



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company TEP Rocky Mountain LLC  
Well Federal GM 422-8  
Field Grand Valley  
County Garfield State Colorado

Location: API #: 05-045-24016  
SEC 8 TWP 7S RGE 96W  
Permanent Datum Ground Level Elevation 6172.4'  
Log Measured From Kelly Bushing 24 FT  
Drilling Measured From Kelly Bushing  
Other Services  
Elevation  
K.B. 6196.4'  
D.F. 6195.4'  
G.L. 6172.4'

Udate	03-FEB-2019																						
Run Number	One																						
Depth Driller	7135 FT																						
Depth Logger	7069 FT																						
Bottom Logged Interval	7055 FT																						
Top Log Interval	Surface																						
Open Hole Size	12 250"																						
Type Fluid	Water																						
Density / Viscosity	8.34 lb/gal																						
Max. Recorded Temp.	214°F																						
E estimated Cement Top	See Log																						
Time Well Ready	ROA																						
Time Logger on Bottom	21:50																						
E equipment Number	HD-0359																						
Location	Grand Junction, CO																						
Recorded By	J. Donnelly																						
Witnessed By	Dustin Welsh																						
Borehole Record												Tubing Record											
Run Number	Bit	From	To	Size	Weight	From	To																
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top	Bottom																		
Surface Casing	13 3/8	54.5	J-55	Surface	1038 FT																		
Intermediate #1	4 1/2	11.6	P-110	Surface	7094 FT																		
Intermediate #2																							
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 ran as per customer request  
Depth referenced to Kelly Bushing at 24 FT  
Marker Joint Logged from 3245-3266 FT  
Log ran from 7055 FT to Surface  
Recorded with 0 PSI Surface Induced Pressure

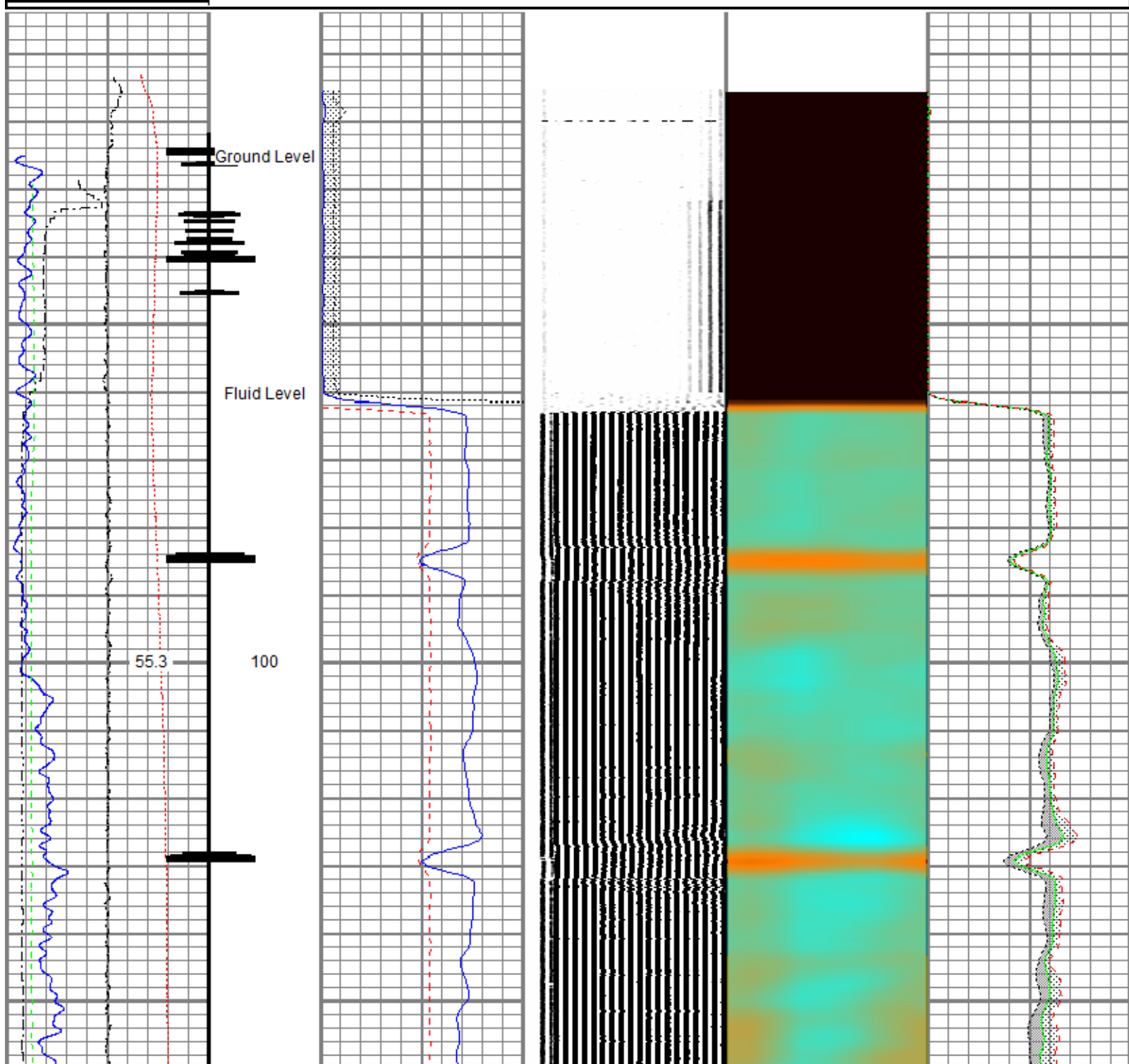
Thank you for choosing Reliance Oilfield Services, LLC!

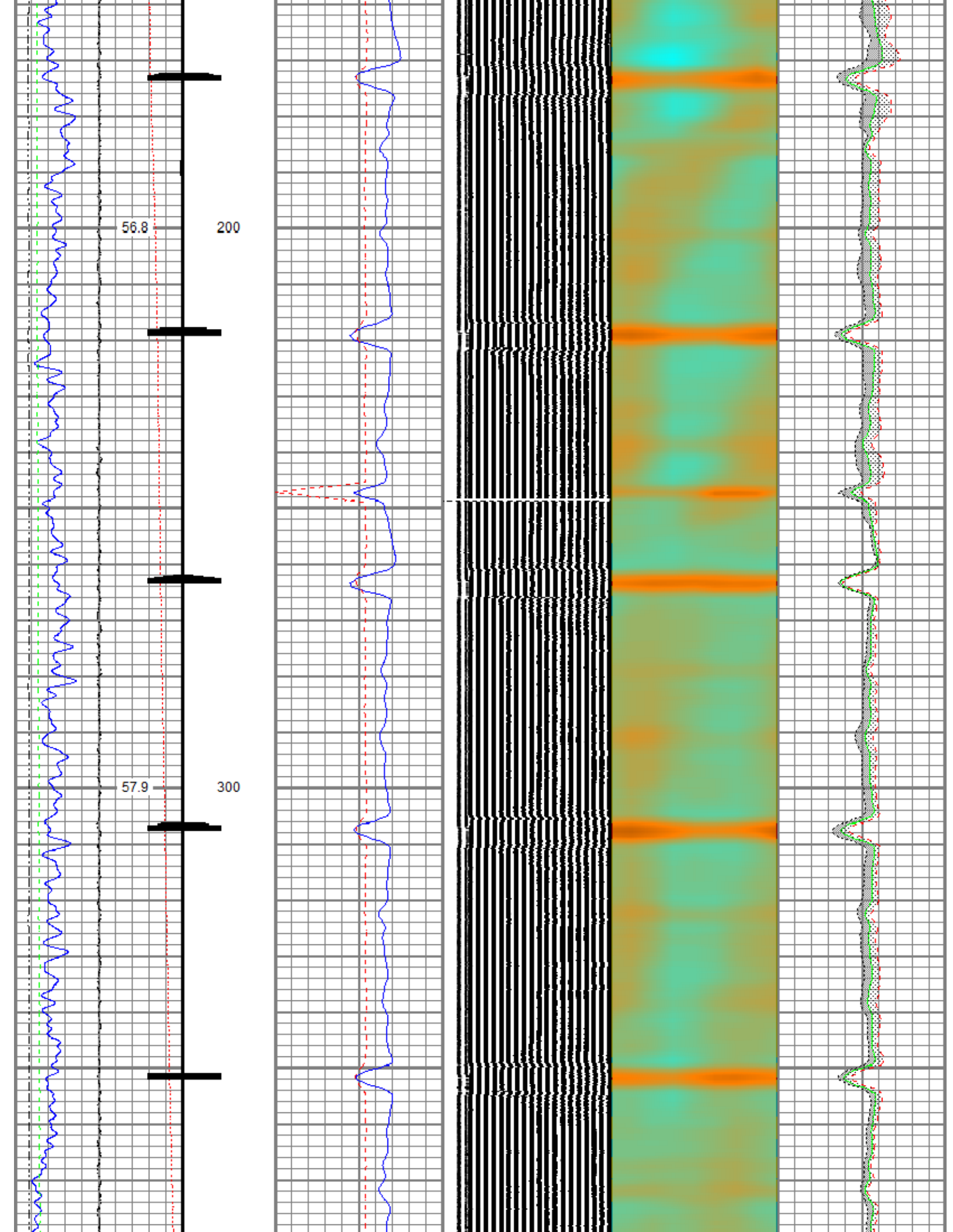
Main Pass

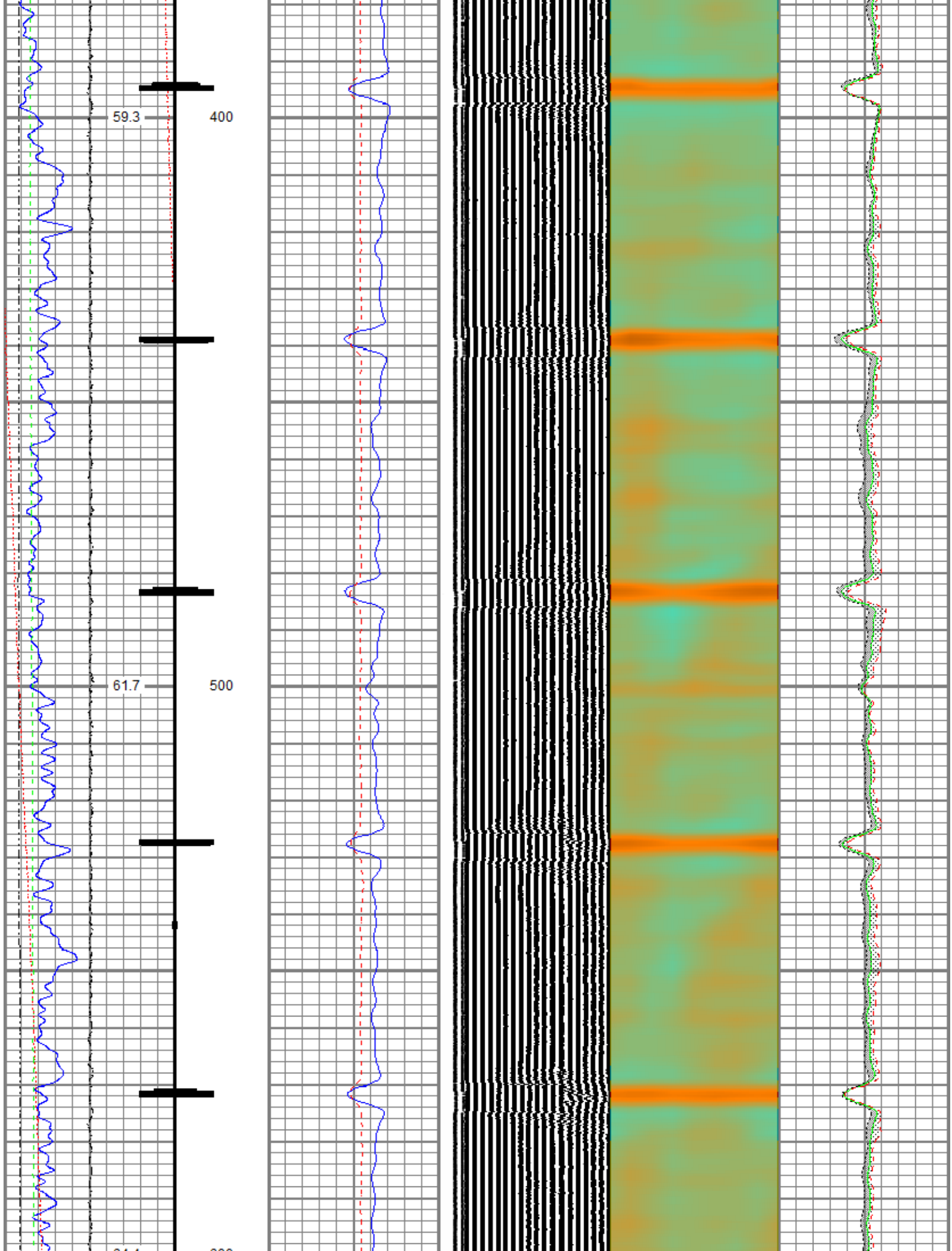


Database File tep\_federal gm 422-8\_rbl\_02-03-19\tep\_federal gm 422-8\_rbl\_02-03-19.db  
 Dataset Pathname Main  
 Presentation Format ros\_rbt004\_tep  
 Dataset Creation Sun Feb 03 21:49:19 2019  
 Charted by Depth in Feet scaled 1:240

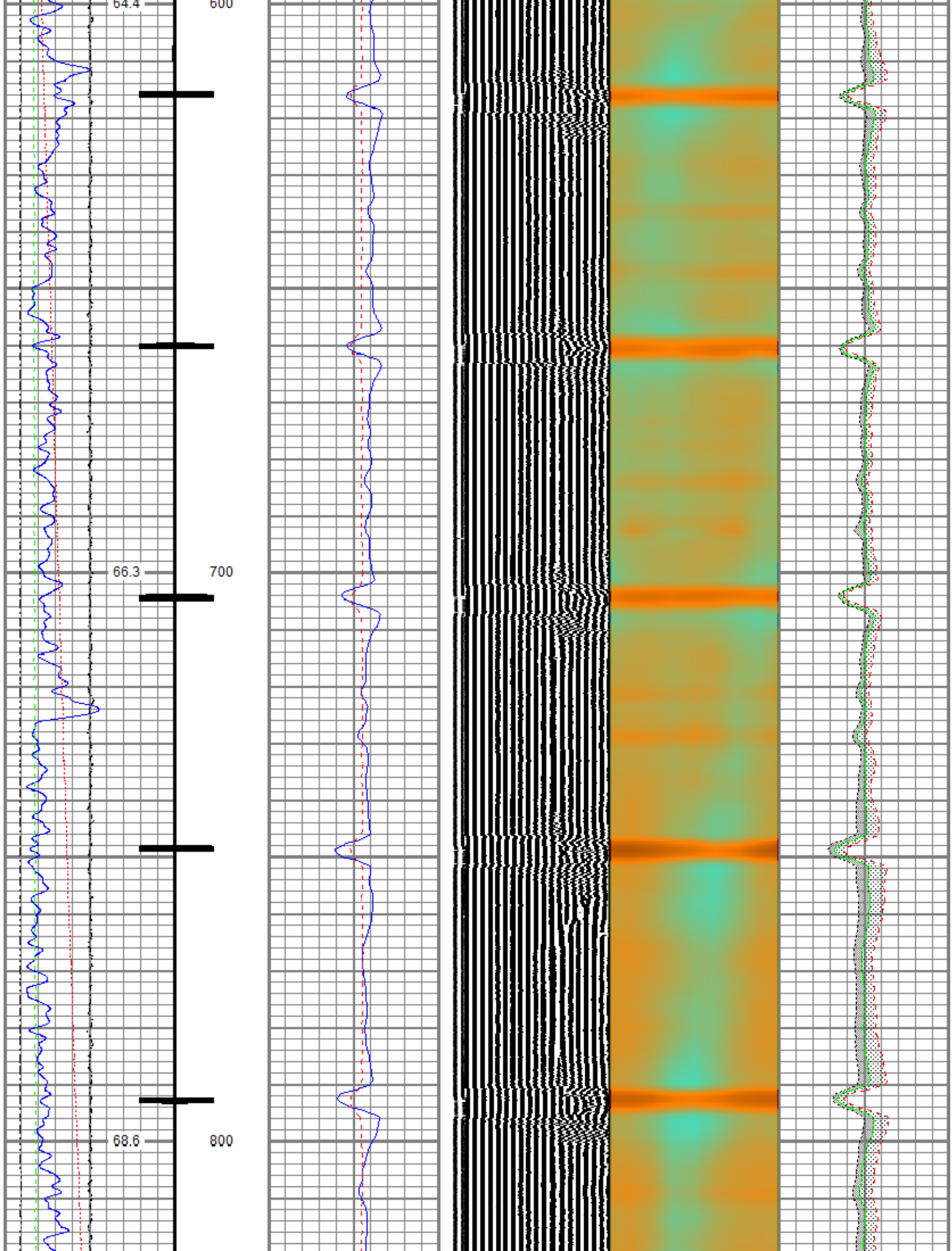
Gamma Ray	0	3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0	Average Amplitude 150
(GAPI) 200		3' Amplitude x 5	200 (usec) 1200			Minimum Amplitude
Line Speed	0	(mV) 20			0	150
(ft/min) 150		3' Travel Time				Maximum Amplitude
Line Tension (lb) 2000	0	300 (usec) 200			0	150
Differential Temperature						
(degF) 2	-2					
Temperature (degF) 20	0					
CCL 0	10					

