



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		RW 13N-32HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-44611	
SEC 29		TWP 3N	
RGE 65W		Elevation 4886'	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		K.B. 4903'	
		D.F. 4902'	
		G.L. 4886'	
Date		28-OCT-2017	
Run Number		Two	
Depth Driller		13460 FT	
Depth Logger		7395 FT	
Bottom Logged Interval		7390 FT	
Top Log Interval		Surface	
Open Hole Size		7.875"	
Type Fluid		Water	
Density / Viscosity		8.34 lb/gal	
Max. Recorded Temp.		249°F	
Estimated Cement Top		See Log	
Time Well Ready		ROA	
Time Logger on Bottom		1120	
Equipment Number		HD-0343	
Location		Fort Lupton, CO	
Recorded By		J. Amidei	
Witnessed By		Ronnie Van Buskirk	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size (in)		Weight (lb/ft)	
From		To	
Casing Record		Size (in)	
Surface Casing		Wgt (lb/ft)	
Intermediate #1		36	
Intermediate #2		20	
Liner		Grade	
		J-55	
		HCP-110	
		Top	
		Surface	
		Bottom	
		1844 FT	
		13449 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 6464 FT  
Adjusted -17 FT to correlate with Marker Joint  
Log Ran From 7410 FT to Surface  
Gauge Ring/Junk Basket ran 7442 FT in heel to surface  
Log ran with 2800 PSI Surface Induced Pressure  
Logging tools were clean and free of any debris upon completion of operations  
  
Thank you for choosing Reliance Oilfield Services, LLC!!

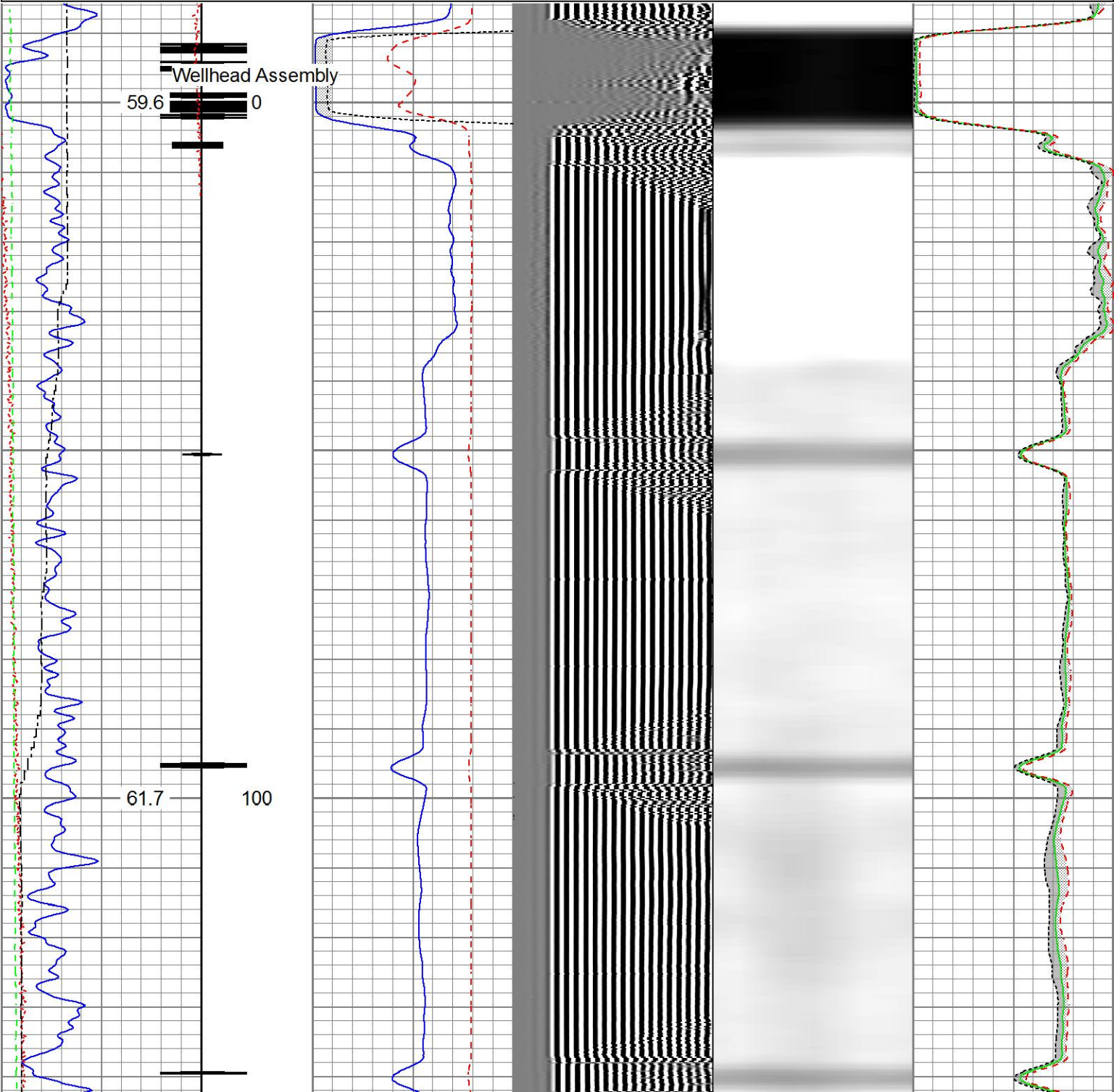


Main Pass

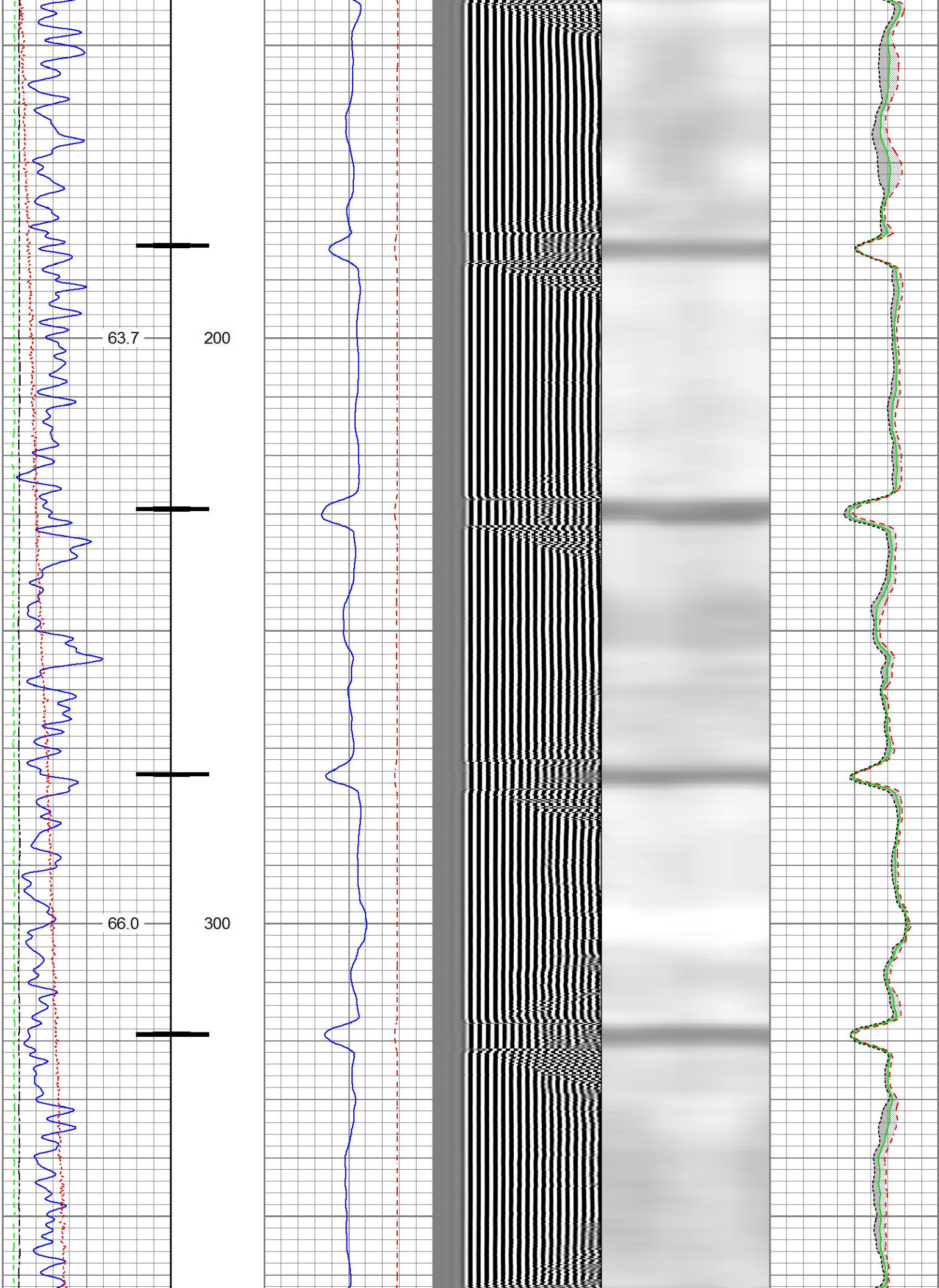
Recorded With 2800 PSI Surface Induced Pressure

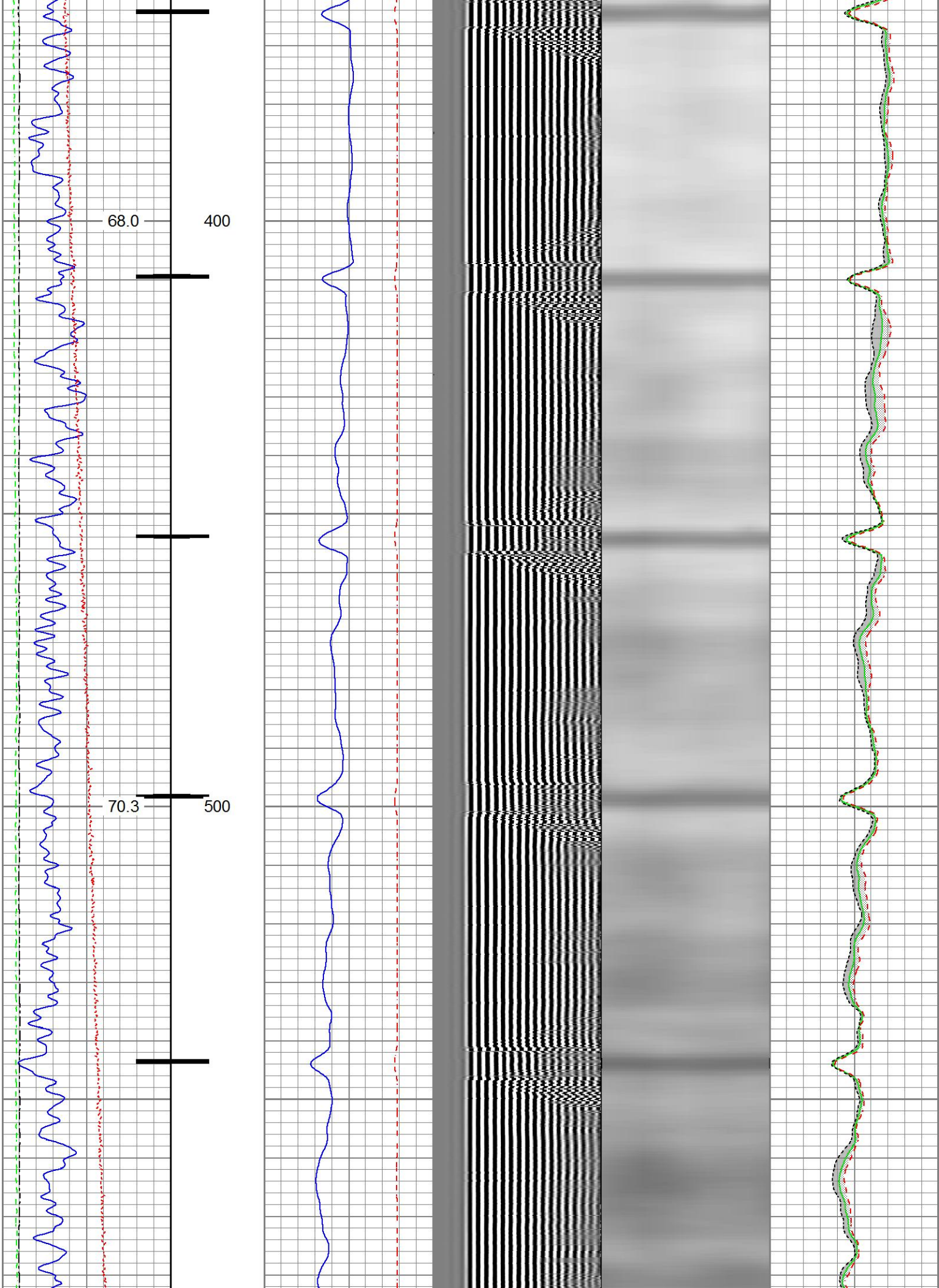
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Dataset Pathname	pass4.1
Presentation Format	ros_radri
Dataset Creation	Sat Oct 28 12:23:04 2017
Charted by	Depth in Feet scaled 1:240

