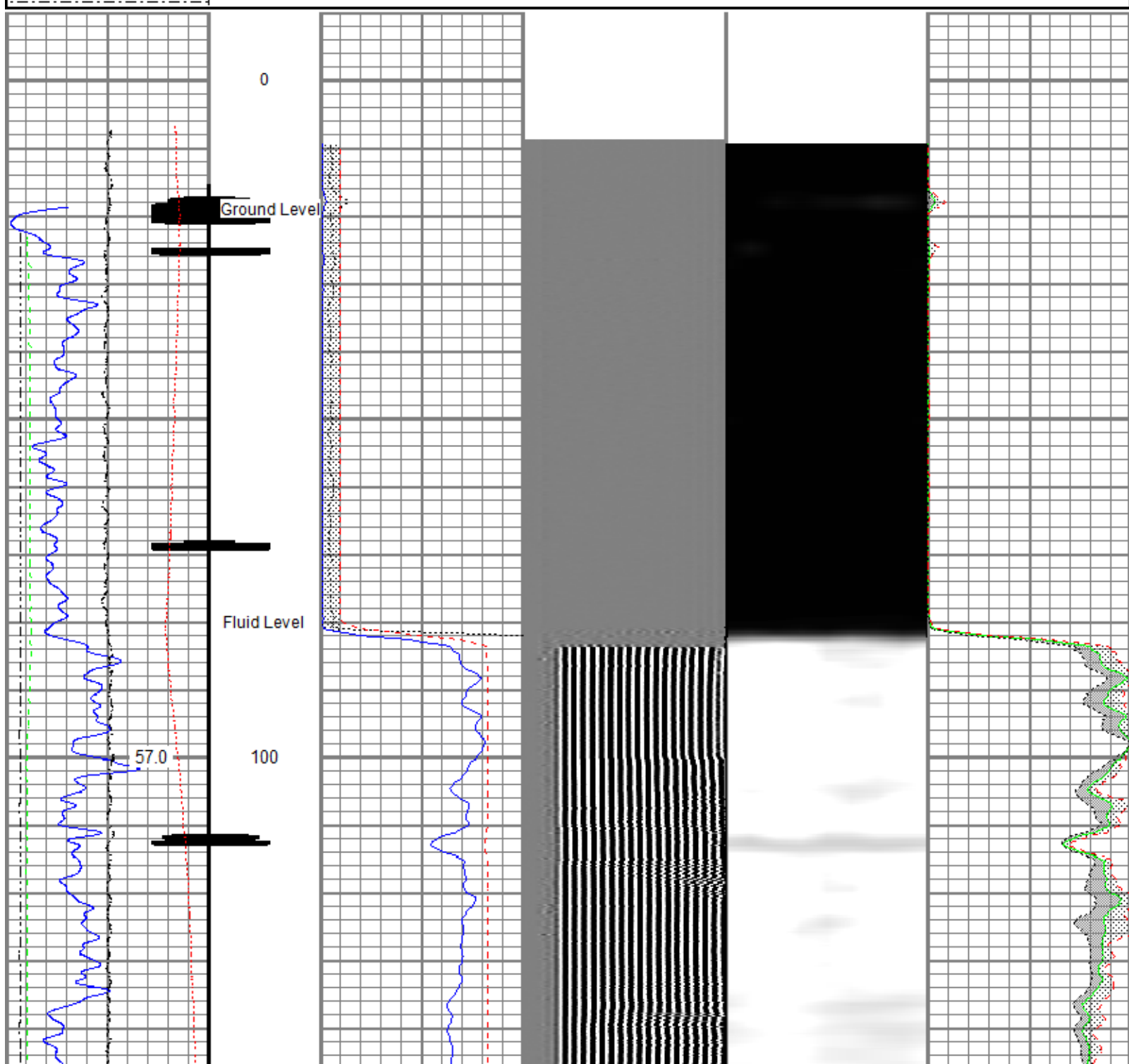


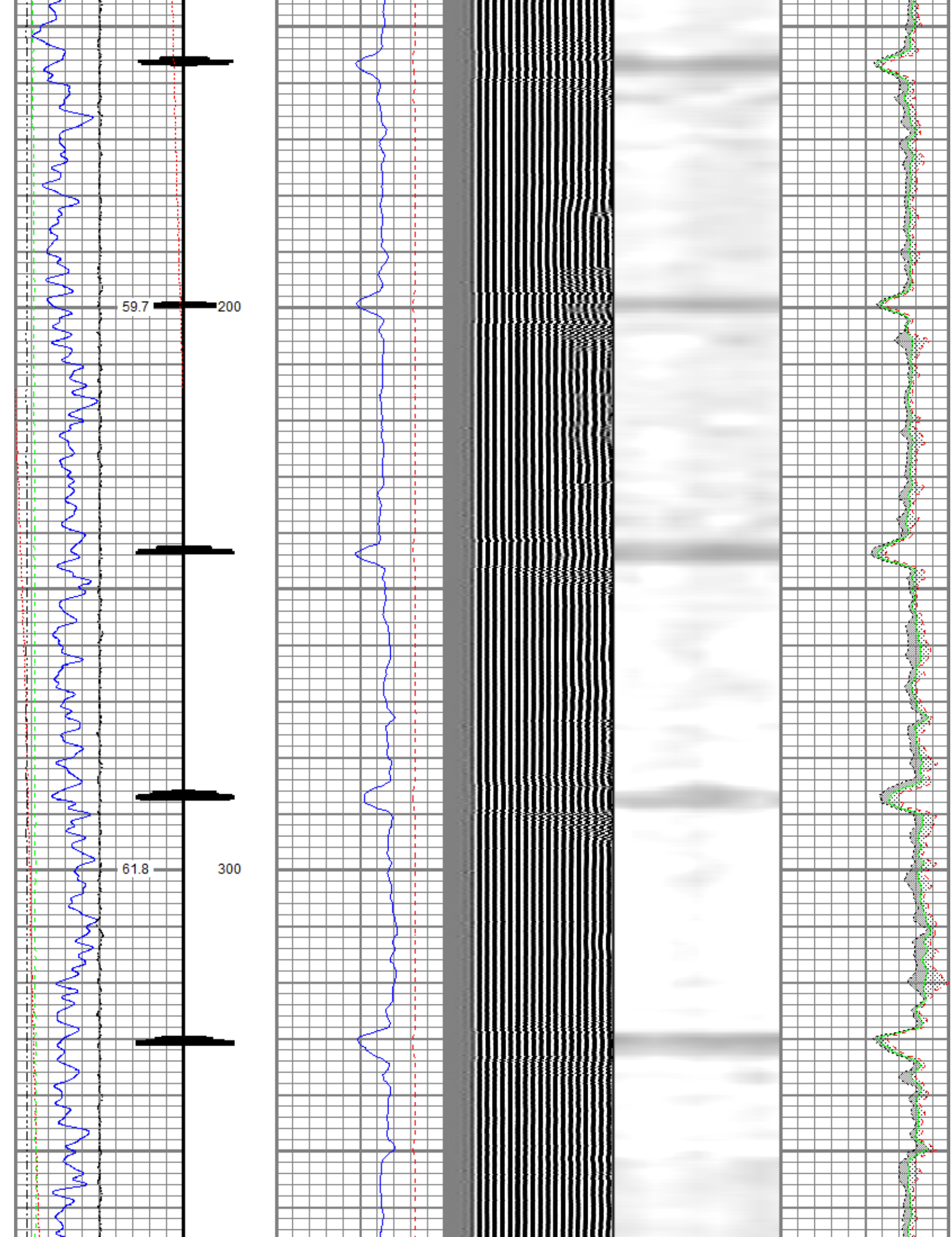


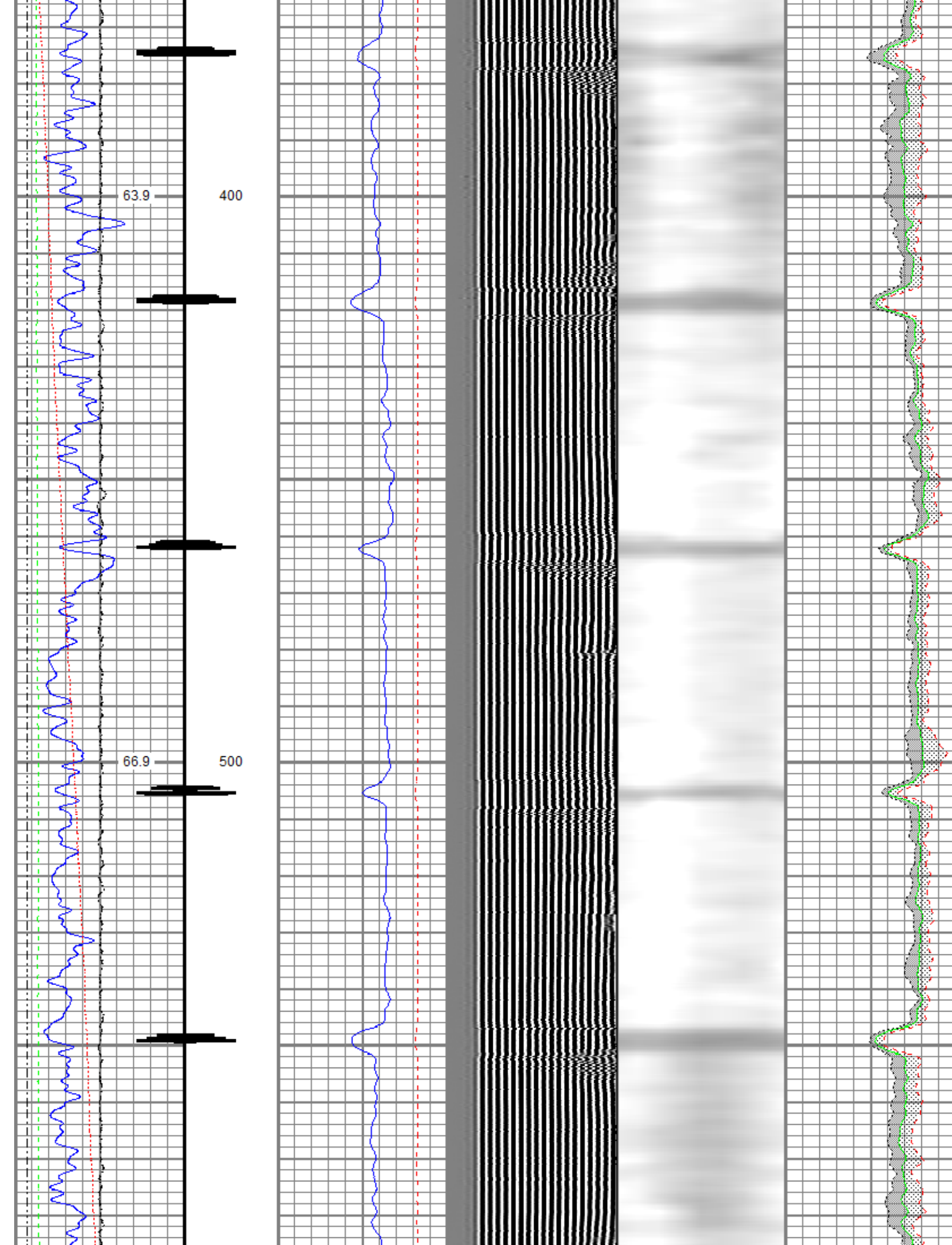
<<< Fold Here >>>
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible 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 Kelly Bushing at 21 FT Log ran from 11070 FT to Surface Recorded Marker Joints at 5694-5705 FT, 7201-7210 FT and 9648-9658 FT Log ran with 0 PSI Surface Induced Pressure  Thank you for choosing Reliance Oilfield Services, LLC!

Database File	ursa_boies ranch b-19n fed 23a	ursa_boies ranch b-19n fed 23a-19-2-97_rbl_11-30-18.db
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Presentation Format	ros_radri	
Dataset Creation	Sat Dec 01 13:45:20 2018	
Charted by	Depth in Feet scaled 1:240	

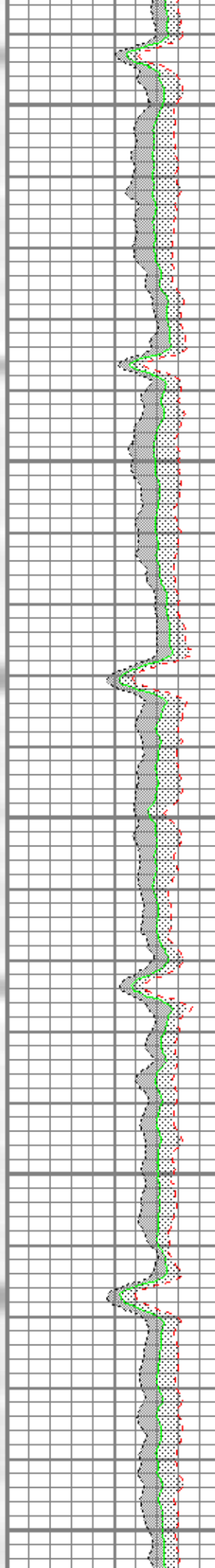
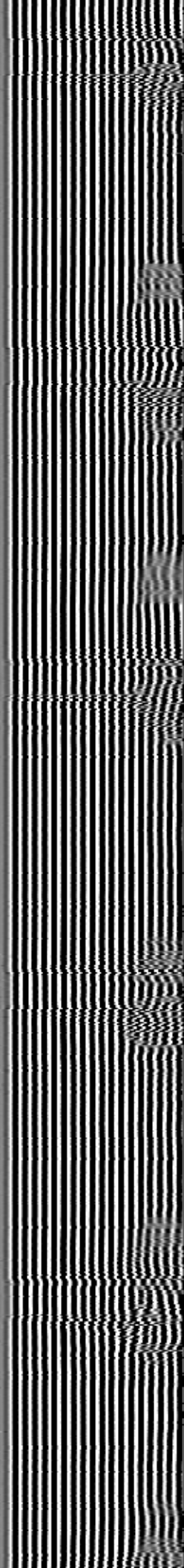
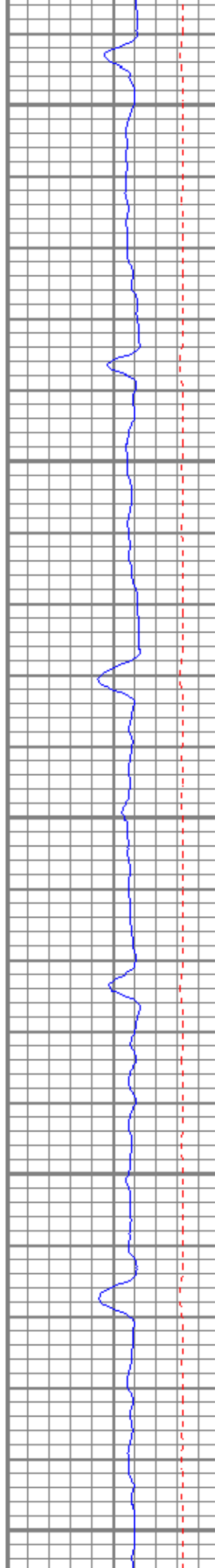
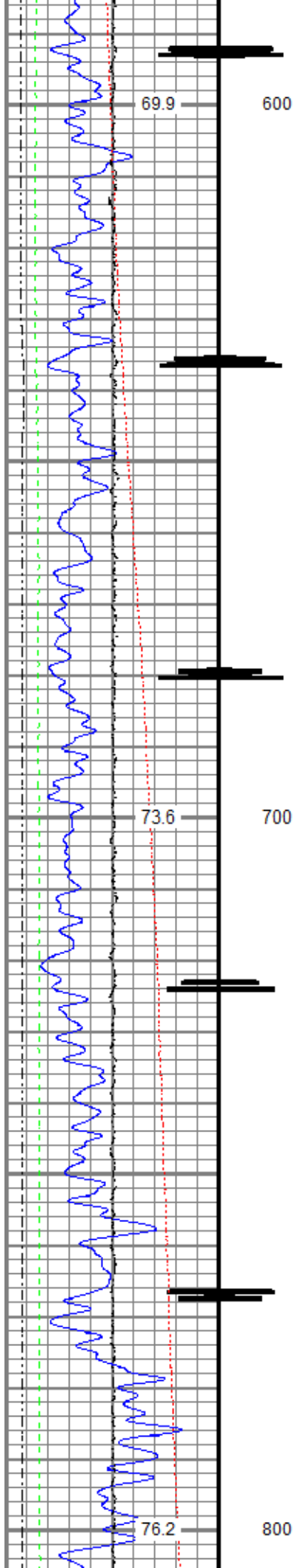
Gamma Ray	0	3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0	Average Amplitude 100
(GAPI) 120		3' Amplitude x 5	200 (usec) 1200			Minimum Amplitude
Casing Collar Locator	0	(mV) 20			0	100
Temperature (degF) 20		3' Travel Time				Maximum Amplitude
Line Speed	650	(usec) 150			0	100
(ft/min) 150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

