



# Radial Cement Bond Gamma Ray Casing Collar Log

Company Kerr-McGee Oil and Gas Onshore LP						Company Kerr-McGee Oil and Gas Onshore LP	
Well Encore 8C-12HZ						Well Encore 8C-12HZ	
Field Wattenberg						Field Wattenberg	
County Larimer						County Larimer	
State Colorado						State Colorado	
Location:						API # : 05-069-06478	
						Other Services	
						Gauge Ring	
SEC 12 TWP 5N RGE 68W						Elevation	
Permanent Datum Ground Level						K.B. 5006'	
Log Measured From Kelly Bushing						D.F. 5005'	
Drilling Measured From Kelly Bushing						G.L. 4990'	
Date	Run Number		22-SEP-2015				
Depth Driller		Two					
Depth Logger		13976 FT					
Bottom Logged Interval		7560 FT					
Top Log Interval		7528 FT					
Open Hole Size		Surface					
Type Fluid		7.875"					
Density / Viscosity		Water					
Max. Recorded Temp.		8.34 lbm/gal					
Estimated Cement Top		221°F					
Time Well Ready		80 FT					
Time Logger on Bottom		ROA					
Equipment Number		12:00					
Recorded By		HD-0255					
Witnessed By		Ft. Lupton, CO					
		R. Fogarty					
		Steve Vigil					
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 LTC	Surface	1857 FT		
Intermediate #1	5 1/2	17	HCP-110 LTC	Surface	13976 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.

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Comments

Log ran as per customer request  
Log Correlated to 16 FT kelly bushing  
Casing Tally Reported Marker Joint top at 6715 FT.  
Log Recorded Marker Joint Top at 6694 FT  
Gauge ring ran to 7560'  
Log ran from as deep as possible to surface  
Log ran with 2800 PSI surface induced pressure  
Logging Tools were clean

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



## Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0506906478\_anadarko\_encore 8c-12hz\_09-22-15\_rb\0506906478\_anadarko\_encore

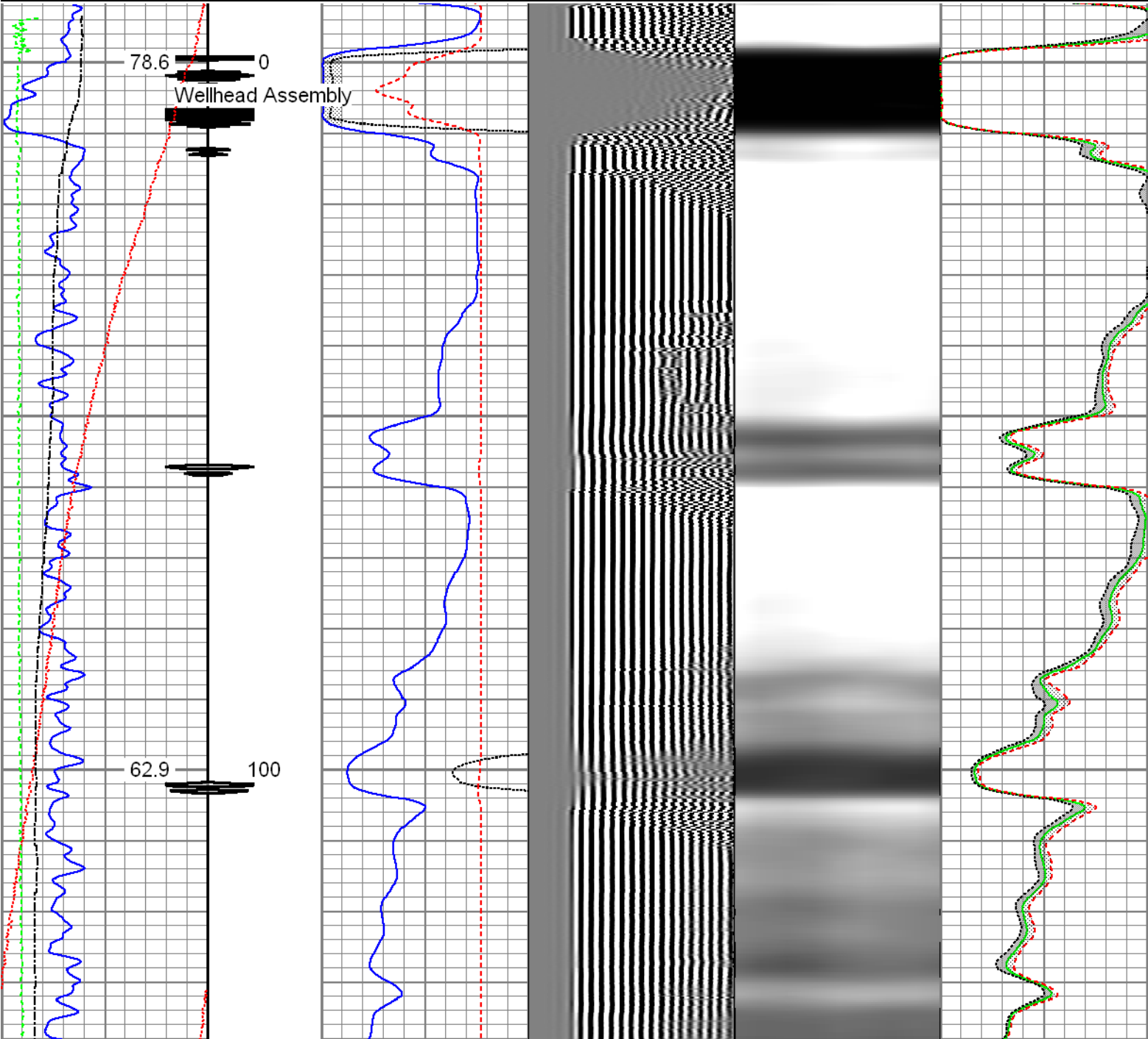
Dataset Pathname: pass8

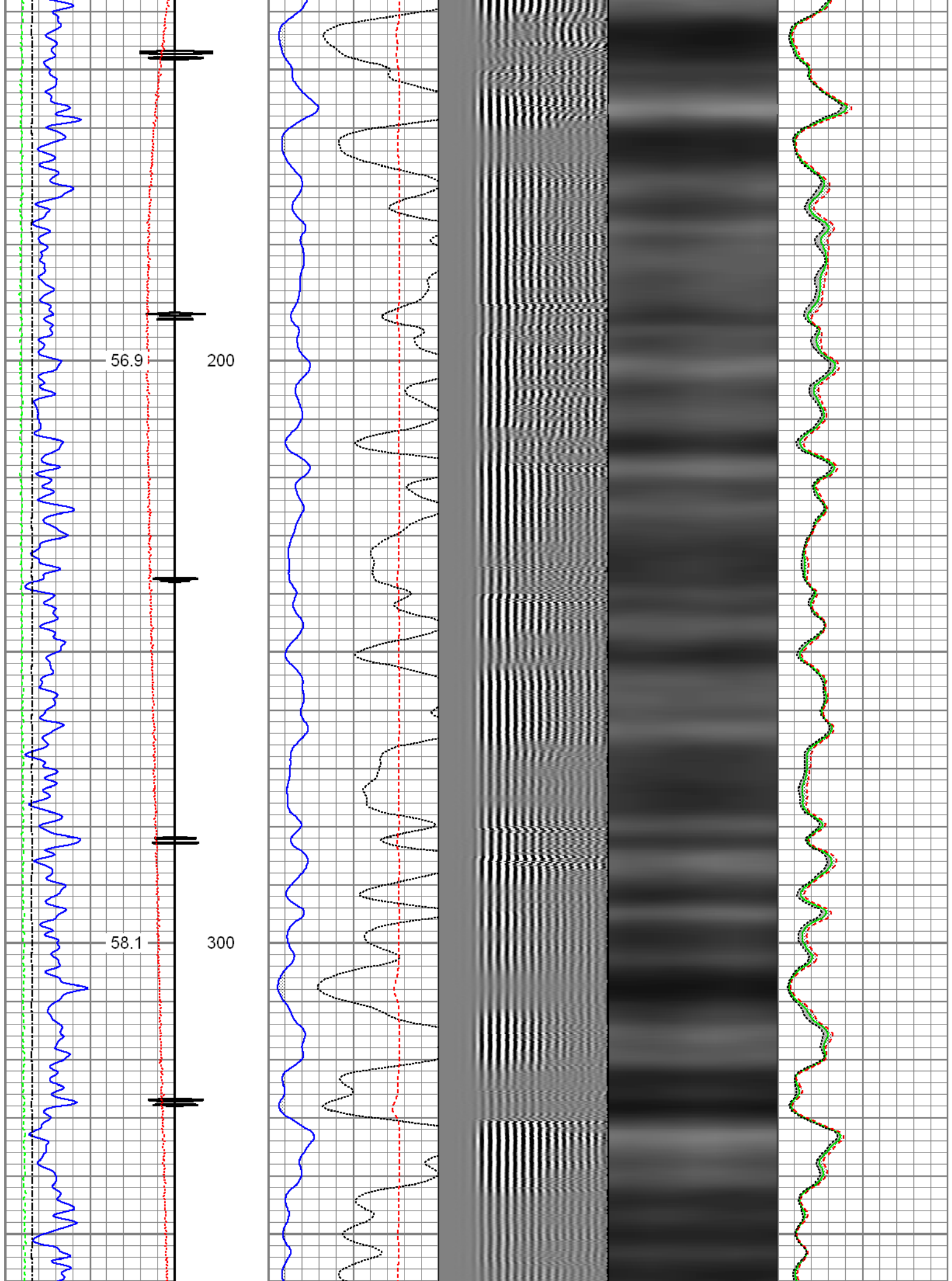
Presentation Format: radii

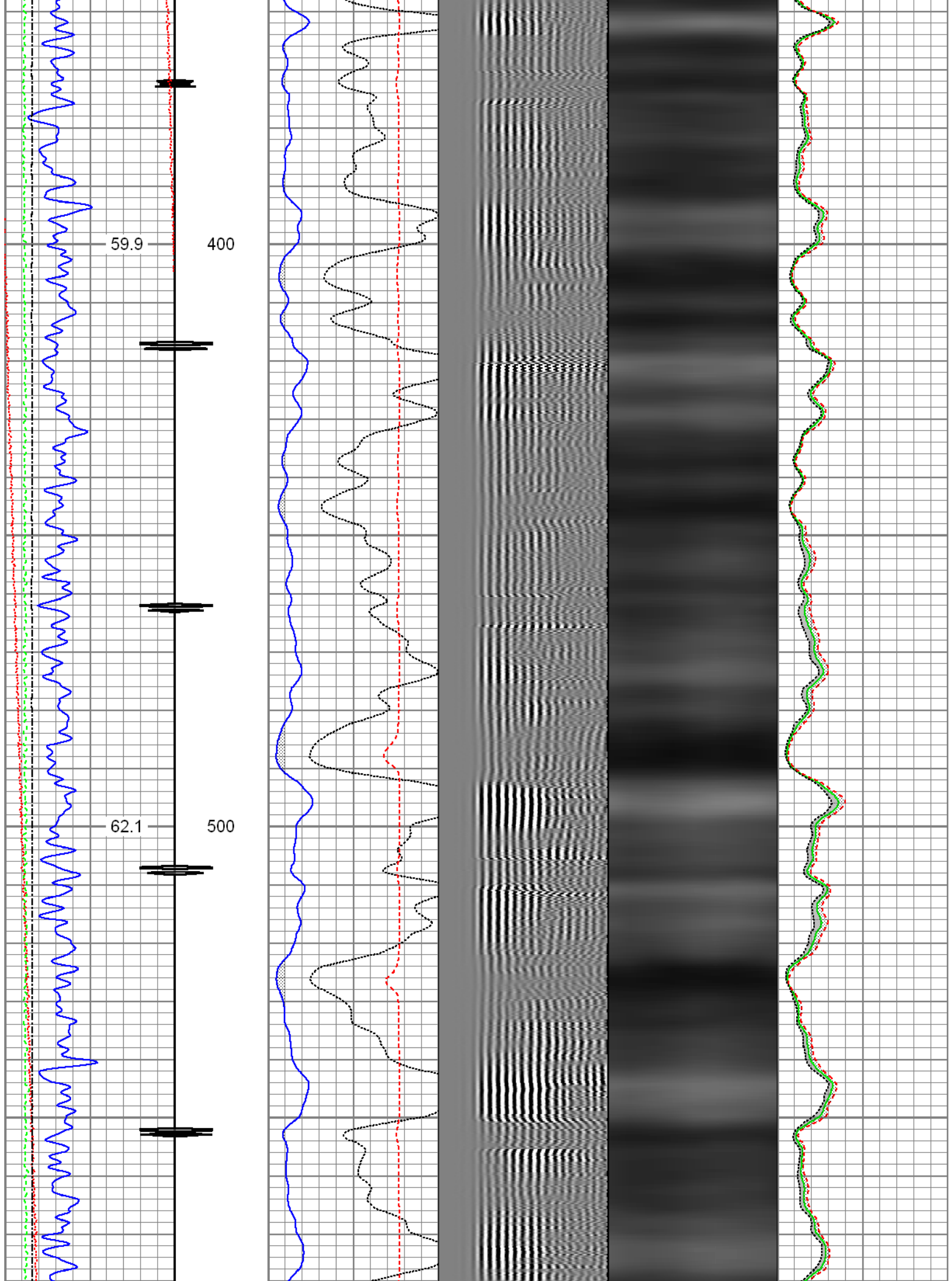
Dataset Creation: Tue Sep 22 12:11:59 2015 by Log 7.0 B1

Charted by: Depth in Feet scaled 1:240

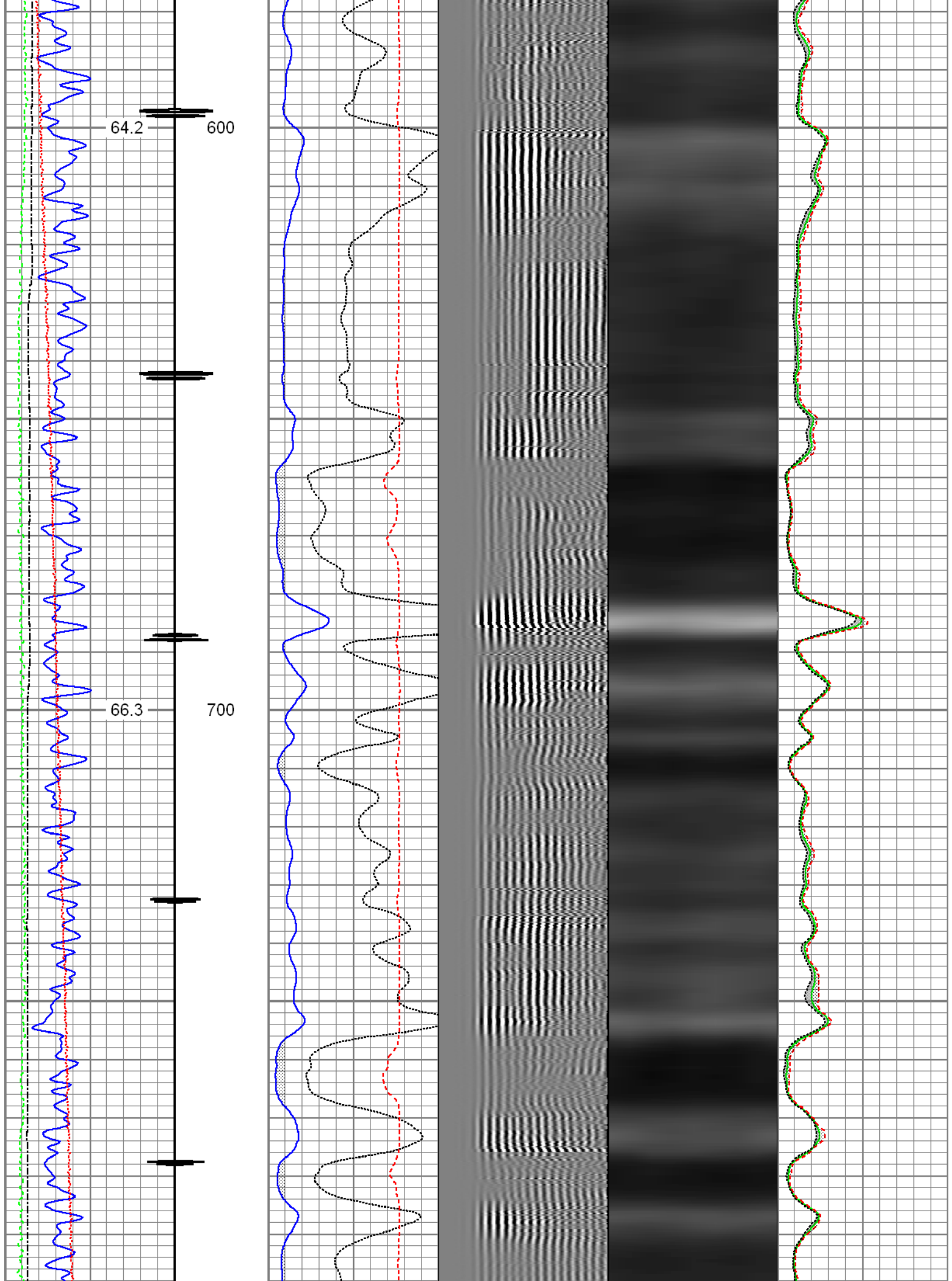
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