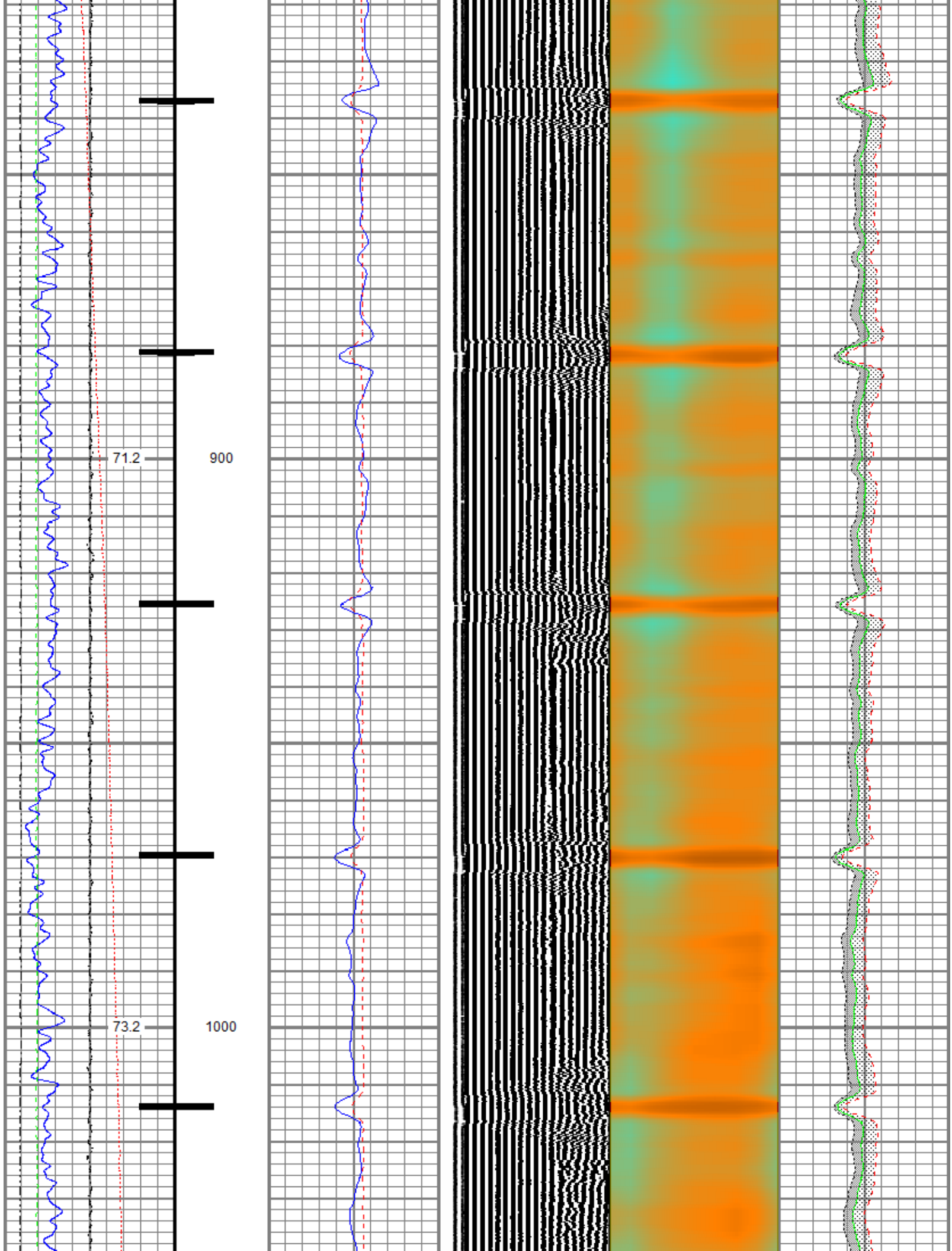


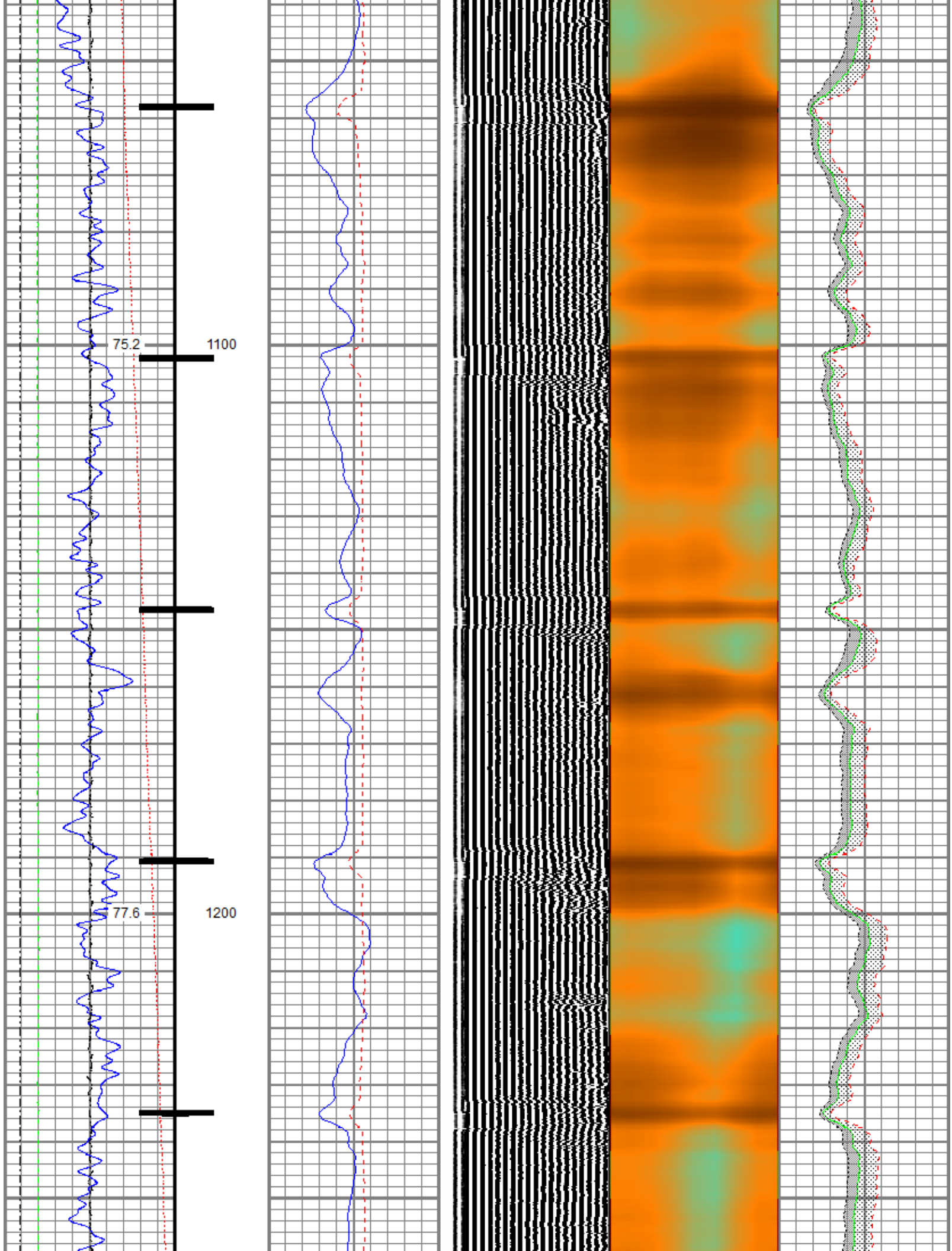




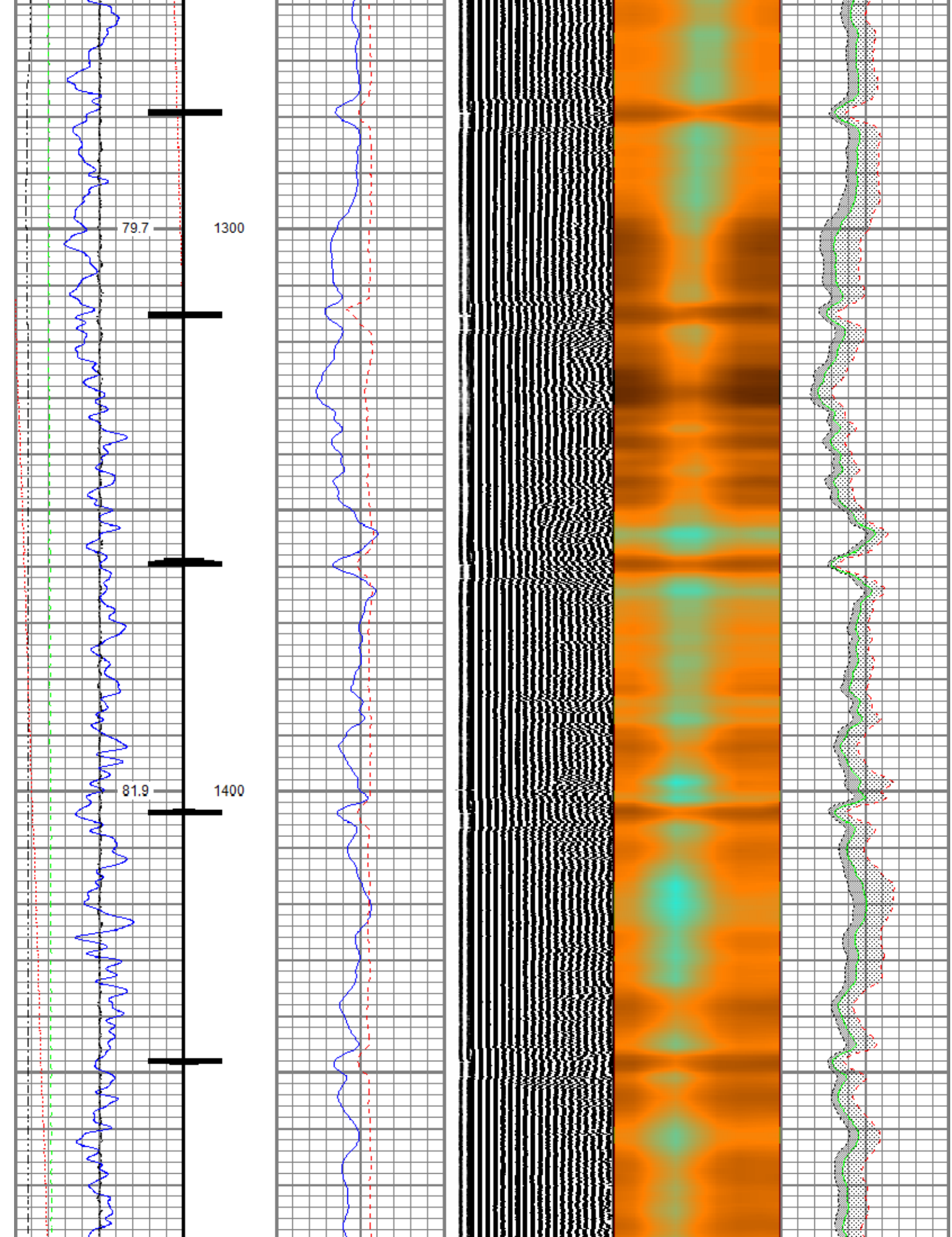




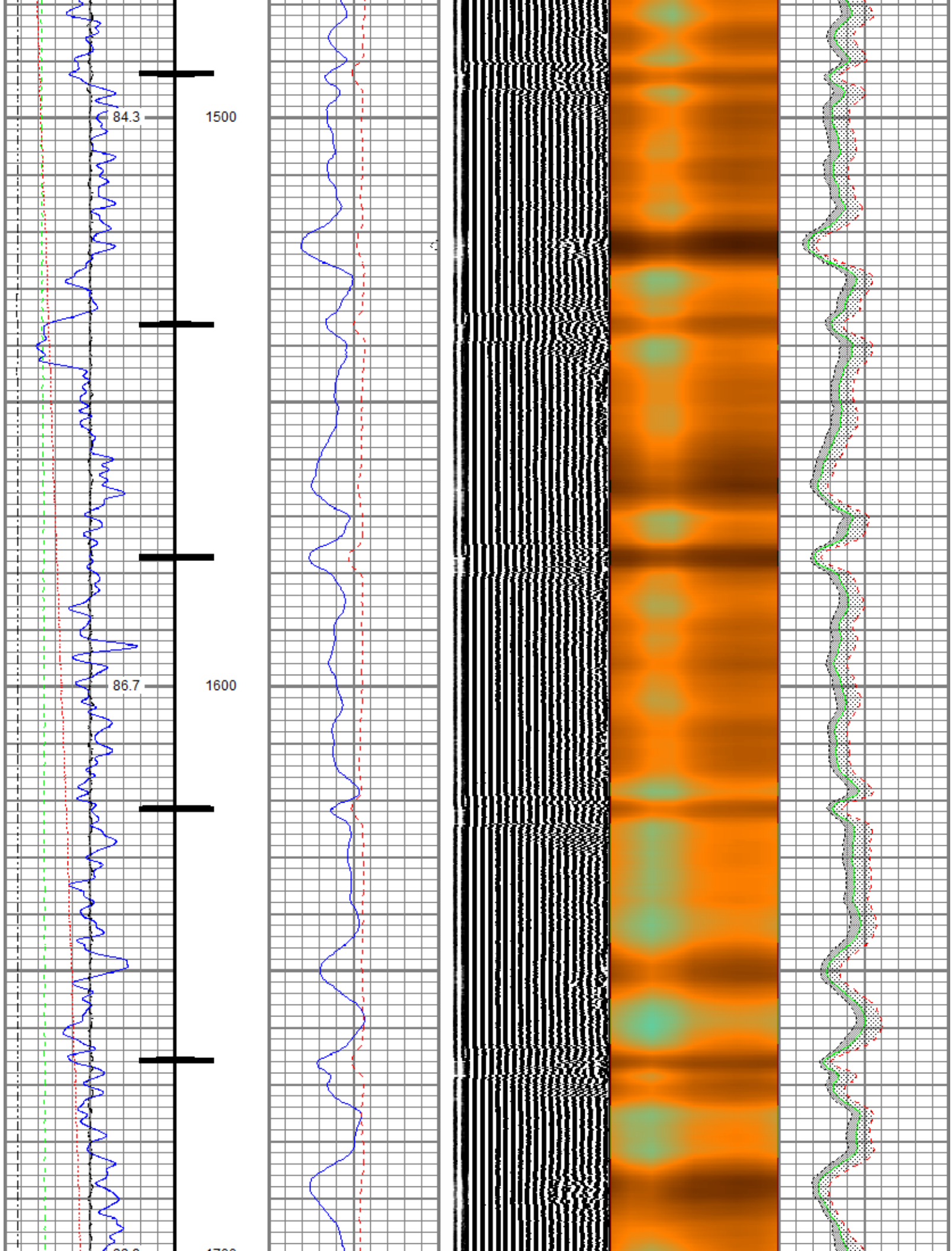


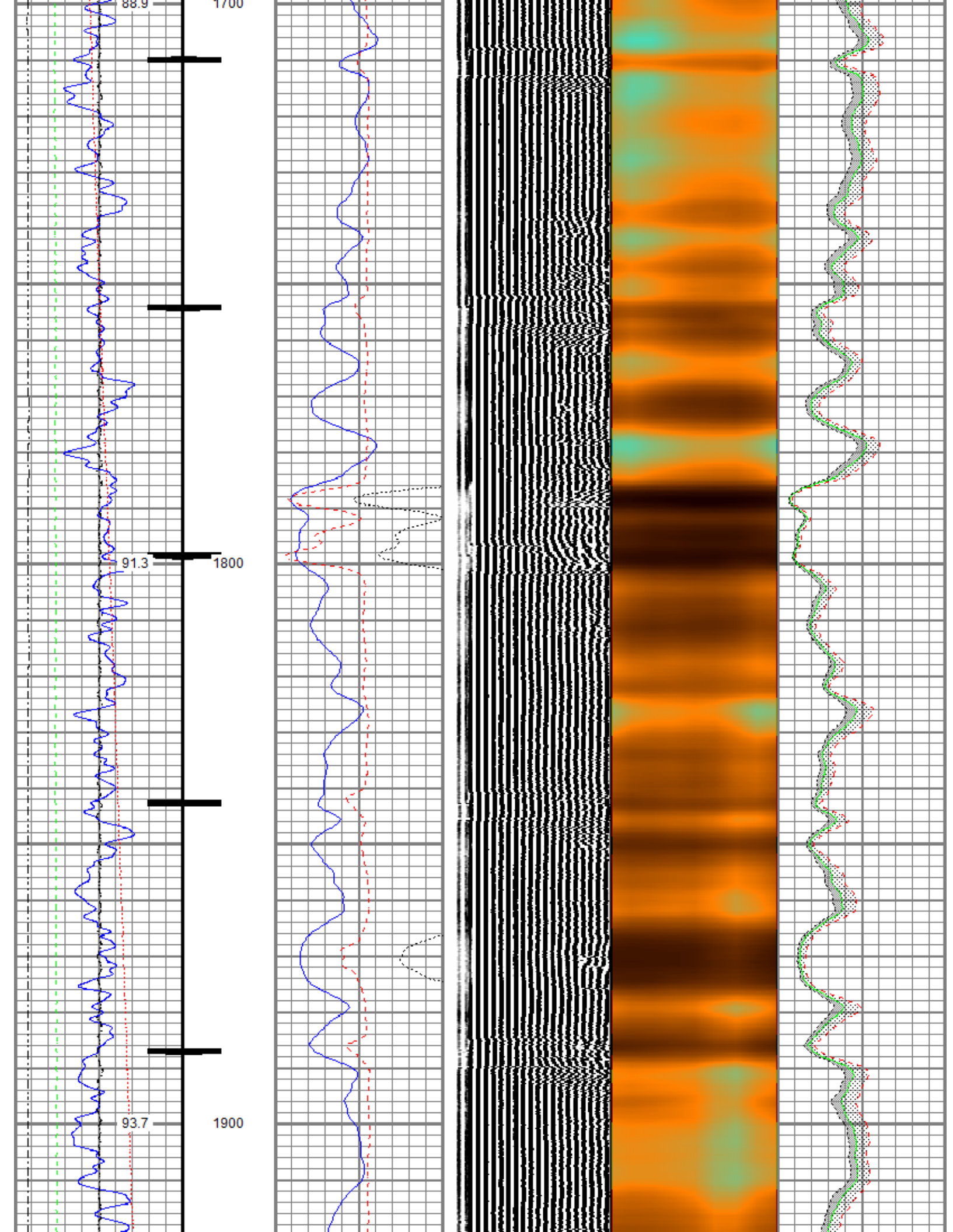


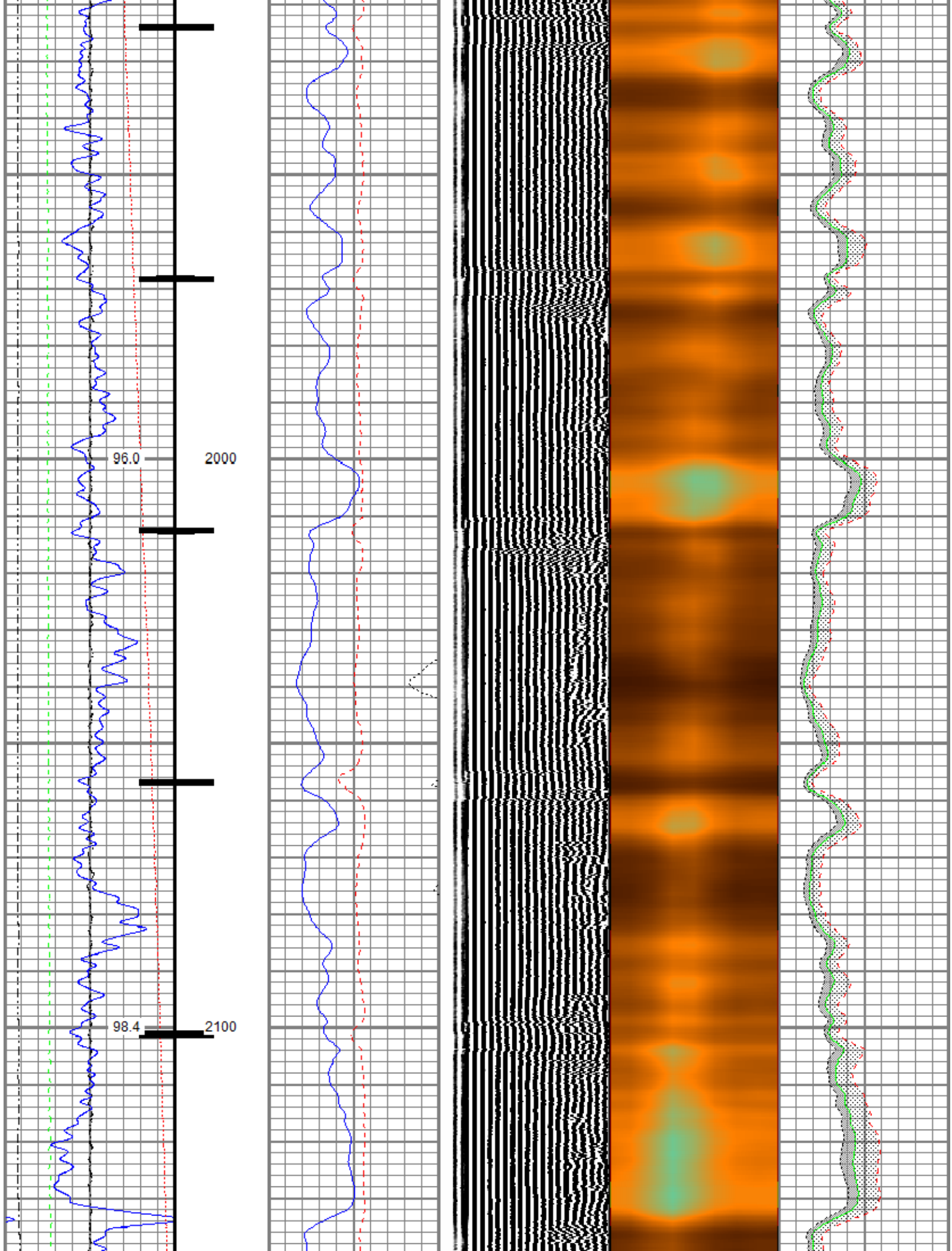