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					

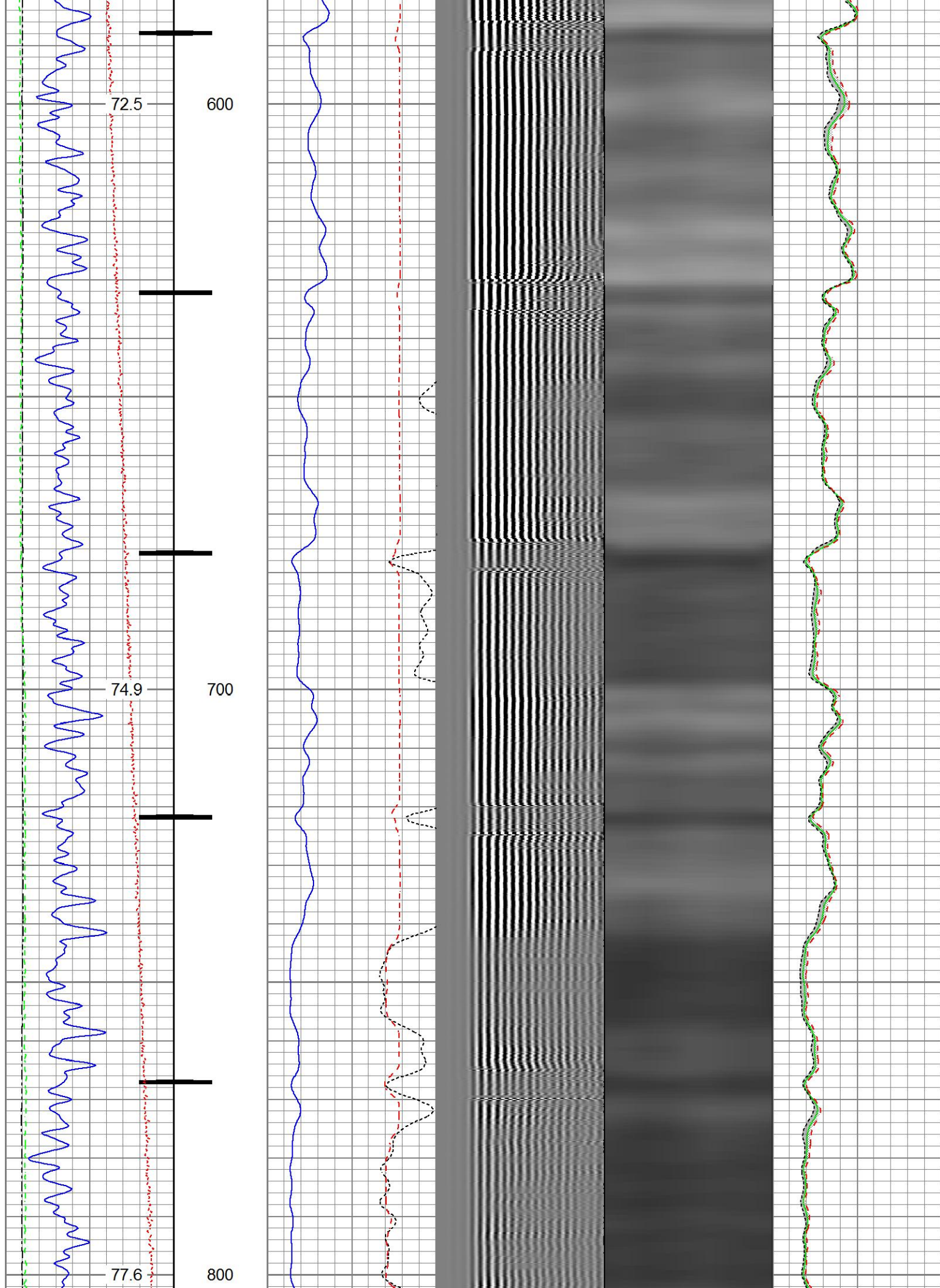


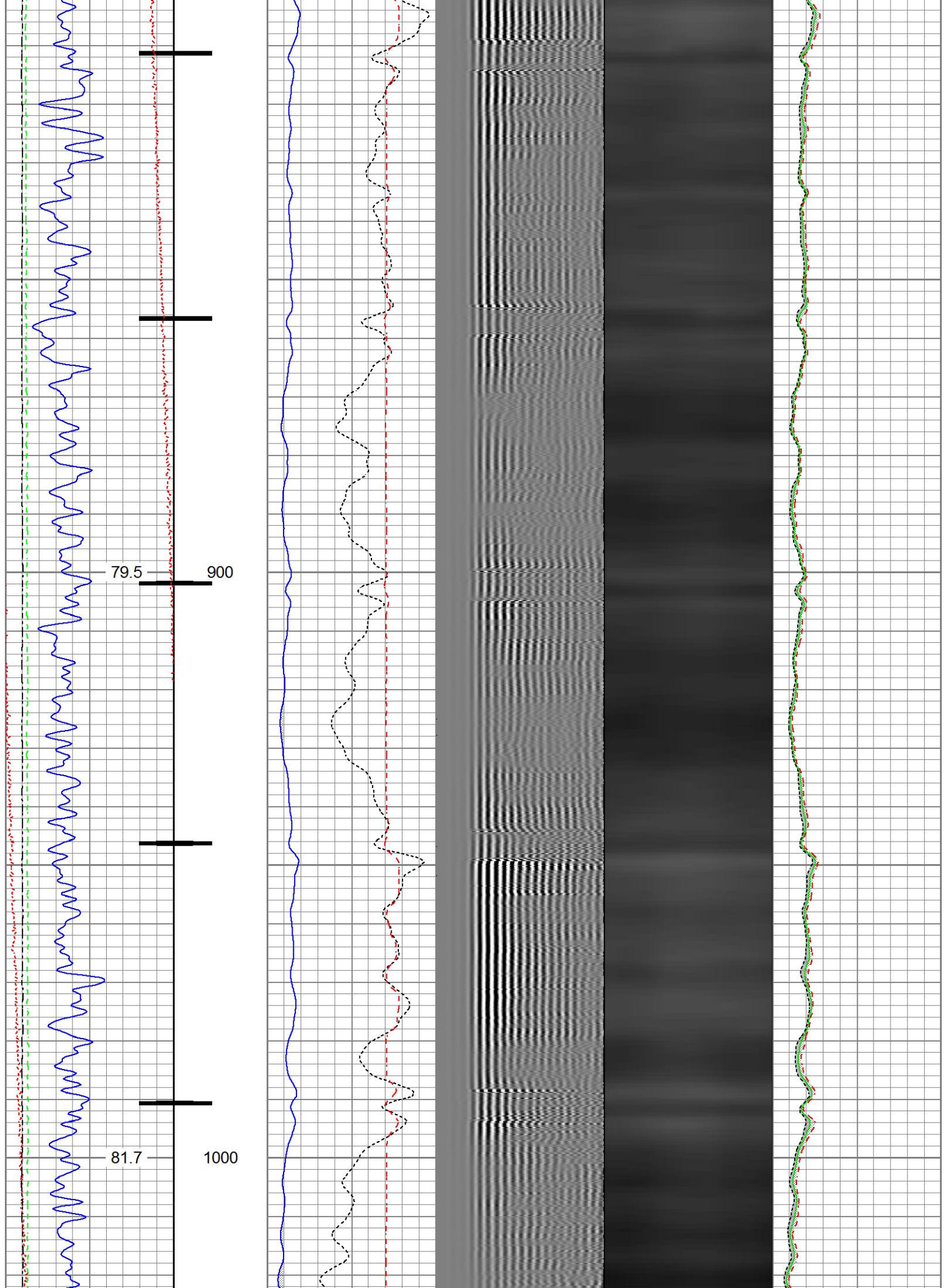




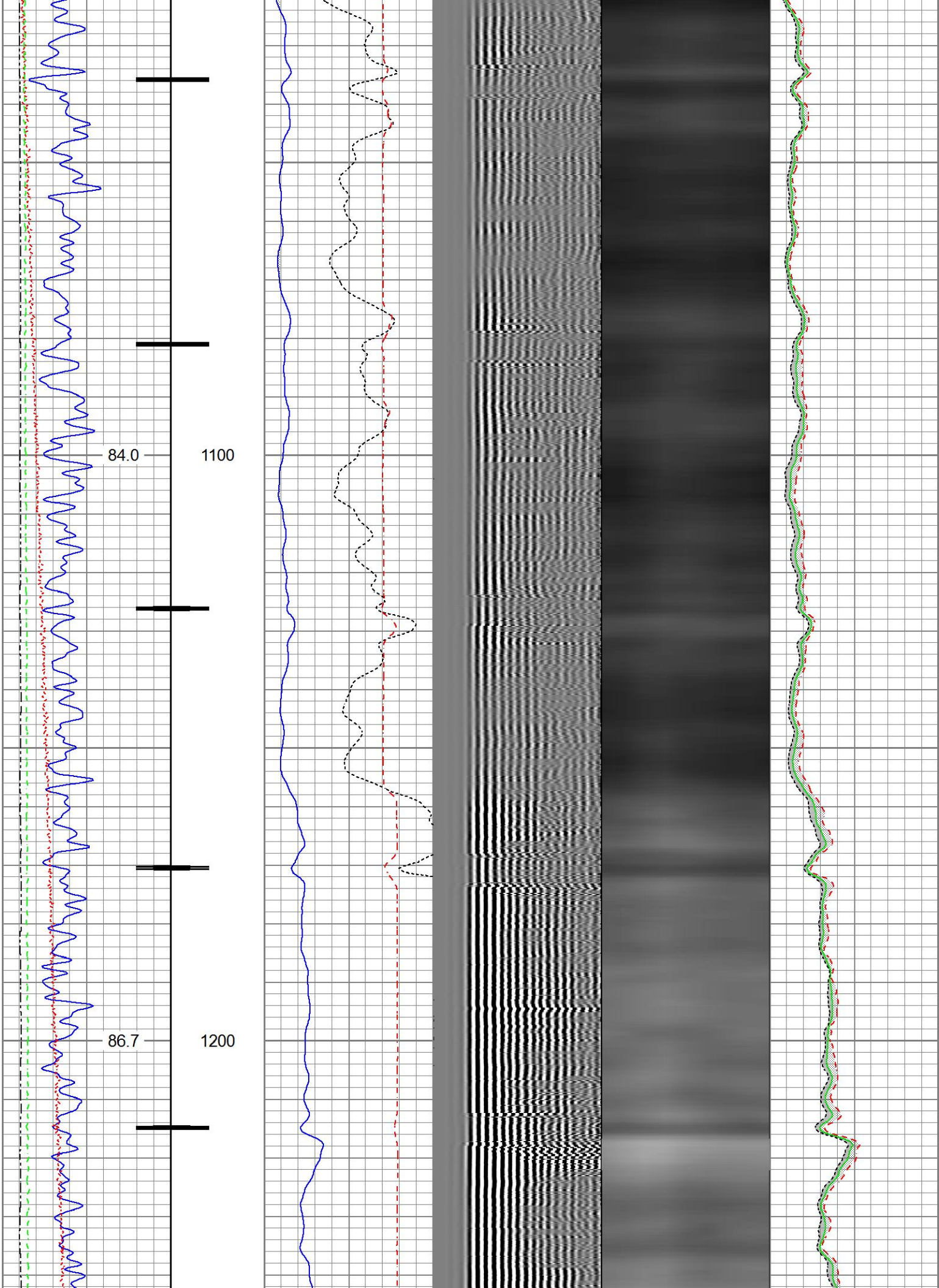




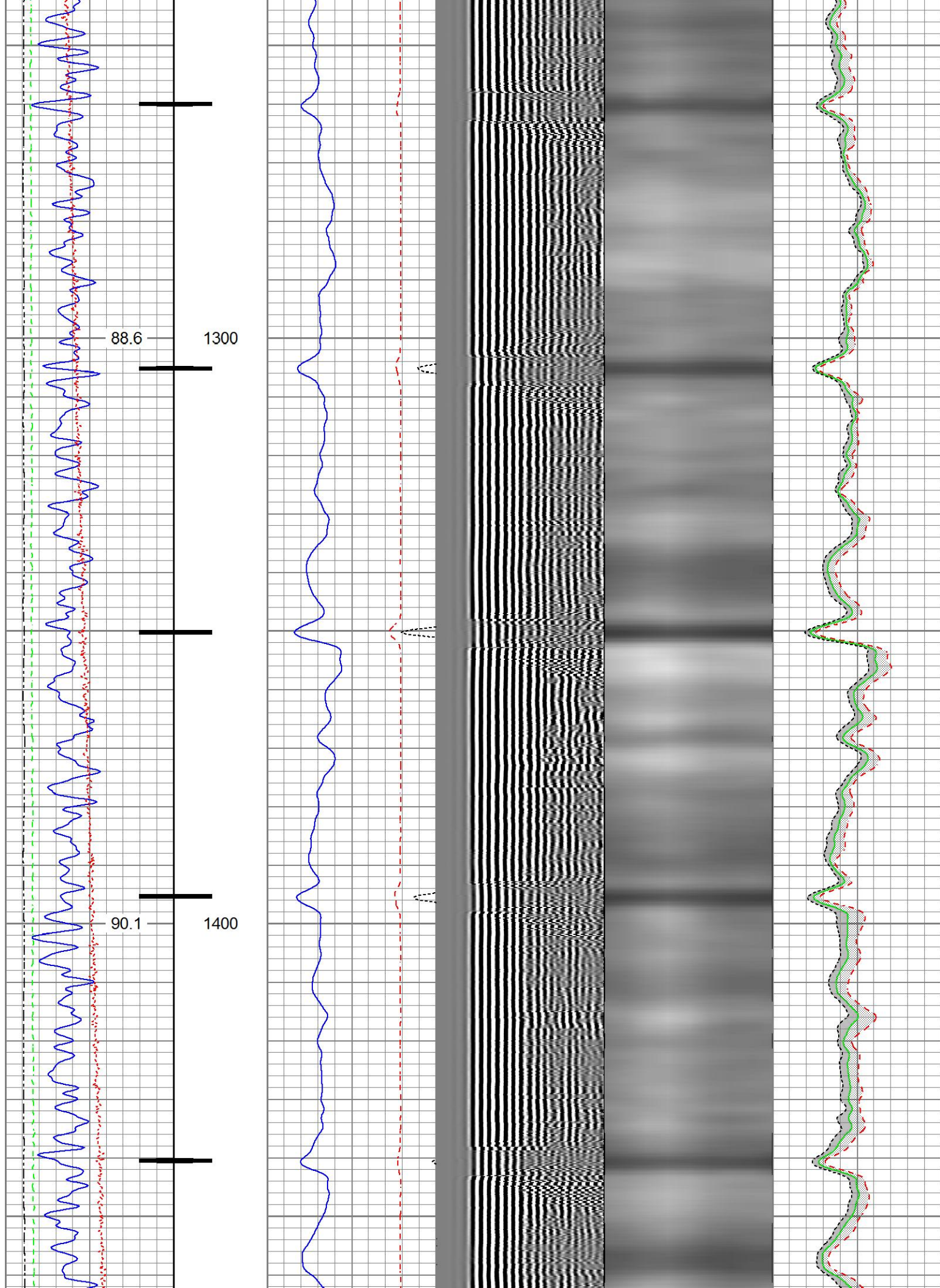




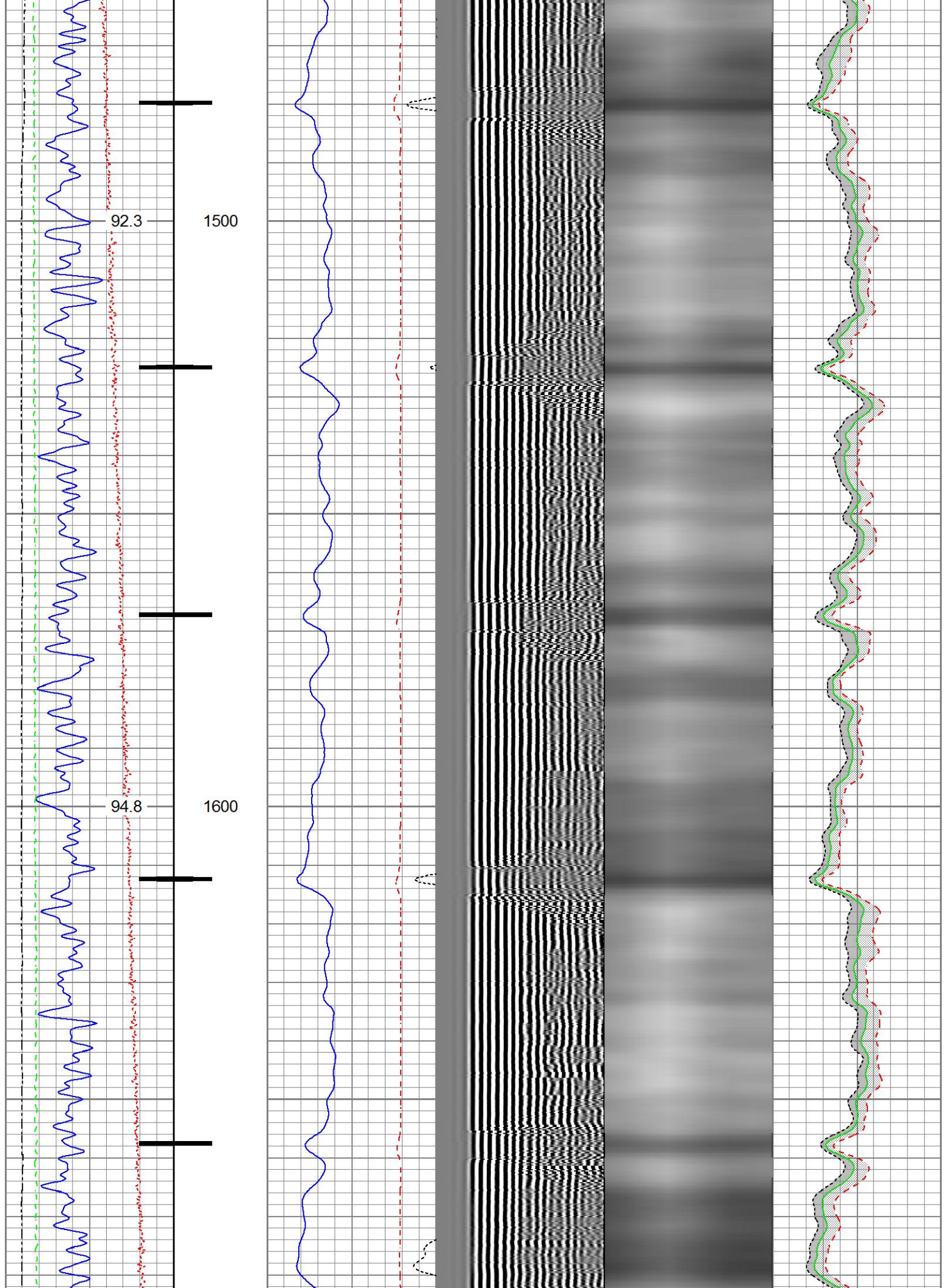




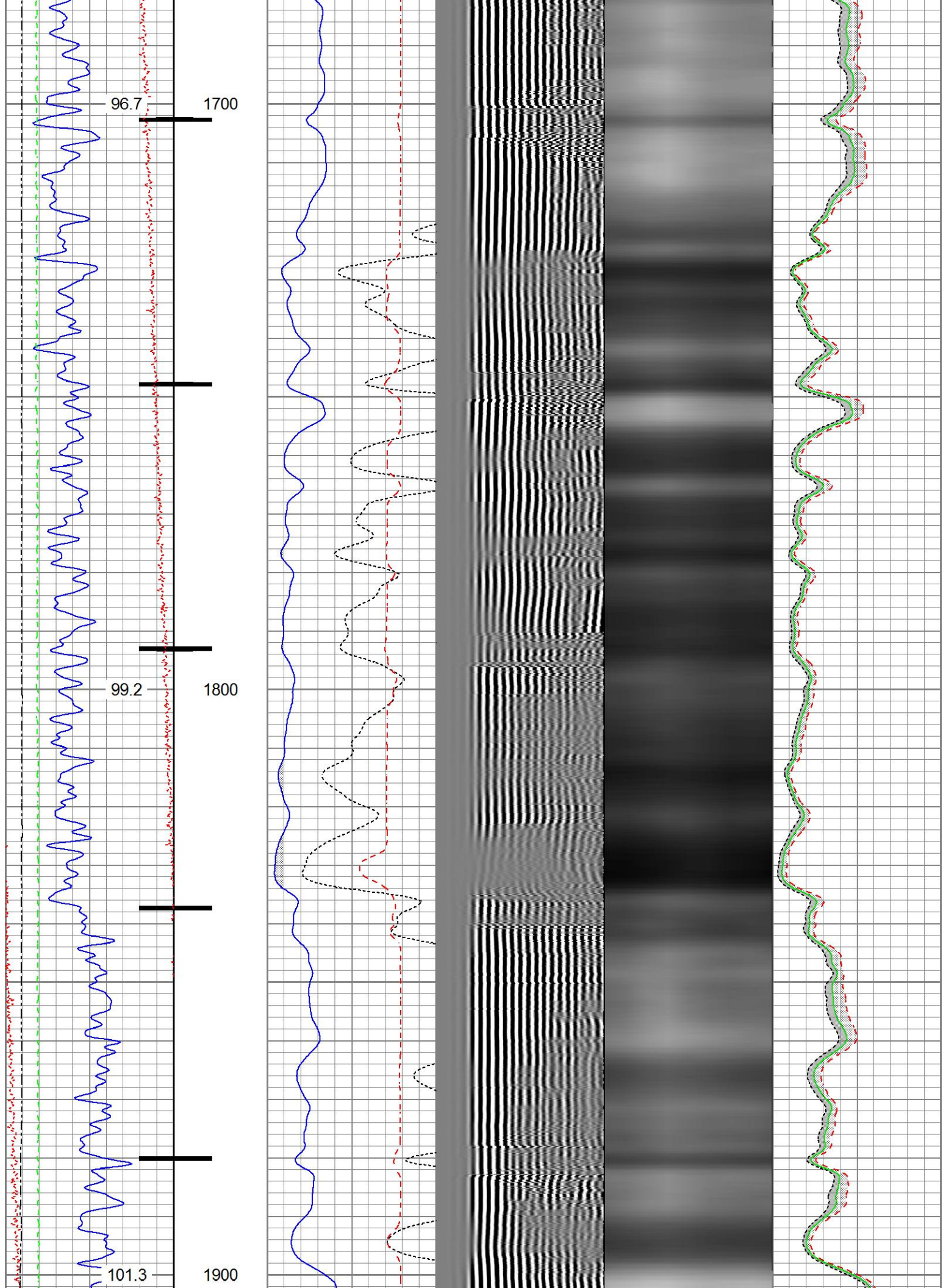




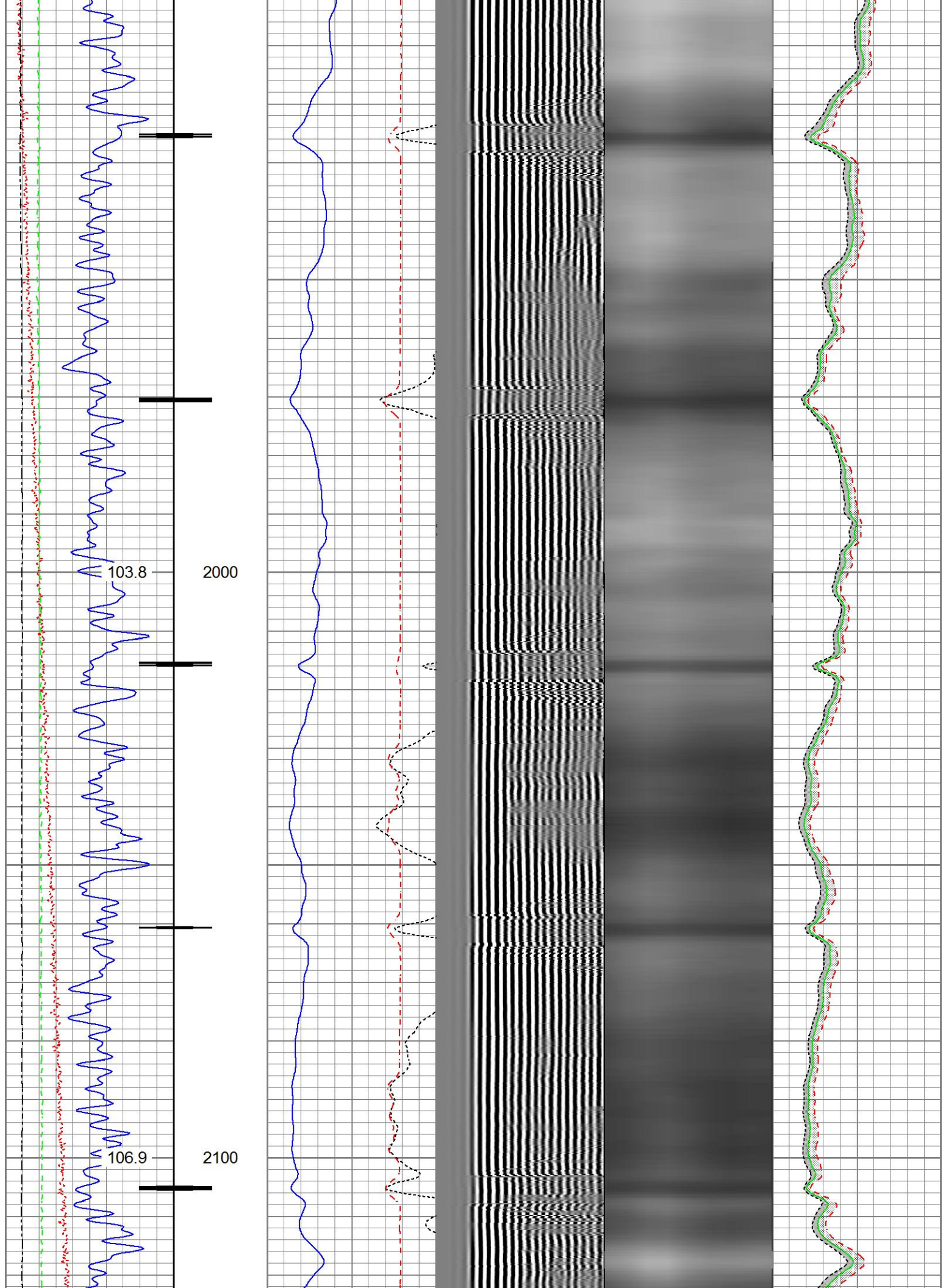




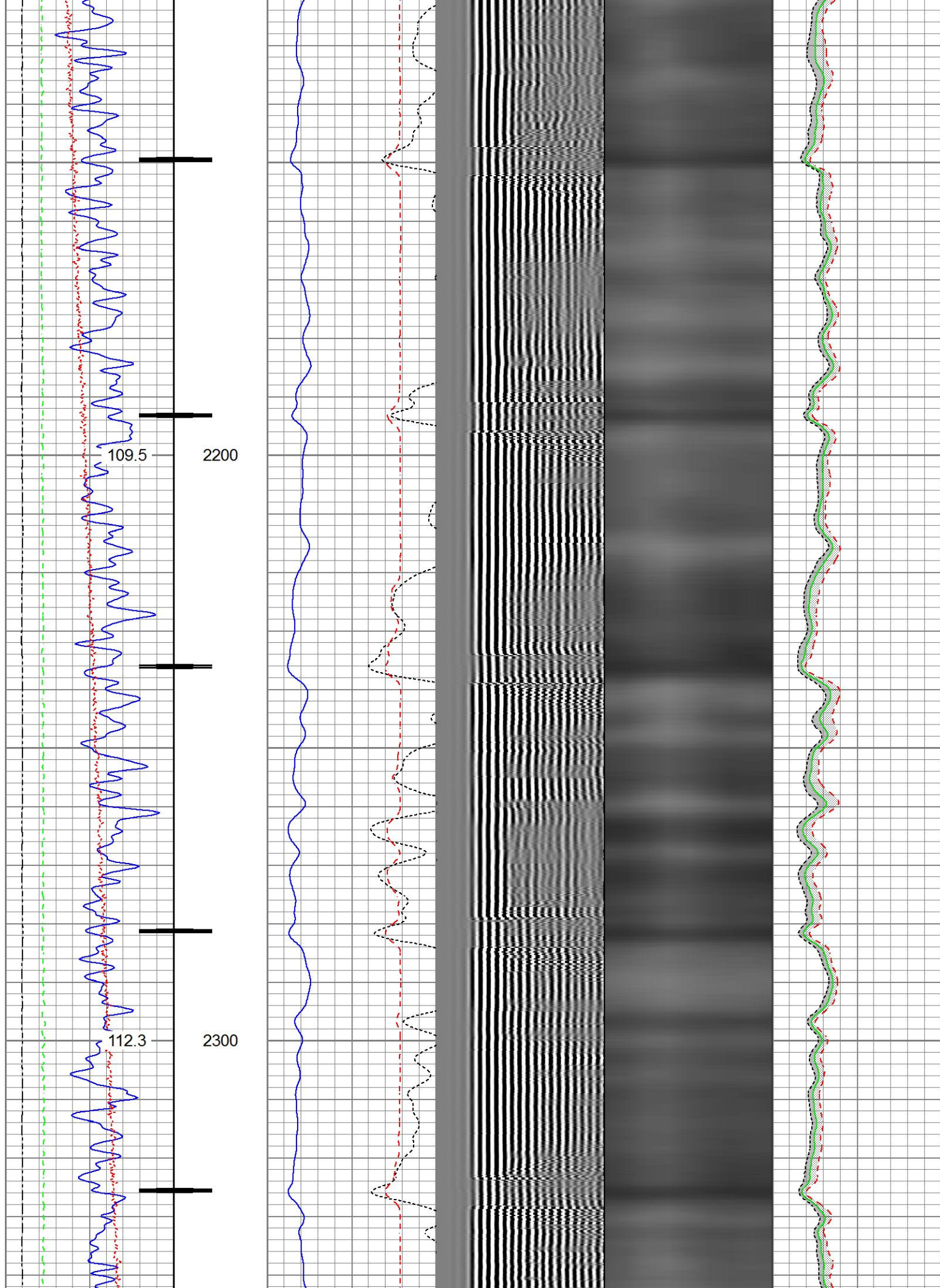




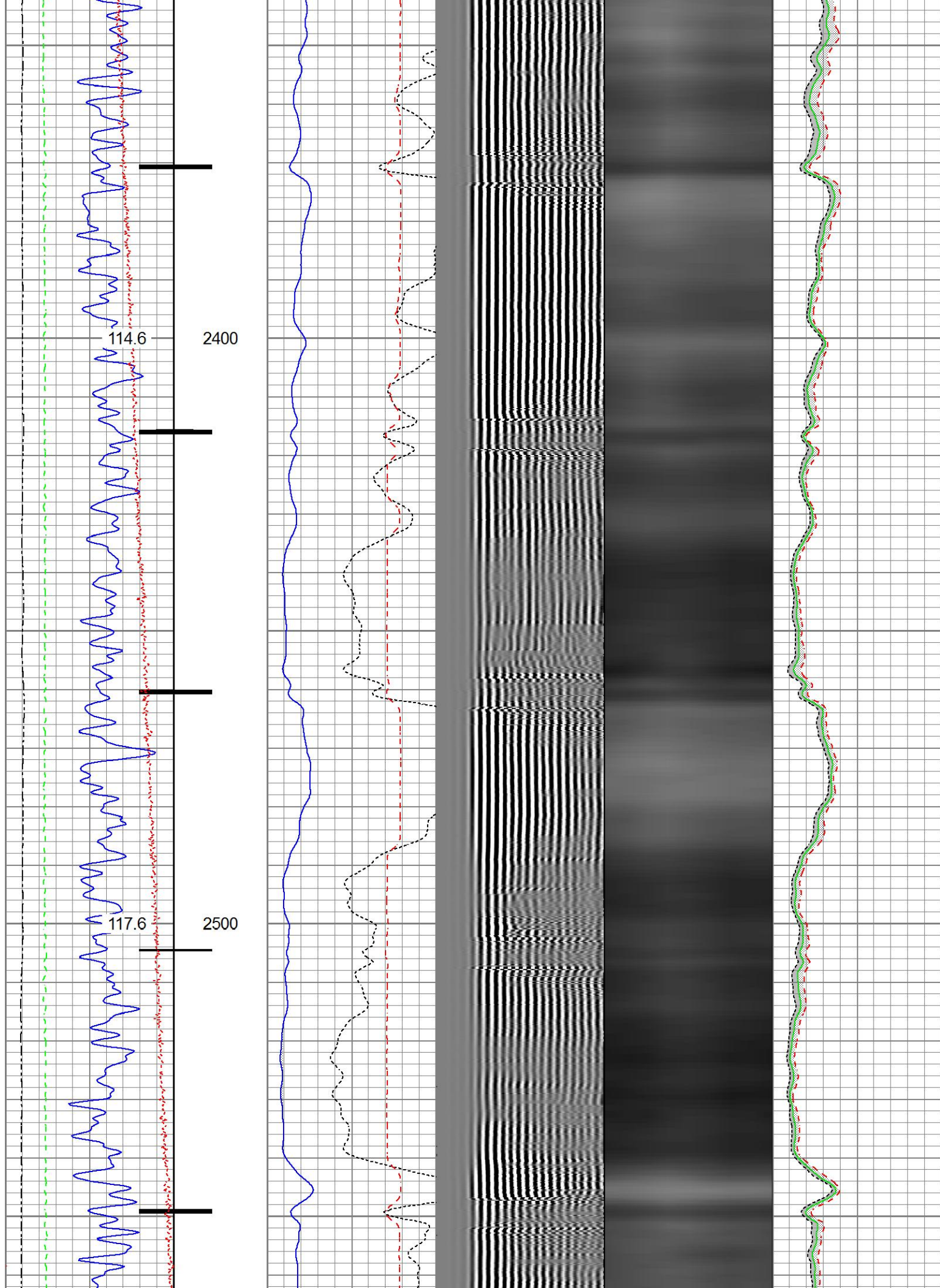




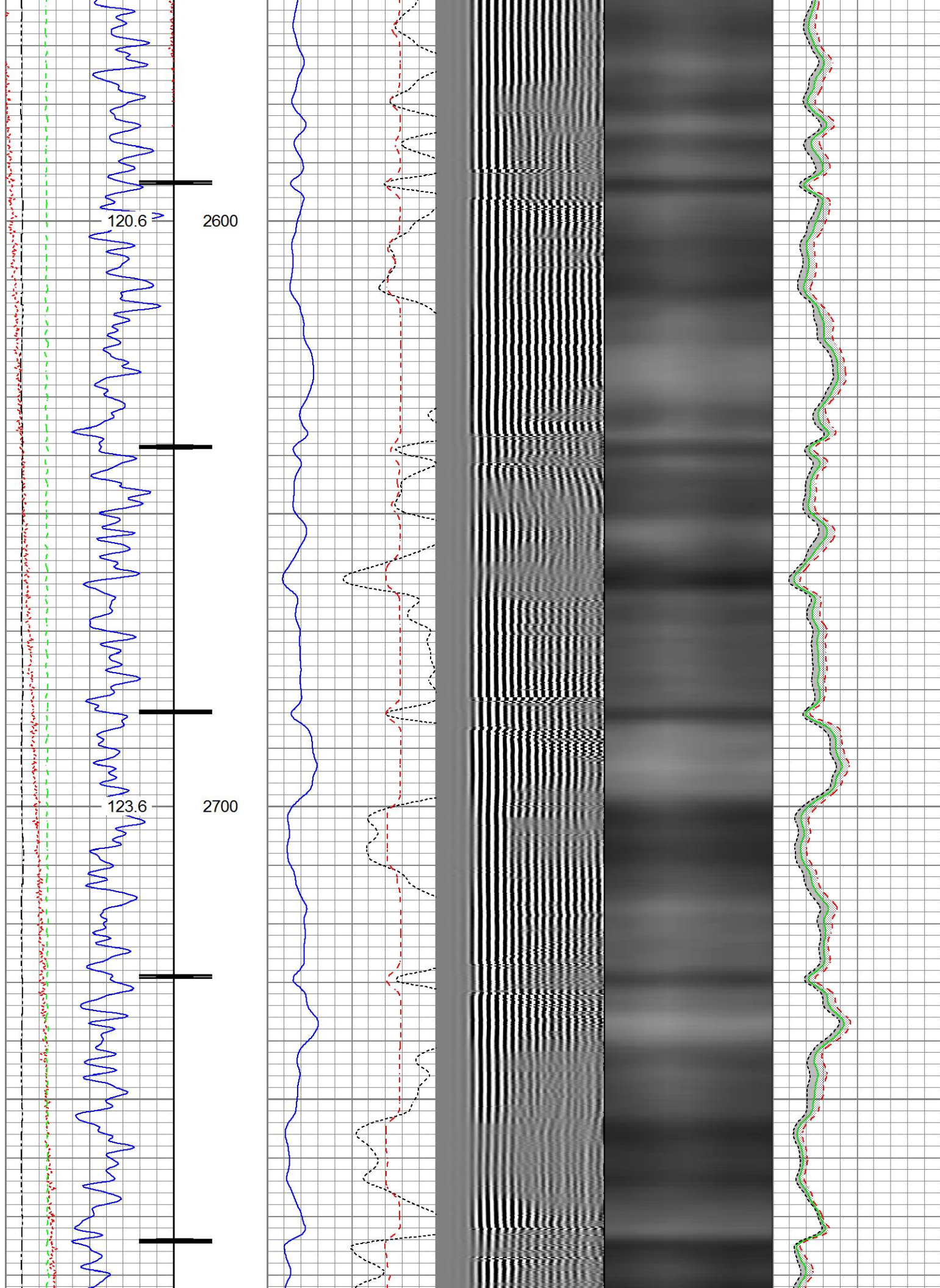




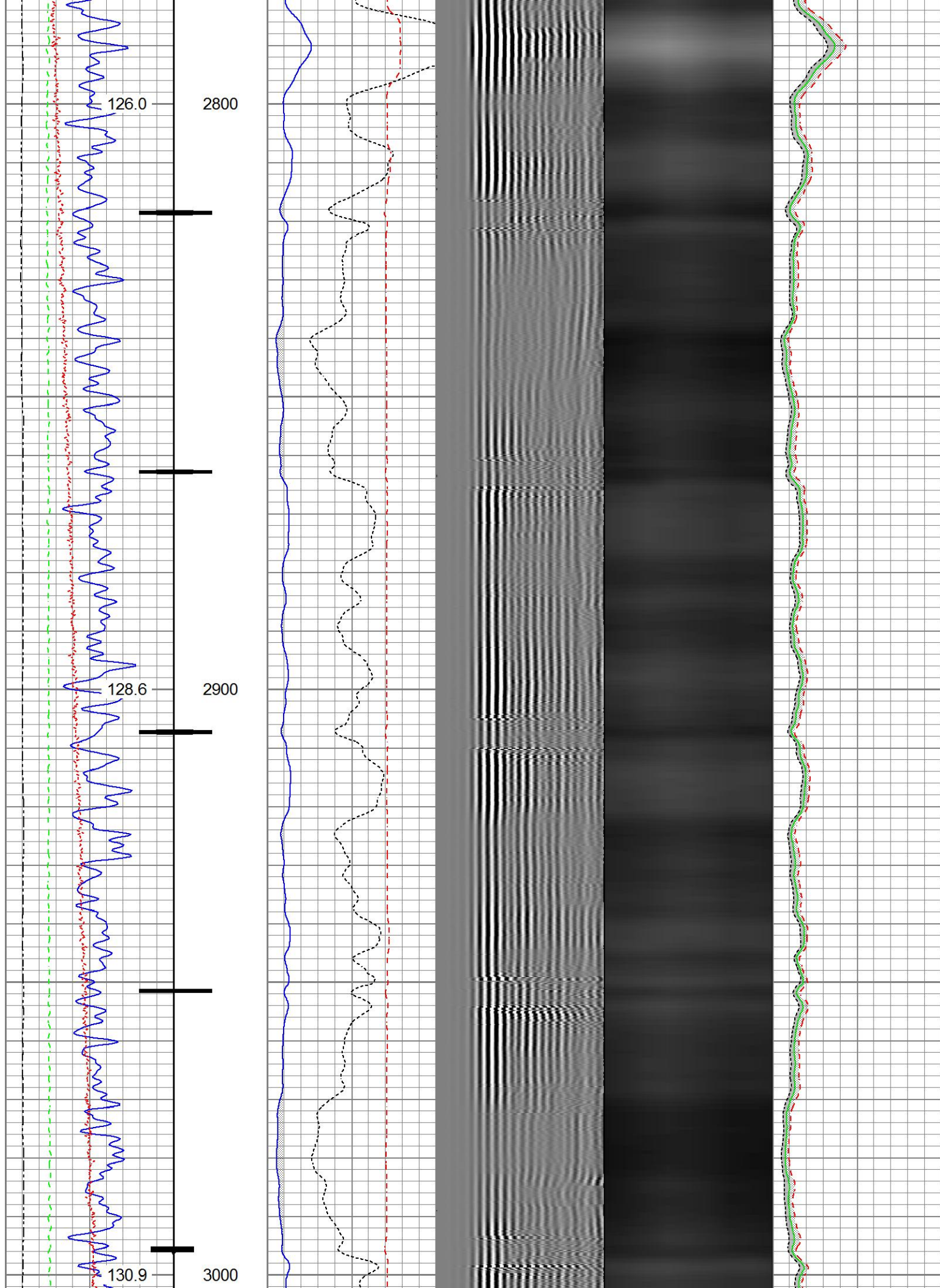


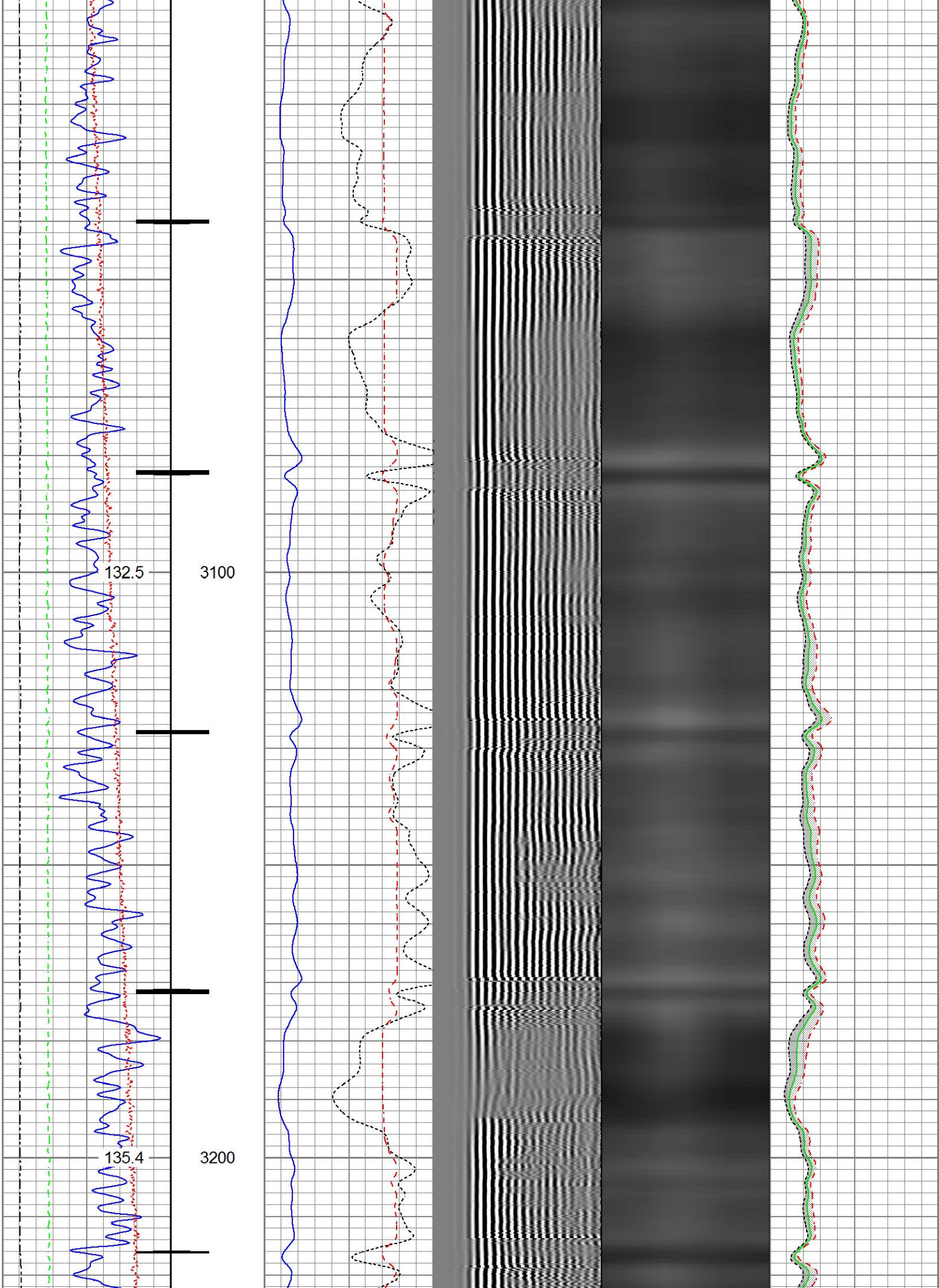




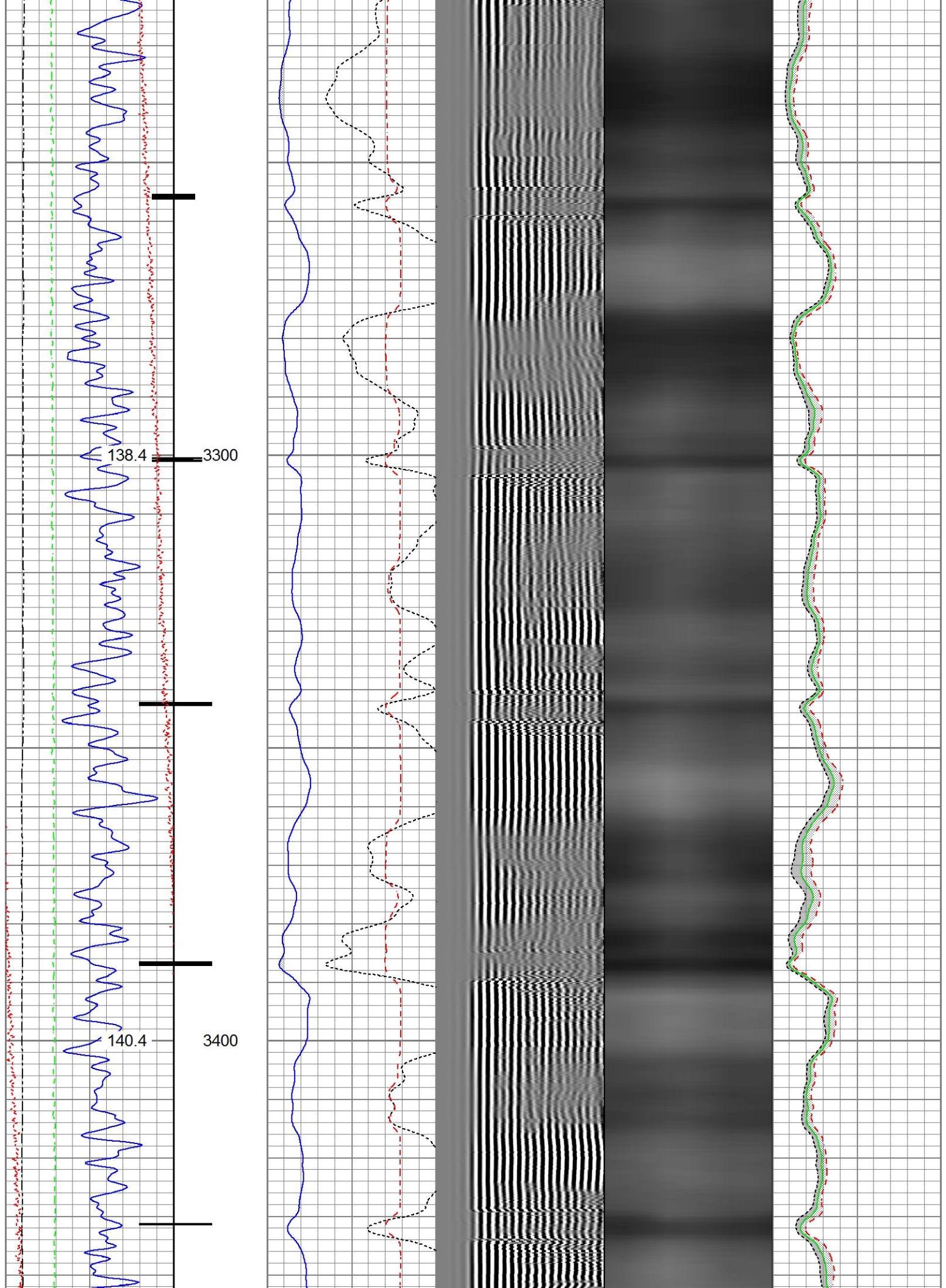


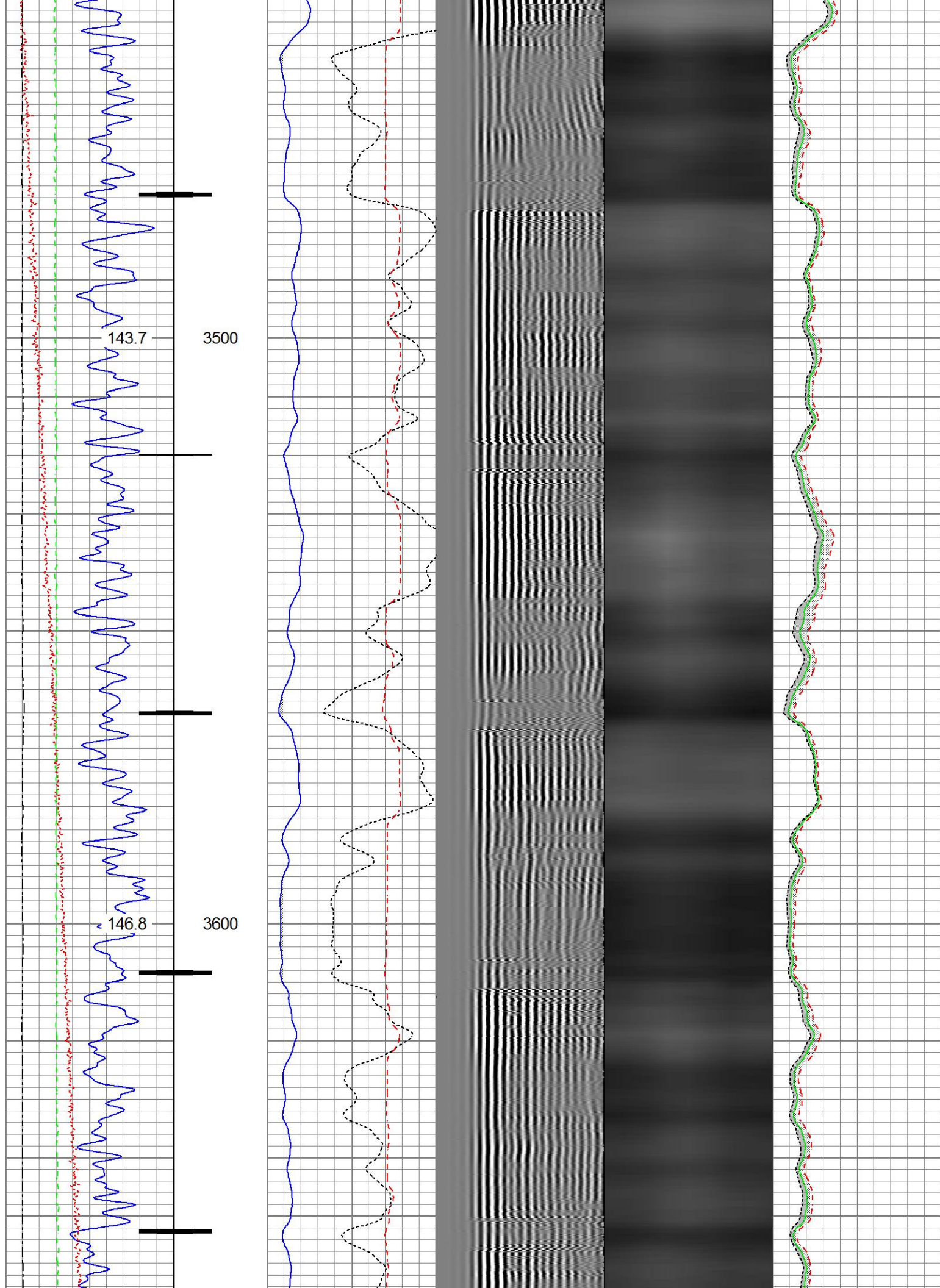




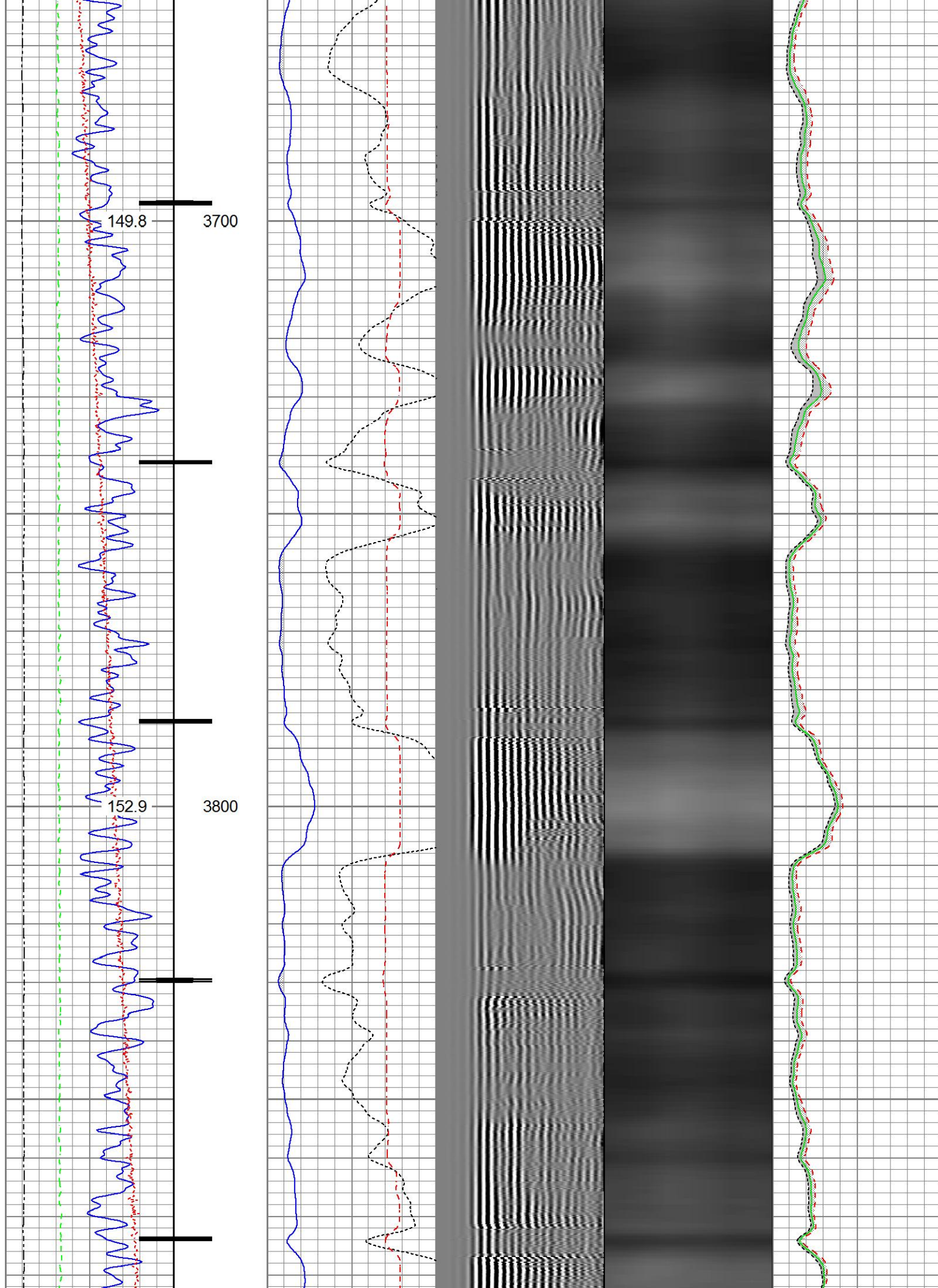