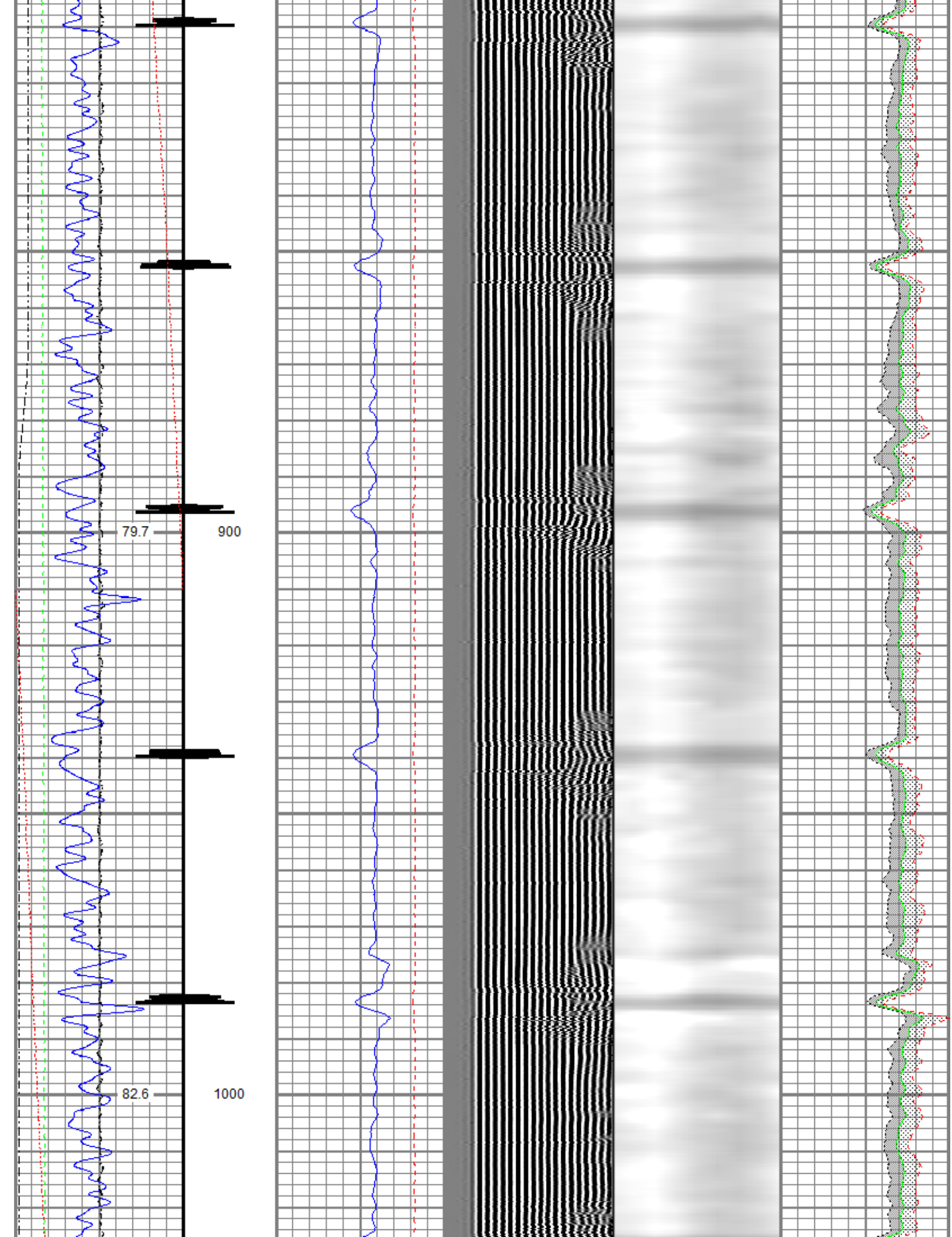


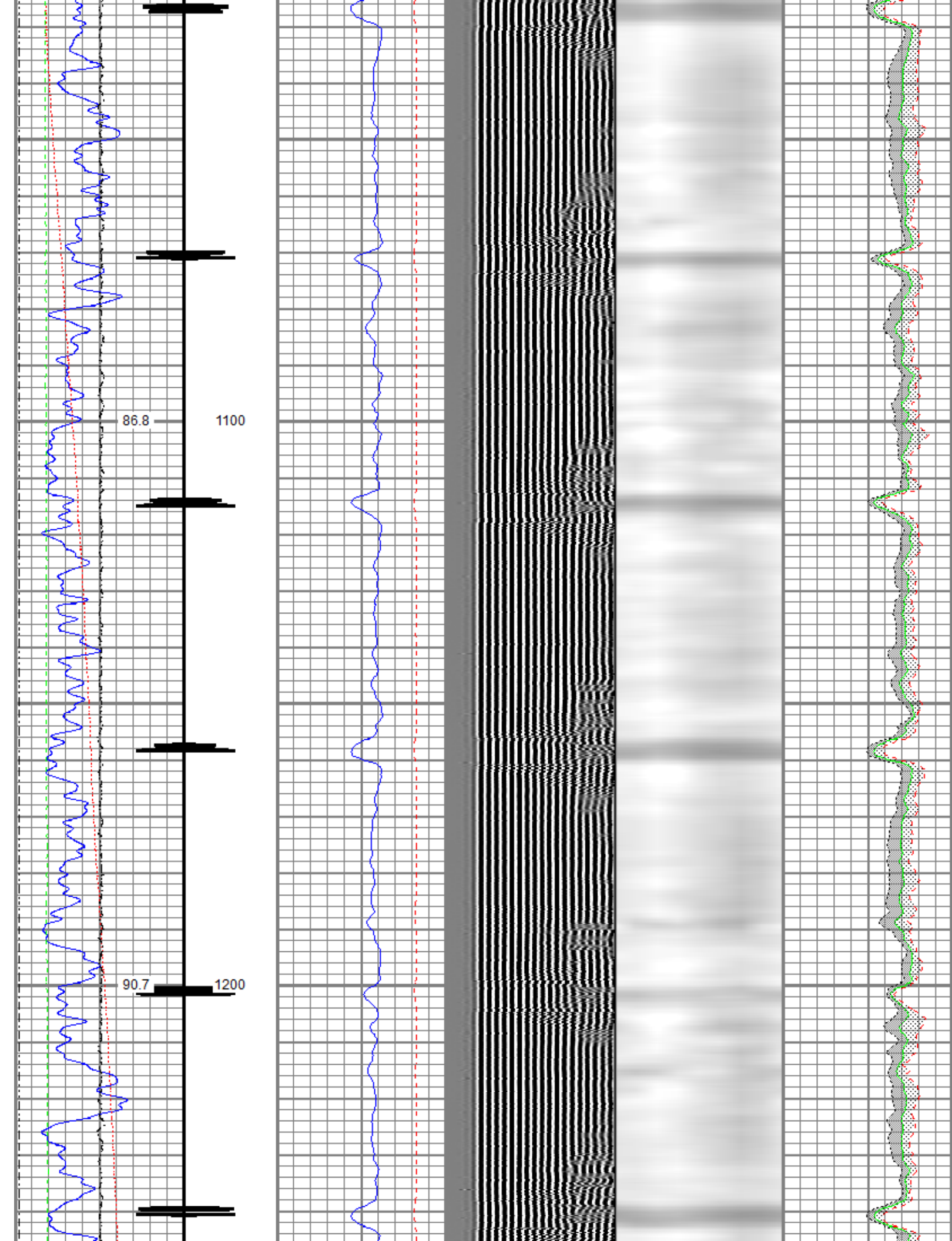




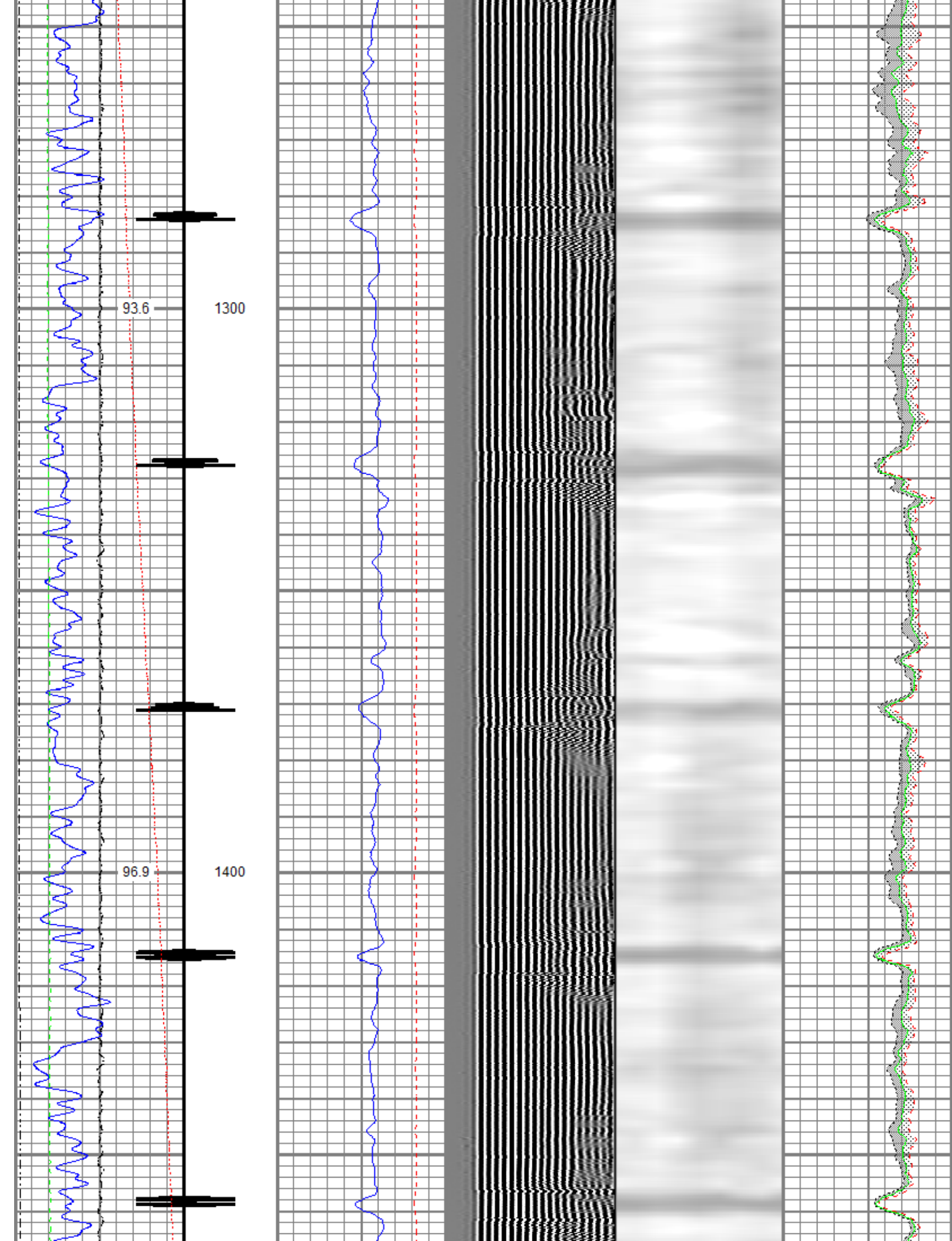




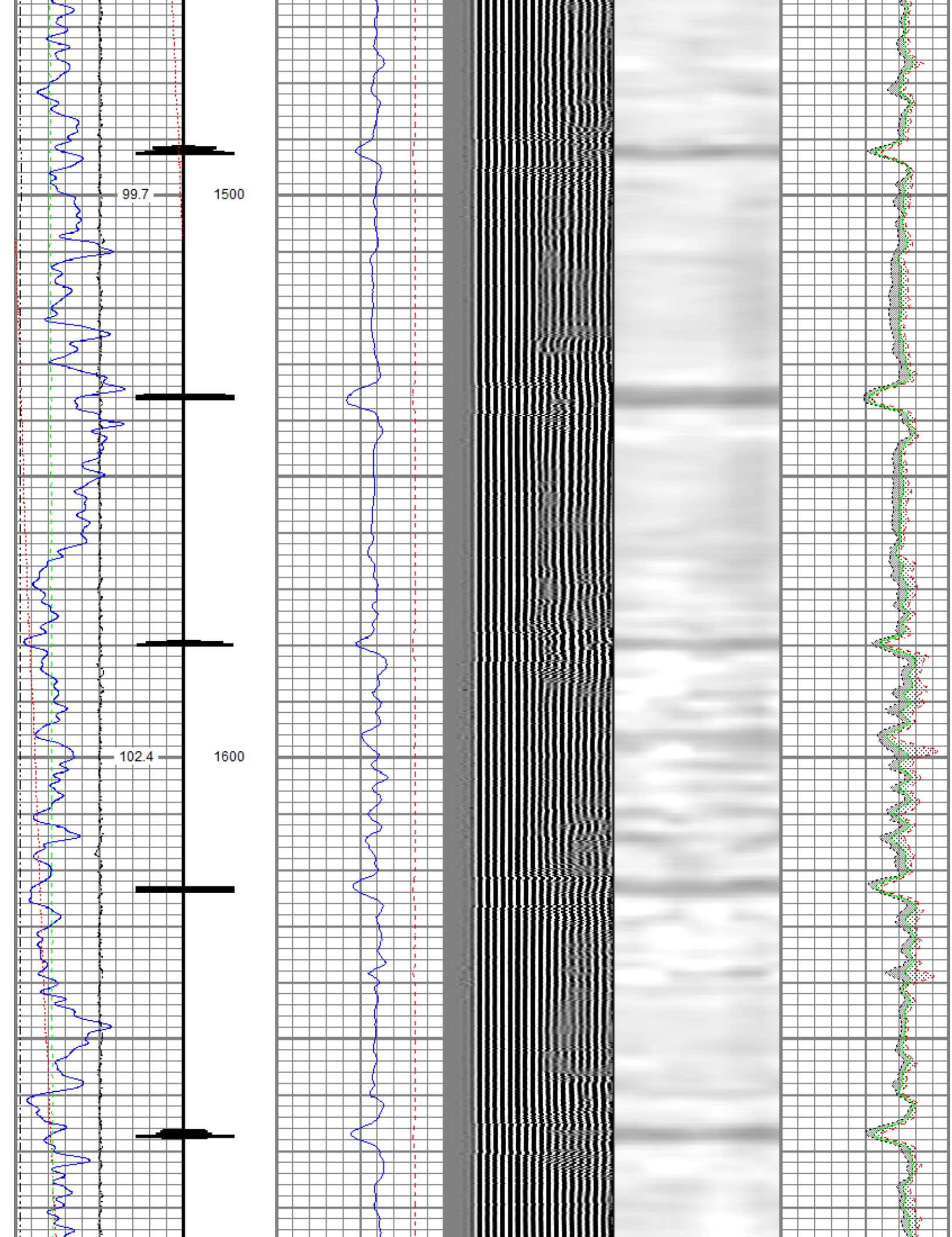


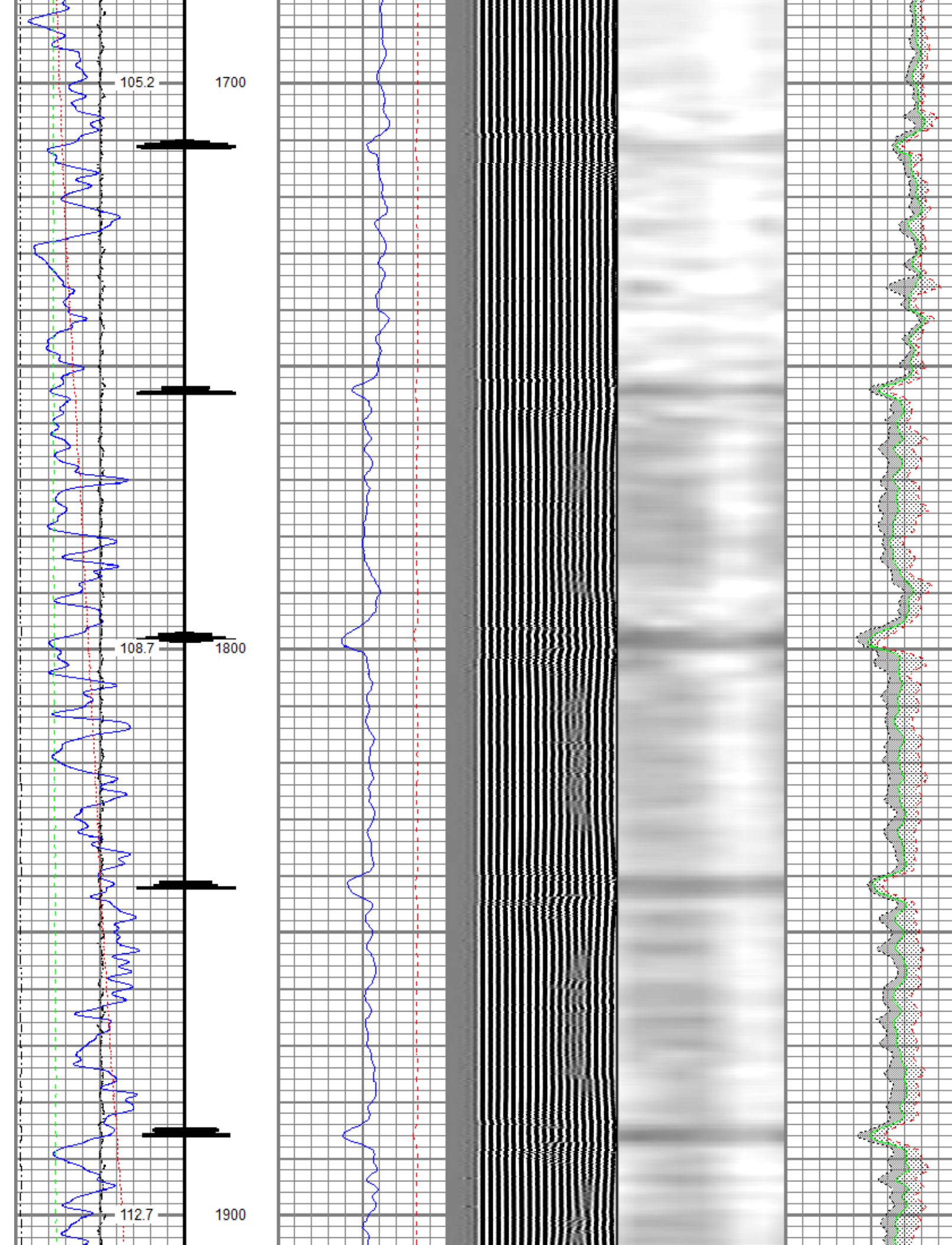


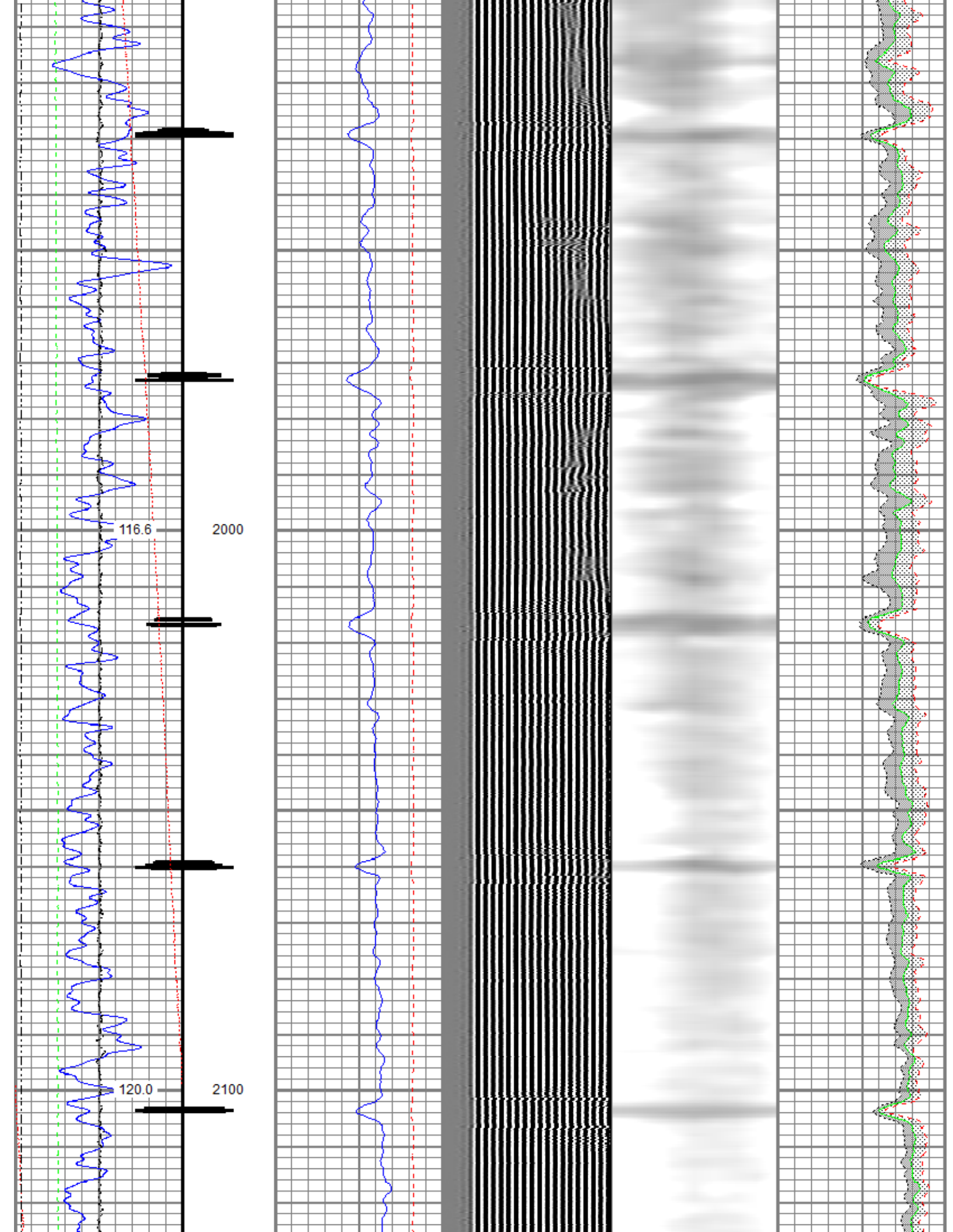




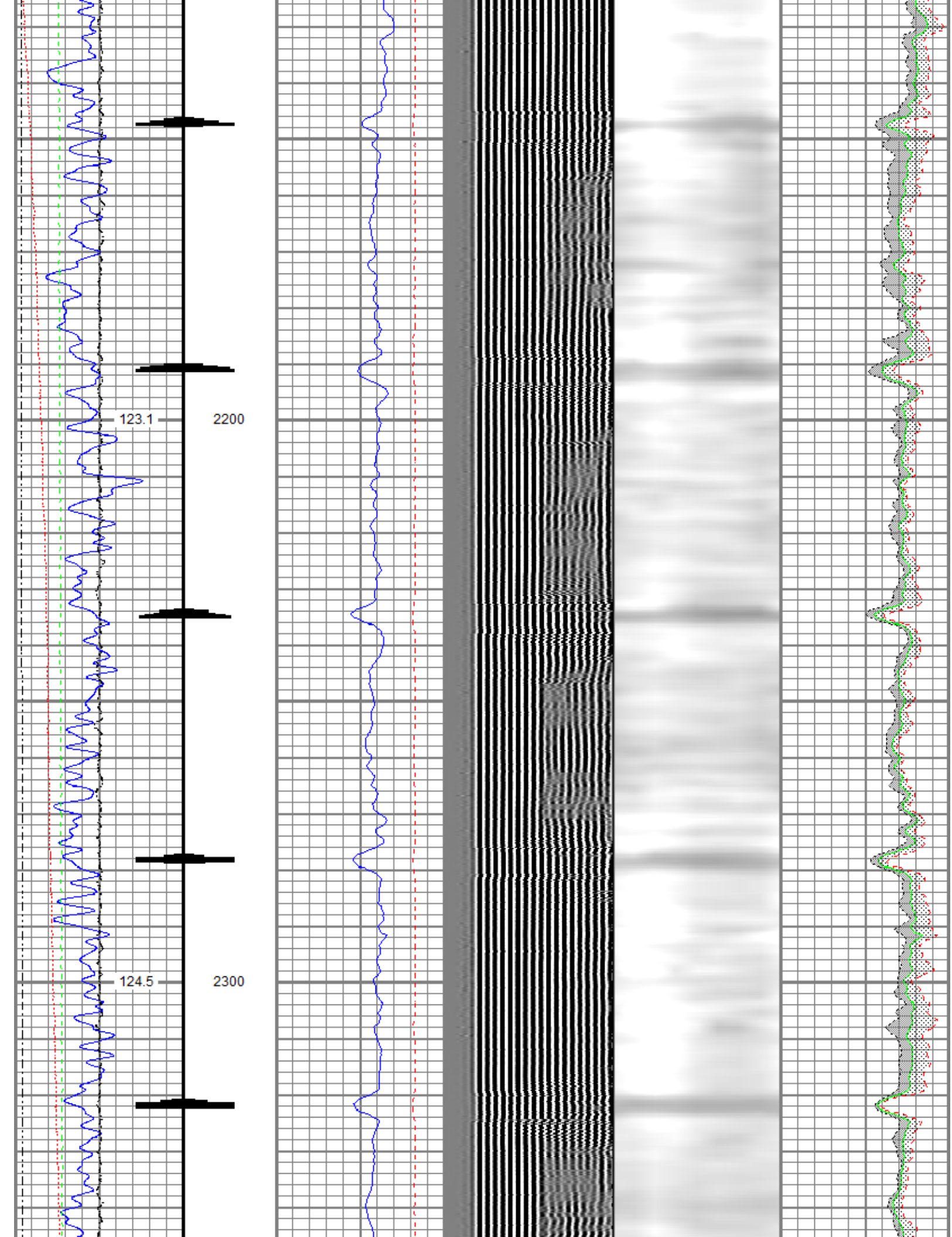




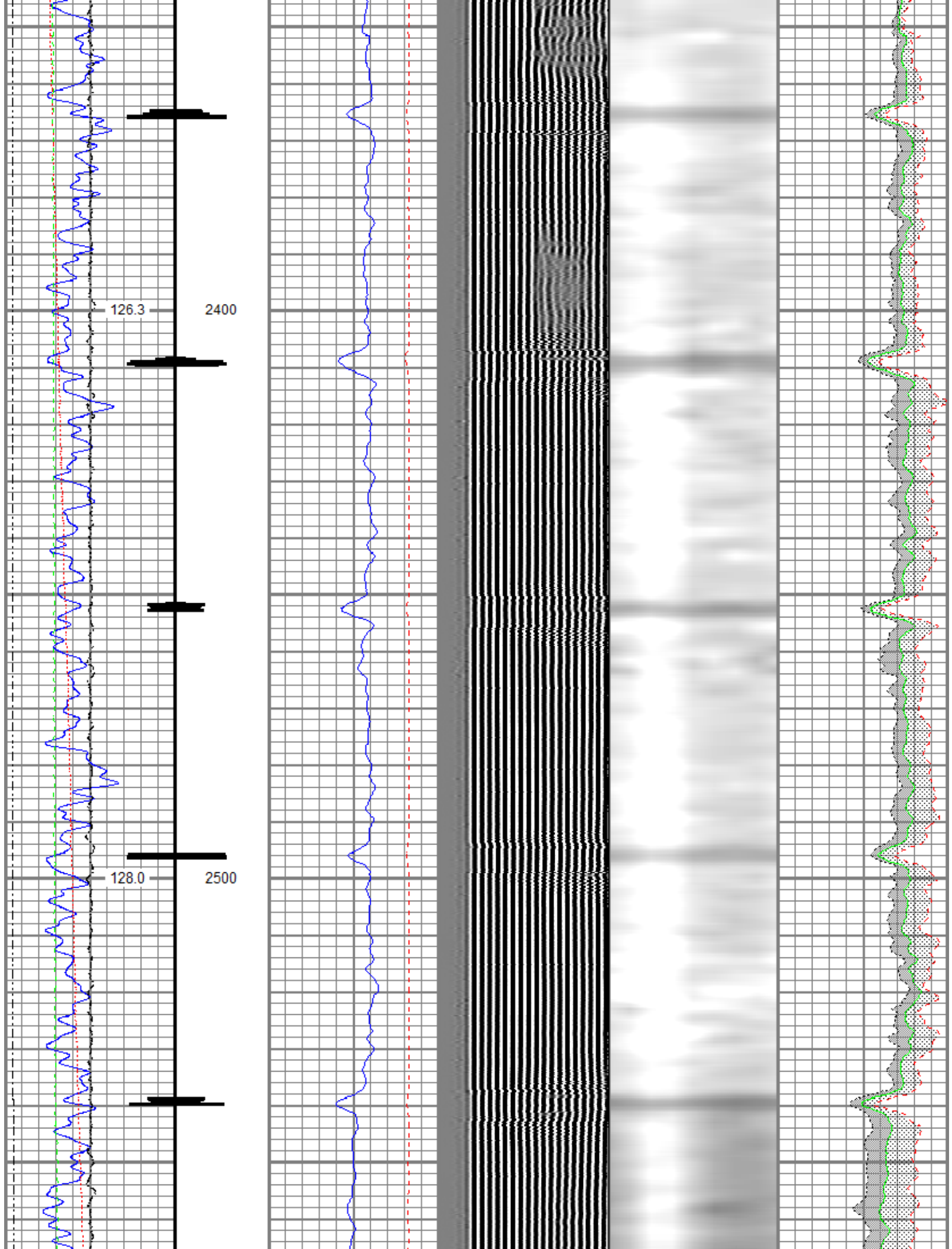


