



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.

Well Verde 13-11HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-46248

Other Services  
GR/JB  
RBP  
RBL 0 PSI

SEC 13 TWP 1N RGE 66W

Elevation

Permanent Datum Ground Level Elevation 5071'  
Log Measured From Kelly Bushing 26 FT  
Drilling Measured From Kelly Bushing

K.B. 5097'  
D.F. ---  
G.L. 5071'

Company Kerr-McGee Oil & Gas Onshore, L.P.  
Well Verde 13-11HZ  
Field Wattenberg  
County Weld  
State Colorado

Date	24-JUN-2018	Four		
Run Number		18584 FT		
Depth Driller		6660 FT		
Depth Logger		6645 FT		
Bottom Logged Interval		Surface		
Top Log Interval		7.875'		
Open Hole Size		Water		
Type Fluid		8.34 lb/gal		
Density / Viscosity		215°F		
Max. Recorded Temp.		See Log		
Estimated Cement Top		ROA		
Time Well Ready		16:30		
Time Logger on Bottom		HD-325		
Equipment Number		Fort Lupton, CO		
Location		M. Hayes		
Recorded By		Kyle Carver		
Witnessed By				
Borehole Record				
Run Number	Bit	From	To	Size
				Weight
				From
				To
Tubing Record				
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top
Surface Casing	9 5/8	36	J-55	Surface
Intermediate #1	5 1/2	17	HCP-110	Surface
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 26 FT  
Gauge Ring/Junk Basket ran to 7606 FT with no debris  
5.50" RBP Set @ 6655 FT  
Log ran from 6645 FT to surface  
Recorded with 2800 PSI Surface Induced Pressure  
Logging tools were clean and free of debris upon completion of operations  
  
Thank you for choosing Reliance Oilfield Services, LLC!!

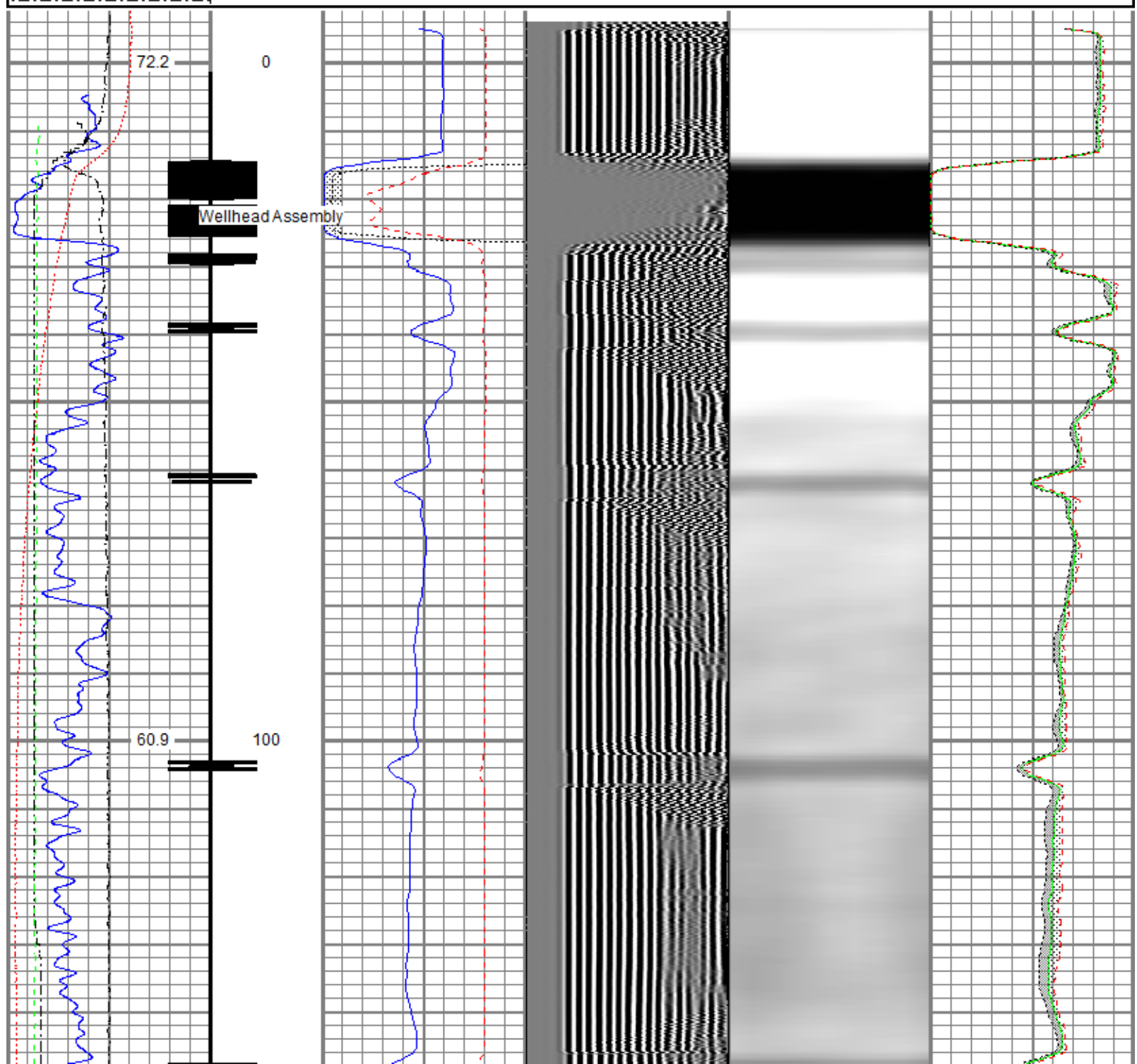
Main Pass

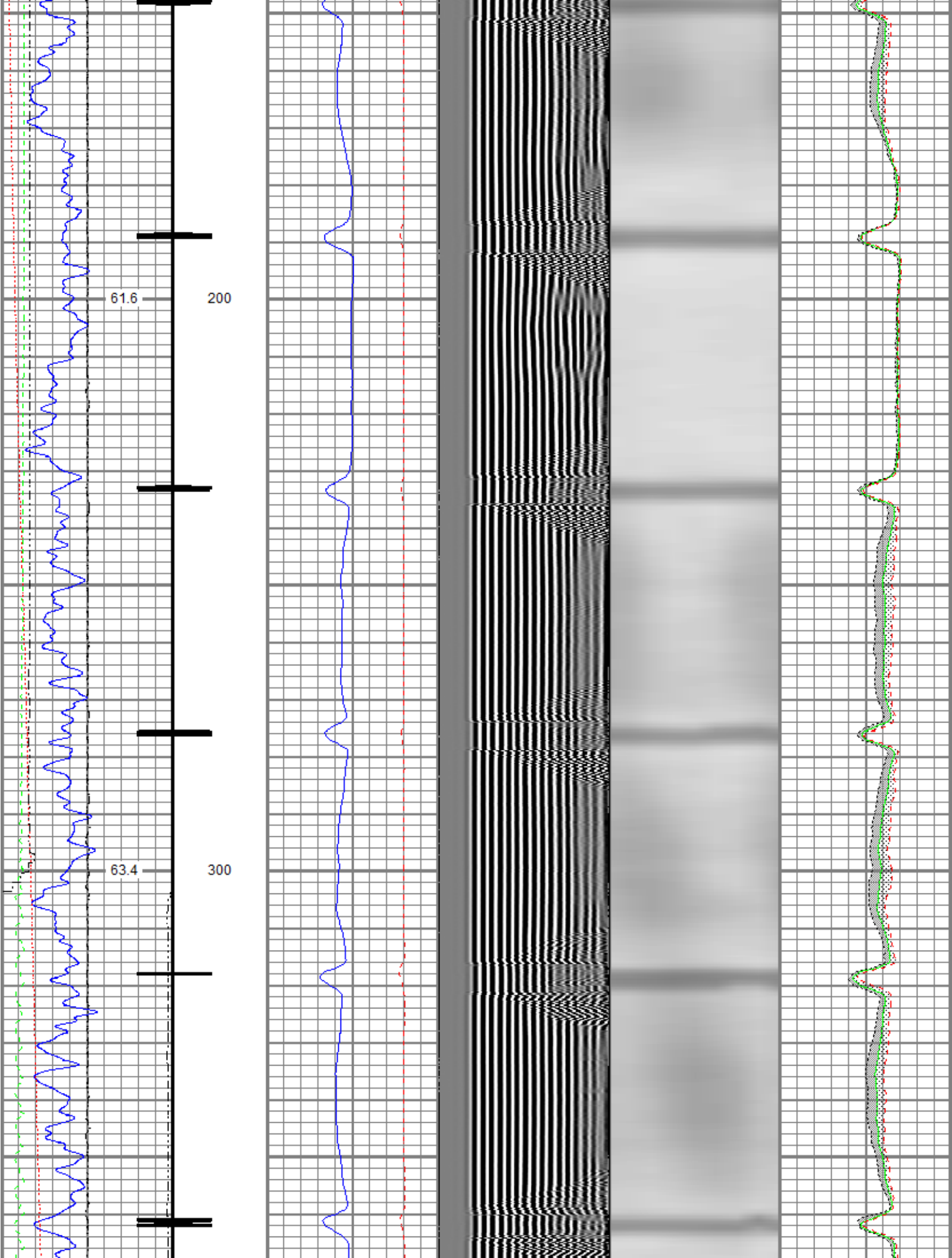


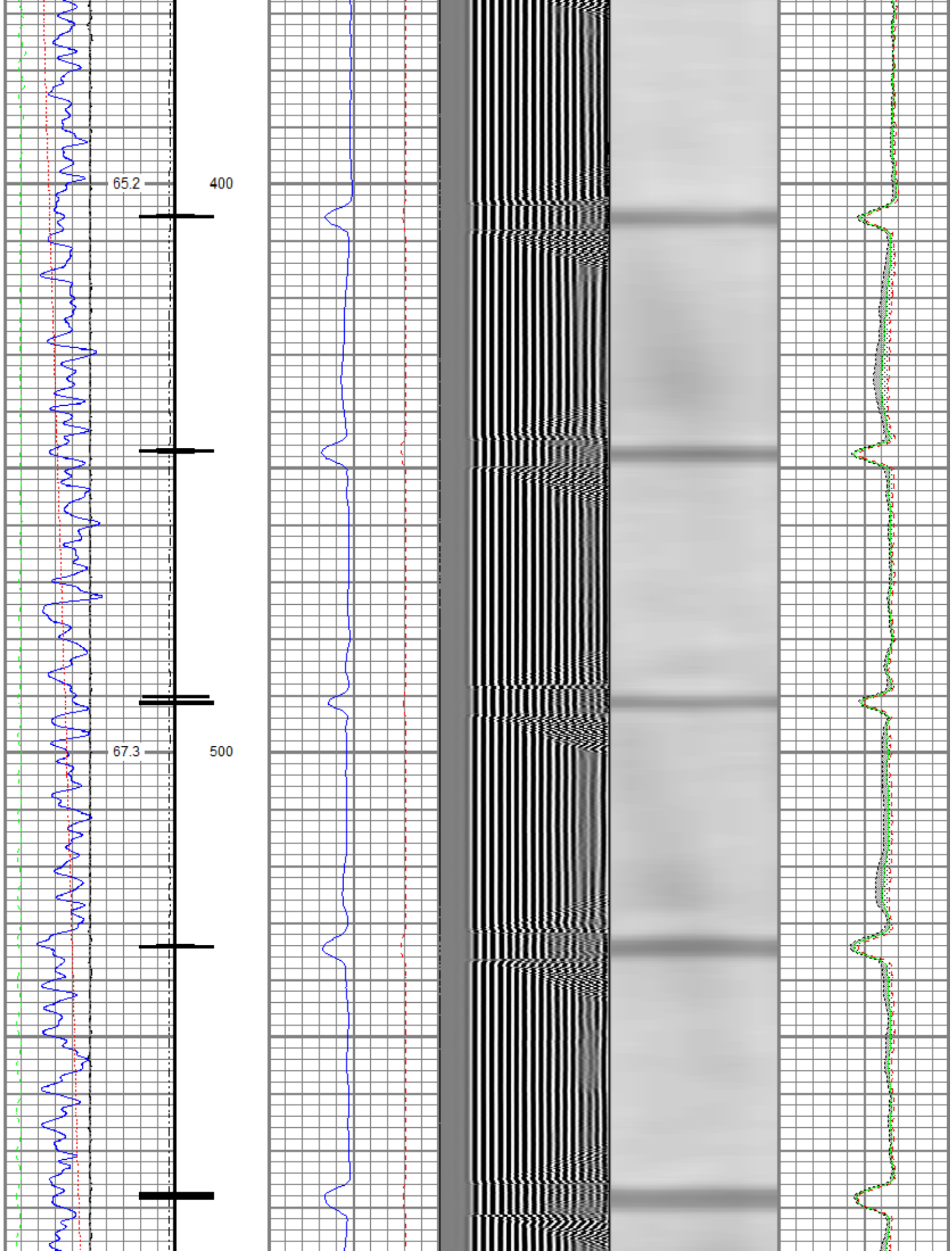
Recorded With 2800 PSI Surface Induced Pressure

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Presentation Format	ros_radri
Dataset Creation	Sun Jun 24 17:11:09 2018
Charted by	Depth in Feet scaled 1:240

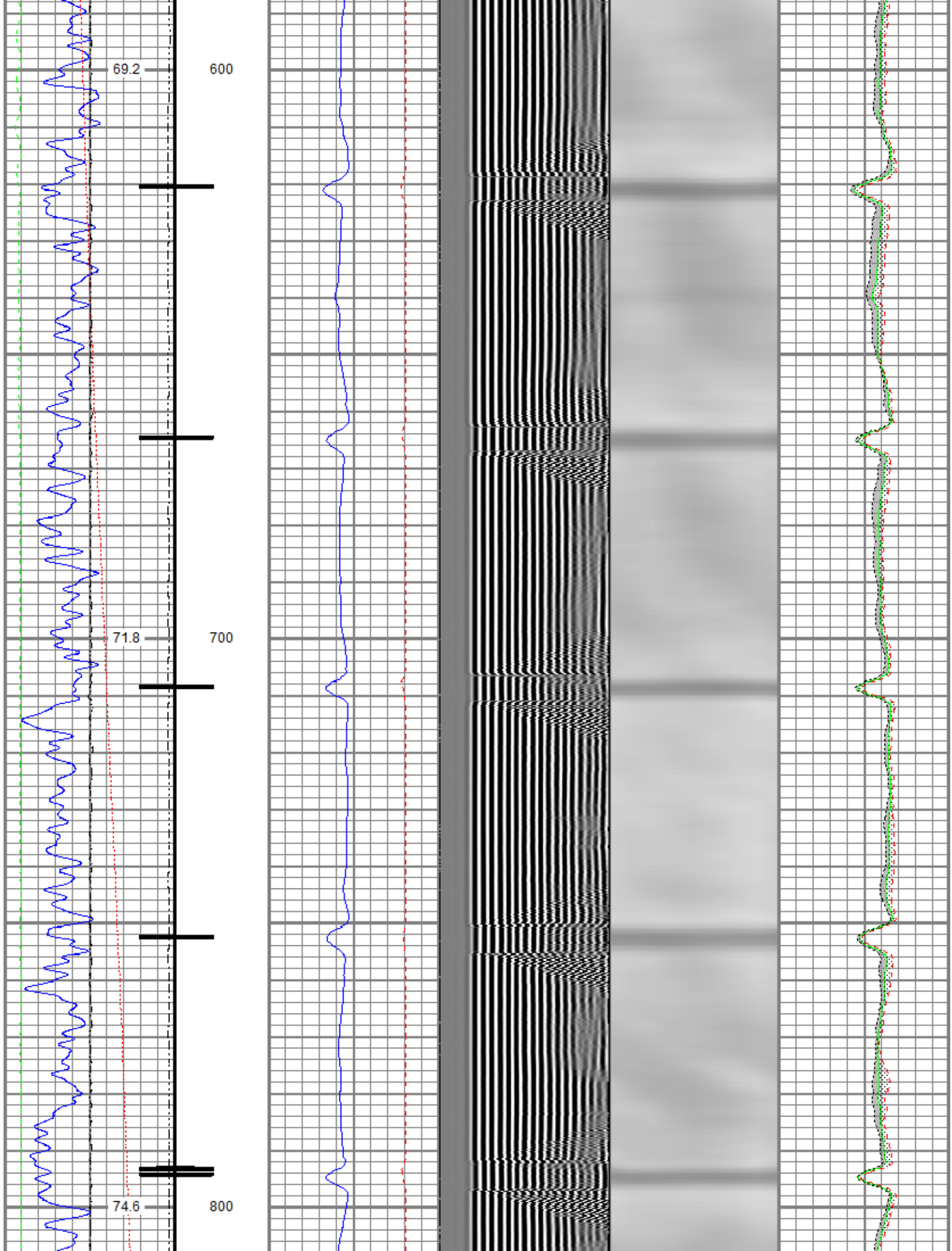
Gamma Ray	0	3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0	Average Amplitude 100
(GAPI) 120		3' Amplitude x 5	200 (usec) 1200			Minimum Amplitude
Casing Collar Locator	0	(mV) 20			0	100
Temperature (degF) 20		3' Travel Time				Maximum Amplitude
Line Speed	650	(usec) 150			0	100
-150 (ft/min) 150						
Line Tension (lb) 2000						
Differential Temperature						
-2 (degF) 2						

