



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

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

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

Location: API #: 47085102410000 Other Services

Permanent Datum	SEC	TWP	RGE	Elevation
Log Measured From	KB 30'			K.B.
Drilling Measured From				D.F.
				G.L.

Date	1-11-19			
Run Number	1			
Depth Driller	13285'			
Depth Logger	6924'			
Bottom Logged Interval	6924'			
Top Log Interval	SURFACE			
Open Hole Size	5.5" CASING			
Type Fluid	WATER			
Density / Viscosity	N/A			
Max. Recorded Temp.	137.9 DEG			
Estimated Cement Top	2810'			
Time Well Ready	N/A			
Time Logger on Bottom	7:47A			
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	610'
				9.625		SURFACE	2583'
				5.5	23#	SURFACE	13285'

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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 AT6168' TO 6178'
BOTTOM HOLE TEMP 137.9 DEG
RAN UNDER PRESSURE @1500PSI



MAIN PASS UNDER 1500PSI

Database File: antero_bill2h.db
 Dataset Pathname: merge4
 Presentation Format: antero
 Dataset Creation: Tue Jan 15 15:49:30 2019
 Charted by: Depth in Feet scaled 1:240

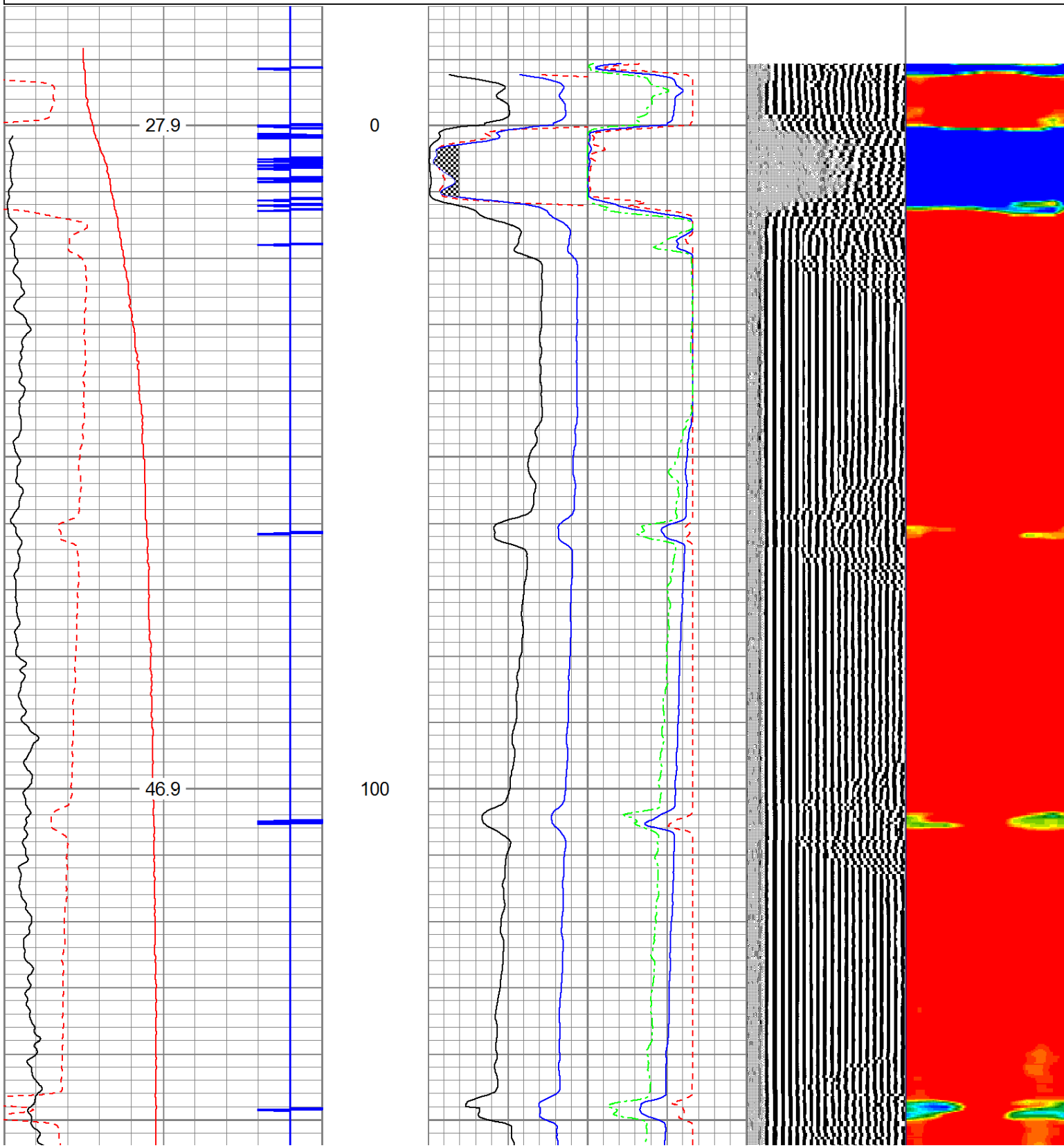
225	Travel Time (usec)	125
9	Casing Collars	-1
0	Gamma Ray	180
0	TEMP (degF)	100

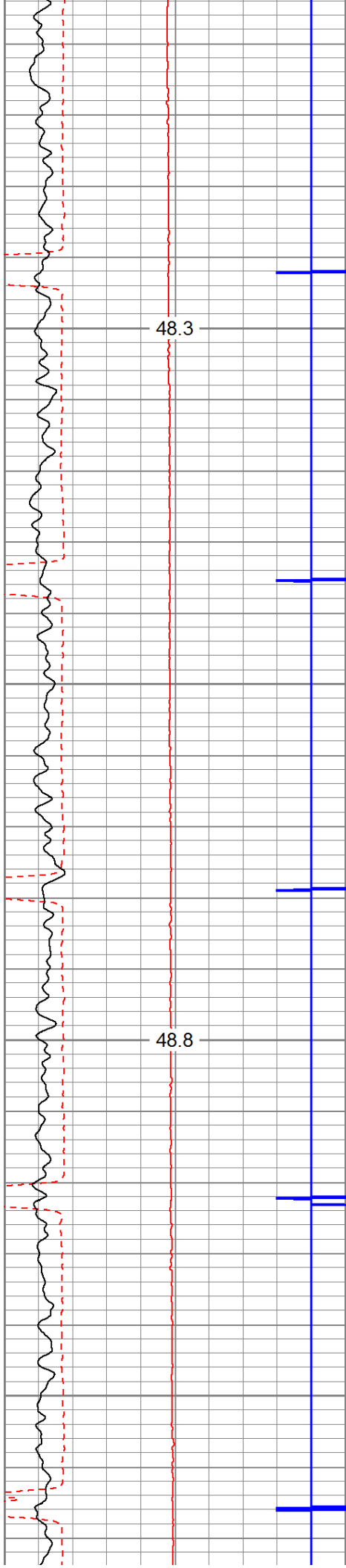
Amplitude	0	Amp Avg	150
(mV)	100	Amp Max	150
AmpX5 (mV)	20	Amp Min	150
BONDIX	0		

200 VDL 1200 1 Sector Map 12
 20 60



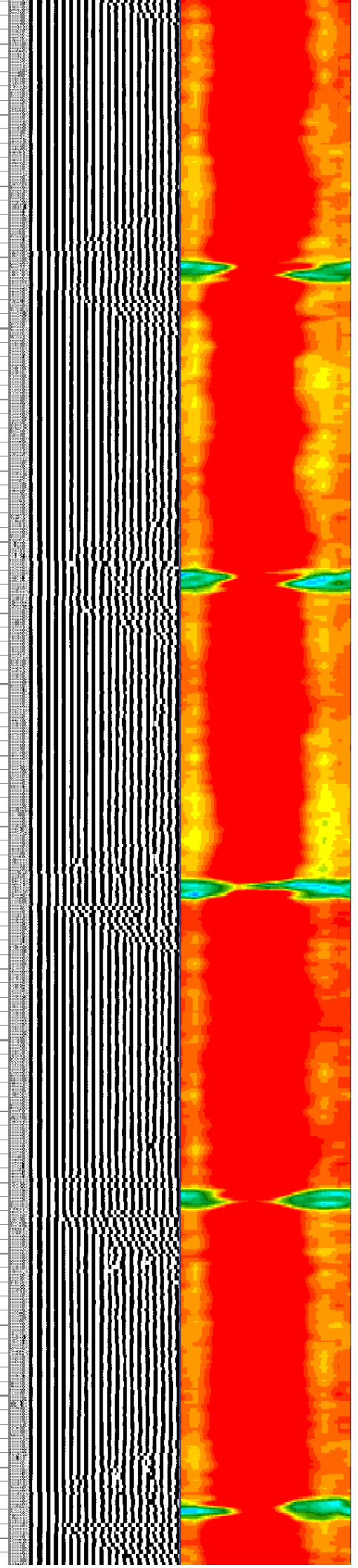
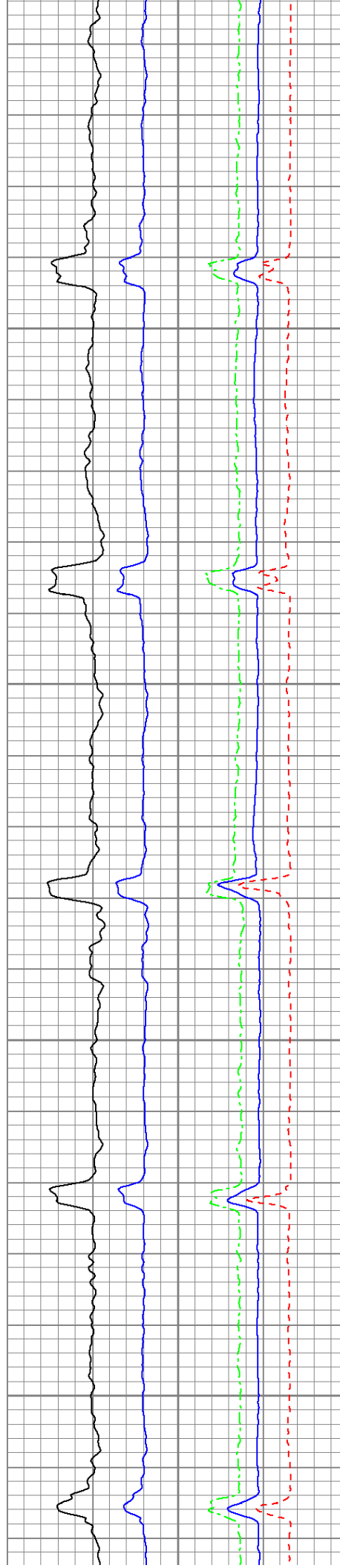
TEMP (degF)

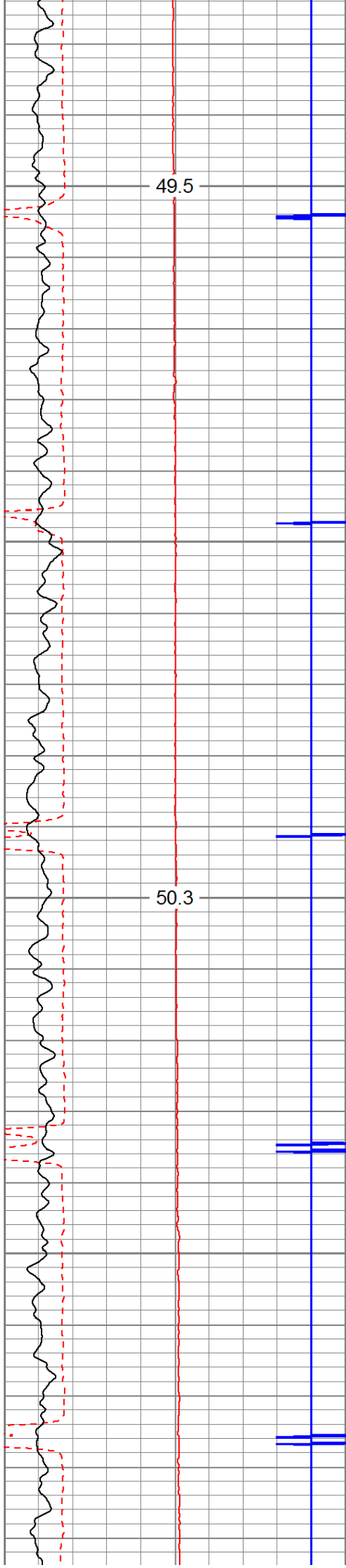




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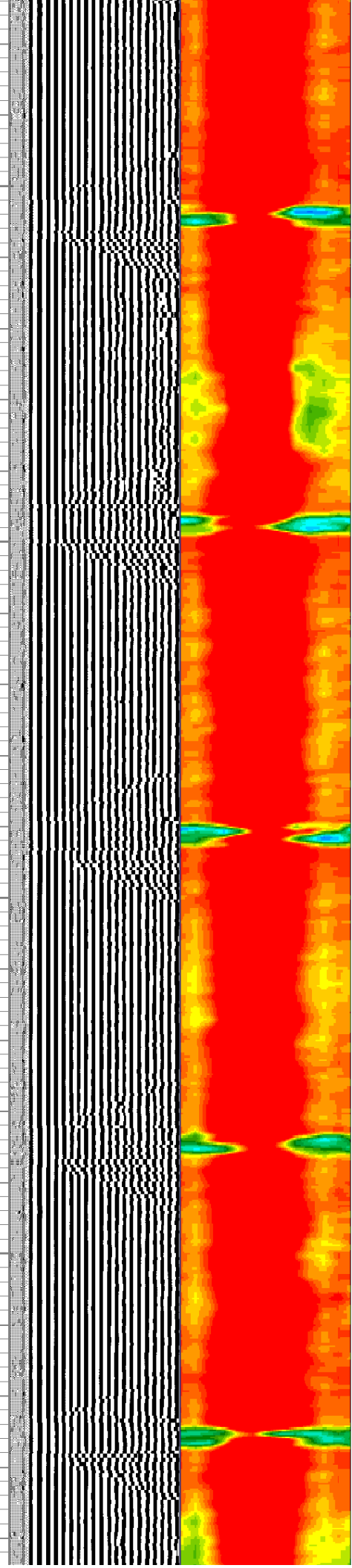
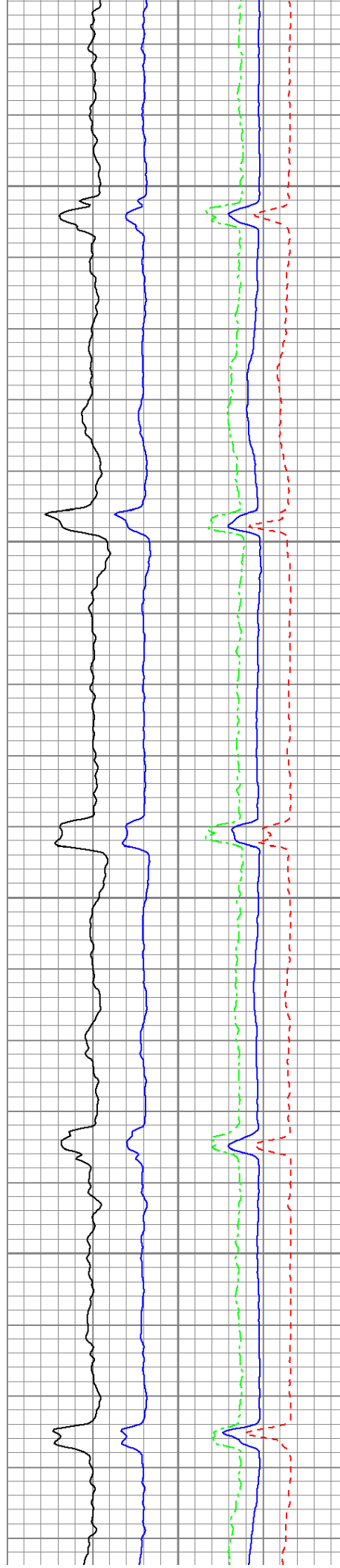
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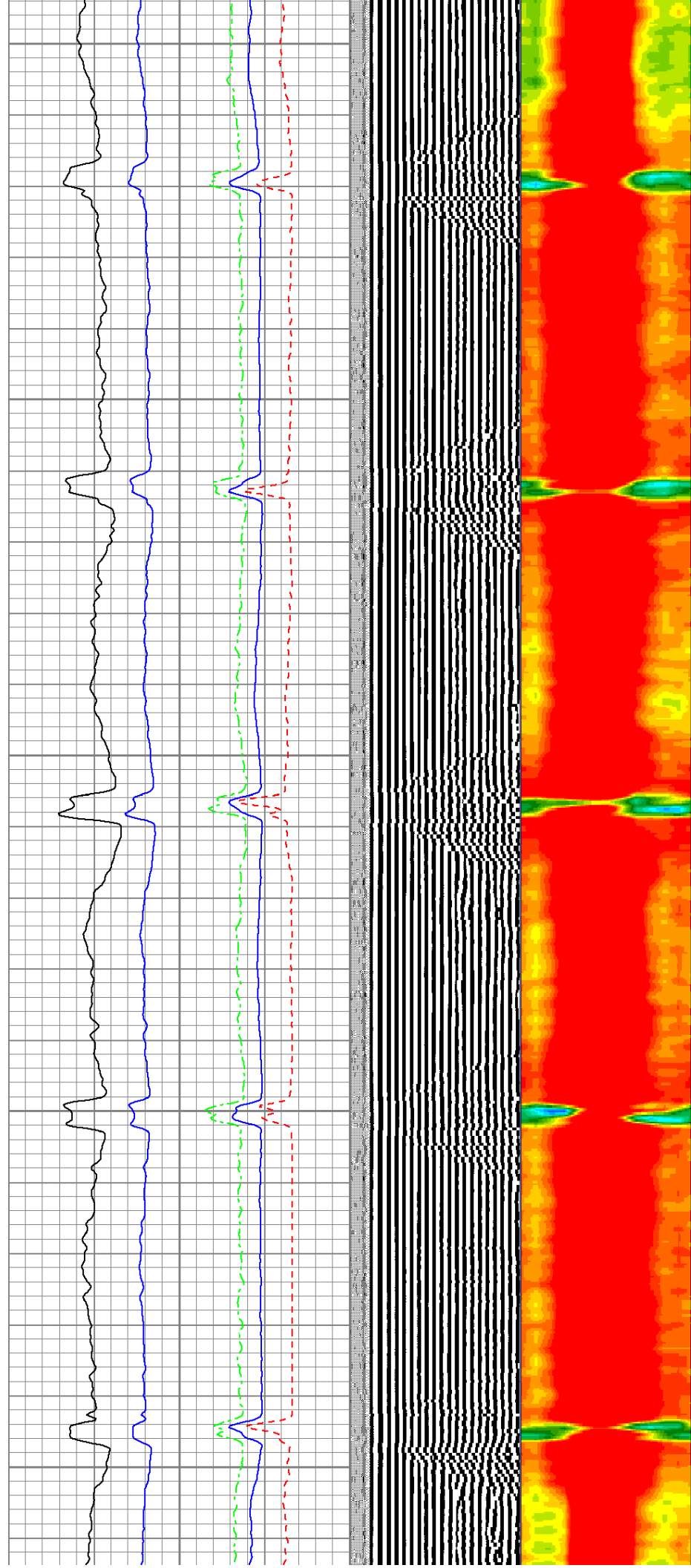
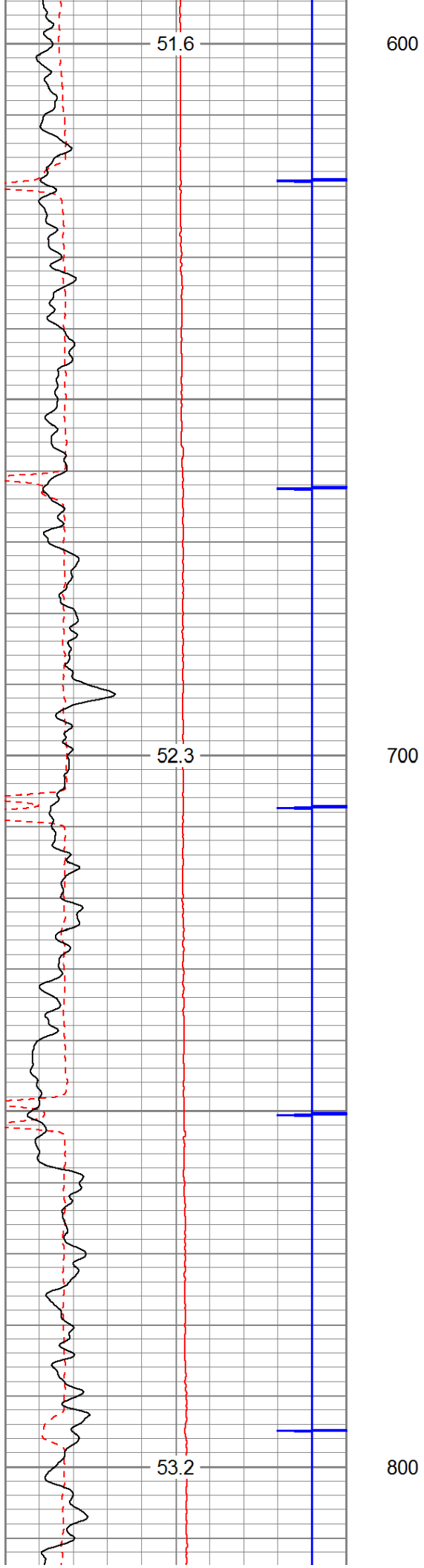