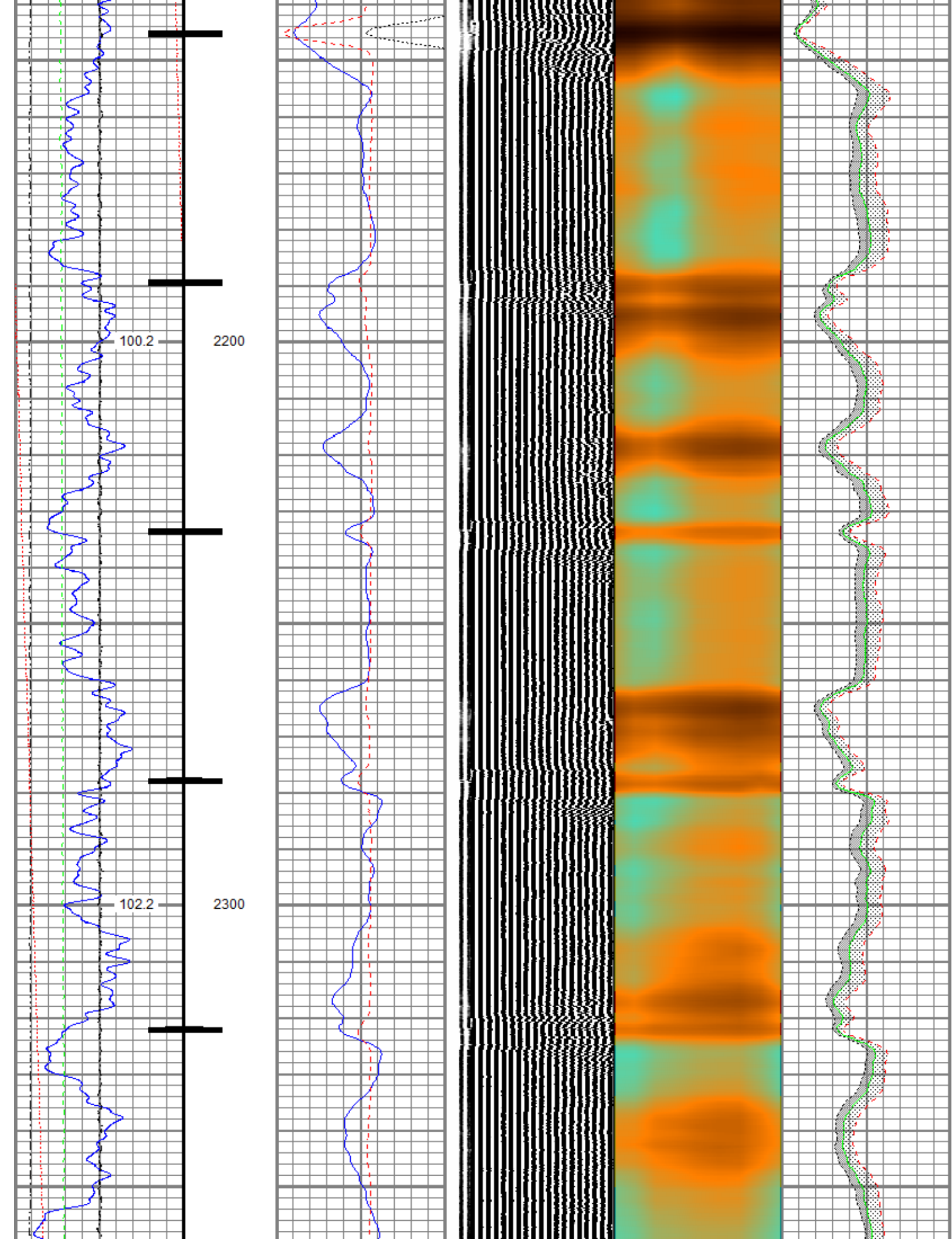




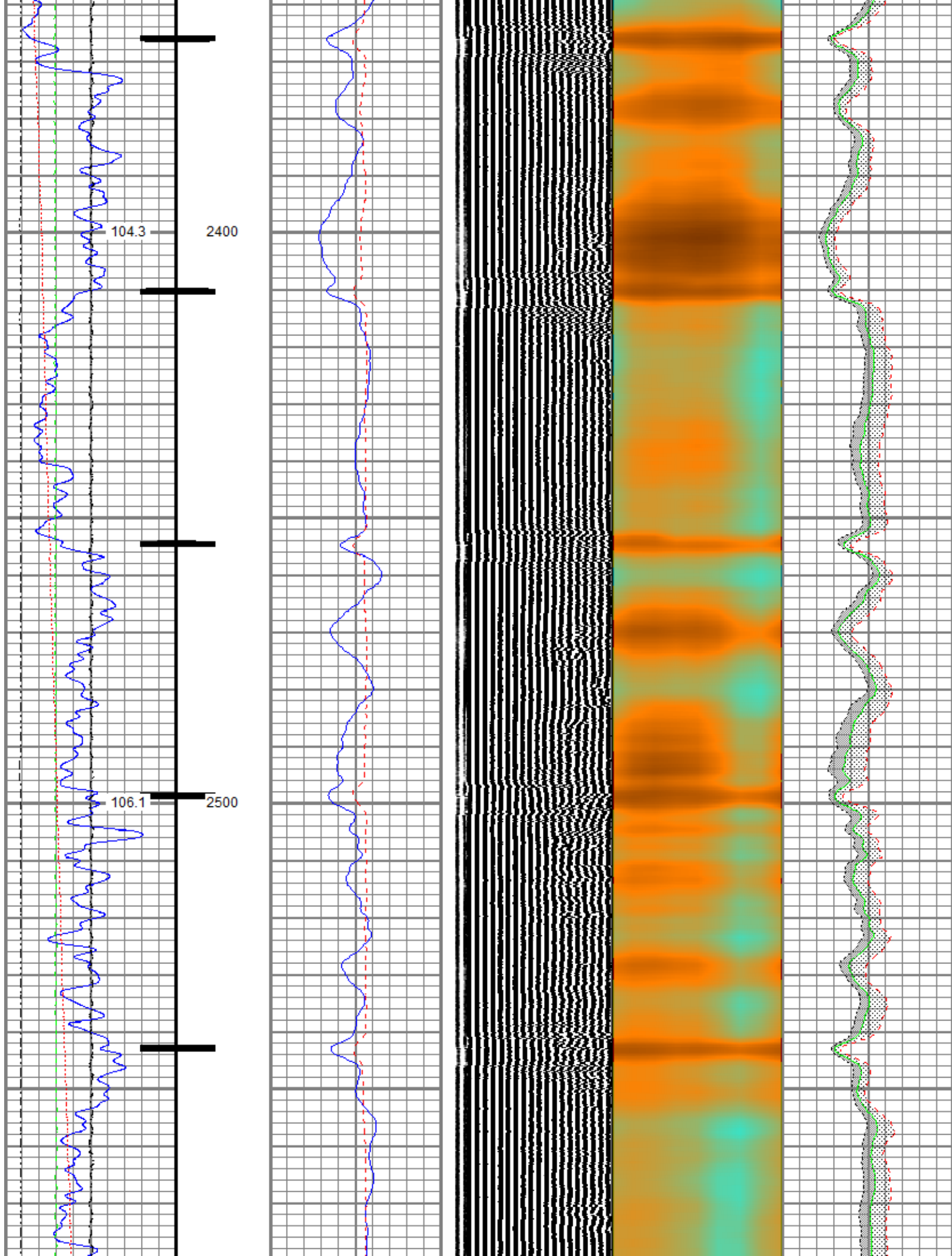


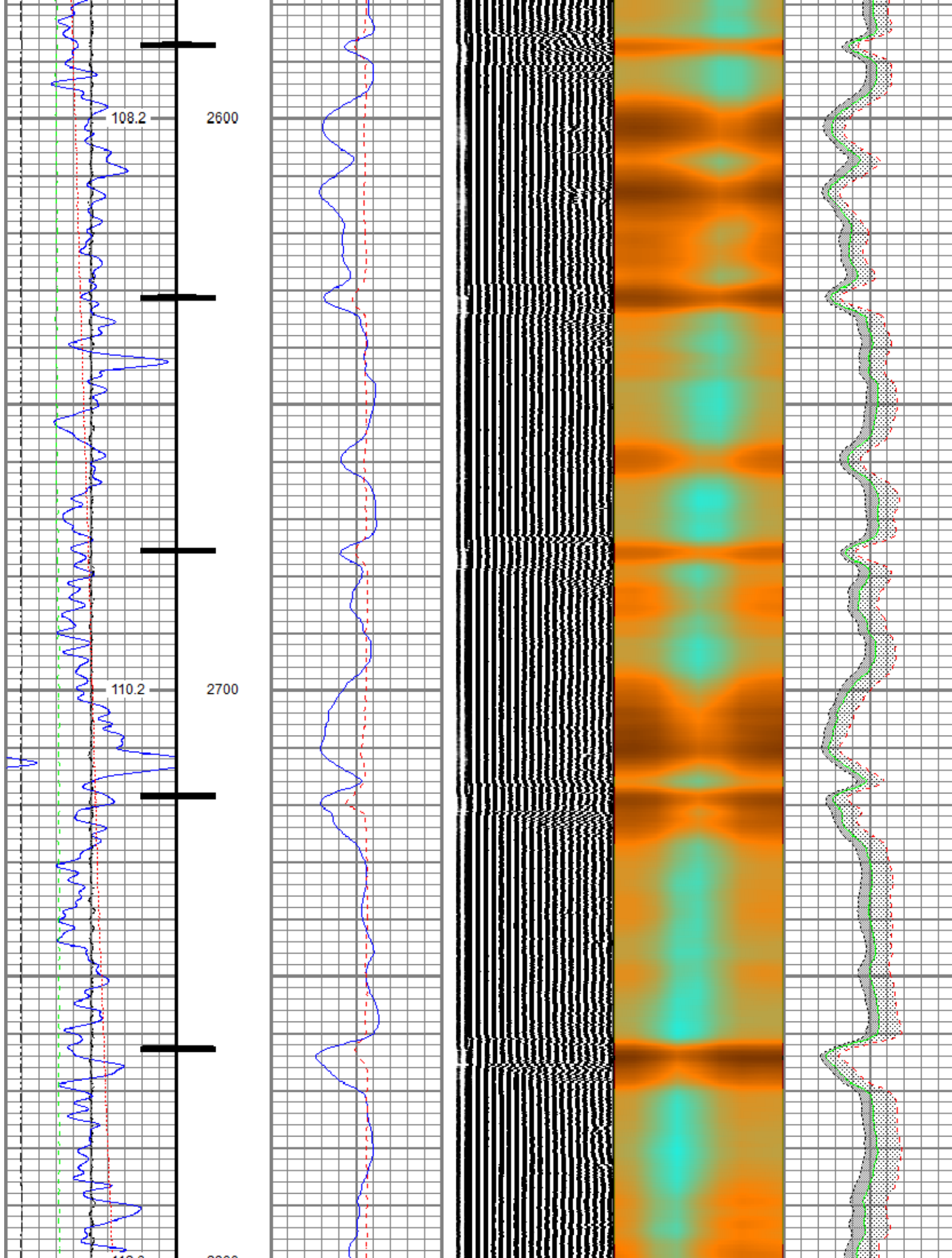


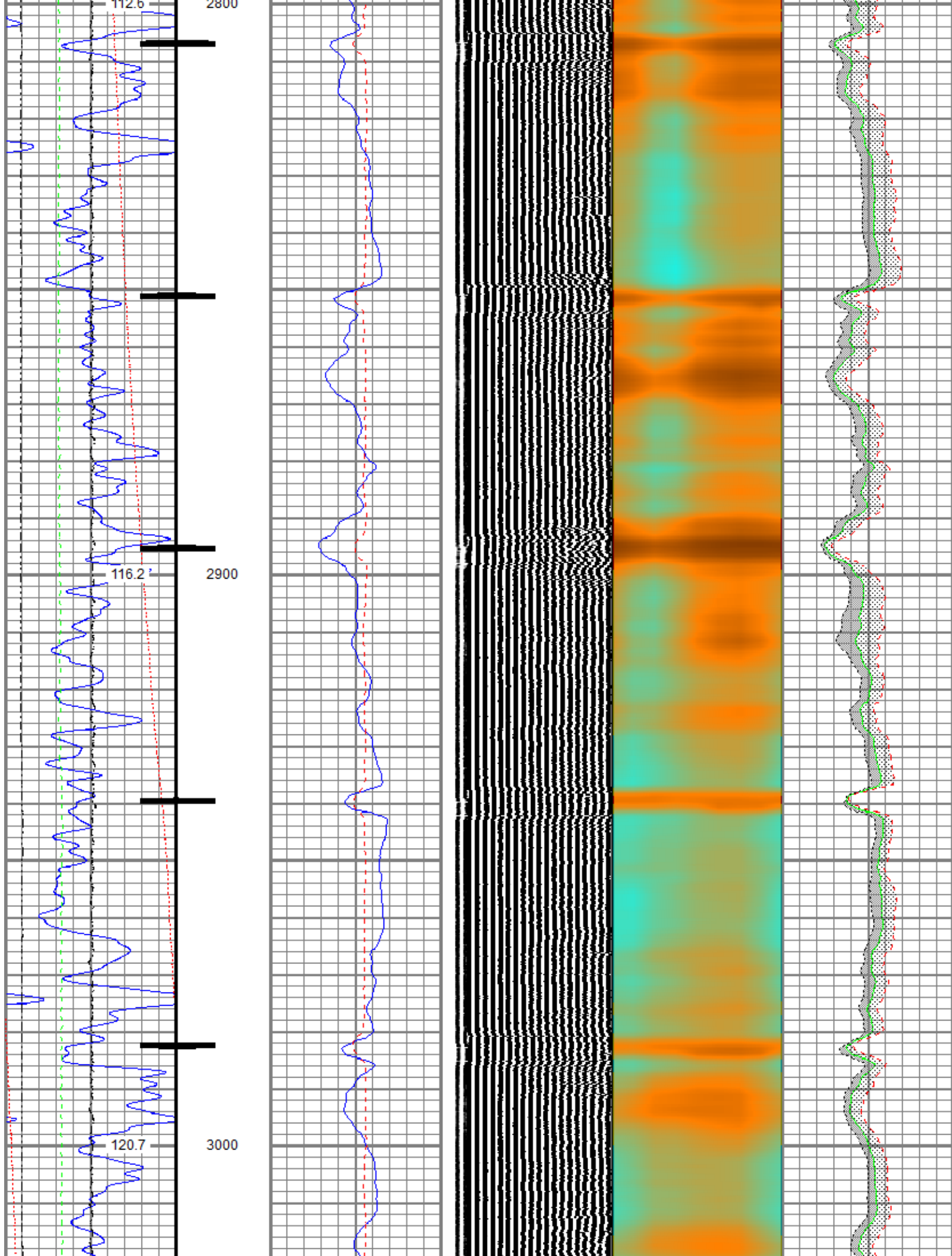




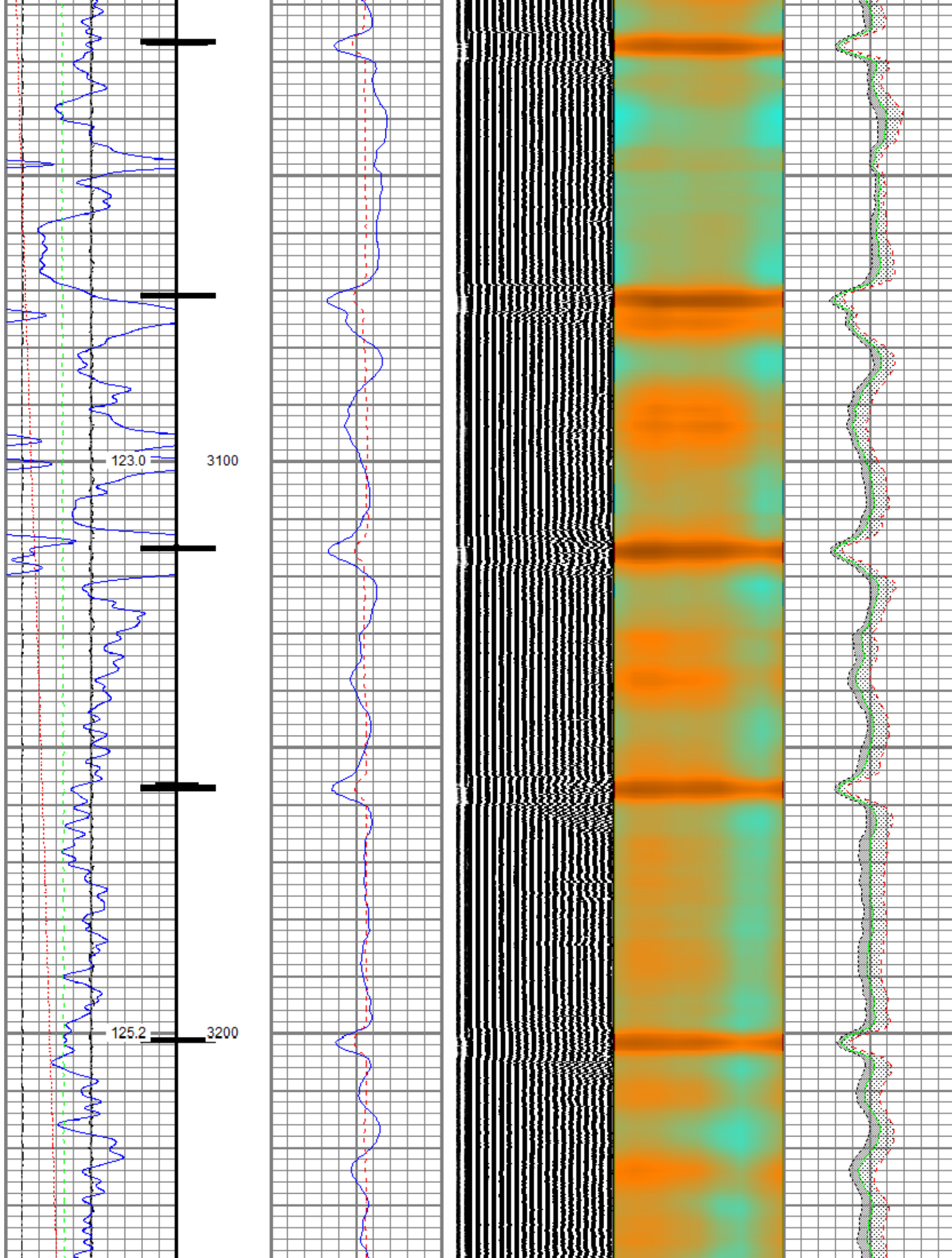














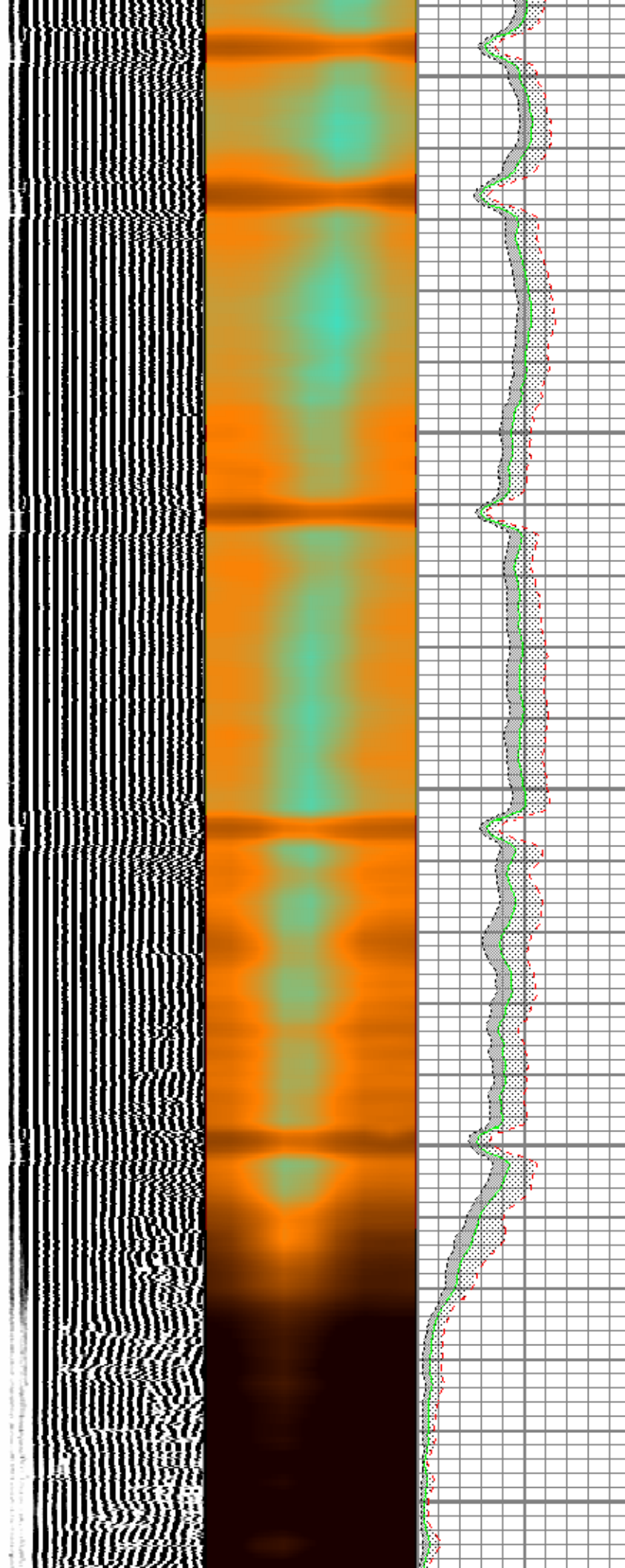
