



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company	Whiting Oil & Gas Corporation		
Well	Horsetail 07E-1834		
Field	Wildcat		
County	Weld		
State	Colorado		
Company	Whiting Oil & Gas Corporation		
Well	Horsetail 07E-1834		
Field	Wildcat		
County	Weld	State	Colorado
Location:	API #: 05-123-41642		Other Services
SEC 7 TWP 10N RGE 57W		---	
Permanent Datum	Ground Level	Elevation	4925'
Log Measured From	Kelly Bushing	21 FT	
Drilling Measured From	Kelly Bushing		
		Elevation	K.B. 4946' D.F. --- G.L. 4925'

Date	30-Dec-2015	
Run Number	One	
Depth Driller	14144 FT	
Depth Logger	5968 FT	
Bottom Logged Interval	5963 FT	
Top Log Interval	Surface	
Open Hole Size	8.750"	
Type Fluid	Water	
Density / Viscosity	8.34 lbs/gal	
Max. Recorded Temp.	214°F	
Estimated Cement Top	54 FT	
Time Well Ready	ROA	
Time Logger on Bottom	10:16 AM	
Equipment Number	HD-0343	
Location	Fort Lupton, CO	
Recorded By	Andrew Olmsted	
Witnessed By	E.Moore	

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	21 FT	2013 FT		
Intermediate #1	5 1/2	20	P-110	21 FT	14115 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 per customer request  
Depth referenced to KB zero at 21 FT  
Log ran from as deep as possible to Surface  
Marker Joint Found At 5318 FT  
Recorded with 1500 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.

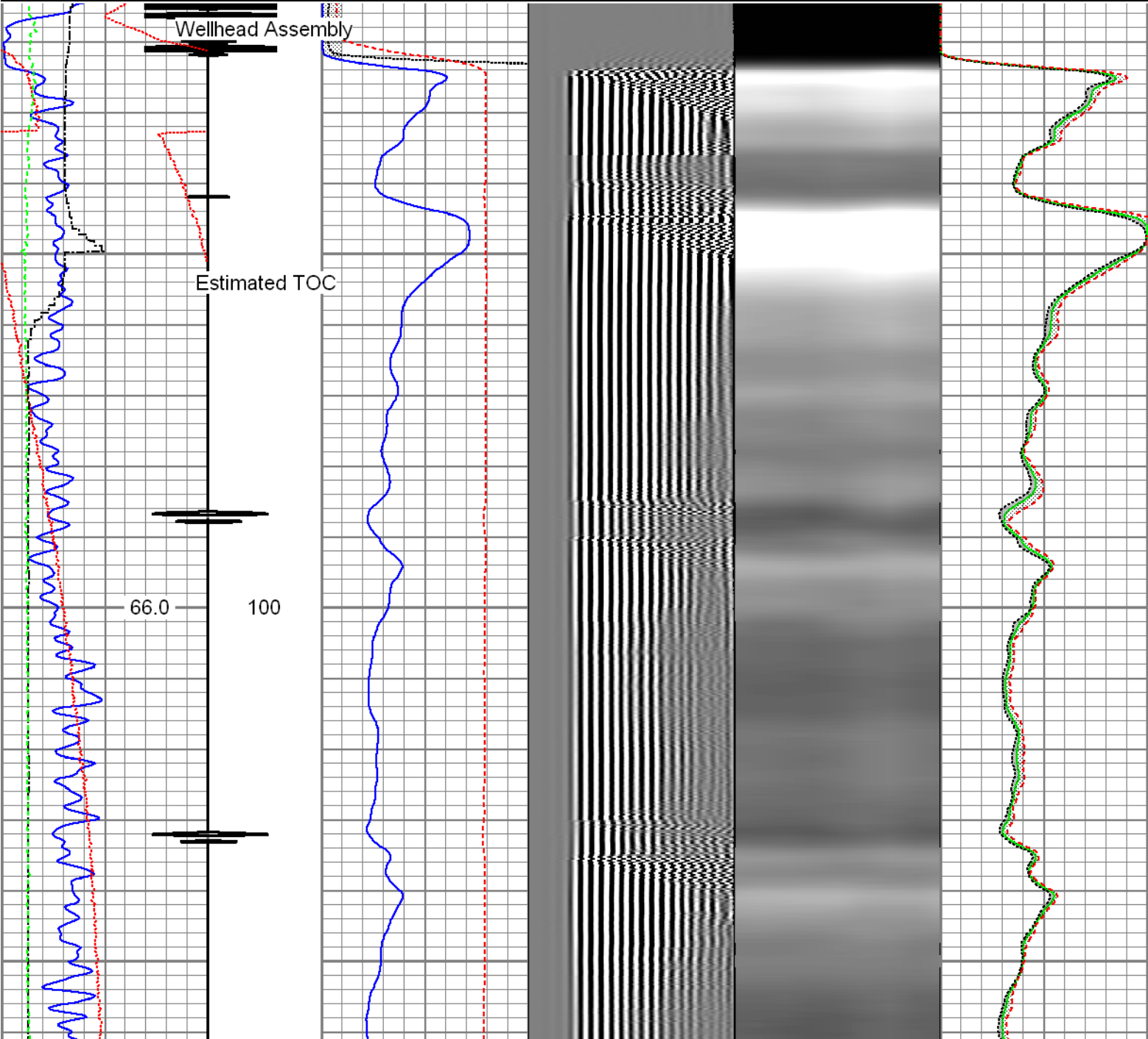


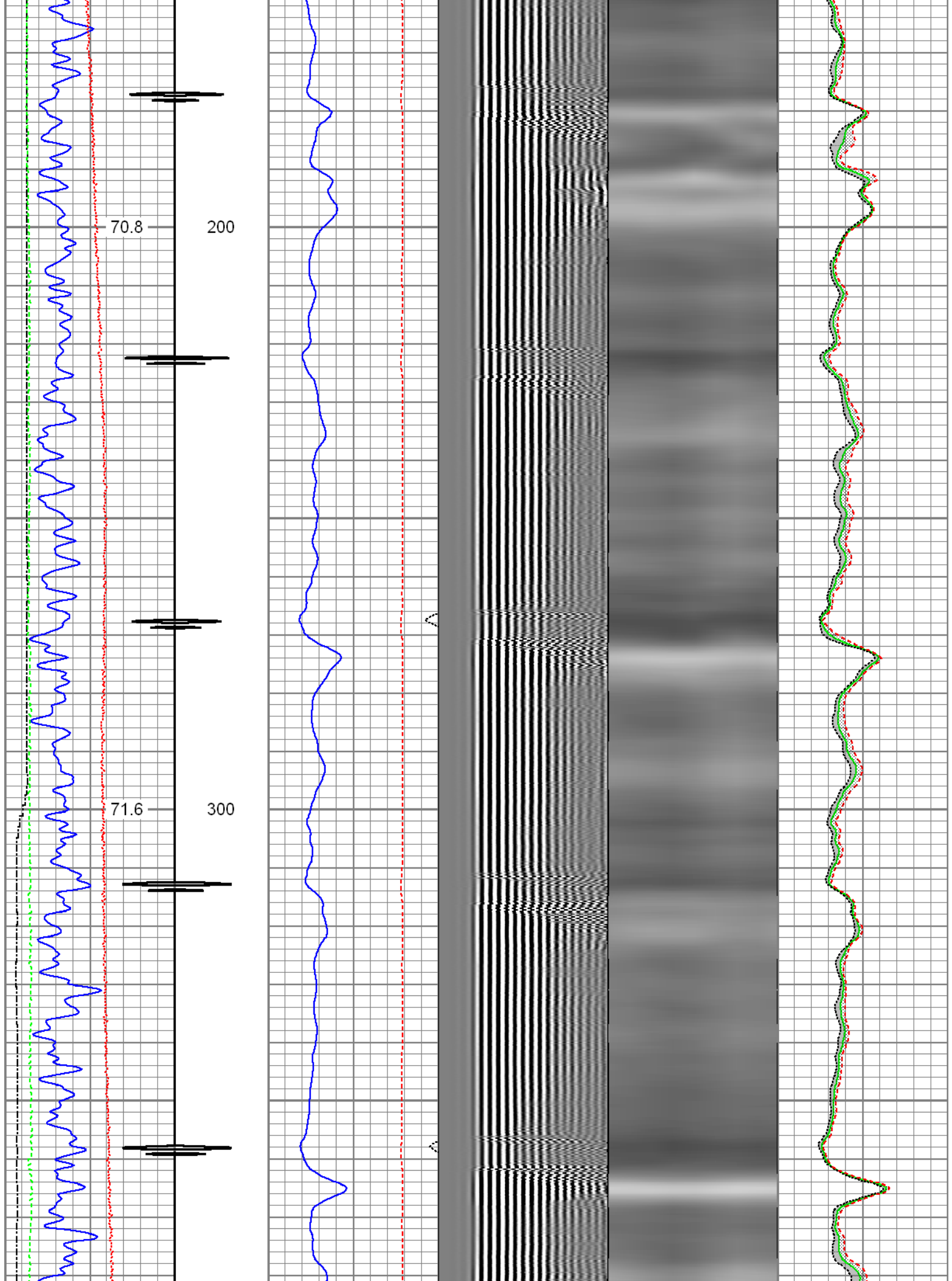
Main Pass

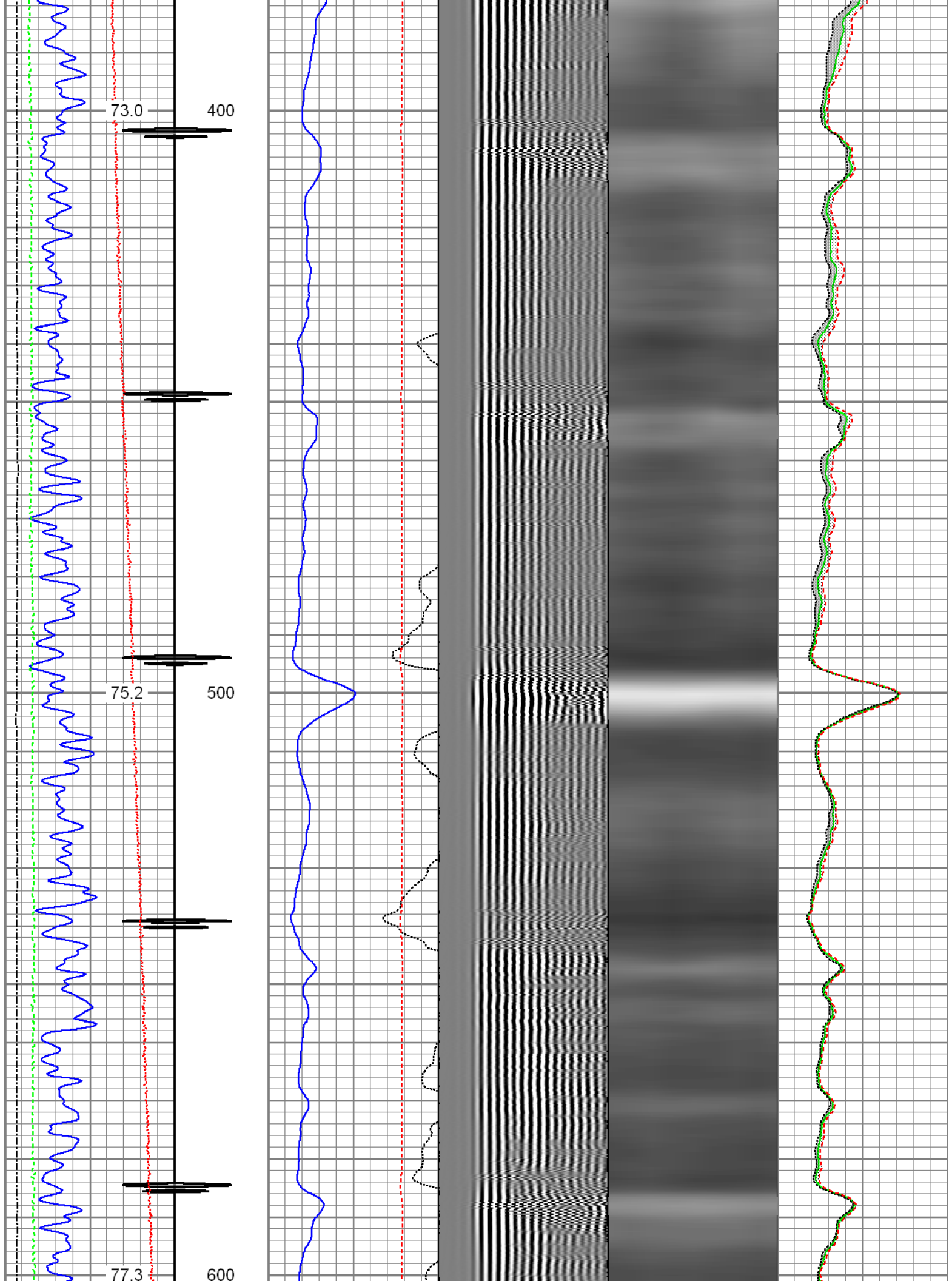
Recorded with 1500 PSI Surface Induced Pressure

Database File: 12-30-15\_whiting\_horsetail 07e-1834\_rbl.db  
Dataset Pathname: pass5.1  
Presentation Format: radii  
Dataset Creation: Wed Dec 30 11:18:47 2015 by Calc 7.0 B1  
Charted by: Depth in Feet scaled 1:240