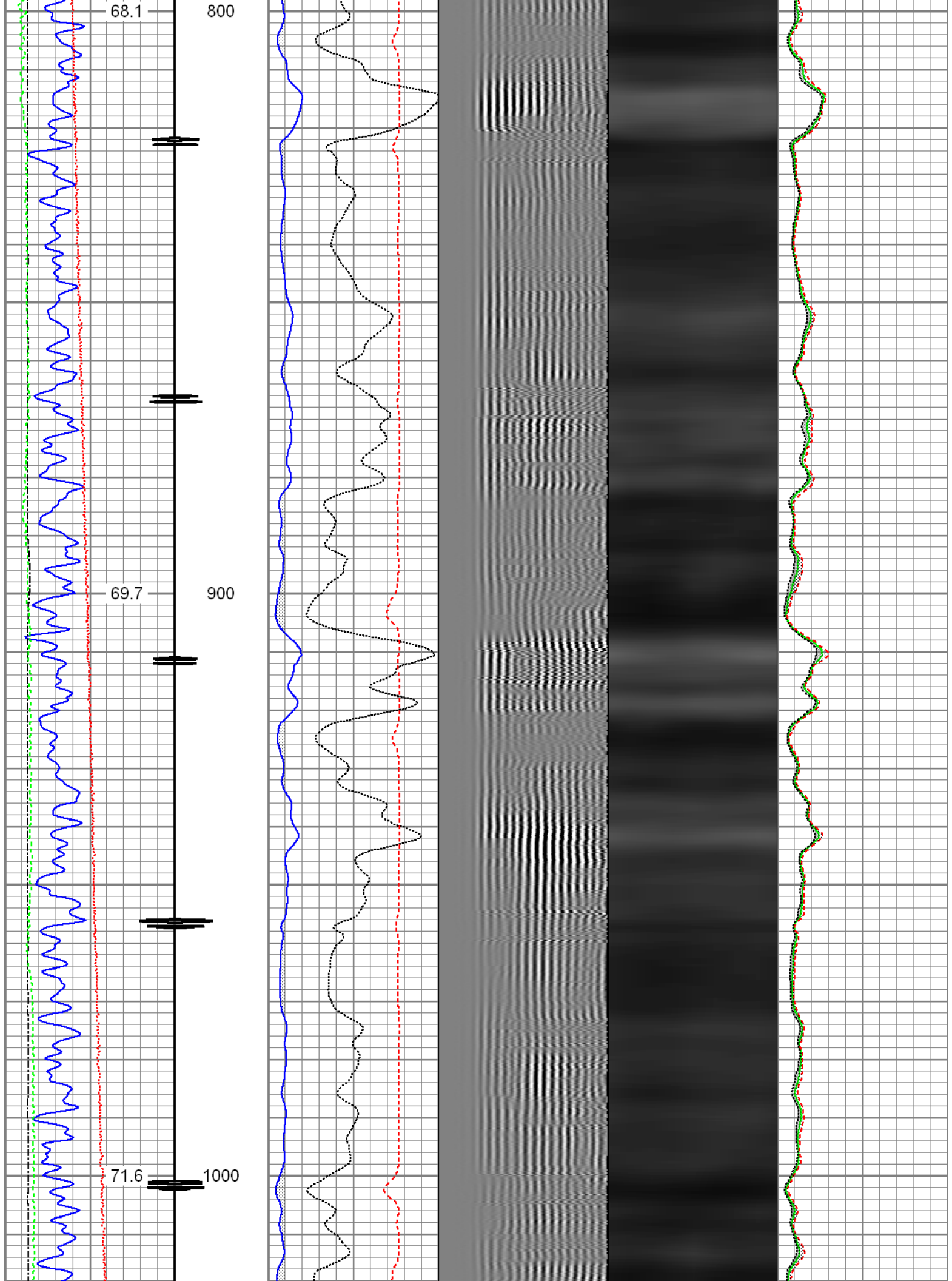


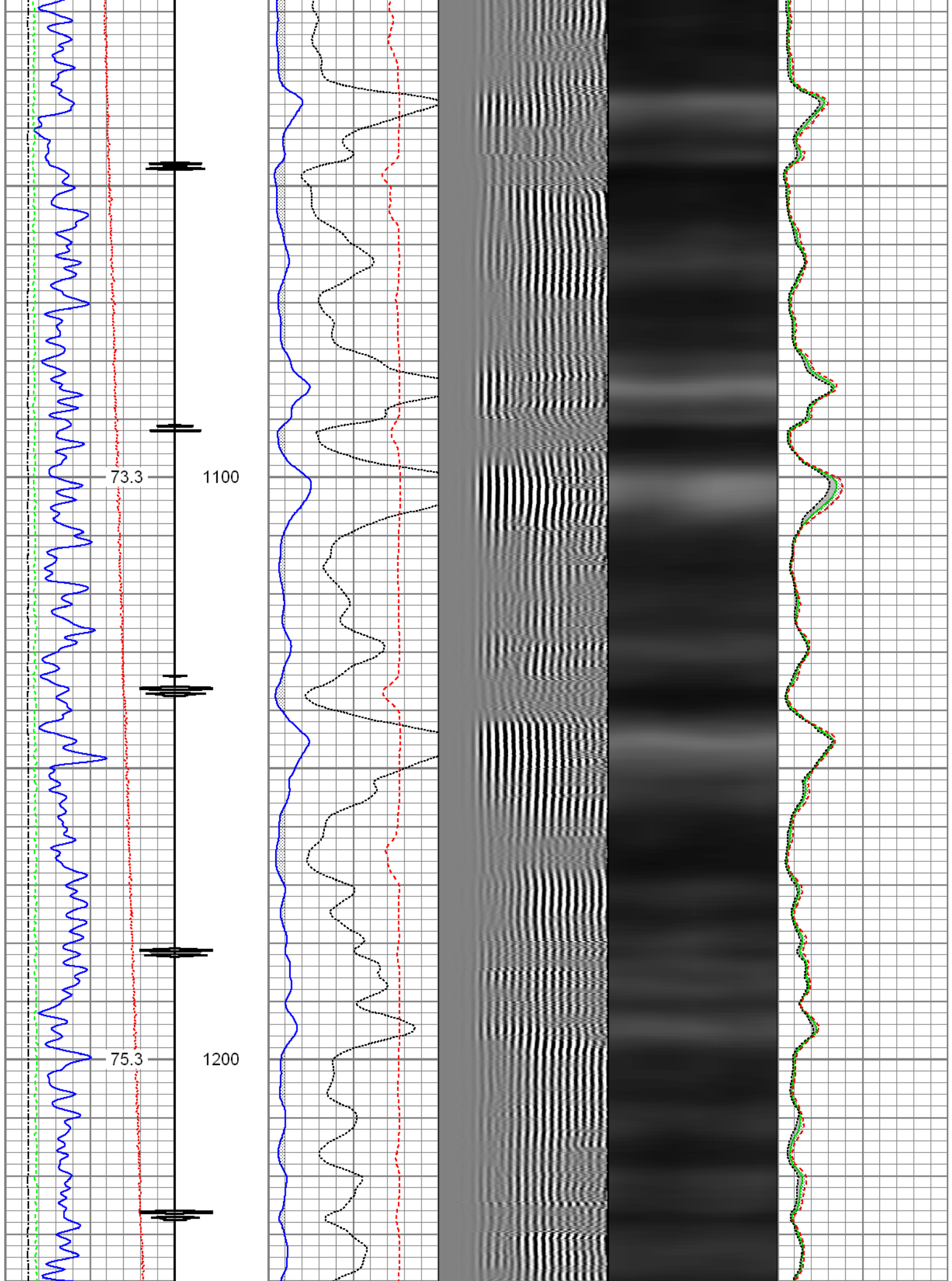


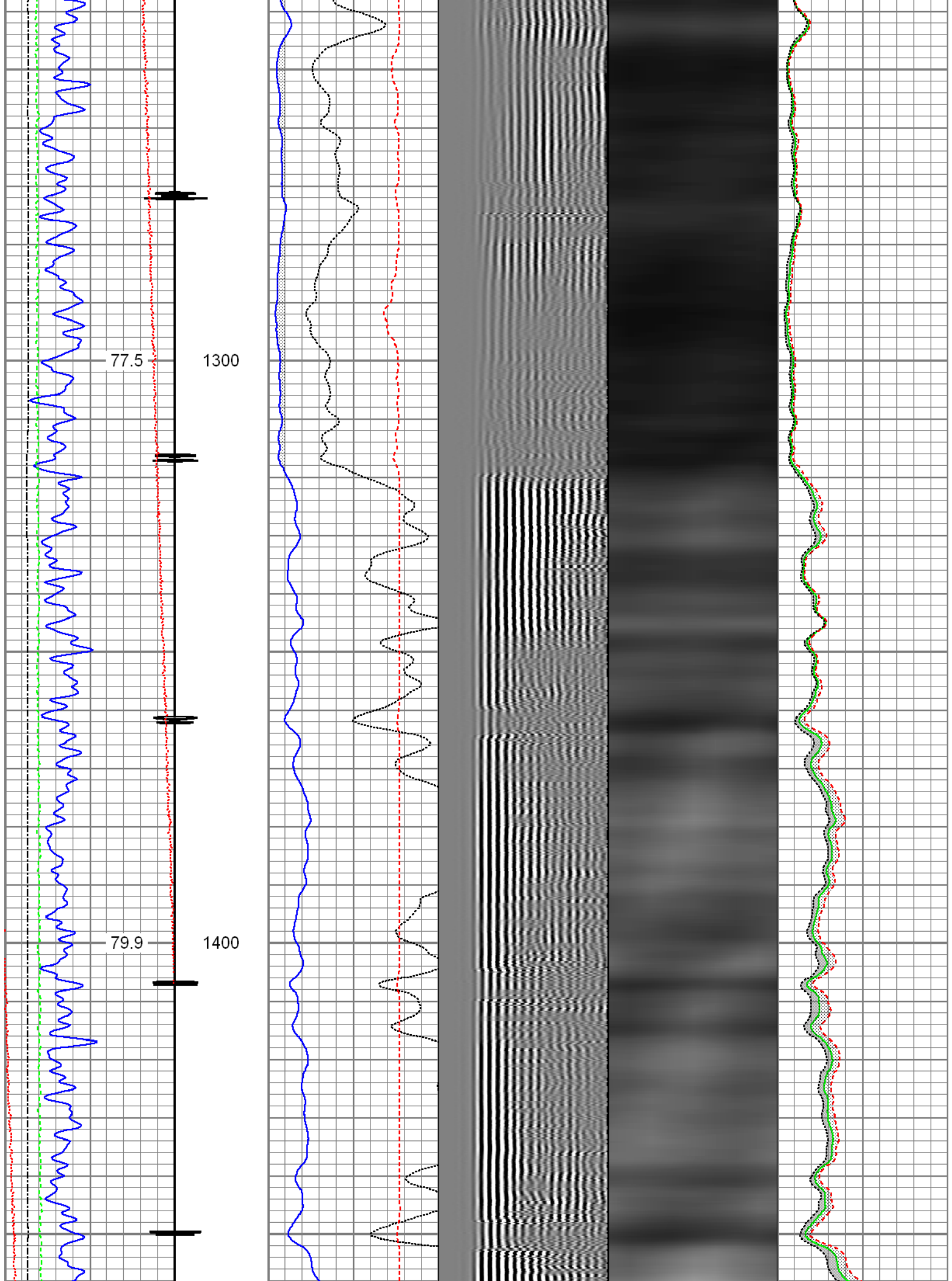




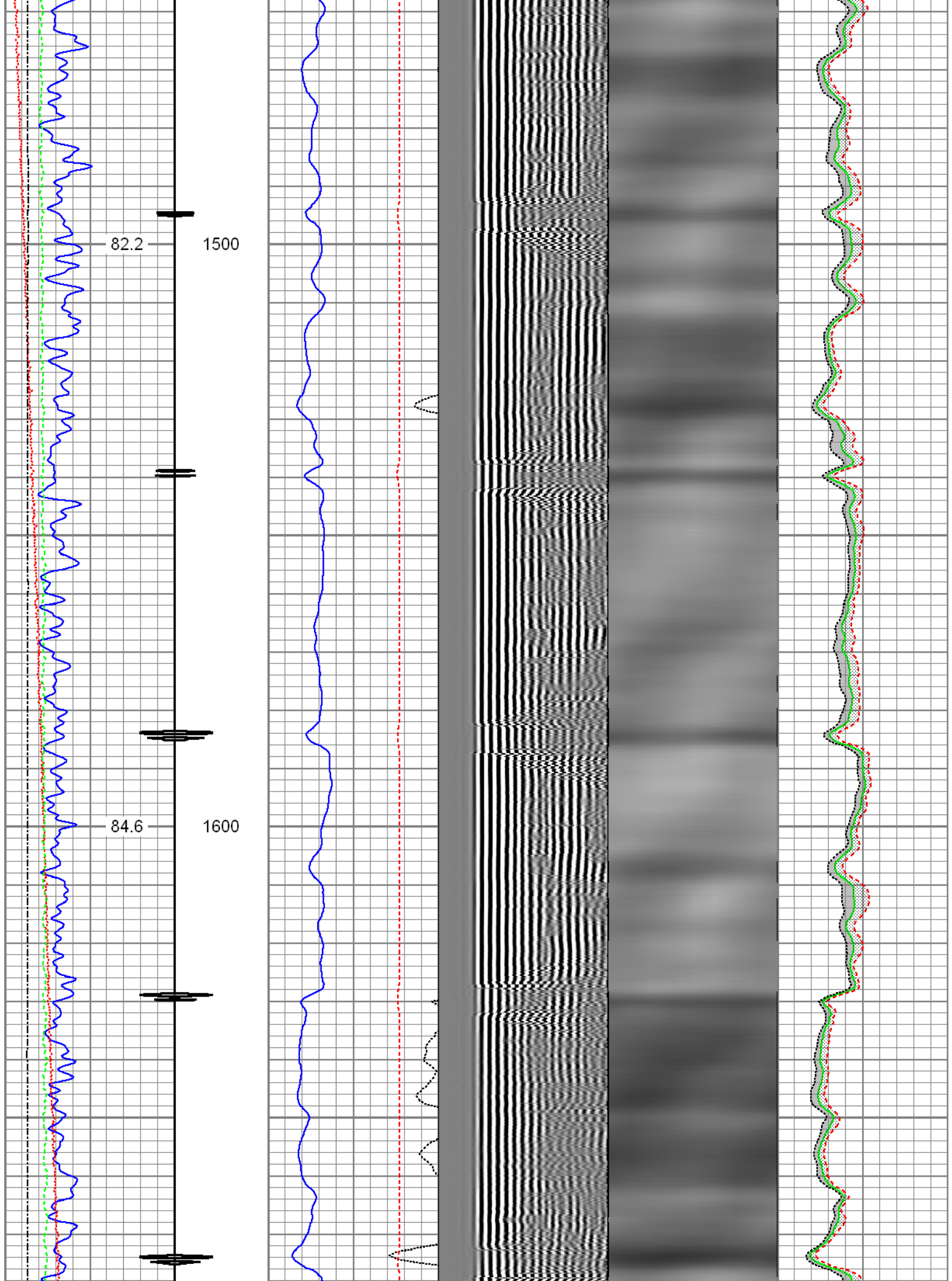


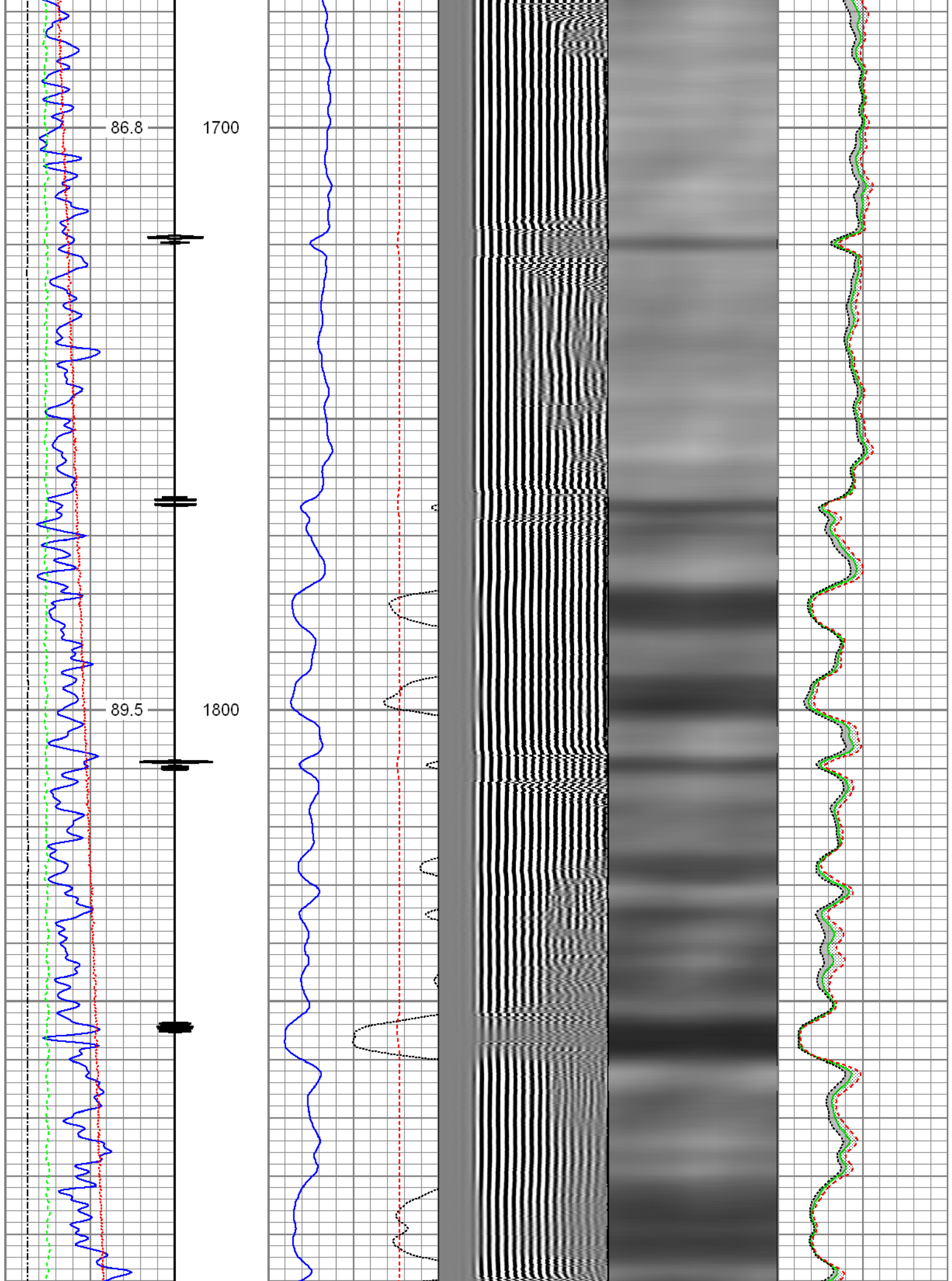


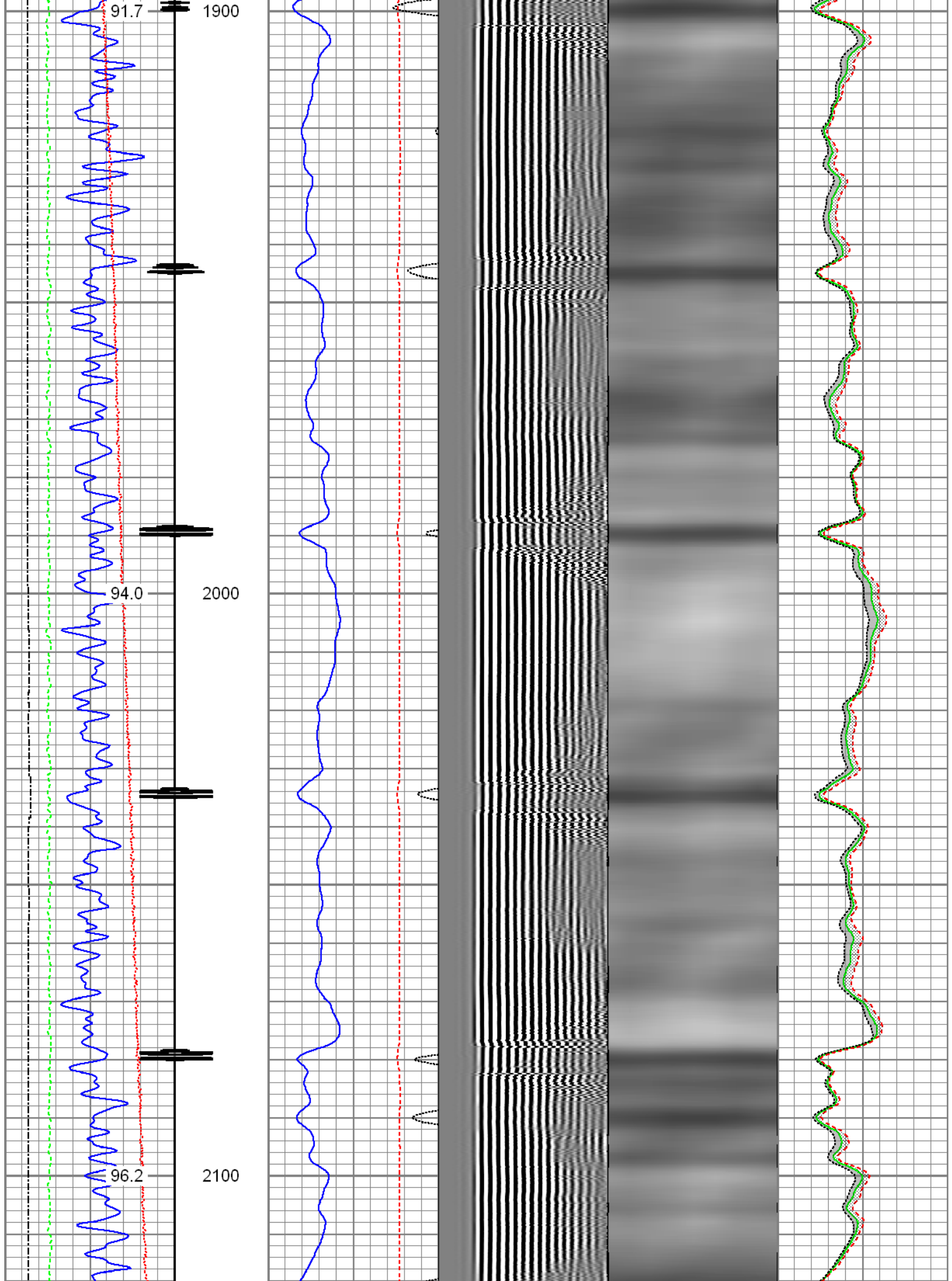




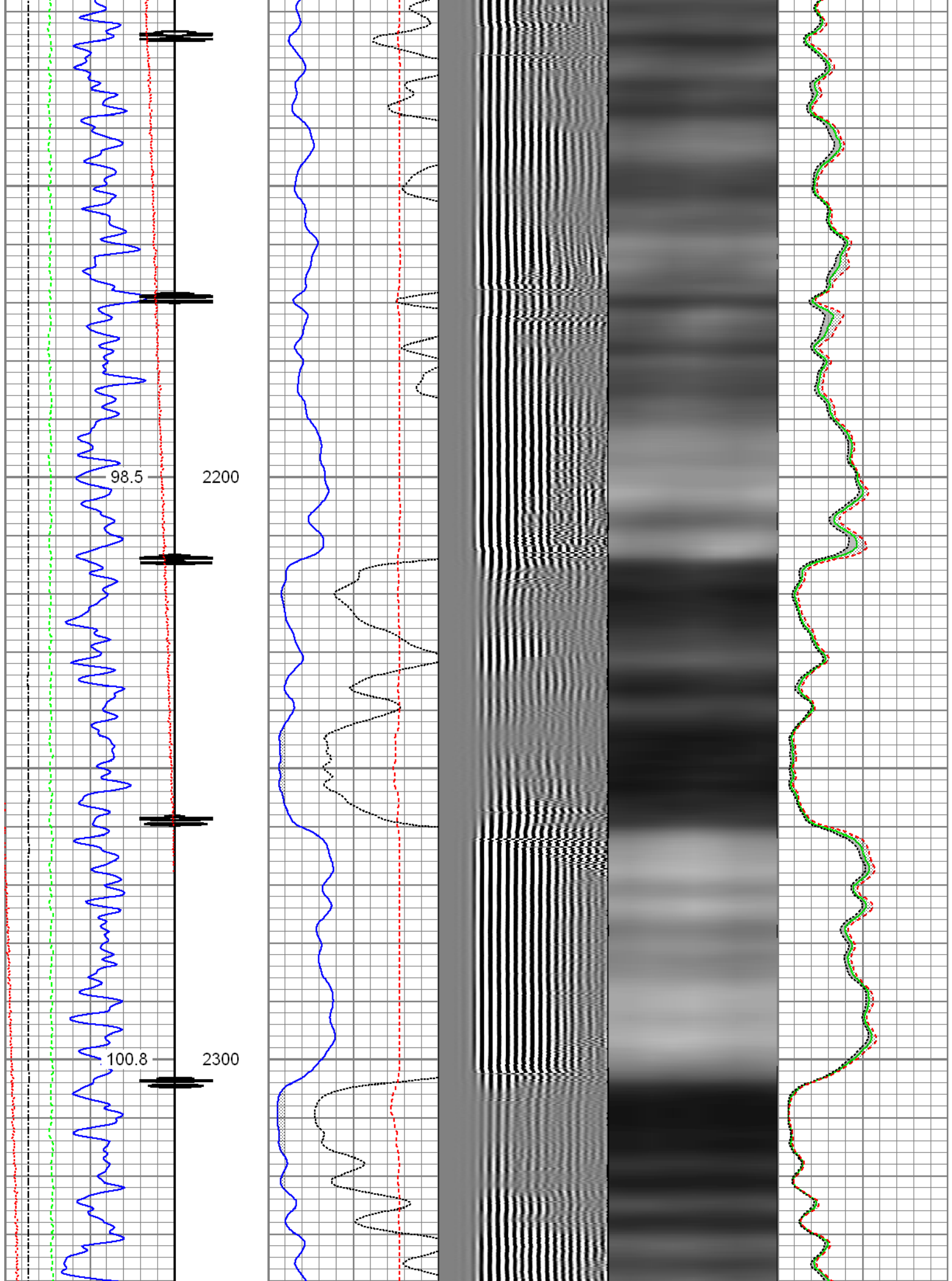




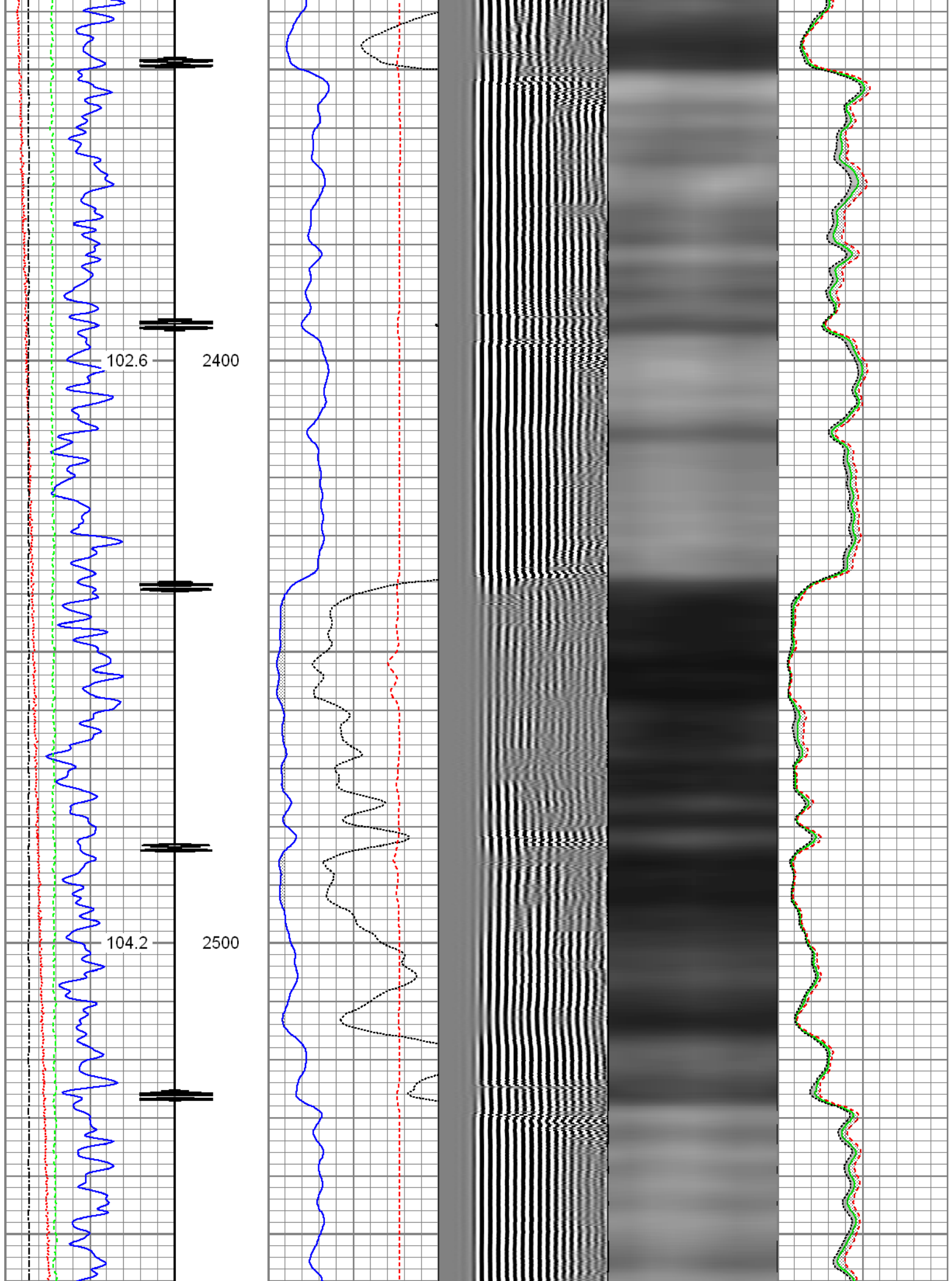


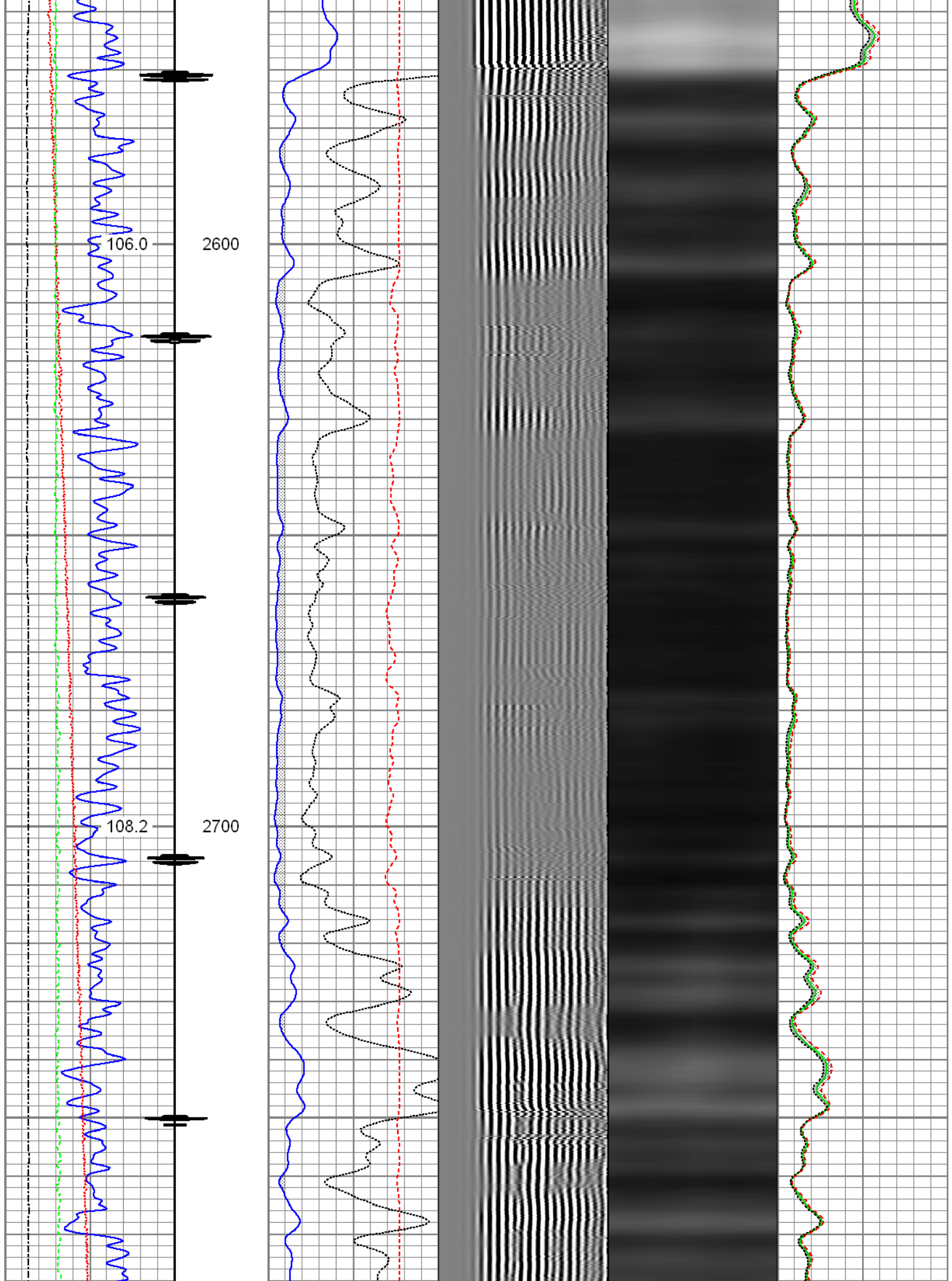


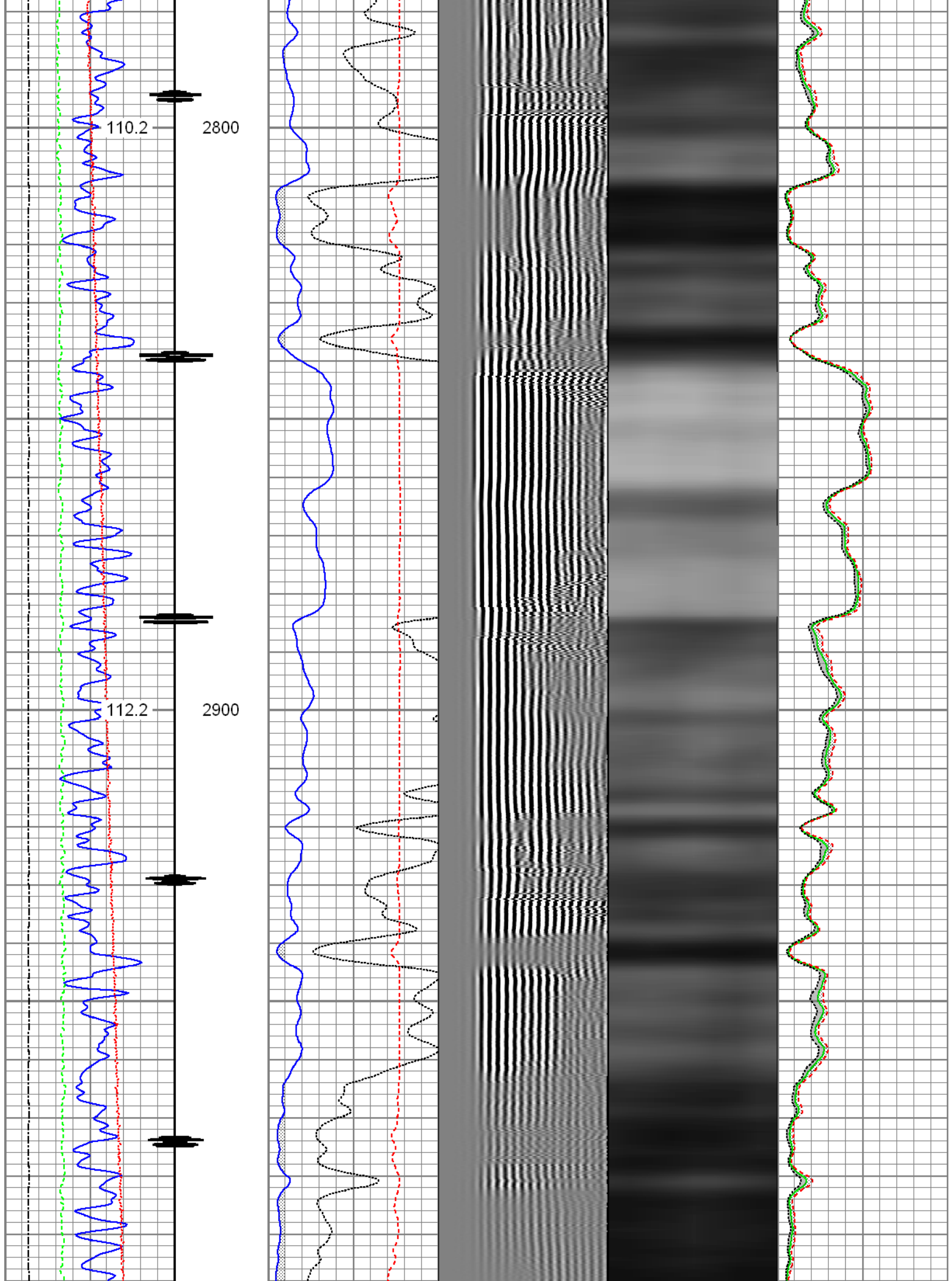


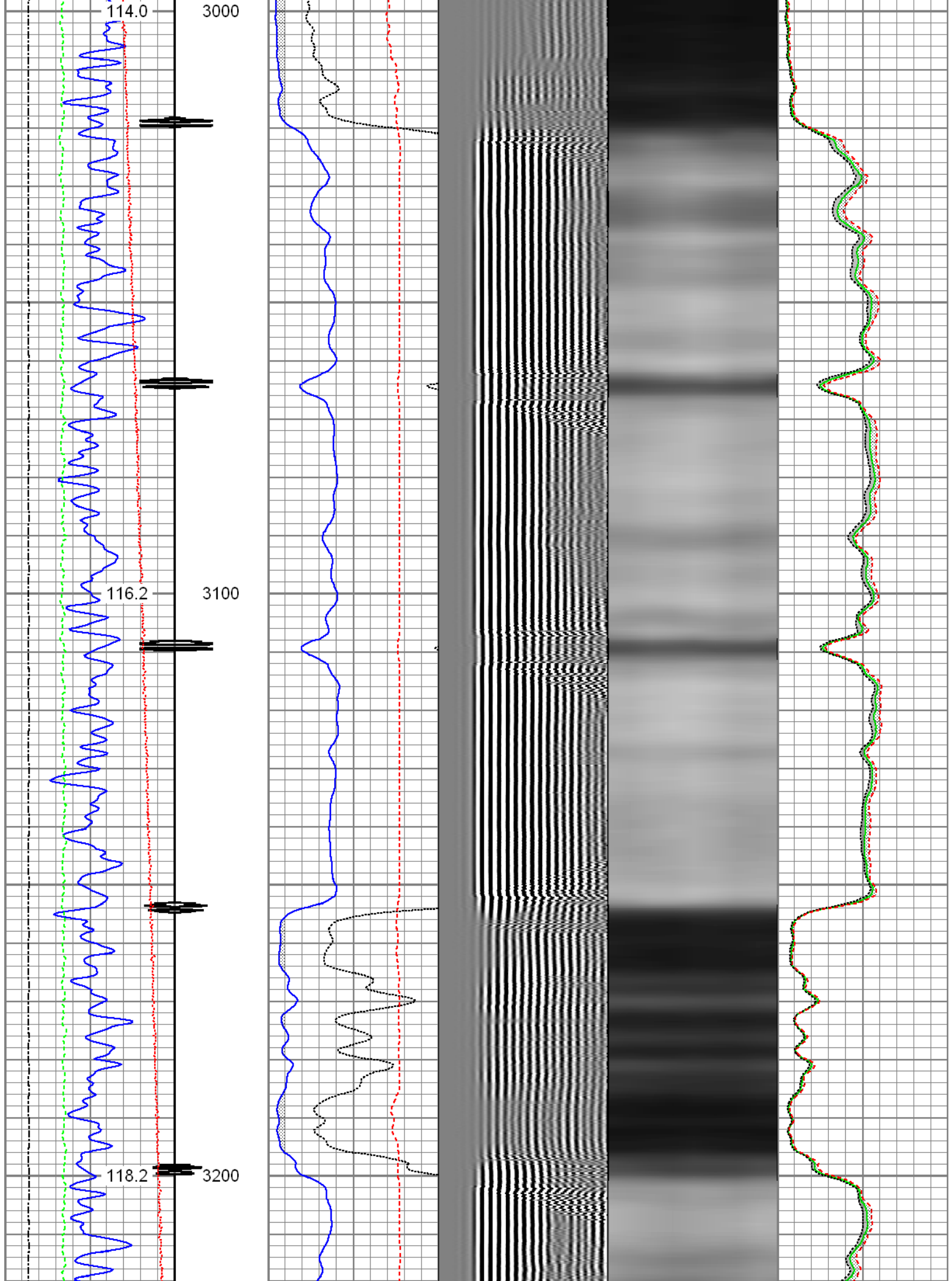




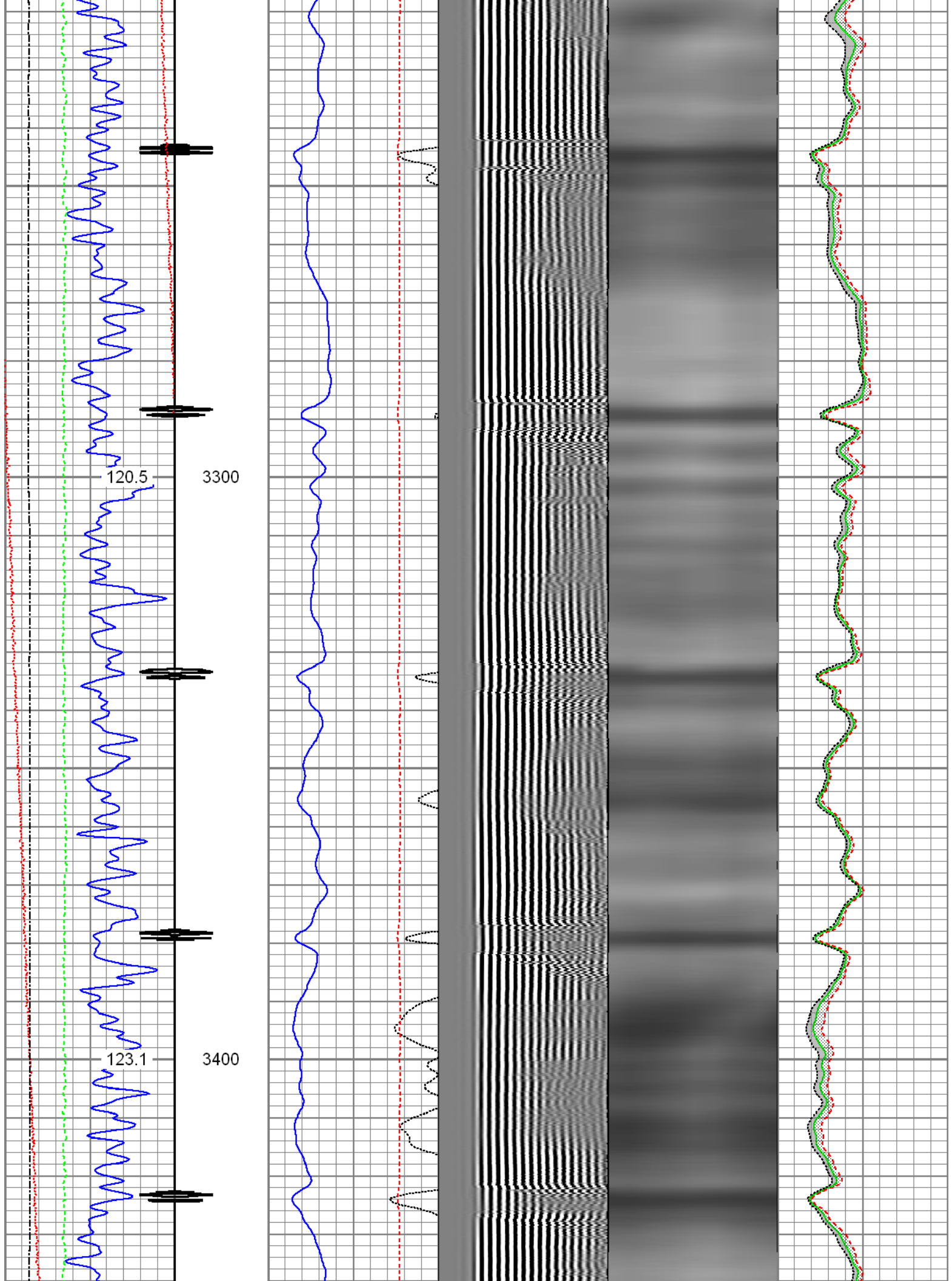


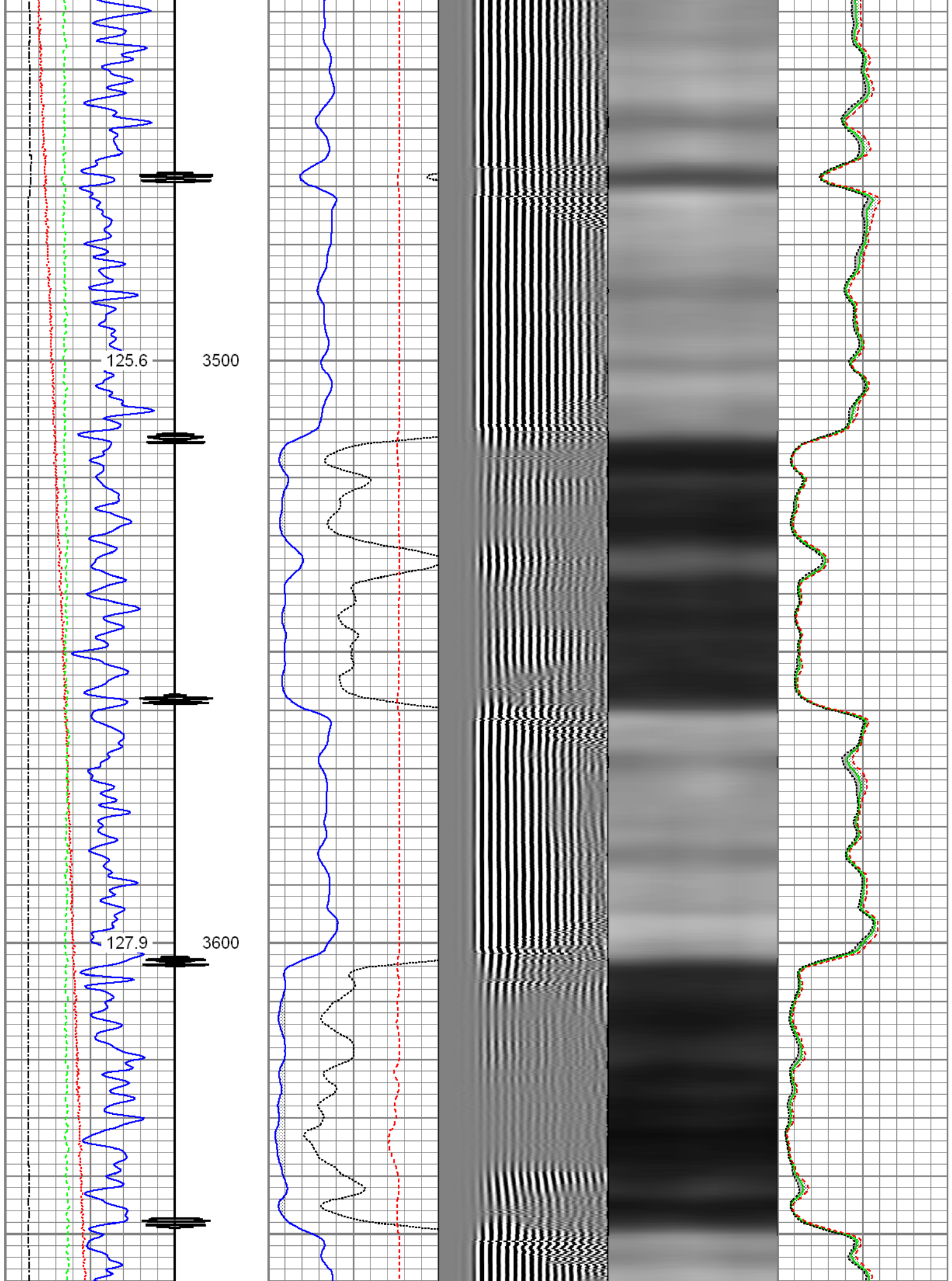


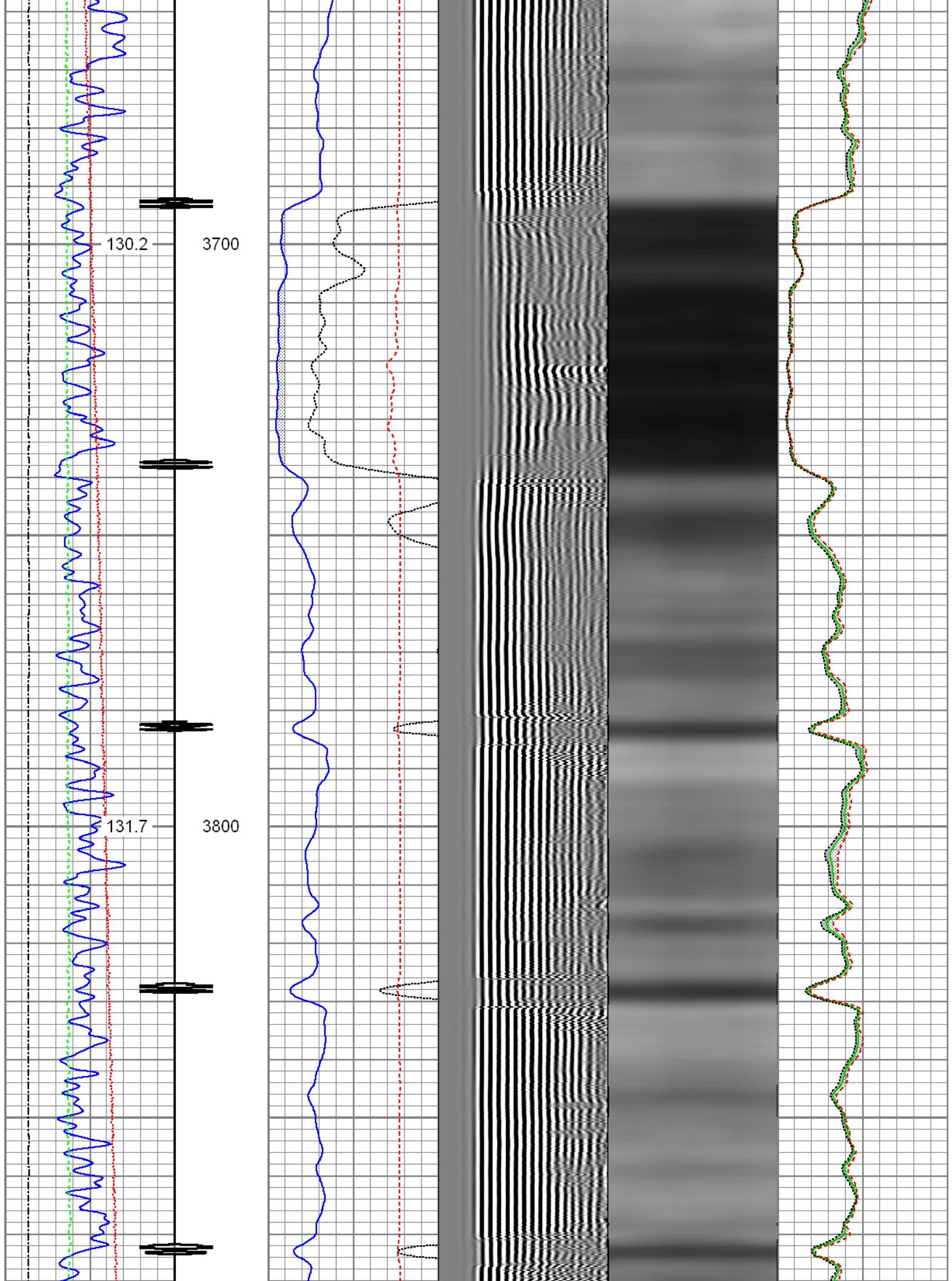