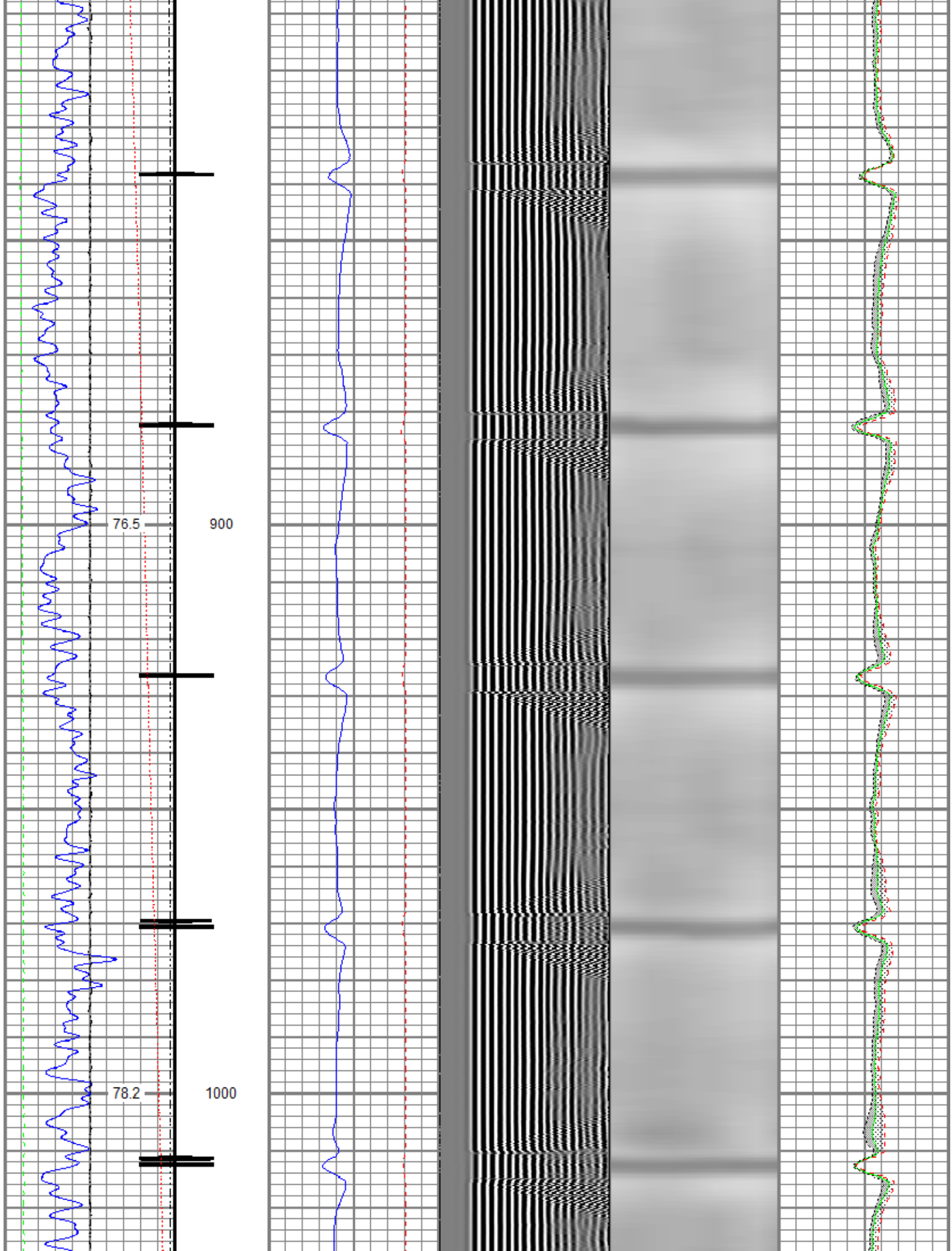


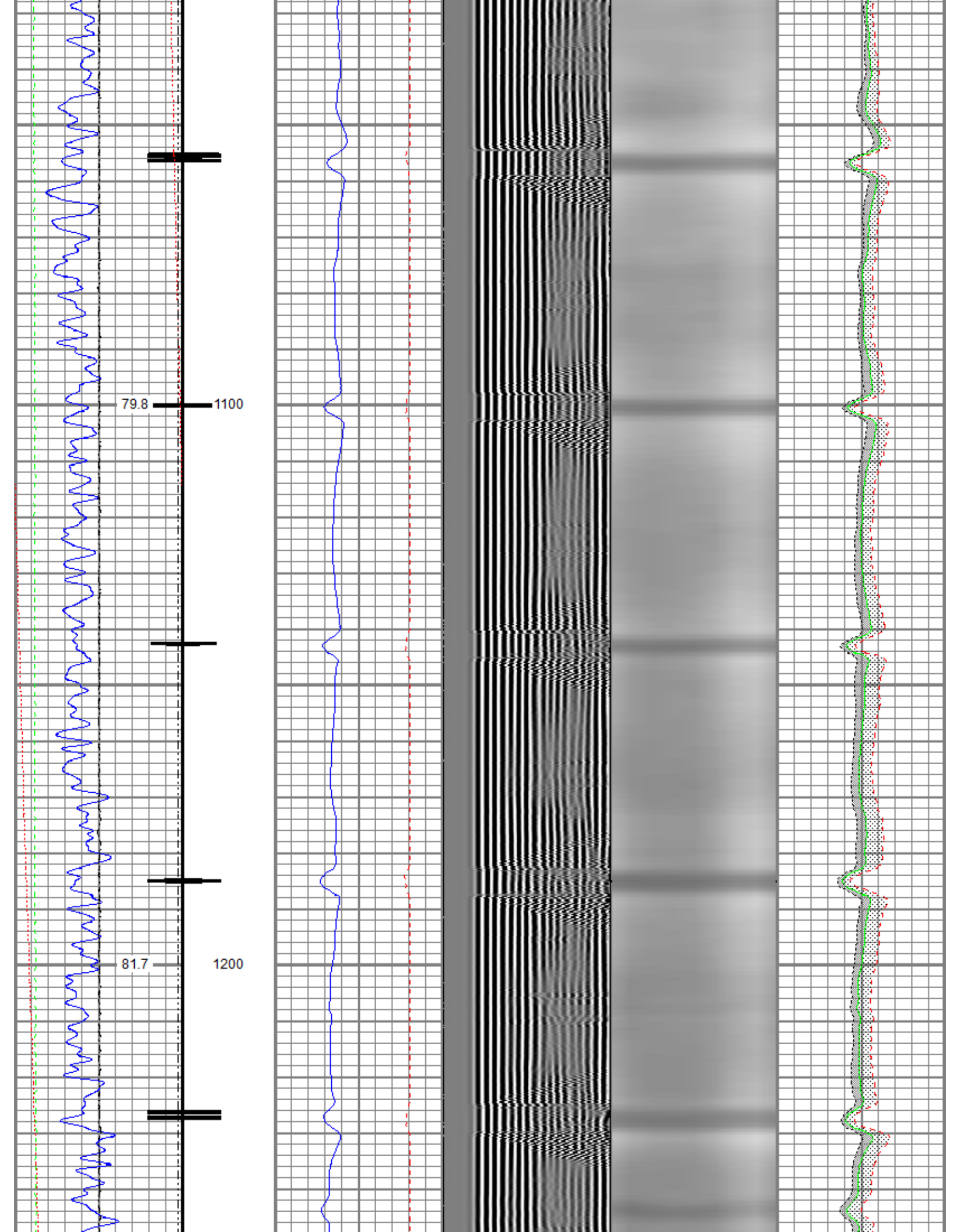


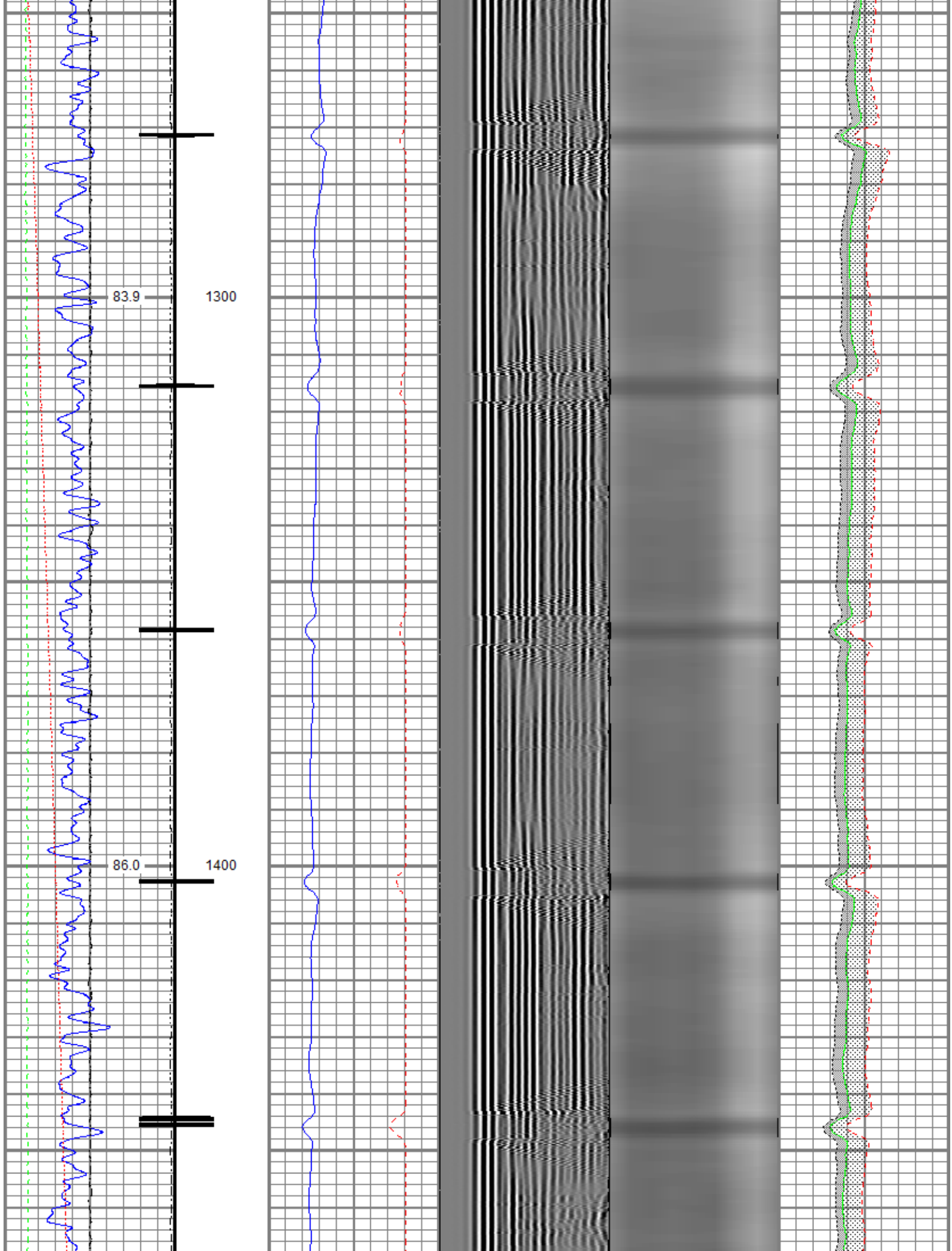




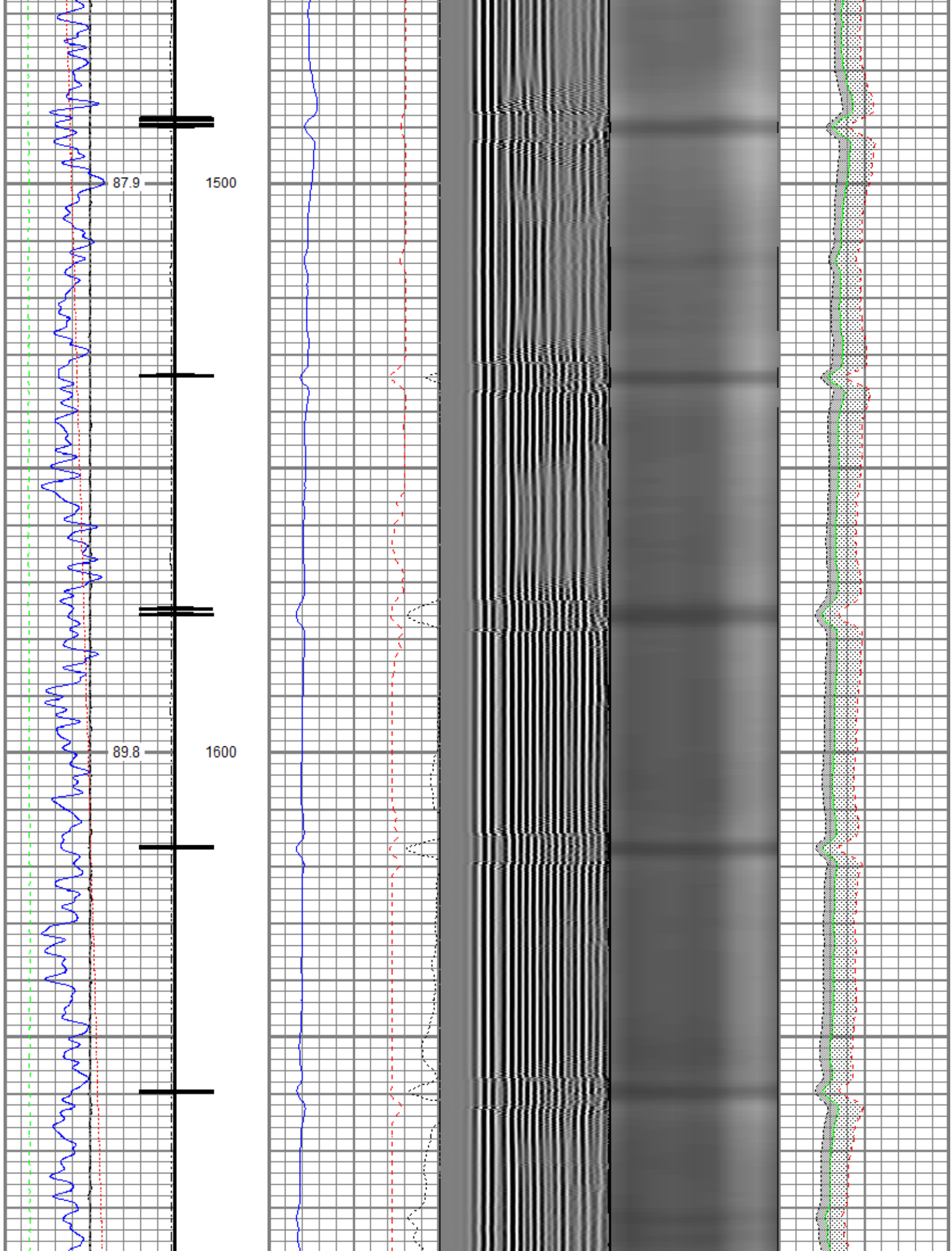


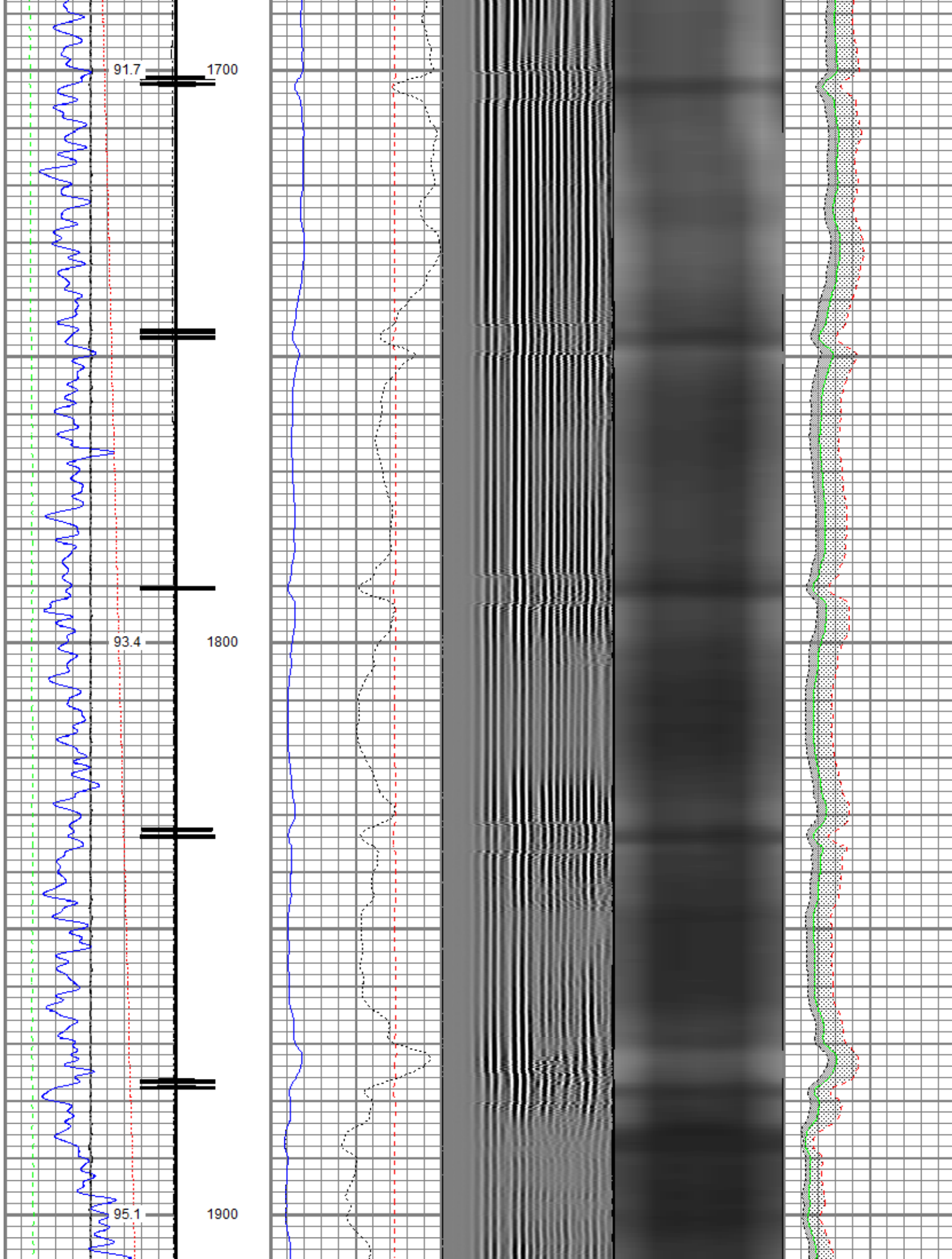


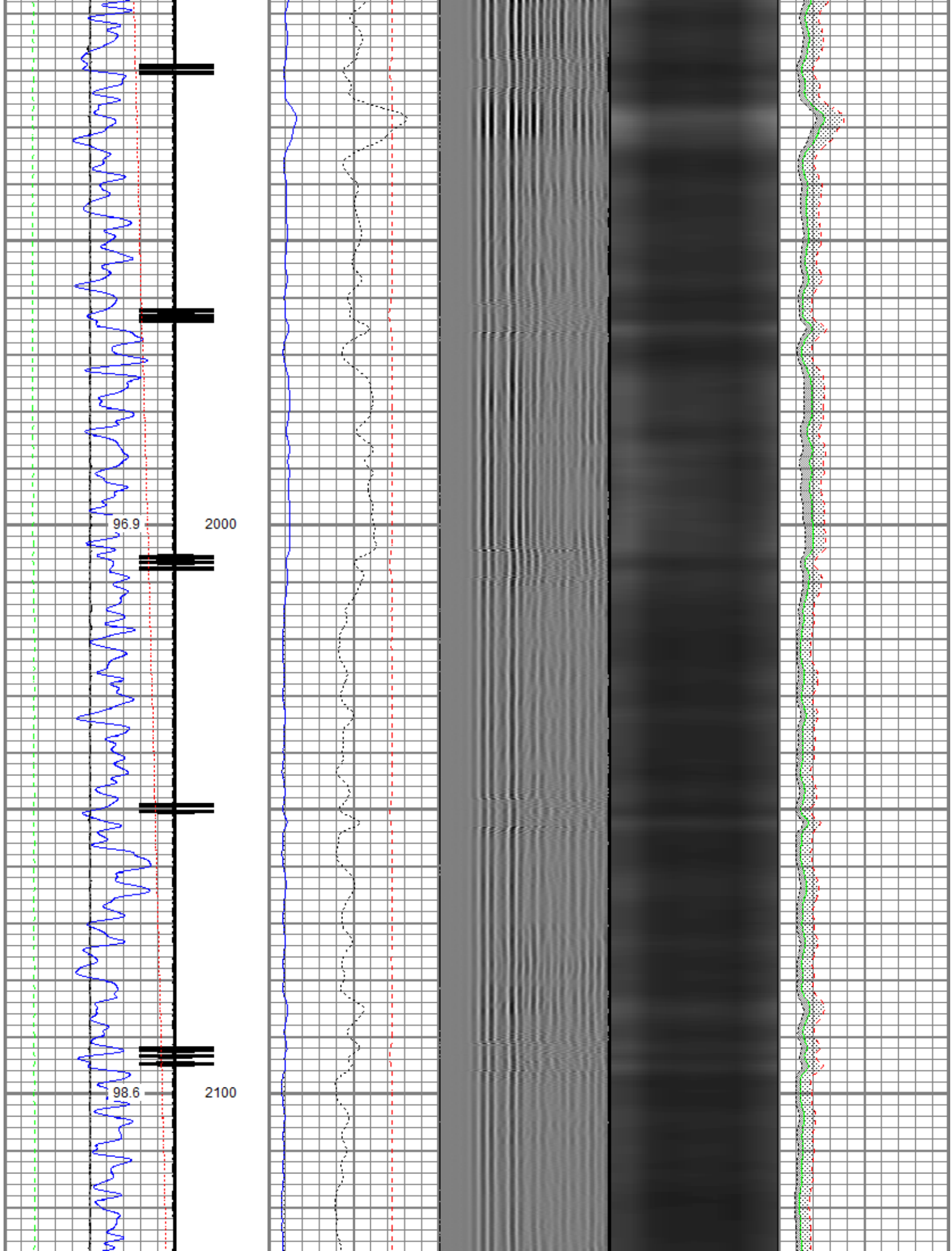


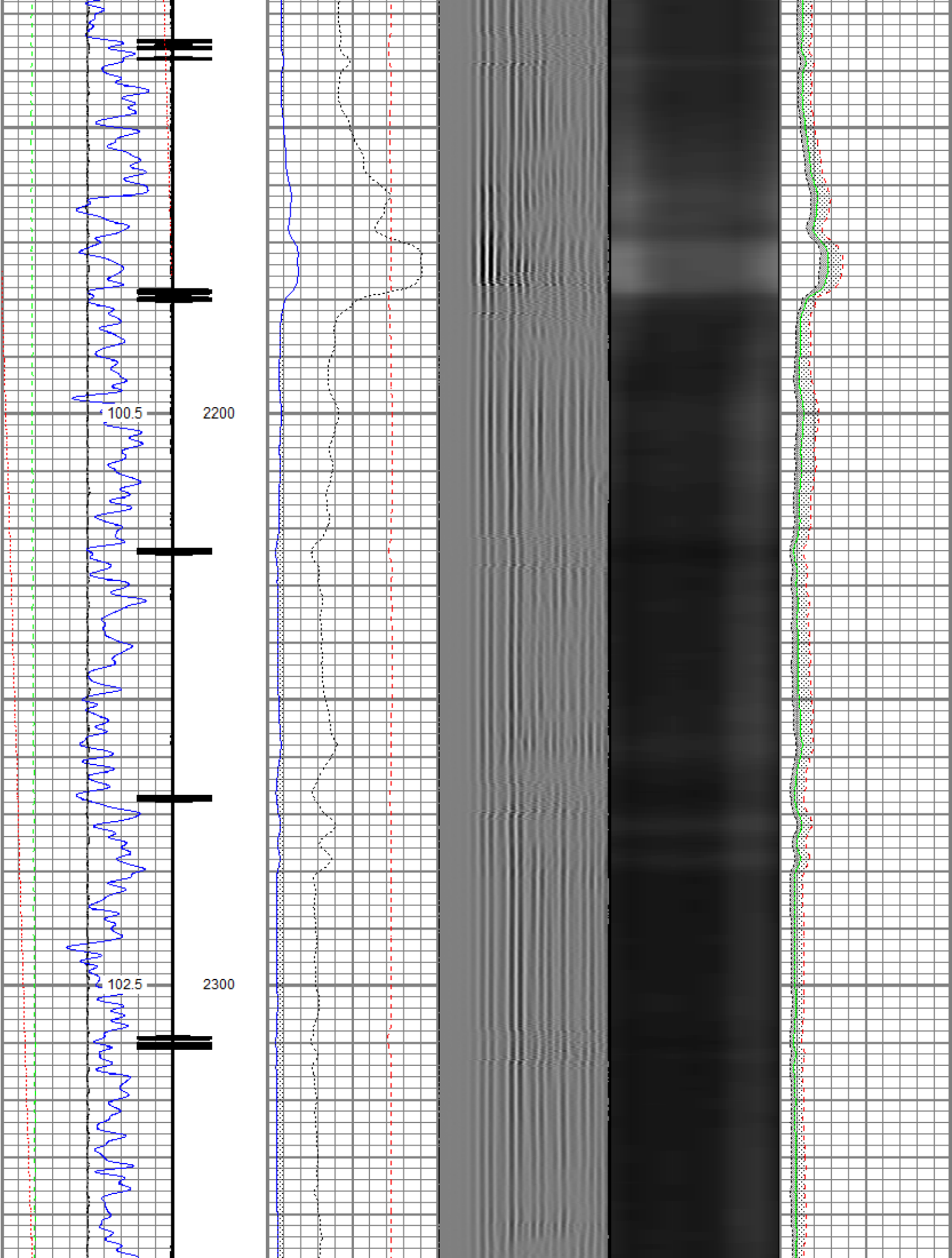




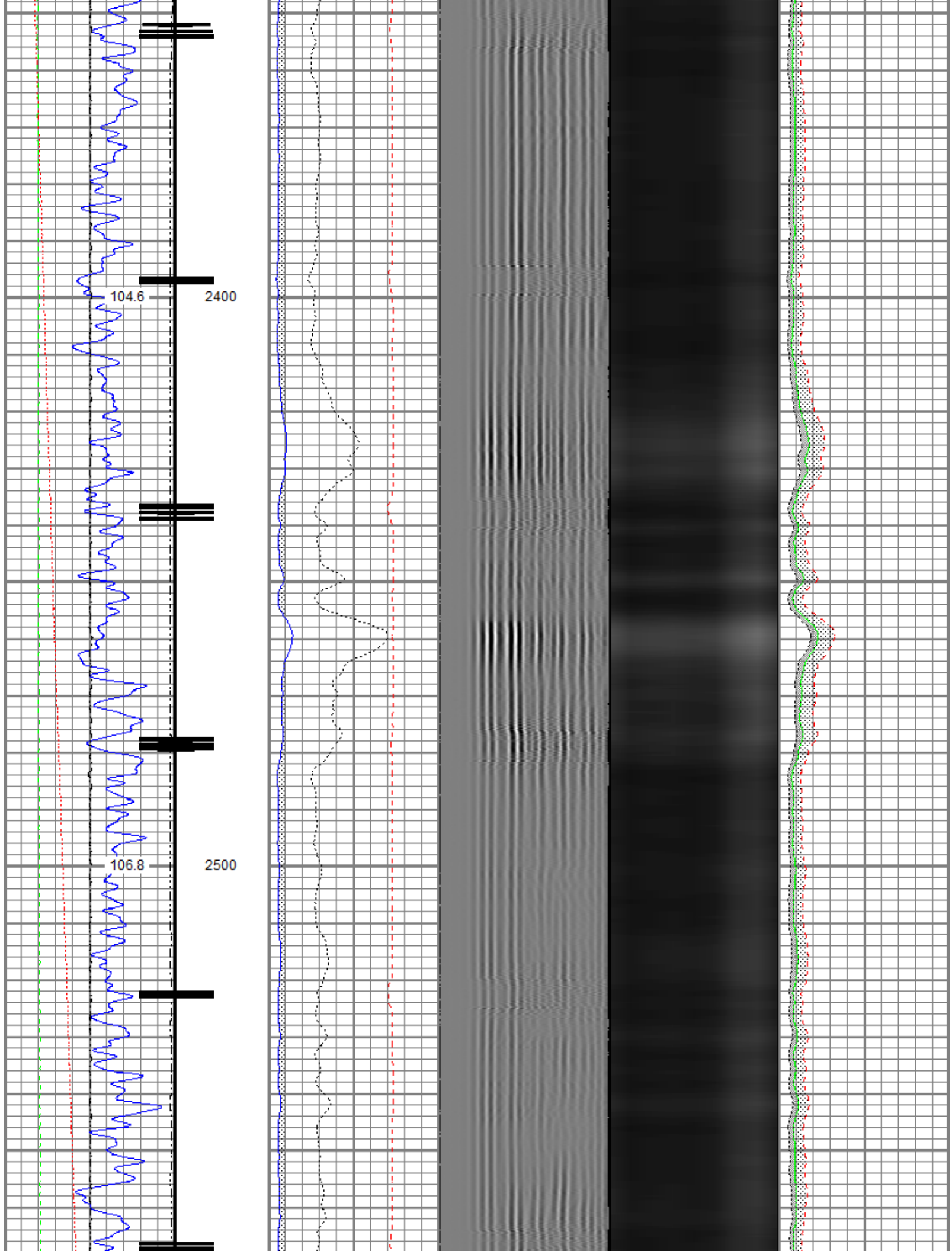


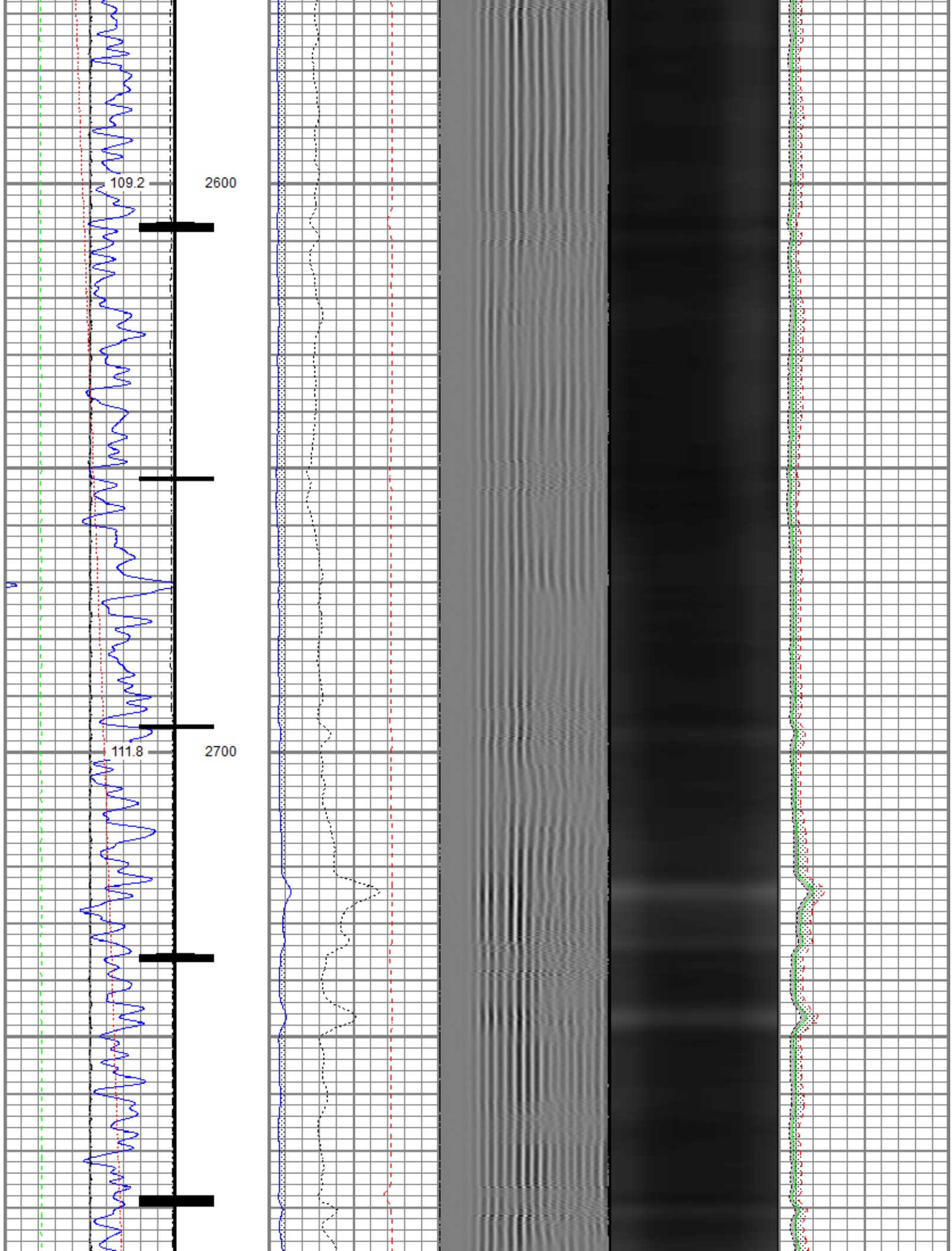


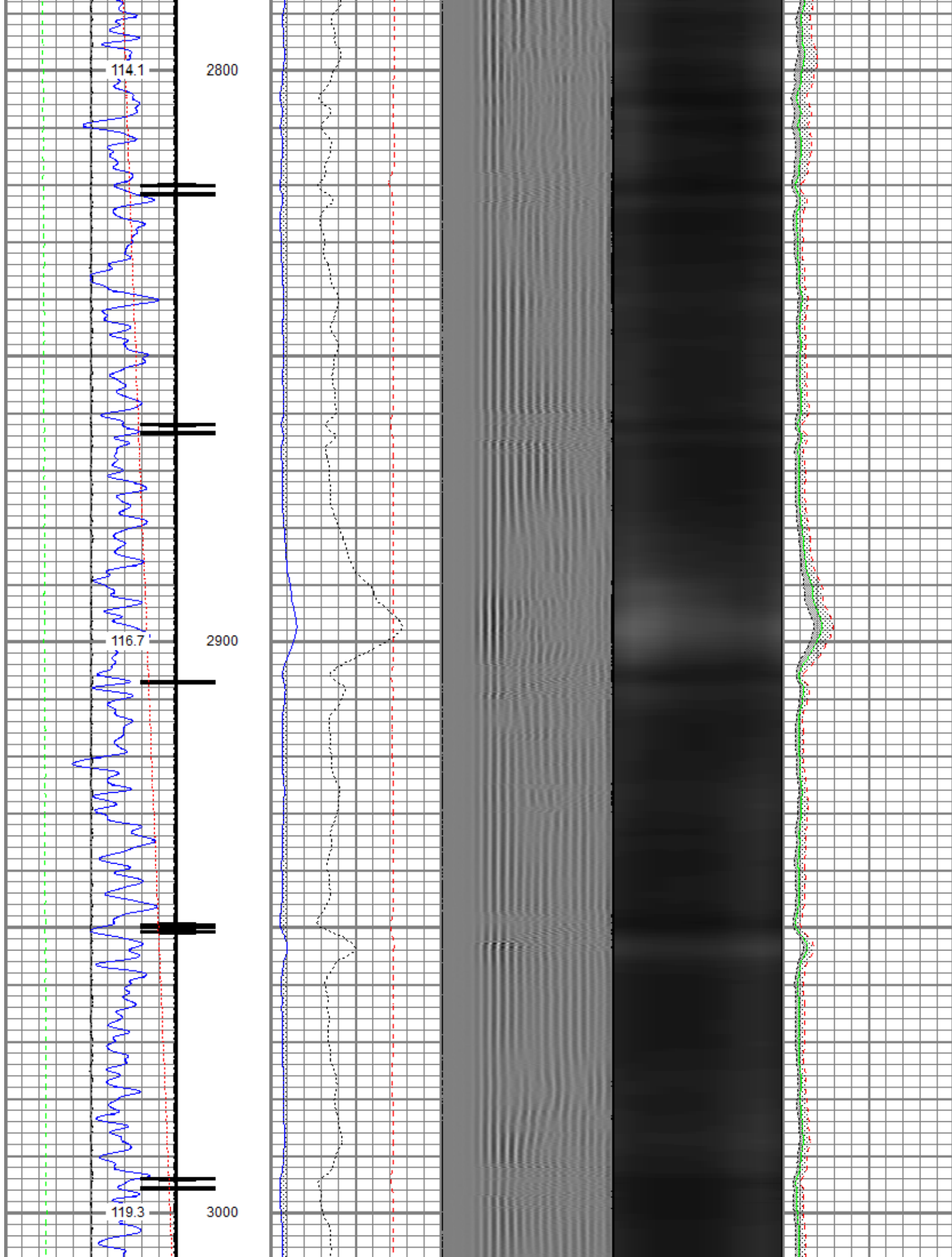


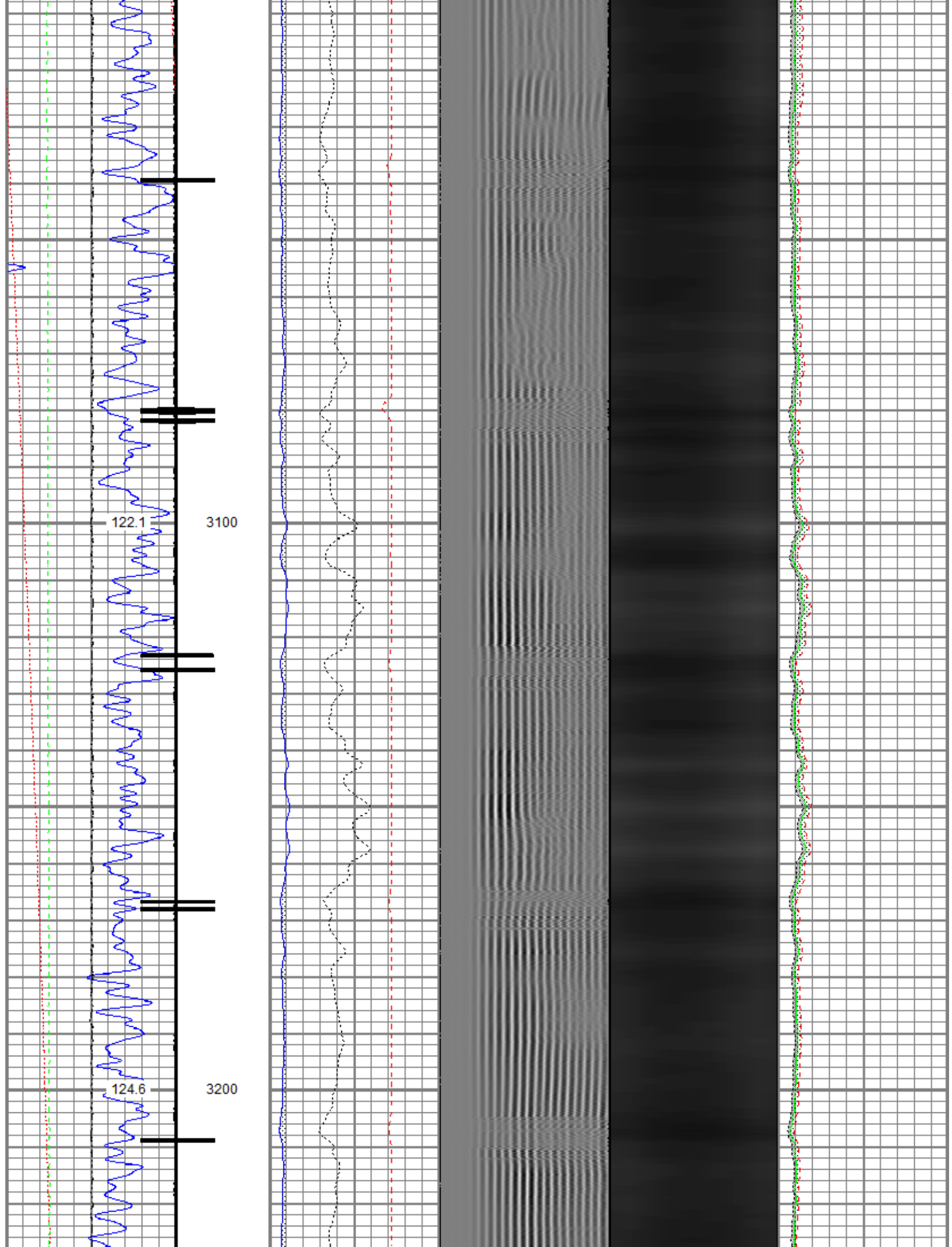




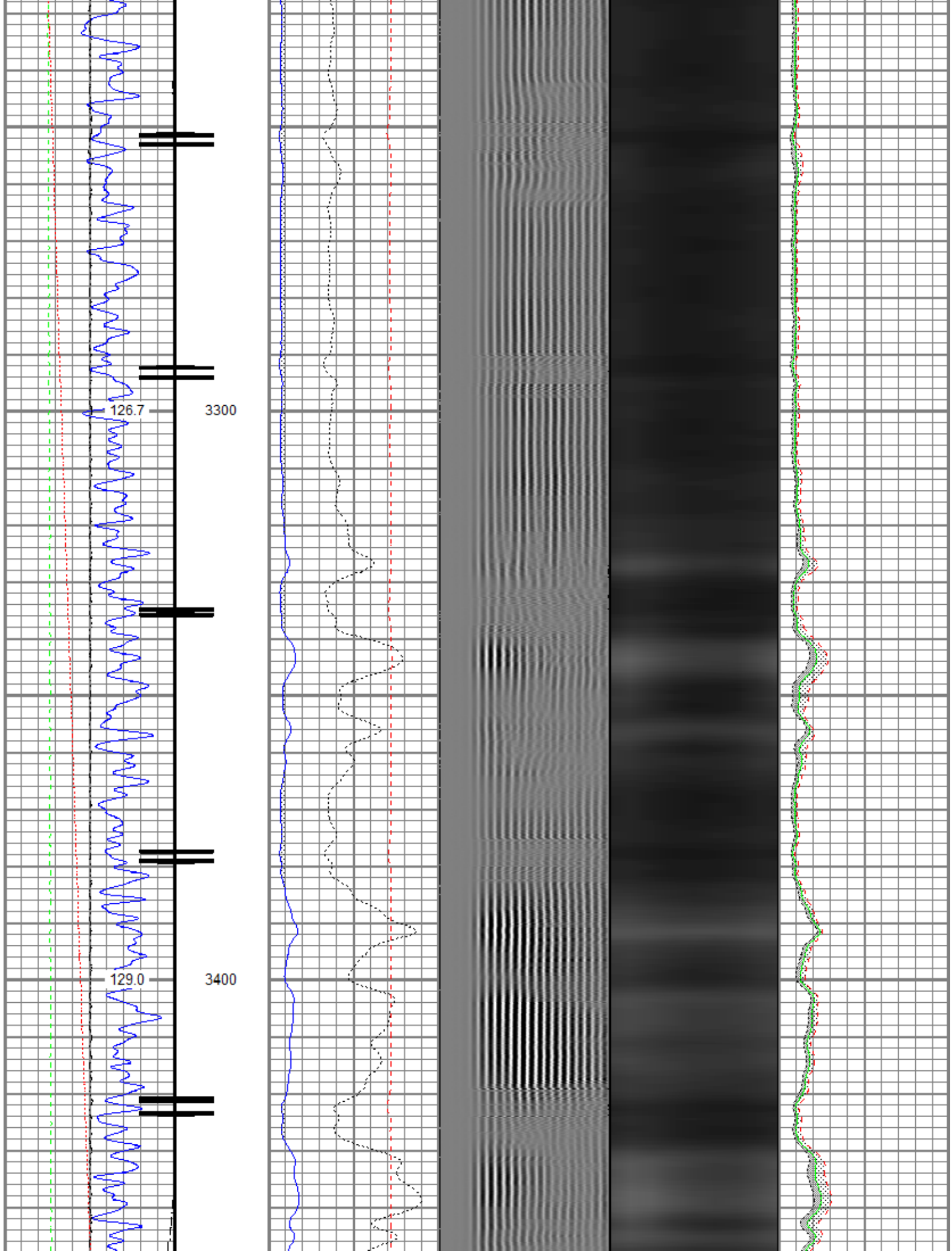


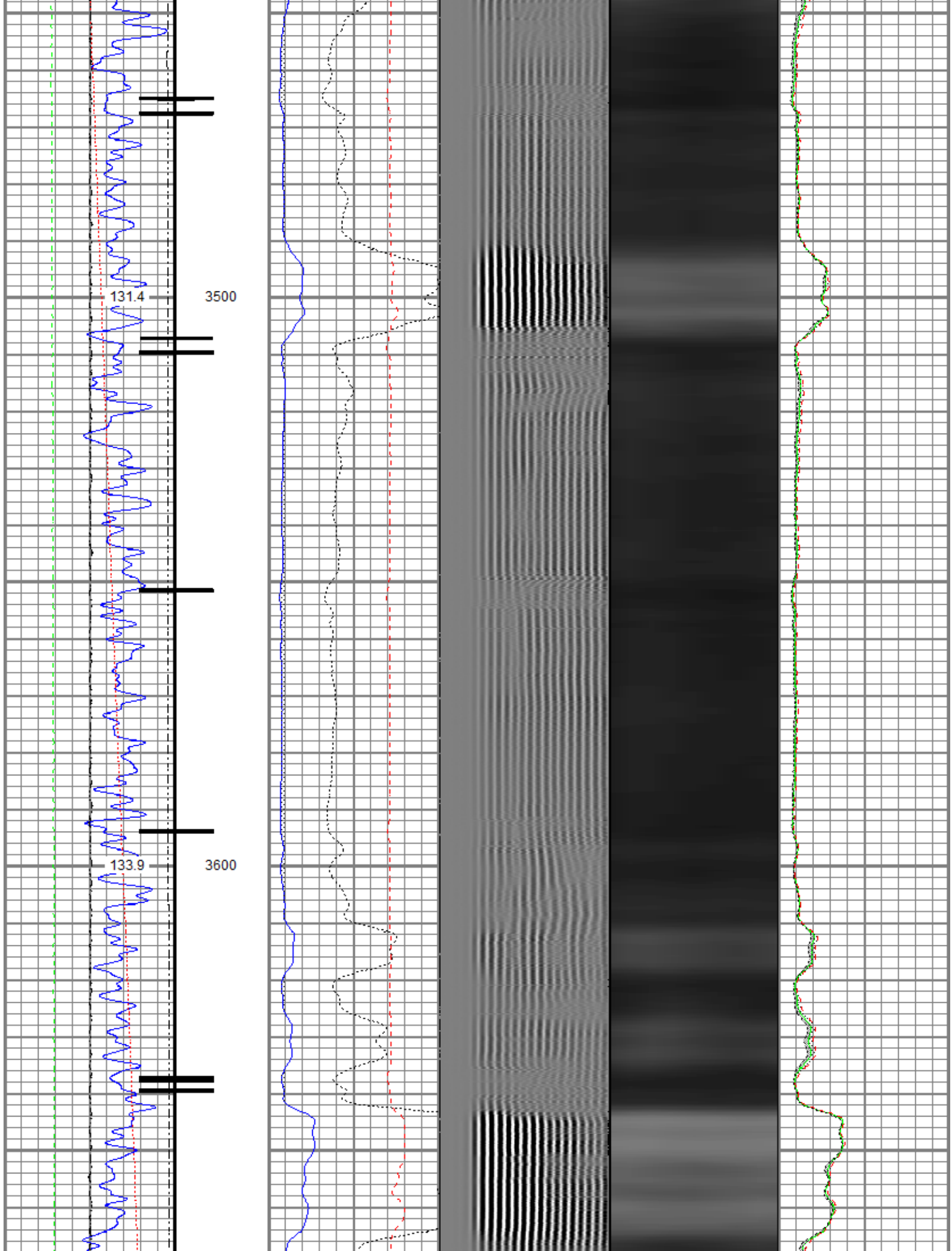


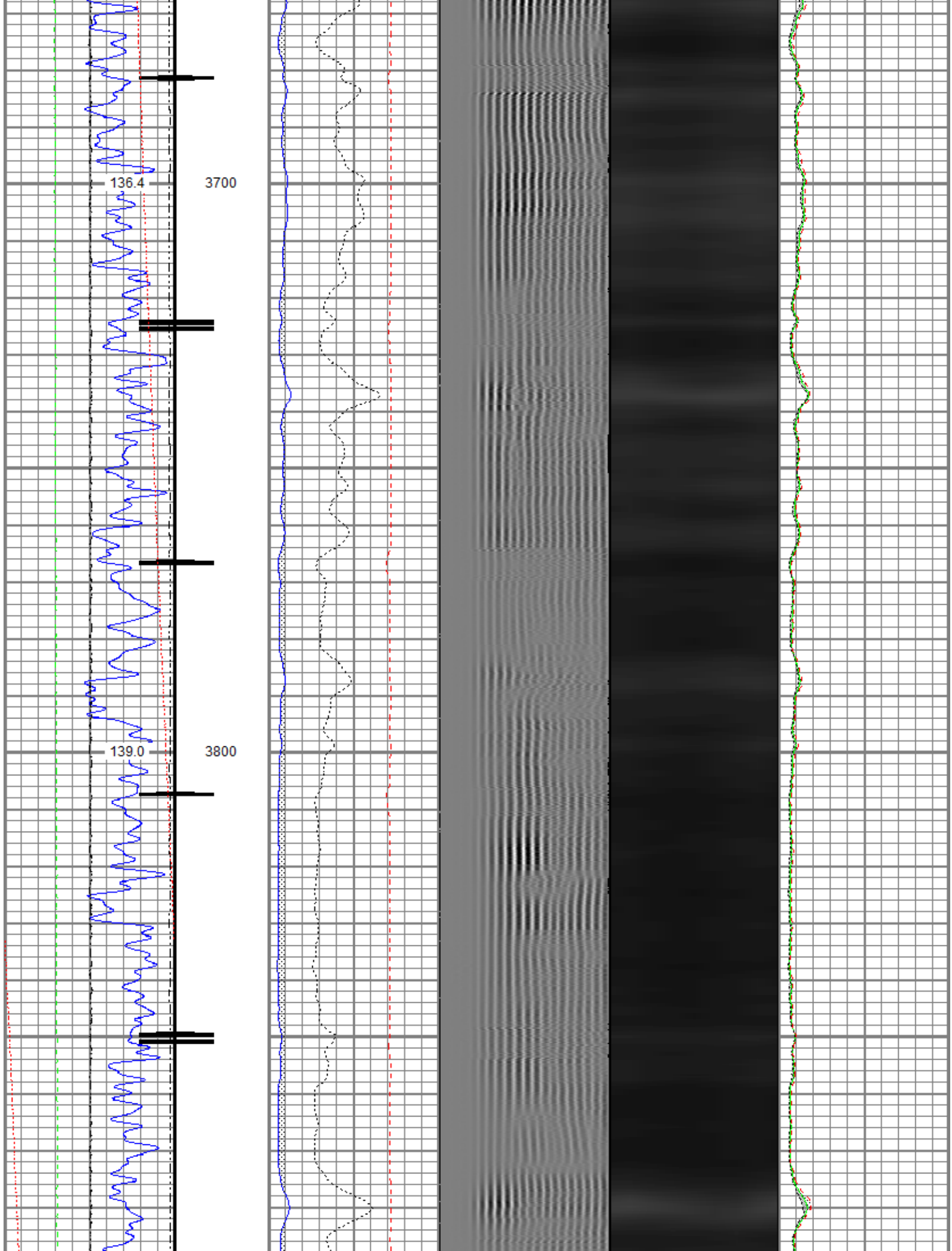


