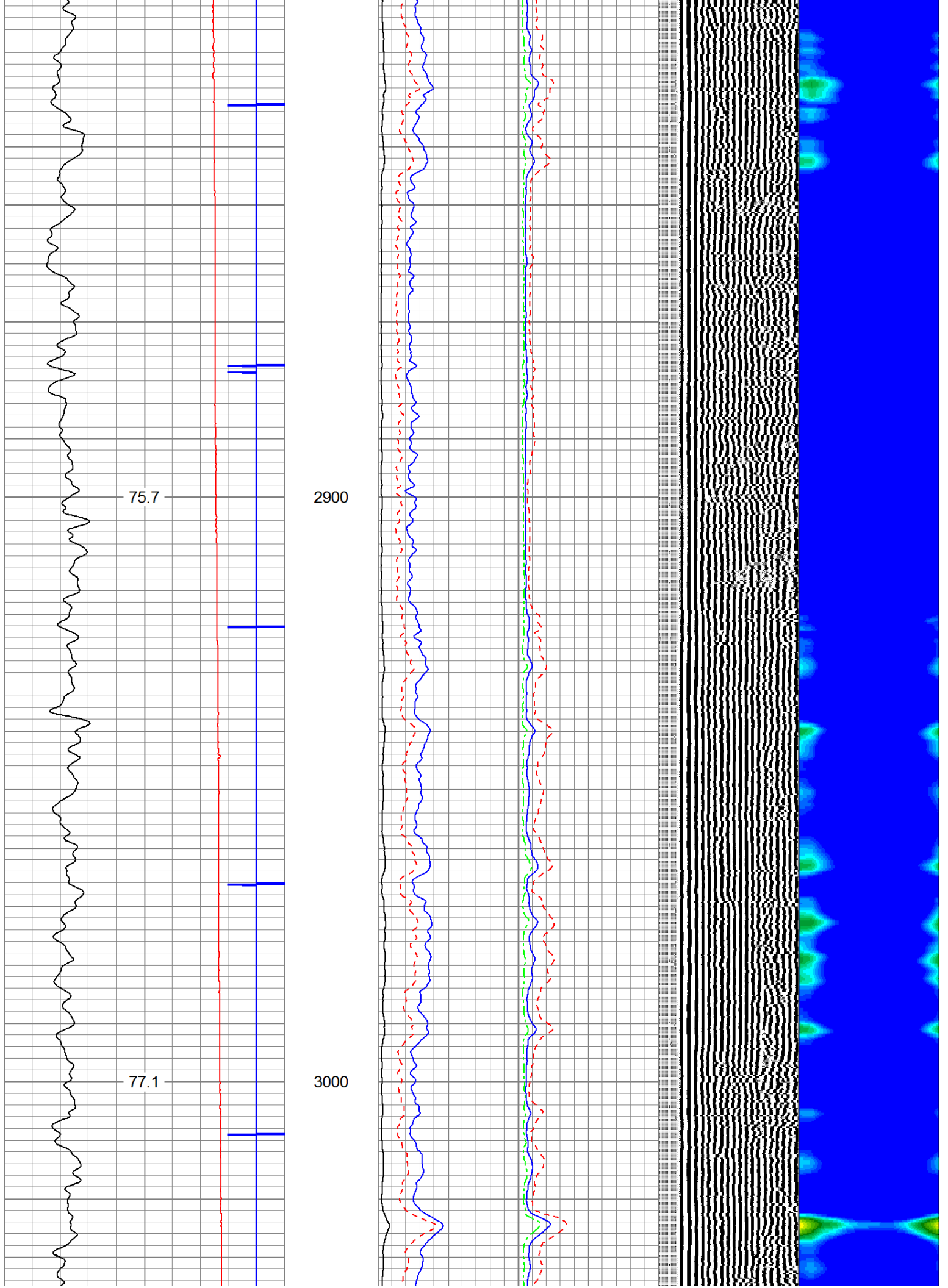


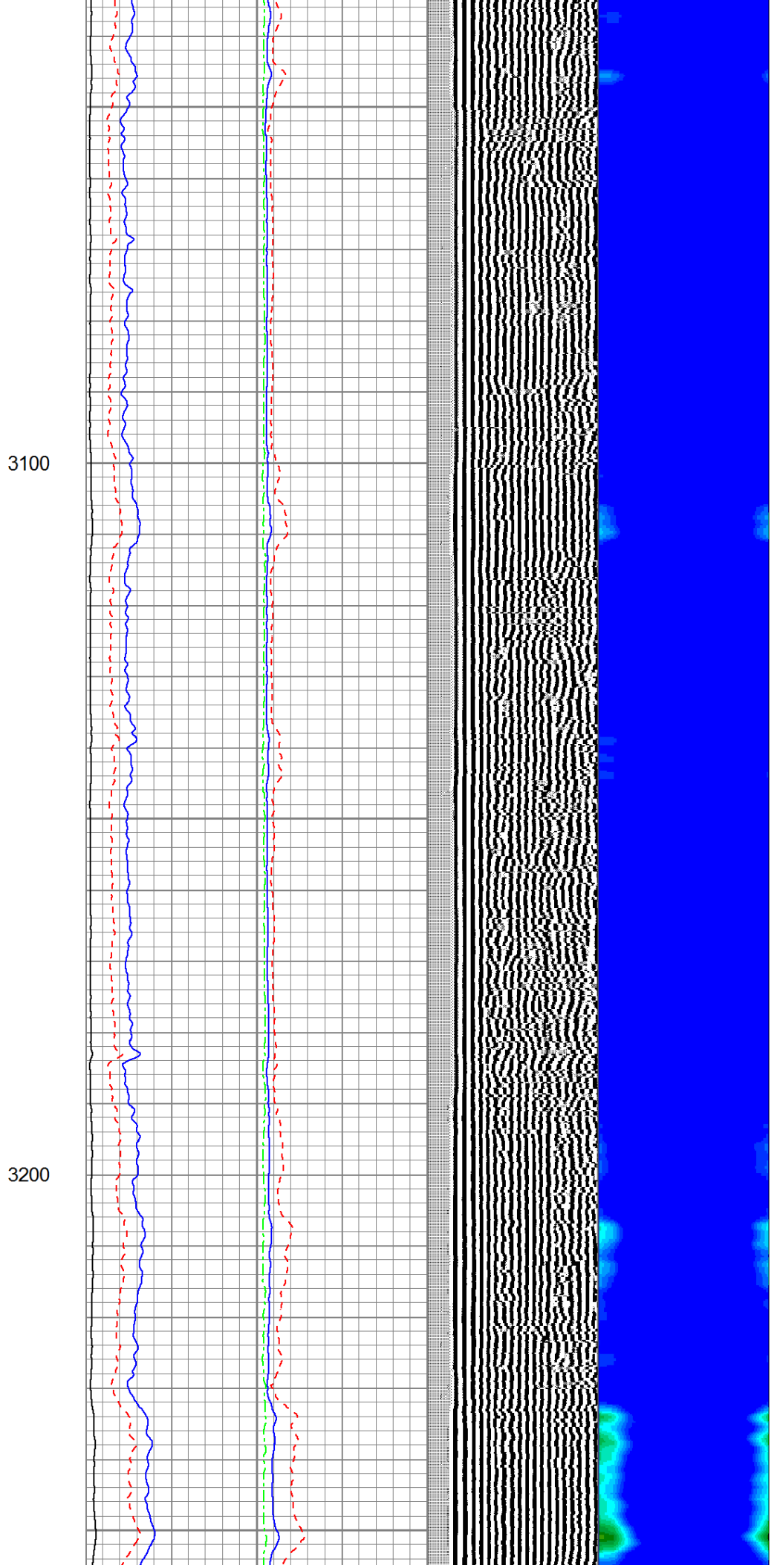
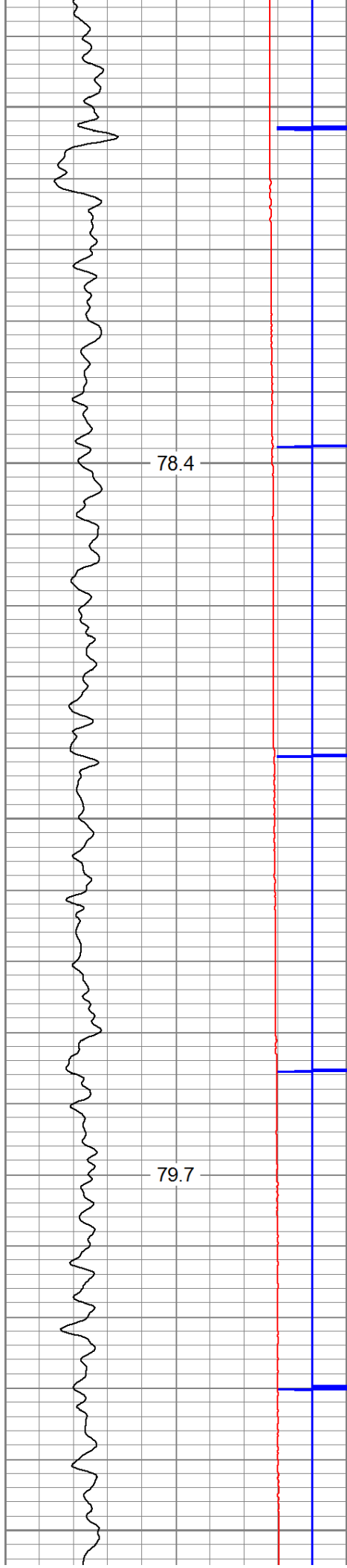


