



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.  
Well FL Greens 3N-5HZ  
Field Wattenberg  
County Weld  
State Colorado

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Location: API #: 05-123-42280  
SEC 8 TWP 1N RGE 66W  
Permanent Datum Ground Level Elevation 4925'  
Log Measured From Kelly Bushing 20 FT  
Drilling Measured From Kelly Bushing  
Other Services  
Gauge Ring  
Elevation  
K.B. 4945'  
D.F. 4944'  
G.L. 4925'

Run Number	Two						
Depth Driller	12852 FT						
Depth Logger	7591 FT						
Bottom Logged Interval	7591 FT						
Top Log Interval	Surface						
Open Hole Size	7.875"						
Type Fluid	Water						
Density / Viscosity	8.34 lb/gal						
Max. Recorded Temp.	238°F						
Estimated Cement Top	See Log						
Time Well Ready	ROA						
Time Logger on Bottom	14:50						
Equipment Number	HD-0343						
Location	Fort Lupton, CO						
Recorded By	W.Wacker						
Witnessed By	Roger Pevler						
Borehole Record					Tubing Record		
Run Number	Bit	From	To	Size (in)	Weight (lb/ft)	From	To
Casing Record	Size (in)	Wgt (lb/ft)	Grade	Top	Bottom		
Surface Casing	9 5/8	36	J-55	Surface	1885 FT		
Intermediate #1	5 1/2	17	HC P110	Surface	12847 FT		
Intermediate #2							
Liner							

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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 6798 FT  
Adjusted -4 FT to correlate with Marker Joint  
Gauge Ring/Junk Basket ran to 7586 FT with no debris found  
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 any debris upon completion of operations  
  
Thank you for choosing Reliance Oilfield Services, LLC!!

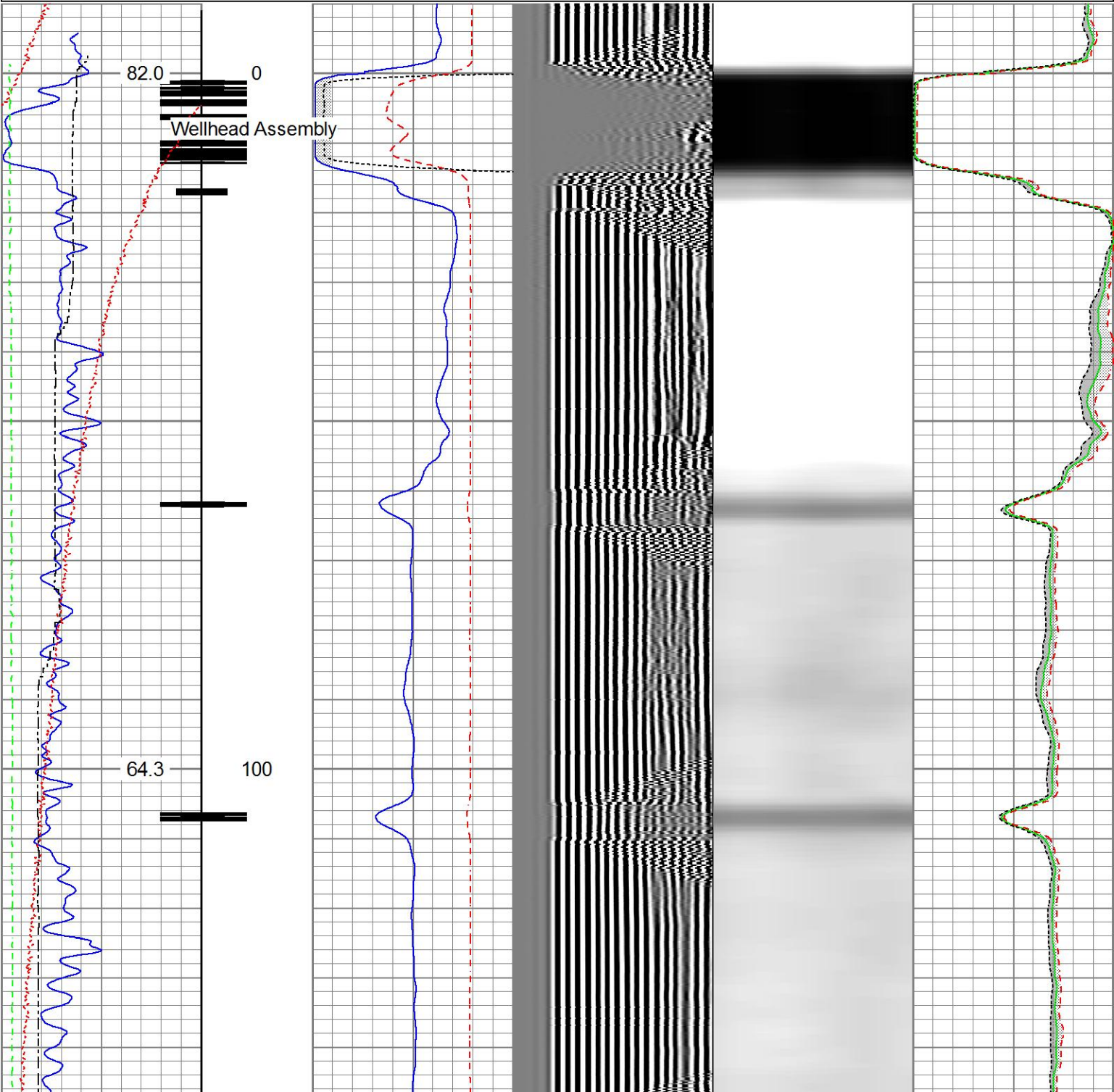


Main Pass

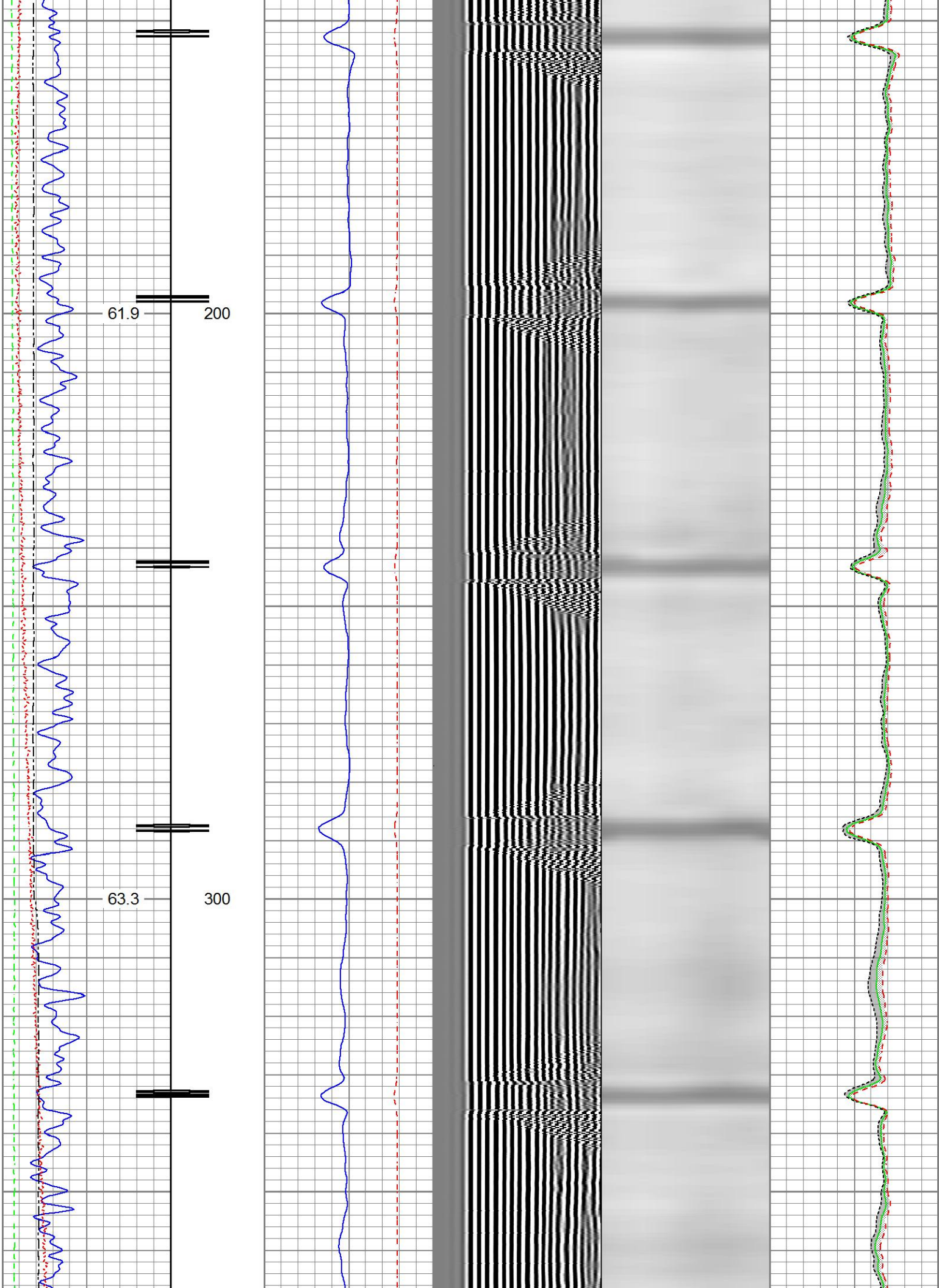
Recorded With 2800 PSI Surface Induced Pressure

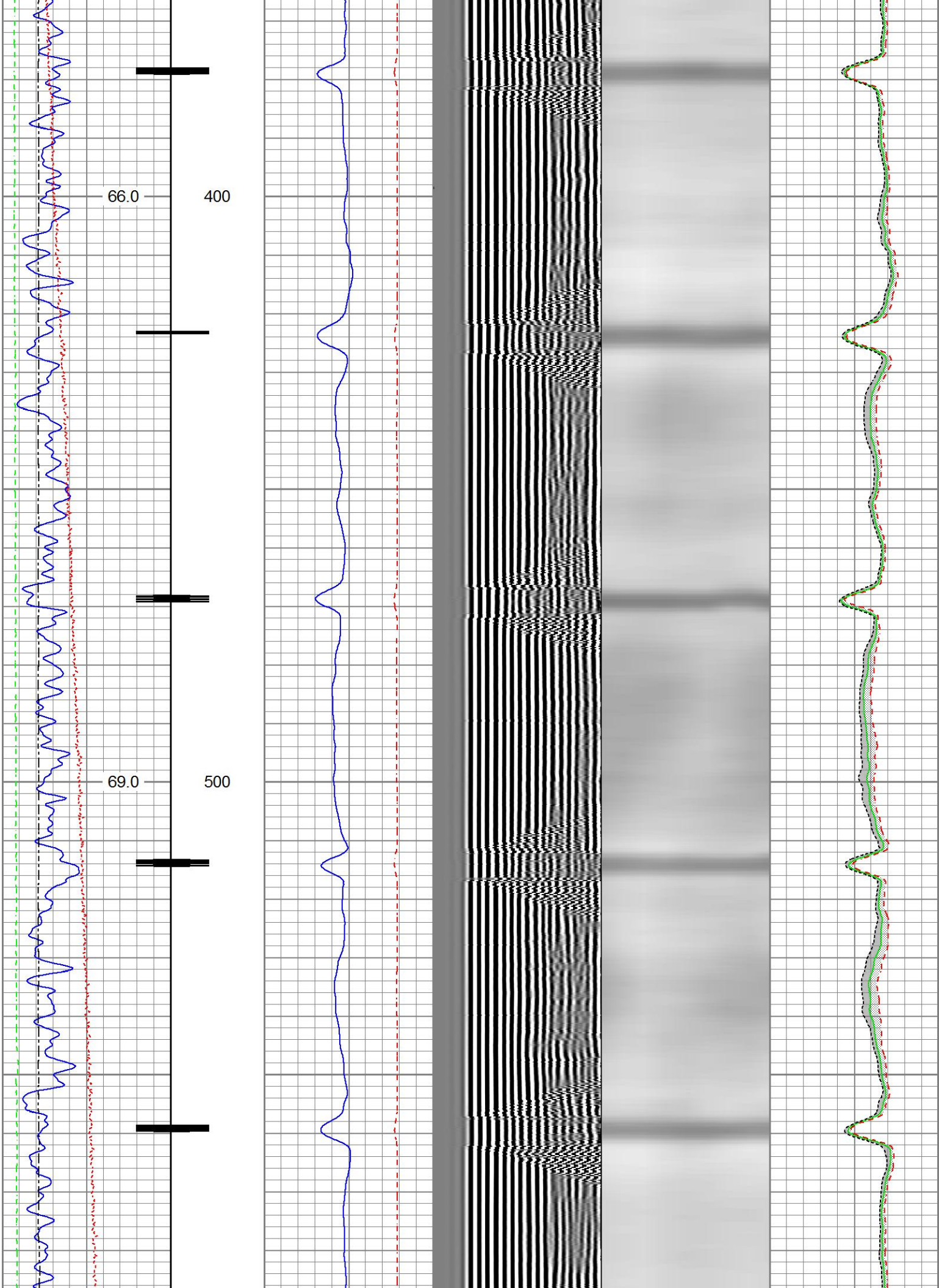
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Dataset Pathname	main.1
Presentation Format	ros_radri
Dataset Creation	Fri Sep 15 16:04:34 2017
Charted by	Depth in Feet scaled 1:240

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			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					