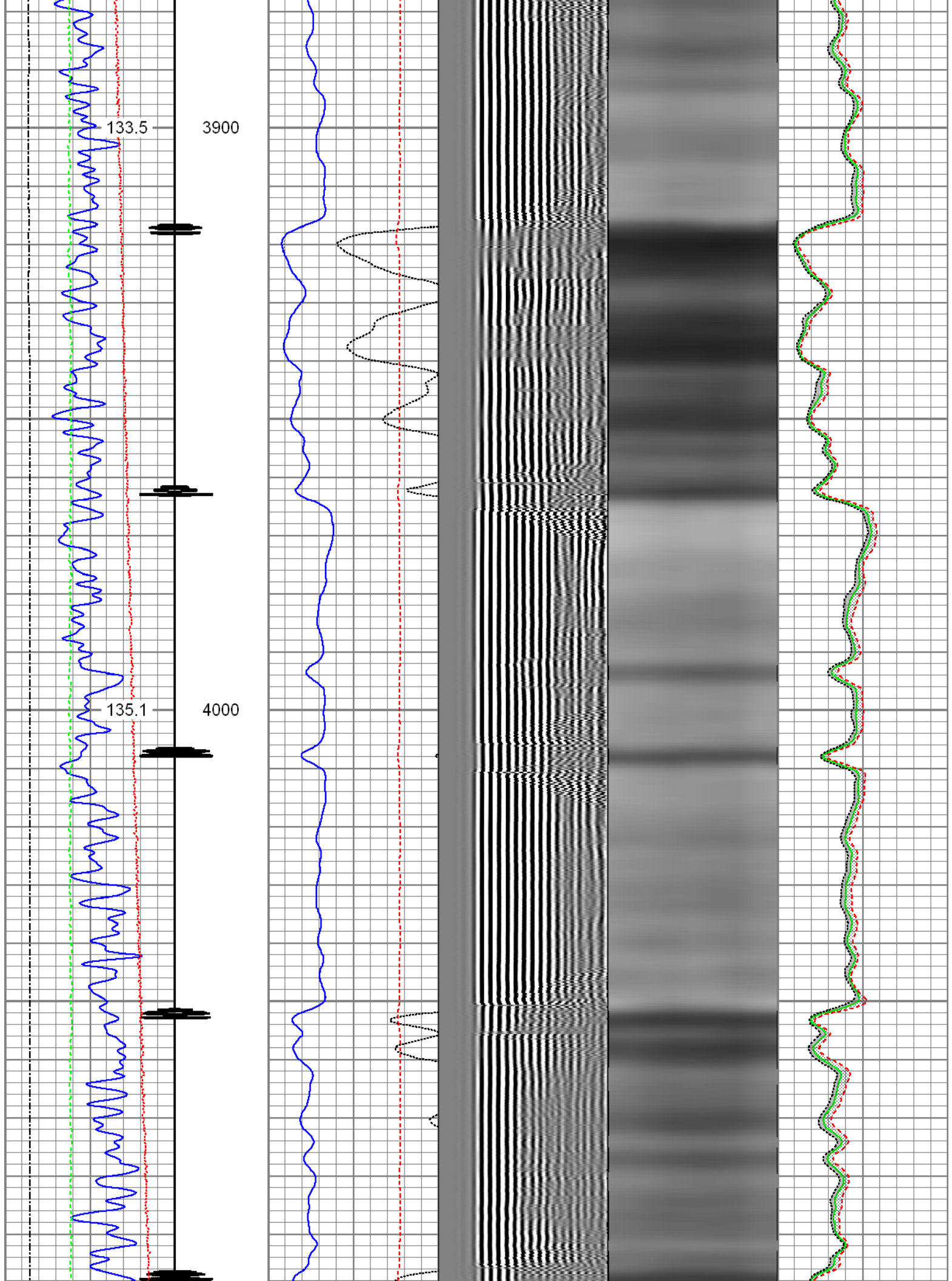




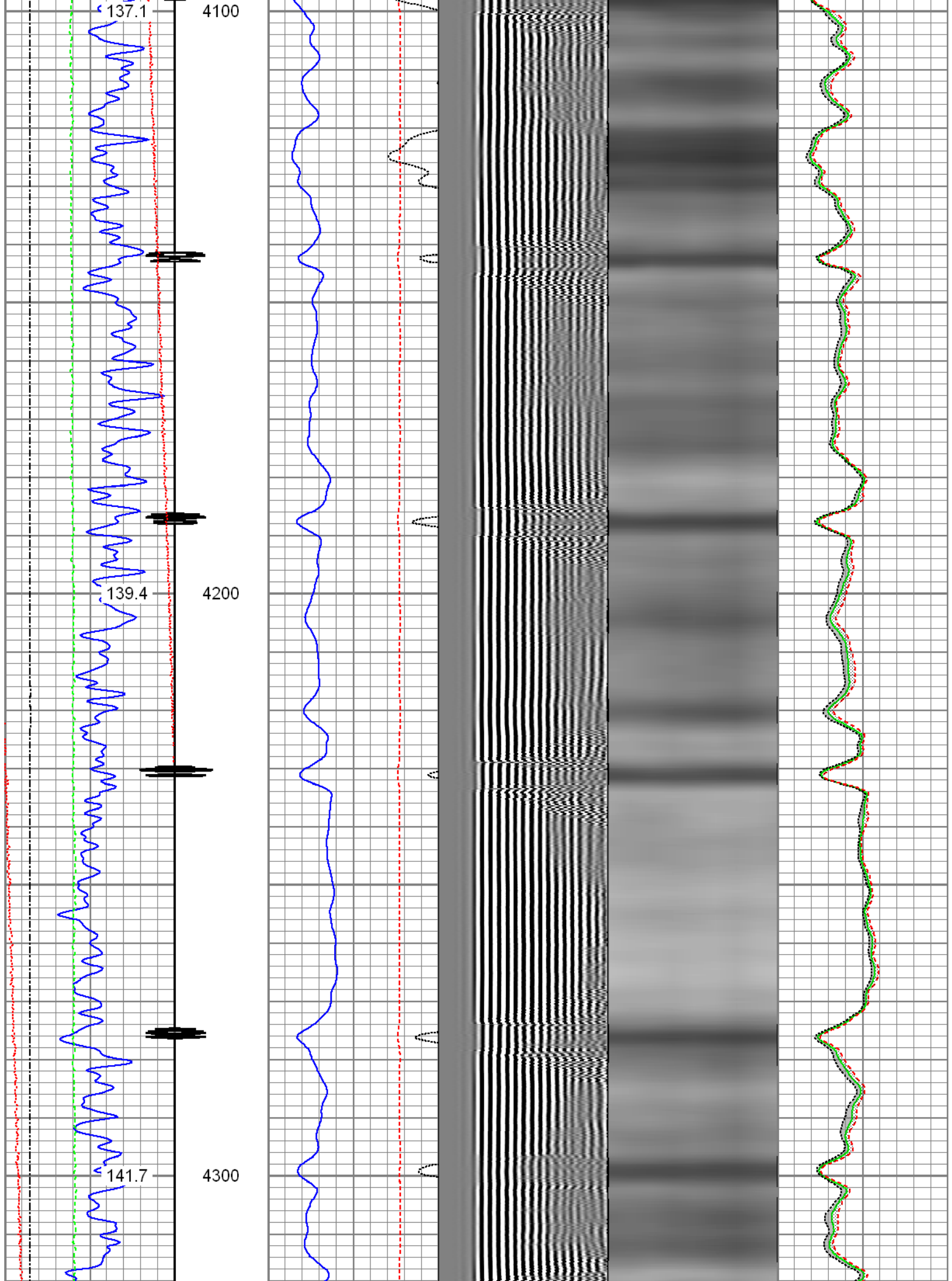


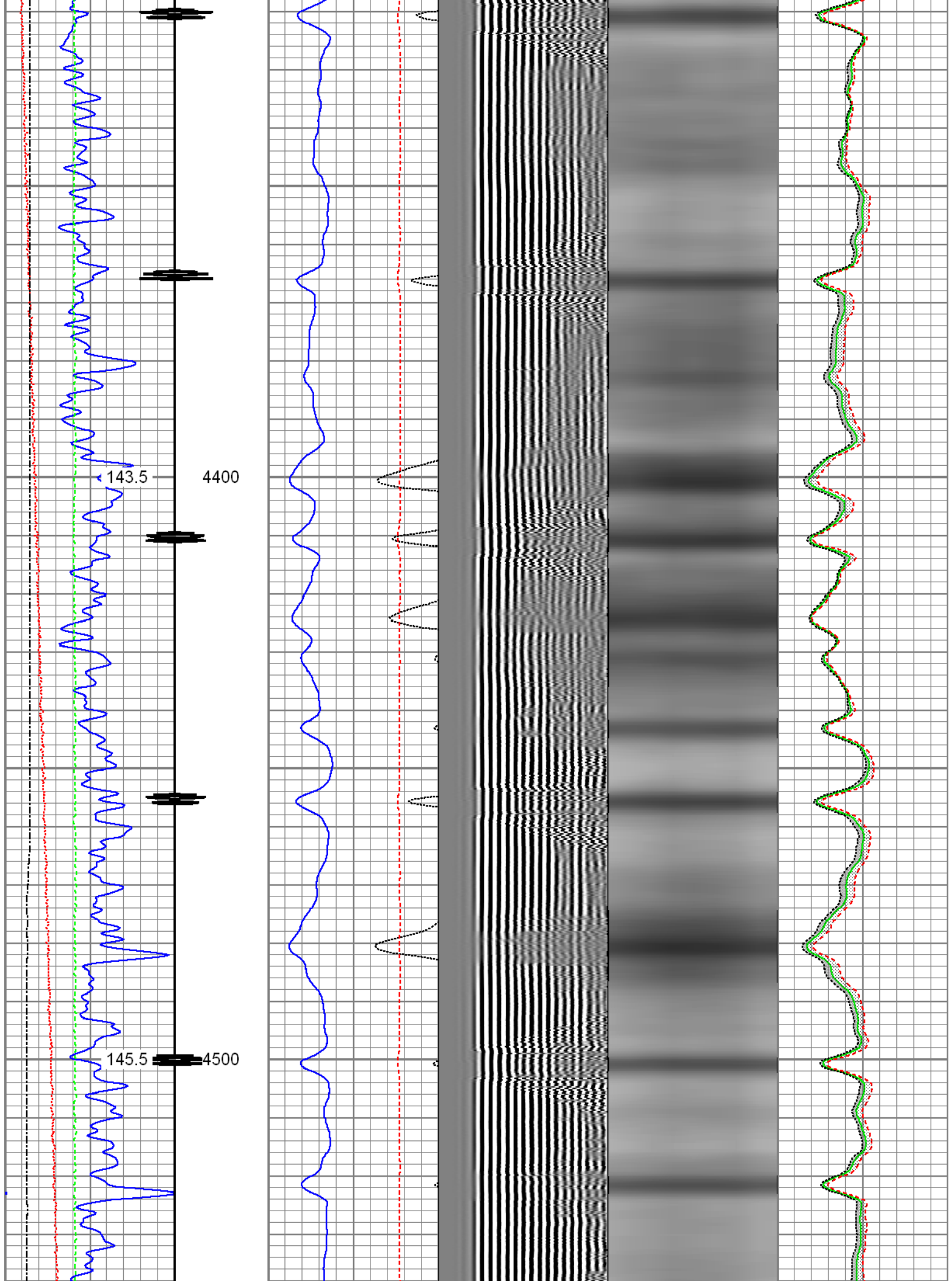


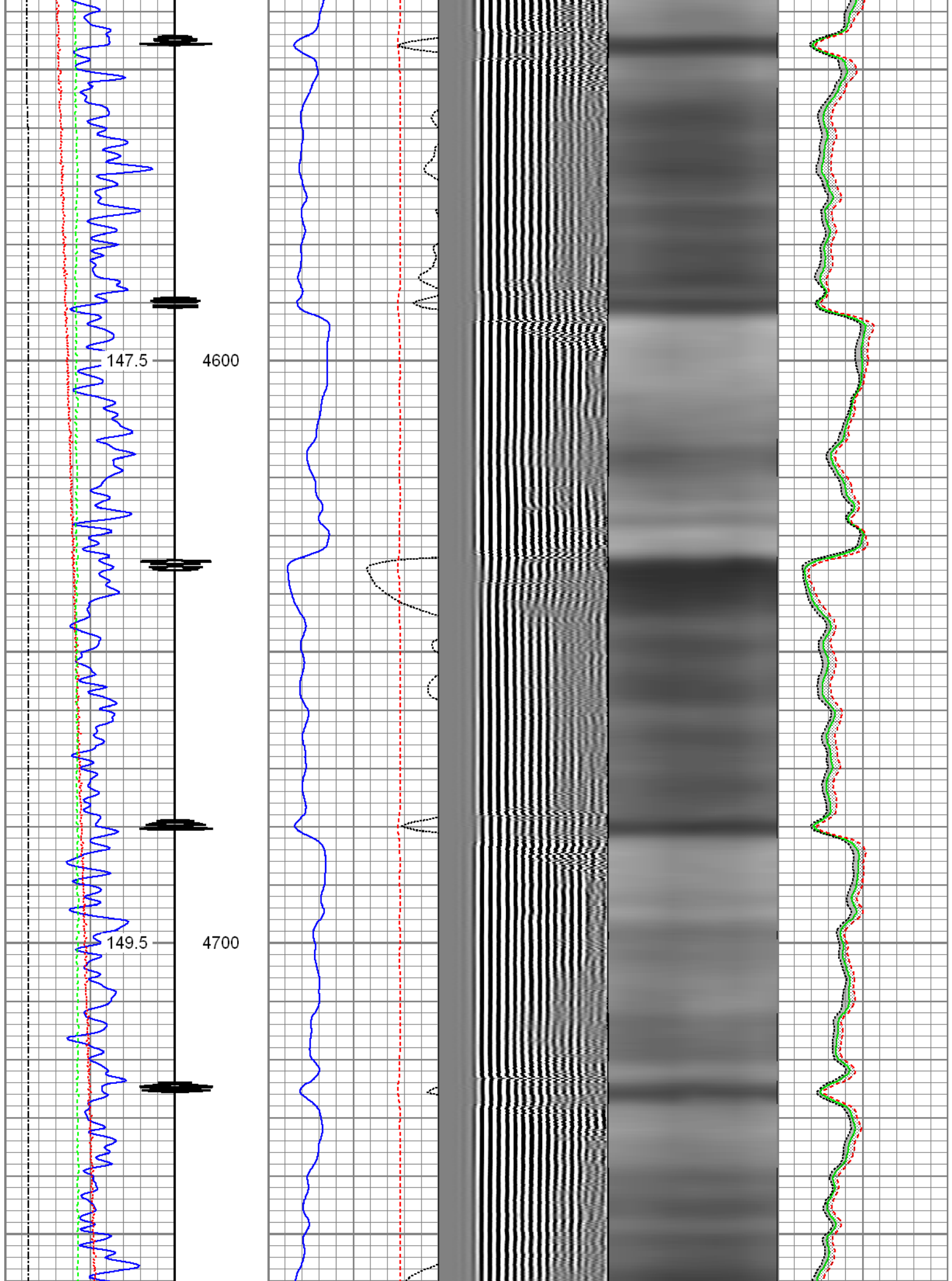




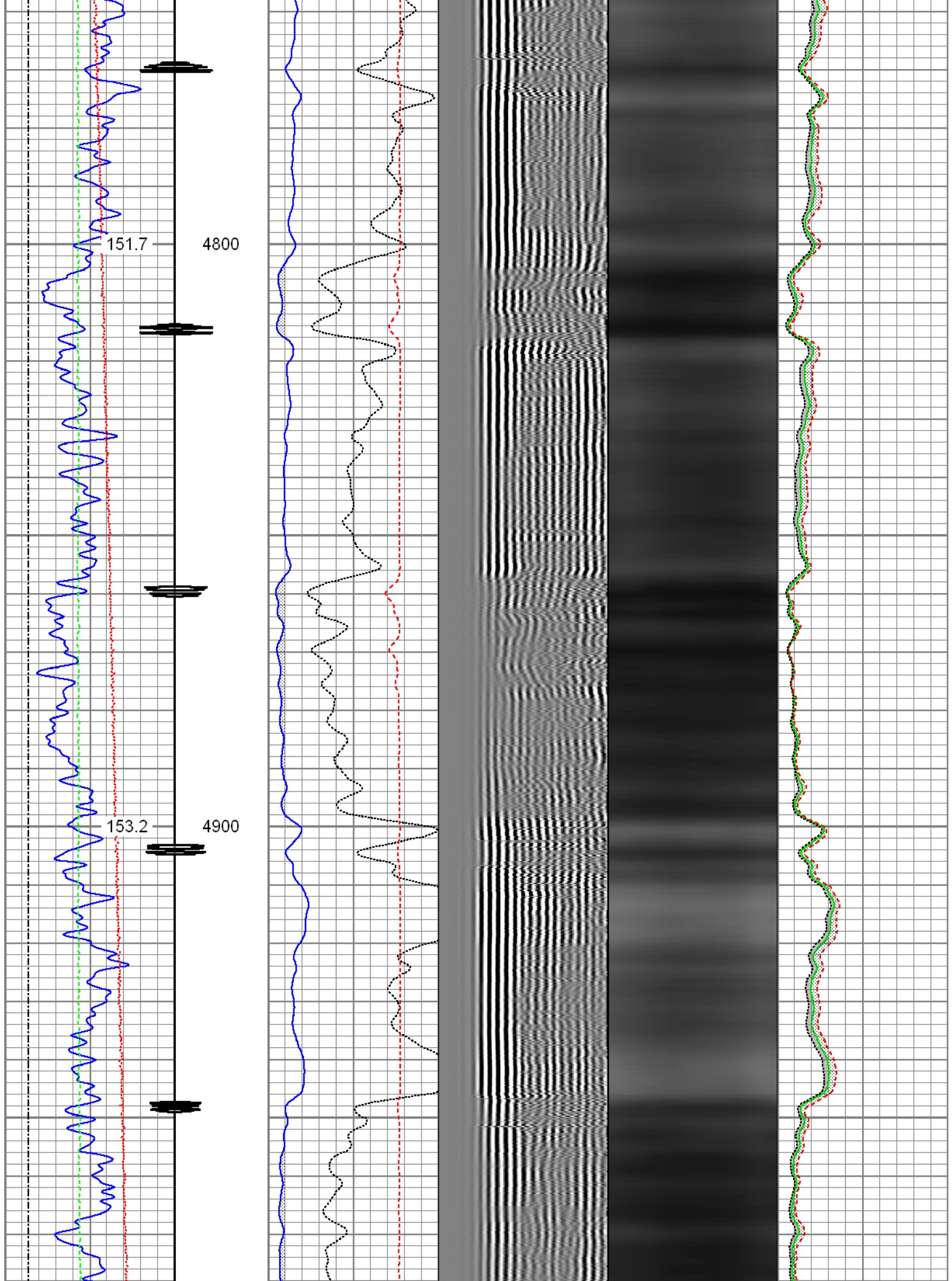




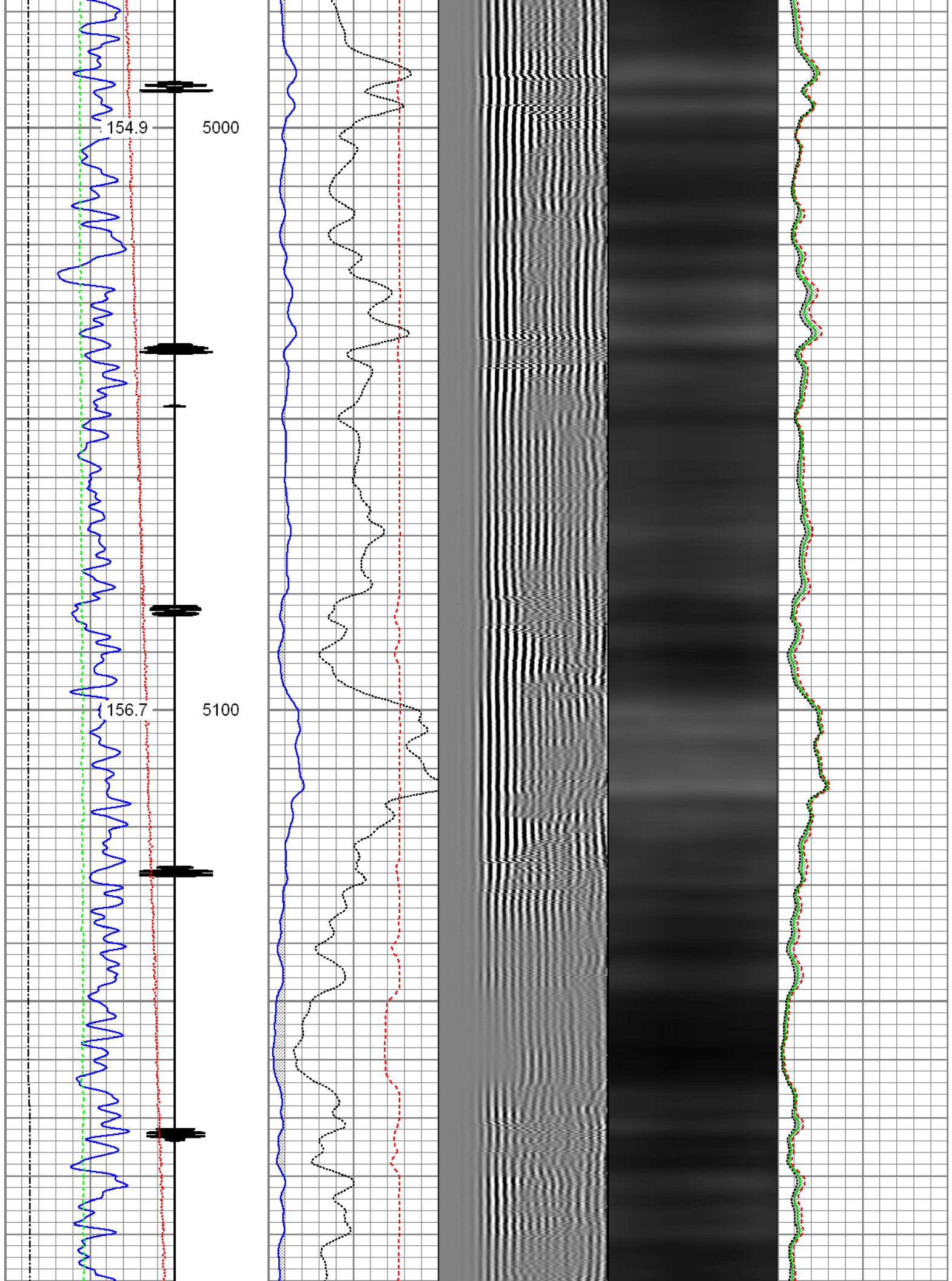


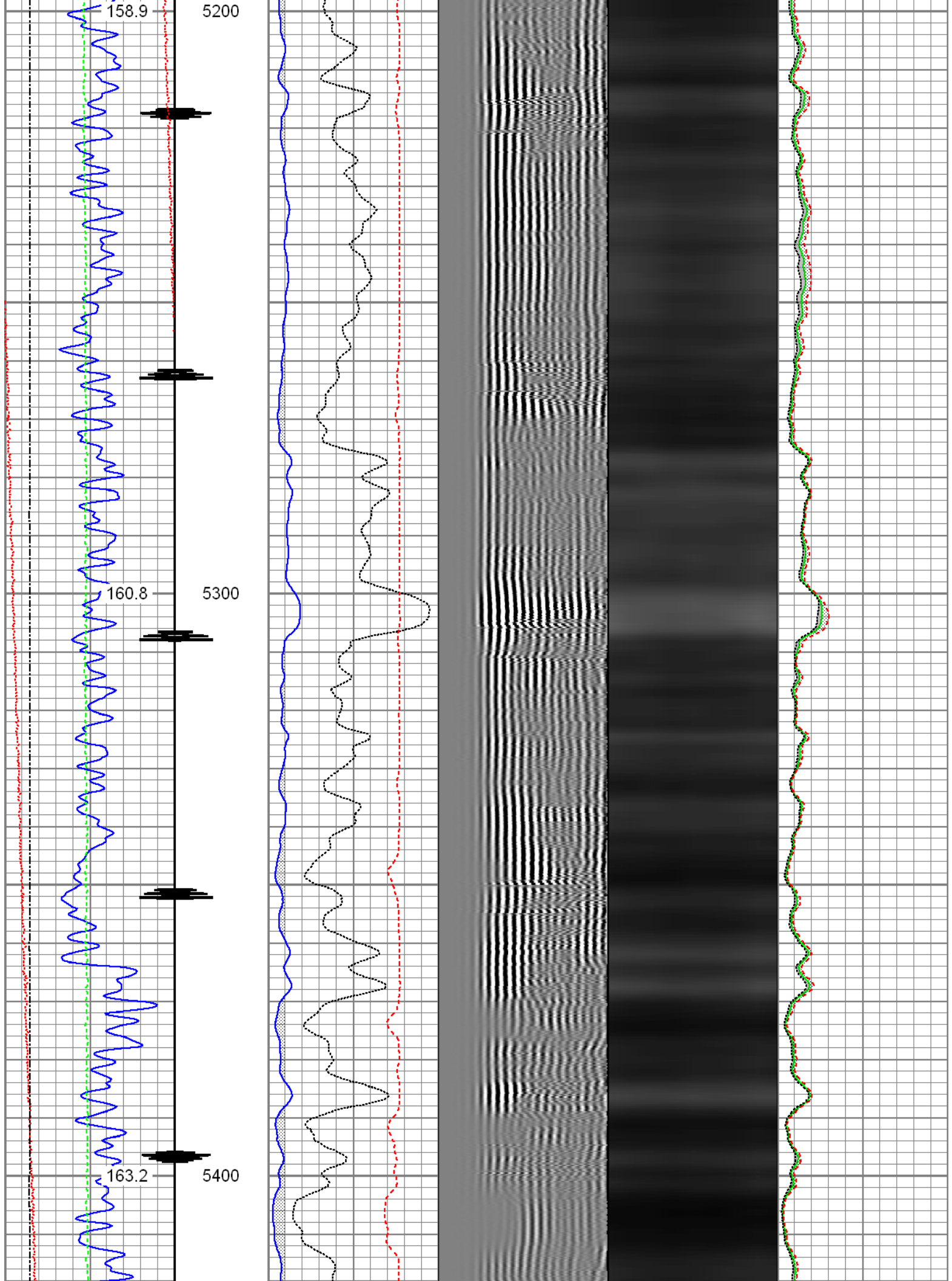


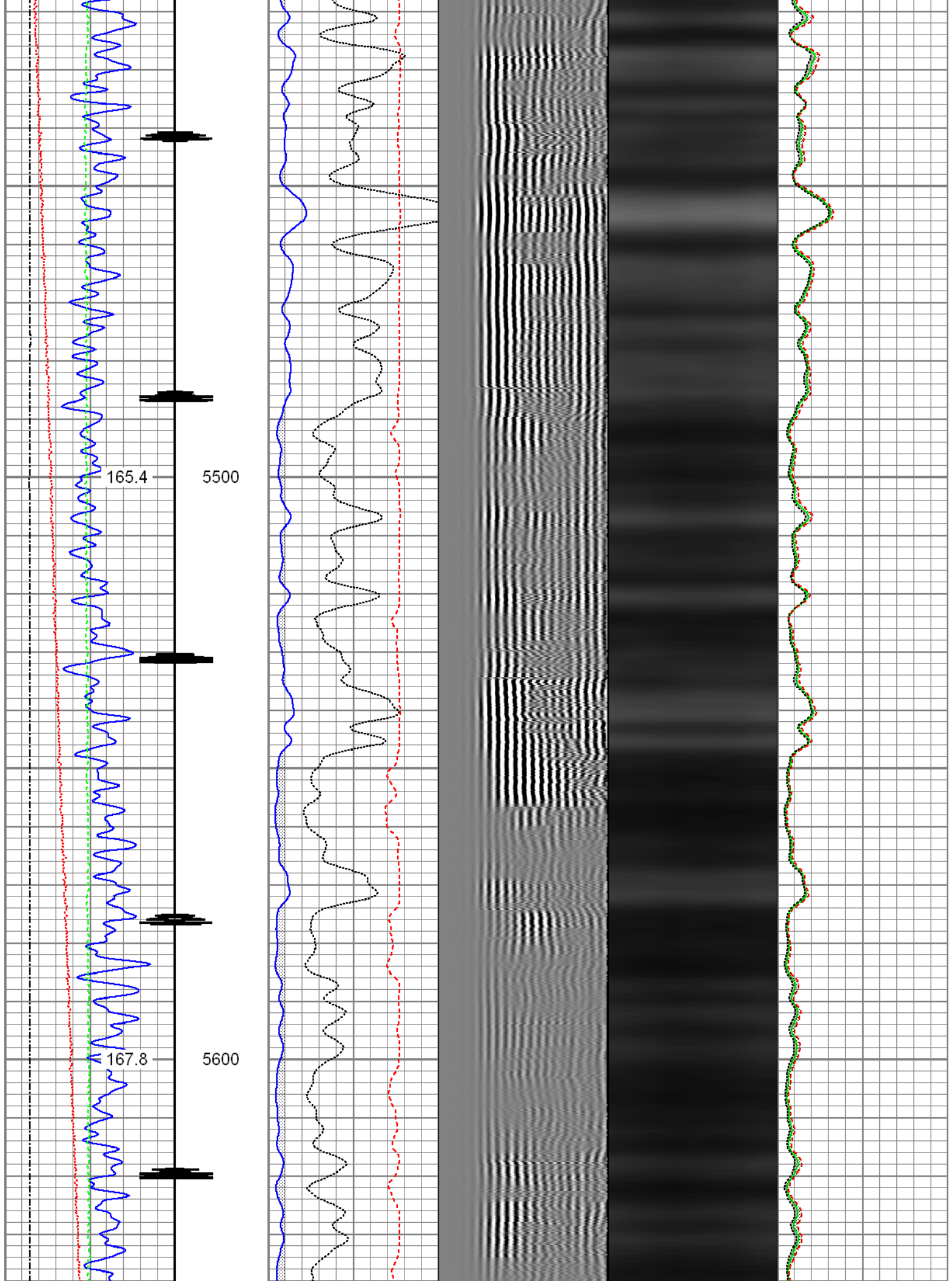


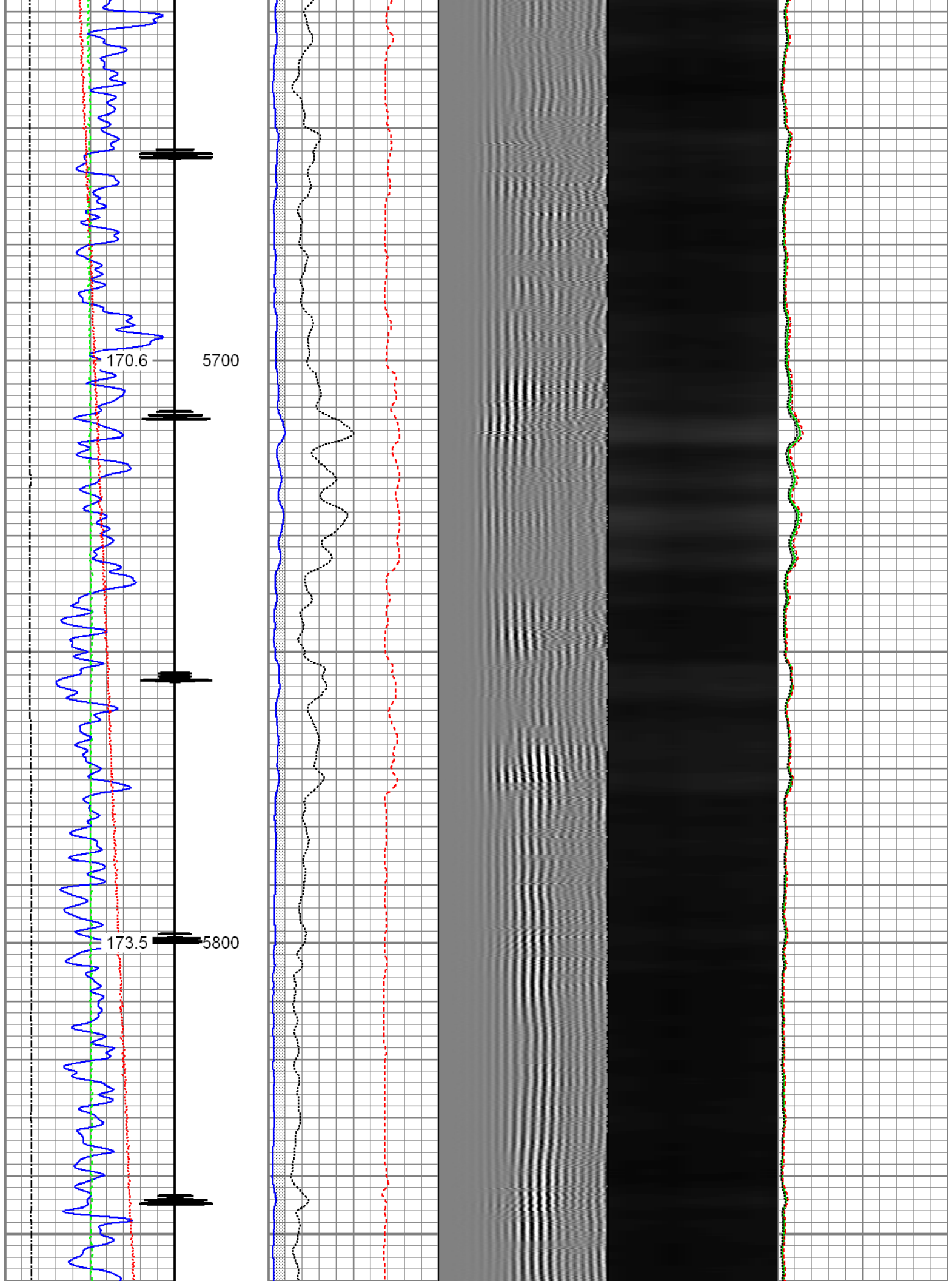




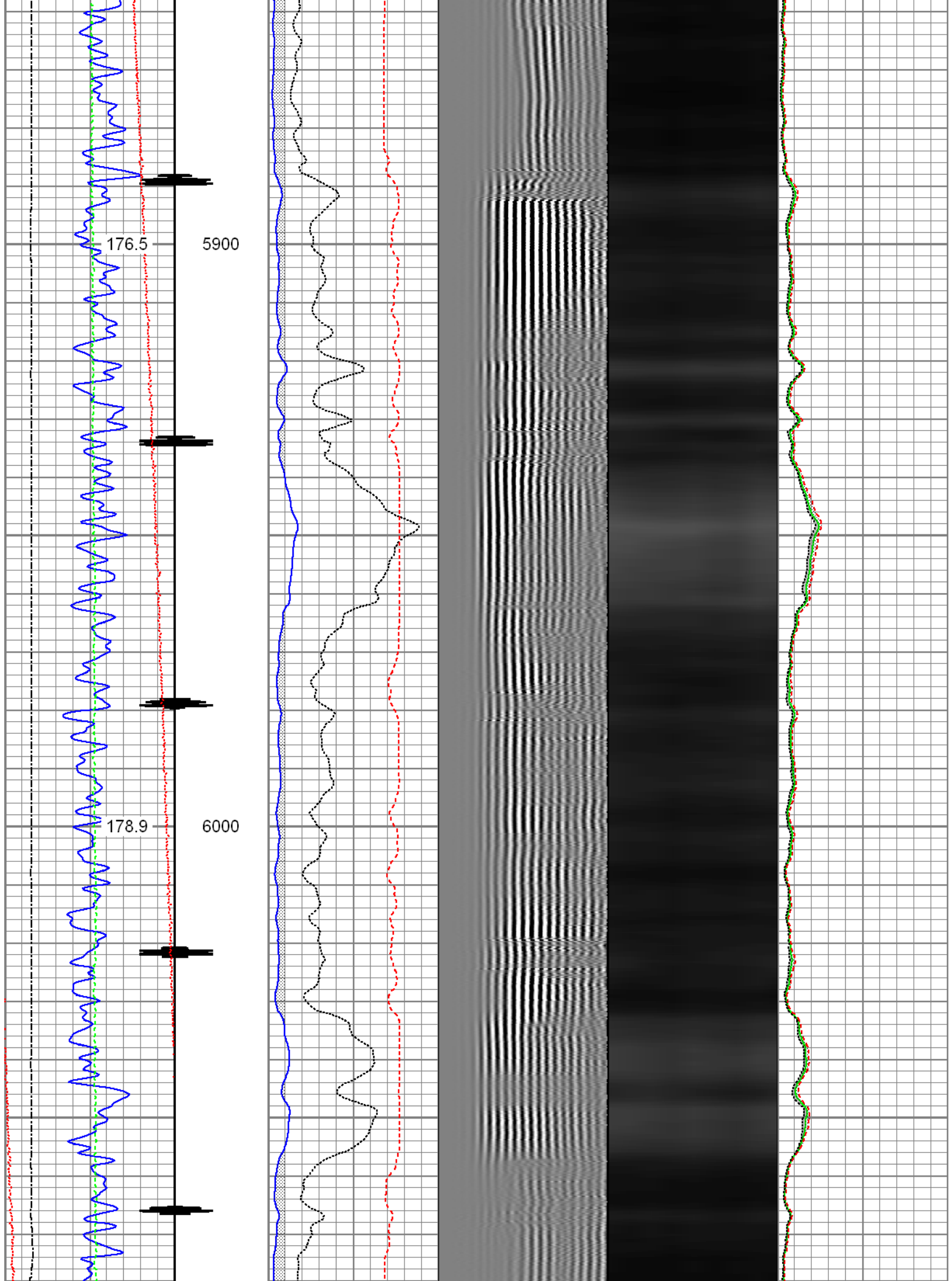


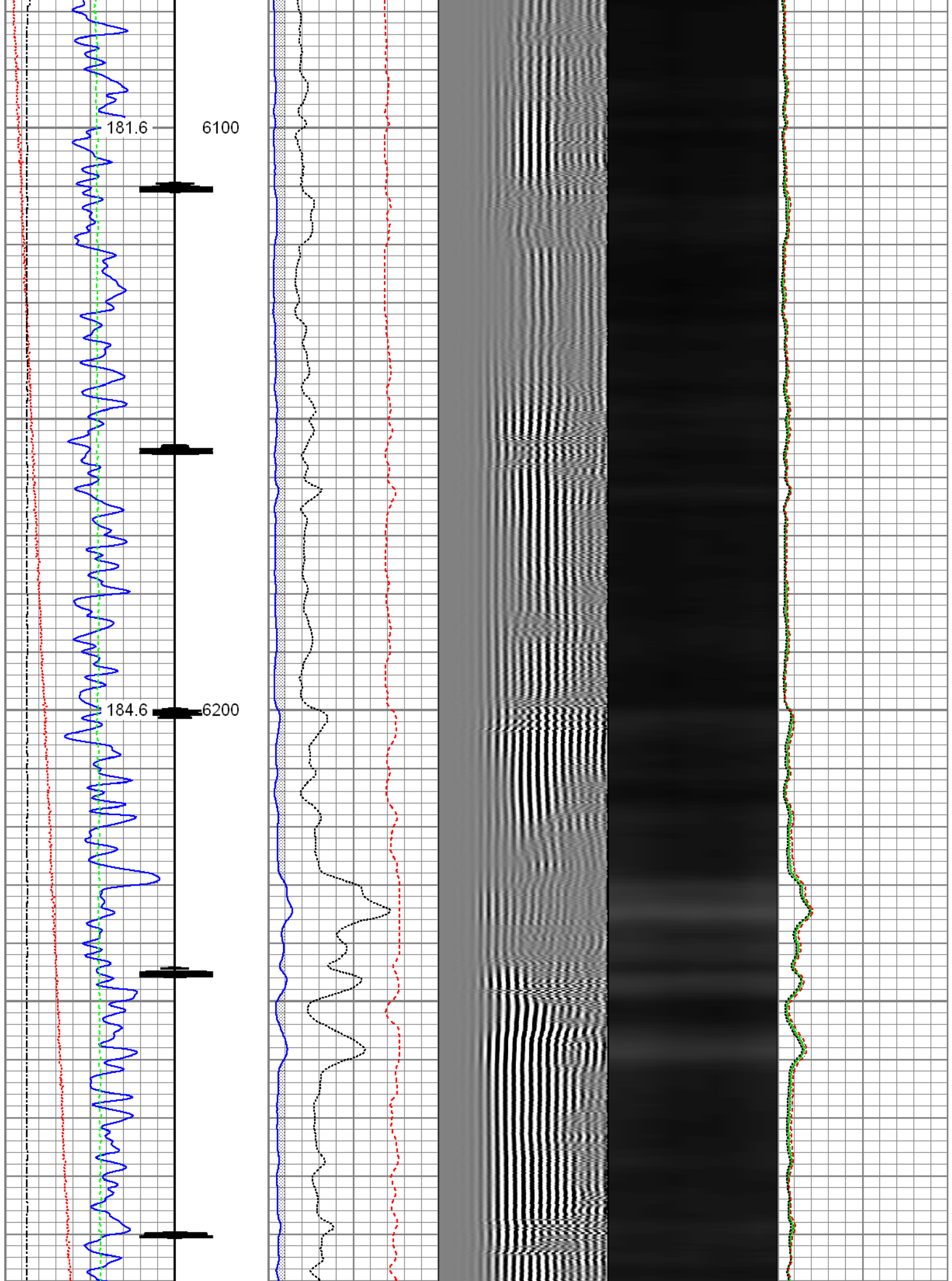


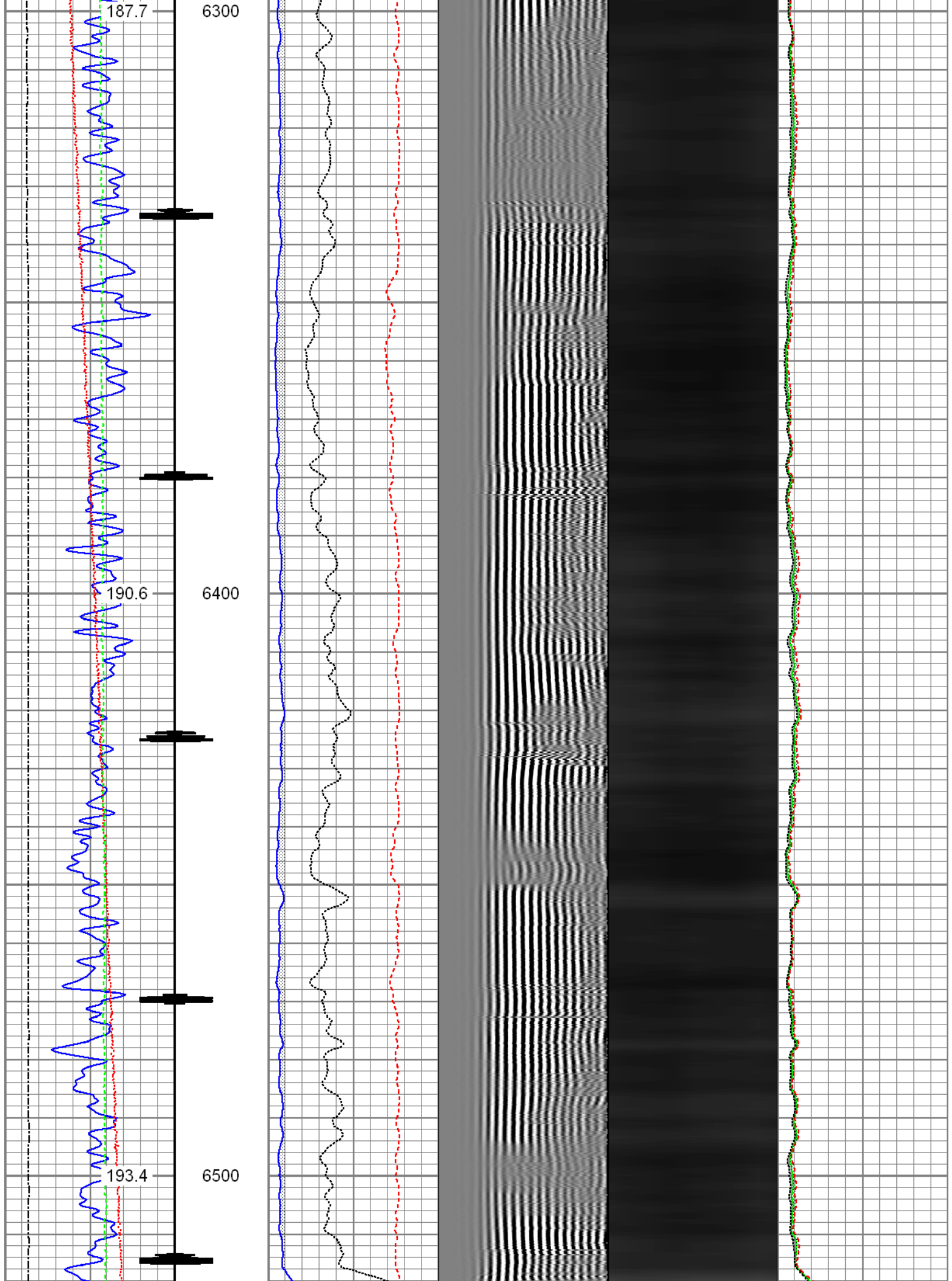


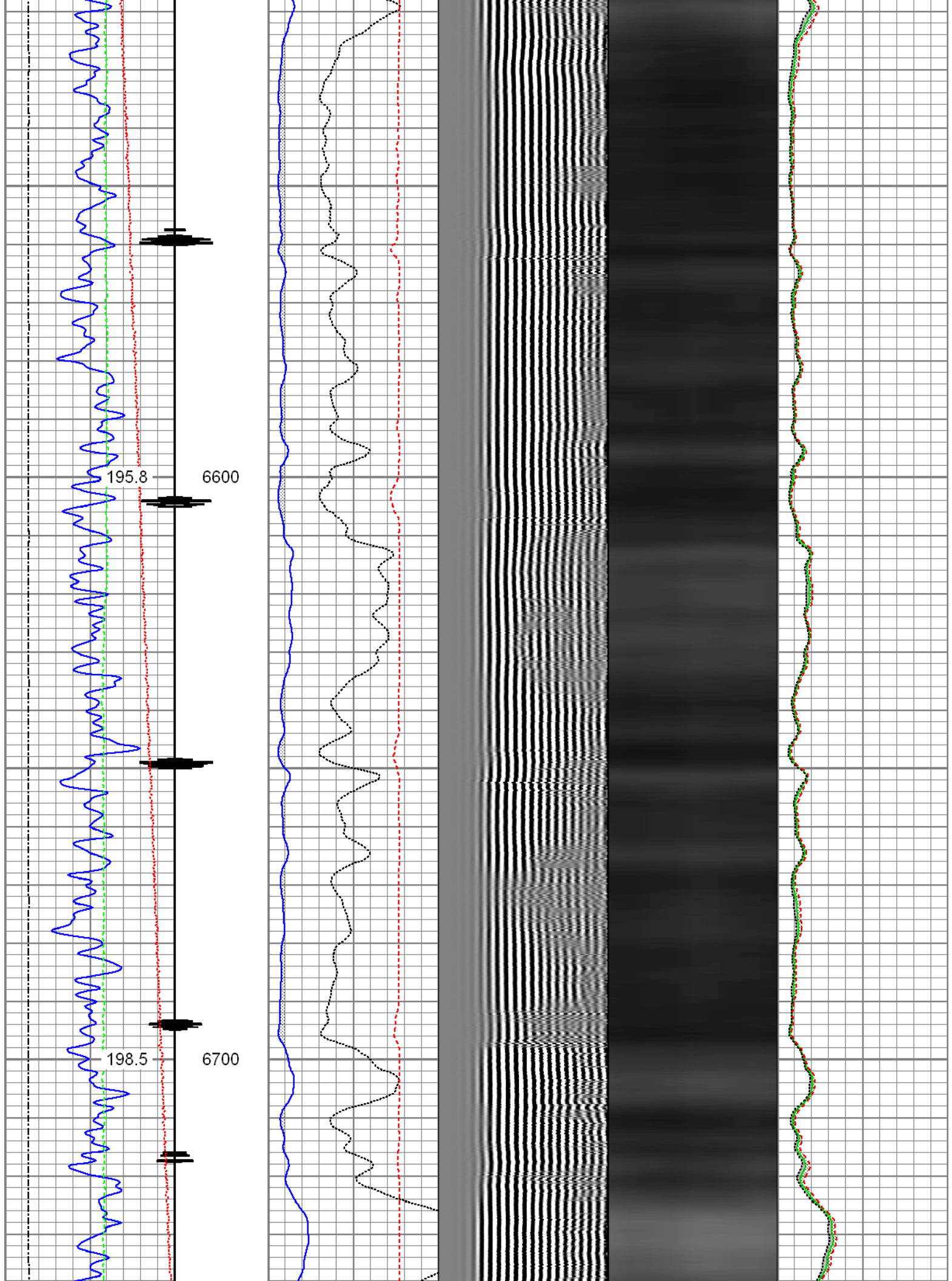




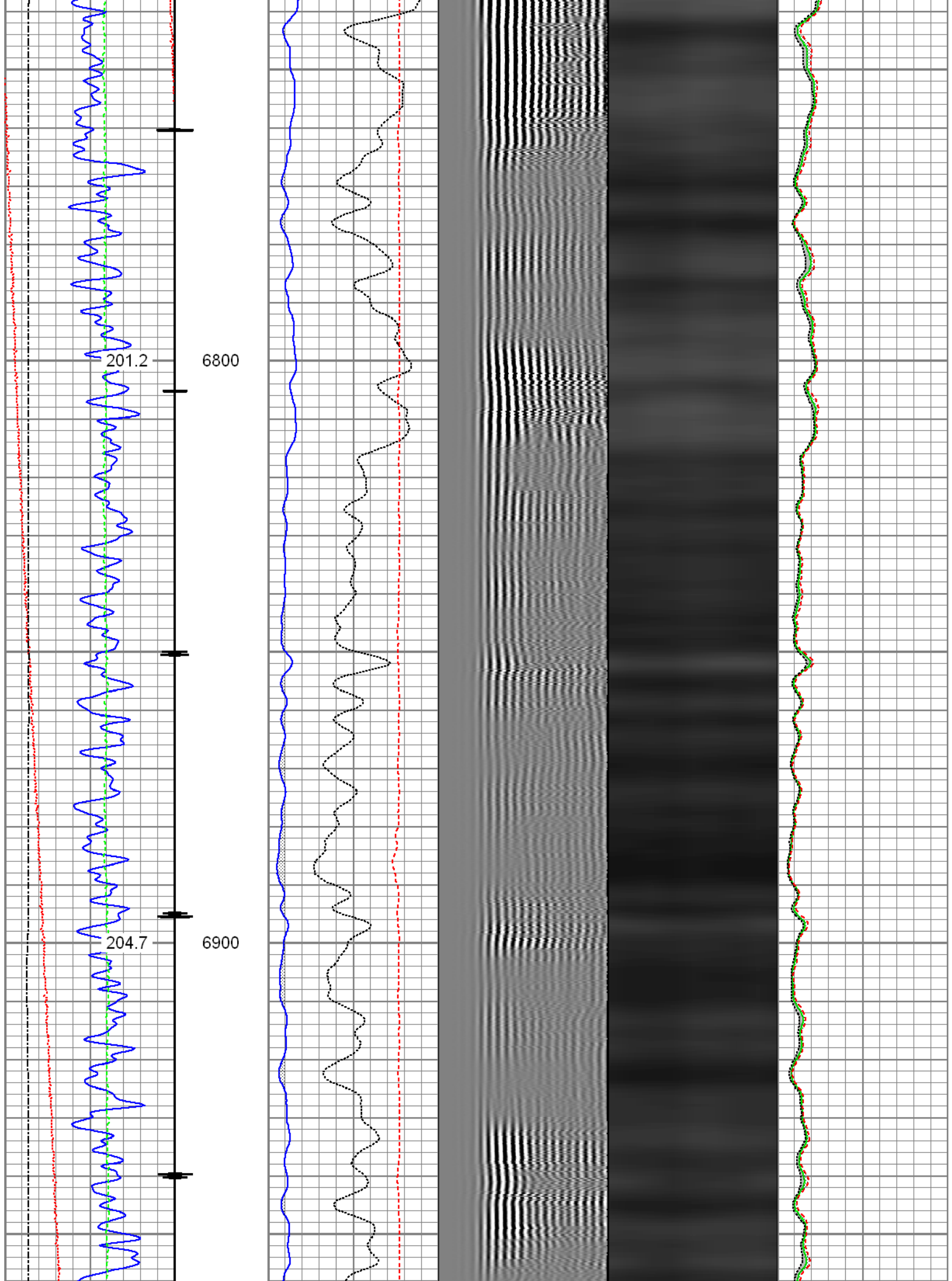


