



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Butterball 40C-34HZ
Field Wattenberg
County Weld
State Colorado

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Location: API #: 05-123-44319
SEC 10 TWP 2N RGE 67W
Permanent Datum Ground Level Elevation 4916'
Log Measured From Kelly Bushing 20 FT
Drilling Measured From Kelly Bushing
Other Services
Elevation
K.B. 4936'
D.F. ---
G.L. 4916'

Date	19-JUL-2017									
Run Number	One									
Depth Driller	15629 FT									
Depth Logger	7607 FT									
Bottom Logged Interval	7603 FT									
Top Log Interval	Surface									
Open Hole Size	7.825"									
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	14.02									
Equipment Number	HD-0331									
Location	Fort Lupton, CO									
Recorded By	M. Hayes									
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	1828 FT					
Intermediate #1	5 1/2	17	HCP-110	Surface	15619 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 6620 FT
Adjusted +9 FT to correlate with Marker Joint
Log ran from 7607 FT to surface
Log ran with 2800 PSI surface induced pressure
Logging tools were clean and free of any debris upon completion of operations

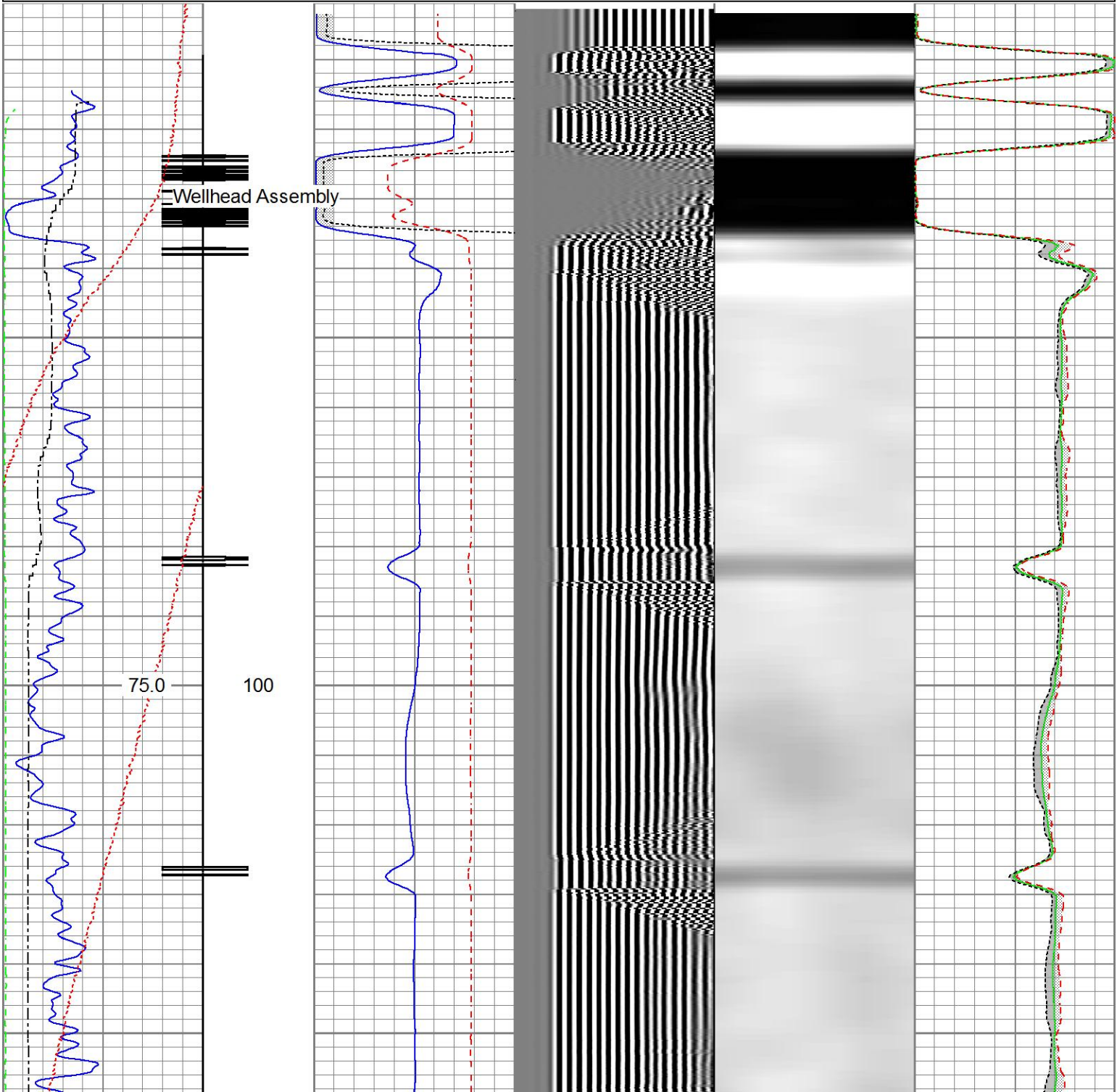
Thank you for choosing Reliance Oilfield Services, LLC!!

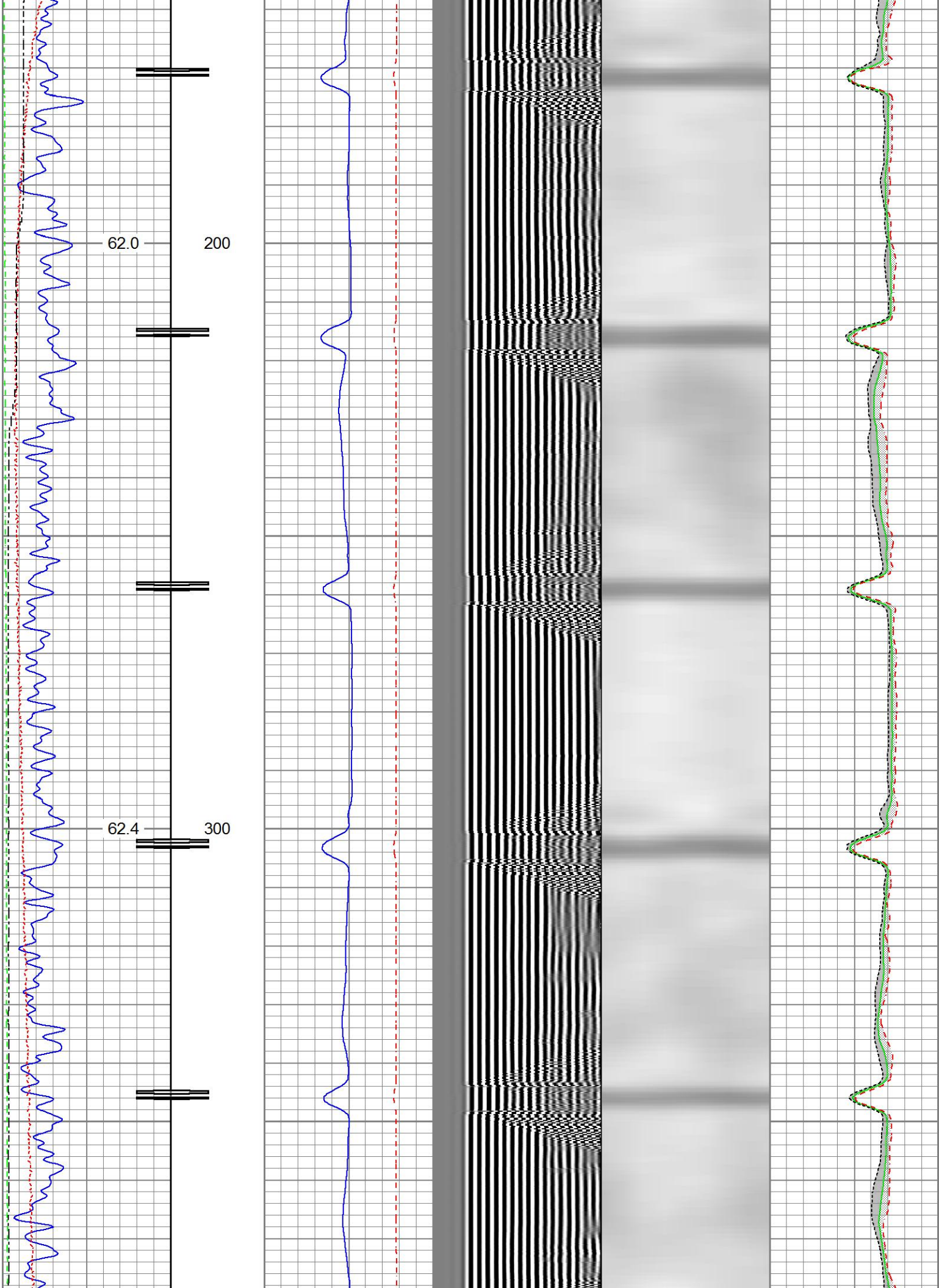


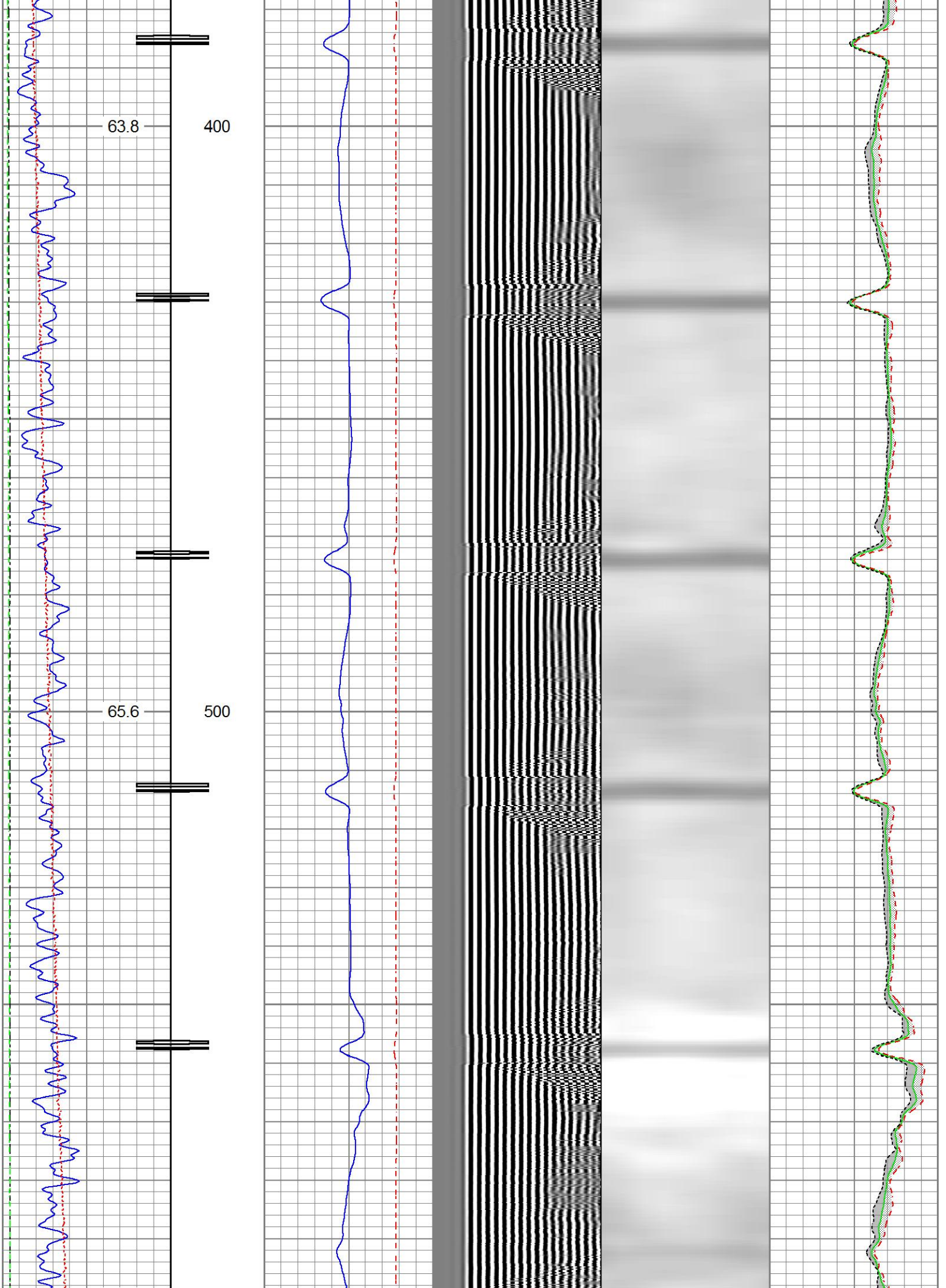
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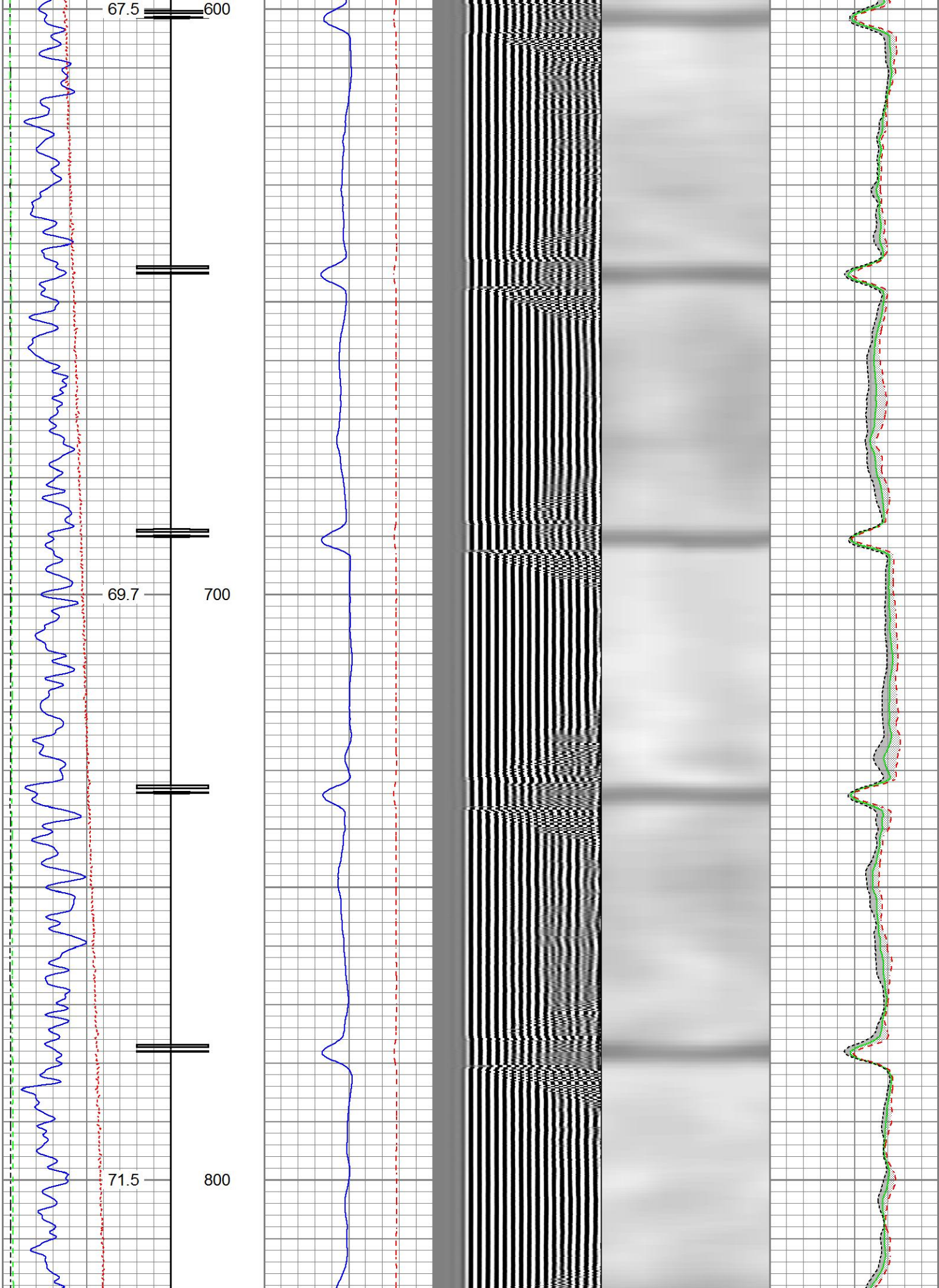
Recorded With 2800 PSI Surface Induced Pressure

