



**RADIAL CEMENT BOND  
GAMMA RAY/CCLVDL**

Company ANTERO RESOURCES CORPORATION  
 Well SPOCK UNIT 1H  
 Field MARCELLUS  
 County TYLER  
 State W.V.

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 Well SPOCK UNIT 1H  
 Field MARCELLUS  
 County TYLER State W.V.

Location: API #: 47095024780000 Other Services  
 SEC TWP RGE Elevation N/A  
 Permanent Datum G.L. K.B. N/A  
 Log Measured From G.L. D.F. N/A  
 Drilling Measured From K.B. G.L. N/A

Date	2/4/19						
Run Number	ONE						
Depth Driller	16479						
Depth Logger	6808						
Bottom Logged Interval	6808						
Top Log Interval	SURFACE						
Open Hole Size	8.5"						
Type Fluid	H2O						
Density / Viscosity	N/A						
Max. Recorded Temp.	141 DEG						
Estimated Cement Top	200 FT						
Time Well Ready	N/A						
Time Logger on Bottom	N/A						
Equipment Number	340						
Location	BRIDGEPORT.WV						
Recorded By	K.LINGER						
Witnessed By	JAY TEPPER						
Borehole Record		Casing Record					
Run Number	Bit	From	To	Size	Weight	From	To
				5.5	23	0	16479

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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**

THANK YOU FOR USING KLX ENERGY SERVICES  
 TOP OF CEMENT @ 200 FT  
 BOTTOM HOLE TEMP- 141 DEG  
 MARKER JOINT @ 5663-5673



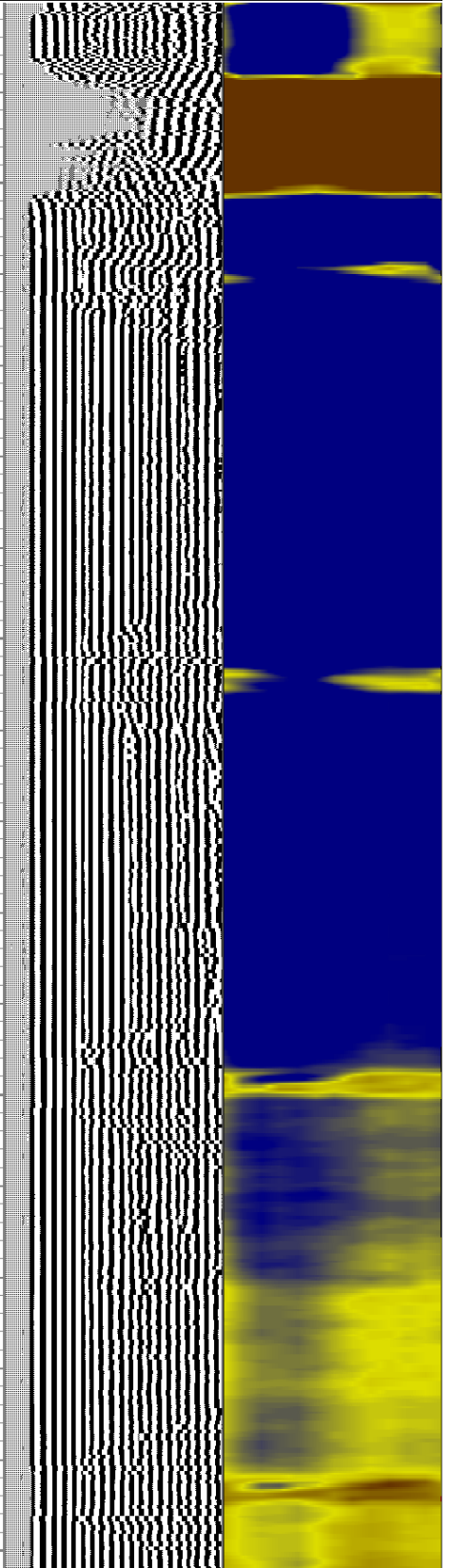
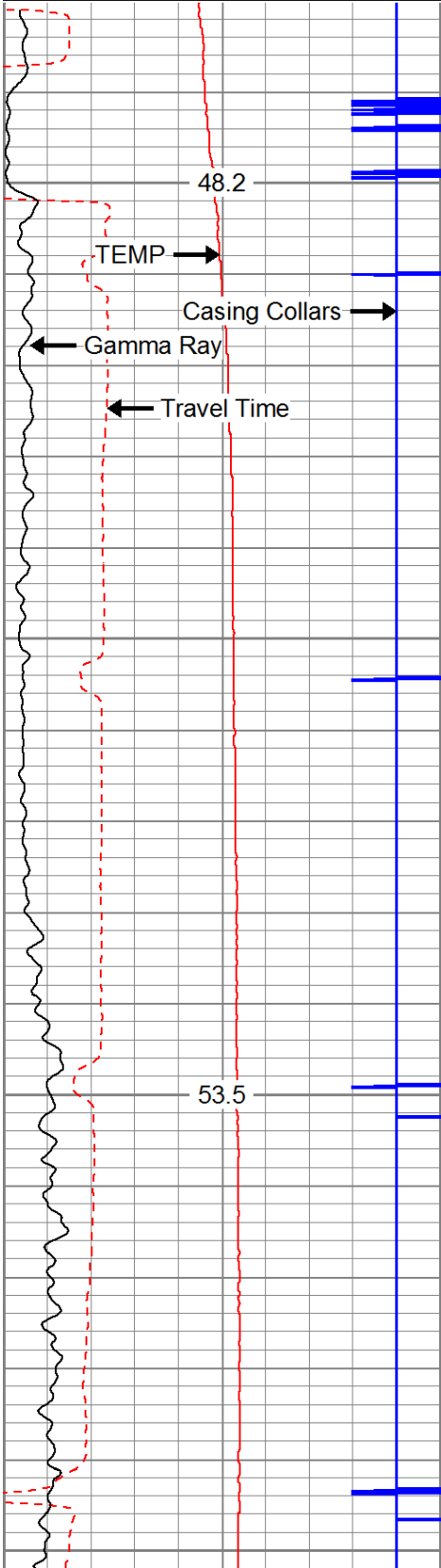
**MAIN PASS 1500 PSI**

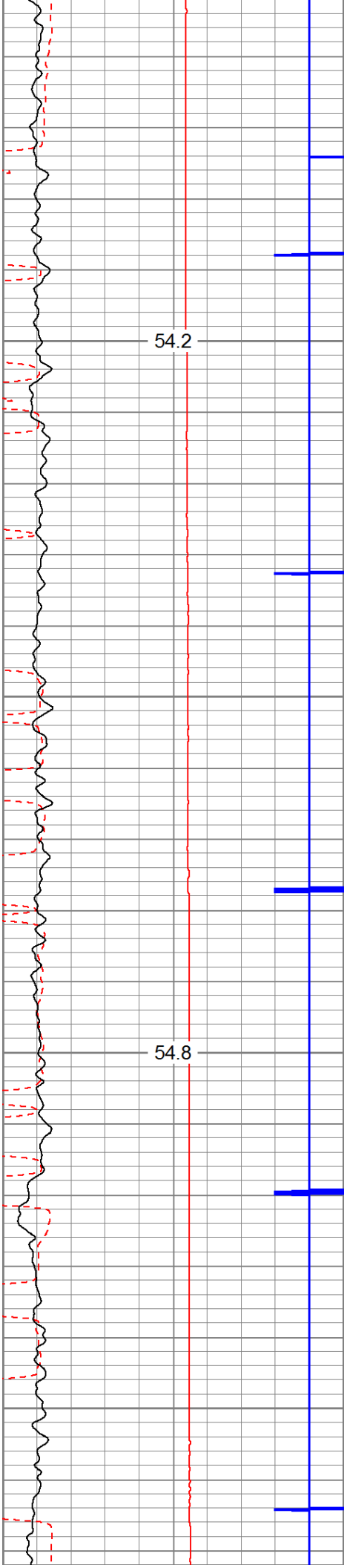
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 Dataset Pathname: pass7.1  
 Presentation Format: antero  
 Dataset Creation: Mon Feb 04 03:56:32 2019 by Calc 7.0 B1  
 Charted by: Depth in Feet scaled 1:240

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

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

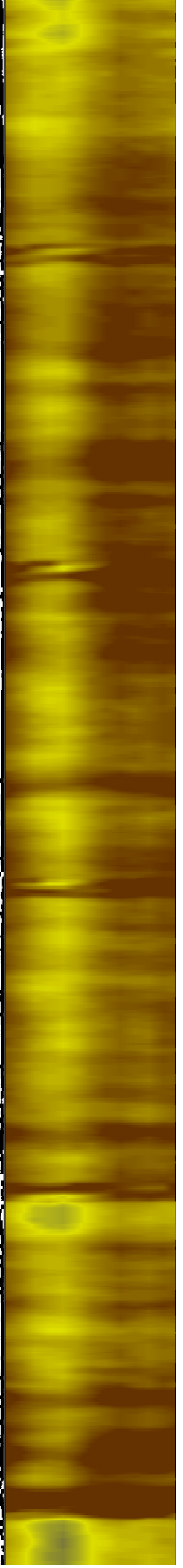
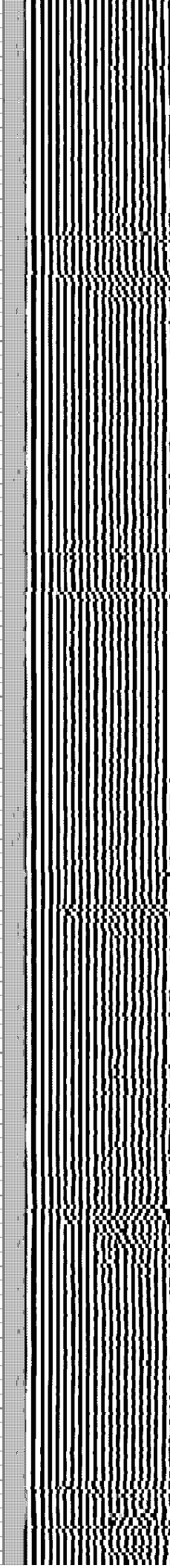
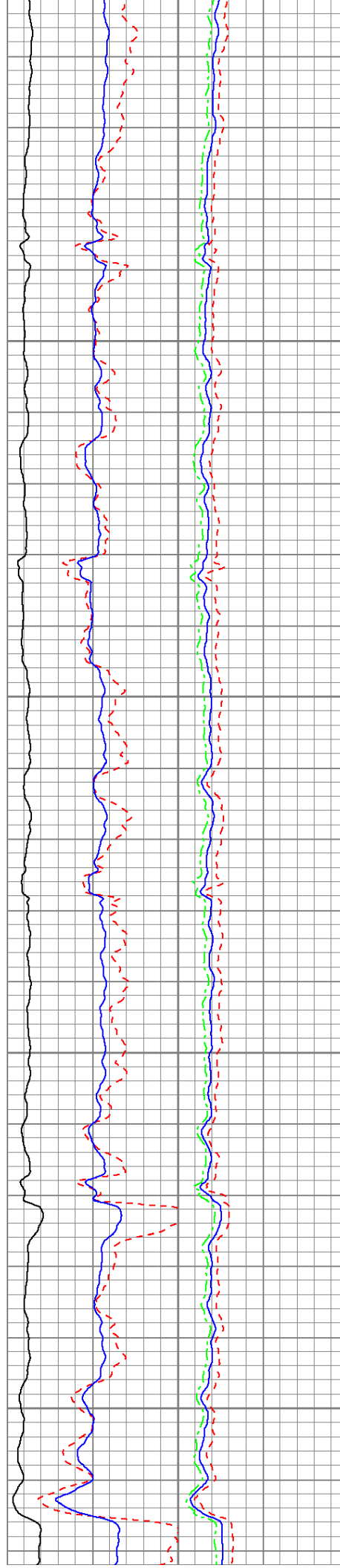
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 20 60

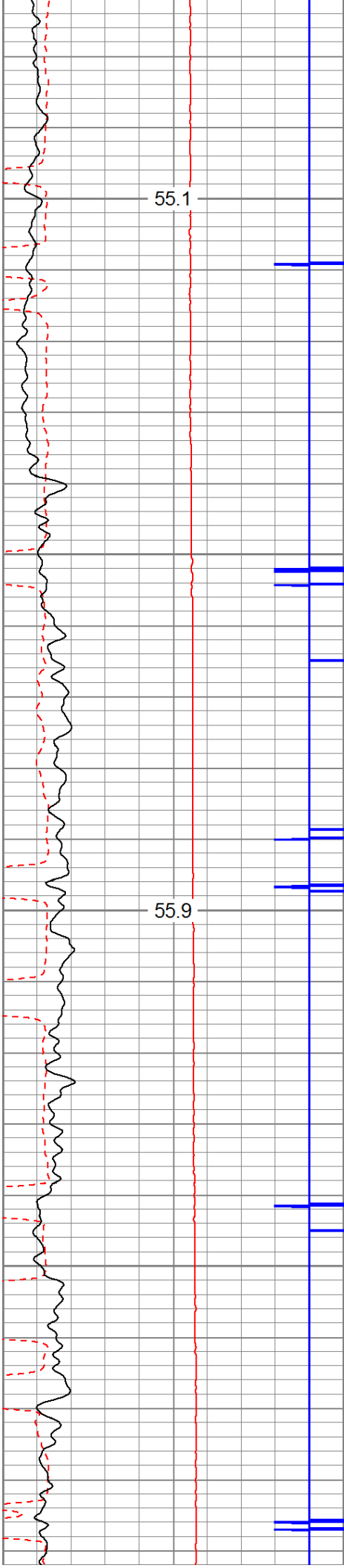




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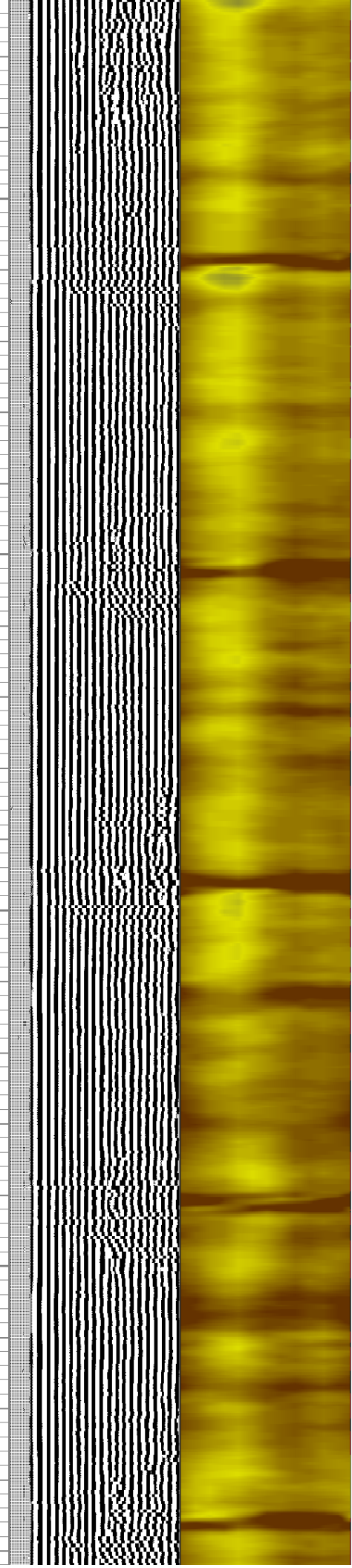
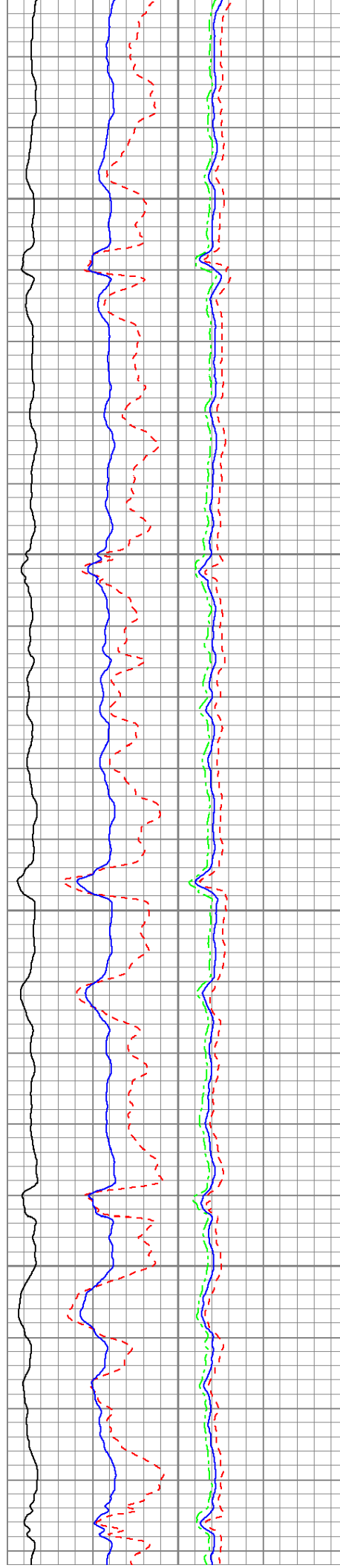
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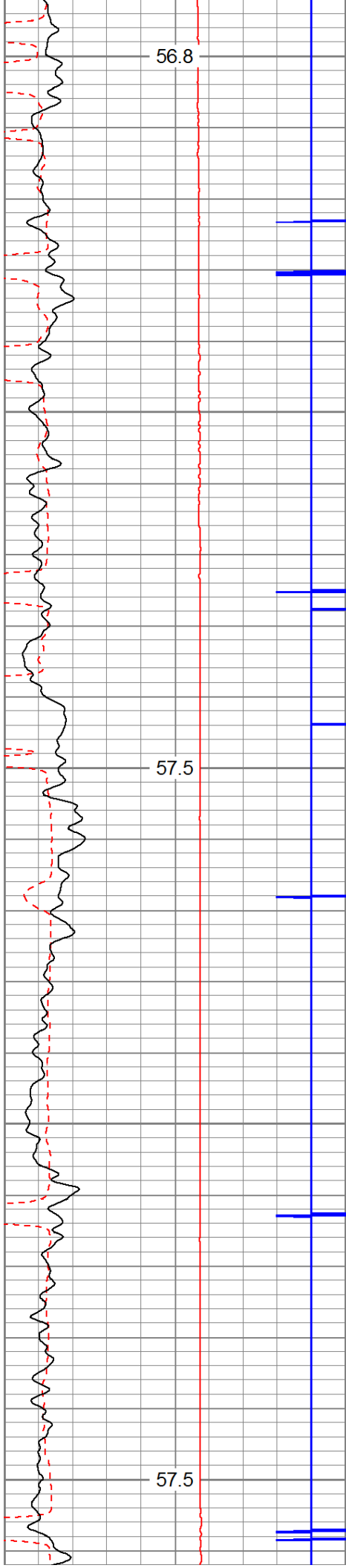




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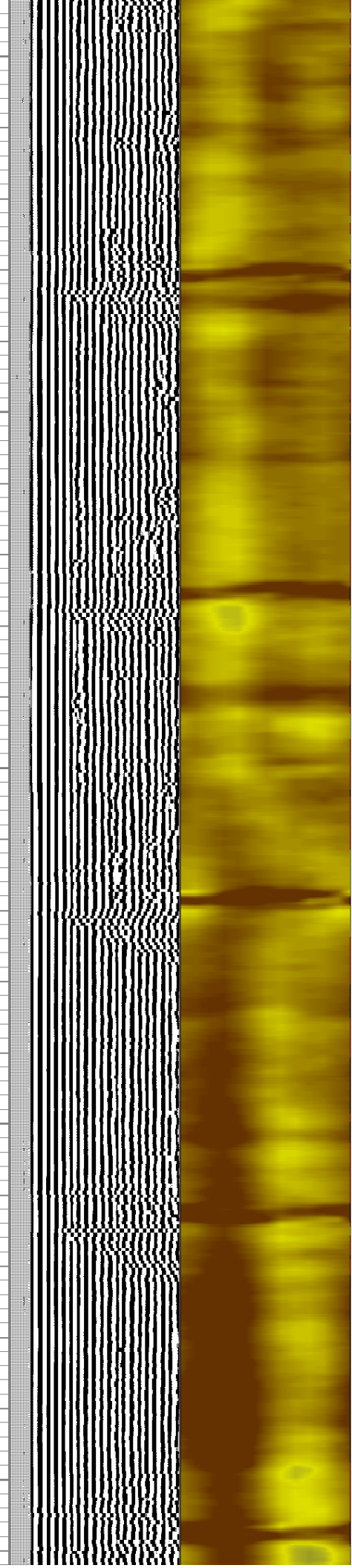
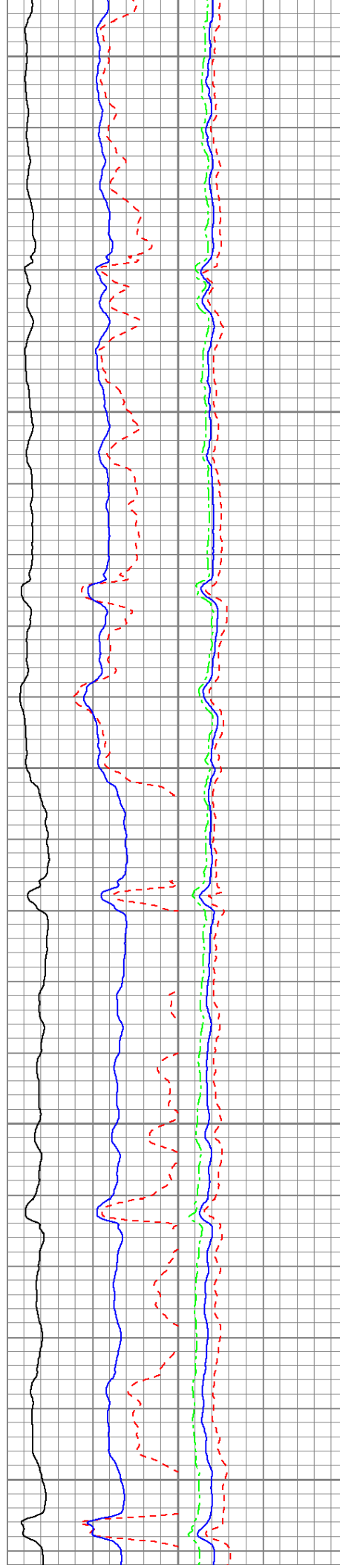


