



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.  
Well Butterball 22N-34HZ  
Field Wattenberg  
County Weld  
State Colorado

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Location: API #: 05-123-44518  
SEC 10 TWP 2N RGE 67W  
Permanent Datum Ground Level Elevation 4947'  
Log Measured From Kelly Bushing 26 FT  
Drilling Measured From Kelly Bushing  
Other Services  
Gauge Ring RBP  
Elevation  
K.B. 4973'  
D.F. ---  
G.L. 4947'

Run Number	Three				
Depth Driller	16018 FT				
Depth Logger	6645 FT				
Bottom Logged Interval	6640 FT				
Top Log Interval	Surface				
Open Hole Size	7.875"				
Type Fluid	Water				
Density / Viscosity	8.34 lb/gal				
Max. Recorded Temp.	213°F				
Estimated Cement Top	See Log				
Time Well Ready	ROA				
Time Logger on Bottom	16:18				
Equipment Number	HD-0325				
Location	Fort Lupton, CO				
Recorded By	Brandon Briscoe				
Witnessed By	Kyle Carver				
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	1855 FT
Intermediate #1	5 1/2	17	HCP-110	Surface	16007 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 6593 FT  
Adjusted -10 FT to correlate with Marker Joint  
Gauge Ring/Junk Basket ran to 7664 FT with no debris  
RBP set at 6685 FT  
Log ran from just above RBP 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!!