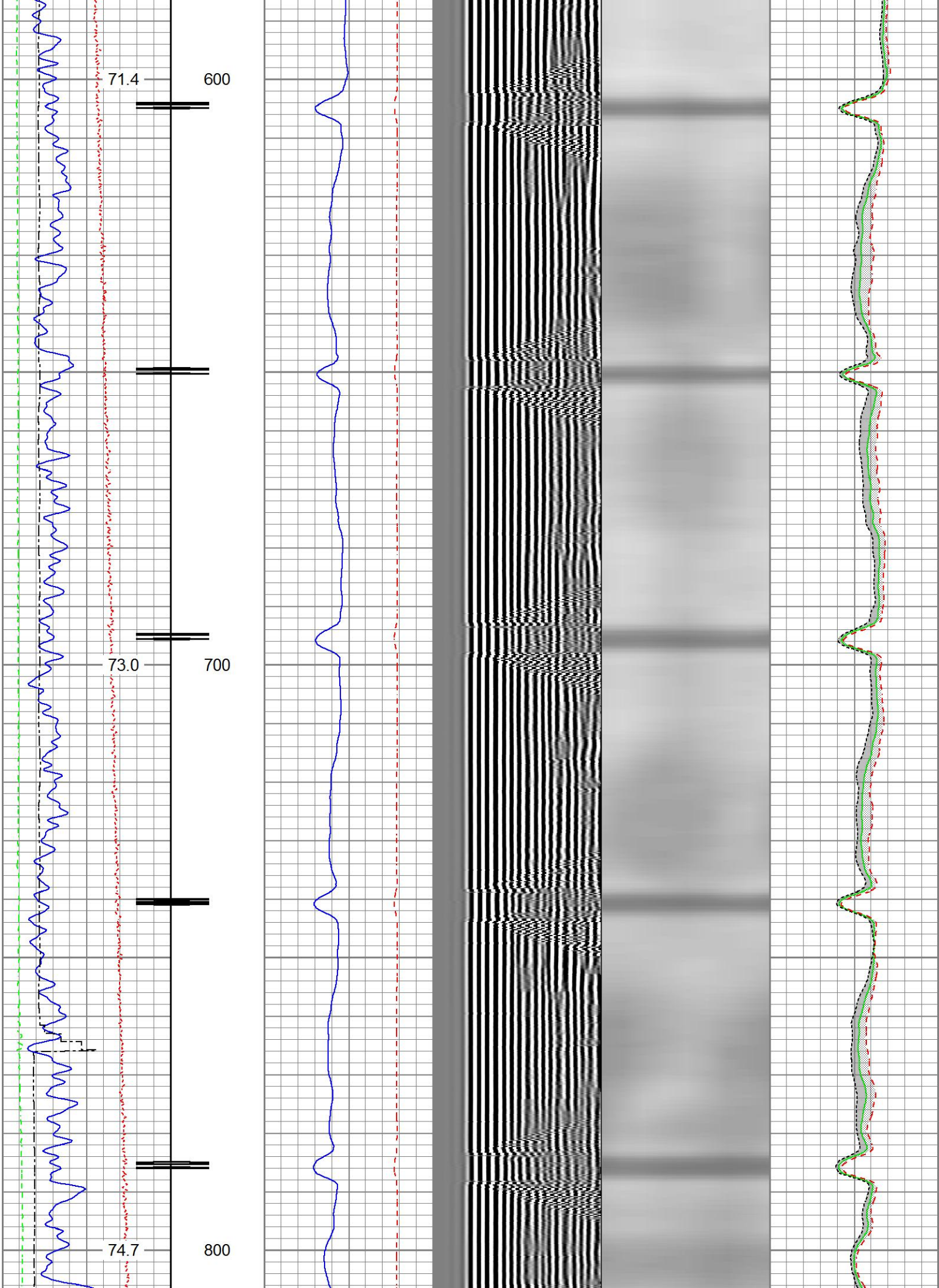


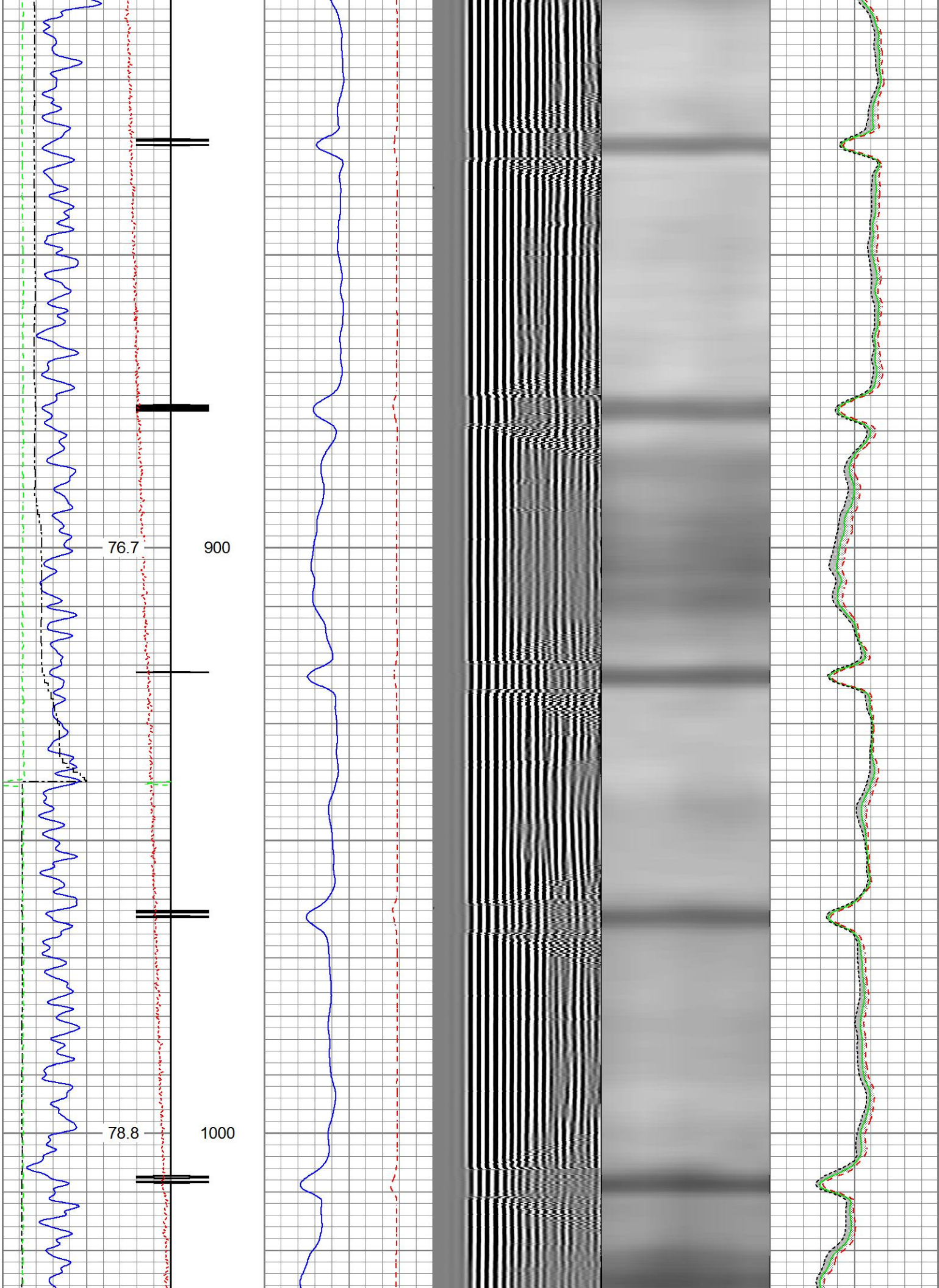




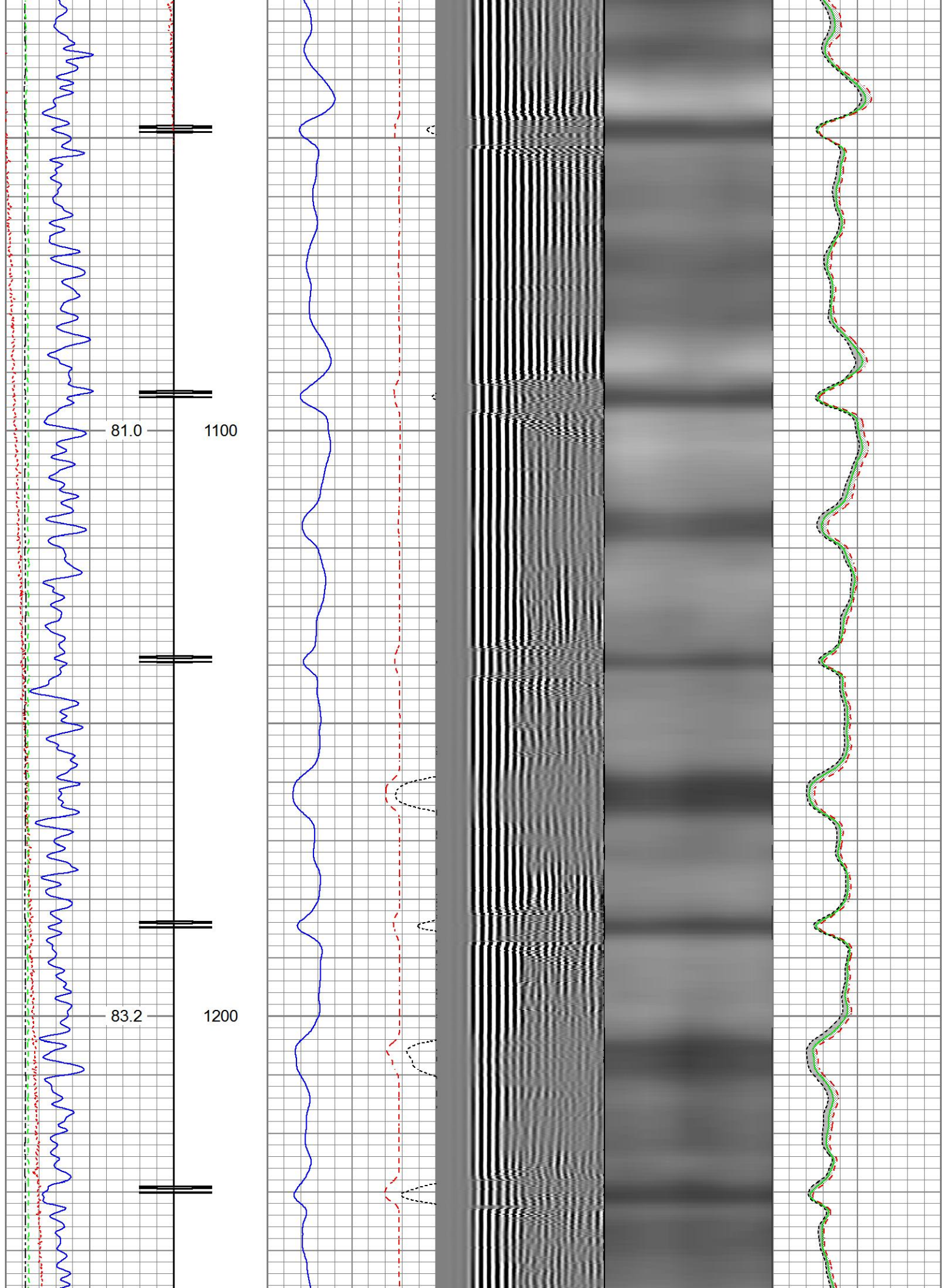


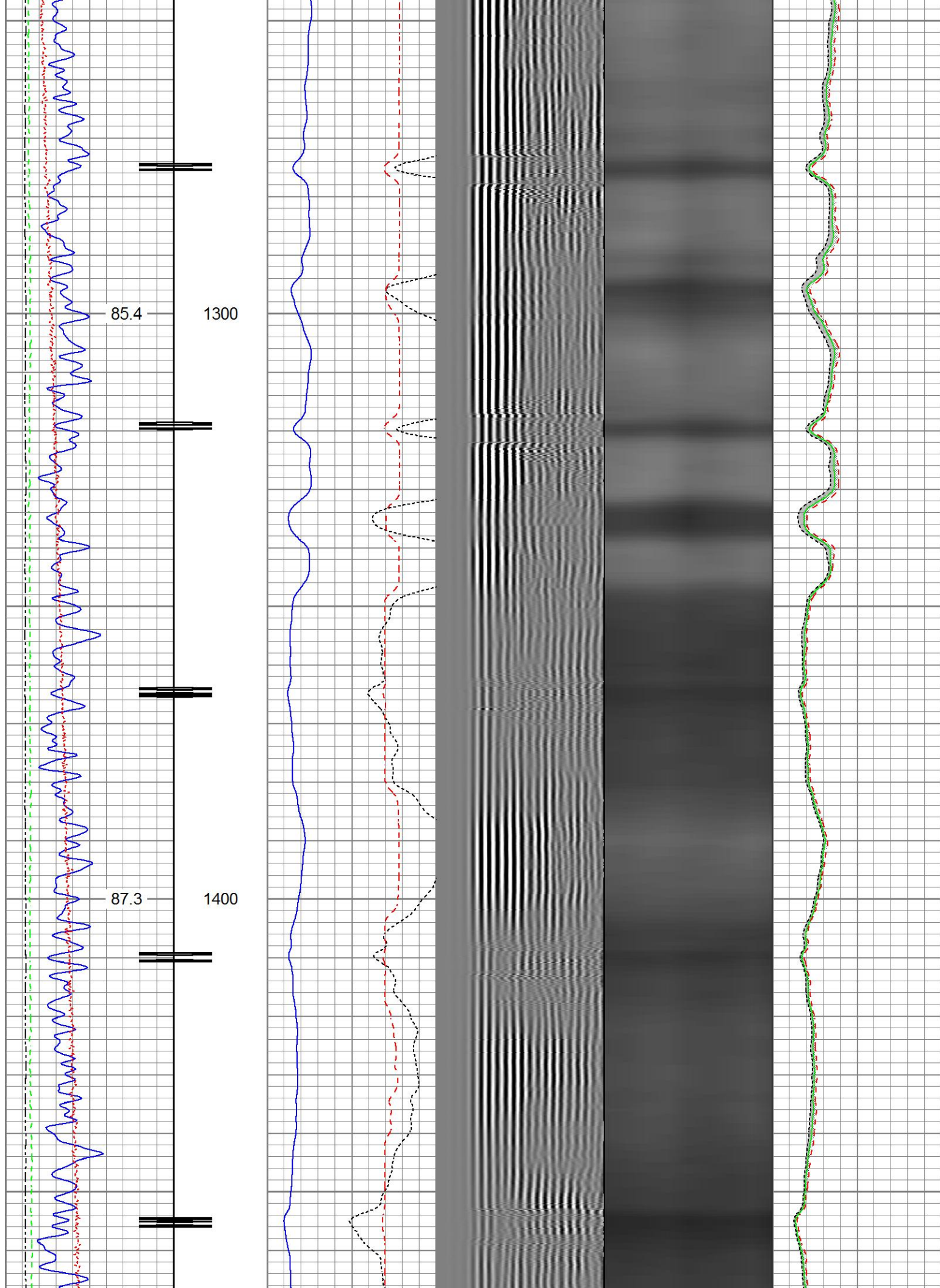




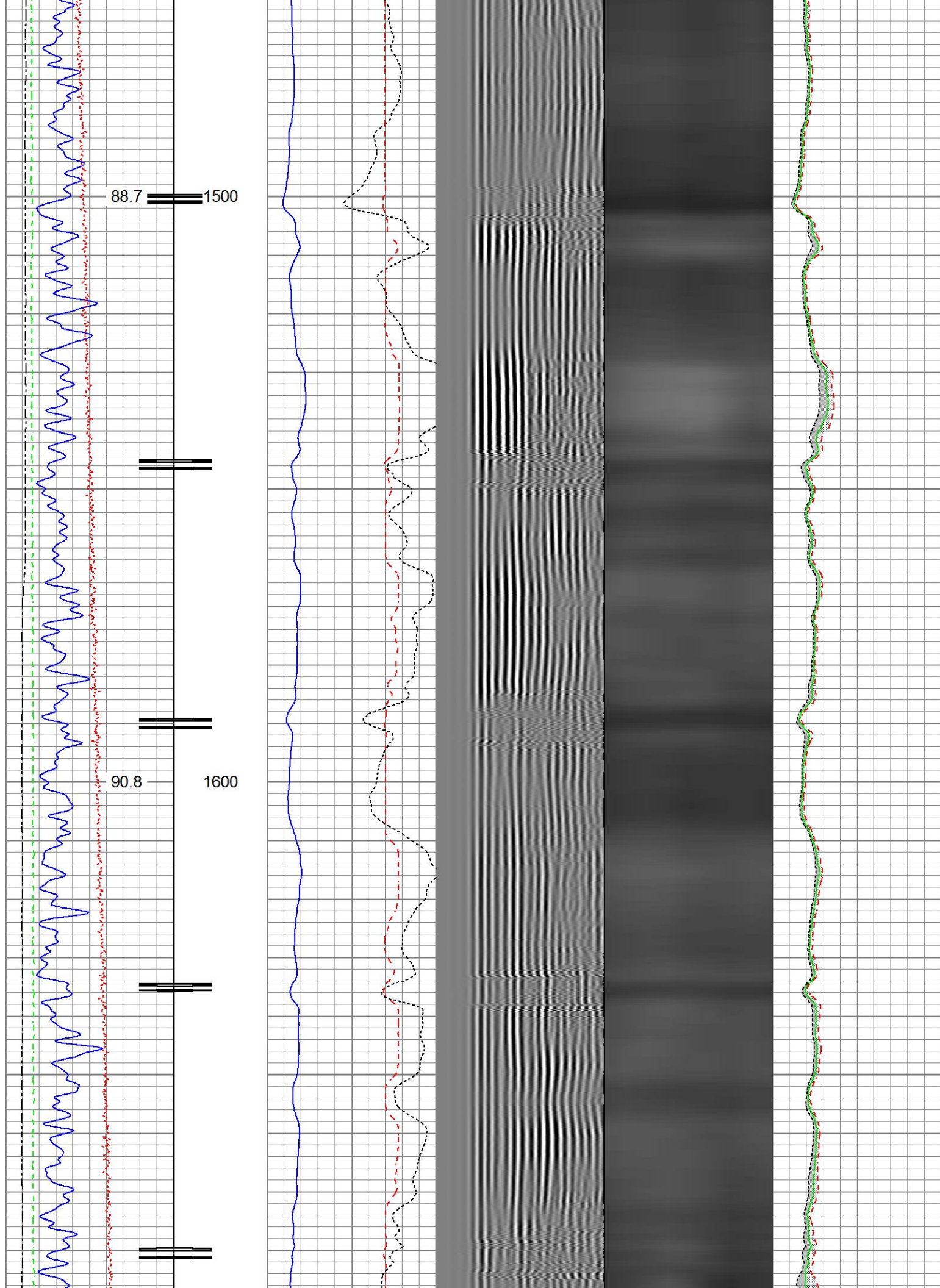


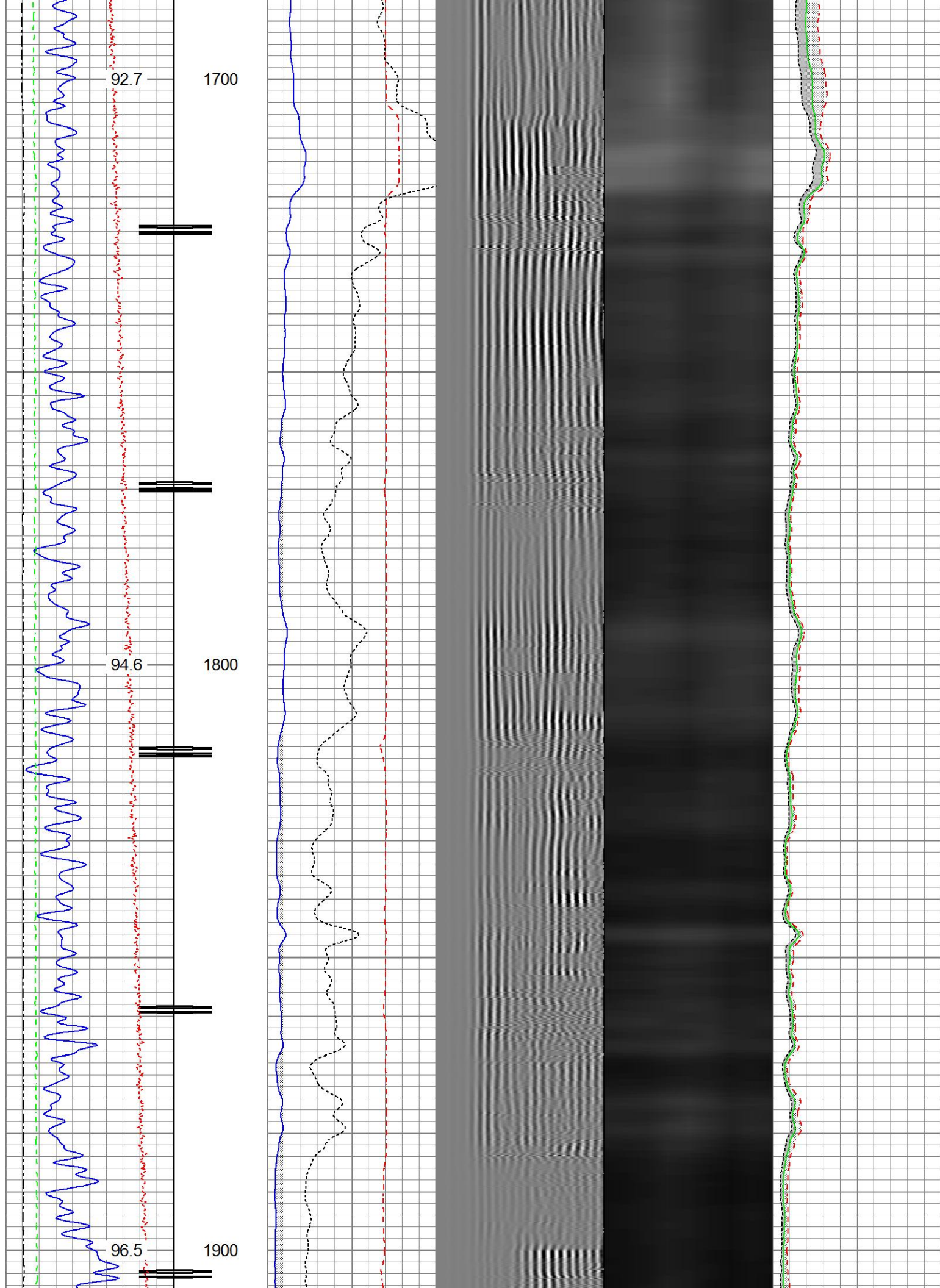




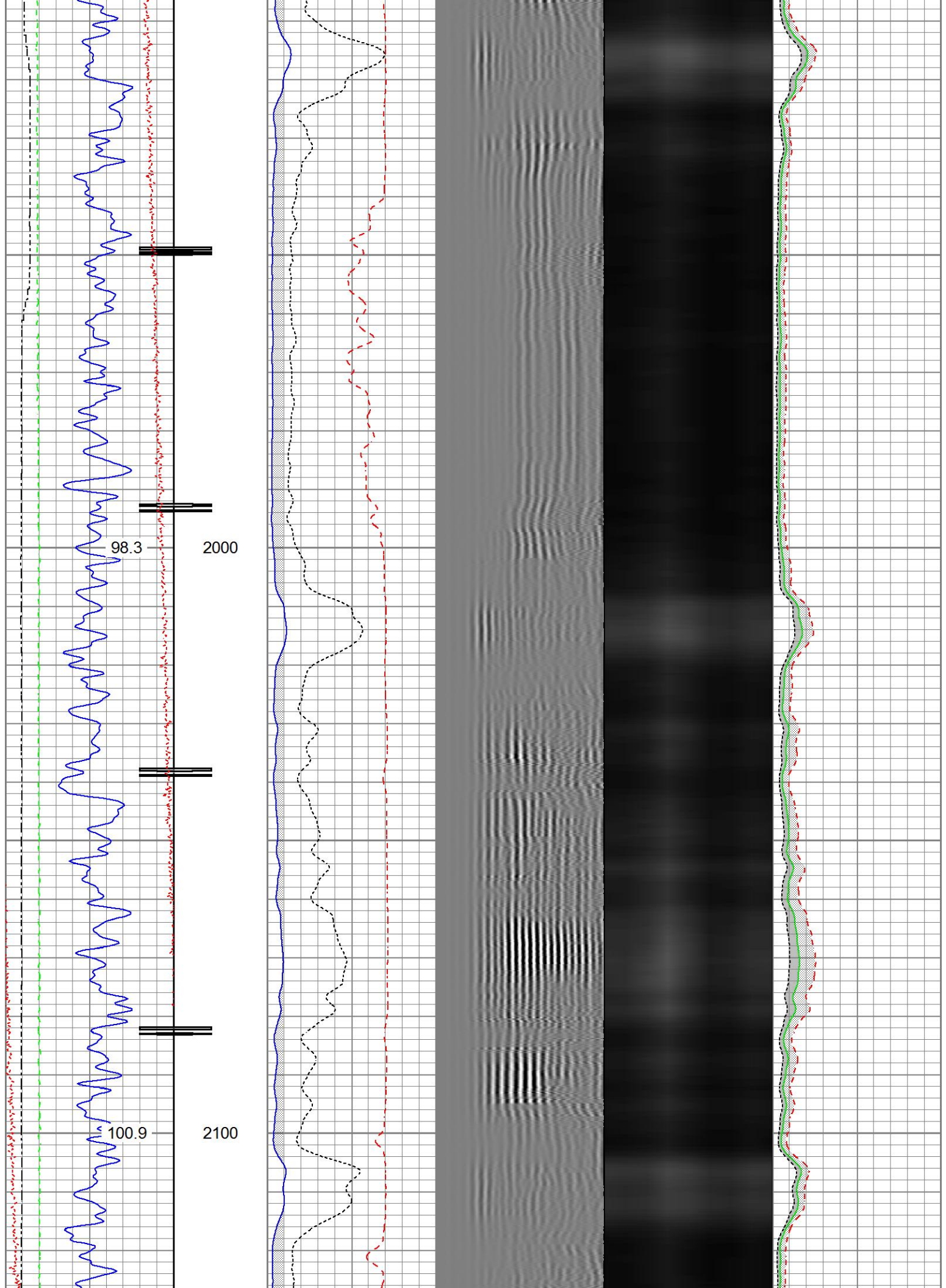


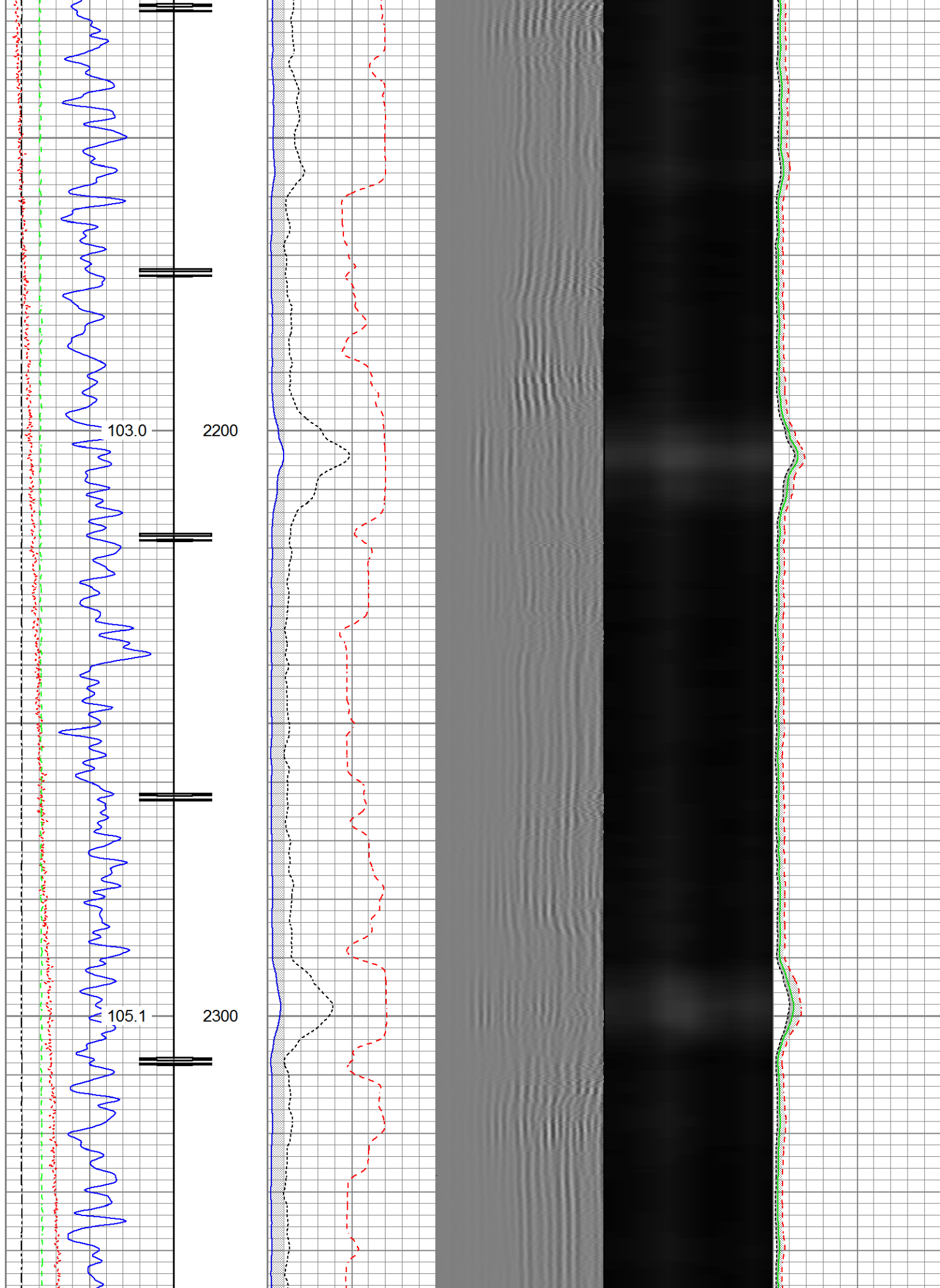




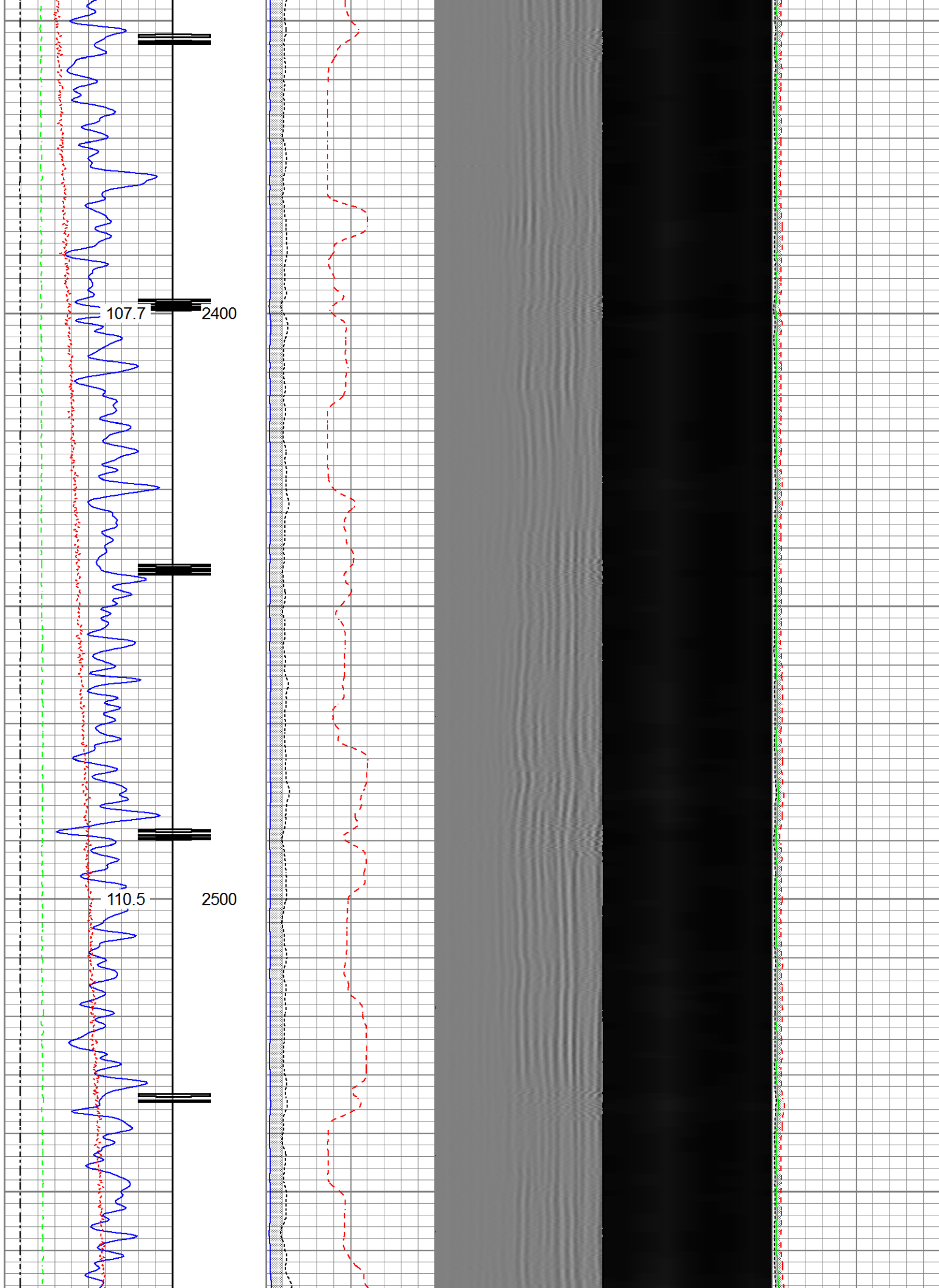


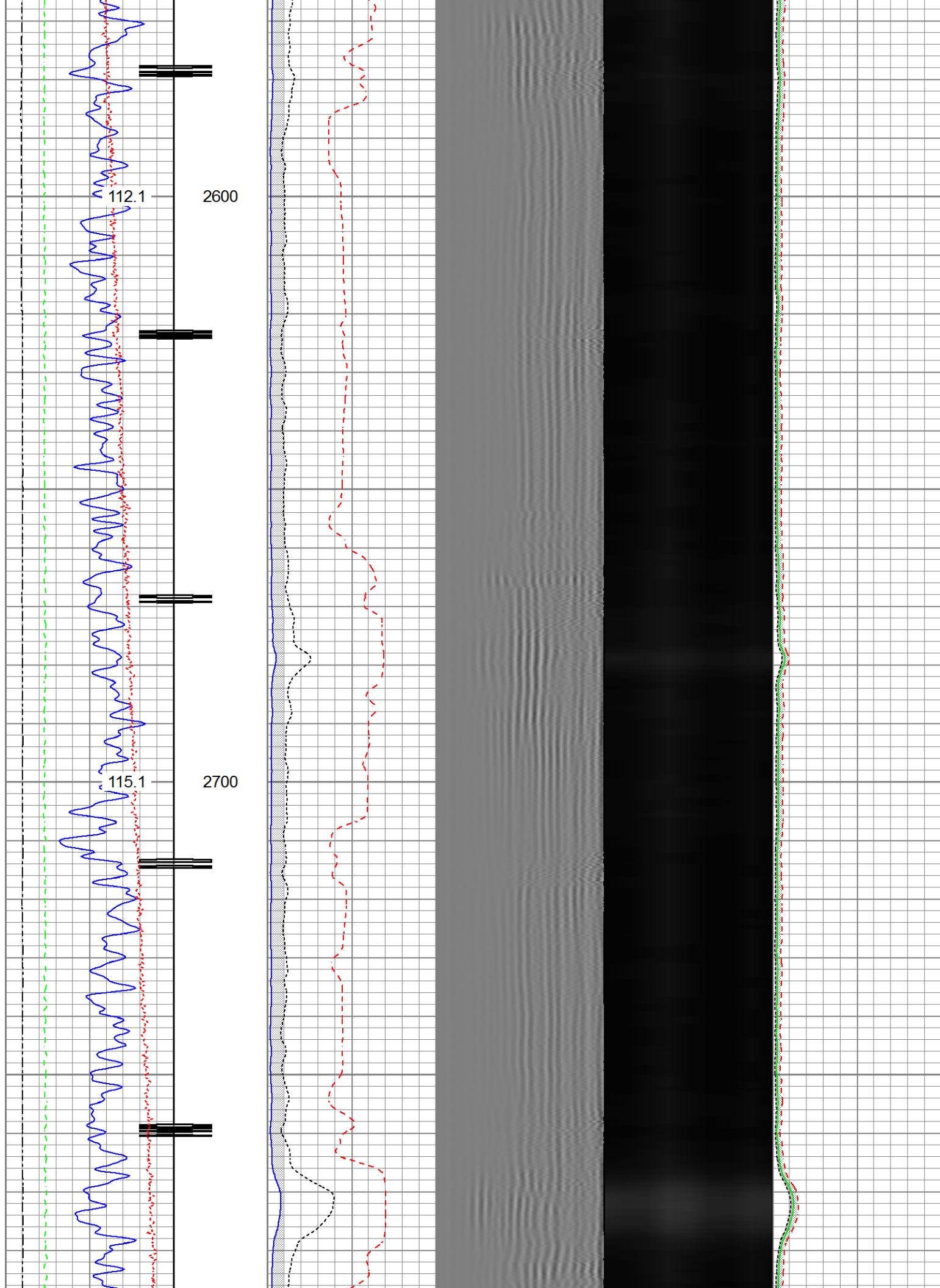




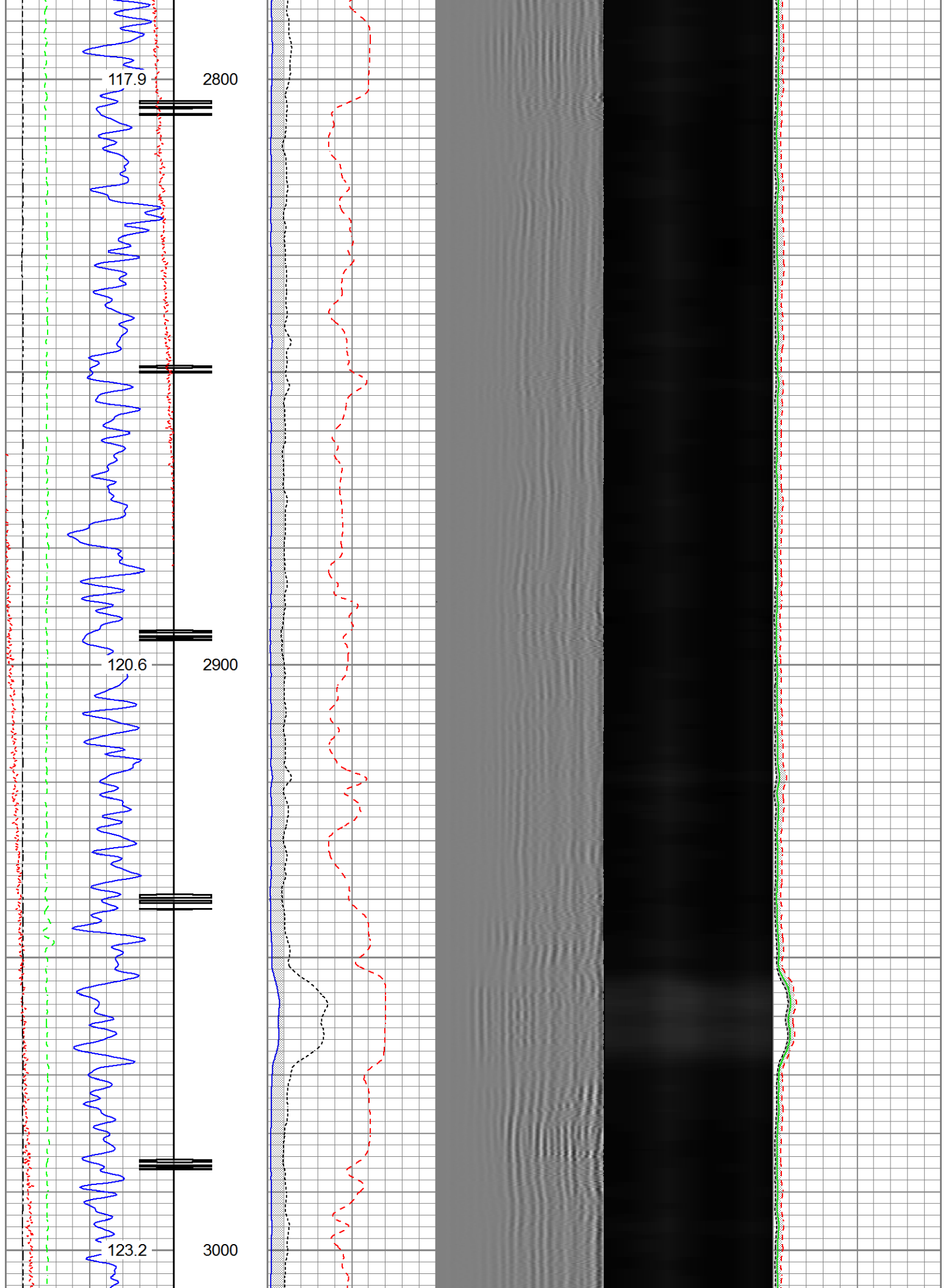


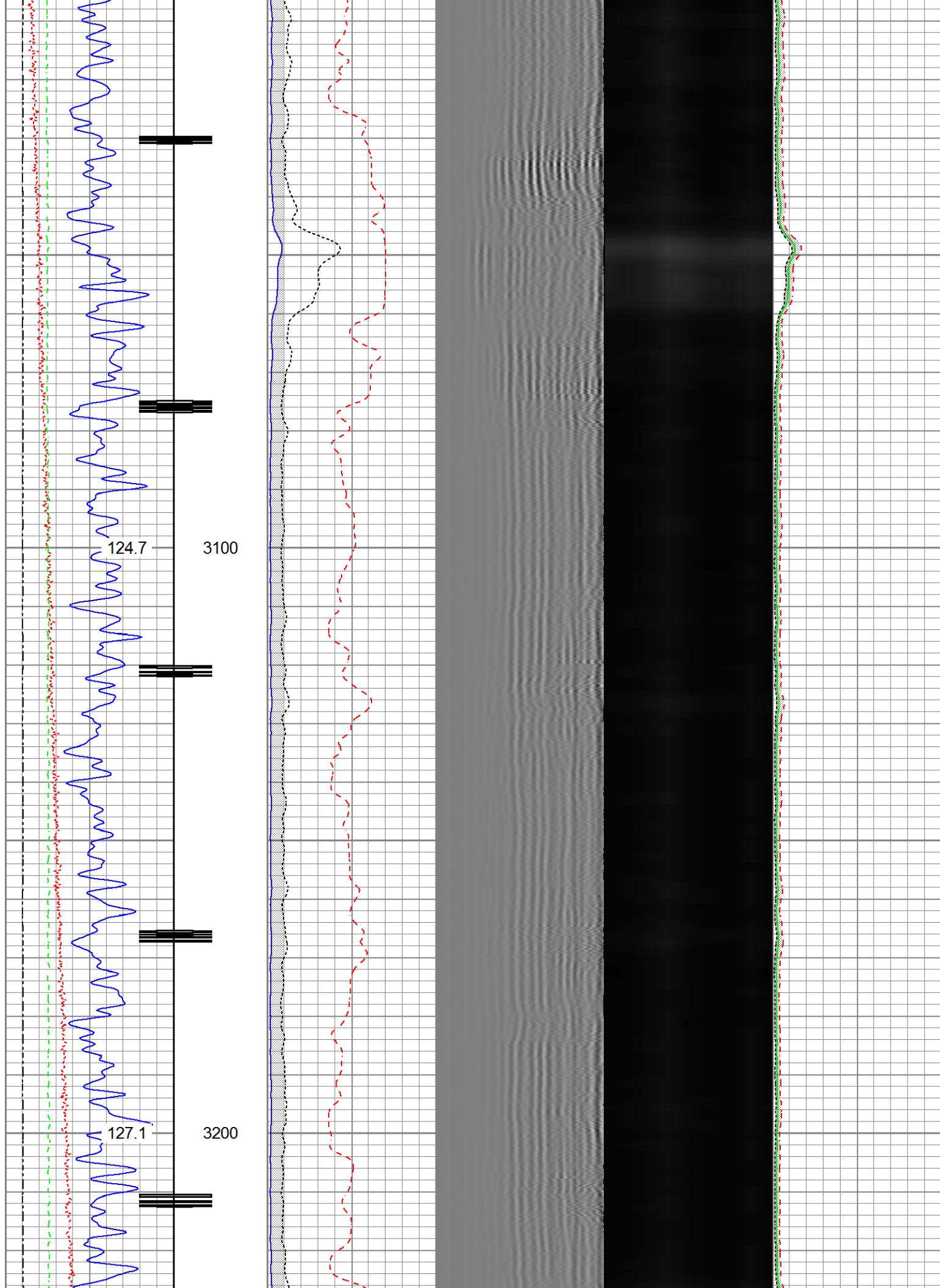




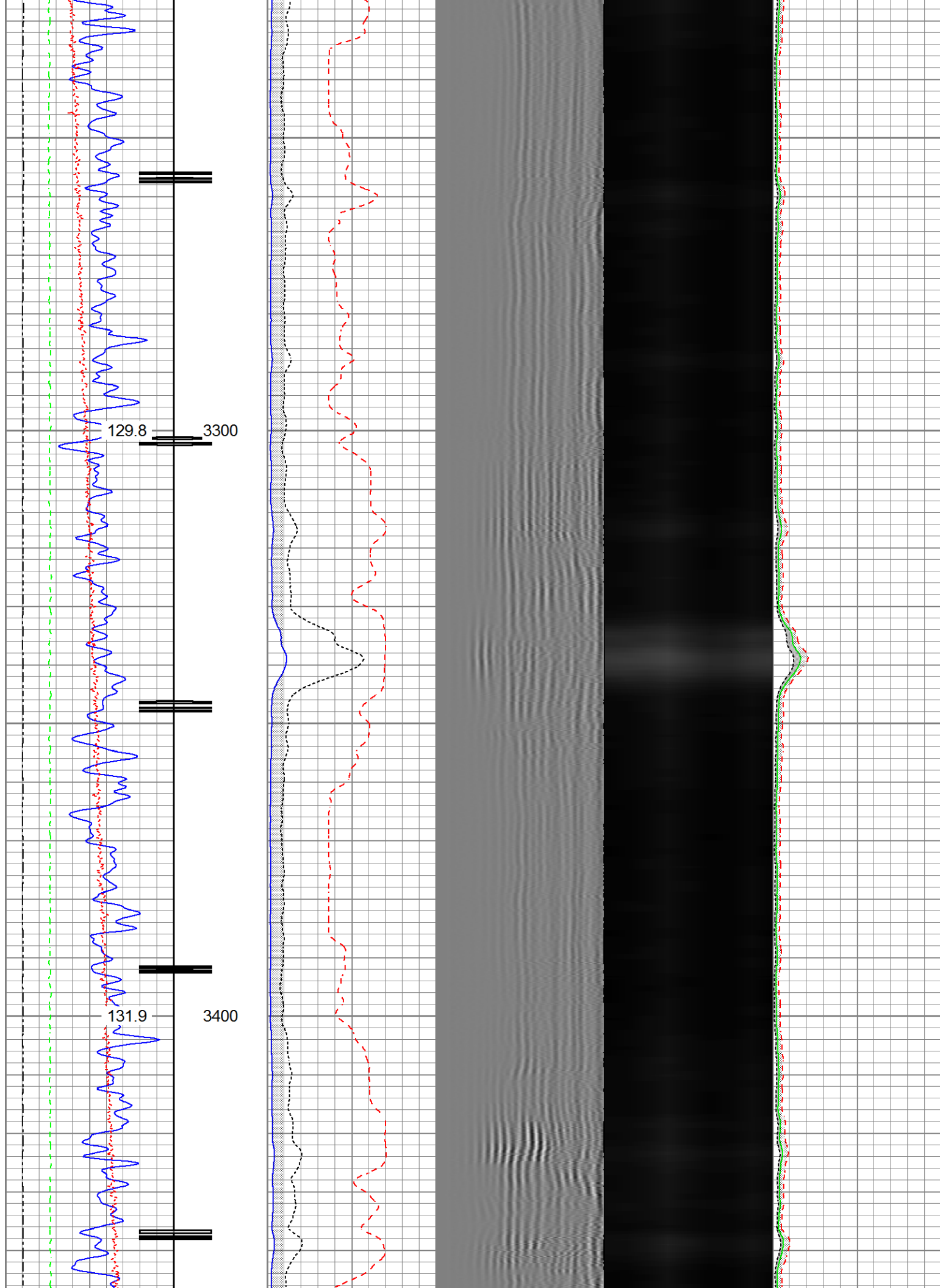