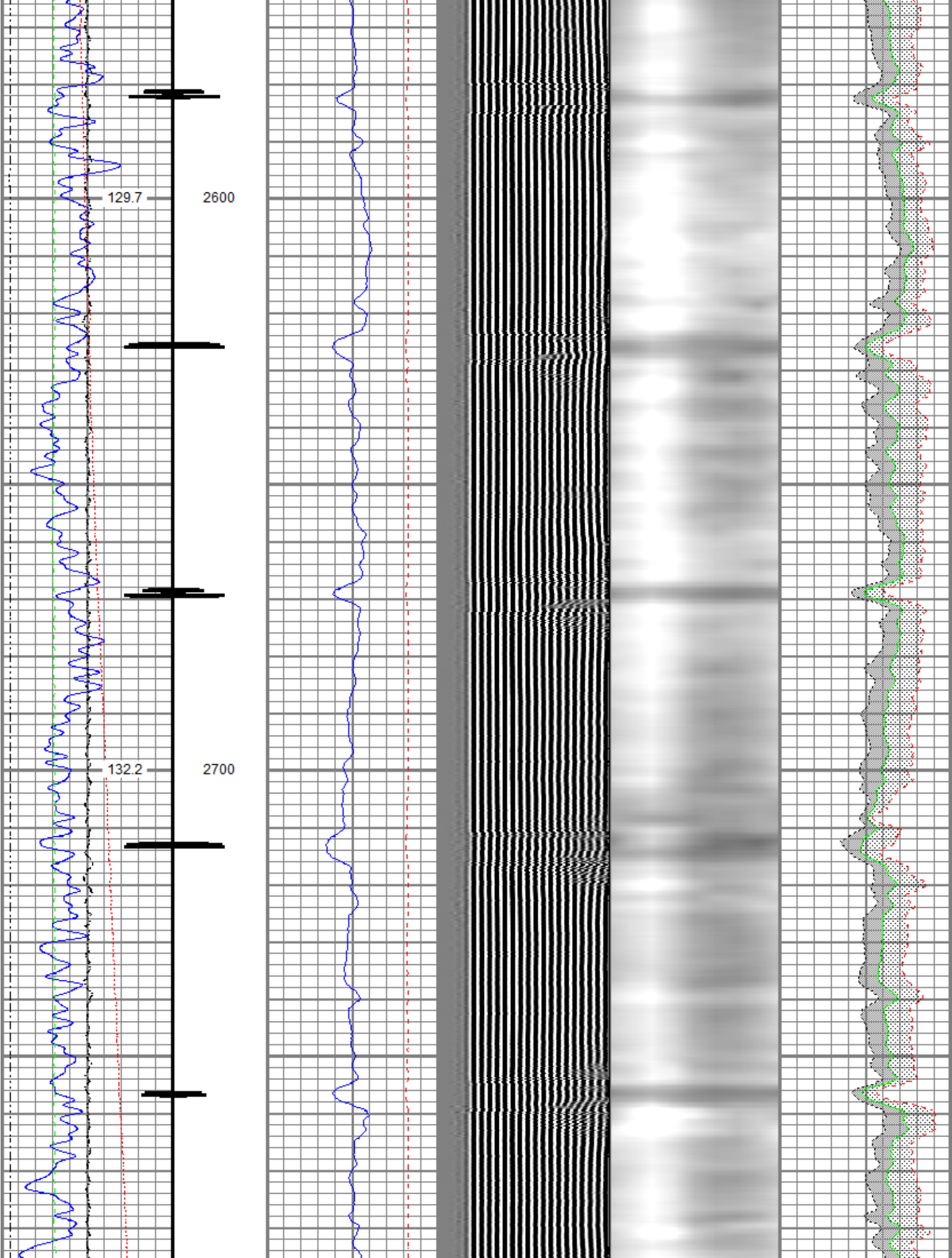


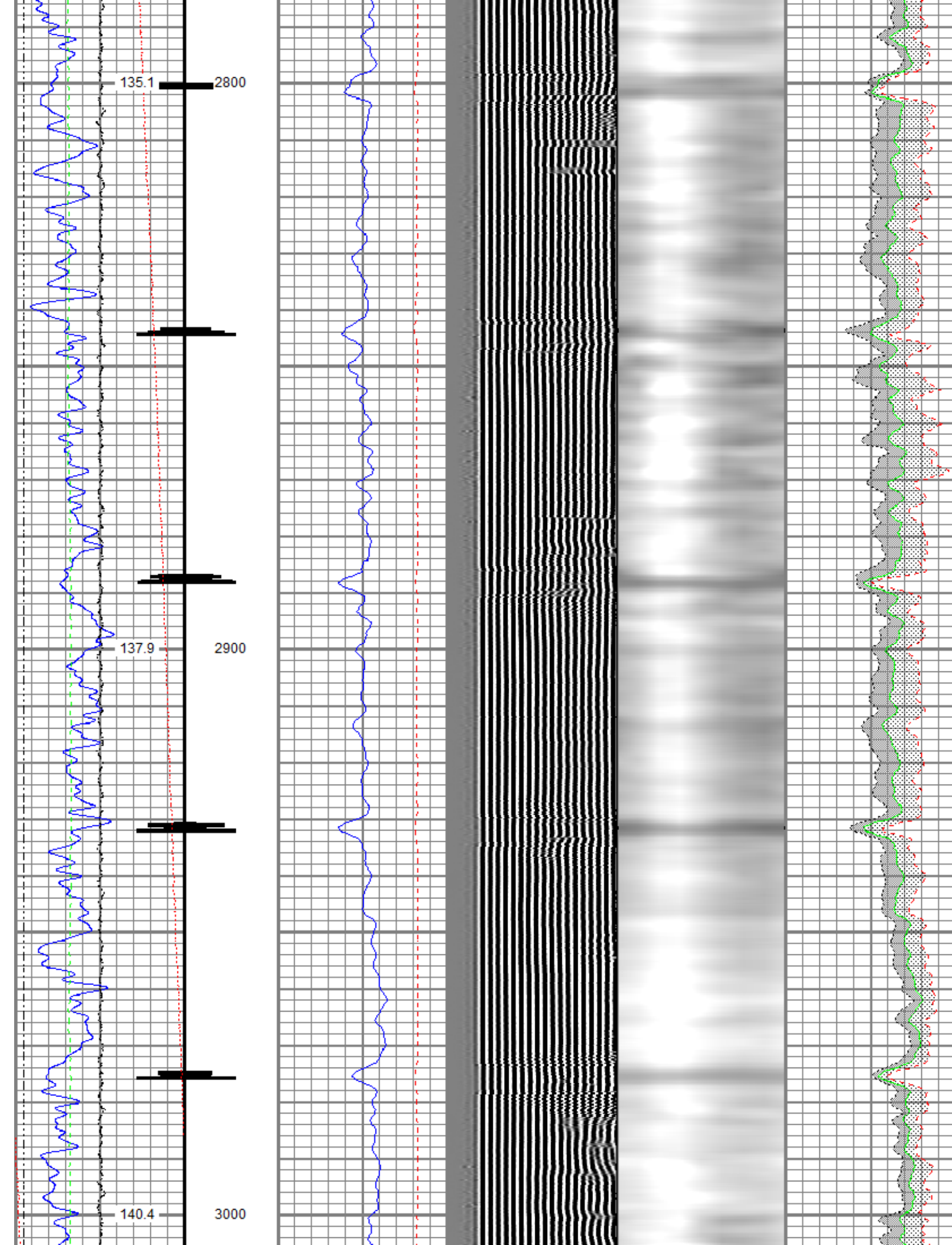




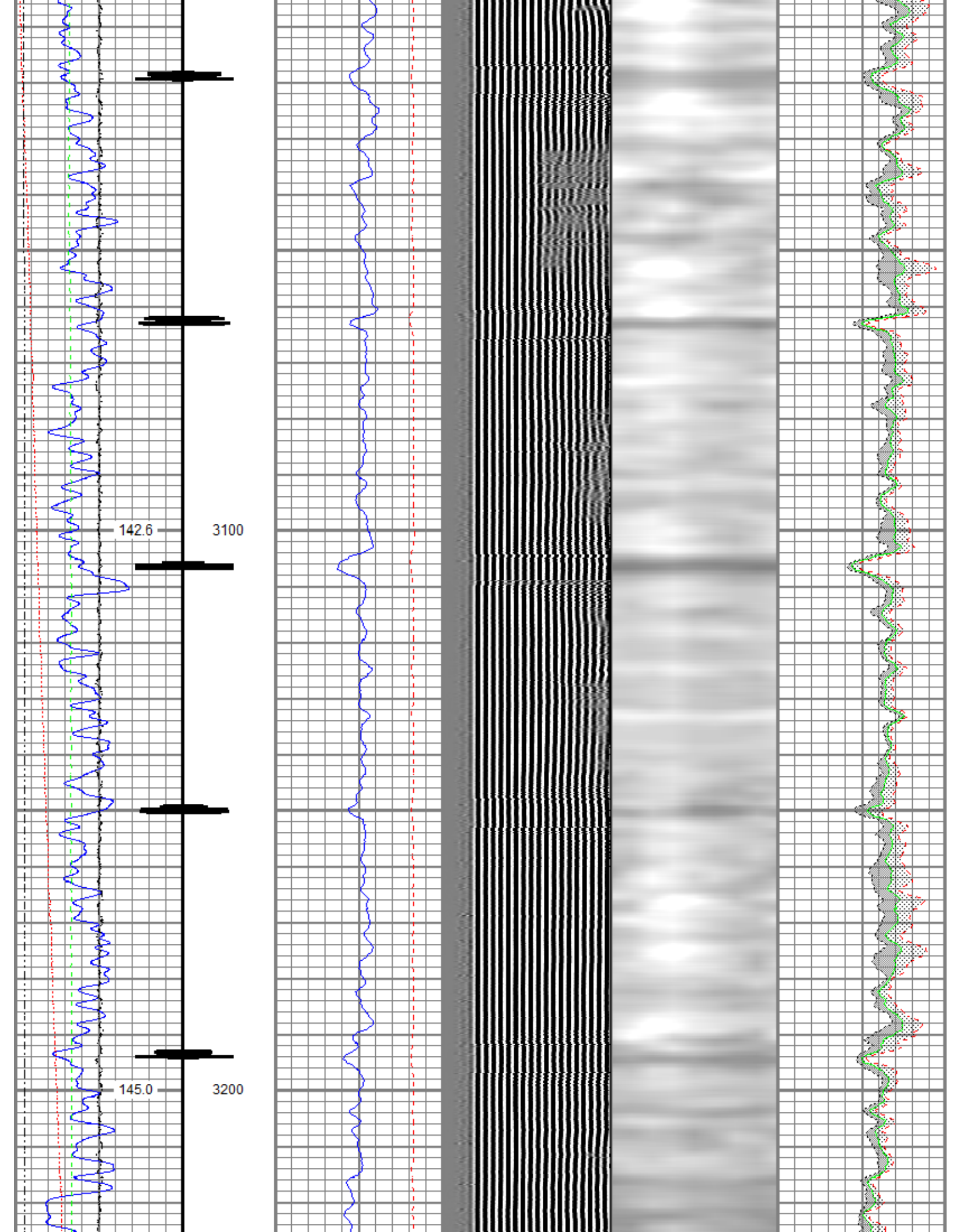




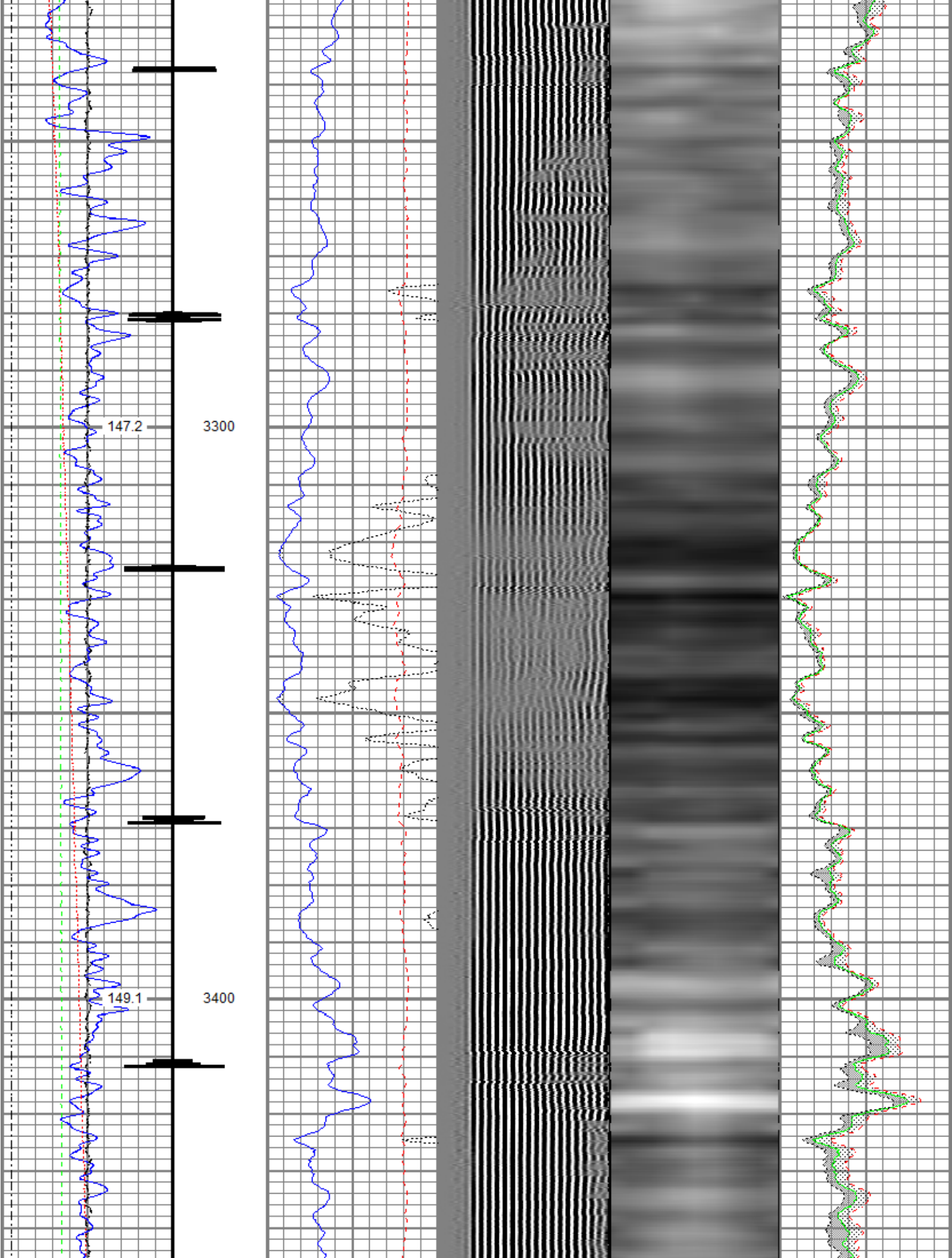


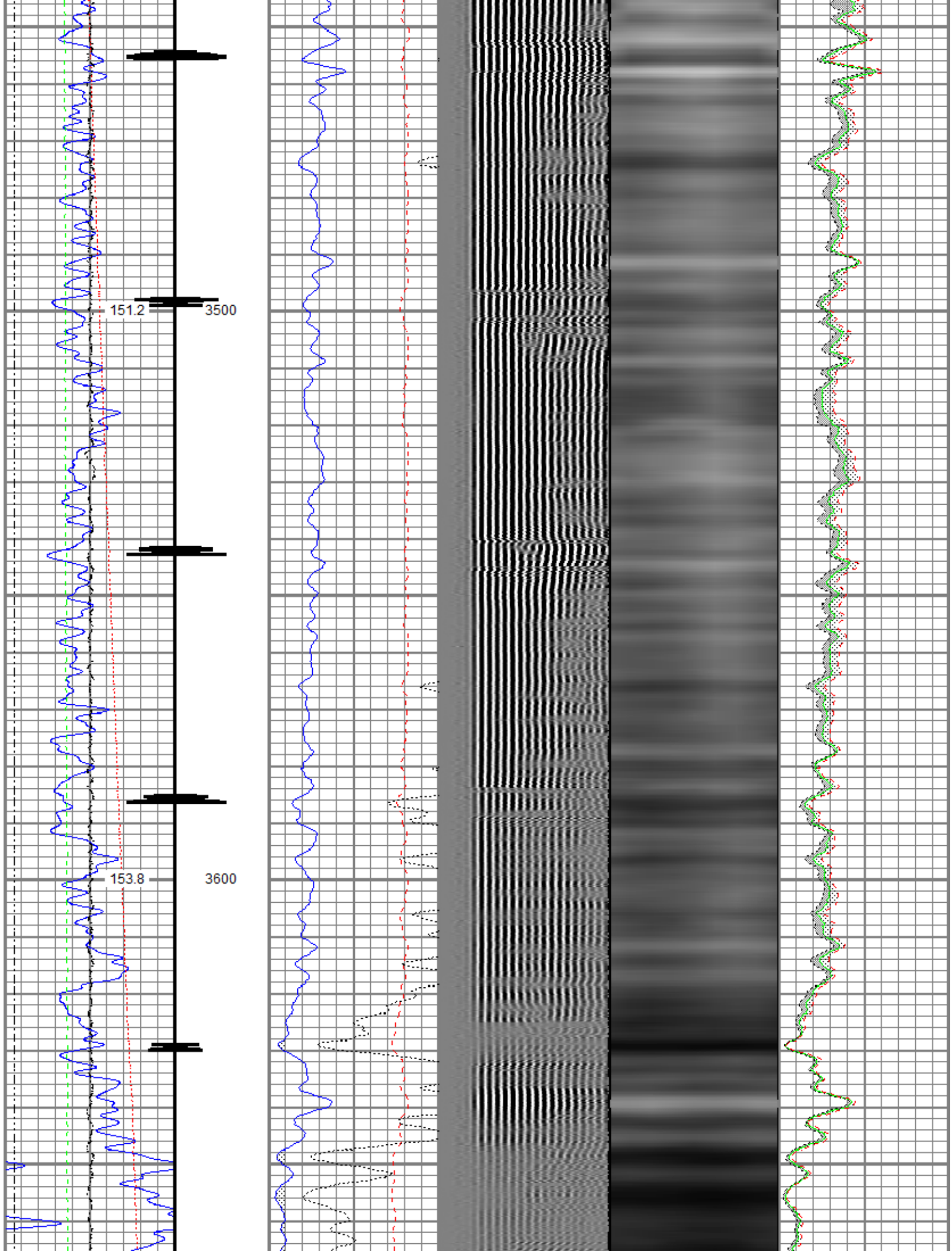


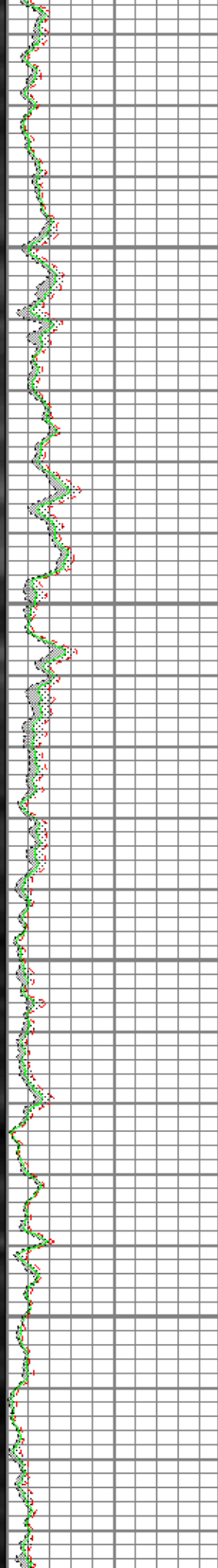
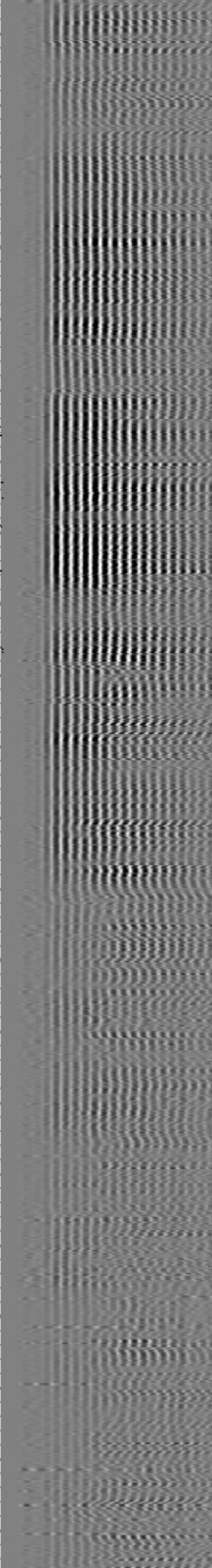
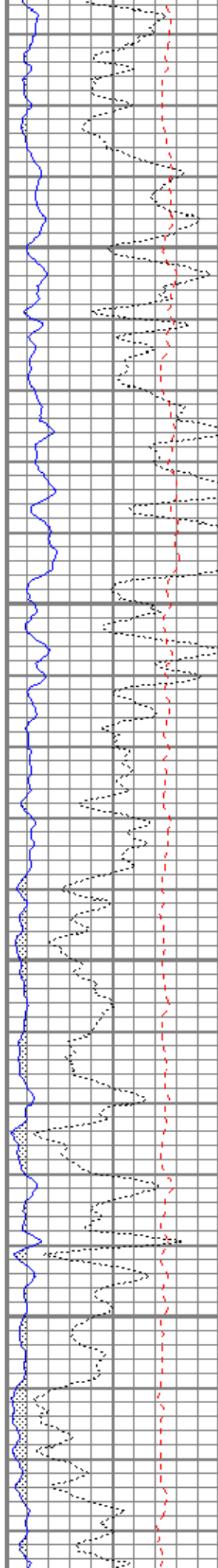
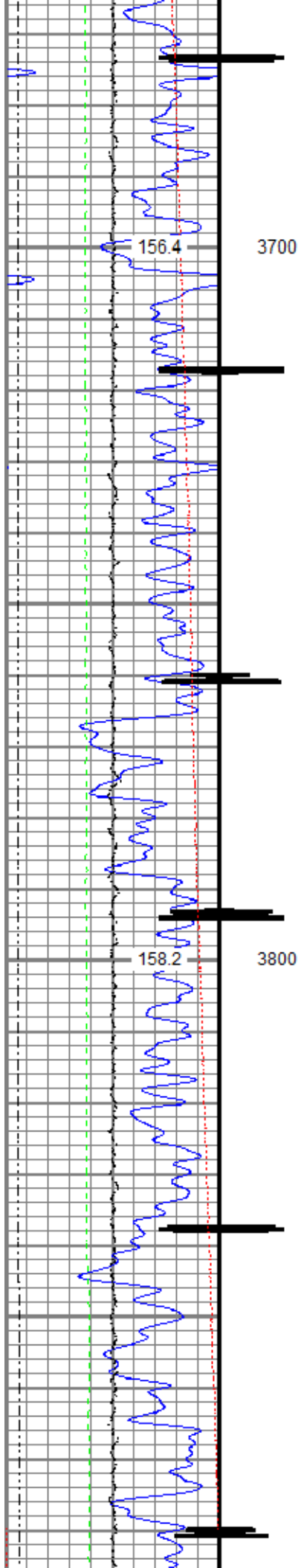