Marker Joint

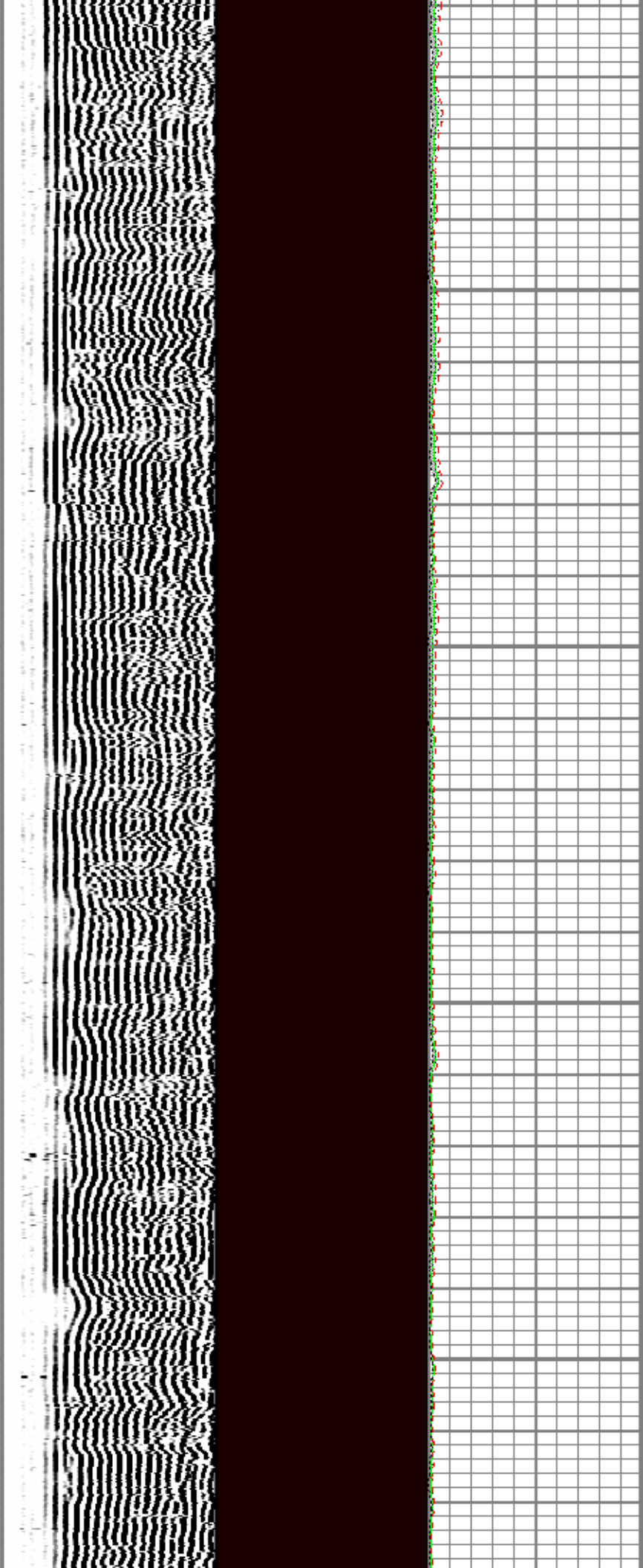
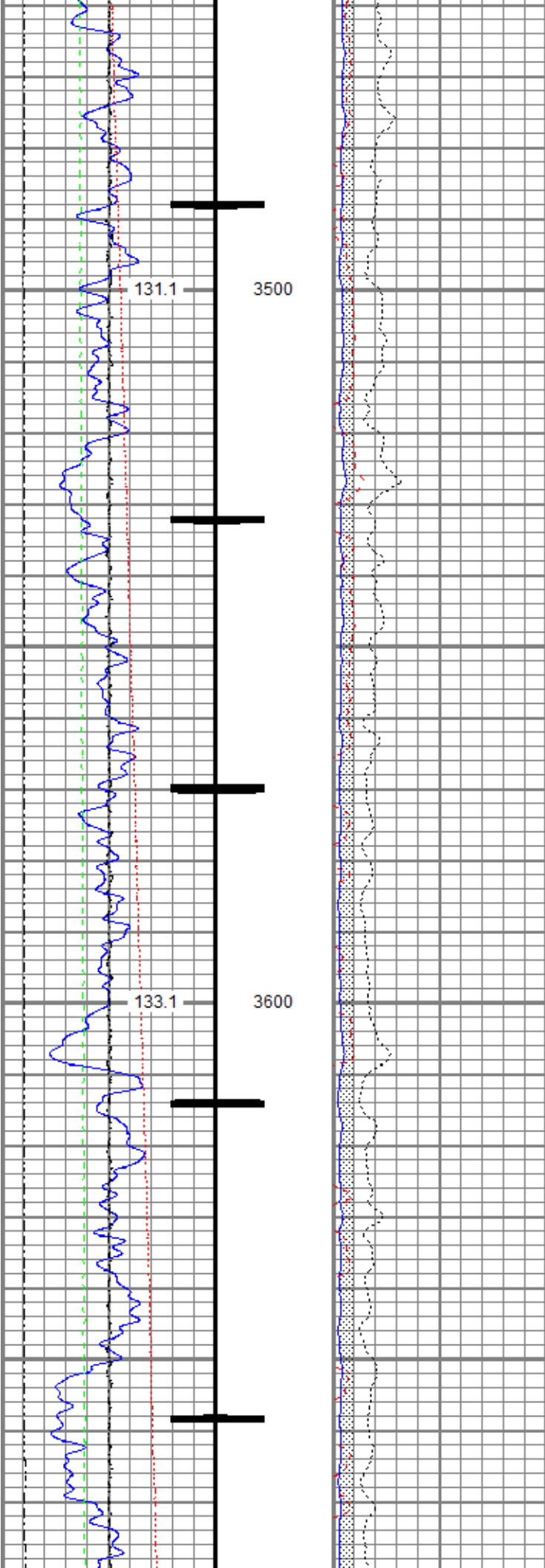
127.2

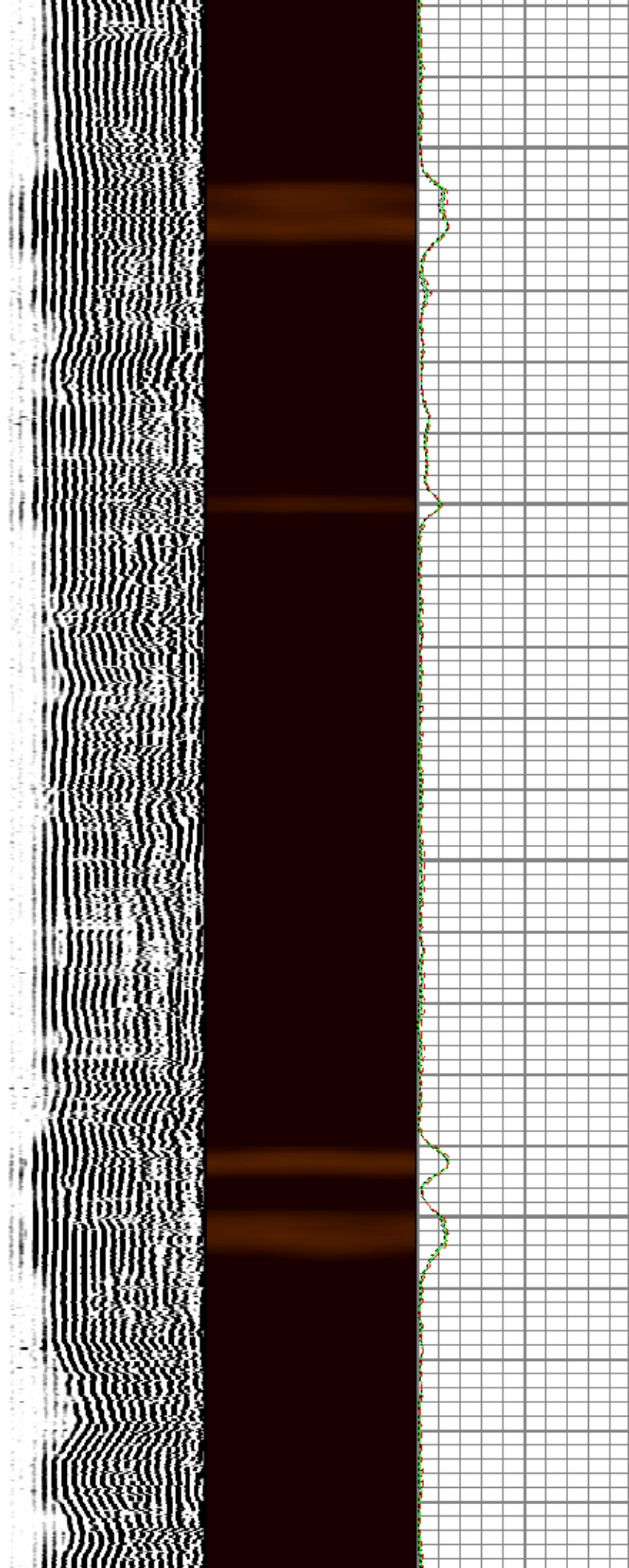
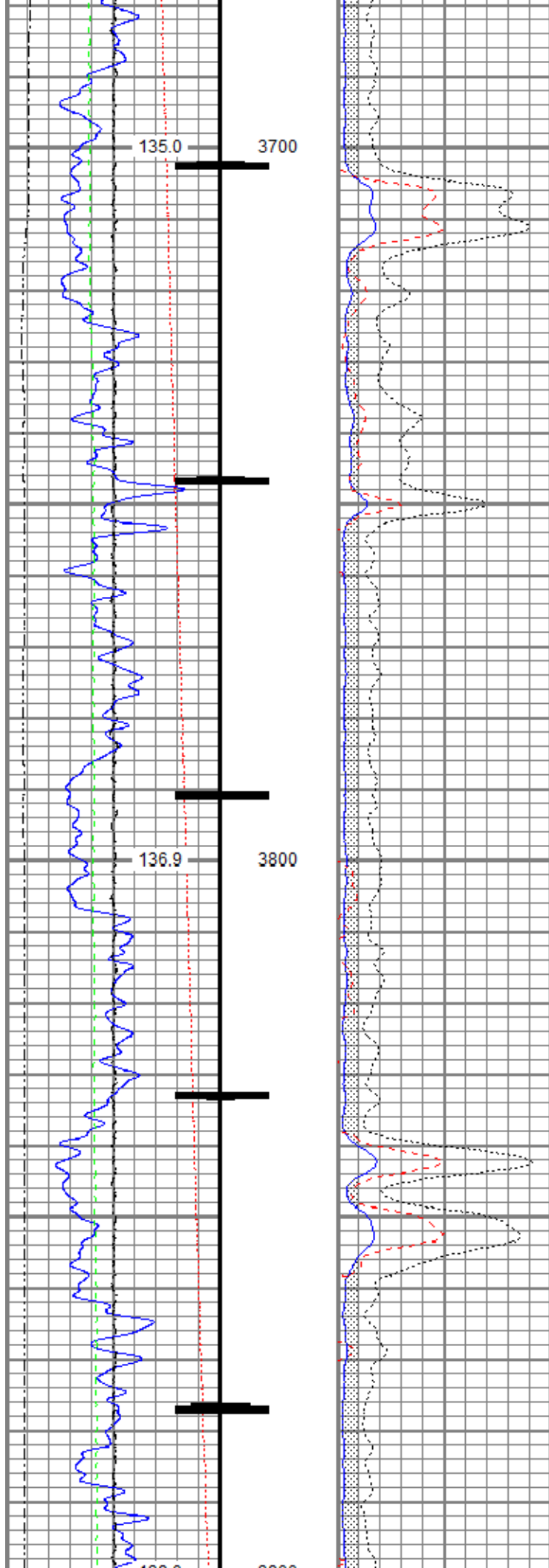
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129.1