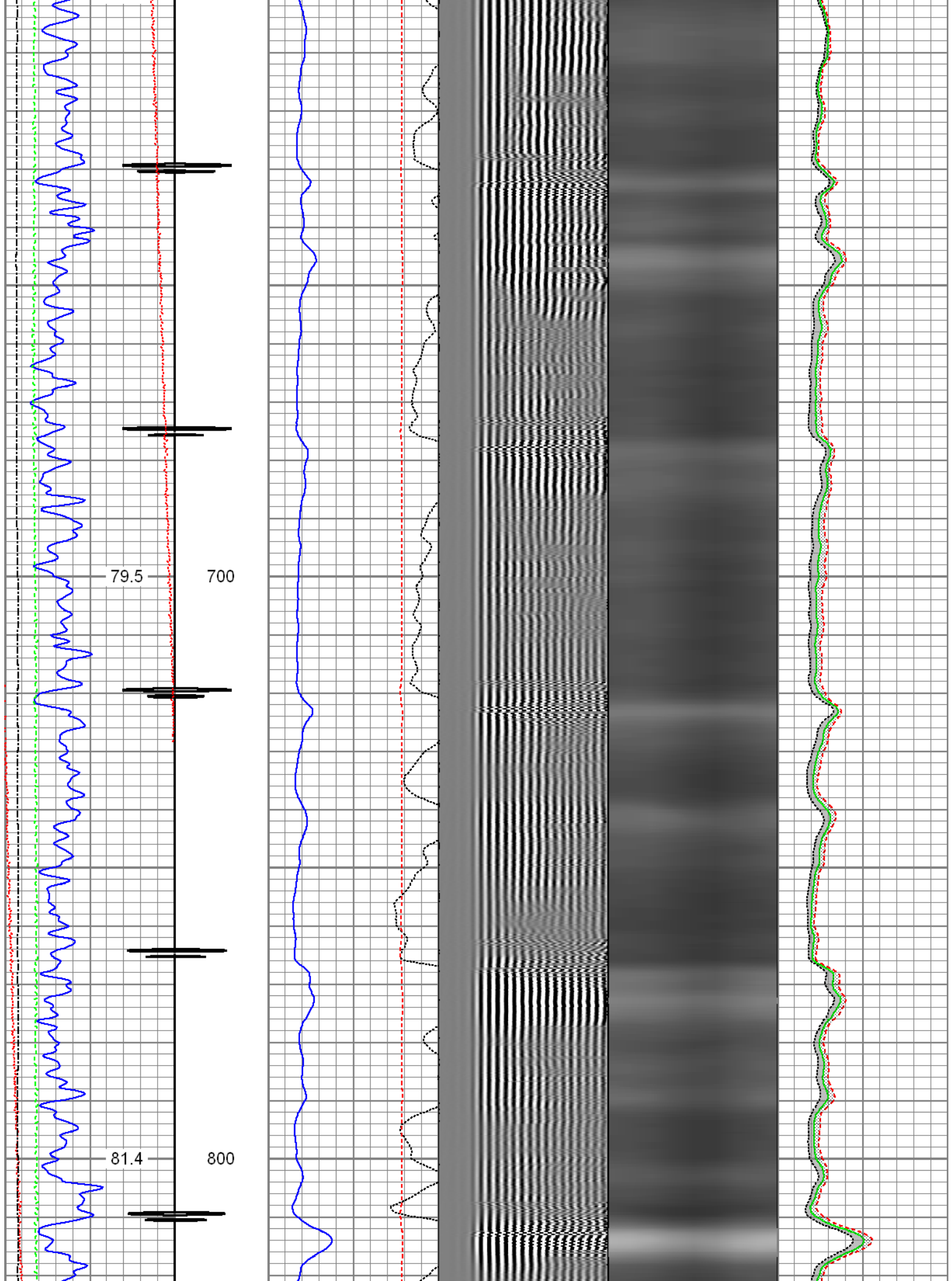
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

