



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Powers 1C-27HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-41952	
SEC 22		TWP 2N	
RGE 65W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4893'	
K.B. 4918'		D.F. 4917'	
G.L. 4893'			
Date		09-Dec-2015	
Run Number		Two	
Depth Driller		13237 FT	
Depth Logger		7412 FT	
Bottom Logged Interval		7401 FT	
Top Log Interval		Surface	
Open Hole Size		7.875"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		242°F	
Estimated Cement Top		Surface	
Time Well Ready		ROA	
Time Logger on Bottom		9:38	
Equipment Number		HD-0343	
Location		Fort Lupton, CO	
Recorded By		Robert Fogarty	
Witnessed By		D.J. Anderson	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9 5/8	
Intermediate #1		5 1/2	
Intermediate #2		17	
Liner		J-55 LT&C	
		HCP-110 LTC	
		Surface	
		1856 FT	
		13211 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 to Casing Tally Reported Marker Joint at 6505 FT  
Log Adjusted +23.6 FT to Correlate to Marker Joint  
Gauge Ring Ran to 7412 FT  
Log ran from 7401 FT to surface  
Recorded with 2800 PSI surface induced pressure  
Logging tools clean and free of debris upon completion of operation  
Thank you for choosing FMC Technologies Surface Integrated Services.



Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\0512341952\_anadarko\_powers 1c-27hz\_12-09-15\_rb\0512341952\_anadarko\_powers

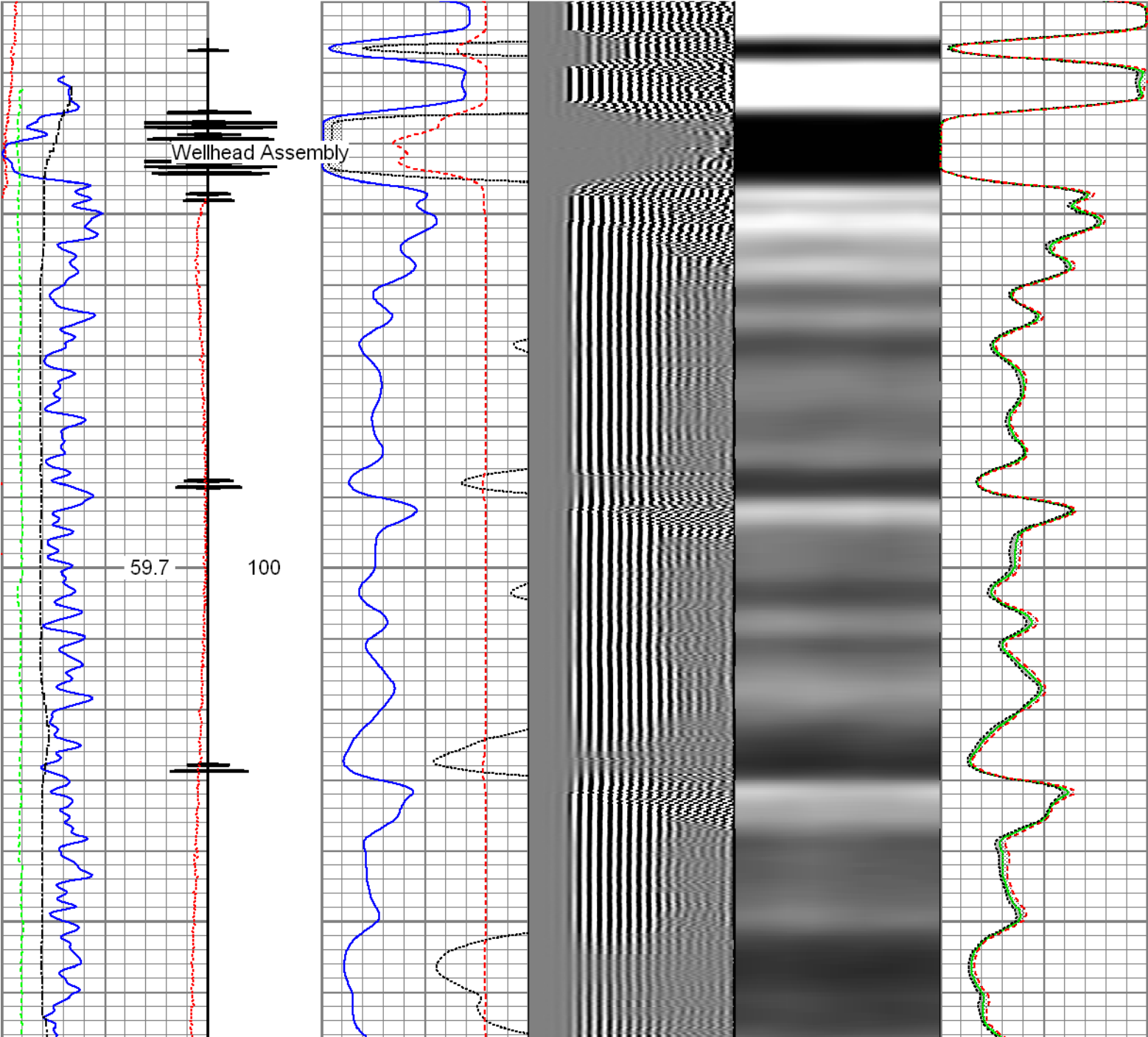
Dataset Pathname: pass11.1

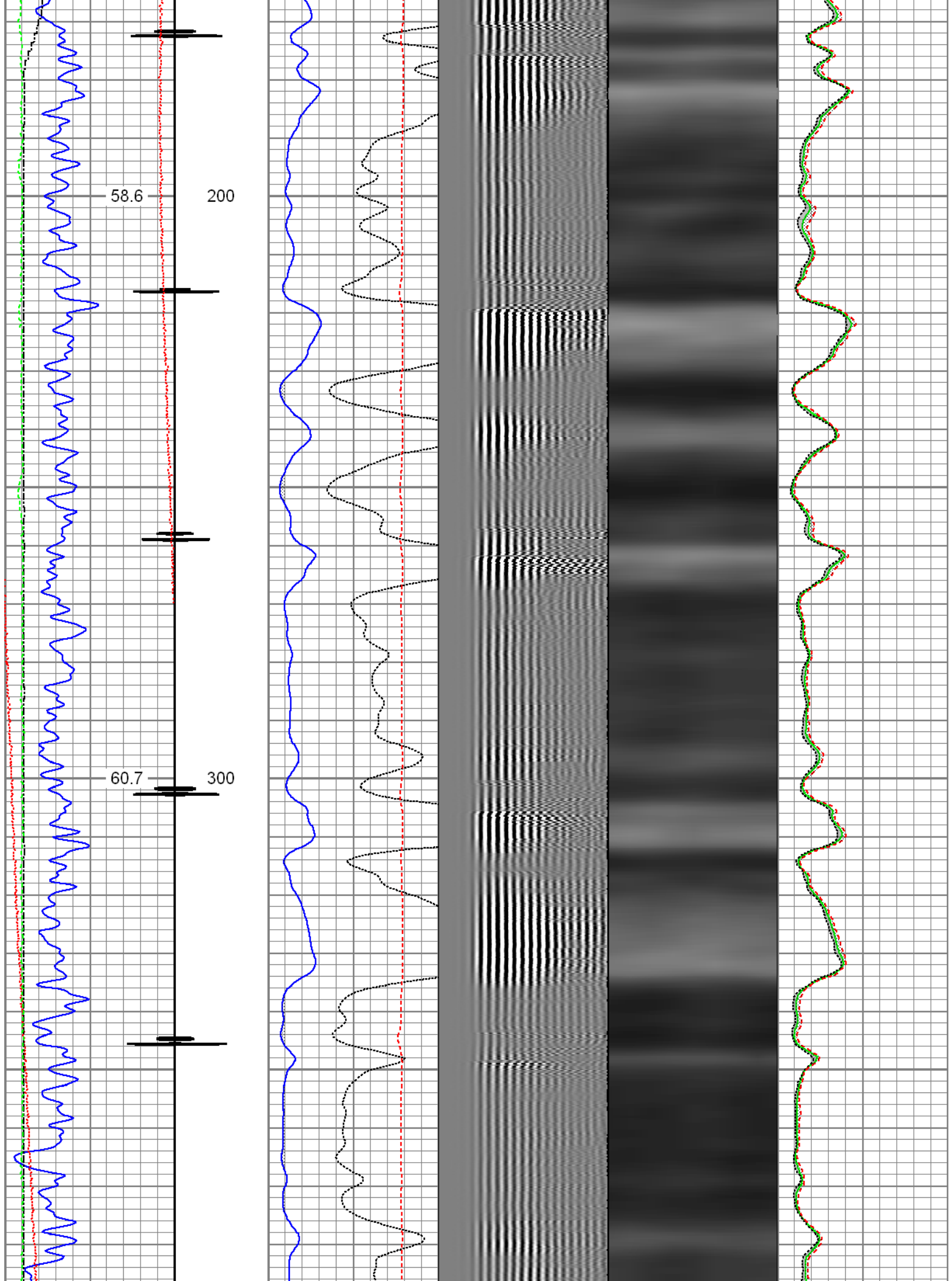
Presentation Format: radii

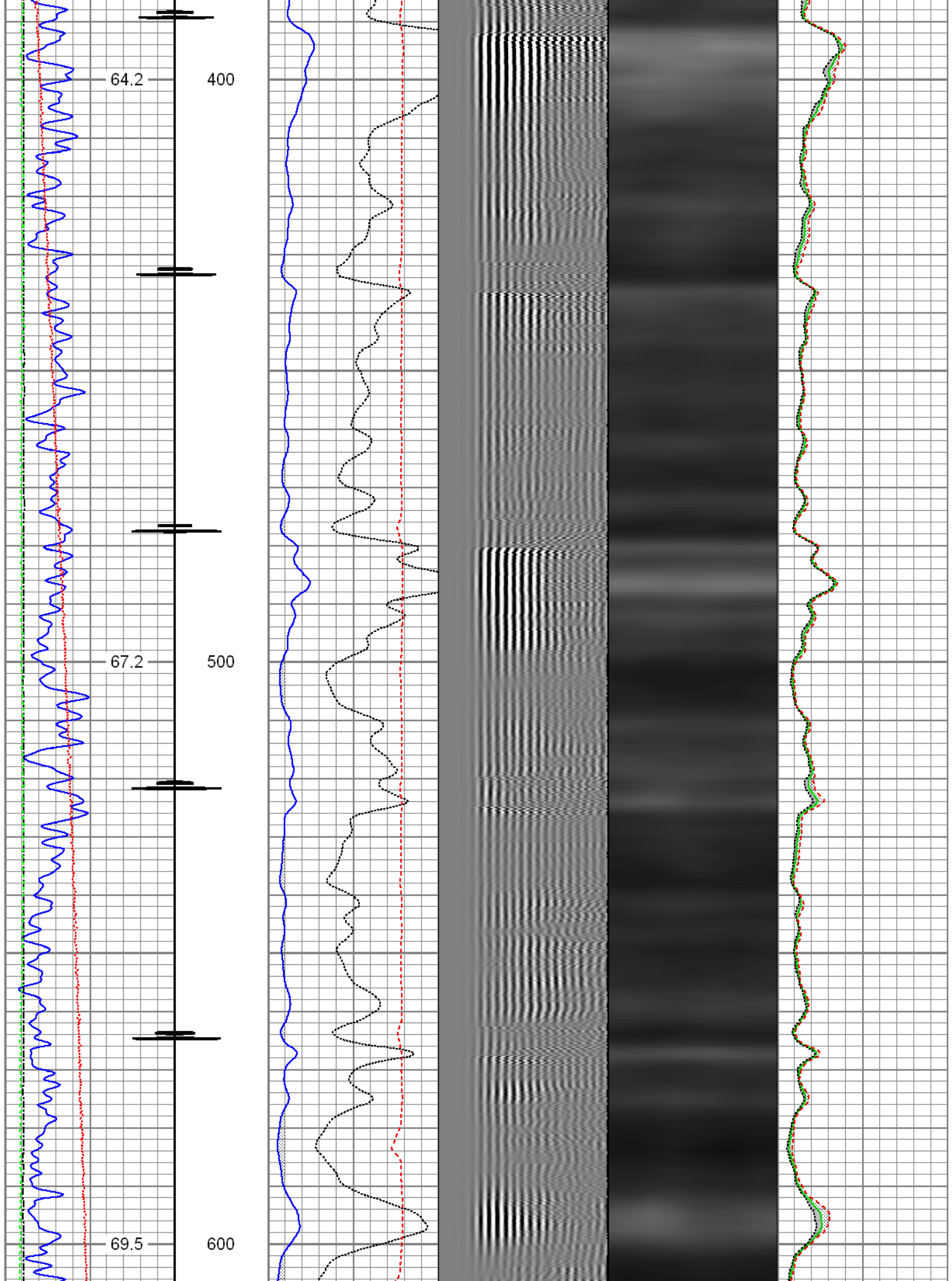
Dataset Creation: Thu Dec 10 09:47:01 2015 by Calc SCH 120430

Charted by: Depth in Feet scaled 1:240

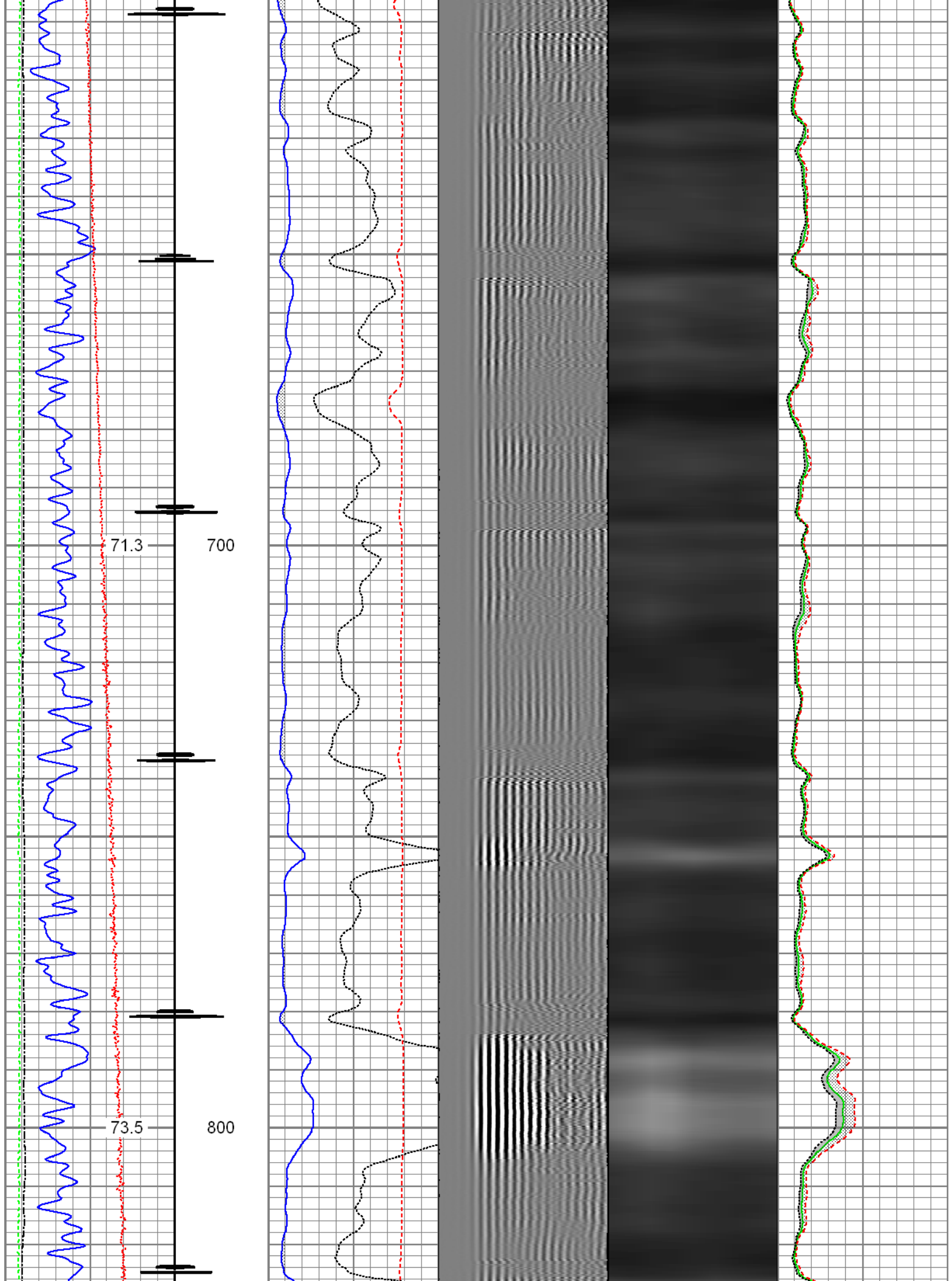
Gamma Ray	DCCL	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	2 (mV) 3	0 (mV) 100	200 1200		0 100
Casing Collar Locator		3' Amplitude x 5			Minimum Amplitude
Temperature		0 (mV) 20			0 100
0 (degF) 20		3' Travel Time			Maximum Amplitude
Line Speed		650 (usec) 150			0 100
-150 (ft/min) 150					
Line Tension					
0 (lb) 2000					

