



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company TEP Rocky Mountain LLC		Well Clough NR 11-3		Field Rulison		County Garfield		State Colorado							
Company TEP Rocky Mountain LLC		Well Clough NR 11-3		Field Rulison		County Garfield		State Colorado							
Location:		API # : 05-045-23923		Other Services											
SEC 3 TWP 6S RGE 94W		Ground Level		Elevation		K.B. 6743.1'									
Permanent Datum		Log Measured From		Kelly Bushing		24 FT									
Drilling Measured From		Kelly Bushing				D.F. 6742.1'									
						G.L. 6719.1'									
Date		27-AUG-2018													
Run Number		One													
Depth Driller		11176 FT													
Depth Logger		11063 FT													
Bottom Logged Interval		11049 FT													
Top Log Interval		Surface													
Open Hole Size		8.750"													
Type Fluid		Water													
Density / Viscosity		8.34 lb/gal													
Max. Recorded Temp.		247°F													
Estimated Cement Top		See Log													
Time Well Ready		ROA													
Time Logger on Bottom		10.15													
Equipment Number		HD-0359													
Location		Grand Junction, CO													
Recorded By		Z. Fisher													
Witnessed By		Dustin Welsh													
Borehole Record		Bit		From		To		Size		Weight		From		To	
Run Number															
Casing Record		Size (in)		Wgt (lbs/ft)		Grade		Top		Bottom					
Surface Casing		9 5/8		36		H-40		Surface		1128 FT					
Intermediate #1		4 1/2		11.6		P-110		Surface		11134 FT					
Intermediate #2															
Inner															

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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 7235-7258 FT  
Log ran from 11049 FT to Surface  
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

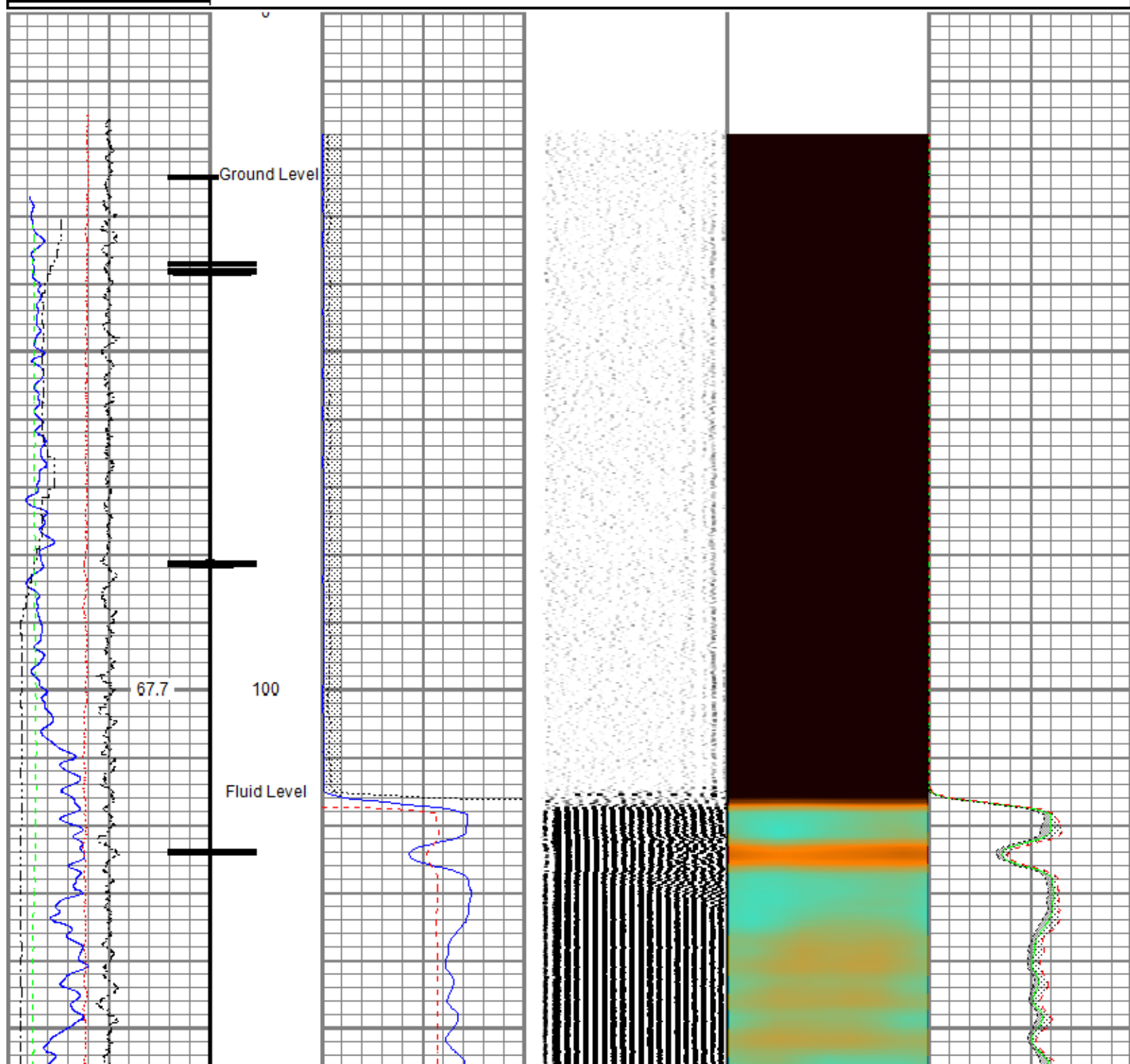


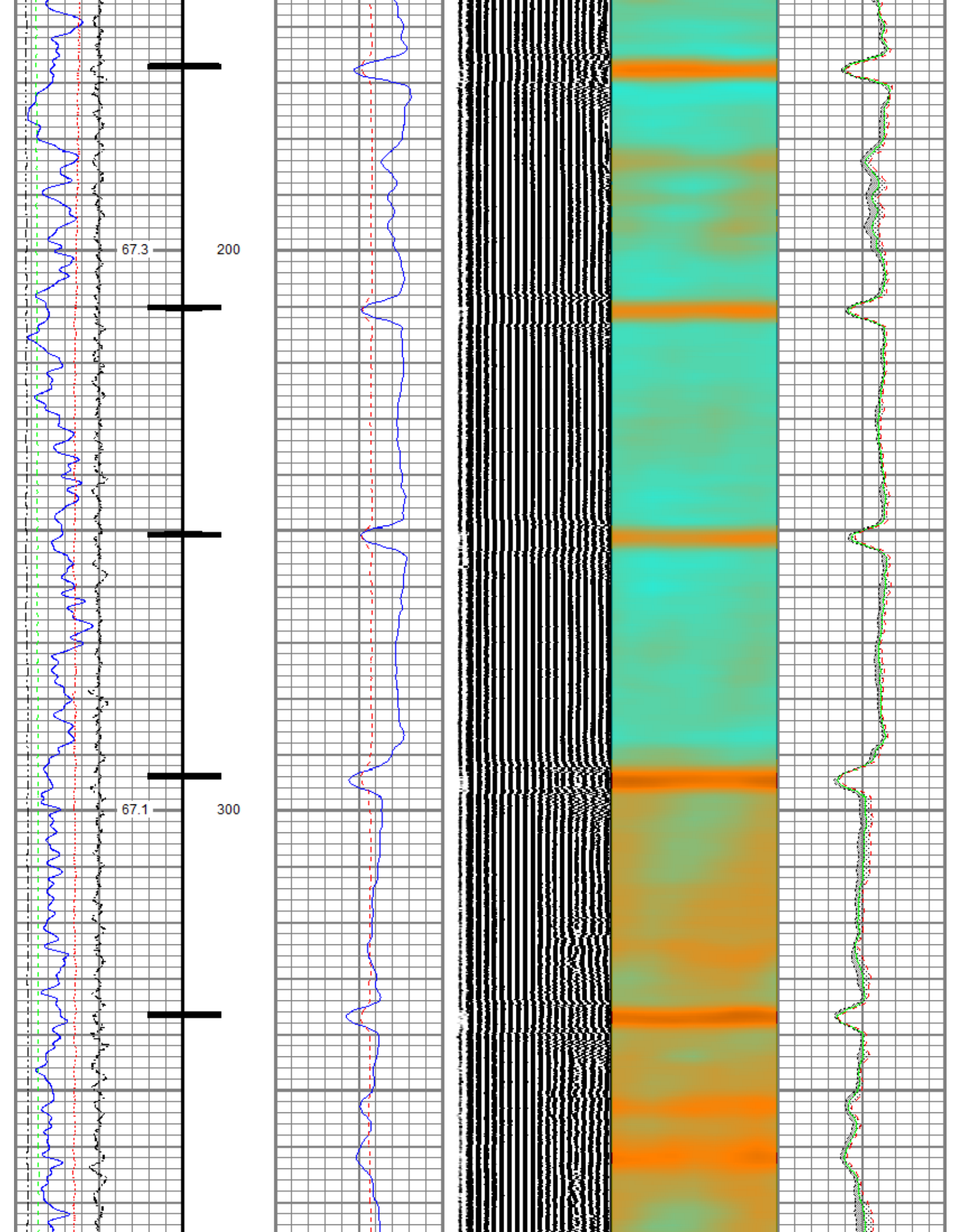
Main Pass

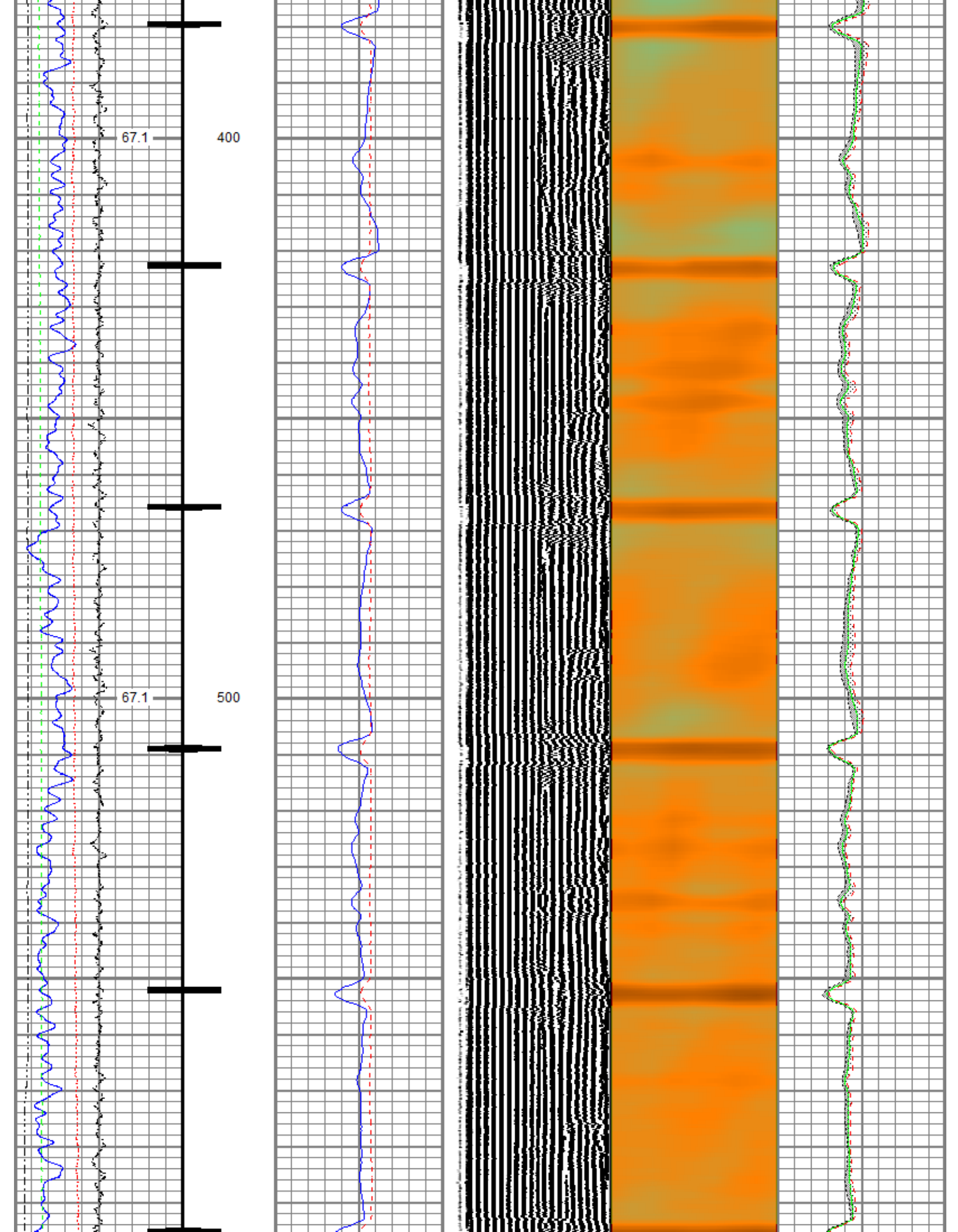
Recorded With 0 PSI Surface Induced Pressure

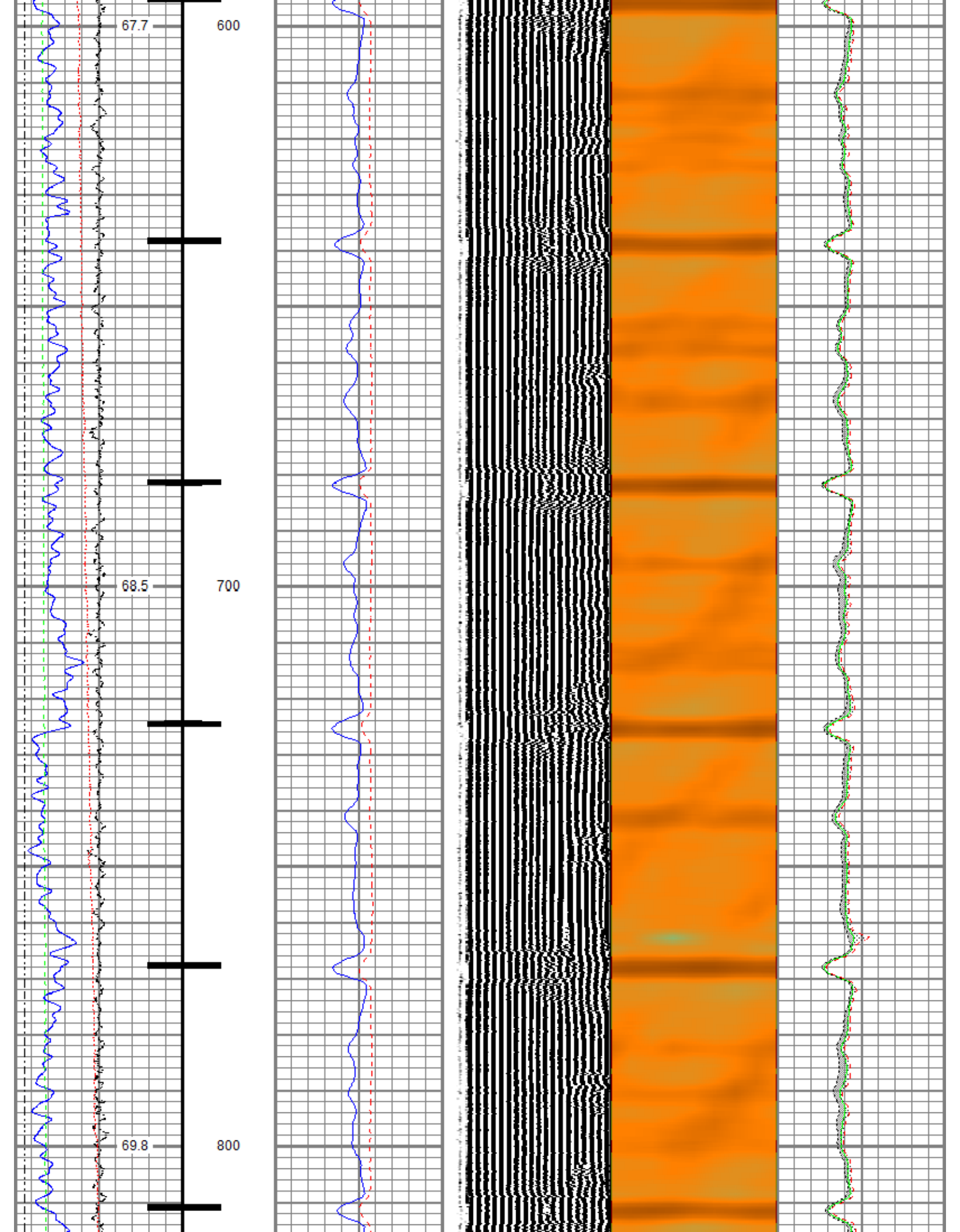
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 Dataset Pathname main.2  
 Presentation Format ros\_rbt004\_tep  
 Dataset Creation Tue Aug 28 10:04:37 2018  
 Charted by Depth in Feet scaled 1:240

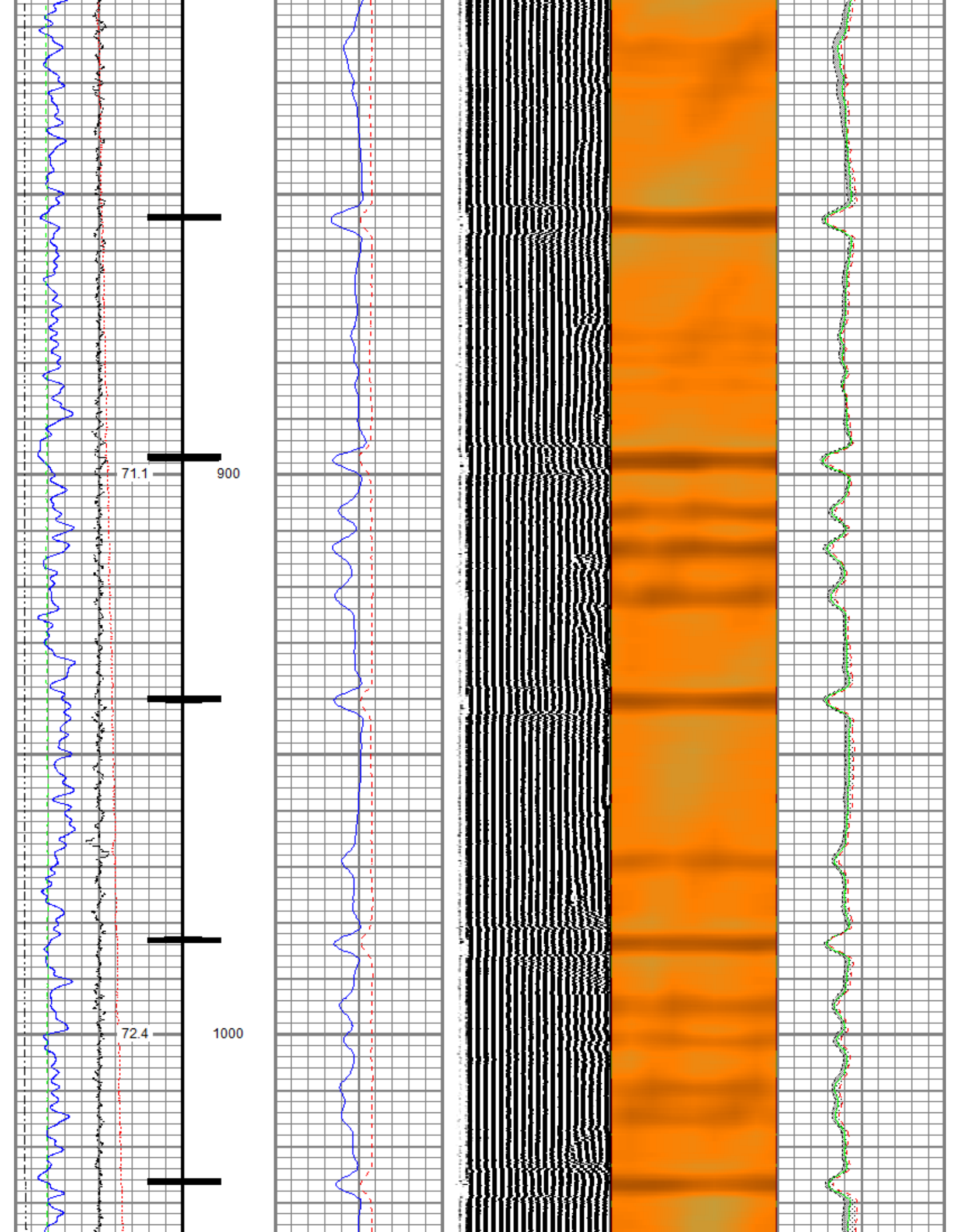
Gamma Ray	0	3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0	Average Amplitude 150
(GAPI) 200		3' Amplitude x 5	200	10		Minimum Amplitude
Line Speed		(mV) 20	1200			0
-150 (ft/min) 150		3' Travel Time				Maximum Amplitude
0 Line Tension (lb) 2000		300 (usec) 200				0
Differential Temperature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