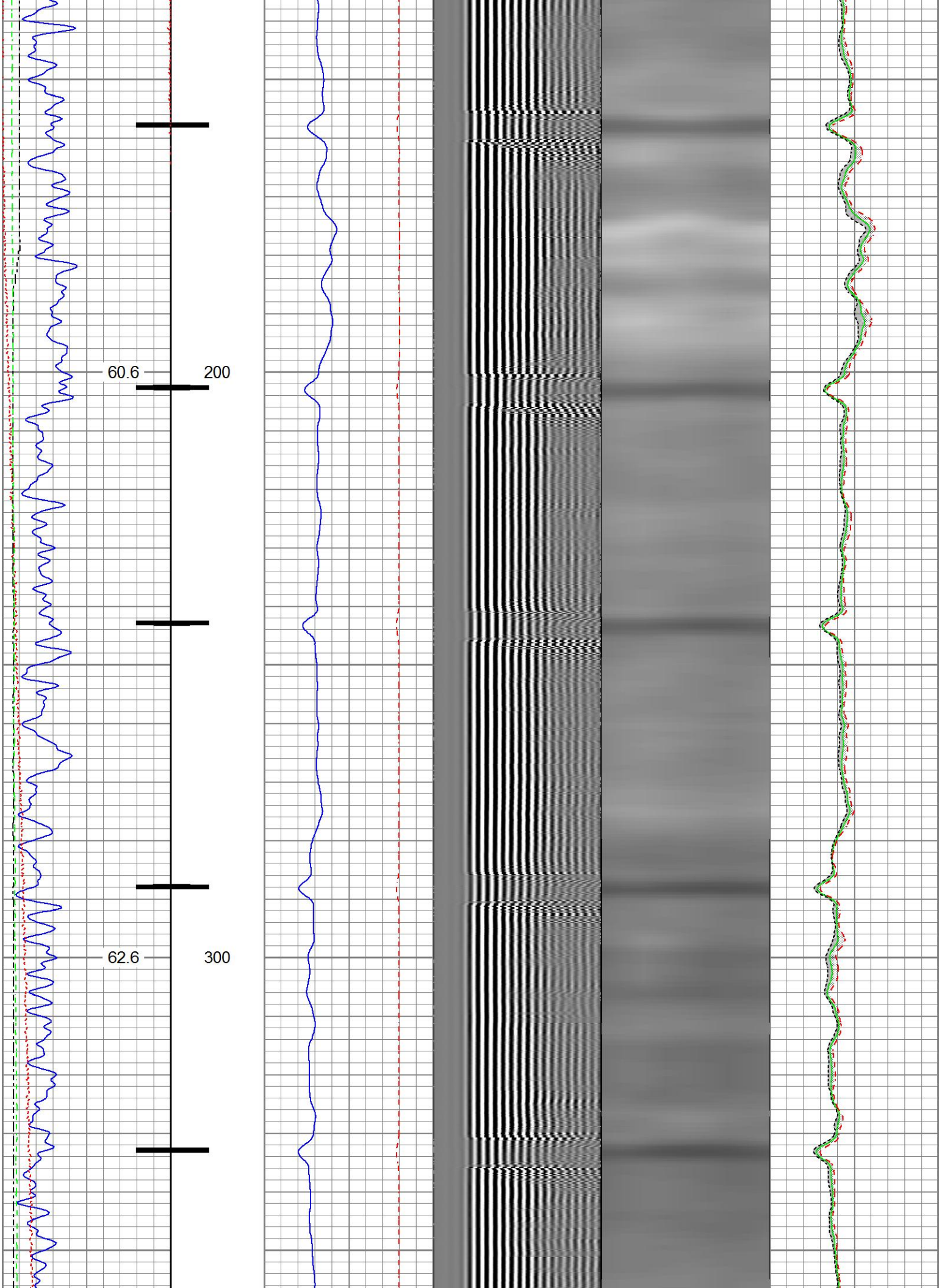


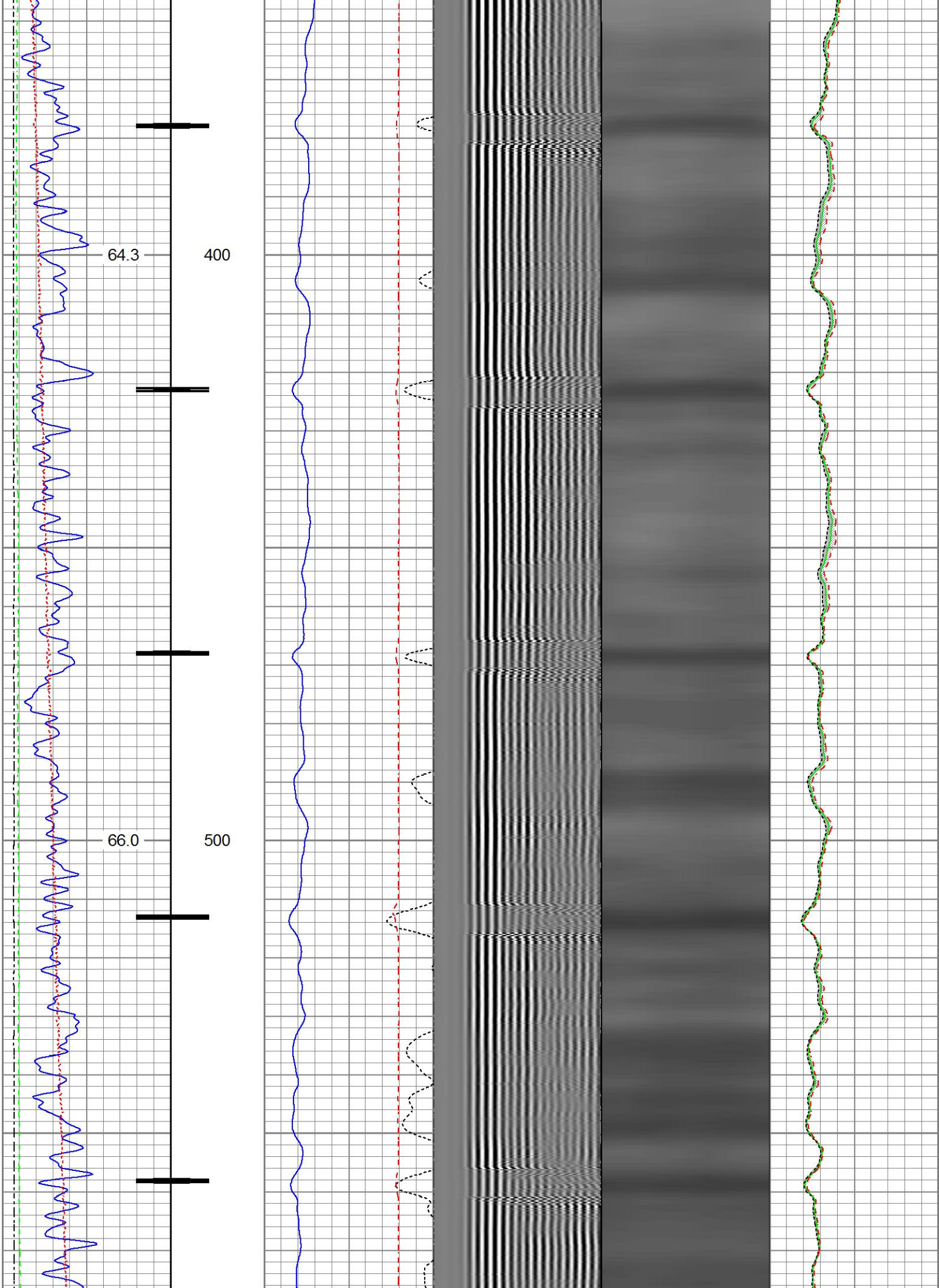
Main Pass

Recorded With 2800 PSI Surface Induced Pressure

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								

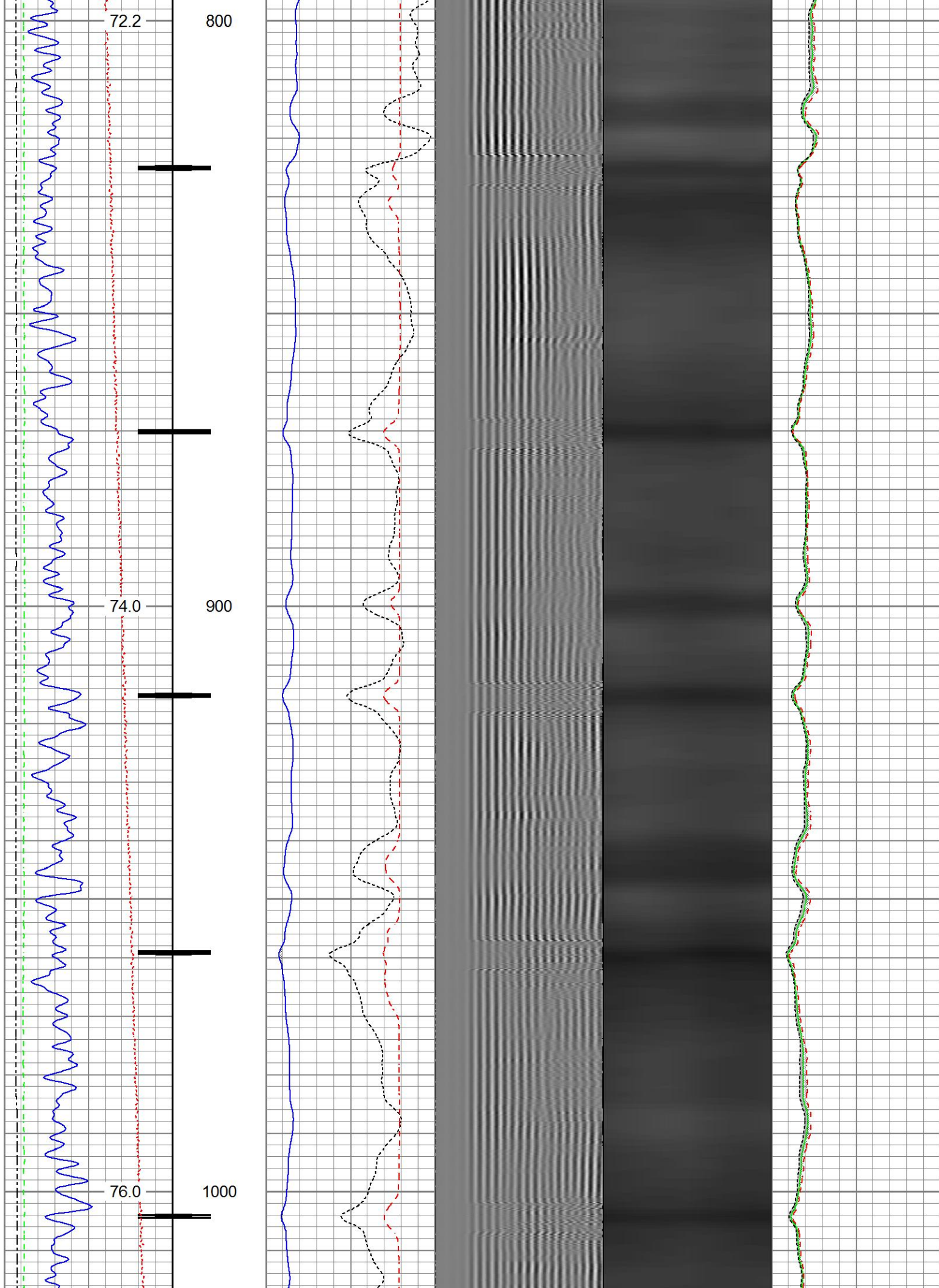




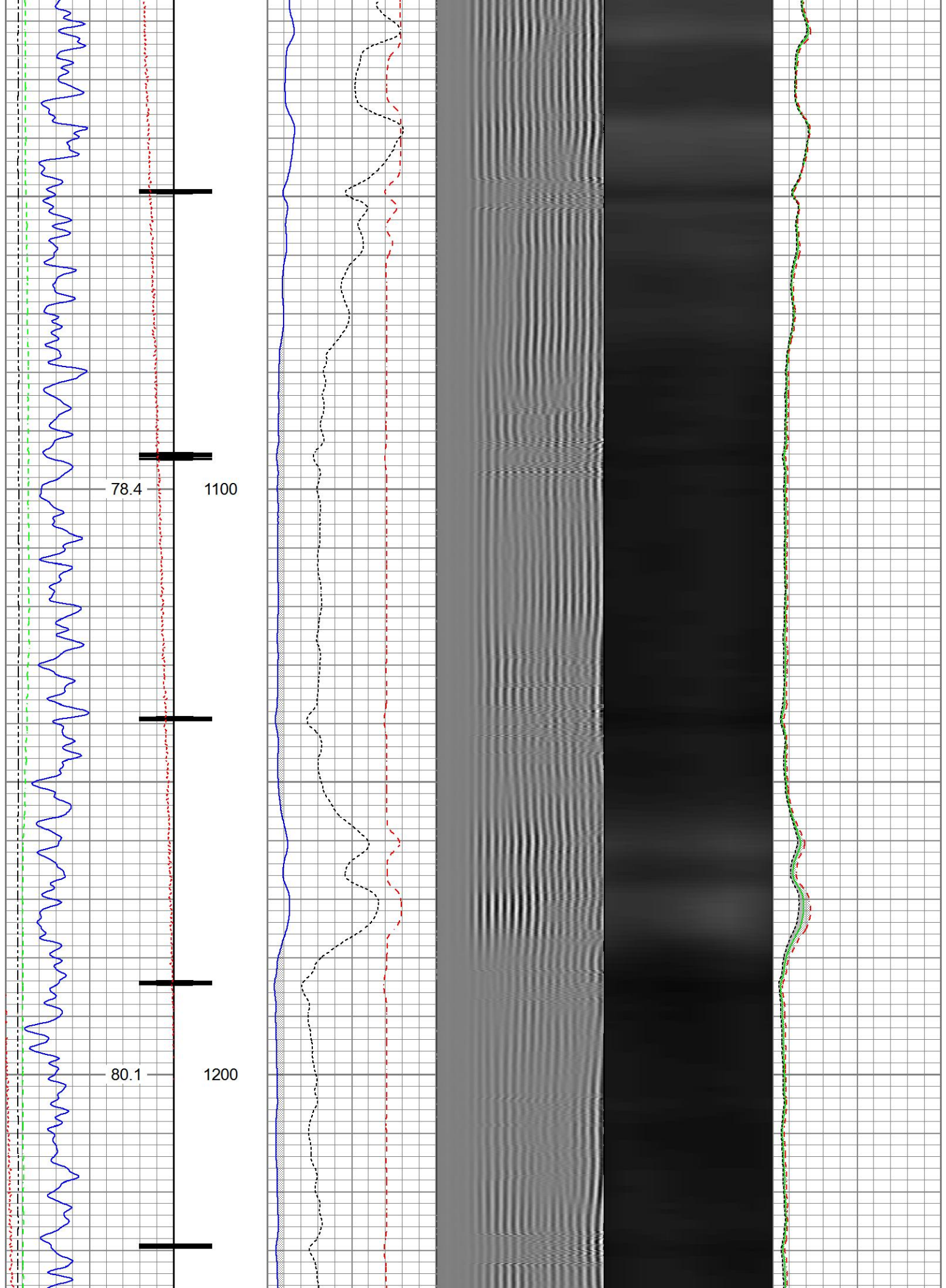


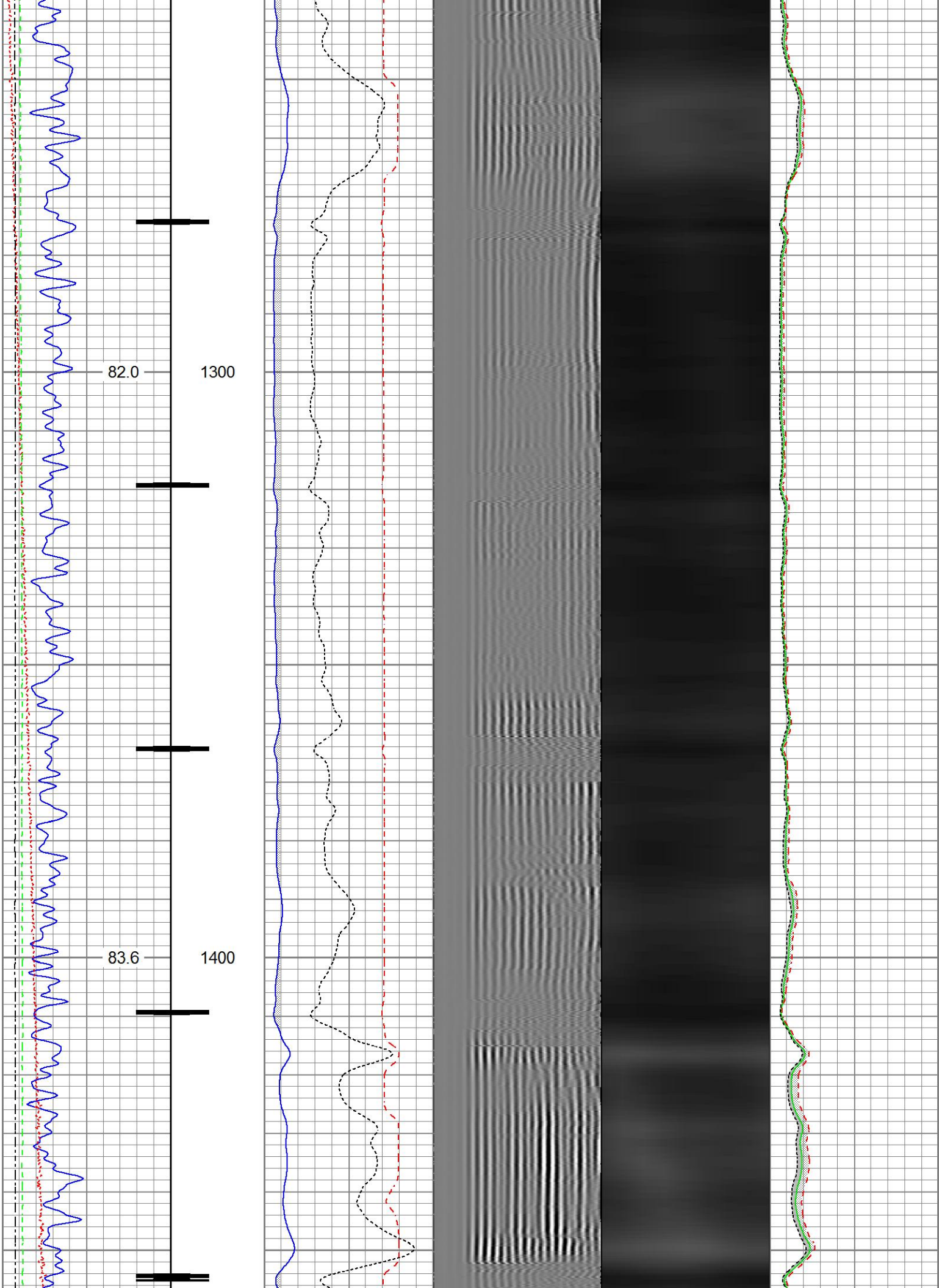




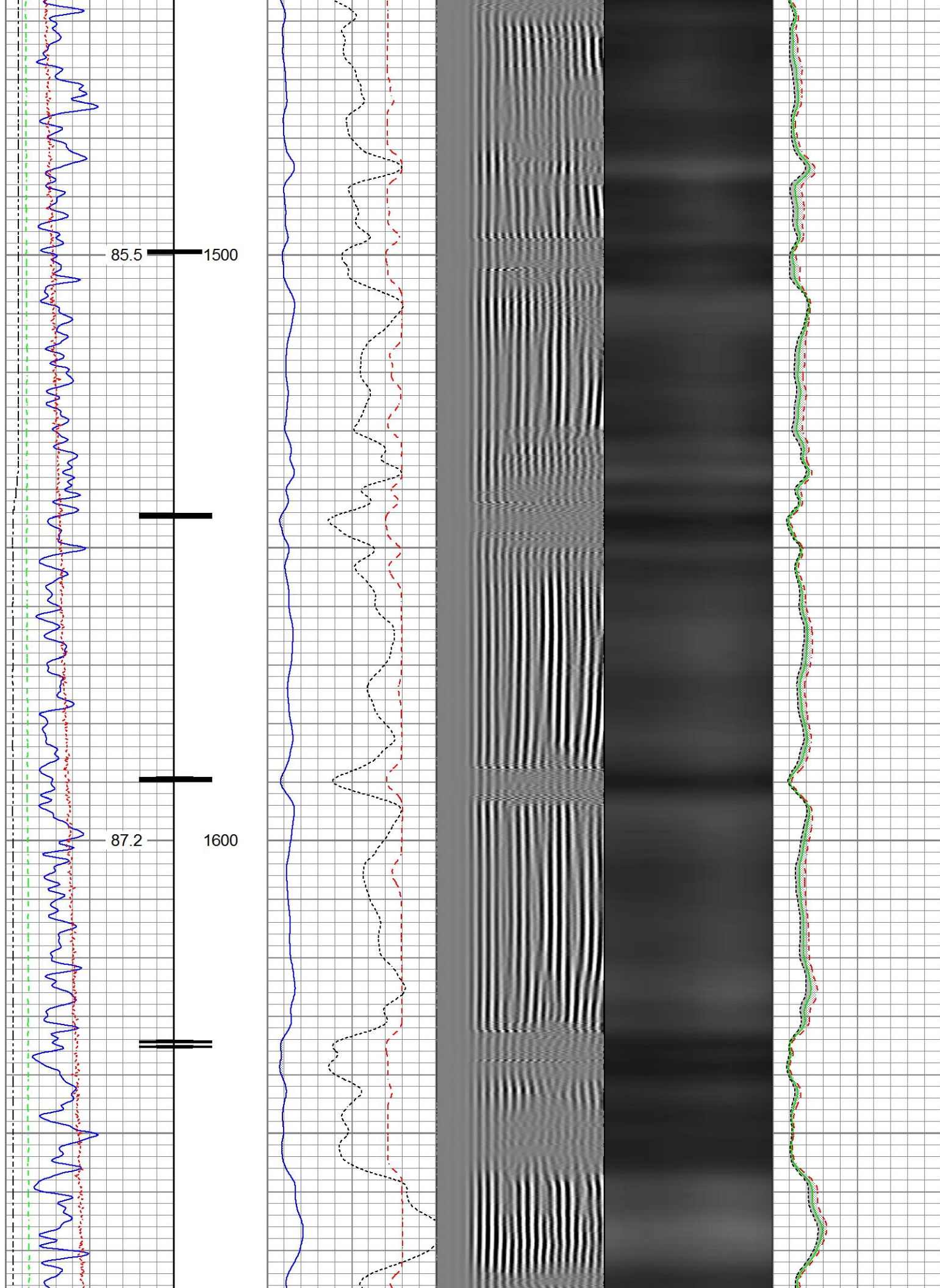


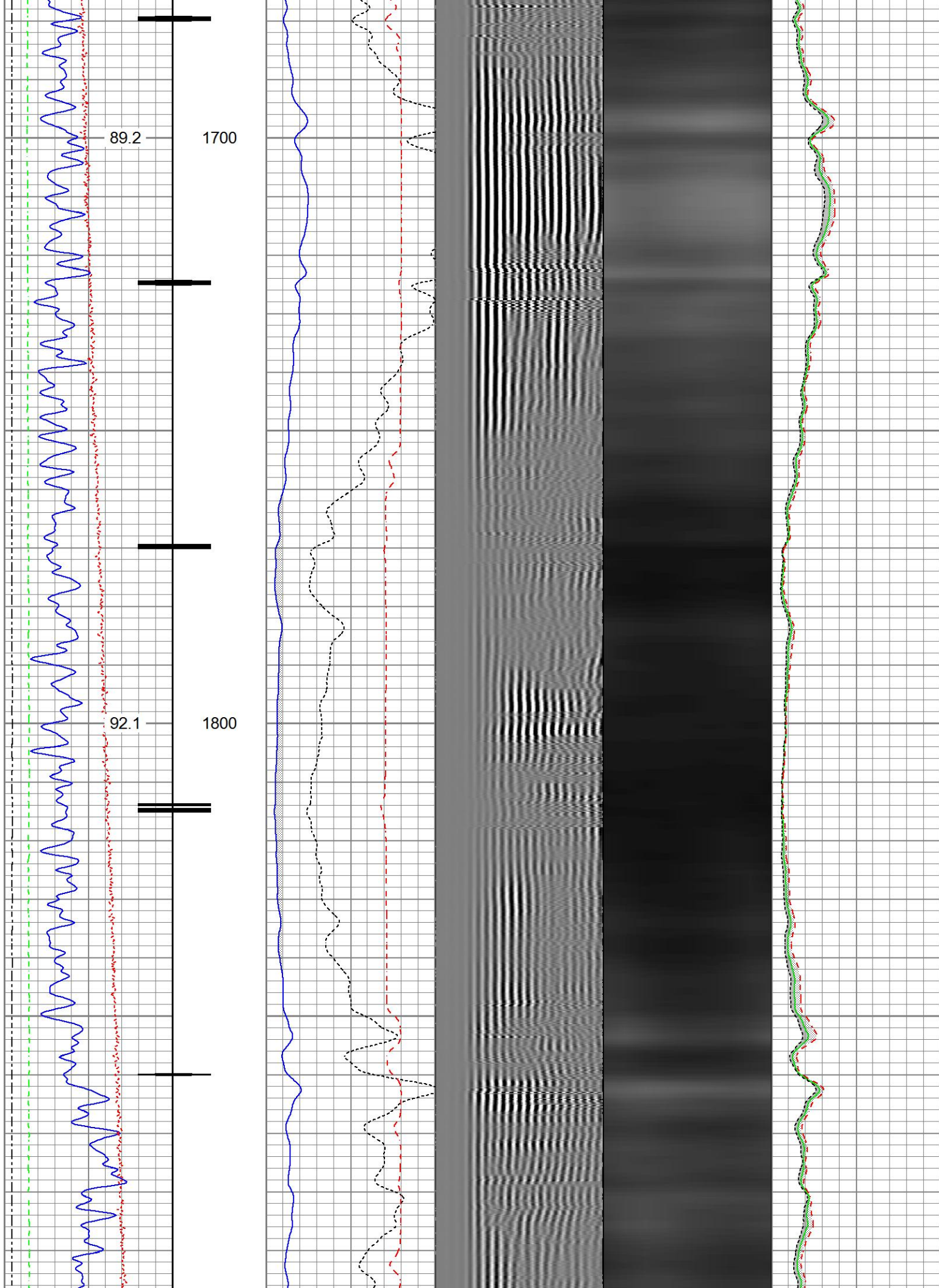




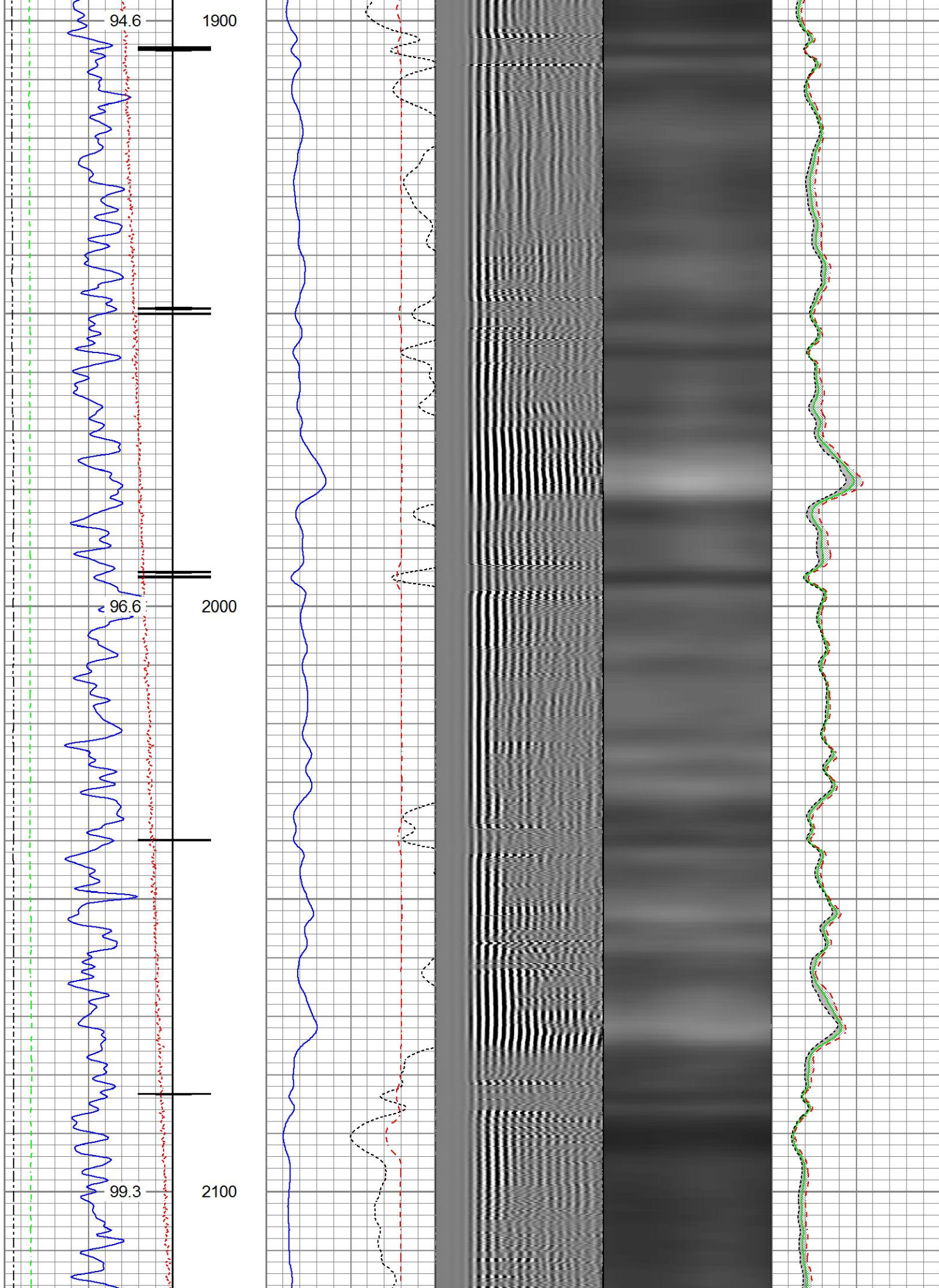


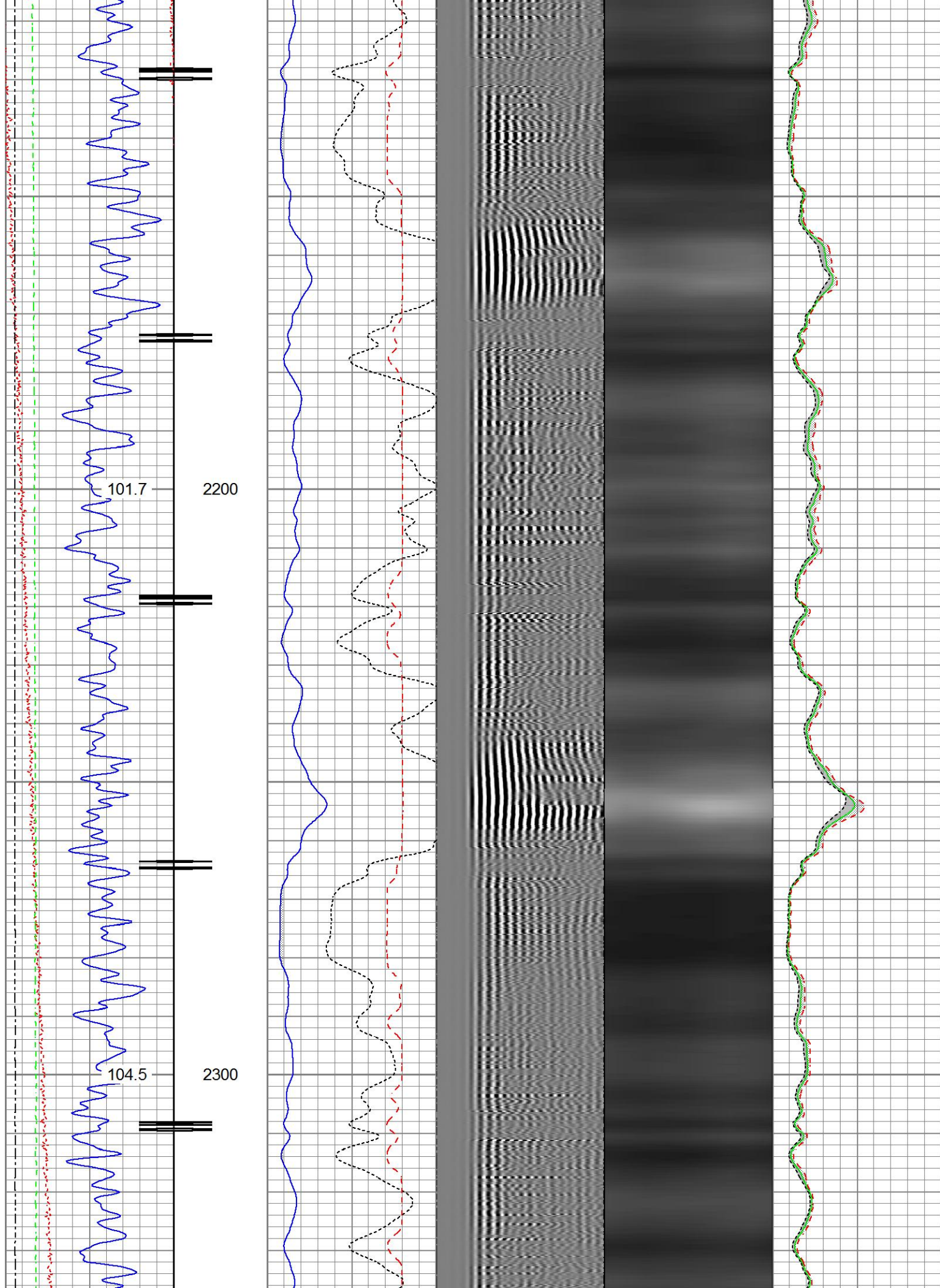




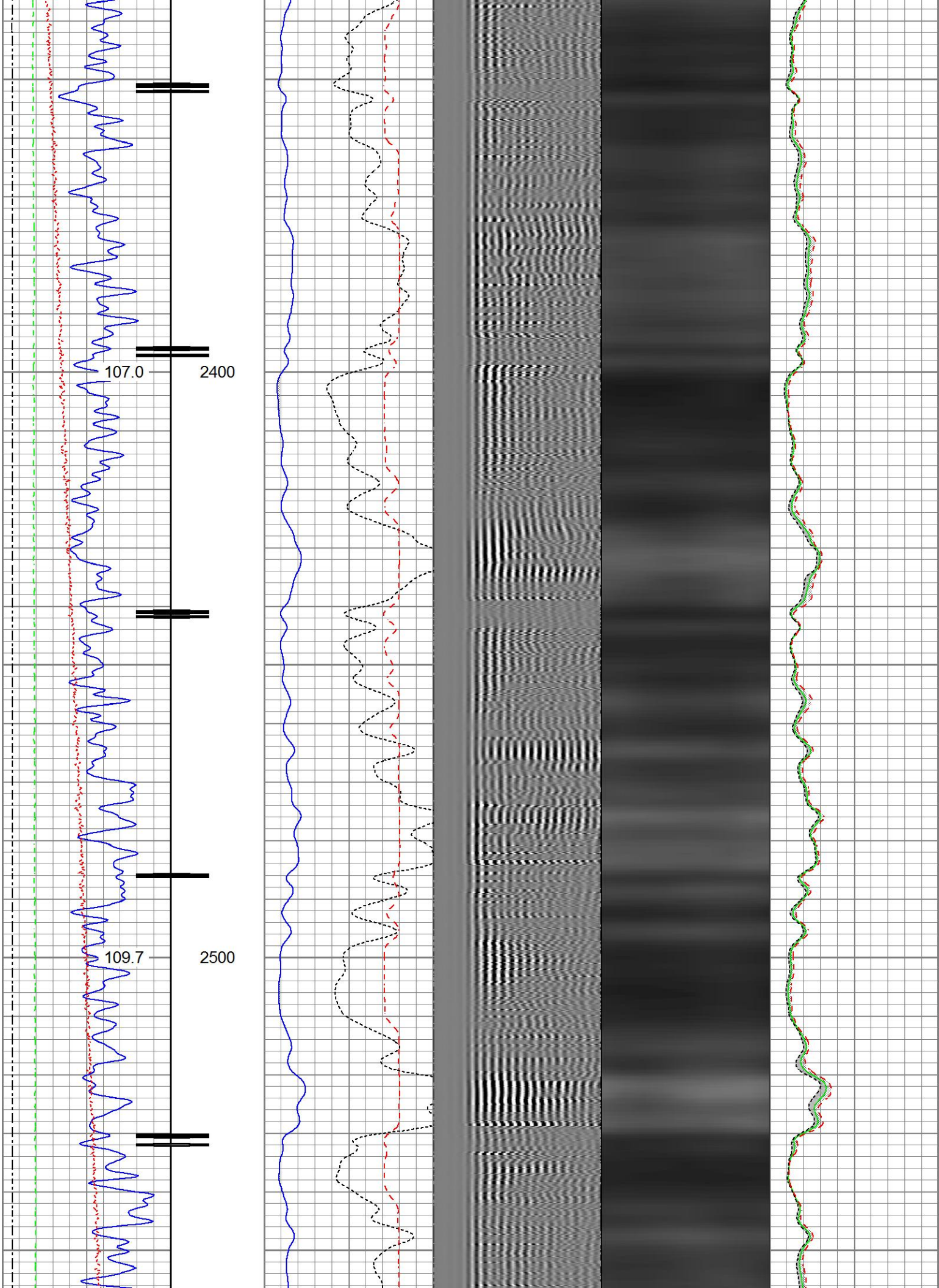


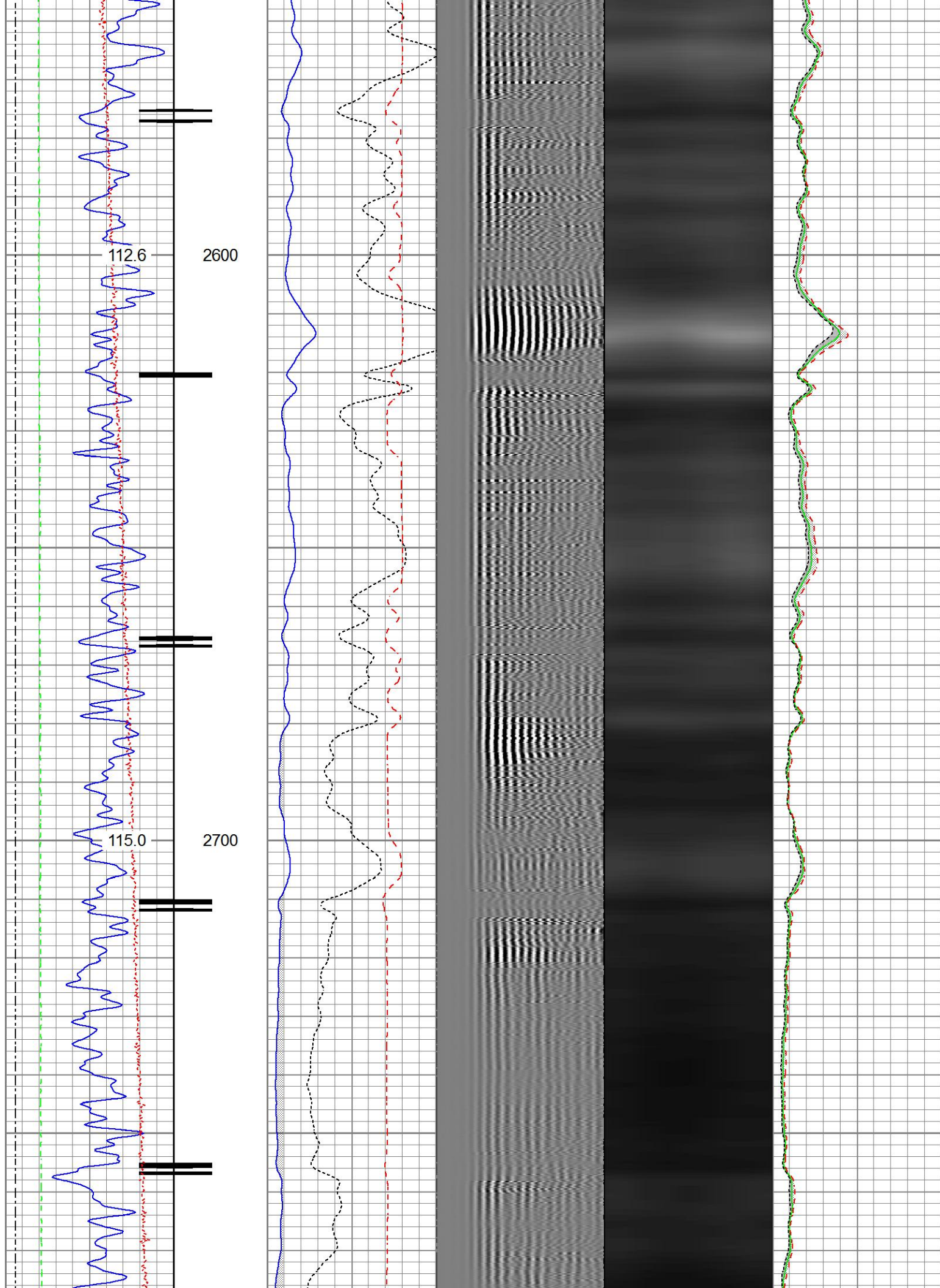




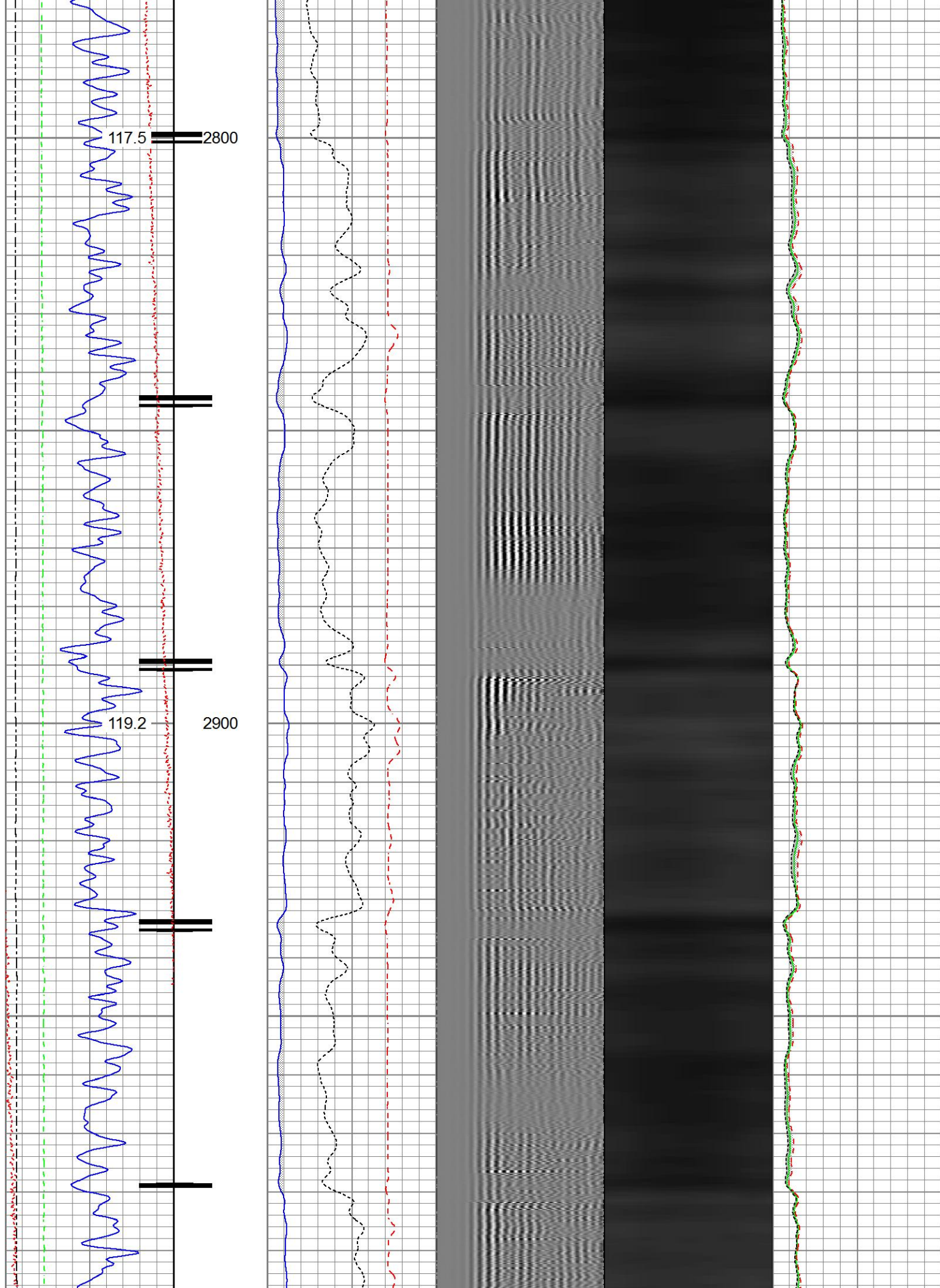


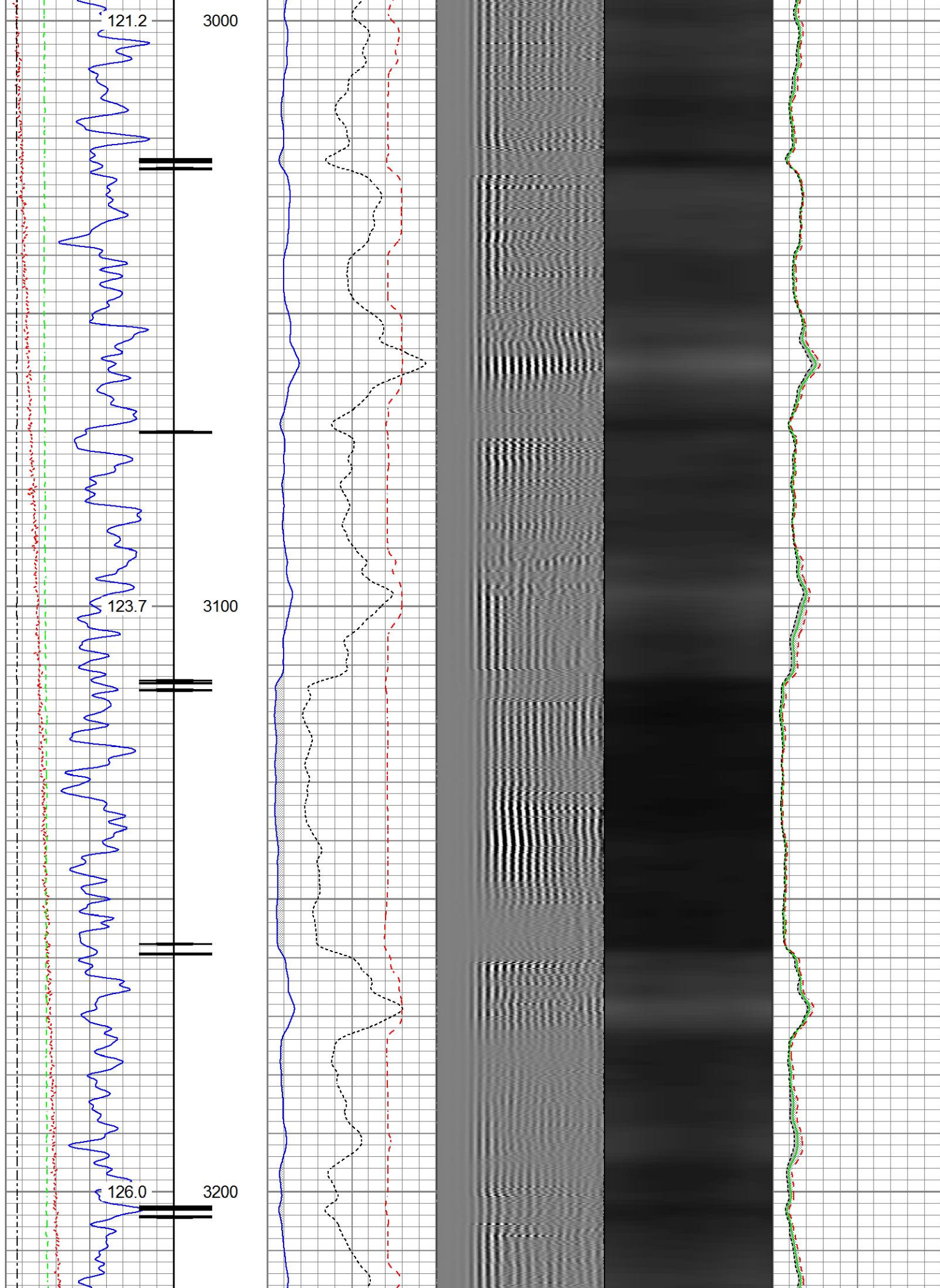