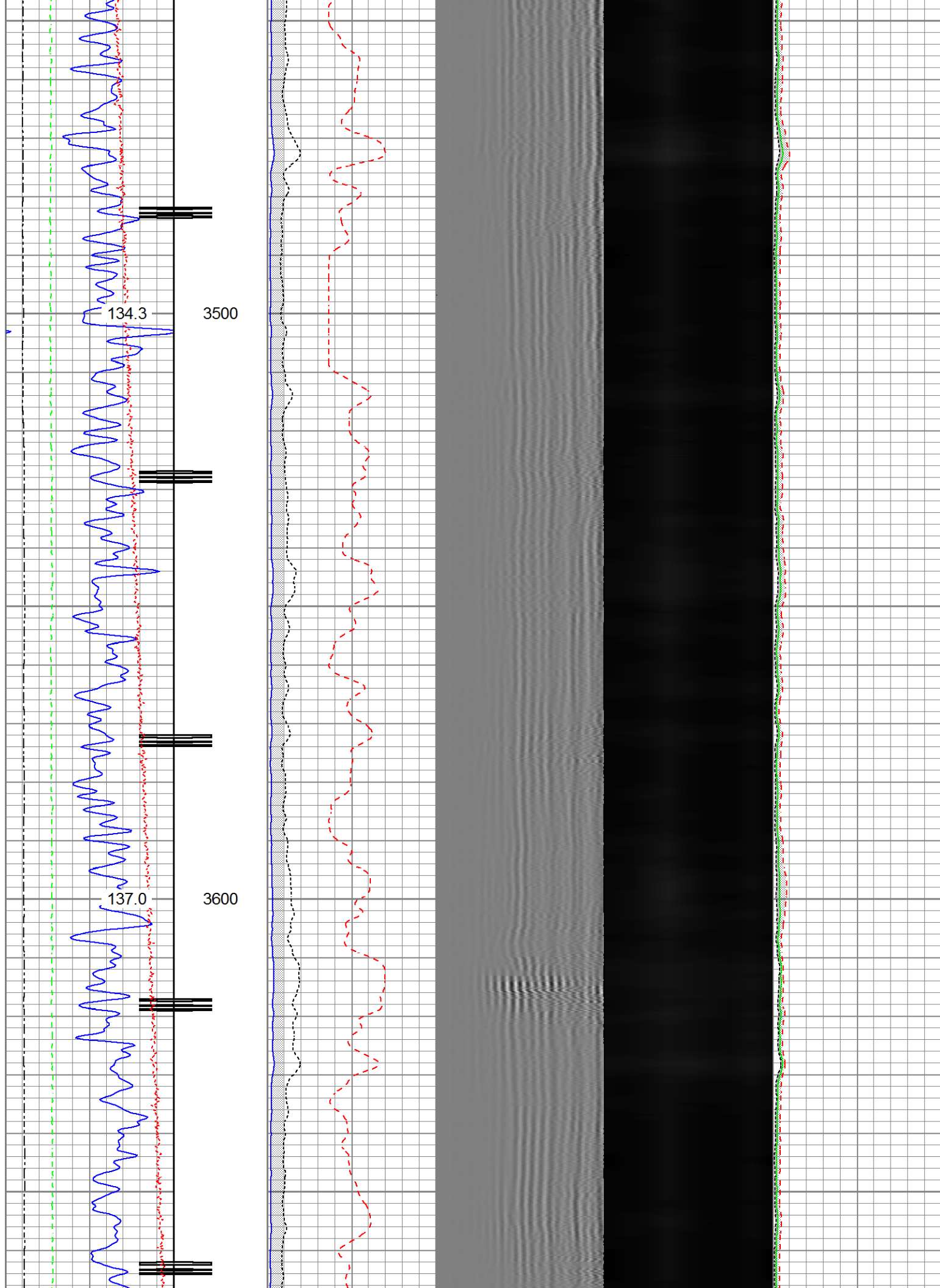




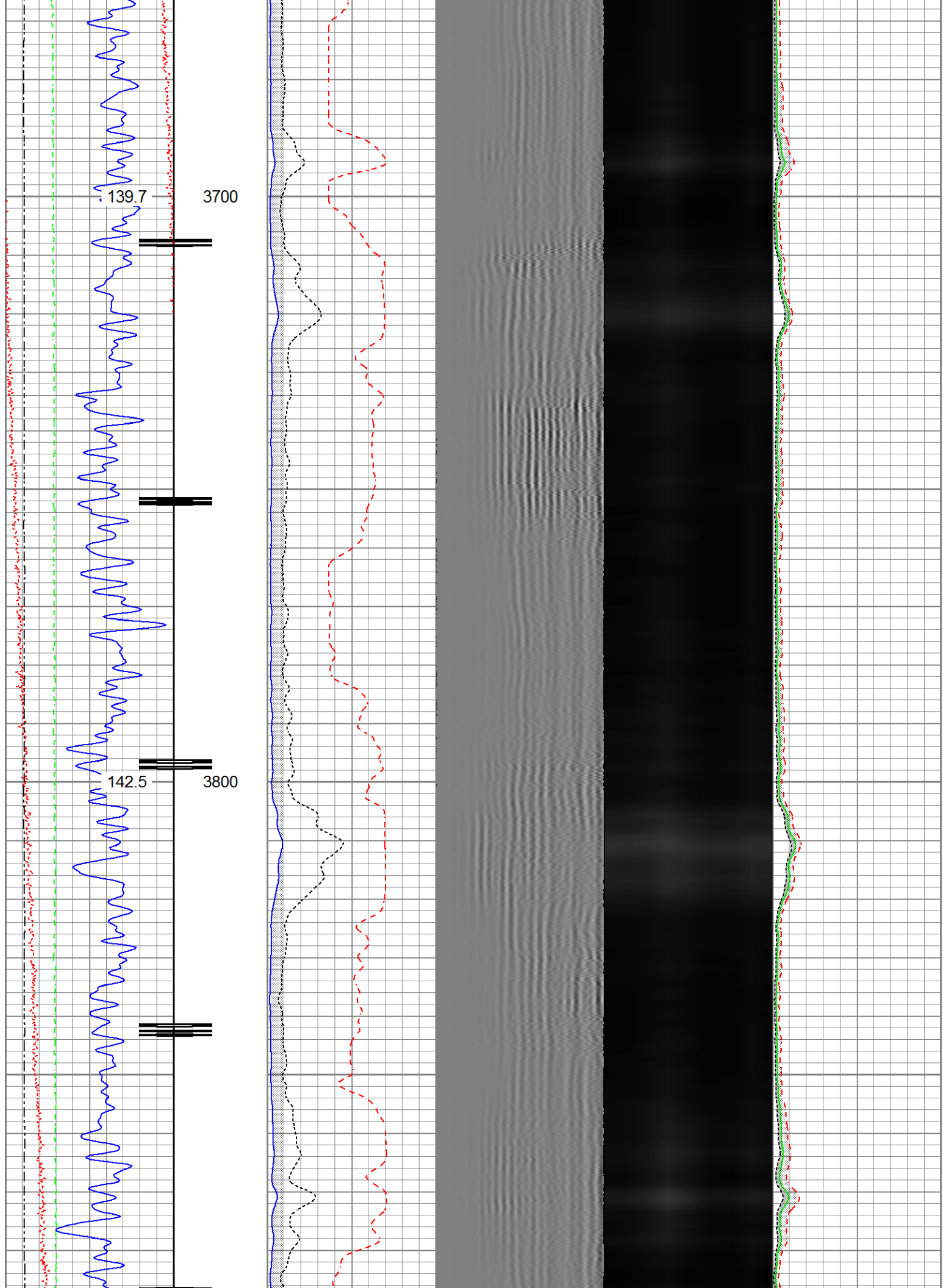


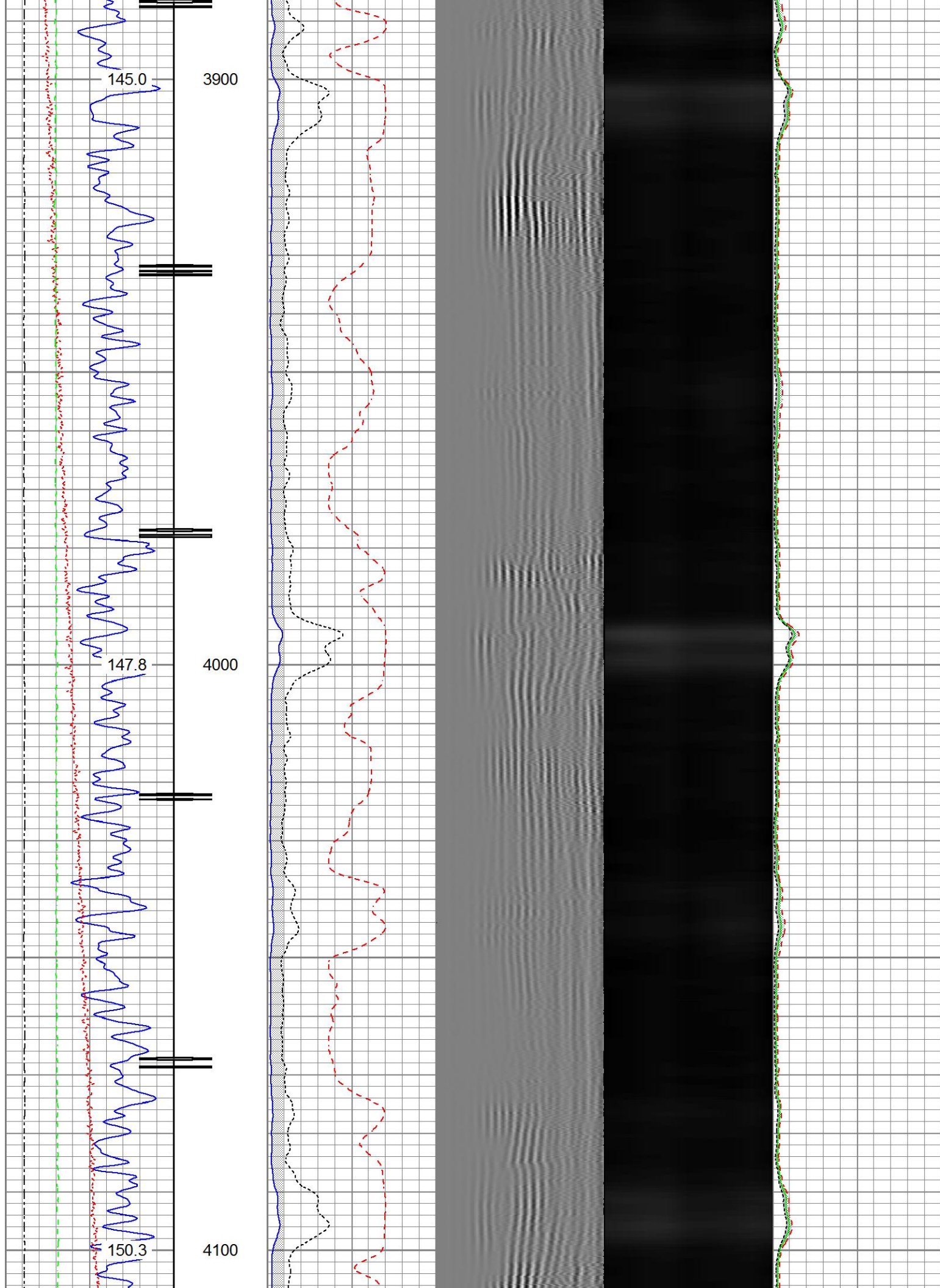




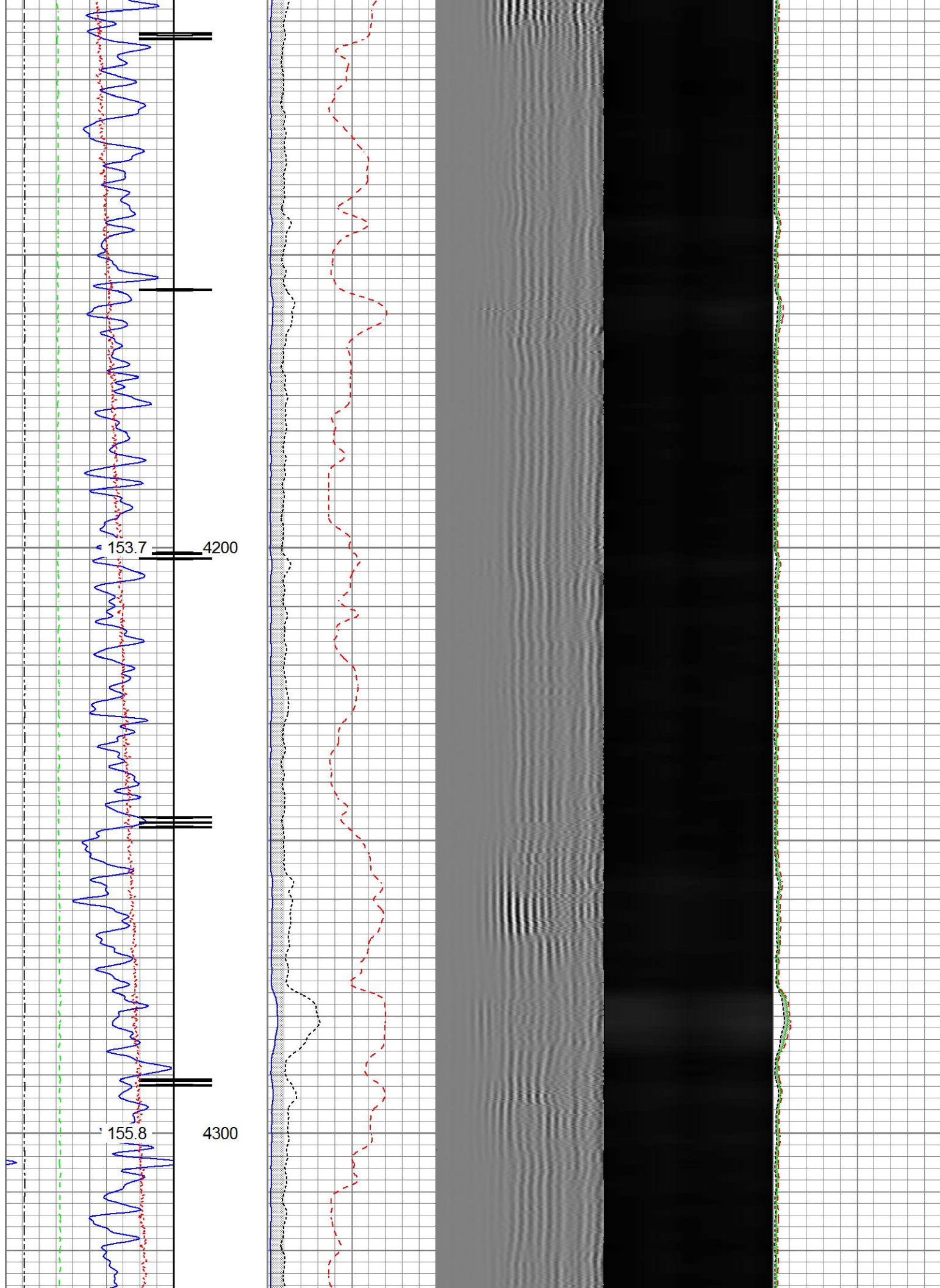


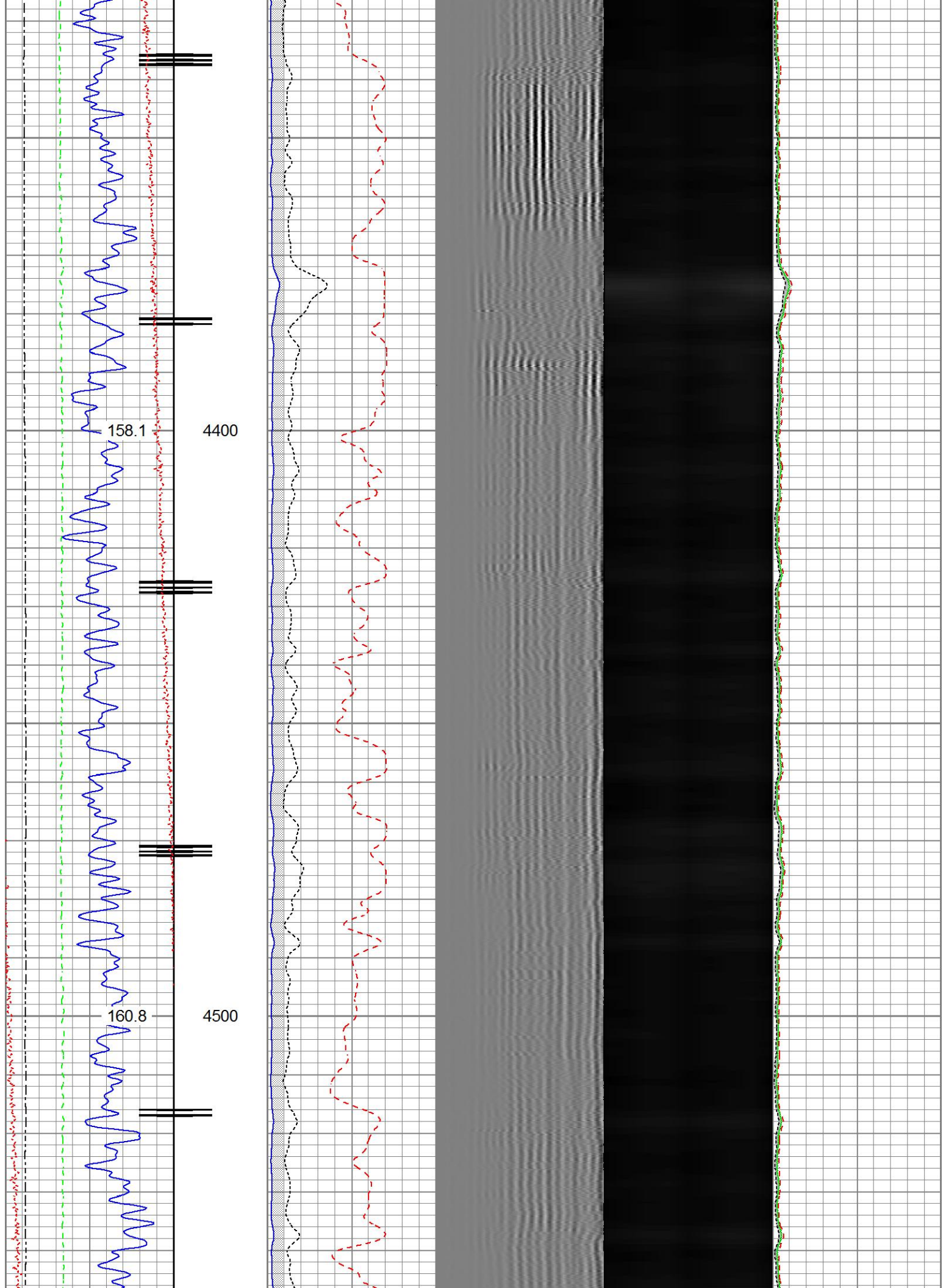




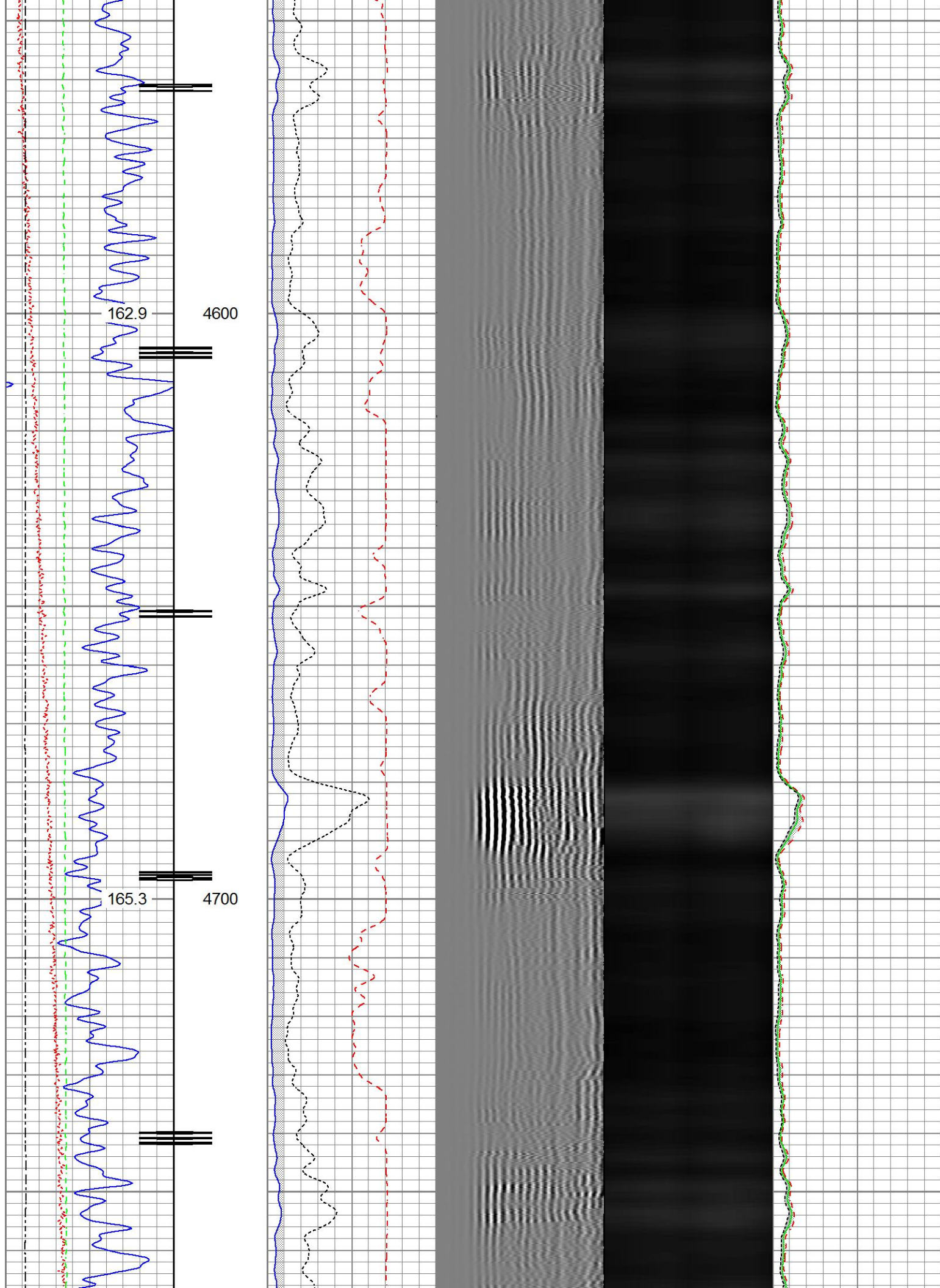


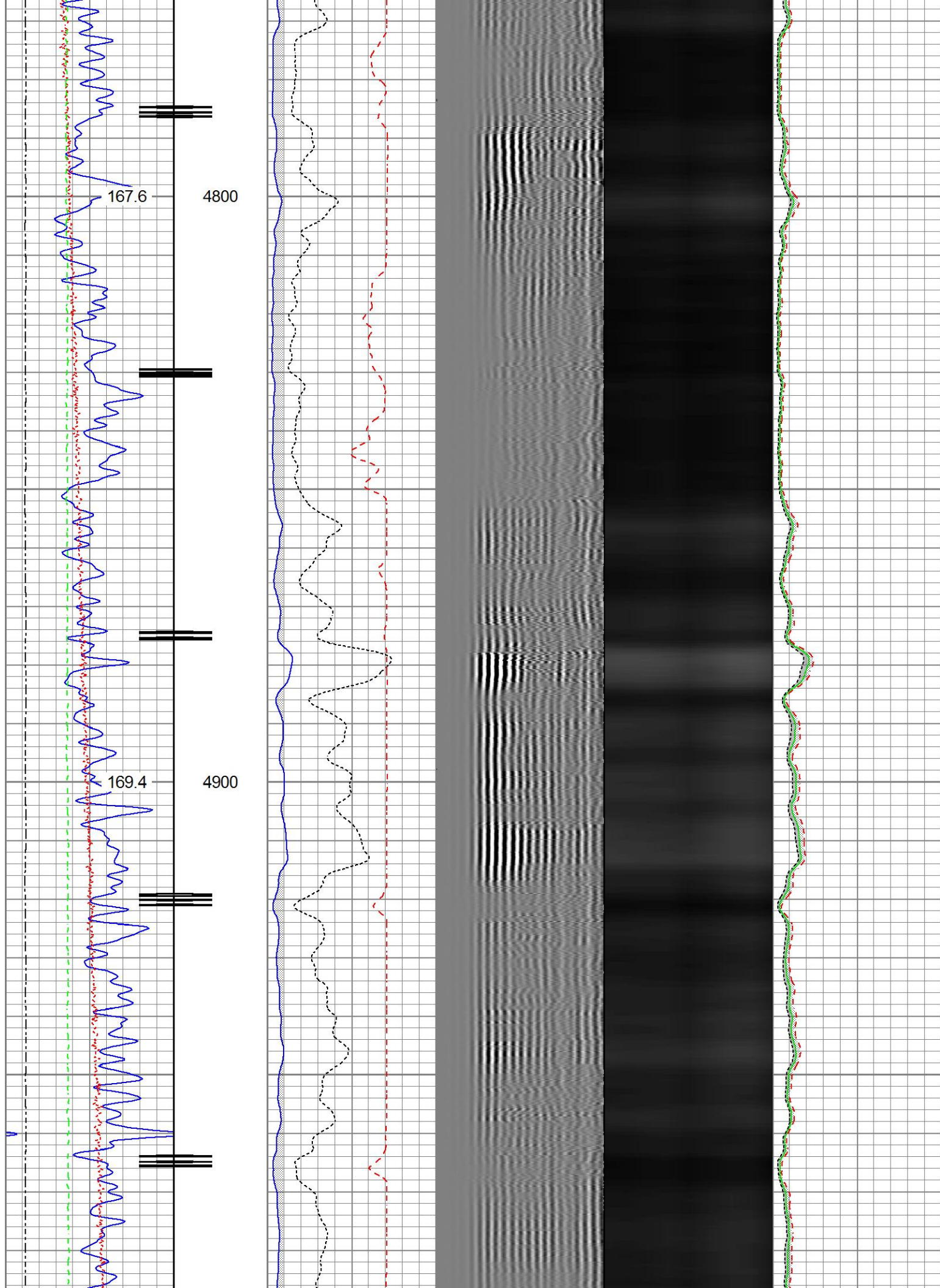




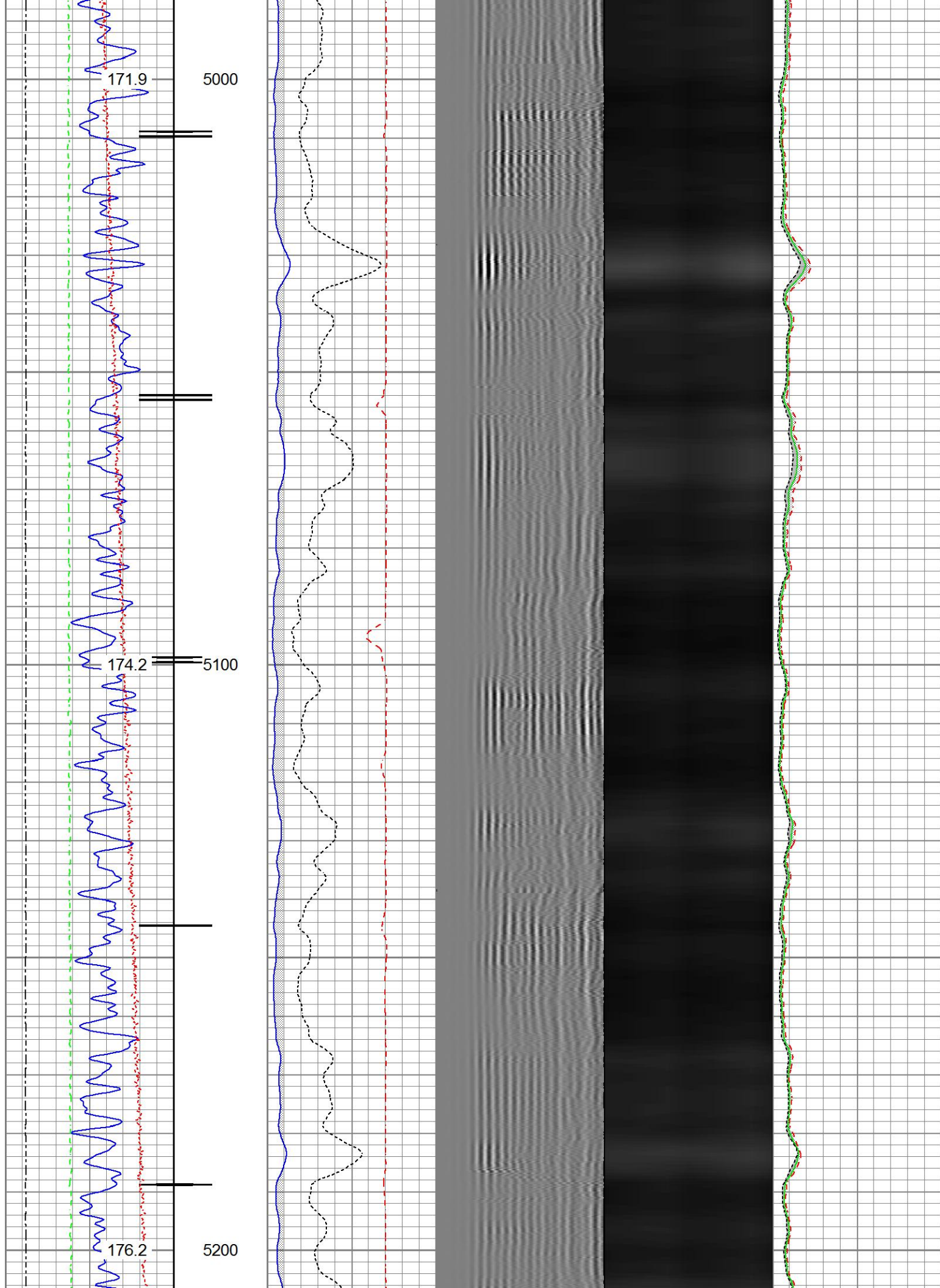


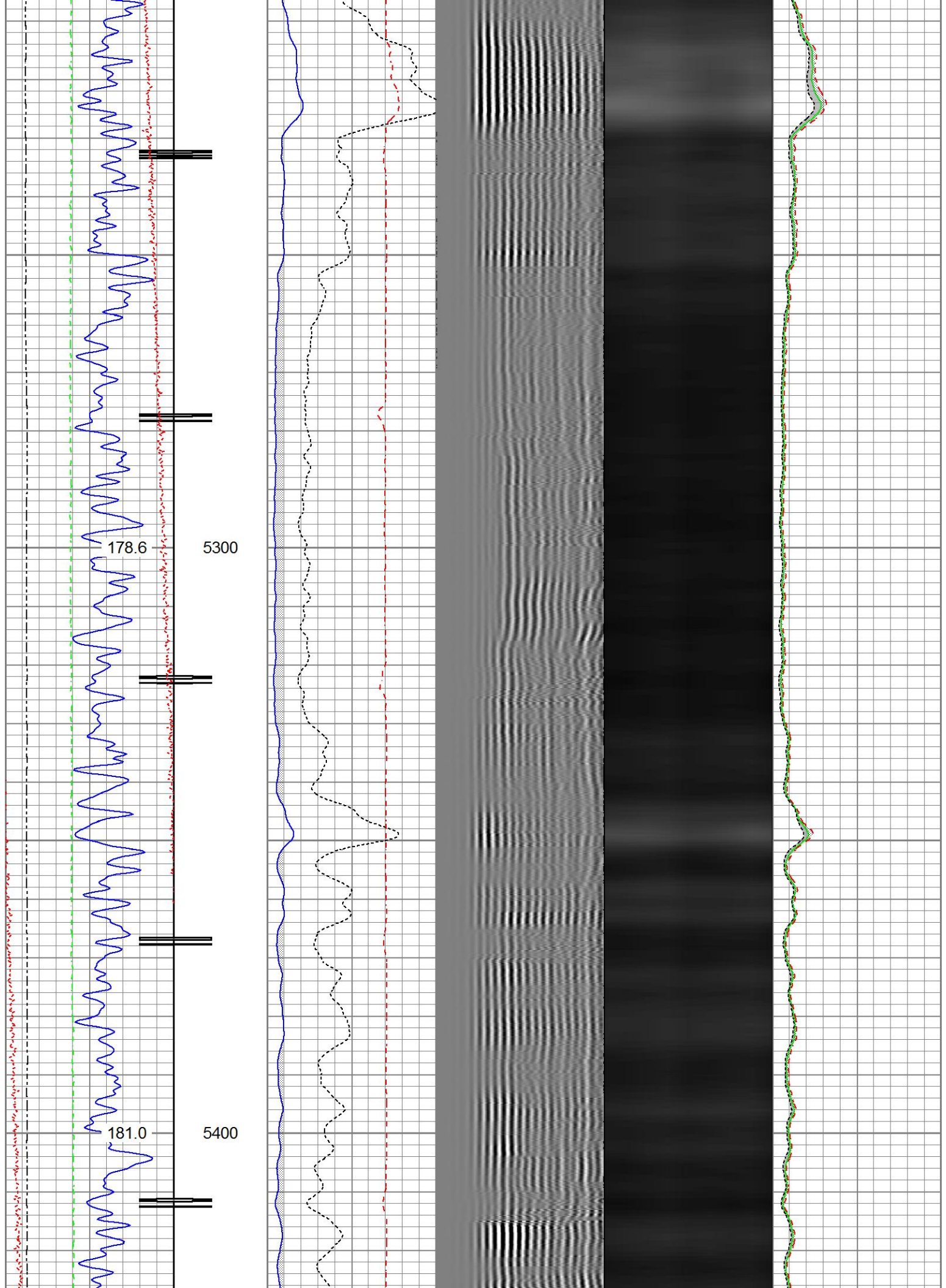




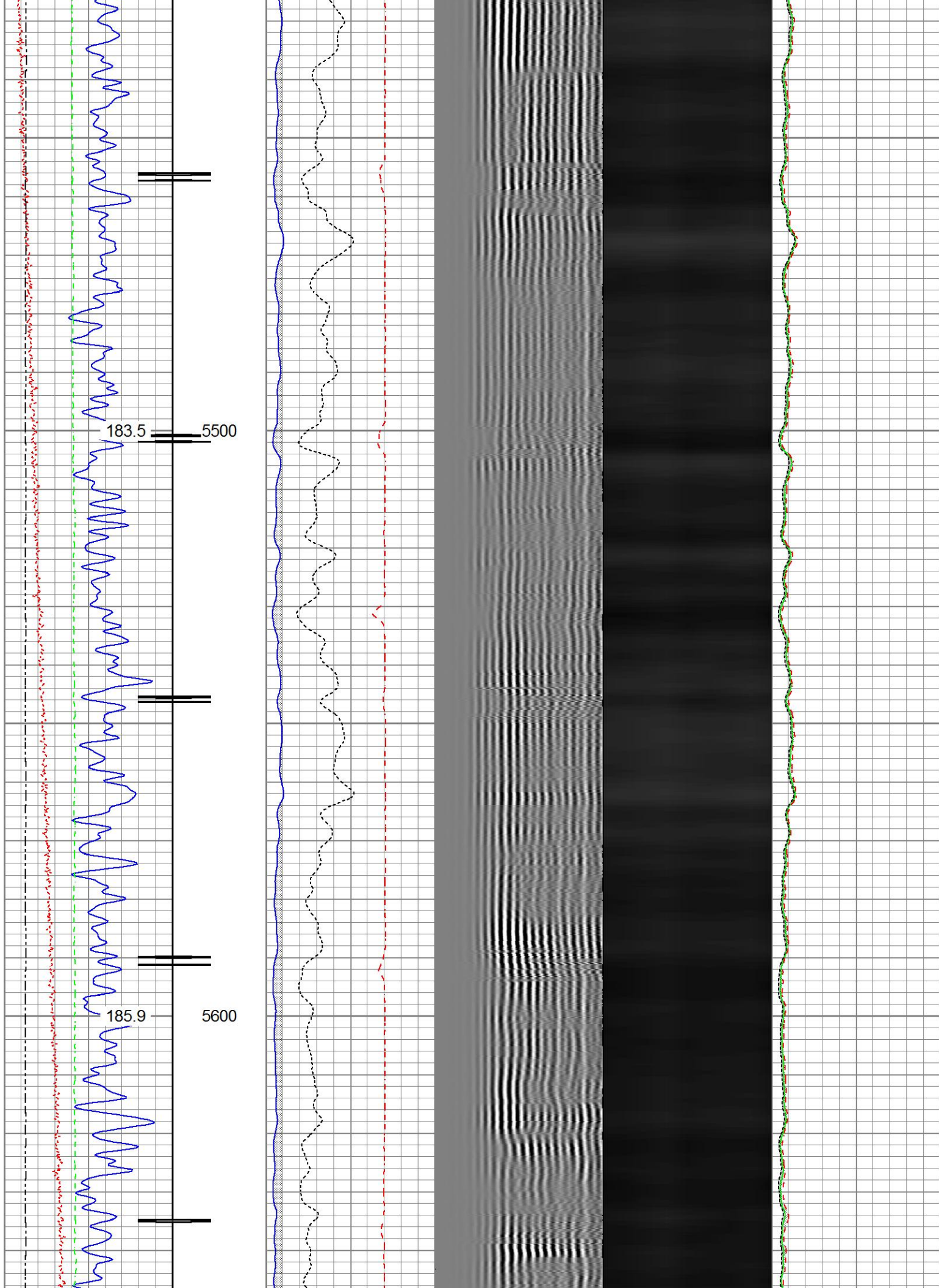




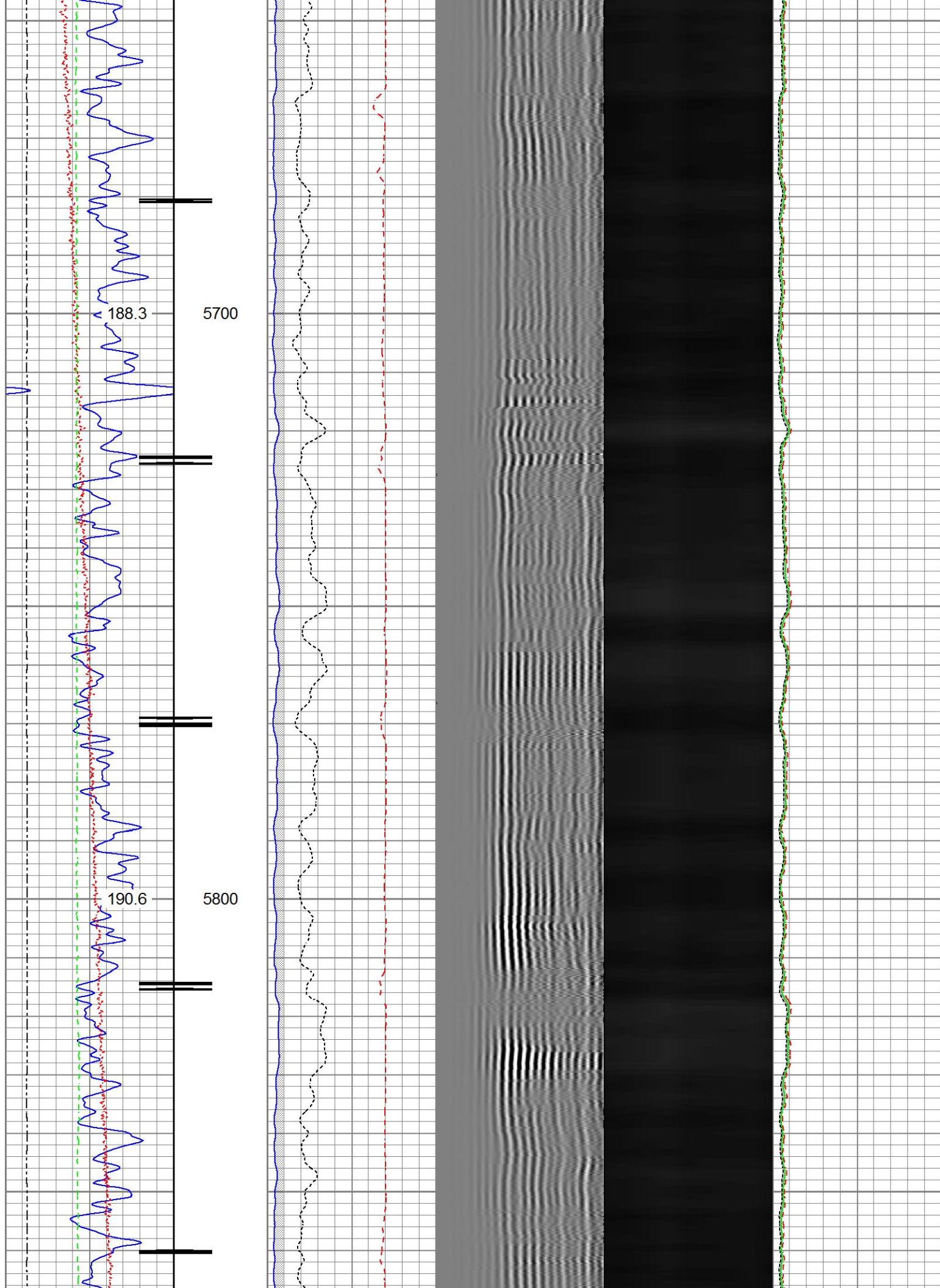


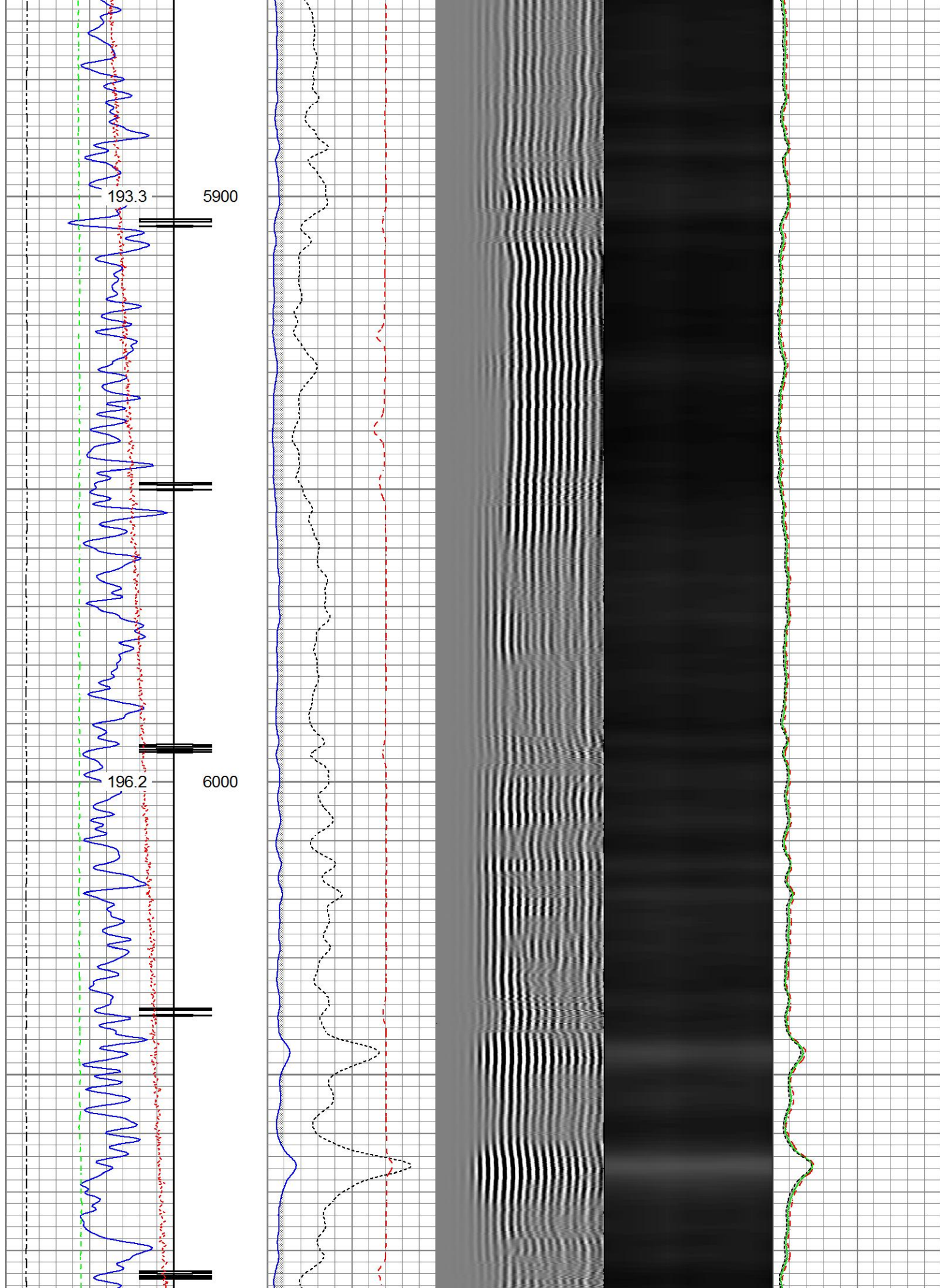




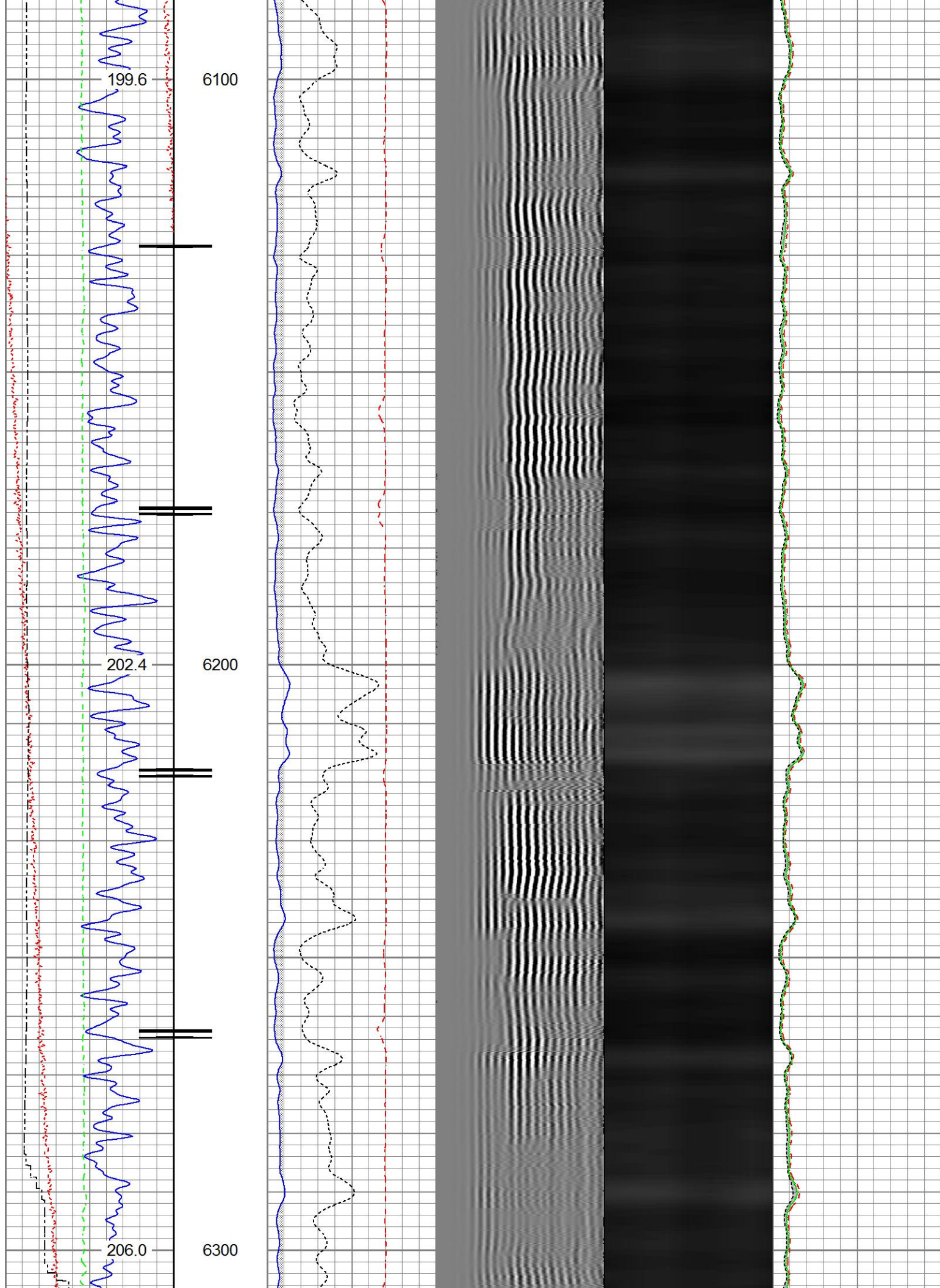