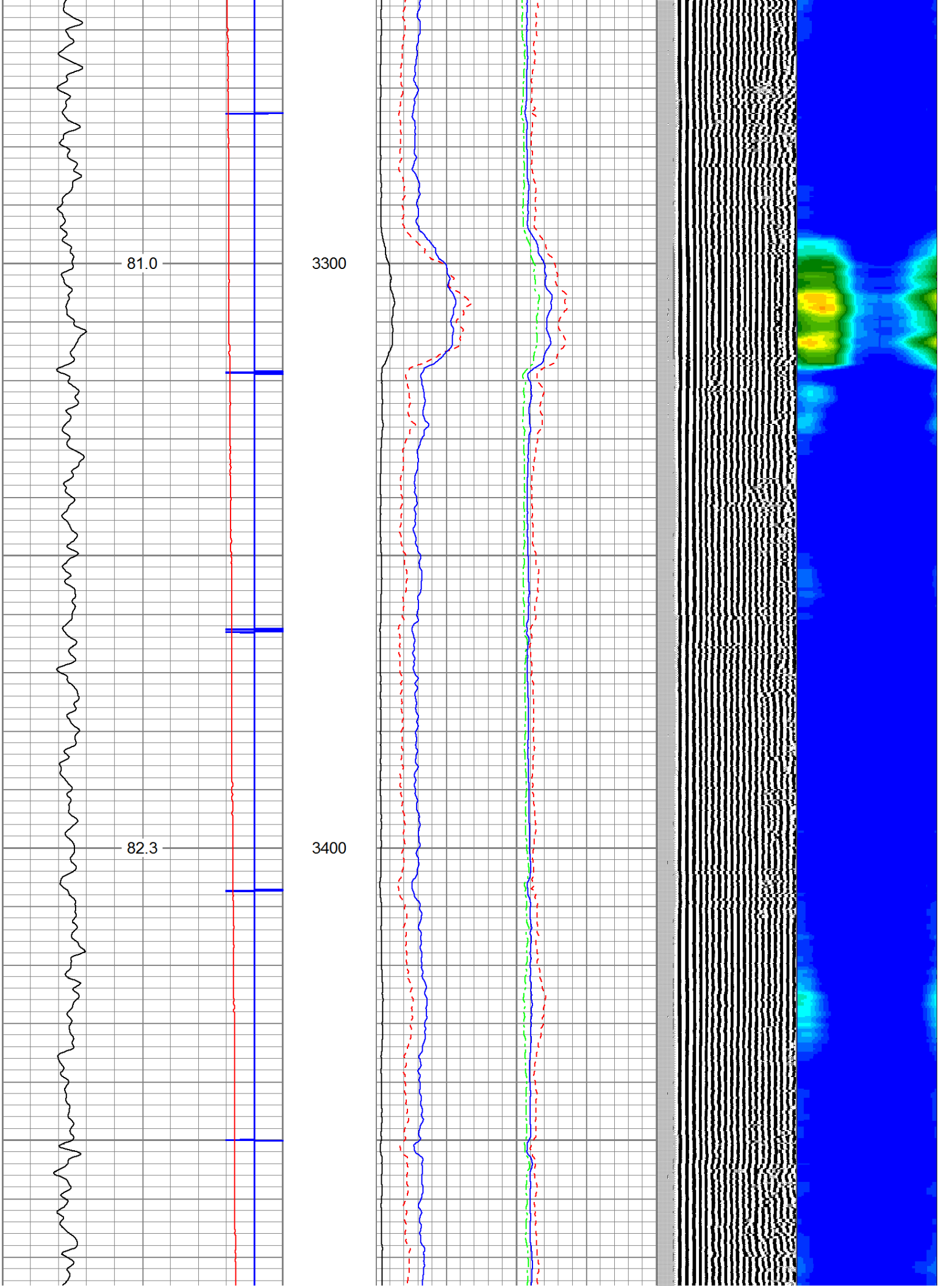


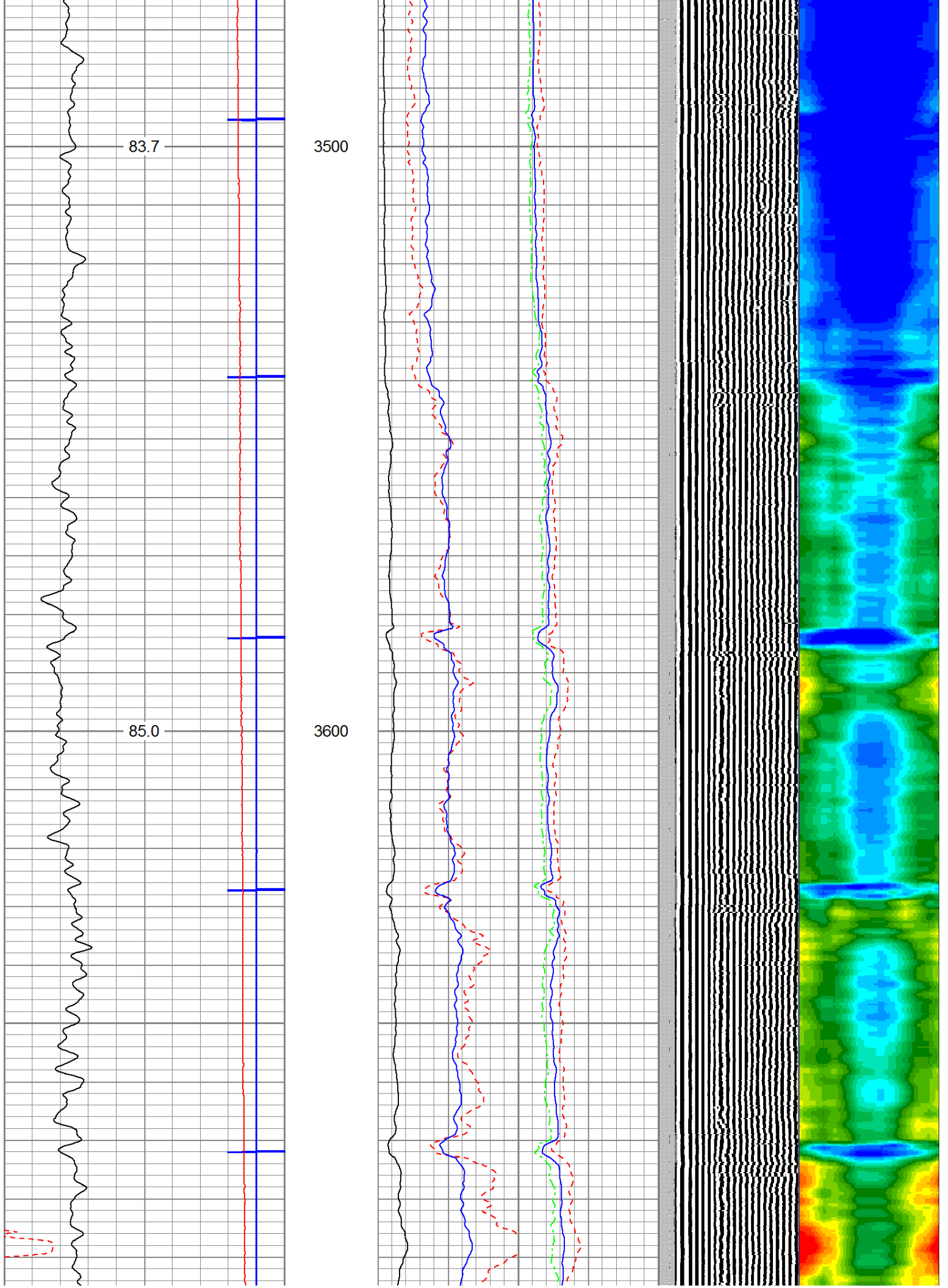




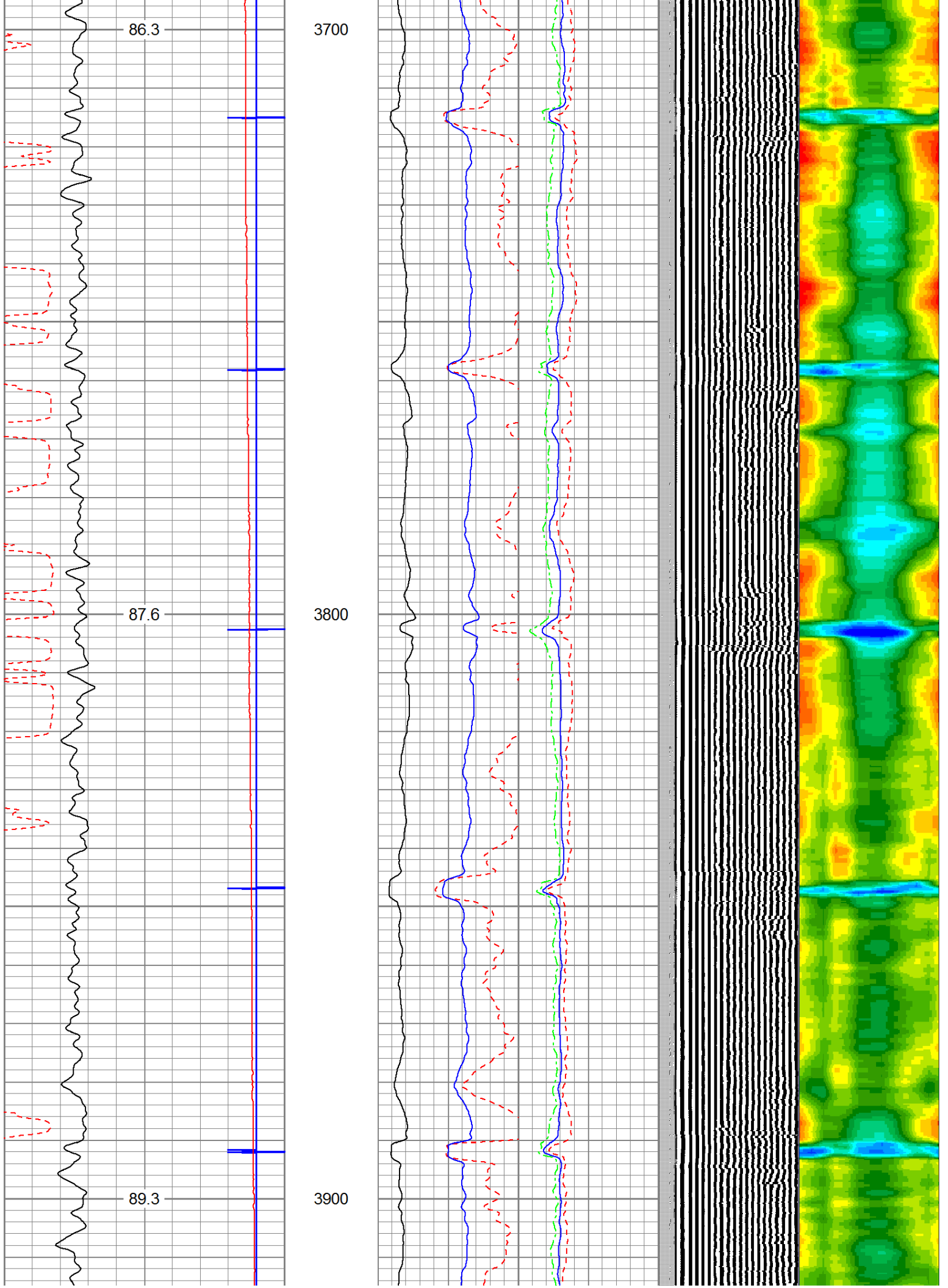