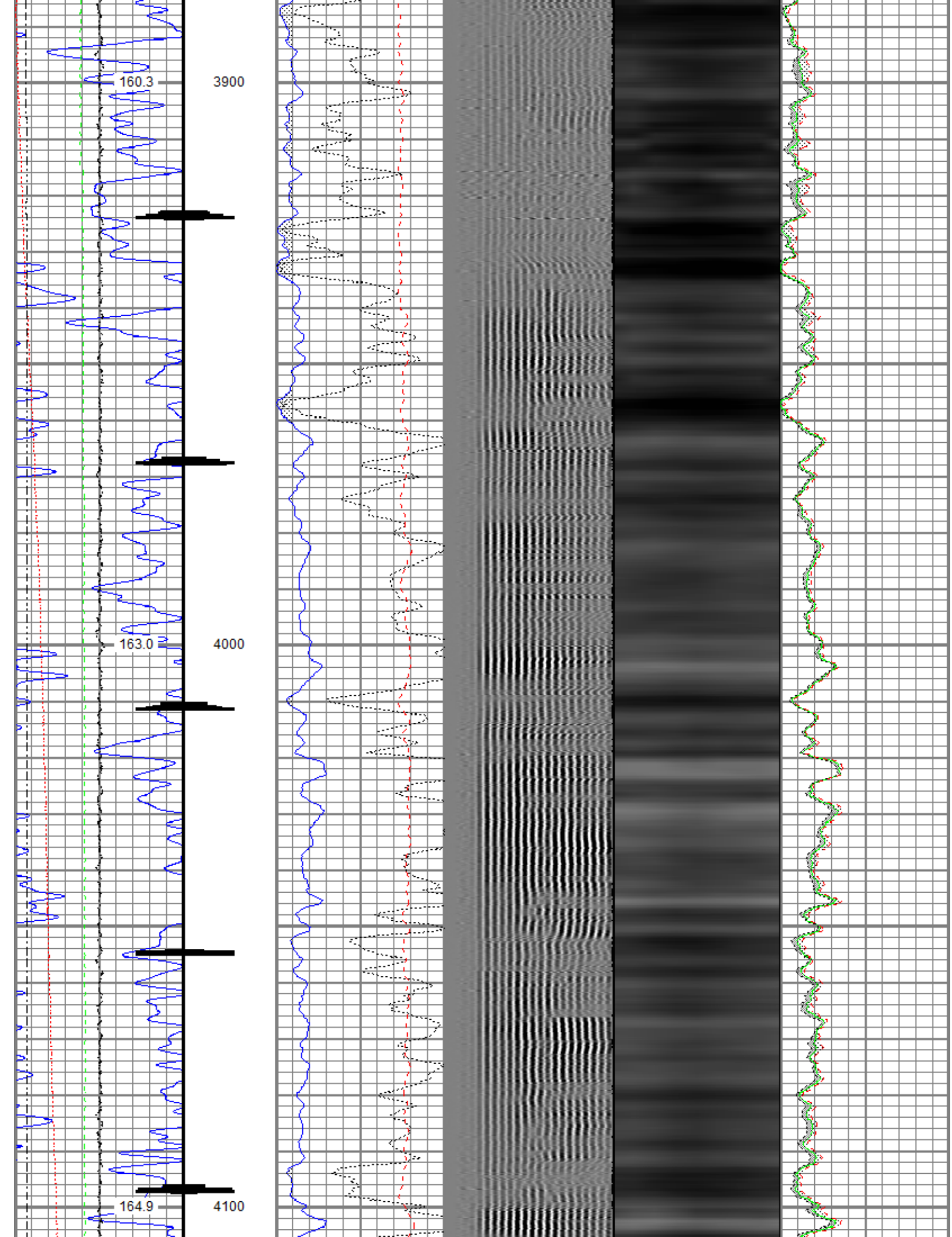




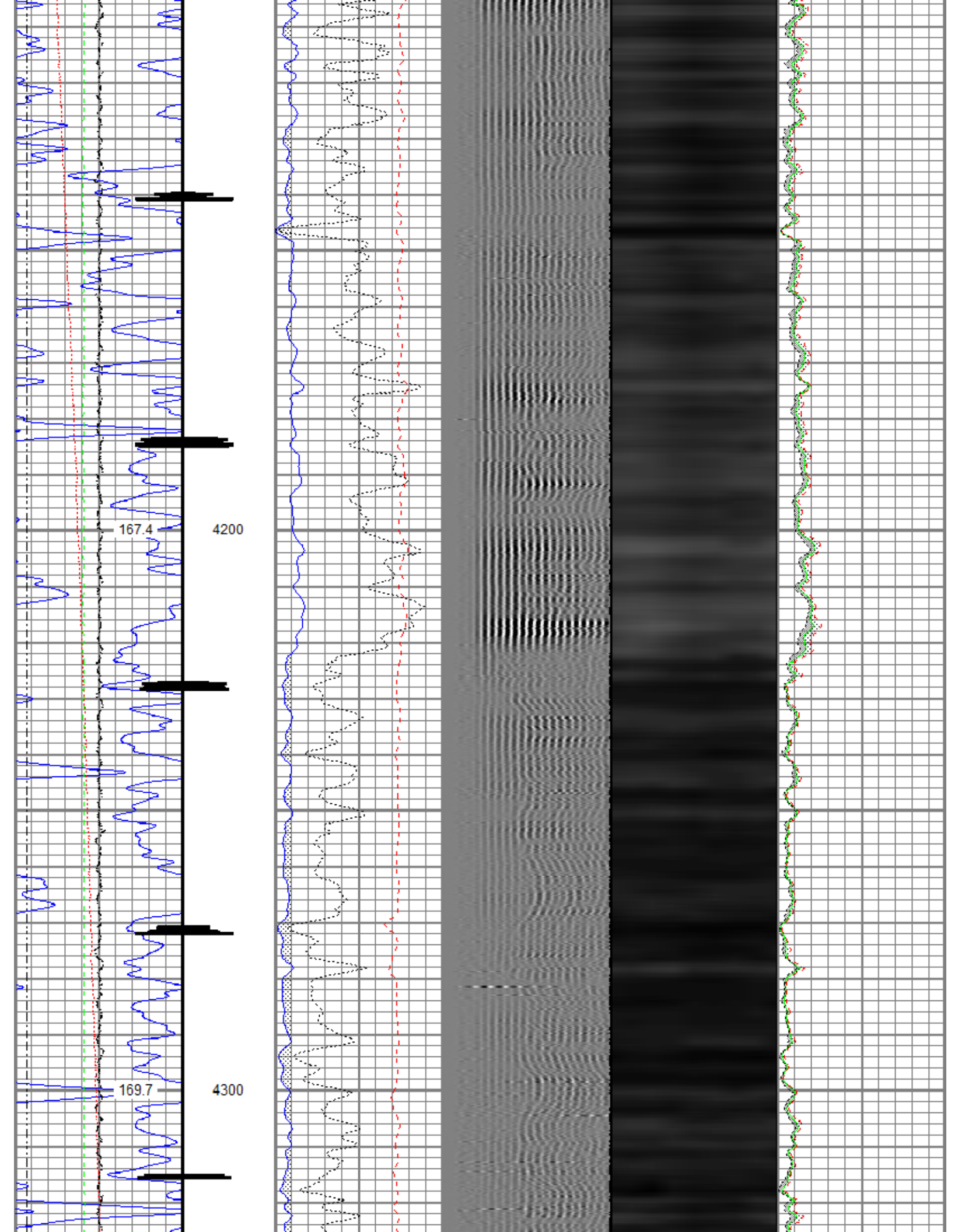


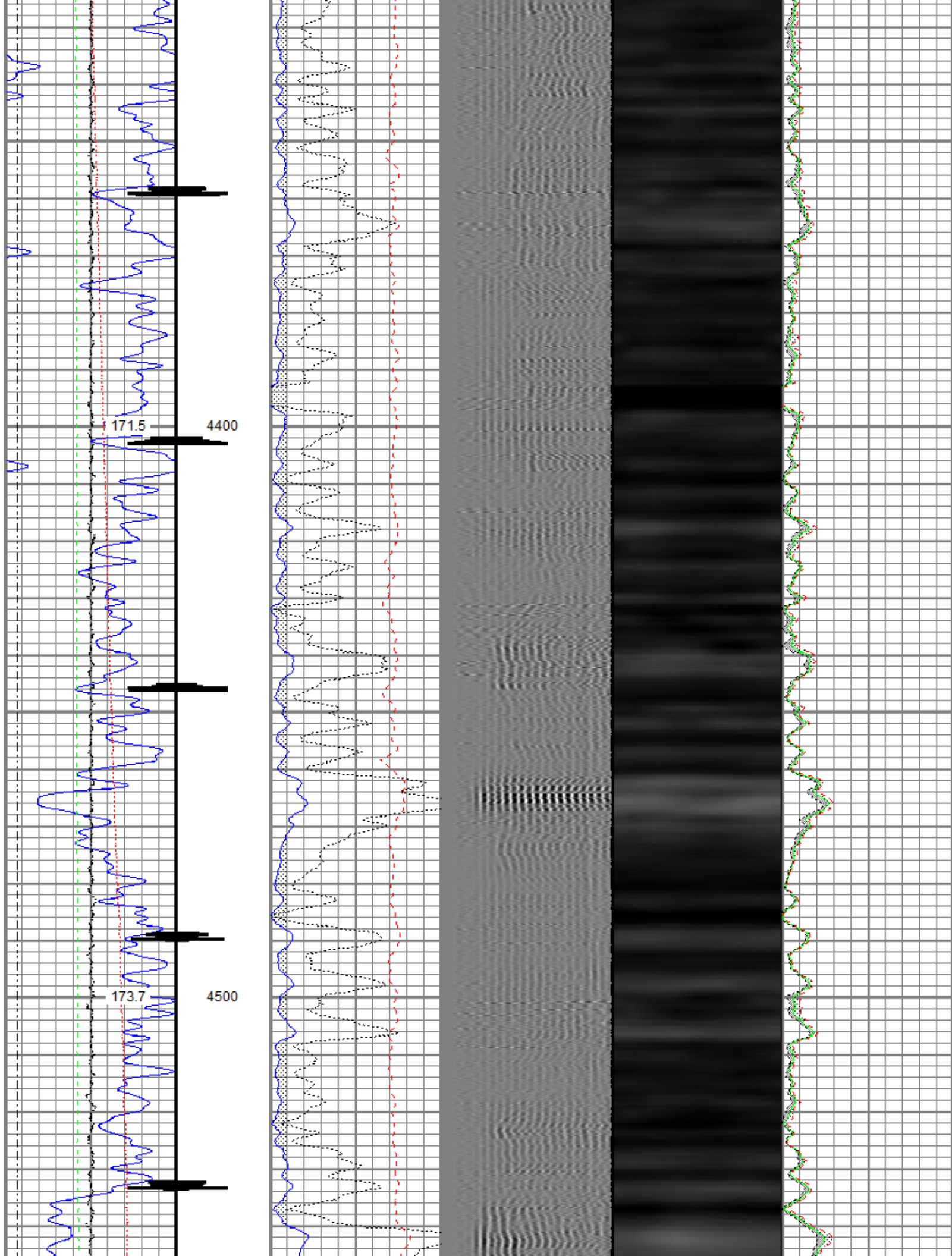


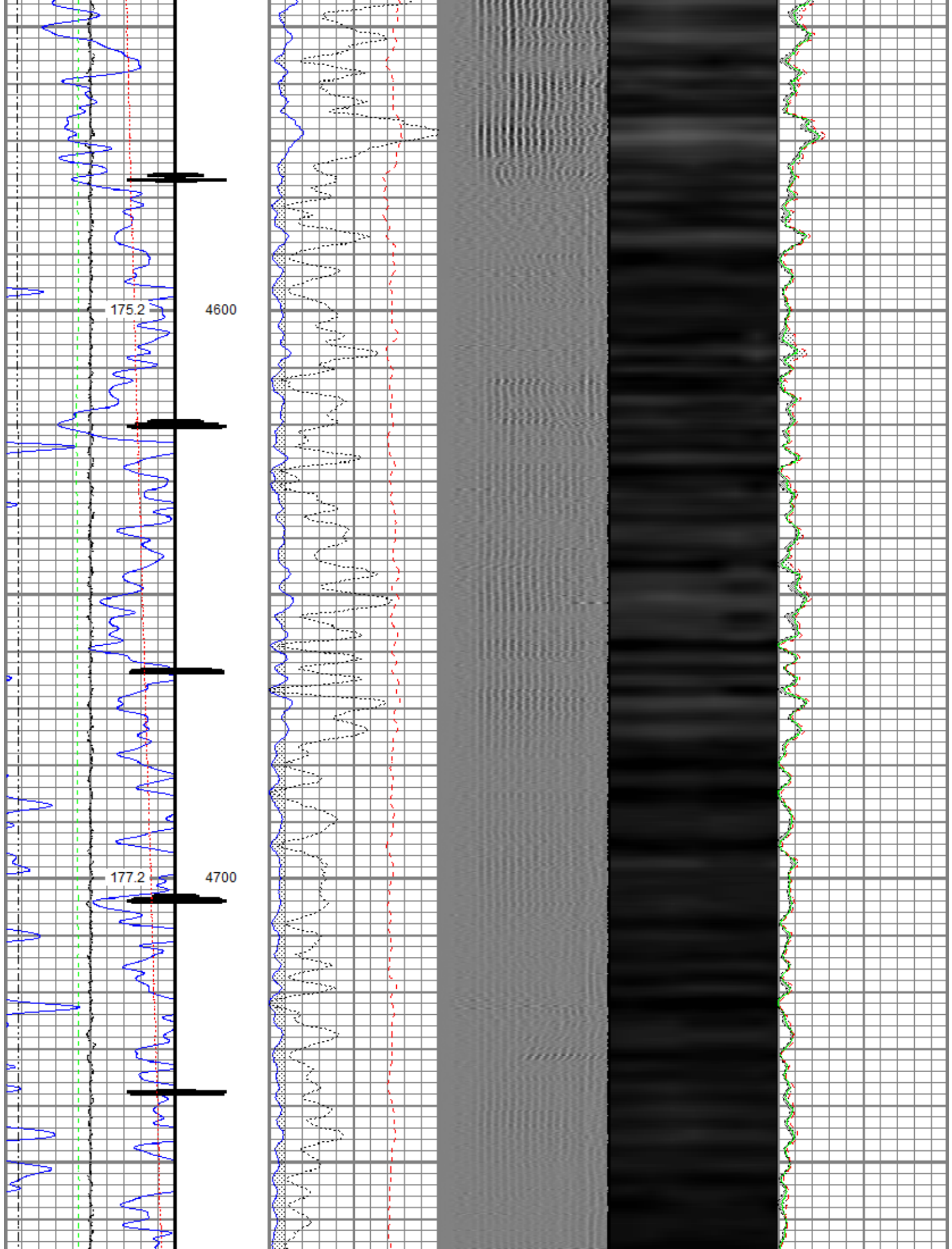




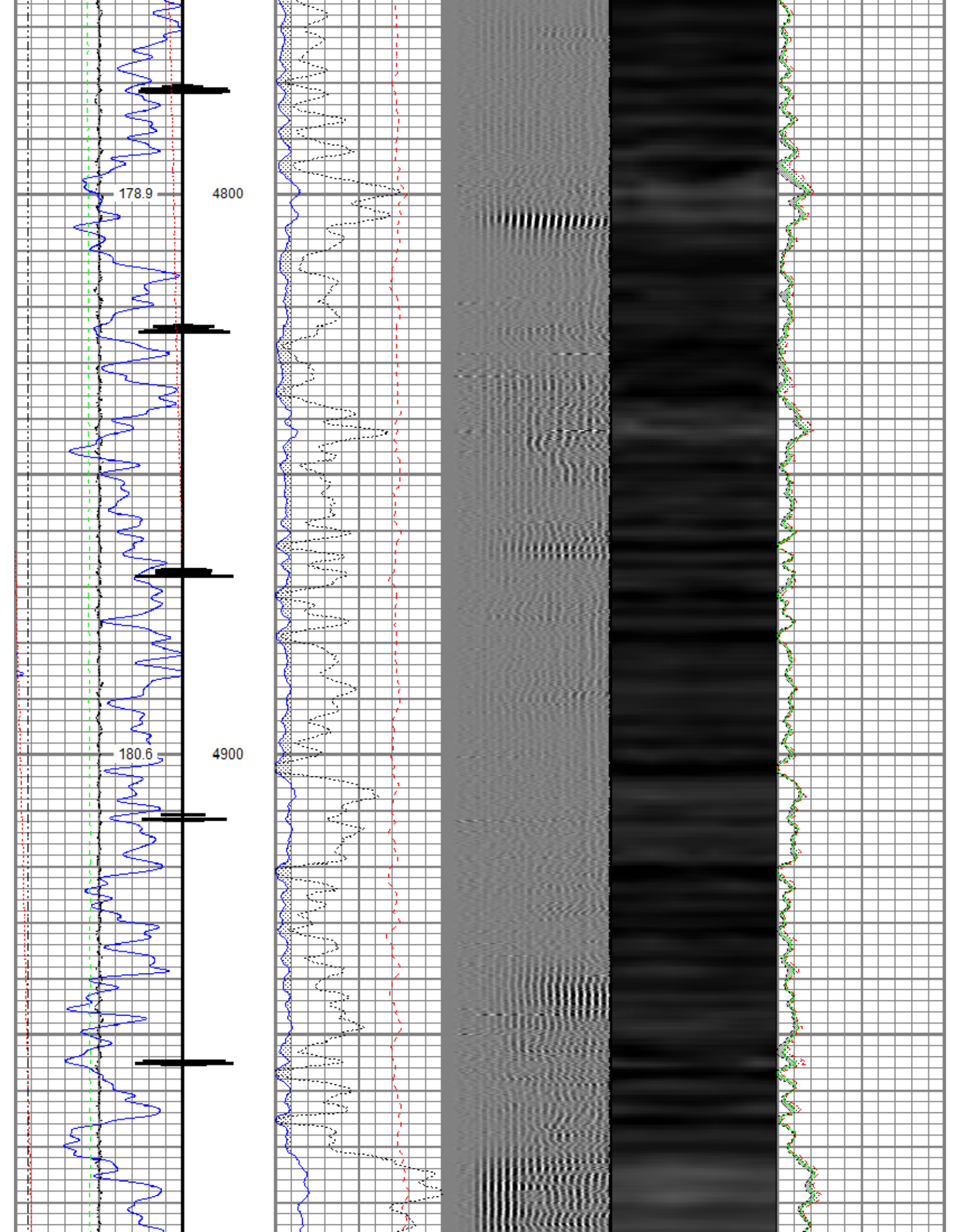


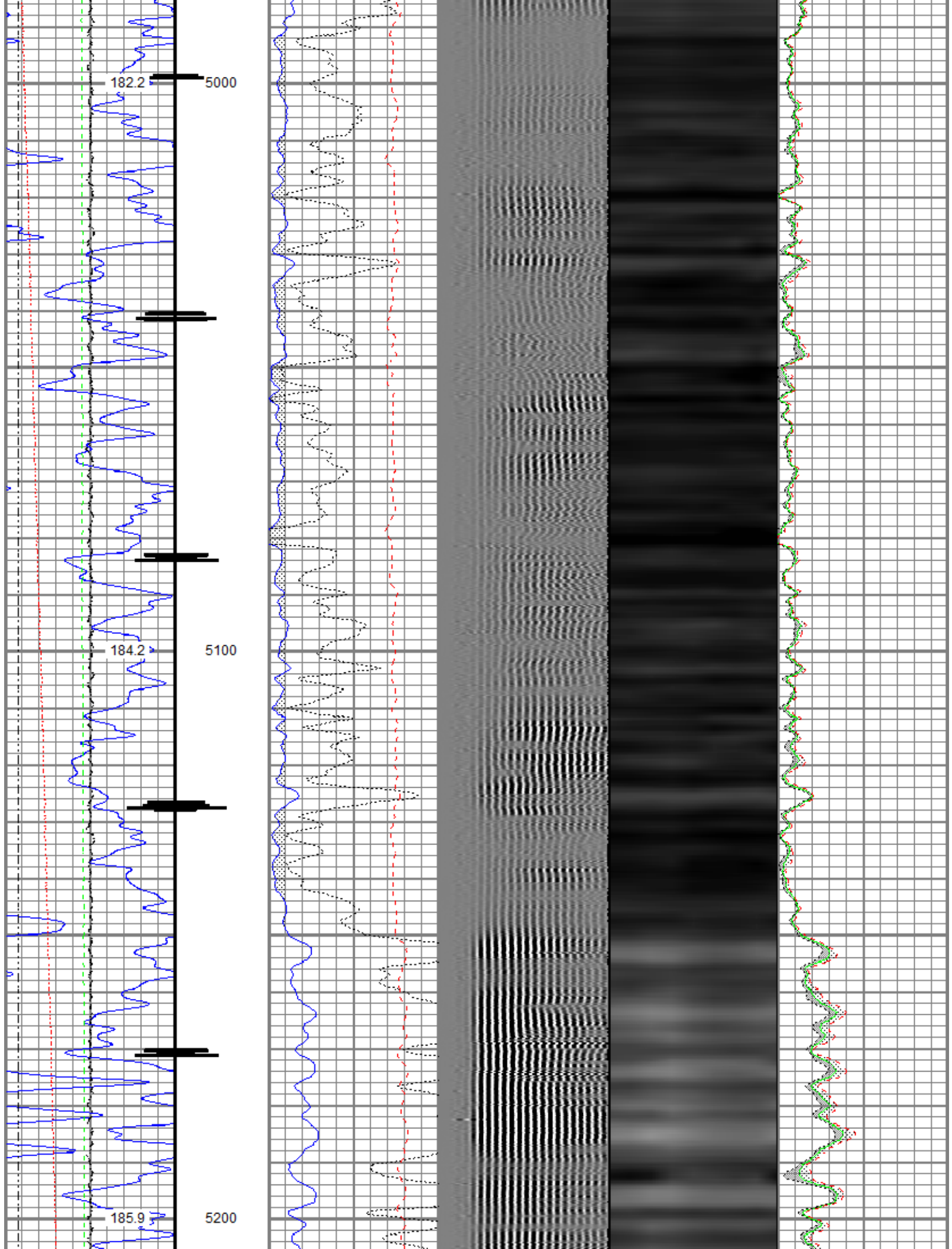


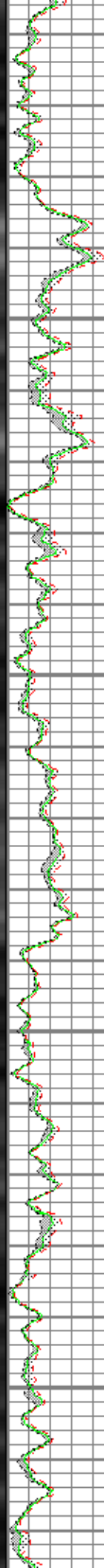
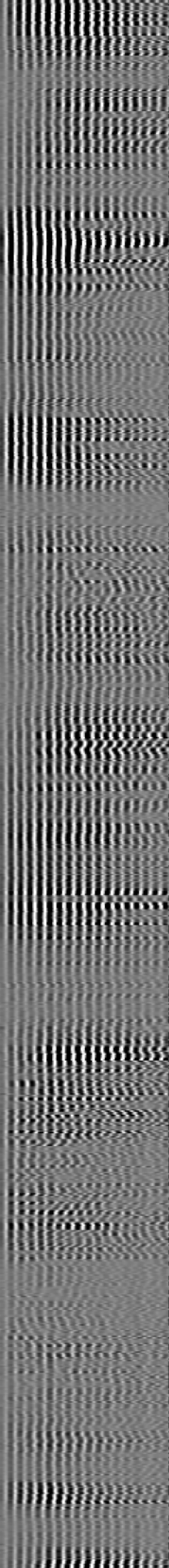
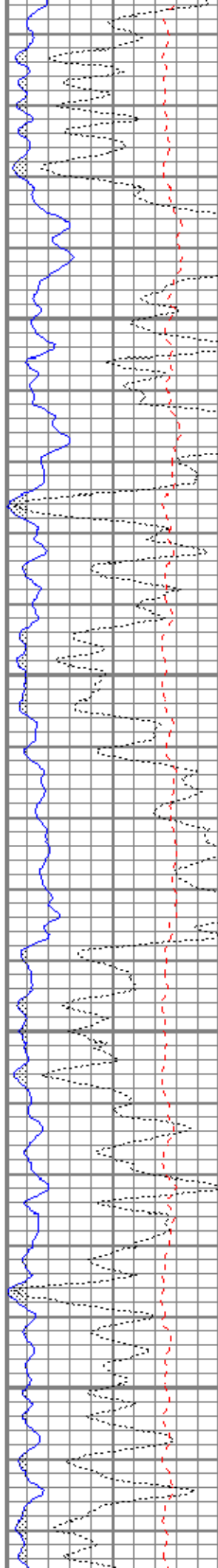
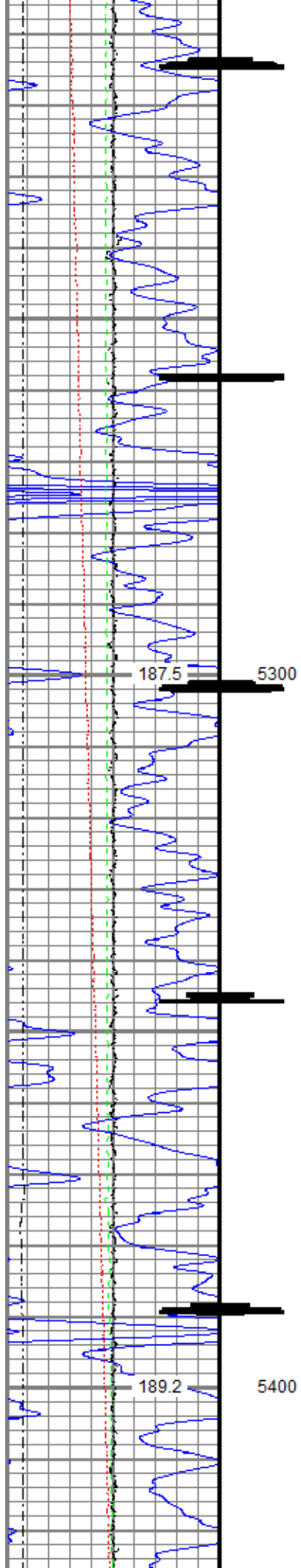




