



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	Iceman State 32N-A16HZ			Well	Iceman State 32N-A16HZ		
Field	Wattenberg			Field	Wattenberg		
County	Weld			County	Weld		
State	Colorado			State	Colorado		
Location:				API # : 05-123-41343			
SEC 15 TWP 3N RGE 67W				Other Services			
Permanent Datum				Gauge Ring			
Log Measured From				Elevation			
Drilling Measured From				K.B. 4817'			
				D.F. 4816'			
				G.L. 4797'			

Date	27-OCT-2015		
Run Number	Two		
Depth Driller	13029 FT		
Depth Logger	7310 FT		
Bottom Logged Interval	7210 FT		
Top Log Interval	Surface		
Open Hole Size	7.875"		
Type Fluid	Water		
Density / Viscosity	8.34 lbm/gal		
Max. Recorded Temp.	232°F		
Estimated Cement Top	24 FT		
Time Well Ready	ROA		
Time Logger on Bottom	12:27		
Equipment Number	HD-0119		
Location	Ft. Lupton, CO		
Recorded By	R. Fogarty		
Witnessed By	V. Frankie		

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	1624 FT		
Intermediate #1	5 1/2	17	HCP 110 LTC	Surface	13012 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
Log correlated to Marker Joint top at 6264 FT
Adjusted -30 FT to correlate to Marker Joint top
Gauge ring ran to 7310 FT
Log ran as deep as possible to surface
Log ran with 2800 PSI surface induced pressure
No debris on logging tools upon completion of run

Thank you for choosing FMC Technologies Completion Services, Inc.!!



Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0512341343_anadarko_iceman state 32n-a16hz_10-27-15_rblprocessed_051234134

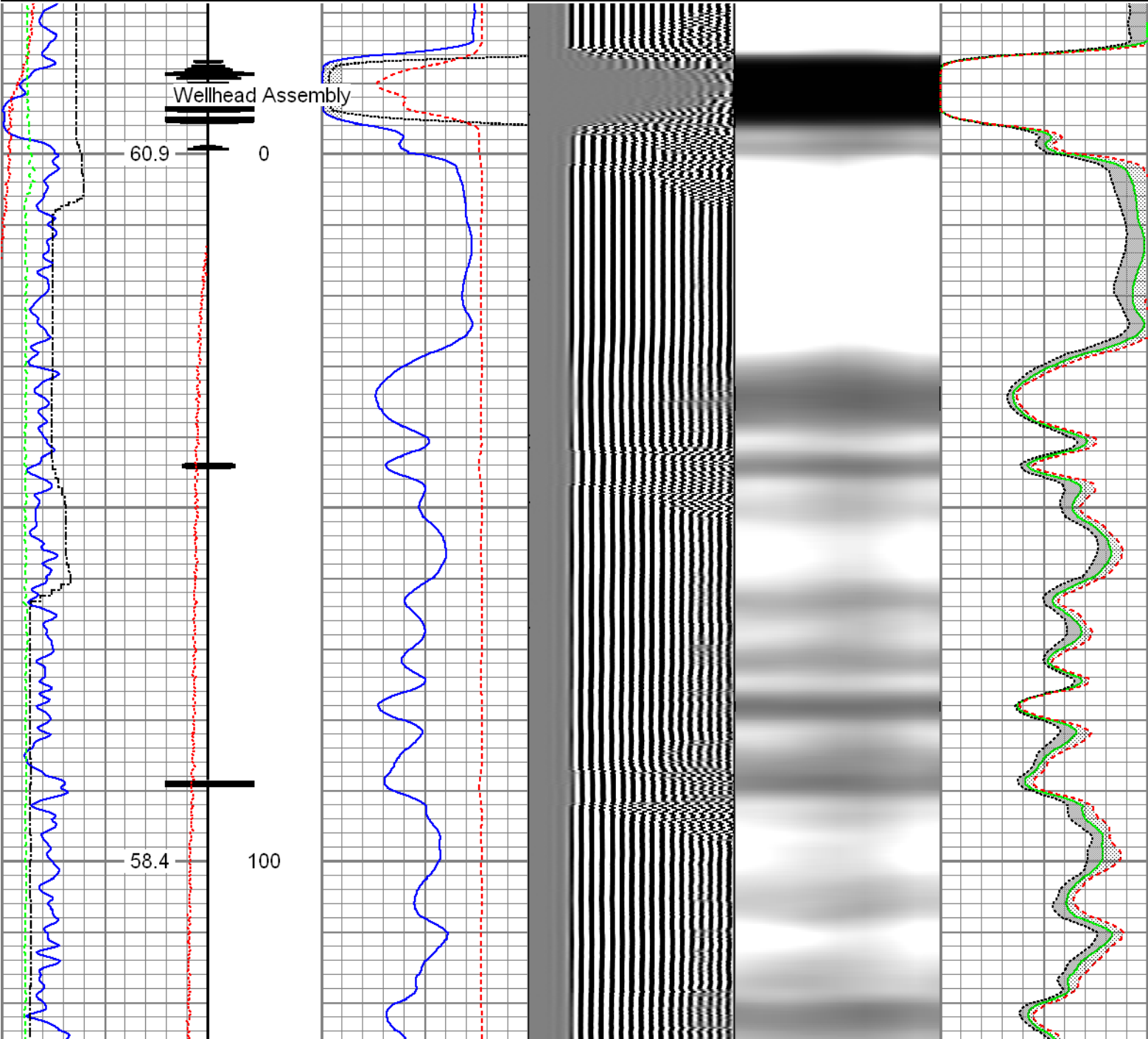
Dataset Pathname: pass12

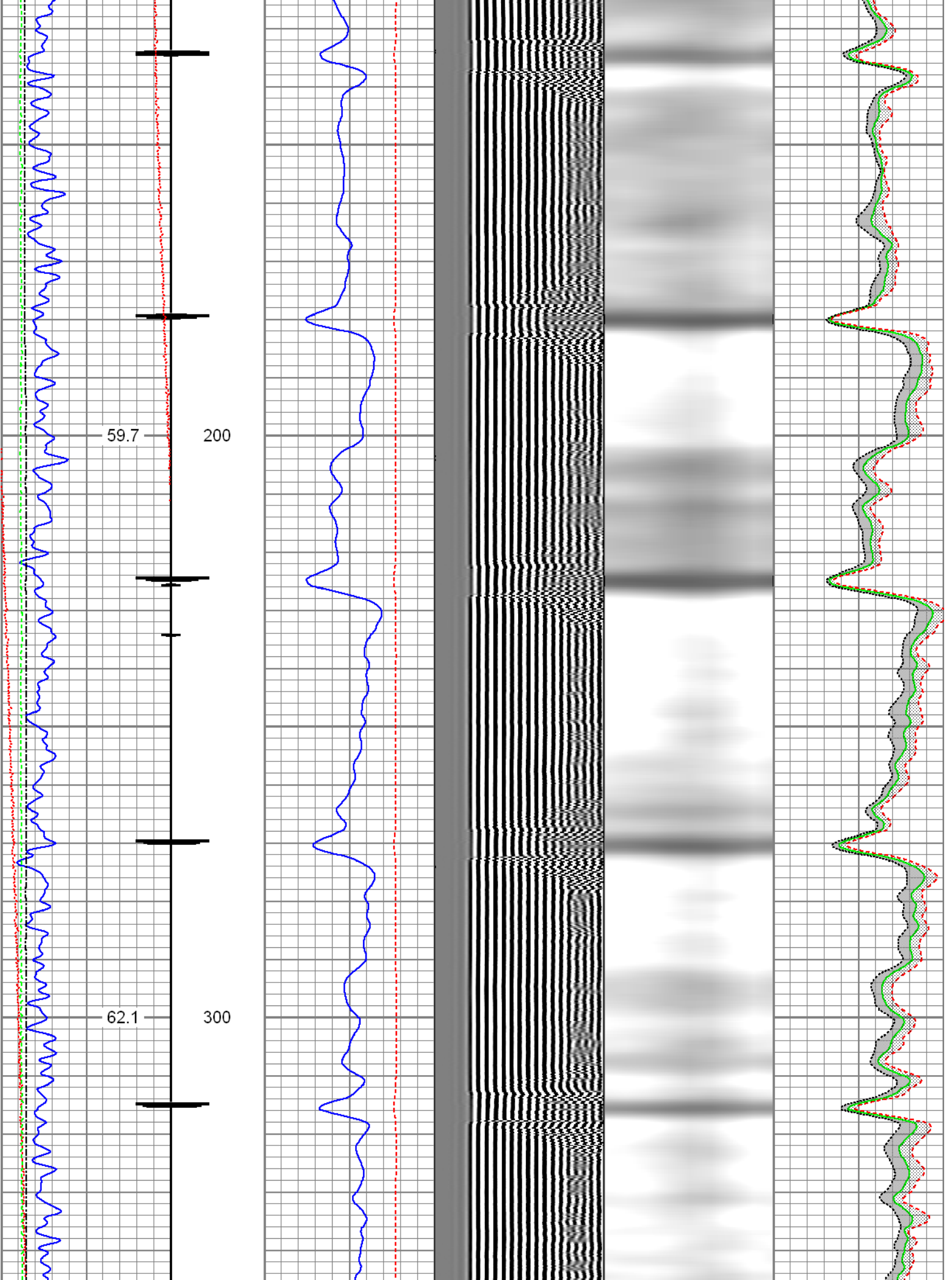
Presentation Format: radii

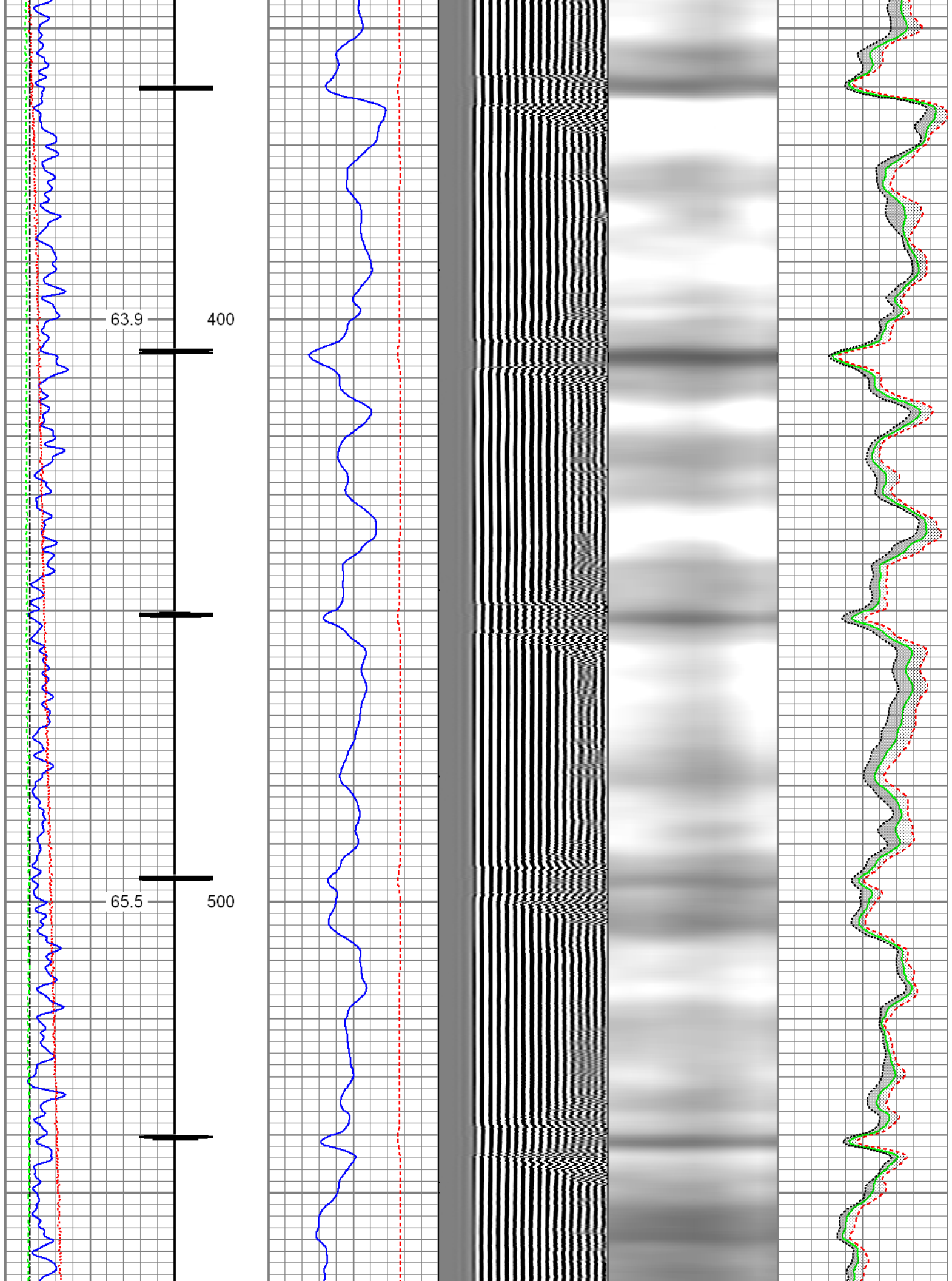
Dataset Creation: Tue Oct 27 11:25:08 2015 by Log 7.0 B1

