



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.		
Well	Powers 2N-34HZ		
Field	Wattenberg		
County	Weld		
State	Colorado		
Location:	Company	Kerr-McGee Oil & Gas Onshore, L.P.	
	Well	Powers 2N-34HZ	
	Field	Wattenberg	
	County	Weld	
Other Services	State	Colorado	
	API # :	05-123-42021	
	SEC 27	TWP 2N	RGE 65W
	Permanent Datum	Ground Level	Elevation 4926'
JB/GR	Log Measured From	Kelly Bushing	20 FT
	Drilling Measured From	Kelly Bushing	Elevation K.B. 4946' D.F. 4945' G.L. 4926'

Date	18-NOV-2015
Run Number	Two
Depth Driller	12712 FT
Depth Logger	7370 FT
Bottom Logged Interval	7365 FT
Top Log Interval	Surface
Open Hole Size	7.875"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	238°F
Estimated Cement Top	90 FT
Time Well Ready	ROA
Time Logger on Bottom	13:45
Equipment Number	HD-0311
Location	Ft. Lupton, CO
Recorded By	Z. Fisher
Witnessed By	Josh Gustafson

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	J55	Surface	1859 FT		
Intermediate #1							
Intermediate #2	5 1/2	17	LTC	Surface	12702 FT		
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 6412 FT  
Recorded Marker Joint at 6385 FT  
Adjusted Log +27 FT to Correlate with Marker Joint  
Log ran from as deep as possible in heel 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 FMC Technologies Surface Integrated Services.

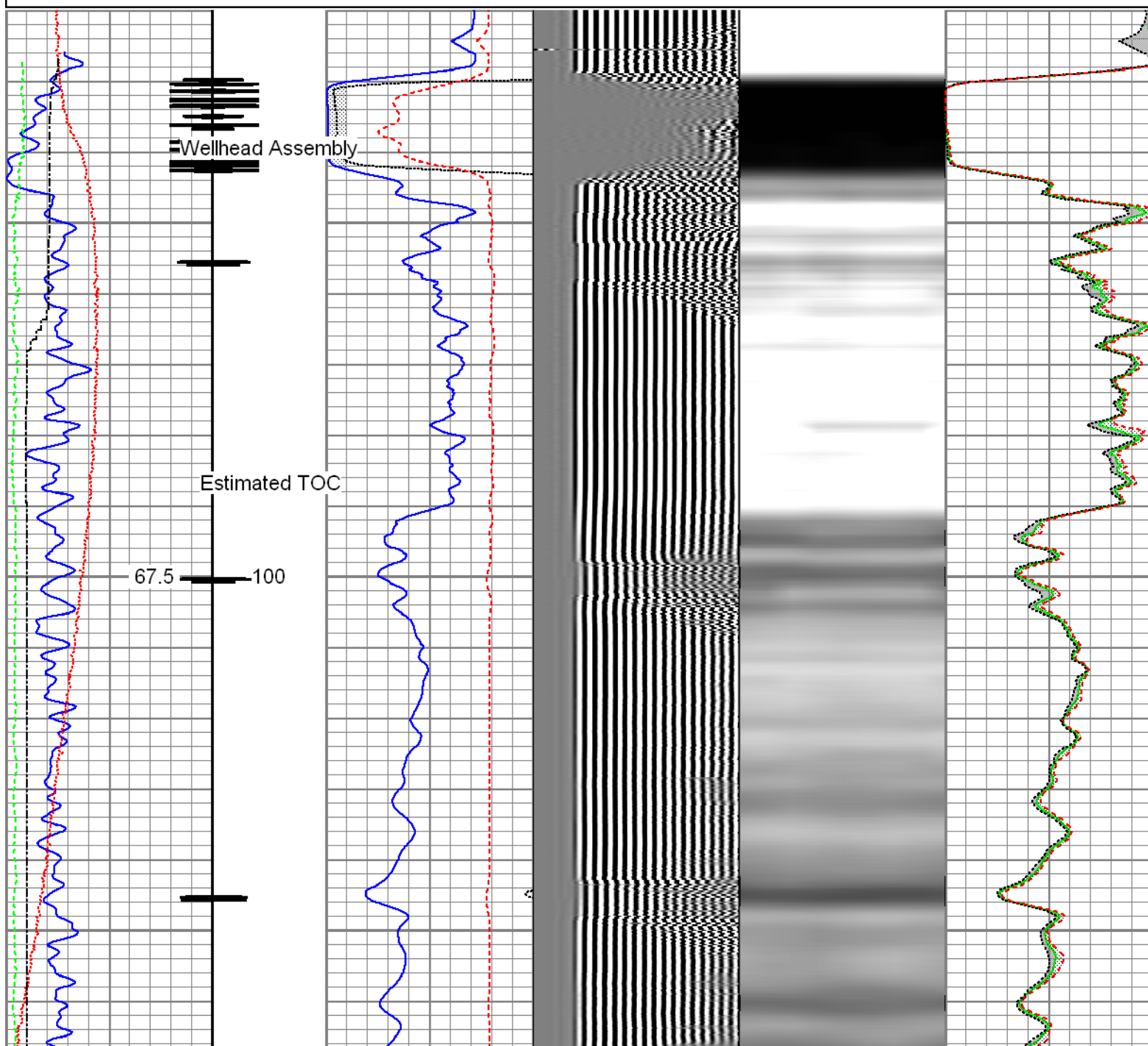


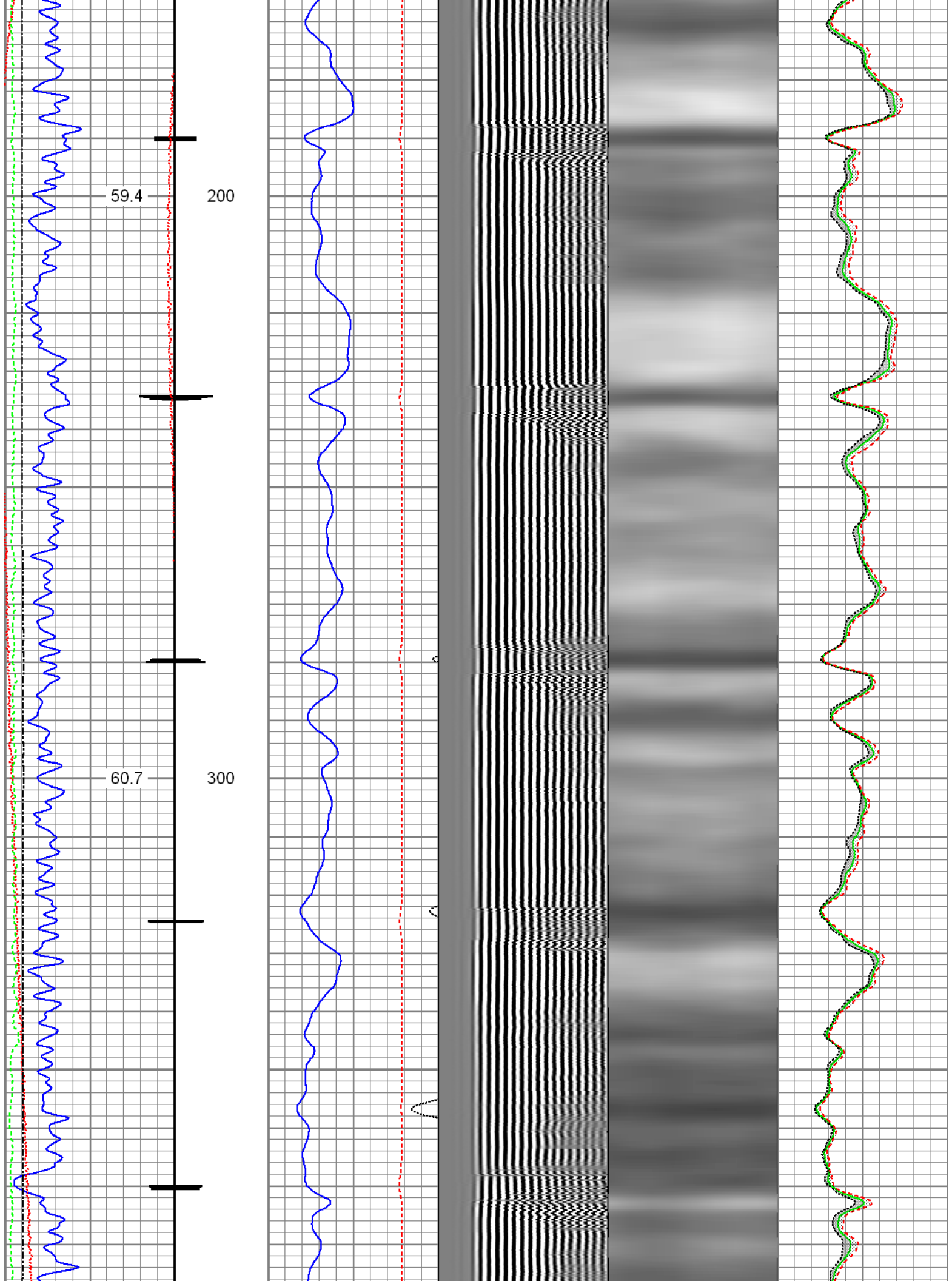
Main Pass

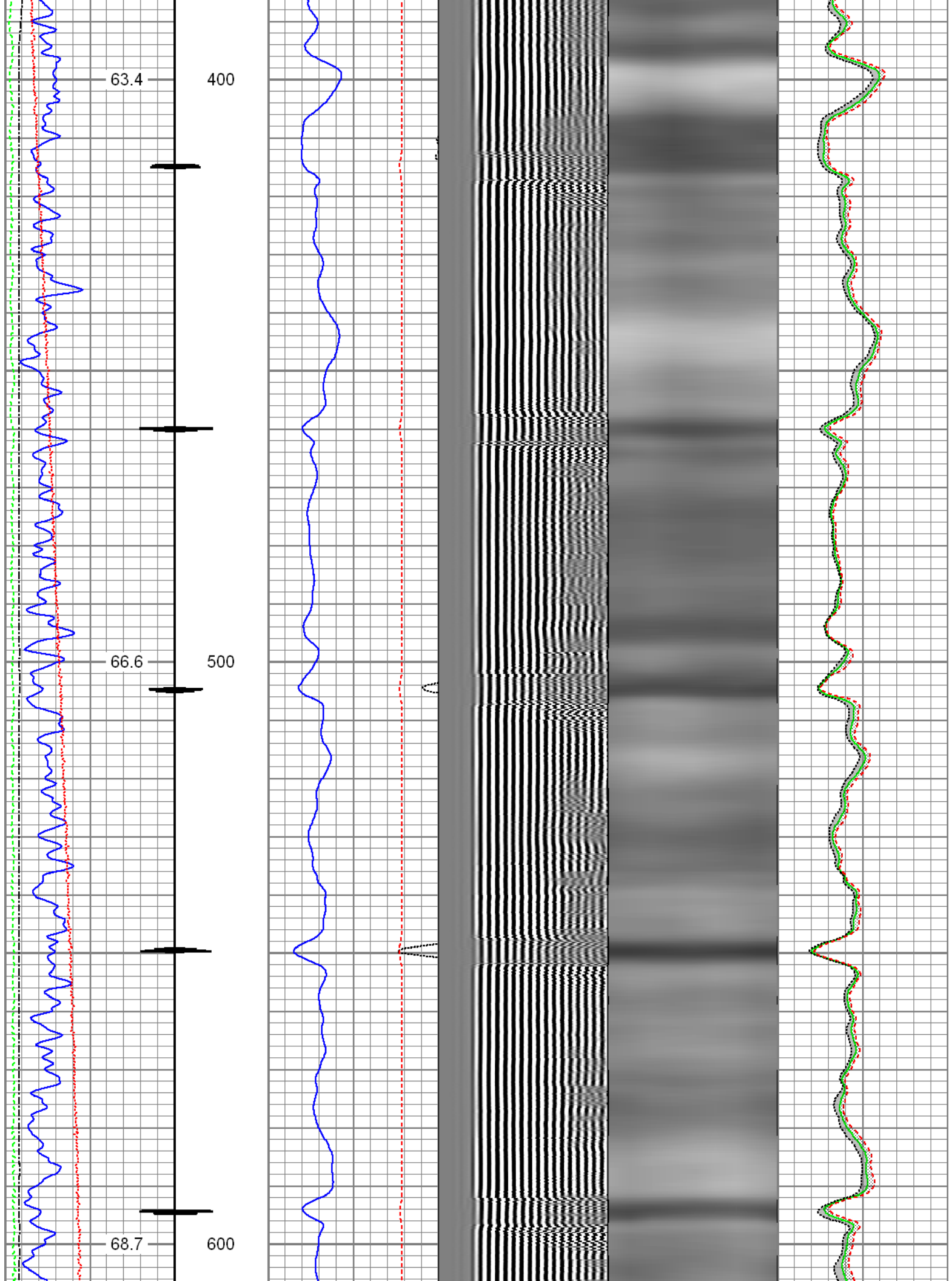
Recorded with 2800 PSI Surface Induced Pressure

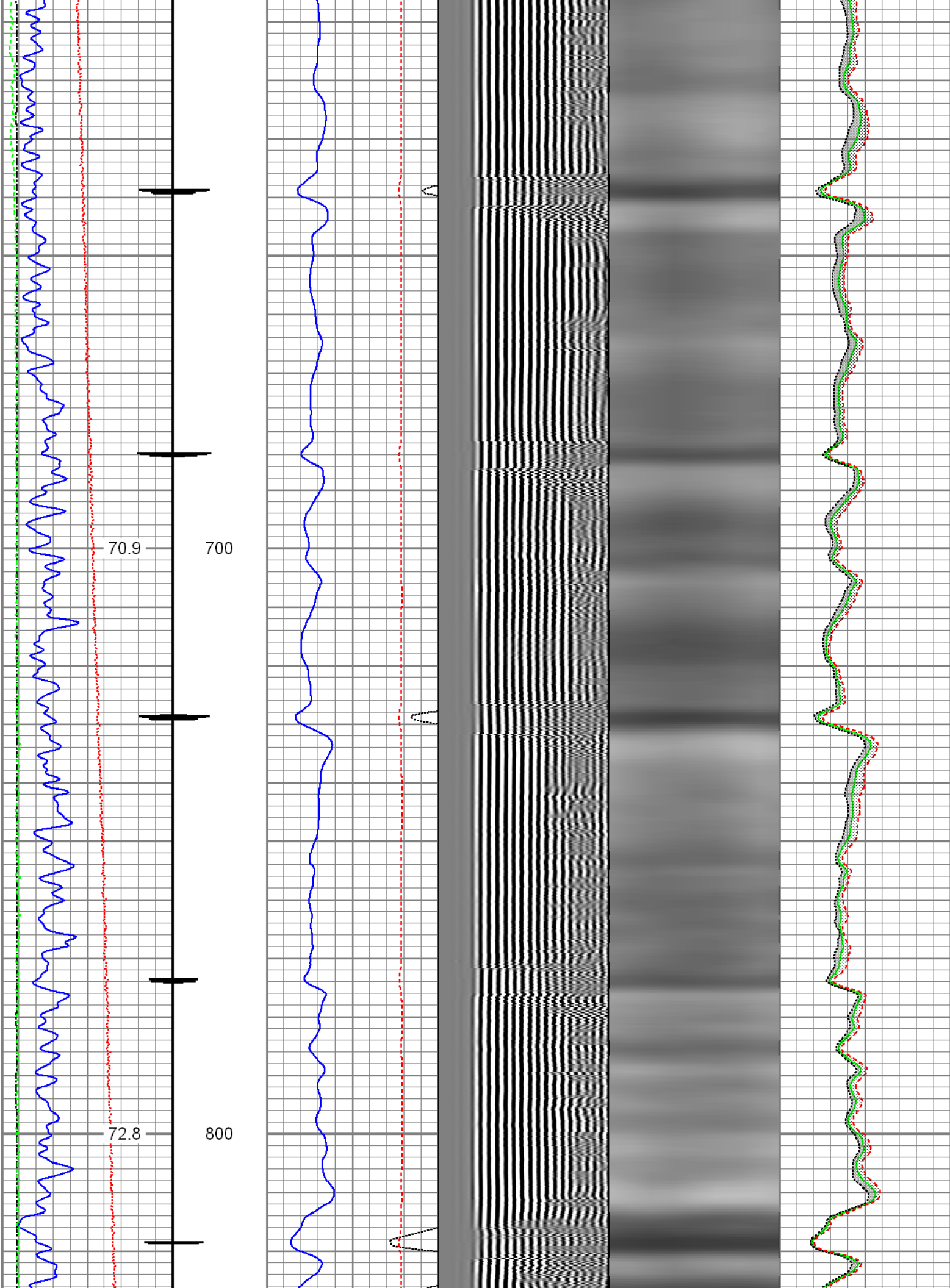
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Dataset Pathname: Main.1  
Presentation Format: radii  
Dataset Creation: Thu Nov 19 09:17:20 2015 by Calc SCH 120430  
Charted by: Depth in Feet scaled 1:240