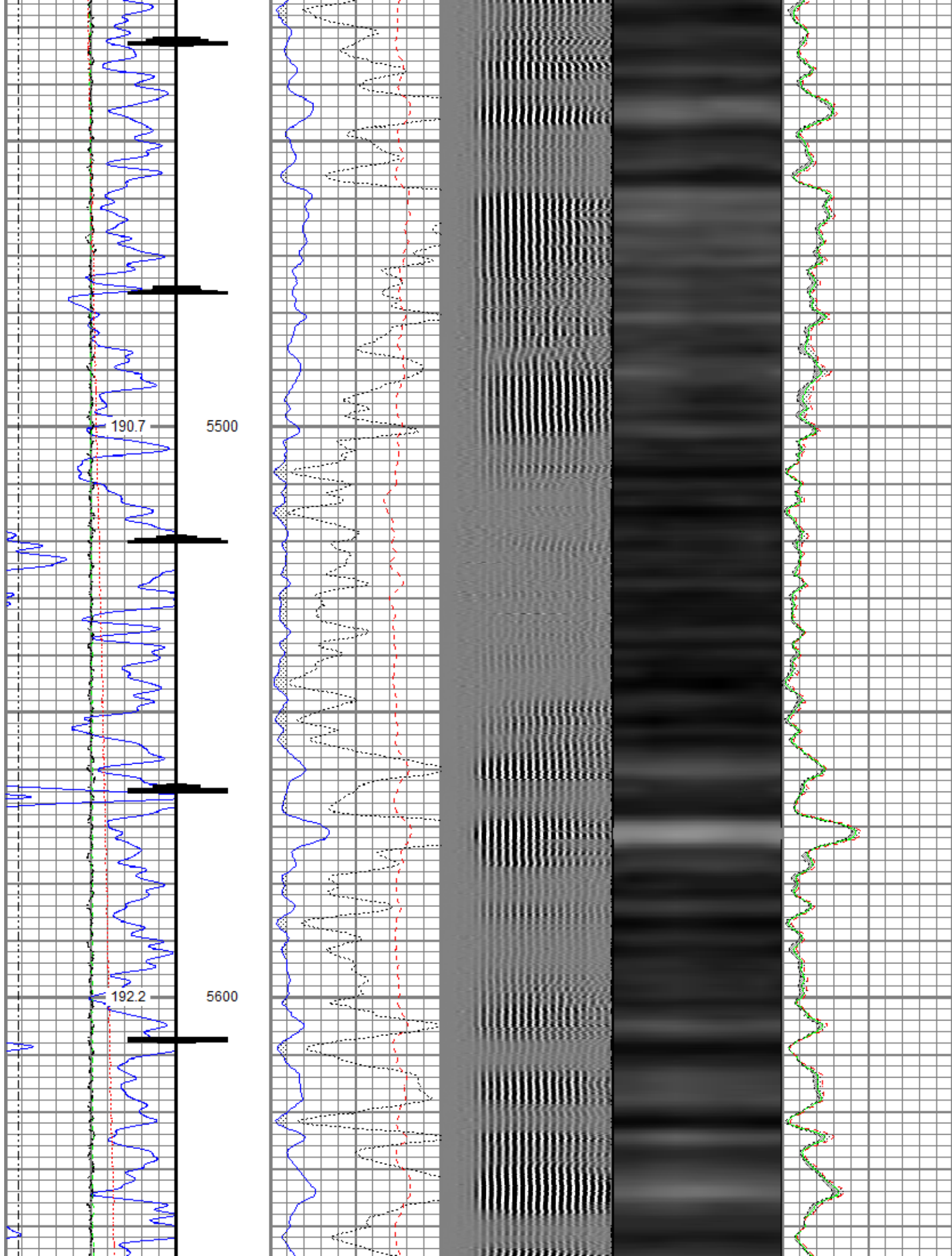


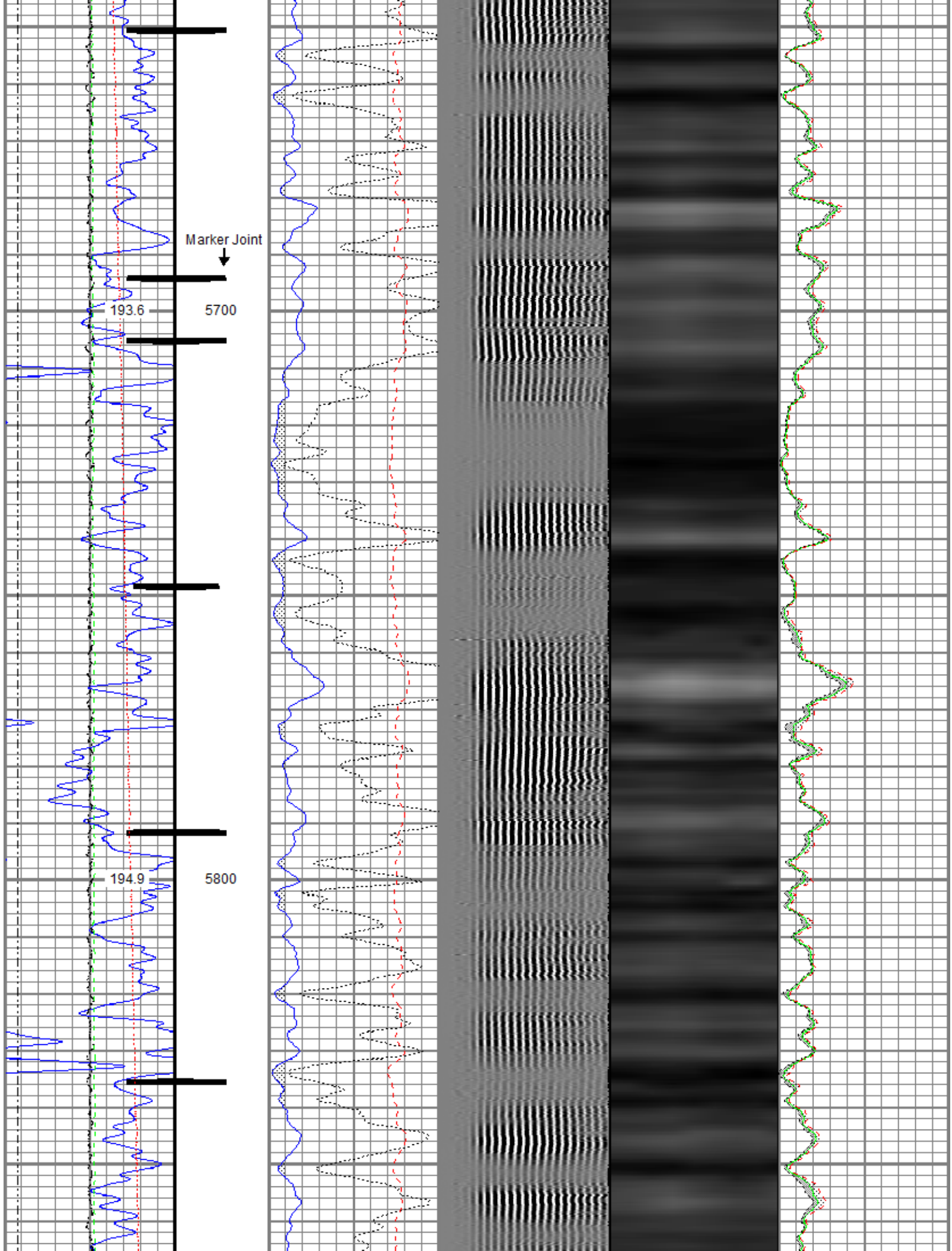


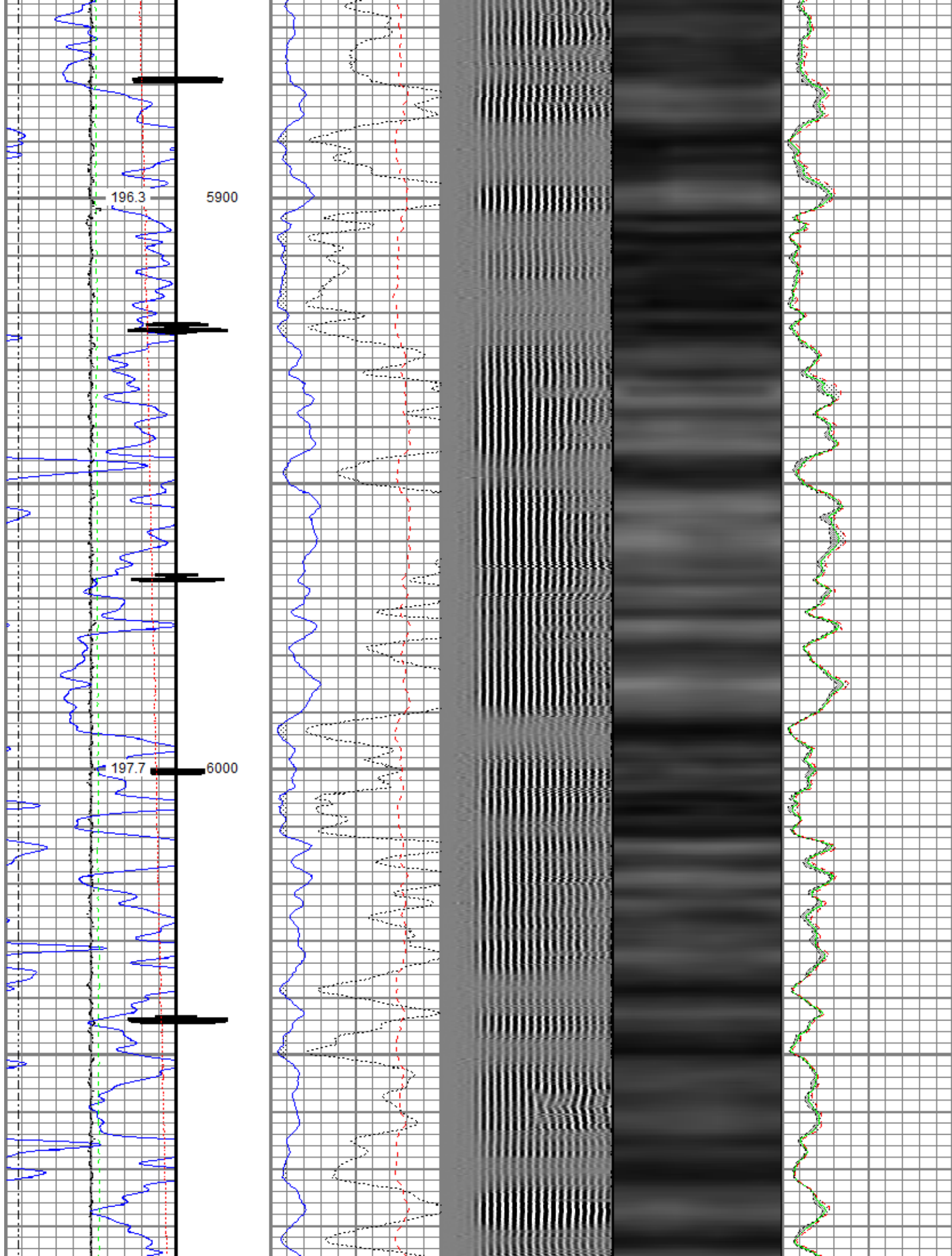




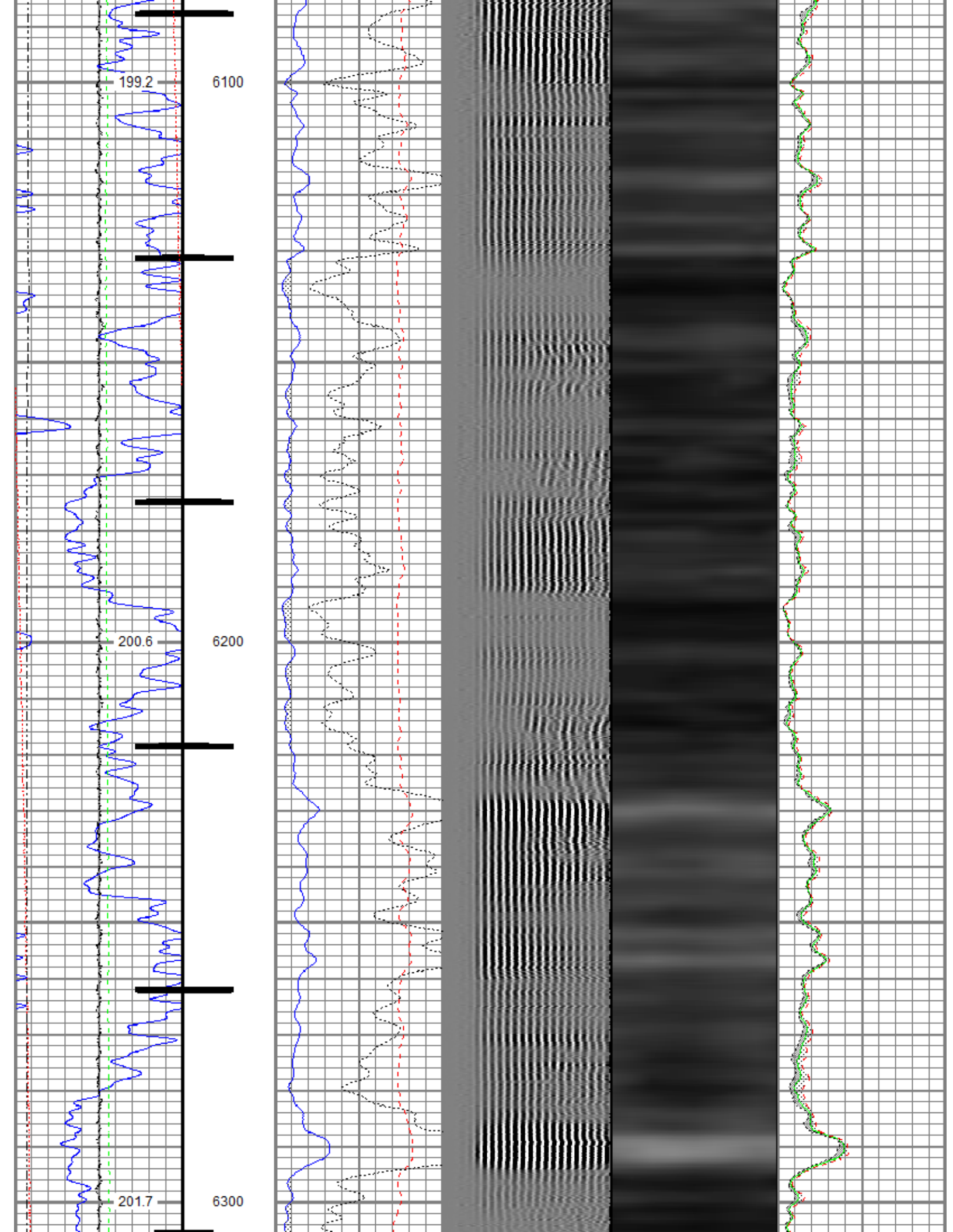


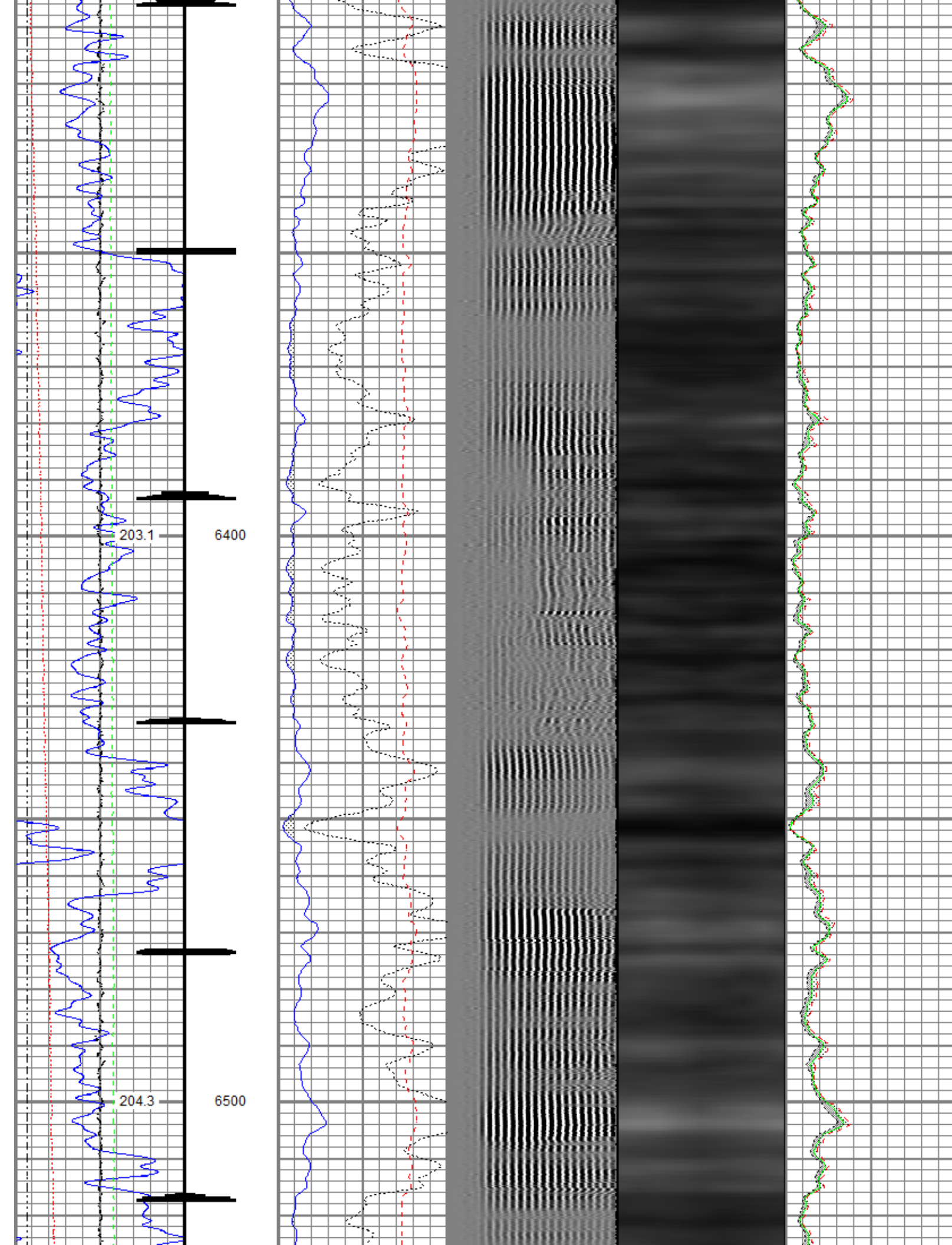


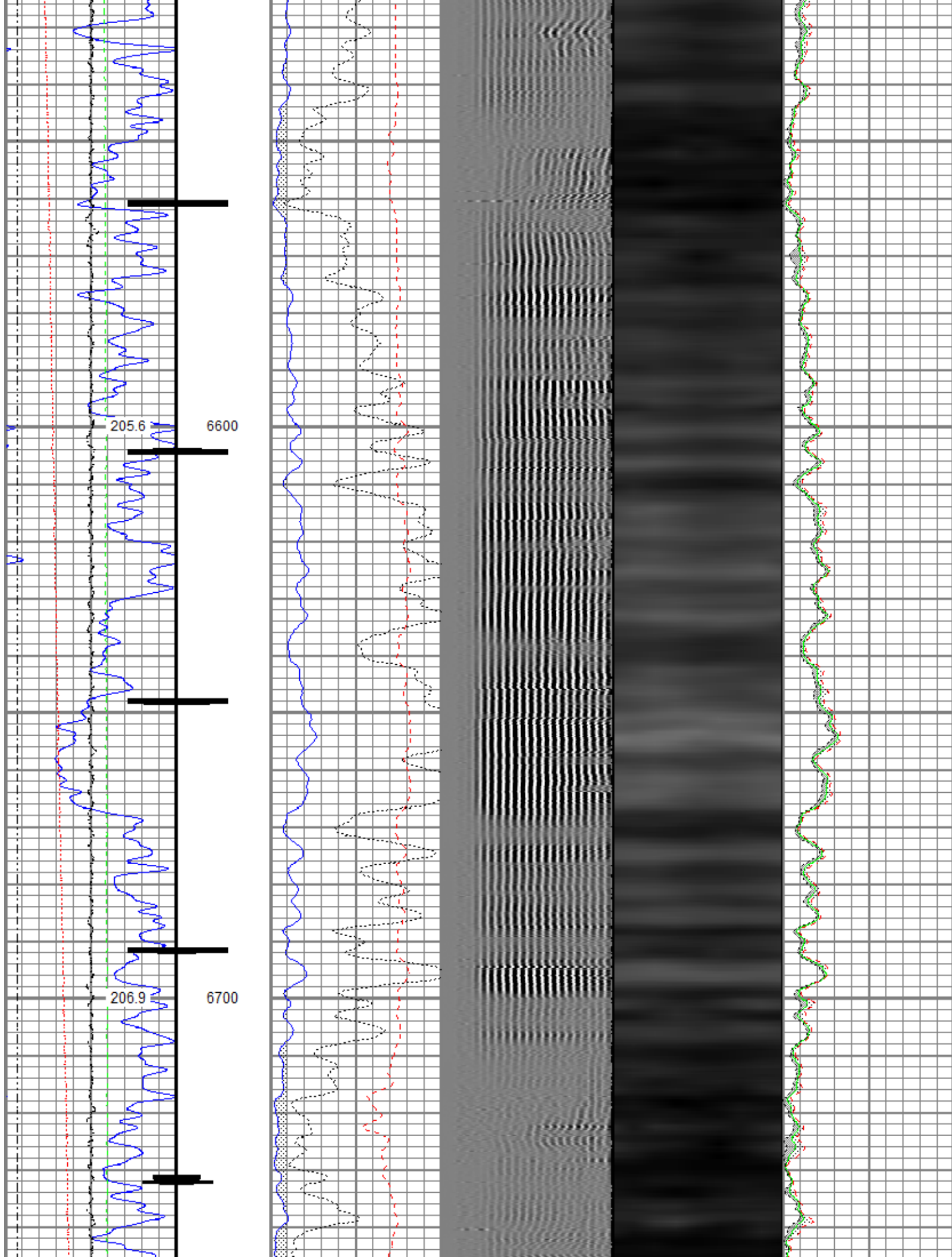