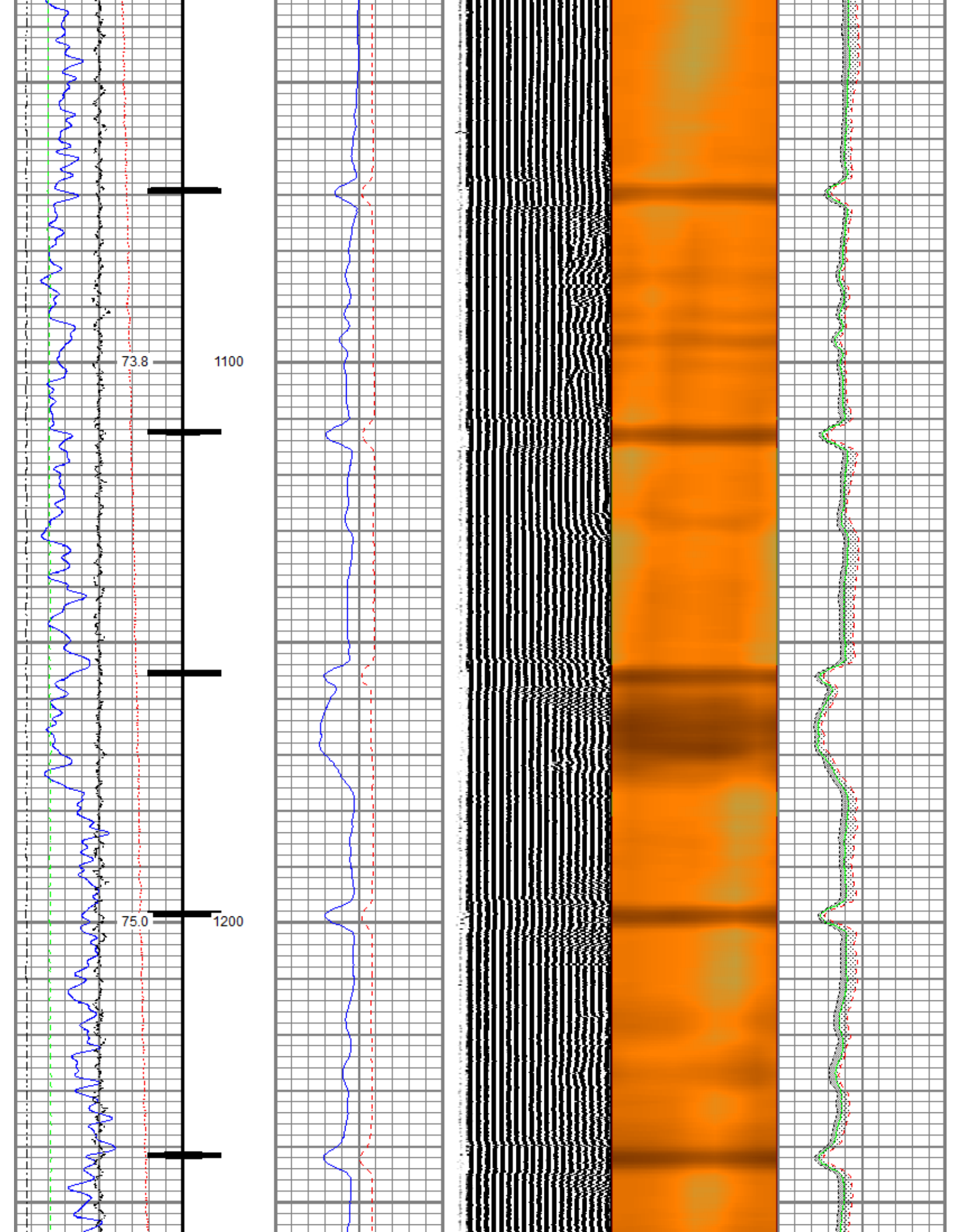


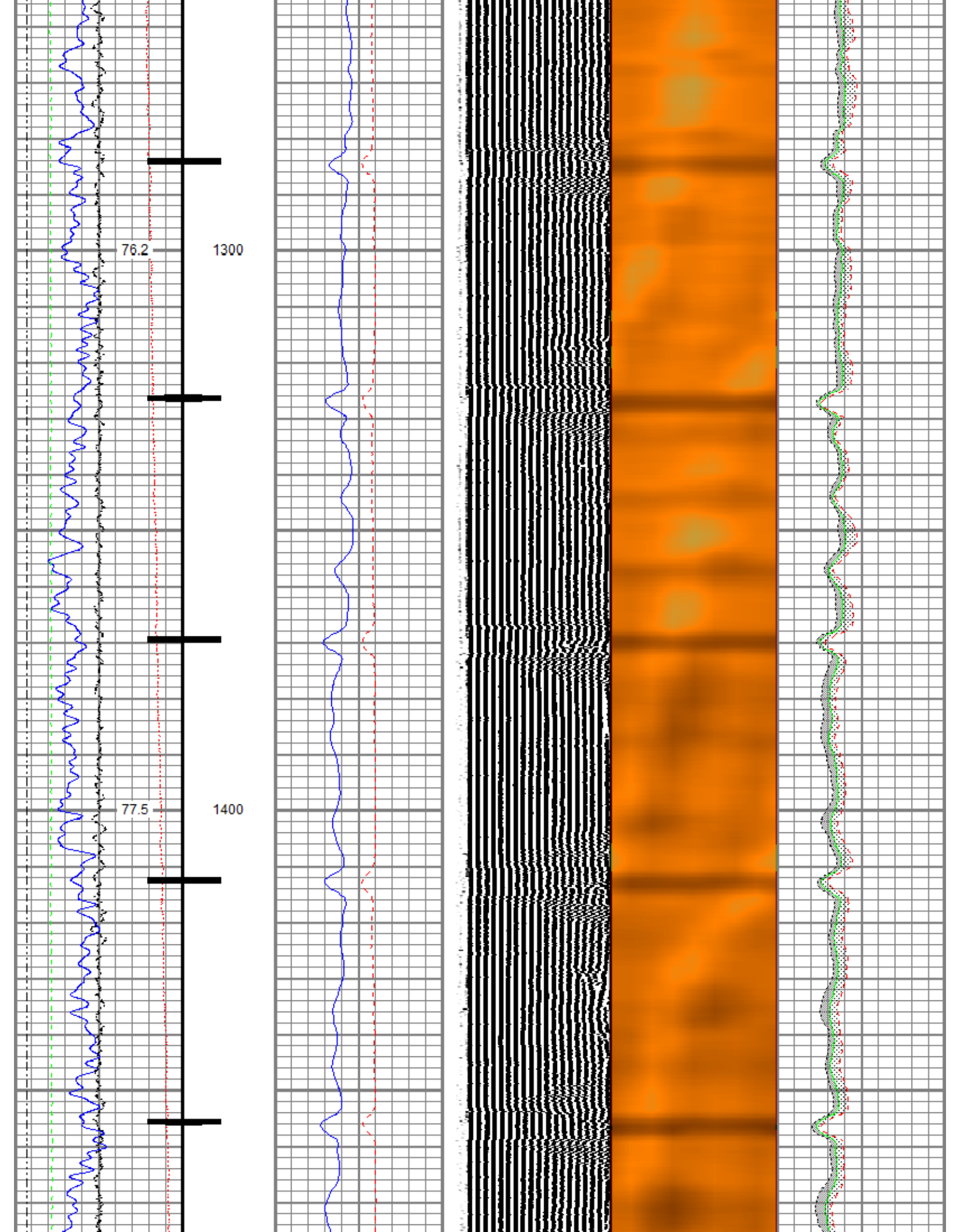


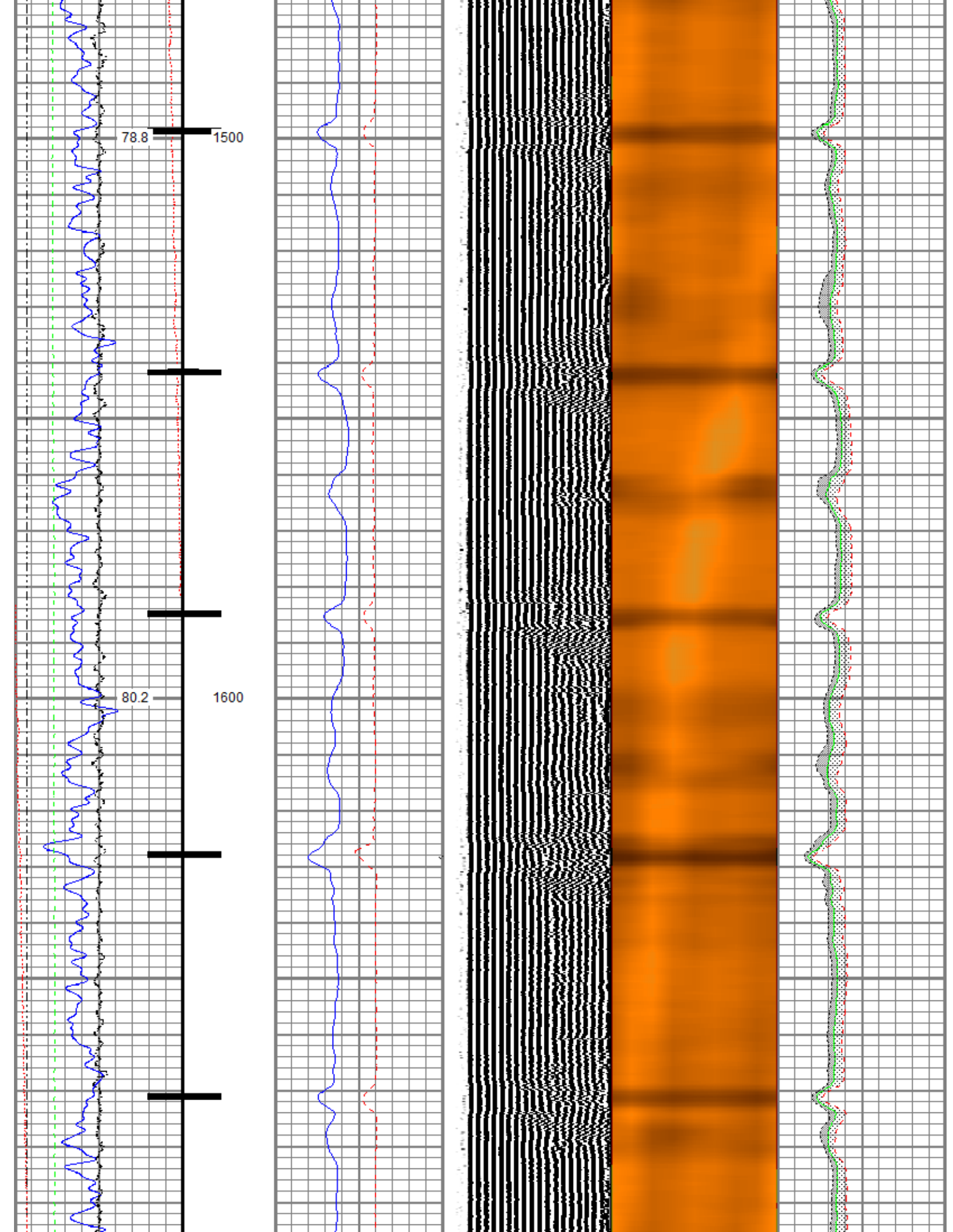


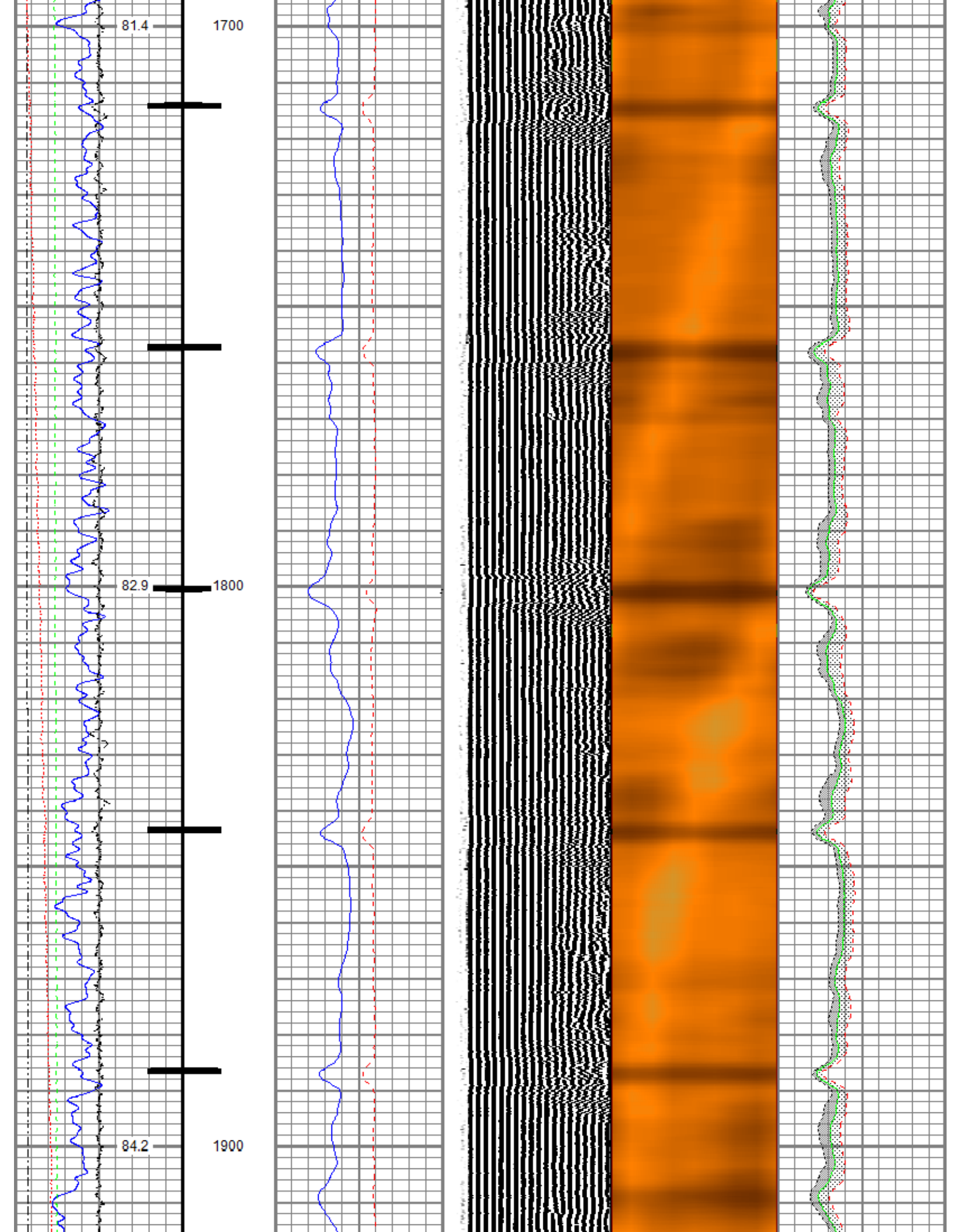


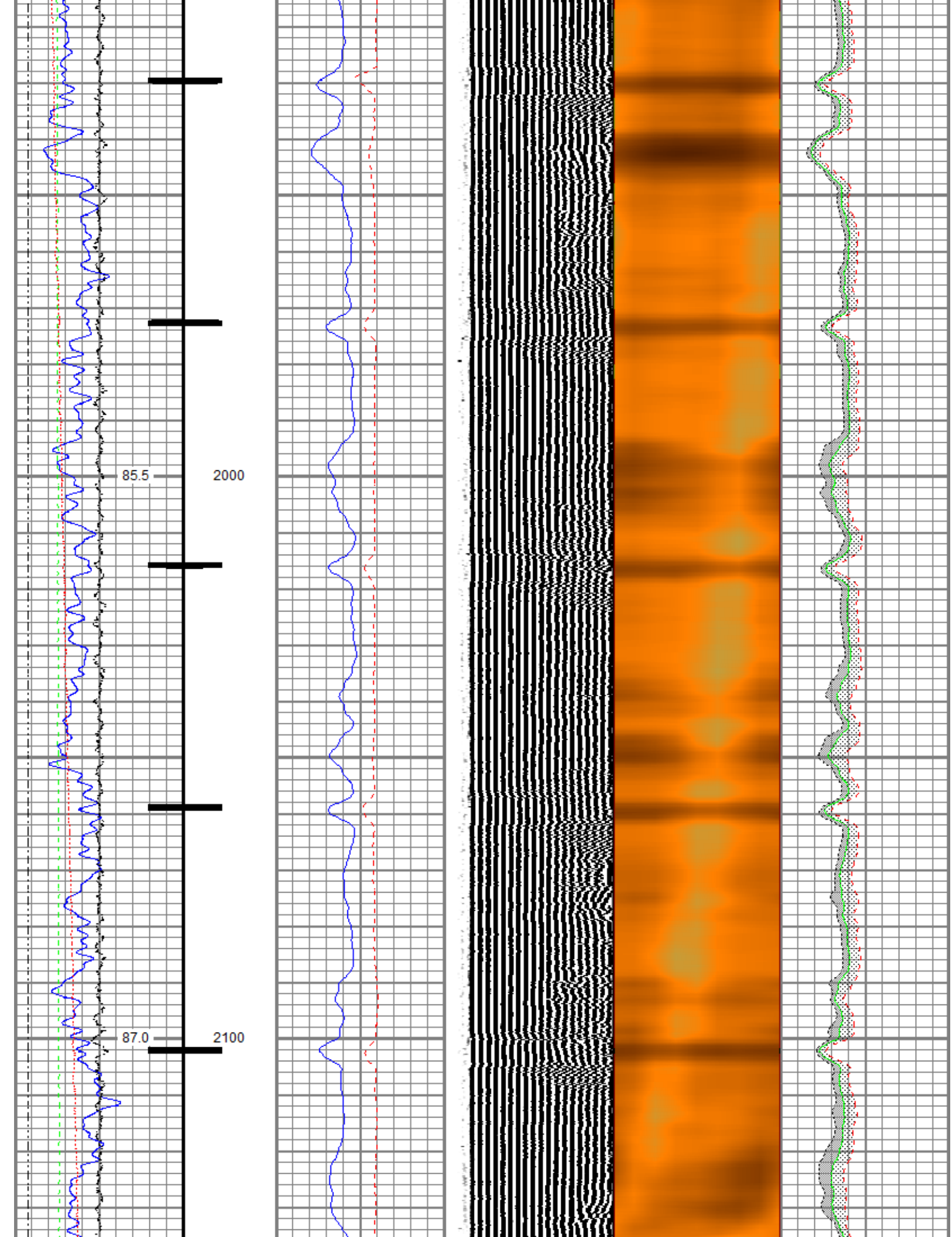


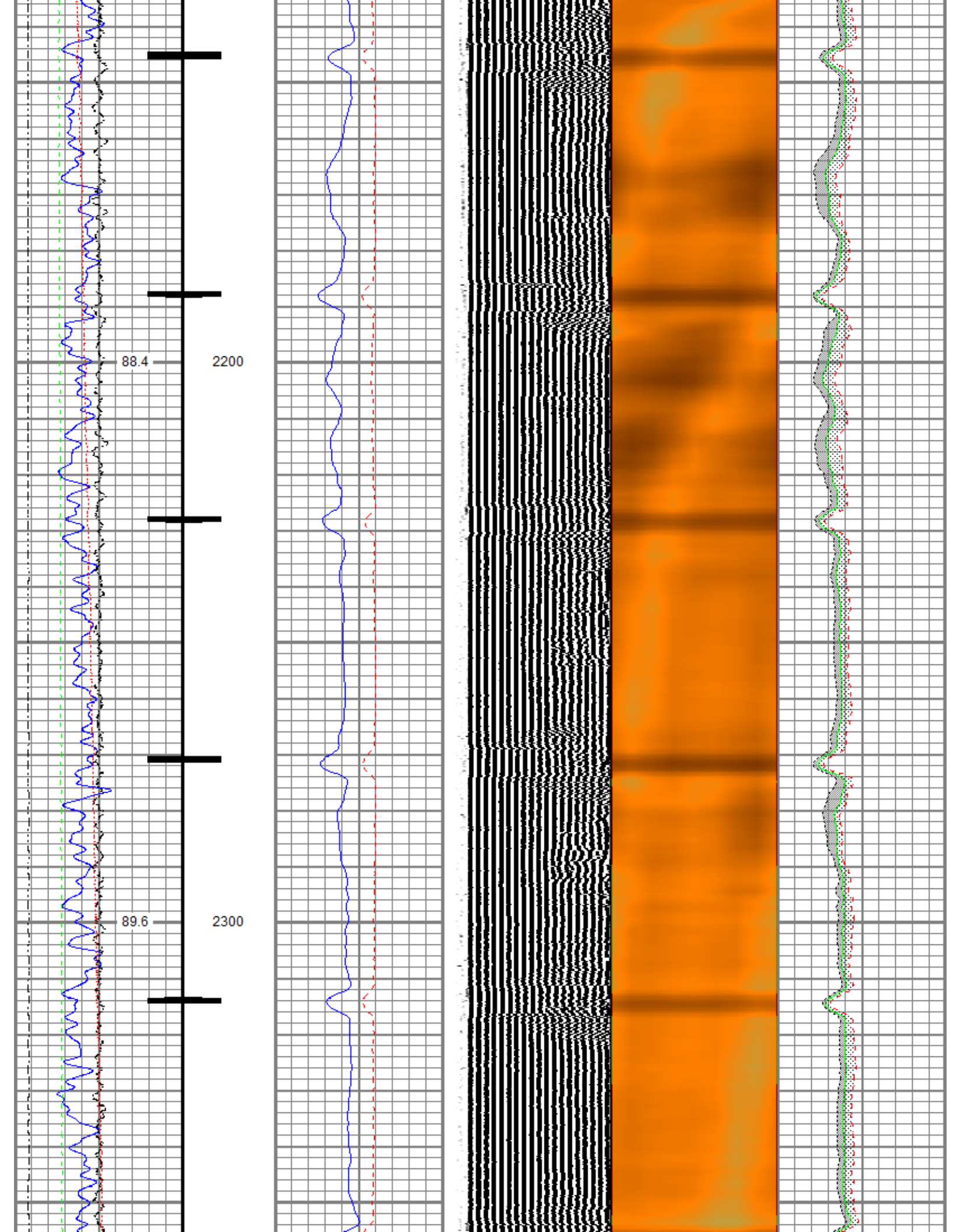


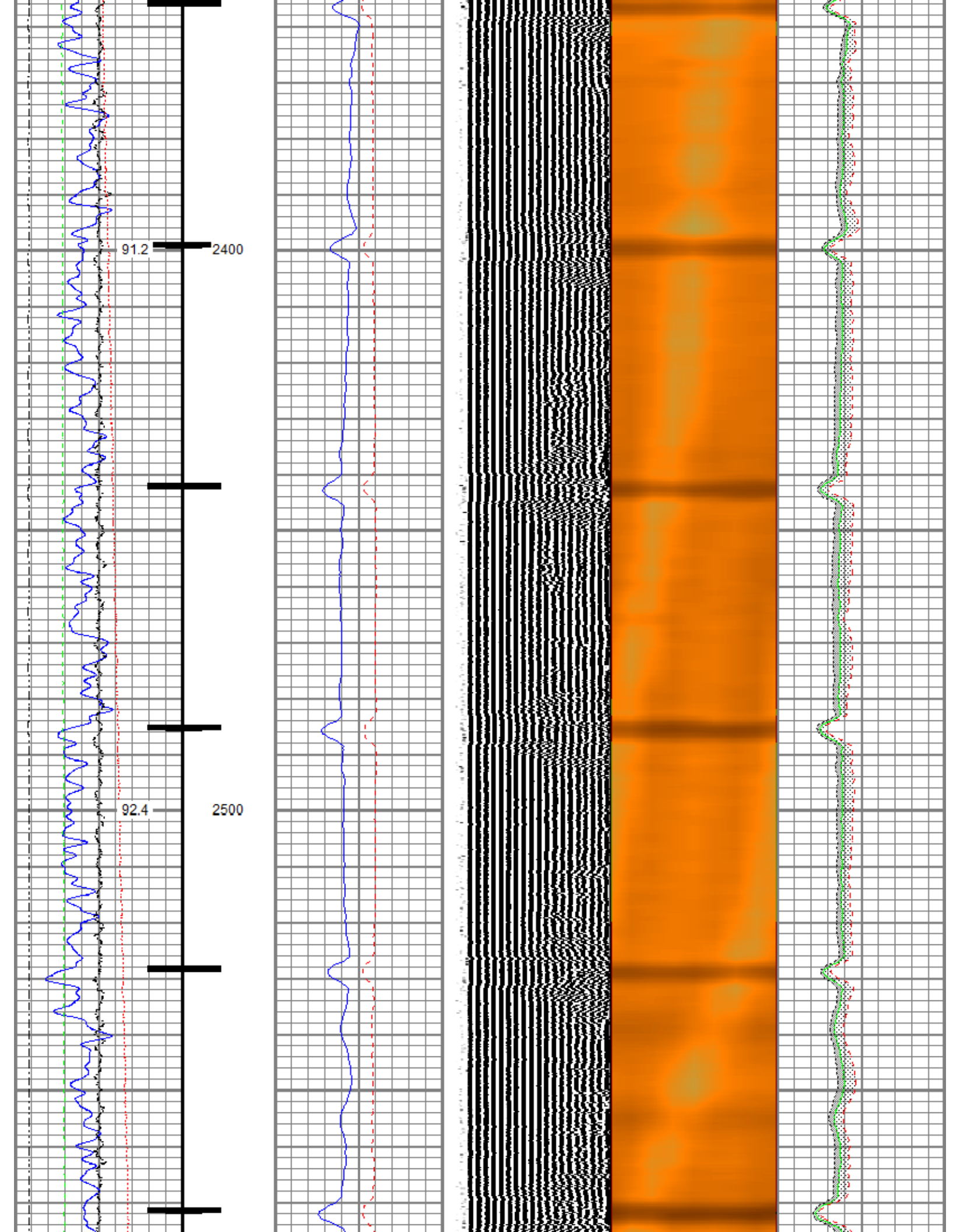


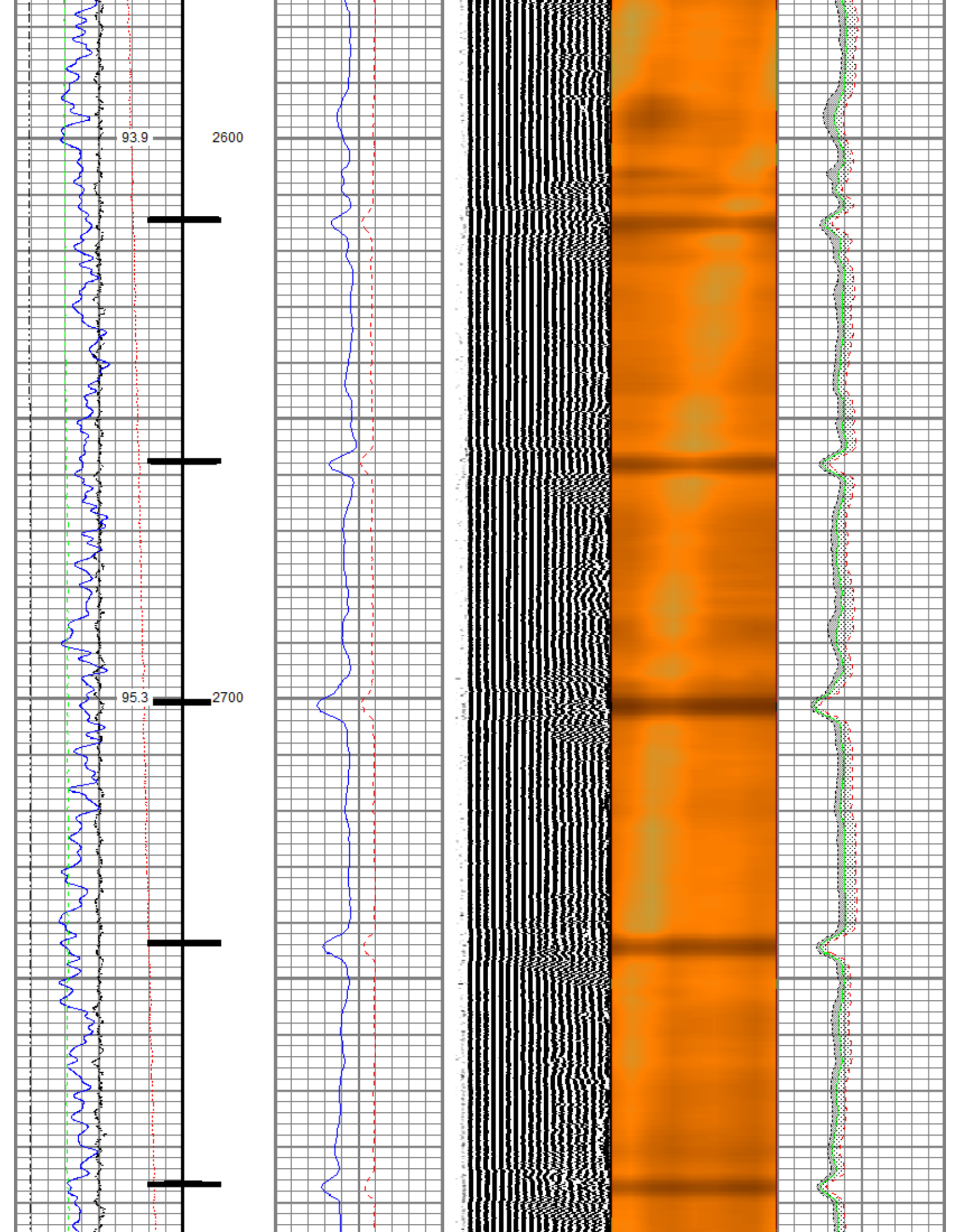