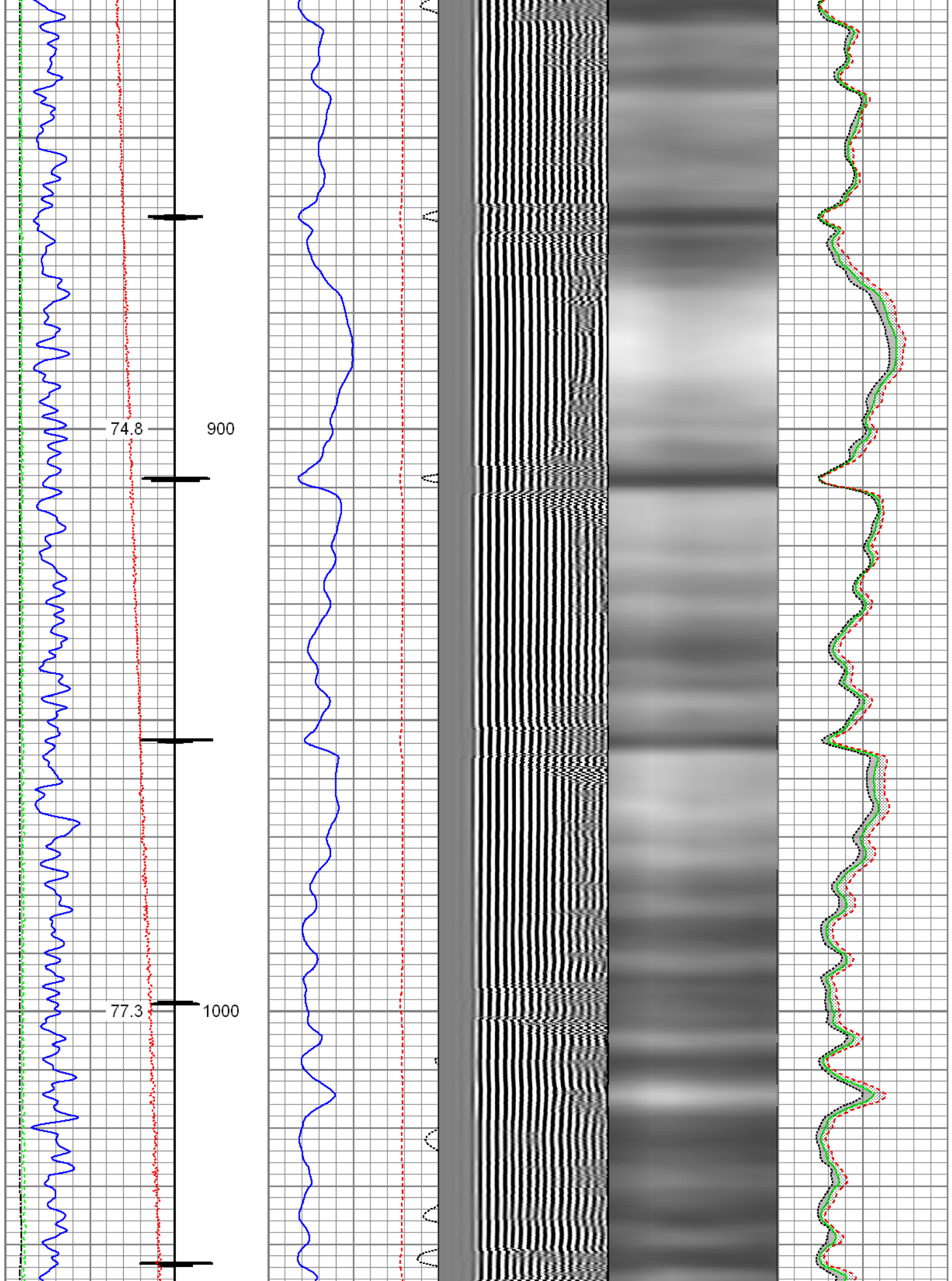
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 150	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