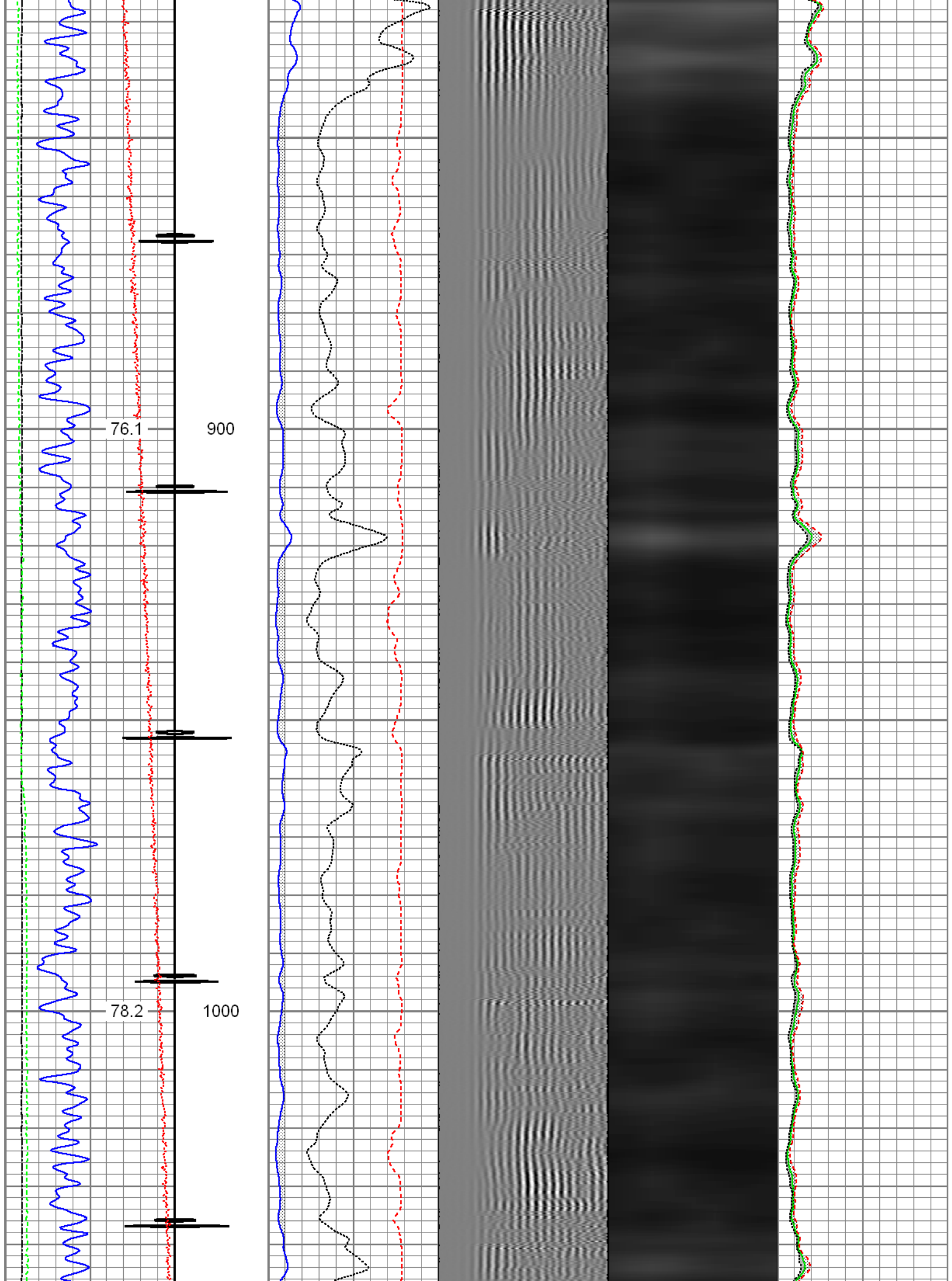


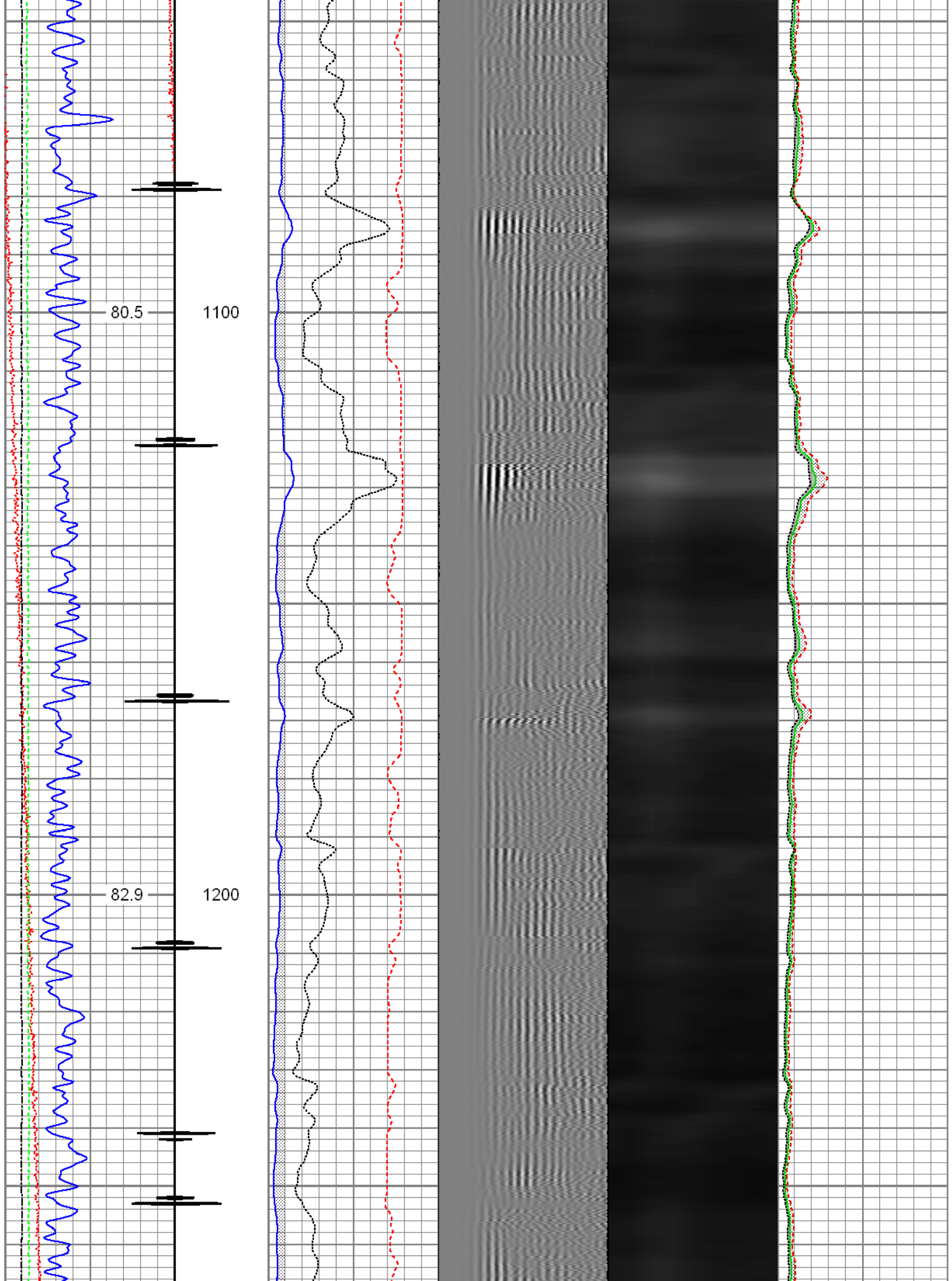


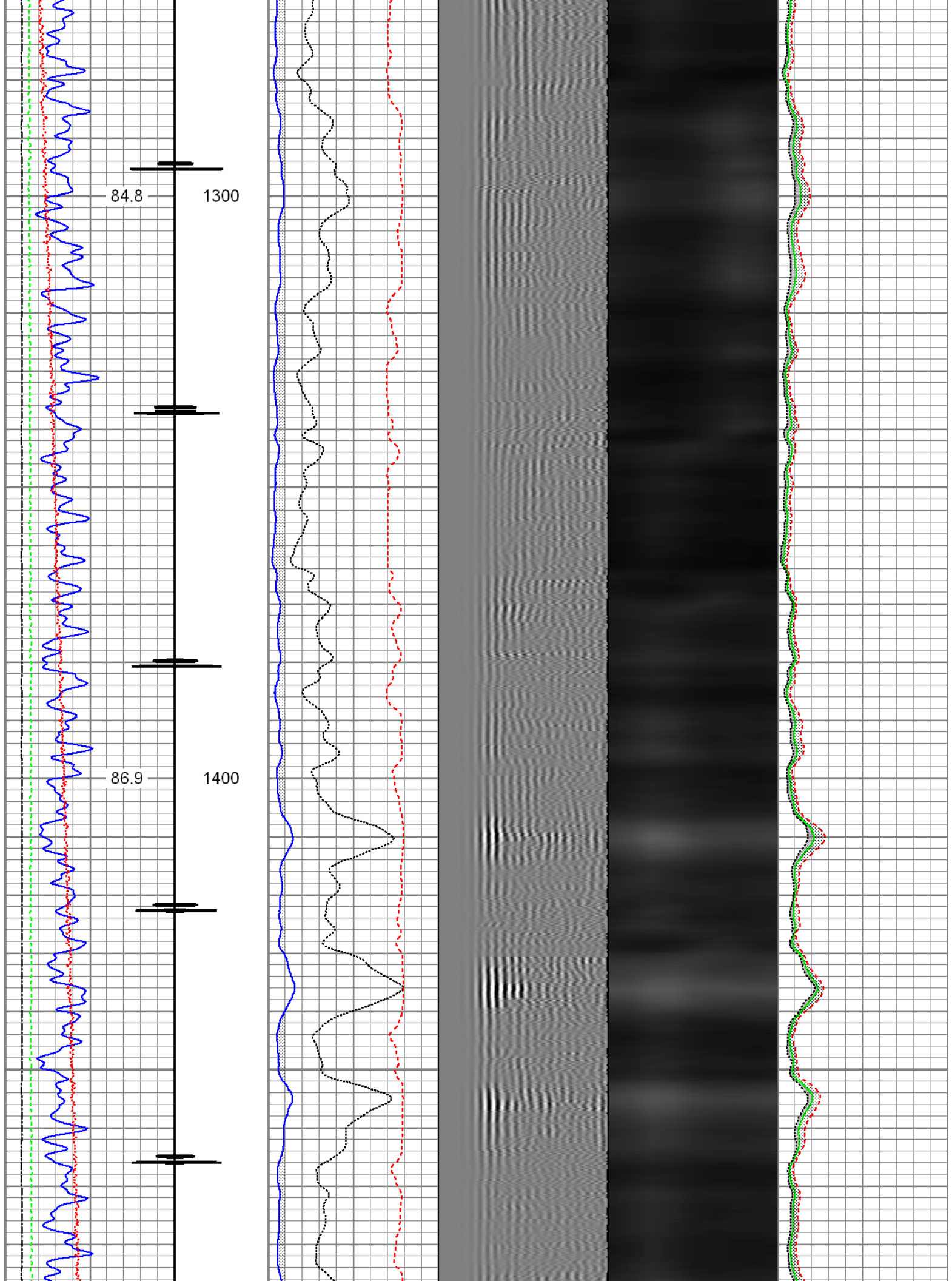




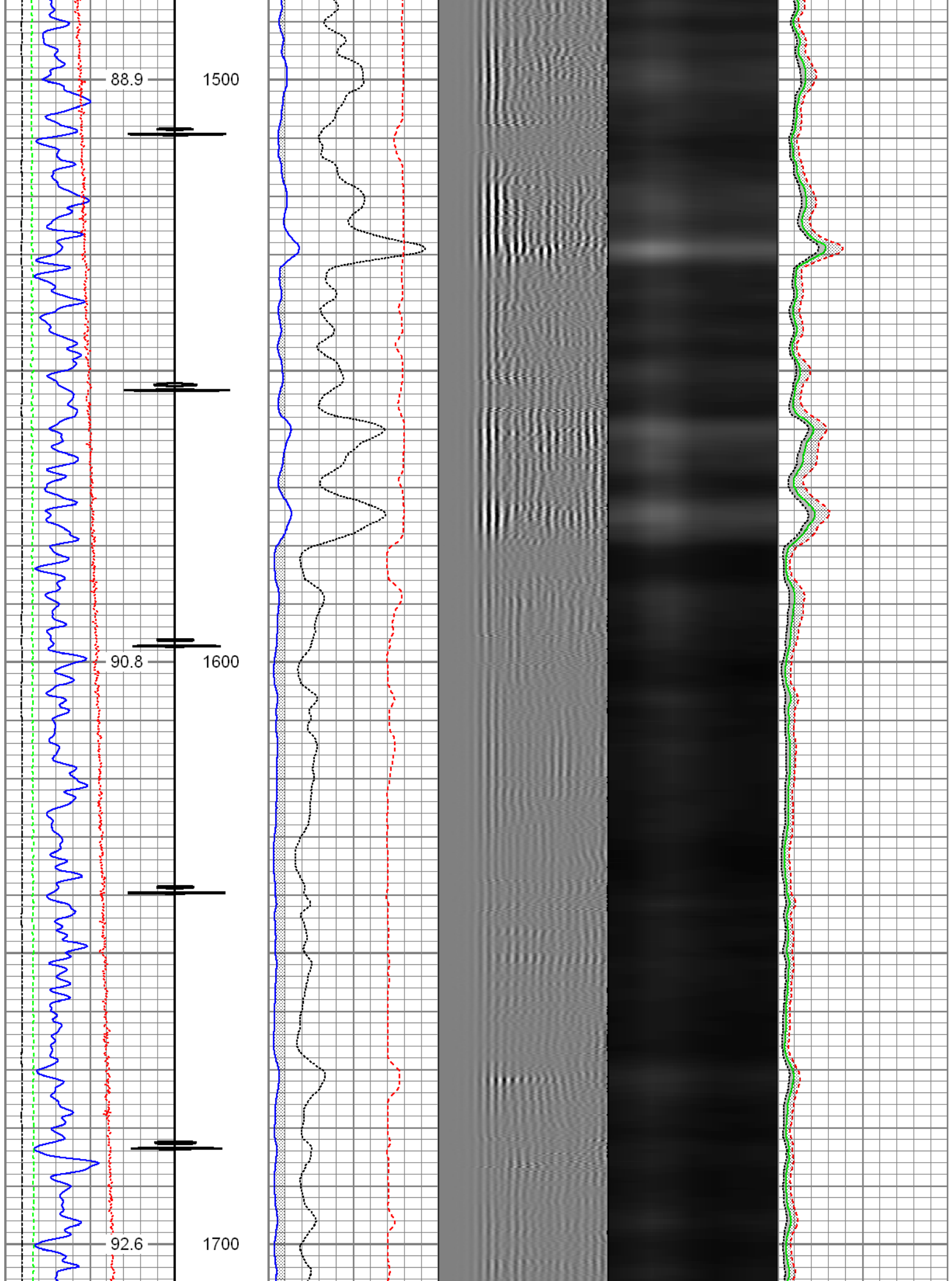


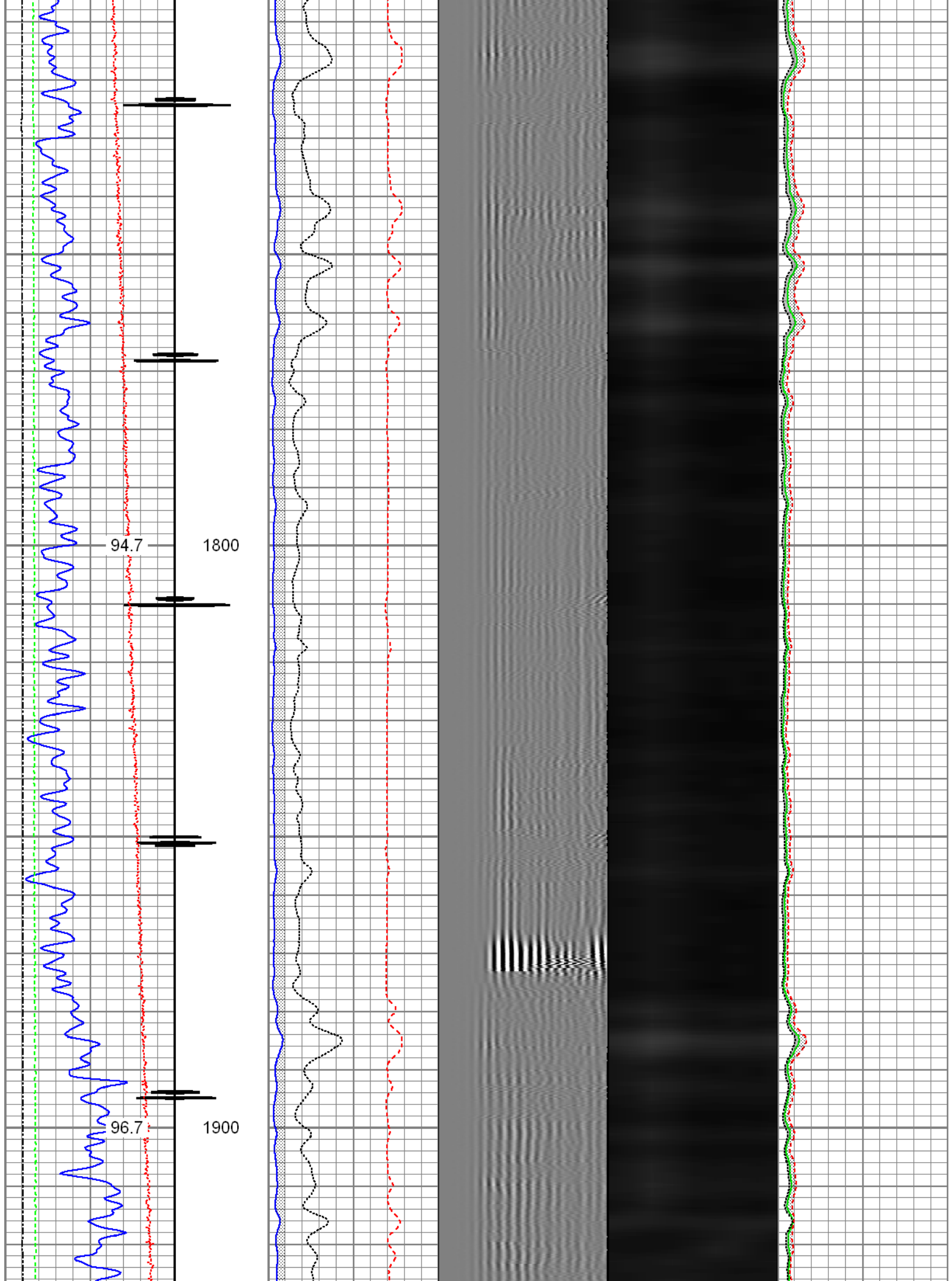


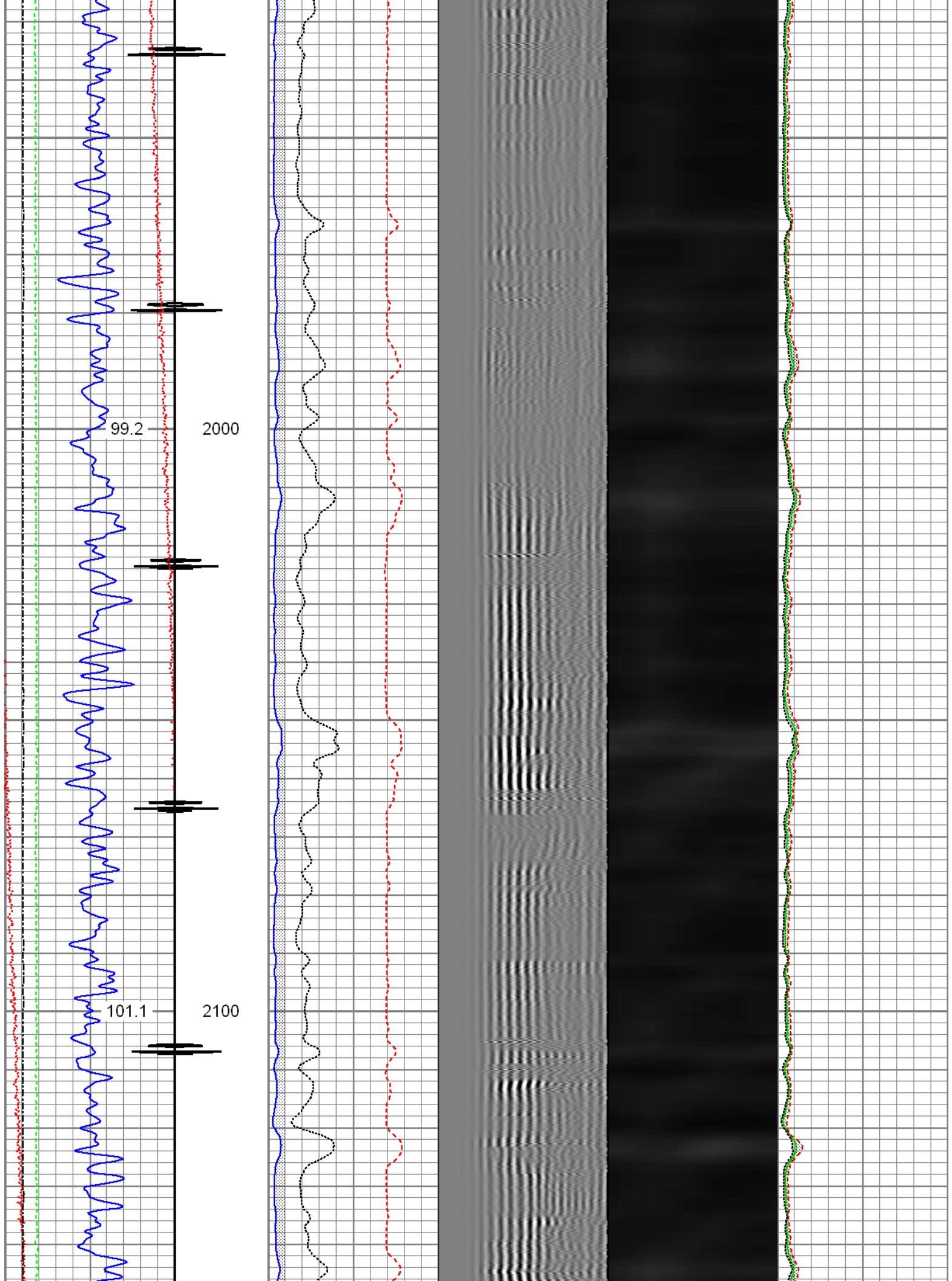


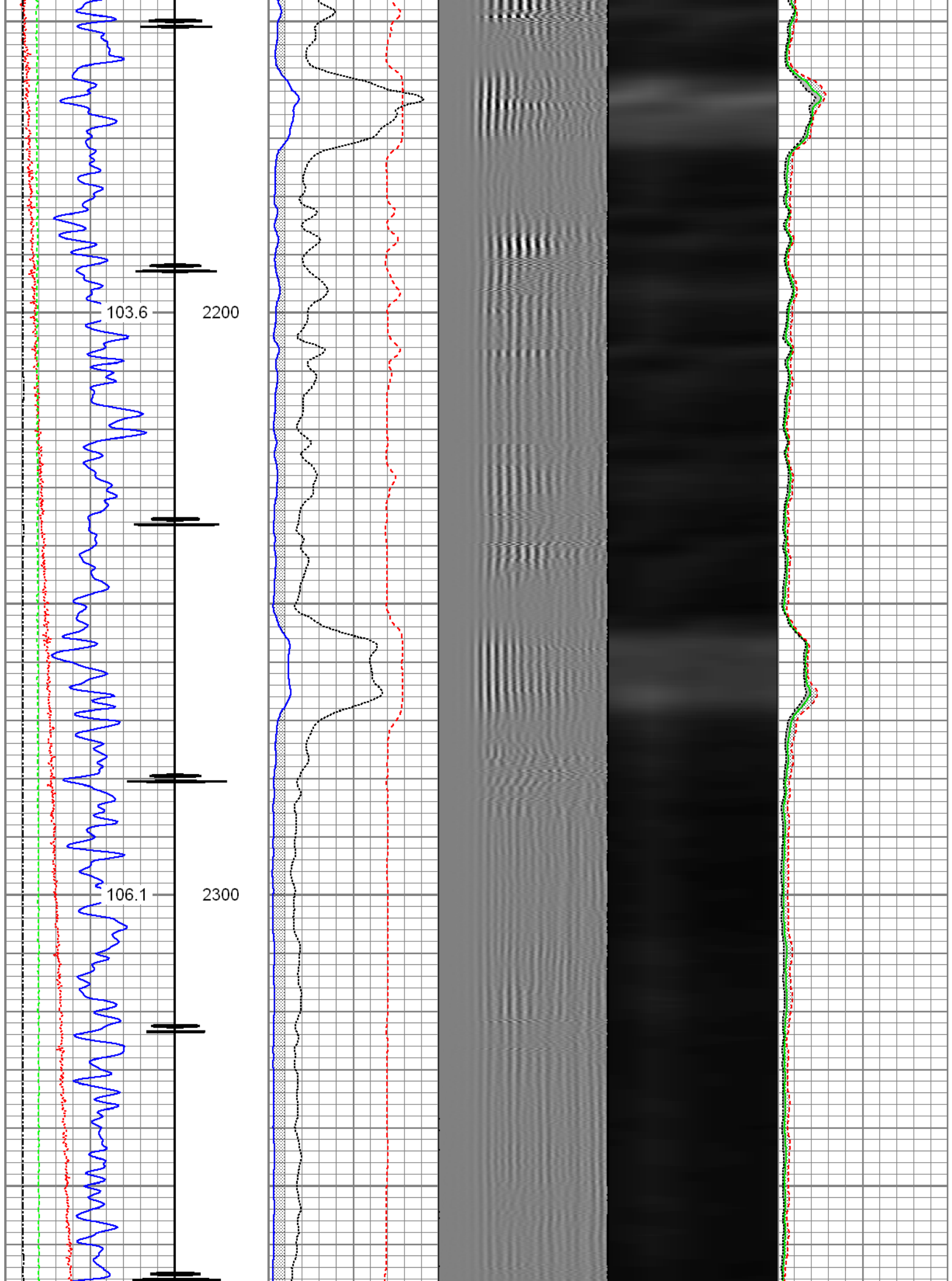




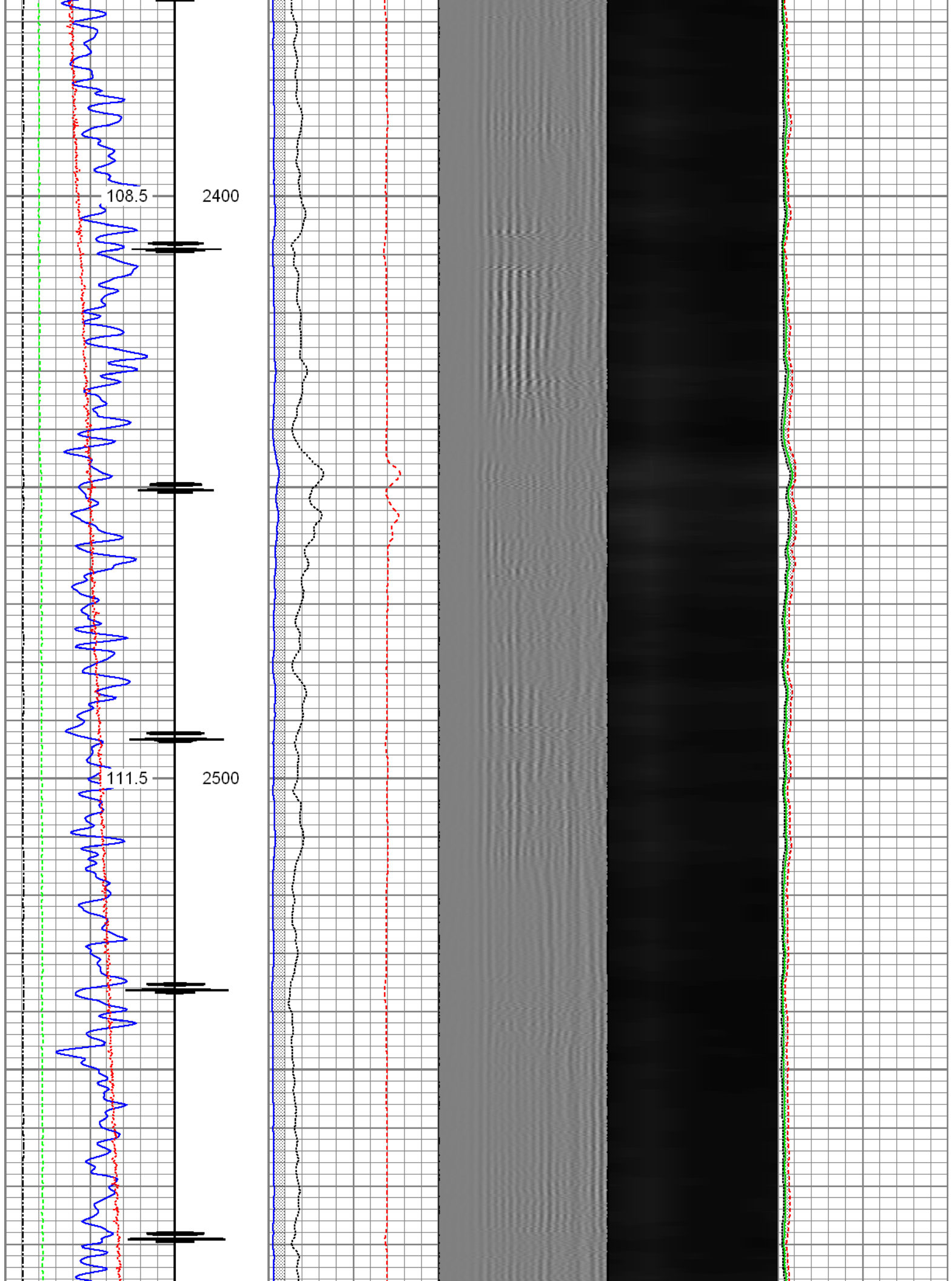


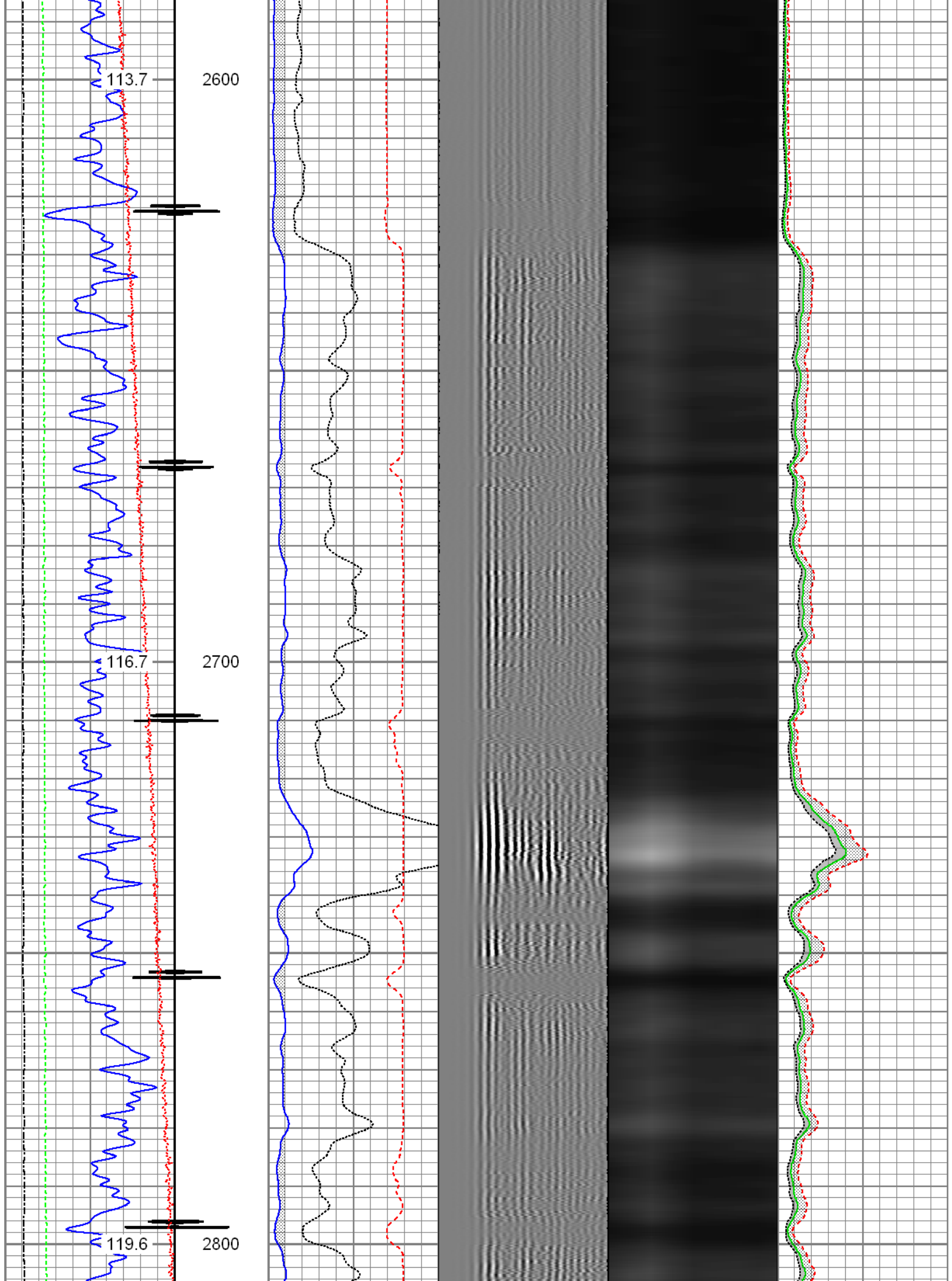


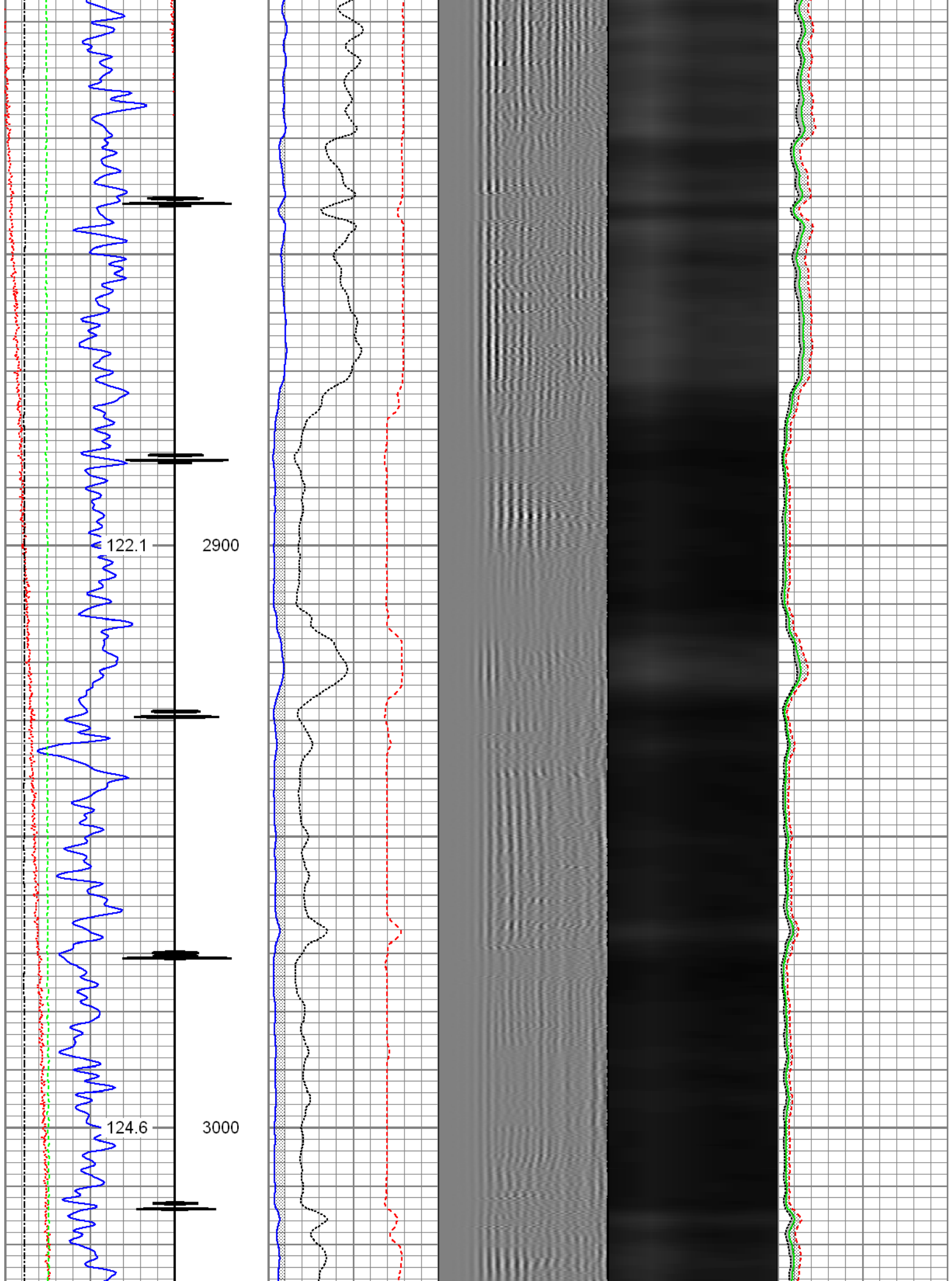


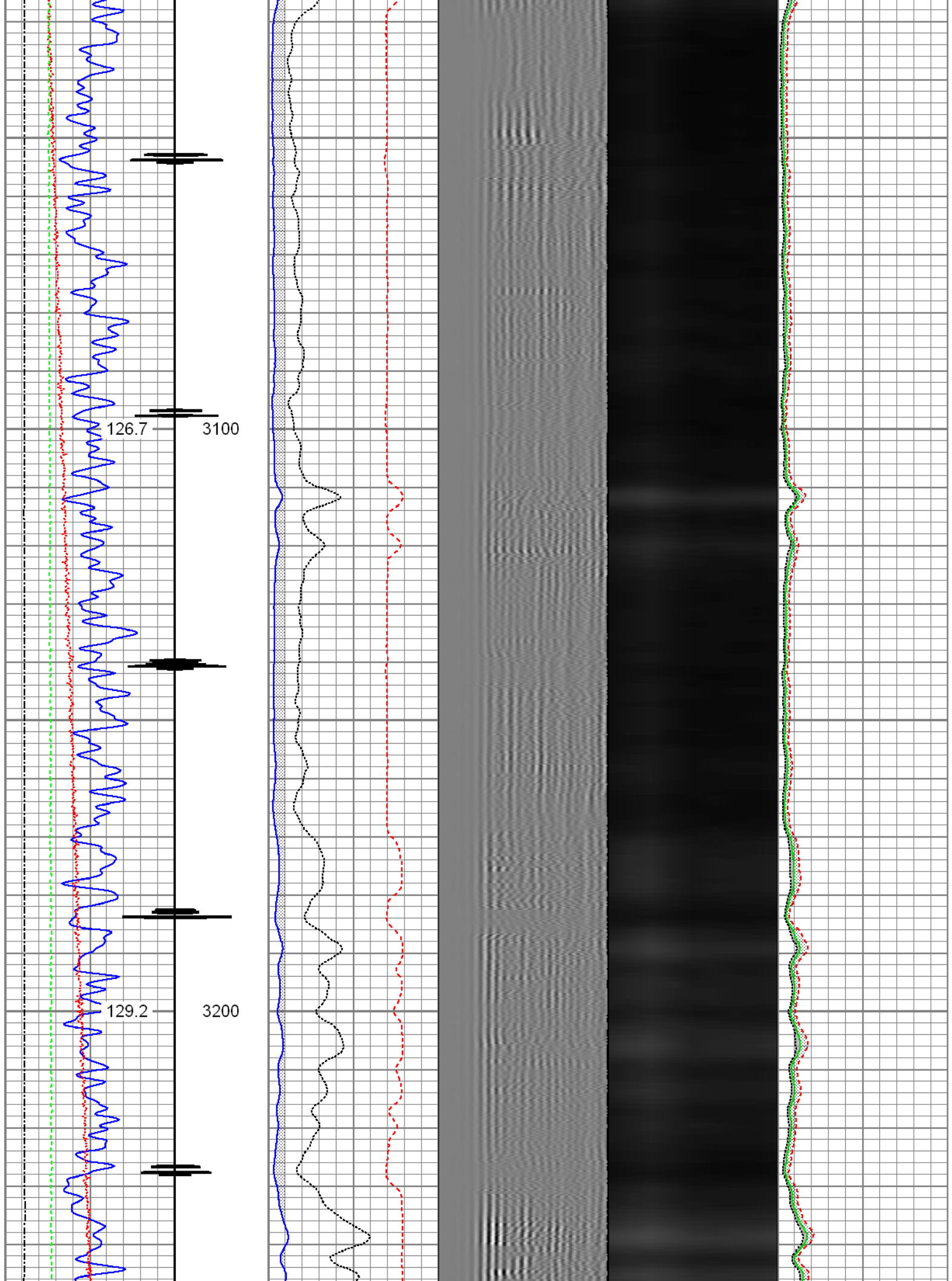




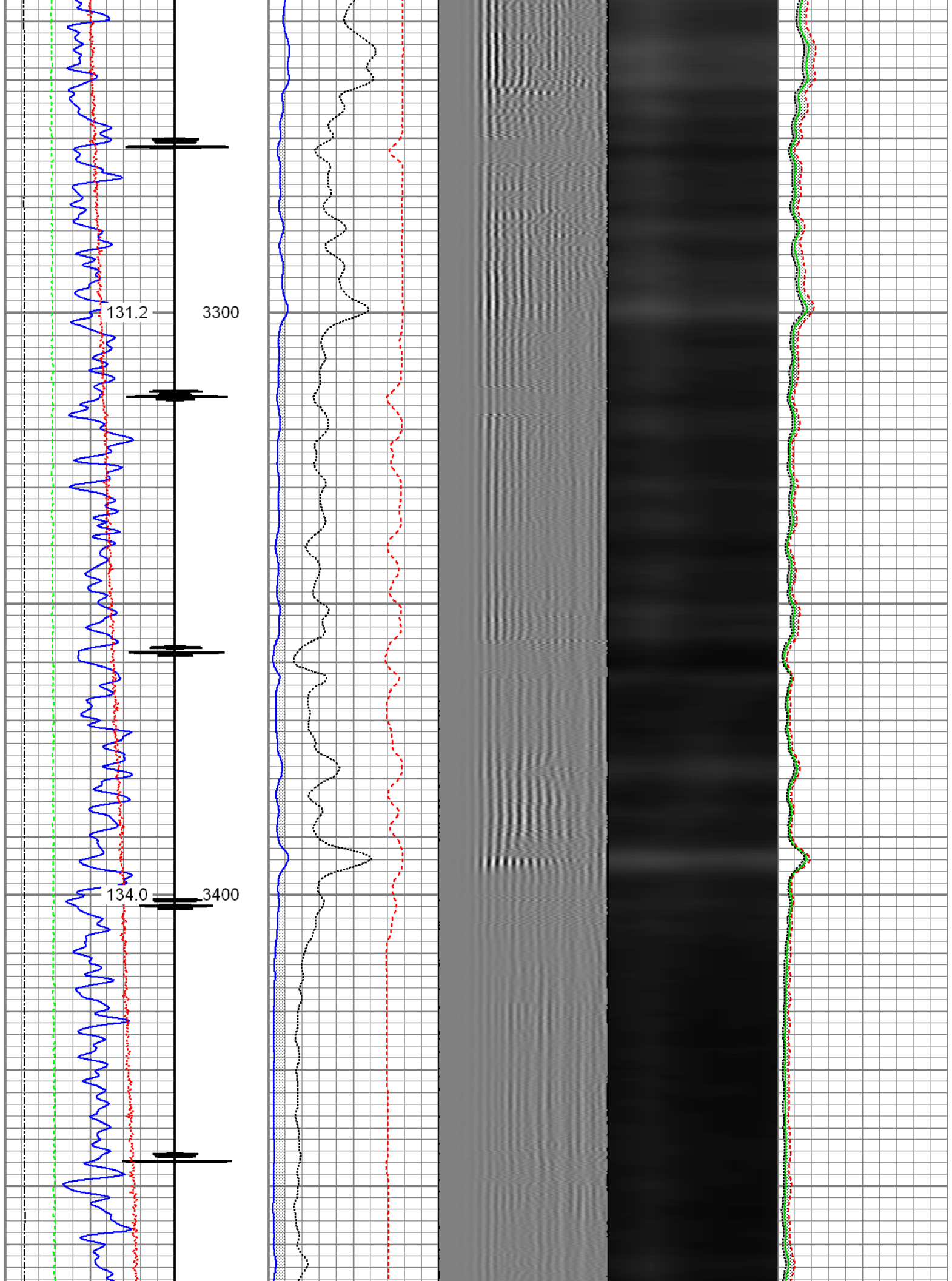


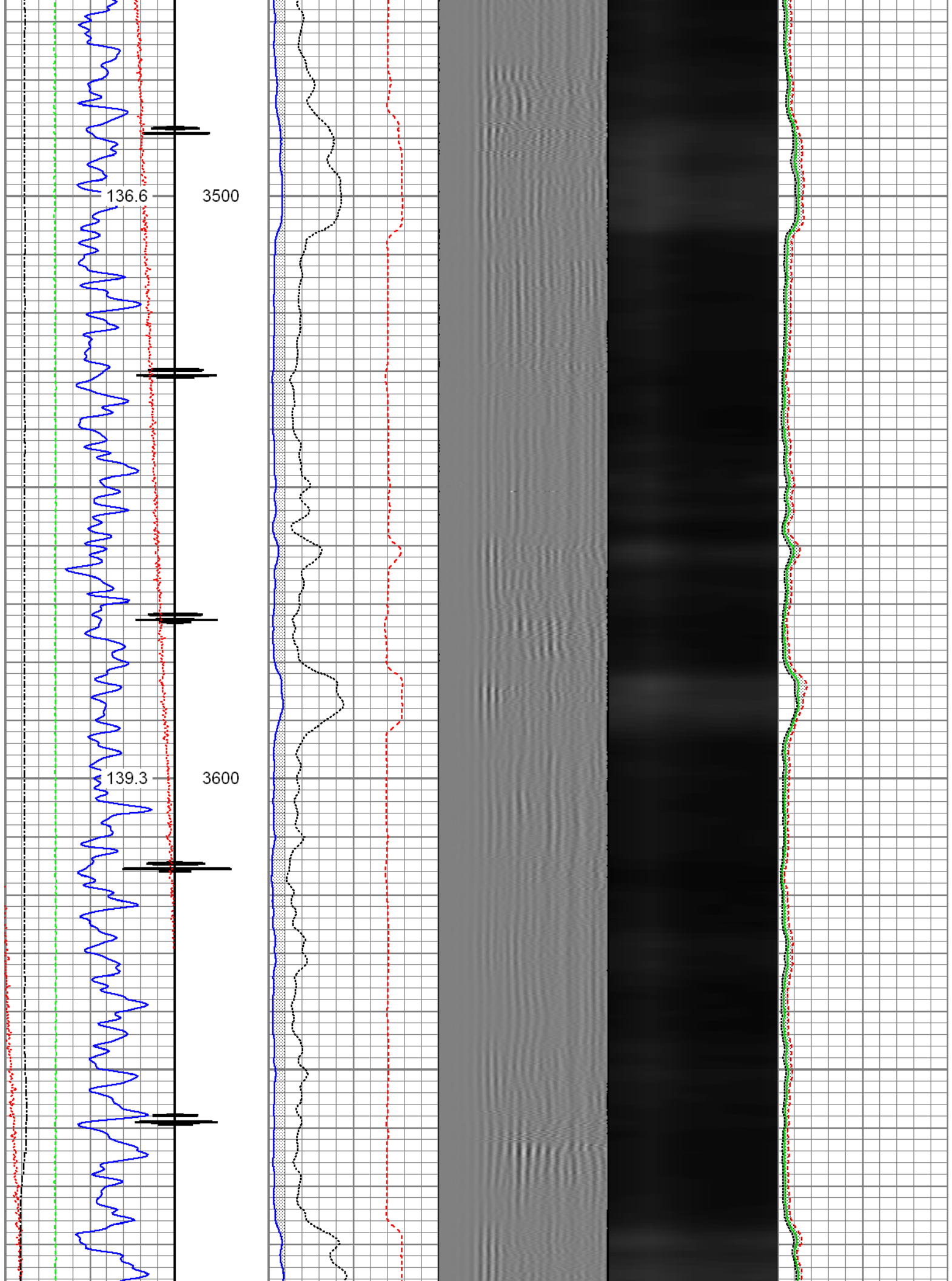


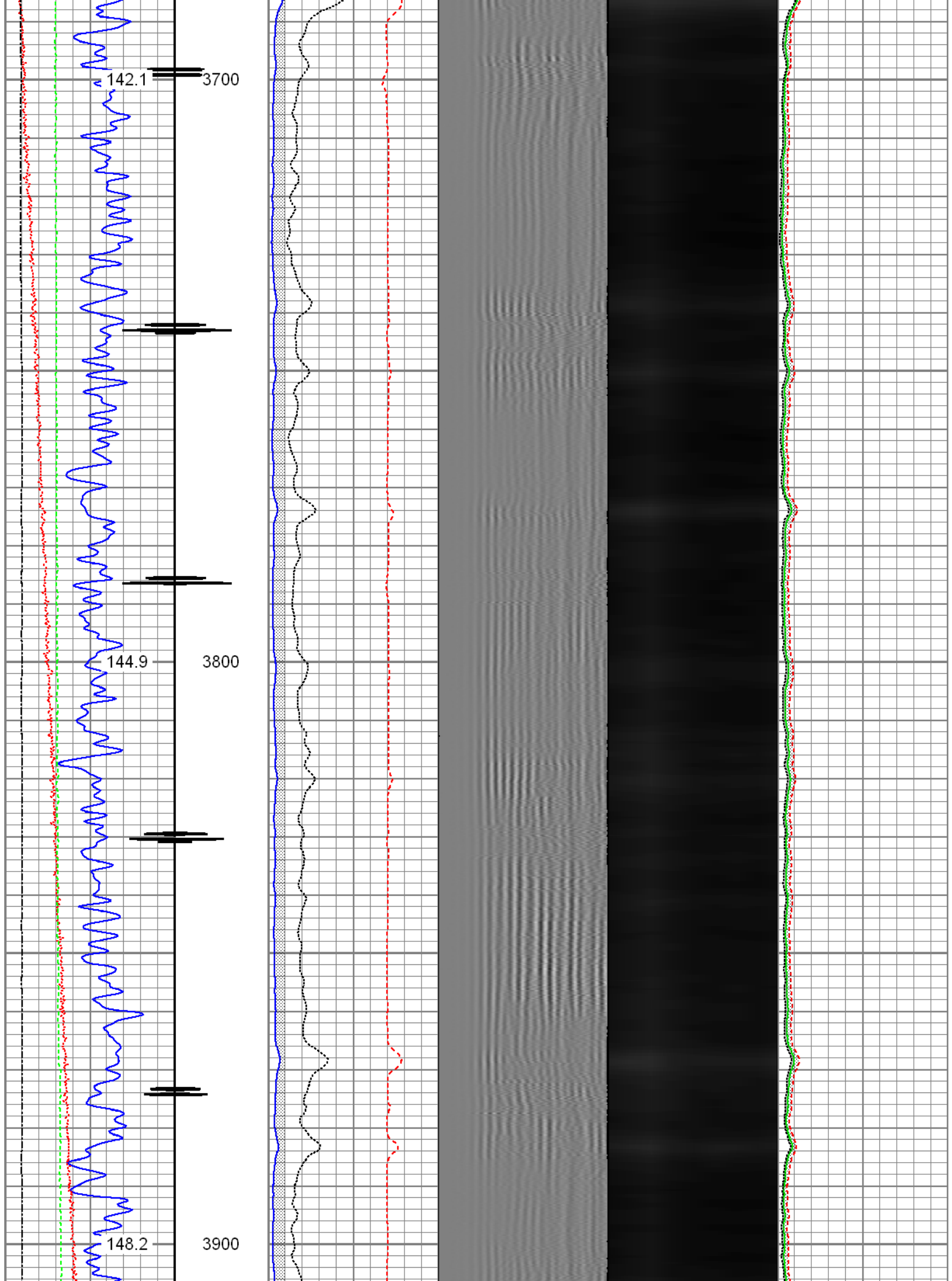


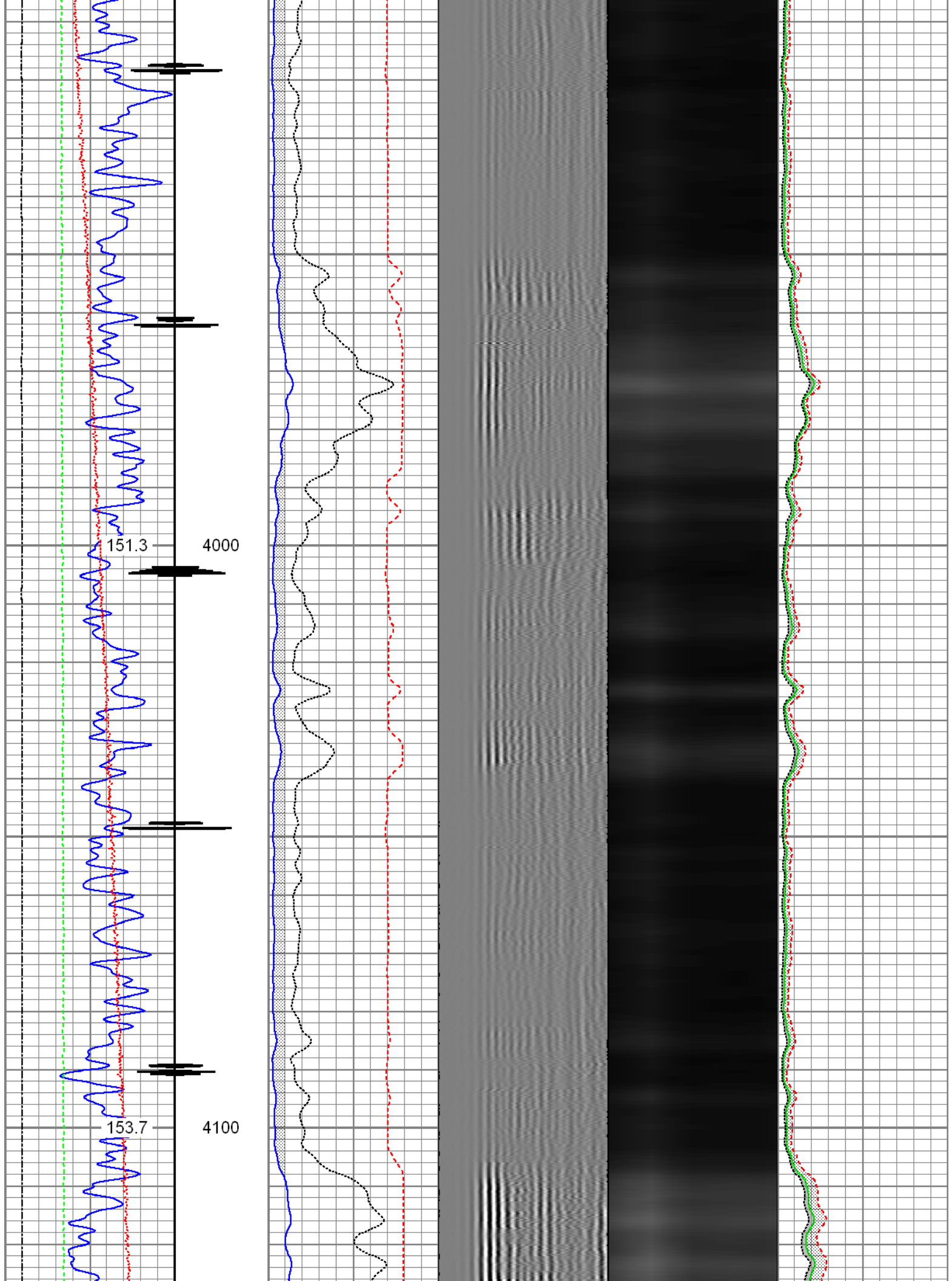