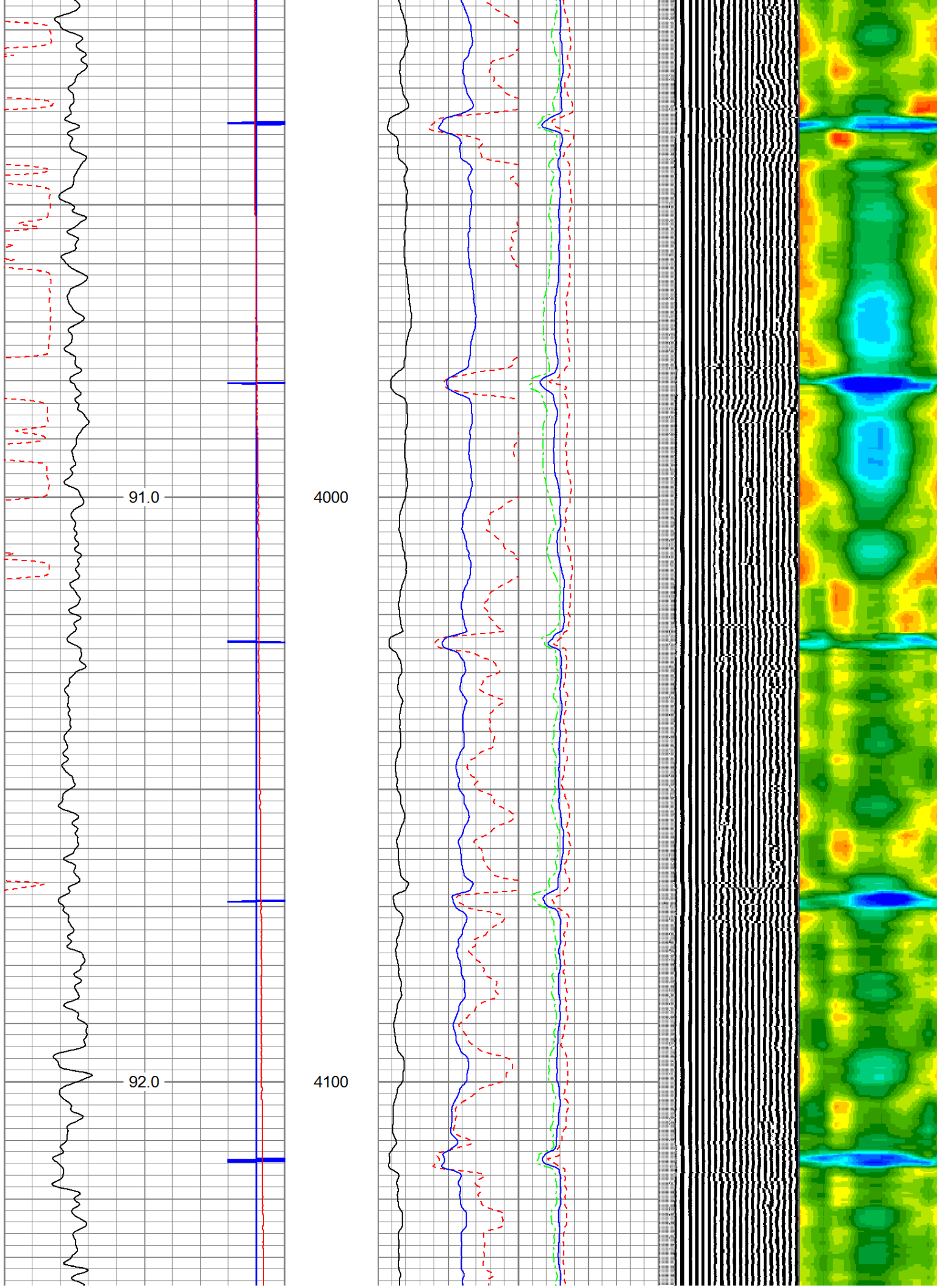


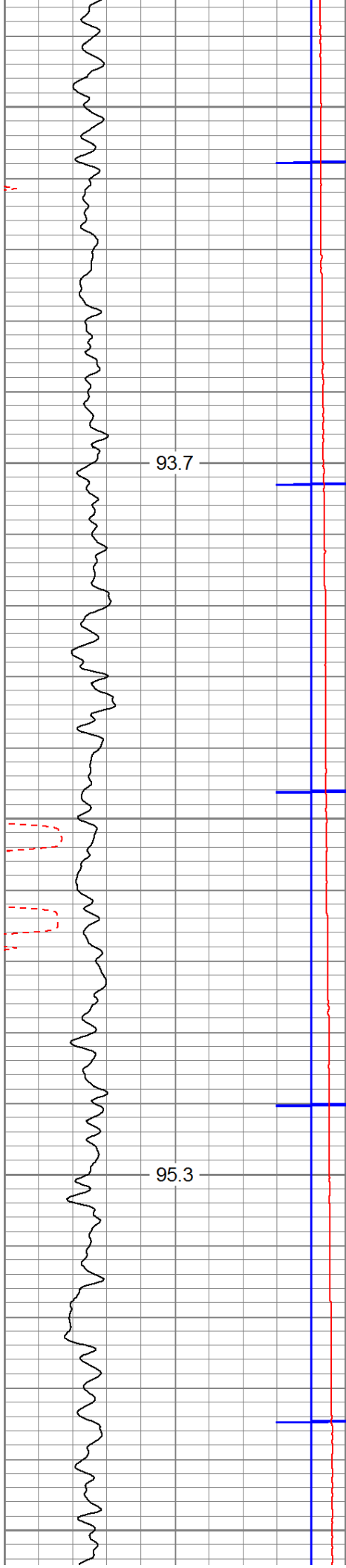






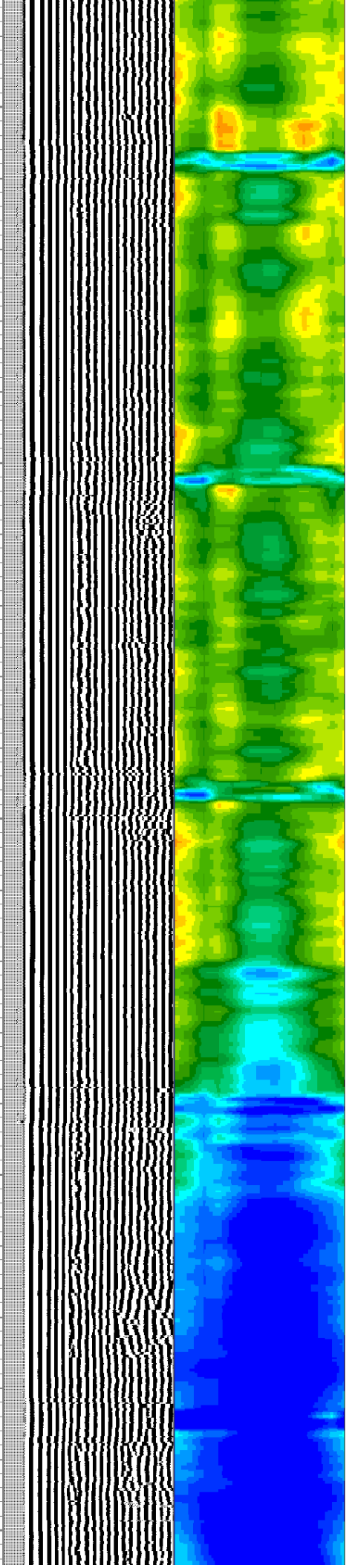
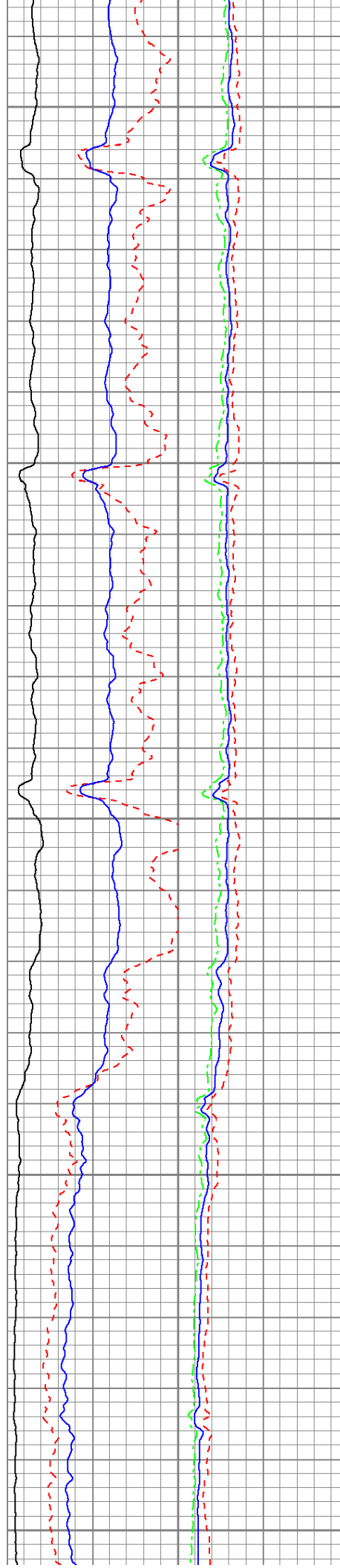