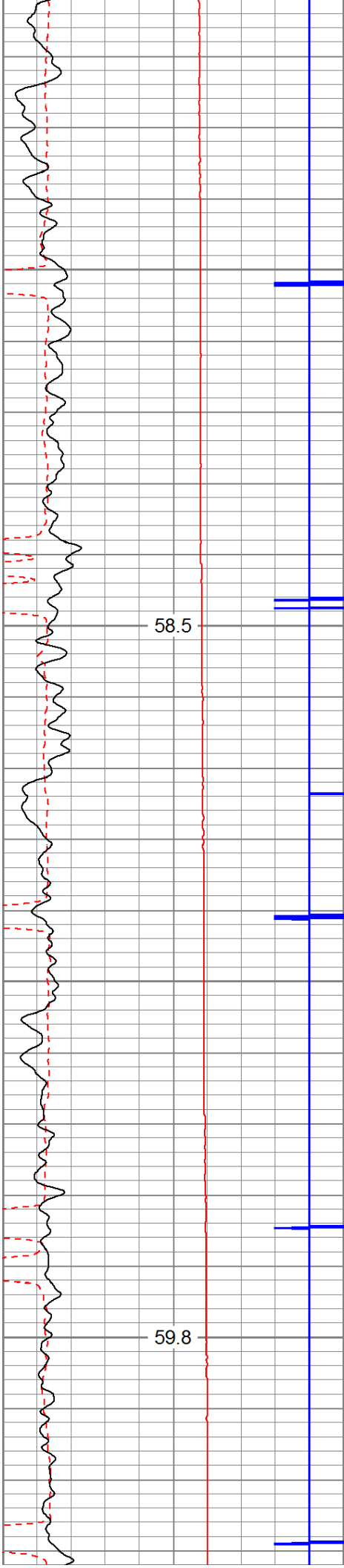


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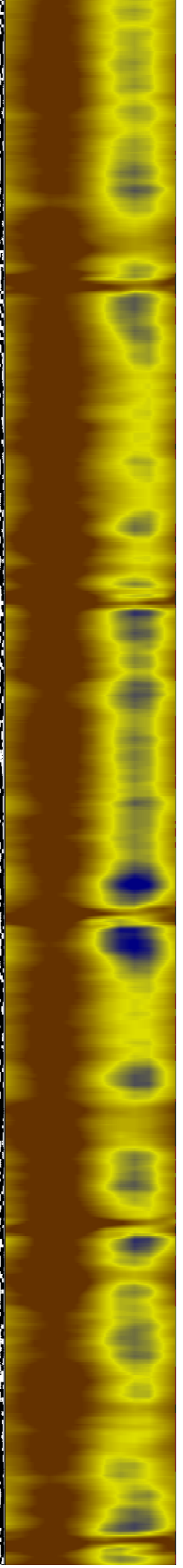
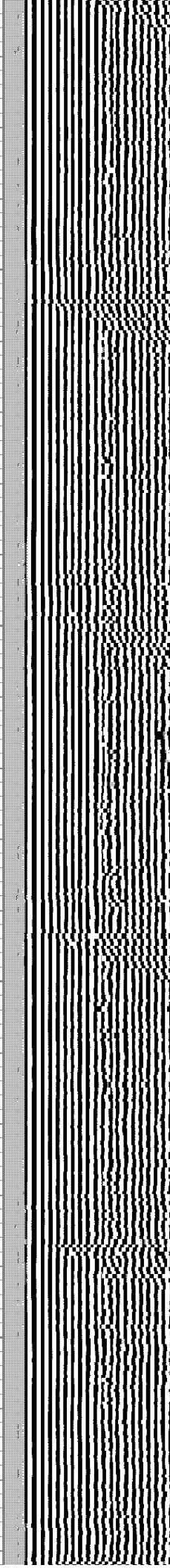
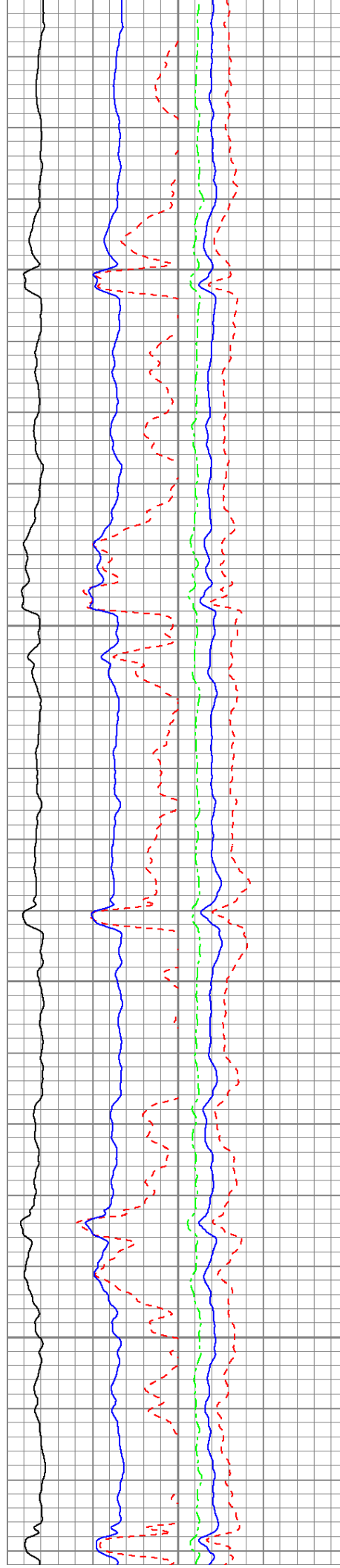
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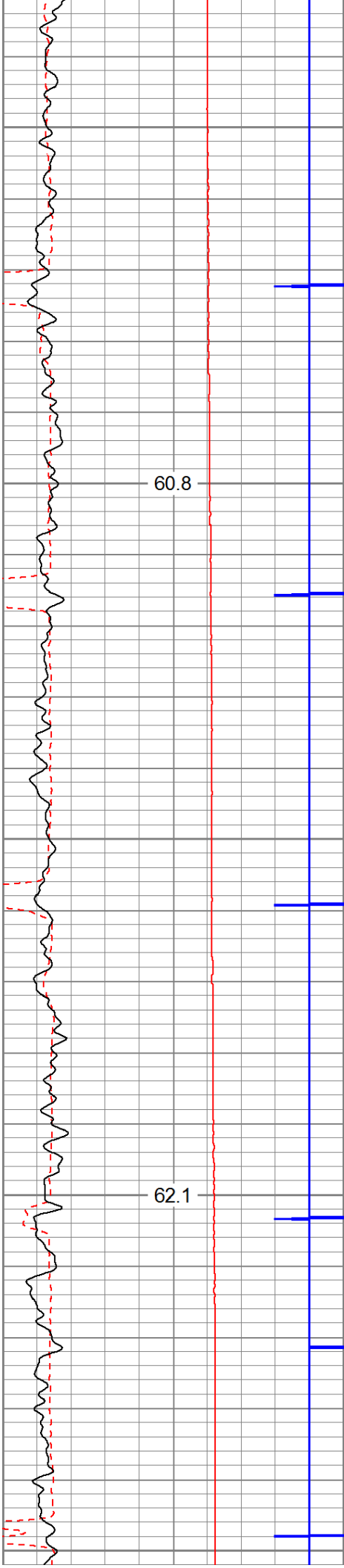




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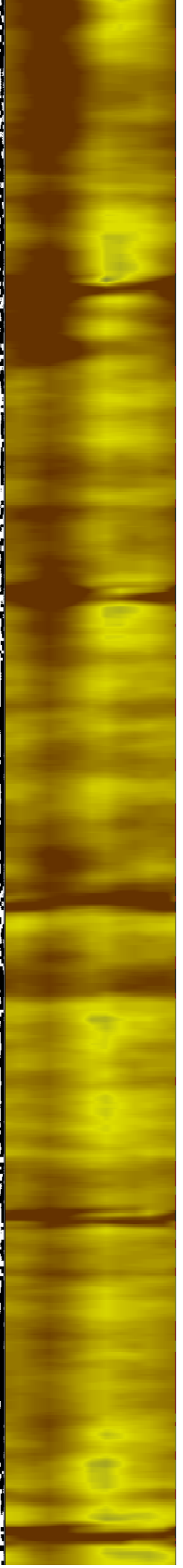
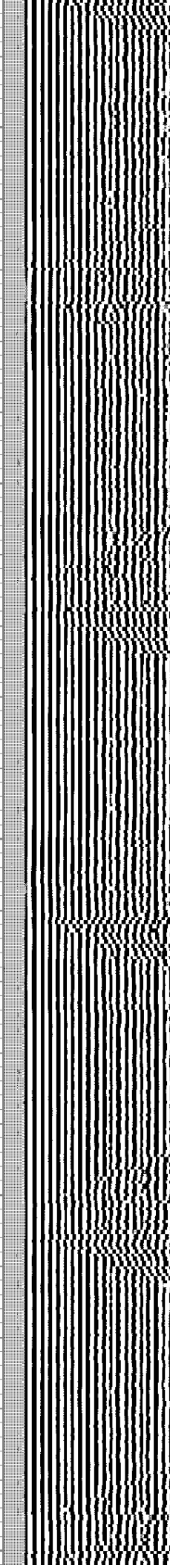
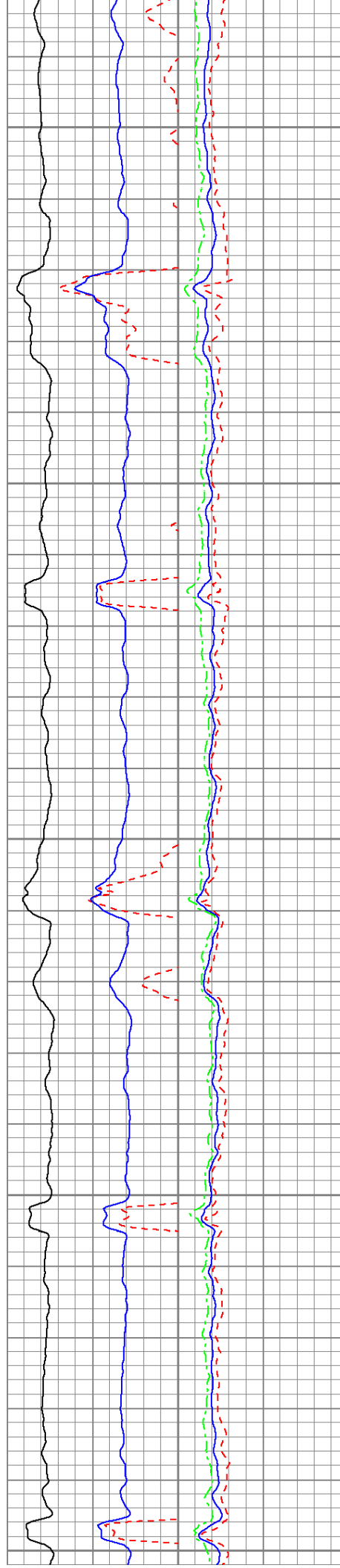
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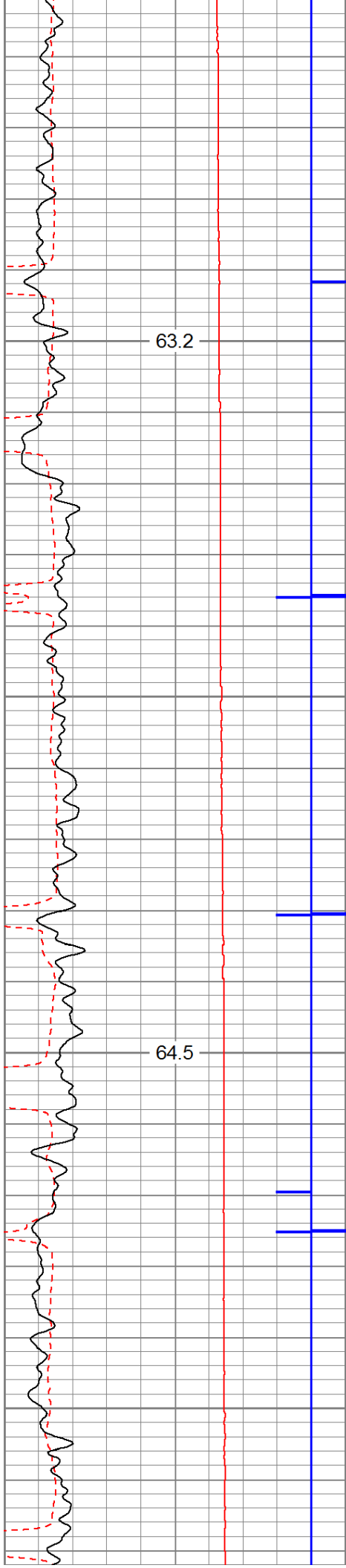




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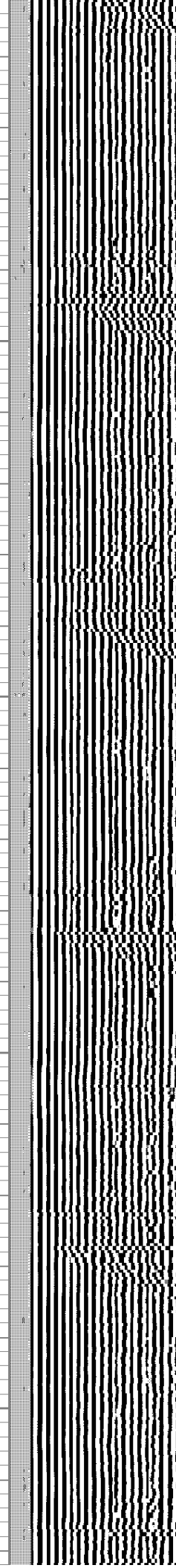
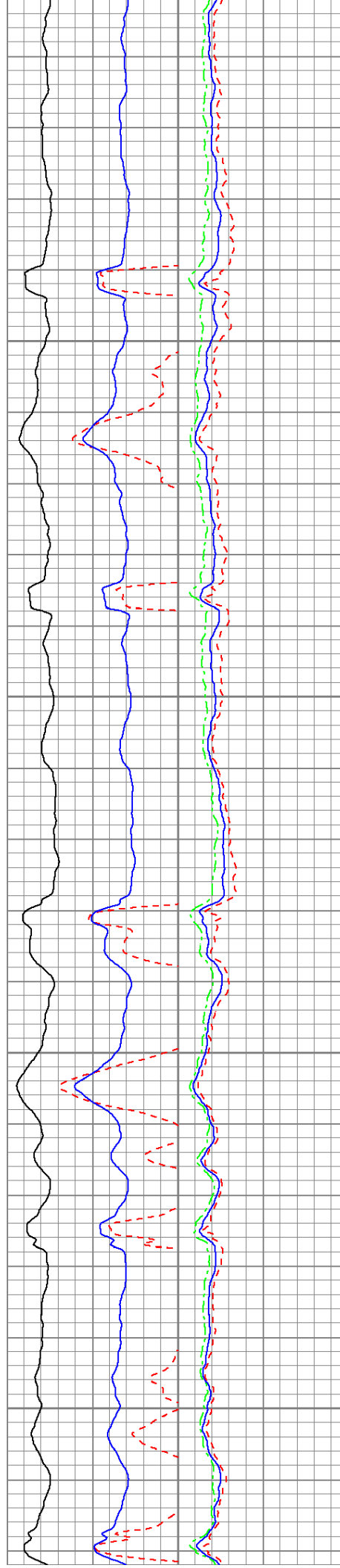
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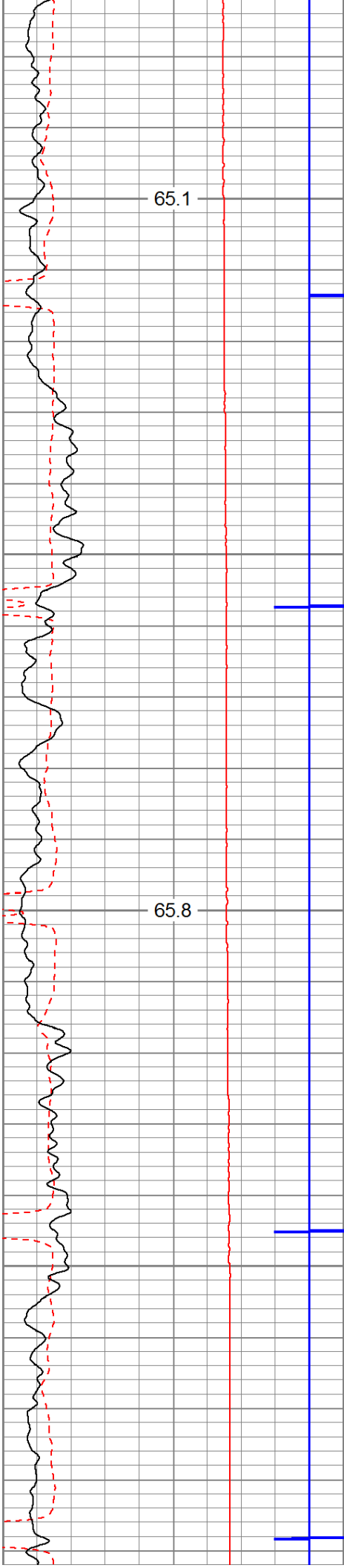


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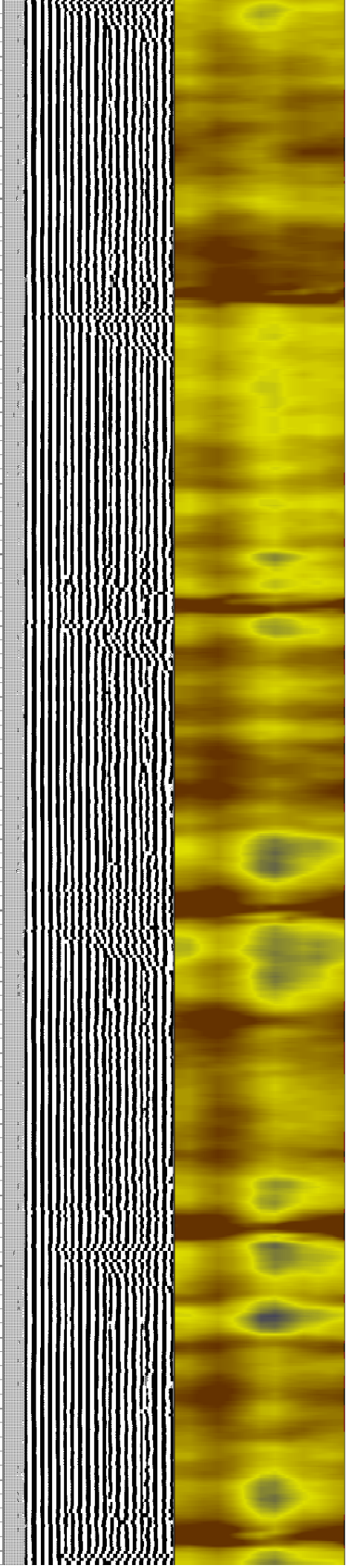
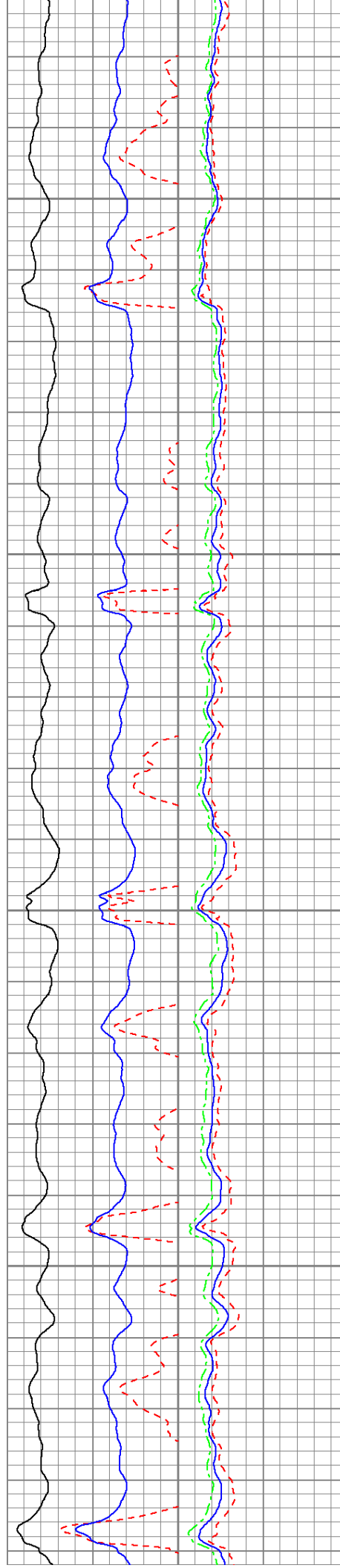


