

Radial Cement Bond Gamma Ray Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.				
Well	Skim State 4N-21HZ				
Field	Wattenberg				
County	Weld				
State	Colorado				
Company	Well	Field	County	State	
	Kerr-McGee Oil & Gas Onshore, L.P.	Skim State 4N-21HZ	Wattenberg	Weld Colorado	
Location:	API # : 05-123-40983				Other Services
SEC 21 TWP 3N RGE 65W					Gauge ring
Permanent Datum	Ground Level	Elevation	4847'		
Log Measured From	Kelly Bushing	16 FT	K.B. 4863'		
Drilling Measured From	Kelly Bushing		D.F. 4862'		
			G.L. 4847'		

Date	28-JUL-2015
Run Number	Two
Depth Driller	12.782 FT
Depth Logger	7200 FT
Bottom Logged Interval	7196 FT
Top Log Interval	Surface
Open Hole Size	7.875"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	248°F
Estimated Cement Top	28 FT
Time Well Ready	ROA
Time Logger on Bottom	12:05 PM
Equipment Number	HD-0311
Location	Ft. Lupton, CO
Recorded By	B.Kalkwarf
Witnessed By	Mario Torres

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	1222 FT		
Intermediate #1							
Intermediate #2							
Liner	5 1/2	17	HCP-110	Surface	12,772 FT		
				Marker Joint	6625'-6647'		

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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.

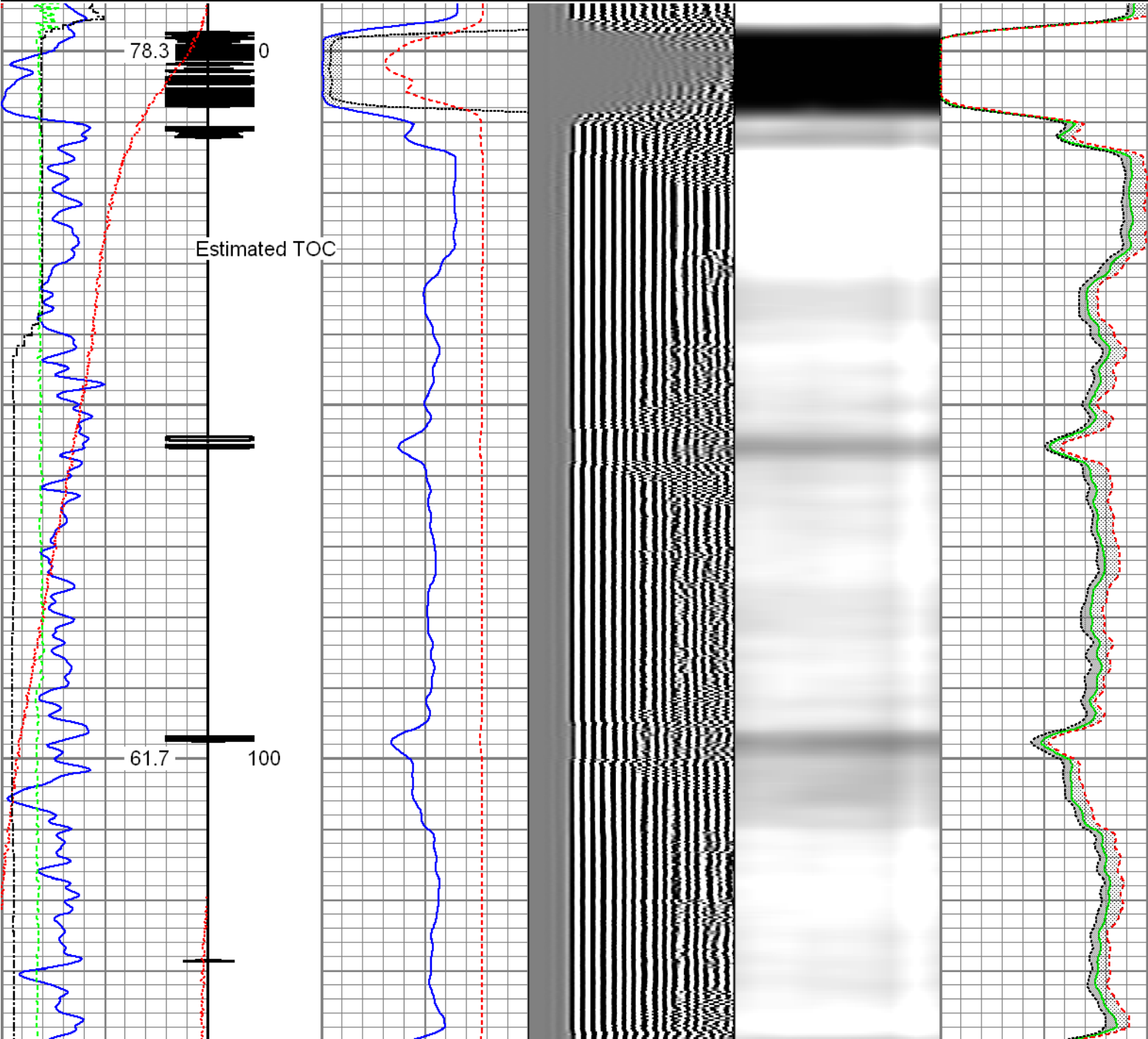
Comments

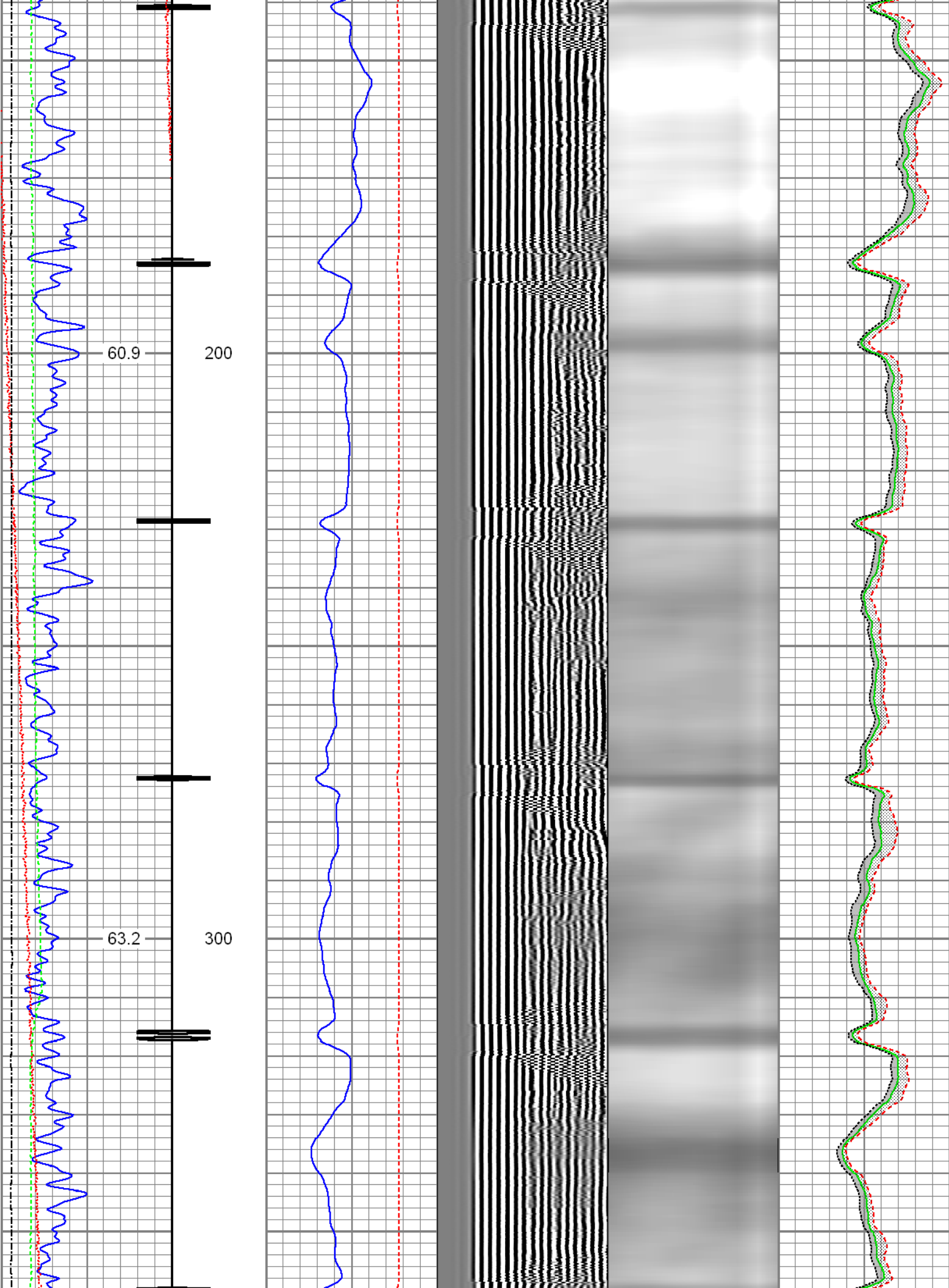
Log ran as per customer request
Depth referenced to Kelly Bushing 16 FT
4.5" Gauge Ring/Junk Basket ran to 7416 FT
Log ran from as deep as possible in heel to surface
Log ran with 2800 PSI surface induced pressure
Logging tools were clean and free of debris upon completion of operations
Marker Joint 6625'-6647'

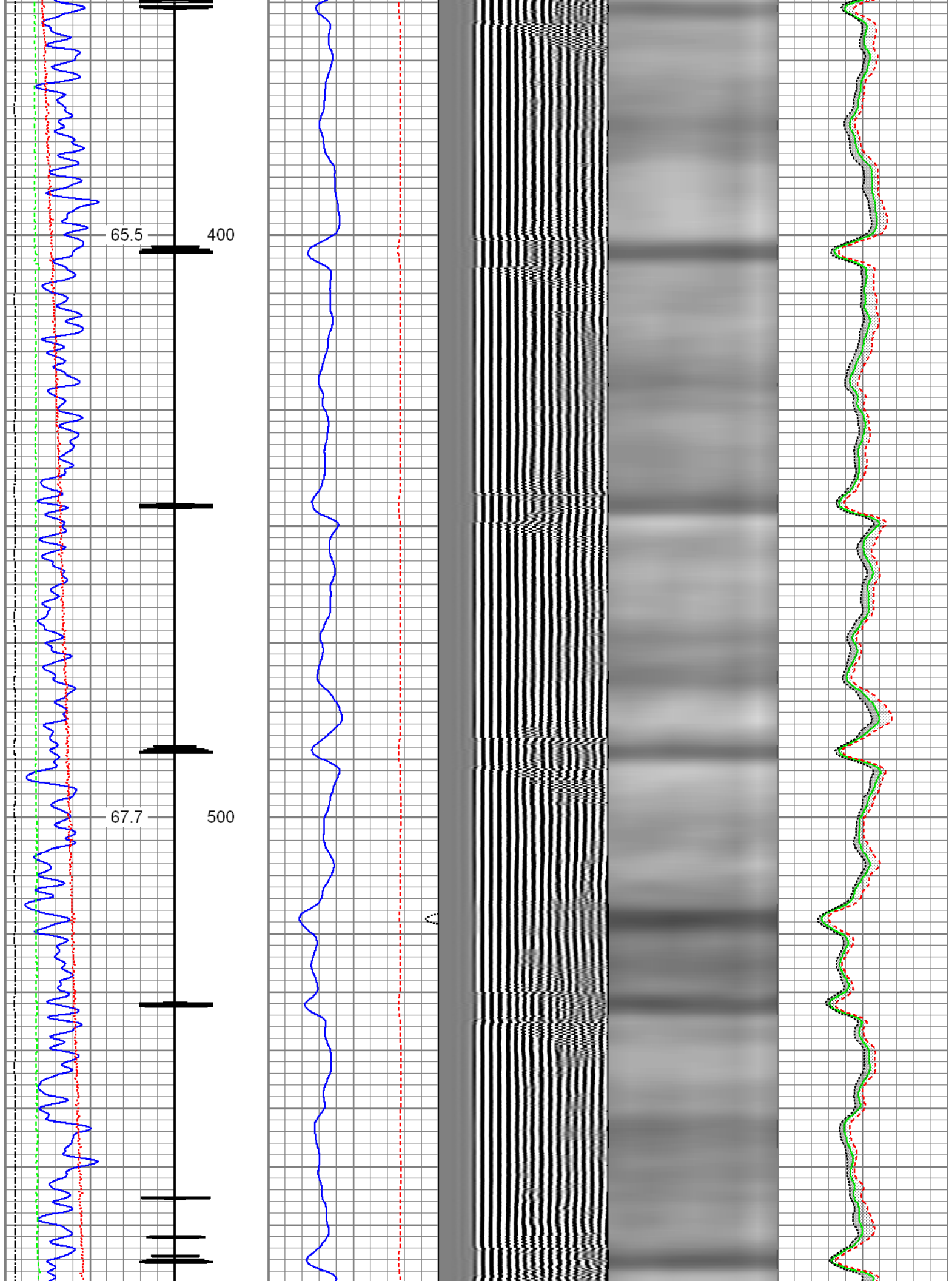
Thank you for choosing FMC Technologies Completion Services, Inc.!!

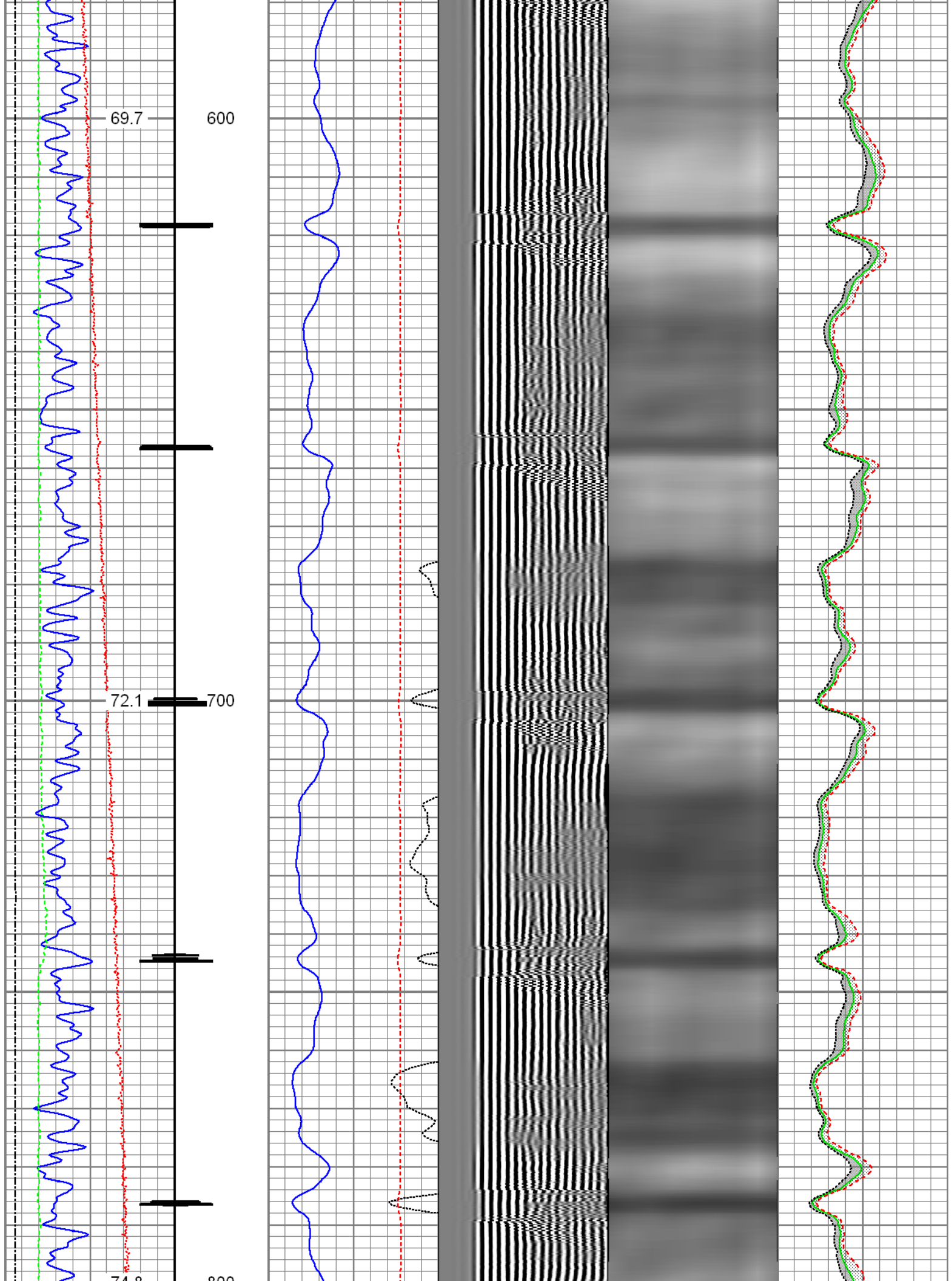
Database File: 0512340983_anadarko_skim state 4n-21hz_07-28-15_rbl.db
Dataset Pathname: pass4
Presentation Format: radii
Dataset Creation: Tue Jul 28 12:04:01 2015 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

