



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.			Location:	API # : 05-123-43806	Other Services GR/JB
Well	Babcock 22N-33HZ			SEC 4	TWP 2N	RGE 67W
Field	Wattenberg			Permanent Datum	Ground Level	Elevation 4887'
County	Weld			Log Measured From	Kelly Bushing	20 FT
State	Colorado			Drilling Measured From	Kelly Bushing	Elevation 4887'
						K.B. 4907' D.F. --- G.L. 4887'

Date	25-JUL-2017		
Run Number	Two		
Depth Driller	12220 FT		
Depth Logger	7400 FT		
Bottom Logged Interval	7396 FT		
Top Log Interval	Surface		
Open Hole Size	7.825"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	229 °F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	8:52		
Equipment Number	HD-0331		
Location	Fort Lupton, CO		
Recorded By	R. Cameron		
Witnessed By	Chris Hayes		

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	9 5/8	36	J-55	Surface	1876 FT		
Intermediate #1	5 1/2	17	P-110	Surface	12209 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

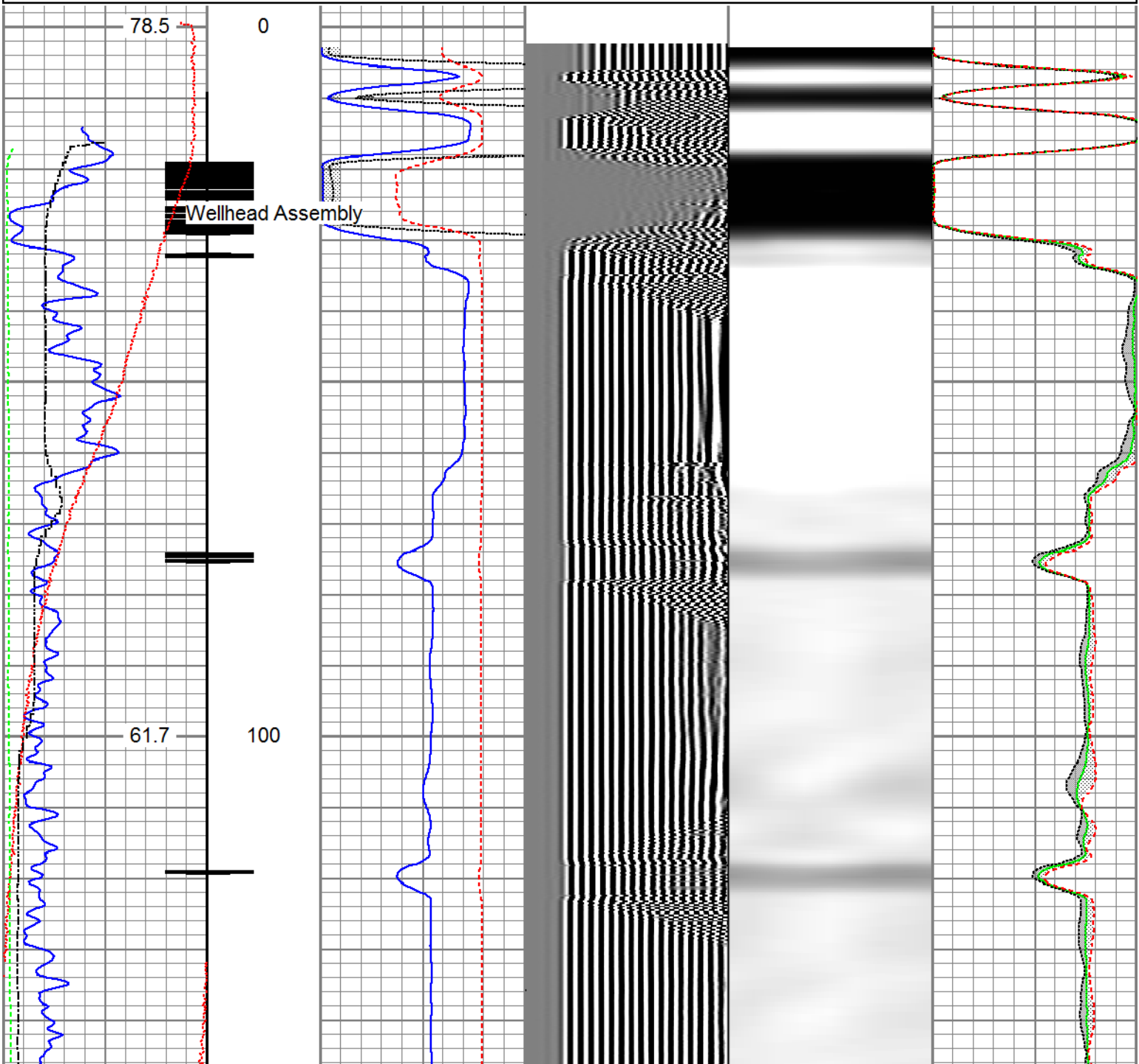
Log ran as per customer request  
Depth referenced to Casing Tally reported Marker Joint at 6641 FT  
Adjusted +8 FT to correlate with Marker Joint  
Log ran from 7396 FT to surface  
Log ran with 2800 PSI surface induced pressure  
Logging tools were clean and free of debris upon completion of operations  
  
Thank you for choosing Reliance Oilfield Services, LLC!!

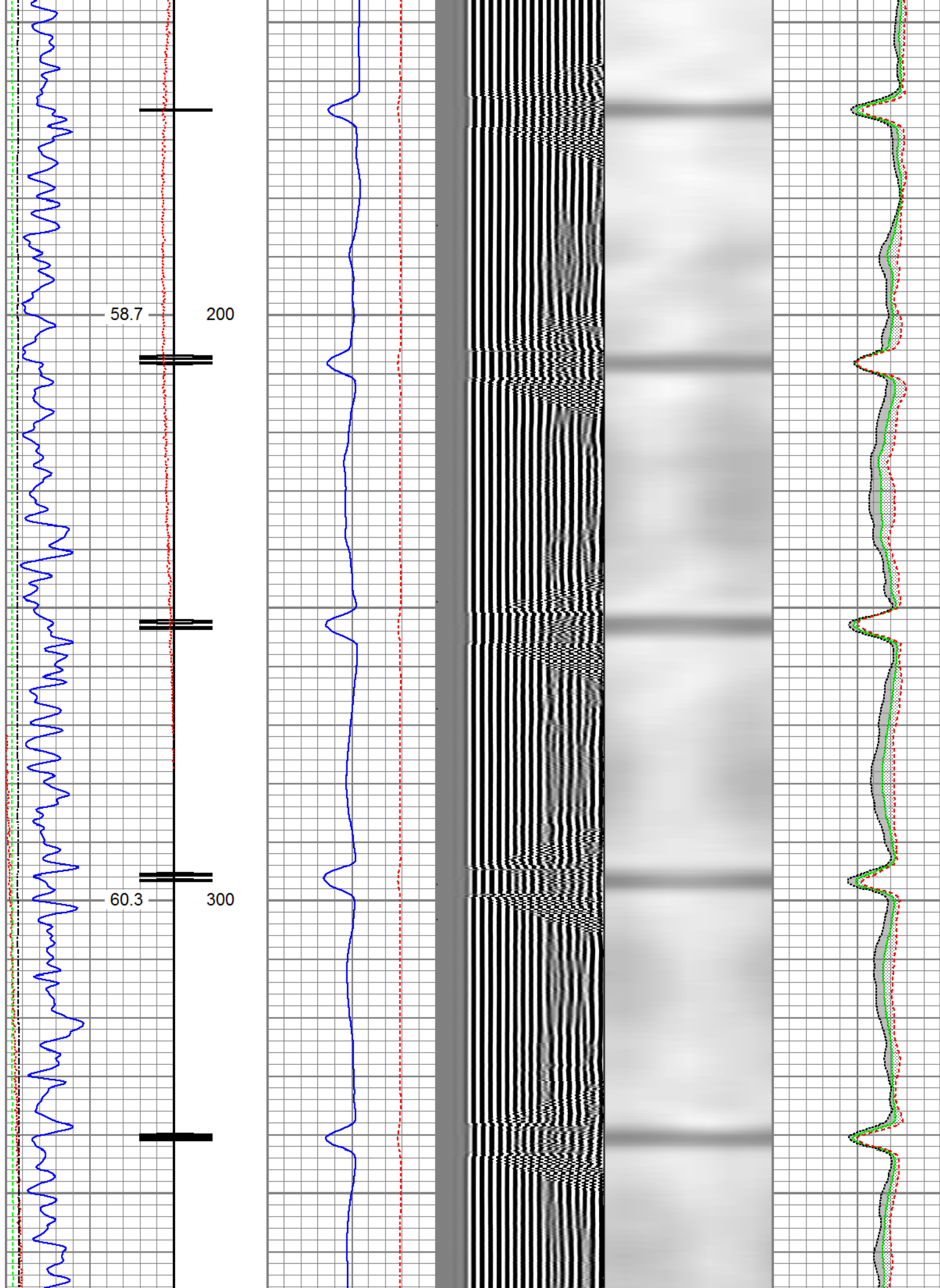


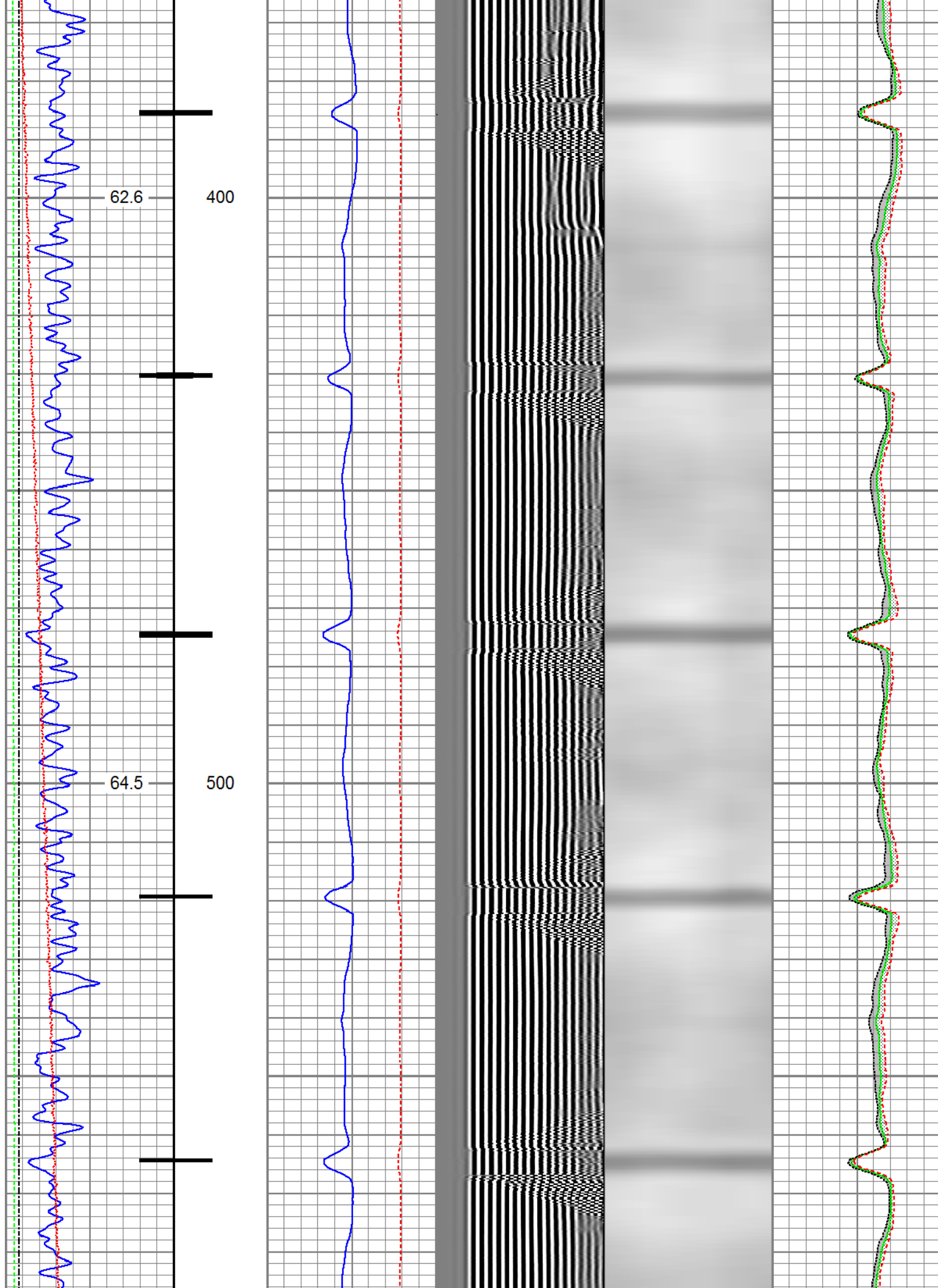
Main Pass

Recorded With 2800 PSI Surface Induced Pressure

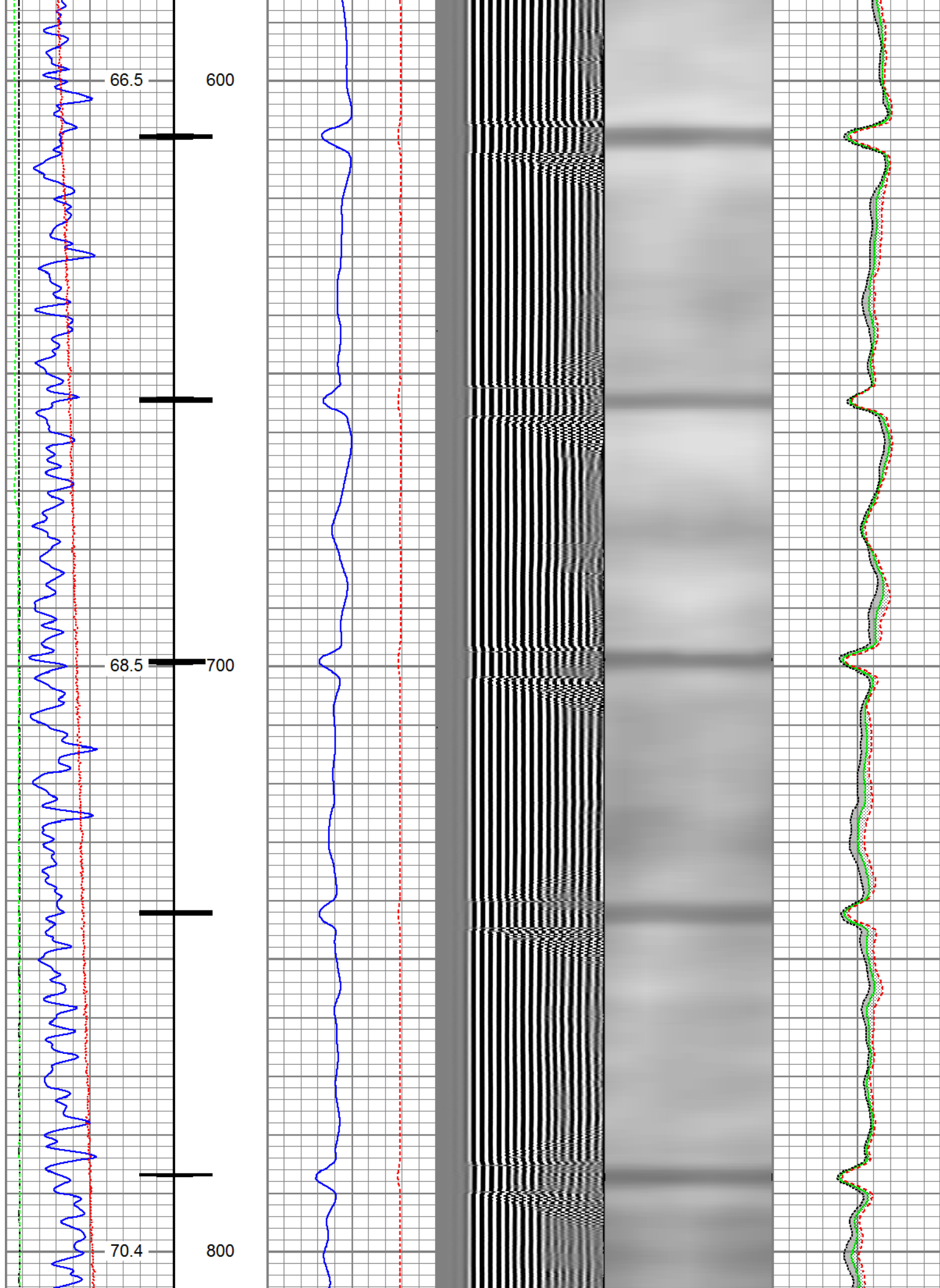
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 100
Temperature	3' Travel Time			Maximum Amplitude
0 (degF) 20	650 (usec) 150			0 100
Line Speed				
-150 (ft/min)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