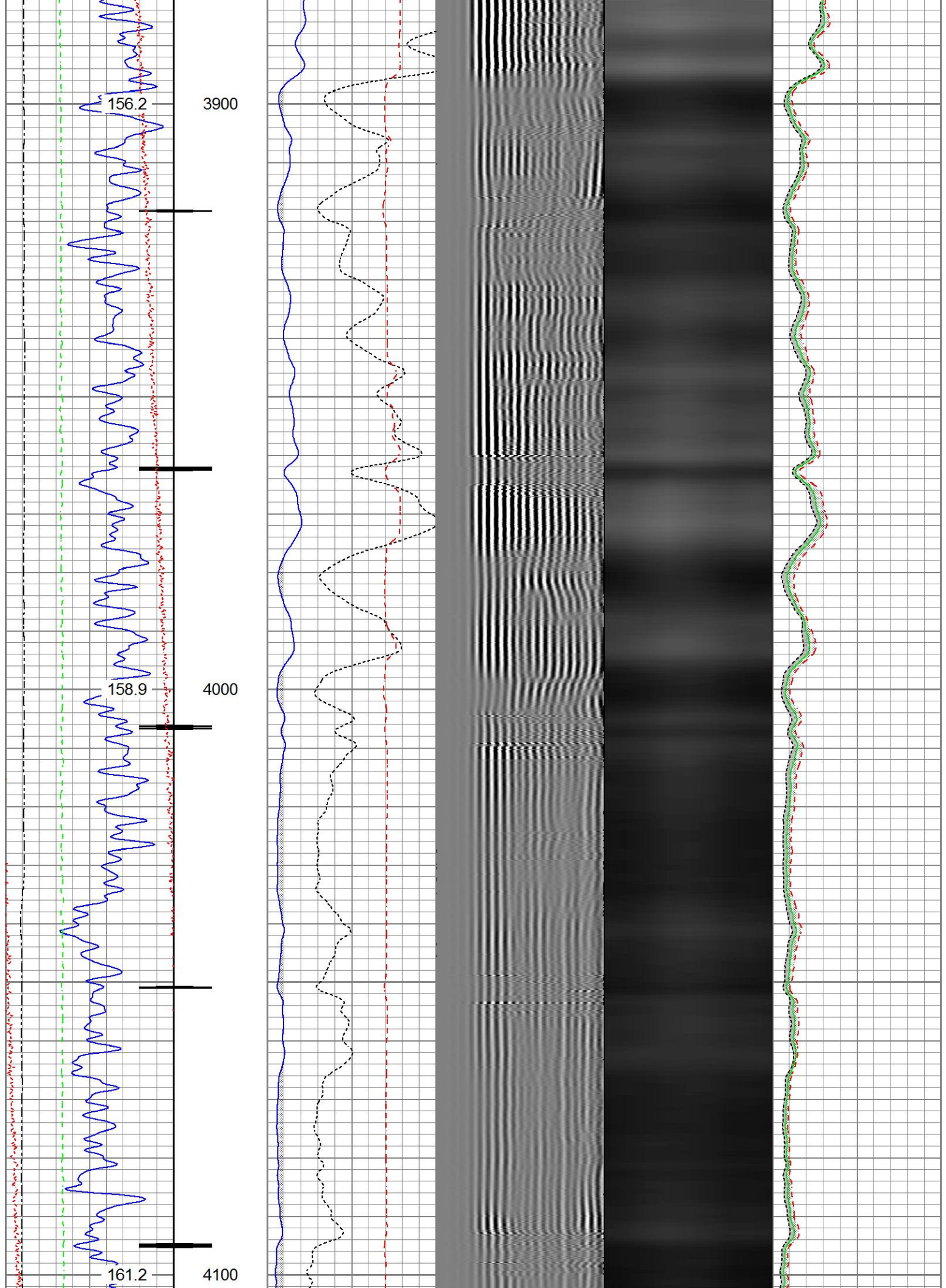




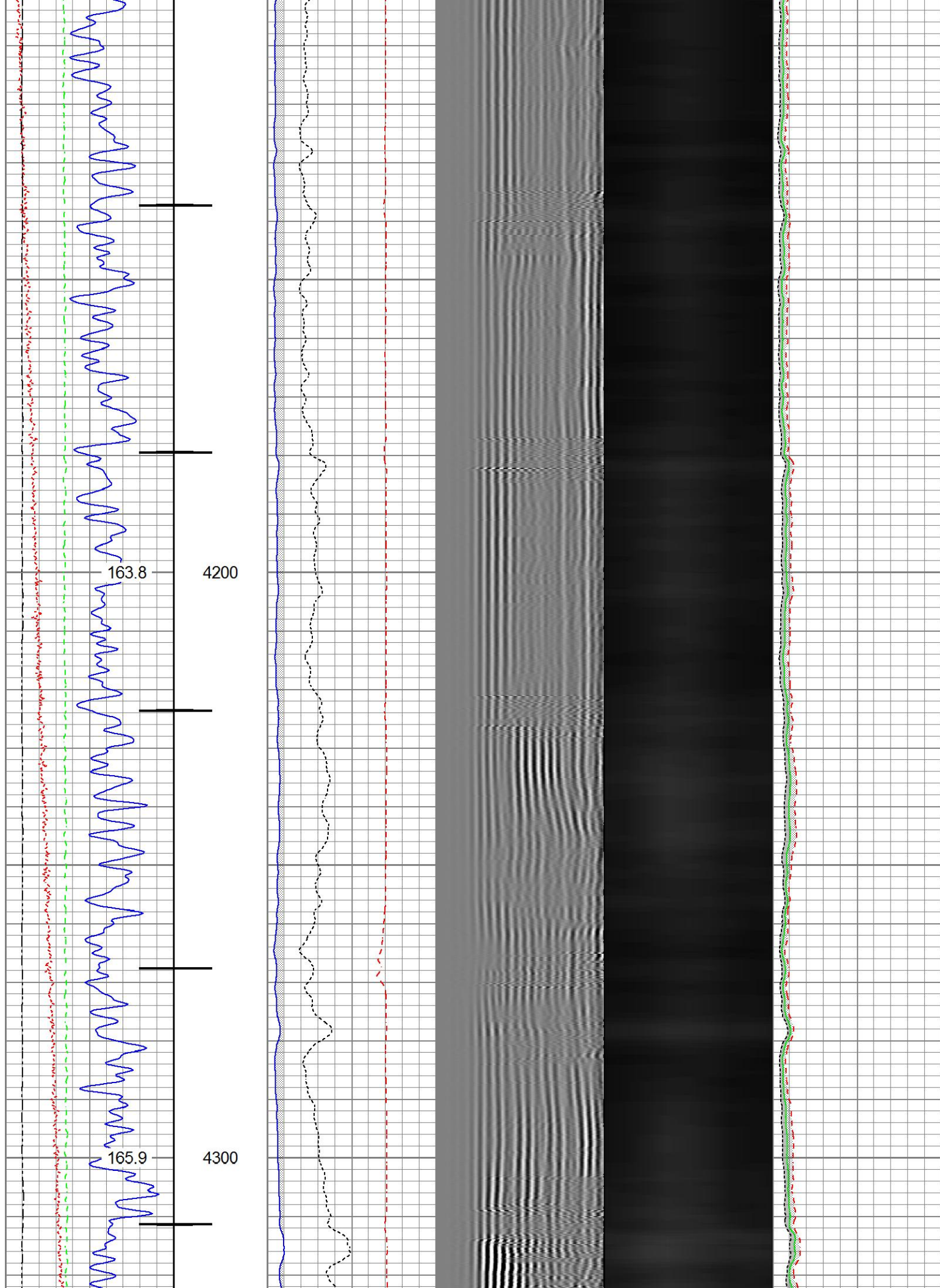


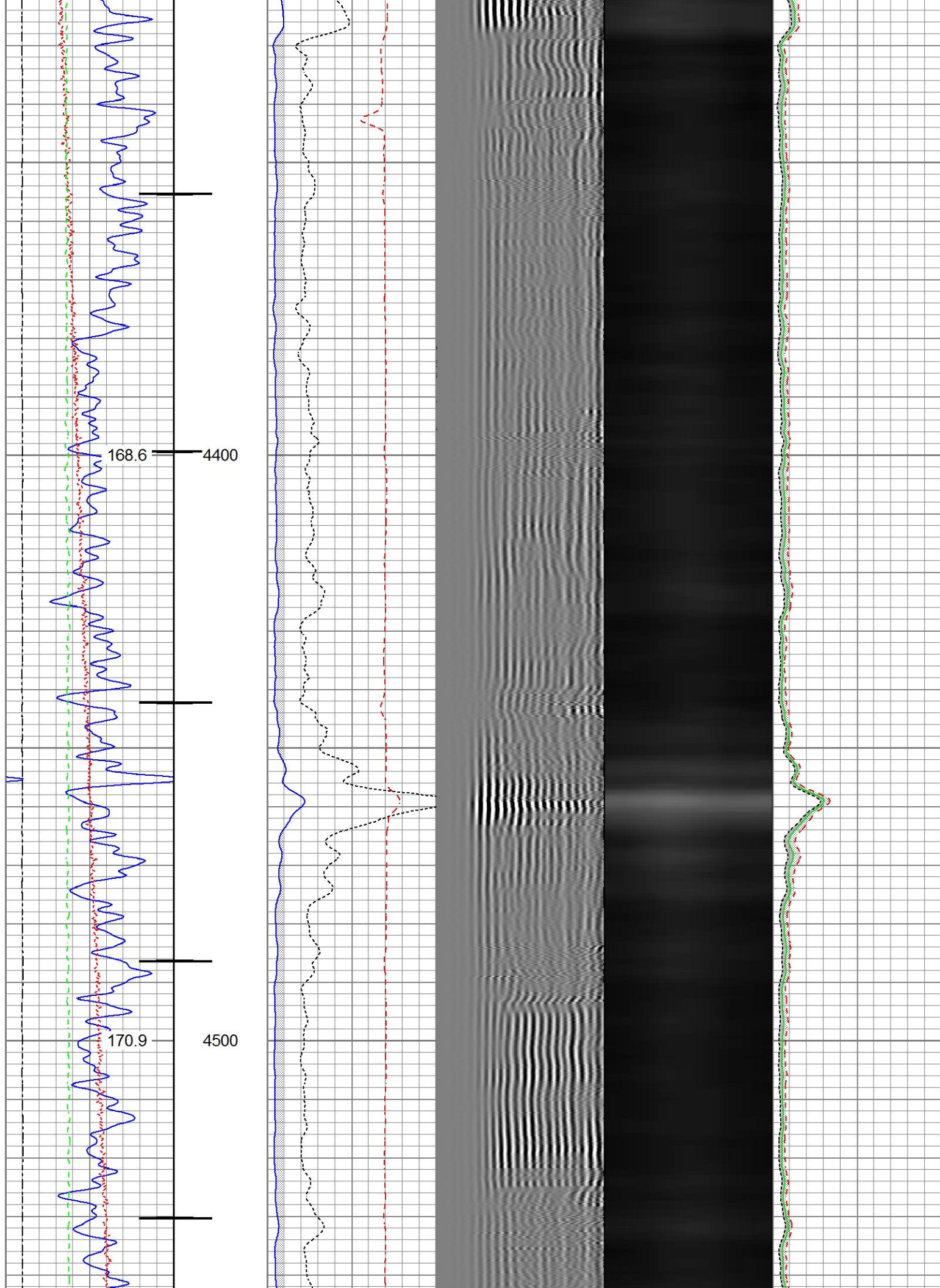




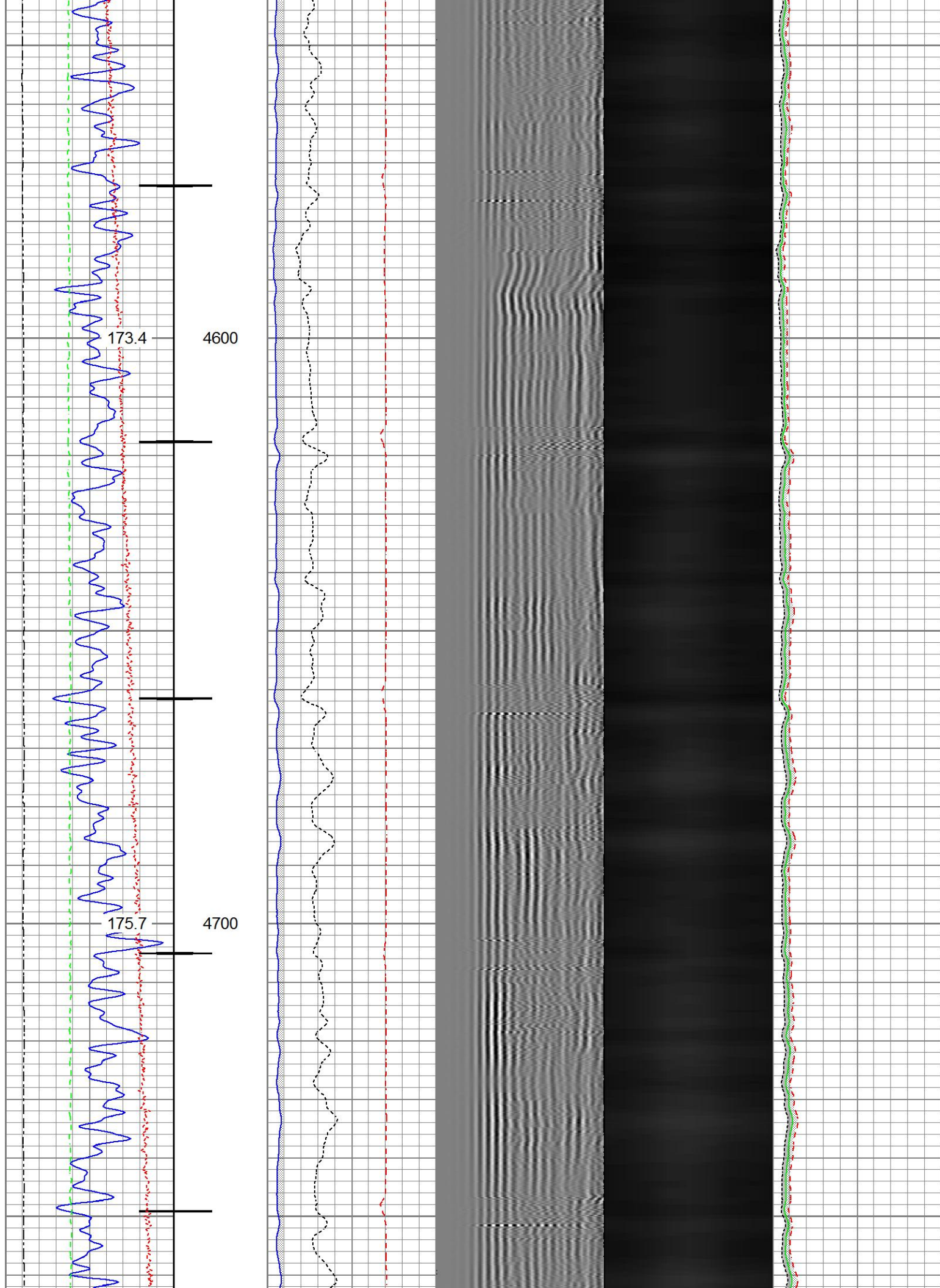


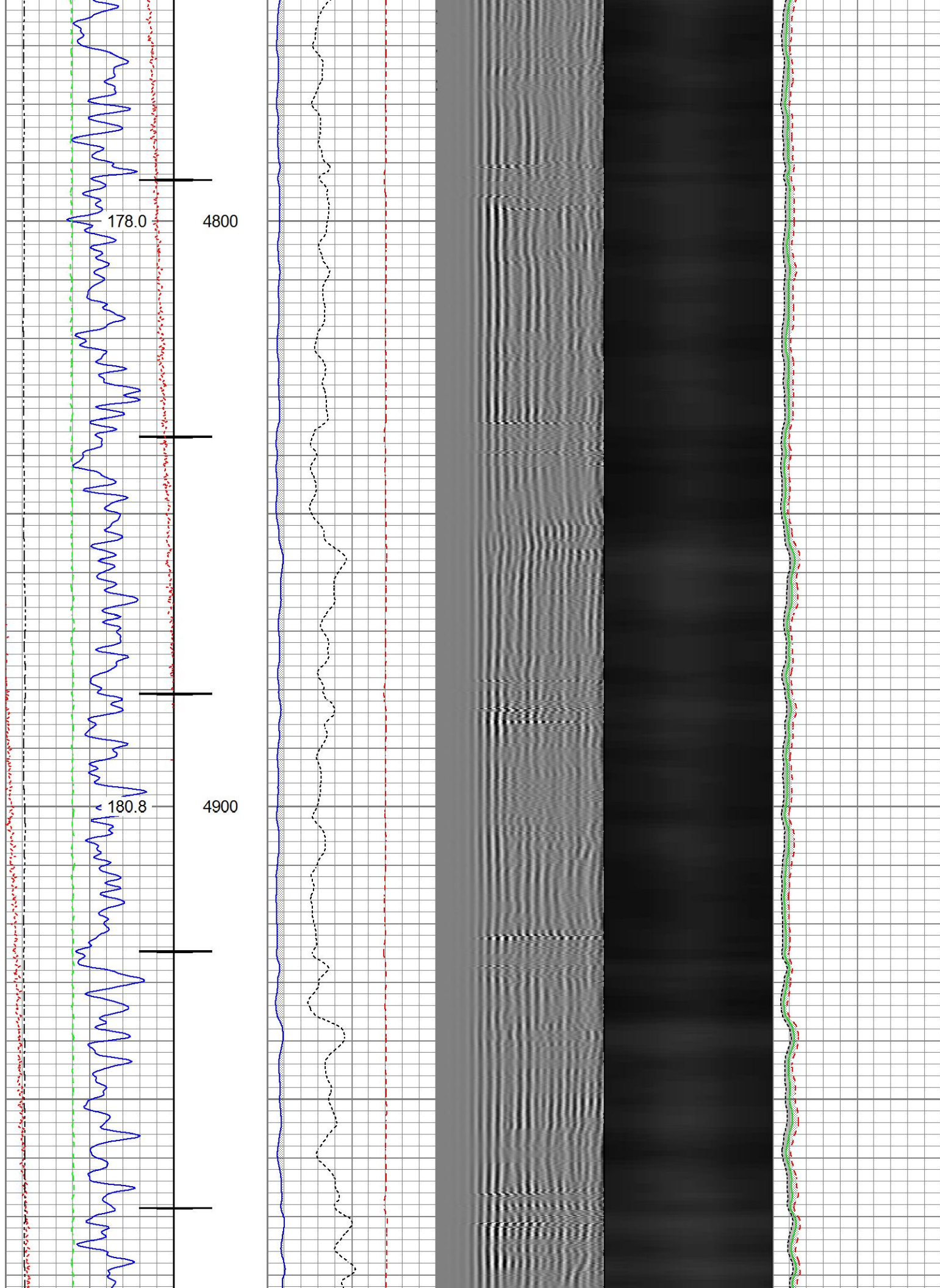




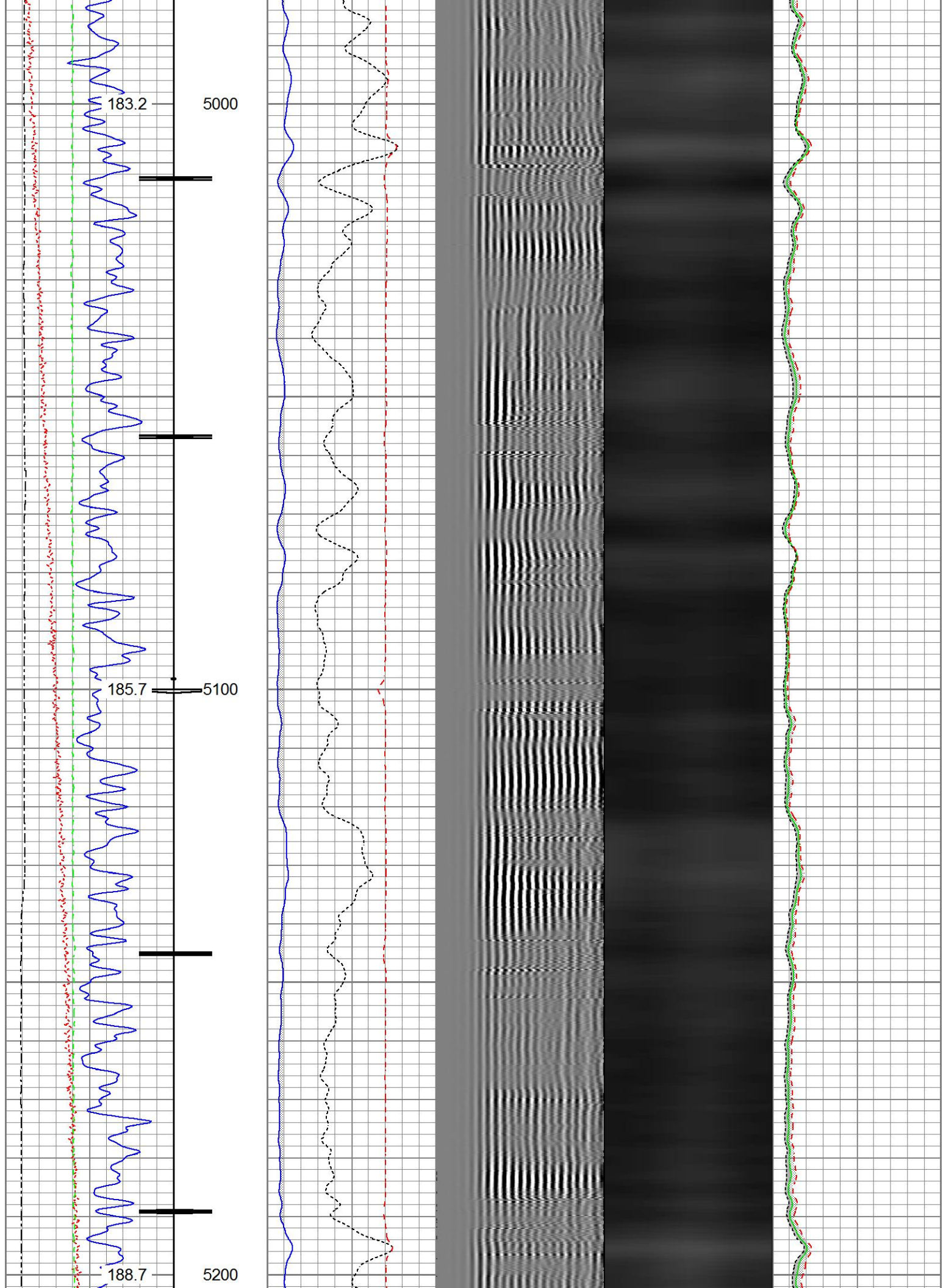


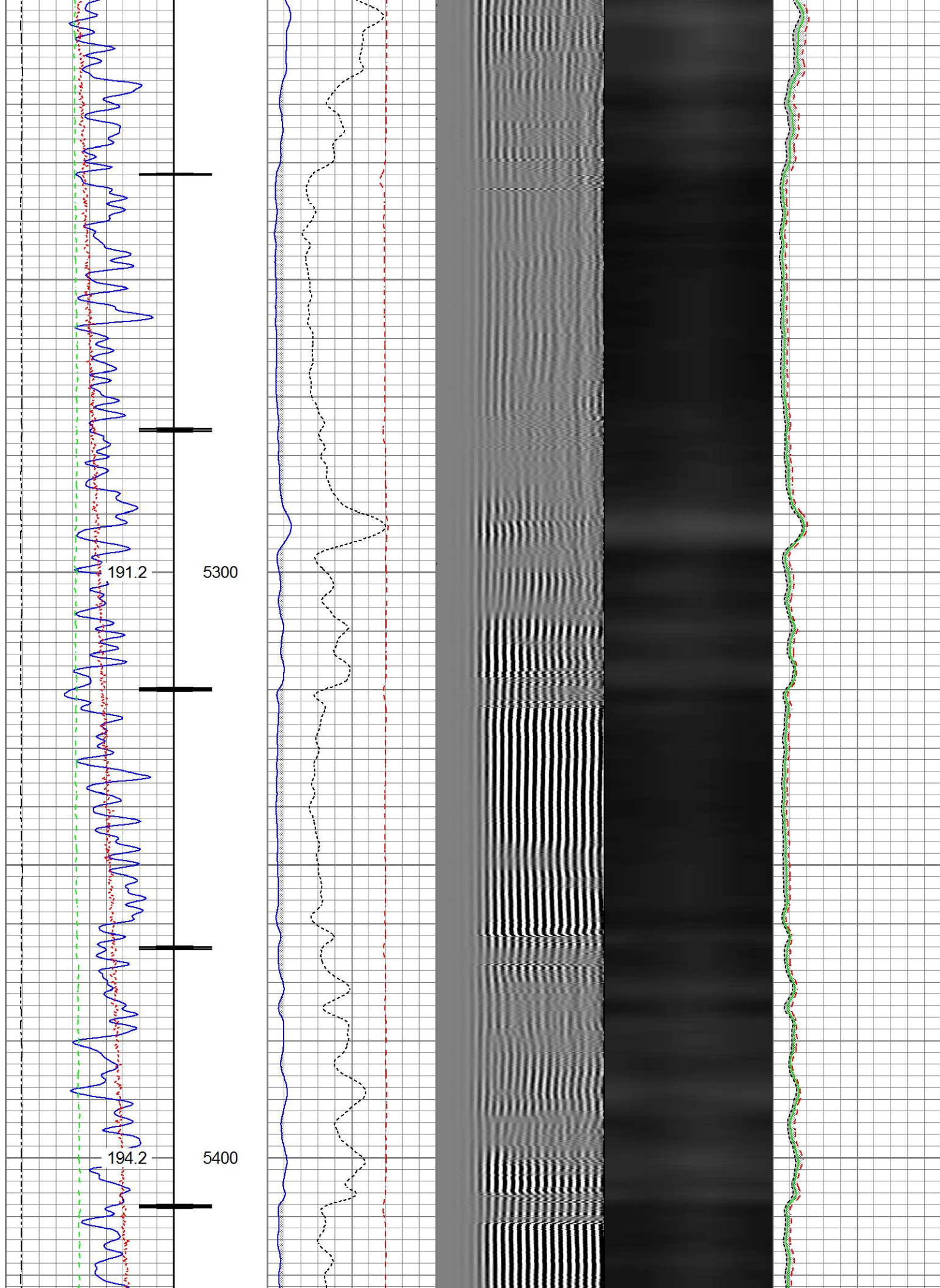




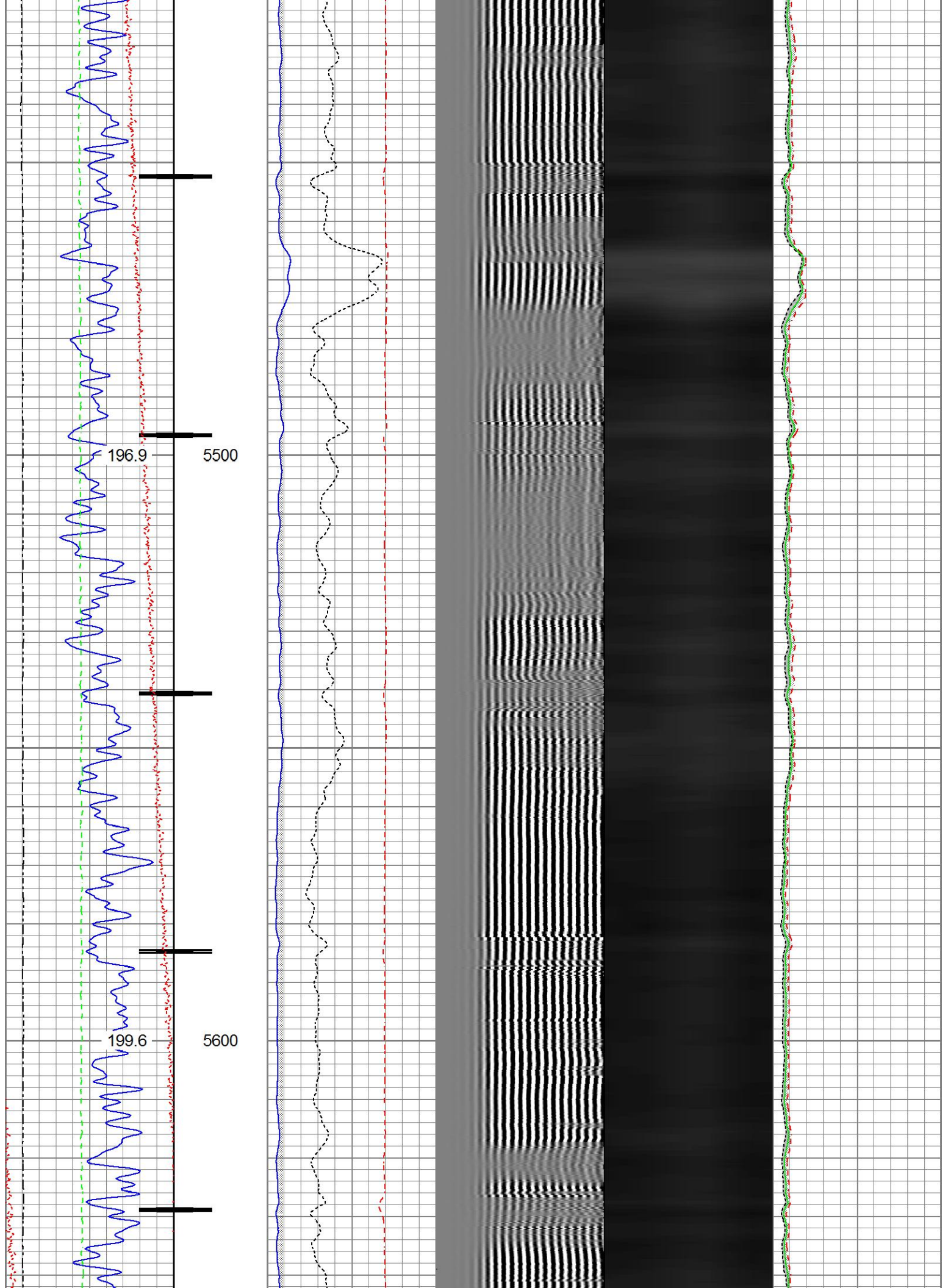


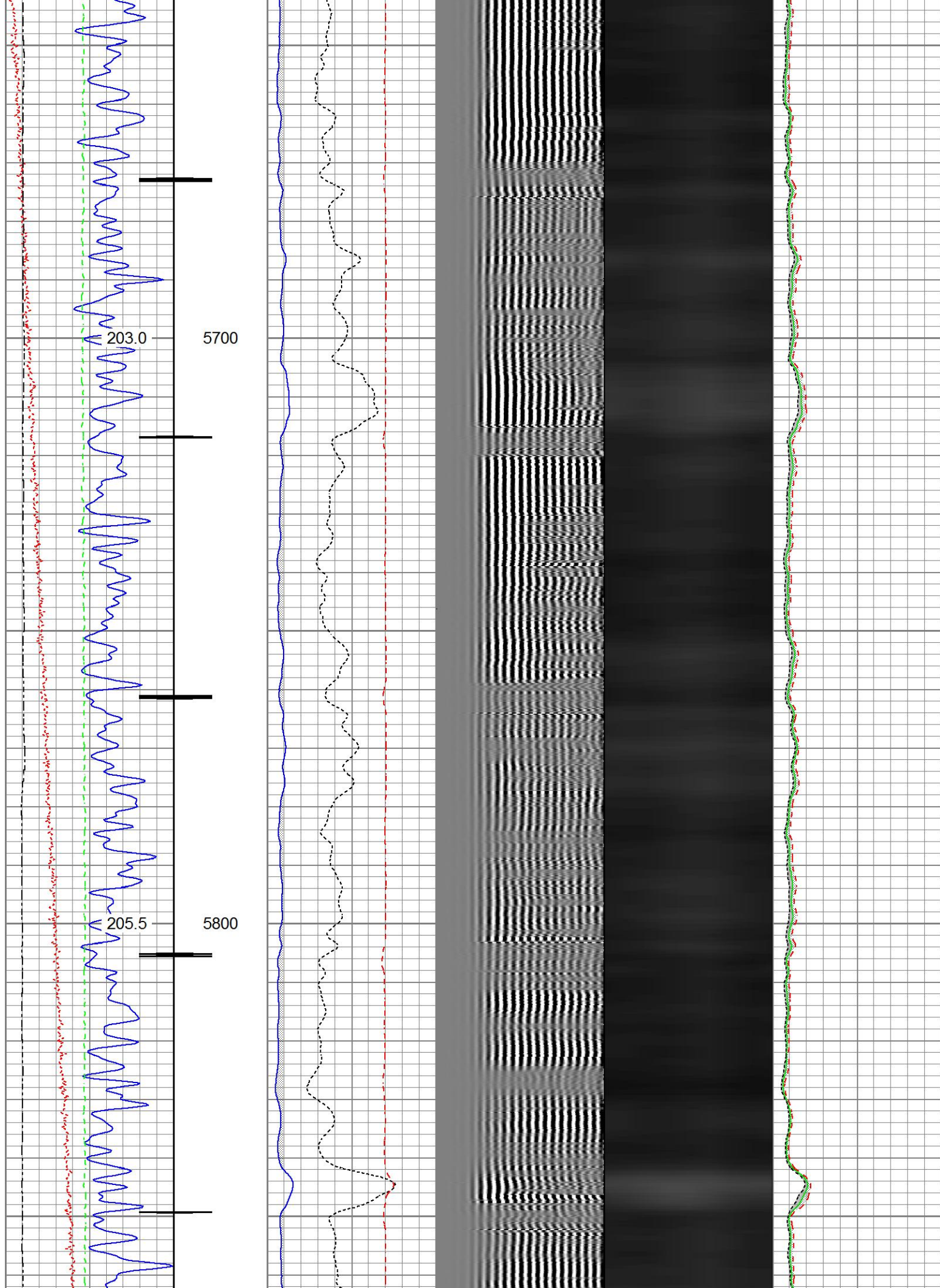




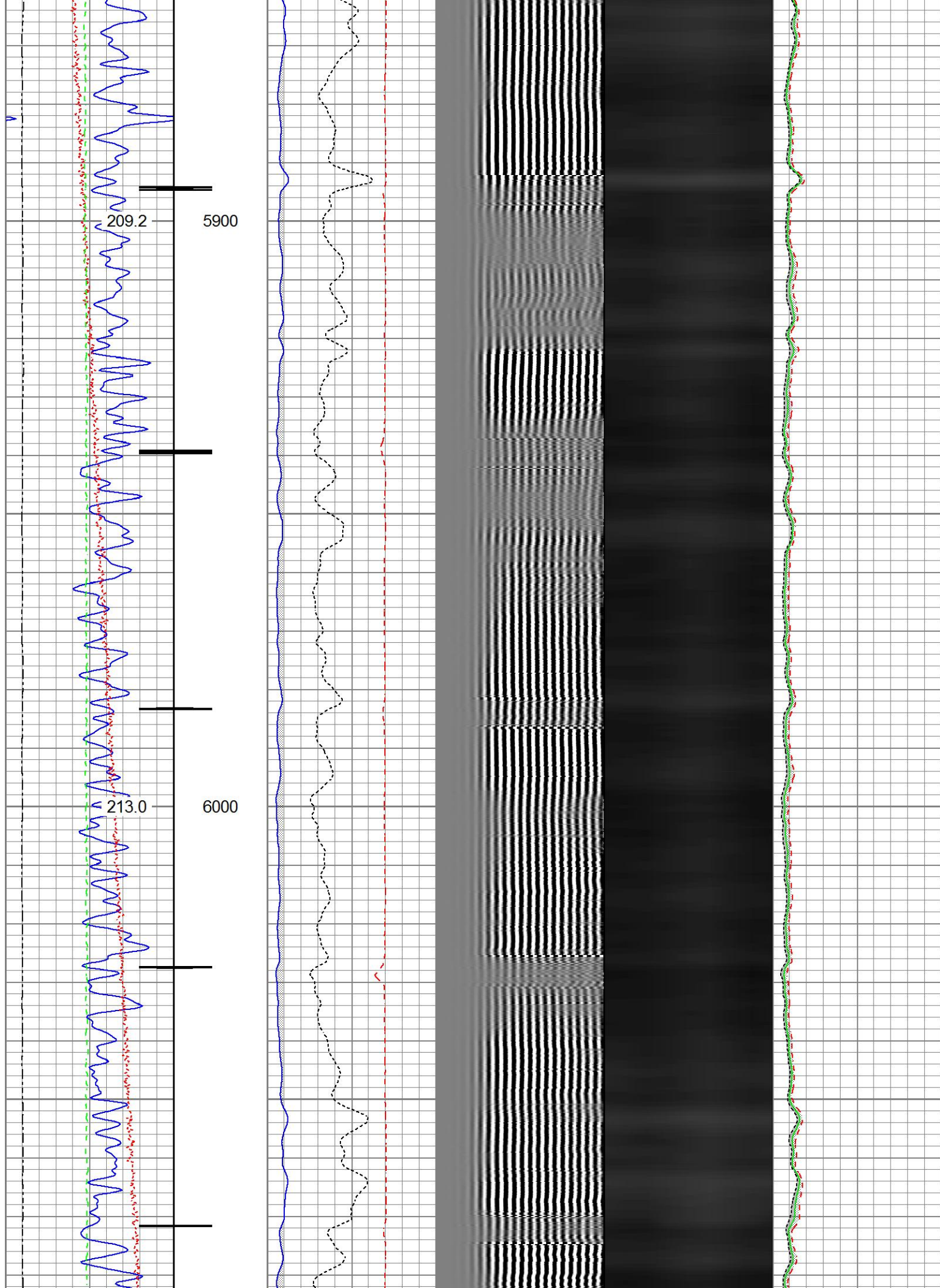


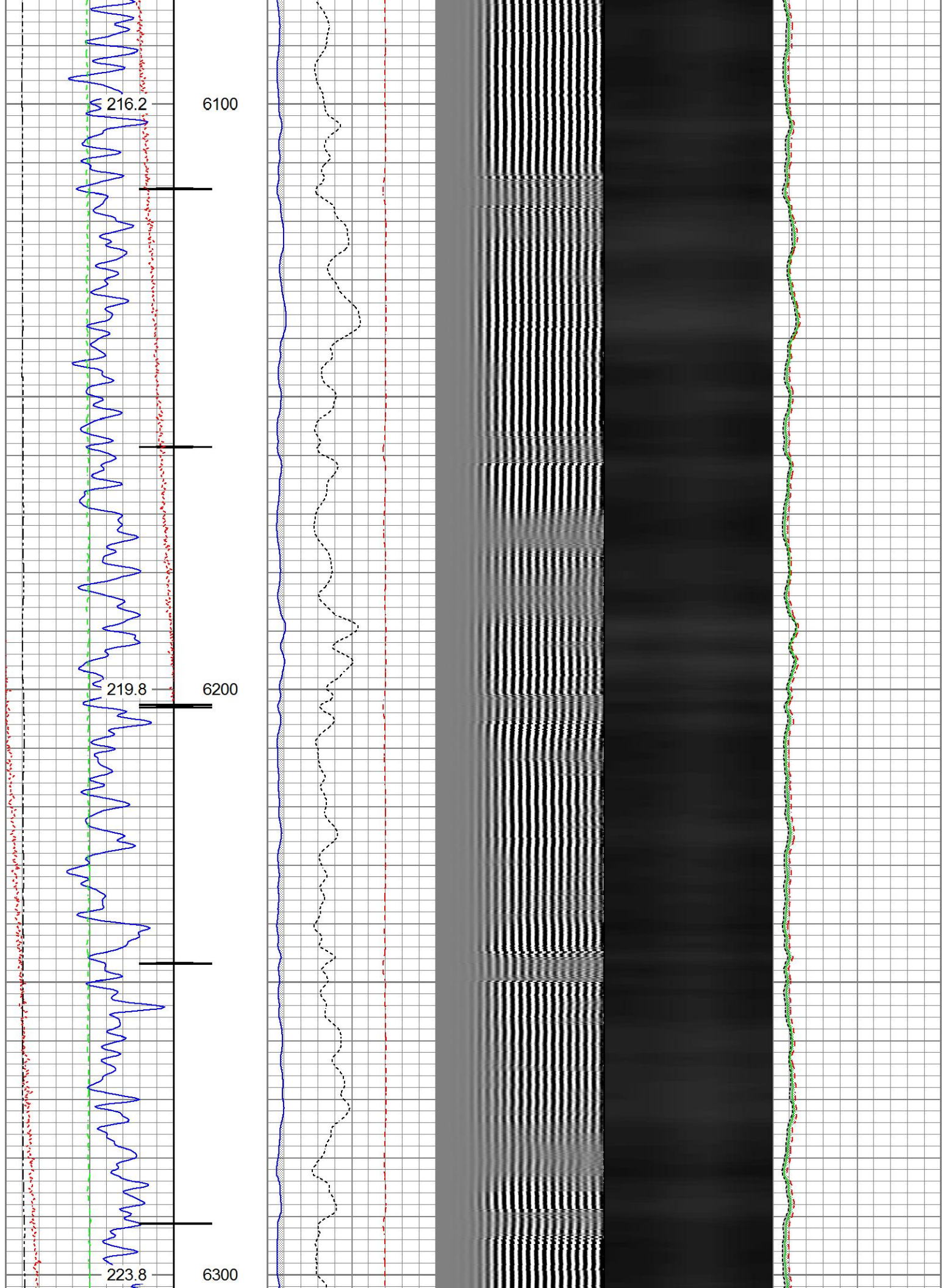




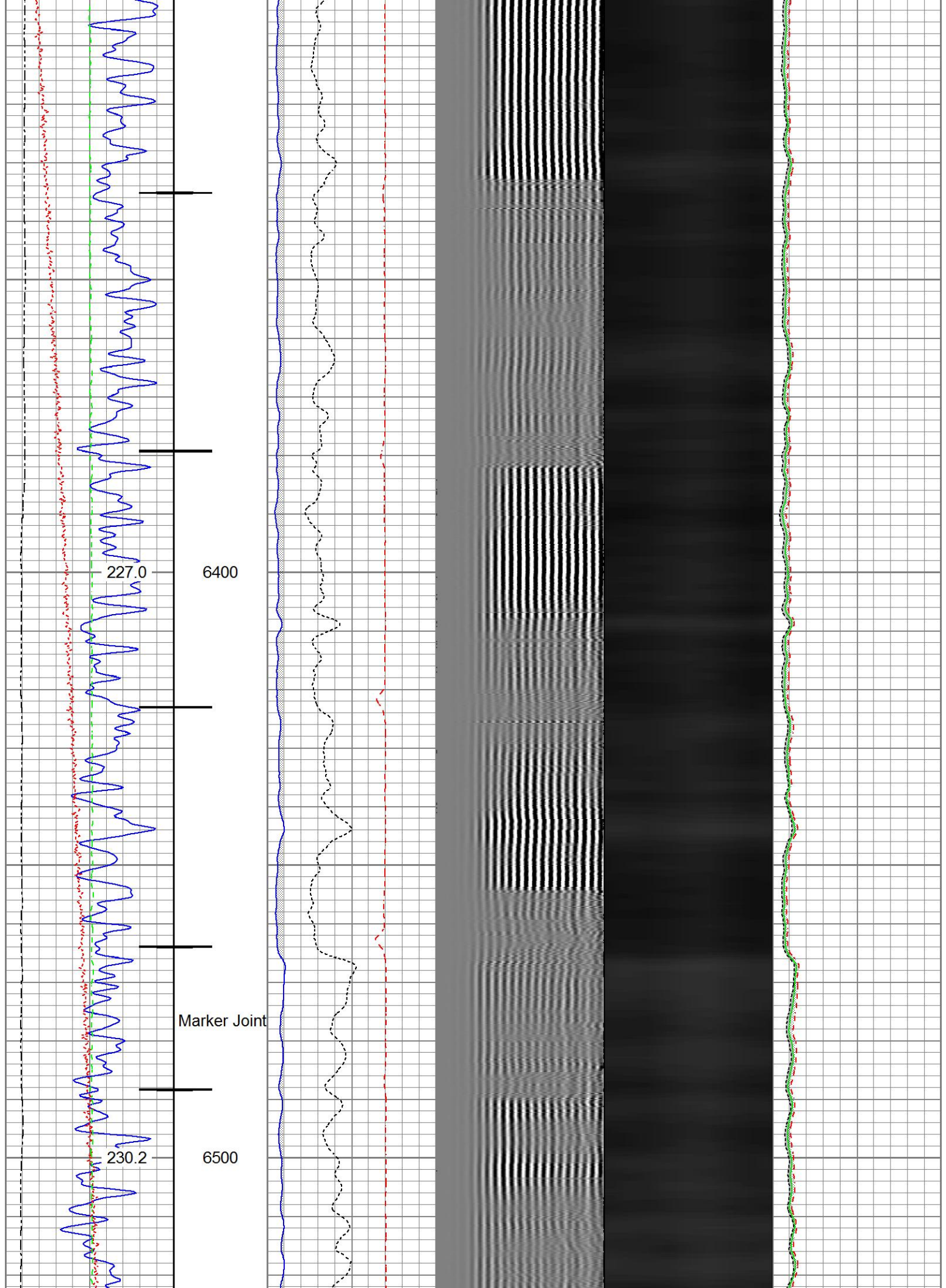


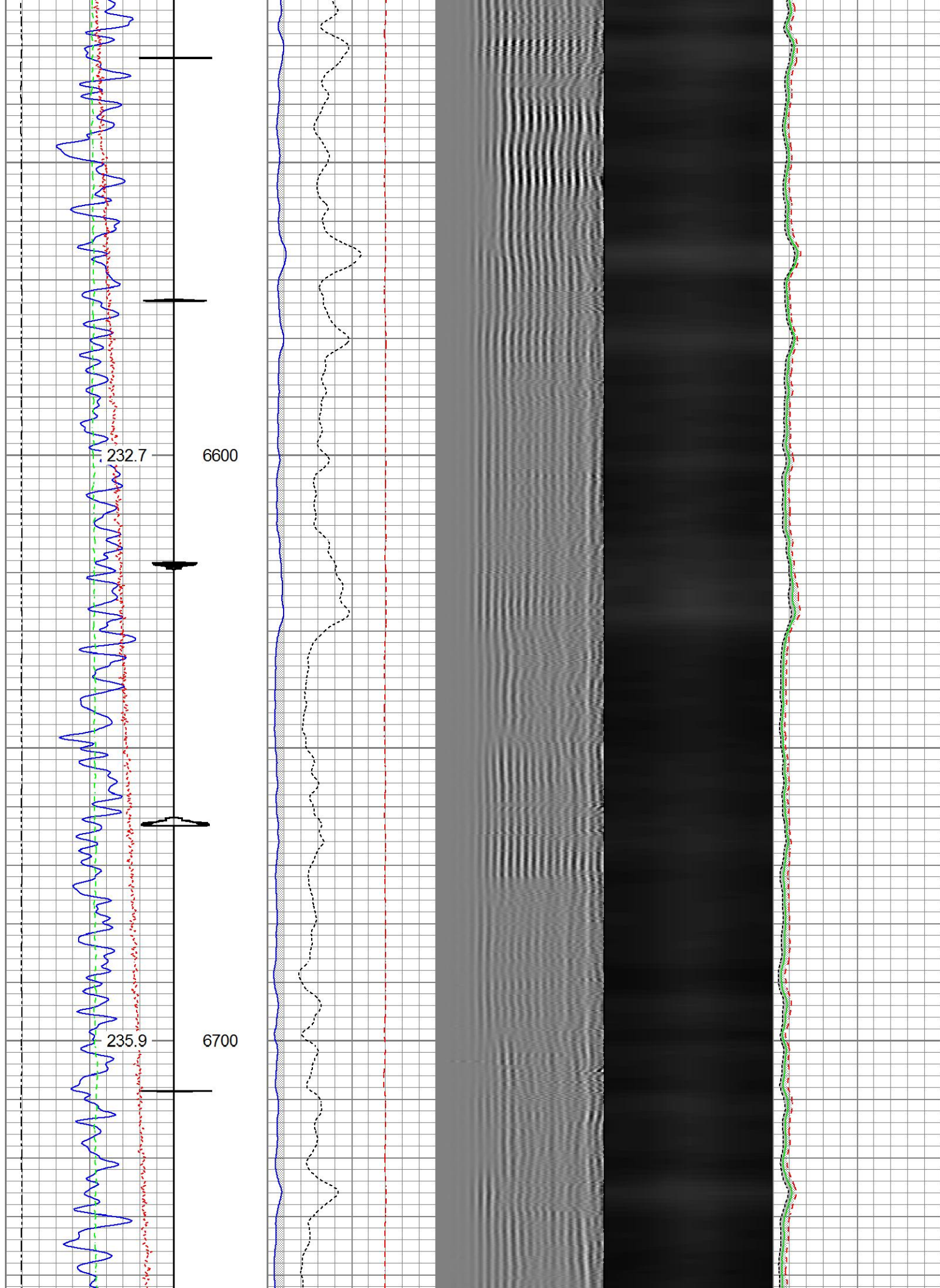




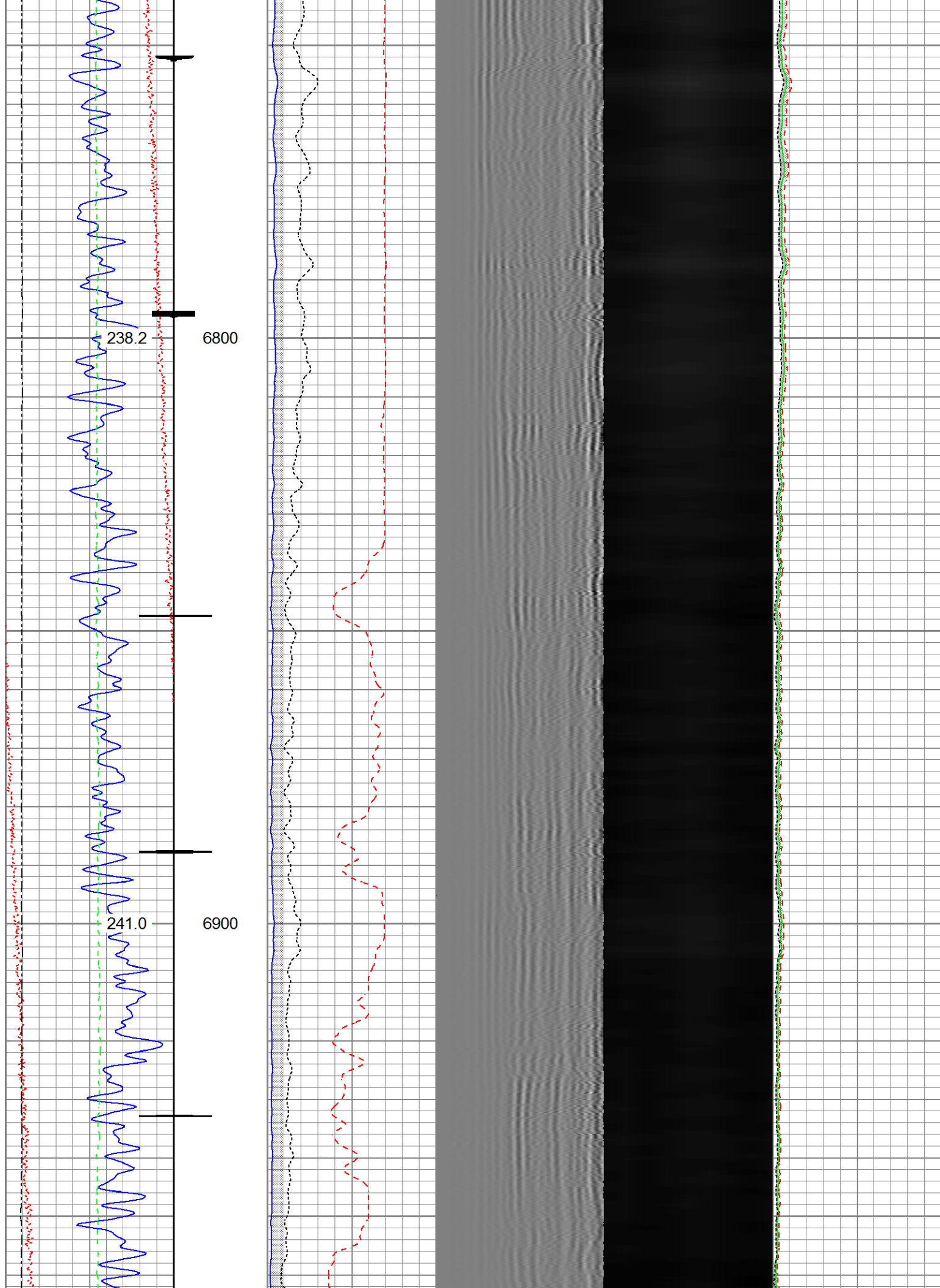


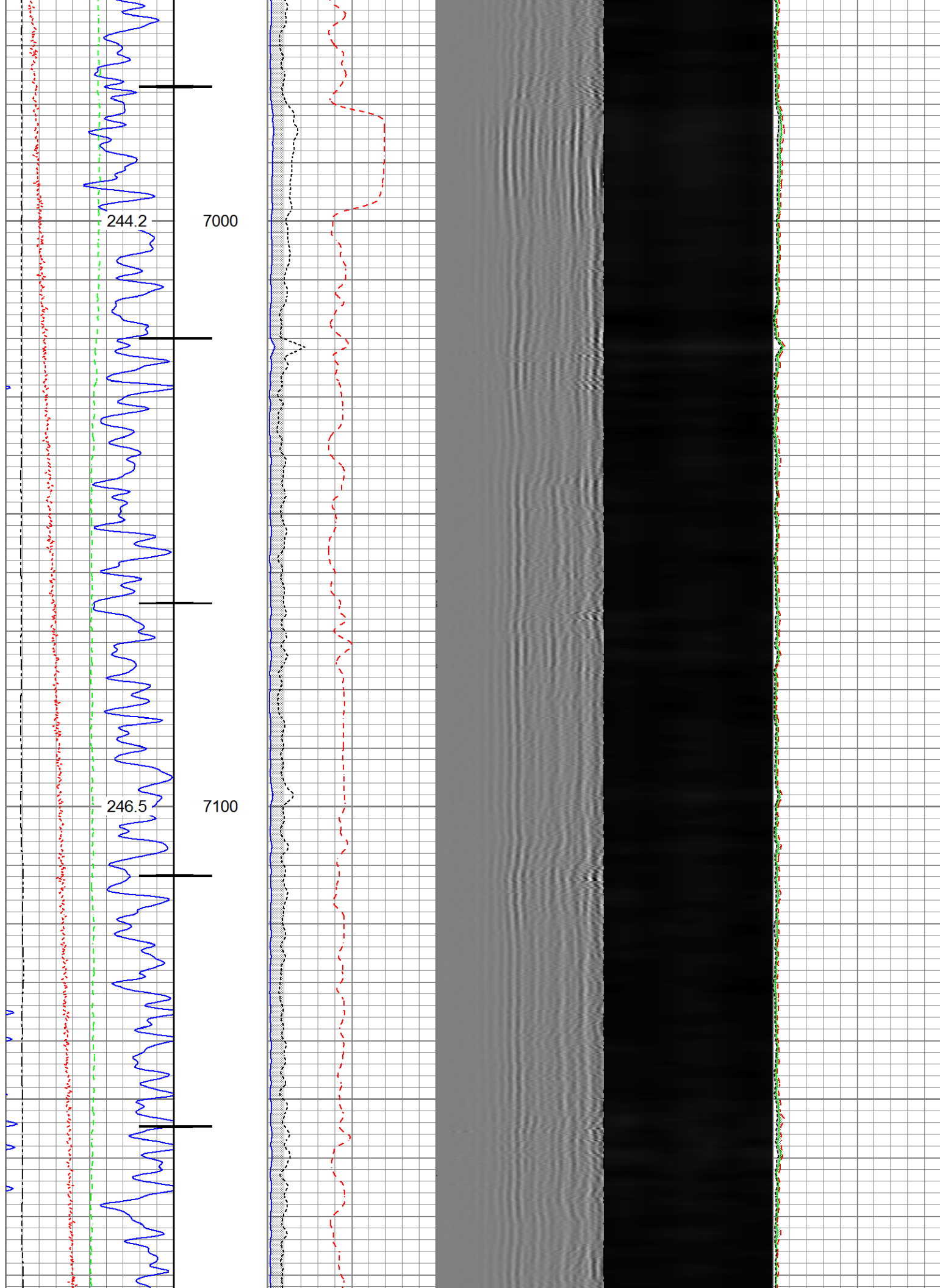




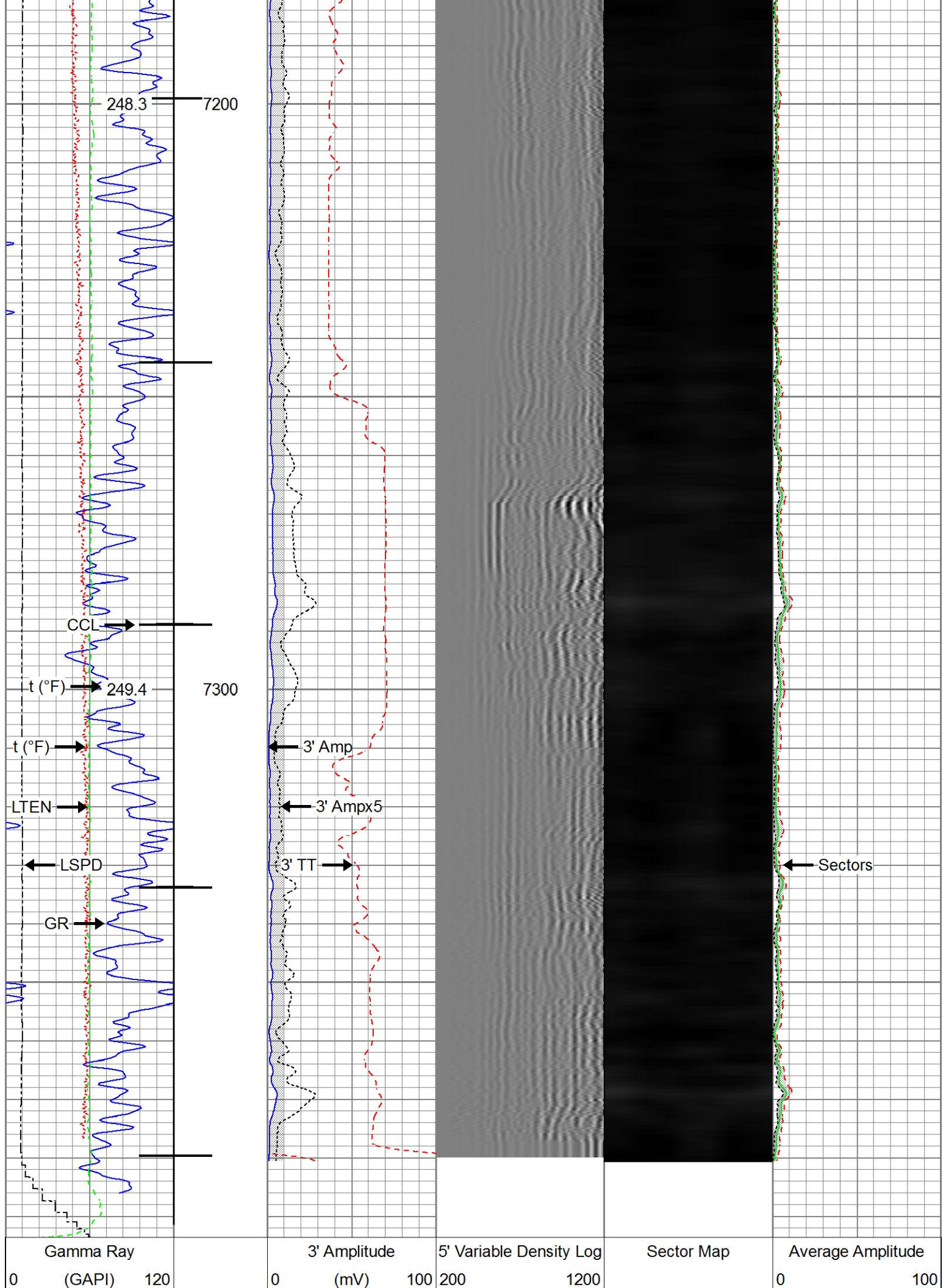