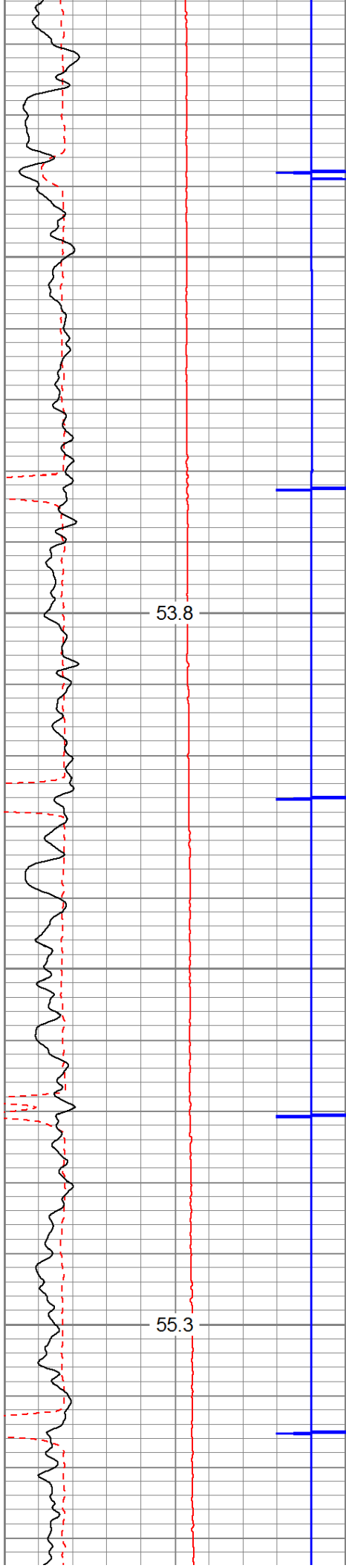


400

500

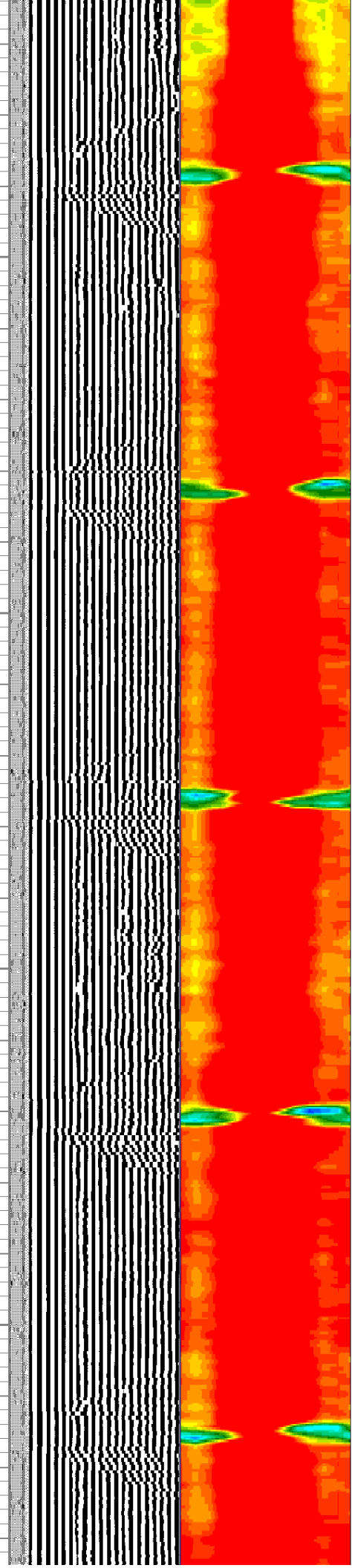
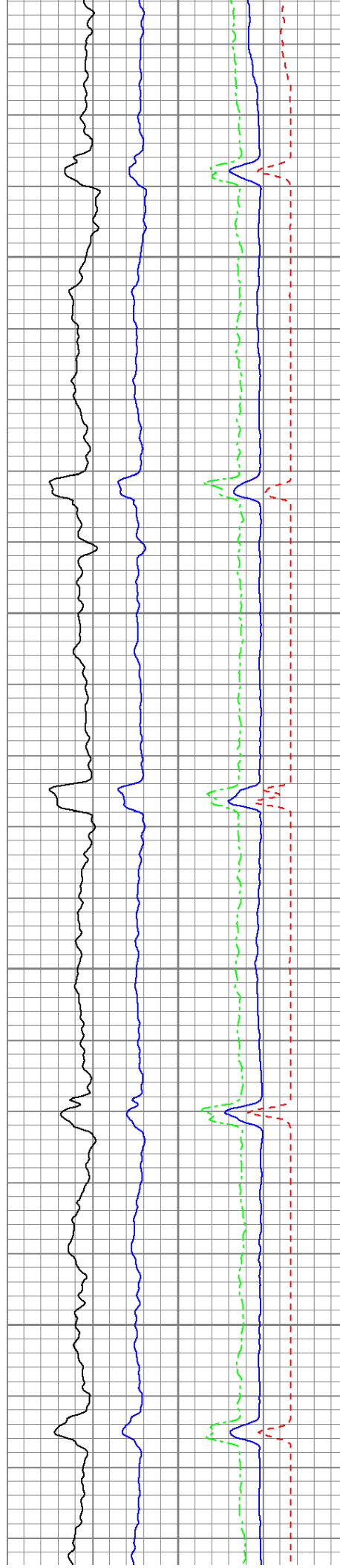


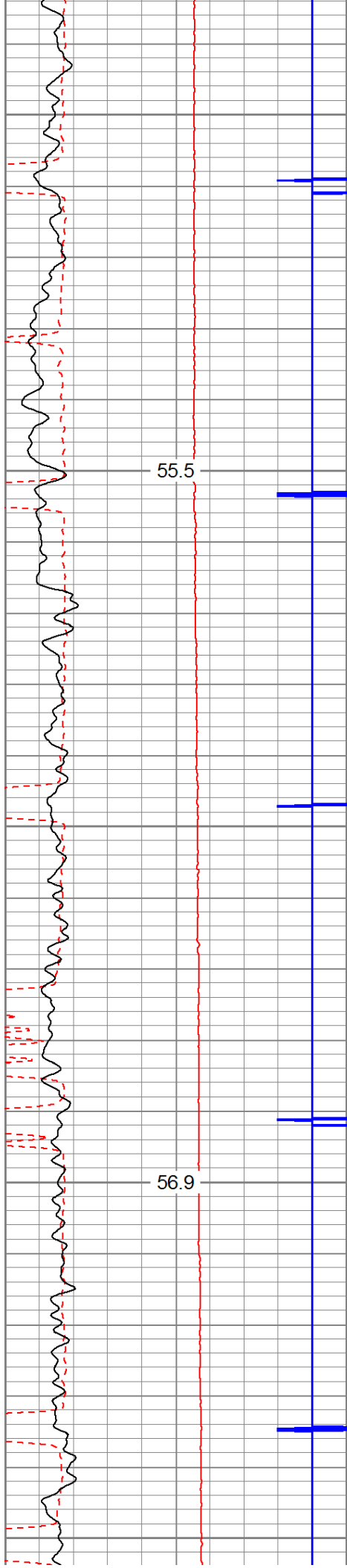




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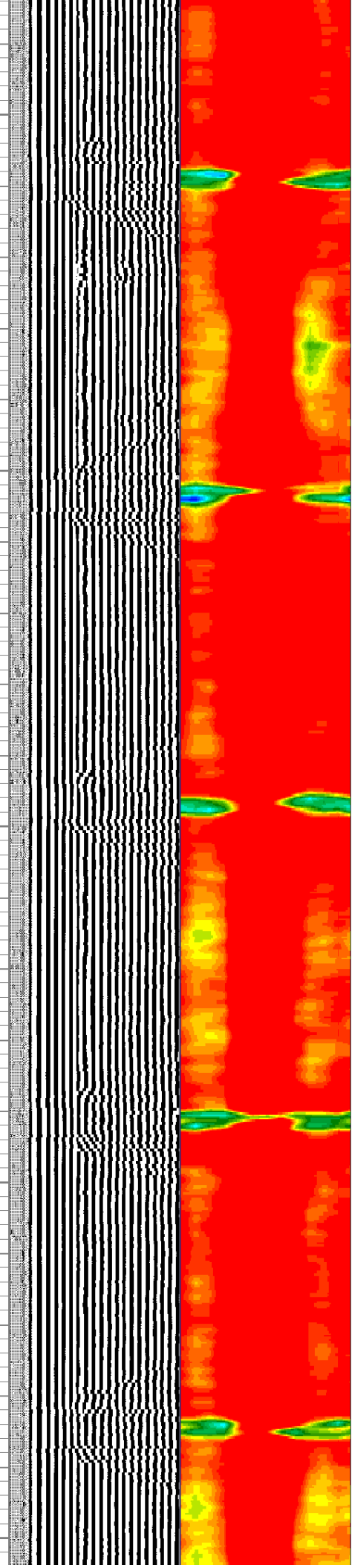
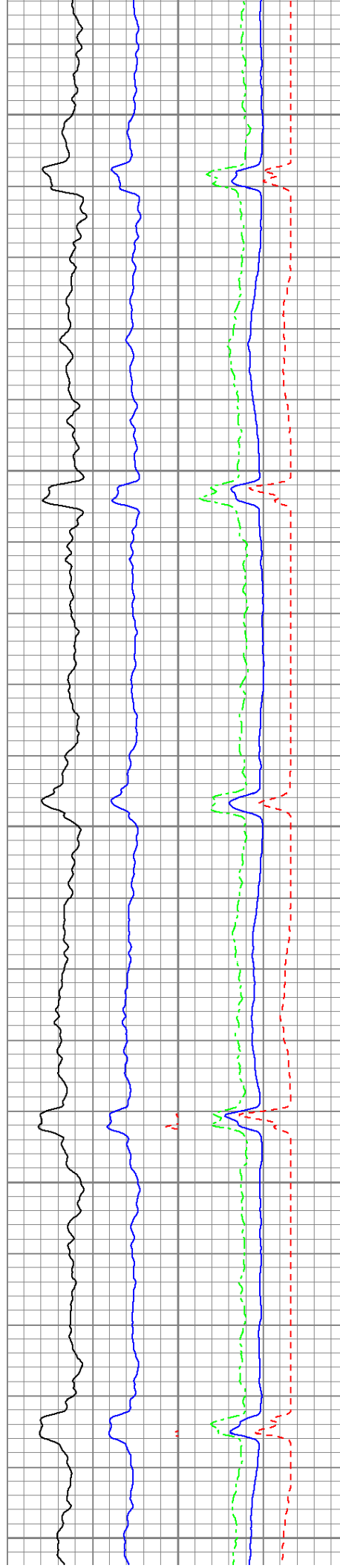
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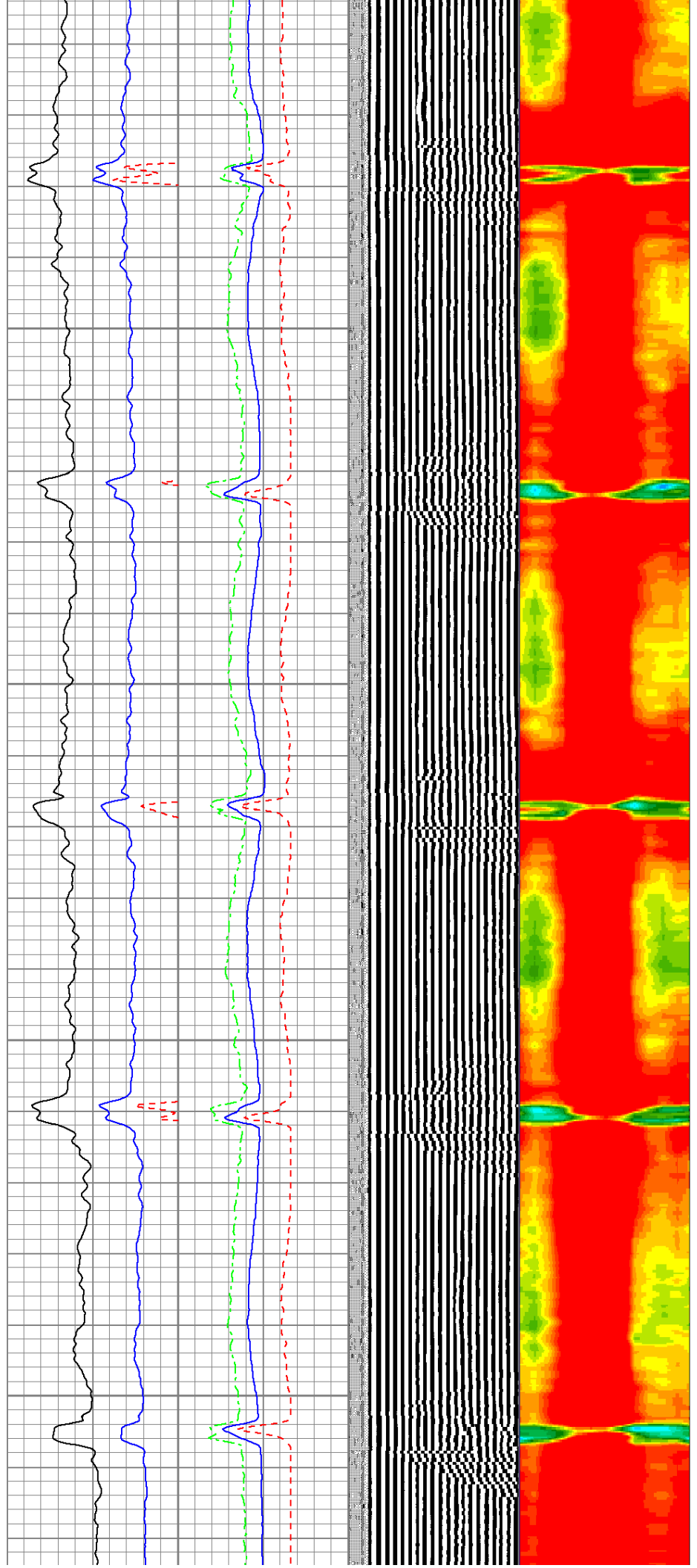
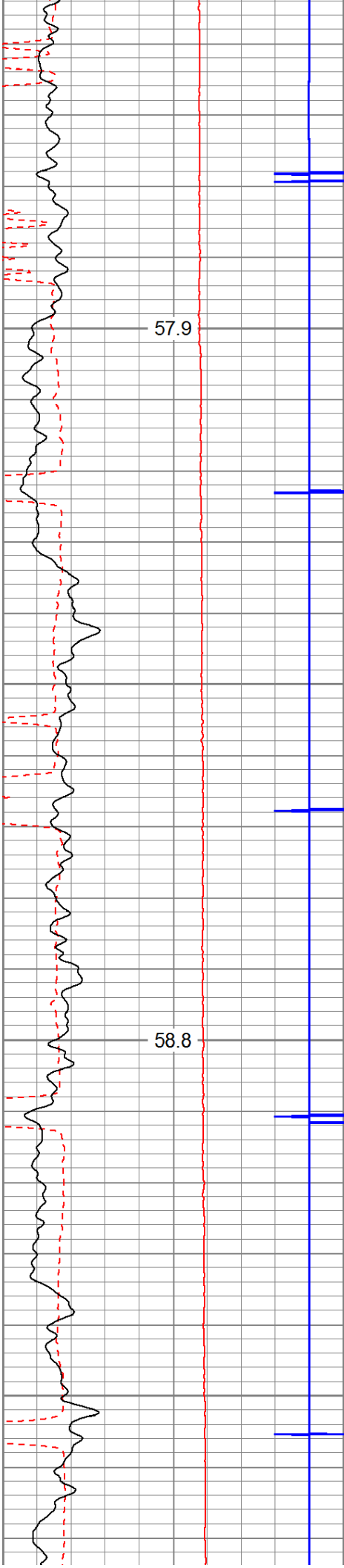


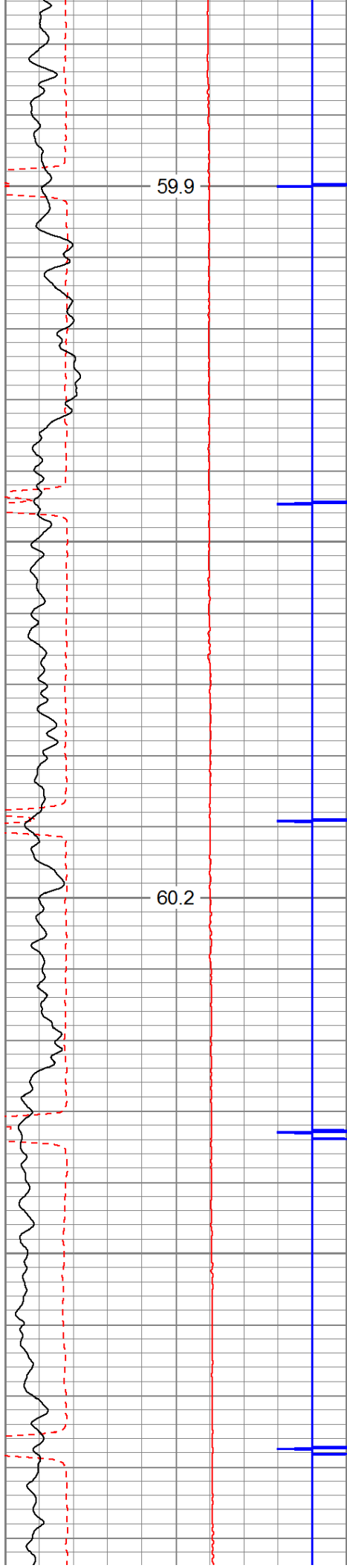


1100

1200

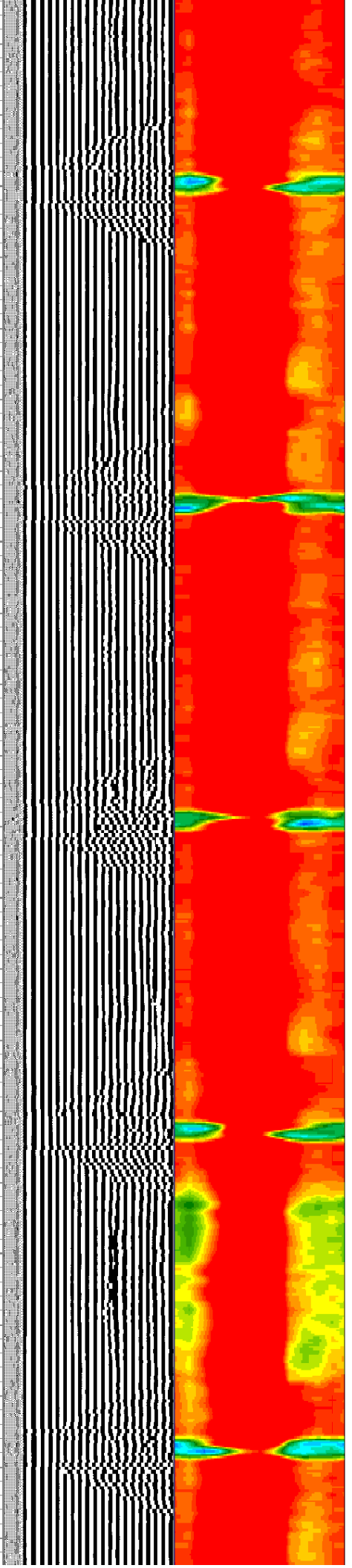
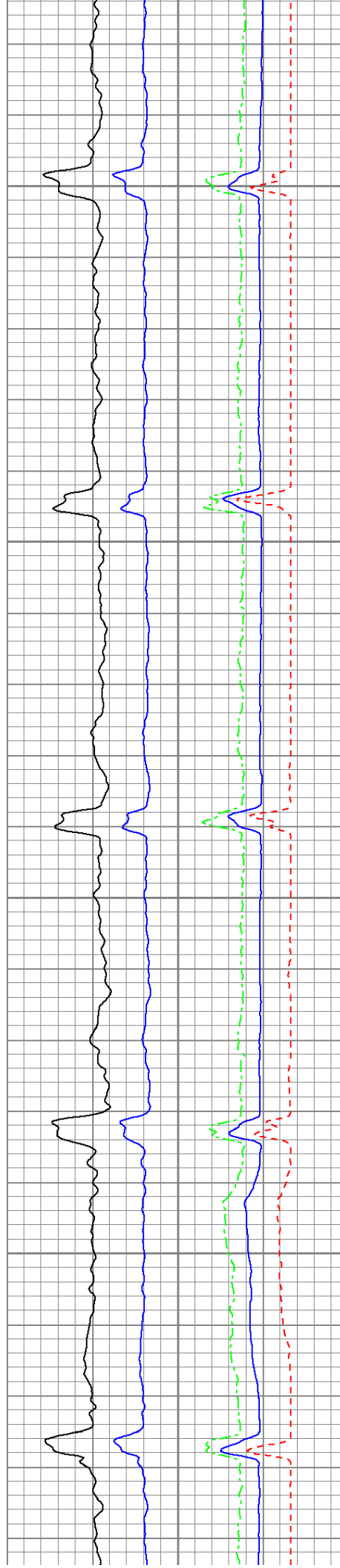


