



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.				
Well	Merlin State 9N-15HZ				
Field	Wattenberg				
County	Weld				
State	Colorado				
Company		Kerr-McGee Oil & Gas Onshore, L.P.			
Well		Merlin State 9N-15HZ			
Field		Wattenberg			
County		Weld			
State		Colorado			
Location:		API # : 05-123-41352			
SEC 15		TWP 3N		RGE 67W	
Permanent Datum		Ground Level		Elevation 4798'	
Log Measured From		Kelly Bushing		20 FT	
Drilling Measured From		Kelly Bushing			
		Elevation		K.B. 4818'	
				D.F. 4817'	
				G.L. 4798'	

Date	16-SEP-2015
Run Number	One
Depth Driller	12236 FT
Depth Logger	7050 FT
Bottom Logged Interval	7045 FT
Top Log Interval	Surface
Open Hole Size	8.765"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	226°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	1:35 PM
Equipment Number	HD-0324
Location	Fort Lupton, CO
Recorded By	J.Morrison
Witnessed By	Josh Gustafson

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	1864 FT		
Intermediate #1							
Intermediate #2							
Liner	5 1/2	17	HCP-110 LTC	Surface	12226 FT		

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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 from KB 20 FT  
Casing Tally reported Marker Joint at 6259'  
Recorded Marker Joints at 6274 FT to 6297 FT  
Log ran with 2800 PSI surface induced pressure

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



Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0512341352\_anadarko\_merlin state 9n-15hz\_09-16-15\_rbl\0512341352\_anadarko\_merlin

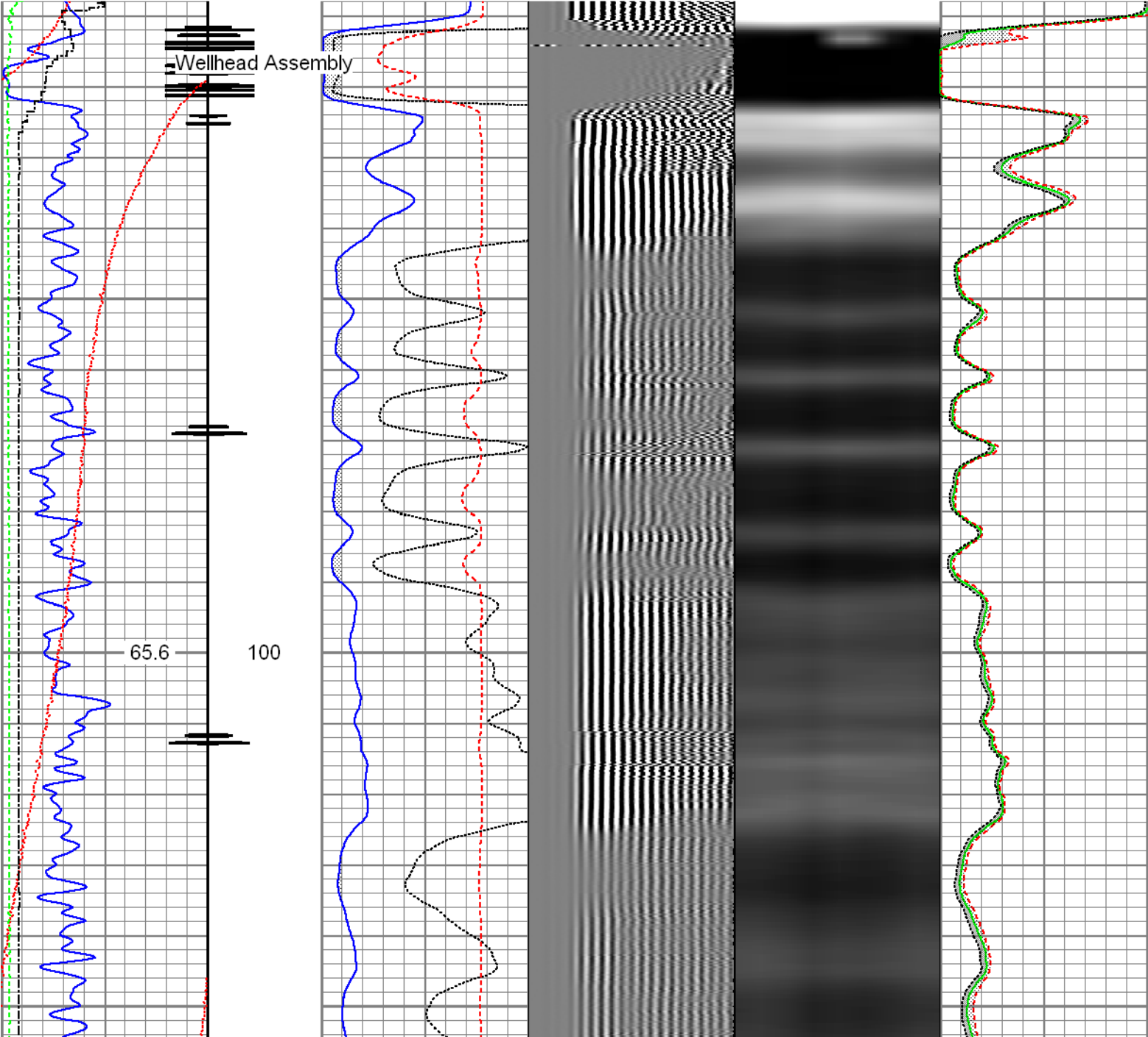
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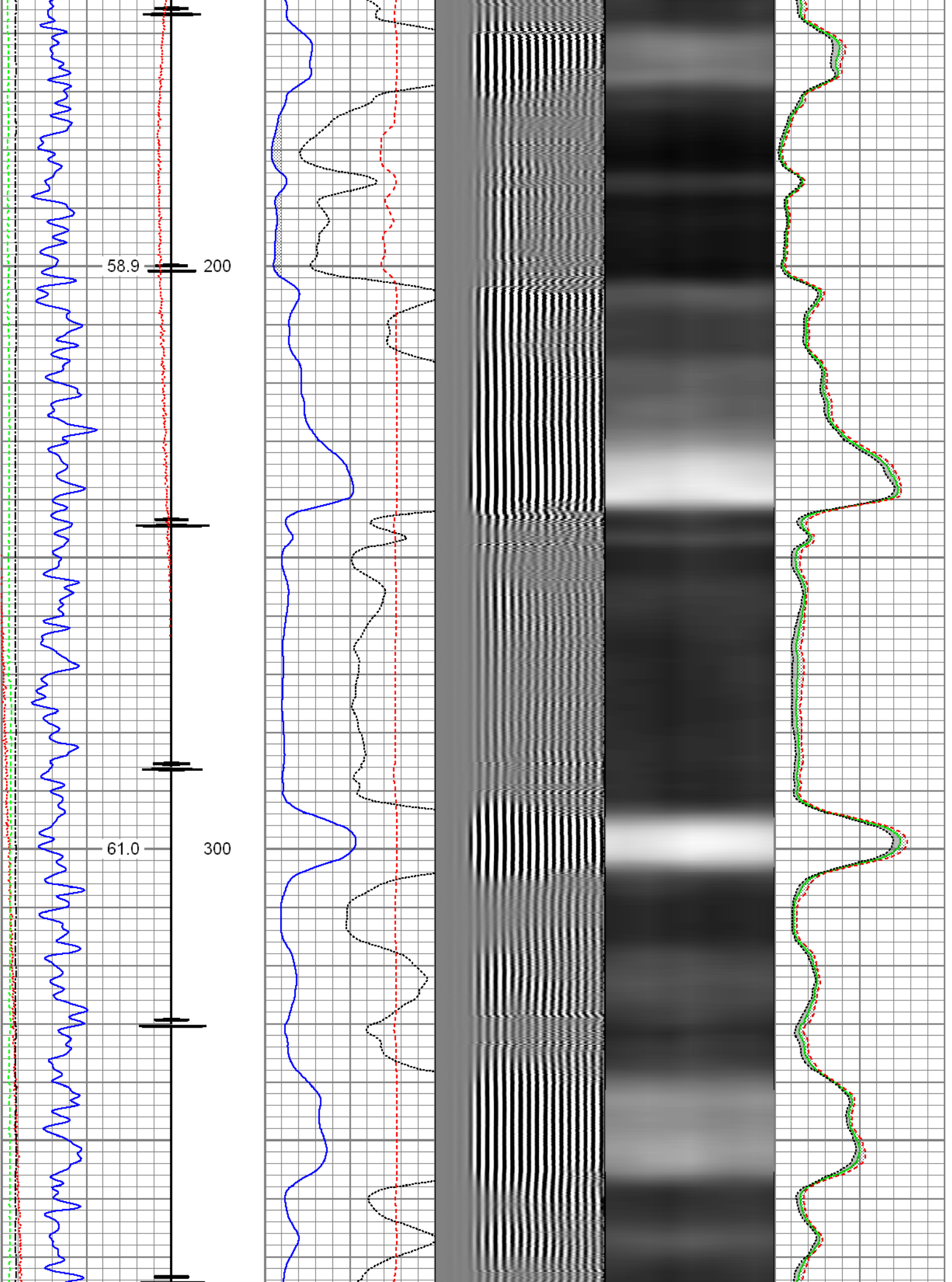
Presentation Format: radii

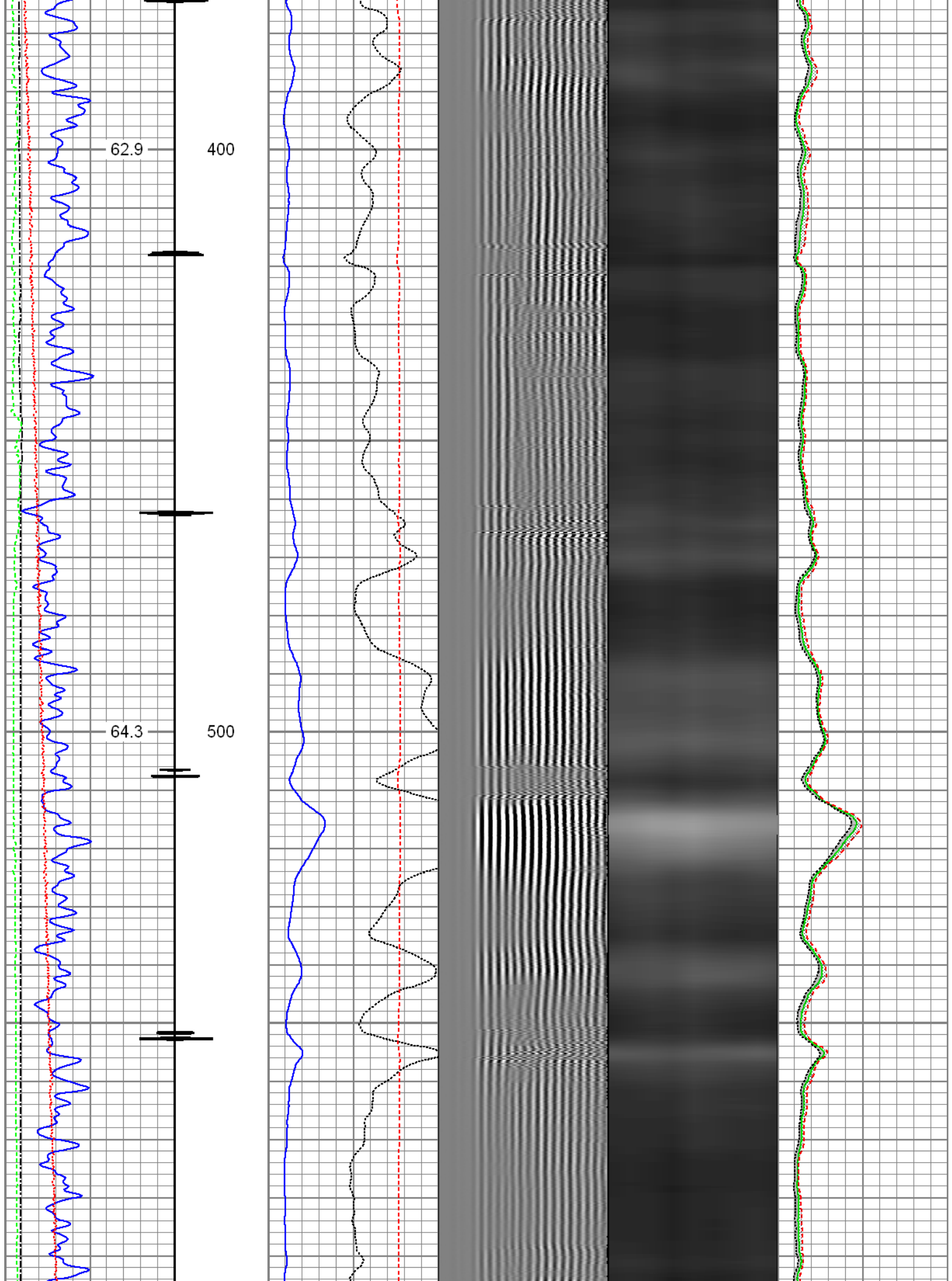
Dataset Creation: Wed Sep 16 13:48:47 2015 by Log 7.0 B1

Charted by: Depth in Feet scaled 1:240

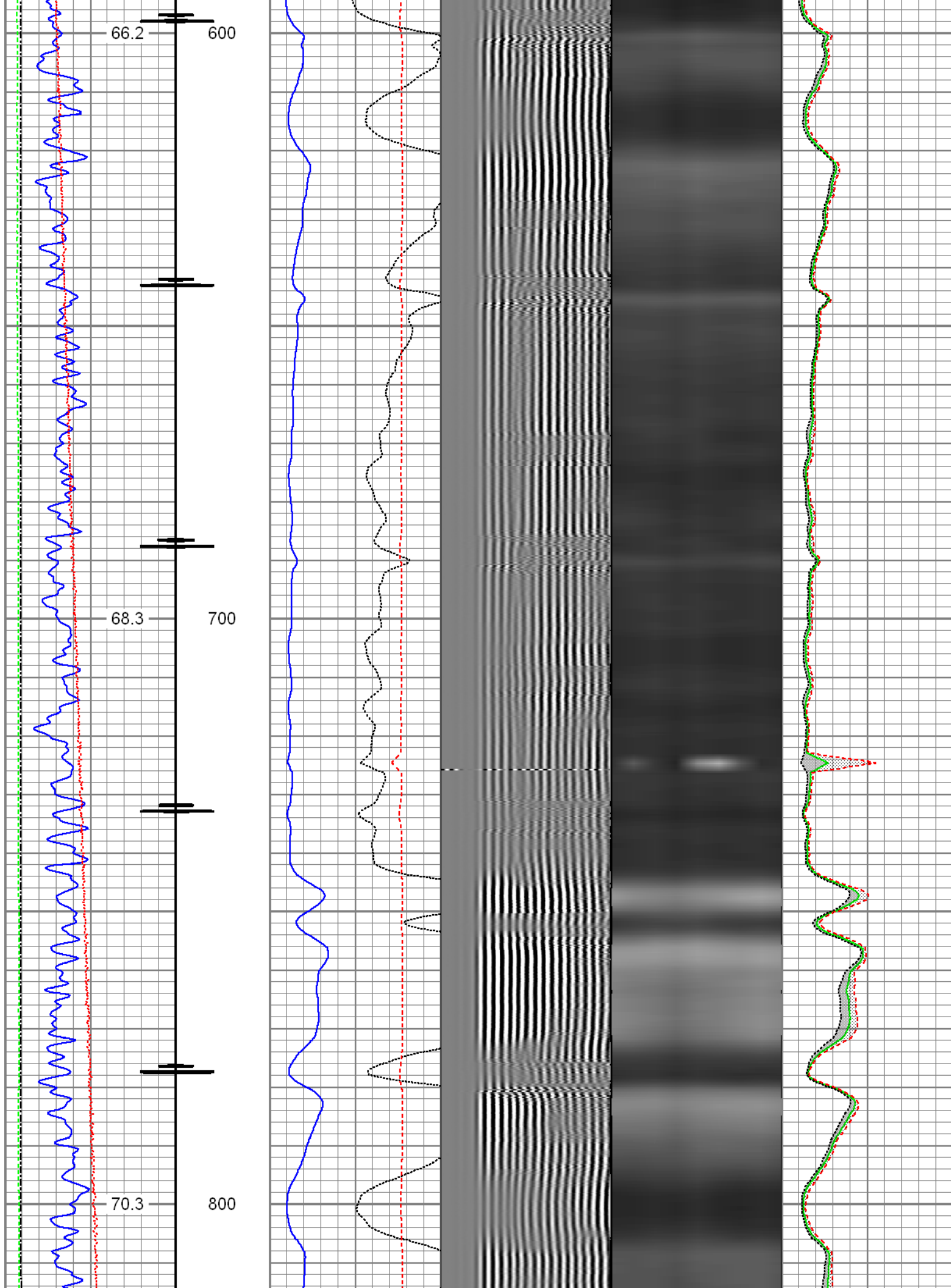
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

