



Radial Bond
Gamma Ray
Casing Collar Log

Company		Whiting Oil & Gas					
Well		Wildhorse 16-13L					
Field		Wildcat					
County		Weld					
State		Colorado					
Location:		API # : 05-123-37374-00					
SEC 16 TWP 9N RGE 59W		Other Services					
Permanent Datum		Ground Level		Elevation		5055'	
Log Measured From		Kelly Bushing		Elevation		K.B. 5072'	
Drilling Measured From		Kelly Bushing		Elevation		D.F. 5071'	
				Elevation		G.L. 5055'	
Date		July 15, 2013					
Run Number		1					
Depth Driller		10060'					
Depth Logger		10042'					
Bottom Logged Interval		10042'					
Top Log Interval		Surface					
Open Hole Size		8.750"					
Type Fluid		Water					
Density / Viscosity		9.1 lbm/gal					
Max. Recorded Temp.		277					
Estimated Cement Top		Surface					
Time Well Ready		ROA					
Time Logger on Bottom		----					
Equipment Number		HD-0311					
Location		Ft. Lupton, Colorado					
Recorded By		Ryan Harris					
Witnessed By		Bryan Olmstead					
Borehole Record				Tubing Record			
Run Number		Bit		From		To	
Casing Record		Size		Wgt/Ft		Top	
Surface String		9.625"		36#		Surface	
Prot. String							
Production String		5.5"		17#		Surface	
Liner						10060'	

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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 Was Correlated To Schlumberger Platform Express Cement Volume Gamma Ray
Adjusted +8'

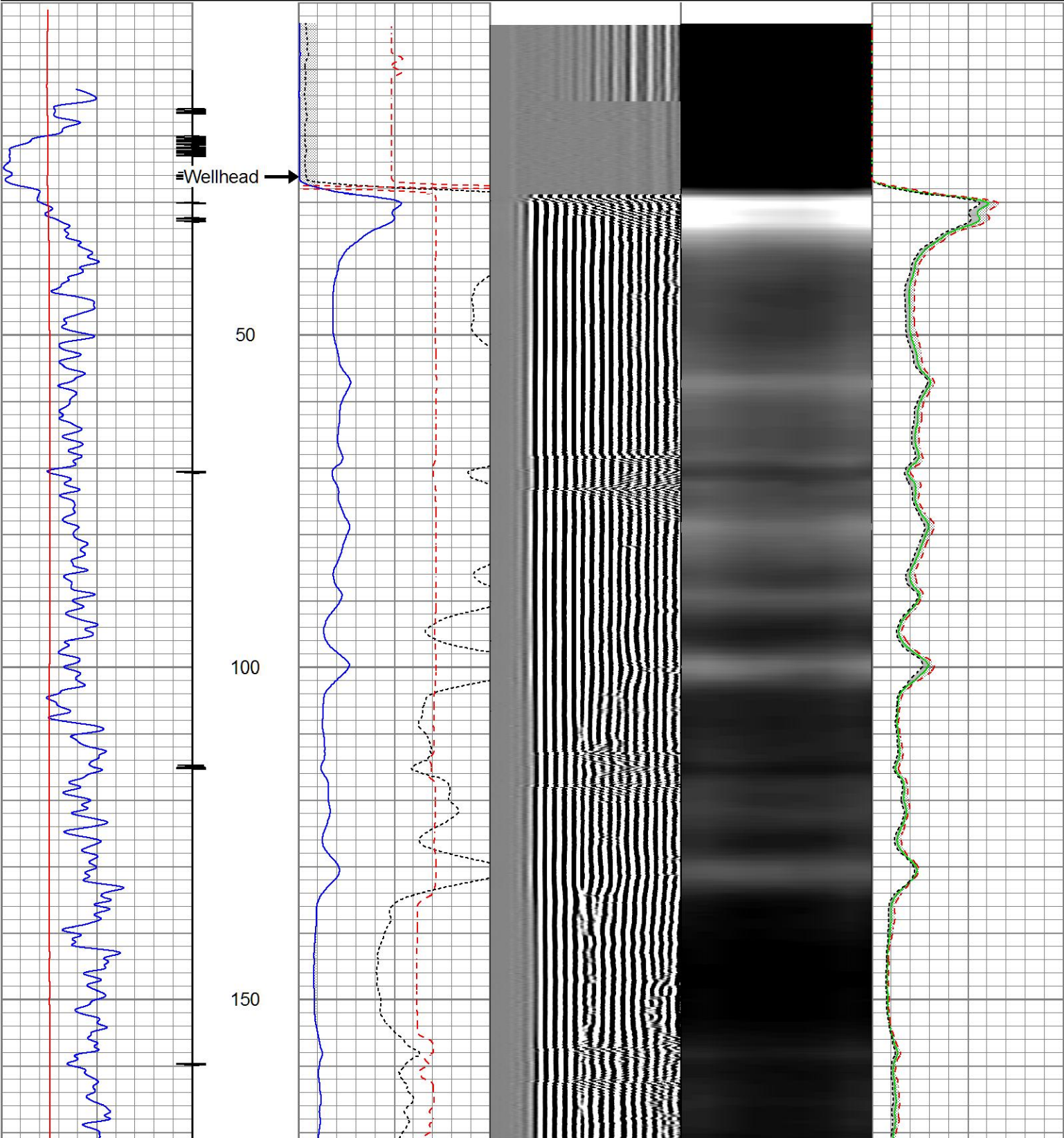
Estimated Top Of Cement At Surface

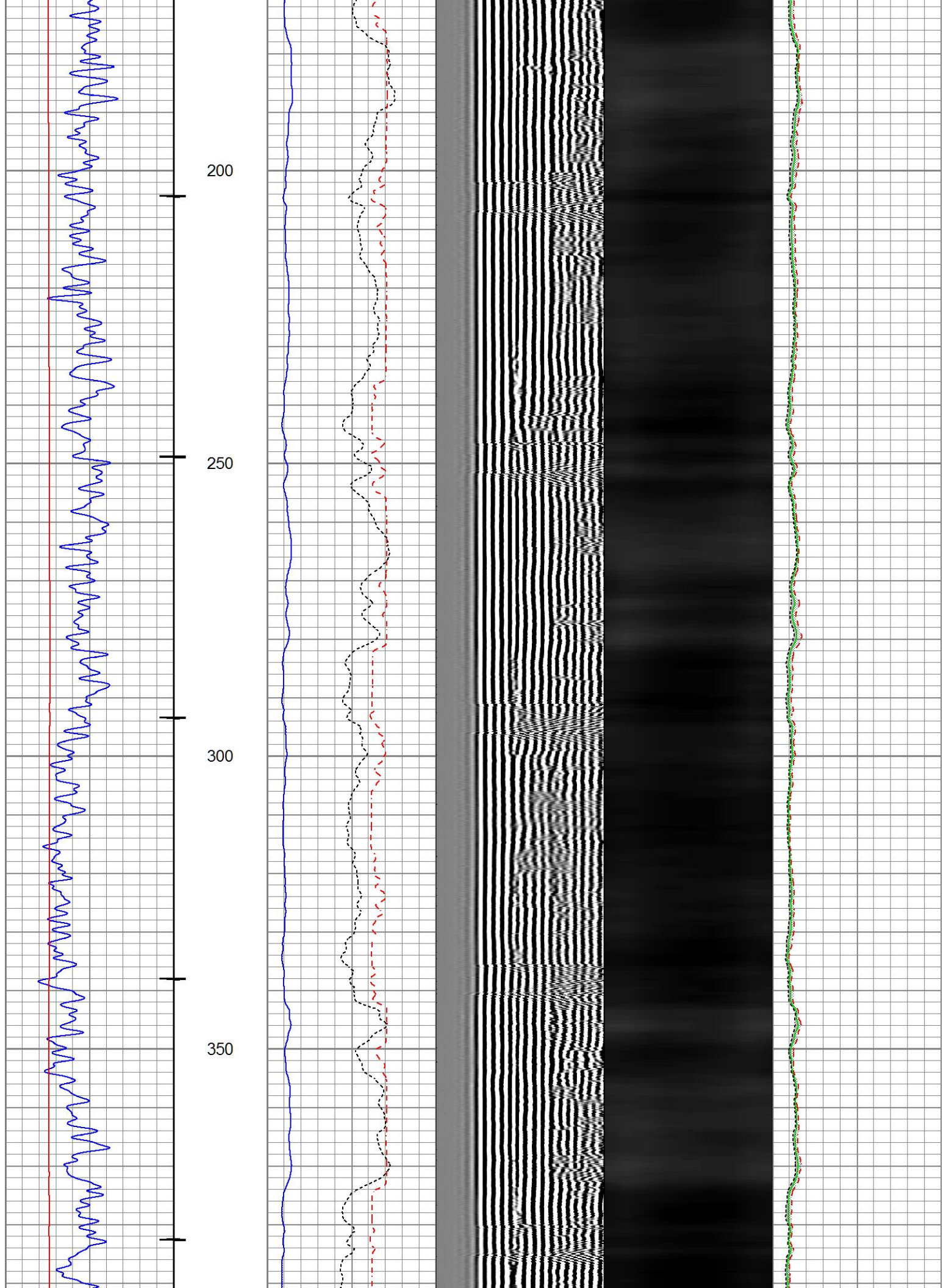
Thanks For Choosing FMC Technologies For Your Wireline Needs!!

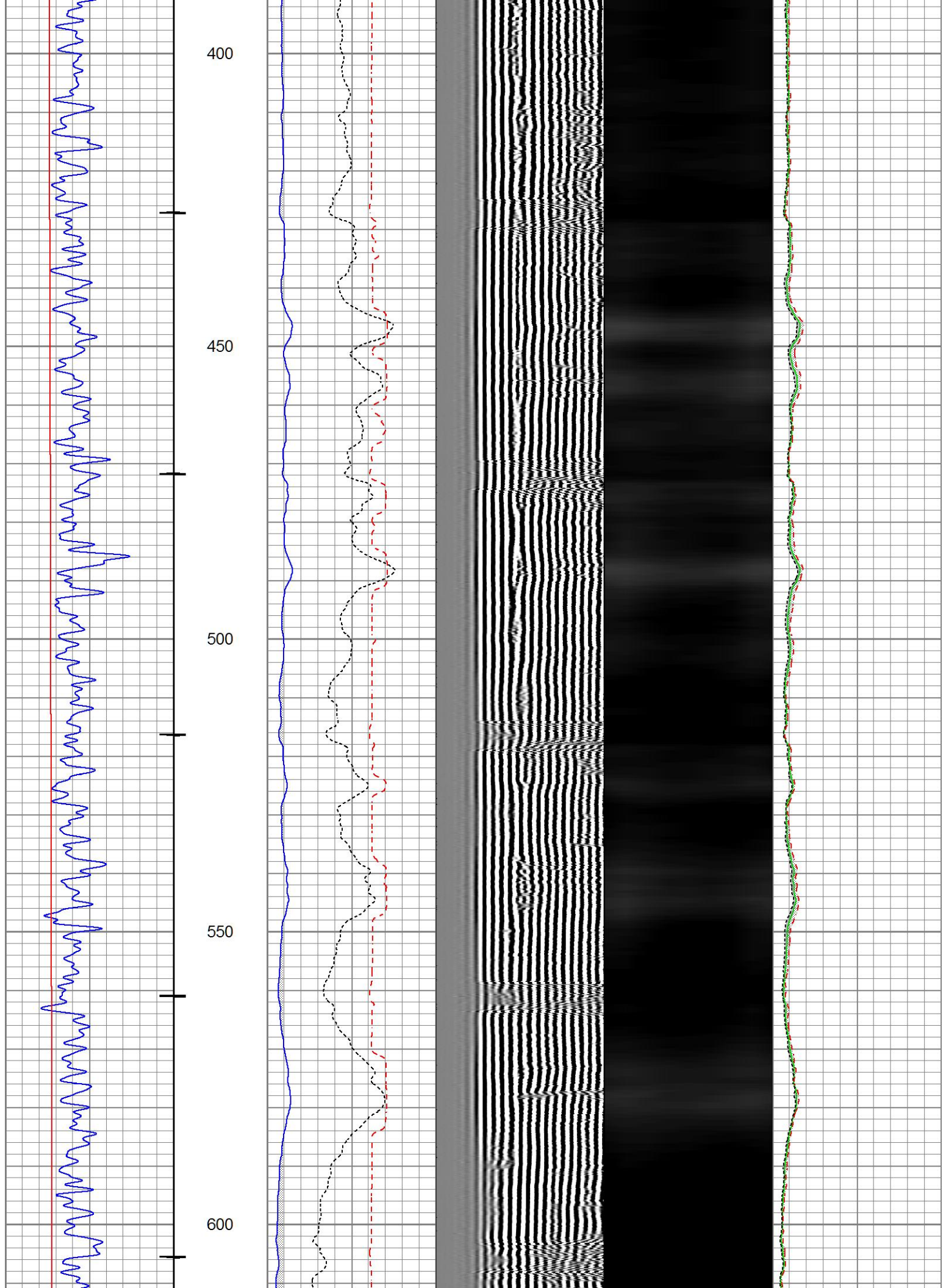
Main Pass 1500 PSI

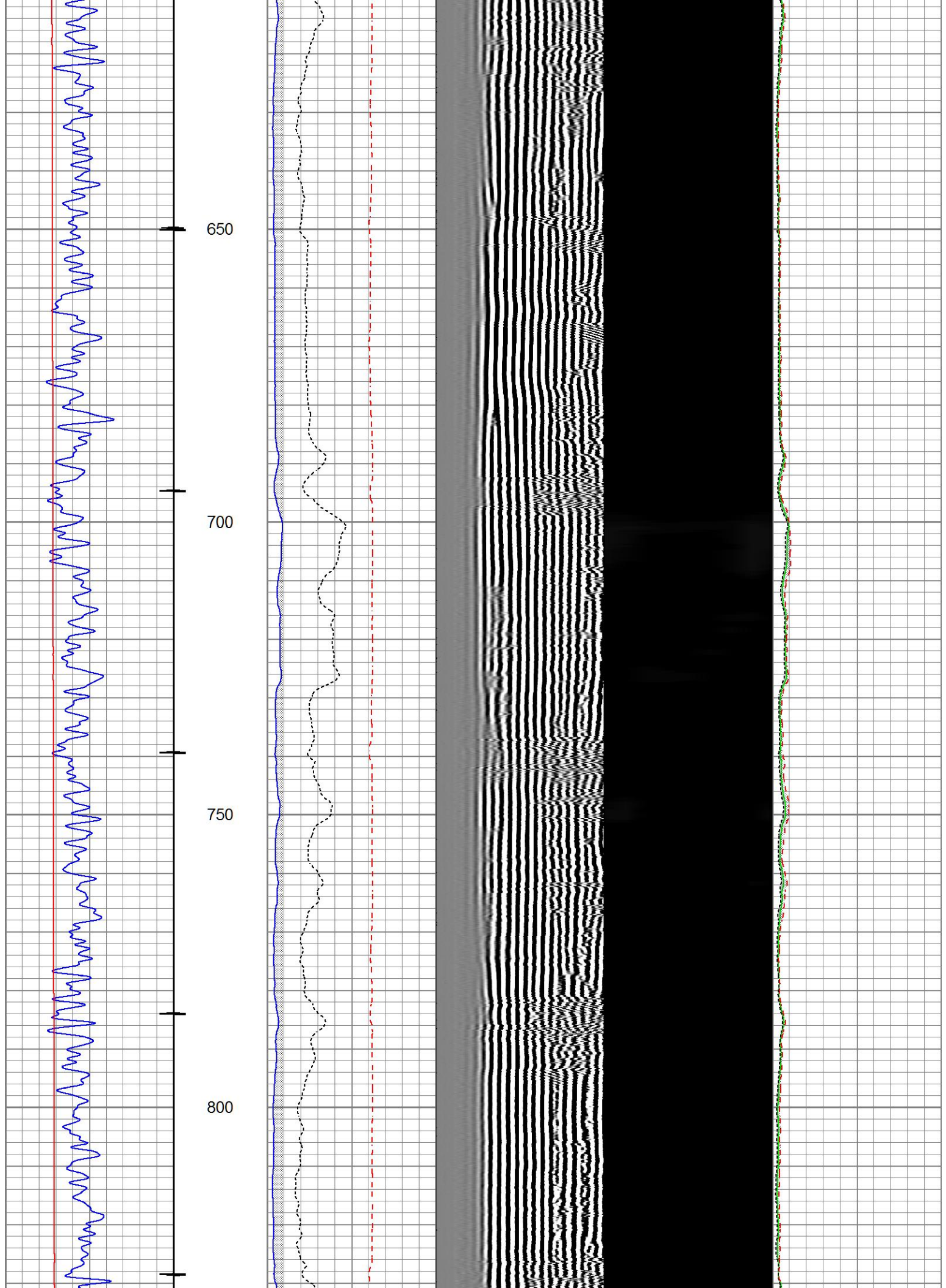
Database File	whiting wildhorse 16-13l.db
Dataset Pathname	main
Presentation Format	rcblusa
Dataset Creation	Mon Jul 15 10:08:36 2013
Charted by	Depth in Feet scaled 1:240

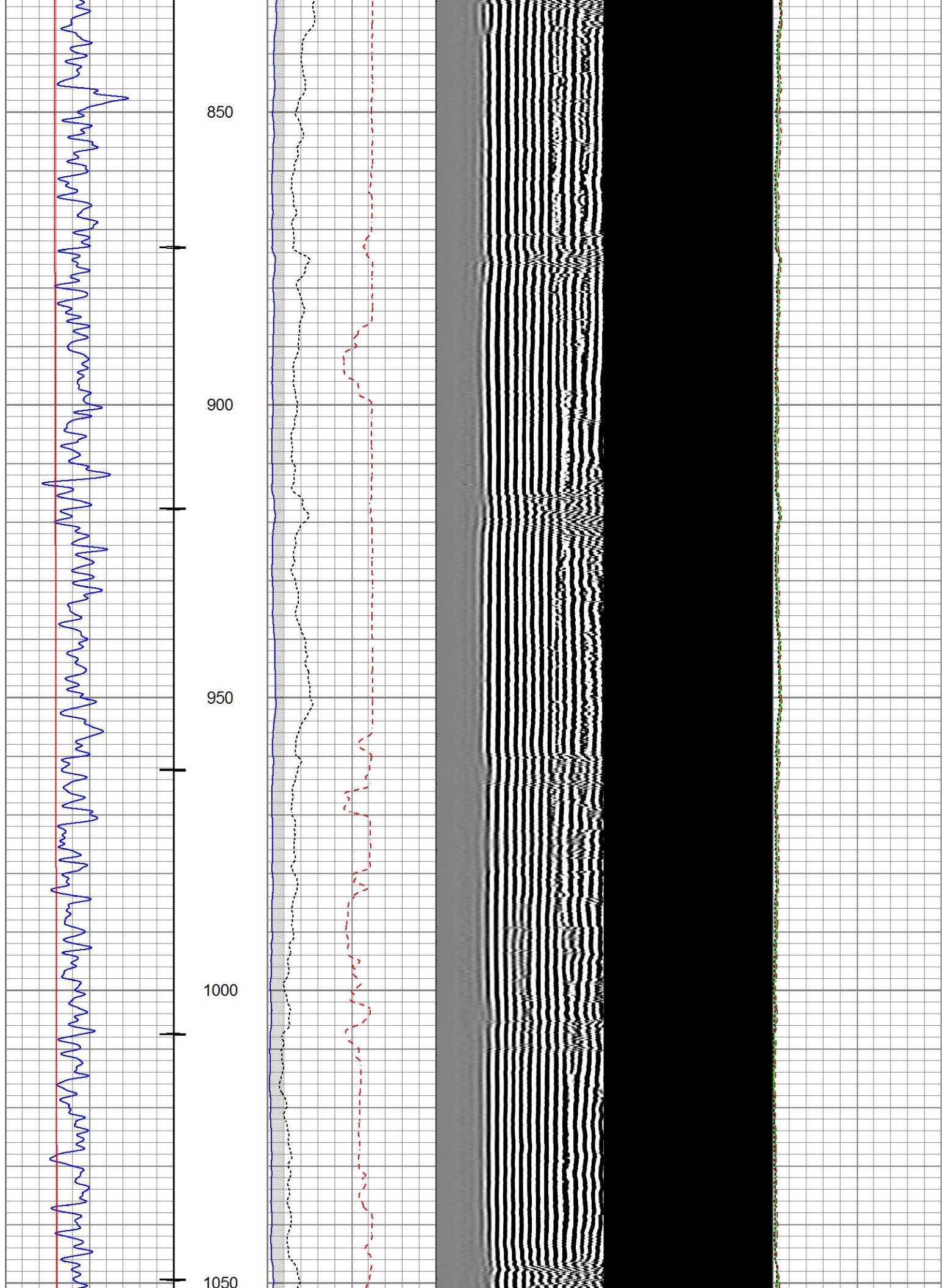
Gamma Ray			CCL	3' Amplitude		5' Variable Density Log		Cement Map	Average Amplitude			
0	(GAPI)	120		0	(mV)	100	200		1200	0	125	
CCL				3' Amplitude x 5		Minimum Amplitude						
0	TEMP (degF)	300		0	(mV)	20	0				125	
				3' Travel Time		Maximum Amplitude						
			650	(usec)	150	0				125		