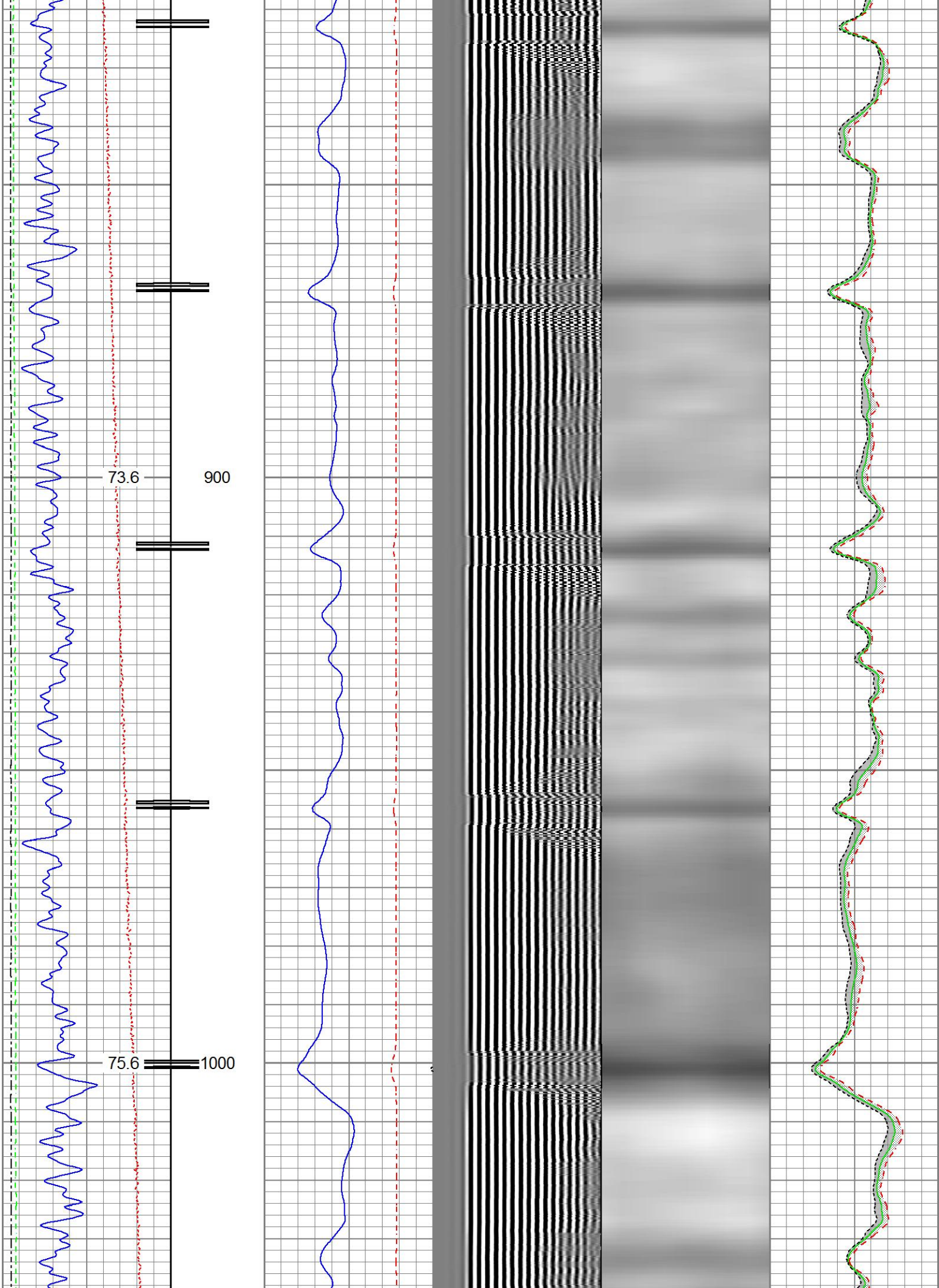
Gamma Ray			3' Amplitude			5' Variable Density Log		Sector Map	Average Amplitude	
0	(GAPI)	120	0	(mV)	100	200	1200		0	100
Casing Collar Locator			3' Amplitude x 5						Minimum Amplitude	
Temperature			0 (mV) 20						0 100	
0	(degF)	20	3' Travel Time						Maximum Amplitude	
Line Speed			650 (usec) 150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