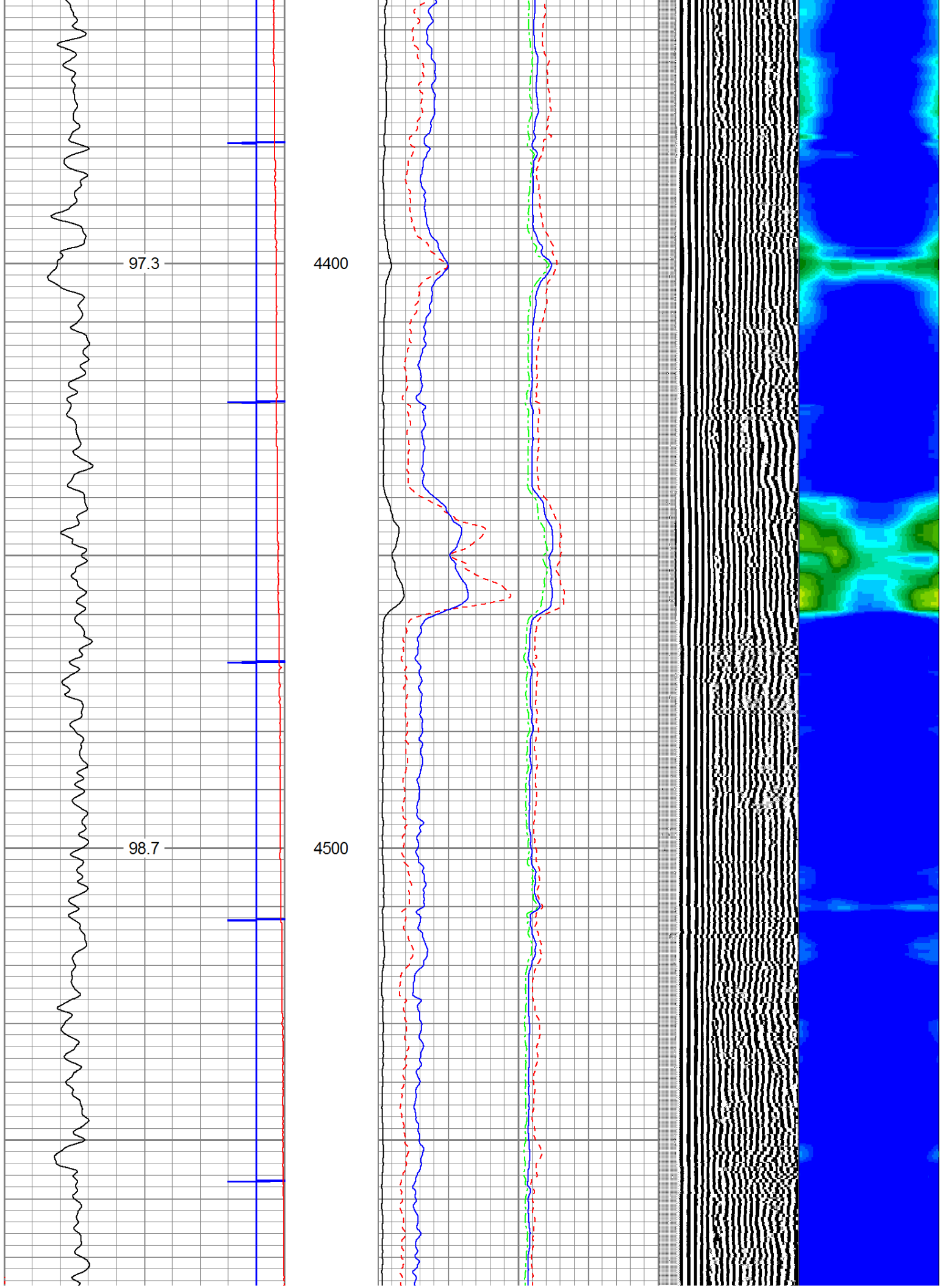


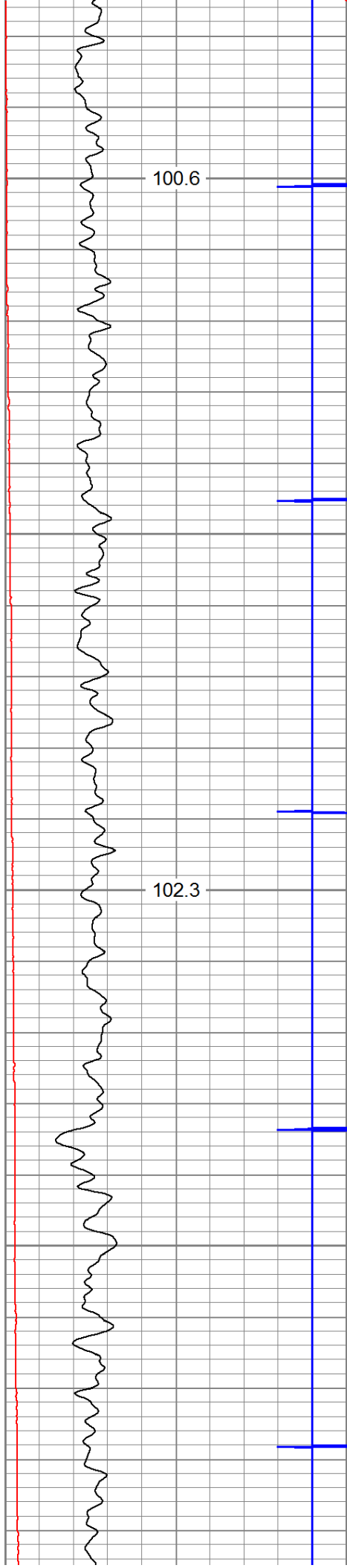


4200

4300

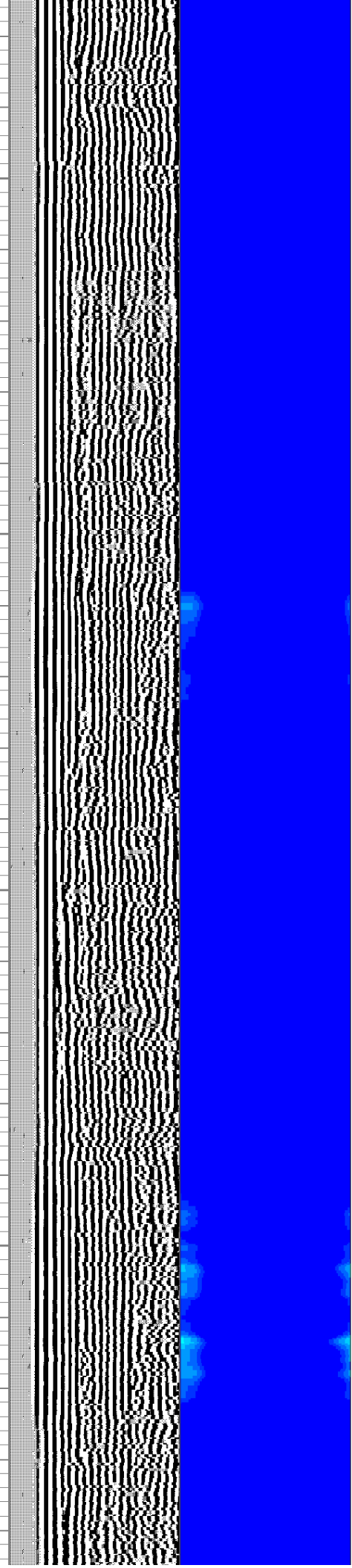
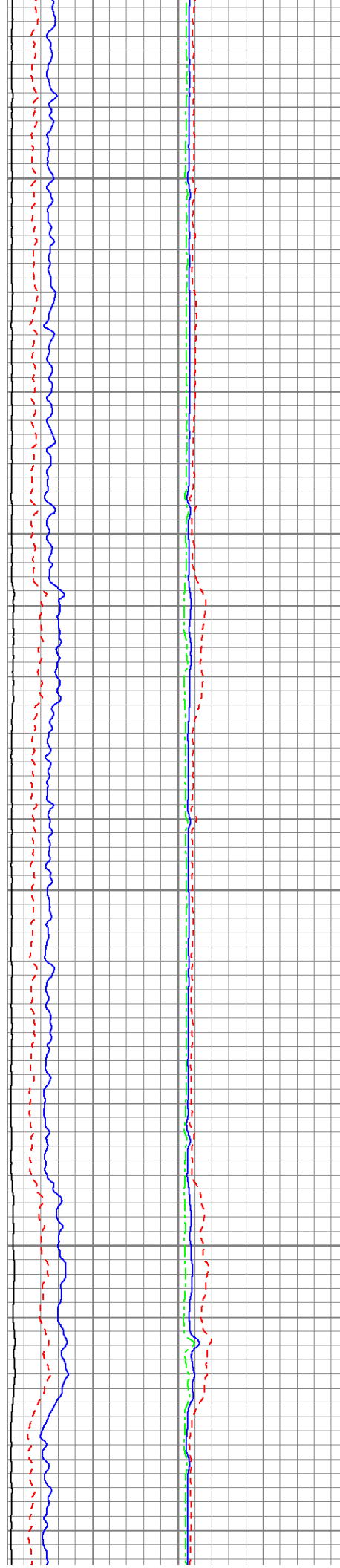




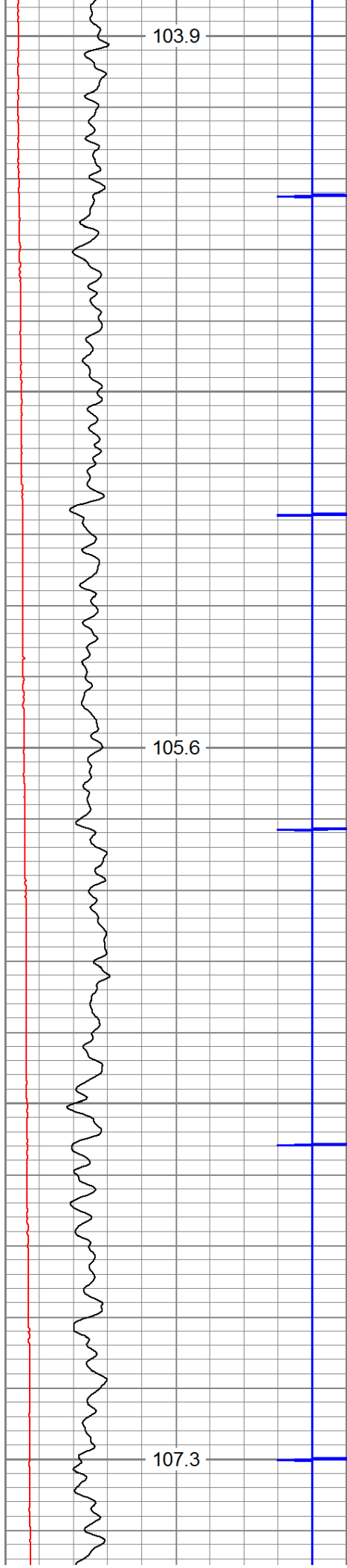


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4700



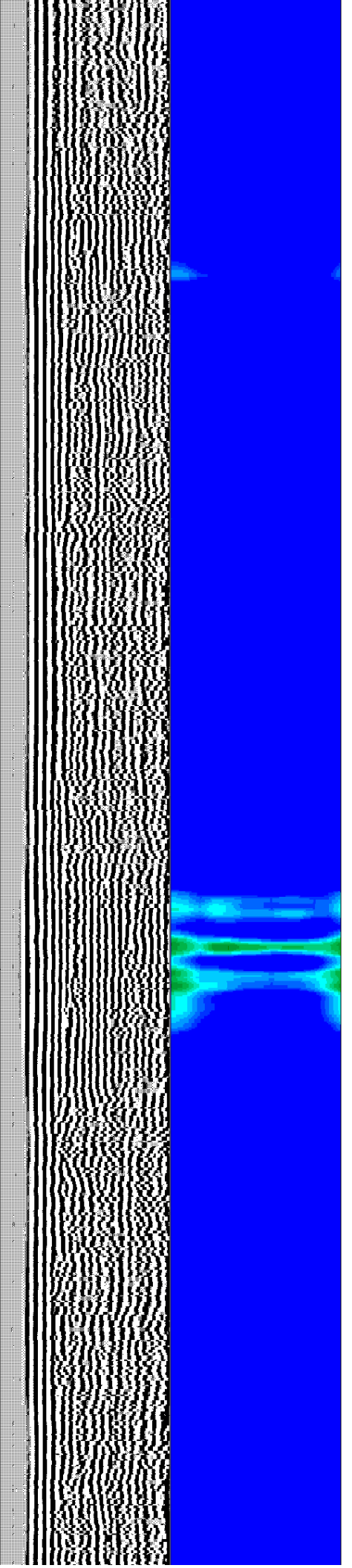
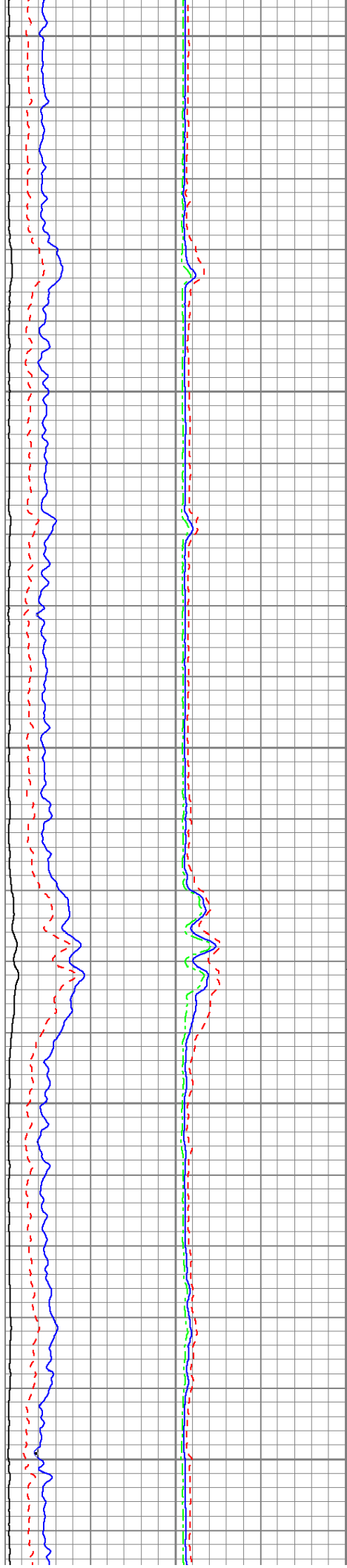