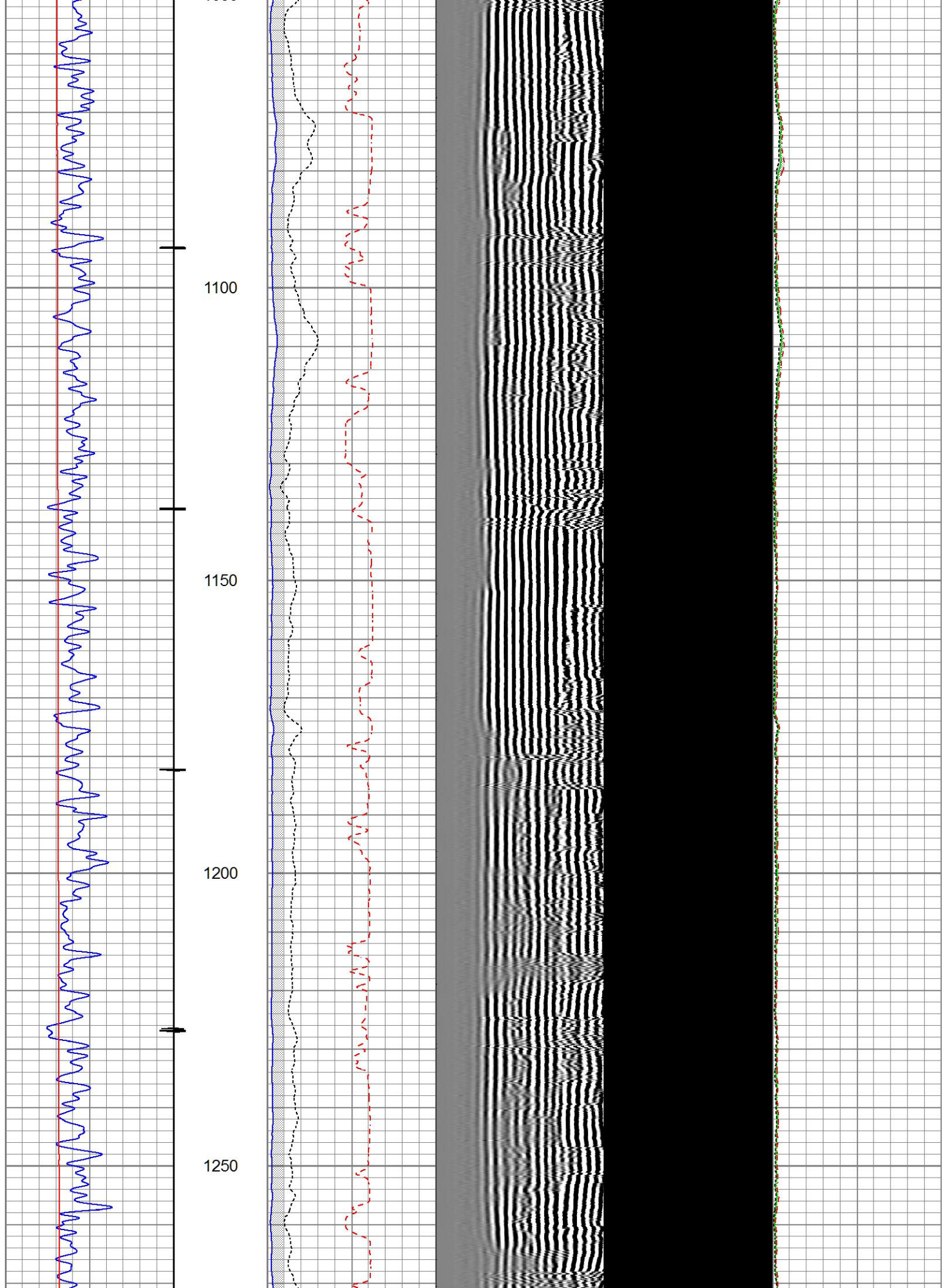


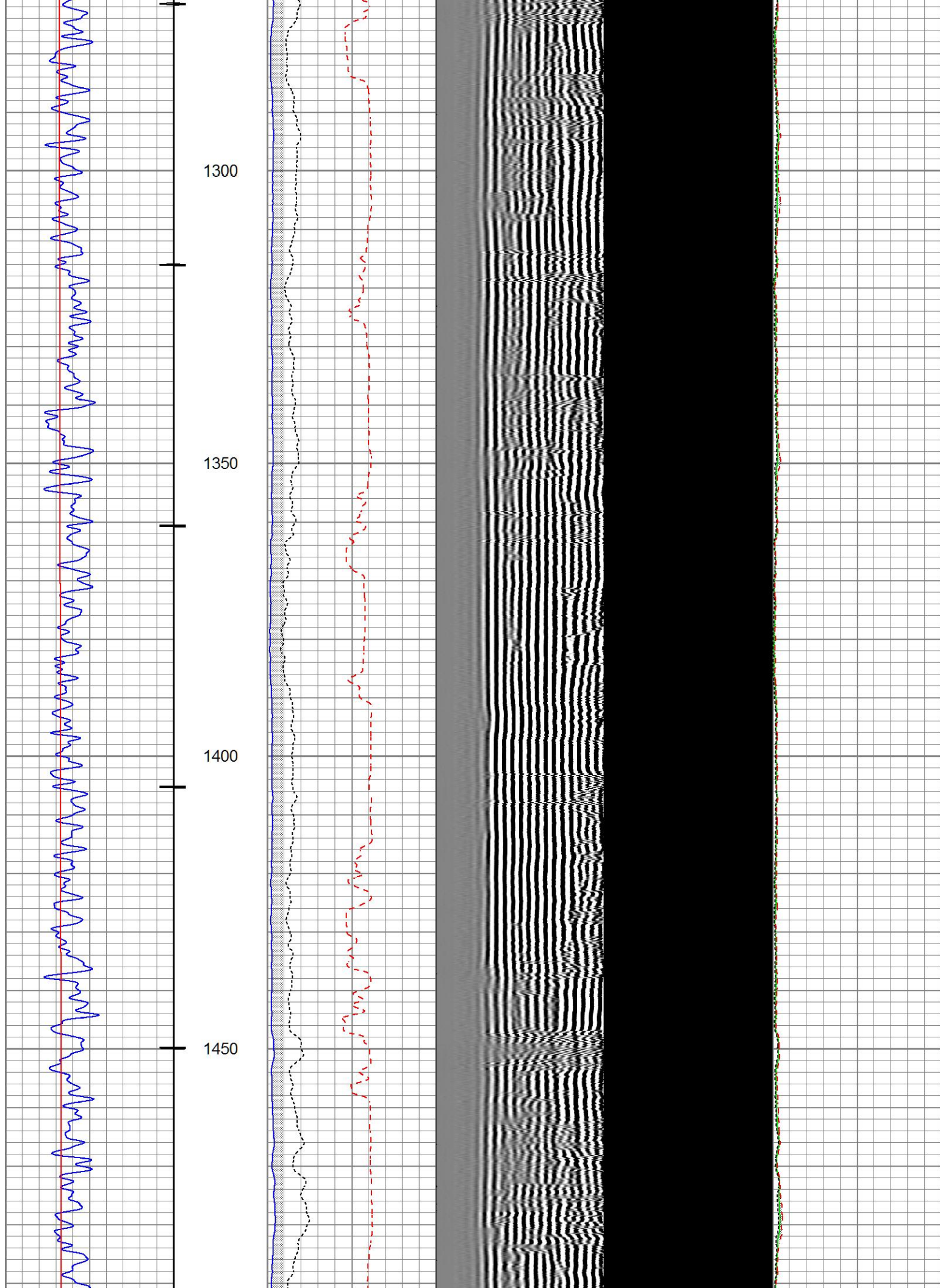


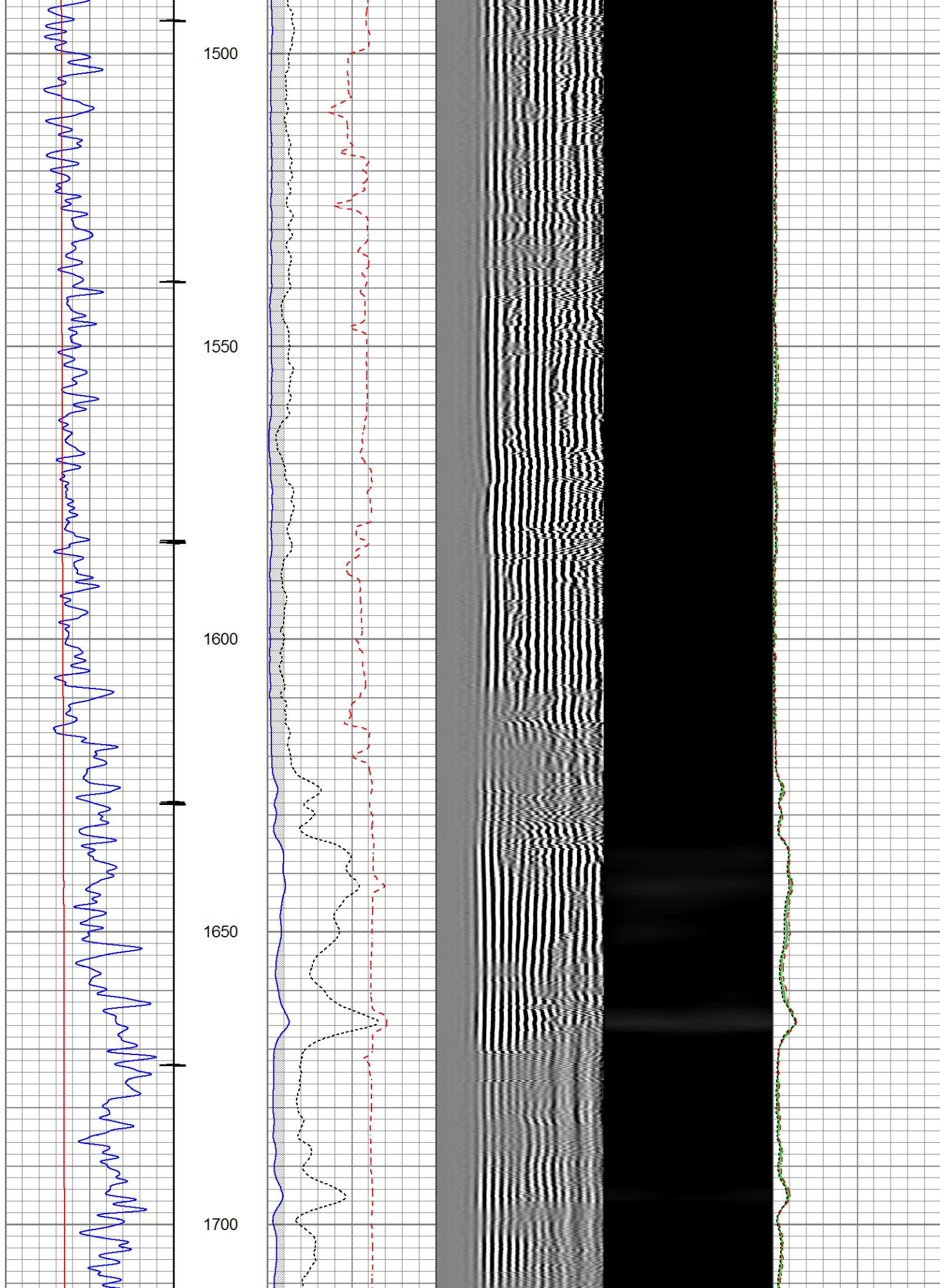


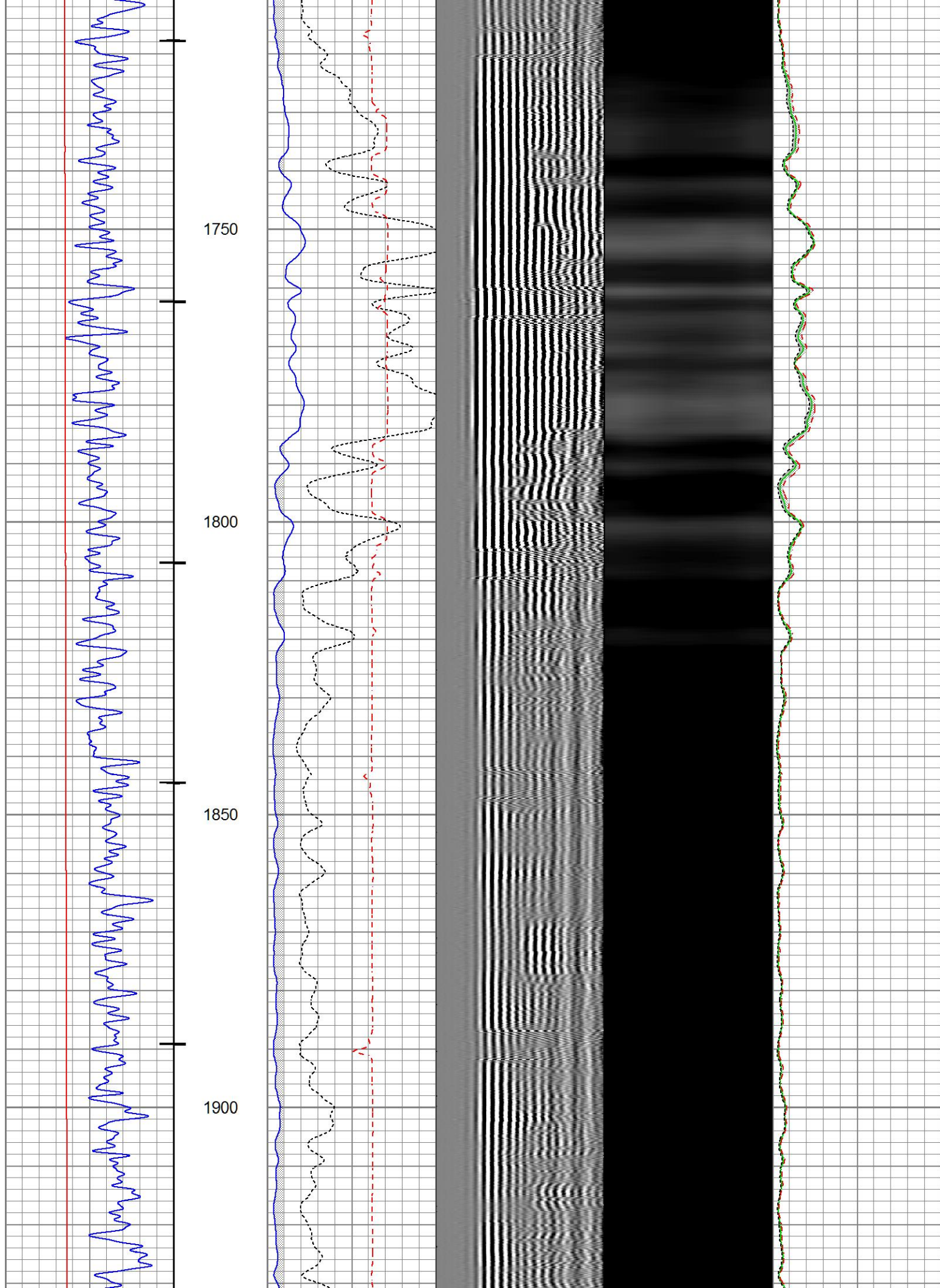


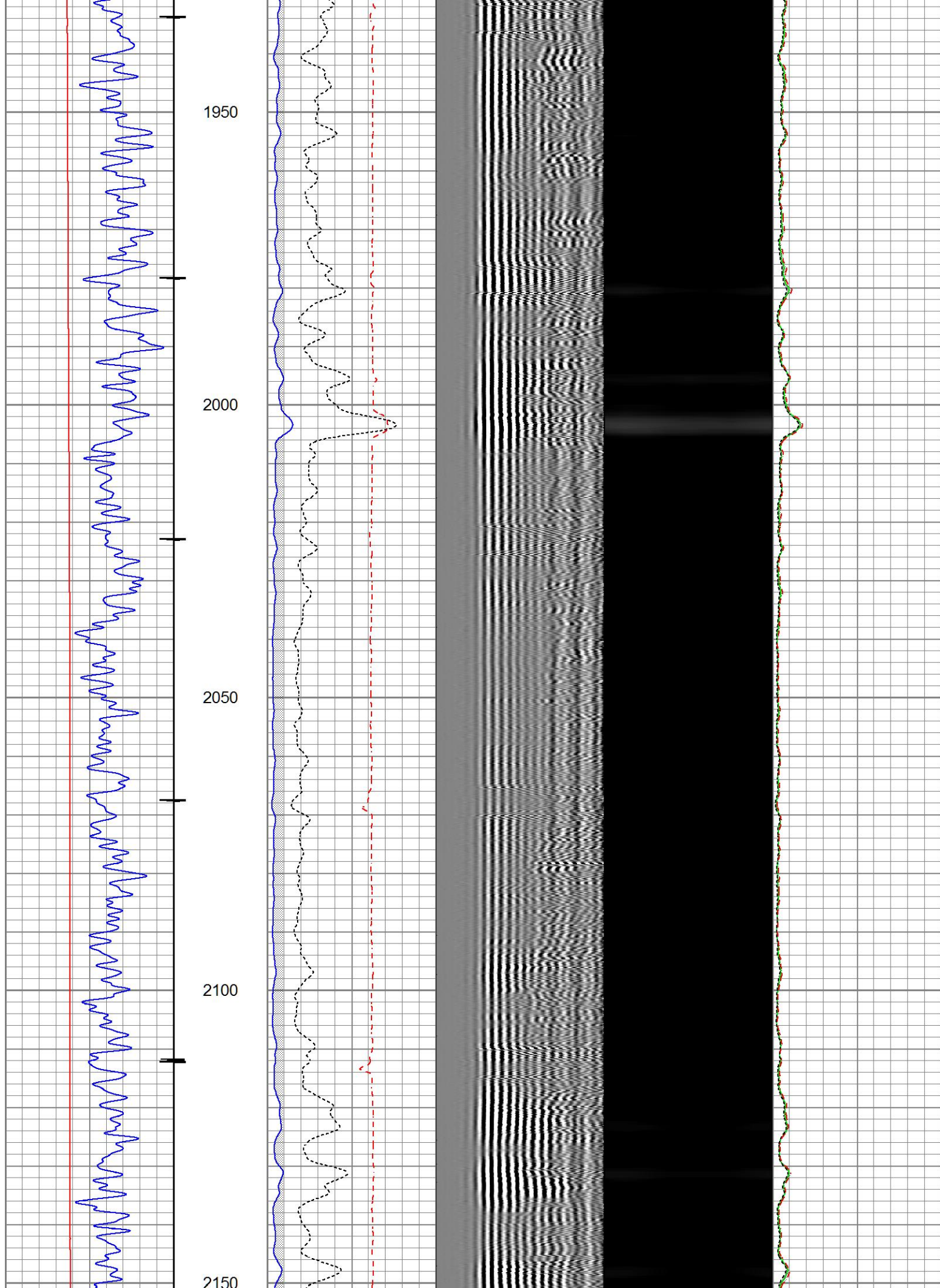


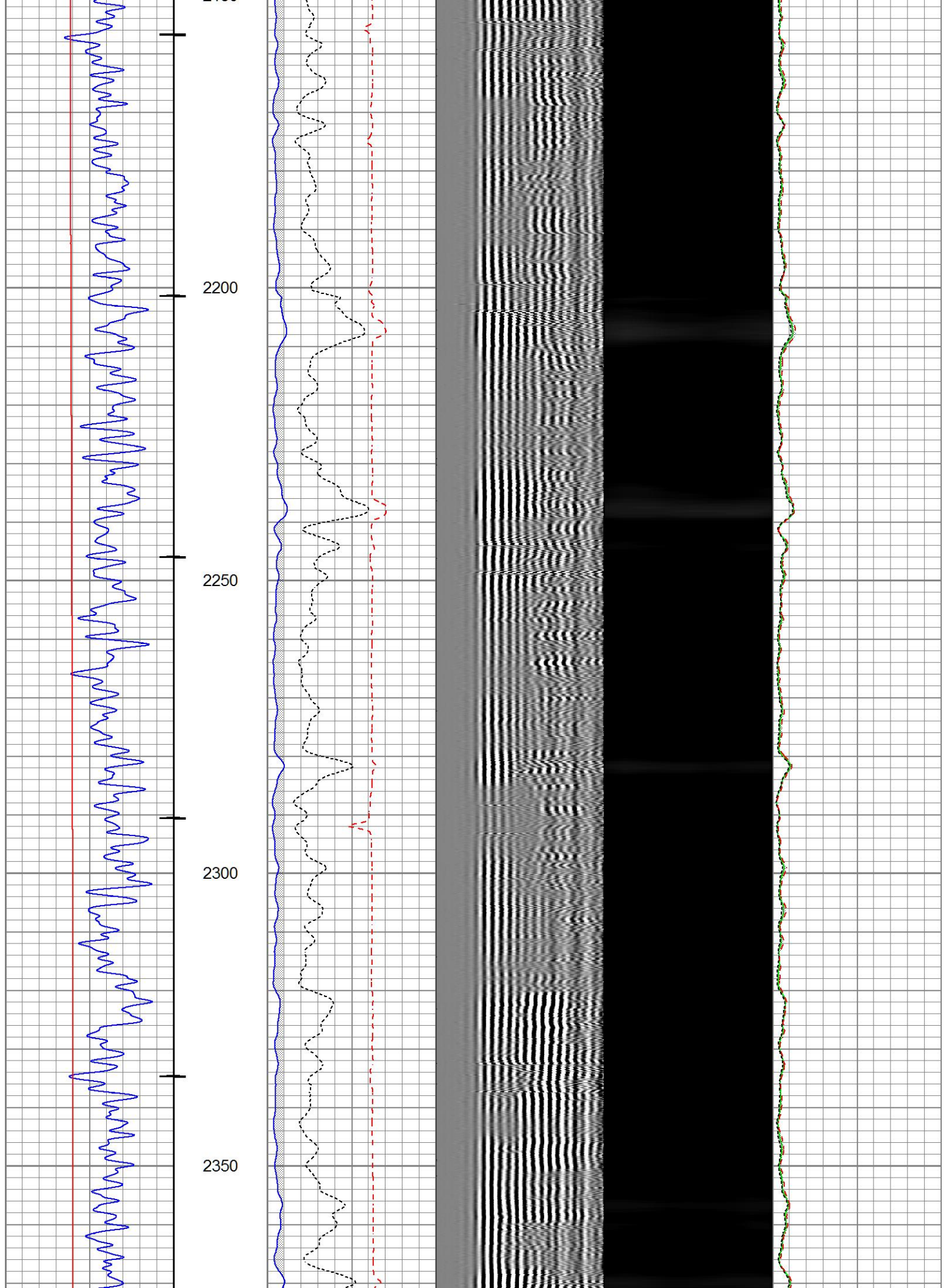


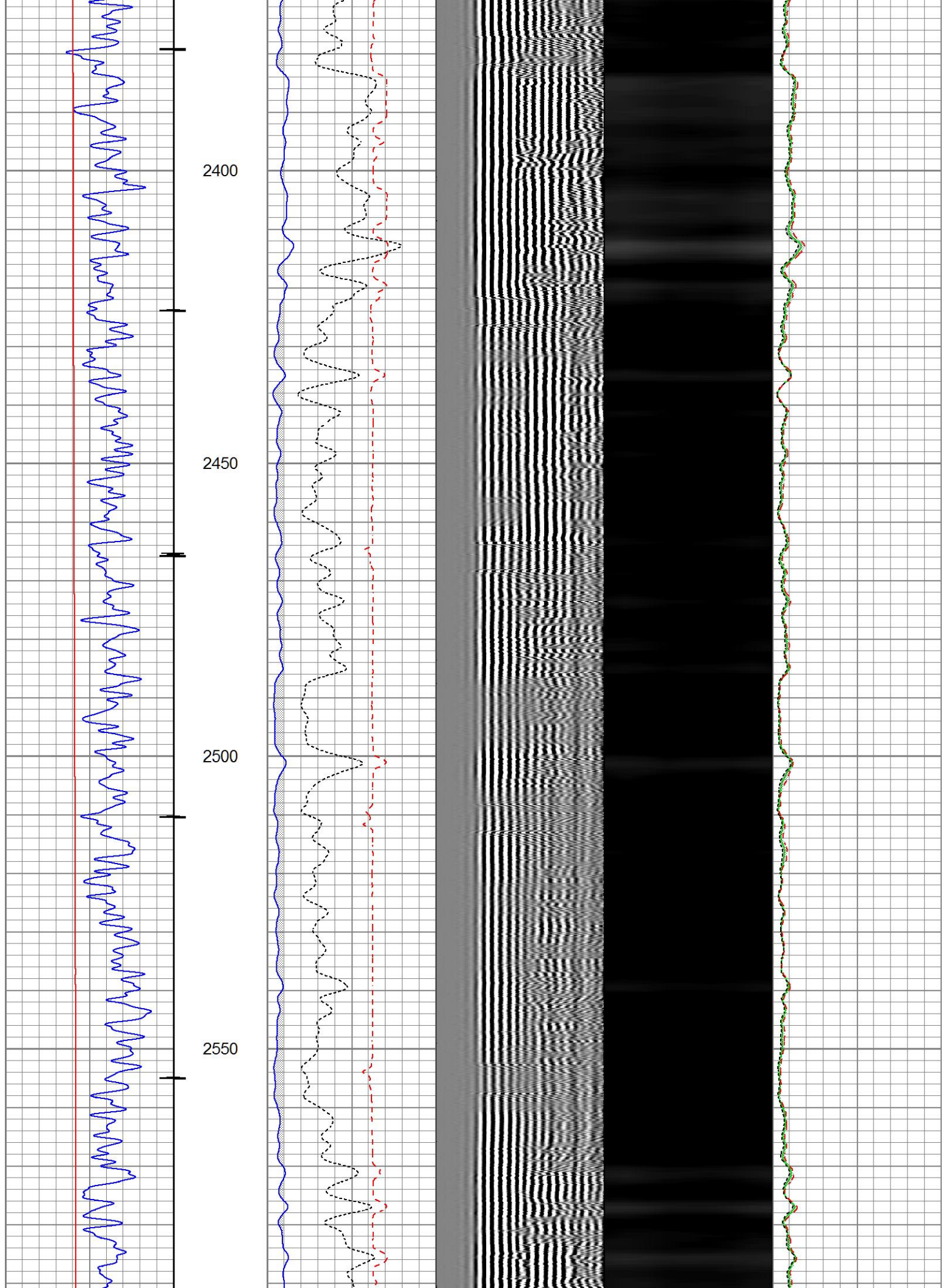


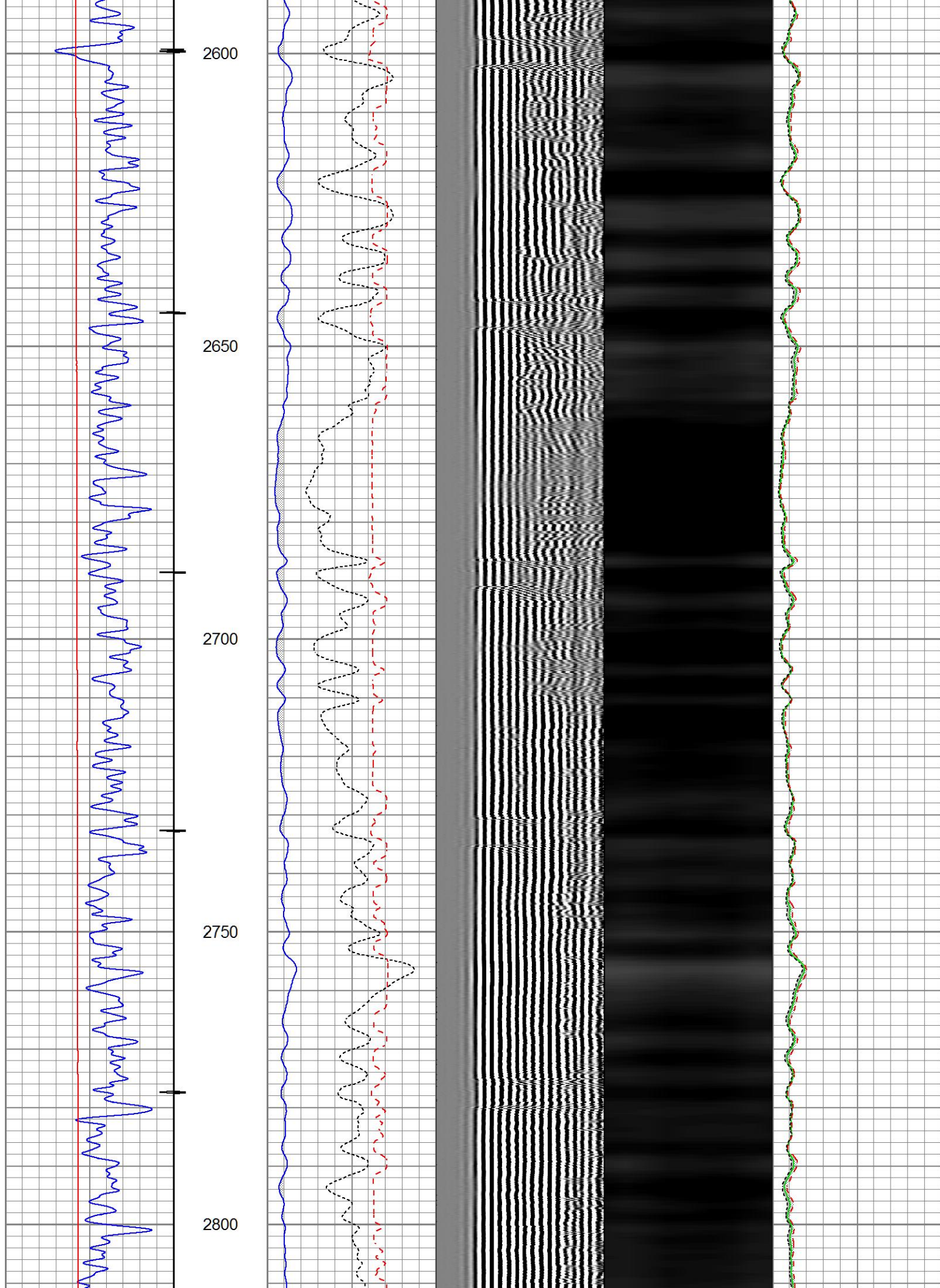


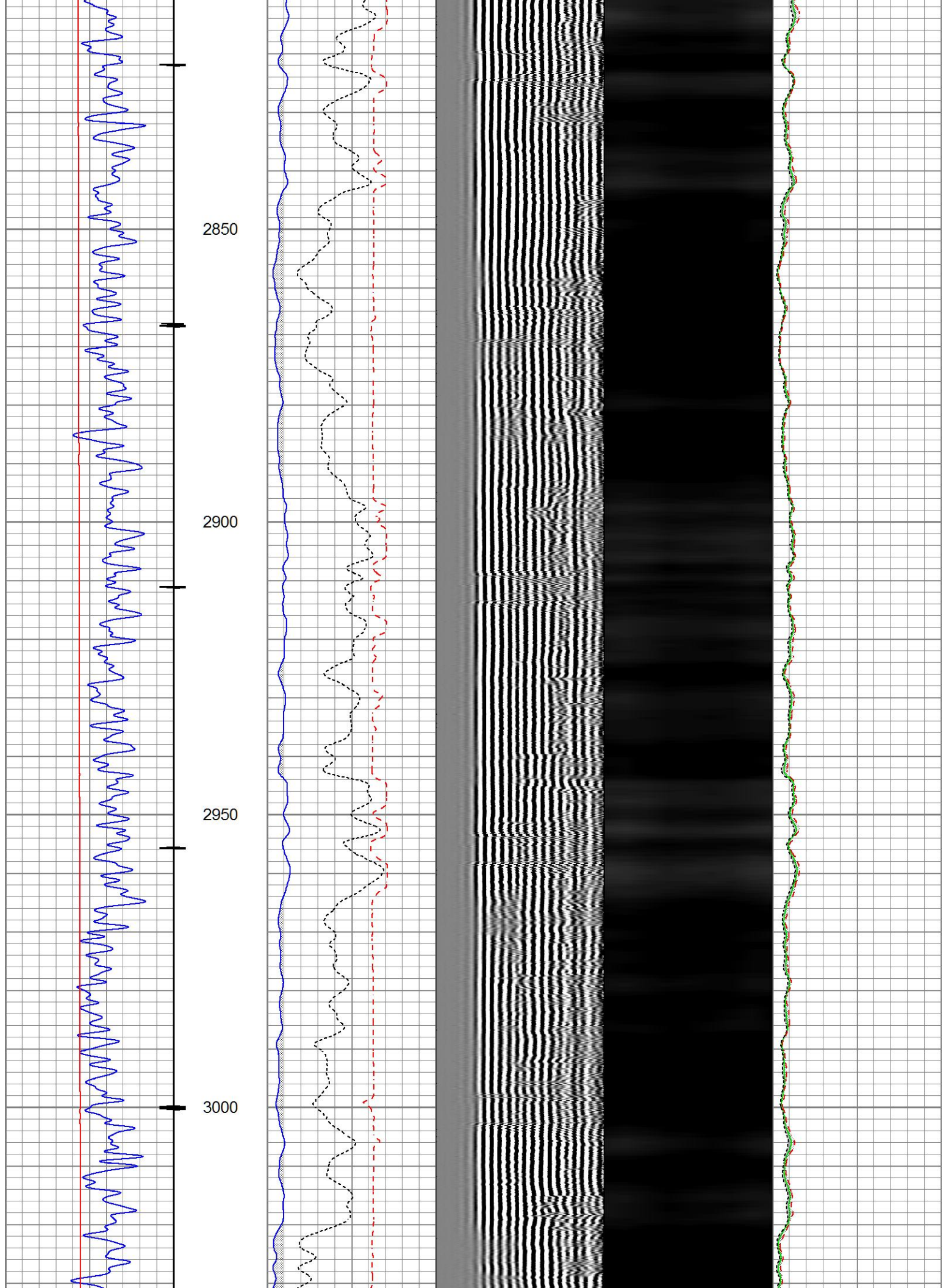


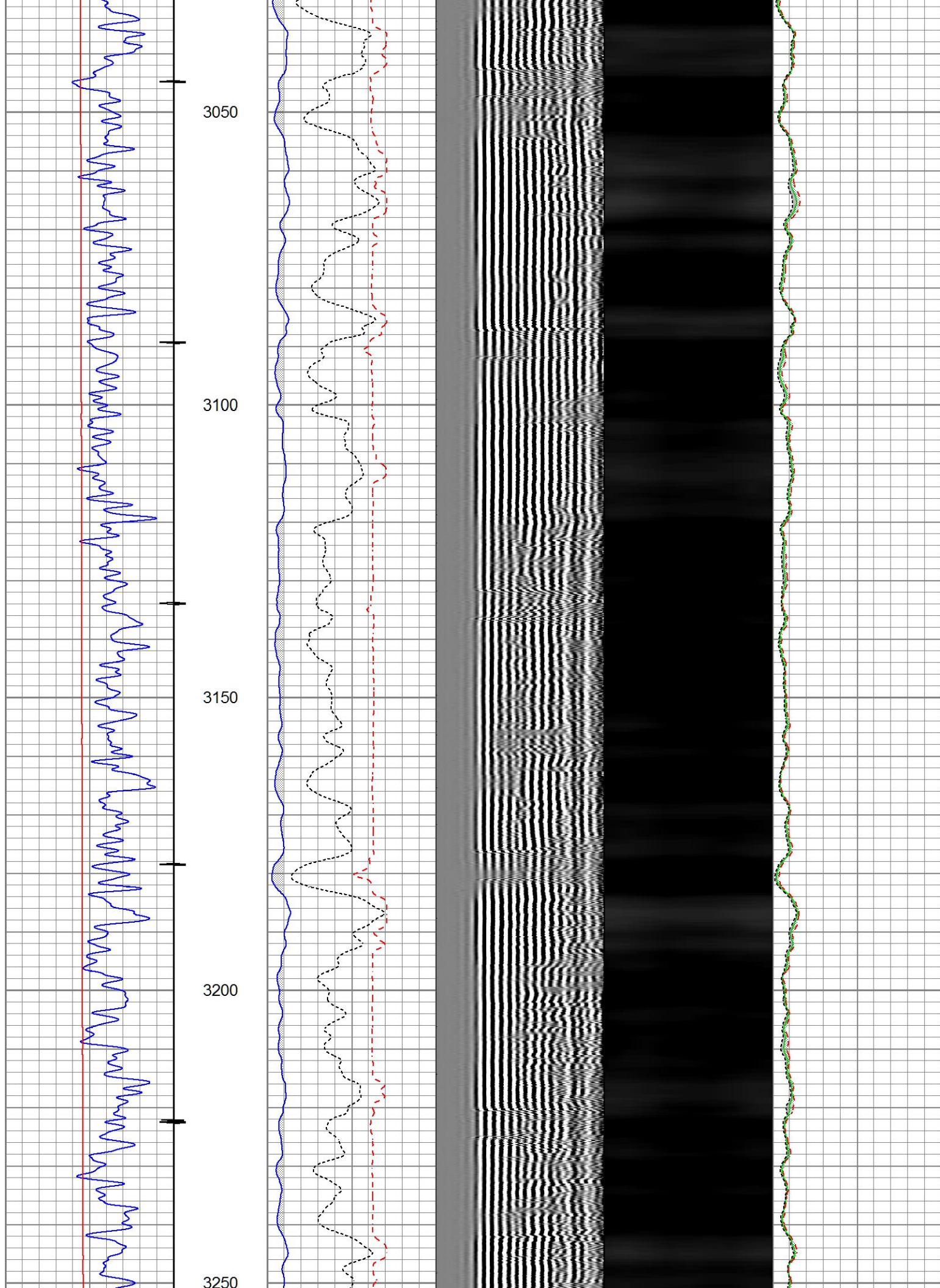


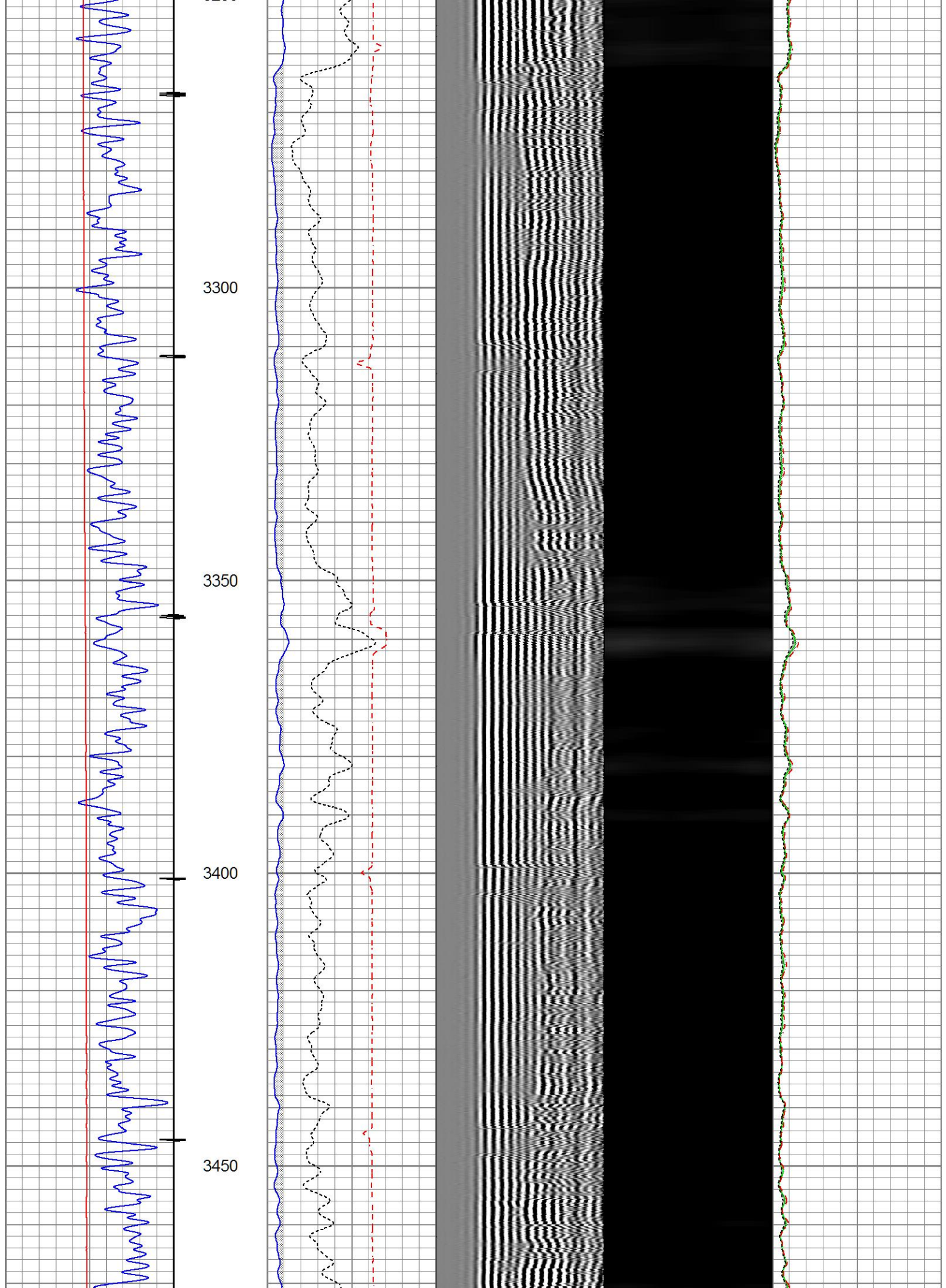


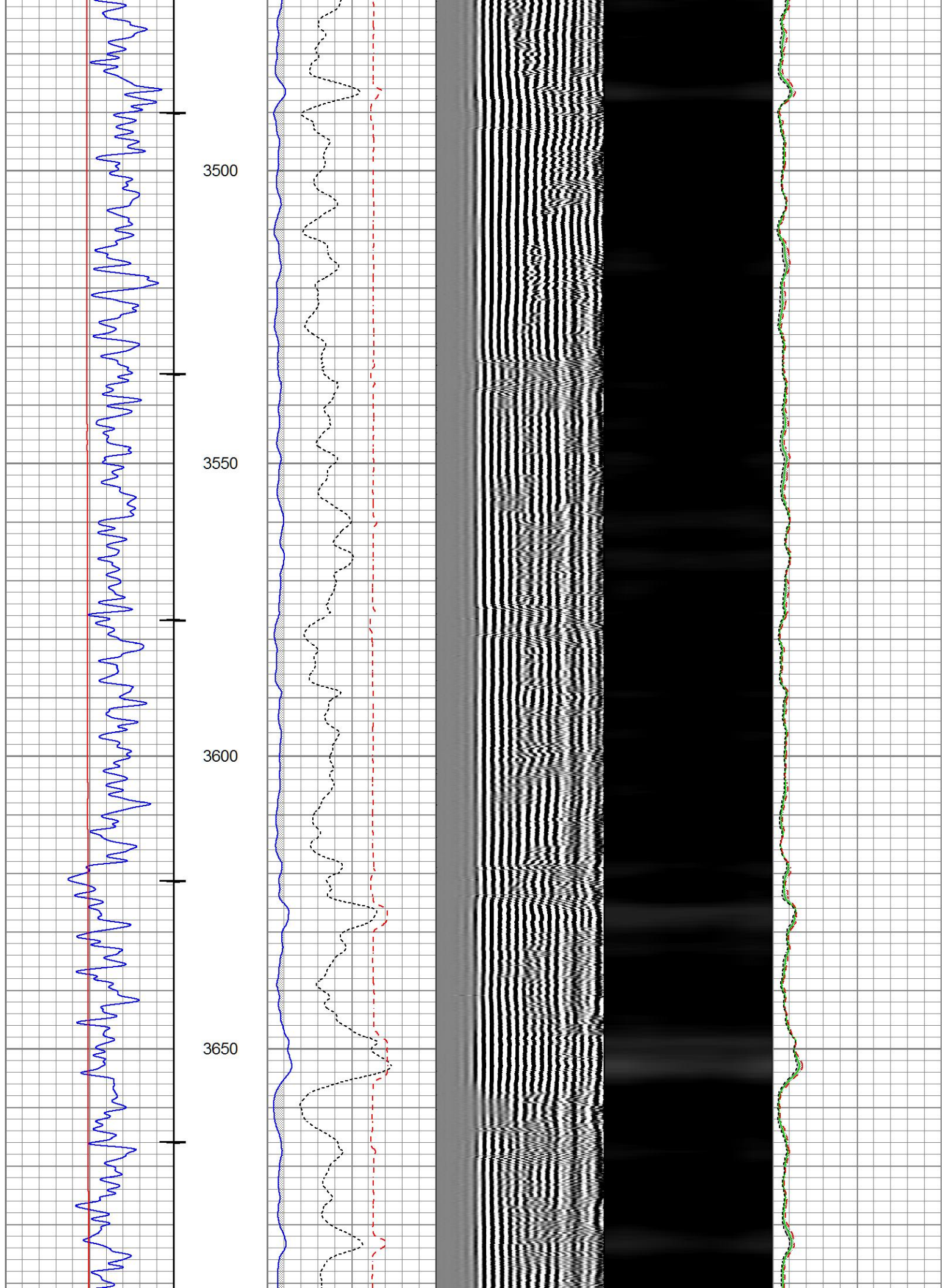


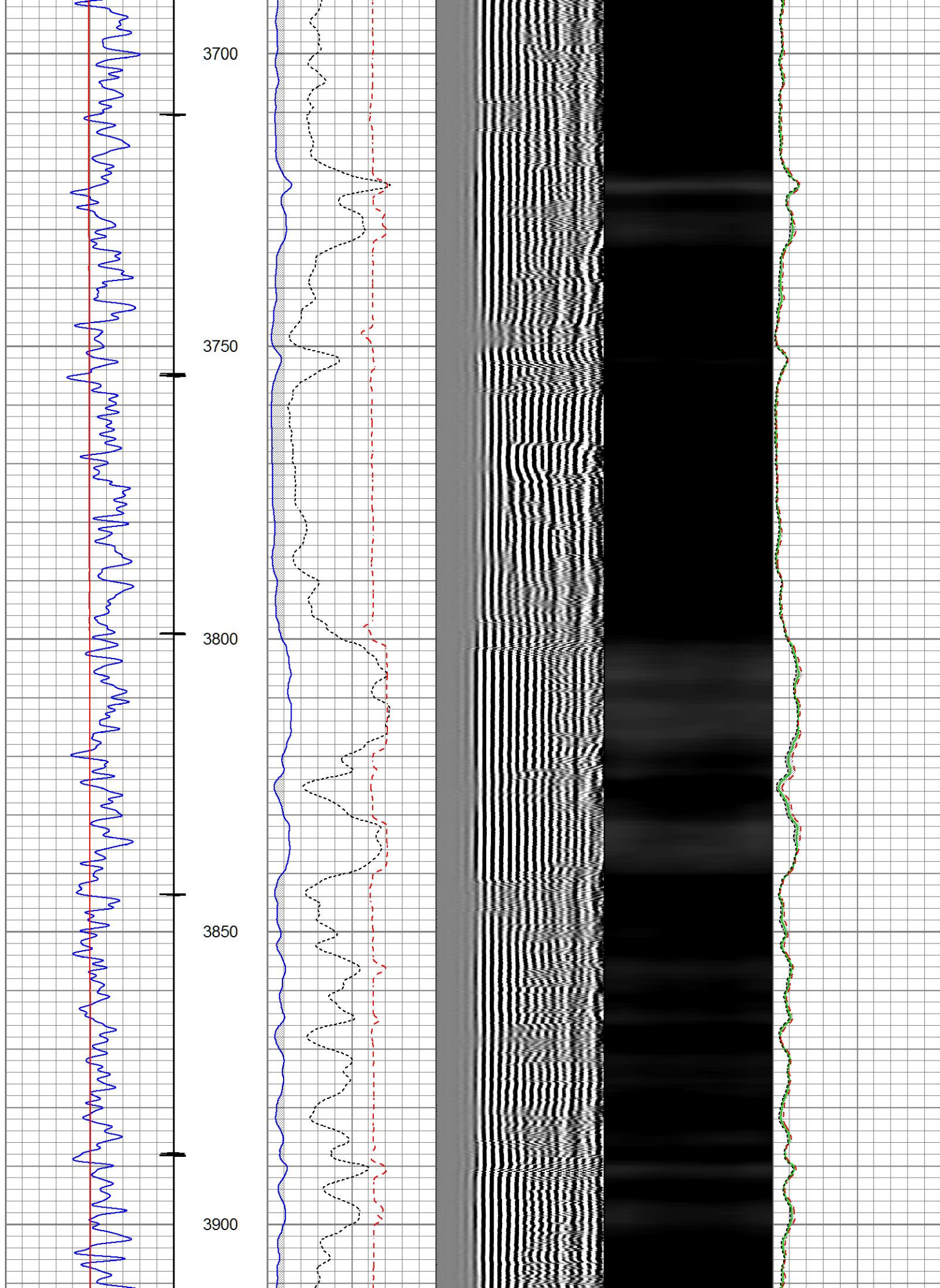


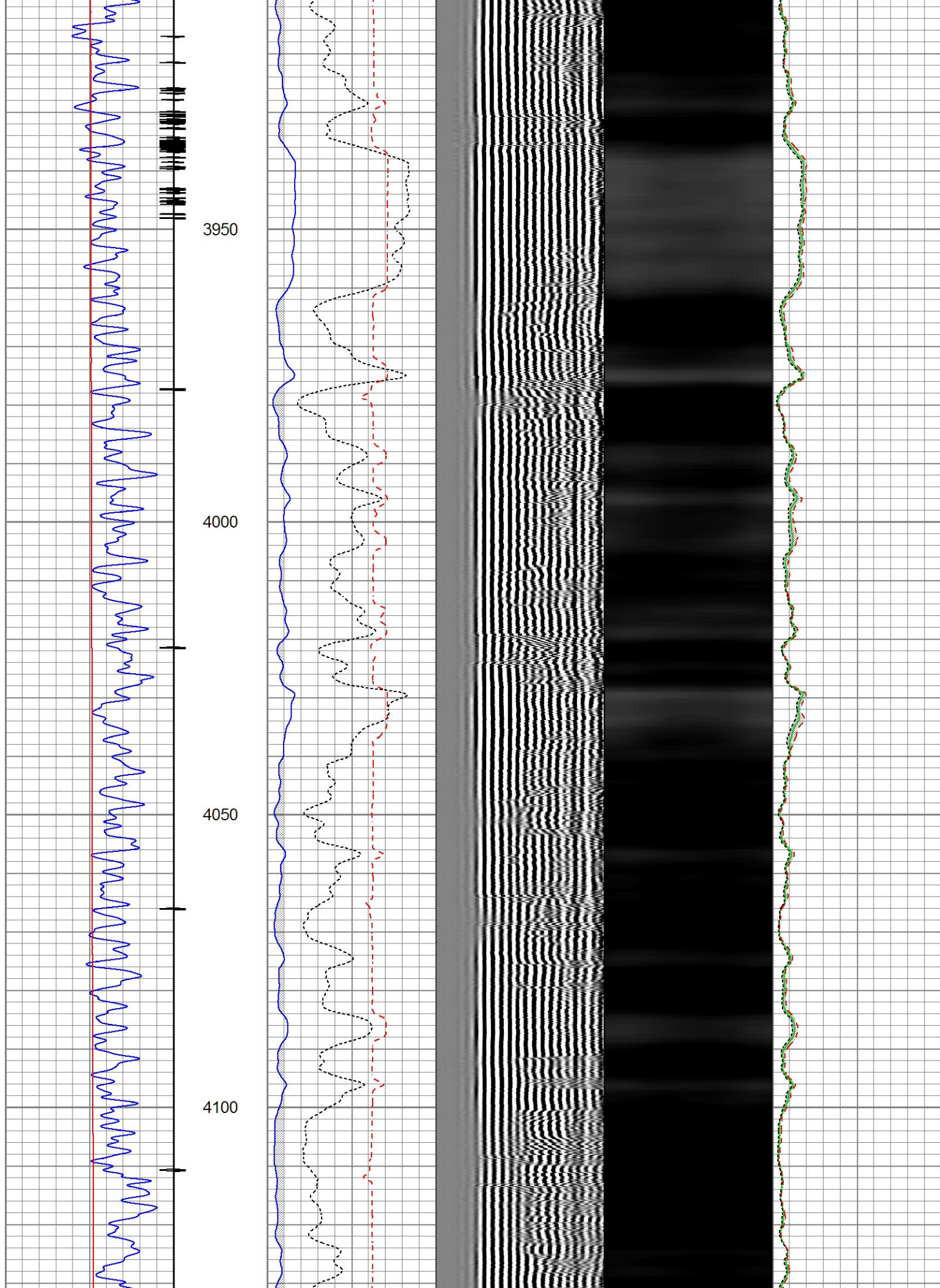


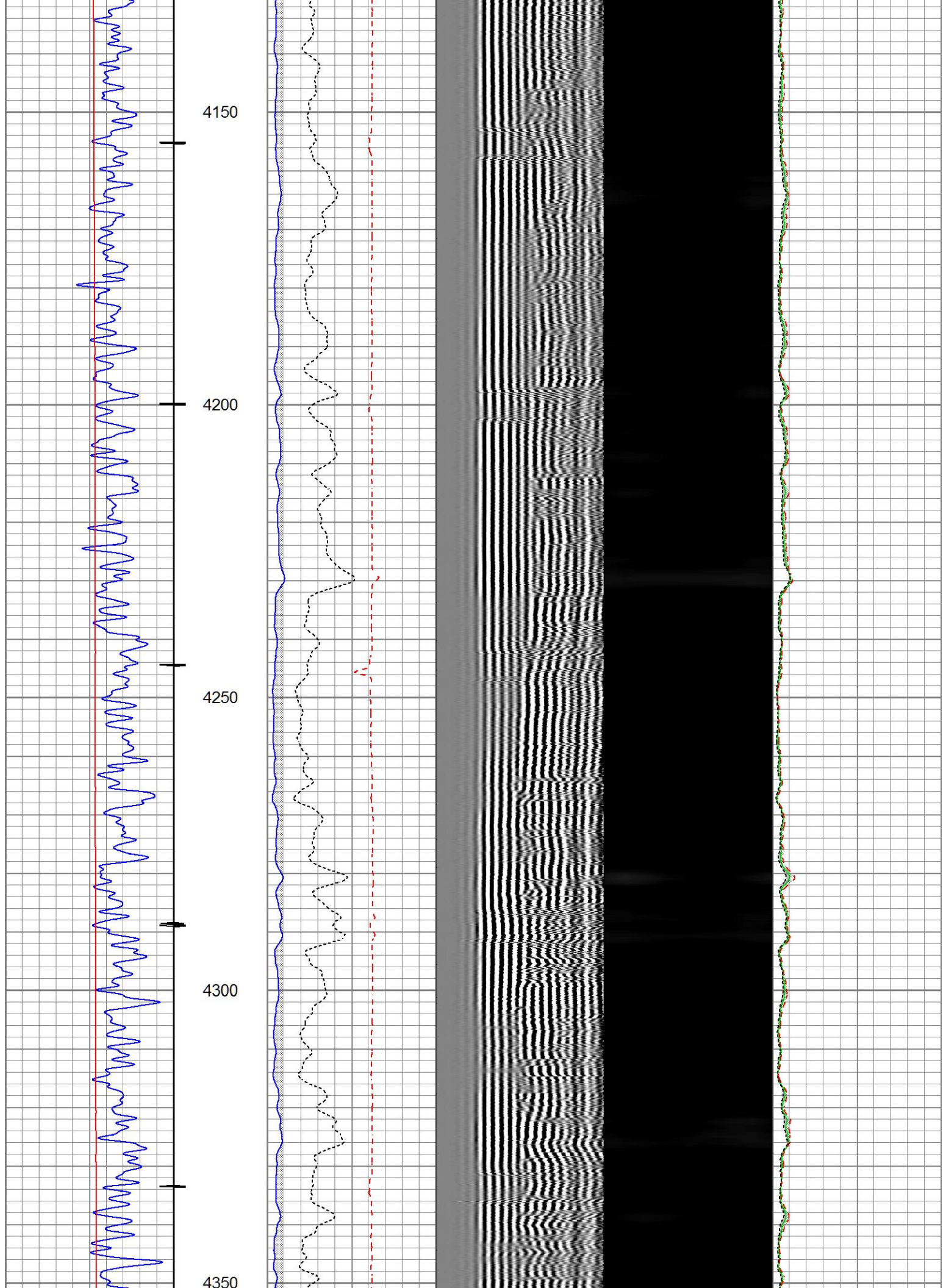


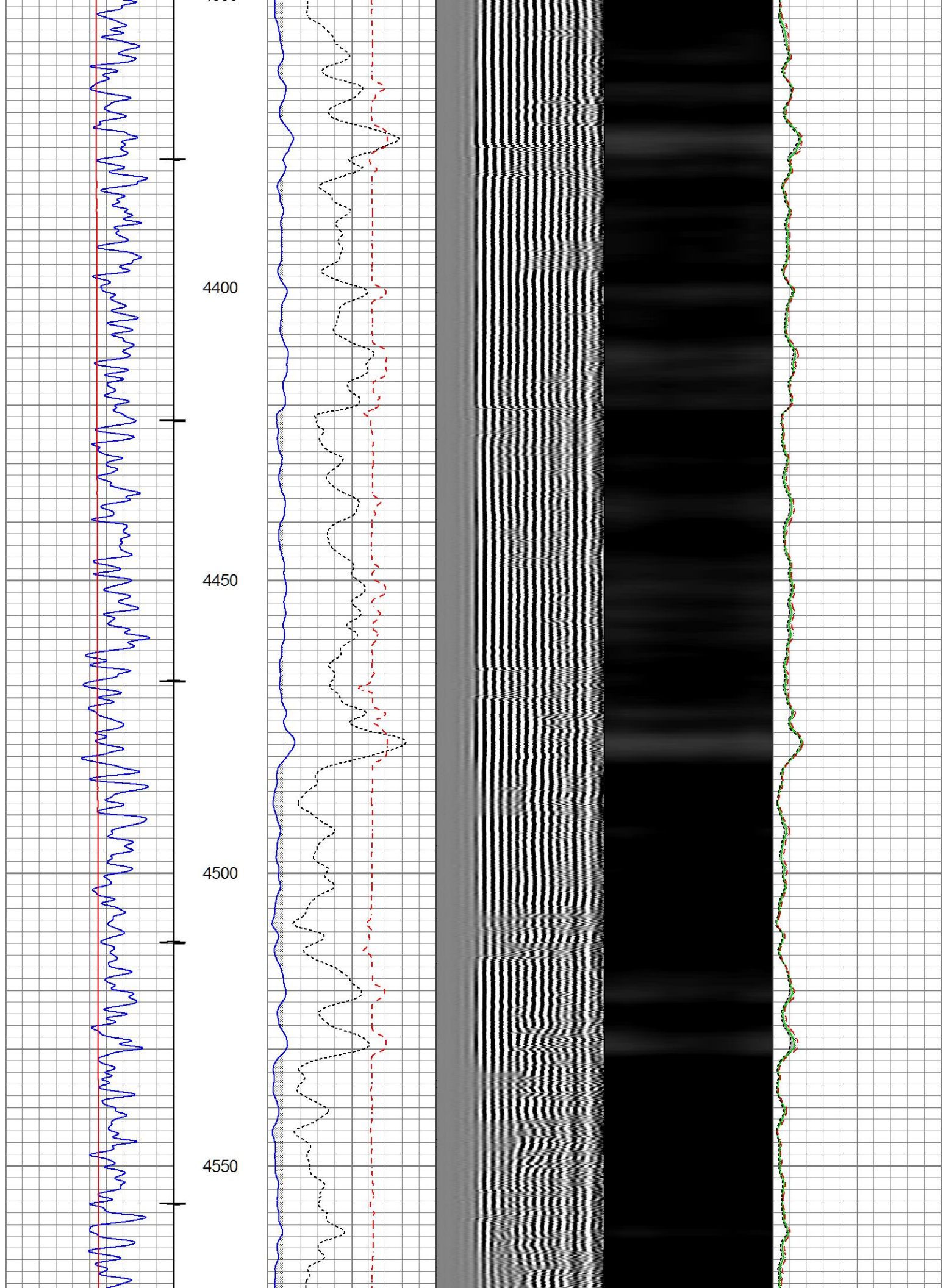


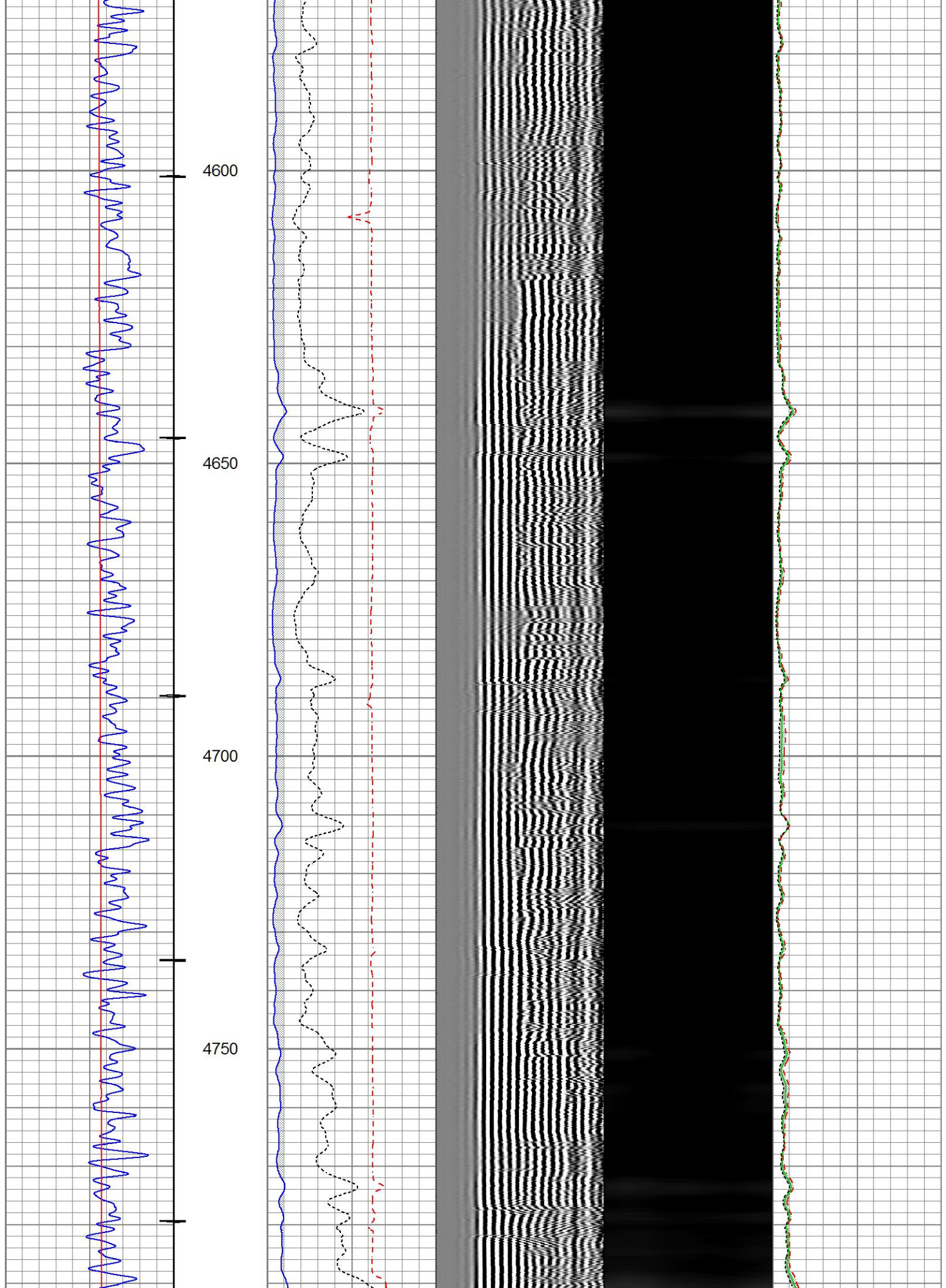


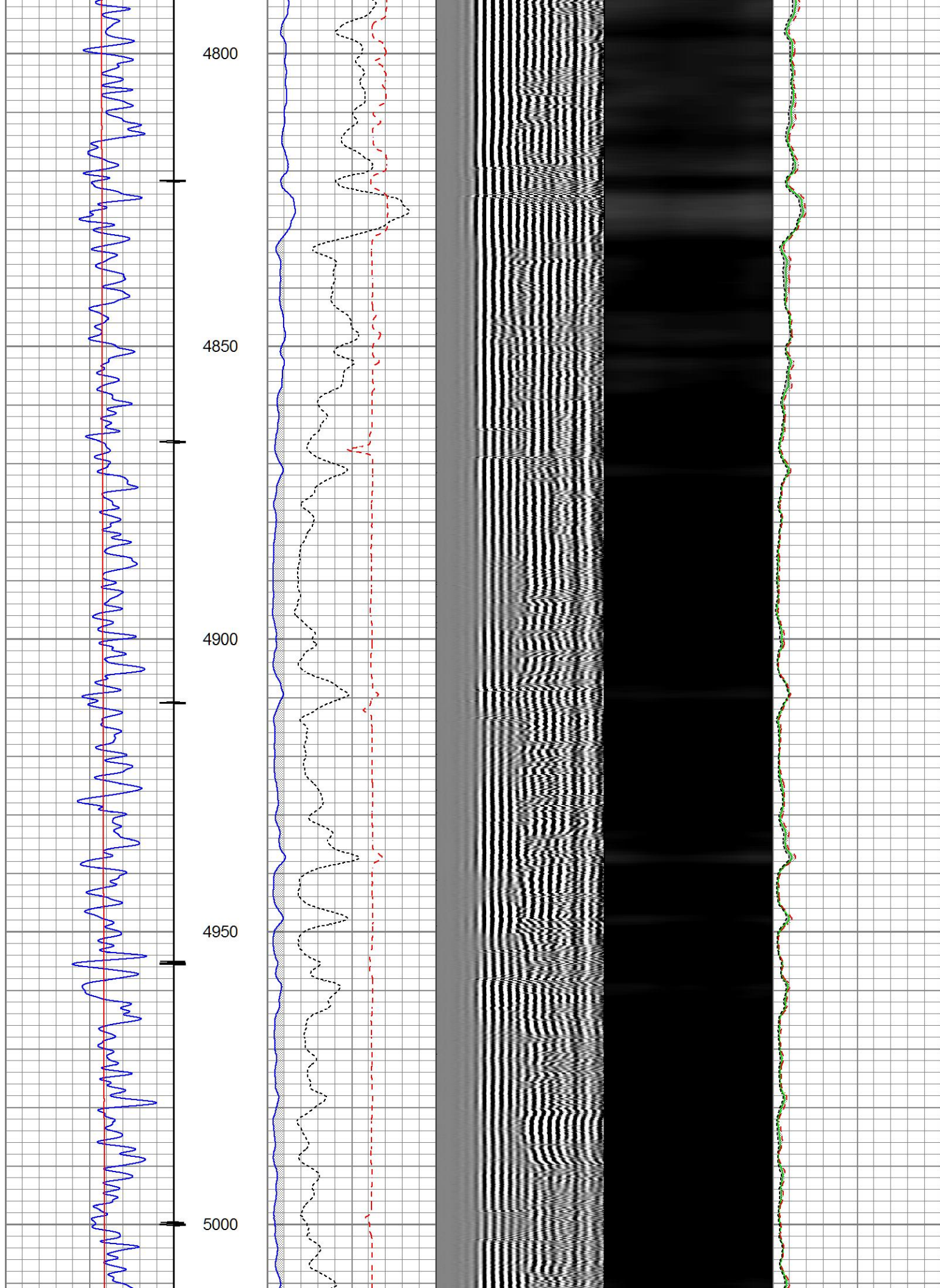