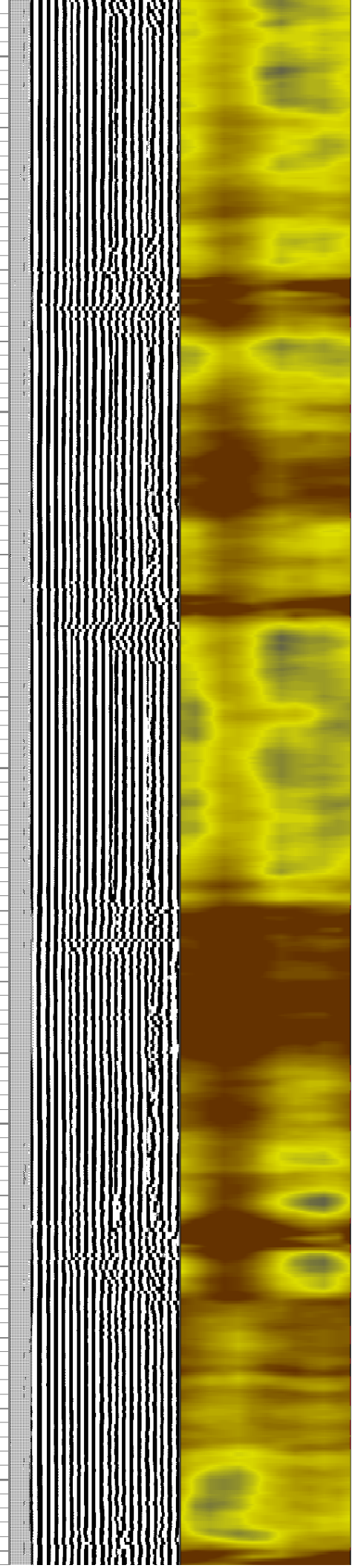
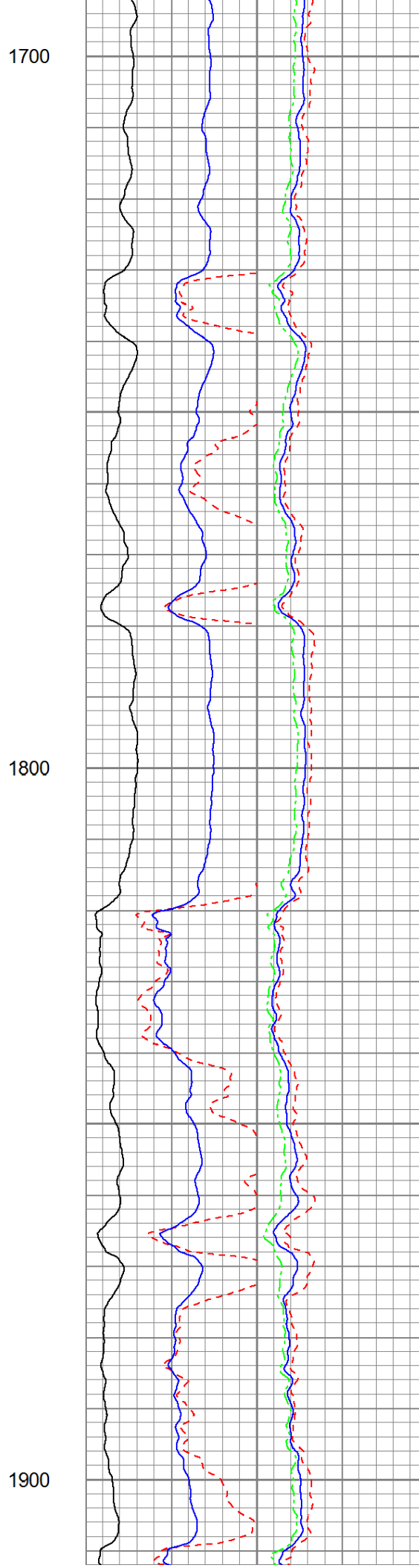
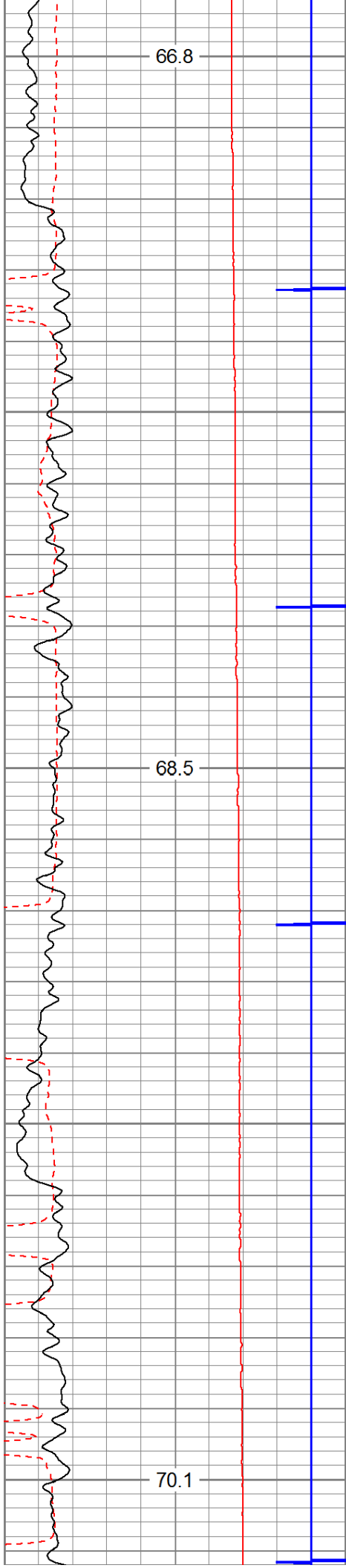


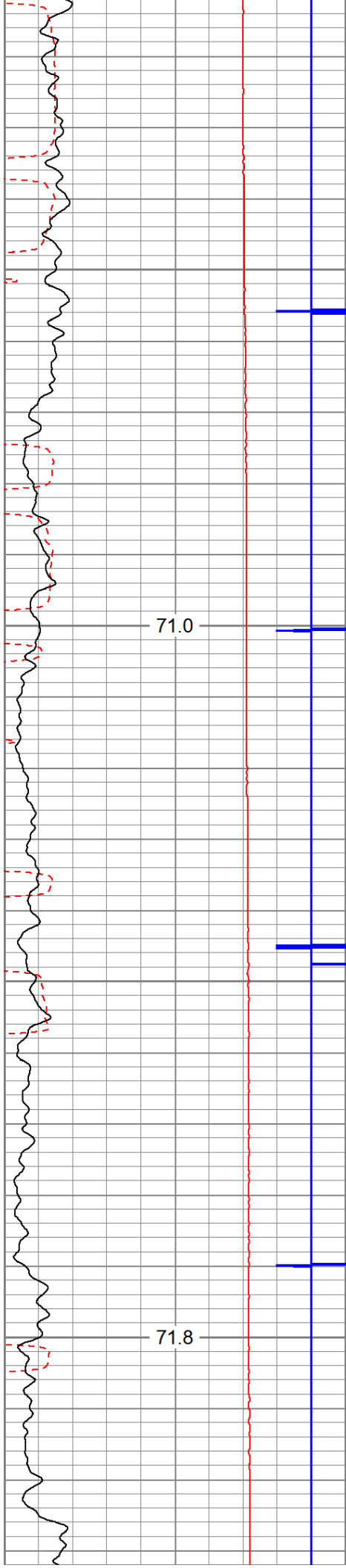


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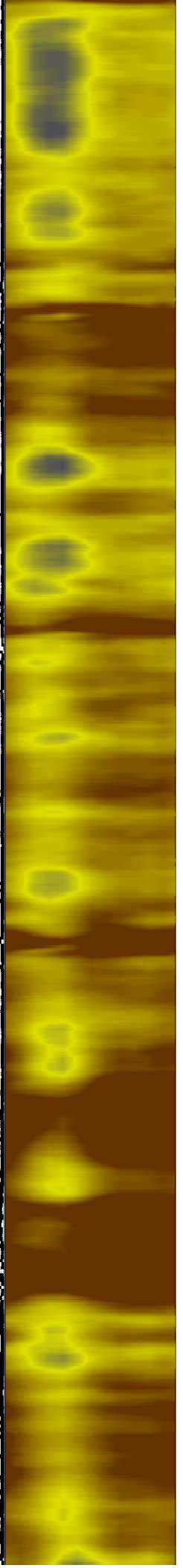
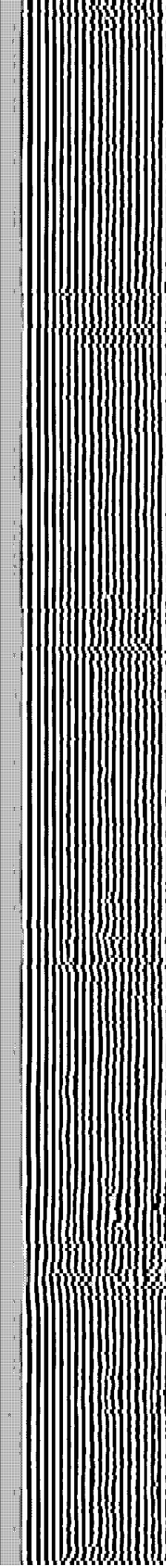
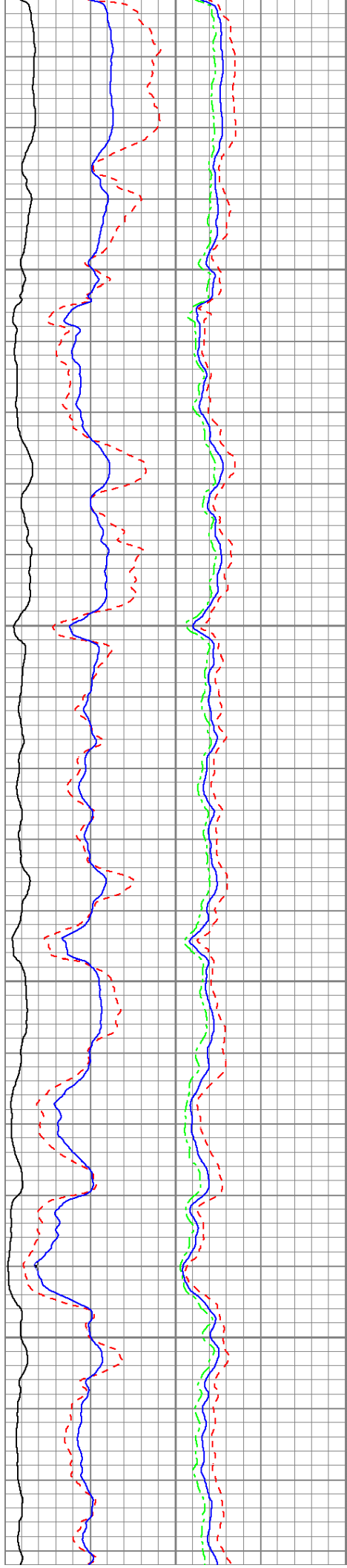


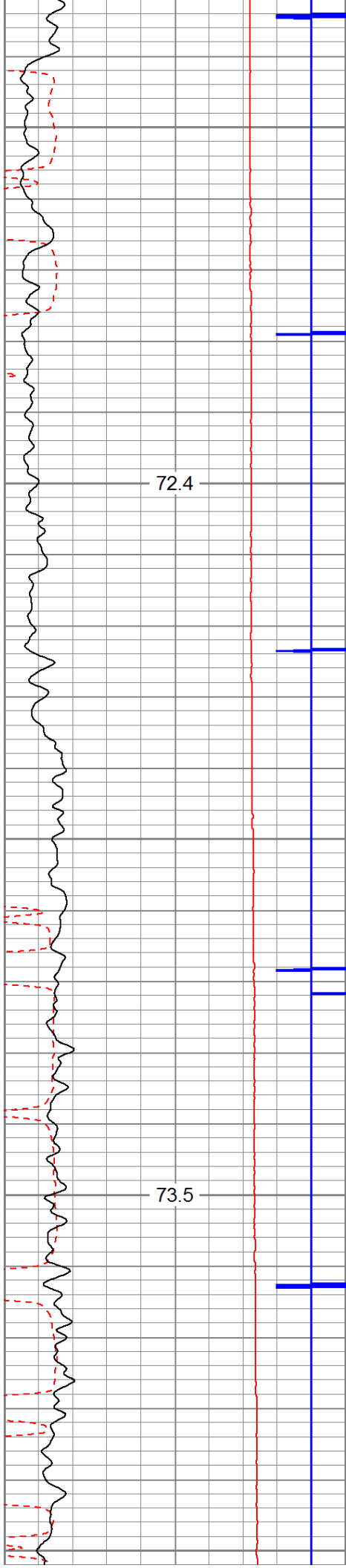




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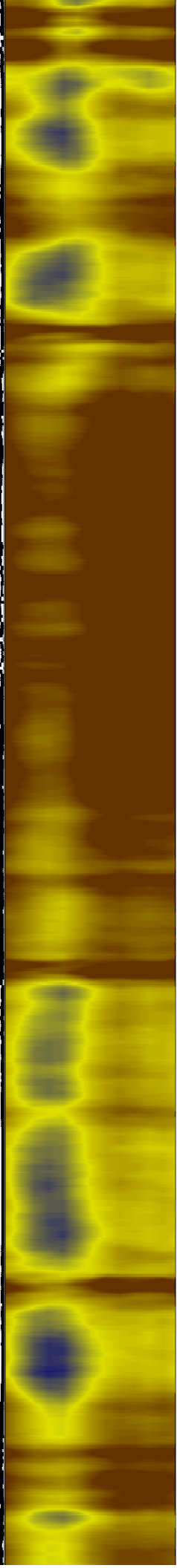
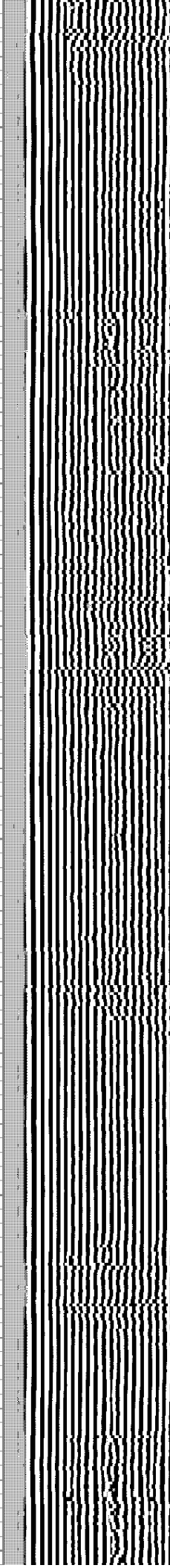
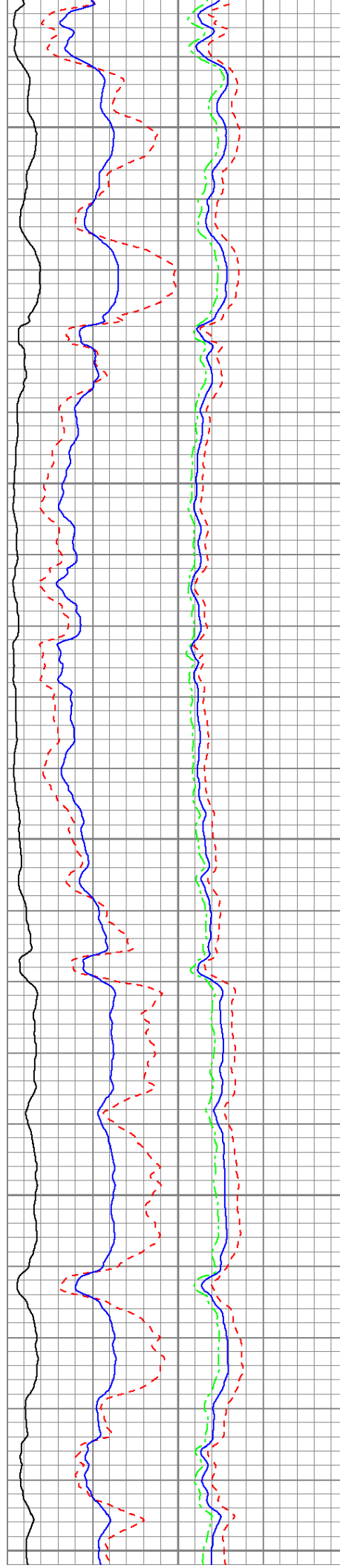
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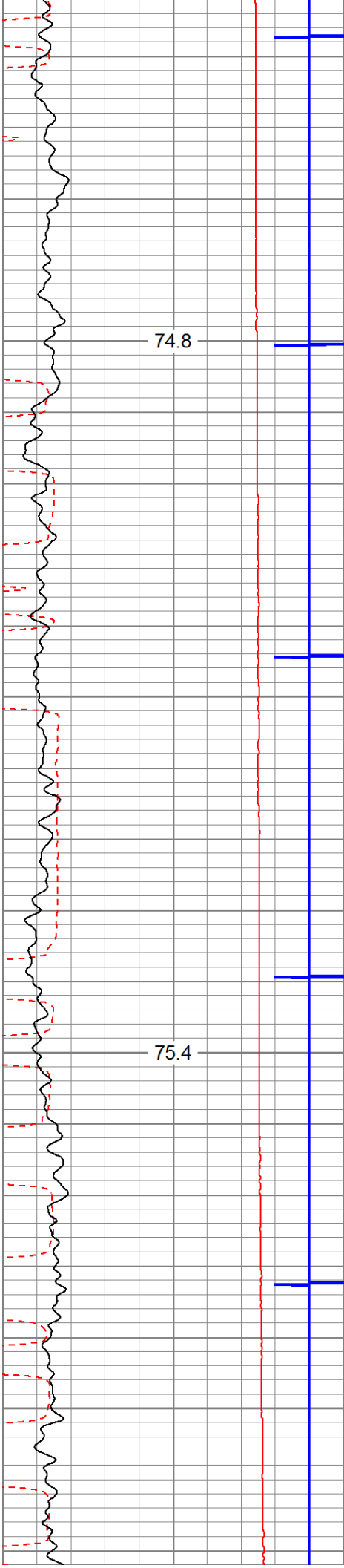




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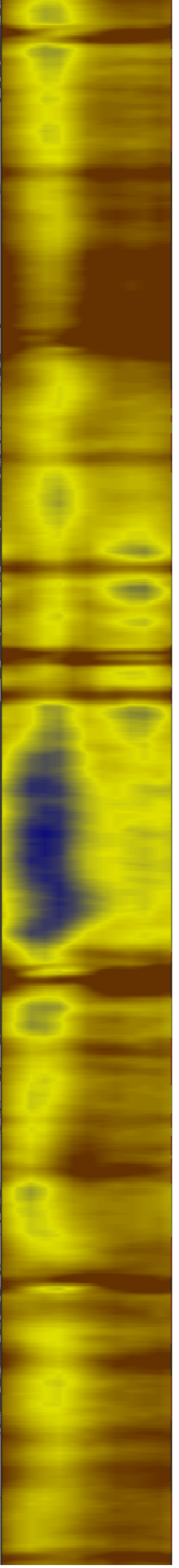
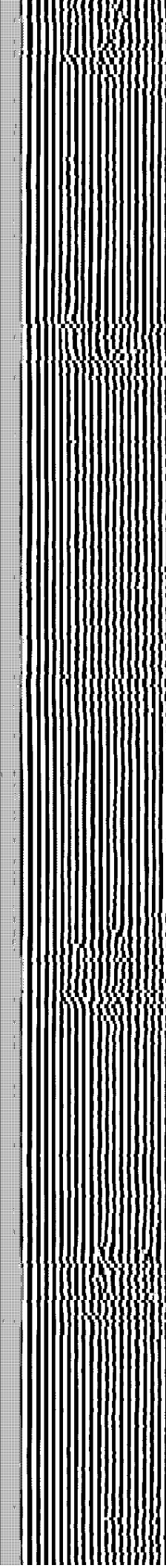
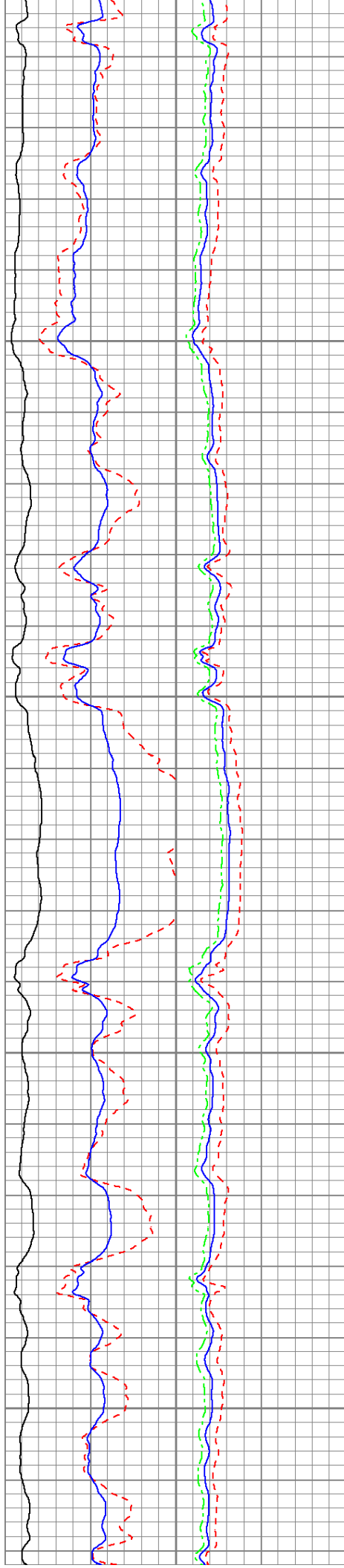
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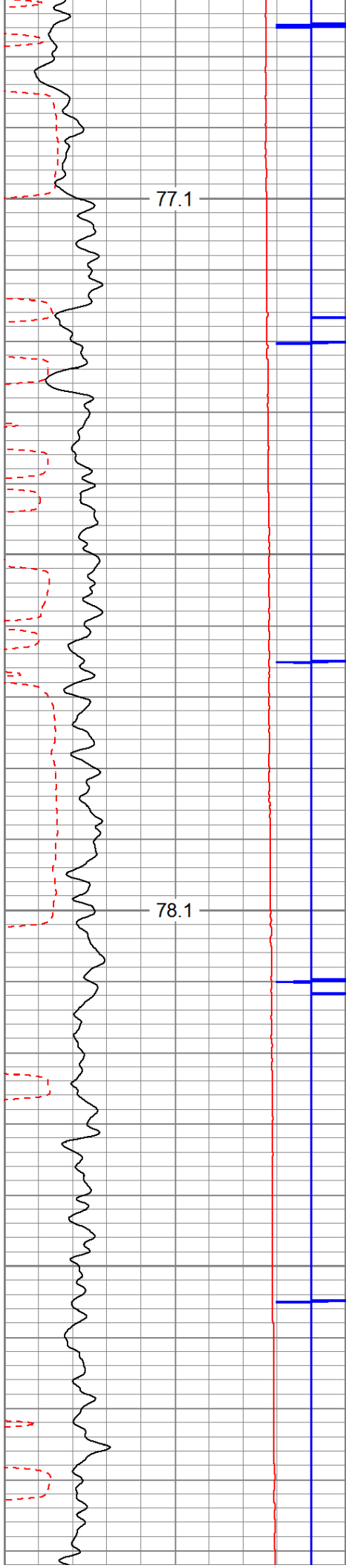