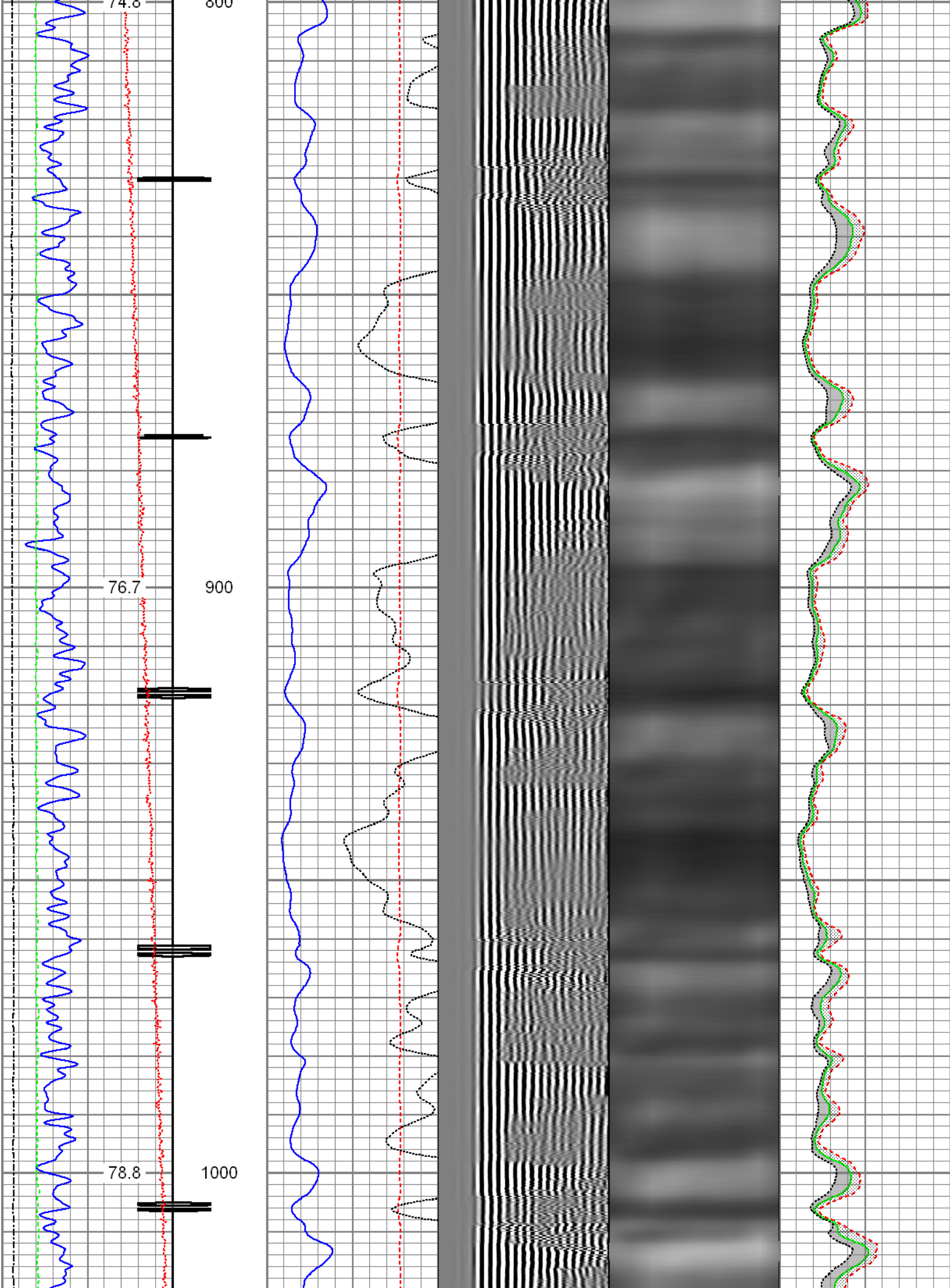
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

