



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company		Whiting Oil & Gas Corporation	
Well		Horsetail 07E-1801	
Field		Wildcat	
County		Weld	
State		Colorado	
Location:		API #: 05-123-41641	
SEC 7		TWP 10N RGE 57W	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4925'	
K.B. 4946'		D.F. 4945'	
G.L. 4925'			
GR		Other Services	
Date		14-Jan-2016	
Run Number		One	
Depth Driller		19919 FT	
Depth Logger		5600 FT	
Bottom Logged Interval		5595 FT	
Top Log Interval		Surface	
Open Hole Size		7.875"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		198°F	
Estimated Cement Top		84 FT	
Time Well Ready		ROA	
Time Logger on Bottom		14:00	
Equipment Number		HD-0361	
Location		Fort Lupton, CO	
Recorded By		Zach Fisher	
Witnessed By		Kelly Lewis	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		Wgt (lbs/ft)	
Intermediate #1		Grade	
Intermediate #2		Top	
Liner		Bottom	

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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 21 FT  
Recorded Marker Joint at 5112-5134 FT  
Log ran from as deep as possible to surface  
Recorded with 1200 PSI Surface Induced Pressure  
Logging Tools were clean and free of any debris upon completion of operations  
  
Thank you for choosing FMC Technologies Surface Integrated Services.

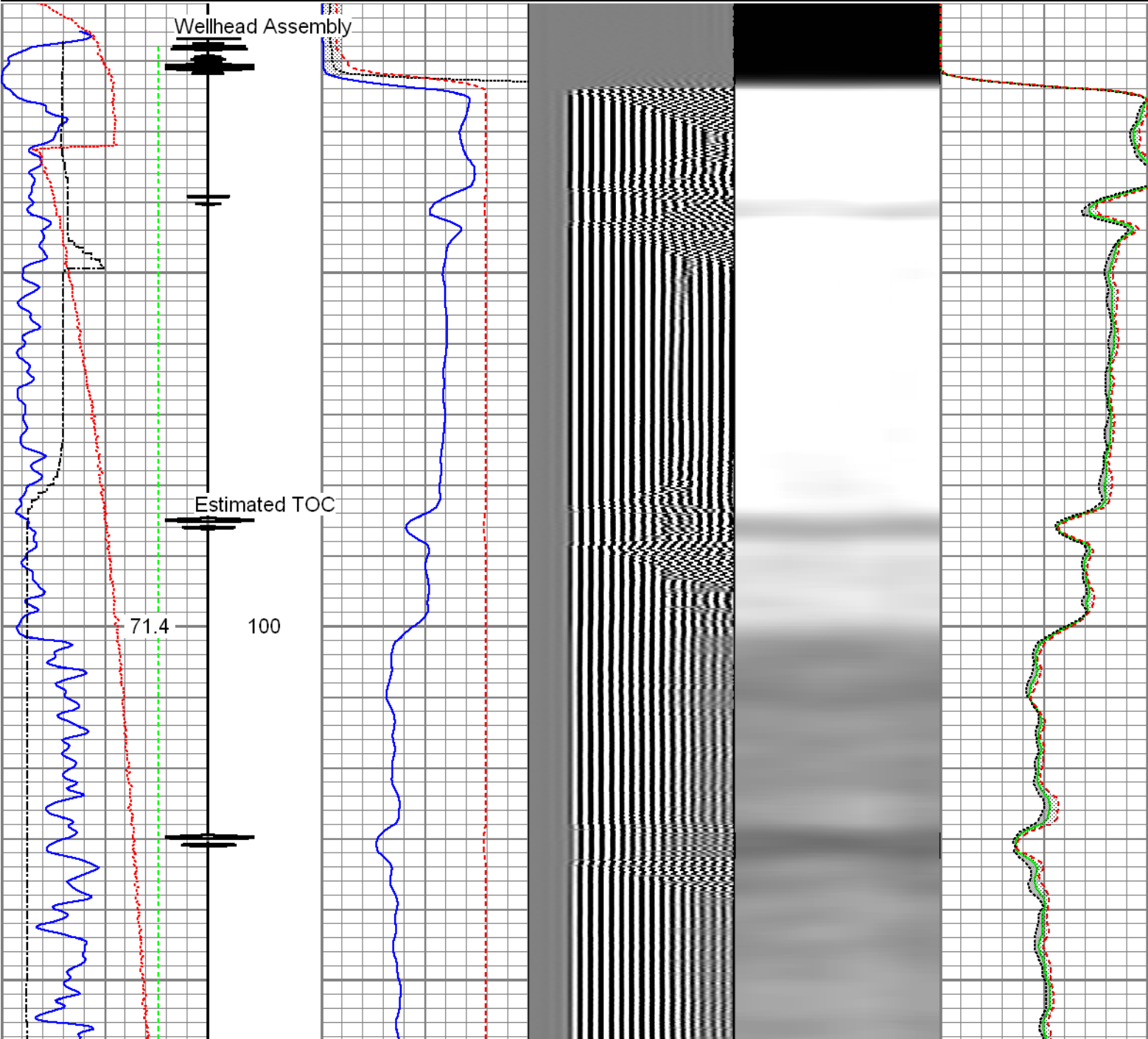


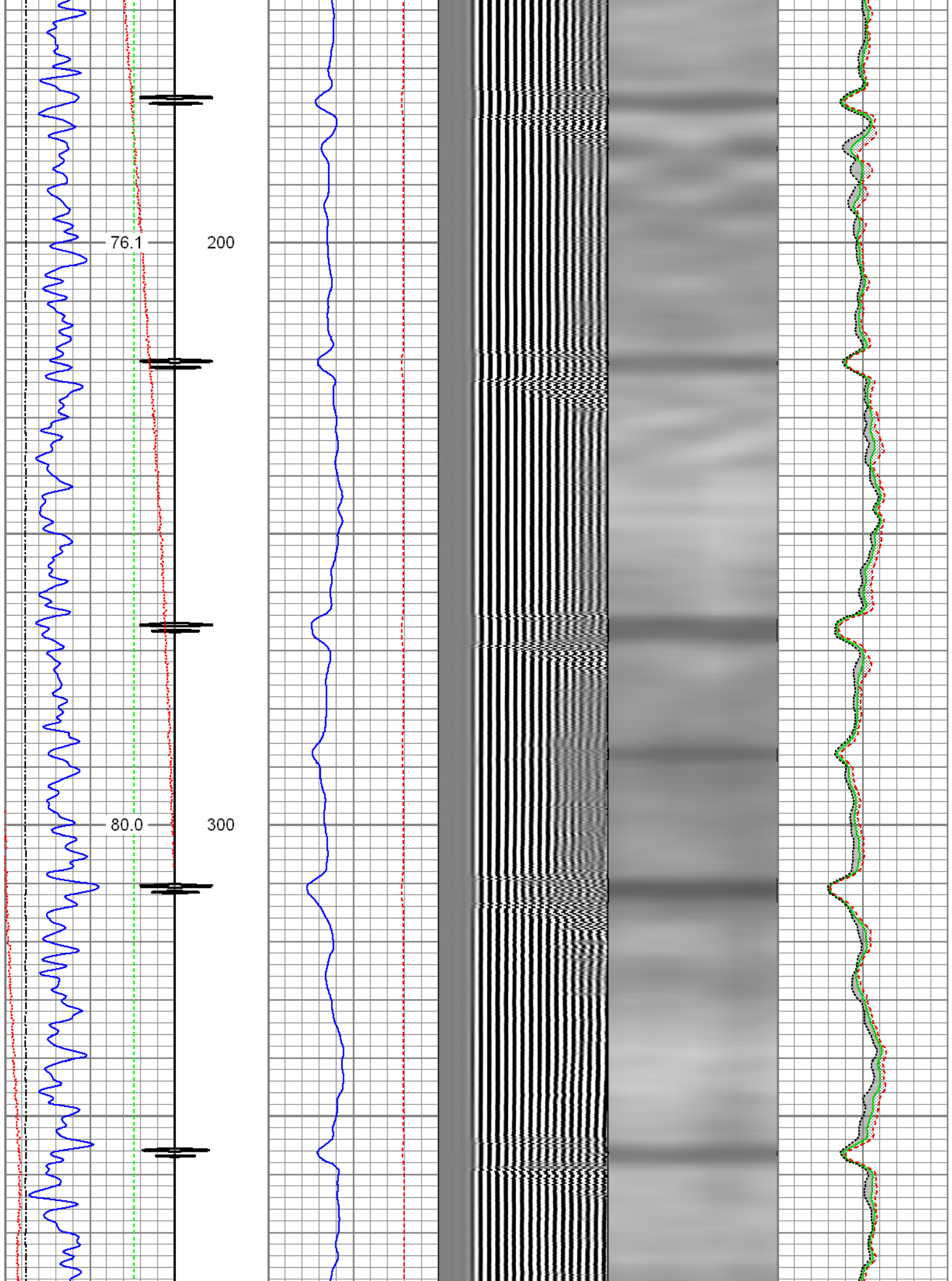
Main Pass

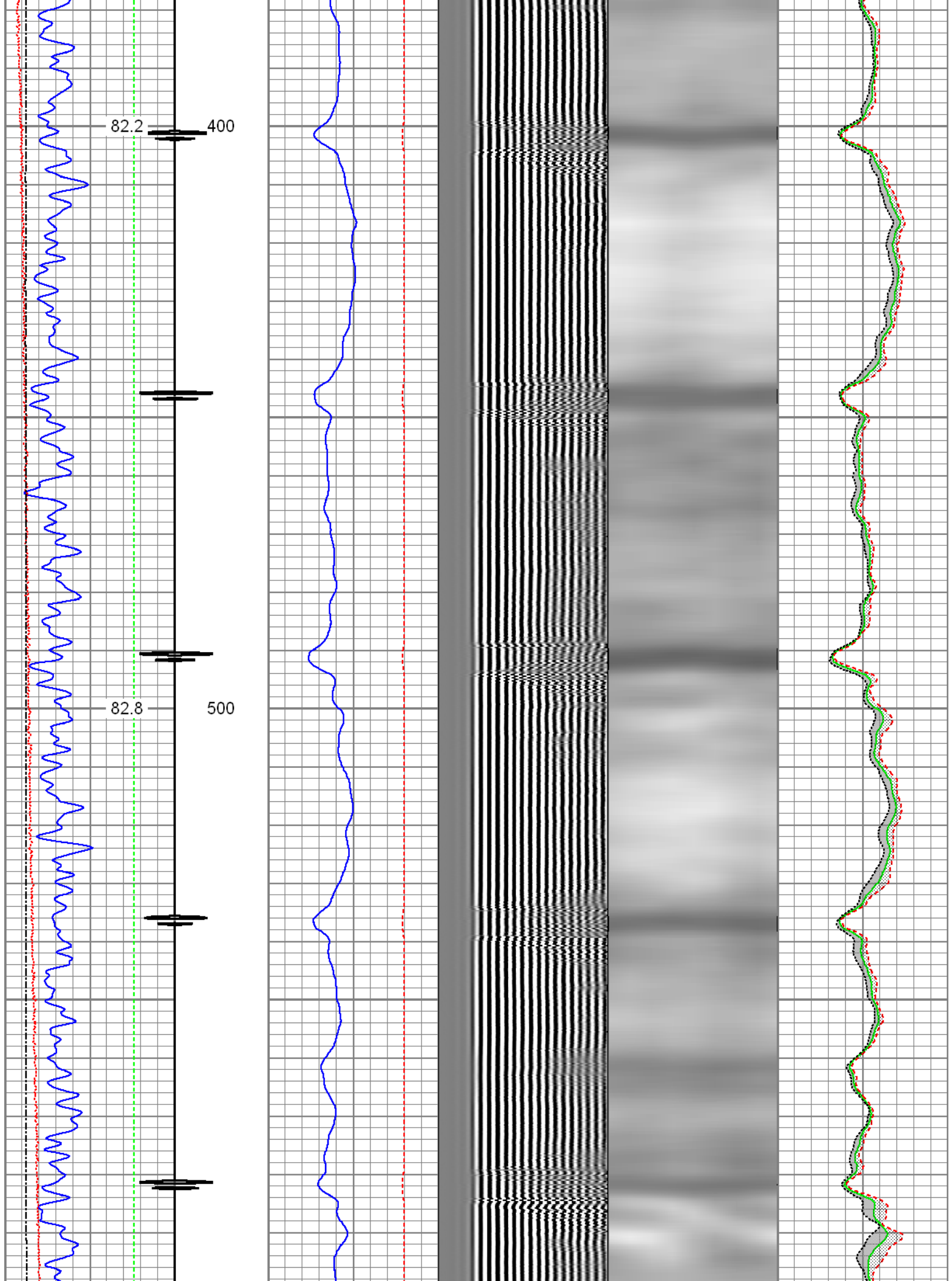
Recorded with 1200 PSI Surface Induced Pressure

Database File: 01-14-16\_whiting\_horsetail 07e-1801\_rbl.db  
Dataset Pathname: Main.1  
Presentation Format: radii  
Dataset Creation: Fri Jan 15 12:13:07 2016 by Calc SCH 120430  
Charted by: Depth in Feet scaled 1:240