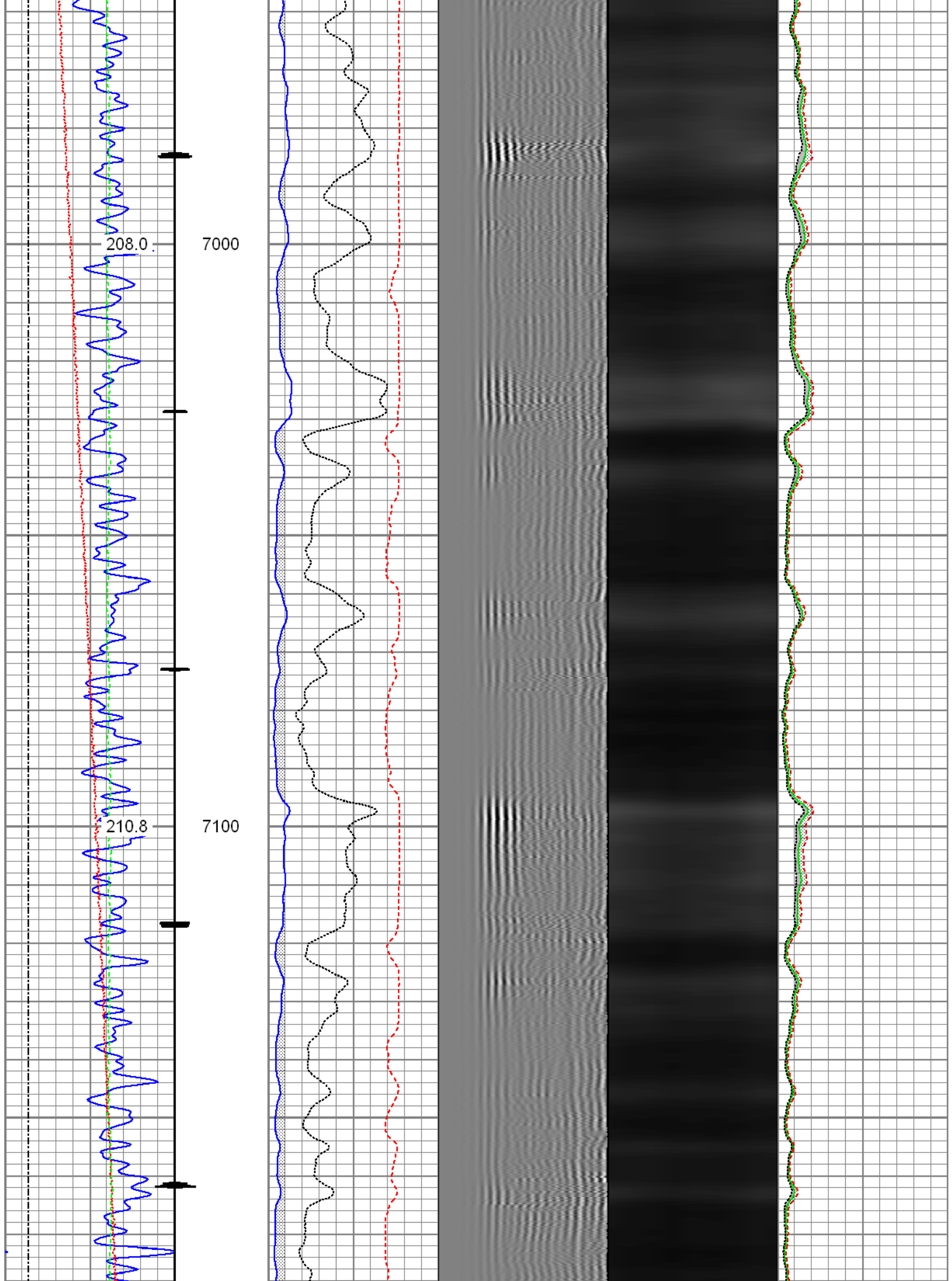


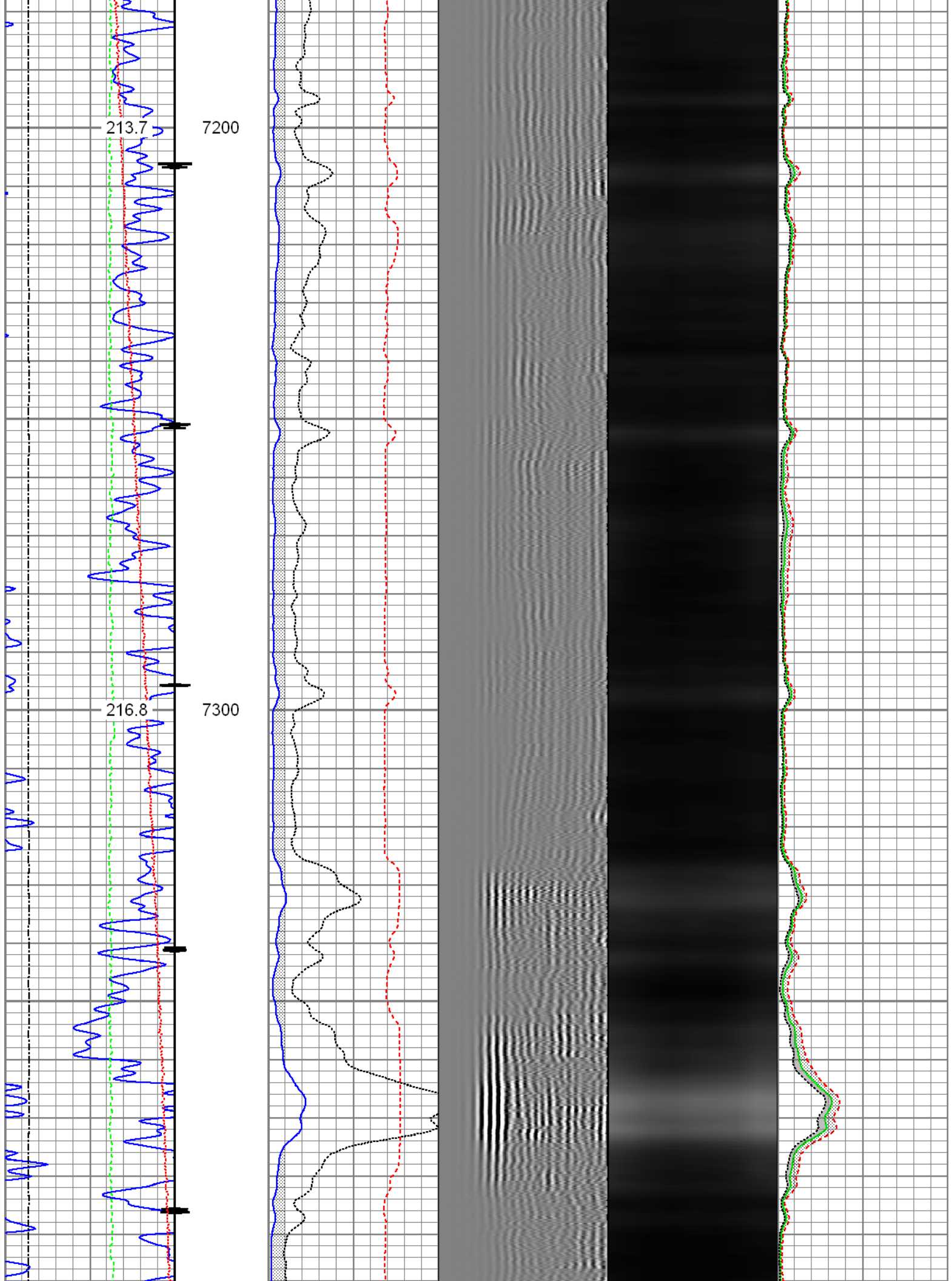


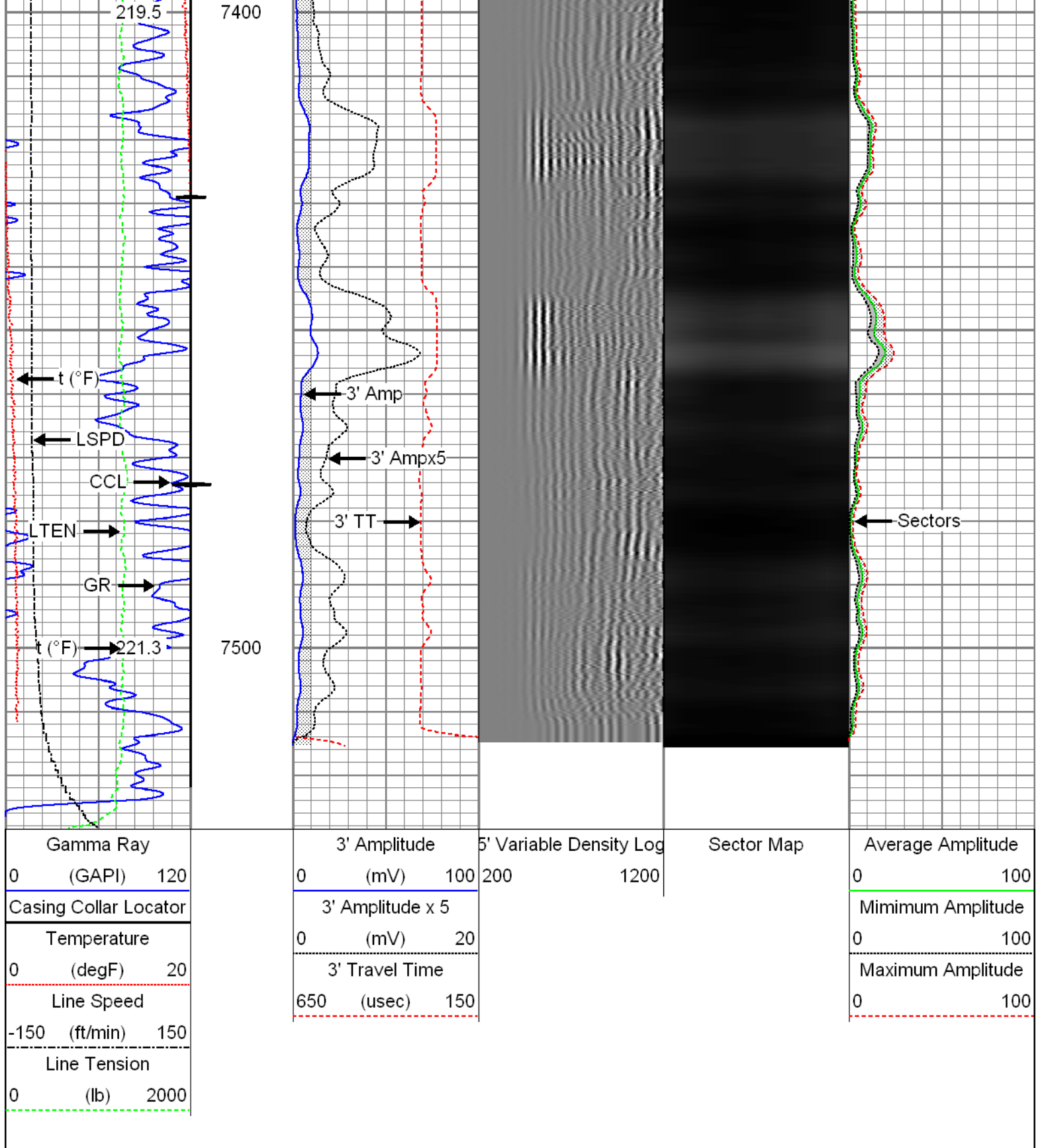












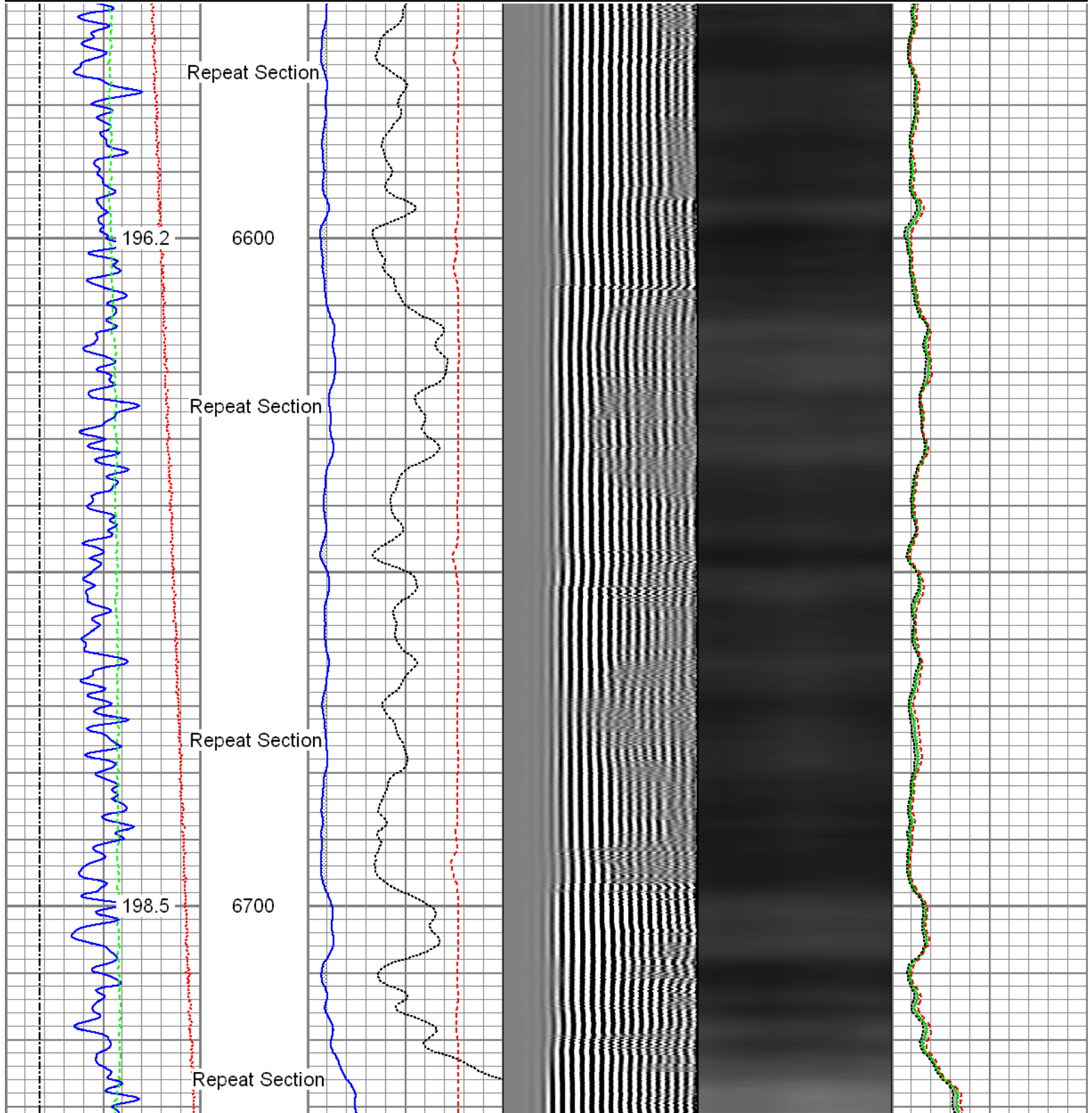
Repeat Pass

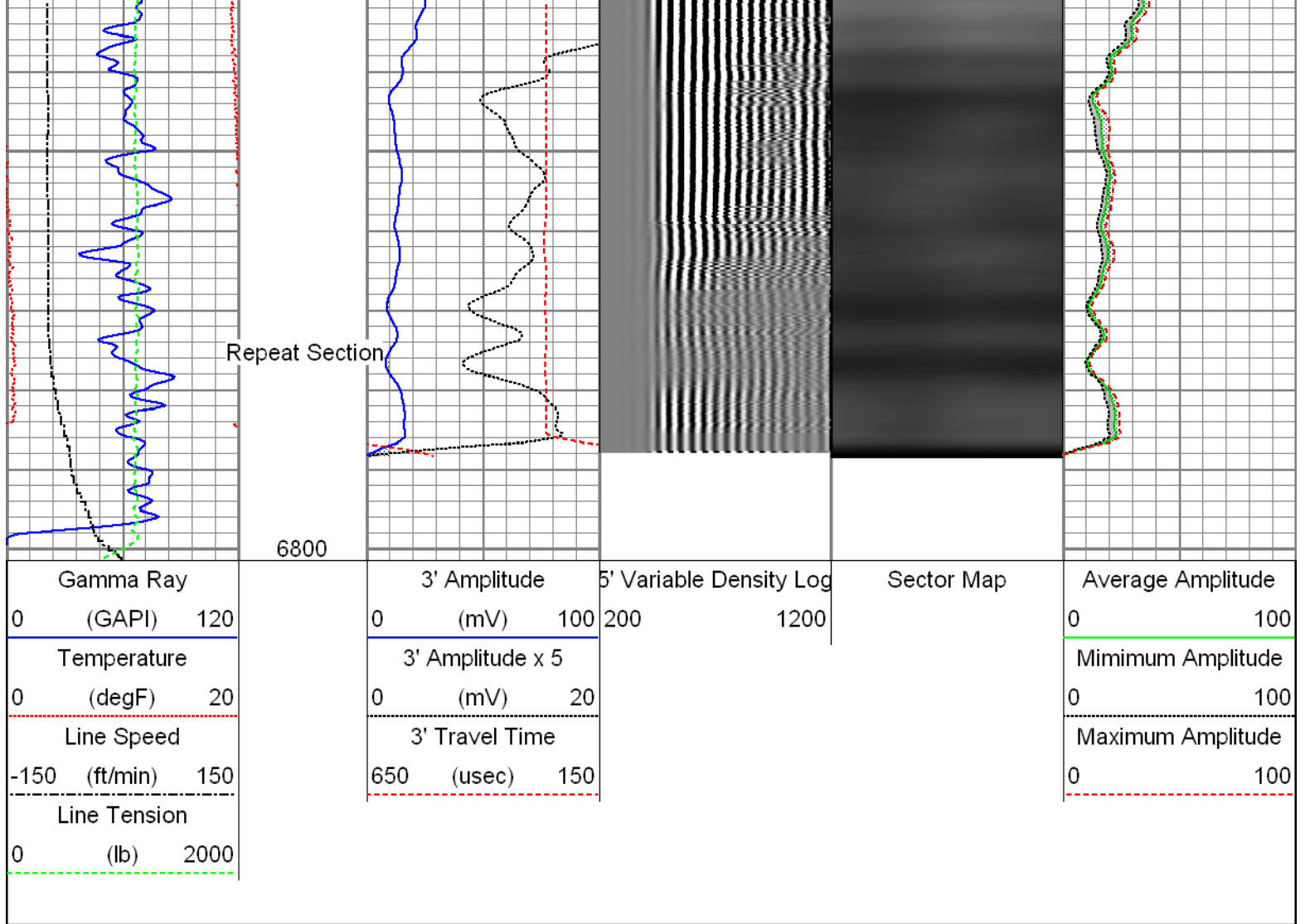
Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0506906478\_anadarko\_encore 8c-12hz\_09-22-15\_rb\0506906478\_anadarko\_encore  
 Dataset Pathname: pass6  
 Presentation Format: radii  
 Dataset Creation: Tue Sep 22 11:57:17 2015 by Log 7.0 R1

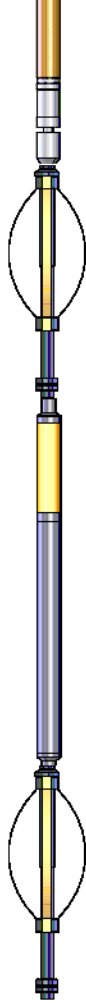


Gamma Ray			3' Amplitude			5' Variable Density Log		Sector Map		Average Amplitude					