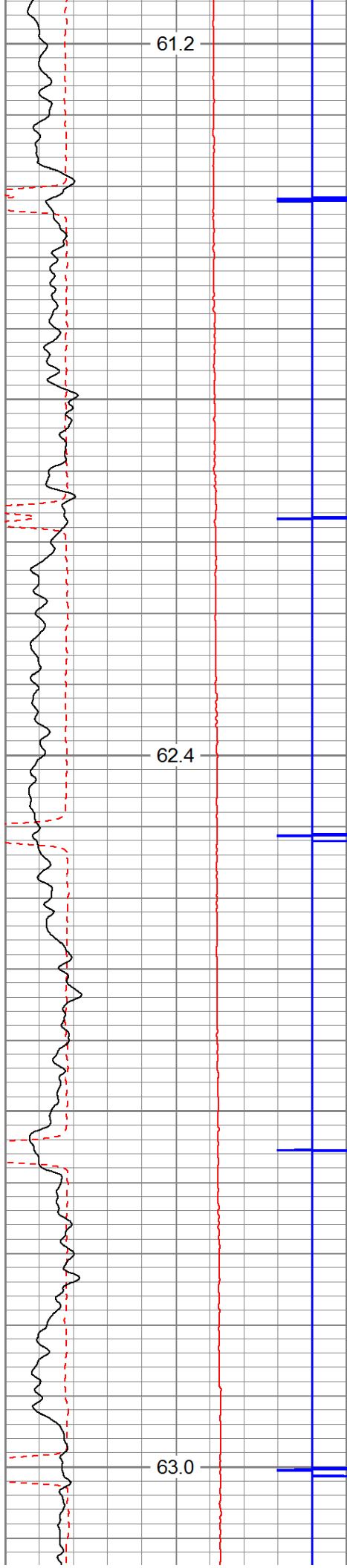




1500

1600

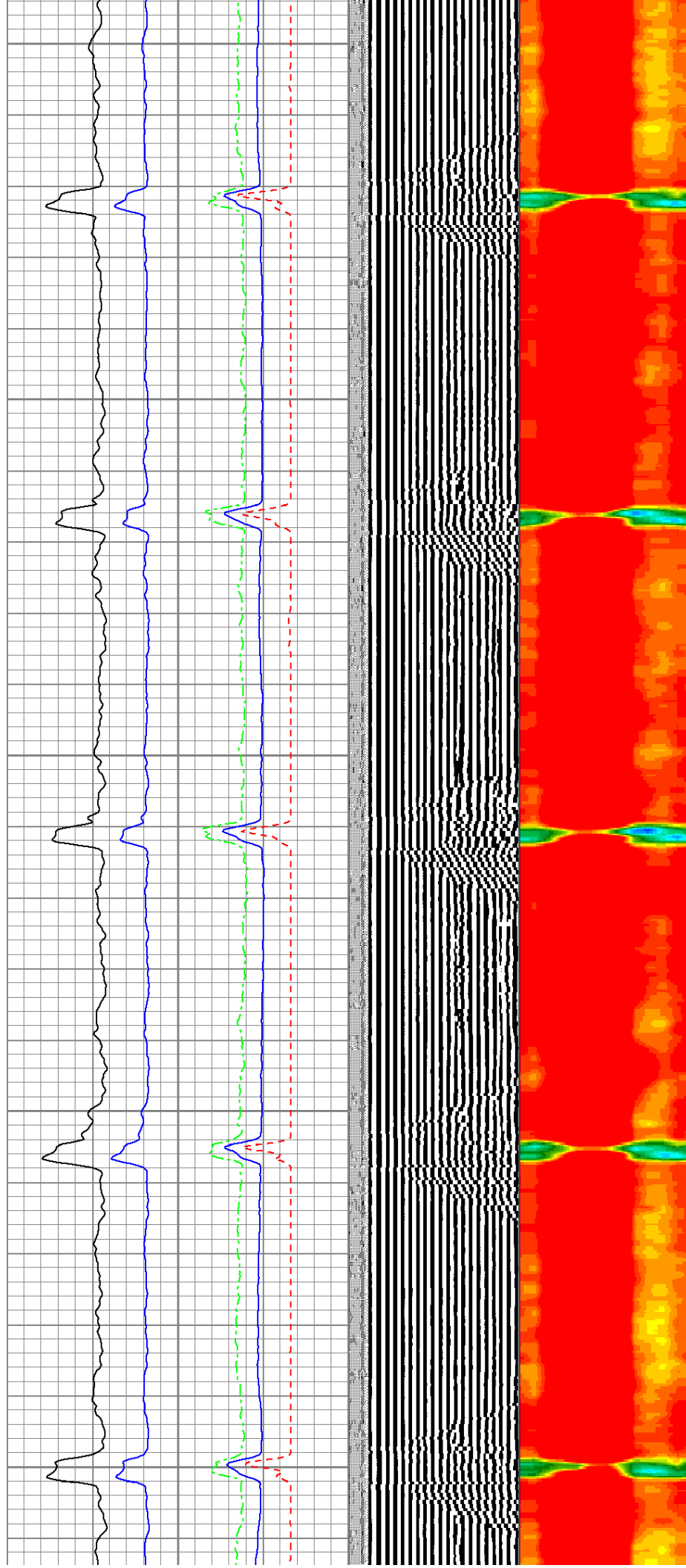


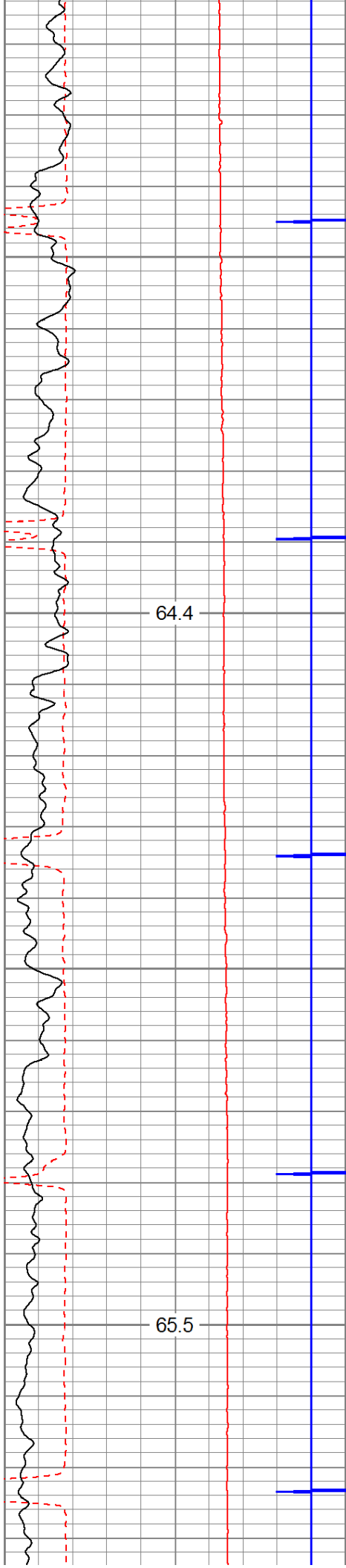


1700

1800

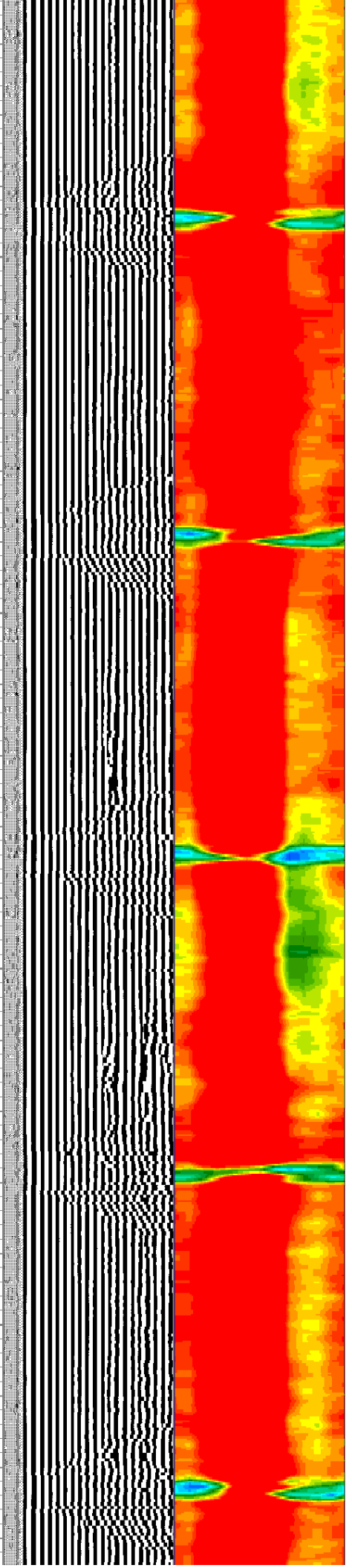
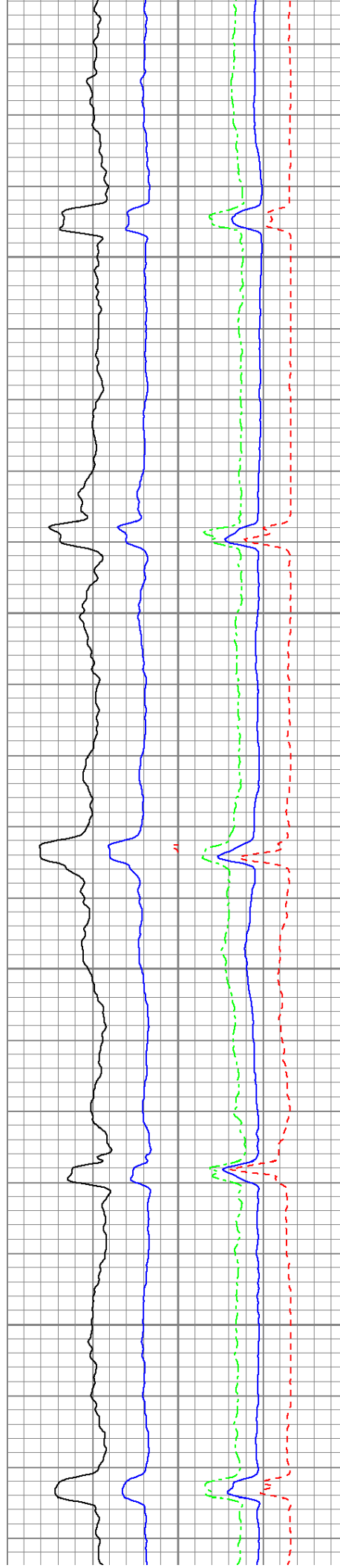
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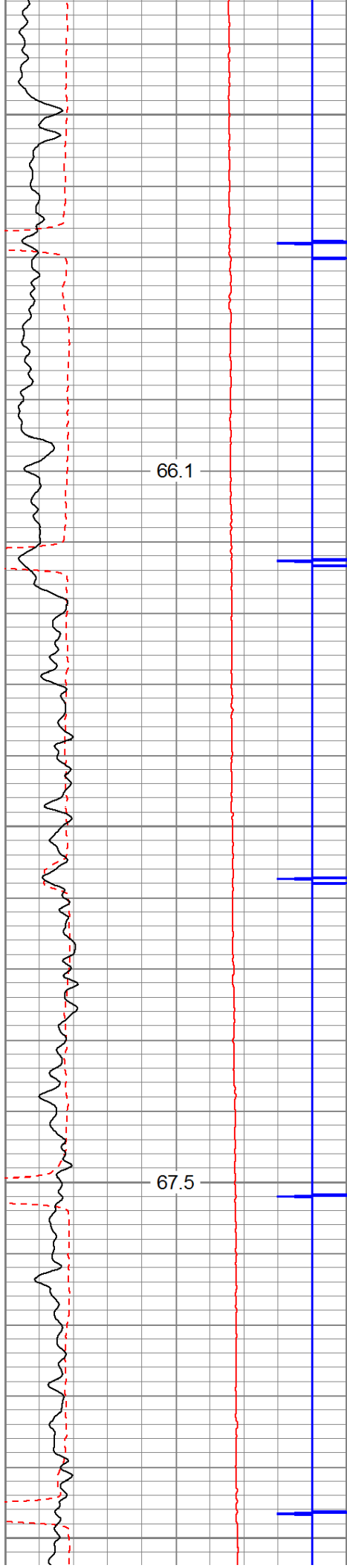




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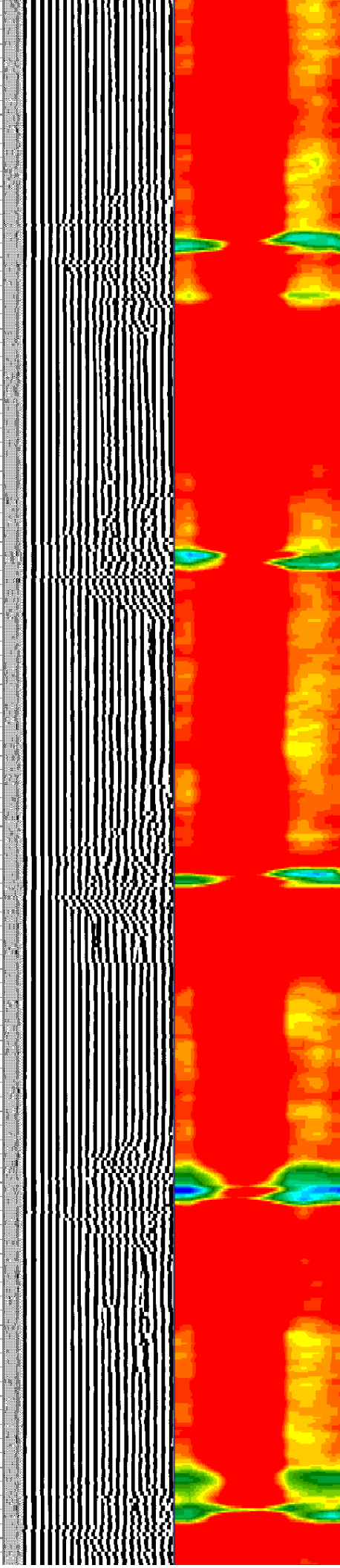
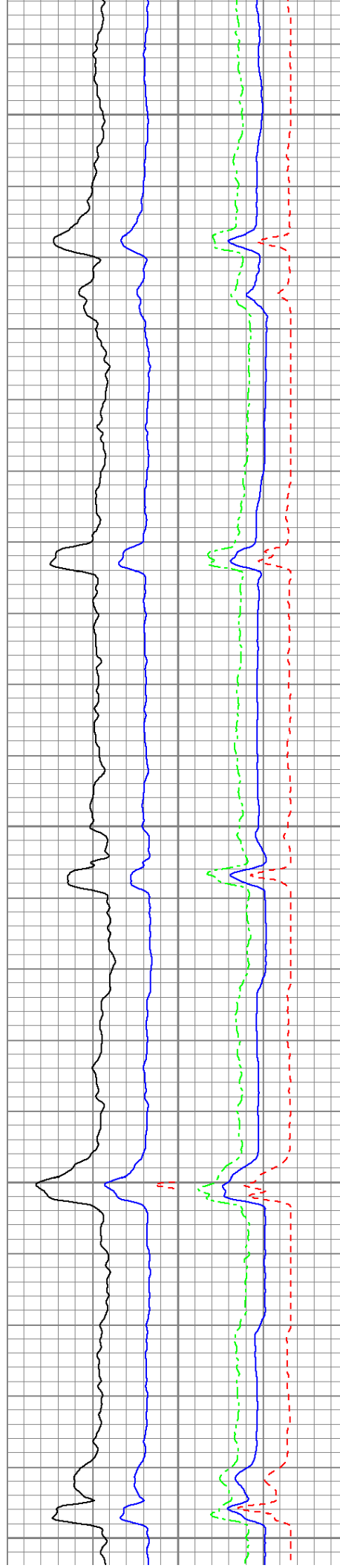
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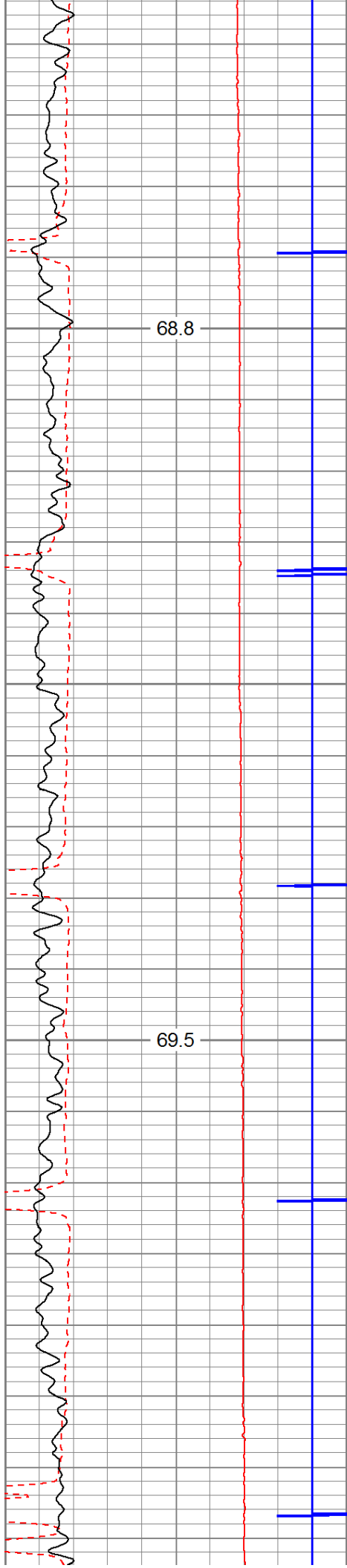