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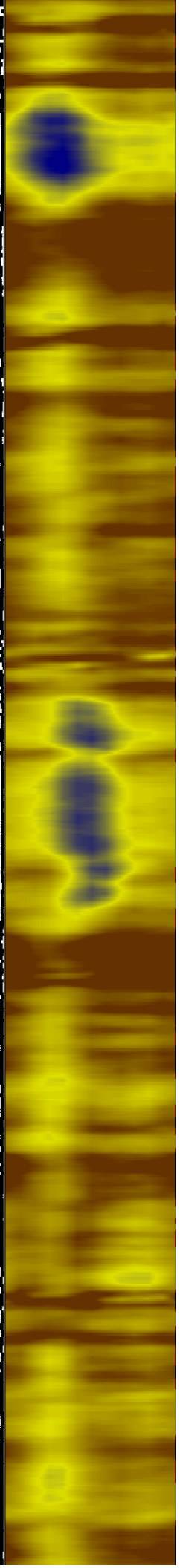
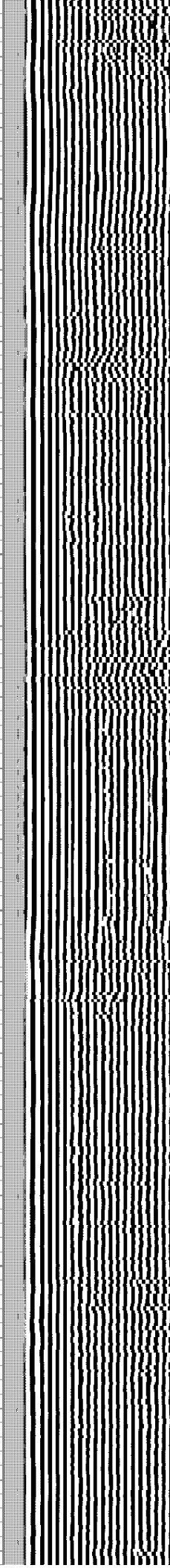
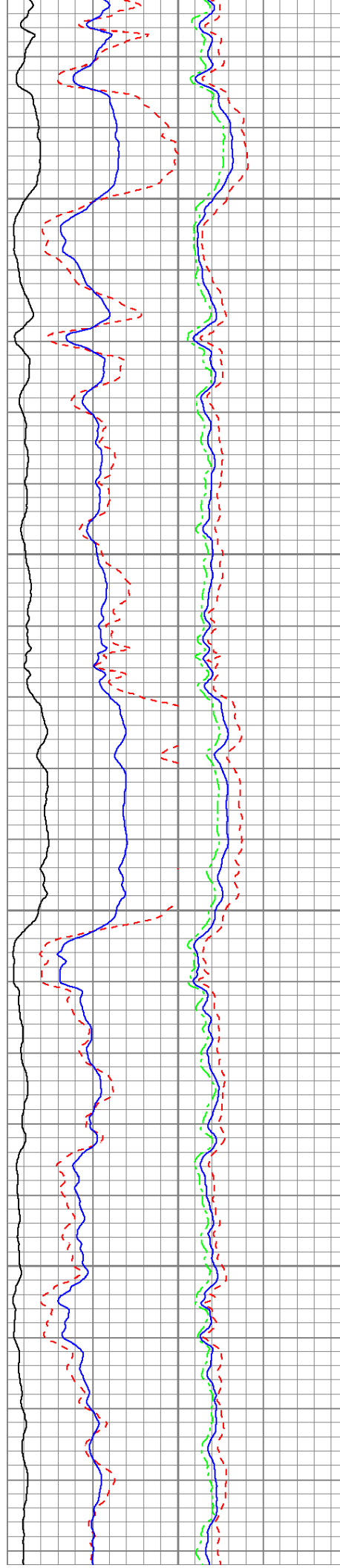
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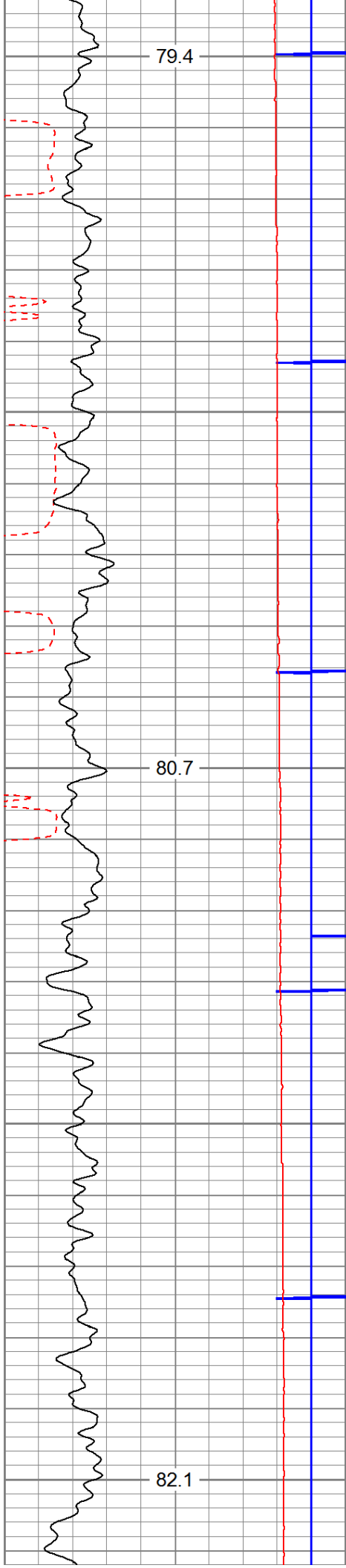




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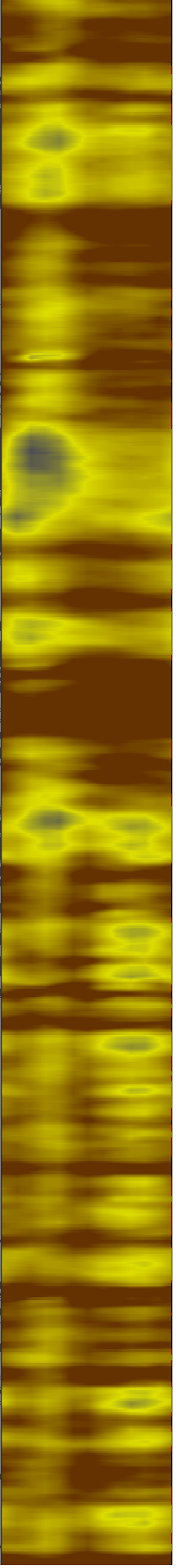
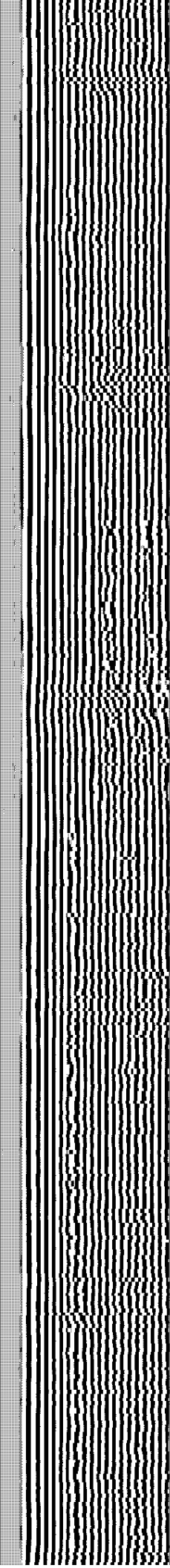
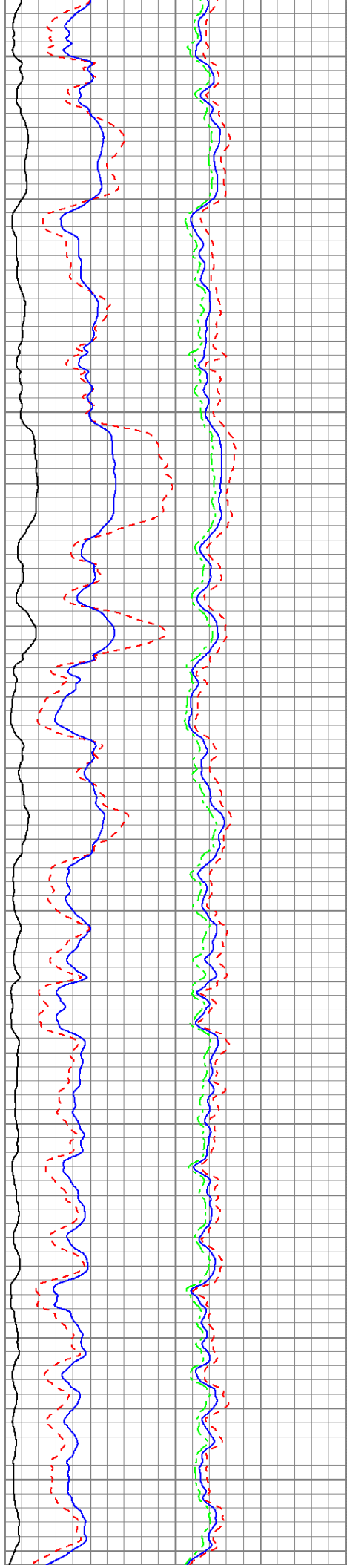


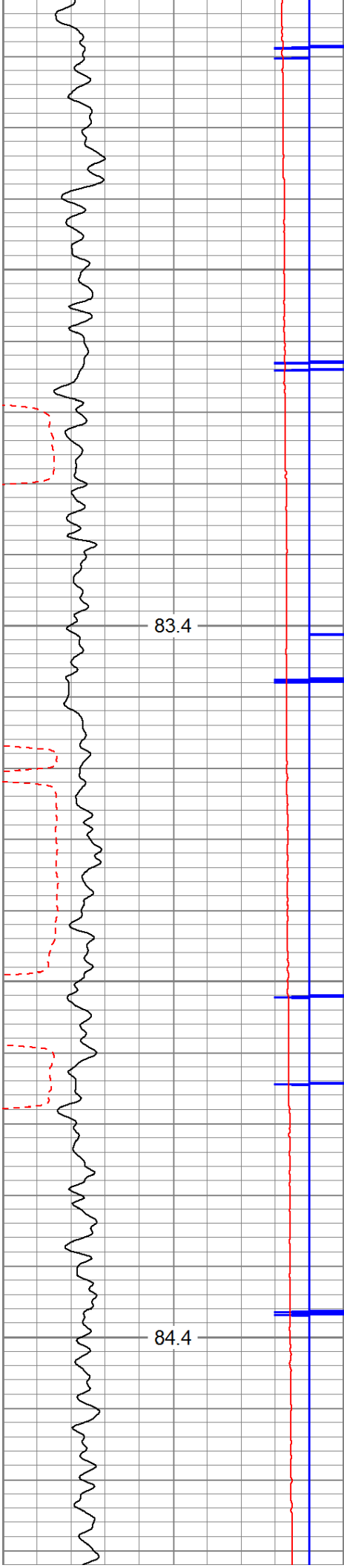


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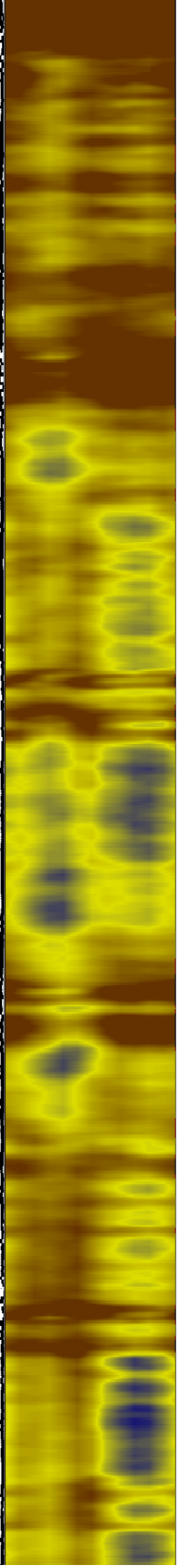
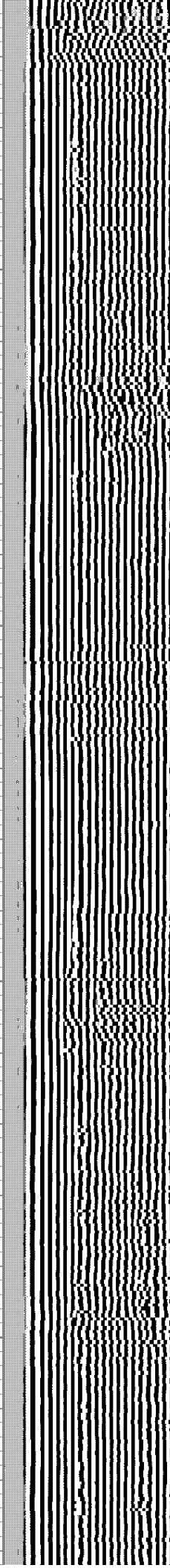
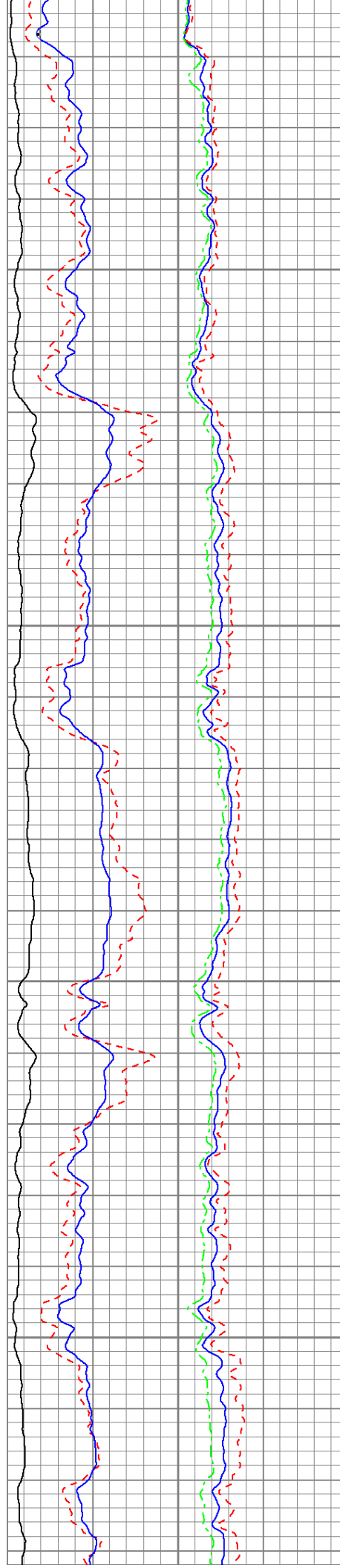
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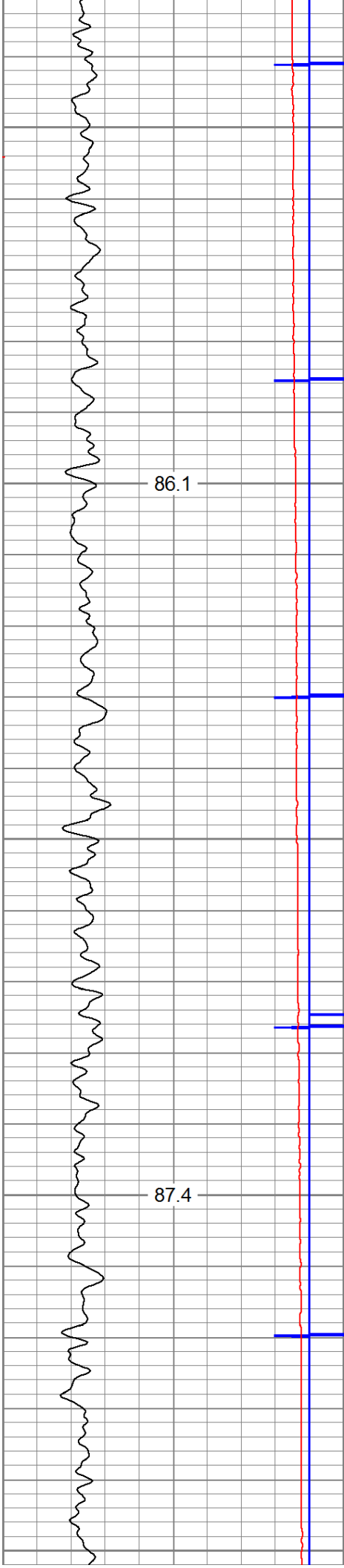


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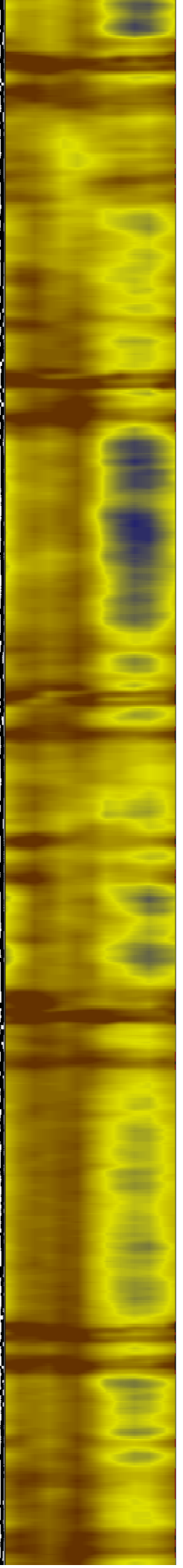
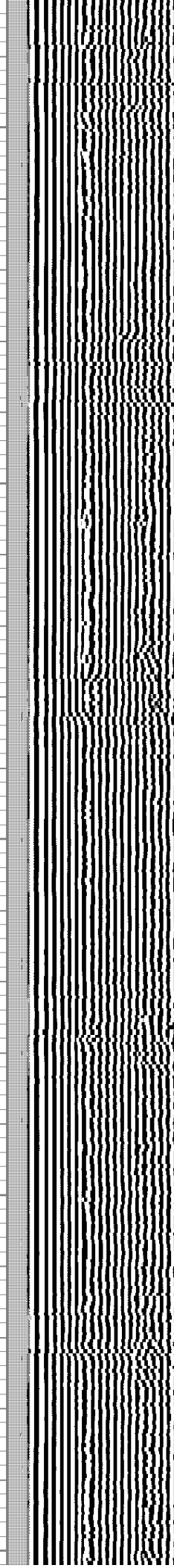
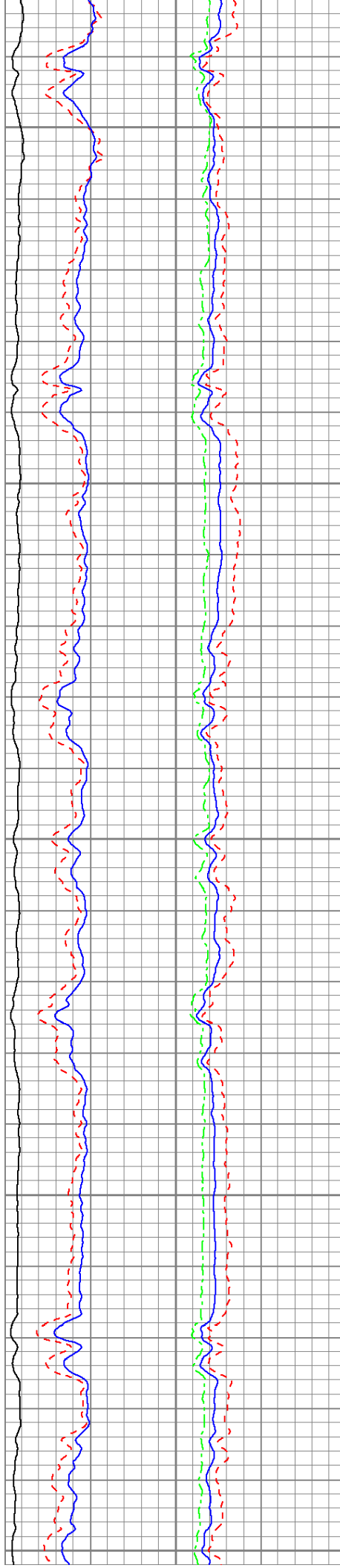