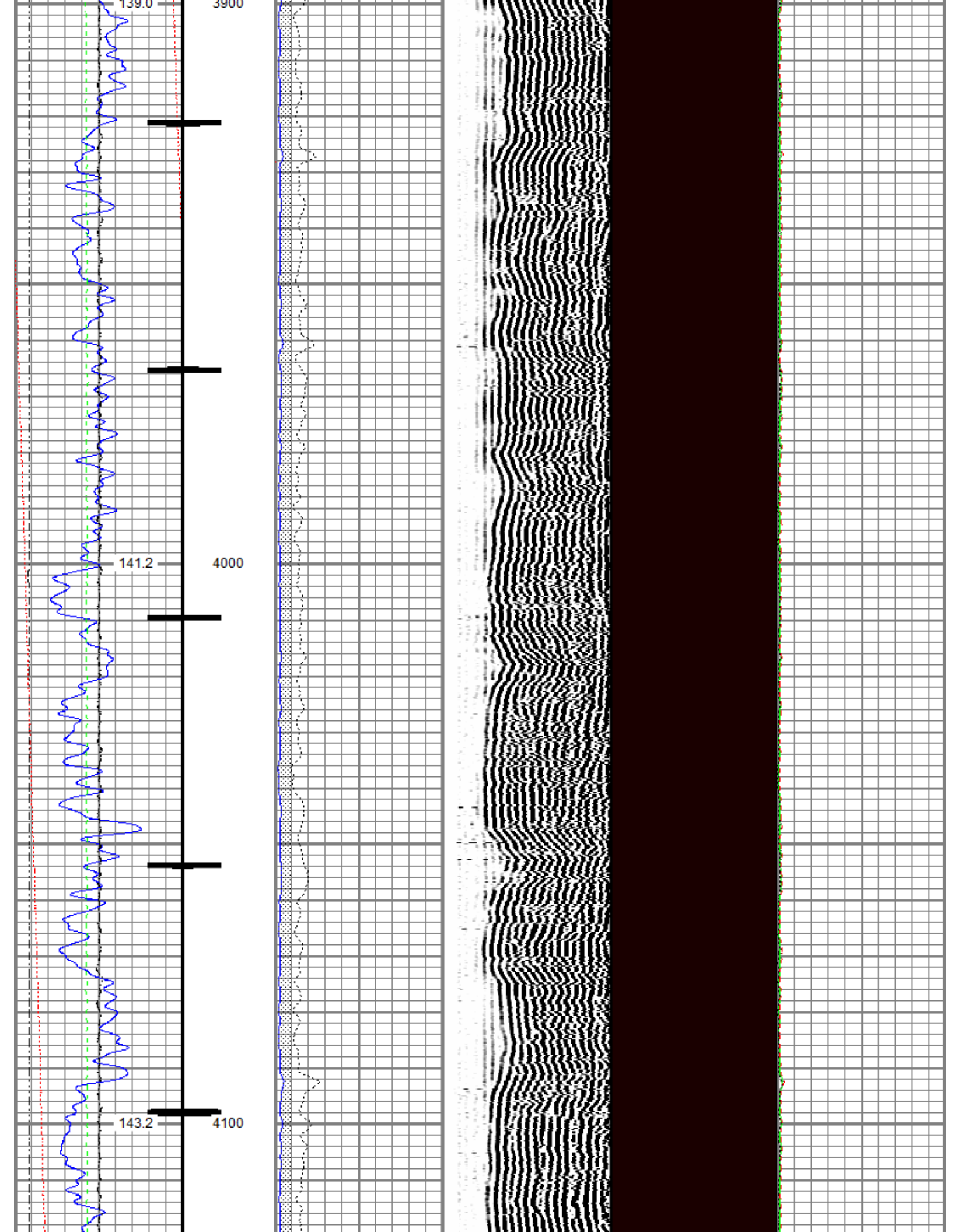
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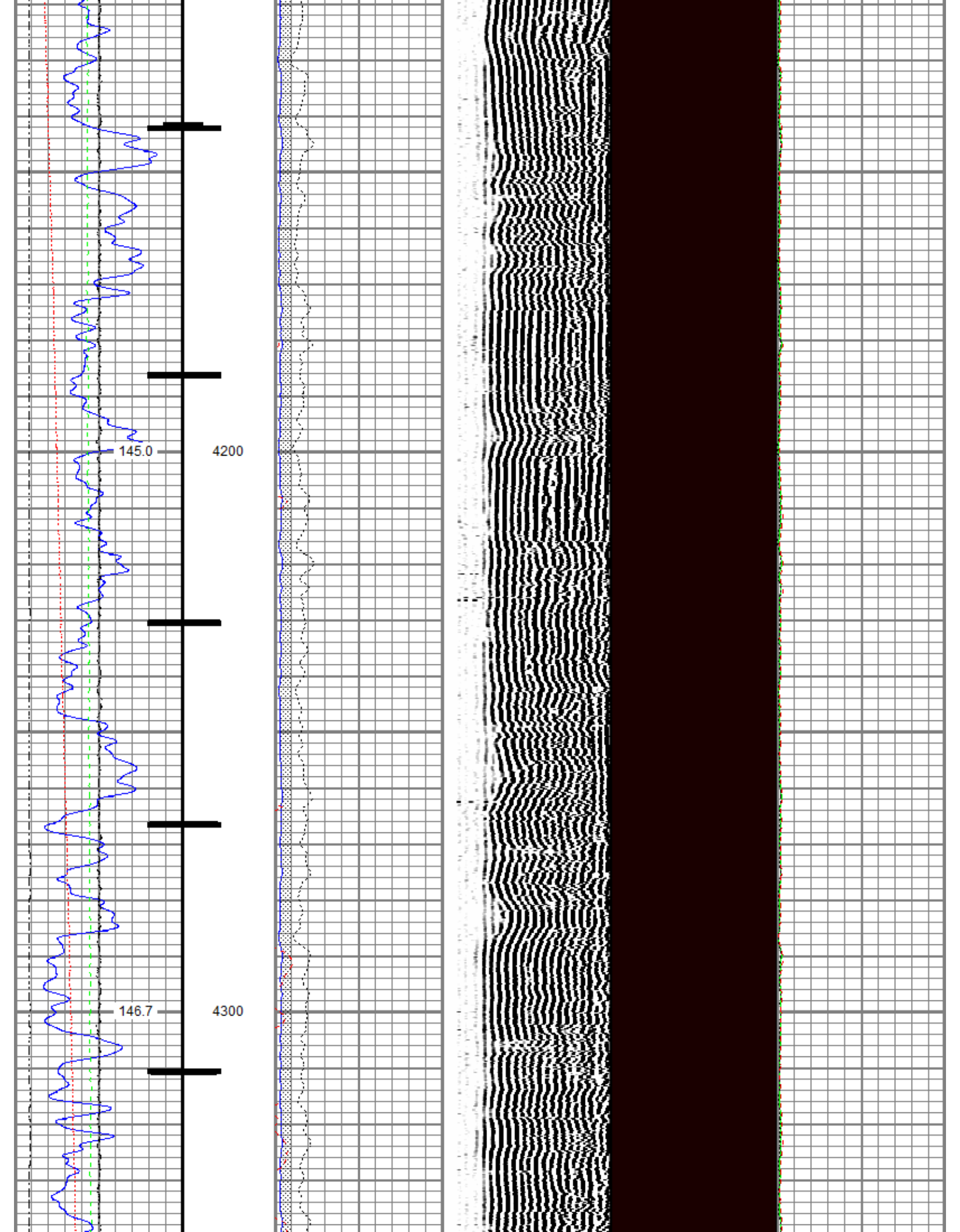


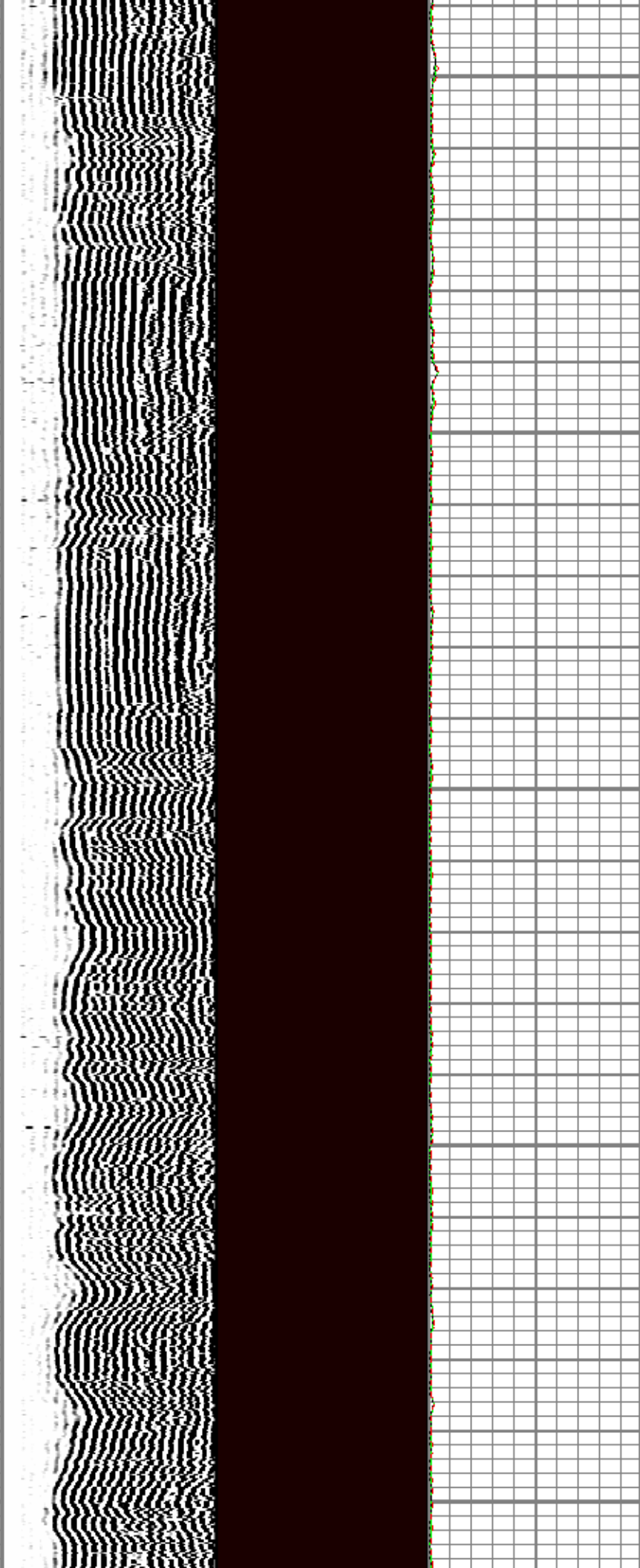
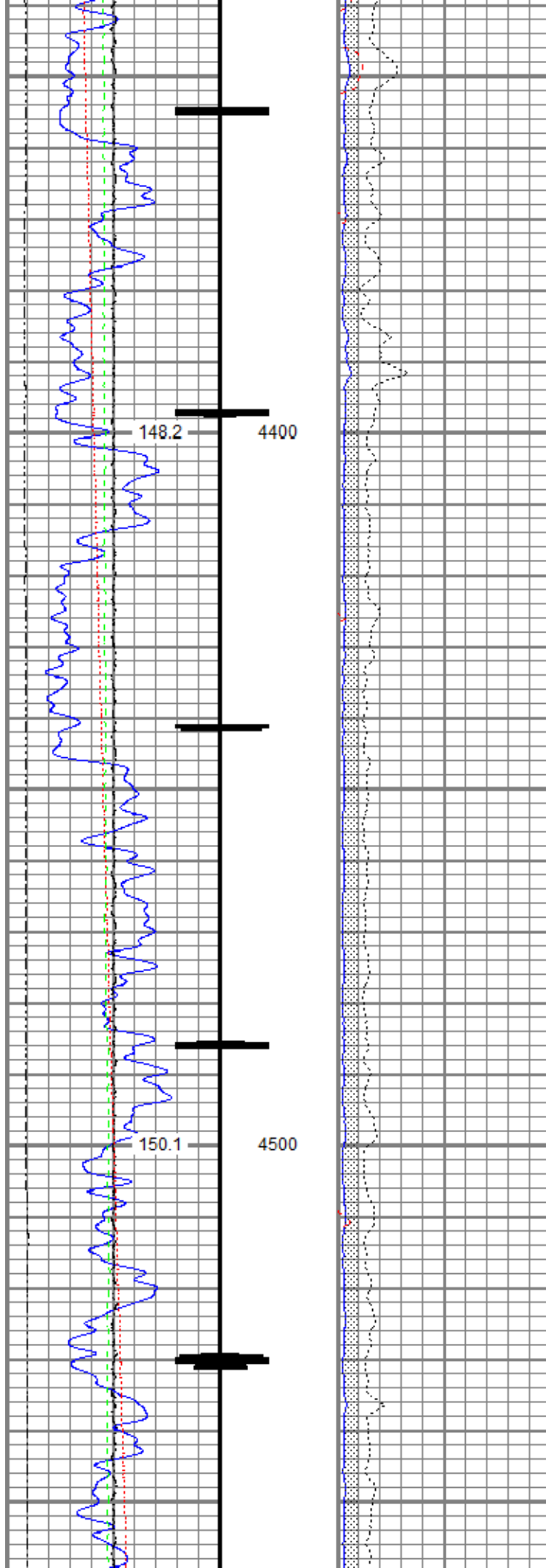


