



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.			Company	Kerr-McGee Oil & Gas Onshore, L.P.		
Well	Babcock 23N-33HZ			Well	Babcock 23N-33HZ		
Field	Wattenberg			Field	Wattenberg		
County	Weld			County	Weld		
State	Colorado			State	Colorado		
Location:				API # : 05-123-43805			
SEC 4				TWP 2N RGE 67W			
Permanent Datum	Ground Level		Elevation	4887'			
Log Measured From	Kelly Bushing		20 FT				
Drilling Measured From	Kelly Bushing						
				Other Services			
				GR/JB			
				Elevation			
				K.B. 4907'			
				D.F. ---			
				G.L. 4887'			

Date 26-JUL-2017

Run Number	Two		
Depth Driller	12182 FT		
Depth Logger	7400 FT		
Bottom Logged Interval	7396 FT		
Top Log Interval	Surface		
Open Hole Size	8.50"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	232 °F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	8:00		
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	1872 FT
Intermediate #1	5 1/2	17	P-110	Surface	12172 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 6579 FT
Adjusted +4 FT to correlate to 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

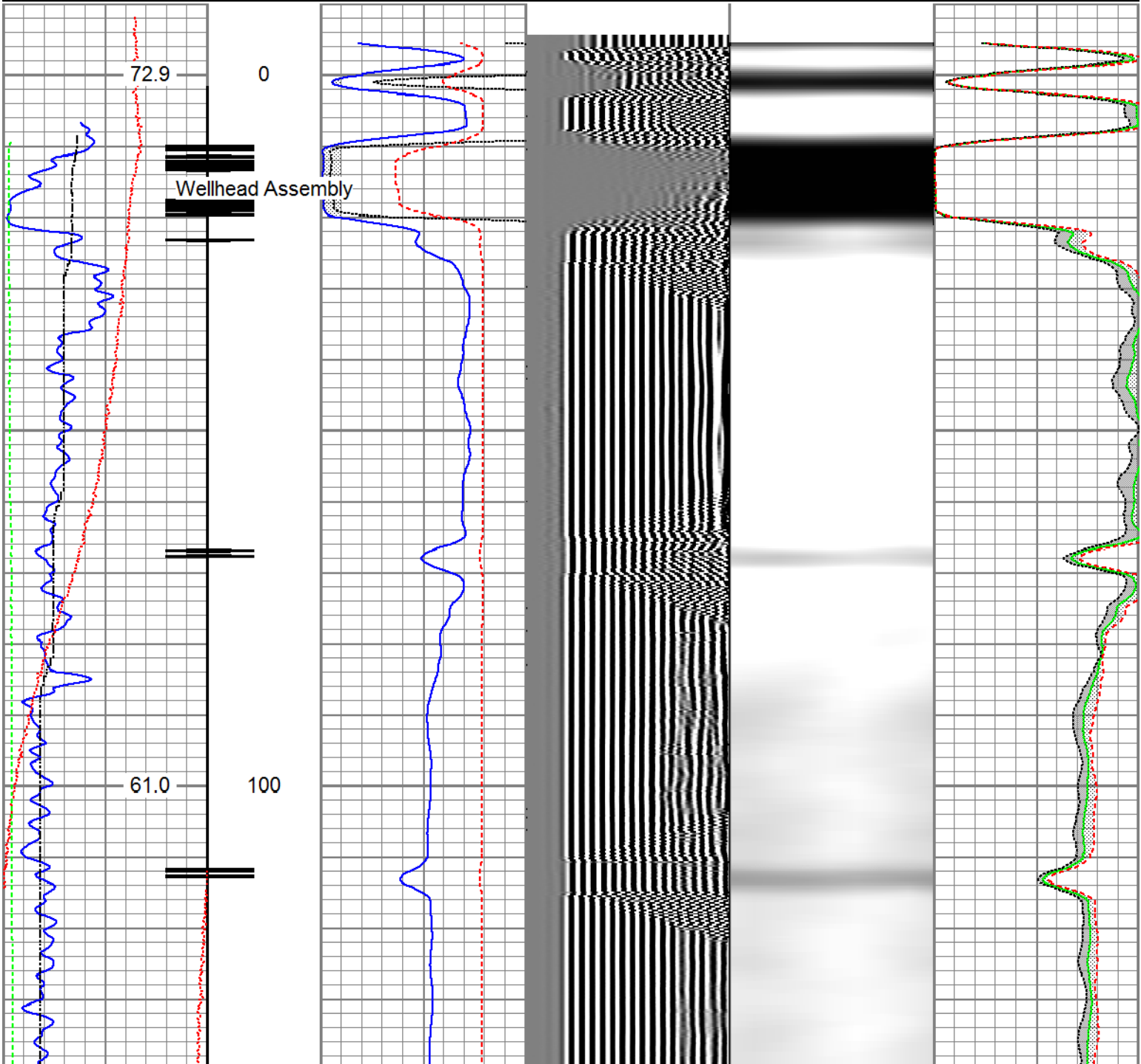
Thank you for choosing Reliance Oilfield Services, LLC!!

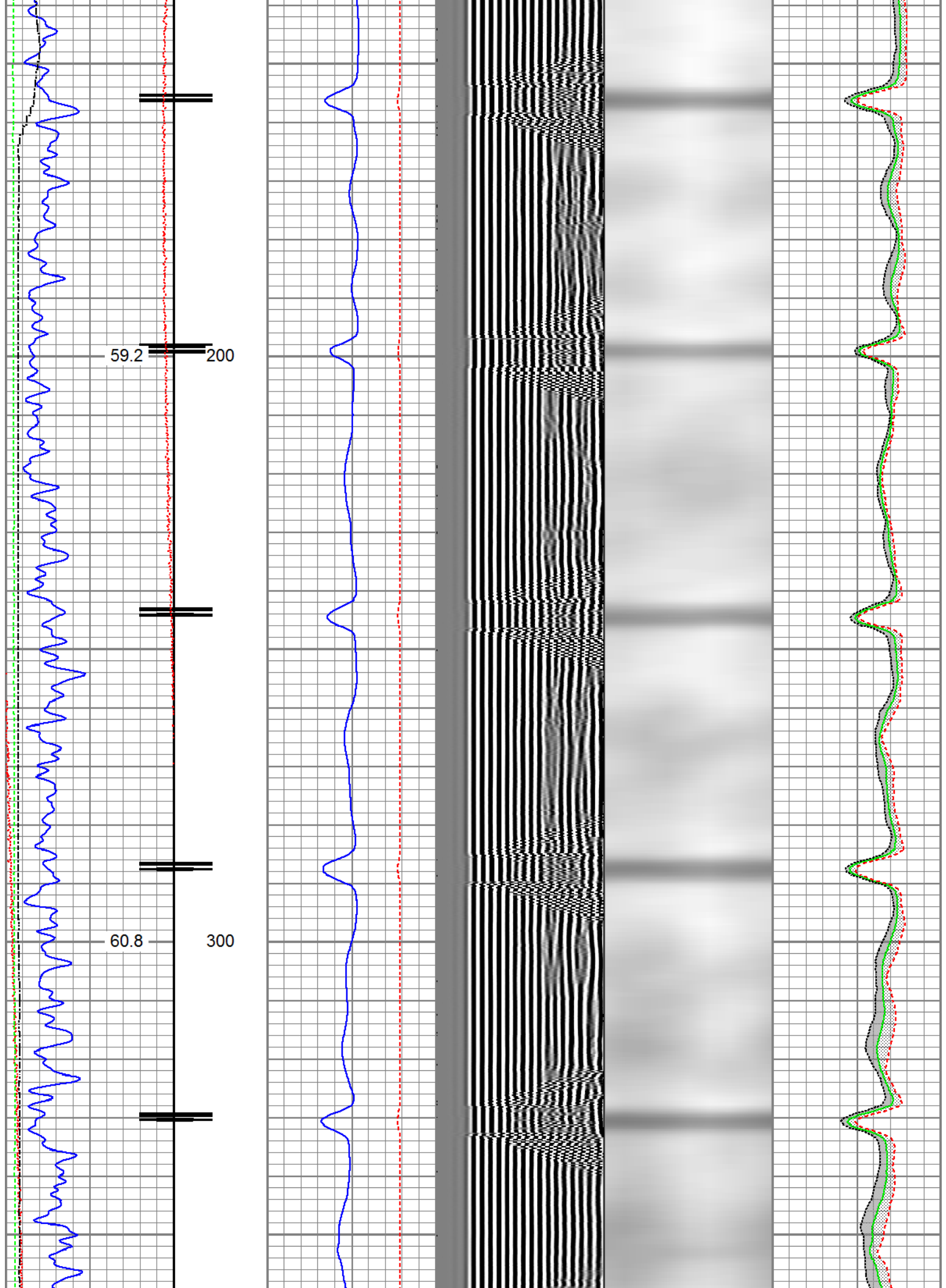


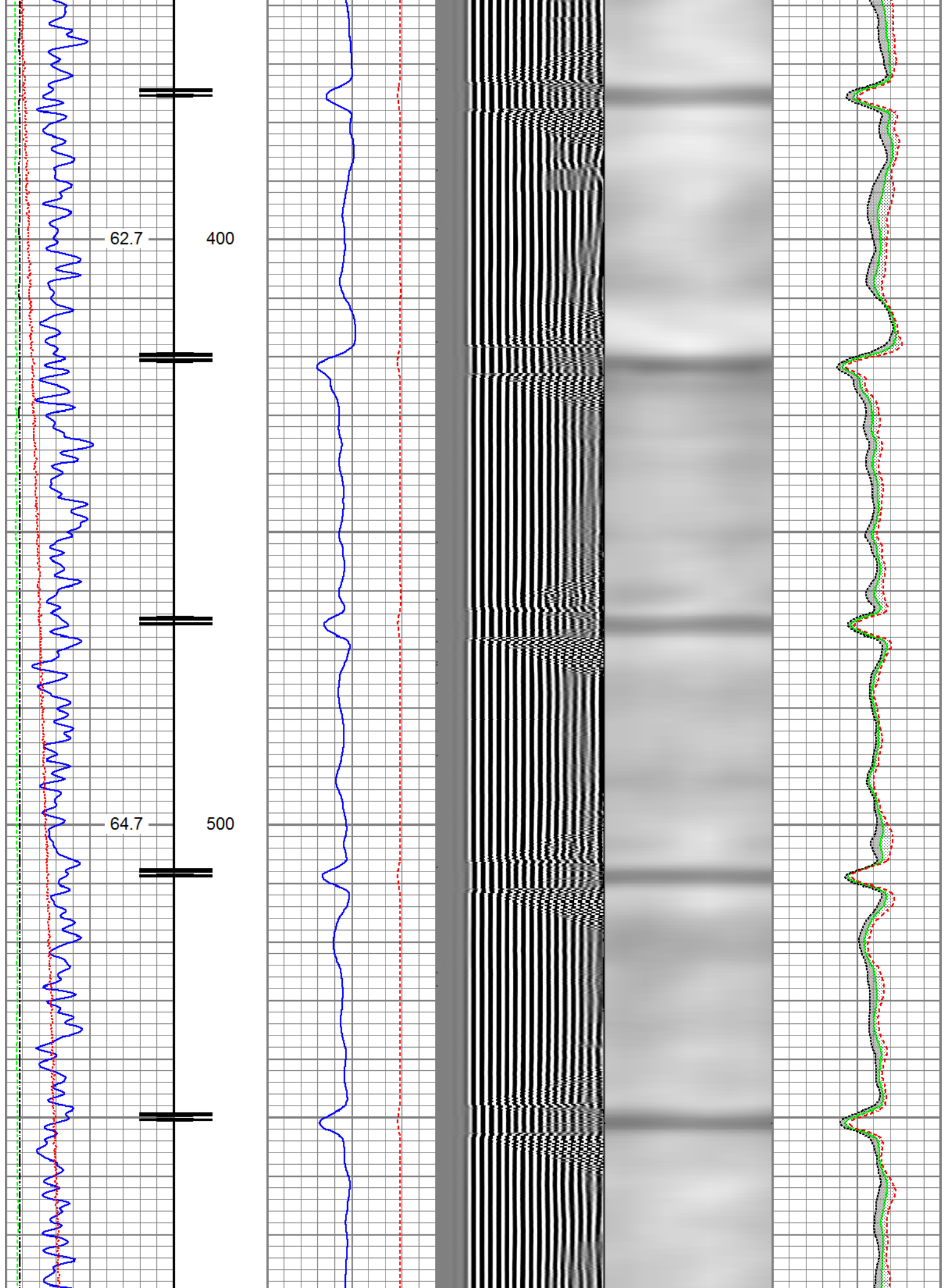
Main Pass

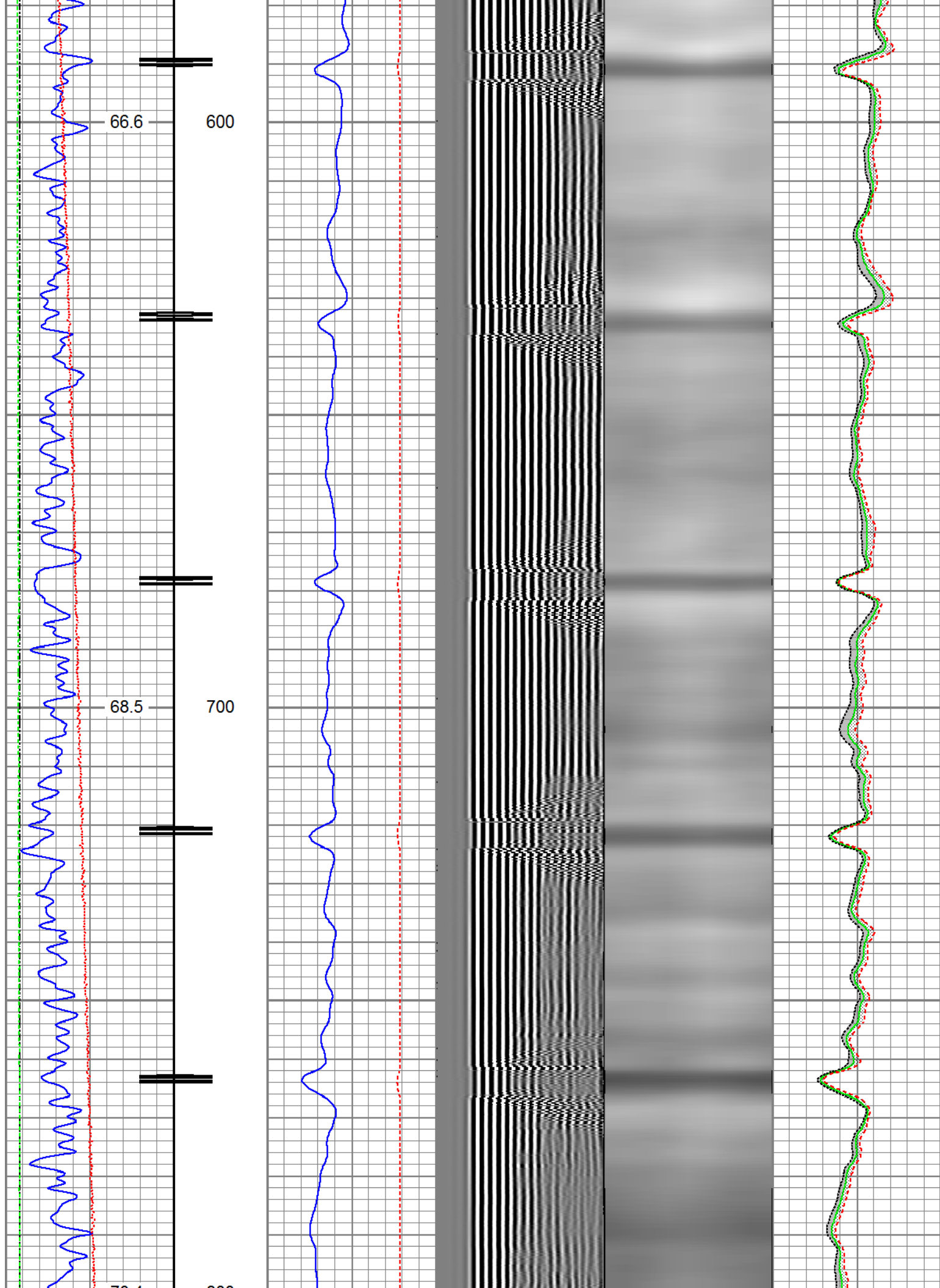
Recorded With 2800 PSI Surfaced Induced Pressure