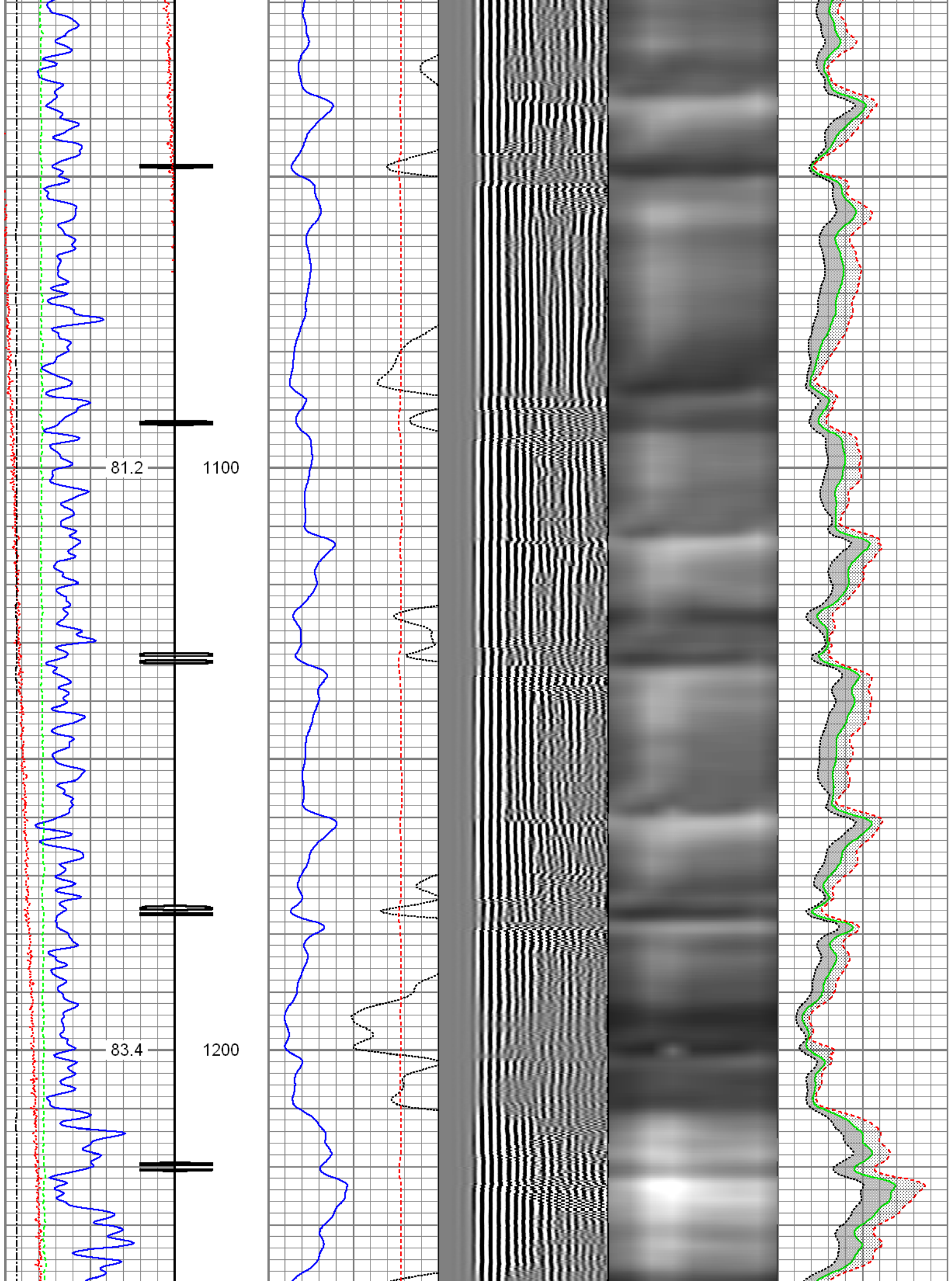


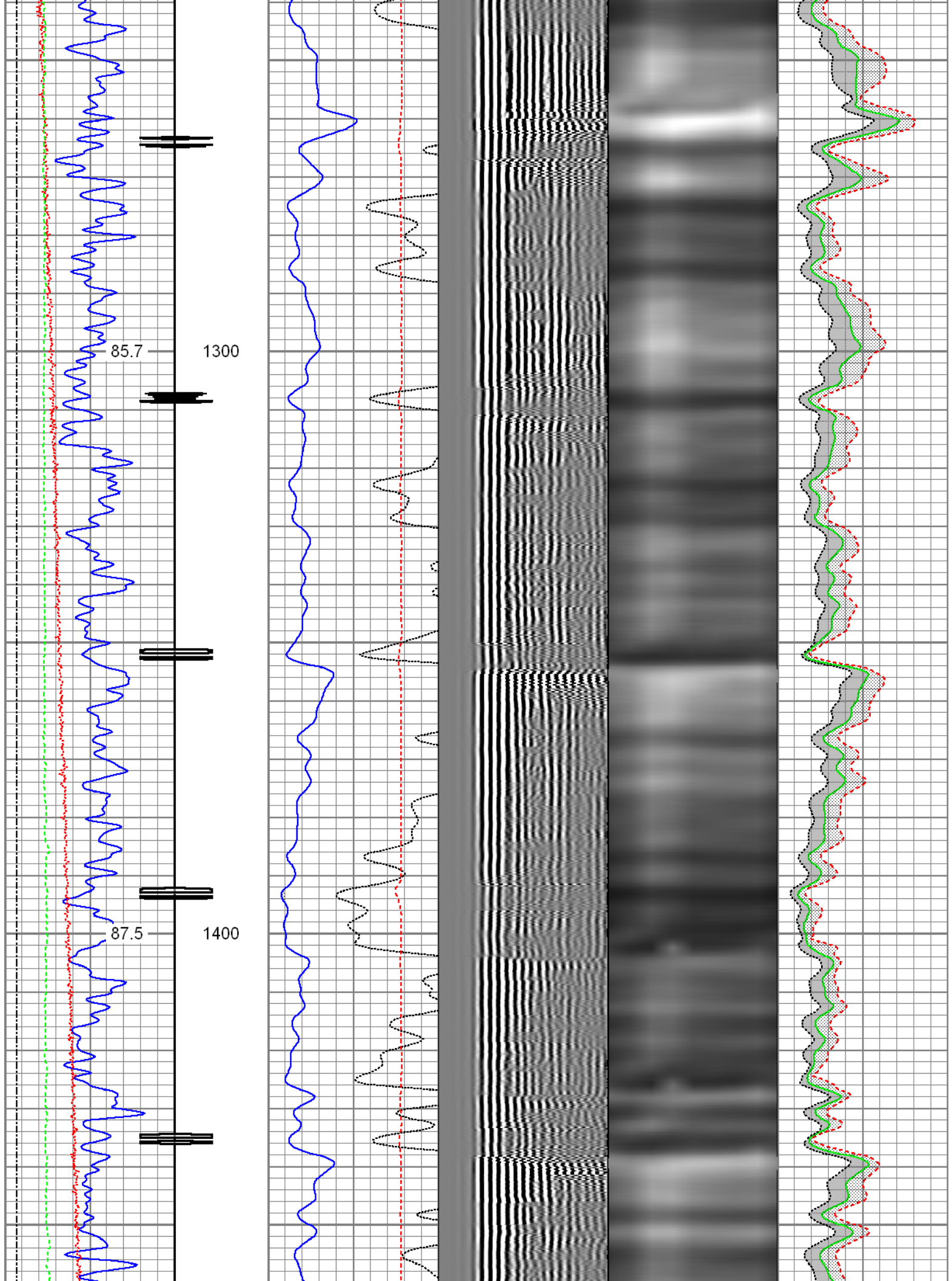


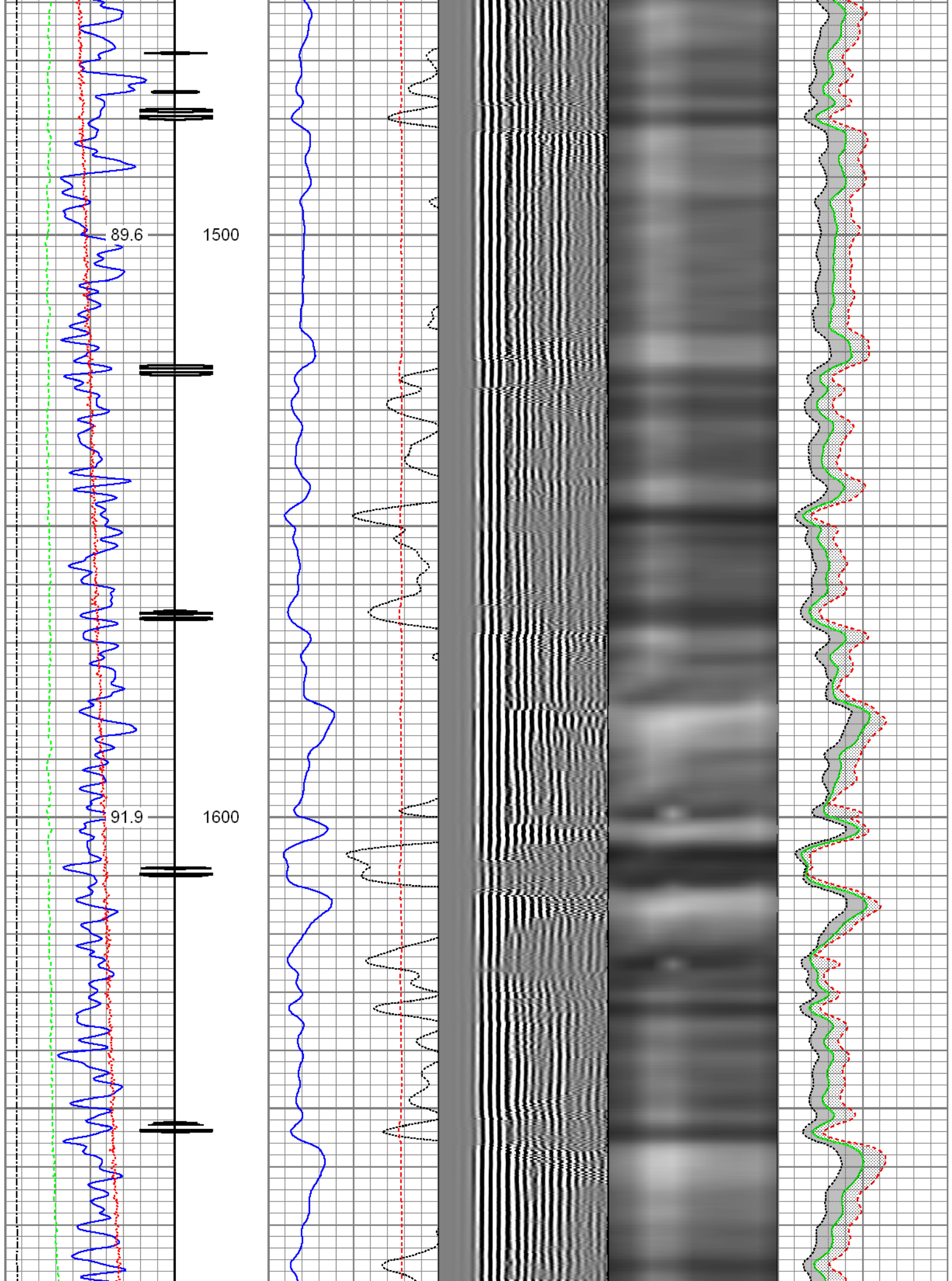


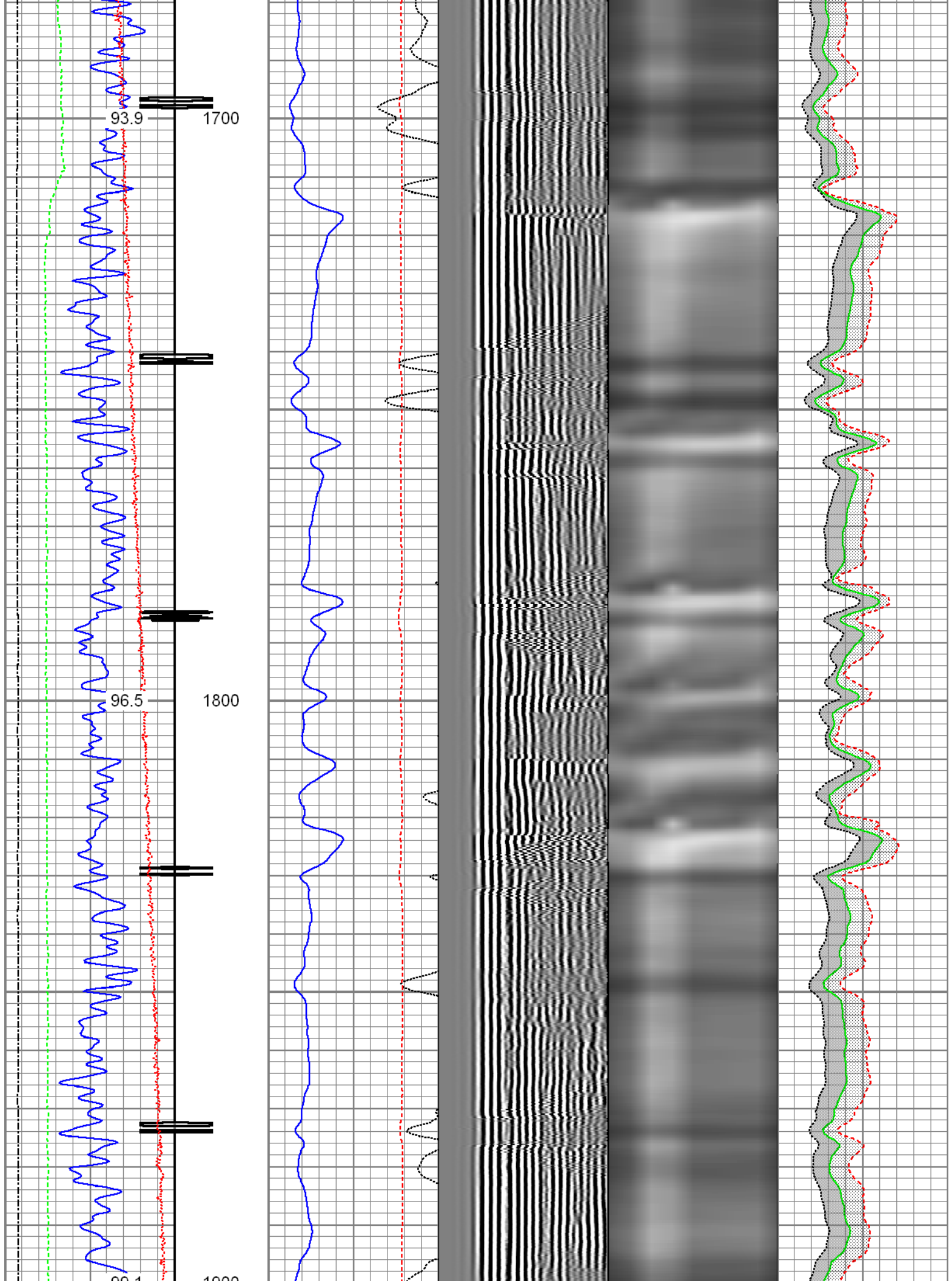


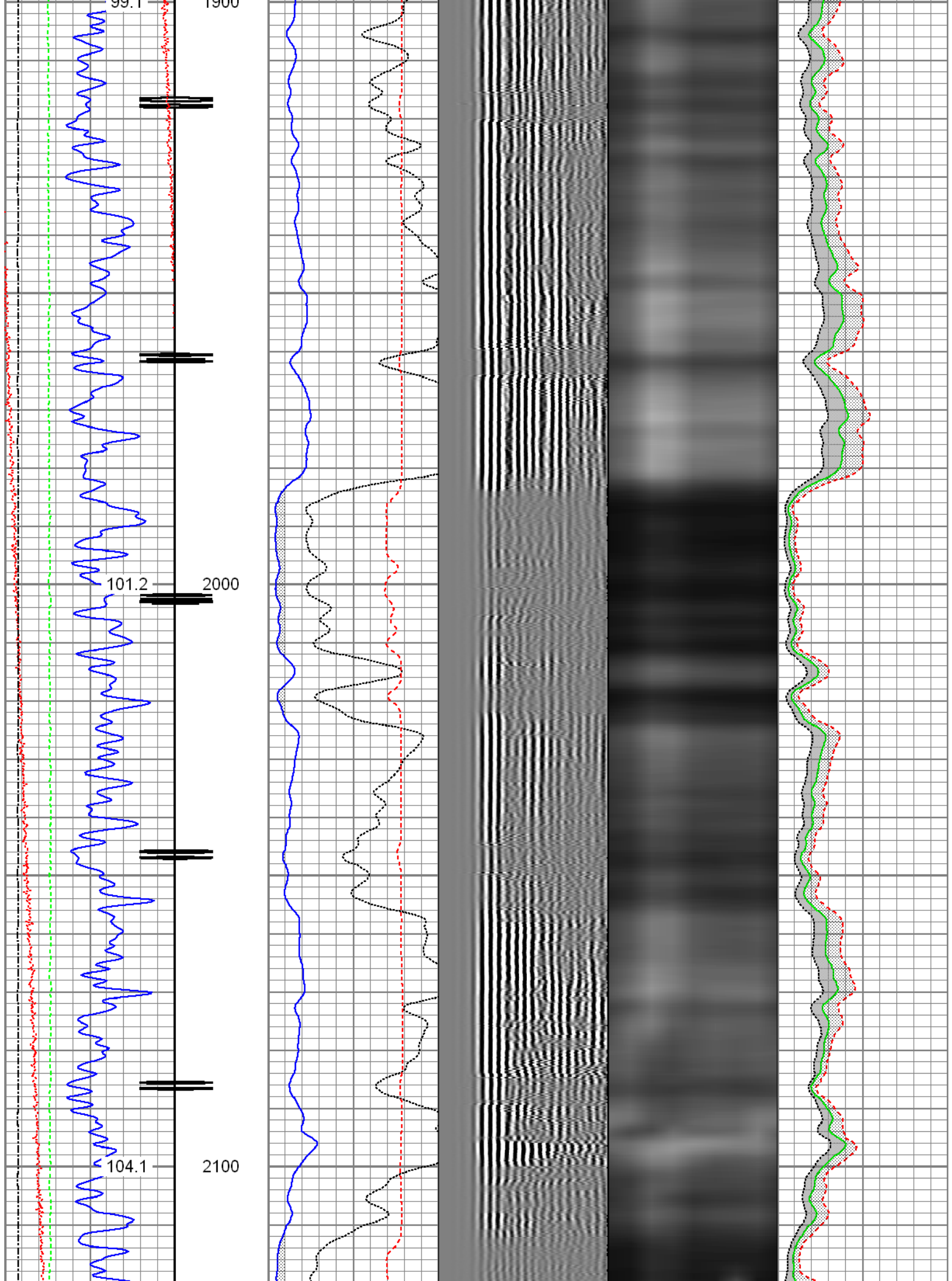


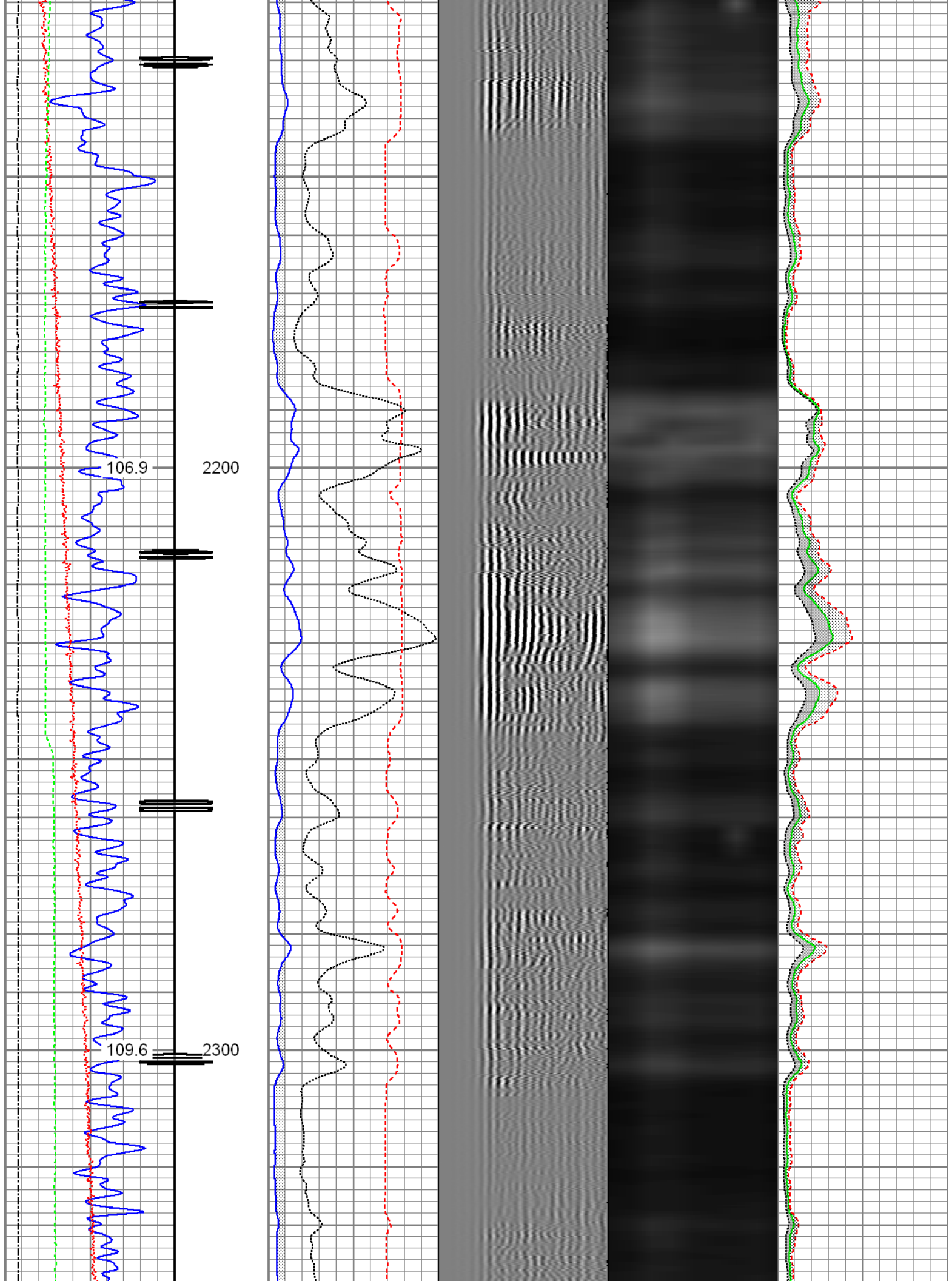


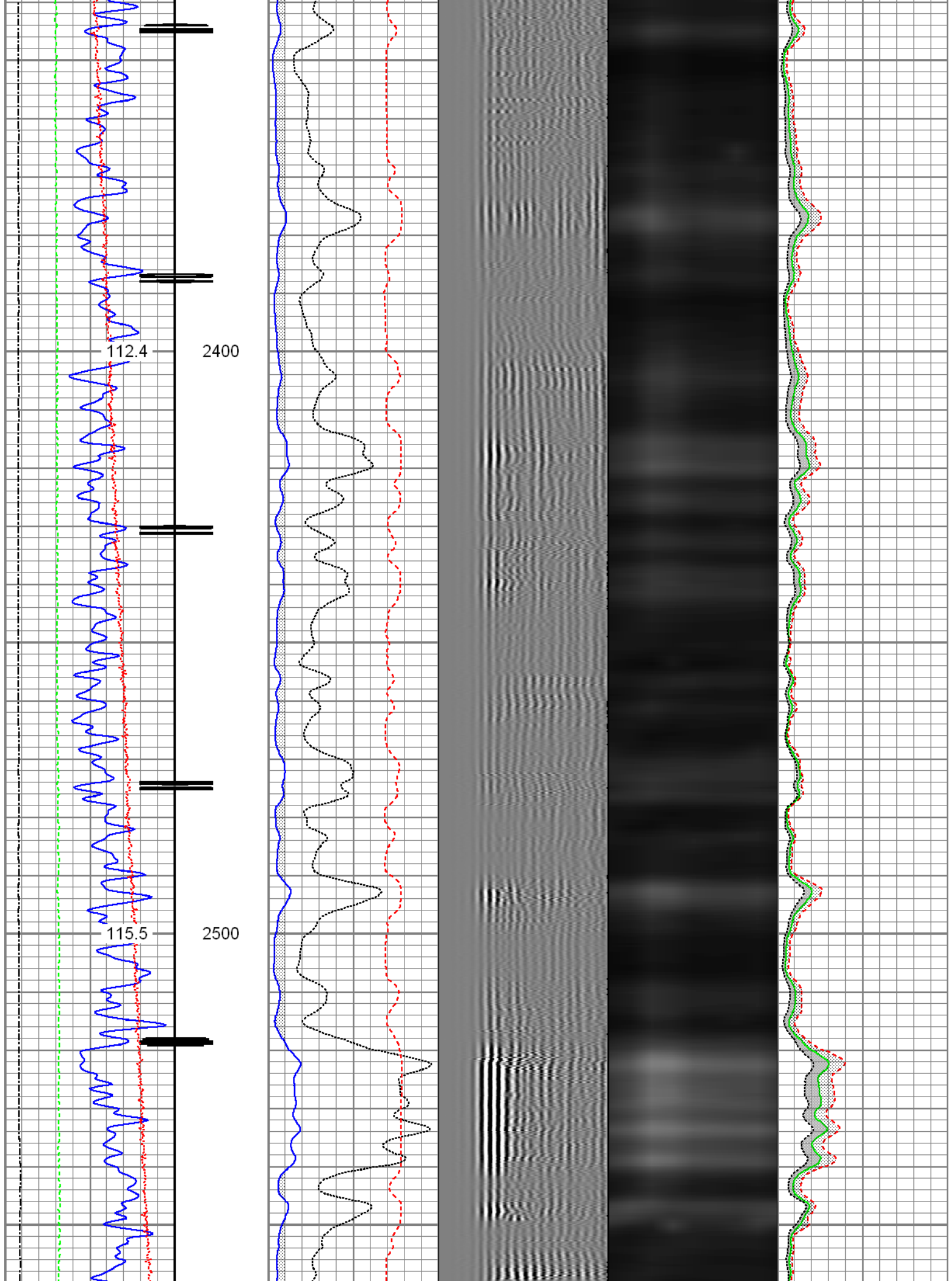


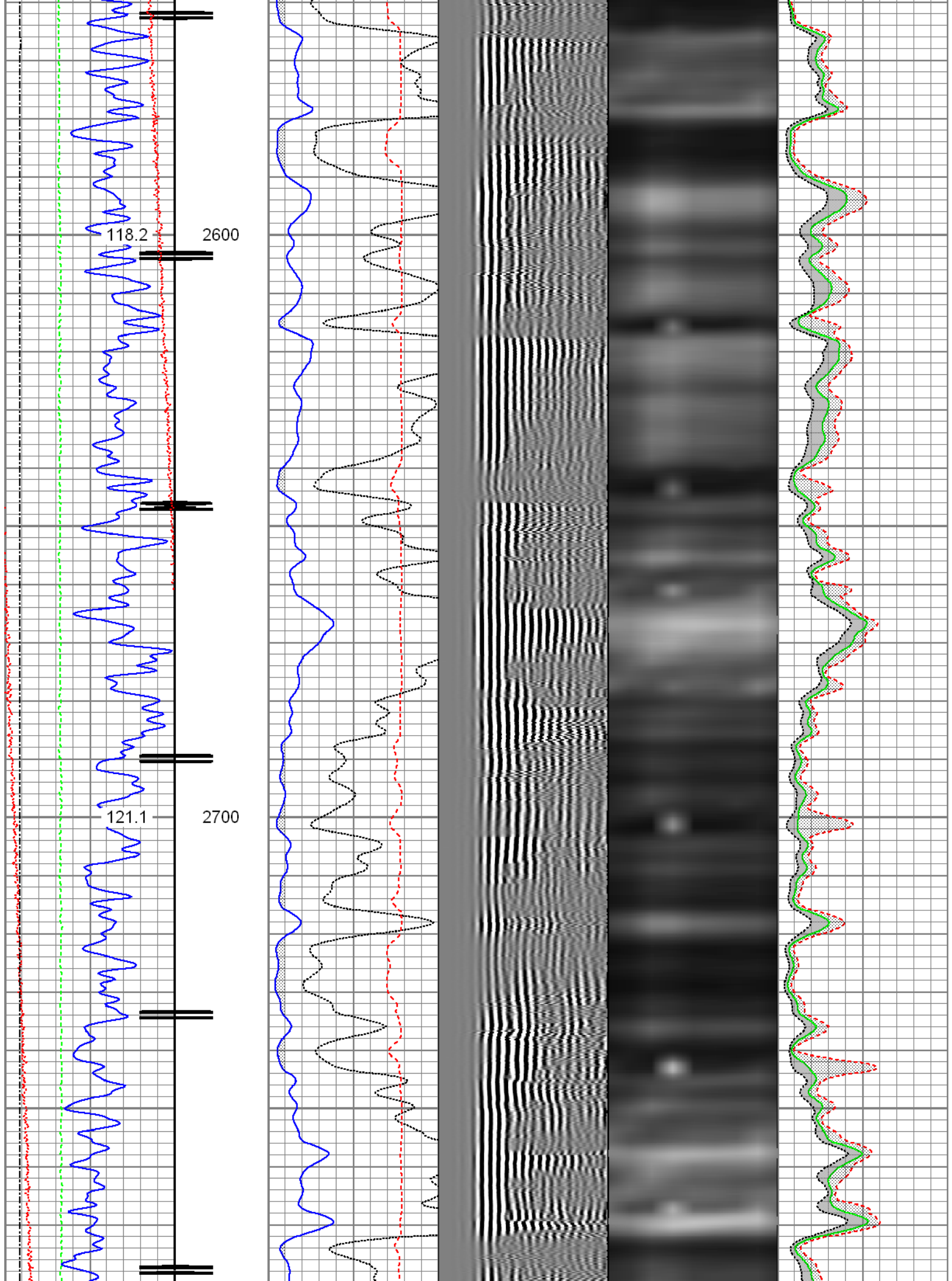


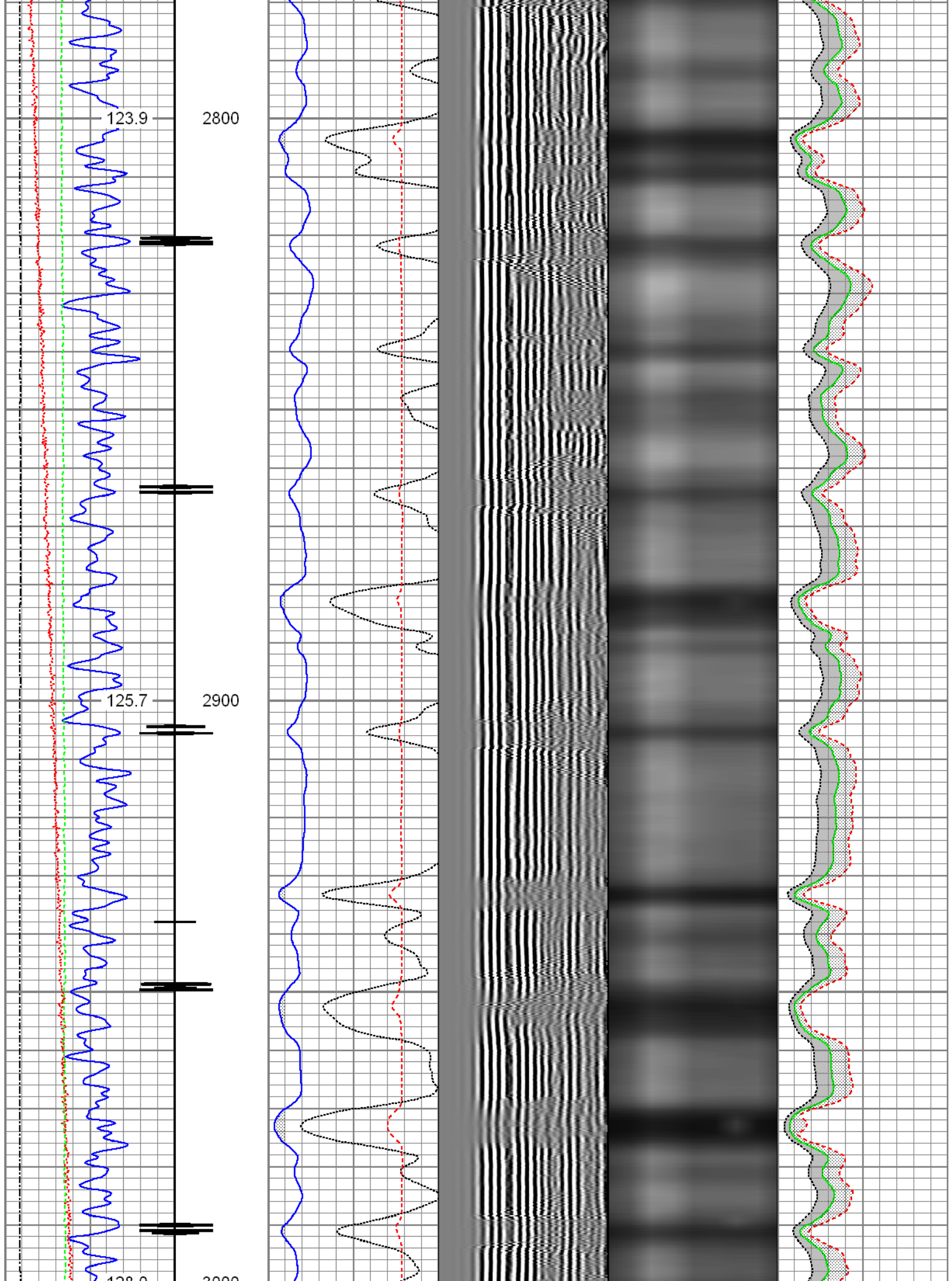


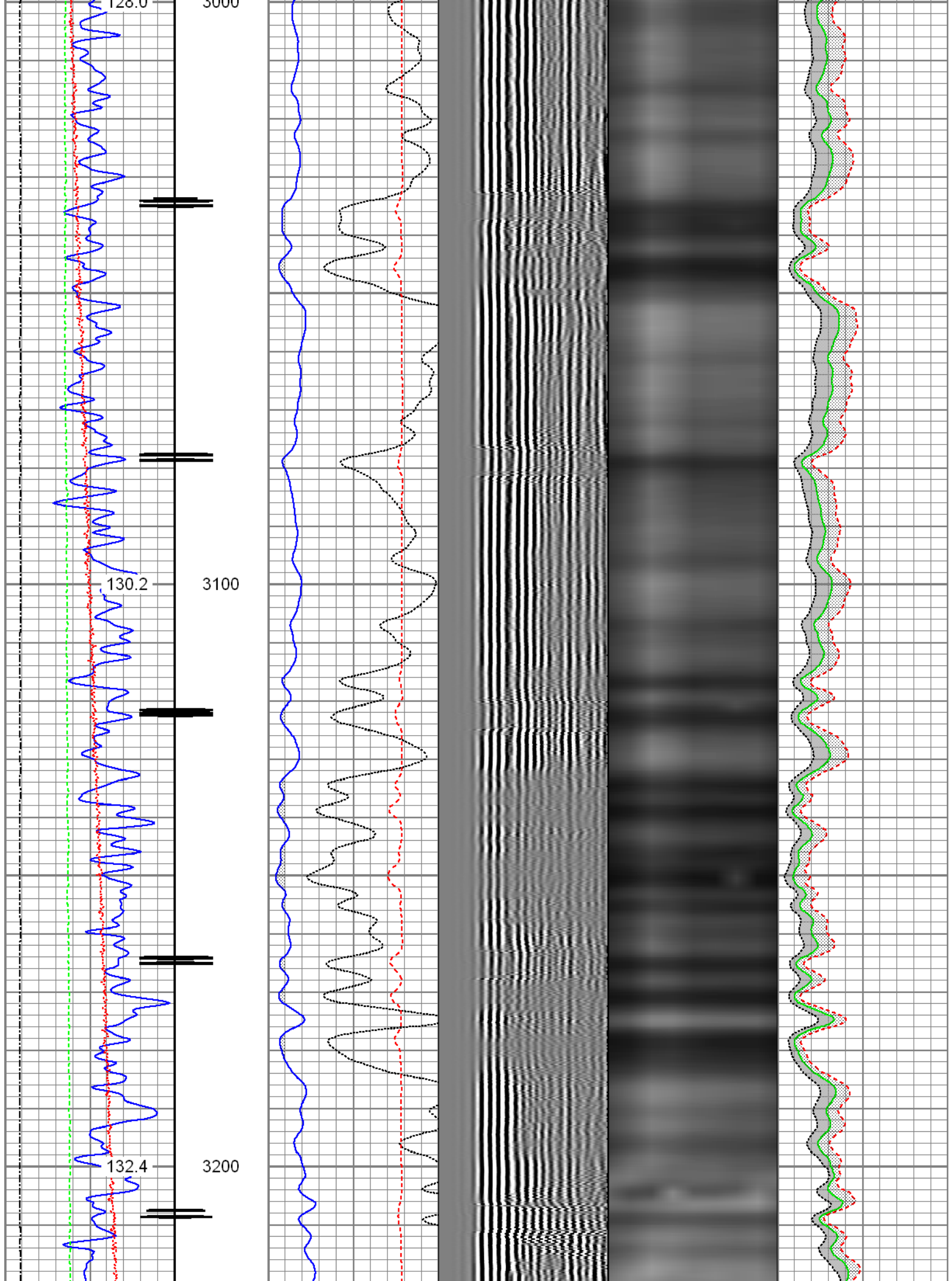


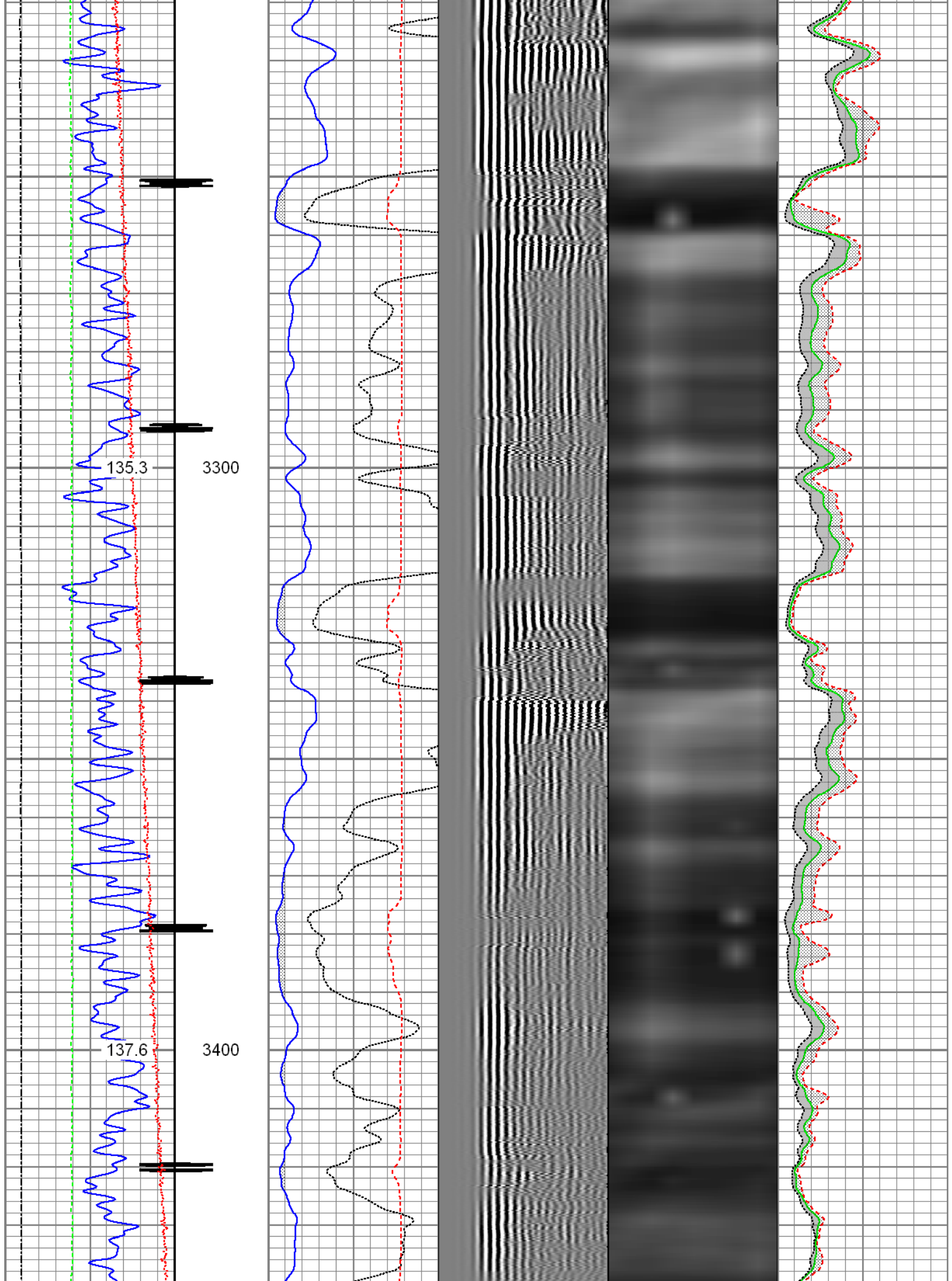


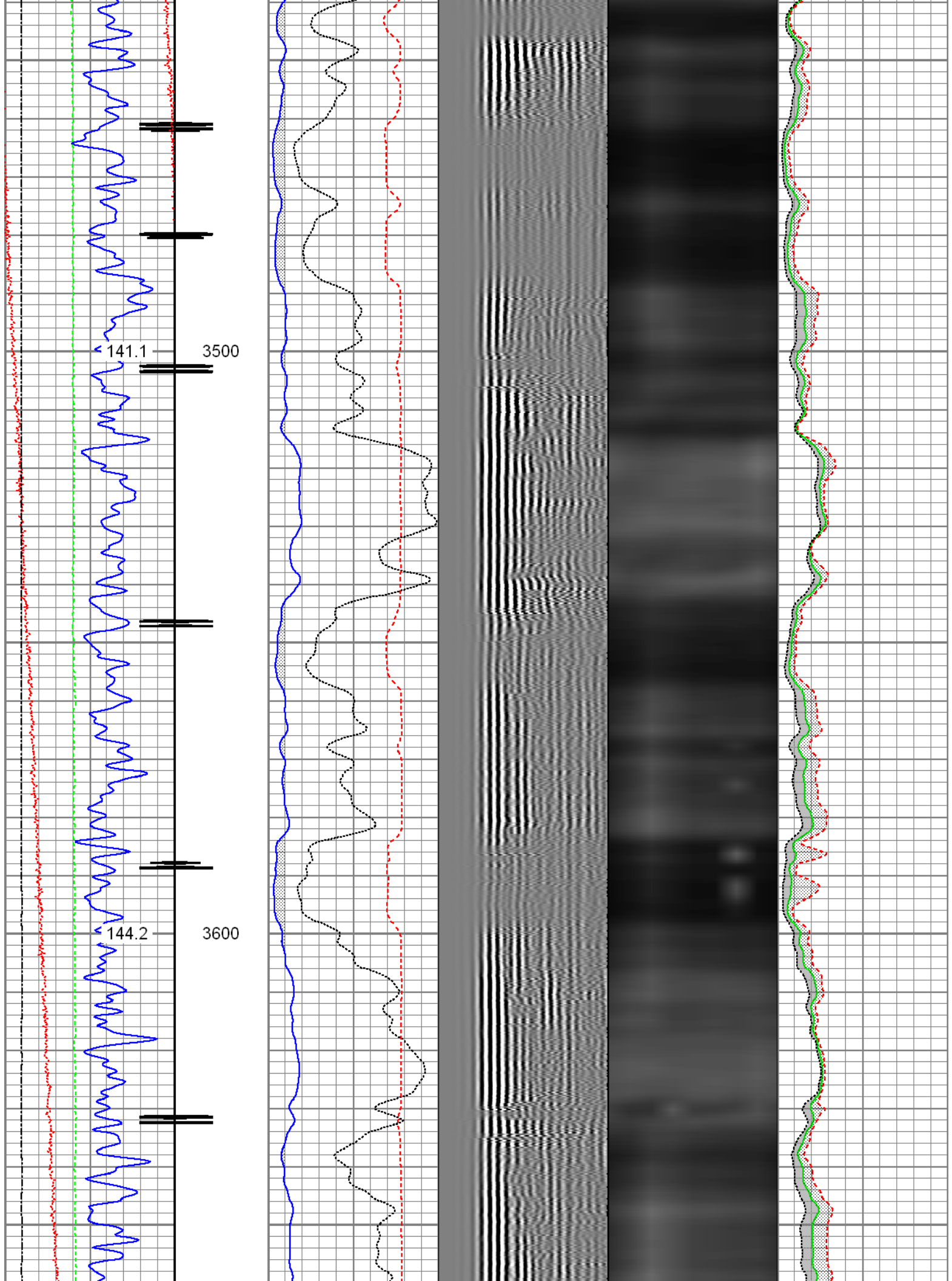


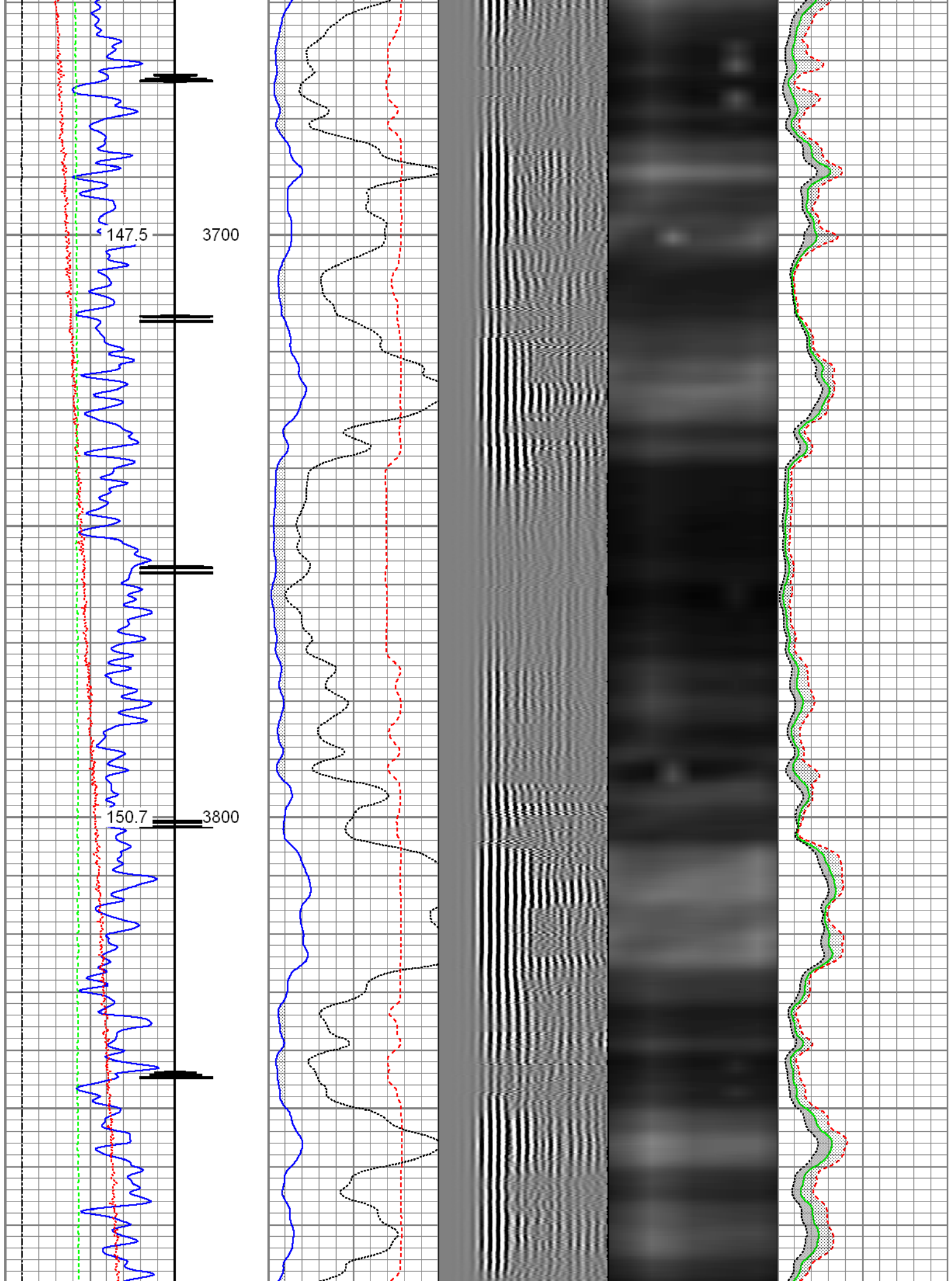


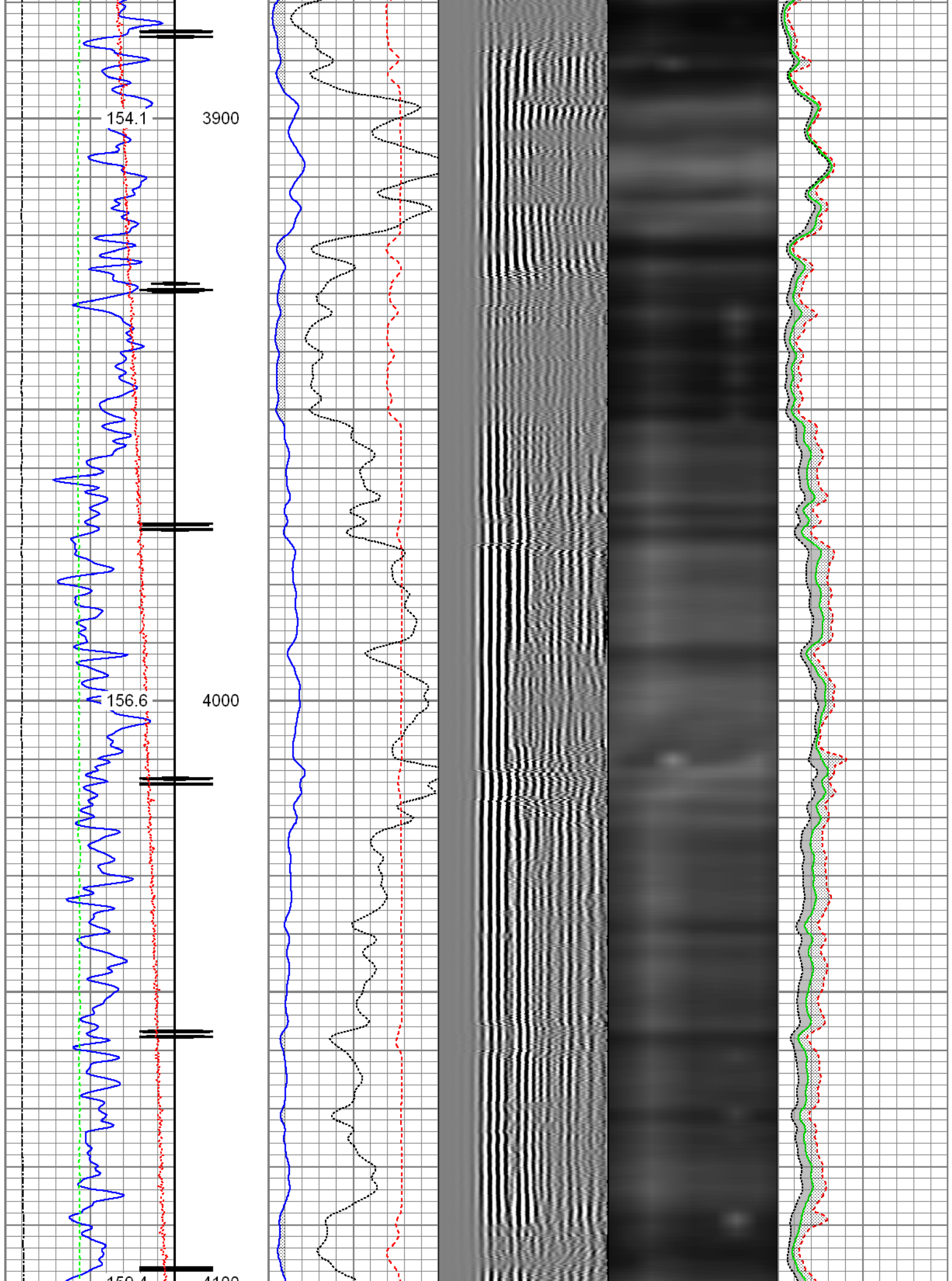


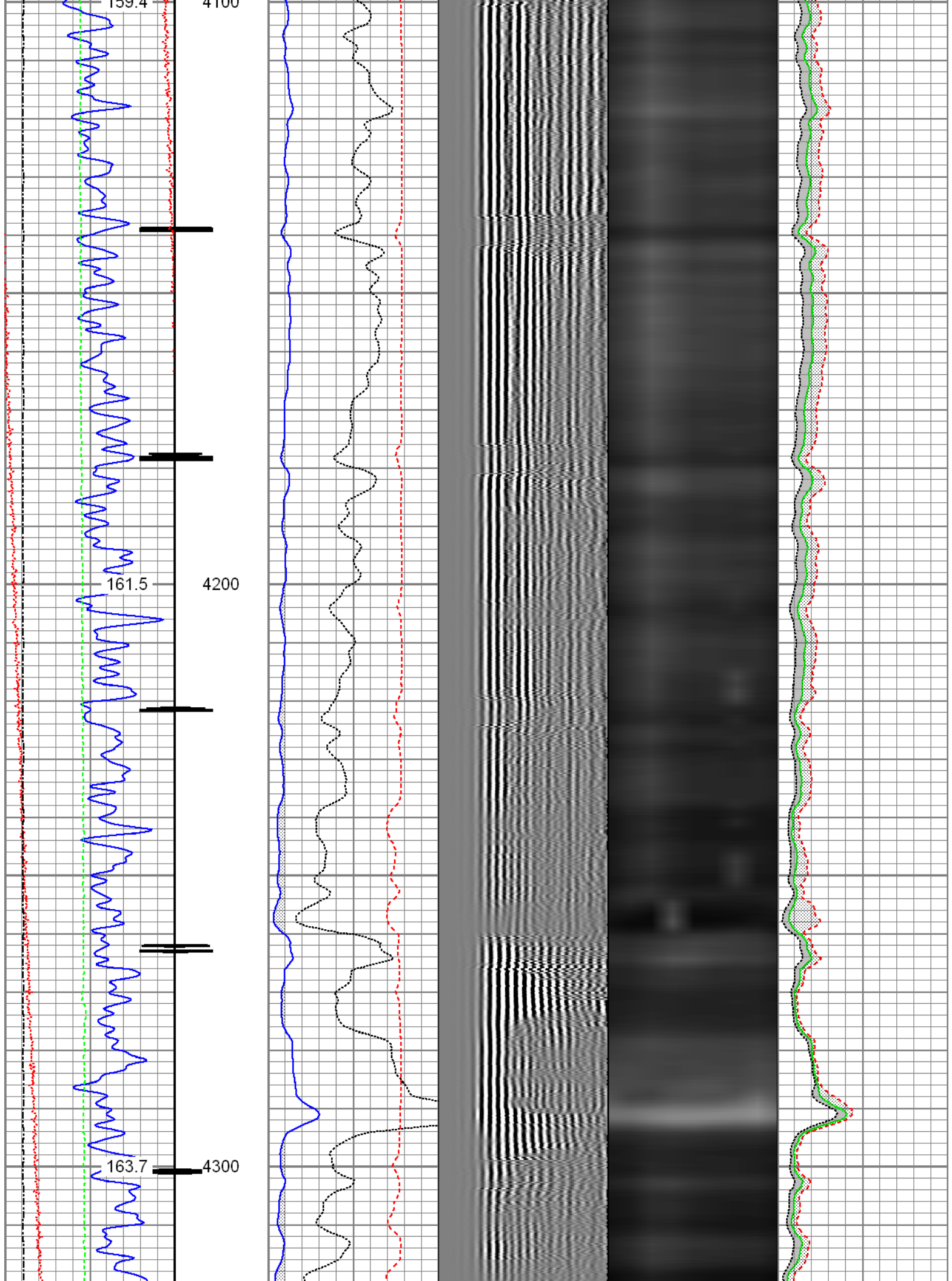