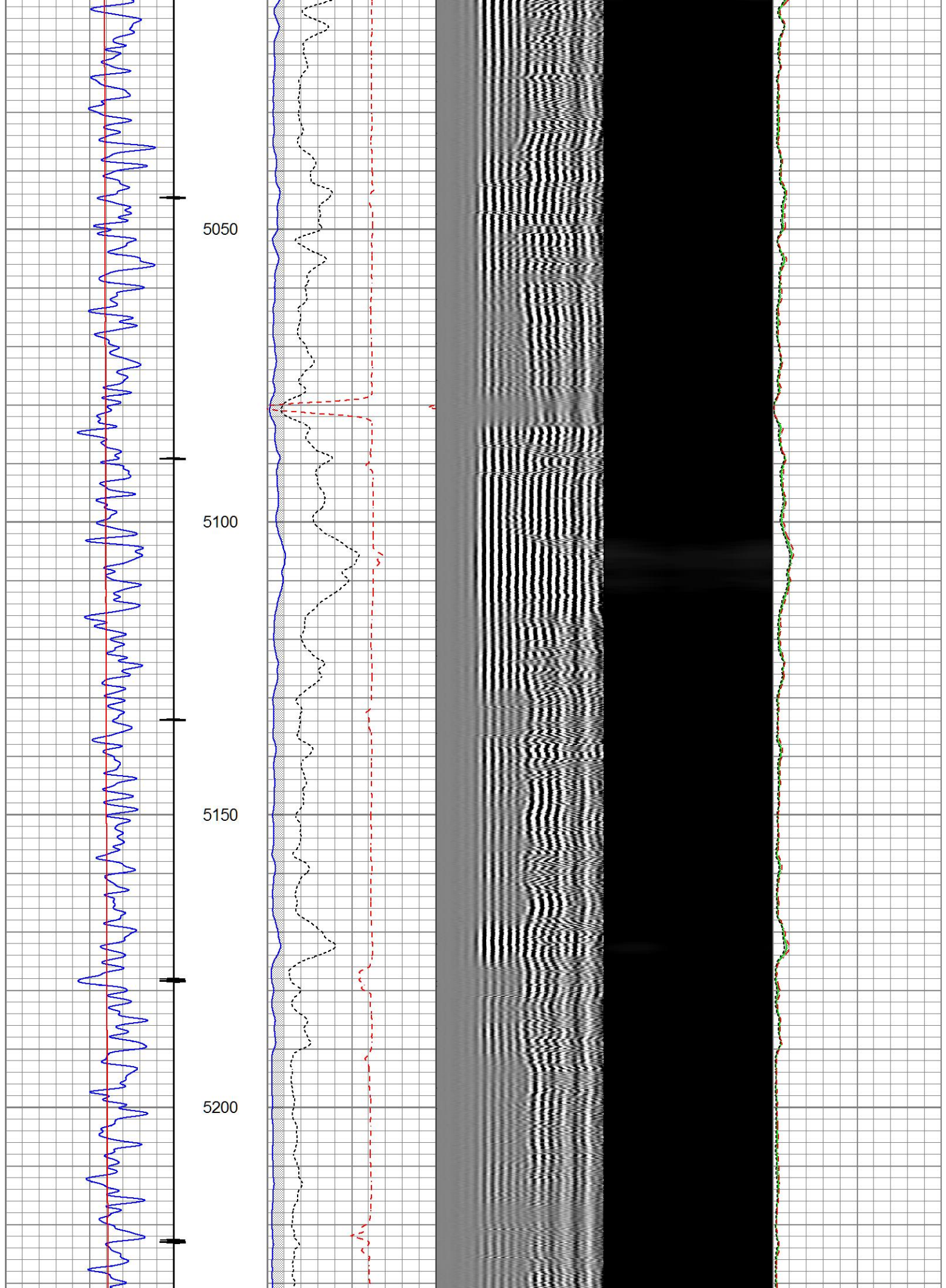


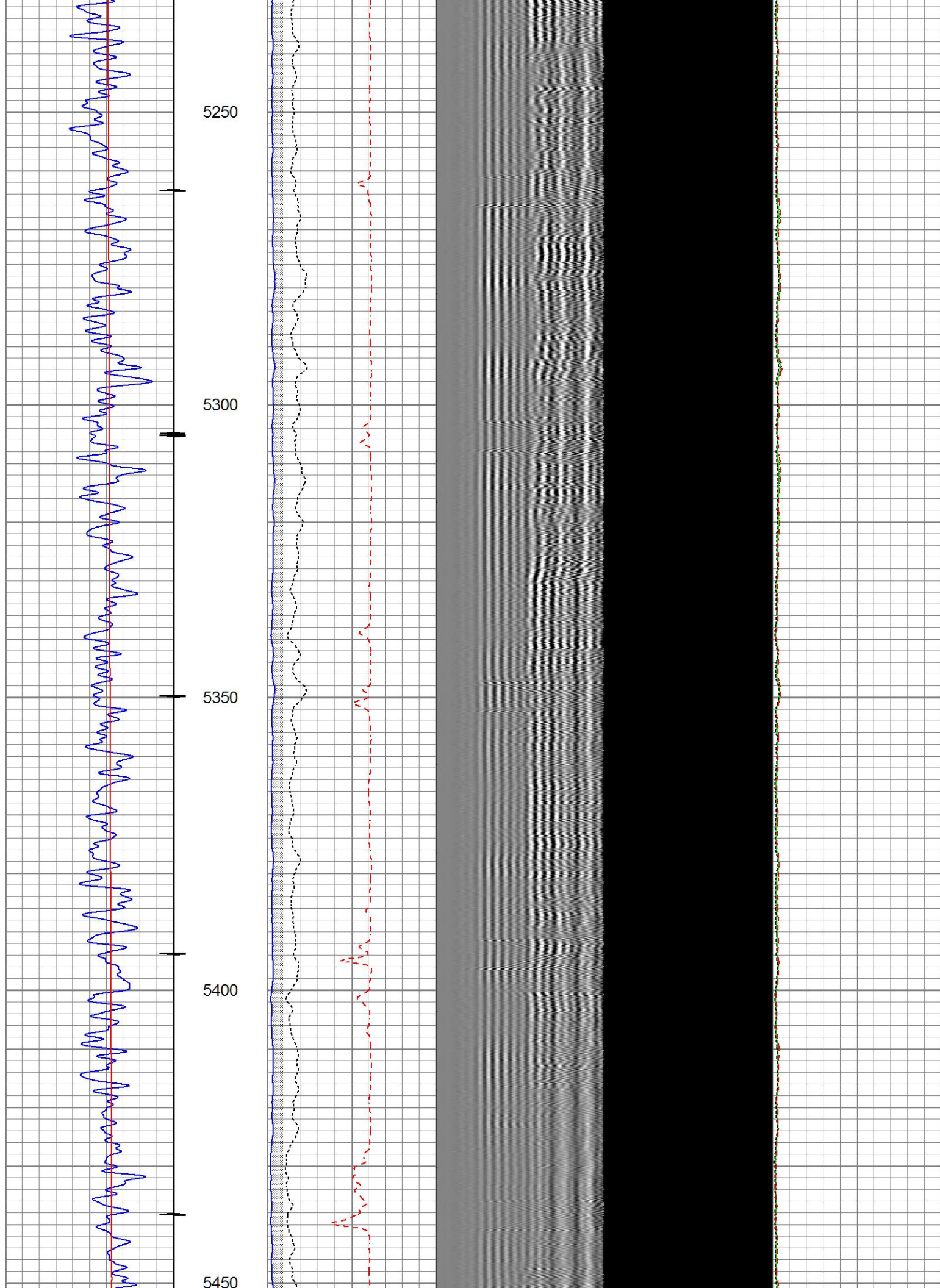


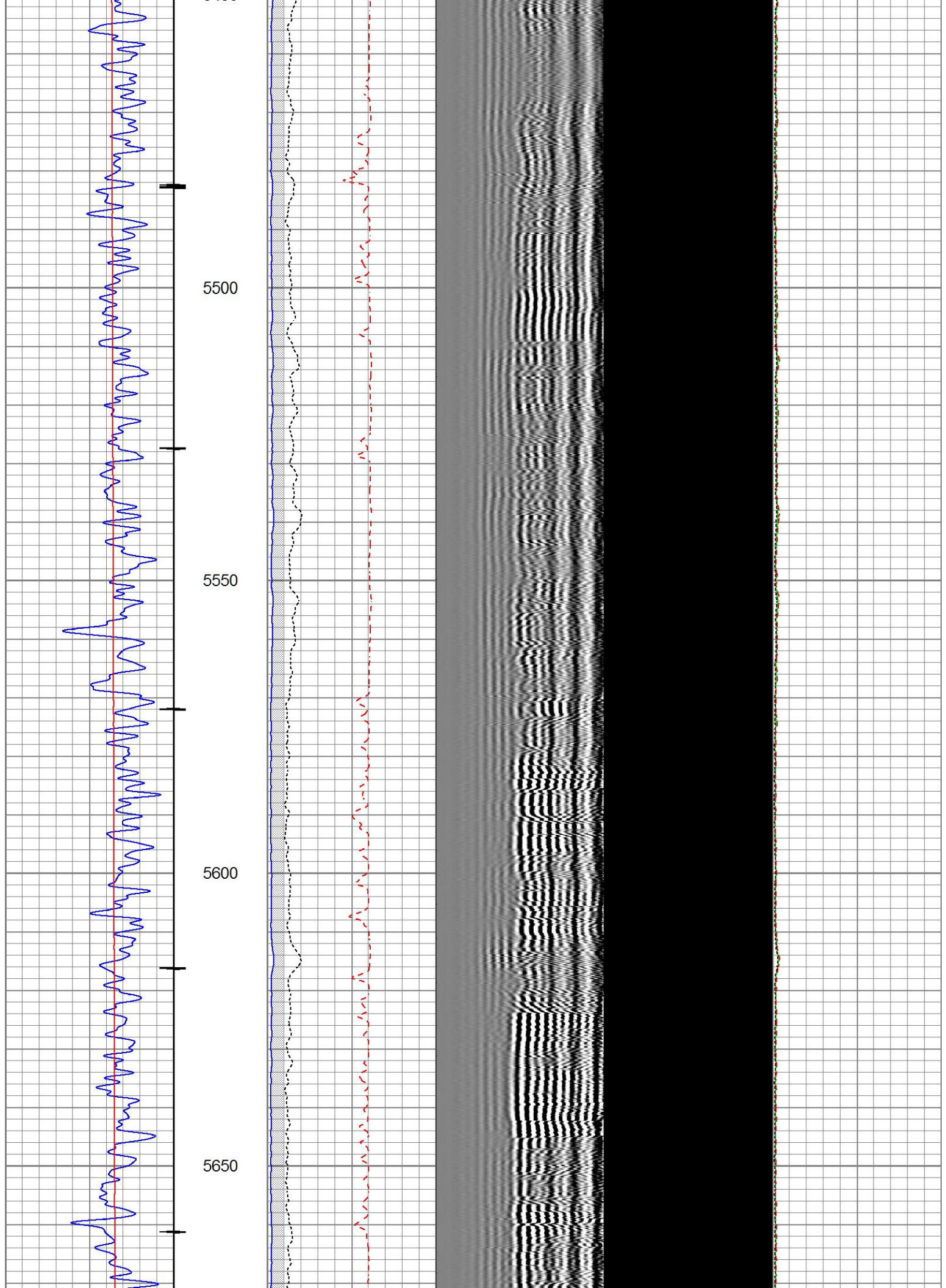


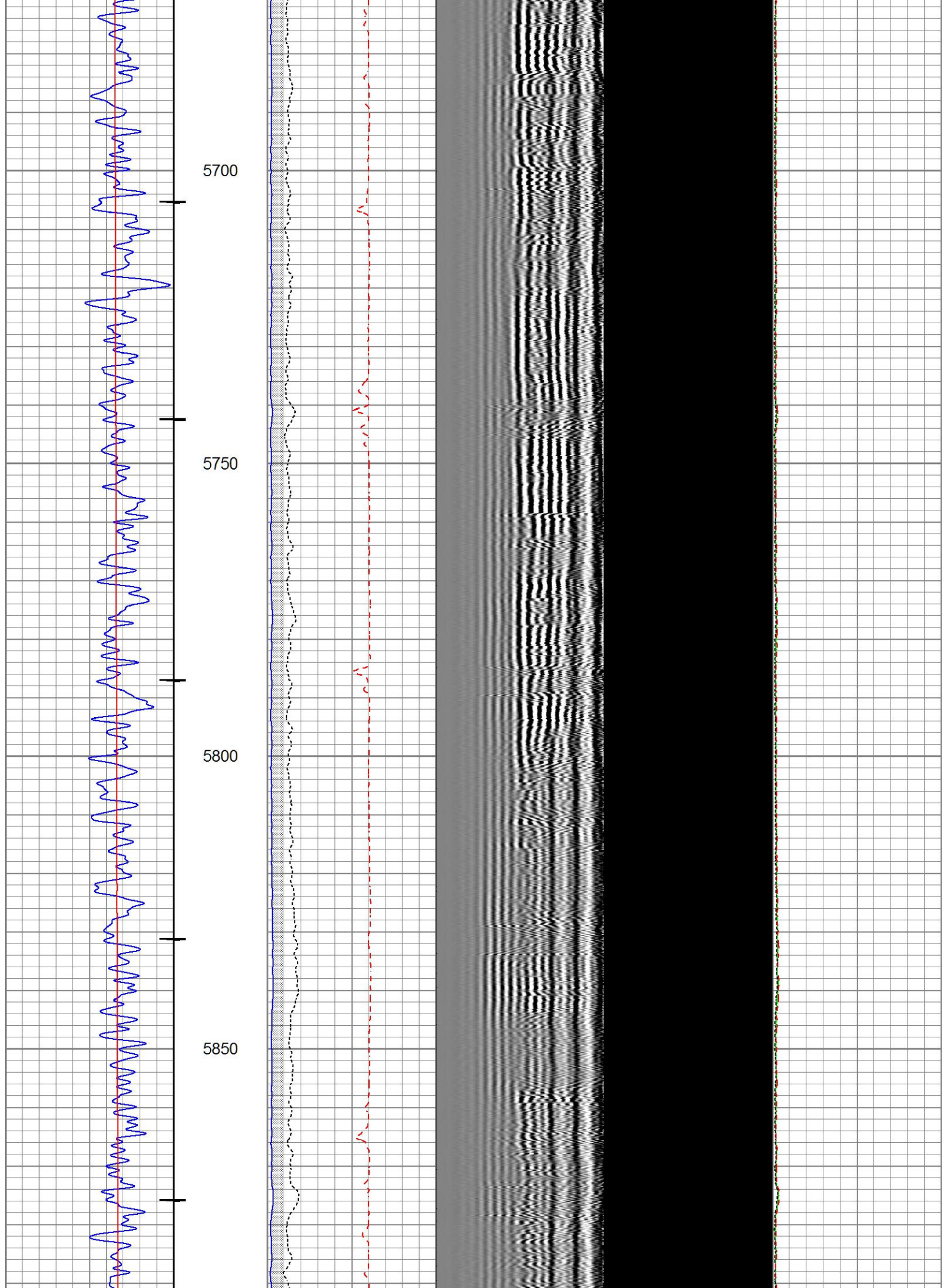


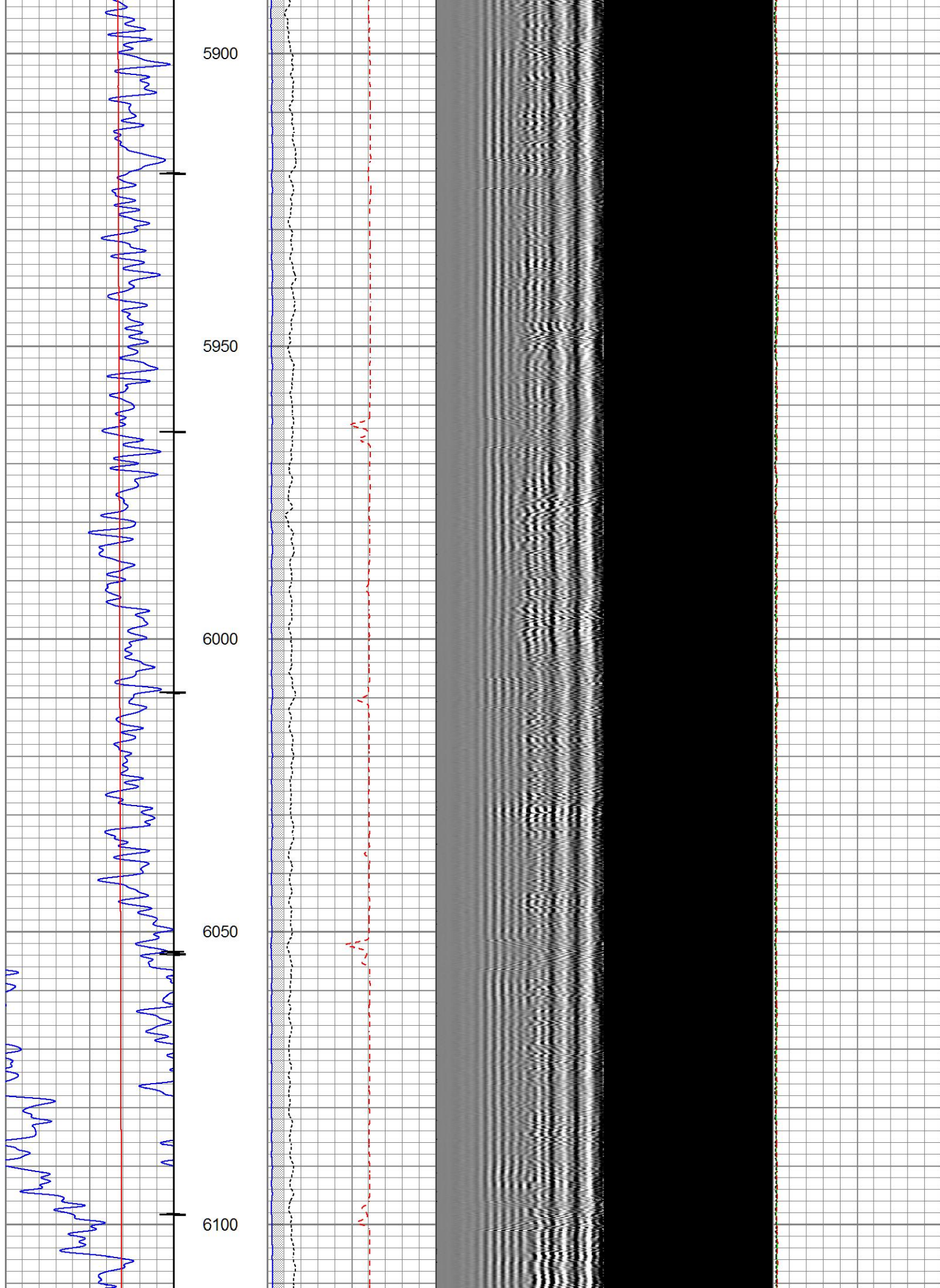


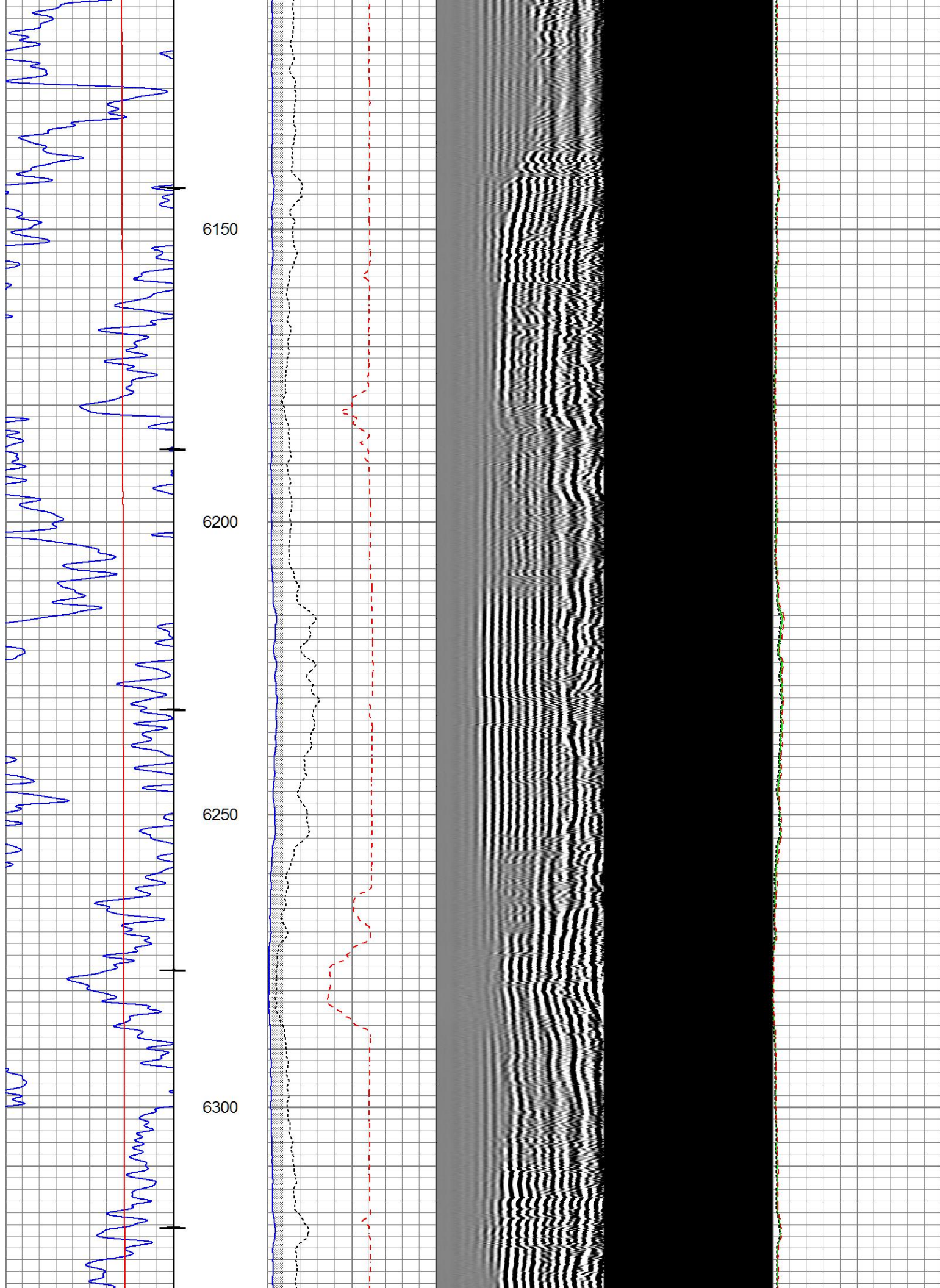


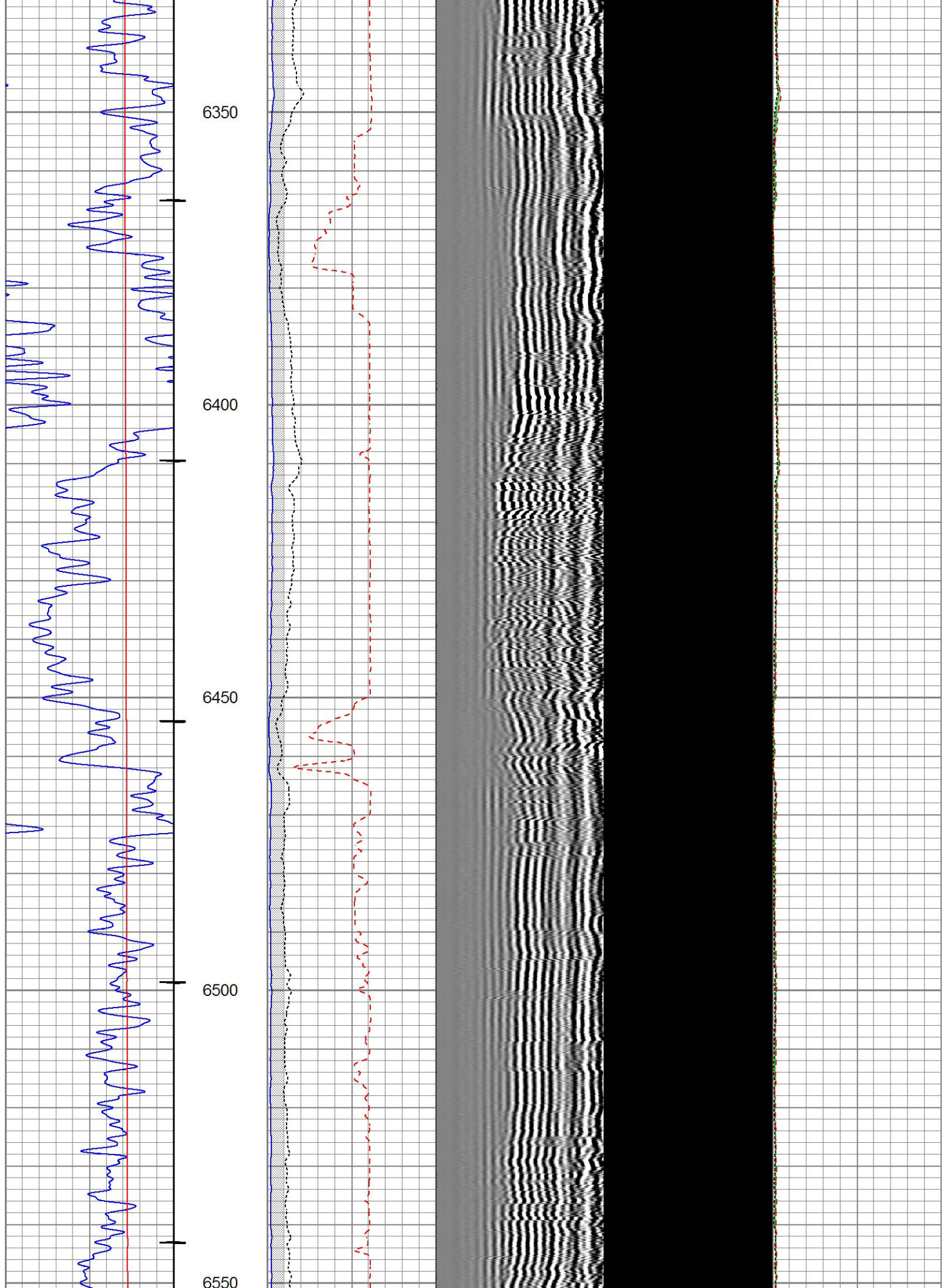


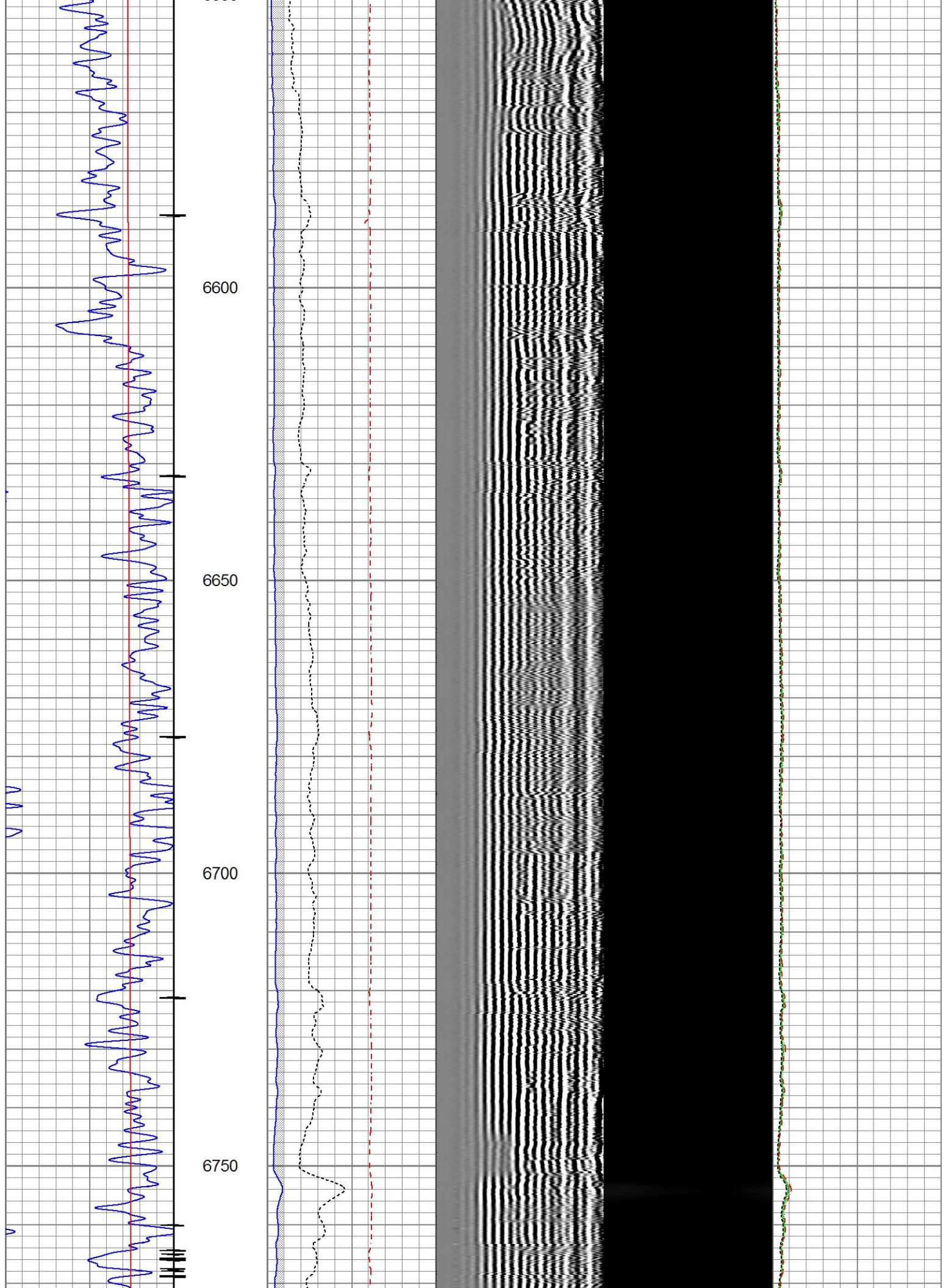


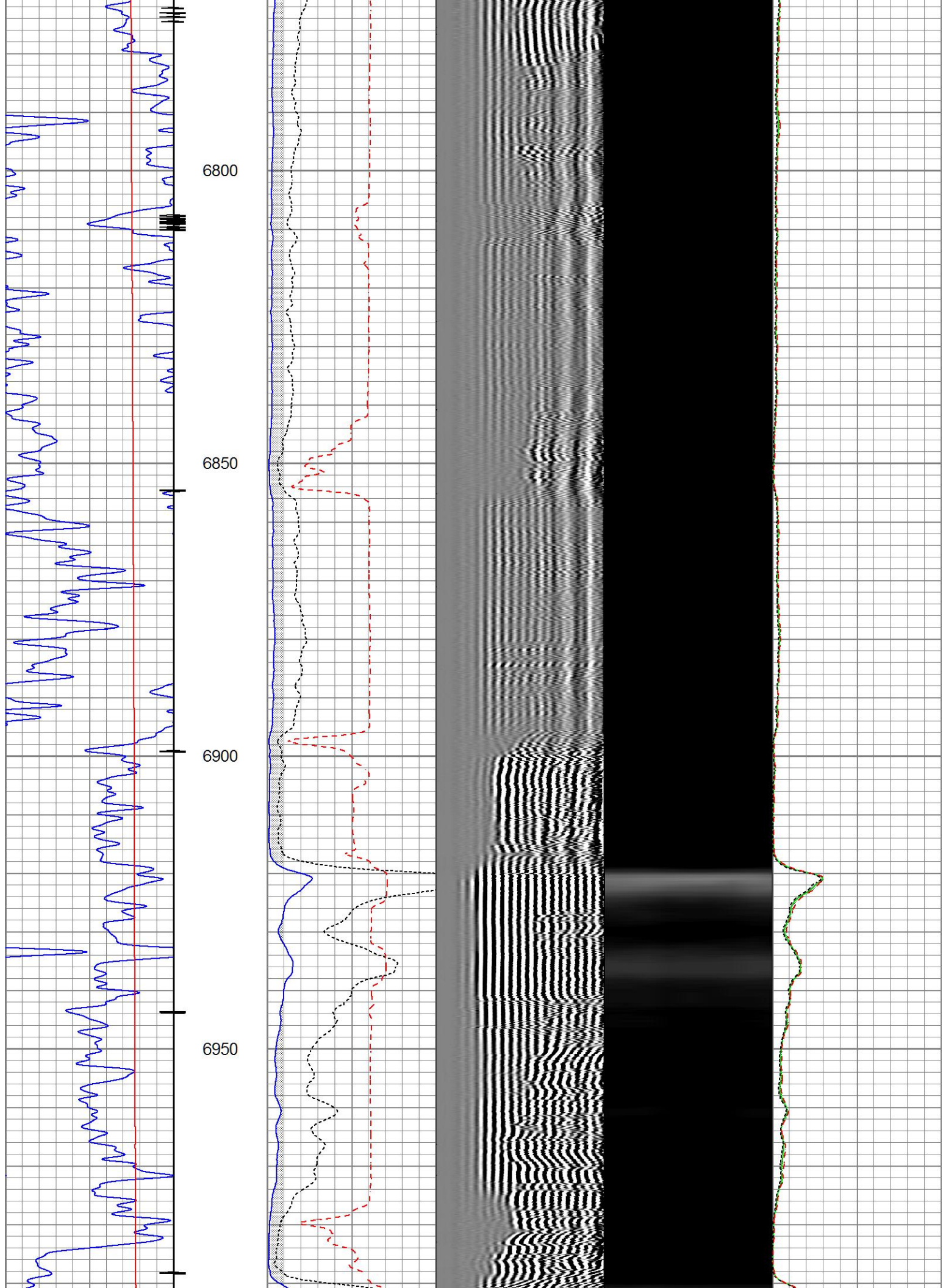


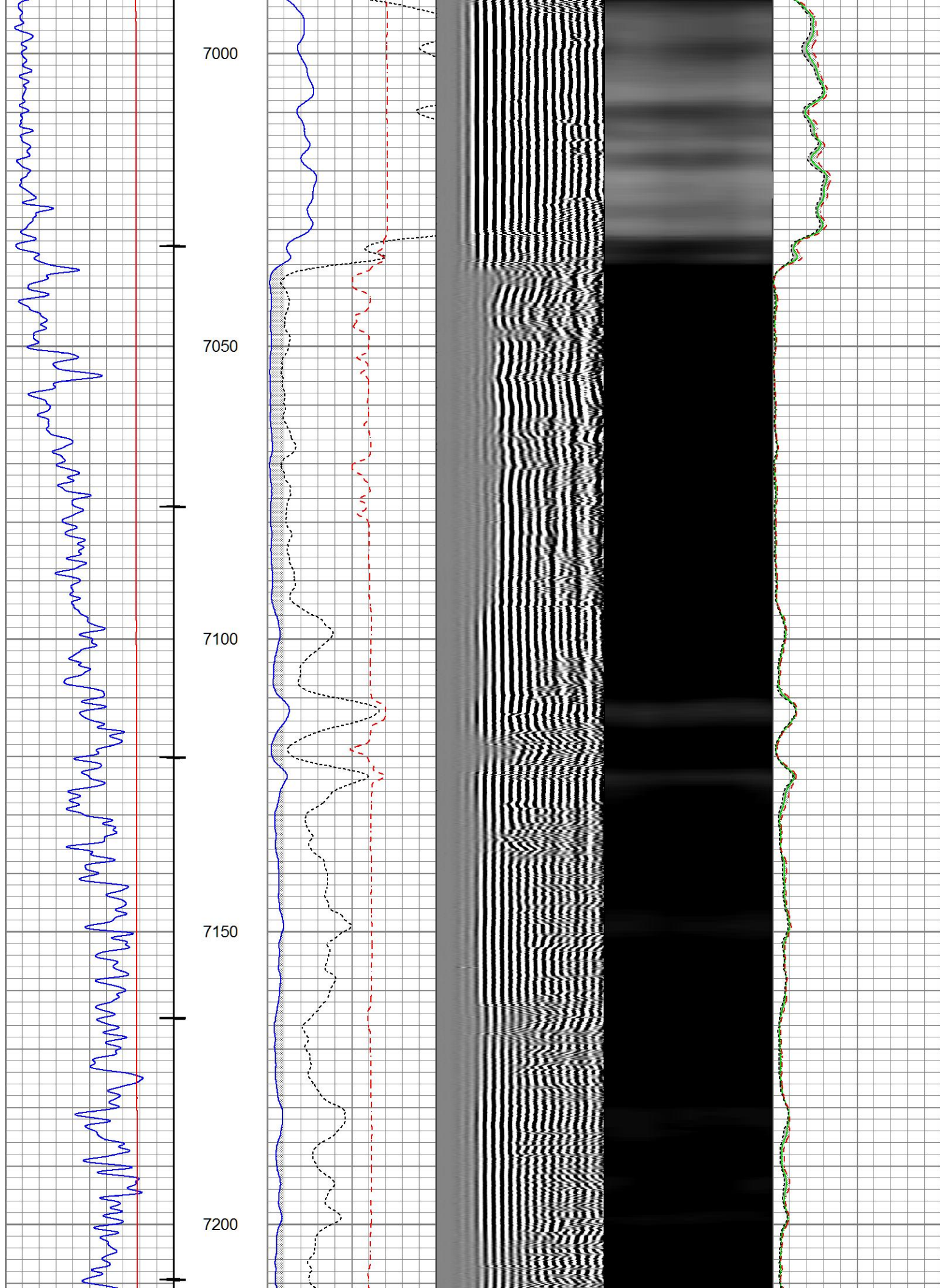


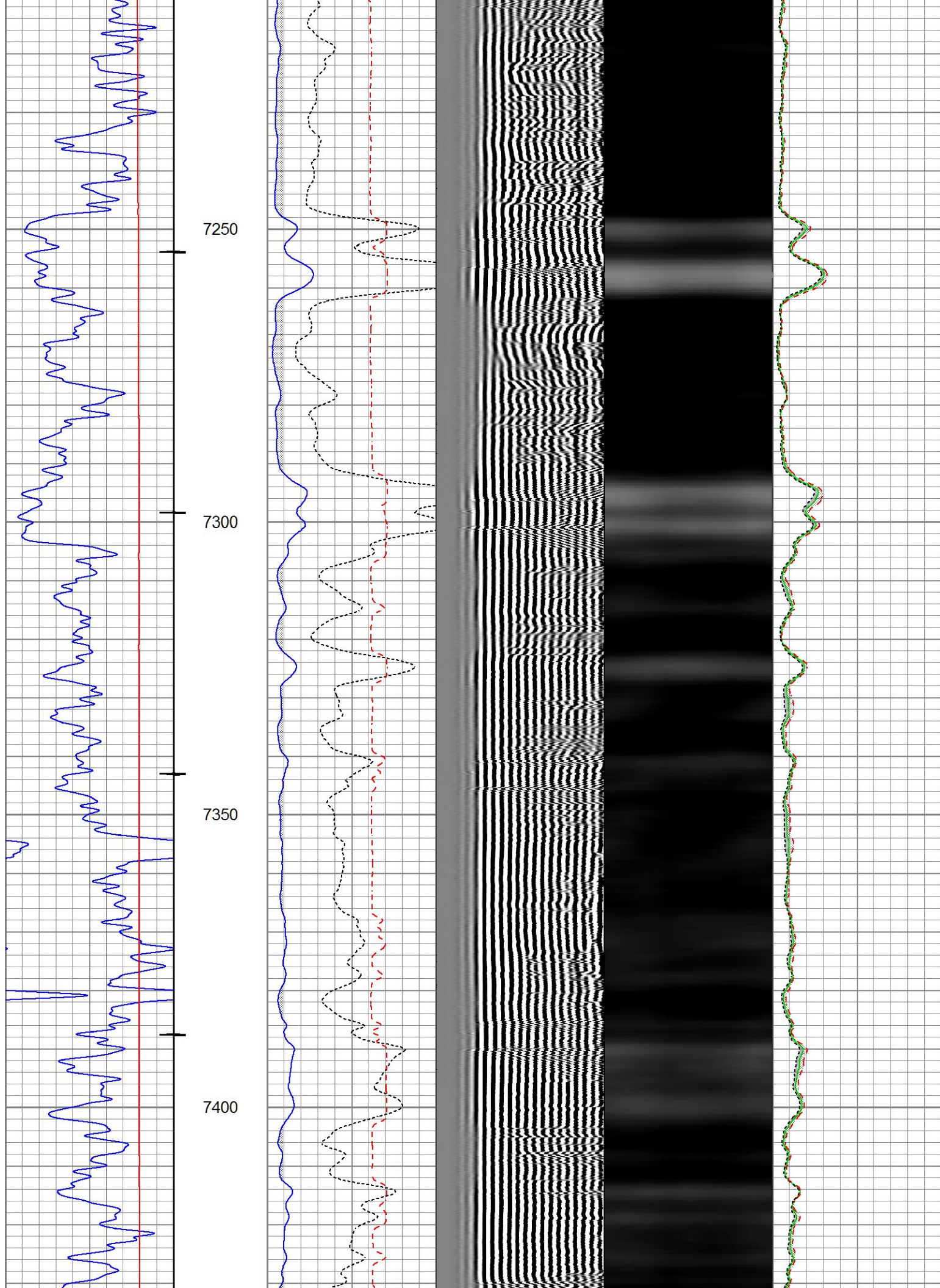


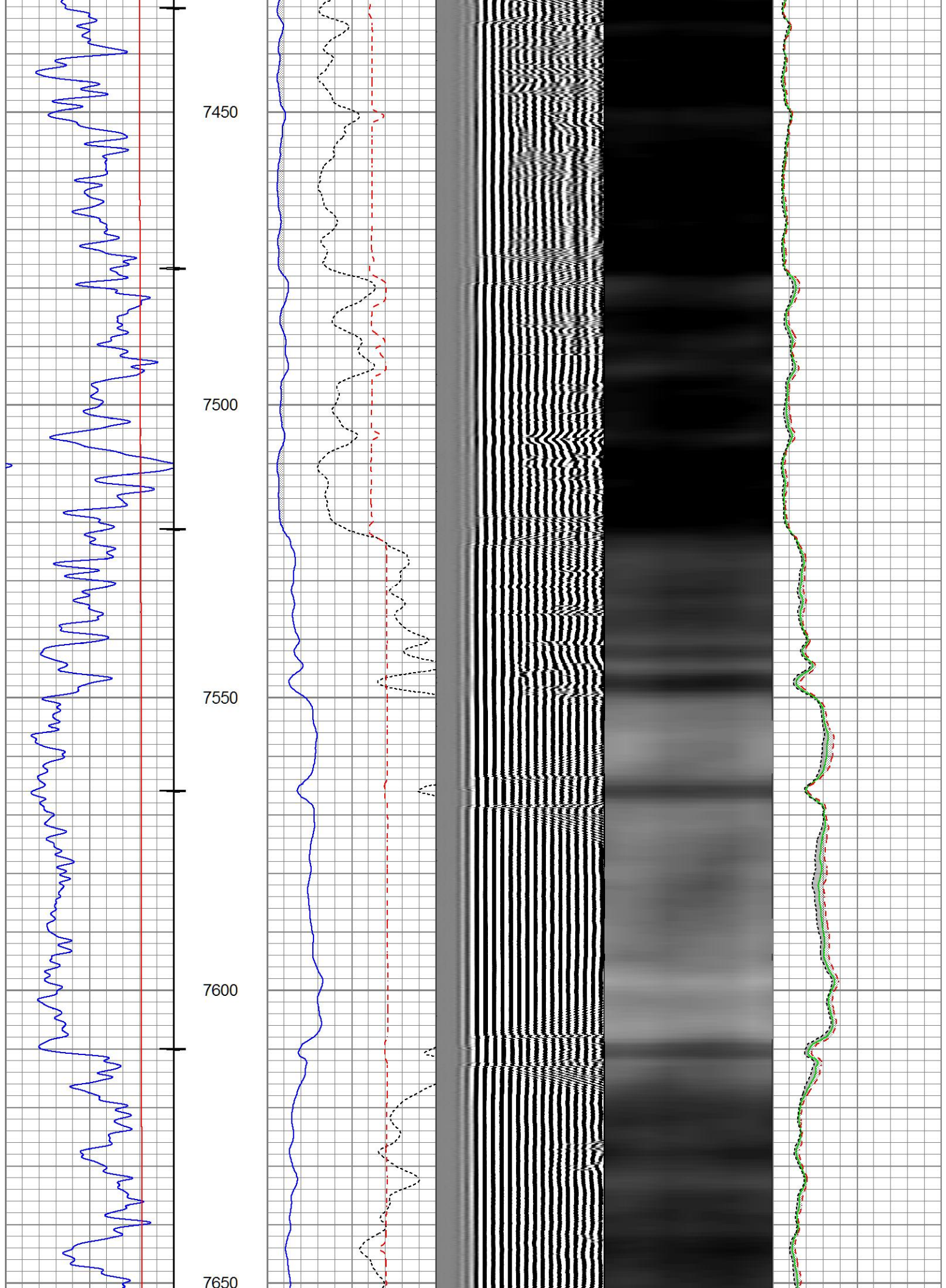


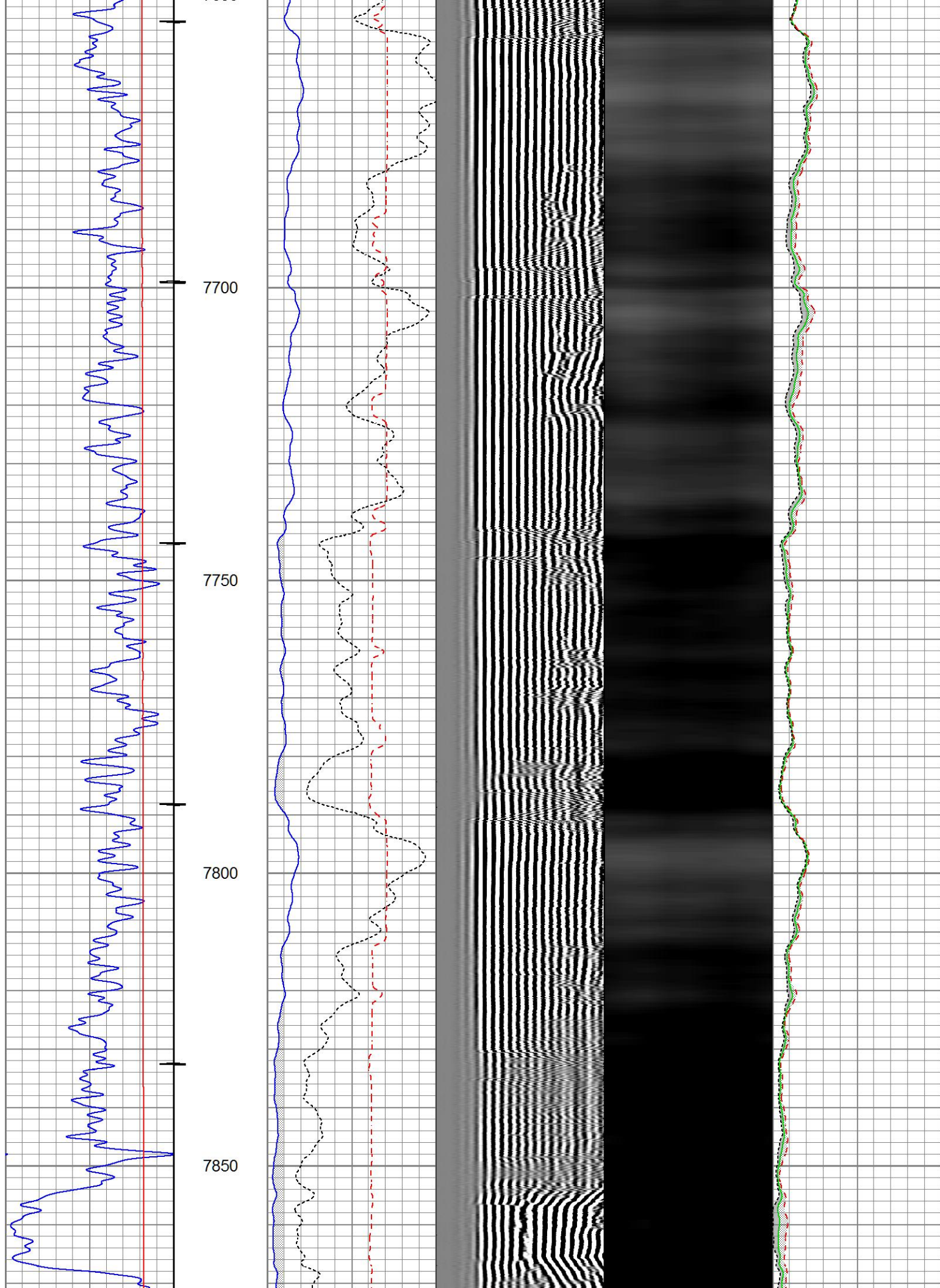


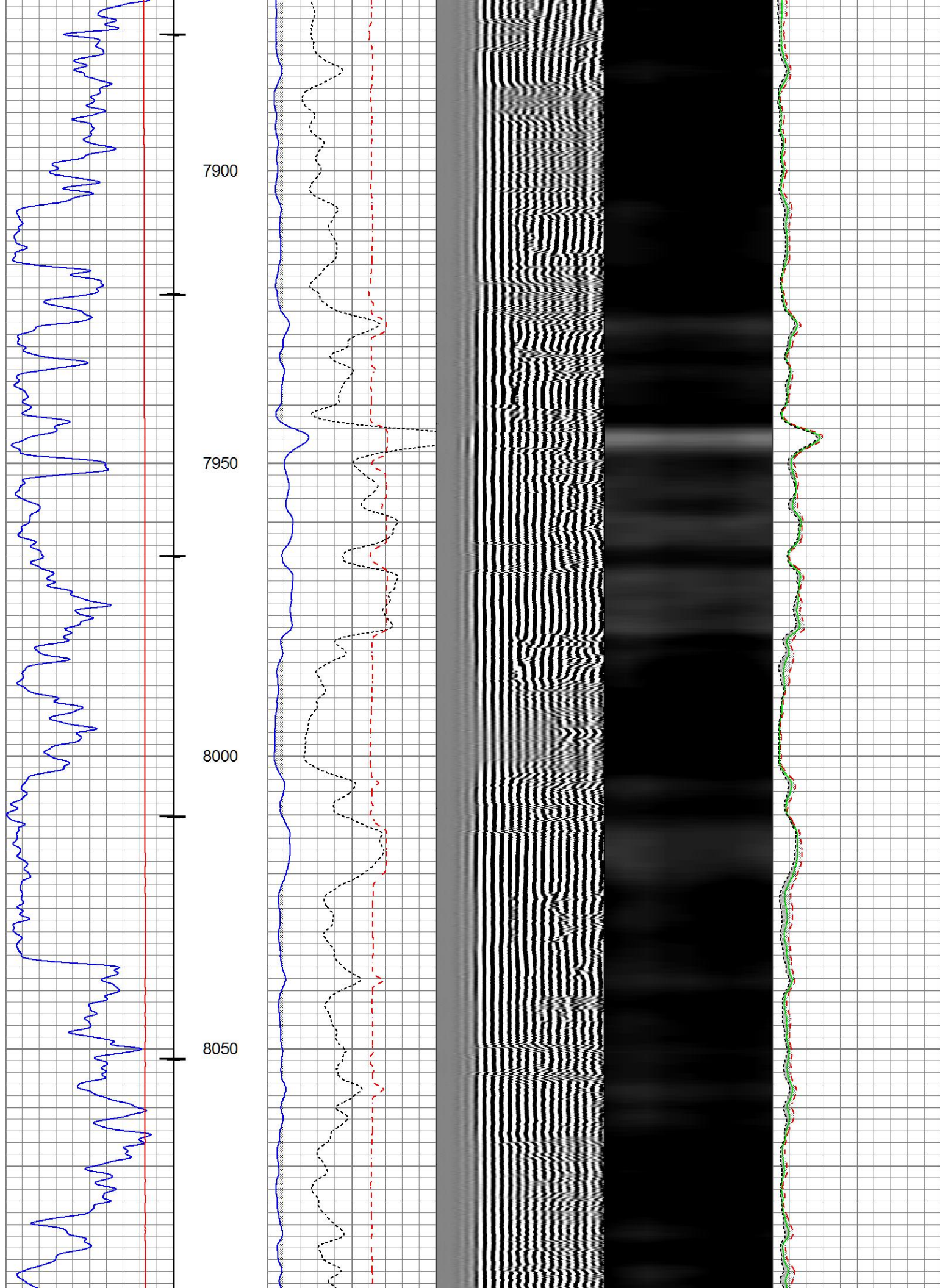


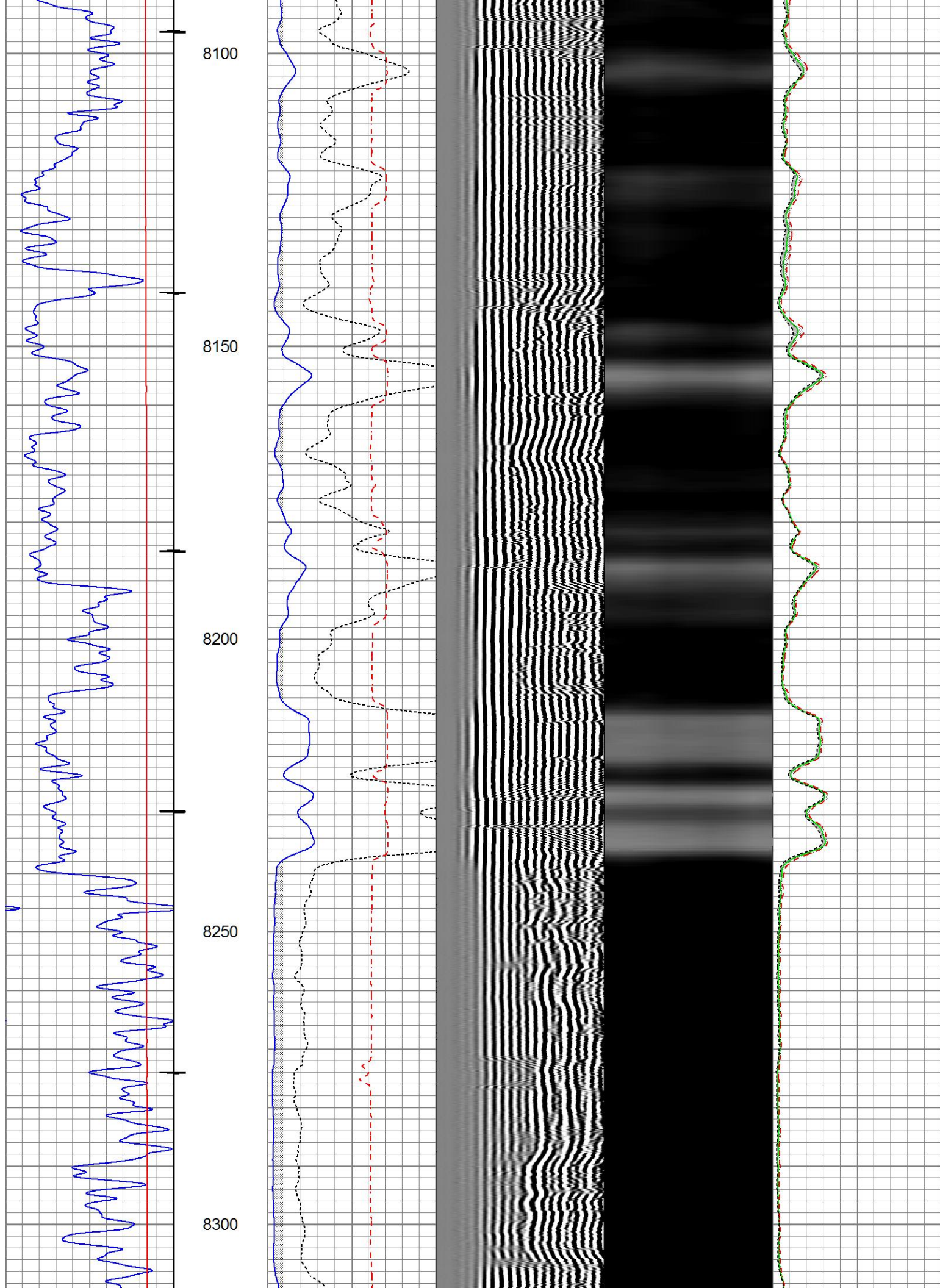


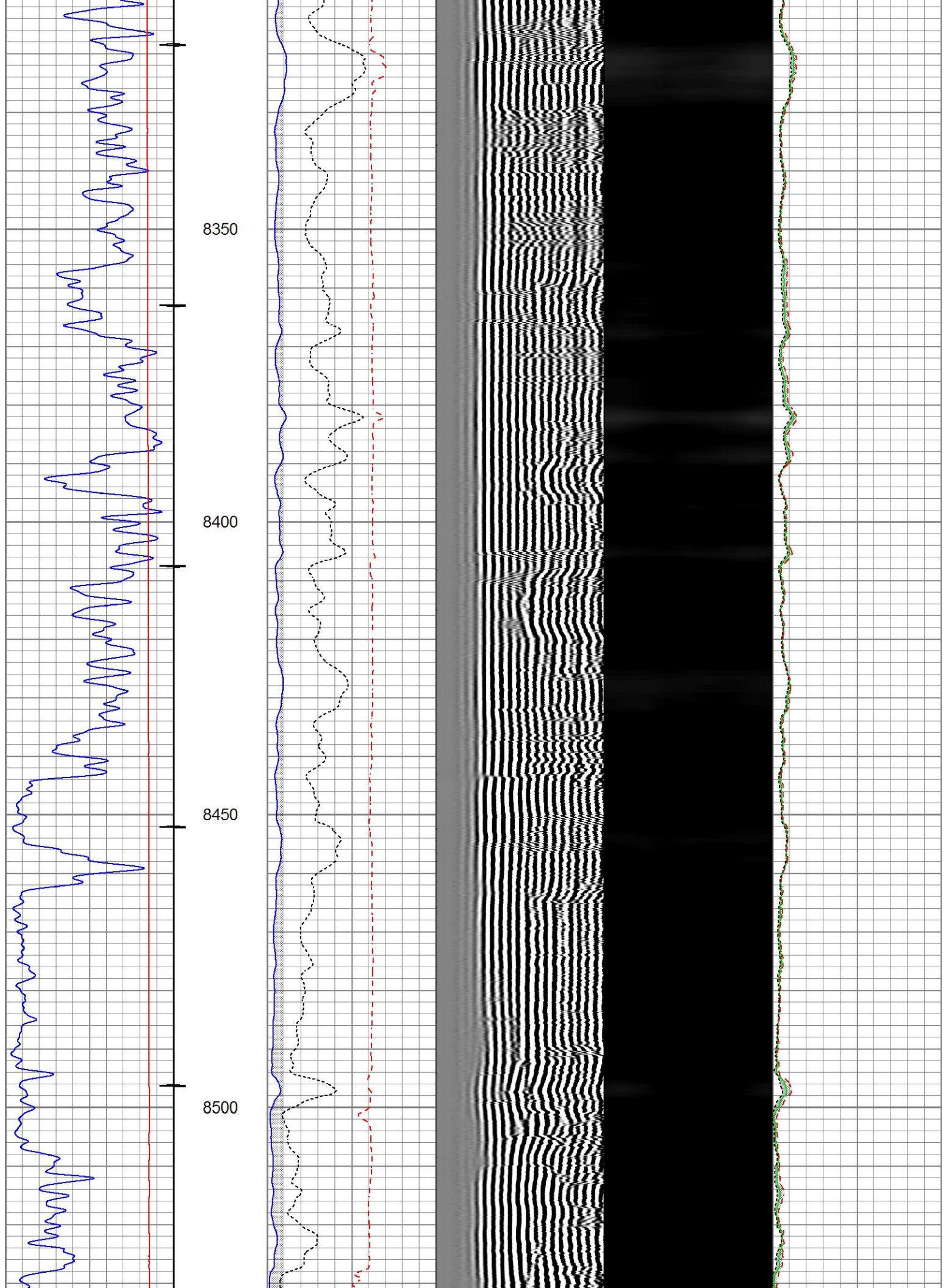


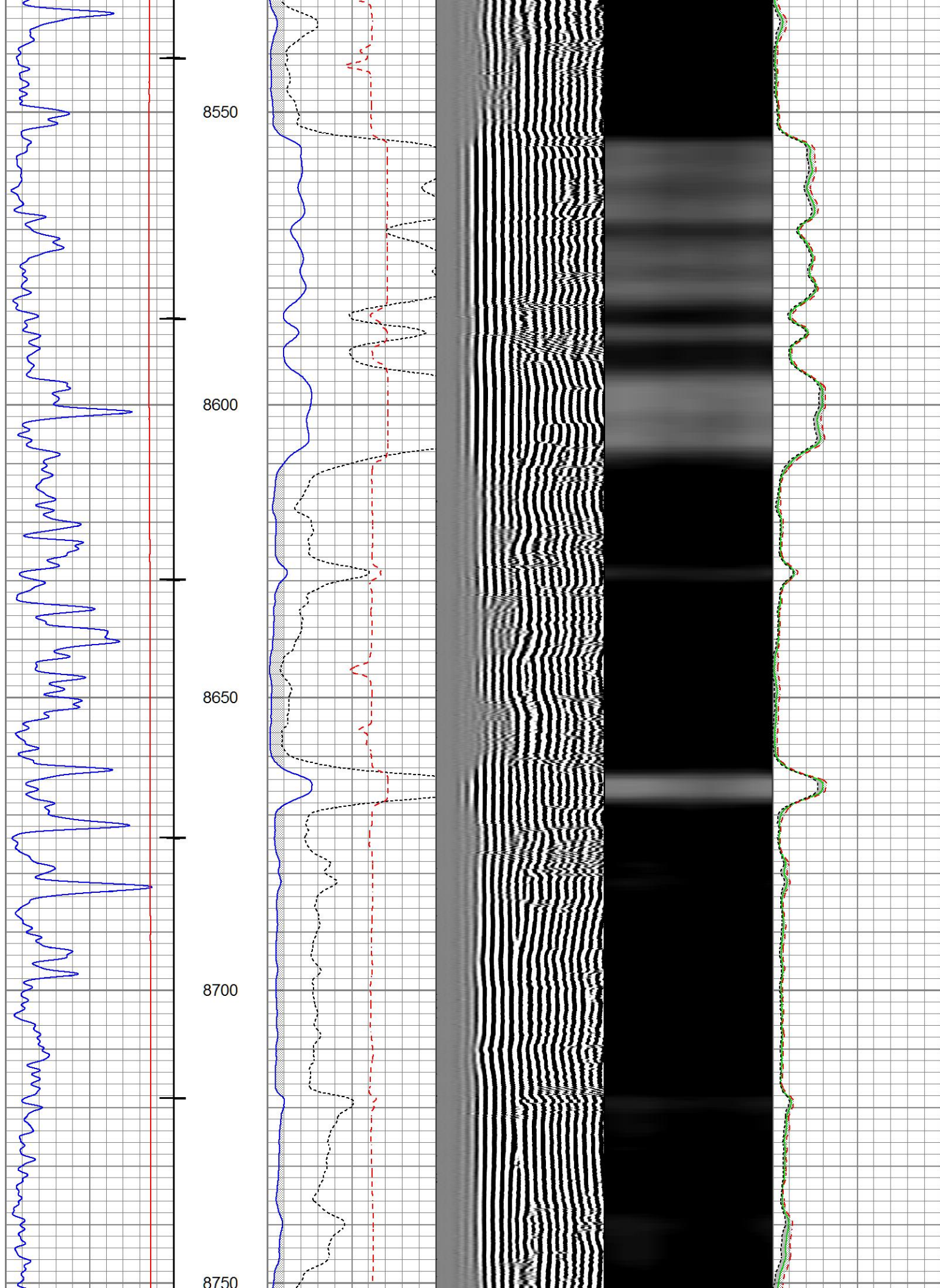


