



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.					
Well		Whisper Rock 2C-25HZ					
Field		Wattenberg					
County		Weld					
State		Colorado					
Location:		API # : 05-123-41296					
SEC 26 TWP 4N RGE 68W		Other Services Gauge Ring CNL					
Permanent Datum		Ground Level		Elevation		4992'	
Log Measured From		Kelly Bushing		20 FT			
Drilling Measured From		Kelly Bushing					
Date		14-FEB-2017					
Run Number		Two					
Depth Driller		13611 FT					
Depth Logger		7401 FT					
Bottom Logged Interval		7400 FT					
Top Log Interval		Surface					
Open Hole Size		7.875"					
Type Fluid		Water					
Density / Viscosity		8.34 lb/gal					
Max. Recorded Temp.		228°F					
Estimated Cement Top		Surface					
Time Well Ready		ROA					
Time Logger on Bottom		11:57					
Equipment Number		HD-0311					
Location		Fort Lupton, CO					
Recorded By		Jason Morrison		Sam Hopper			
Witnessed By		Brian Jolly					
Run Number		Bit		From		To	
Size (in)		Wgt (lb/ft)		Grade		Top	
9 5/8		36		J55 BTC		Surface	
5 1/2		17		HCP-110		Surface	
Intermediate #2						13592 FT	
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 6661 FT  
Adjusted -5.8 FT to correlate with Marker Joint  
Gauge Ring/Junk Basket ran to 7526 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!!

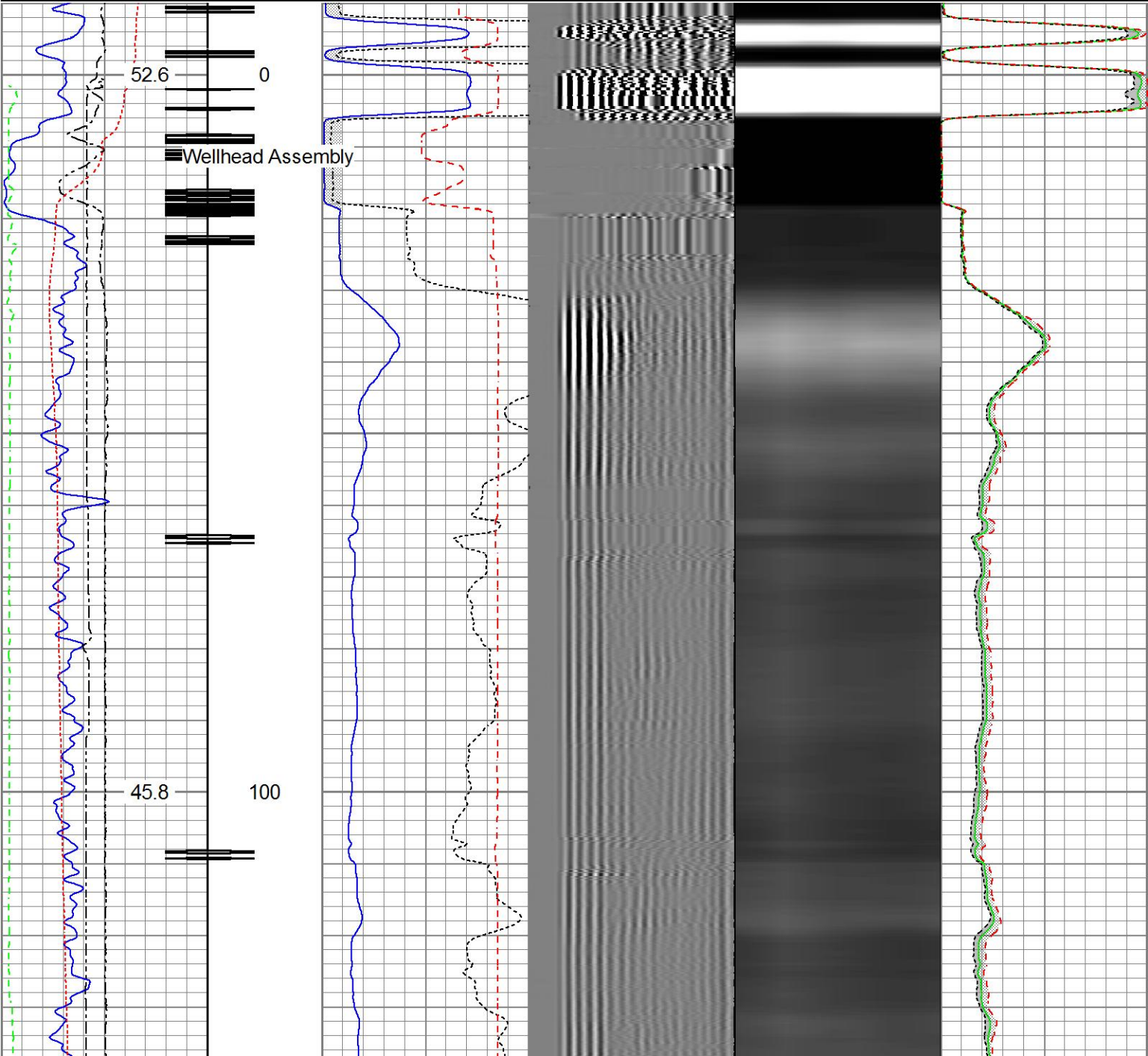


Main Pass

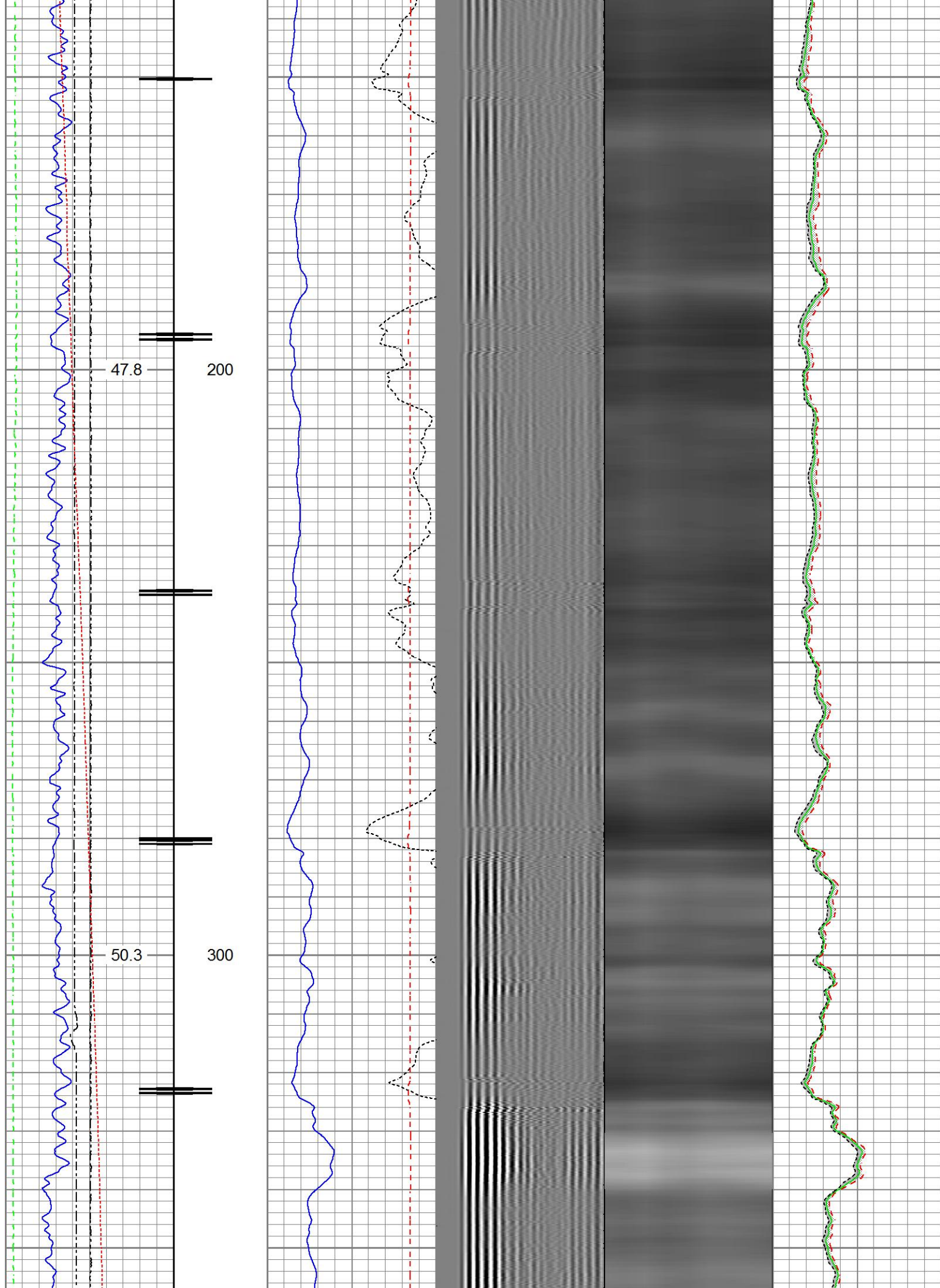
Recorded With 2800 PSI Surface Induced Pressure

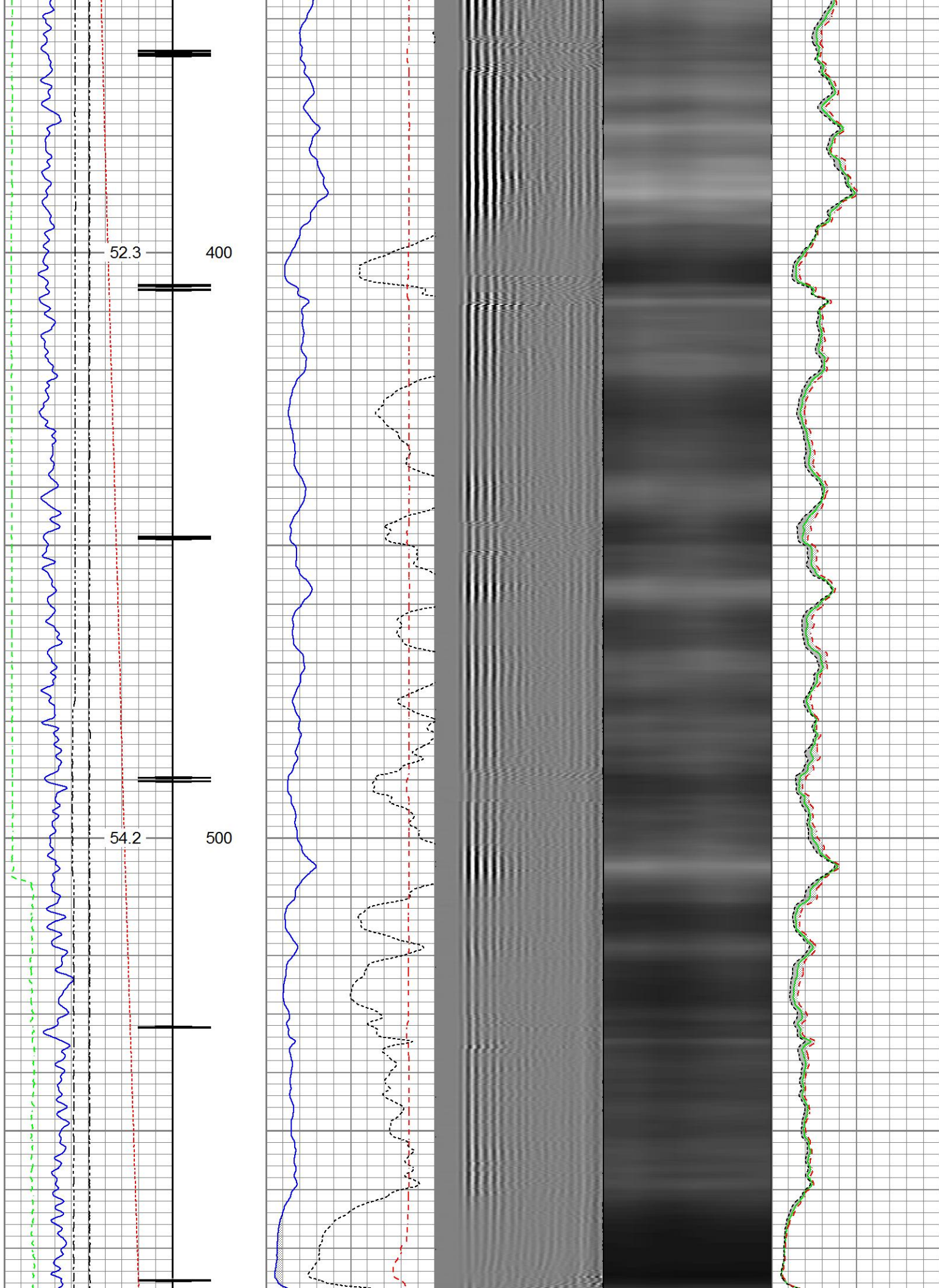
Database File	anadarko_whisper rock 2c-25hz\0512341296_anadarko_whisper_rock_2c-25hz_02-14-17_rbl.db
Dataset Pathname	Main2.2
Presentation Format	ros_rbt004_sx
Dataset Creation	Tue Feb 14 17:47:29 2017
Charted by	Depth in Feet scaled 1:240

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
Line Speed	0 (mV) 20			0 100
-150 (ft/min) 150	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				