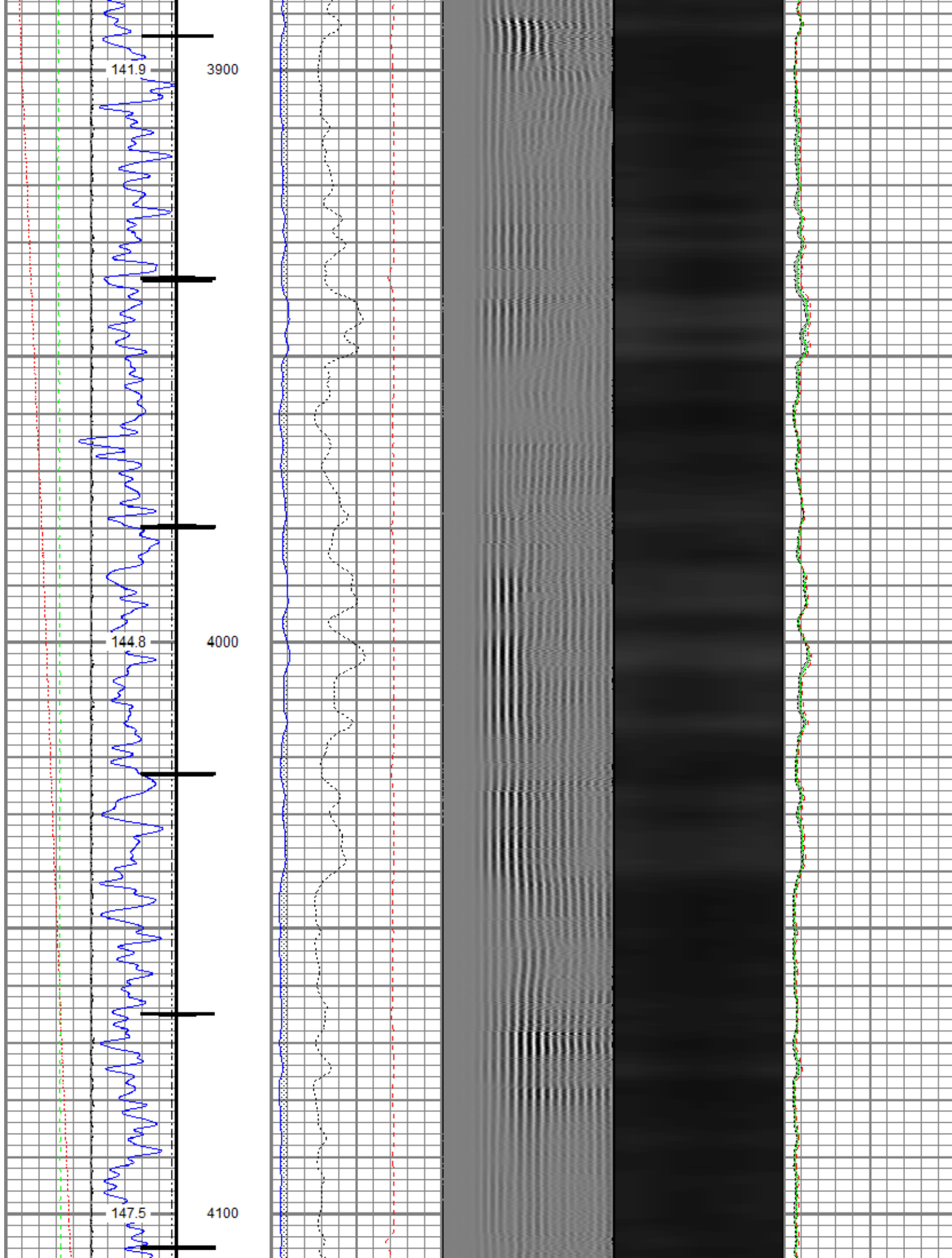




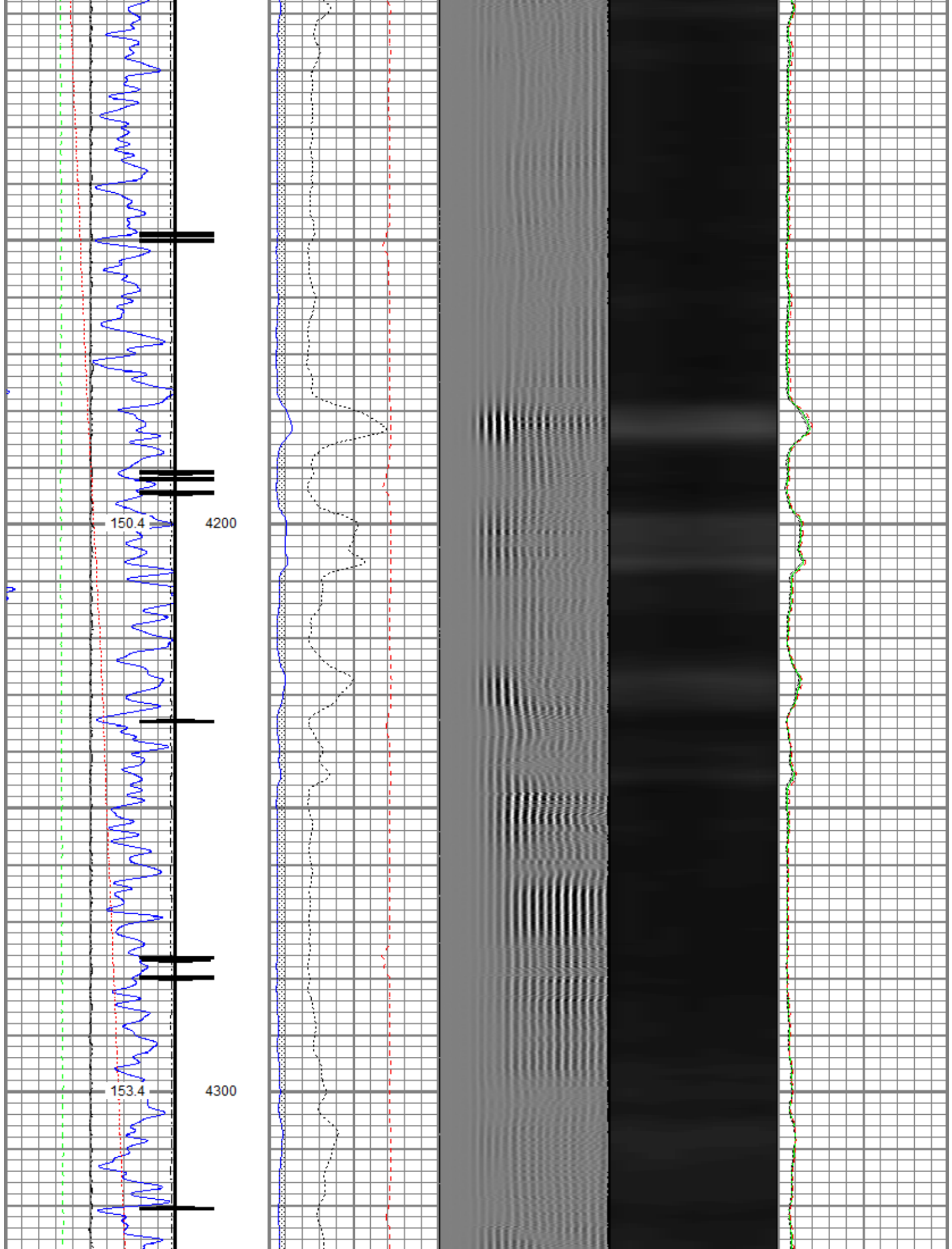


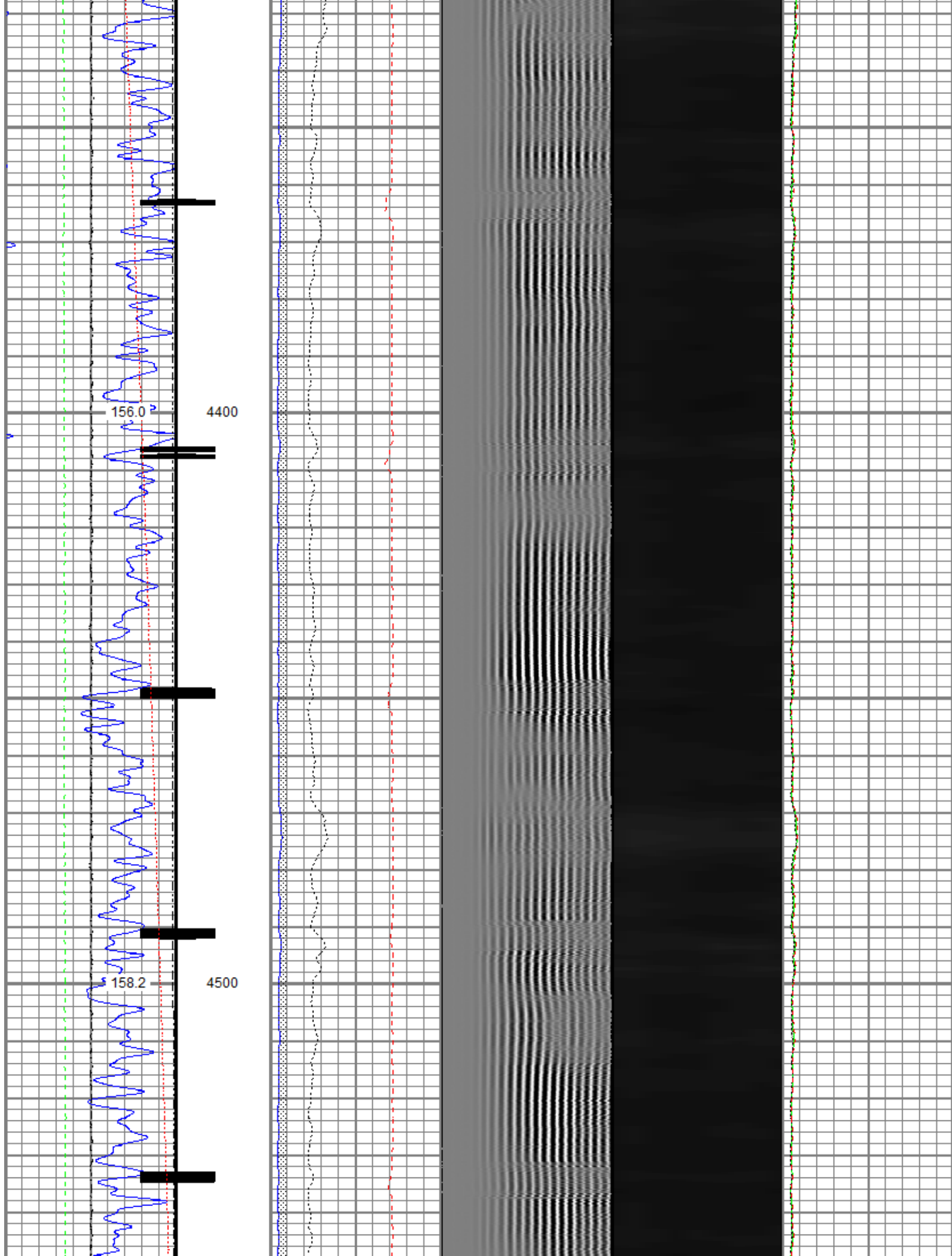


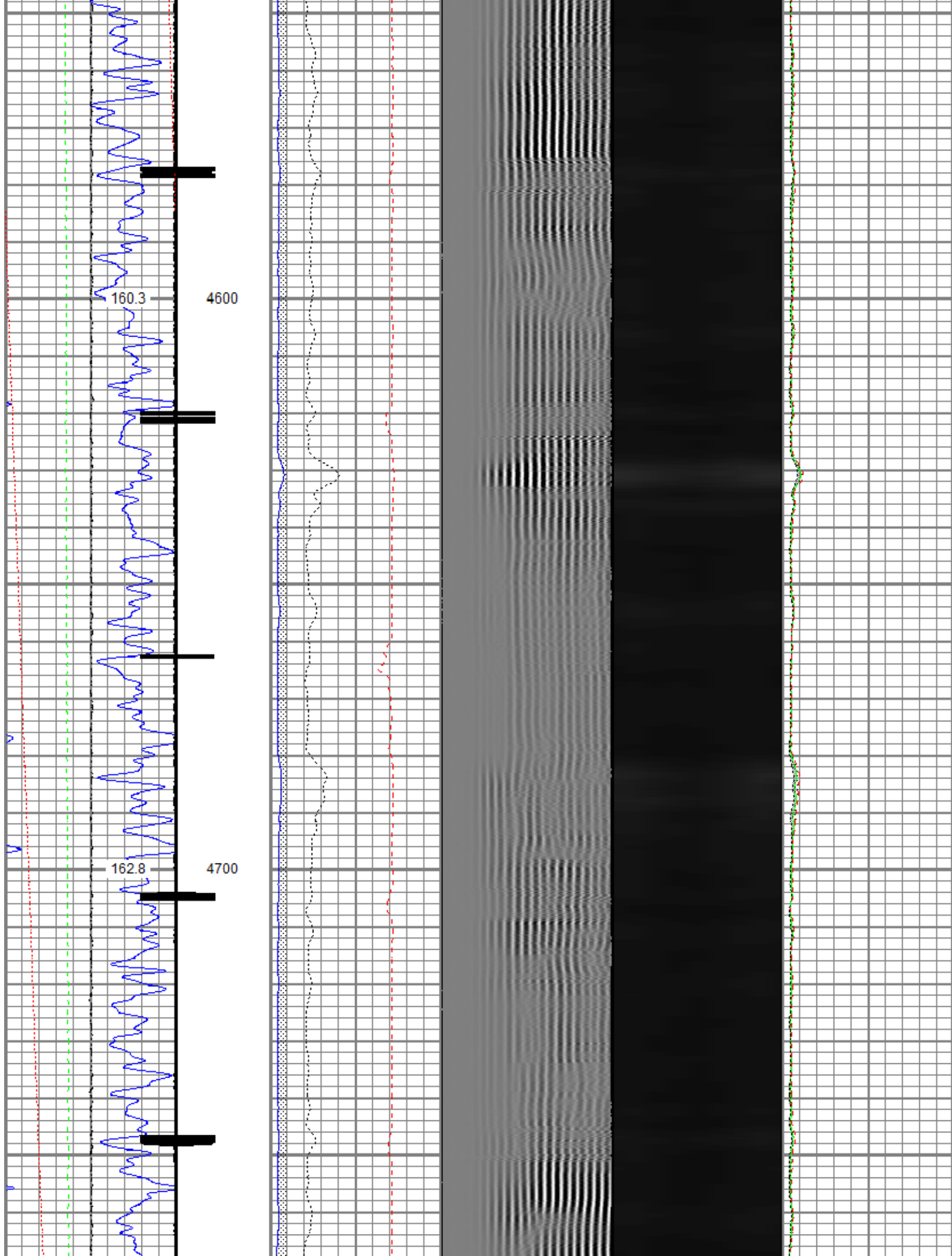


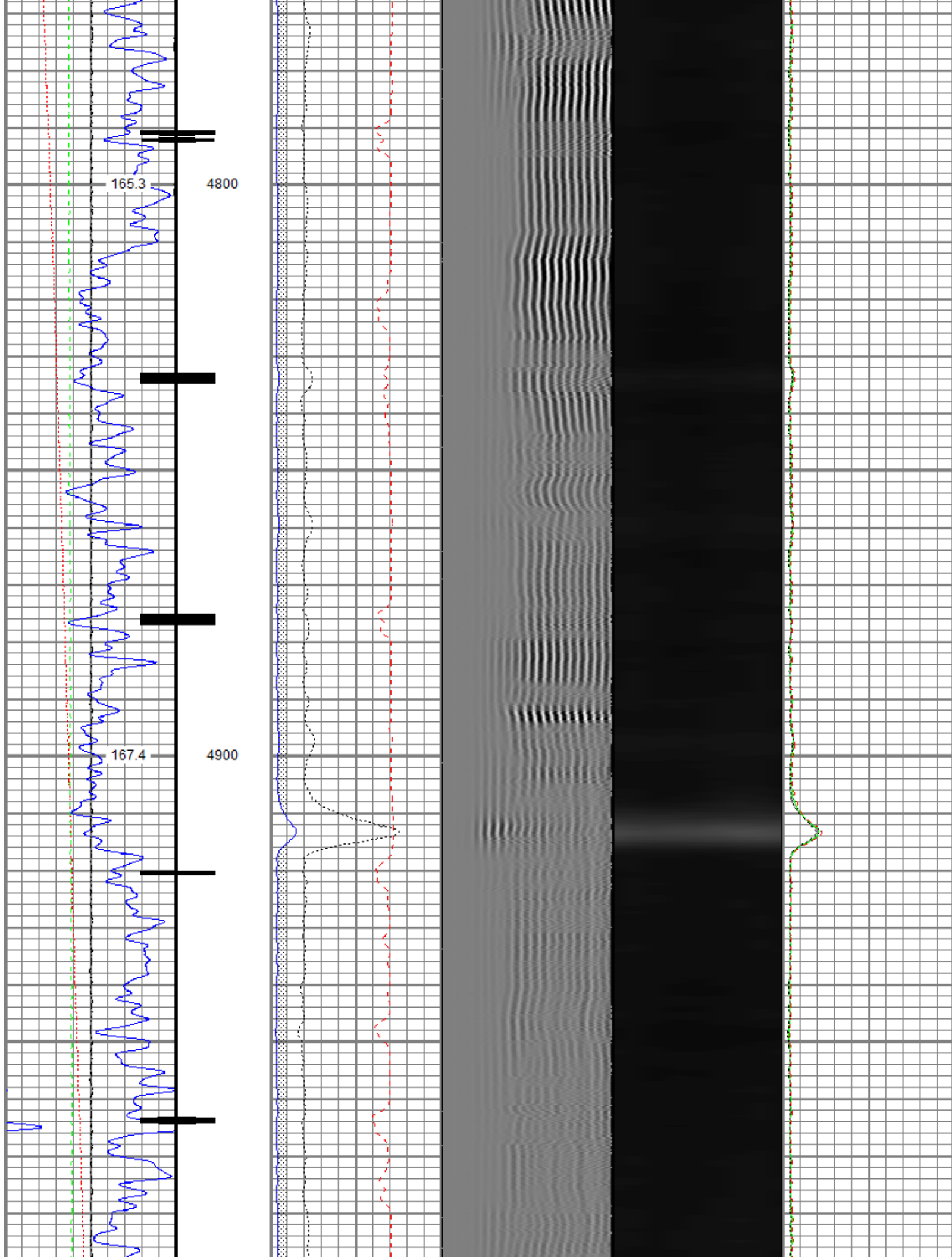




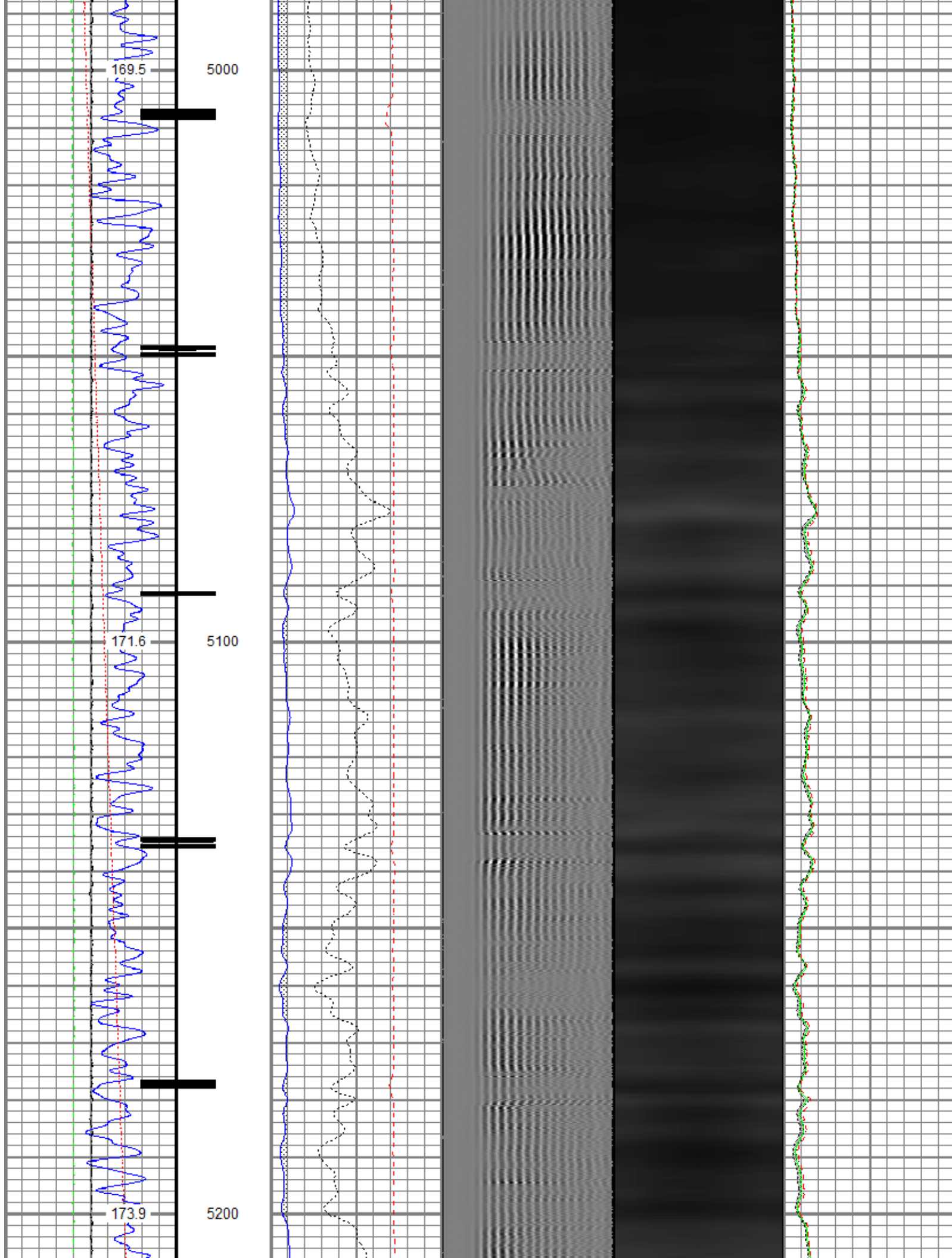


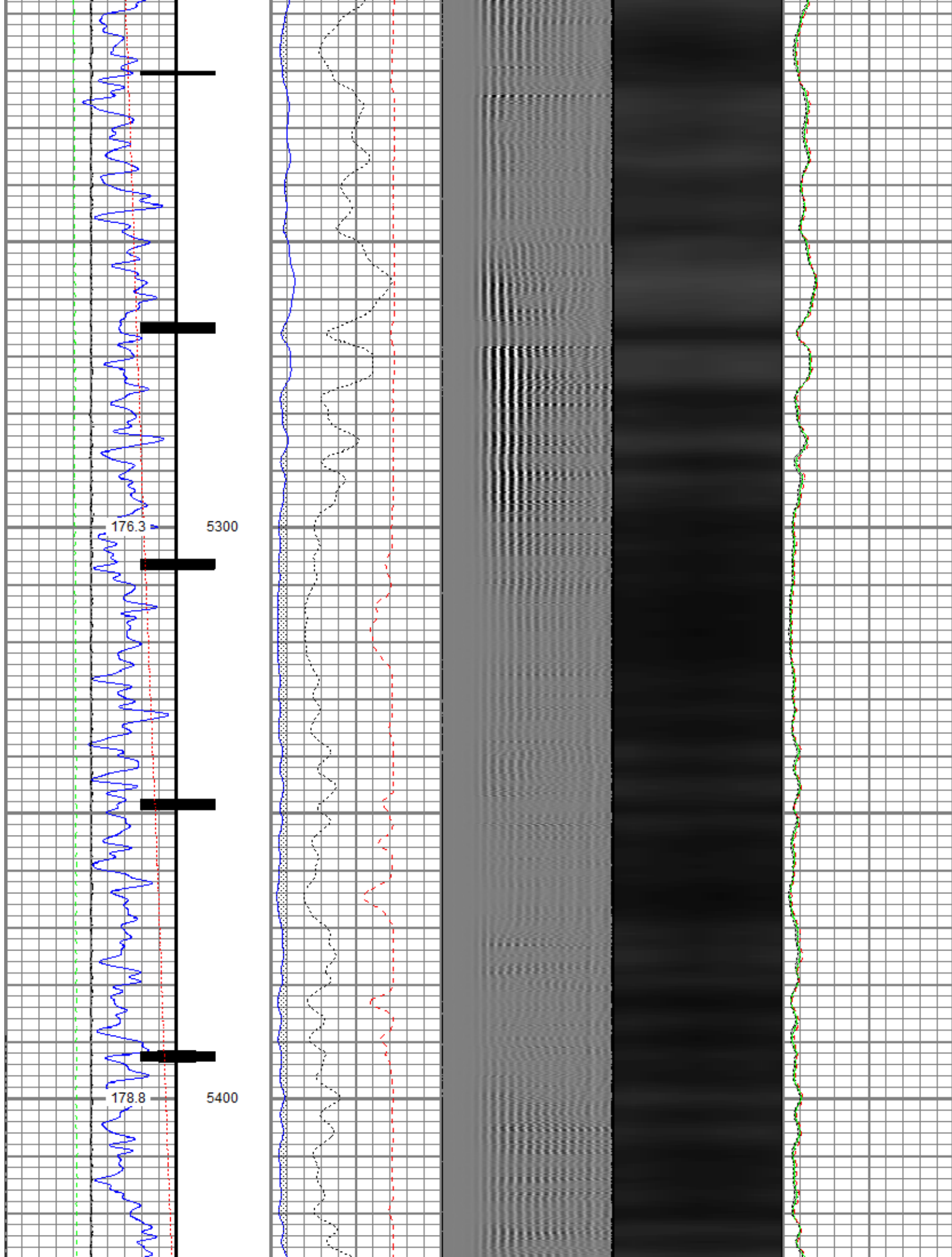


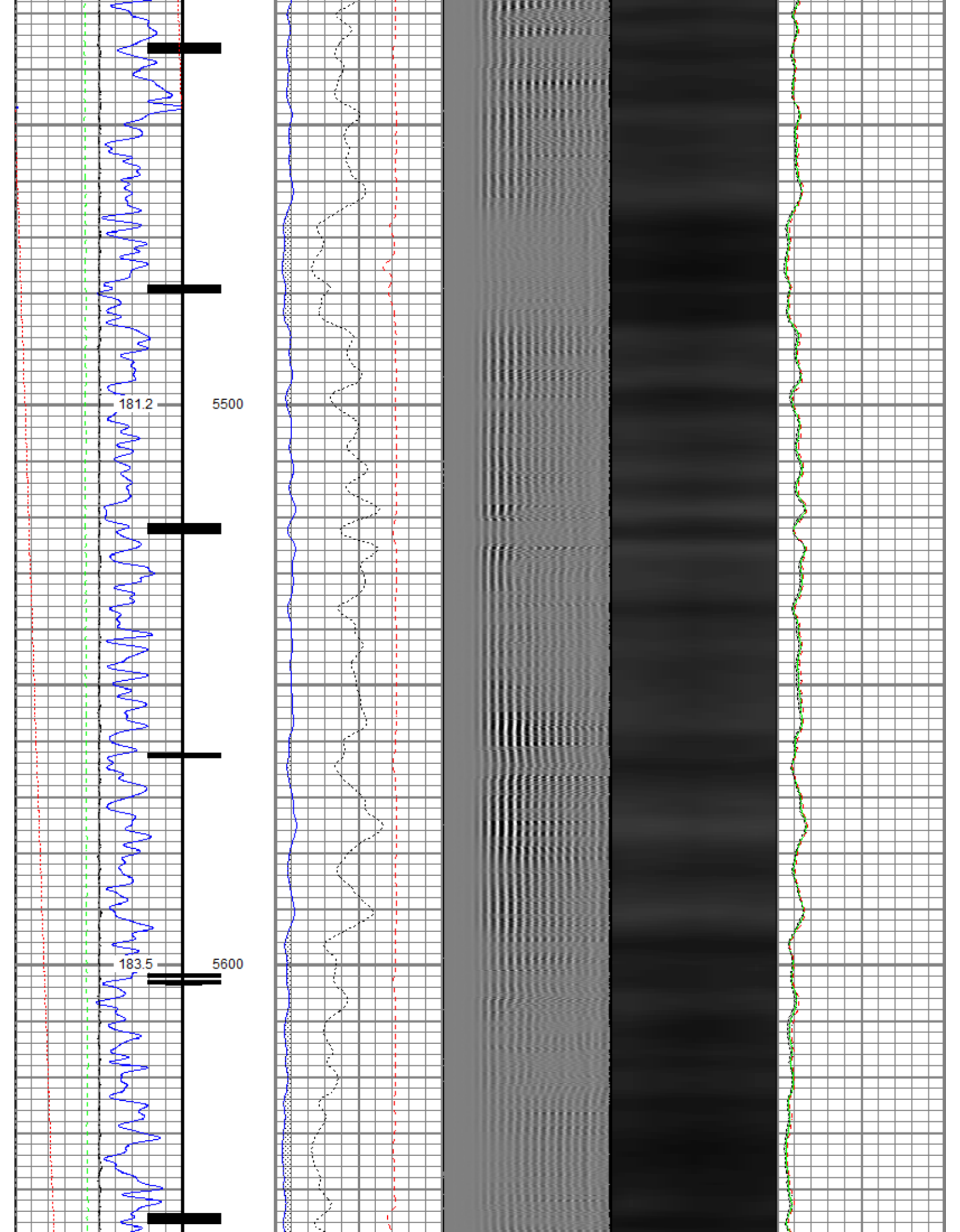


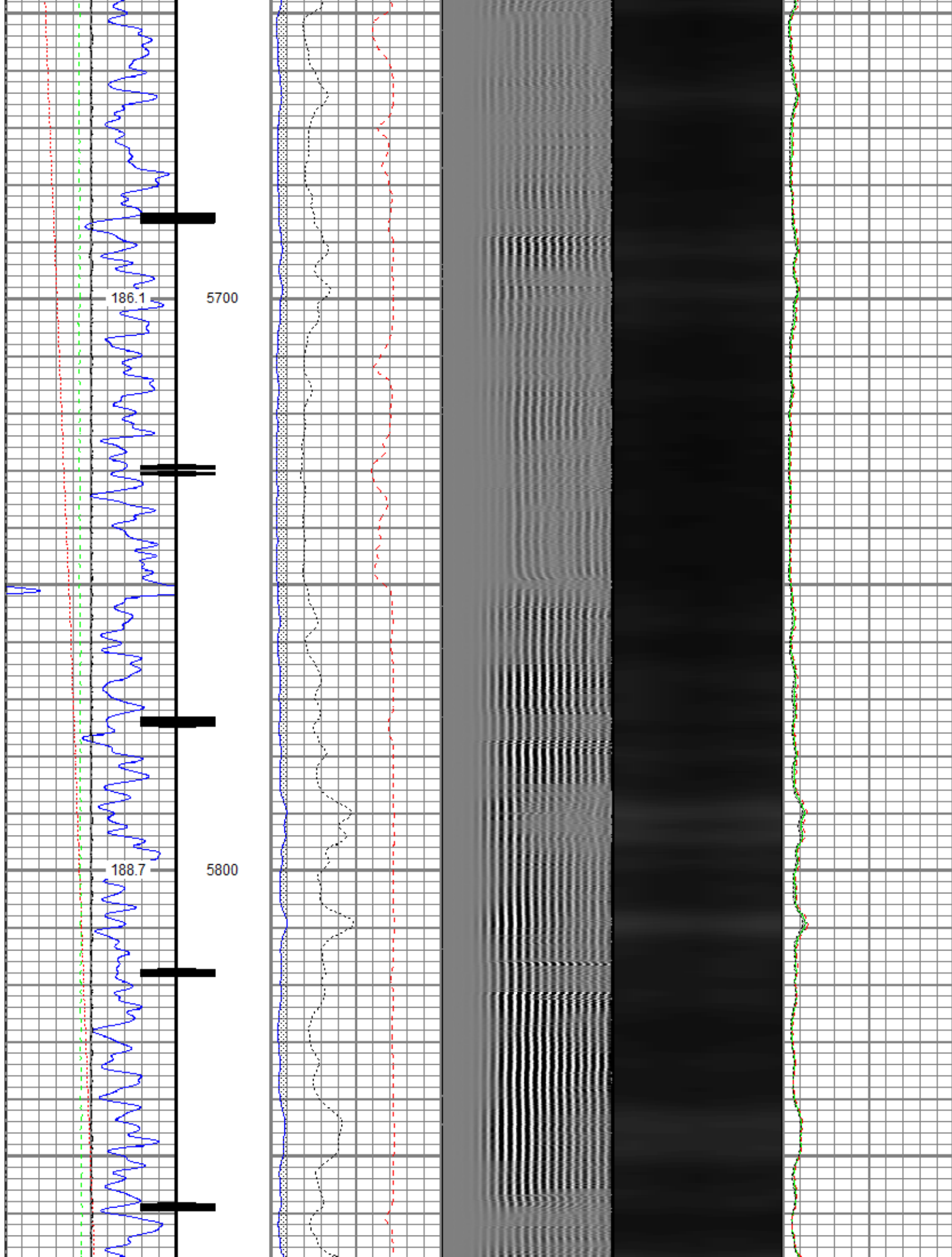




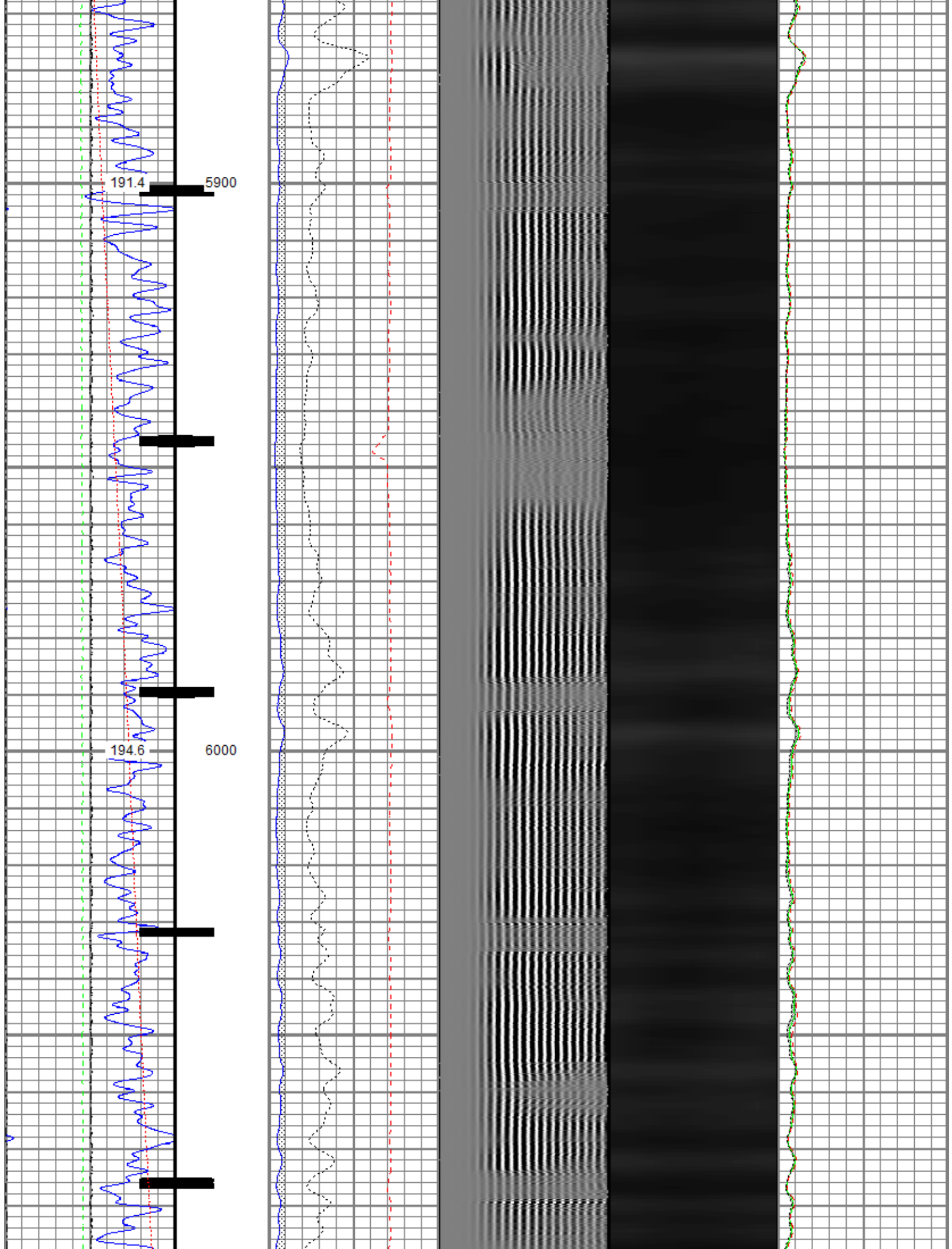


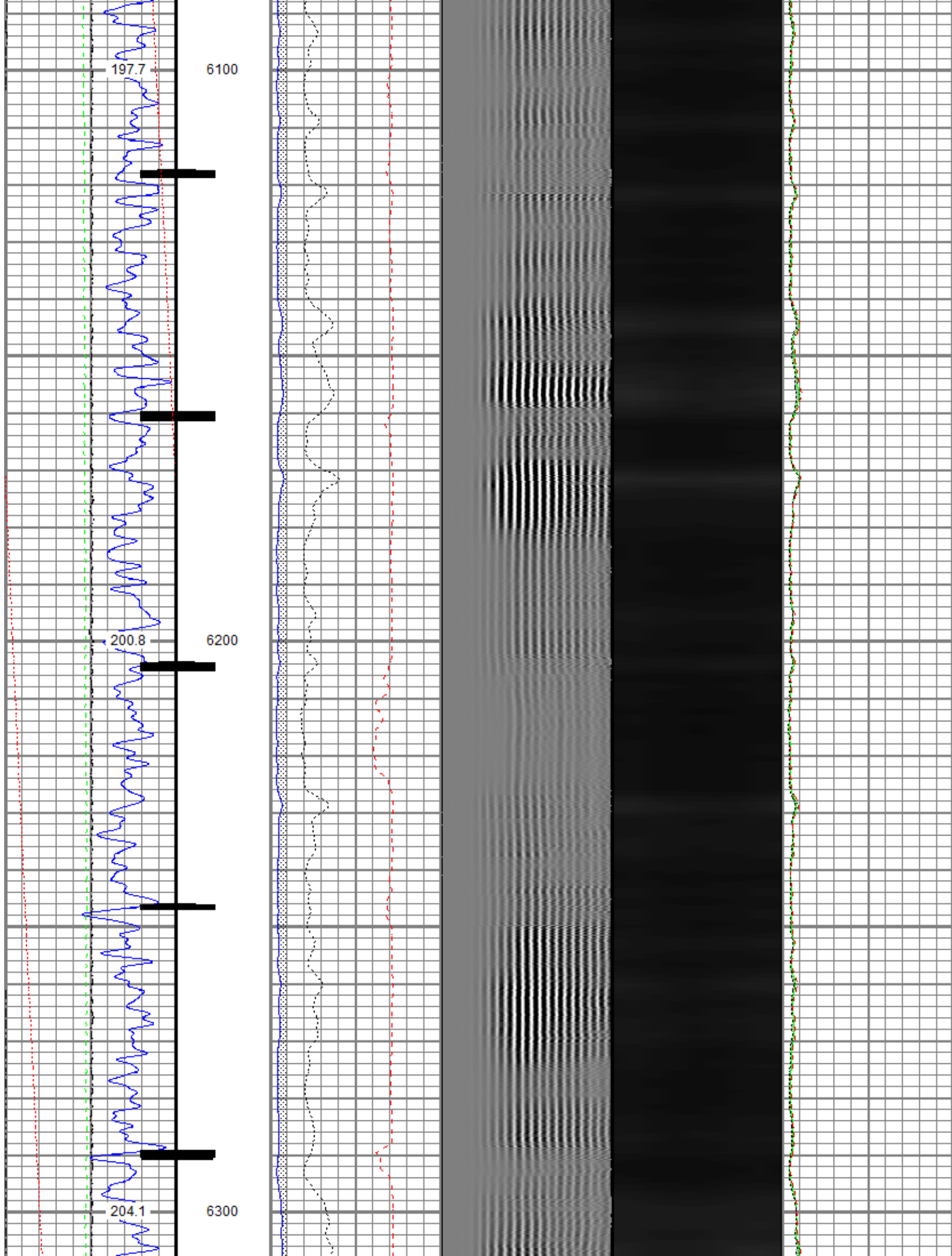


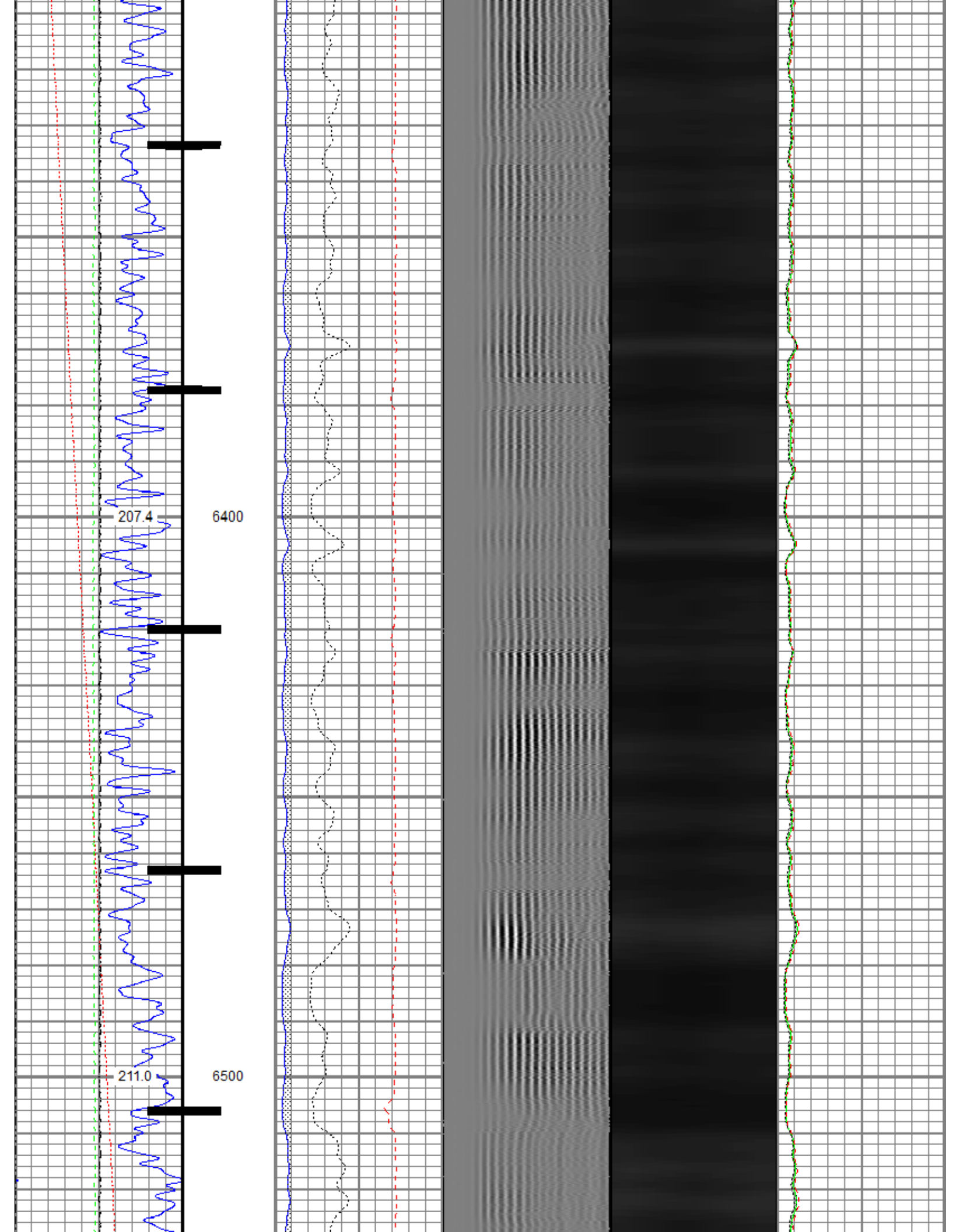


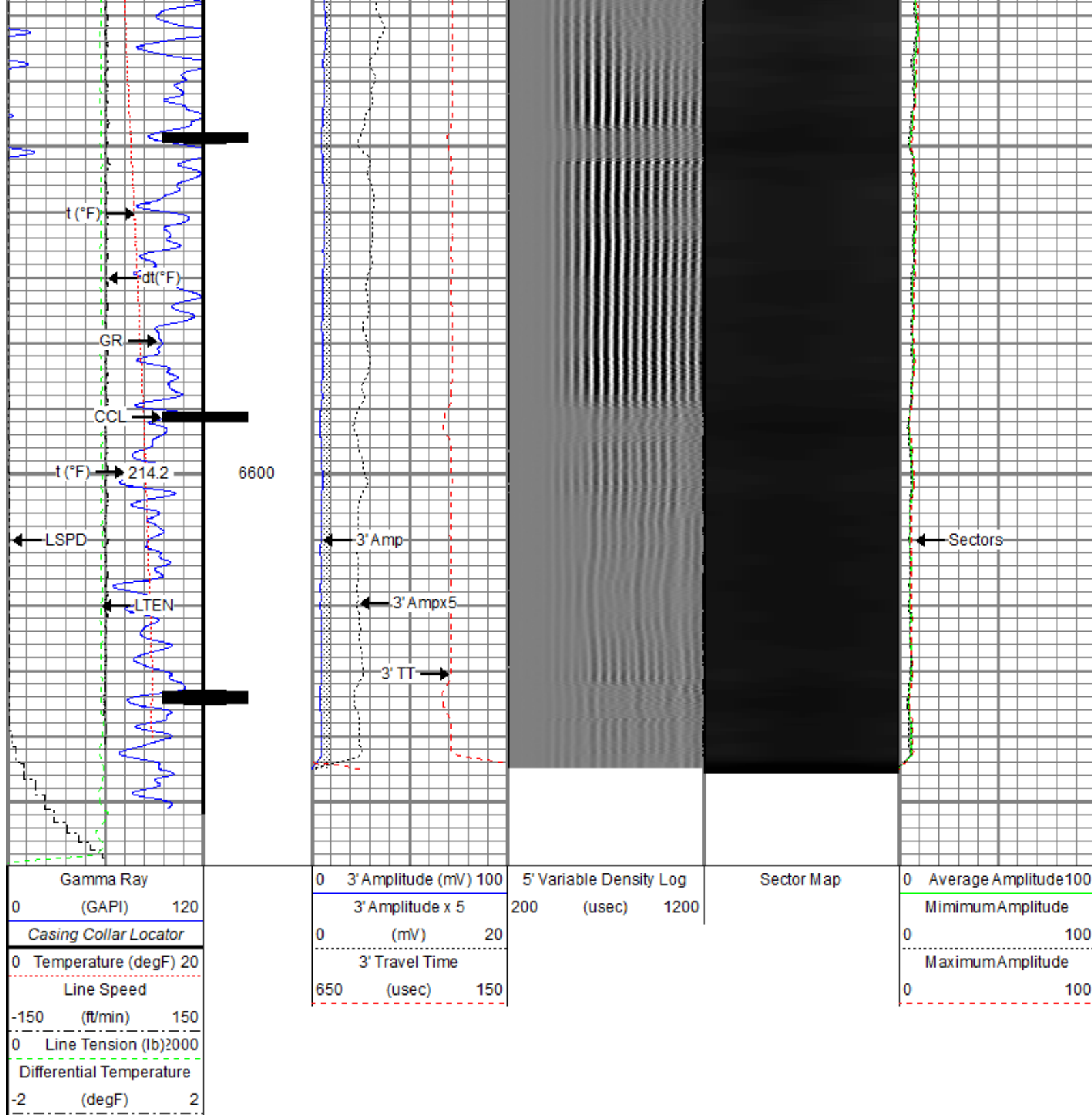








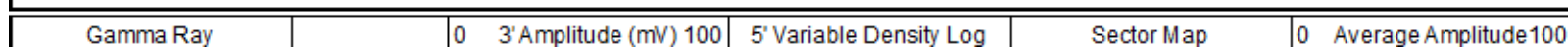