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2300



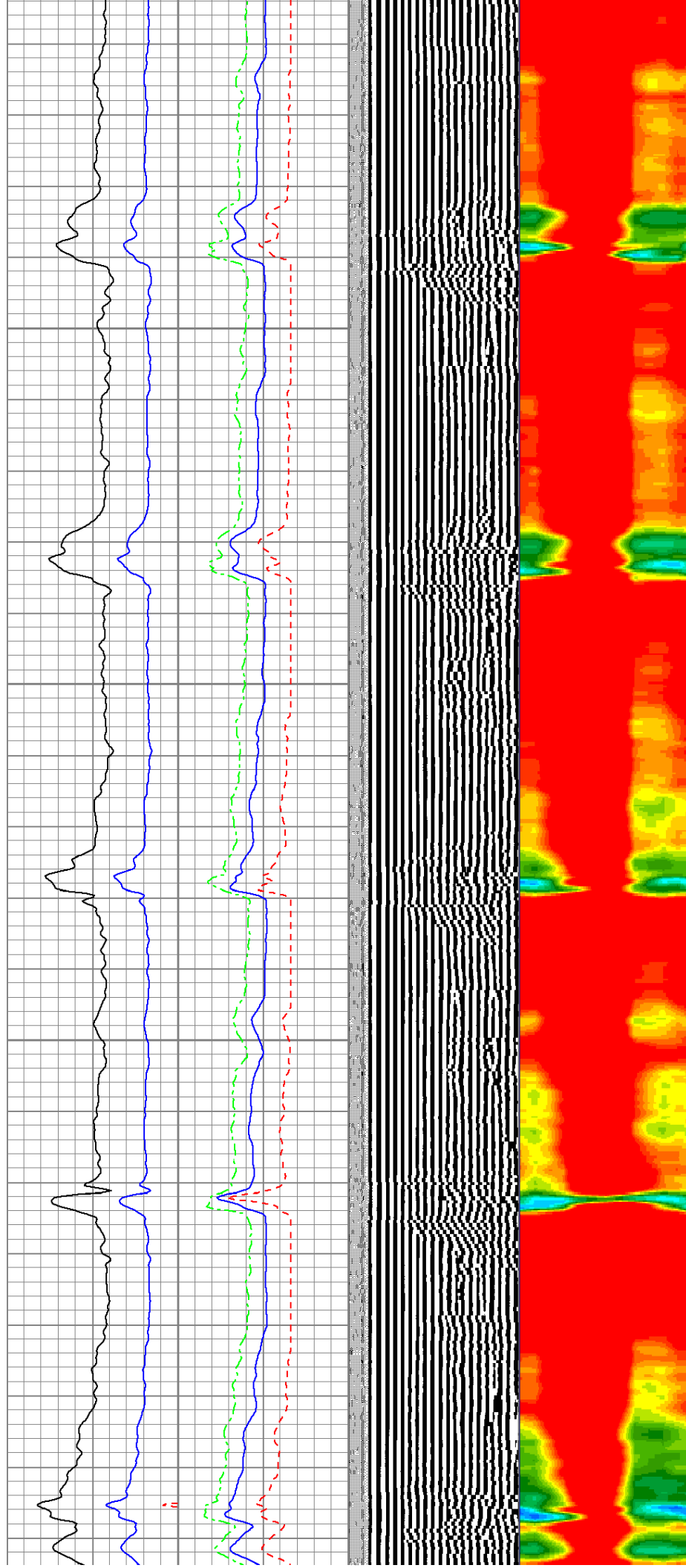


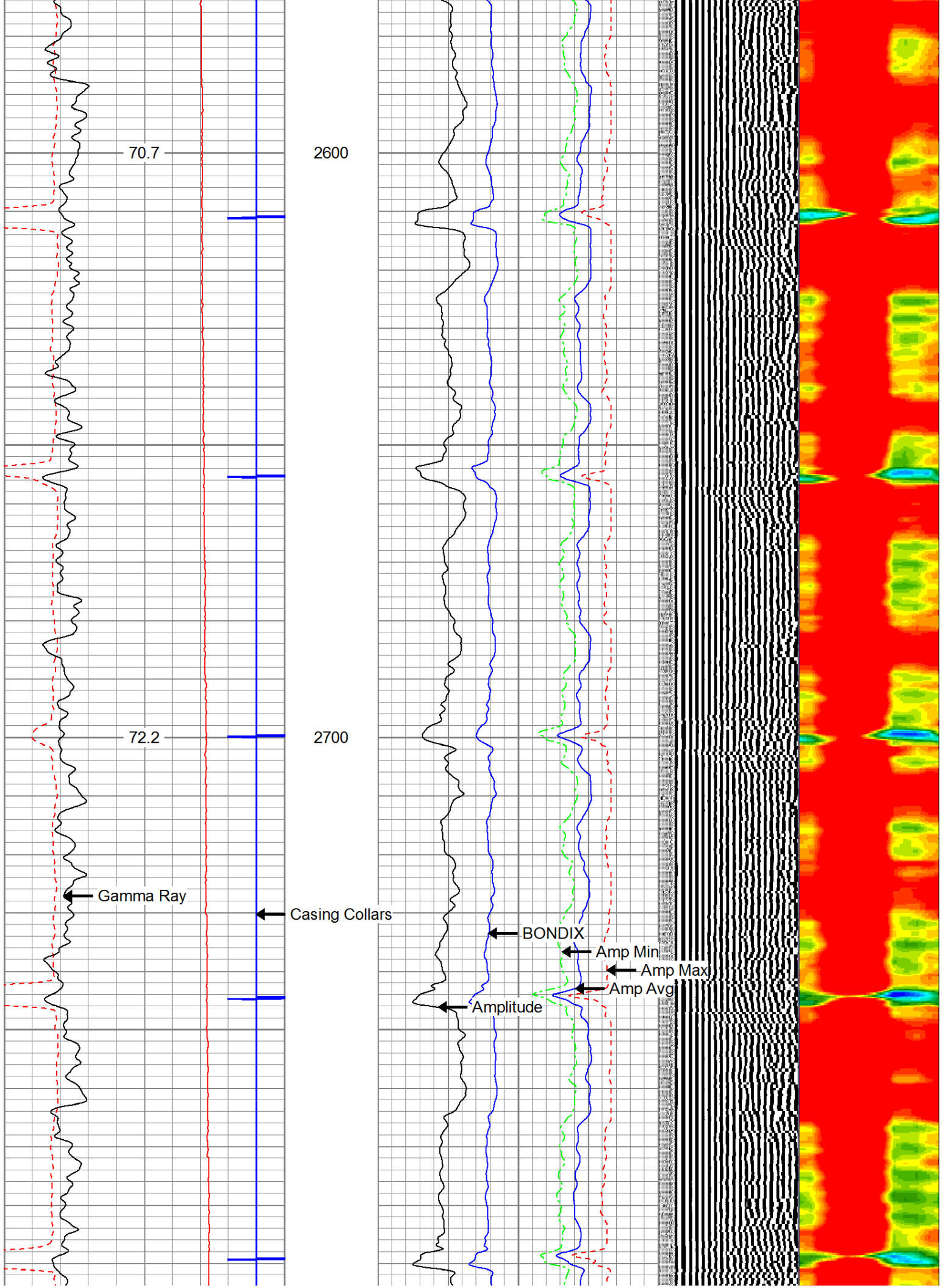
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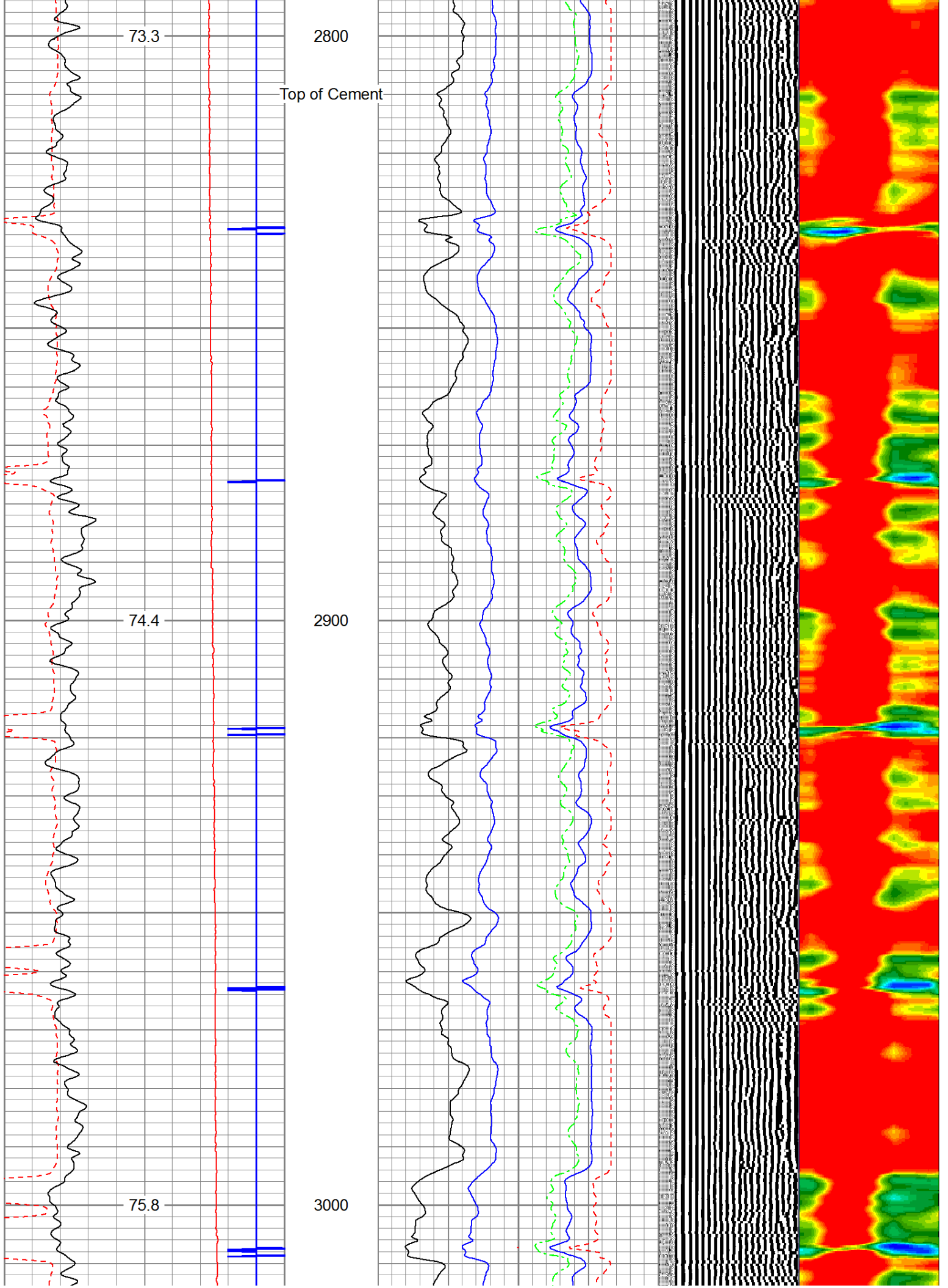
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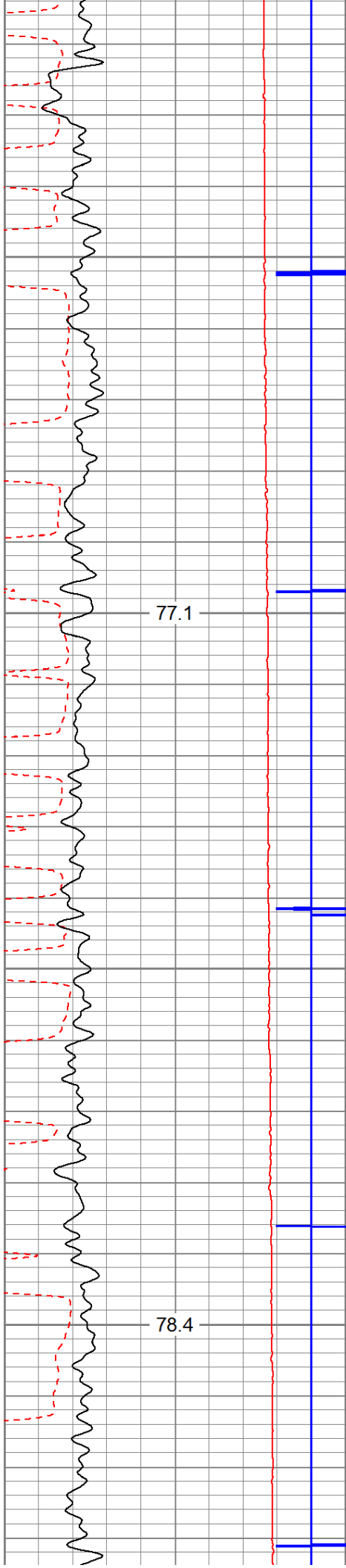
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69.5



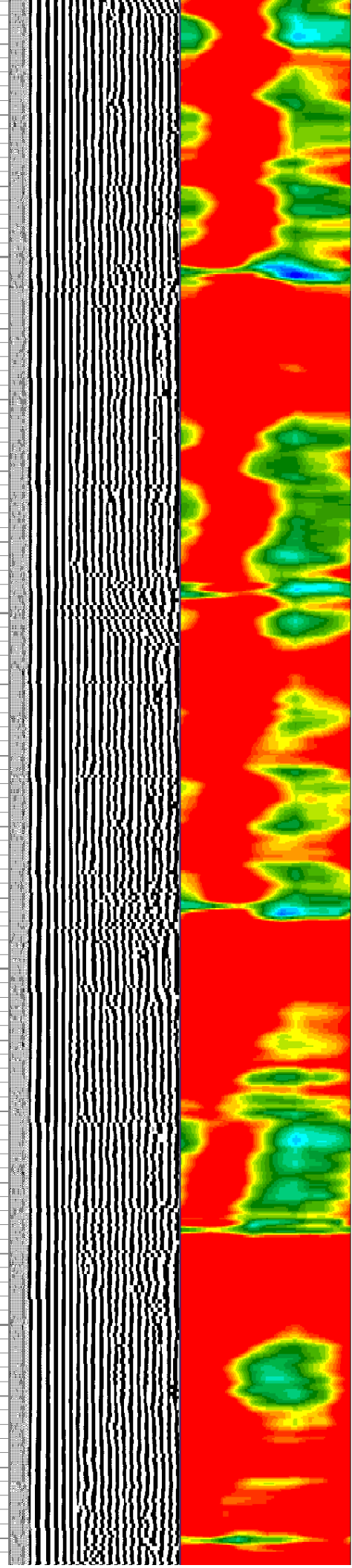
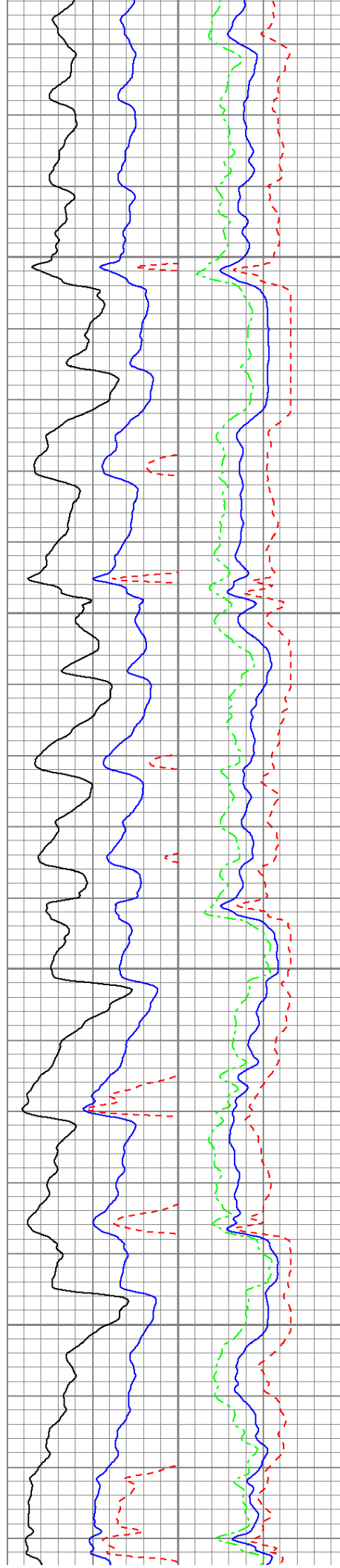