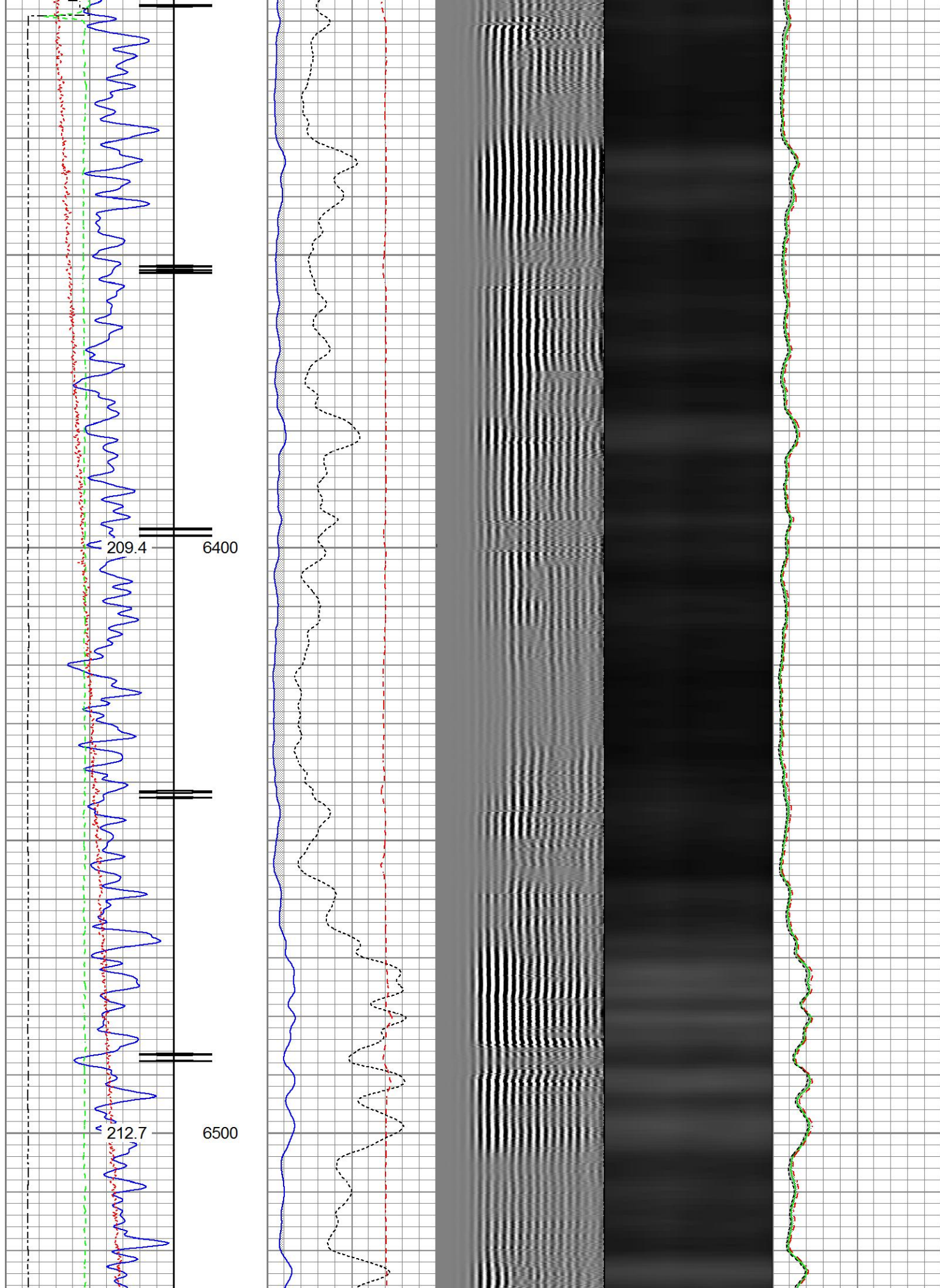


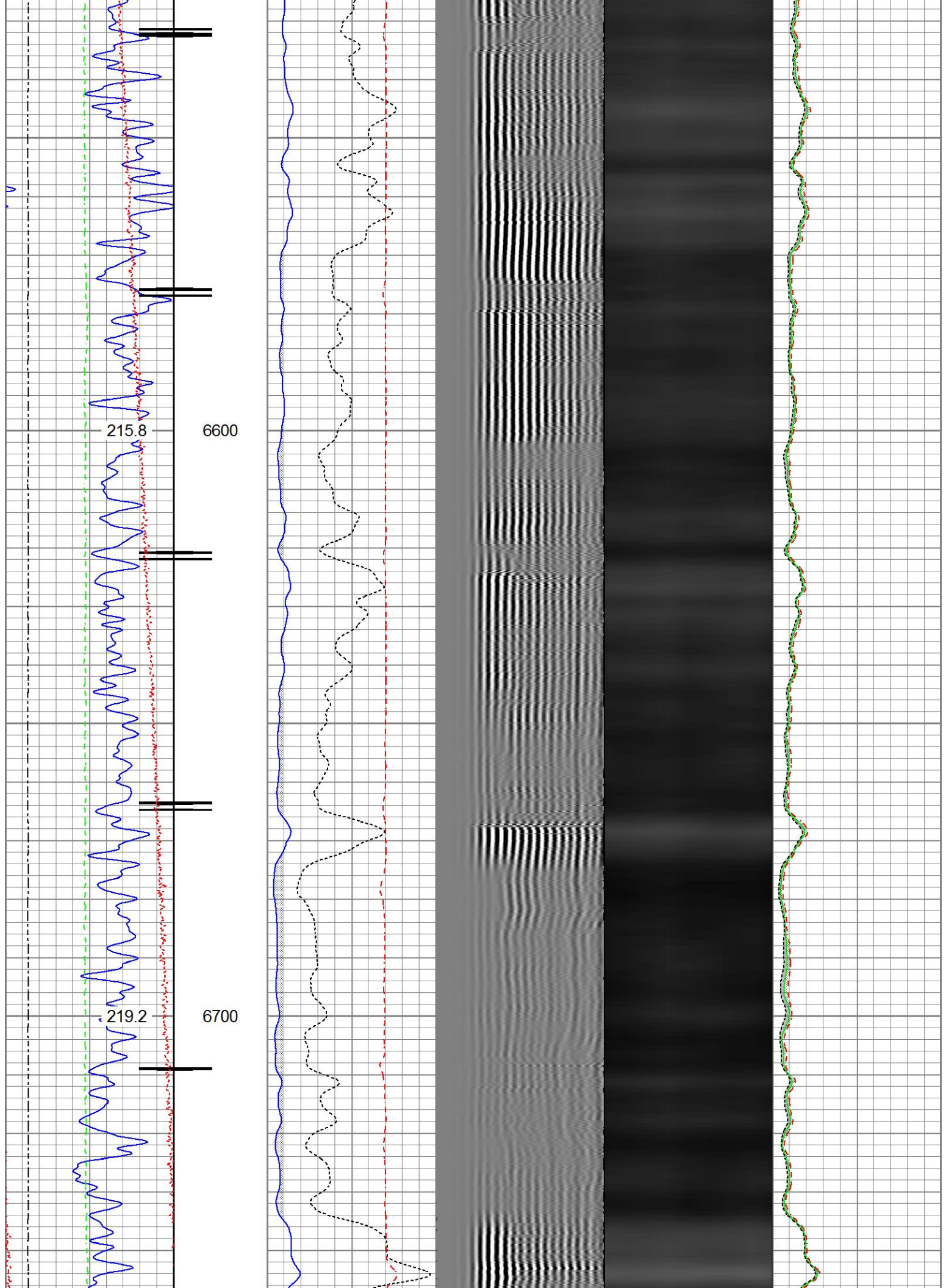




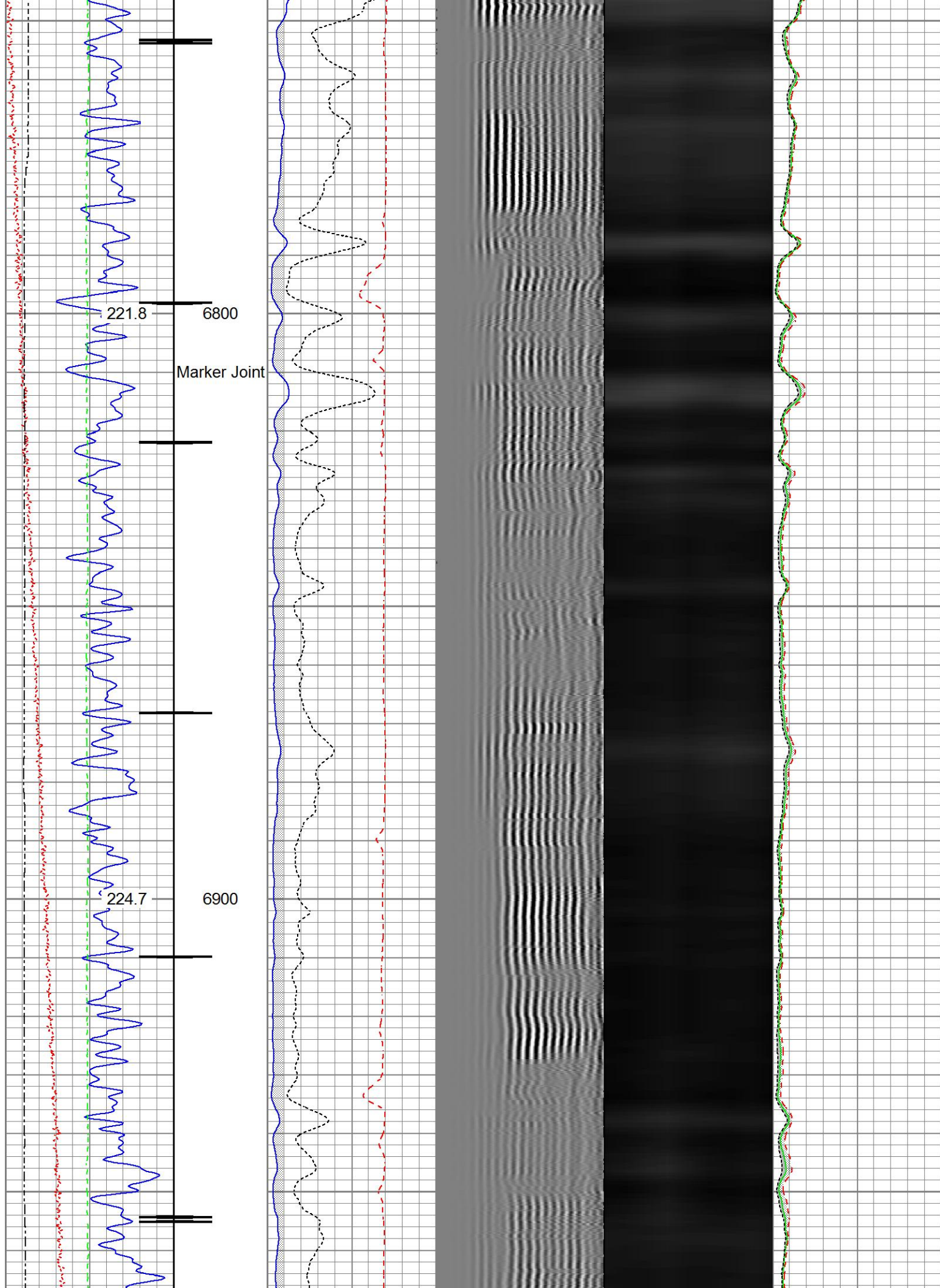


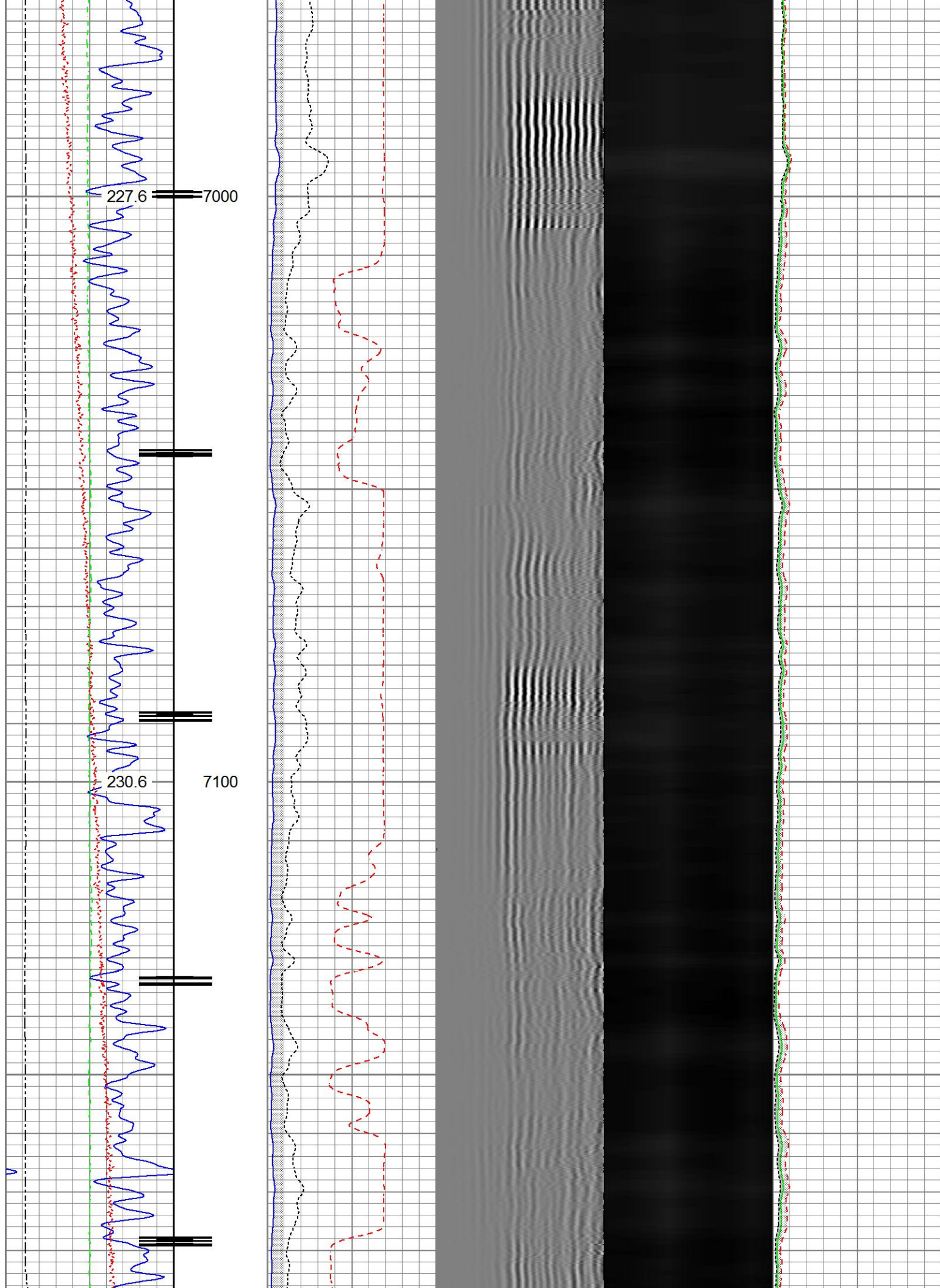




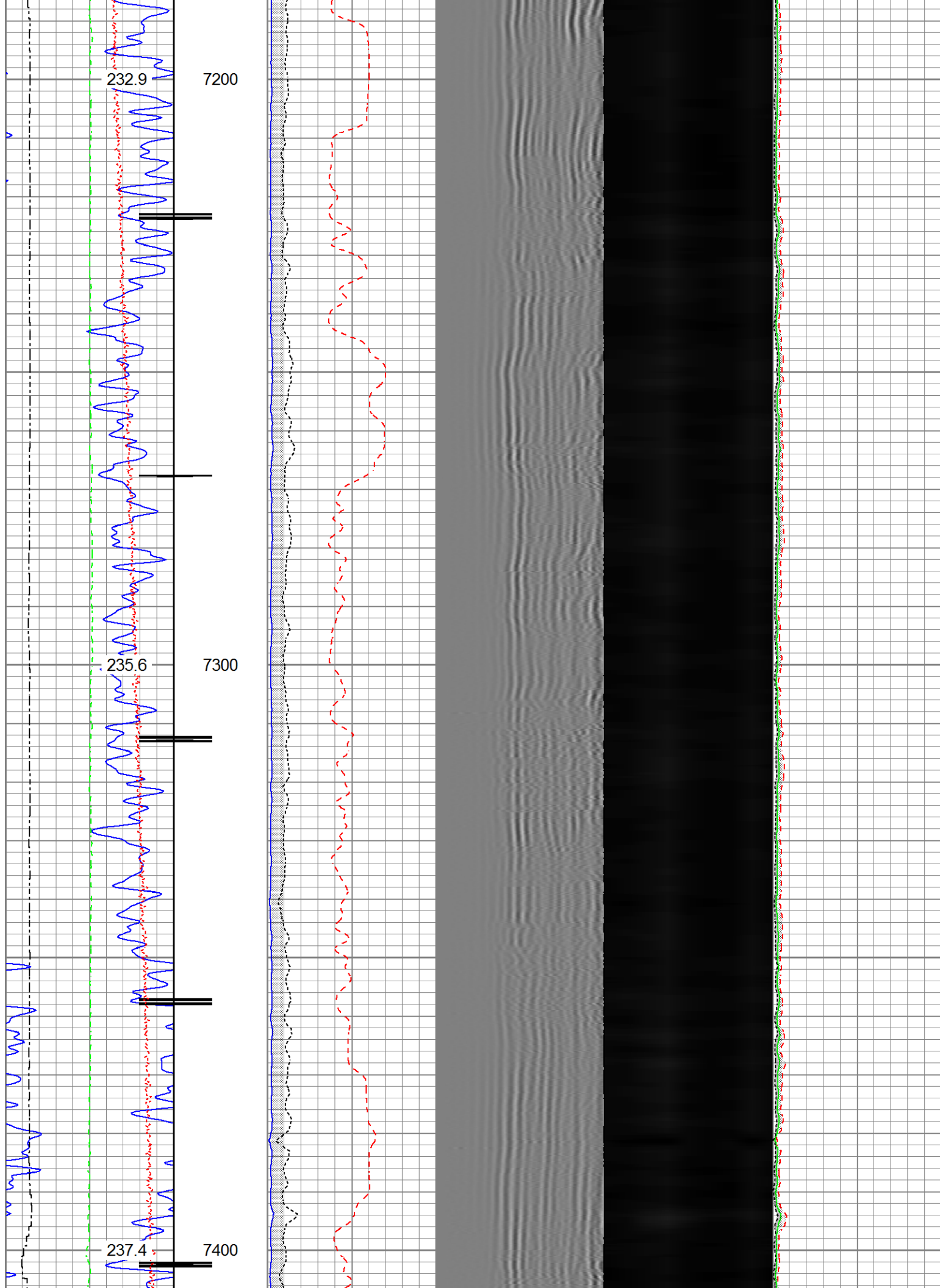


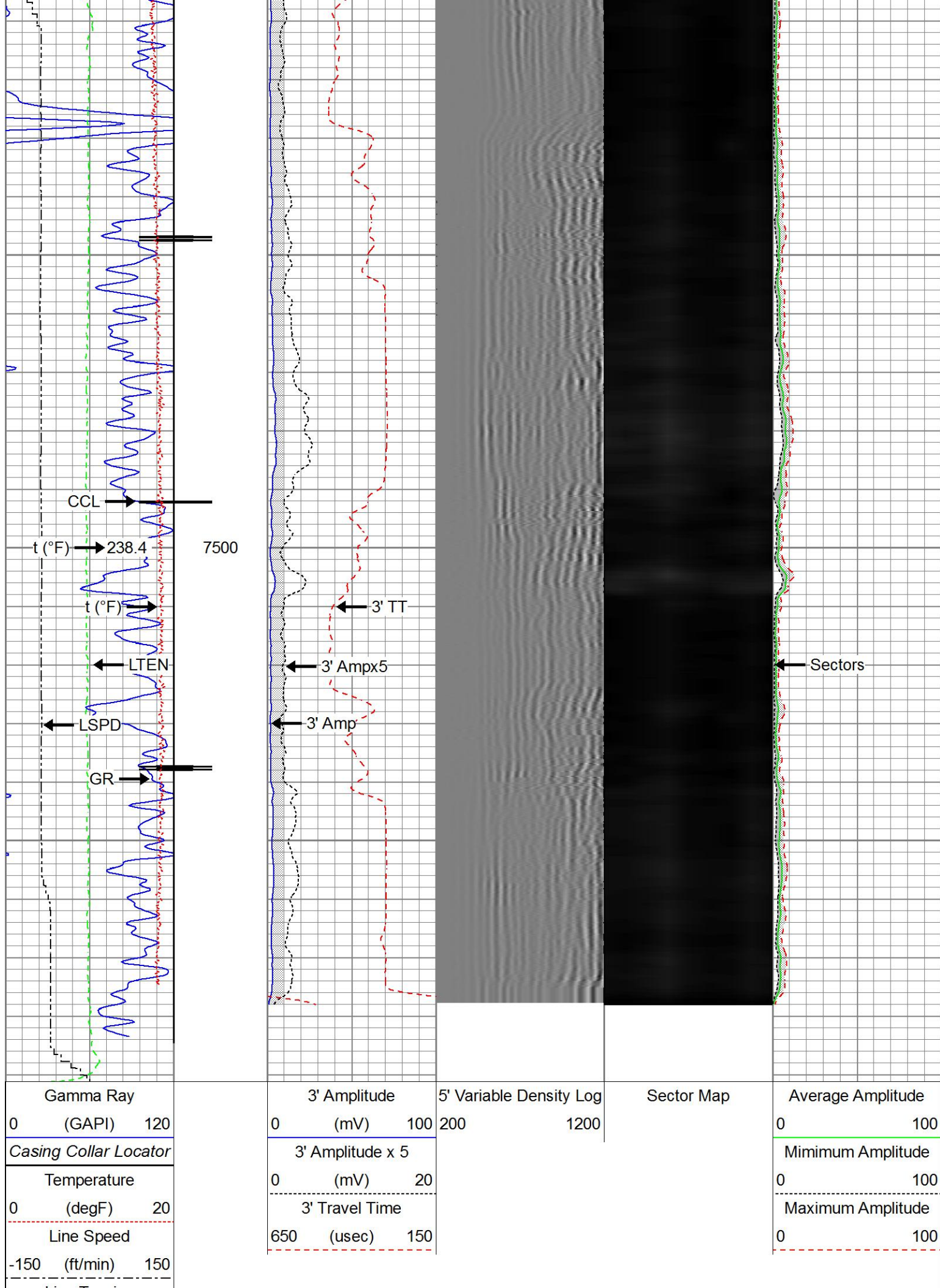














Line Tension

0 (lb) 2000

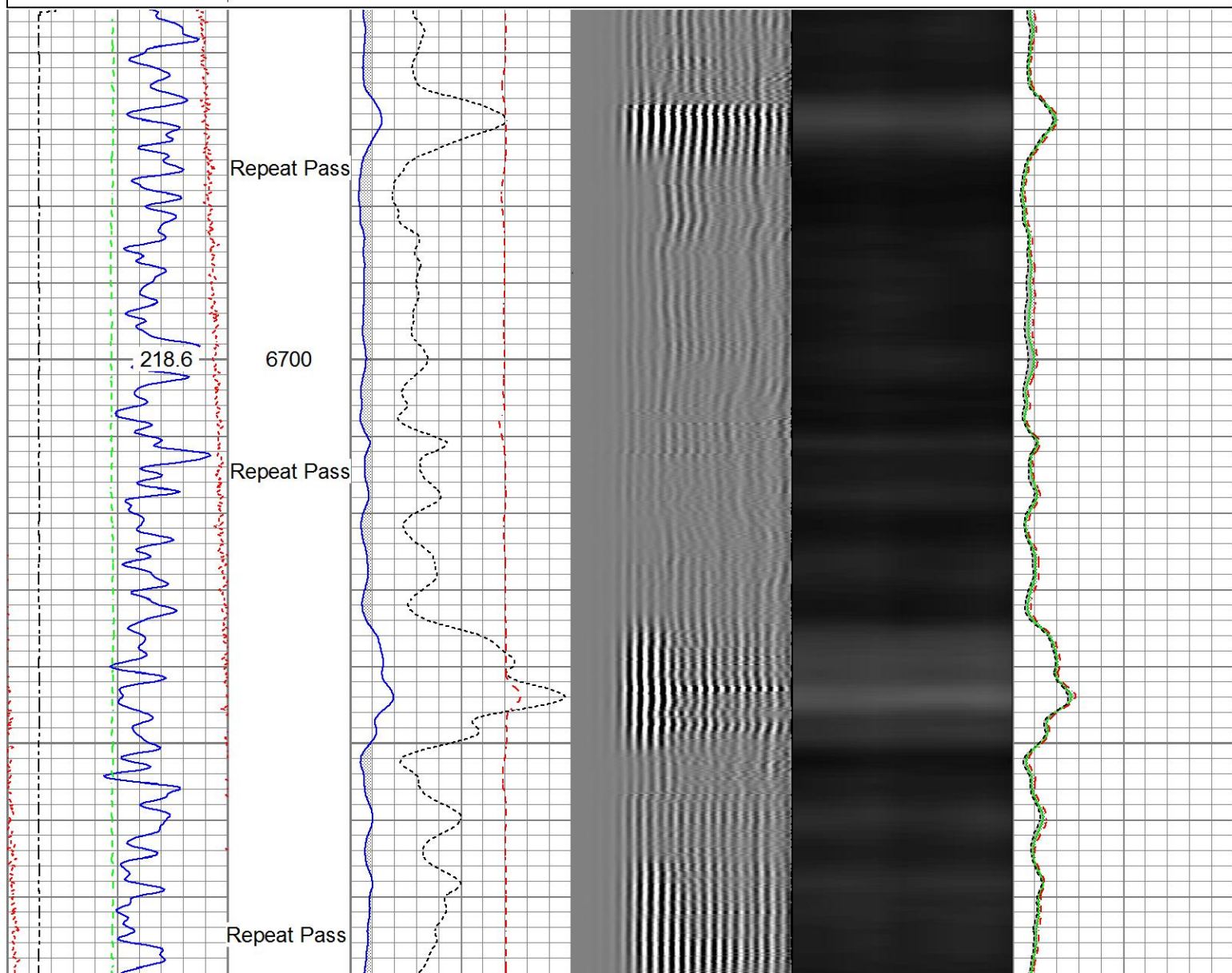


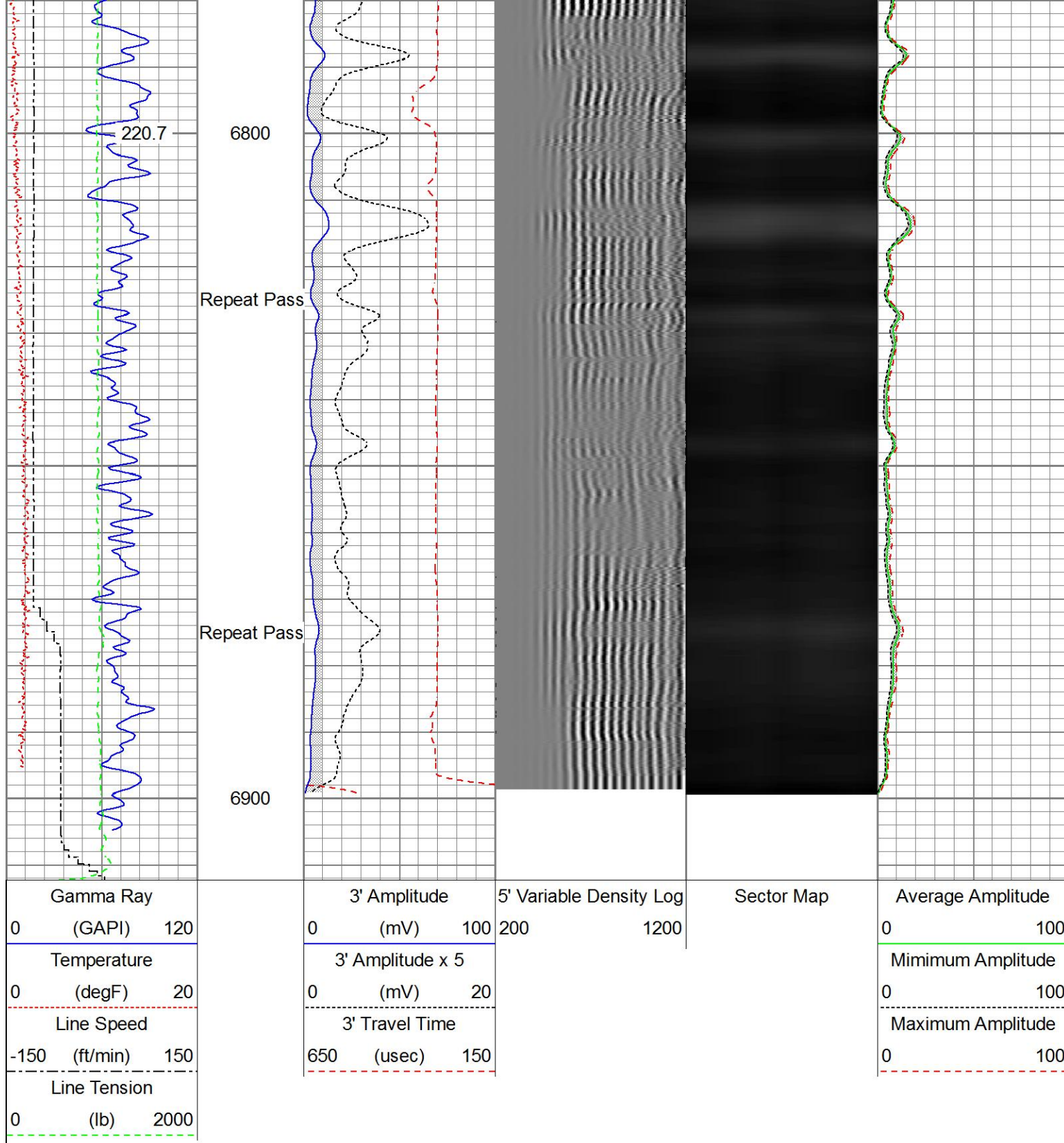
## Repeat Pass

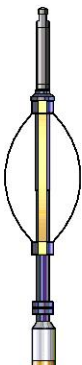
Recorded With 2800 PSI Surface Induced Pressure

Database File anadarko\_fl greens 3n-5hz\processed\_0512342280\_anadarko\_fl greens 3n-5hz\_rbl\_09-15-17.db  