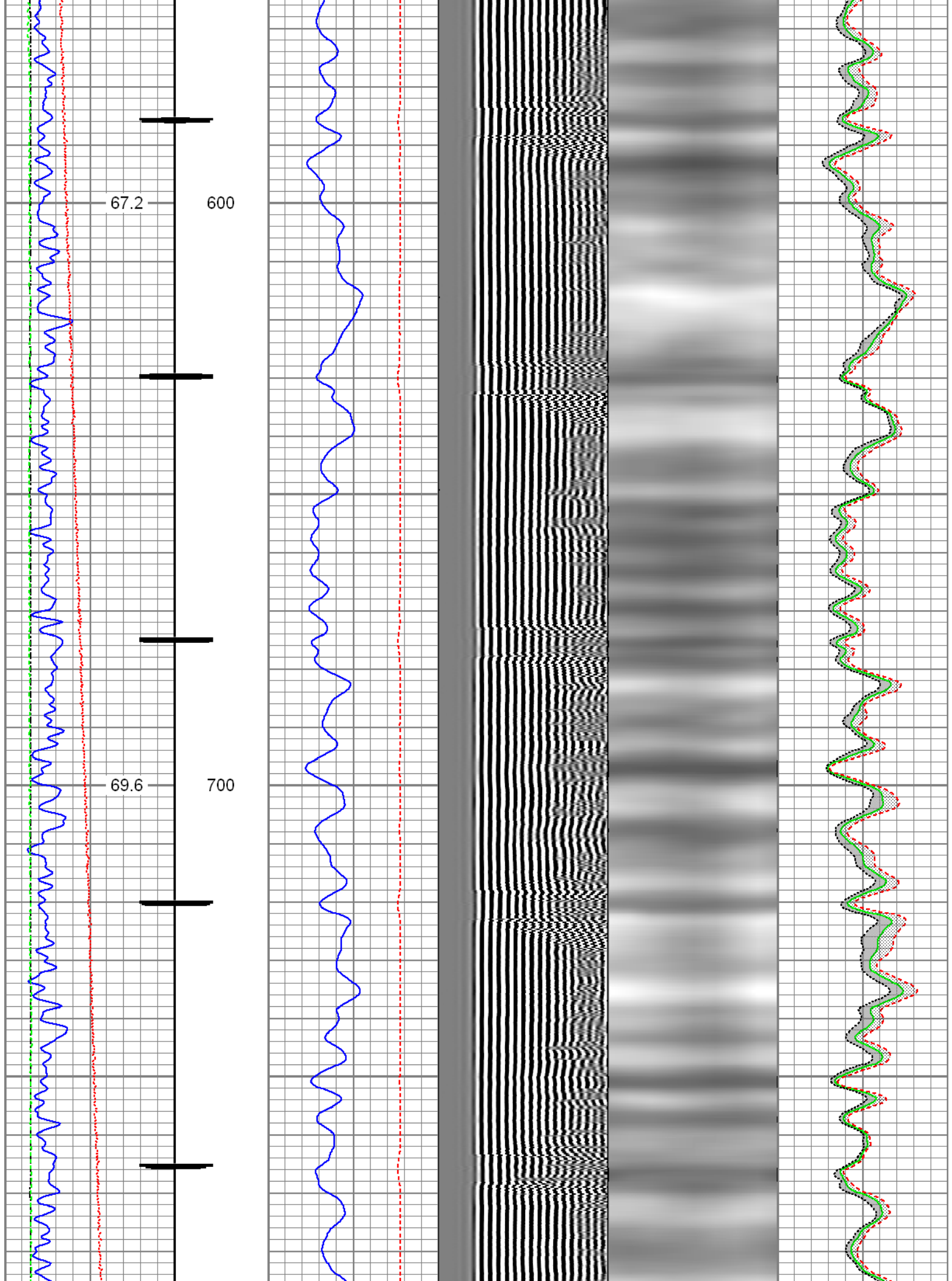
Charted by: Depth in Feet scaled 1:240

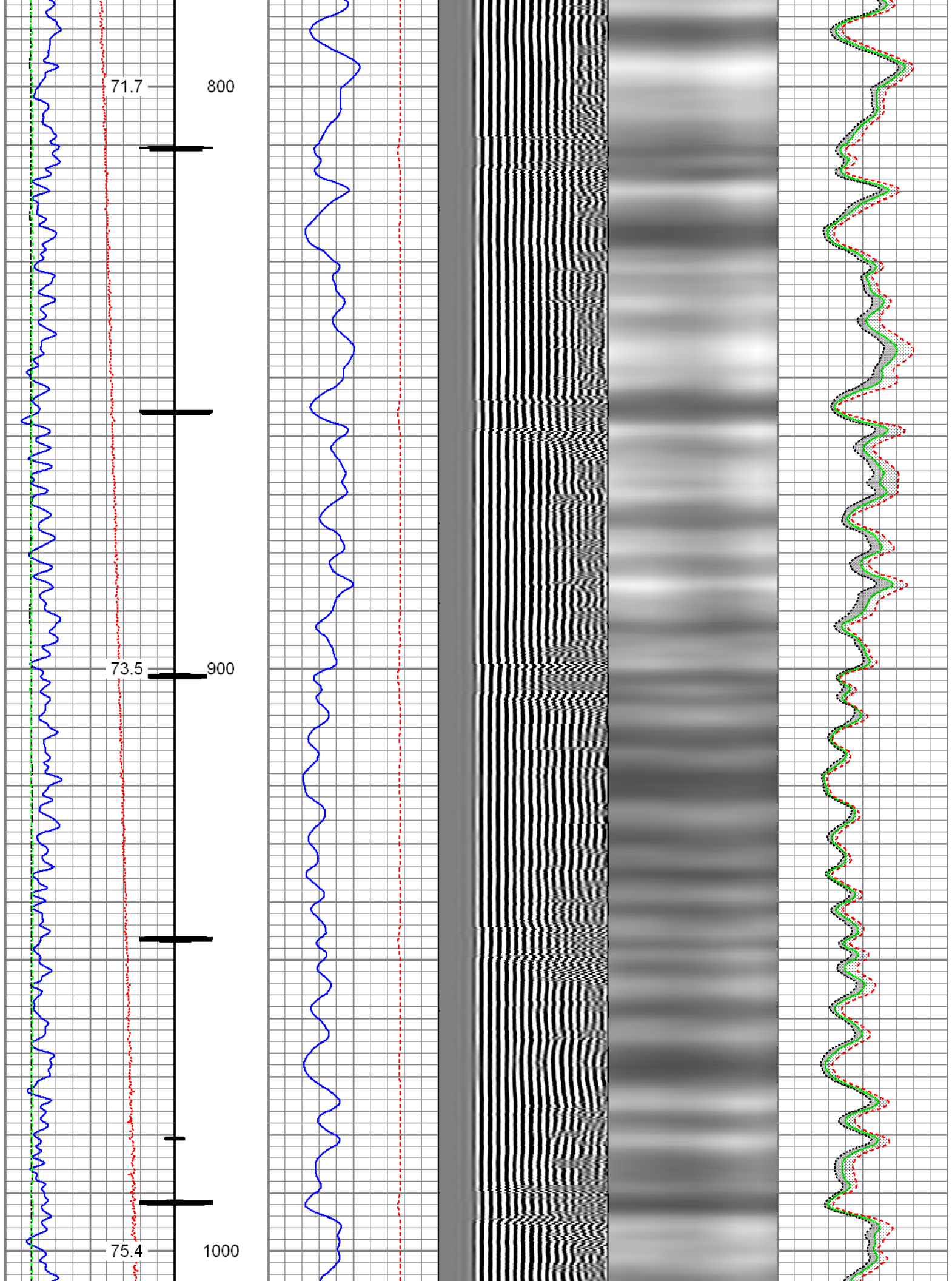
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 180	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150				
Line Tension				
0 (lb) 2000				