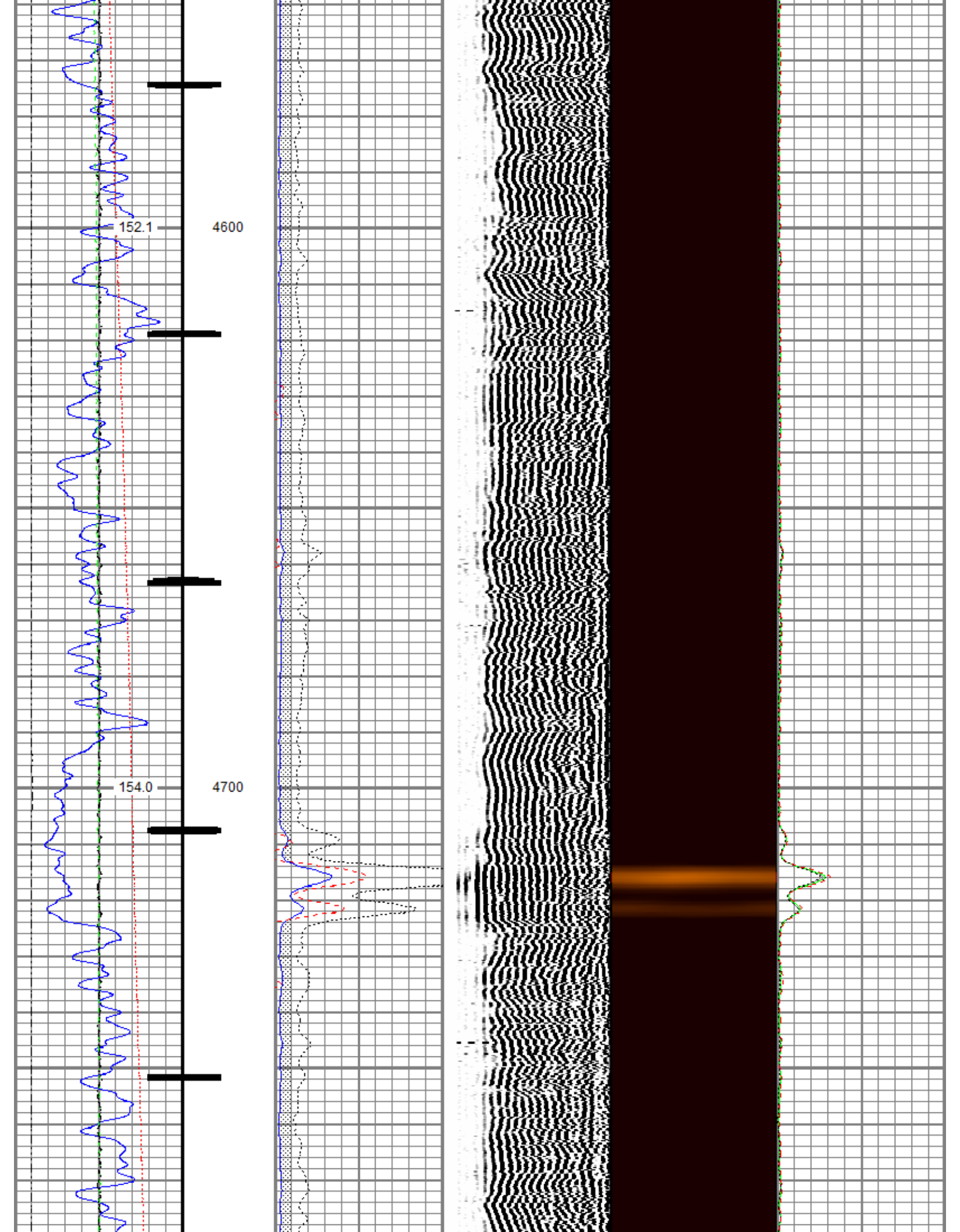




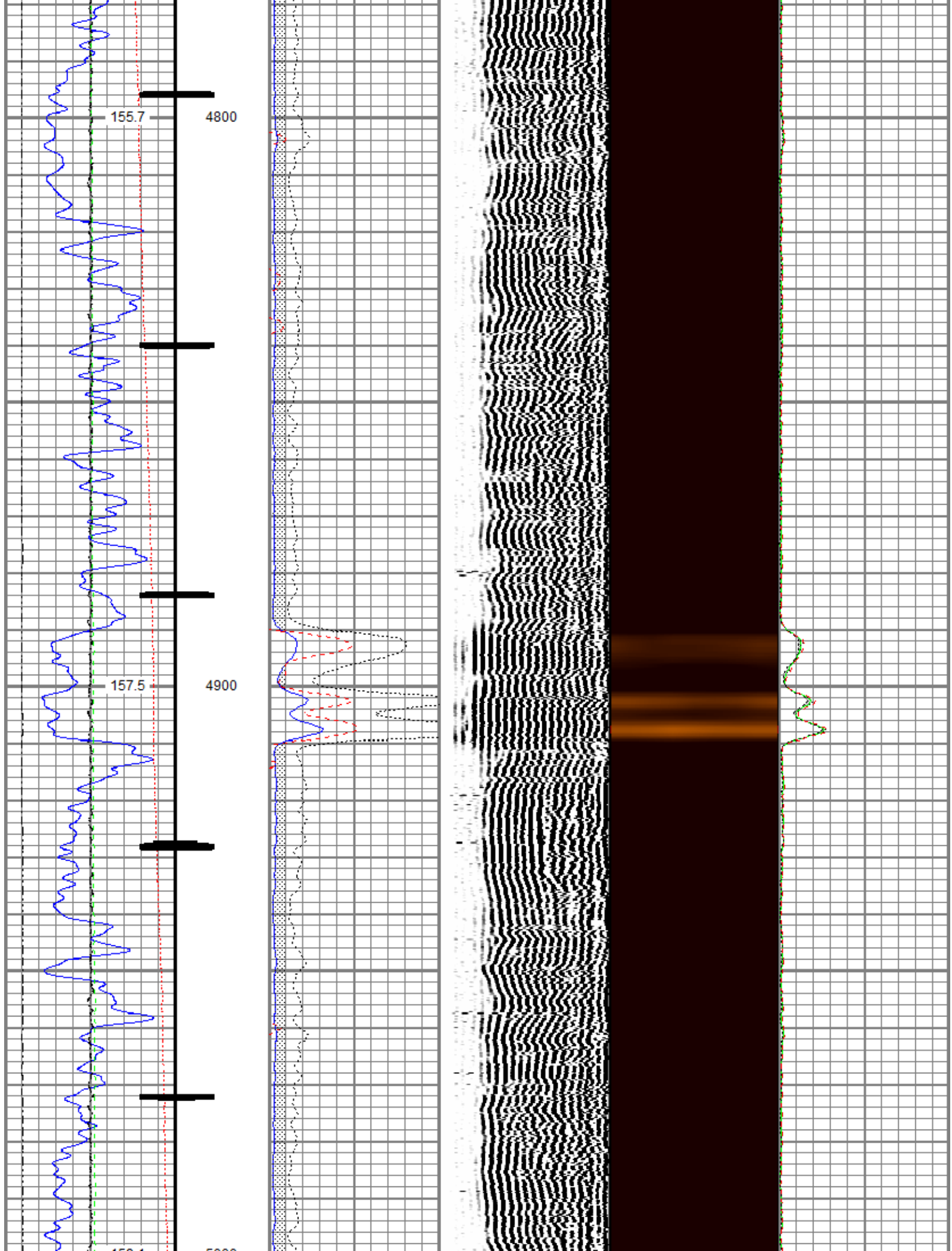




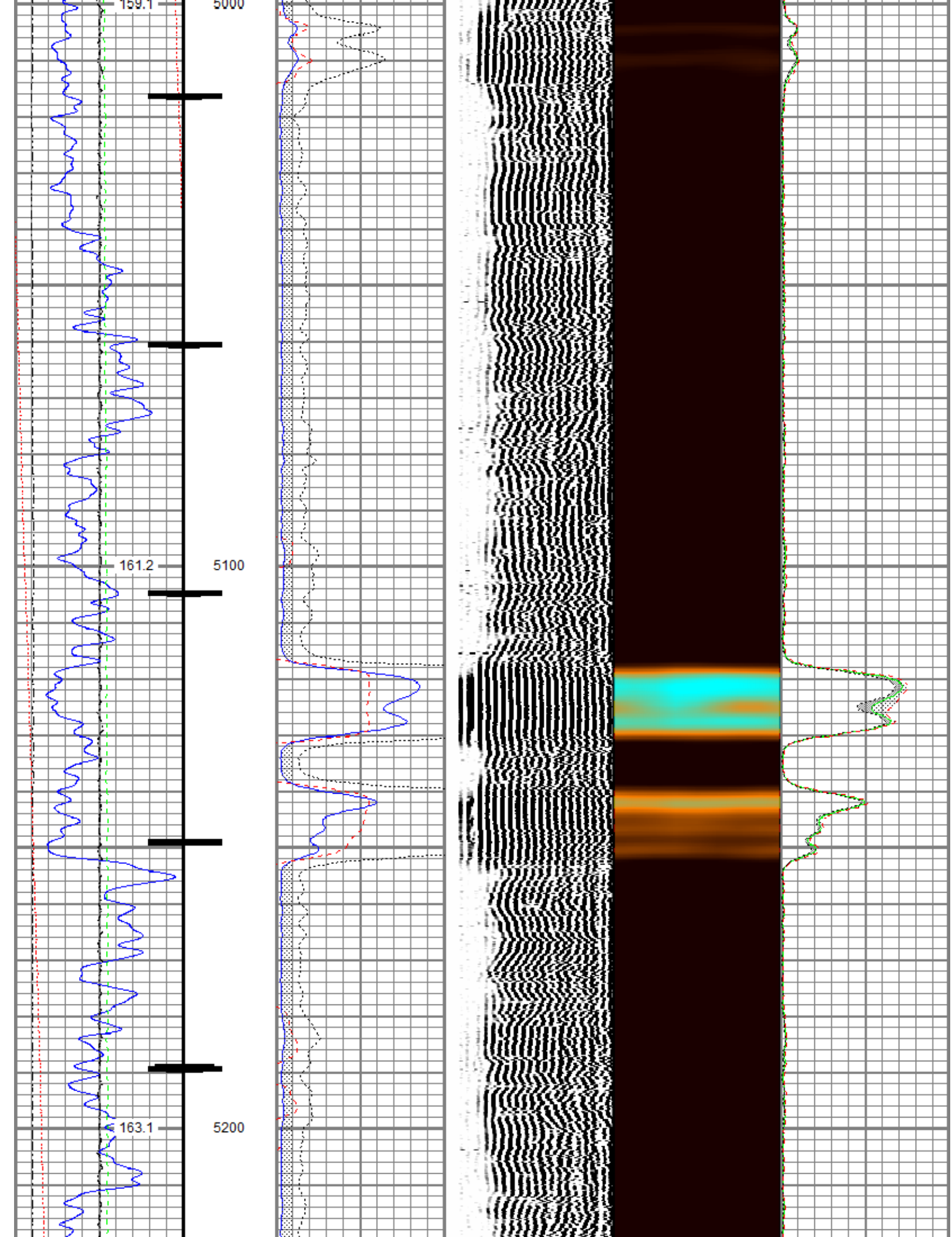


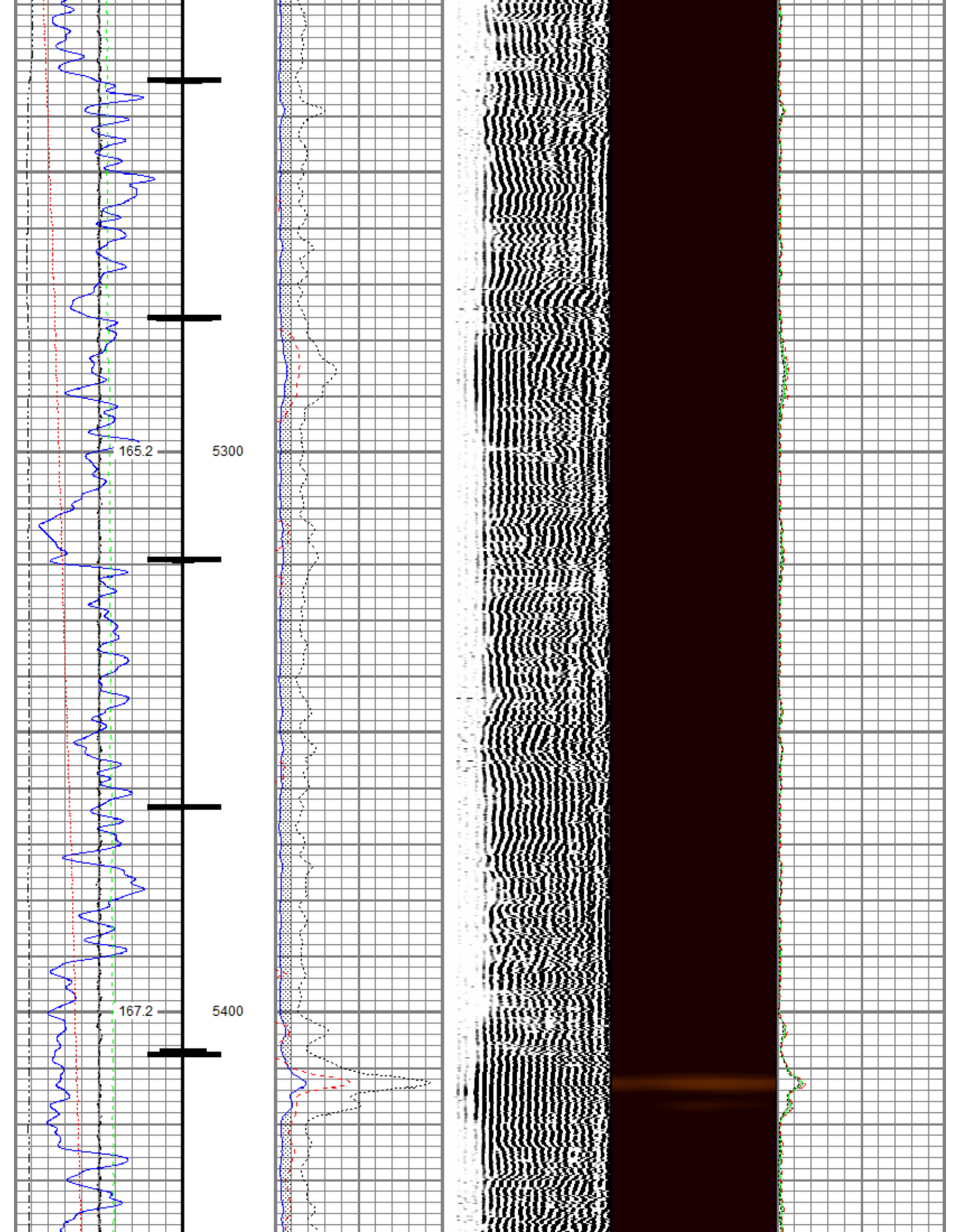


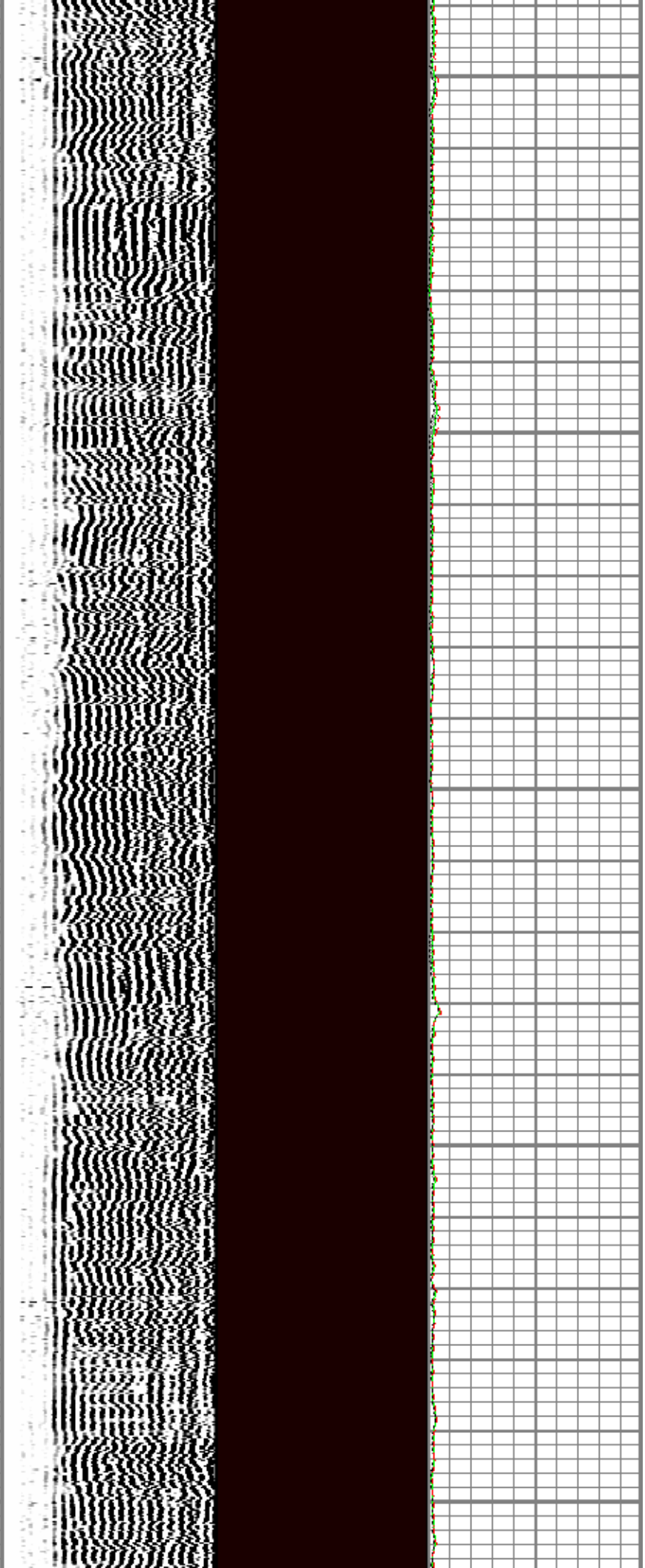
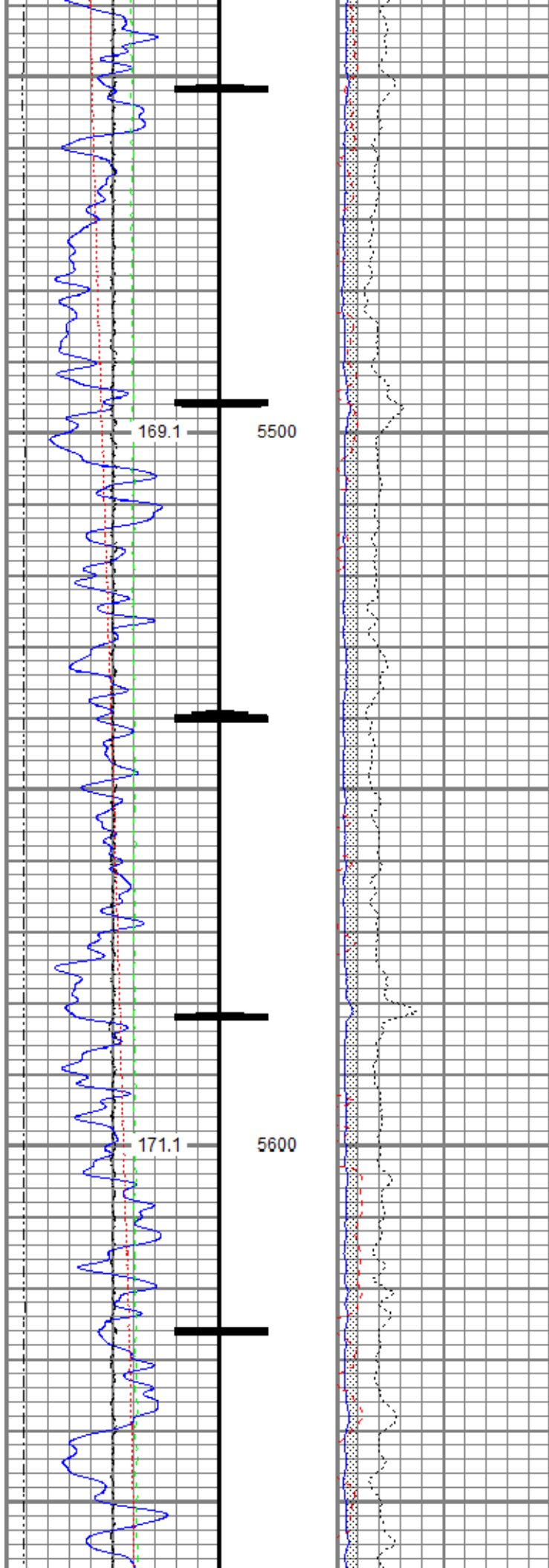




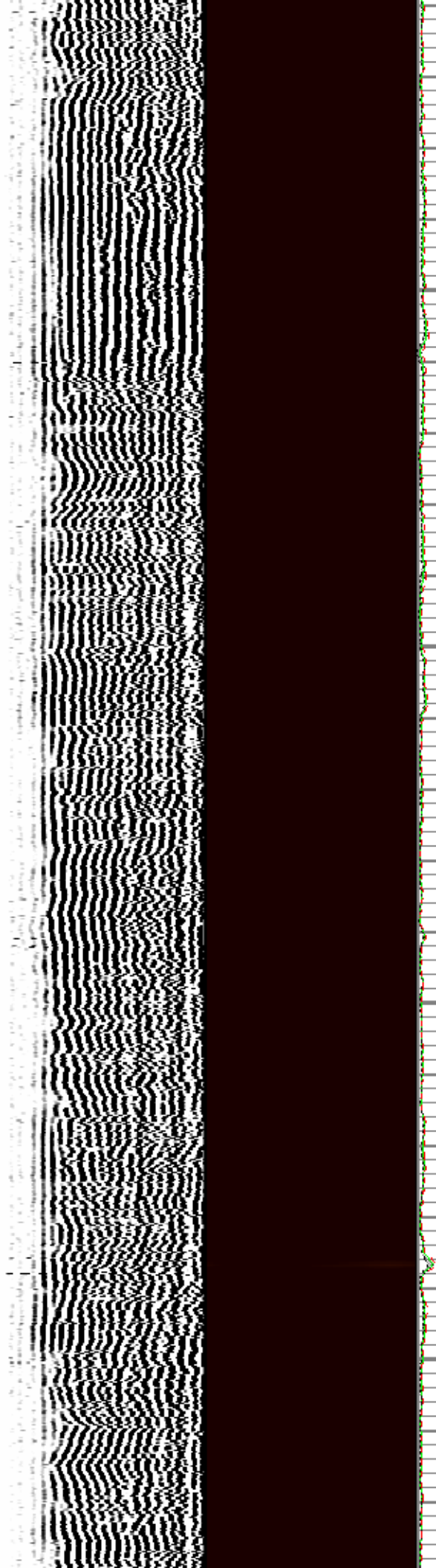
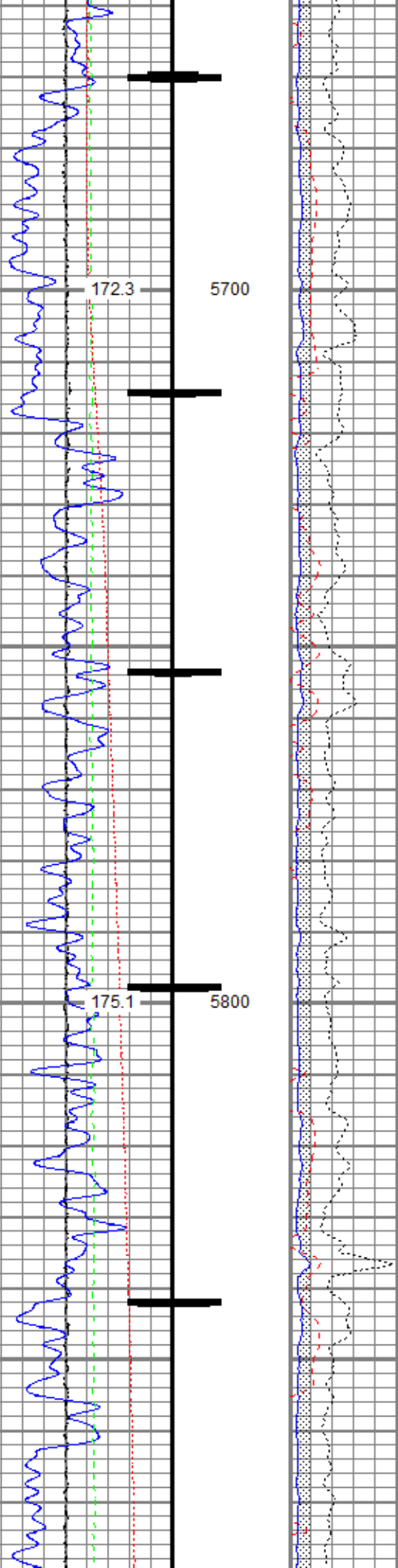