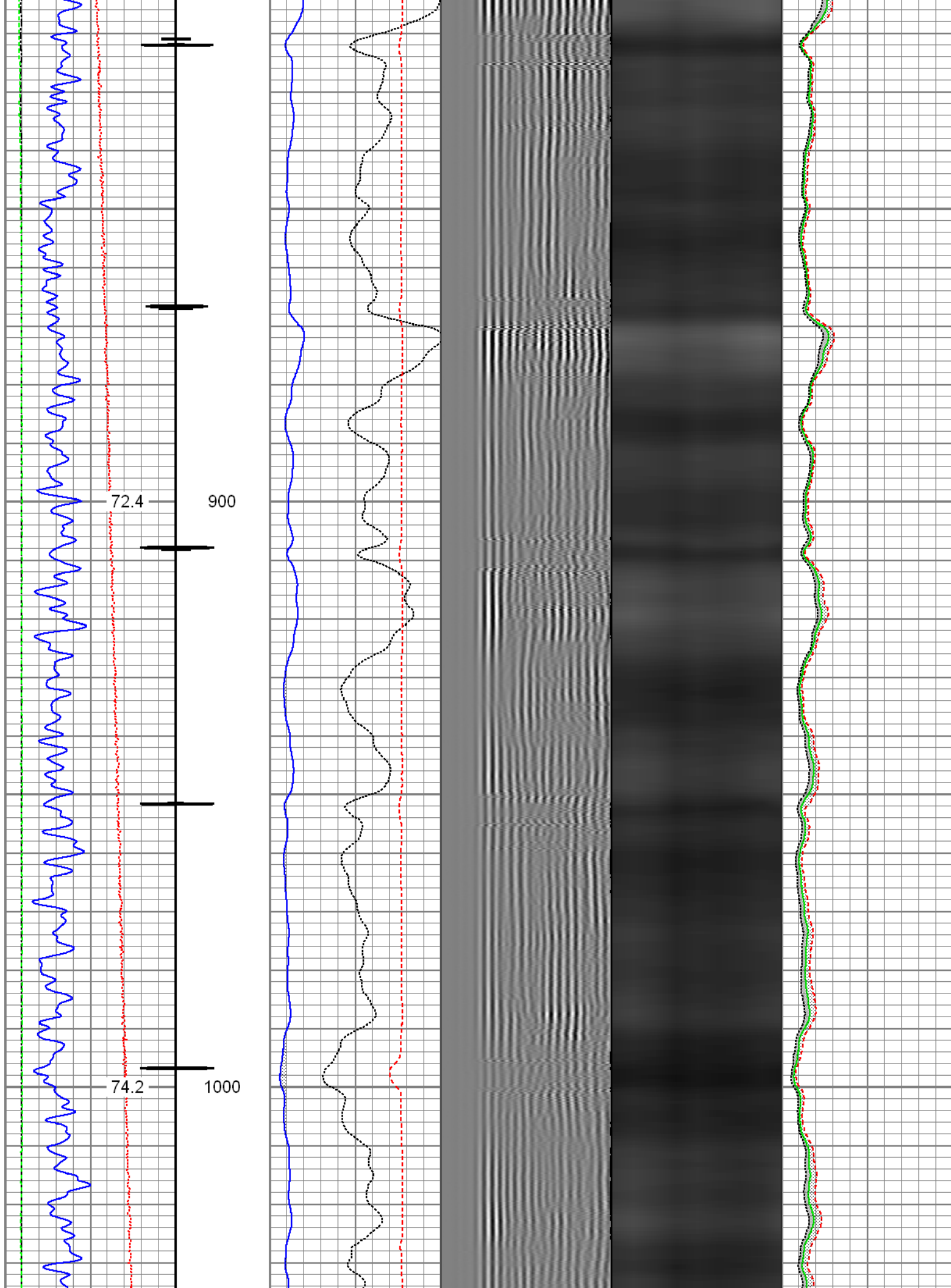


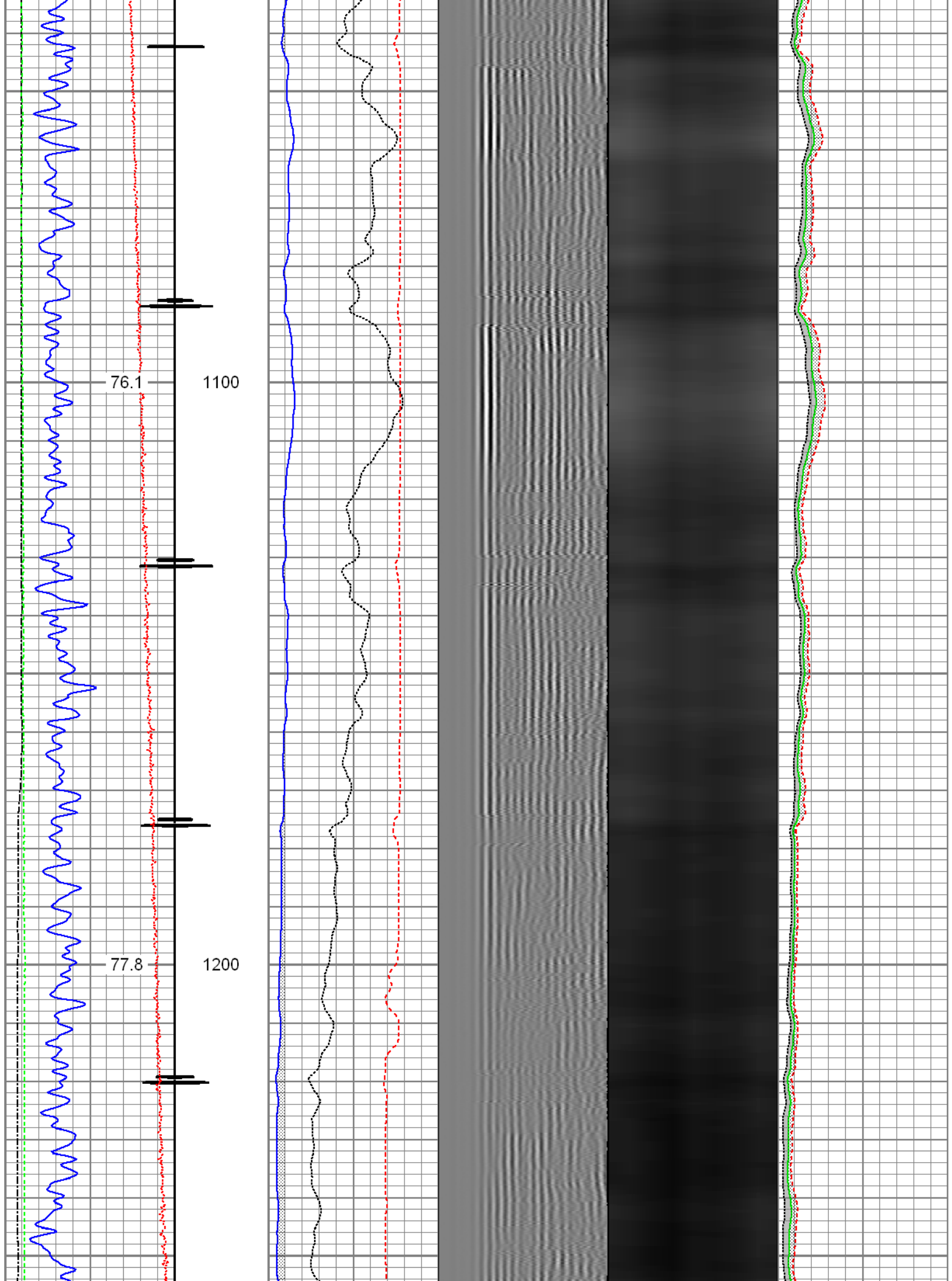


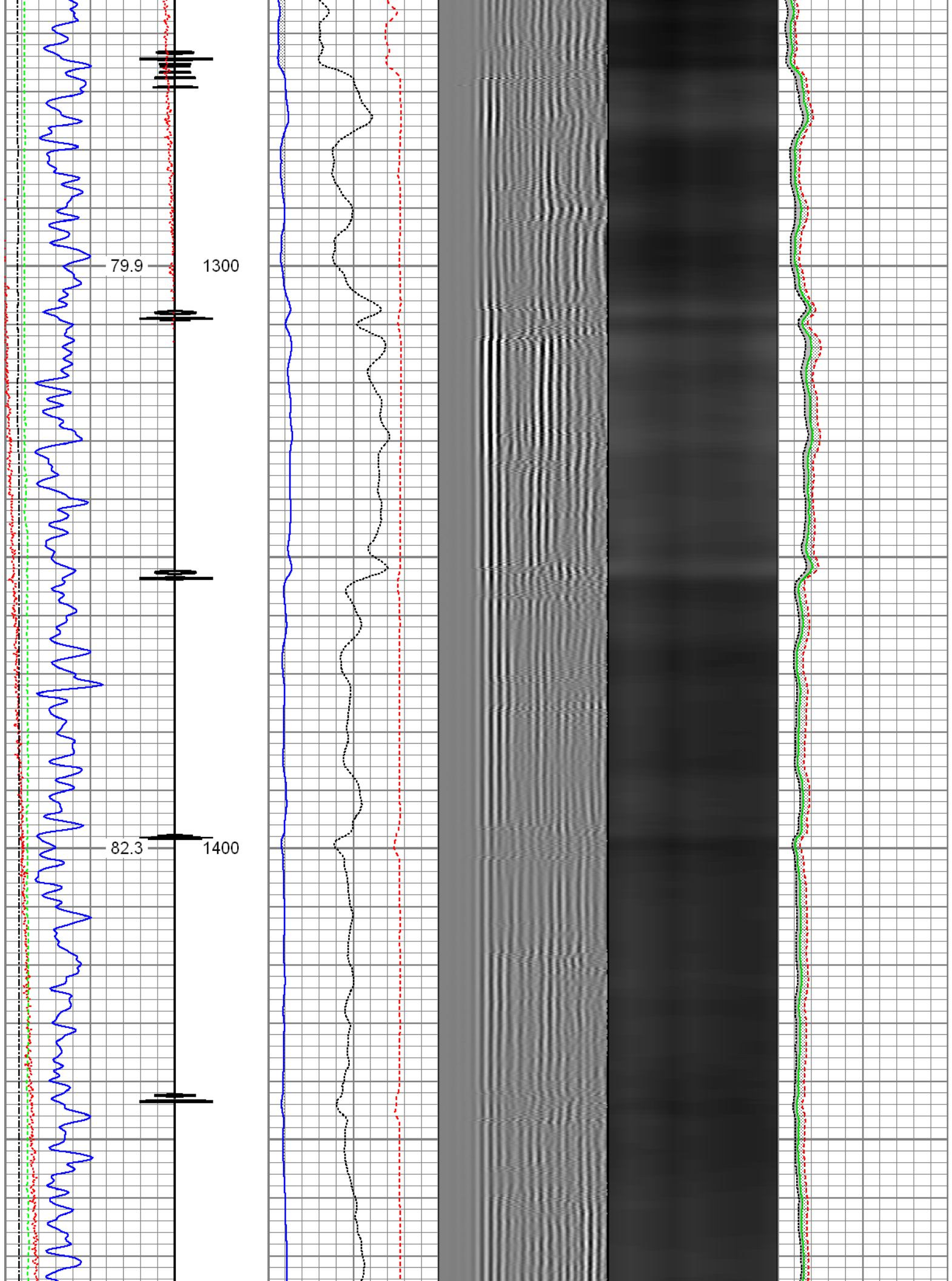




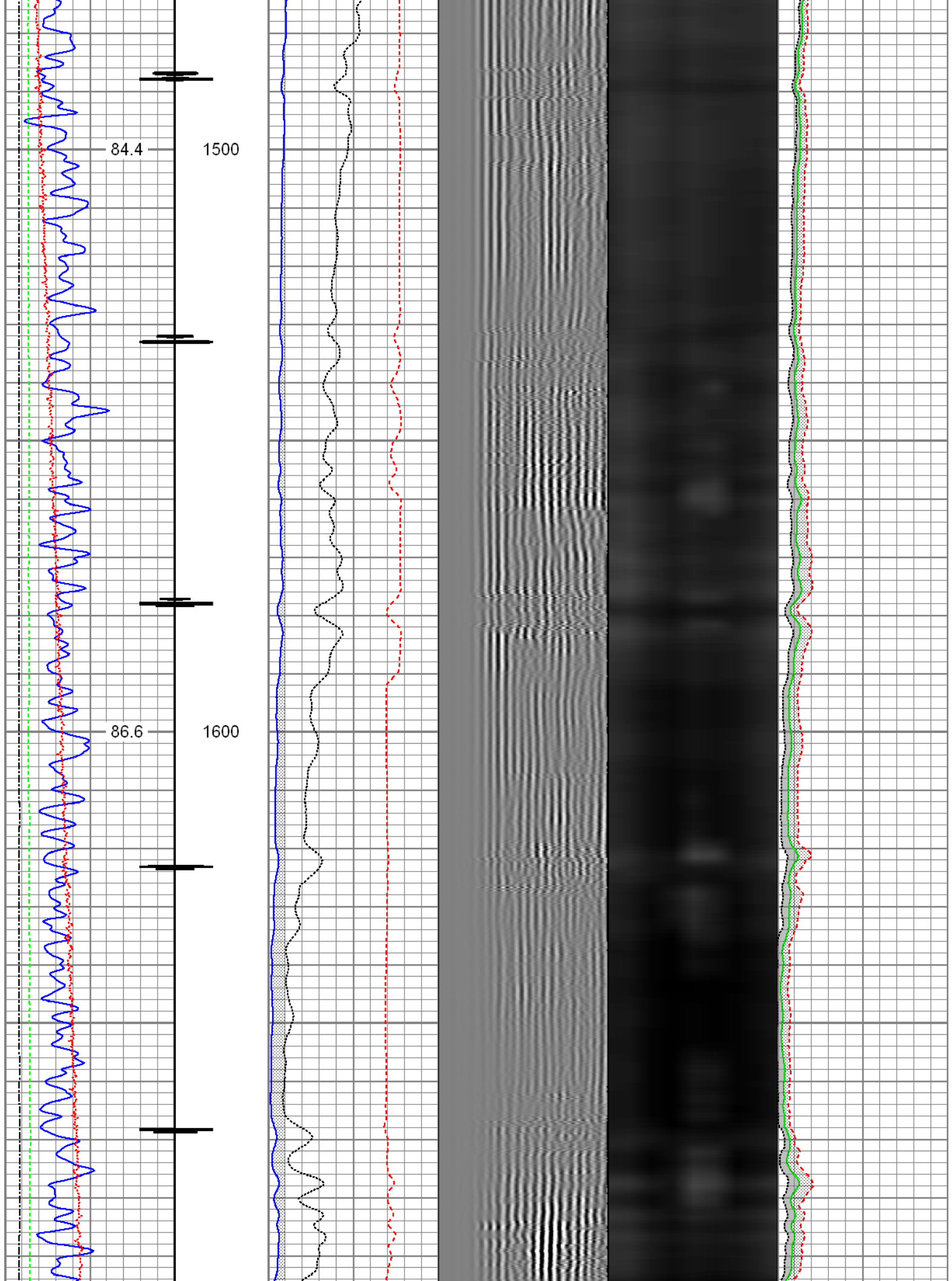


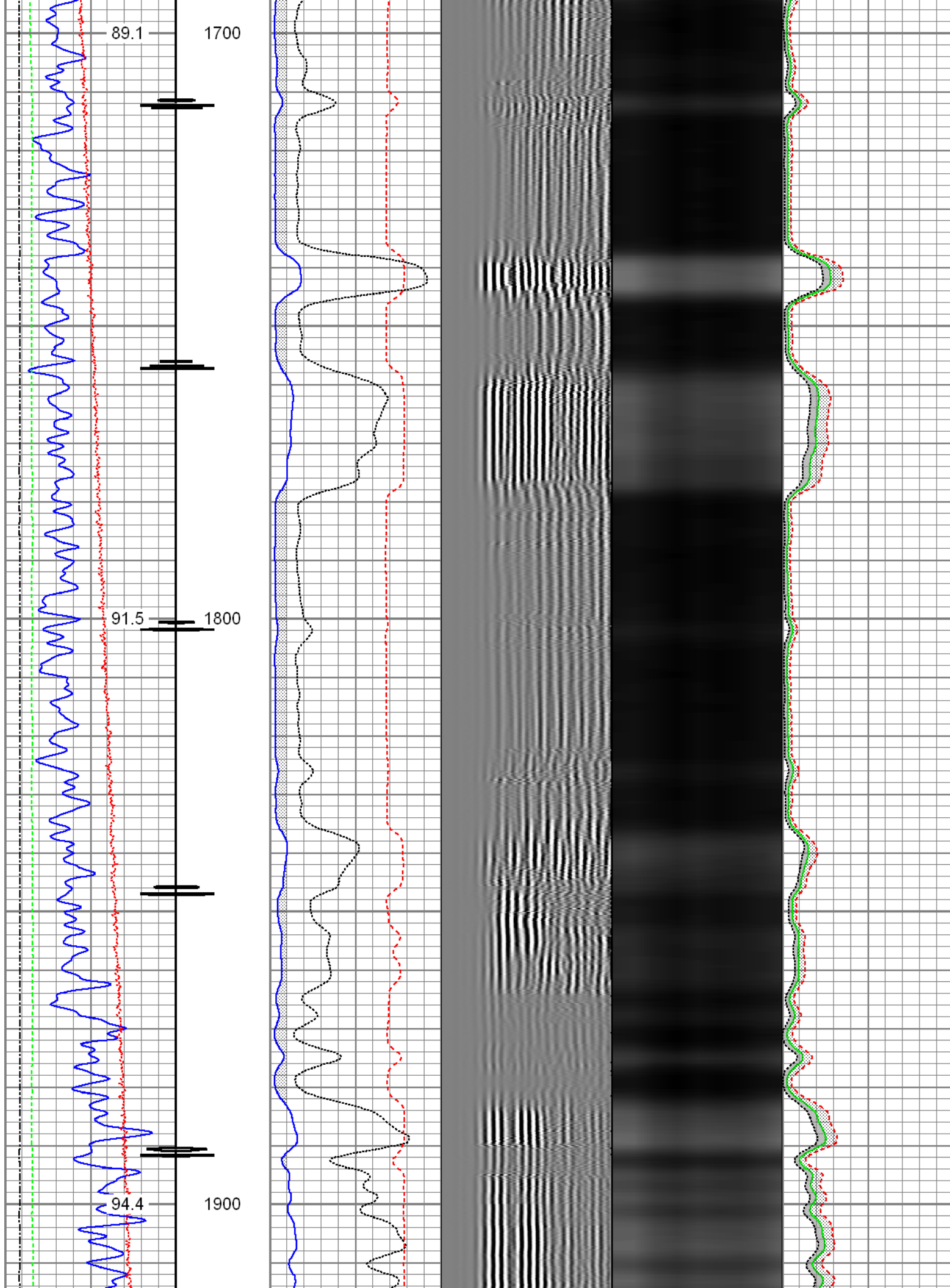


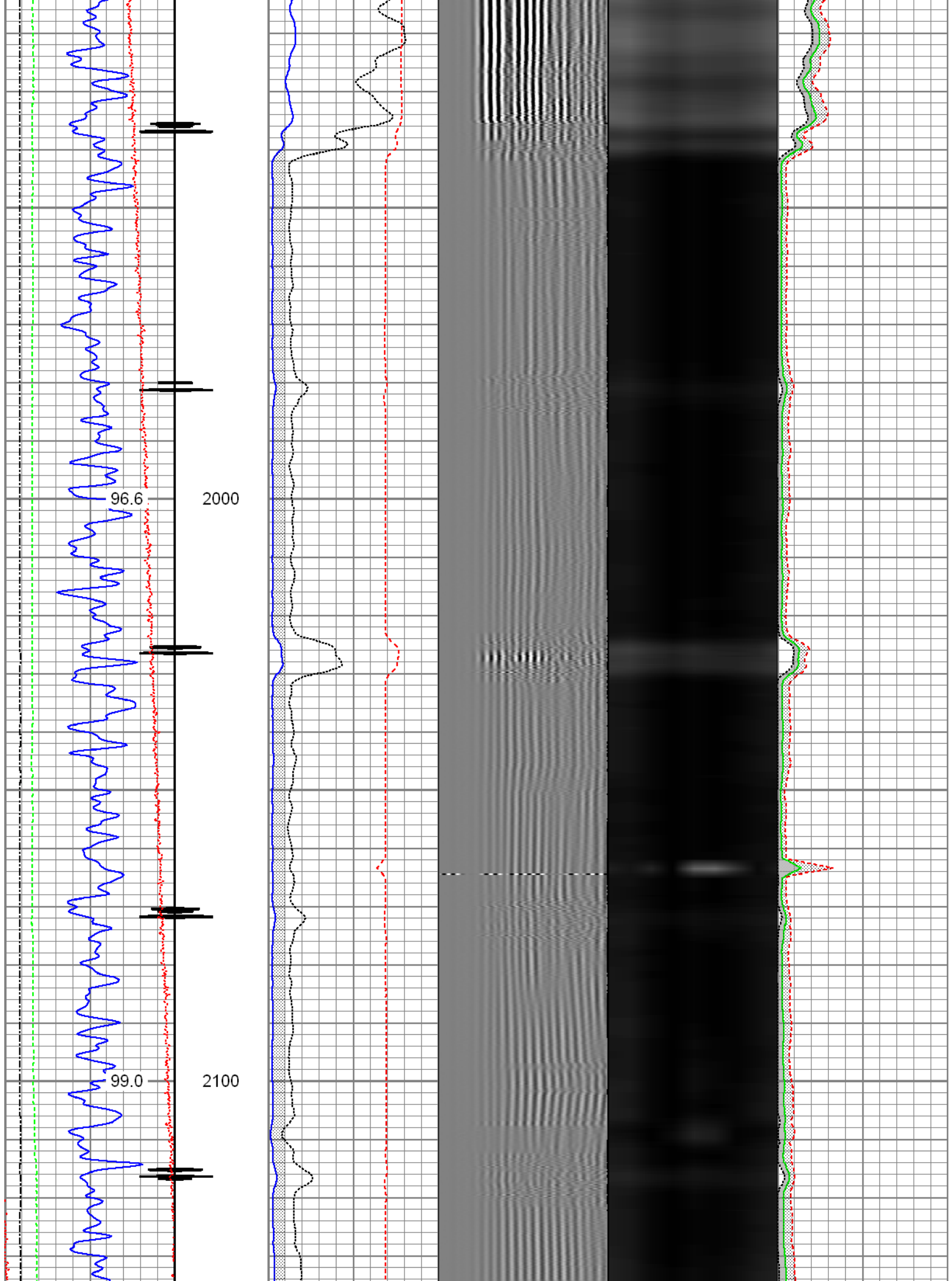


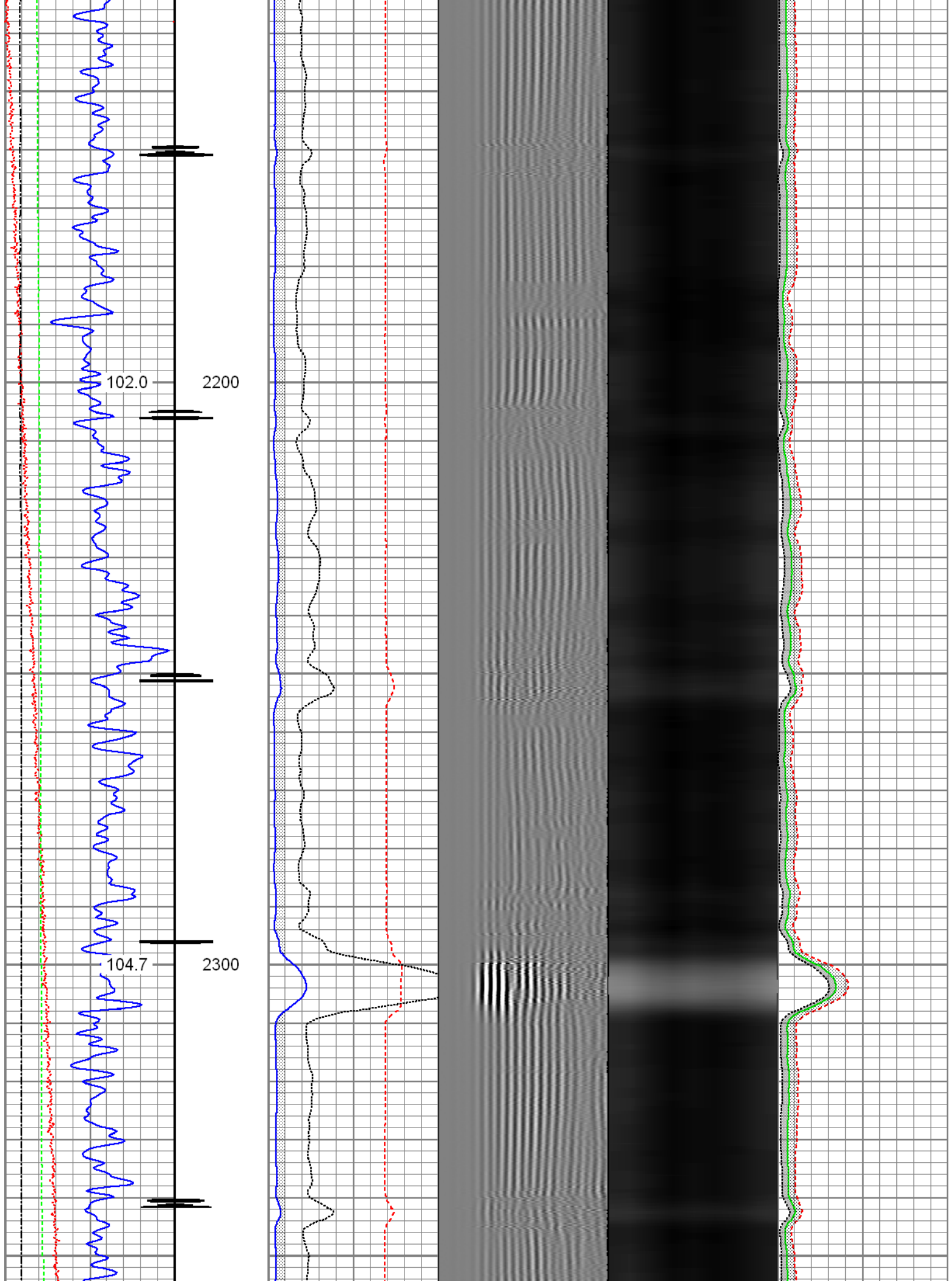




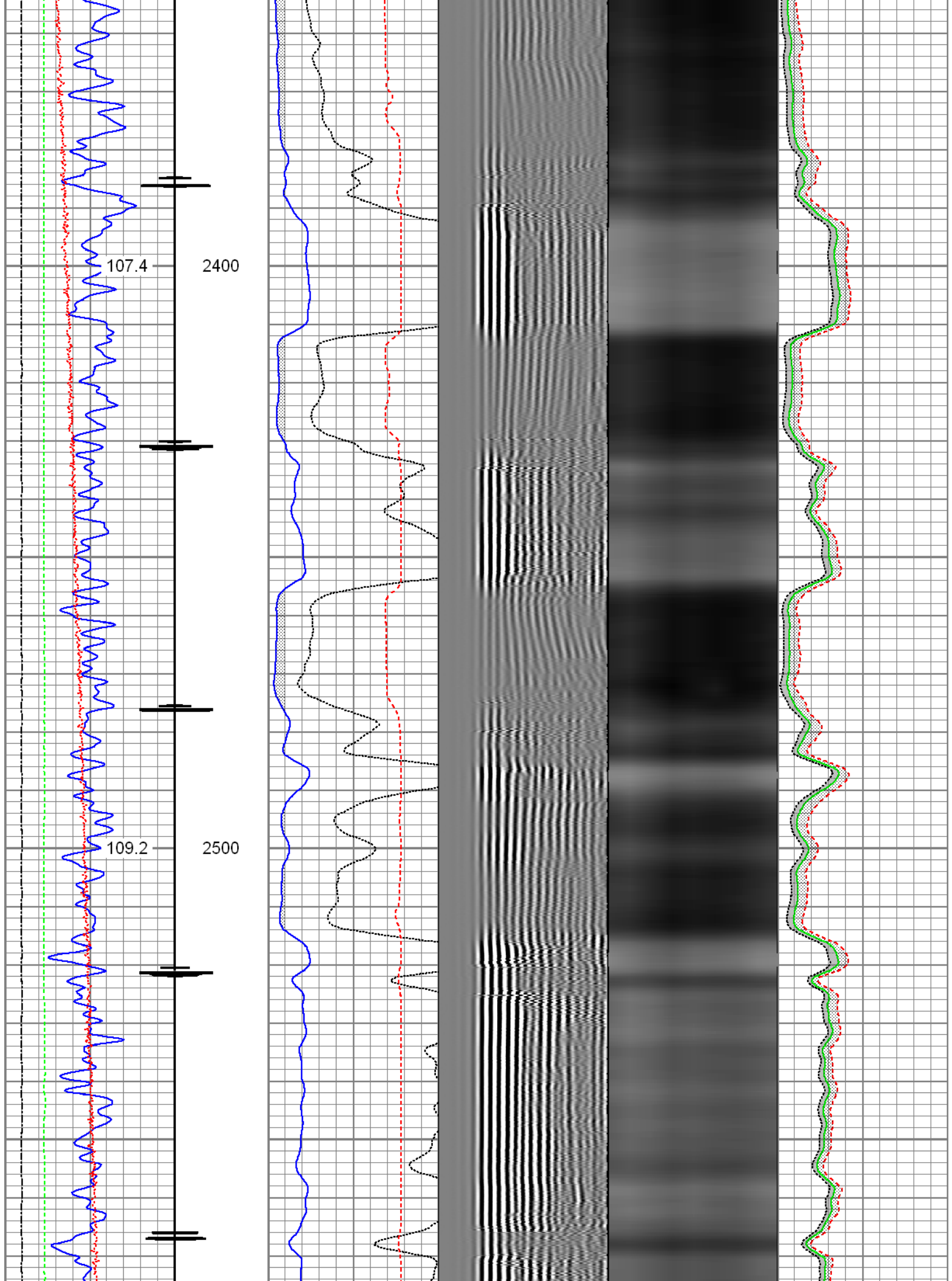


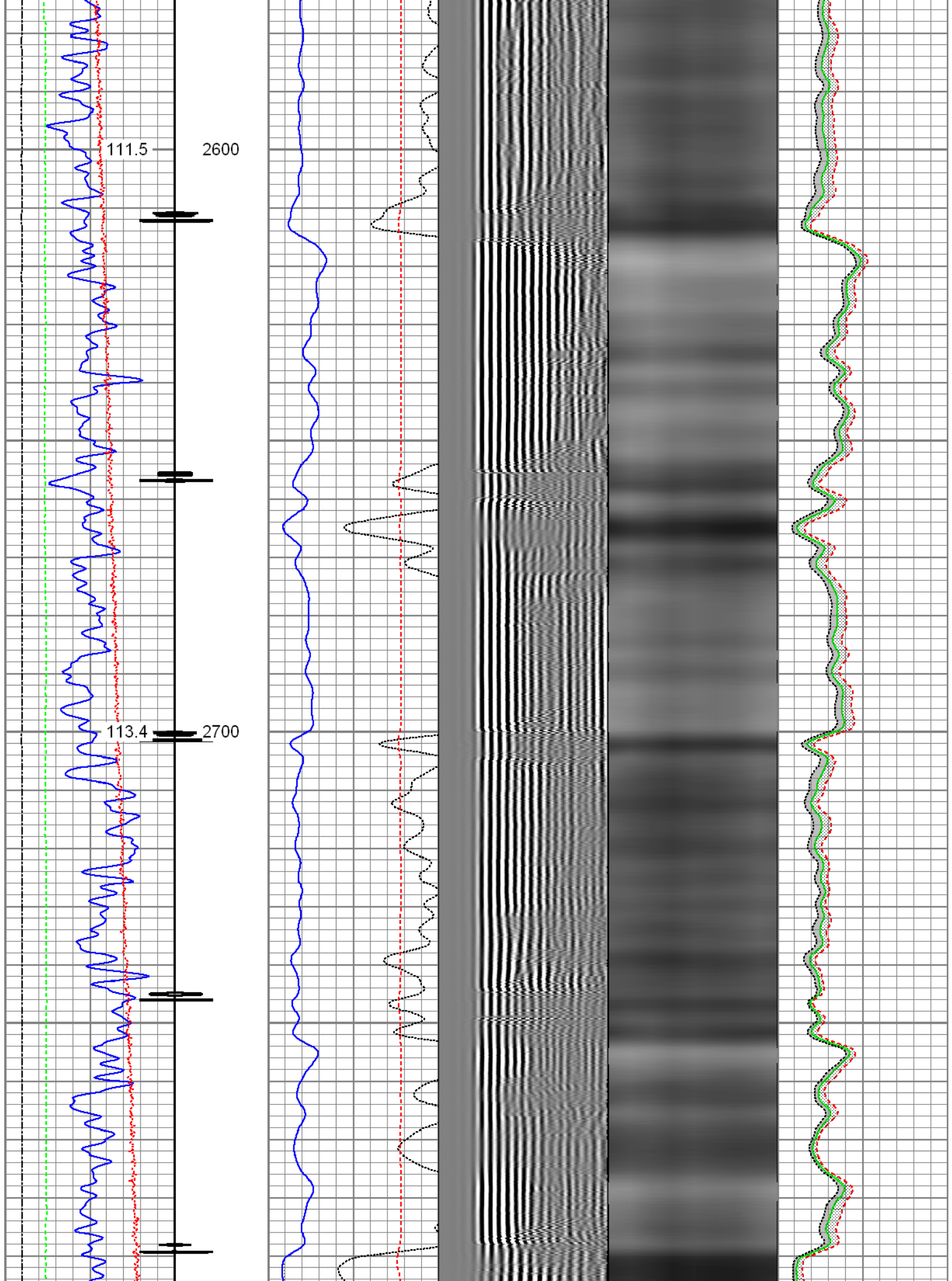


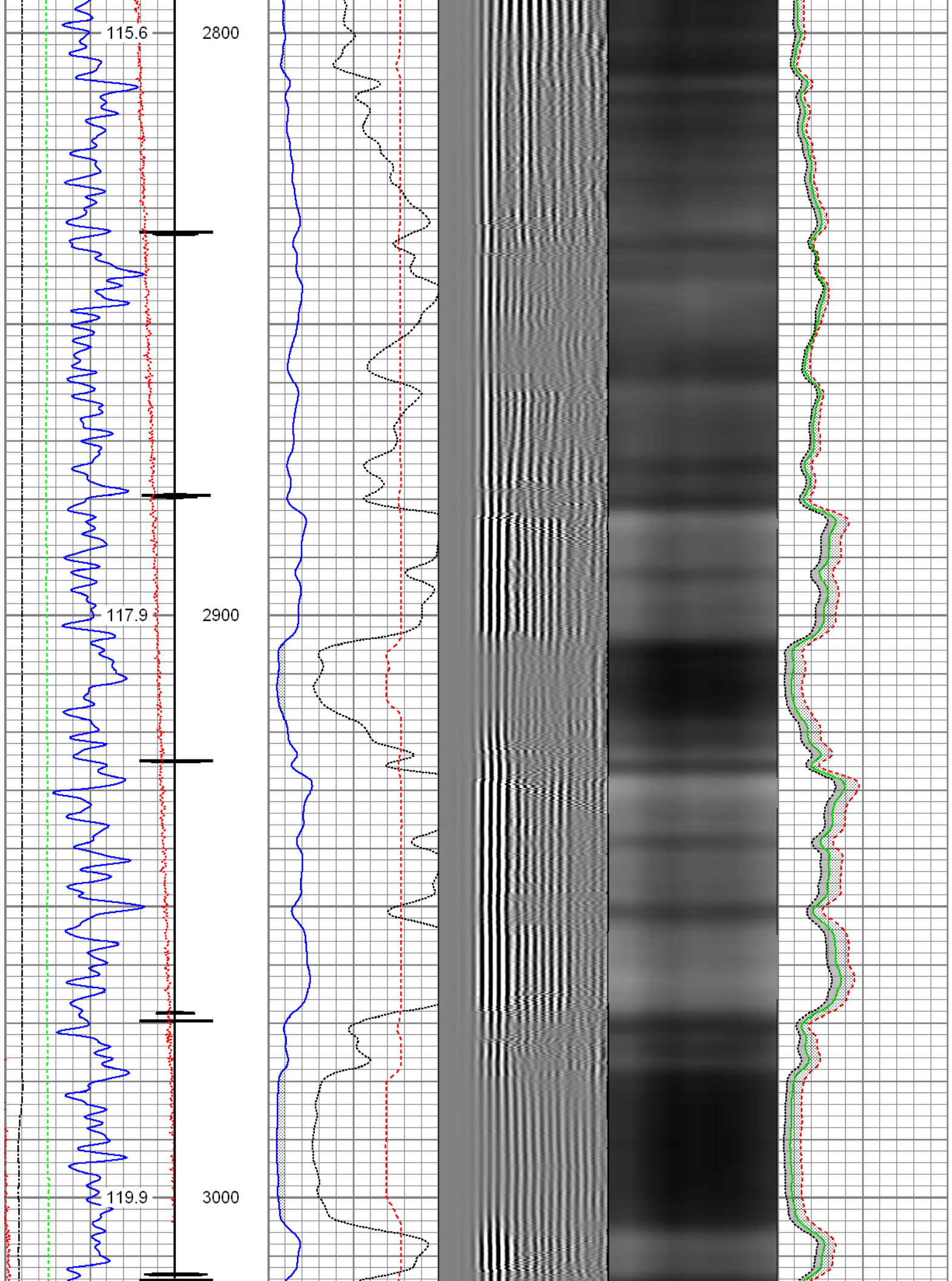




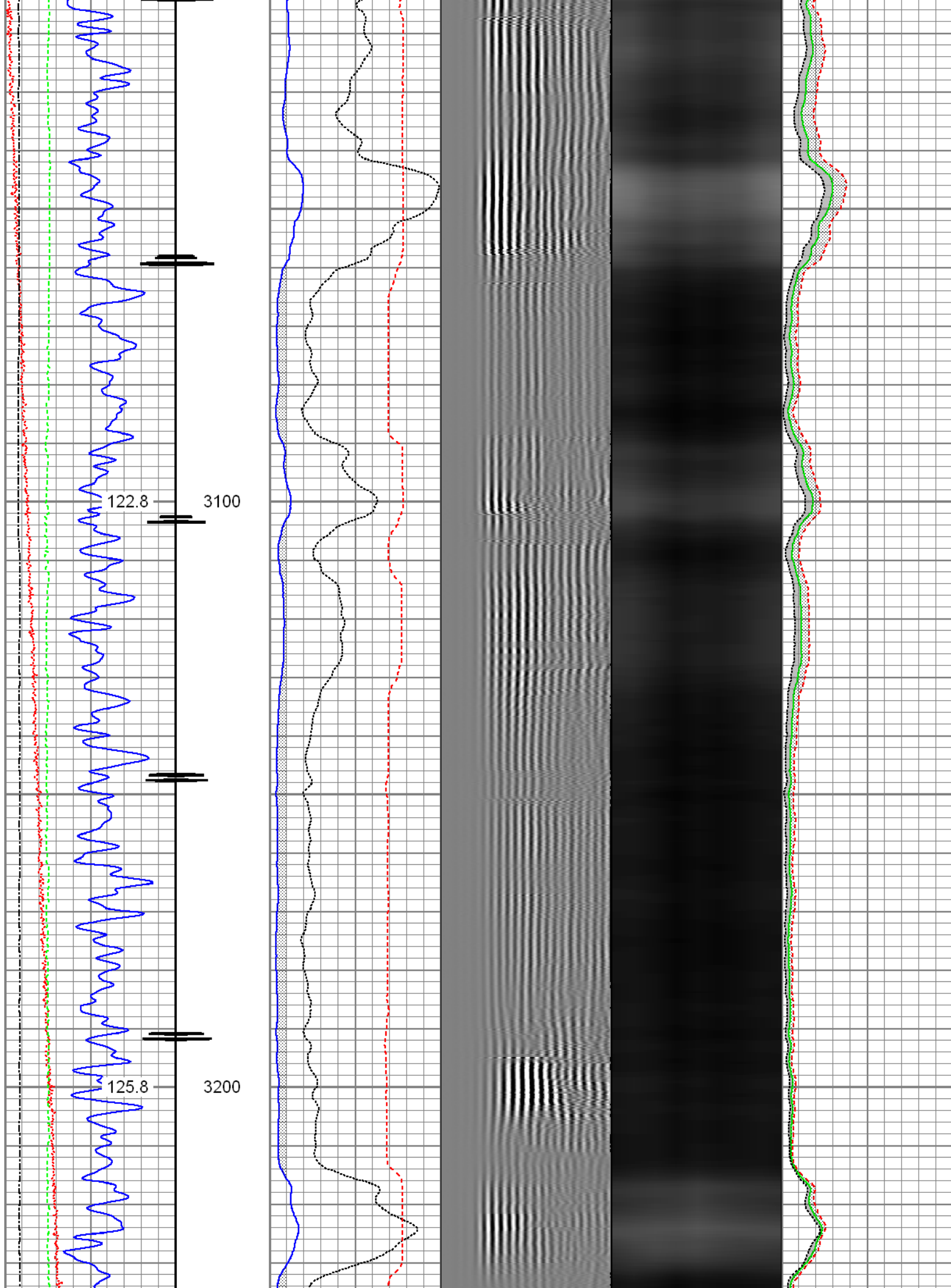