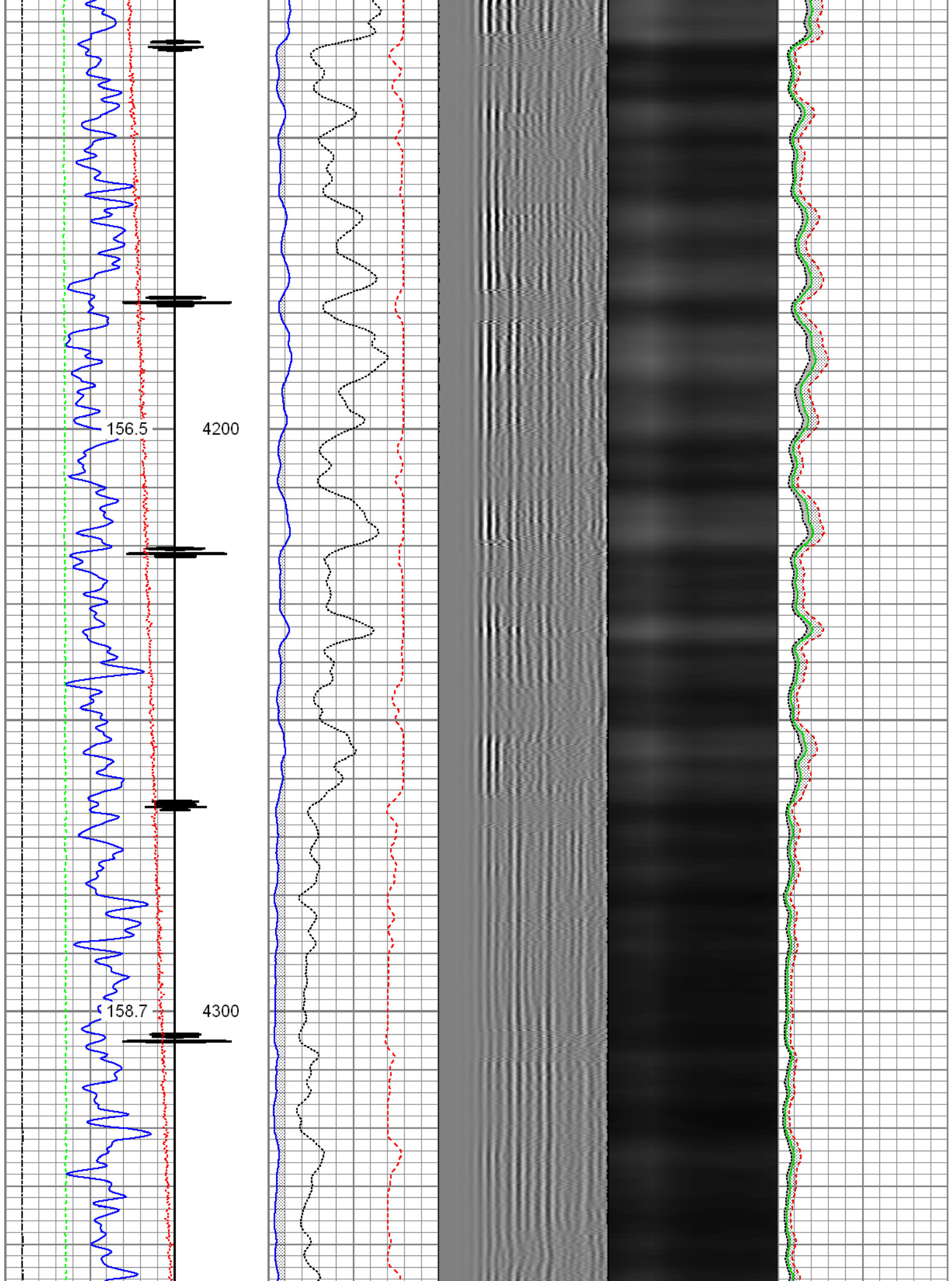


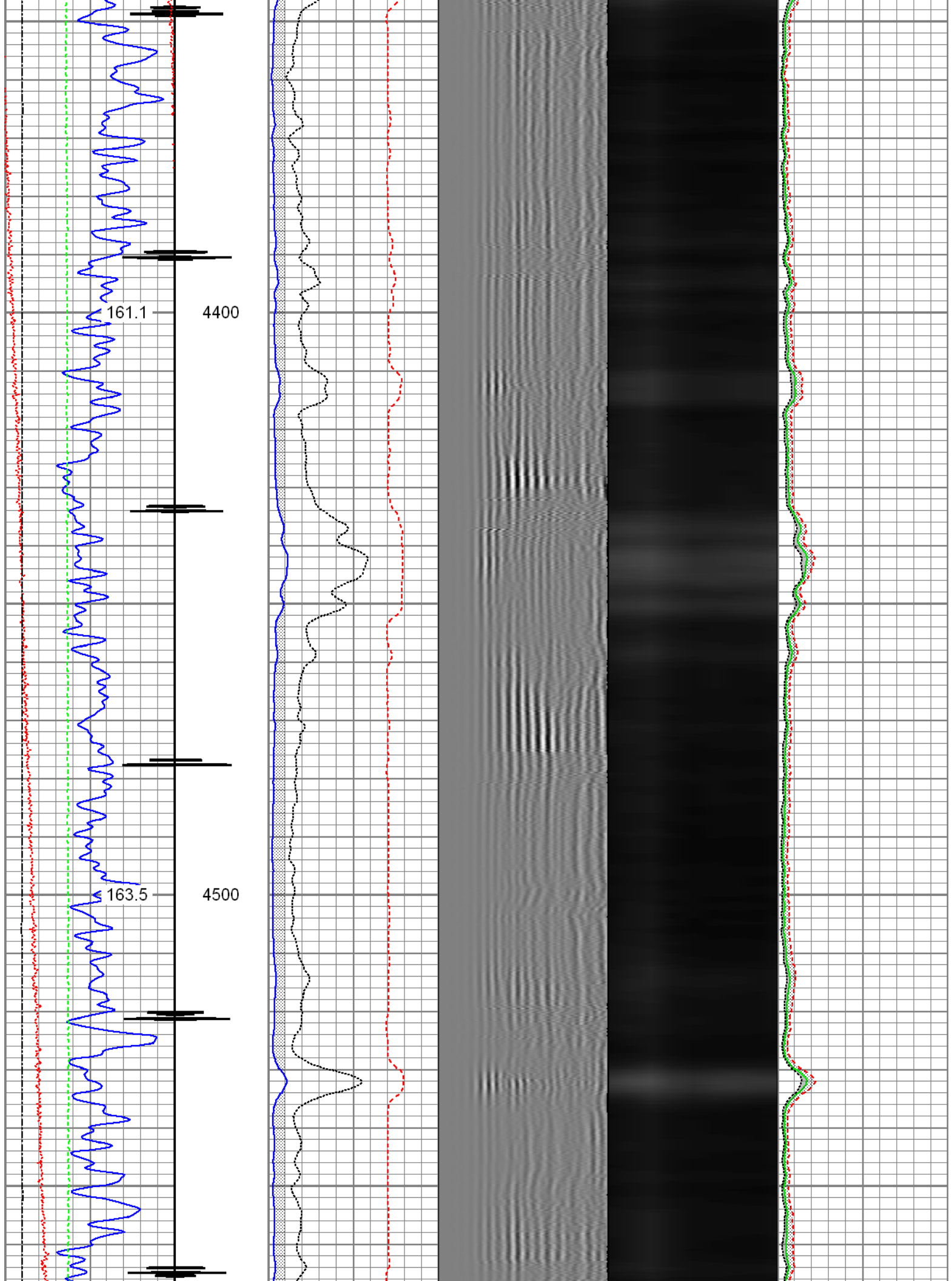


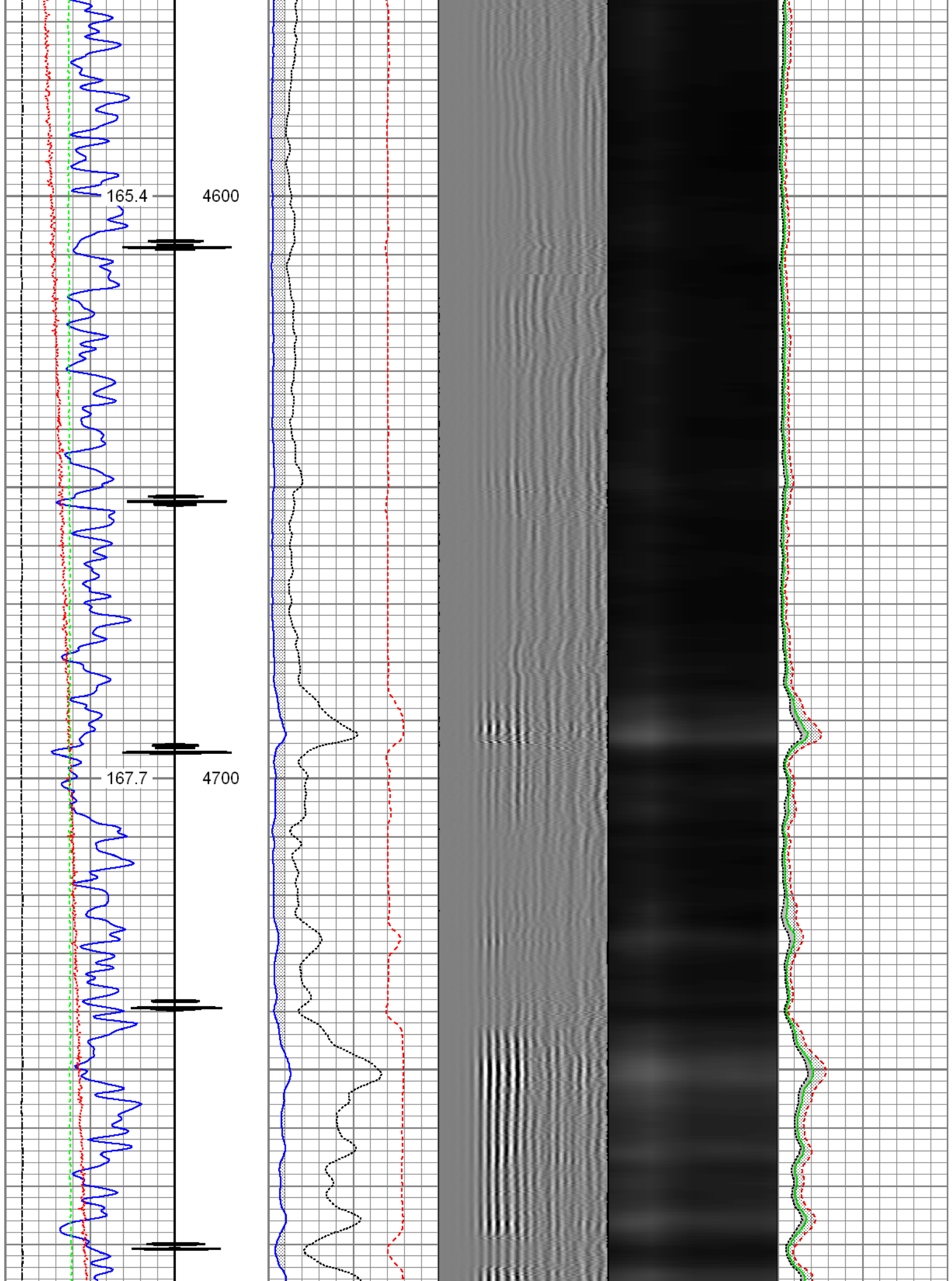


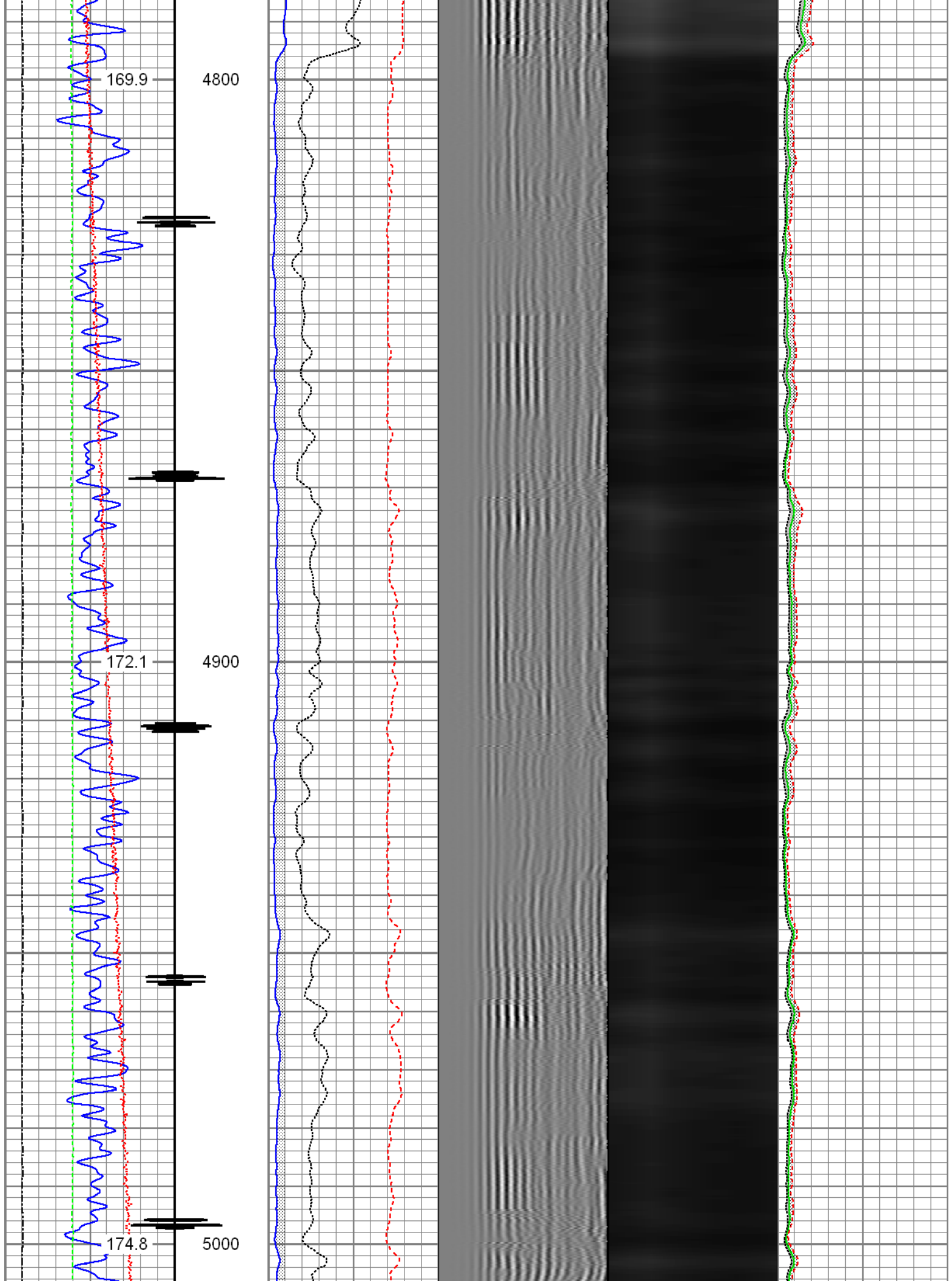




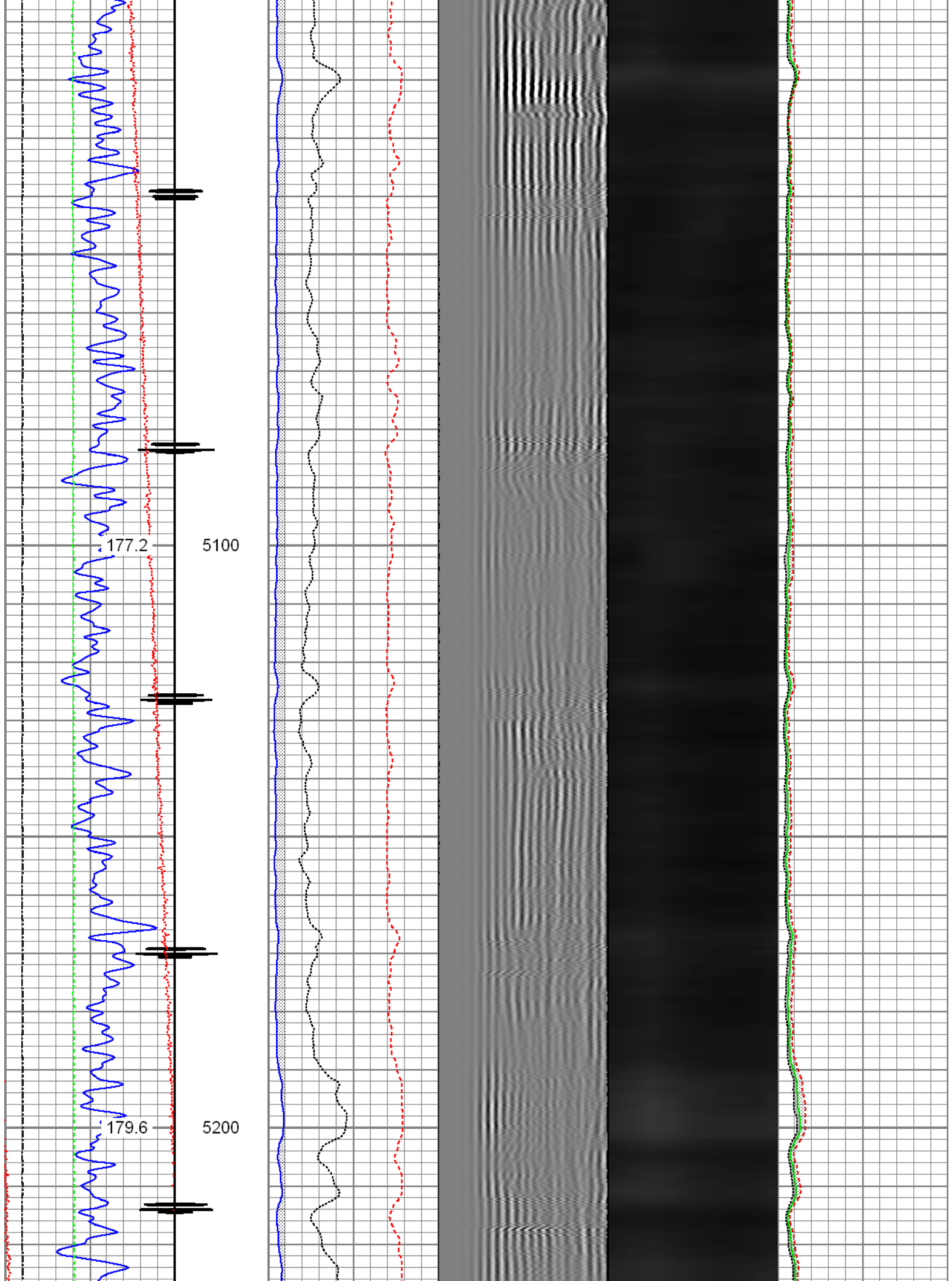


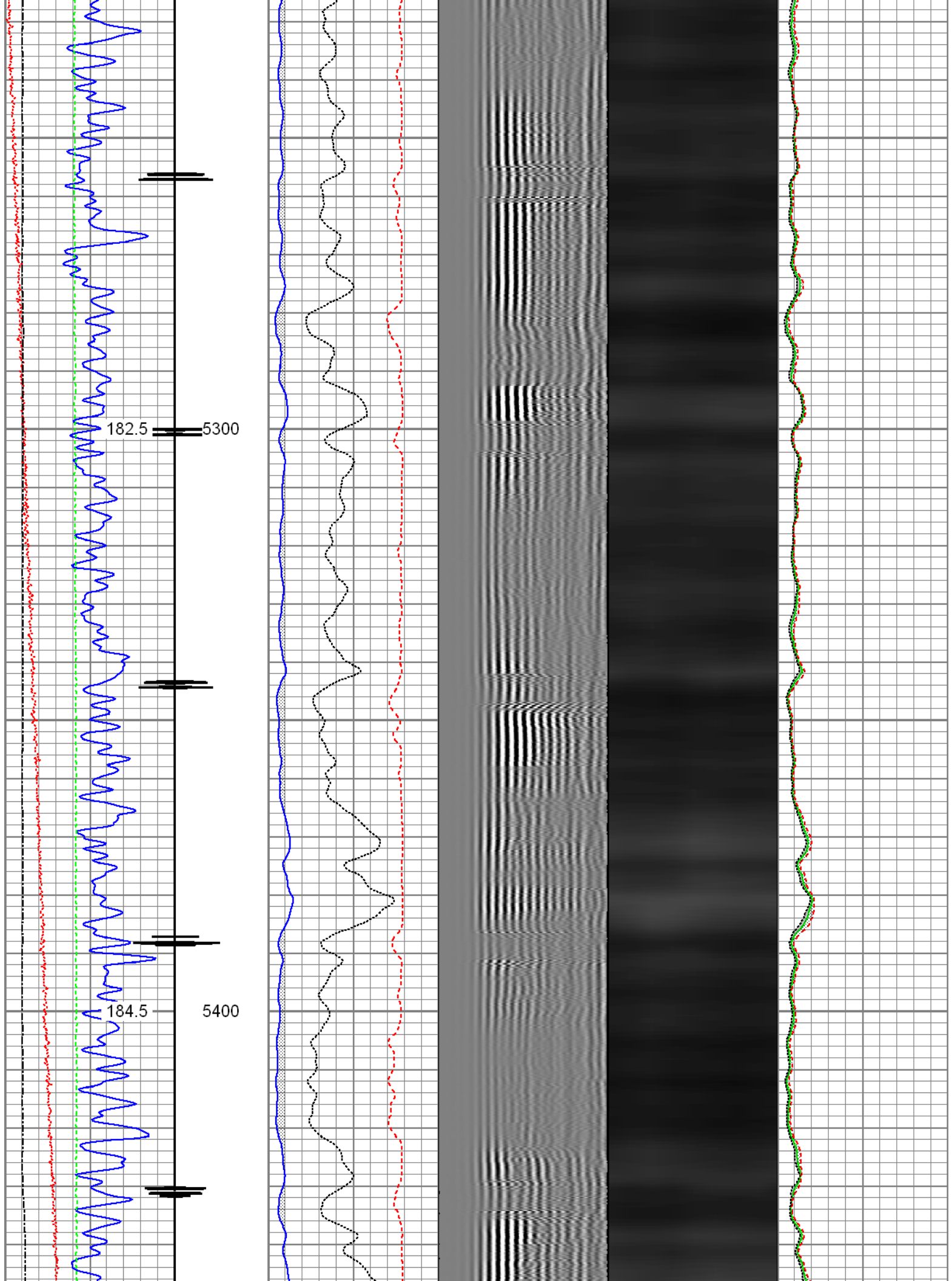


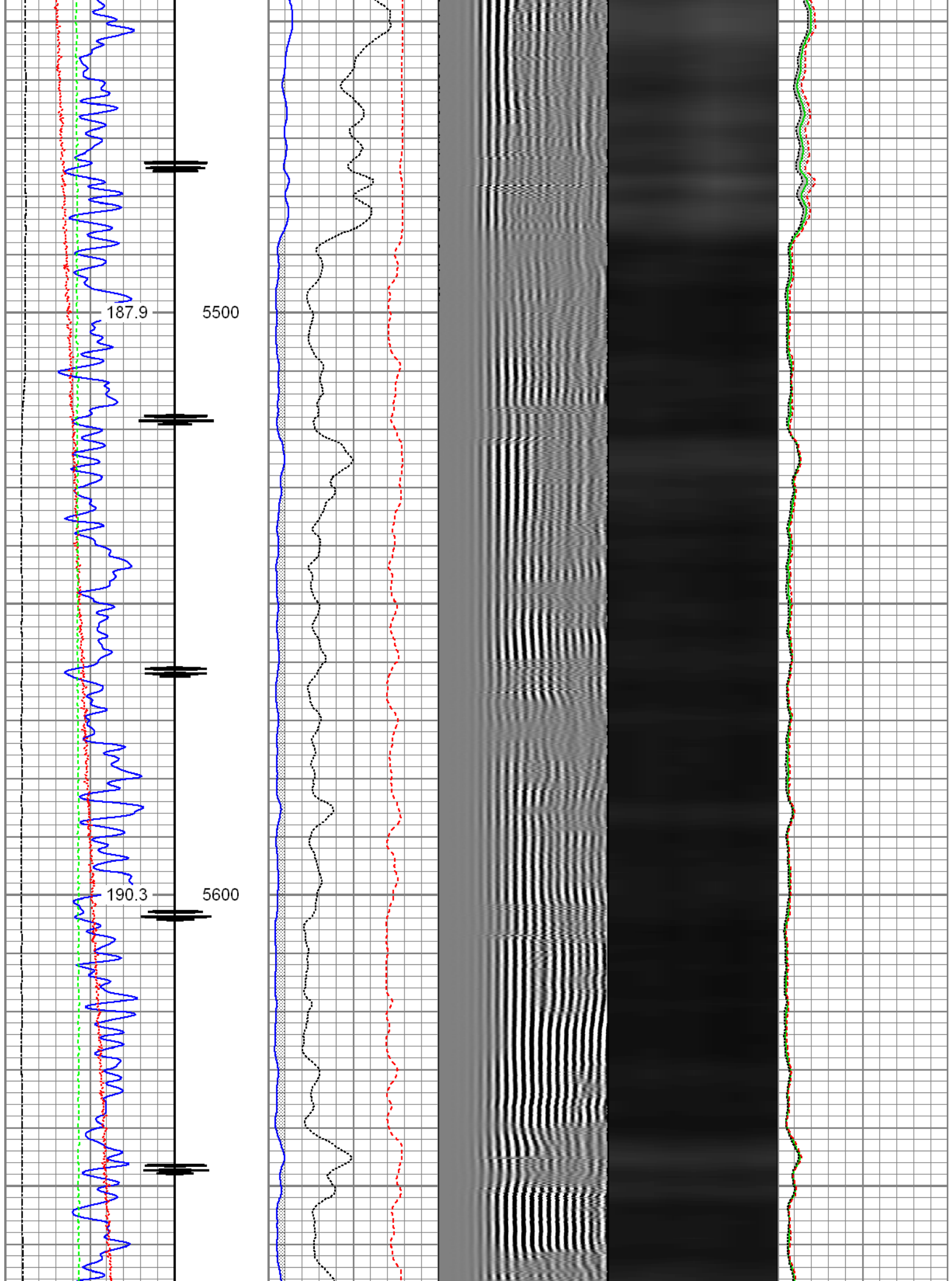


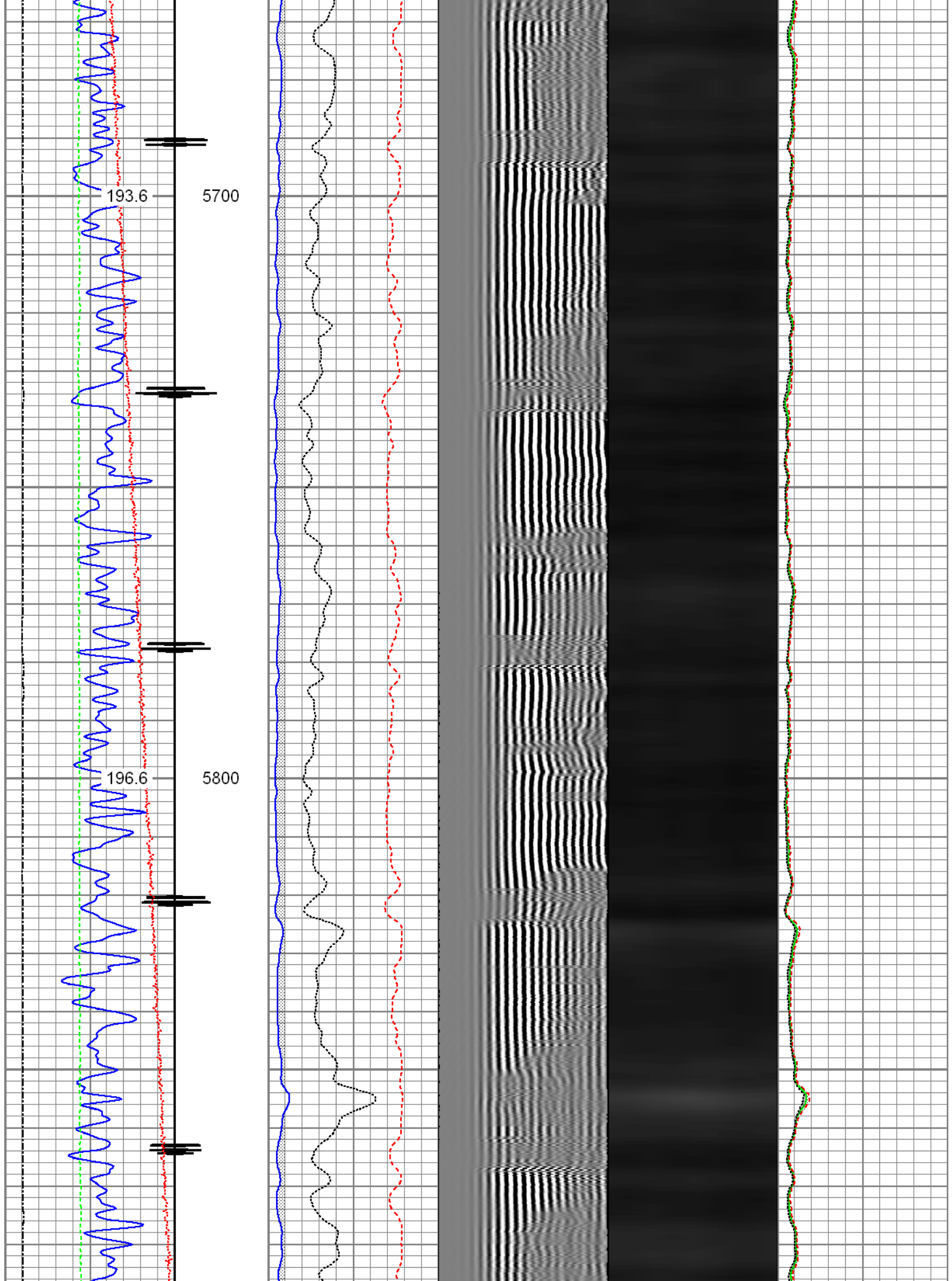




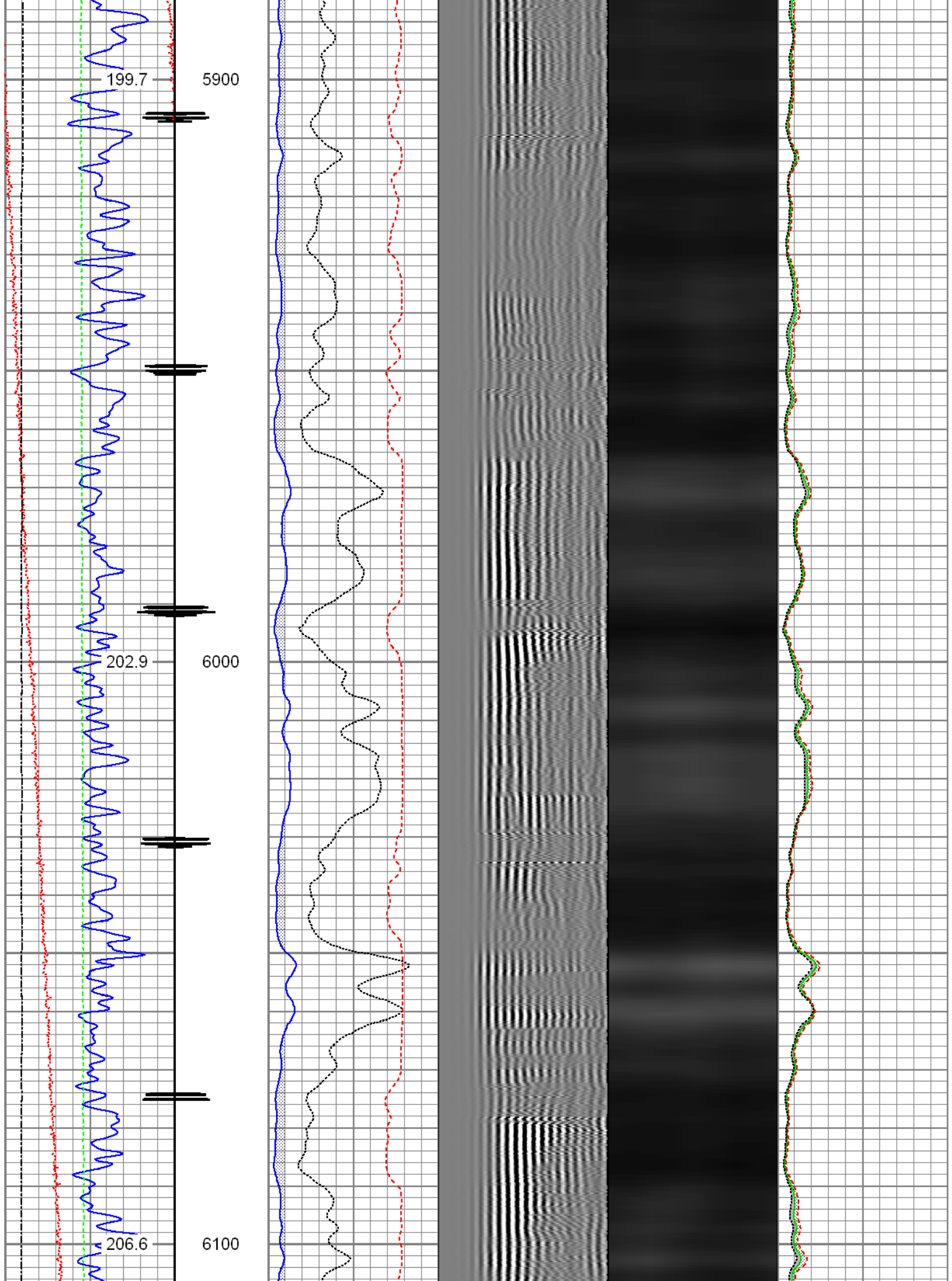


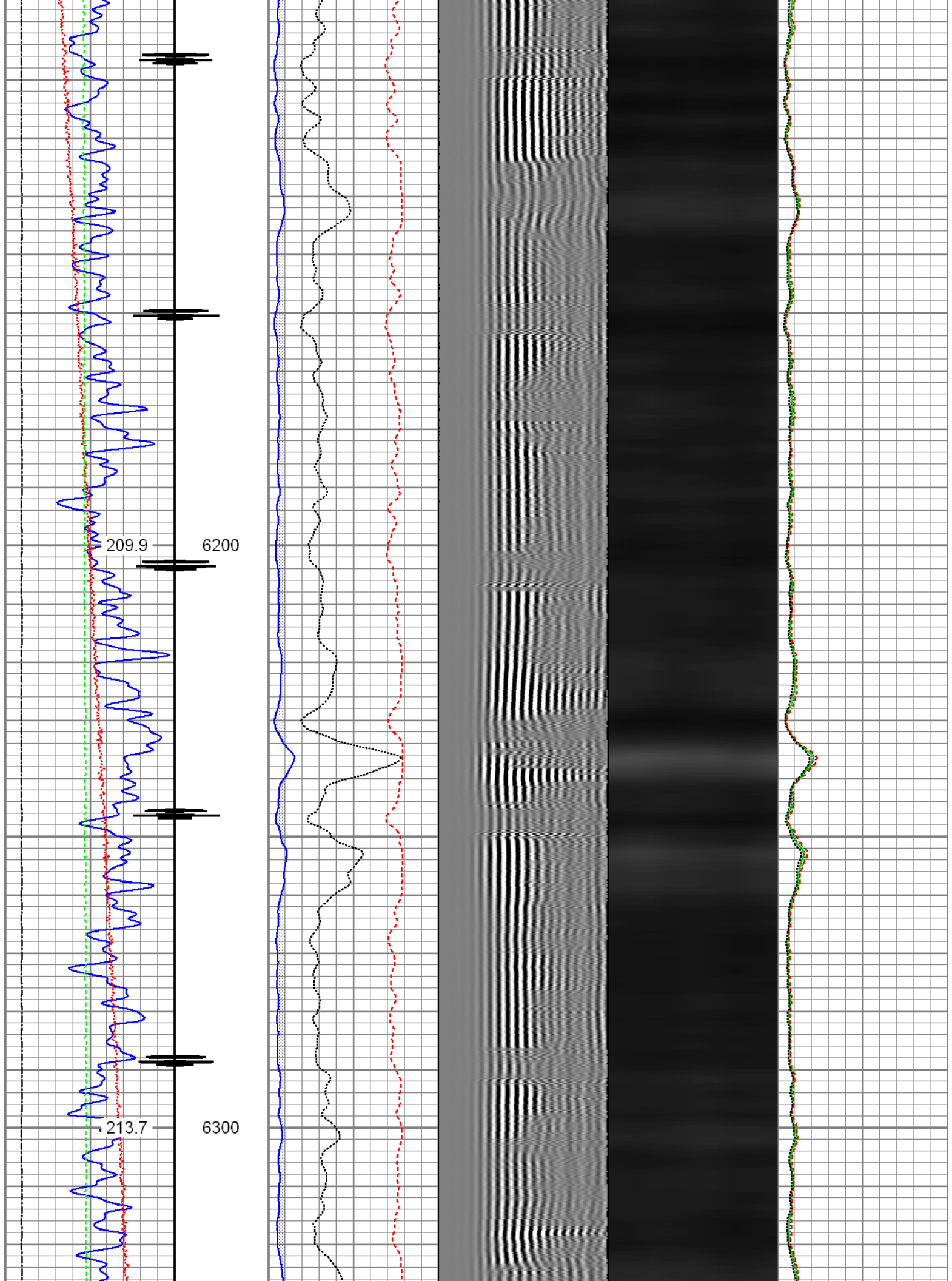


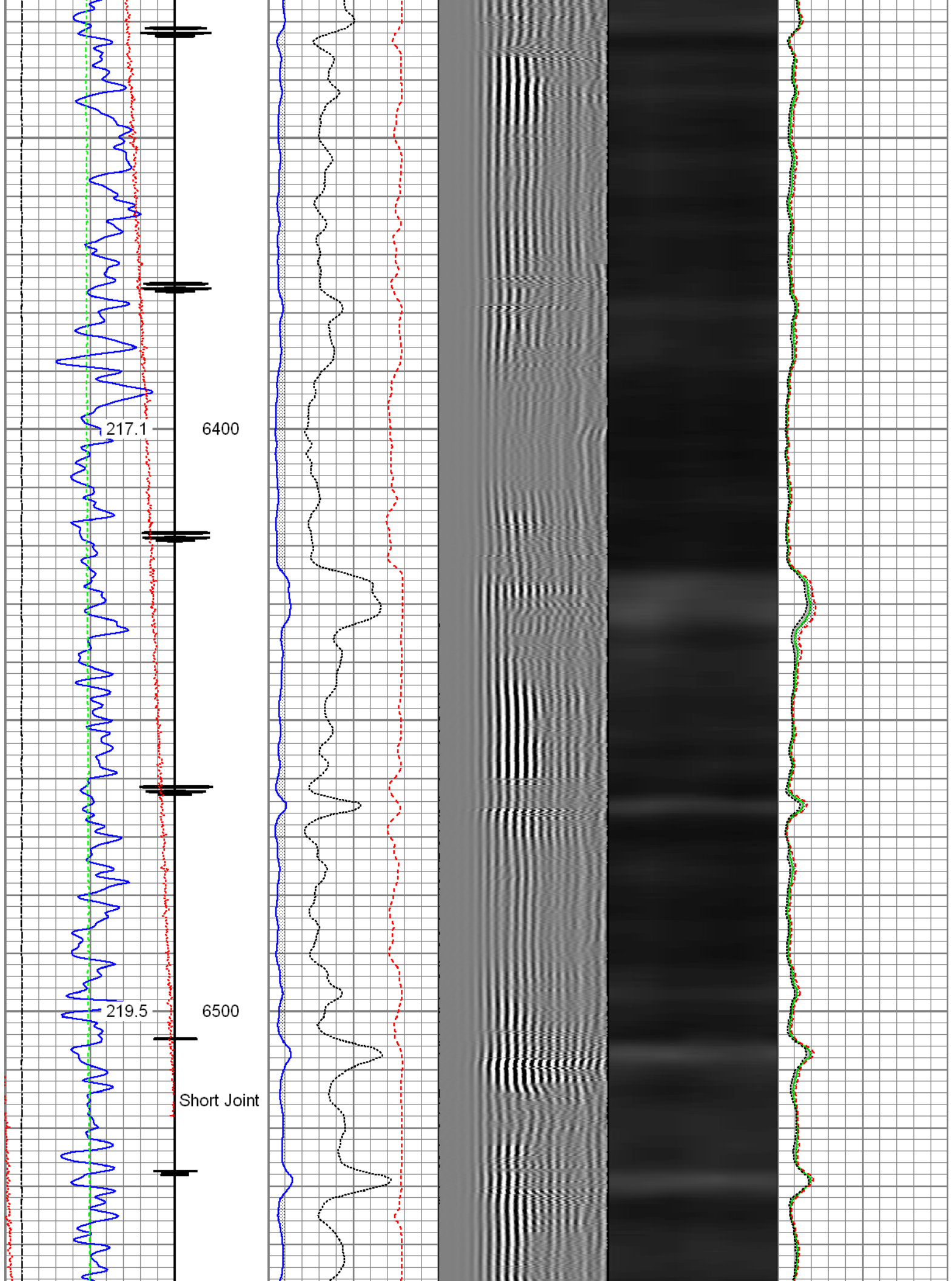


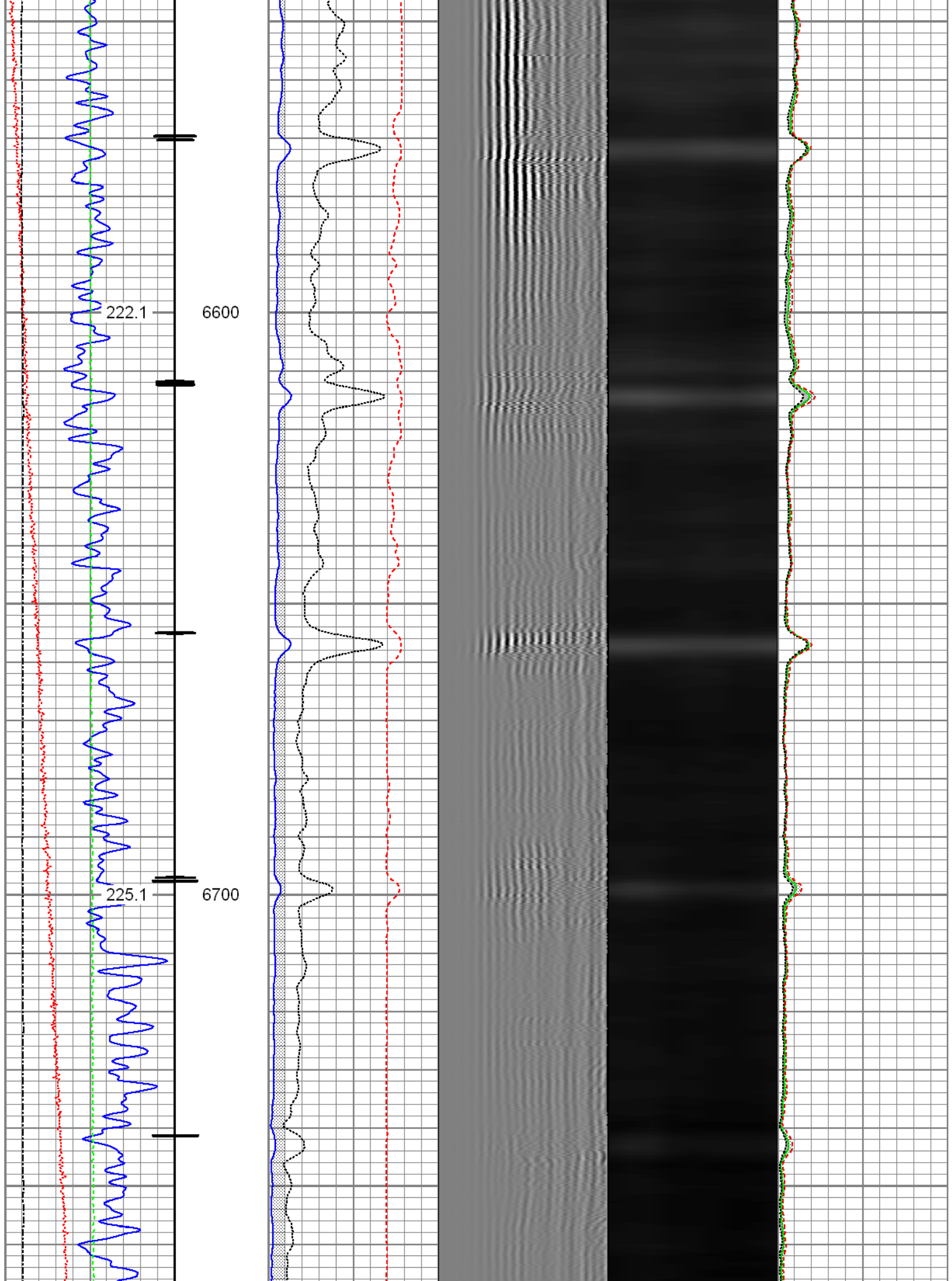




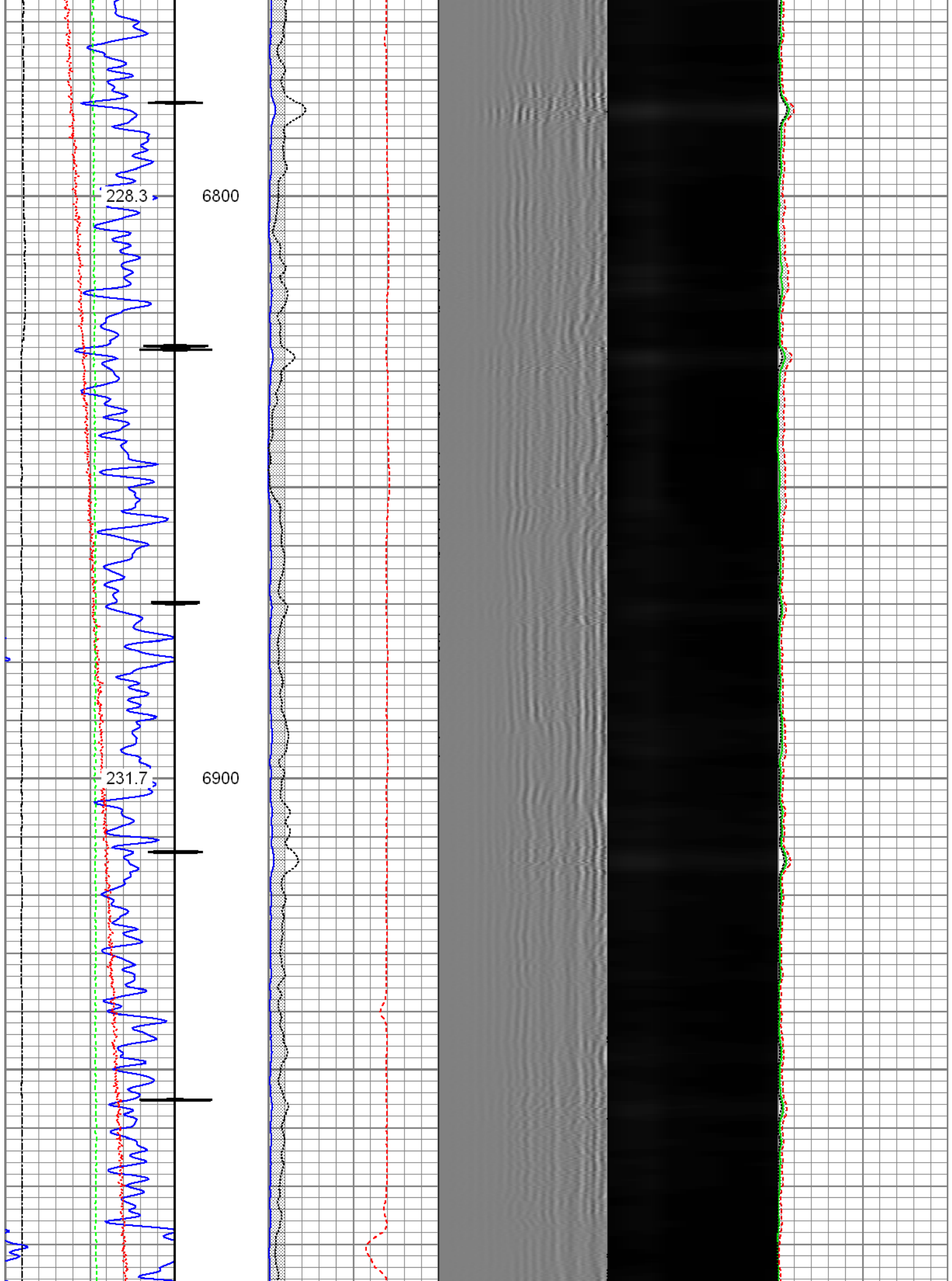


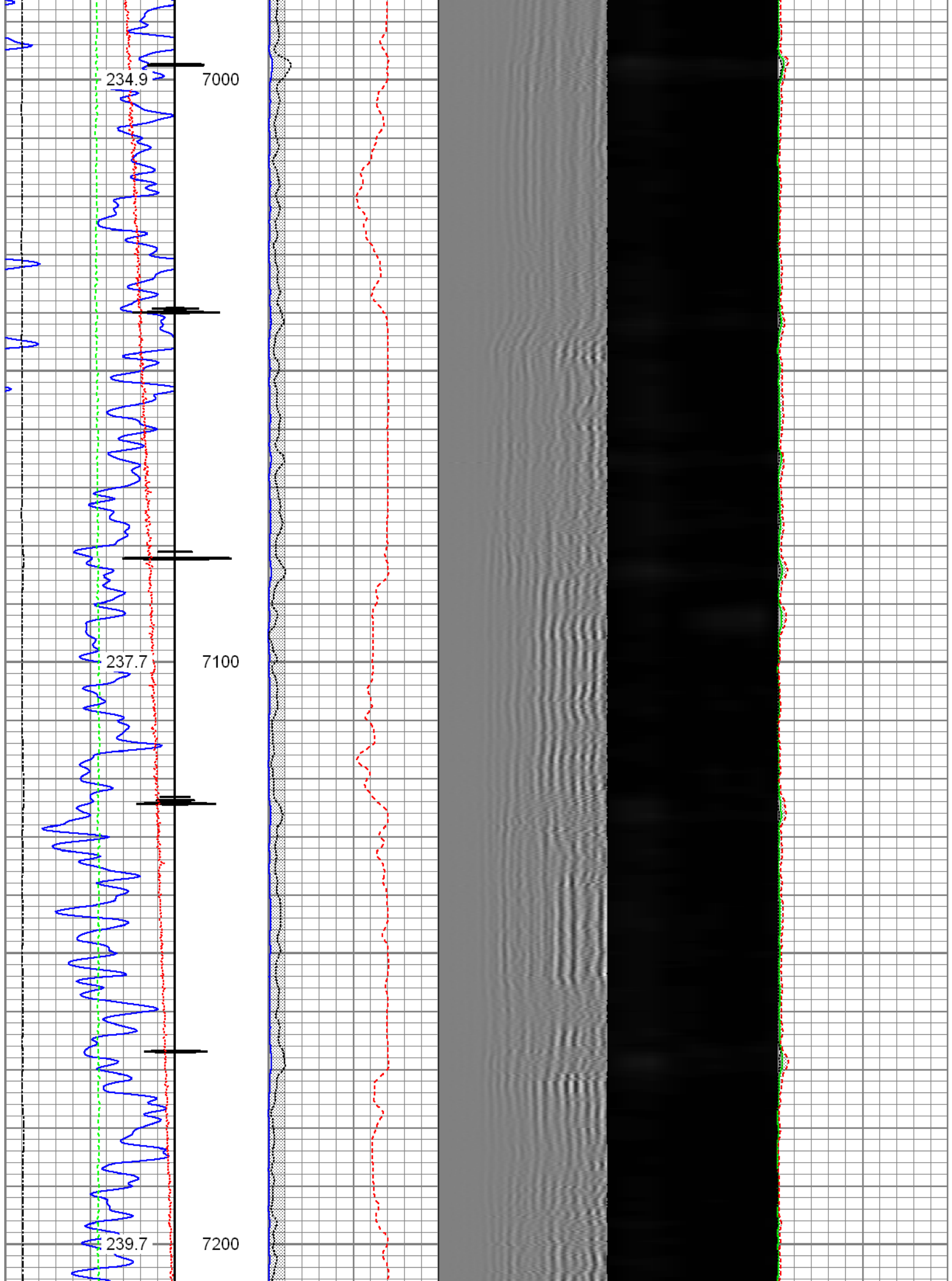