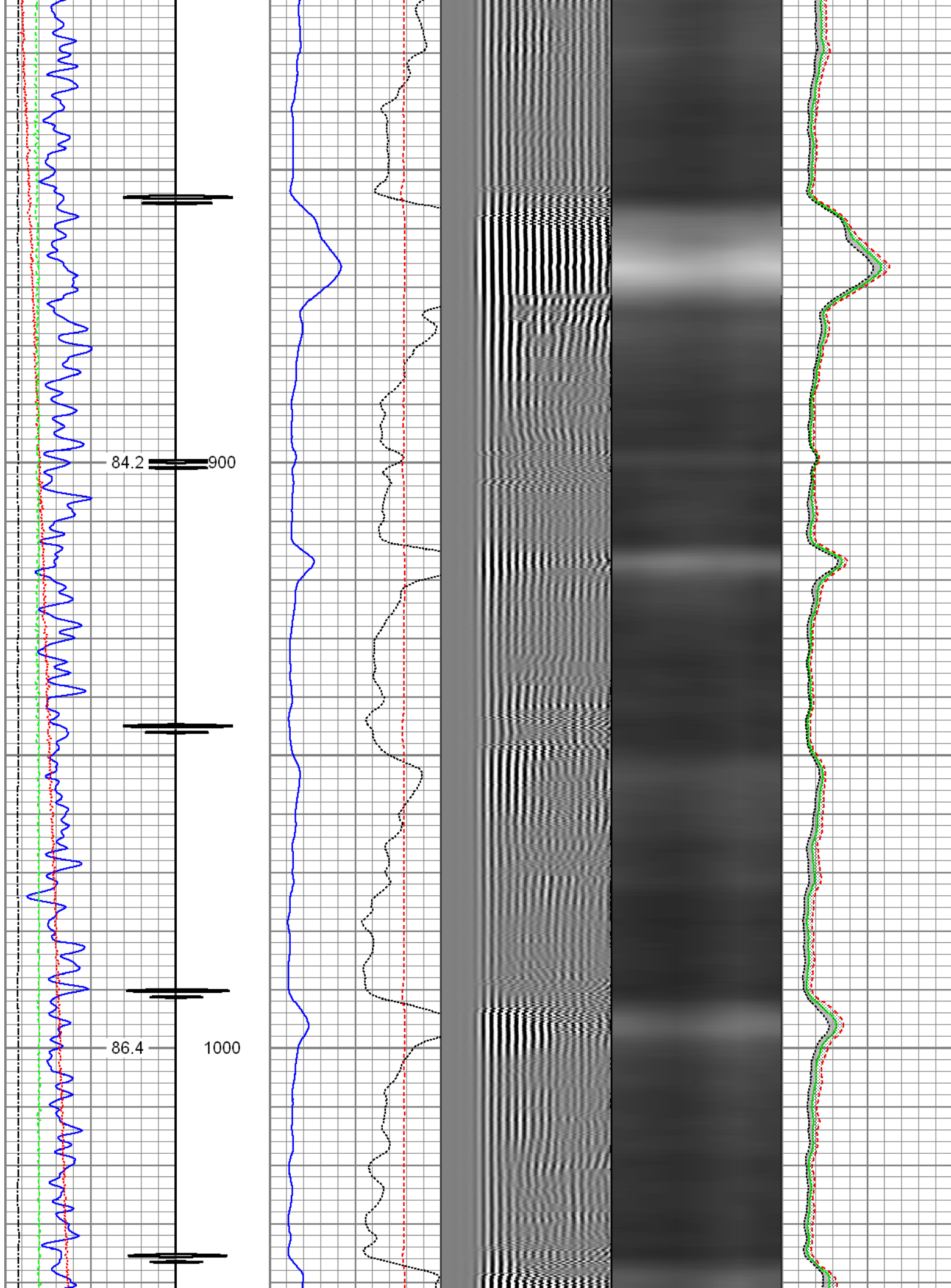


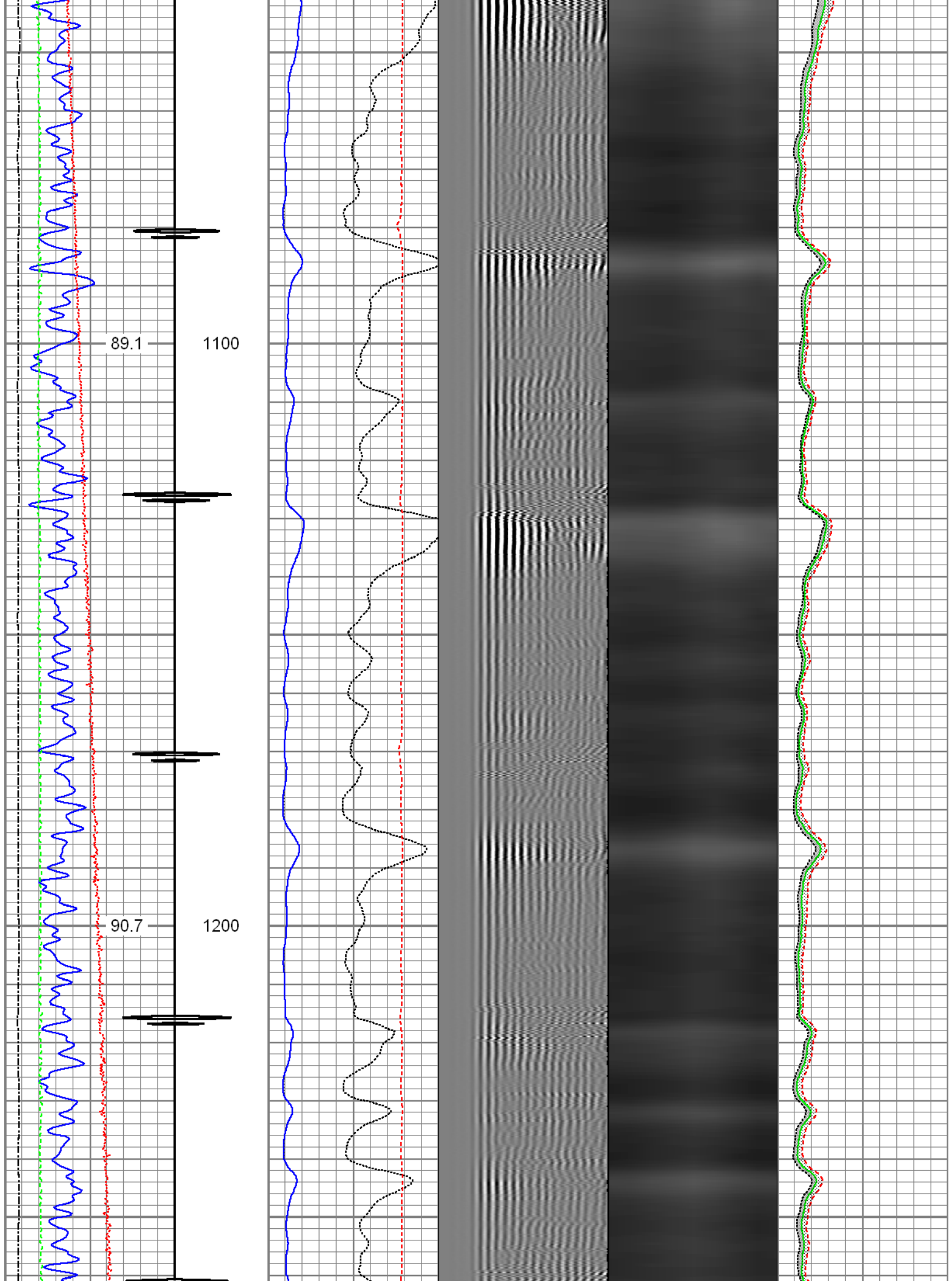


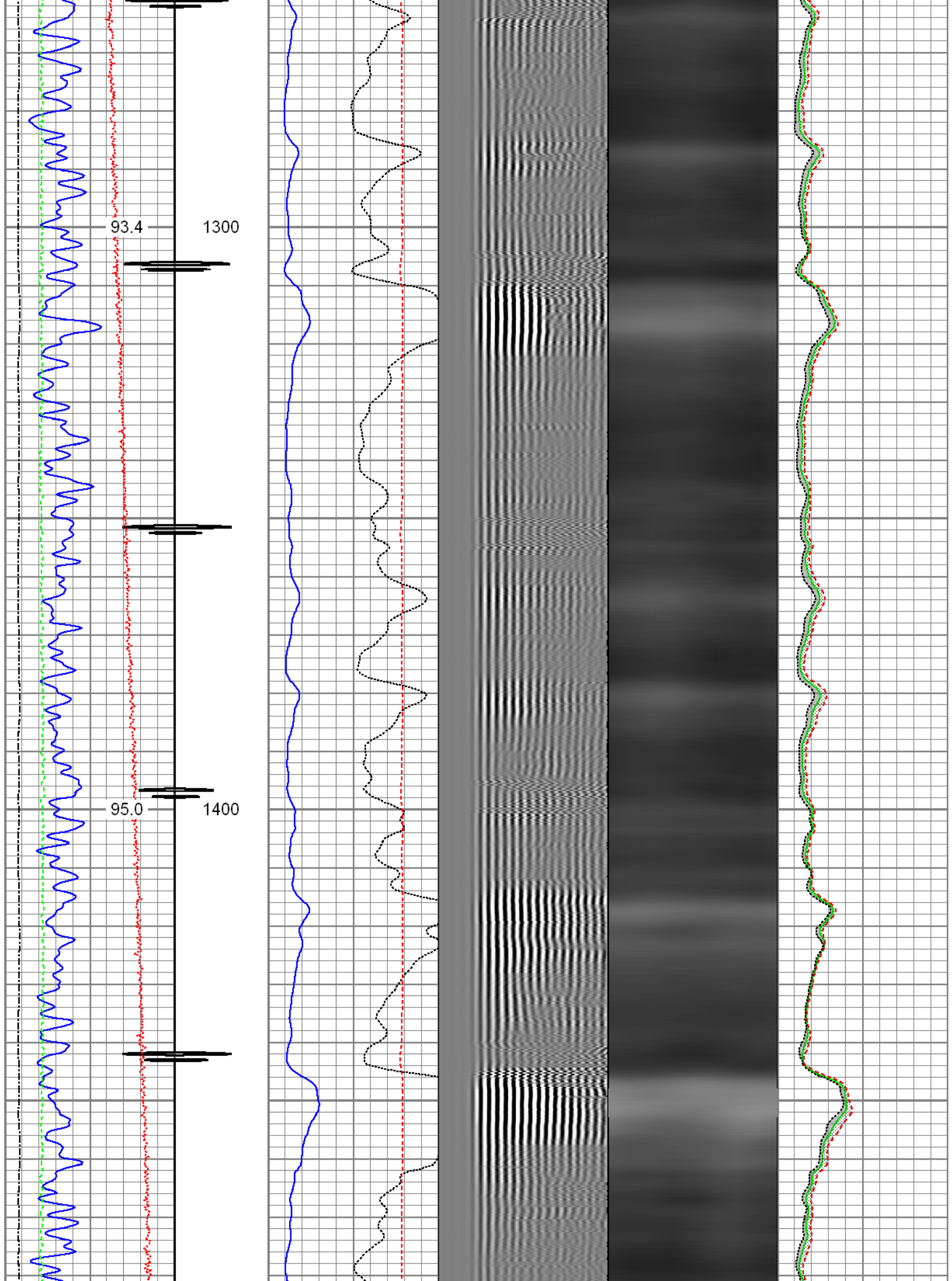




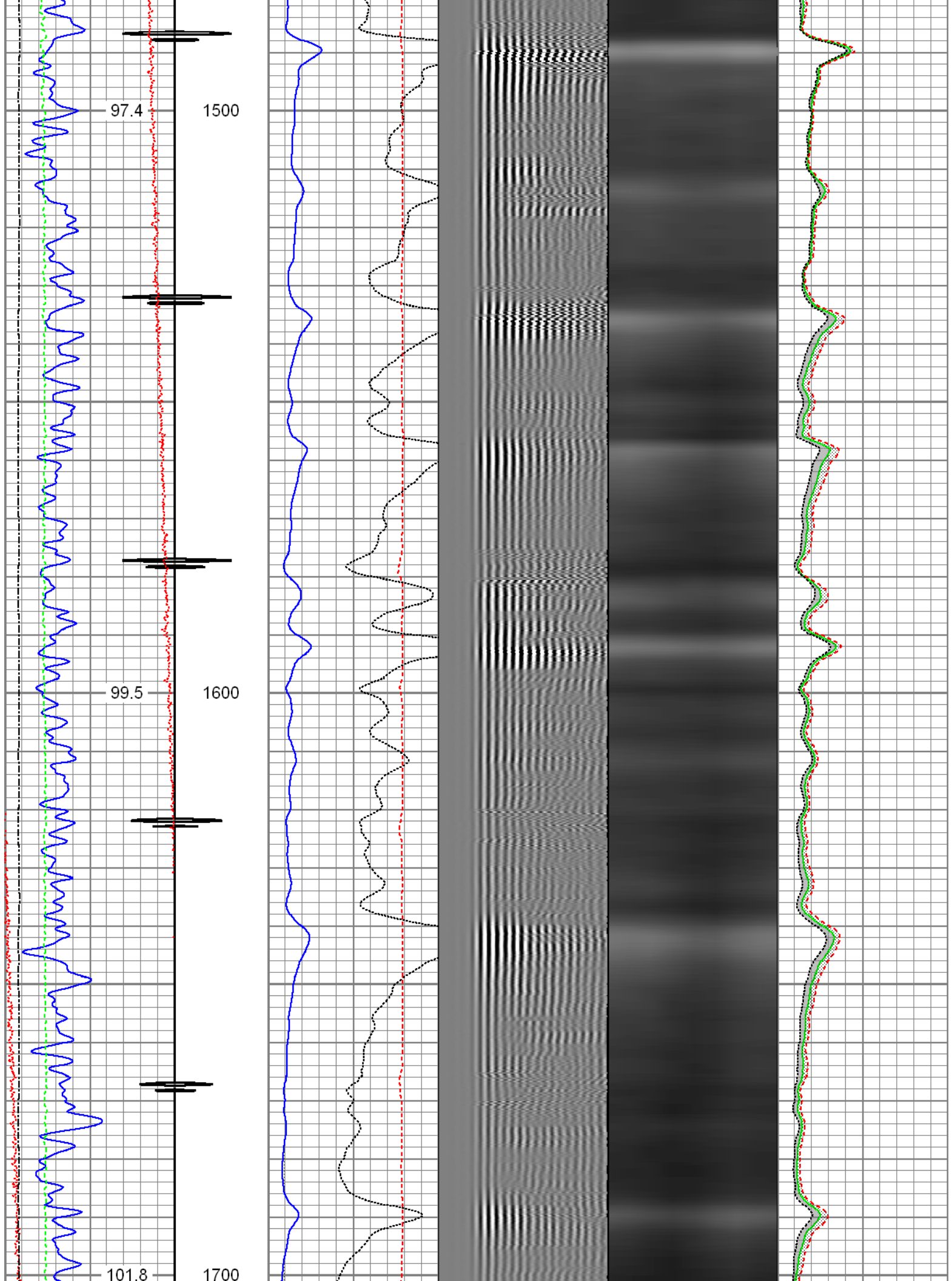


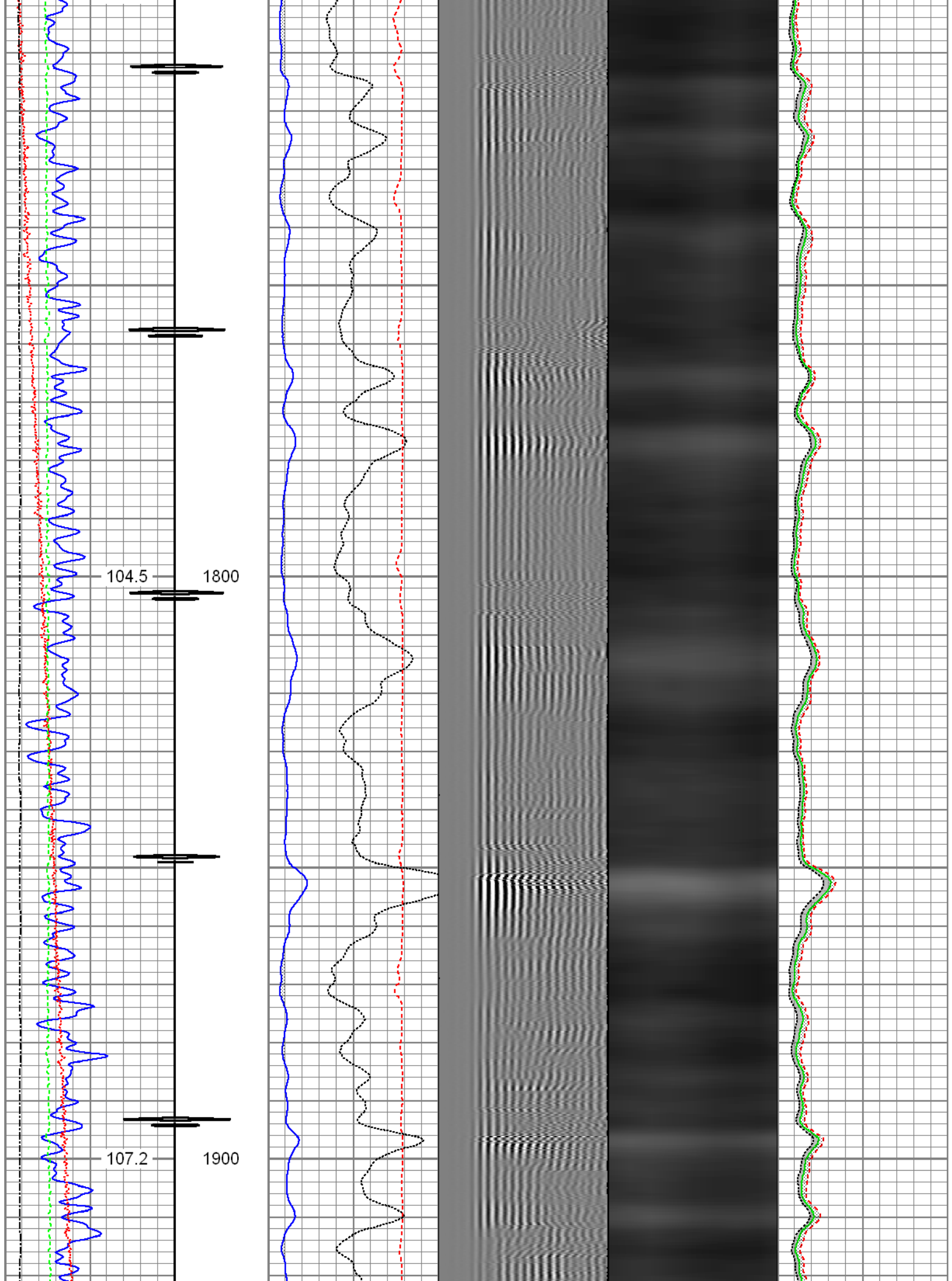


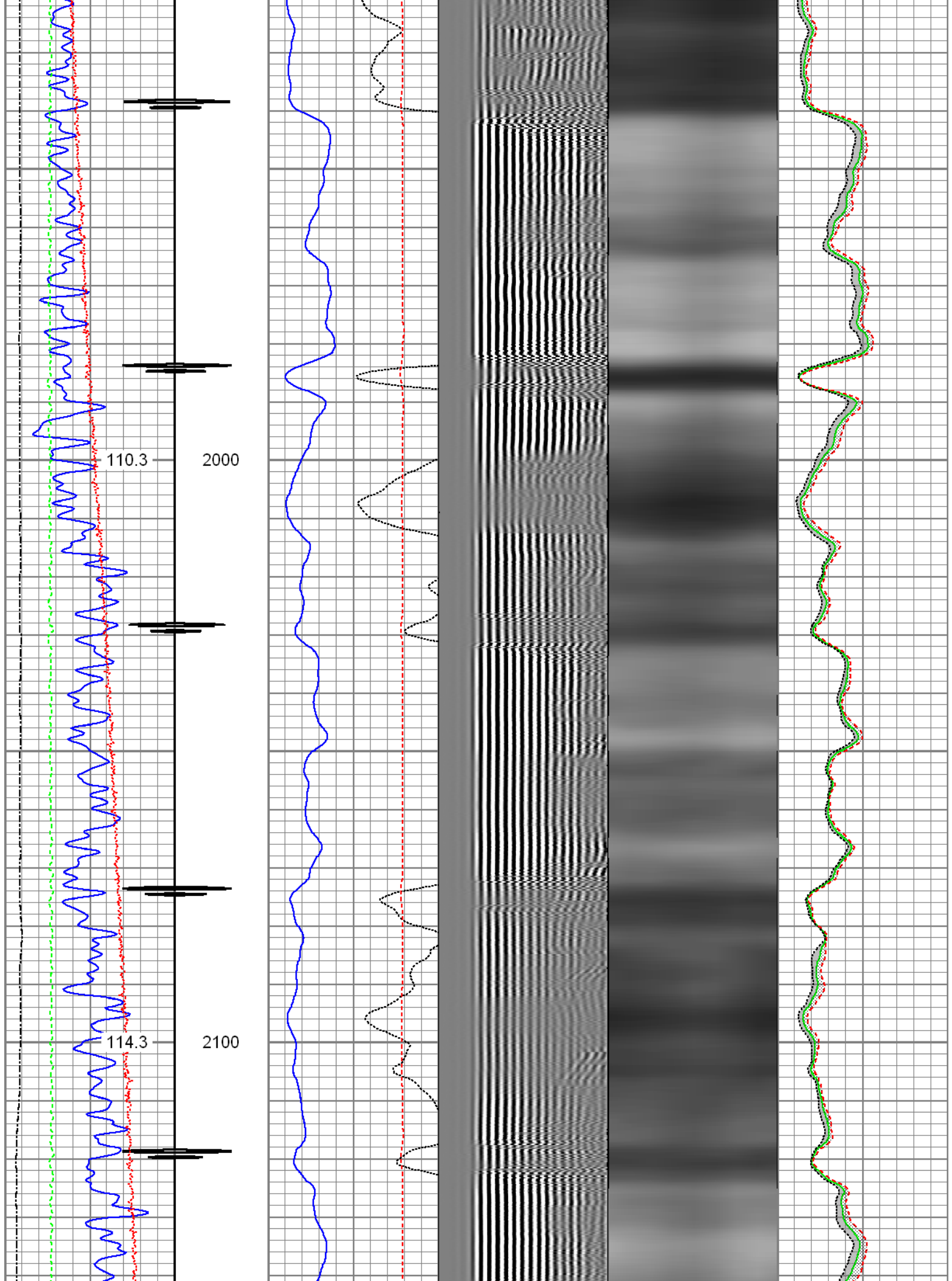


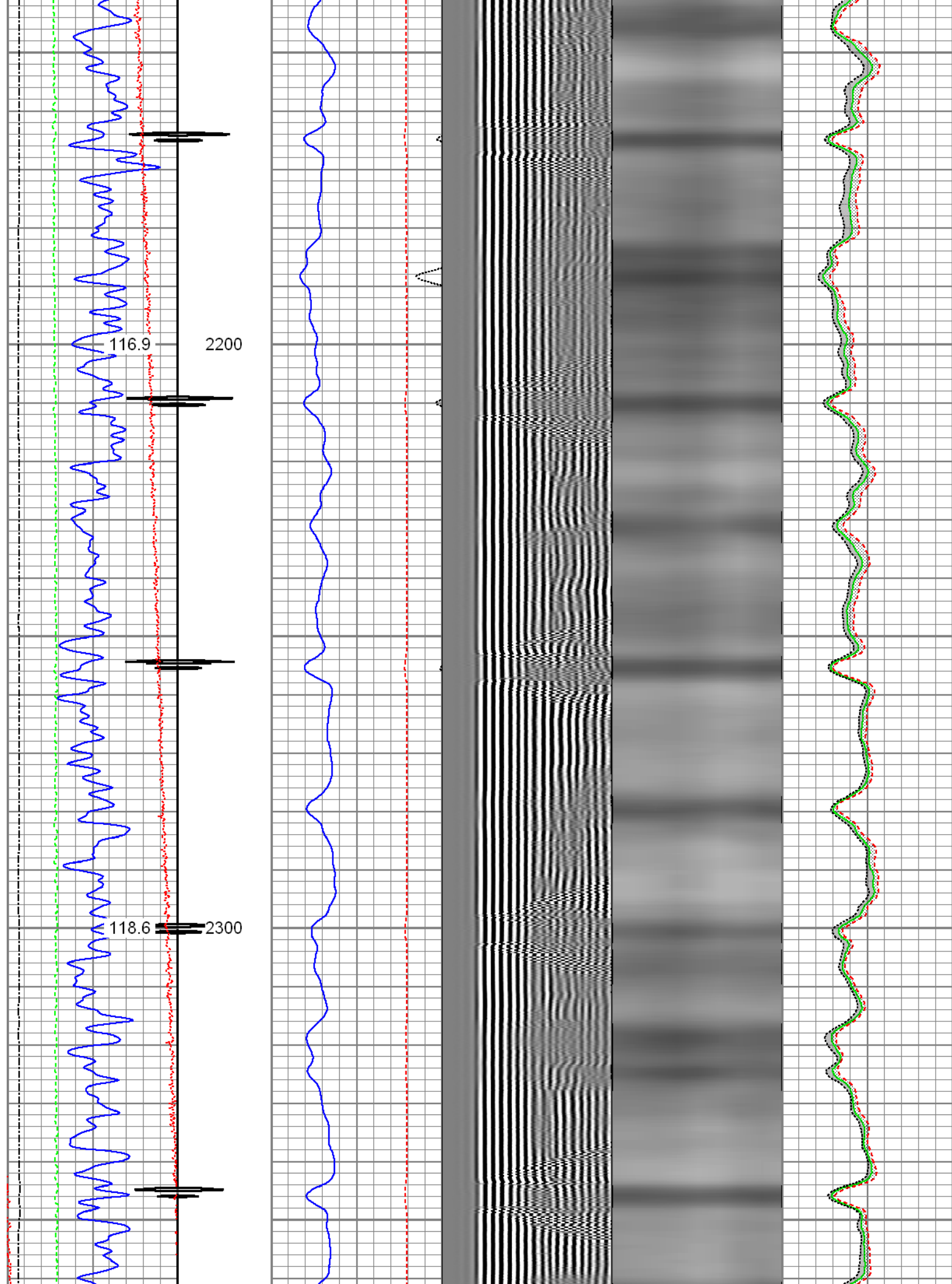




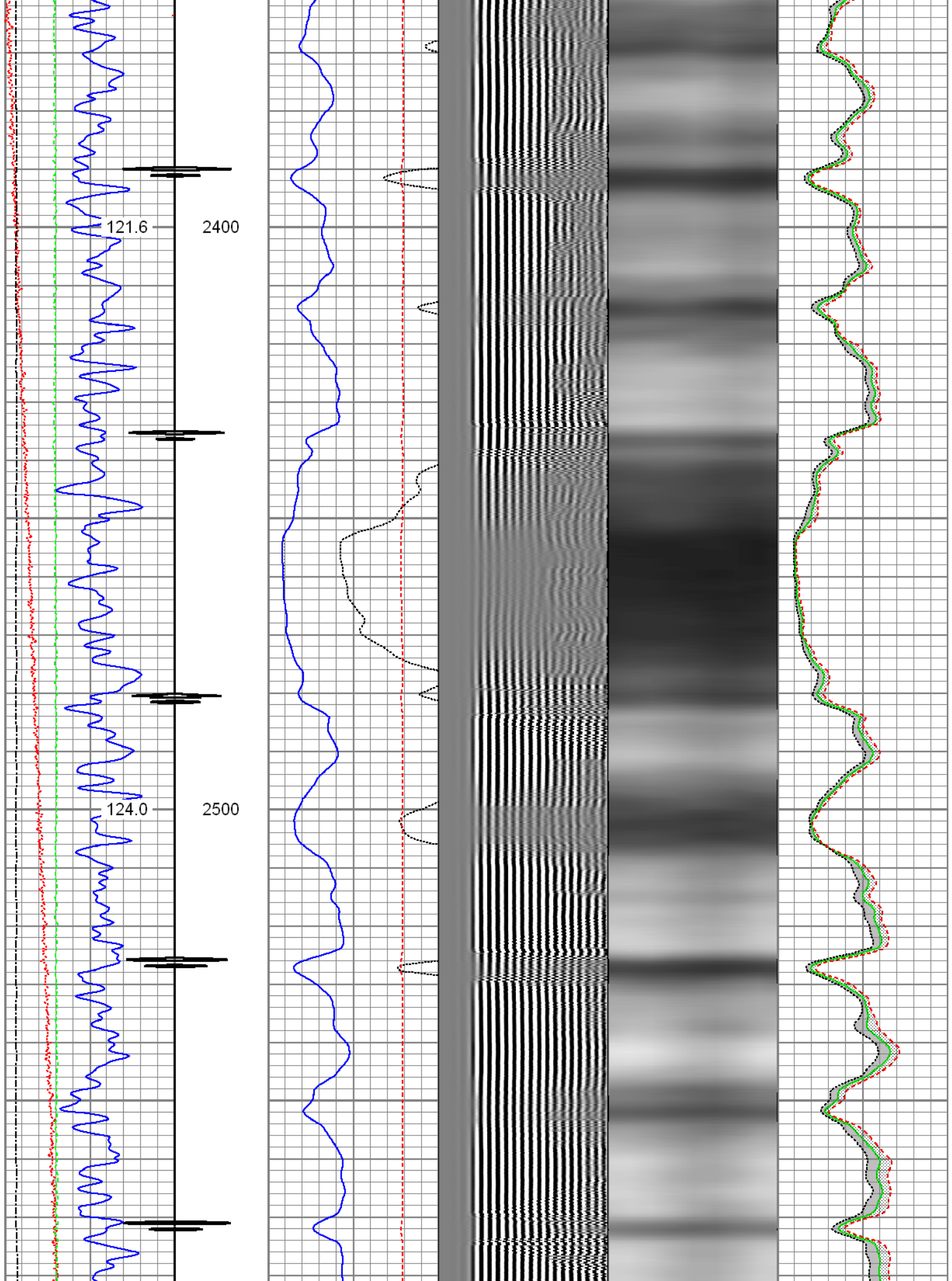


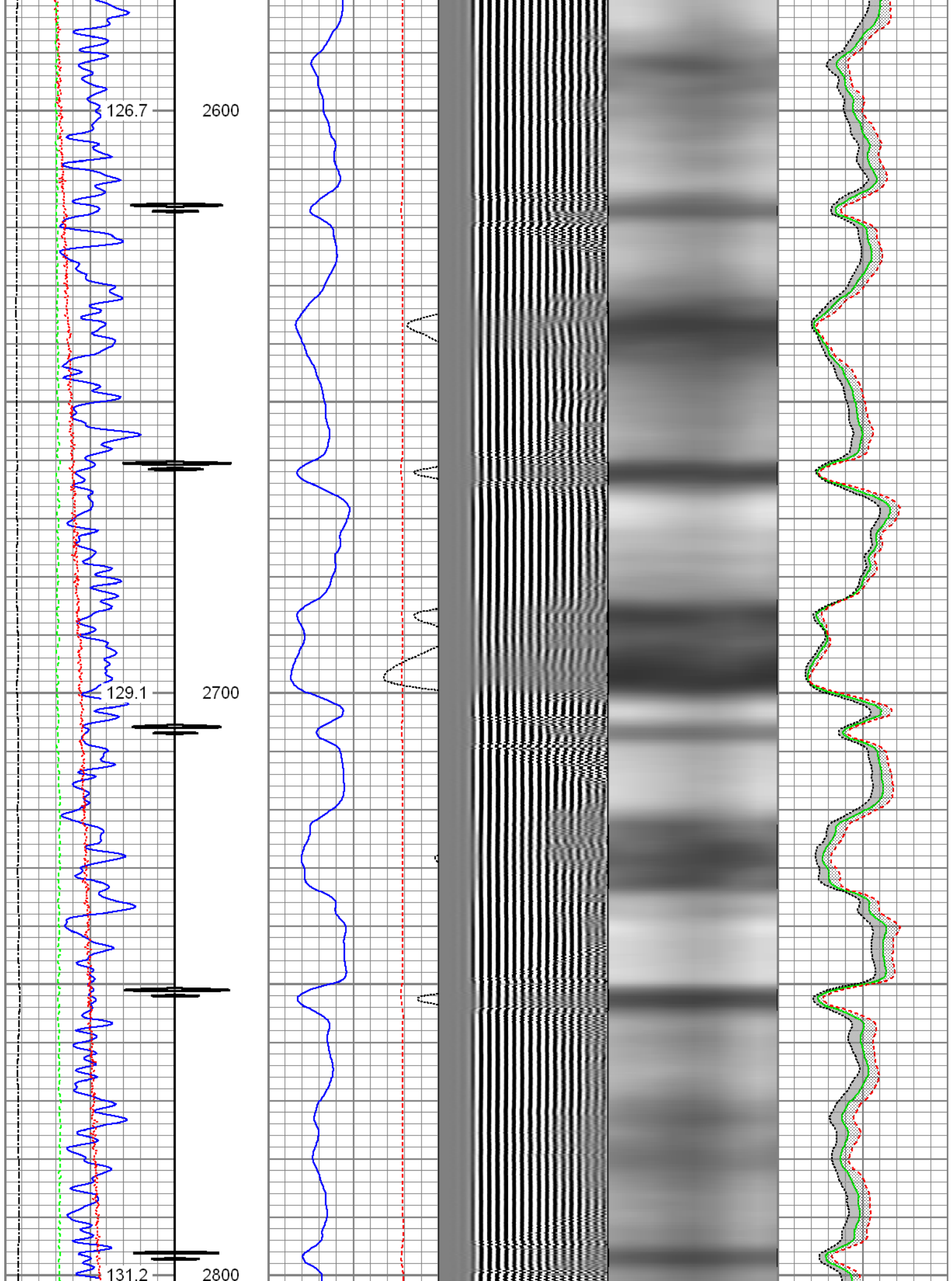


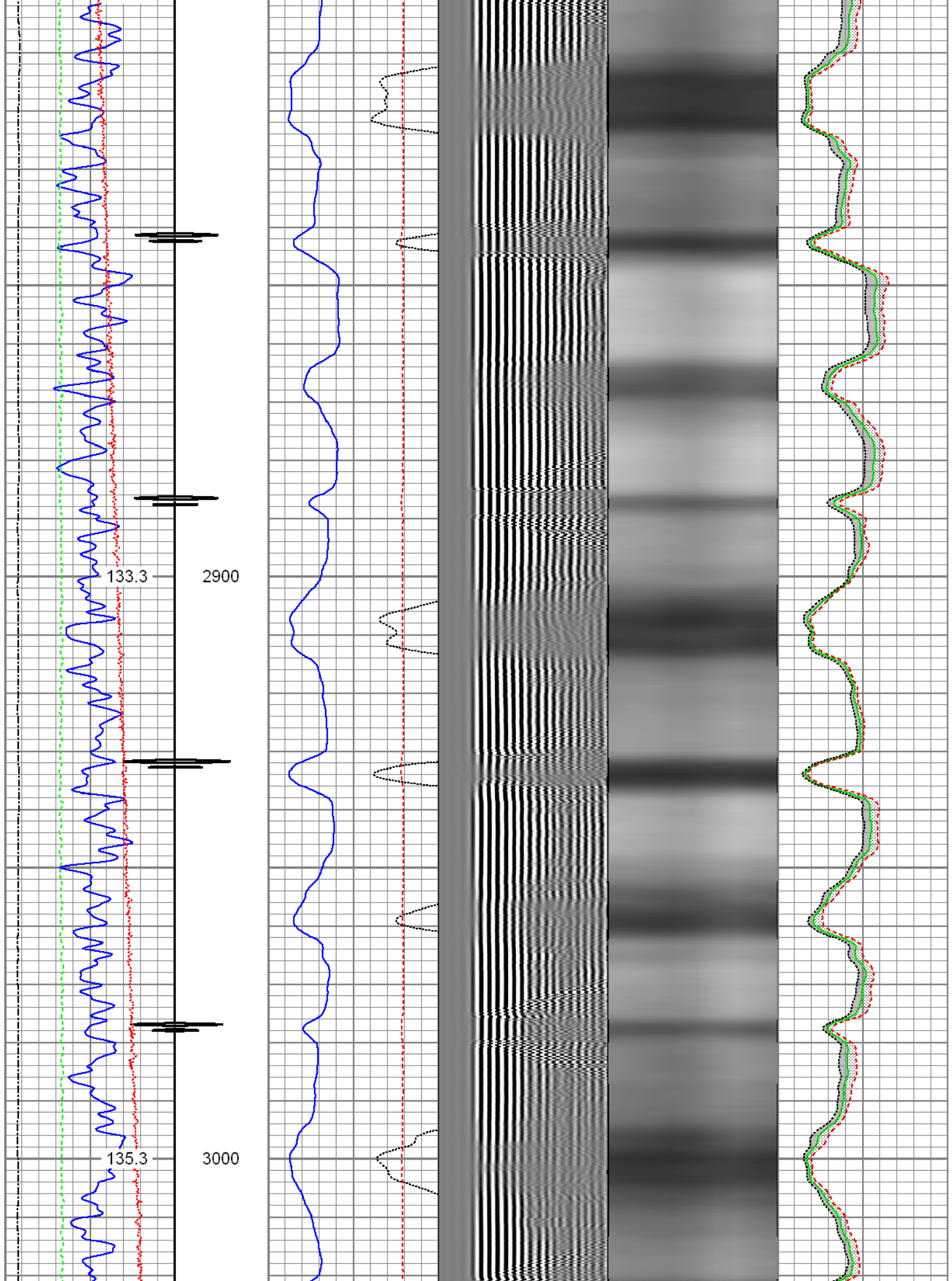




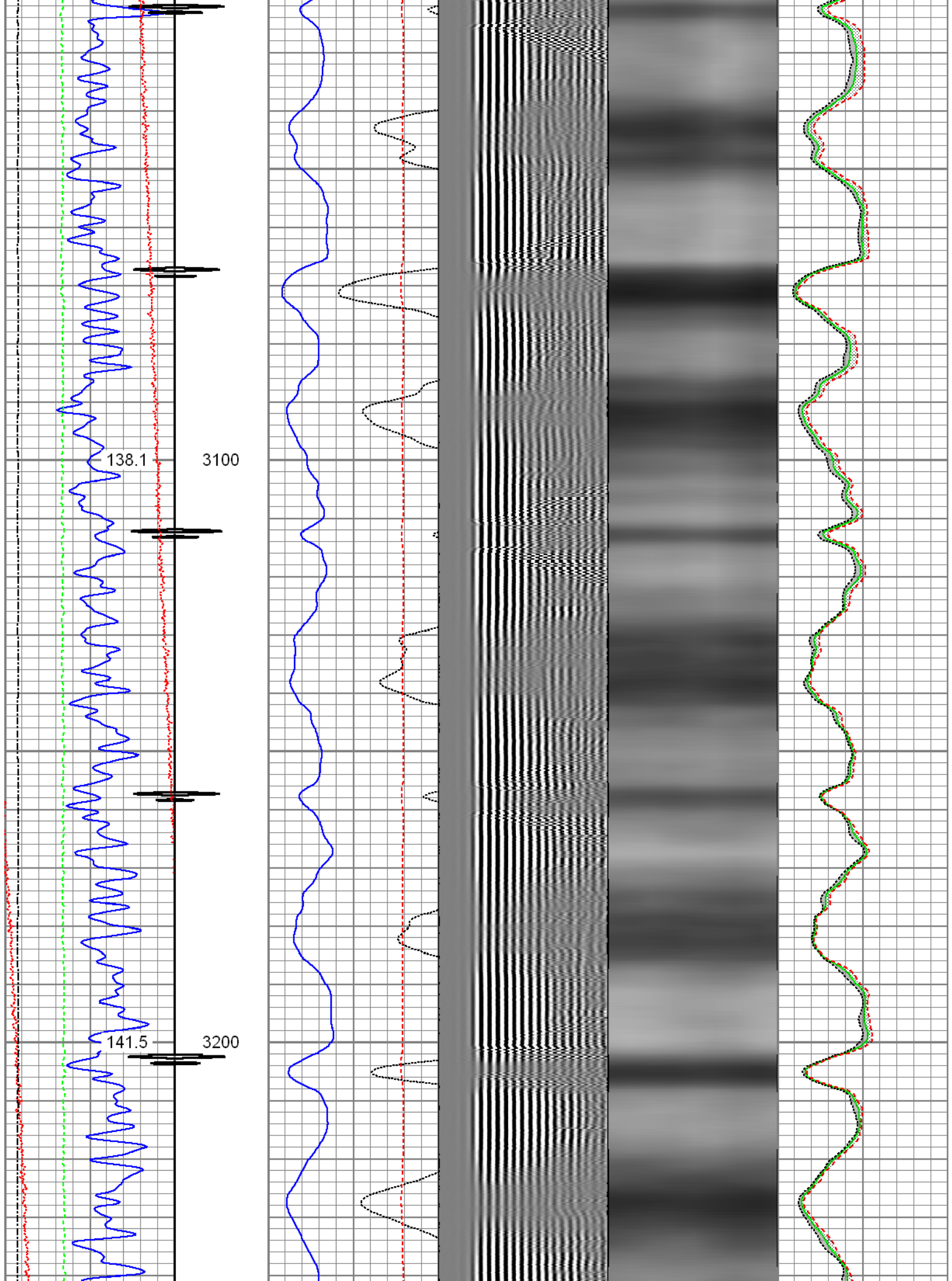




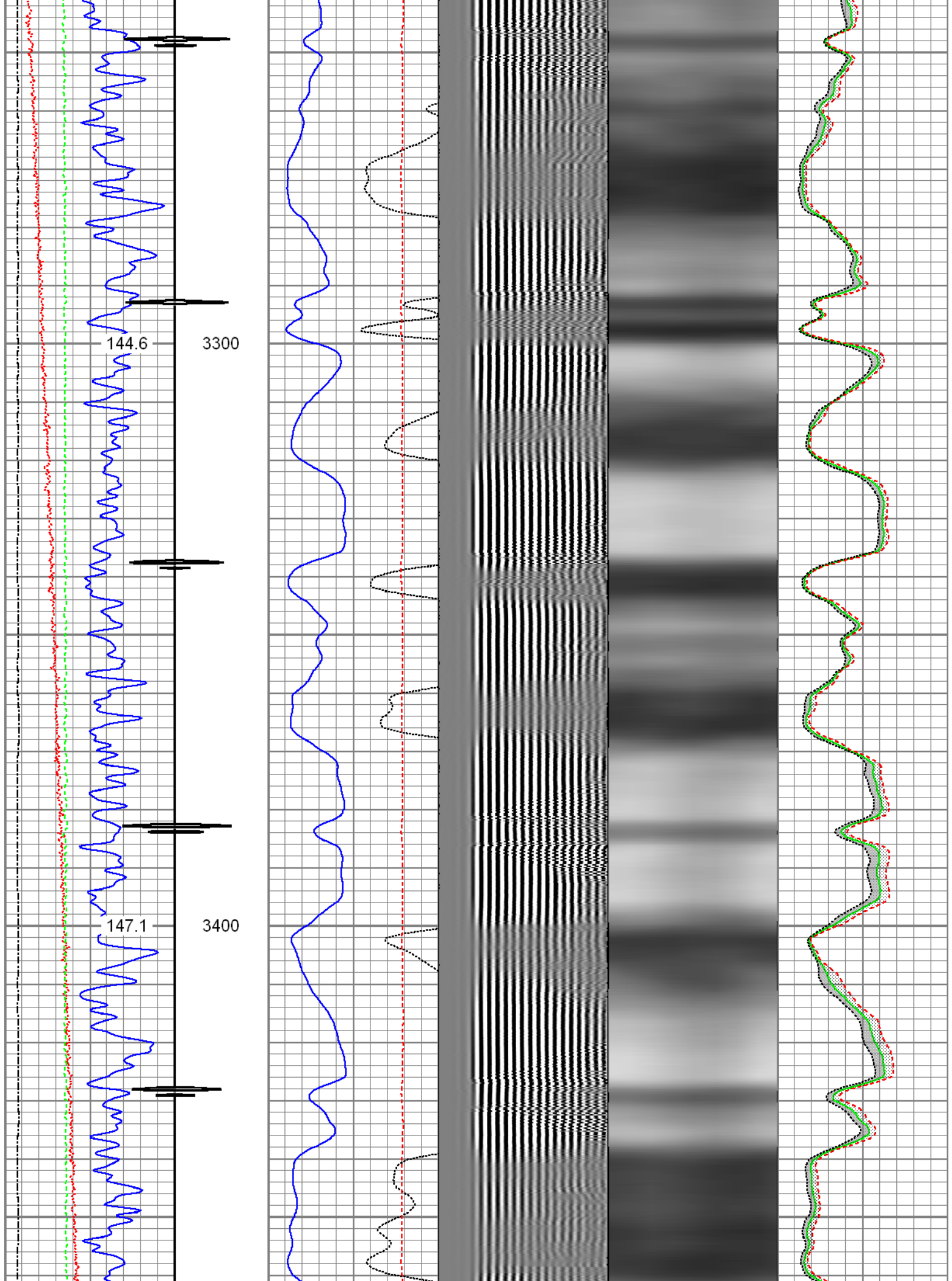


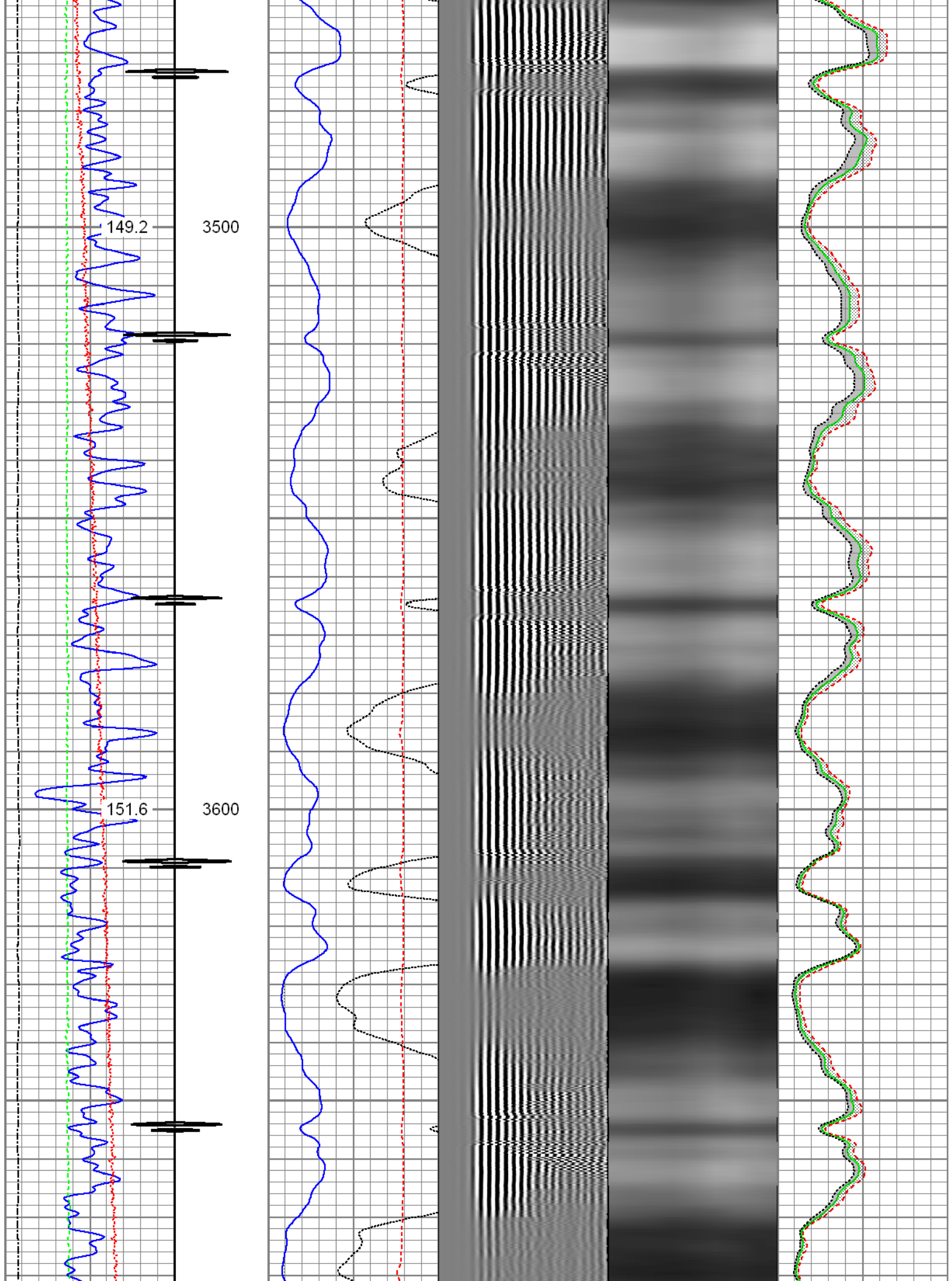


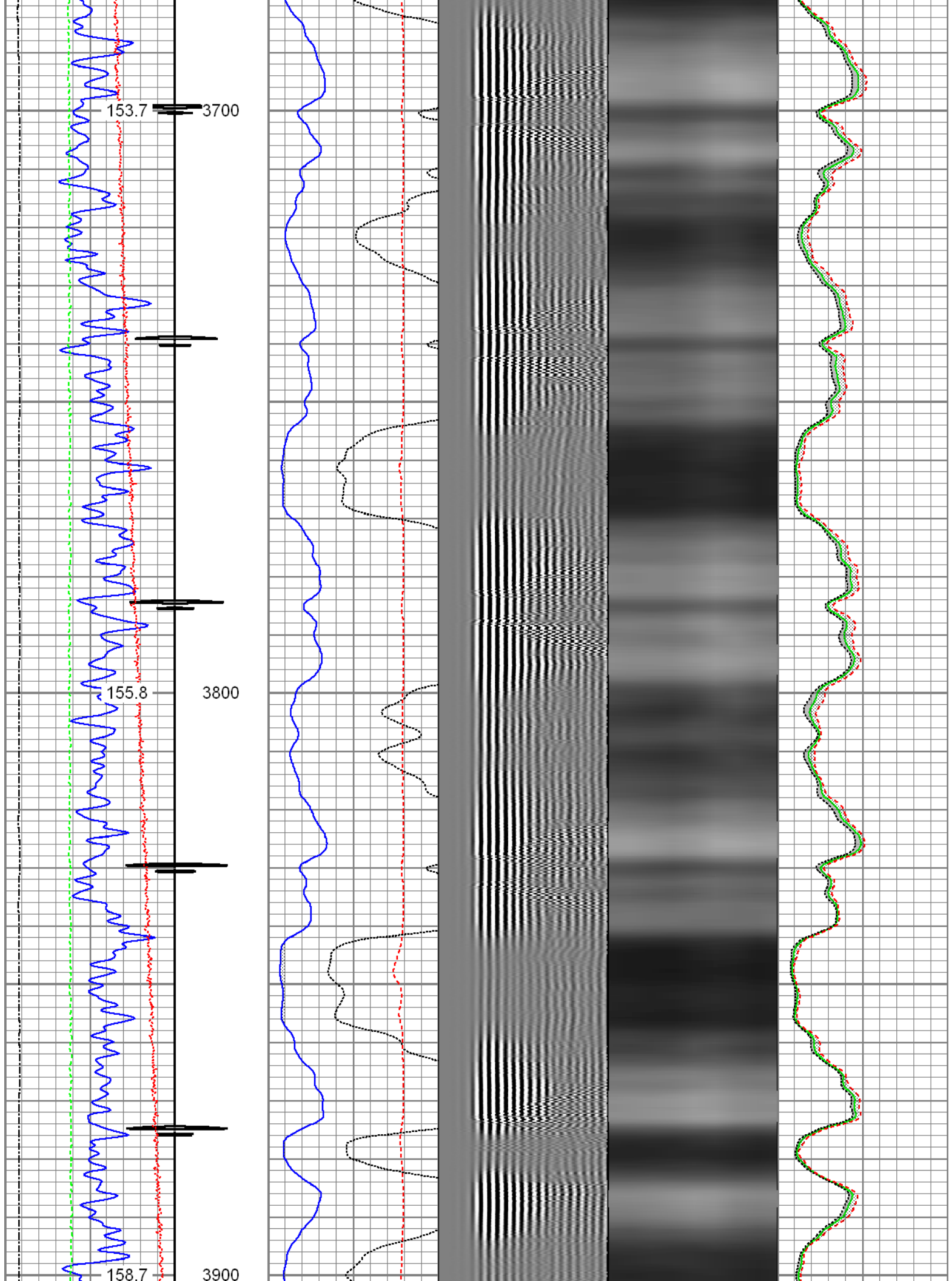