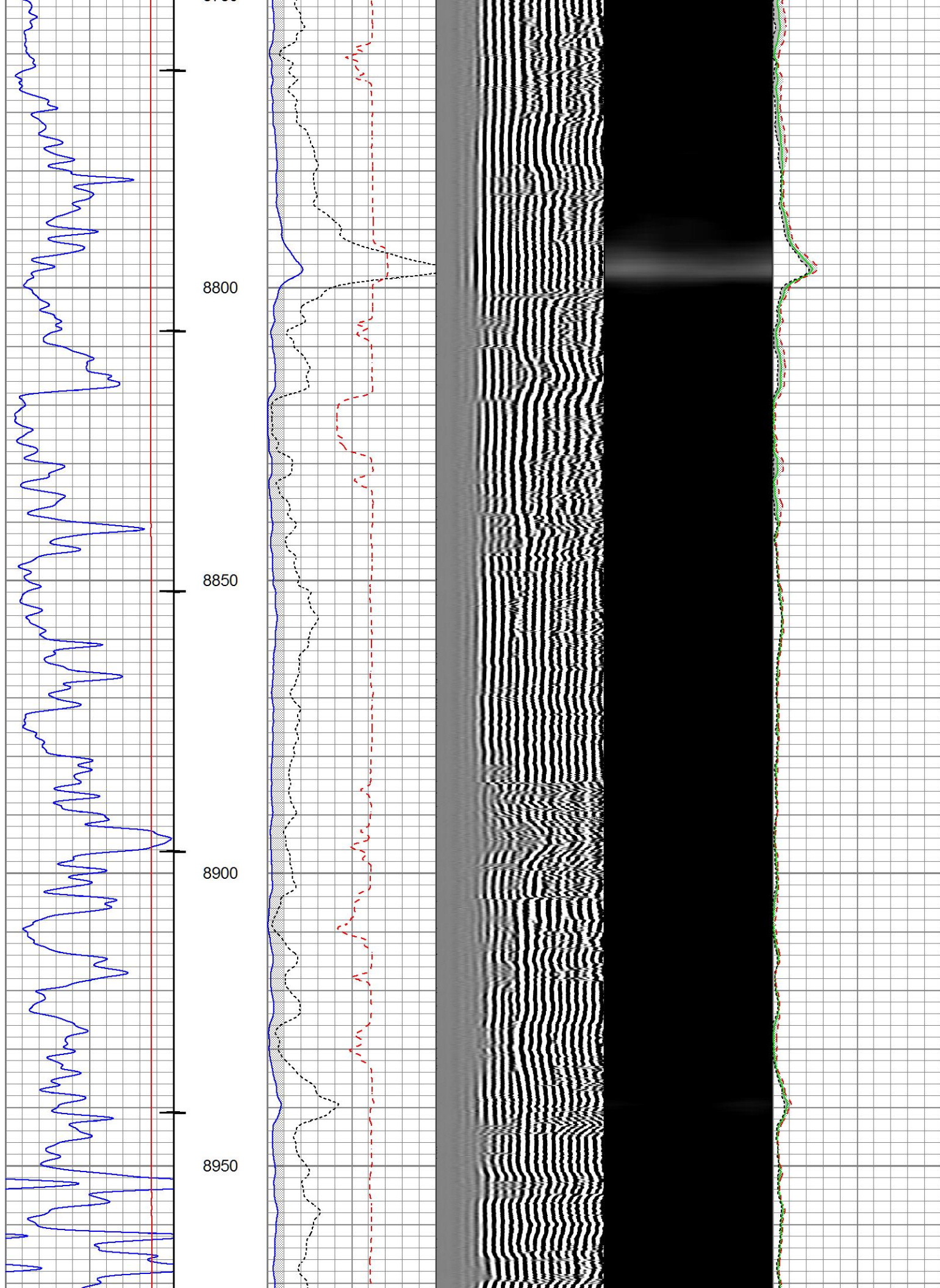


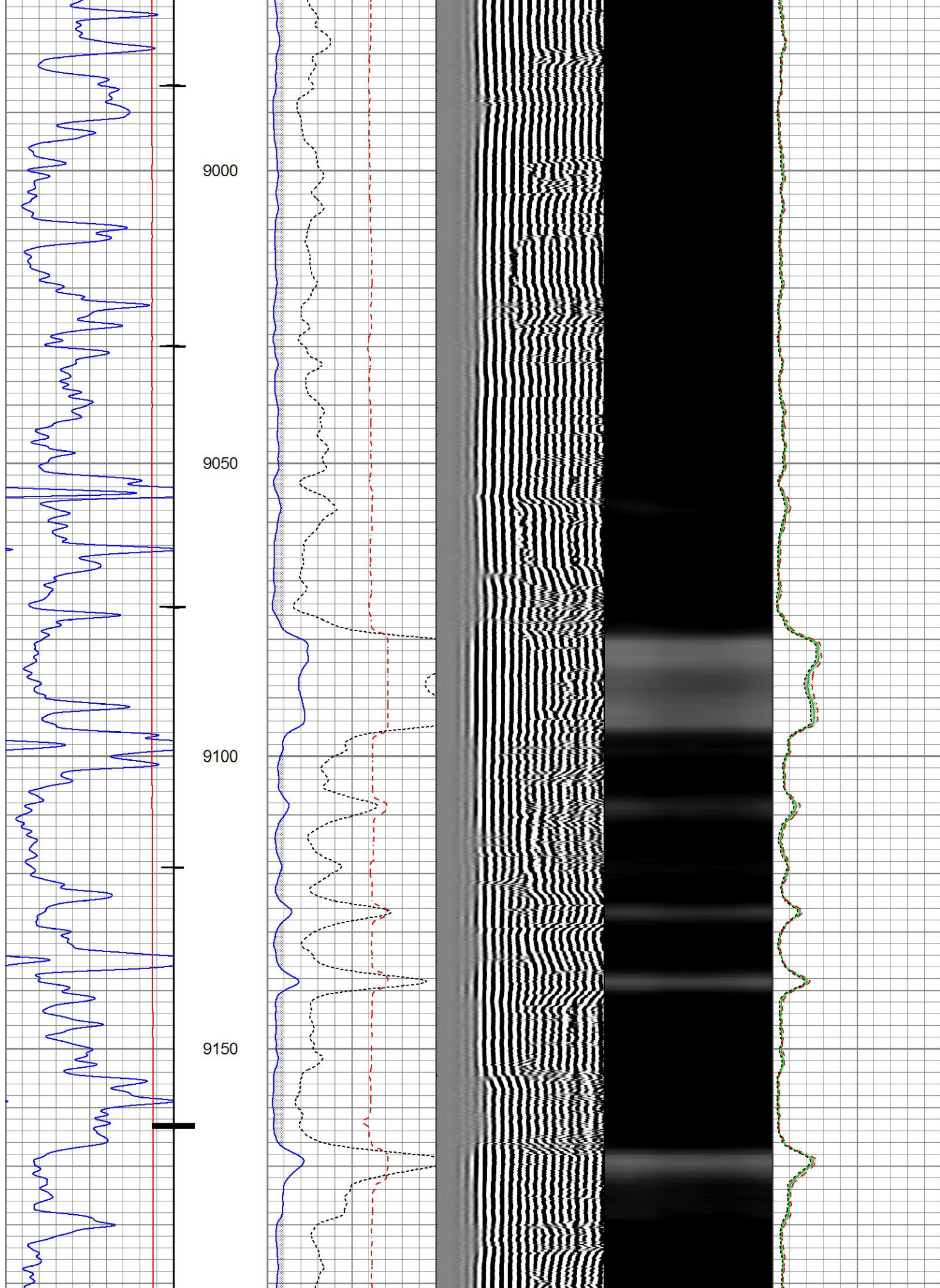


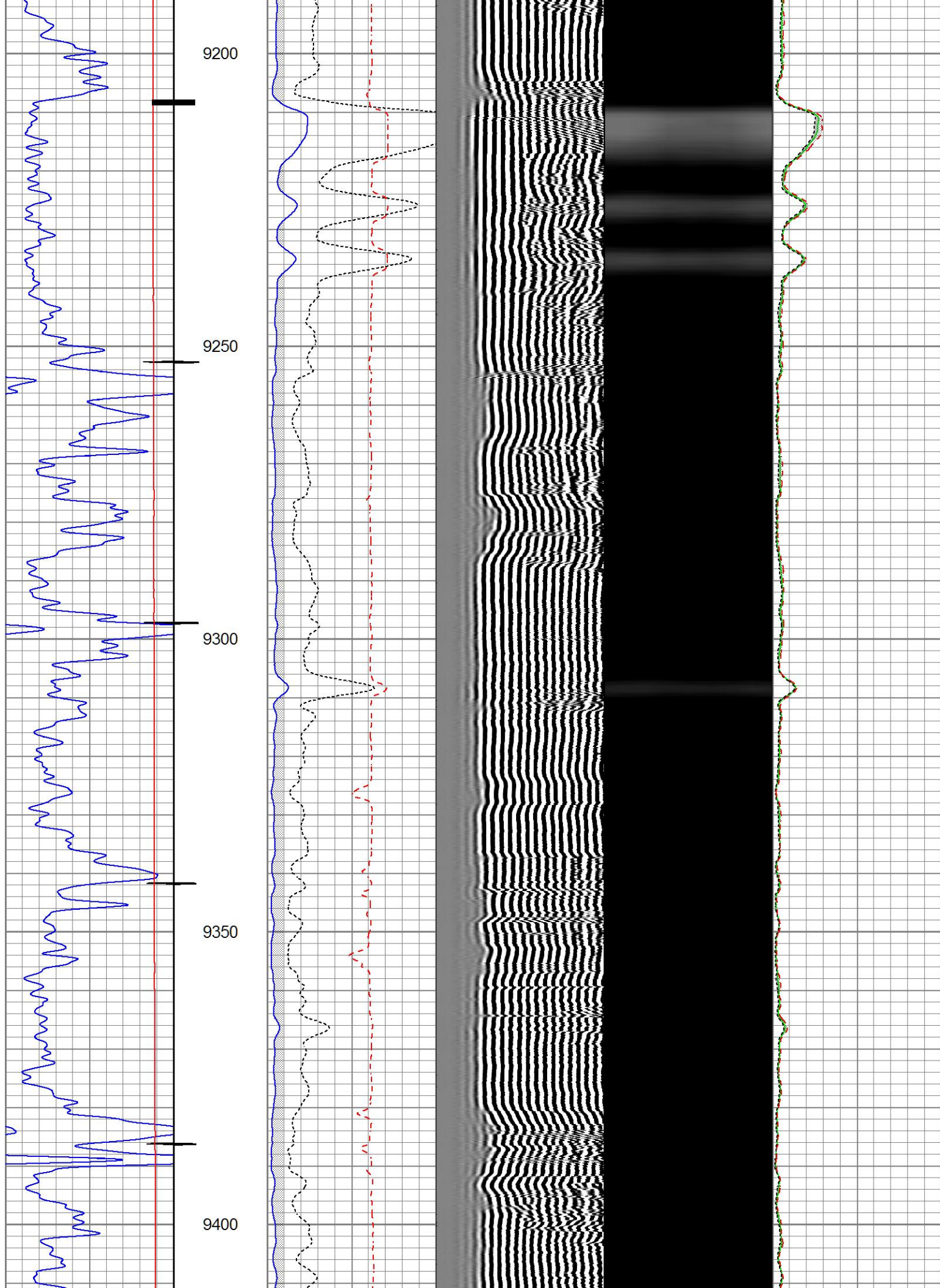


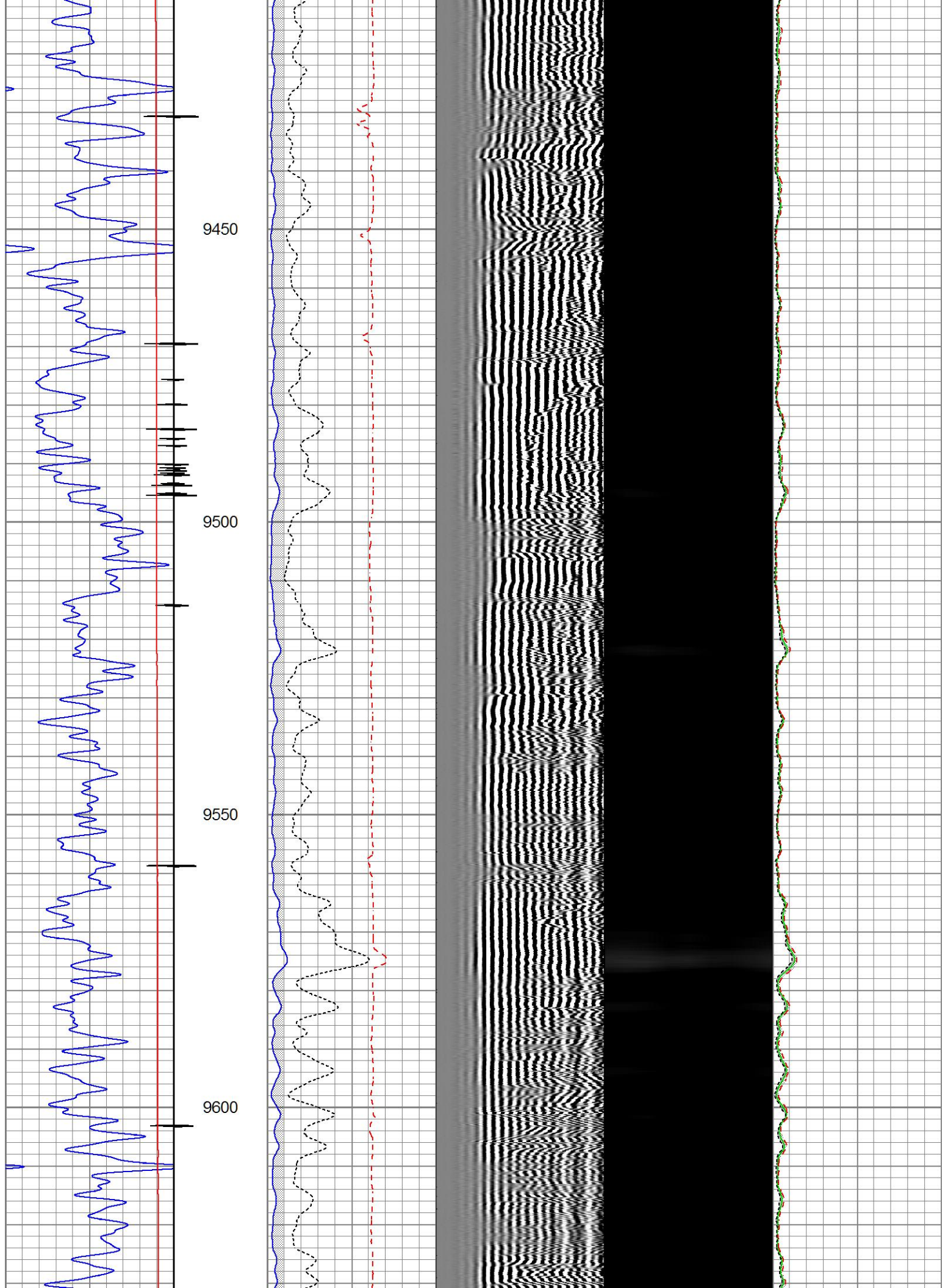


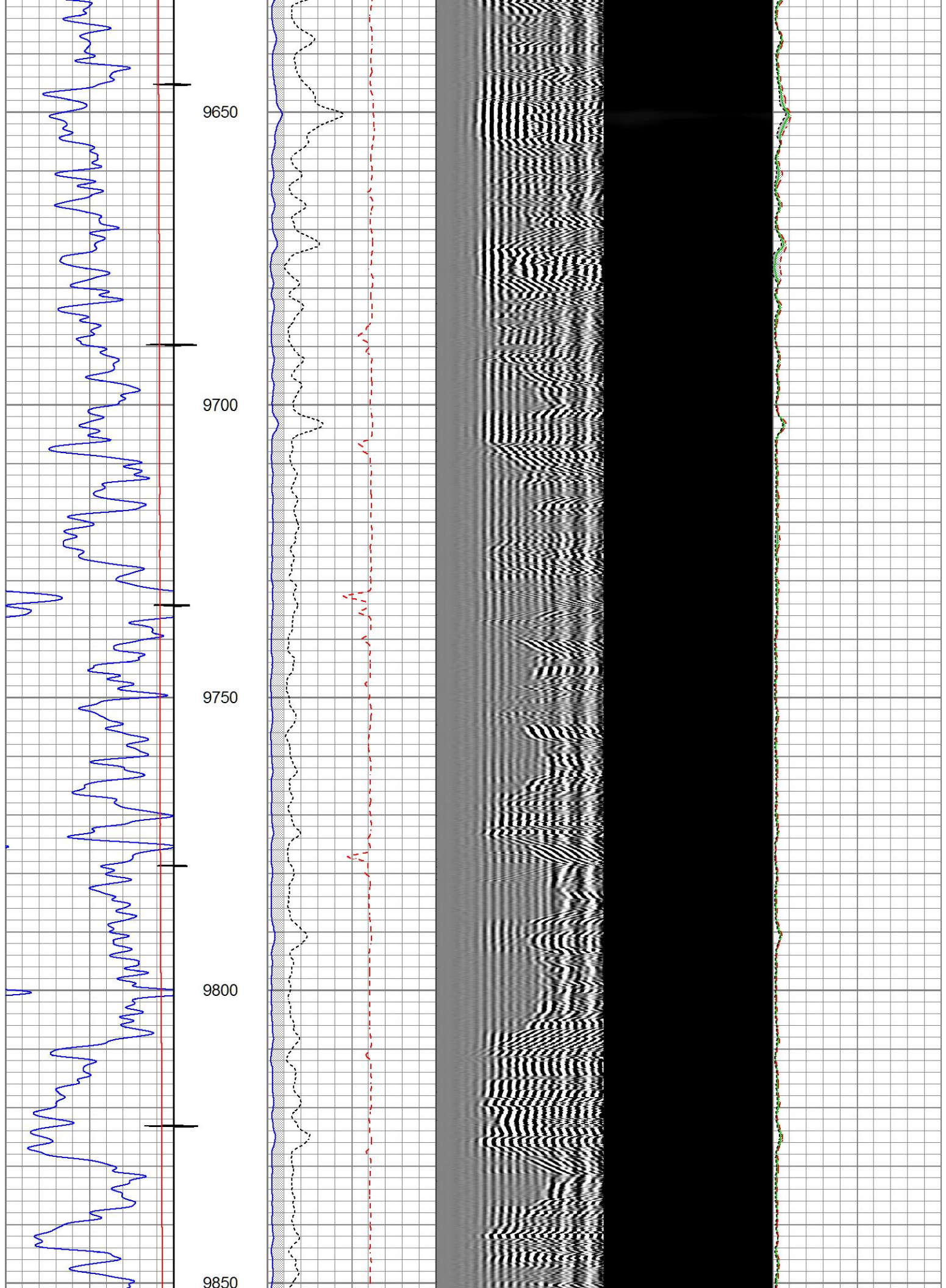


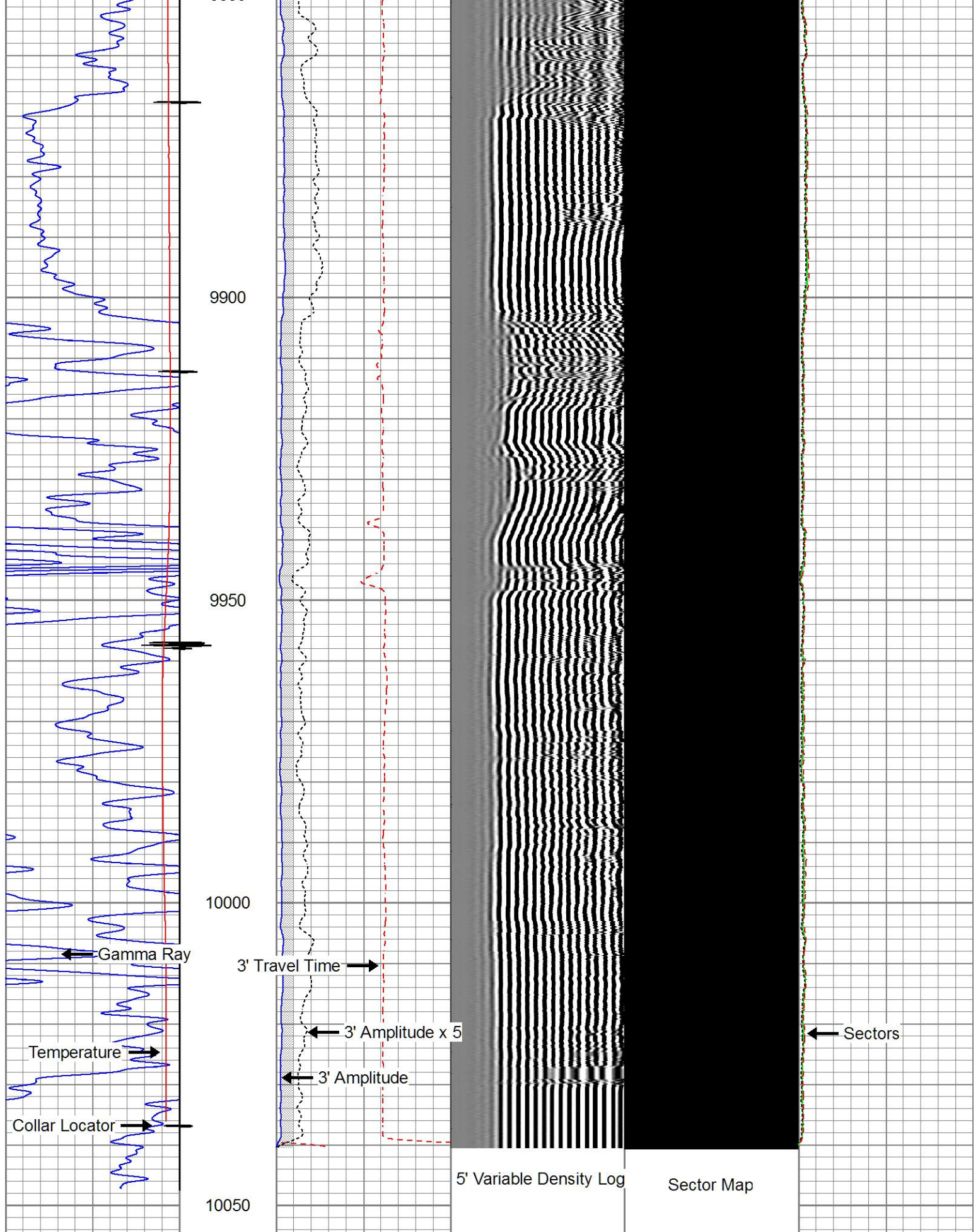












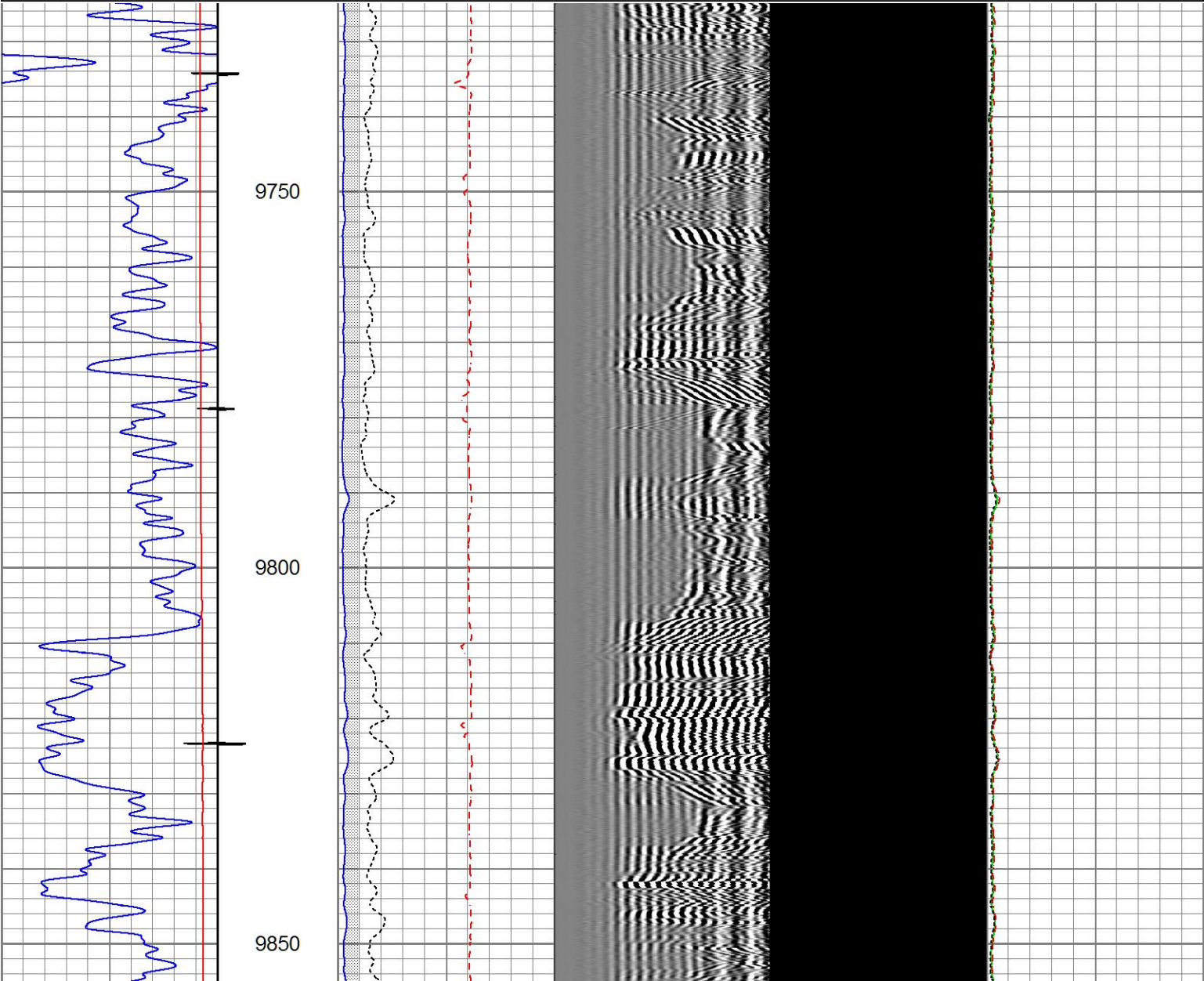
Gamma Ray	CCL	3' Amplitude	5' Variable Density Log	Cement Map	Average Amplitude
0 (GAPI) 120		0 (mV) 100	200 1200		0 125
CCL		3' Amplitude x 5			Minimum Amplitude

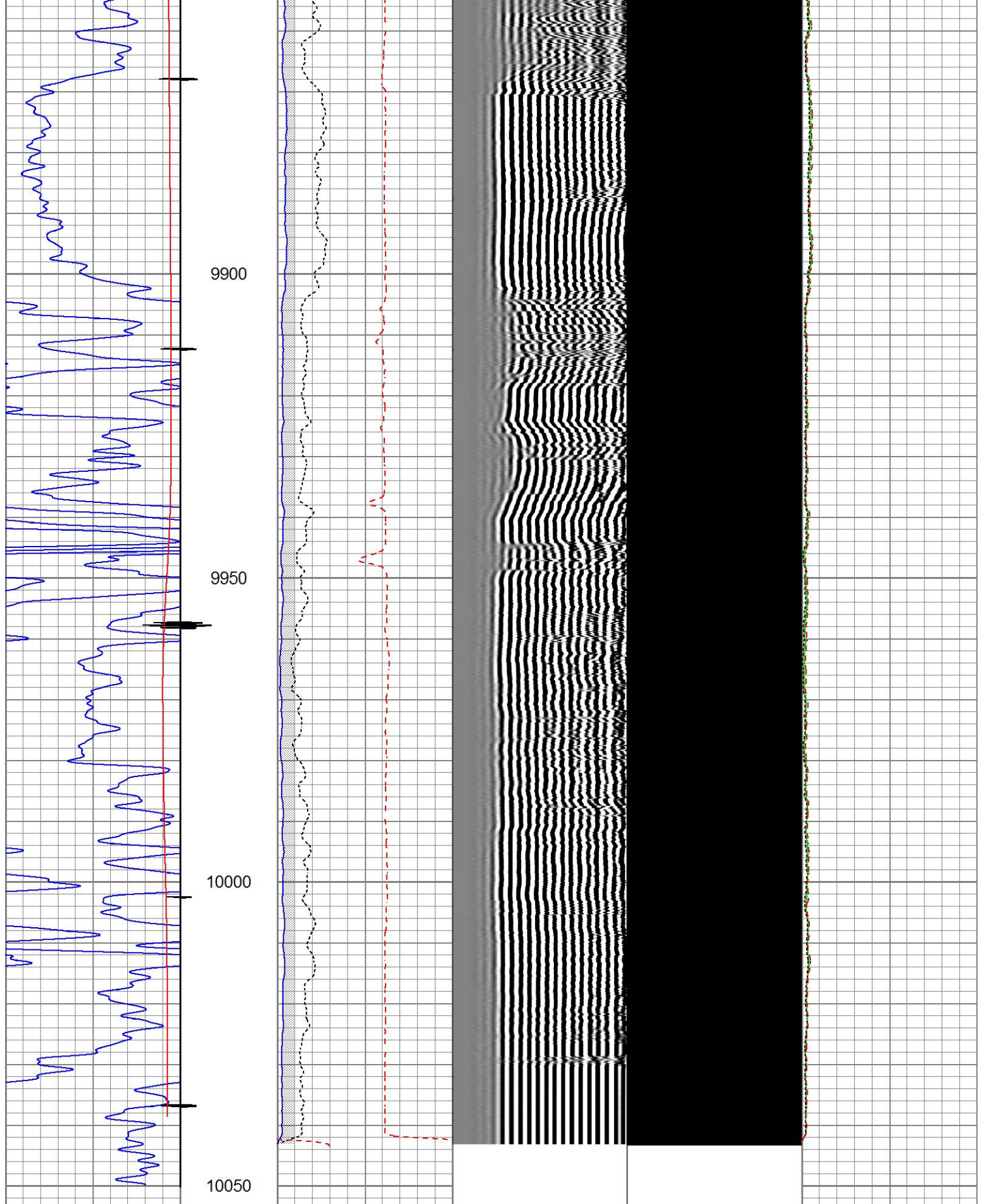
0	TEMP (degF)	300	0	(mV)	20	0		125
				3' Travel Time			Maximum Amplitude	
			650	(usec)	150	0		125

Repeat Pass 1500 PSI

Database File	whiting wildhorse 16-13l.db
Dataset Pathname	repeatpass
Presentation Format	usrbl