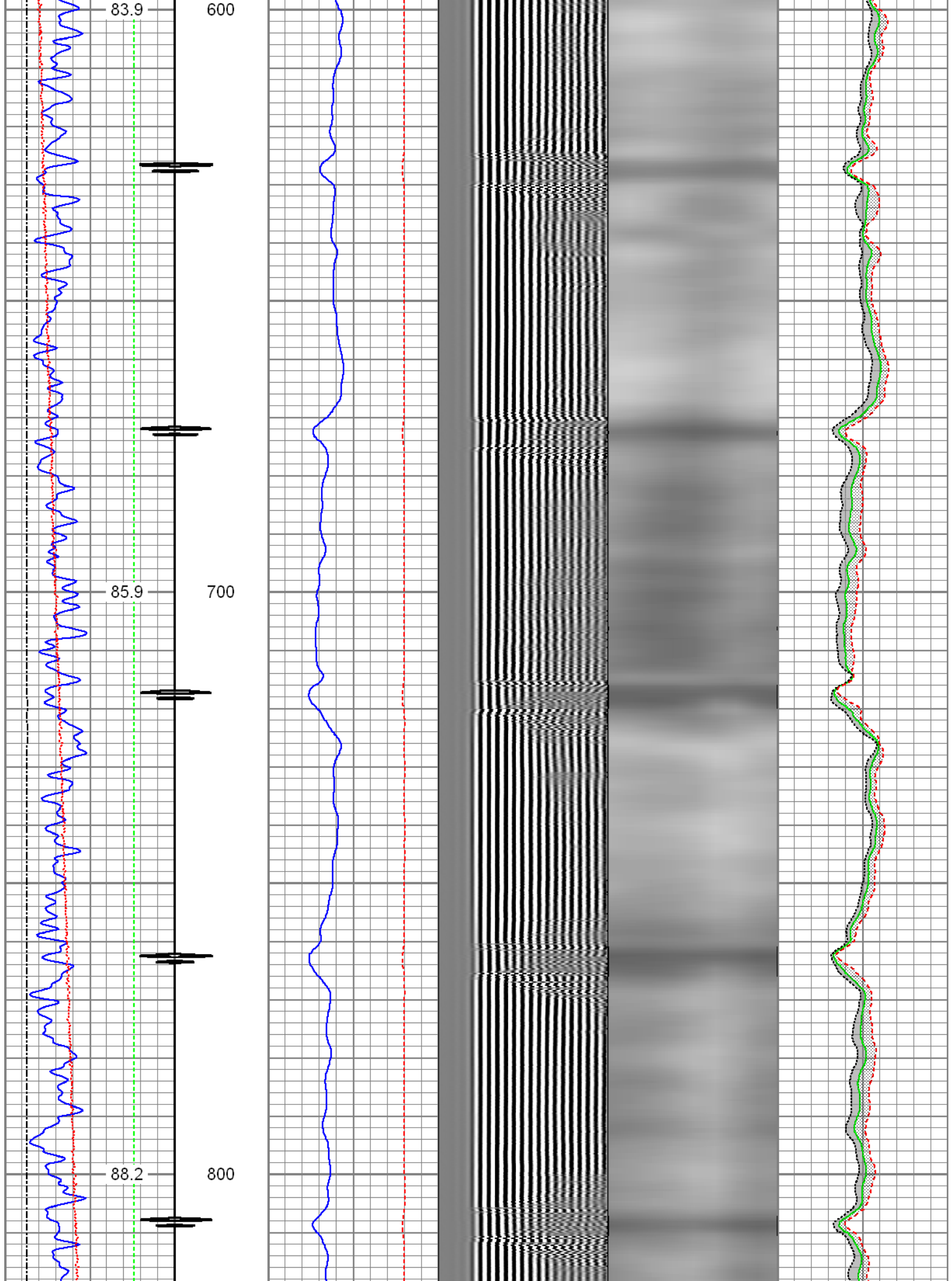
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