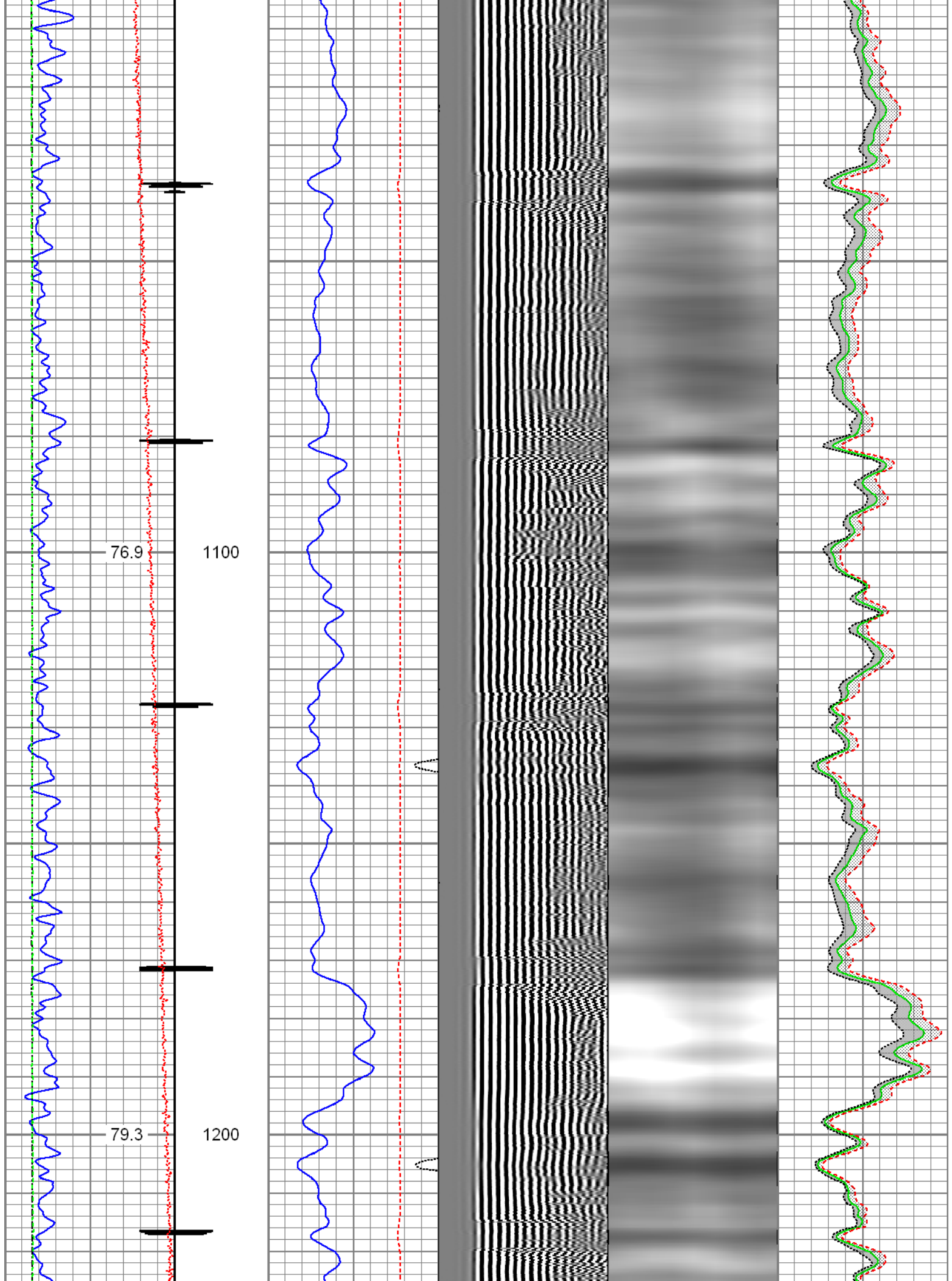


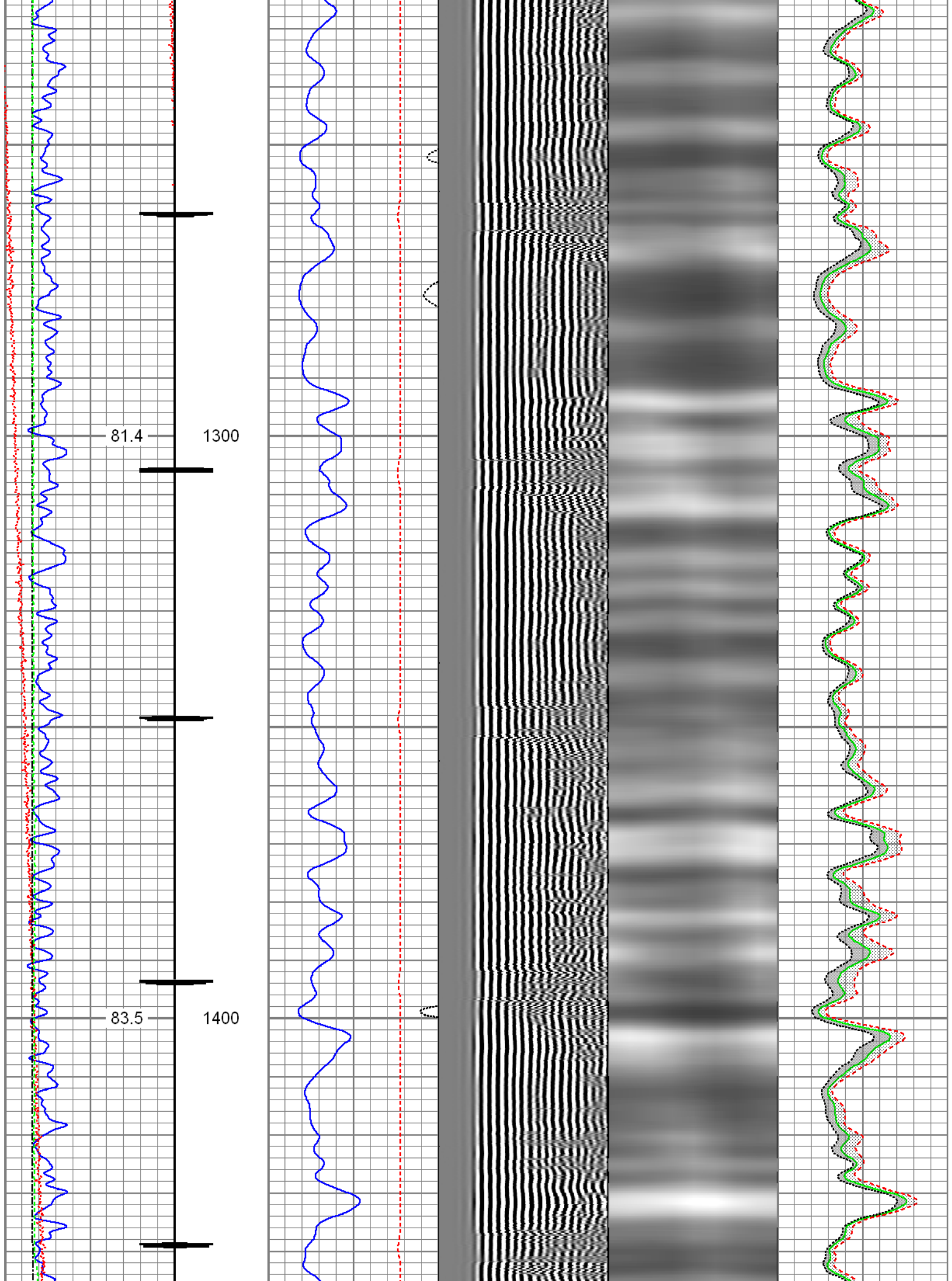


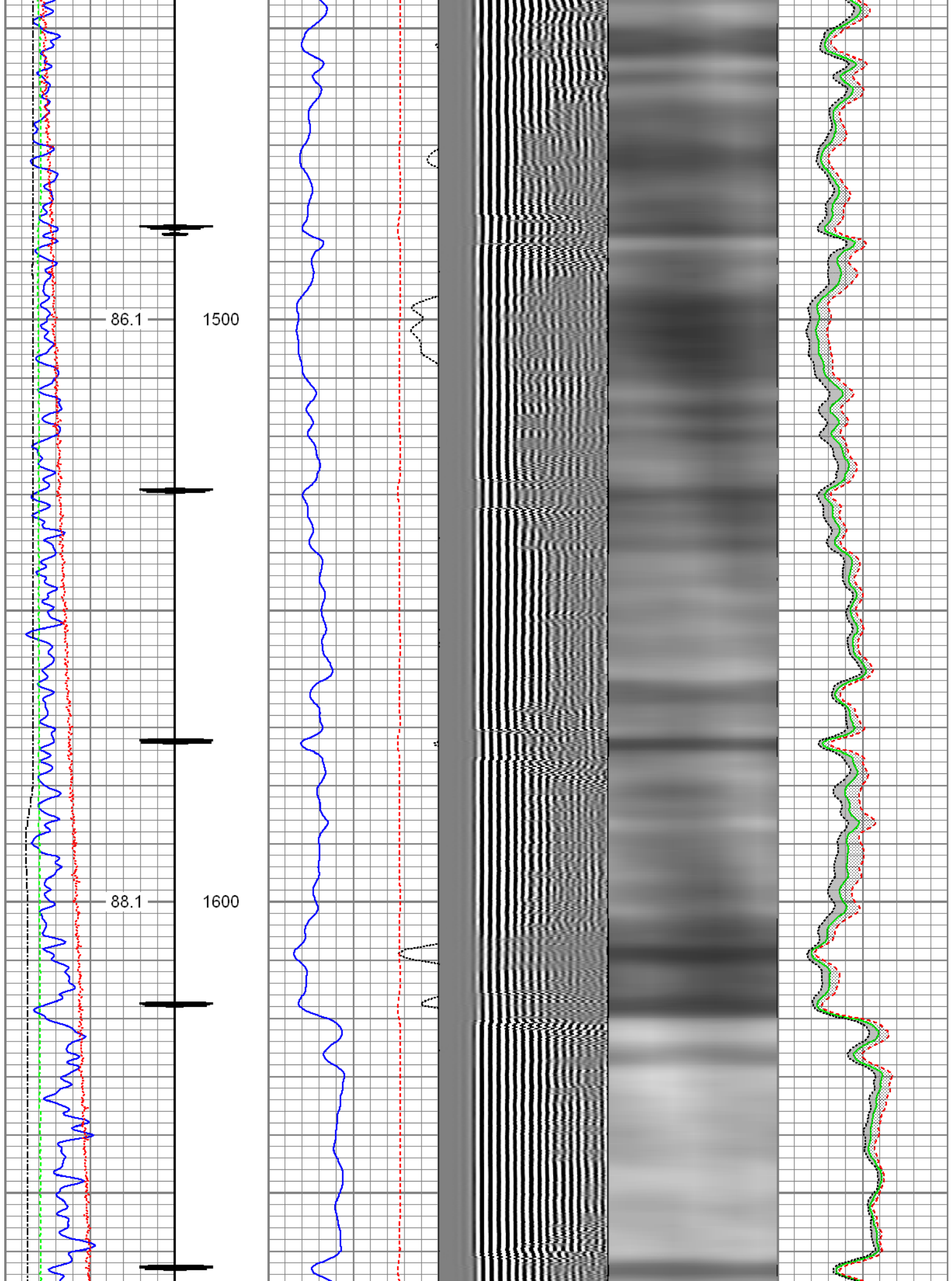


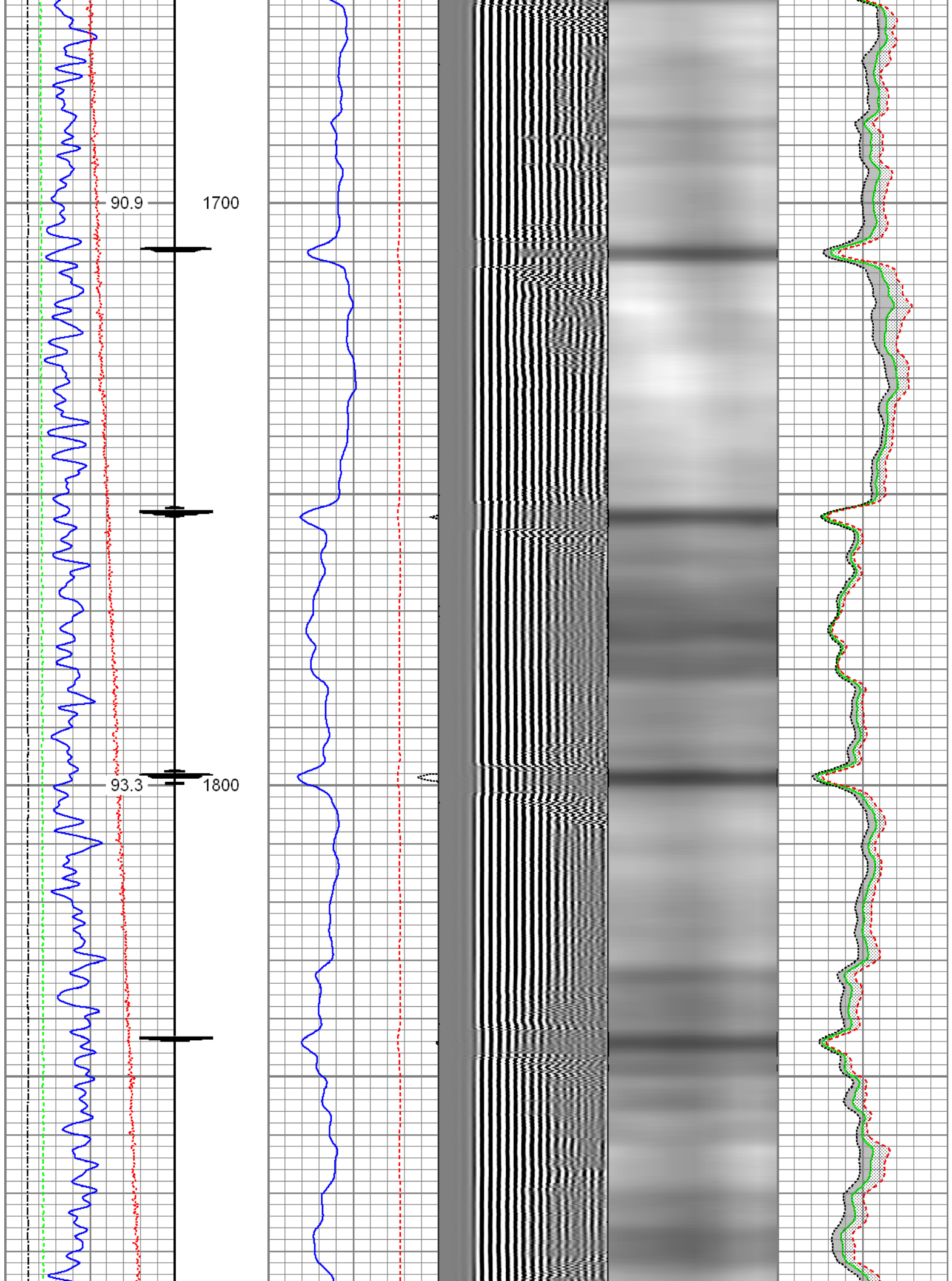


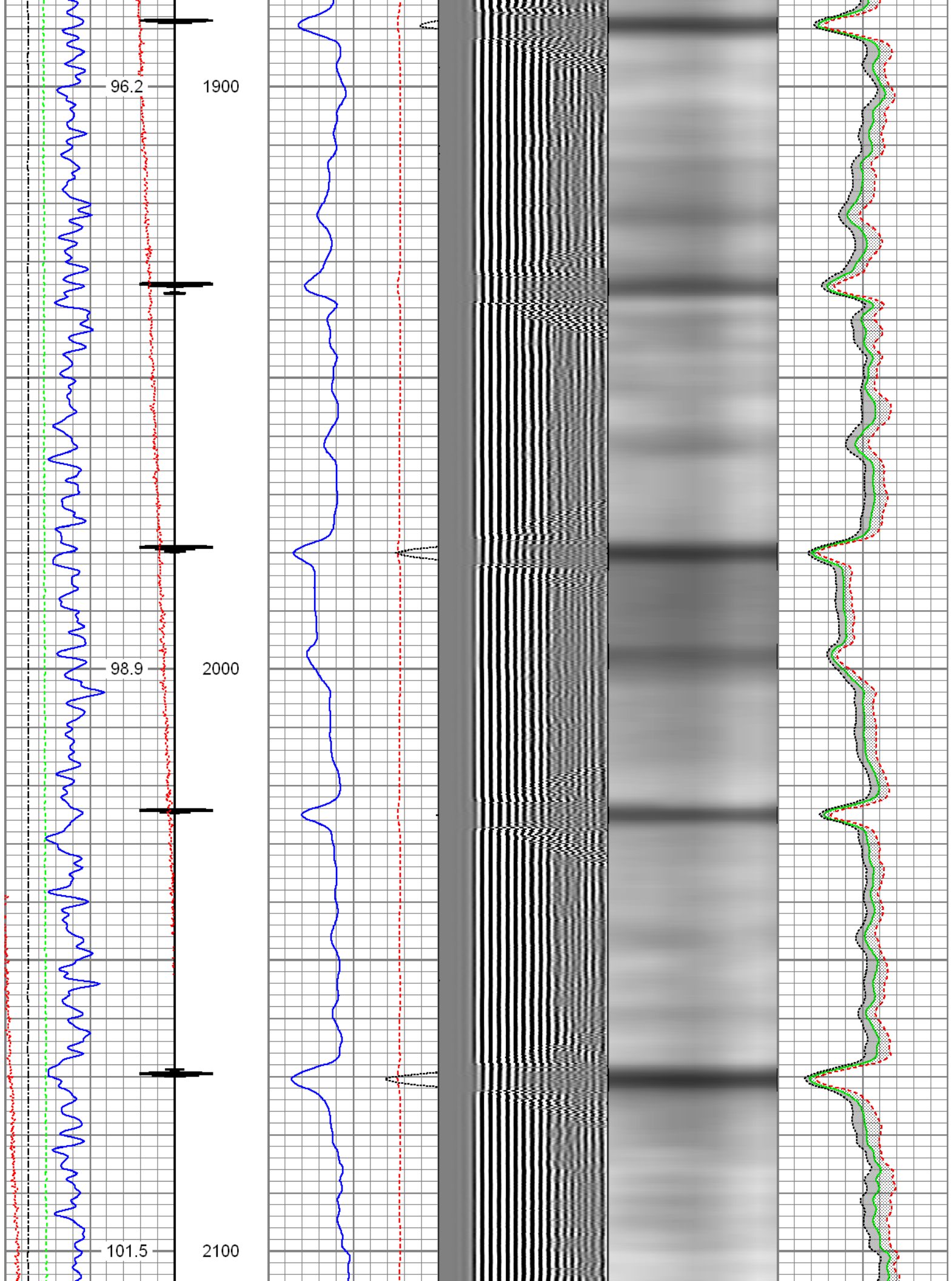


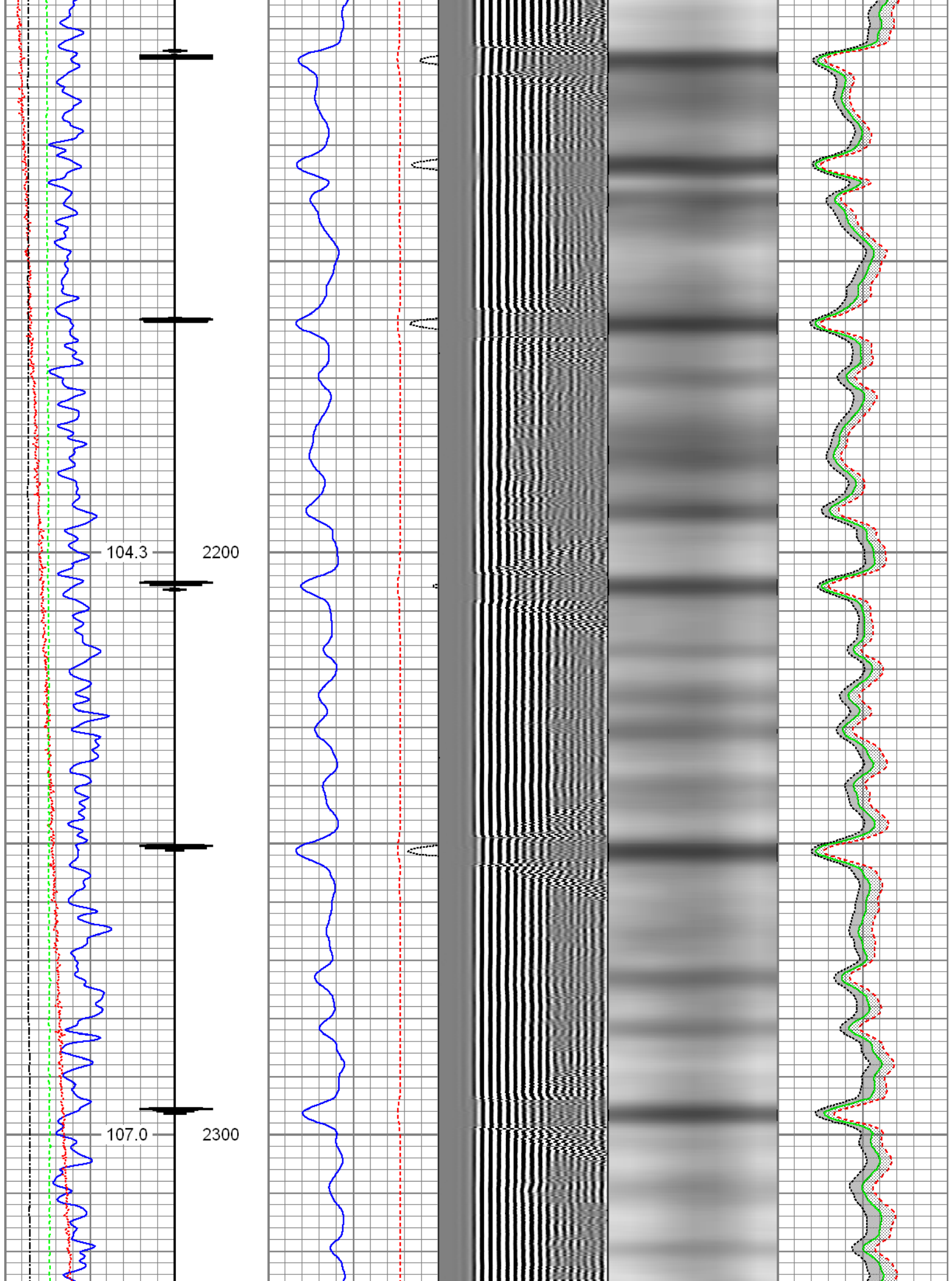


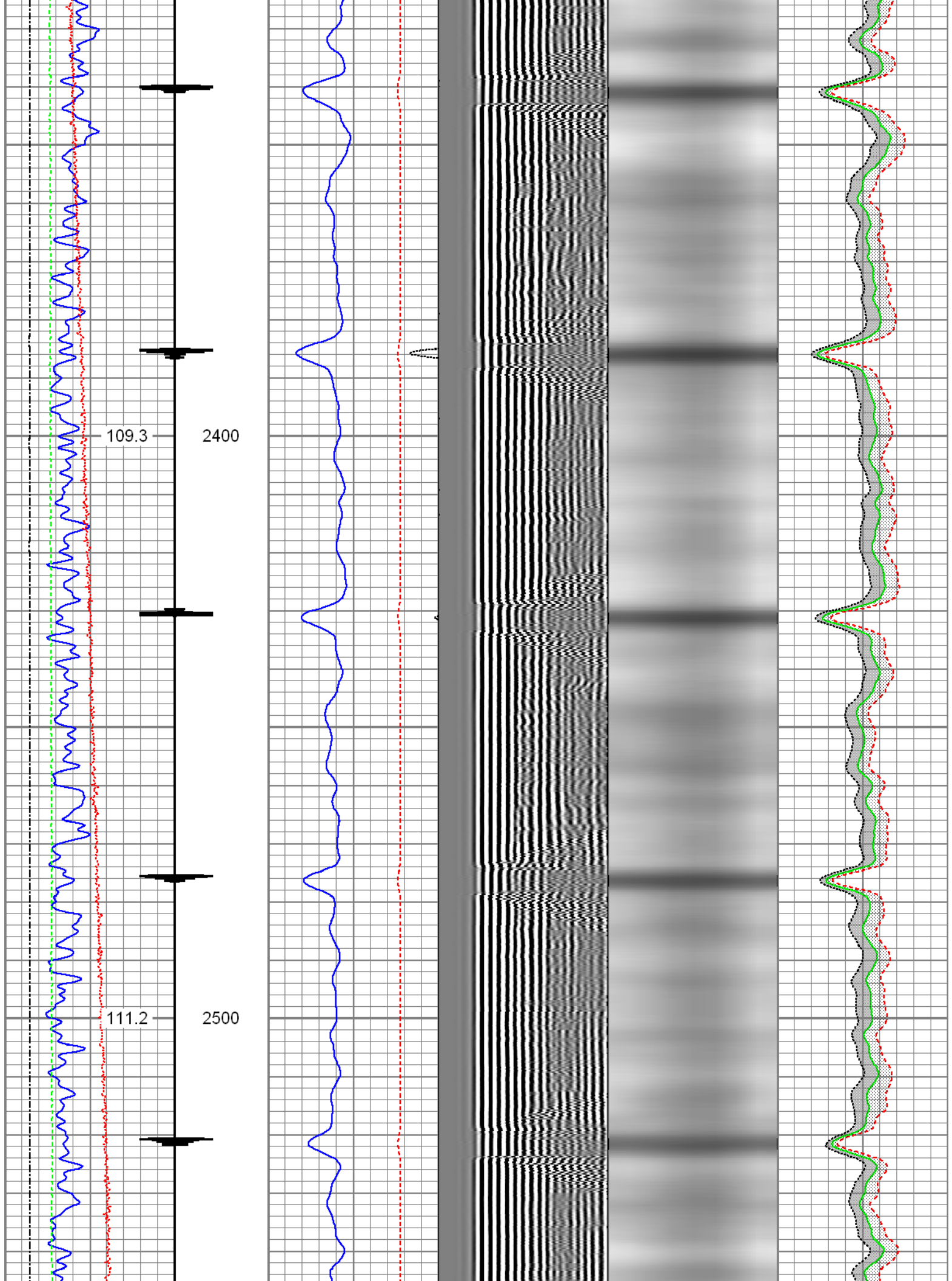


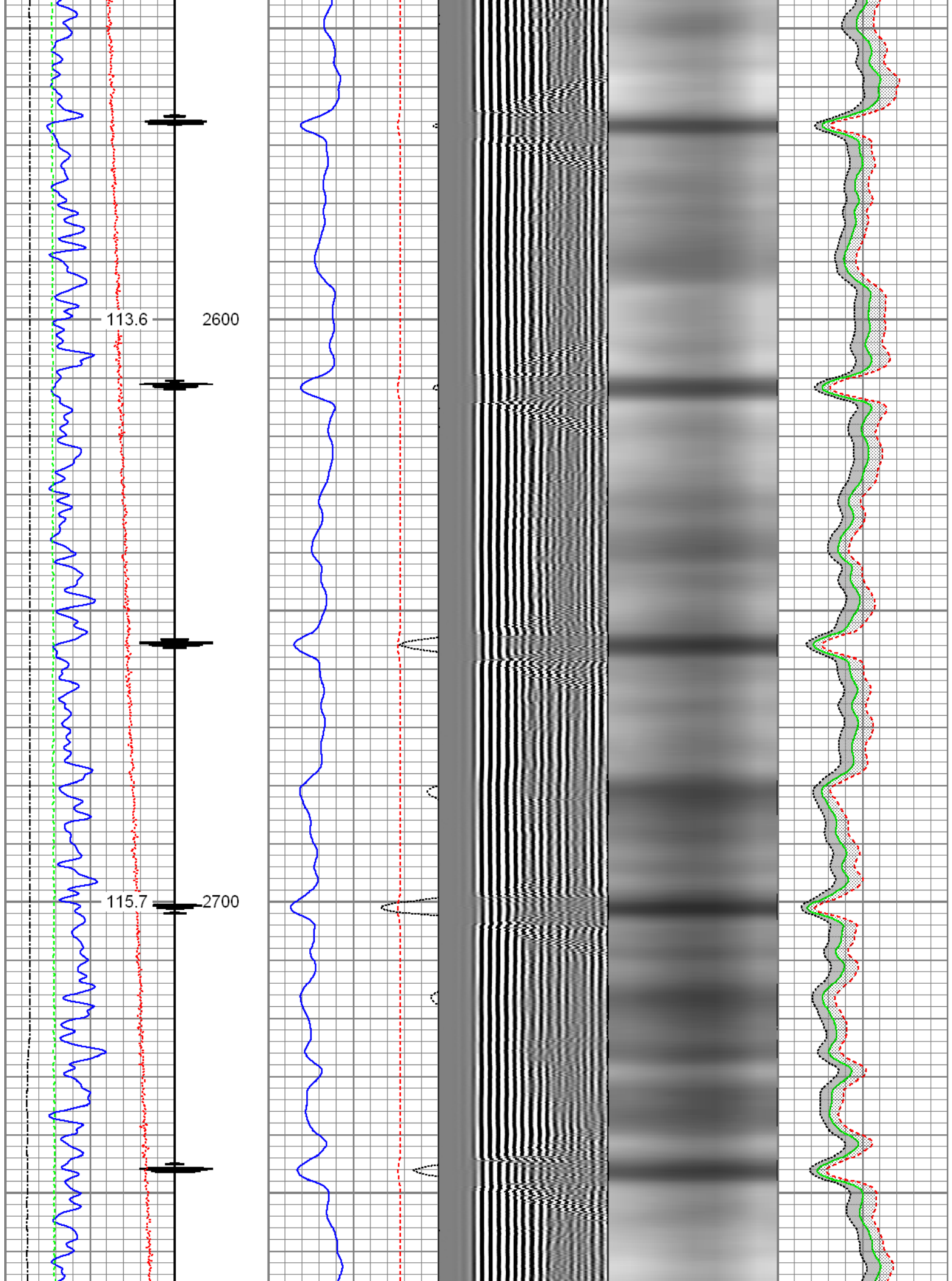


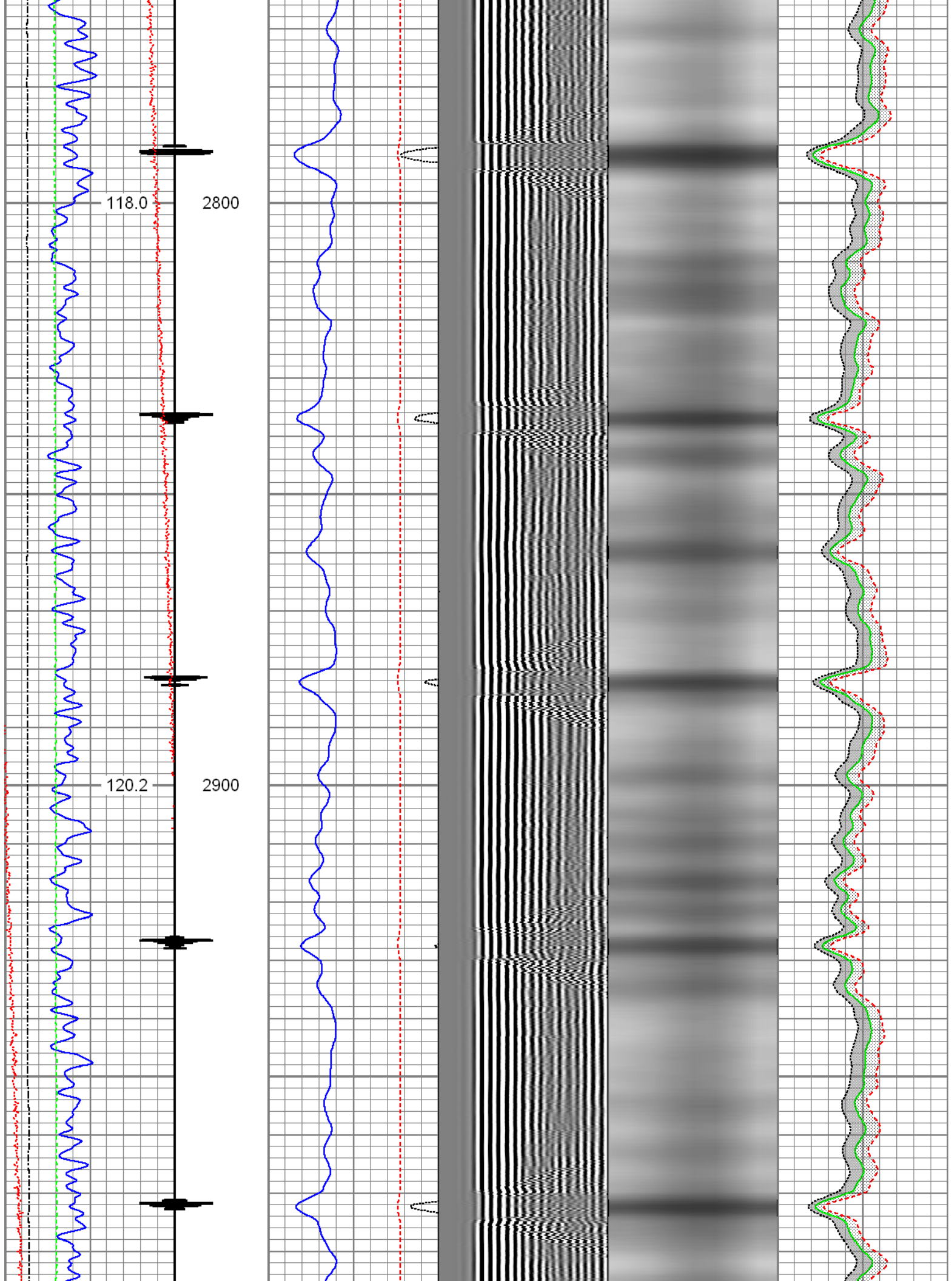


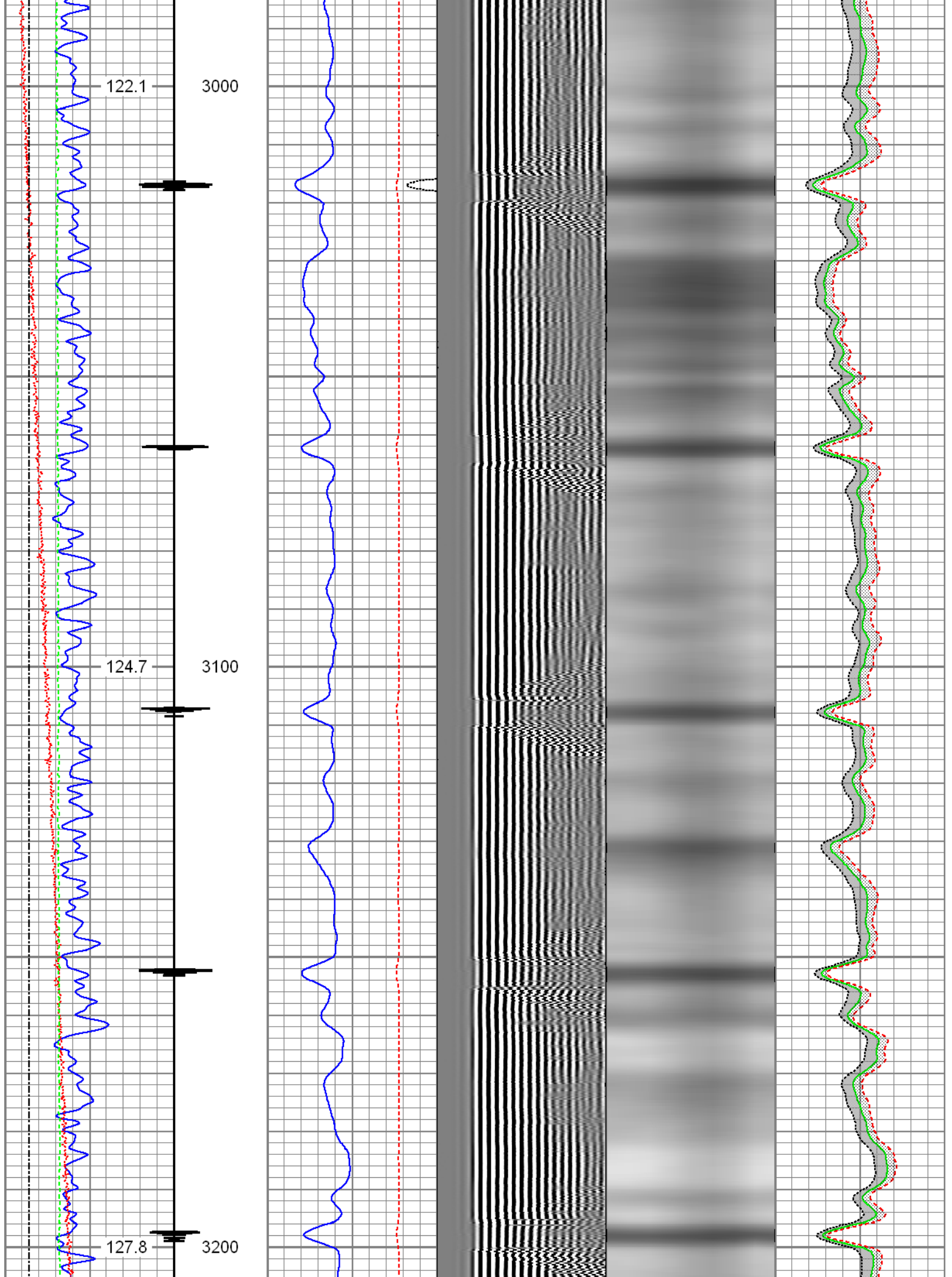


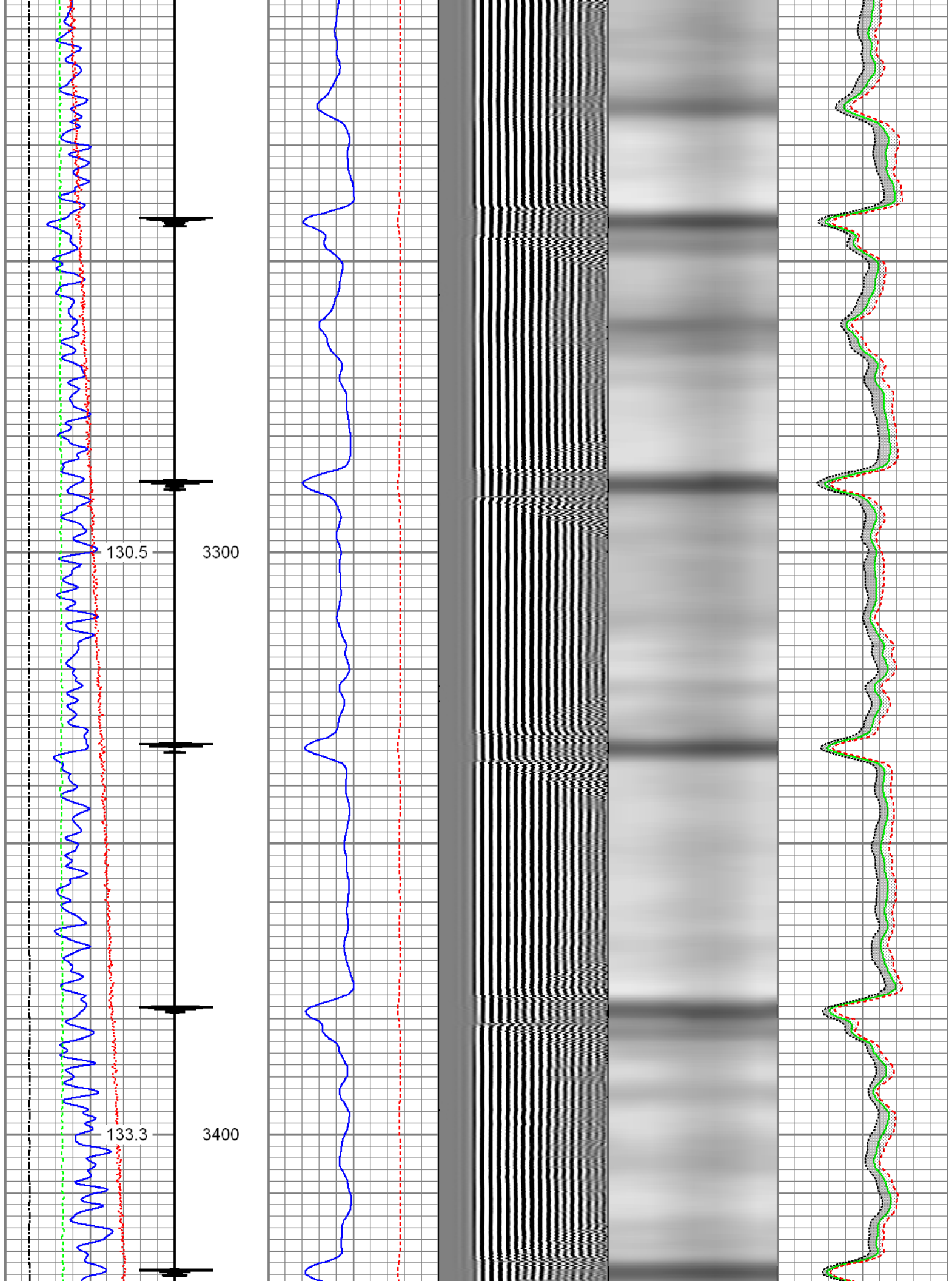


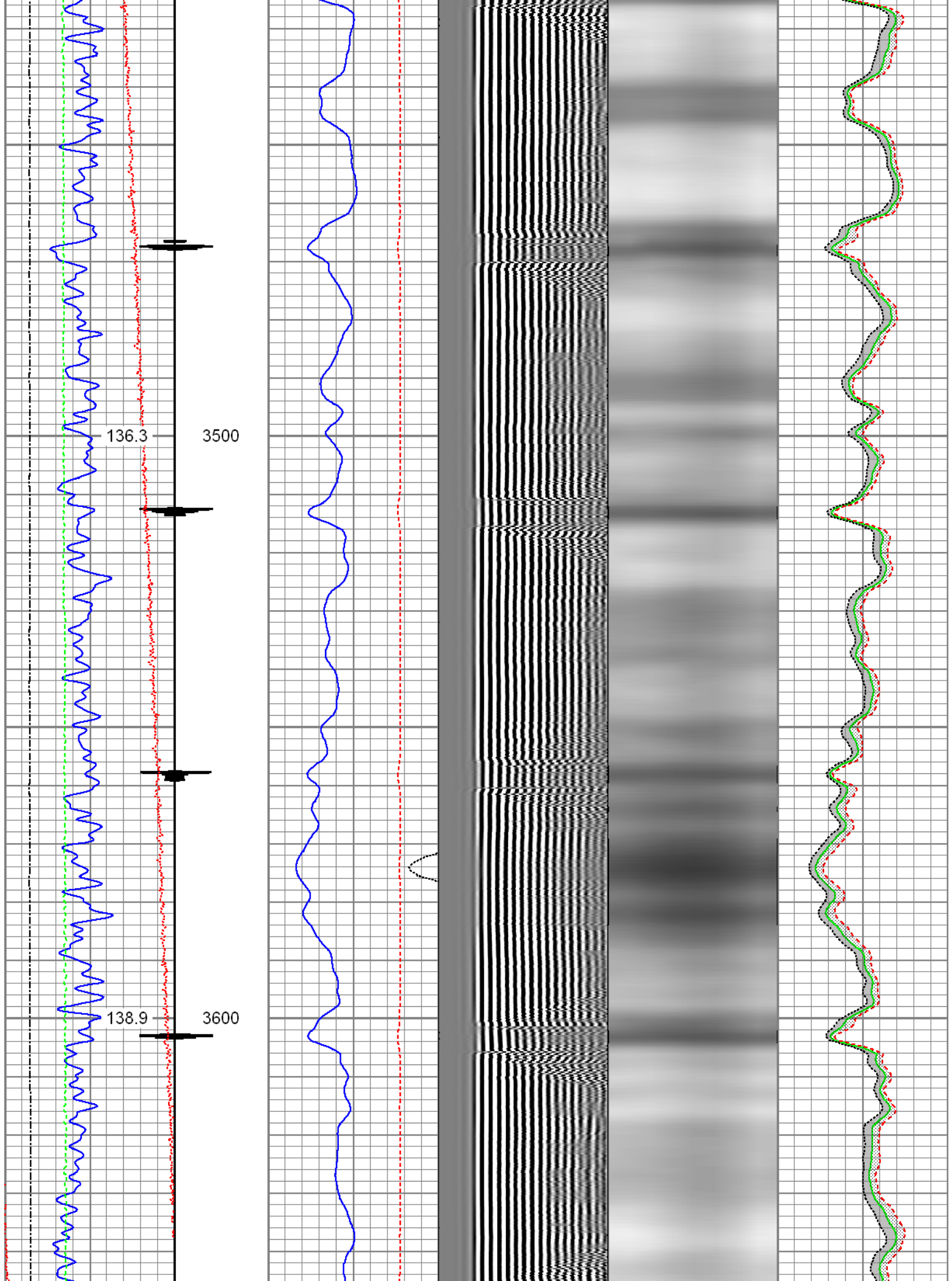


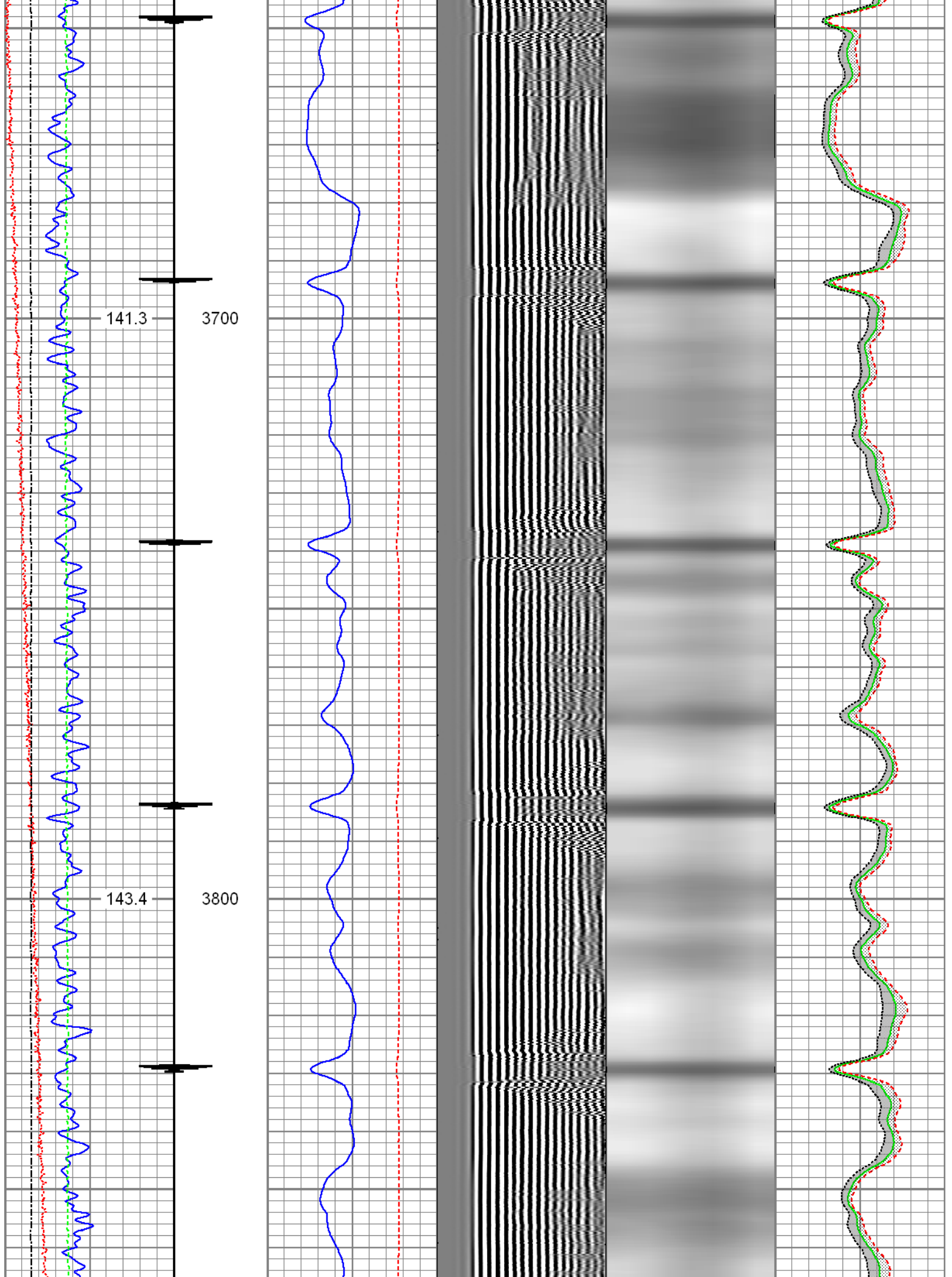


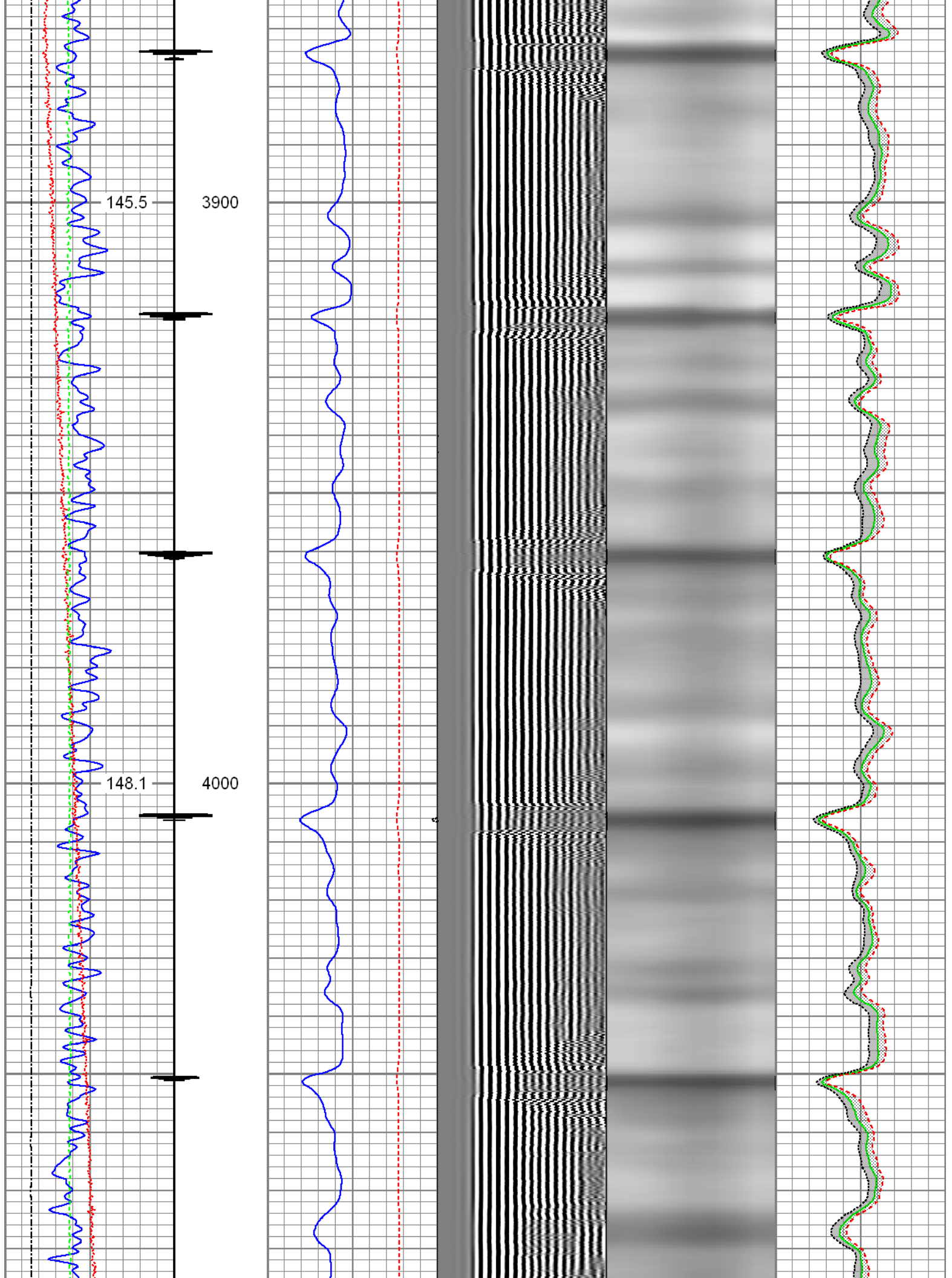