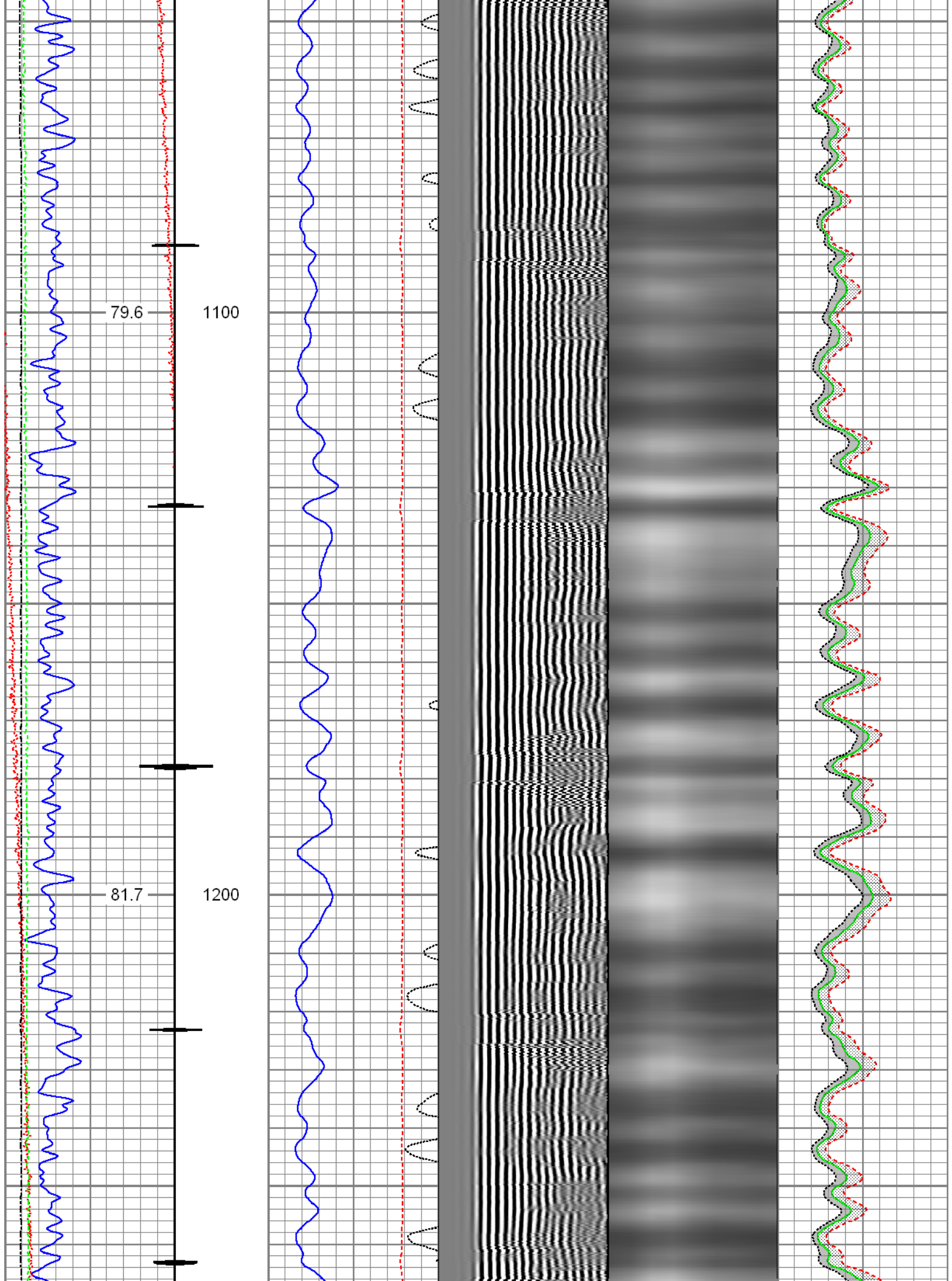


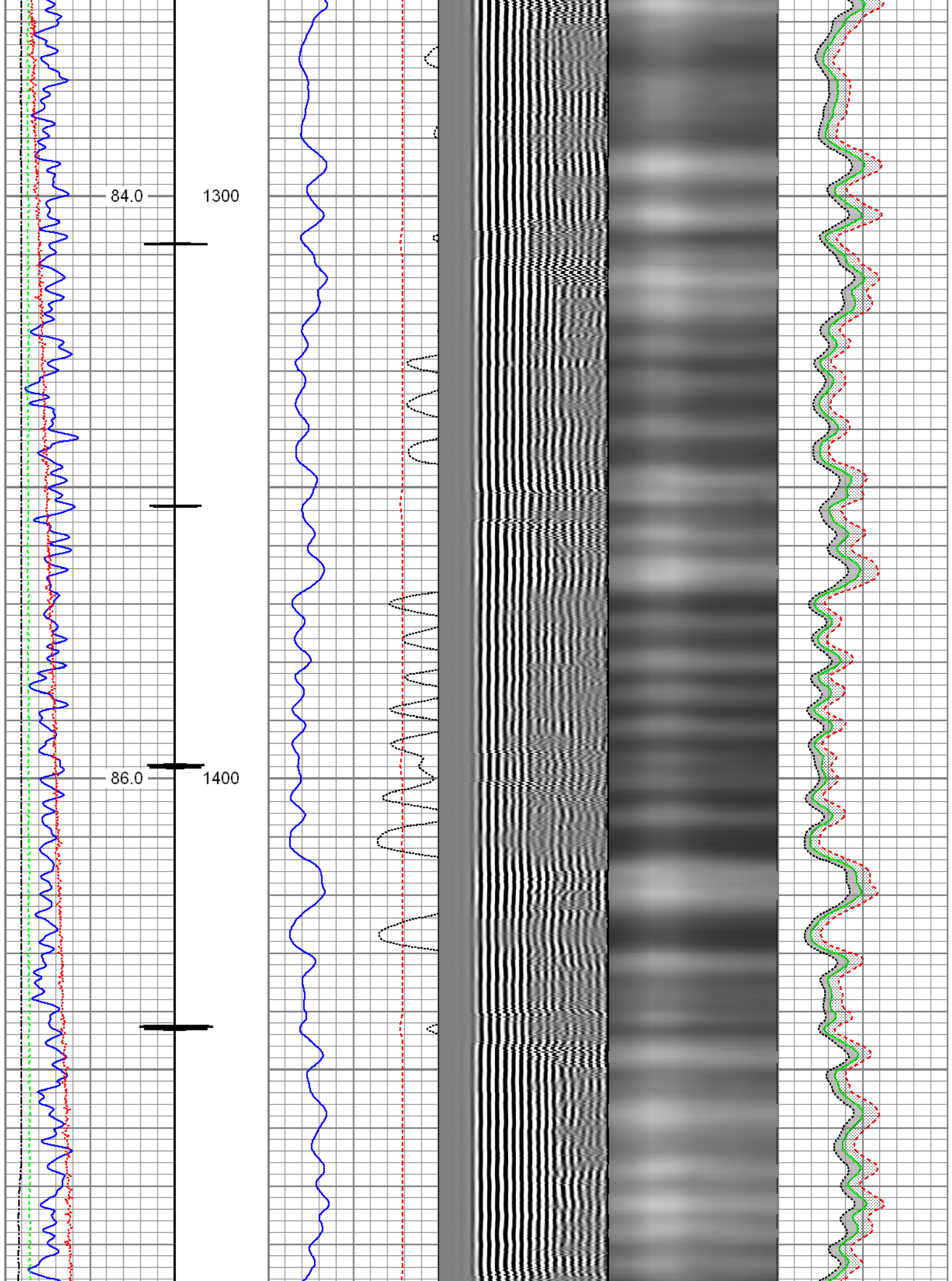


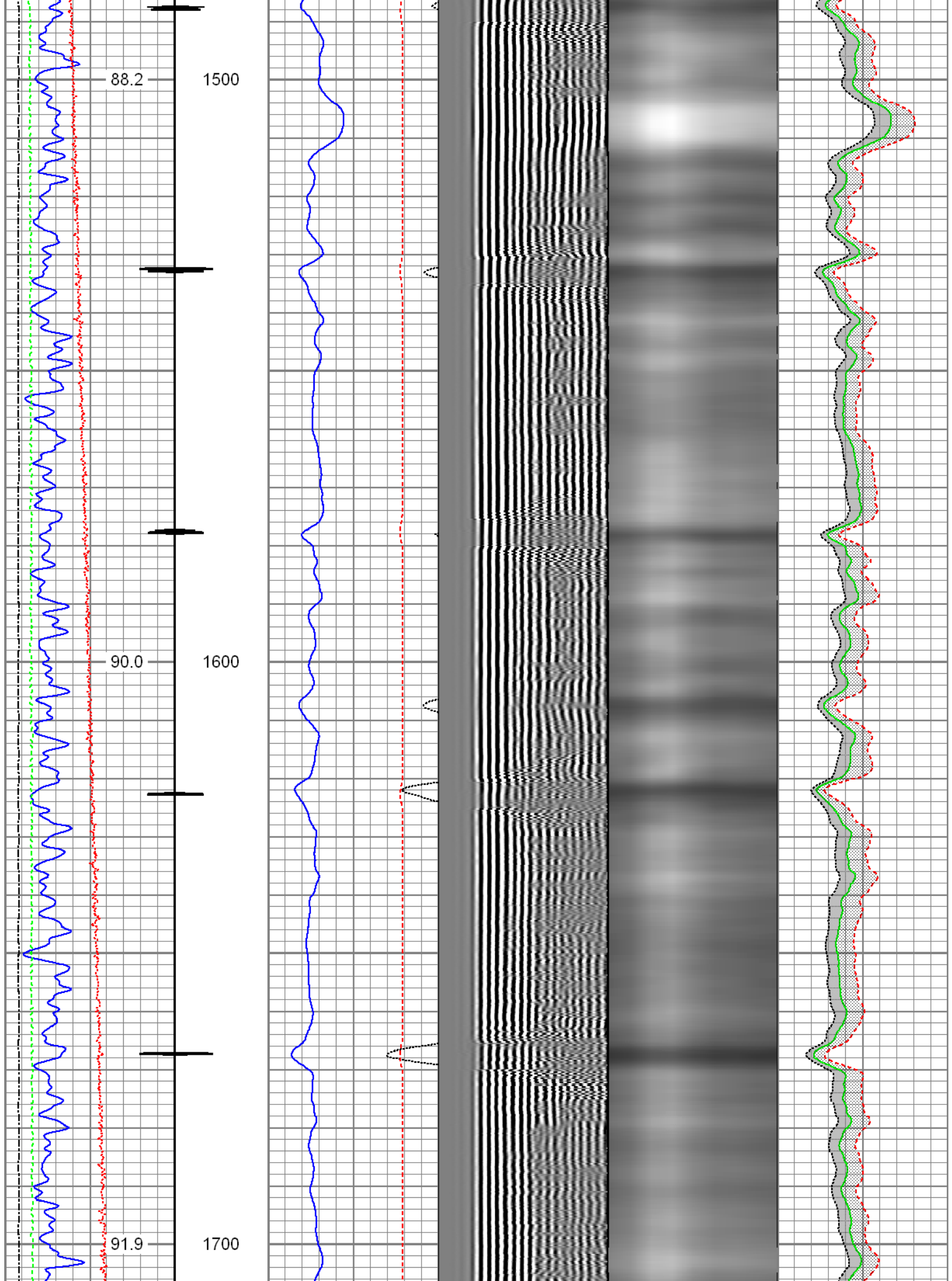


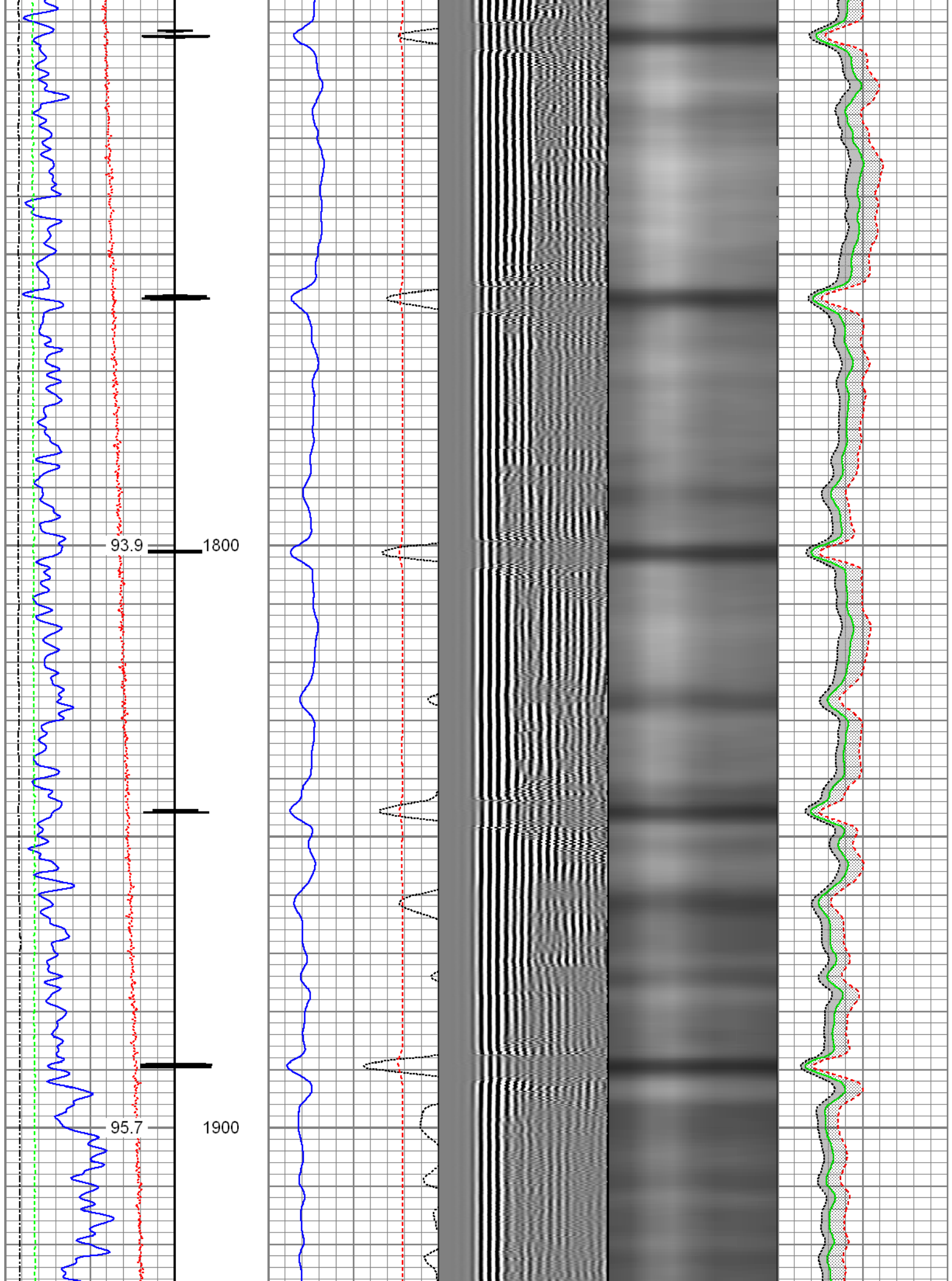


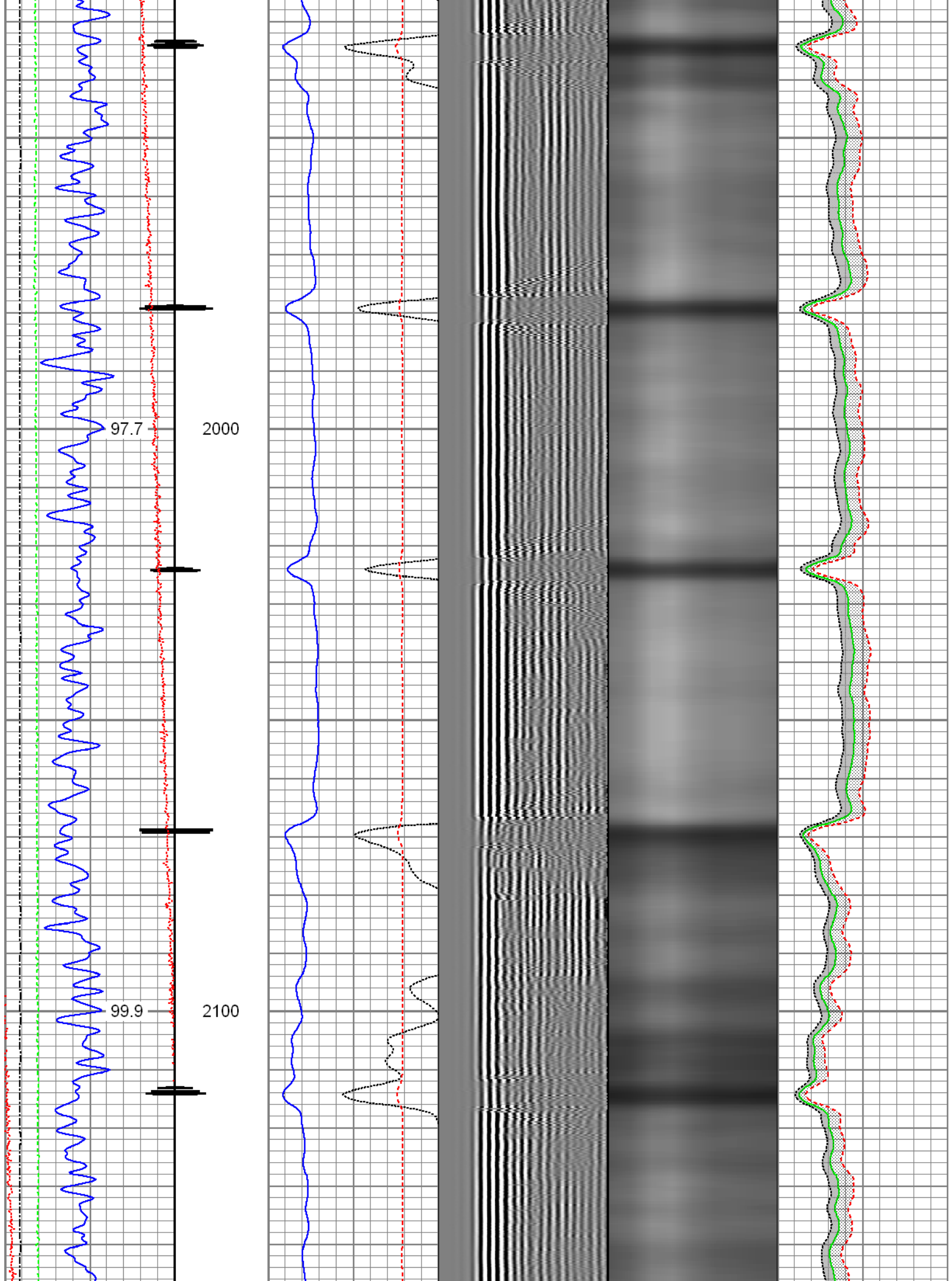


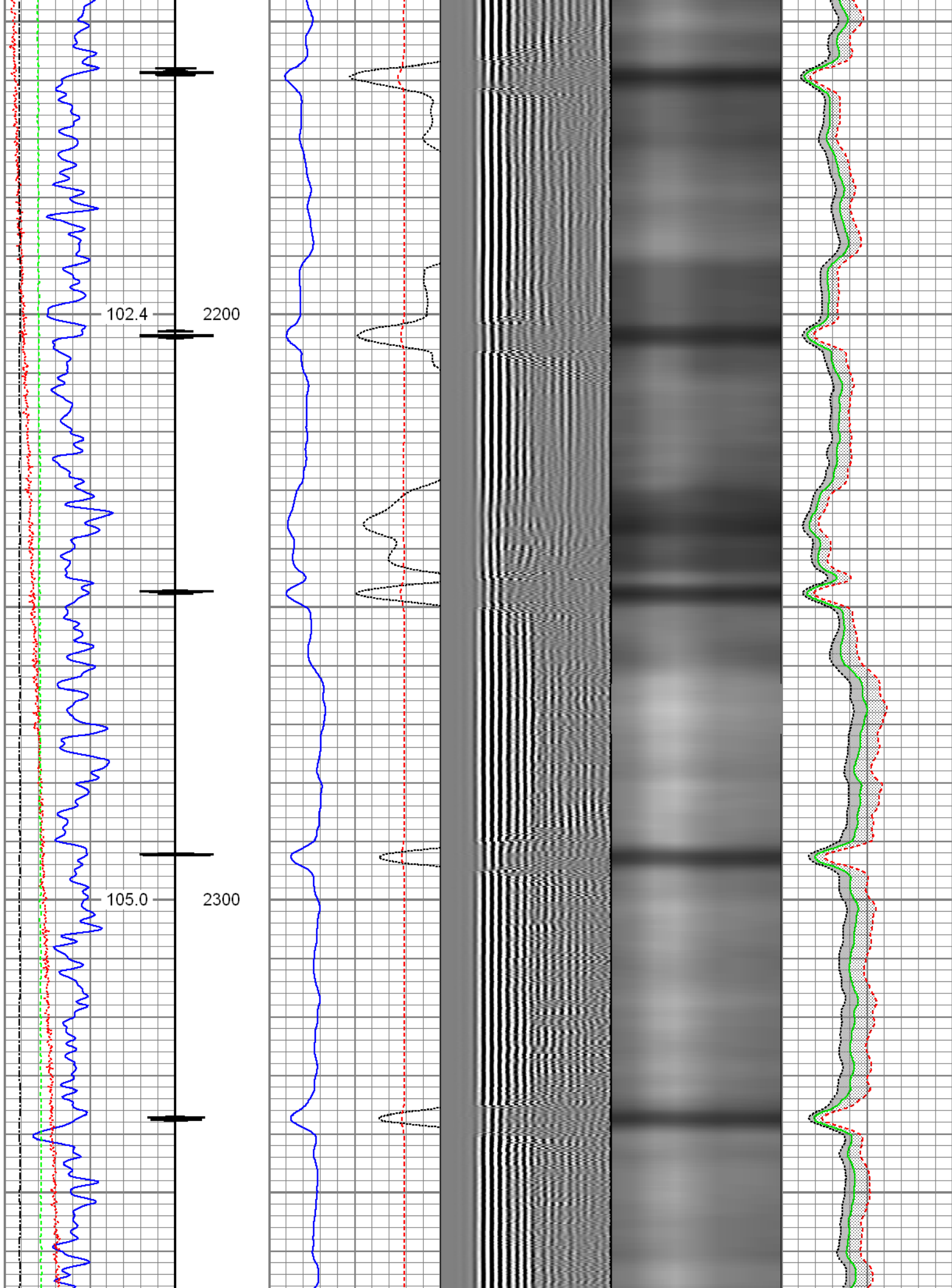


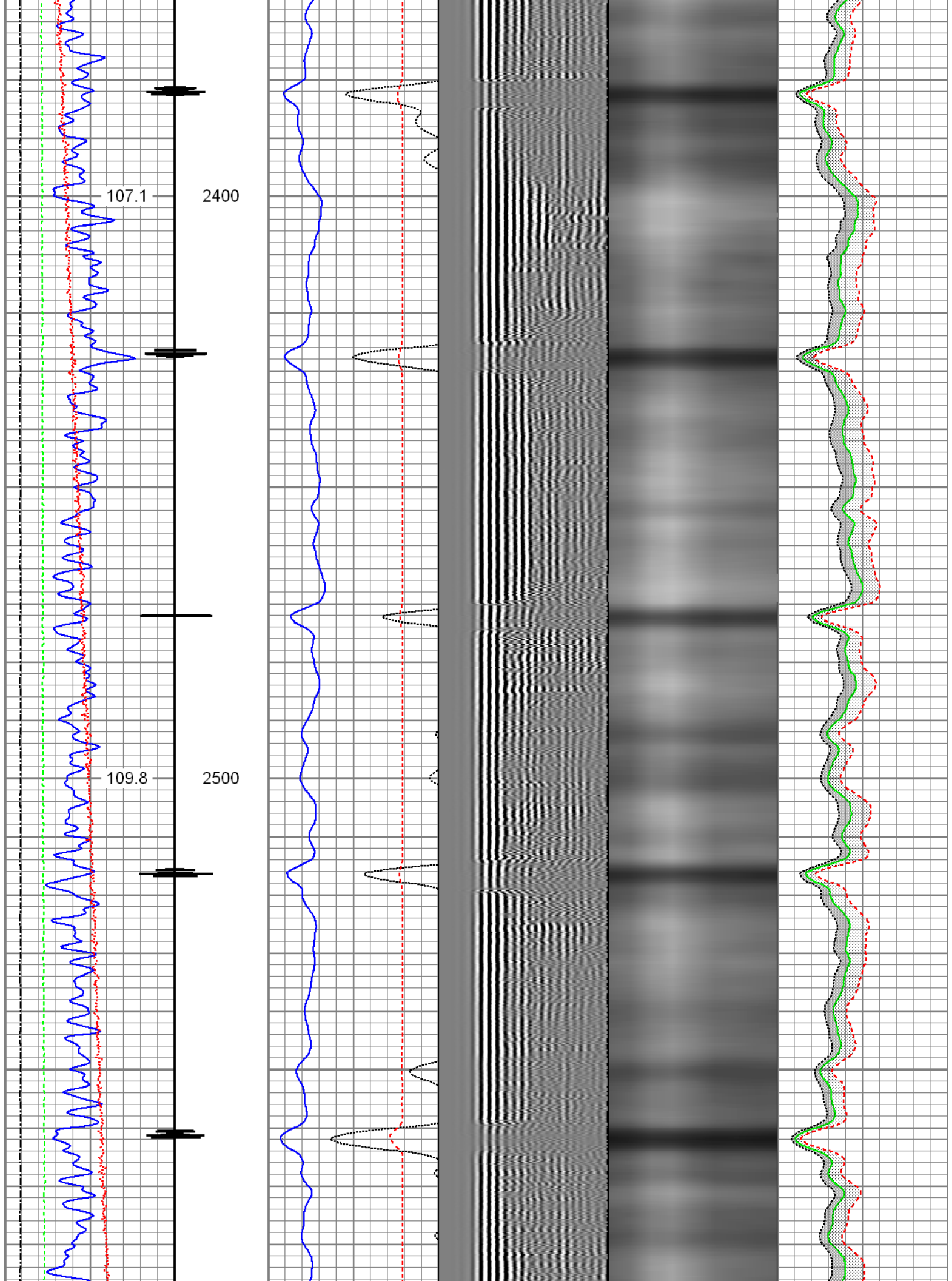


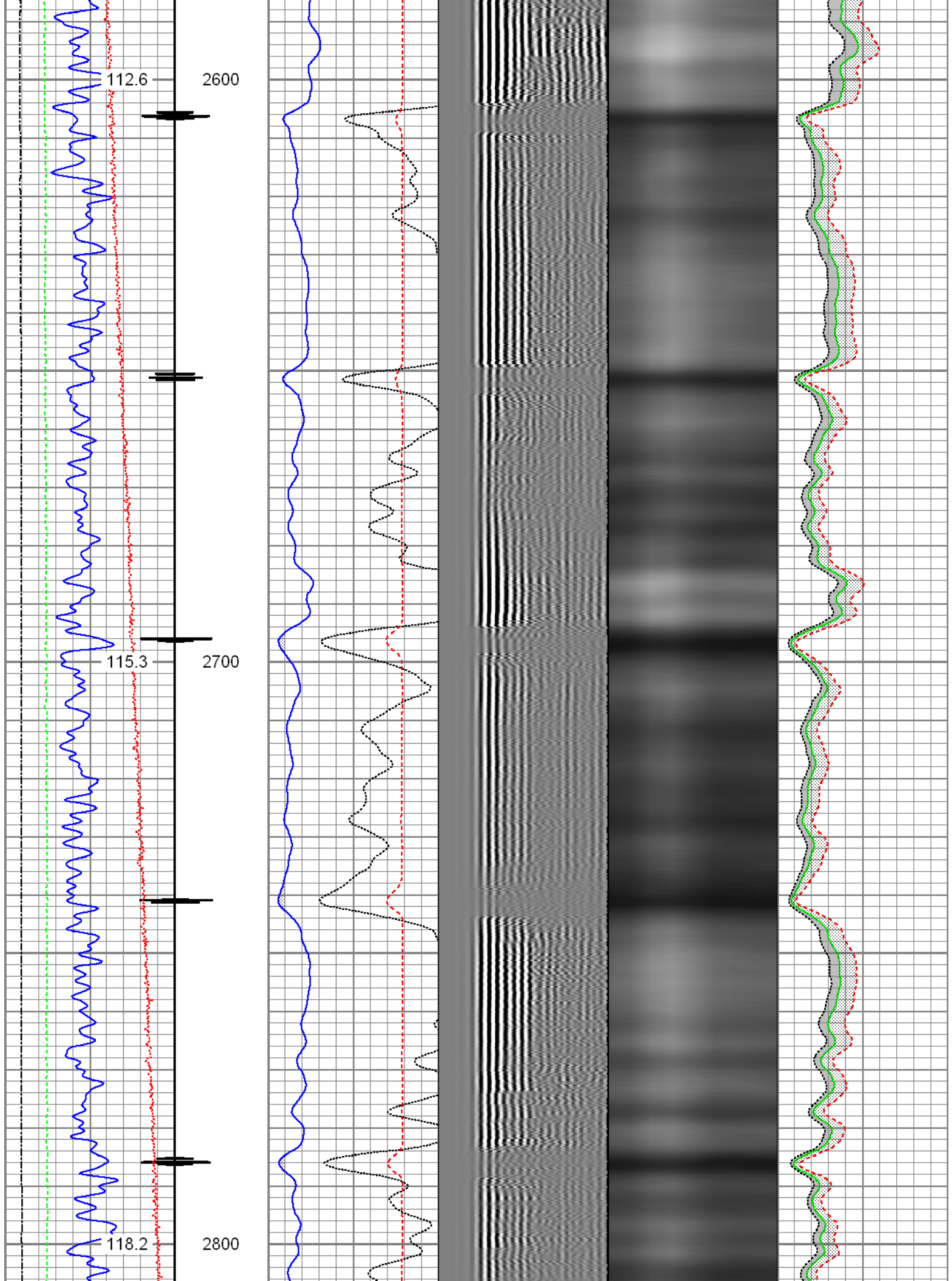


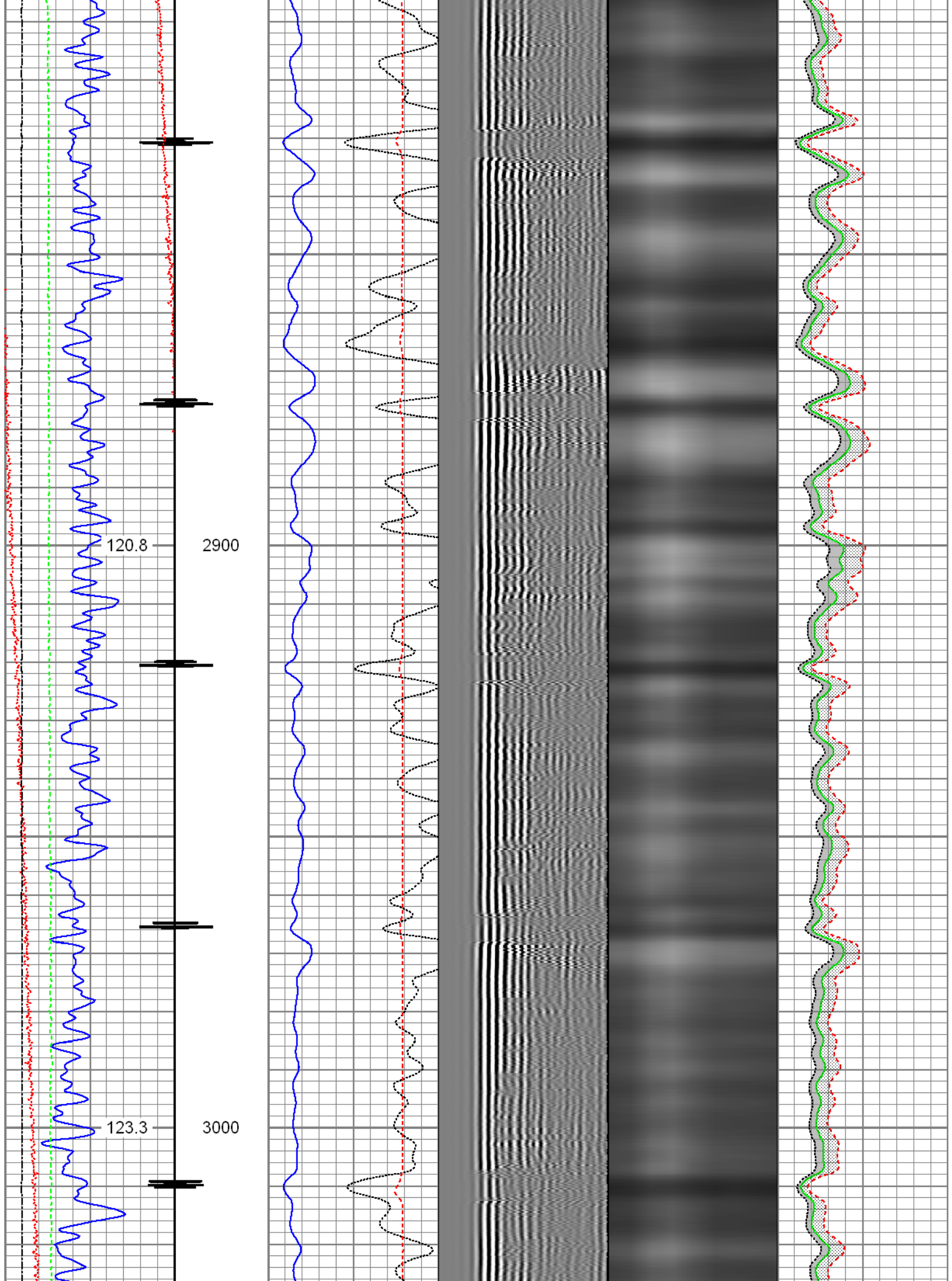


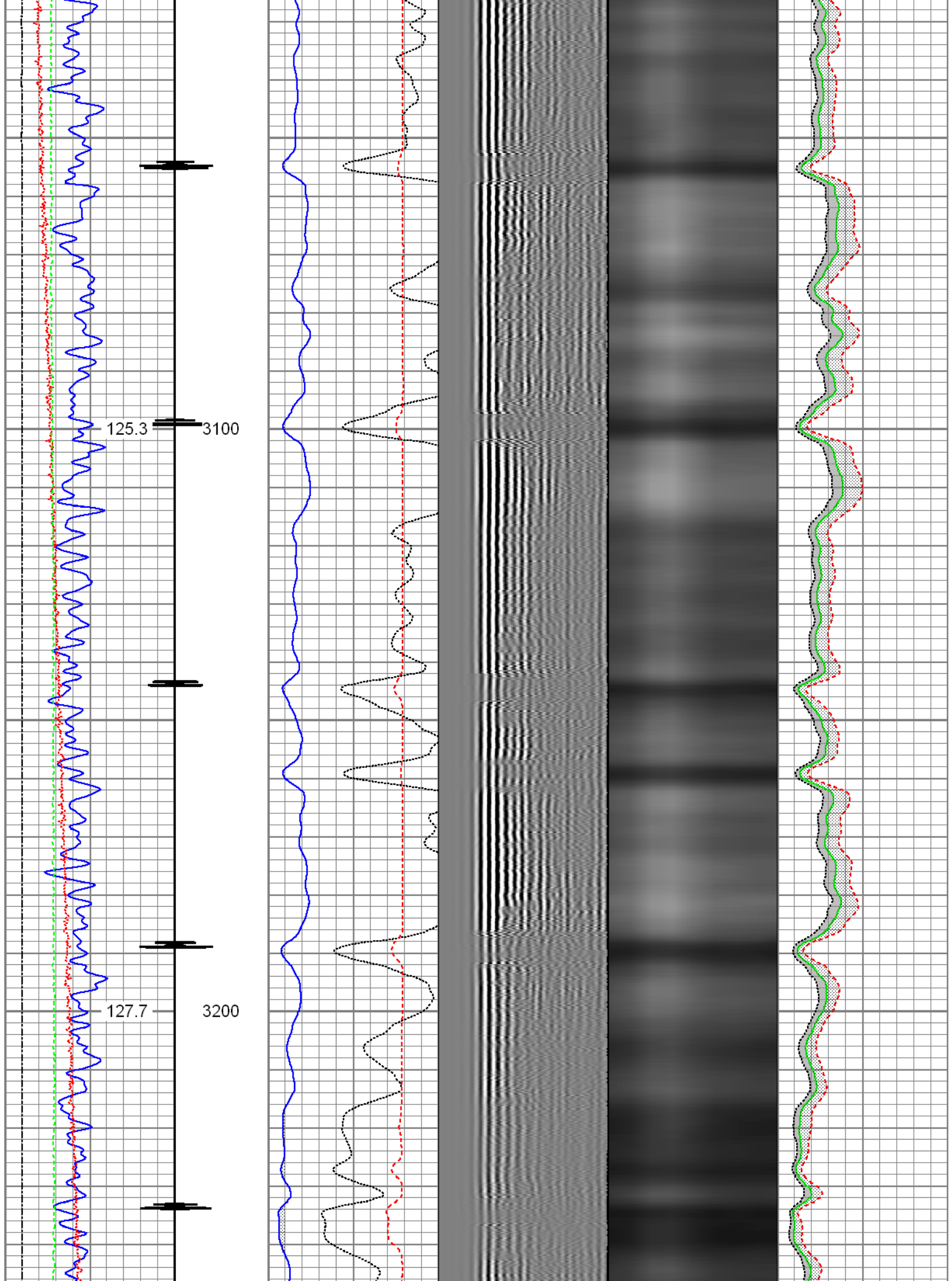


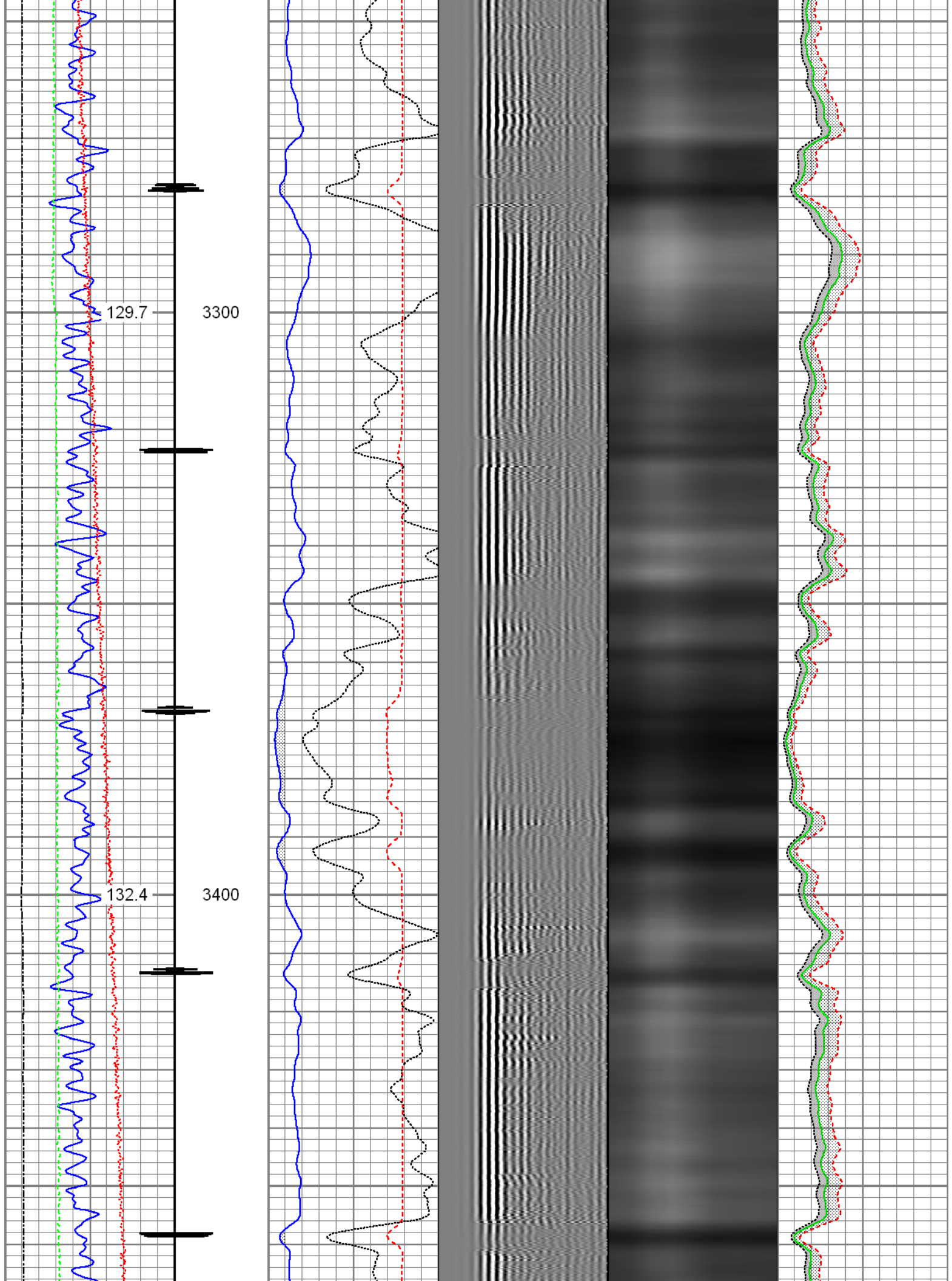


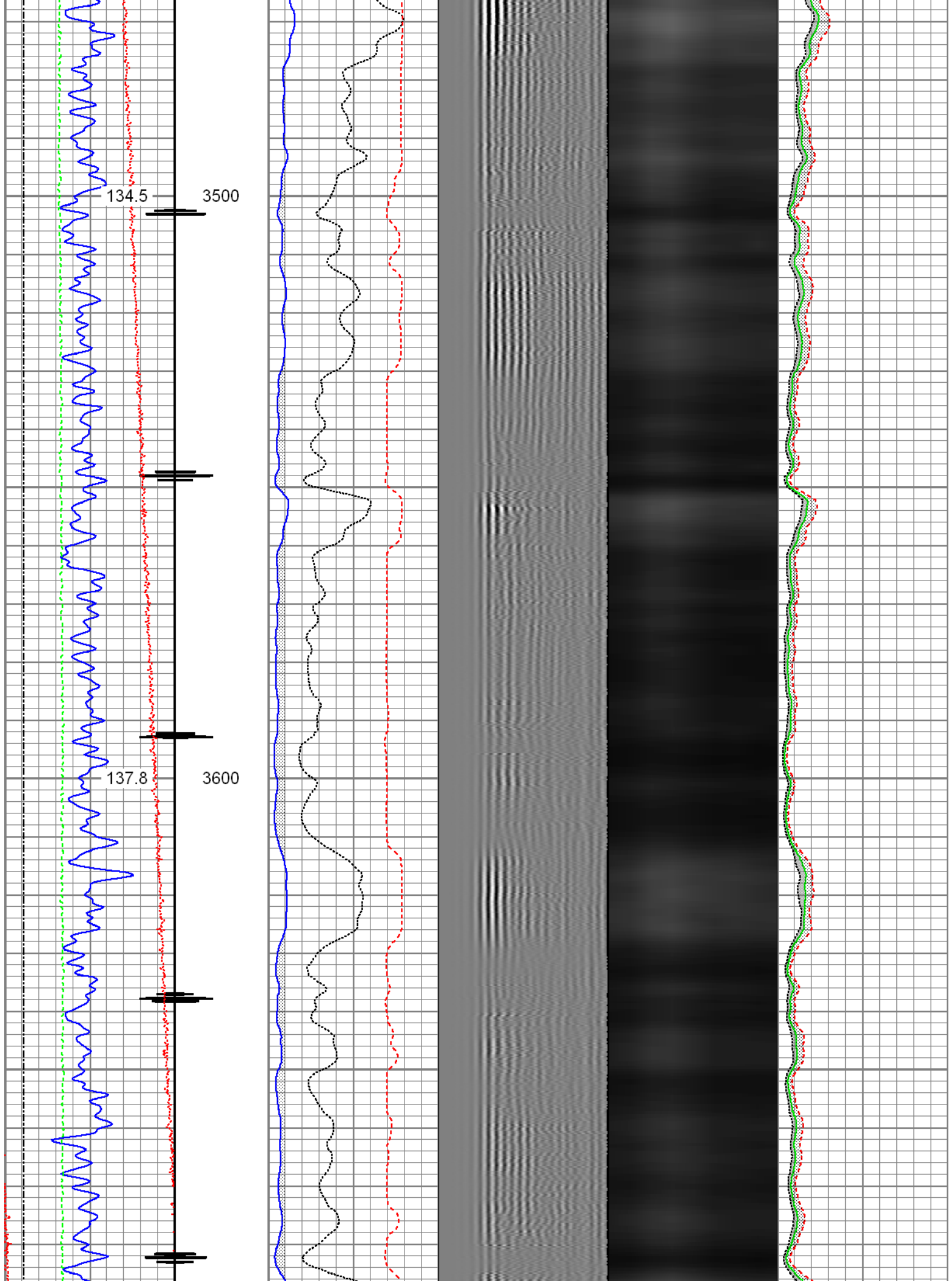


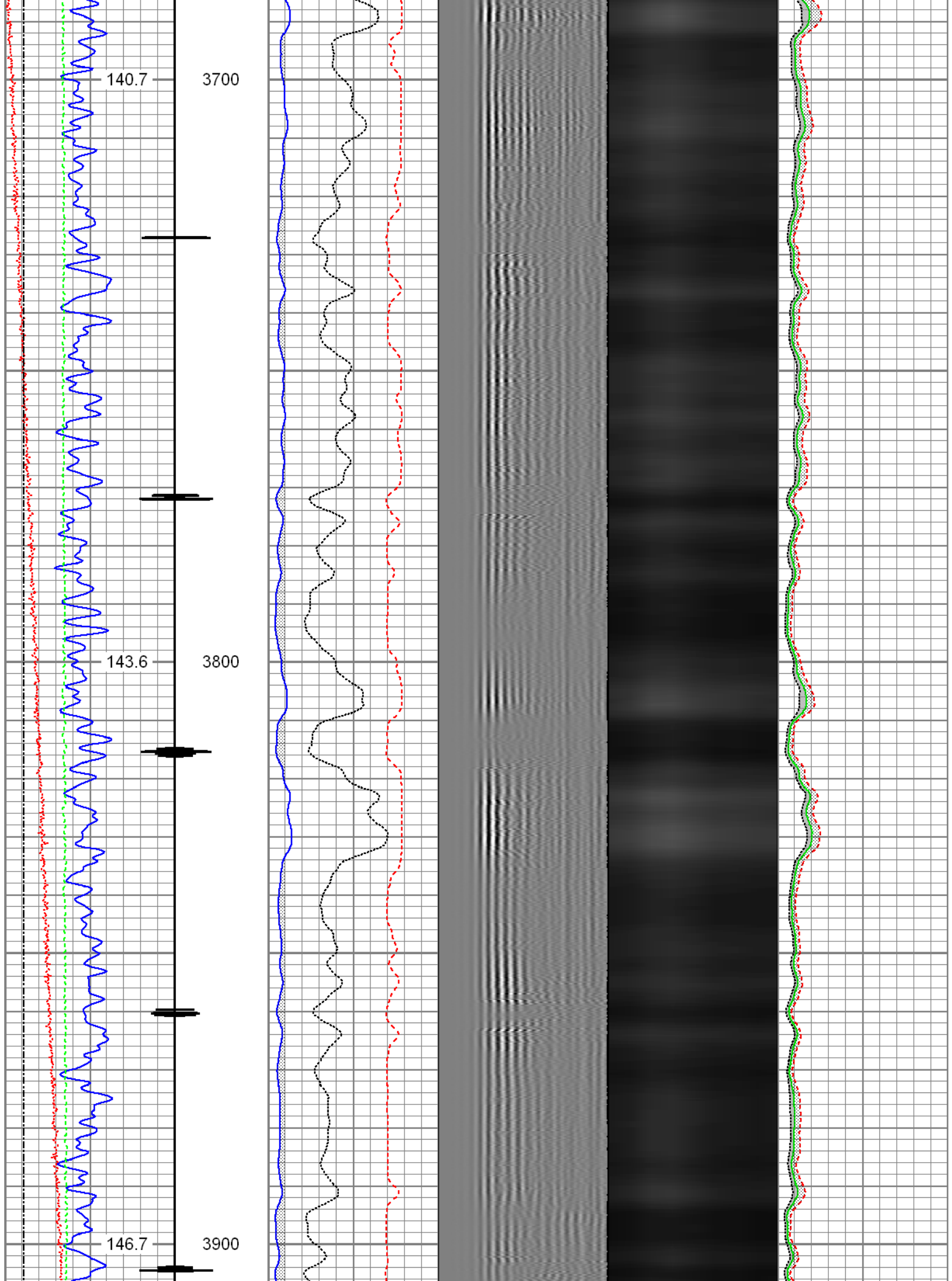


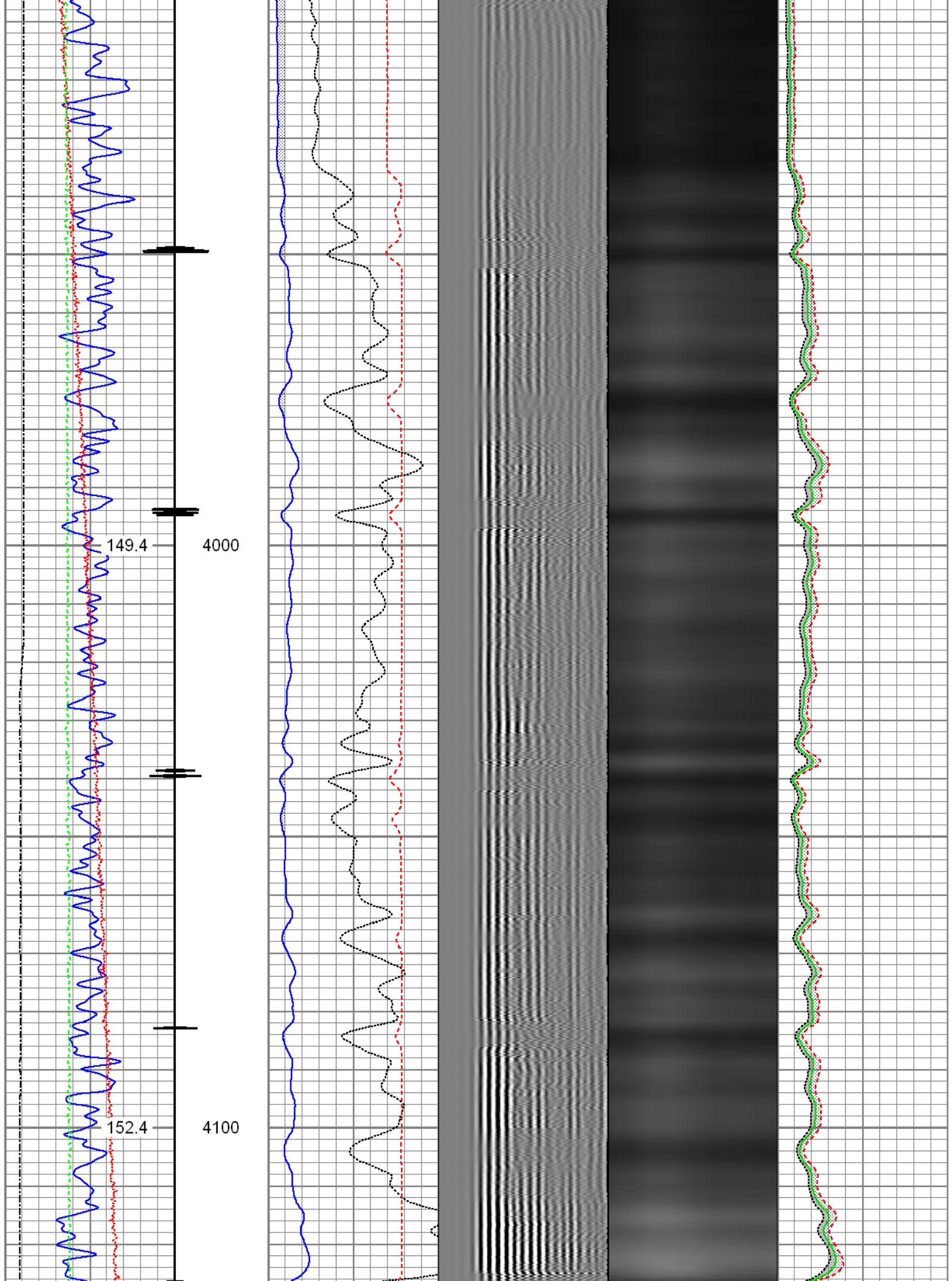


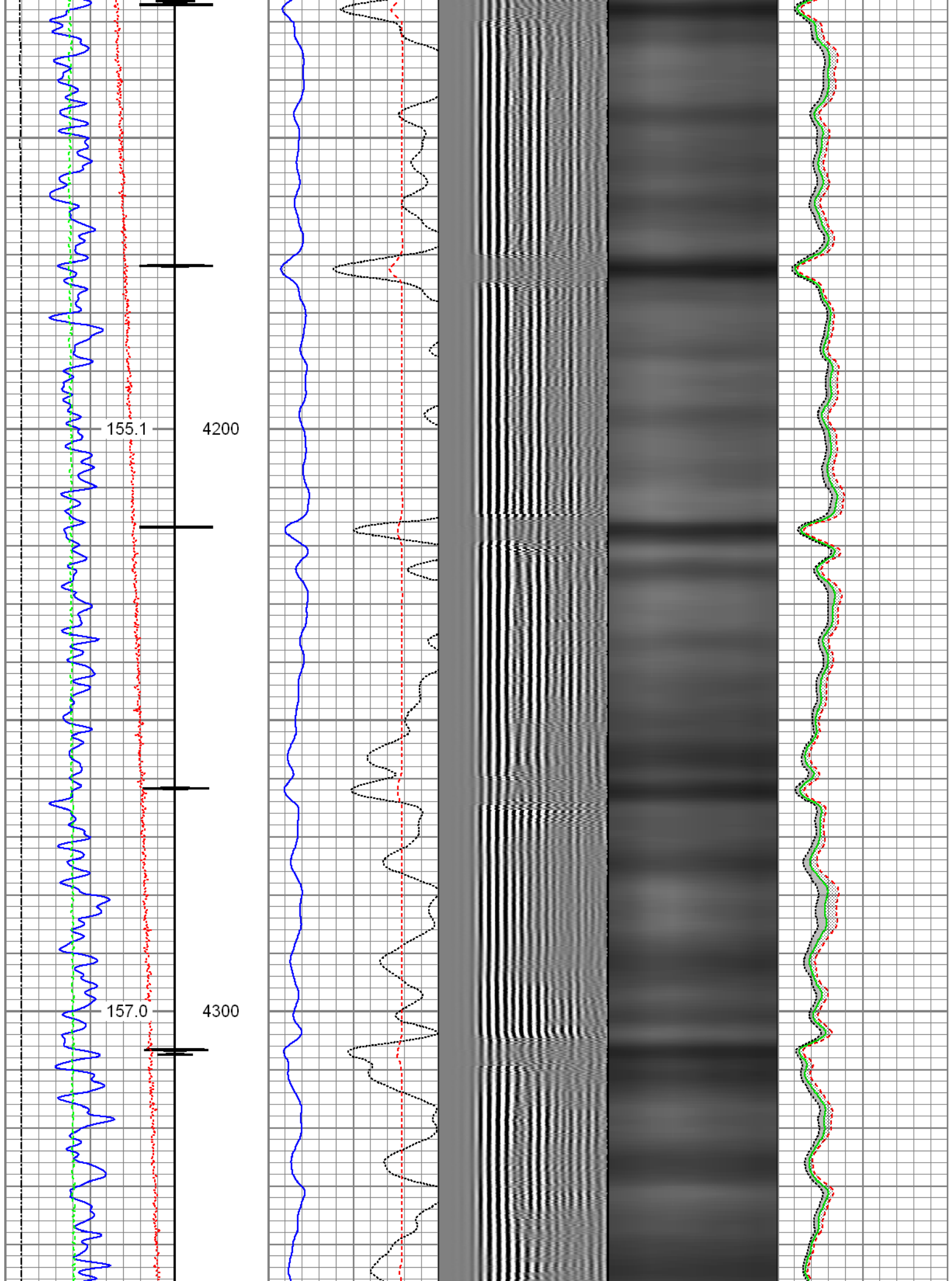


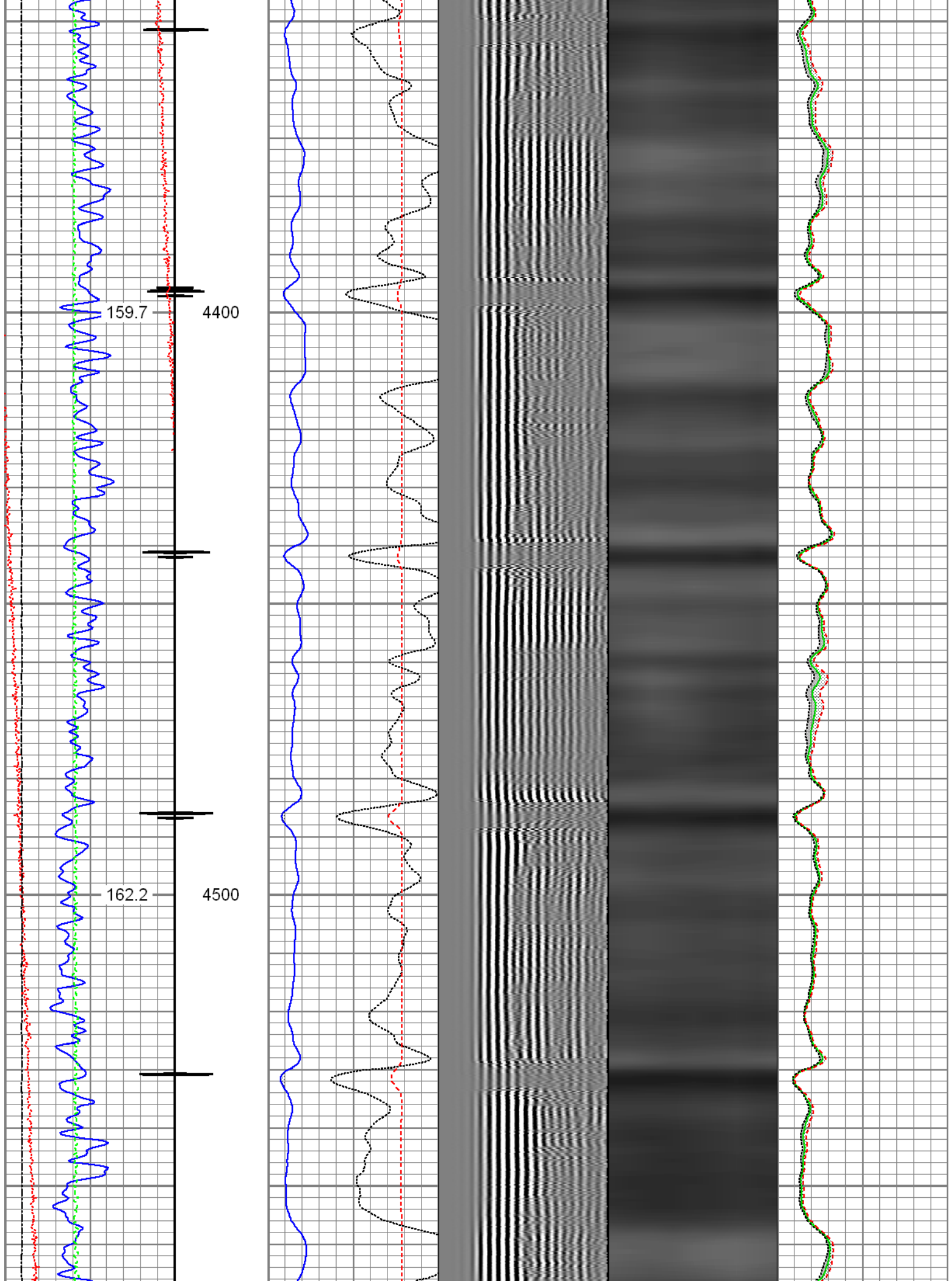


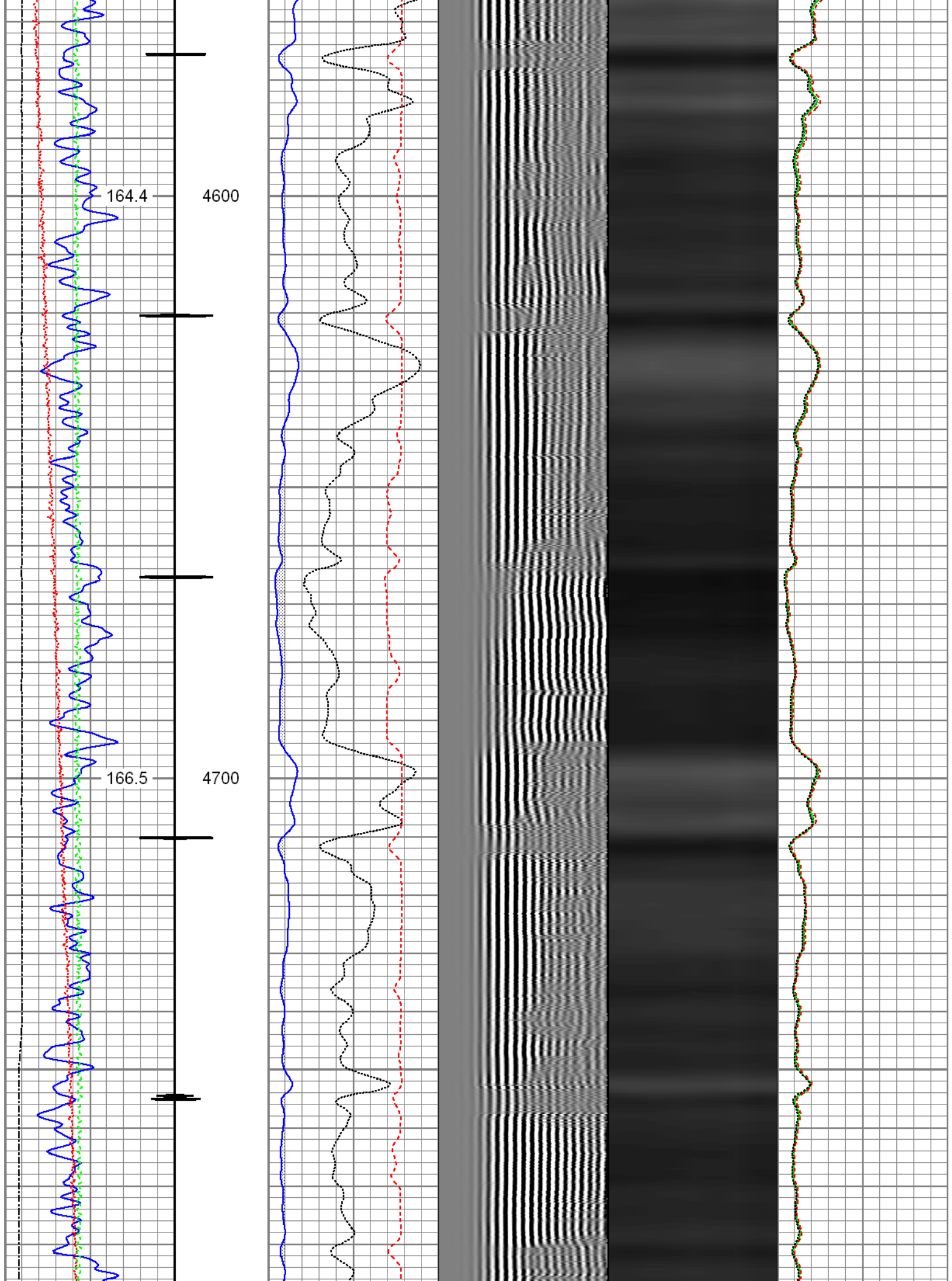


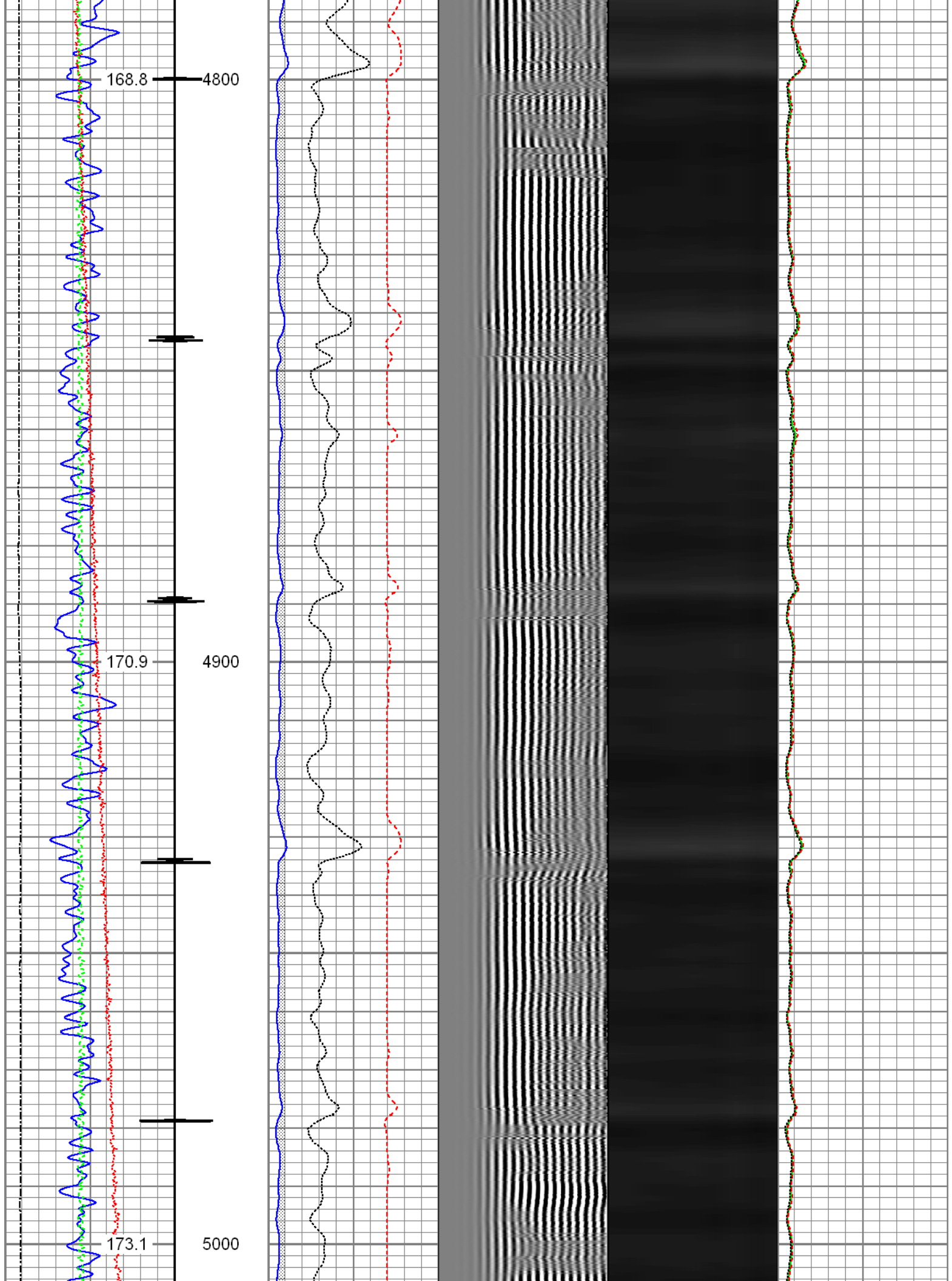