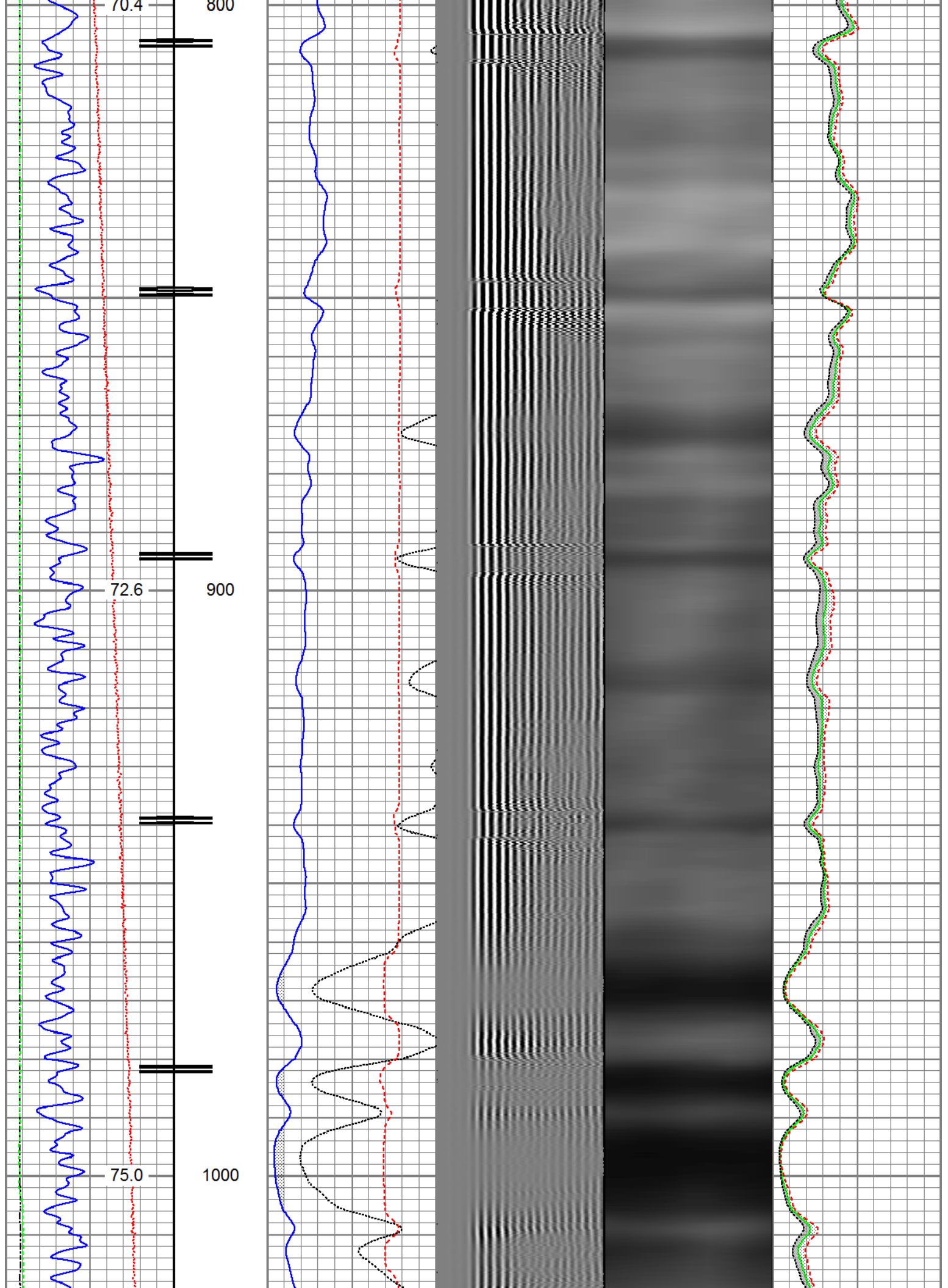
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 100
Temperature	3' Travel Time			Maximum Amplitude
0 (degF) 20	650 (usec) 150			0 100
Line Speed				
-150 (ft/min)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