Dataset Creation	Mon Jul 15 09:56:30 2013
Charted by	Depth in Feet scaled 1:240

Gamma Ray	CCL	3' Amplitude	5' Variable Density Log	Cement Map	Average Amplitude
0 (GAPI) 120		0 (mV) 100	200 1200		0 125
CCL		3' Amplitude x 5			Minimum Amplitude
0 TEMP (degF) 300		0 (mV) 20			0 125
		3' Travel Time			Maximum Amplitude
		650 (usec) 150			0 125





Gamma Ray	CCL	3' Amplitude	5' Variable Density Log	Cement Map	Average Amplitude
0 (GAPI) 120		0 (mV) 100	200 1200		0 125
CCL		3' Amplitude x 5			Minimum Amplitude
0 TEMP (degF) 300		0 (mV) 20			0 125

3' Travel Time			Maximum Amplitude	
650	(usec)	150	0	125

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
RHeadVolt	19.51		Titan_1_11_16	1.04	1.44	5.00	
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00	
			Temp	16.68			
WVFS8	14.57		2-3/4" (FW1302-123in4.5") Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.21	2.75	100.00	
WVFS7	14.57						
WVFS6	14.57						
WVFS5	14.57						
WVFS4	14.57						
WVFS3	14.57						
WVFS2	14.57						
WVFS1	14.57						
WVFCAL	14.57						
WVF3FT	14.57						
WVF5FT	13.57						
				Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
DCCL	6.59						
CCL	6.59						
GR	5.26			2.75"Digital (FW1302-119) Probe 2-3/4" Digital CCL / Gamma Ray Combined	4.58	2.75	55.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00	

Dataset:	whiting wildhorse 16-13l.db: field/well/run1/main
Total length:	23.47 ft
Total weight:	190.00 lb
O.D.:	2.75 in

Calibration Report

Database File	whiting wildhorse 16-13l.db
Dataset Pathname	main