Repeat Pass

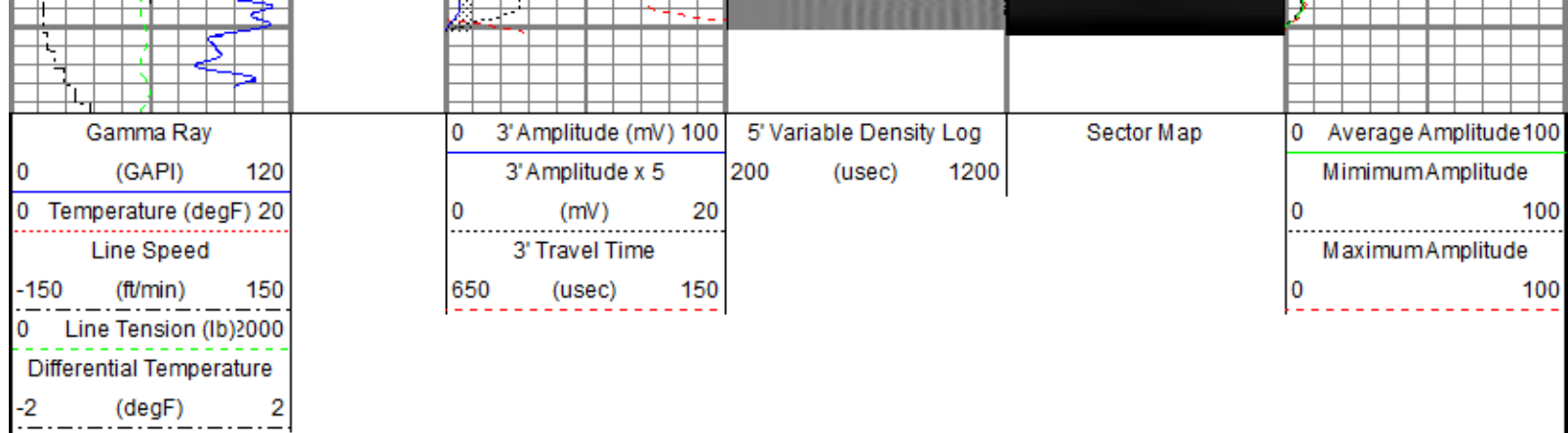
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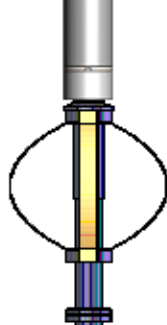








Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	17.04		Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
WVFS8	14.81		Probe Radii-2750 RBT (FW1305-096) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS7	14.81					
WVFS6	14.81					
WVFS5	14.81					
WVFS4	14.81					
WVFS3	14.81					
WVFS2	14.81					
WVFS1	14.81					
WVFCAL	14.81					
WVF3FT	14.81					
WVF5FT	13.81					
CCL\$2 CCL\$1	6.80 6.80		Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