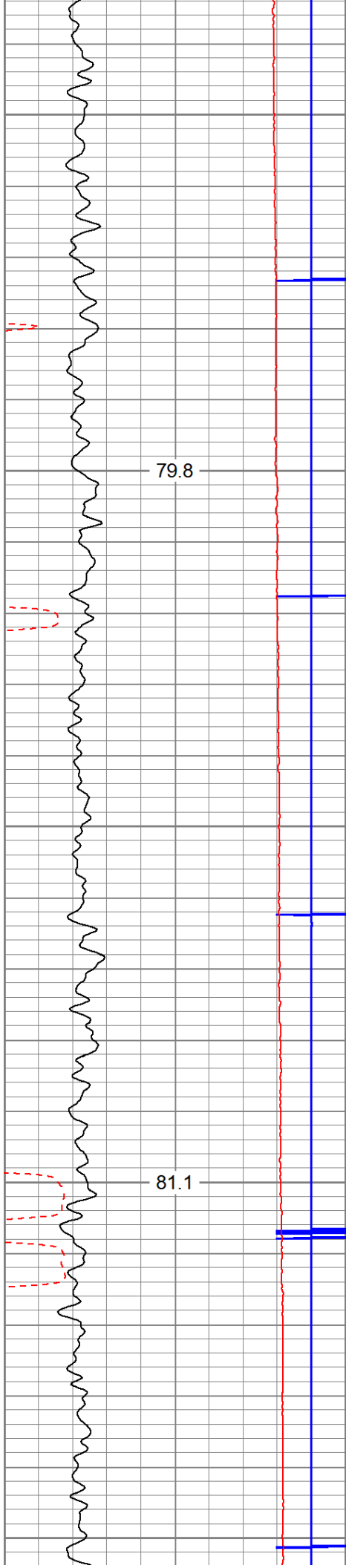




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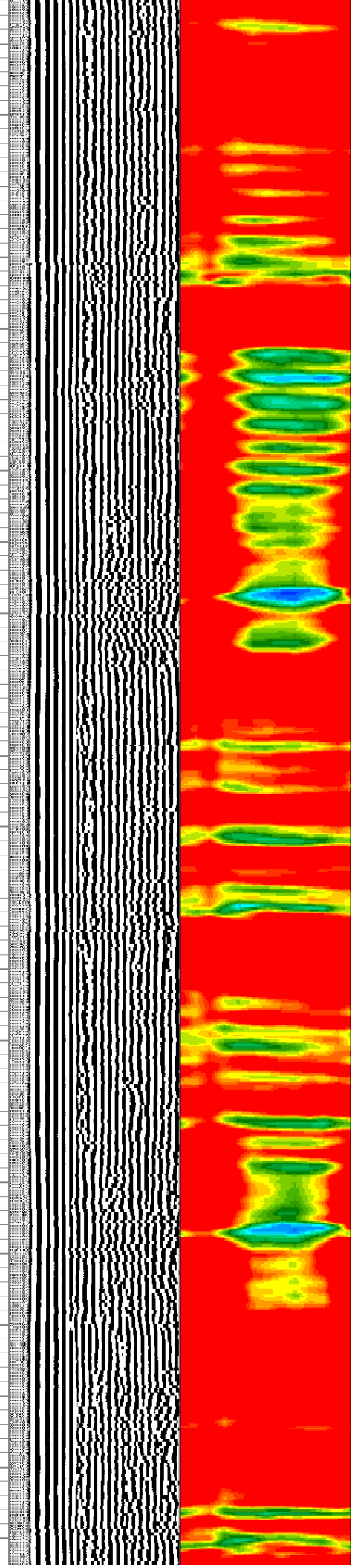
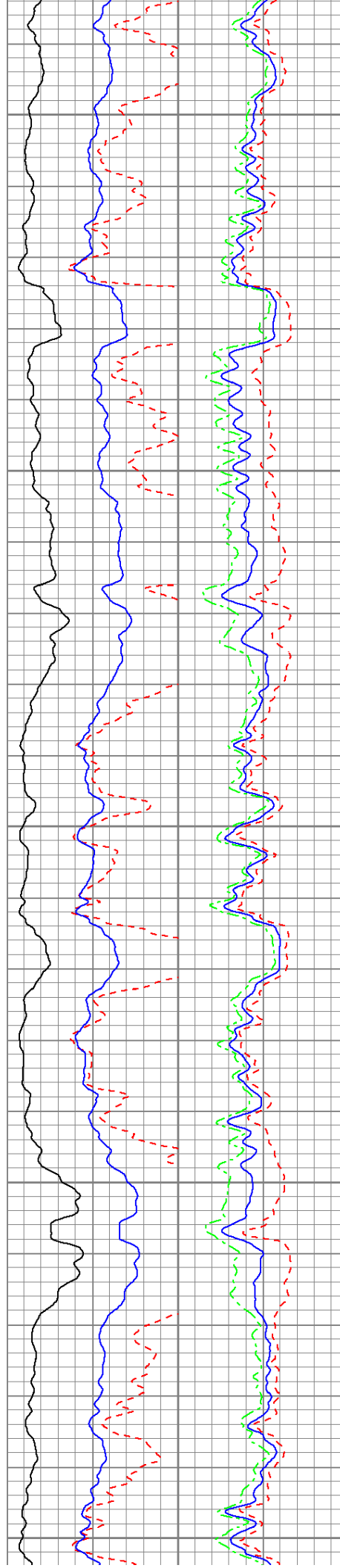
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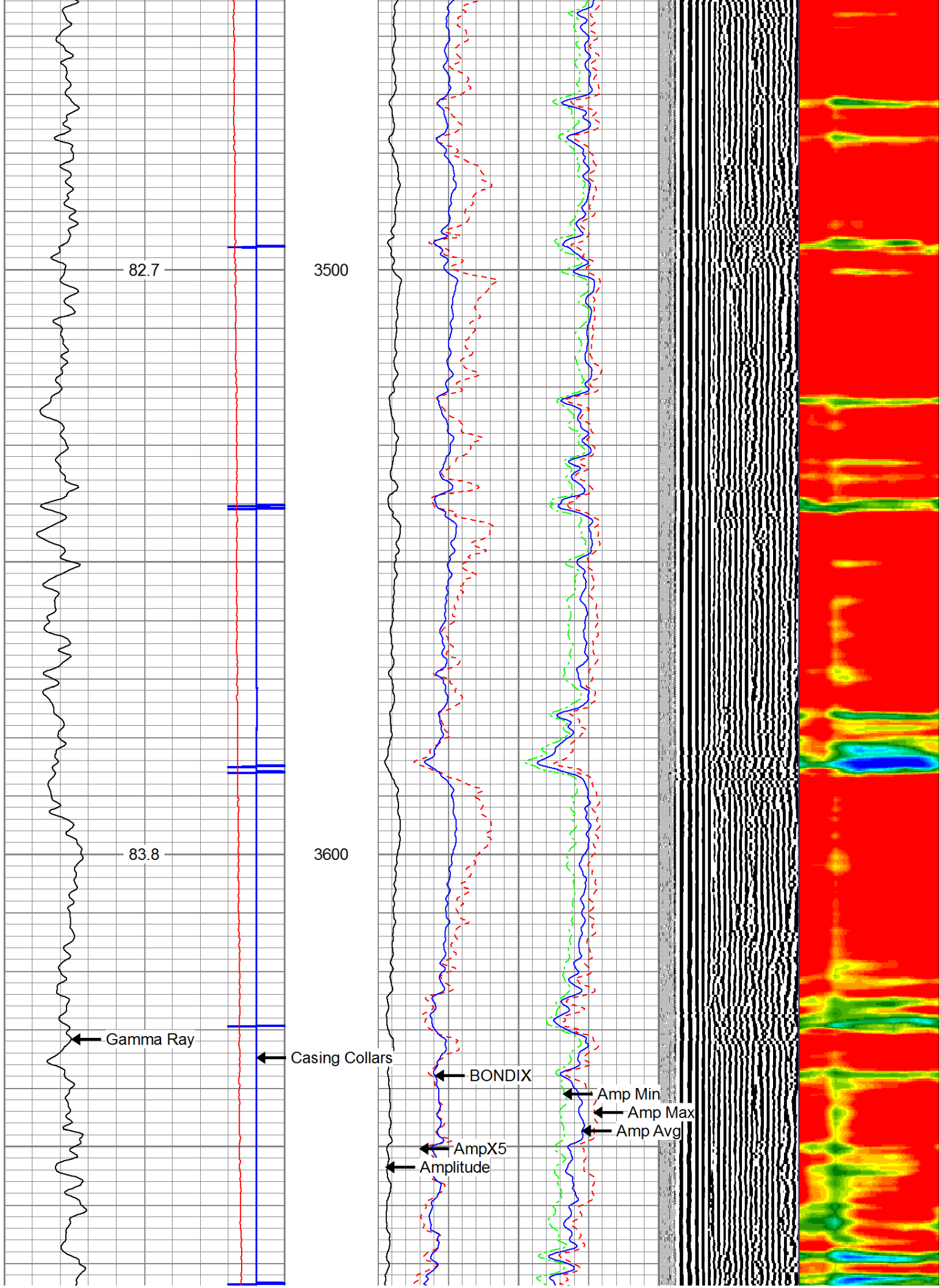


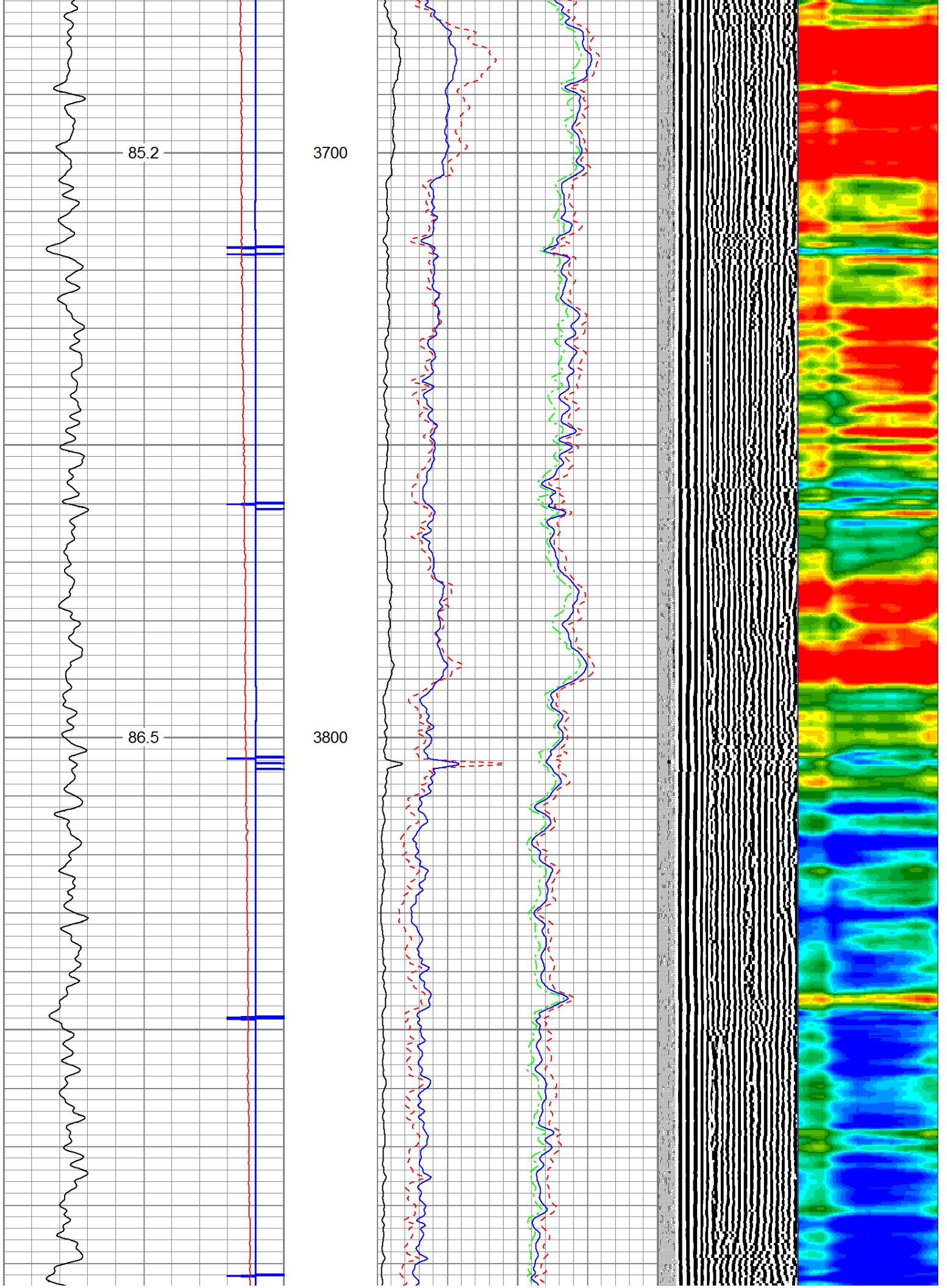


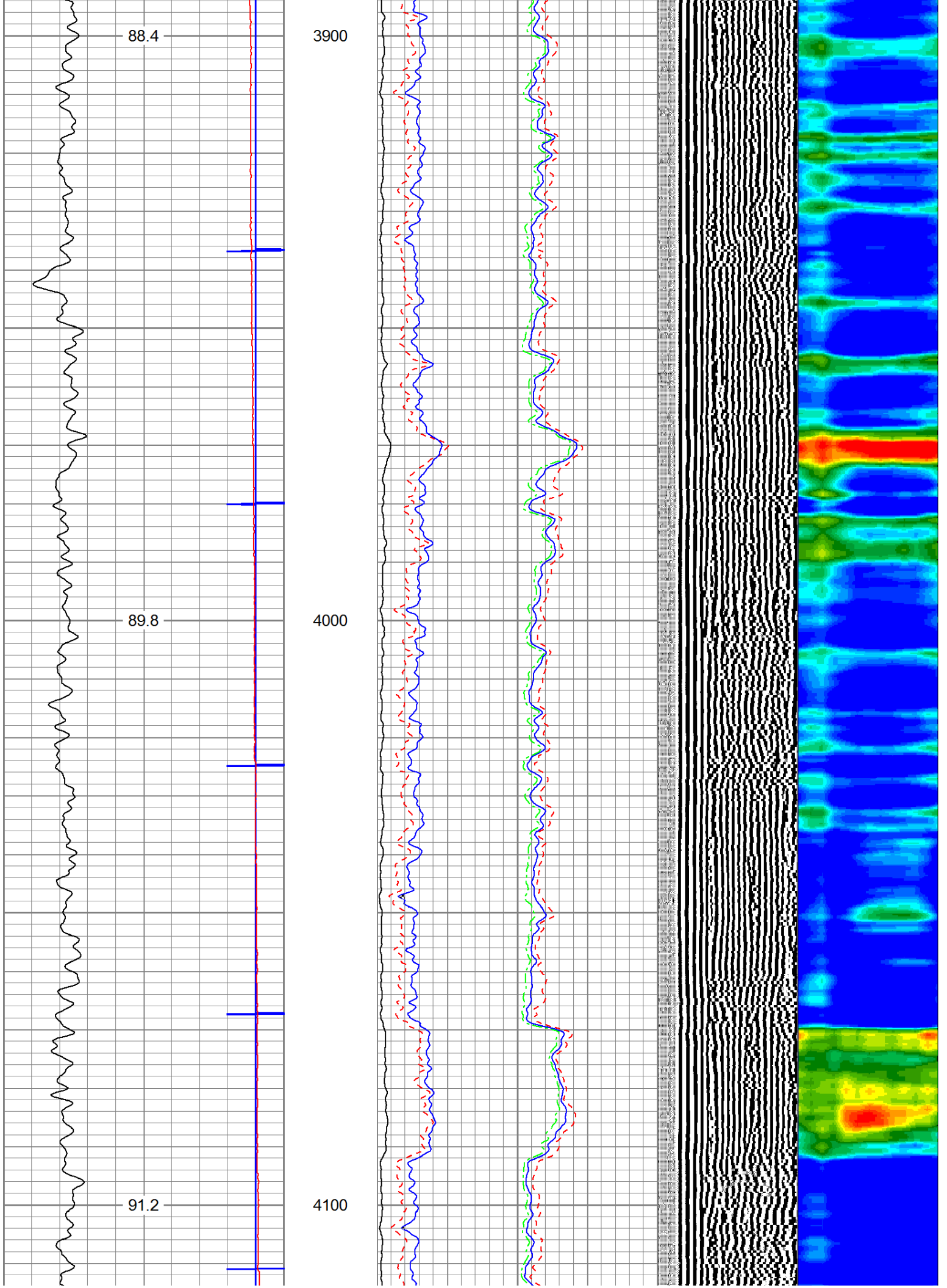
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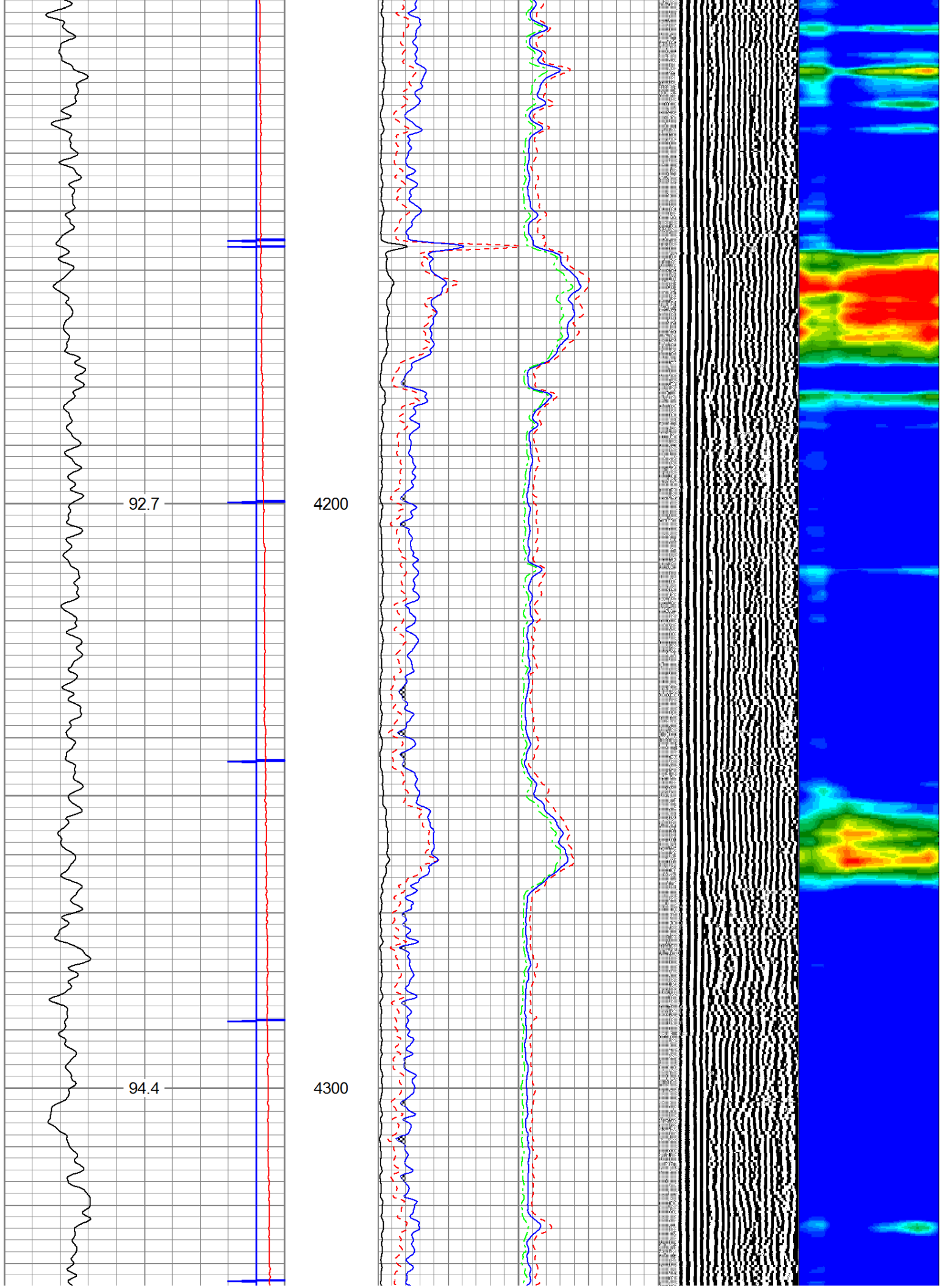
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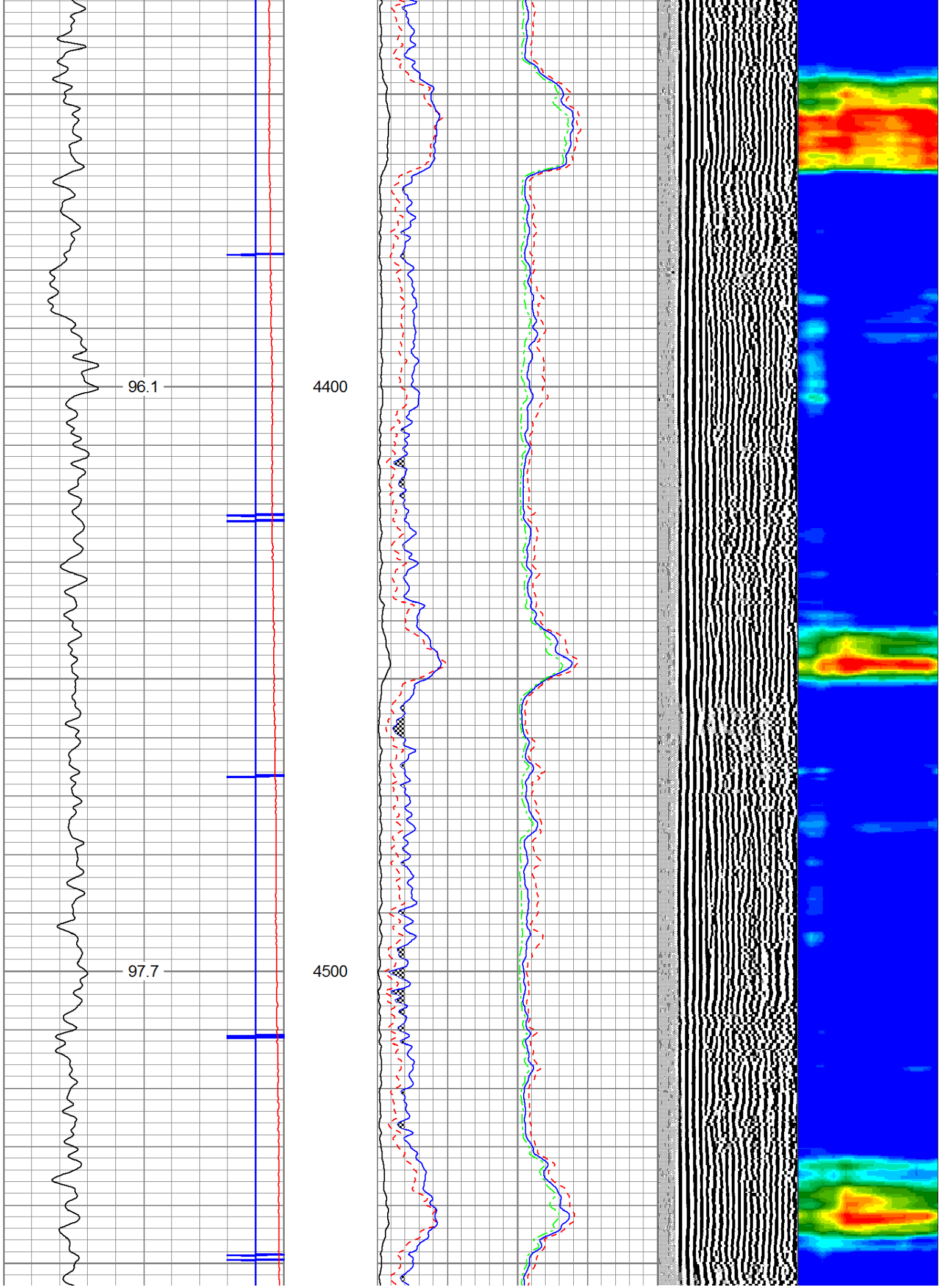