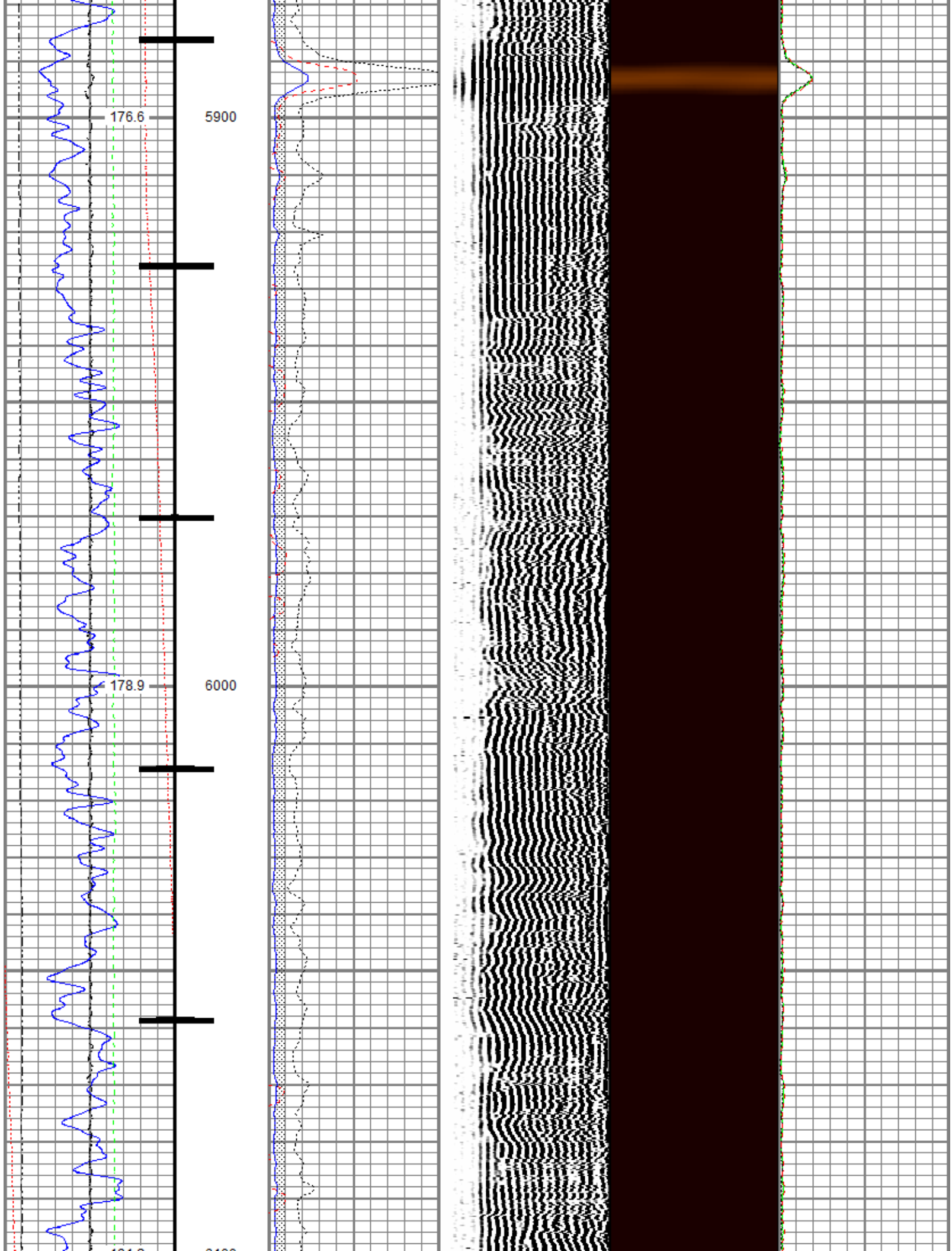


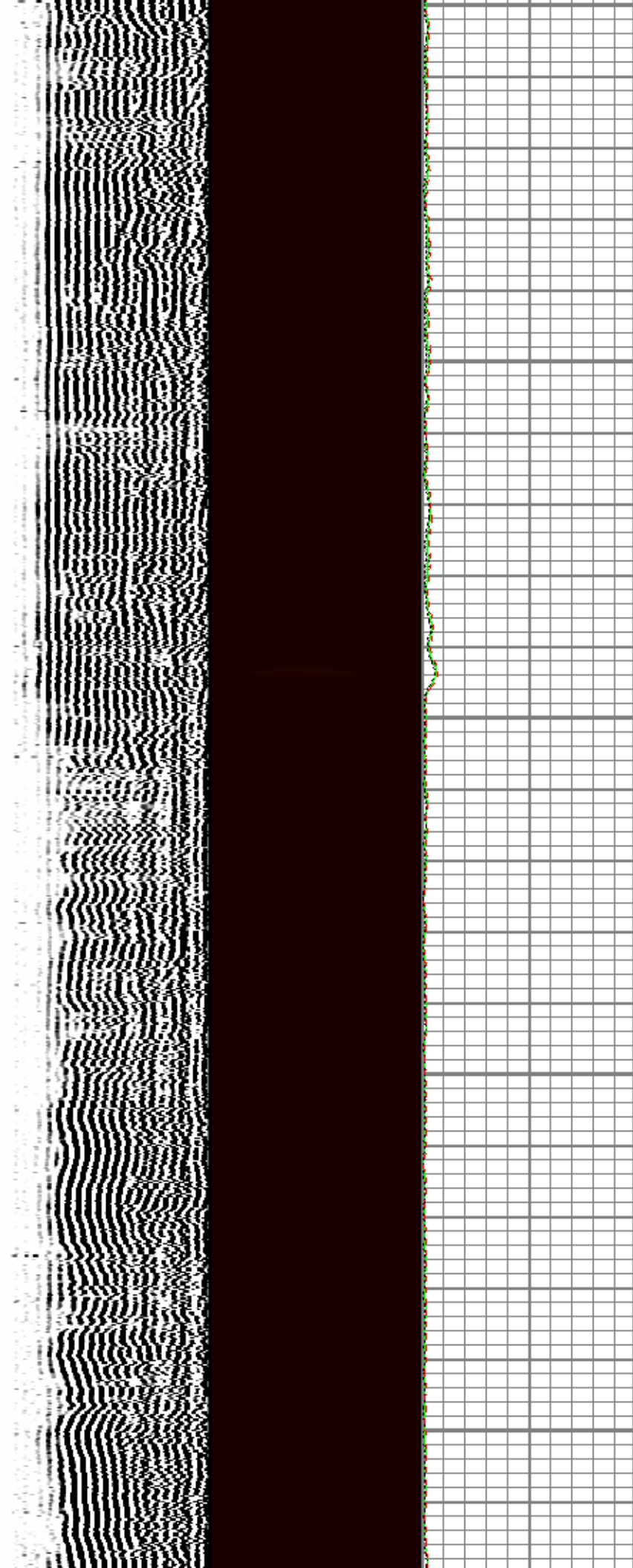
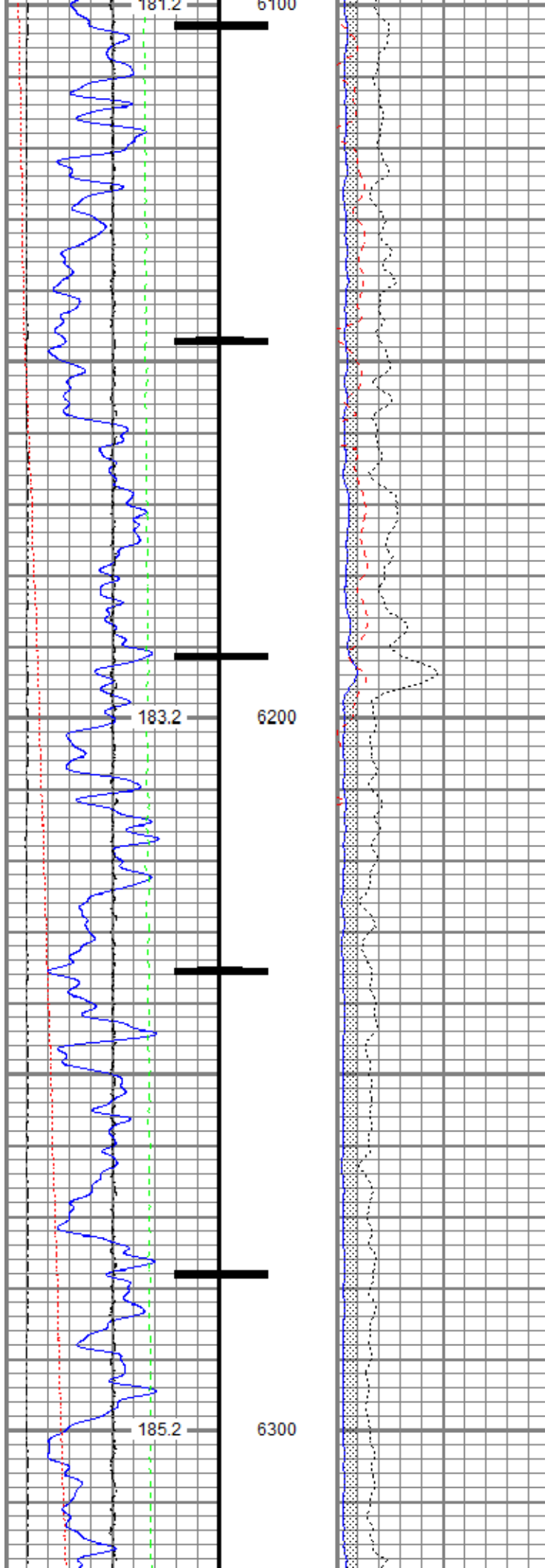




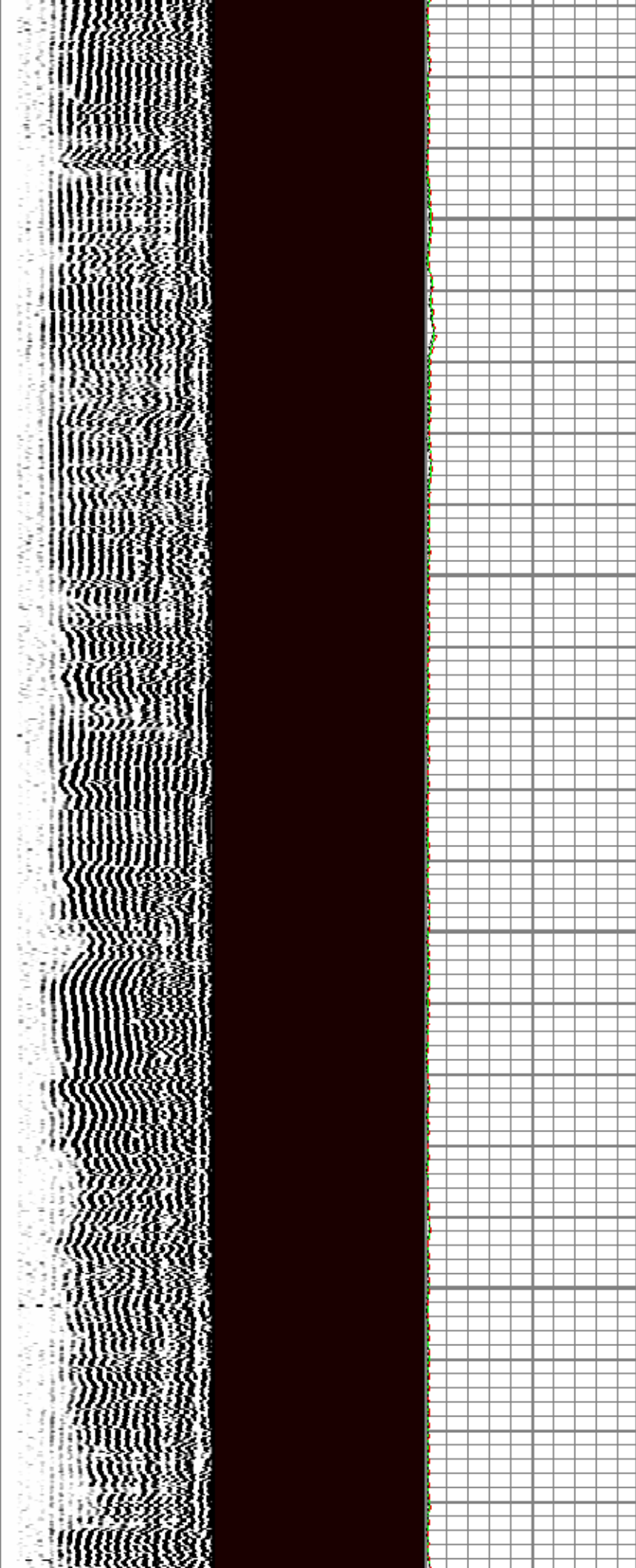
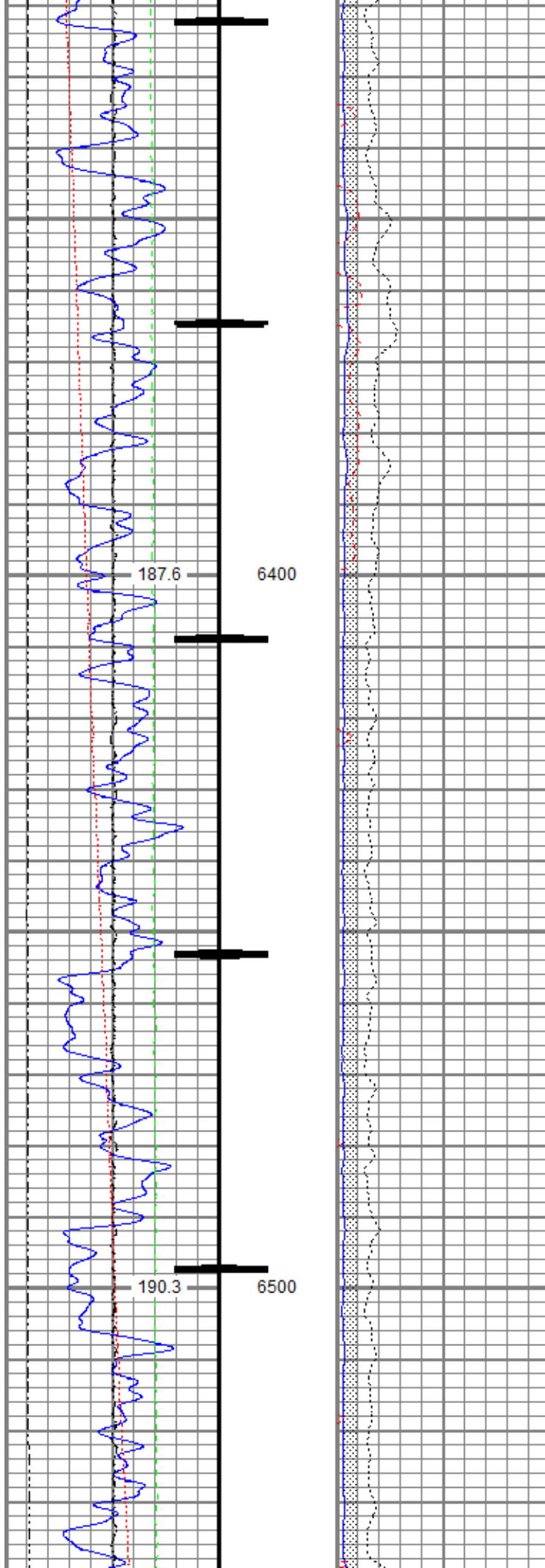


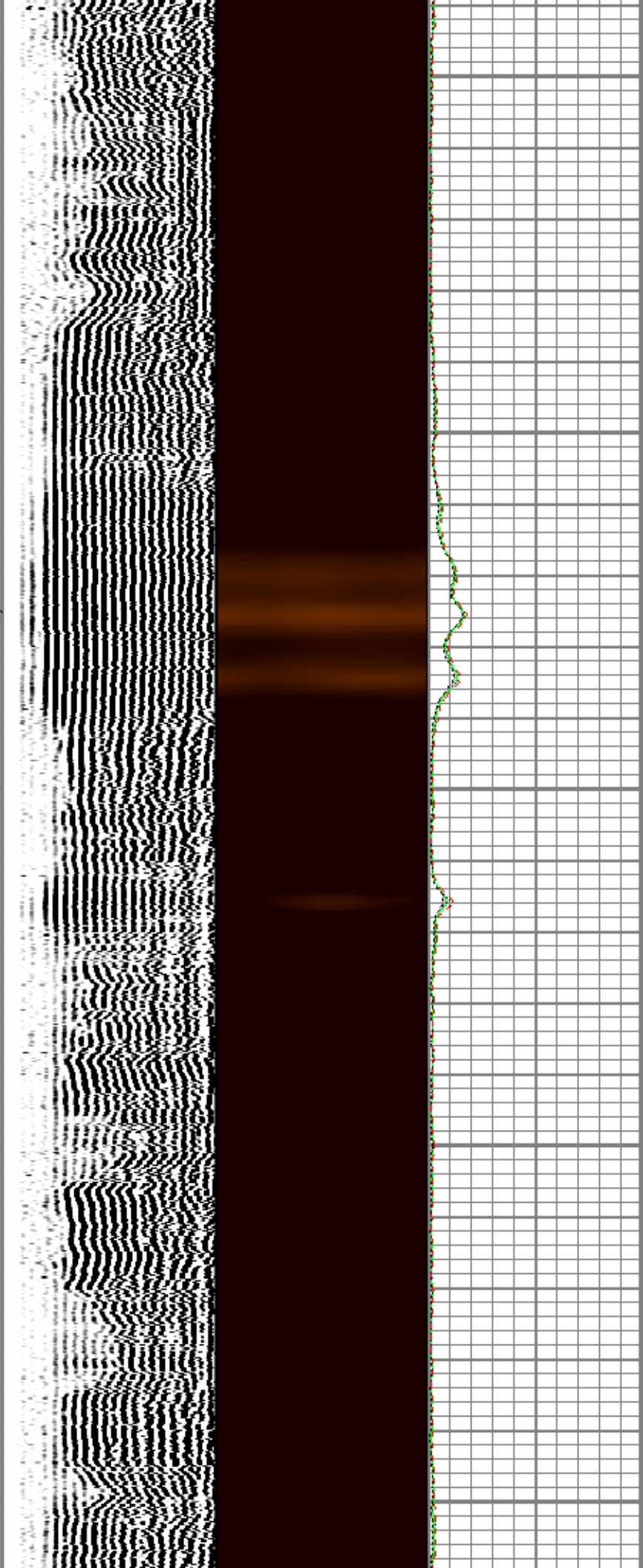
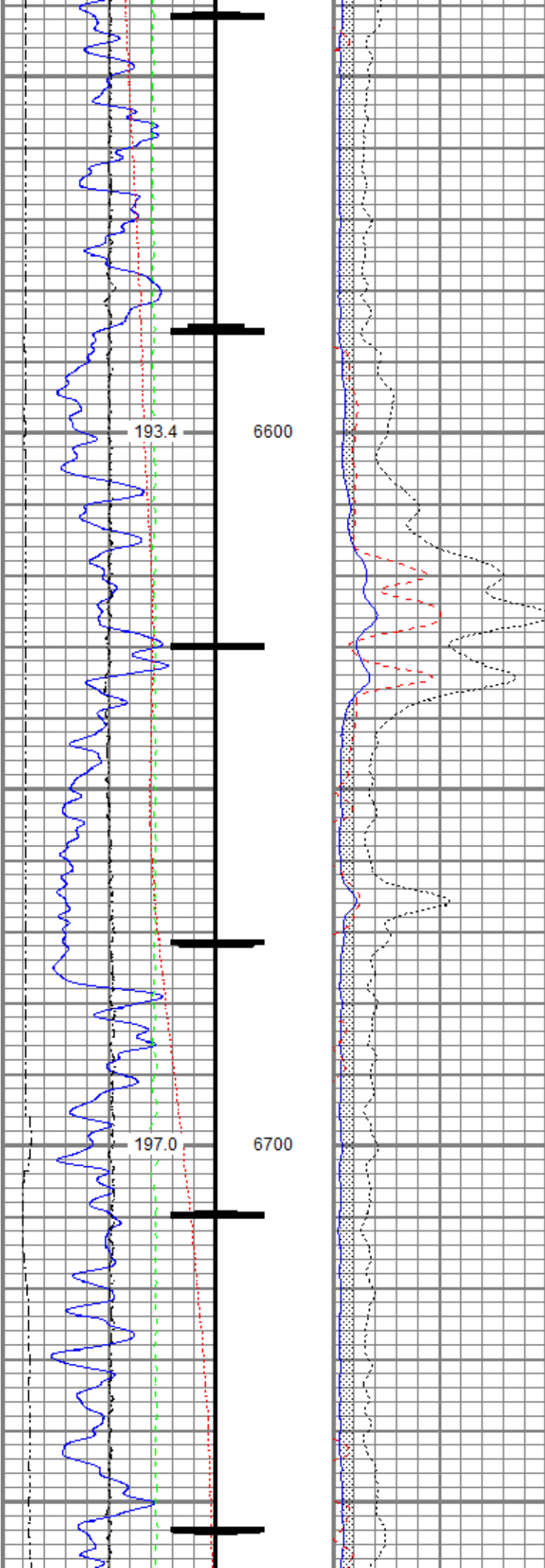