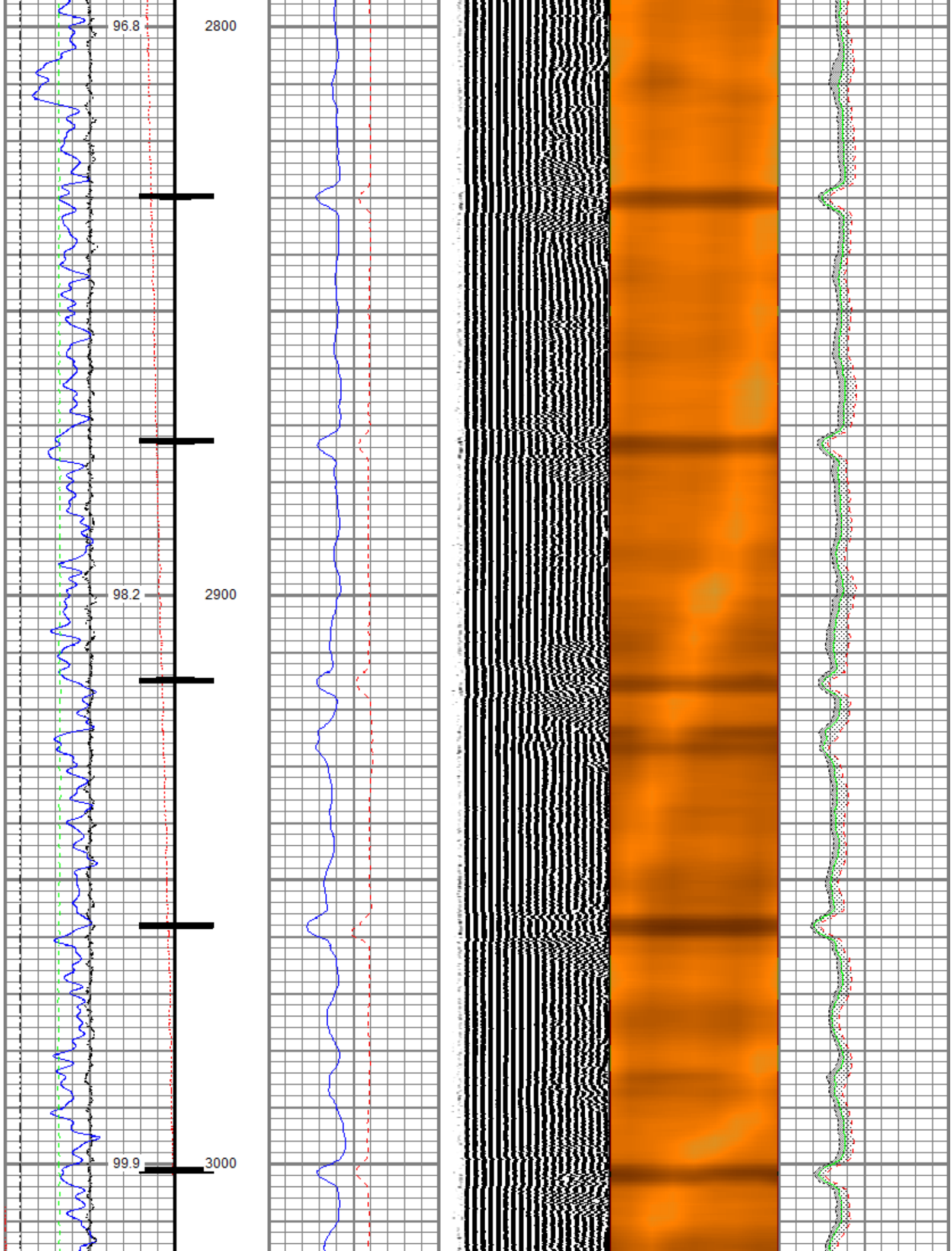


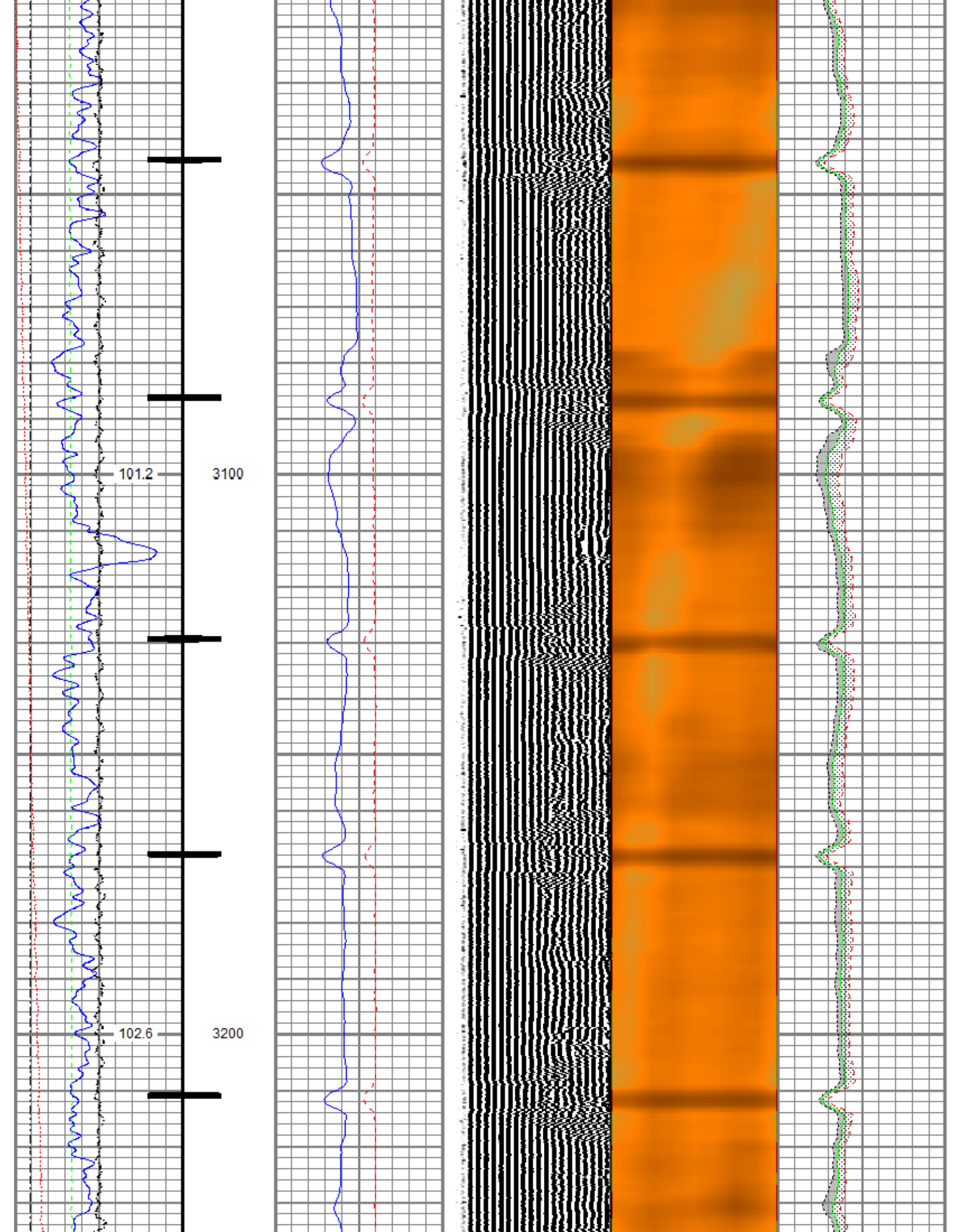


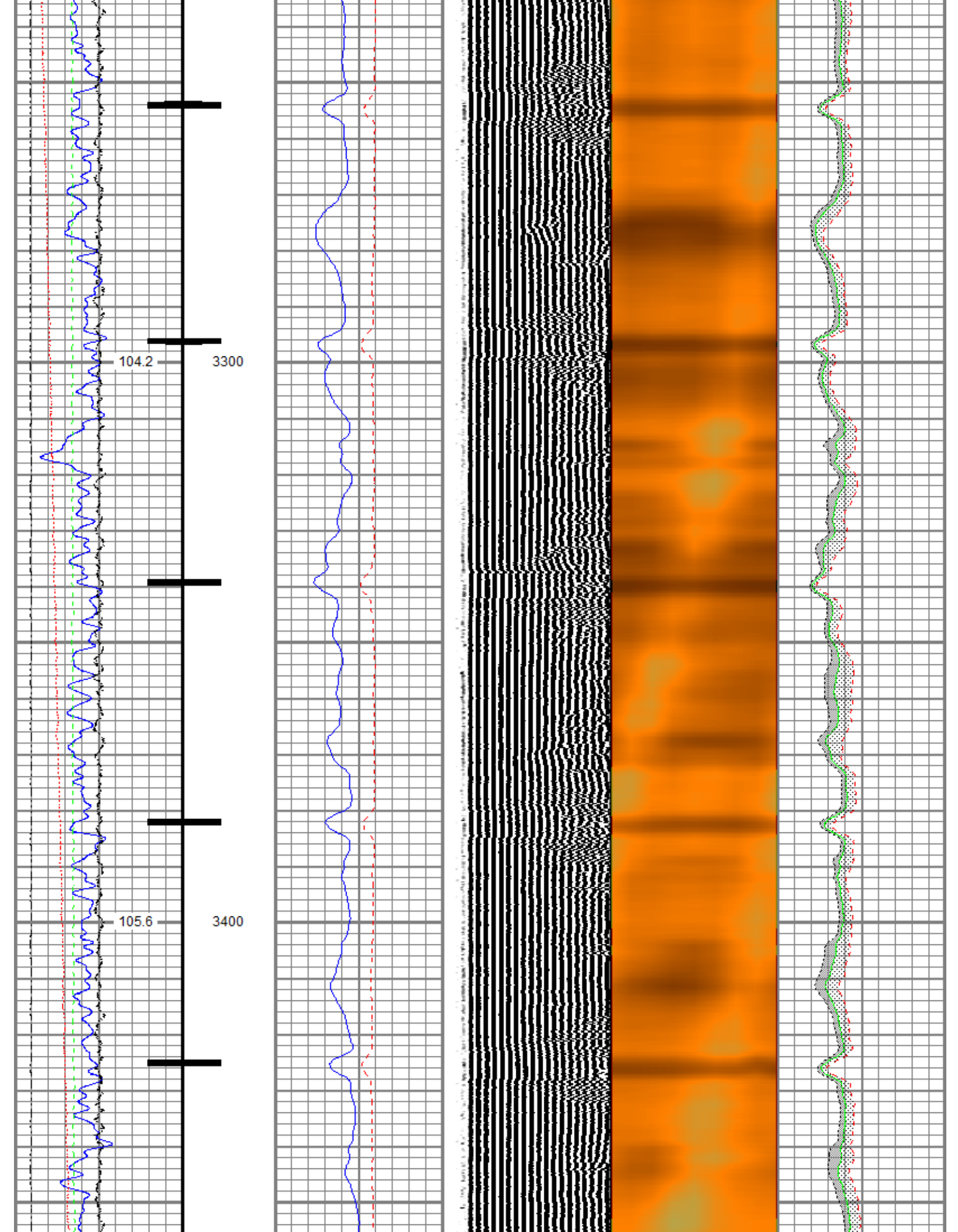


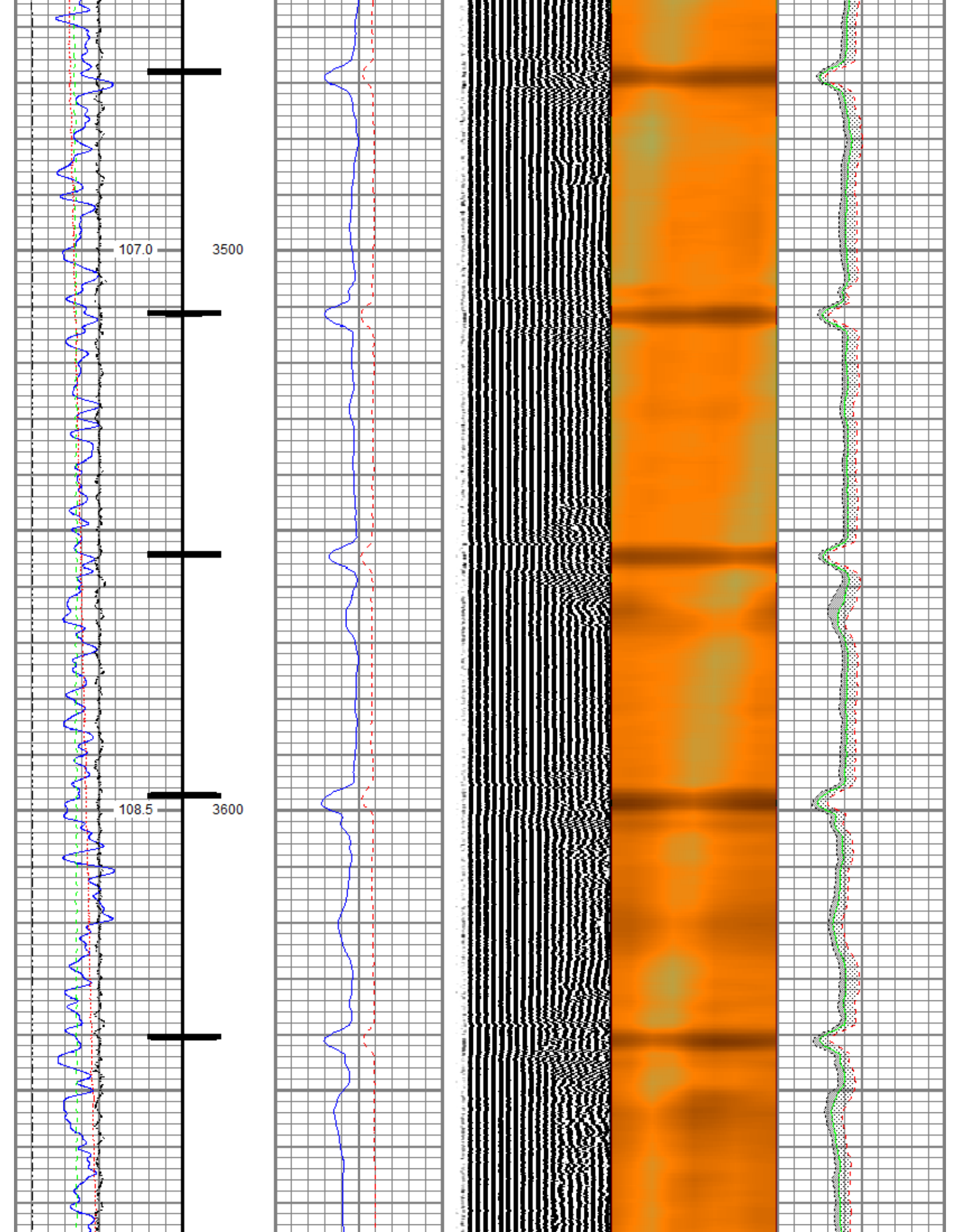


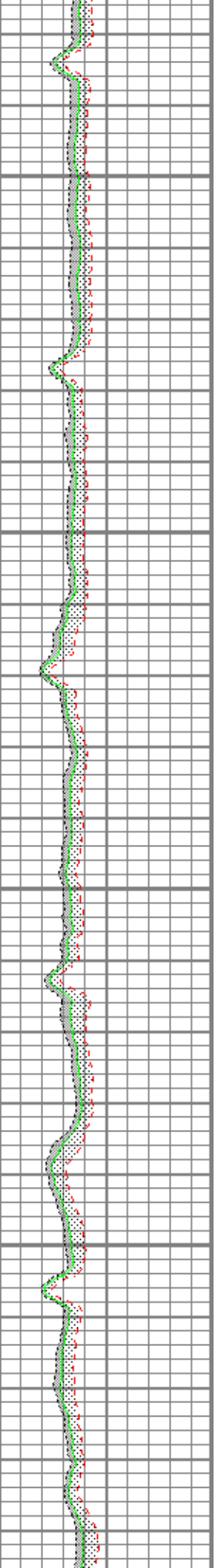
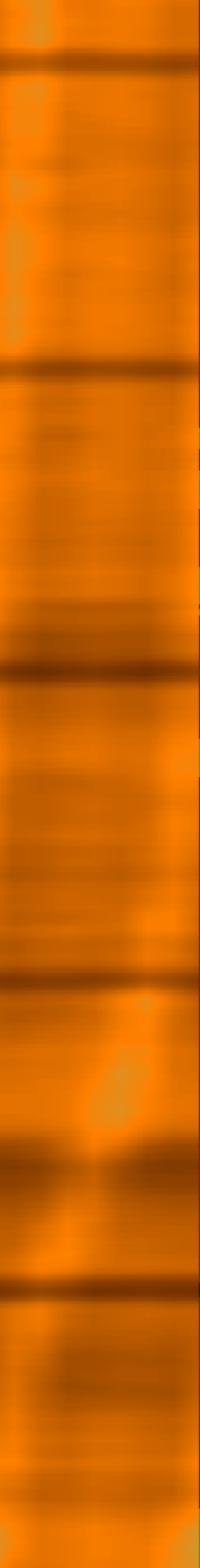
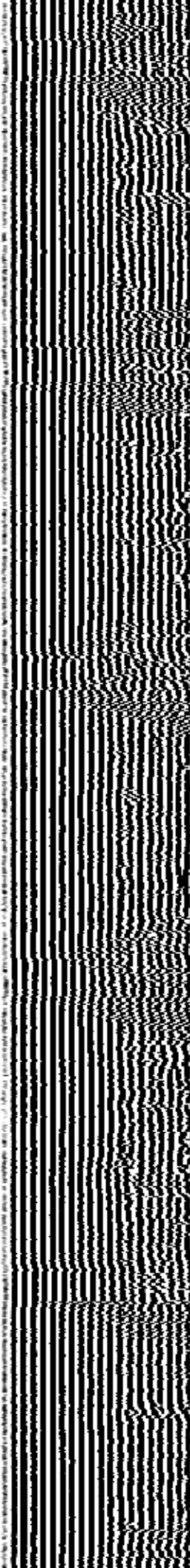
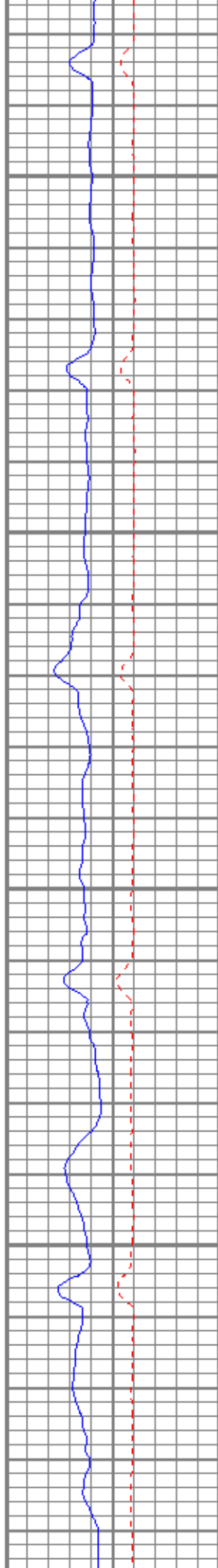
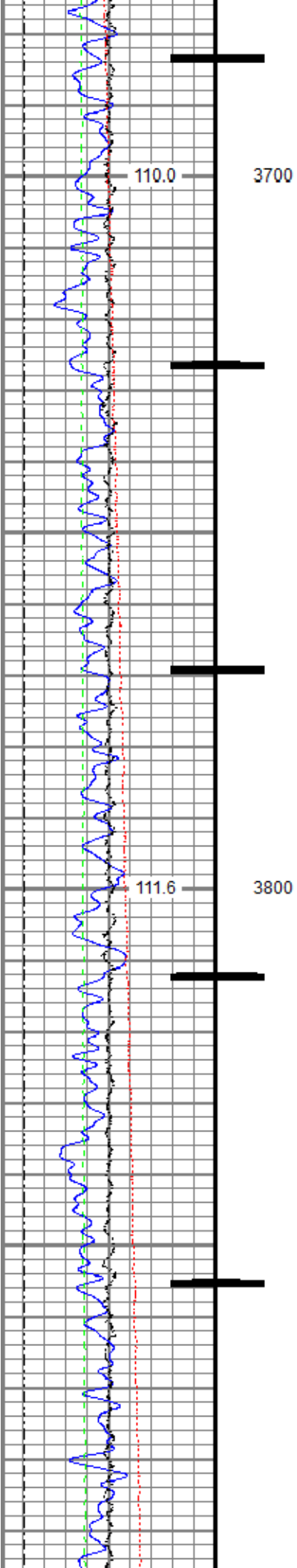