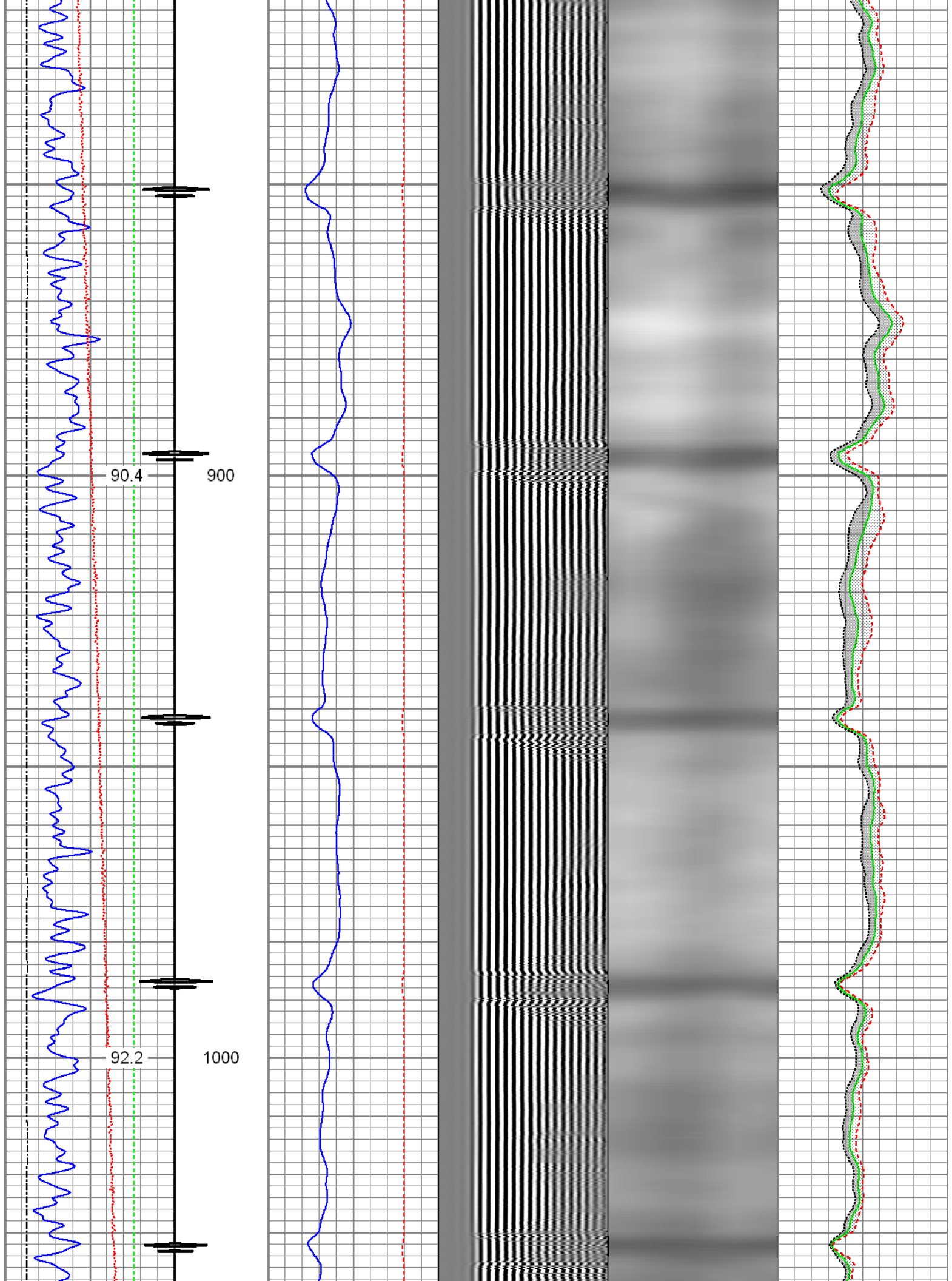


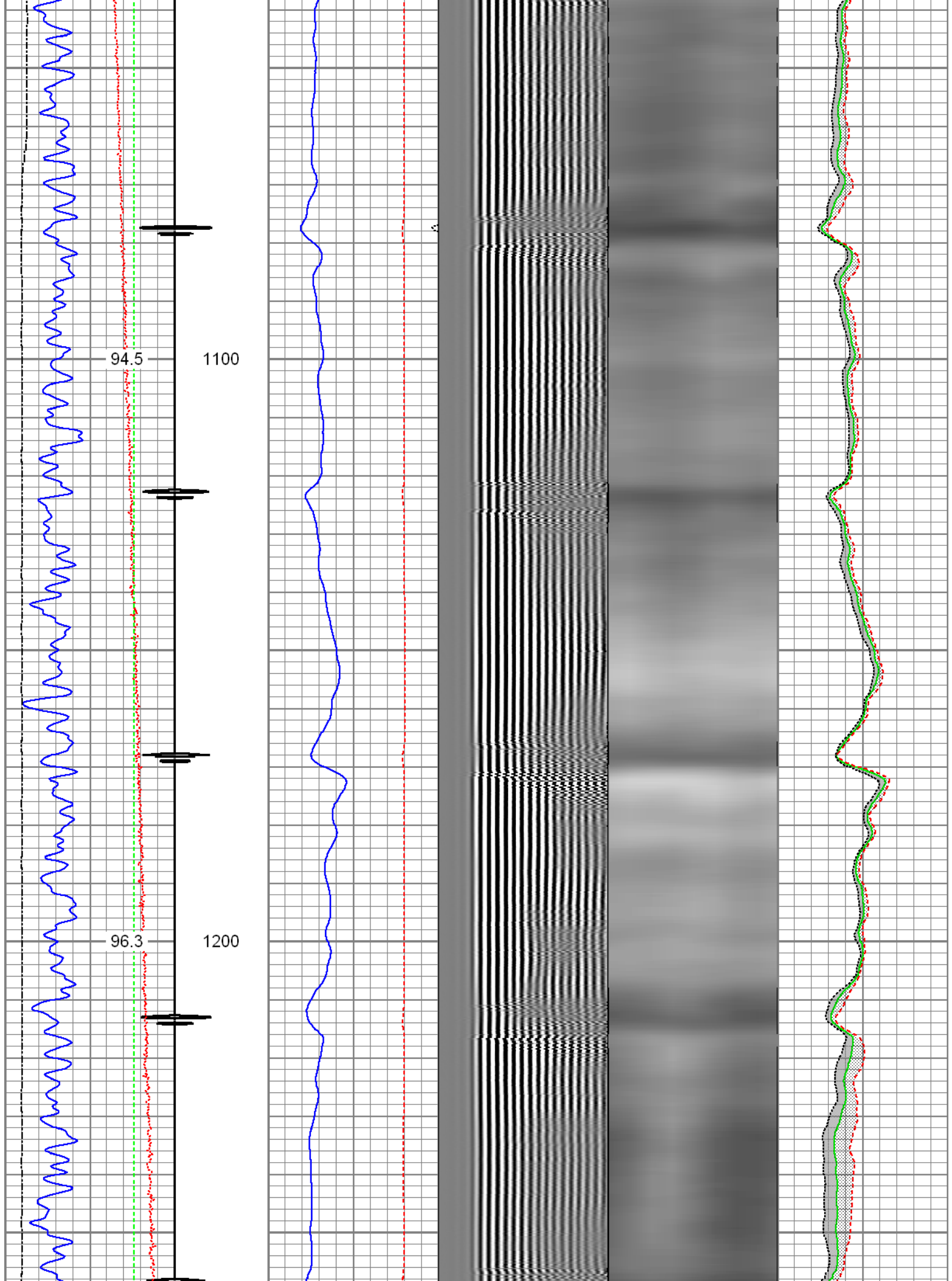


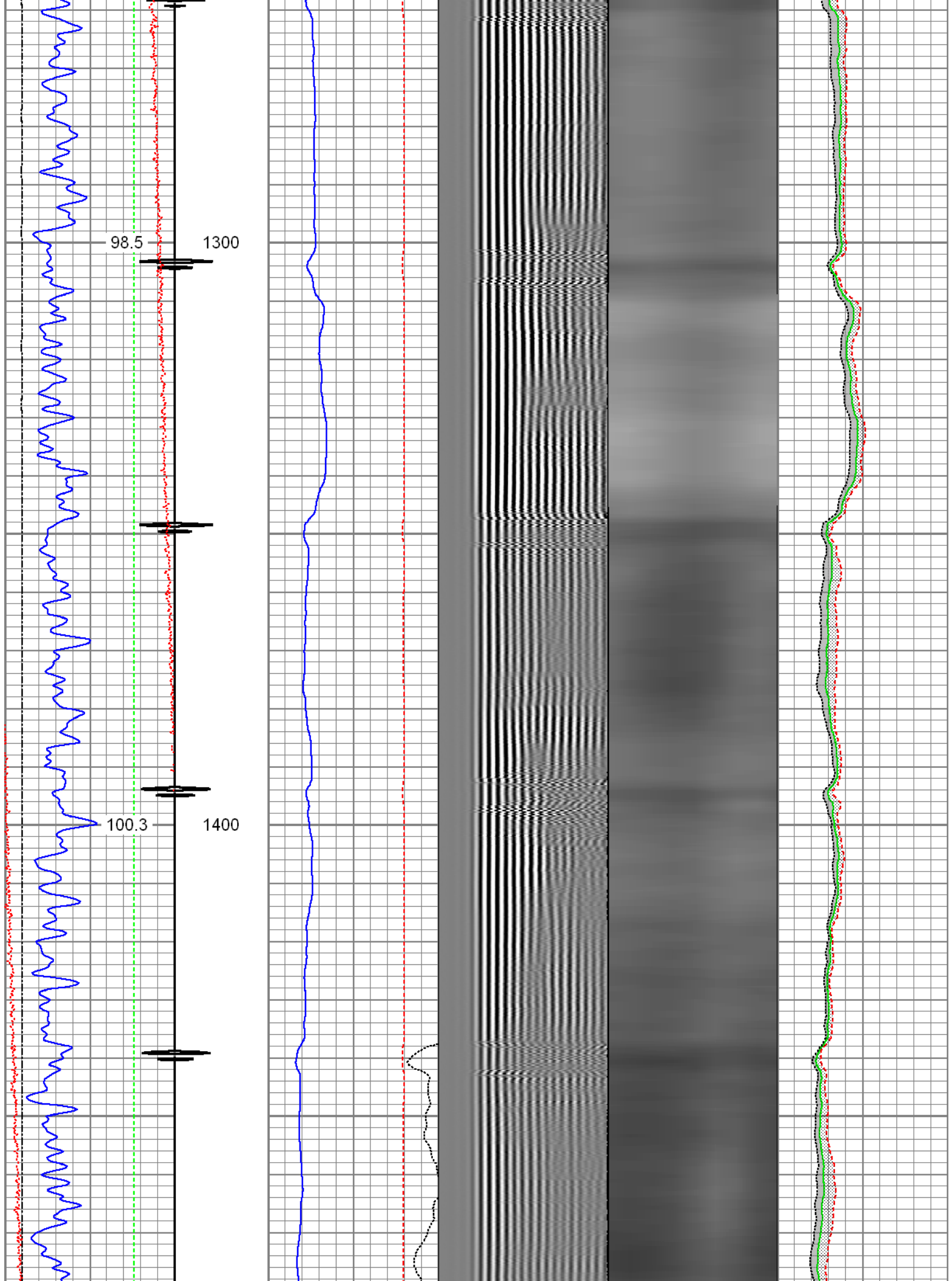




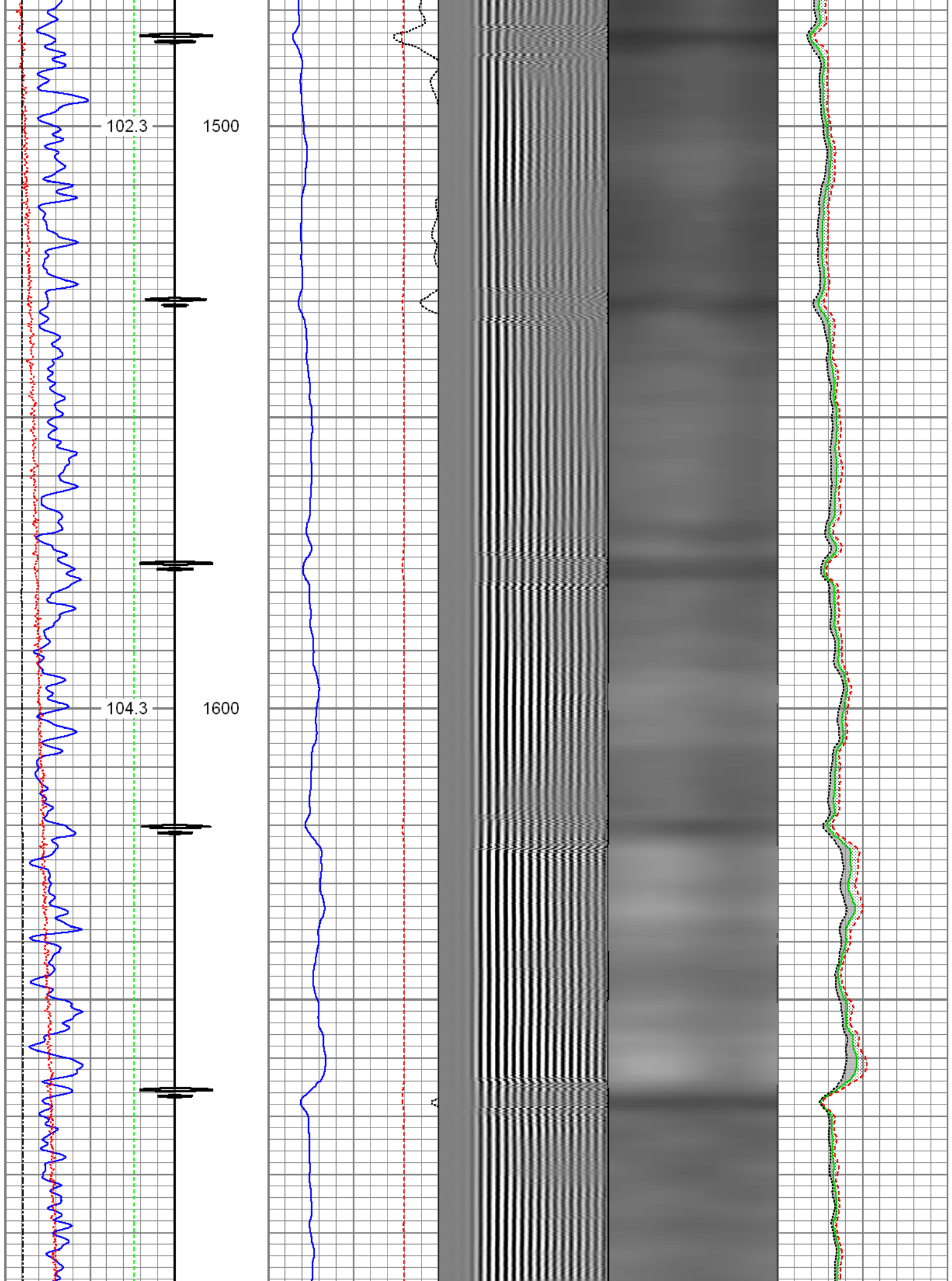


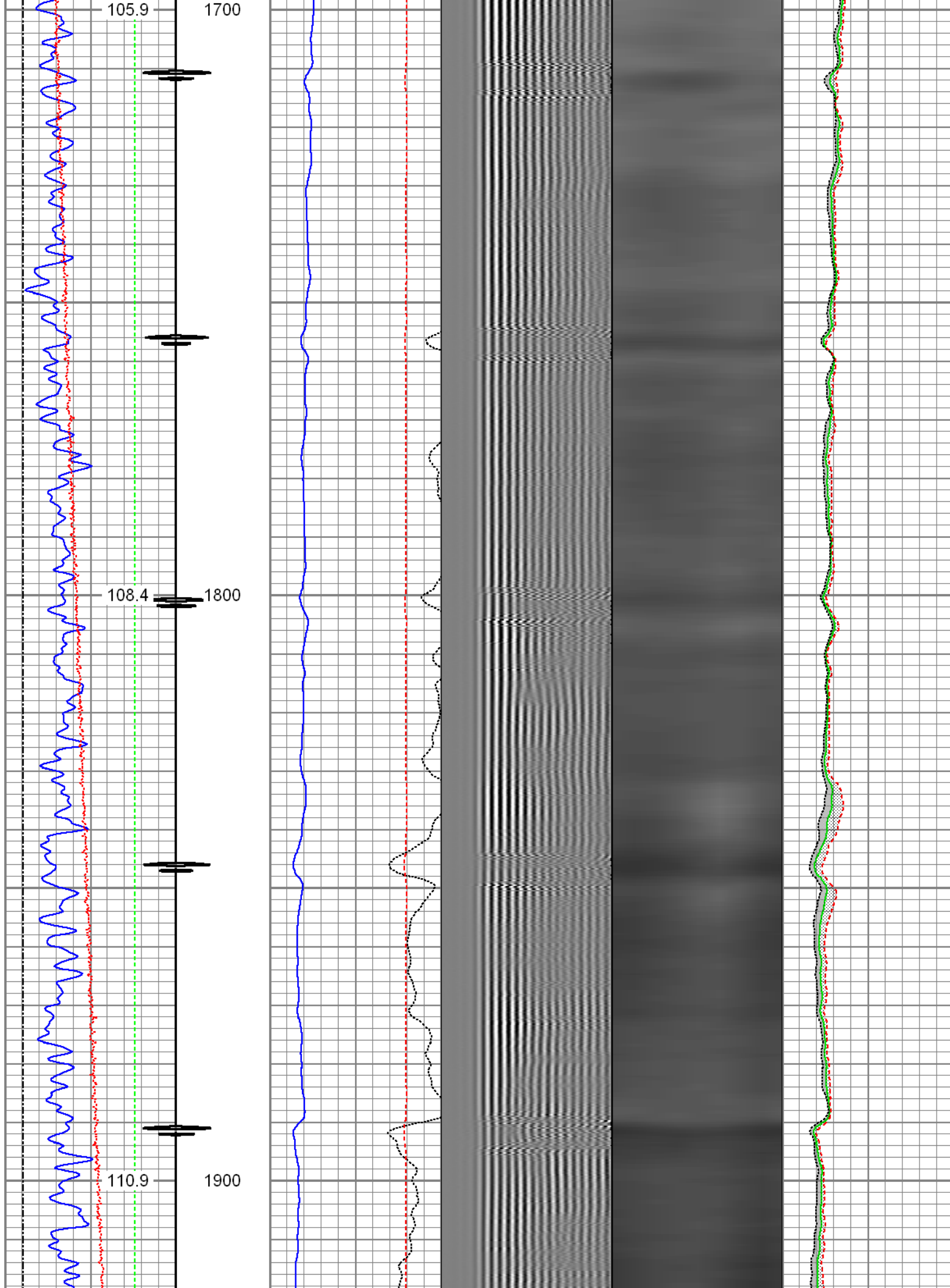


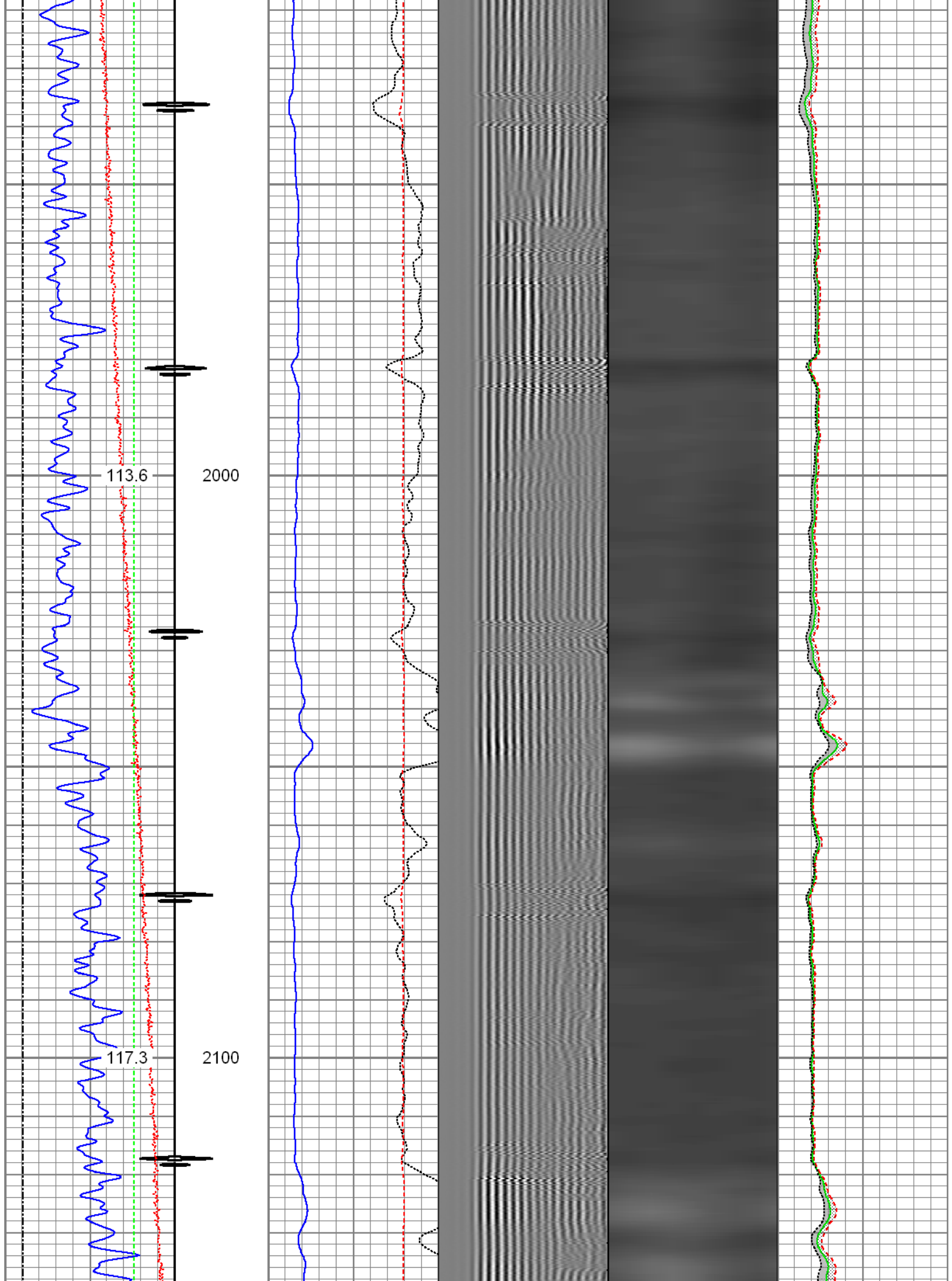


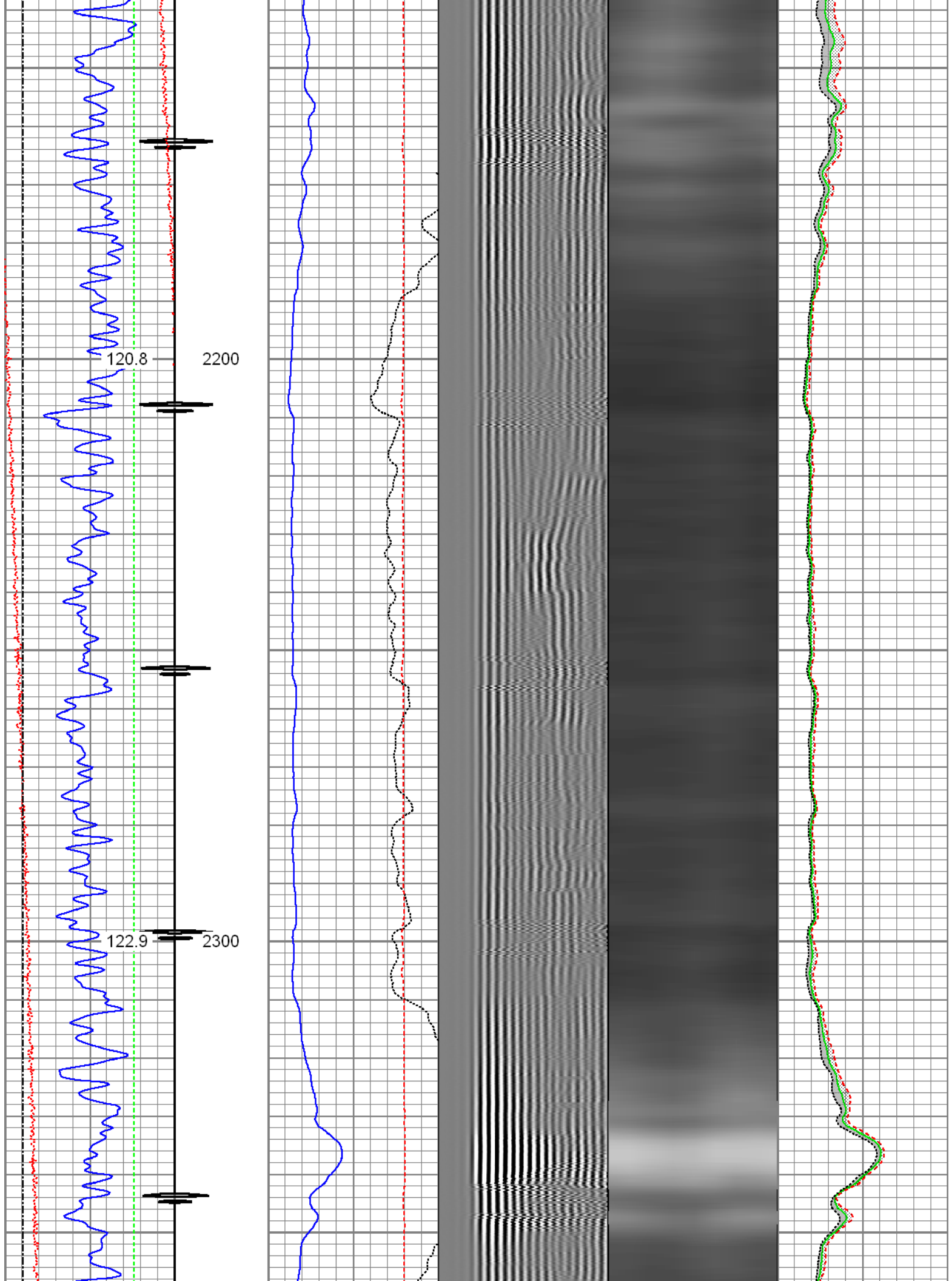




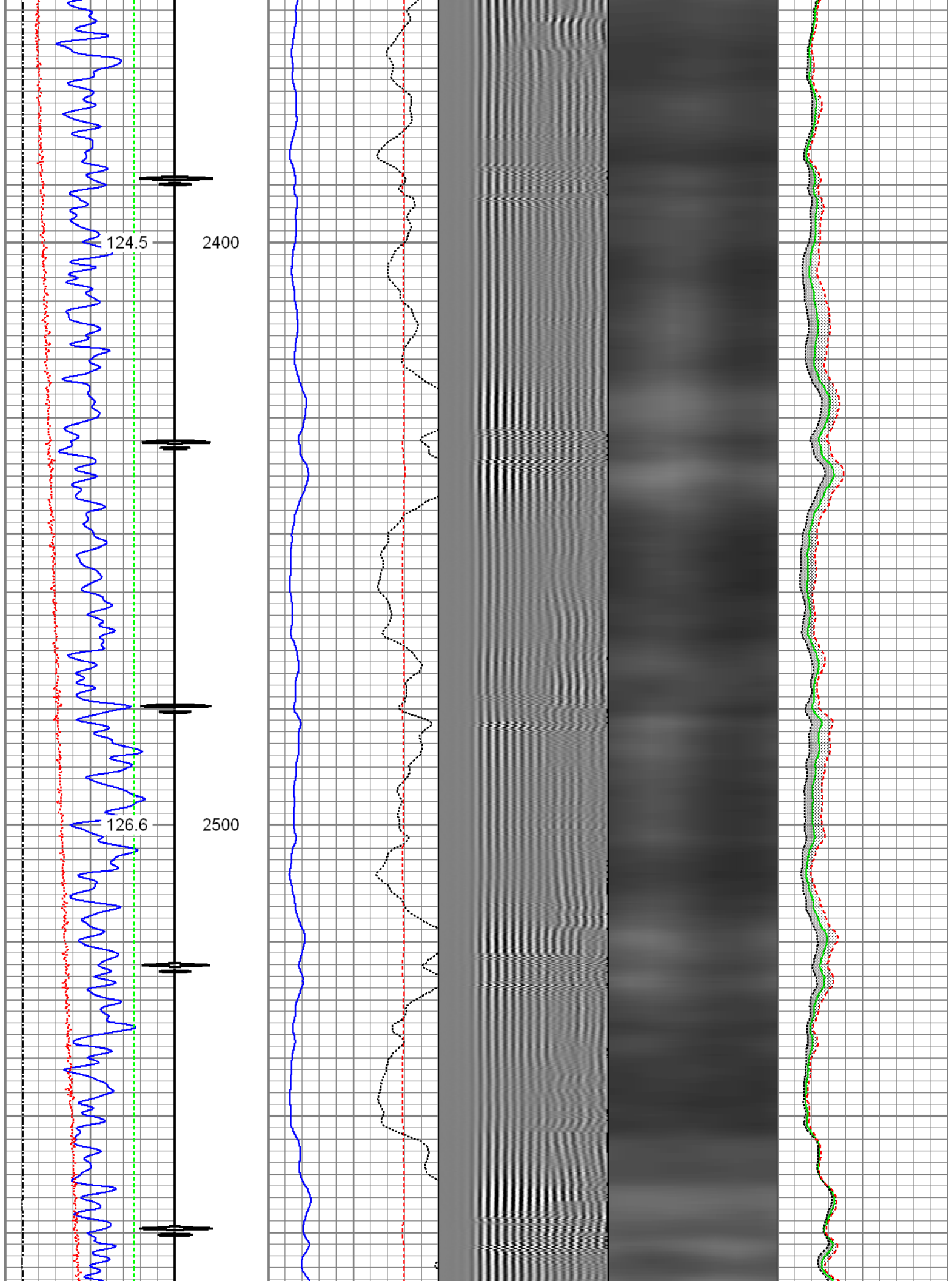


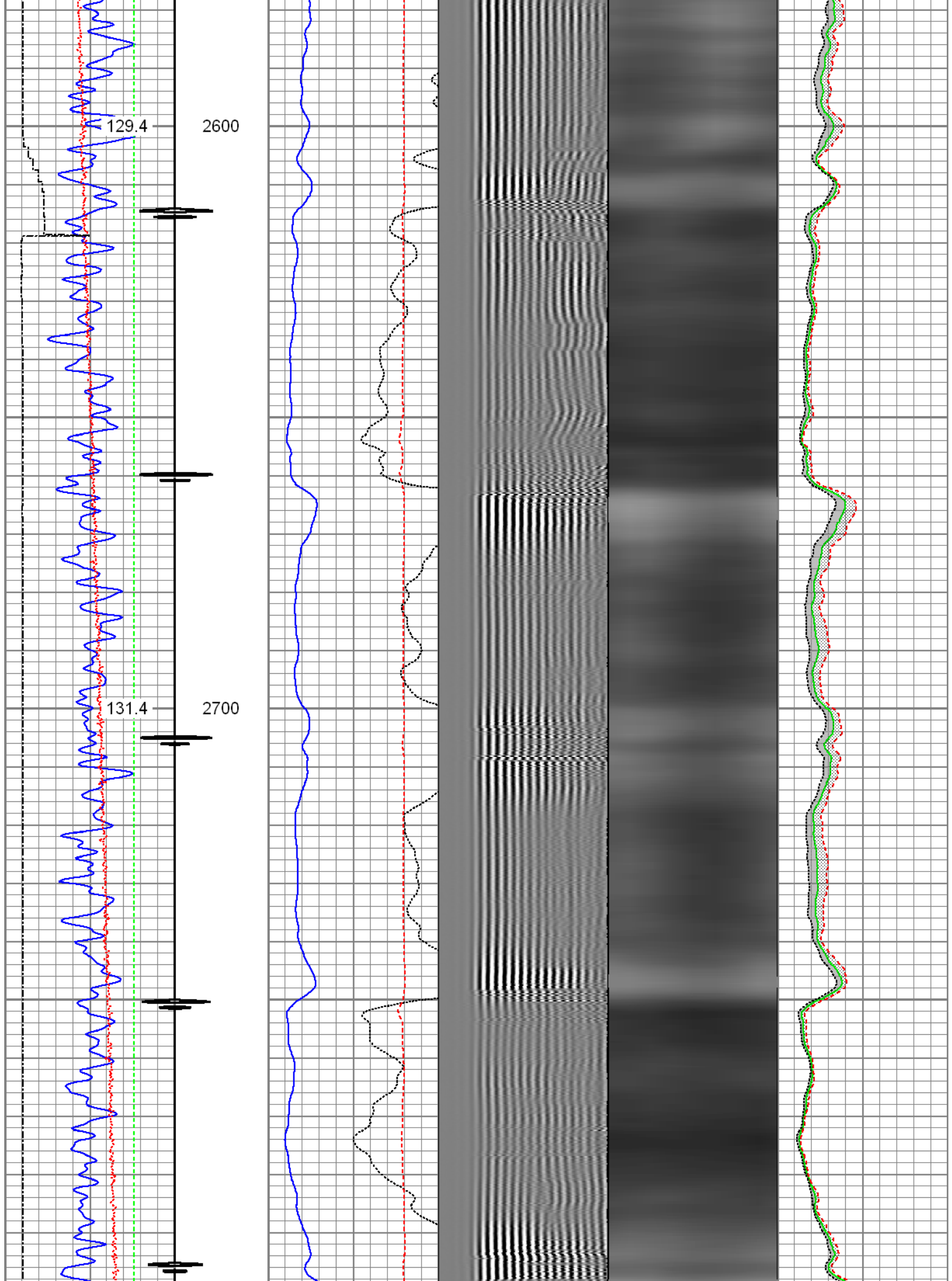


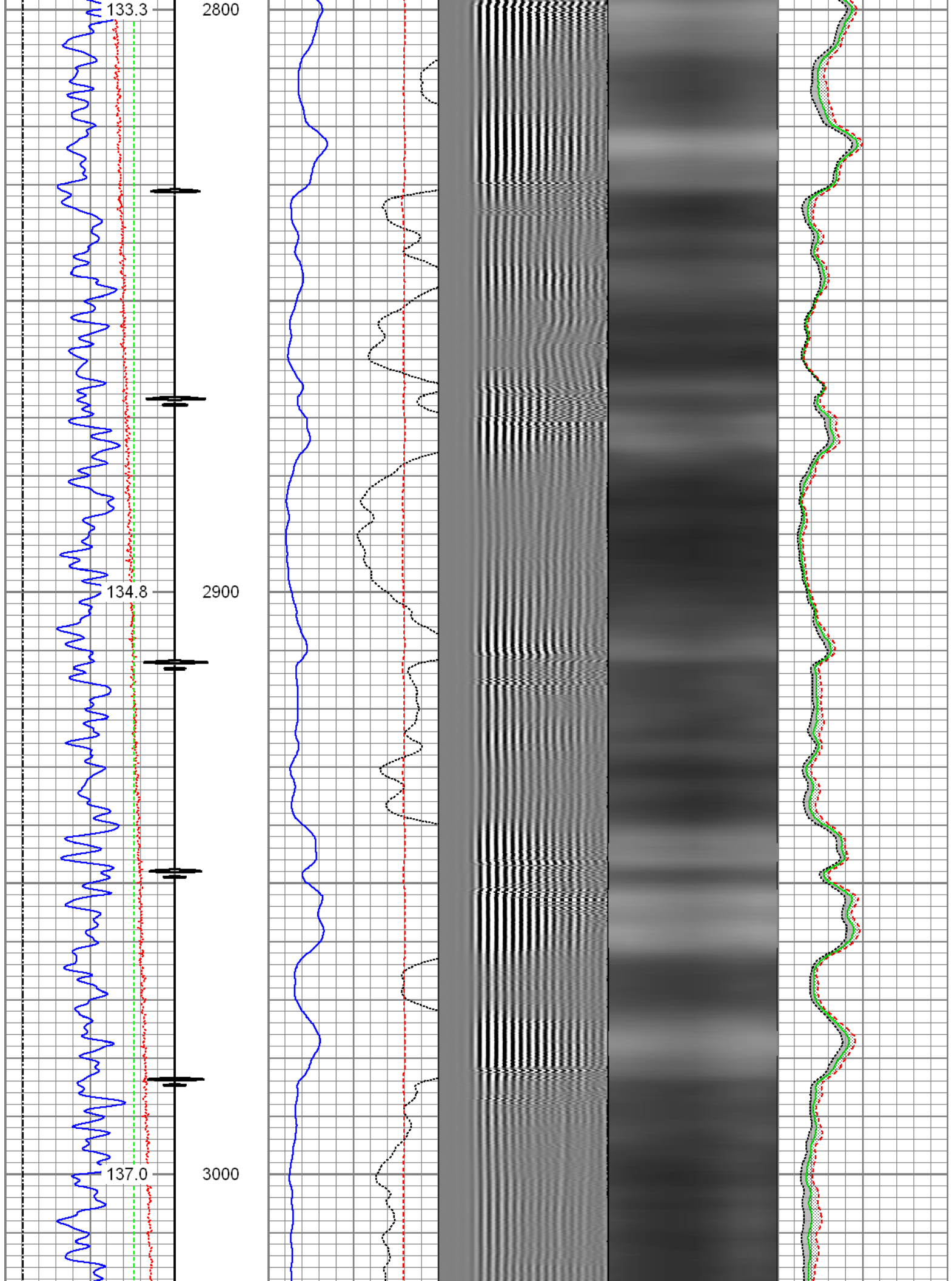


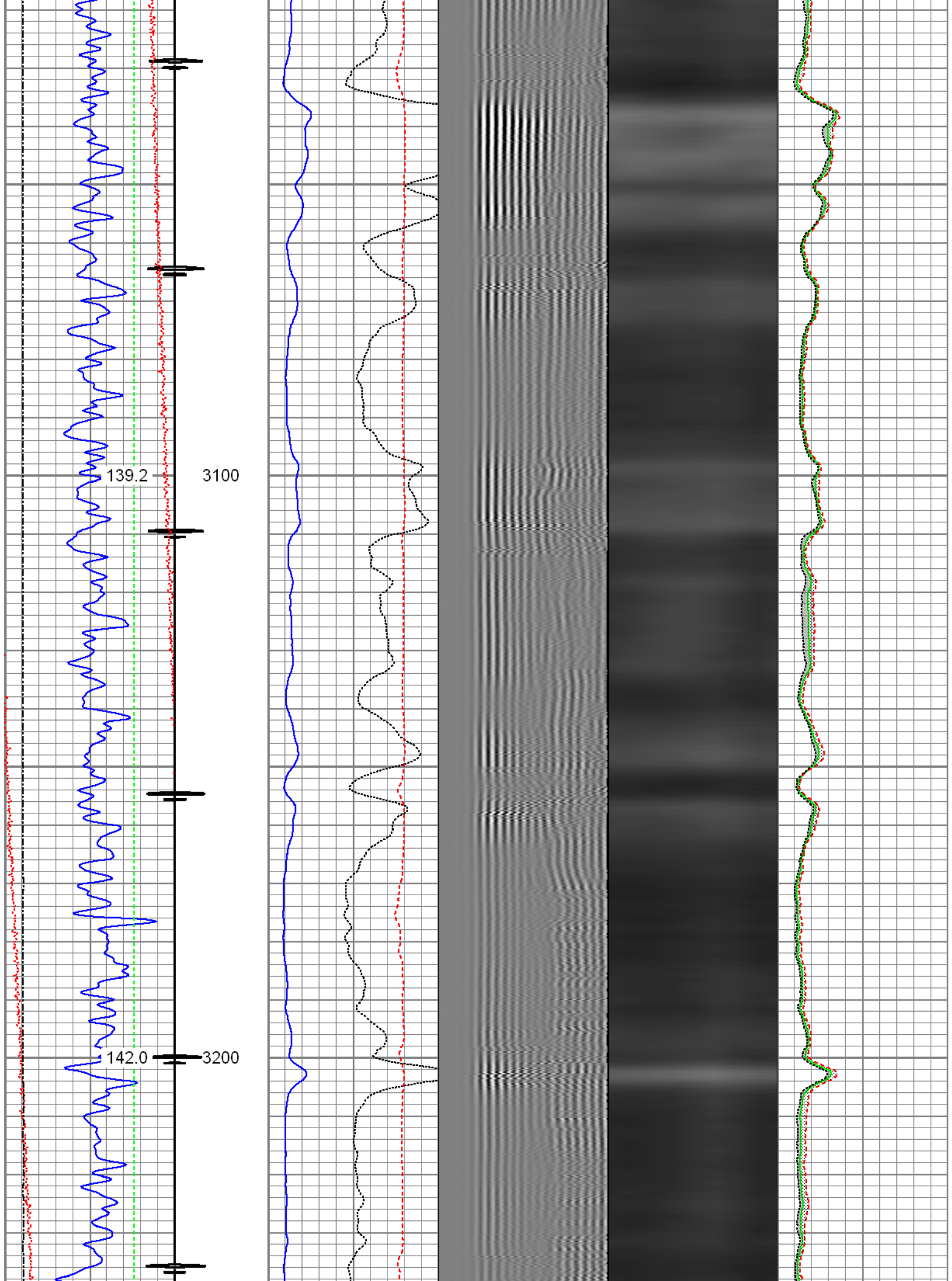




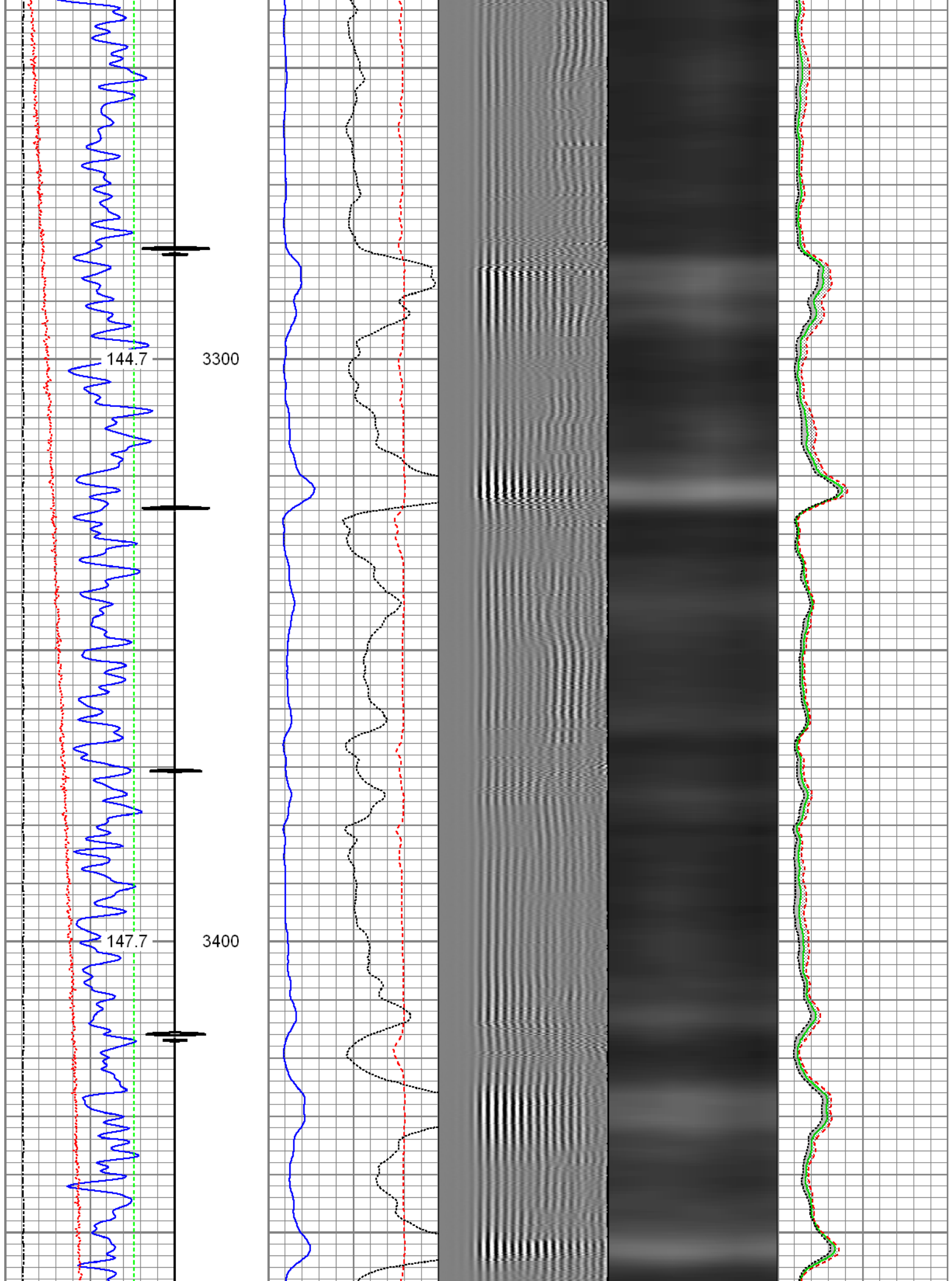


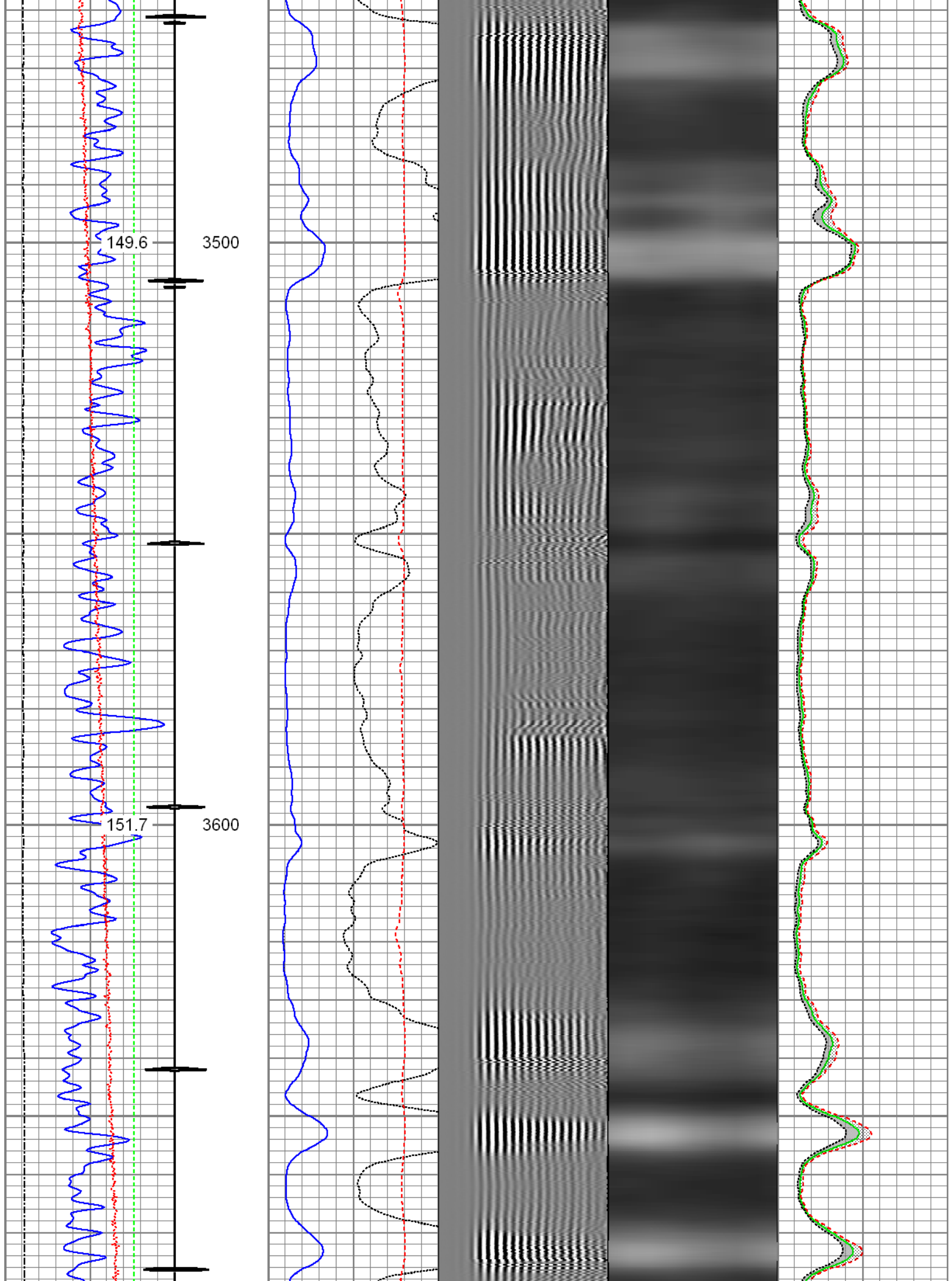