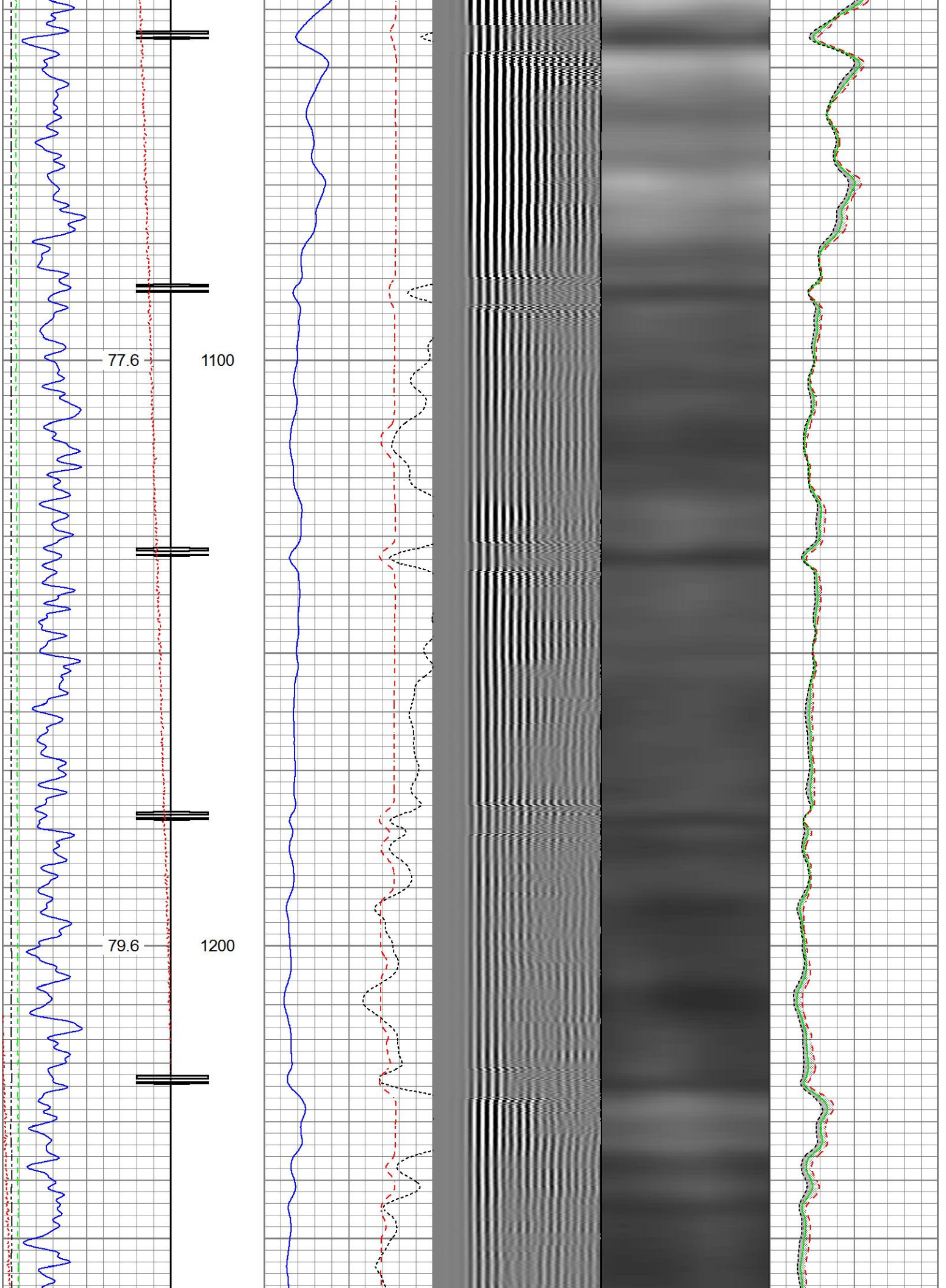


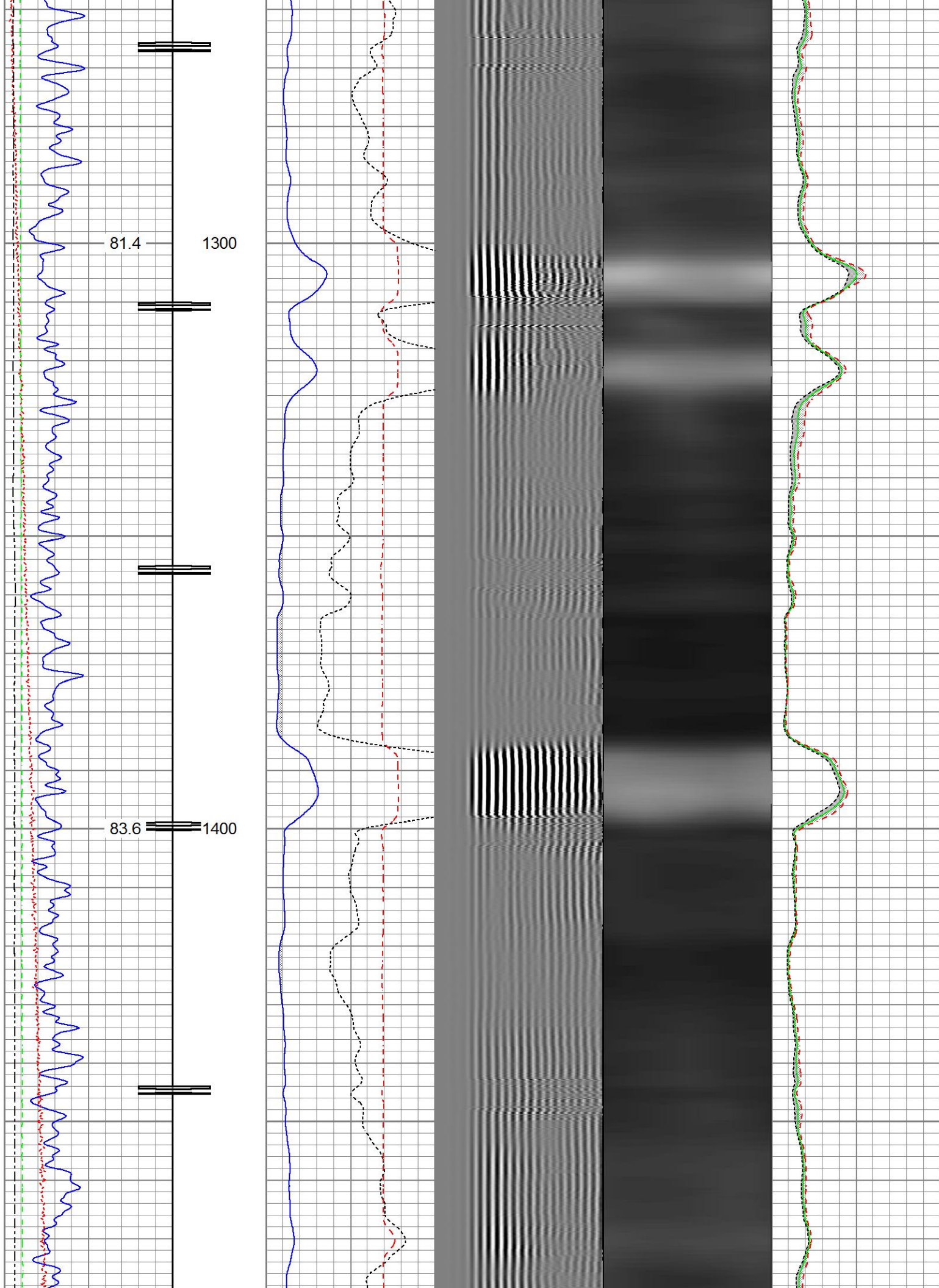


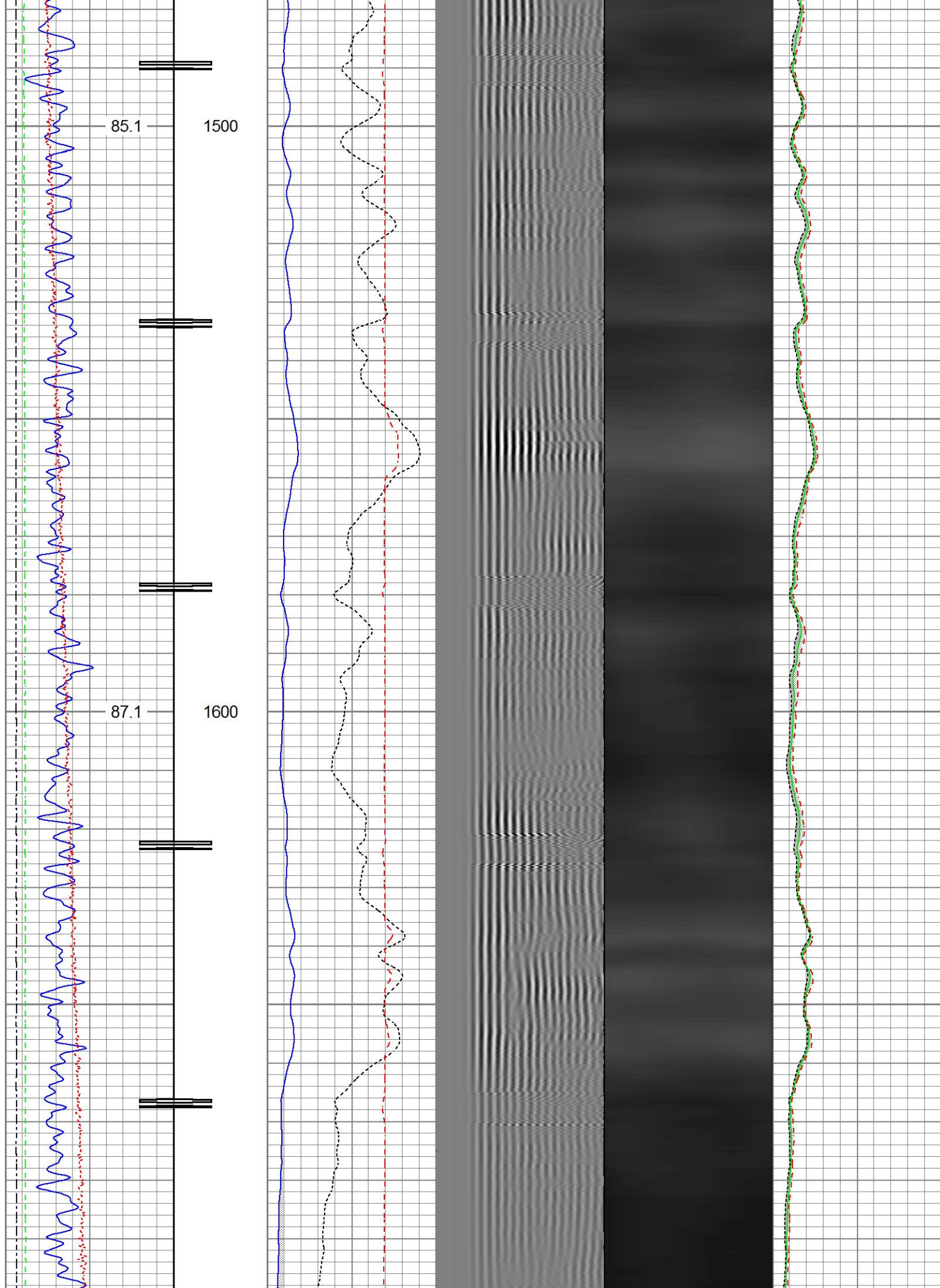


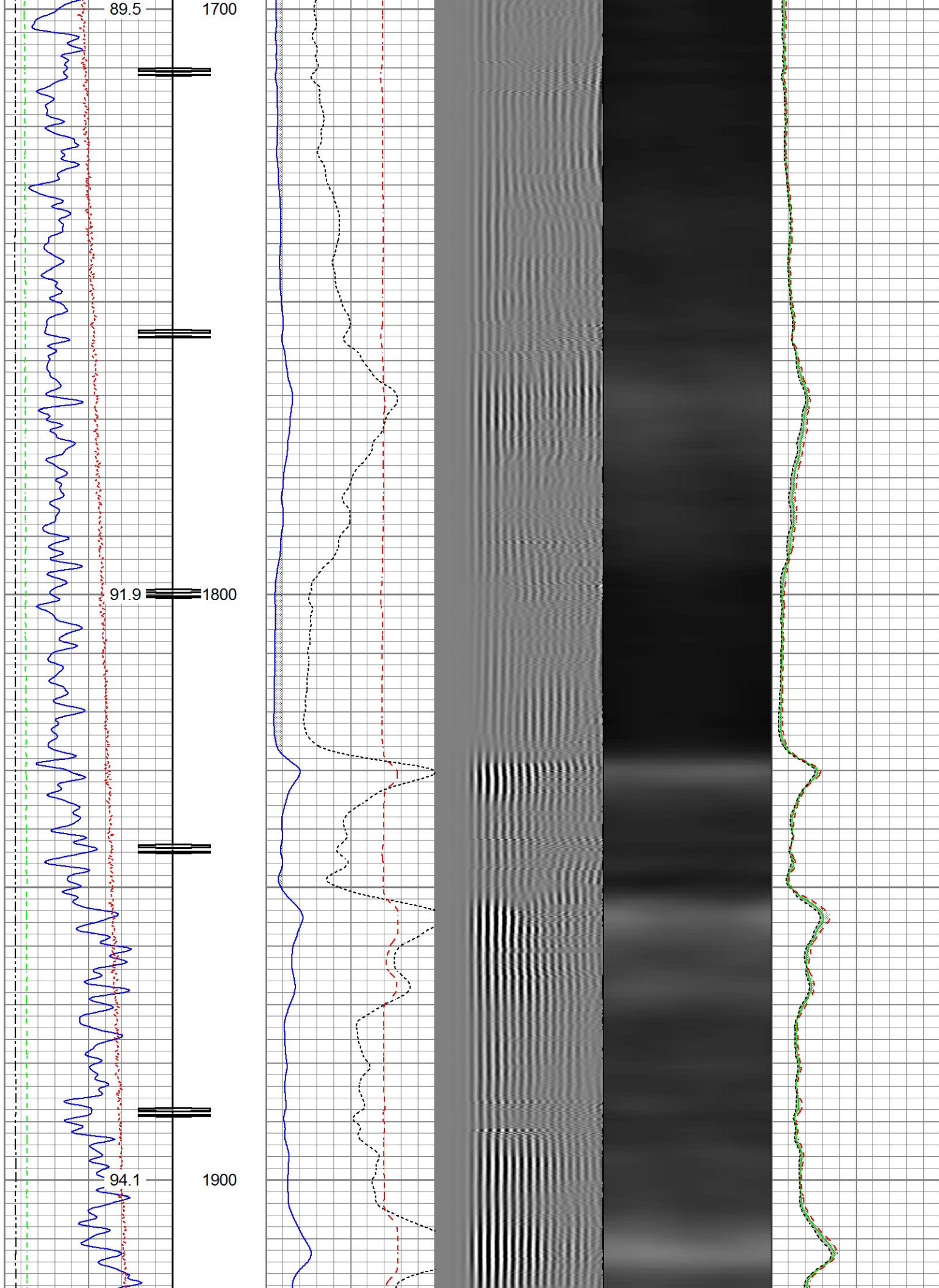


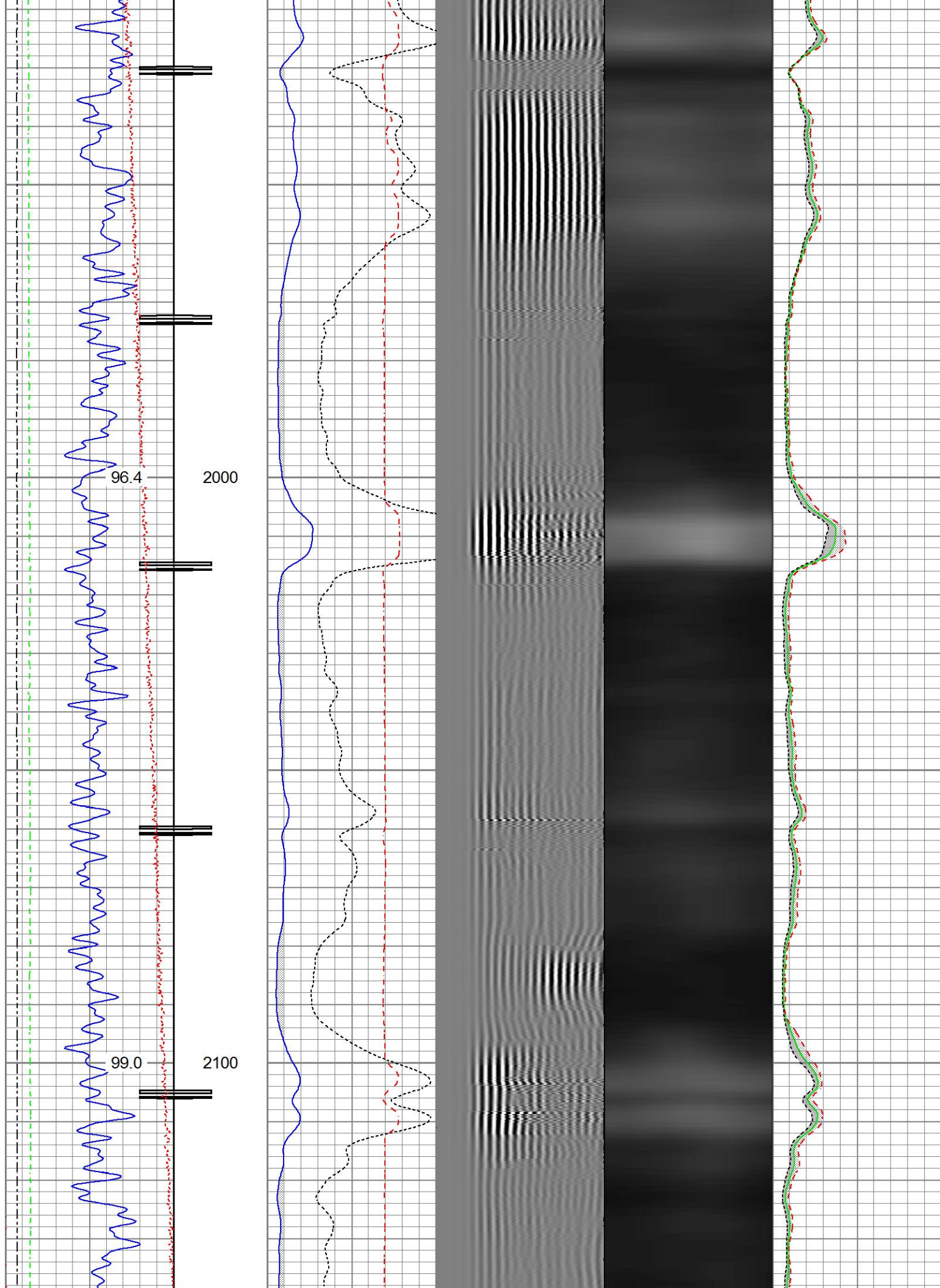


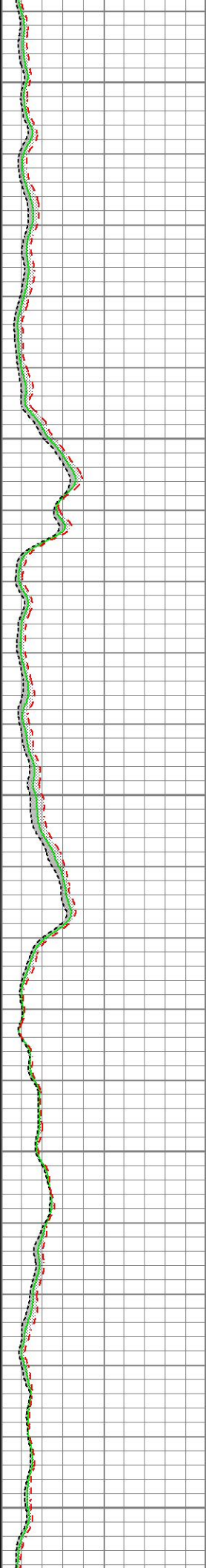
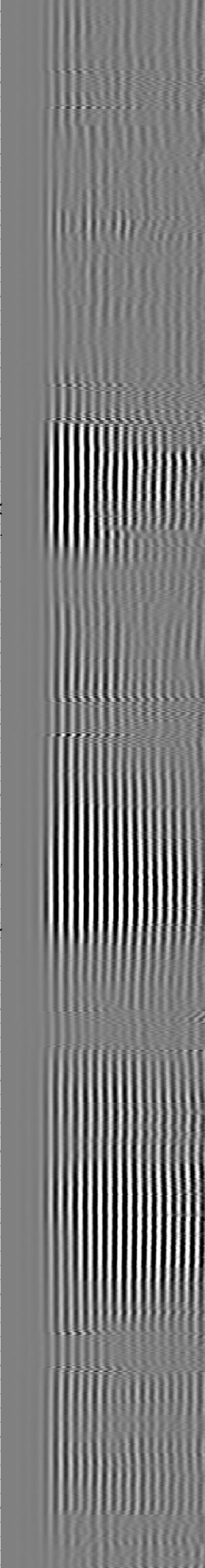
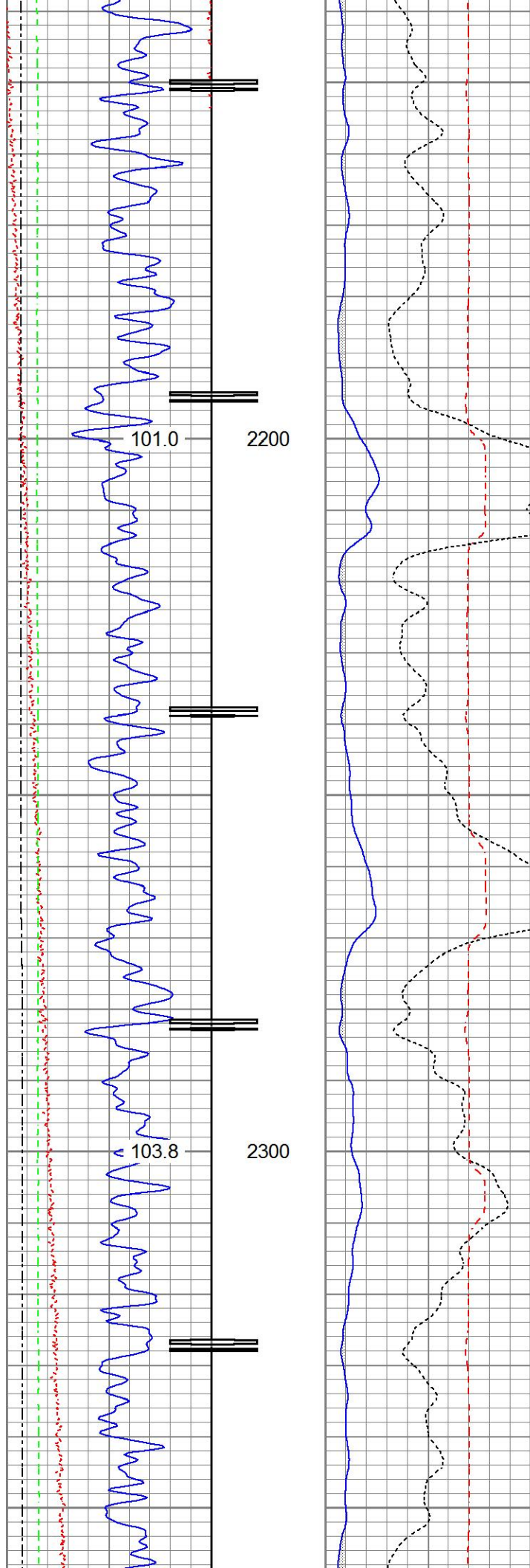