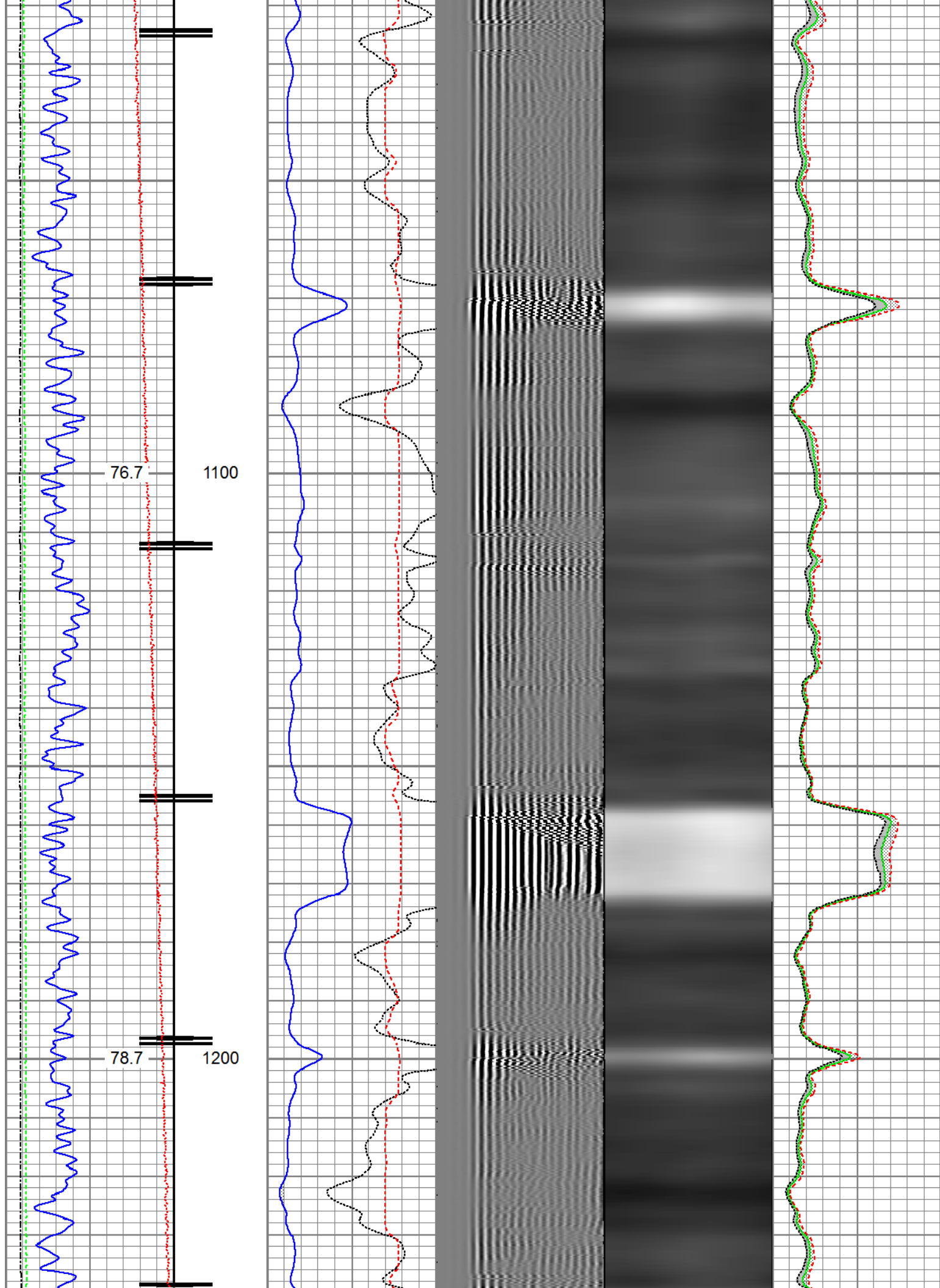


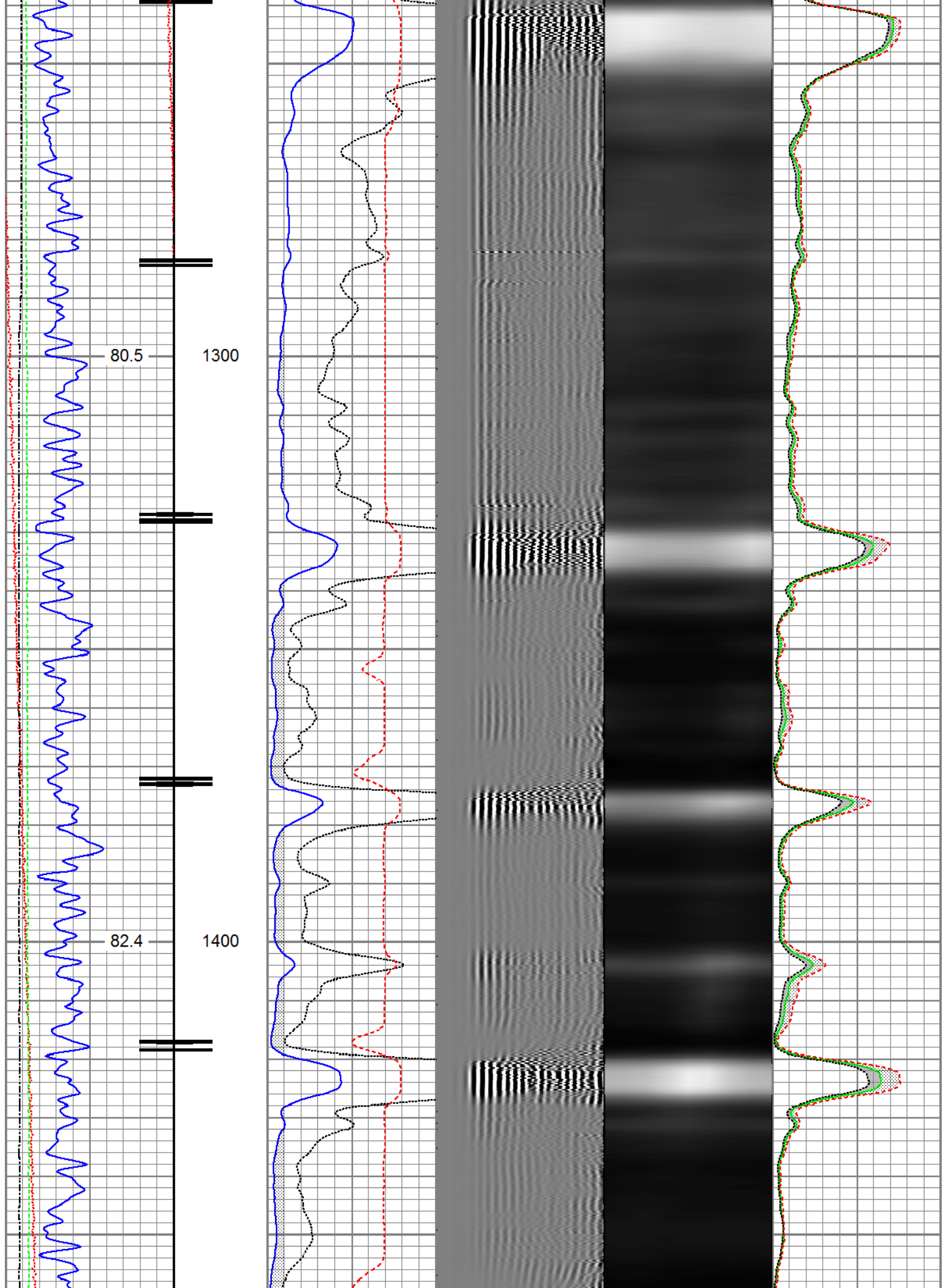


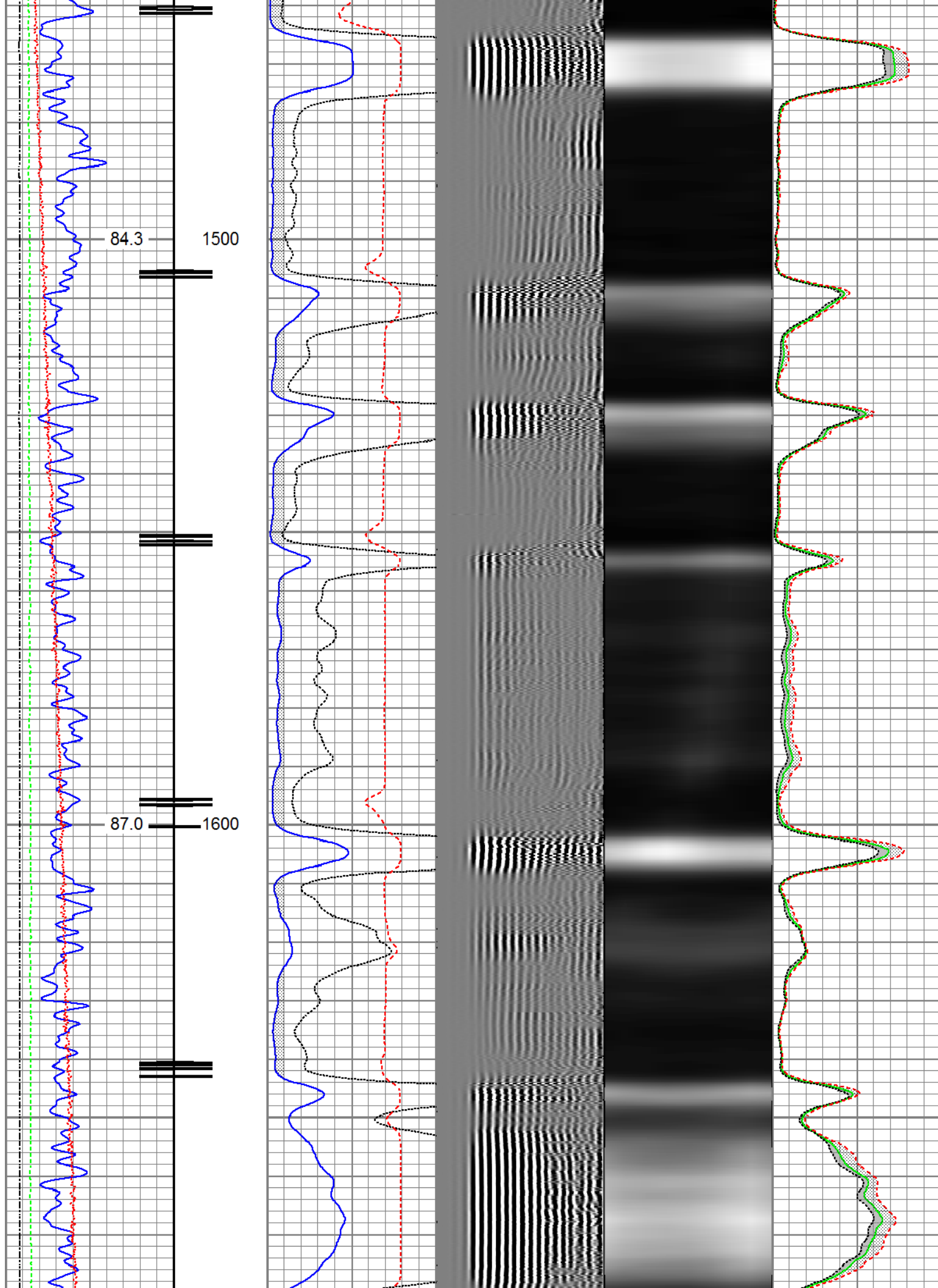


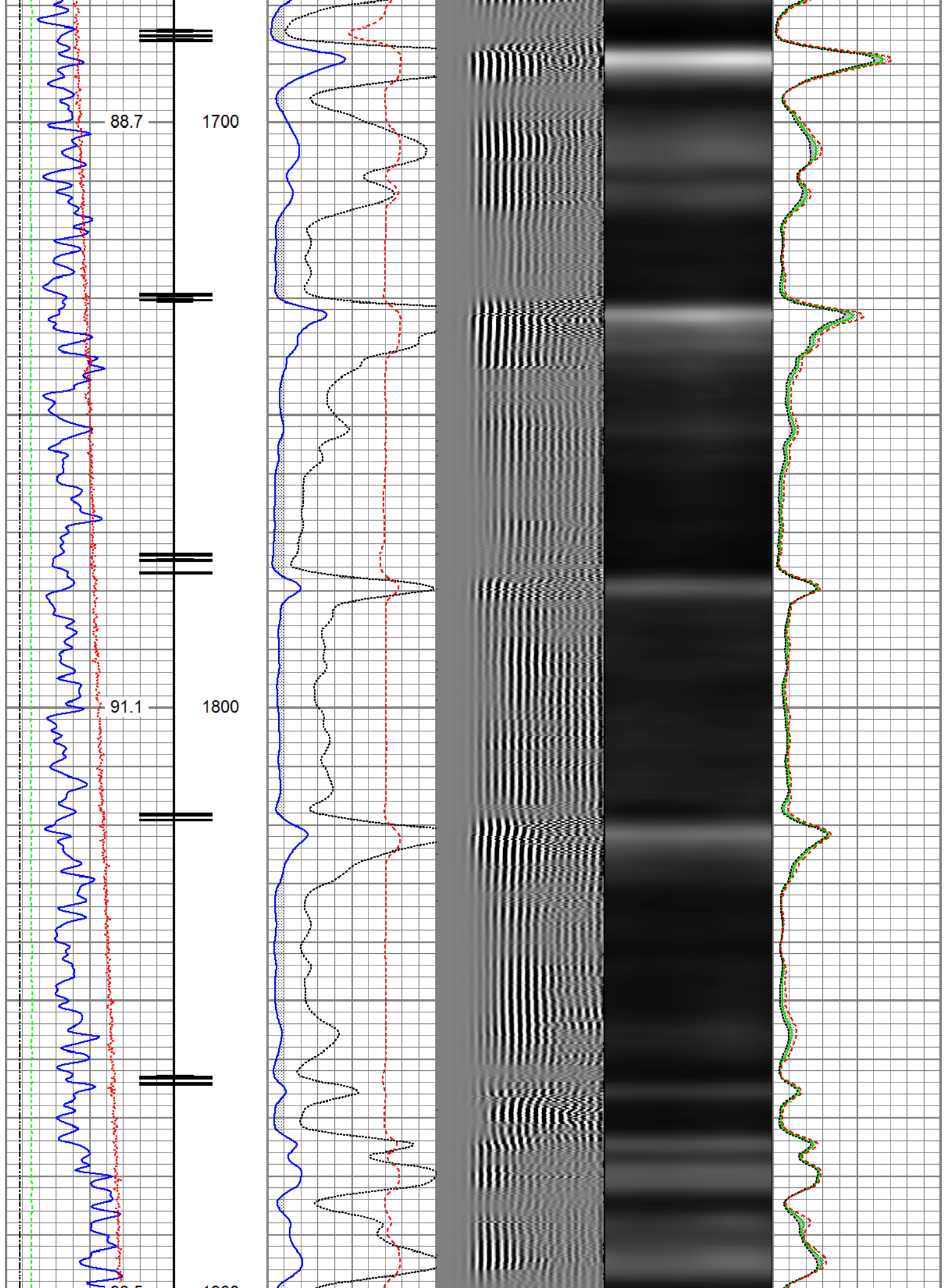


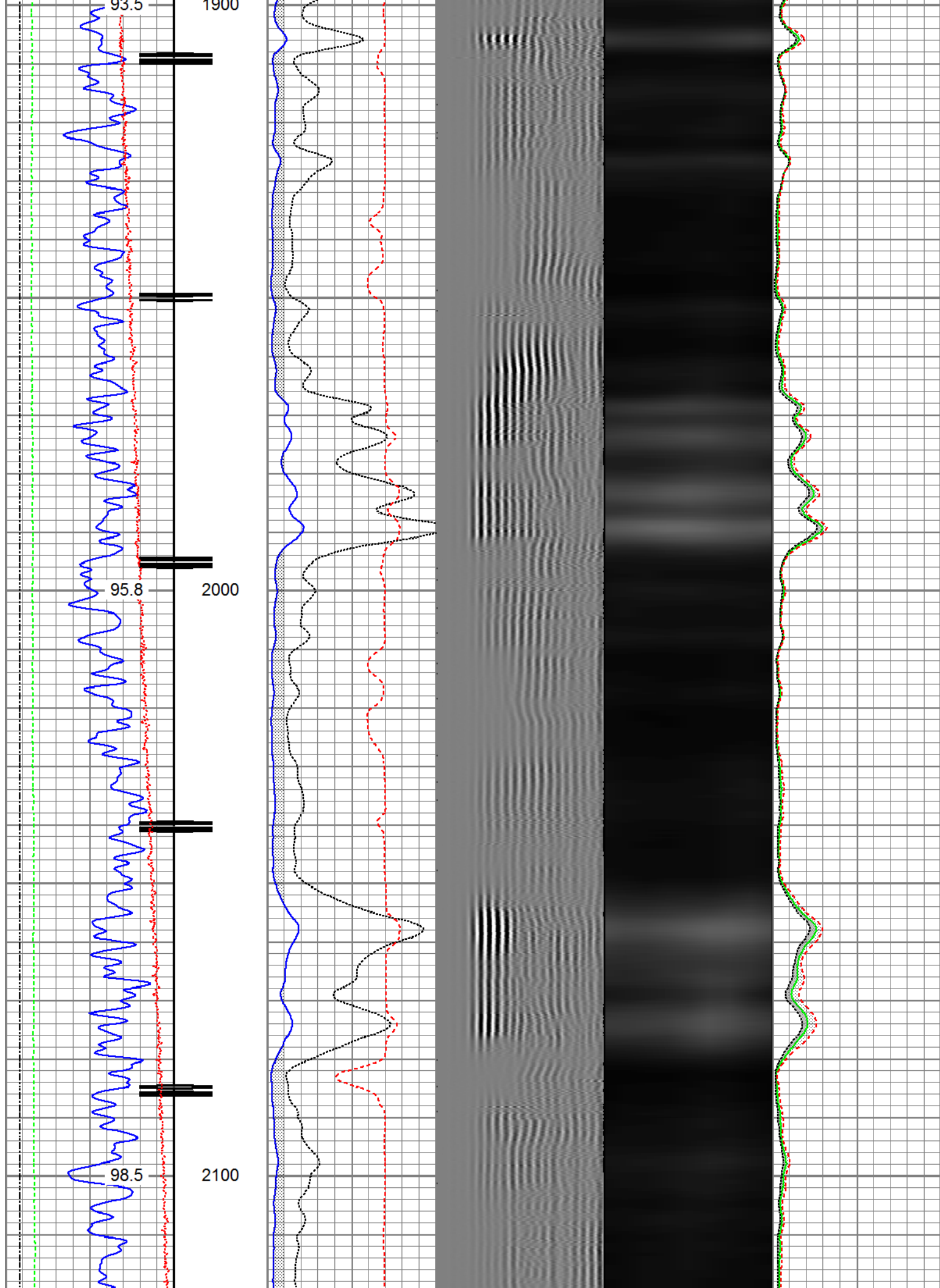


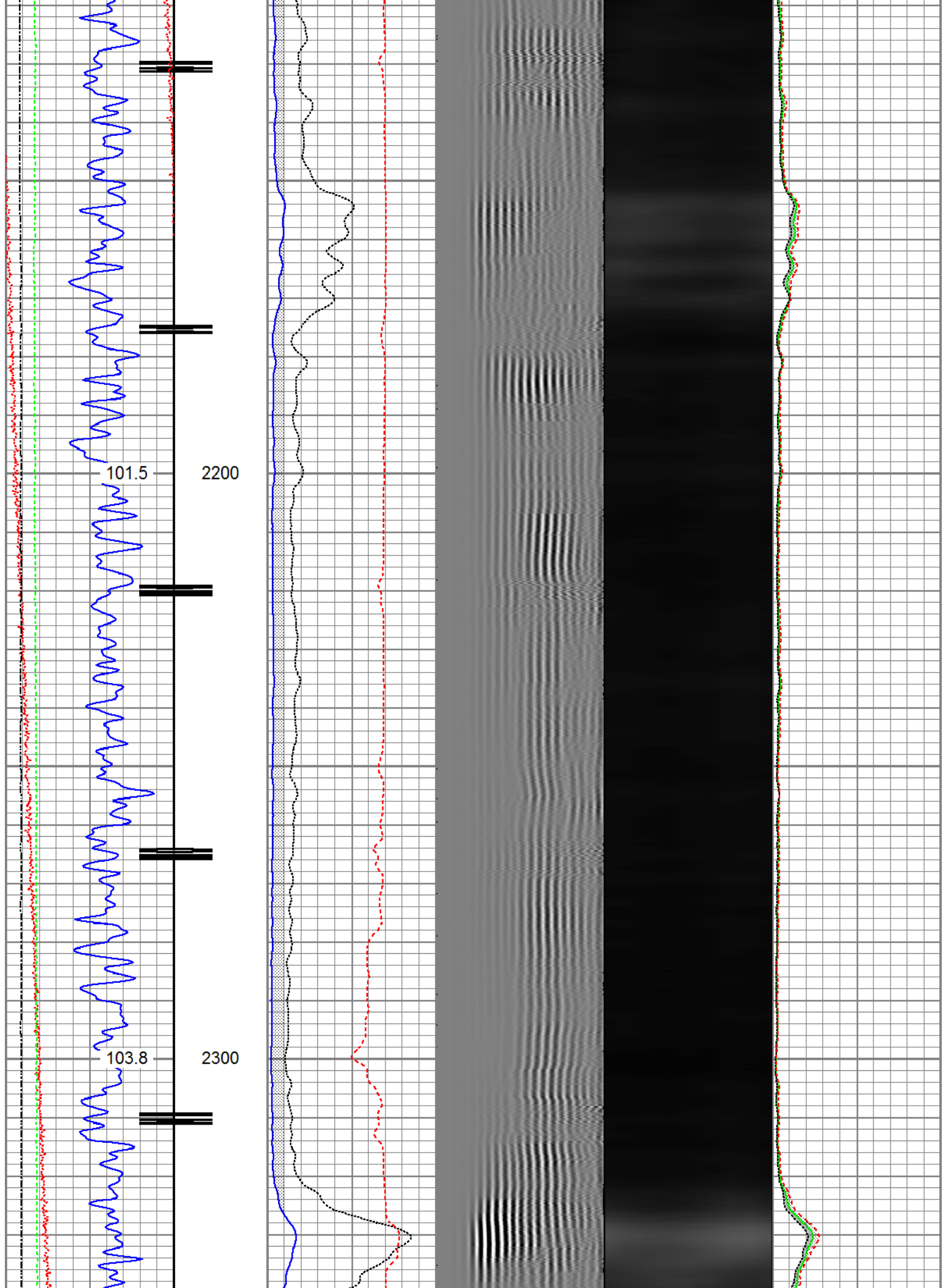


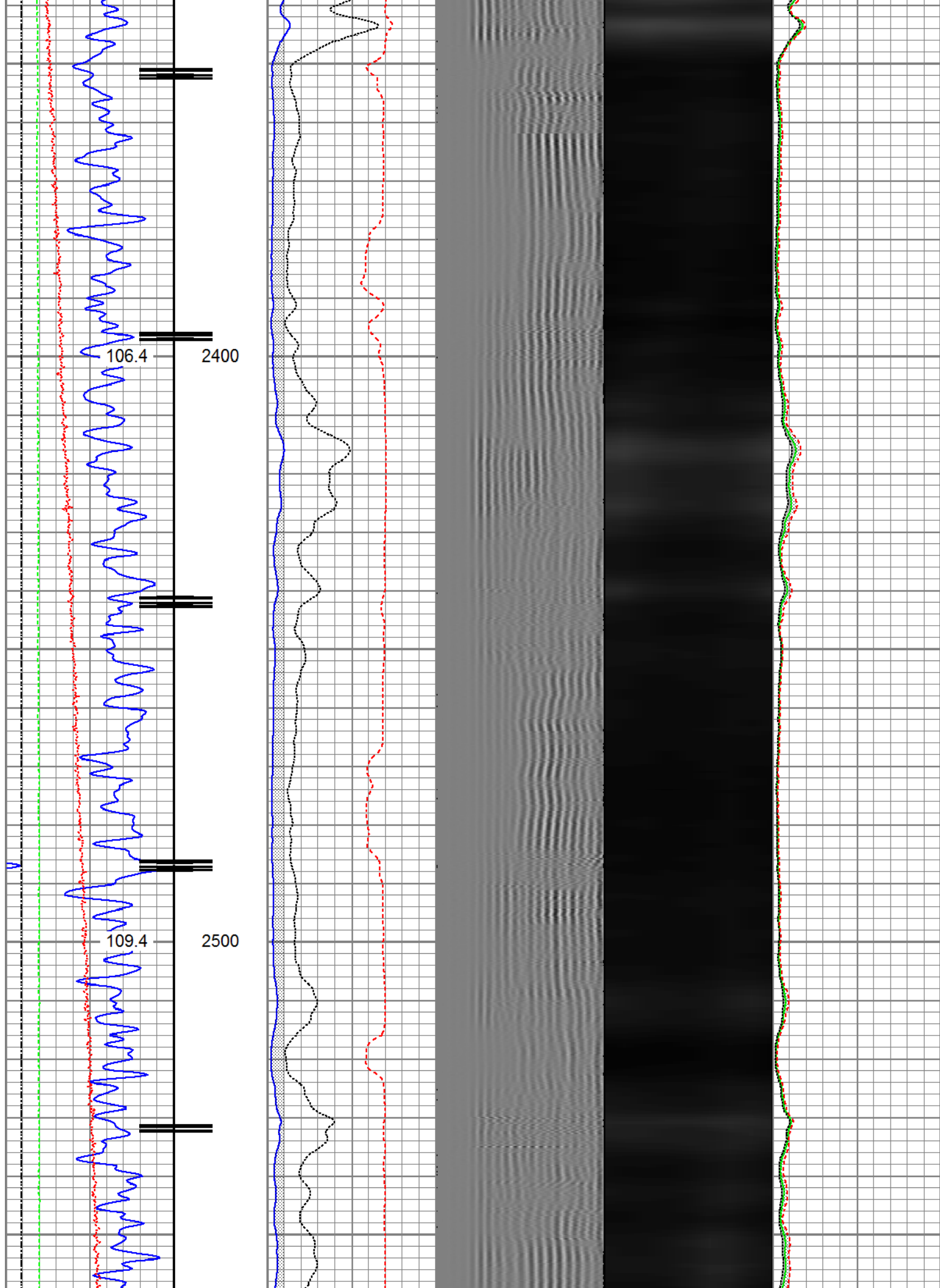


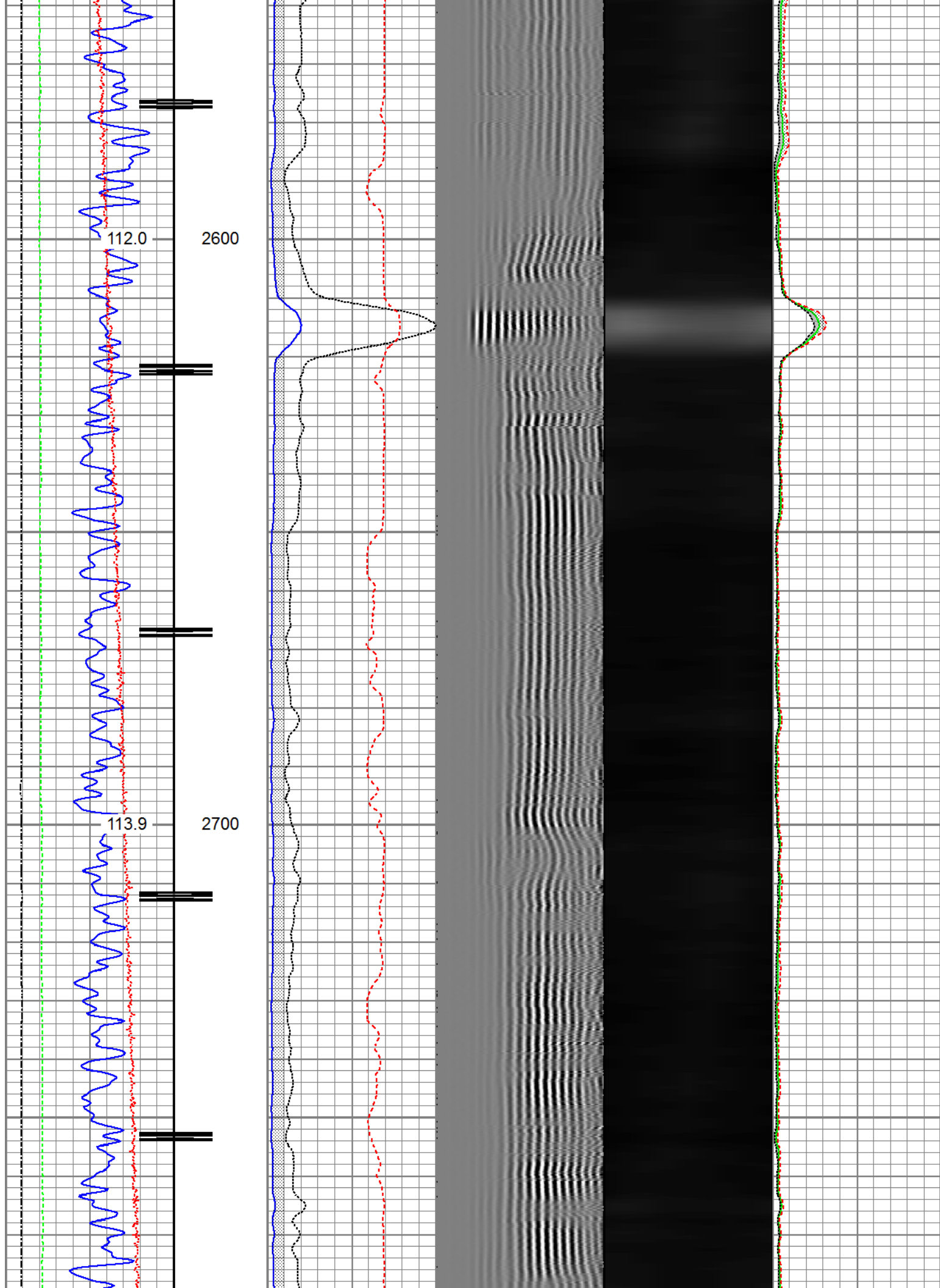