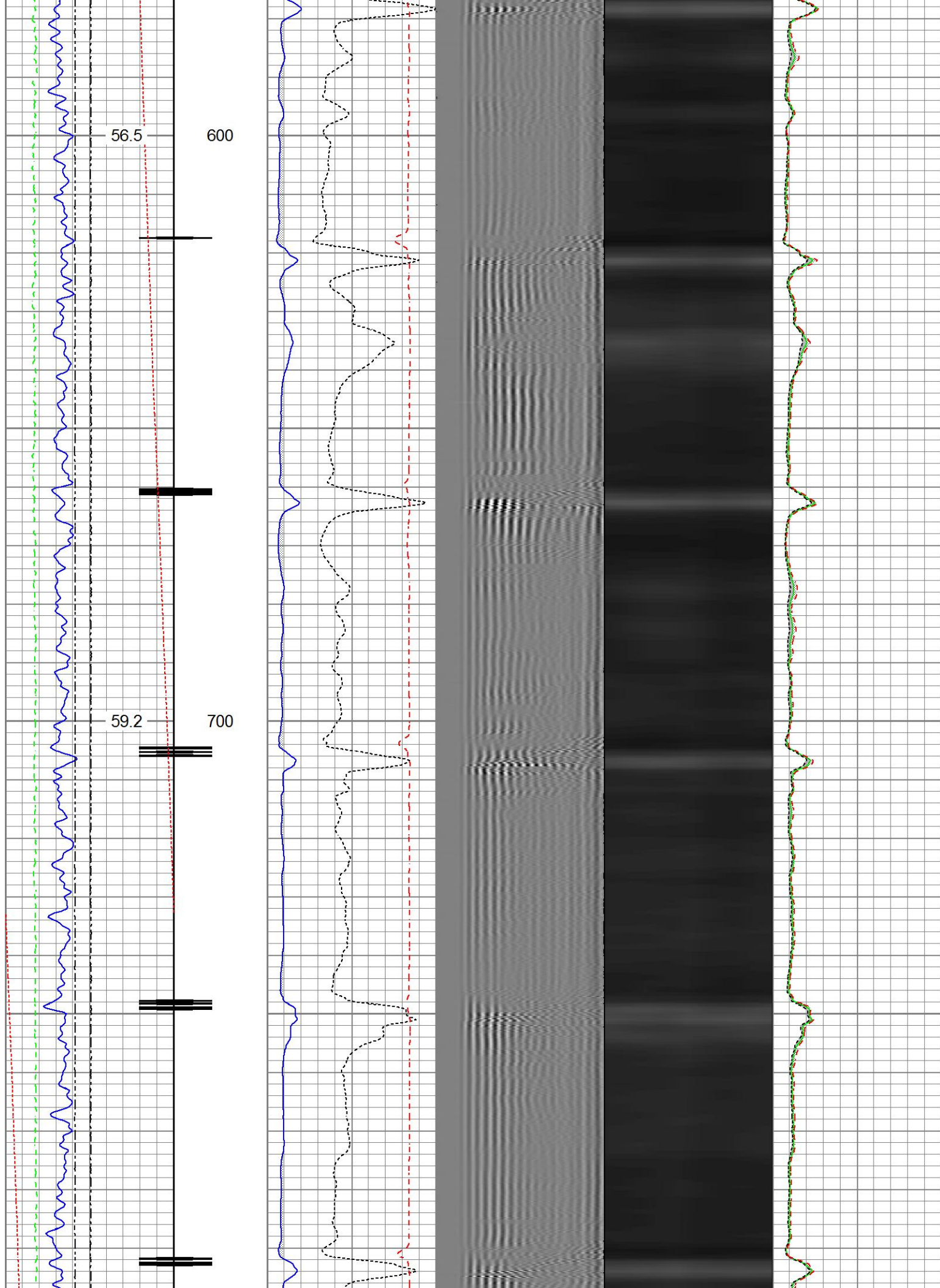


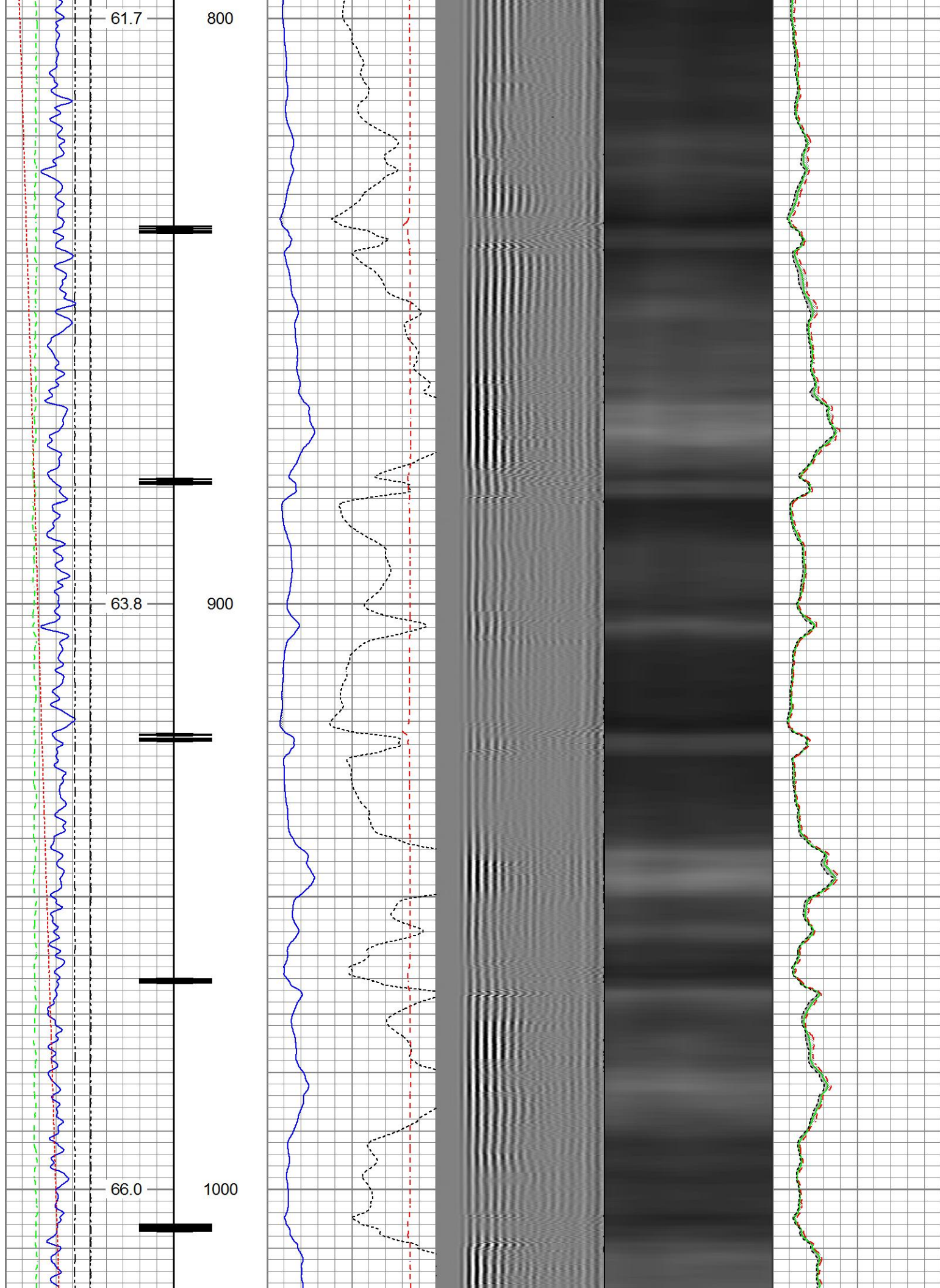




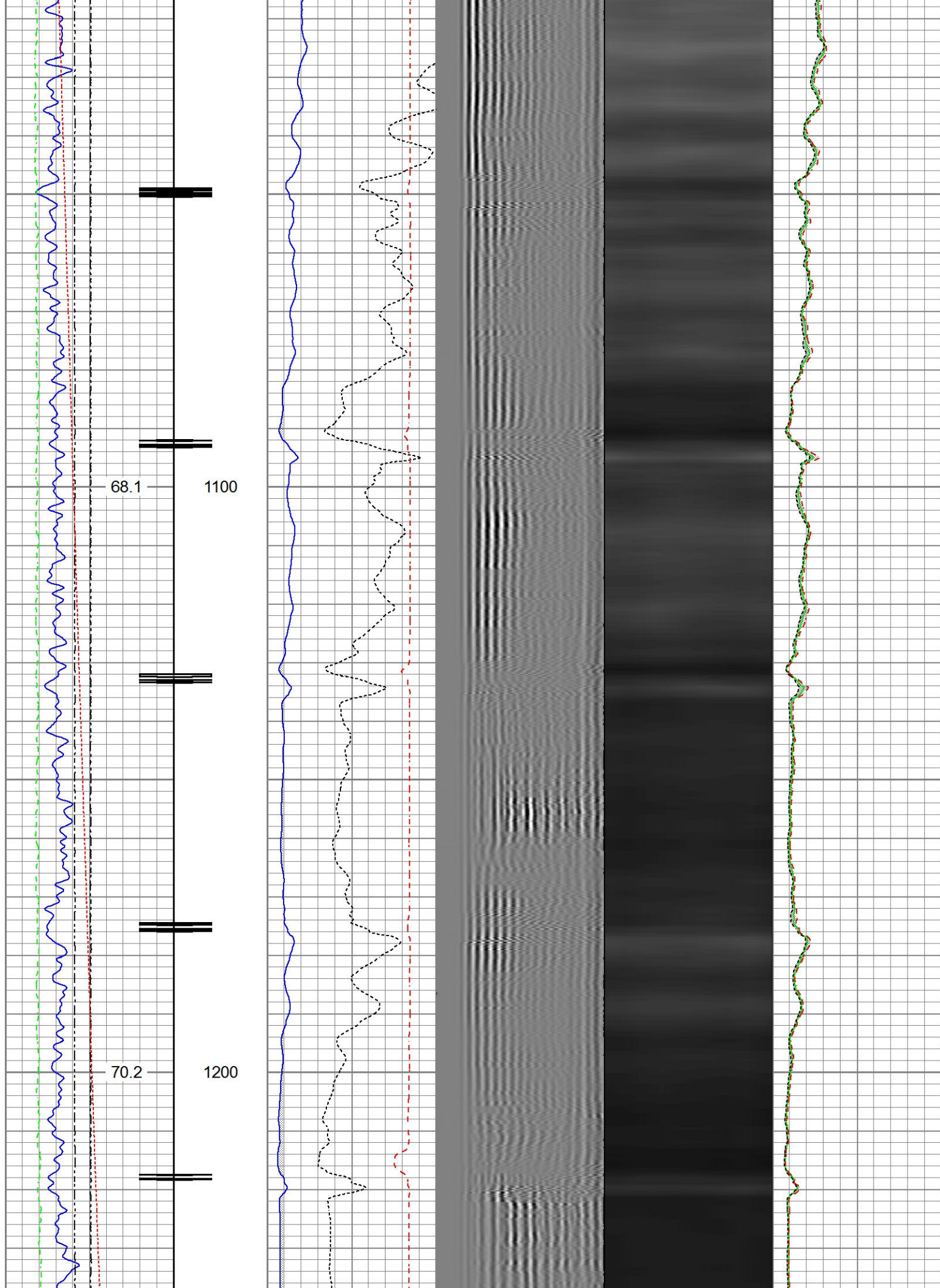


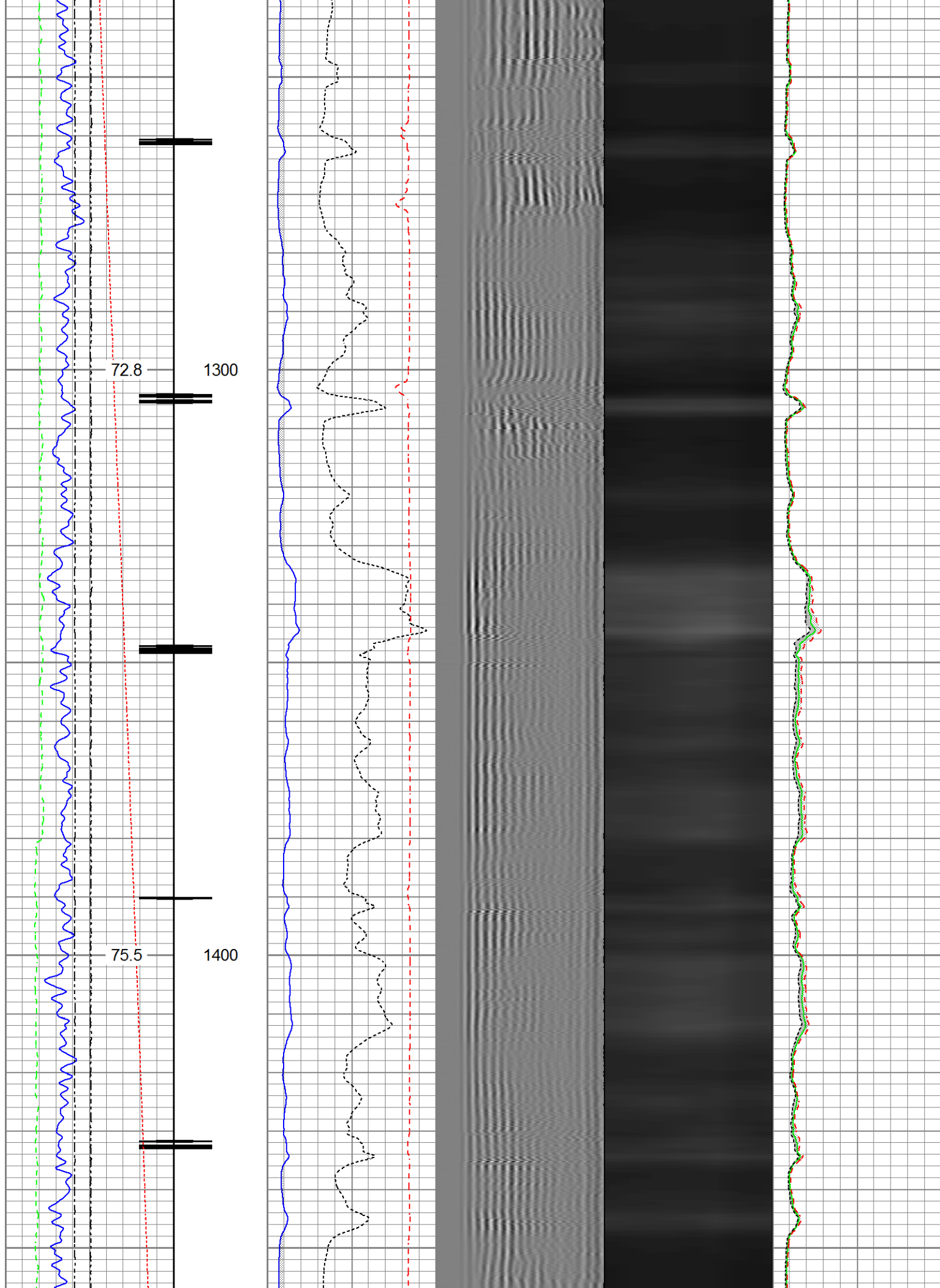




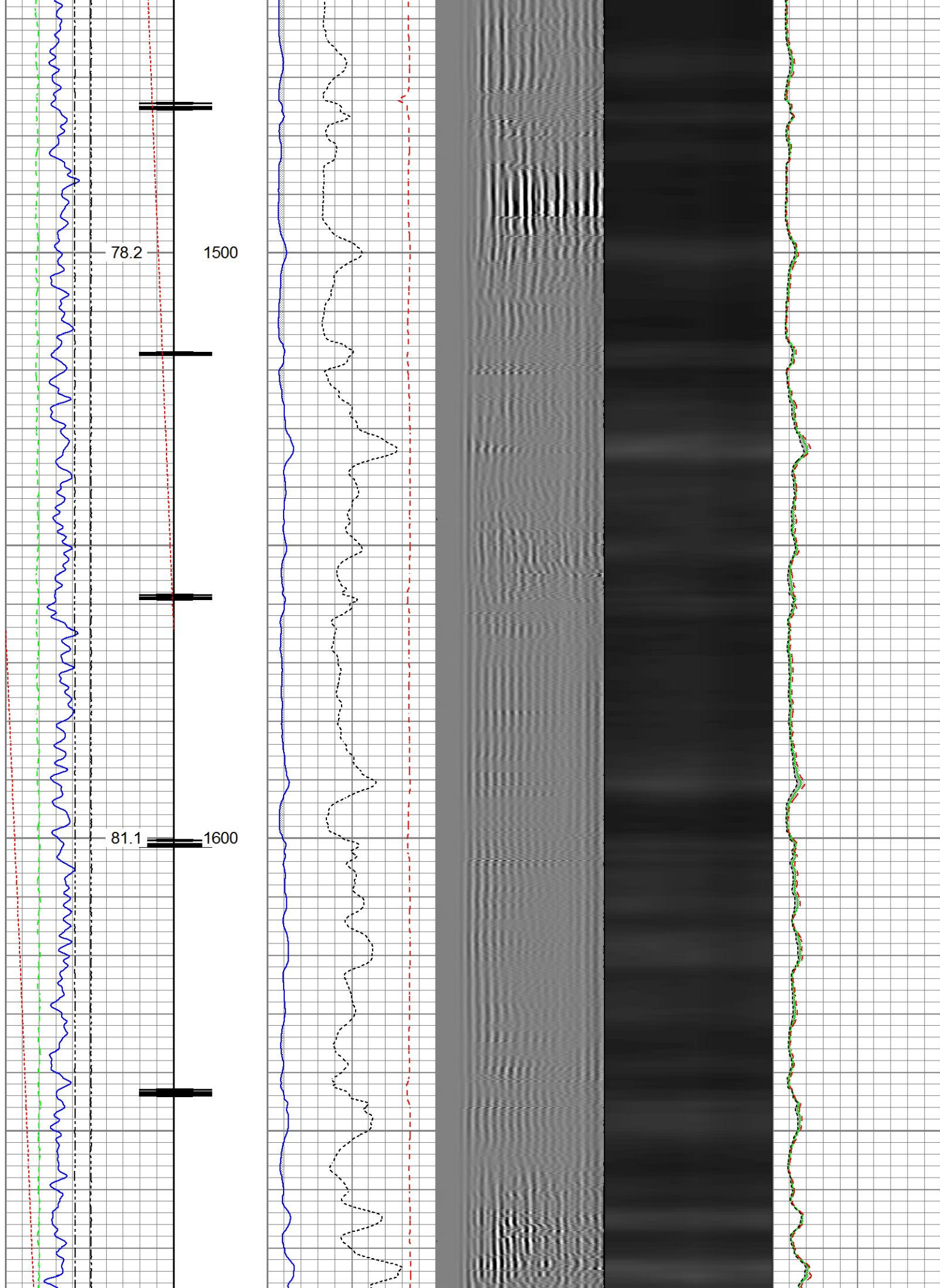


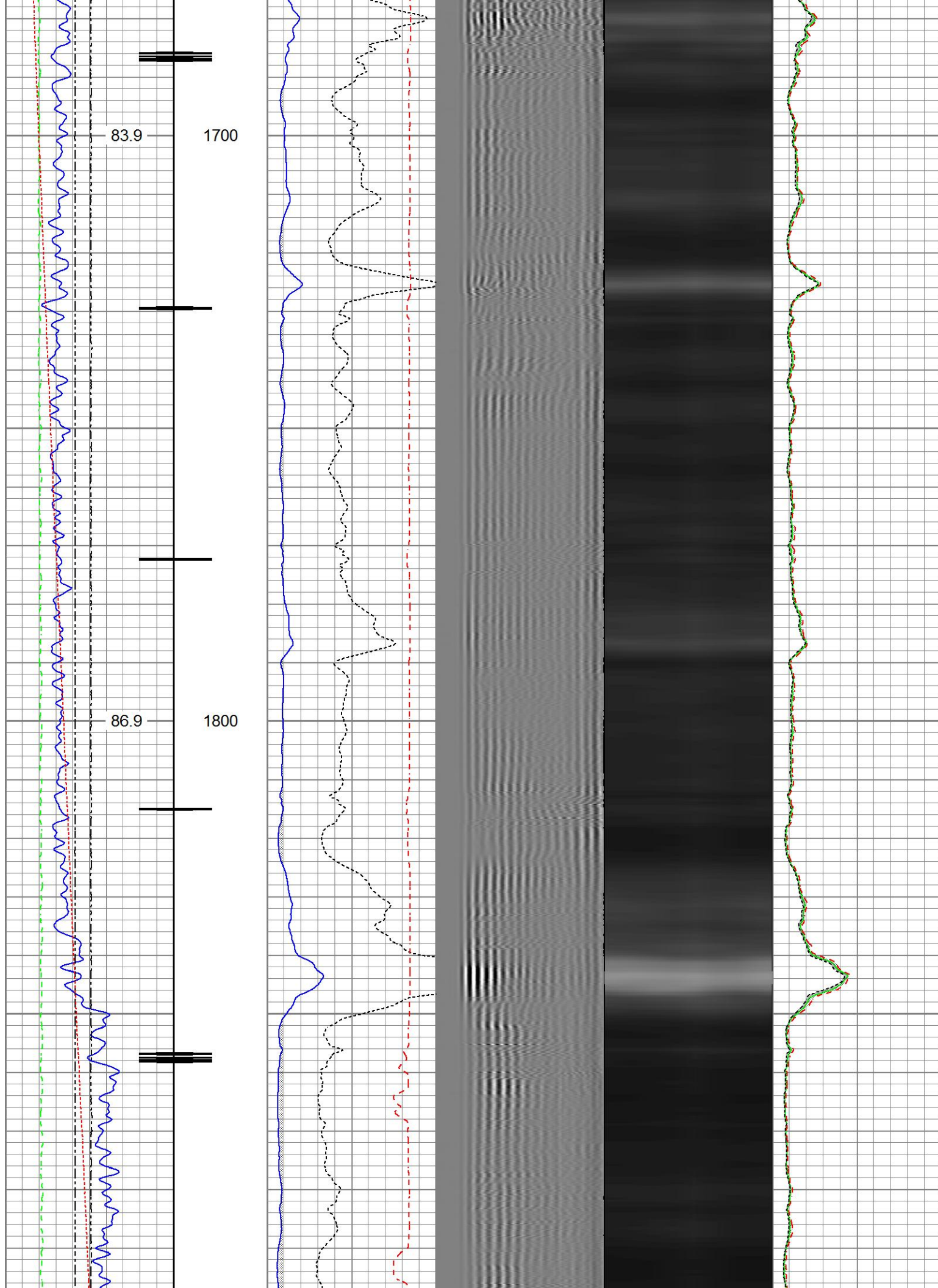




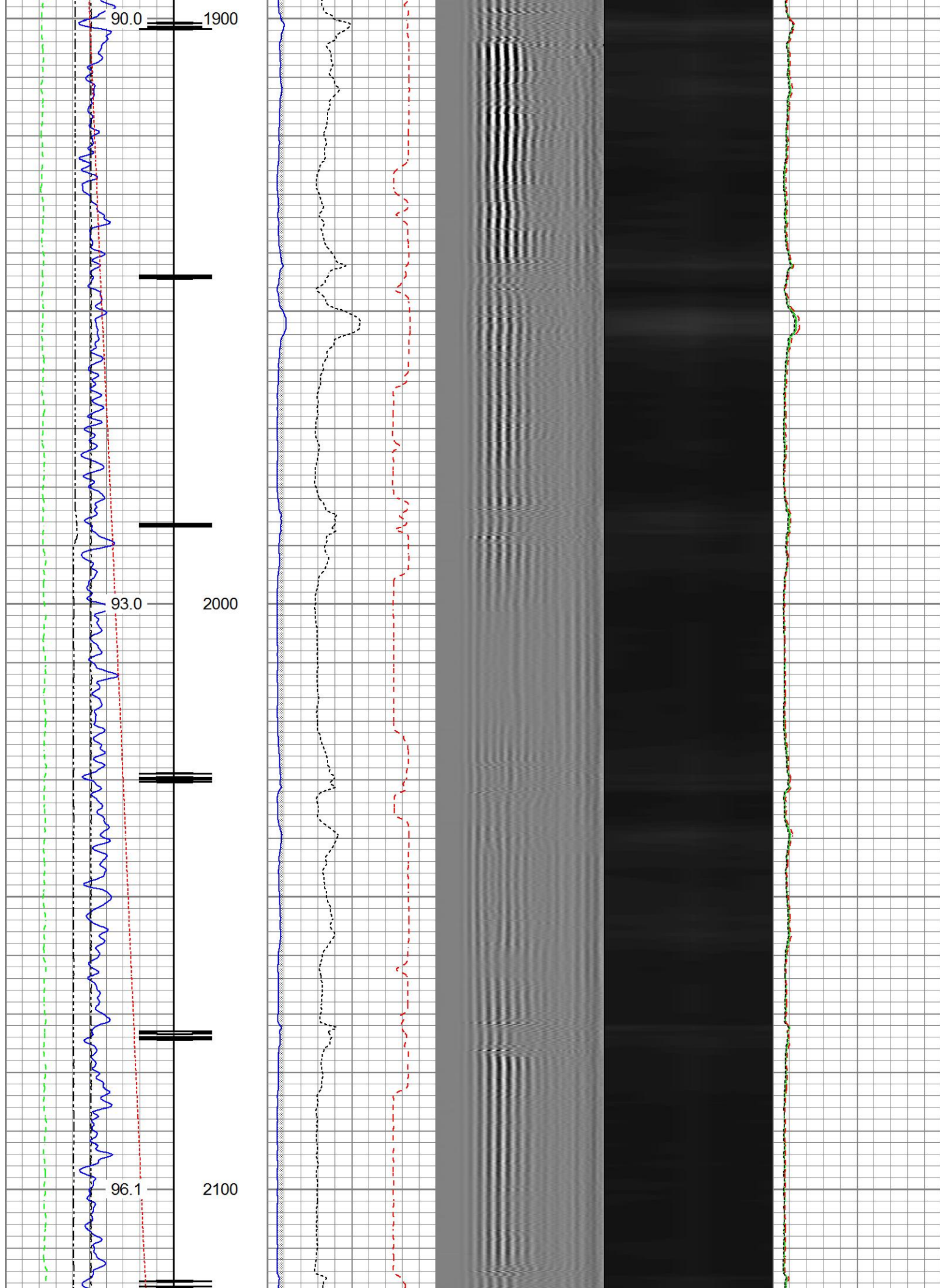


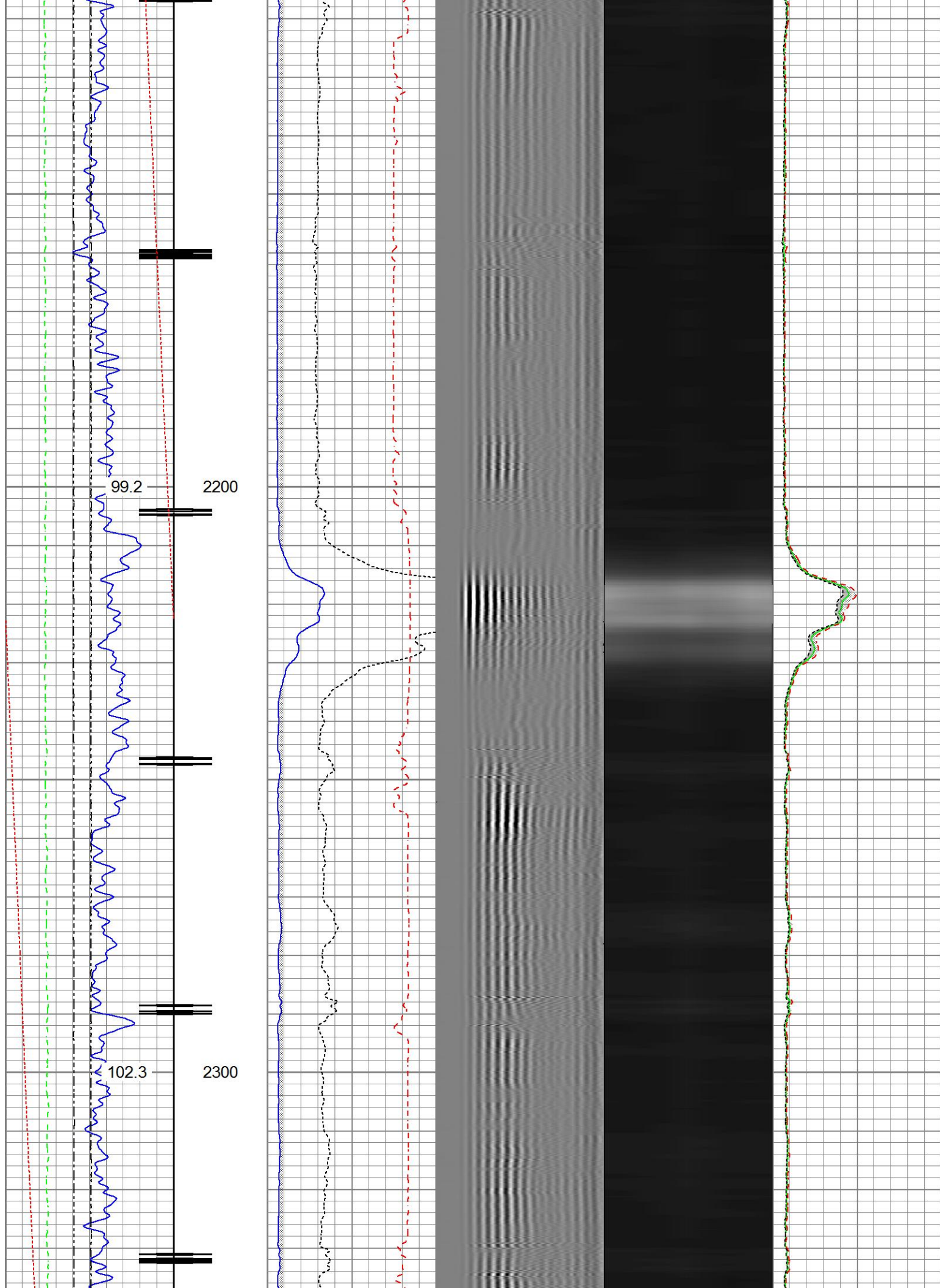




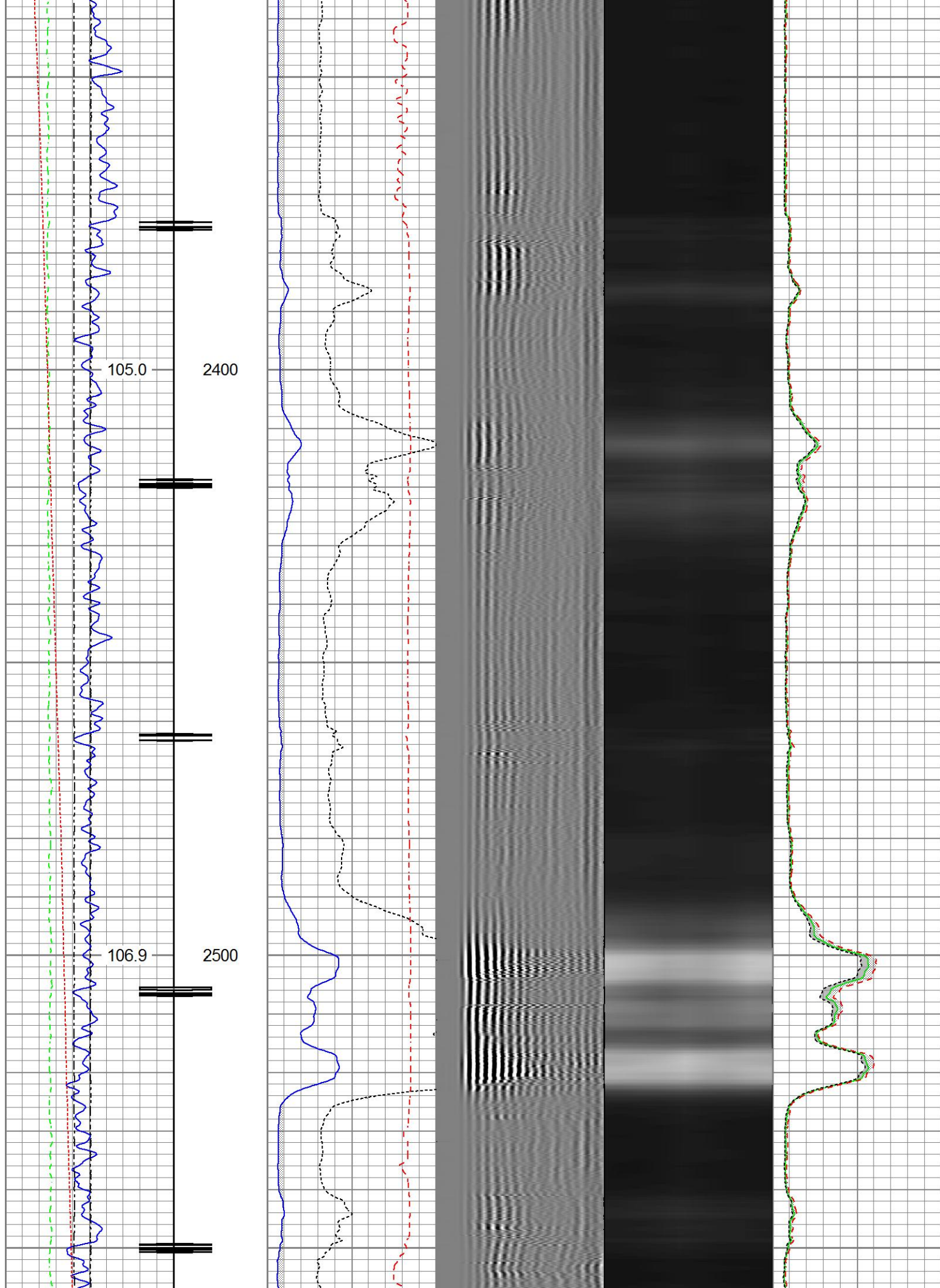


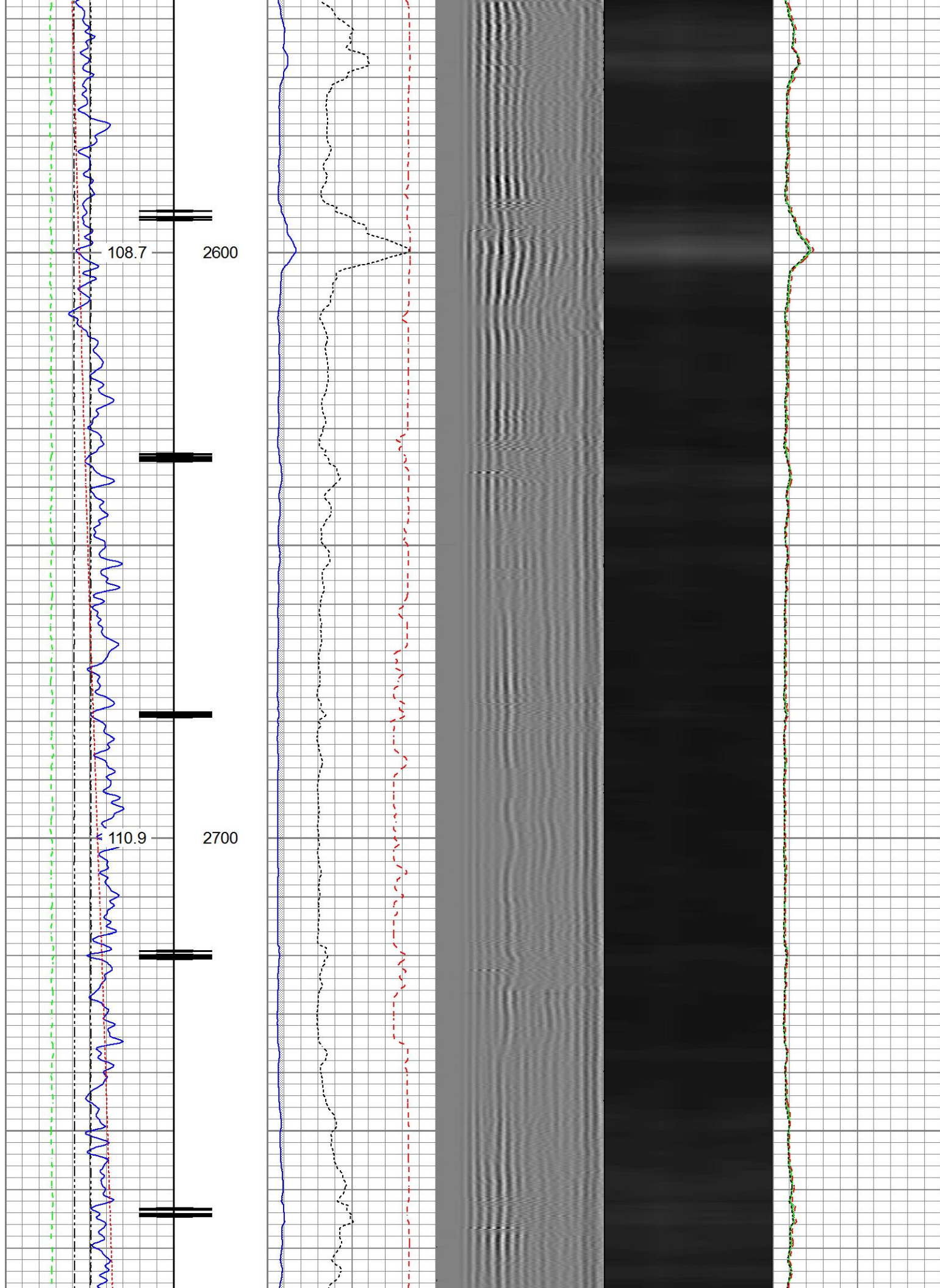




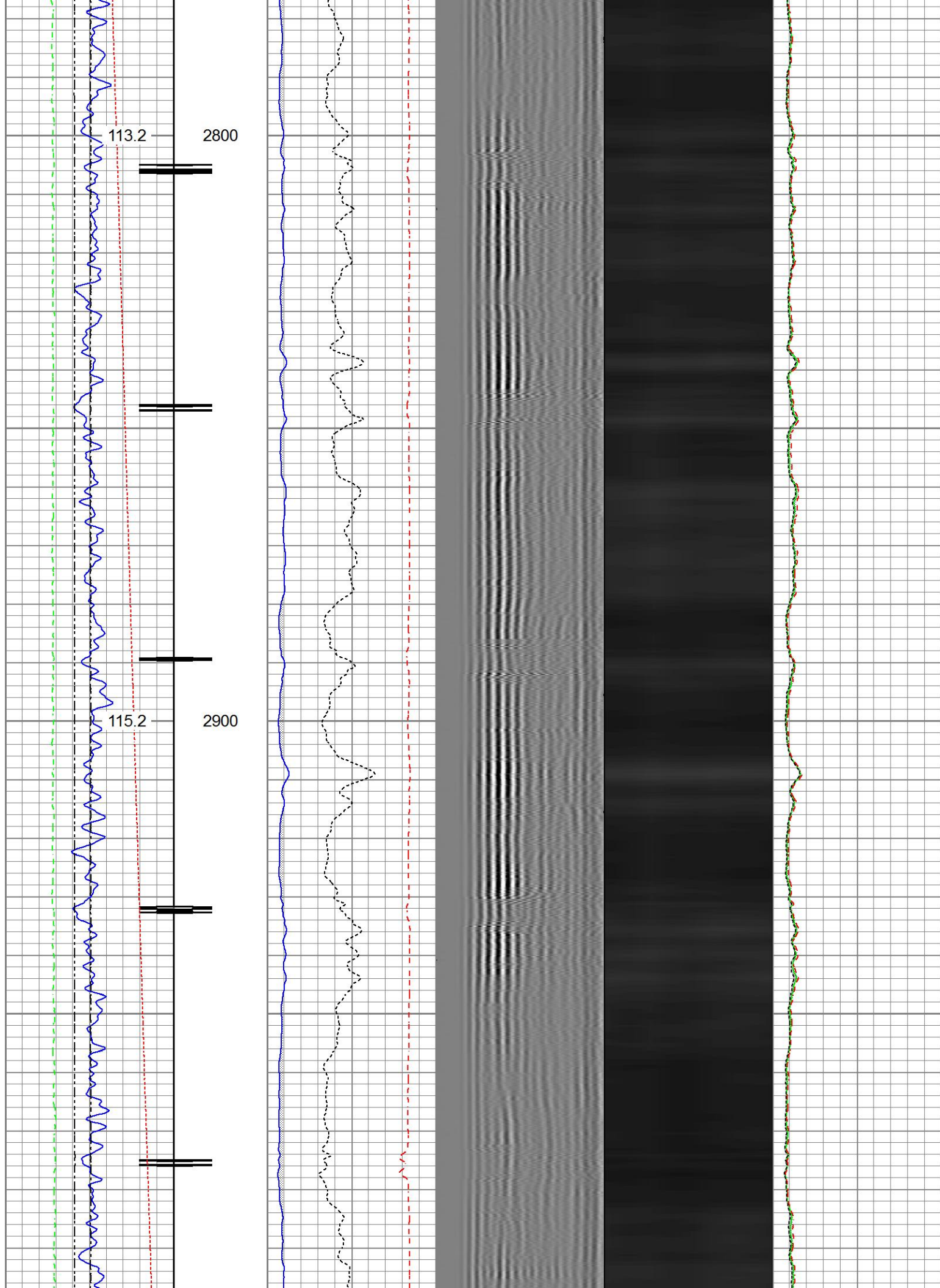


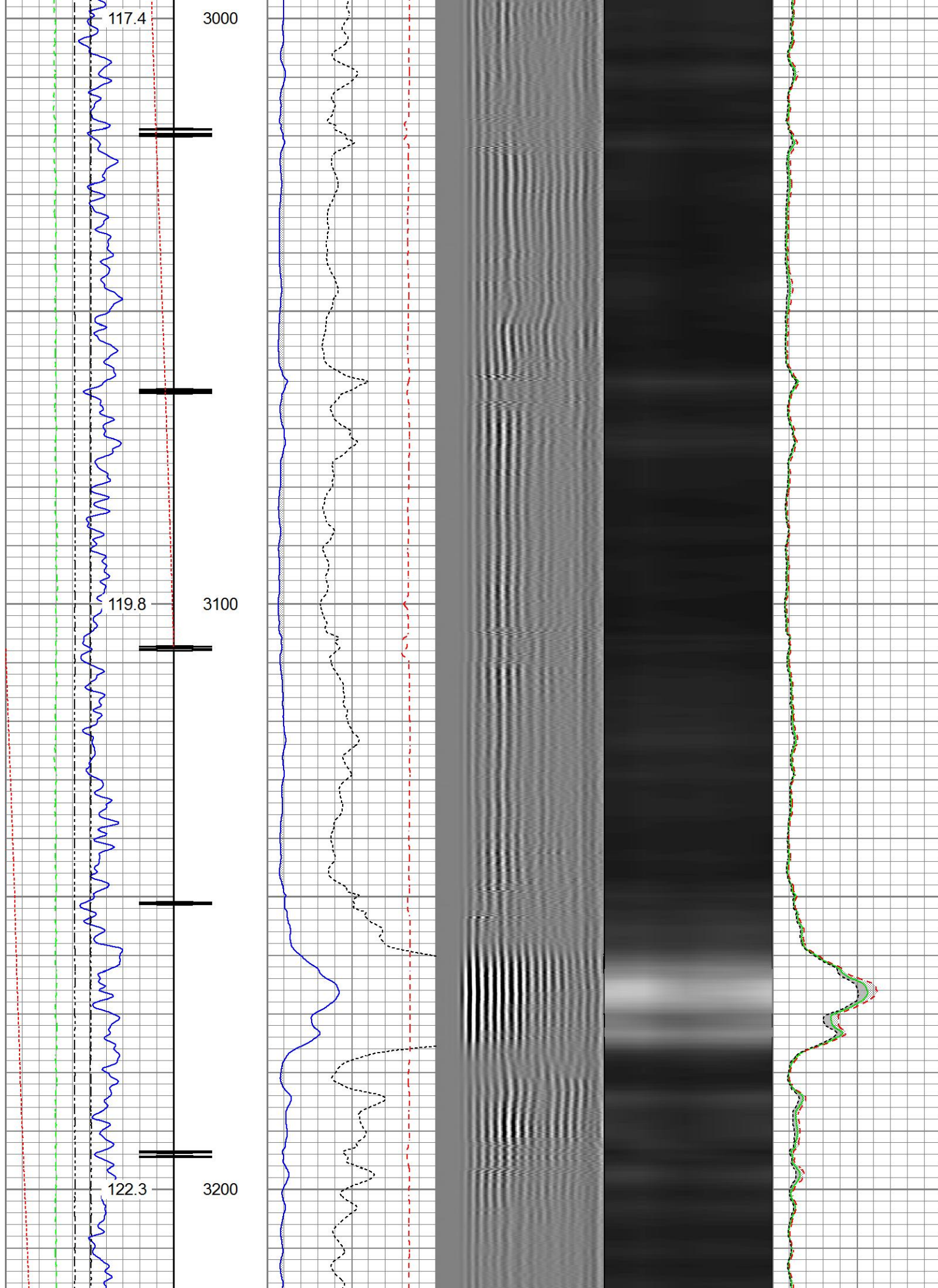




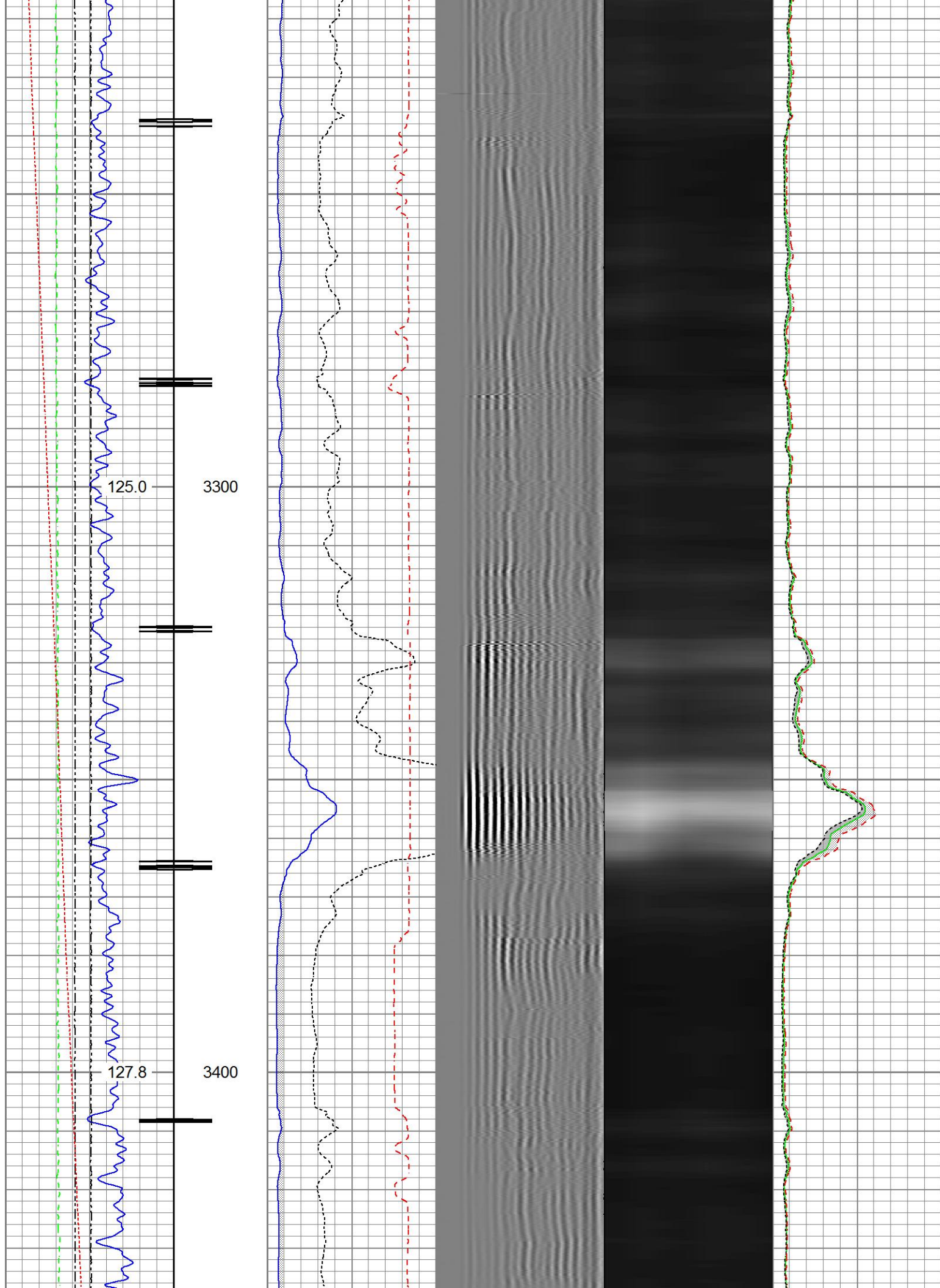


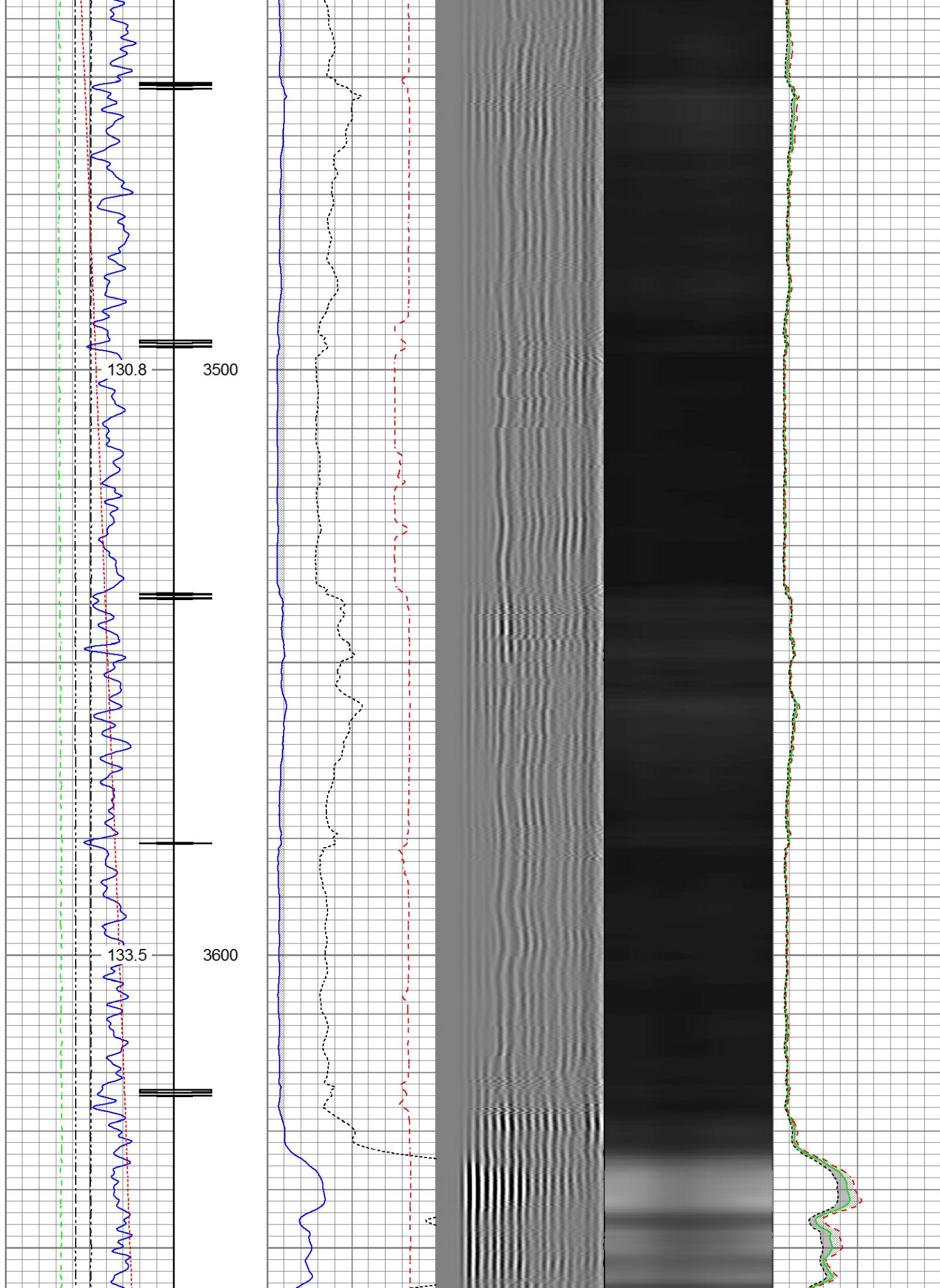




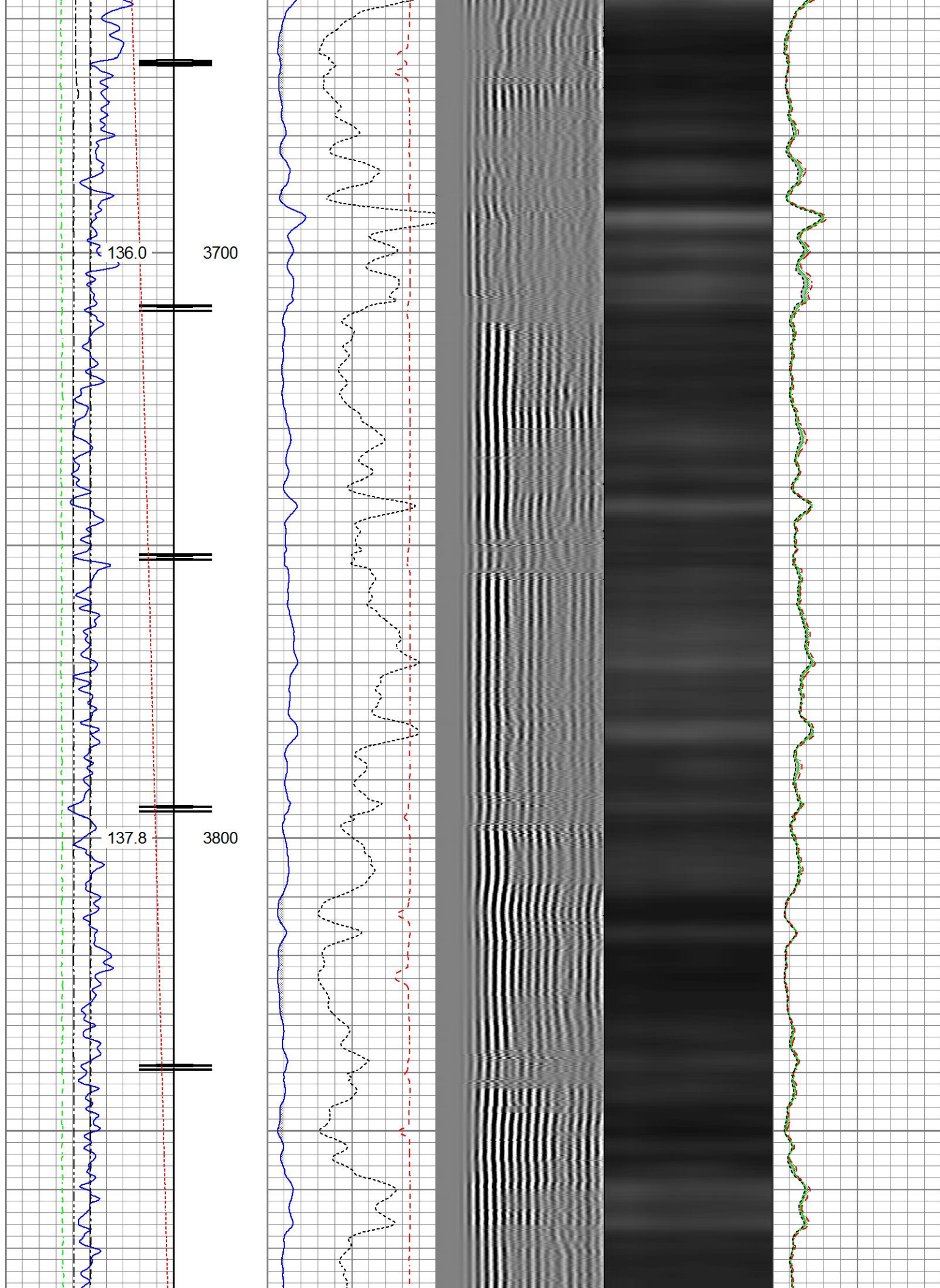


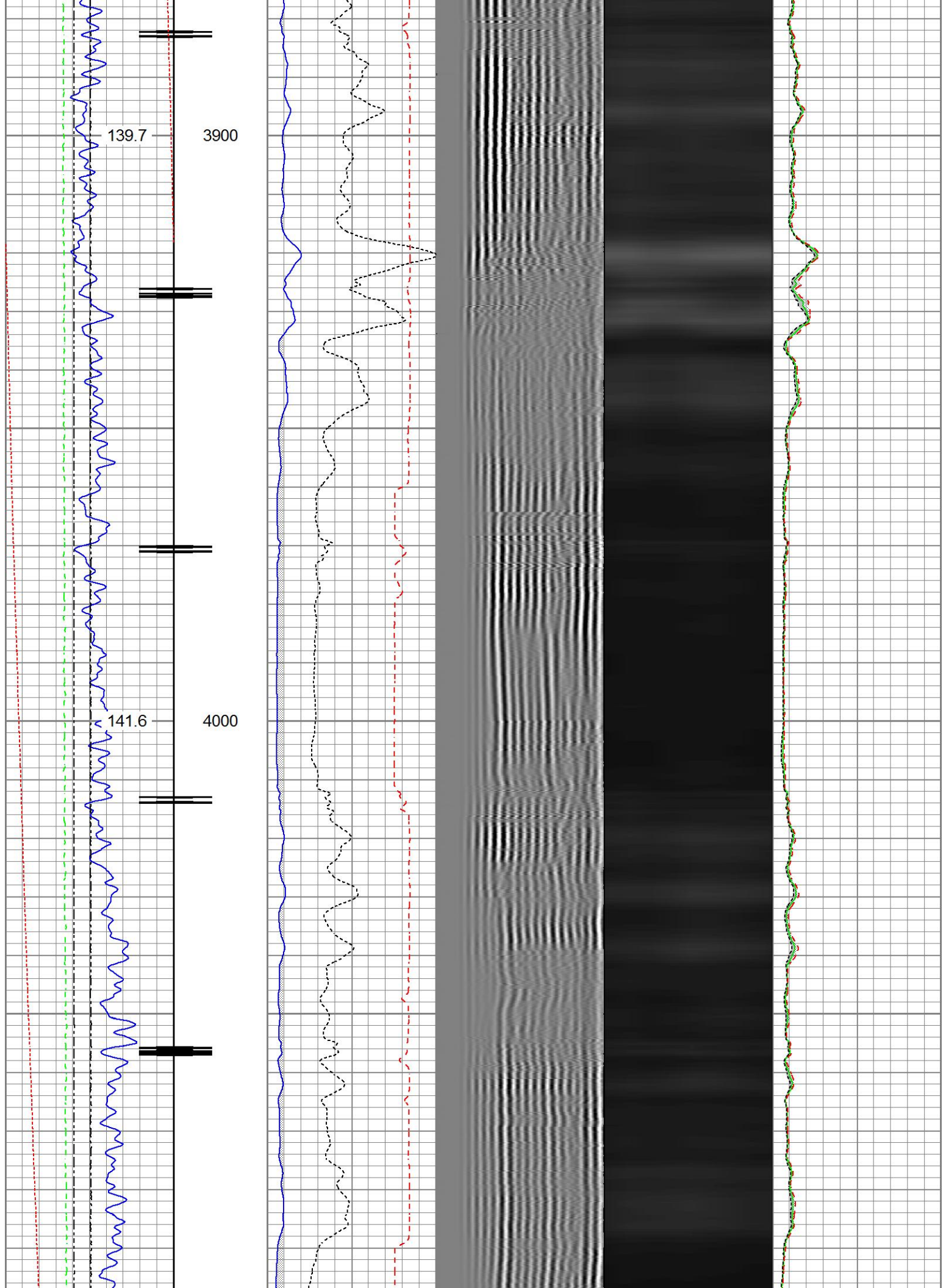




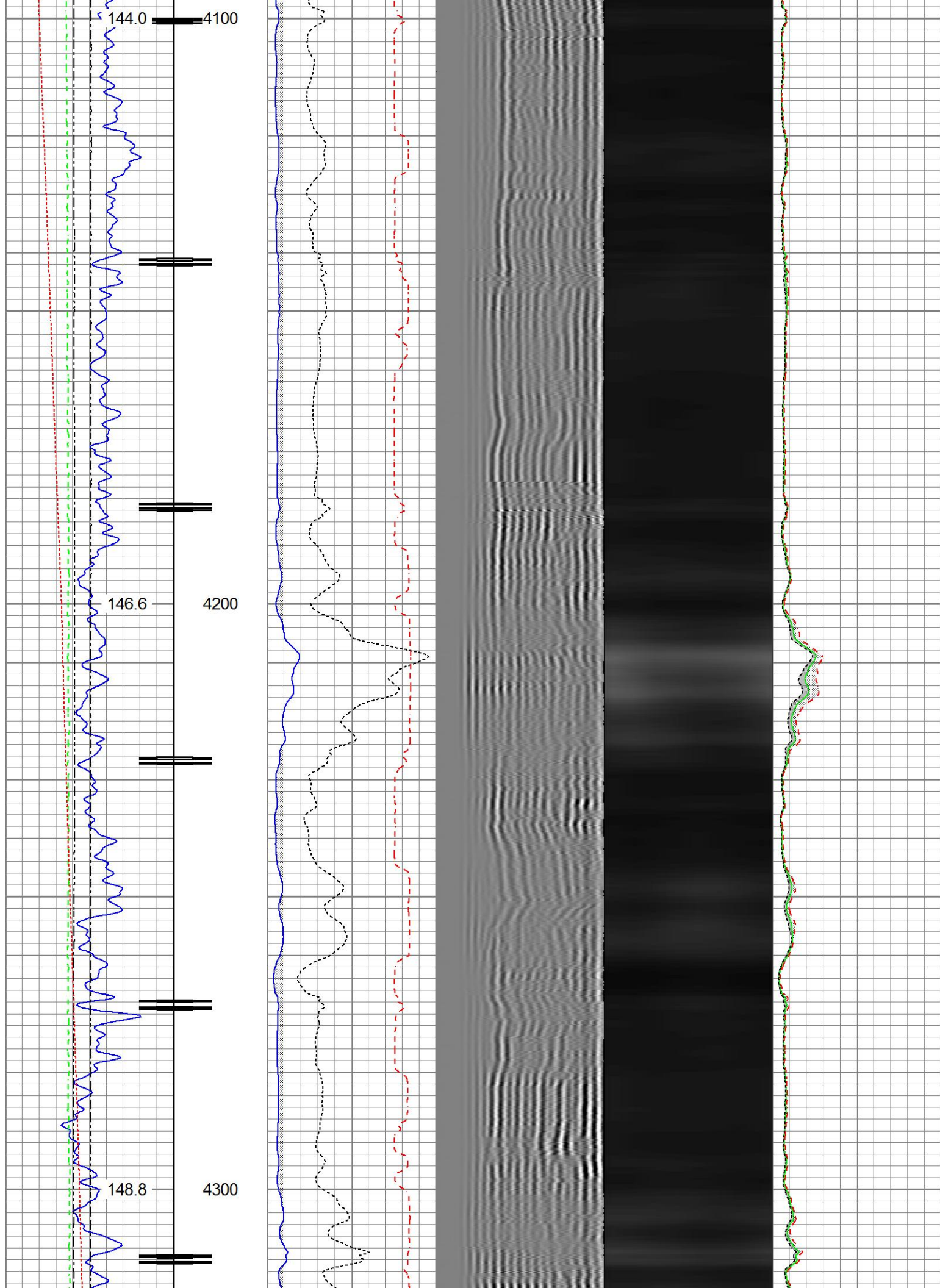


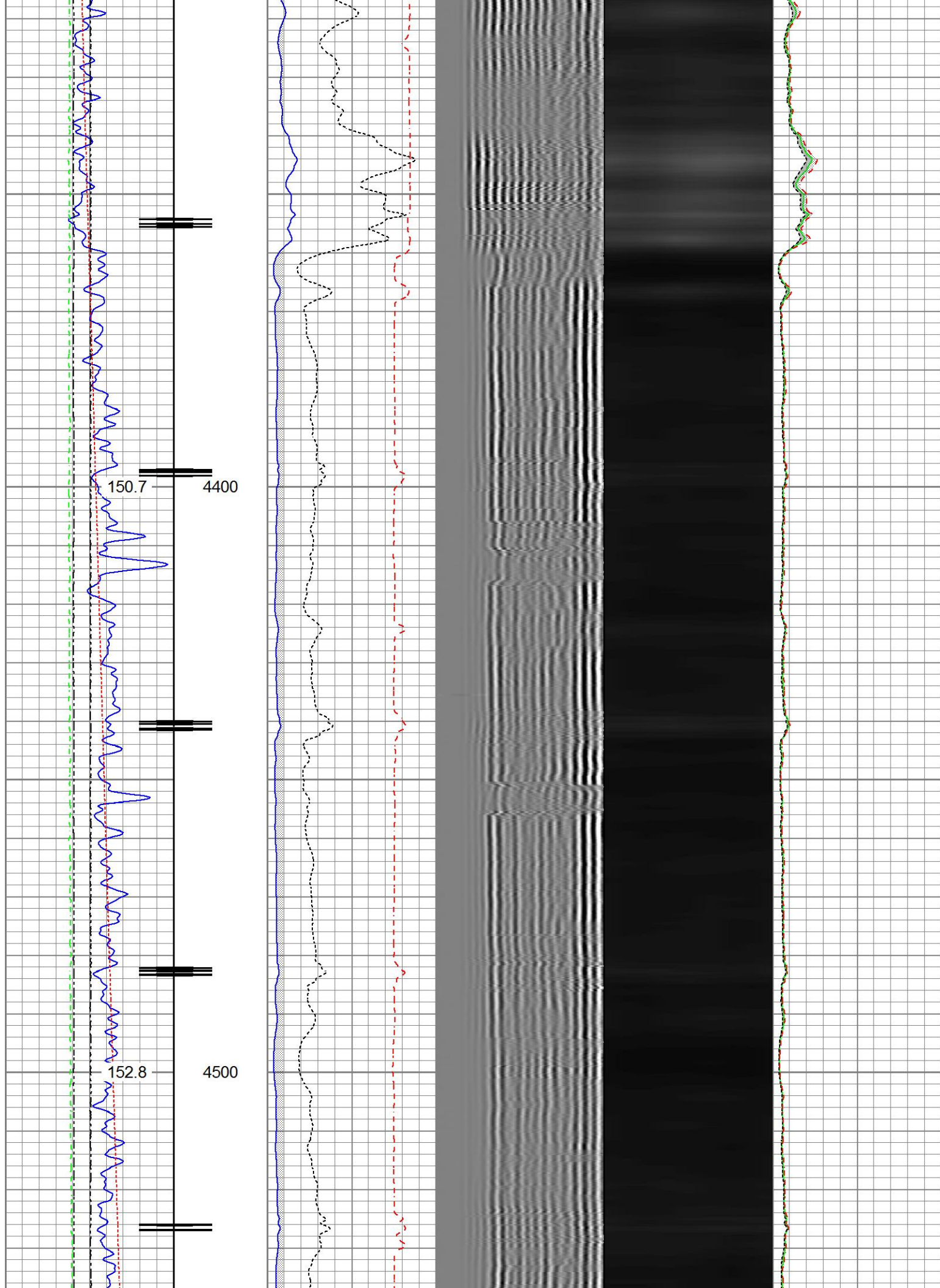