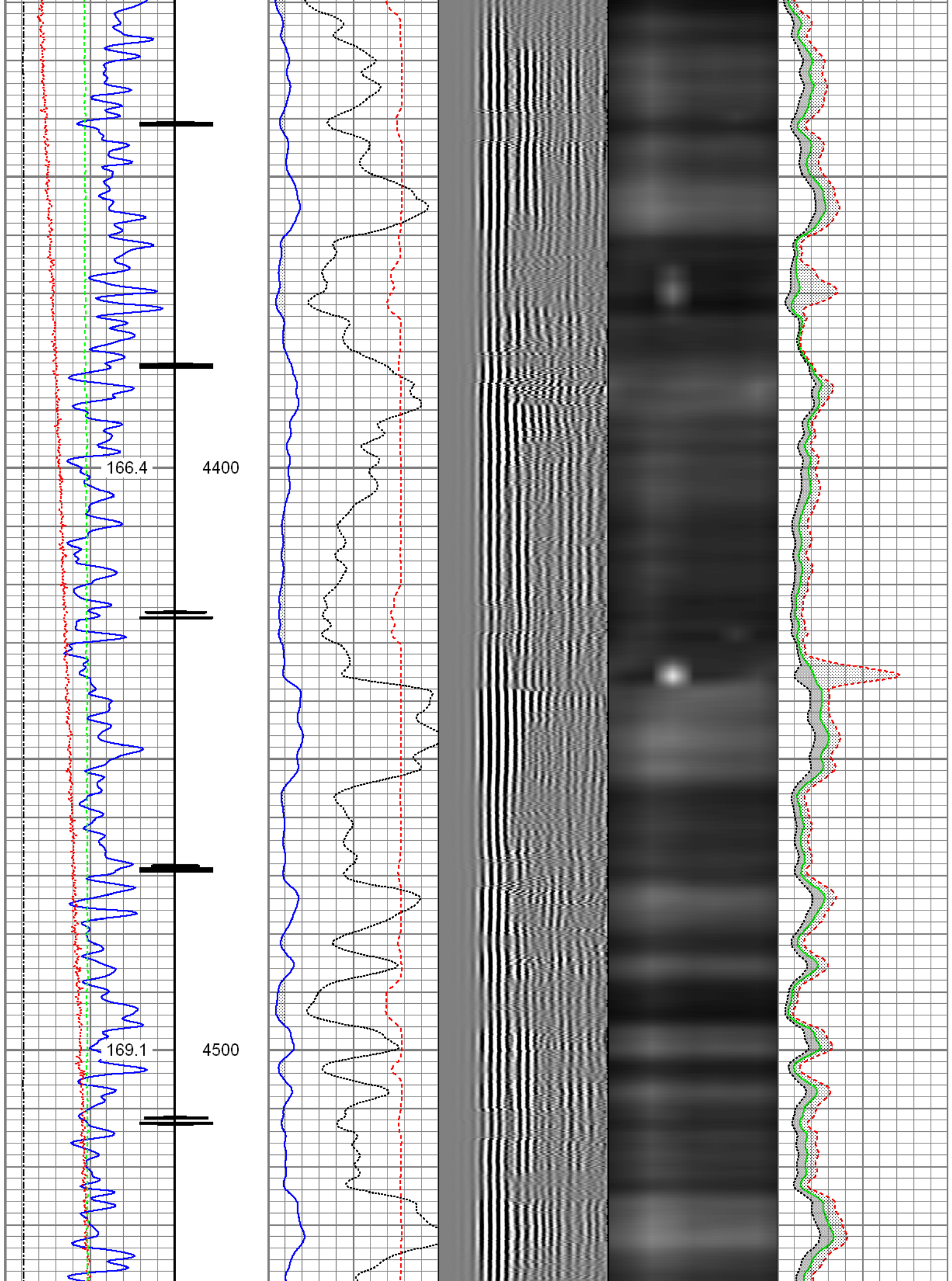


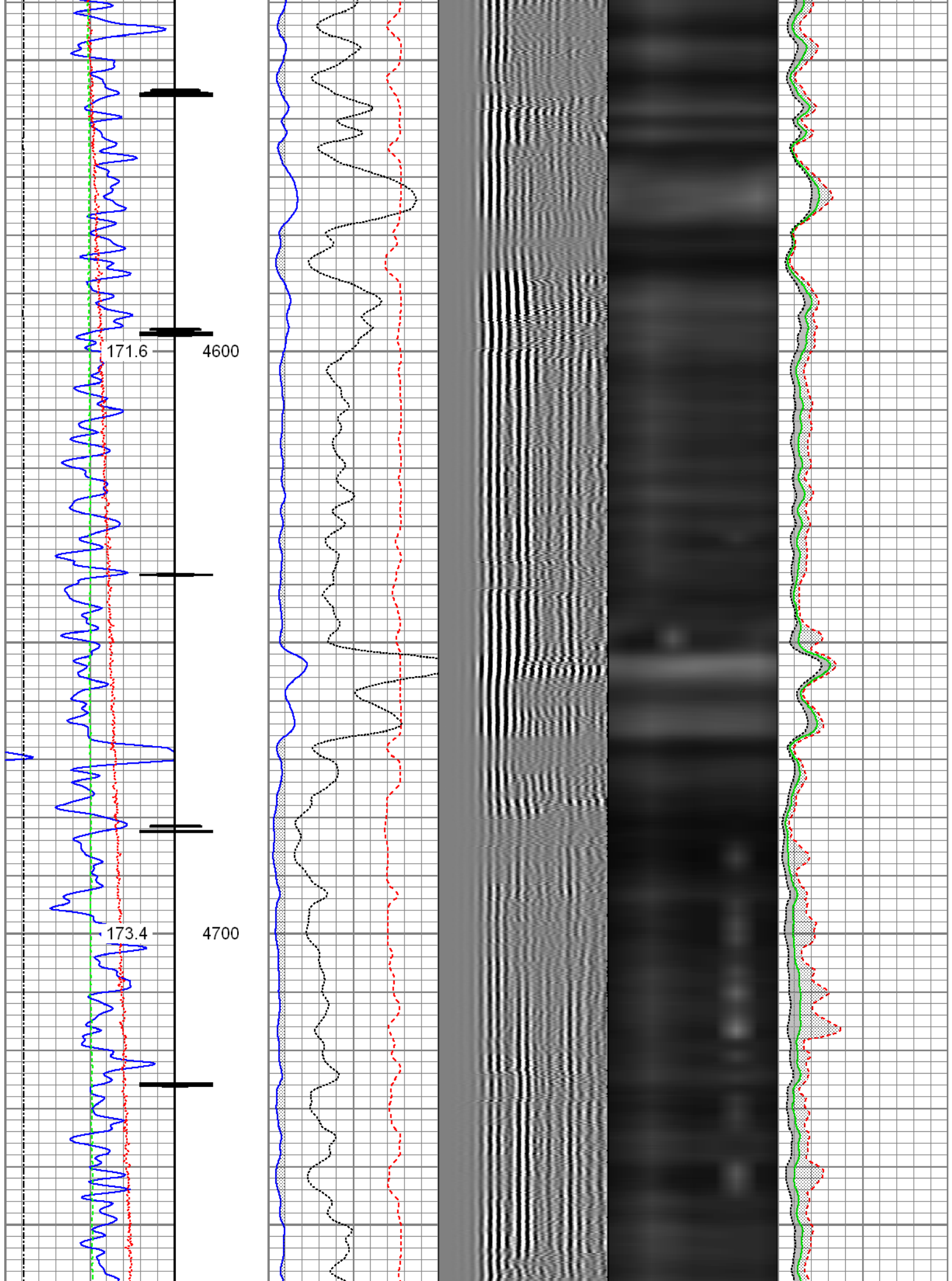


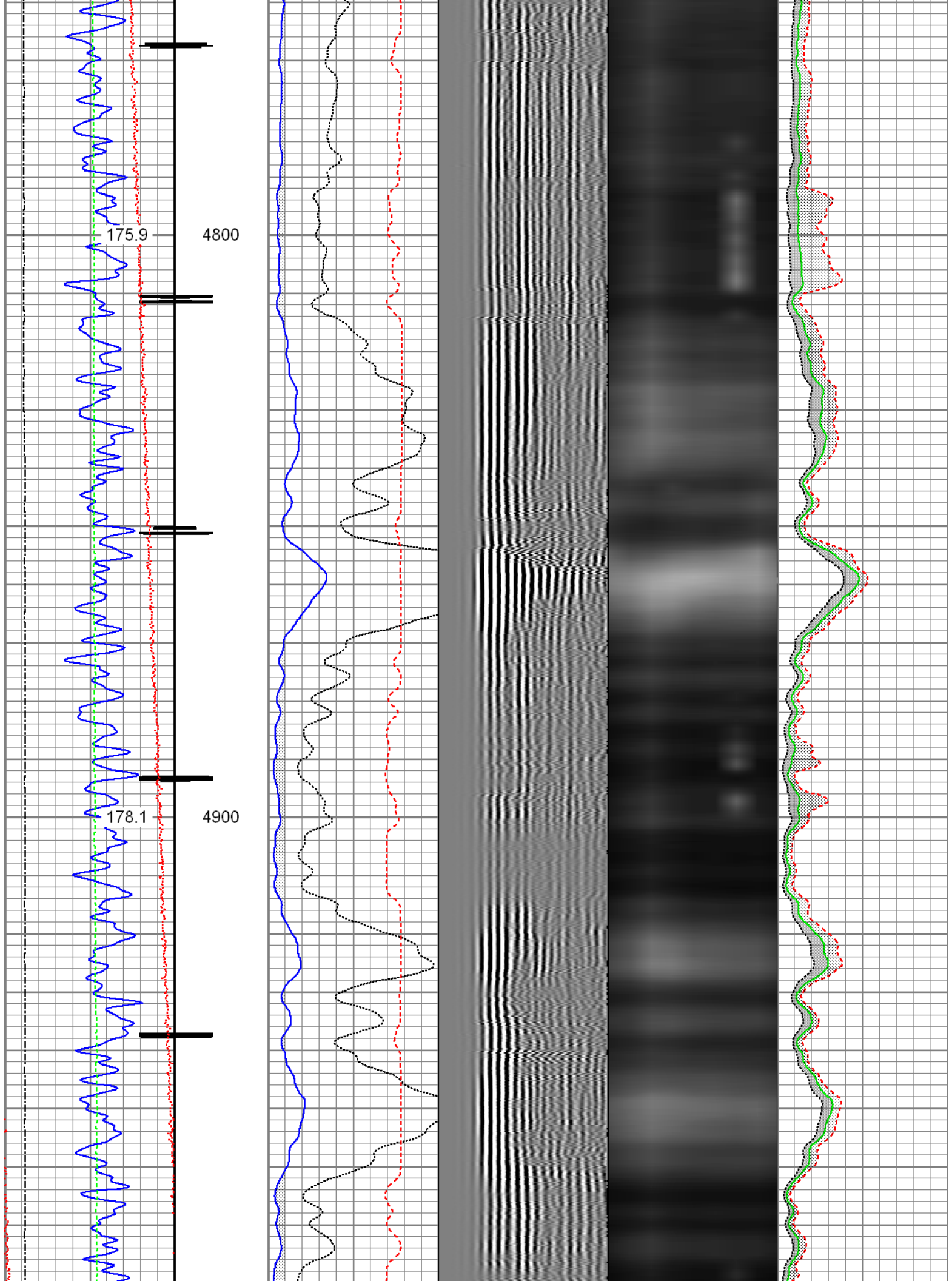


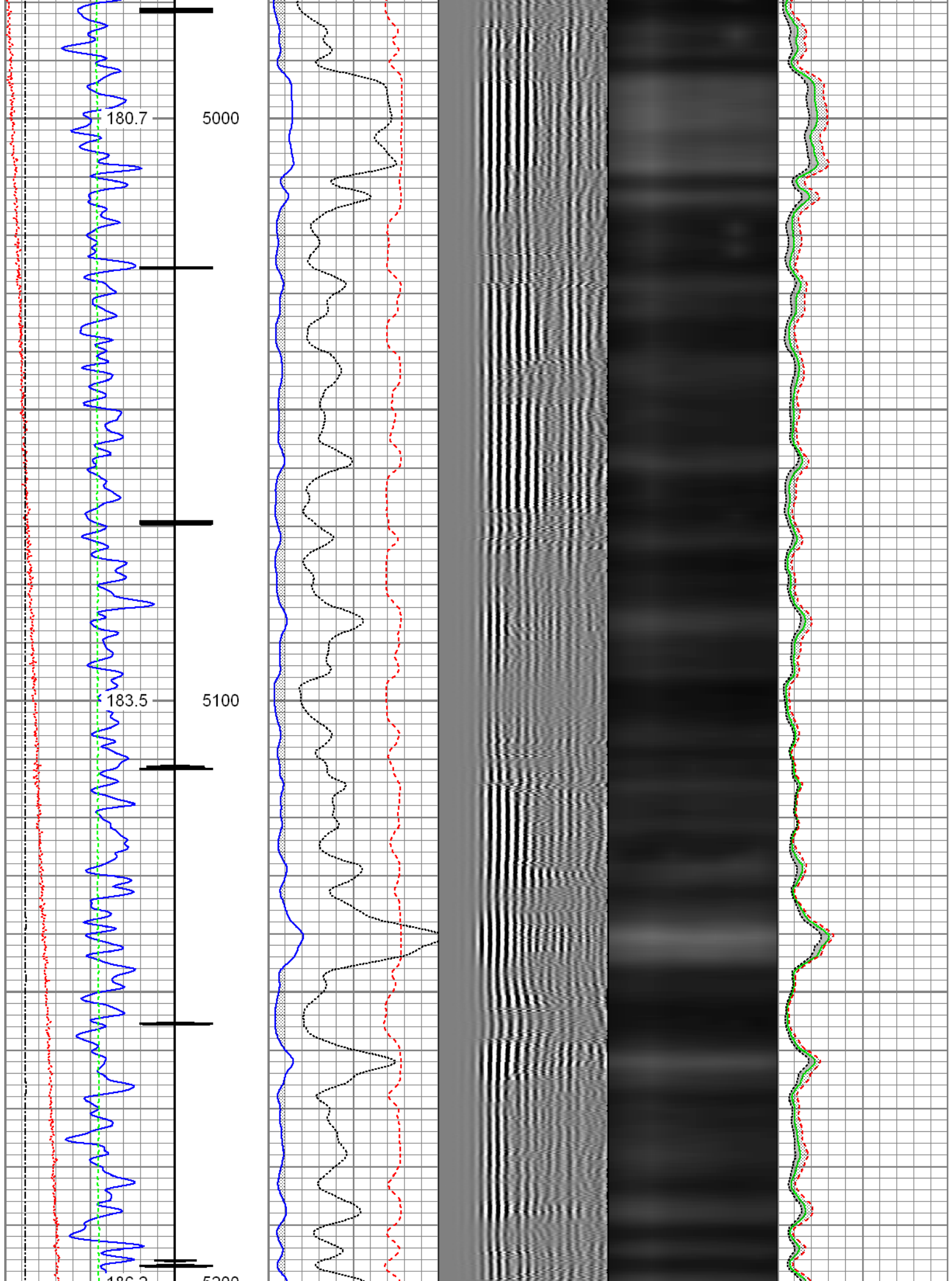


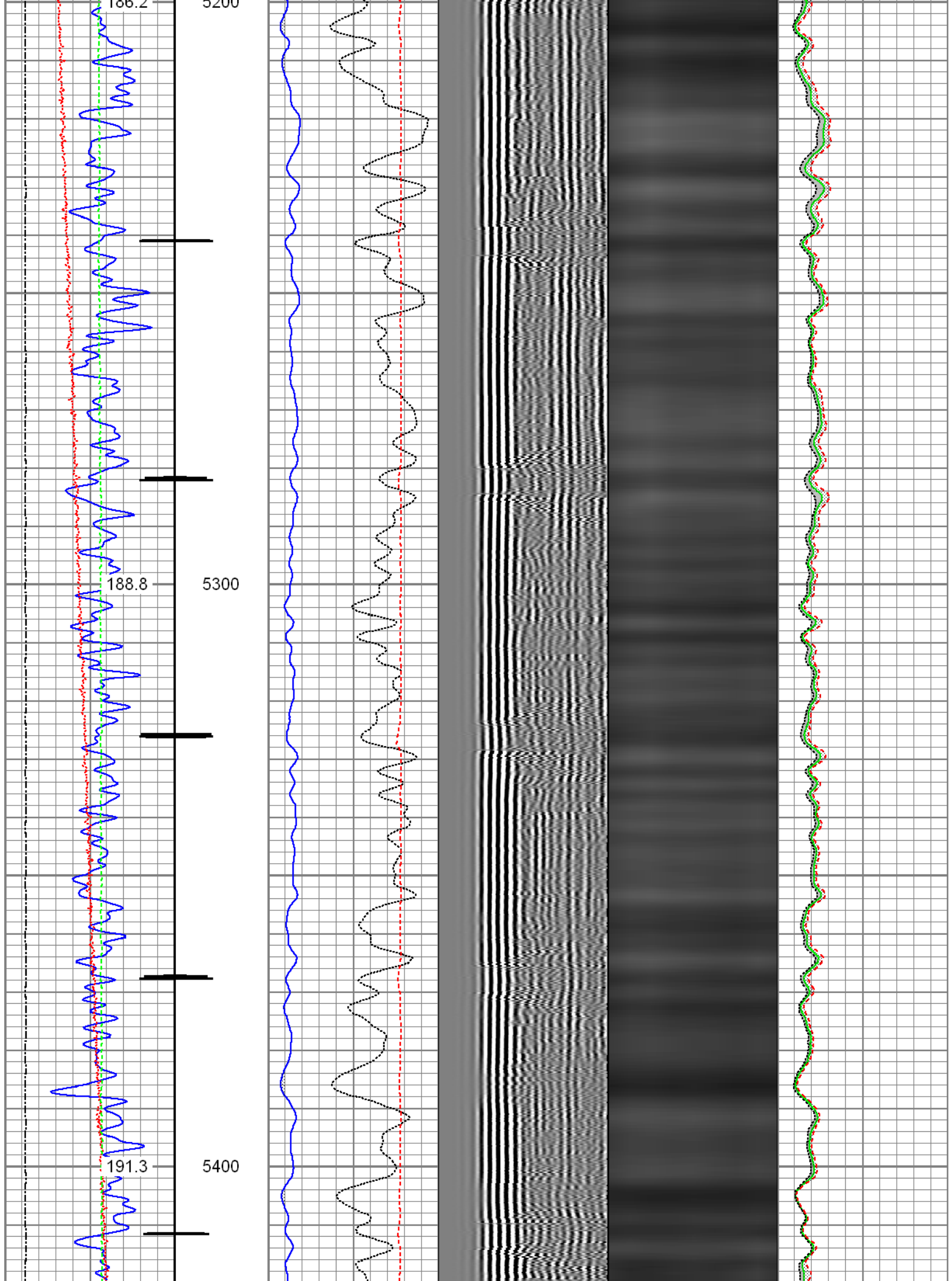


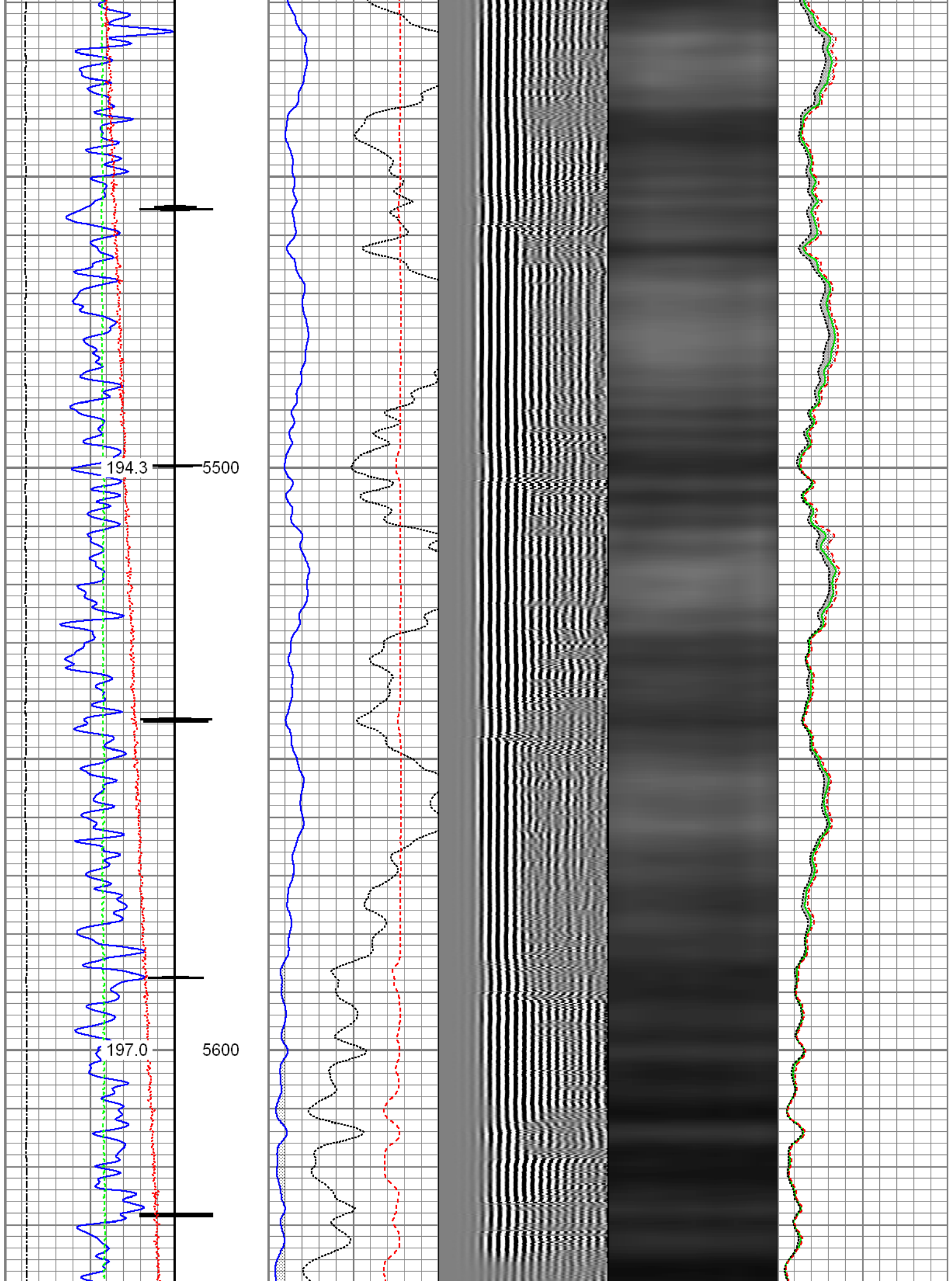


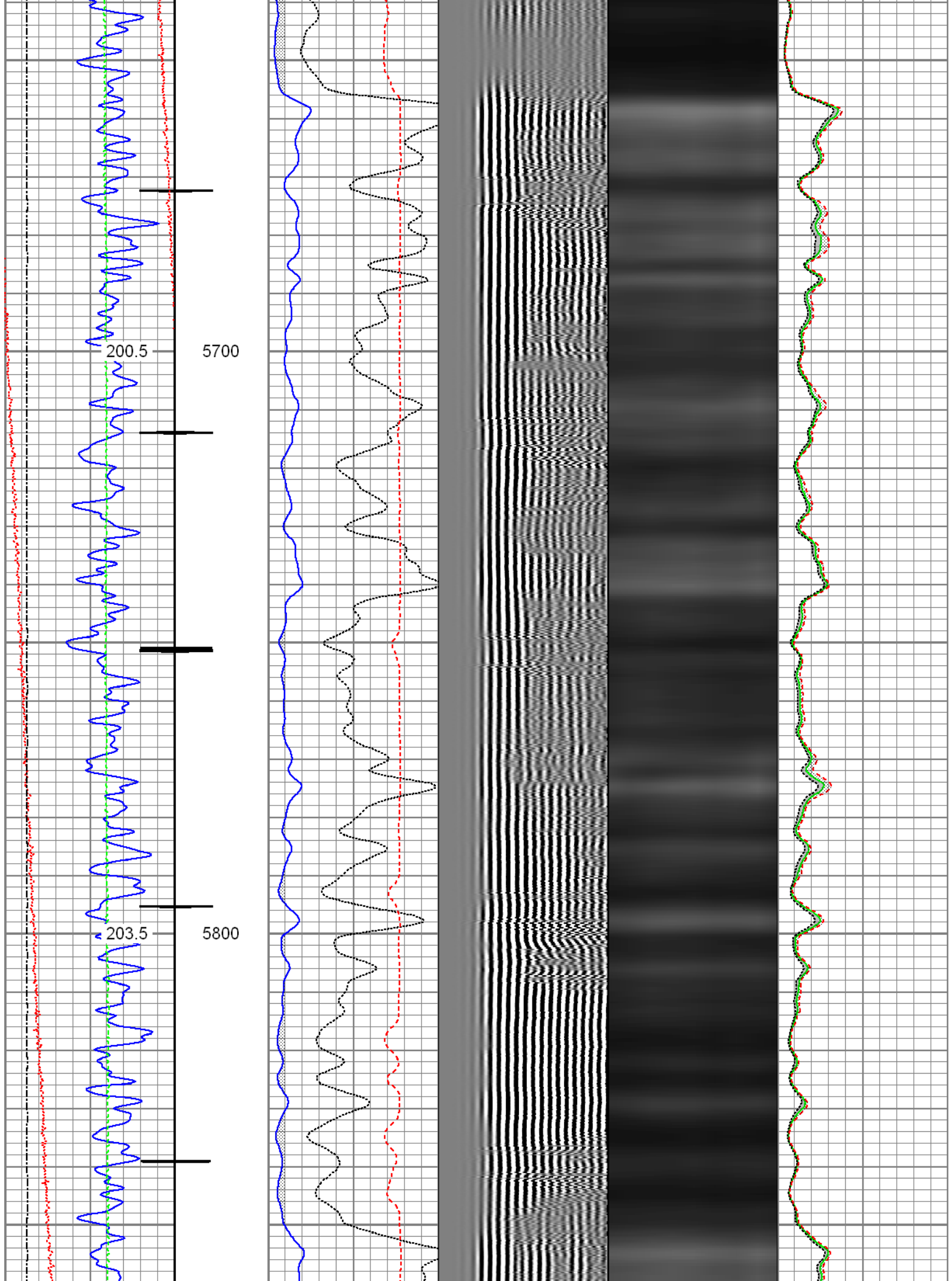


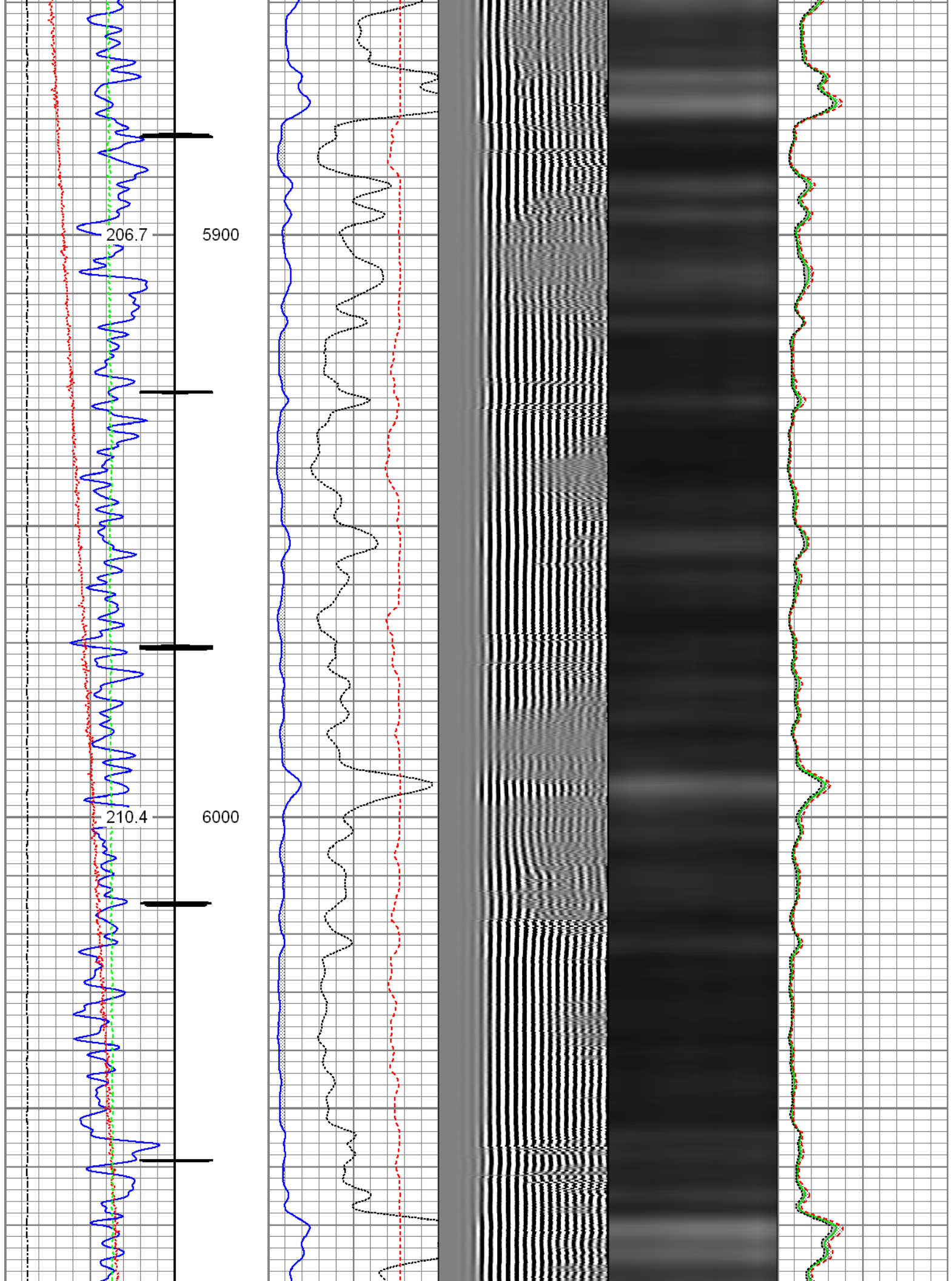


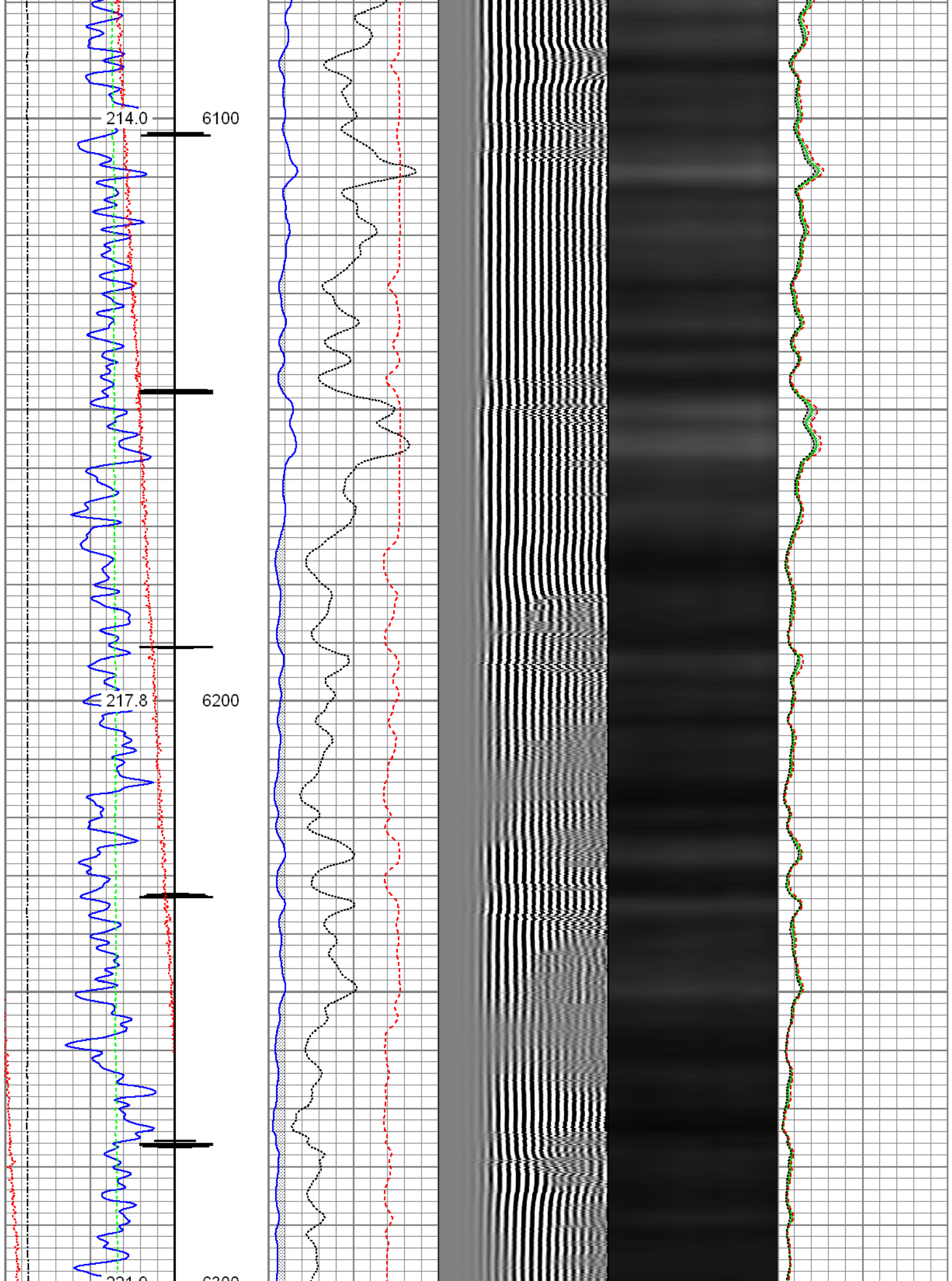


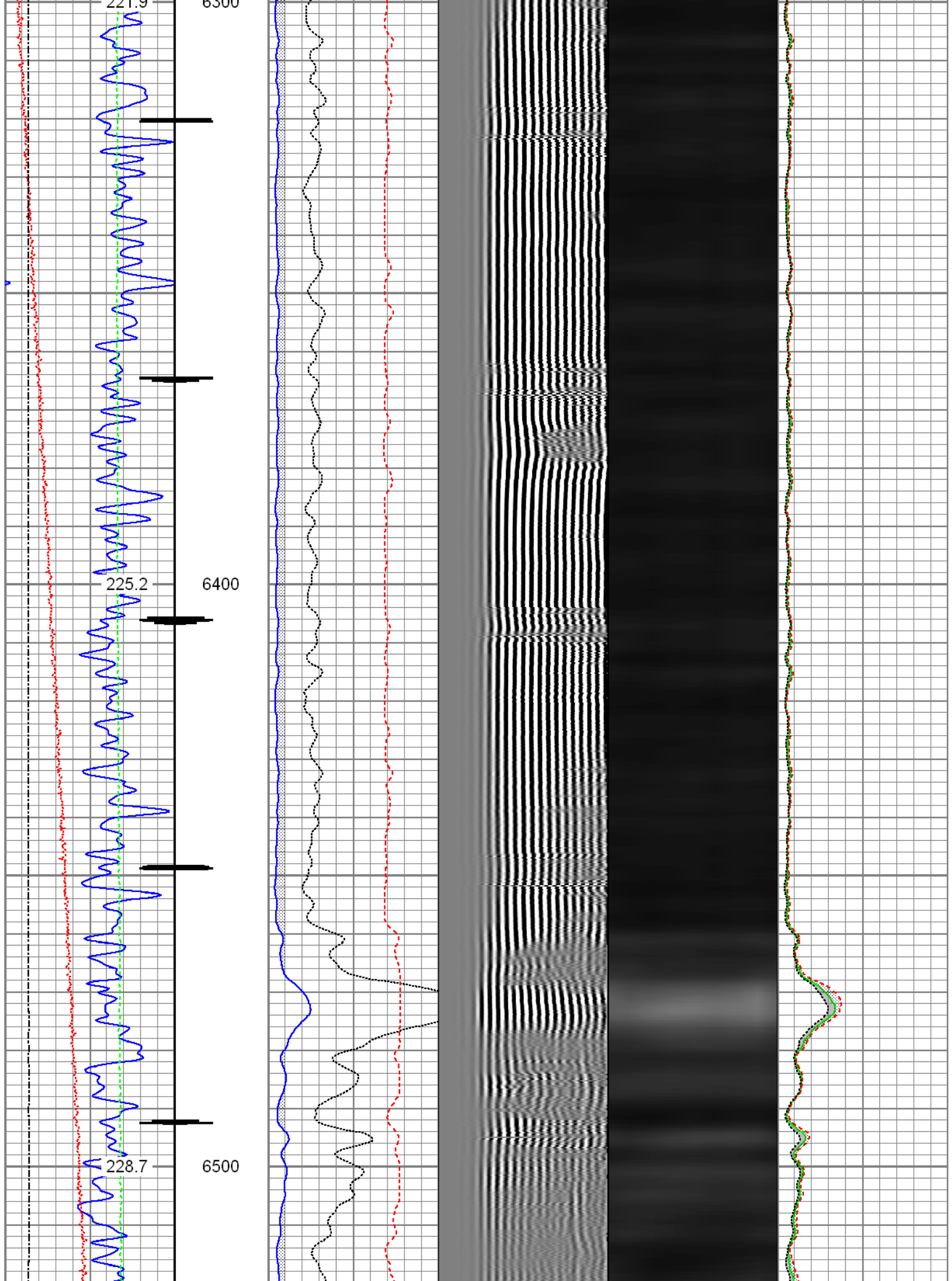


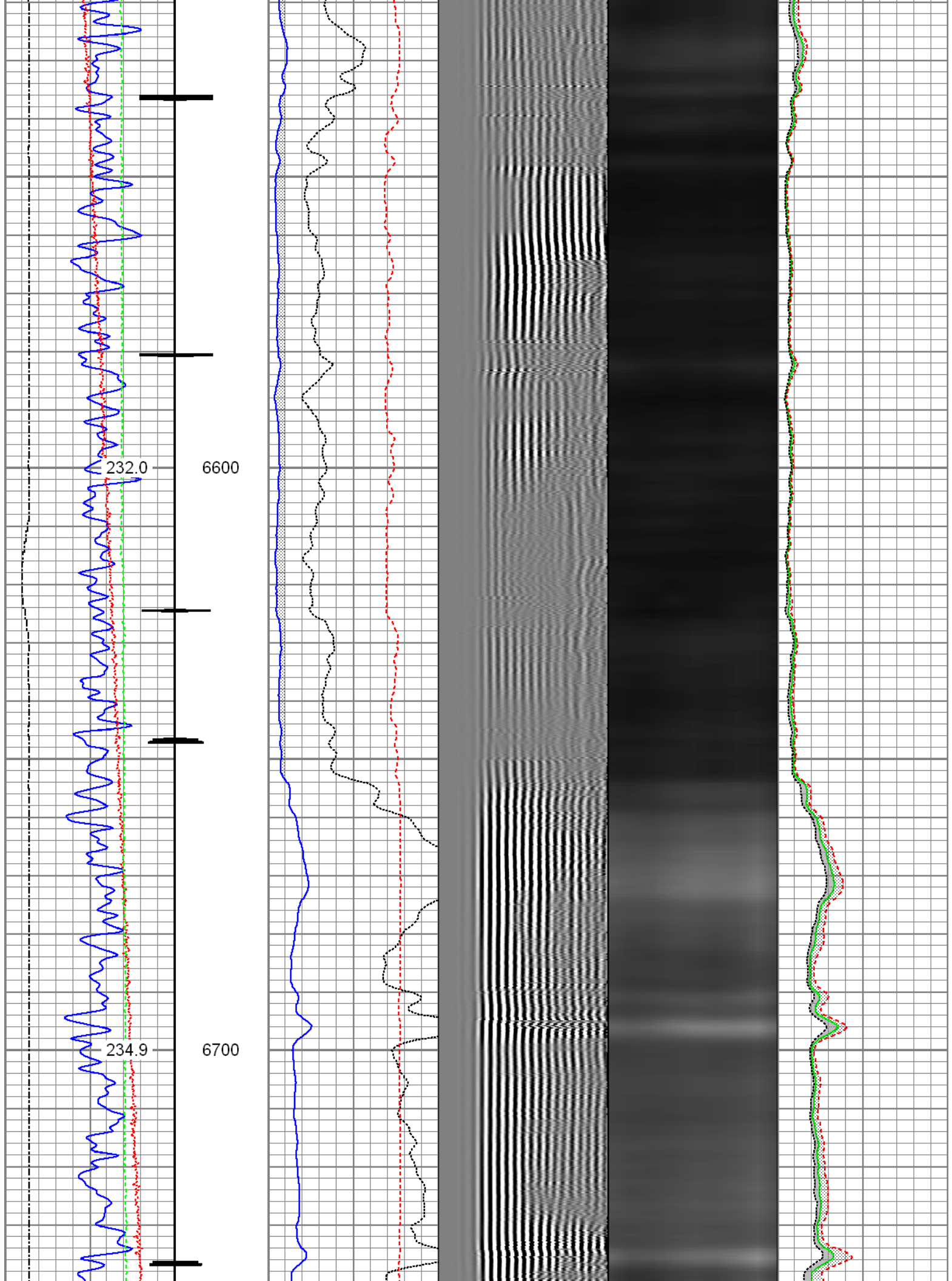


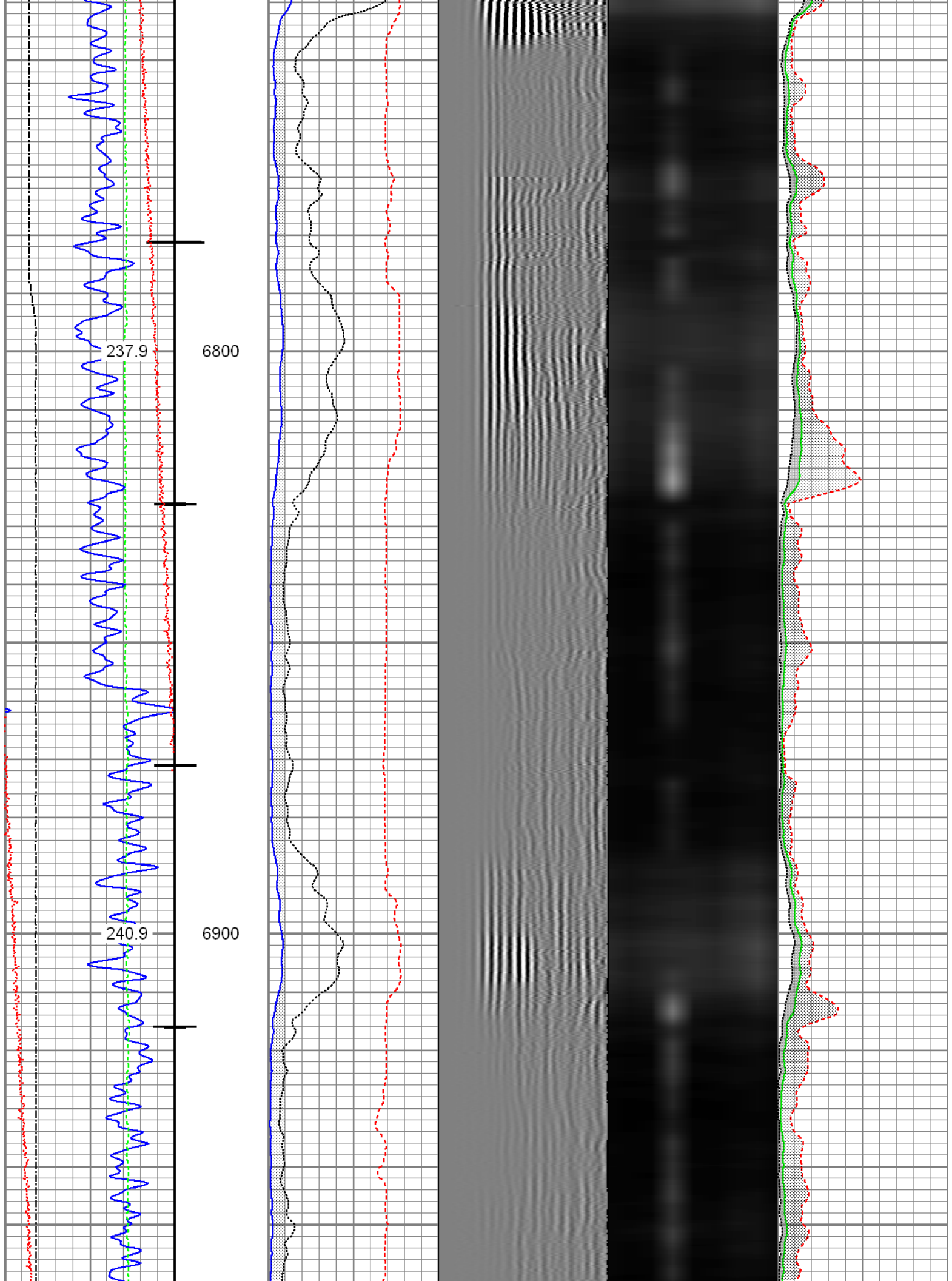


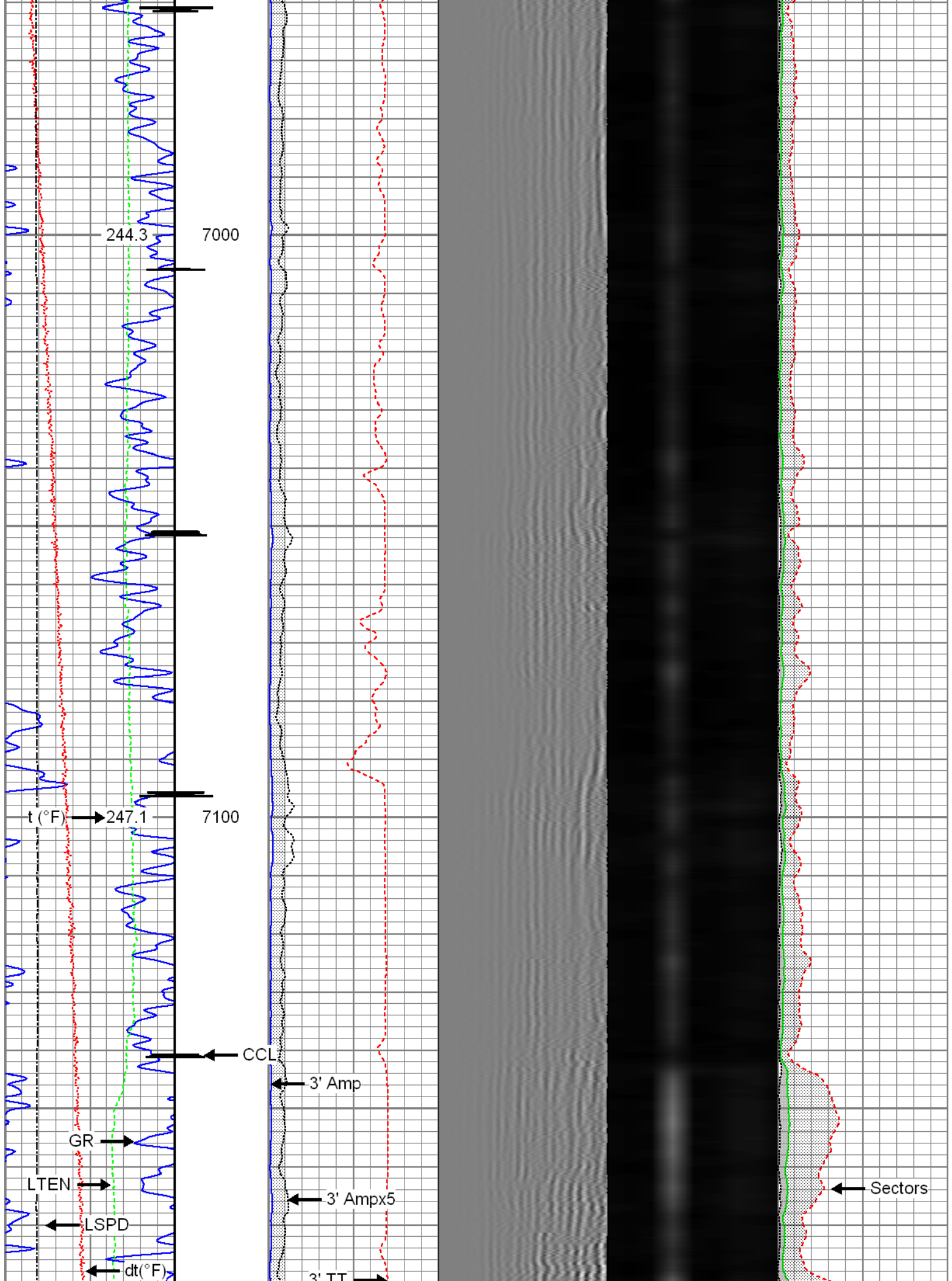


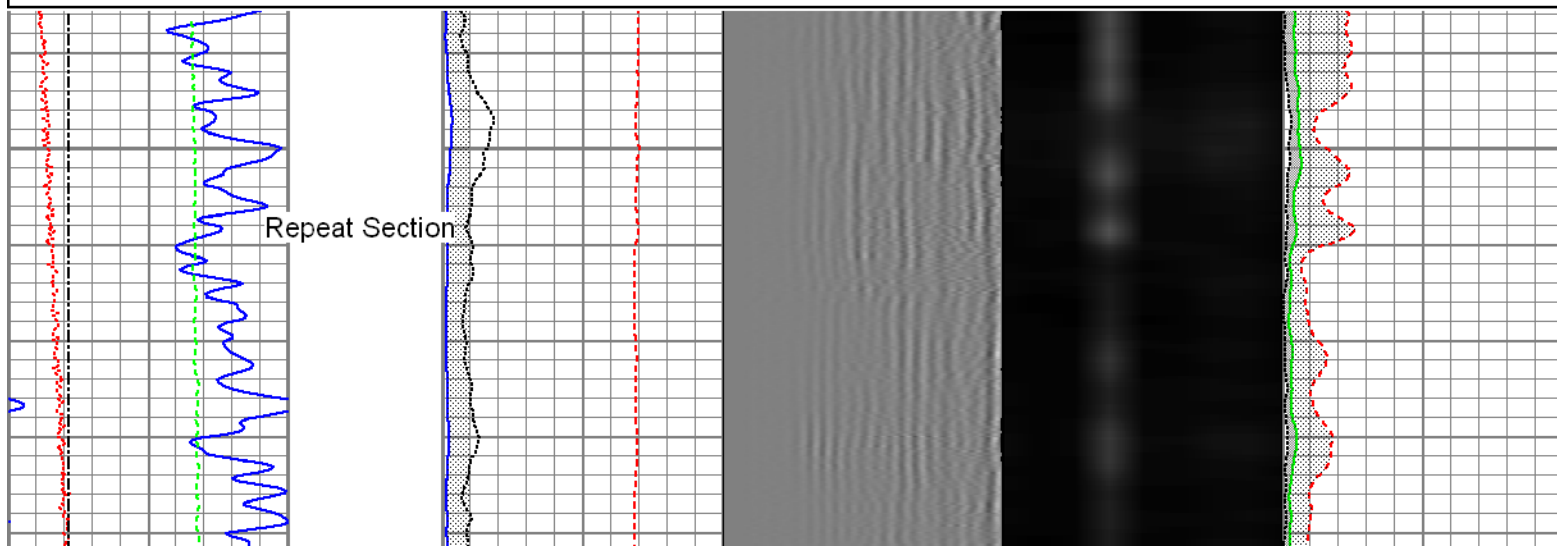
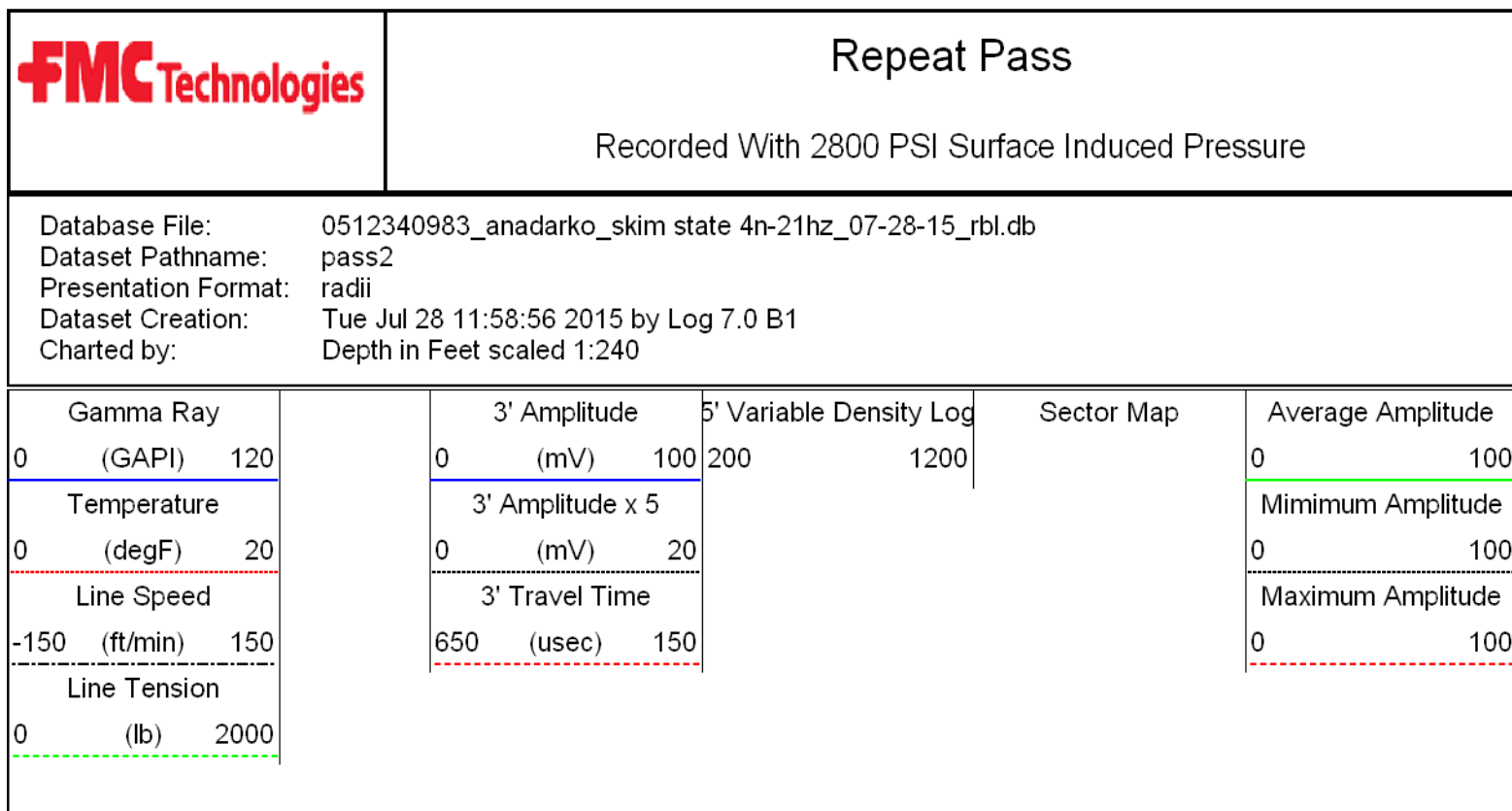