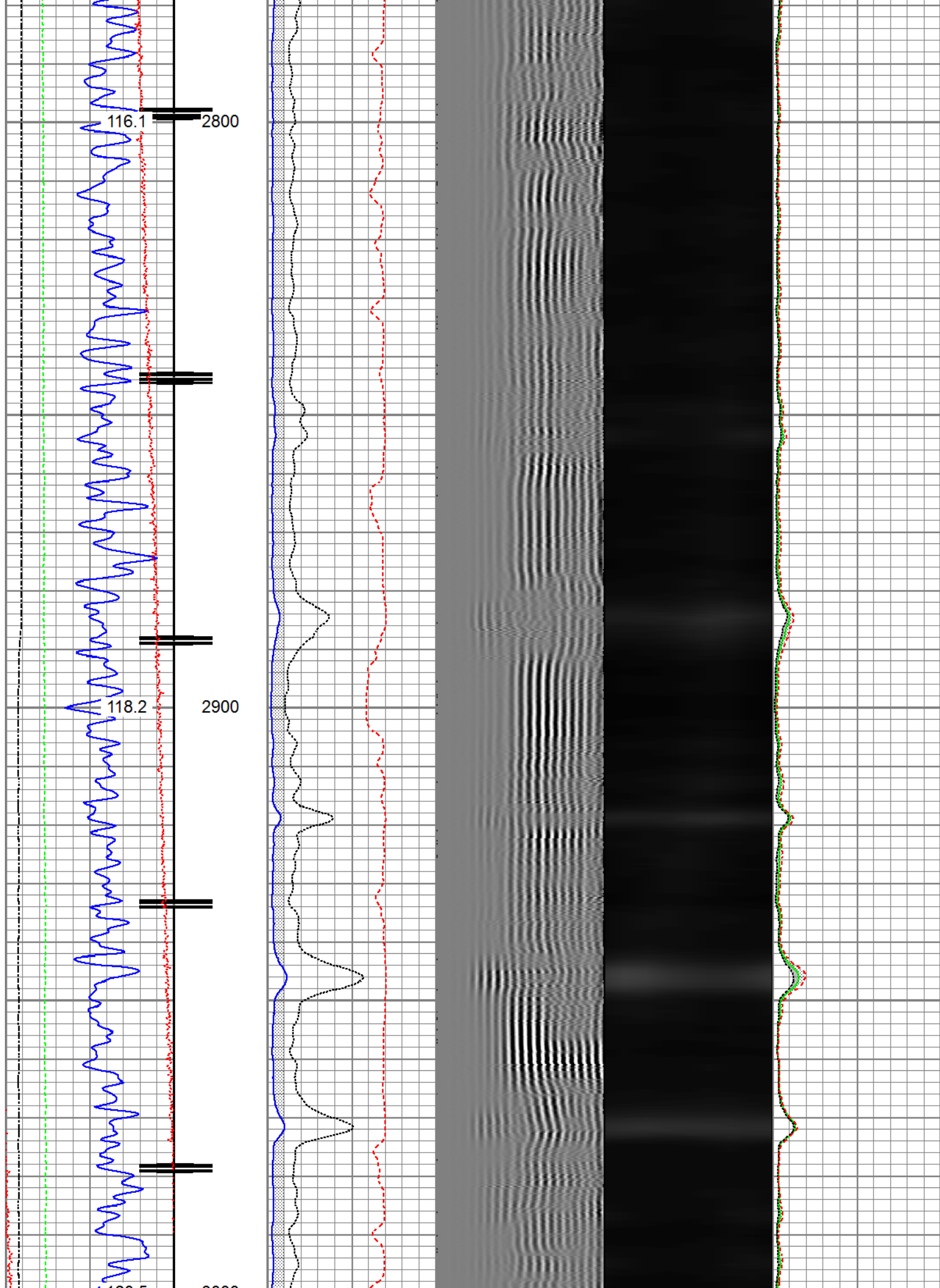


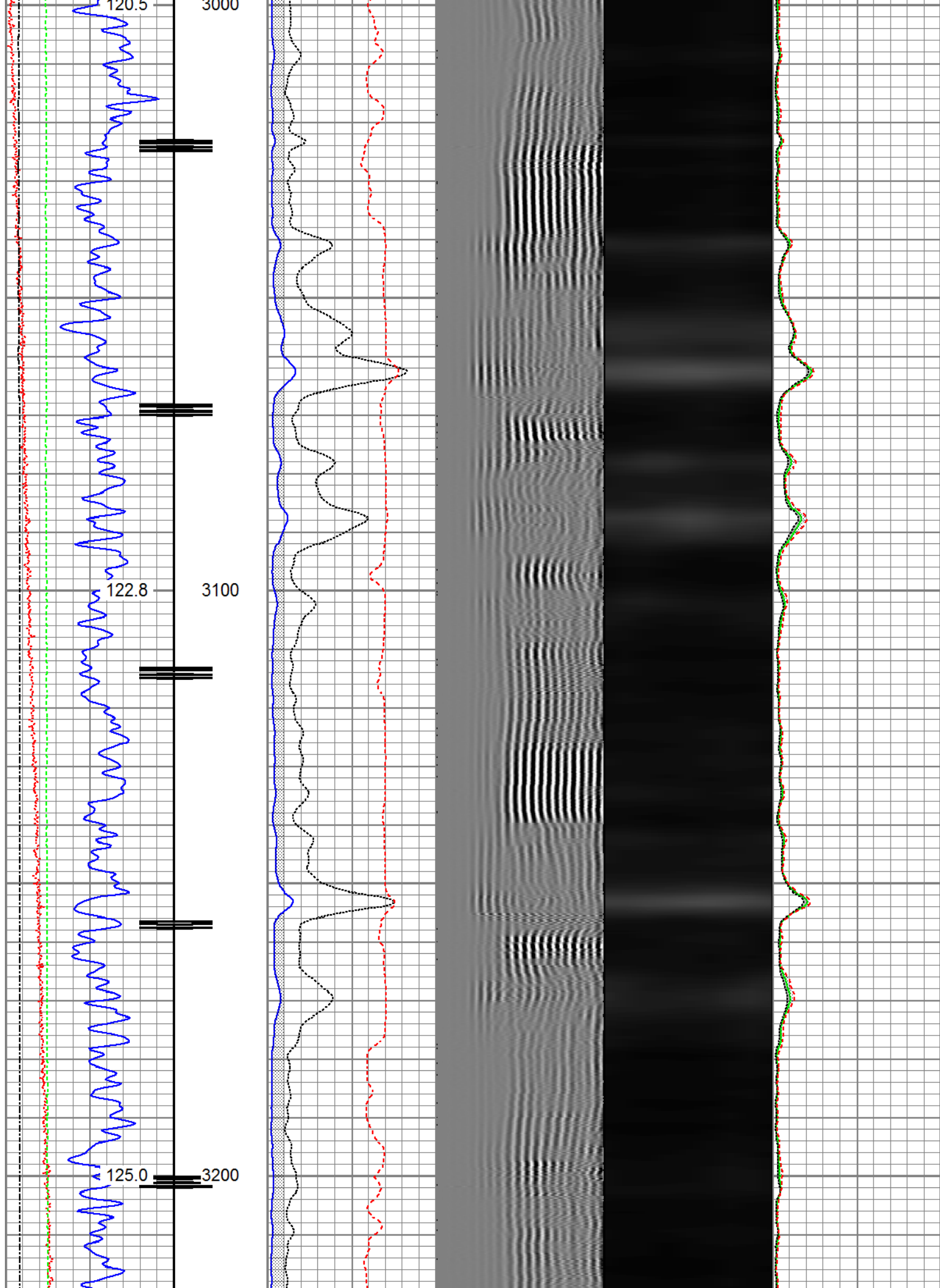


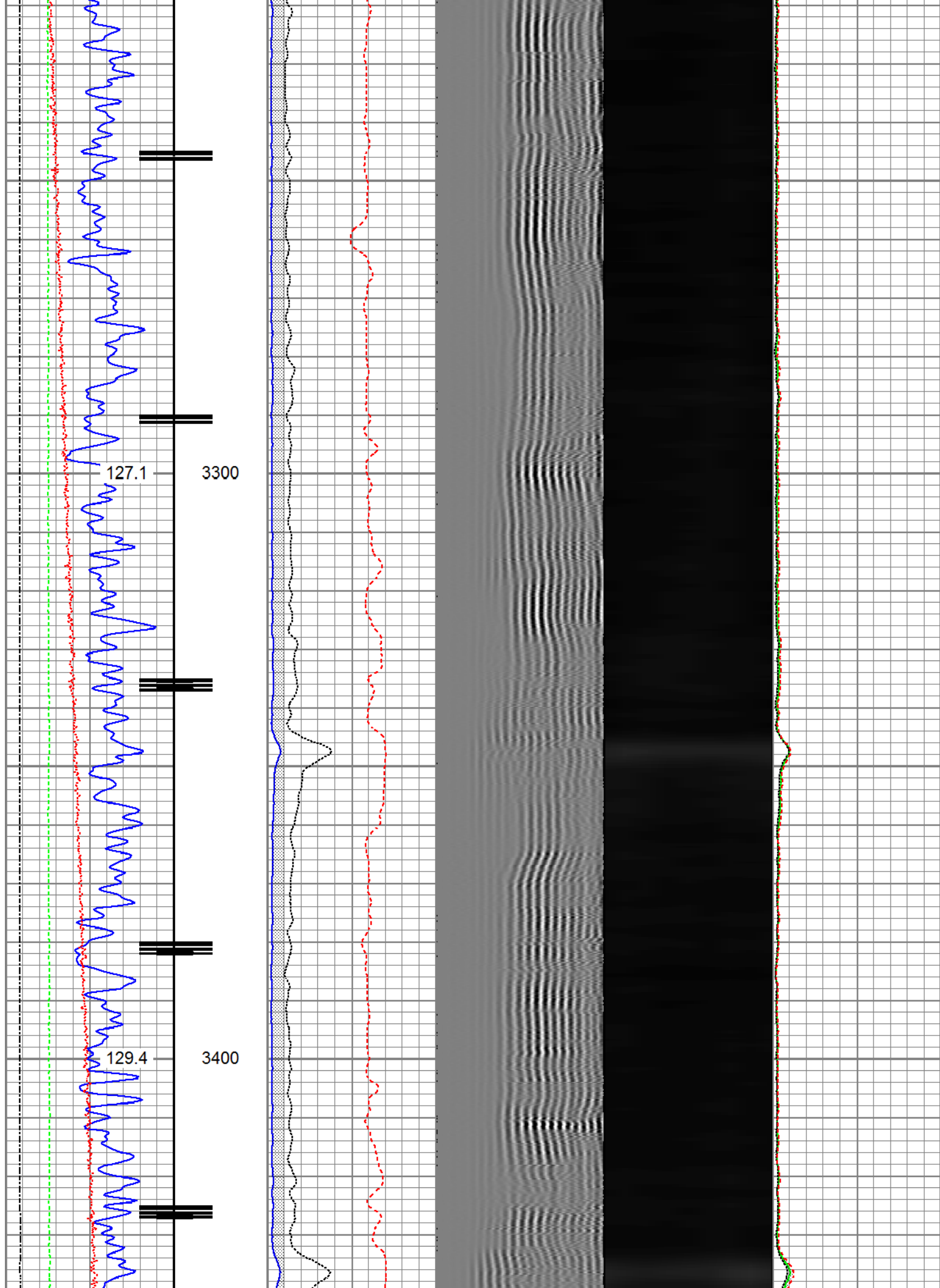


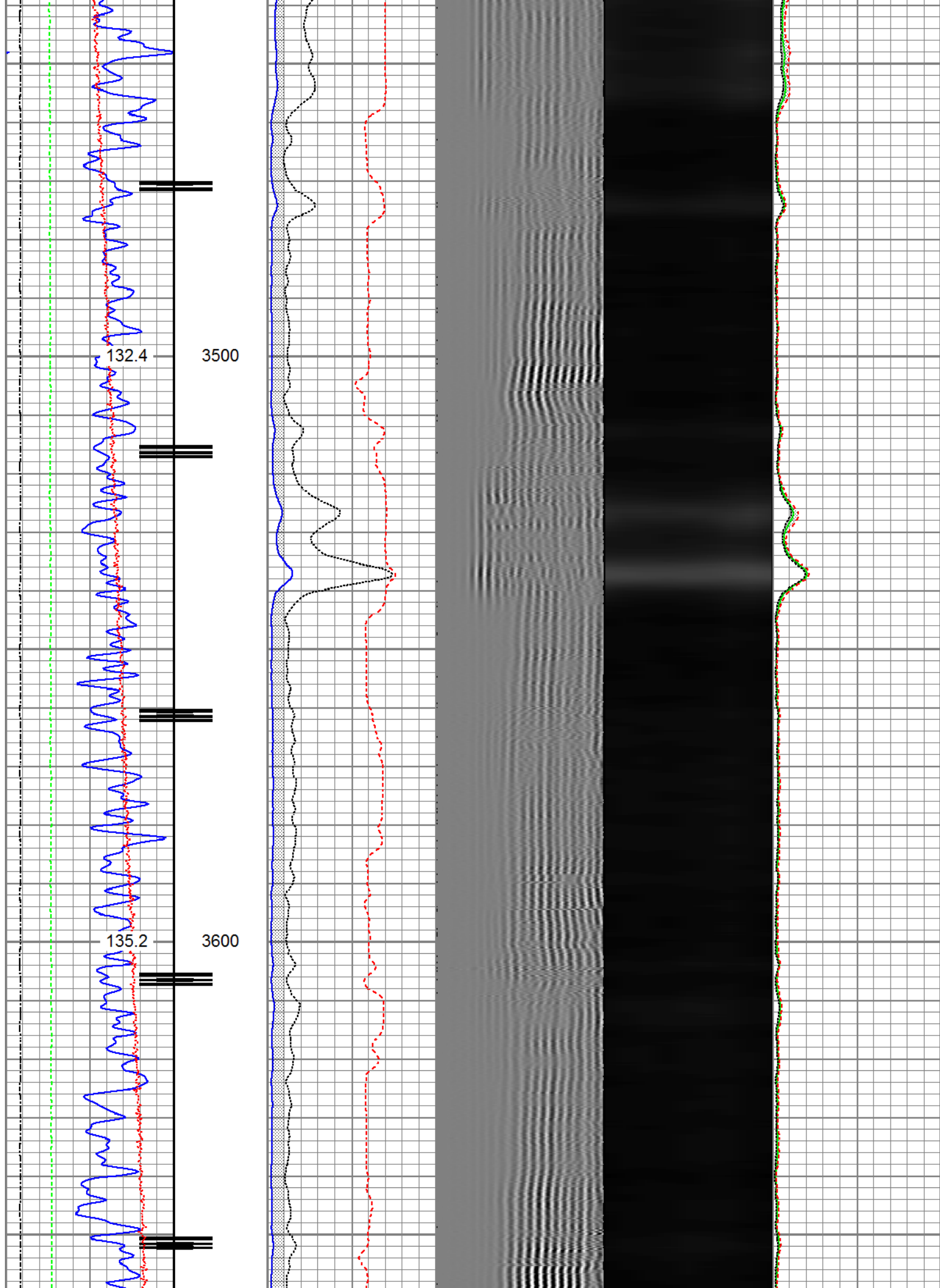


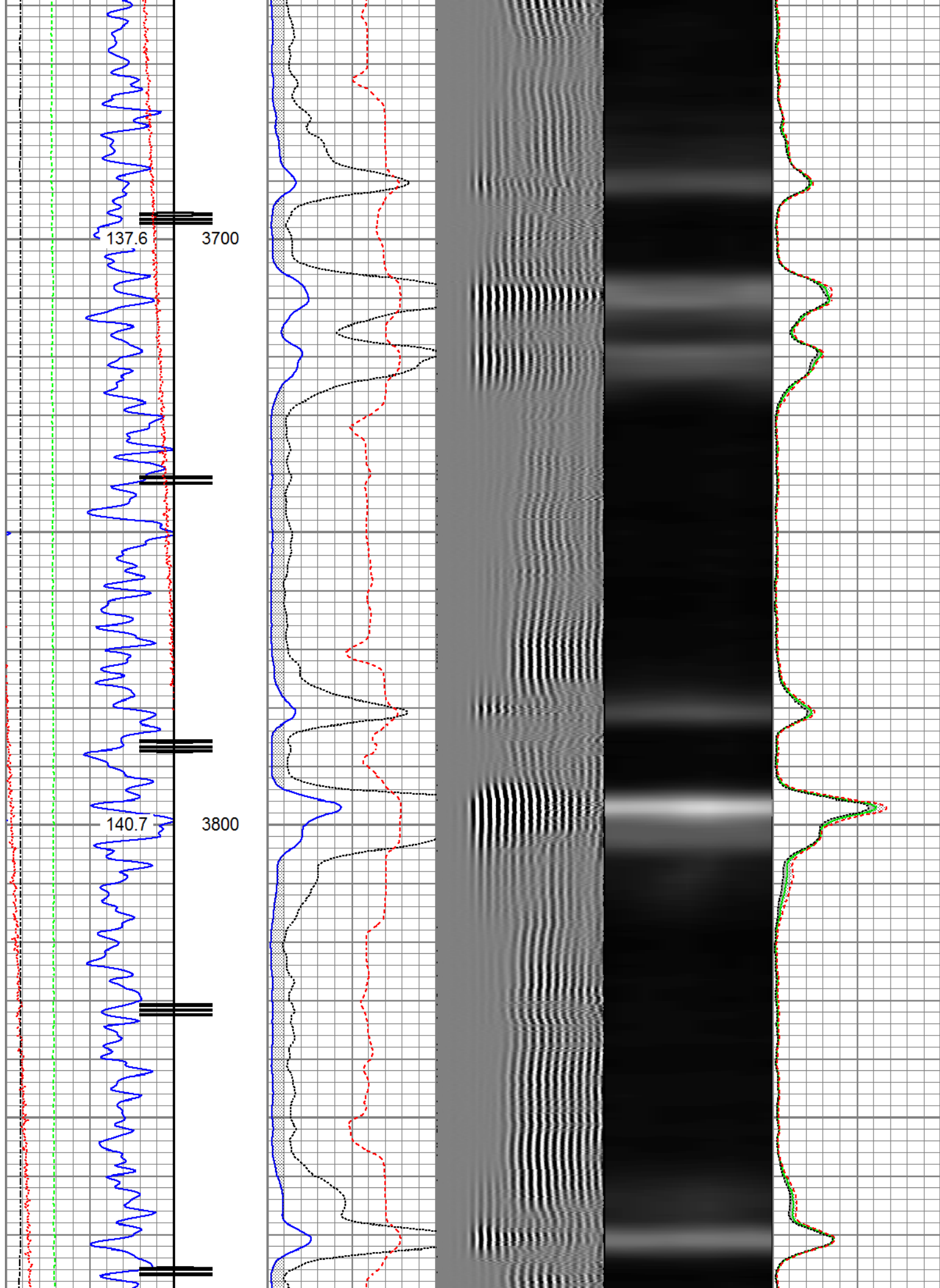


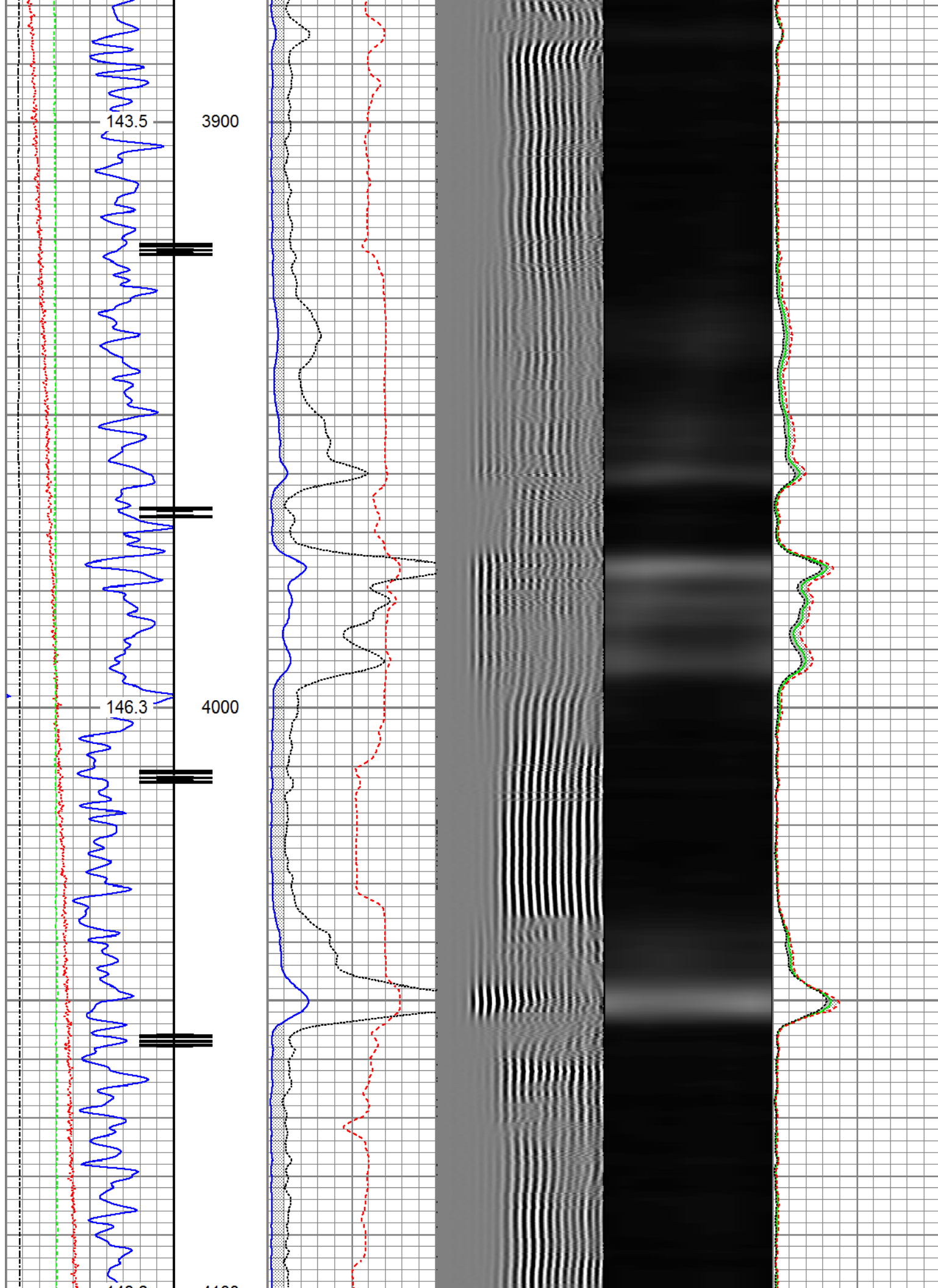


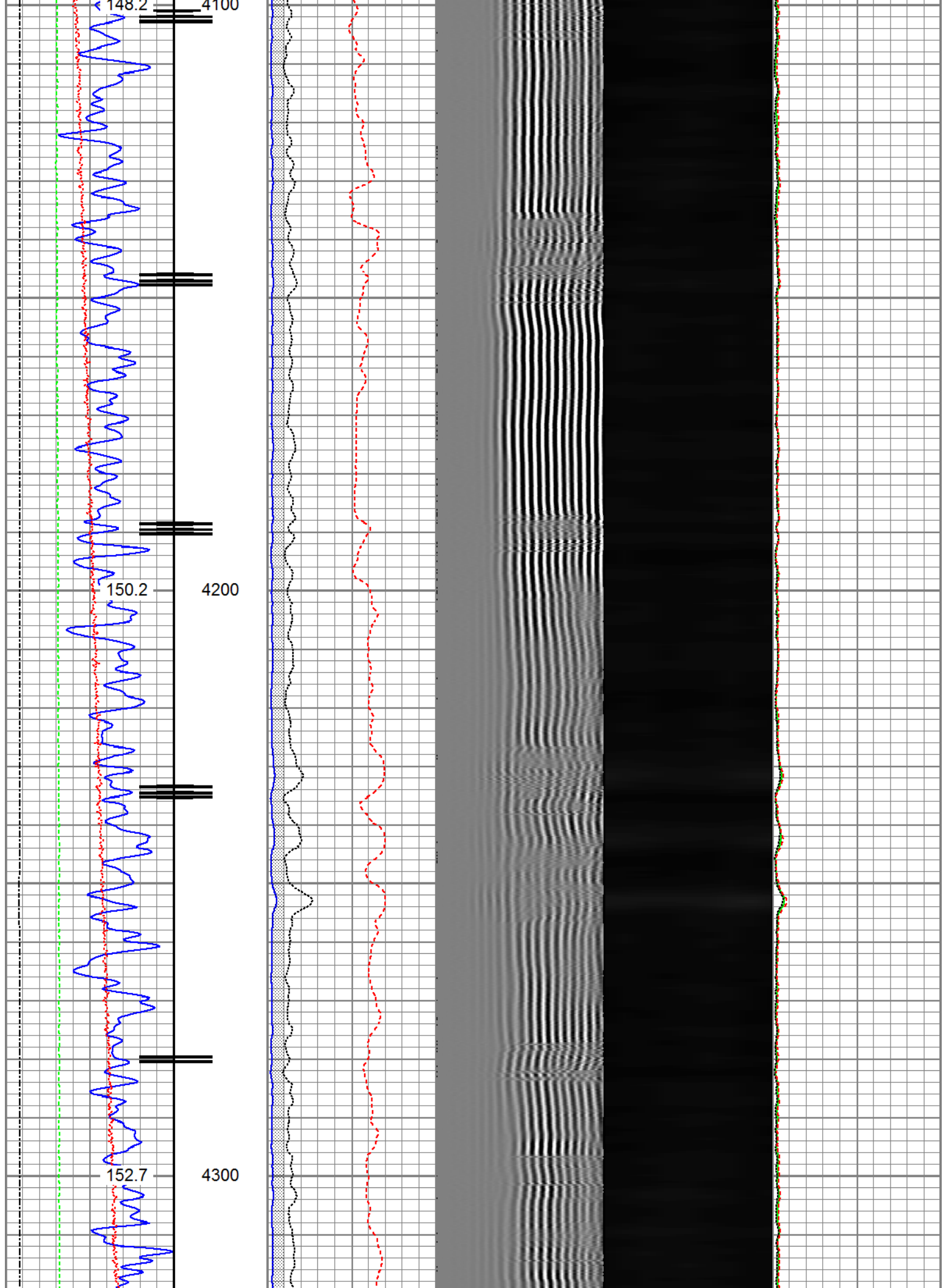


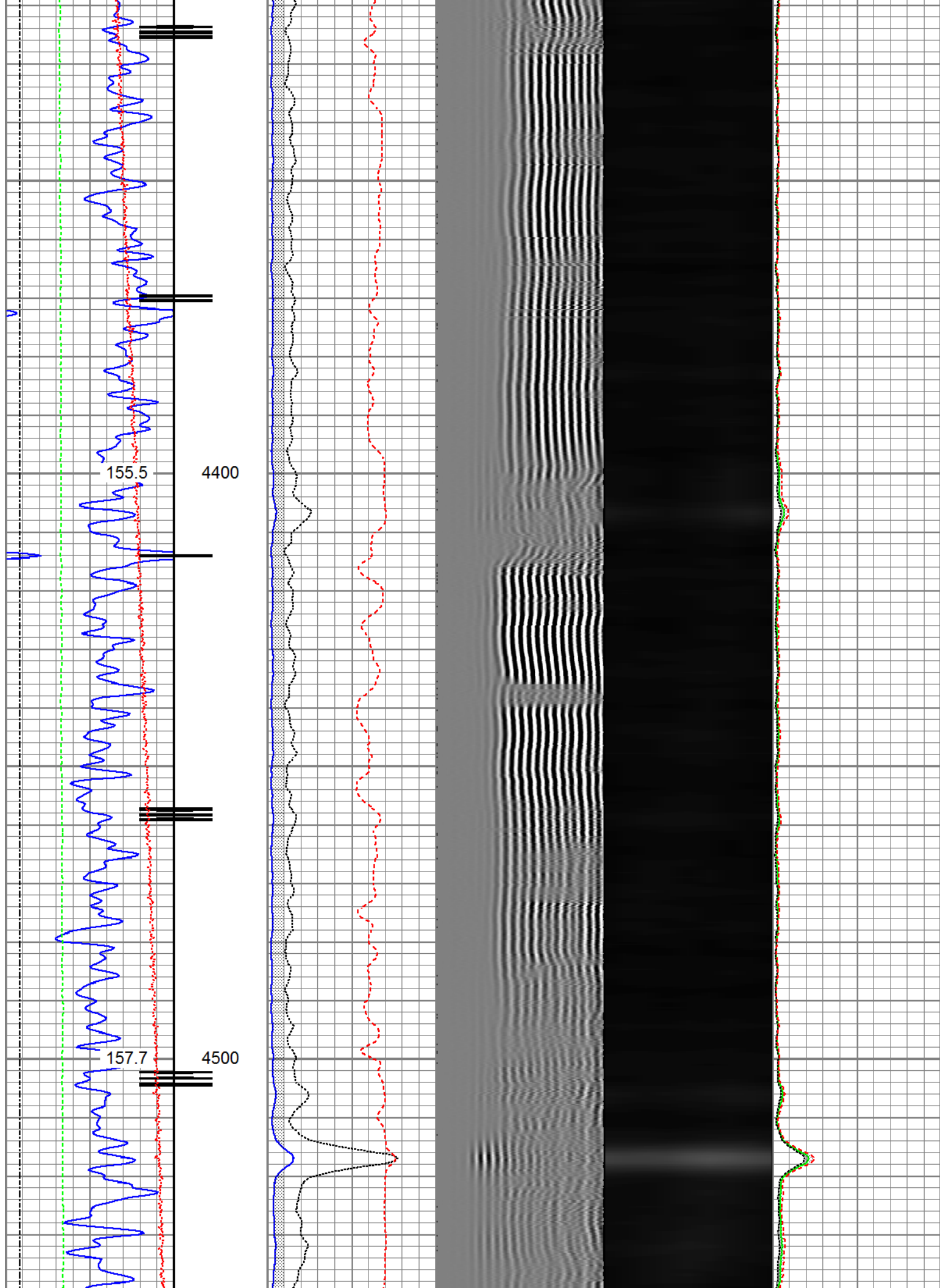


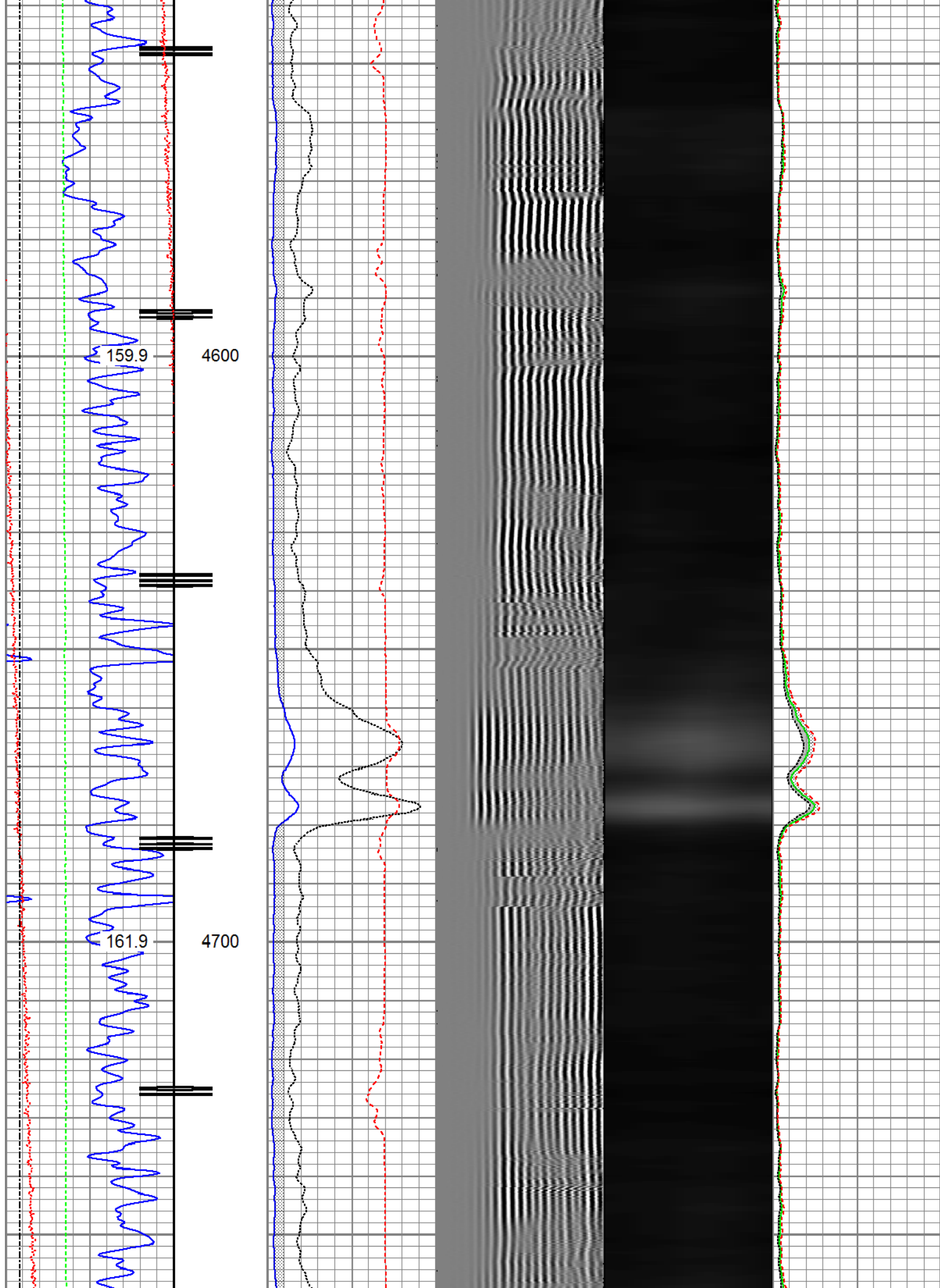