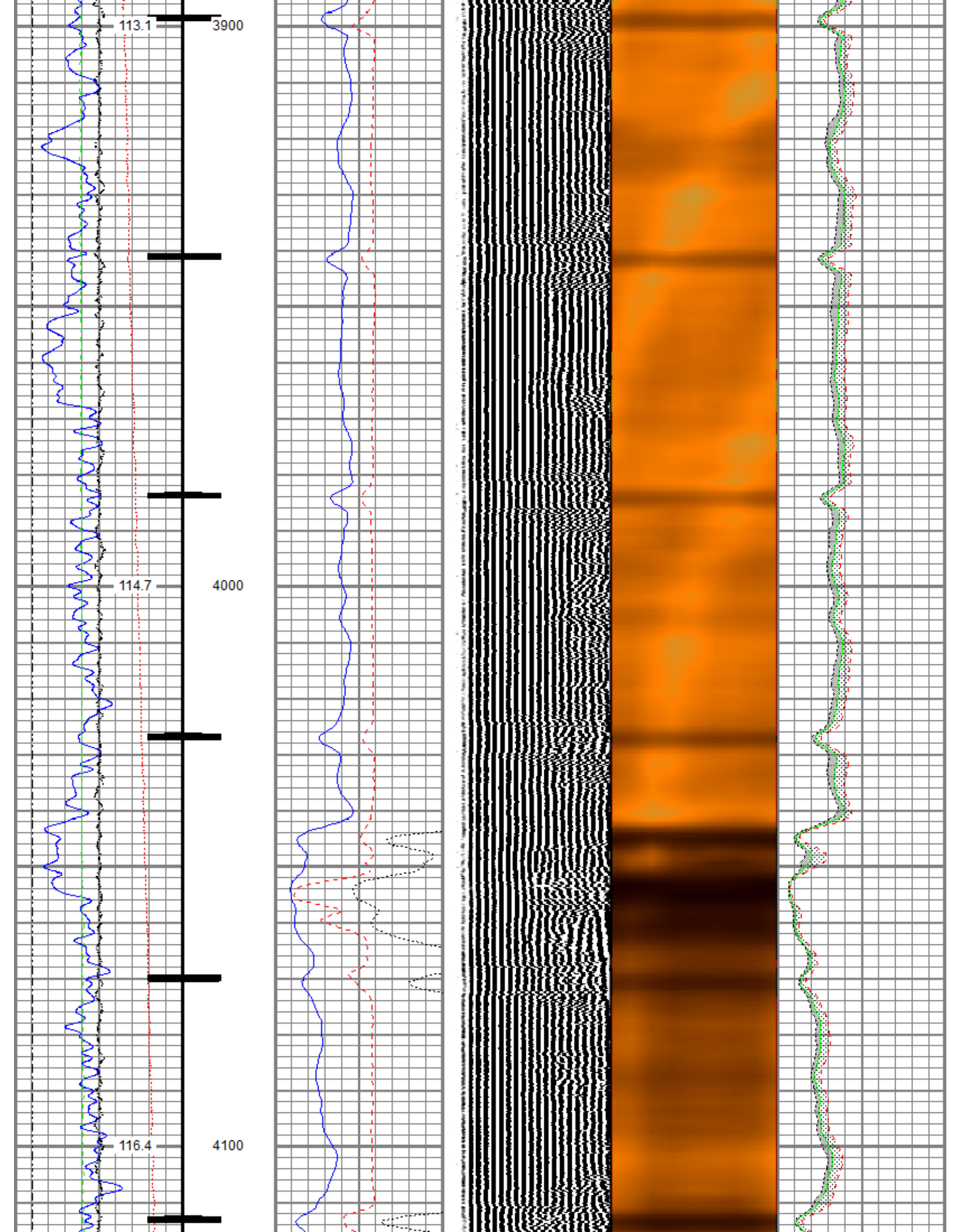


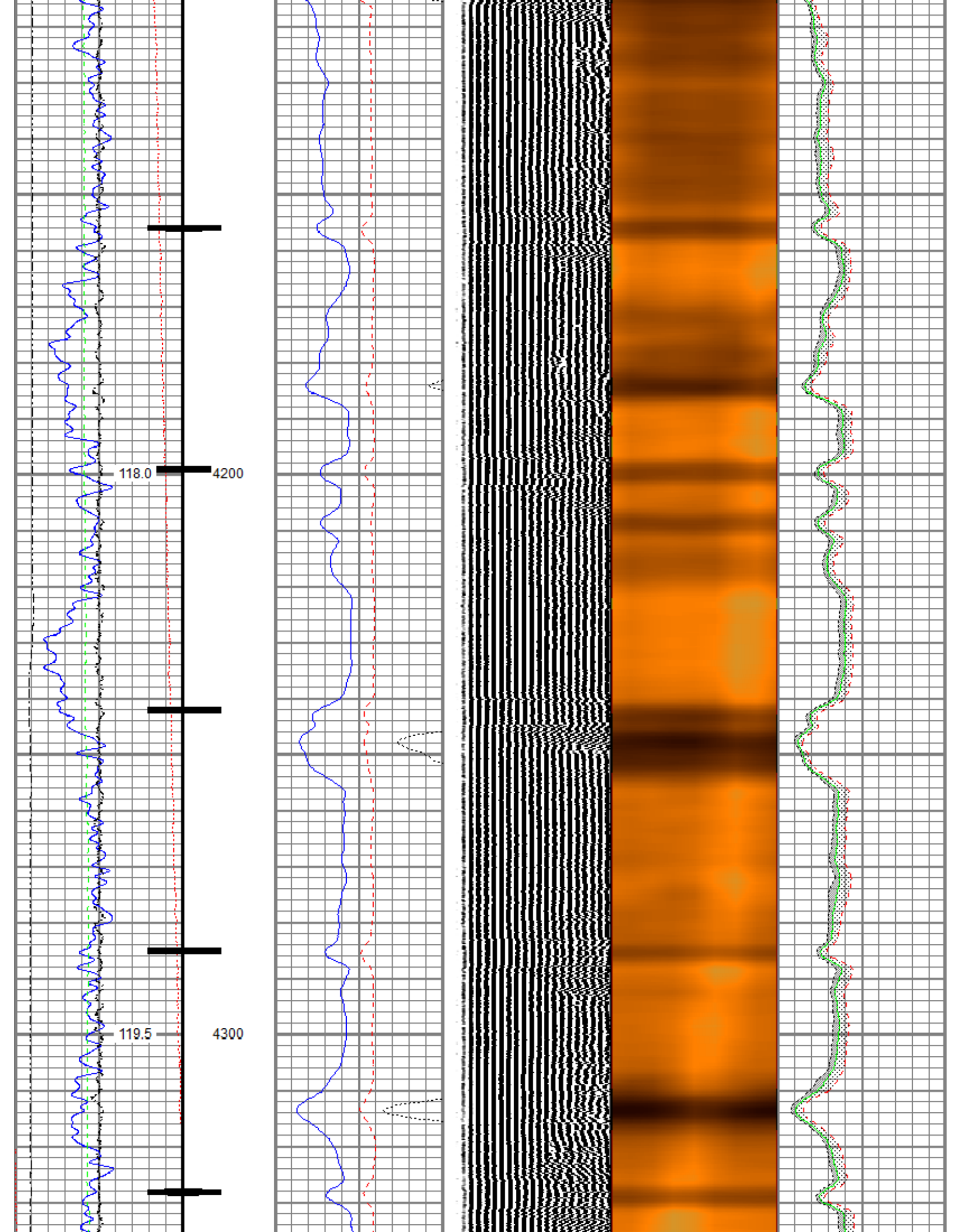


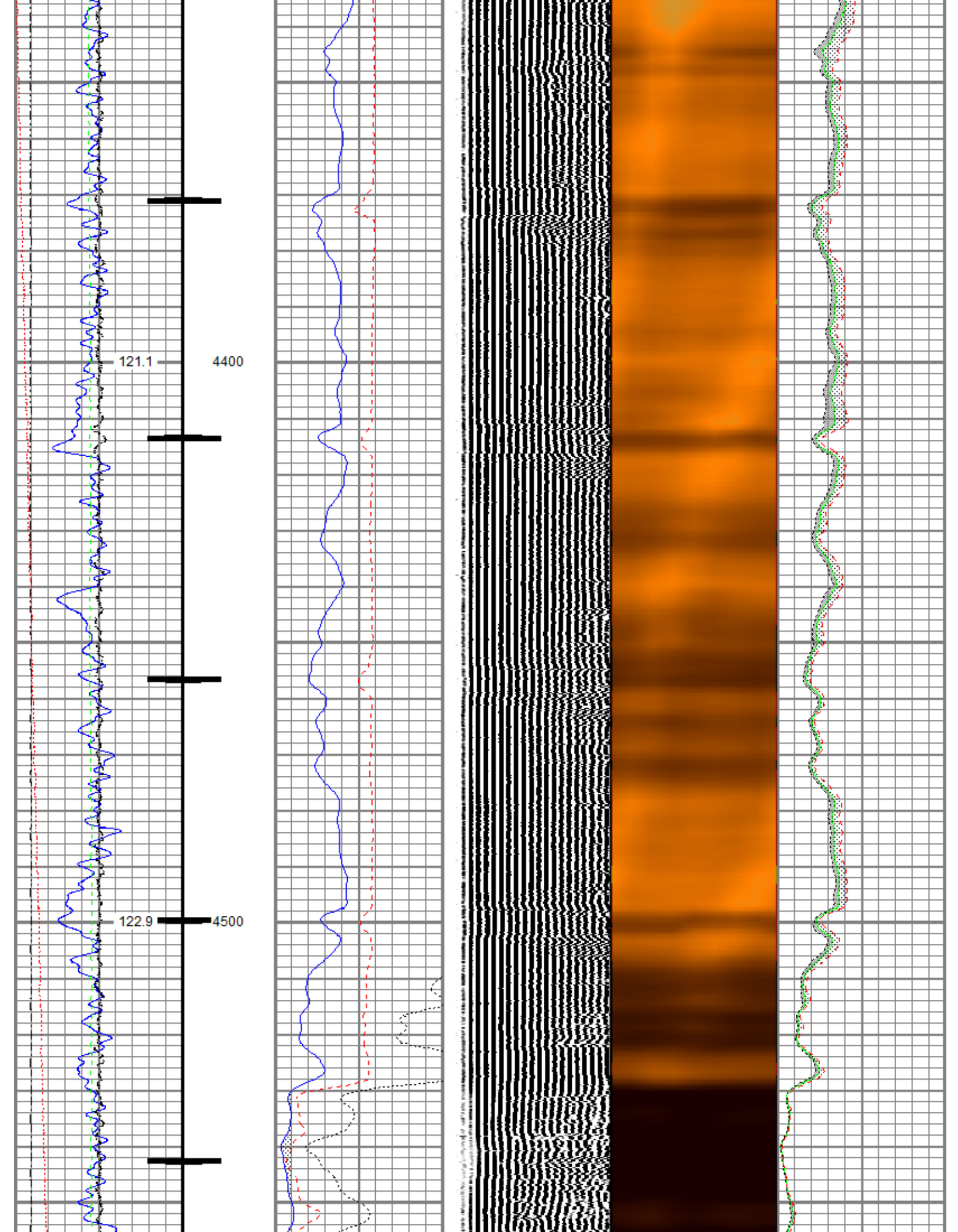


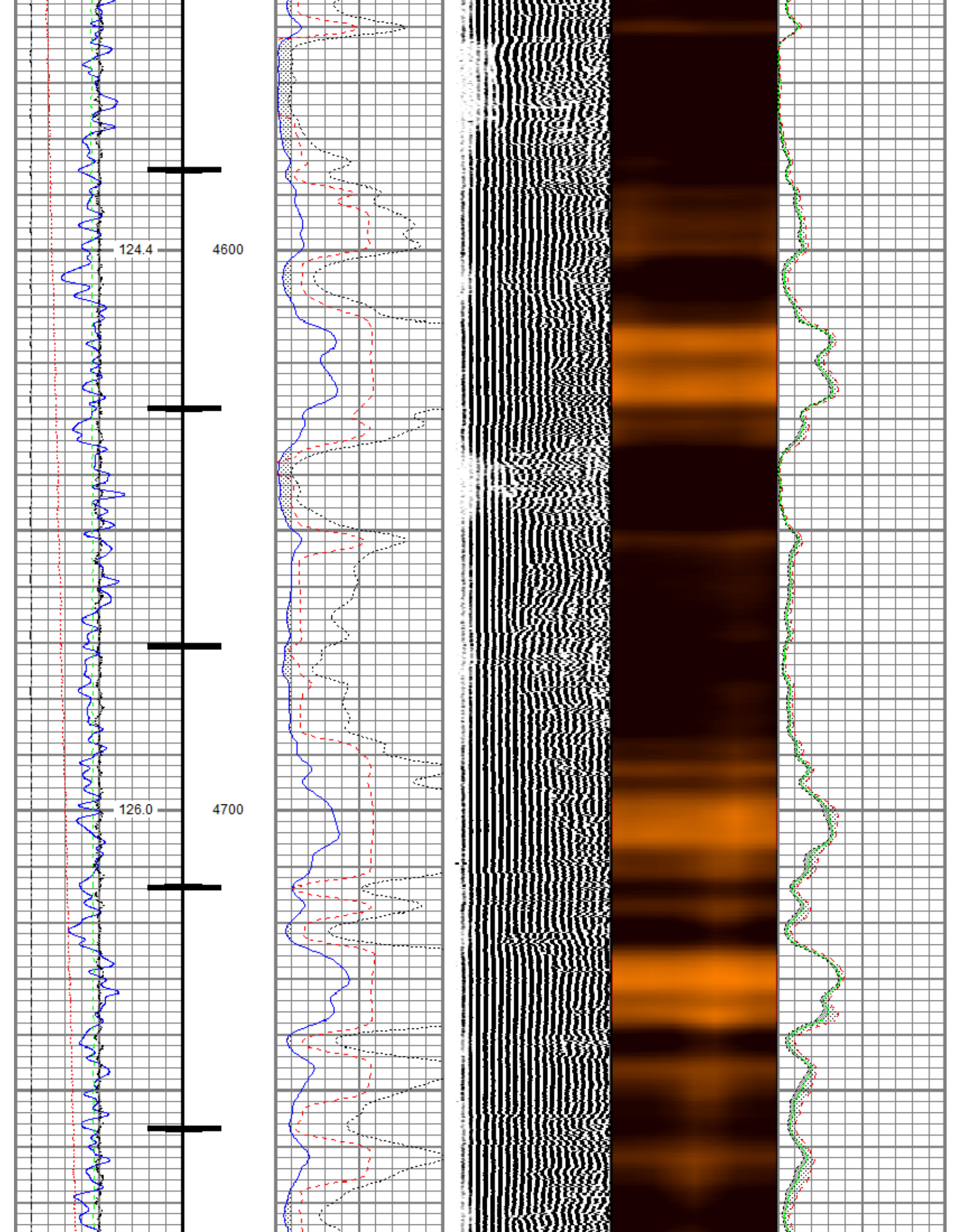


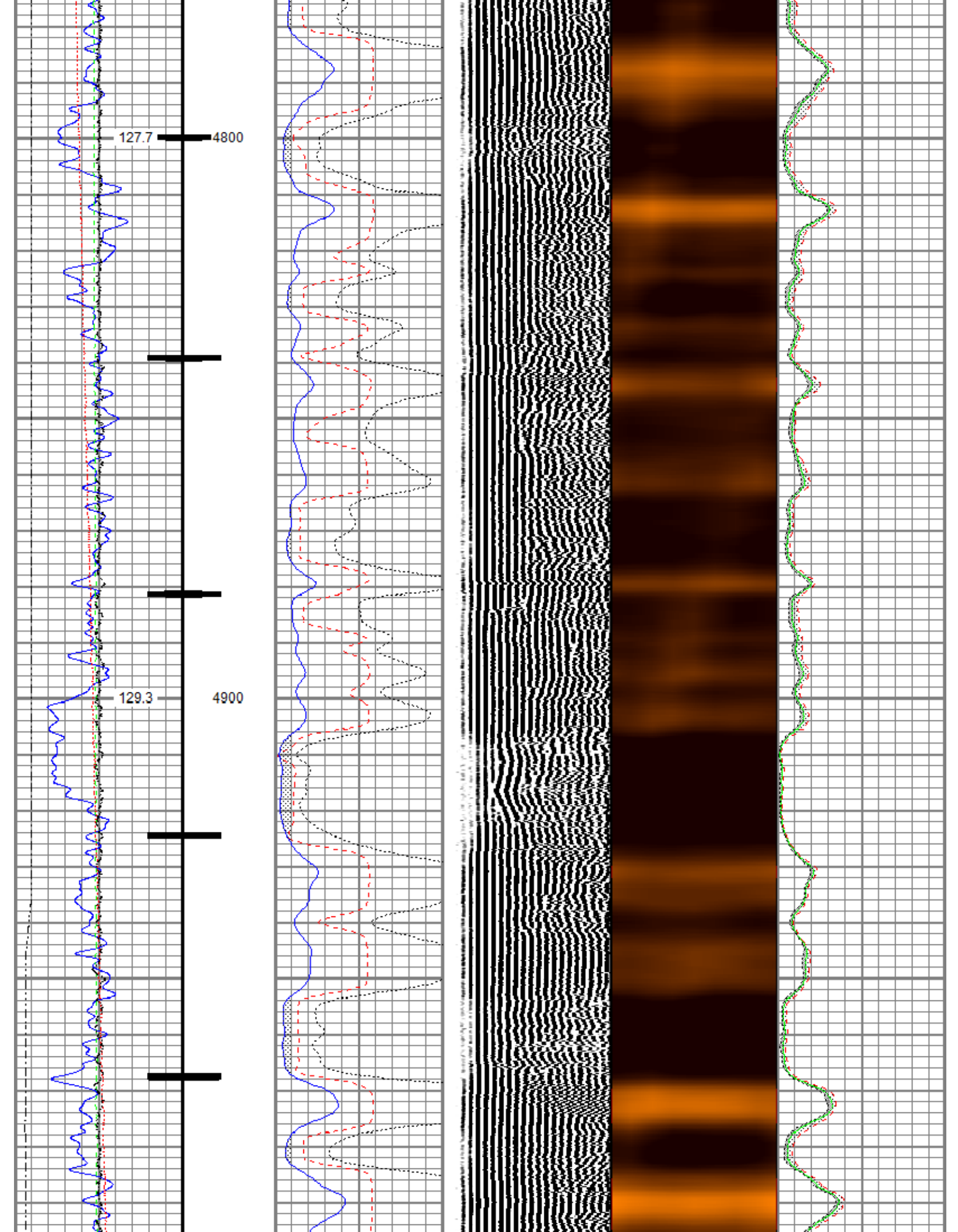


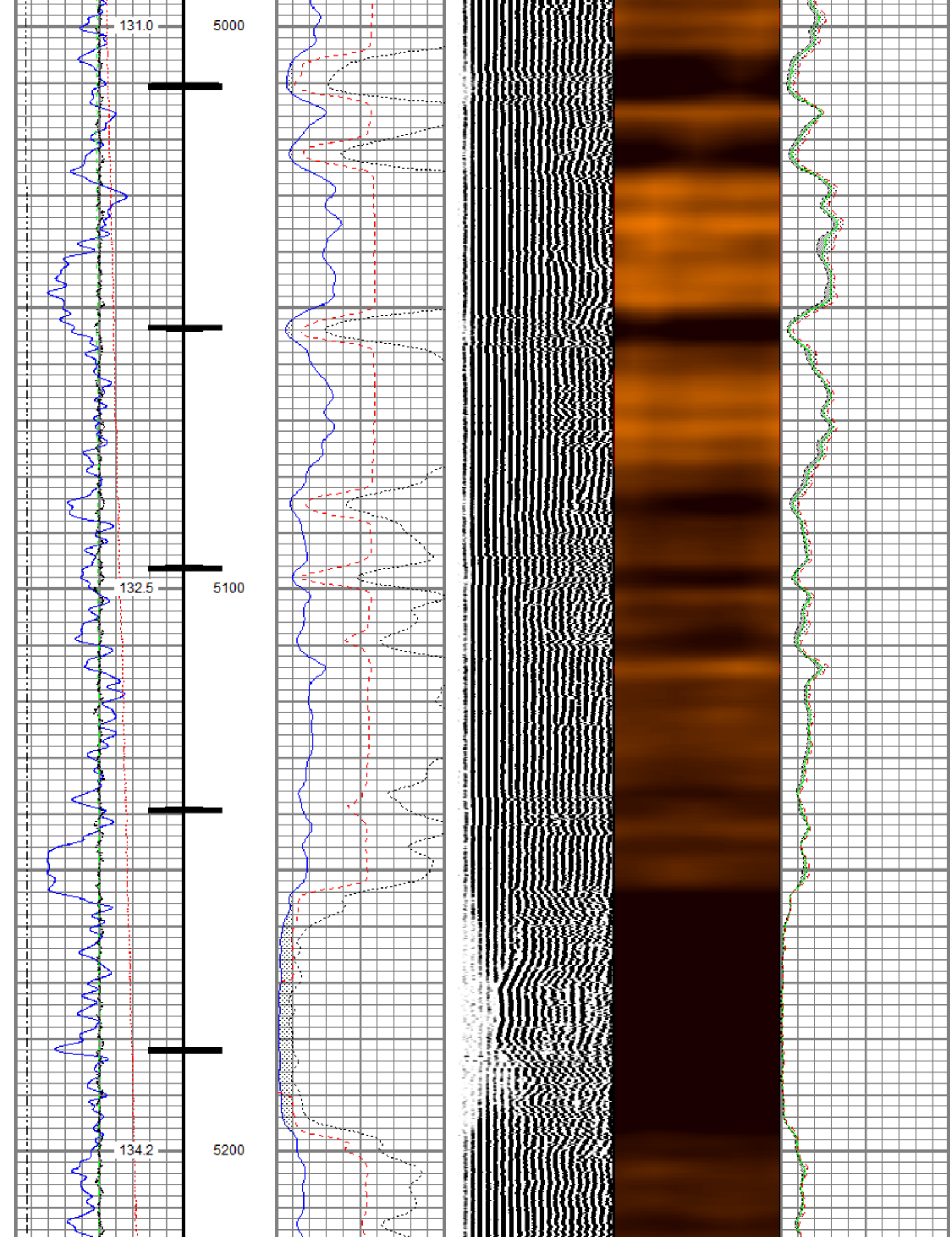


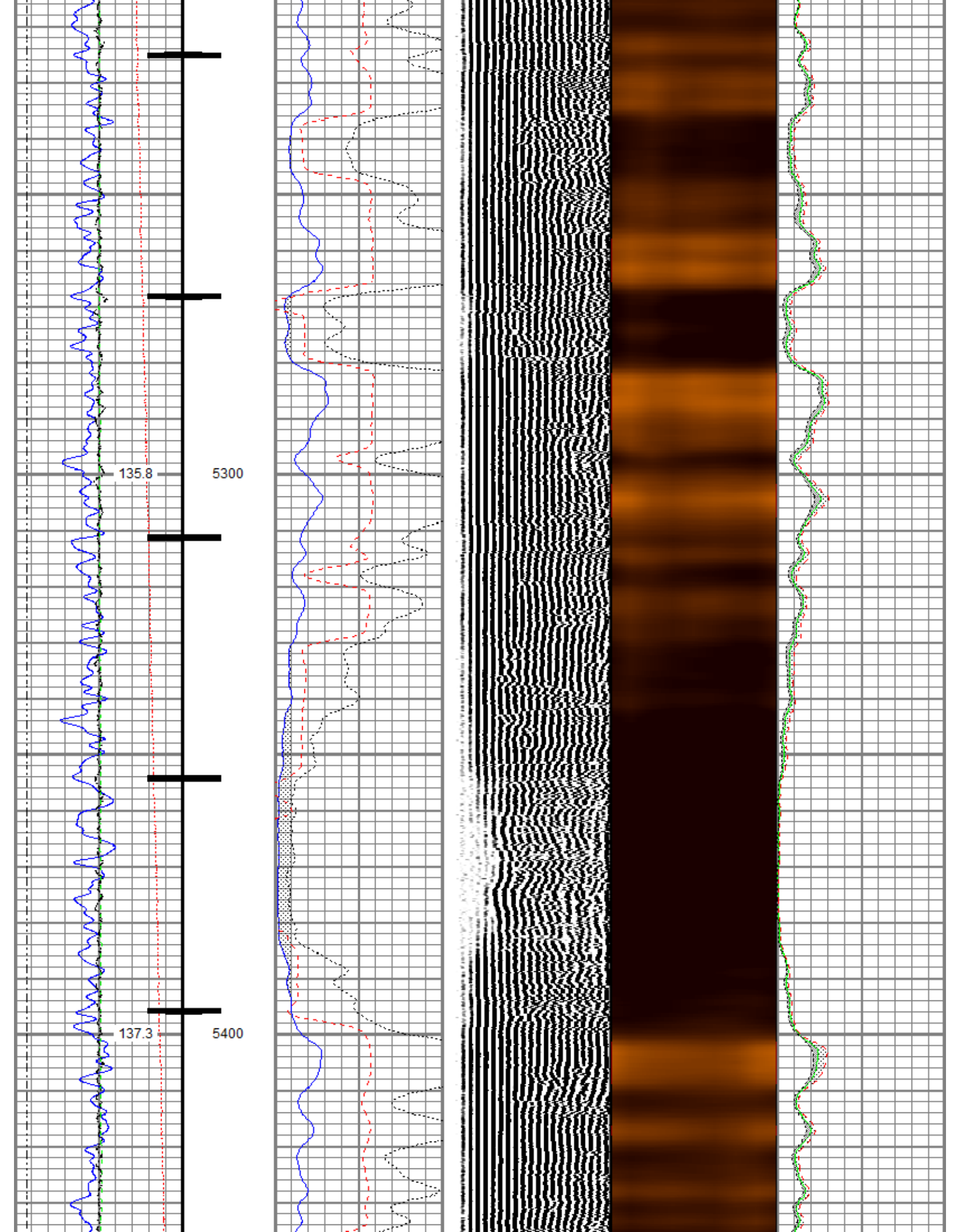


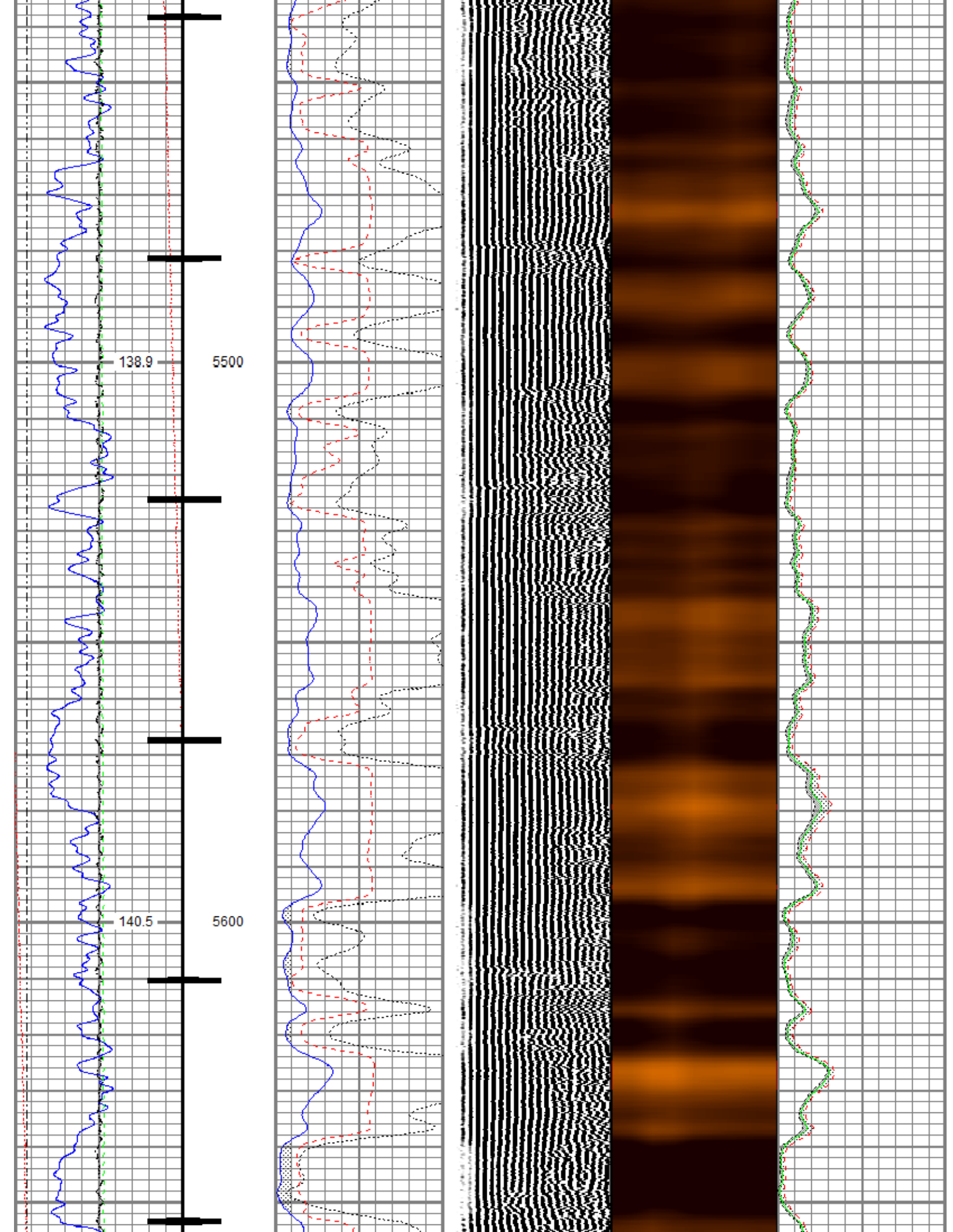


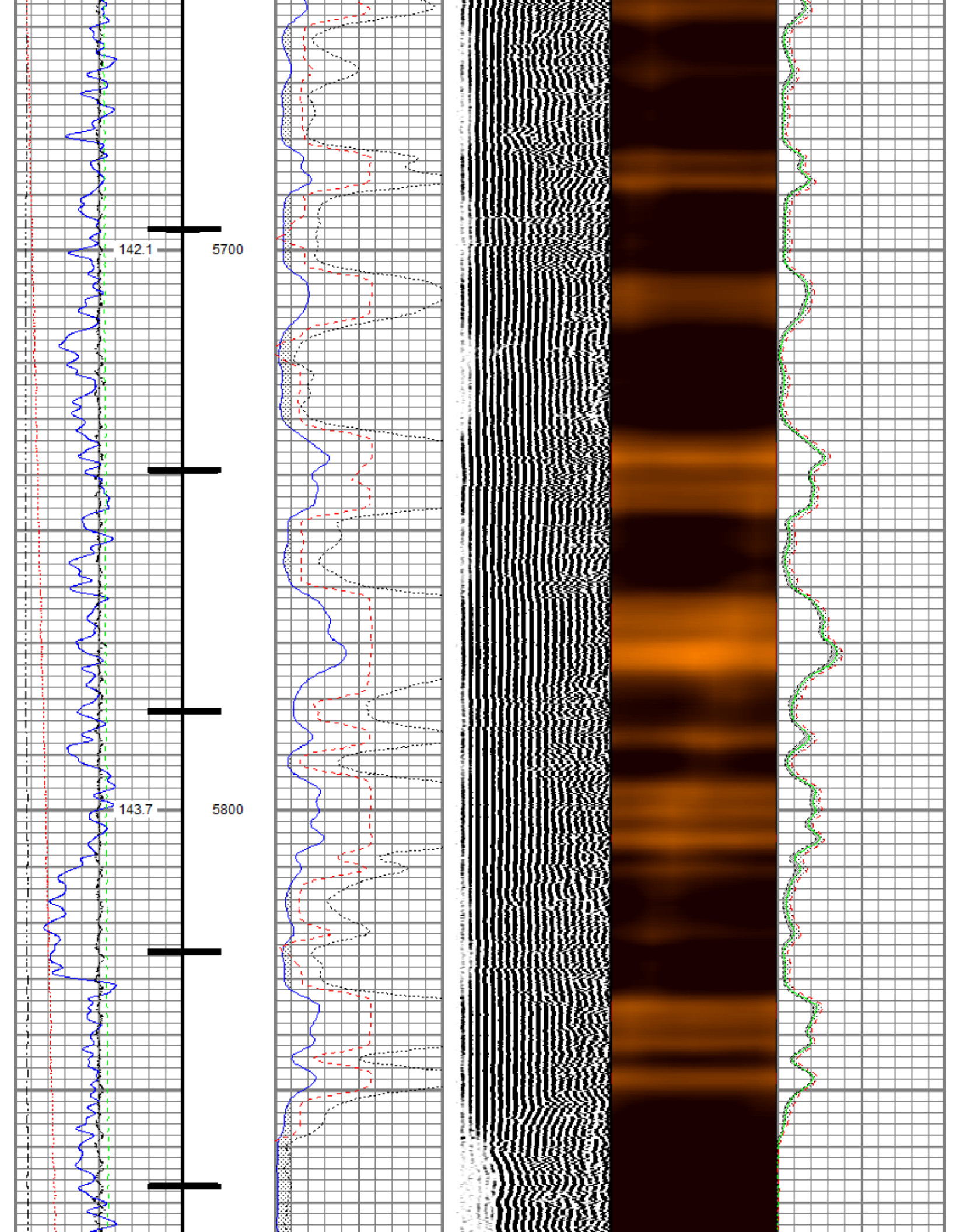