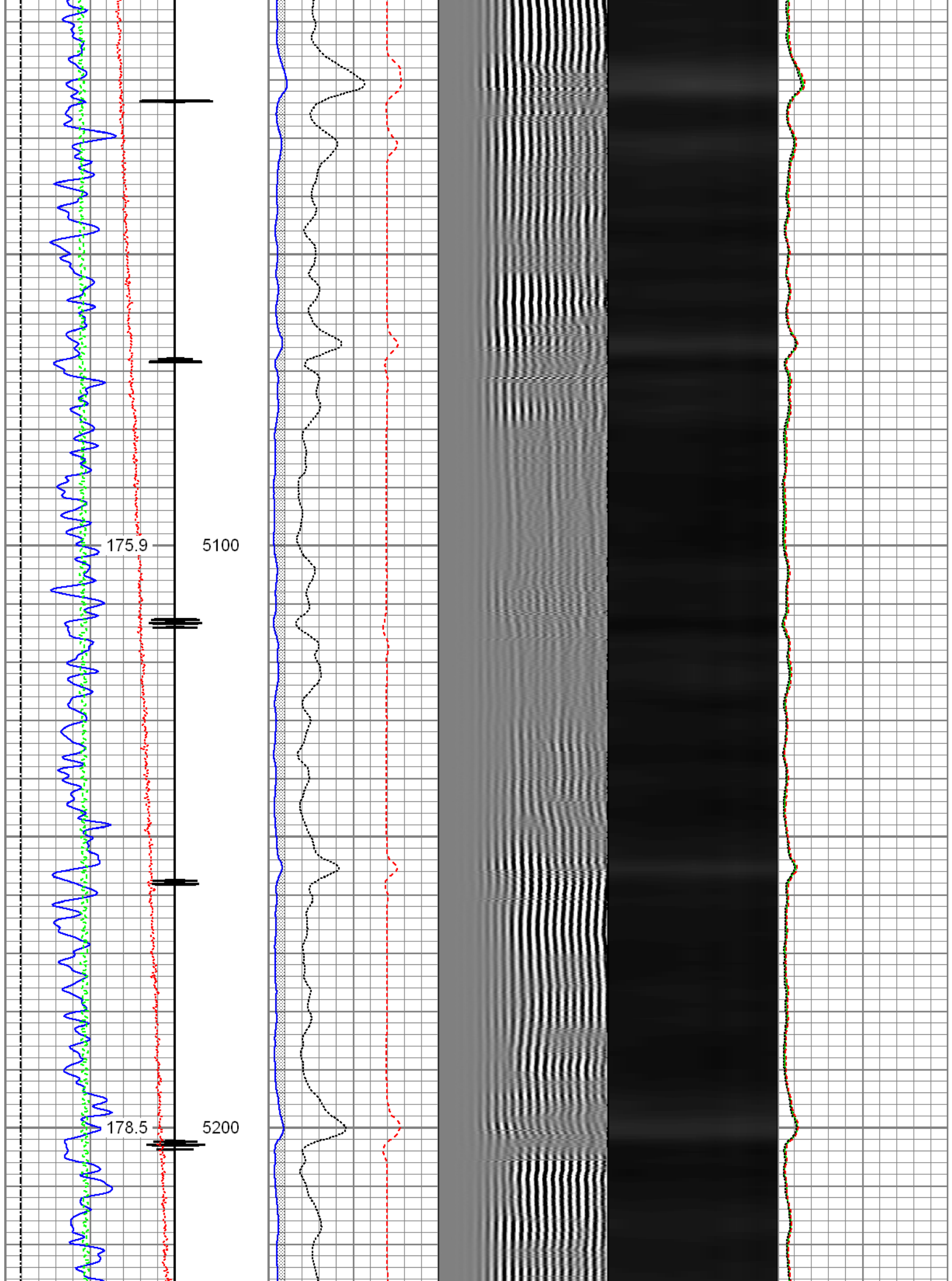


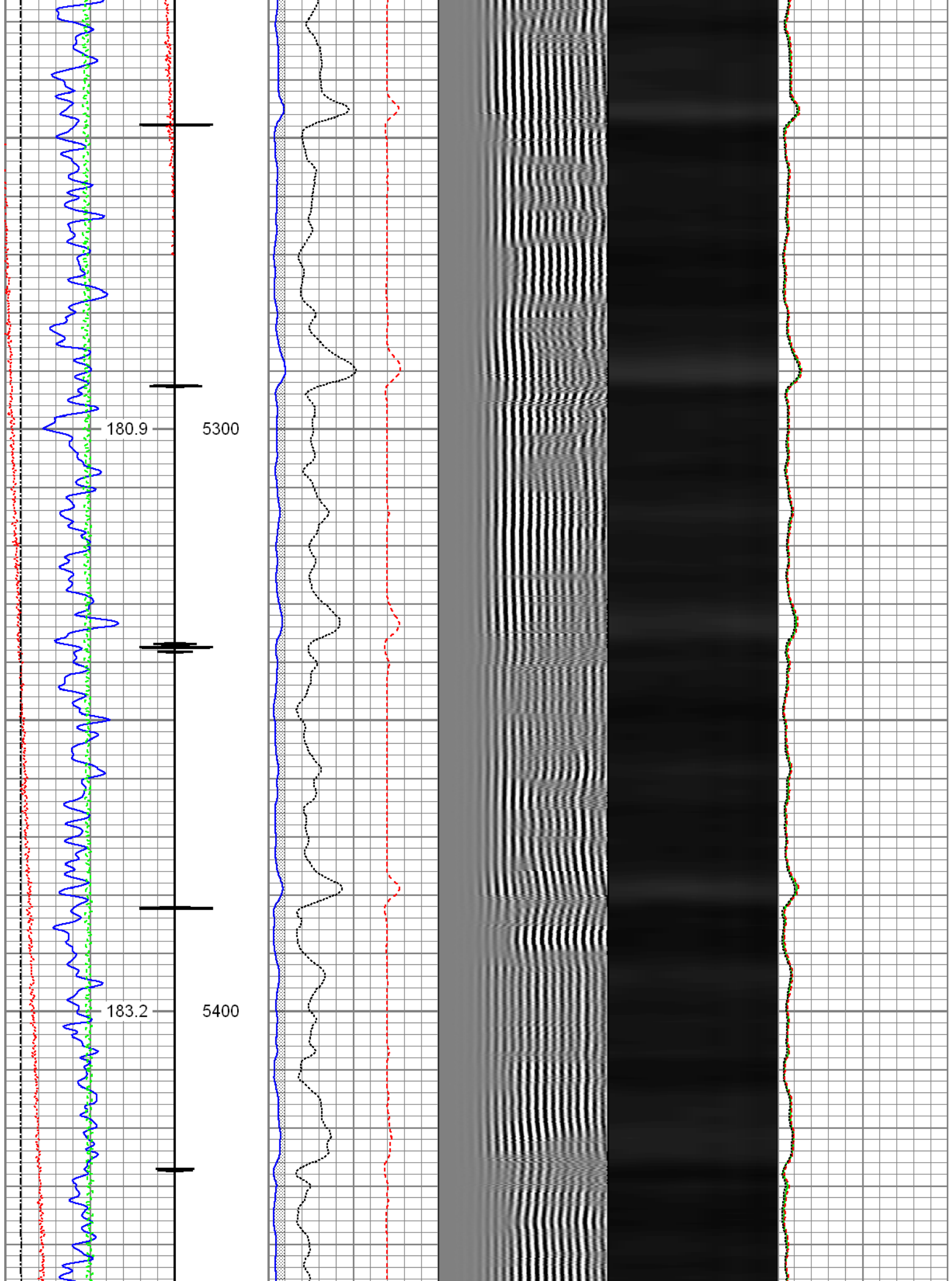


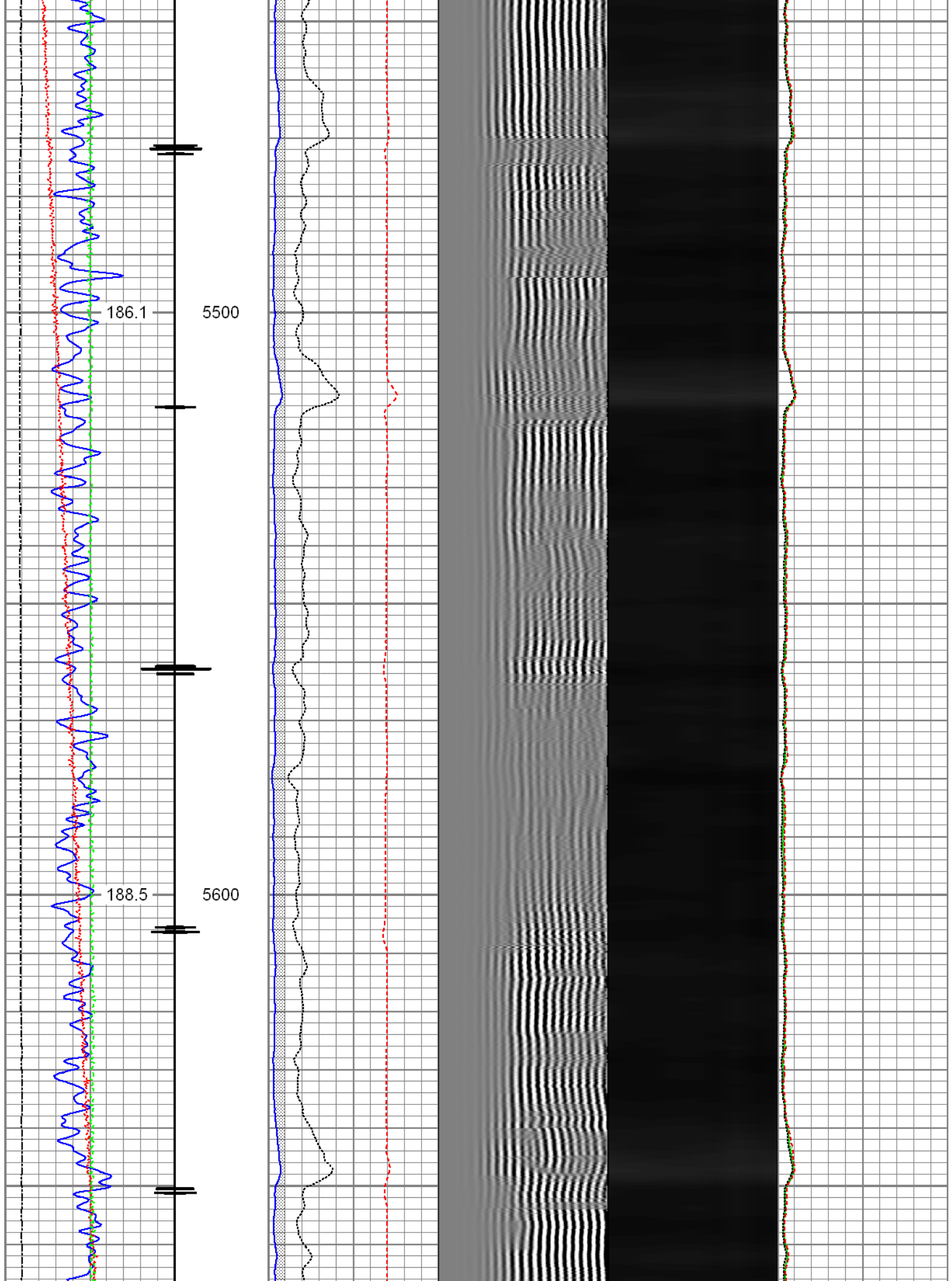


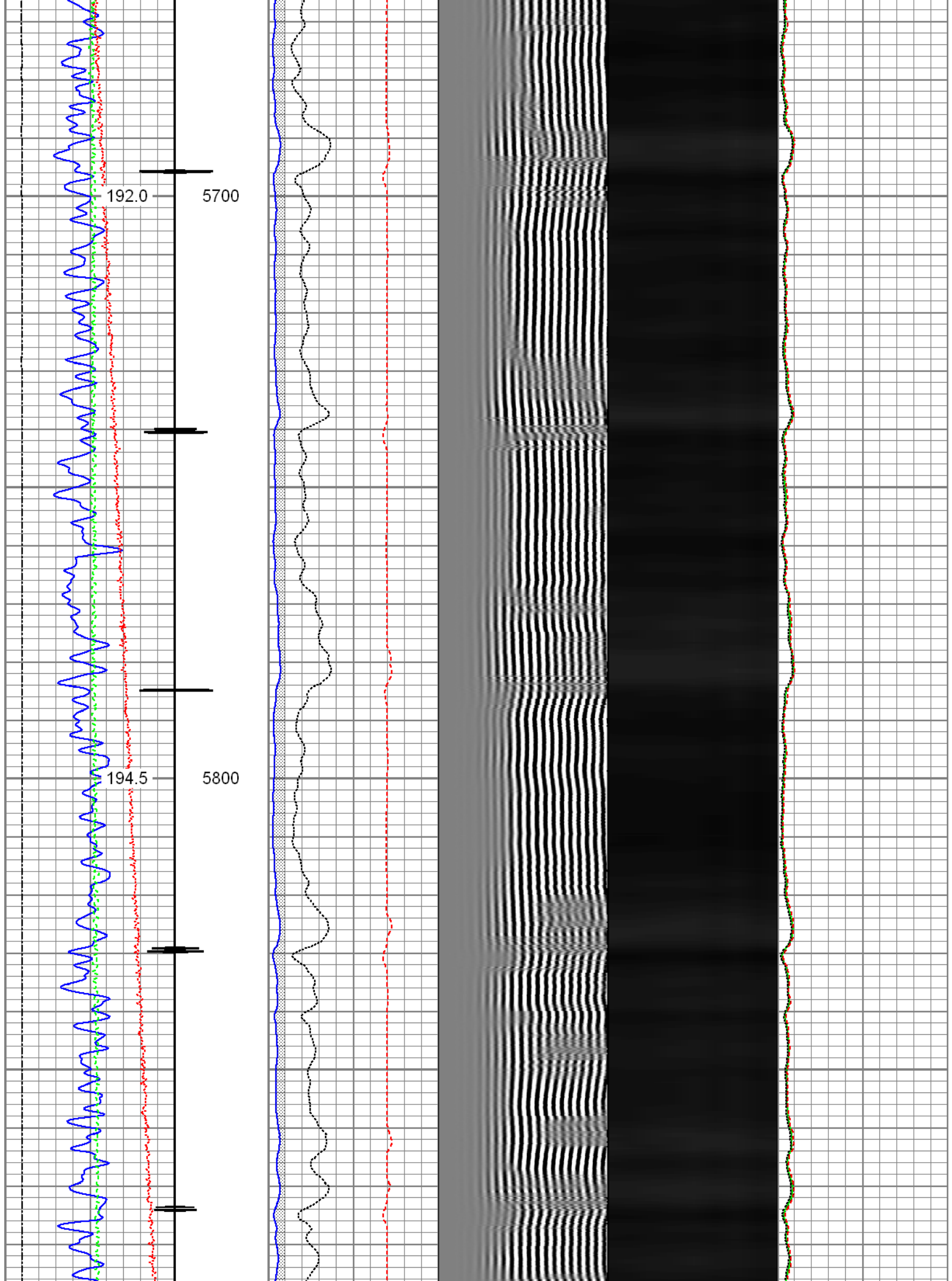


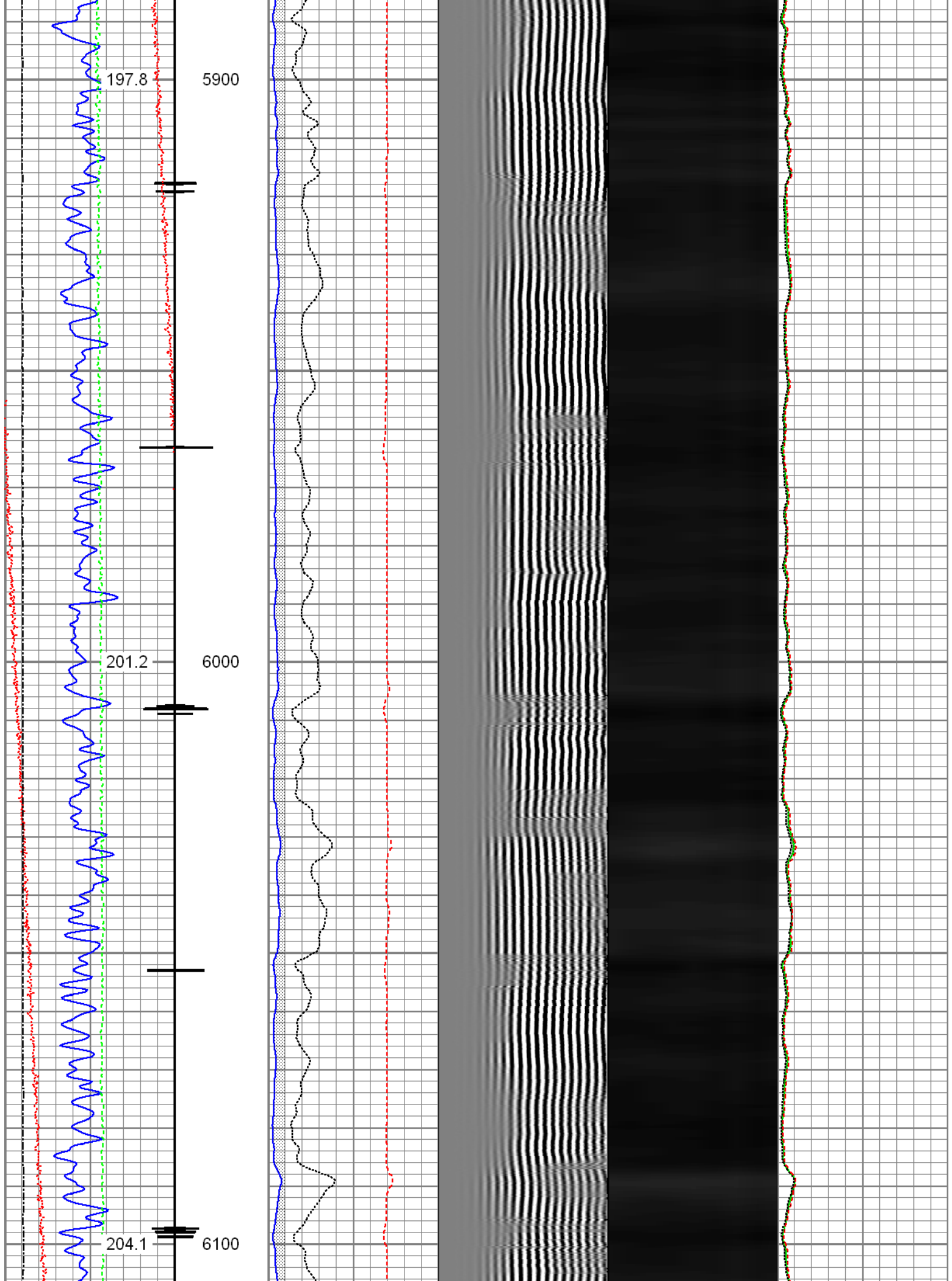


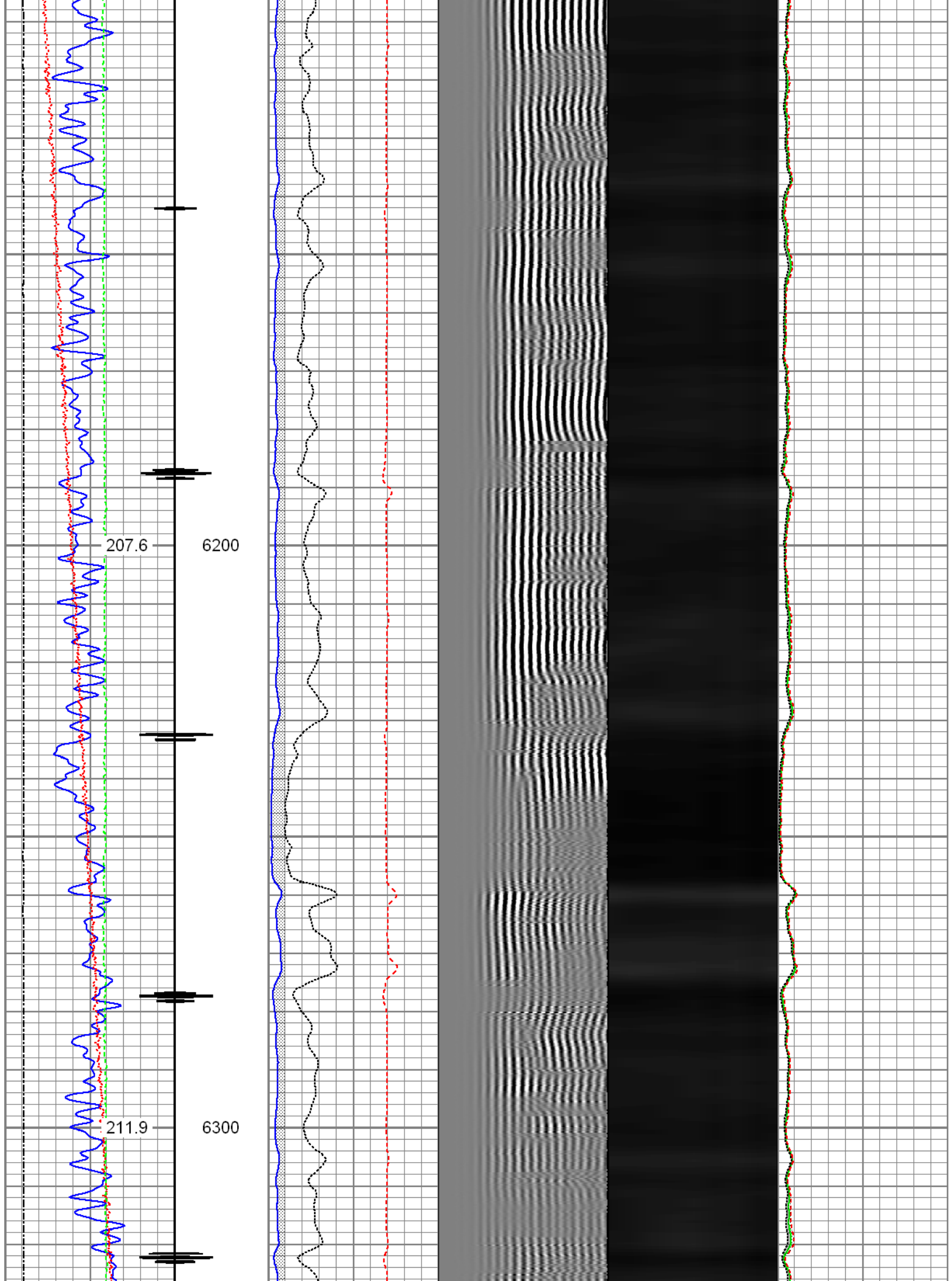


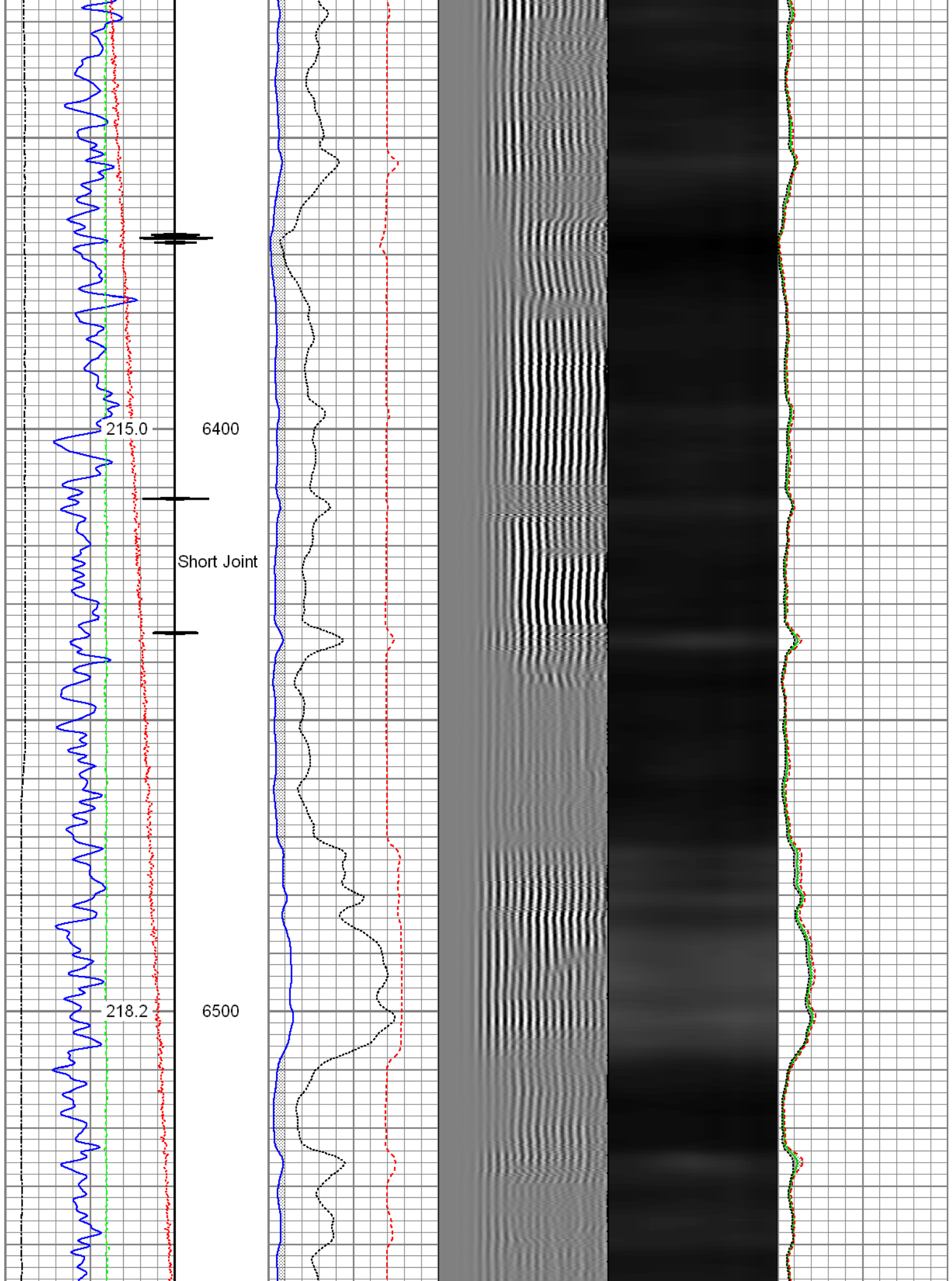


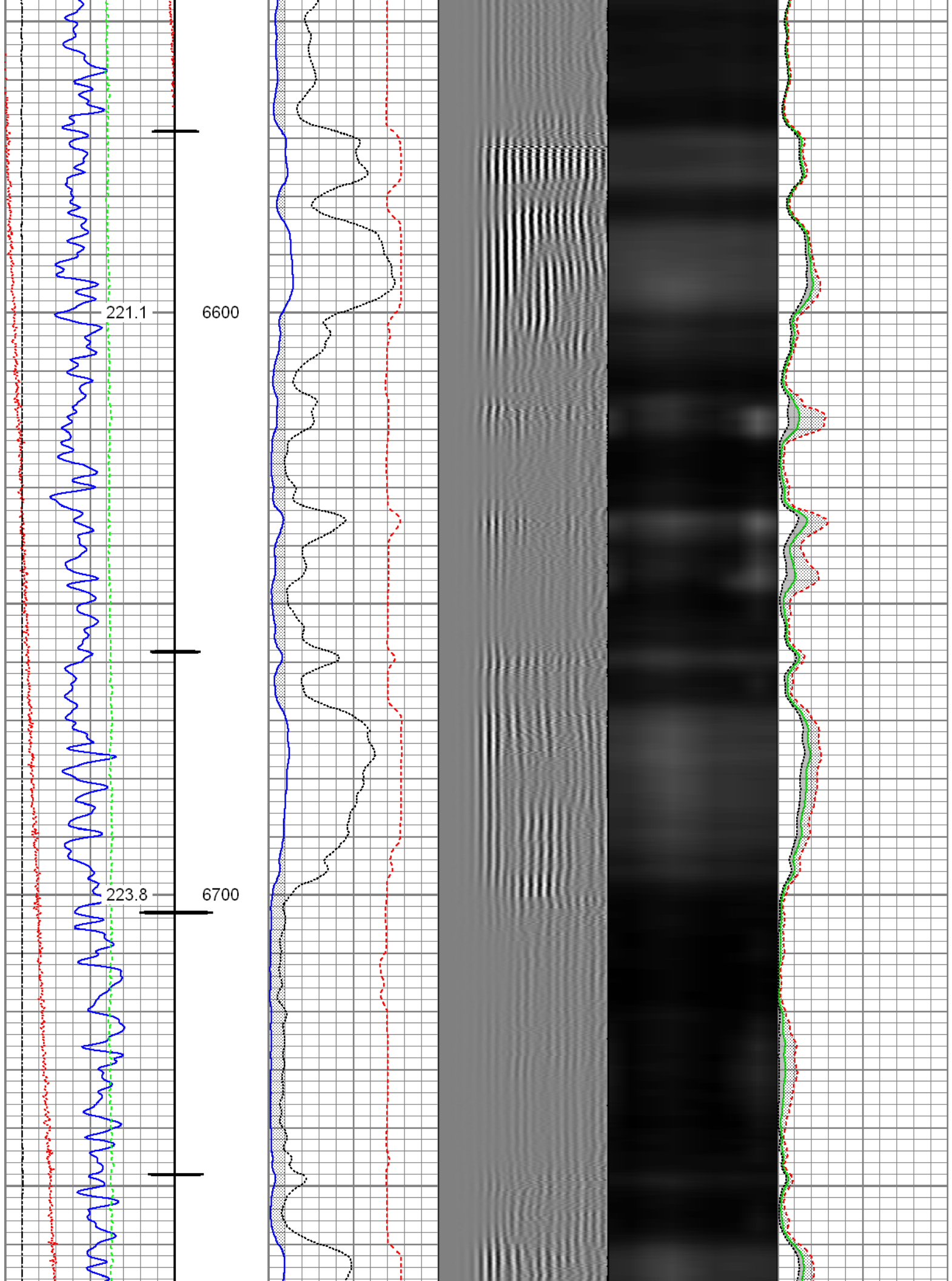


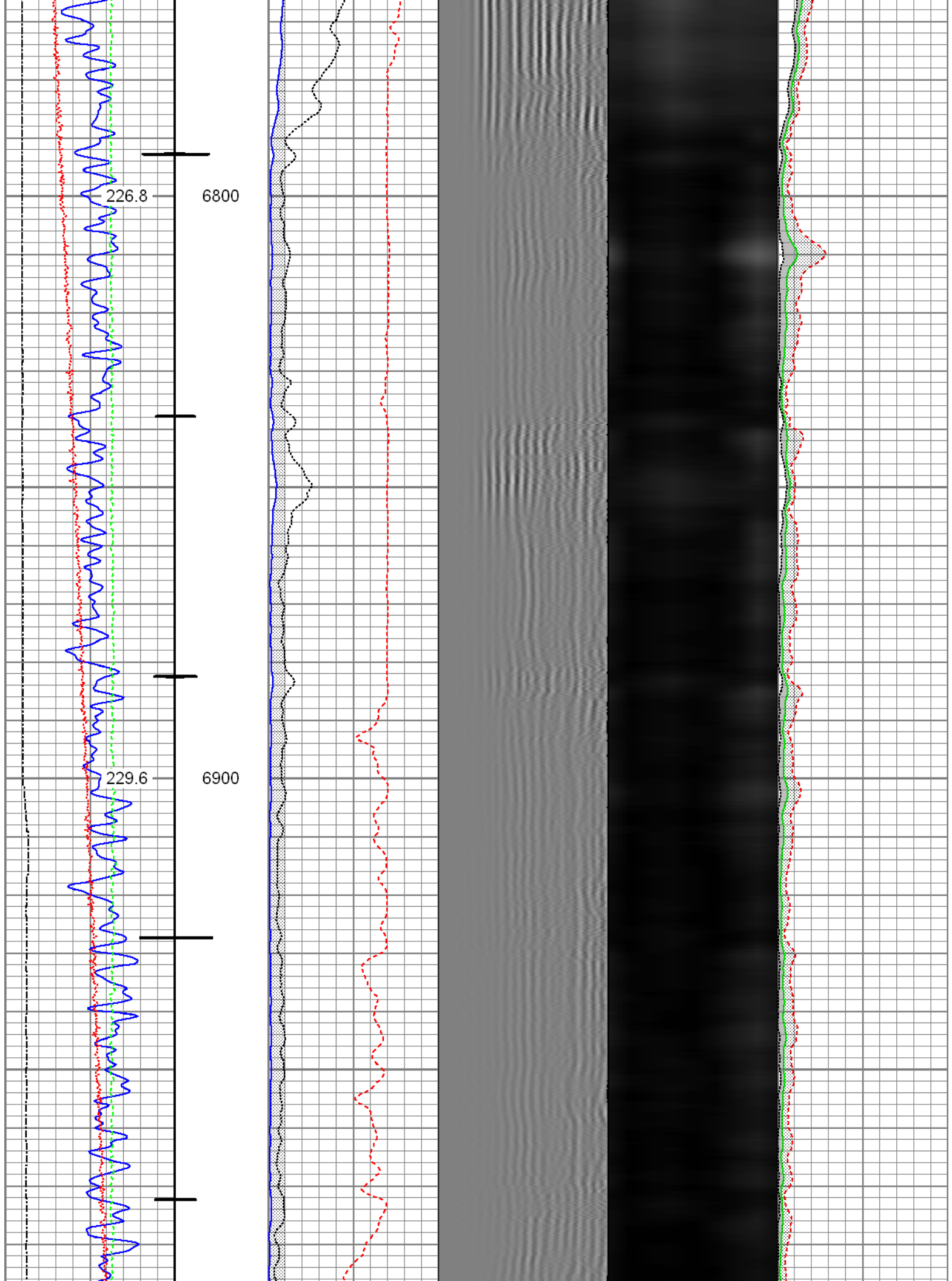


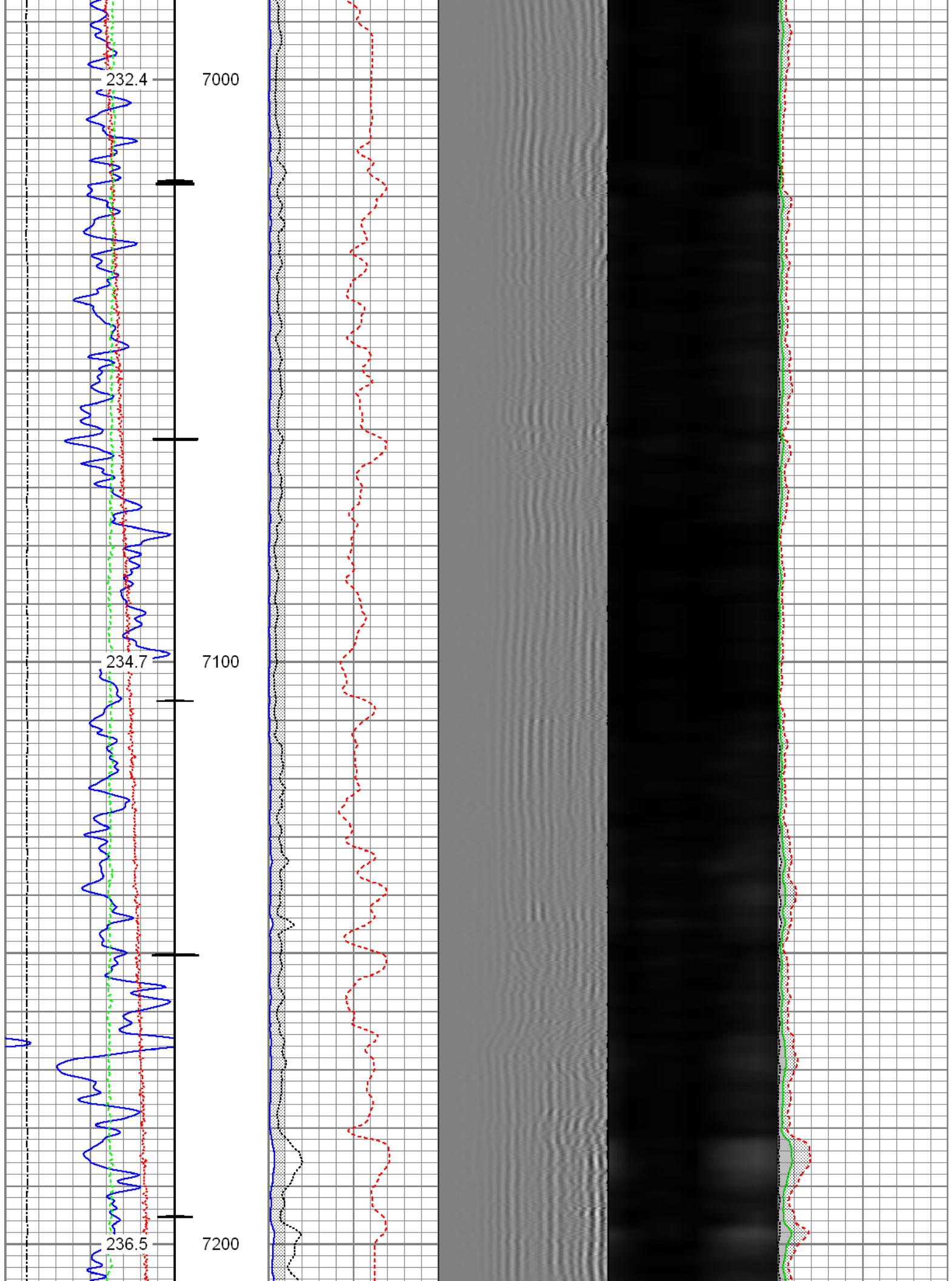


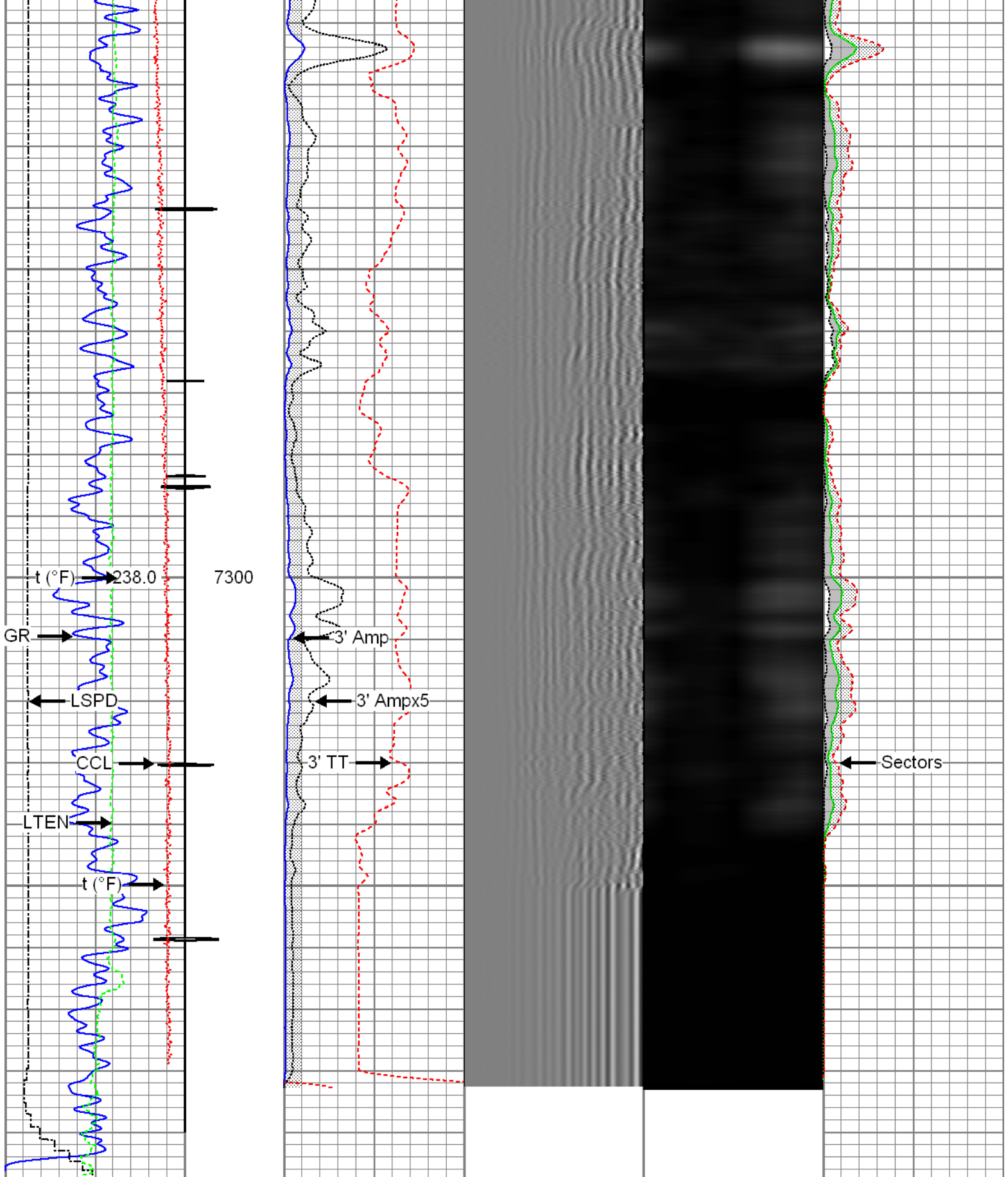













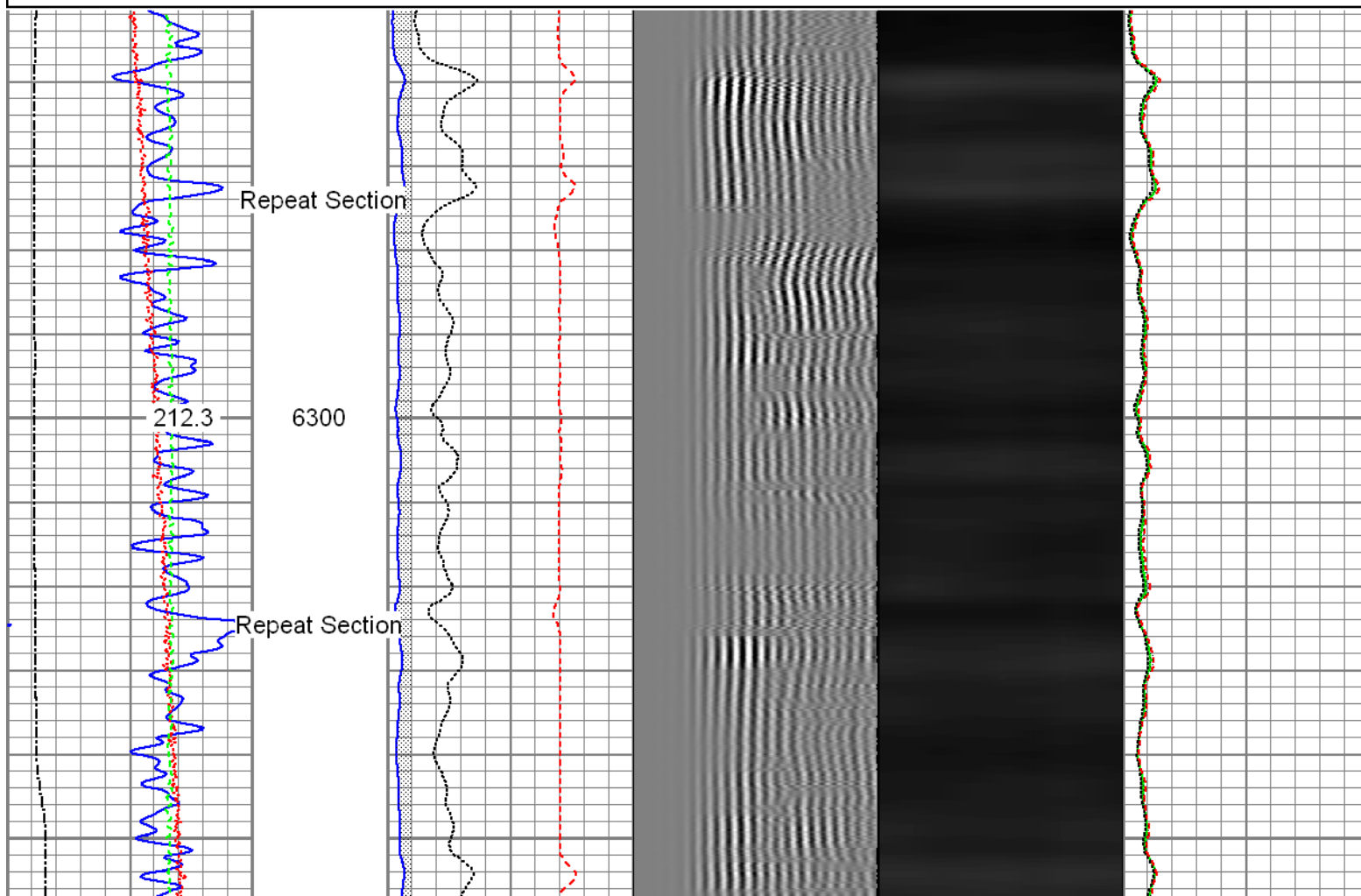
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 150	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100

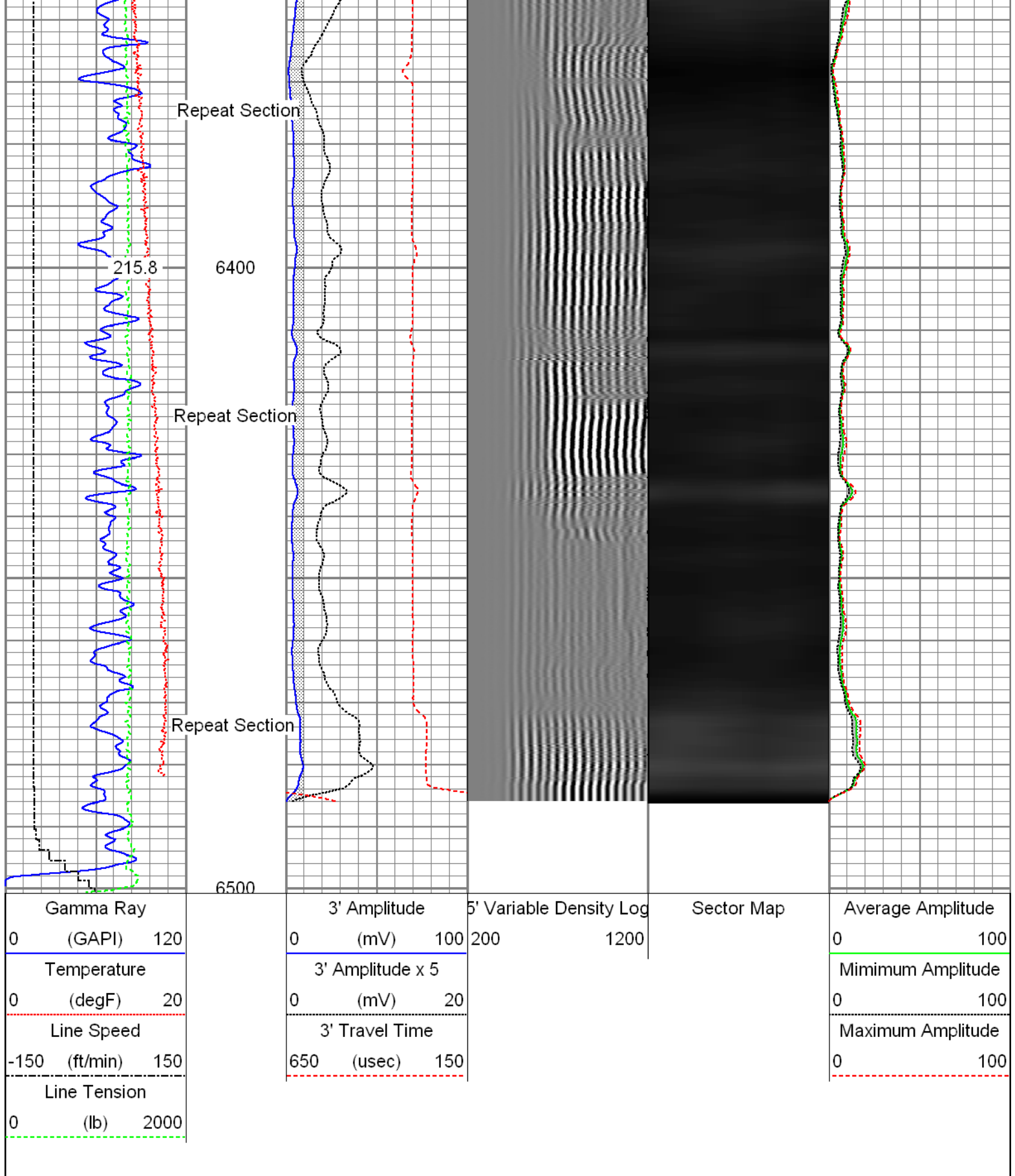
-150	(ft/min)	150
Line Tension		
0	(lb)	2000

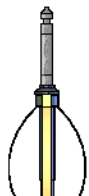
	Repeat Pass