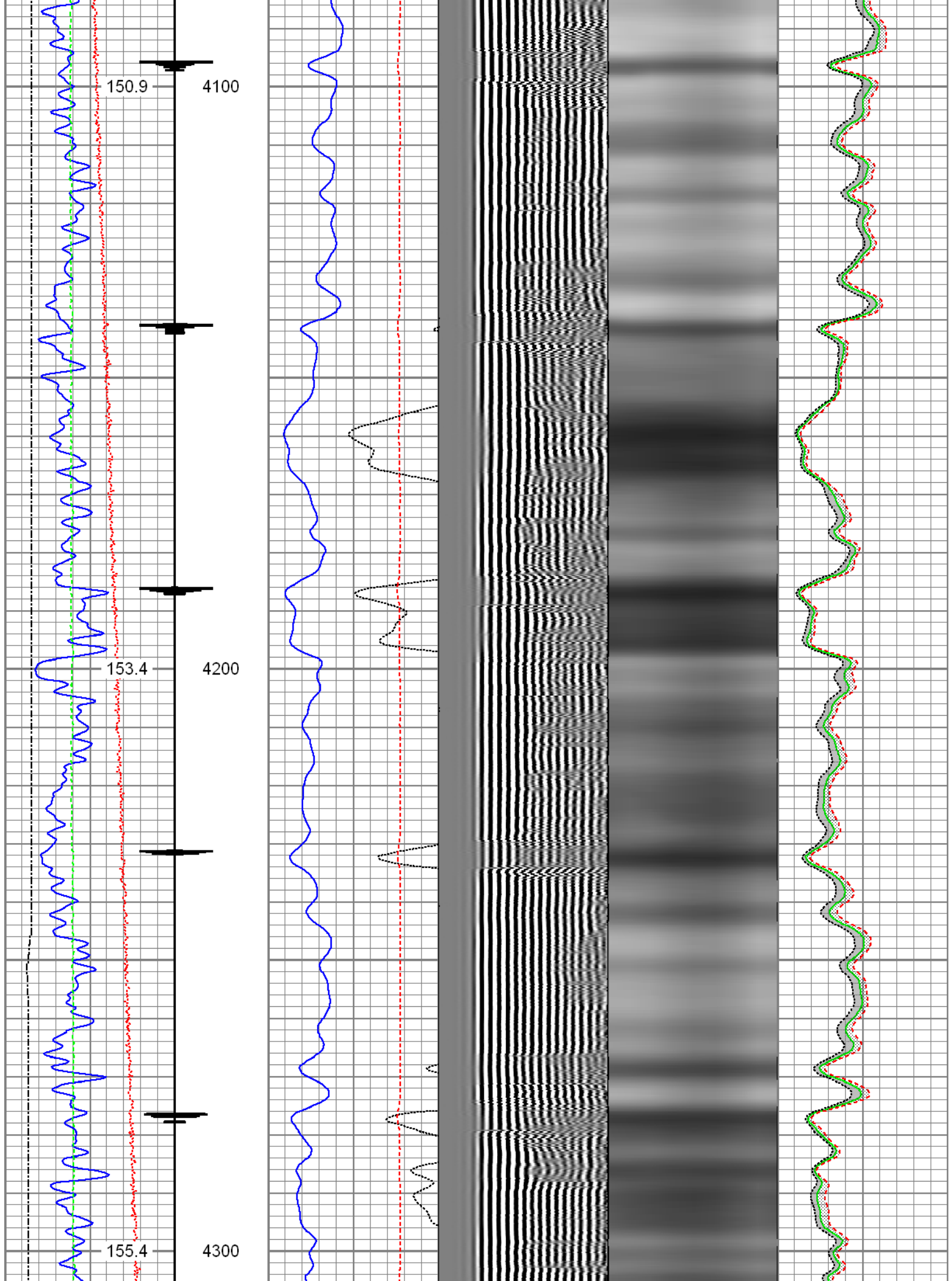


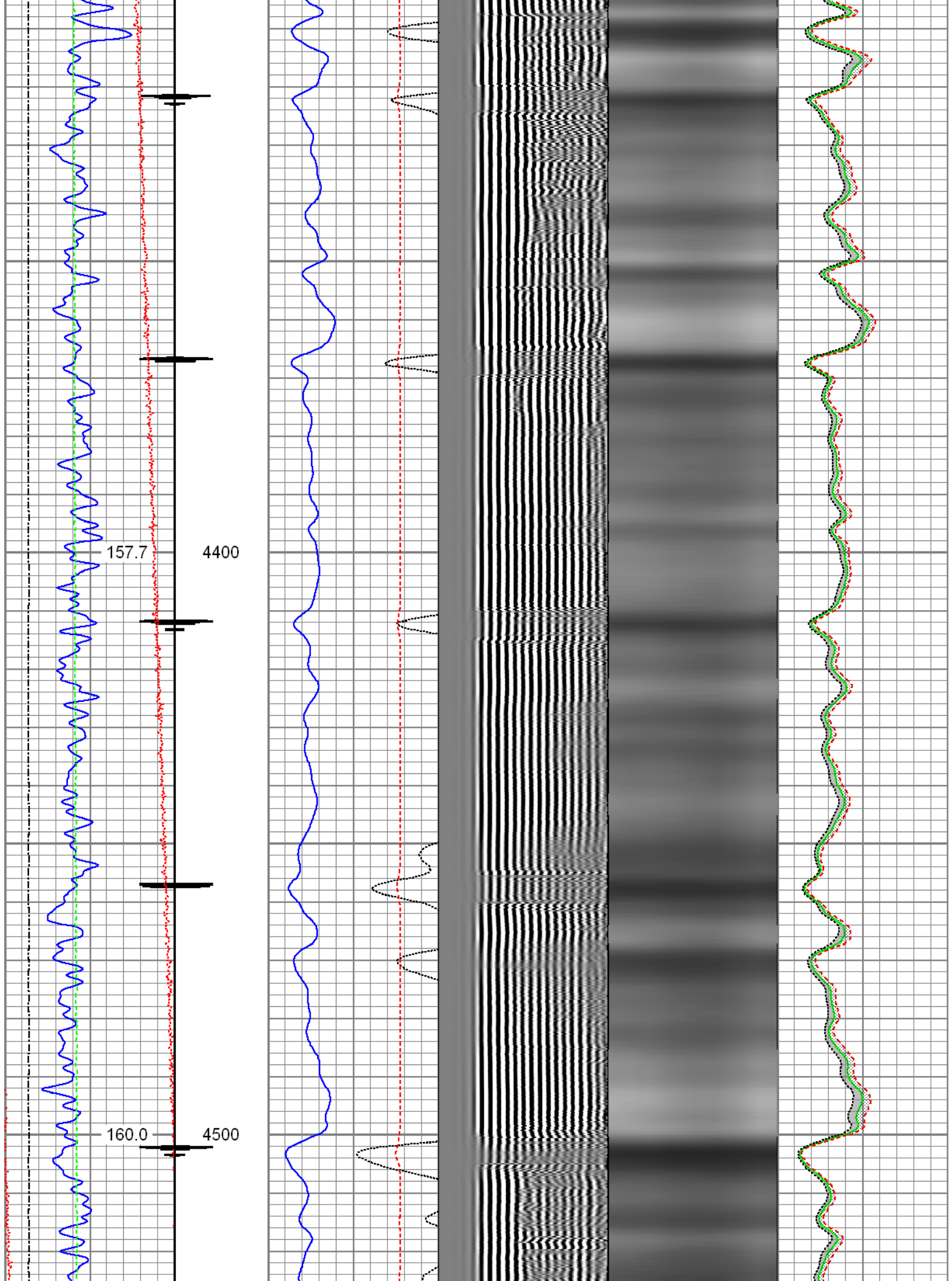


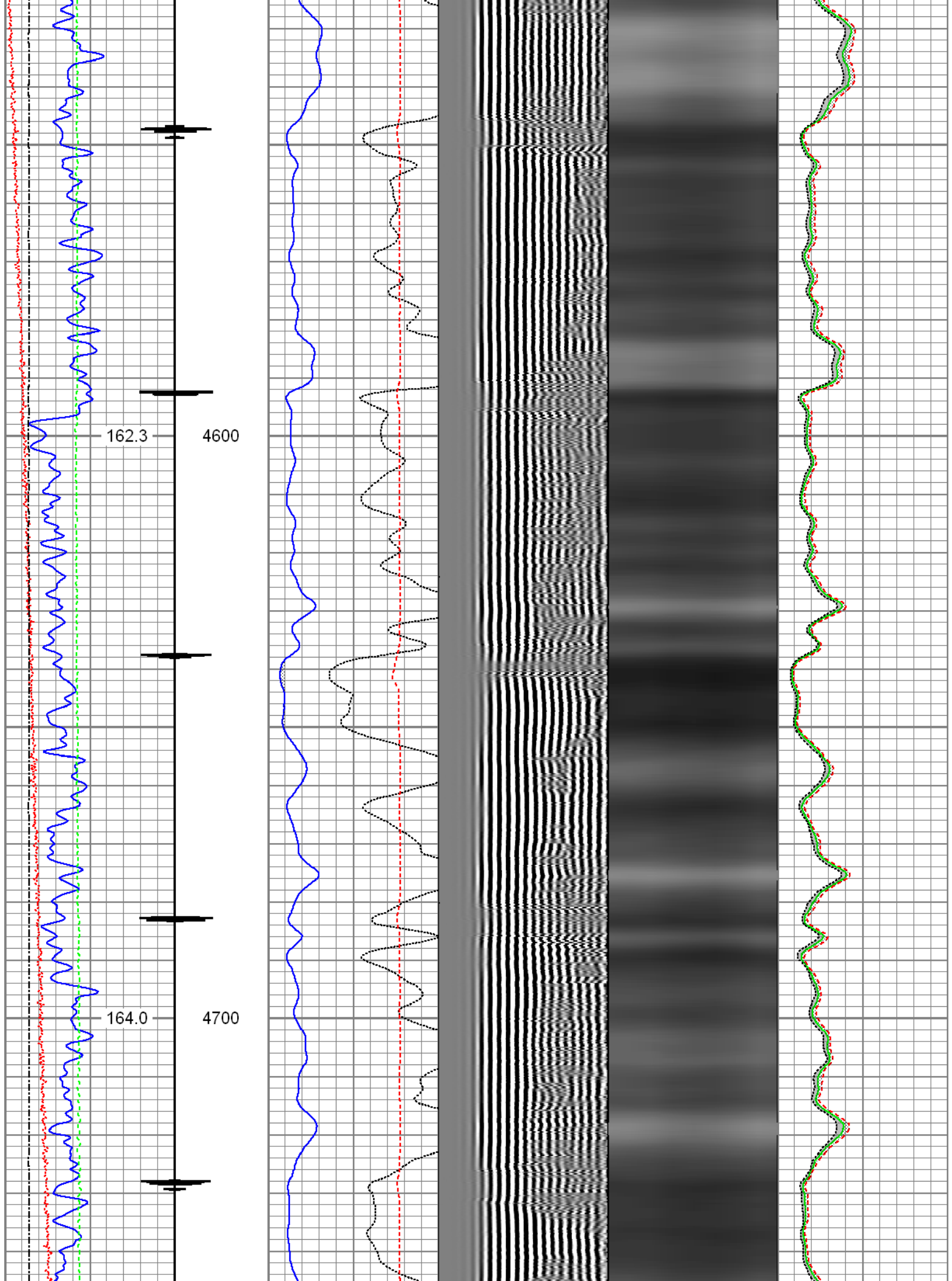


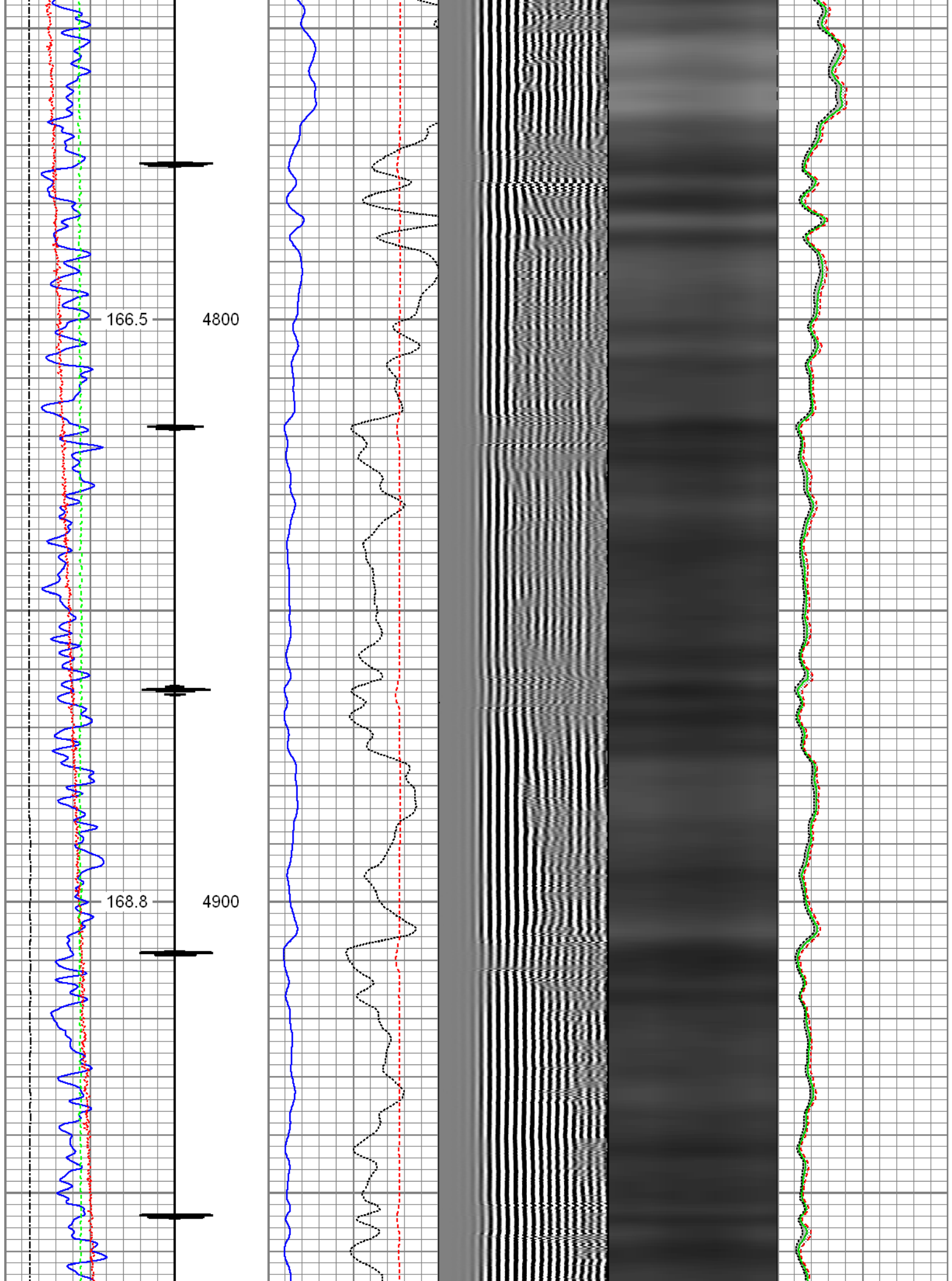


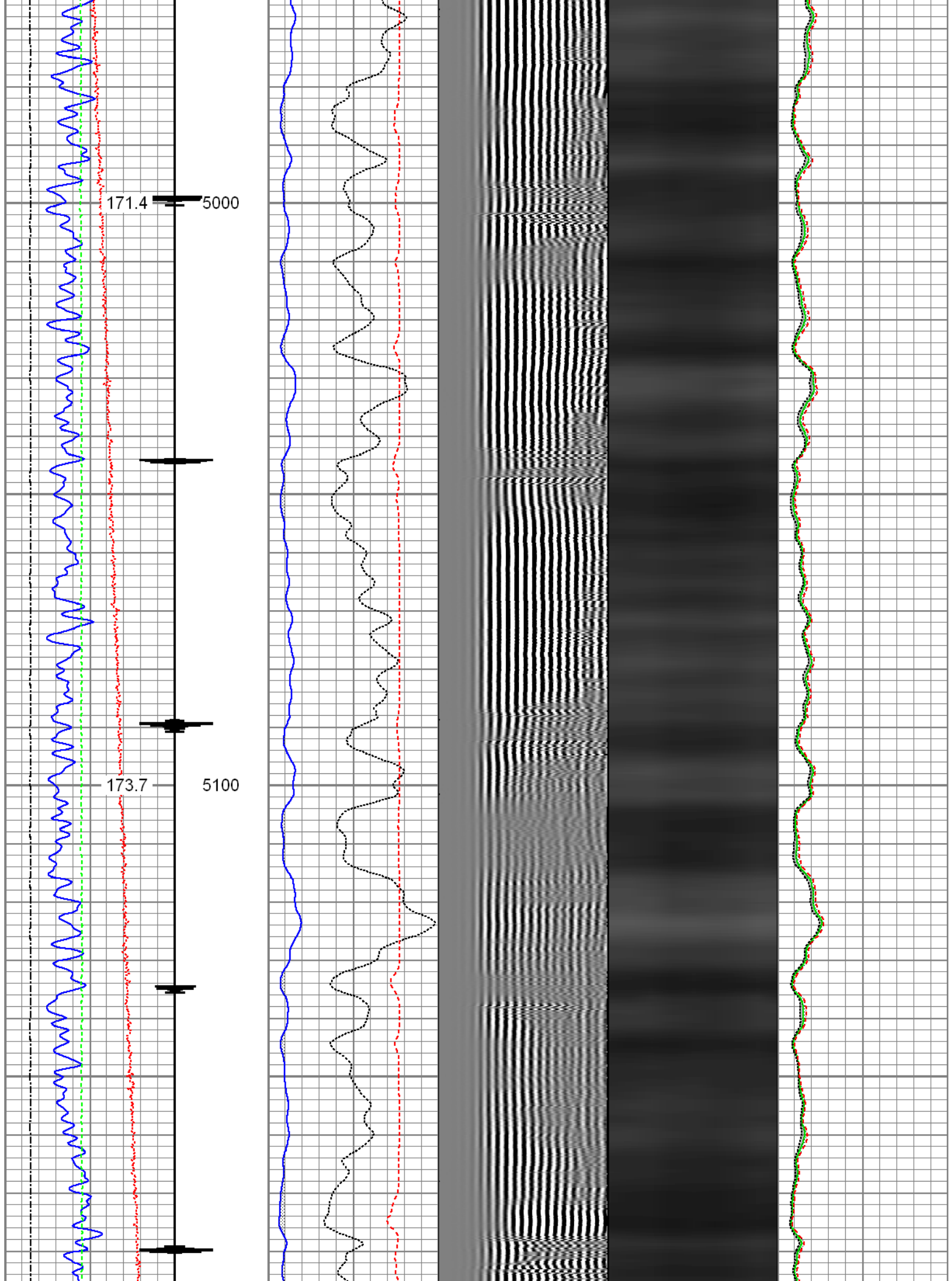


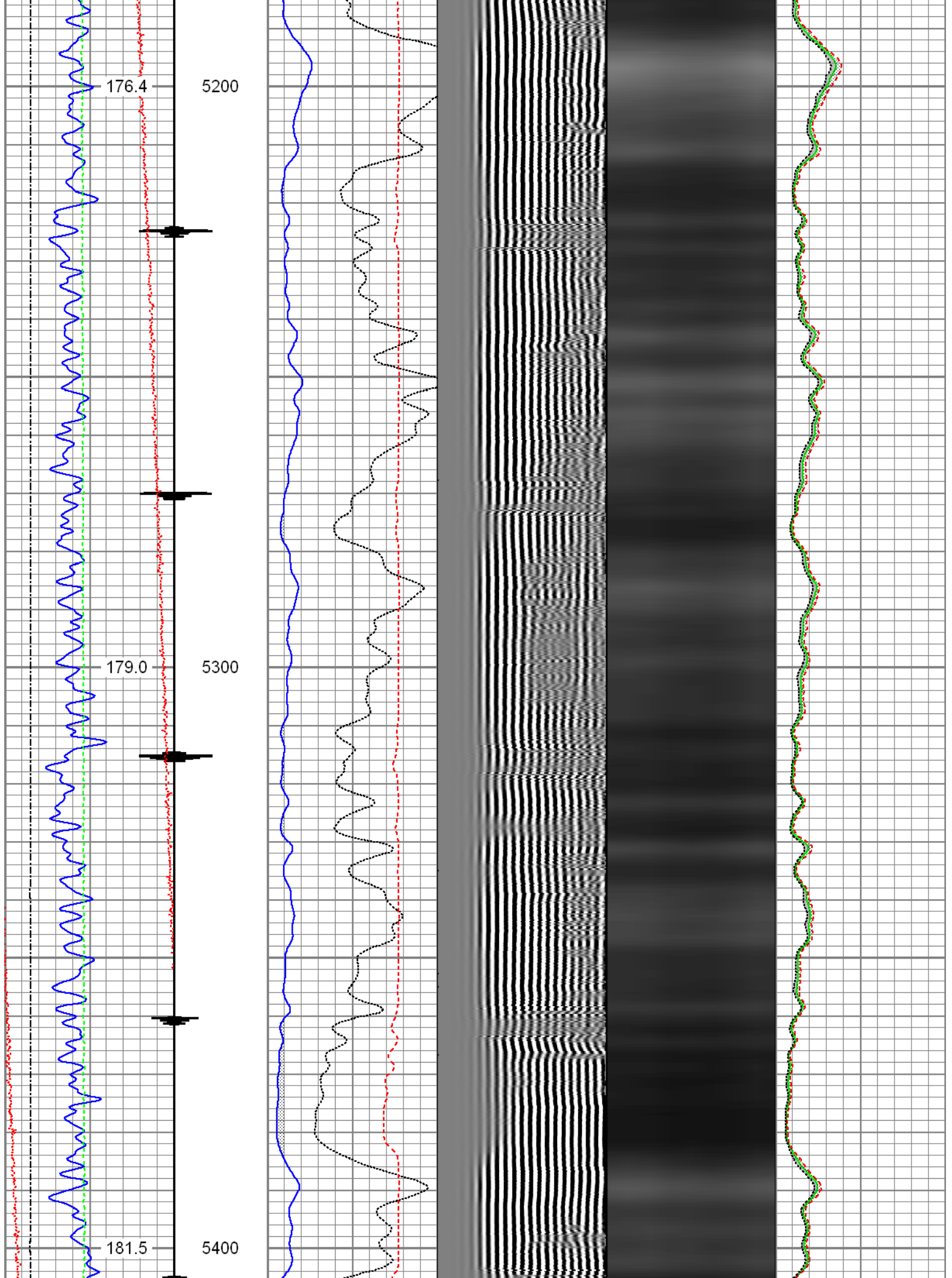


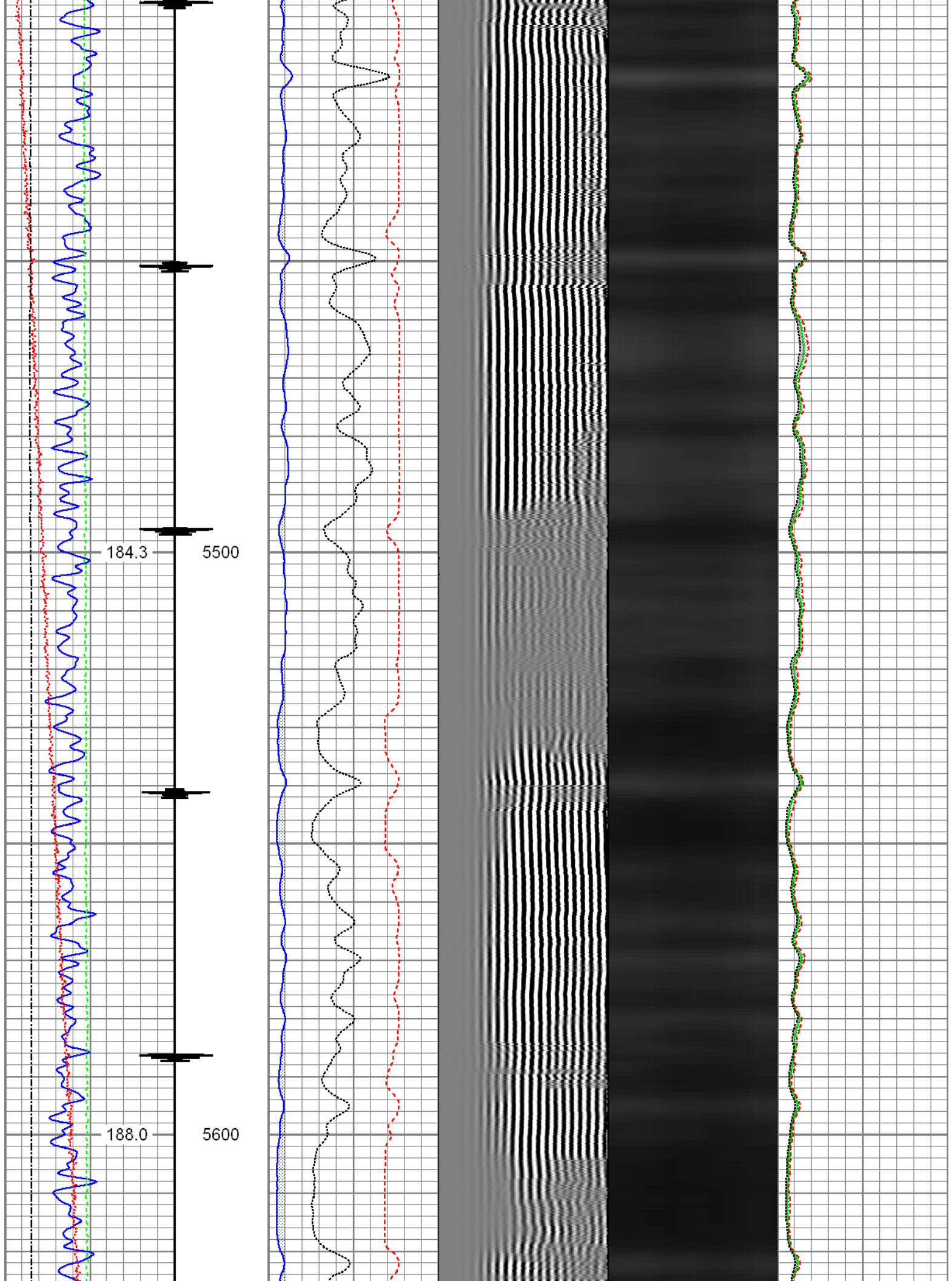


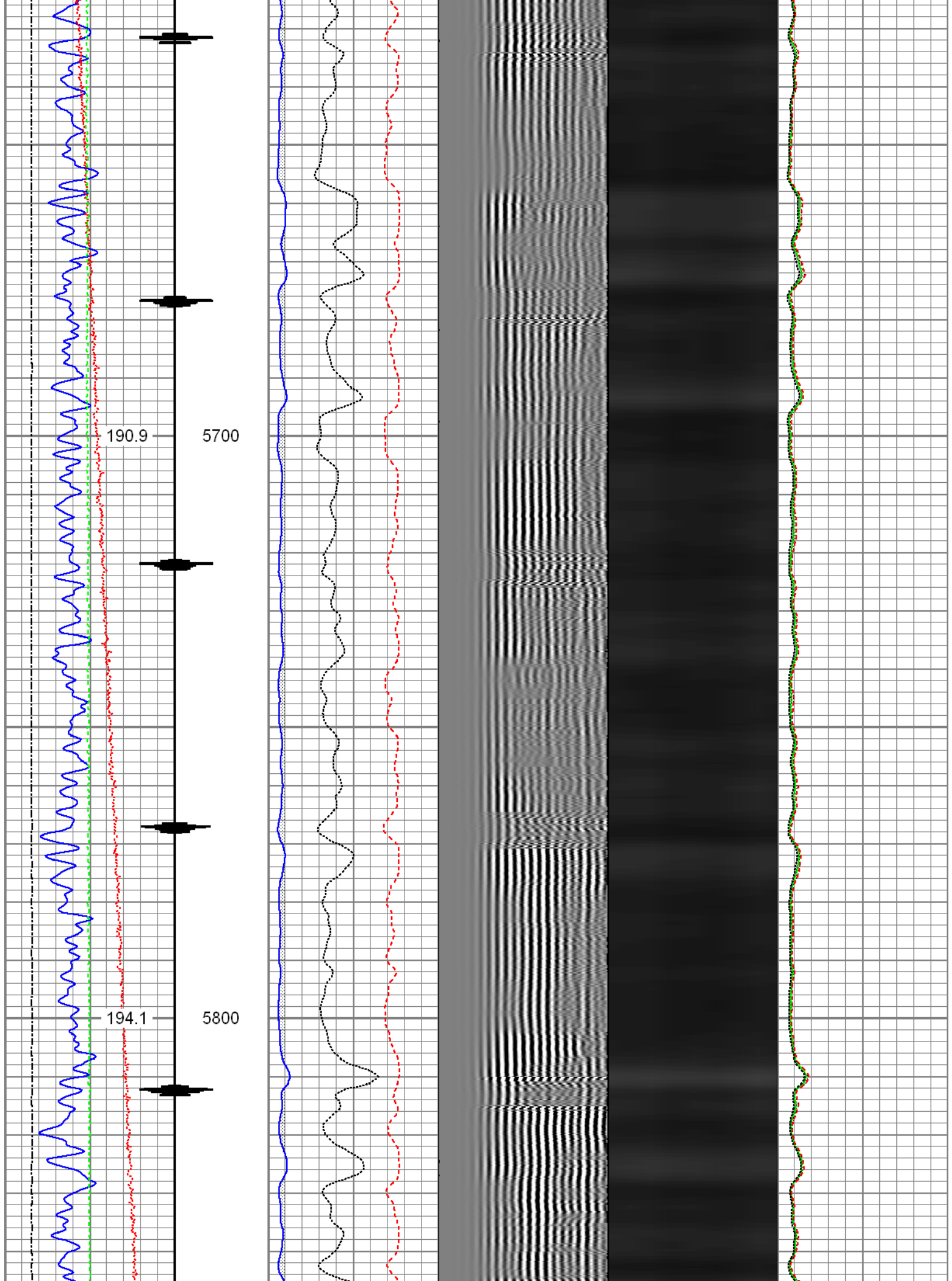


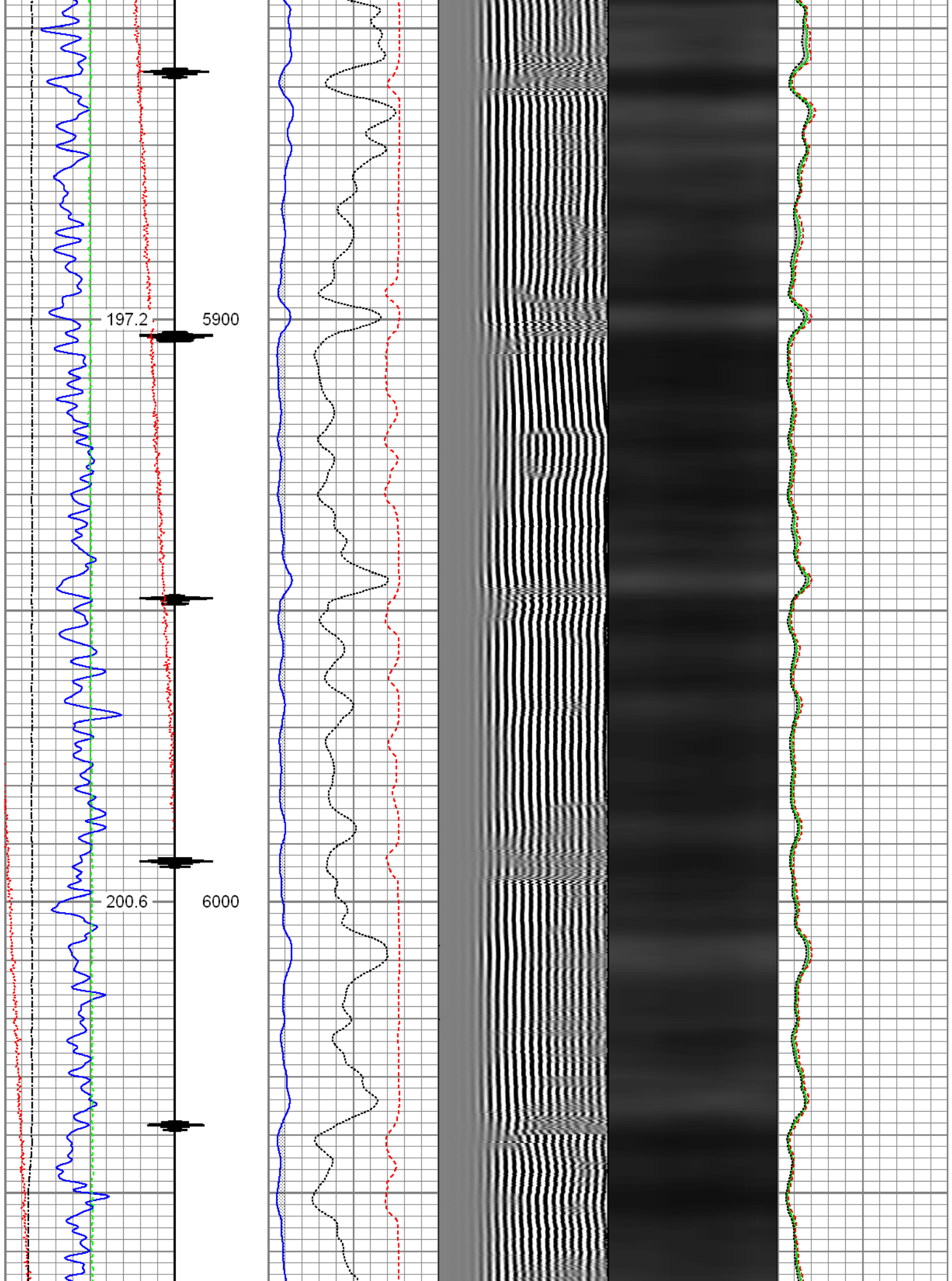


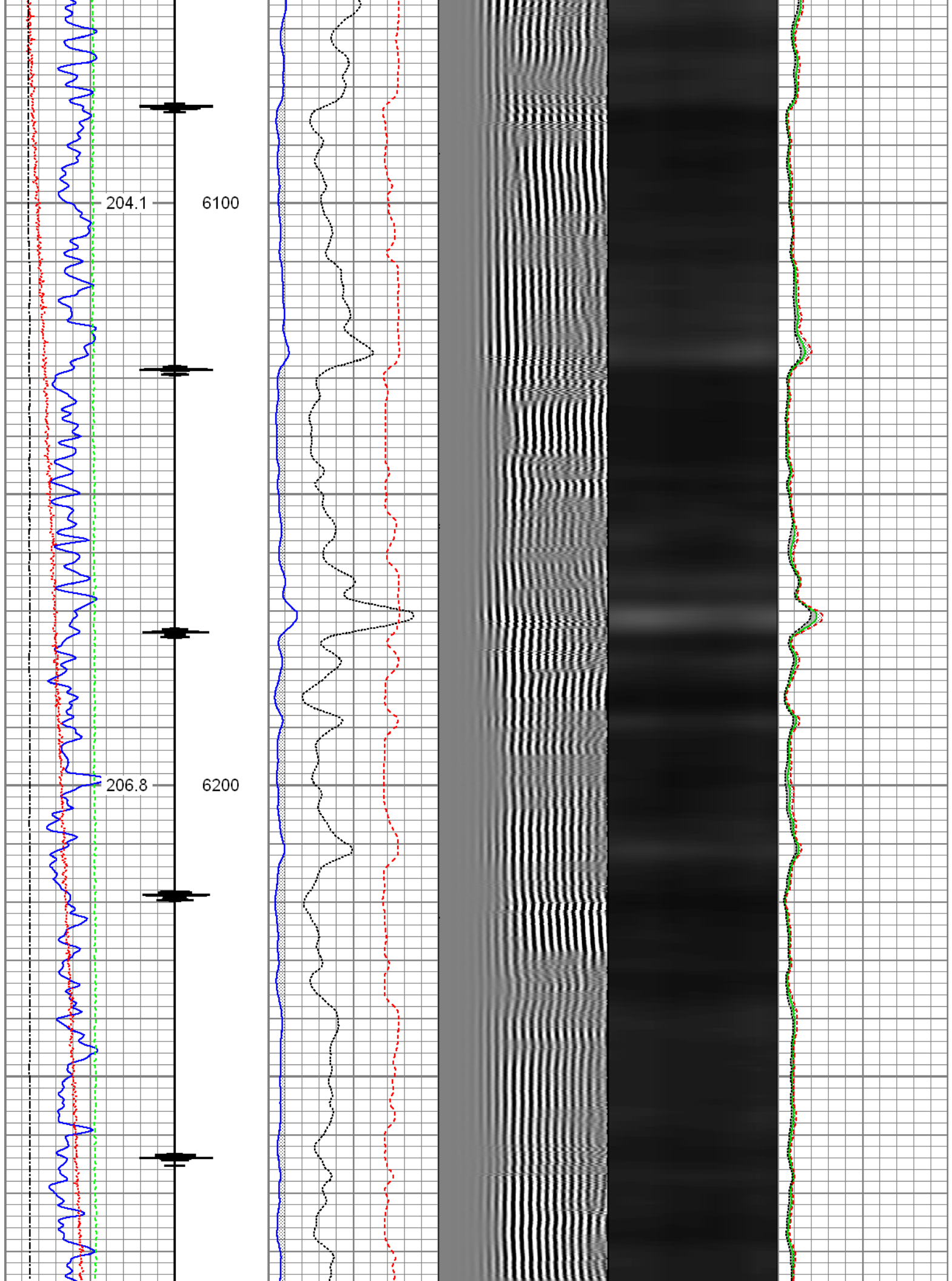


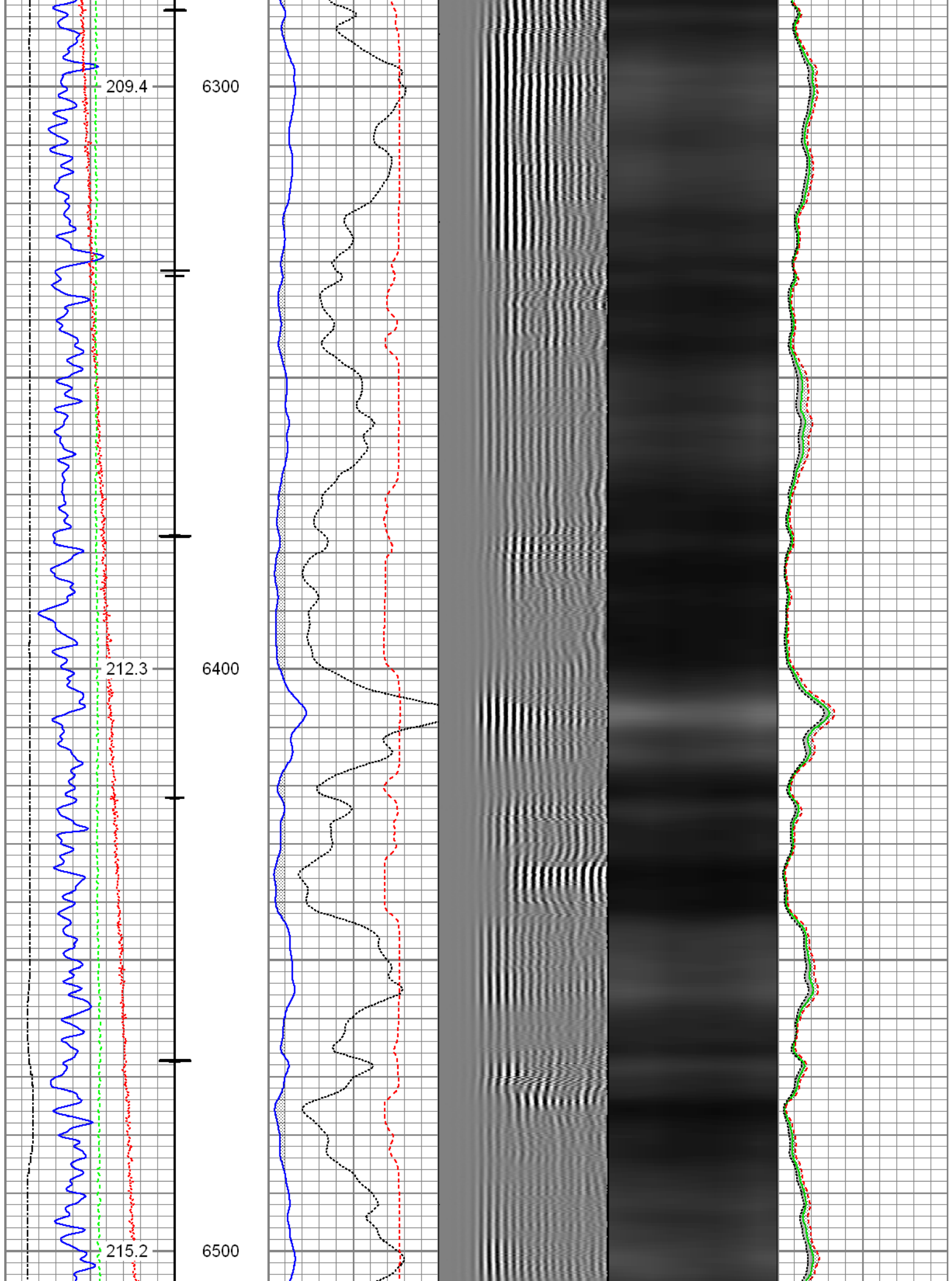


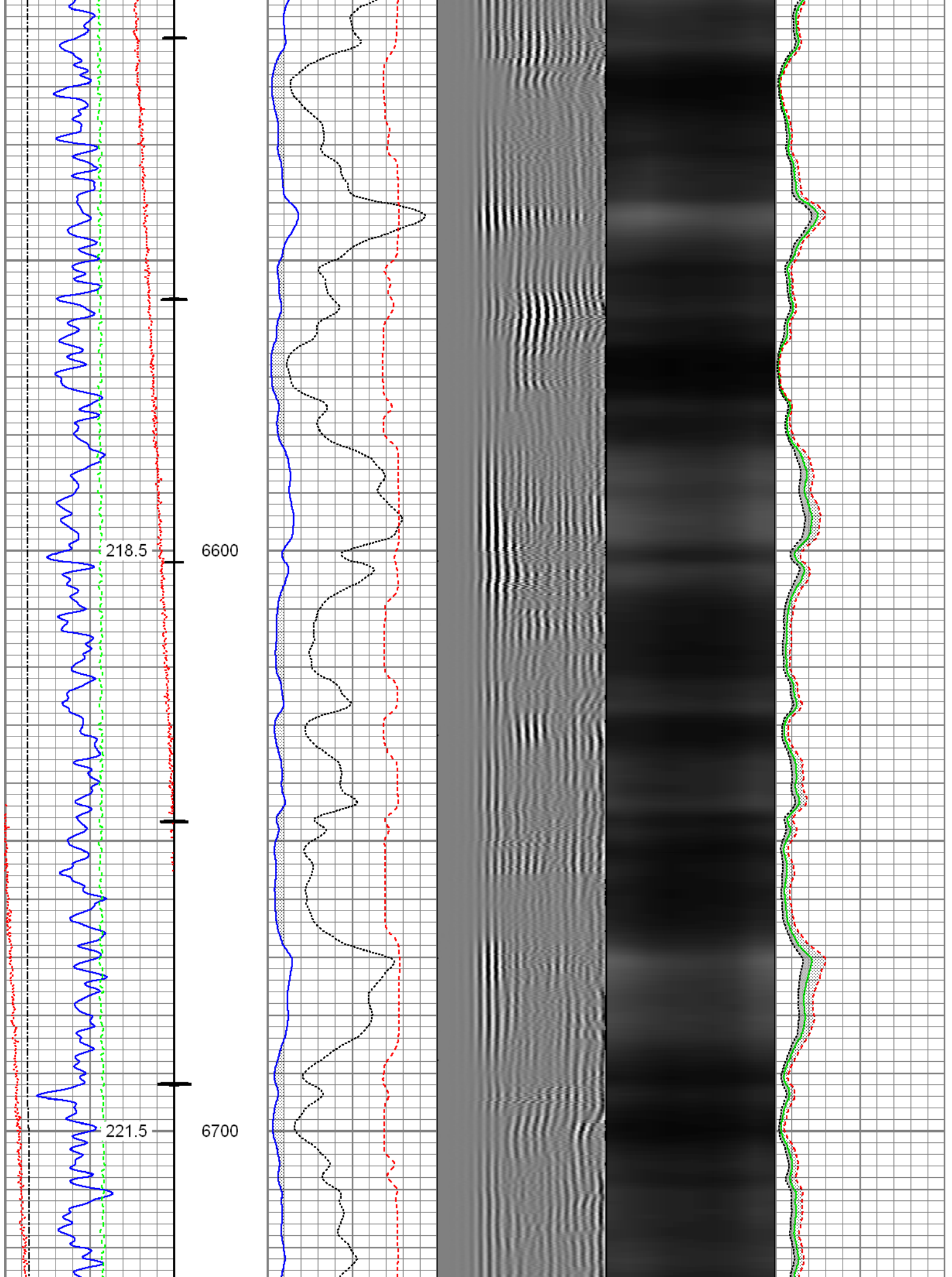


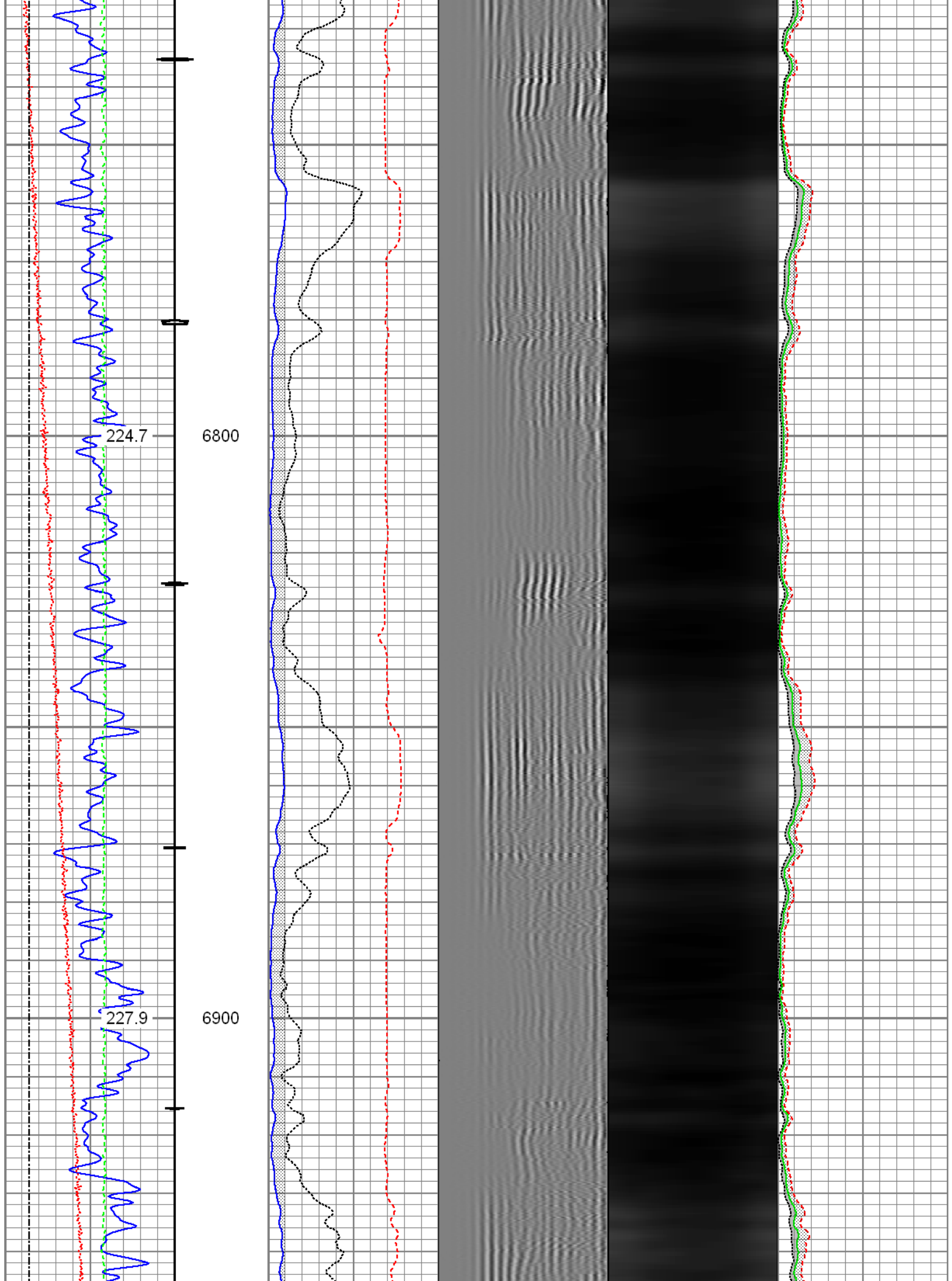


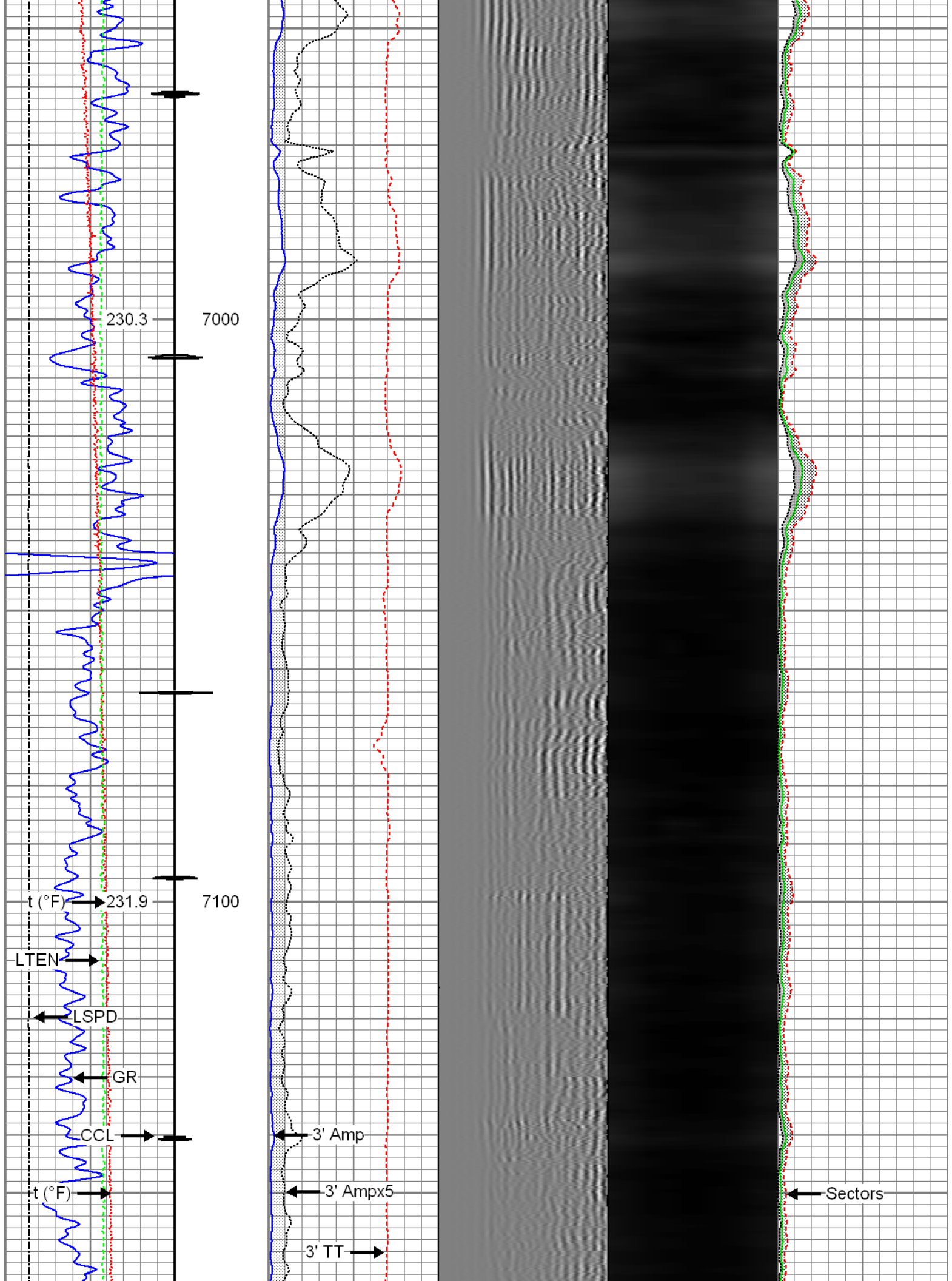