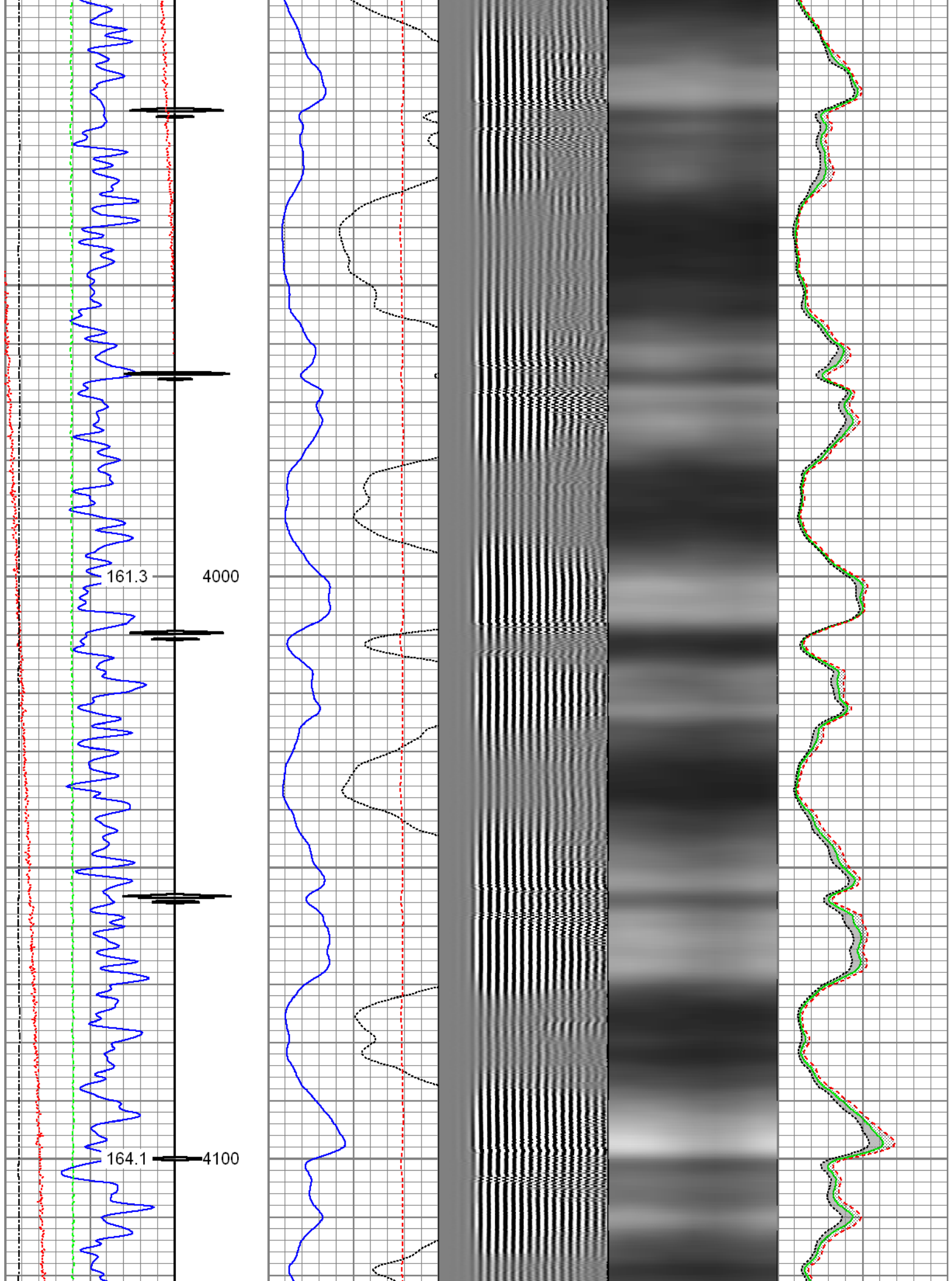




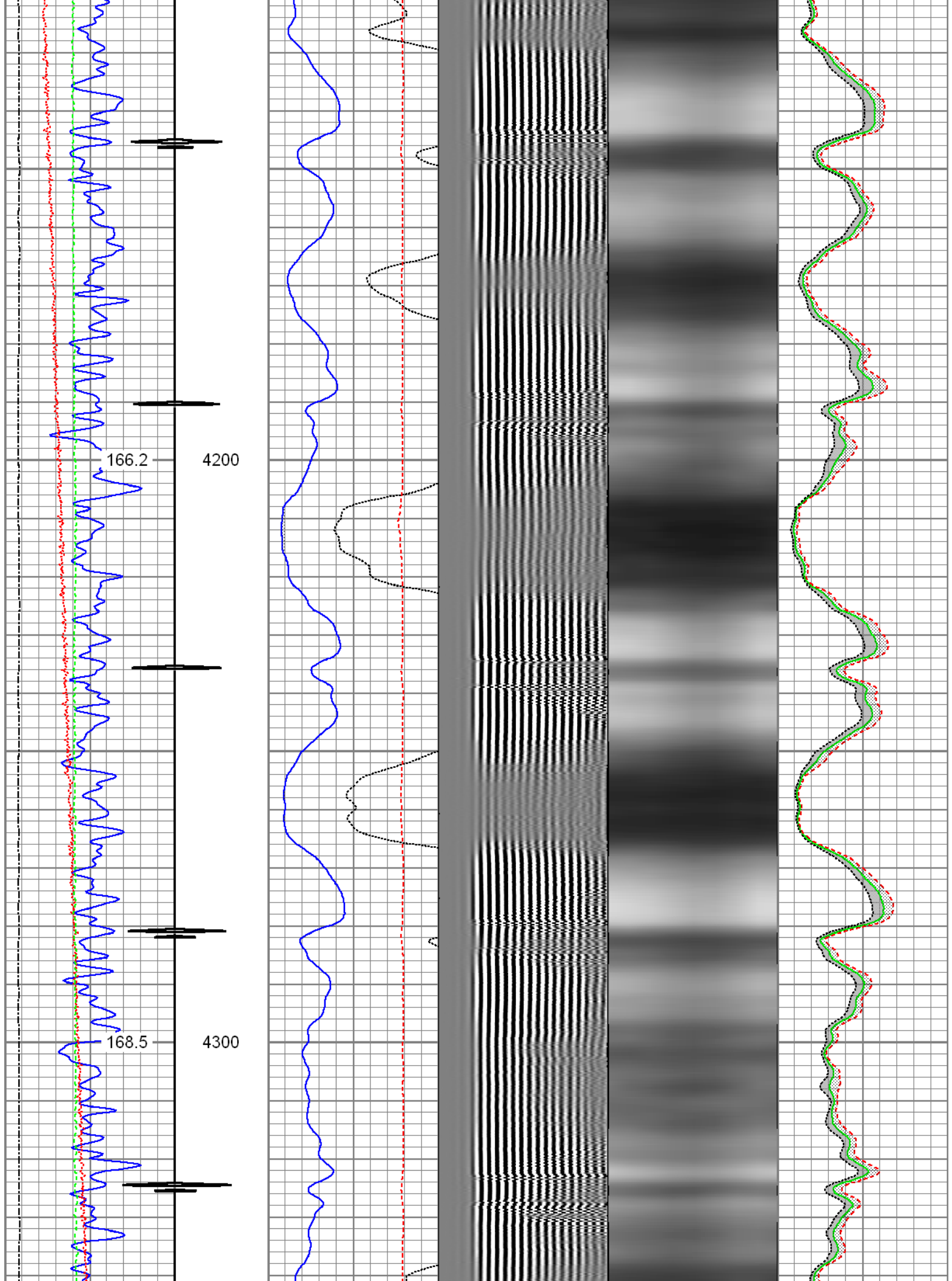


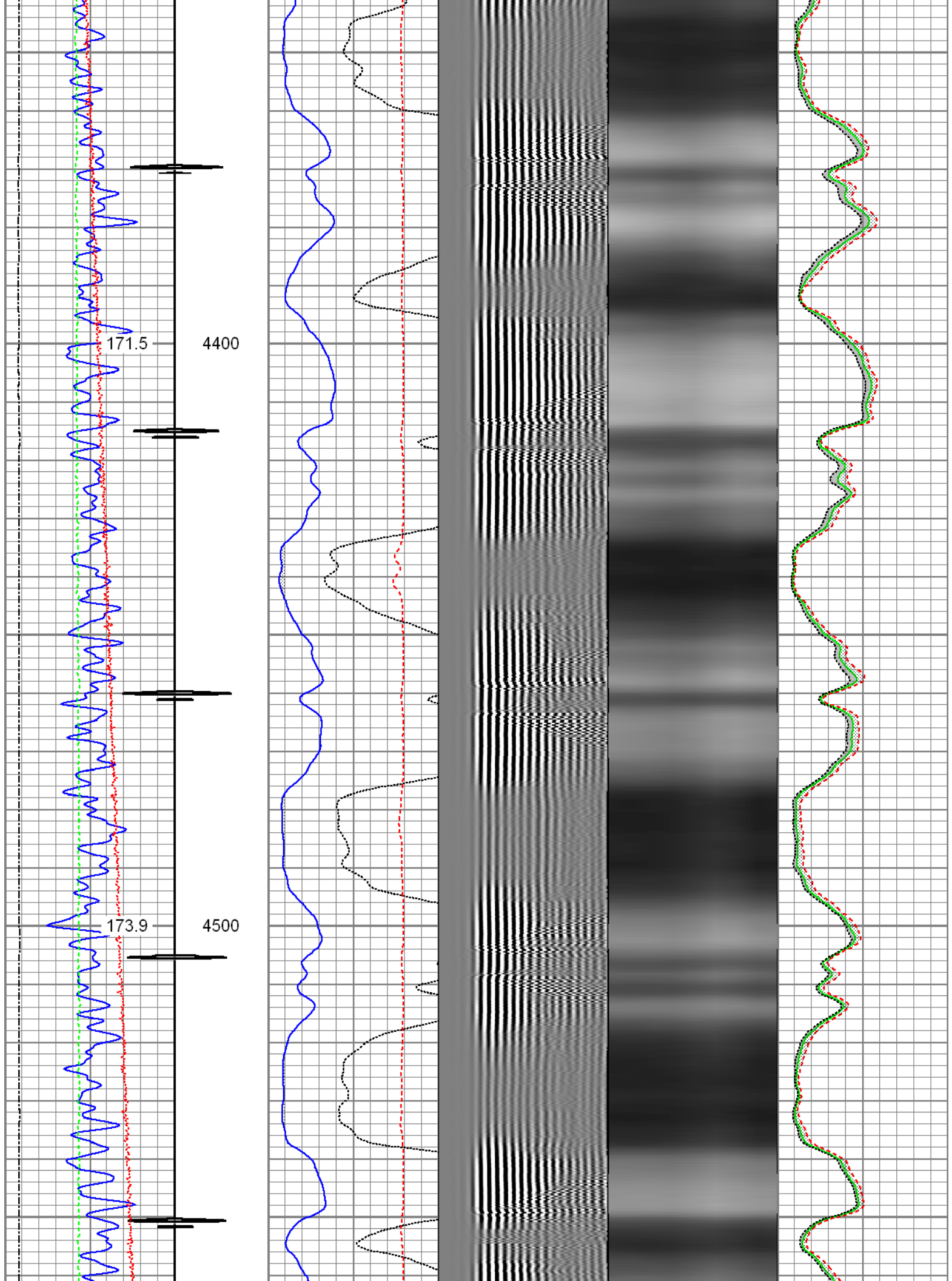


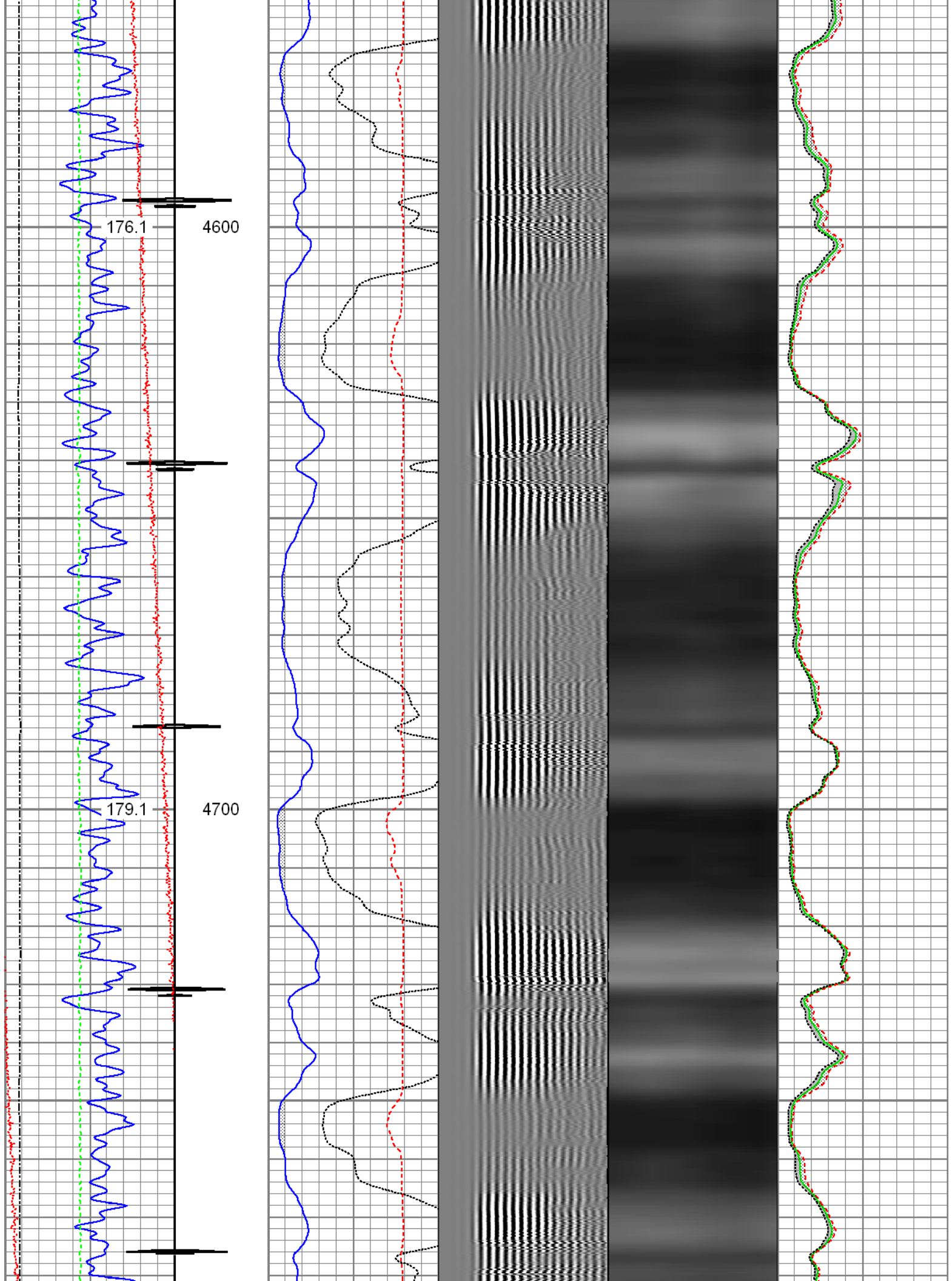




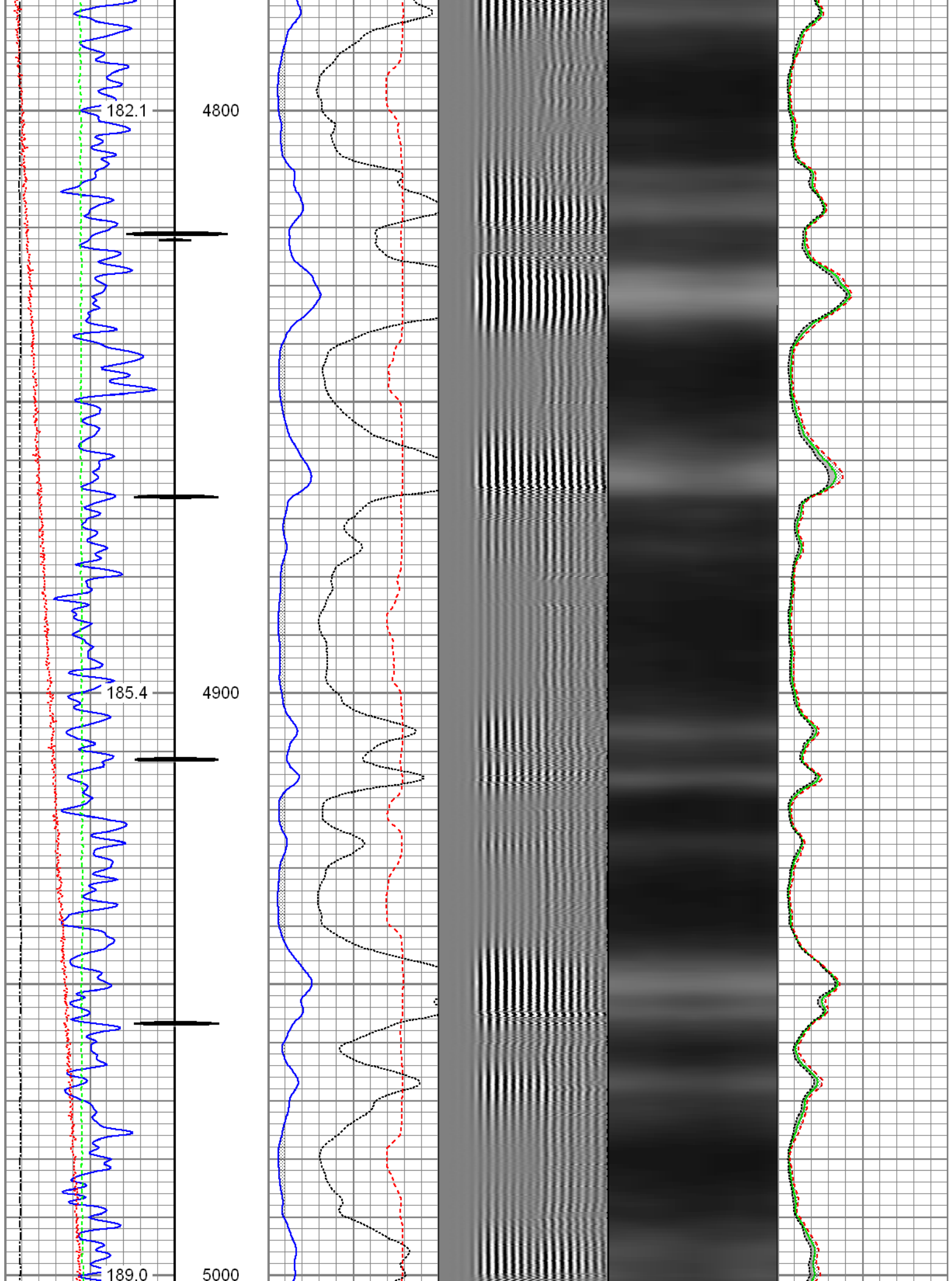




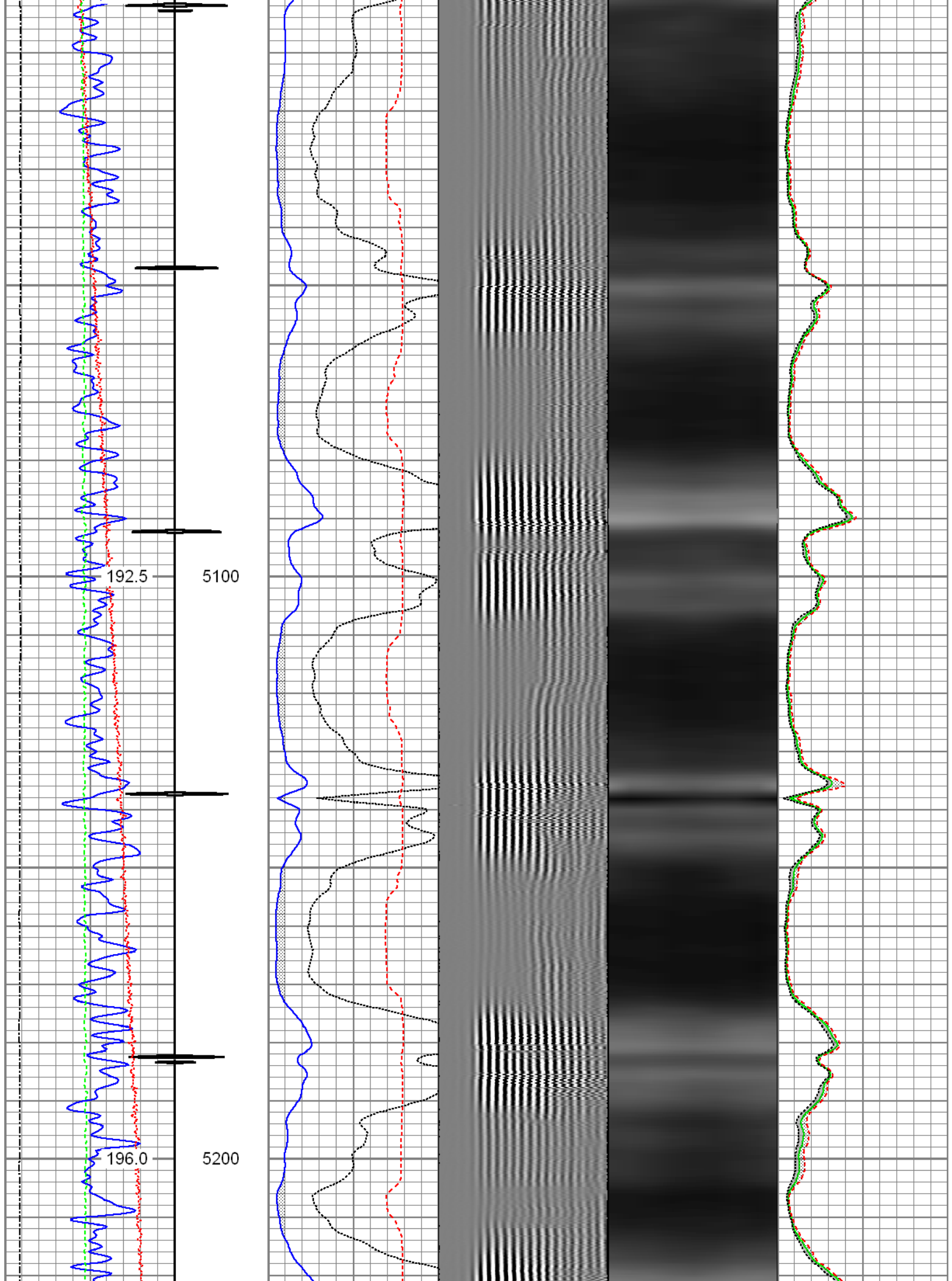


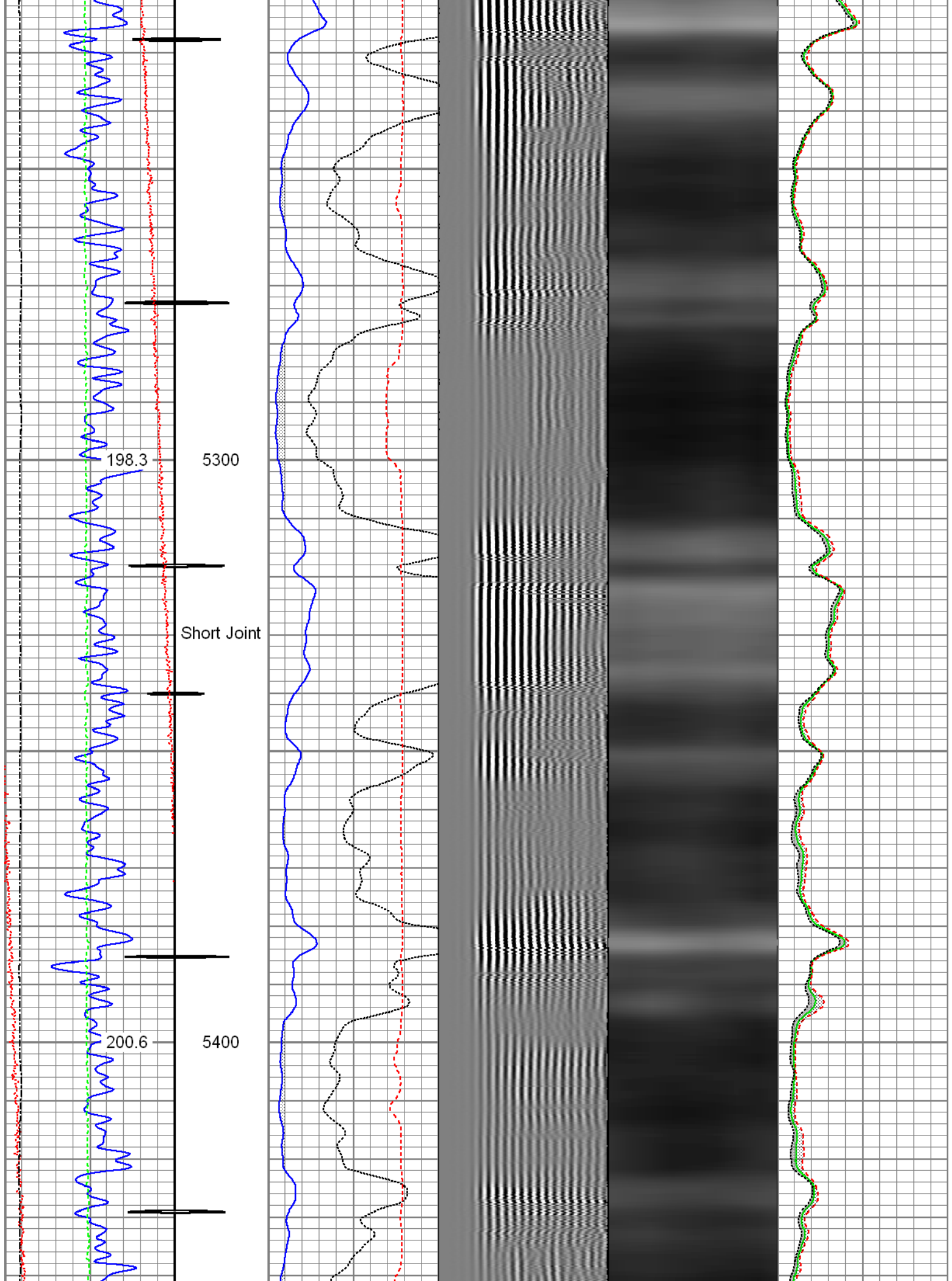


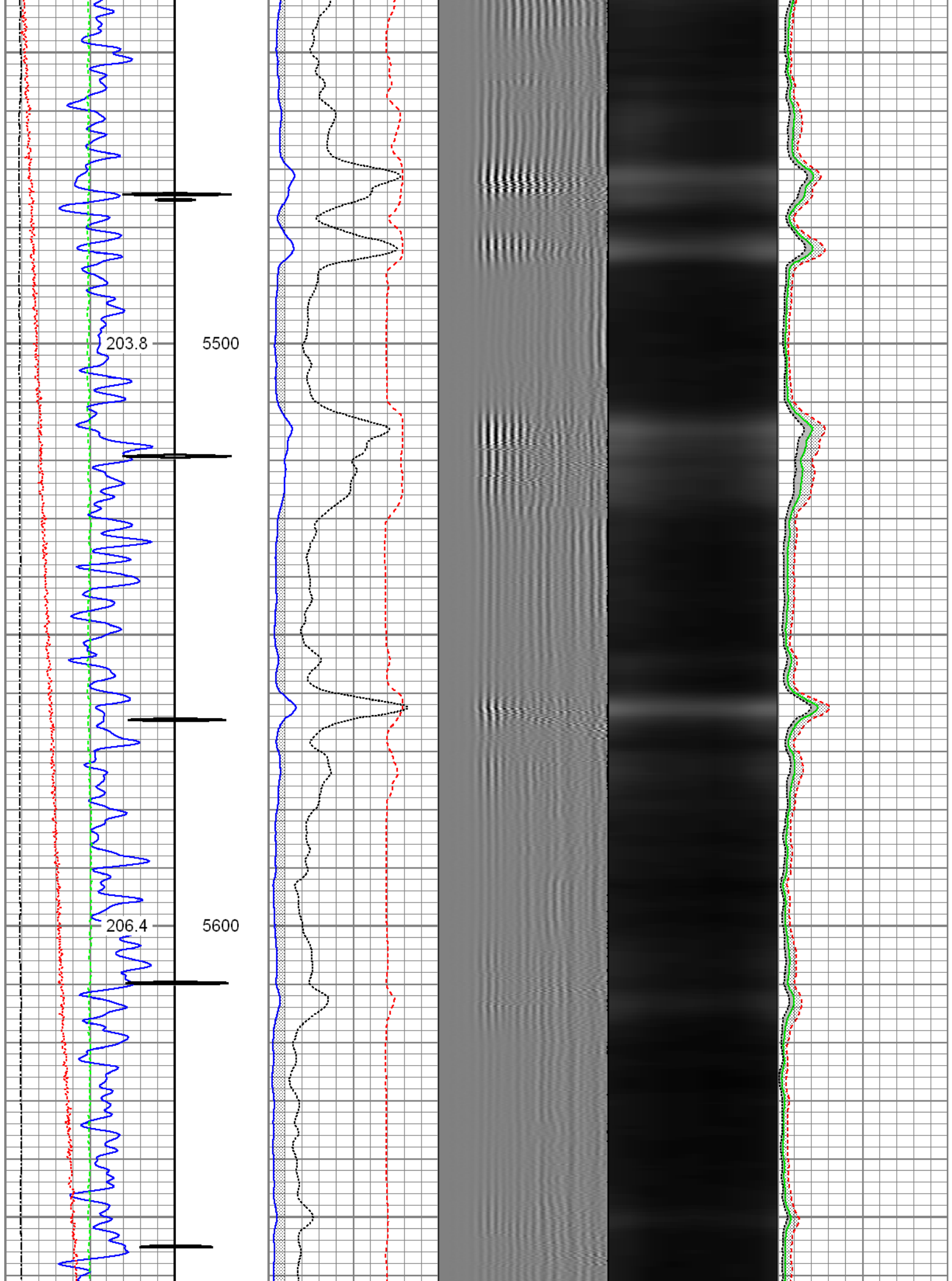


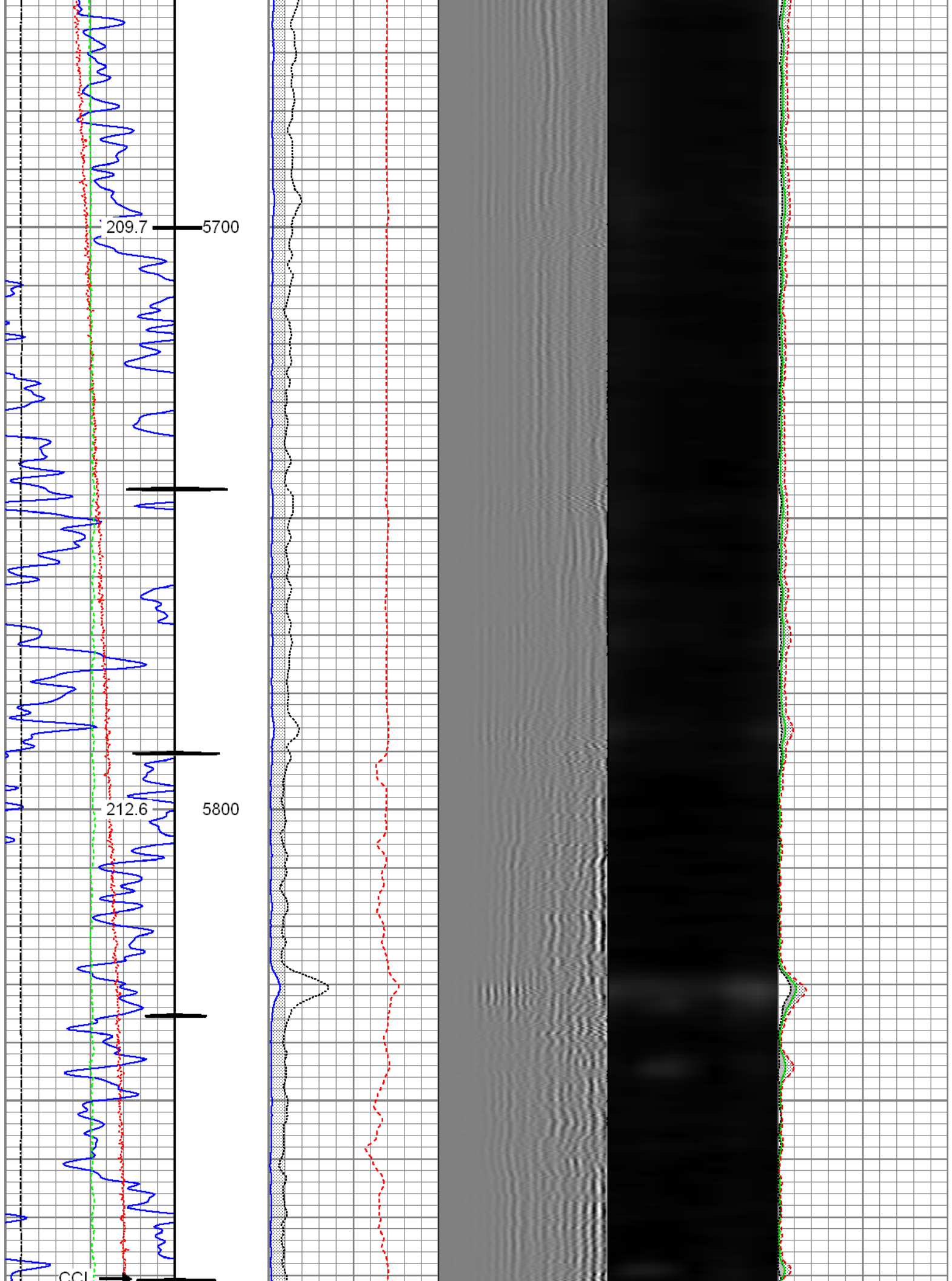




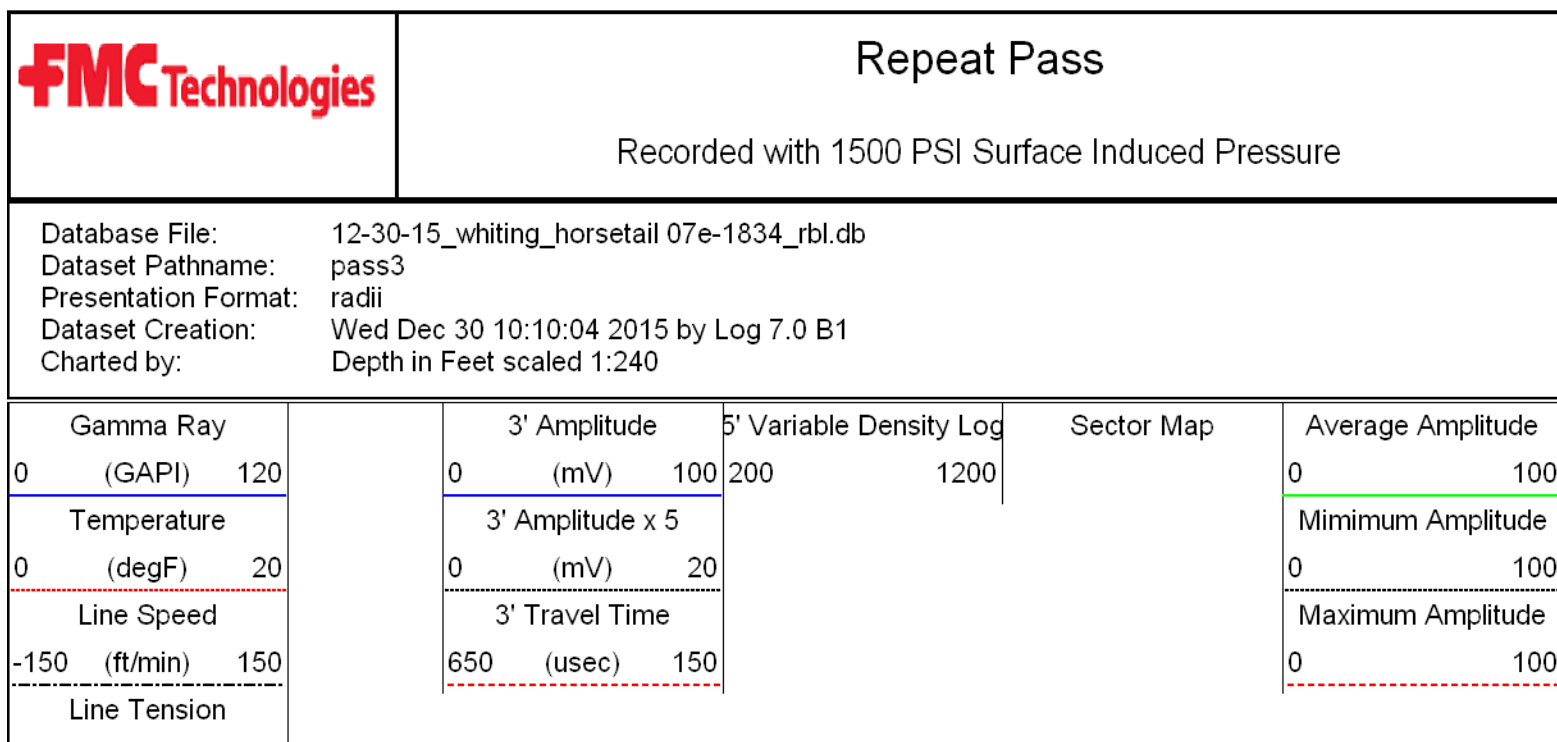
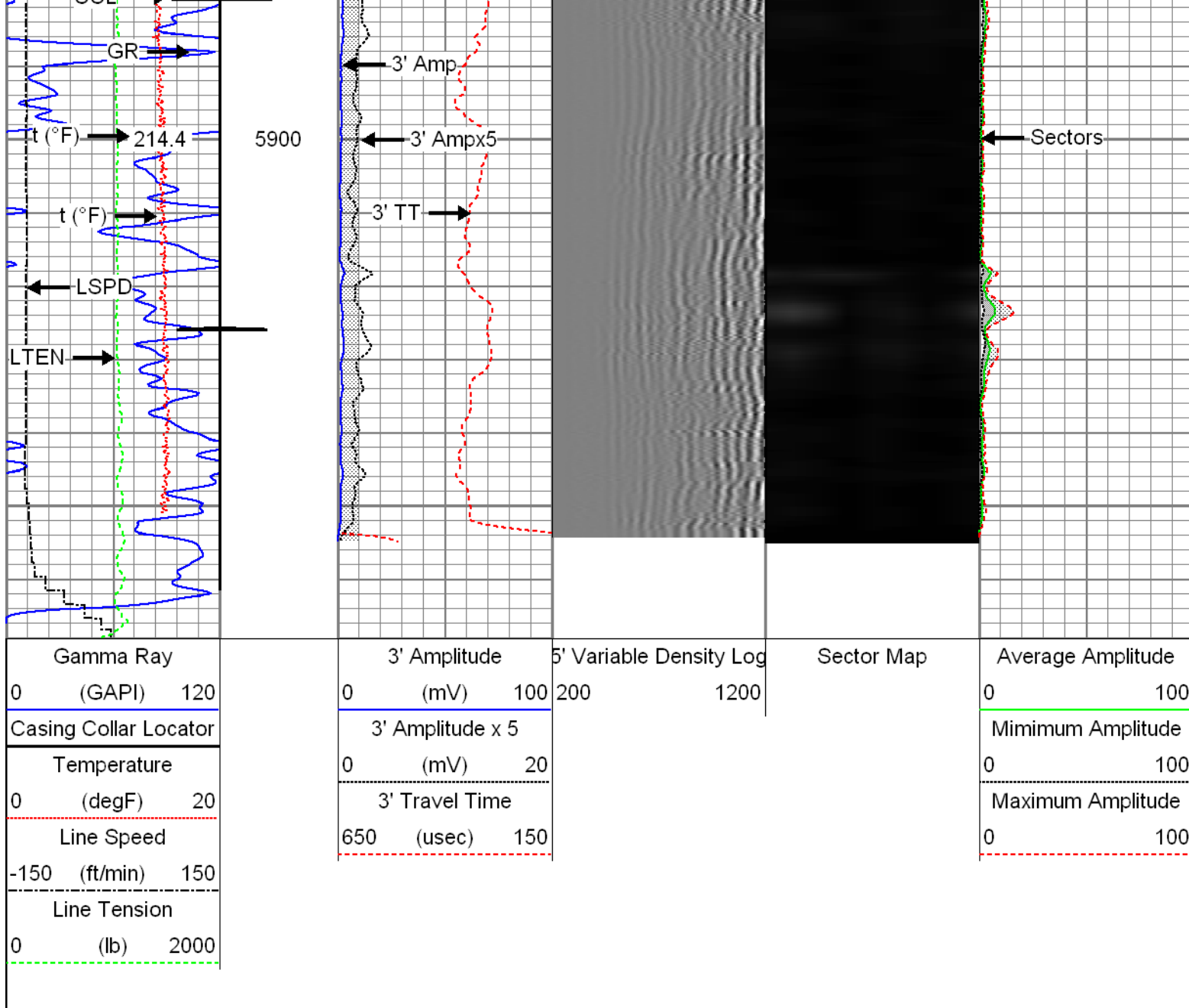


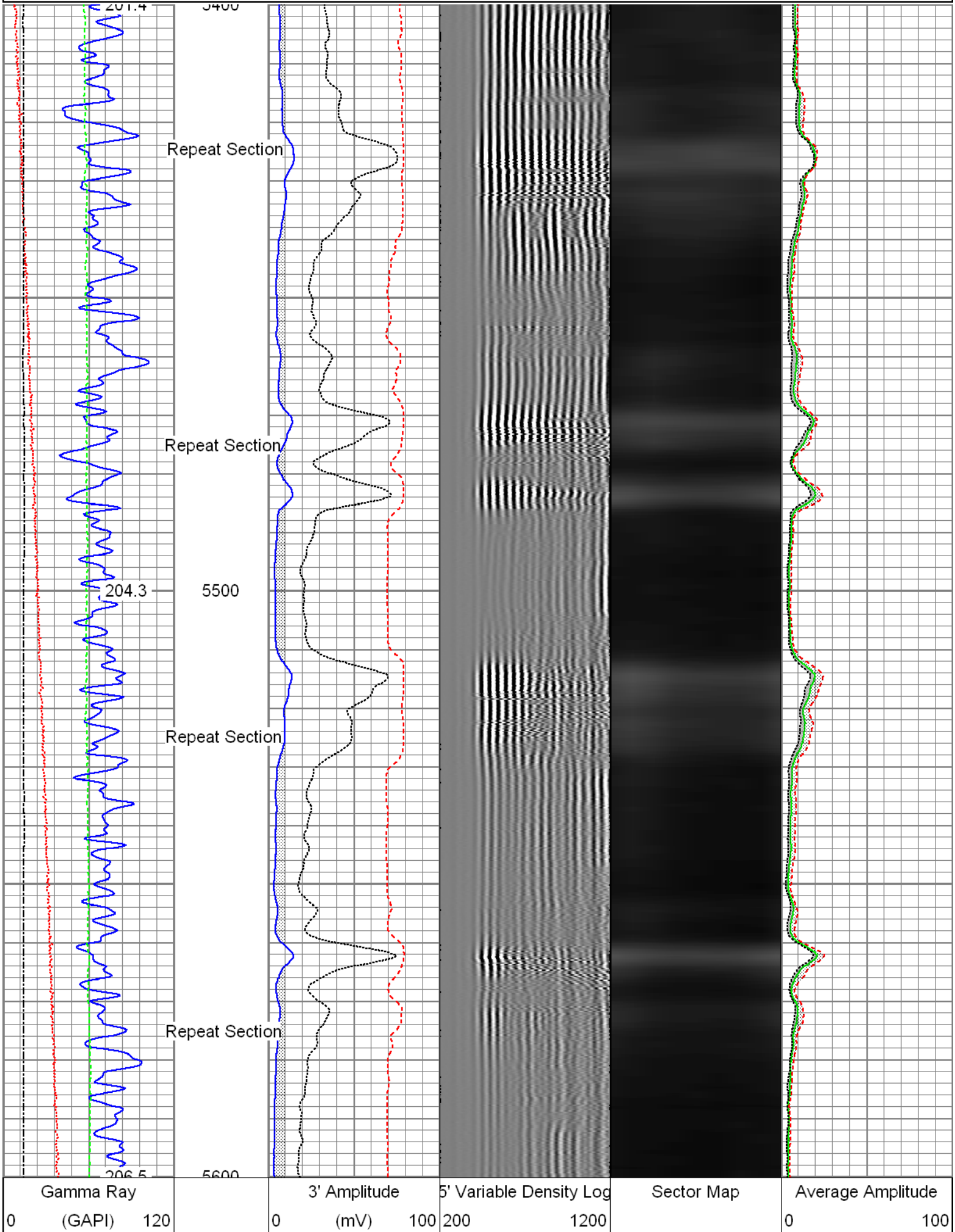




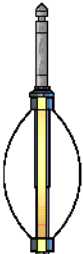

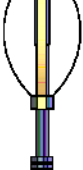