Casing Collar Locator			3' Amplitude x 5			Minimum Amplitude		
Temperature			0	(mV)	20	0		100
0	(degF)	20	3' Travel Time			Maximum Amplitude		
Line Speed			650	(usec)	150	0		100
-150	(ft/min)	150						
Line Tension								
0	(lb)	2000						

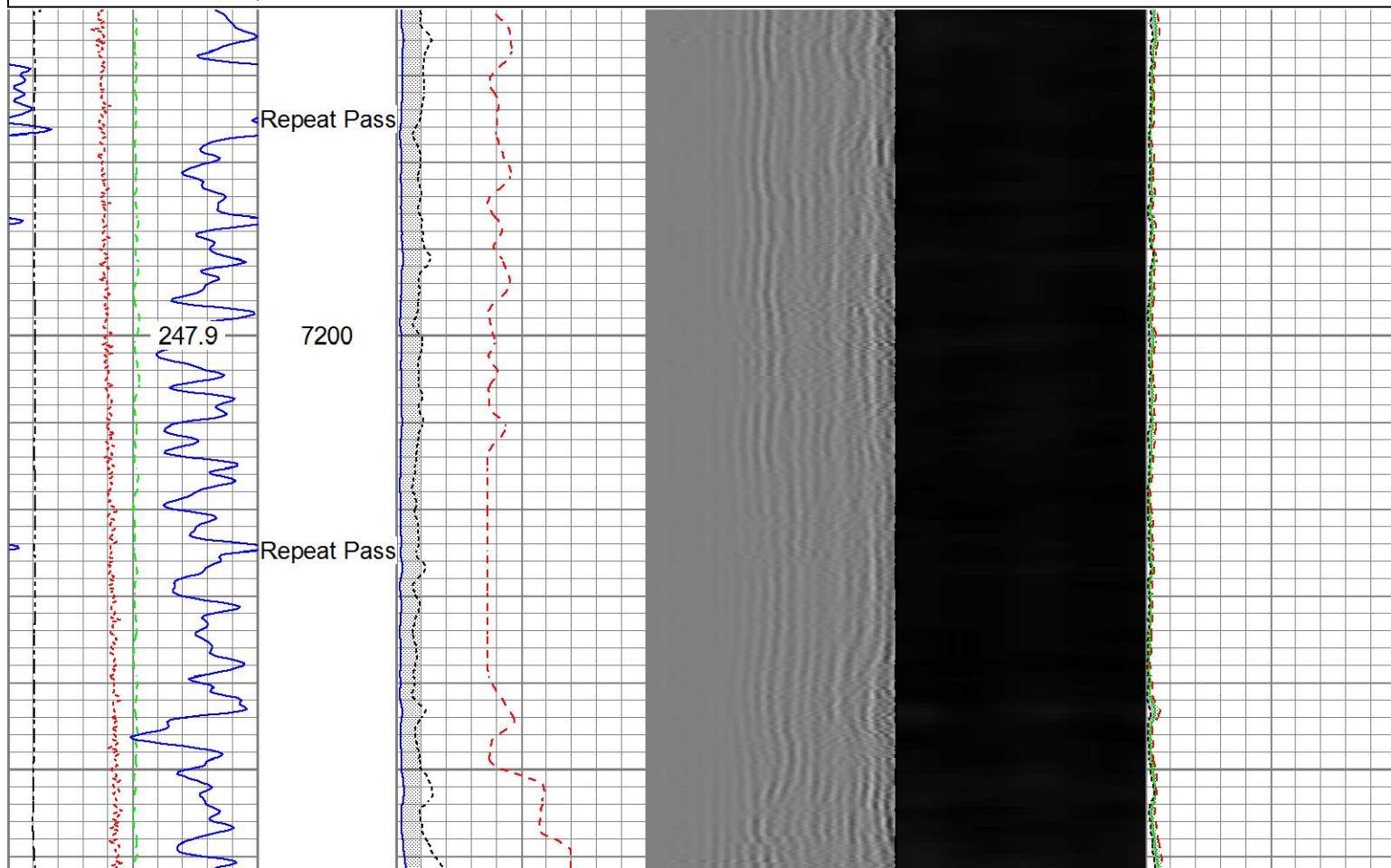


## Repeat Pass

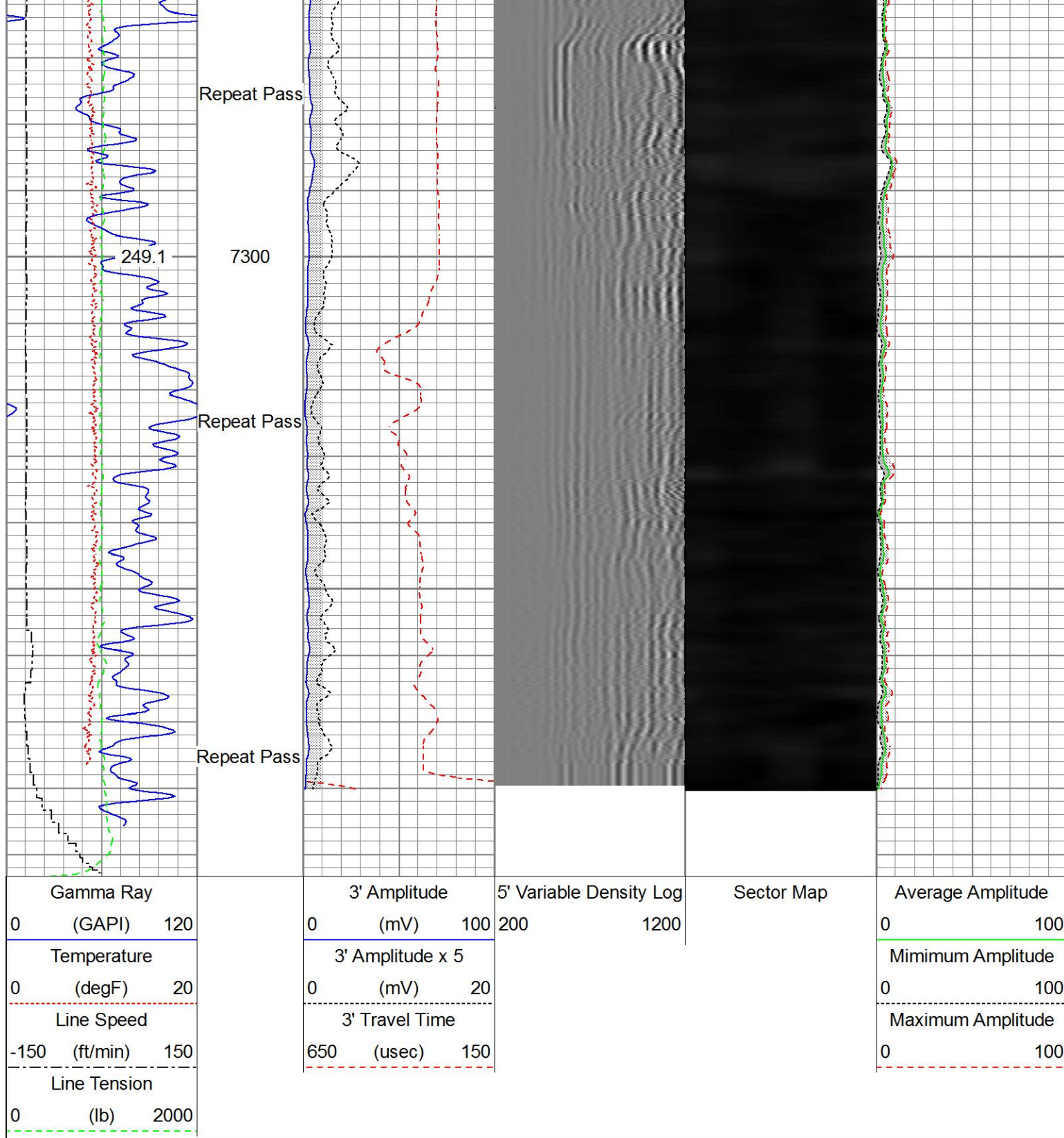
Recorded With 2800 PSI Surface Induced Pressure

Database File: anadarko\_rw 13n-32hz\0512344611\_anadarko\_rw 13n-32hz\_rbl\_10-28-17.db  
Dataset Pathname: pass2.1  
Presentation Format: ros\_radrii  
Dataset Creation: Sat Oct 28 21:39:52 2017  
Charted by: Depth in Feet scaled 1:240

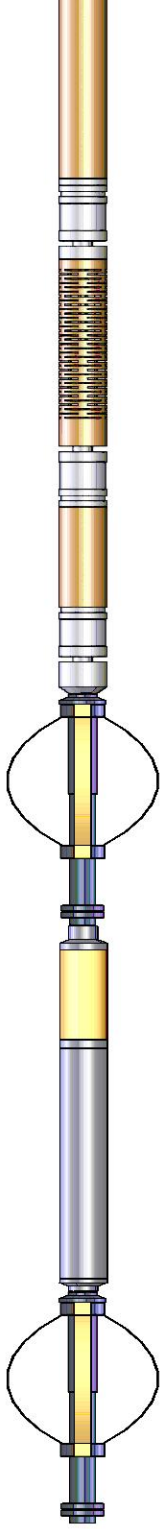