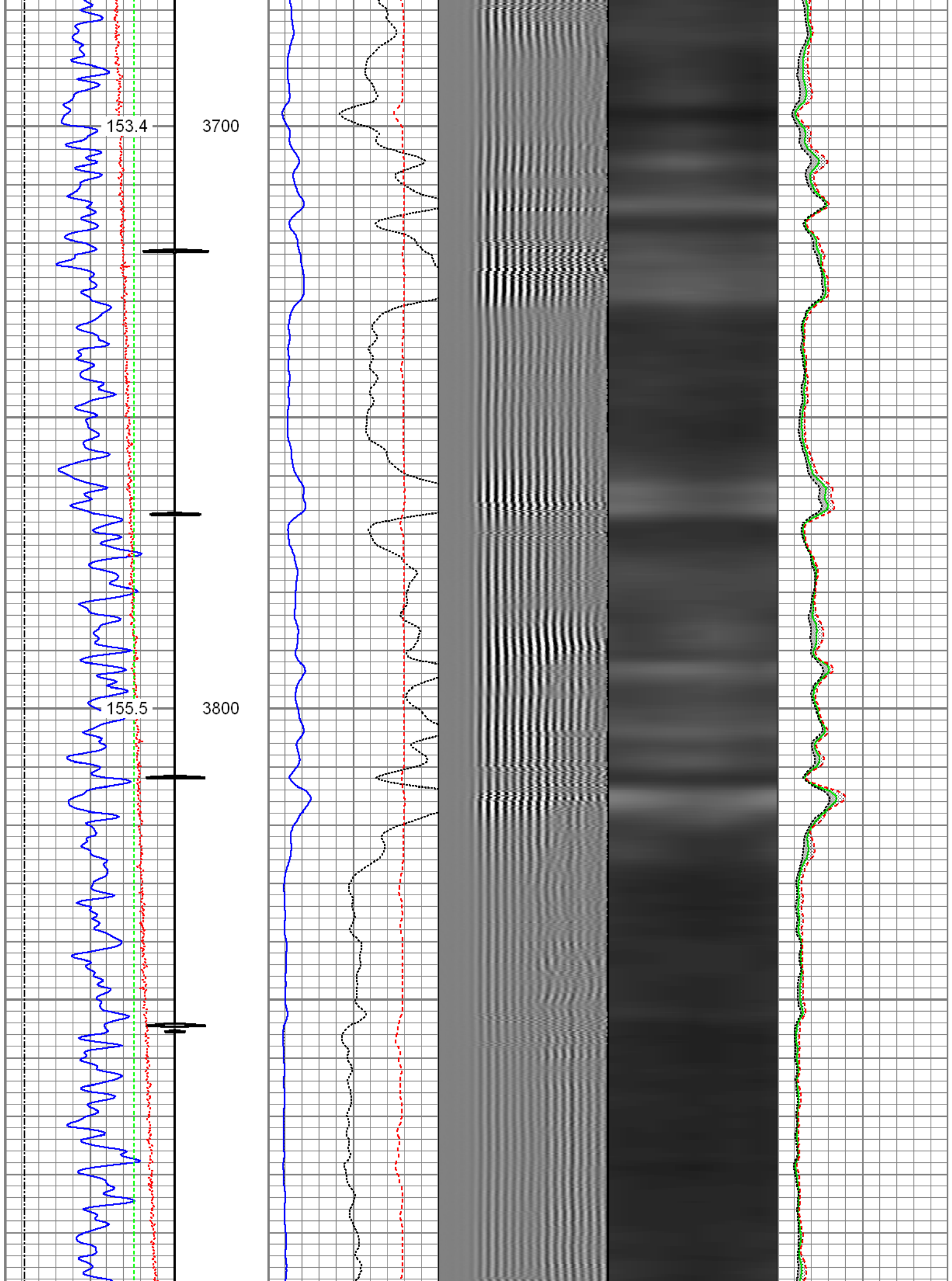


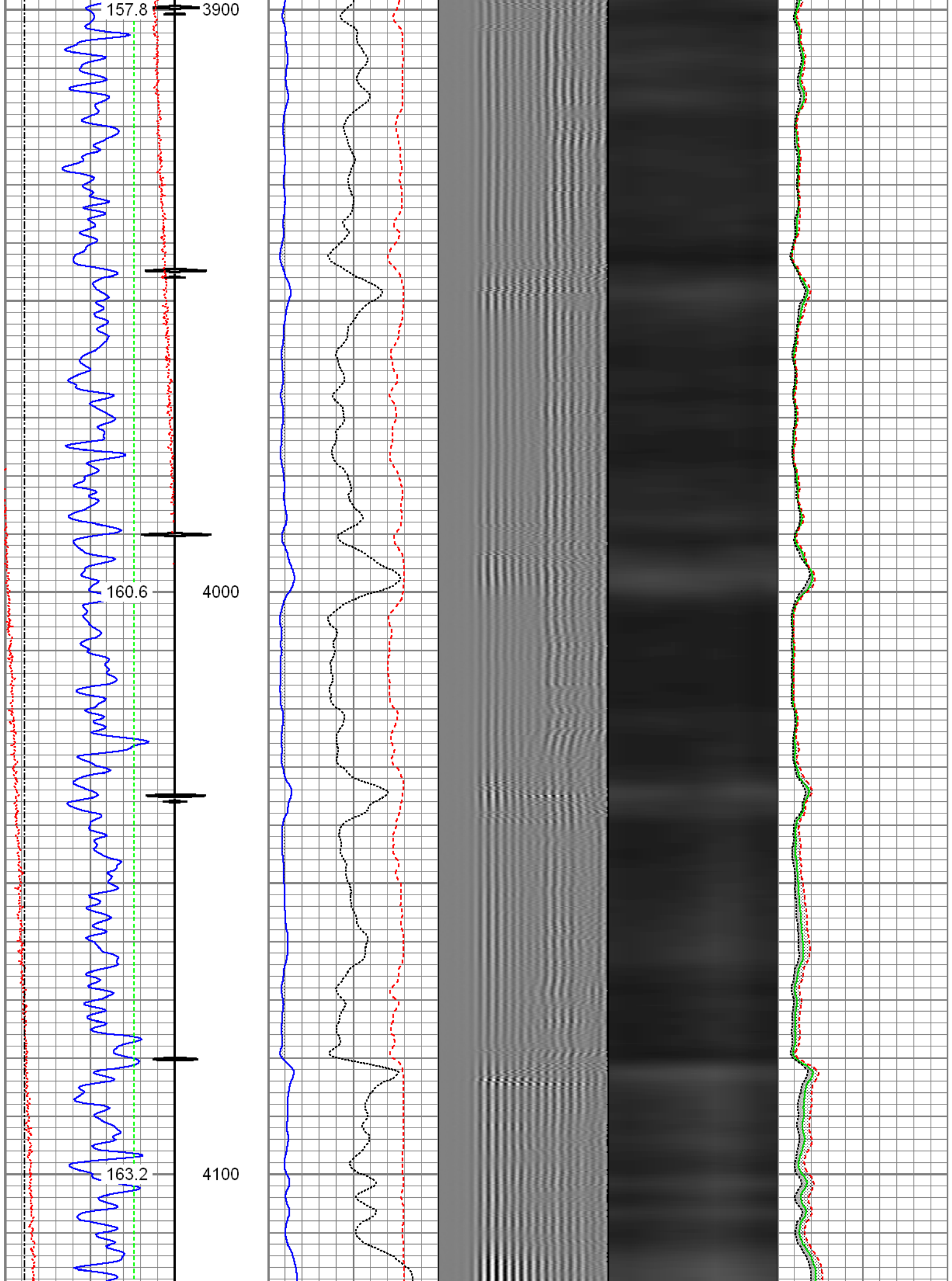




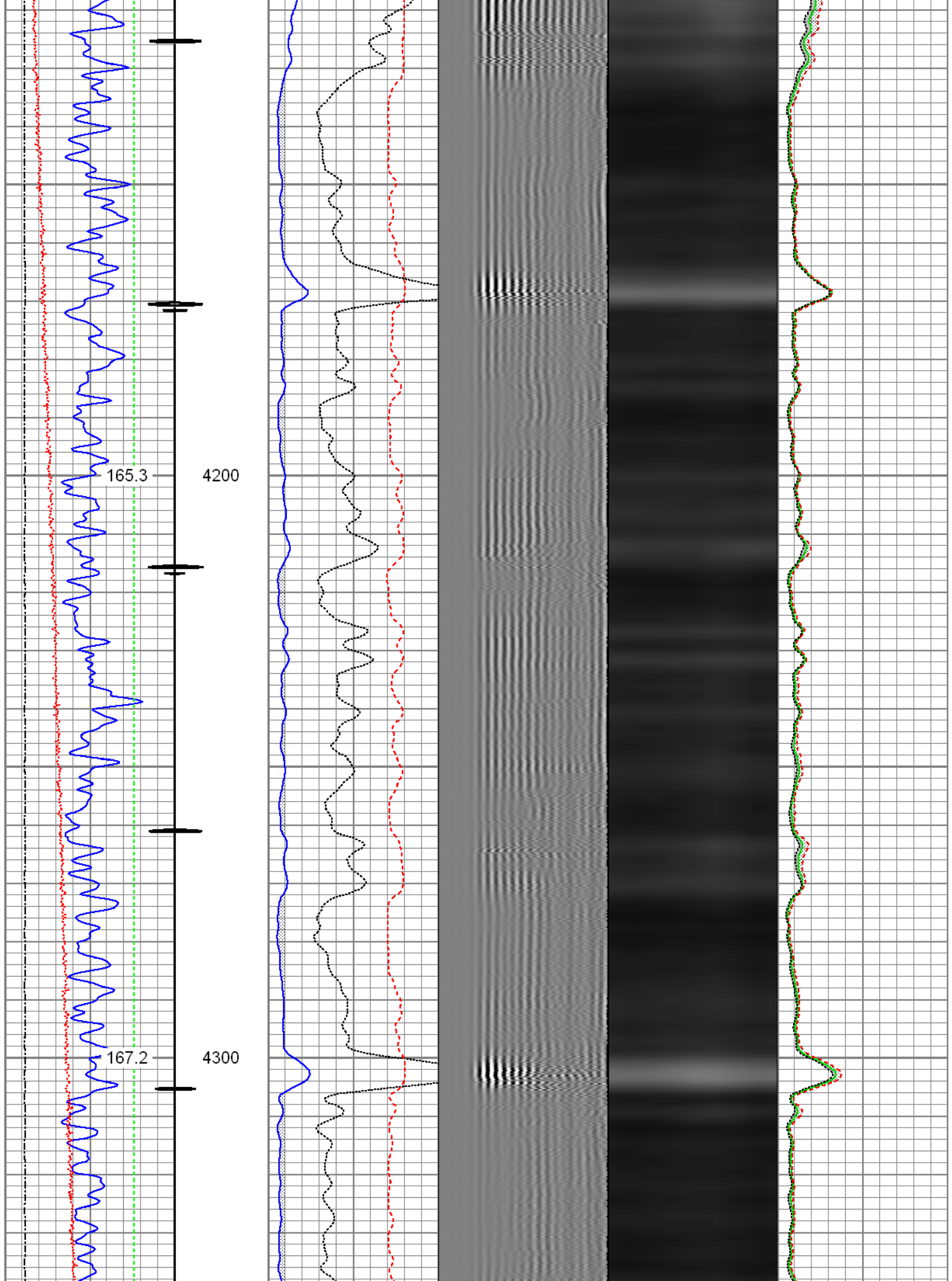


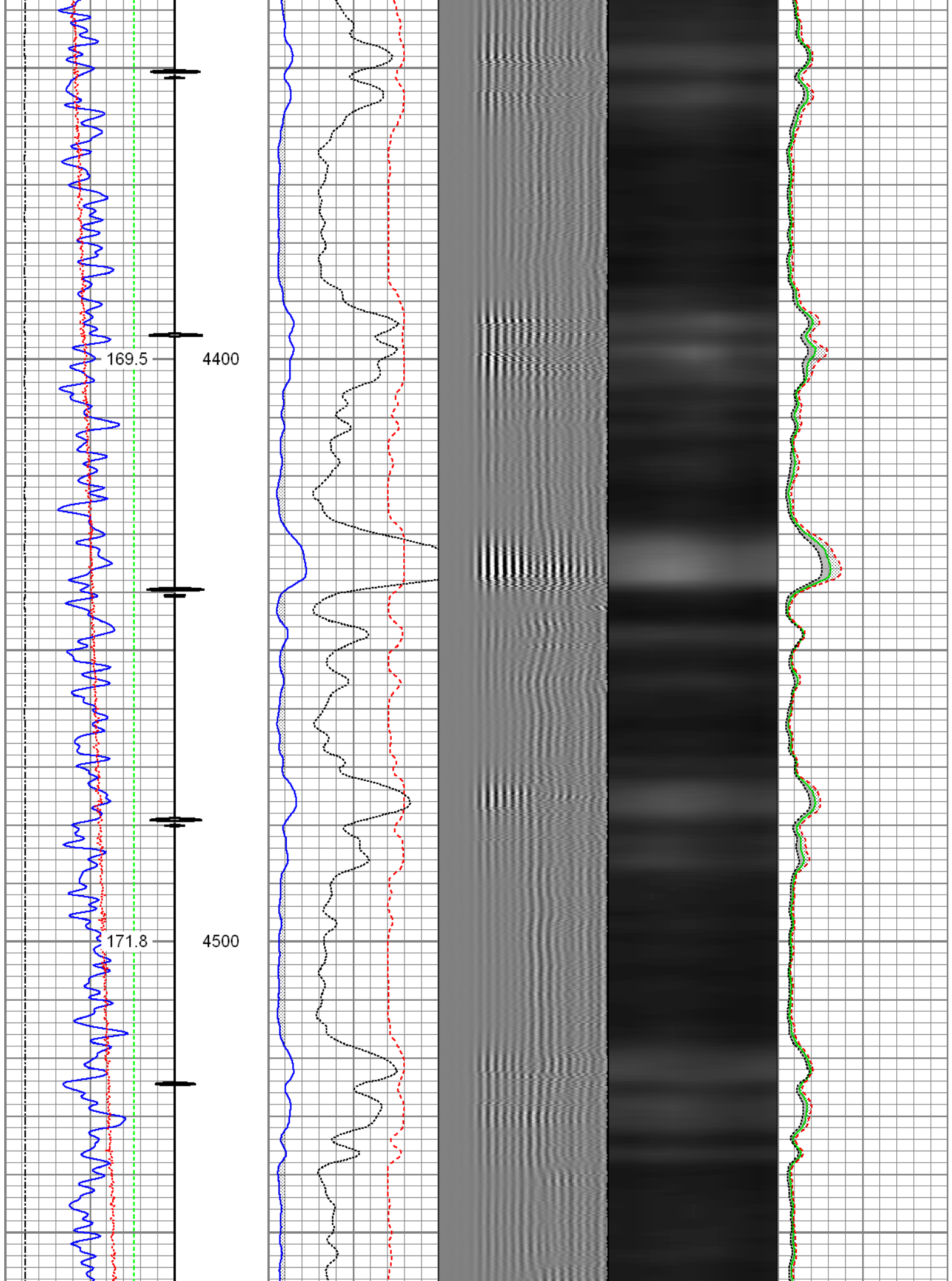


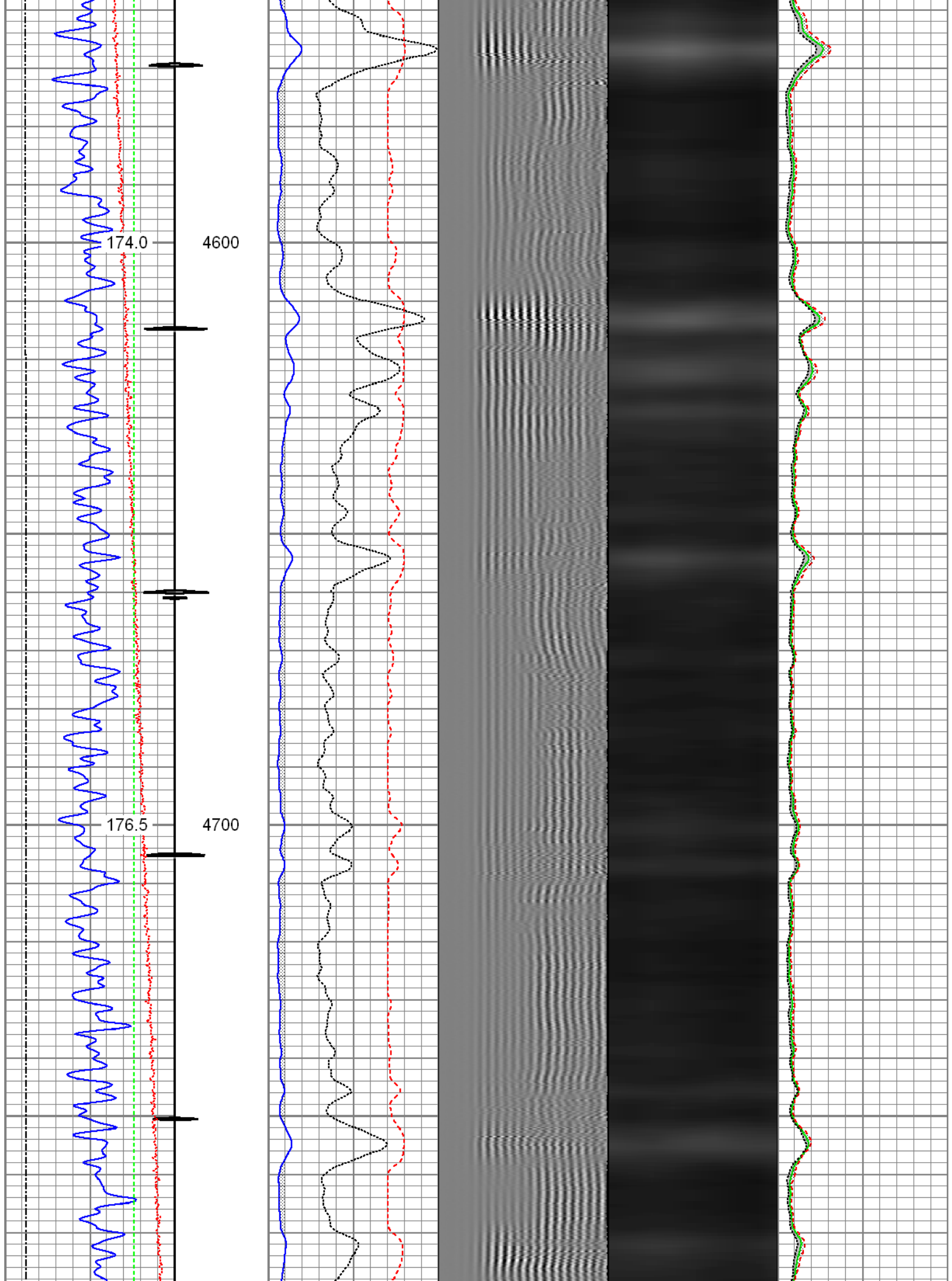


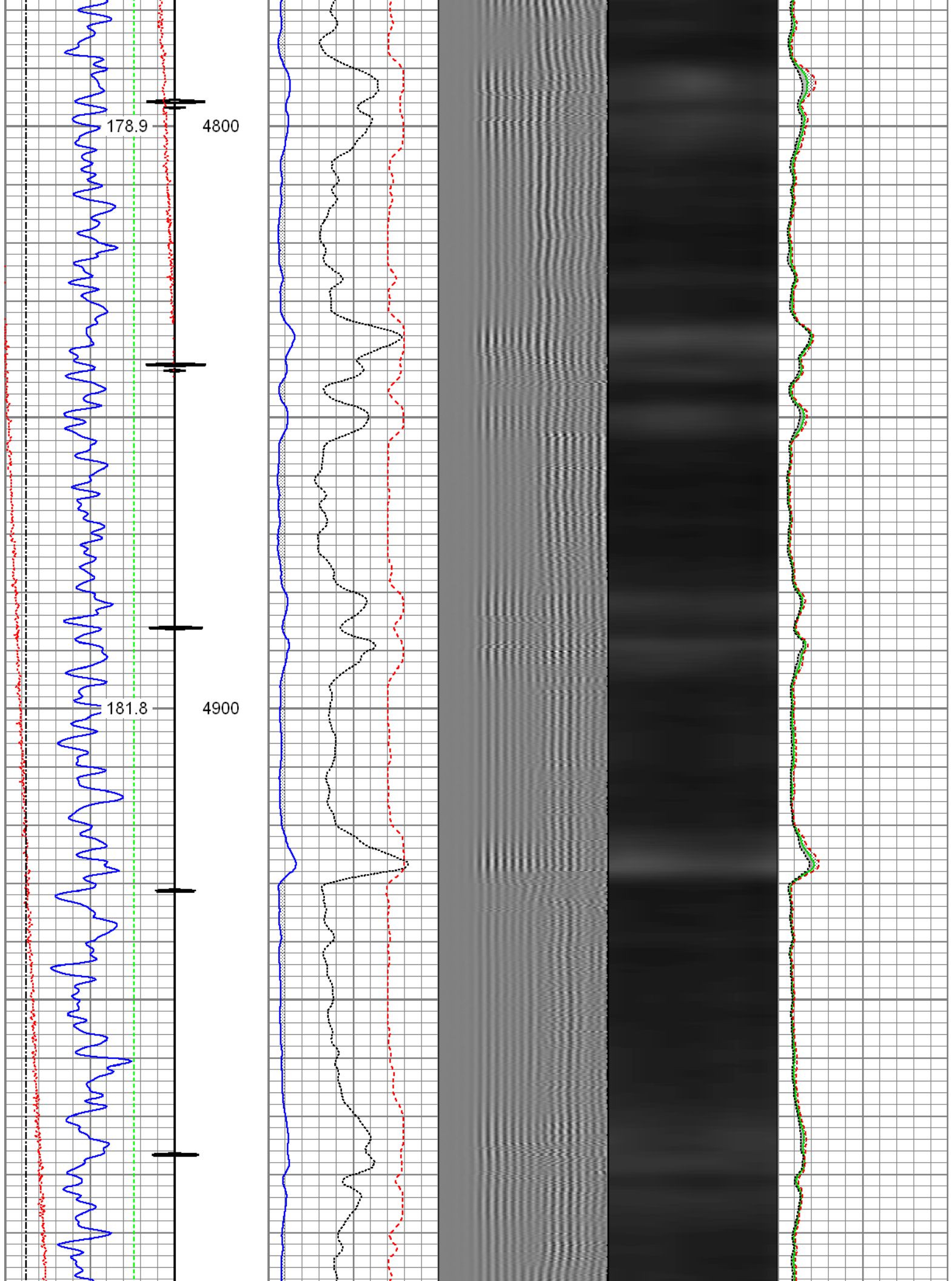




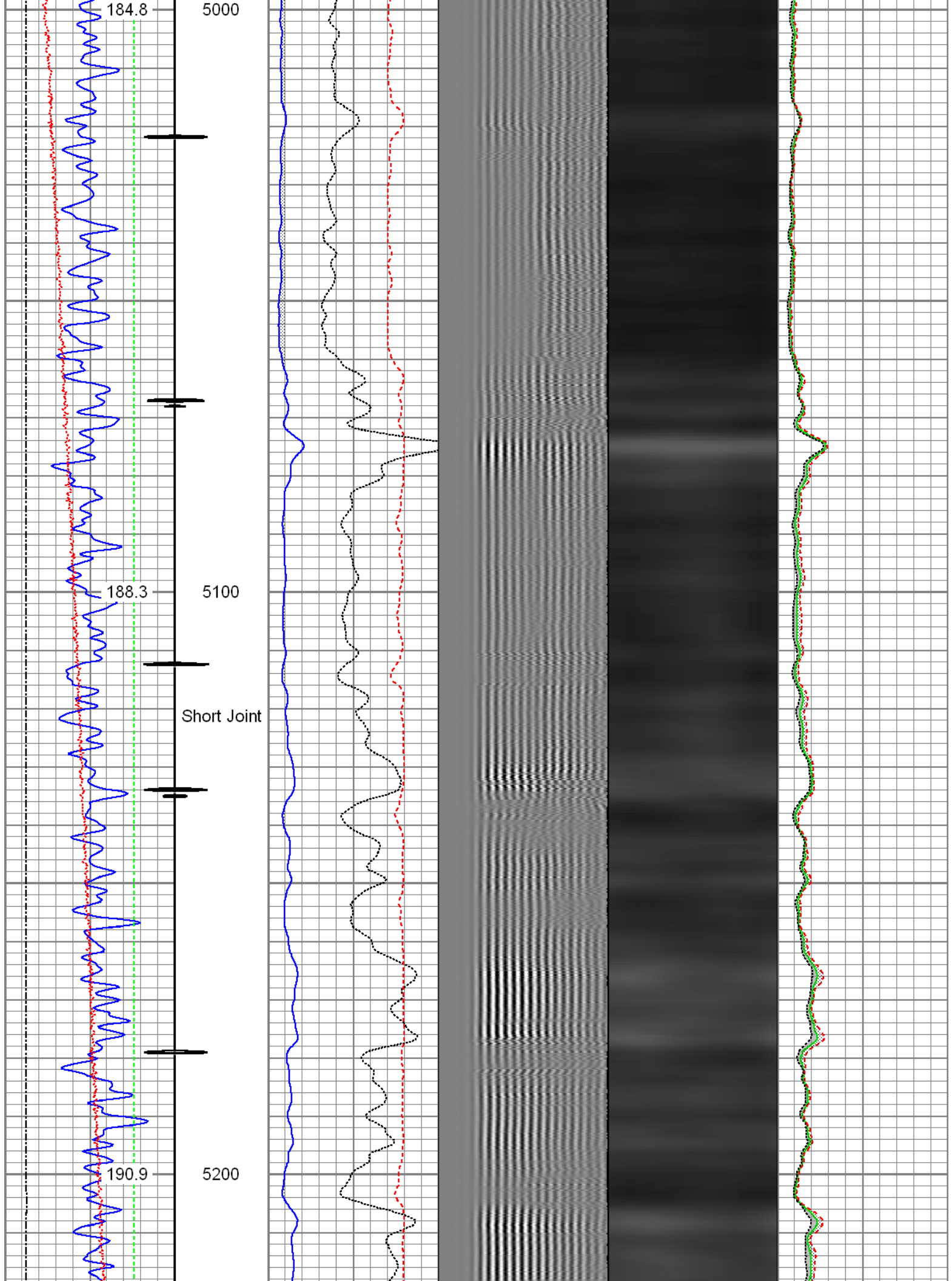


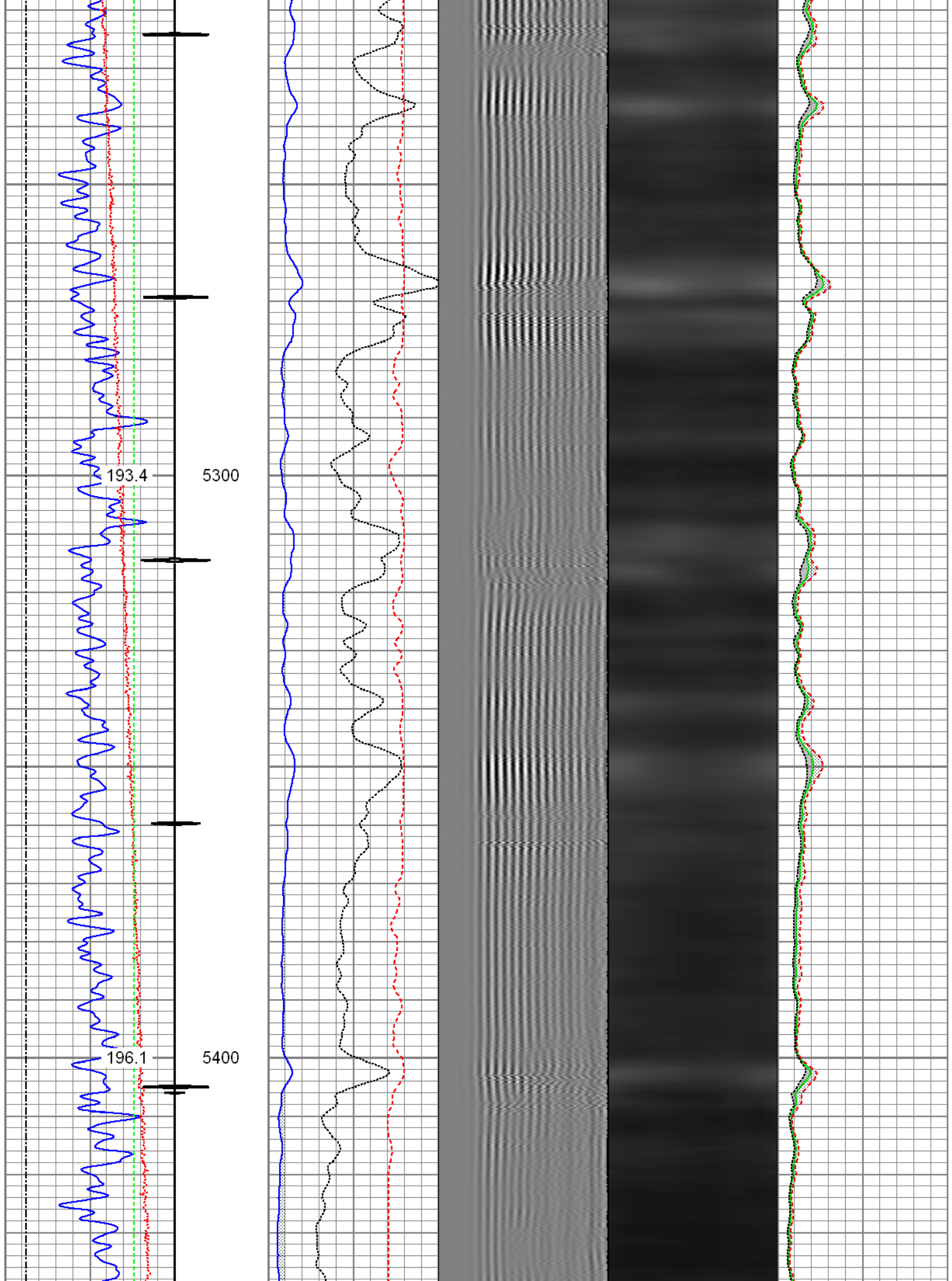


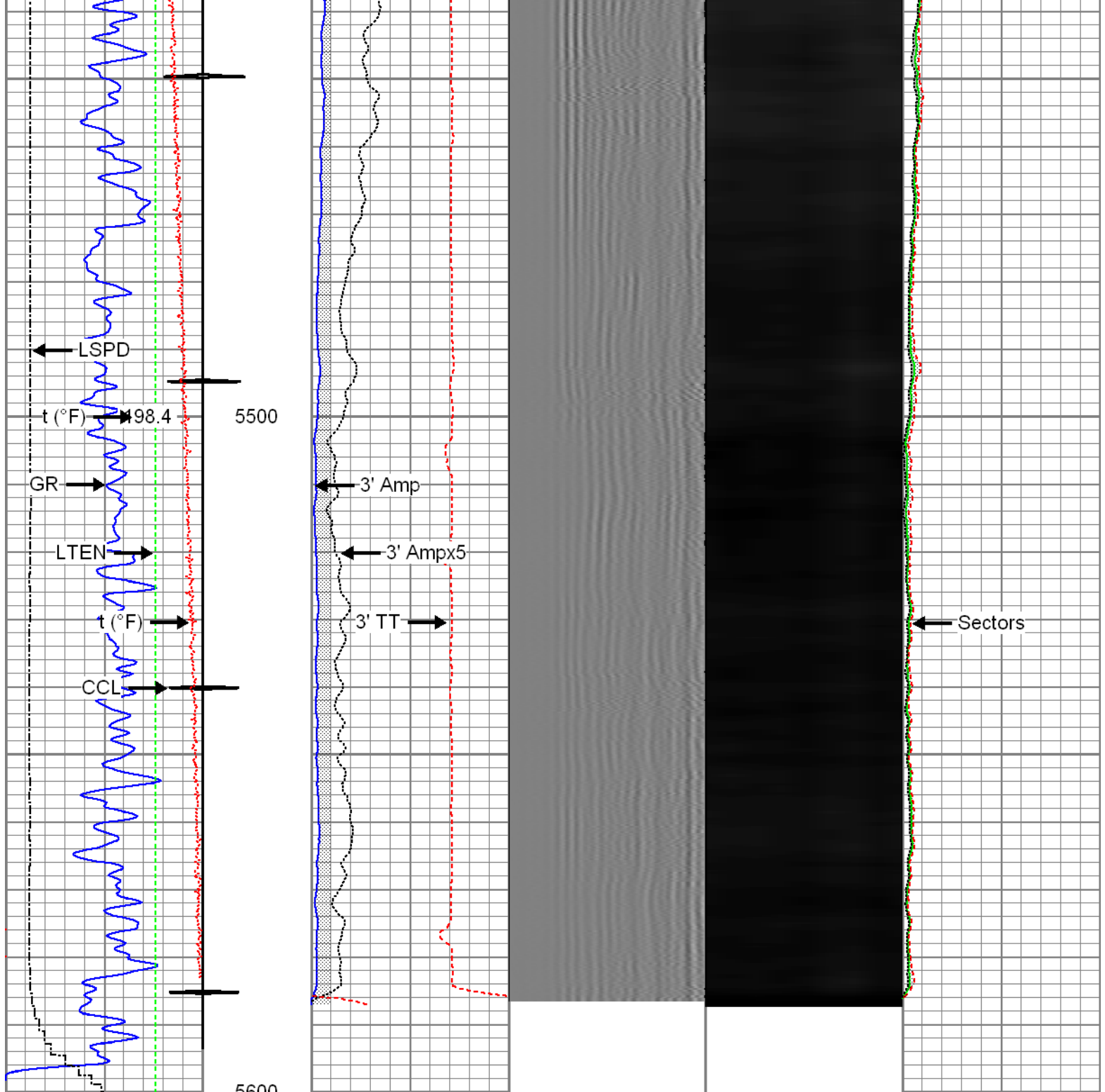










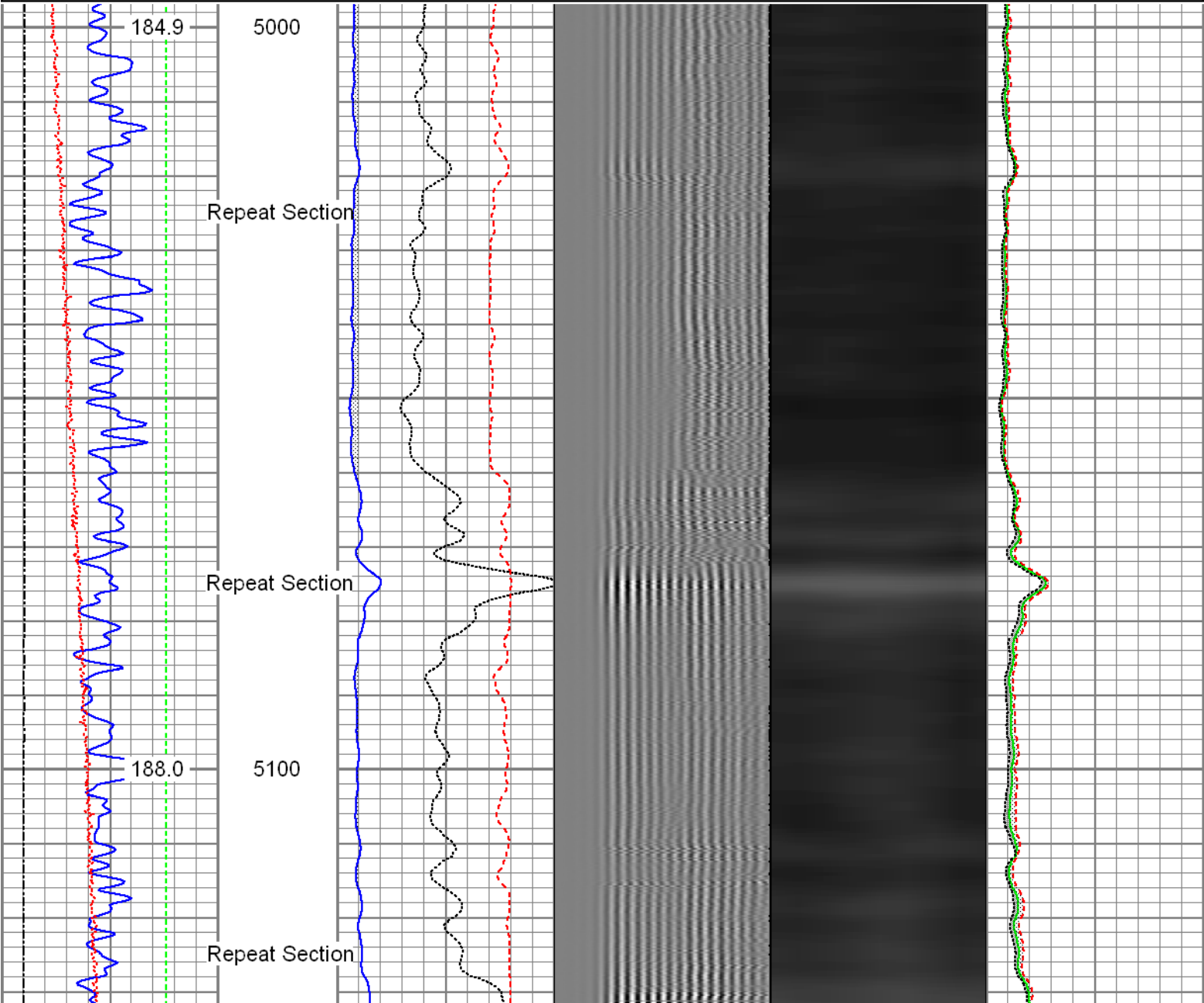


Gamma Ray			3' Amplitude			5' Variable Density Log			Sector Map			Average Amplitude		
0	(GAPI) 120		0	(mV) 100		200 1200						0	100	