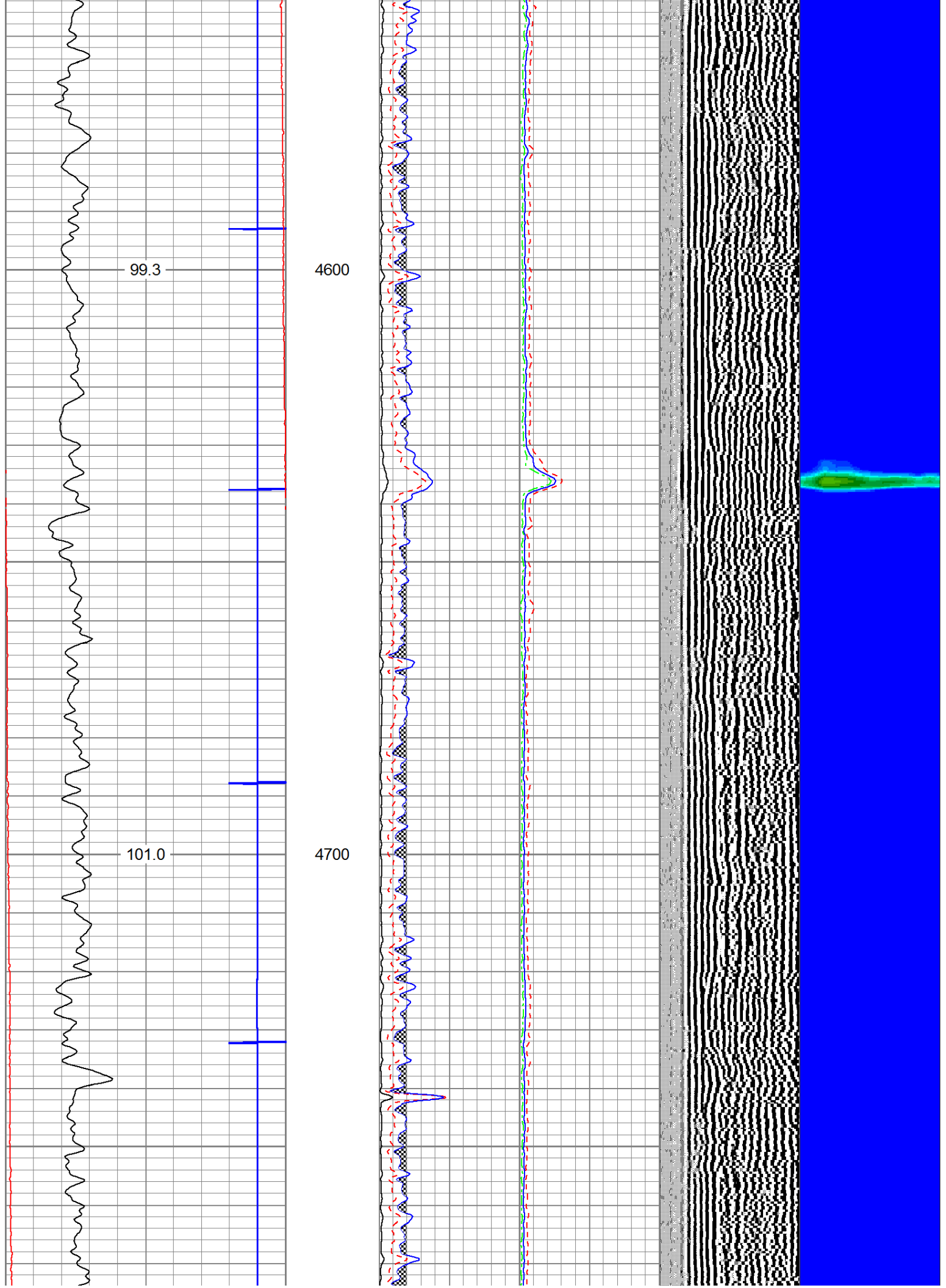


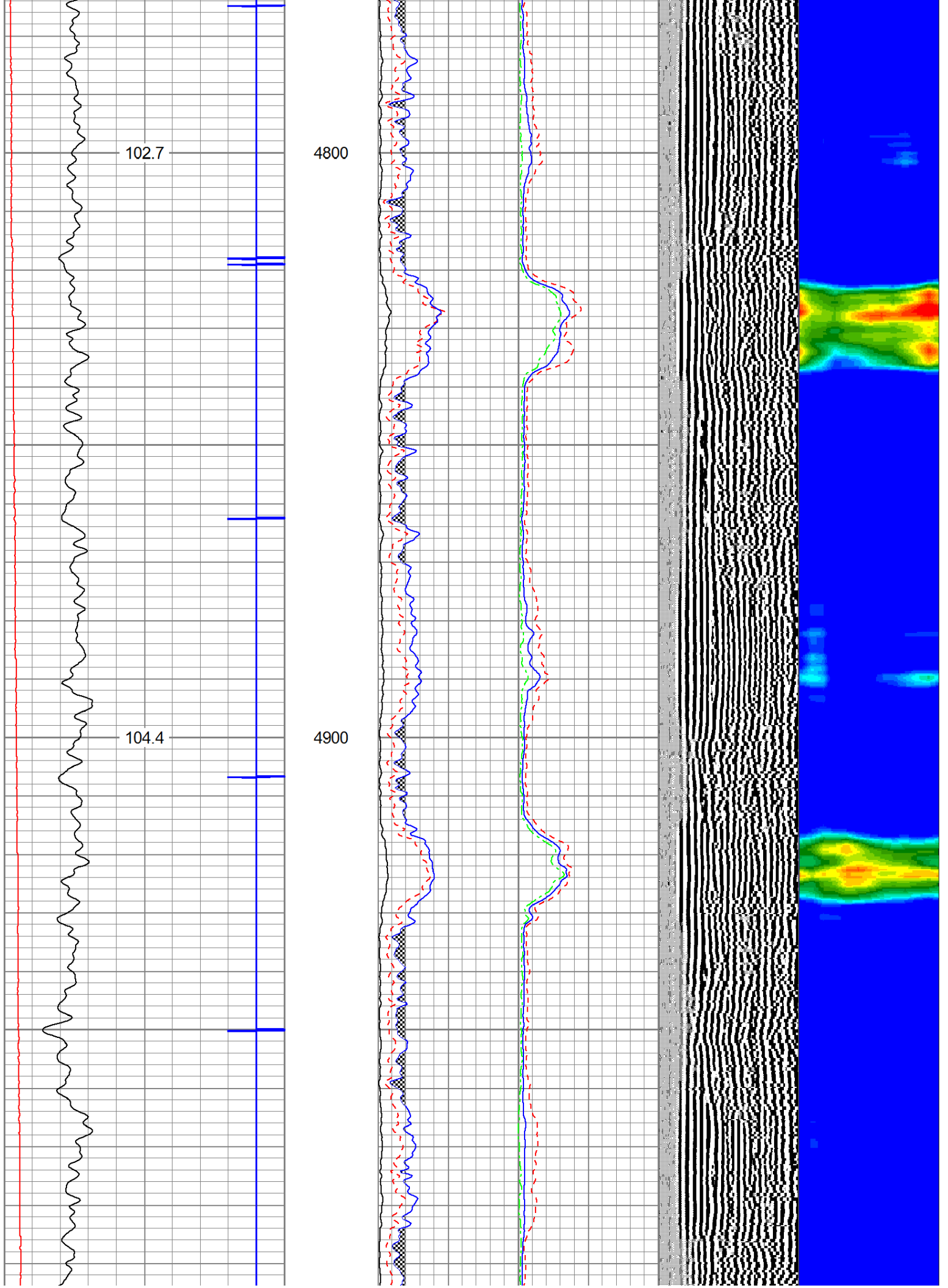


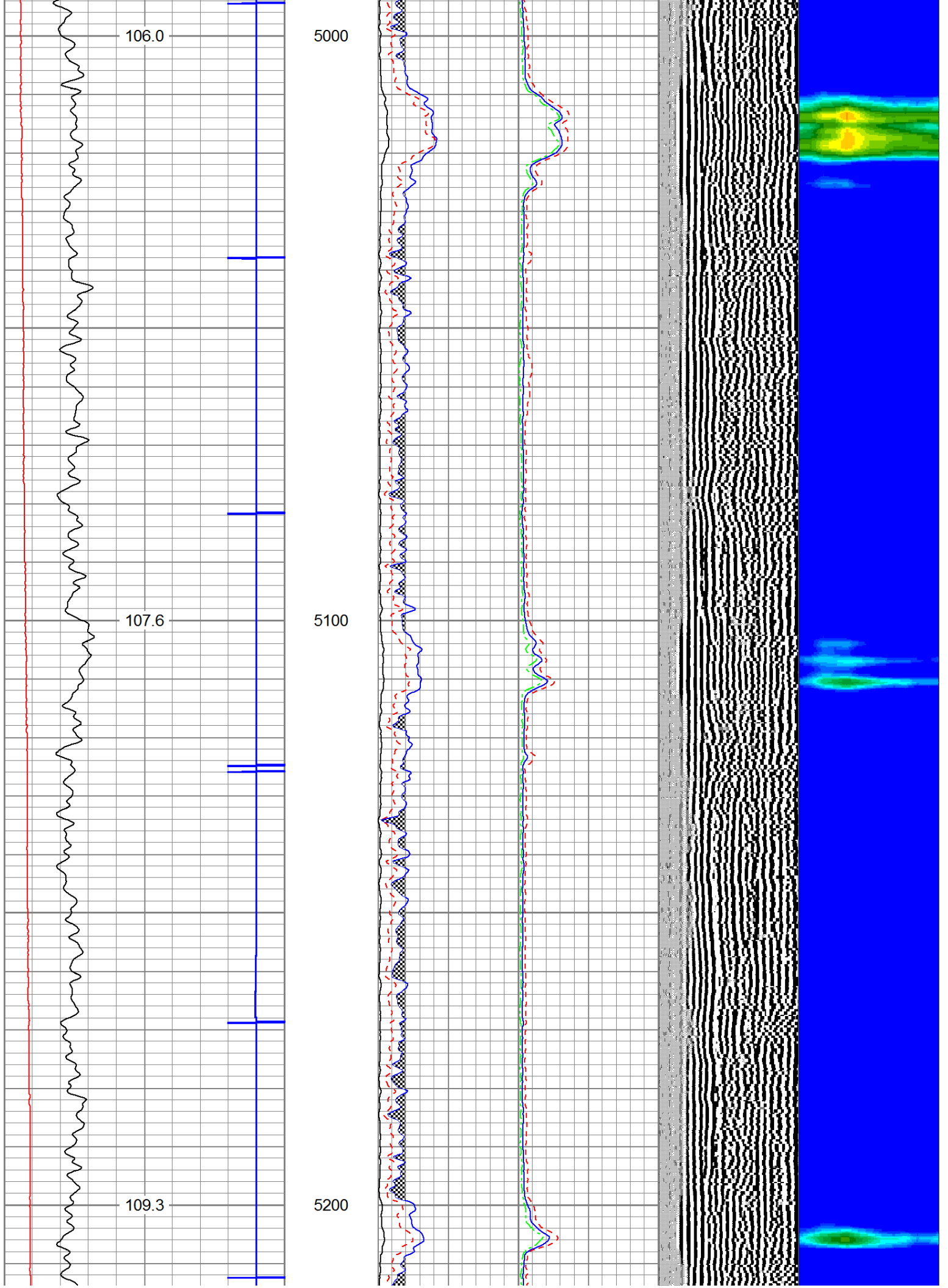


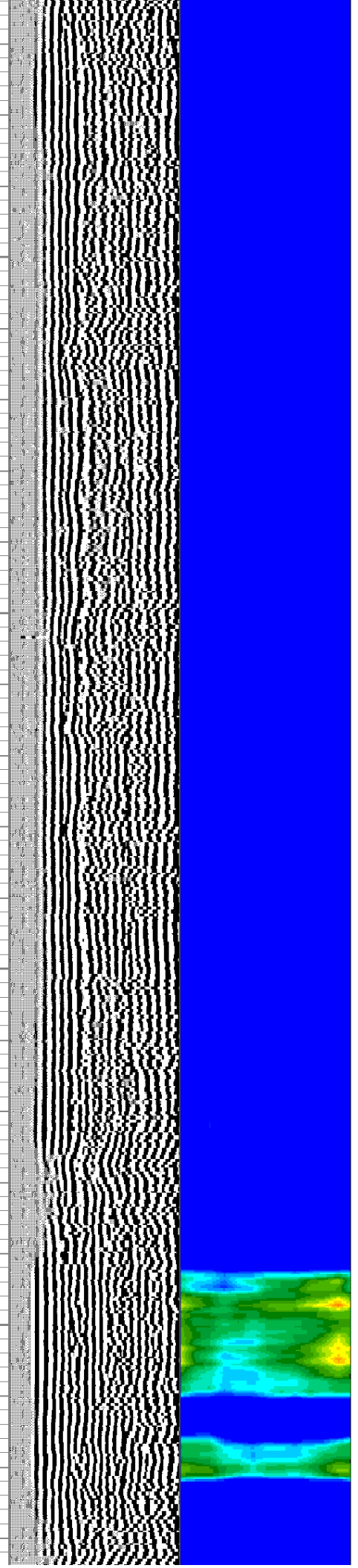
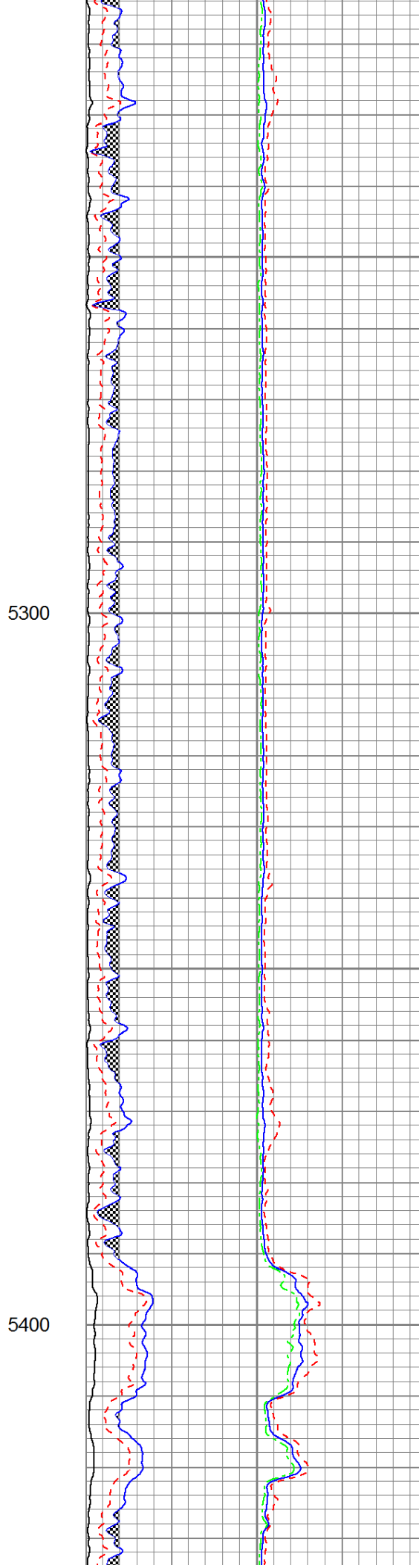
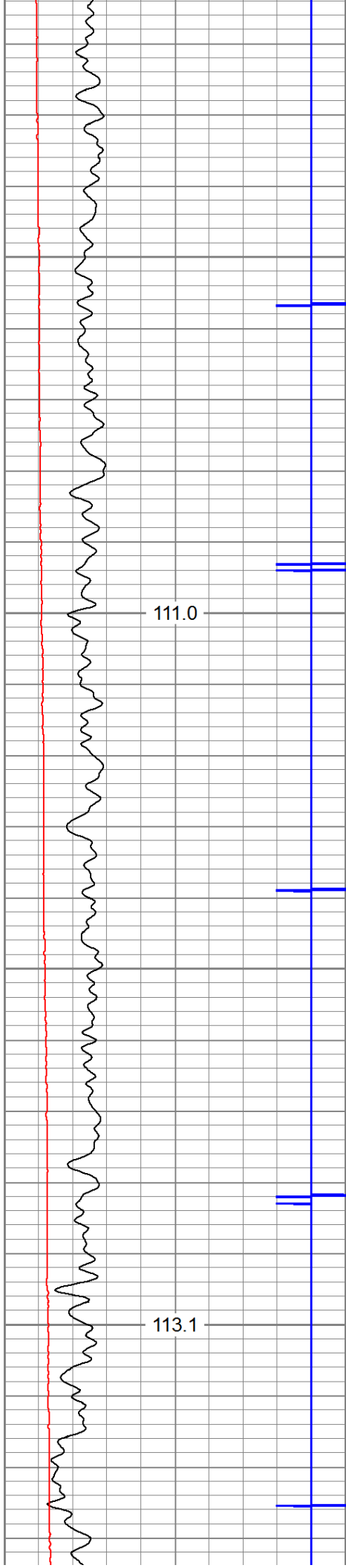