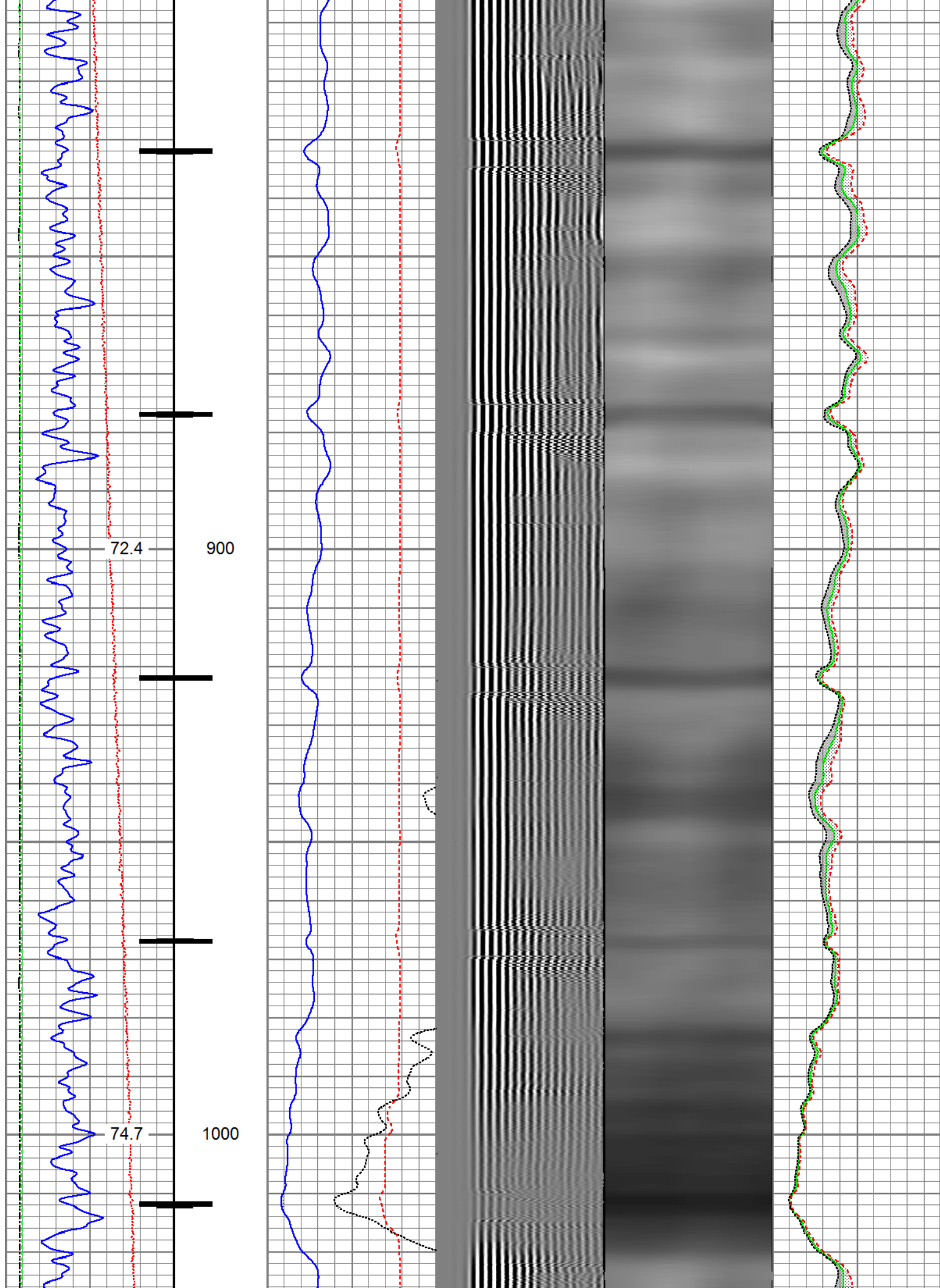


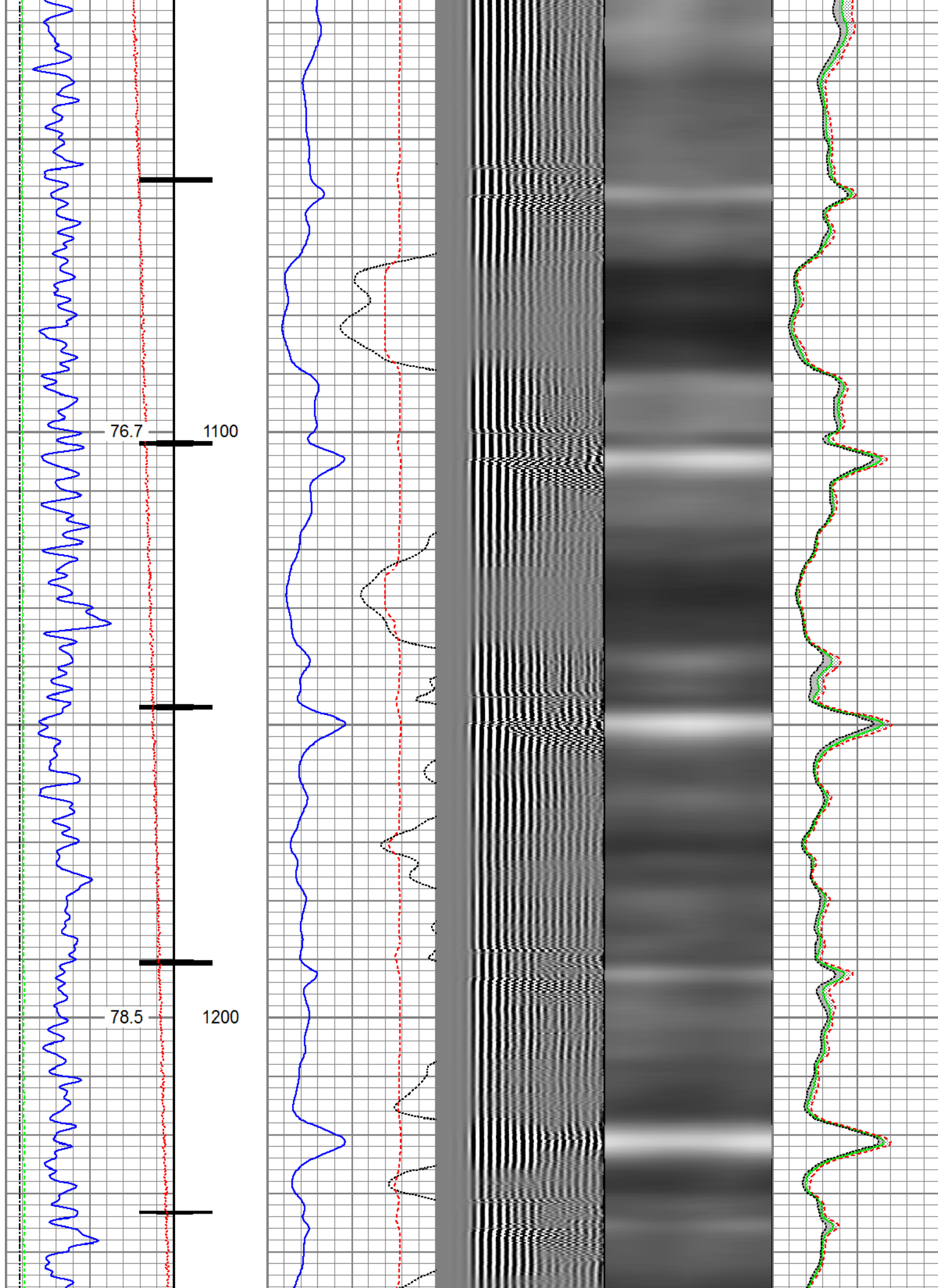


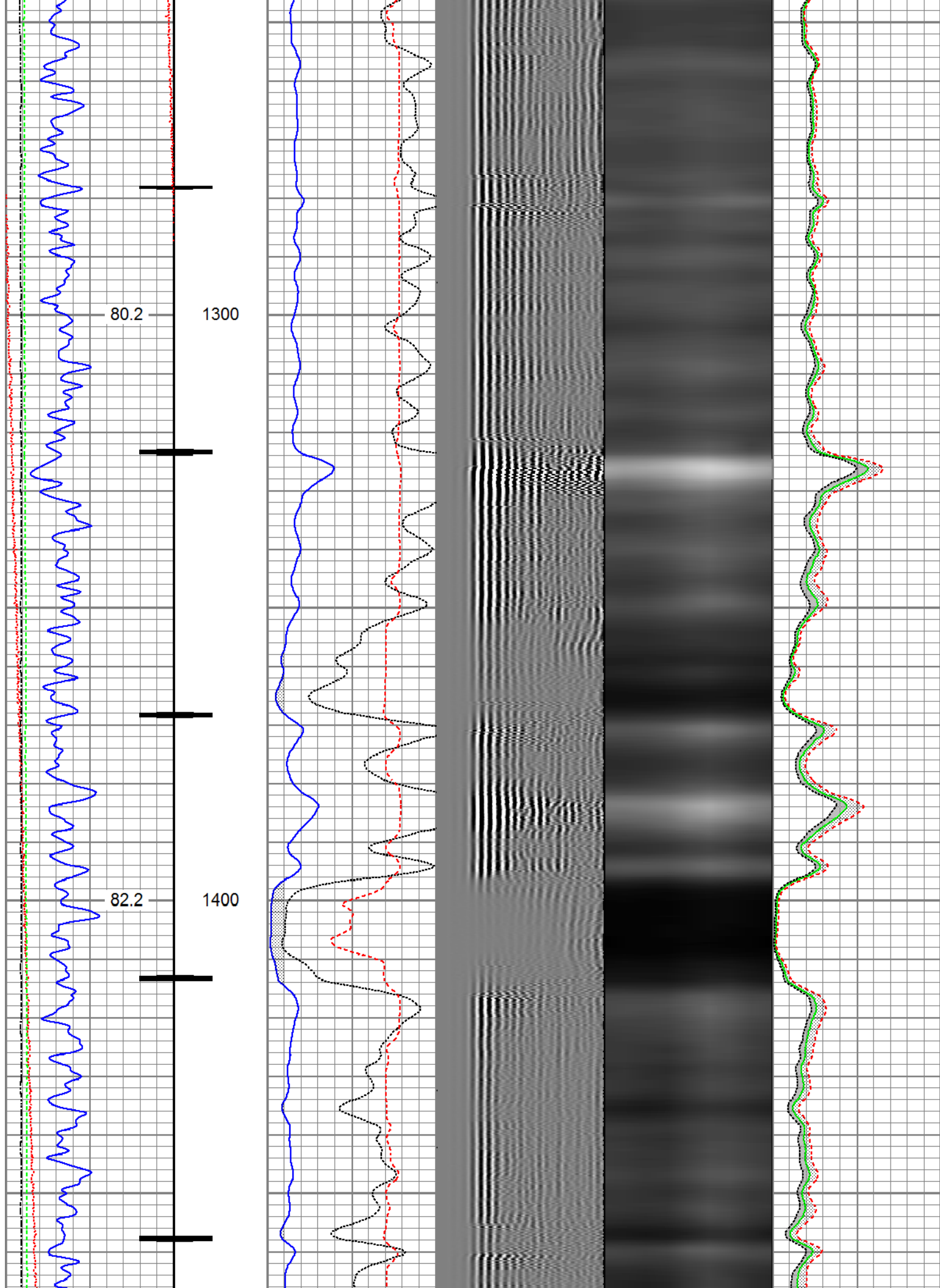




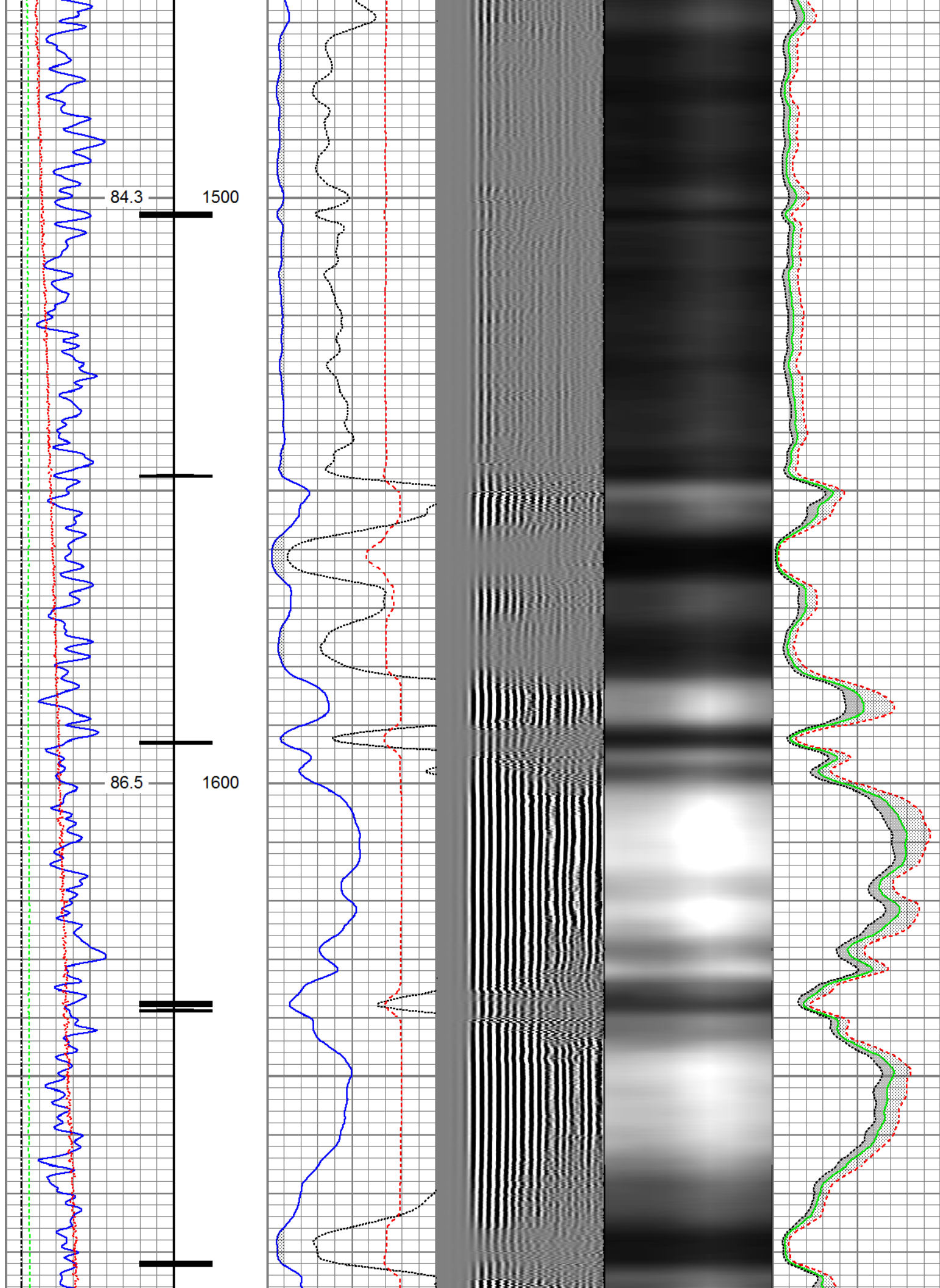


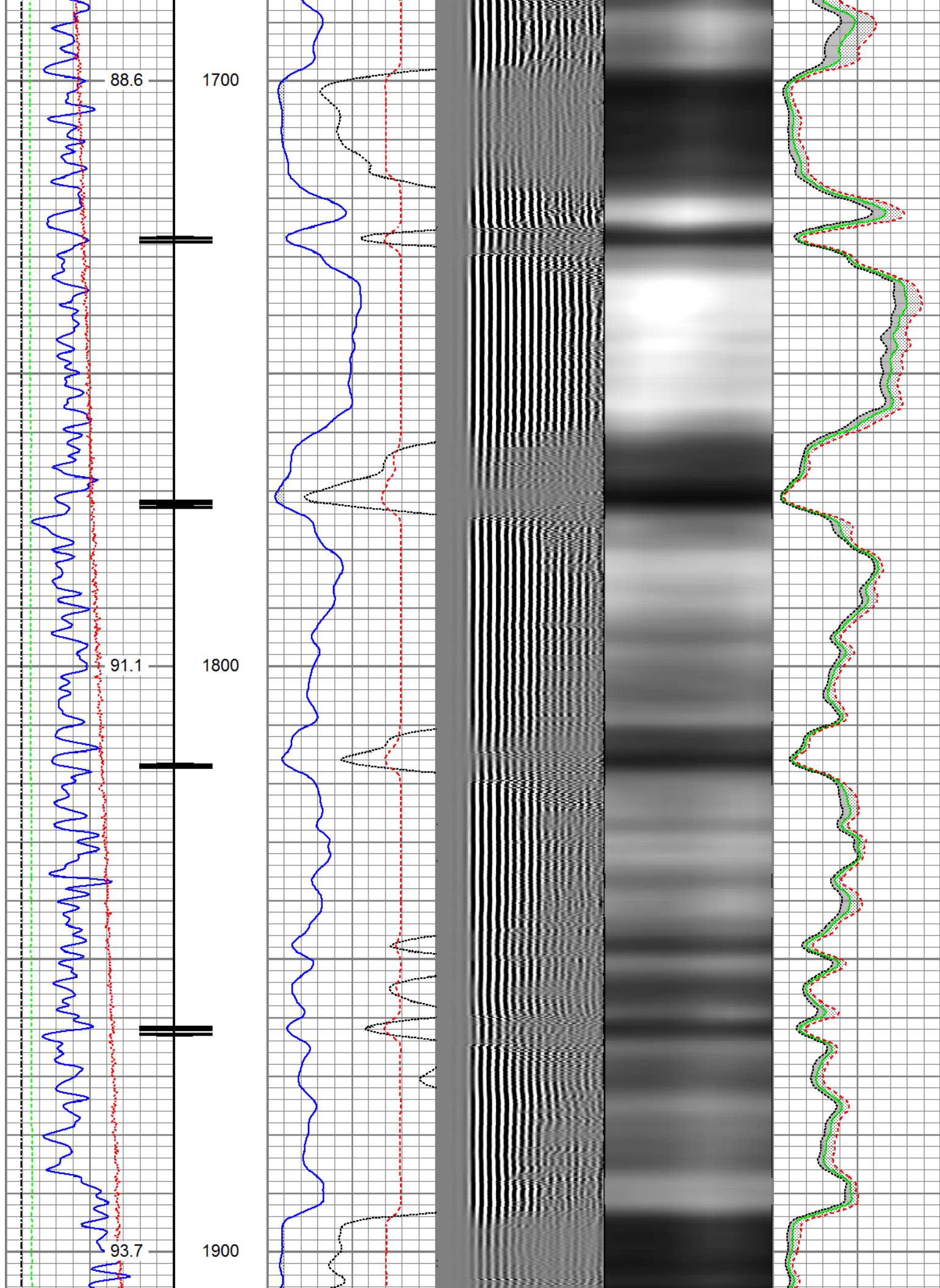


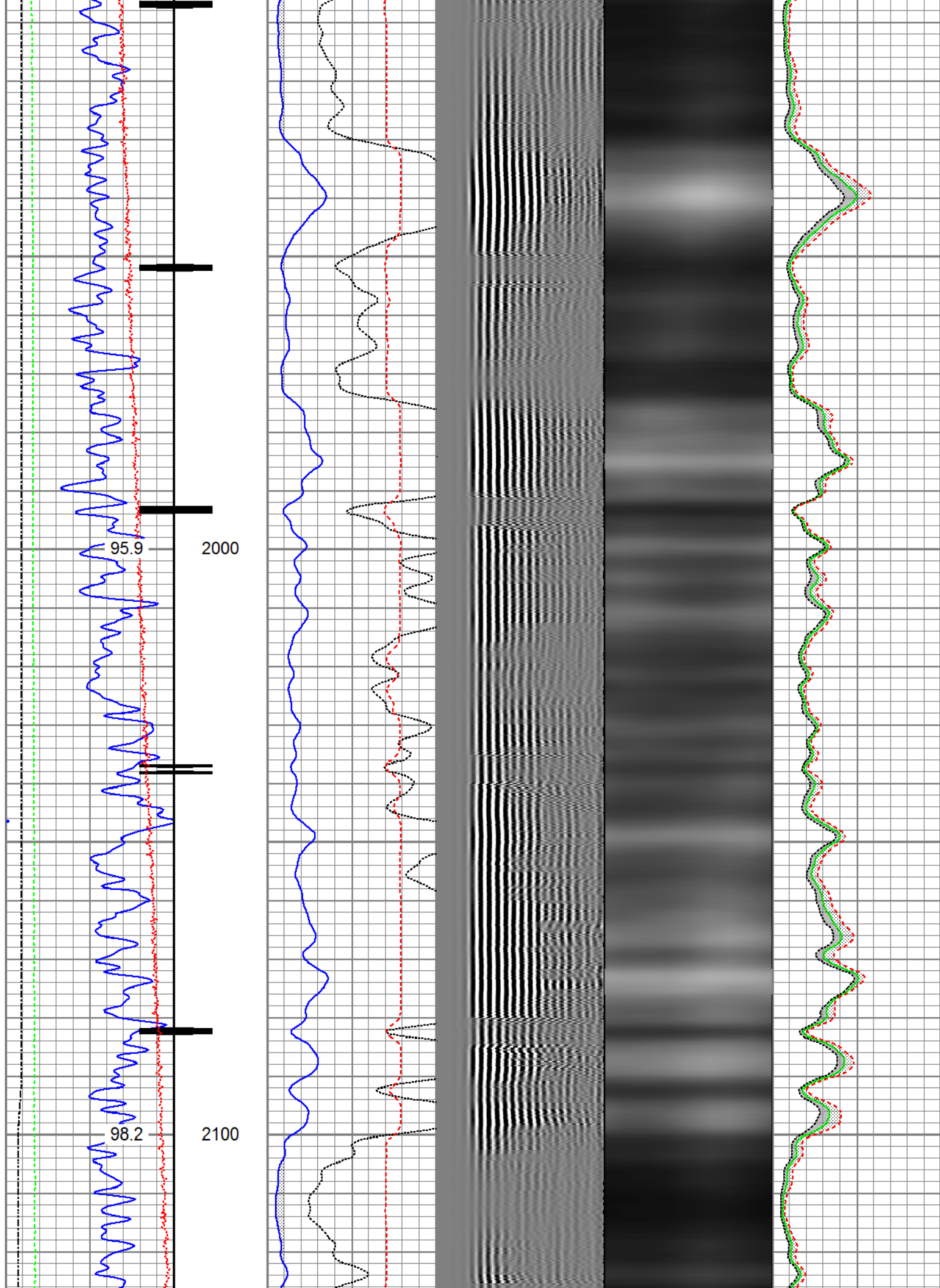




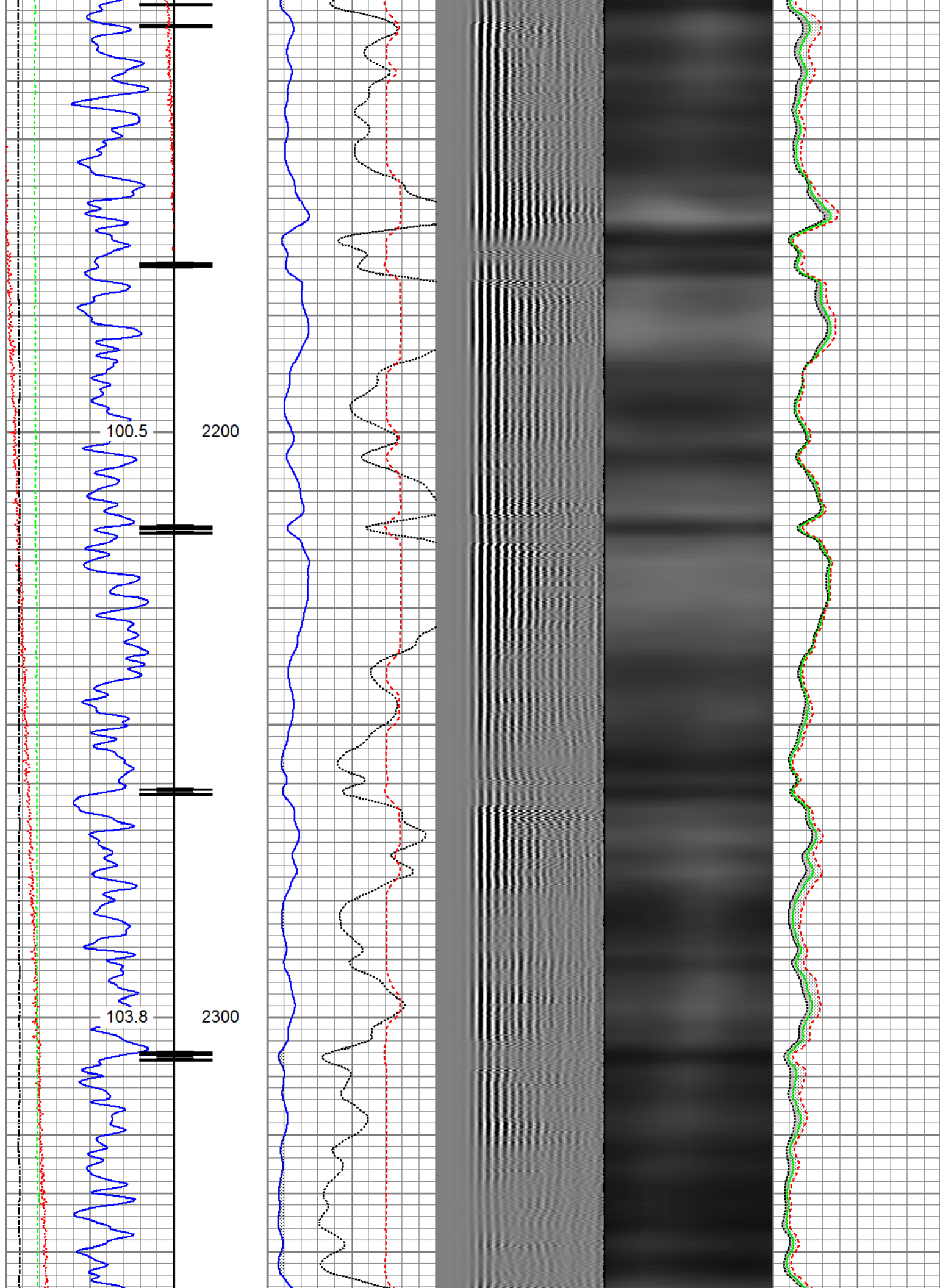




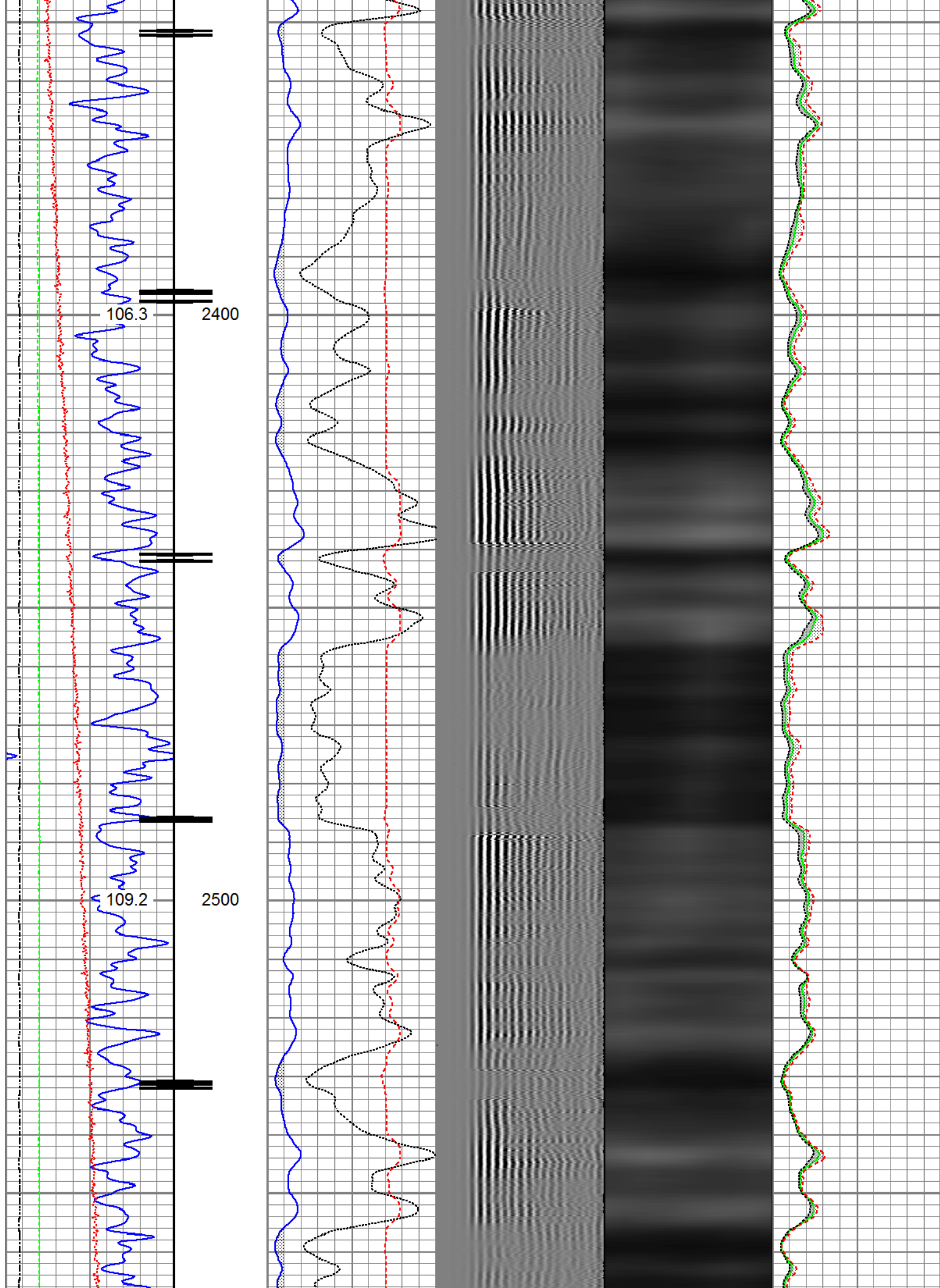


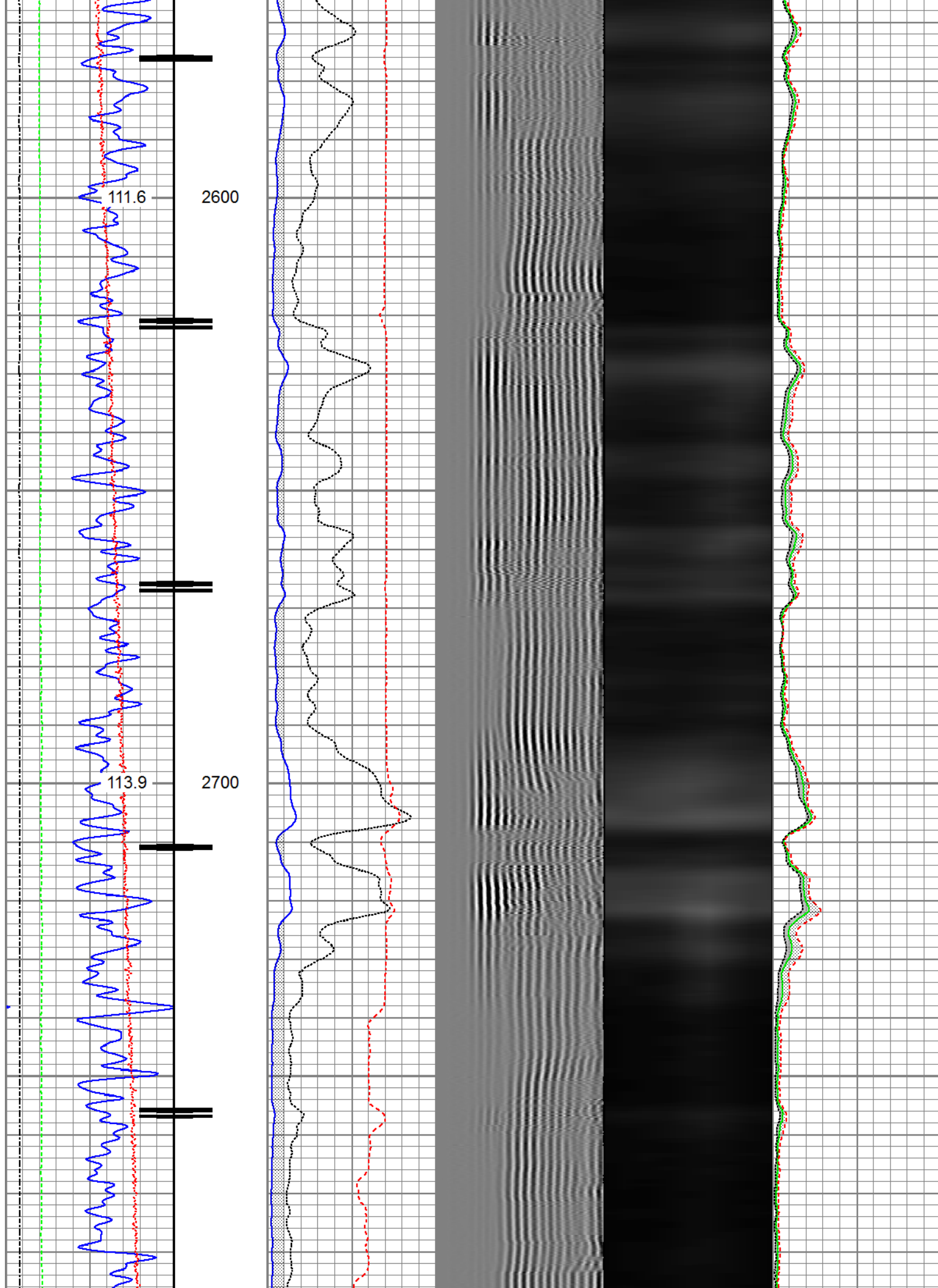


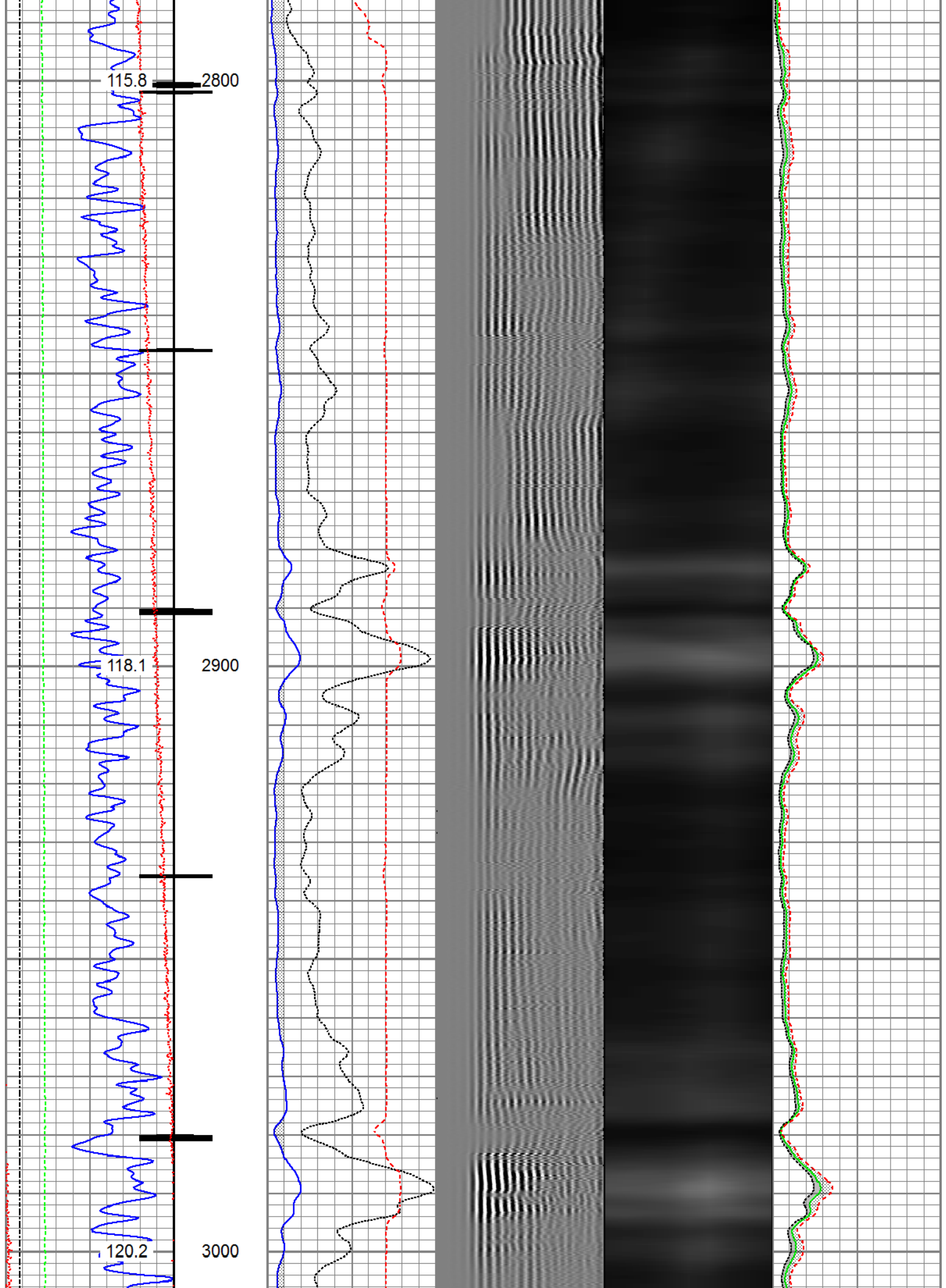


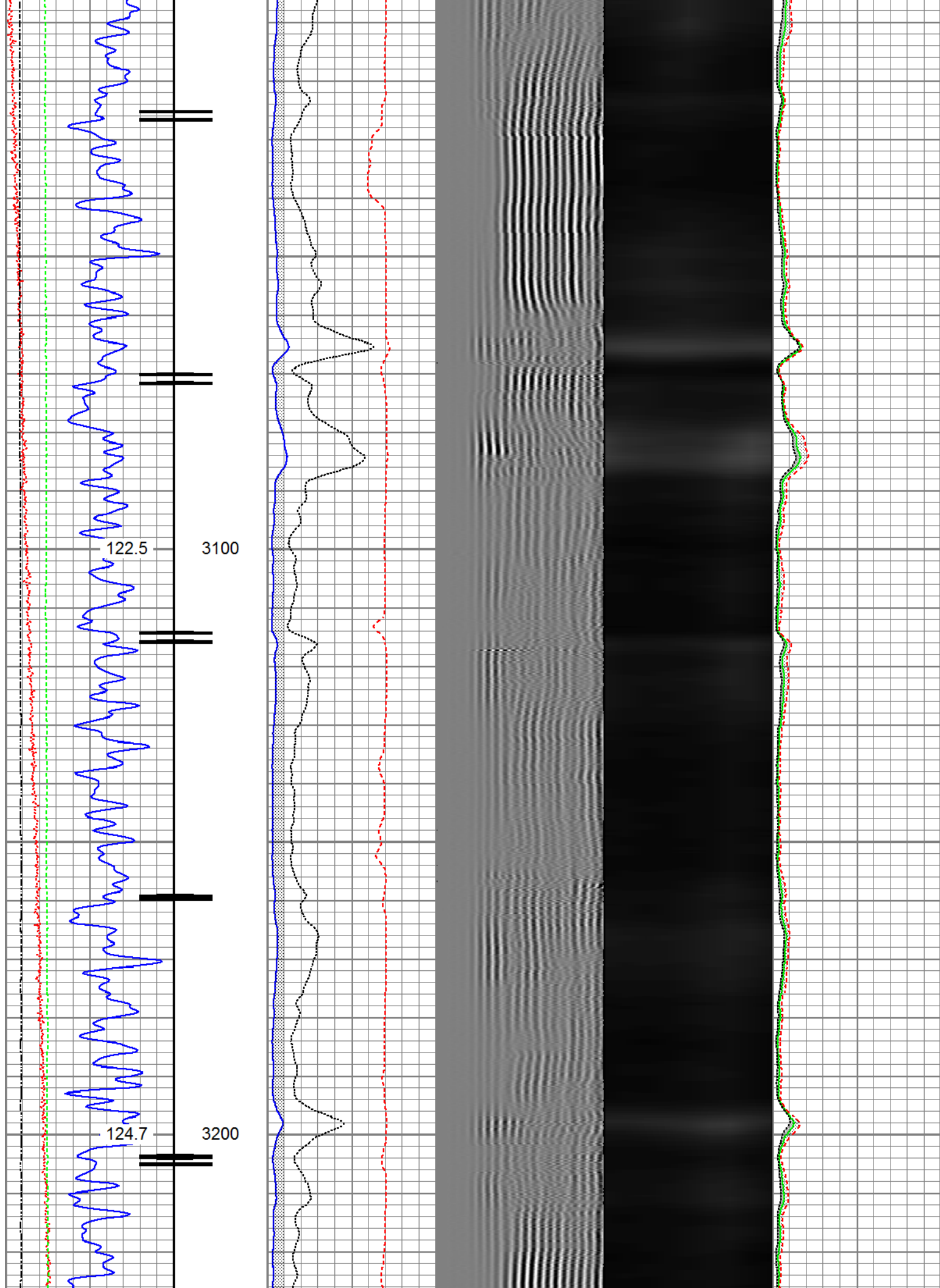




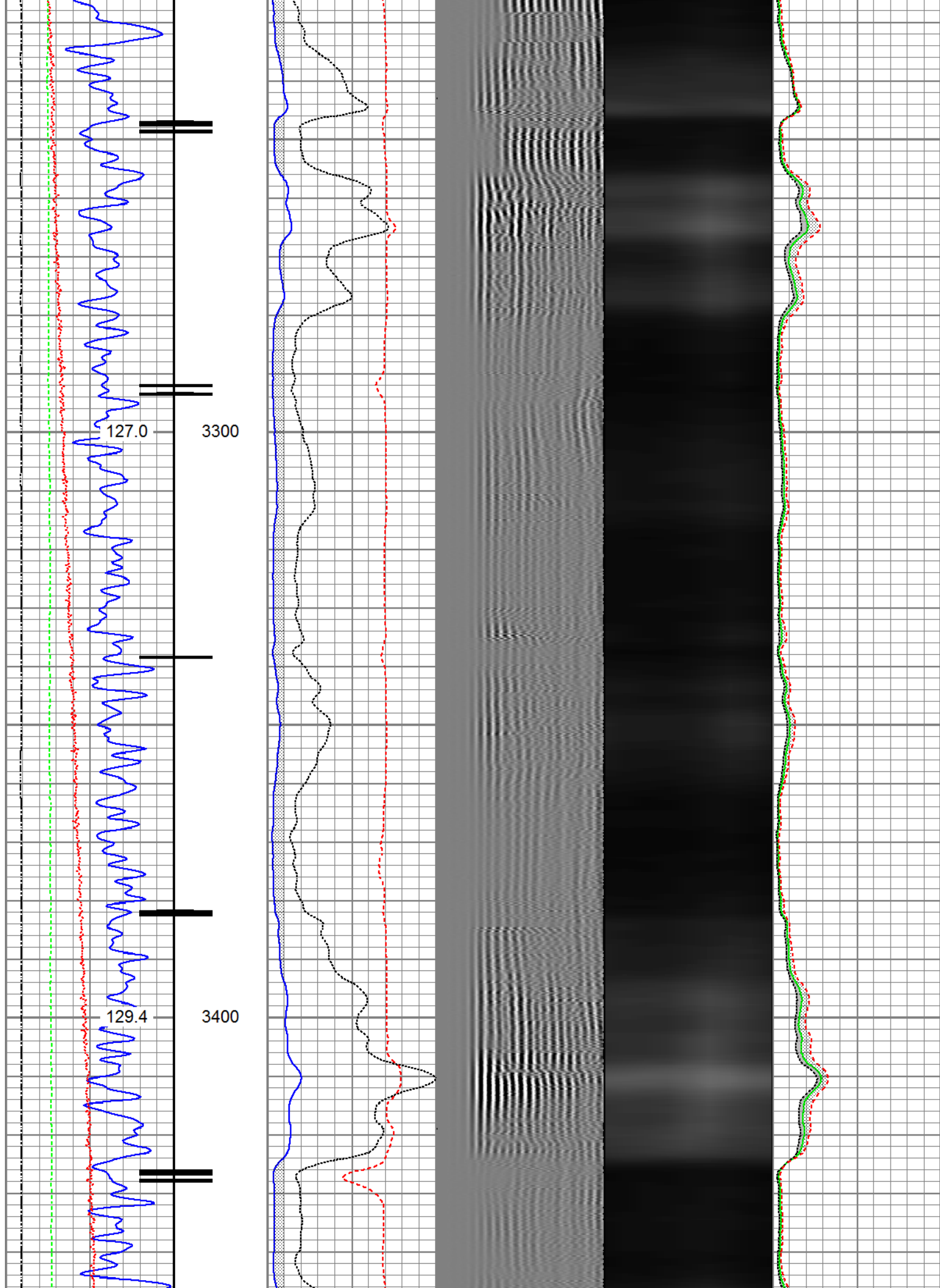


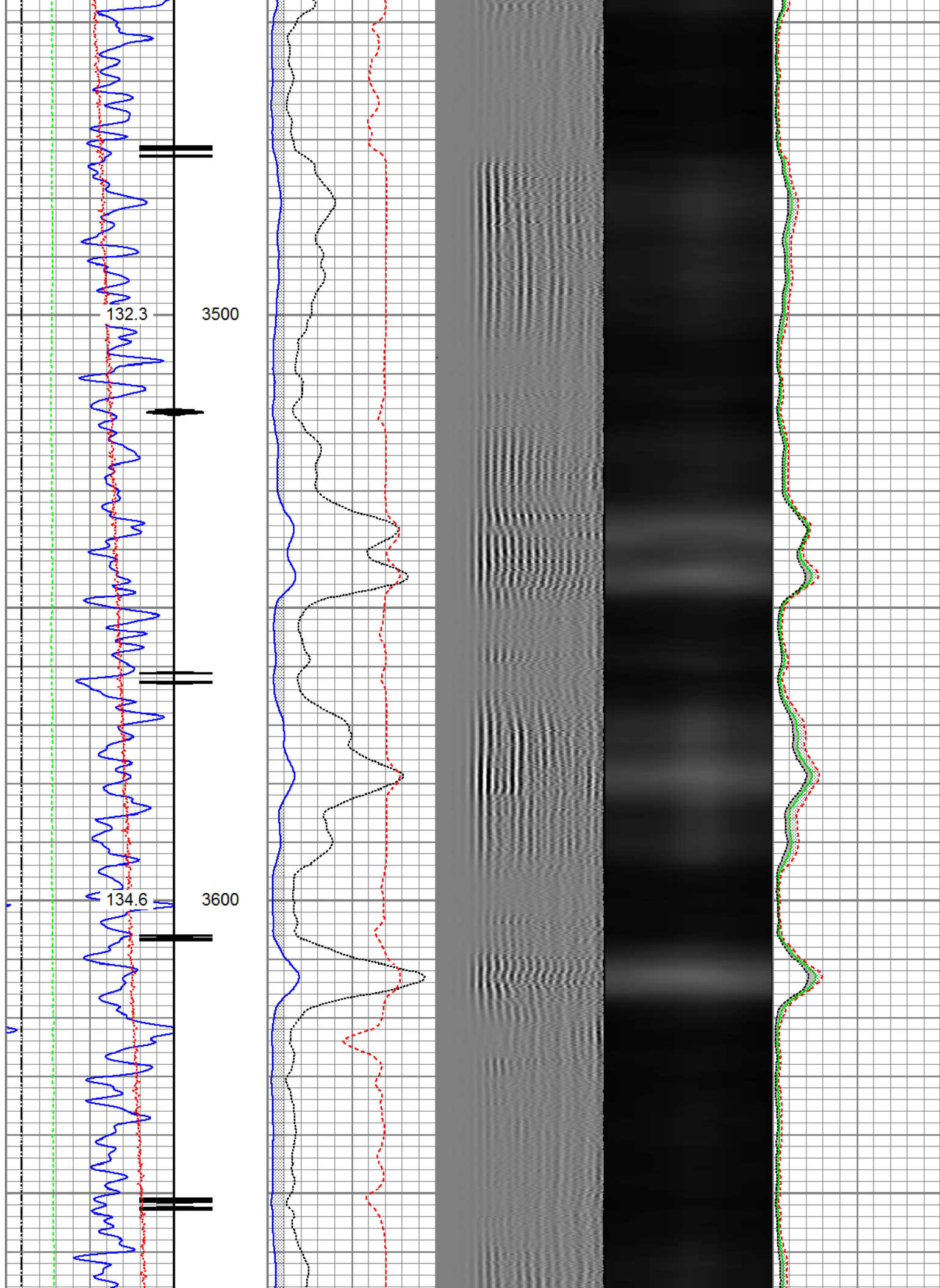


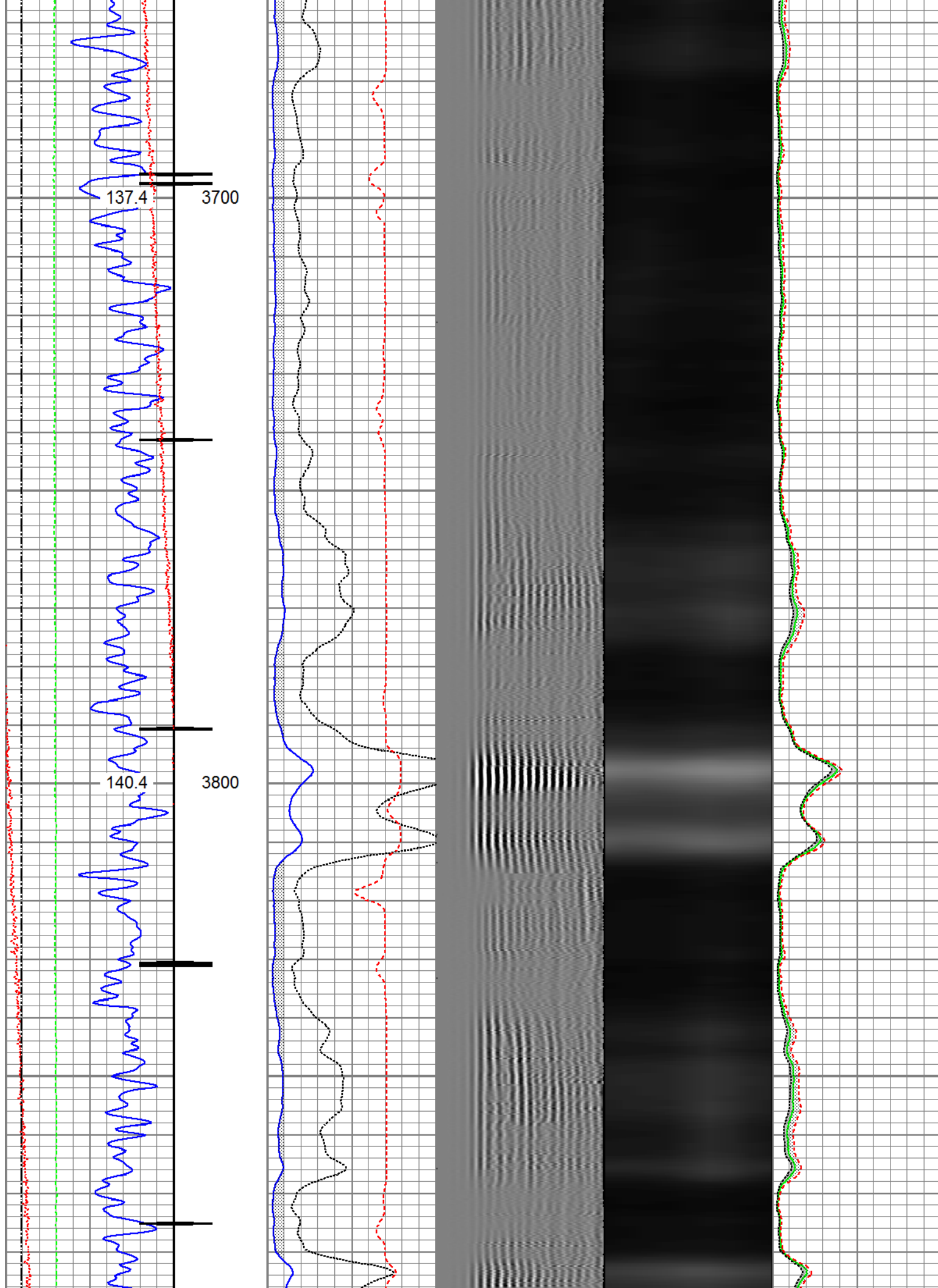


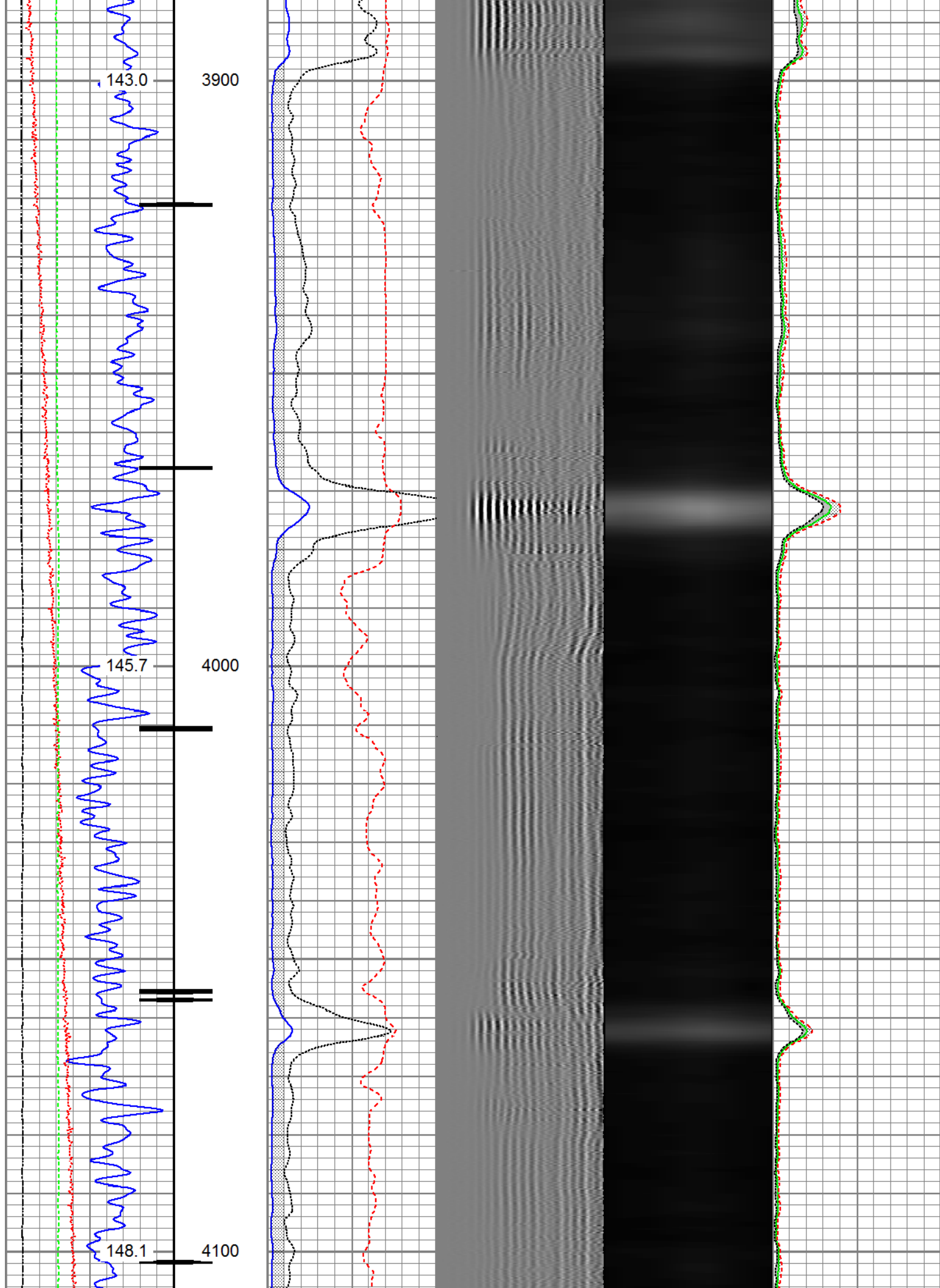




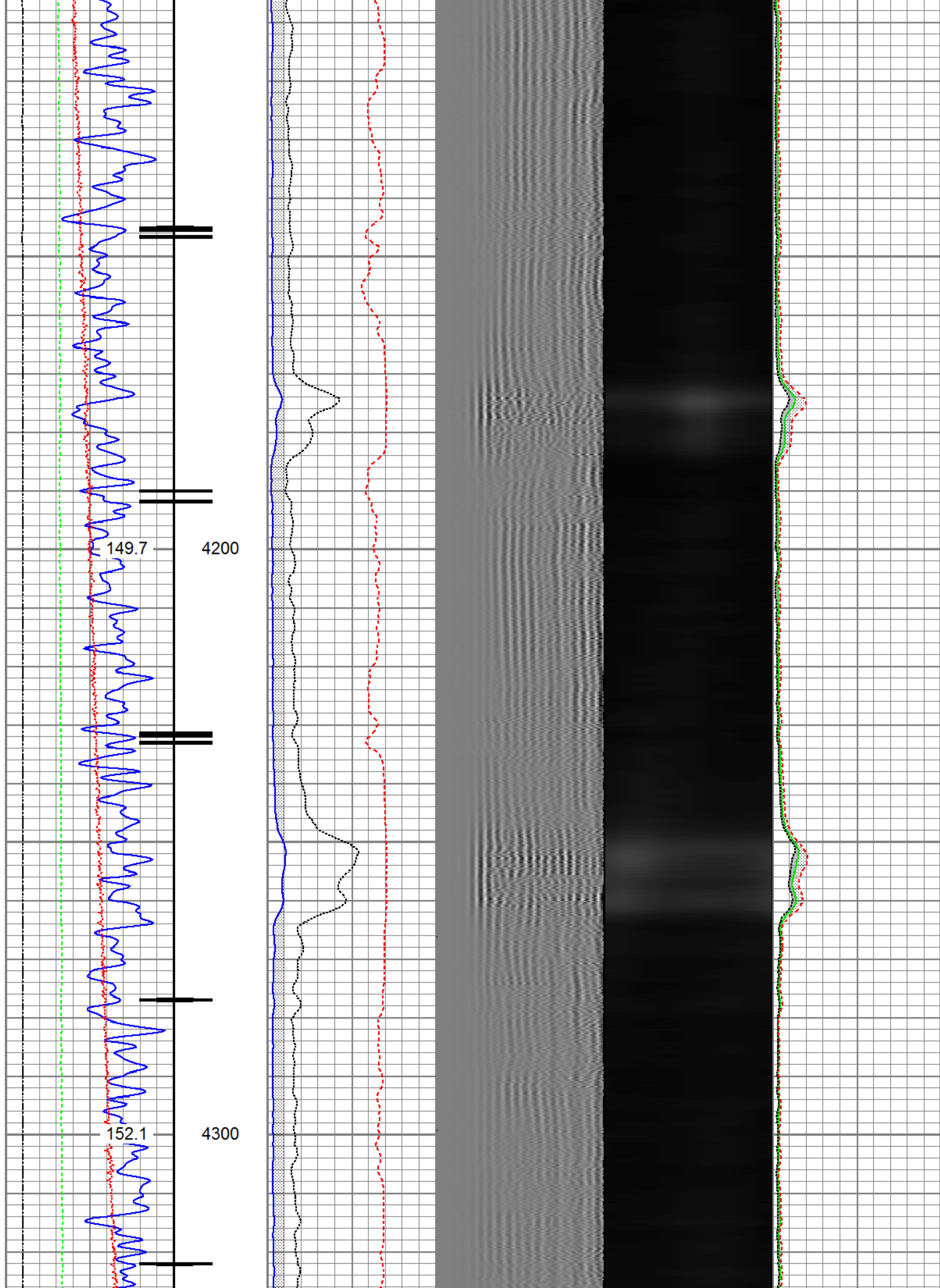


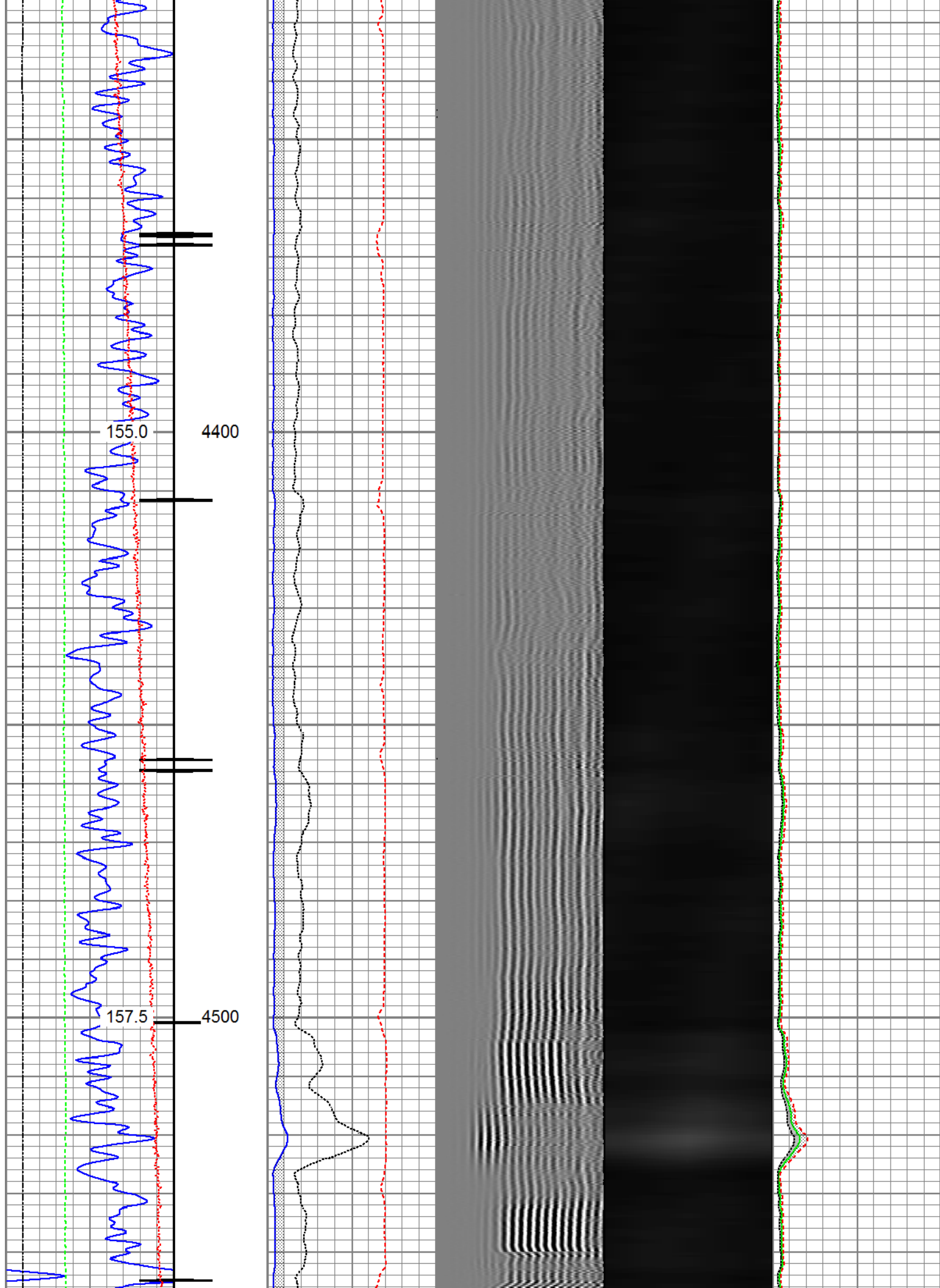