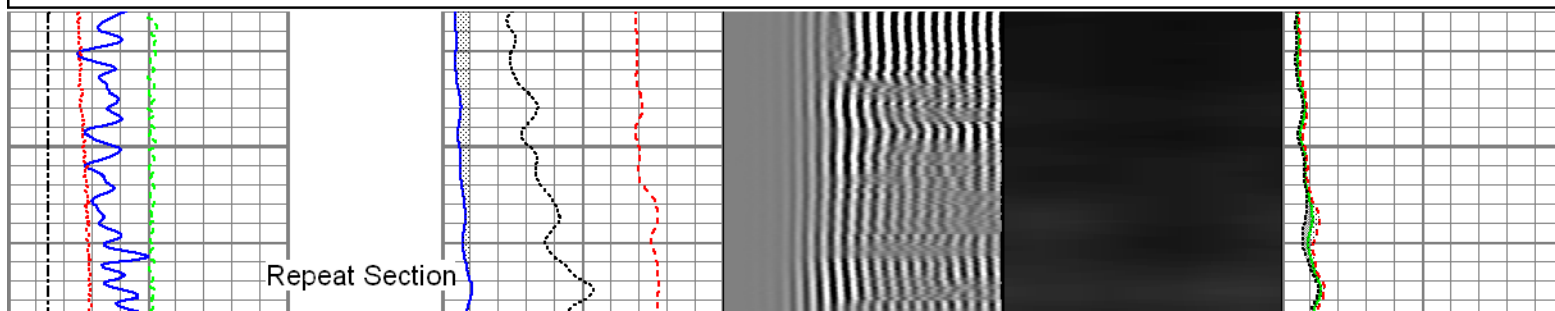
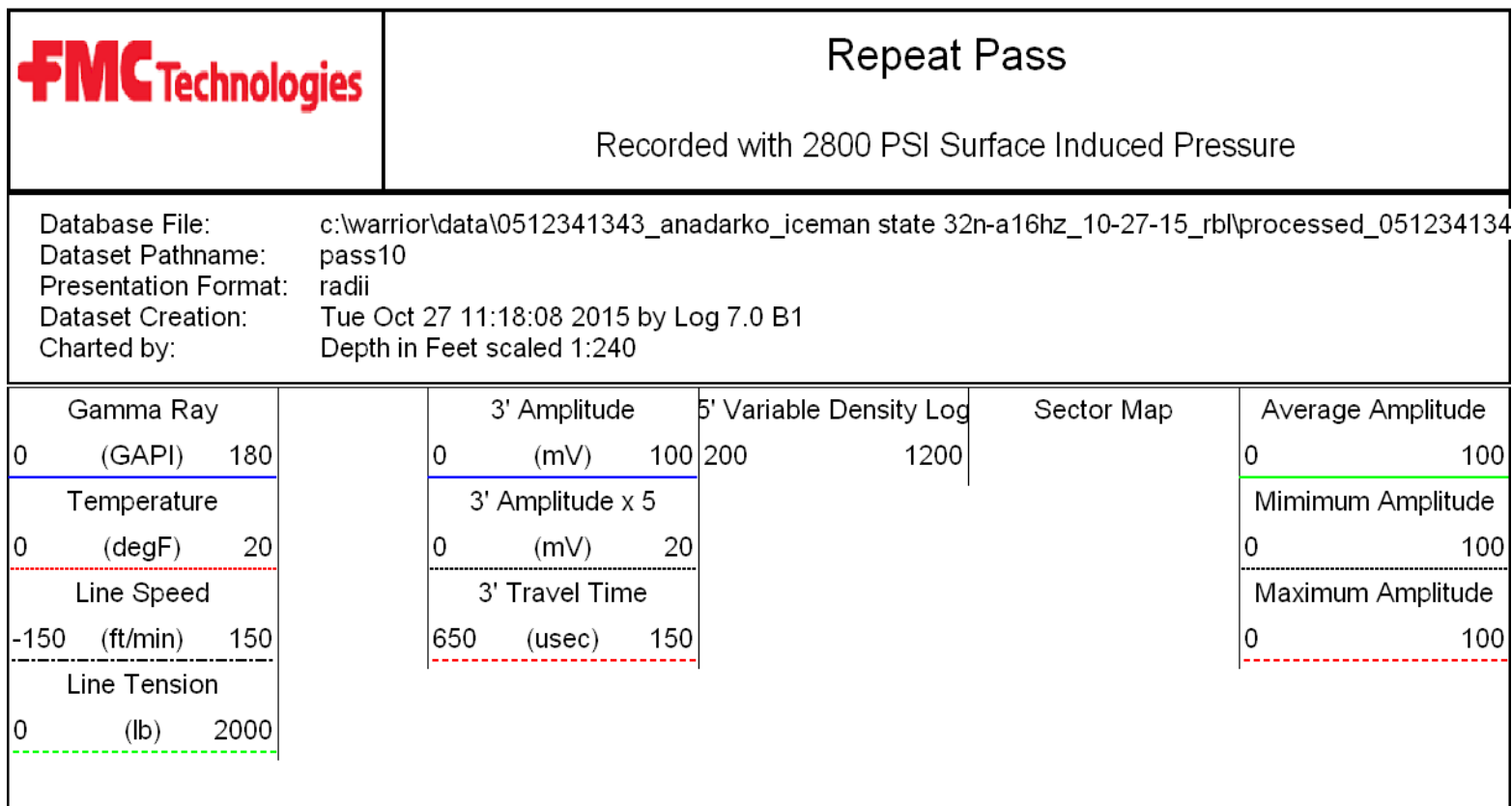
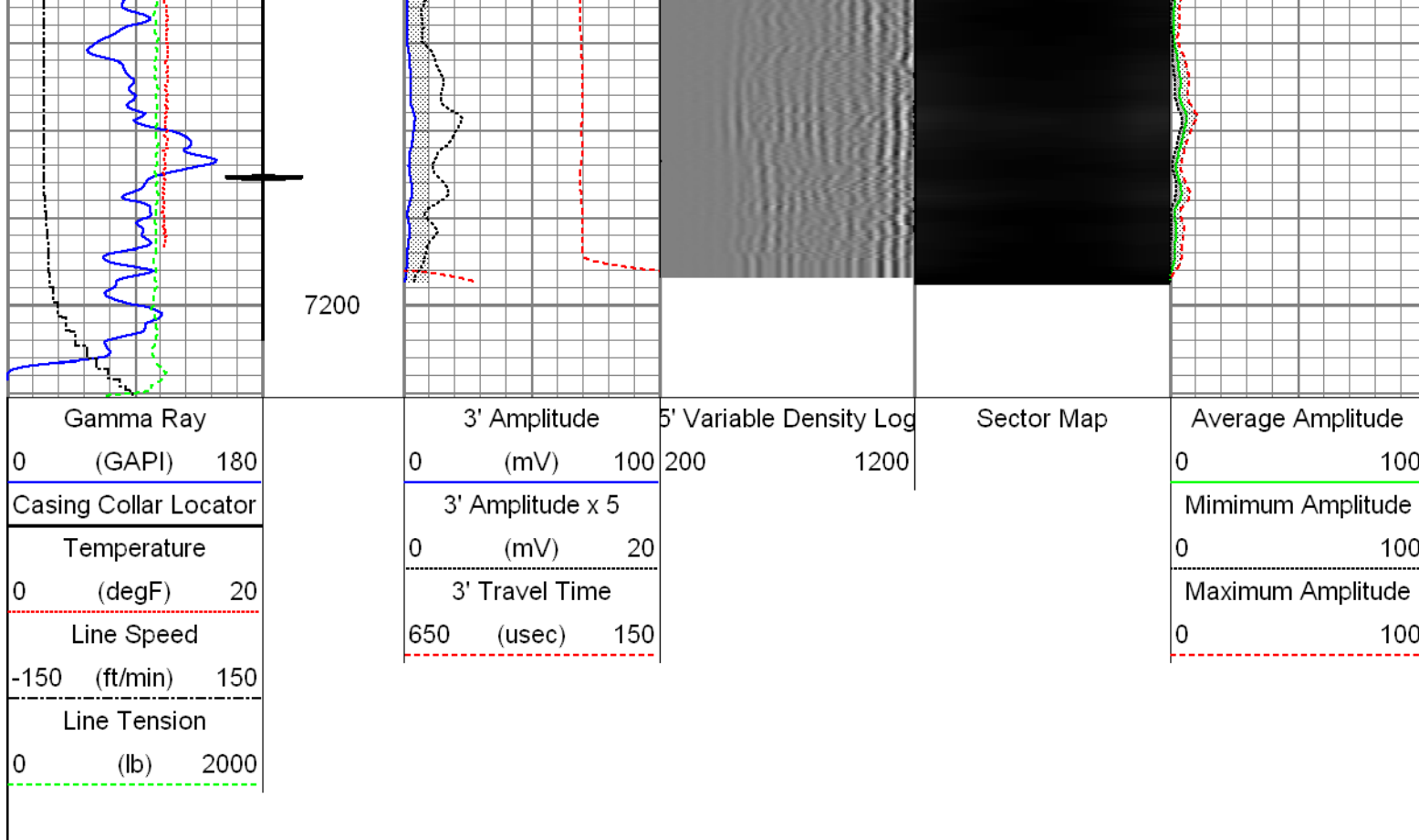


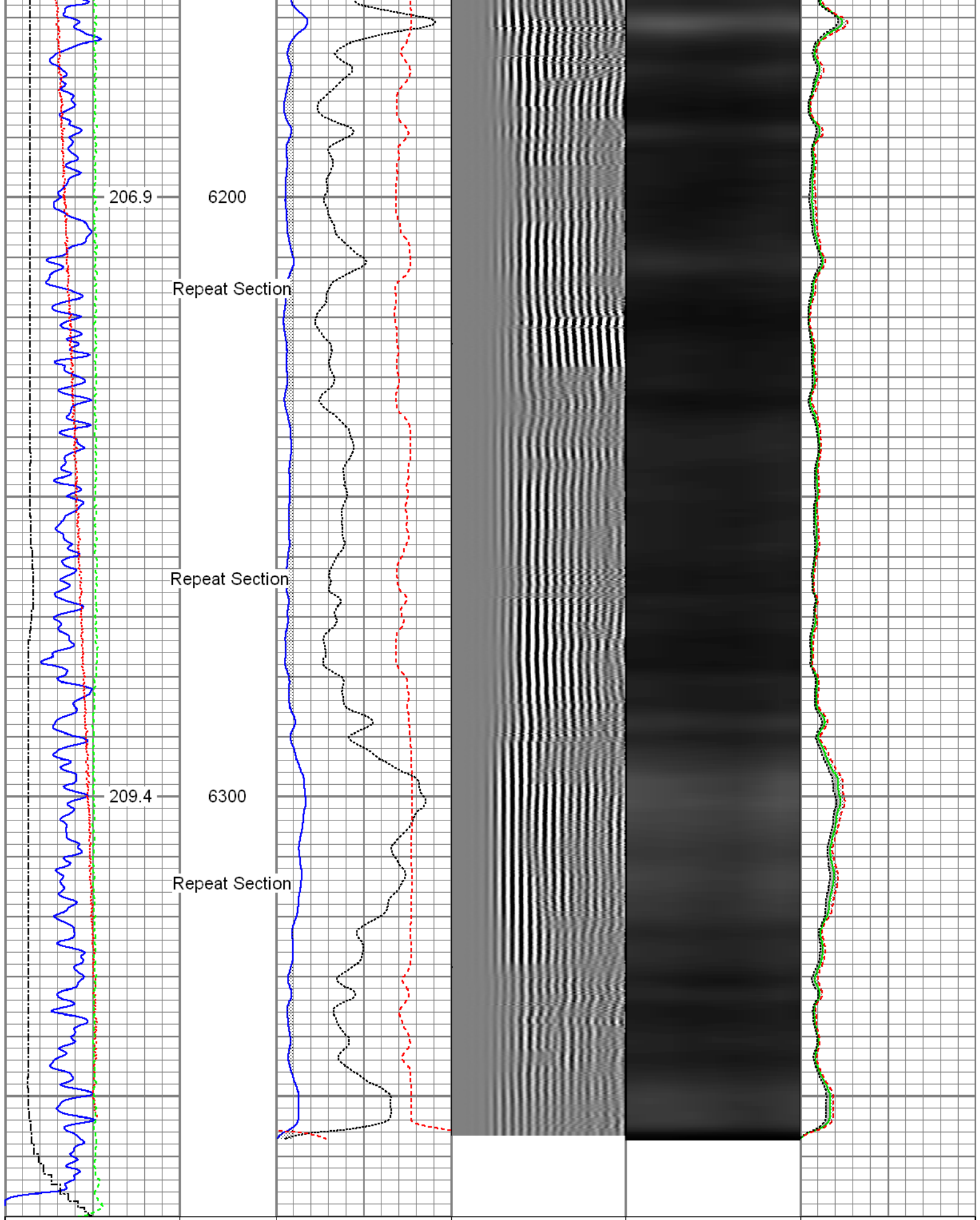






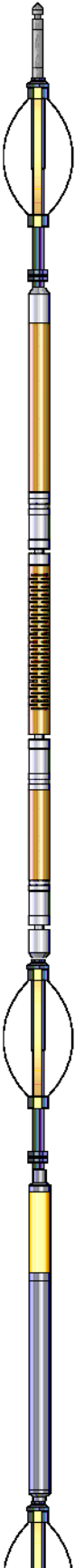
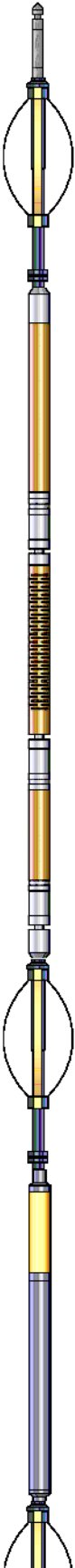
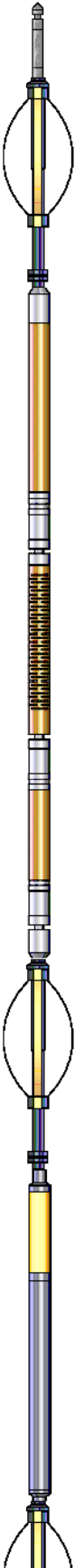







Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 180	0 (mV) 100	200 1200		0 100
Temperature	3' Amplitude x 5			Minimum Amplitude
0 (deg F) 20	0 (mV) 20			0 100

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
			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