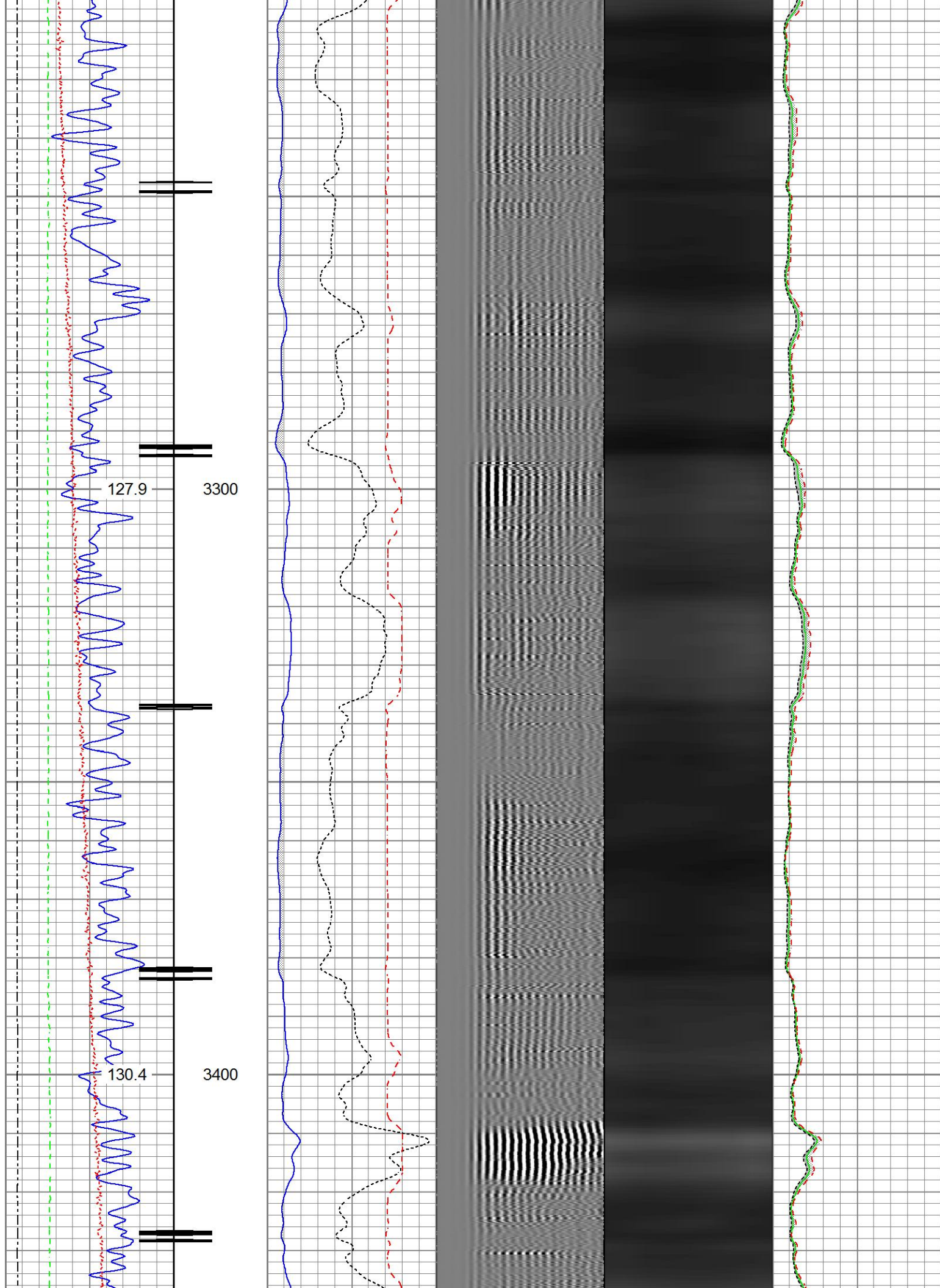


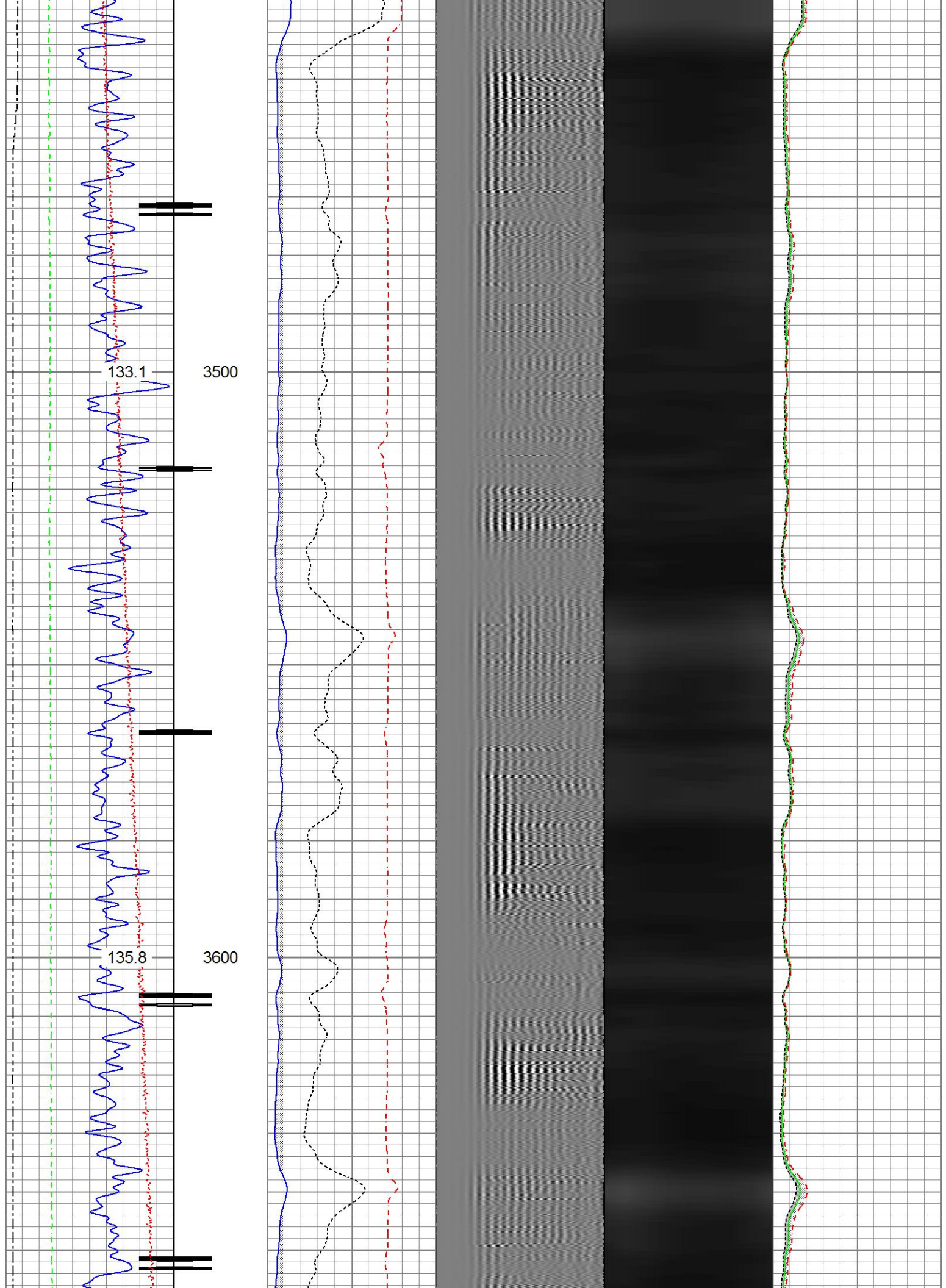




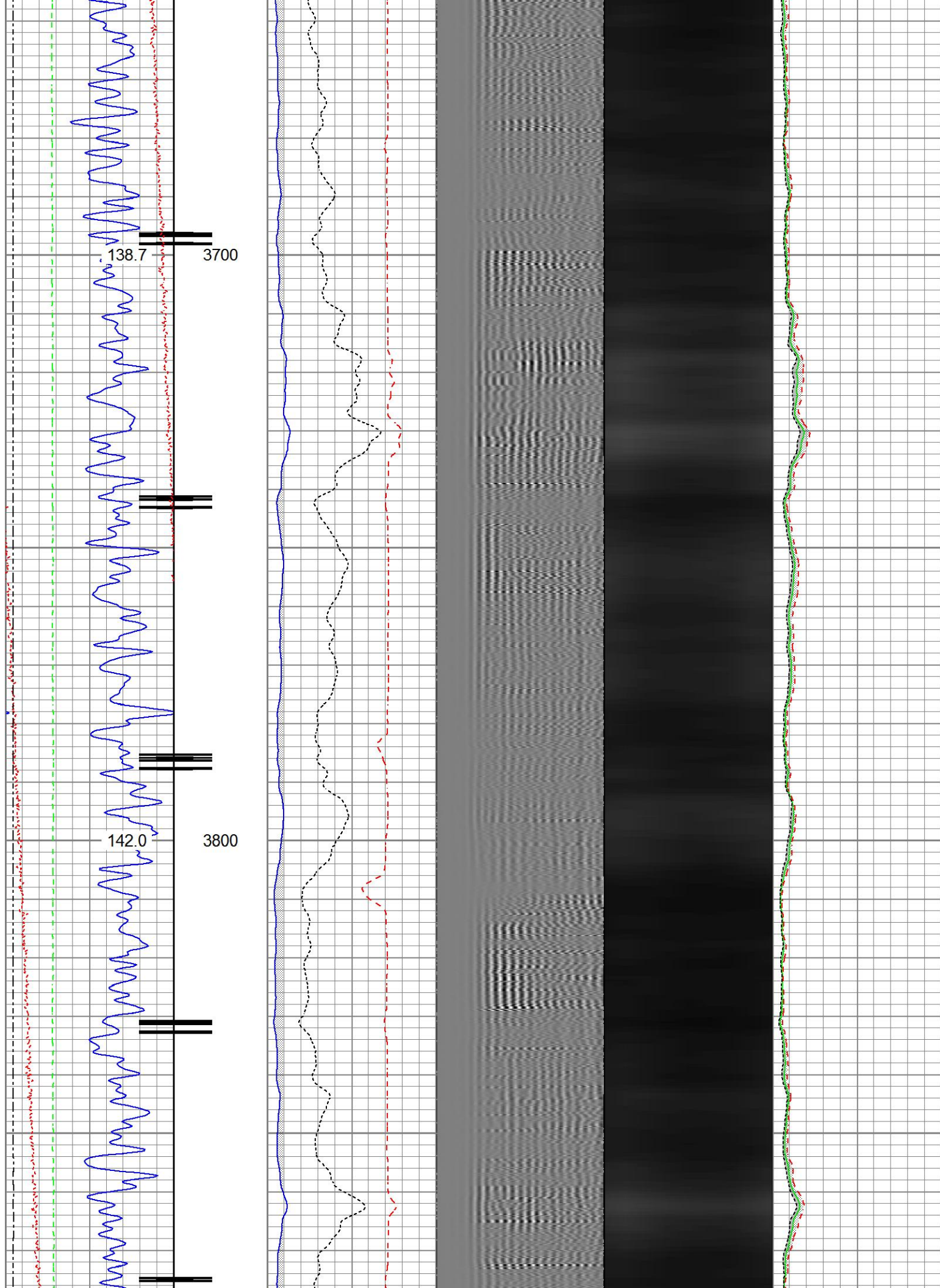


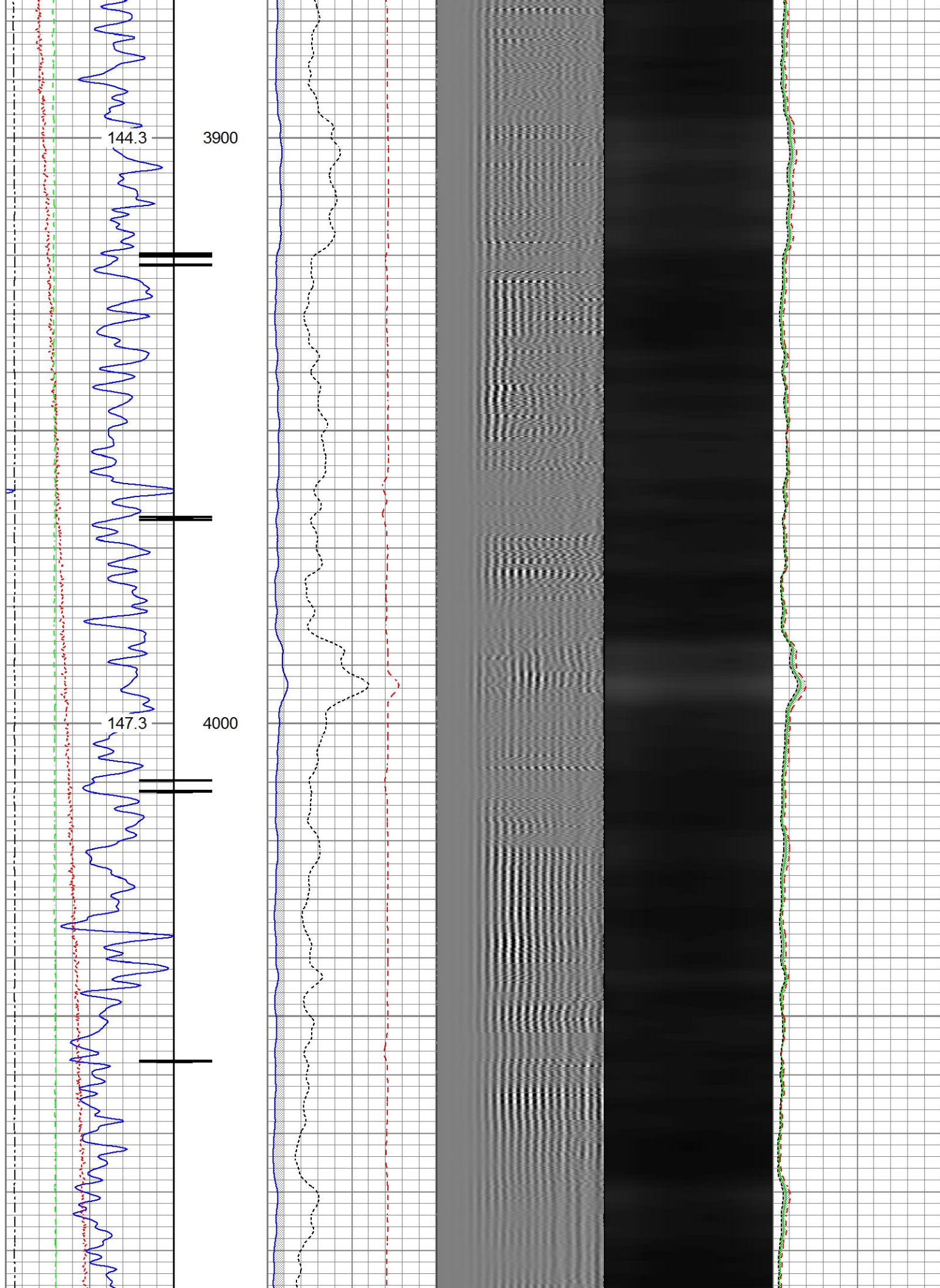




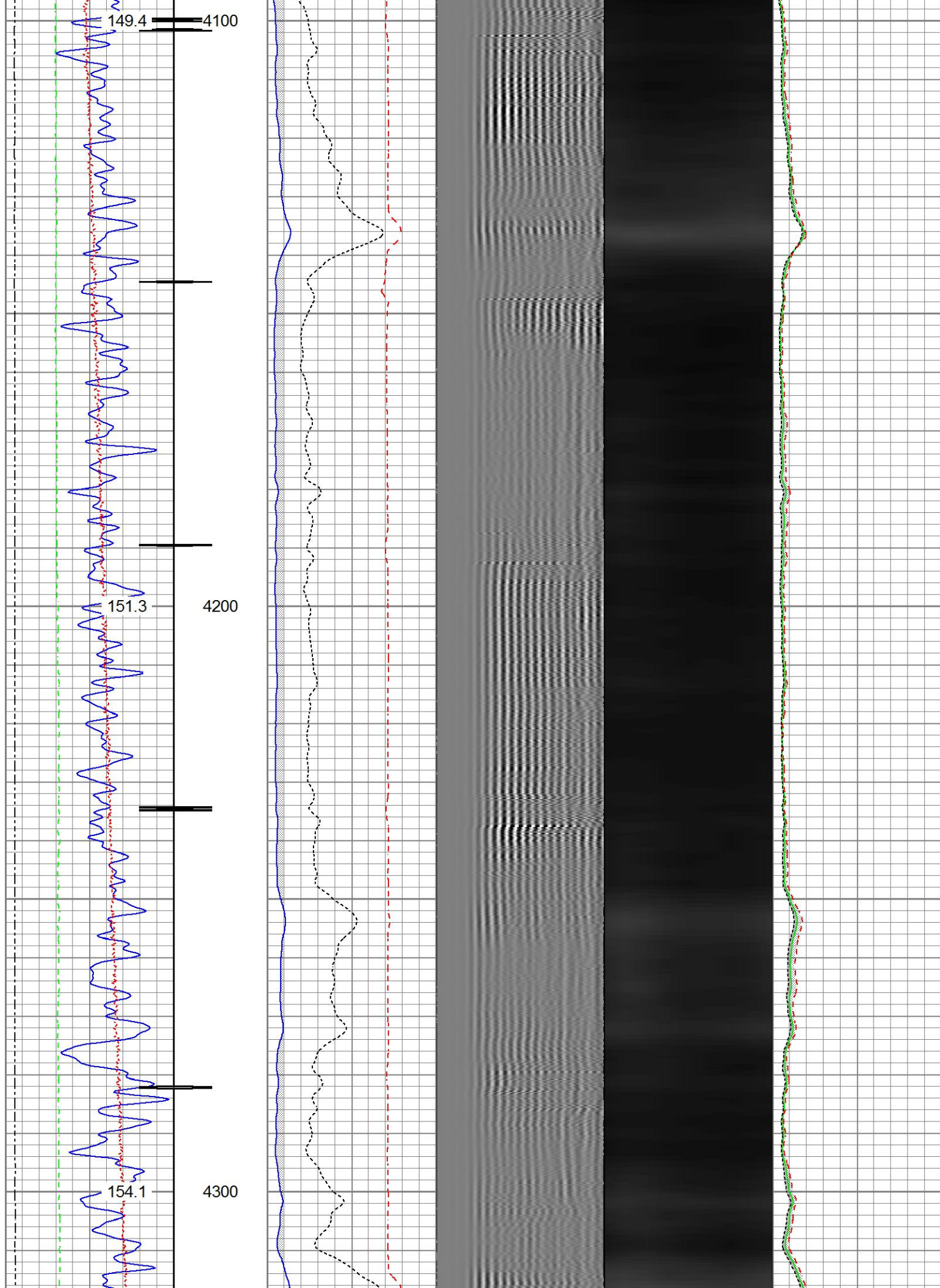


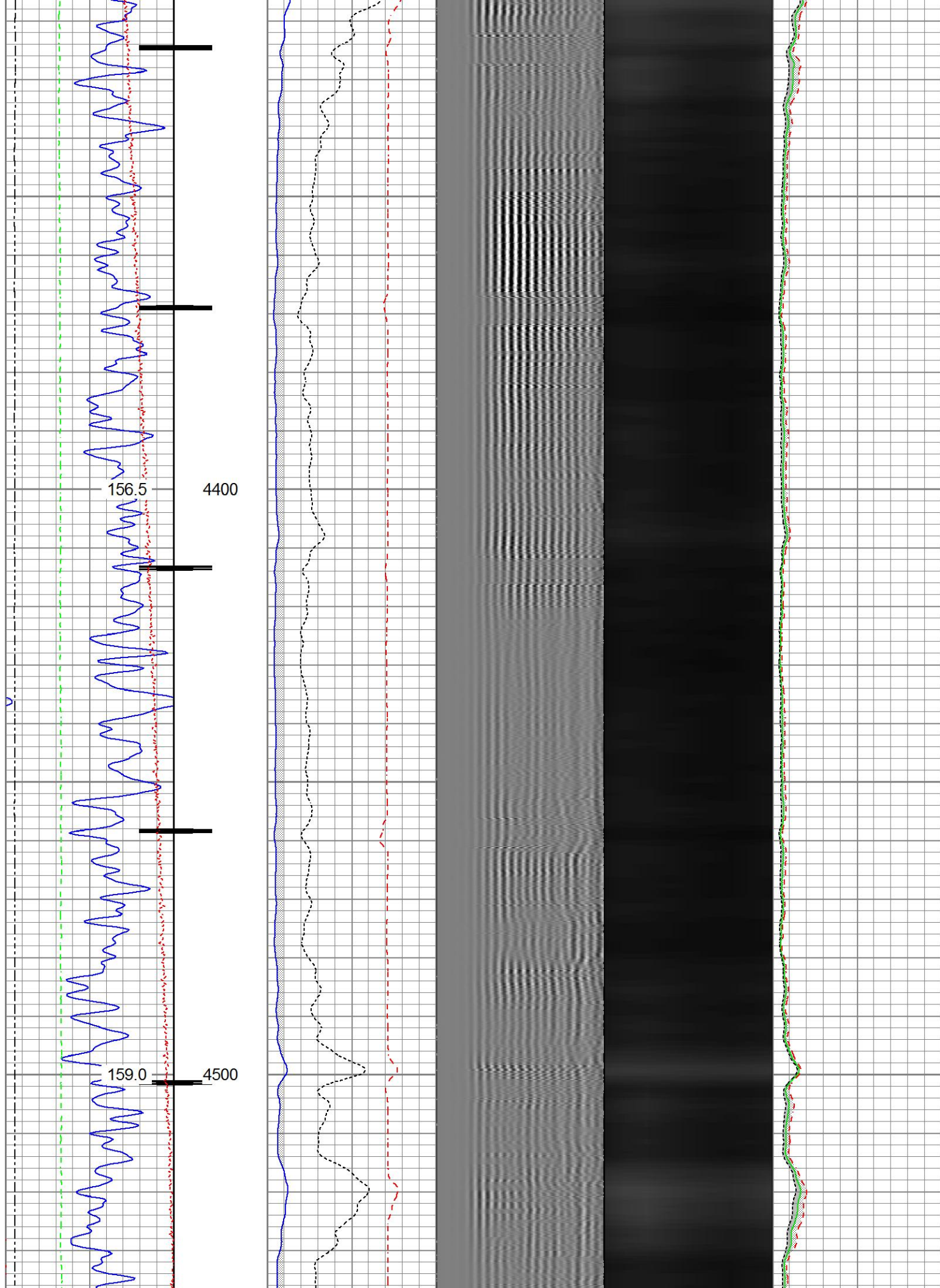




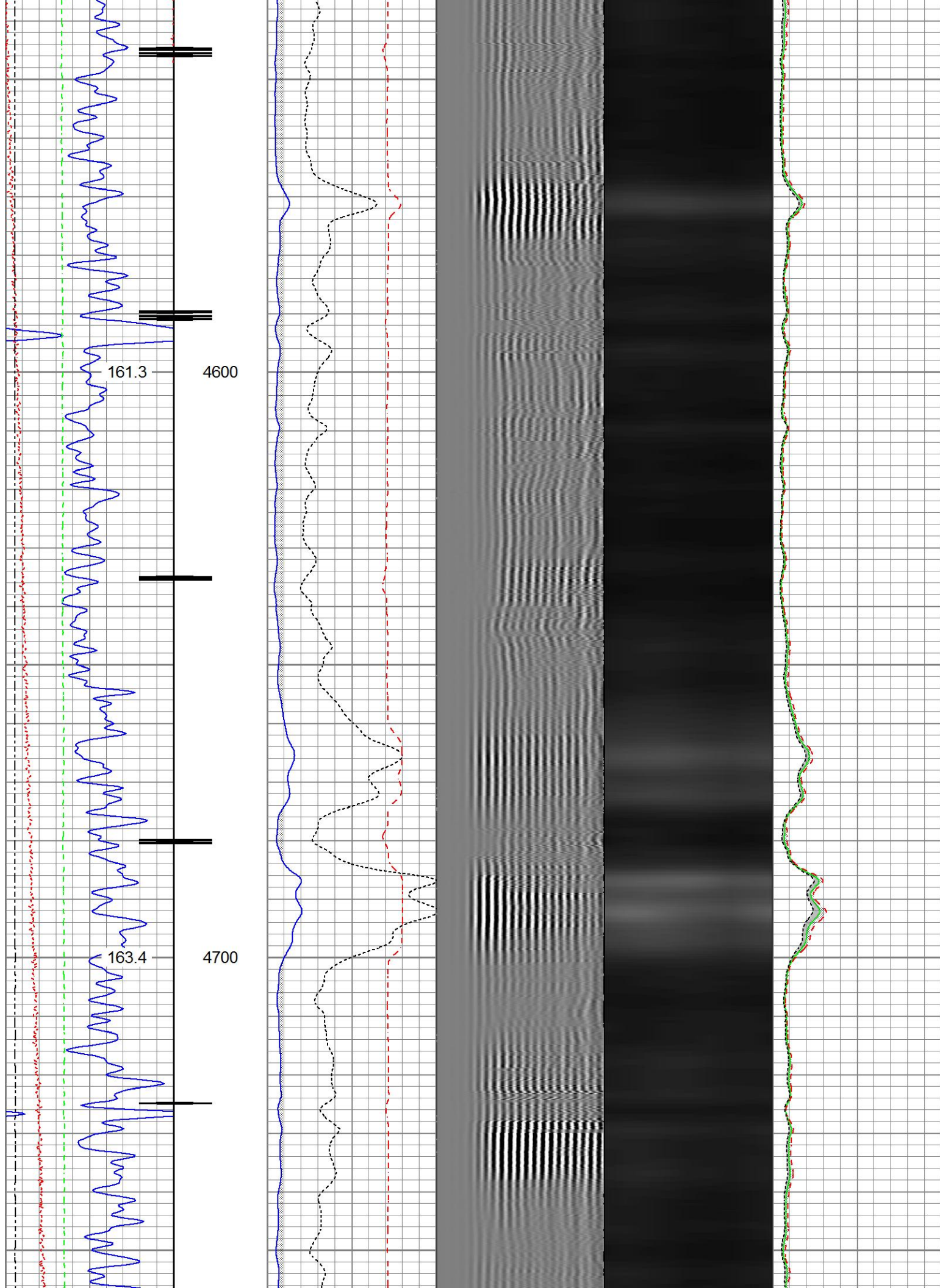


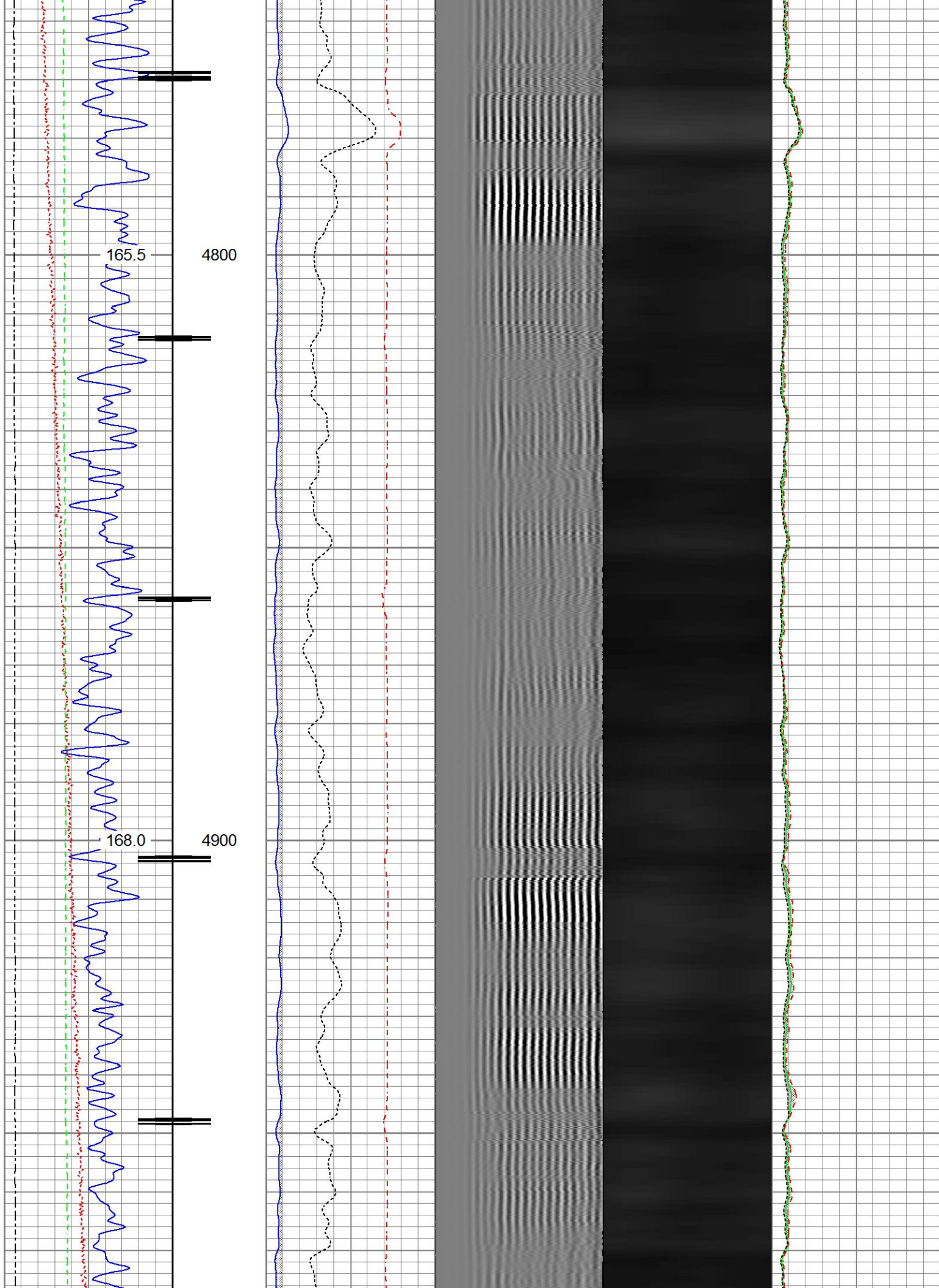




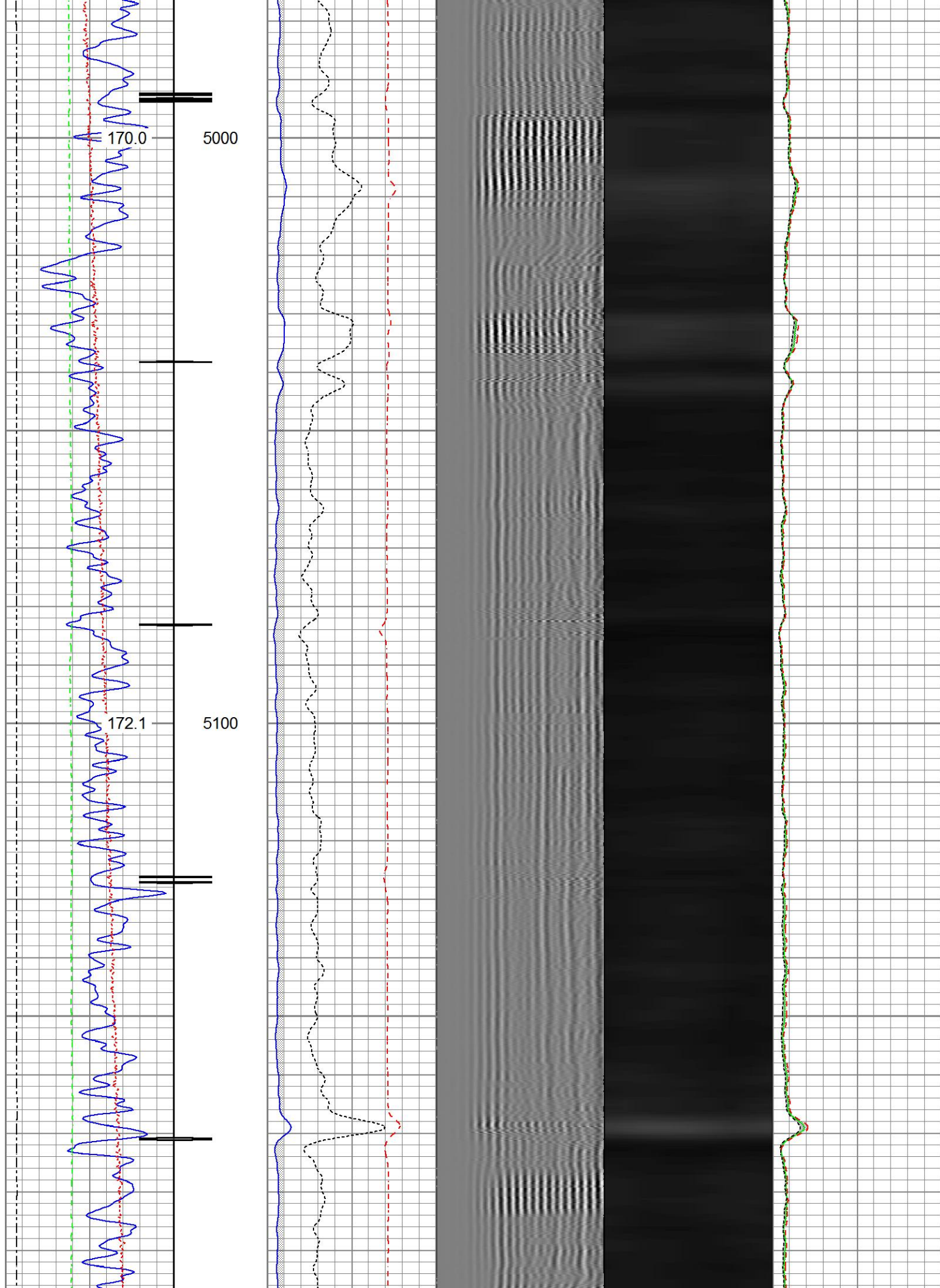


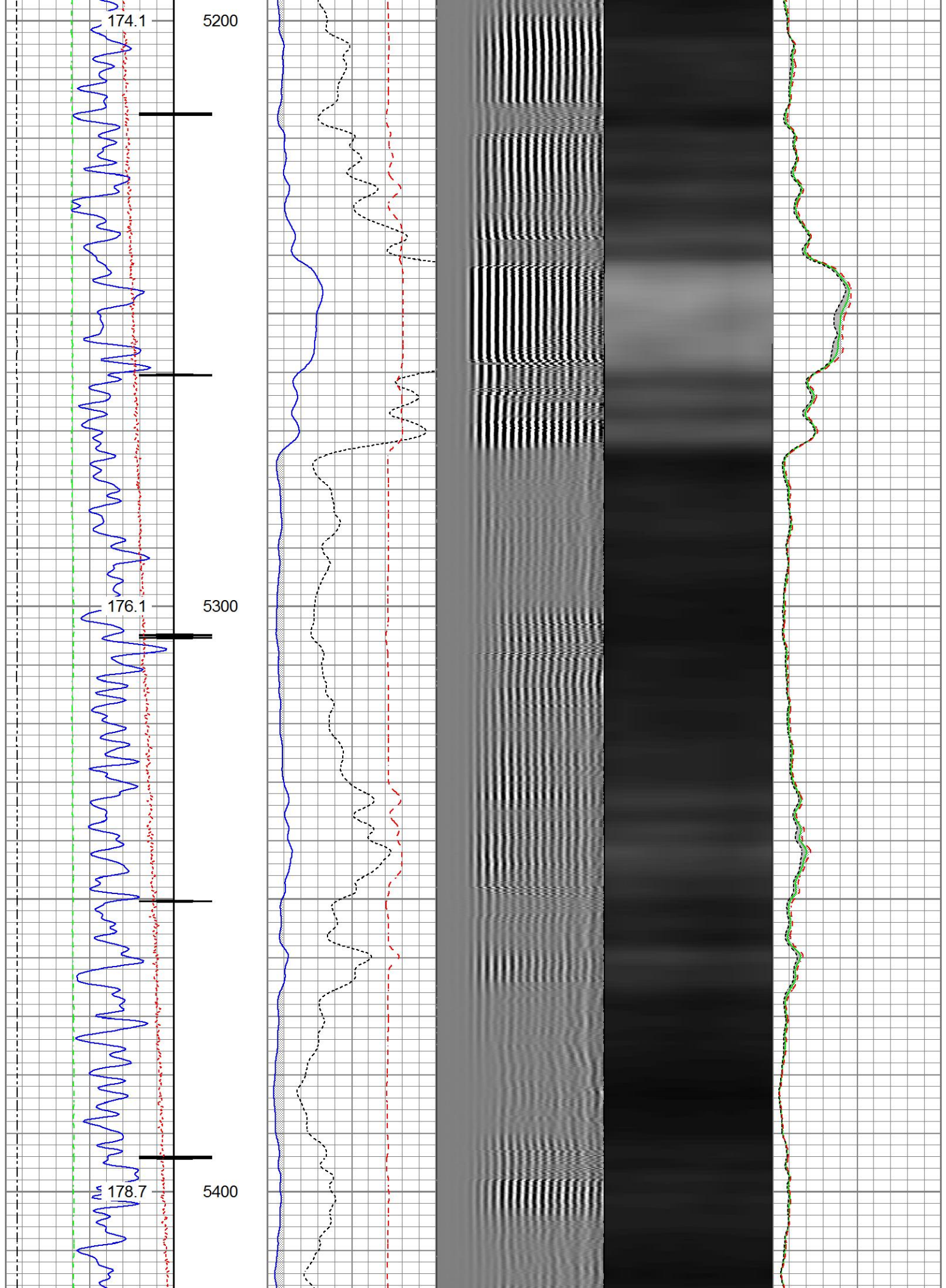




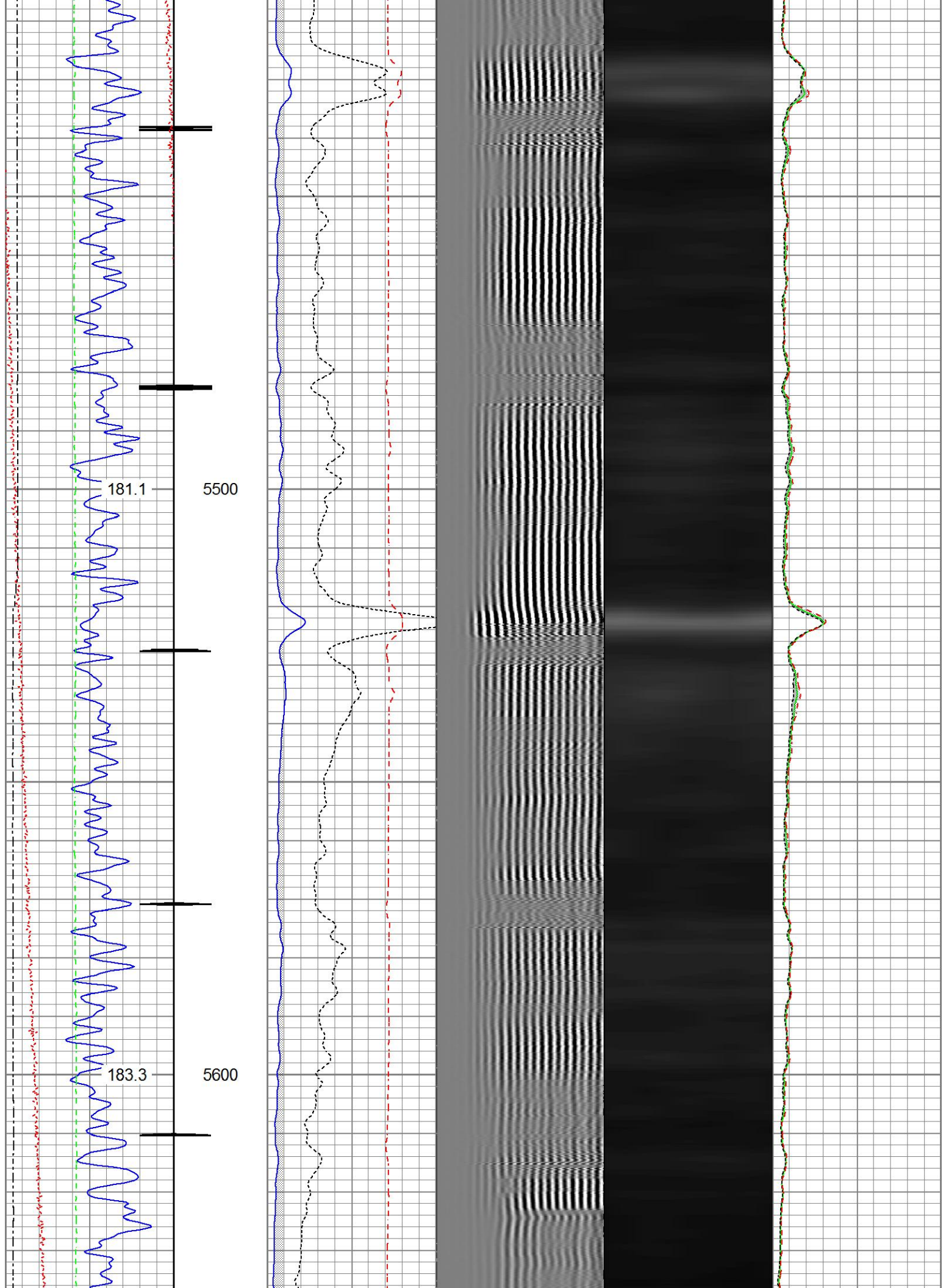


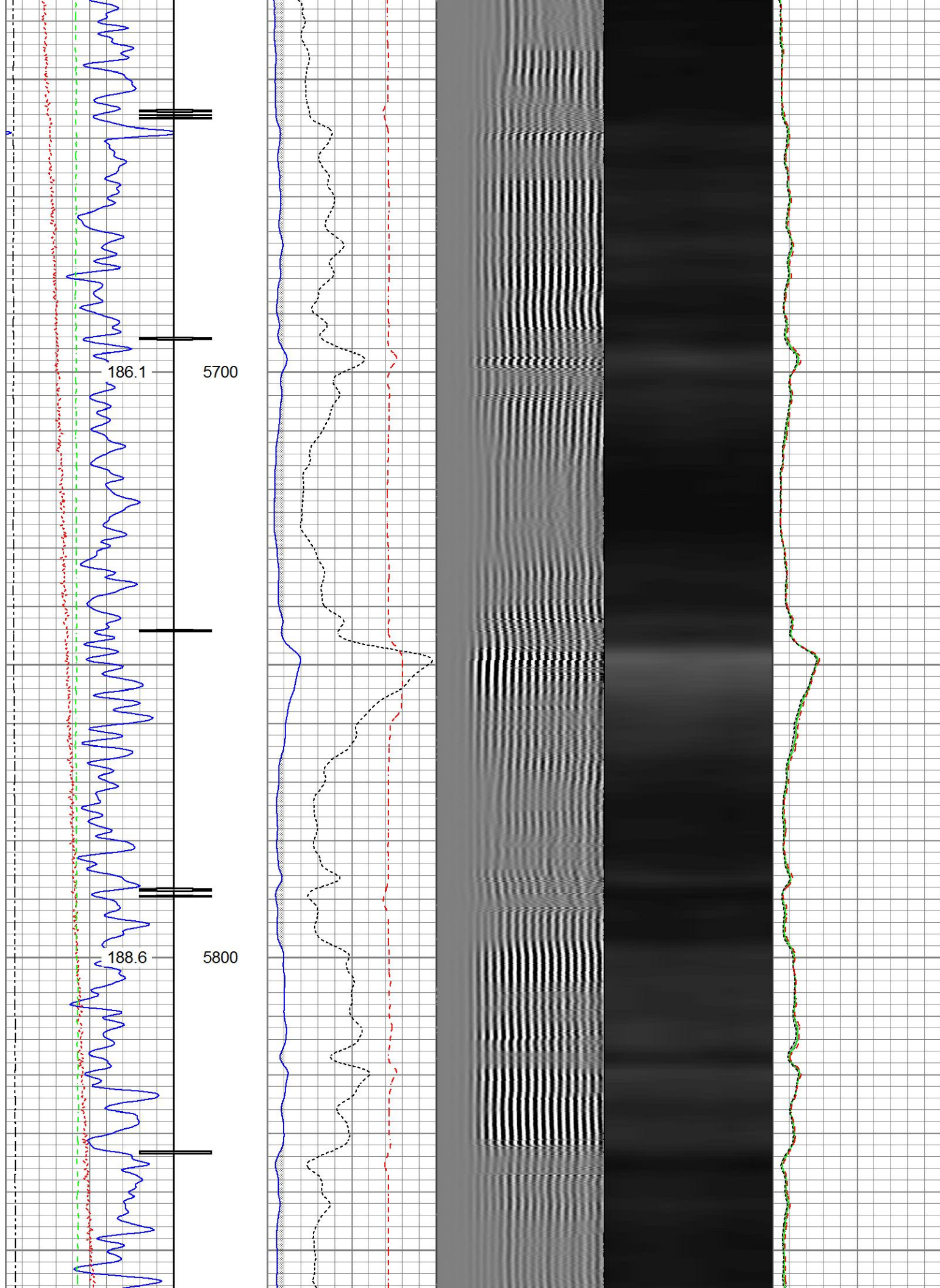




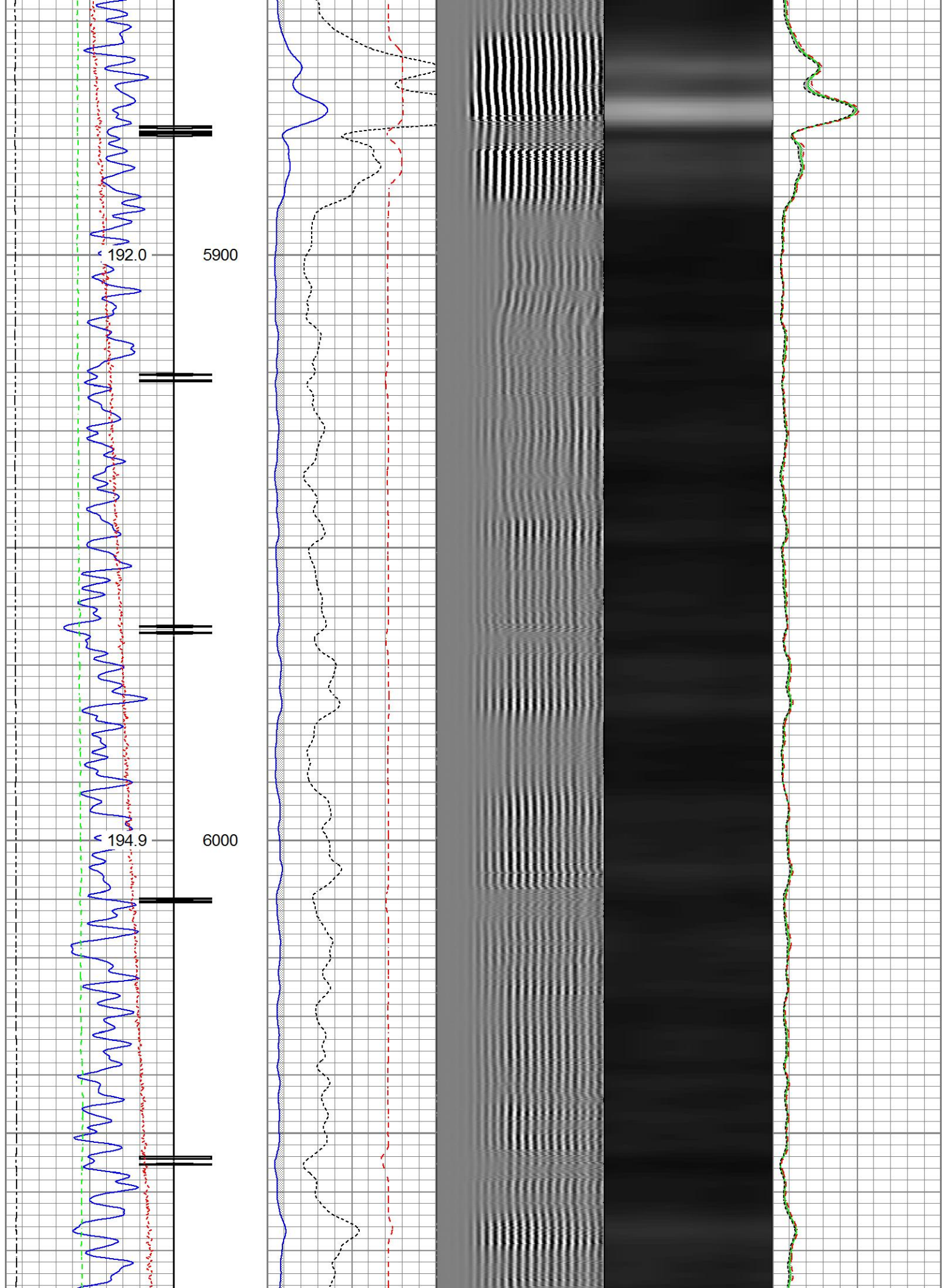


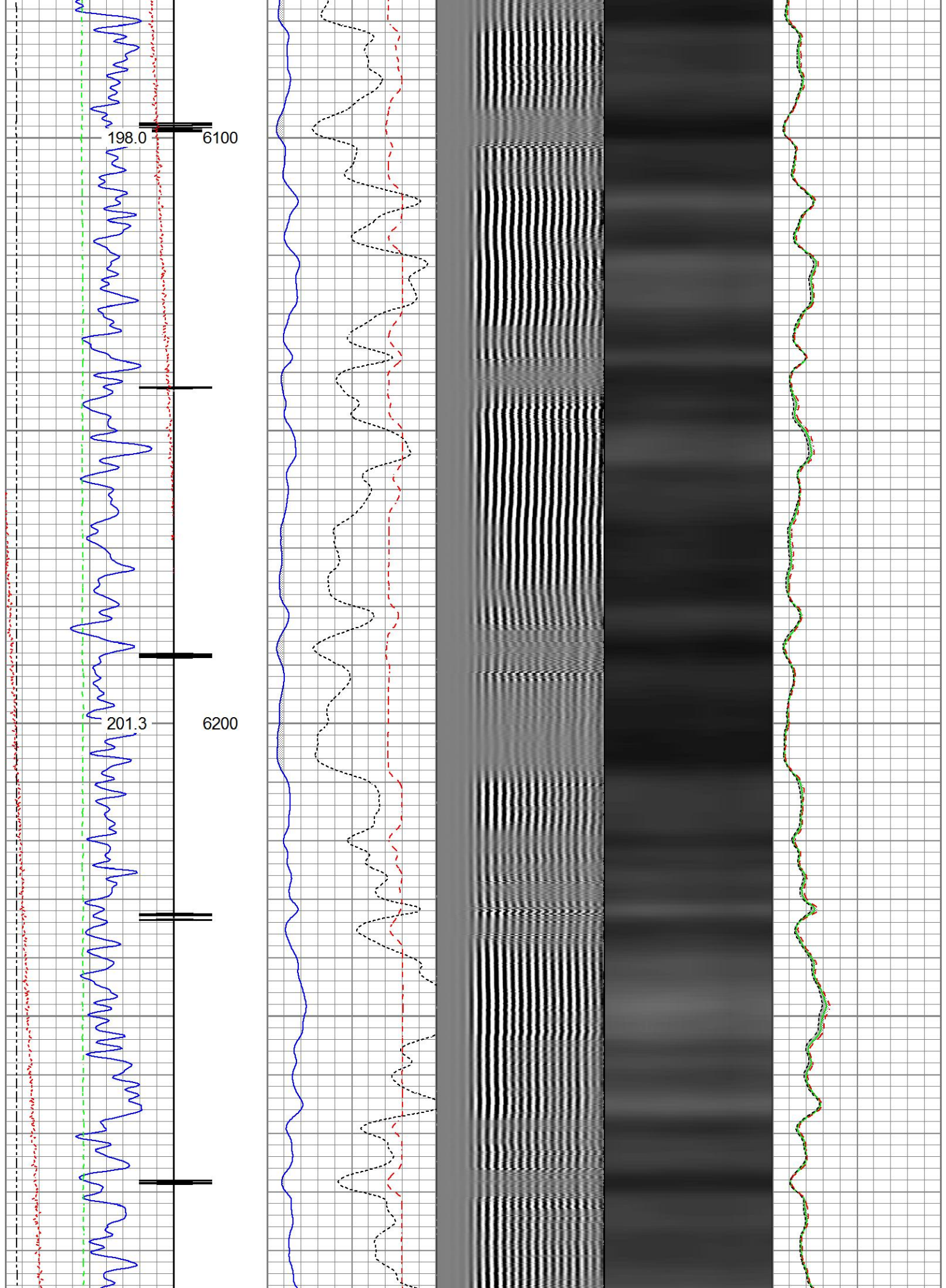




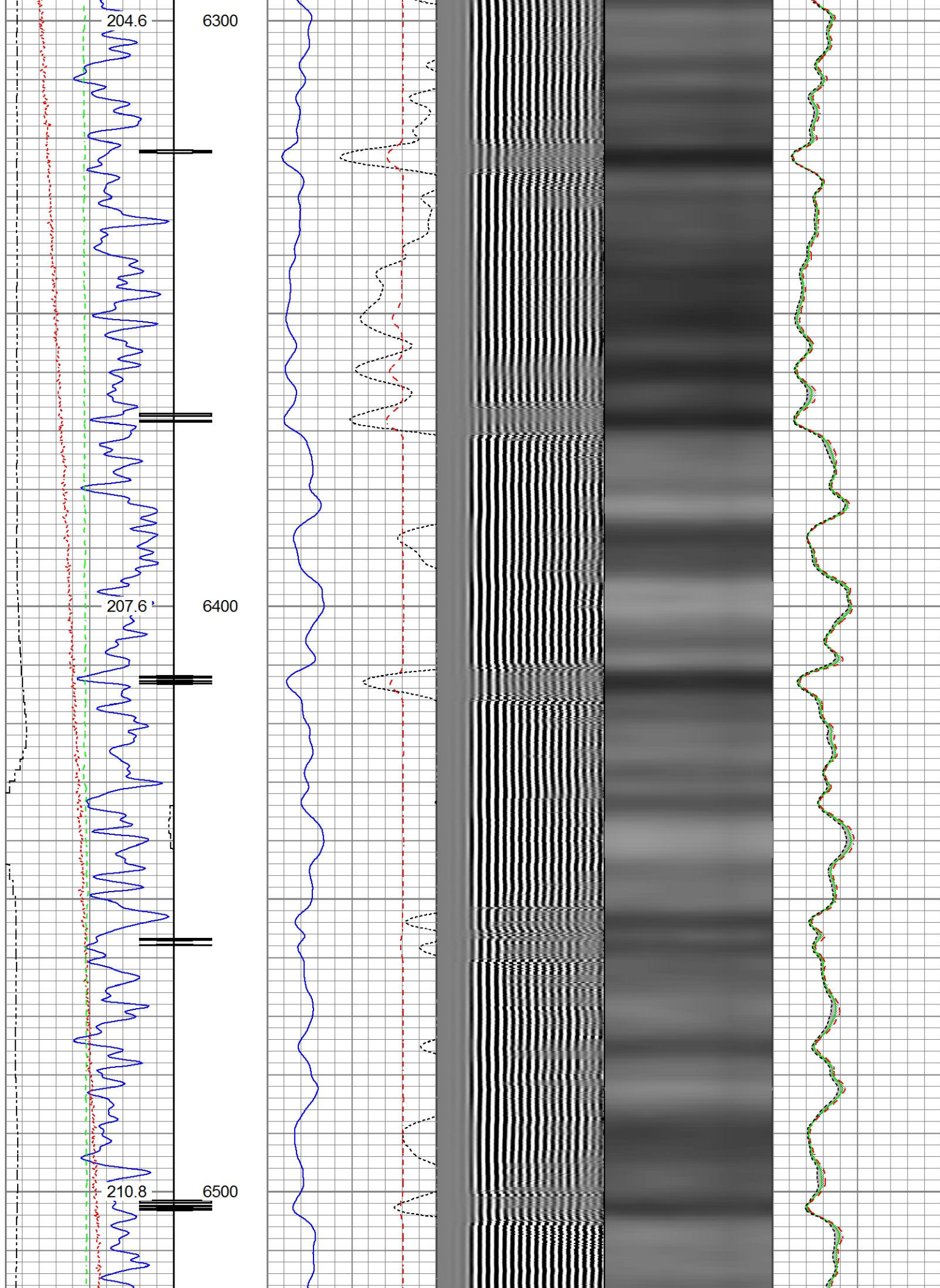