Gamma Ray			3' Amplitude			5' Variable Density Log		Sector Map		Average Amplitude	
0	(GAPI)	120	0	(mV)	100	200	1200			0	100
Temperature			3' Amplitude x 5							Minimum Amplitude	
0	(degF)	20	0	(mV)	20					0	100
Line Speed			3' Travel Time							Maximum Amplitude	
-150	(ft/min)	150	650	(usec)	150			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







Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan_Electric_Cable_Heads-Titan_1-11/161.03 Electric Cable Head with 1" Fishing Neck	1.69	5.40	
			Probe_ELine_BowSpring_Centralizer-P Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	20.00	

Temp	16.72						
WVFS8	14.55		Probe_RADII-C-P_RBT_2750 (FW1302-009.19) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	2.75	105.00		
WVFS7	14.55						
WVFS6	14.55						
WVFS5	14.55						
WVFS4	14.55						
WVFS3	14.55						
WVFS2	14.55						
WVFS1	14.55						
WVFCAL	14.55						
WVF3FT	14.55						
WVF5FT	13.55						
HeadVolt	10.30						
			Probe_ELine_BowSpring_Centralizer-P Probe 2-3/4" Electric Inline Bowspring Centralizer	EE2.88.275	2.75	20.00	
DCCL	6.51						
CCL	6.51						
GR	5.30		Probe_GR_CCL-P_CGR_2750_S (FW1214.543) Probe 2-3/4" Digital CCL / Gamma Ray Combined	2.75	55.00		
			Probe_ELine_BowSpring_Centralizer-P Probe 2-3/4" Electric Inline Bowspring Centralizer	EE2.88.275	2.75	20.00	
Dataset: 0512344611_Anadarko_RW 13N-32HZ_RBL_10-28-17.db: field/well/run1/pass4.1							
Total length: 23.40 ft							
Total weight: 225.40 lb							