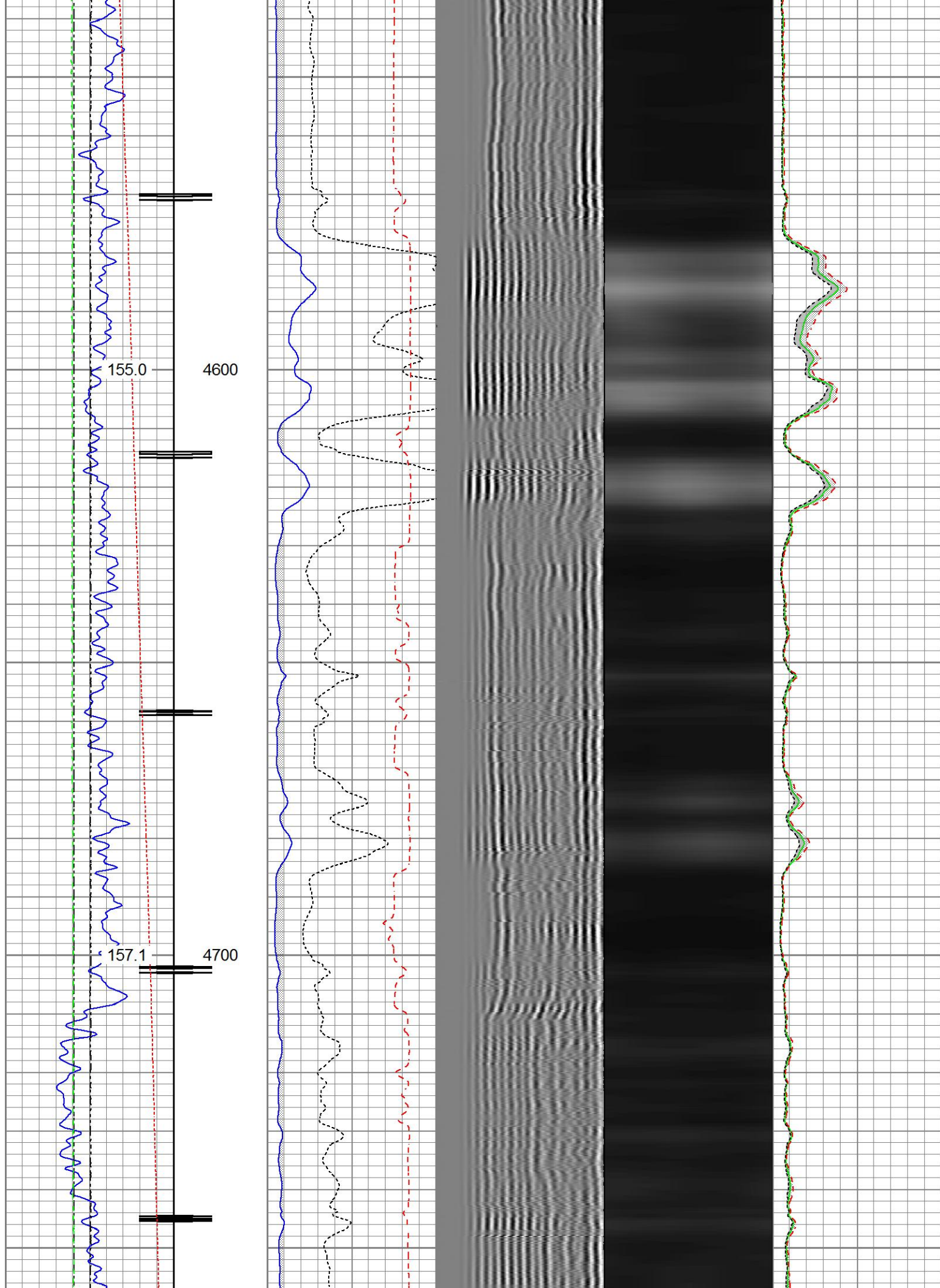


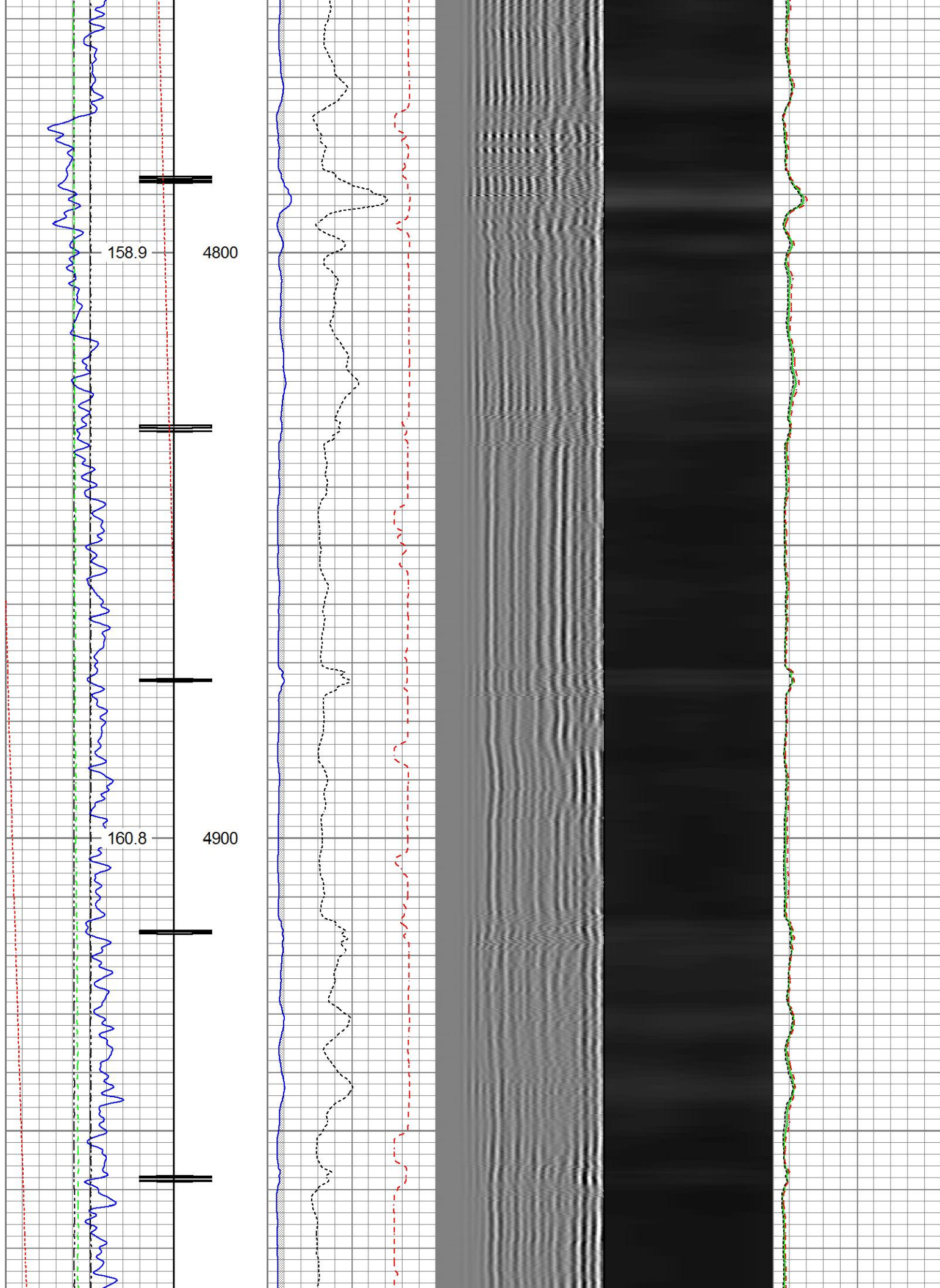




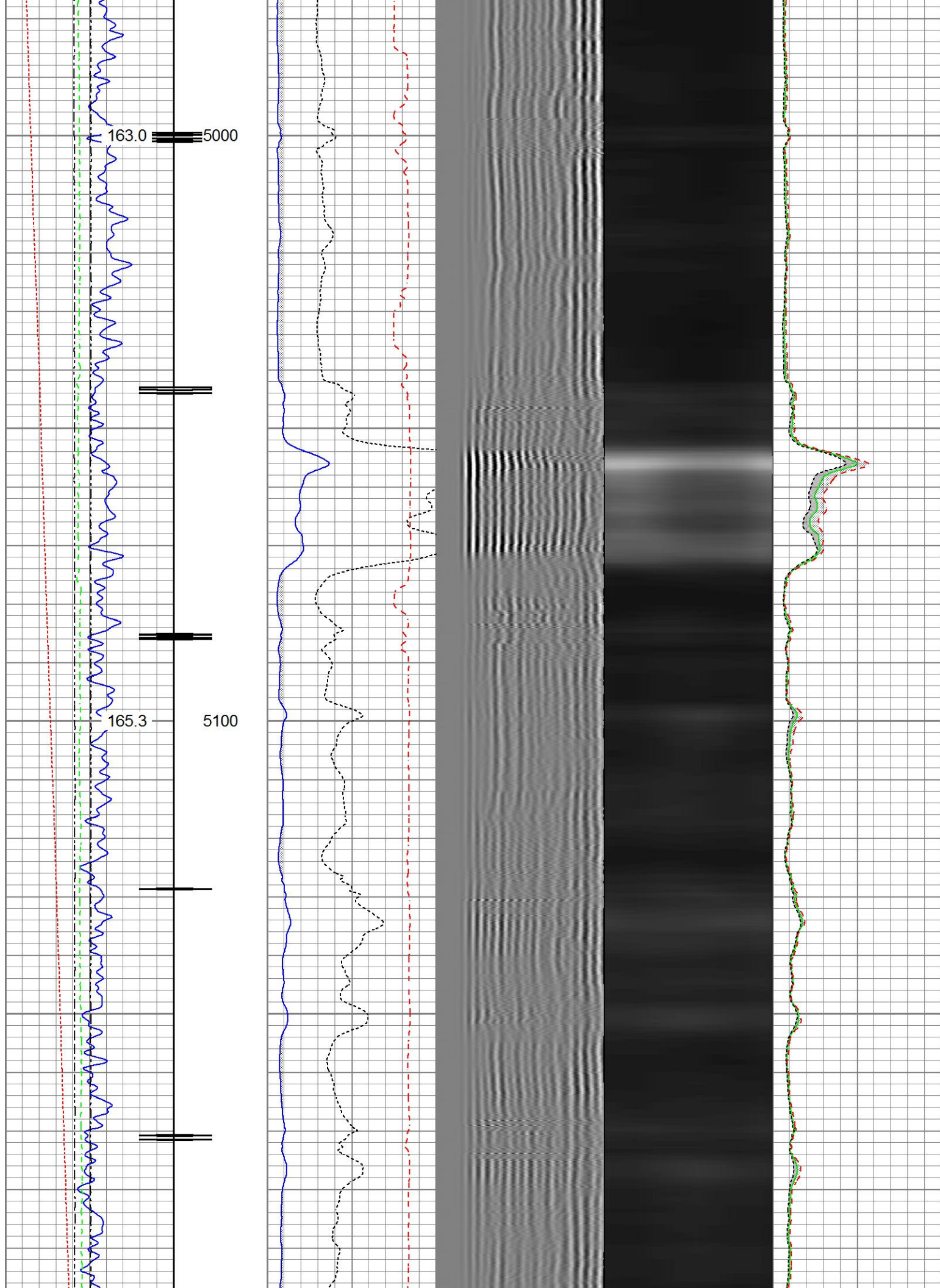


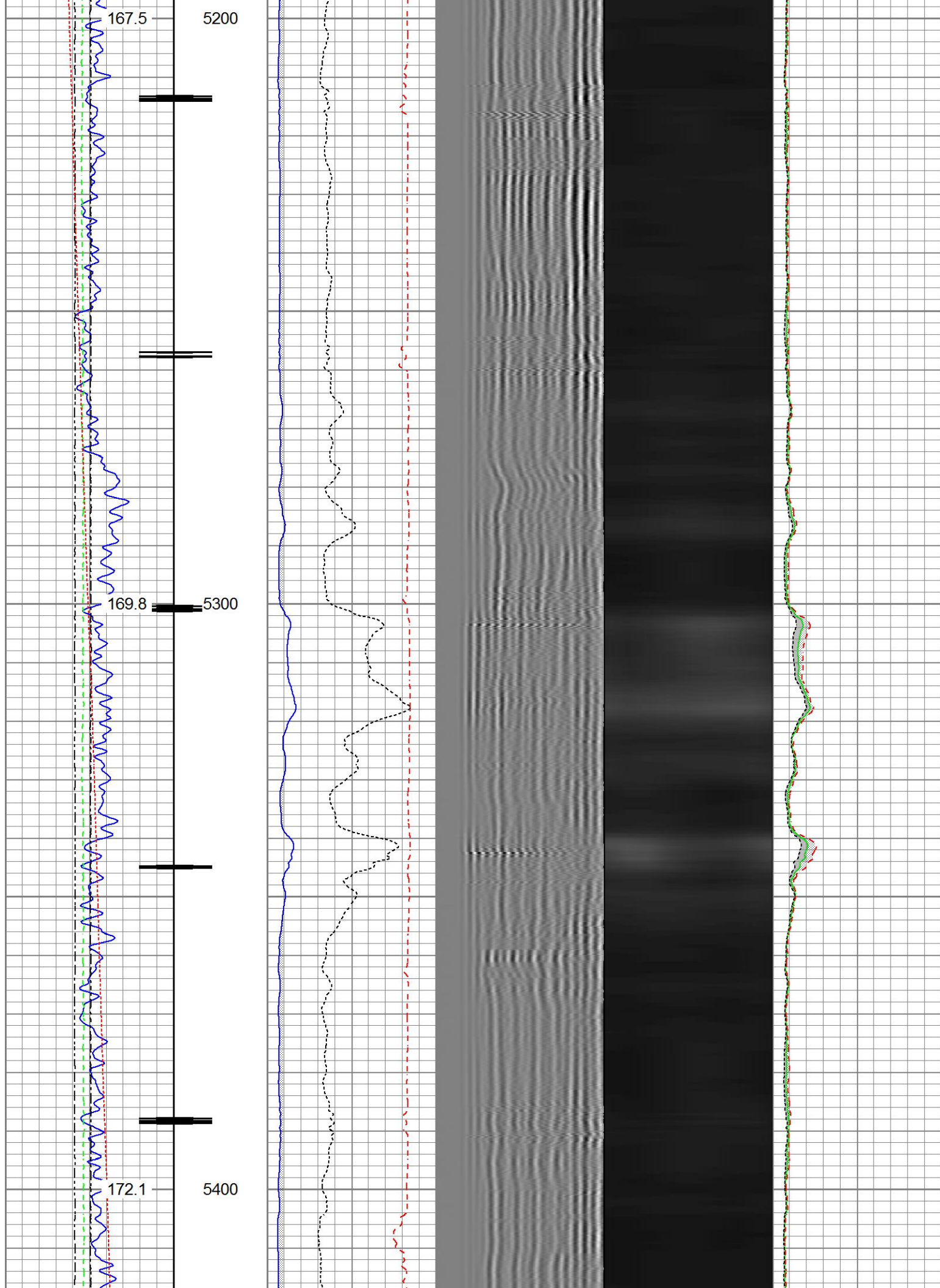




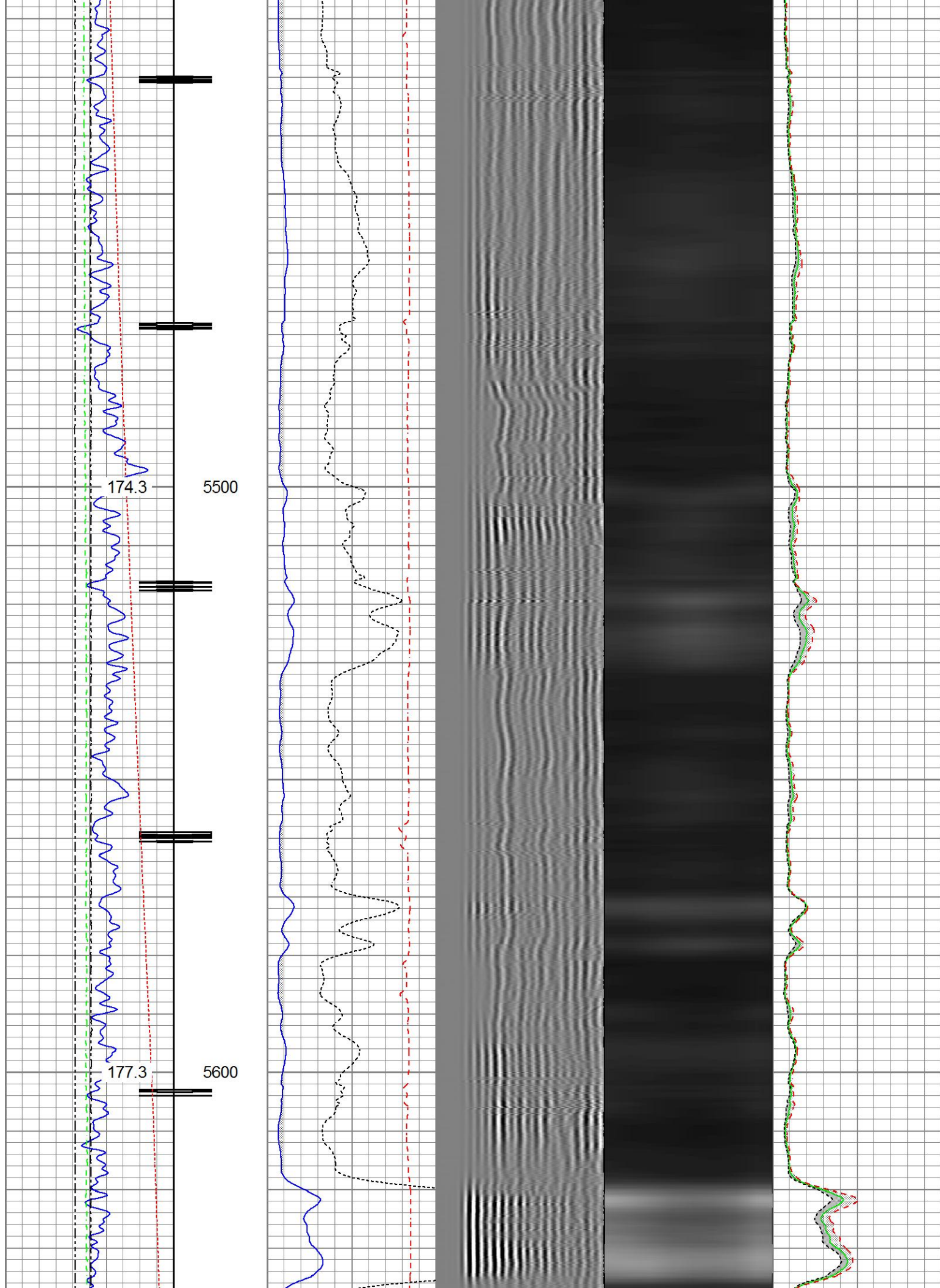


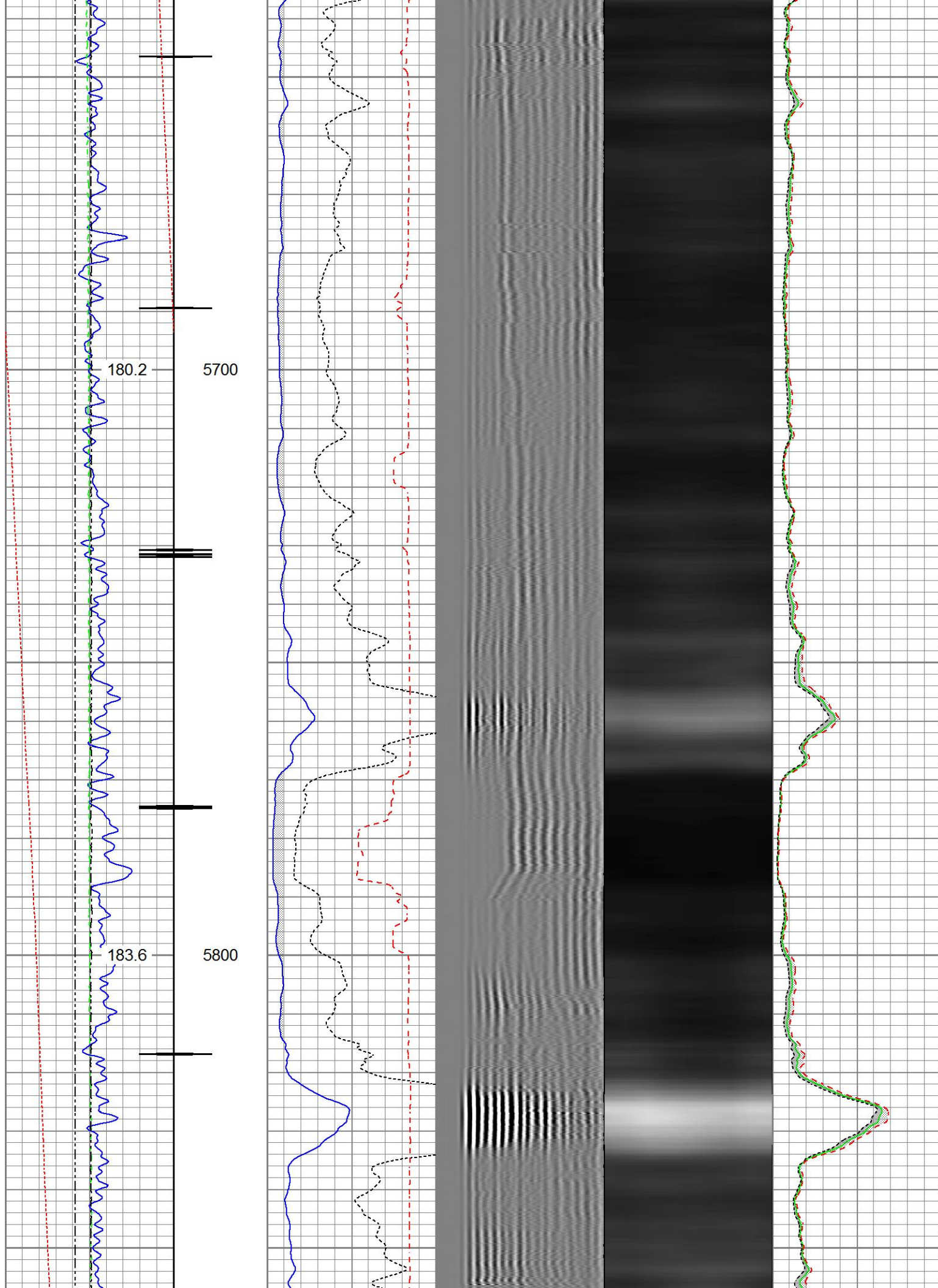




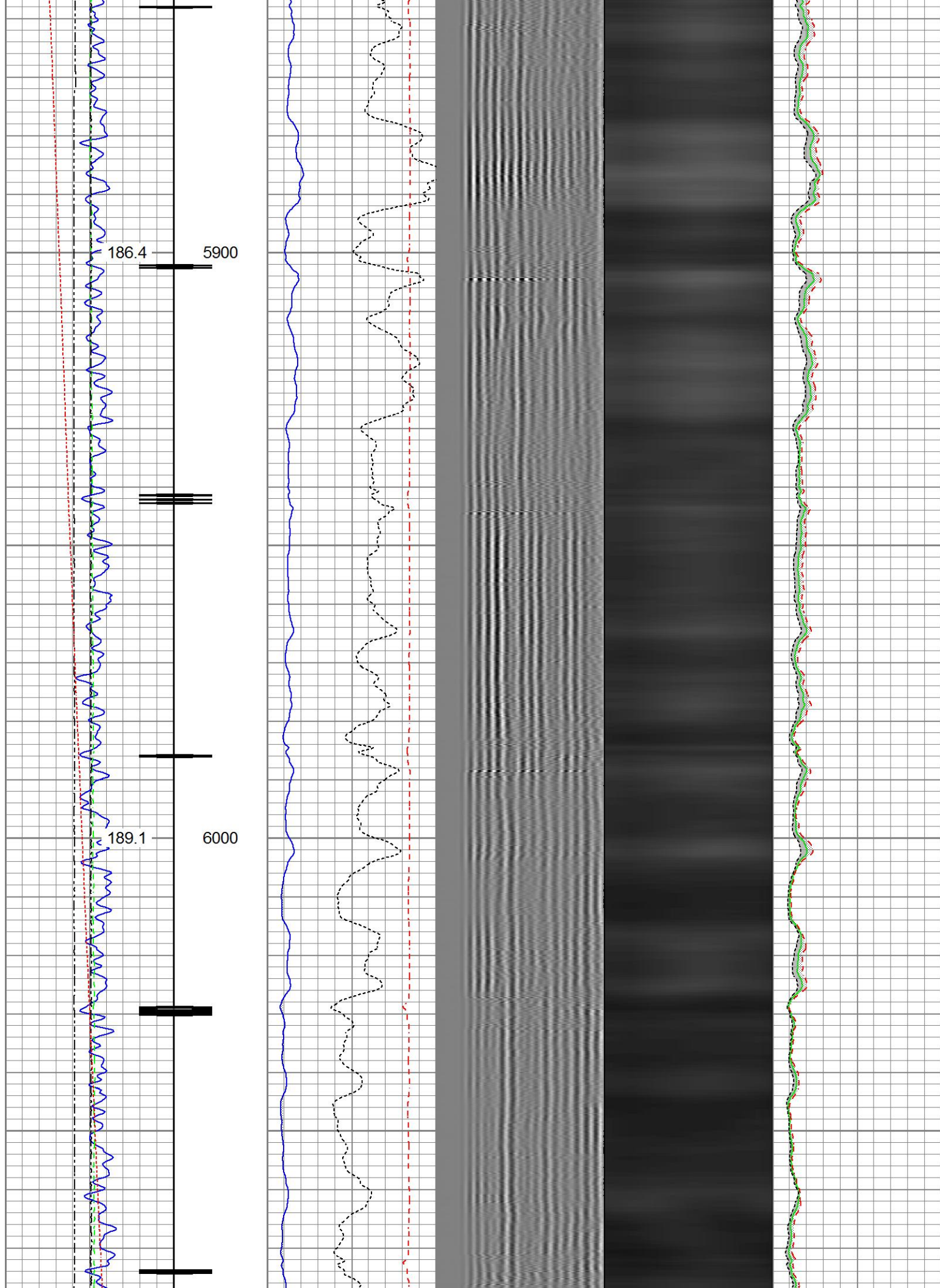


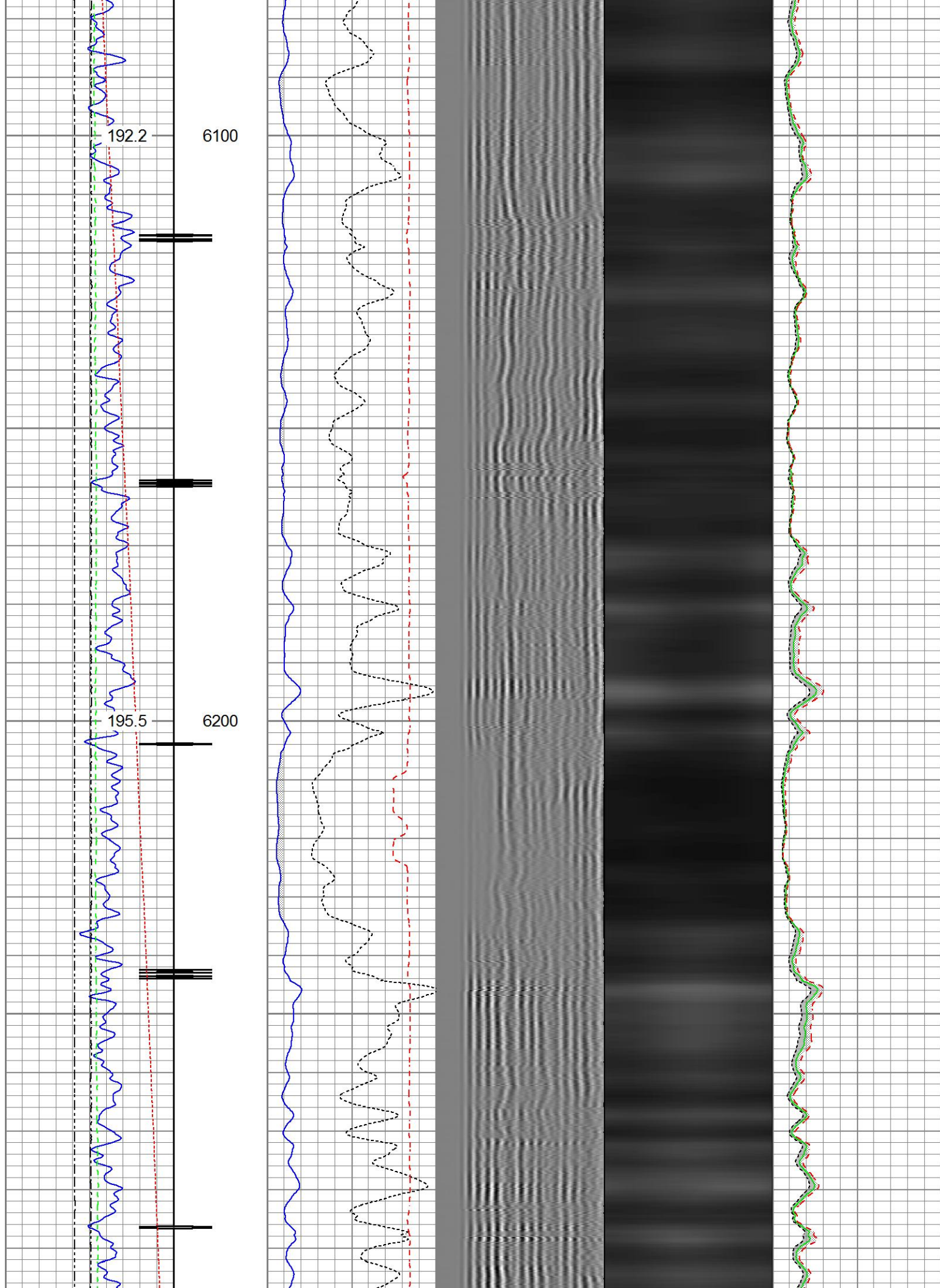




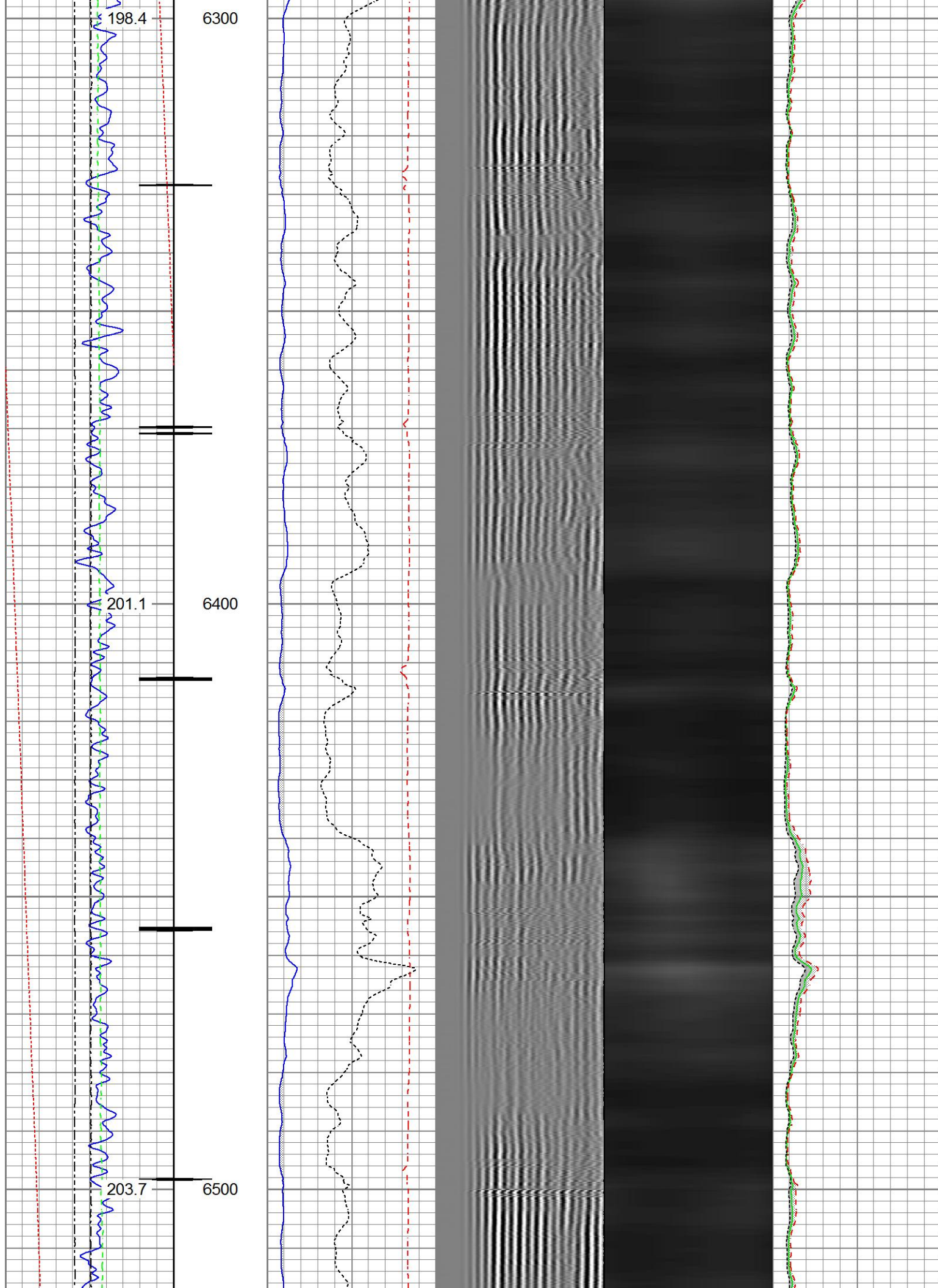


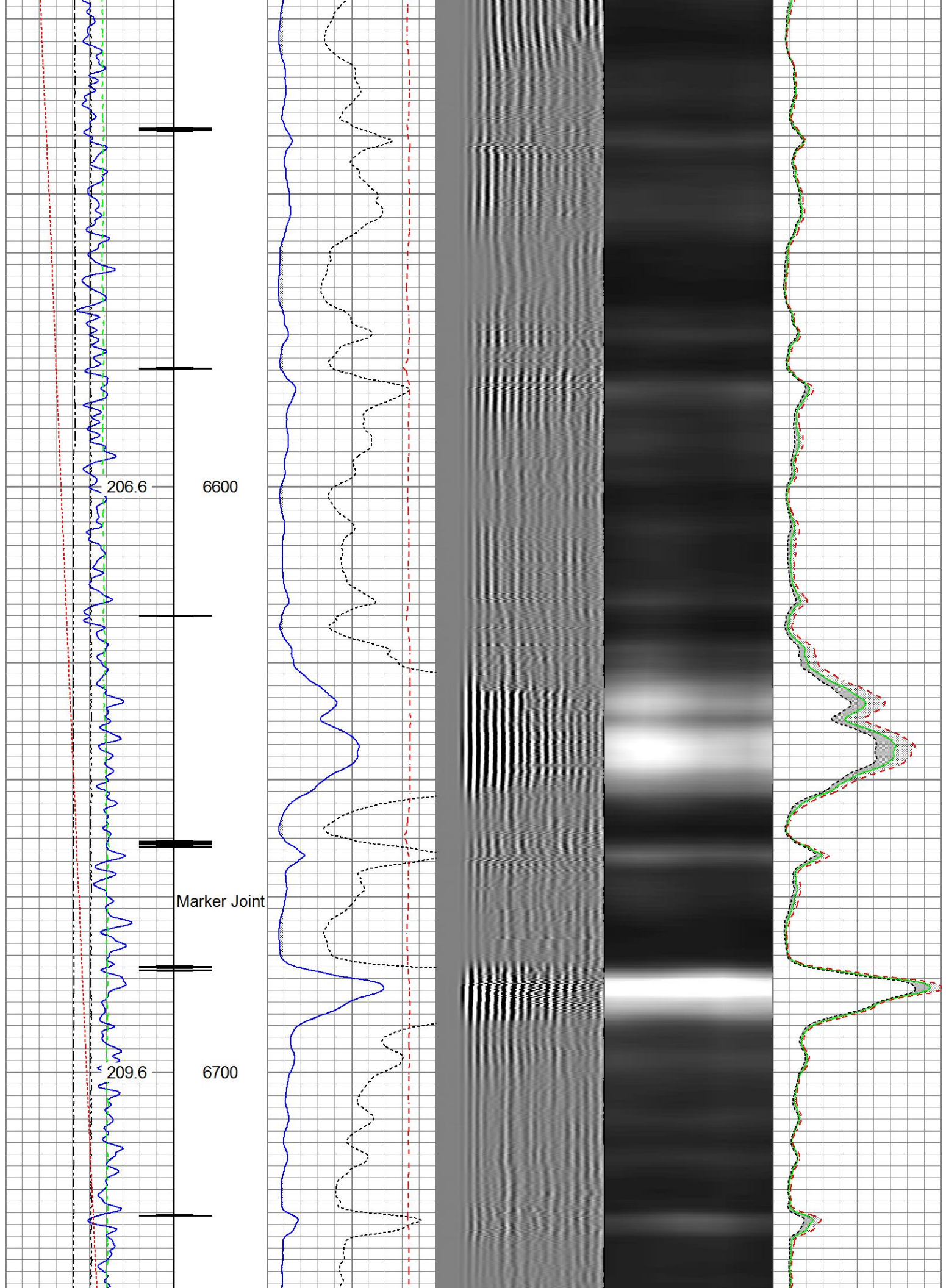




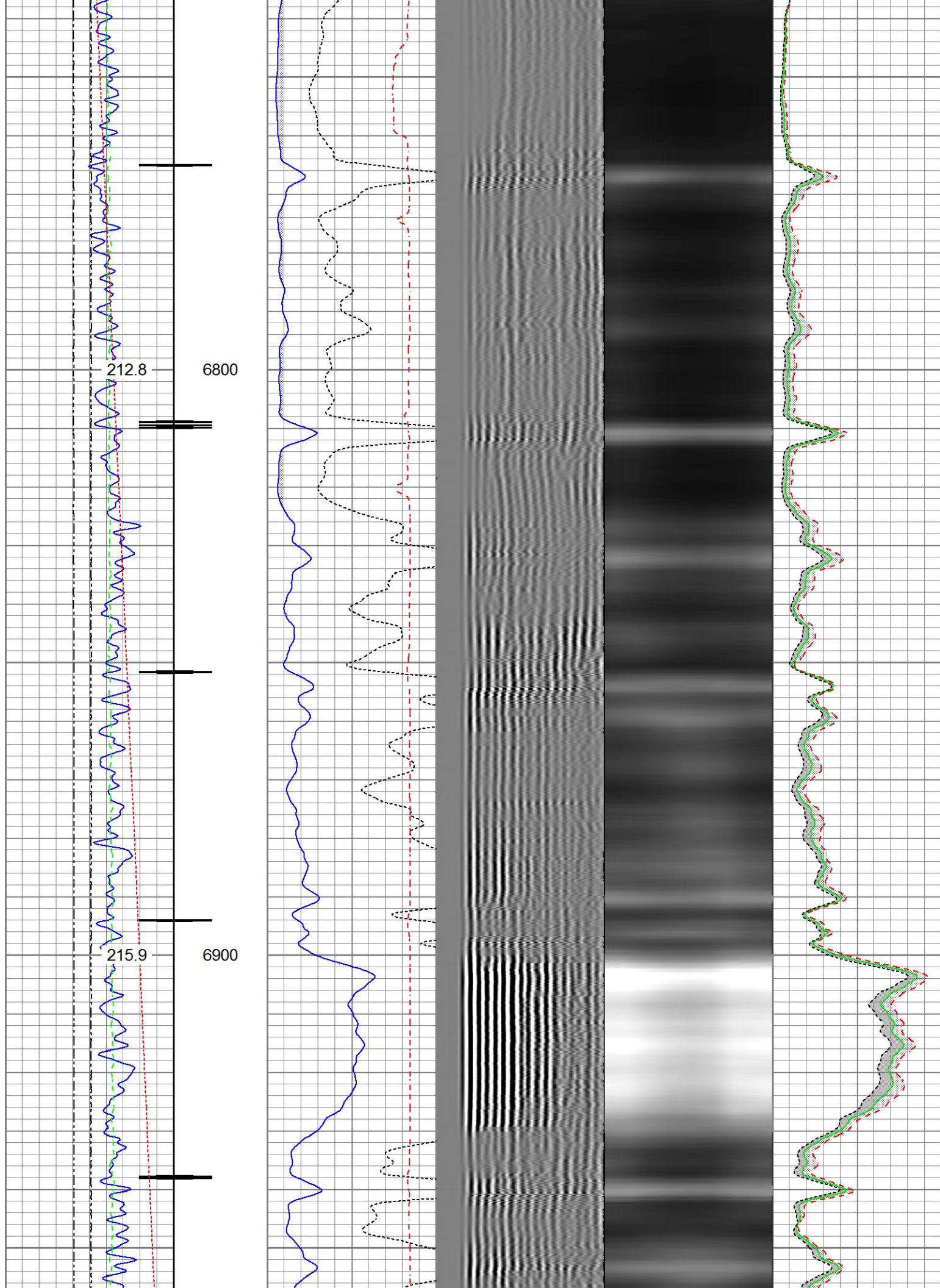


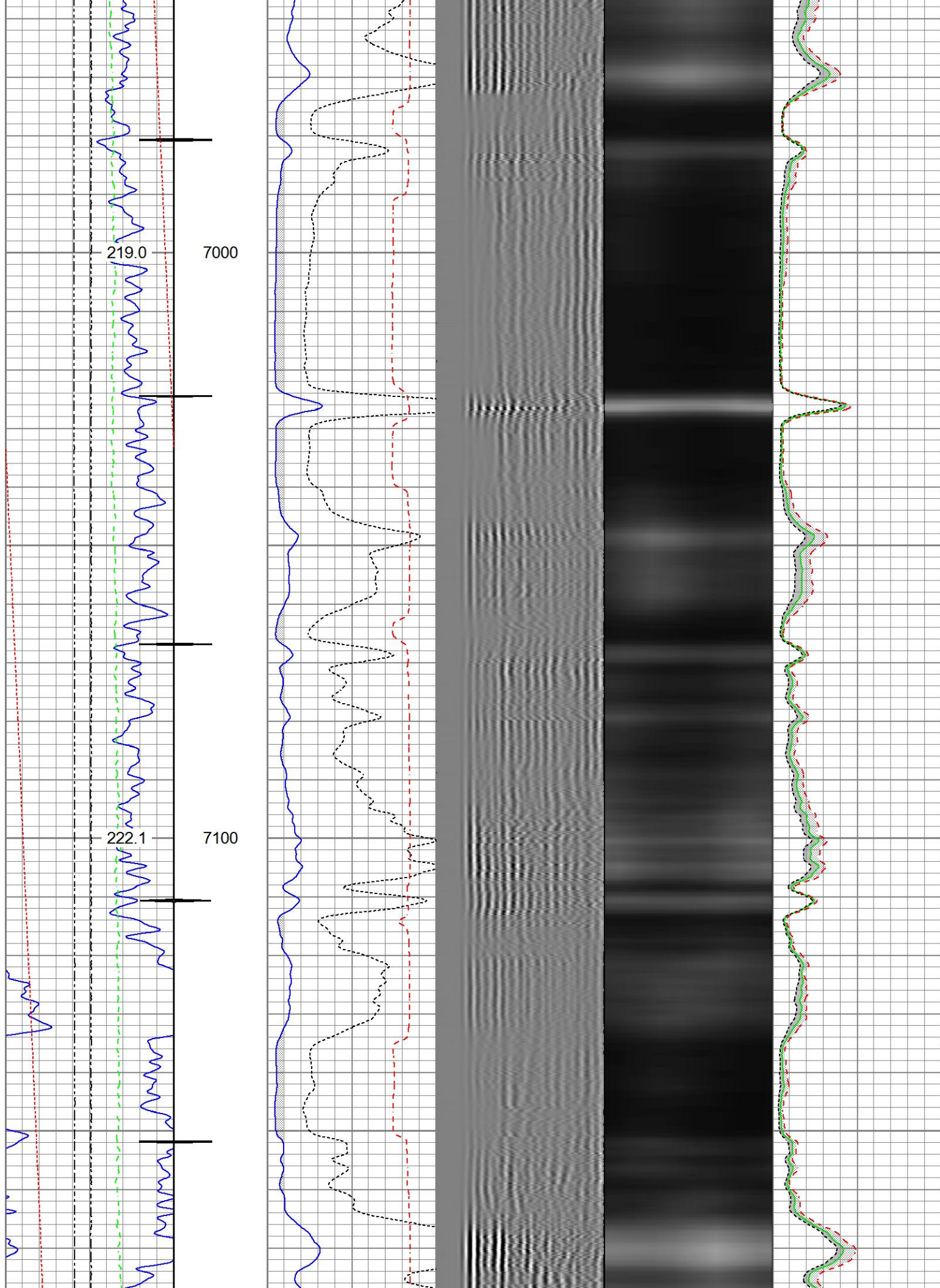




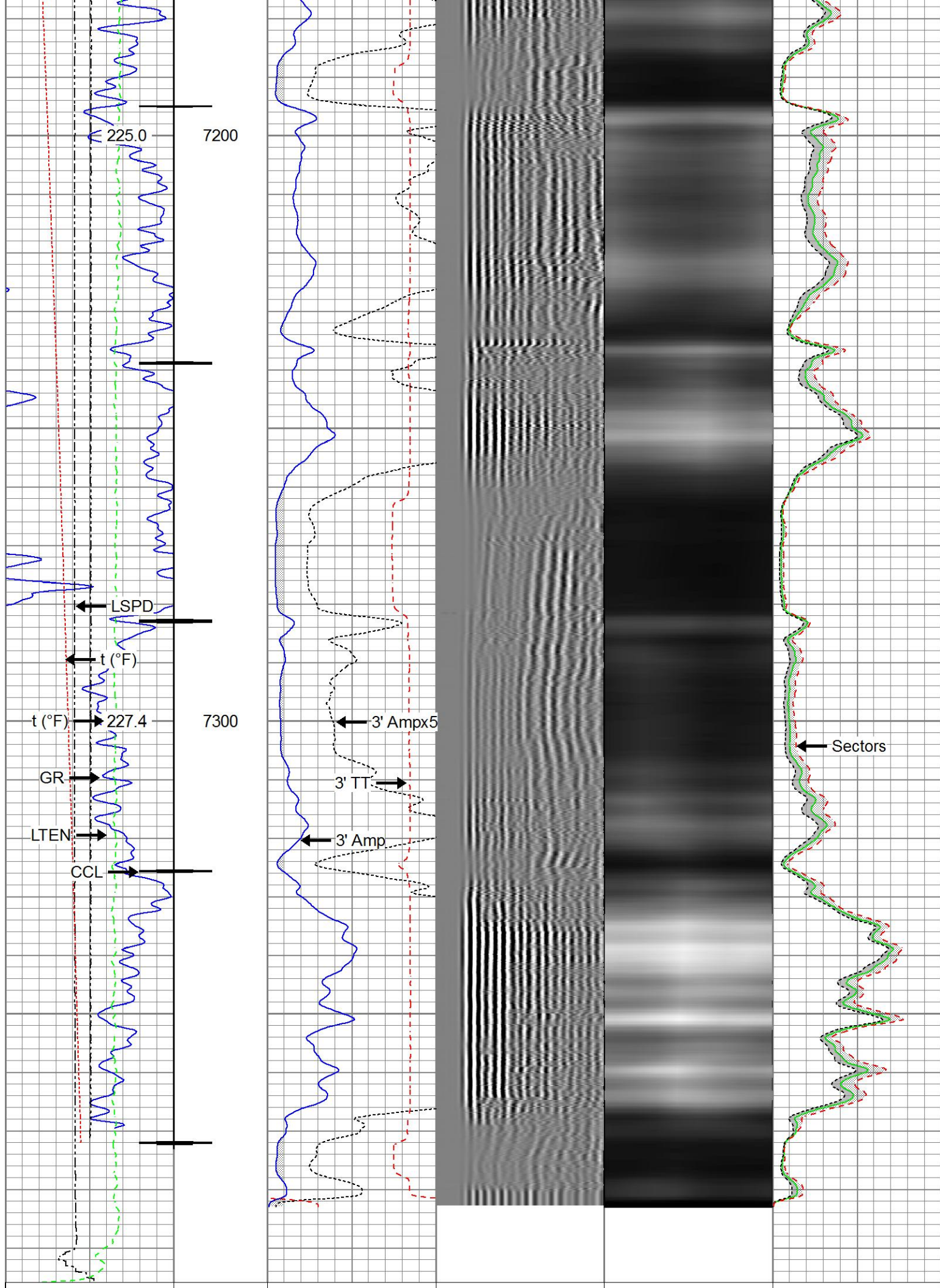












Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Line Speed	0 (mV) 20			0 100
-150 (ft/min) 150	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000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