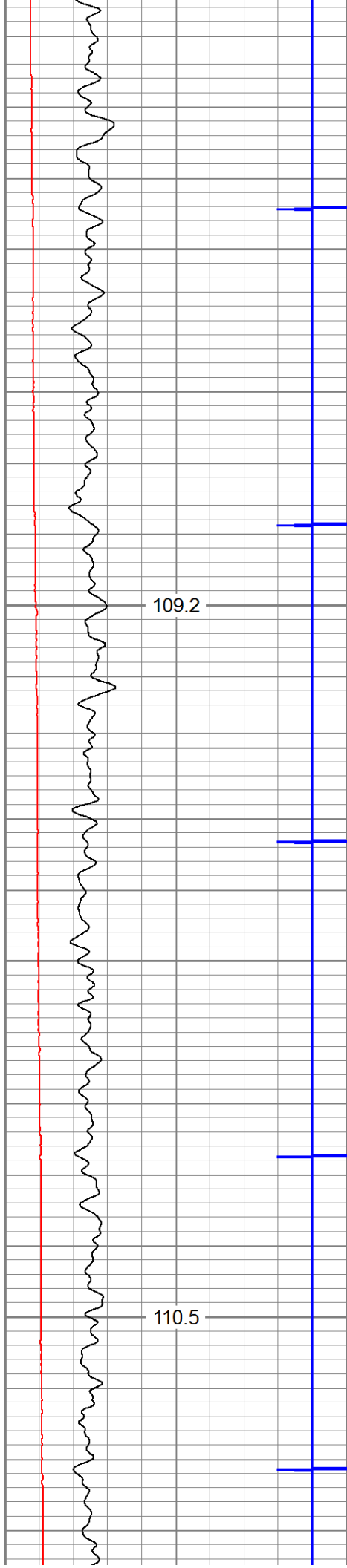


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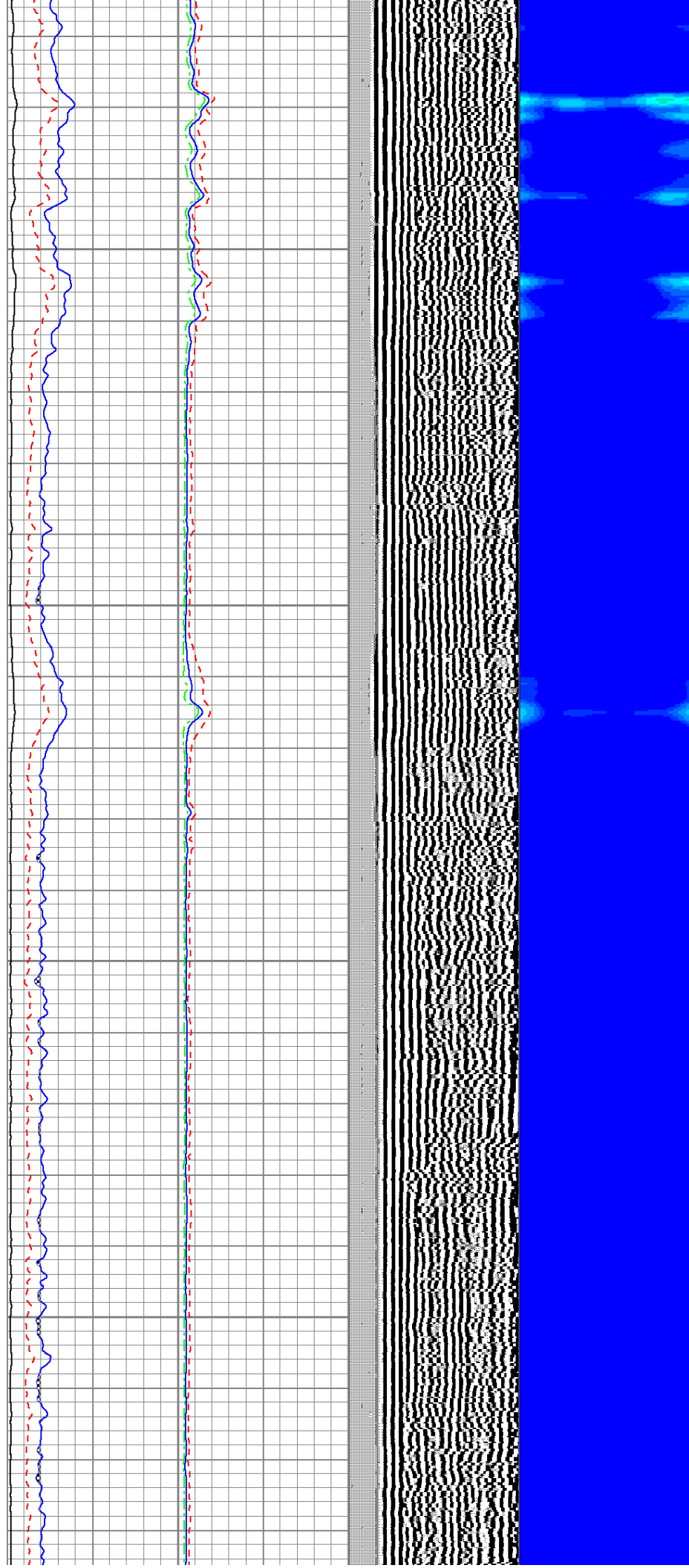
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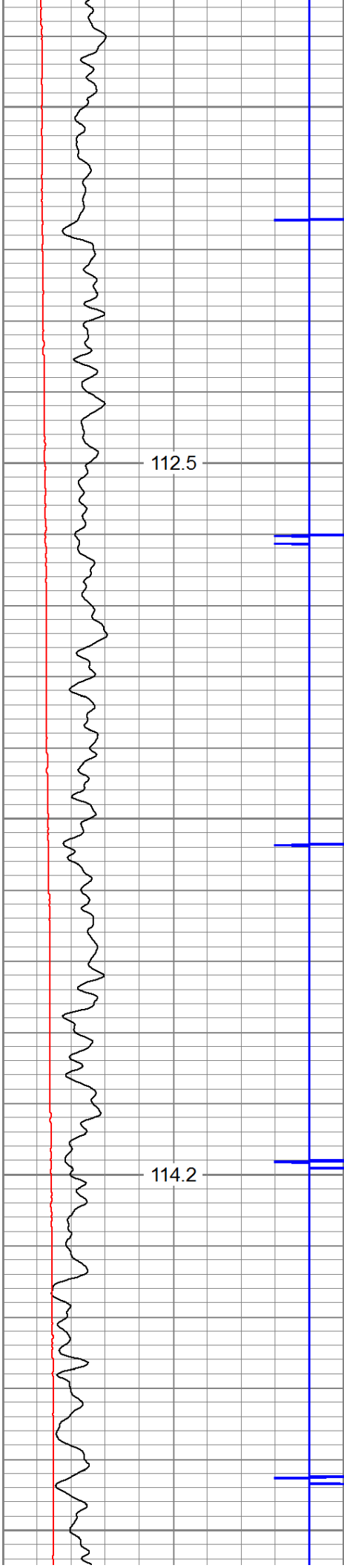




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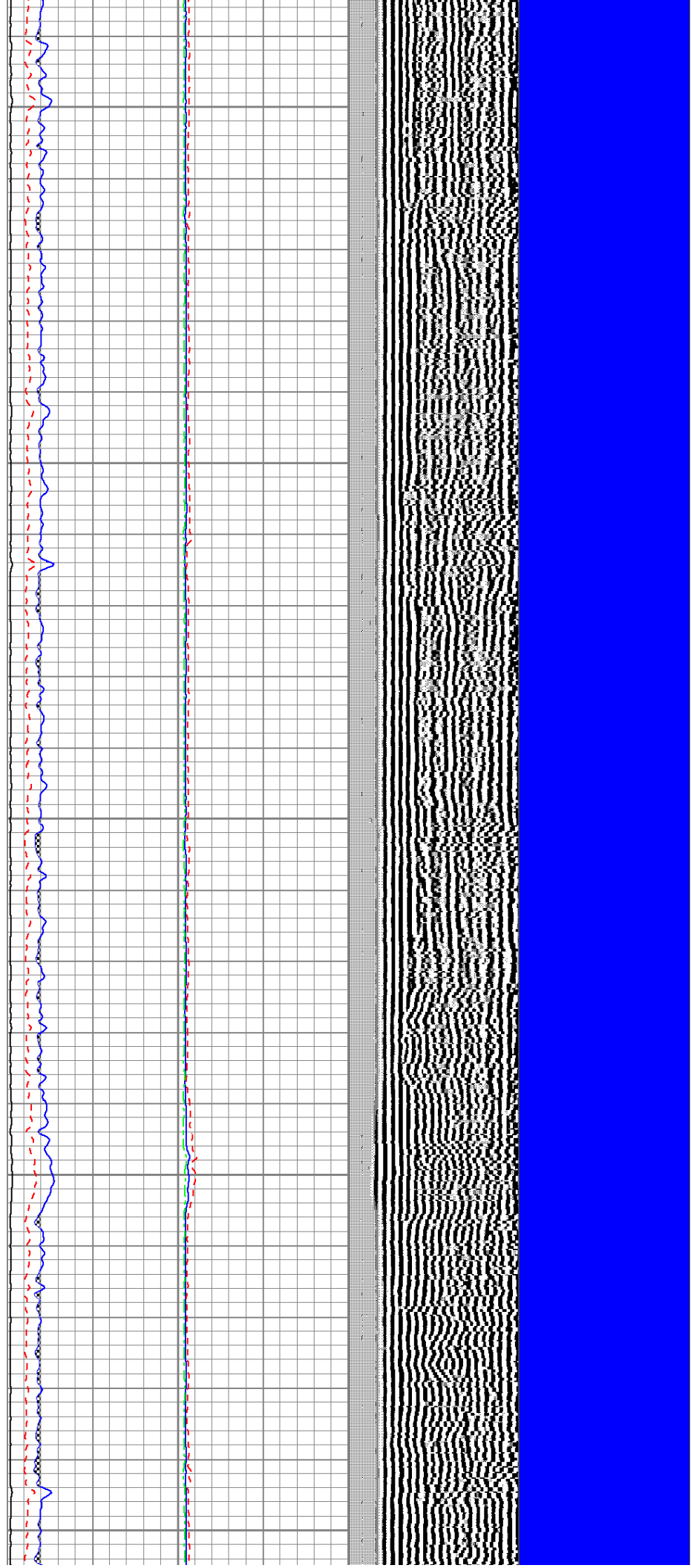
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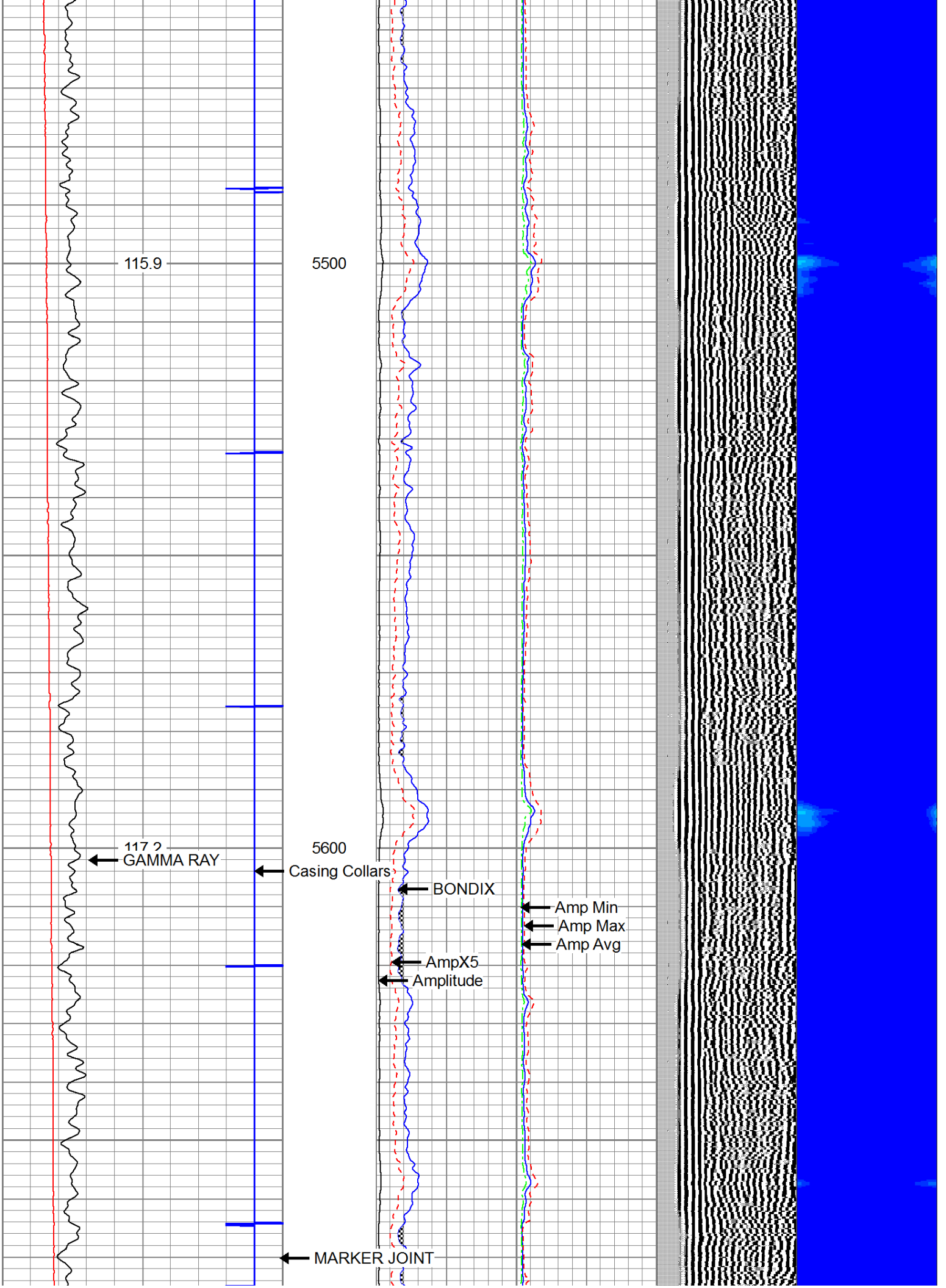