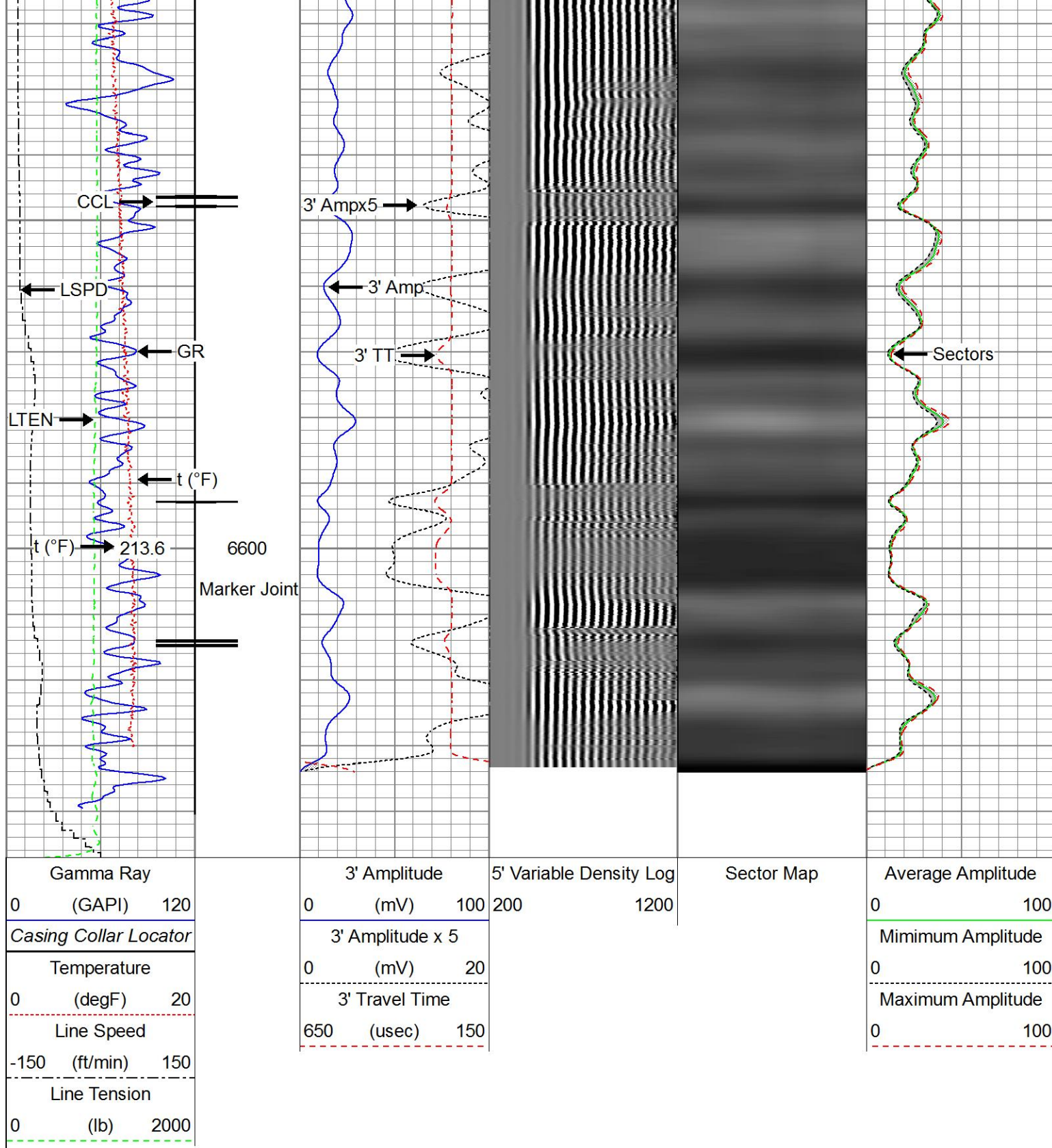












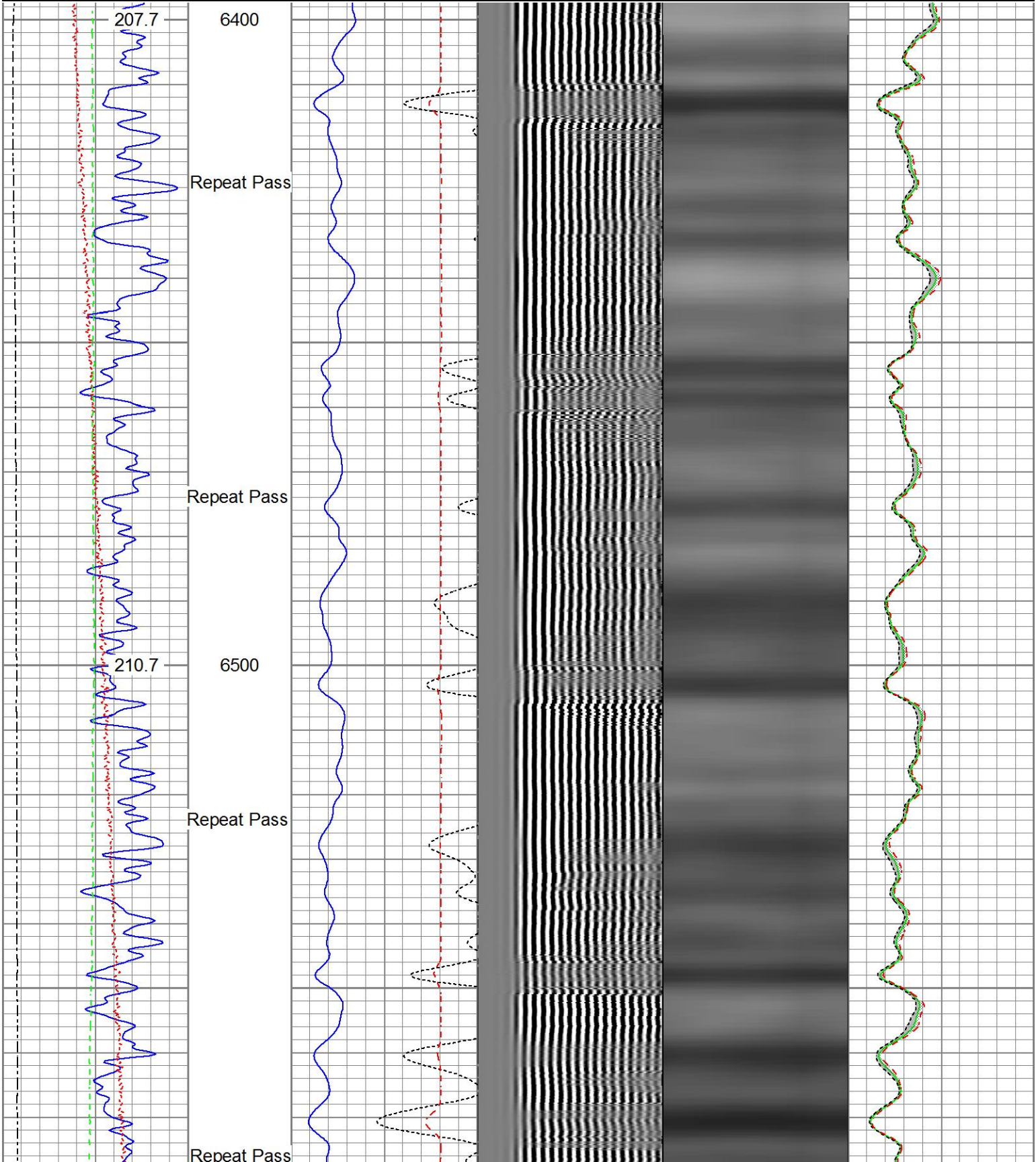
## Repeat Pass

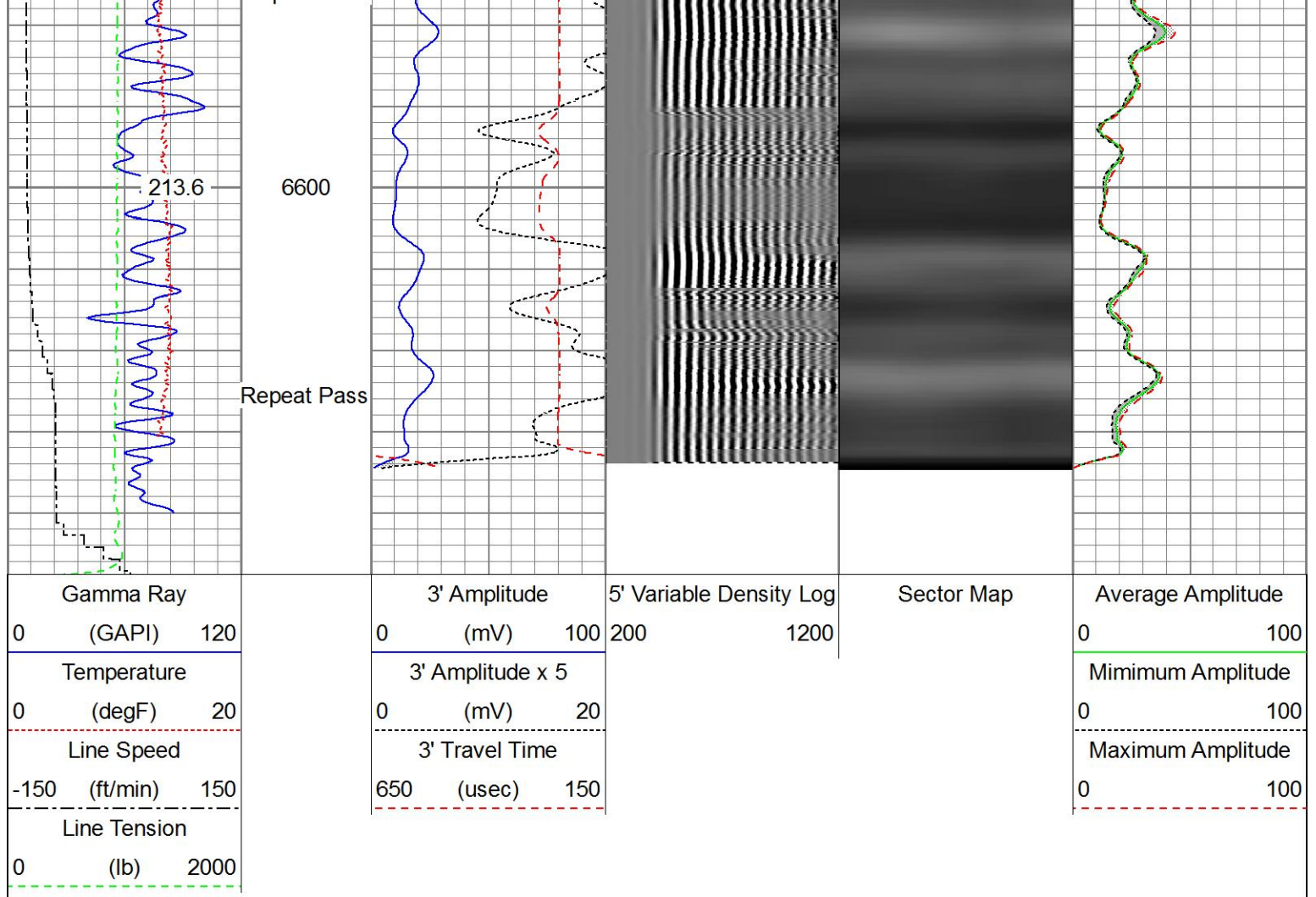
Recorded With 2800 PSI Surface Induced Pressure



Database File	anadarko_butterball 22n-34hz\0512344518_anadarko_butterball 22n-34hz_rbl_08-04-17.db
Dataset Pathname	pass2
Presentation Format	ros_radii
Dataset Creation	Fri Aug 04 16:02:24 2017
Charted by	Depth in Feet scaled 1:240



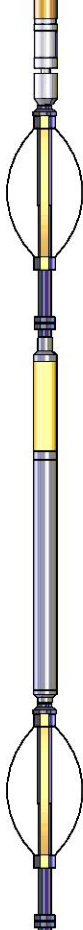
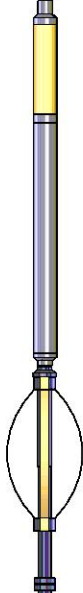
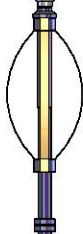
Gamma Ray			3' Amplitude		5' Variable Density Log		Sector Map		Average Amplitude						
0	(GAPI)	120	0	(mV)	100	200	1200		0	100					