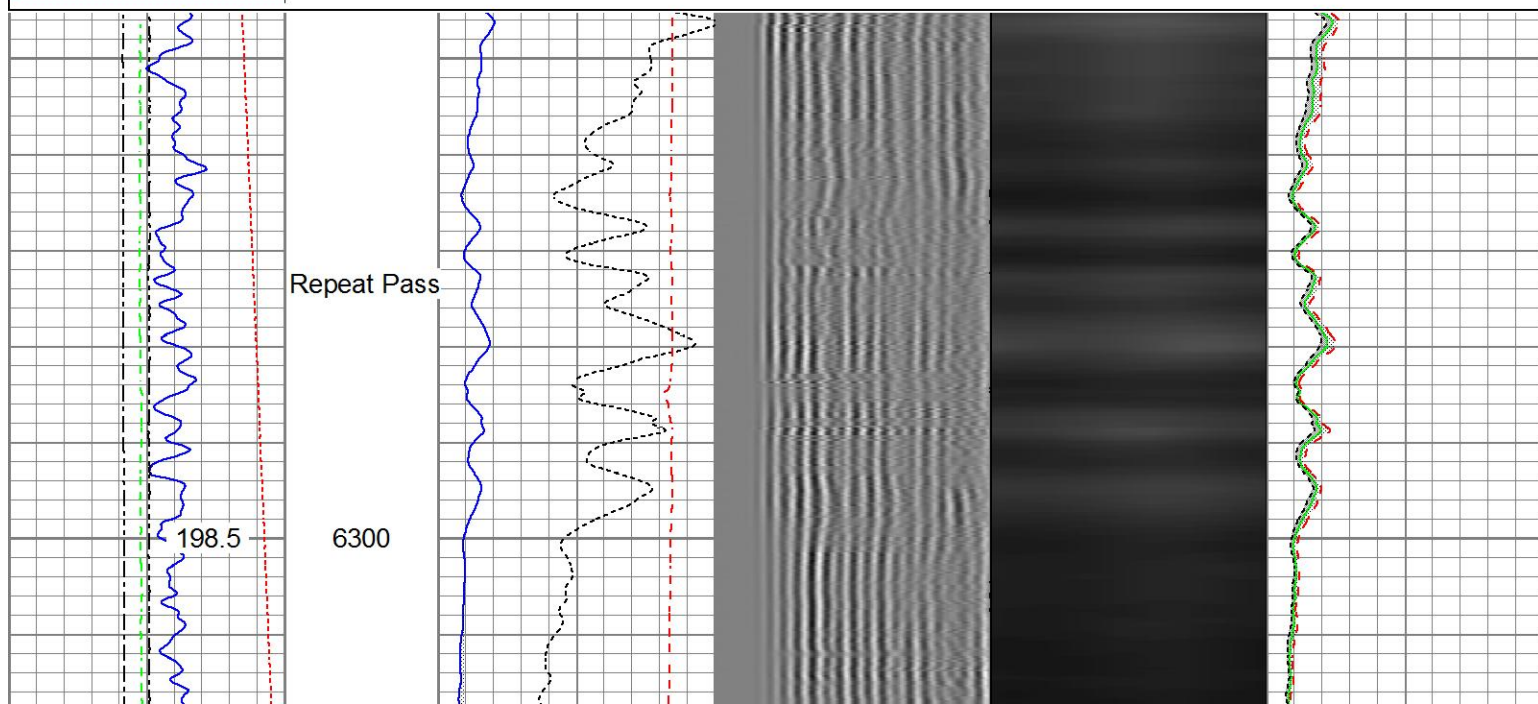


## Repeat Pass

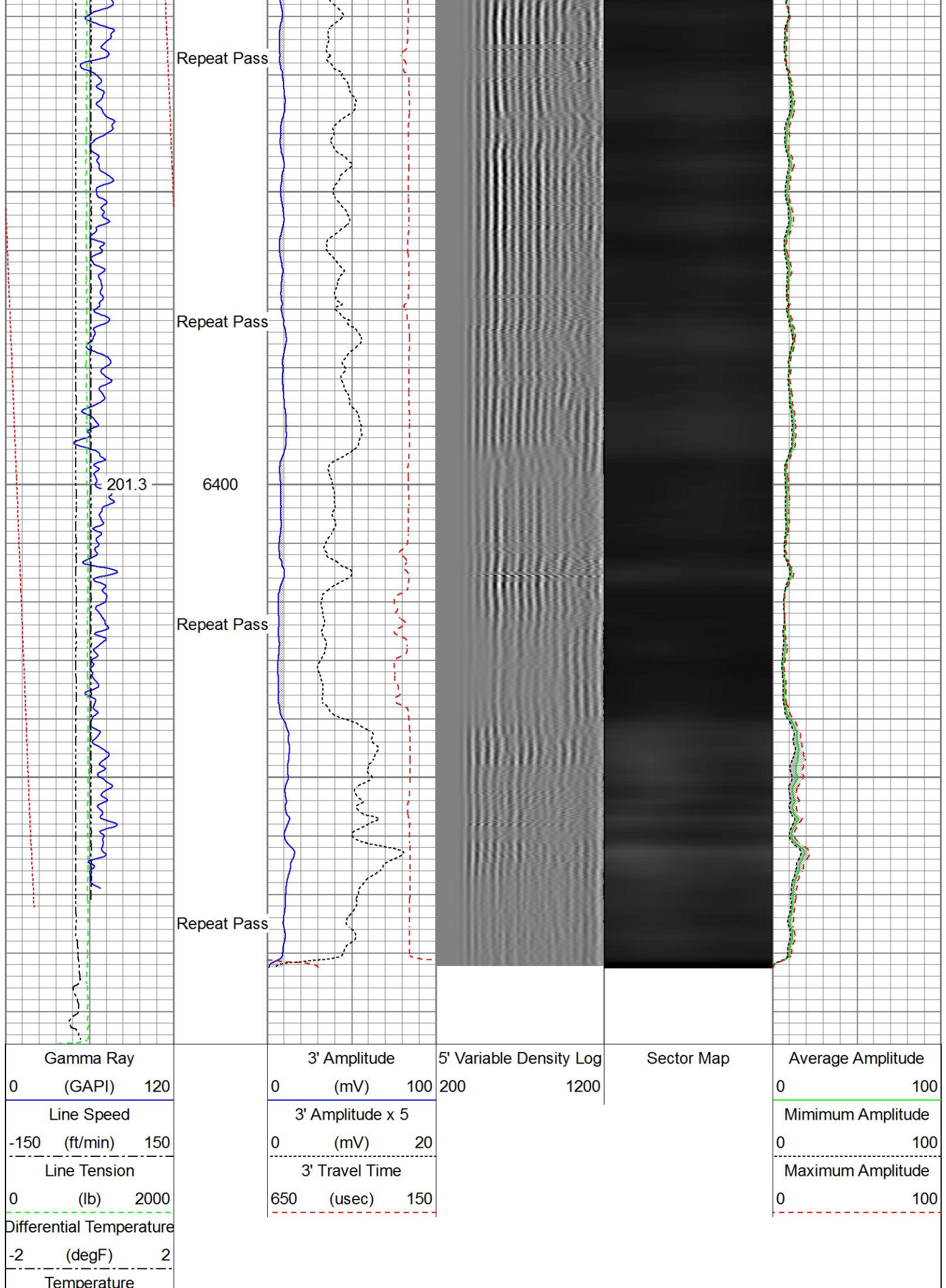
Recorded With 2800 PSI Surface Induced Pressure


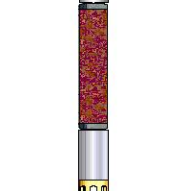

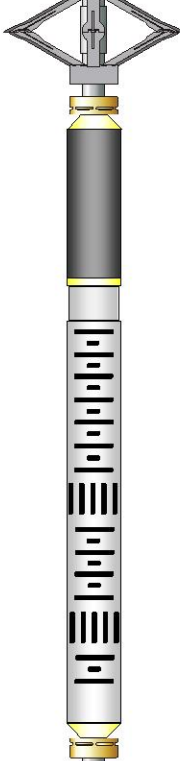
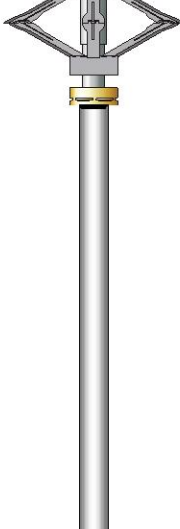
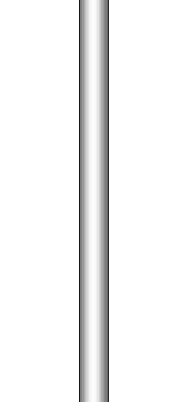
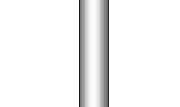
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Dataset Pathname Repeat1  
Presentation Format ros\_rbt004\_sx  
Dataset Creation Tue Feb 14 11:42:57 2017  
Charted by Depth in Feet scaled 1:240

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







Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	24.33		Titan_Electric_Cable_Heads-Titan_1-11/16	161.03	1.69	5.40