O.D.: 2.75 in							

Calibration Report	
Database File	C:\ProgramData\Warrior\Data\Anadarko_RW 13N-32HZ\0512344611_Anadarko_RW 13N-32HZ_RBL_10-2
Dataset Pathname	pass4.1
Dataset Creation	Sat Oct 28 12:23:04 2017
Gamma Ray Calibration Report	
Serial Number:	FW1212-026
Tool Model:	P_CGR_2750_S
Performed:	Sat Oct 28 08:13:19 2017



Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.6	cps
Sensitivity:	0.6061	GAPI/cps

### Segmented Cement Bond Log Calibration Report

Serial Number: FW1302-001  
Tool Model: P\_RBT\_2750

Calibration Casing Diameter: 5.500 in  
Calibration Depth: -5.140 ft

#### Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.002	0.652	0.800	71.921	108.690	1.008
CAL	0.723	0.781				
5'	-0.015	0.634	0.800	71.921	109.642	2.439
SUM						
S1	-0.000	0.684	0.000	100.000	146.243	0.004
S2	0.000	0.681	0.000	100.000	146.842	-0.051
S3	-0.001	0.685	0.000	100.000	145.839	0.131
S4	-0.008	0.681	0.000	100.000	145.033	1.178
S5	-0.018	0.693	0.000	100.000	140.662	2.502
S6	-0.018	0.687	0.000	100.000	141.795	2.568
S7	-0.005	0.675	0.000	100.000	147.133	0.740
S8	-0.005	0.678	0.000	100.000	146.424	0.660

#### Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.723	0.781	1.000	0.000

#### Air Zero Calibration, performed Fri Oct 27 14:17:26 2017:

	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 RW 13N-32HZ  
Field Wottonburg



OILFIELD SERVICES

Field

Wattenberg

County

Weld

State

Colorado