Dataset Pathname repeat-repeat.1  
Presentation Format ros\_radil  
Dataset Creation Sat Sep 16 07:49:15 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)
HeadVolt	19.51		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_EE2.88_275 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	2.75	105.00
WVFS7	14.55		Probe 2-3/4" Sector Cement Bond Tool with		
WVFS6	14.55		Temperature Probe		
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	EE2.88,275	2.75
			Probe 2-3/4" Electric Inline Bowspring Centralizer		20.00
DCCL	6.51				
CCL	6.51				
GR	5.30		Probe_GR_CCL-P_CGR_2750_S (FW1214.543)	2.75	55.00
			Probe 2-3/4" Digital CCL / Gamma Ray		
			Combined		
			Probe_ELine_BowSpring_Centralizer-P	EE2.88,275	2.75
			Probe 2-3/4" Electric Inline Bowspring Centralizer		20.00
Dataset: PROCESSED_0512342280_Anadarko_FL Greens 3N-5HZ_RBL_09-15-17.db: field/well/run1/main Total length: 23.40 ft Total weight: 225.40 lb O.D.: 2.75 in					

Calibration Report	
Database File	C:\ProgramData\Warrior\Data\Anadarko_FL Greens 3N-5HZ\PROCESSED_0512342280_Anadarko_FL Gr
Dataset Pathname	main.1
Dataset Creation	Fri Sep 15 16:04:34 2017
Gamma Ray Calibration Report	
Serial Number:	FW1212-026
Tool Model:	P_CGR_2750_S
Performed:	Sat Feb 06 11:32:54 2016

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: 2.583 ft

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

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.565	0.800	71.921	126.065	0.740
CAL	0.001	0.712				
5'	0.000	0.535	0.800	71.921	132.938	0.764
SUM						
S1	0.000	0.557	0.000	100.000	179.464	-0.000
S2	0.000	0.530	0.000	100.000	188.711	-0.089
S3	-0.004	0.517	0.000	100.000	192.107	0.761
S4	-0.007	0.532	0.000	100.000	185.451	1.321
S5	0.000	0.604	0.000	100.000	165.659	-0.066
S6	0.000	0.695	0.000	100.000	144.014	-0.054
S7	-0.002	0.710	0.000	100.000	140.608	0.217
S8	-0.009	0.643	0.000	100.000	153.291	1.417

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

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.001	0.712	1.000	0.000

#### Air Zero Calibration, performed Fri Sep 15 13:57:37 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



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Well FL Greens 3N-5HZ  
Field Wattenburg





**OILFIELD SERVICES**

Field

Wattenberg

County

Weld

State

Colorado