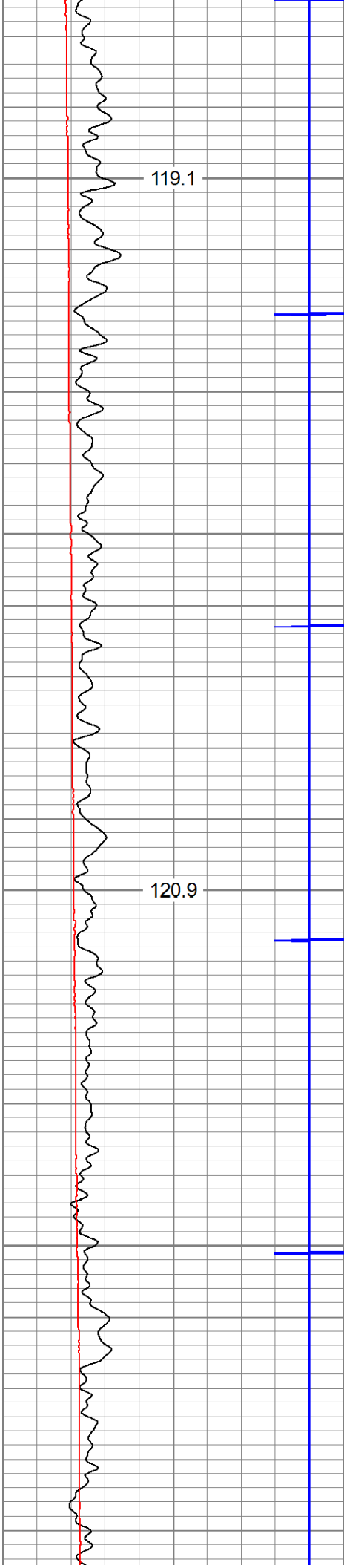
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5400



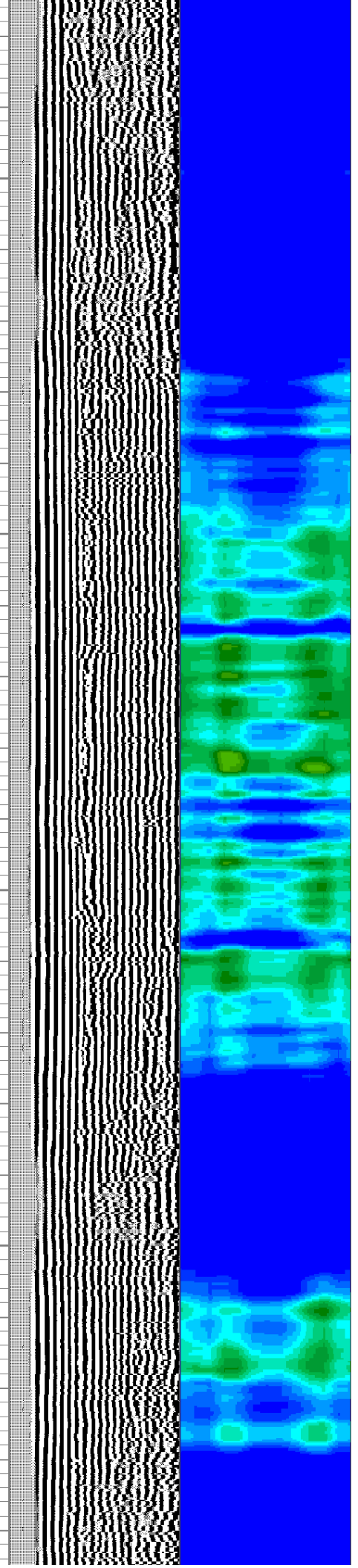
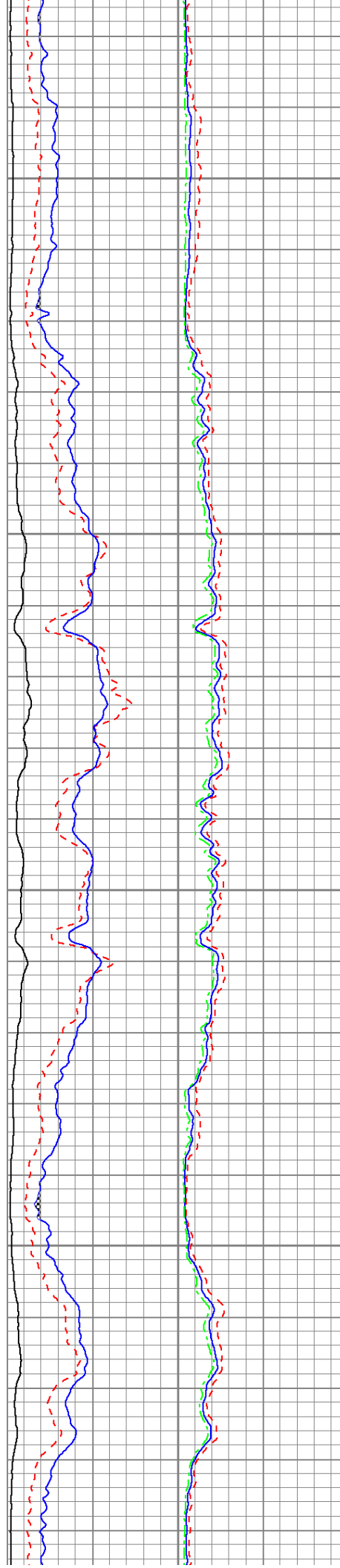




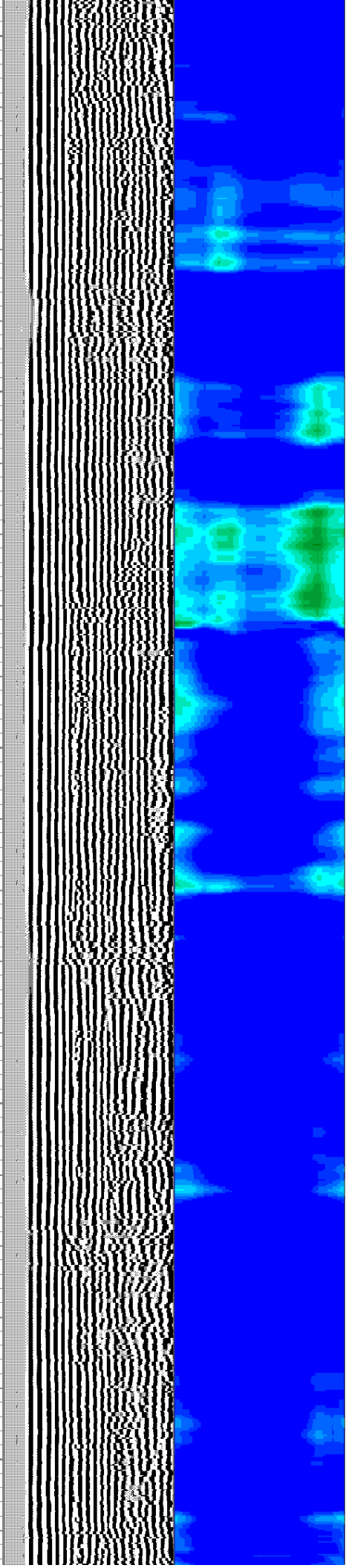
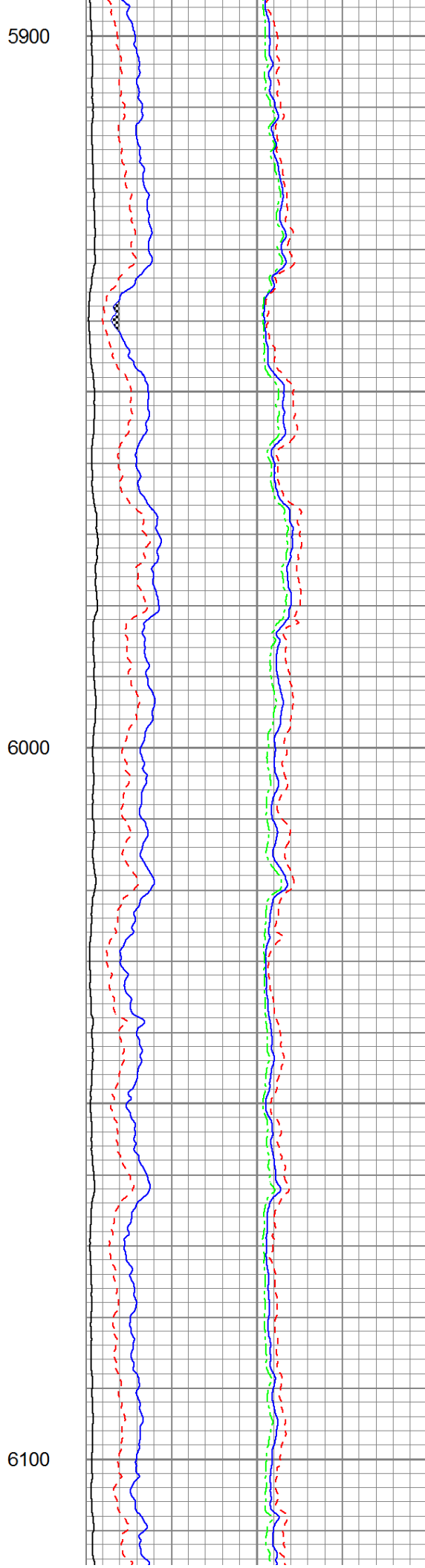
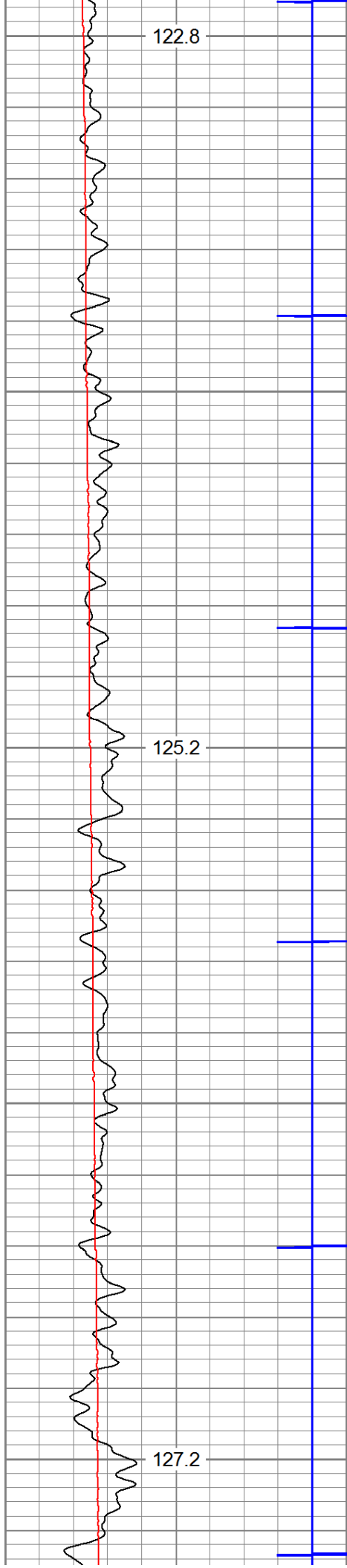