			Electric Cable Head with 1" Fishing Neck			
			UW_AGS-UW_AGS_001 (219135)	0.21	1.69	1.00
			Sondex Adapter - GO Box to Sondex Pin			
			UW_XTU-UW_XTU_002 (219135)	1.58	1.69	6.50
TEMP	22.93		Crossover Ultrawire Toolbus to Ultralink			
			UW_PGR-UW_PGR_020 (10013899)	1.92	1.69	9.50
			Production Gamma Ray			
CCL	21.69		UW_PRT-PRT_016 (10025097)	1.04	1.69	5.20
			Platinum Resistance Thermometer			
			UW_CCL-UW_CCL_028 (10026420)	1.61	3.13	36.00
CBLROT WVFS8 WVFS7 WVFS6 WVFS5 WVFS4 WVFS3 WVFS2 WVFS1 WVF3FT WVF5FT CBLTEMP	14.29		3-1/8" Ultrawire Casing Collar Locator			
			UW_PRC-DSS_RAC	2.55	2.75	32.00
			5 Arm 2-3/4" Roller Centralizer			
CNLSC CNSSC TSTAMP	0.00		UW_RBT-UW_RBT_004 (10013454)	9.48	3.13	140.00
			Sondex Ultrawire 3-1/8" Radial Bond Tool			