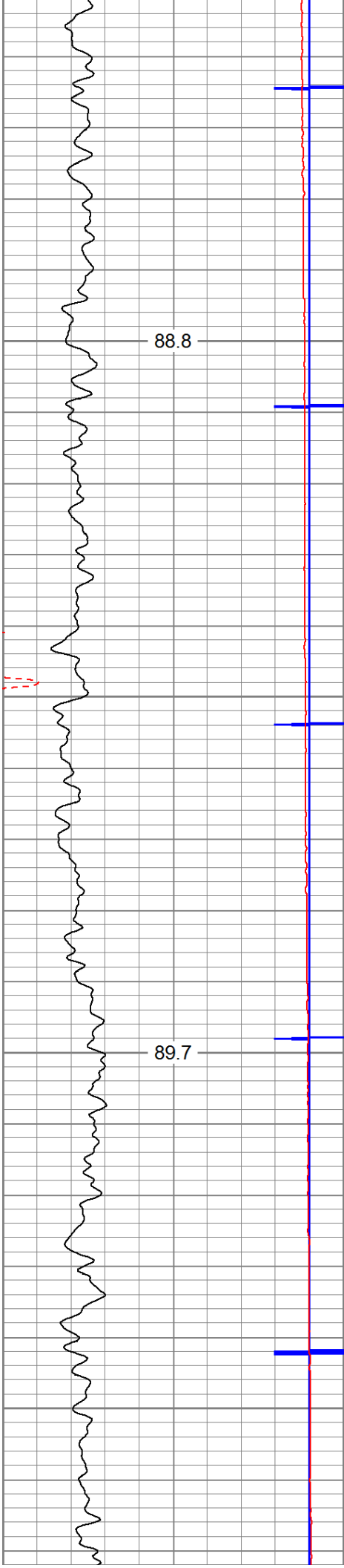




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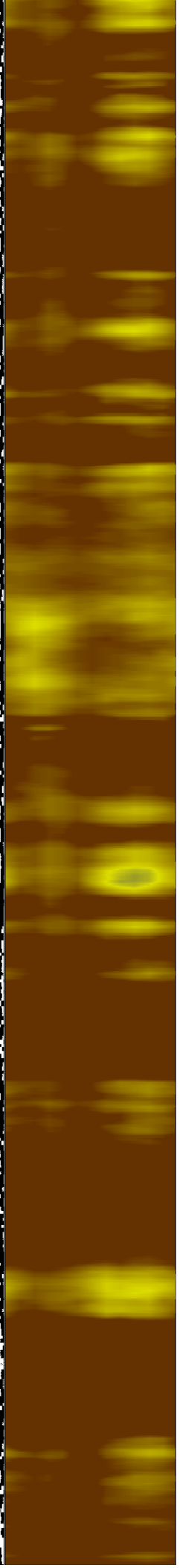
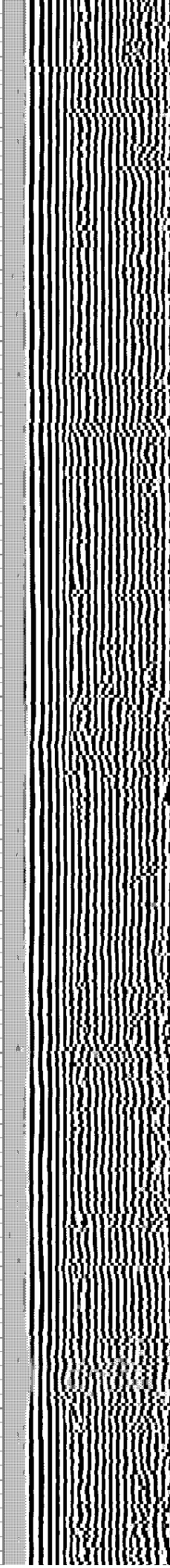
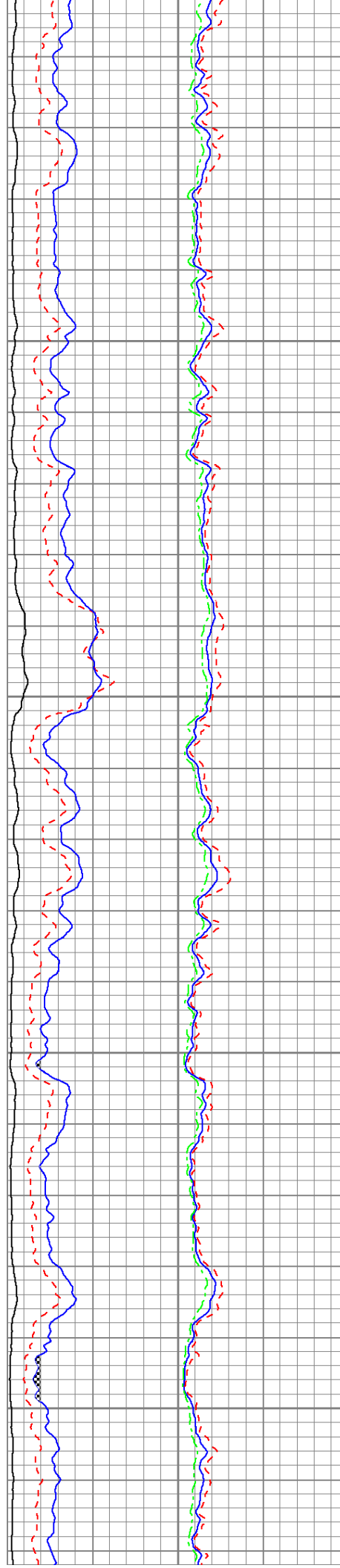
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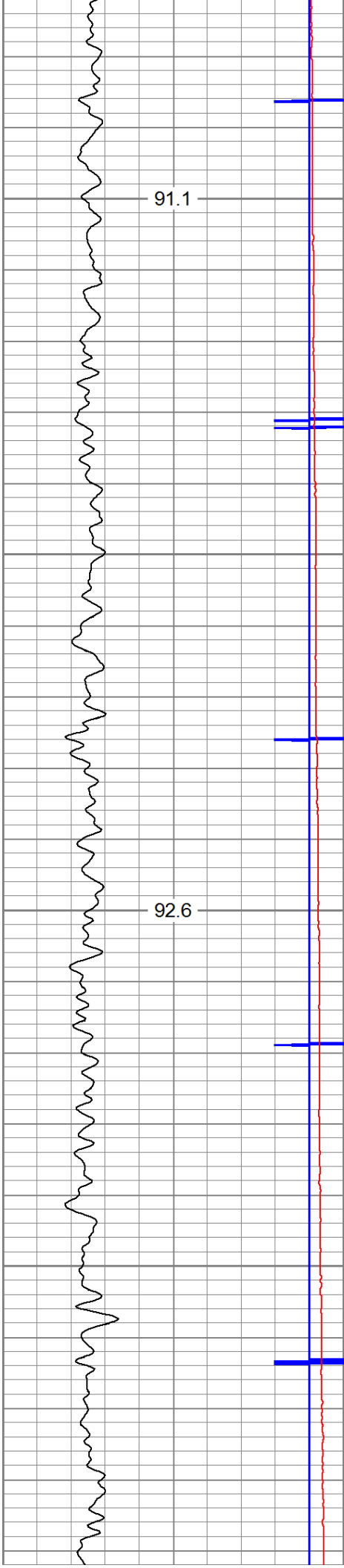




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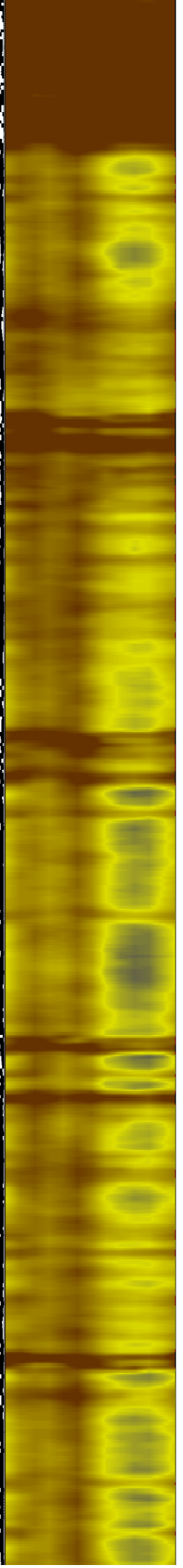
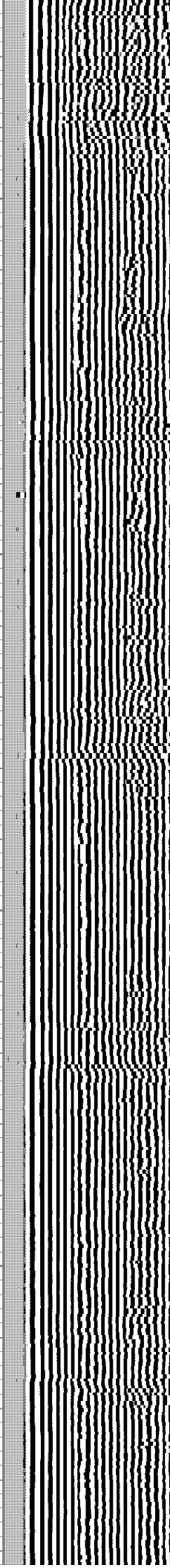
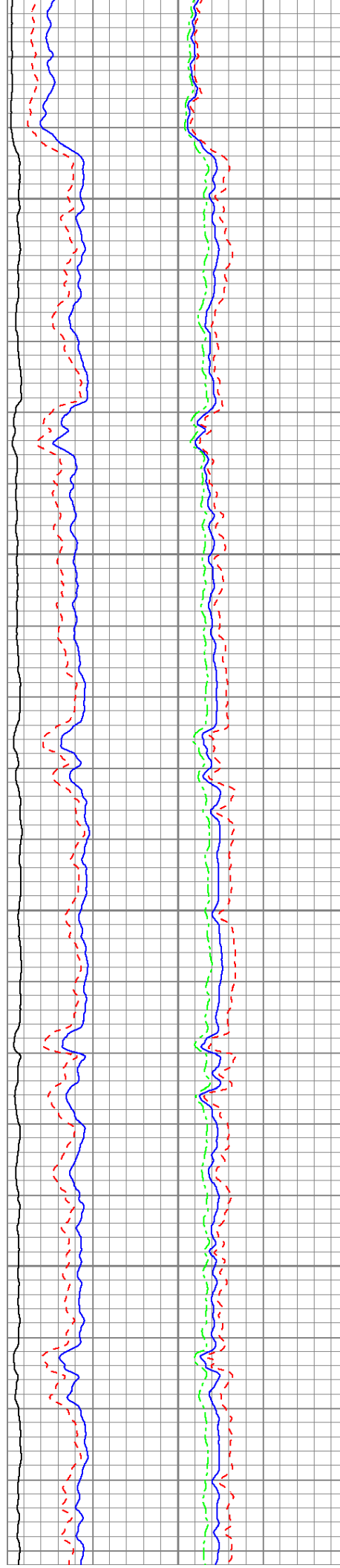
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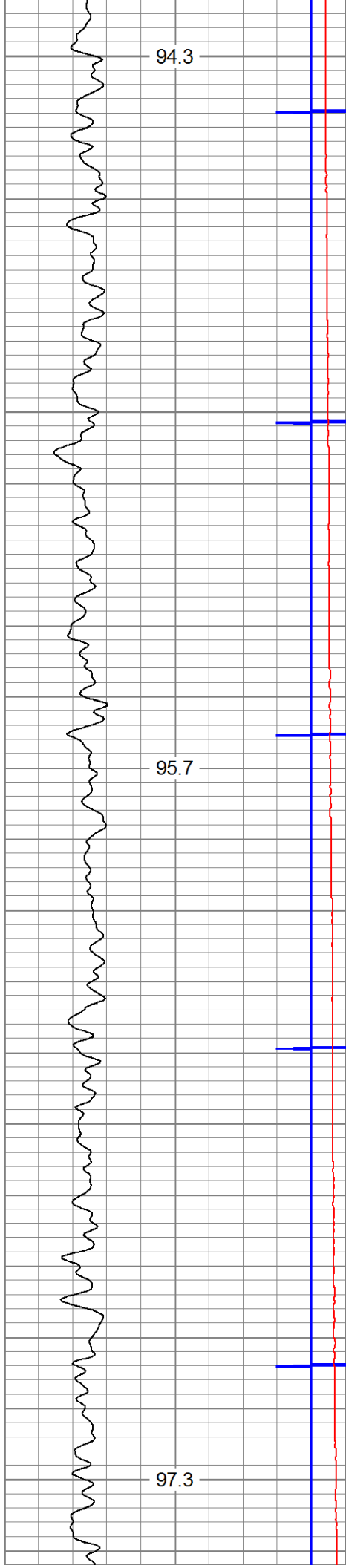




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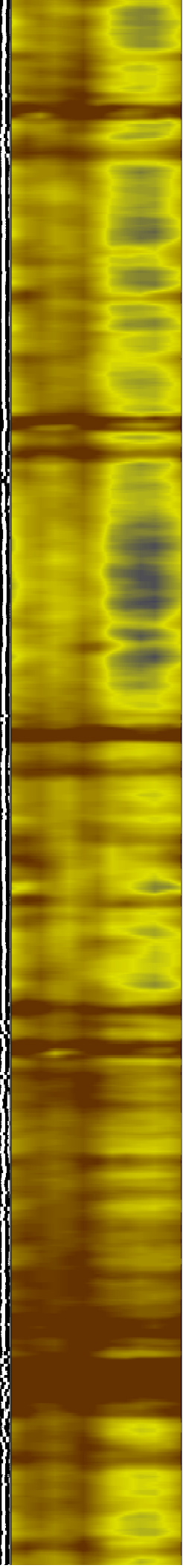
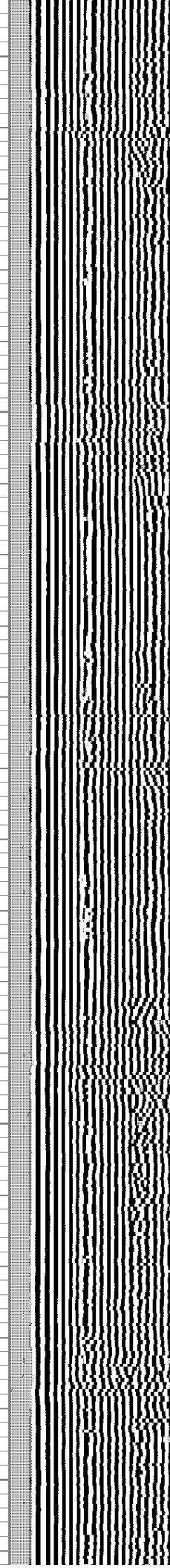
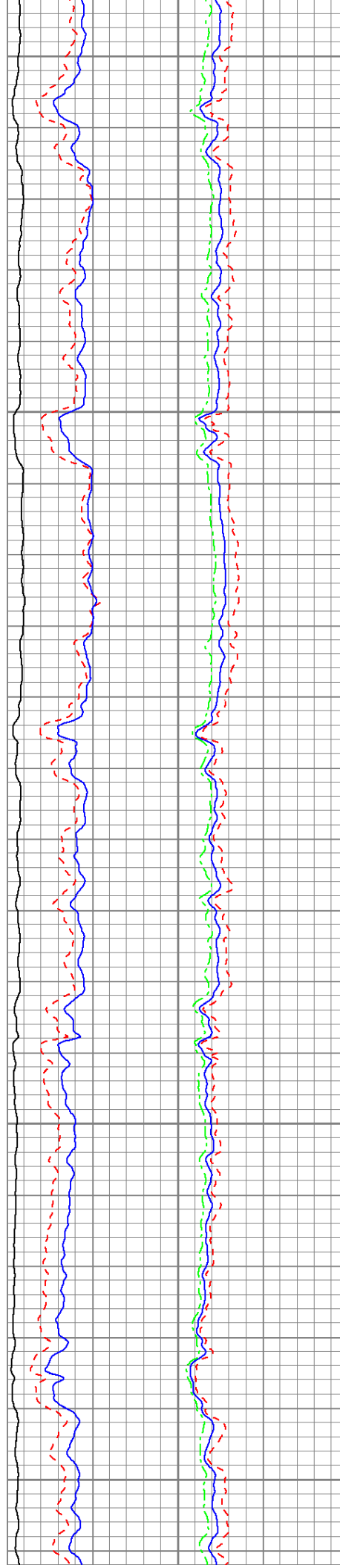


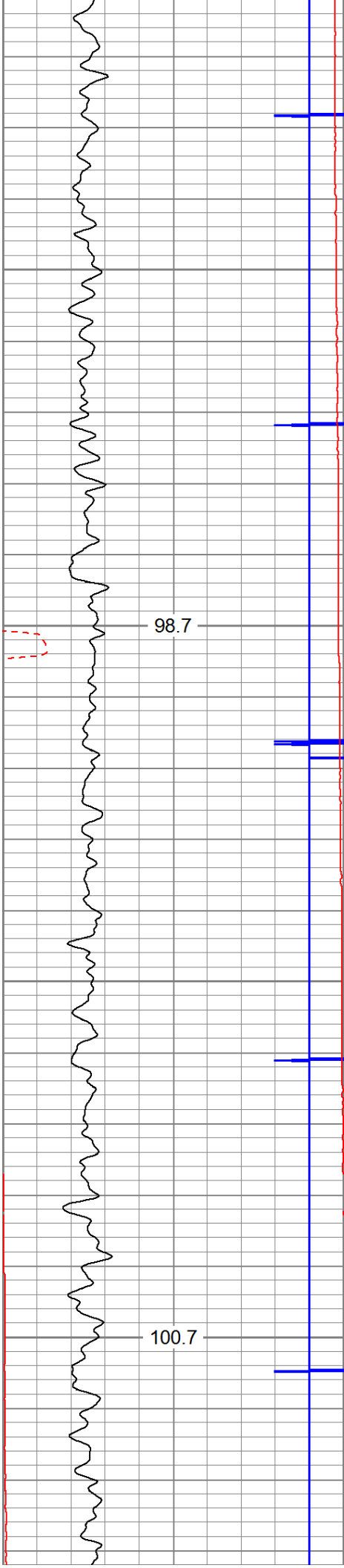


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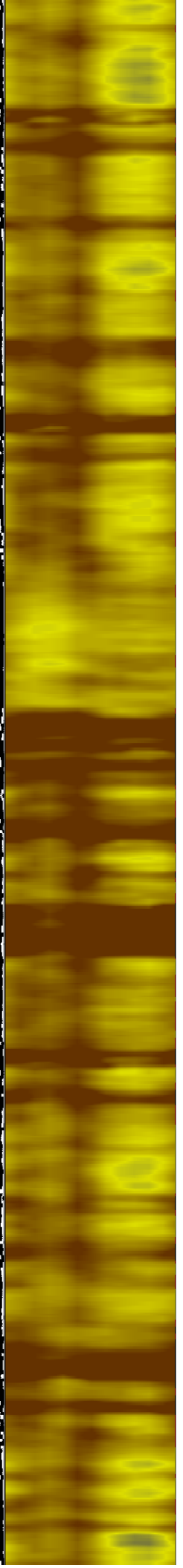
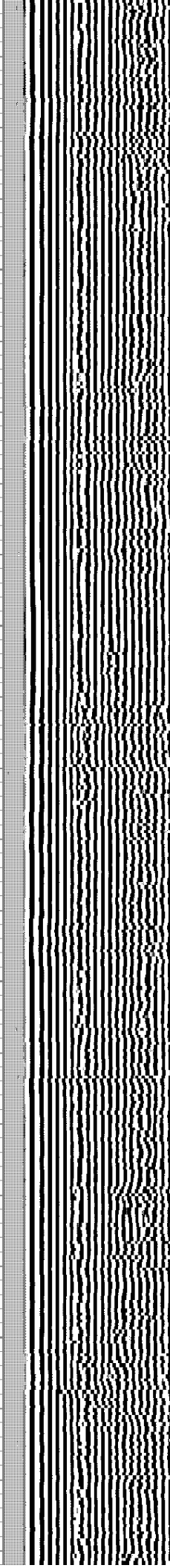
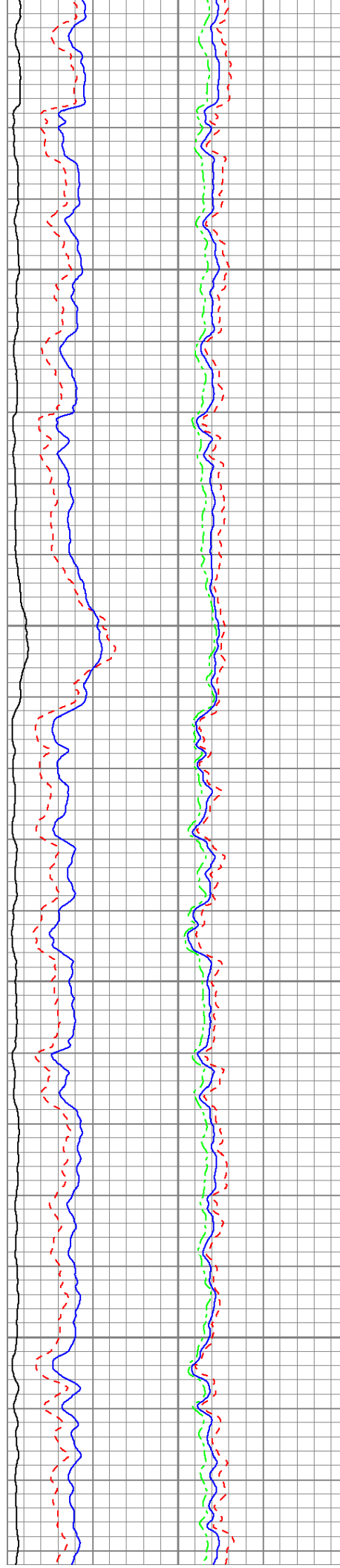
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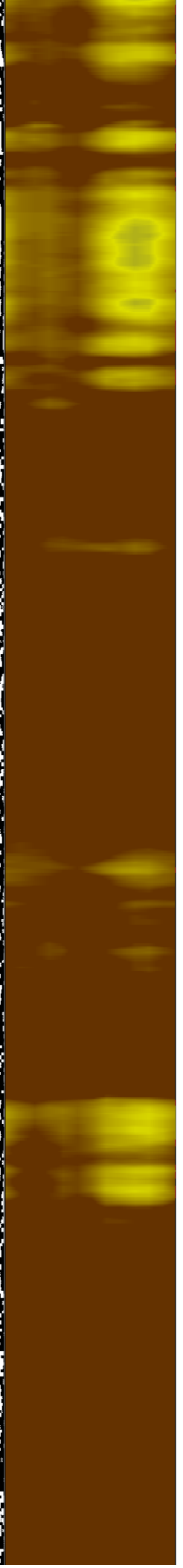
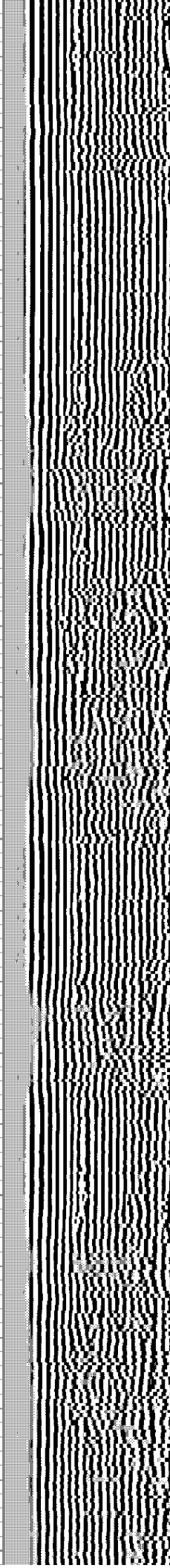
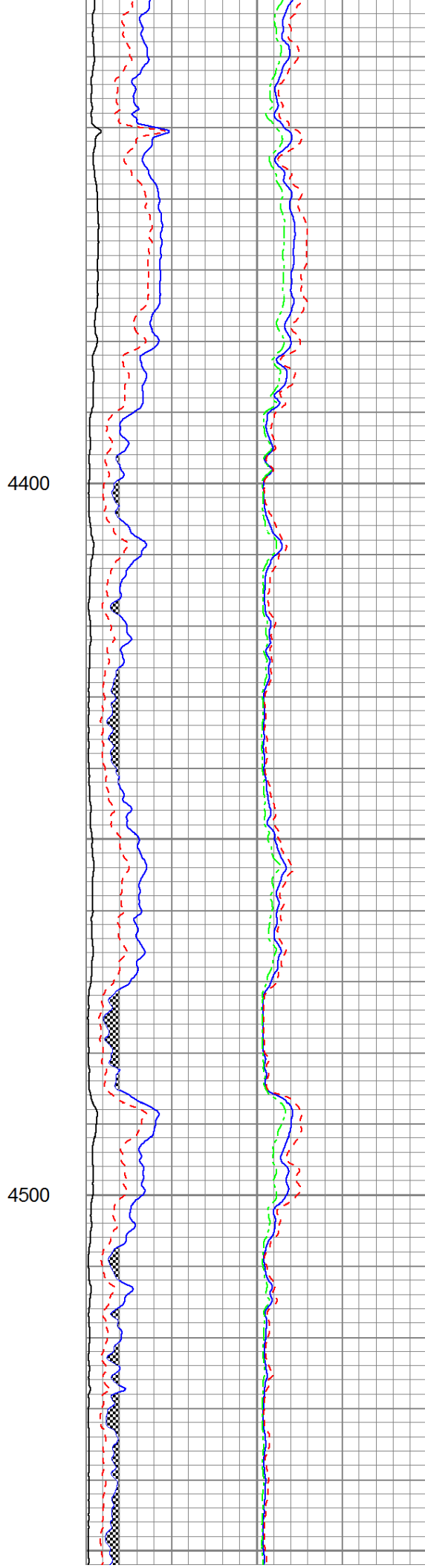
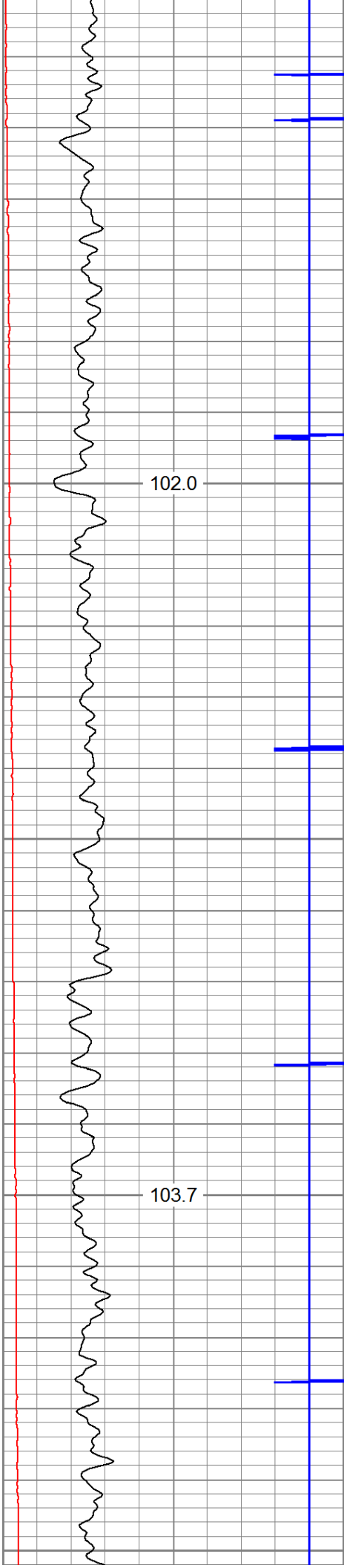