GR	5.46		Probe GR-CCL-2750 6PB (101001) Probe 2-3/4" rev.1 Digital Scintillation Gamma Ray/CCL Combined with 6 Pin Bottom for CNT	4.80	2.75	55.00



Probe CENT-2750  
Probe 2-3/4" Electric Inline Bowspring Centralizer

2.88

2.75

20.00

Dataset: PROCESSED\_0512346248\_Anadarko\_Verde 13-11HZ-RBL\_06-24-18\_2800 PSI.db: field/well/run1/pass4.1  
Total length: 23.86 ft  
Total weight: 223.60 lb  
O.D.: 2.75 in

#### Calibration Report

Database File C:\ProgramData\Warrior\Data\0512346248\_Anadarko\_Verde 13-11HZ-RBL\_06-24-18\PROCESSED\_0512346248\_Anadarko\_V  
Dataset Pathname pass4.1  
Dataset Creation Sun Jun 24 17:11:09 2018

#### Gamma Ray Calibration Report

Serial Number: 101001  
Tool Model: 2750 6PB  
Performed: Sun Nov 12 11:25:32 2017  
  
Calibrator Value: 637.0 GAPI  
  
Background Reading: 100.6 cps  
Calibrator Reading: 981.1 cps  
  
Sensitivity: 0.7235 GAPI/cps

#### Segmented Cement Bond Log Calibration Report

Serial Number: FW1305-096  
Tool Model: 2750 RBT  
  
Calibration Casing Diameter: 5.500 in  
Calibration Depth: 281.791 ft

Master Calibration, performed Sun Jun 24 08:22:18 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	0.424	0.800	71.921	170.278	-0.297
CAL	0.006	0.428				
