



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.				
Well	Powers 2N-27HZ				
Field	Wattenberg				
County	Weld				
State	Colorado				
Location:	API # : 05-123-41950				
SEC 22 TWP 2N RGE 65W	Other Services				
	Gauge Ring				
	Elevation				
Permanent Datum	Ground Level		Elevation 4893'		
Log Measured From	Kelly Bushing		25 FT		
Drilling Measured From	Kelly Bushing				
			K.B. 4918'		
			D.F. 4917'		
			G.L. 4893'		

Date	09-Dec-2015
Run Number	Two
Depth Driller	13103 FT
Depth Logger	7373 FT
Bottom Logged Interval	7358 FT
Top Log Interval	Surface
Open Hole Size	7.875"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	240°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	1:20 PM
Equipment Number	HD-0324
Location	Fort Lupton, CO
Recorded By	A. Olmsted
Witnessed By	DJ Anderson

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 8RD LTC	Surface	1895 FT		
Intermediate #1	5 1/2	17	P-110, HCP-110	Surface	13090 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 Kelly Bushing reported at 25 FT  
Adjusted Log +2 FT to Correlate with Kelly Bushing  
Log ran from 7358 FT to surface  
Recorded with 2800 PSI surface induced pressure

Thank you for choosing FMC Technologies Surface Integrated Services.

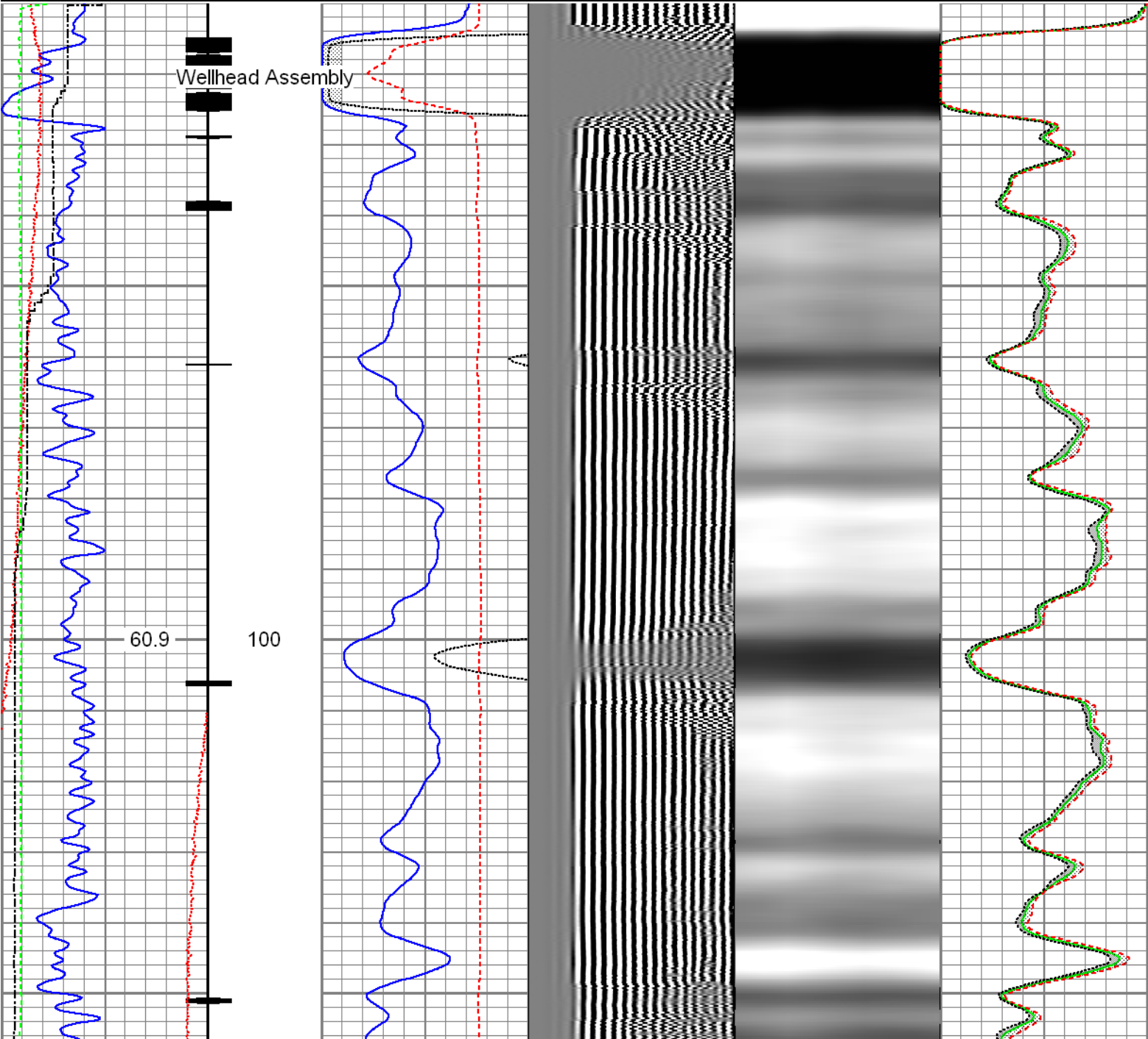


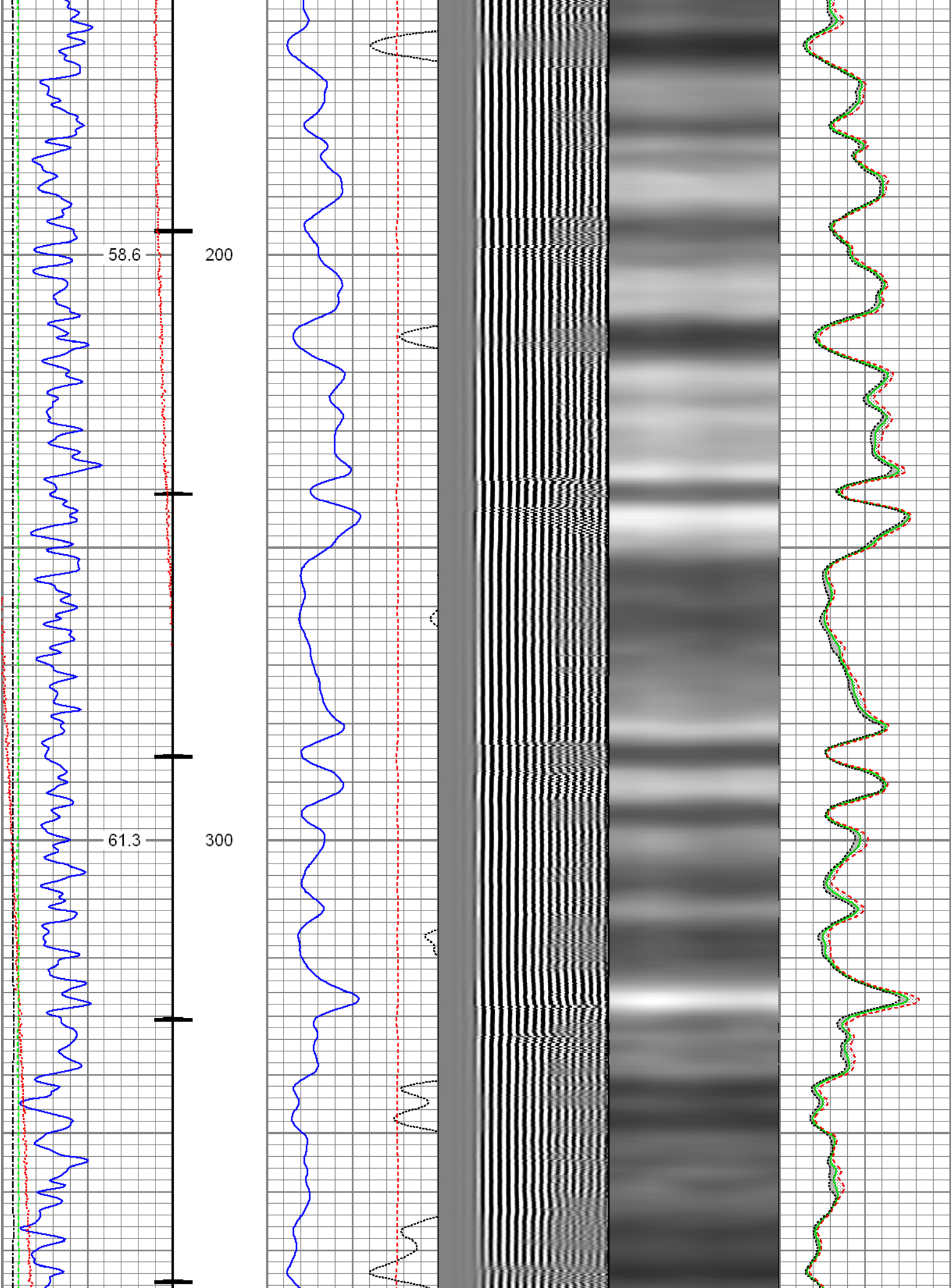
Main Pass

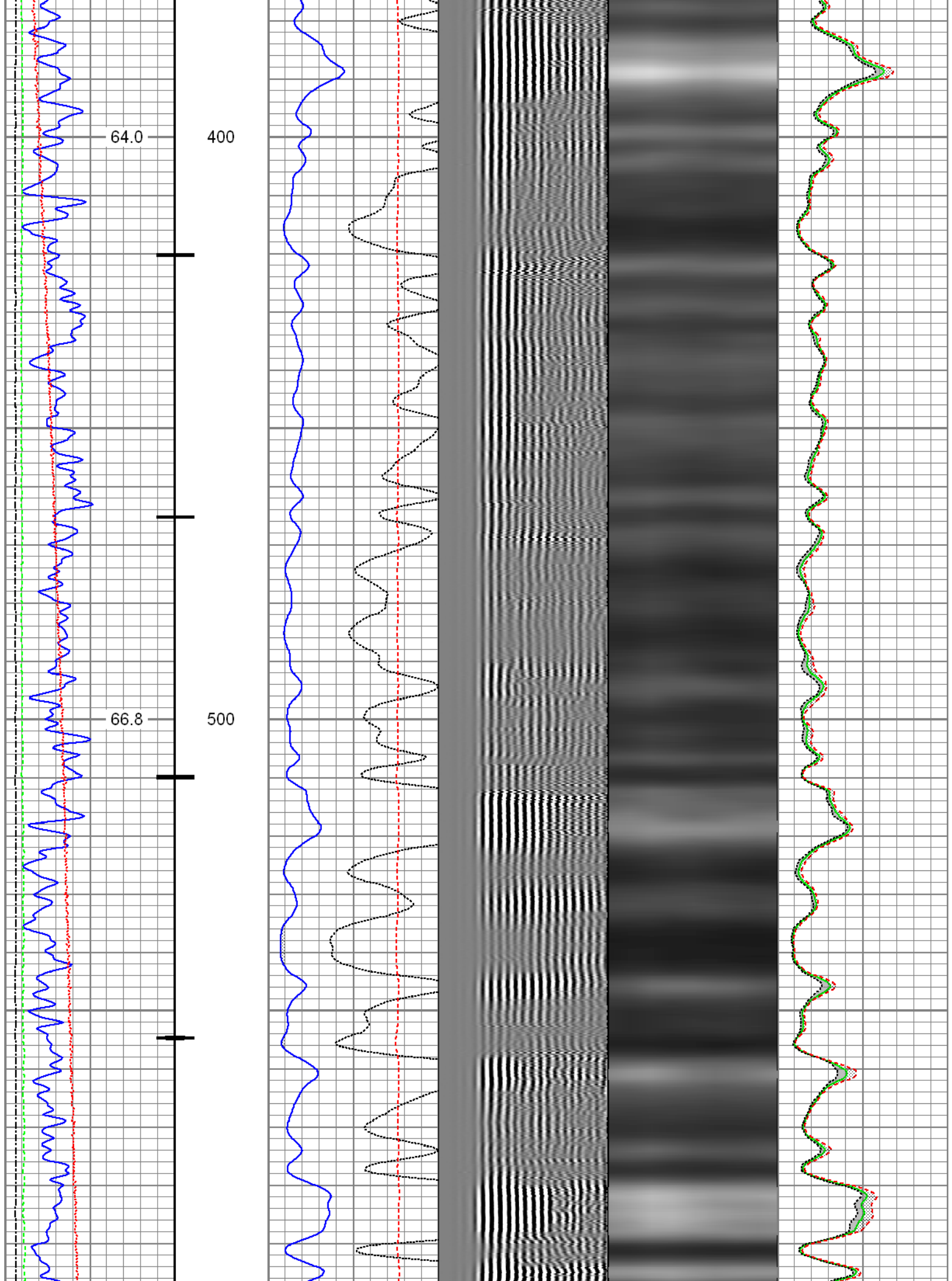
Recorded With 2800 PSI Surface Induced Pressure

Database File: 0512341950\_anadarko\_powers 2n-27hz\_12-09-15\_rbl.db  
Dataset Pathname: pass4.1  
Presentation Format: radii  
Dataset Creation: Thu Dec 10 14:03:56 2015 by Calc SCH 120430  
Charted by: Depth in Feet scaled 1:240

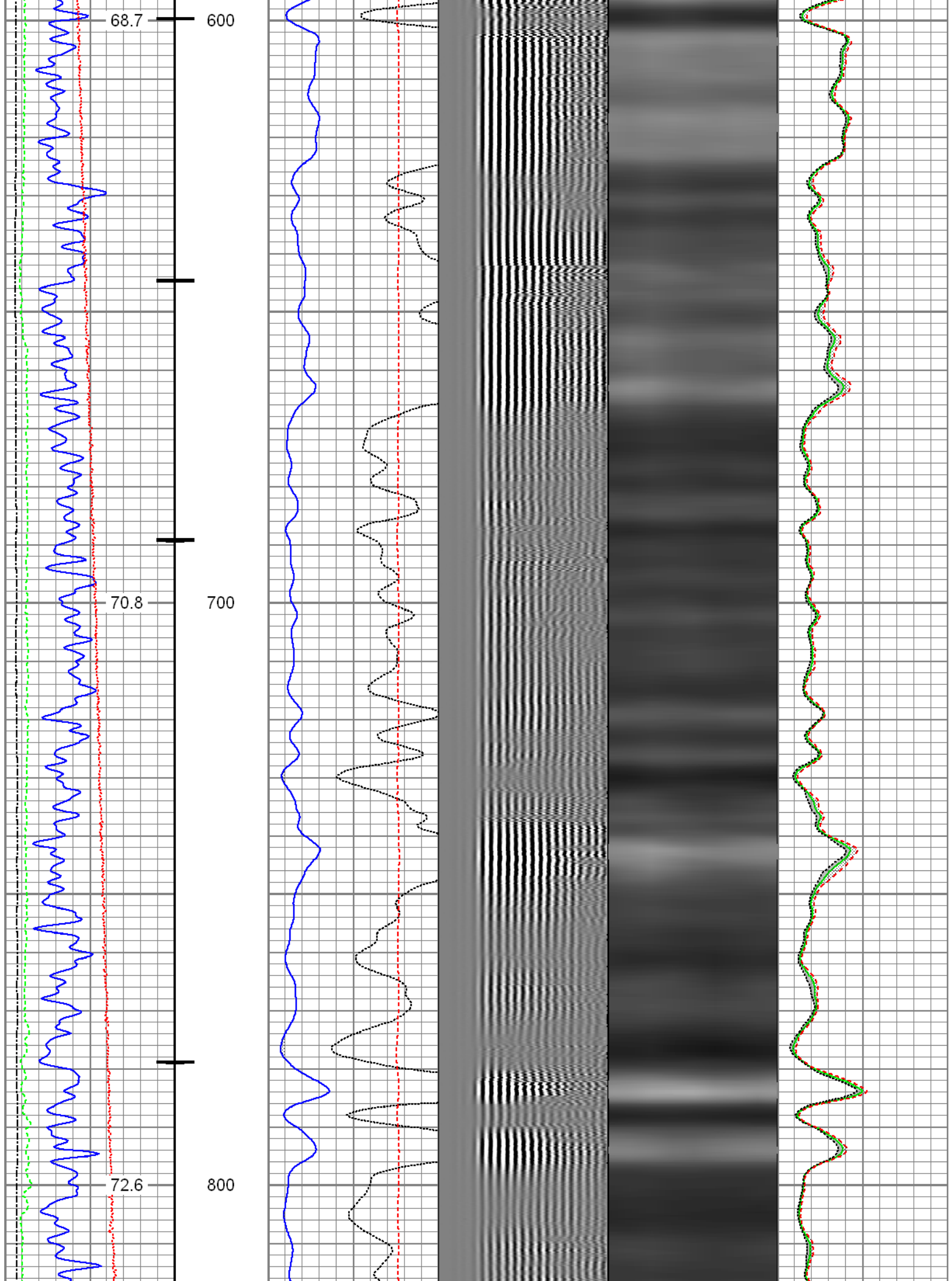
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