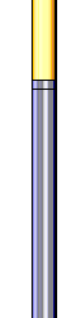








Temperature	3' Amplitude x 5	Mimimum Amplitude
0 (degF) 20	0 (mV) 20	0 100
Line Speed	3' Travel Time	Maximum Amplitude
-150 (ft/min) 150	650 (usec) 150	0 100
Line Tension		
0 (lb) 2000		

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					
WVF3FT	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					
WVFS5	14.55					
WVFS6	14.55					
WVFS7	14.55					
WVFS8	14.55					
WVF5FT	13.55					
CCL DCCL	6.51 6.51		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
			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: 12-30-15\_Whiting\_Horsetail 07E-1834\_RBL.db: field/well/run1/pass5.1  
Total Length: 23.40 ft  
Total Weight: 194.00 lb  
O.D.: 2.75 in

### Calibration Report

Database File: 12-30-15\_Whiting\_Horsetail 07E-1834\_RBL.db  
Dataset Pathname: pass5.1  
Dataset Creation: Wed Dec 30 11:18:47 2015 by Calc 7.0 B1

### Gamma Ray Calibration Report

Serial Number: FW1212-026  
Tool Model: 2.75" Digital  
Performed: Wed Nov 18 10:56:24 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: FW1305-096  
Tool Model: 2-3/4"

Calibration Casing Diameter: 5.500 in  
Calibration Depth: 12.877 ft

Master Calibration, performed Wed Dec 30 11:18:43 2015:


	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.005	0.585	0.800	71.921	122.610	0.225
CAL	0.730	0.783				
5'	0.004	0.508	0.800	71.921	141.225	0.232
SUM						
S1	0.001	0.548	0.000	100.000	182.758	-0.155
S2	0.004	0.546	0.000	100.000	184.589	-0.762
S3	0.005	0.563	0.000	100.000	178.969	-0.832
S4	0.007	0.595	0.000	100.000	170.023	-1.122
S5	0.004	0.640	0.000	100.000	157.285	-0.671
S6	0.007	0.658	0.000	100.000	153.543	-1.014
S7	0.007	0.621	0.000	100.000	163.042	-1.219
S8	0.007	0.582	0.000	100.000	173.860	-1.184

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

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset



	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.730	0.783	1.000	0.000
Air Zero Calibration, performed Wed Dec 30 09:46:18 2015:						
	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.004		0.000		0.001	
5'	0.007		0.000		-0.001	
SUM						
S1	0.003		0.000		-0.001	
S2	0.003		0.000		0.000	
S3	0.003		0.000		0.000	
S4	0.004		0.000		0.001	
S5	0.004		0.000		-0.000	
S6	0.004		0.000		0.001	
S7	0.005		0.000		0.000	
S8	0.006		0.000		0.000	

	Company	Whiting Oil & Gas Corporation
	Well	Horsetail 07E-1834
	Field	Wildcat
	County	Weld
	State	Colorado