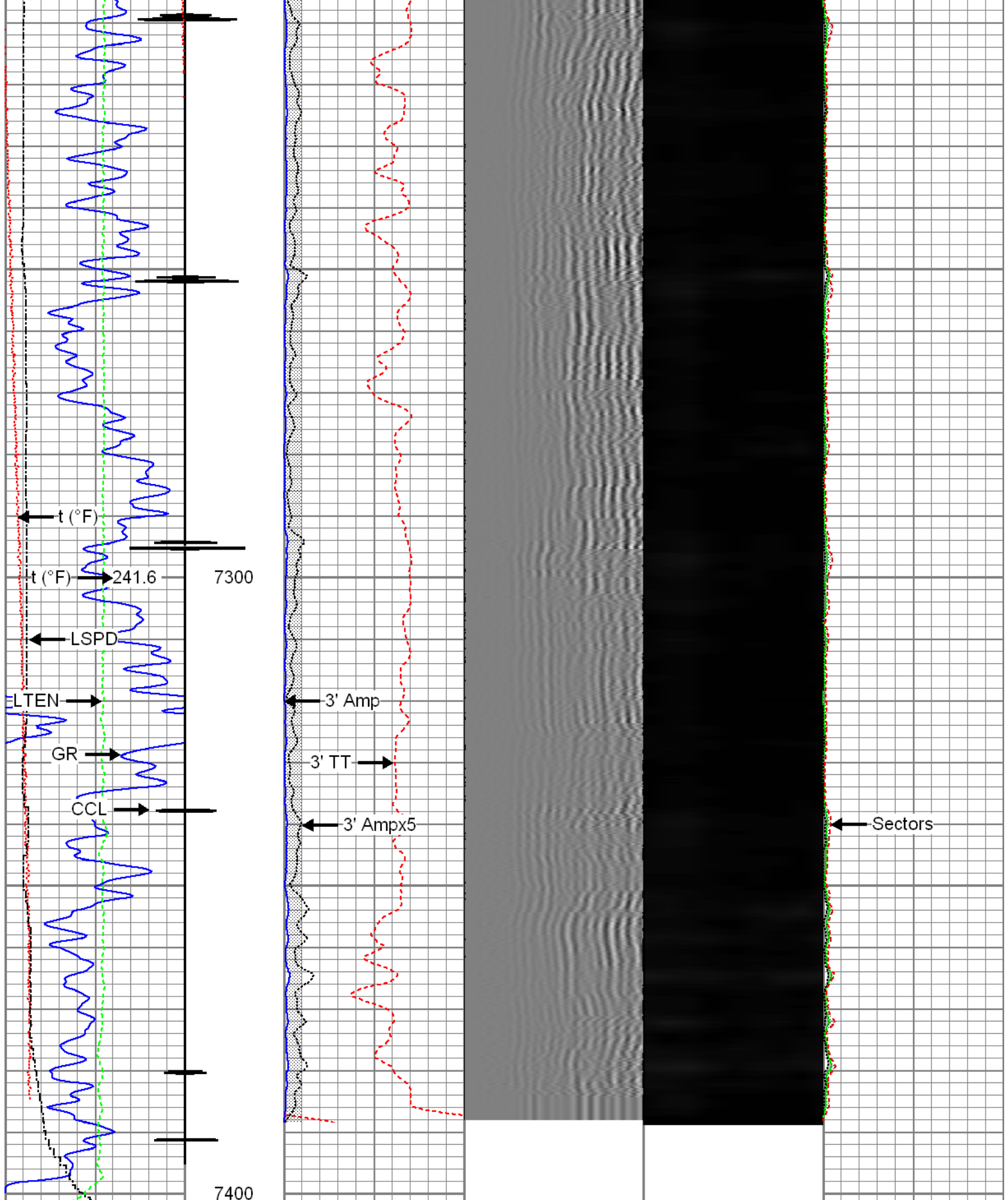













Gamma Ray (GAPI)	DCCL (mV)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	2	0 100	200 1200		0 100
Casing Collar Locator		3' Amplitude x 5 (mV)			Minimum Amplitude
Temperature (degF)		3' Travel Time			0 100
0 20					Maximum Amplitude

Line Speed	650 (usec)	150	0	100
-150 (ft/min)	150			
Line Tension				
0 (lb)	2000			

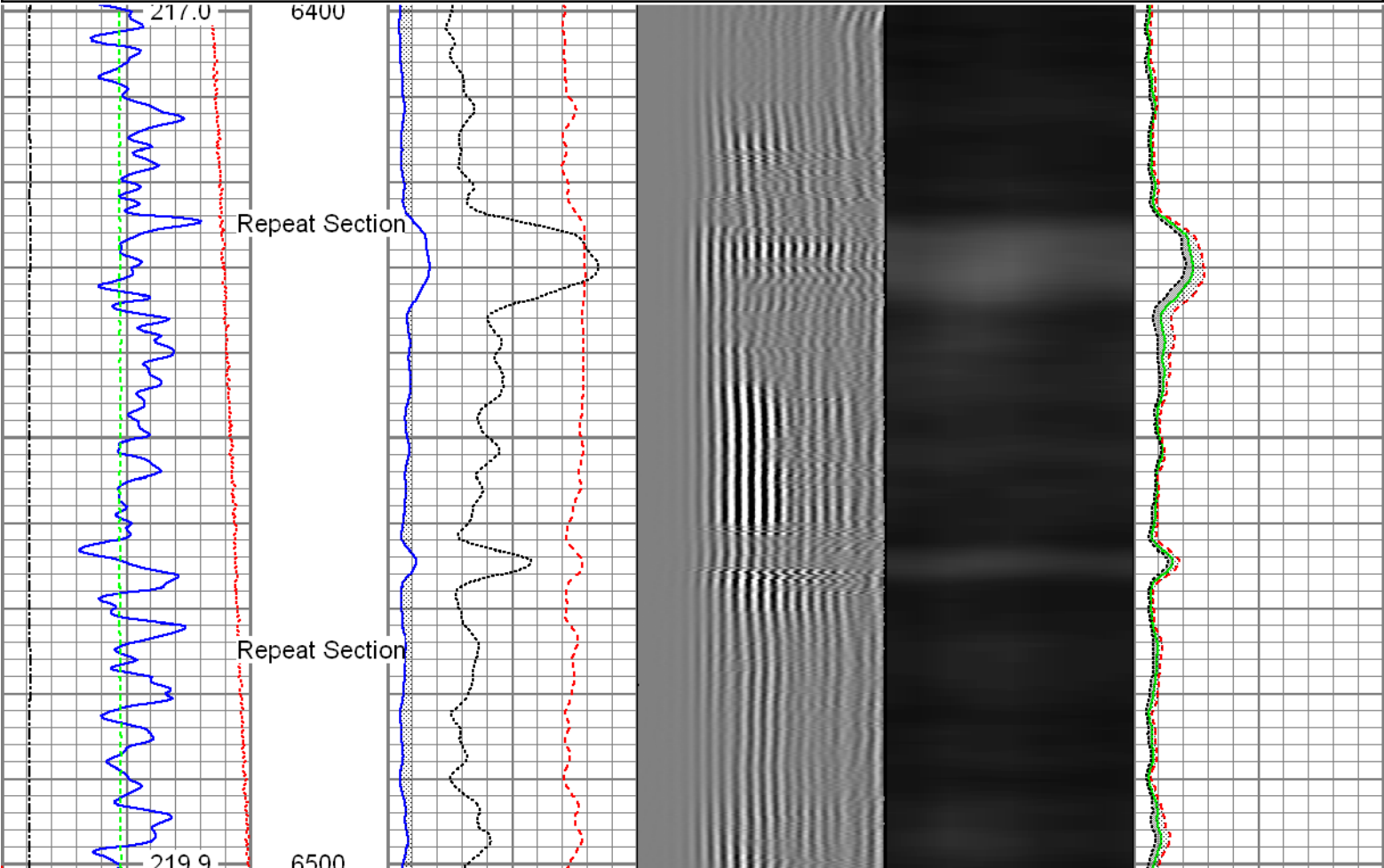


# Repeat Pass

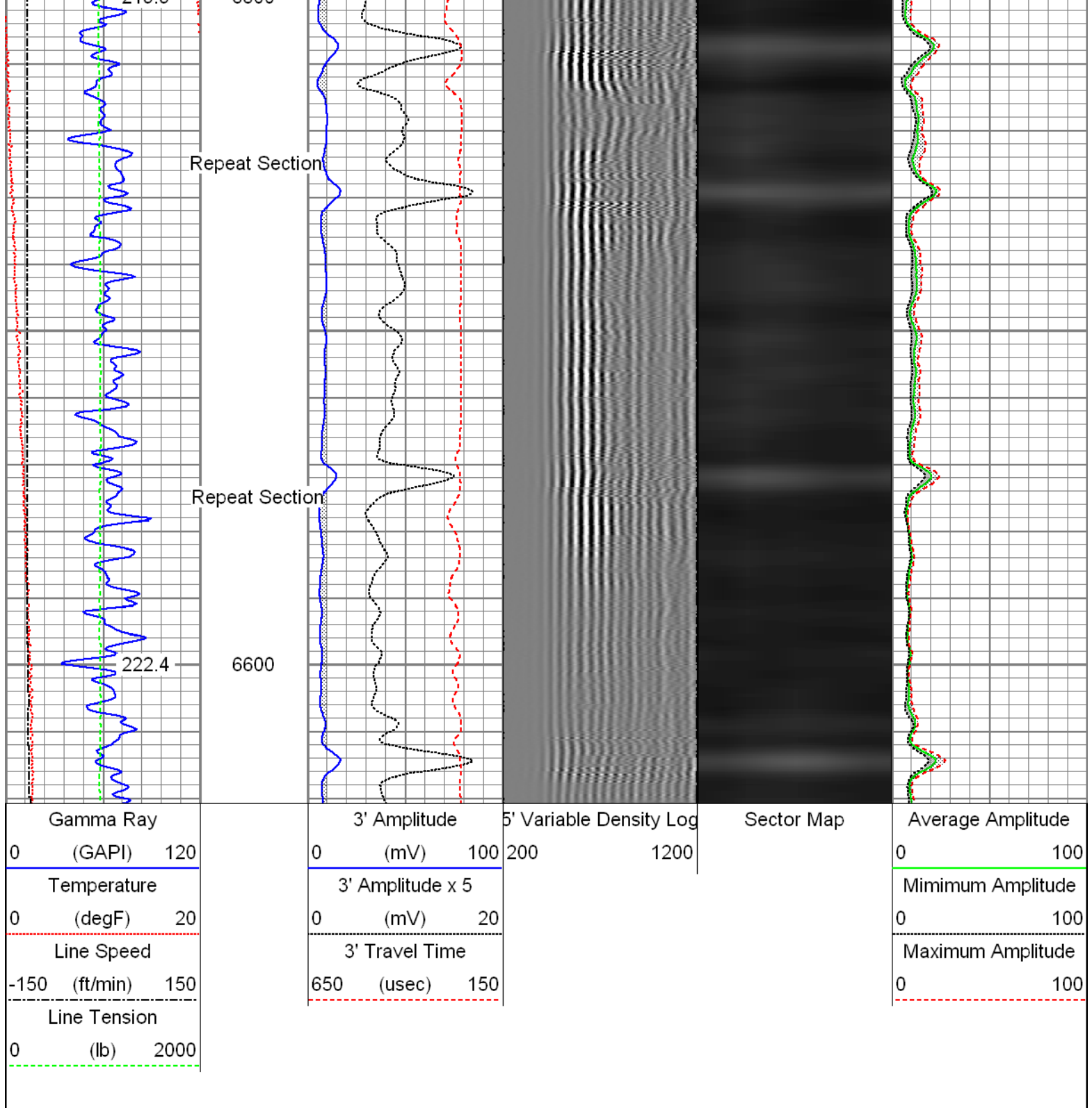
Recorded with 2800 PSI Surface Induced Pressure

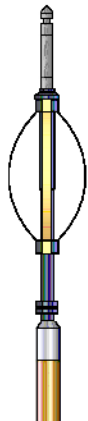
Database File: c:\warrior\data\0512341952\_anadarko\_powers 1c-27hz\_12-09-15\_rb\0512341952\_anadarko\_powers  