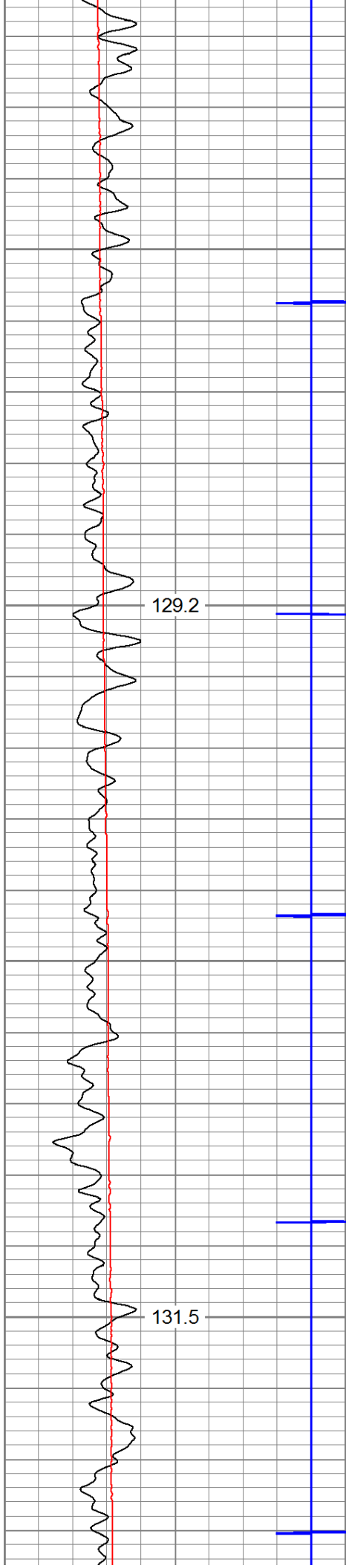
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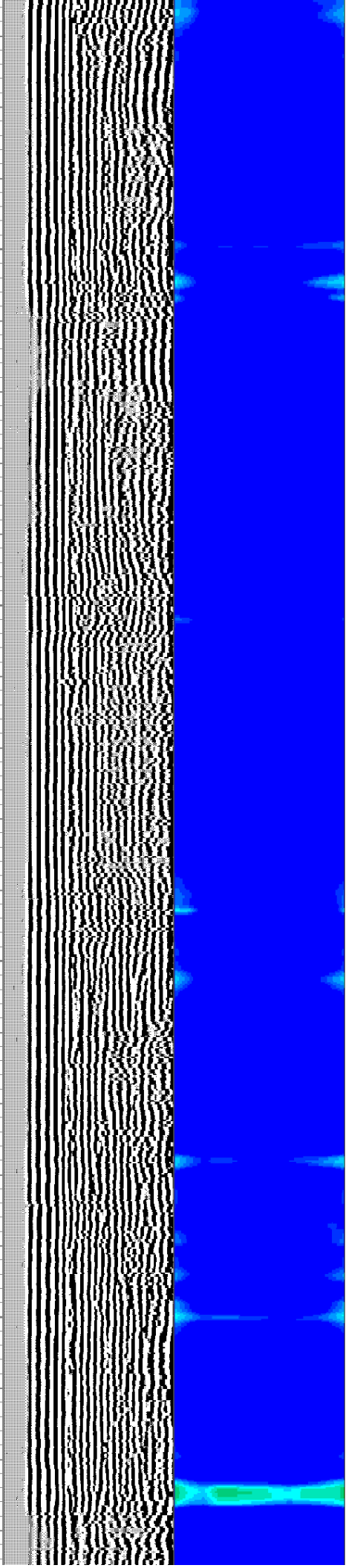
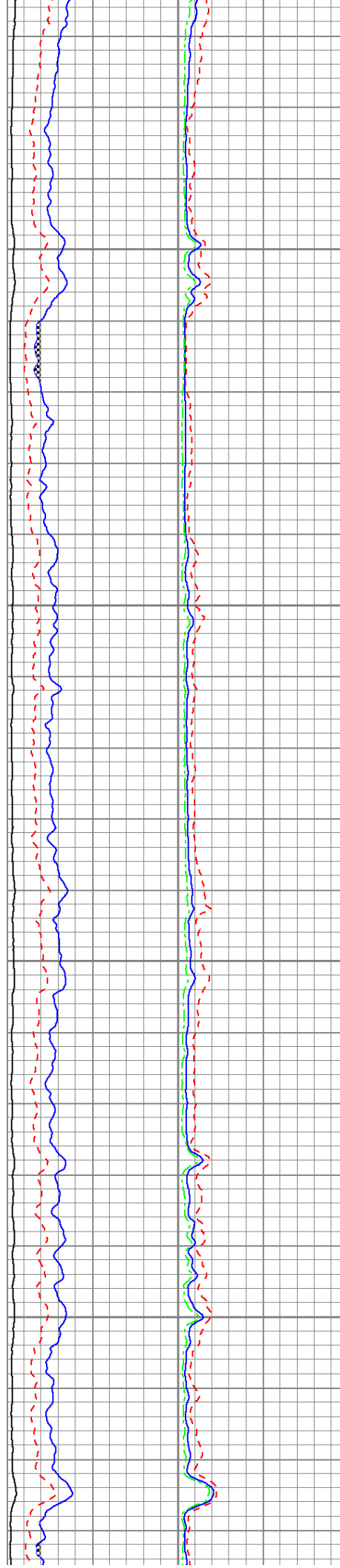


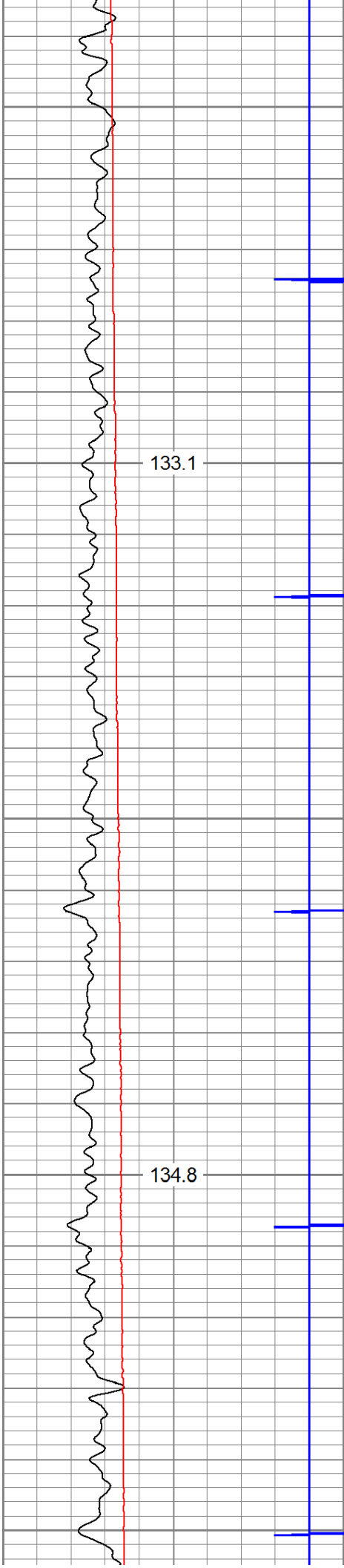




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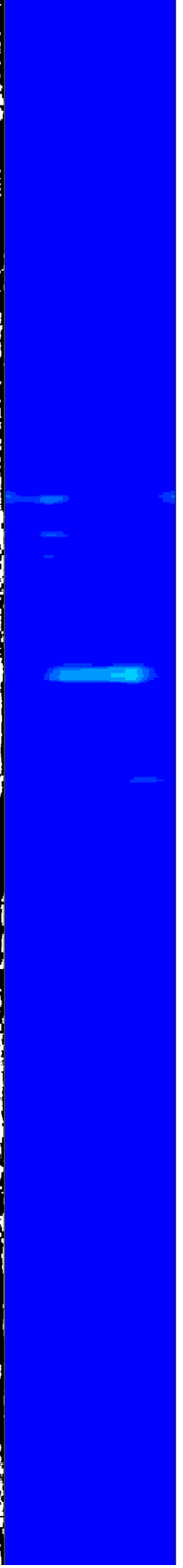
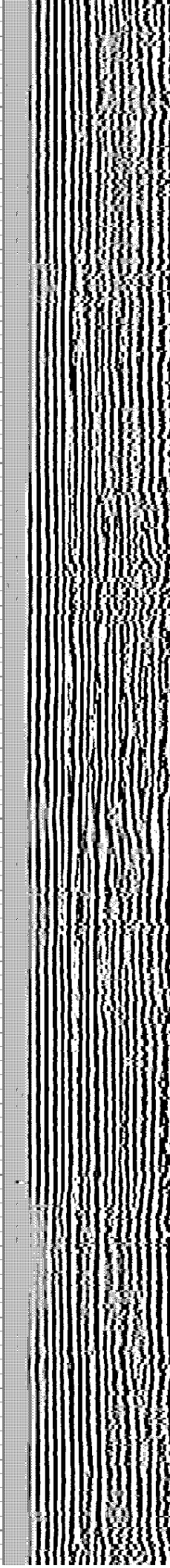
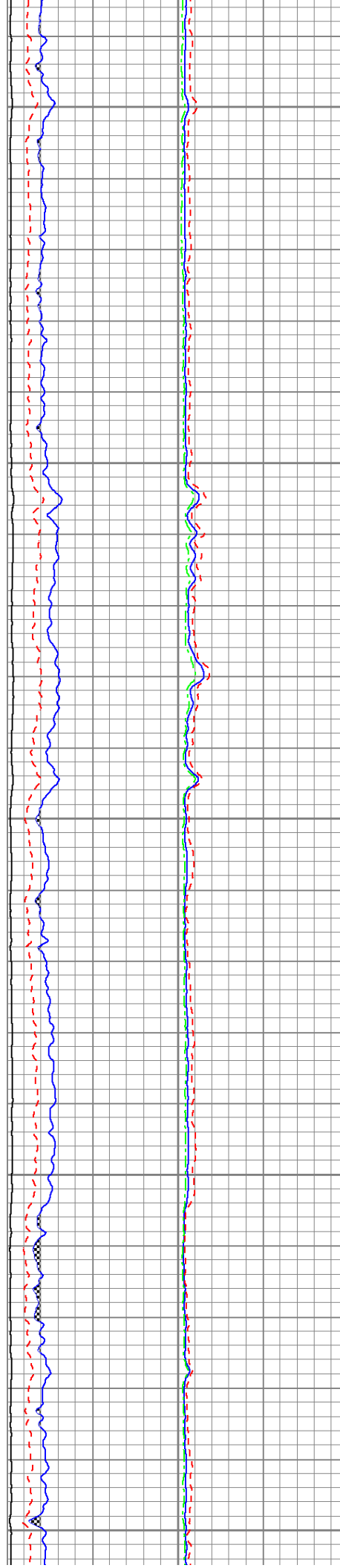
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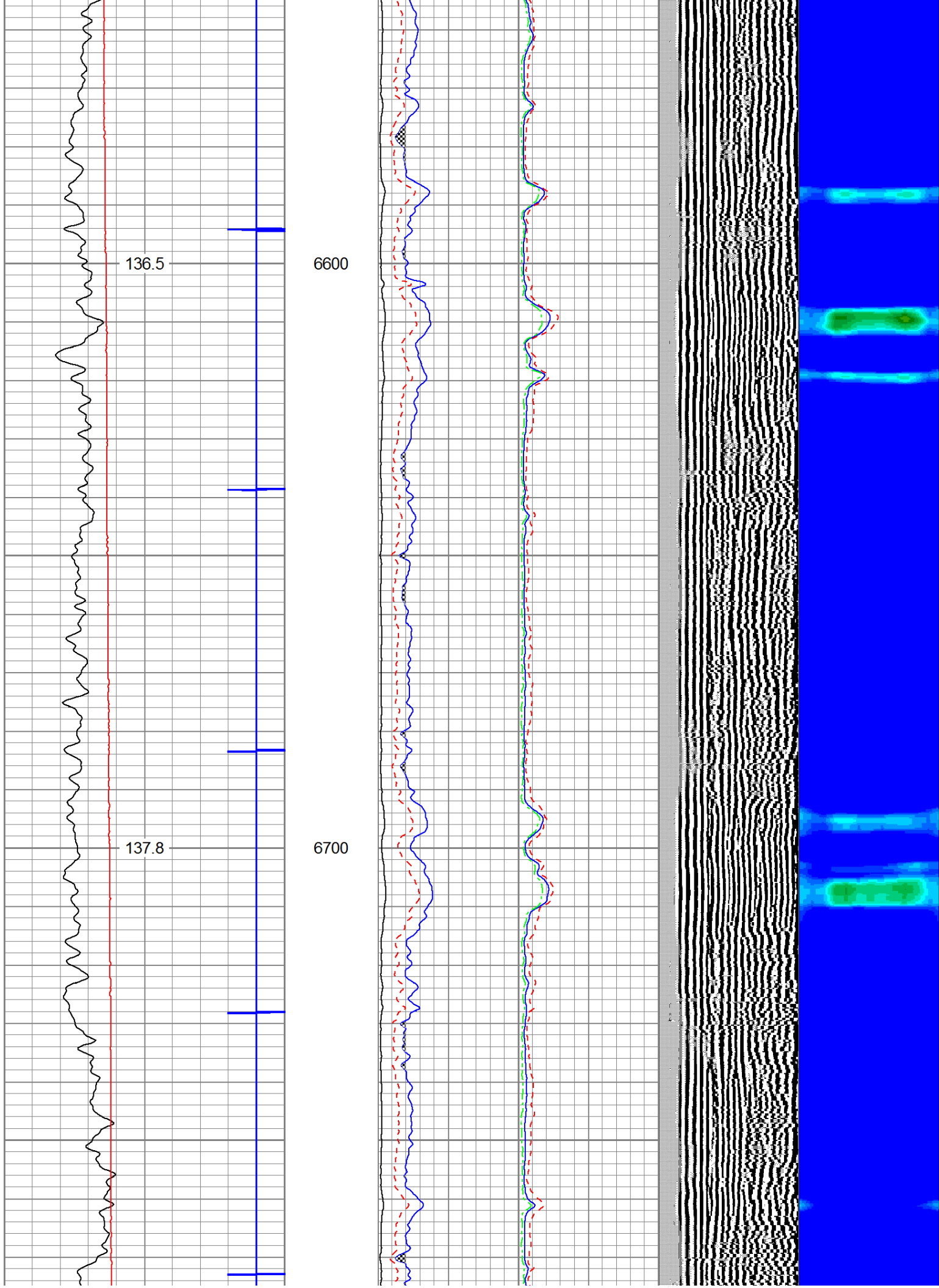