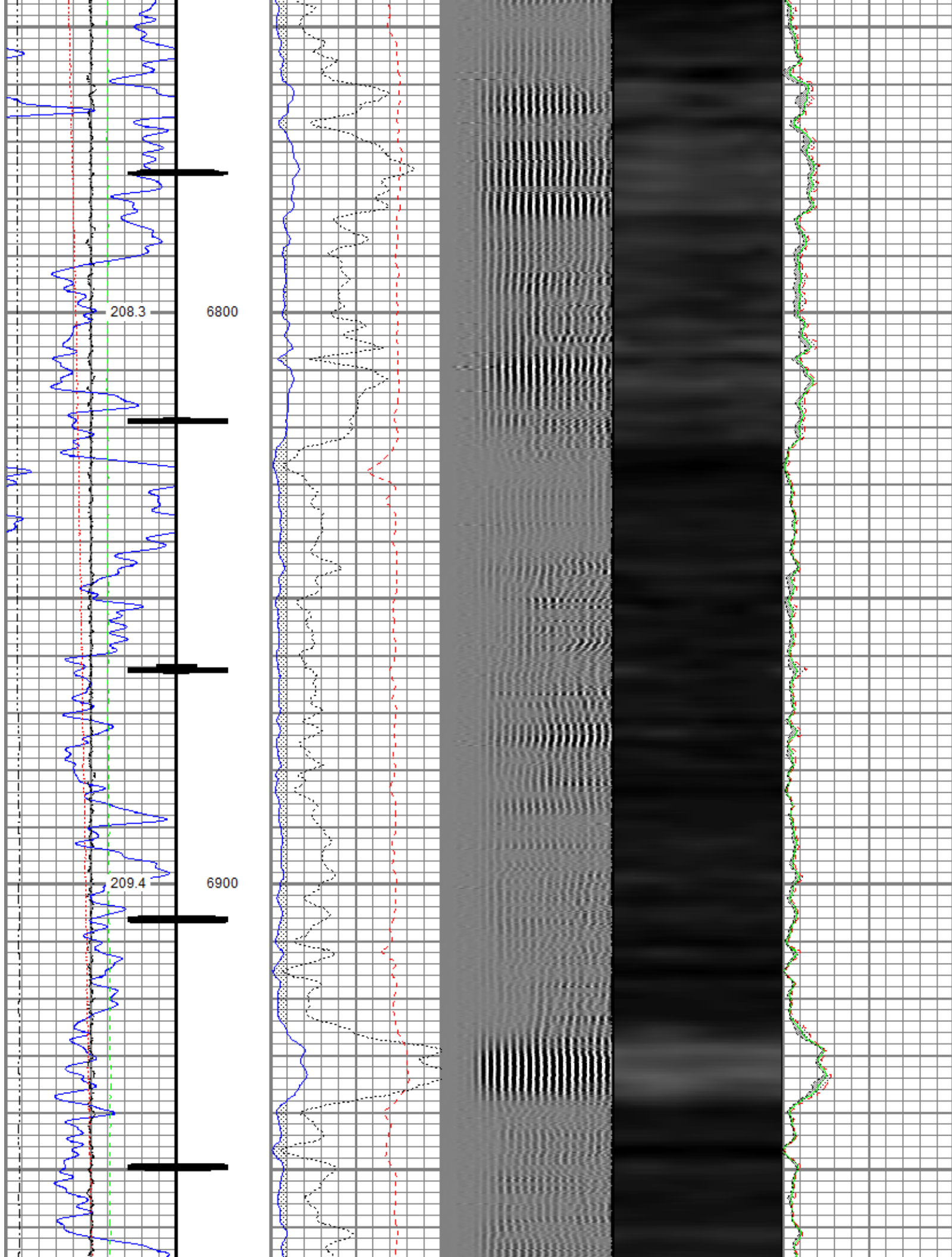


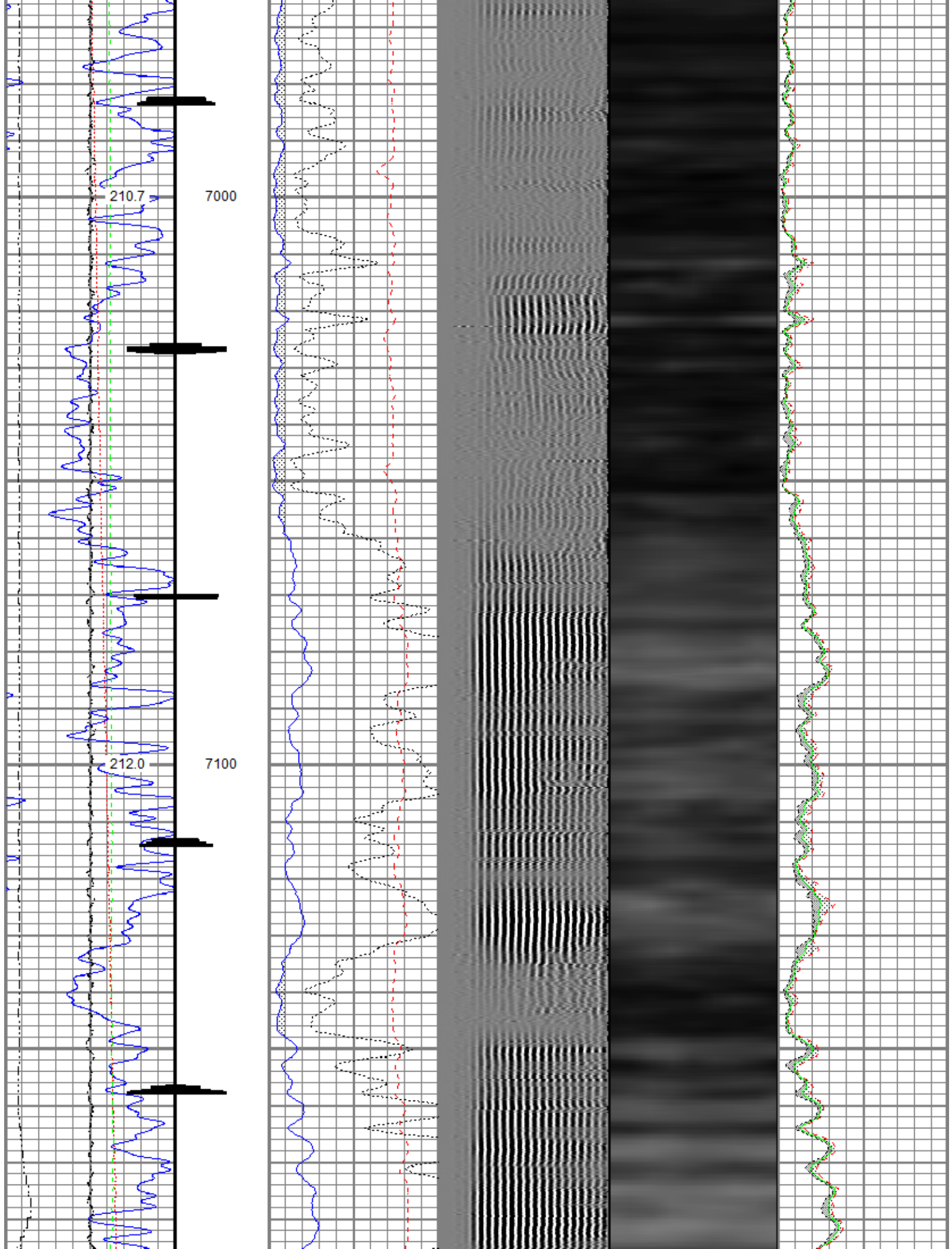


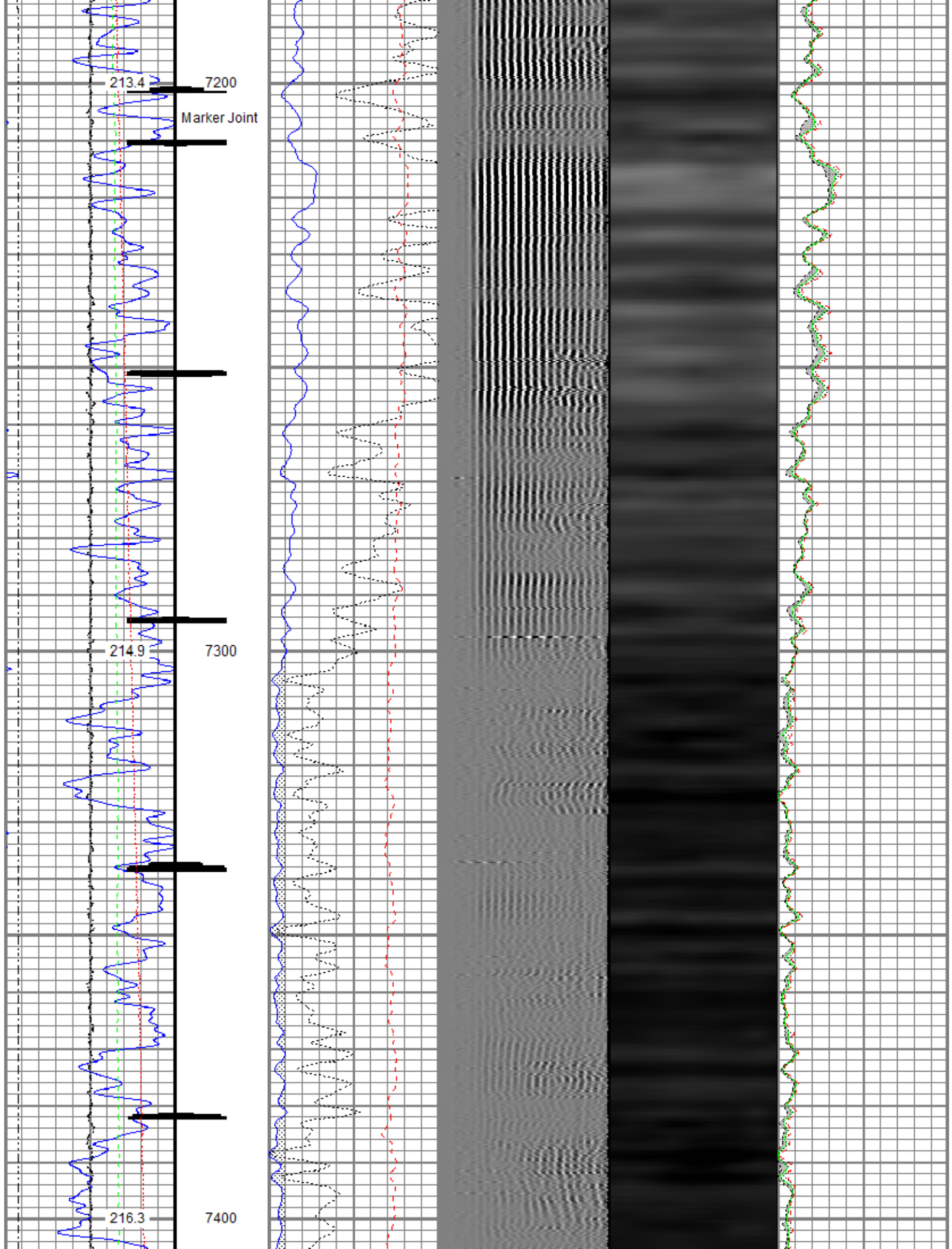




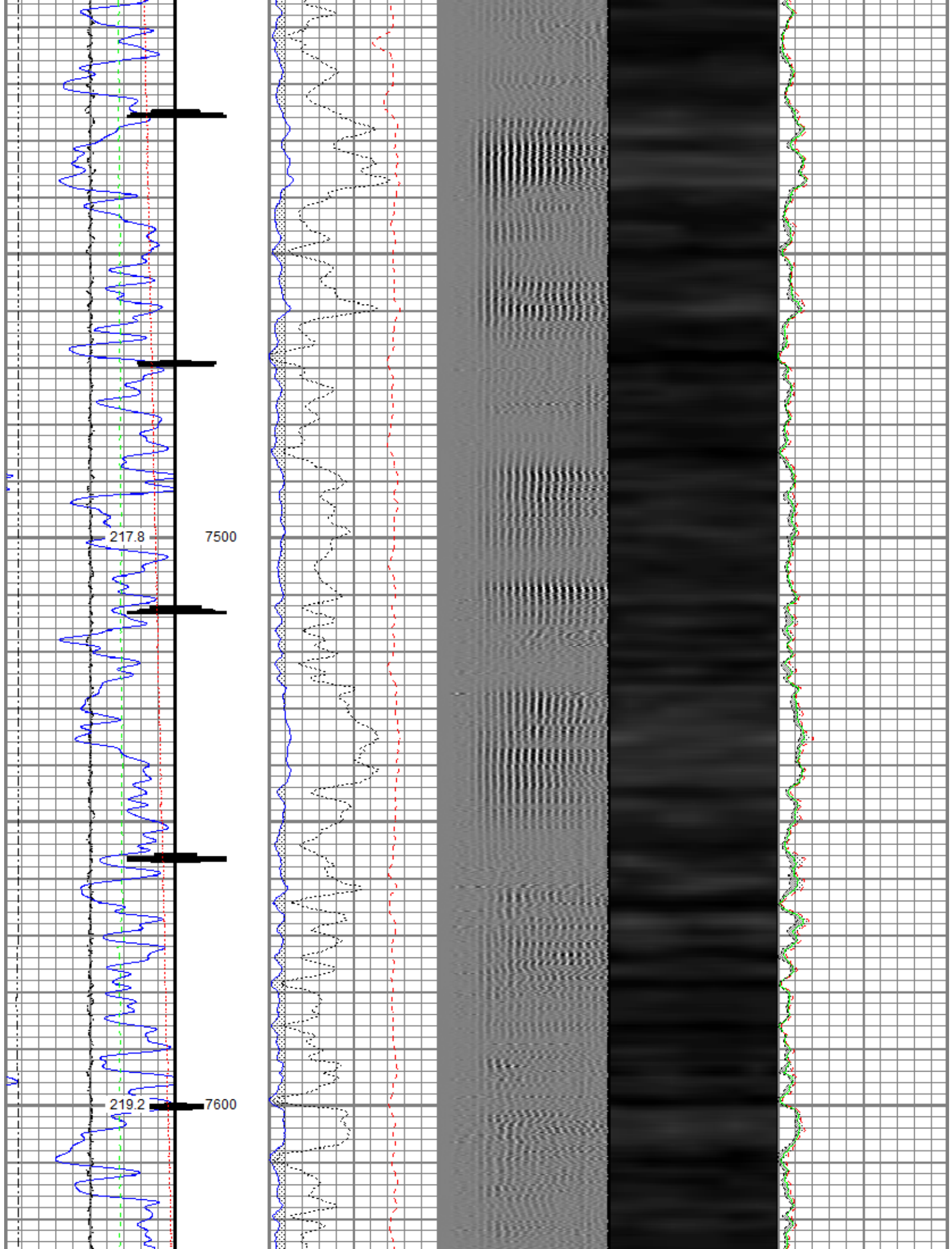


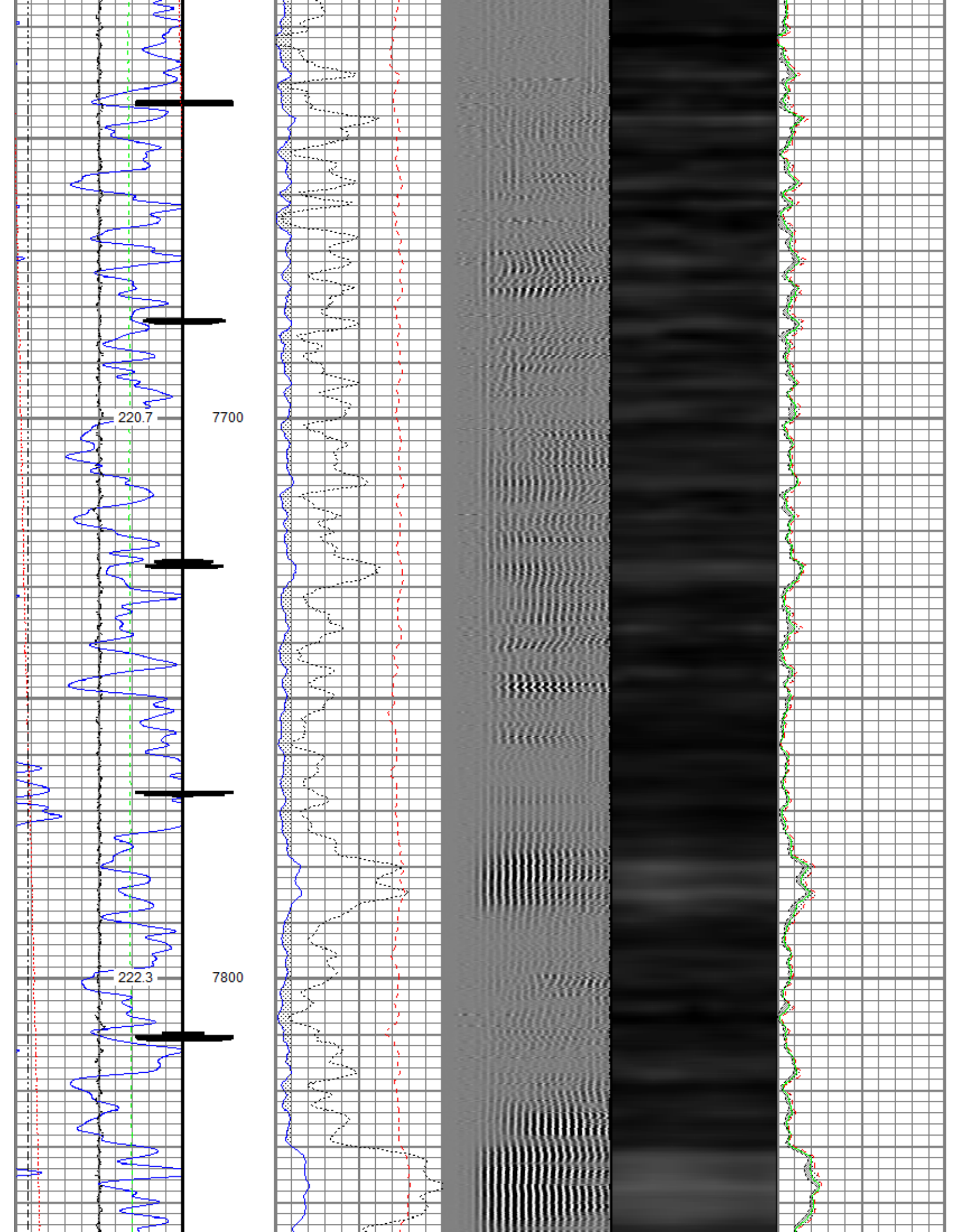


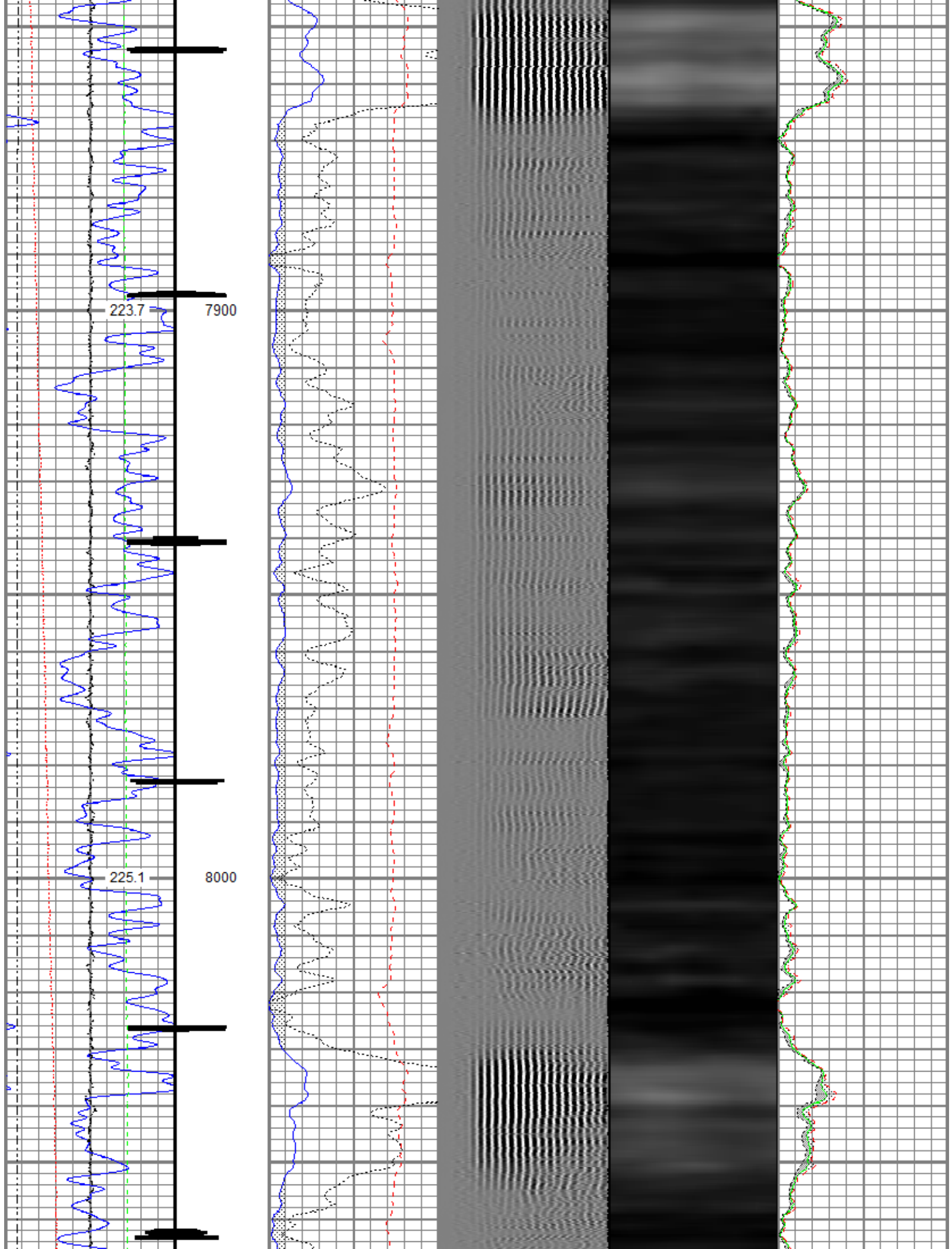




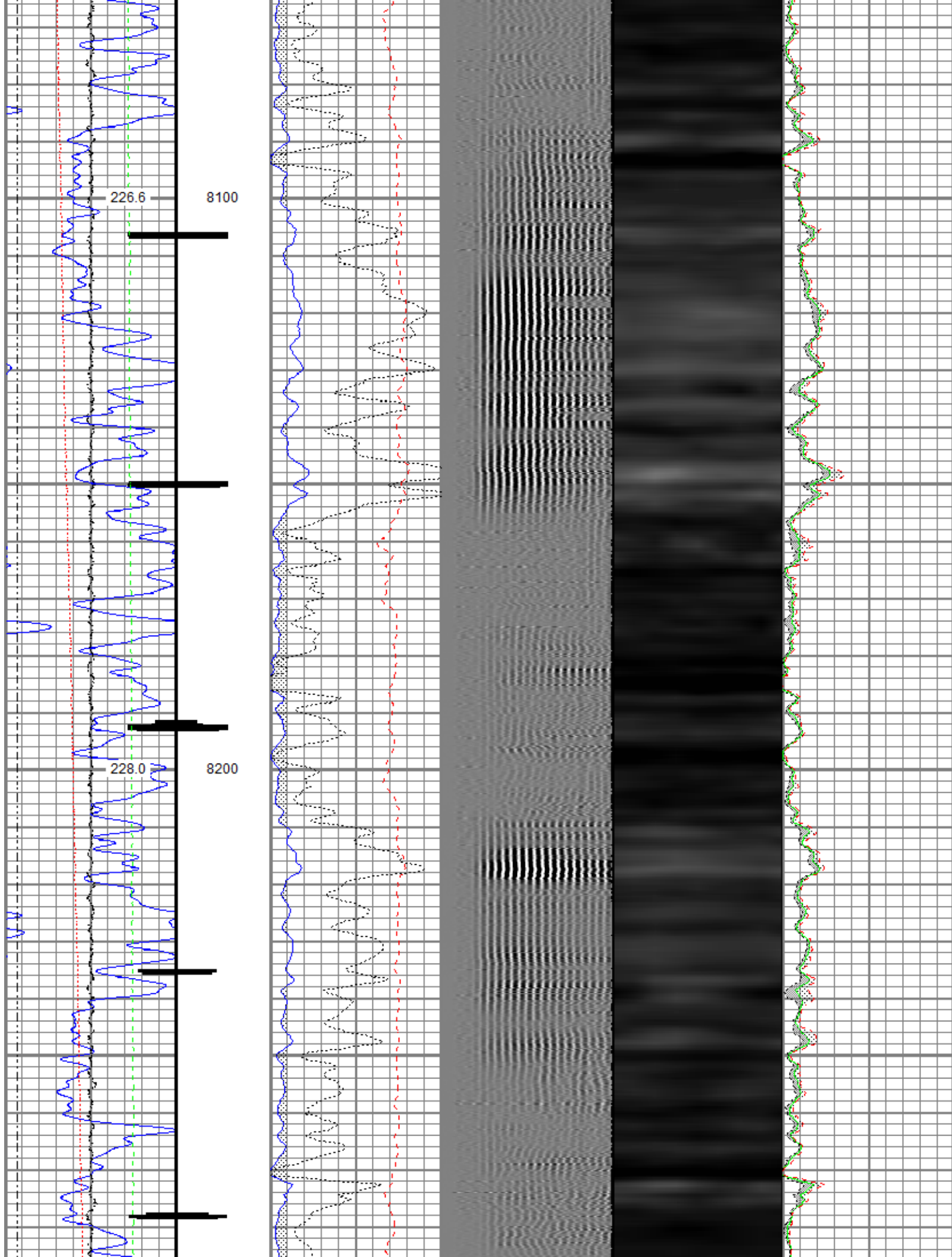