			UW_PRC-DSS_RAC	2.55	2.75	32.00
			5 Arm 2-3/4" Roller Centralizer			
						
			UW_CNL-UW_CNL_007 (1005)	6.61	1.69	30.00
			Sondex Compensated Neutron Logging Tool			
CNLSC CNSSC TSTAMP	0.00					



Dataset: 0512341296\_Anadarko\_Whisper\_Rock\_2C-25HZ\_02-14-17\_RBL.db: field/well/run1/Main2.2  
Total length: 28.58 ft  
Total weight: 297.60 lb  
O.D.: 3.13 in

### Calibration Report

Database File D:\Warrior\Data\Anadarko\_Whisper Rock 2C-25HZ\0512341296\_Anadarko\_Whisper\_Rock\_2C-25HZ\_02-14-17\_RBL.db  
Dataset Pathname Main2.2  
Dataset Creation Tue Feb 14 17:47:29 2017

### Compensated Neutron Calibration Report

Serial Number: 1005  
Tool Model: UW\_CNL\_007

Master Calibration Sun Feb 07 11:39:11 2016

Detector Readings

Short Space 240.87 cps  
Long Space 303.55 cps

Ratio Measured Reference  
0.8150 Sleeve: 1.0000  
CNRAT Gain K 1.0271

Before Survey

Detector Readings

Short Space cps  
Long Space cps

Ratio Measured Reference

After Survey

Detector Readings

Short Space cps  
Long Space cps

Ratio Measured Reference

### Segmented Cement Bond Log Calibration Report

Serial Number: 10013454  
Tool Model: UW\_RBT\_004

Calibration Casing Diameter: 7.000 in  
Calibration Depth: 305.118 ft

### Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.002	0.835	0.800	71.921	84.926	0.981
5FT	-0.007	0.842	0.800	71.921	83.831	1.355
S1	-0.001	0.715	0.000	100.000	139.543	0.207
S2	-0.003	0.749	0.000	100.000	132.870	0.440
S3	-0.004	0.746	0.000	100.000	133.371	0.515
S4	-0.004	0.802	0.000	100.000	124.139	0.488
S5	-0.003	0.702	0.000	100.000	125.861	0.215

S5	-0.003	0.792	0.000	100.000	125.861	0.315
S6	-0.003	0.733	0.000	100.000	135.893	0.392
S7	-0.002	0.702	0.000	100.000	141.893	0.342
S8	-0.003	0.700	0.000	100.000	142.099	0.466

### Temperature Calibration Report

Serial Number:	10025097
Tool Model:	PRT_016
Performed:	Sun Oct 11 12:34:58 2015

Point #	Reading		Reference	
1	13053.00	cps	68.00	degF
2	18014.00	cps	104.00	degF
3	29668.00	cps	176.00	degF
4	41181.00	cps	248.00	degF
5	52983.00	cps	320.00	degF
6	58931.00	cps	356.00	degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF

### Gamma Ray Calibration Report

Serial Number:	10013899	
Tool Model:	UW_PGR_020	
Performed:	(Not Performed)	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Whisper Rock 2C-25HZ
Field	Wattenberg
County	Weld
State	Colorado