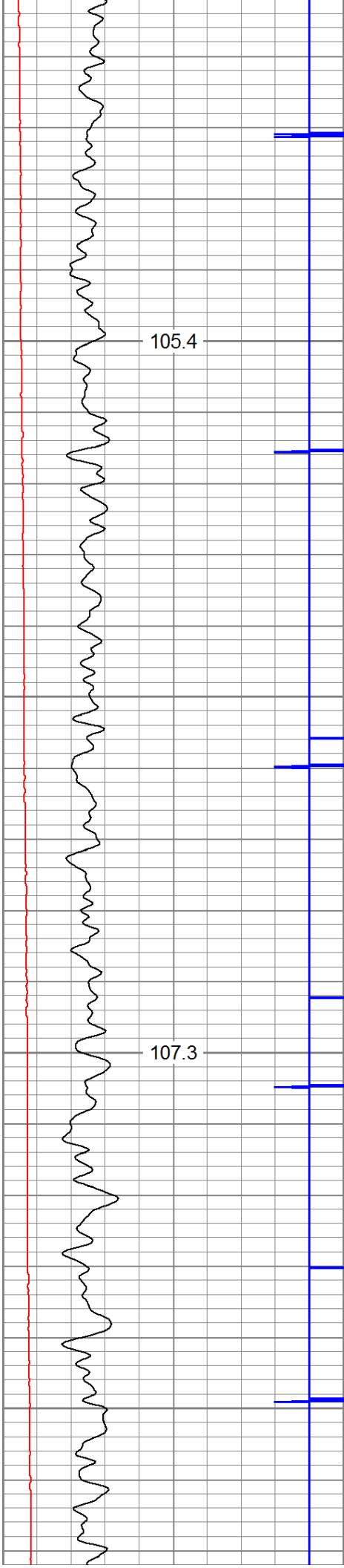


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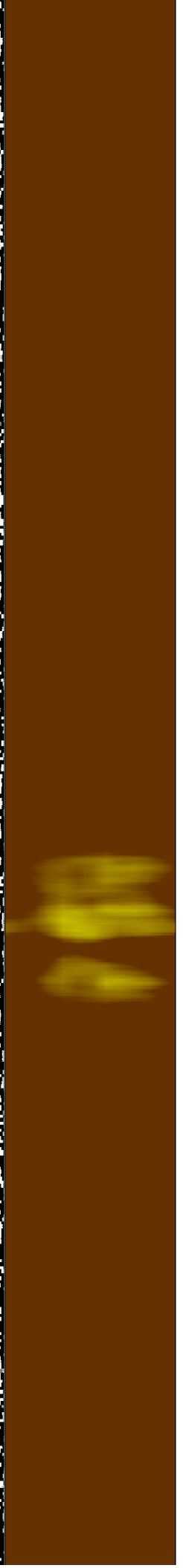
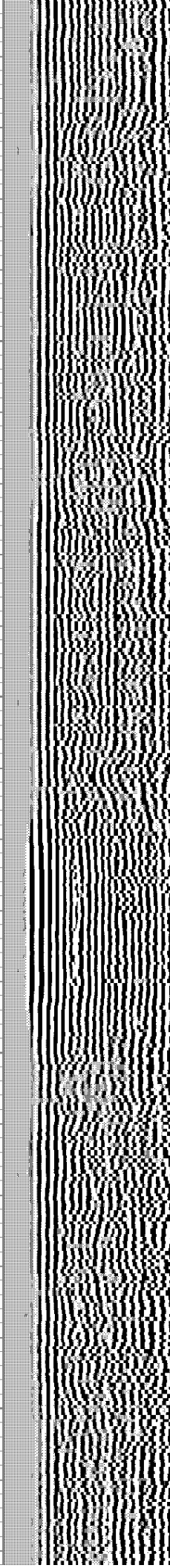
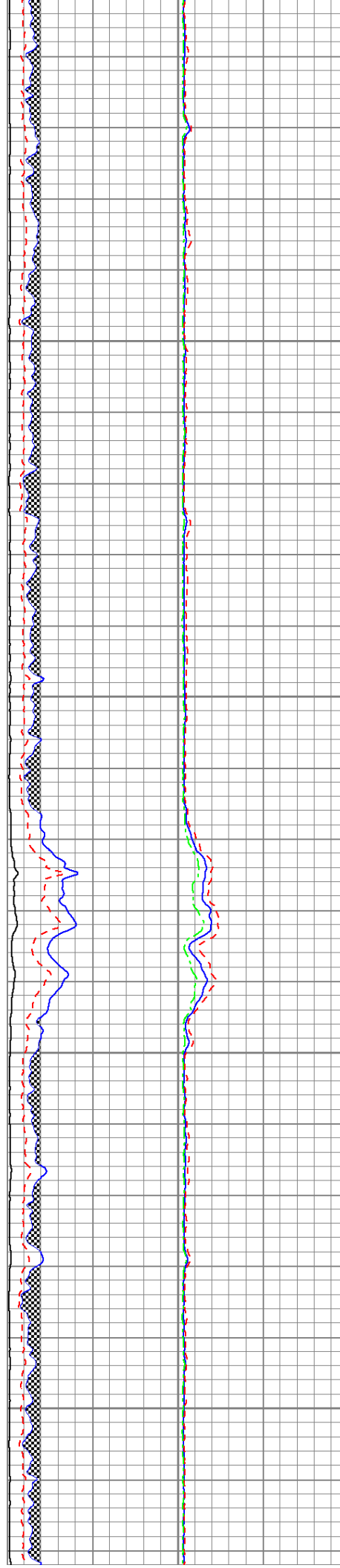


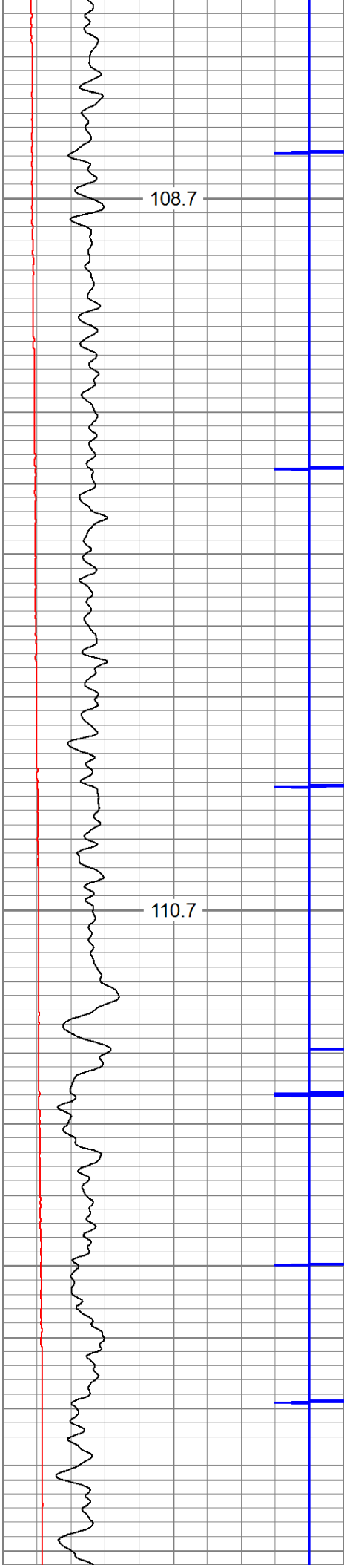
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107.3

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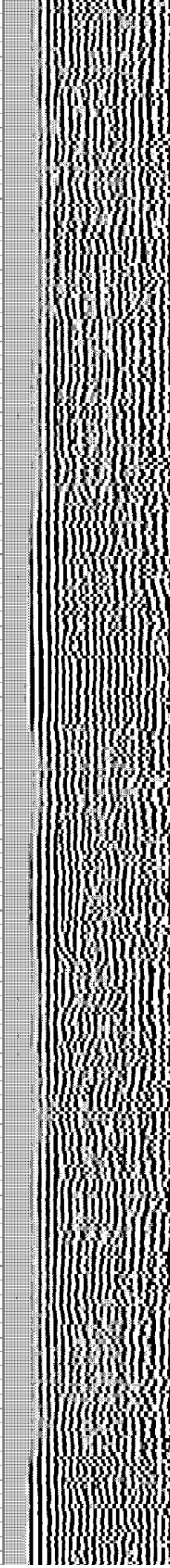
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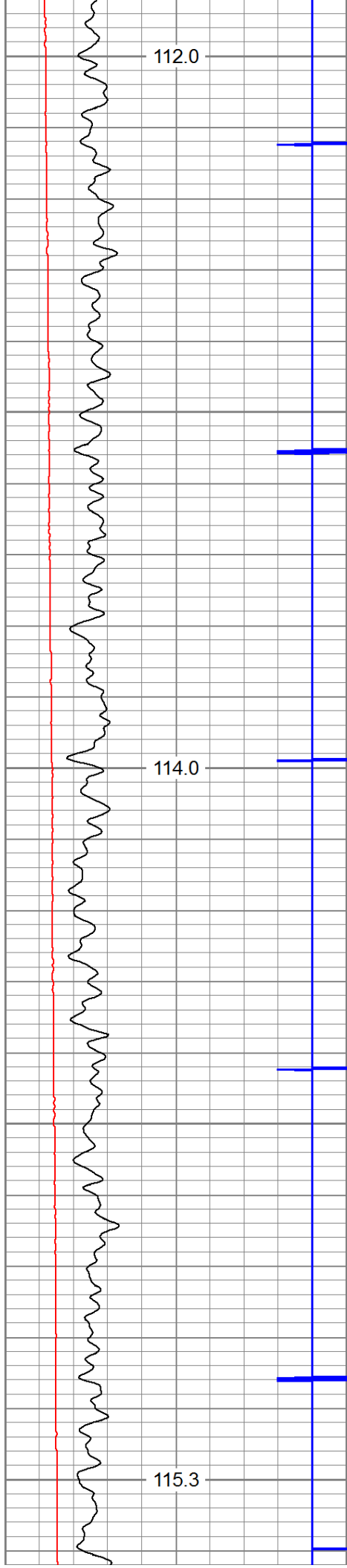


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4900



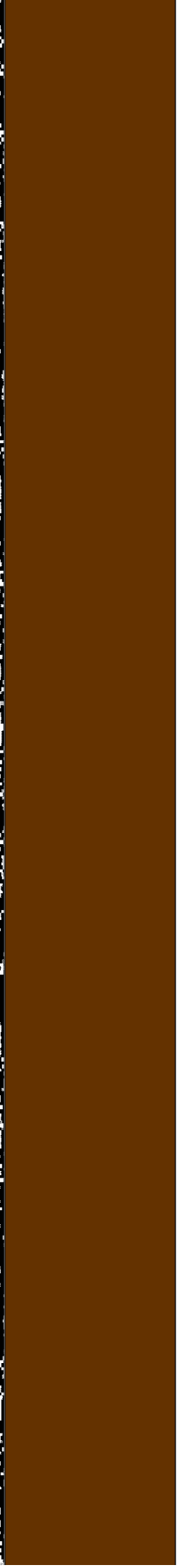
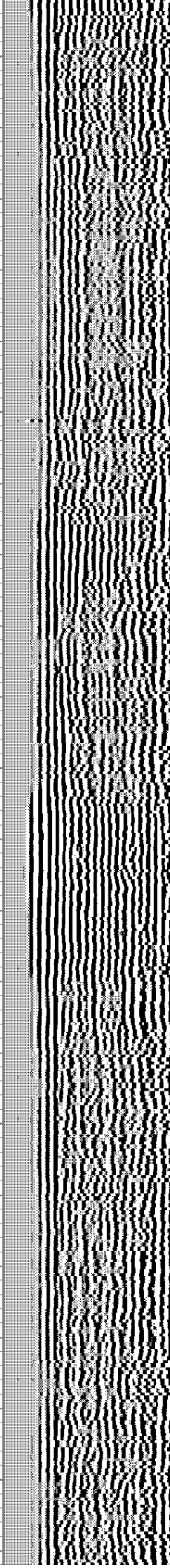
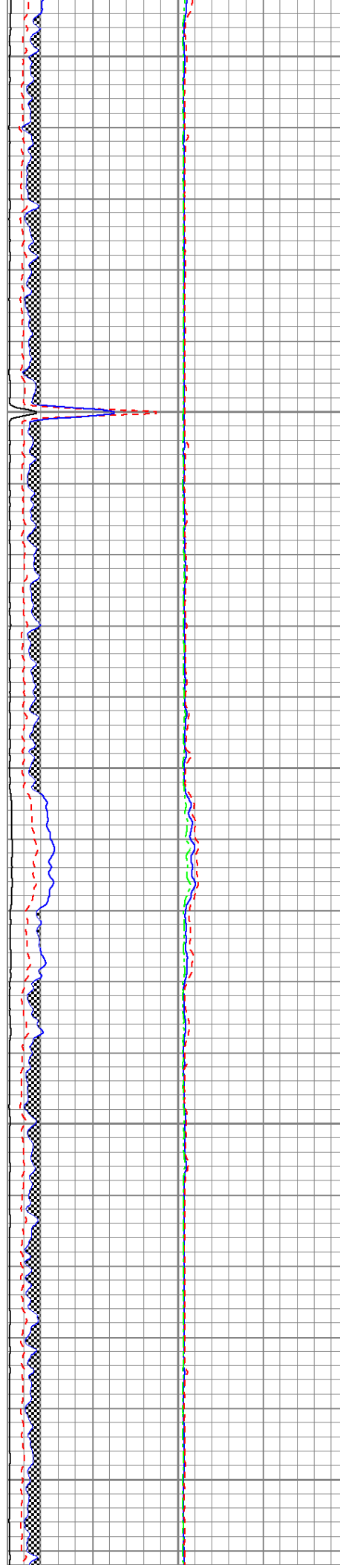