	Recorded with 2800 PSI Surface Induced Pressure

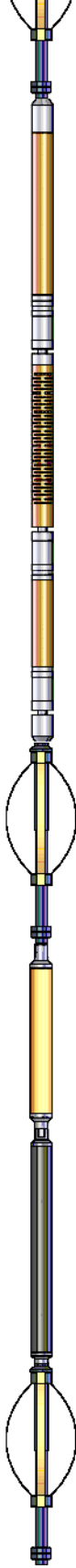
Database File: c:\warrior\data\0512342021\_anadarko\_powers 2n-34hz\_11-18-15\_rbl\processed\_0512342021\_anadarko  
 Dataset Pathname: Repeat1  
 Presentation Format: radii  
 Dataset Creation: Wed Nov 18 13:35:21 2015 by Log 7.0 B1  
 Charted by: Depth in Feet scaled 1:240

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	Len (ft)	OD (in)	Wt (lb)
			T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			Probe II BS Cent	2.88	2.75	10.00

HeadVolt	20.94		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Temp	18.17					
WVF3FT	16.00		Probe_RADII-C-2-3/4" (FW1305-098) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00
WVFCAL	16.00					
WVFS1	16.00					
WVFS2	16.00					
WVFS3	16.00					
WVFS4	16.00					
WVFS5	16.00					
WVFS6	16.00					
WVFS7	16.00					
WVFS8	16.00					
WVF5FT	15.00					
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
CCL	7.38		CCL_LOG-Probe_SA_CCL (FW1307-076) Probe 2-3/4" Digital Six Magnet Logging CCL	2.66	2.75	35.00
DCCL	7.38					
			GR-Probe_SA_GR (FW1307-078) Probe 2-3/4" Scintillating Gamma Ray	3.33	2.75	55.00
GR	2.88		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Dataset: PROCESSED_0512342021_Anadarko_Powers 2N-34HZ_11-18-15_RBL.db: field/well/run1/Main Total Length: 24.85 ft Total Weight: 229.00 lb O.D. 2.75 in						

Calibration Report	
Database File:	C:\Warrior\Data\0512342021_Anadarko_Powers 2N-34HZ_11-18-15_RBL\PROCESSED_0512342021
Dataset Pathname:	Main.1
Dataset Creation:	Thu Nov 19 09:17:20 2015 by Calc SCH 120430