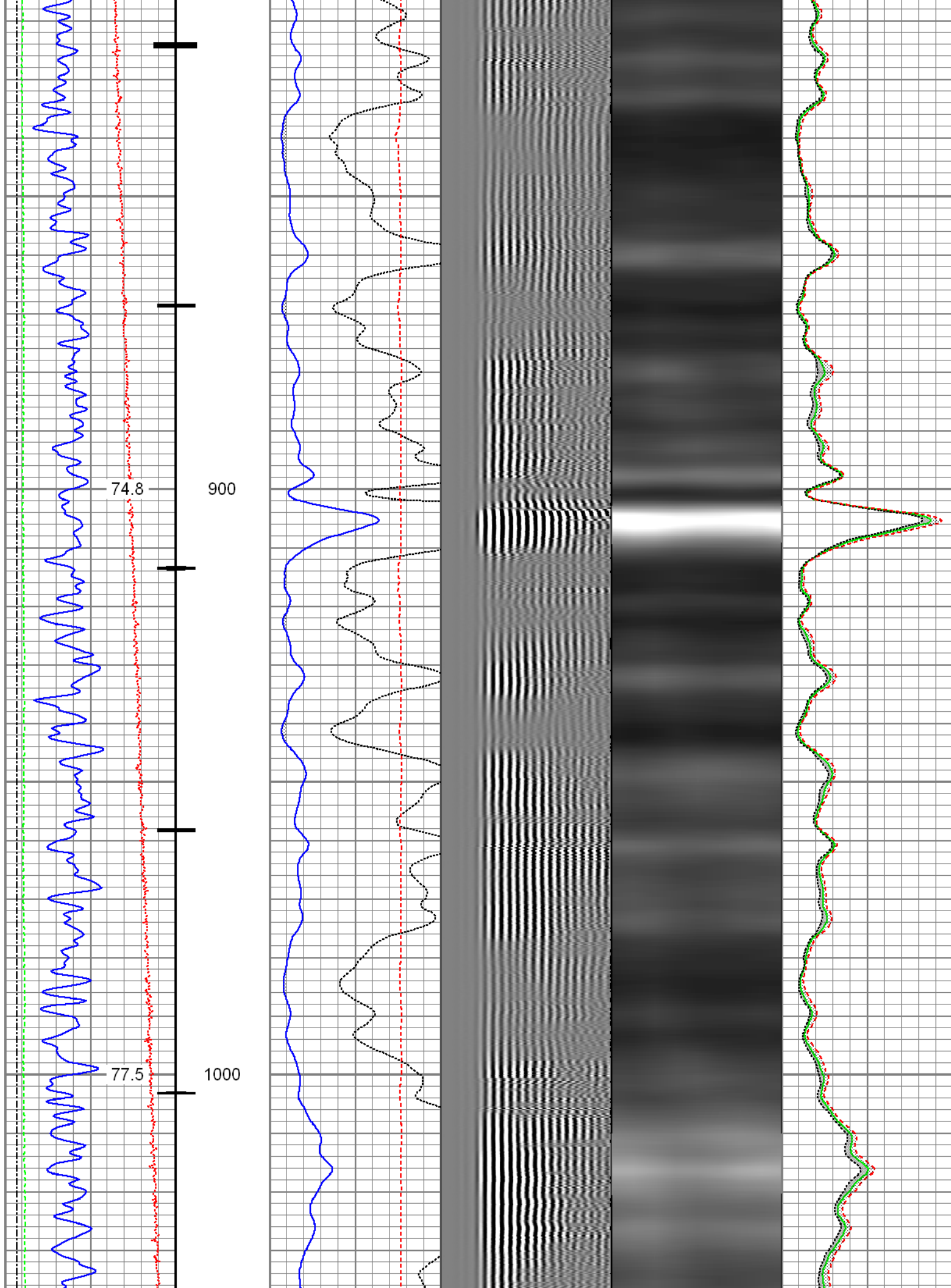


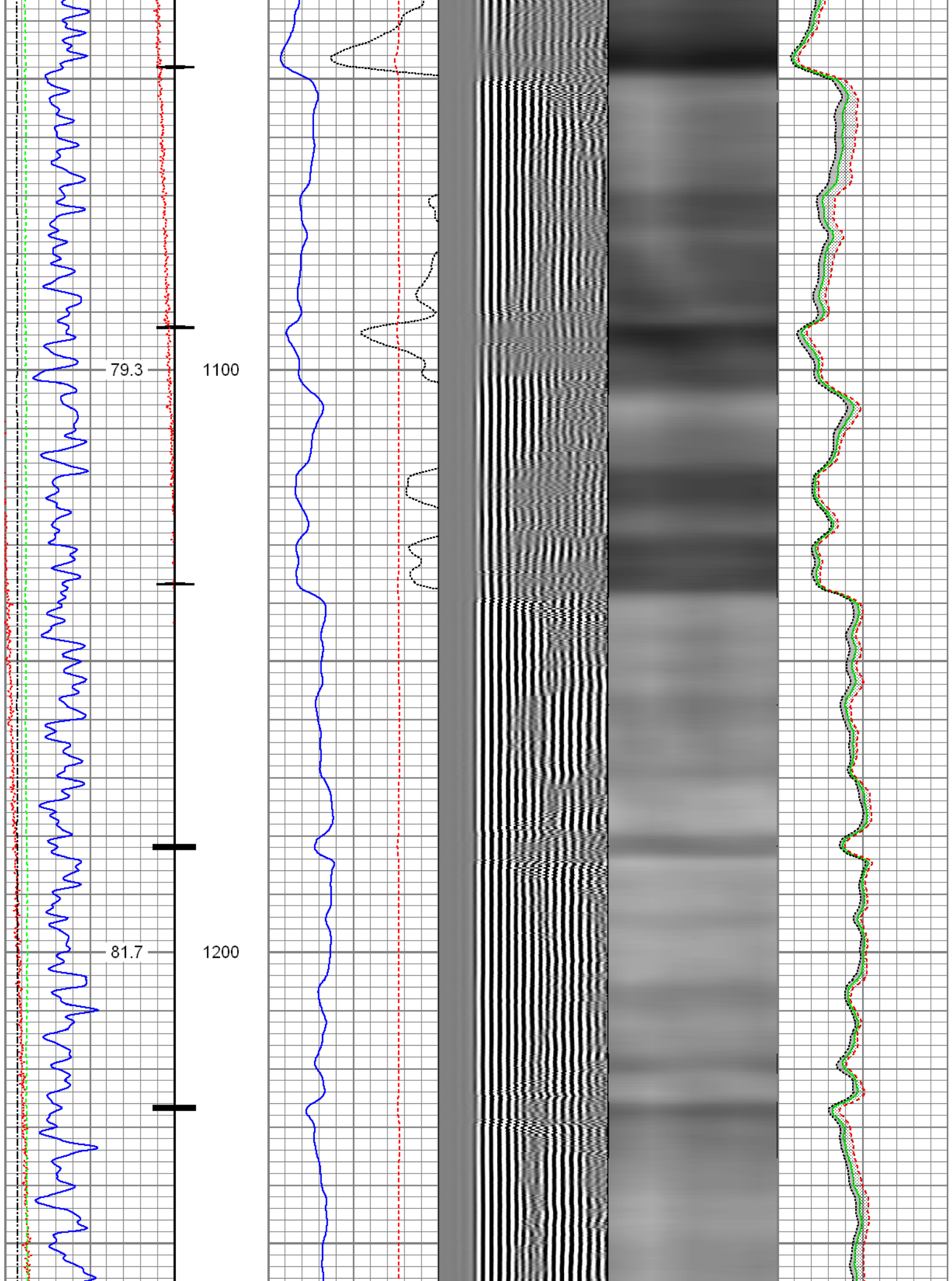




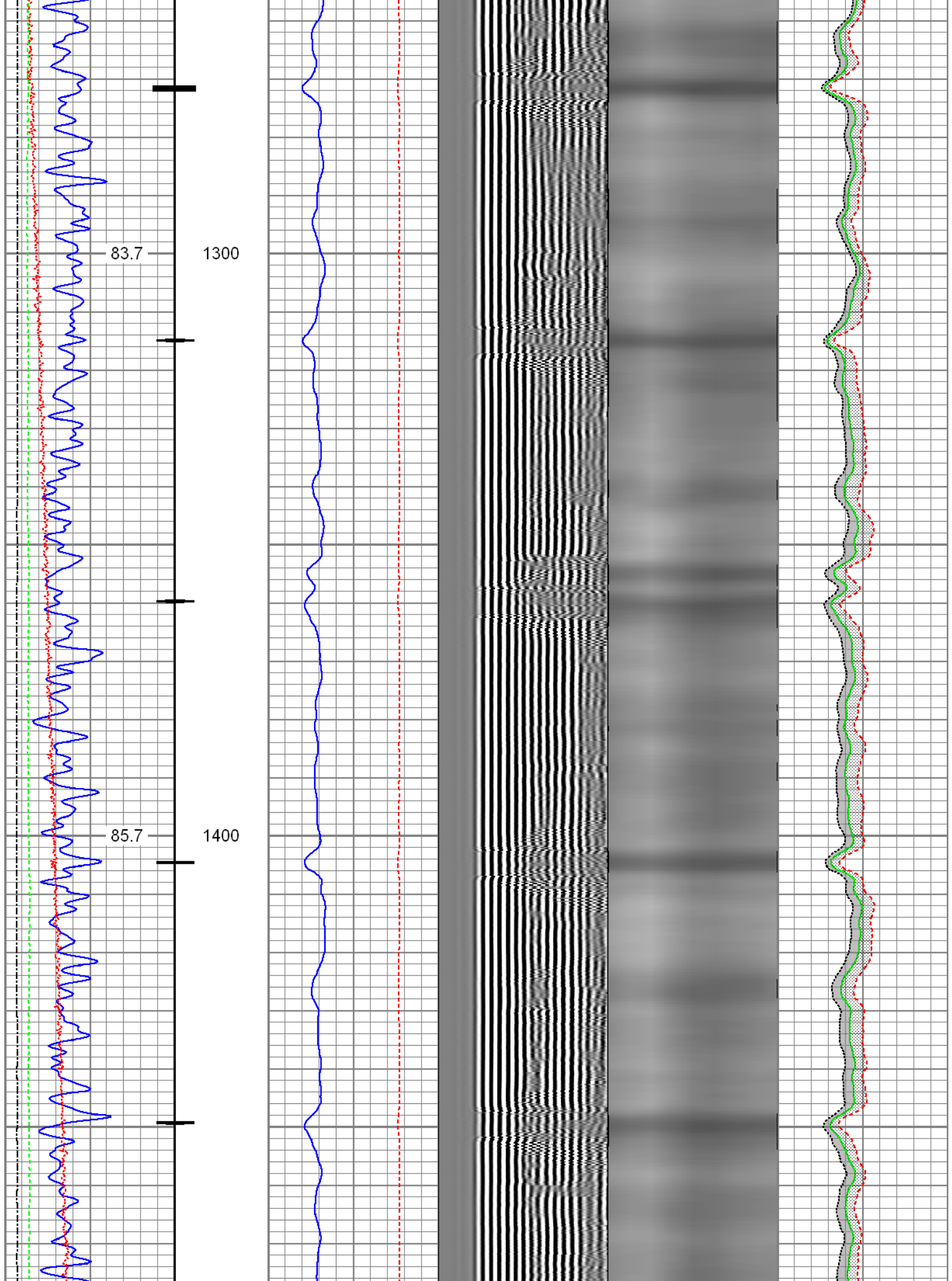




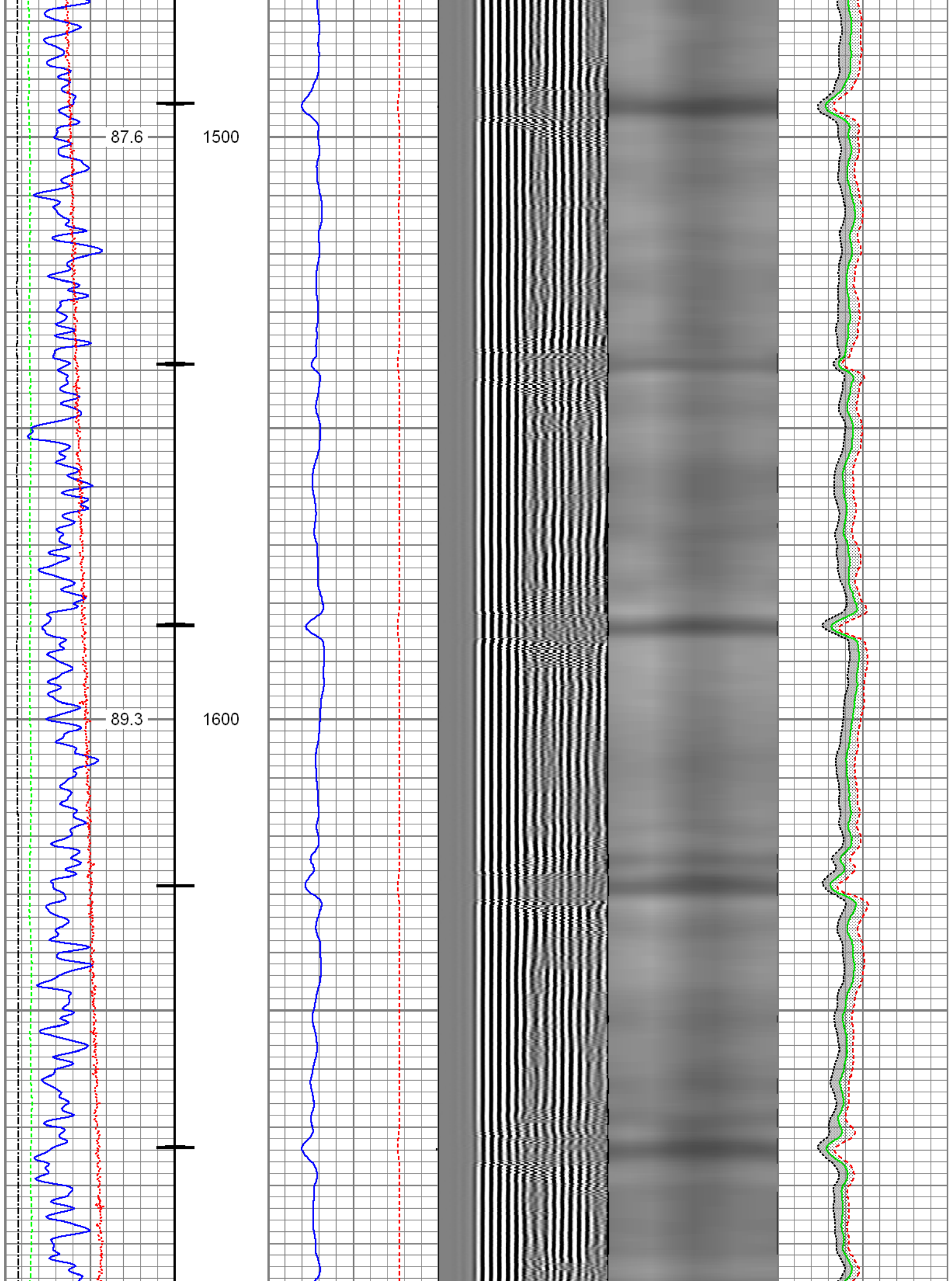


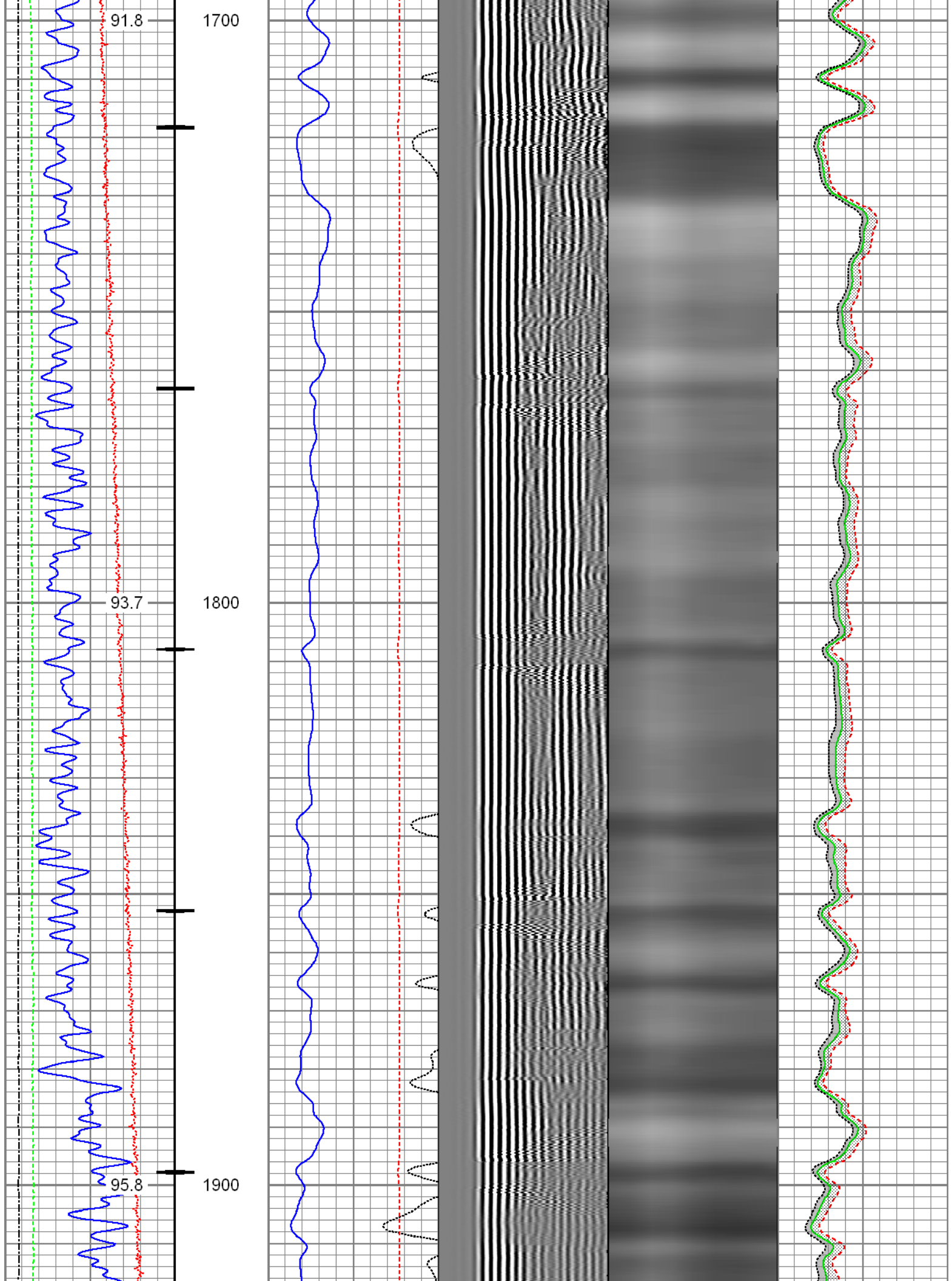


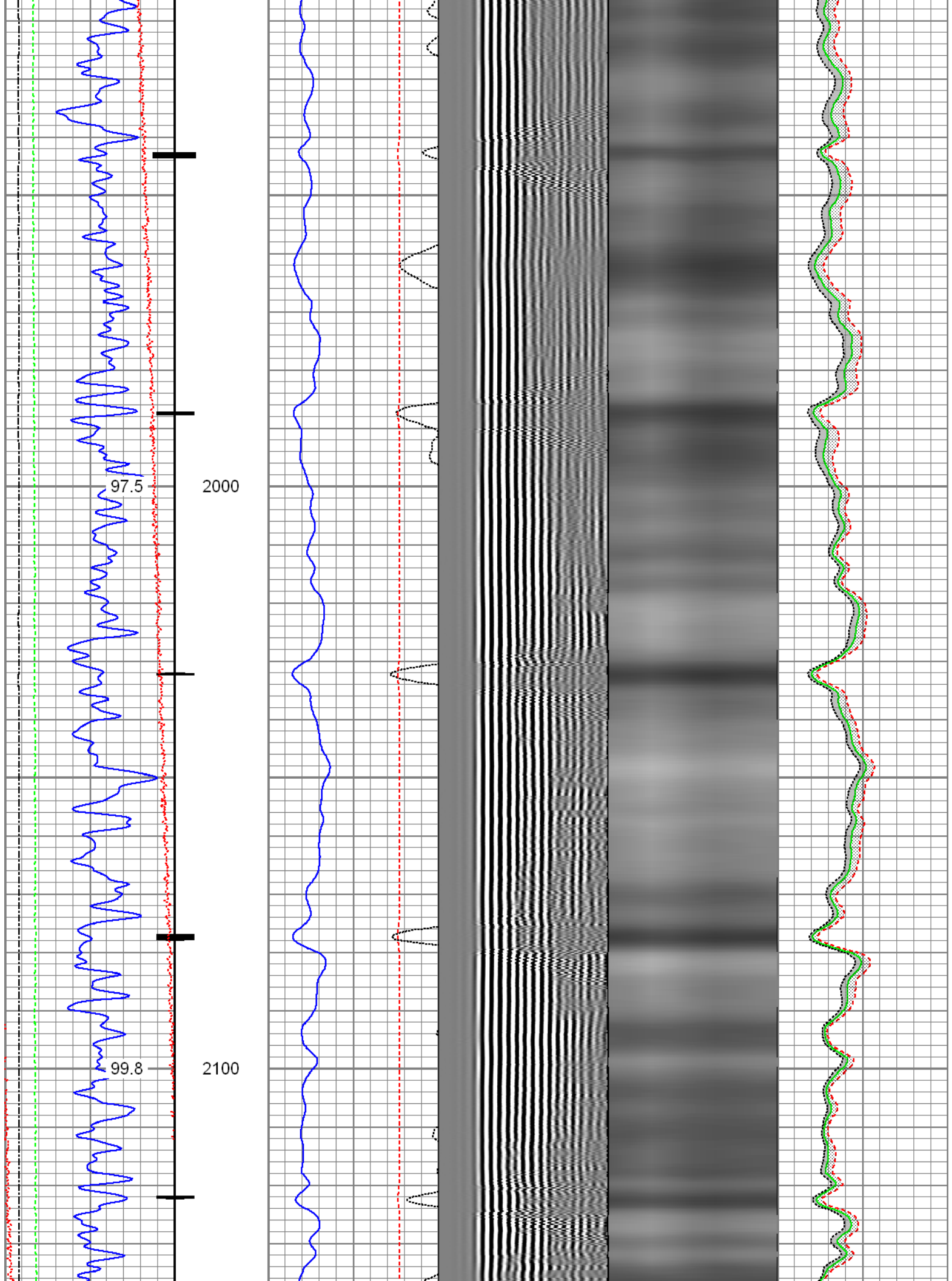




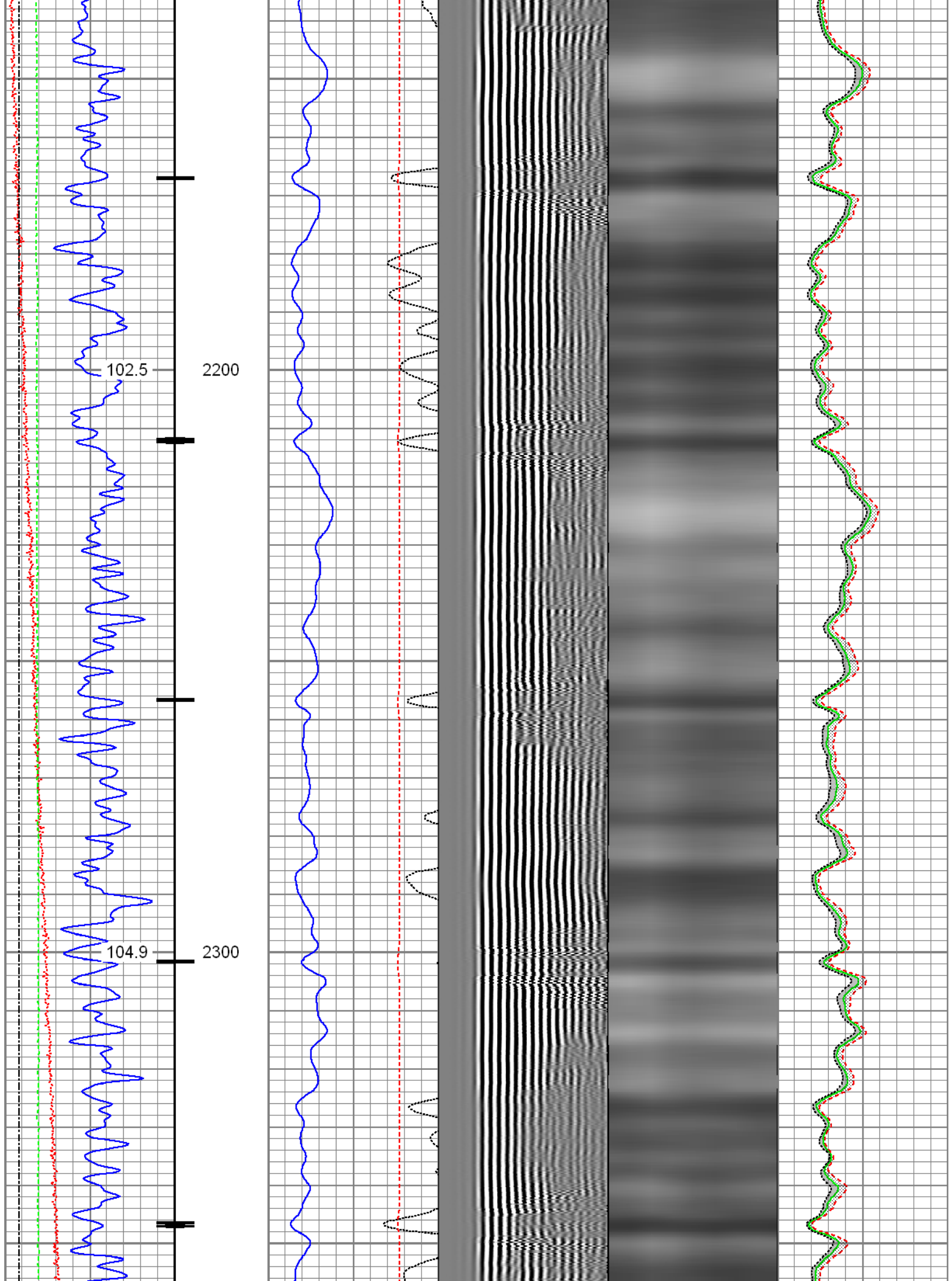




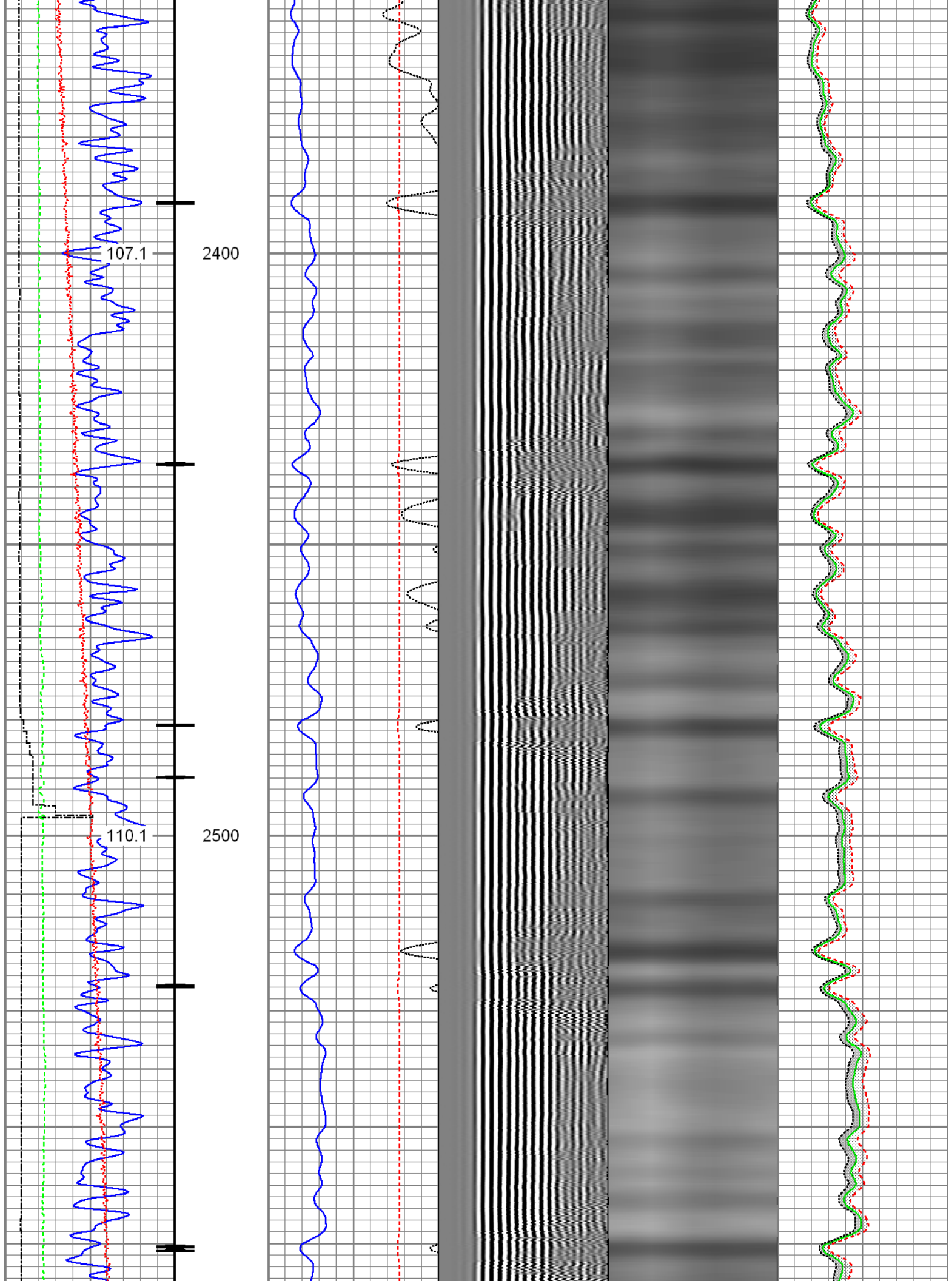


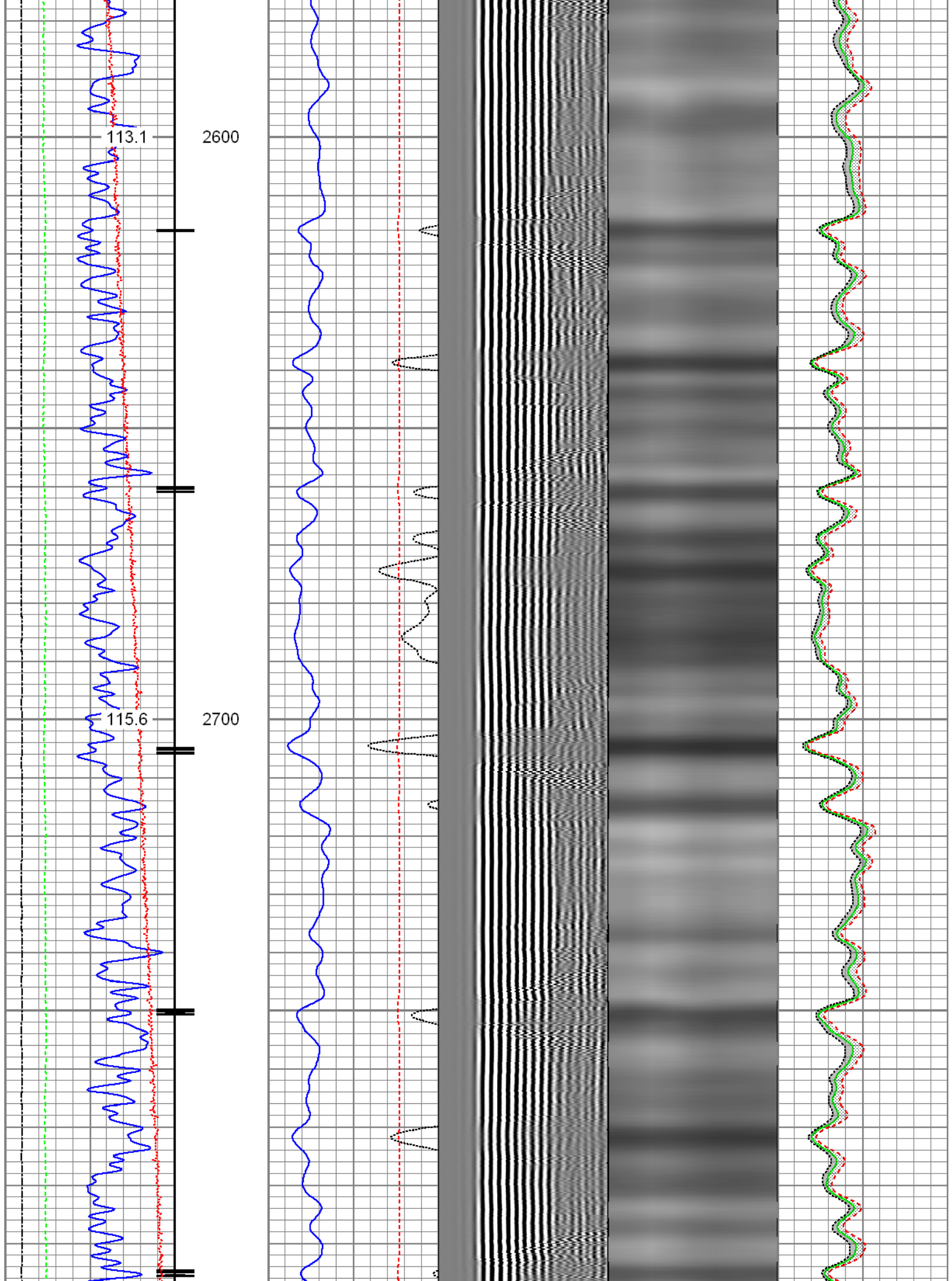


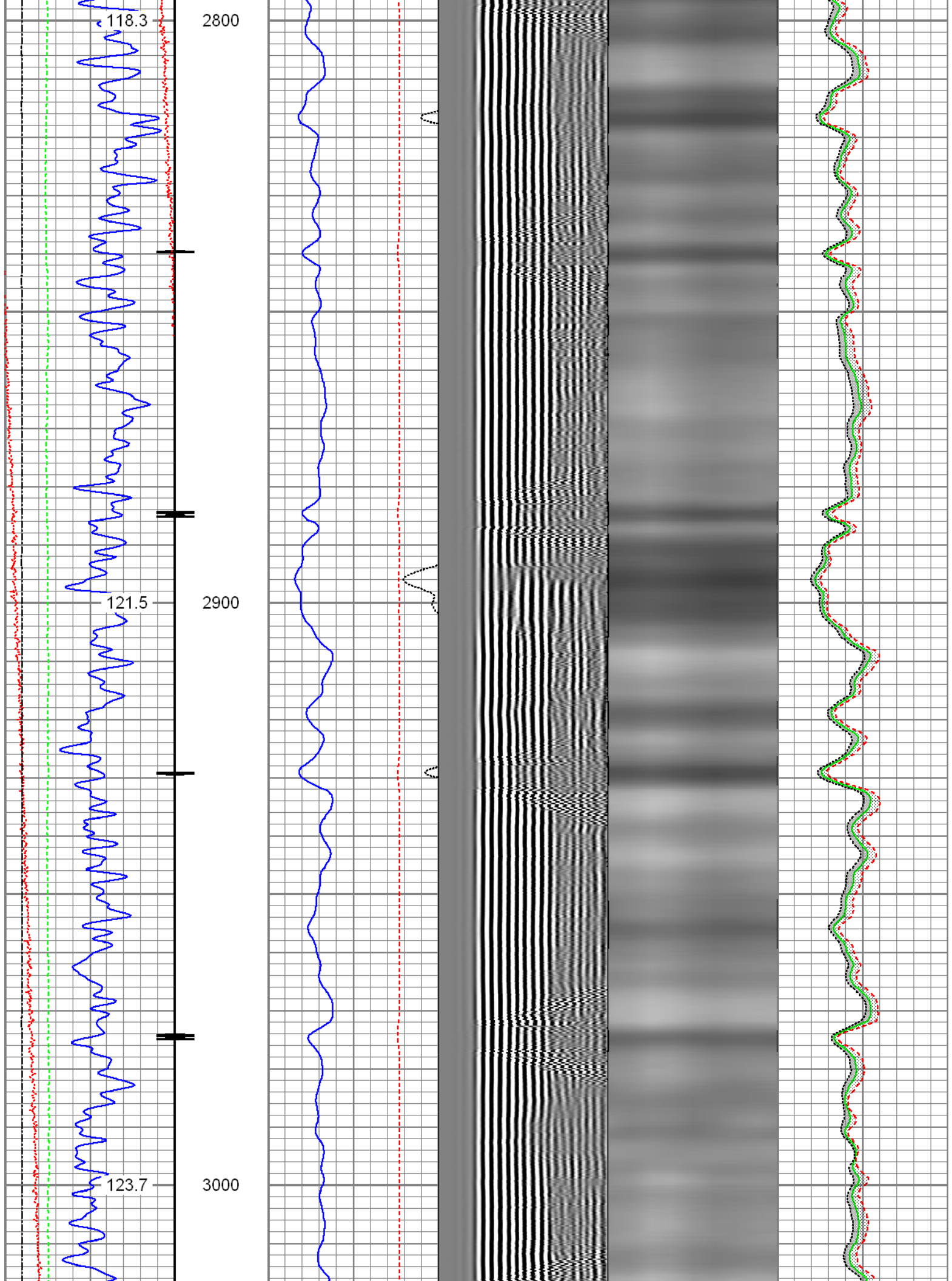




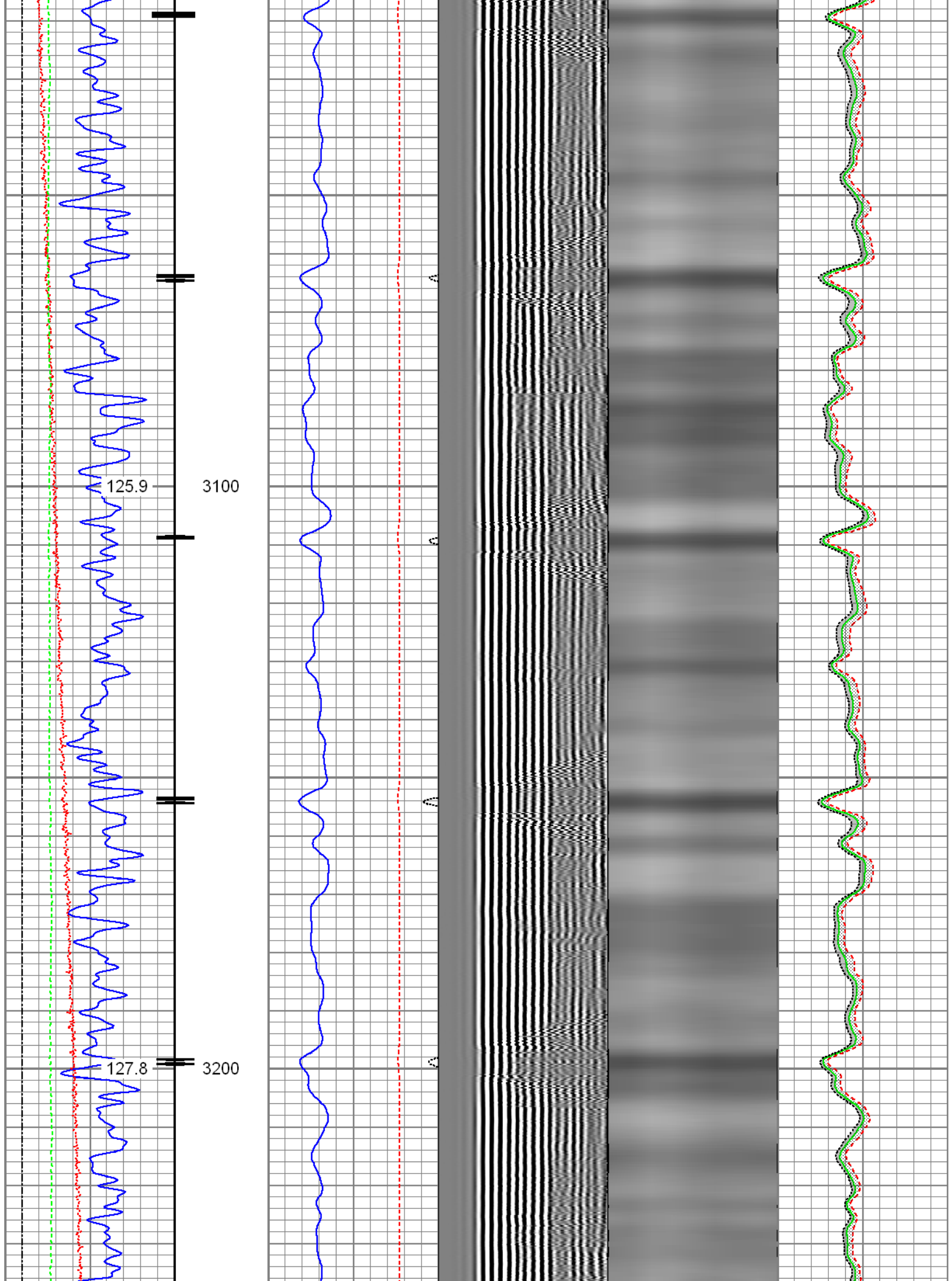




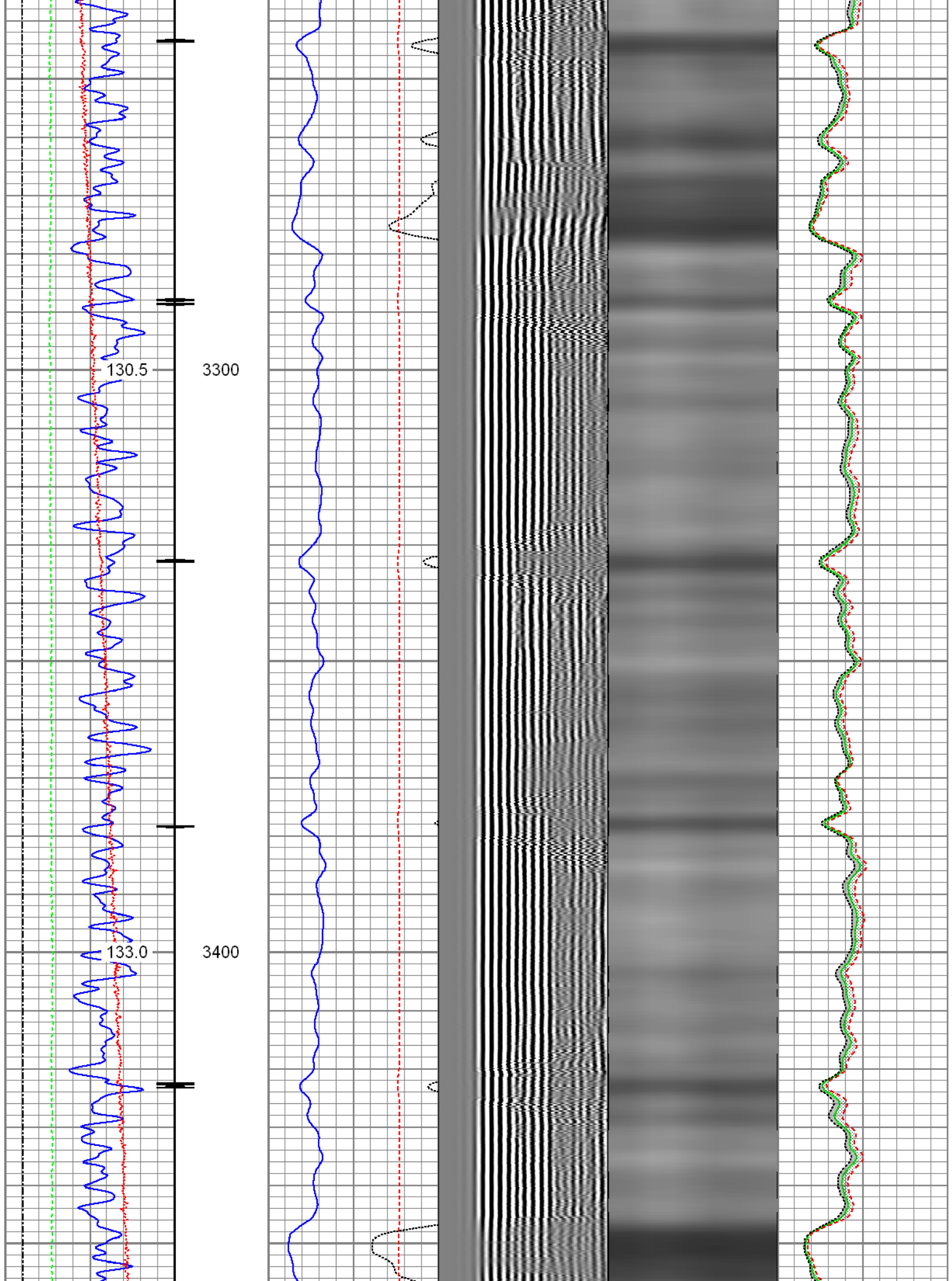


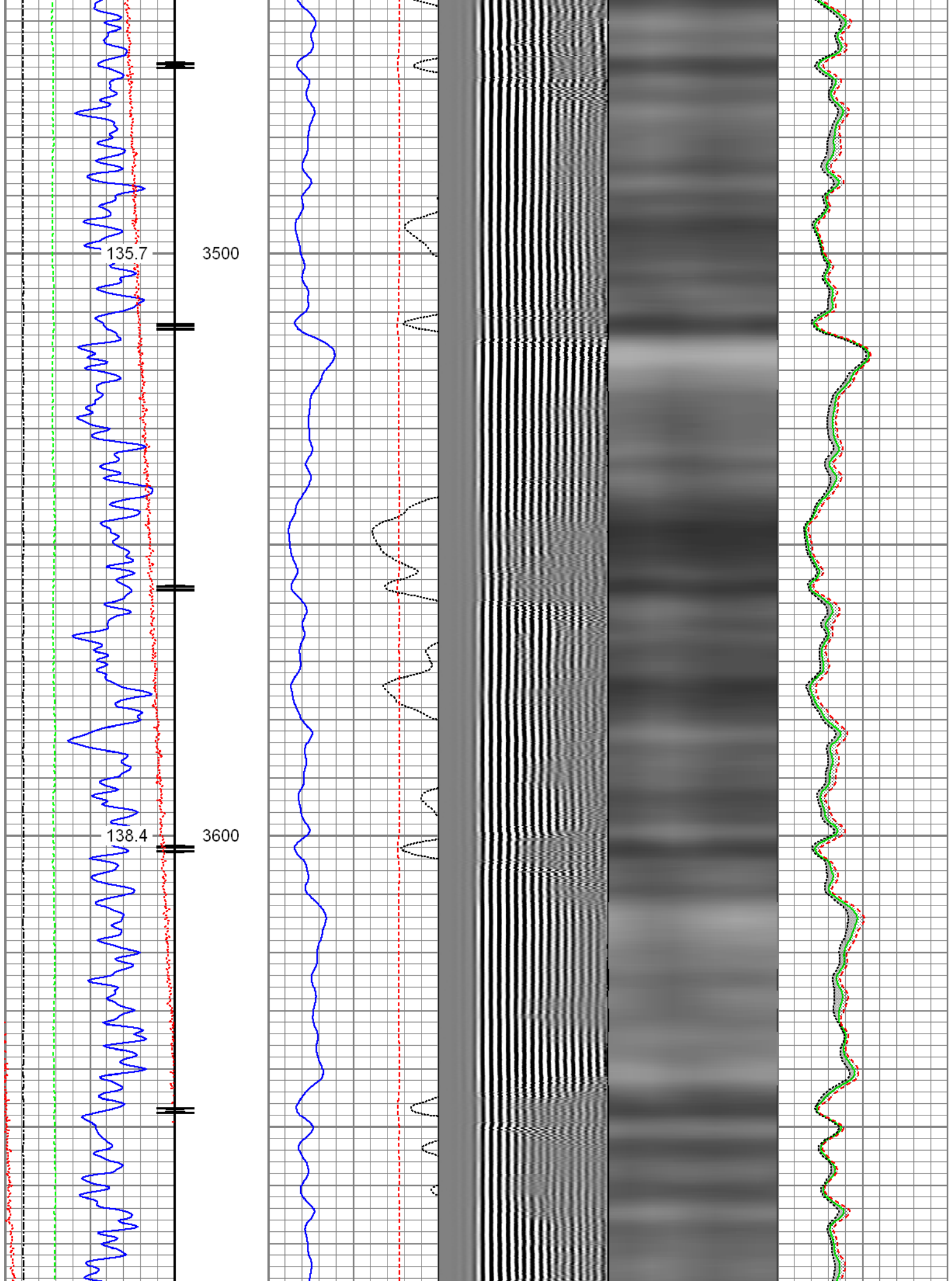


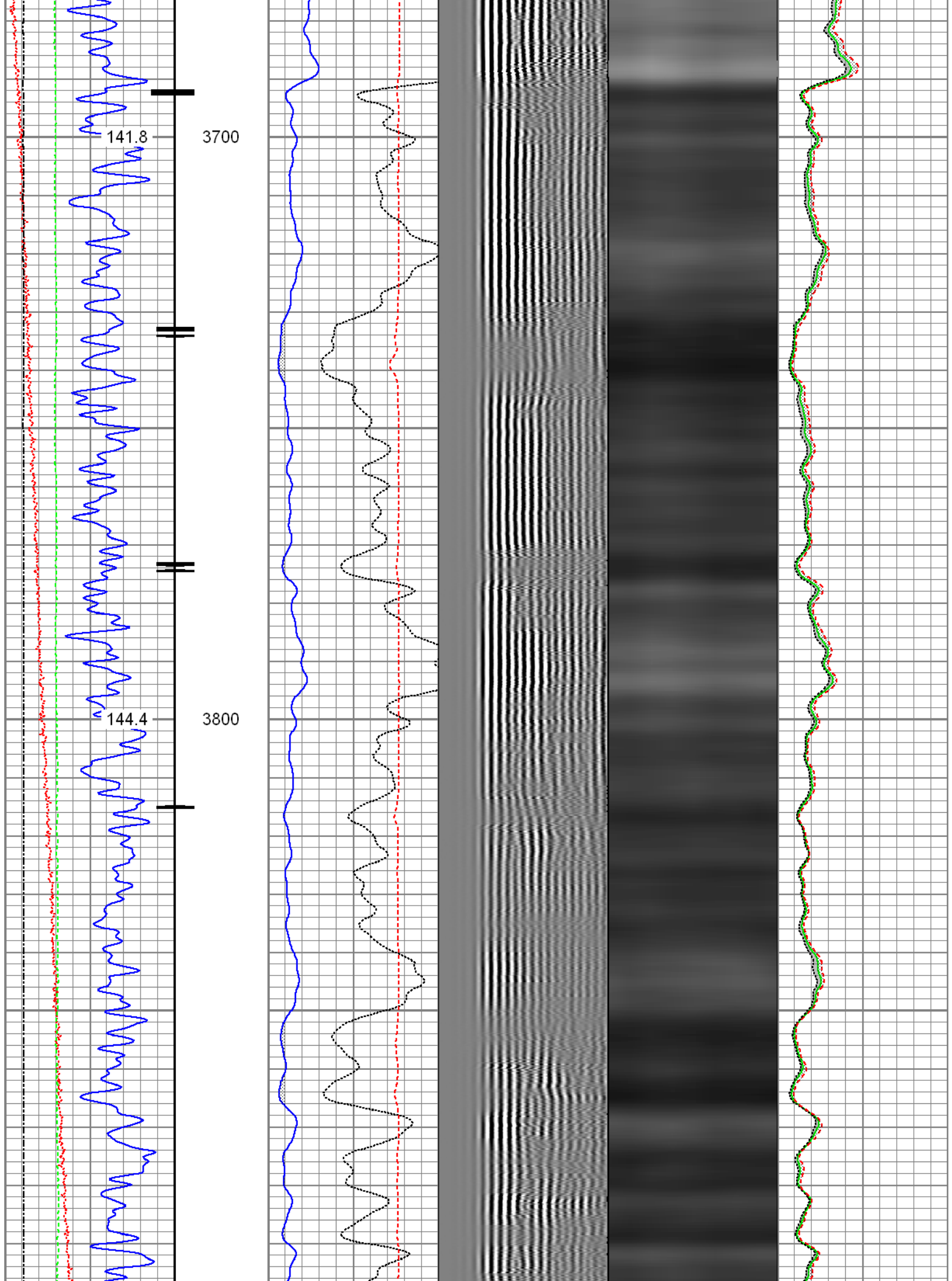




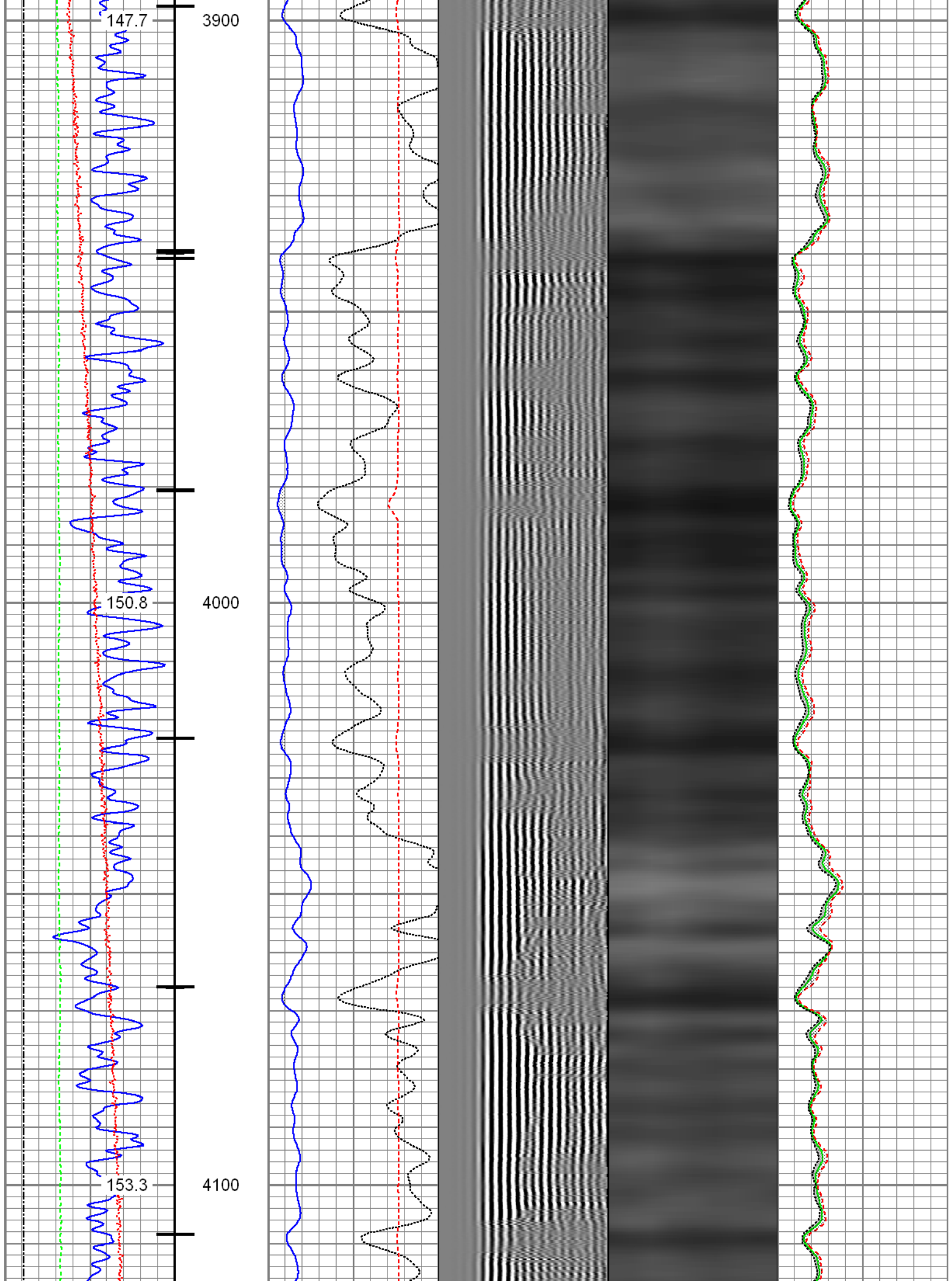