0	(GAPI)	120	0	(mV)	100	200	1200			0	100				
Temperature			3' Amplitude x 5							Minimum Amplitude					
0	(degF)	20	0	(mV)	20					0	100				
Line Speed			3' Travel Time							Maximum Amplitude					
-150	(ft/min)	150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





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			<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					
WVF3FT	14.55		<b>Probe_RADII-C-2-3/4" (FW1302-002)</b> 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					

WVFS4	14.55					
WVFS5	14.55					
WVFS6	14.55					
WVFS7	14.55					
WVFS8	14.55					
WVF5T	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 (FW1211-081) 4.54 Probe 2-3/4" Digital CCL / Gamma Ray Combined		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: 0506906478_Anadarko_Encore 8C-12HZ_09-22-15_RBL.db: field/well/run1/pass8 Total Length: 23.40 ft Total Weight: 194.00 lb O.D. 2.75 in						

Calibration Report	
Database File:	C:\Warrior\Data\0506906478_Anadarko_Encore 8C-12HZ_09-22-15_RBL\0506906478_Anadarko_Encore
Dataset Pathname:	pass8
Dataset Creation:	Tue Sep 22 12:11:59 2015 by Log 7.0 B1

Gamma Ray Calibration Report		
Serial Number:	FW1211-081	
Tool Model:	2.75"Digital	
Performed:	Tue Sep 01 08:34:06 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:	FW1302-002	