Gamma Ray Calibration Report
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Serial Number:	FW1307-078	
Tool Model:	Probe_SA_GR	
Performed:	Tue Nov 03 15:12:39 2015	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

## Segmented Cement Bond Log Calibration Report

Serial Number:	FW1305-098	
Tool Model:	2-3/4"	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	6474.470	ft

Master Calibration, performed Thu Nov 19 09:17:17 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	0.517	0.800	71.921	139.302	-0.102
CAL	0.004	0.555				
5'	0.018	0.398	0.800	71.921	187.252	-2.620
SUM						
S1	0.005	0.528	0.000	100.000	191.010	-0.911
S2	0.007	0.537	0.000	100.000	188.711	-1.368
S3	0.007	0.537	0.000	100.000	188.534	-1.228
S4	0.006	0.536	0.000	100.000	188.800	-1.202
S5	0.007	0.526	0.000	100.000	192.864	-1.439
S6	0.008	0.505	0.000	100.000	201.288	-1.602
S7	0.008	0.498	0.000	100.000	204.102	-1.724
S8	0.008	0.507	0.000	100.000	200.473	-1.683


Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.004	0.555	1.000	0.000

Air Zero Calibration, performed Wed Nov 18 13:35:07 2015:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.004		0.000		-0.000	
5'	0.004		0.000		-0.000	
SUM						
S1	0.004		0.000		-0.000	
S2	0.004		0.000		0.000	
S3	0.004		0.000		0.000	
S4	0.004		0.000		0.000	
S5	0.004		0.000		-0.000	
S6	0.004		0.000		-0.000	
S7	0.004		0.000		-0.000	
S8	0.004		0.000		-0.000	

S7	0.004	0.000	-0.000
S8	0.004	0.000	0.000

	Company	Kerr-McGee Oil & Gas Onshore, L.P.
	Well	Powers 2N-34HZ
	Field	Wattenberg
	County	Weld
	State	Colorado