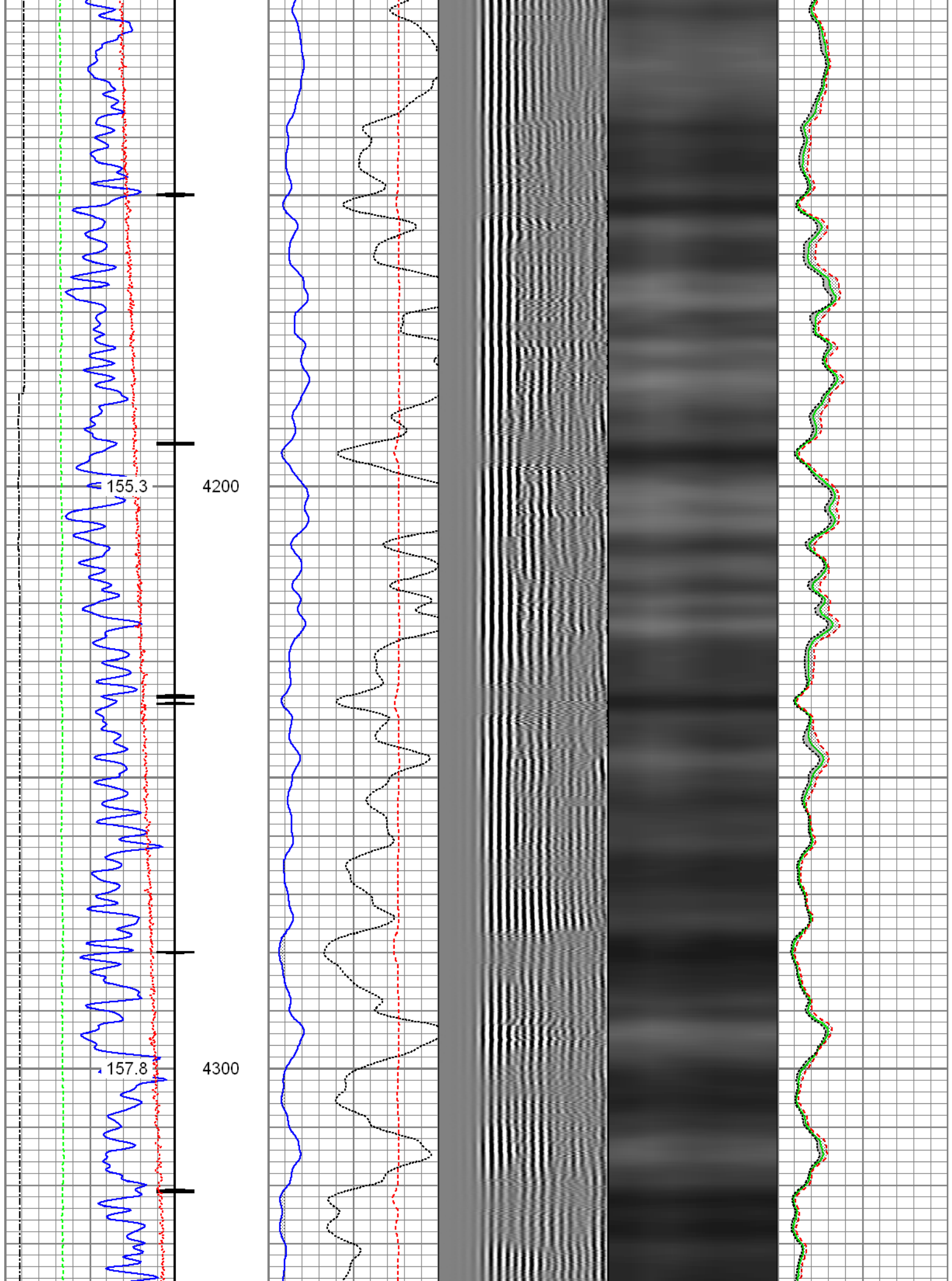


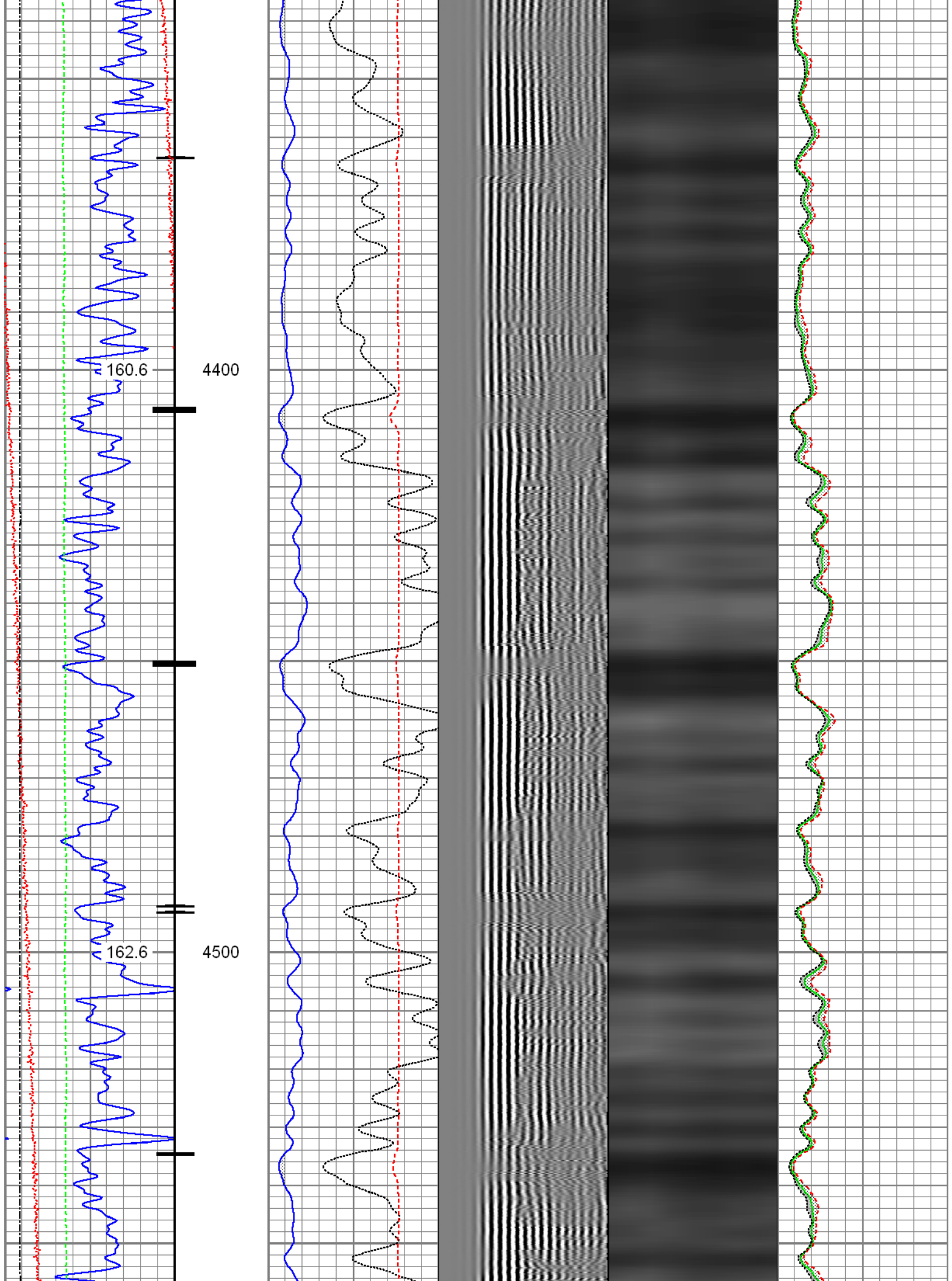


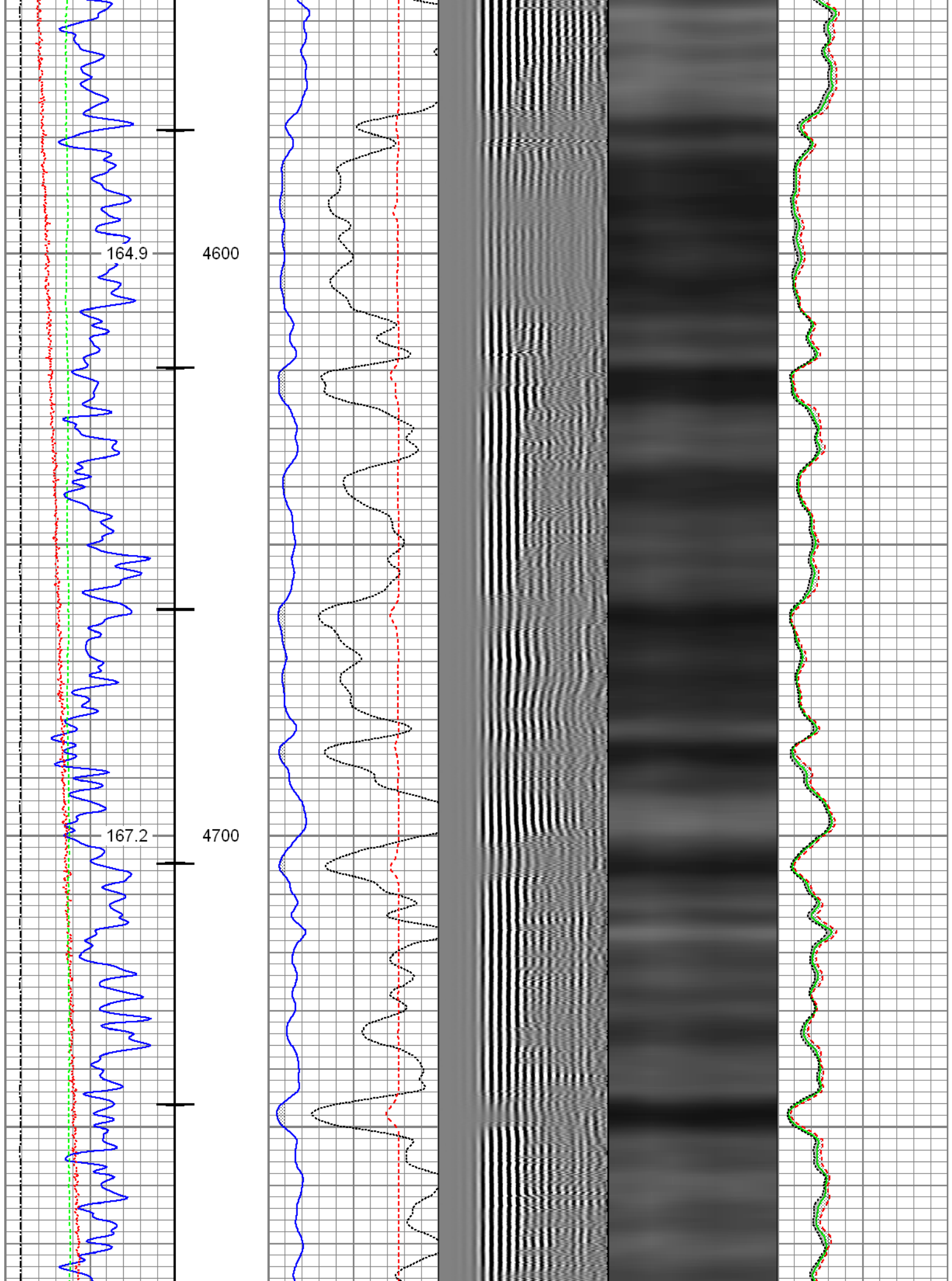




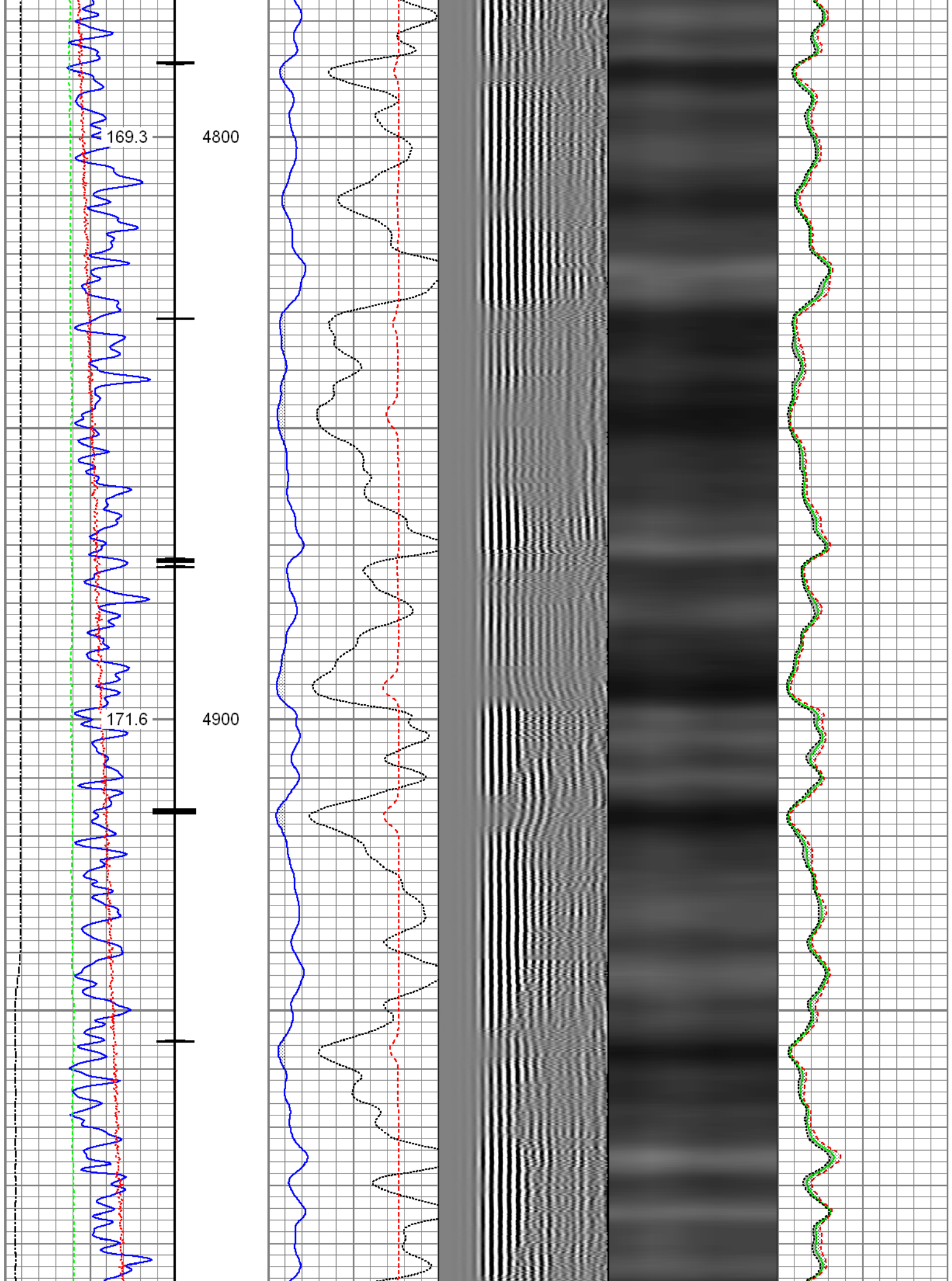


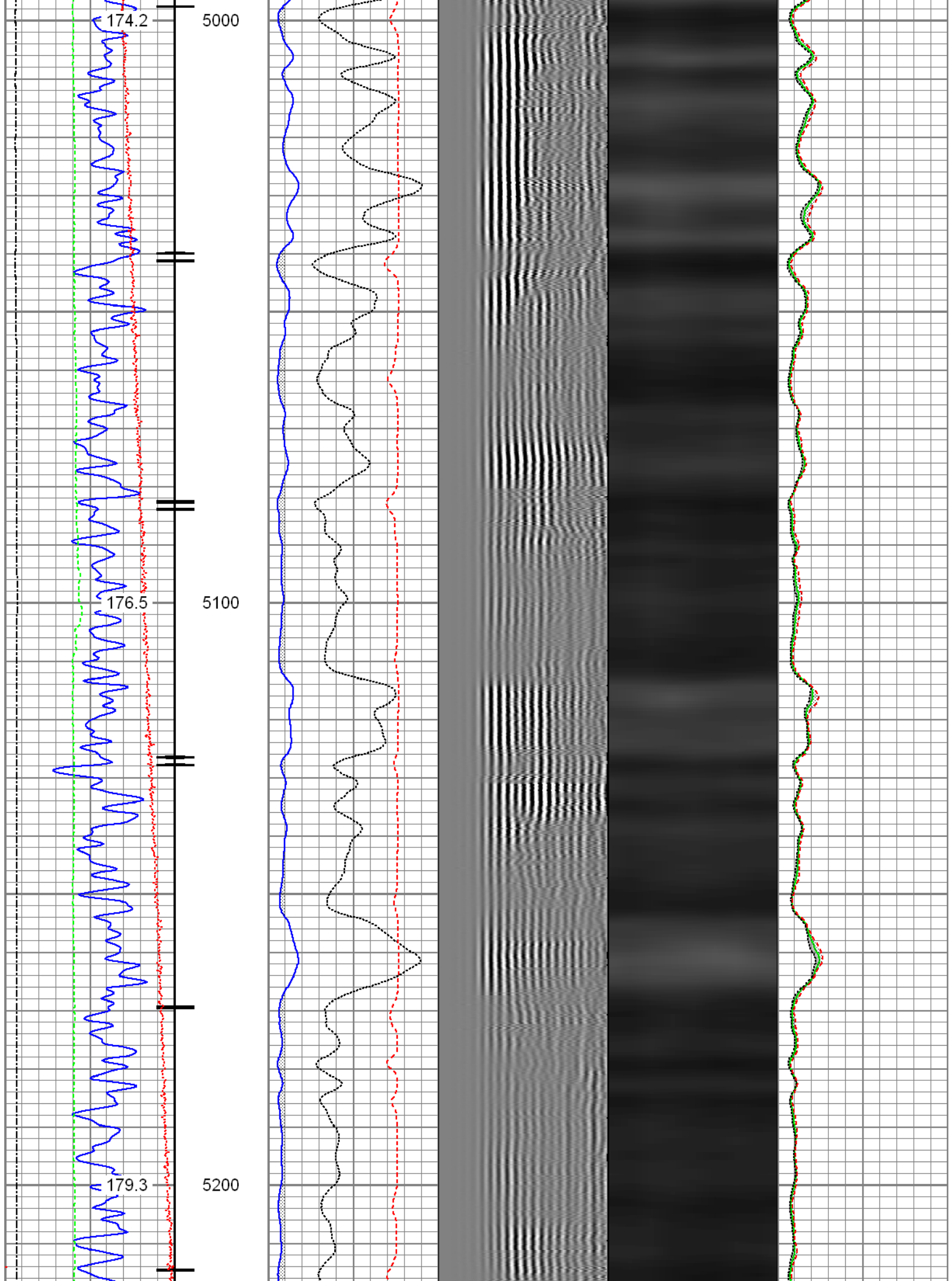


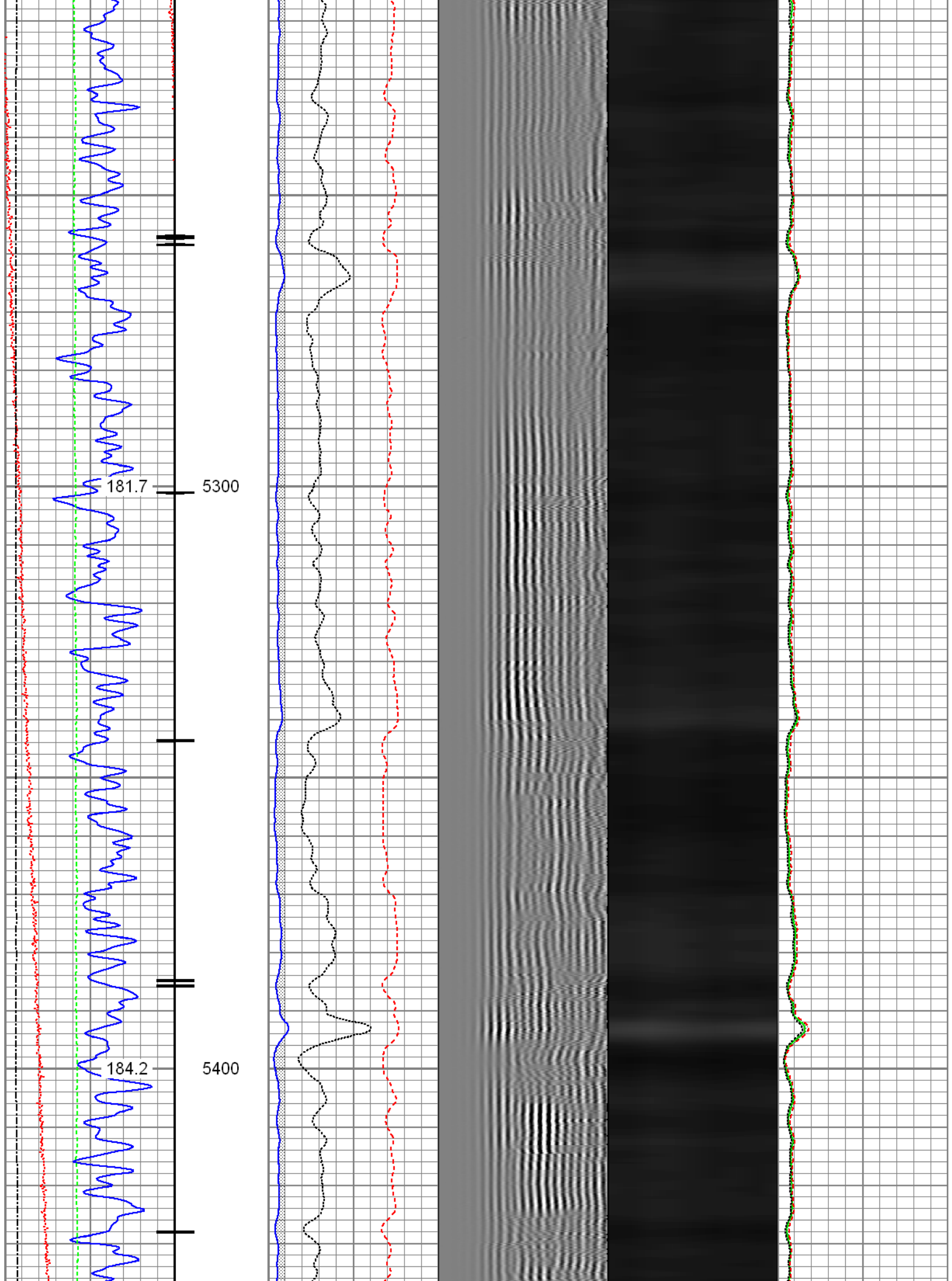




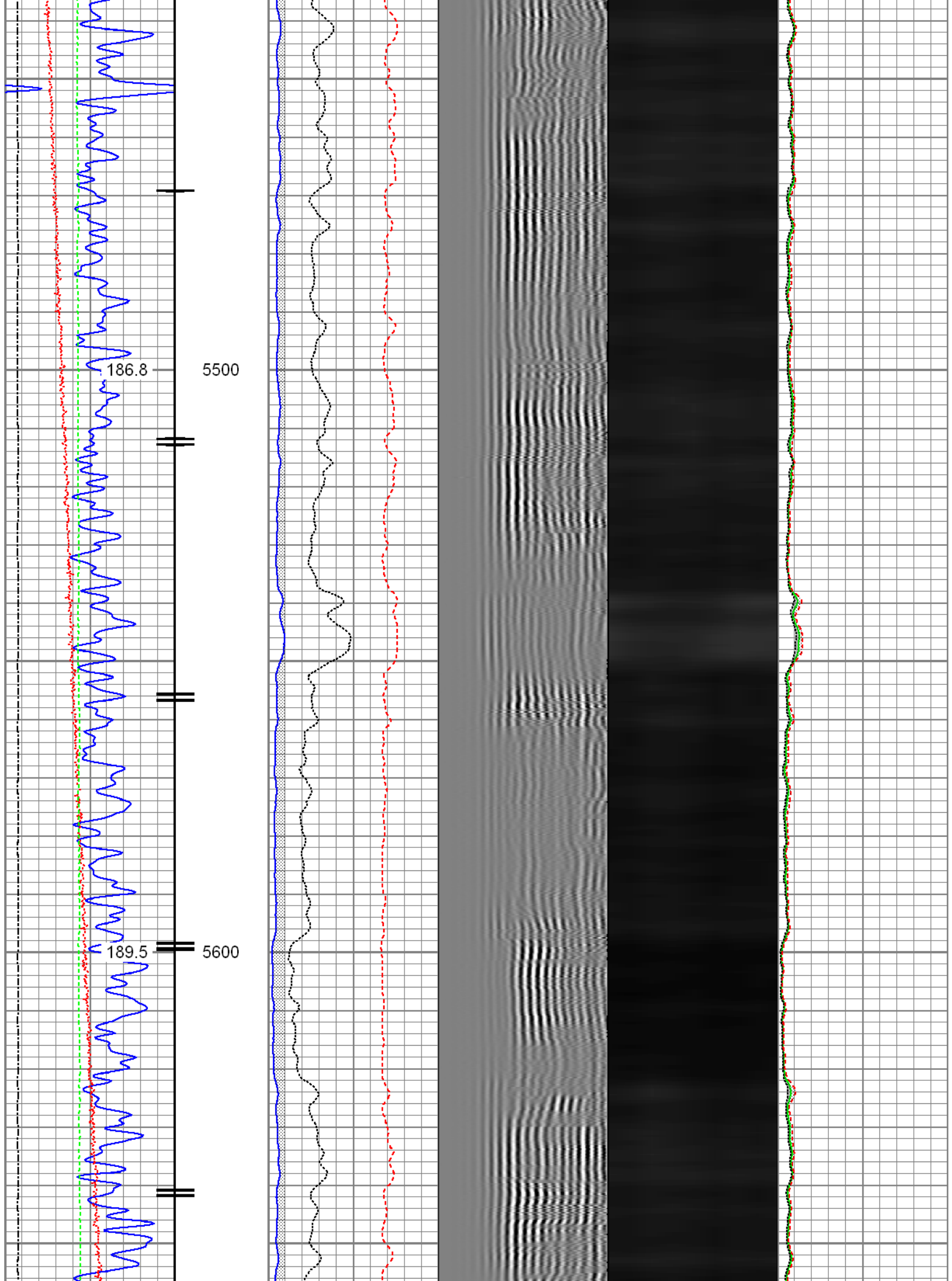


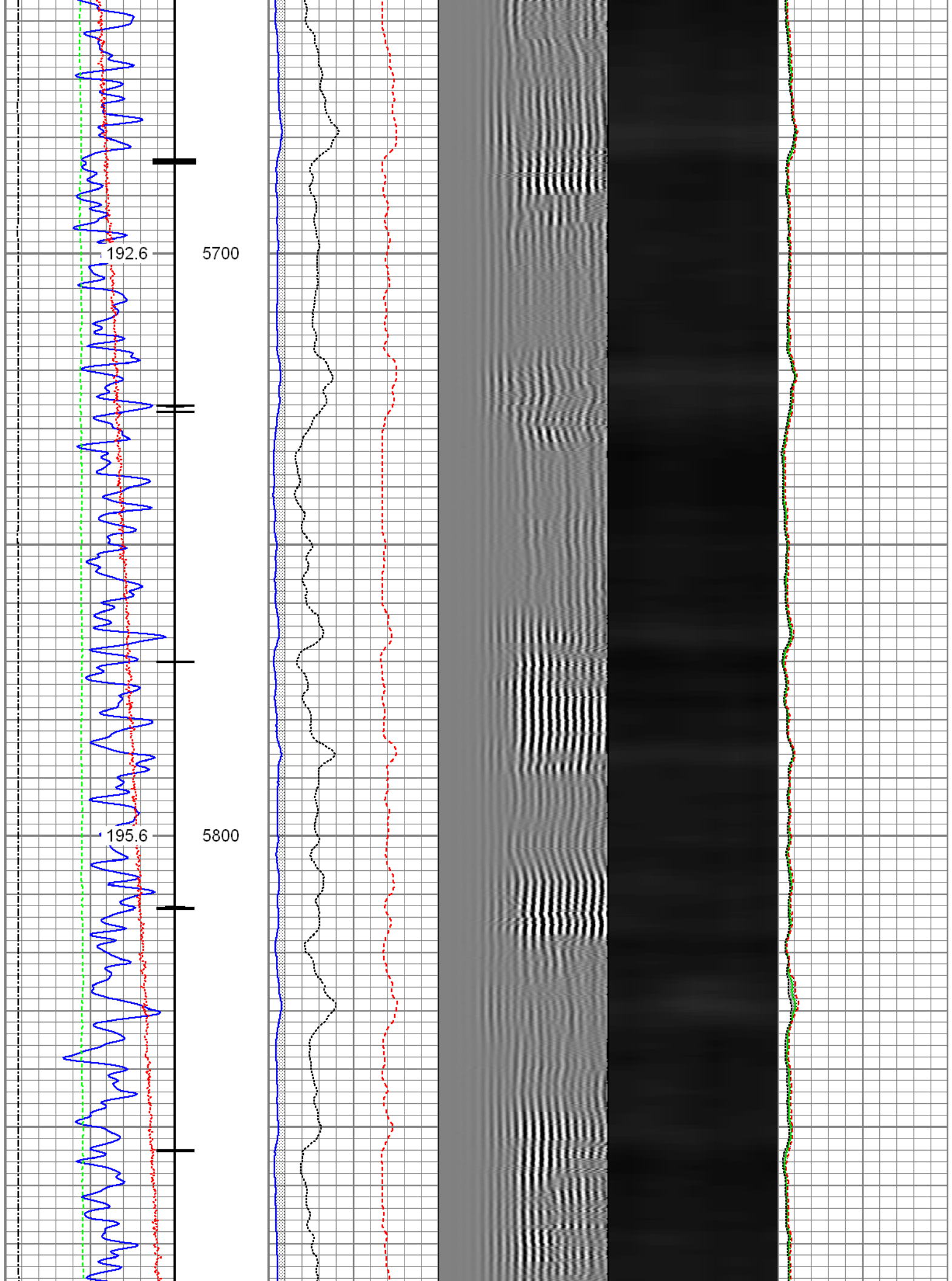


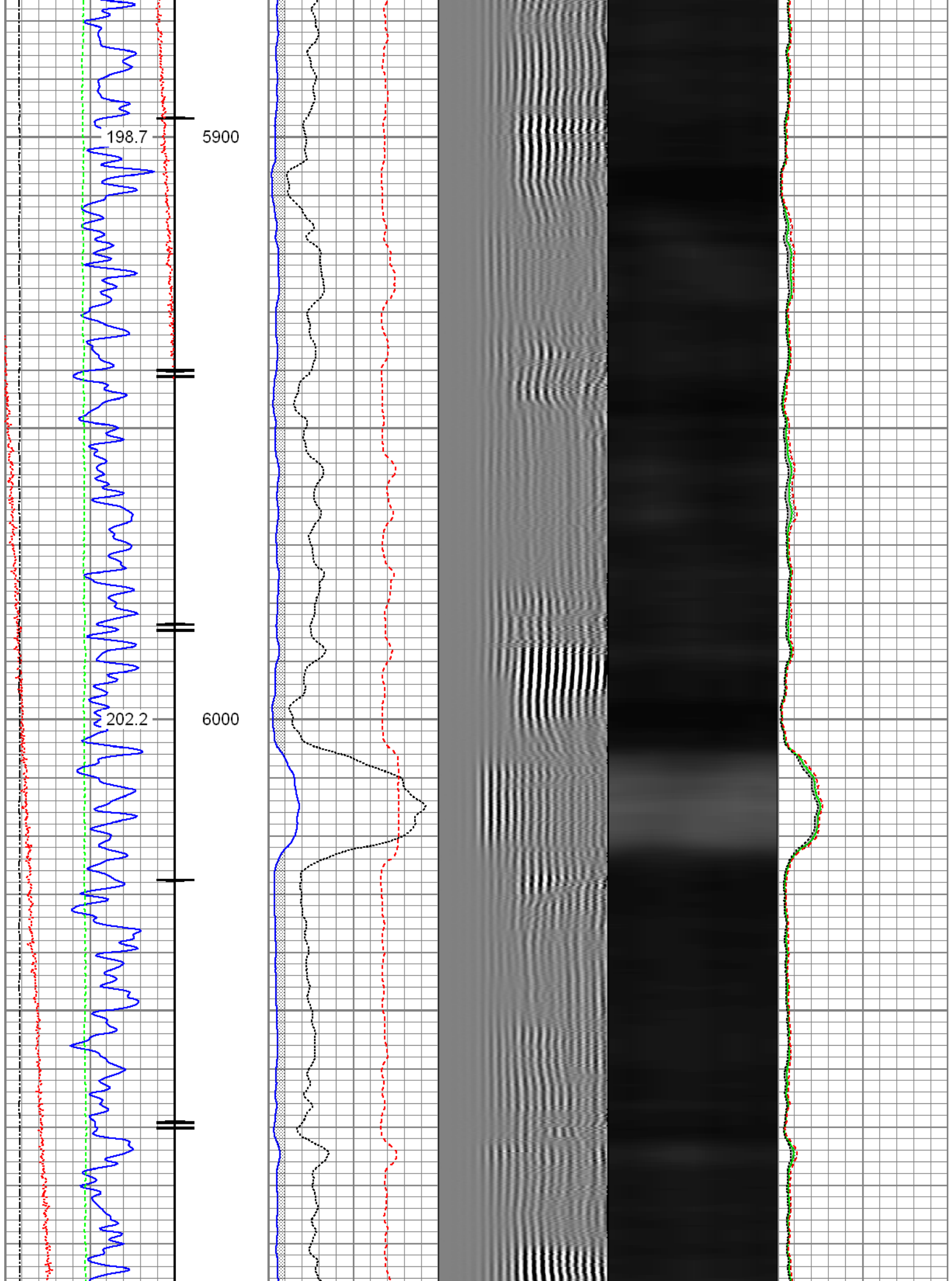




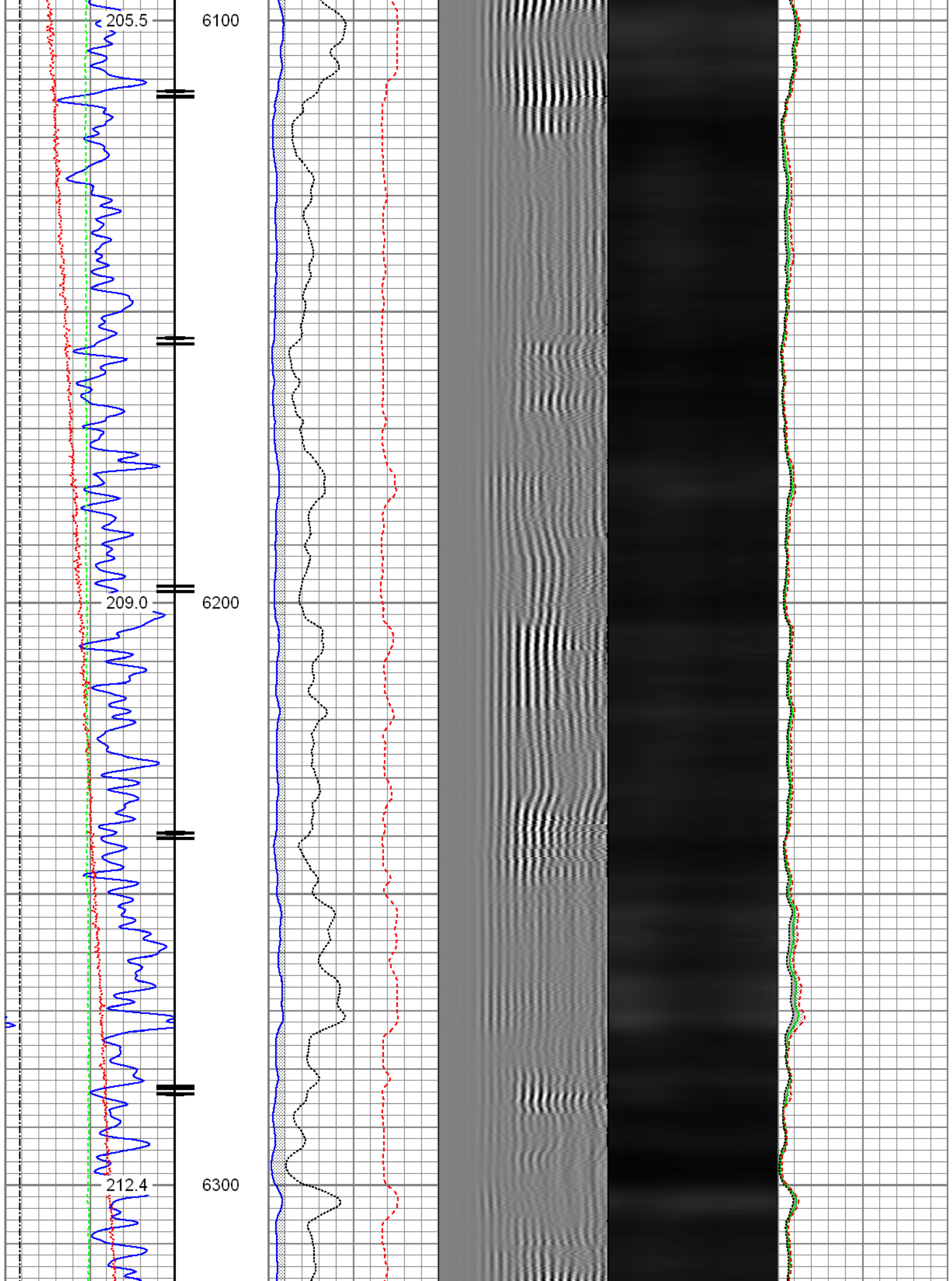


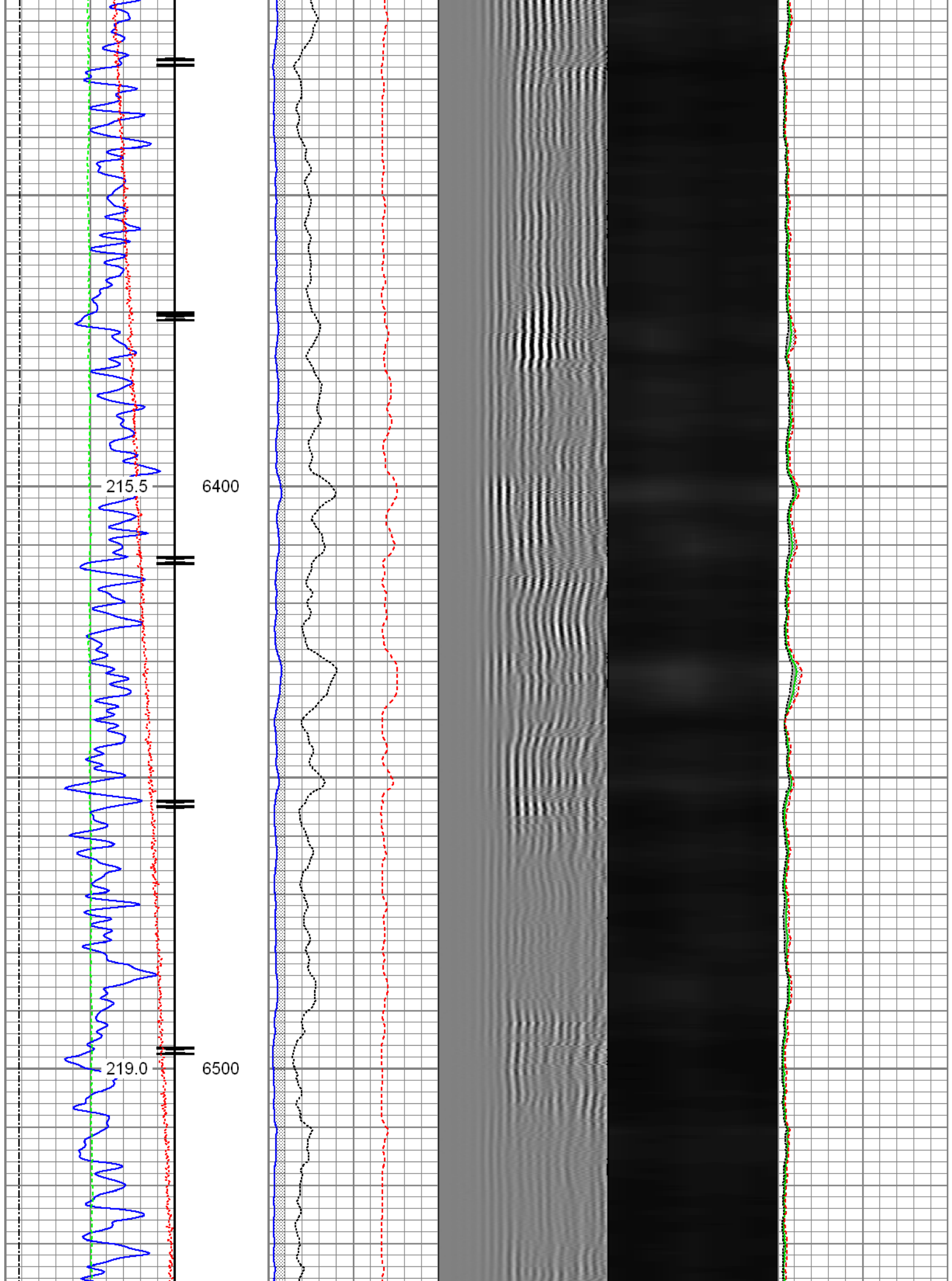


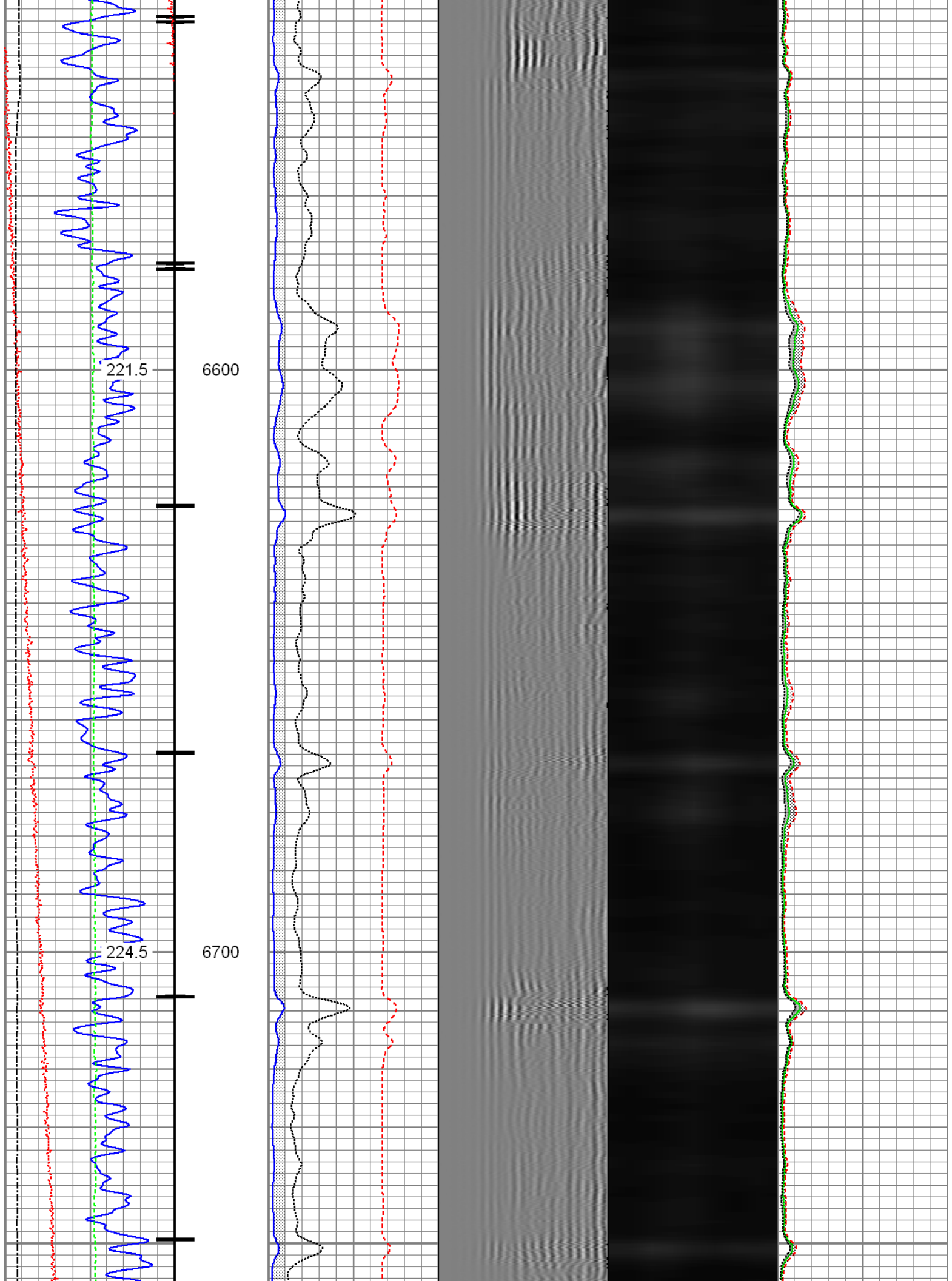




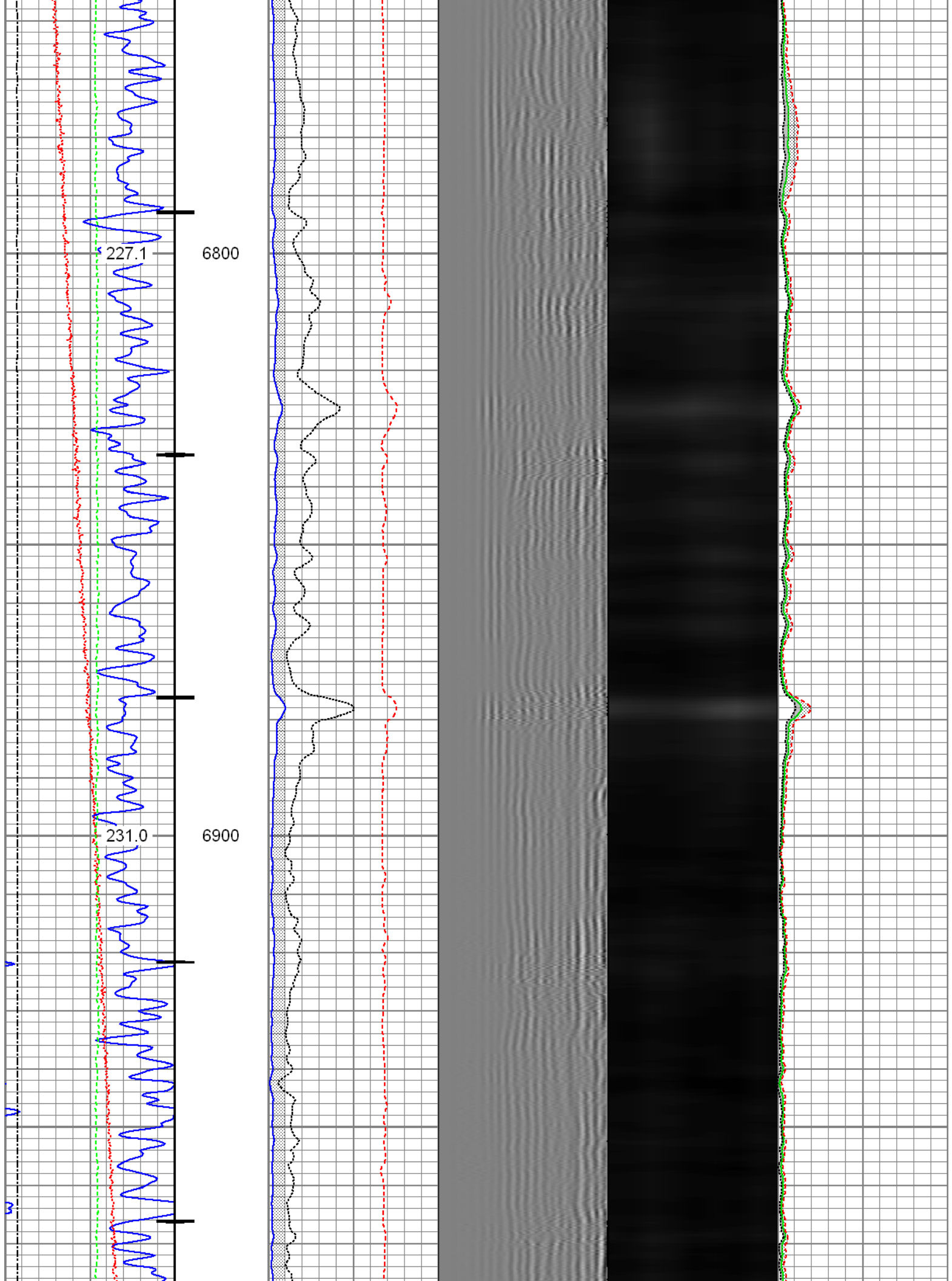


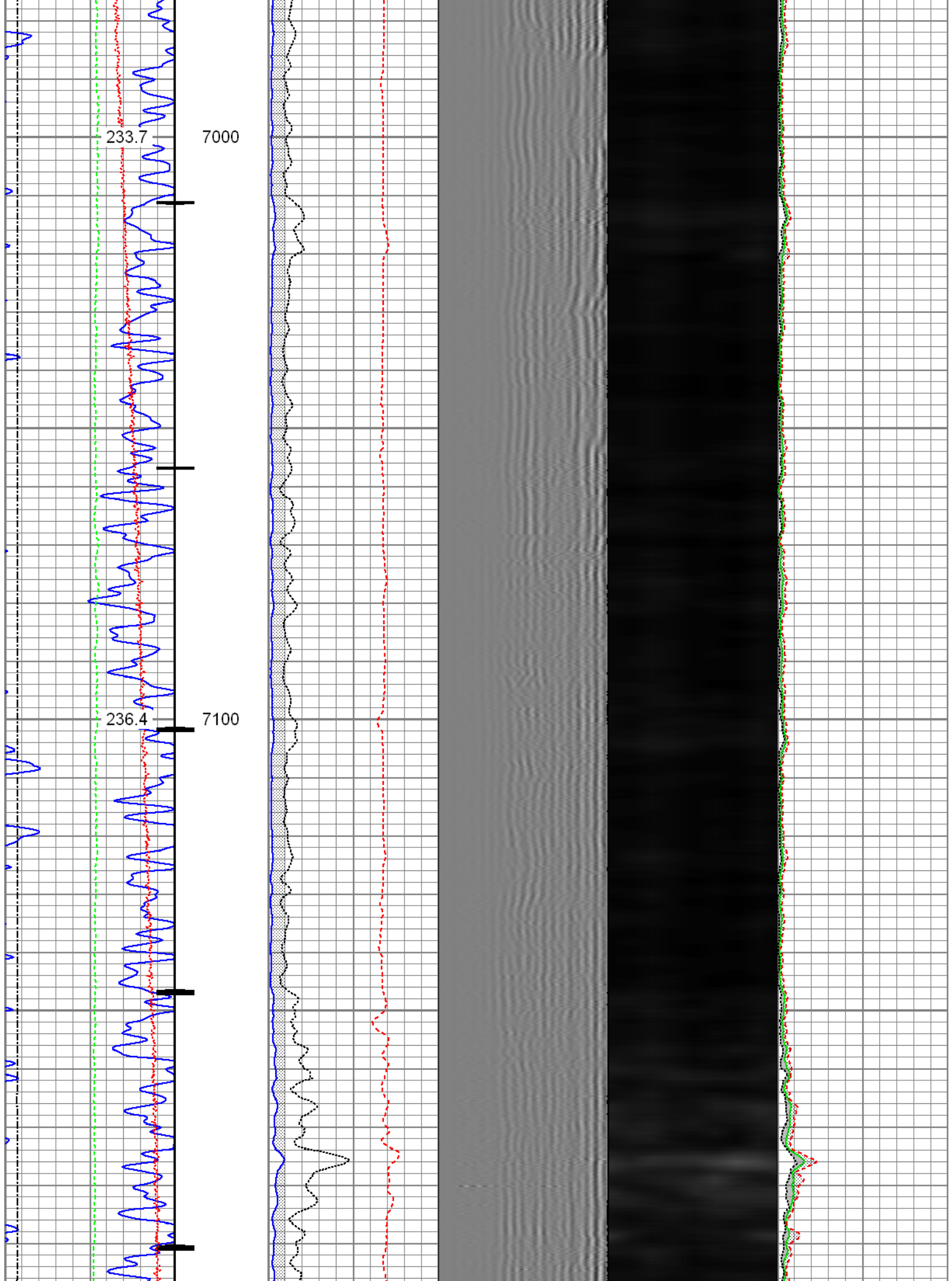


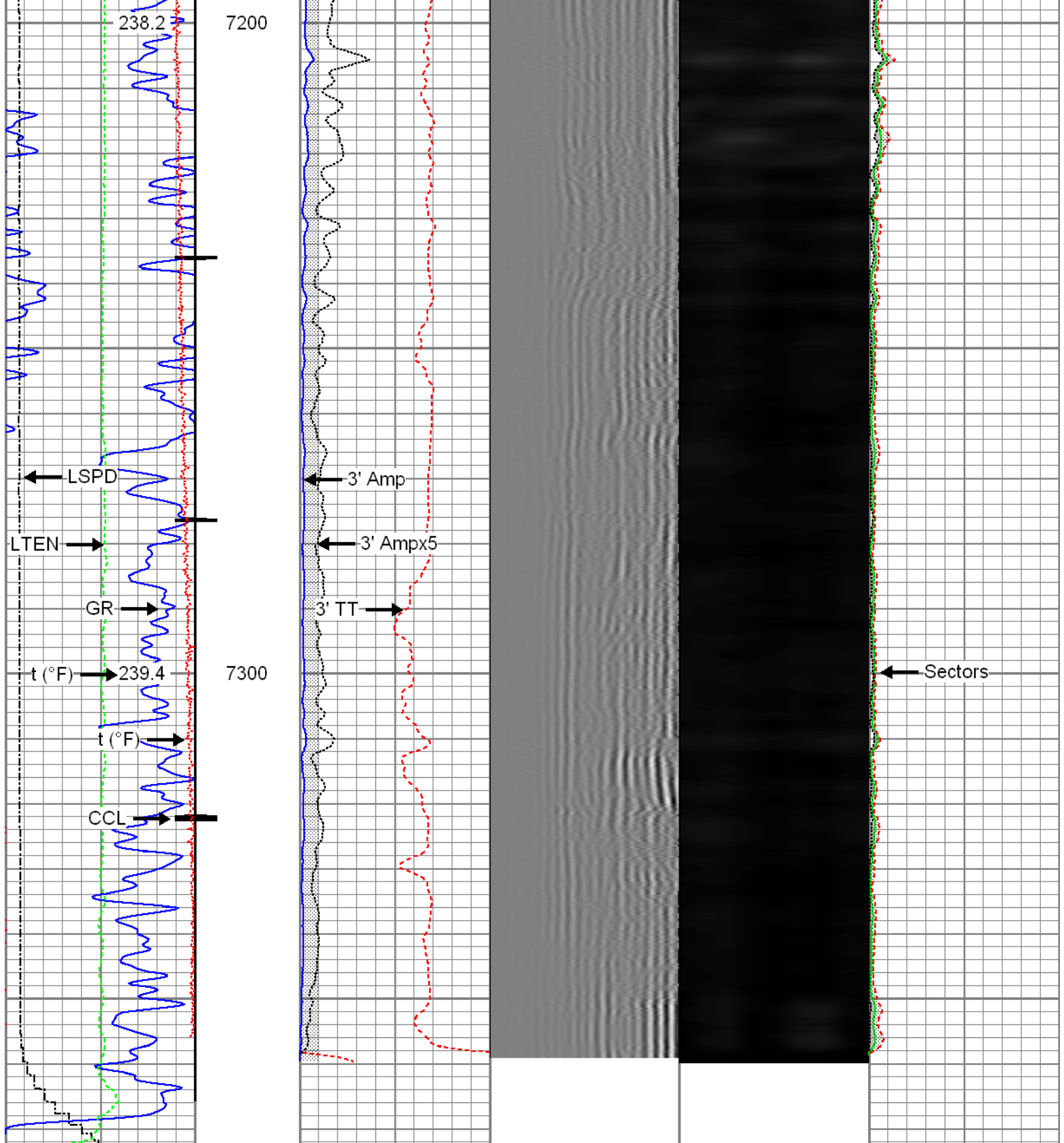












Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	0 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5 (mV)			Minimum Amplitude
Temperature (degF)	0 20			0 100
Line Speed (ft/min)	3' Travel Time (usec)			Maximum Amplitude
-150 150	650 150			0 100
Line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

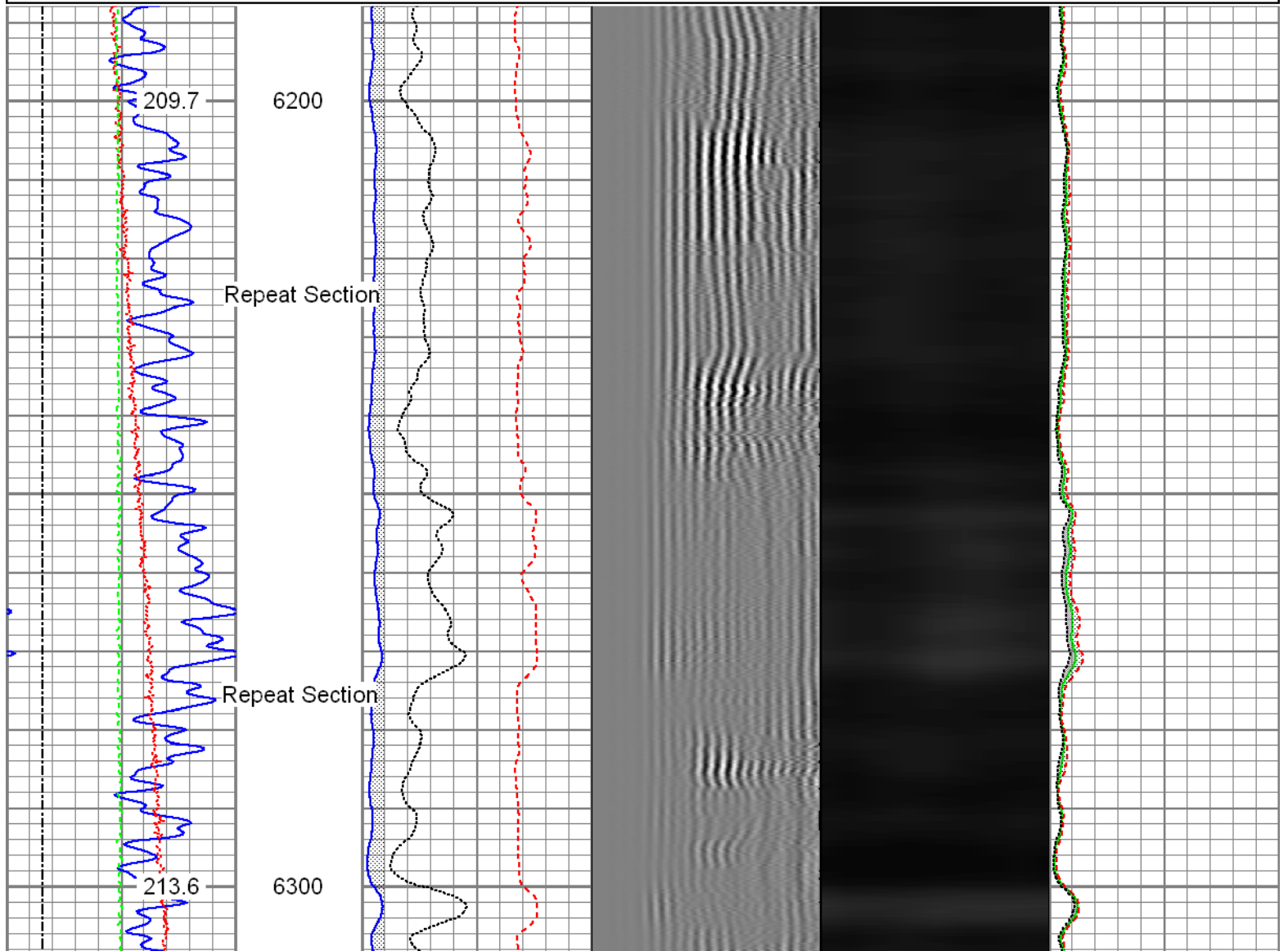


## Repeat Pass

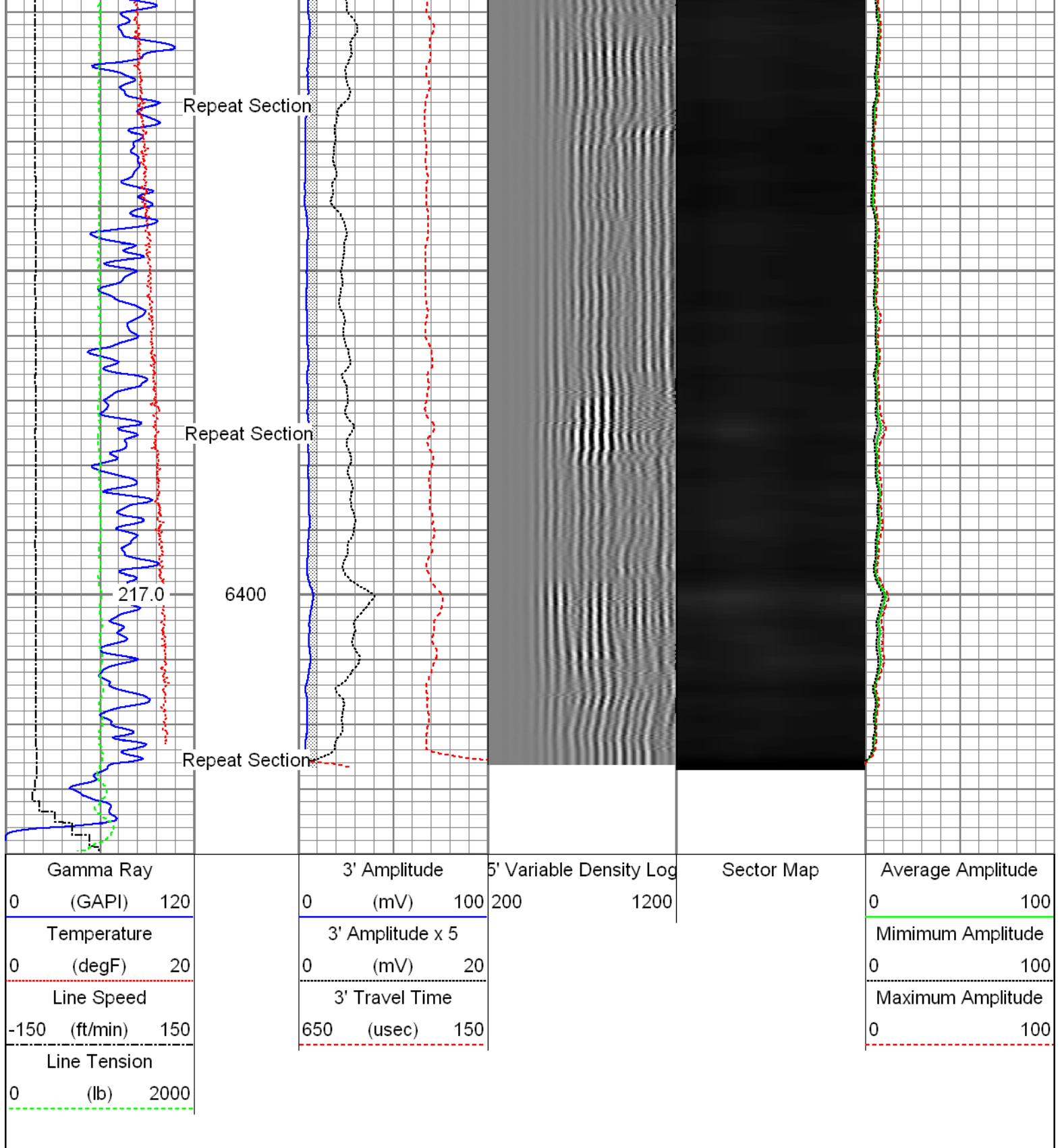
Recorded With 2800 PSI Surface Induced Pressure

Database File: 0512341950\_anadarko\_powers 2n-27hz\_12-09-15\_rbl.db  
Dataset Pathname: pass2.1  
Presentation Format: radii  
Dataset Creation: Thu Dec 10 14:17:06 2015 by Calc SCH 120430  