Tool Model:	2-3/4"	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-0.878	ft

Master Calibration performed Mon Sep 22 12:52:25 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	0.691	0.800	71.921	104.267	-0.079
CAL	0.007	0.784				
5'	0.019	0.703	0.800	71.921	103.940	-1.135
SUM						
S1	0.021	0.694	0.000	100.000	148.629	-3.075
S2	0.009	0.694	0.000	100.000	146.030	-1.348
S3	0.009	0.692	0.000	100.000	146.299	-1.284
S4	0.009	0.691	0.000	100.000	146.579	-1.288
S5	0.009	0.689	0.000	100.000	146.950	-1.275
S6	0.009	0.692	0.000	100.000	146.579	-1.376
S7	0.009	0.696	0.000	100.000	145.568	-1.326
S8	0.009	0.692	0.000	100.000	146.432	-1.330

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	0.007	0.784	1.000	0.000

Air Zero Calibration, performed Tue Sep 22 09:36:25 2015:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.011		0.000		-0.002	
5'	0.012		0.000		0.007	
SUM						
S1	0.009		0.000		0.012	
S2	0.011		0.000		-0.002	
S3	0.011		0.000		-0.002	
S4	0.011		0.000		-0.002	
S5	0.011		0.000		-0.002	
S6	0.011		0.000		-0.001	
S7	0.011		0.000		-0.002	
S8	0.011		0.000		-0.001	



Company	Kerr-McGee Oil and Gas Onshore LP
Well	Encore 8C-12HZ
Field	Wattenberg
County	Larimer
State	Colorado