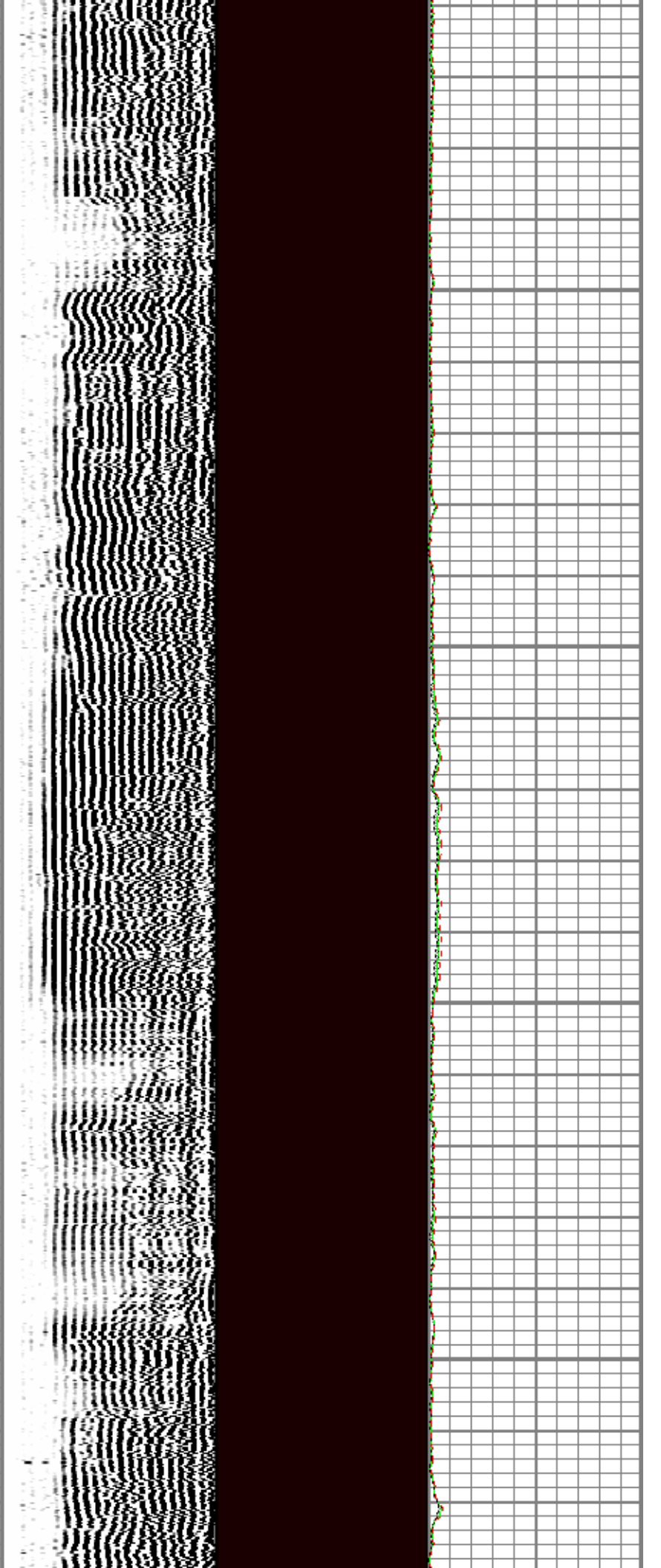
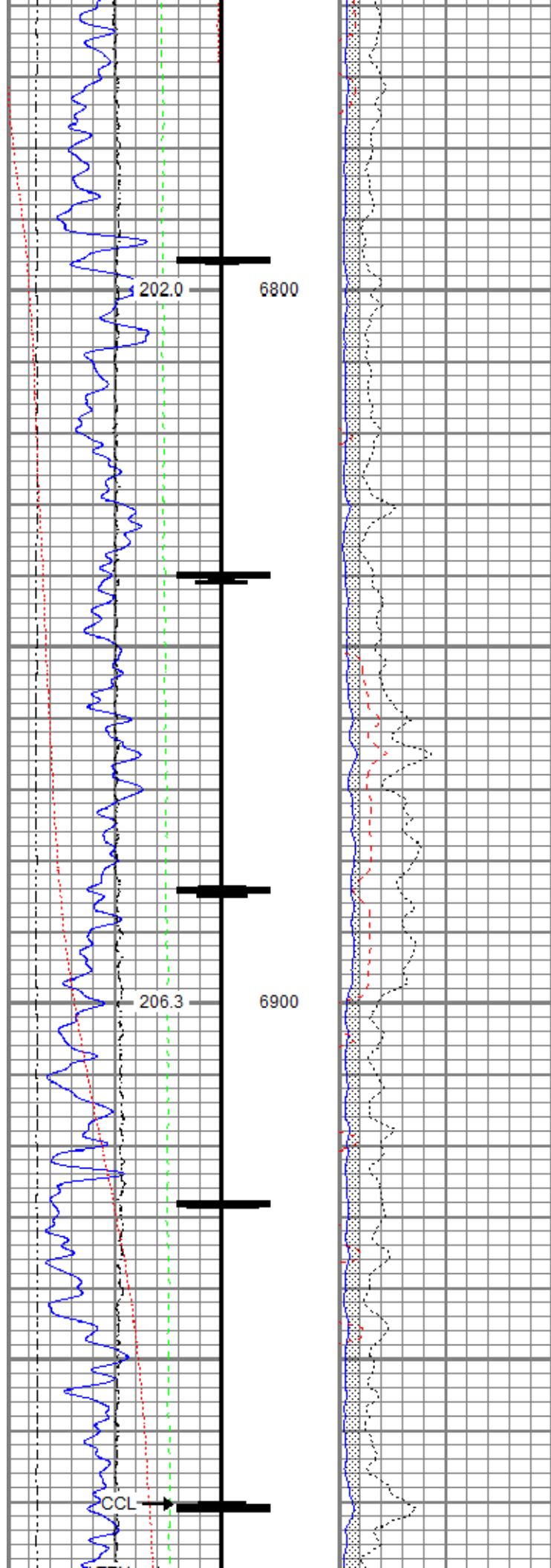






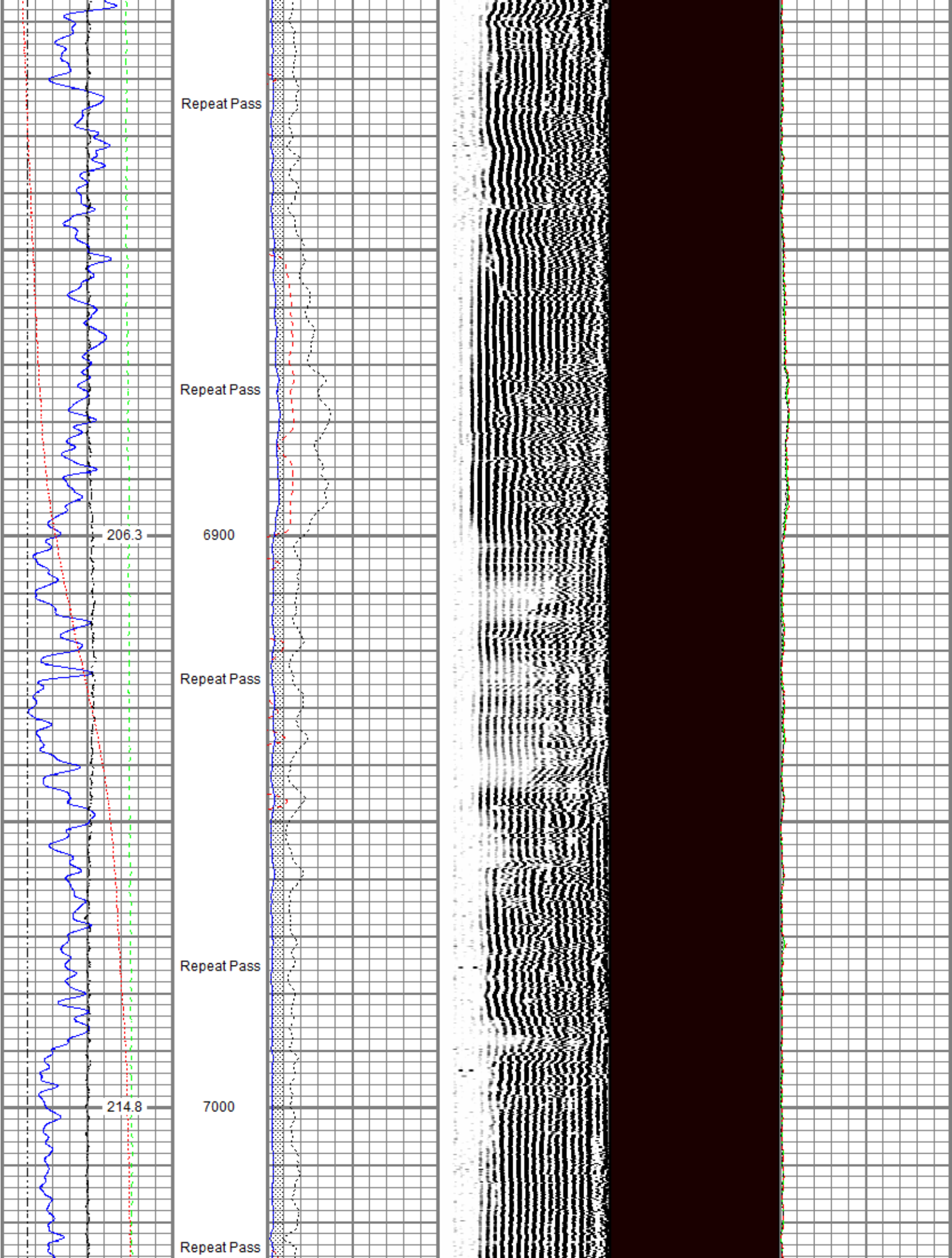


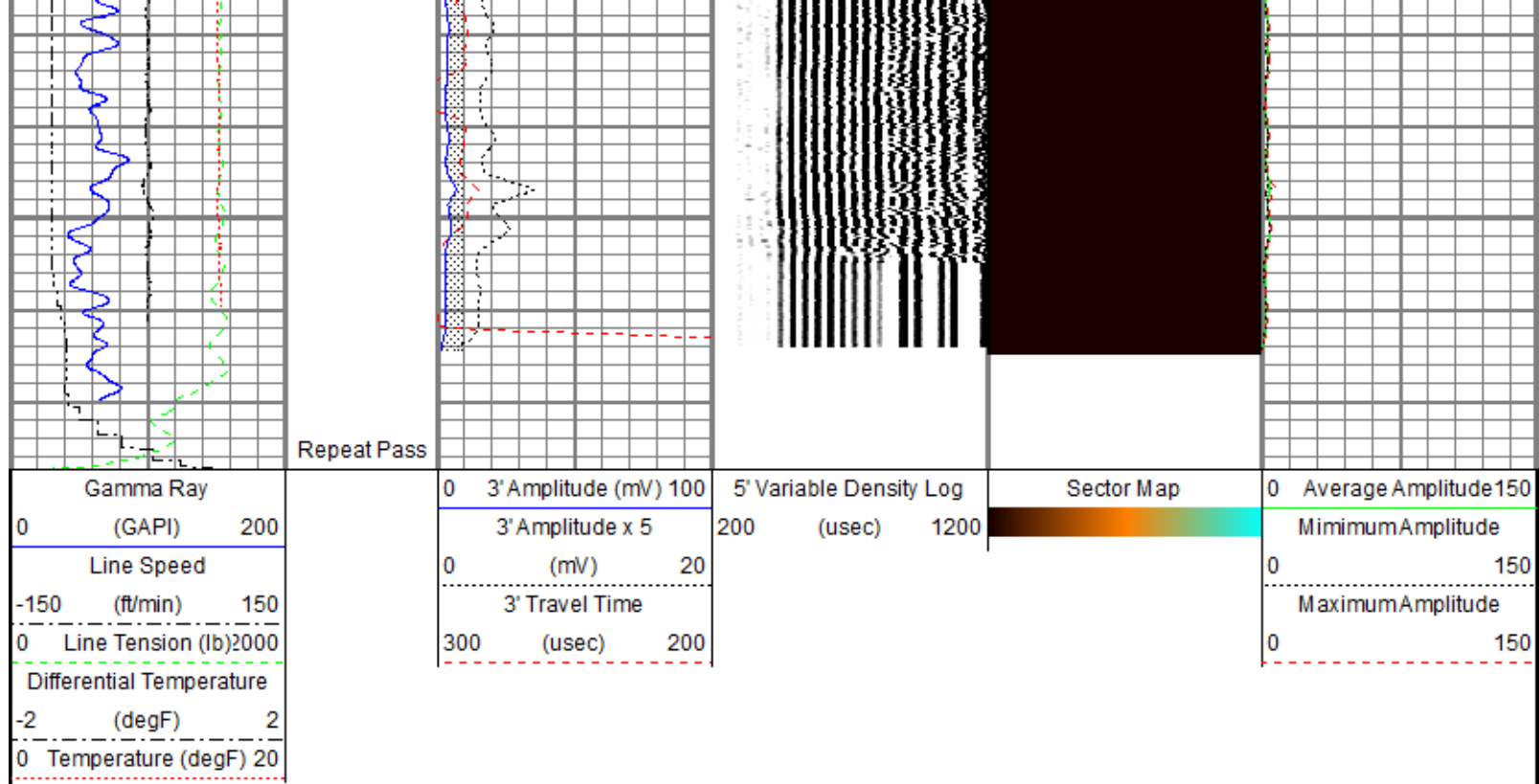












Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	16.33		Titan CHD-14375 GO	1.03	1.44	3.60
			Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck			
			DSS RAC-2750 5A GO	2.55	2.75	32.00
			DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends			
			Probe Radii-2750 RBT (101013)	9.39	2.75	105.00
			Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub			
WVFS8	14.10					
WVFS7	14.10					
WVFS6	14.10					
WVFS5	14.10					
WVFS4	14.10					
WVFS3	14.10					
WVFS2	14.10					
WVFS1	14.10					
WVFCAL	14.10					
WVF3FT	14.10					
WVF5FT	13.10					
HEADVOLT	9.85					
			DSS RAC-2750 5A GO	2.55	2.75	32.00



				DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends			
CCL\$2	6.42						
CCL\$1	6.42						
GR	5.18			Probe GR-CCL-2750 GOB (FW1211-081) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined	4.51	2.75	55.00
				DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
				GO BN-14375 GO 1-7/16" Bull Nose with Go Box Top	0.25	1.44	1.00
Dataset: TEP_Federal GM 422-8_RBL_02-03-19.db: field/well/run1/Main Total length: 22.82 ft Total weight: 260.60 lb O.D.: 2.75 in							

Calibration Report		
Database File	C:\ProgramData\Warrior\Data\TEP_Federal GM 422-8_RBL_02-03-19\TEP_Federal GM 422-8_RBL_02-03-19.db	
Dataset Pathname	Main	
Dataset Creation	Sun Feb 03 21:49:19 2019	
Gamma Ray Calibration Report		
Serial Number:	FW1211-081	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:22:44 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	112.4	cps
Calibrator Reading:	1008.7	cps
Sensitivity:	0.7107	GAPI/cps

Segmented Cement Bond Log Calibration Report			
Serial Number:	101013		
Tool Model:	2750 RBT		
Calibration Casing Diameter:	4.500	in	
Calibration Depth:	15.966	ft	

Master Calibration, performed Sun Feb 03 19:38:22 2019:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.007	0.758	0.800	81.196	105.166	1.495
CAL	0.000	0.753				
5'	-0.000	0.677	0.800	81.196	118.621	0.848
SUM						
S1	-0.007	0.739	0.000	100.000	134.165	0.881
S2	-0.004	0.737	0.000	100.000	134.948	0.591
S3	-0.004	0.749	0.000	100.000	132.720	0.533
S4	-0.004	0.775	0.000	100.000	128.272	0.522

S4	-0.004	0.773	0.000	100.000	128.273	0.932
S5	-0.004	0.824	0.000	100.000	120.872	0.460
S6	-0.004	0.818	0.000	100.000	121.722	0.461
S7	-0.004	0.787	0.000	100.000	126.348	0.512
S8	-0.005	0.759	0.000	100.000	130.938	0.593

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	0.753	1.000	0.000

Air Zero Calibration, performed Sun Feb 03 18:13:31 2019:

	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	

#### Temperature Calibration Report

Serial Number: 101013  
Tool Model: 2750 RBT  
Performed: Sun Nov 12 13:21:13 2017

	Reference	Reading
Low Reference:	100.00 degF	112.30 degF
High Reference:	350.00 degF	394.75 degF

Gain: 0.89  
Offset: 0.60  
Delta Spacing 1



Company TEP Rocky Mountain LLC  
Well Federal GM 422-8  
Field Grand Valley  
County Garfield  
State Colorado