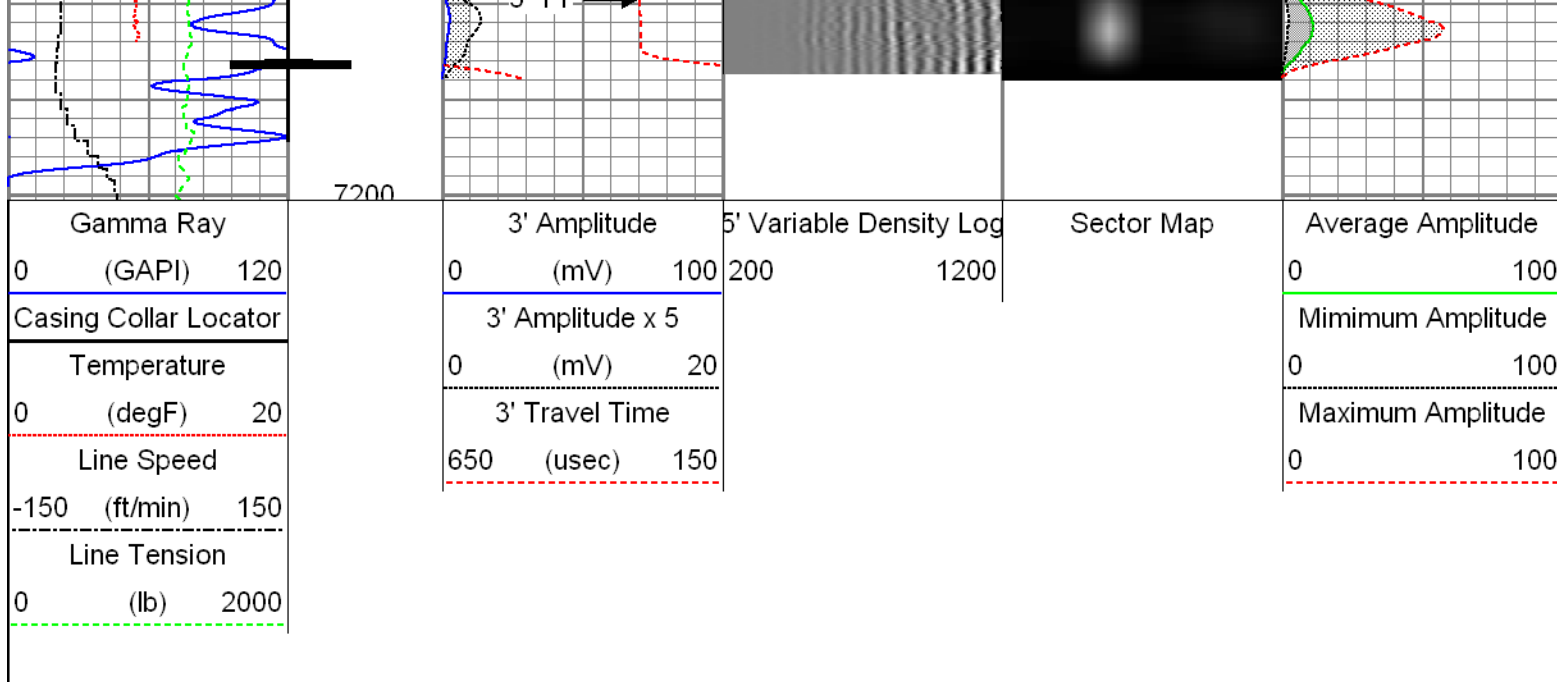


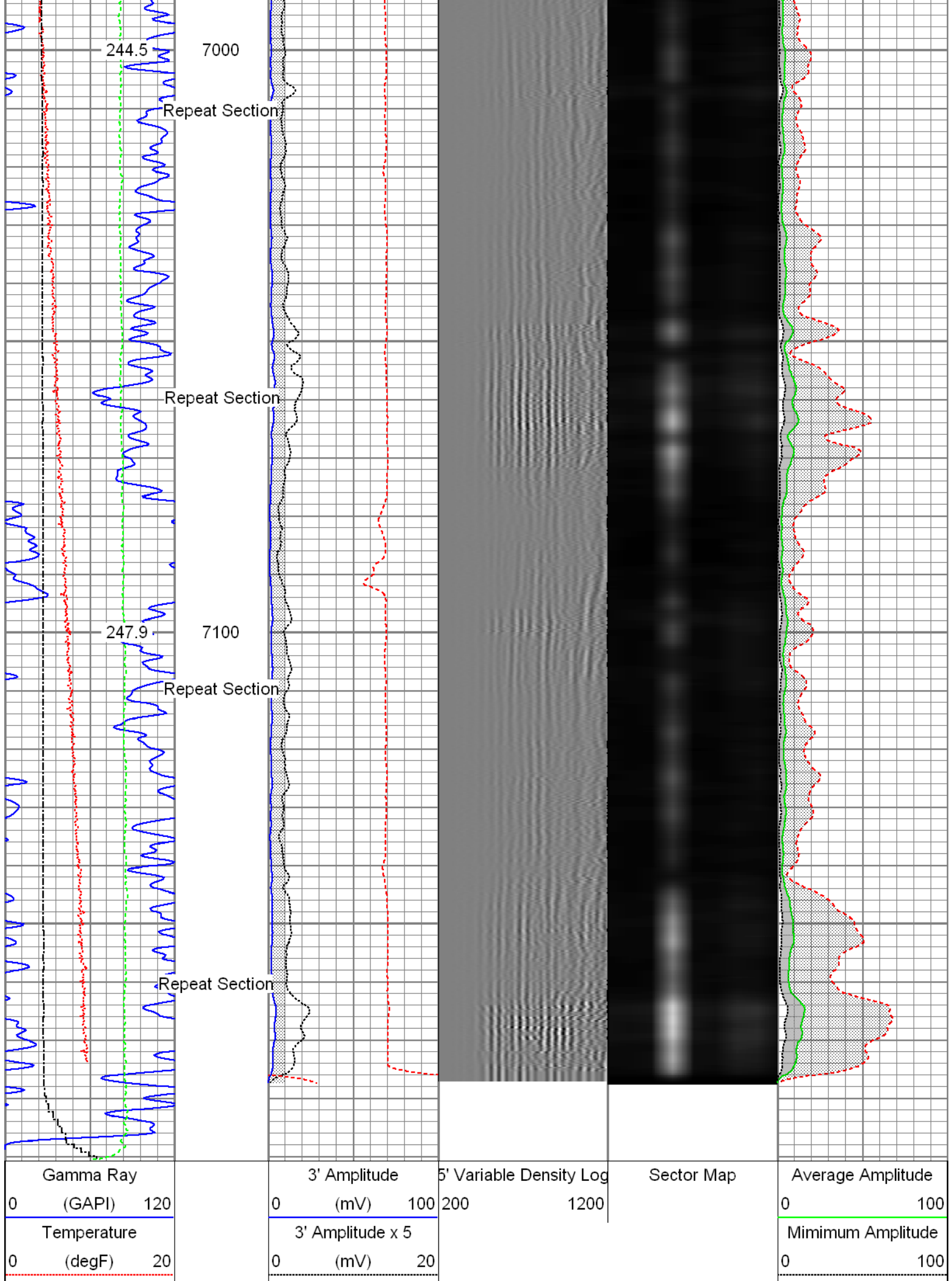






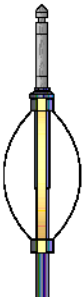
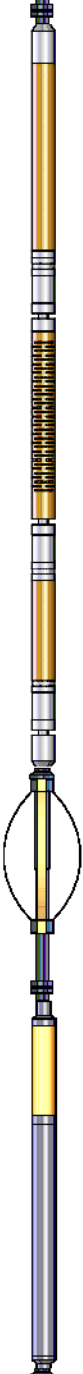
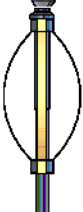
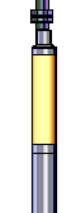


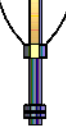




Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	0 100	200 1200		0 100
Temperature (degF)	3' Amplitude x 5 (mV)			Minimum Amplitude
0 20	0 20			0 100

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
Temp	16.72		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
WVF3FT	14.55					
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					