Temperature			3' Amplitude x 5												
0	(degF)	20	0	(mV)	20										
Line Speed			3' Travel Time												
-150	(ft/min)	150	650	(usec)	150										
Line Tension															
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	1.69	5.40
			Probe_ELine_BowSpring_Centralizer-P-EE2.88.275 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	2.75	20.00
			Probe_RADII-C-P_RBT_2750 (FW1305-099.19 Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	2.75	2.75	105.00
Temp	16.72					
WVFS8	14.55					
WVFS7	14.55					
WVFS6	14.55					
WVFS5	14.55					
WVFS4	14.55					
WVFS3	14.55					
WVFS2	14.55					



WVFS1	14.55		Probe_ELine_BowSpring_Centralizer-P Probe 2-3/4" Electric Inline Bowspring Centralizer	EE2.88,275	2.75	20.00
WVFCAL	14.55					
WVF3FT	14.55					
WVF5FT	13.55					
HEADVOLT	10.30					
DCCL	6.51		Probe_GR_CCL-P_CGR_2750_S (FW1304.543) Probe 2-3/4" Digital CCL / Gamma Ray Combined	1304.543	2.75	55.00
CCL	6.51					
GR	5.30					
			Probe_ELine_BowSpring_Centralizer-P Probe 2-3/4" Electric Inline Bowspring Centralizer	EE2.88,275	2.75	20.00
Dataset: 0512344518_Anadarko_Butterball 22N-34HZ_RBL_08-04-17.db: field/well/run1/pass4 Total length: 23.40 ft Total weight: 225.40 lb O.D.: 2.75 in						

Calibration Report		
Database File	D:\Warrior\Data\Anadarko_Butterball 22N-34HZ\0512344518_Anadarko_Butterball 22N-34HZ_RBL_08-04-17	
Dataset Pathname	pass4	