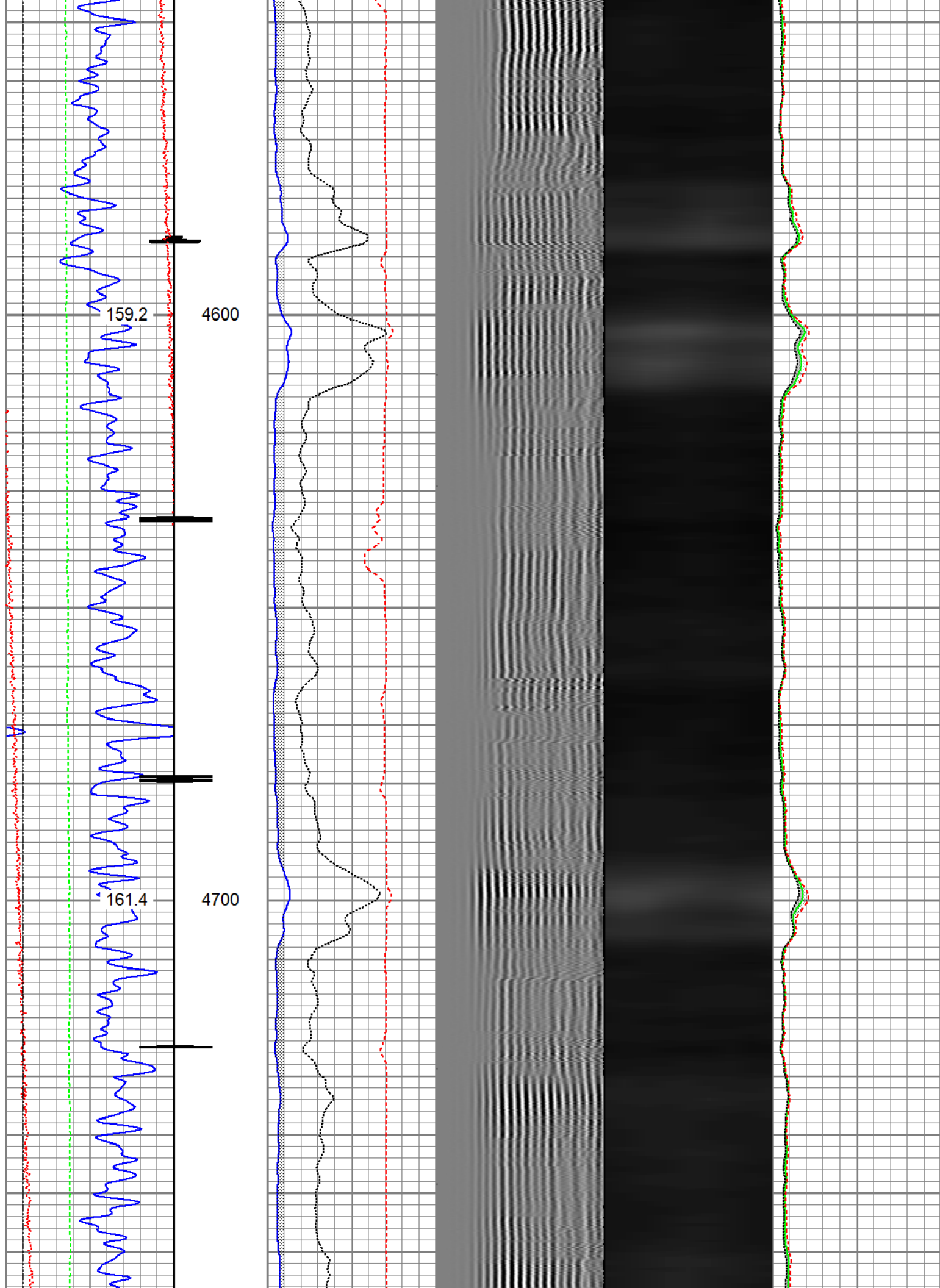


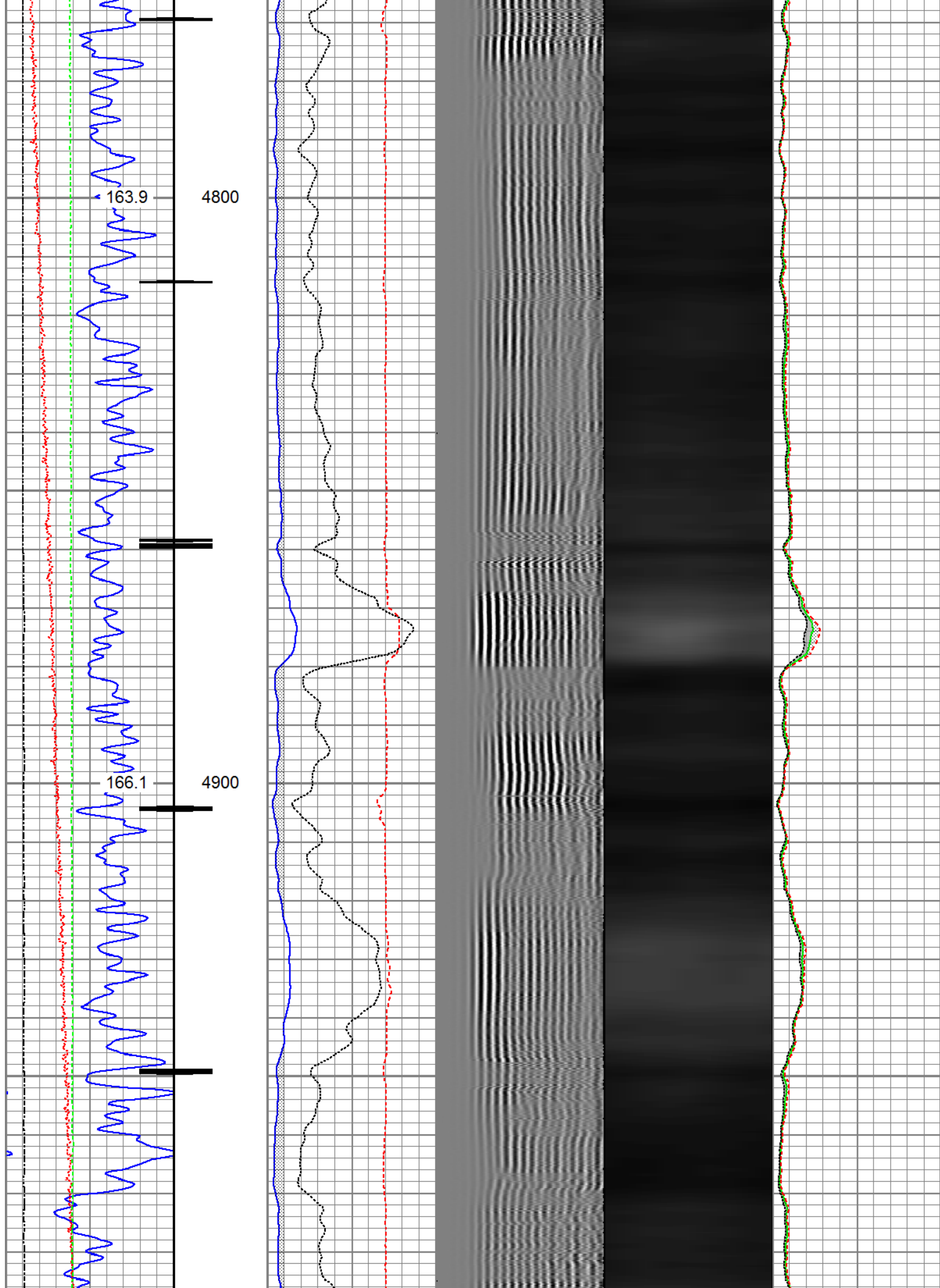




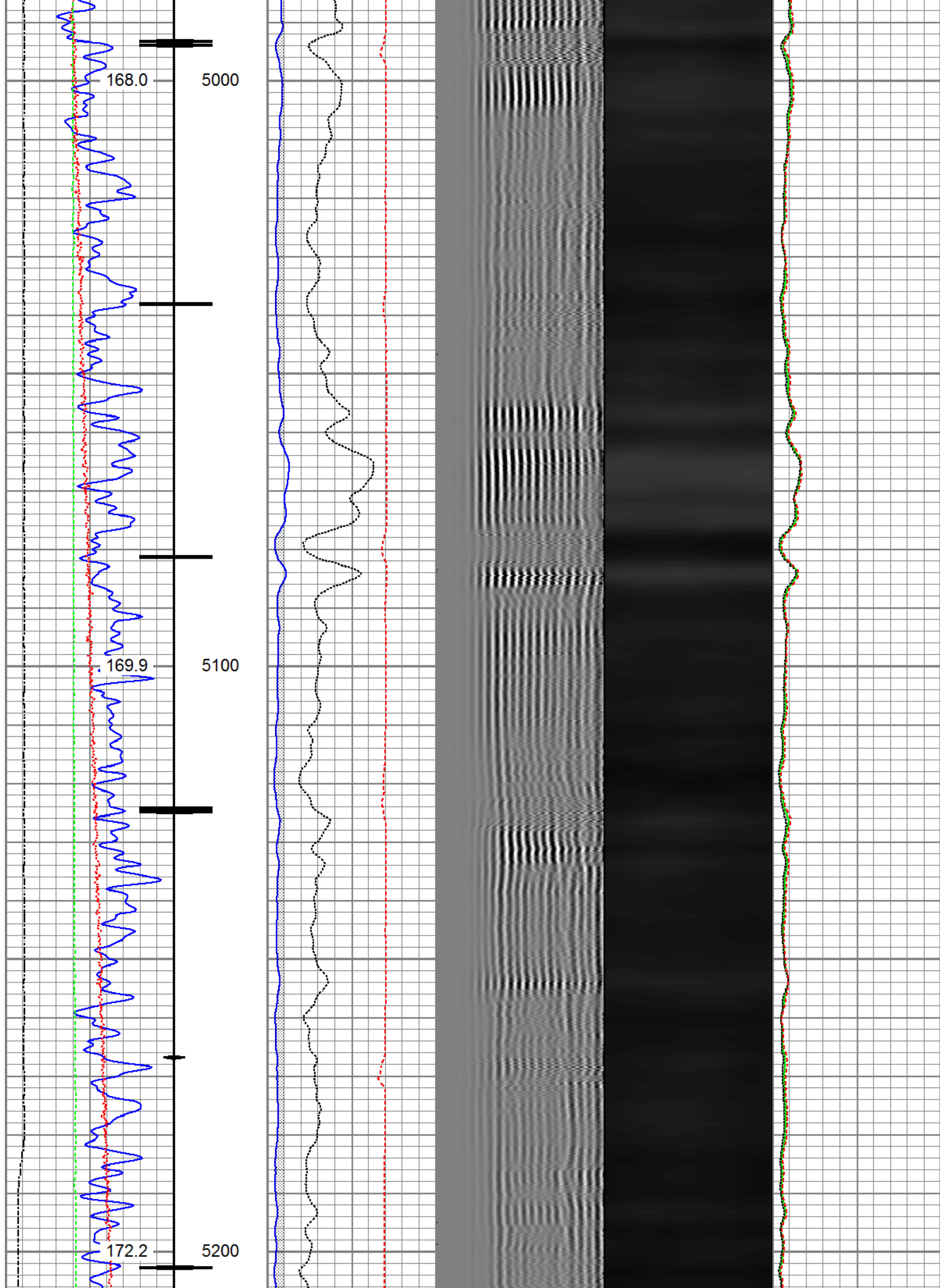


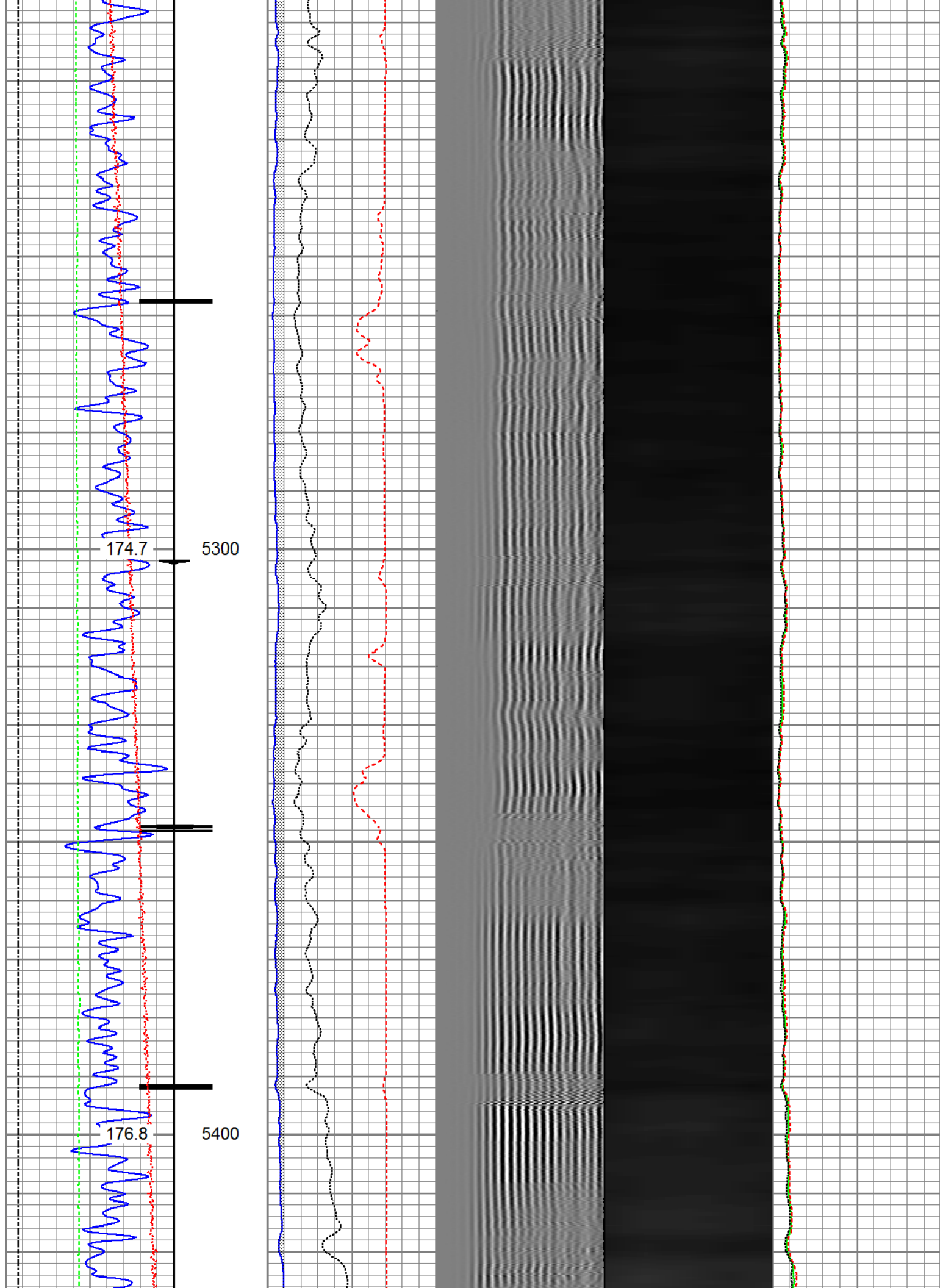


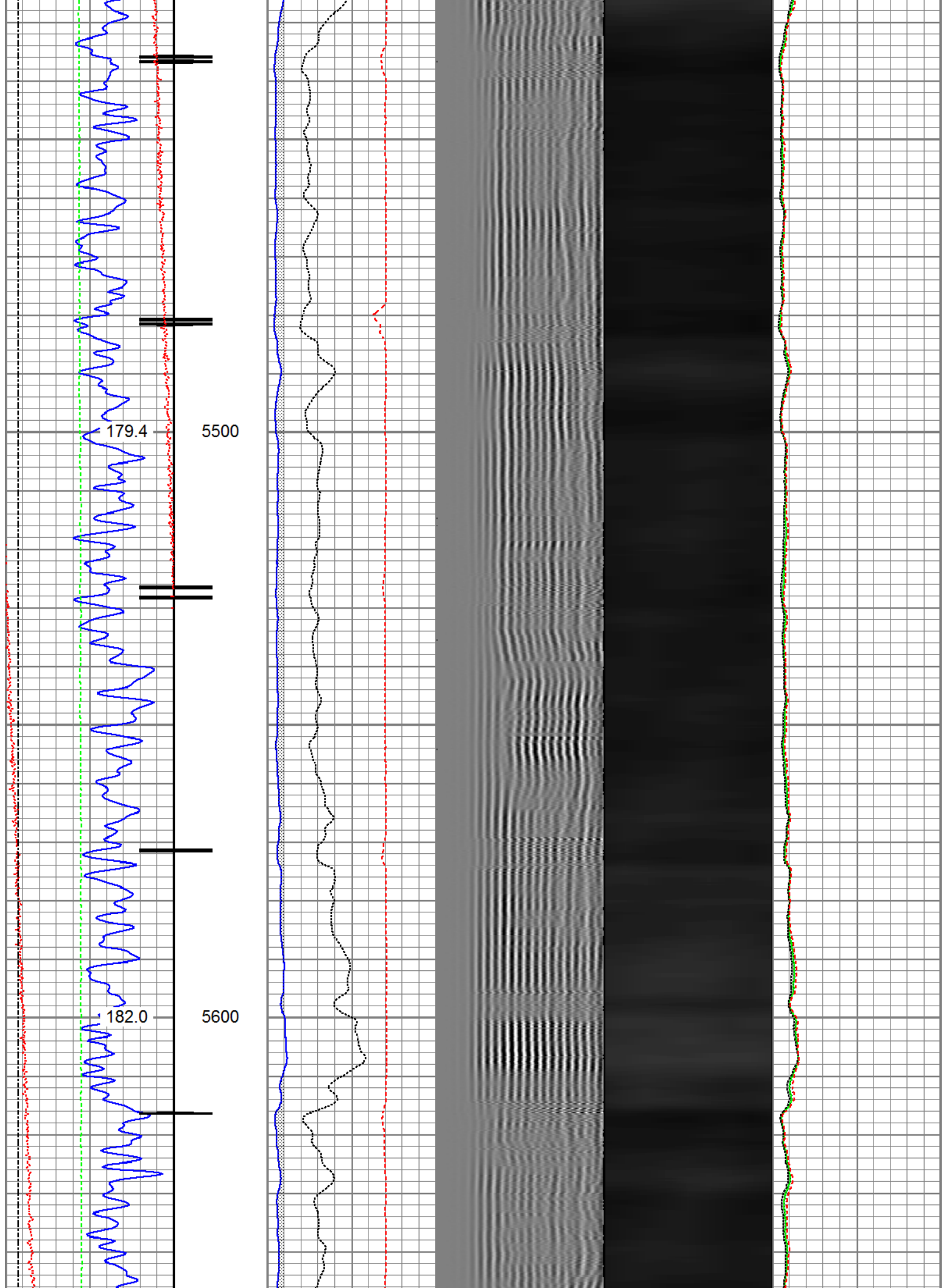


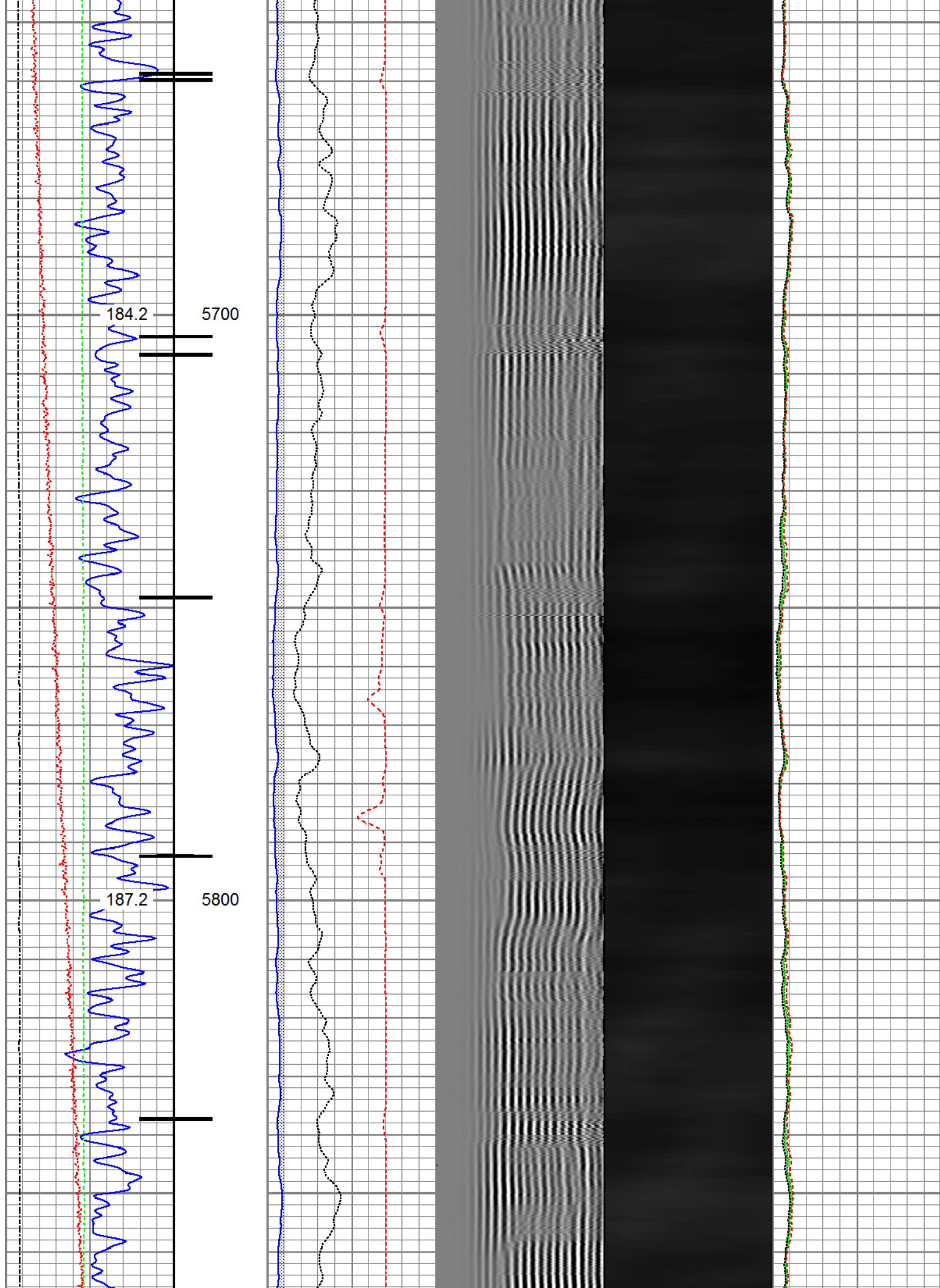




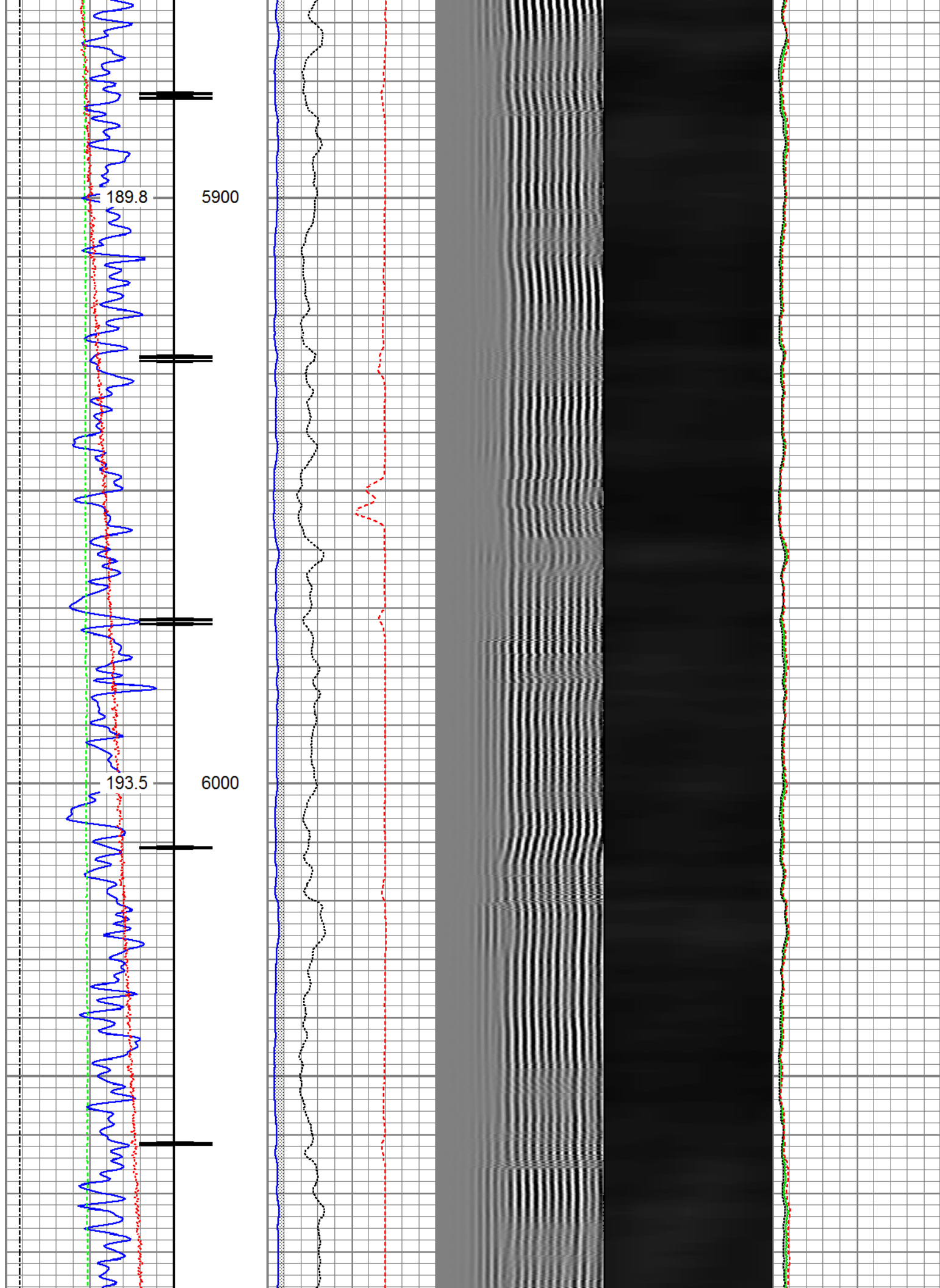


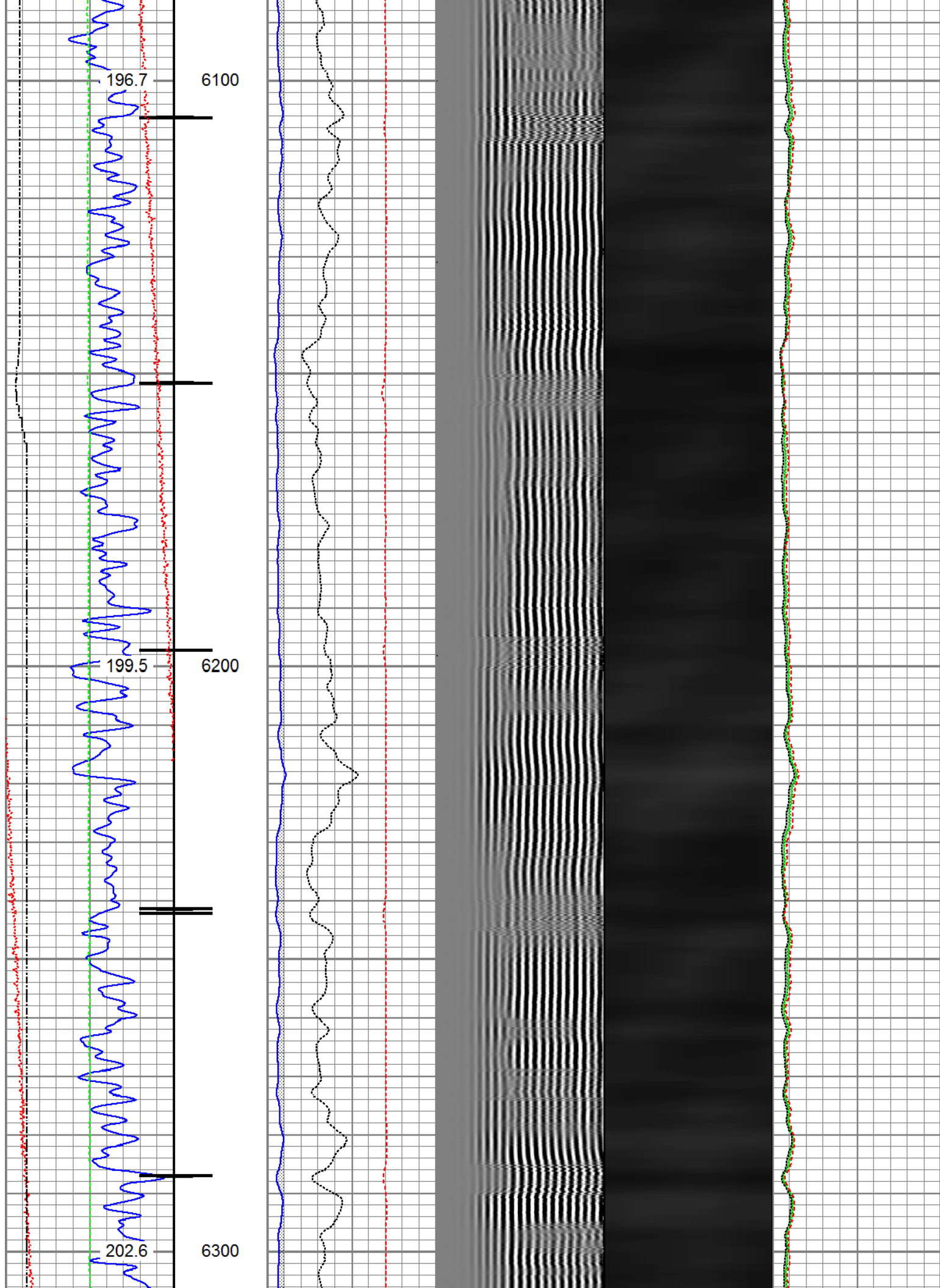


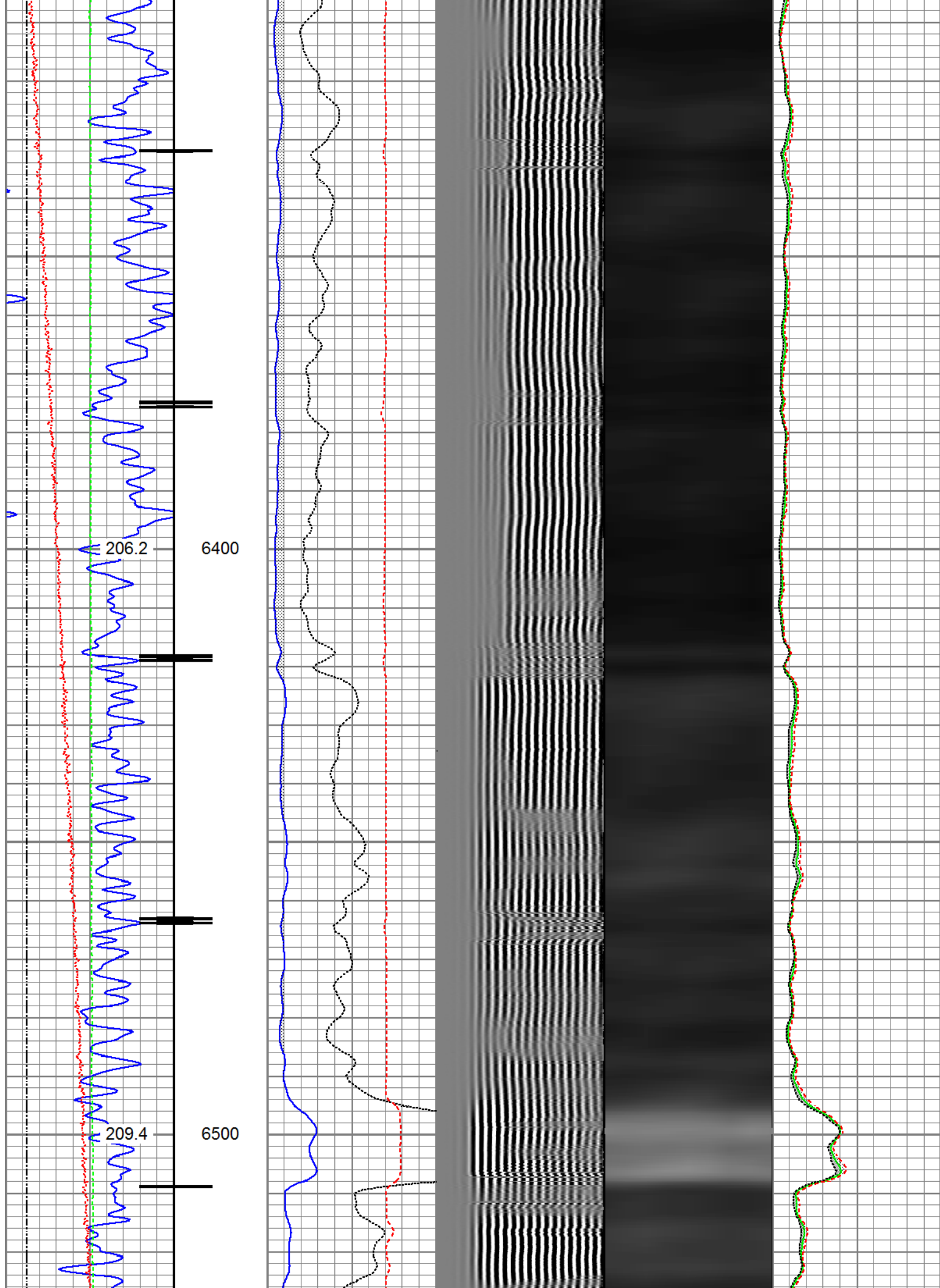


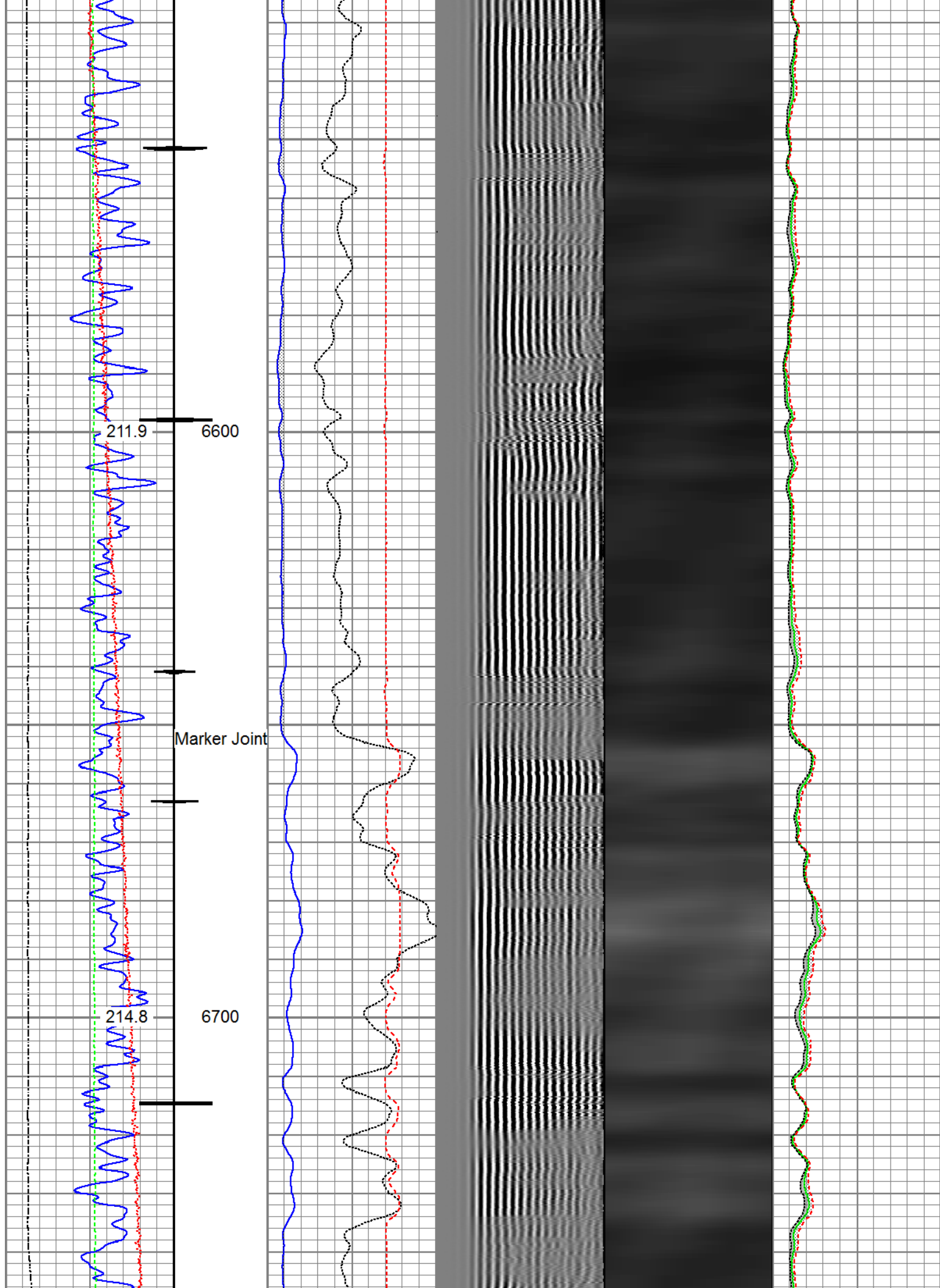




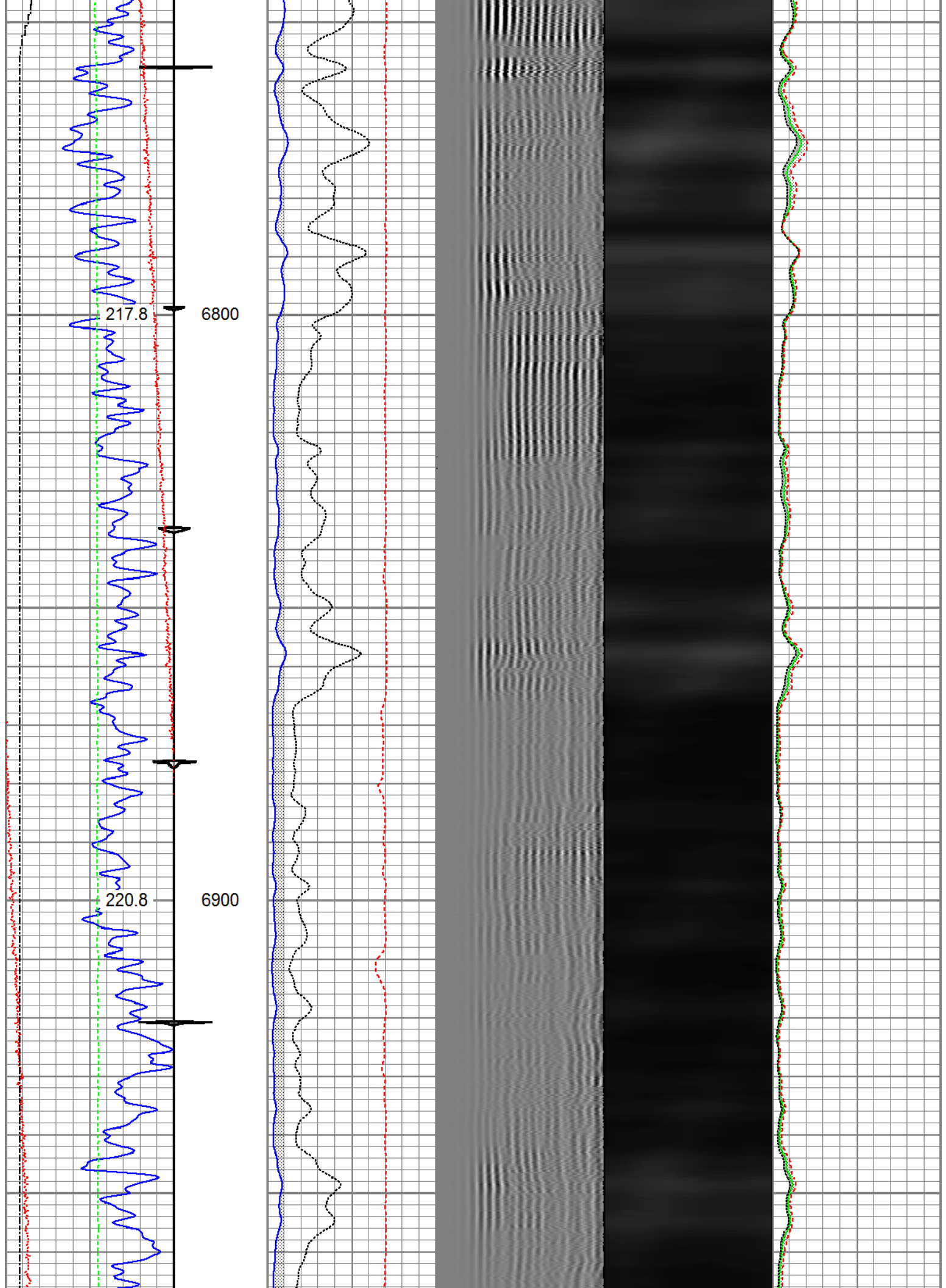


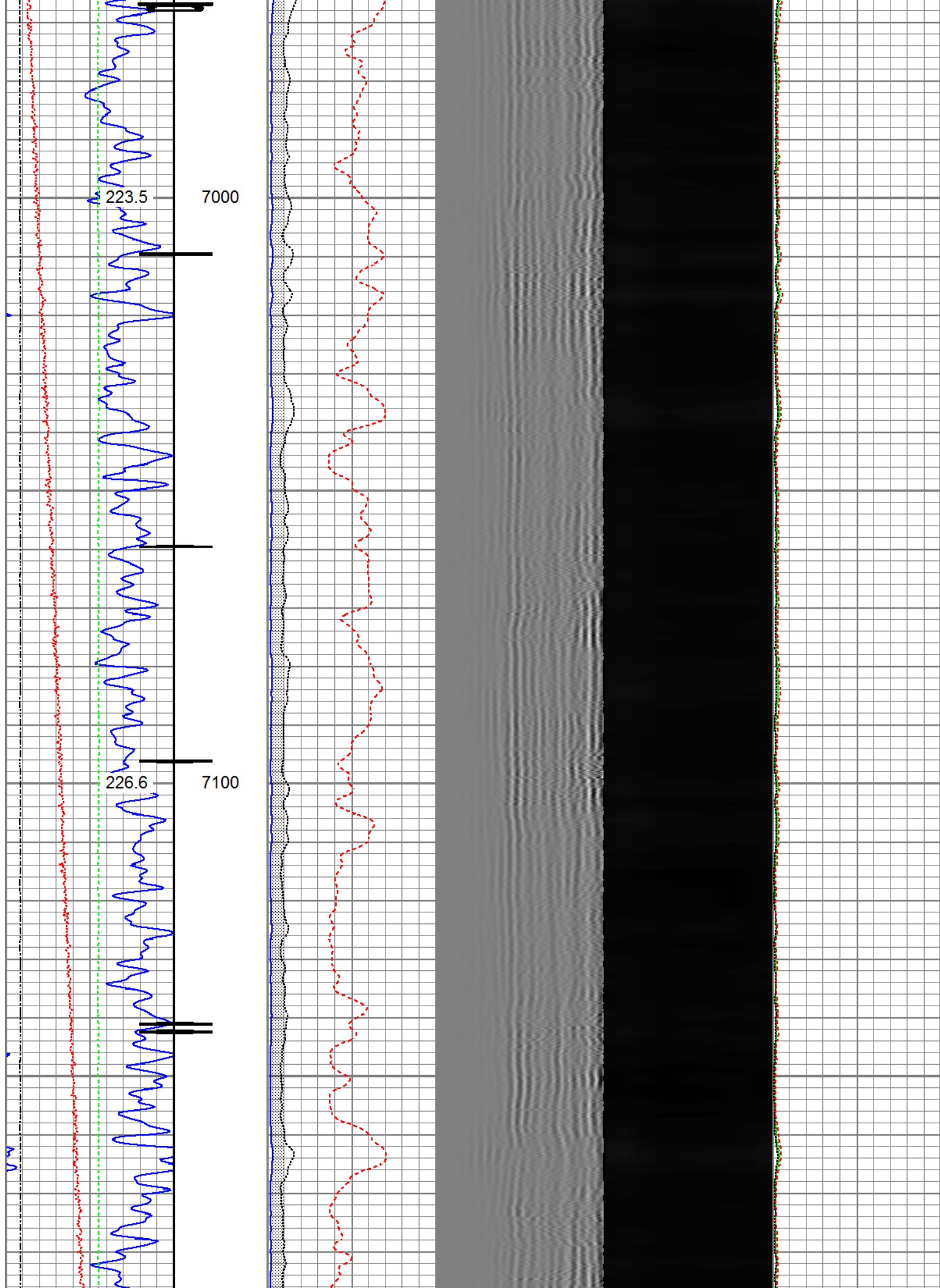


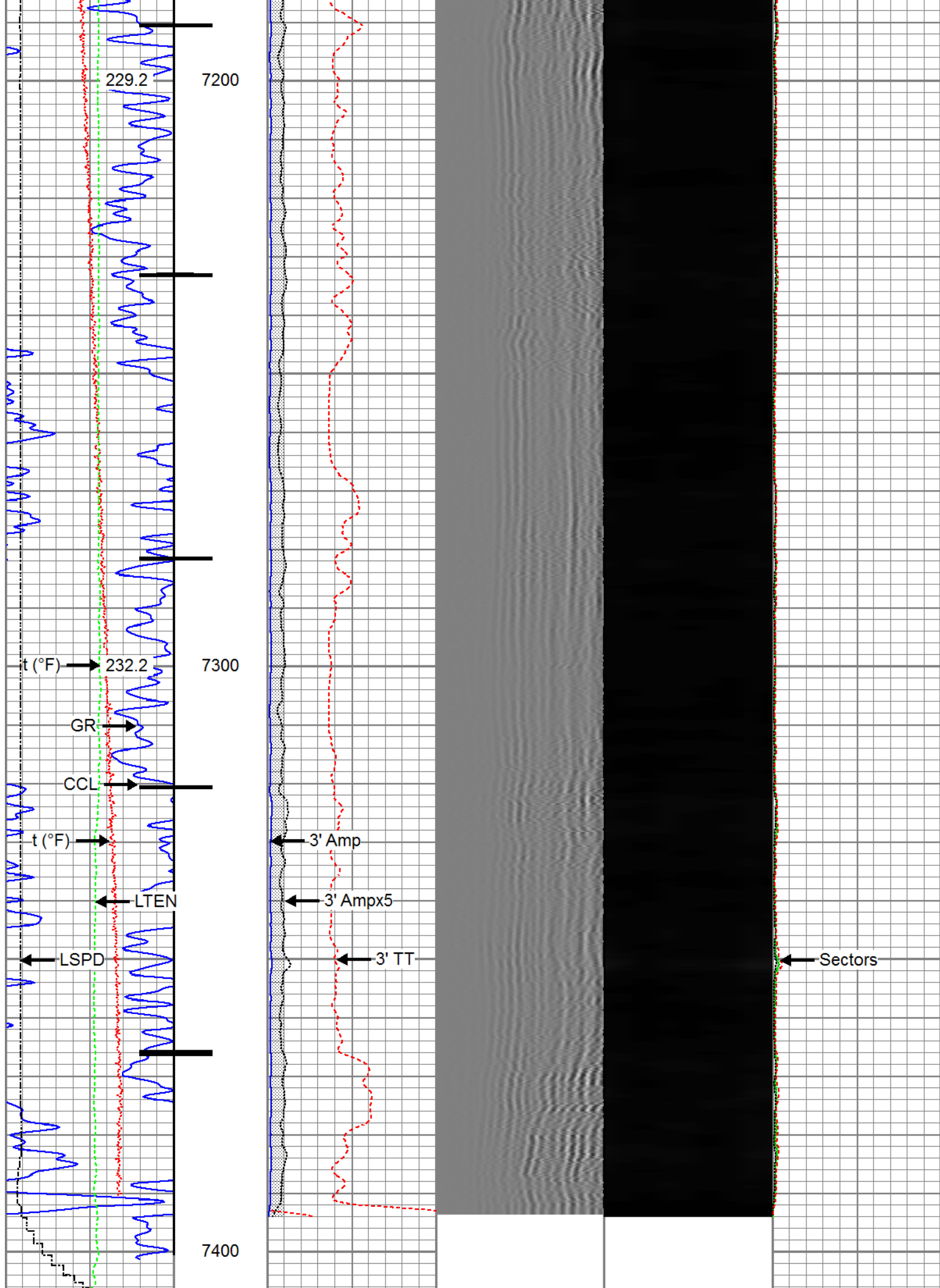







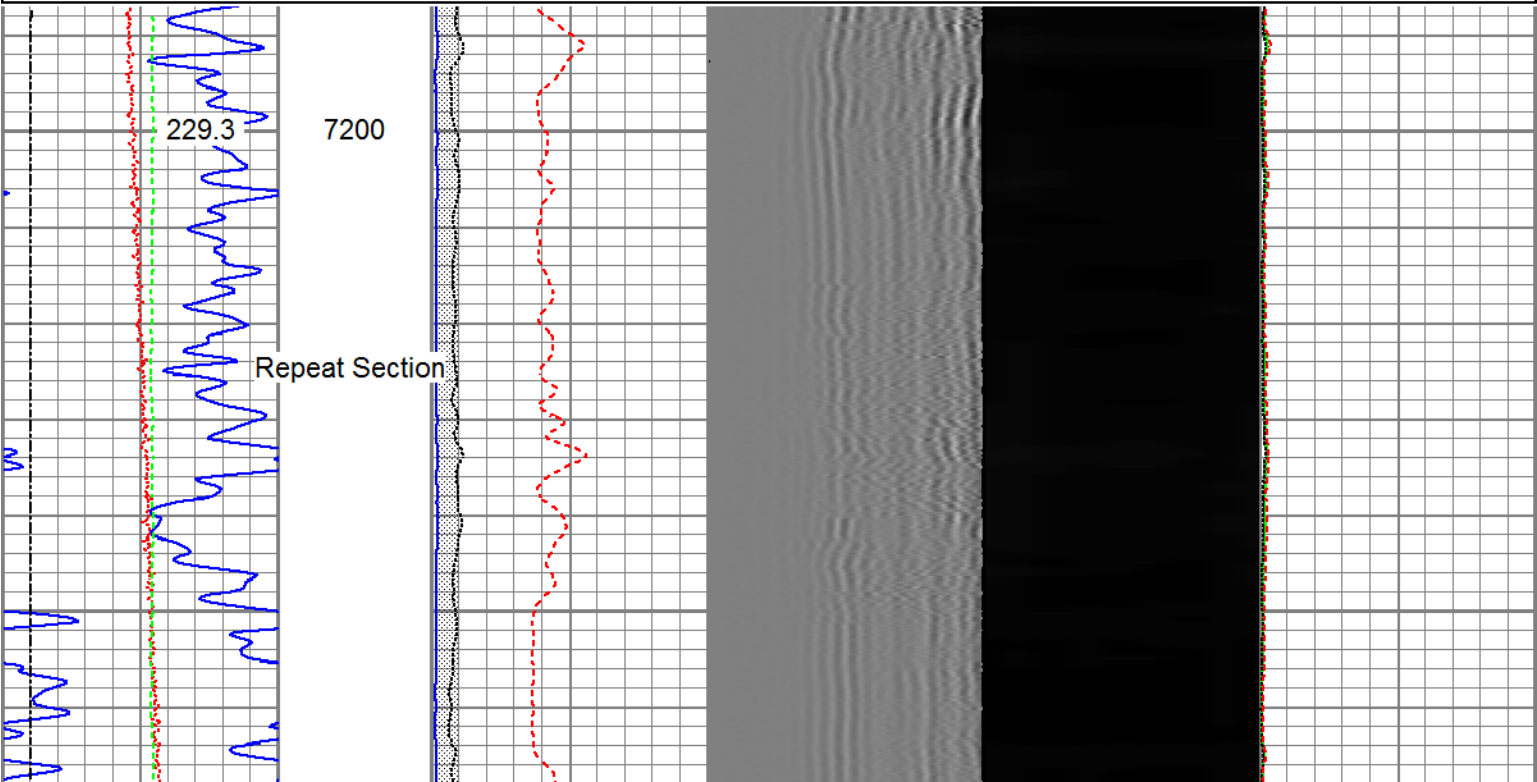




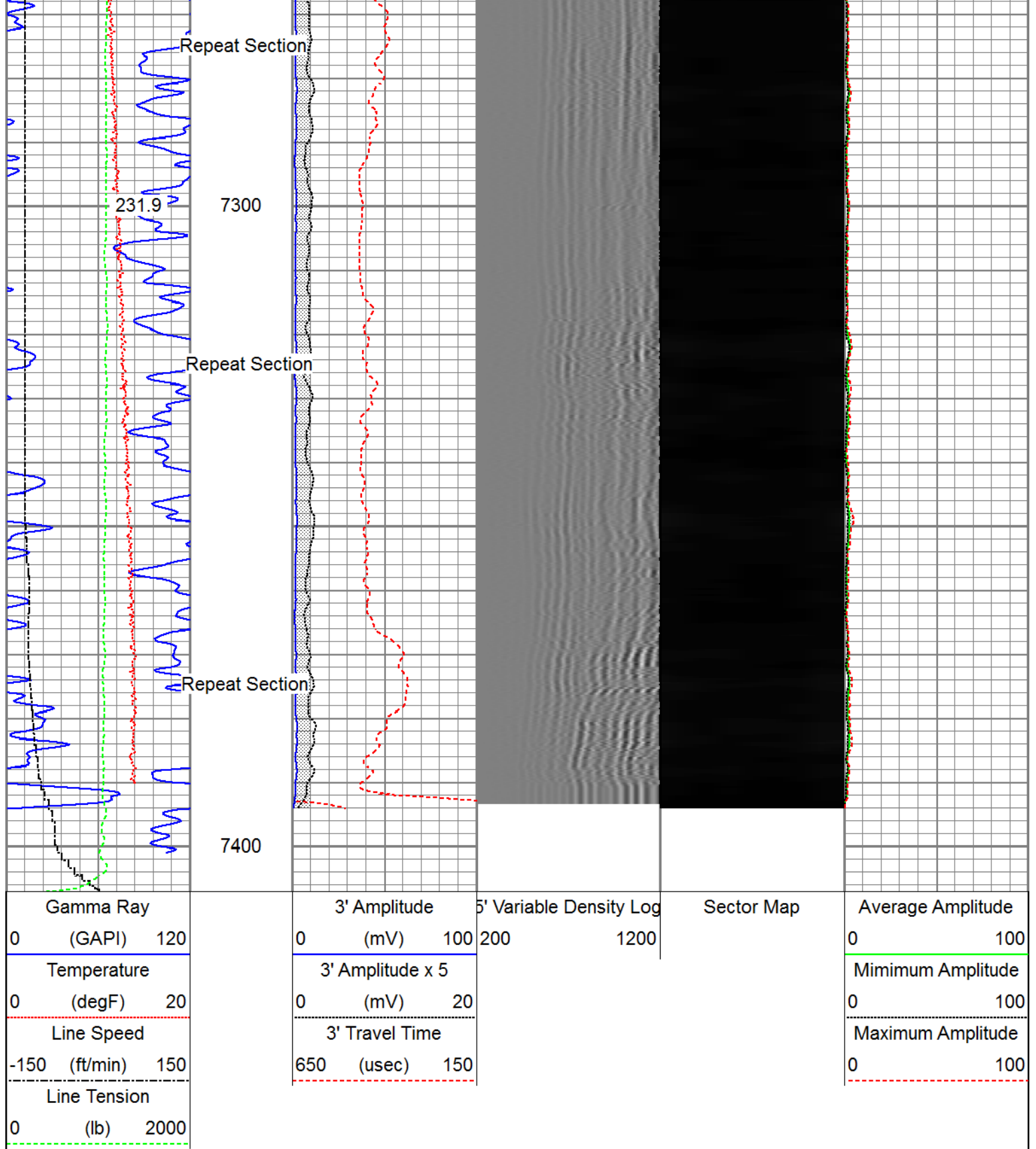


Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120		0 (mV) 100	200 1200		0 100