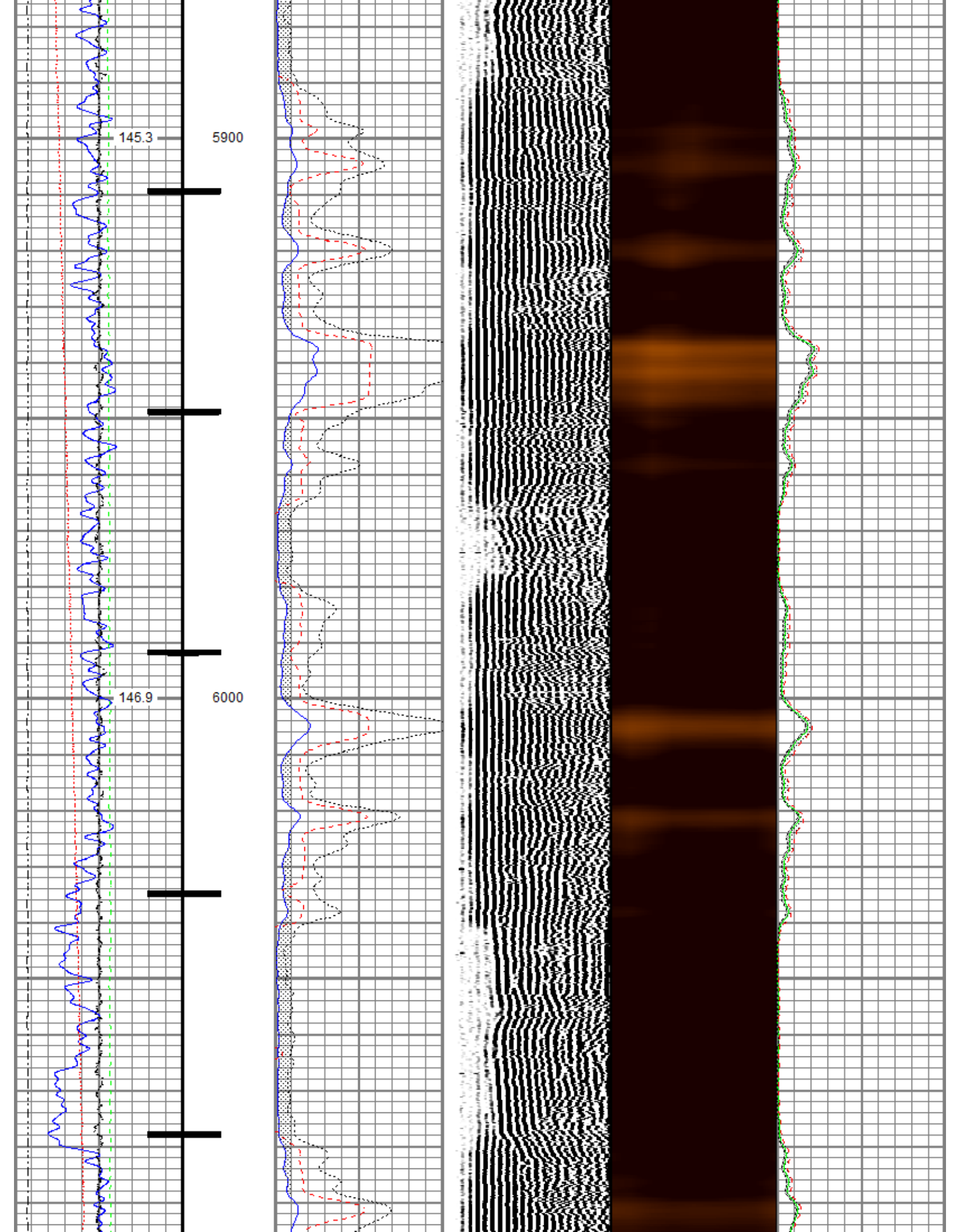


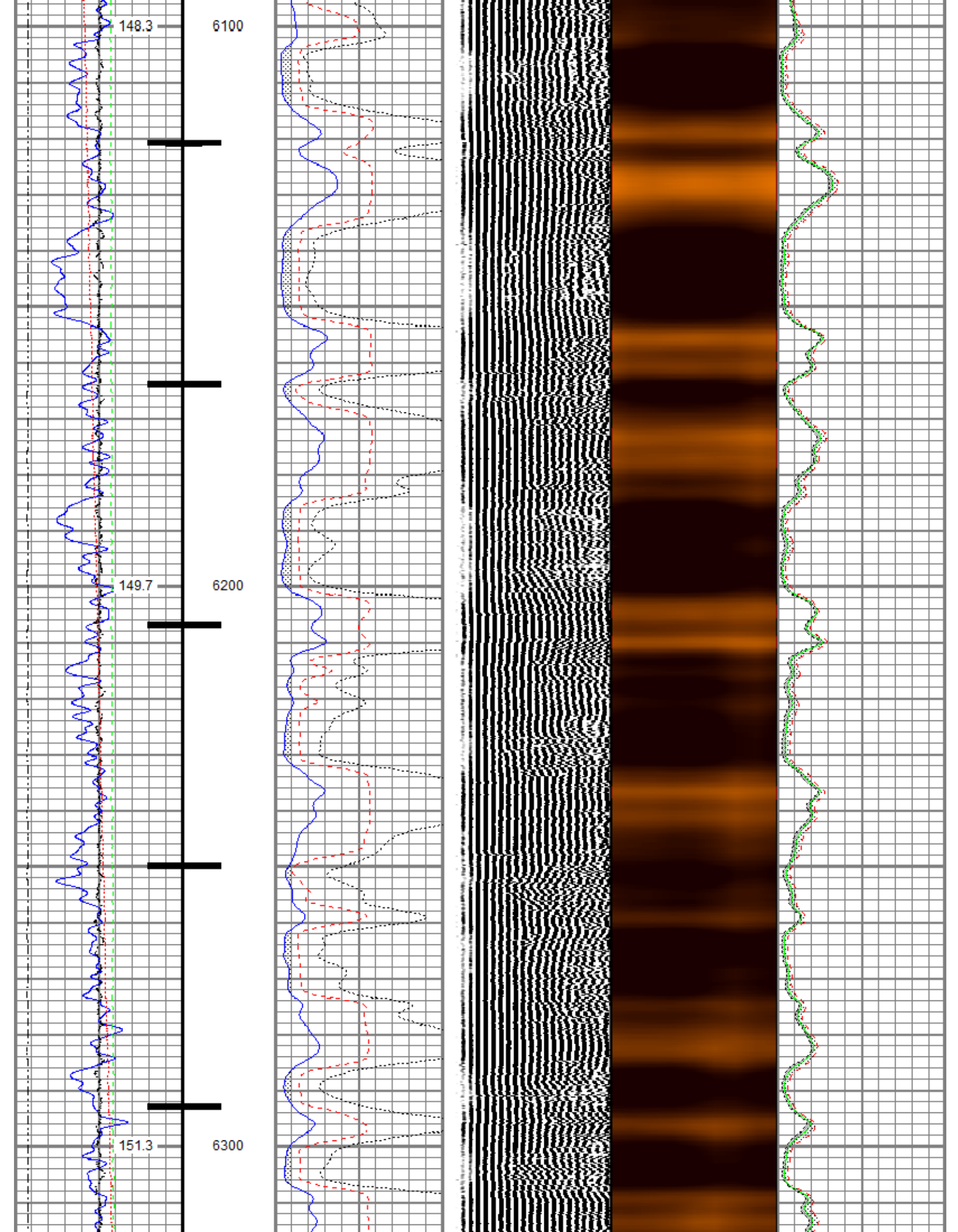


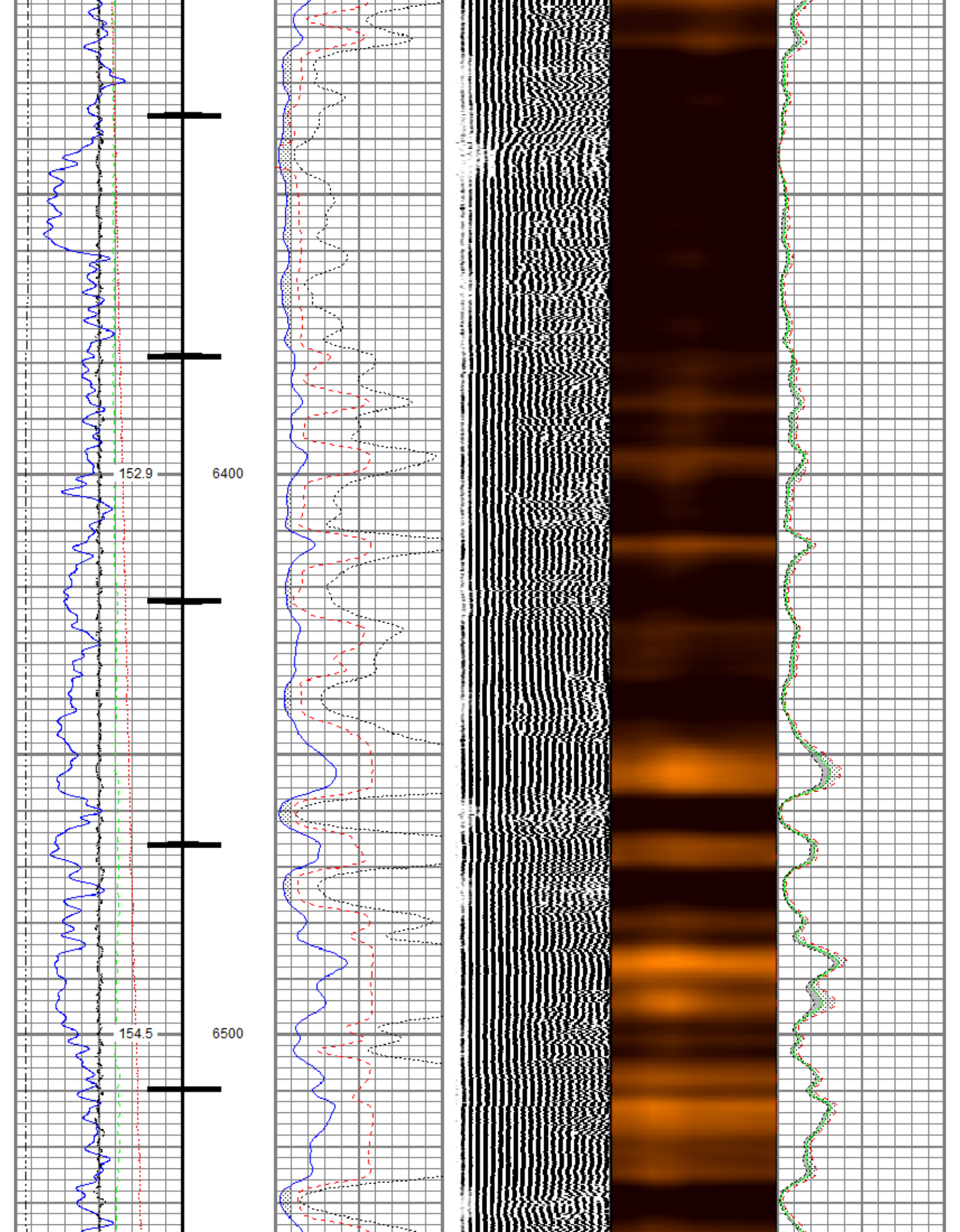


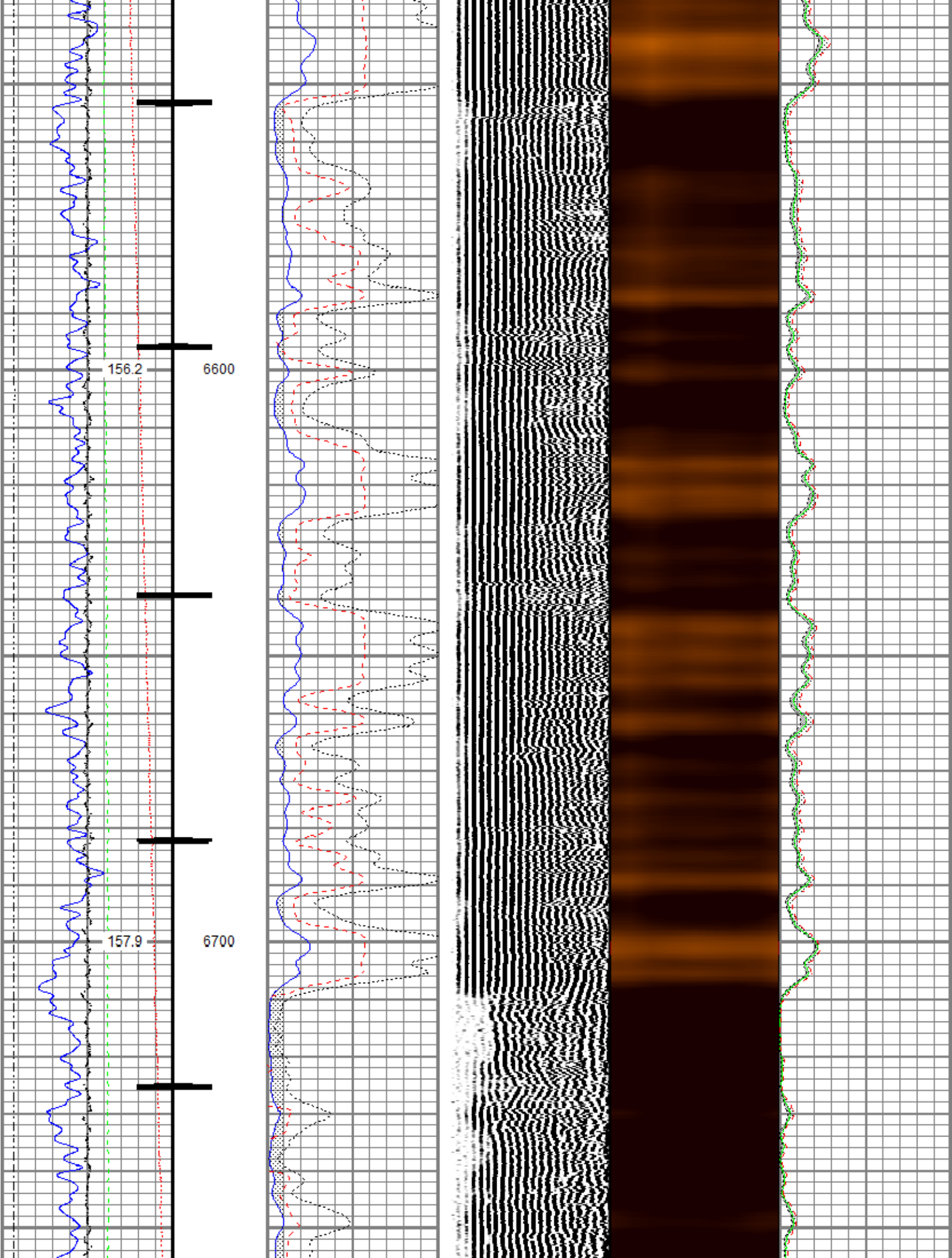


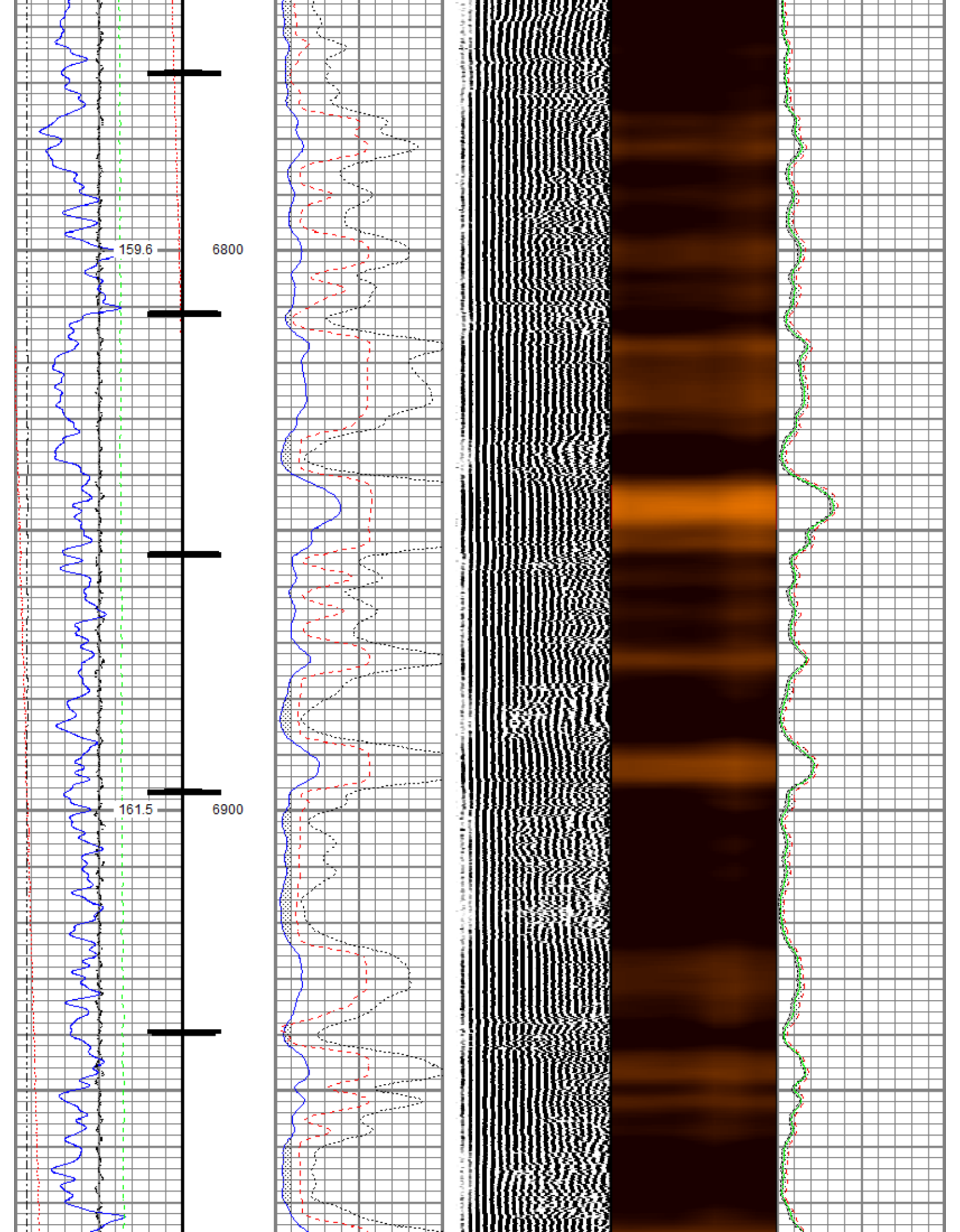


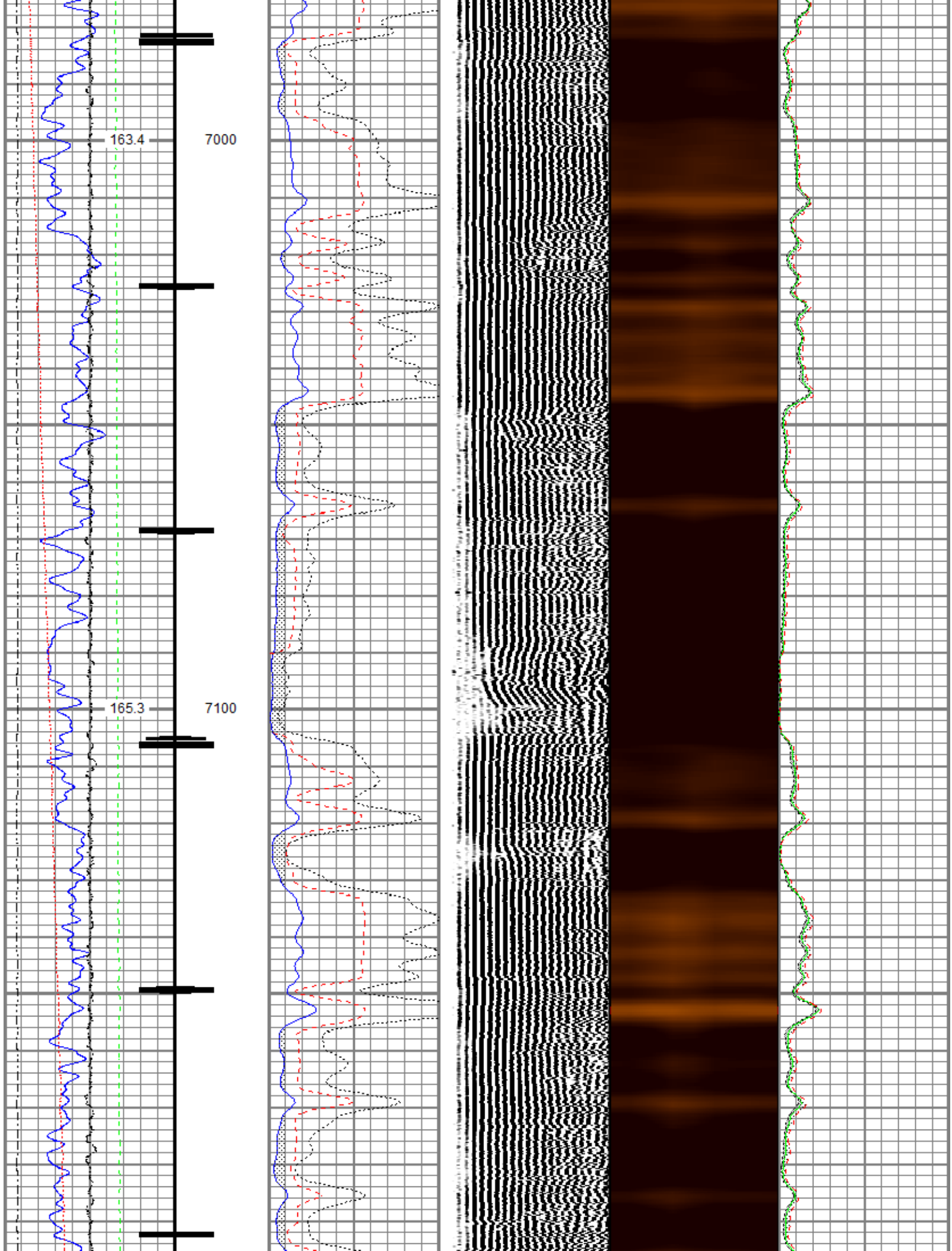


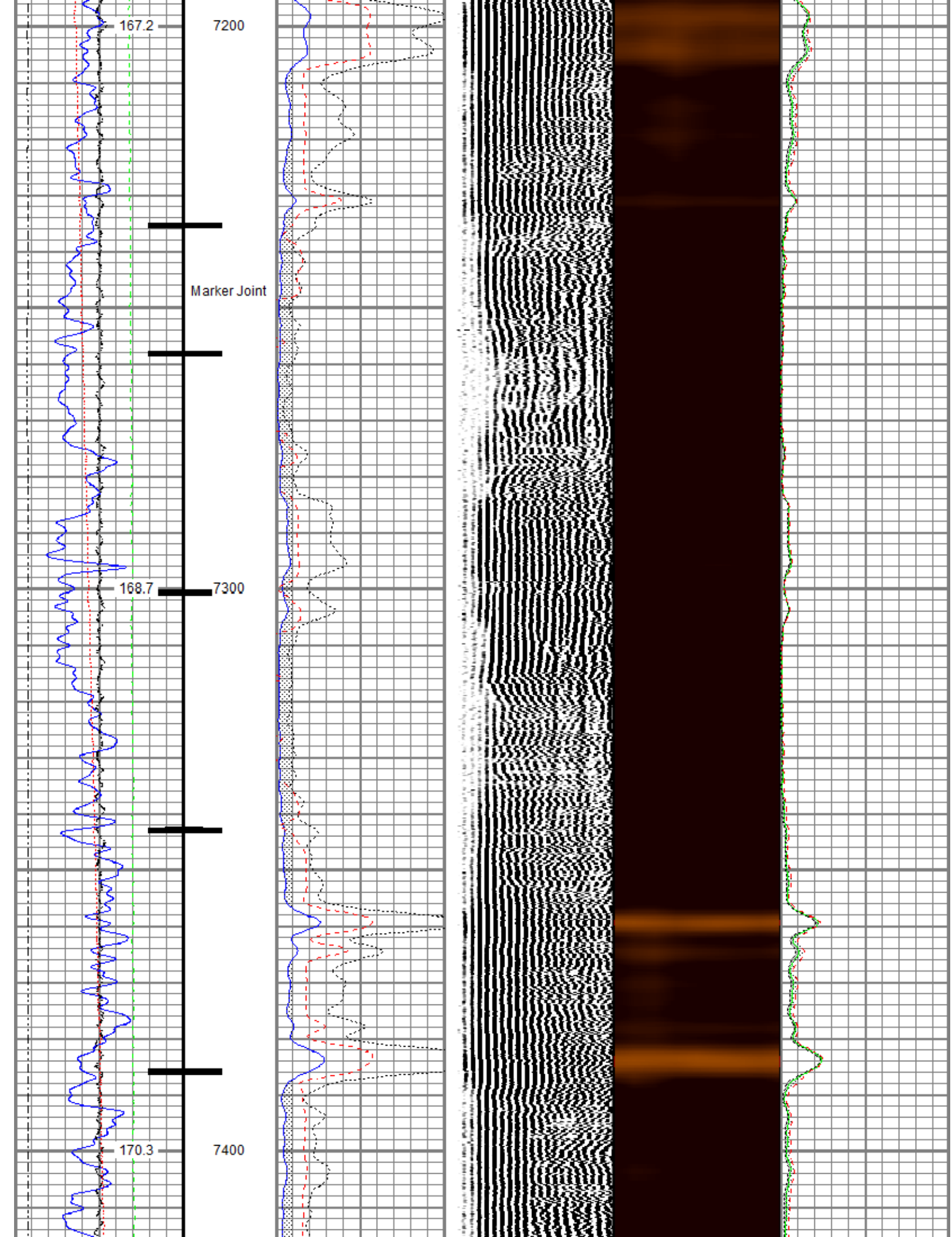


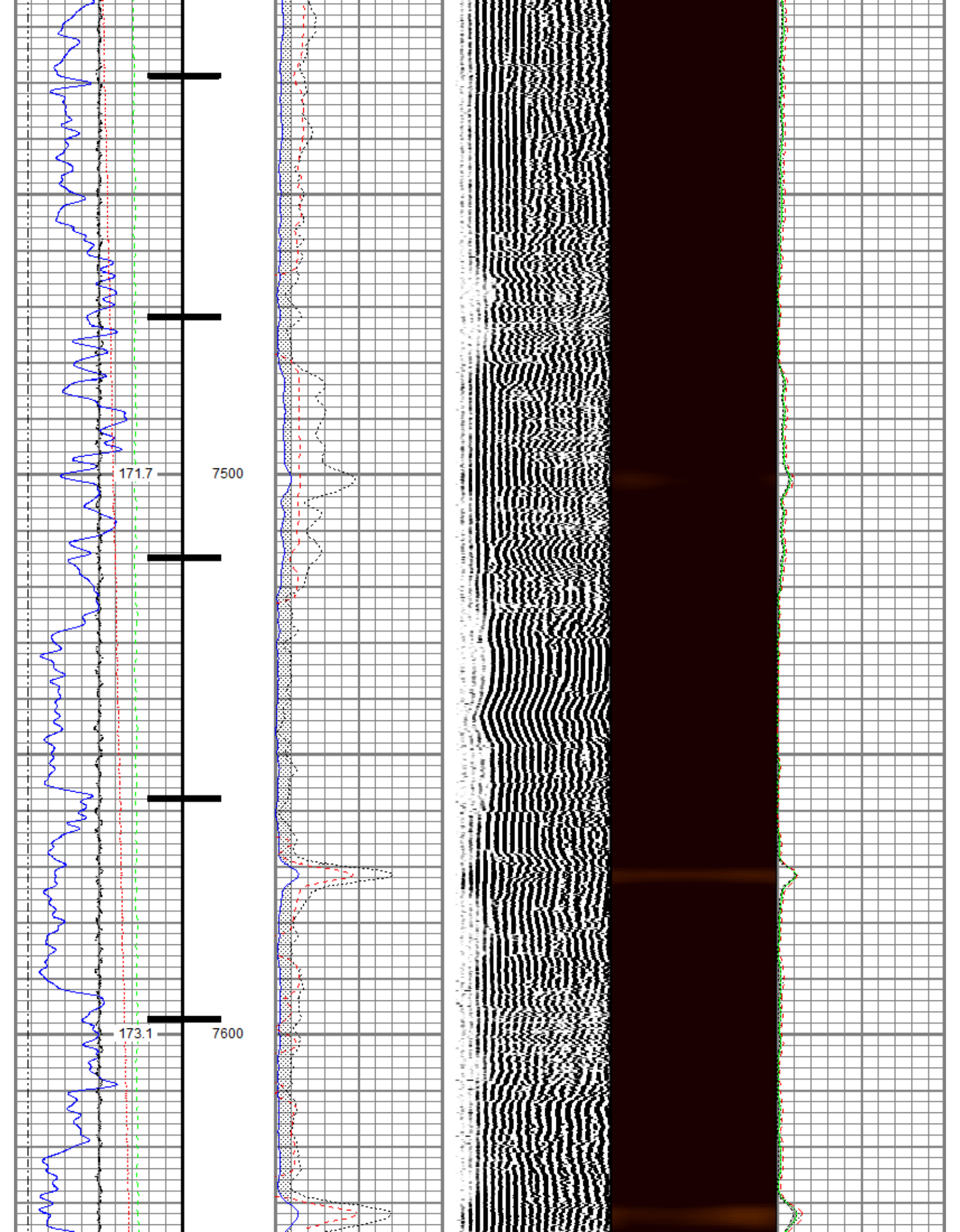


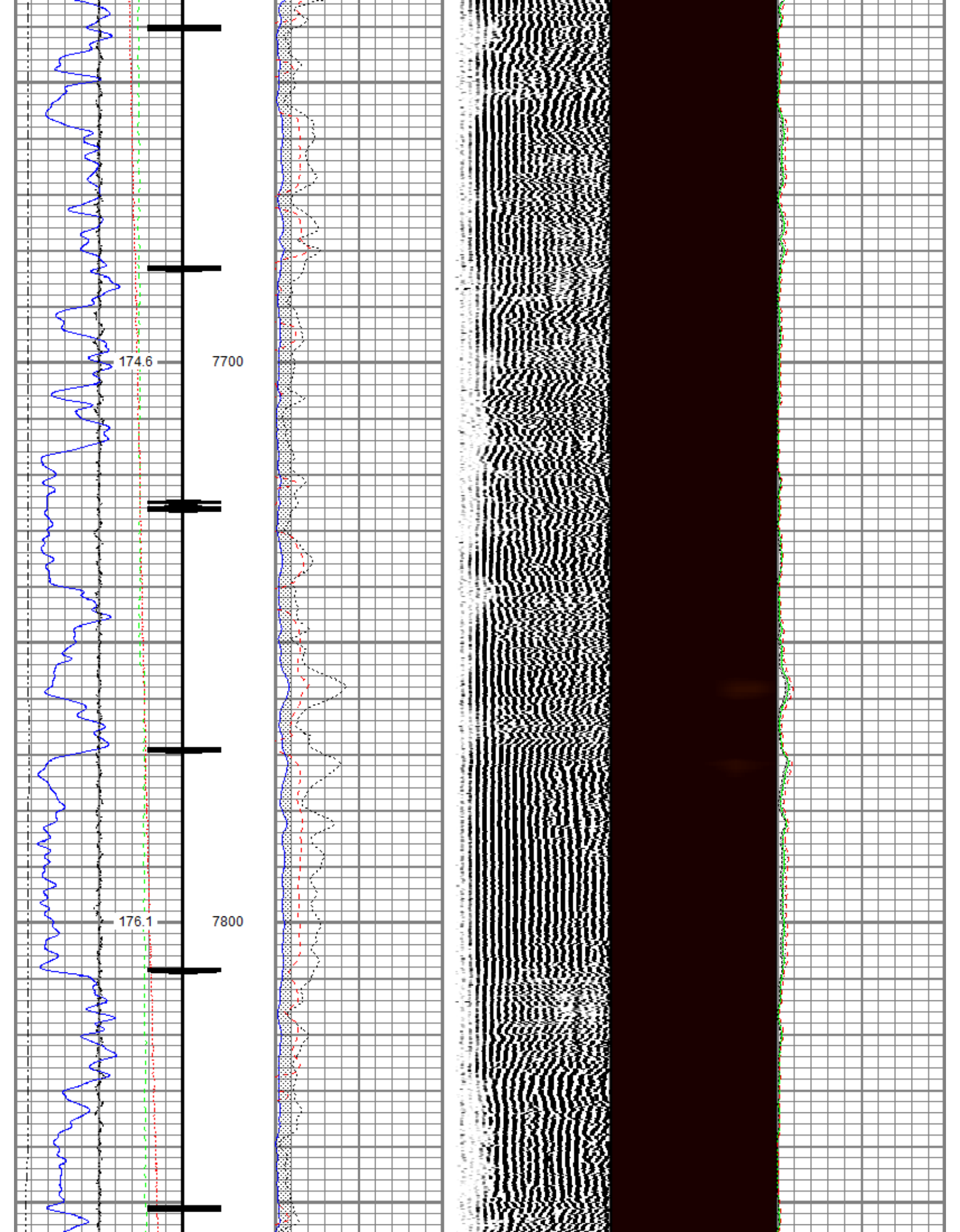


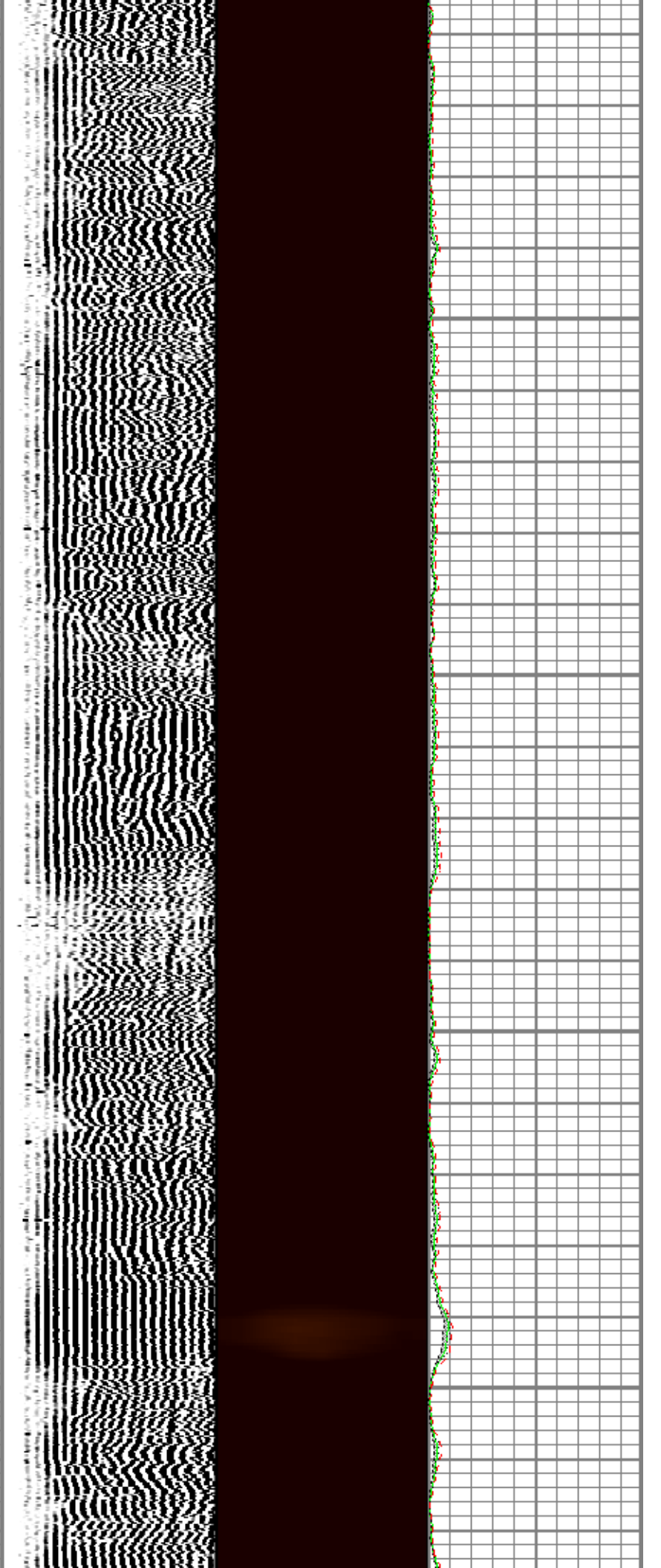