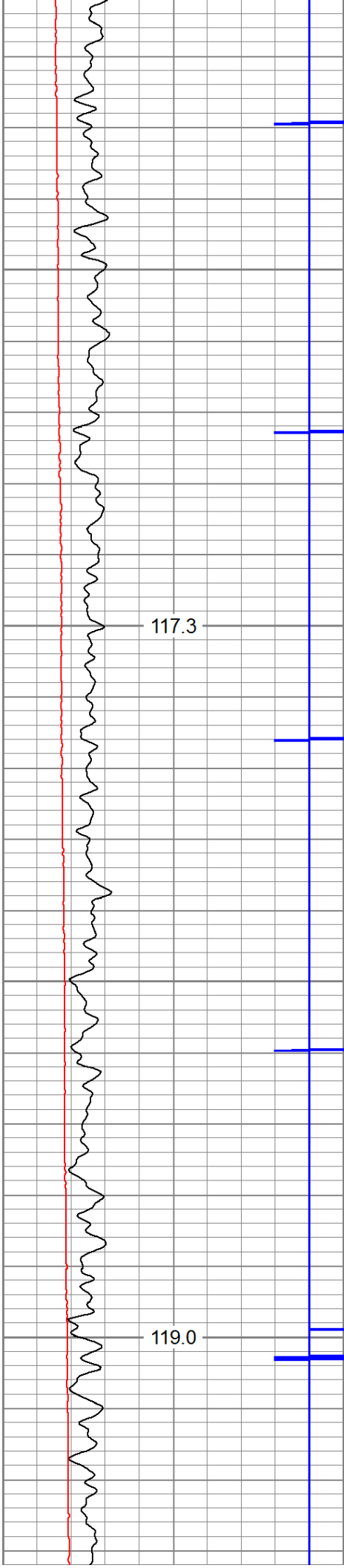


5000

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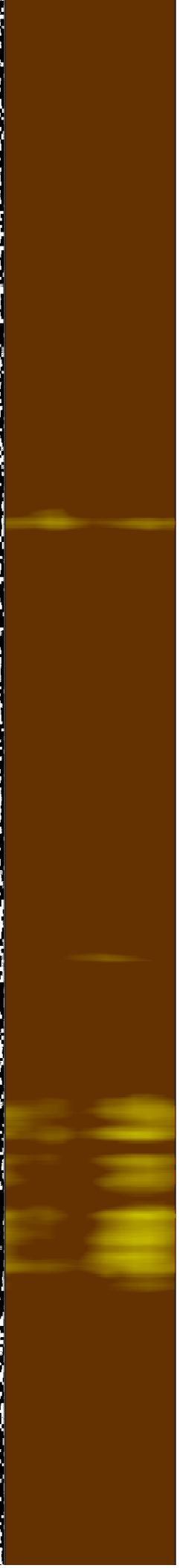
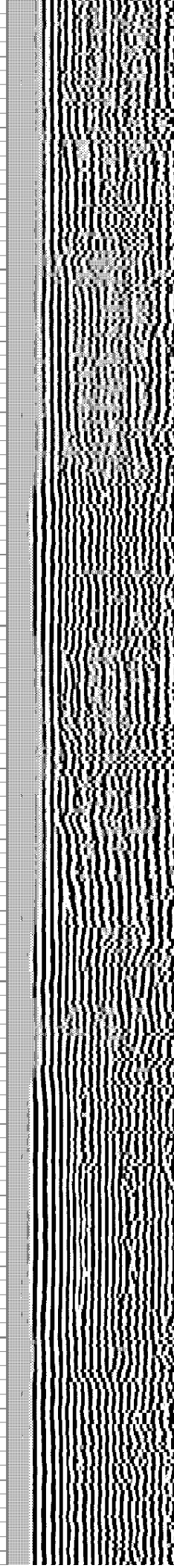
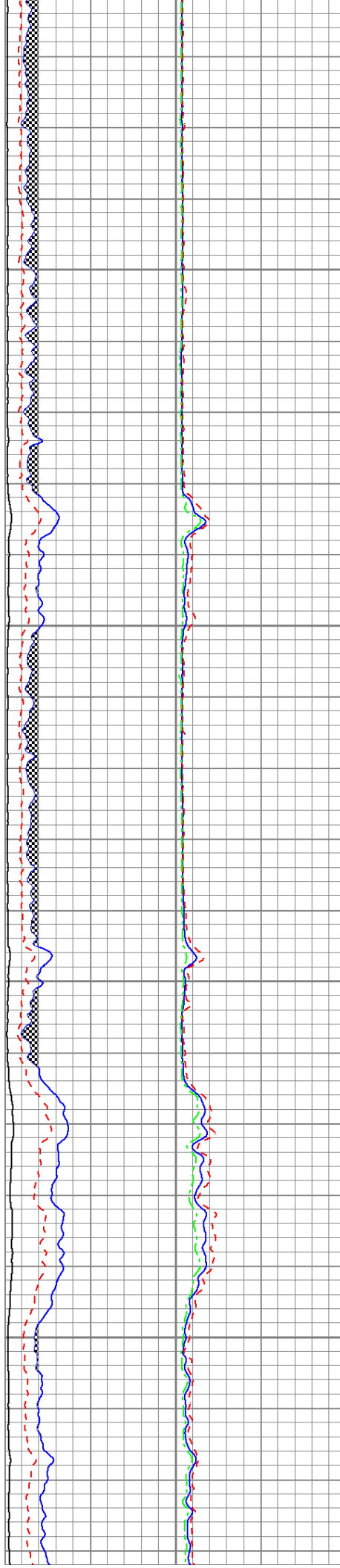
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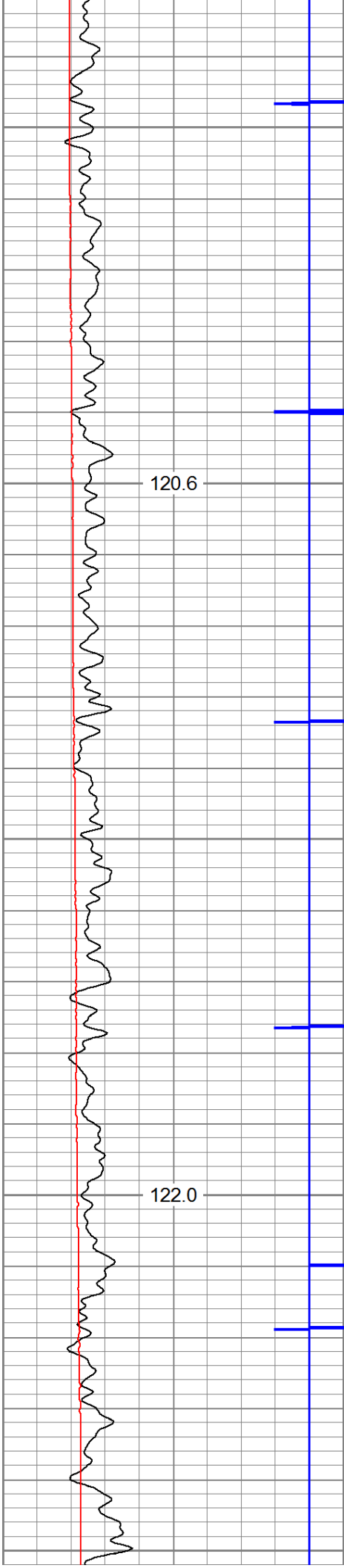




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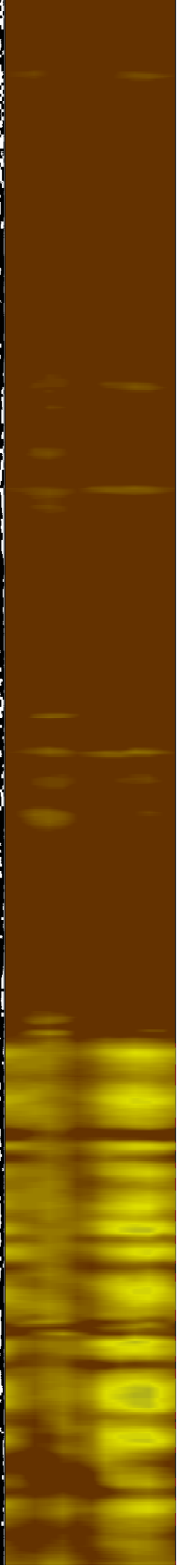
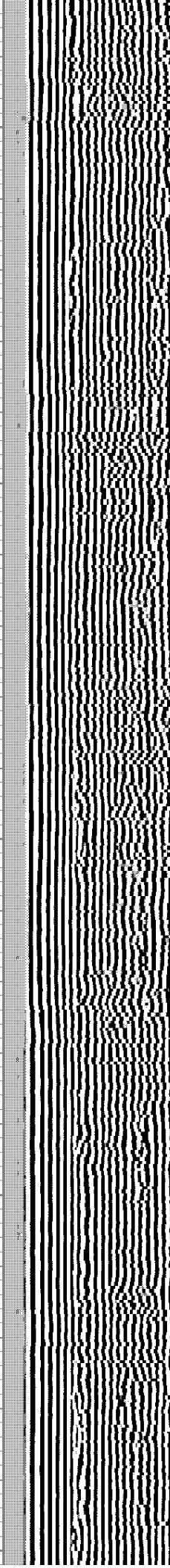
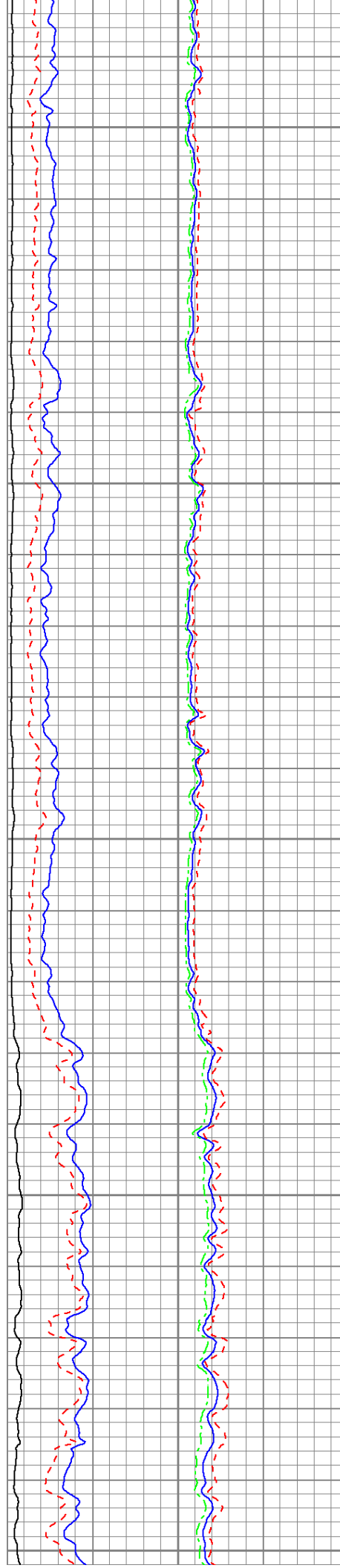
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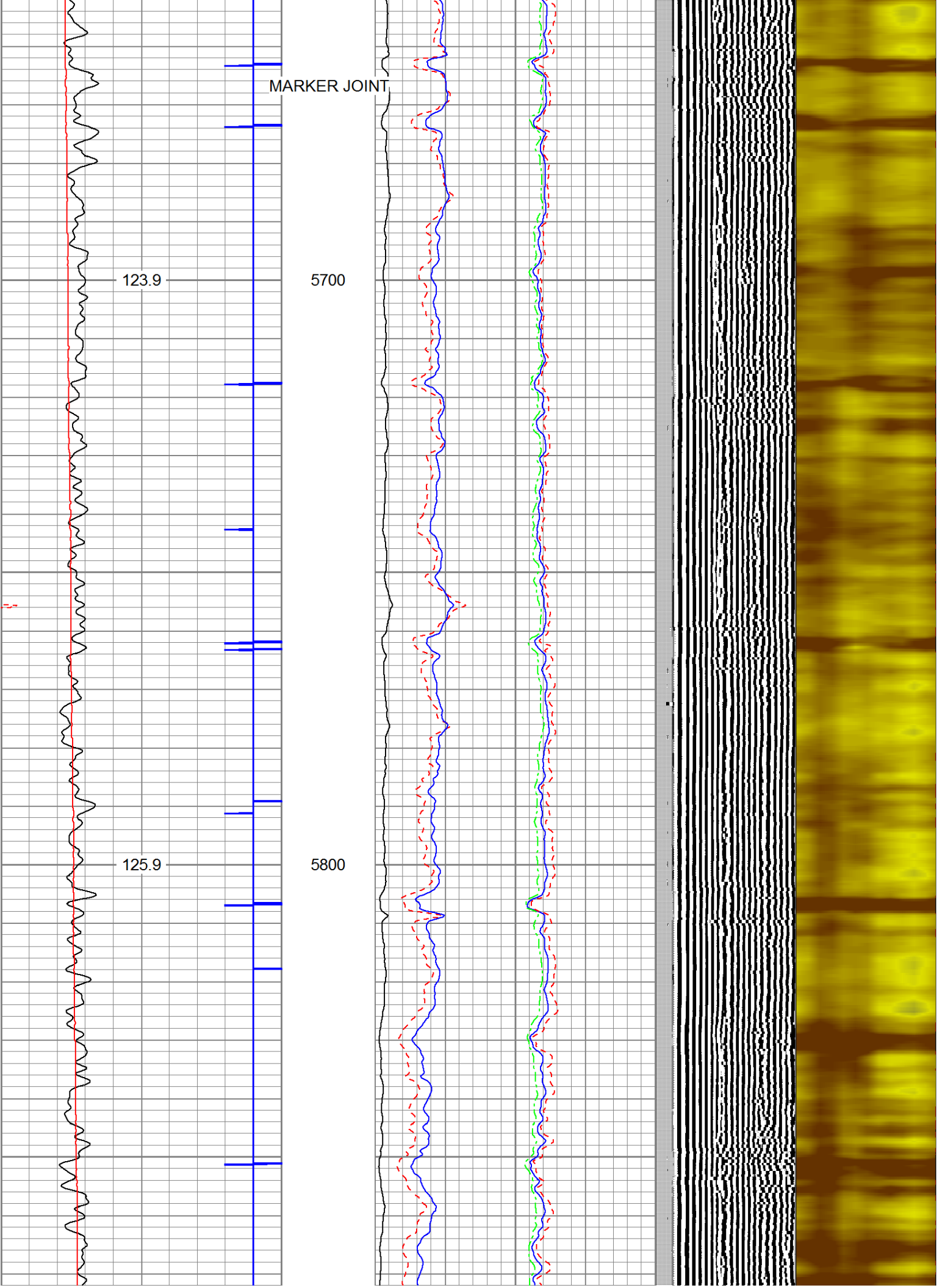


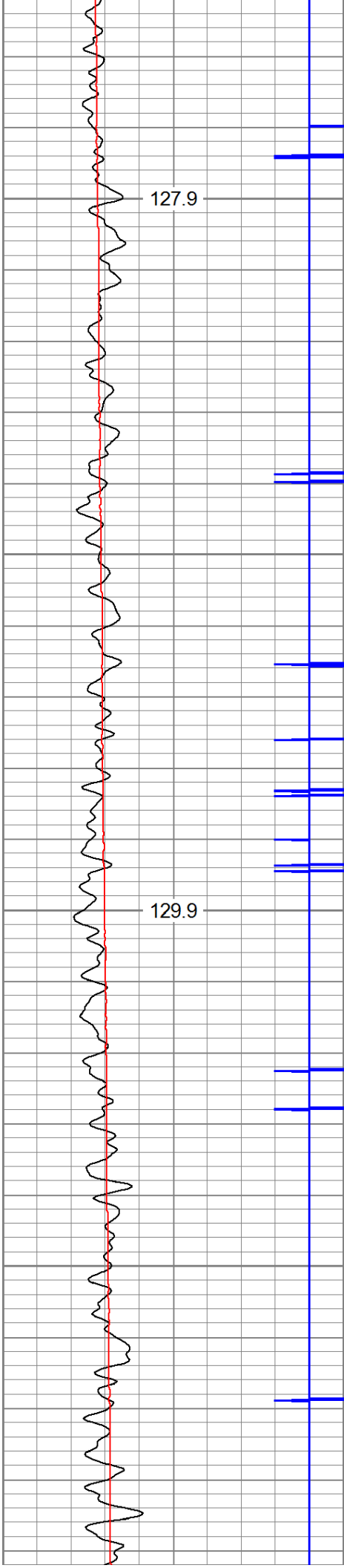


5500

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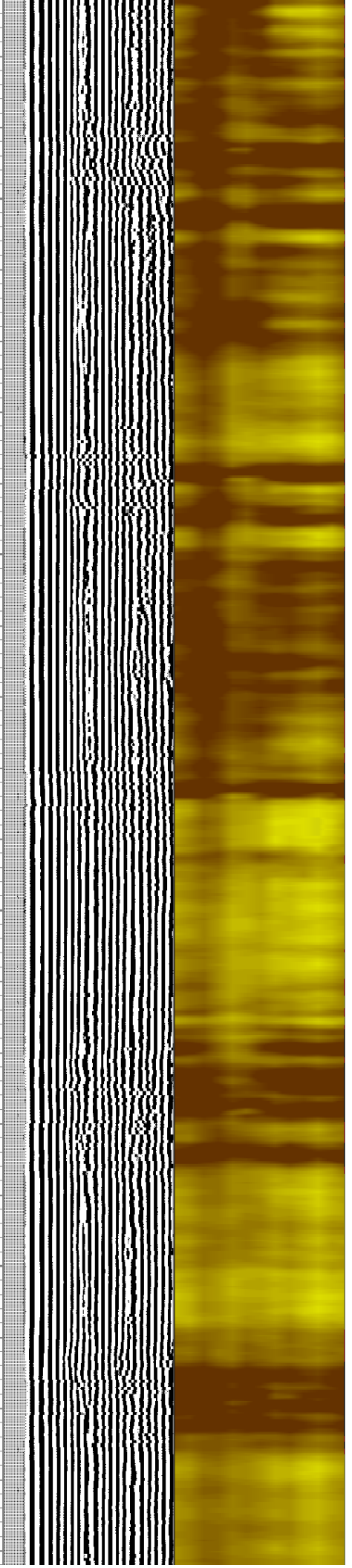
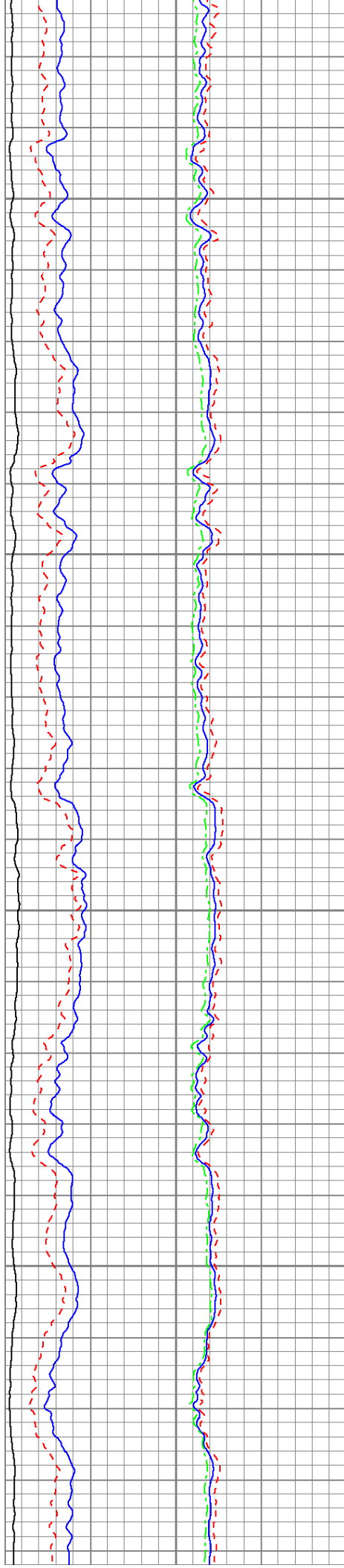


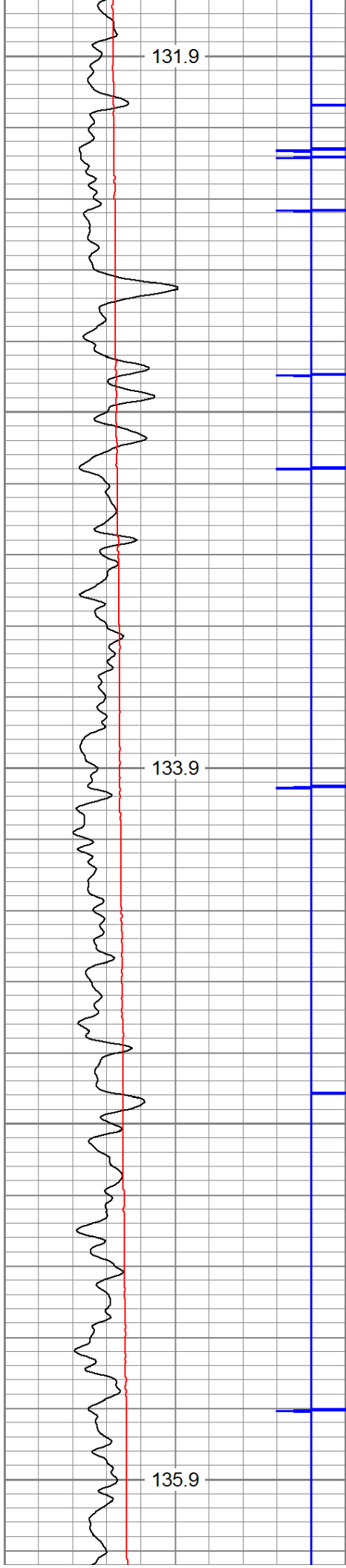




5900

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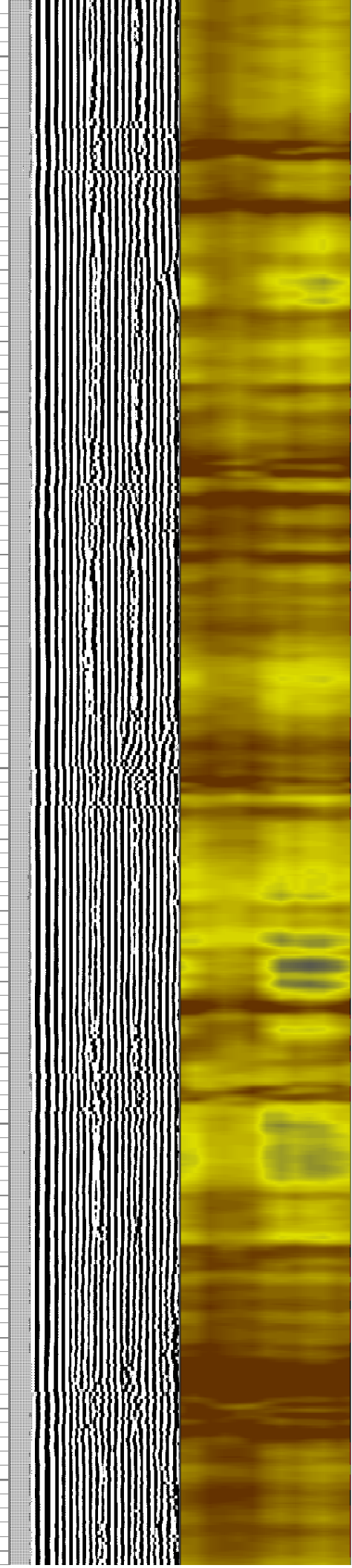