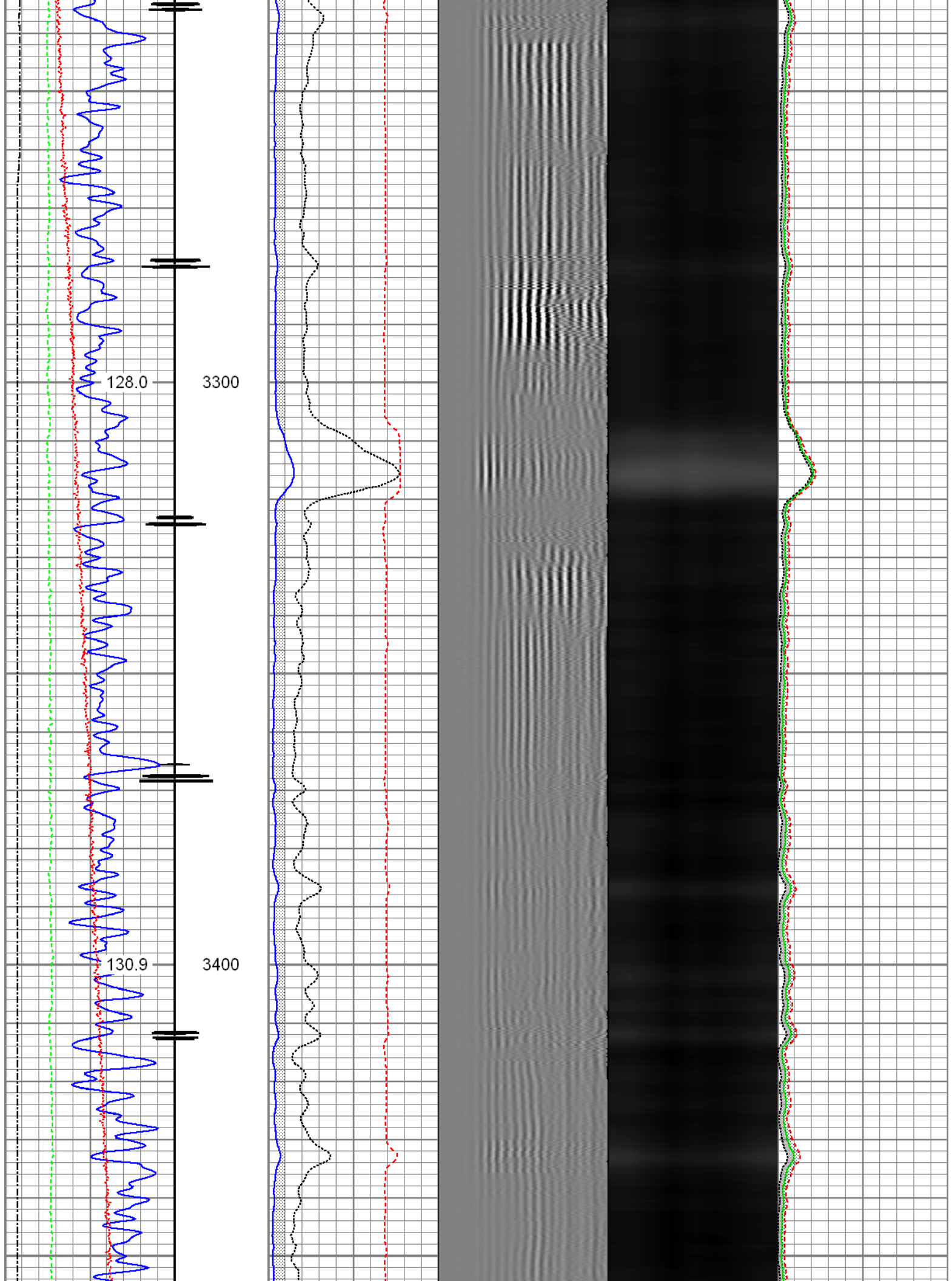


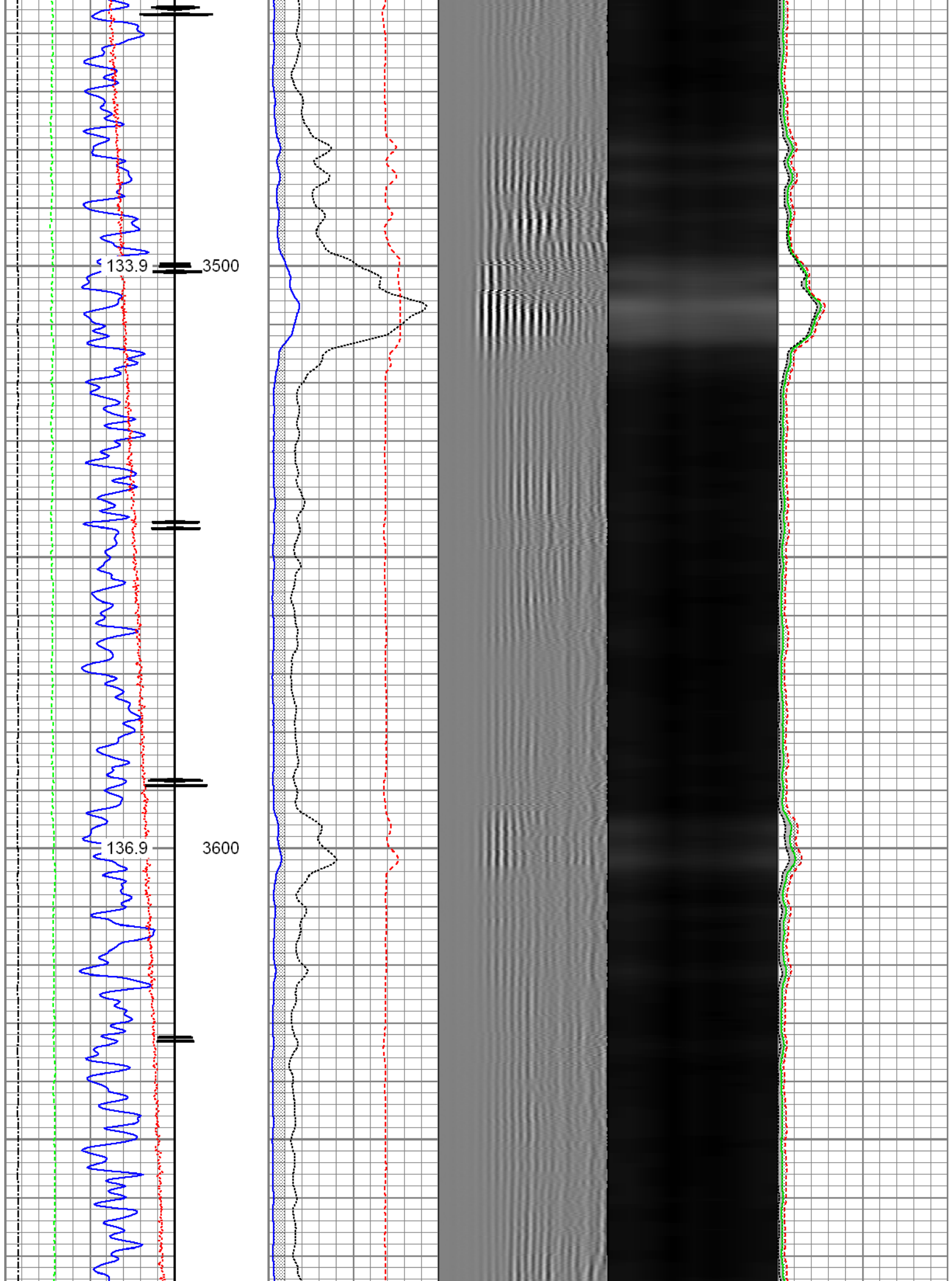


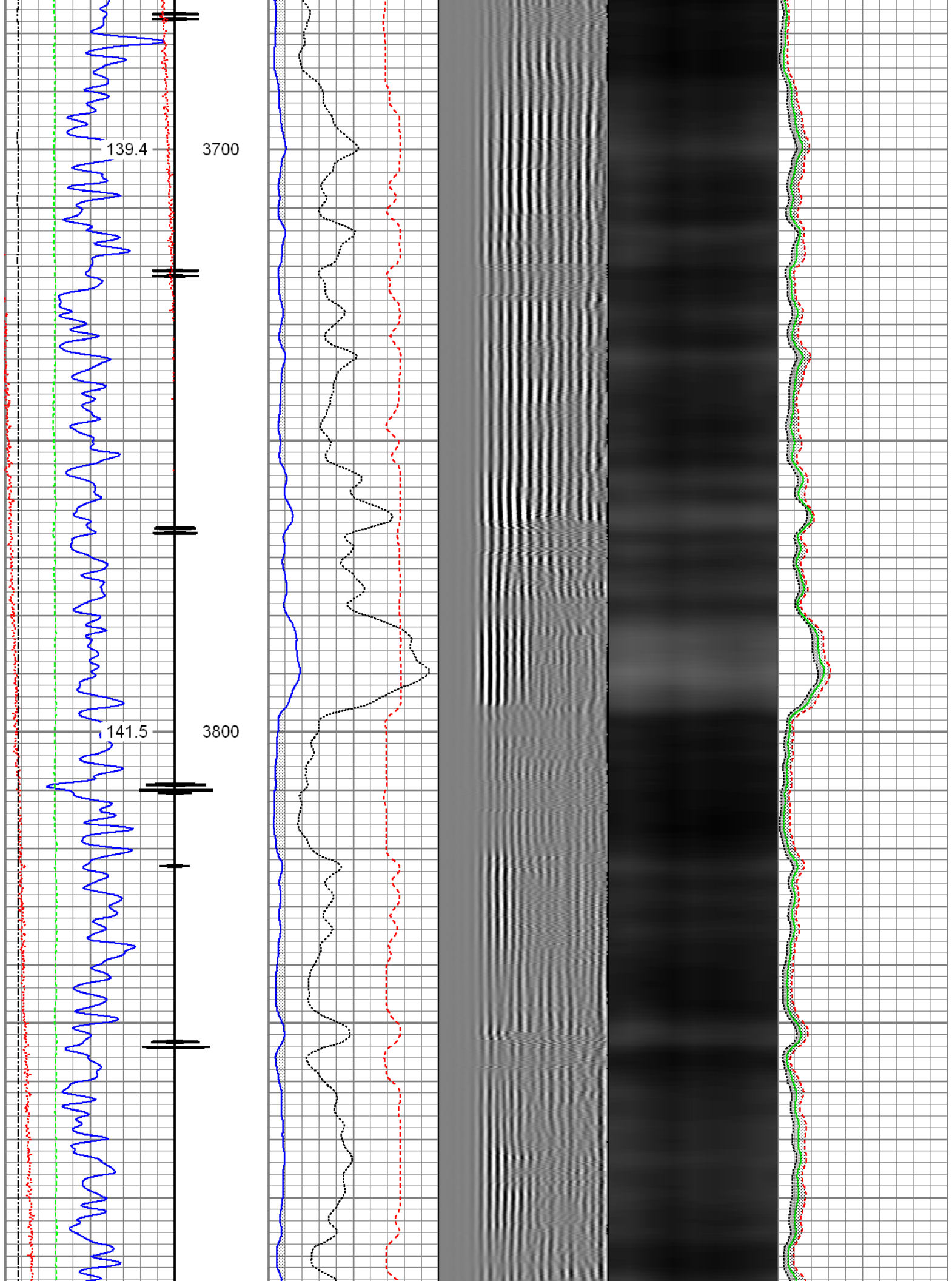


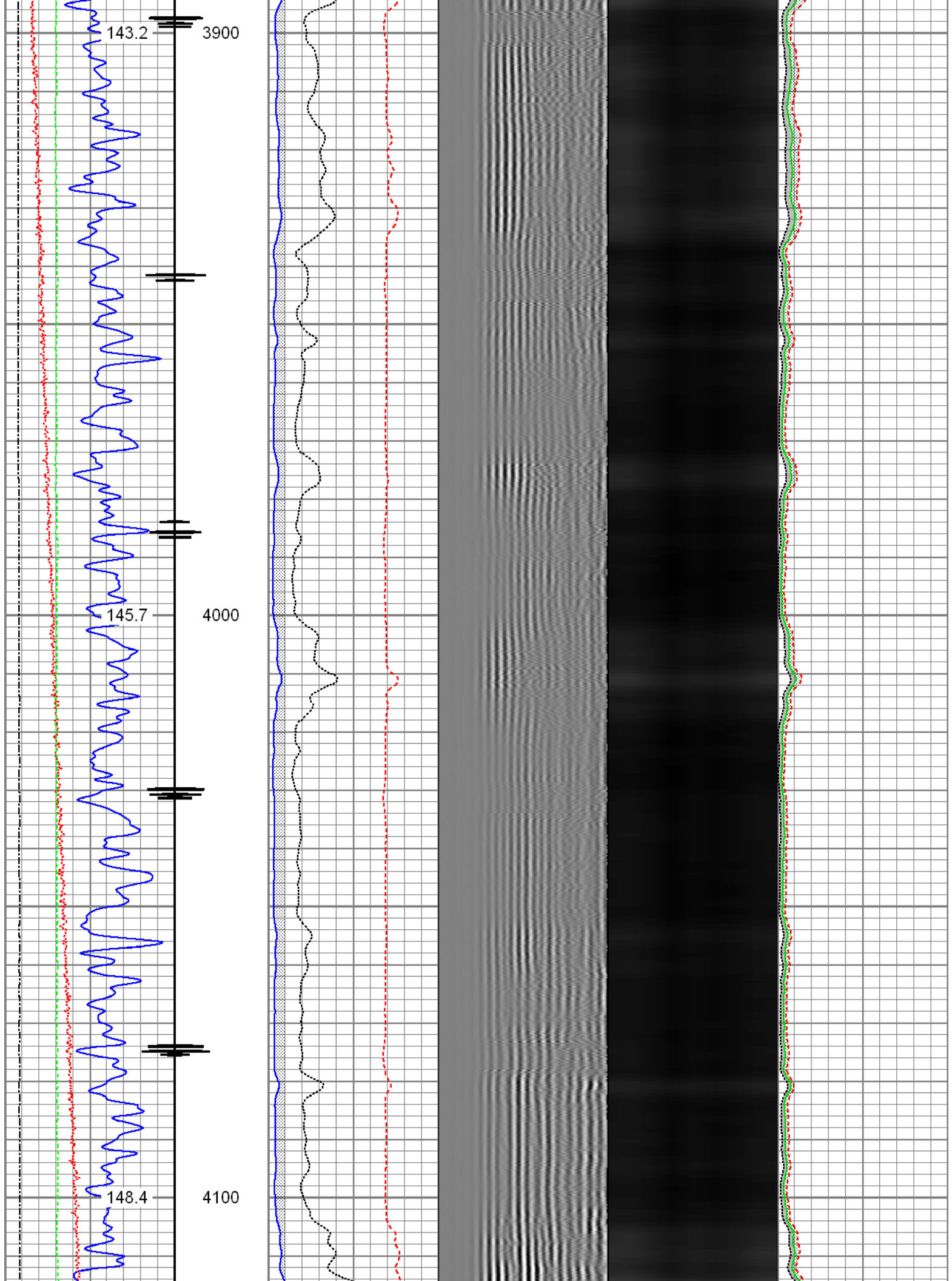




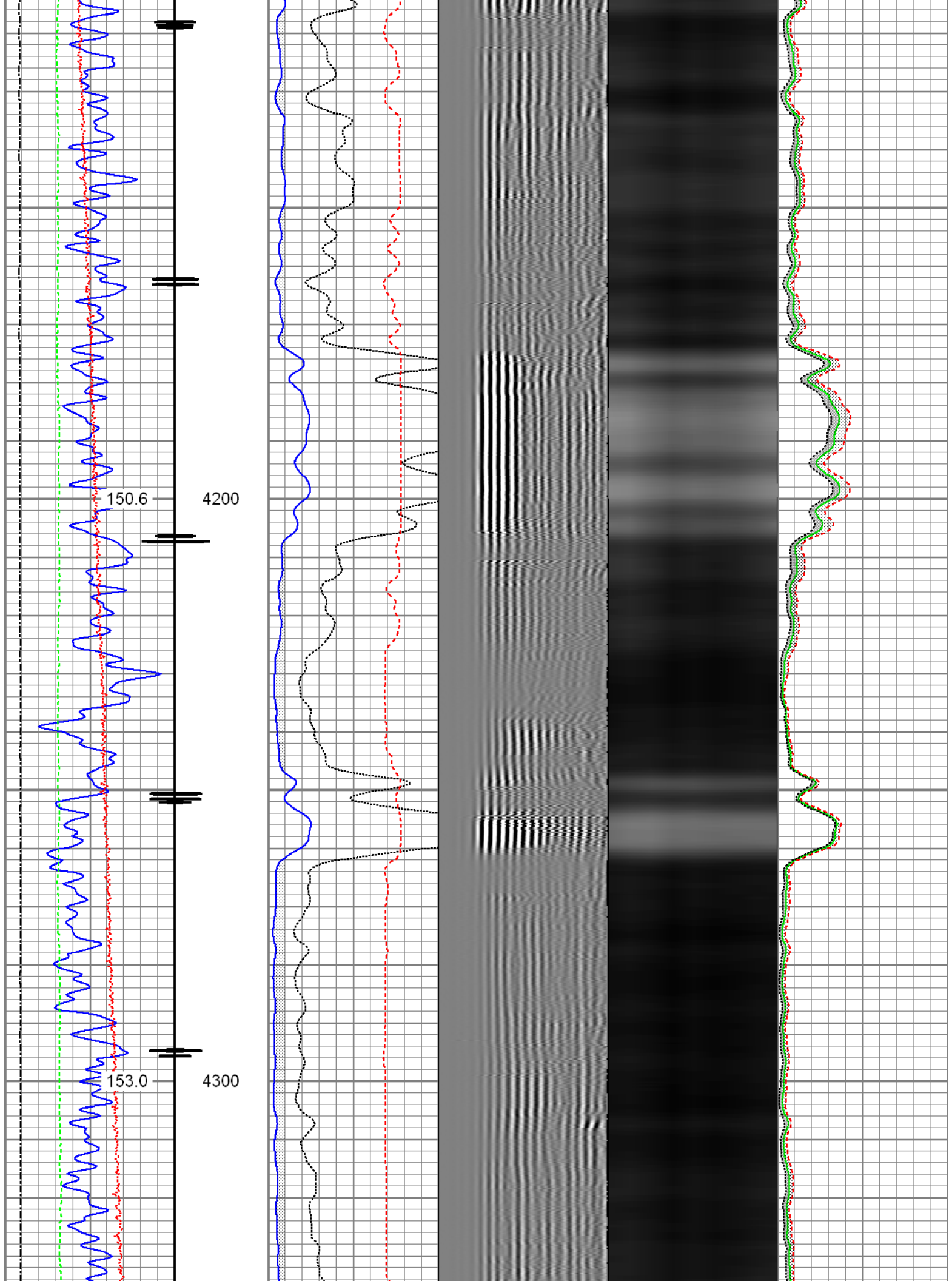


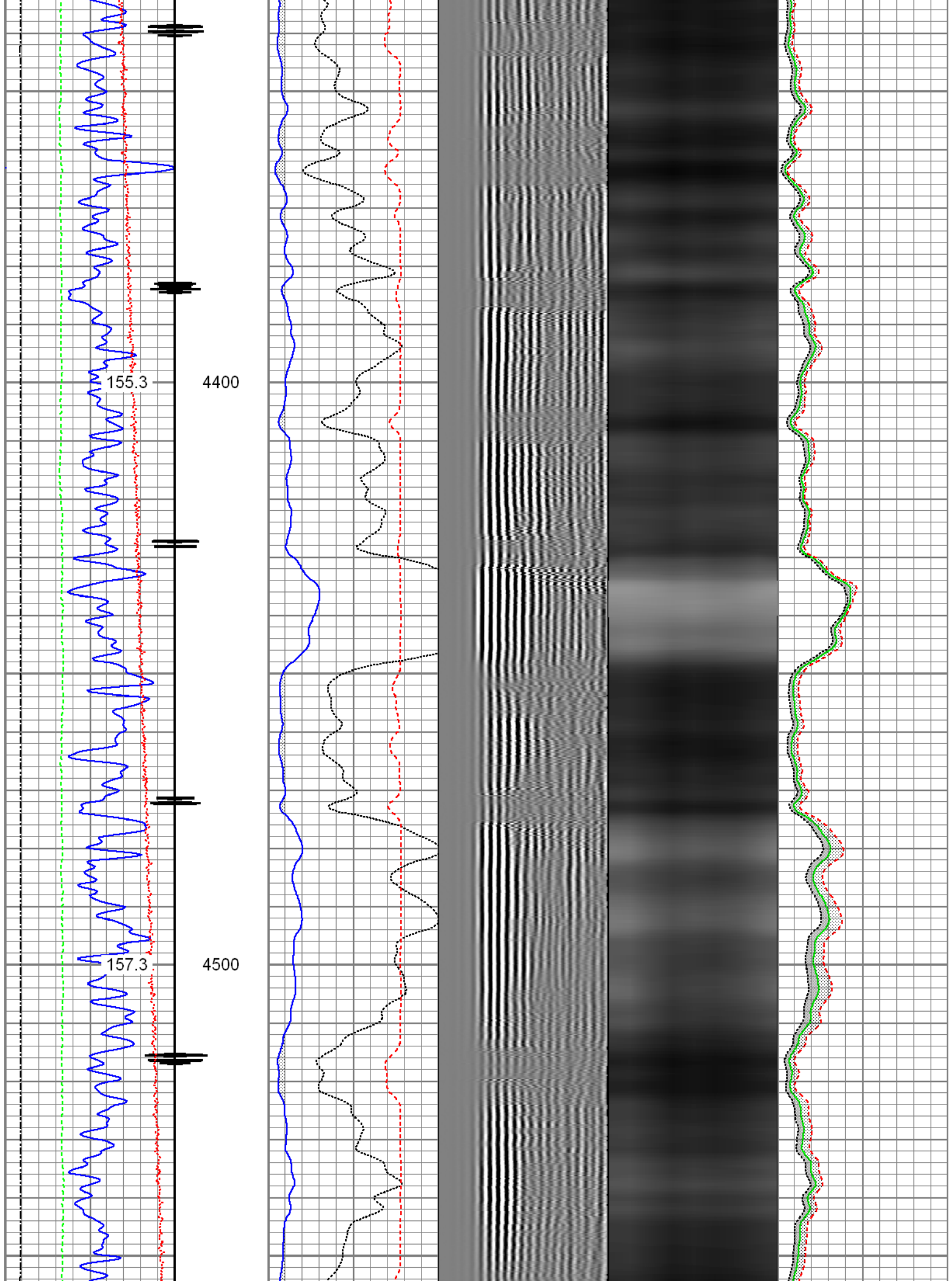


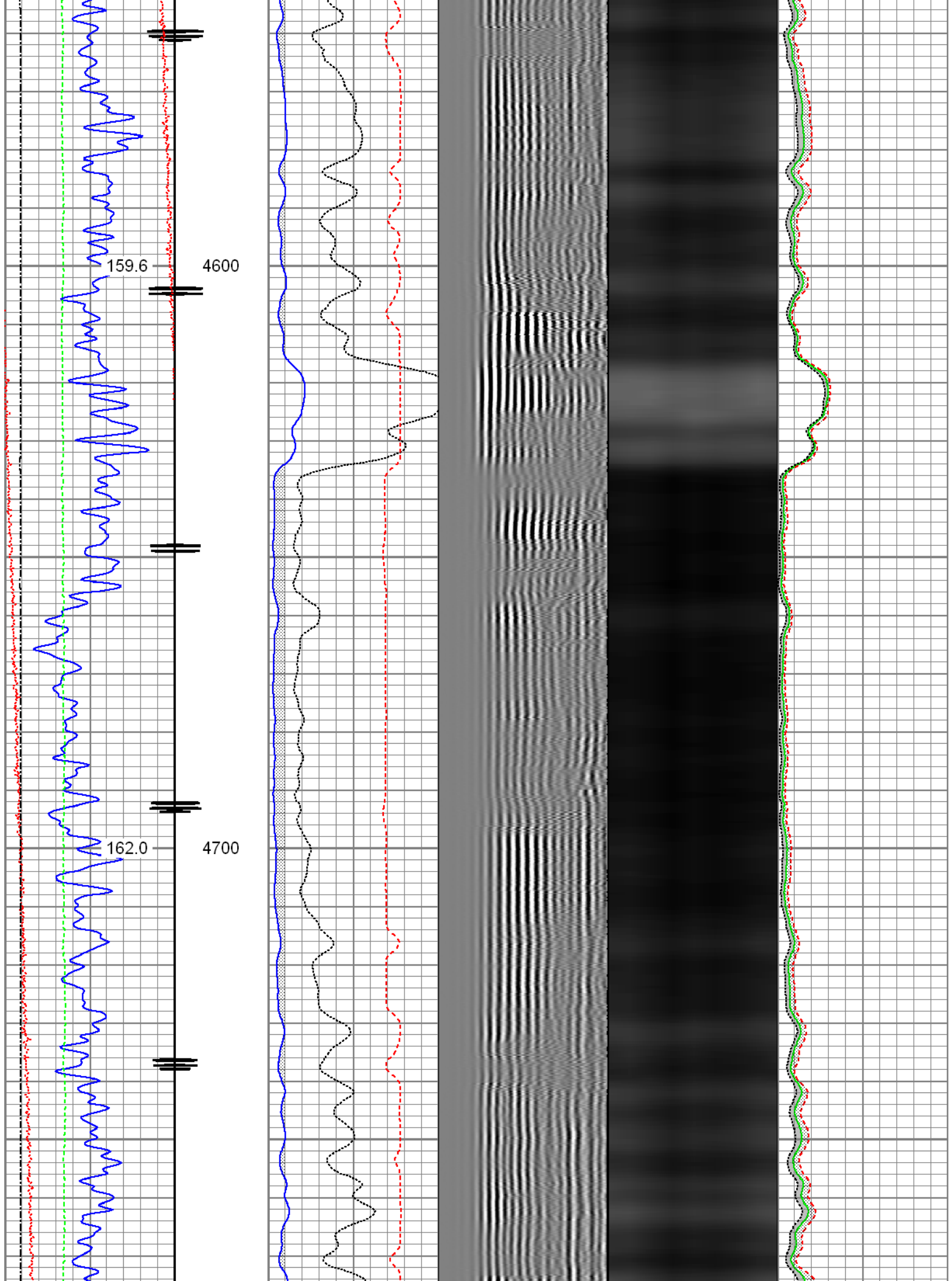


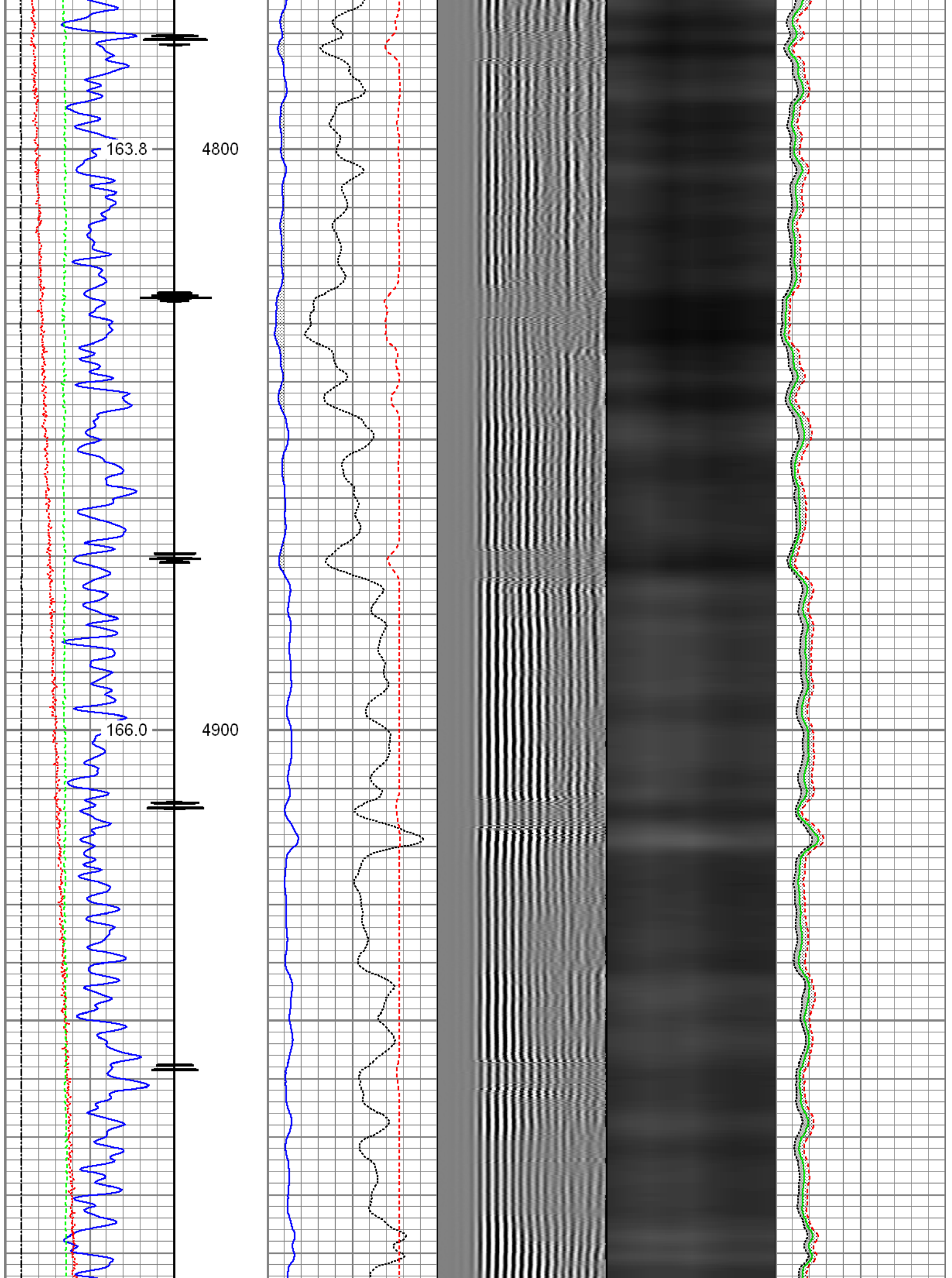




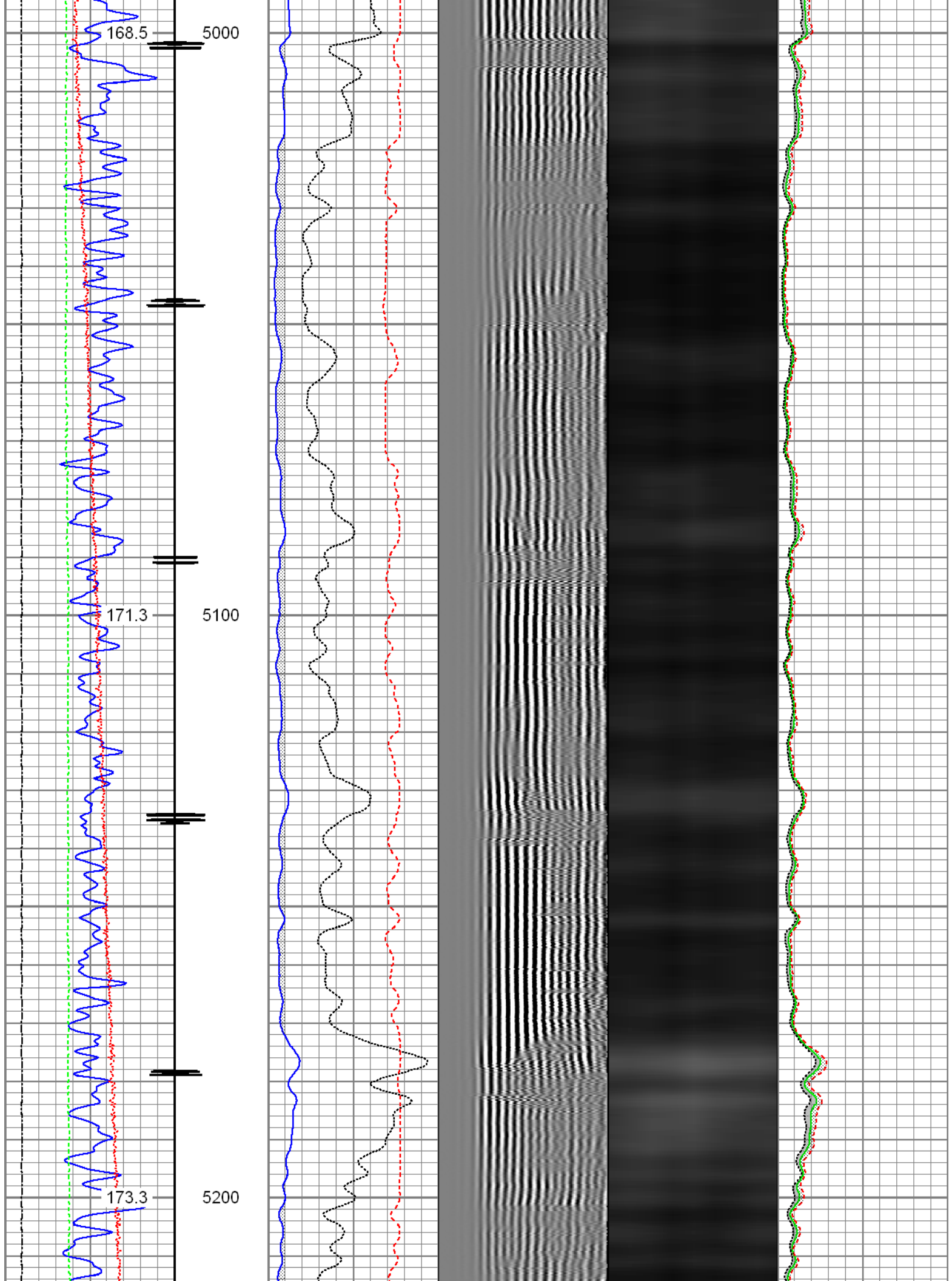


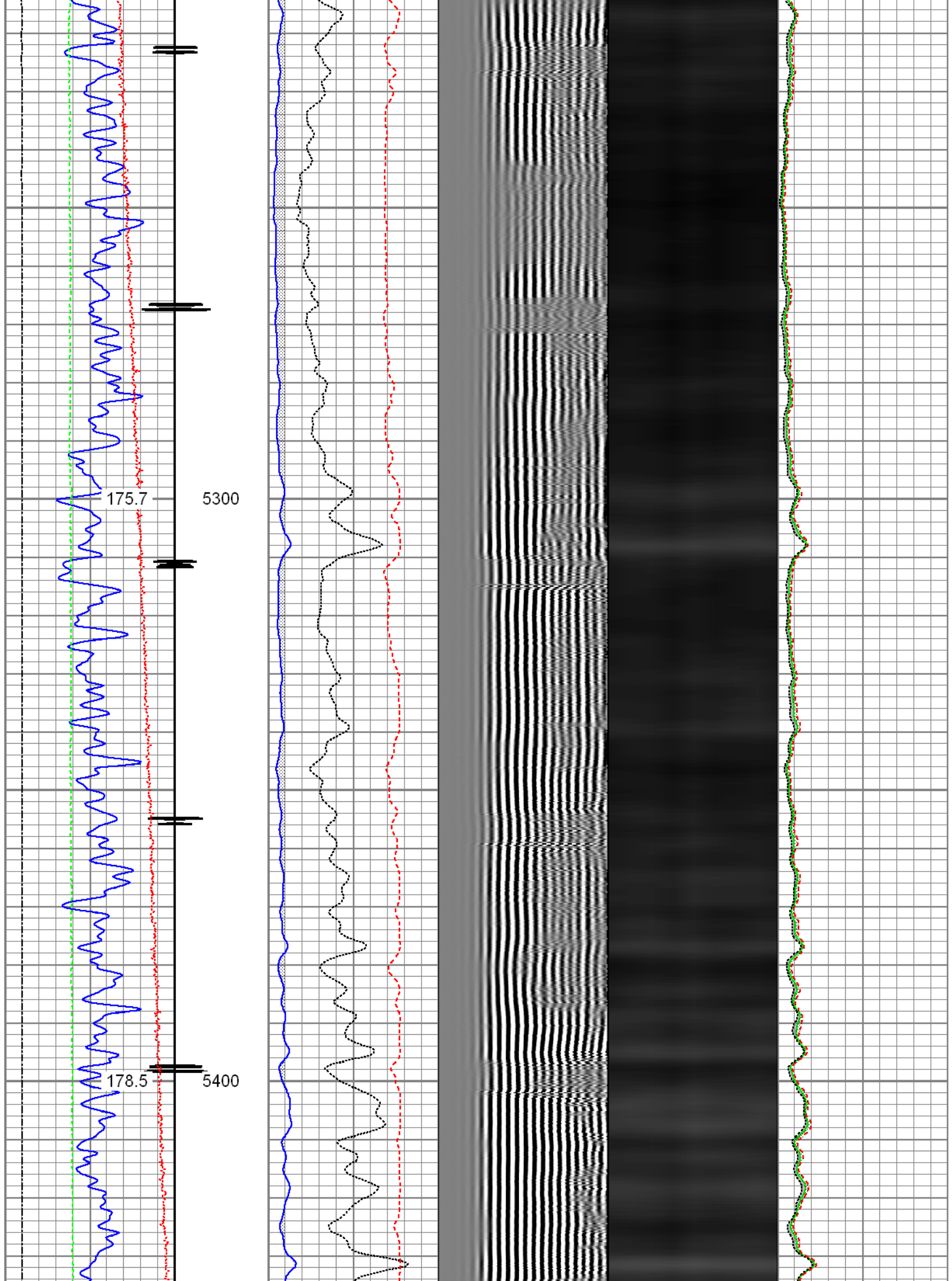


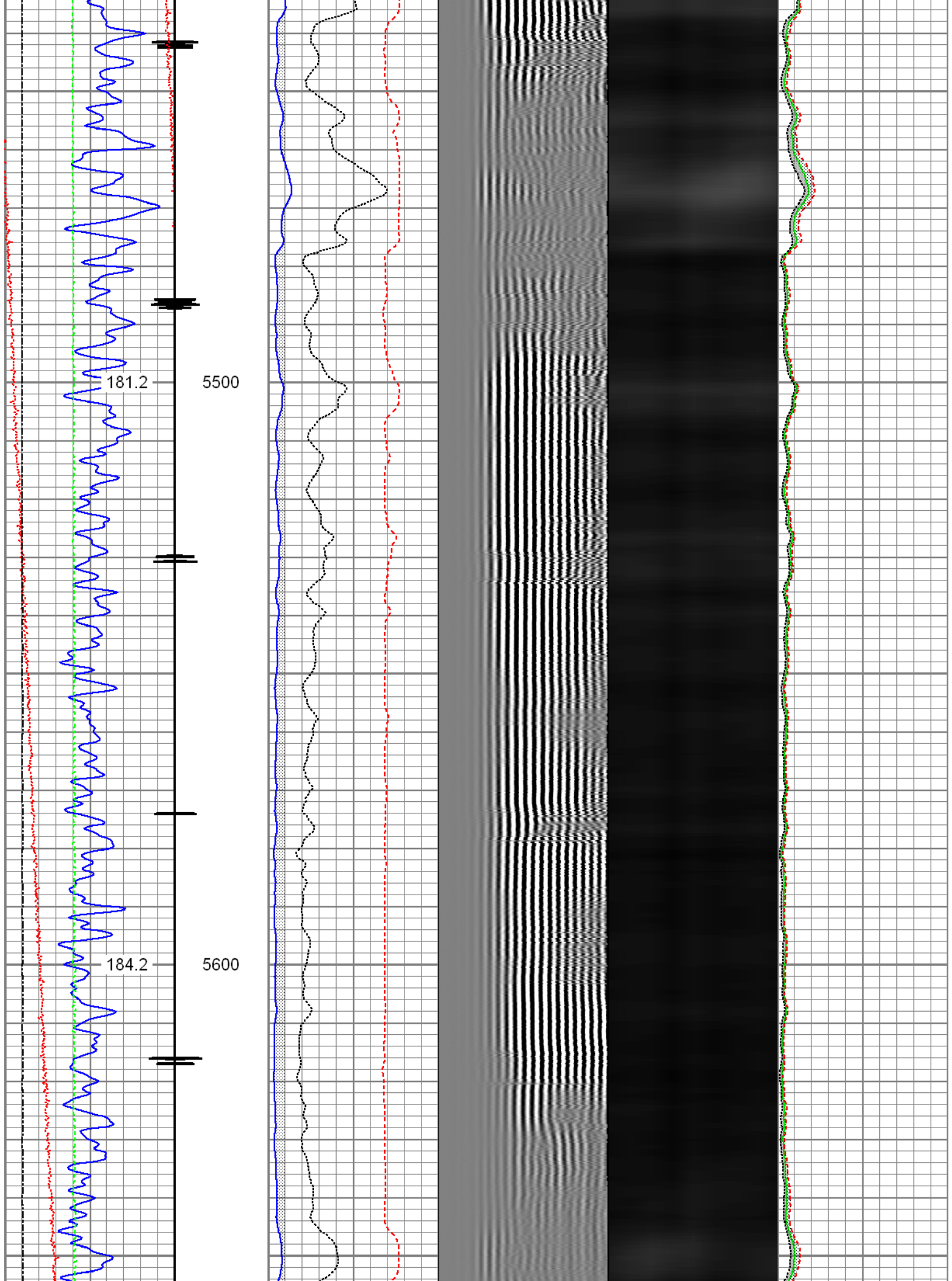