CCL DCCL	6.51		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
	6.51					
GR	3.77		Probe_CCL_GR-2.75"Digital (FW1212-026)	4.54	2.75	55.00
			Probe 2-3/4" Digital CCL / Gamma Ray Combined			

			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Dataset: 0512340983_Anadarko_Skim State 4N-21HZ_07-28-15_RBL.db: field/well/run1/pass4 Total Length: 23.40 ft Total Weight: 194.00 lb O.D. 2.75 in						

Database File:		Calibration Report				
Dataset Pathname:		0512340983_Anadarko_Skim State 4N-21HZ_07-28-15_RBL.db				
Dataset Creation:		pass4				
		Tue Jul 28 12:04:01 2015 by Log 7.0 B1				

Gamma Ray Calibration Report						
Serial Number:		FW1212-026				
Tool Model:		2.75"Digital				
Performed:		Fri Jul 24 10:47:03 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:		22.100	ft			

Master Calibration, performed Tue Jul 28 11:32:53 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	0.531	0.800	71.921	114.990	0.268
CAL	0.004	0.752				
5'	0.004	0.538	0.800	71.921	133.177	0.259
SUM						
S1	-0.001	0.653	0.000	100.000	132.233	0.121
S2	0.004	0.643	0.000	100.000	132.125	-0.639
S3	0.004	0.565	0.000	100.000	147.656	-0.722
S4	0.004	0.539	0.000	100.000	161.106	-0.753
S5	0.004	0.549	0.000	100.000	164.117	-0.732
S6	0.004	0.542	0.000	100.000	166.409	-0.742
S7	0.004	0.538	0.000	100.000	165.022	-0.738
S8	0.004	0.574	0.000	100.000	174.447	-0.723

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	0.004	0.752	1.000	0.000

Air Zero Calibration, performed Tue Jul 28 09:43:09 2015:

	Raw (v)	Calibrated (v)	Results
	<u>Zero</u>	<u>Zero</u>	<u>Offset</u>
3'	0.004	0.000	-0.000
5'	0.004	0.000	-0.000
SUM			
S1	-0.001	0.000	-0.000
S2	0.004	0.000	-0.000
S3	0.004	0.000	-0.000
S4	0.004	0.000	-0.000
S5	0.004	0.000	-0.000
S6	0.004	0.000	-0.000
S7	0.004	0.000	-0.000
S8	0.004	0.000	-0.000



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Skim State 4N-21HZ
Field	Wattenberg
County	Weld
State	Colorado