Casing Collar Locator			3' Amplitude x 5									Minimum Amplitude		
Temperature			0 (mV) 20									0 100		
0 (degF) 20			3' Travel Time									Maximum Amplitude		
Line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

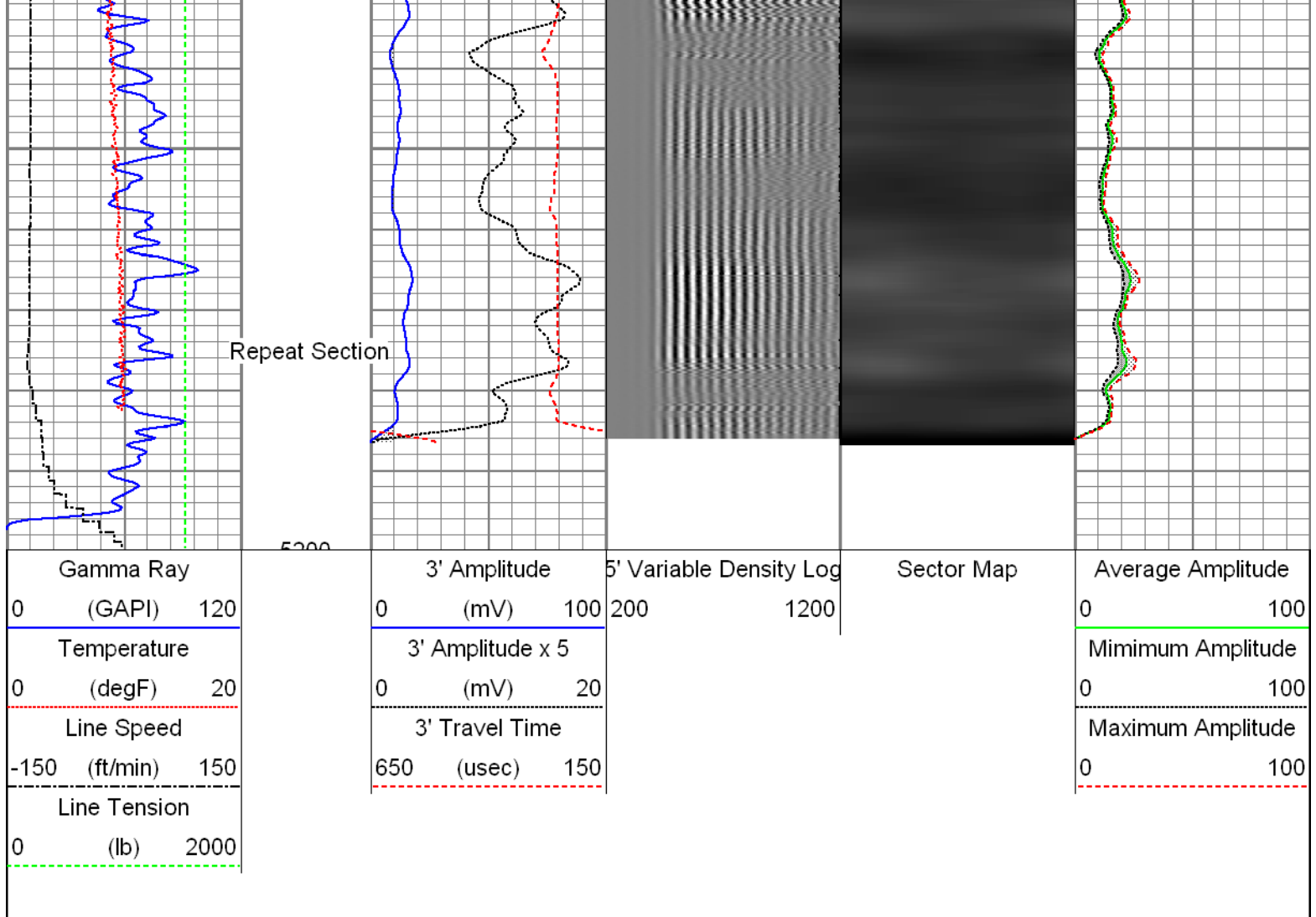
Recorded with 1200 PSI Surface Induced Pressure

Database File: 01-14-16\_whiting\_horsetail 07e-1801\_rbl.db  
Dataset Pathname: Repeat.1  
Presentation Format: radii  
Dataset Creation: Fri Jan 15 14:35:22 2016 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
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)