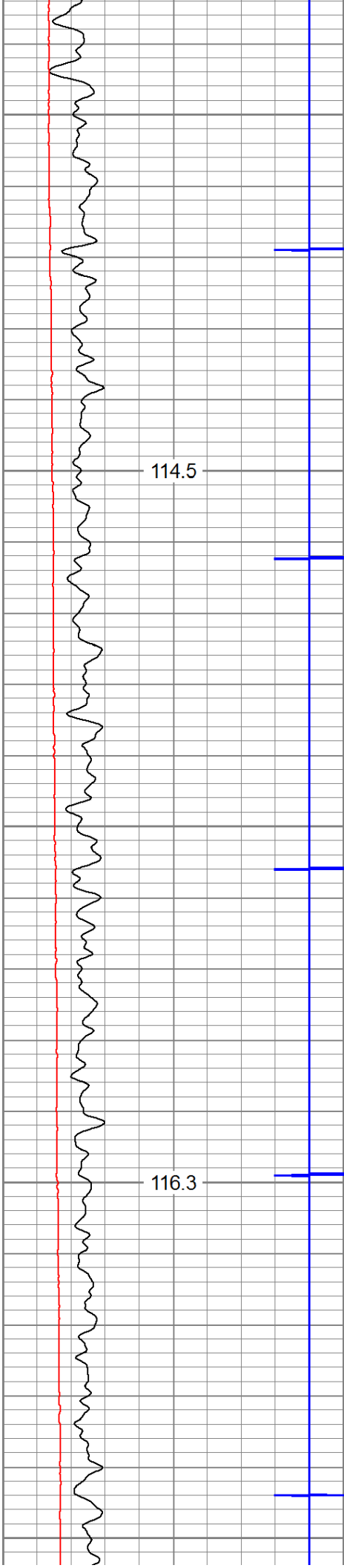






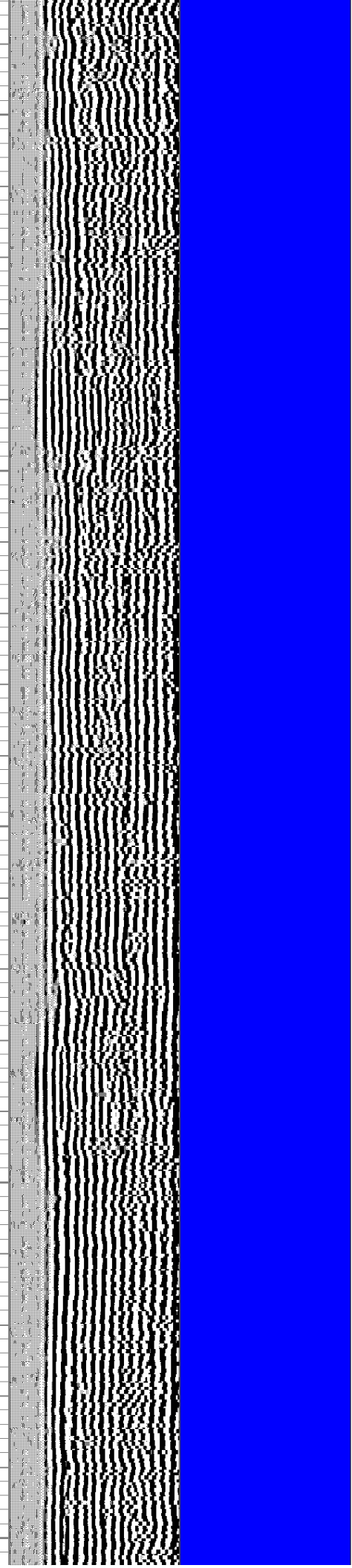
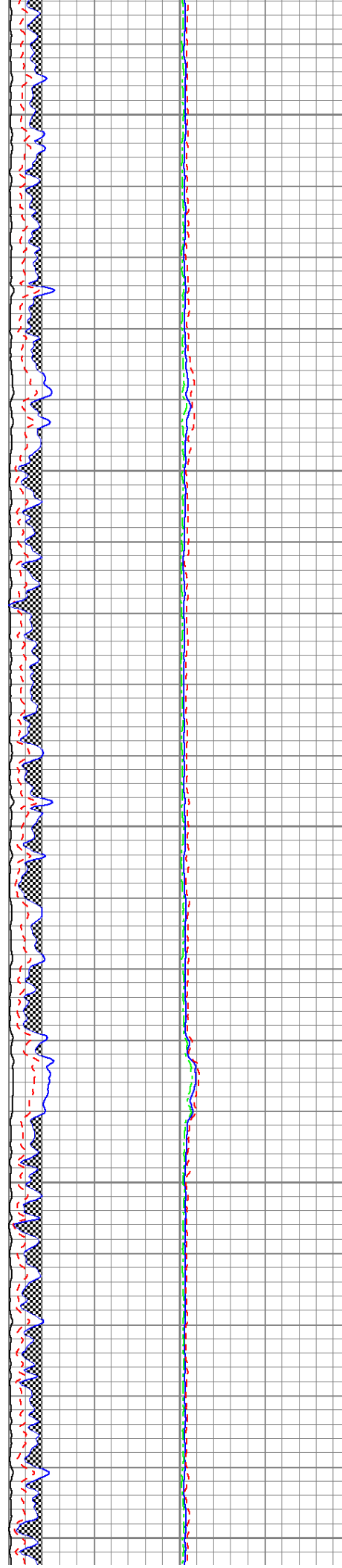


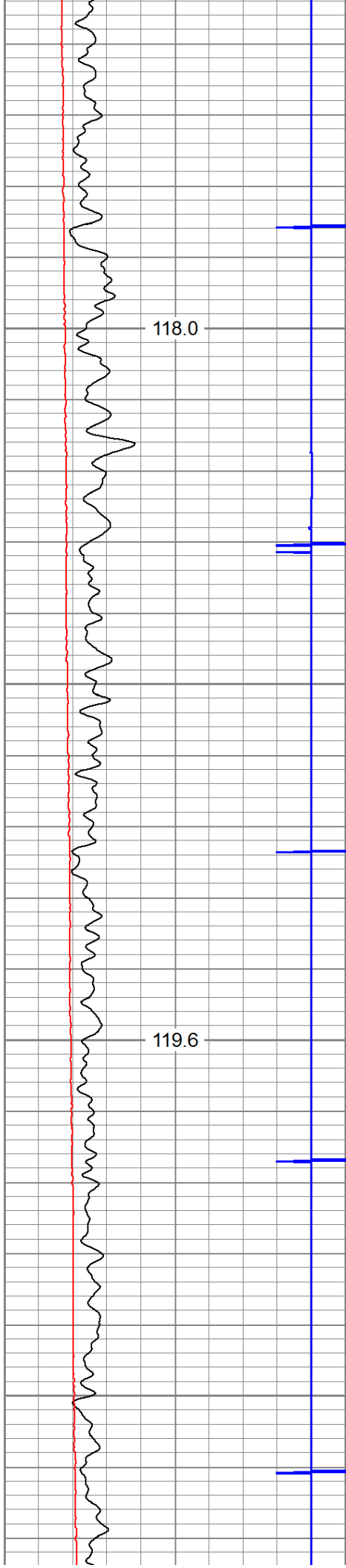




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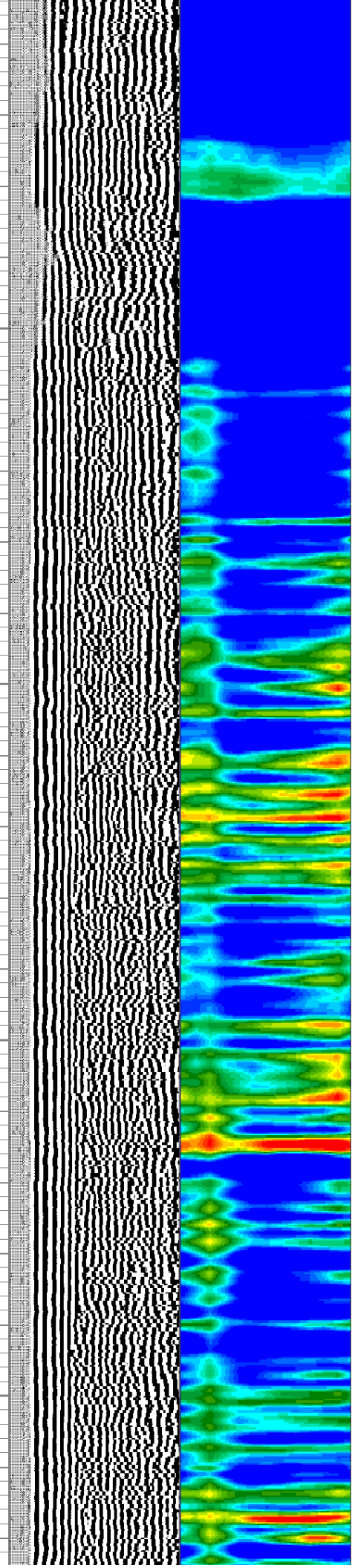
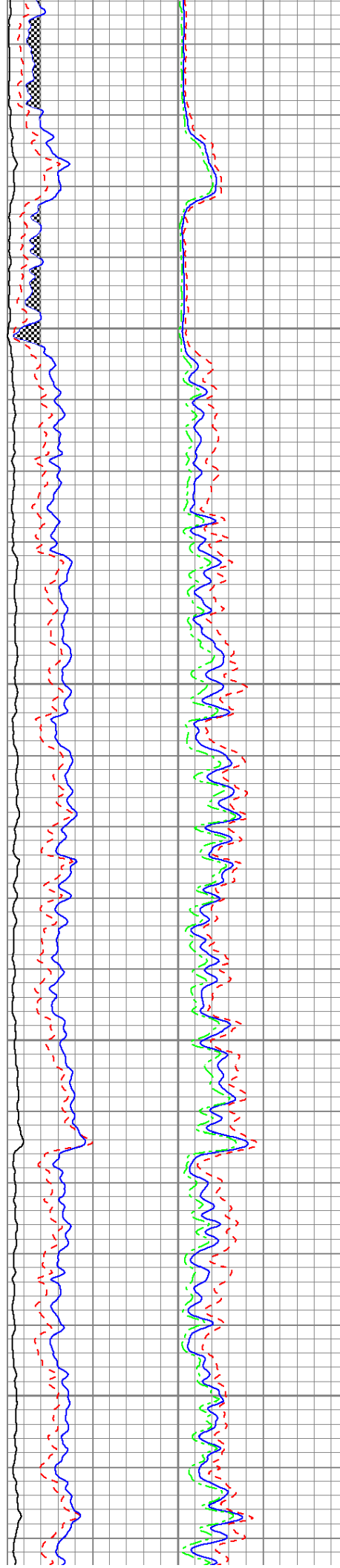
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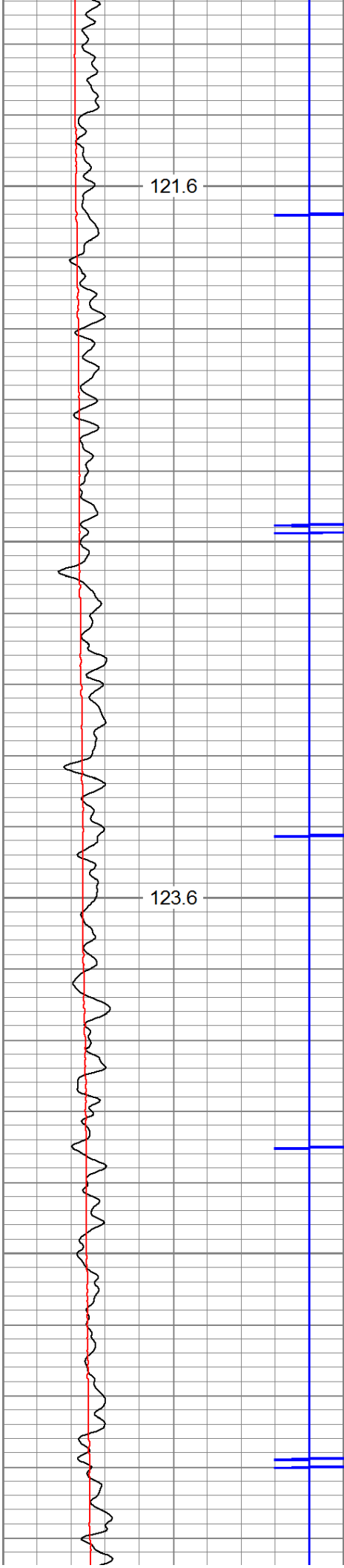




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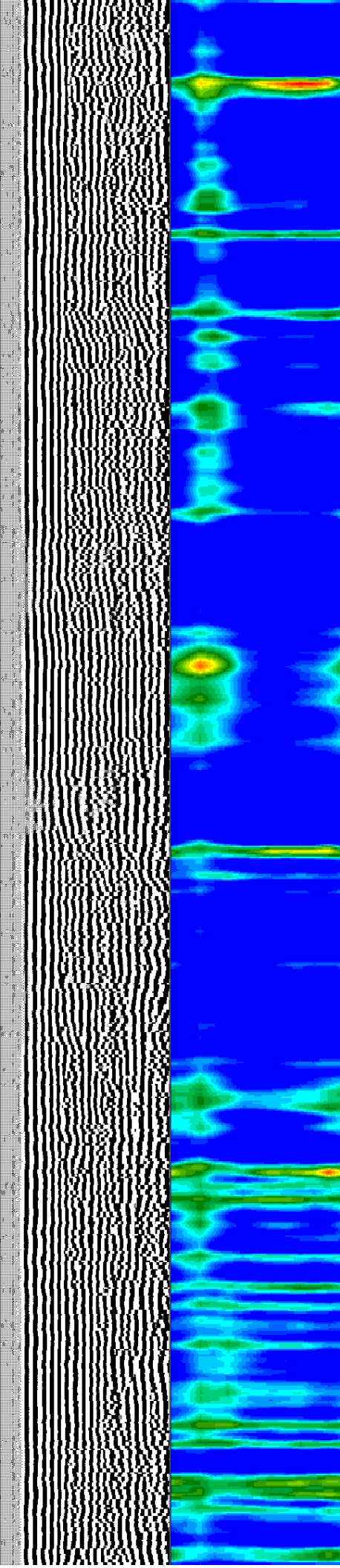
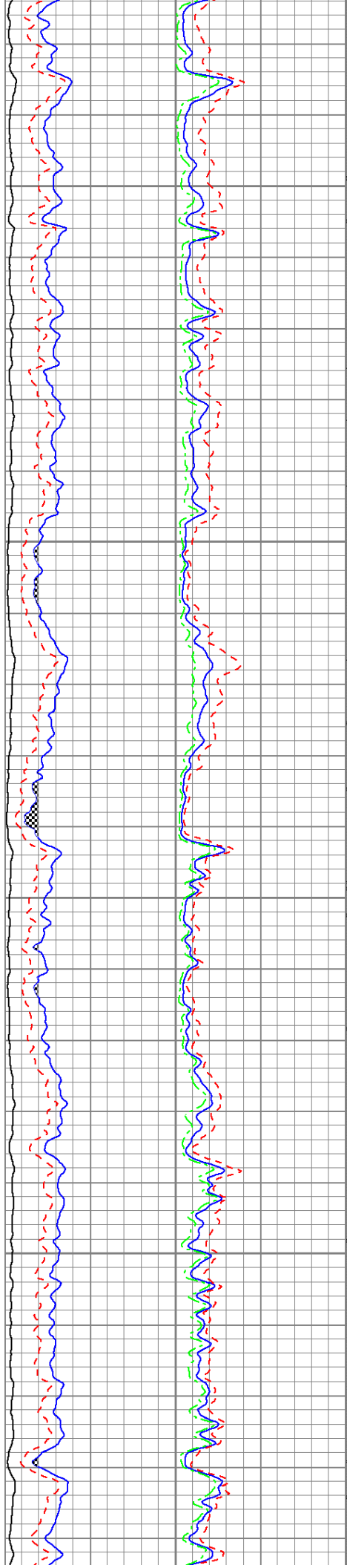
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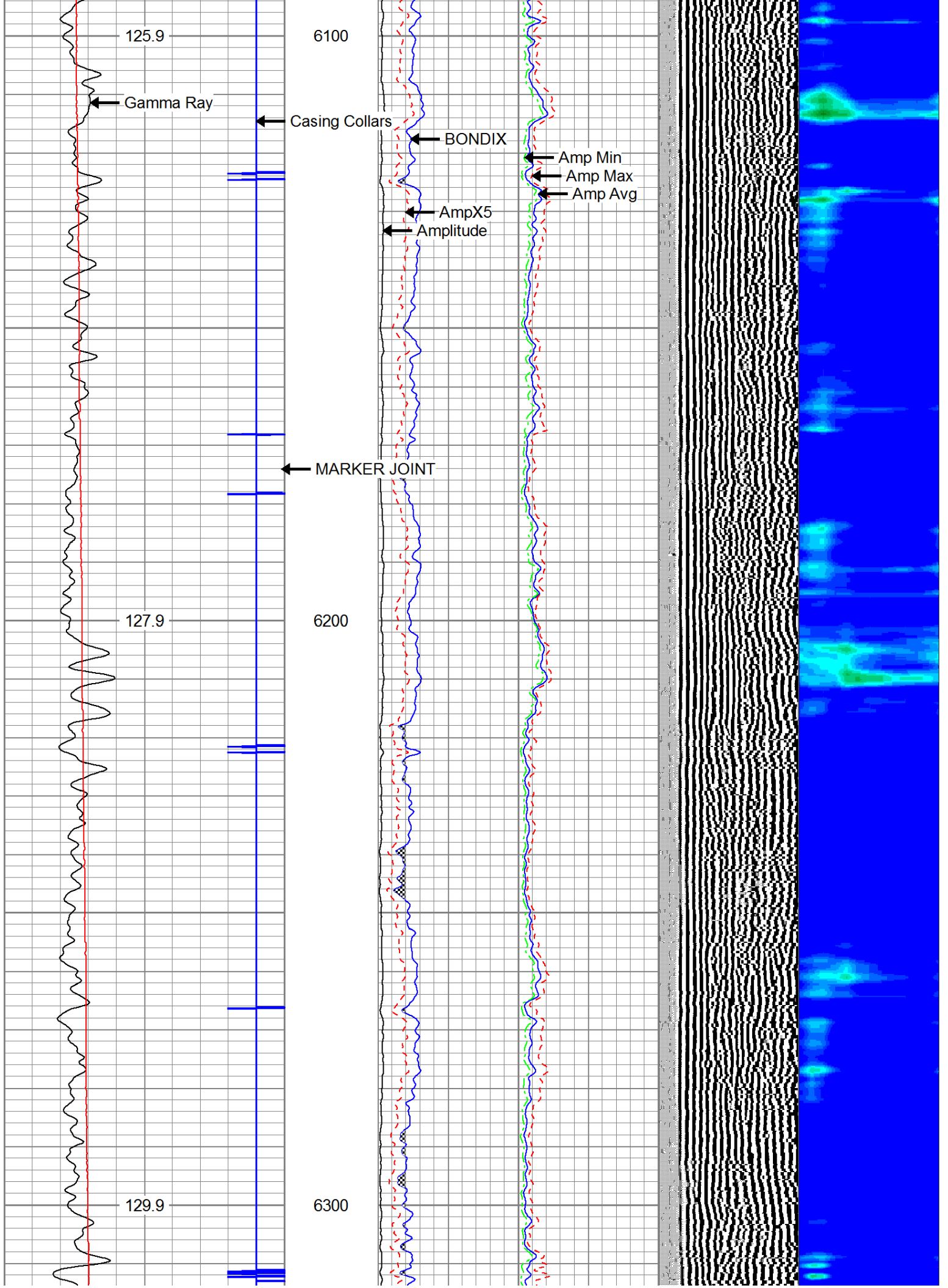