Dataset Creation	Mon Jul 15 10:08:36 2013

Gamma Ray Calibration Report

Serial Number:	FW1302-119		
Tool Model:	2.75"Digital		
Performed:	Mon Apr 01 19:31:10 2013		
Calibrator Value:	100.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	150.0	cps	
Sensitivity:	0.6667	GAPI/cps	

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-123in4.5"		
Tool Model:	2-3/4"		
Calibration Casing Diameter:	5.500	in	
Calibration Depth:	6.868	ft	

Master Calibration, performed Mon Jul 15 08:31:38 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	0.904	0.800	71.921	79.420	0.140
CAL	1.021	1.032				
5'	0.008	0.835	0.800	71.921	85.924	0.151
SUM						
S1	0.021	0.909	0.000	100.000	112.565	-2.350
S2	0.009	0.891	0.000	100.000	113.361	-1.020
S3	0.009	0.902	0.000	100.000	111.951	-0.972
S4	0.008	0.910	0.000	100.000	110.923	-0.938
S5	0.008	0.903	0.000	100.000	111.771	-0.906
S6	0.009	0.907	0.000	100.000	111.310	-0.973
S7	0.009	0.919	0.000	100.000	109.892	-0.954
S8	0.009	0.909	0.000	100.000	111.081	-0.967

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	1.021	1.032	1.000	0.000

Air Zero Calibration, performed Mon Jul 15 08:32:00 2013:

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

3'	0.009	0.000	-0.000
5'	0.009	0.000	-0.002
SUM			
S1	0.021	0.000	0.000
S2	0.009	0.000	-0.000
S3	0.009	0.000	0.000
S4	0.009	0.000	-0.000
S5	0.008	0.000	-0.000
S6	0.009	0.000	-0.000
S7	0.009	0.000	-0.000
S8	0.008	0.000	0.001

	Company	Whiting Oil & Gas
	Well	Wildhorse 16-13L
	Field	Wildcat
	County	Weld
	State	Colorado