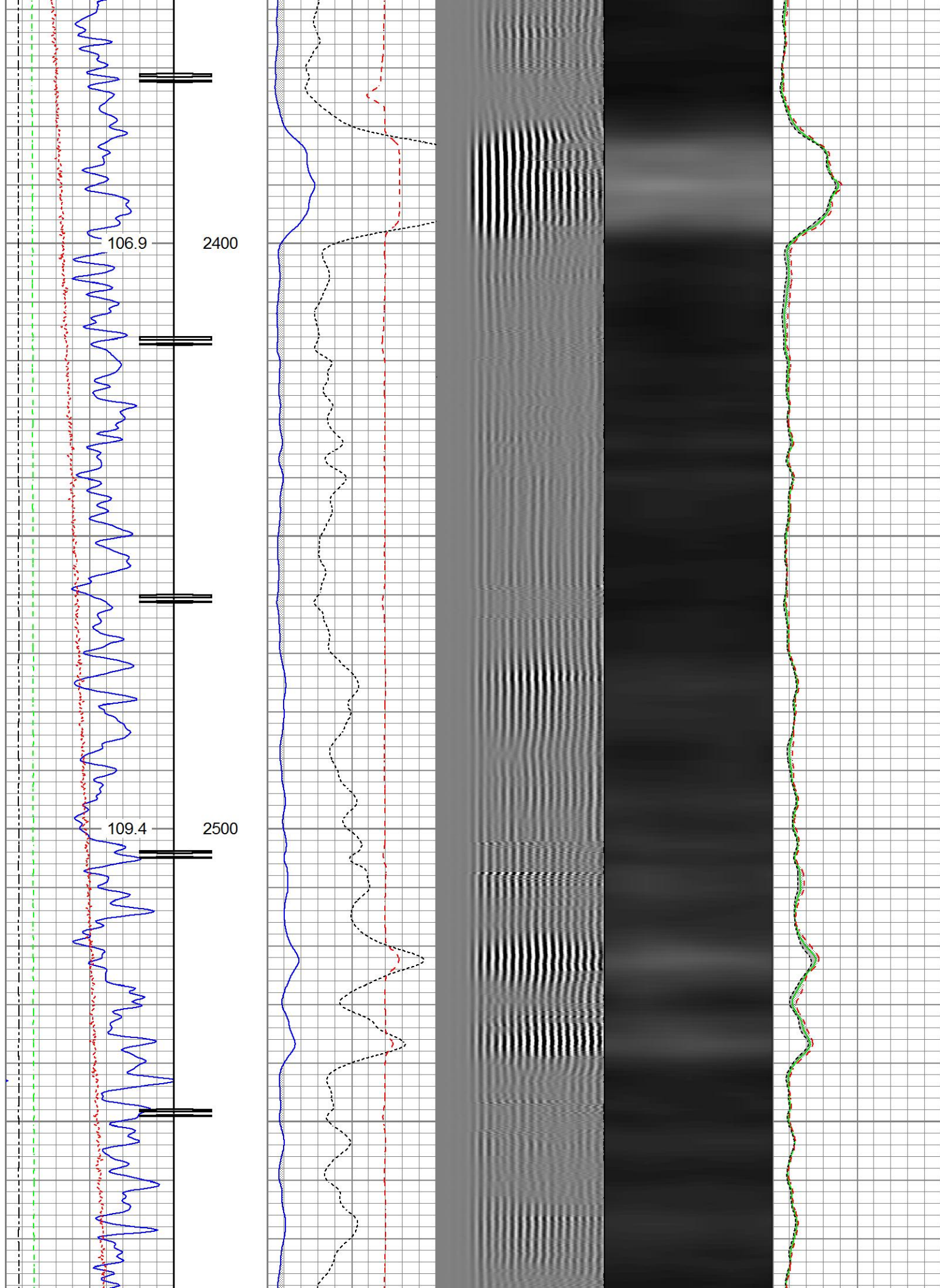


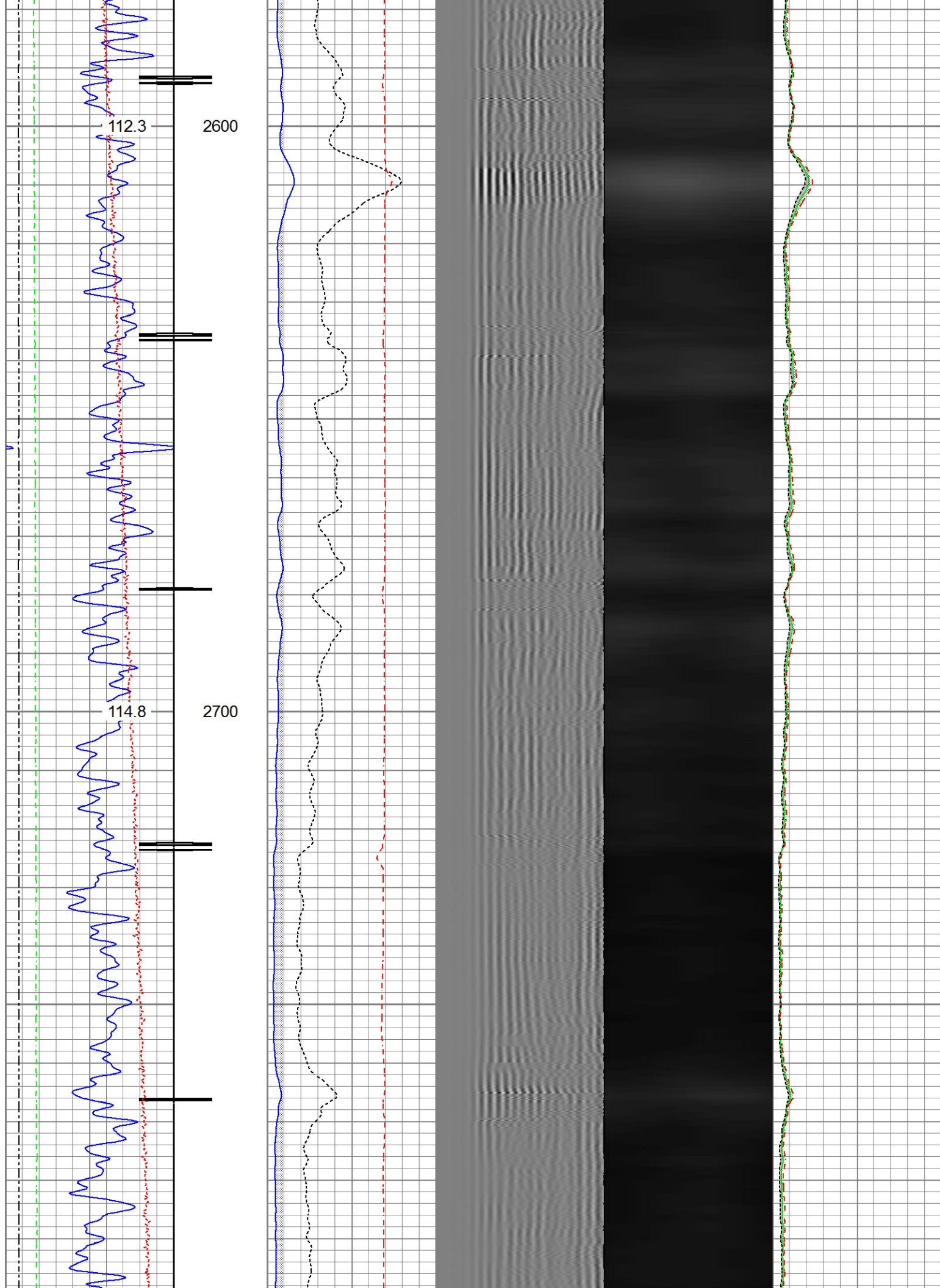


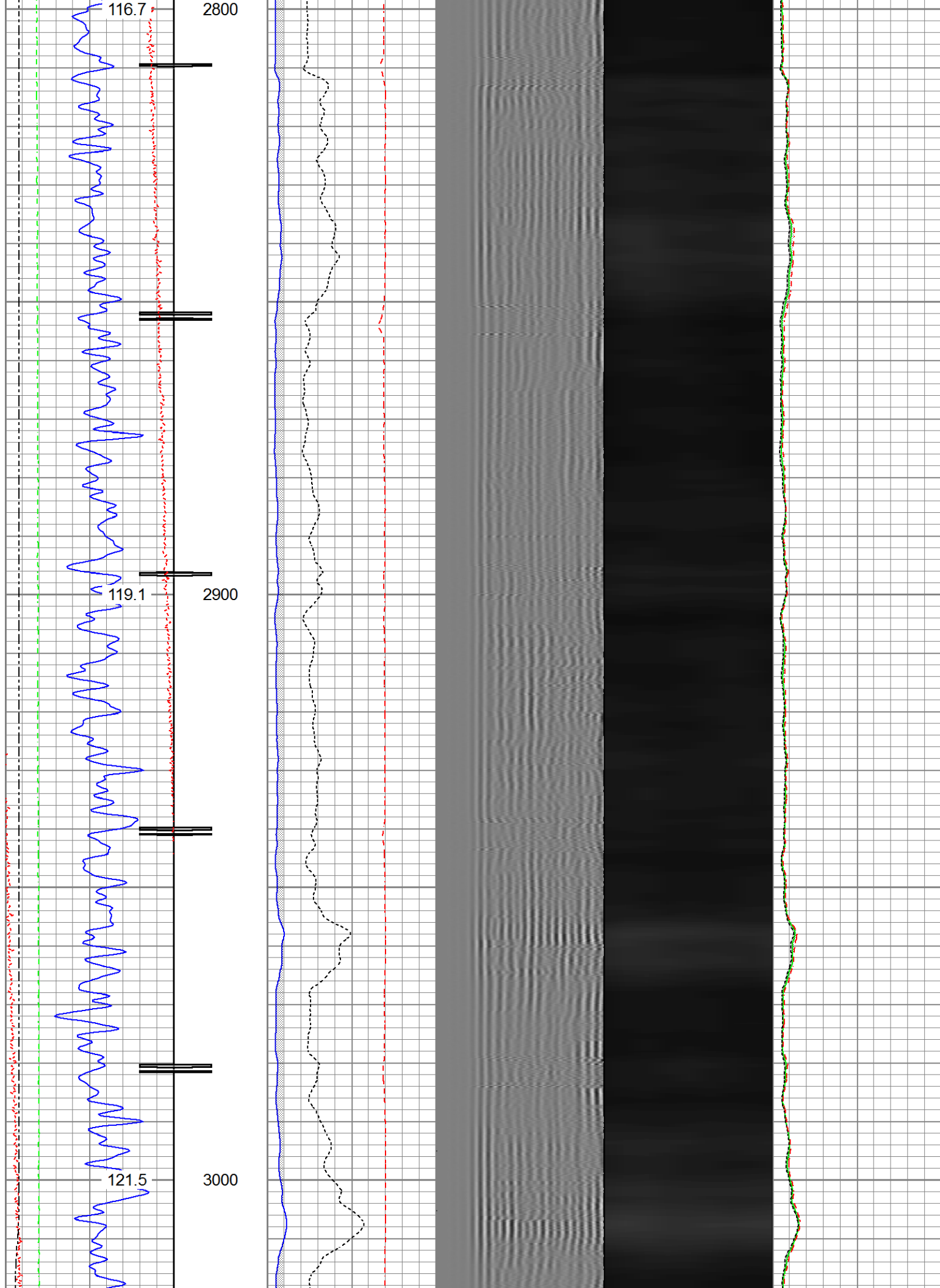


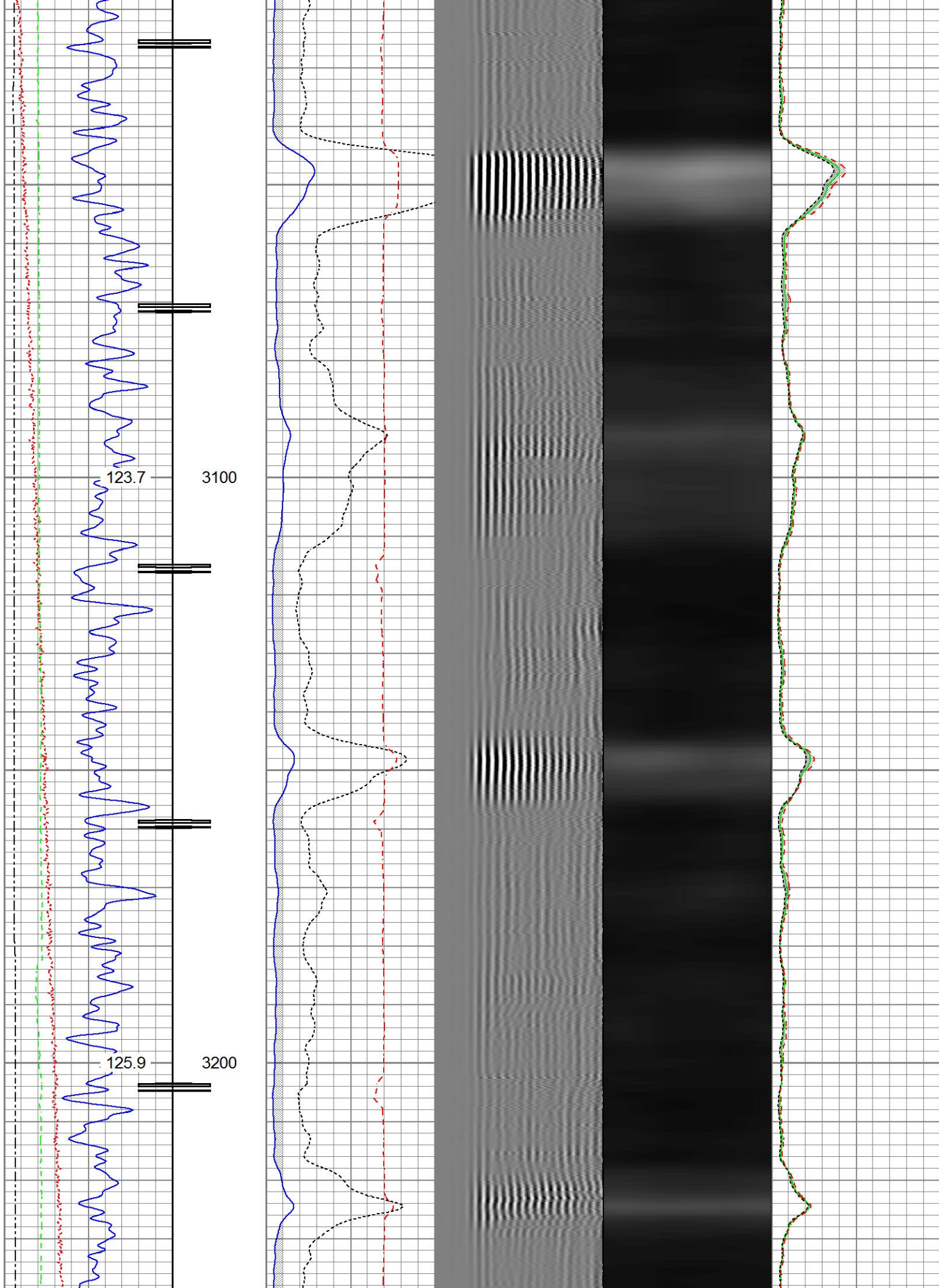


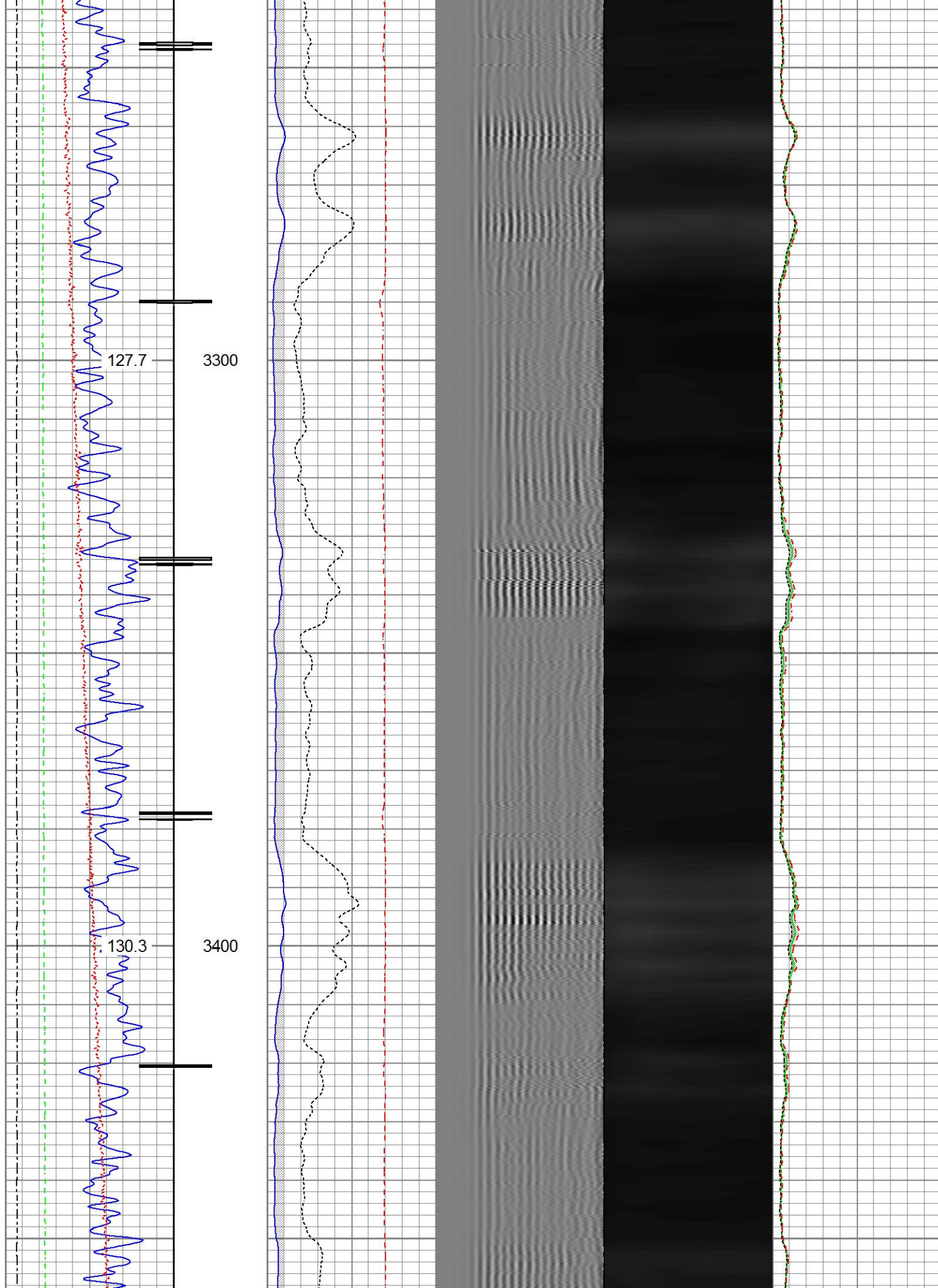


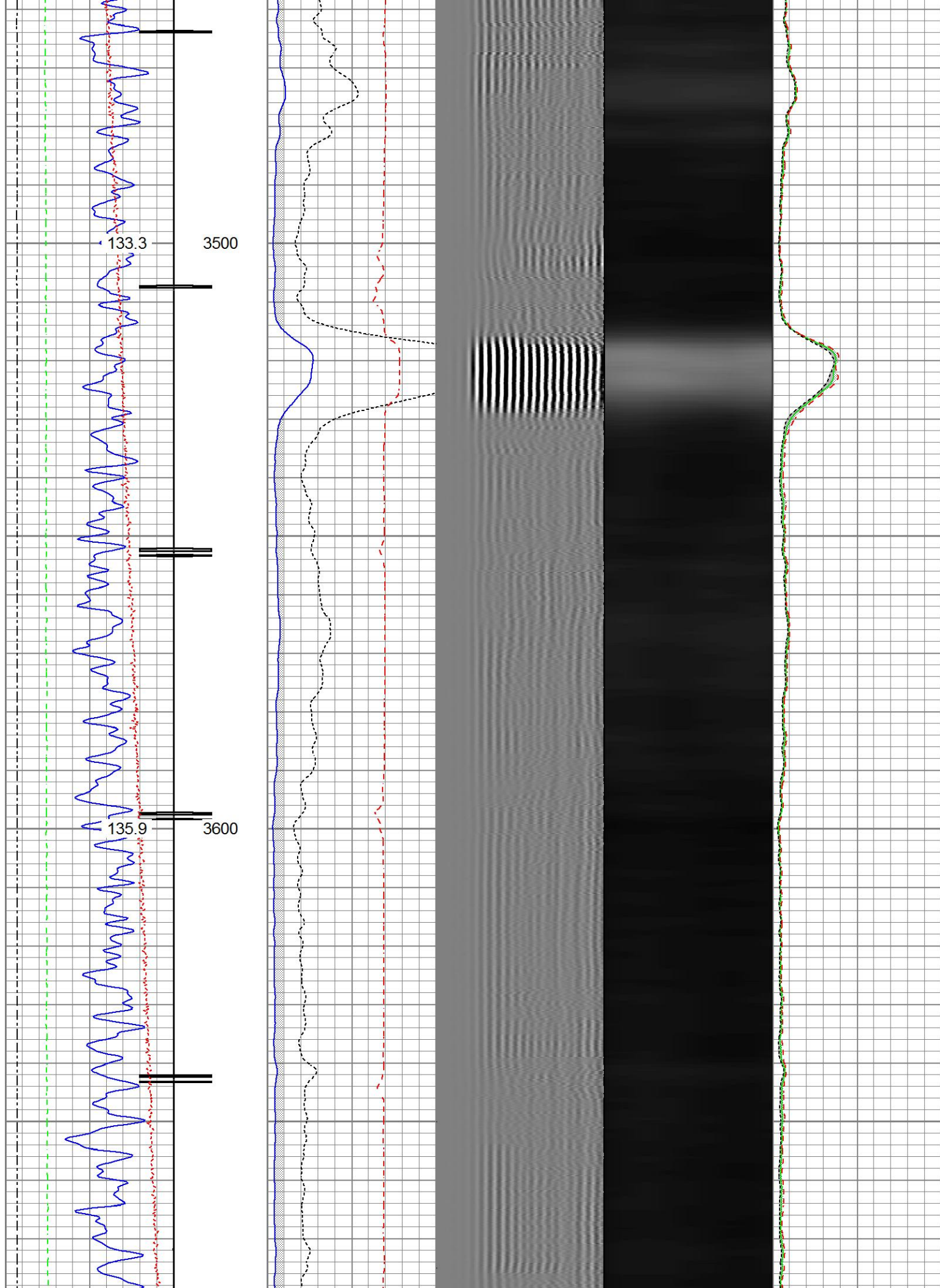


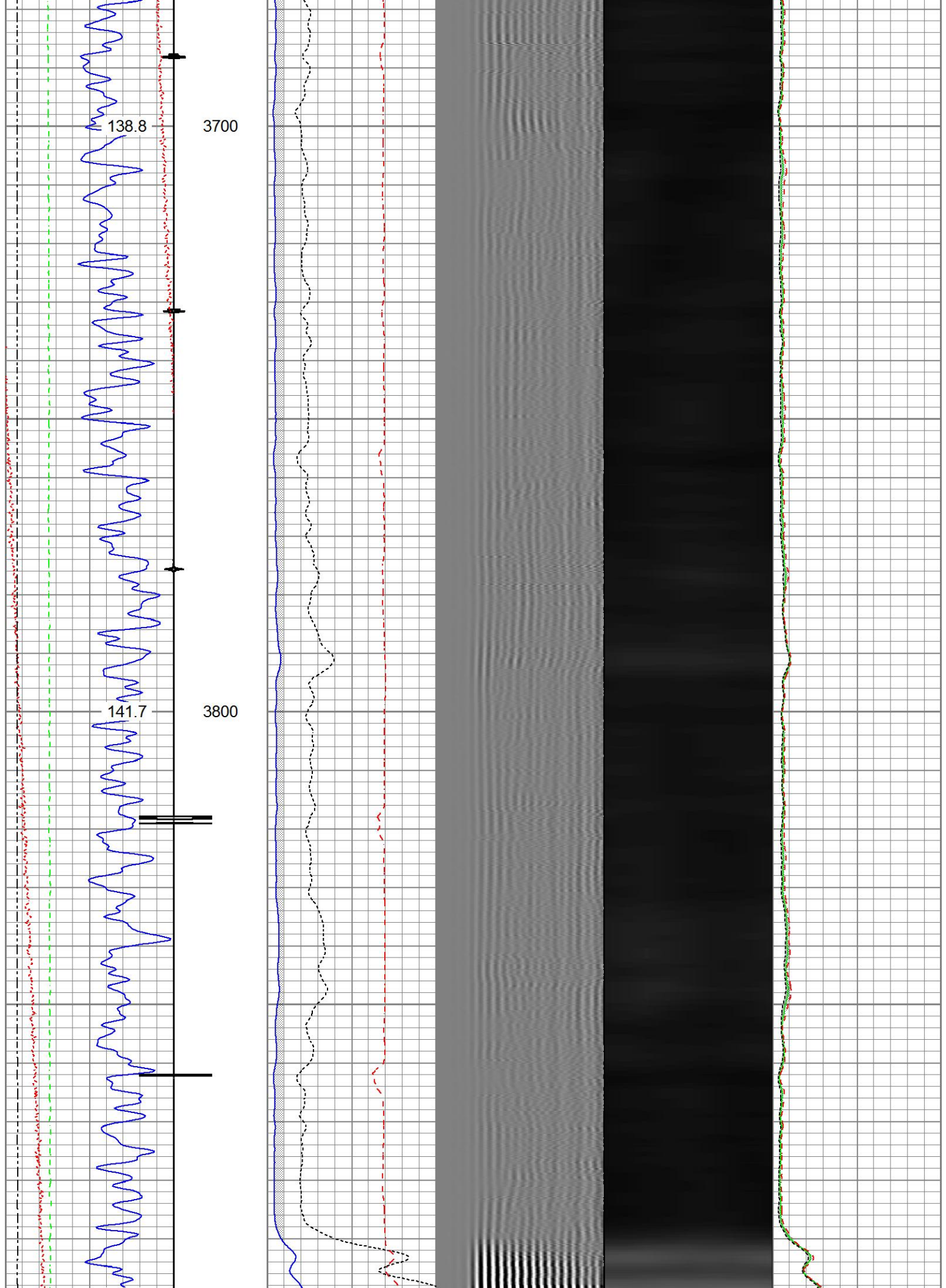


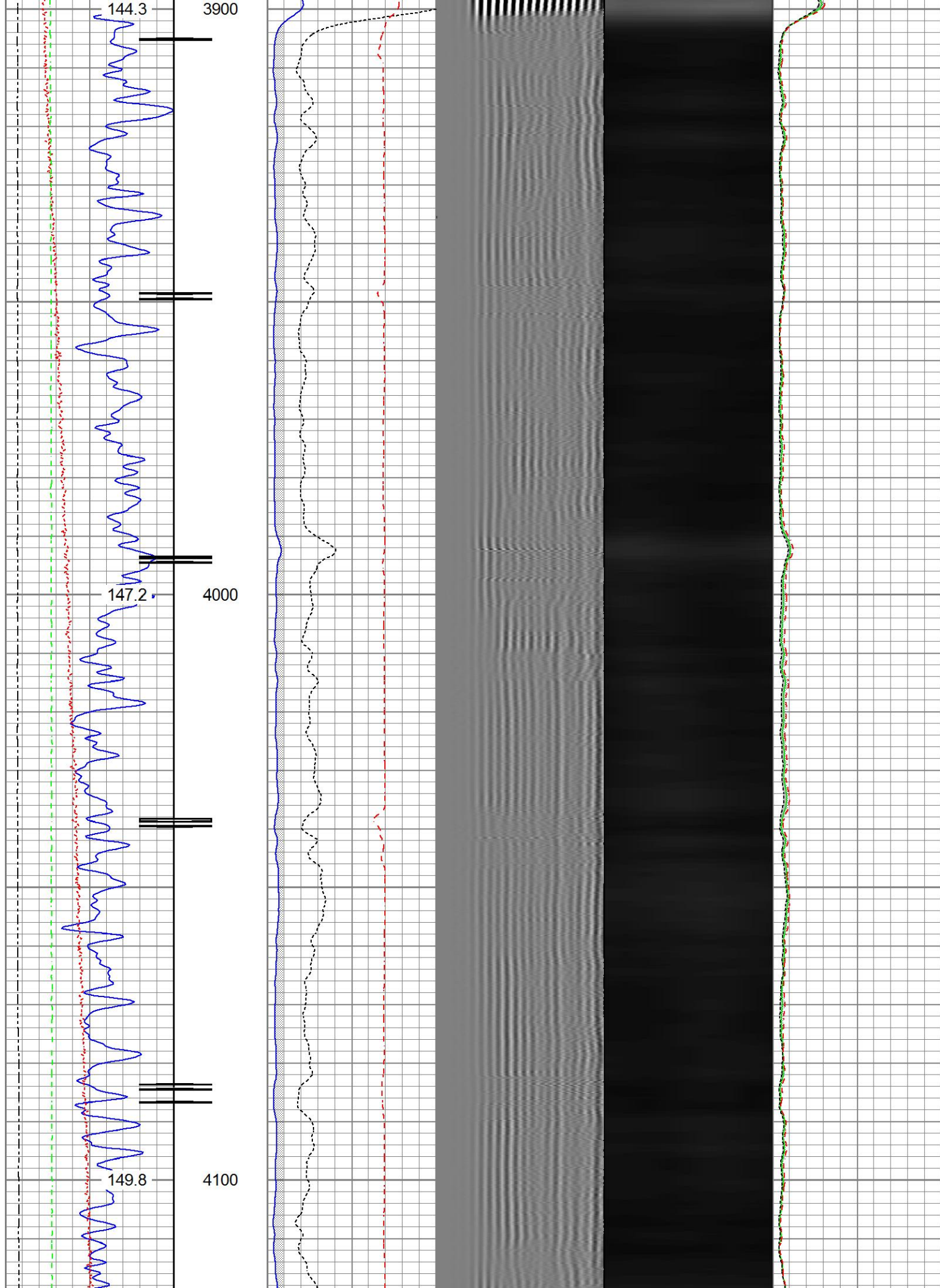


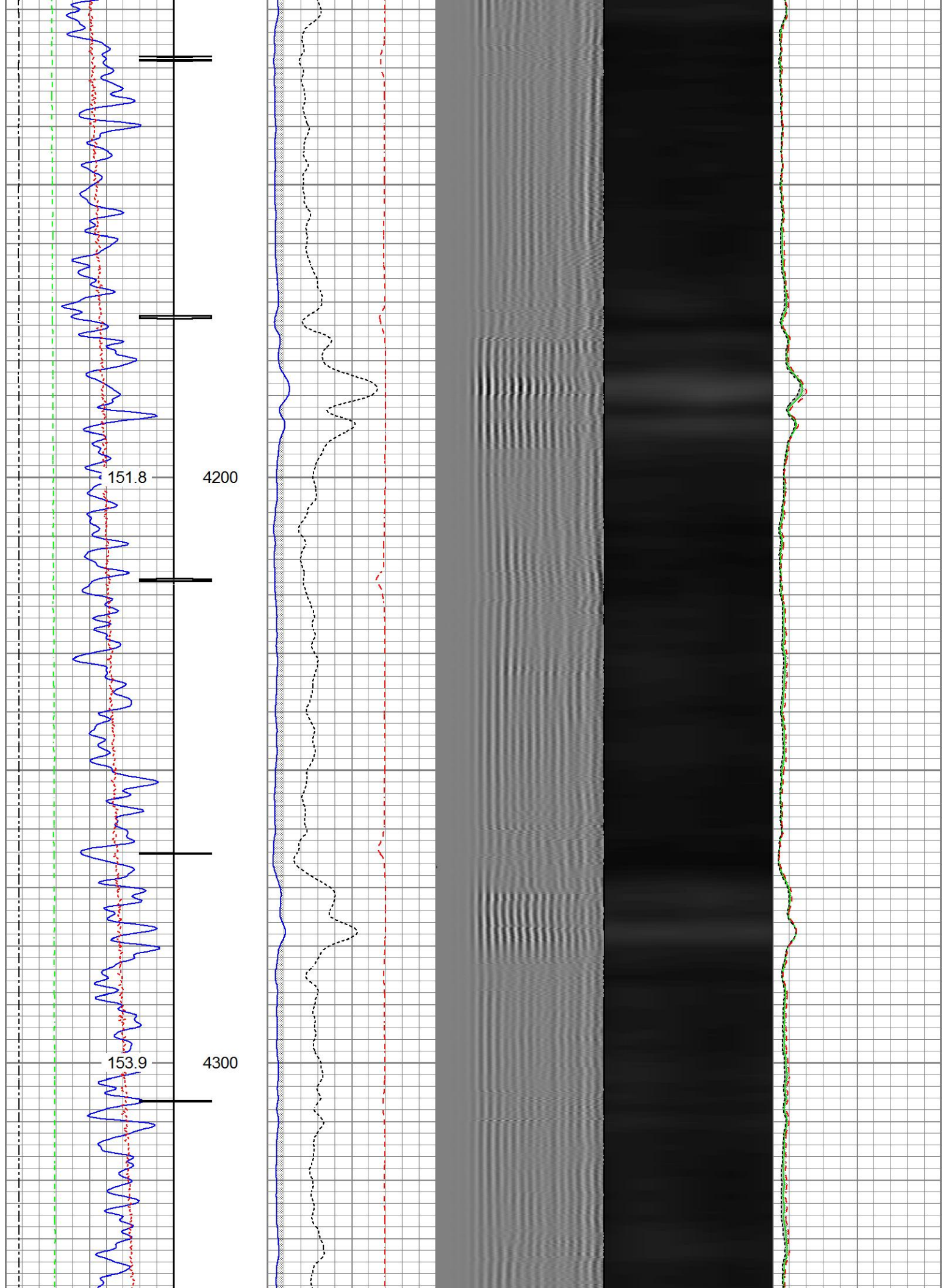


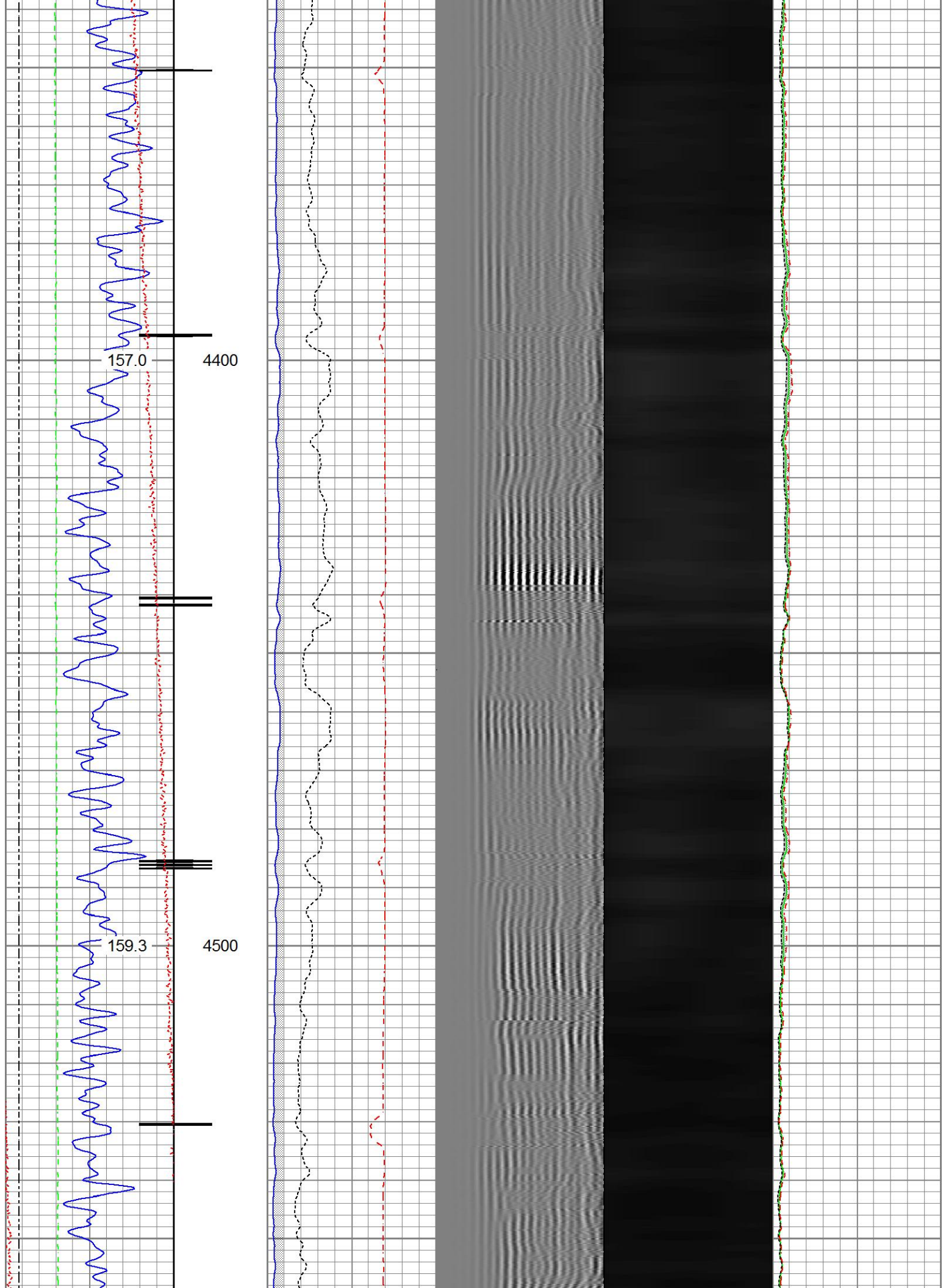


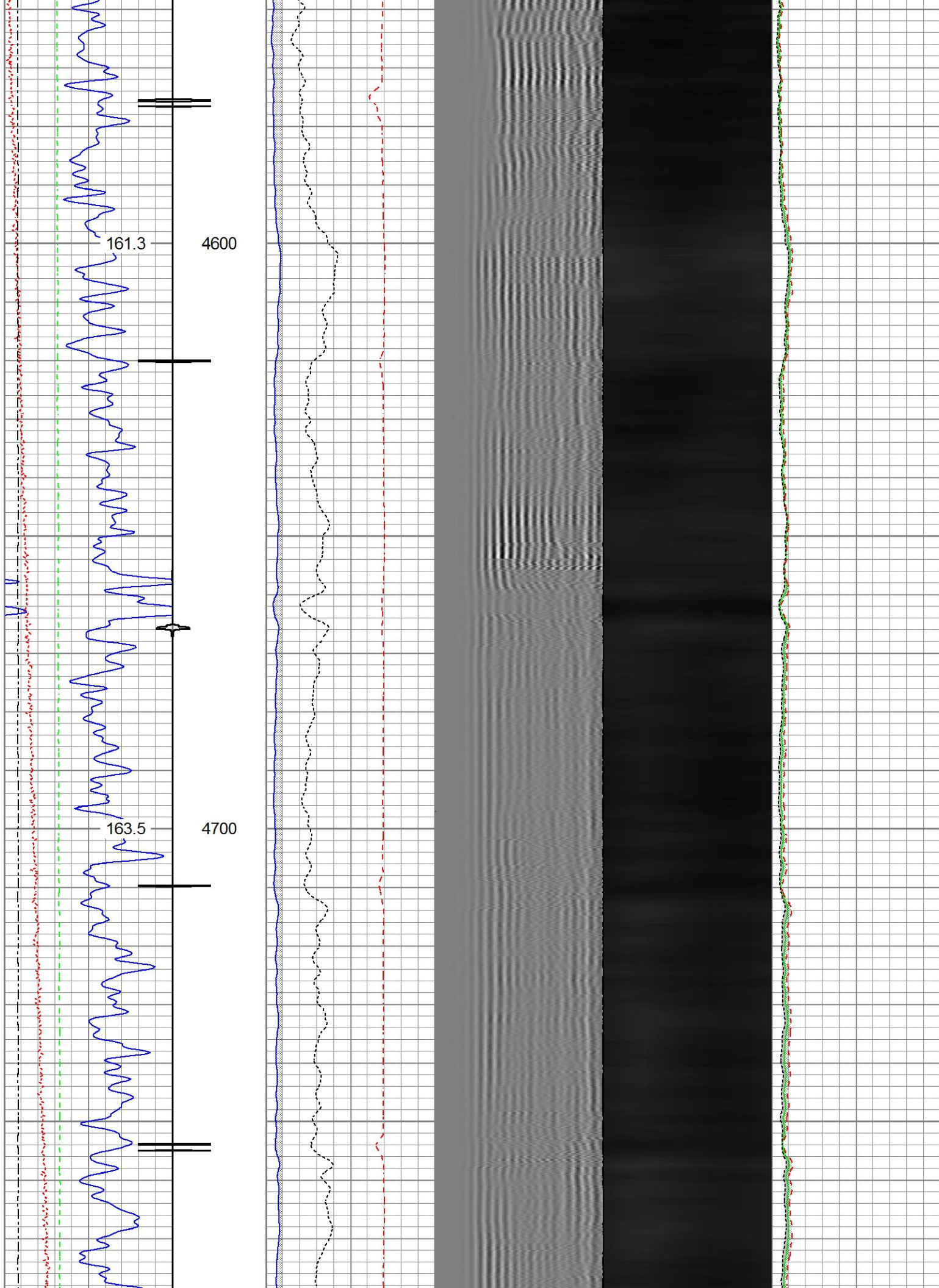


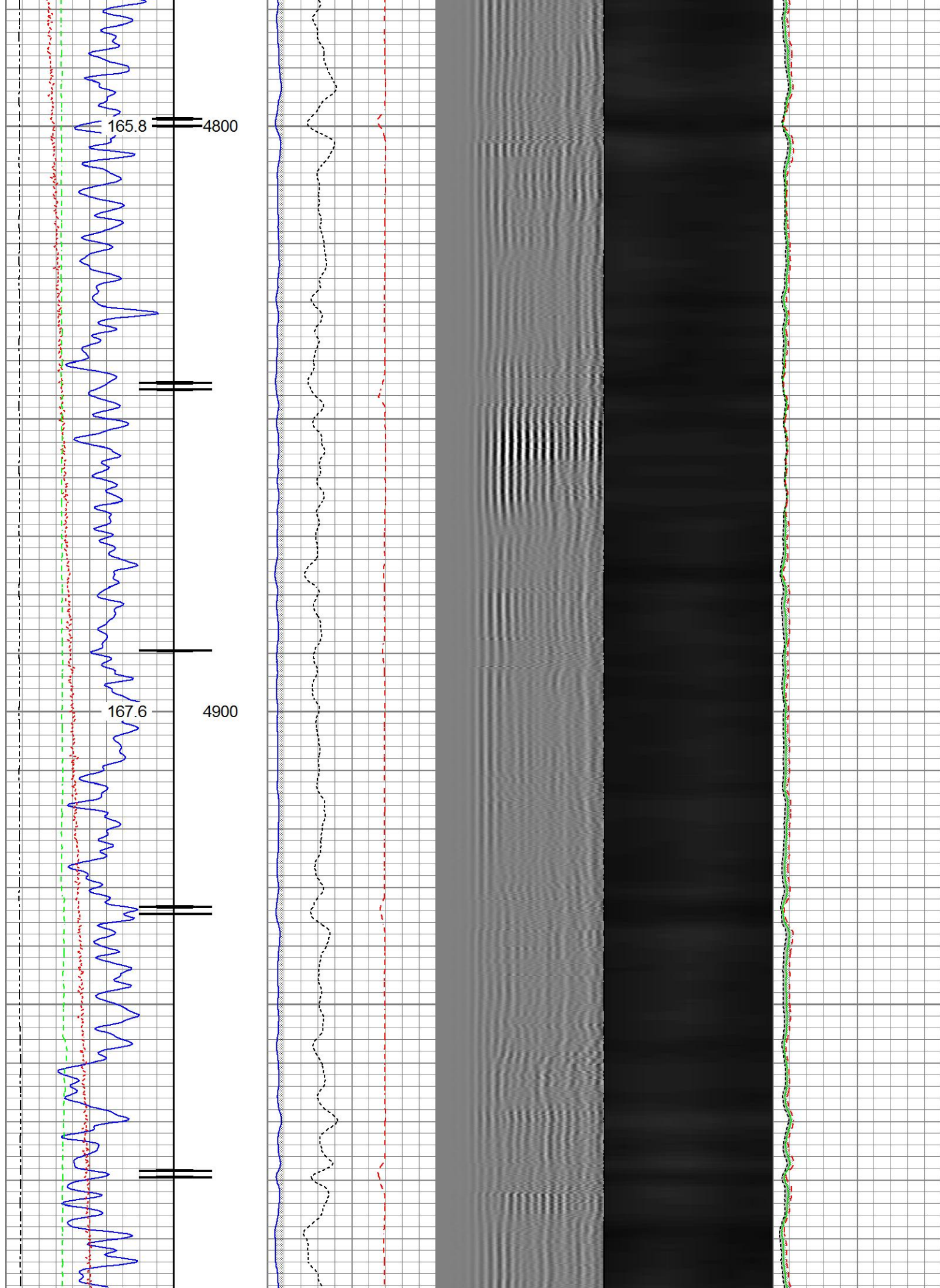


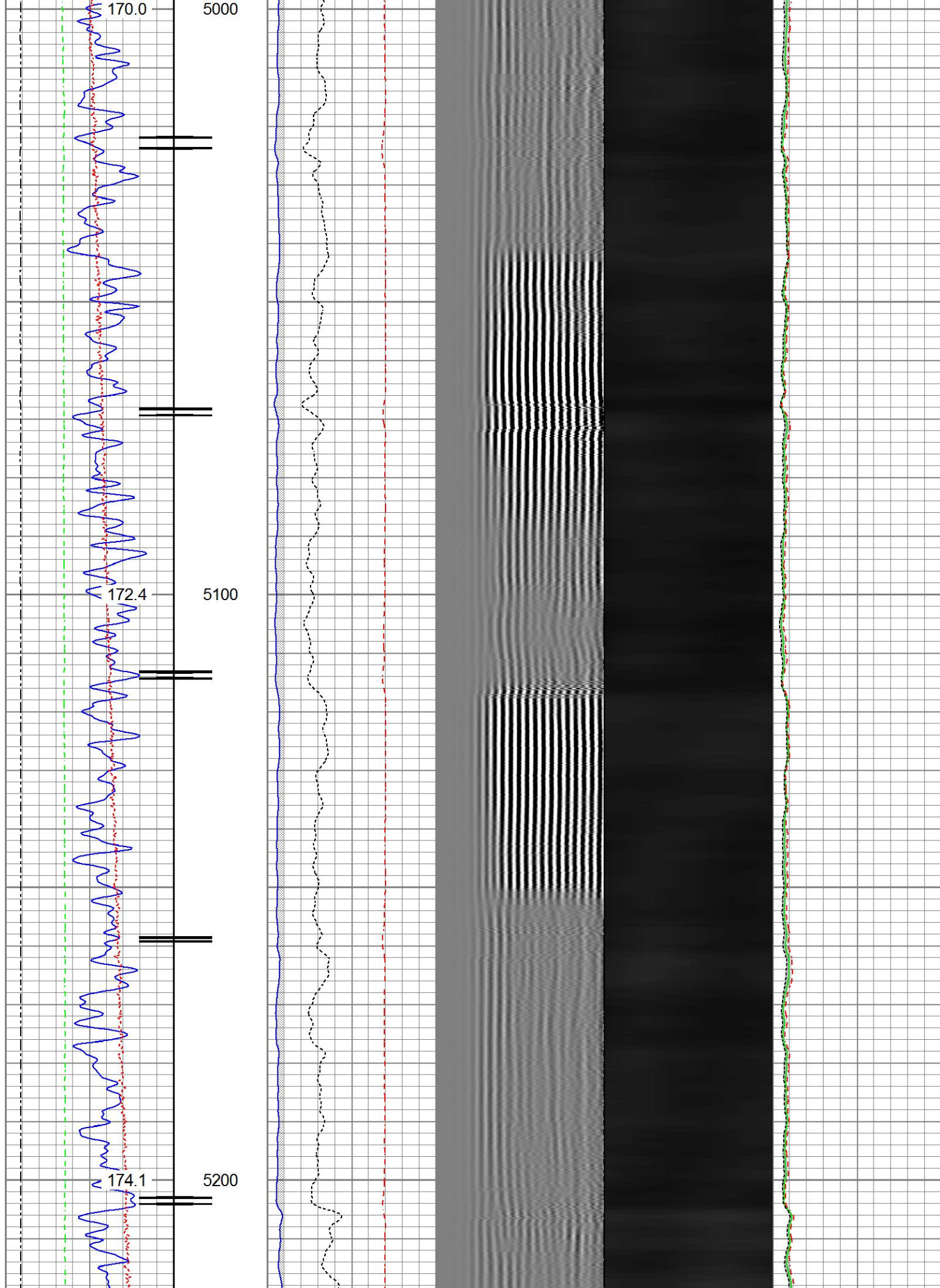


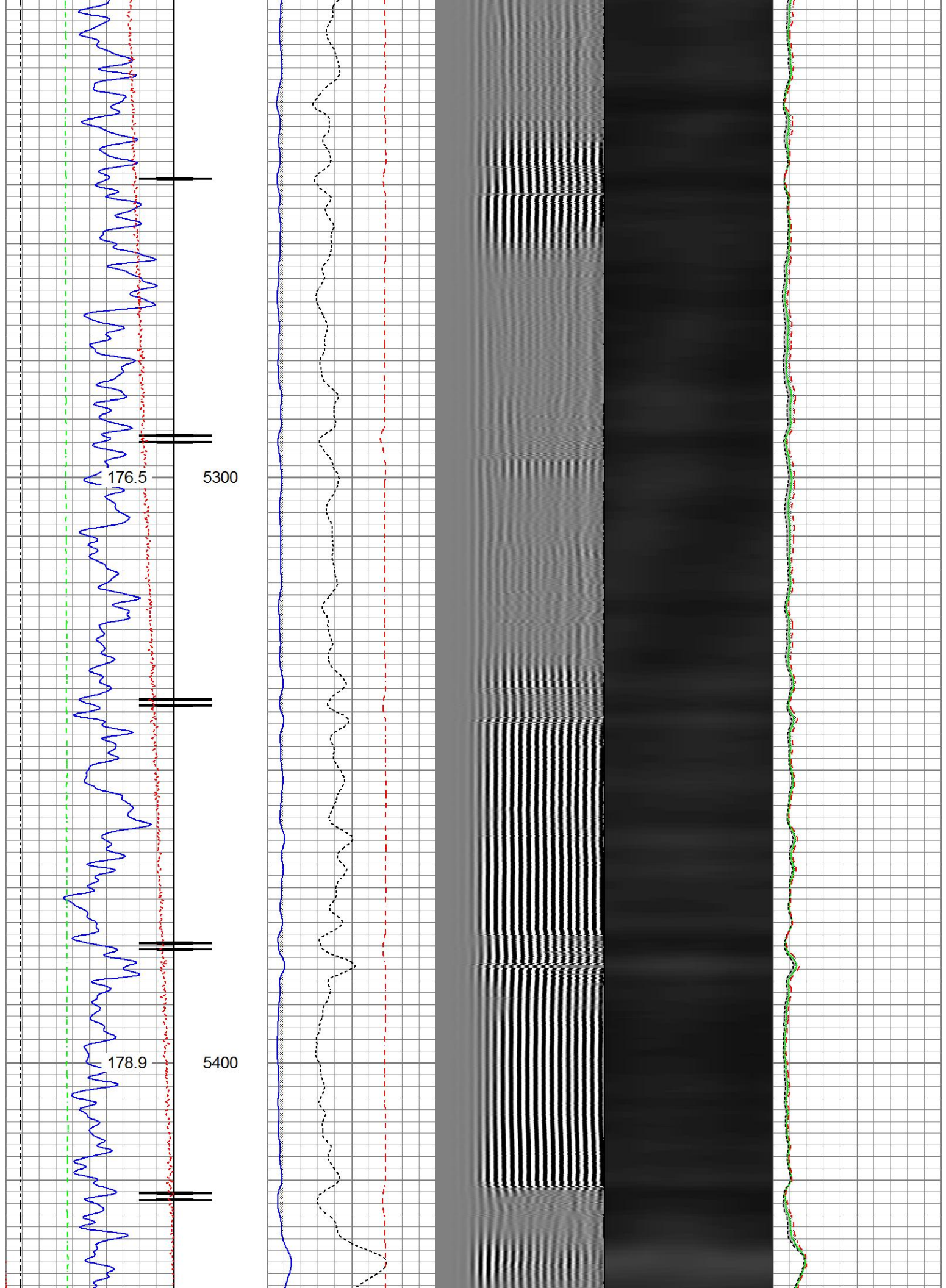


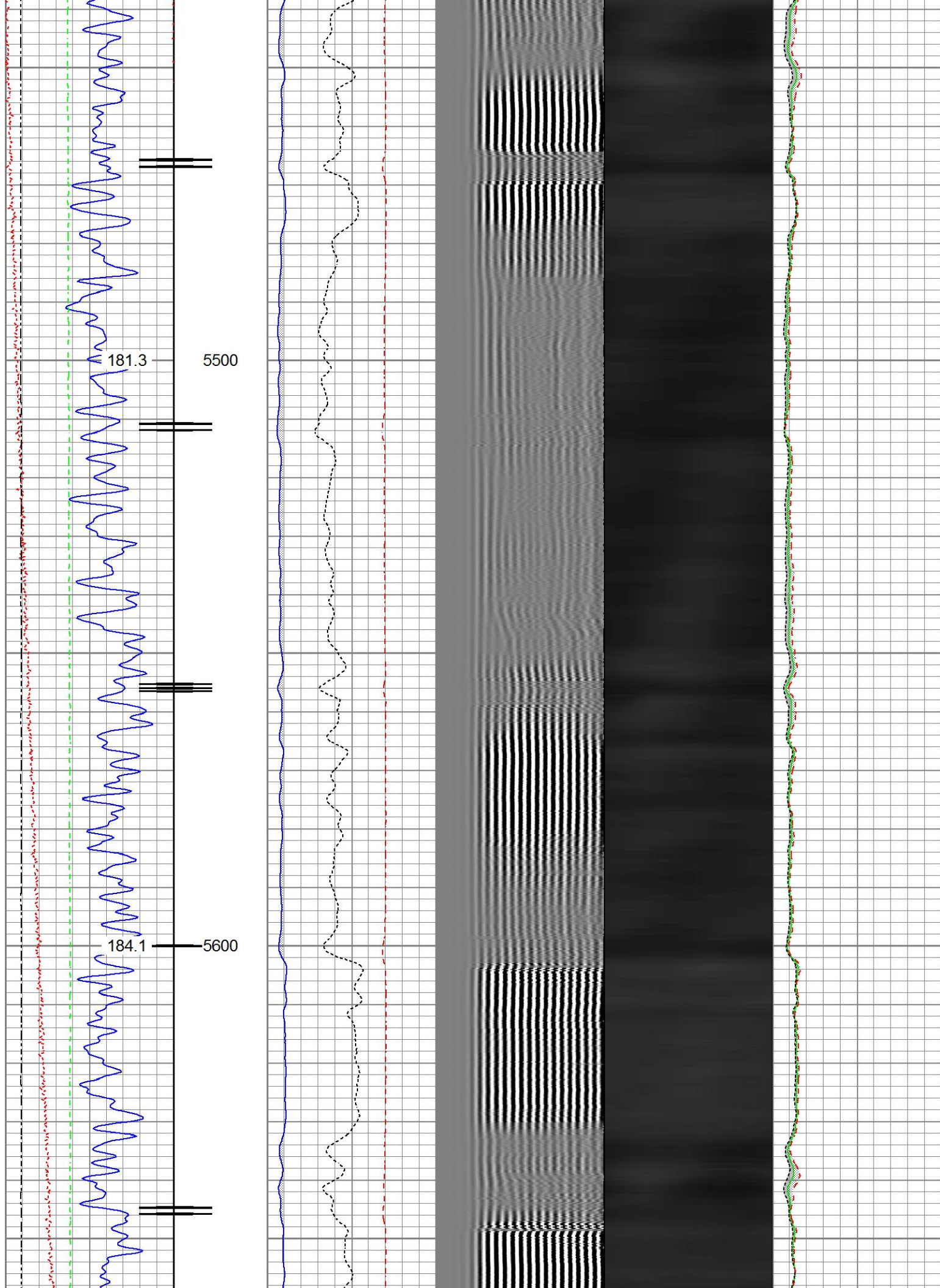


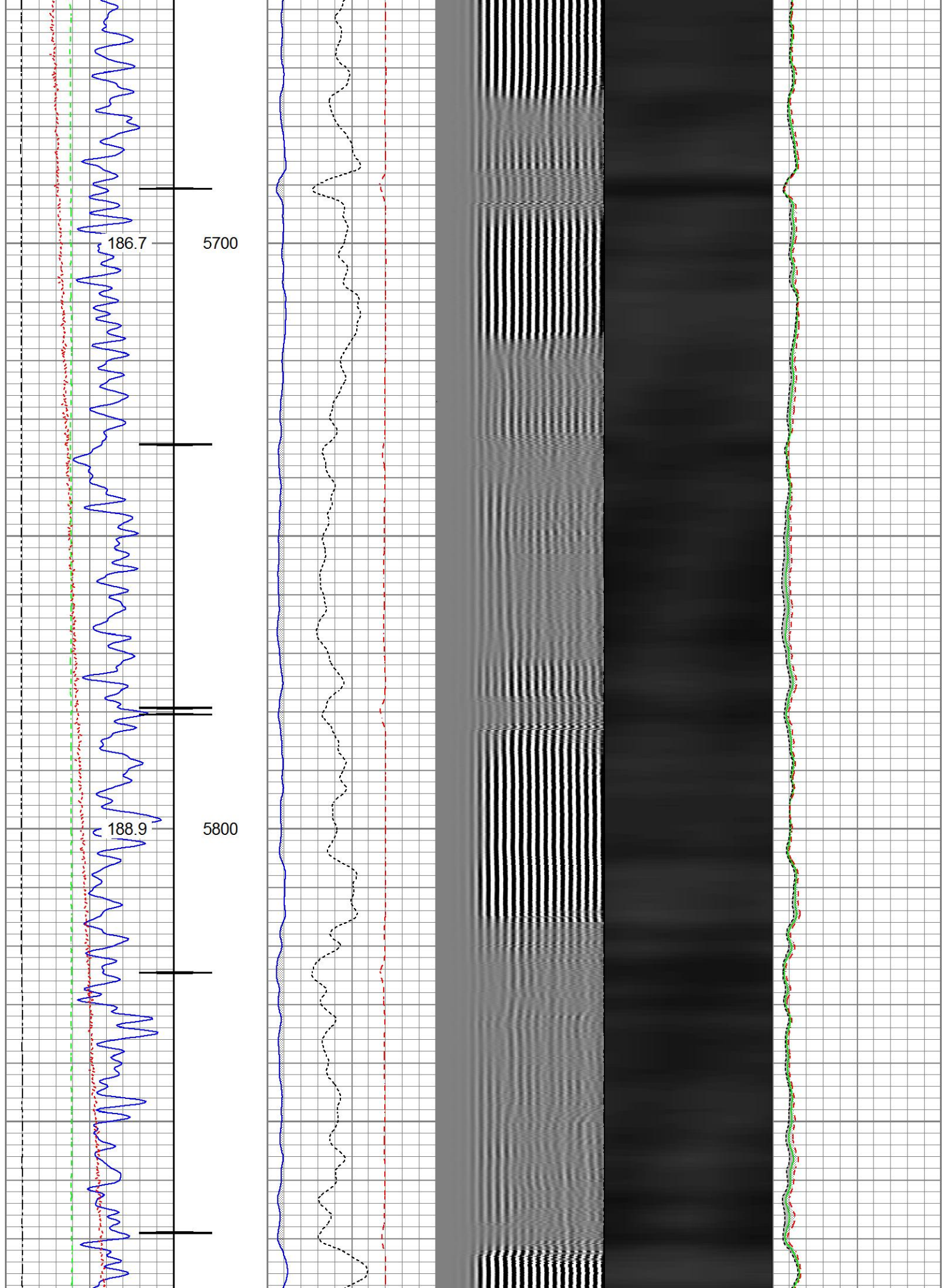