Casing Collar Locator		3' Amplitude x 5			Minimum Amplitude
		0 (mV) 20			0 100
Temperature		3' Travel Time			Maximum Amplitude
0 (degF) 20		650 (usec) 150			0 100
Line Speed					
-150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


<div>  <div> <h1>Repeat Pass</h1> <p>Recorded With 2800 PSI Surface Induced Pressure</p> </div> </div>					
Database File	anadarko babcock 22n 33hz_25 jul 2017_rbl\anadarko babcock 22n 33hz_25 jul 2017_rbl.db				
Dataset Pathname	pass2				
Presentation Format	ros_radrii				
Dataset Creation	Tue Jul 25 08:52:37 2017				
Charted by	Depth in Feet scaled 1:240				
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120		0 (mV) 100	200 1200		0 100
Temperature		3' Amplitude x 5			Minimum Amplitude
0 (degF) 20		0 (mV) 20			0 100
Line Speed		3' Travel Time			Maximum Amplitude
-150 (ft/min) 150		650 (usec) 150			0 100
Line Tension					
0 (lb) 2000					







Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan_Electric_Cable_Heads-Titan_1-11/16"	1.03	1.69	5.40
			Electric Cable Head with 1" Fishing Neck			
			Probe_ELine_BowSpring_Centralizer-P_EB	2.8875	2.75	20.00
			Probe 2-3/4" Electric Inline Bowspring Centralizer			

HeadVolt	19.51				
Temp	16.72				
WVFS8	14.55		Probe_RADII-C-P_RBT_2750 (FW1305-0969.19) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	2.75	105.00
WVFS7	14.55				
WVFS6	14.55				
WVFS5	14.55				
WVFS4	14.55				
WVFS3	14.55				
WVFS2	14.55				
WVFS1	14.55				
WVFCAL	14.55				
WVF3FT	14.55				
WVF5FT	13.55				
HEADVOLT	10.30				