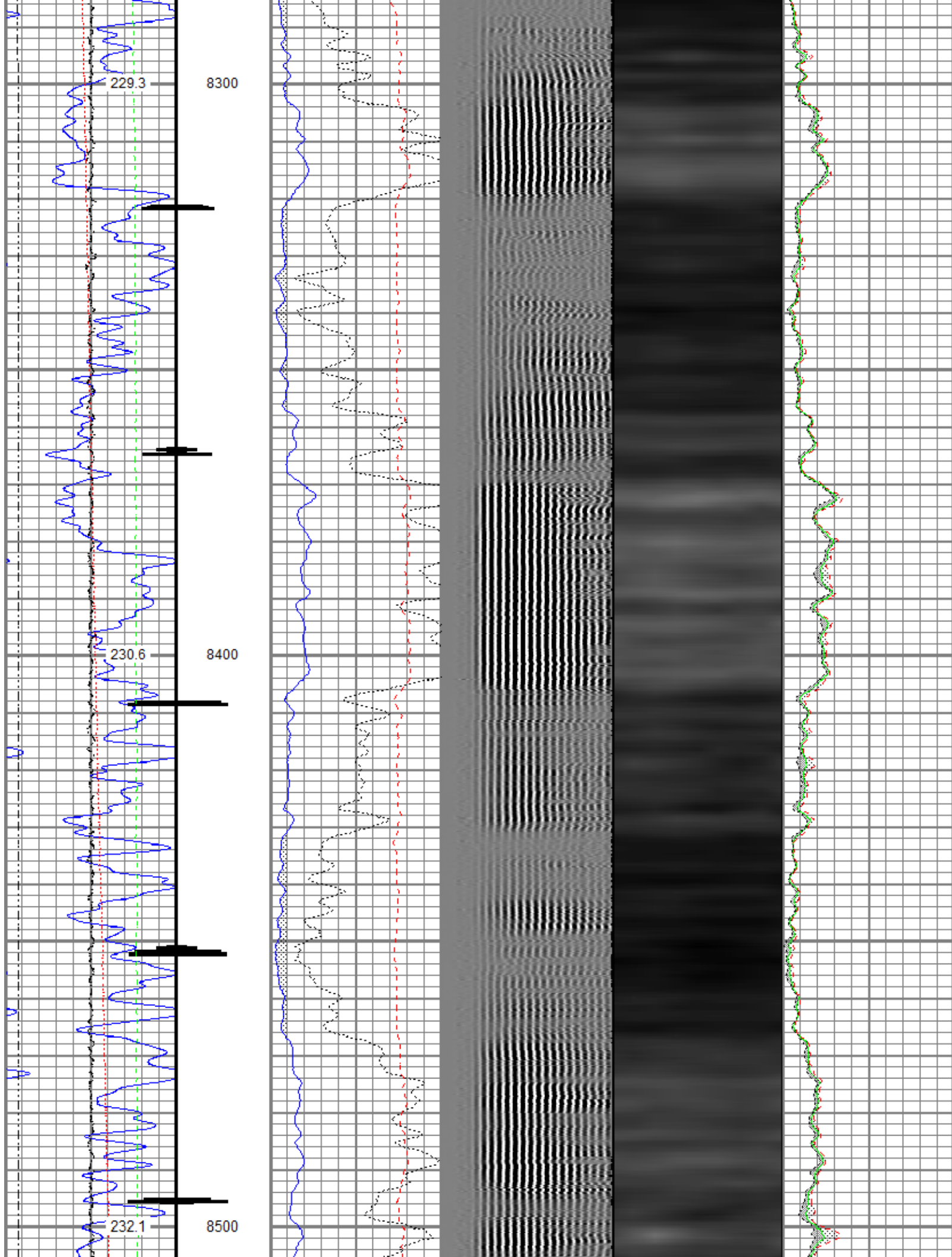


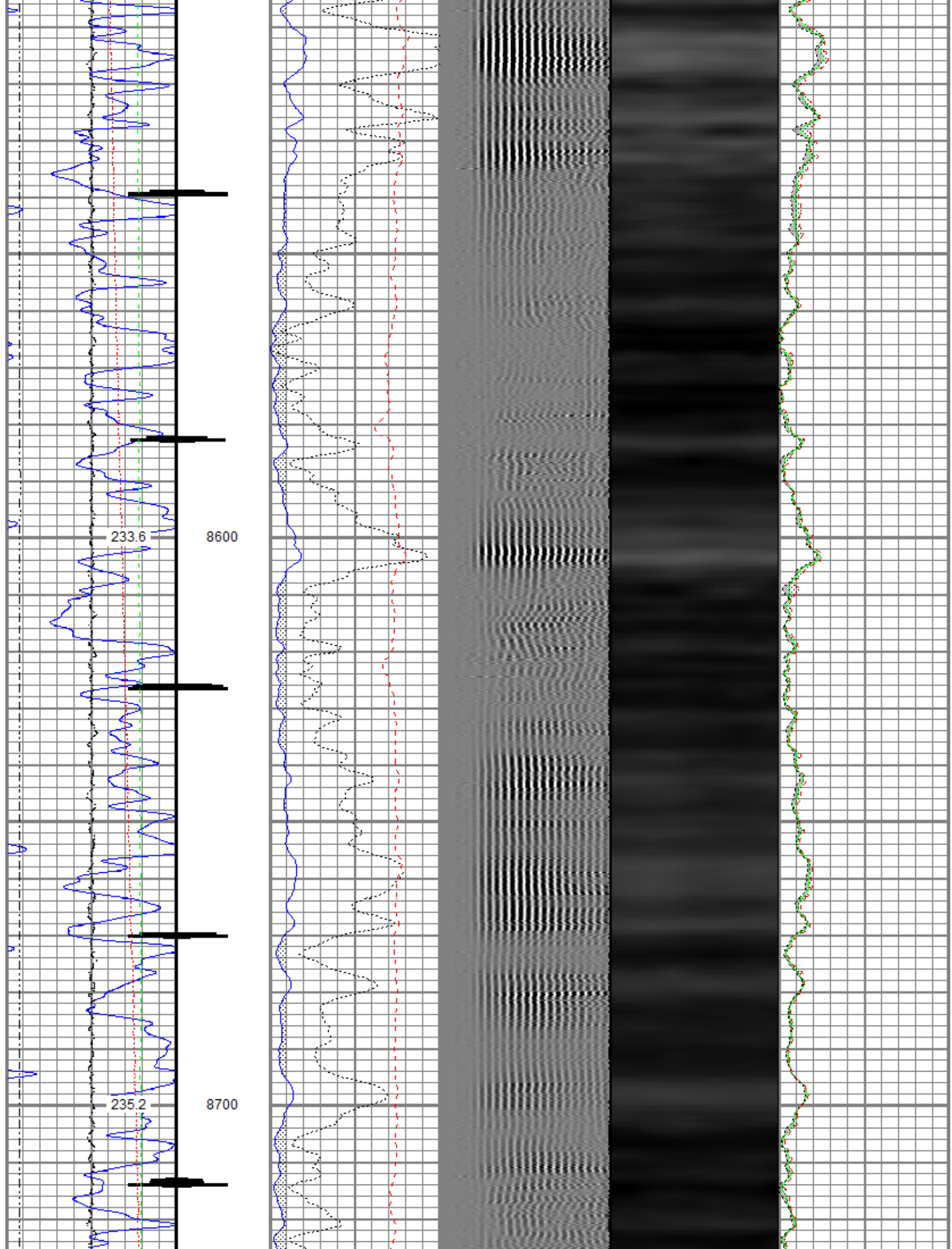




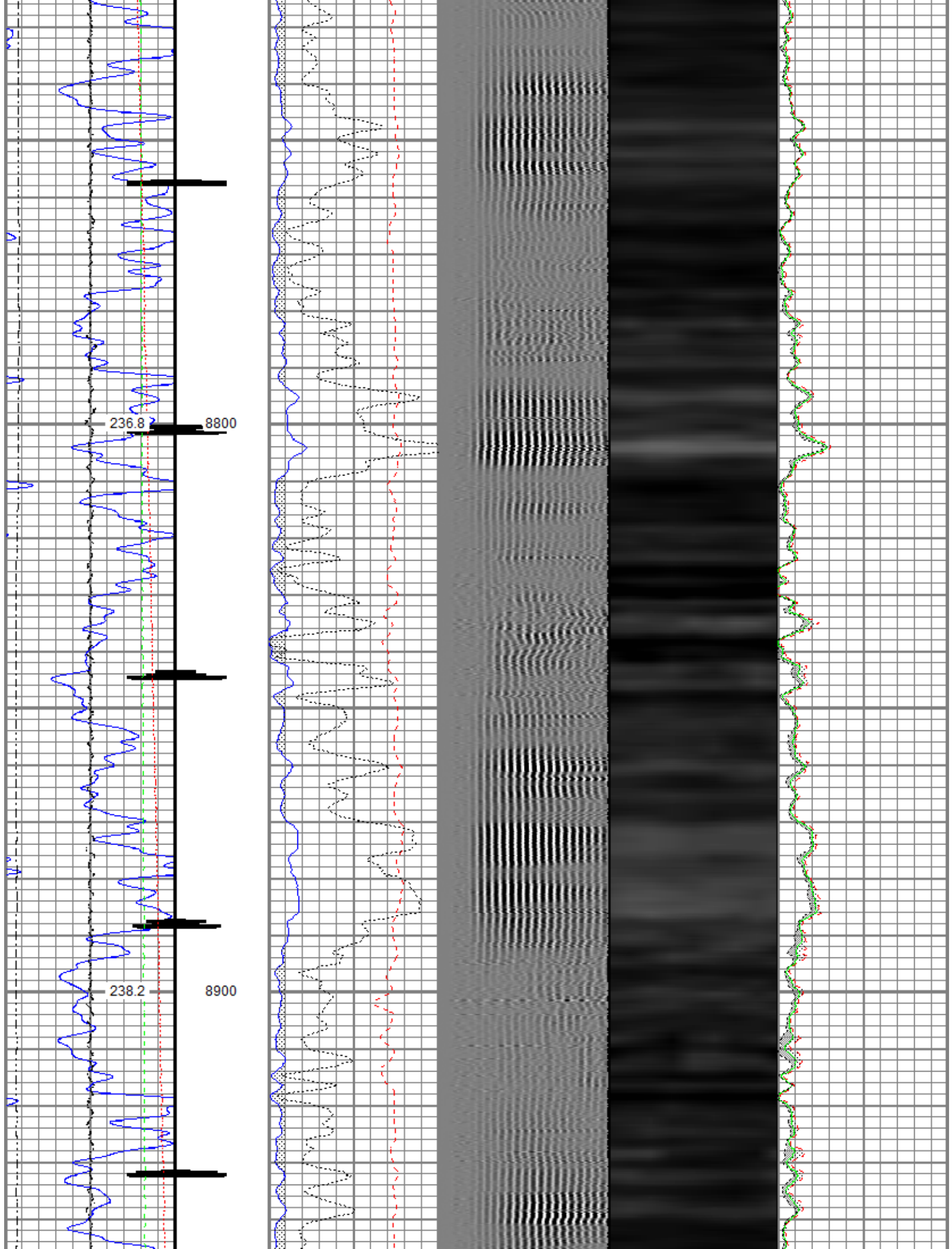


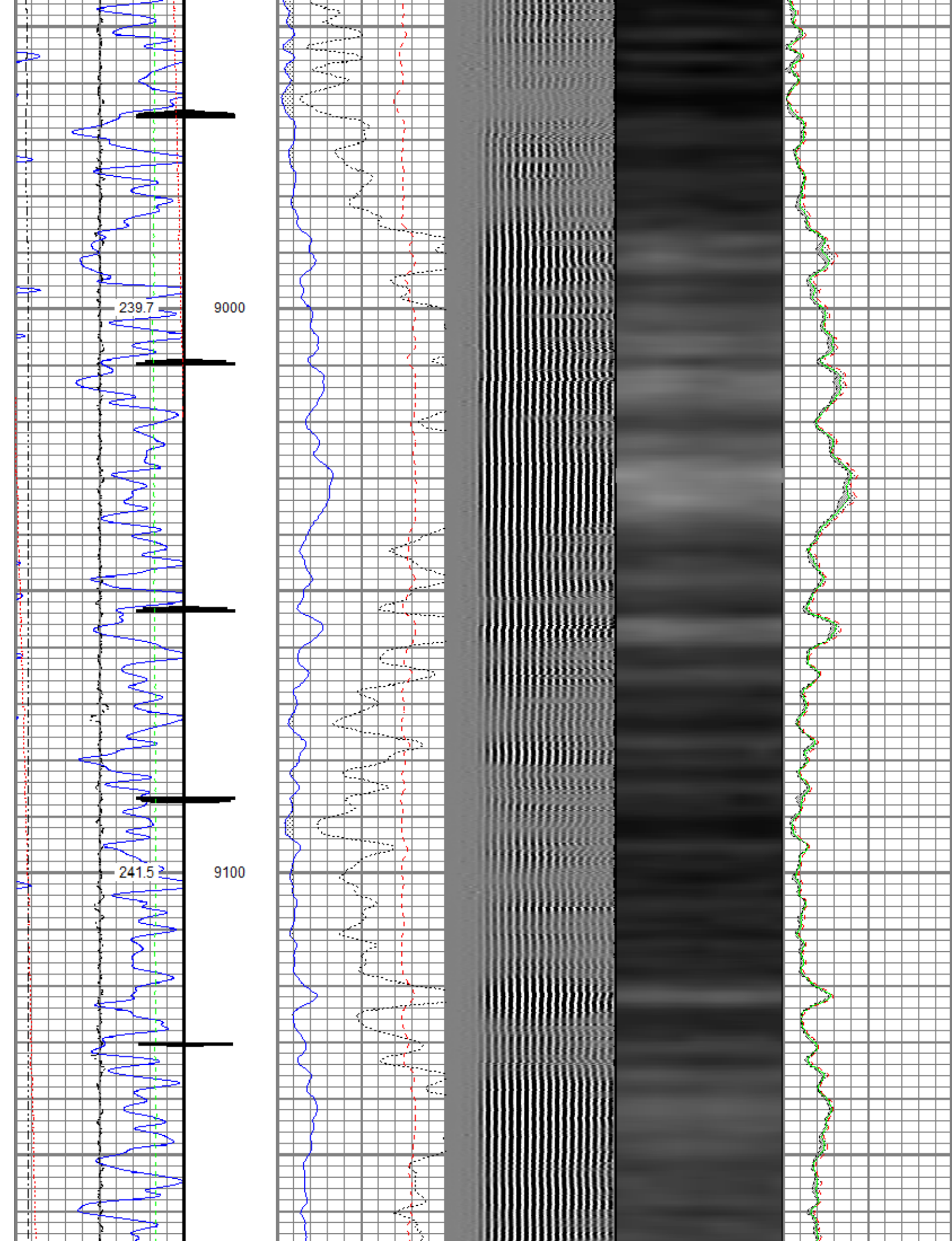


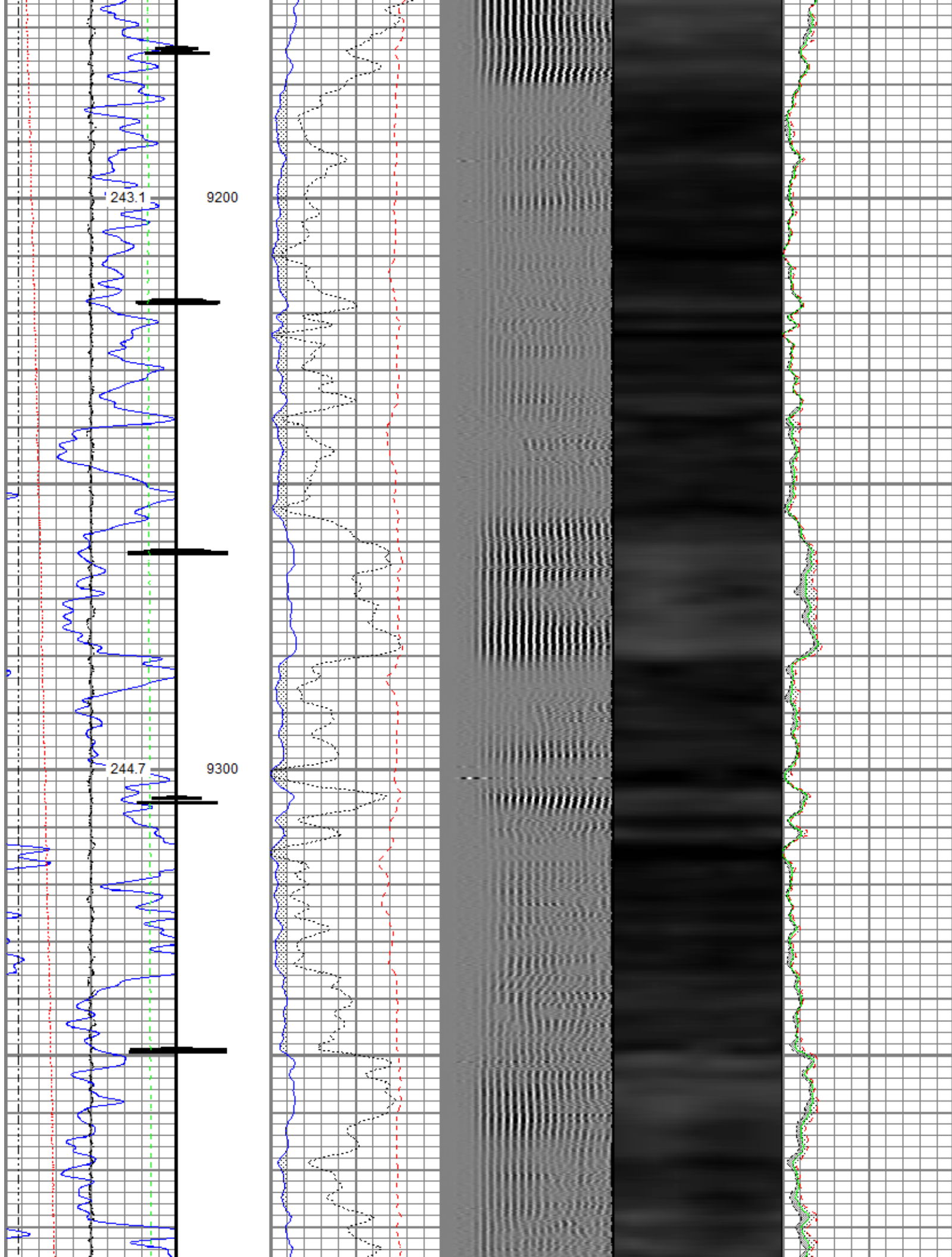




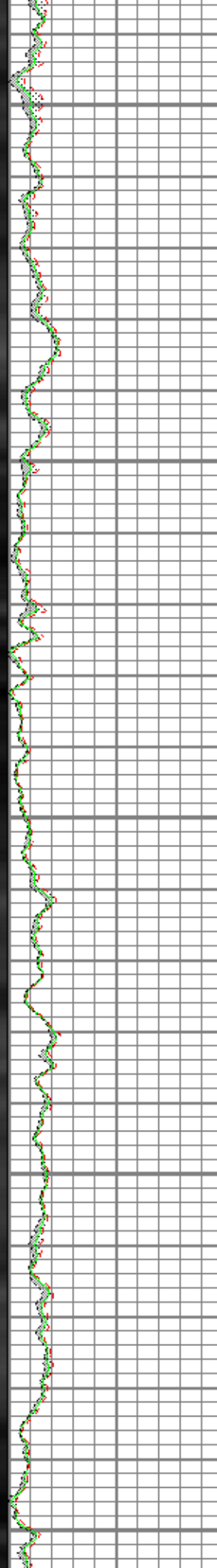