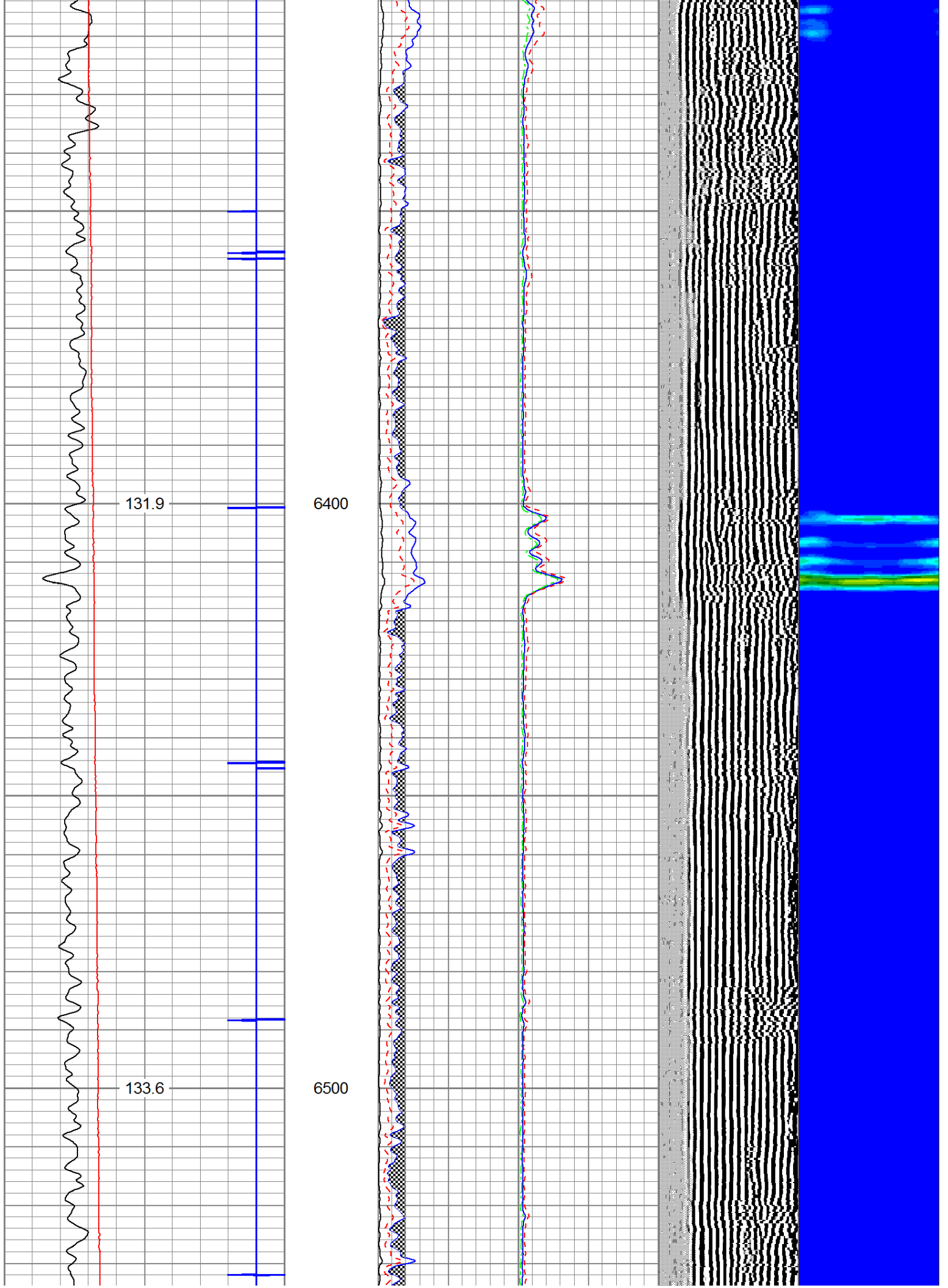


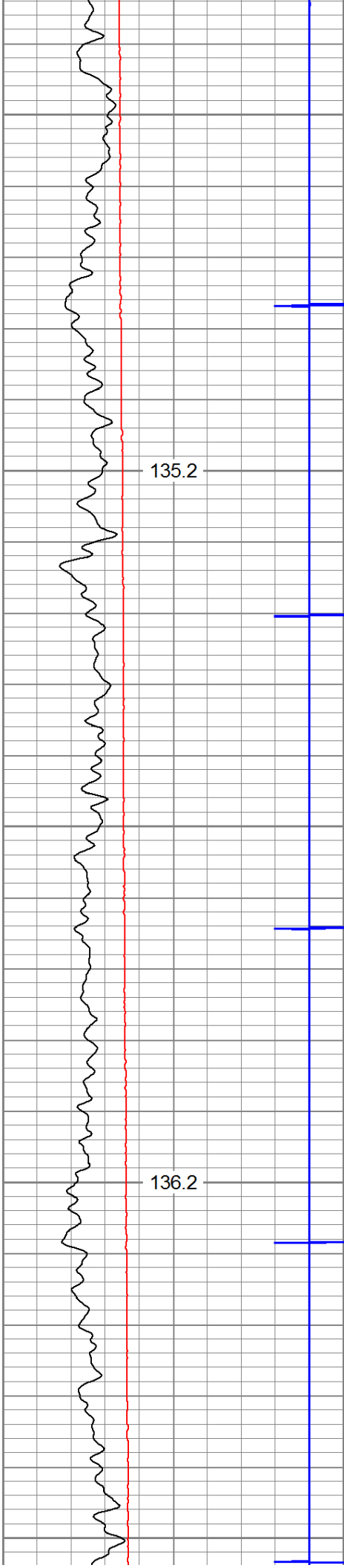
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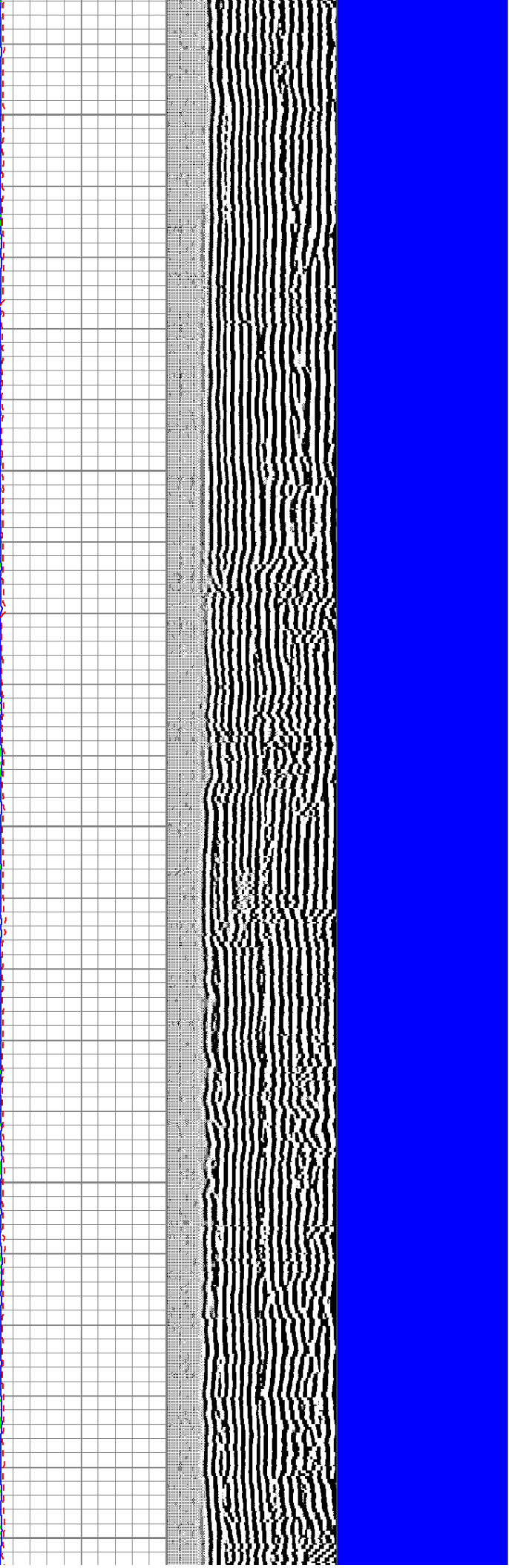
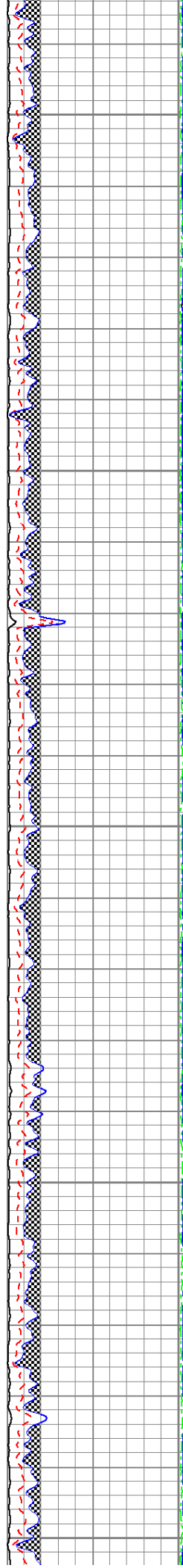


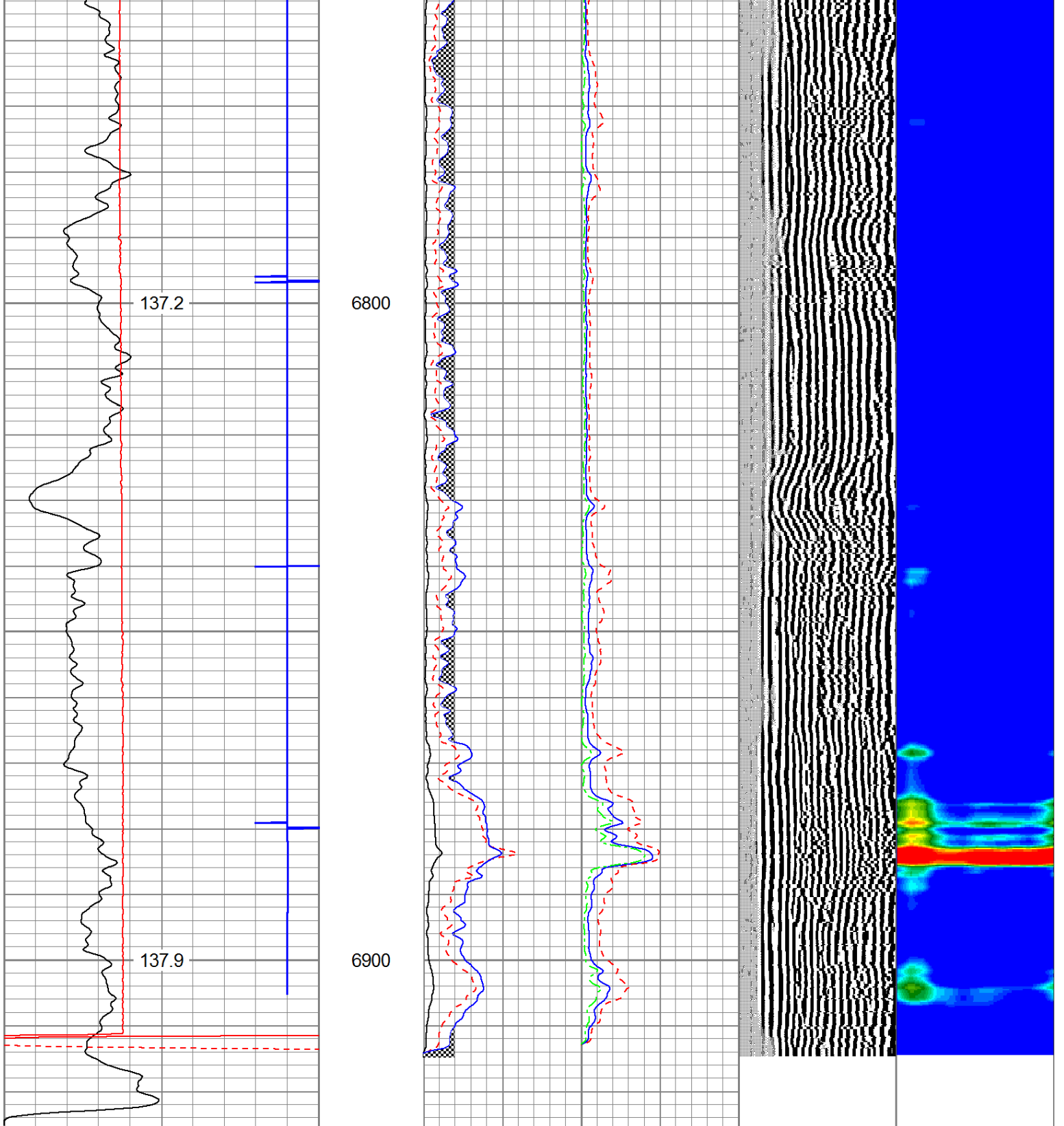




6600

6700





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

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

200	VDL	1200	1	Sector Map	12
			20		60

TEMP
(degF)



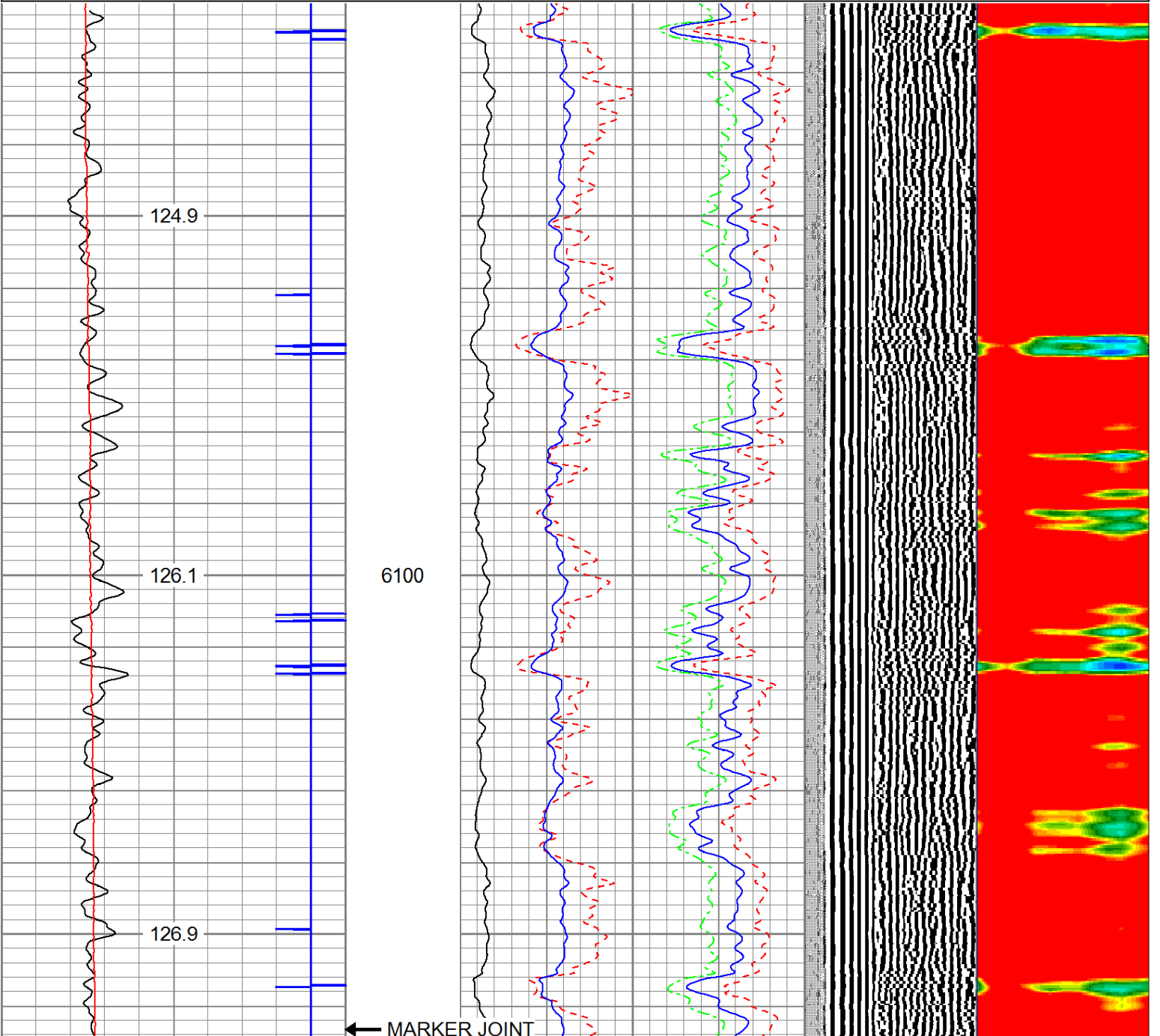
MAIN PASS UNDER 1500PSI

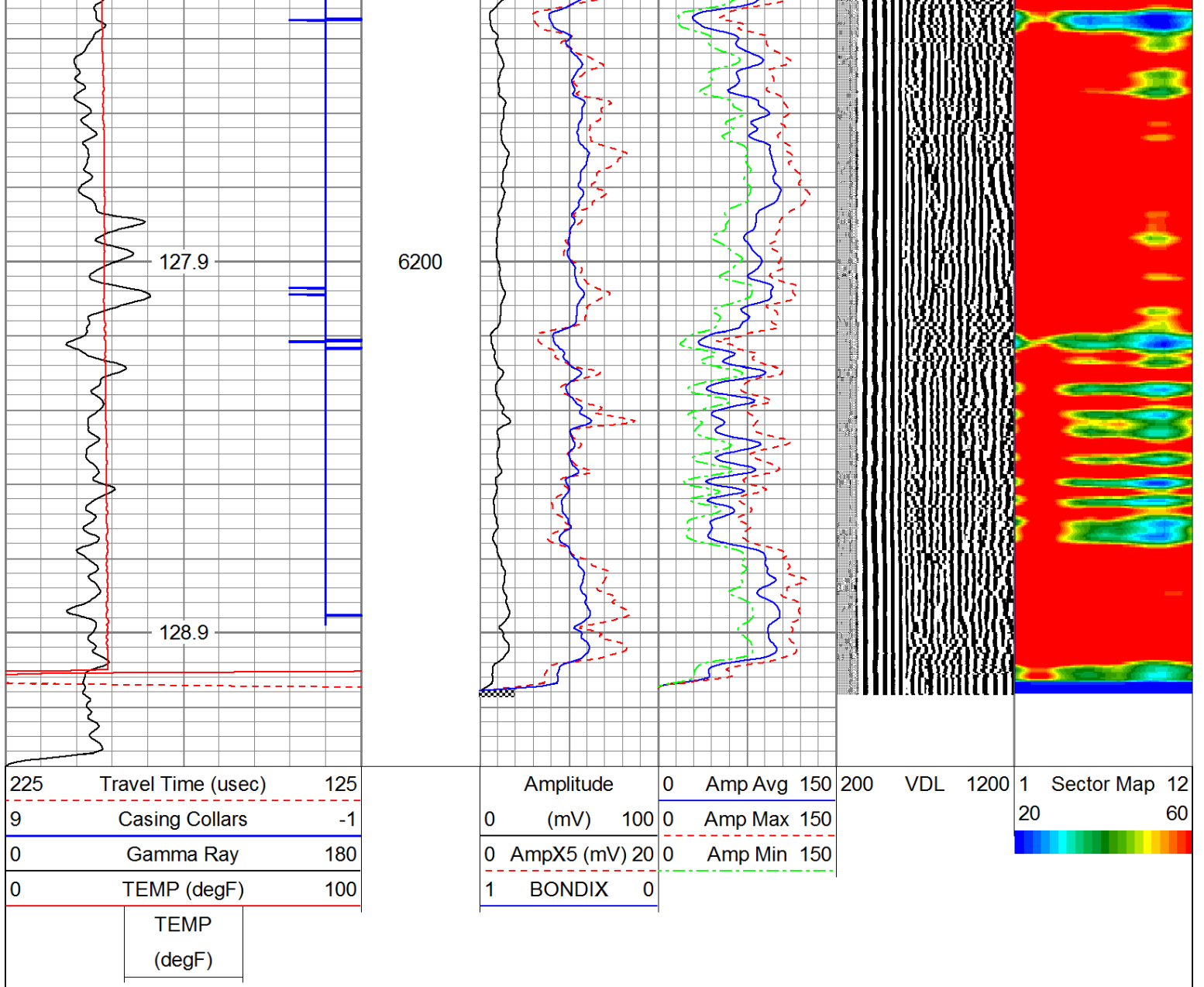


REPEAT PASS

Database File: f:\2019 antero\antero bison pad\antero_bill2h.db
 Dataset Pathname: pass3
 Presentation Format: antero
 Dataset Creation: Fri Jan 11 07:37:34 2019 by Log 7.0 B1
 Charted by: Depth in Feet scaled 1:240

225	Travel Time (usec)	125	Amplitude	0	Amp Avg	150	200	VDL	1200	1	Sector Map	12
9	Casing Collars	-1	(mV)	100	Amp Max	150				20		60
0	Gamma Ray	180	AmpX5 (mV)	20	Amp Min	150						
0	TEMP (degF)	100	BONDIX	0								





REPEAT PASS

Log Variables

Database: f:\2019 antero\antero bison pad\antero_bill2h.db
 Dataset: field/well/run1/pass5

Top - Bottom

XXXX	PPT usec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	SRFTEMP degF	CASEOD in
0	0	20	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_bill2h.db
 Dataset Pathname: pass5.1
 Dataset Creation: Fri Jan 11 09:31:15 2019 by Calc 7.0 R1

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				
WVFS10	11.48				
WVFS11	11.48				
WVFS12	11.48				
WVF3FT	10.73				
WVFCAL	10.73				
WVF5FT	9.73				
WVFTEMP	6.40				
WVFSYNC	6.40				
			2.75	2.75	25.00
			2 3/4" Tekco Adjustable Centralizer		
			3.67	2.75	40.00
			GR-Tek-Co 2 3/4 (IPSNO-03) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray		
GR	1.04				

Dataset: antero_bill2h.db: field/well/run1/pass5.1
 Total Length: 20.07 ft
 Total Weight: 250.00 lb
 O.D.: 3.25 in



Company	ANTERO RESOURCES CORPORATION	
Well	BILL UNIT 2H	
Field	MARCELLOUS	
County	RITCHIE	
State	WV	Country