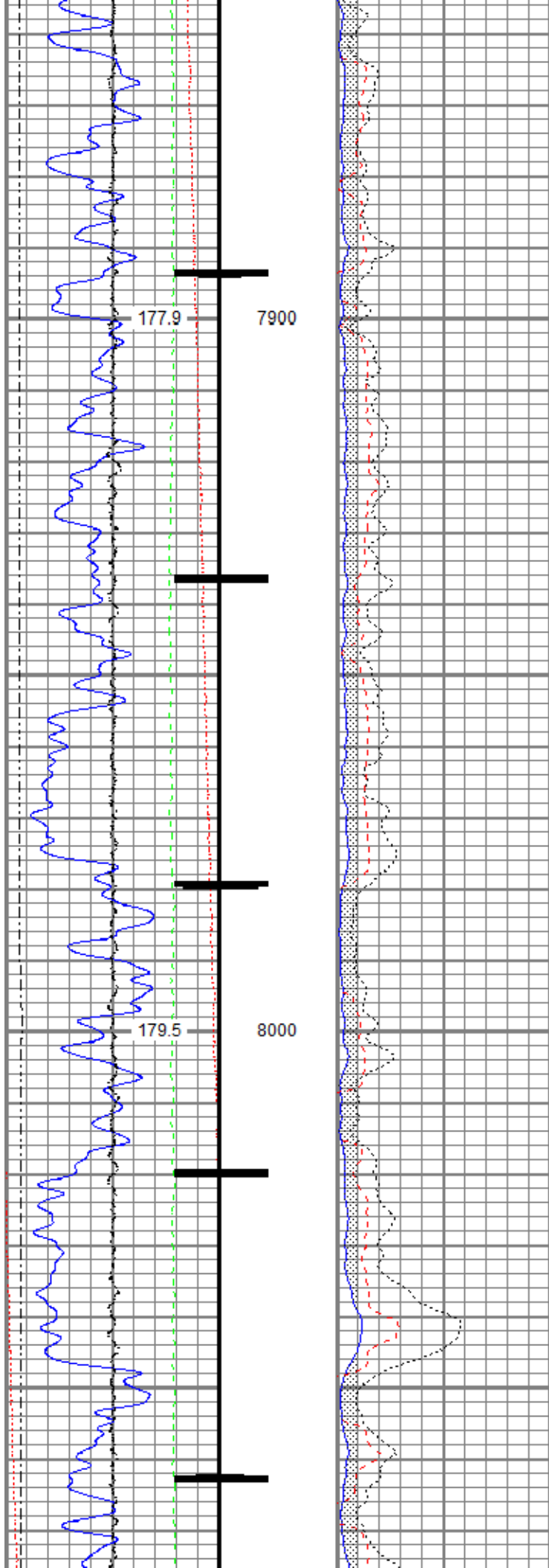


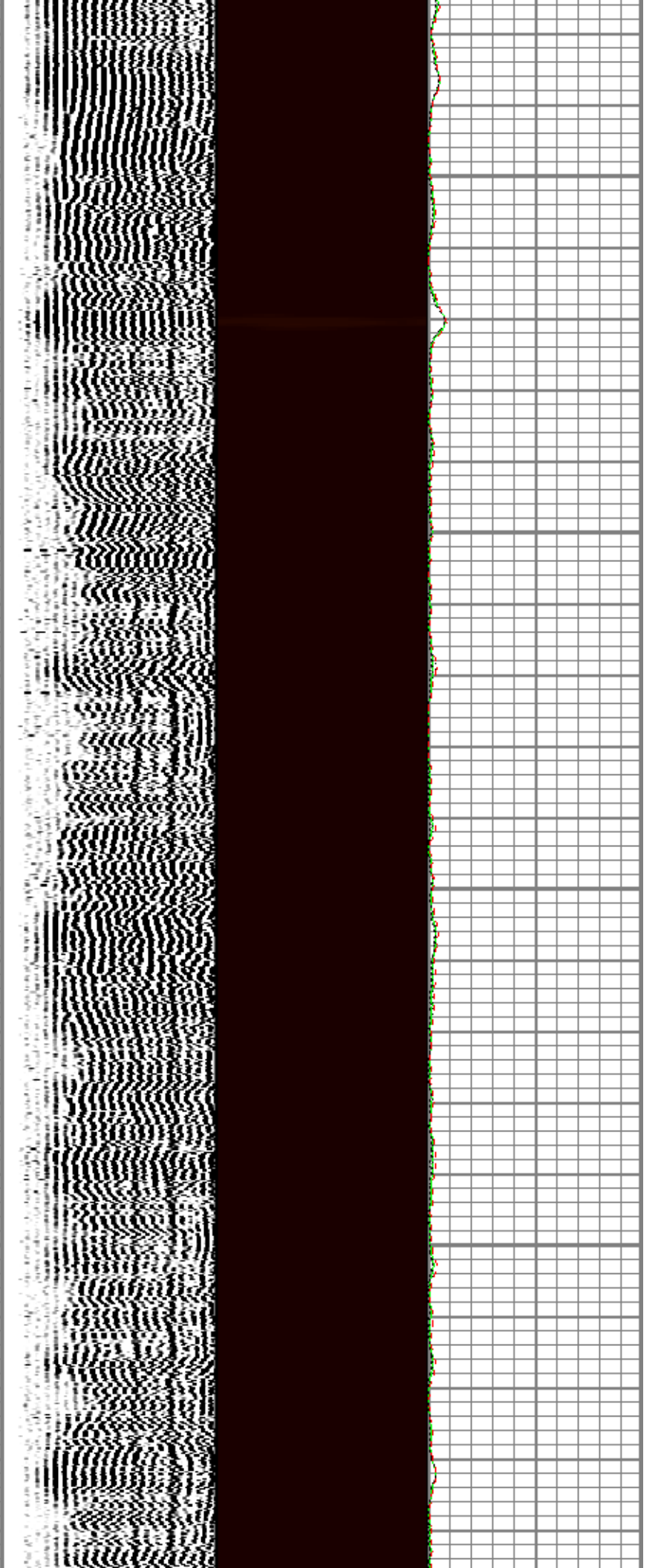
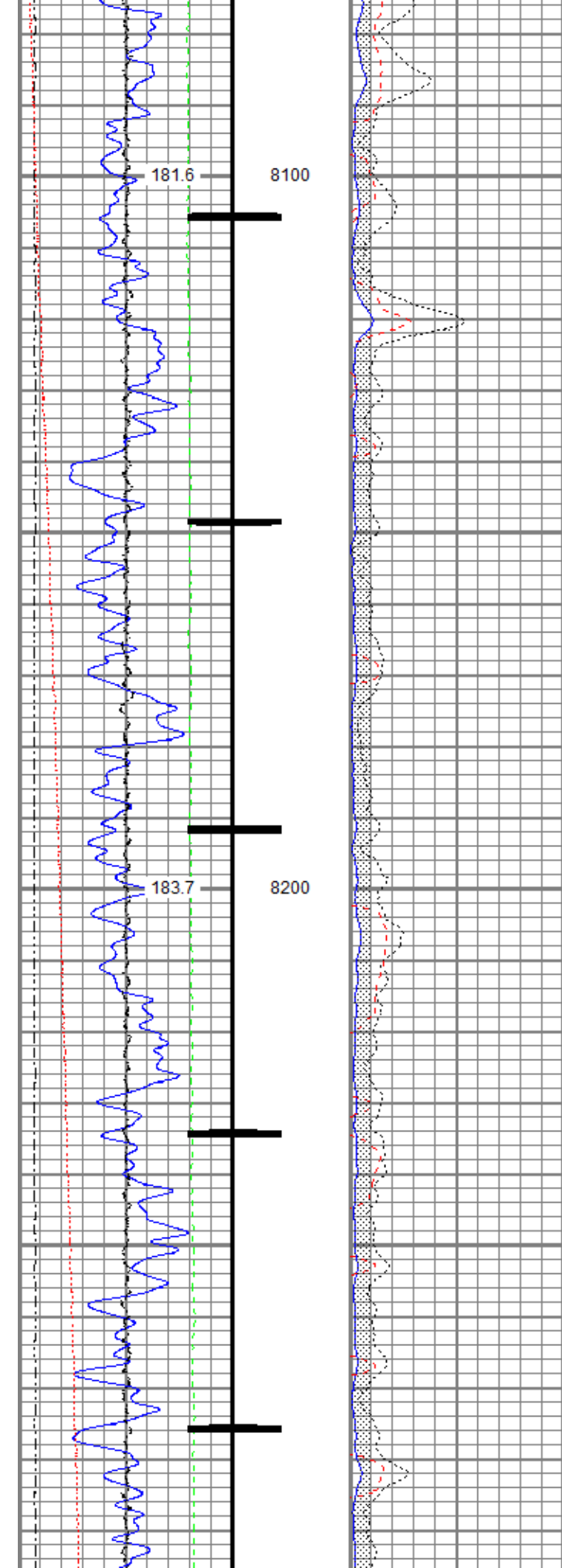


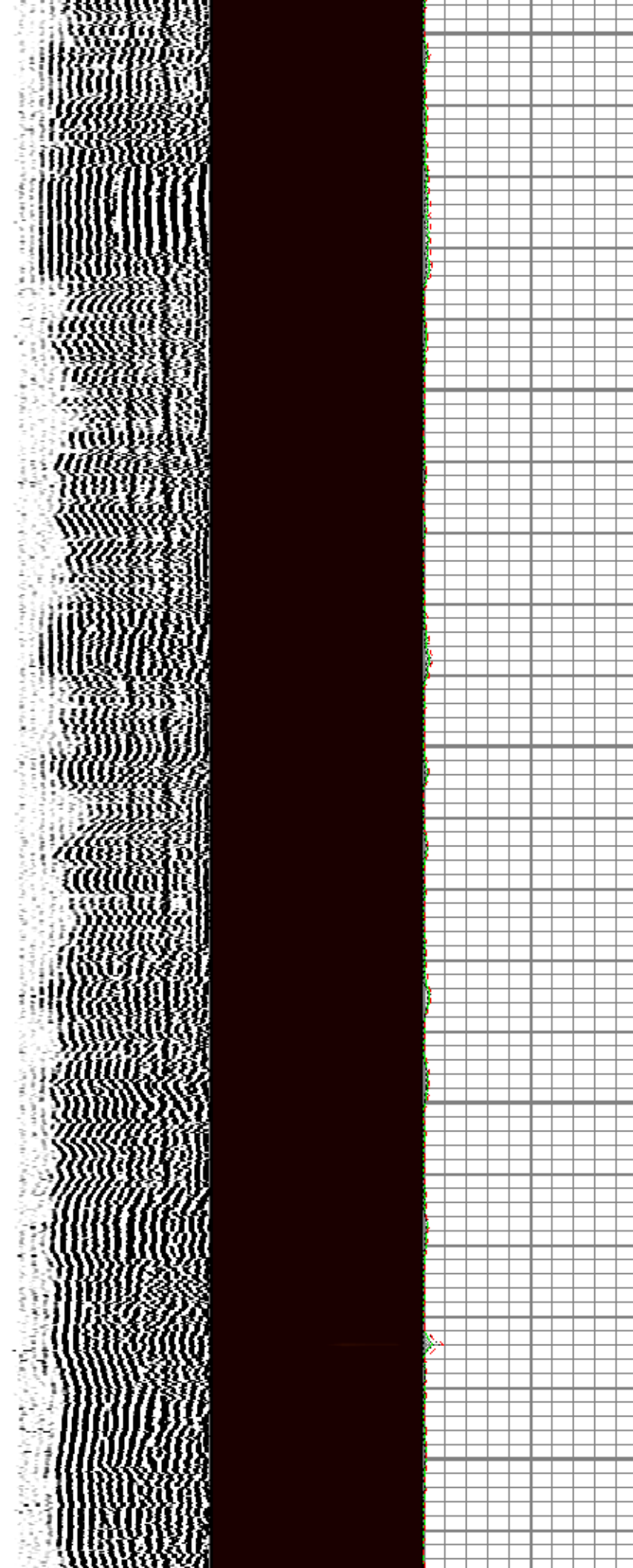
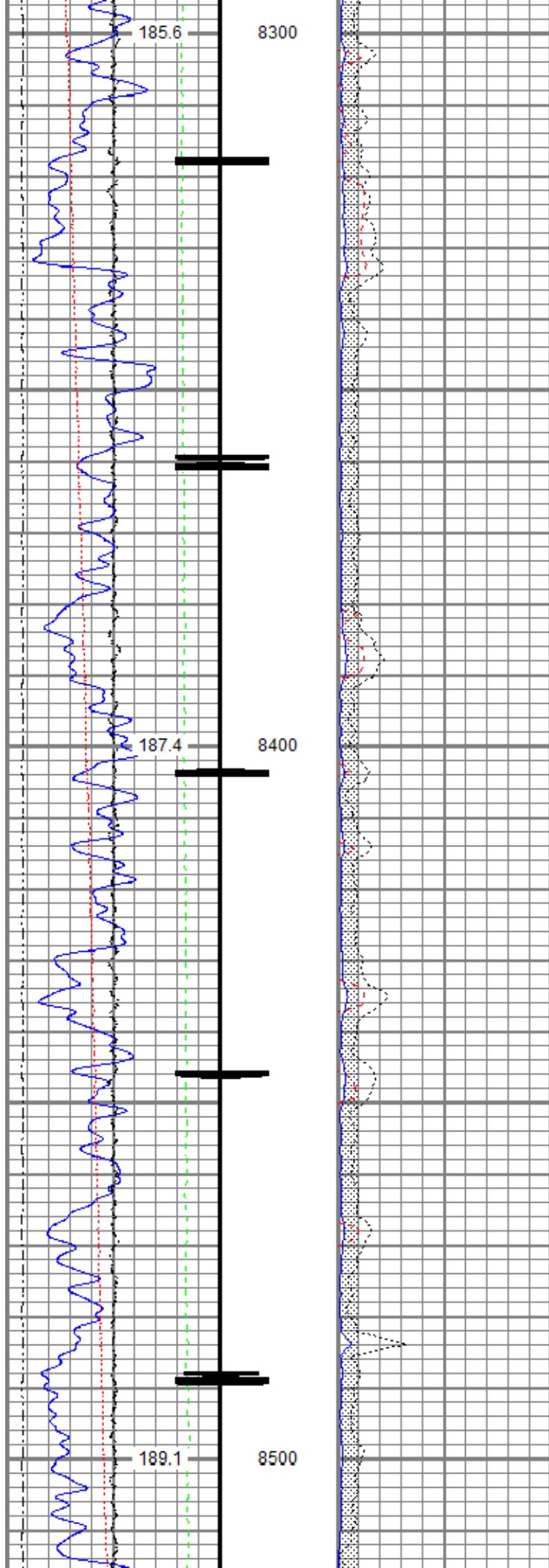


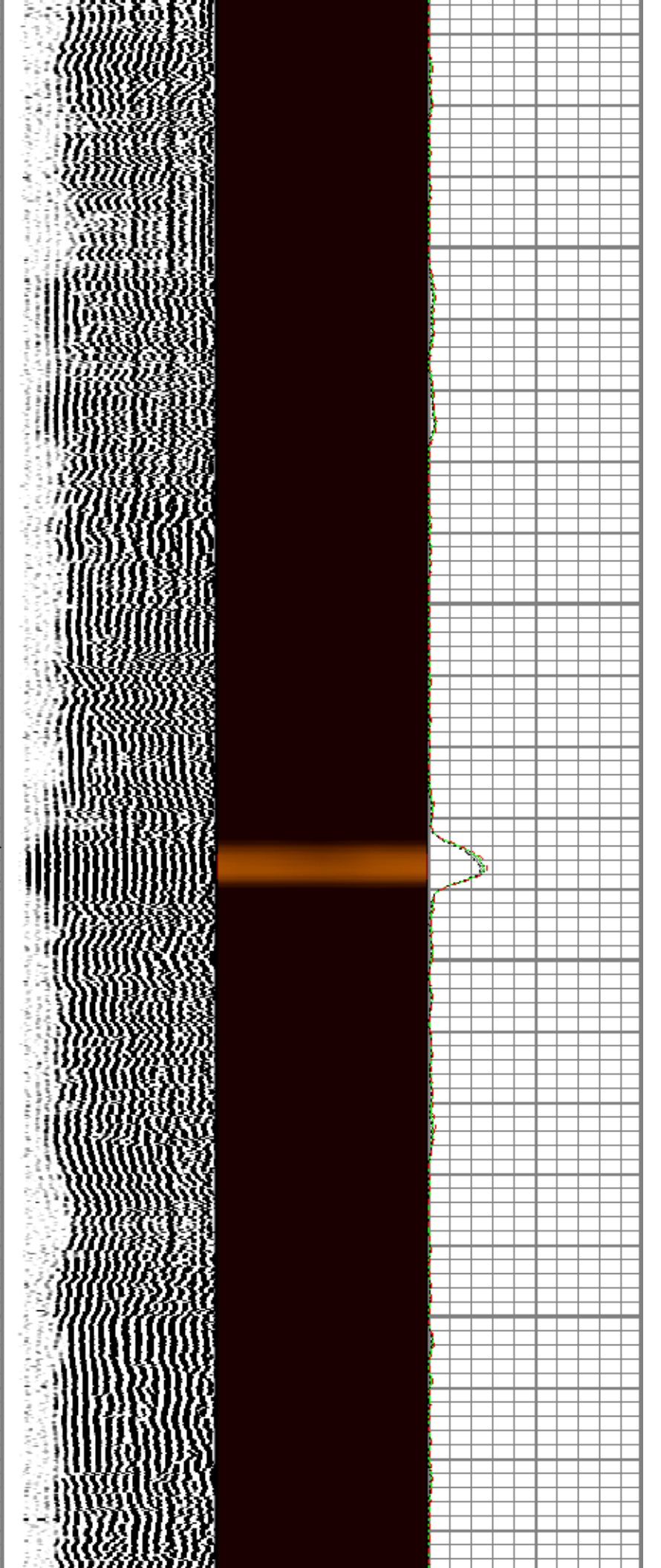
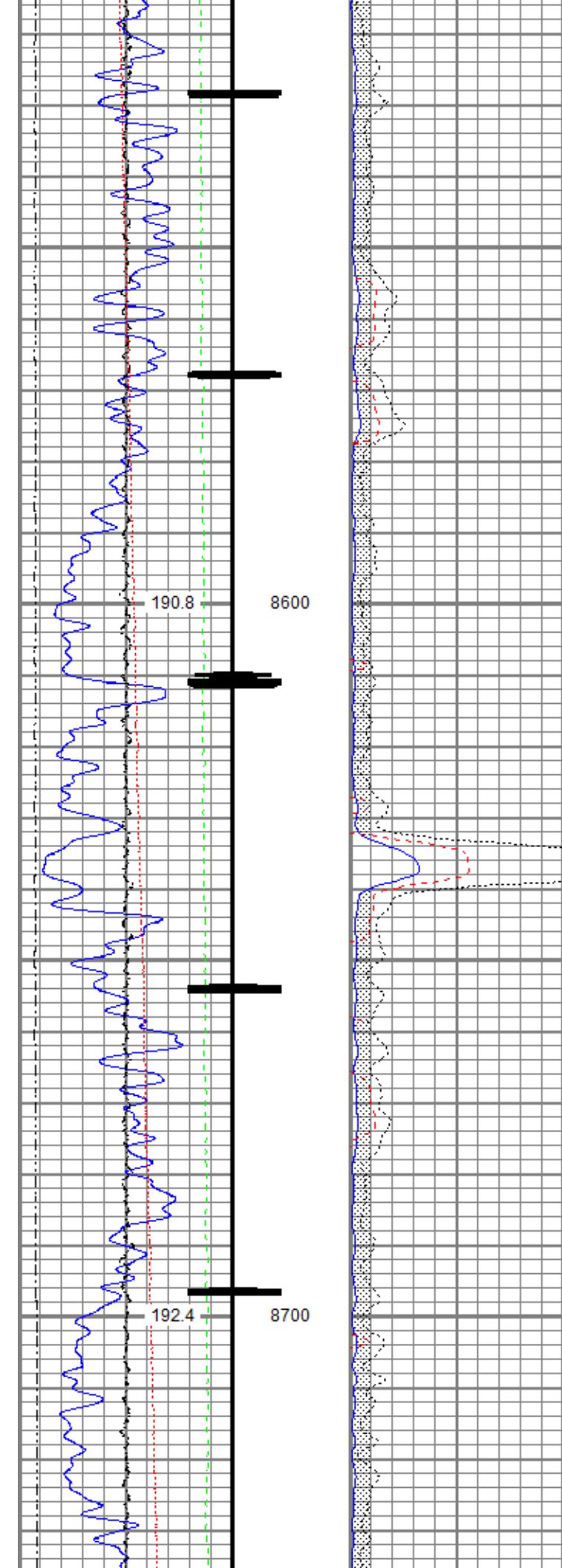


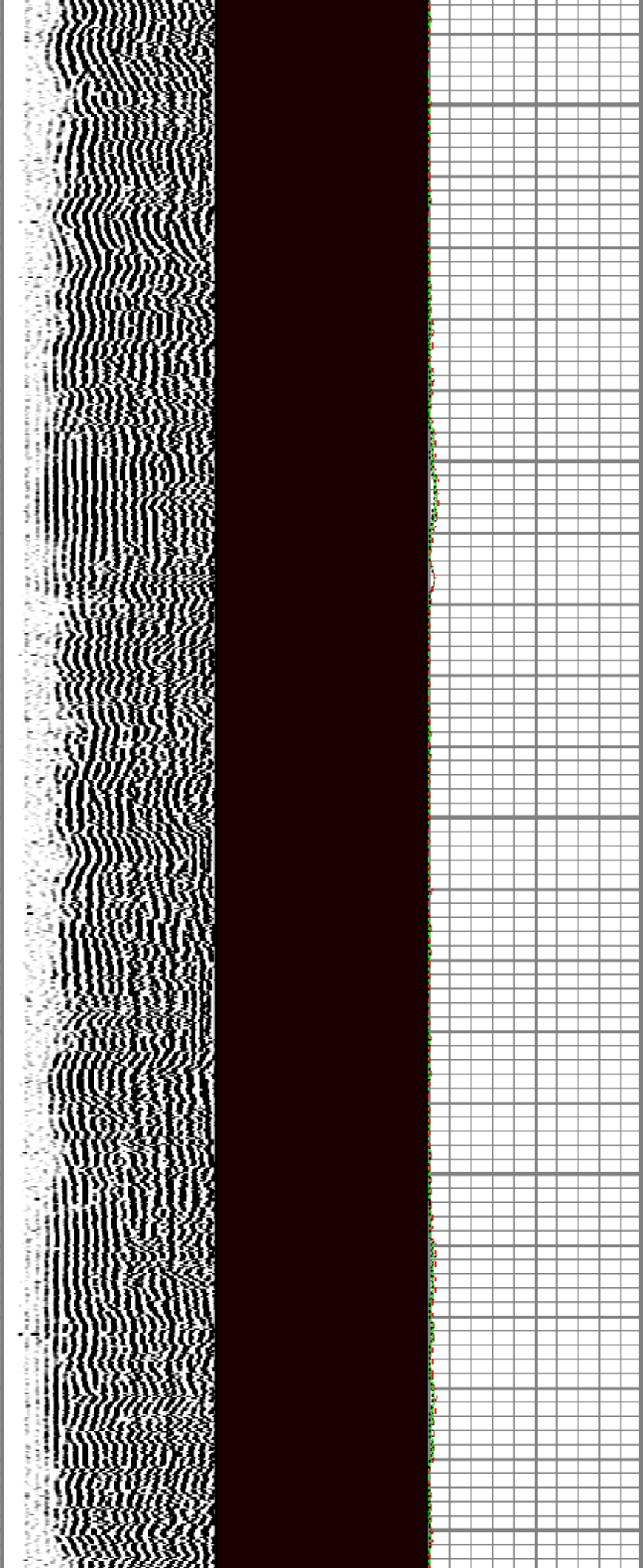
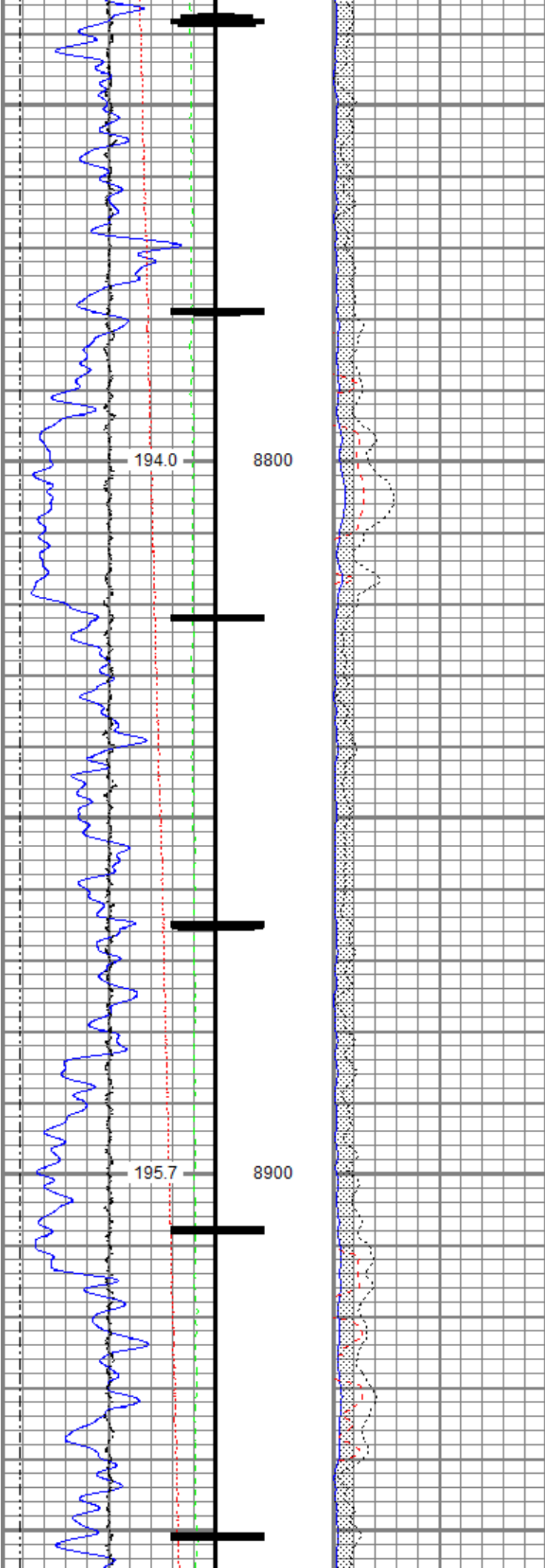