WV3FT	14.55		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
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					
WV5FT	13.55					
CCL	6.51		Probe_CCL_GR-2.75"Digital (FW1211-081) Probe 2-3/4" Digital CCL / Gamma Ray Combined	4.54	2.75	55.00
DCCL	6.51					
GR	3.77					

			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Dataset: PROCESSED_0512341343_Anadarko_Iceman State 32N-A16HZ_10-27-15_RBL.db: field/well/run1/pass12 Total Length: 23.40 ft Total Weight: 194.00 lb O.D. 2.75 in						

Calibration Report	
Database File:	C:\Warrior\Data\0512341343_Anadarko_Iceman State 32N-A16HZ_10-27-15_RBL\PROCESSED_05
Dataset Pathname:	pass12
Dataset Creation:	Tue Oct 27 11:25:08 2015 by Log 7.0 B1

Gamma Ray Calibration Report		
Serial Number:	FW1211-081	
Tool Model:	2.75"Digital	
Performed:	Tue Oct 27 08:03:11 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:	20.000	ft	

Master Calibration, performed Tue Oct 27 09:59:01 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.000	0.620	0.800	71.921	114.557	0.839
CAL	0.777	0.737				
5'	0.000	0.555	0.800	71.921	128.156	0.773
SUM						
S1	-0.002	0.577	0.000	100.000	172.849	0.321
S2	-0.000	0.562	0.000	100.000	177.697	0.080
S3	-0.001	0.578	0.000	100.000	172.772	0.112
S4	0.001	0.633	0.000	100.000	158.263	-0.124
S5	0.001	0.711	0.000	100.000	140.821	-0.158
S6	0.000	0.737	0.000	100.000	135.676	-0.045
S7	-0.000	0.687	0.000	100.000	145.400	0.041
S8	0.000	0.619	0.000	100.000	161.559	-0.020

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	0.777	0.737	1.000	0.000

Air Zero Calibration, performed Tue Oct 27 09:58:43 2015:

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



Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Iceman State 32N-A16HZ
Field Wattenberg
County Weld
State Colorado