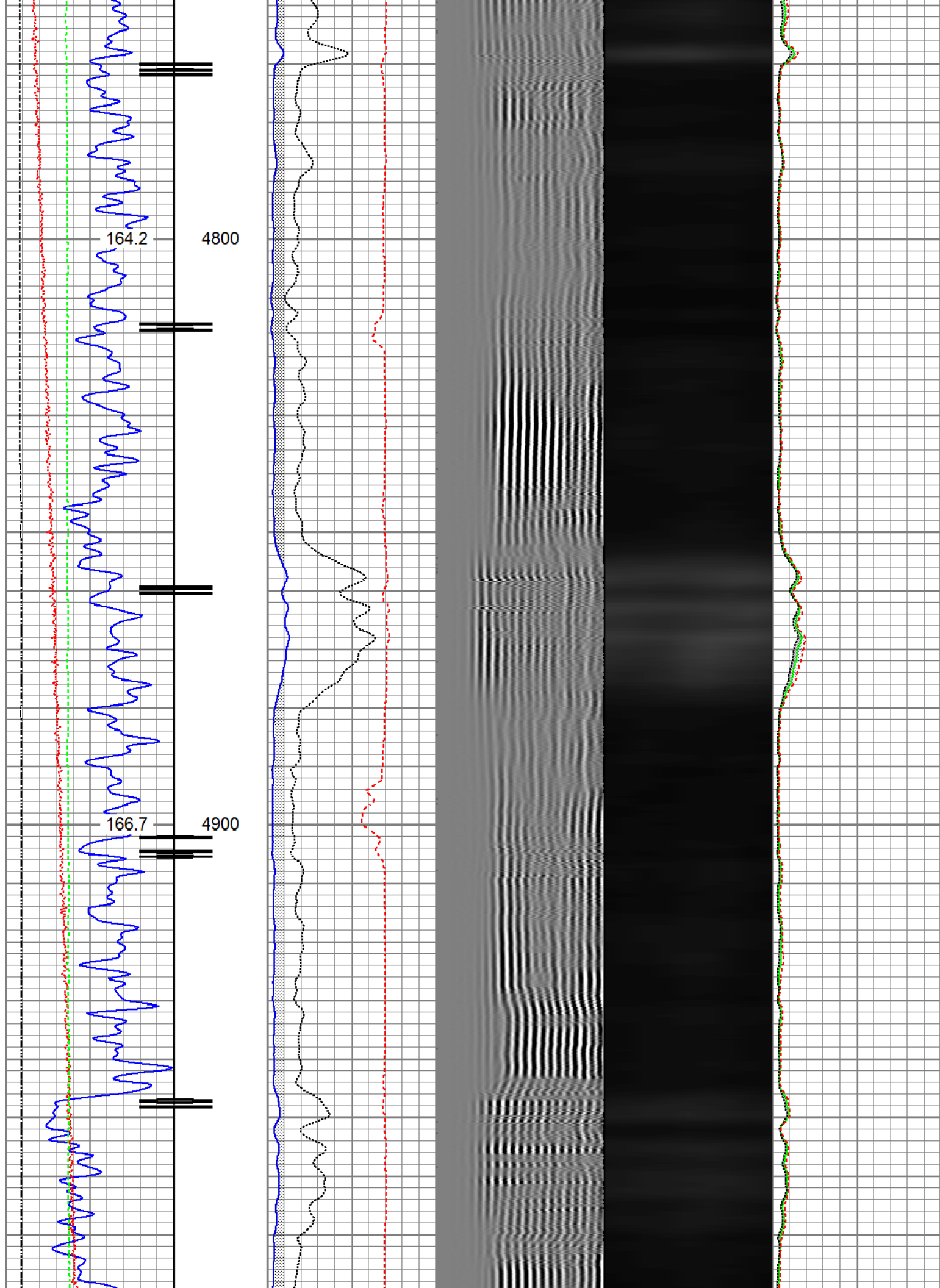


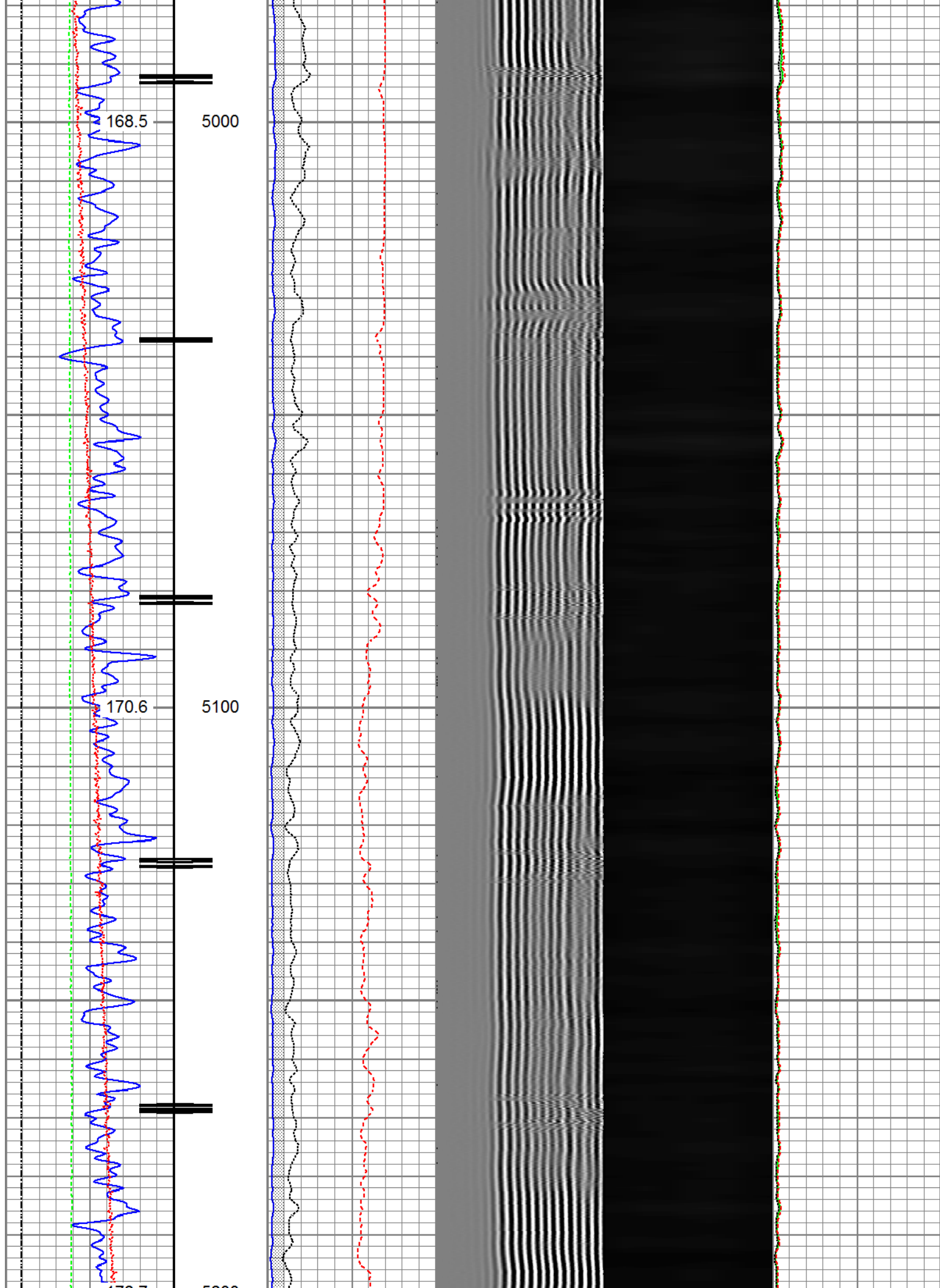


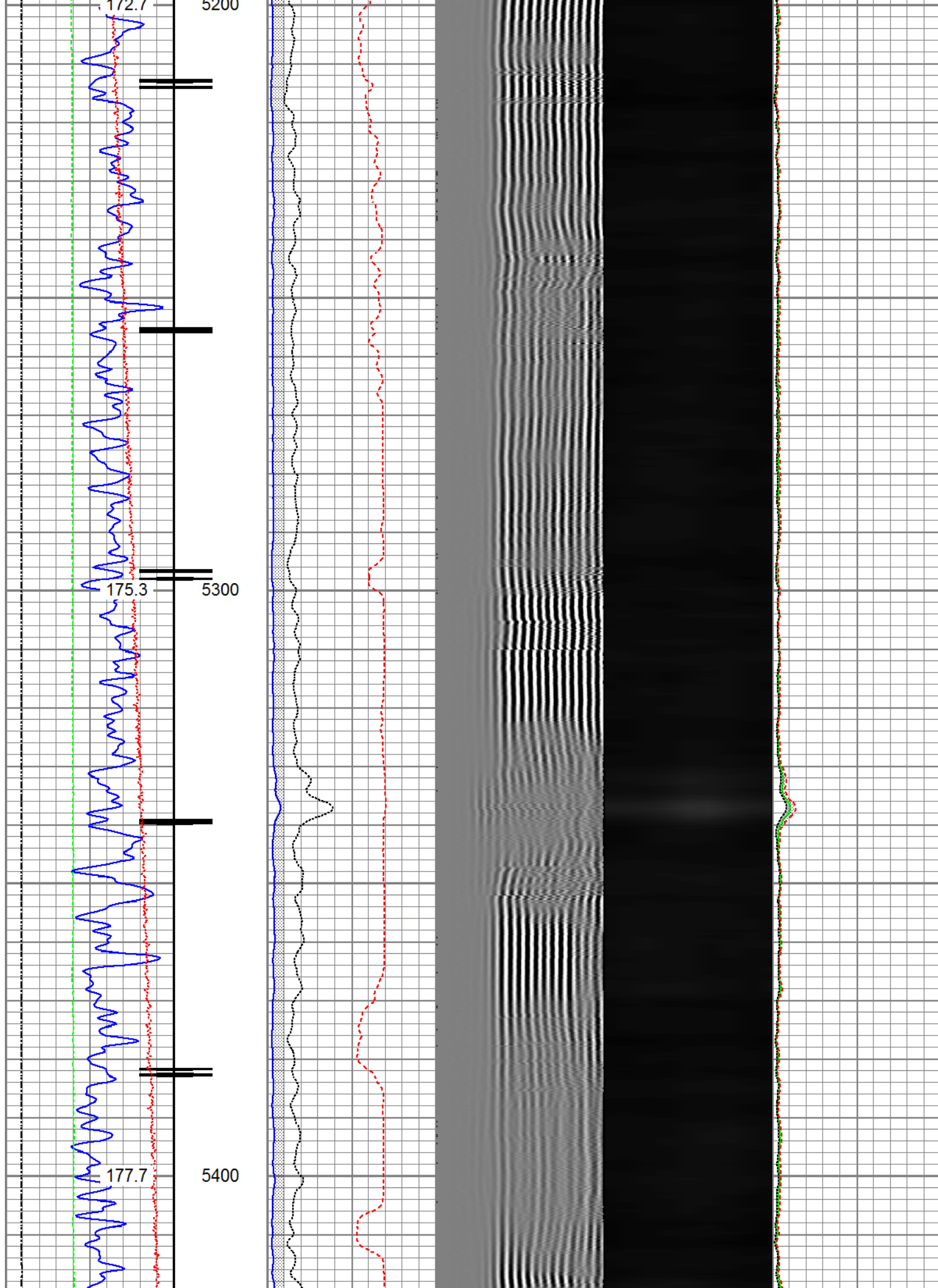


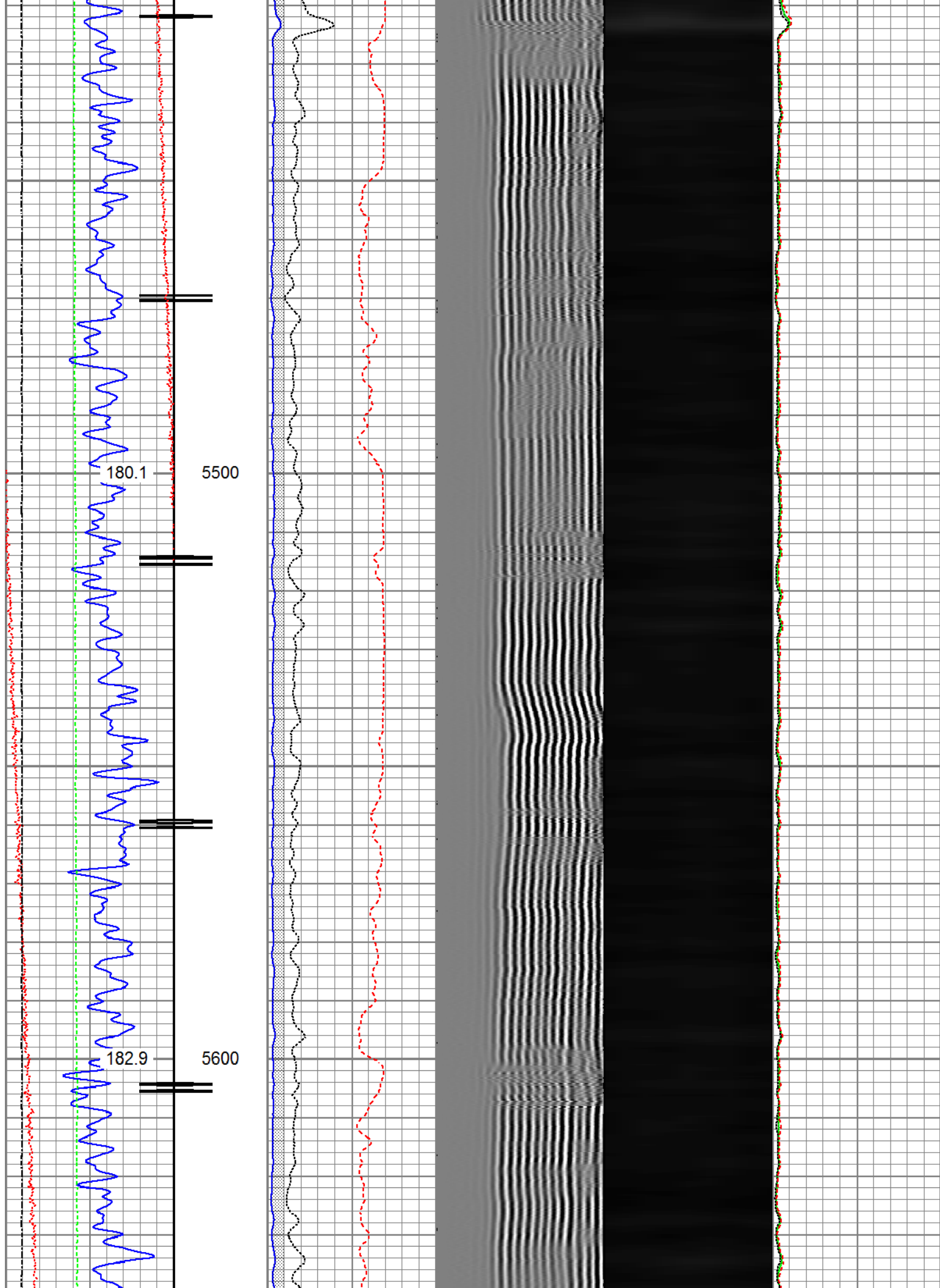


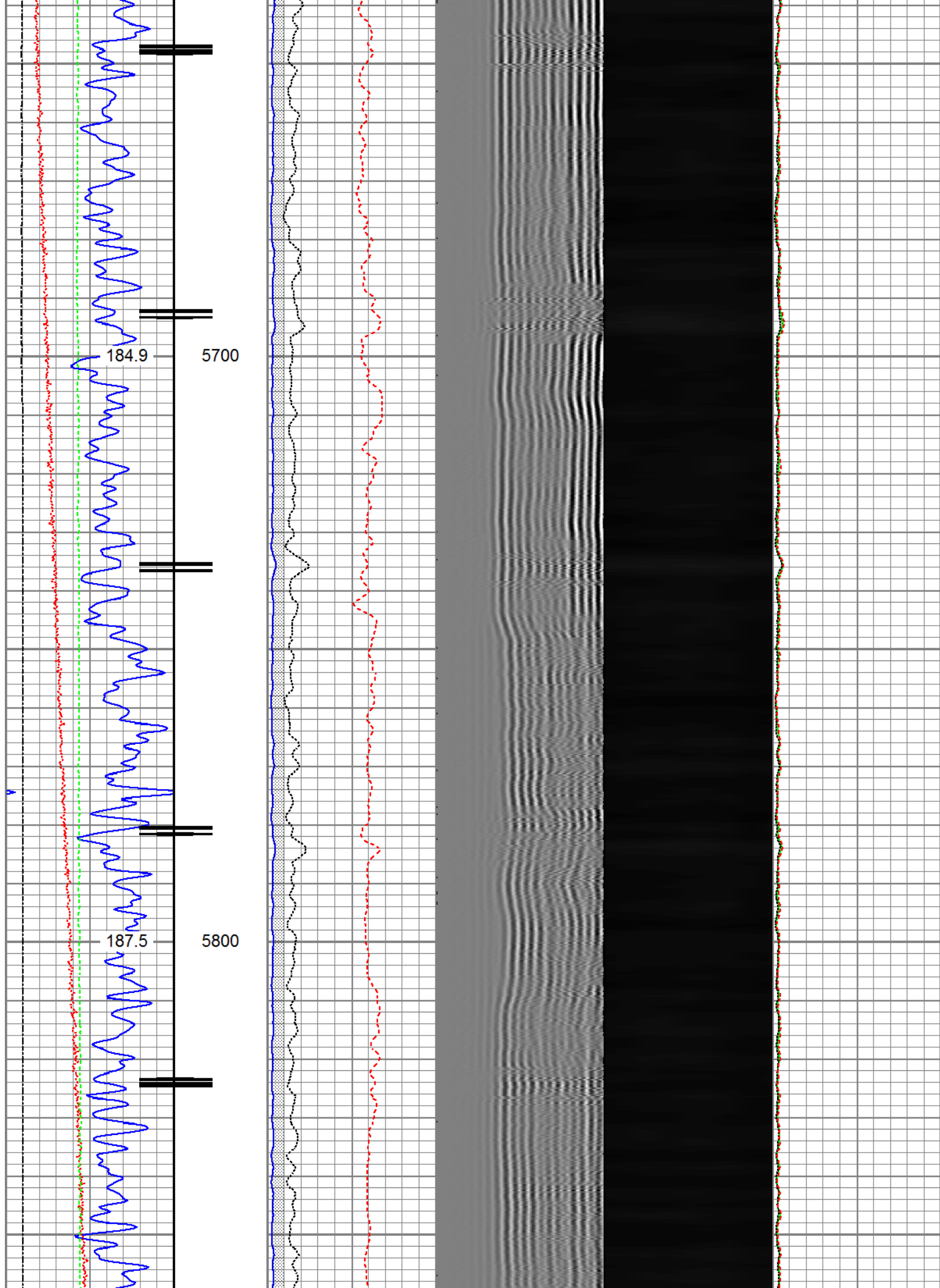


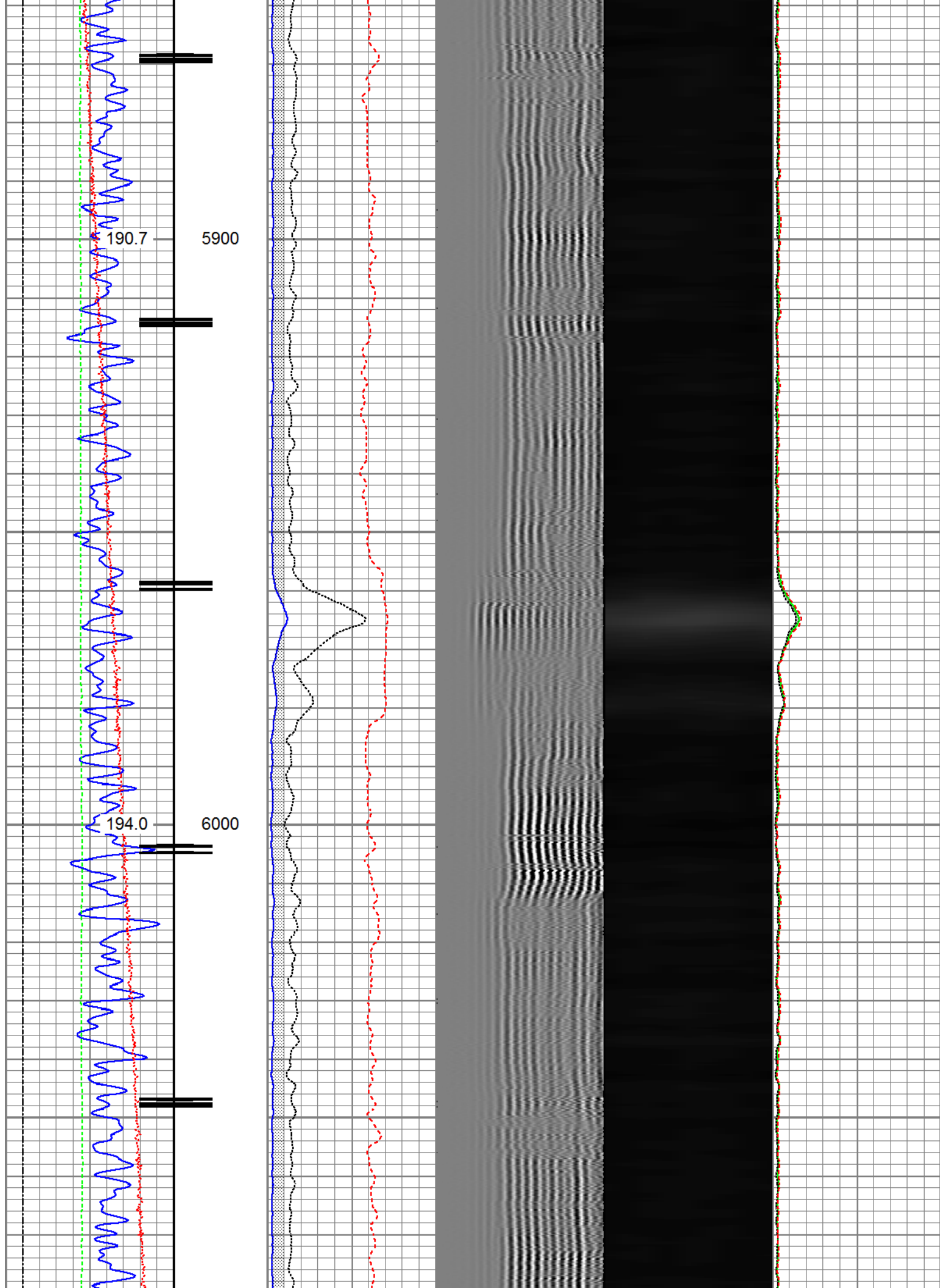


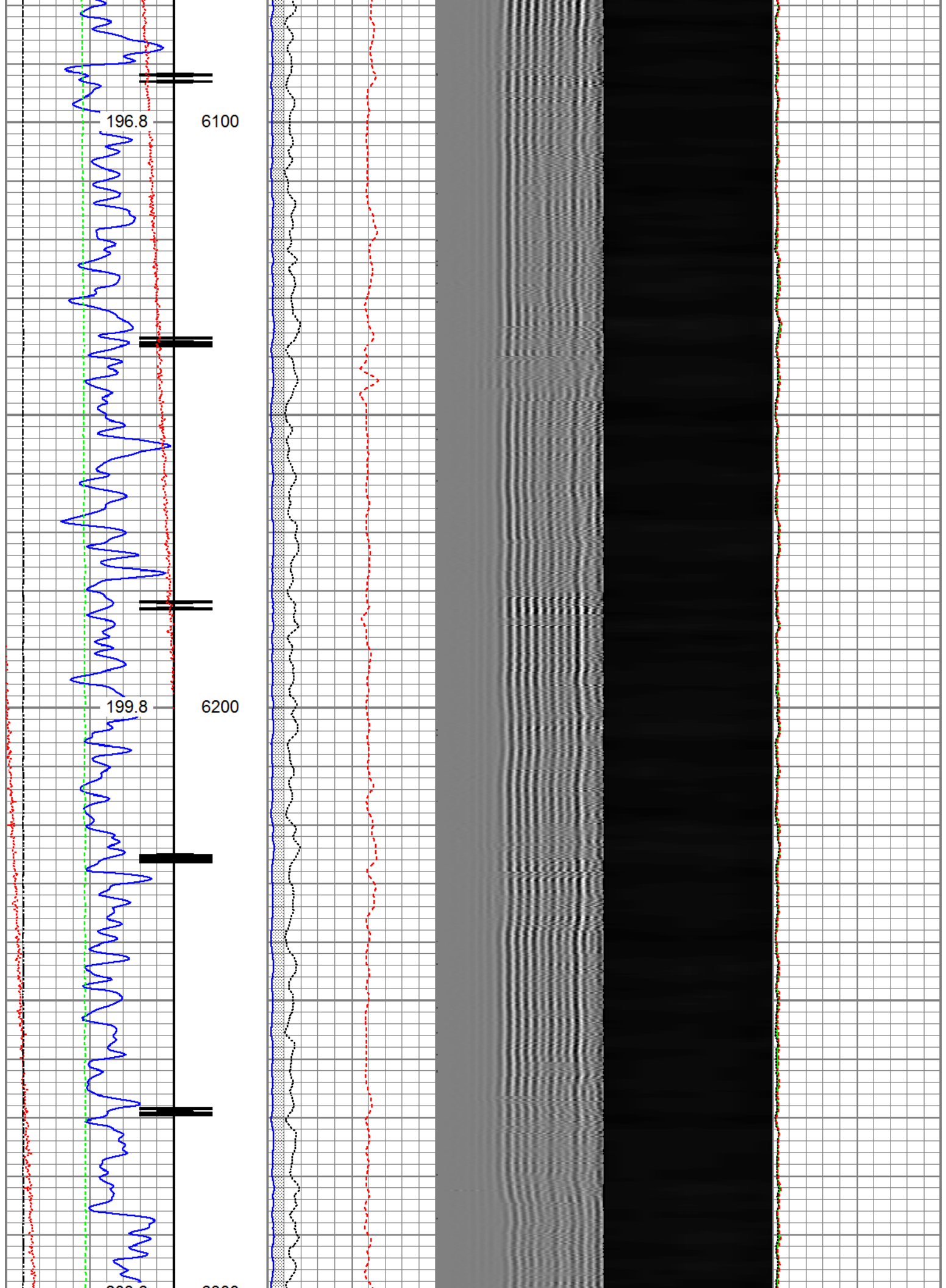


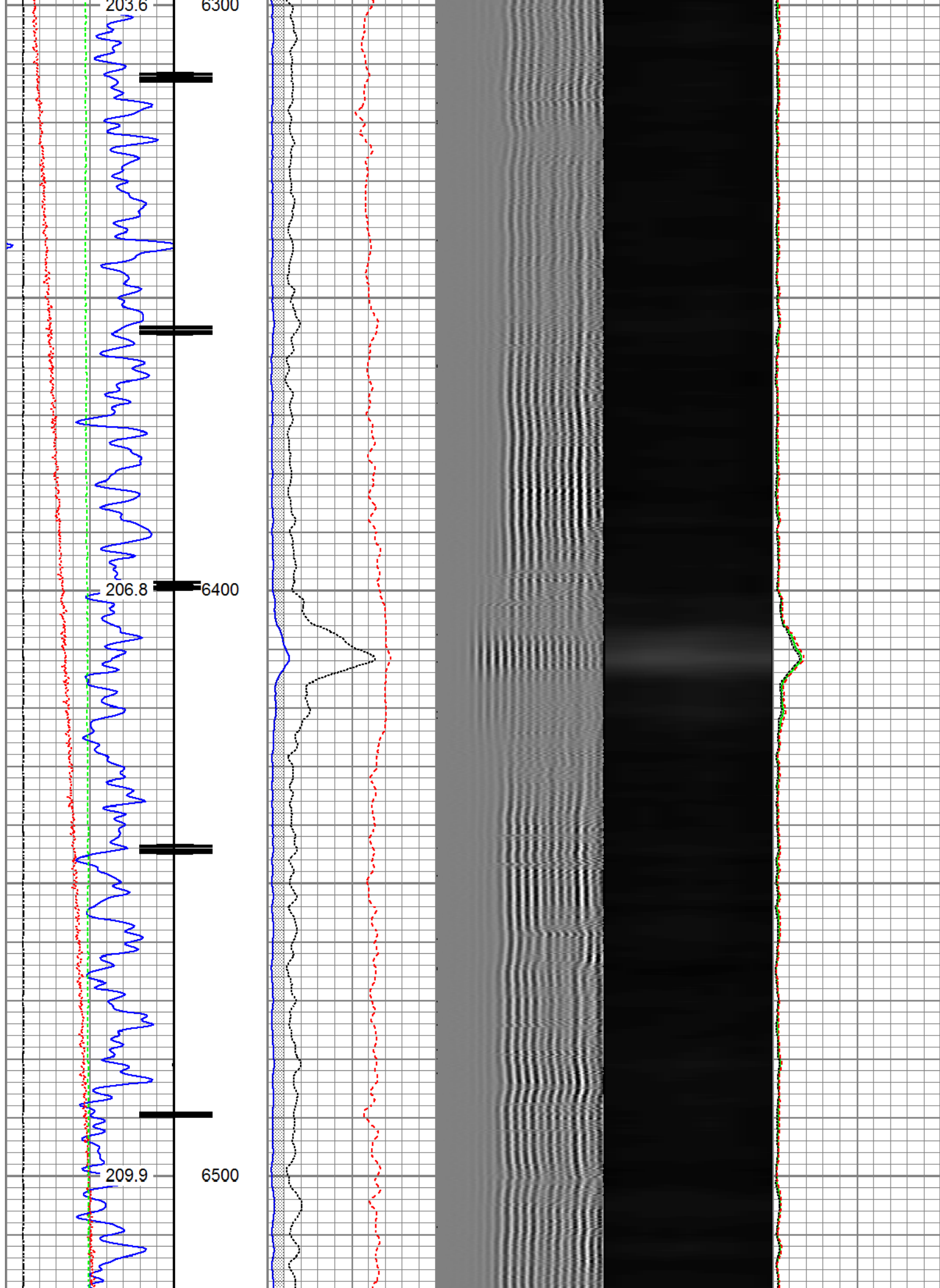