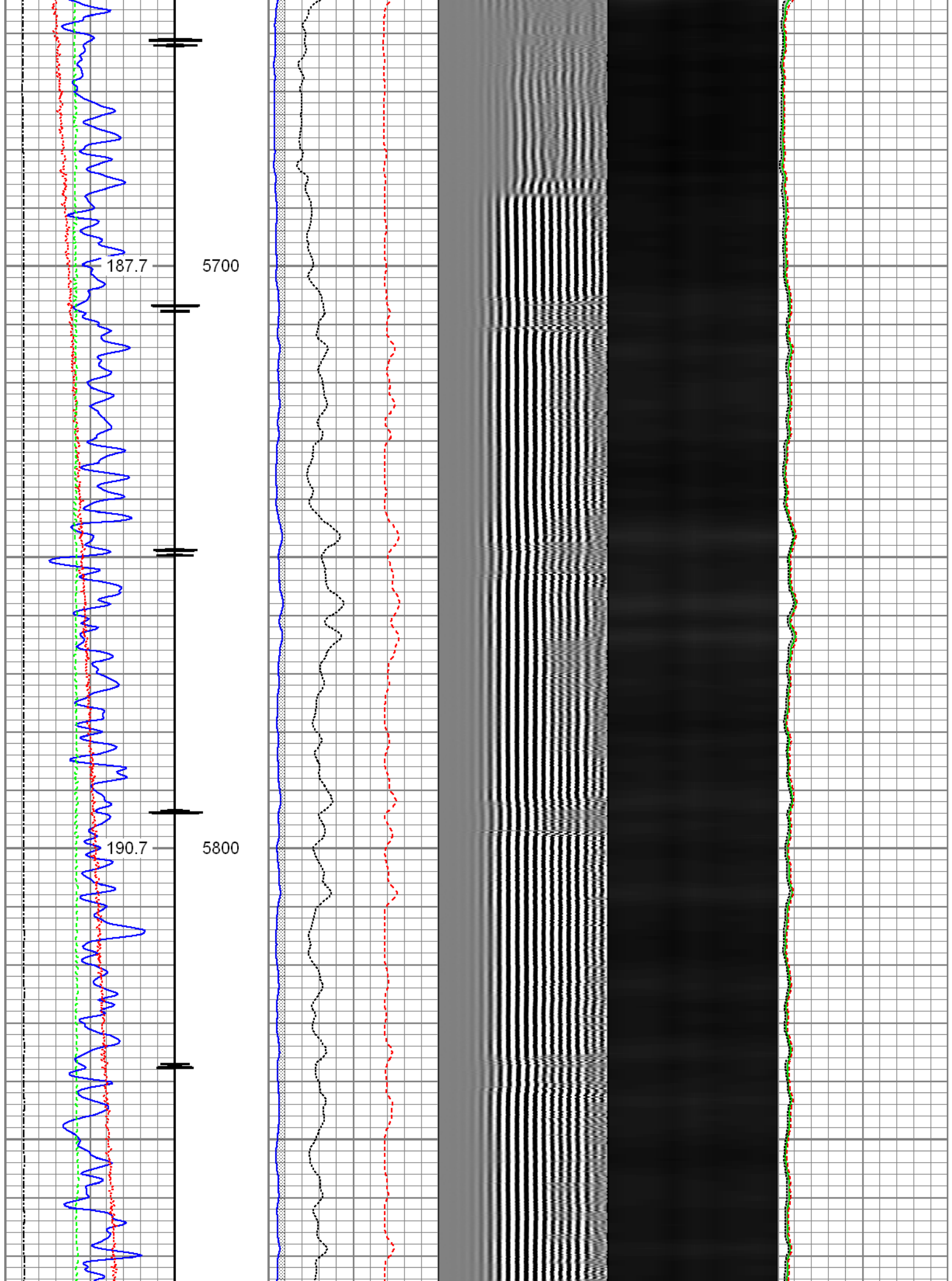




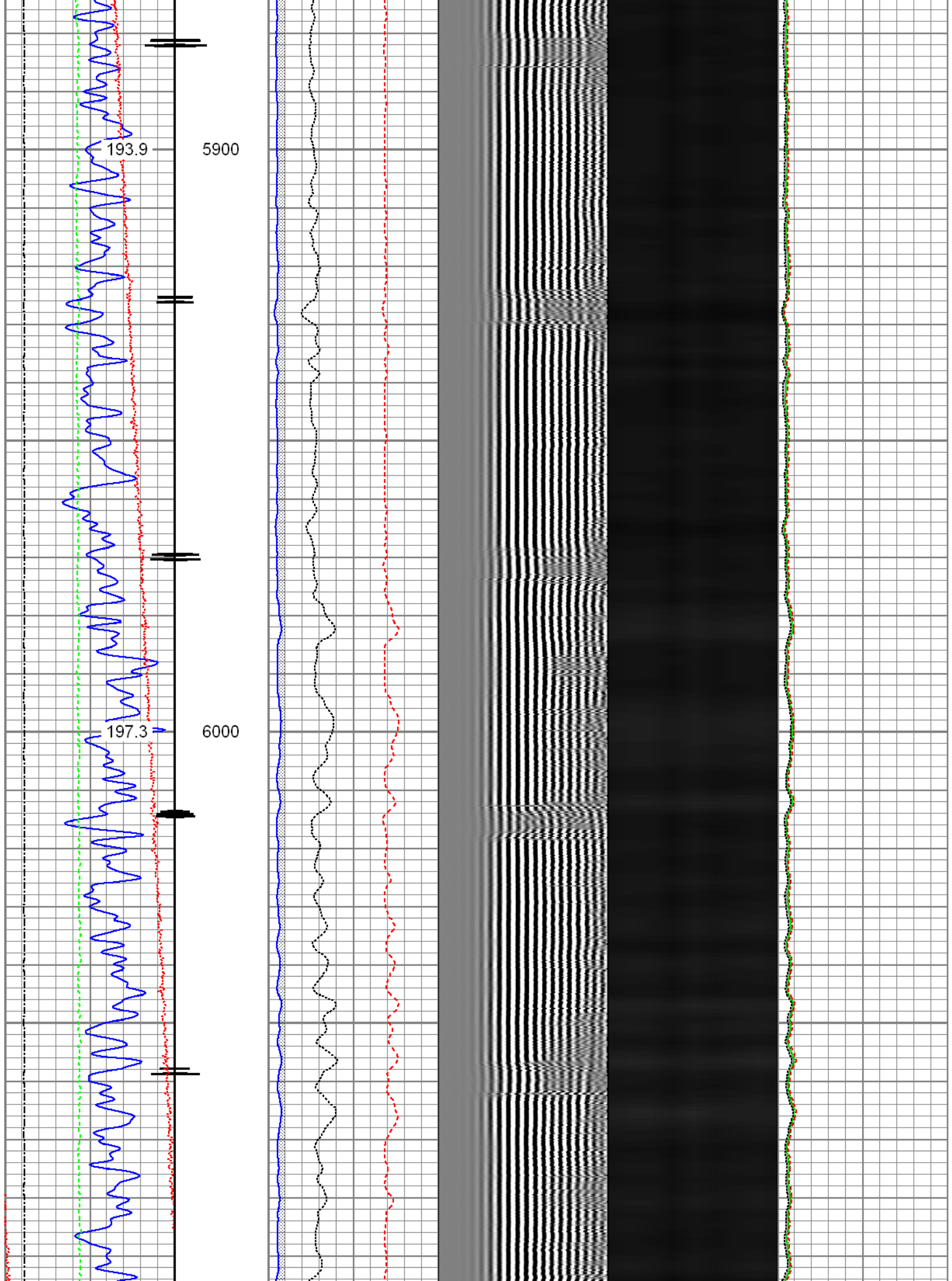


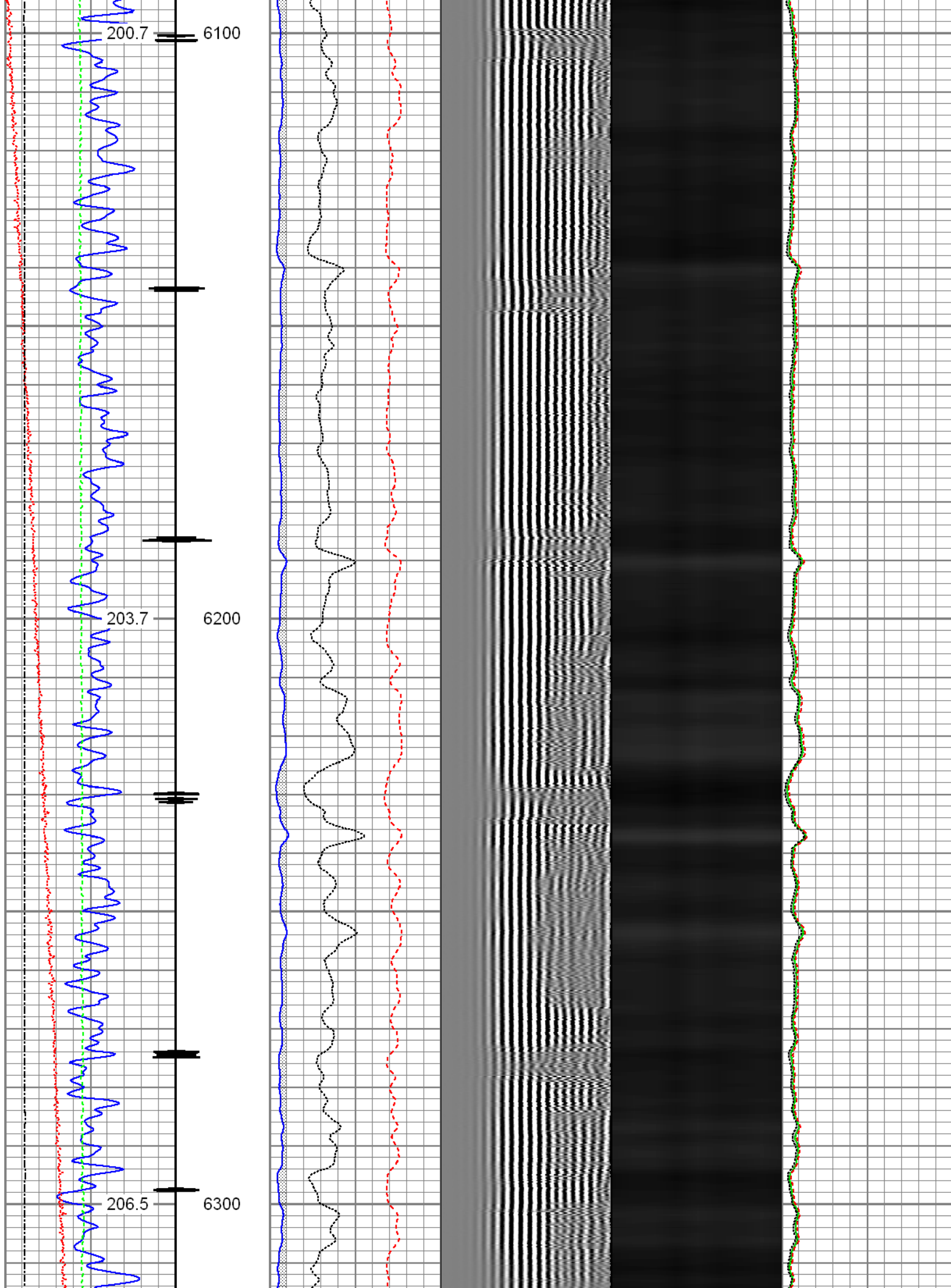


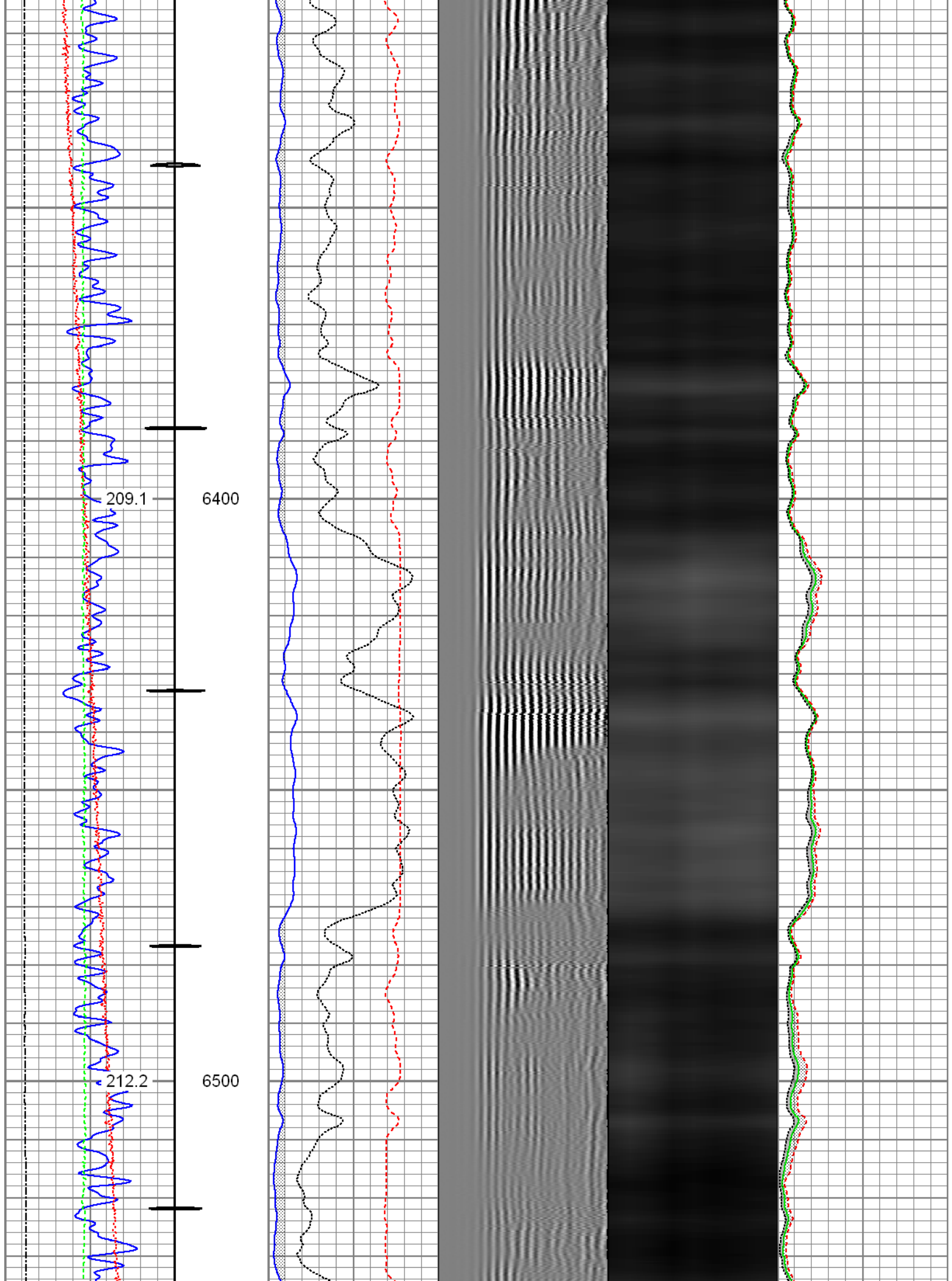


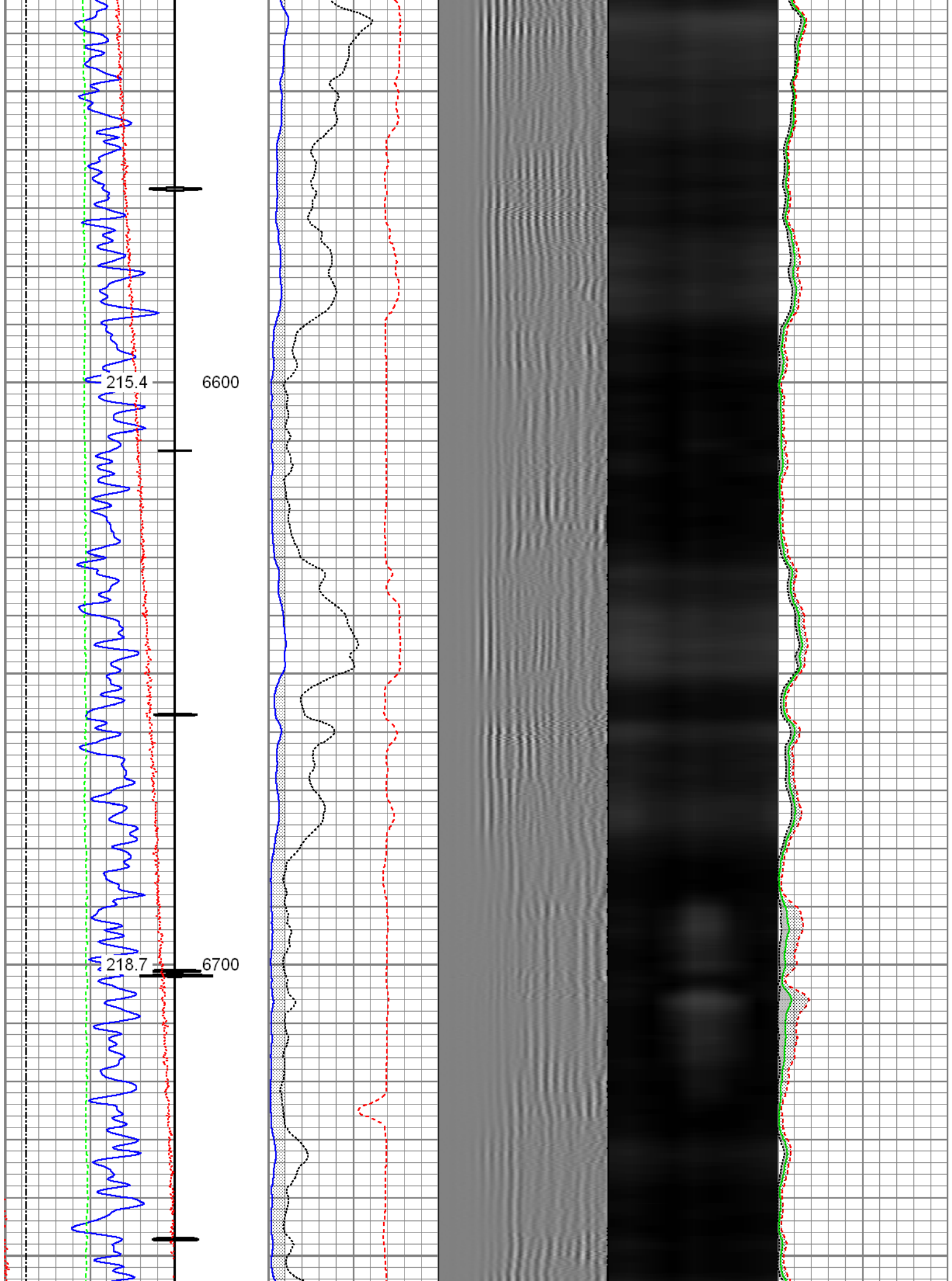




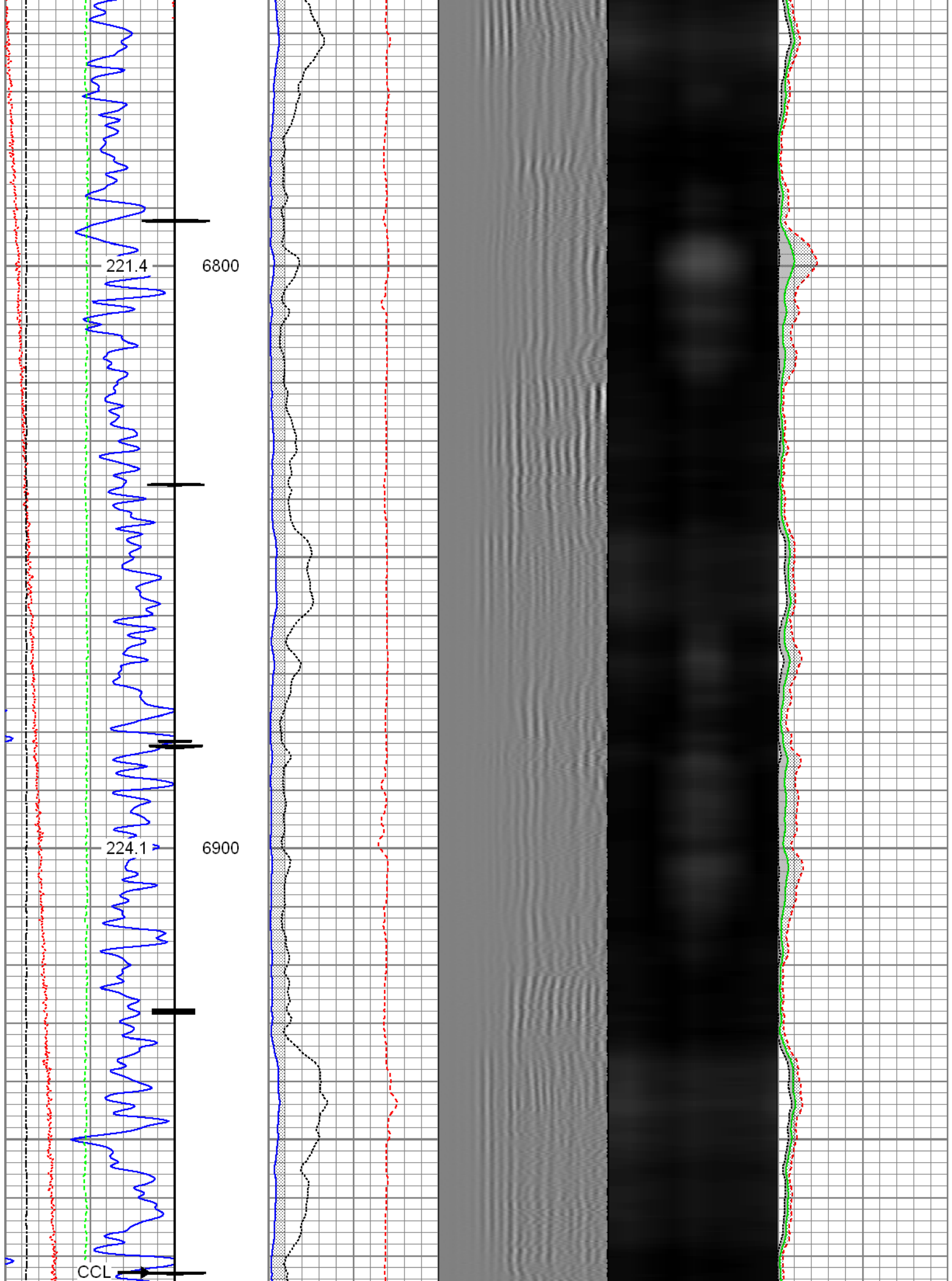


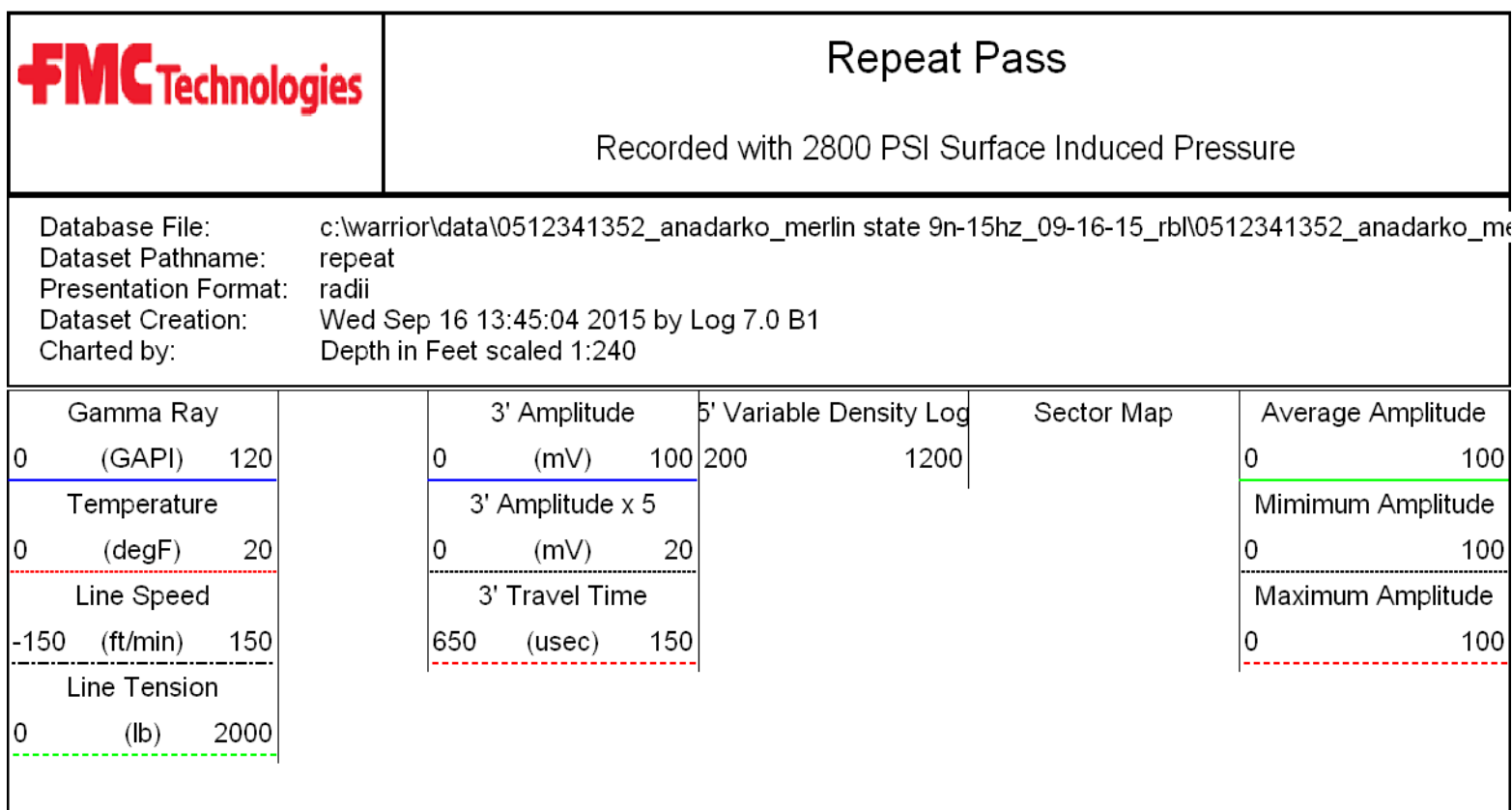
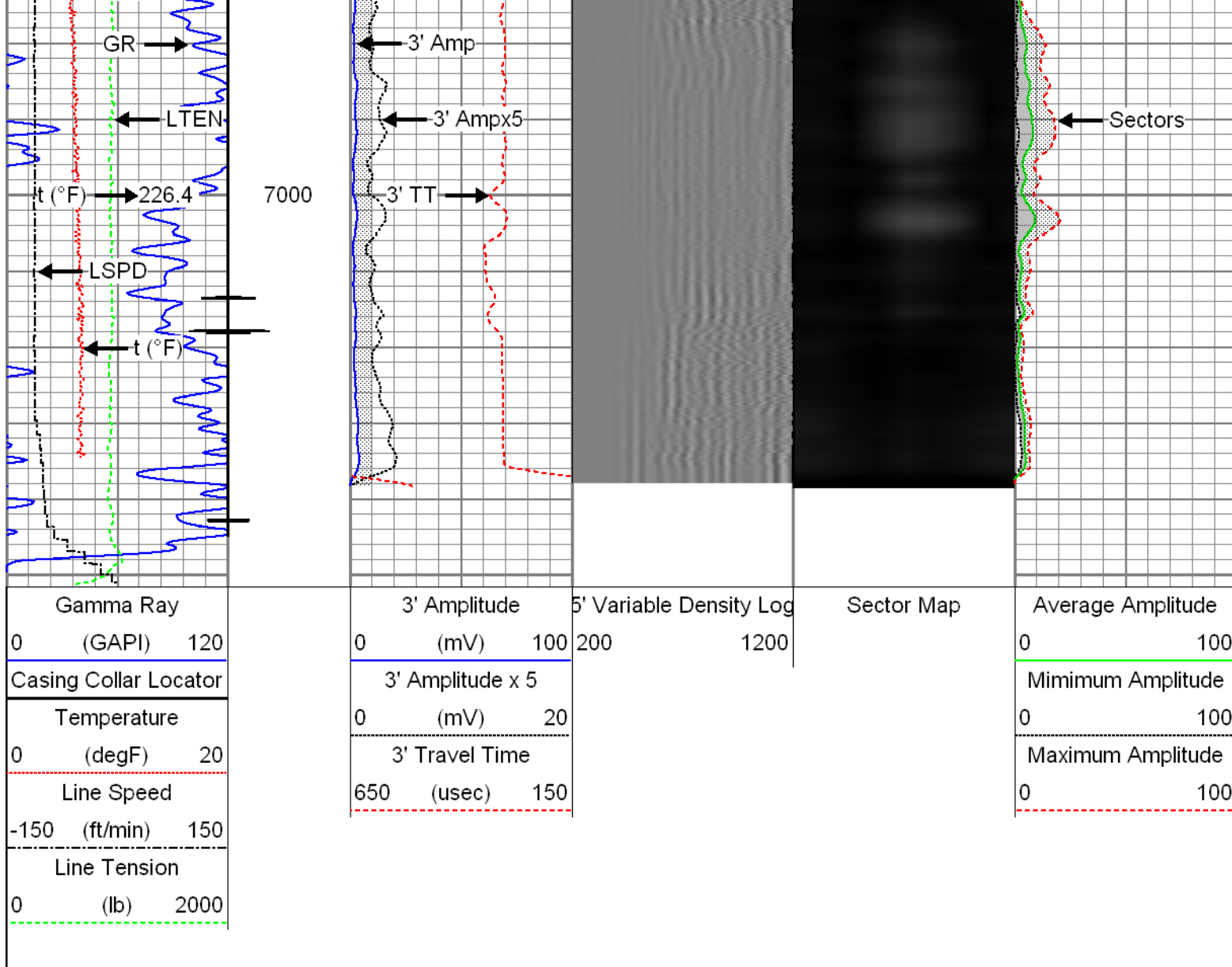


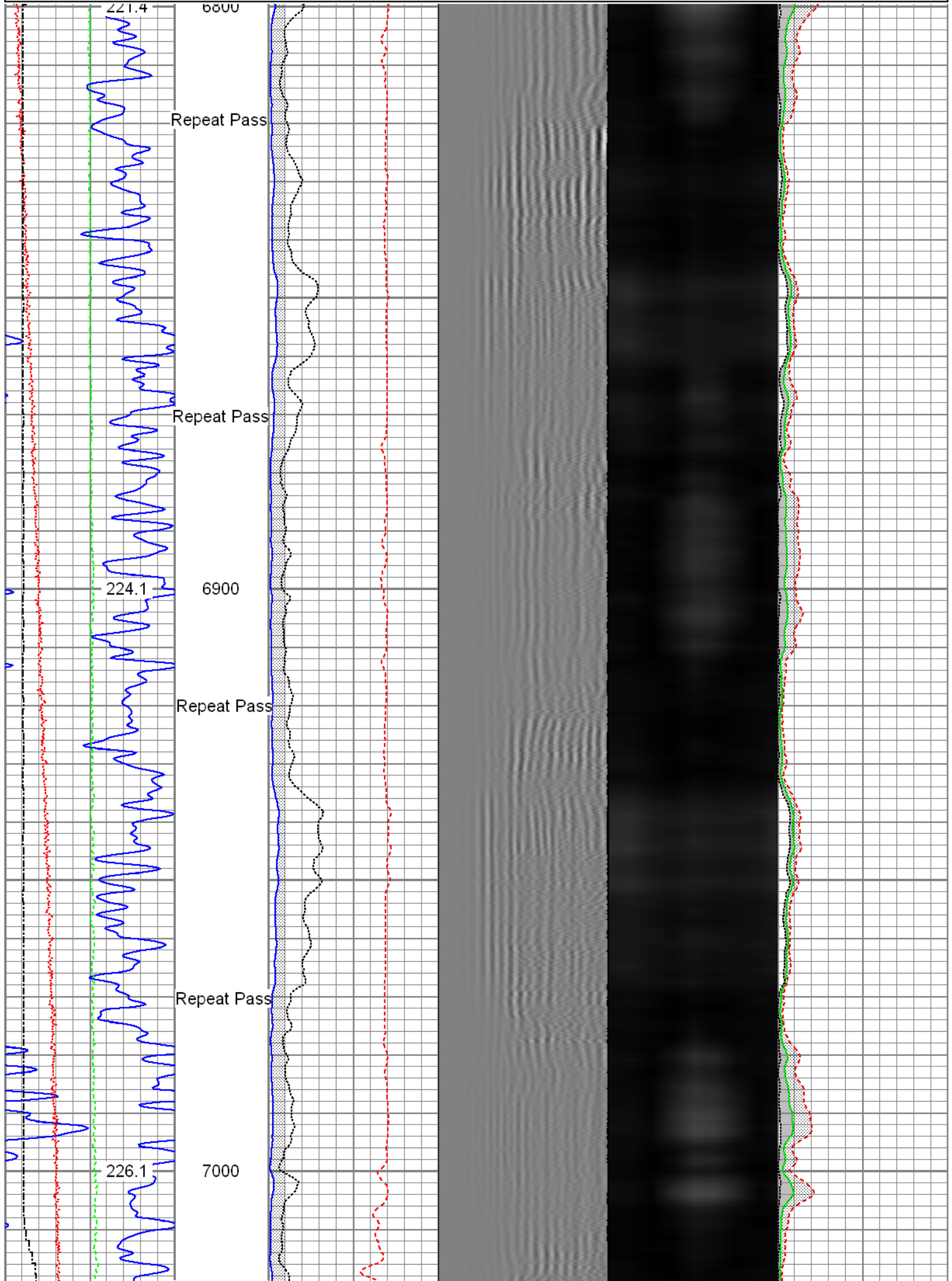


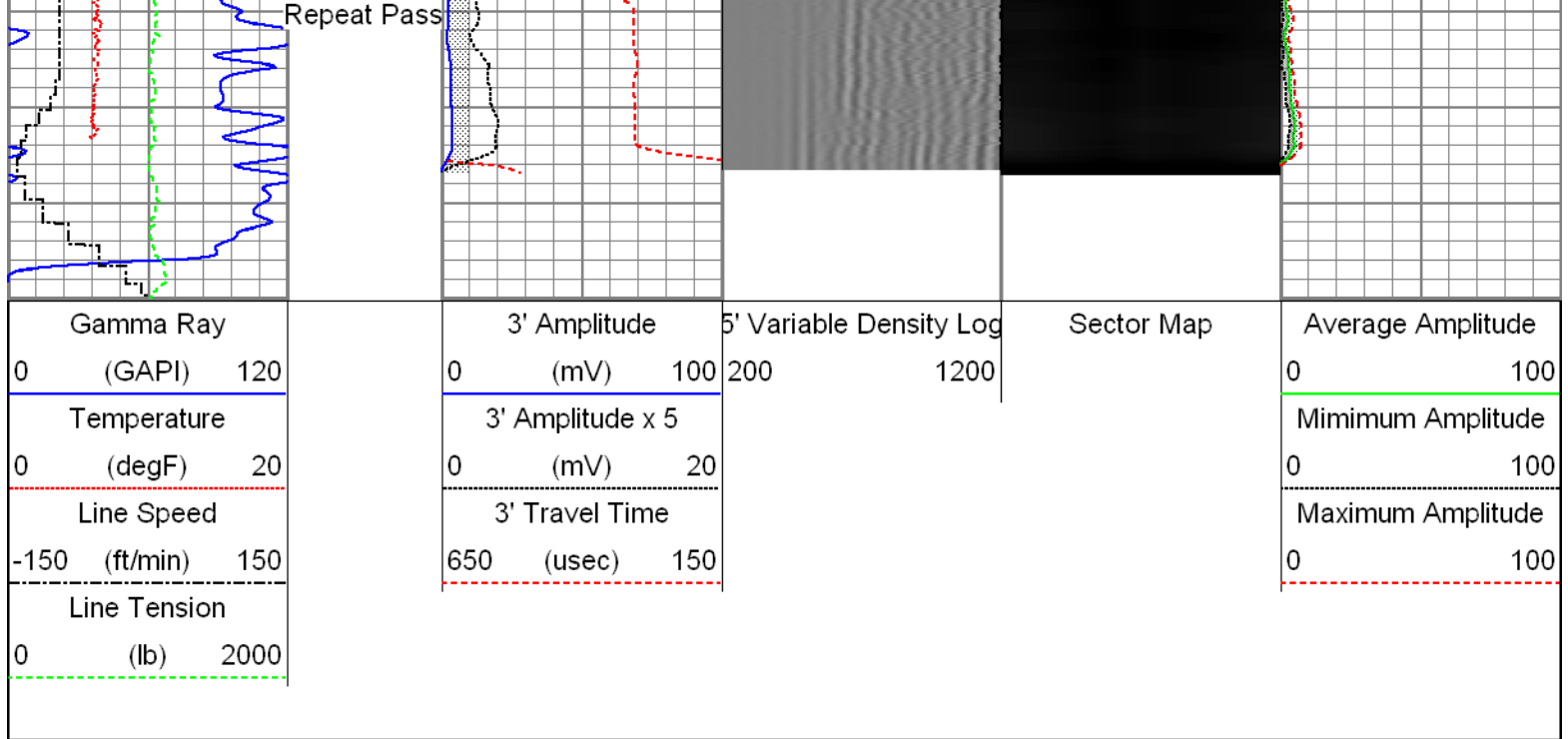






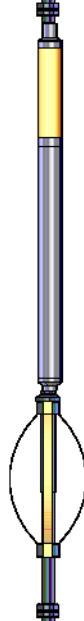






Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
HeadVolt	19.49		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Temp	16.72					
WVF3FT	14.55		Probe_RADII-C-2-3/4" (FW1305-098) 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					
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00



CCL	6.51		Probe_CCL_GR-2.75"Digital (FW1307-038) 4.54 Probe 2-3/4" Digital CCL / Gamma Ray Combined	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	10.00
Dataset: 0512341352_Anadarko_Merlin State 9N-15HZ_09-16-15_RBL.db: field/well/run1/main Total Length: 23.40 ft Total Weight: 194.00 lb O.D. 2.75 in					

Calibration Report	
Database File:	C:\Warrior\Data\0512341352_Anadarko_Merlin State 9N-15HZ_09-16-15_RBL\0512341352_Anadarko
Dataset Pathname:	main
Dataset Creation:	Wed Sep 16 13:48:47 2015 by Log 7.0 B1

Gamma Ray Calibration Report		
Serial Number:	FW1307-038	
Tool Model:	2.75"Digital	
Performed:	Wed Sep 16 09:20:20 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:	FW1305-098	
Tool Model:	2-3/4"	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	7450.041	ft

Master Calibration, performed Wed Sep 16 09:20:01 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.007	0.581	1.000	71.921	123.598	0.075
CAL	0.612	0.613				
5'	0.011	0.537	1.000	71.921	134.831	-0.496
SUM						
S1	0.009	0.584	0.000	100.000	173.821	-1.553
S2	0.007	0.582	0.000	100.000	174.087	-1.267

S3	0.009	0.577	0.000	100.000	176.255	-1.627
S4	0.019	0.581	0.000	100.000	177.778	-3.294
S5	0.010	0.577	0.000	100.000	176.396	-1.835
S6	0.015	0.579	0.000	100.000	177.320	-2.729
S7	0.011	0.574	0.000	100.000	177.697	-2.032
S8	0.008	0.580	0.000	100.000	174.848	-1.349

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	0.612	0.613	1.000	0.000

Air Zero Calibration, performed Wed Sep 16 08:36:32 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 Merlin State 9N-15HZ  
Field Wattenberg  
County Weld  
State Colorado