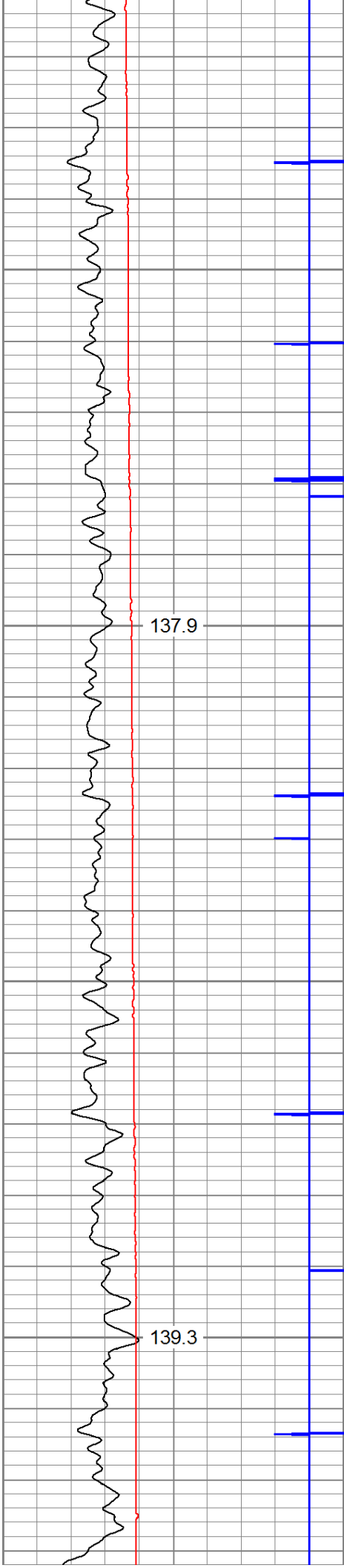


6100

6200

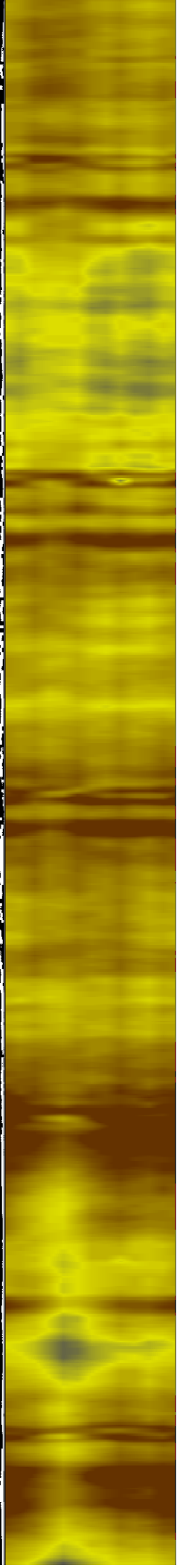
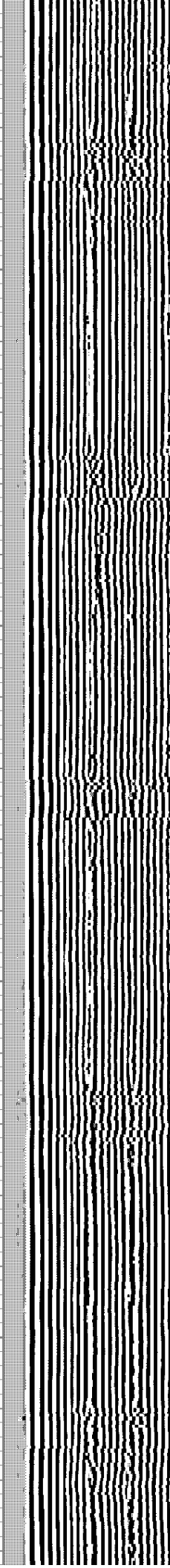
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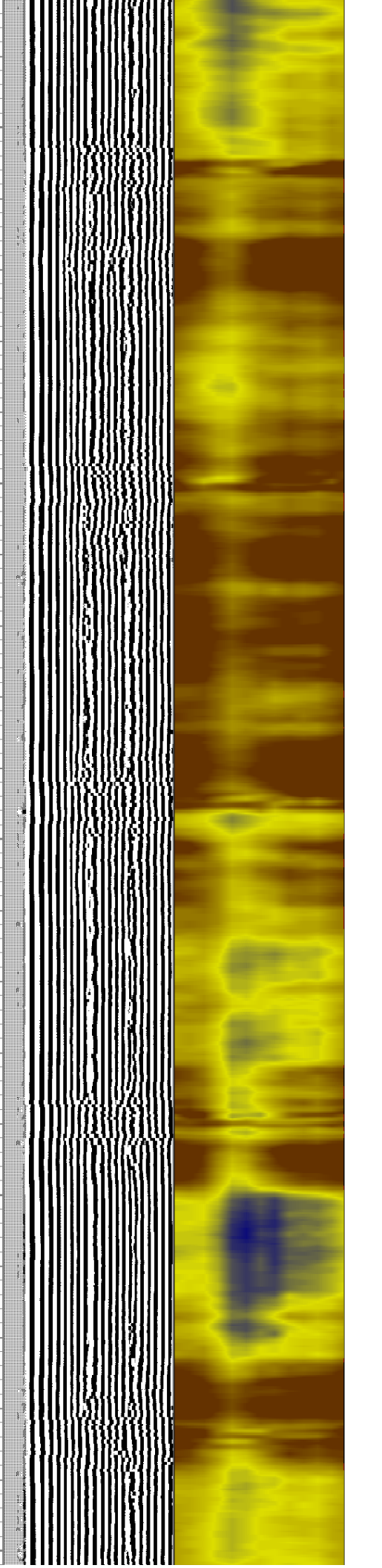
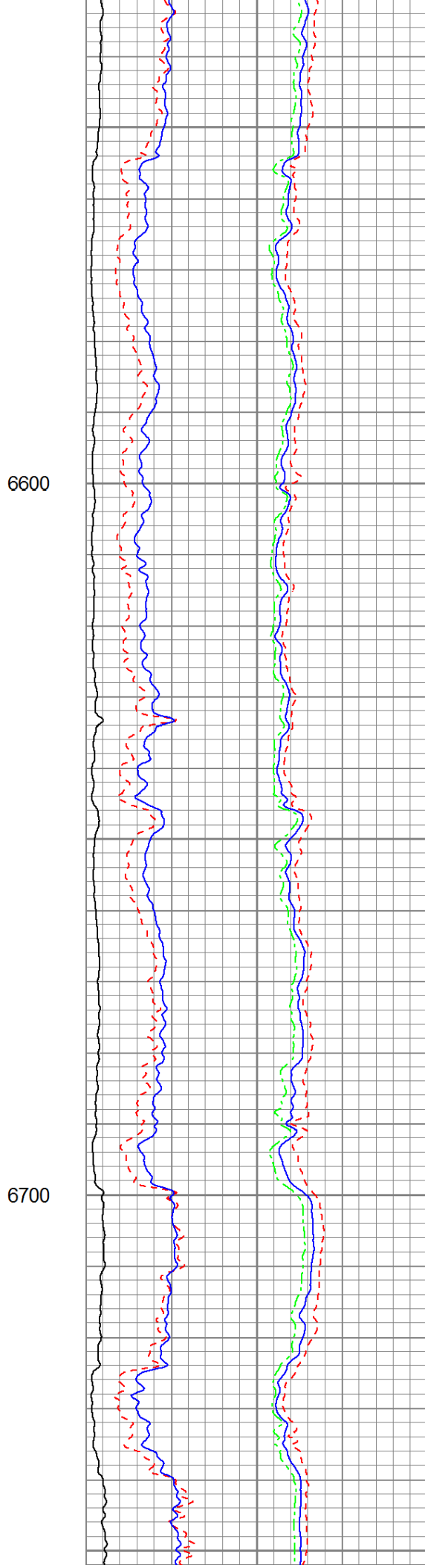
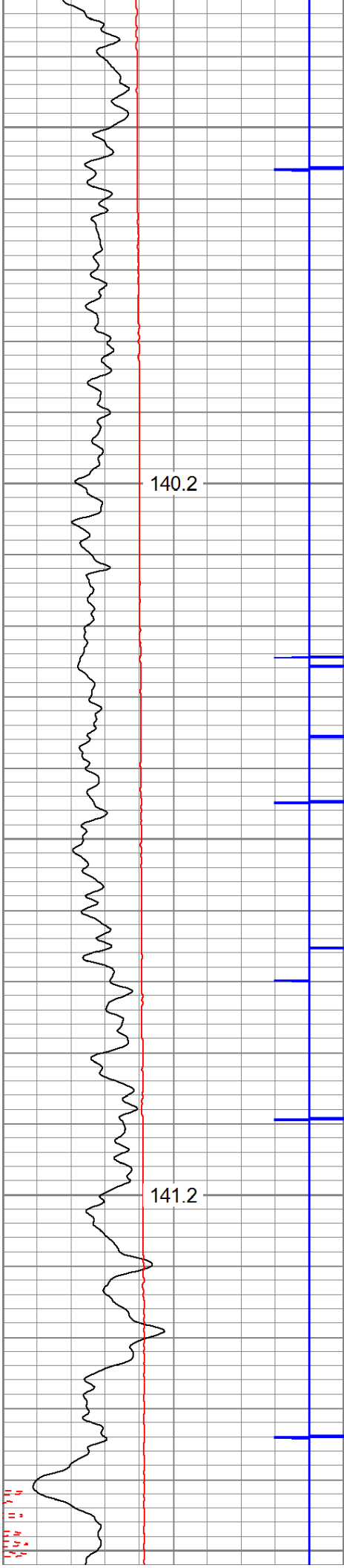




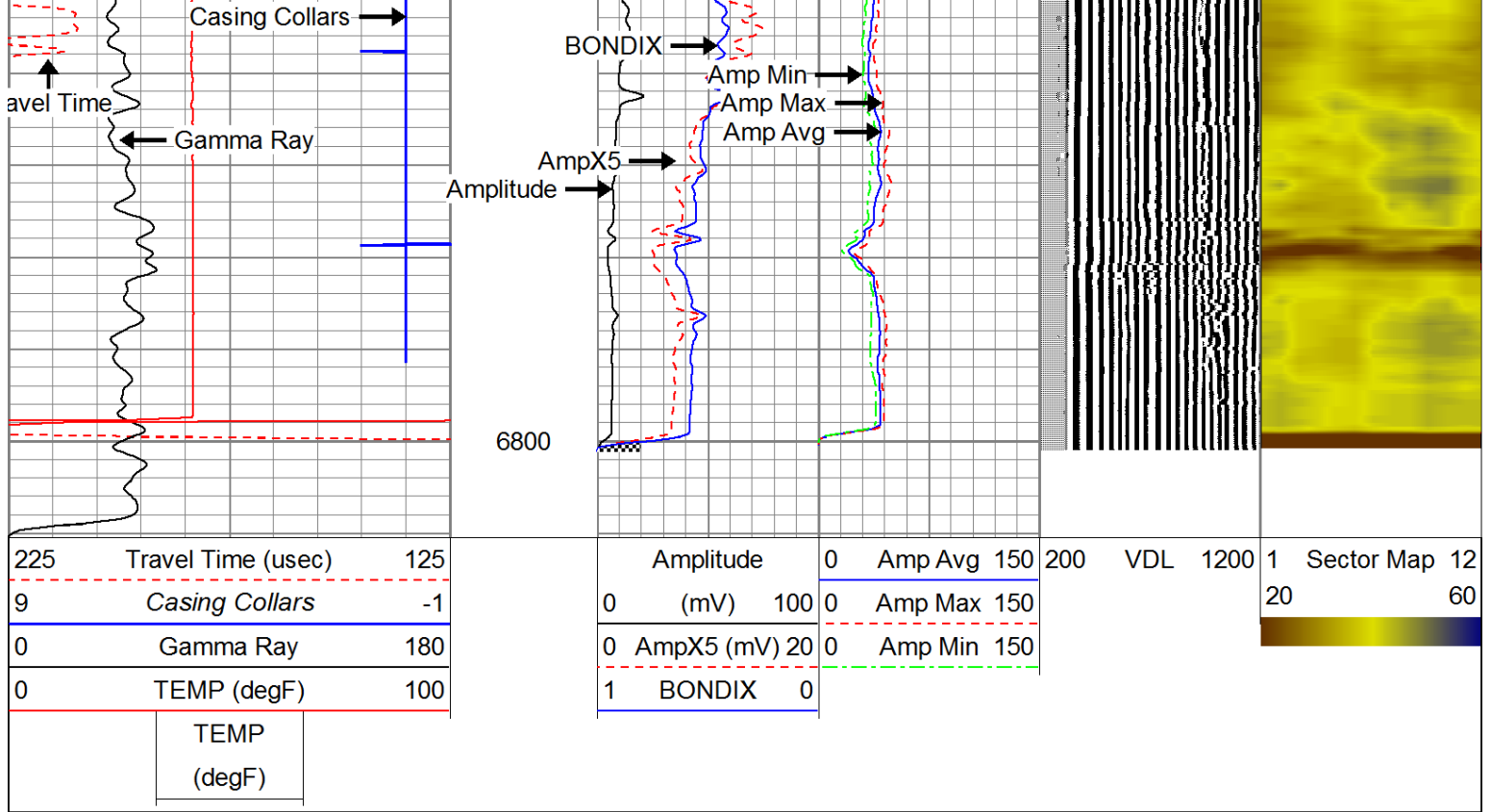
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6500



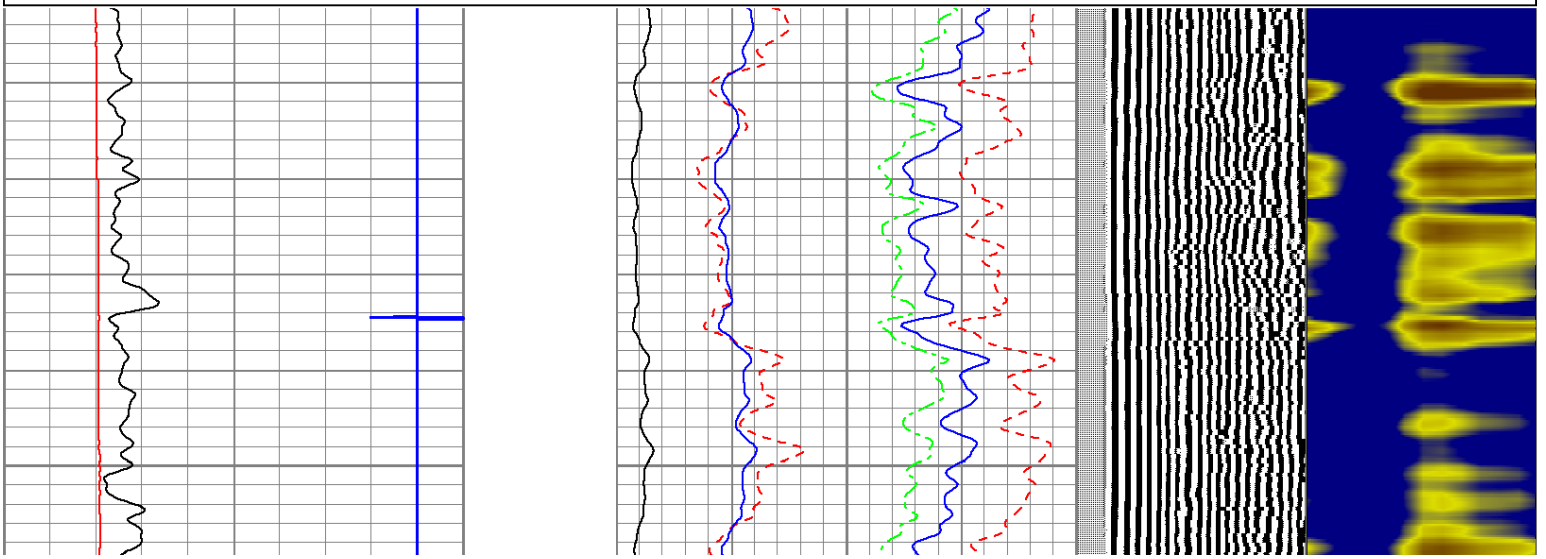
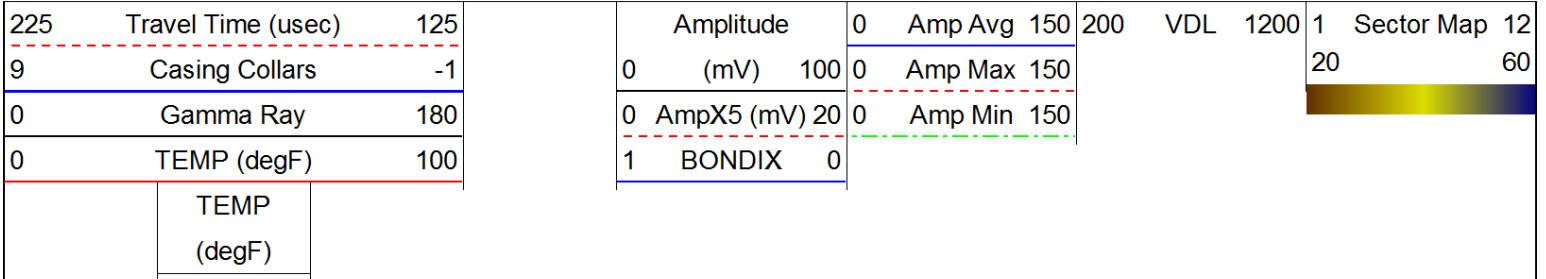


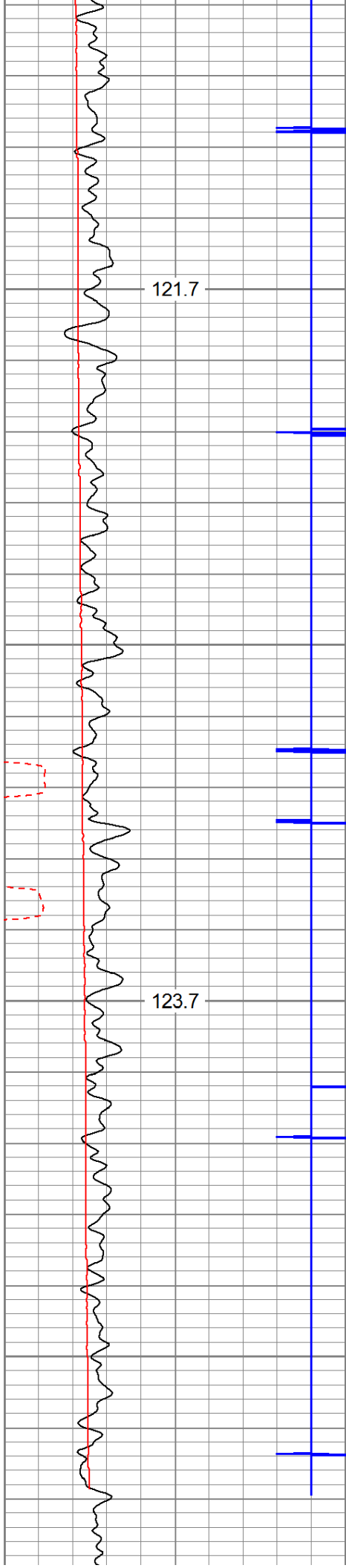




# REPEAT PASS 0 PSI

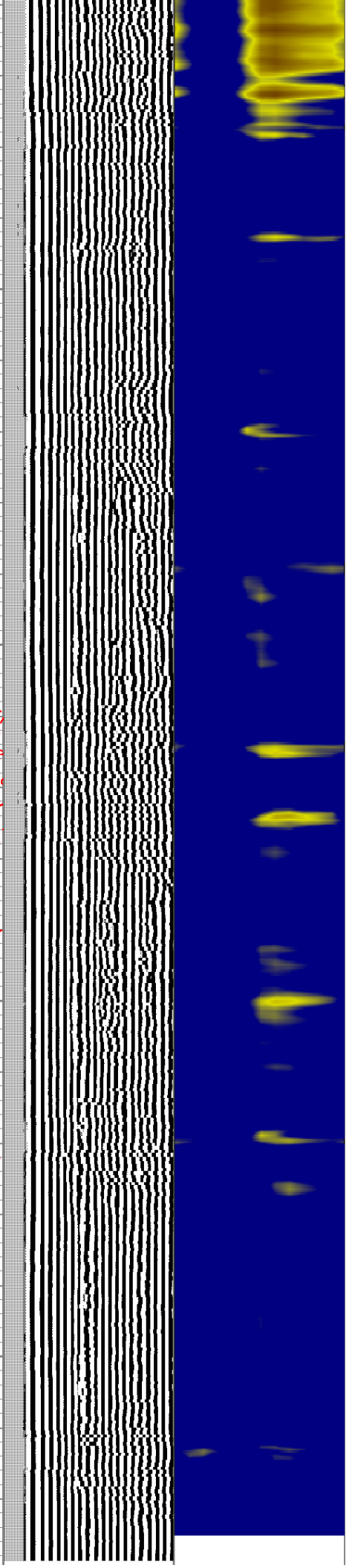
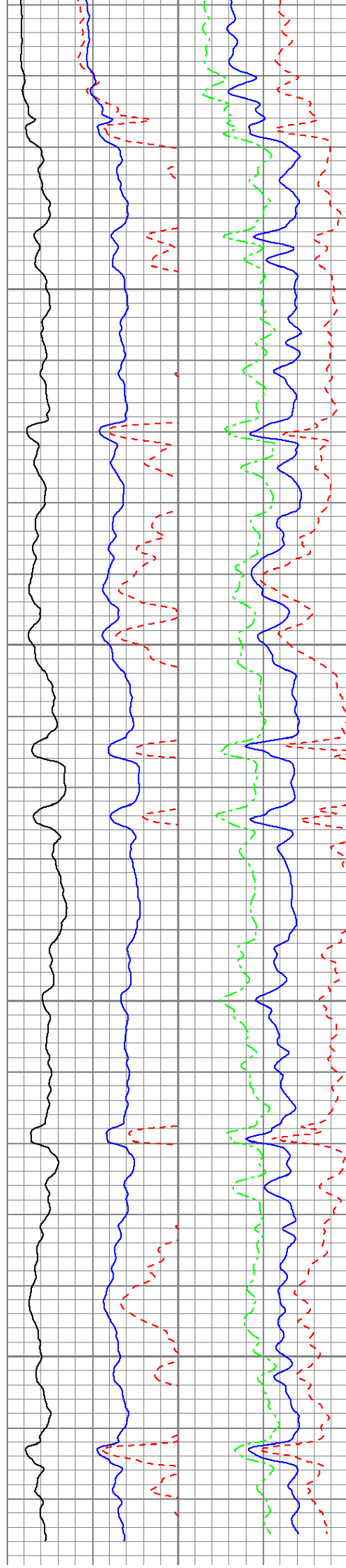
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 Dataset Pathname: pass4  
 Presentation Format: antero  
 Dataset Creation: Mon Feb 04 02:02:13 2019 by Log 7.0 B1  
 Charted by: Depth in Feet scaled 1:240





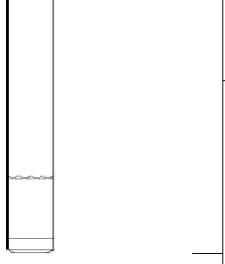
5600

5700



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								
	TEMP (degF)											

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						
WVFS2	11.48						
WVFS3	11.48			SCBL-Tek12 (IOL40-05) Tekco 400 Deg F 12 Sector RIB with Temp	9.13	3.25	135.00
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 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00	

GR	1.04		GR-Tek-Co 2 3/4 (IPSNO-03) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray	3.67	2.75	40.00
		Dataset:	spock_1h.db: field/well/run1/pass7.1			
		Total Length:	20.07 ft			
		Total Weight:	250.00 lb			
		O.D.	3.25 in			

**Calibration Report**


Database File: F:\2019 ANTERO\pyle run\spock\_1h.db  
Dataset Pathname: pass7.1  
Dataset Creation: Mon Feb 04 03:56:32 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		

	Company	ANTERO RESOURCES
	Well	SPOCK UNIT 1H
	Field	MARCELLUS
	County	TYLER
	State	W.V.
	Country	USA