Dataset Creation	Fri Aug 04 16:18:50 2017	
Gamma Ray Calibration Report		
Serial Number:	FW1307-038	
Tool Model:	P_CGR_2750_S	
Performed:	Sat Feb 06 11:43:09 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:	FW1305-096	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	6.621	ft
Master Calibration, performed Fri Aug 04 15:31:13 2017:		
Raw (v)	Calibrated (mv)	Results

	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	0.550	0.800	71.921	130.683	0.017
CAL	0.006	0.604				
5'	0.006	0.538	0.800	71.921	133.820	-0.035
SUM						
S1	0.006	0.548	0.000	100.000	184.767	-1.186
S2	0.006	0.547	0.000	100.000	184.904	-1.156
S3	0.006	0.545	0.000	100.000	185.789	-1.175
S4	0.006	0.543	0.000	100.000	186.406	-1.197
S5	0.006	0.547	0.000	100.000	184.833	-1.162
S6	0.006	0.551	0.000	100.000	183.788	-1.180
S7	0.006	0.554	0.000	100.000	182.438	-1.116
S8	0.007	0.556	0.000	100.000	181.859	-1.185

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.006	0.604	1.000	0.000

Air Zero Calibration, performed Fri Aug 04 15:31:39 2017:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.006		0.000		-0.000	
5'	0.006		0.000		-0.000	
SUM						
S1	0.007		0.000		-0.000	
S2	0.006		0.000		-0.000	
S3	0.006		0.000		0.000	
S4	0.006		0.000		0.000	
S5	0.006		0.000		0.000	
S6	0.006		0.000		0.000	
S7	0.006		0.000		0.000	
S8	0.006		0.000		0.000	



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