Charted by: Depth in Feet scaled 1:240

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







Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			<b>T_CH14375_1_GO</b> Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			<b>Probe_IL_BS_Cent</b> Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00

HeadVolt	19.49					
Temp	16.72					
WVFS3FT	14.55		Probe_RADII-C-2-3/4" (FW1302-002) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00
WVFCAL	14.55					
WVFS1	14.55					
WVFS2	14.55					
WVFS3	14.55					
WVFS4	14.55					
WVFS5	14.55					
WVFS6	14.55					
WVFS7	14.55					
WVFS8	14.55					
WVFS5FT	13.55					
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
CCL	6.51					
DCCL	6.51					
			Probe_CCL_GR-2.75"Digital (FW1307-038) Probe 2-3/4" Digital CCL / Gamma Ray Combined	4.54	2.75	55.00
GR	3.77					
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Dataset: 0512341950_anadarko_powers 2n-27hz_12-09-15_rbl.db: field/well/run1/pass4.1 Total Length: 23.40 ft Total Weight: 194.00 lb O.D. 2.75 in						

Calibration Report	
Database File:	0512341950_anadarko_powers 2n-27hz_12-09-15_rbl.db
Dataset Pathname:	pass4.1
Dataset Creation:	Thu Dec 10 14:03:56 2015 by Calc SCH 120430
Gamma Ray Calibration Report	
Serial Number:	FW1307-038
Tool Model:	2.75"Digital