Dataset Pathname: pass9  
Presentation Format: radii  
Dataset Creation: Wed Dec 09 09:18:12 2015 by Log 7.0 B1  
Charted by: Depth in Feet scaled 1:240

<div>Gamma Ray</div> <div>0 (GAPI) 120</div> <hr/> <div>Temperature</div> <div>0 (degF) 20</div> <hr/> <div>Line Speed</div> <div>-150 (ft/min) 150</div> <hr/> <div>Line Tension</div> <div>0 (lb) 2000</div> <hr/>	<div>3' Amplitude</div> <div>0 (mV) 100</div> <hr/> <div>3' Amplitude x 5</div> <div>0 (mV) 20</div> <hr/> <div>3' Travel Time</div> <div>650 (usec) 150</div> <hr/>	<div>5' Variable Density Log</div> <div>200 1200</div>	<div>Sector Map</div>	<div>Average Amplitude</div> <div>0 100</div> <hr/> <div>Mimimum Amplitude</div> <div>0 100</div> <hr/> <div>Maximum Amplitude</div> <div>0 100</div> <hr/>
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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					
WVFCAL	14.55		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
WVFS1	14.55					
WVFS2	14.55					
WVFS3	14.55					
WVFS4	14.55					
WVFS5	14.55					
WVFS6	14.55					
WVFS7	14.55					
WVFS8	14.55					
WVFS5FT	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 (FW1307-038) 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: 0512341952_anadarko_powers 