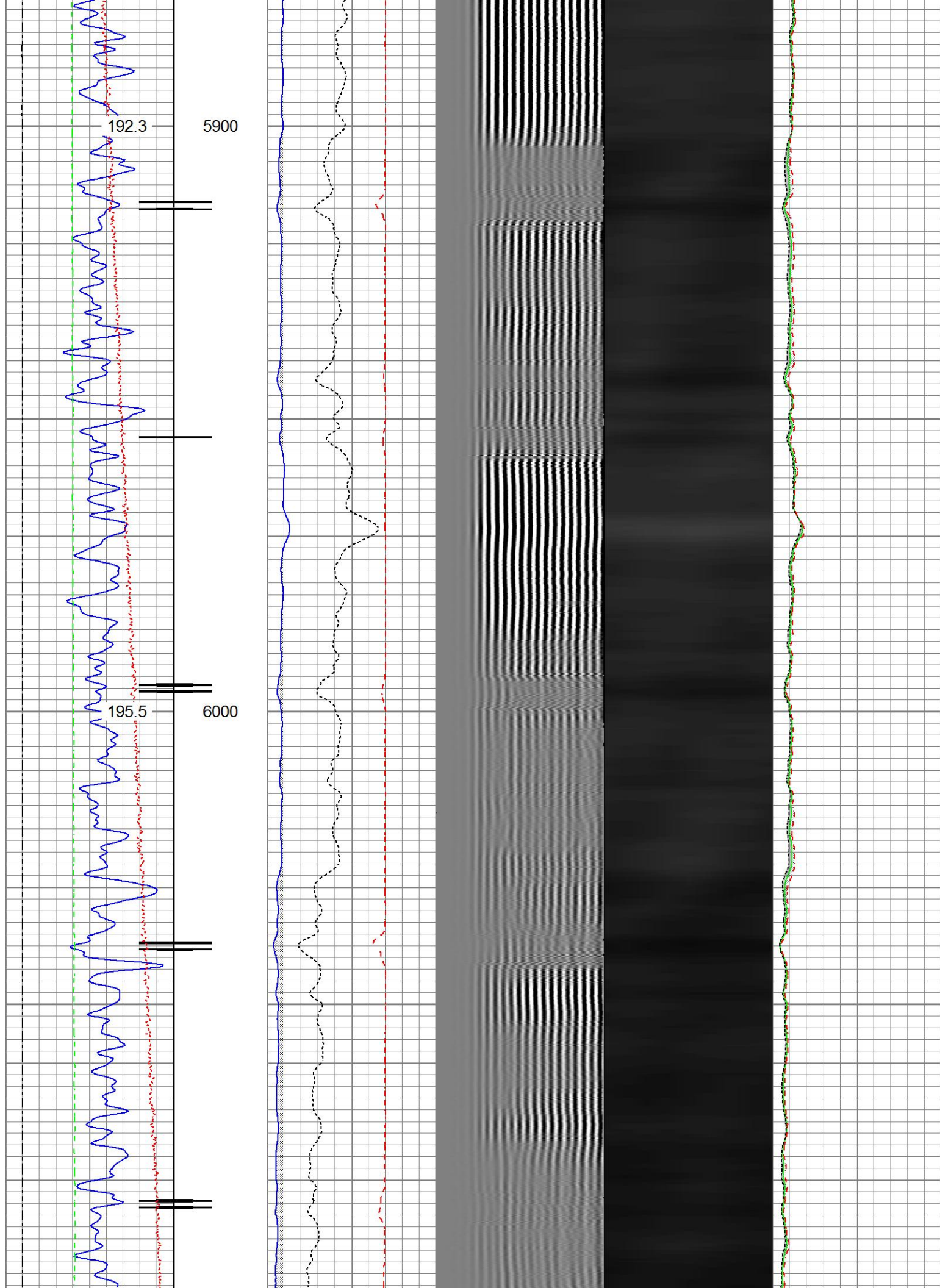


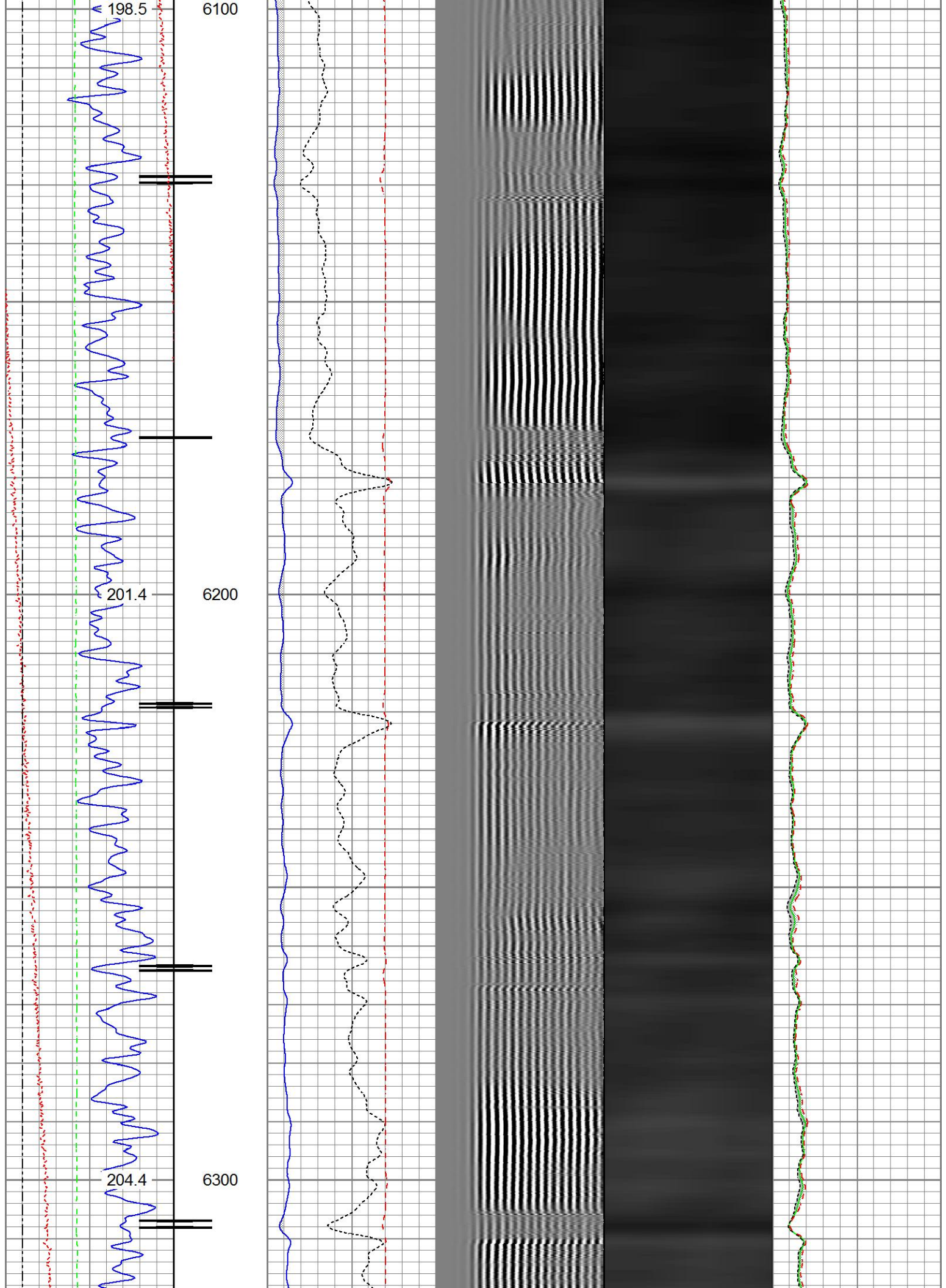


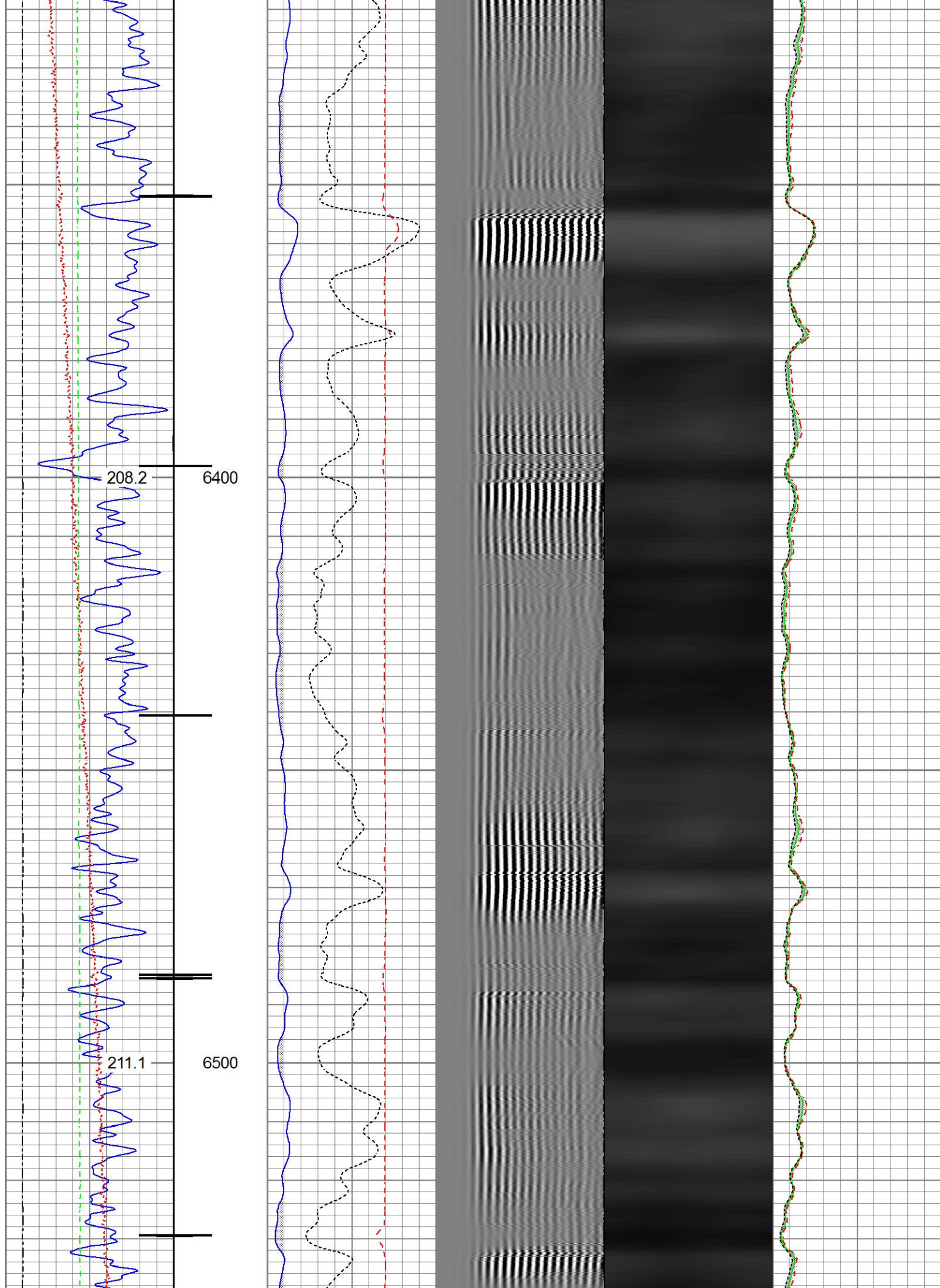


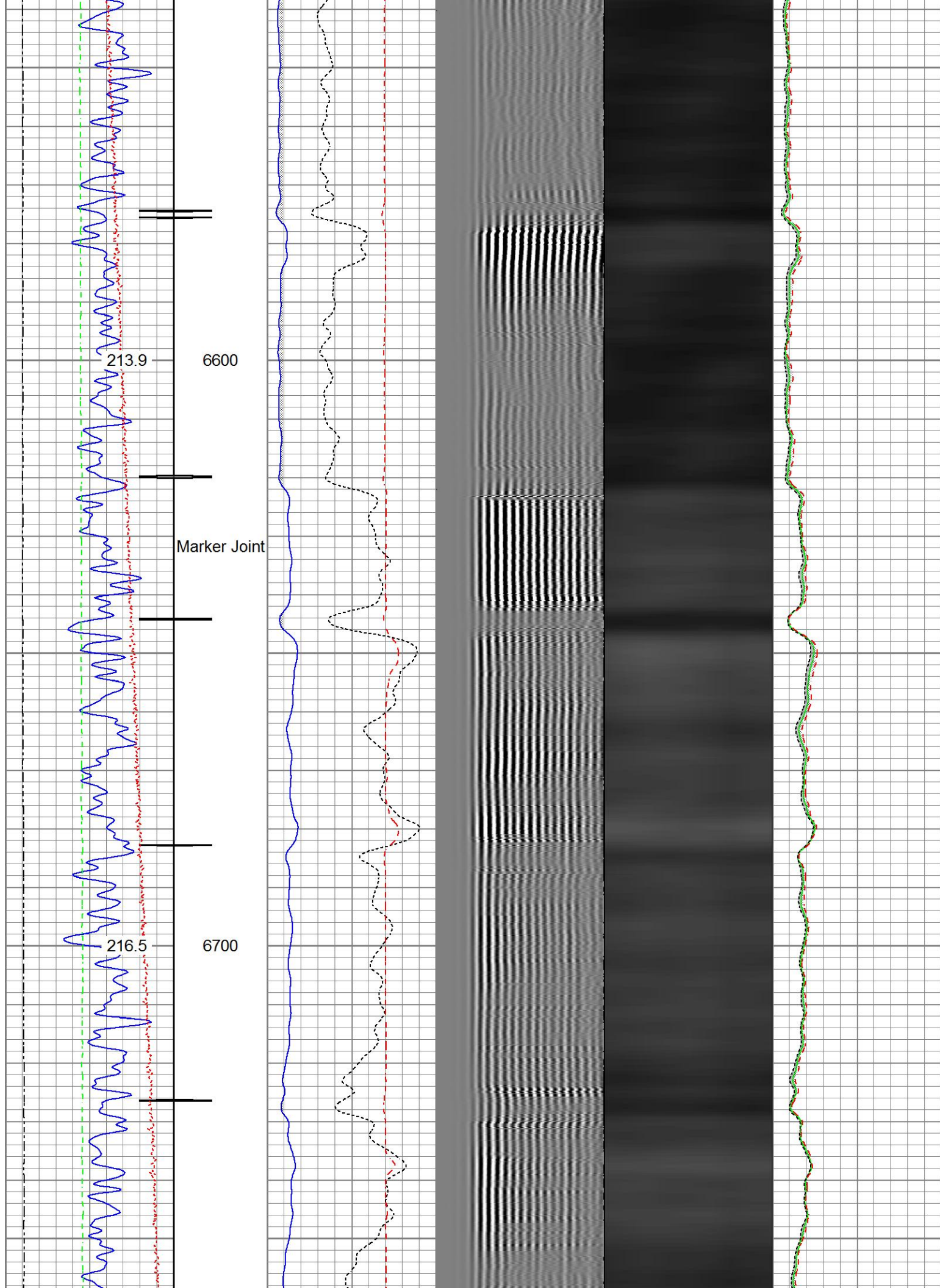


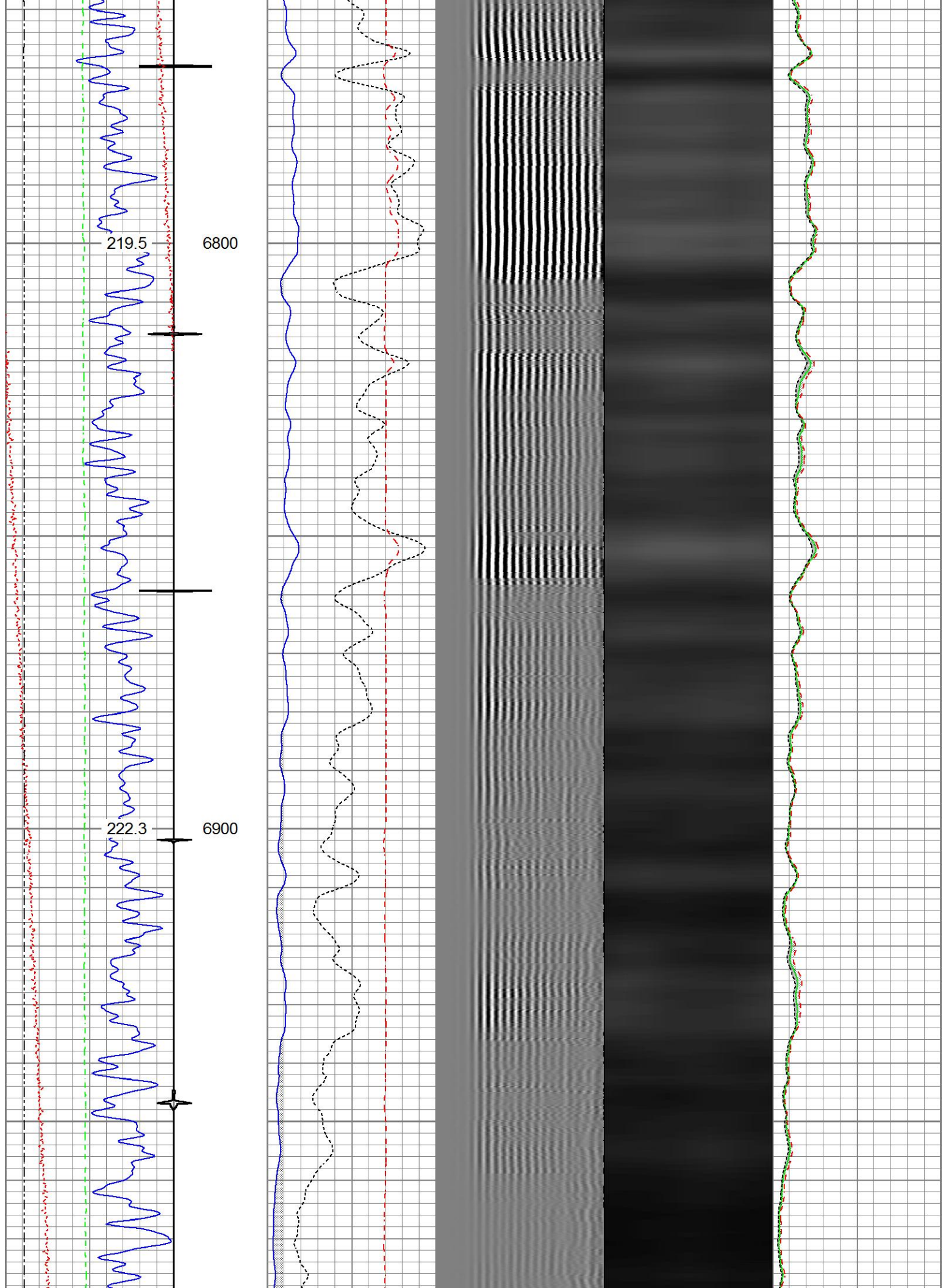


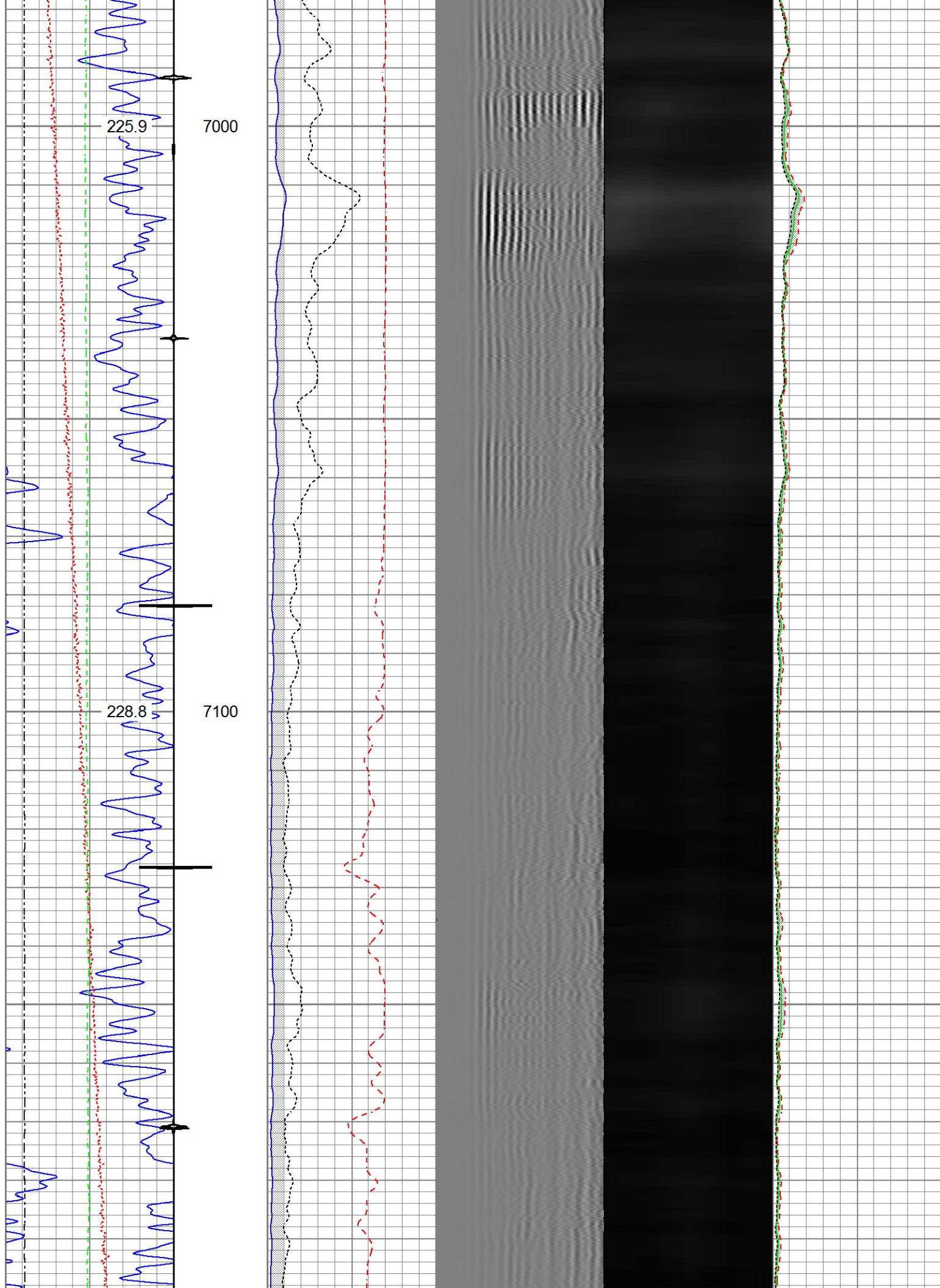


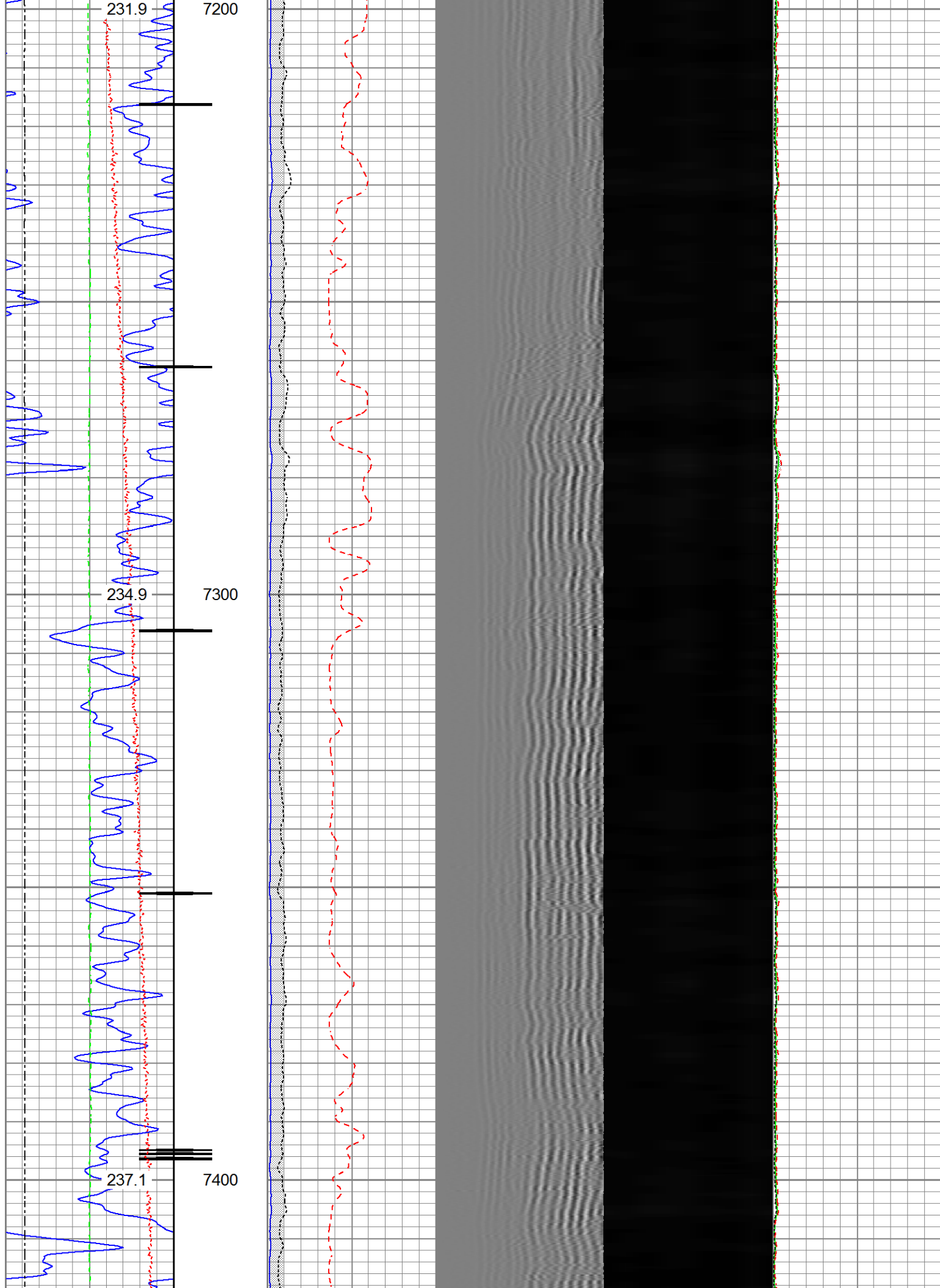


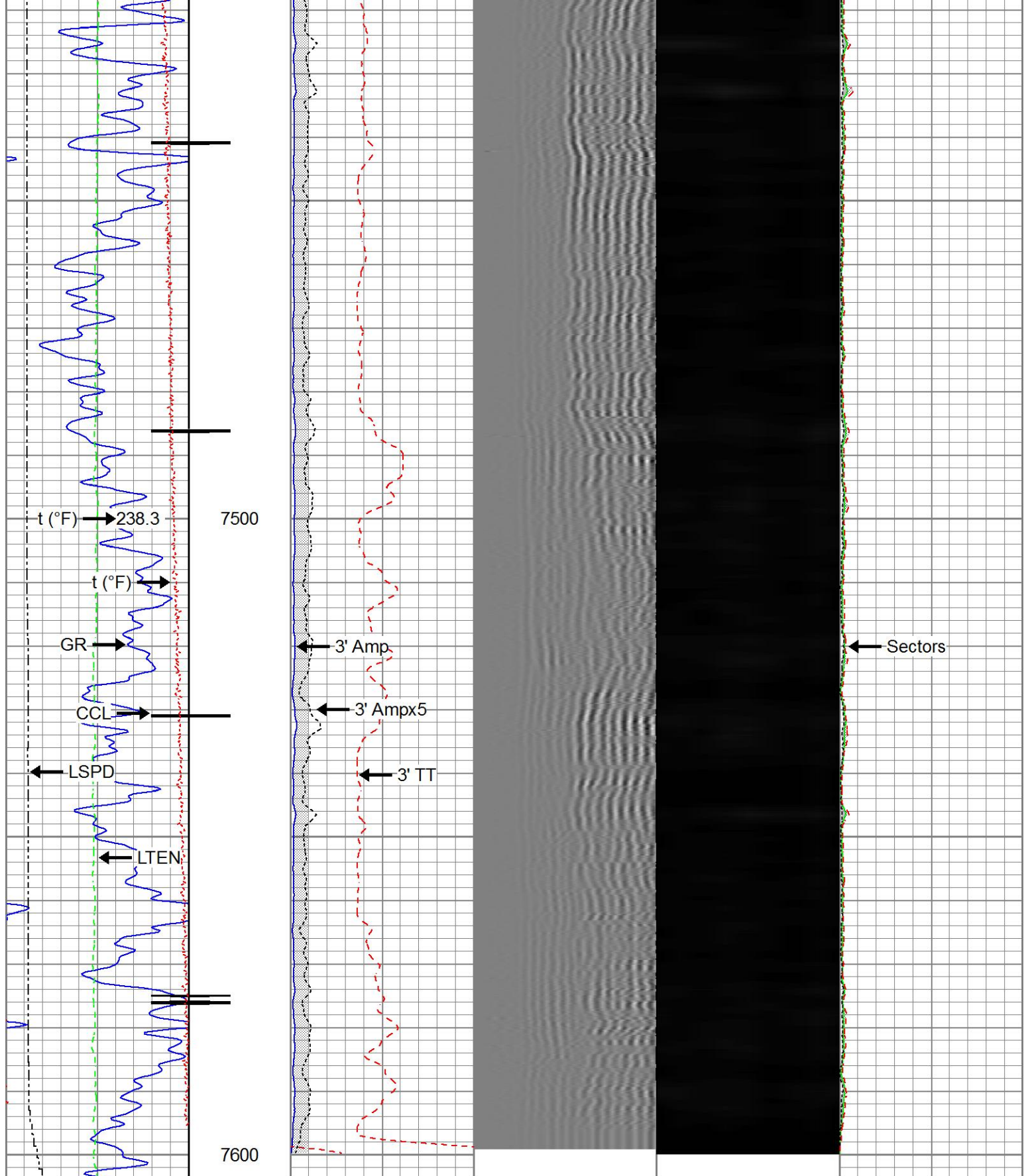













Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150				



Repeat Section

Recorded With 2800 PSI Surface Induced Pressure

Database File0512344319_anadarko_butterball 40c-34hz_rbl_07-19-17\0512344319_anadarko_butterball 40c-34hz_rbl

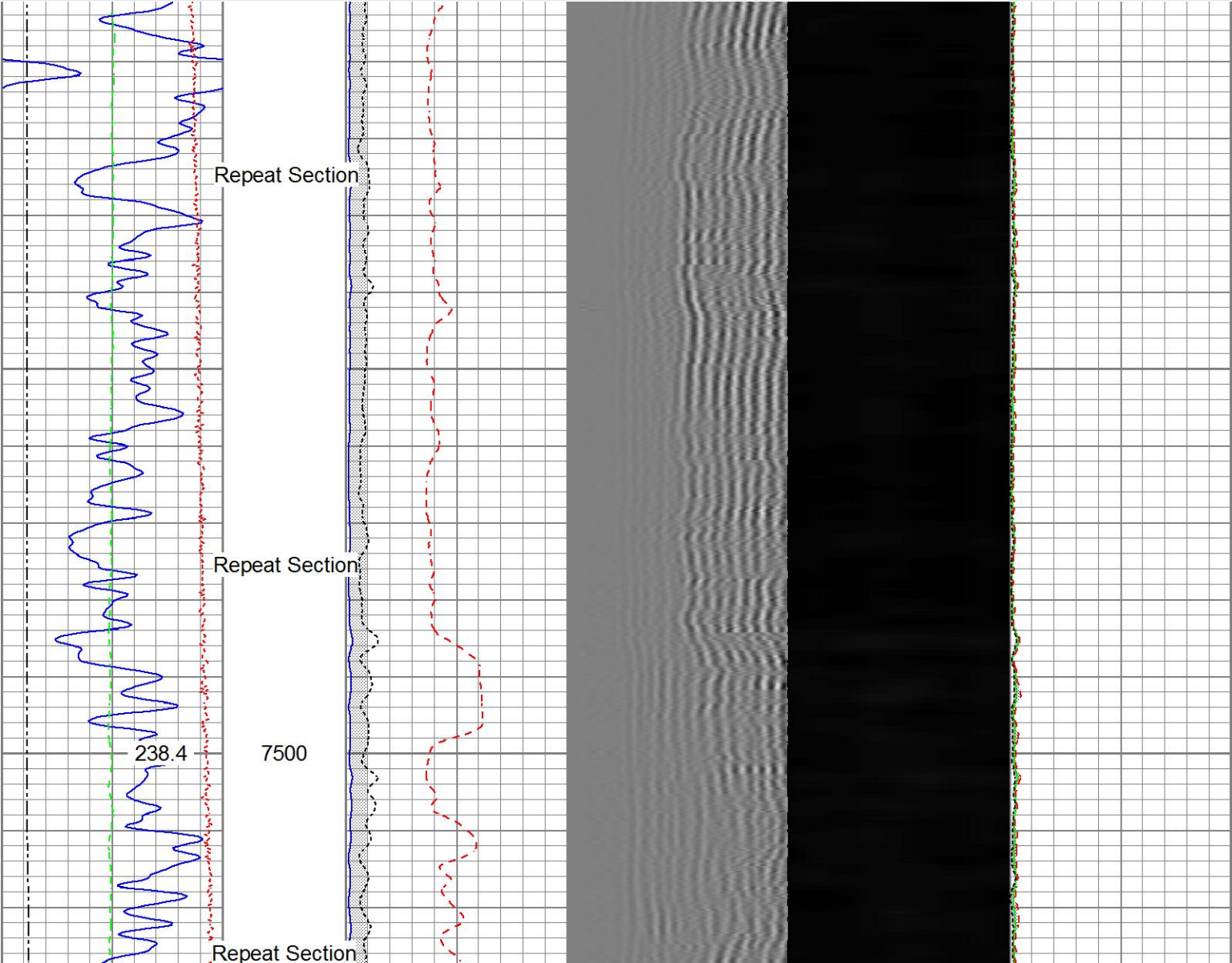
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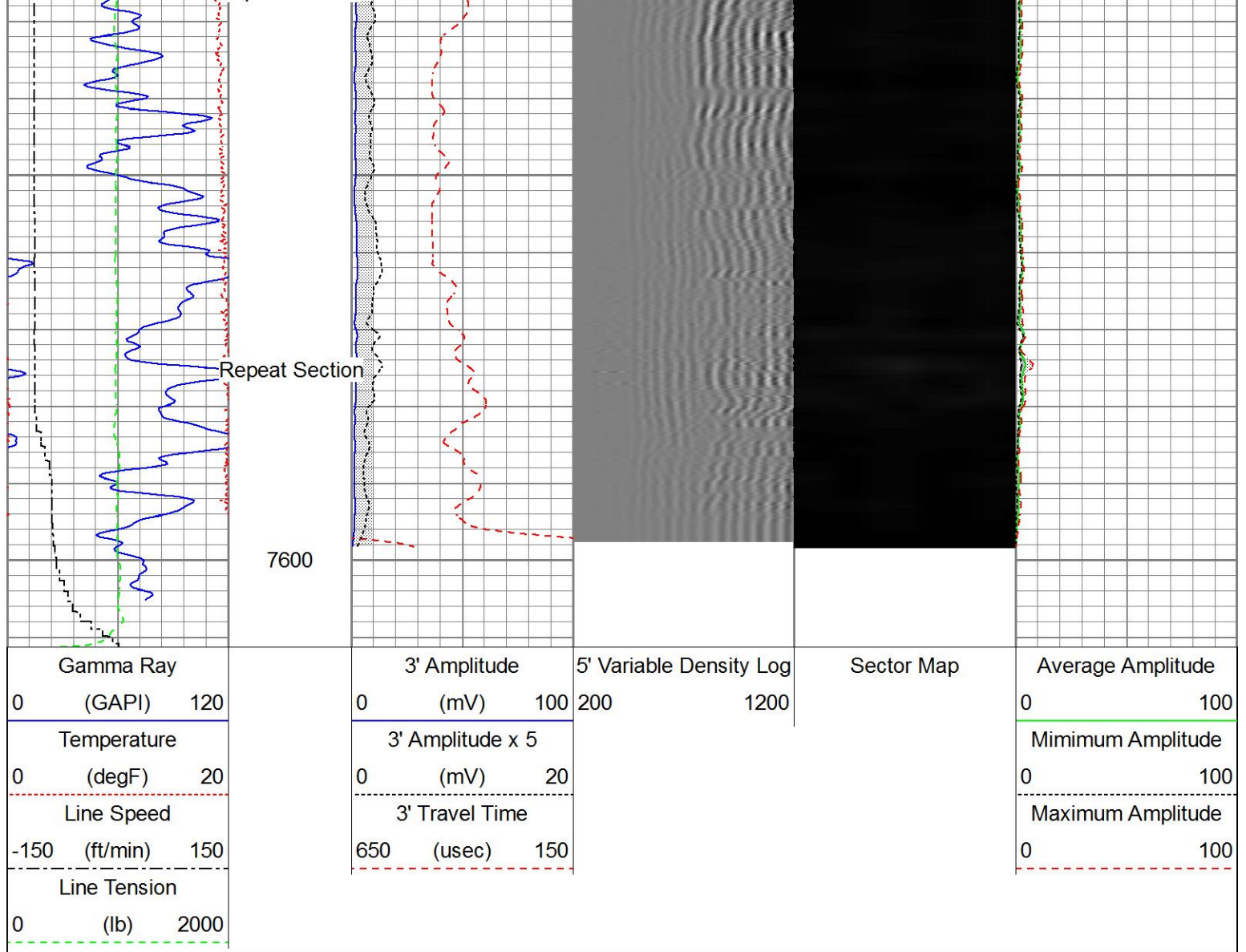