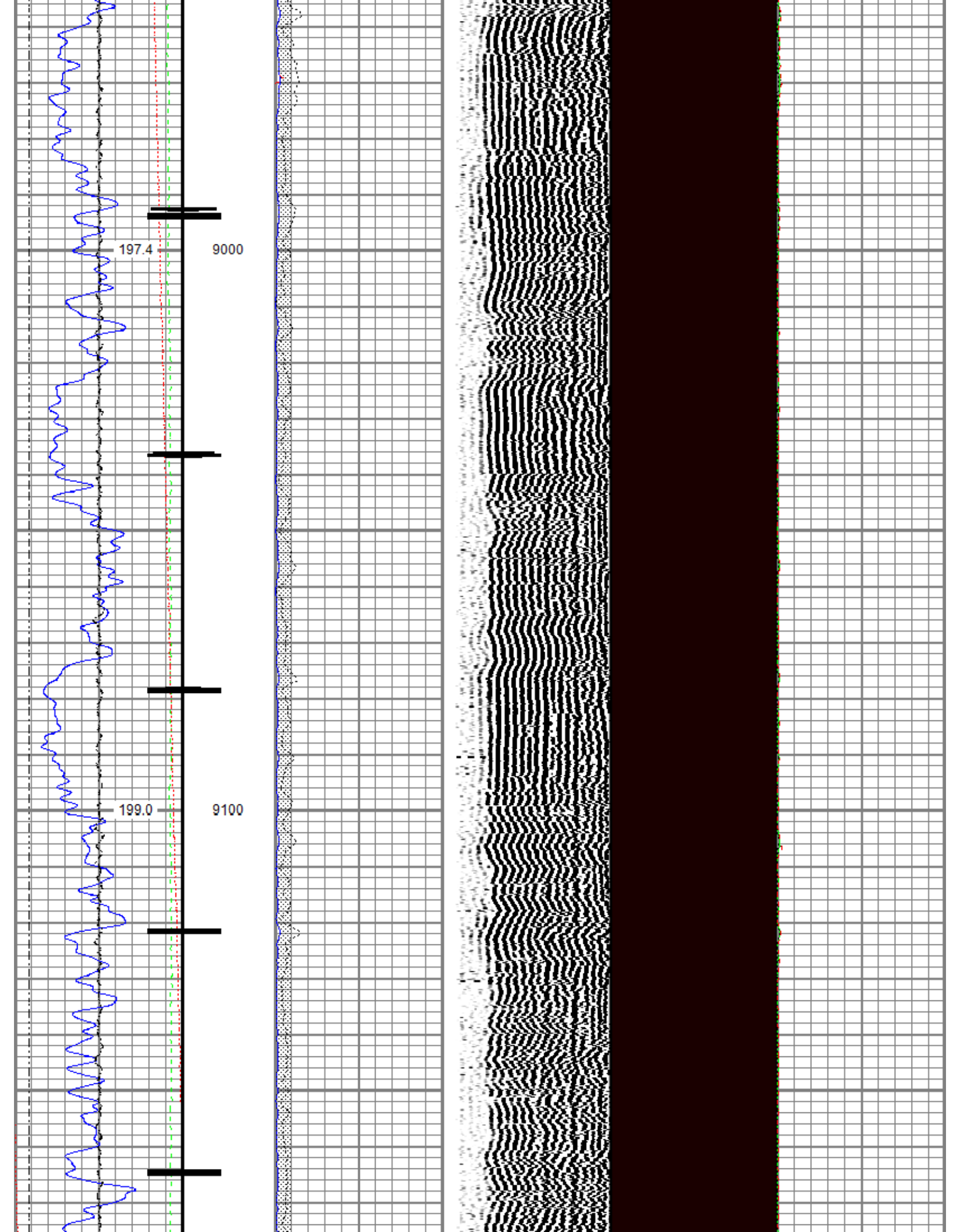


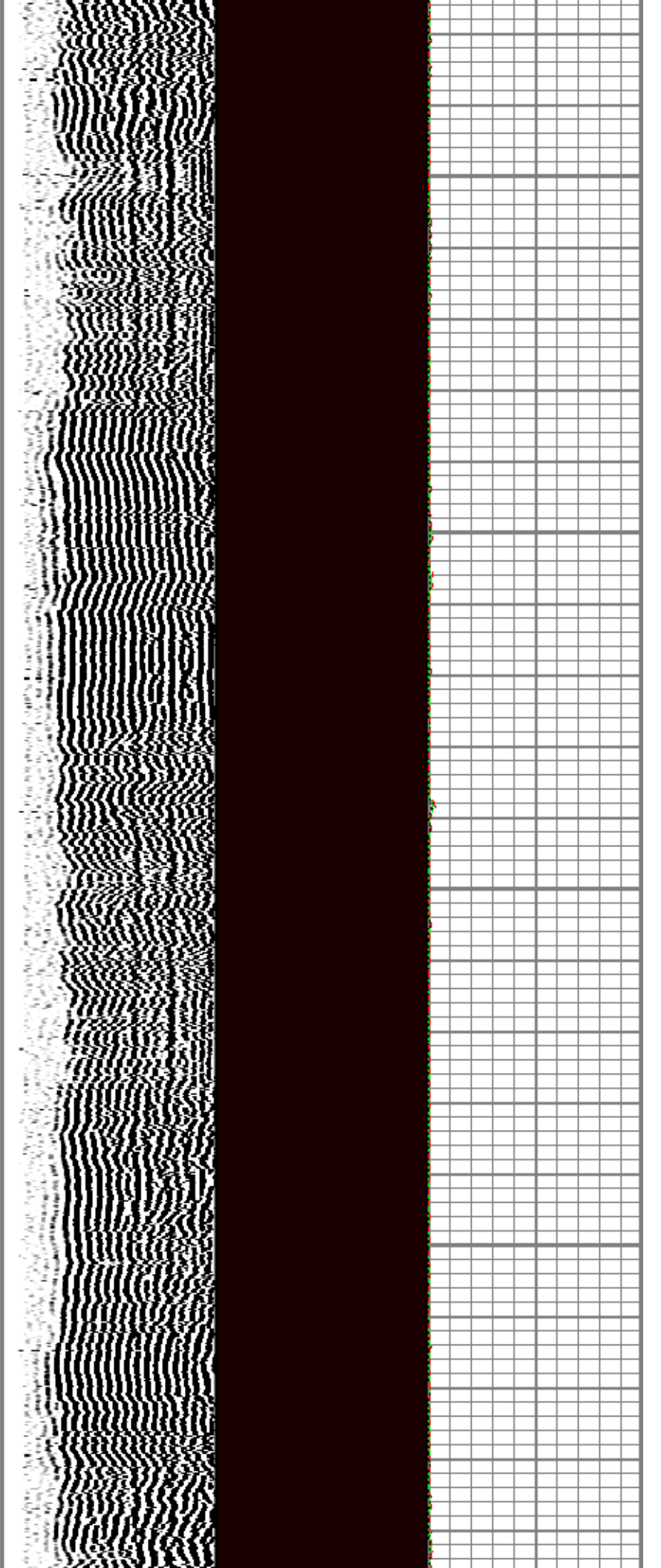
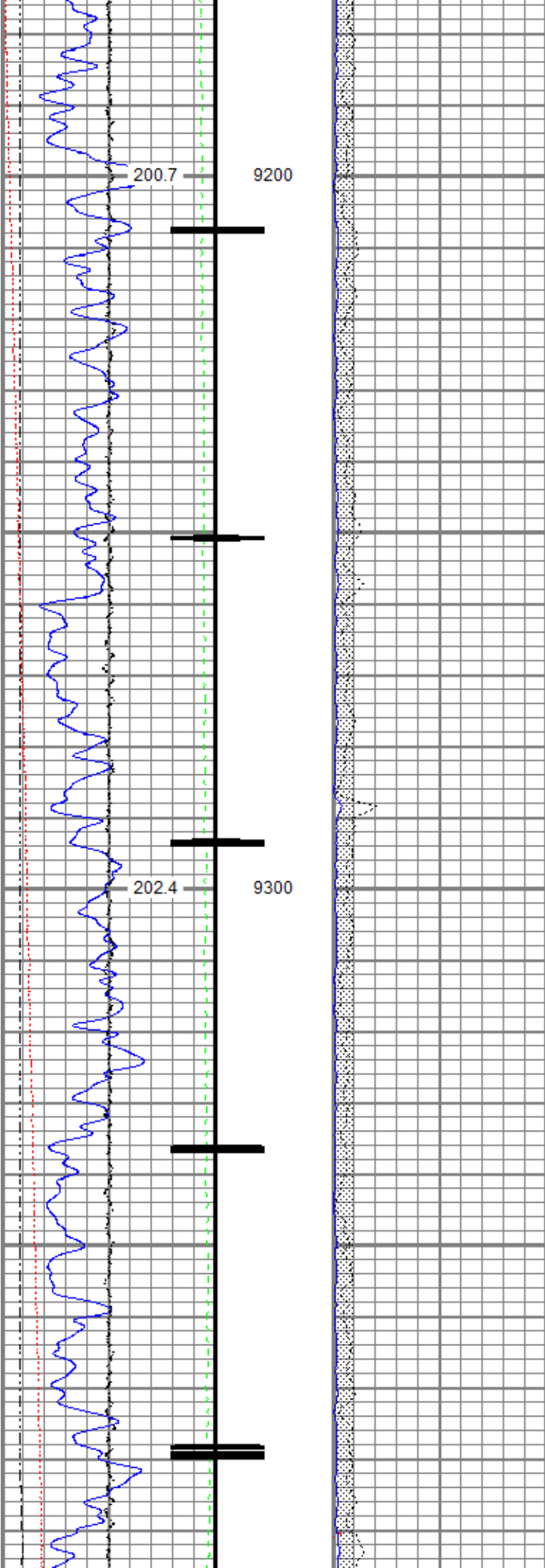


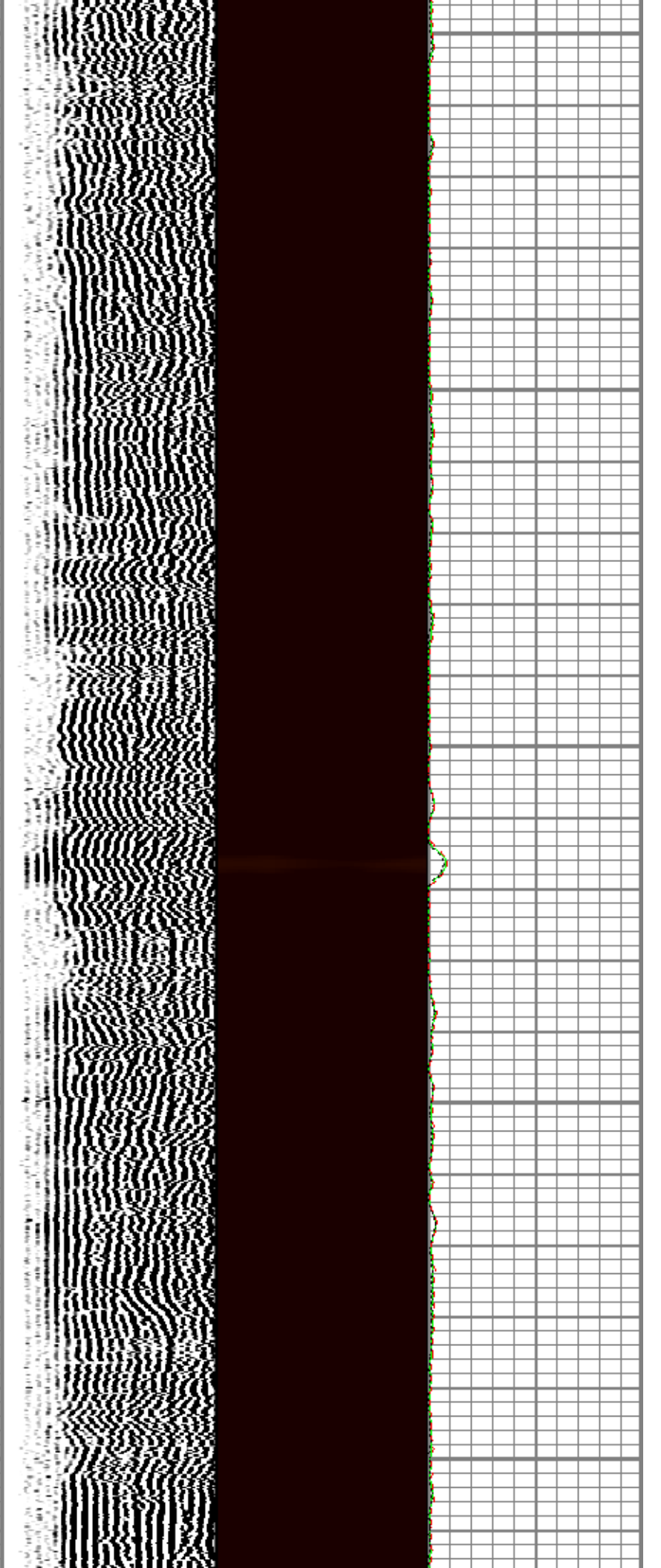
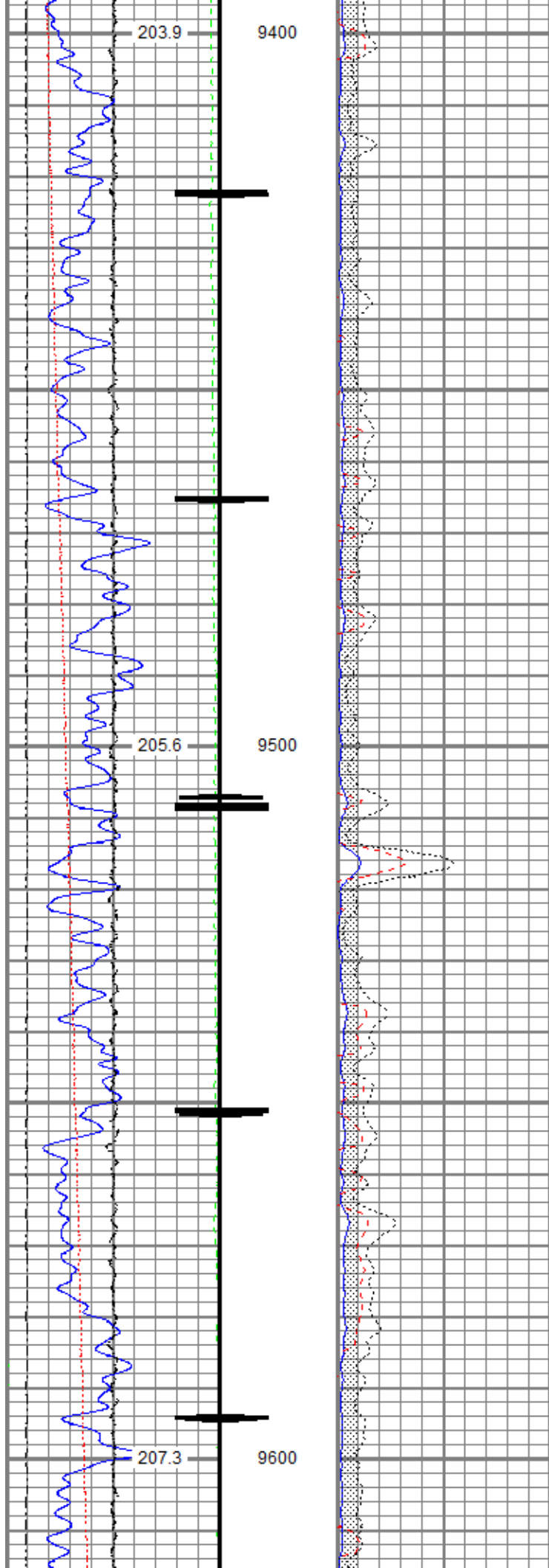