1c-27hz_12-09-15_rbl.db: field/well/run1/pass11.1 Total Length: 23.40 ft Total Weight: 194.00 lb O.D. 2.75 in						

Calibration Report		
Database File:	c:\warrior\data\0512341952_anadarko_powers 1c-27hz_12-09-15_rb\0512341952_anadarko_powers 1	
Dataset Pathname:	pass11.1	
Dataset Creation:	Thu Dec 10 09:47:01 2015 by Calc SCH 120430	
Gamma Ray Calibration Report		
Serial Number:	FW1307-038	
Tool Model:	2.75"Digital	
Performed:	Fri Sep 11 07:43:30 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:	32.760 ft

Master Calibration, performed Thu Dec 10 09:46:56 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	0.705	0.800	71.921	101.788	0.209
CAL	0.800	0.778				
5'	0.006	0.560	0.800	71.921	128.337	0.074
SUM						
S1	0.004	0.659	0.000	100.000	152.621	-0.650
S2	0.004	0.672	0.000	100.000	149.847	-0.672
S3	0.004	0.712	0.000	100.000	141.207	-0.538
S4	0.004	0.739	0.000	100.000	136.094	-0.566
S5	0.005	0.752	0.000	100.000	133.798	-0.610
S6	0.005	0.723	0.000	100.000	139.349	-0.705
S7	0.008	0.696	0.000	100.000	145.222	-1.140
S8	0.007	0.678	0.000	100.000	148.946	-1.043

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	0.800	0.778	1.000	0.000

Air Zero Calibration, performed Wed Dec 09 08:57:00 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