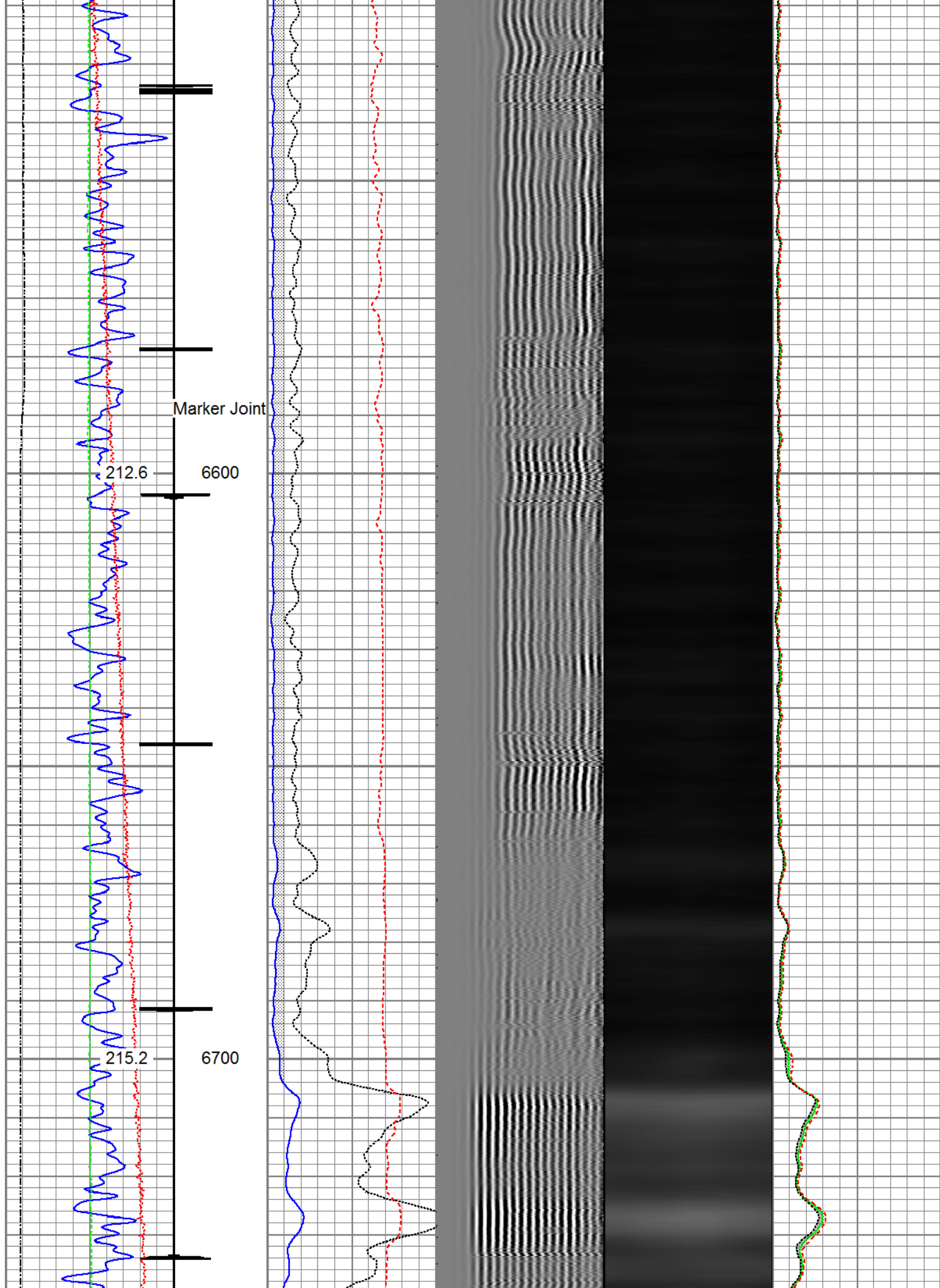


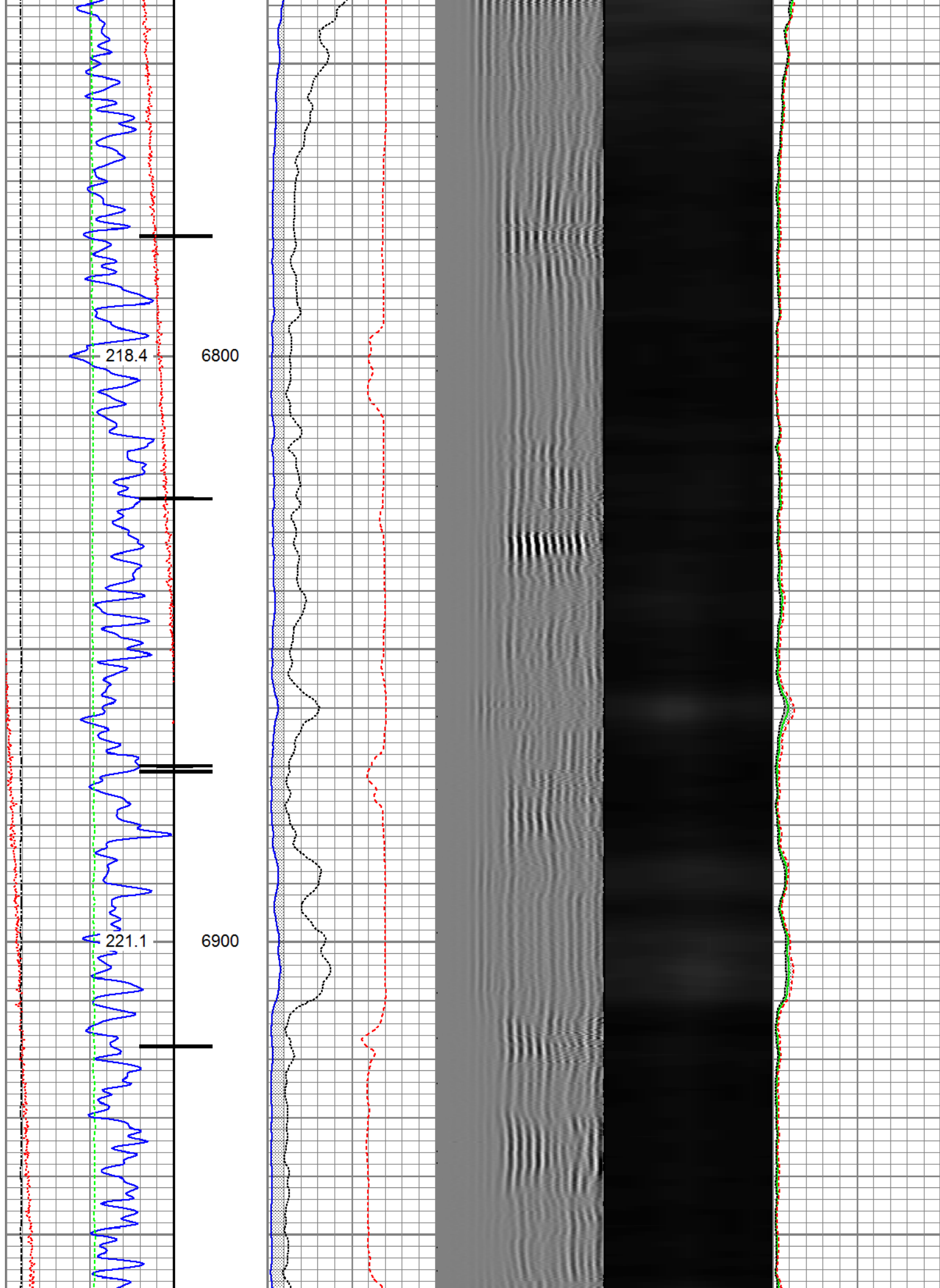


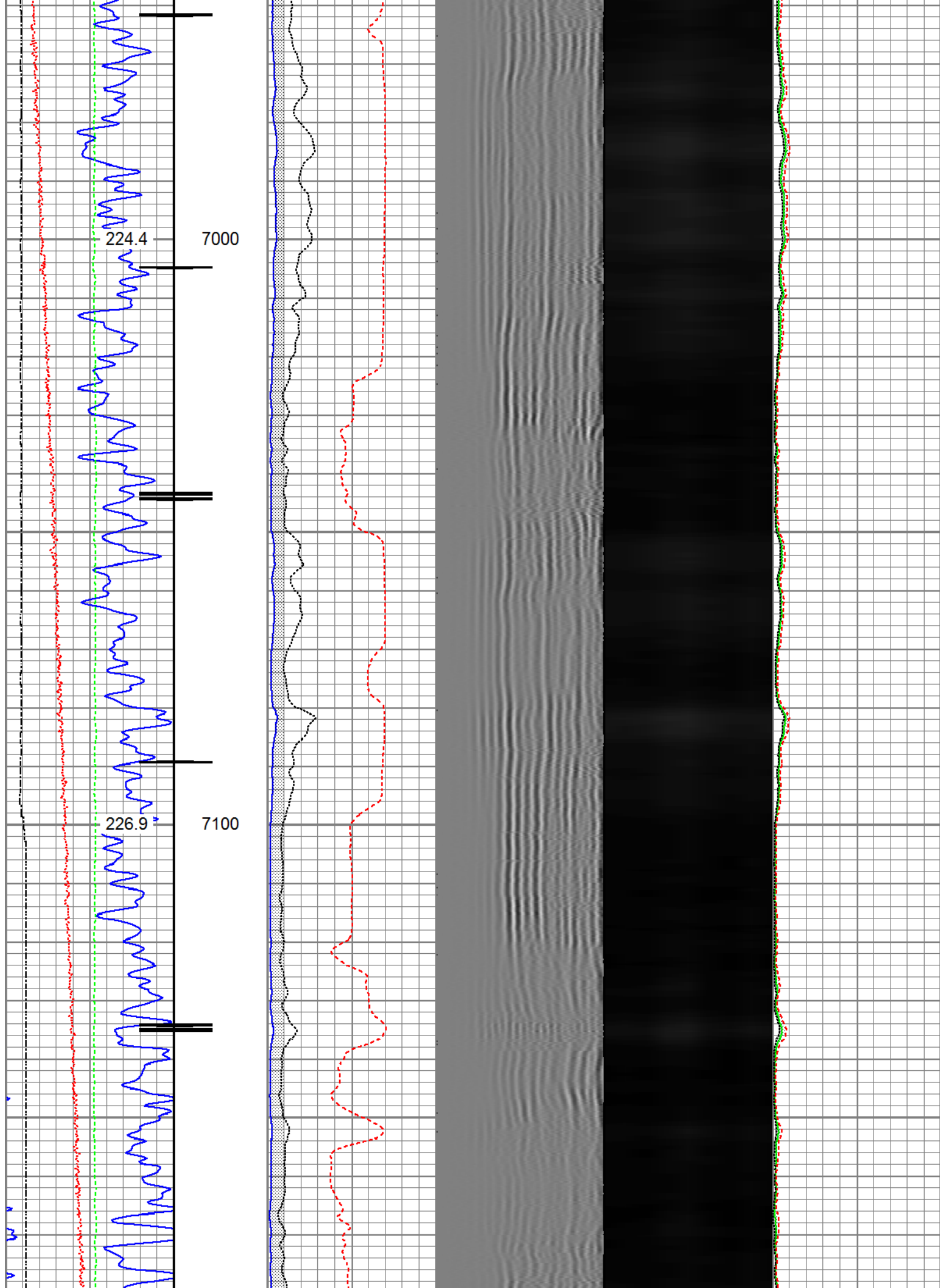


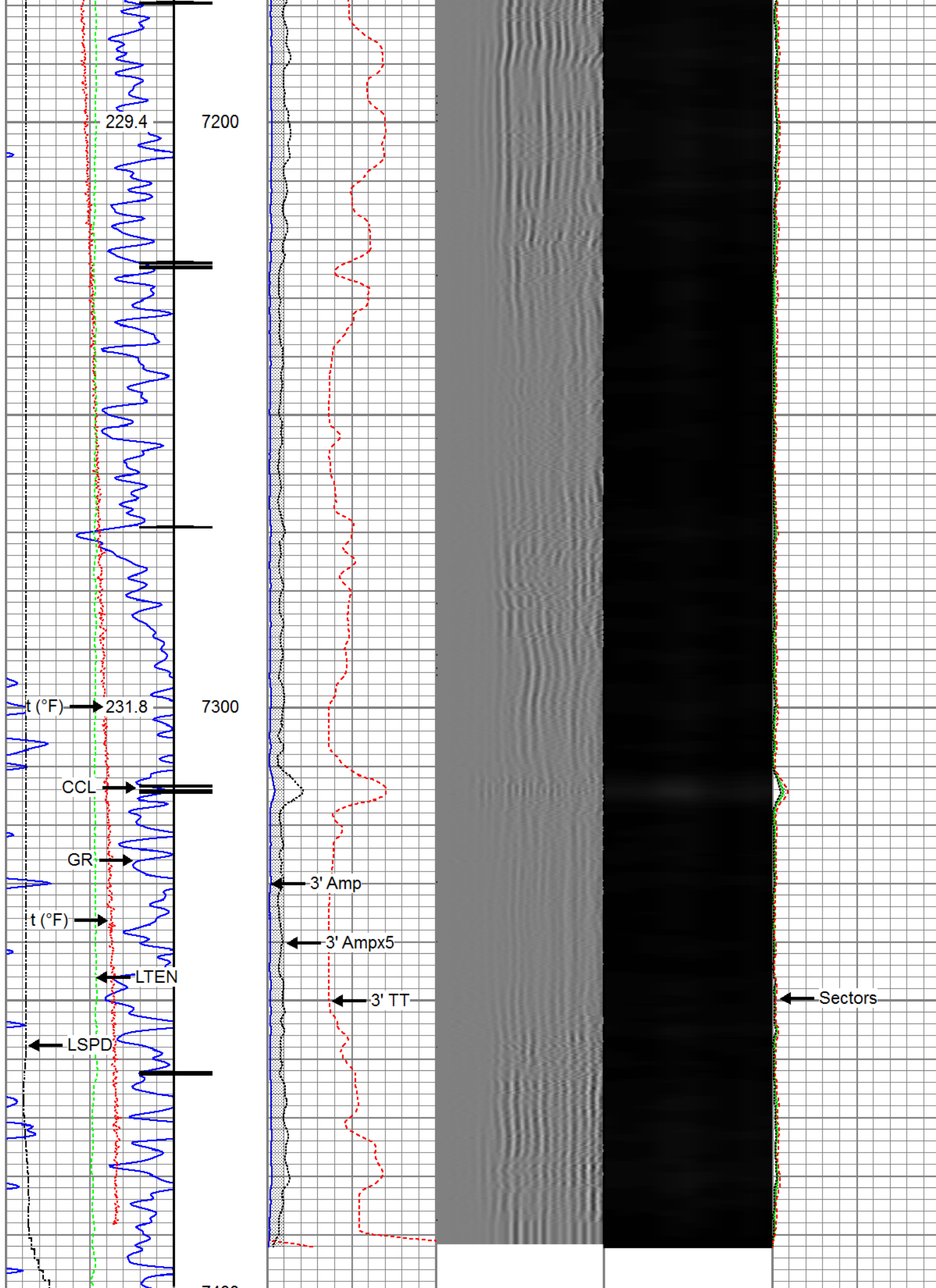


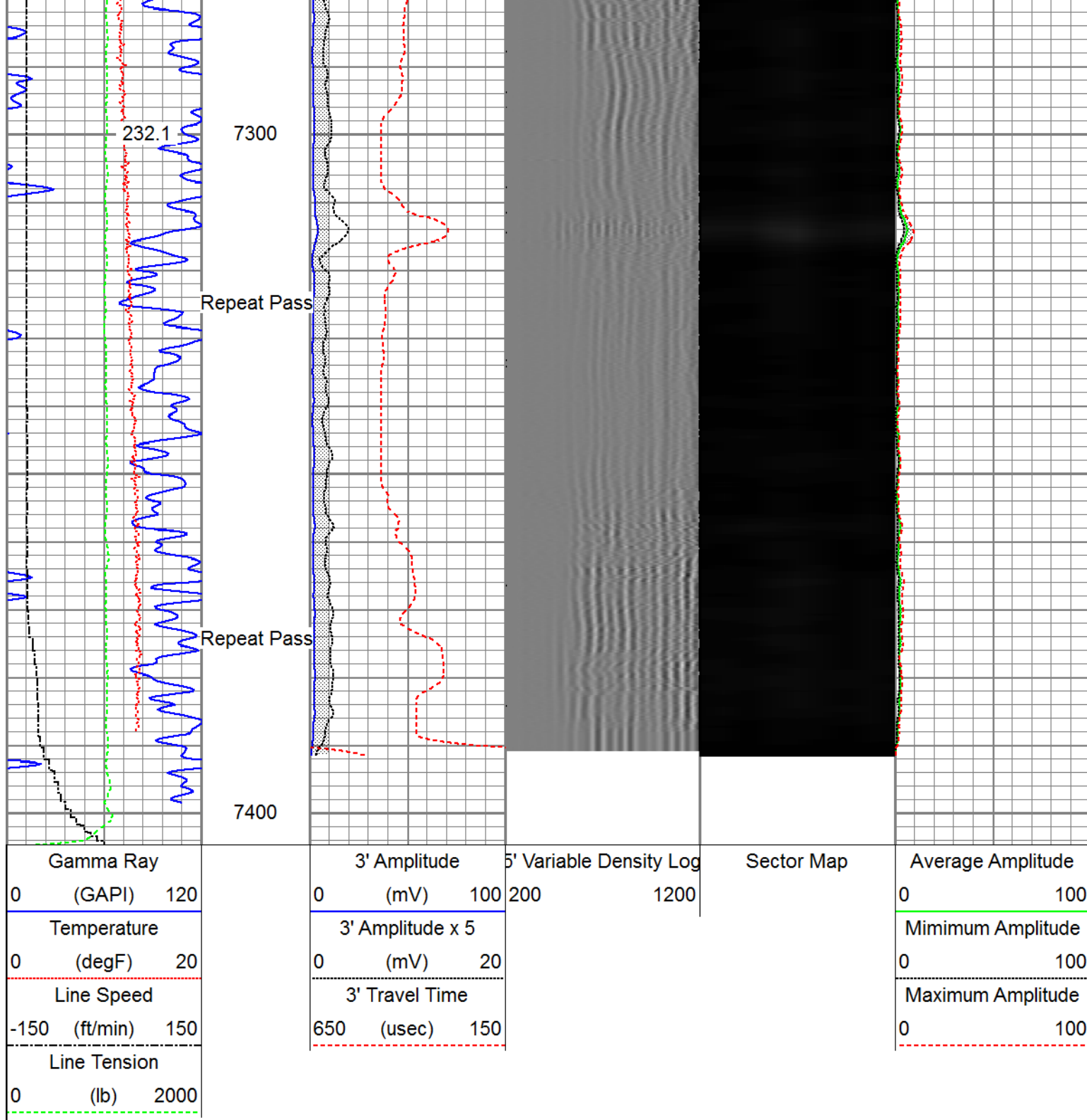





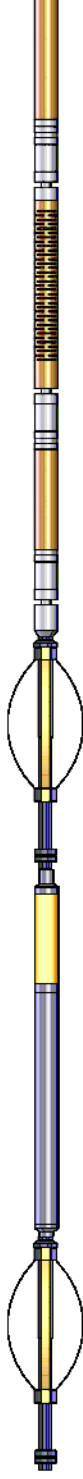








Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
HeadVolt	19.51		Titan_Electric_Cable_Heads-Titan_1-11/16"	1.03	1.69	5.40
			Electric Cable Head with 1" Fishing Neck			
			Probe_ELine_BowSpring_Centralizer-P_EB	2.8875	2.75	20.00
			Probe 2-3/4" Electric Inline Bowspring Centralizer			

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 (FW1307-4.54) 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: PROCESSED_0512343805_Anadarko_Babcock 23N-33HZ_RBL_07-26-17.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 23n-33hz_26 jul 2017_rb\PROCESSED_0512343805
Dataset Pathname	pass4
Dataset Creation	Wed Jul 26 08:00:29 2017
Gamma Ray Calibration Report	
Serial Number:	FW1307-038
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



Field	Wattenberg
County	Weld
State	Colorado