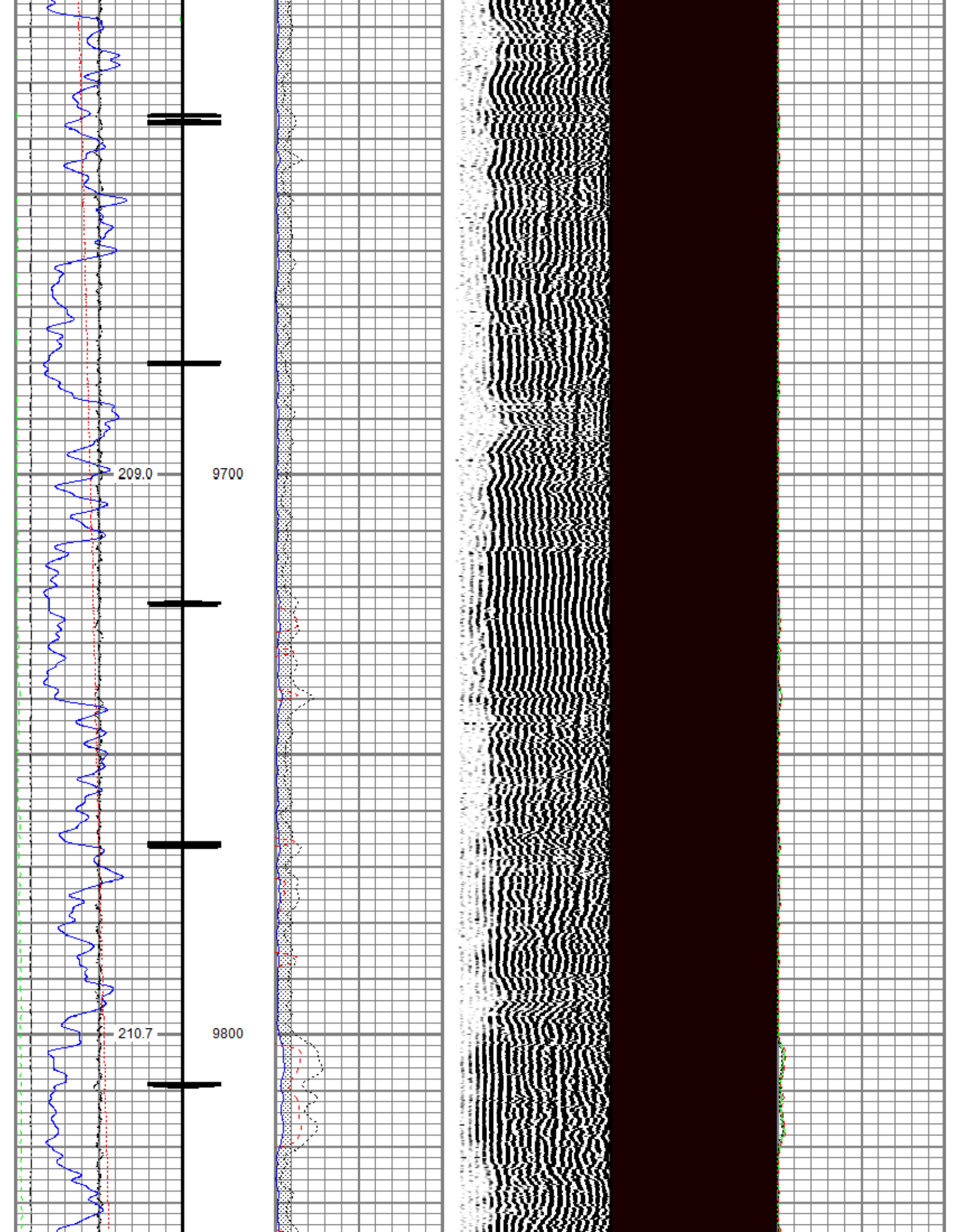


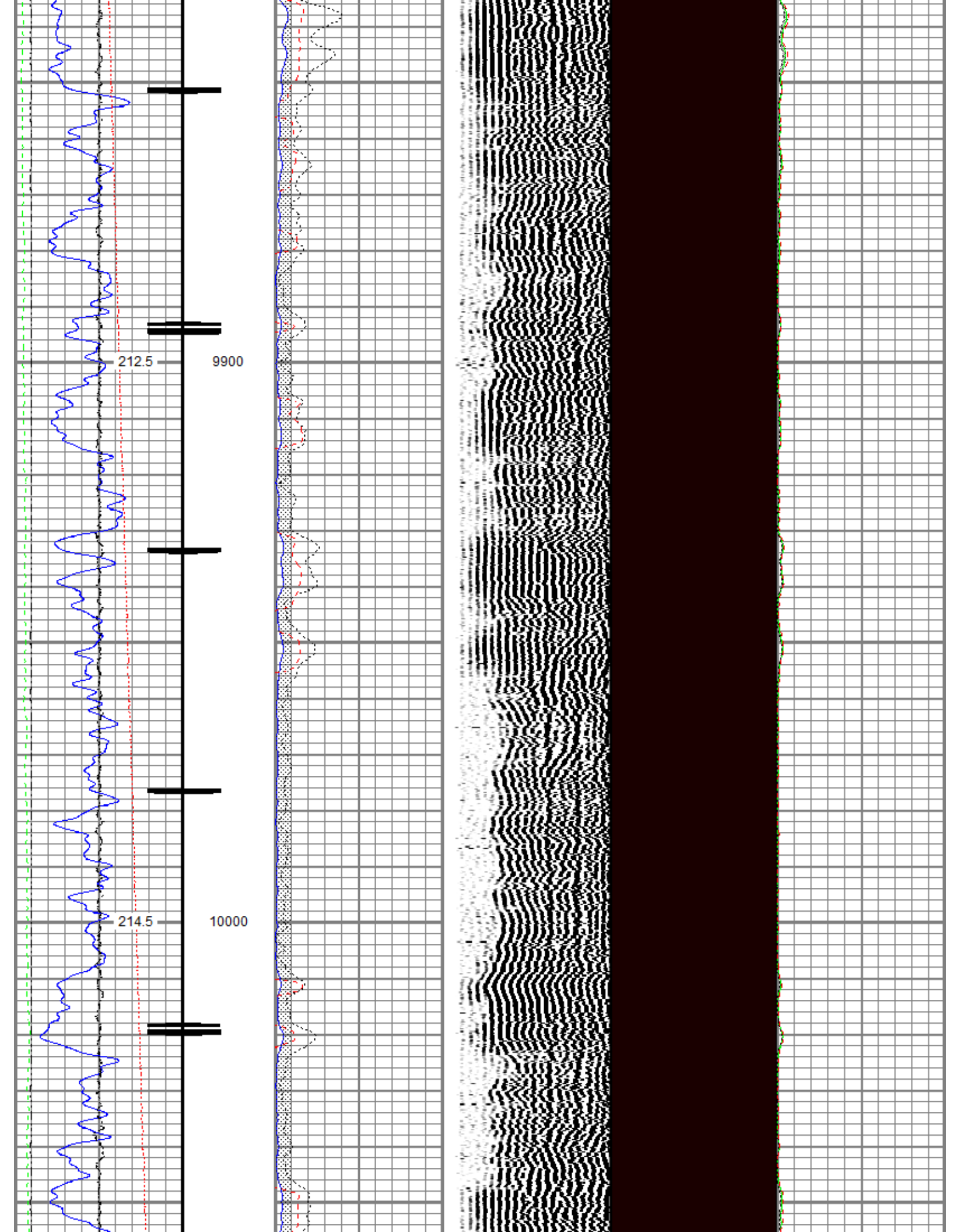


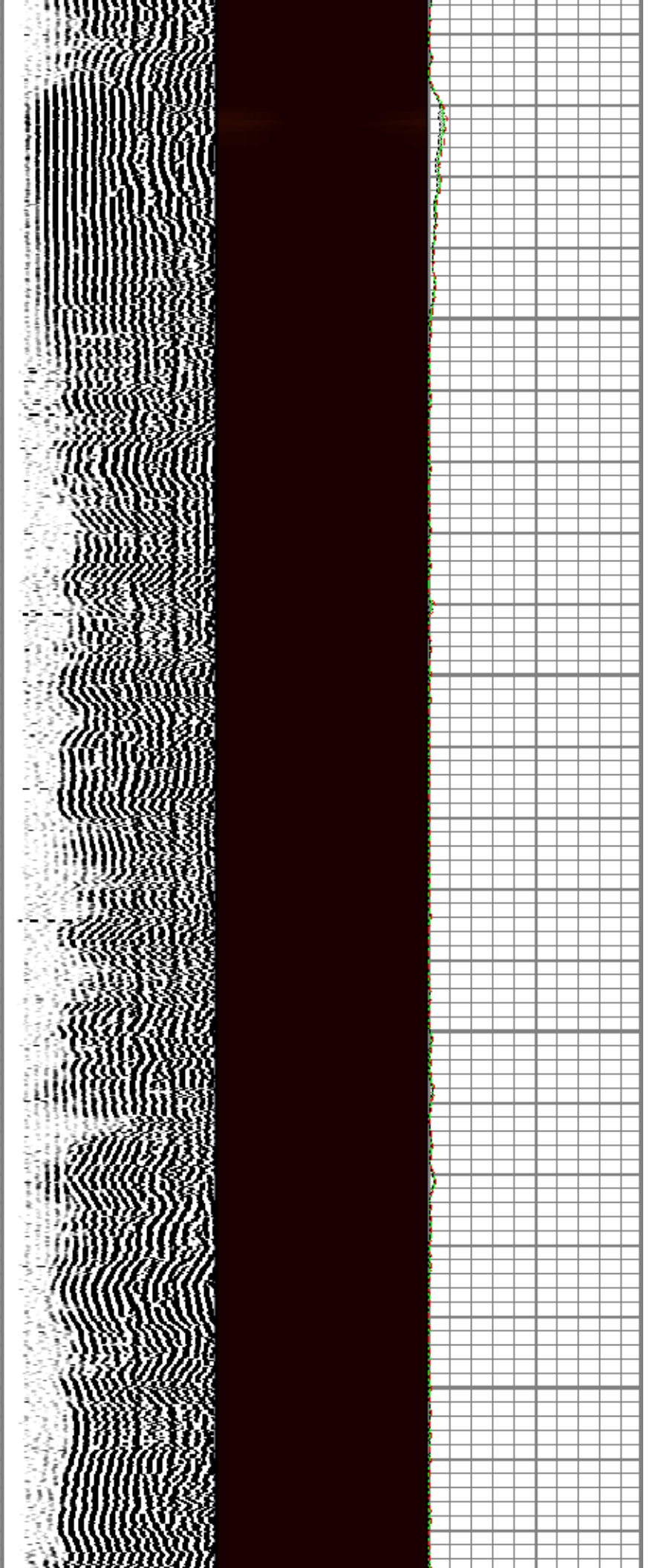
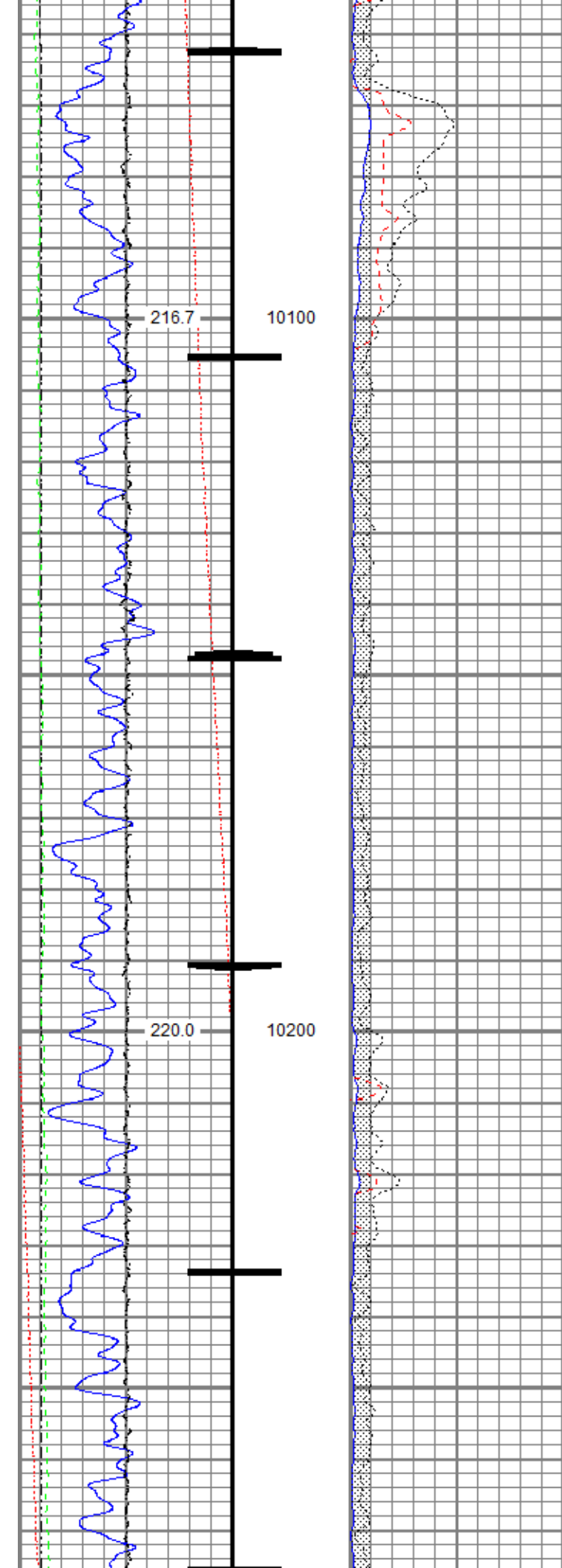


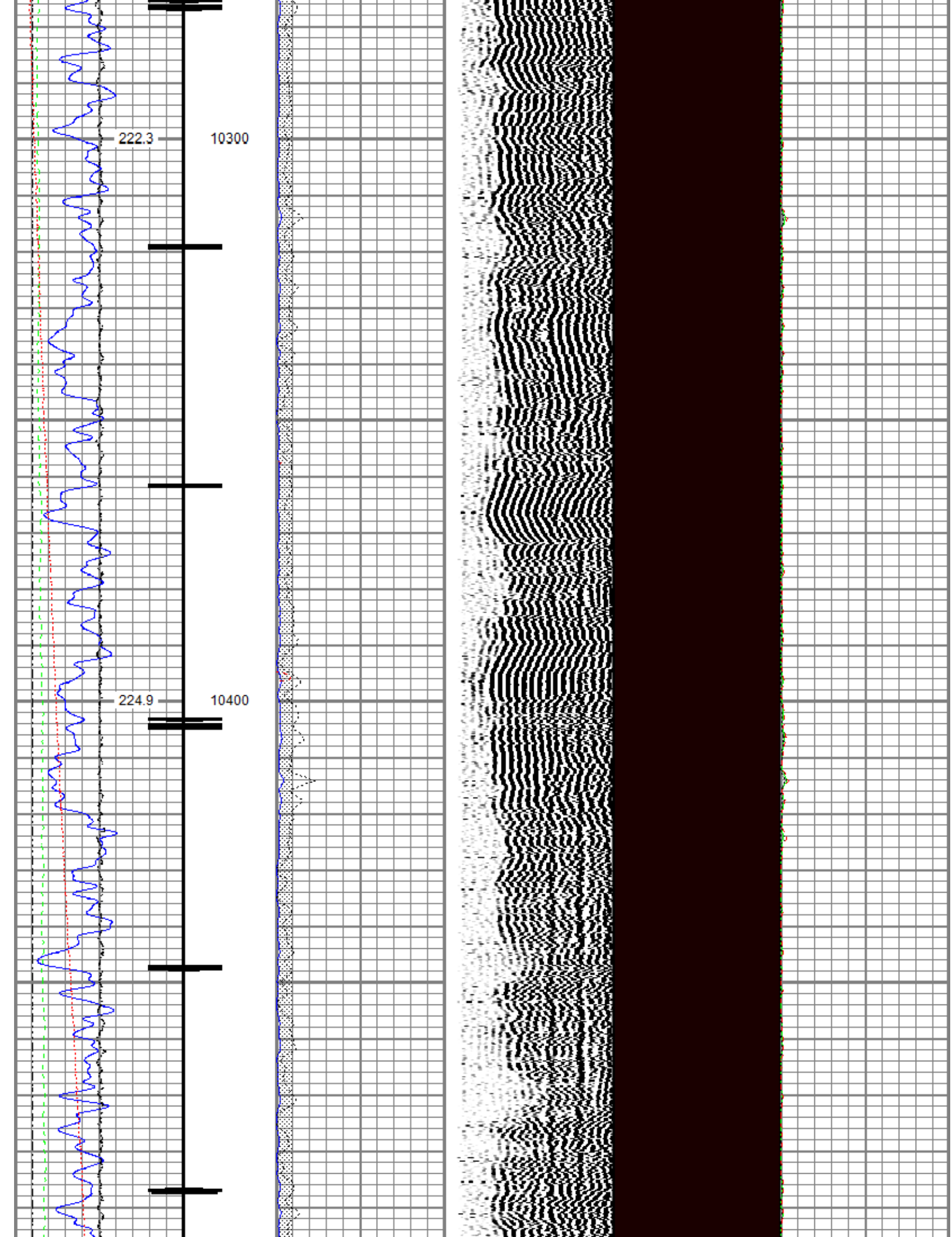












228.5

10500

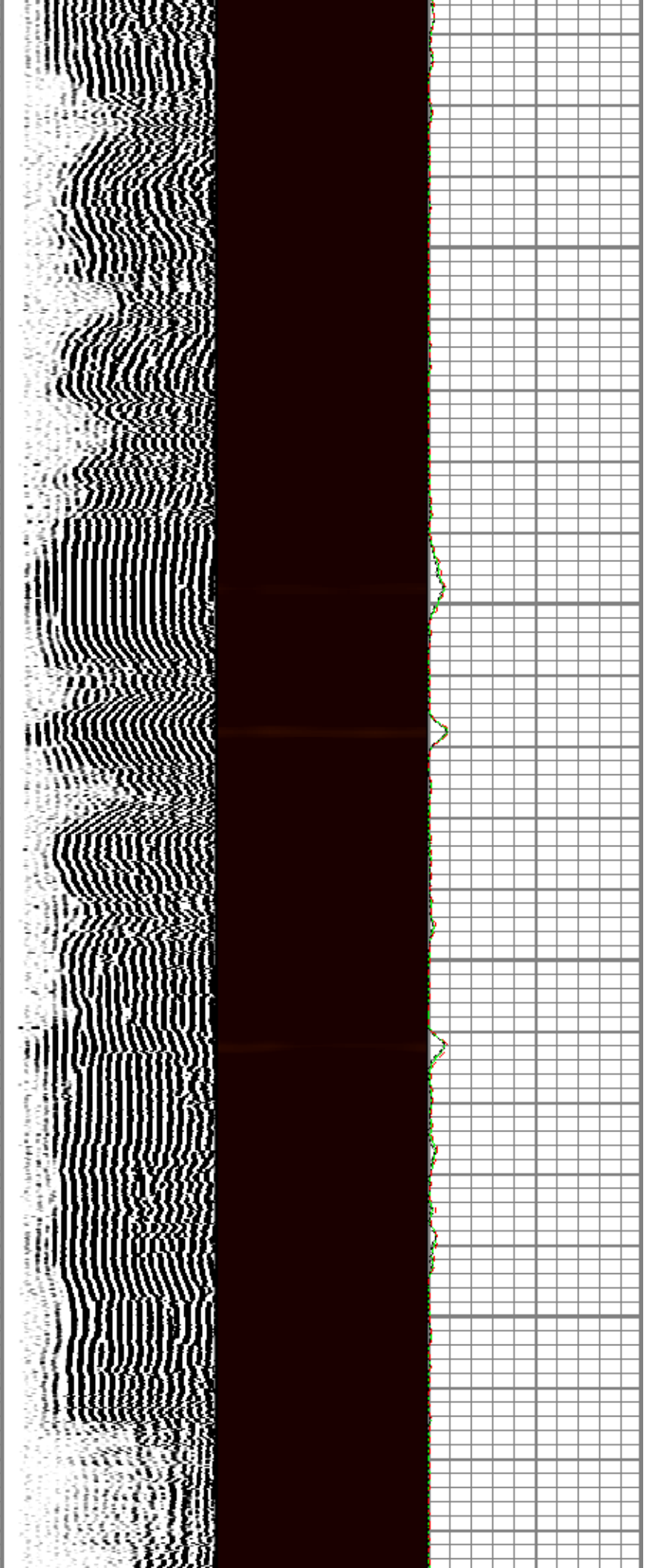
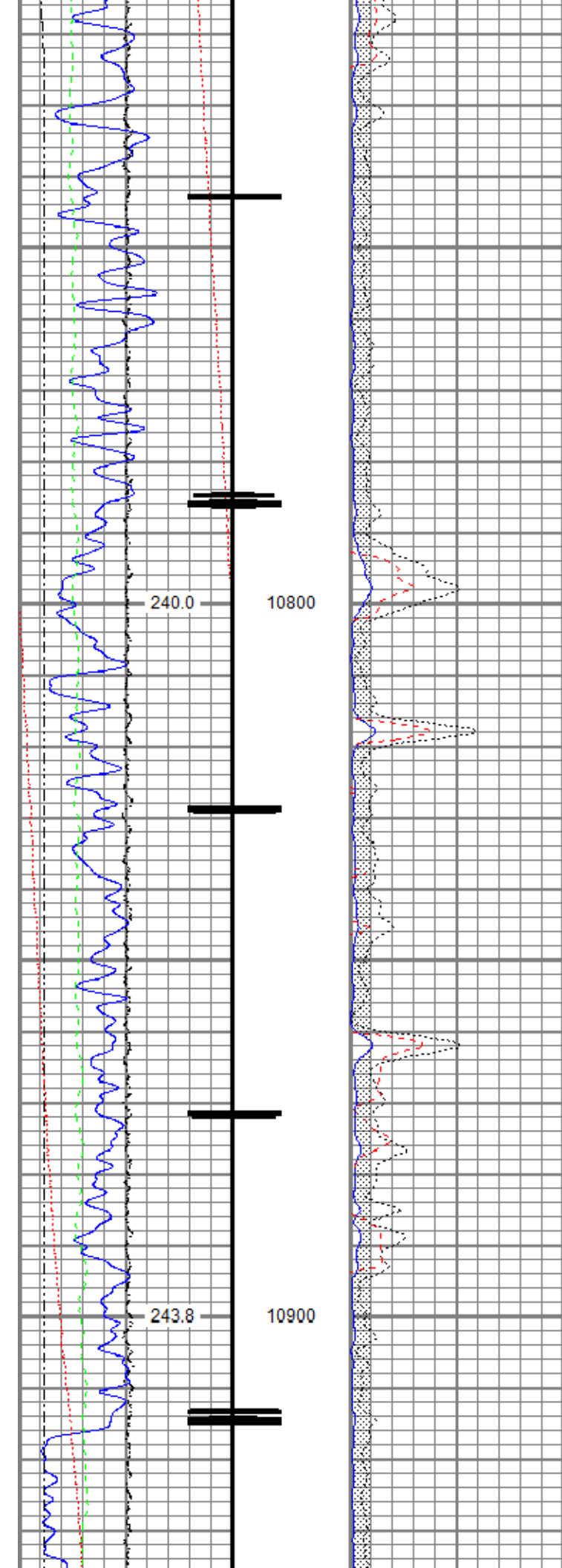
232.8

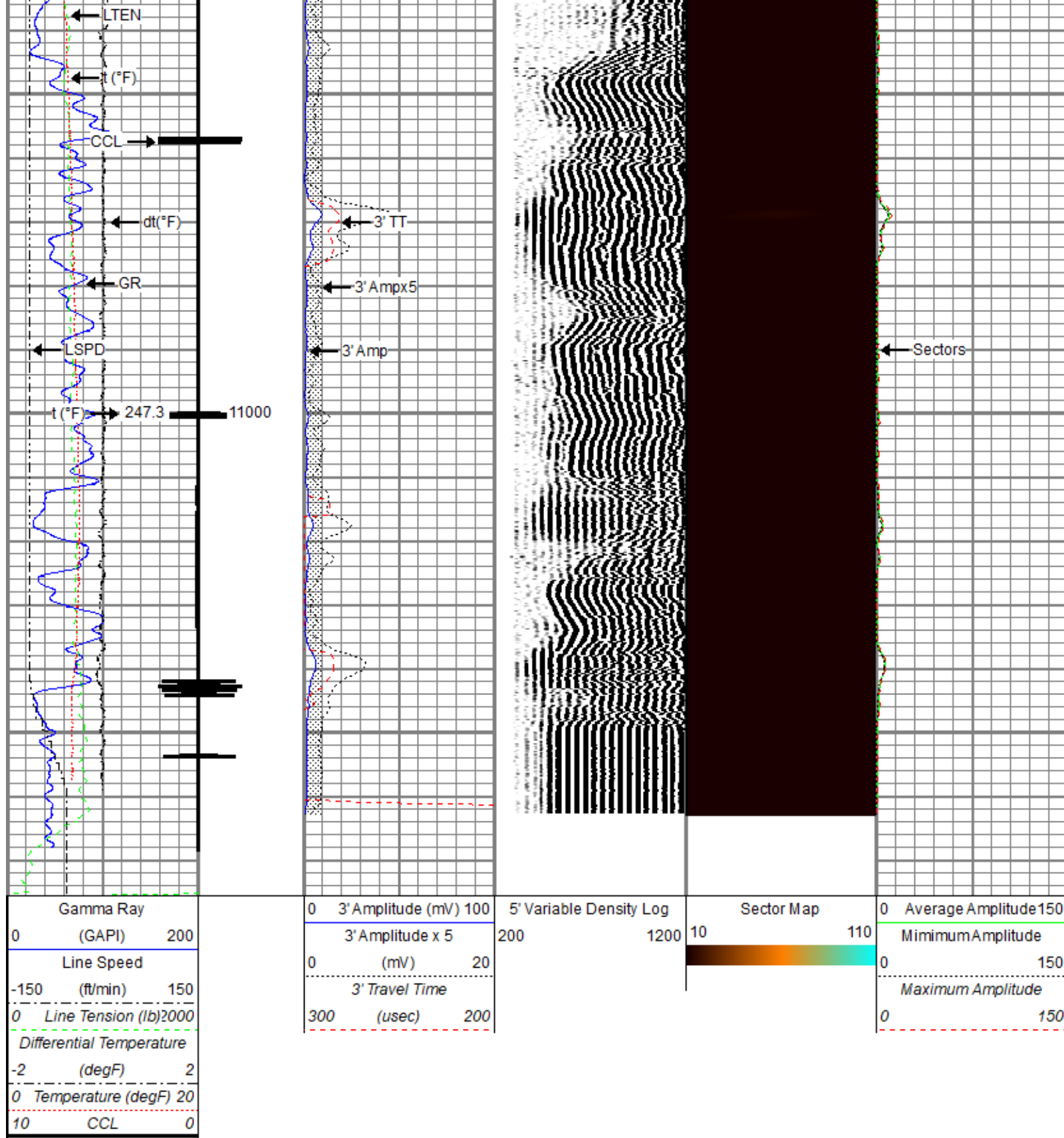
10600

236.3

10700

Seismic data visualization showing a series of stacked seismic traces. The traces are displayed in a grid format, with a central column of traces and two side columns. The traces show complex, wavy patterns, characteristic of seismic data. The central column is the most prominent, showing high-frequency oscillations. The side columns show lower-frequency, more regular patterns. The overall image is a high-contrast, black and white representation of seismic data.



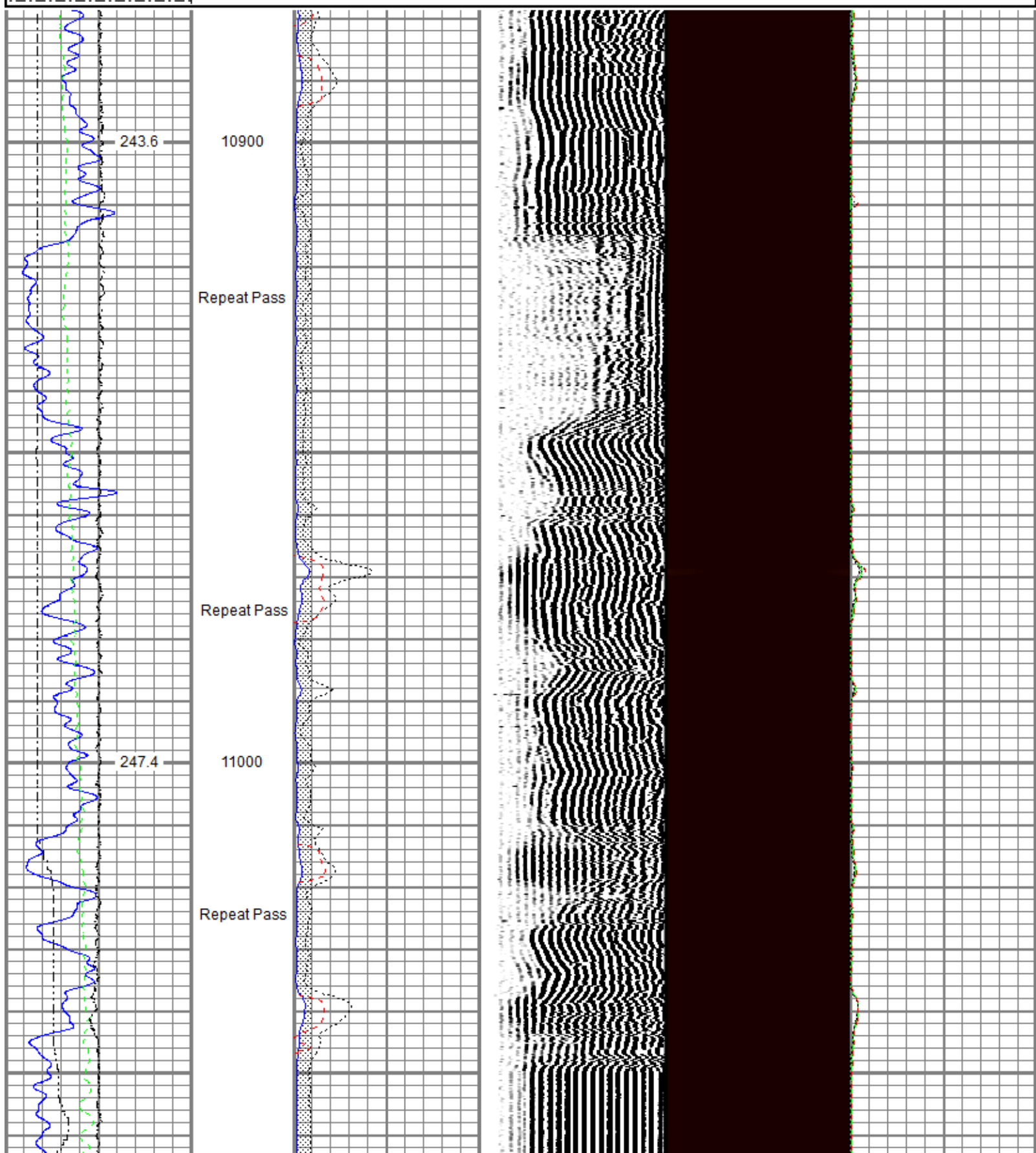


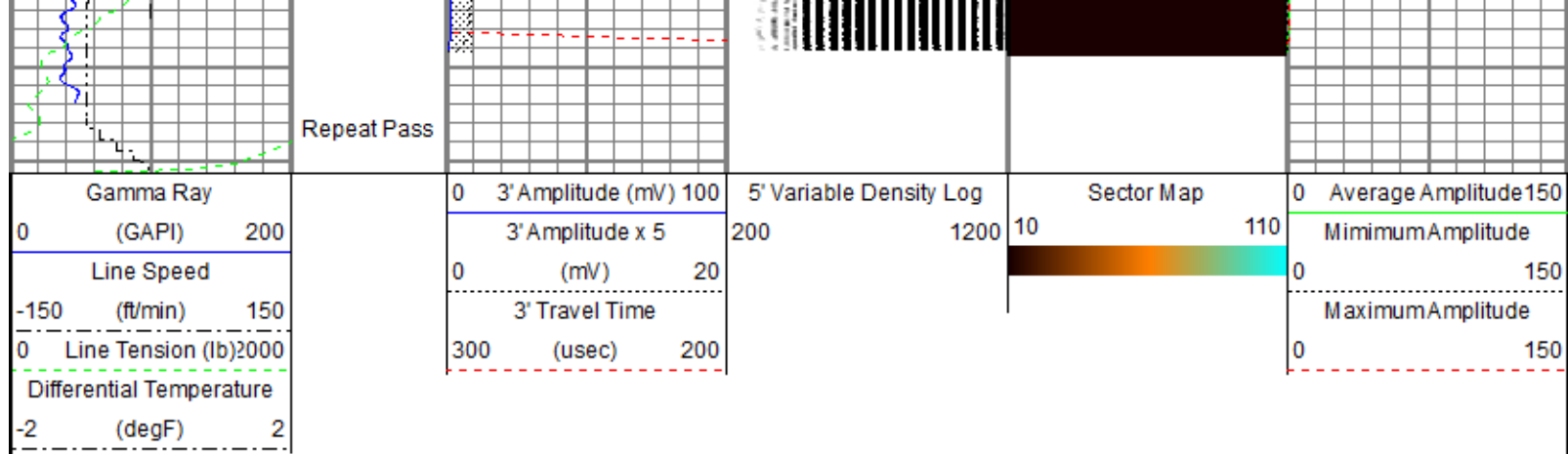
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

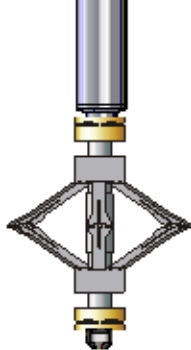
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 Presentation Format ros\_rbt004\_tep  
 Dataset Creation Tue Aug 28 11:07:47 2018  
 Created By [illegible]

Gamma Ray			0 3' Amplitude (mV) 100			5' Variable Density Log			Sector Map			0 Average Amplitude 150		
0 (GAPI) 200			3' Amplitude x 5			200 1200			10 110			Minimum Amplitude		
Line Speed			0 (mV) 20									0 150		
-150 (ft/min) 150			3' Travel Time									Maximum Amplitude		
0 Line Tension (lb) 2000			300 (usec) 200									0 150		
Differential Temperature														
-2 (degF) 2														





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
TEMP	16.33					
WVFS8	14.10		Probe Radii-2750 RBT (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
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					
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
CCL\$2	6.42					
CCL\$1	6.42					
GR	5.18		Probe GR-CCL-2750 GOB (FW1307-038) 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\_clough nr 11-3\_rbl\_08-27-18.db: field/well/run1/main.2  
Total length: 22.82 ft  
Total weight: 260.60 lb  
O.D.: 2.75 in

#### Calibration Report

Database File c:\programdata\warrior\data\tep\_clough nr 11-3\_rbl\_08-27-18\tep\_clough nr 11-3\_rbl\_08-27-18.db  
Dataset Pathname main.2  
Dataset Creation Tue Aug 28 10:04:37 2018

#### Gamma Ray Calibration Report

Serial Number: FW1307-038  
Tool Model: 2750 GOB  
Performed: Sun Nov 12 12:44:12 2017  
  
Calibrator Value: 637.0 GAPI  
  
Background Reading: 113.2 cps  
Calibrator Reading: 1022.4 cps  
  
Sensitivity: 0.7007 GAPI/cps

#### Segmented Cement Bond Log Calibration Report

Serial Number: FW1302-001  
Tool Model: 2750 RBT  
  
Calibration Casing Diameter: 4.500 in  
Calibration Depth: 240.288 ft

#### Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.916	0.800	81.196	87.776	0.765
CAL	0.745	0.748				
5'	0.007	0.693	0.800	81.196	117.134	-0.008
SUM						
S1	-0.002	1.038	0.000	100.000	96.150	0.163
S2	-0.001	0.987	0.000	100.000	101.238	0.111
S3	-0.001	0.881	0.000	100.000	113.351	0.121
S4	0.004	0.827	0.000	100.000	121.396	-0.432
S5	0.004	0.825	0.000	100.000	121.905	-0.531
S6	0.000	0.854	0.000	100.000	117.227	-0.055
S7	-0.000	0.907	0.000	100.000	110.147	0.047
S8	-0.002	1.006	0.000	100.000	99.221	0.163

#### Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset

CAL	0.000	0.000	0.745	0.748	1.000	0.000
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Air Zero Calibration, performed Mon Aug 27 07:19:38 2018:

	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: FW1302-001  
Tool Model: 2750 RBT  
Performed: Sun Nov 12 13:24:58 2017

	Reference	Reading
Low Reference:	100.00 degF	107.47 degF
High Reference:	350.00 degF	404.08 degF

Gain: 0.84  
Offset: 9.42  
Delta Spacing 1



Company	TEP Rocky Mountain LLC
Well	Clough NR 11-3
Field	Rulison
County	Garfield
State	Colorado