Presentation Formatros_radrii


Dataset CreationWed Jul 19 16:07:26 2017

Charted byDepth 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	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
Temp	16.72					
WVFS8	14.55		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
WVFS7	14.55					
WVFS6	14.55					
WVFS5	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	EE2.88,275	20.00
				Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	
DCCL	6.51			Probe_GR_CCL-P_CGR_2750_S (FW1304.543)	2.75	55.00
CCL	6.51			Probe 2-3/4" Digital CCL / Gamma Ray Combined		
GR	3.77			Probe_ELine_BowSpring_Centralizer-P	EE2.88,275	20.00
				Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	
Dataset: 0512344319_anadarko_butterball 40c-34hz_rbl_07-19-17.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\0512344319_anadarko_butterball 40c-34hz_rbl_07-19-17\0512344319_anadarko_butterball 4
Dataset Pathname	pass4
Dataset Creation	Wed Jul 19 16:11:02 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:	93.089	ft

Master Calibration, performed Wed Jul 19 08:16:22 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.002	0.604	0.800	71.921	118.194	0.514
CAL	0.002	0.631				
5'	0.002	0.581	0.800	71.921	122.852	0.526
SUM						
S1	0.002	0.599	0.000	100.000	167.341	-0.292
S2	0.002	0.596	0.000	100.000	168.490	-0.339
S3	0.002	0.591	0.000	100.000	170.011	-0.392
S4	0.002	0.591	0.000	100.000	169.800	-0.400
S5	0.002	0.600	0.000	100.000	167.327	-0.388
S6	0.002	0.605	0.000	100.000	165.917	-0.393
S7	0.002	0.608	0.000	100.000	165.171	-0.397
S8	0.002	0.608	0.000	100.000	165.201	-0.397

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.002	0.631	1.000	0.000

Air Zero Calibration, performed Wed Jul 19 08:16:43 2017:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.002		0.000		0.000	
5'	0.002		0.000		-0.000	
SUM						
S1	0.002		0.000		0.000	
S2	0.002		0.000		0.000	
S3	0.002		0.000		0.000	
S4	0.002		0.000		0.000	
S5	0.002		0.000		0.000	
S6	0.002		0.000		0.000	
S7	0.002		0.000		0.000	
S8	0.002		0.000		0.000	



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