5'	0.006	0.400	0.800	71.921	180.782	-0.365
SUM						
S1	0.006	0.424	0.000	100.000	239.427	-1.540
S2	0.006	0.426	0.000	100.000	238.278	-1.533
S3	0.006	0.420	0.000	100.000	241.795	-1.564
S4	0.006	0.423	0.000	100.000	239.995	-1.471
S5	0.006	0.424	0.000	100.000	239.329	-1.528
S6	0.006	0.423	0.000	100.000	239.595	-1.462
S7	0.006	0.426	0.000	100.000	238.445	-1.490
S8	0.006	0.424	0.000	100.000	239.532	-1.491

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	0.420	1.000	0.000

CAL 0.000 0.000 0.000 0.428 1.000 0.000

Air Zero Calibration, performed Sun Jun 24 08:22:42 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.006	0.000	0.000
5'	0.006	0.000	-0.000
SUM			
S1	0.007	0.000	-0.000
S2	0.006	0.000	0.000
S3	0.006	0.000	0.000
S4	0.006	0.000	0.000
S5	0.006	0.000	-0.000
S6	0.006	0.000	0.000
S7	0.006	0.000	0.000
S8	0.006	0.000	0.000

Temperature Calibration Report

Serial Number: FW1305-096  
Tool Model: 2750 RBT  
Performed: Sun Nov 12 13:42:10 2017

	Reference	Reading
Low Reference:	100.00 degF	109.43 degF
High Reference:	350.00 degF	405.87 degF

Gain: 0.84  
Offset: 7.72  
Delta Spacing 1



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Verde 13-11HZ
Field	Wattenberg
County	Weld
State	Colorado