Performed:	Mon Dec 07 13:38:50 2015	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6300	GAPI/cps

### Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-002	
Tool Model:	2-3/4"	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	24.418	ft

Master Calibration, performed Thu Dec 10 14:03:52 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	0.522	0.800	71.921	138.518	-0.367
CAL	0.719	0.733				
5'	0.011	0.464	0.800	71.921	157.024	-0.963
SUM						
S1	0.005	0.492	0.000	100.000	205.671	-1.119
S2	0.010	0.521	0.000	100.000	195.752	-1.928
S3	0.009	0.562	0.000	100.000	180.765	-1.562
S4	0.010	0.597	0.000	100.000	170.392	-1.657
S5	0.010	0.587	0.000	100.000	173.312	-1.718
S6	0.009	0.546	0.000	100.000	186.286	-1.680
S7	0.009	0.507	0.000	100.000	200.584	-1.750
S8	0.008	0.489	0.000	100.000	208.069	-1.676

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	0.719	0.733	1.000	0.000

Air Zero Calibration, performed Wed Dec 09 12:56:51 2015:

	Raw (v)		Calibrated (v)		Results
	Zero		Zero		Offset
3'	0.008		0.000		-0.000
5'	0.011		0.000		-0.000
SUM					
S1	0.004		0.000		0.000
S2	0.008		0.000		0.000
S3	0.008		0.000		0.000
S4	0.008		0.000		0.000
S5	0.008		0.000		-0.000
S6	0.008		0.000		0.000
S7	0.008		0.000		-0.000
S8	0.008		0.000		-0.000



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Powers 2N-27HZ
Field	Wattenberg
County	Weld
State	Colorado