DCCL	6.51		Probe_ELine_BowSpring_Centralizer-P_EB52.8875 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	20.00
CCL	6.51				
			Probe_GR_CCL-P_CGR_2750_S (FW13074.54) Probe 2-3/4" Digital CCL / Gamma Ray Combined	2.75	55.00
GR	3.77				
			Probe_ELine_BowSpring_Centralizer-P_EB52.8875 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	20.00
Dataset: anadarko babcock 22n 33hz_25 jul 2017_rbl.db: field/well/run1/pass4 Total length: 23.40 ft Total weight: 225.40 lb O.D.: 2.75 in					

Calibration Report	
Database File	C:\ProgramData\Warrior\Data\anadarko babcock 22n 33hz_25 jul 2017_rbl\anadarko babcock 22n 33hz_25 jul 2017_rbl\pass4
Dataset Pathname	pass4
Dataset Creation	Tue Jul 25 09:04:53 2017
Gamma Ray Calibration Report	
Serial Number:	FW1307-038
Tool Model:	2-3/4" Digital CCL / Gamma Ray Combined

Tool Model: P\_CGR\_2750\_S  
Performed: Sat Feb 06 11:43:09 2016

Calibrator Value: 1.0 GAPI  
Background Reading: 0.0 cps  
Calibrator Reading: 1.6 cps  
Sensitivity: 0.6061 GAPI/cps

### Segmented Cement Bond Log Calibration Report

Serial Number: FW1305-096  
Tool Model: P\_RBT\_2750

Calibration Casing Diameter: 5.500 in  
Calibration Depth: 18.057 ft

Master Calibration, performed Tue Jul 25 08:08:19 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.002	0.702	0.800	71.921	101.624	0.577
CAL	0.002	0.735				
5'	0.002	0.682	0.800	71.921	104.674	0.569
SUM						
S1	0.001	0.698	0.000	100.000	143.510	-0.201
S2	0.001	0.697	0.000	100.000	143.724	-0.214
S3	0.002	0.694	0.000	100.000	144.403	-0.277
S4	0.002	0.691	0.000	100.000	145.012	-0.251
S5	0.002	0.694	0.000	100.000	144.391	-0.252
S6	0.002	0.699	0.000	100.000	143.355	-0.261
S7	0.002	0.703	0.000	100.000	142.703	-0.279
S8	0.002	0.702	0.000	100.000	142.797	-0.312

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.002	0.735	1.000	0.000

Air Zero Calibration, performed Tue Jul 25 08:08:38 2017:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.002		0.000		0.000	
5'	0.002		0.000		0.000	
SUM						
S1	0.001		0.000		-0.000	
S2	0.002		0.000		-0.000	
S3	0.002		0.000		0.000	
S4	0.002		0.000		-0.000	
S5	0.002		0.000		-0.000	
S6	0.002		0.000		-0.000	
S7	0.002		0.000		0.000	
S8	0.002		0.000		0.000	



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Babcock 22N-33HZ
Field	Wattenberg
County	Weld
State	Colorado