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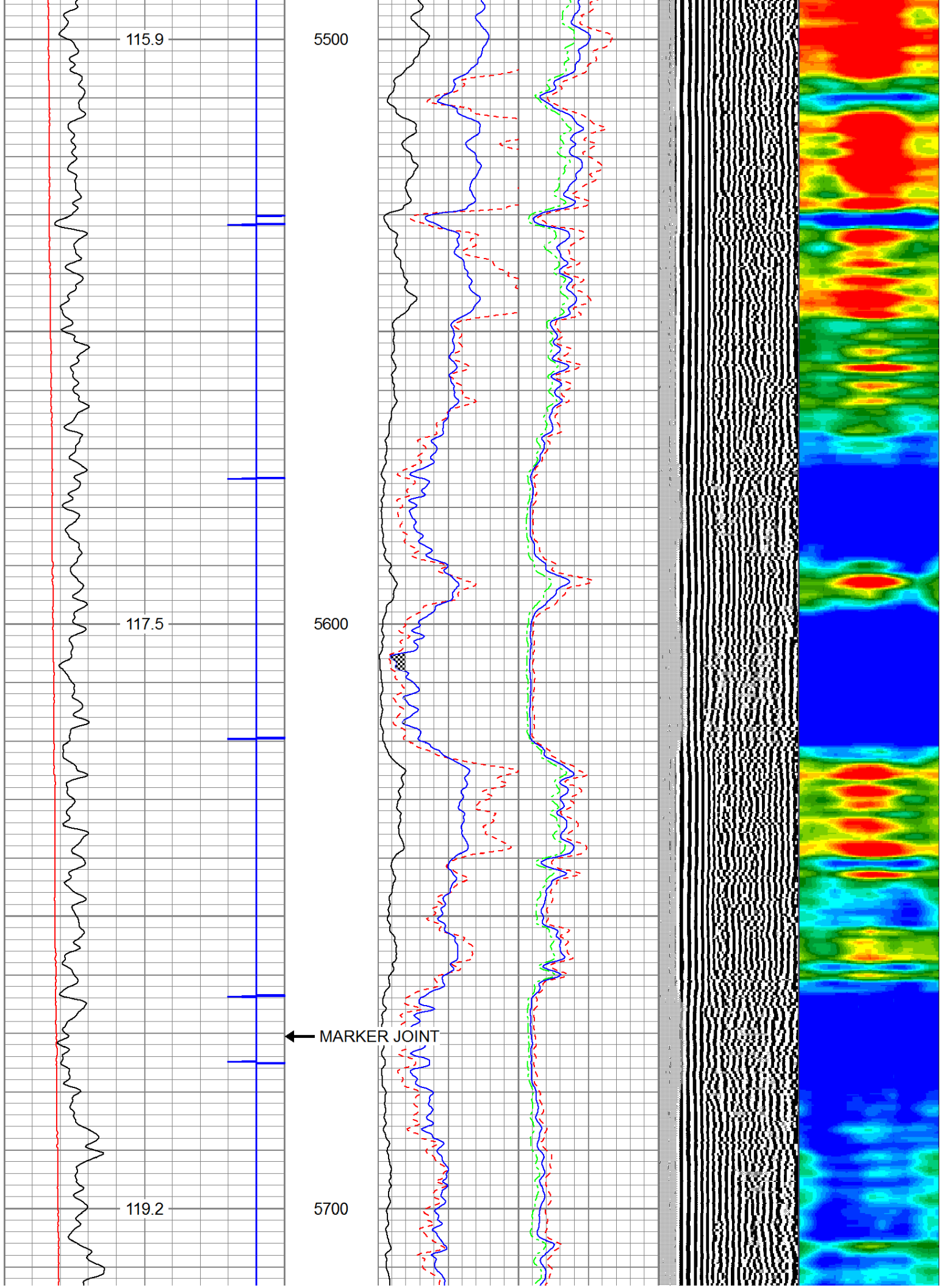
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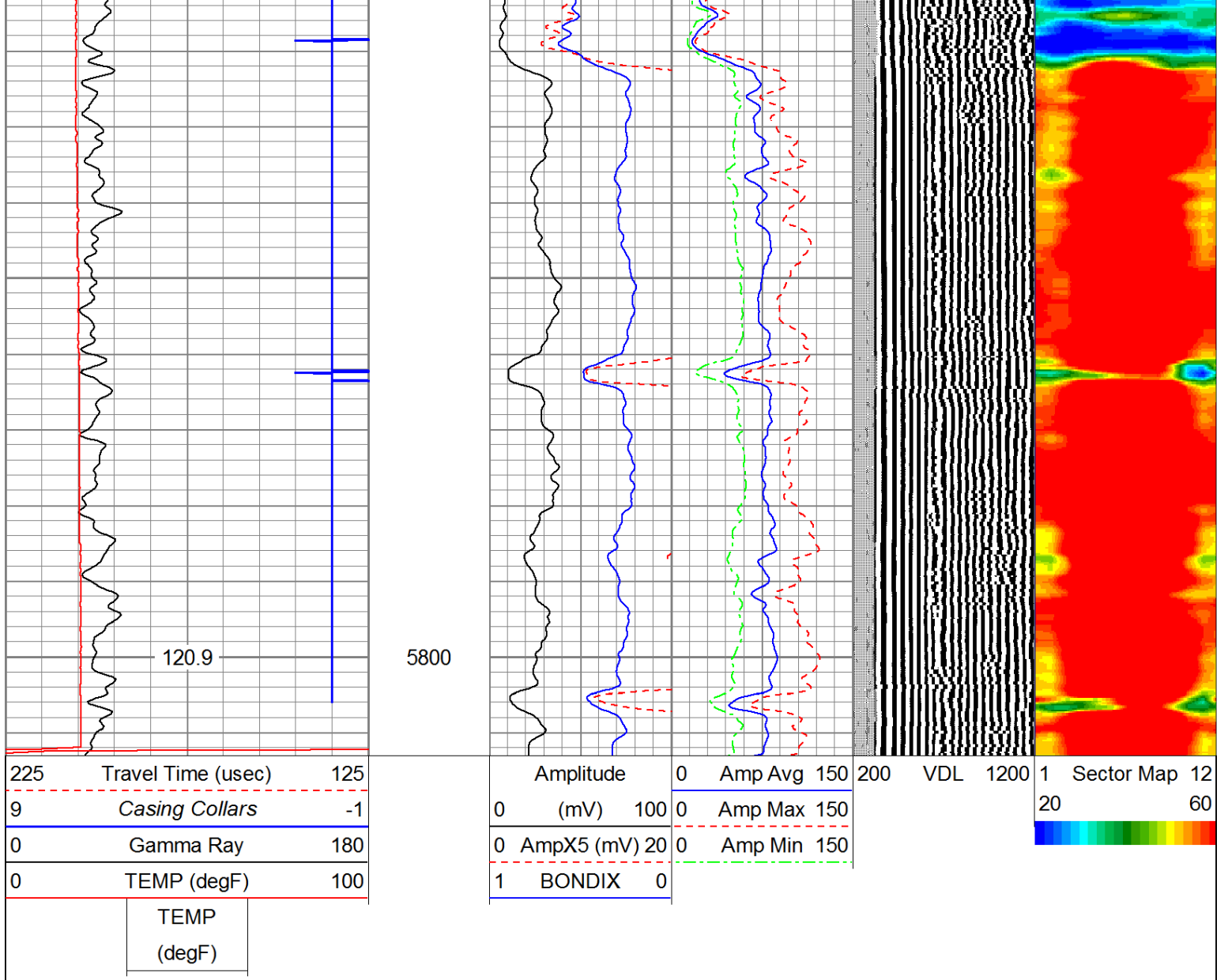












# REPEAT PASS

## Log Variables

Database: F:\2019 ANTERO\antero BISON PAD\antero\_waco2h.db  
 Dataset: field/well/run1/pass7.1

### Top - Bottom

XXXX	PPT uSec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	SRFTEMP degF	CASEOD in
0	0	23	0	1	0.8	0	5.5
PERFS	TDEPTH ft	BOTTEMP degF	BOREID in				
0	0	100	7.875				

### Calibration Report

Database File: F:\2019 ANTERO\antero BISON PAD\antero\_waco2h.db  
 Dataset Pathname: pass7.1  
 Dataset Creation: Sat Jan 12 18:48:11 2019 by Calc 7.0 B1

Gamma Ray Calibration Report

Serial Number:	IPSNO-03	
Tool Model:	Tek-Co 2 3/4	
Performed:	Mon Nov 07 10:23:17 2016	
Calibrator Value:	1.0	
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3000	/cps

Temperature Calibration Report

Serial Number:	IOL40-05	
Tool Model:	Tek12	
Performed:	Wed Jul 31 10:53:14 2013	
	Reference	Reading
Low Reference:	0.00 degF	0.00 usec
High Reference:	1.00 degF	1.00 usec
Gain:	0.33	
Offset:	0.00	
Delta Spacing	2	

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
CCL	18.93		CCL-312tekco (3.12TEKCO) Tekco 3 1/8" 450 Deg. "F" SmCo Logging CCL	1.82	3.12	25.00
			2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00
TEMP	12.77					
WVFS1	11.48		SCBL-Tek12 (IOL40-05) Tekco 400 Deg F 12 Sector RIB with Temp	9.13	3.25	135.00
WVFS2	11.48					
WVFS3	11.48					
WVFS4	11.48					
WVFS5	11.48					
WVFS6	11.48					
WVFS7	11.48					
WVFS8	11.48					
WVFS9	11.48					