HeadVolt	19.49		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Temp	16.72					
WV3FT	14.55		Probe_RADII-C-2-3/4" (FW1305-096) 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					

Tool Joint #	Tool Joint Description	Length (ft)	Weight (lb)	O.D. (in)	Tool Joint Diagram	Probe Description	Length (ft)	Weight (lb)	O.D. (in)
WVFS5		14.55							
WVFS6		14.55							
WVFS7		14.55							
WVFS8		14.55							
WVF5FT		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 (FW1212-026) 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: 01-14-16_whiting_horsetail 07e-1801_rbl.db: field/well/run1/Main.1 Total Length: 23.40 ft Total Weight: 194.00 lb O.D. 2.75 in									

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	0.435	0.800	71.921	165.718	-0.191
CAL	0.690	0.783				
5'	0.011	0.348	0.800	71.921	210.605	-1.417
SUM						
S1	0.007	0.416	0.000	100.000	244.178	-1.678
S2	0.010	0.412	0.000	100.000	248.839	-2.398
S3	0.008	0.422	0.000	100.000	241.086	-1.808
S4	0.007	0.436	0.000	100.000	232.982	-1.548
S5	0.008	0.461	0.000	100.000	220.704	-1.817
S6	0.009	0.473	0.000	100.000	215.888	-2.034
S7	0.010	0.464	0.000	100.000	219.831	-2.091
S8	0.009	0.441	0.000	100.000	231.202	-2.037

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	0.690	0.783	1.000	0.000

Air Zero Calibration, performed Thu Jan 14 13:13:26 2016:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.008		0.000		-0.001	
5'	0.011		0.000		0.000	
SUM						
S1	0.006		0.000		0.000	
S2	0.008		0.000		0.001	
S3	0.008		0.000		-0.000	
S4	0.008		0.000		-0.001	
S5	0.008		0.000		-0.000	
S6	0.007		0.000		0.001	
S7	0.008		0.000		-0.000	
S8	0.008		0.000		-0.000	



Company Whiting Oil & Gas Corporation  
Well Horsetail 07E-1801  
Field Wildcat  
County Weld  
State Colorado