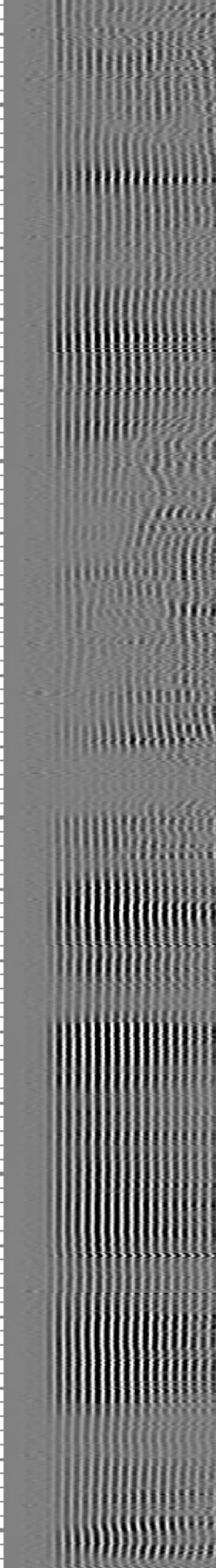
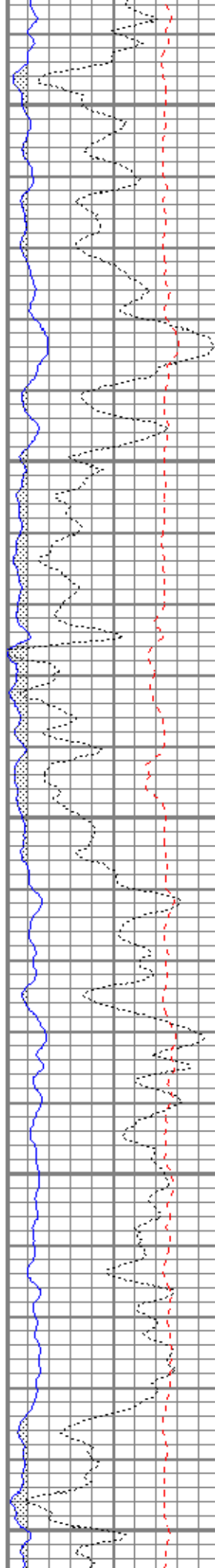
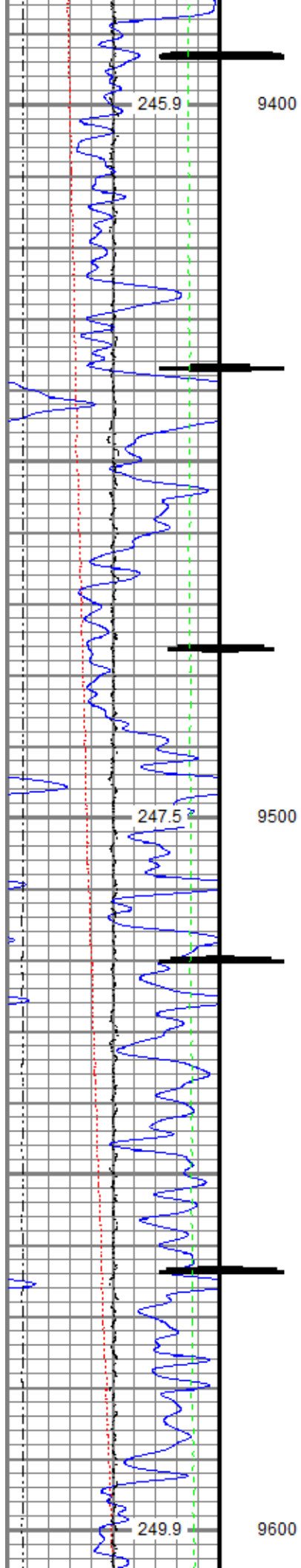


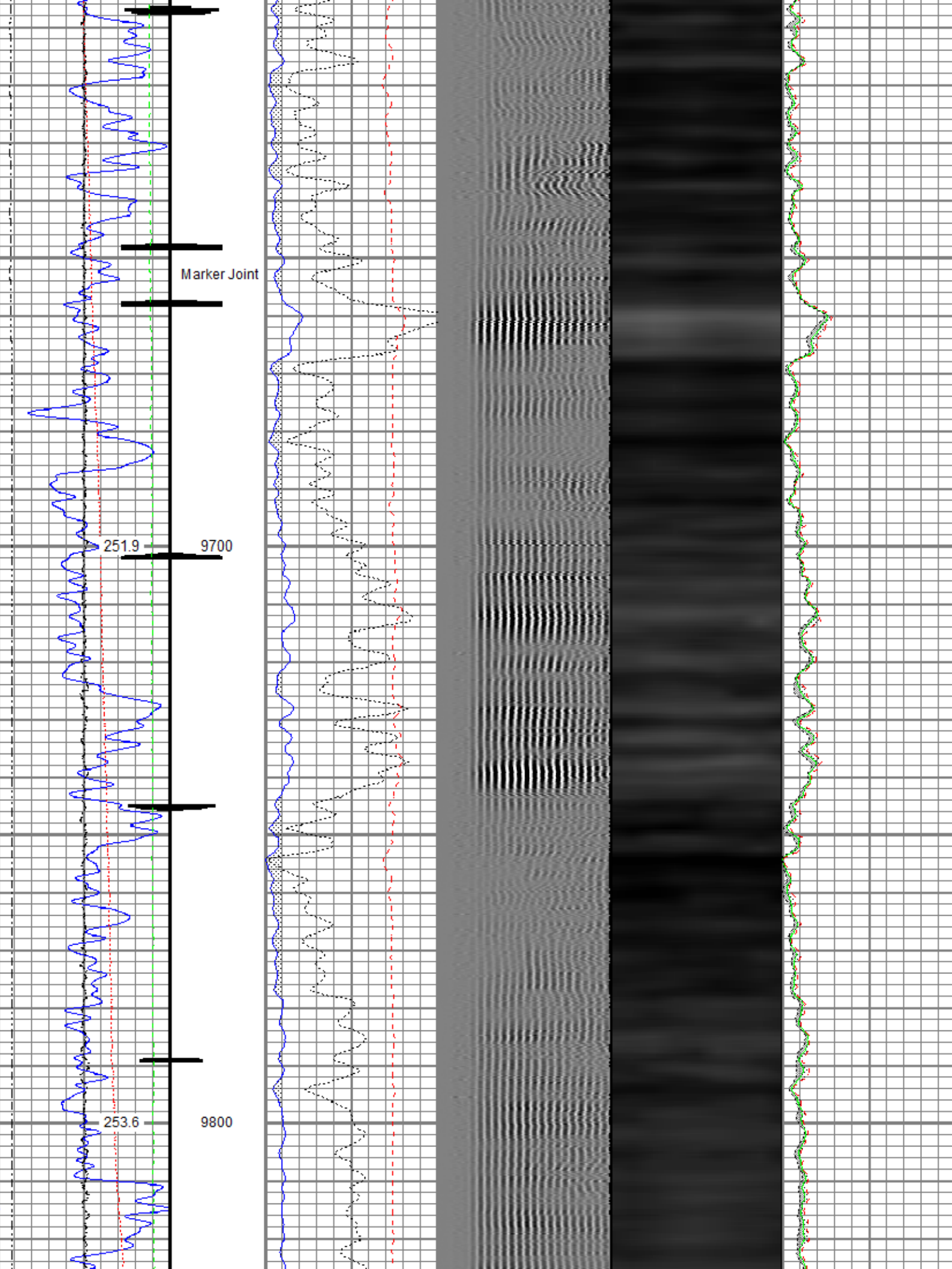


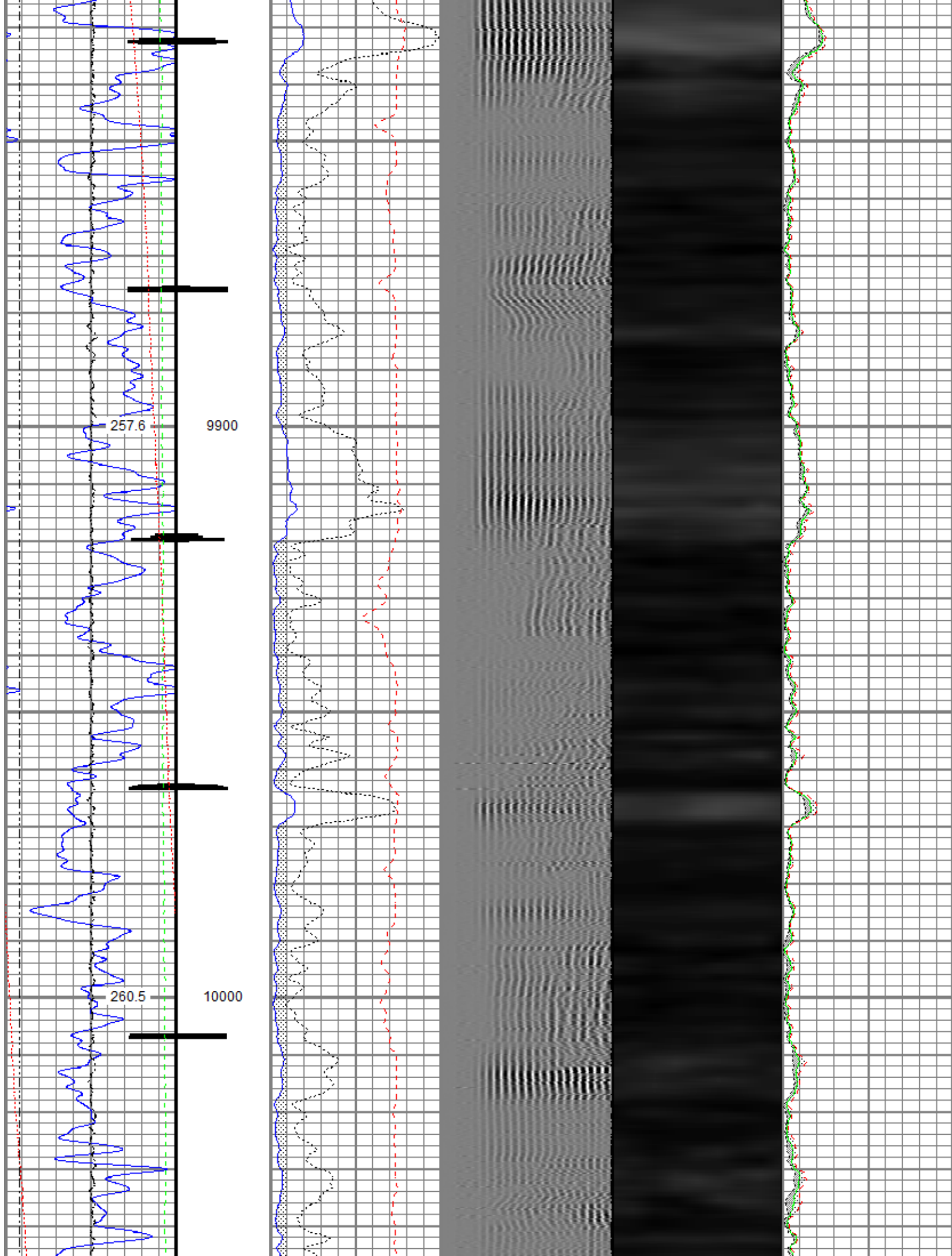




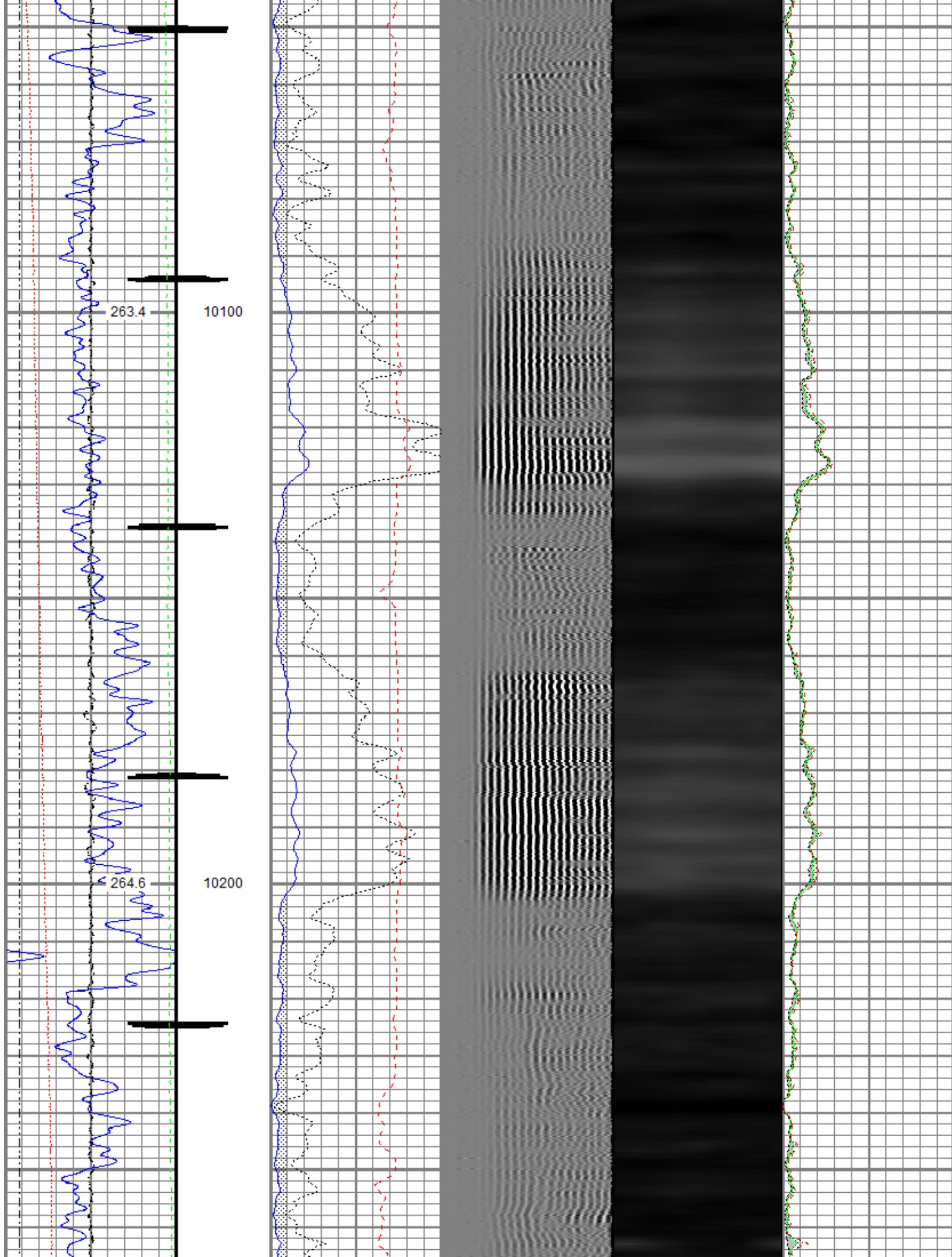


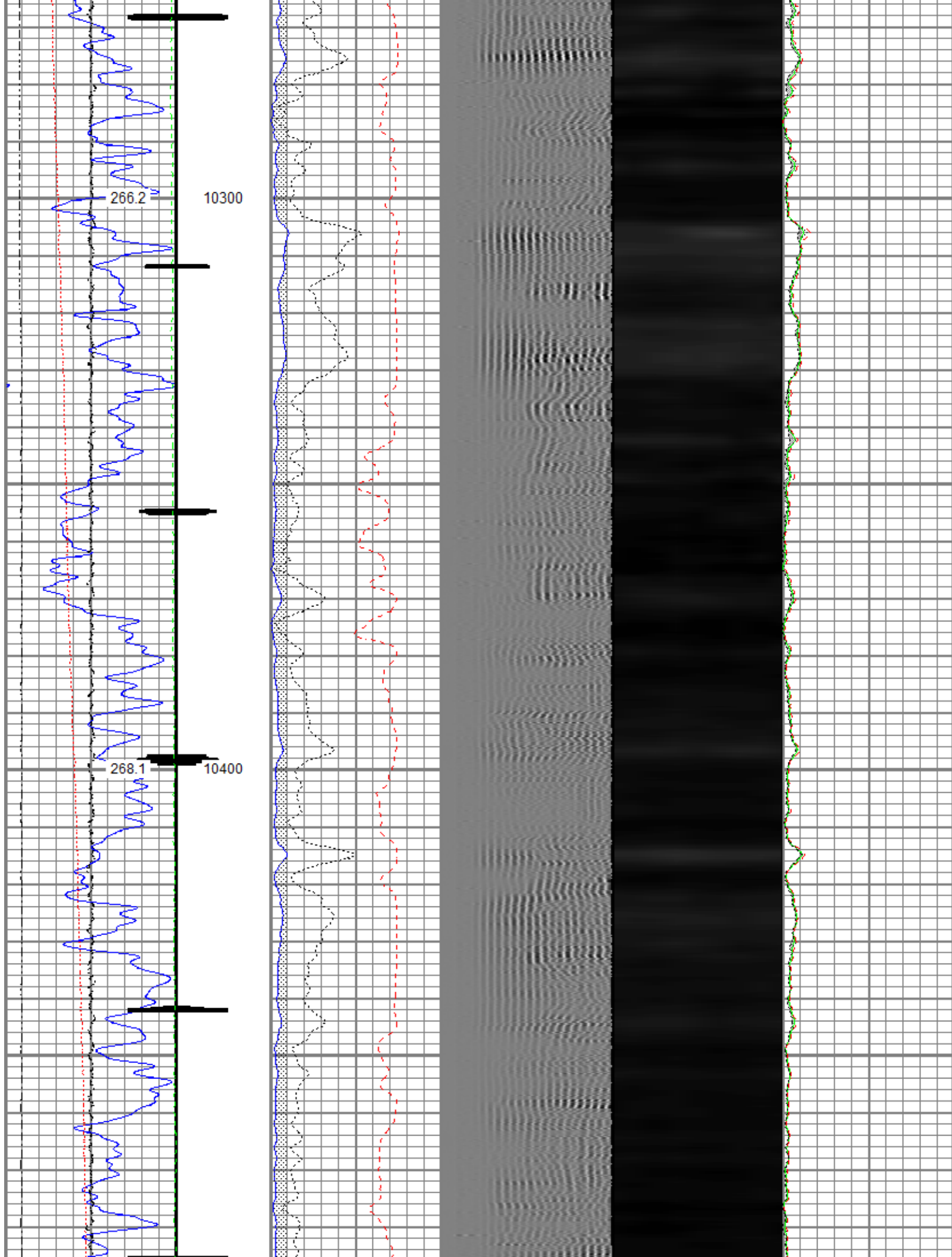


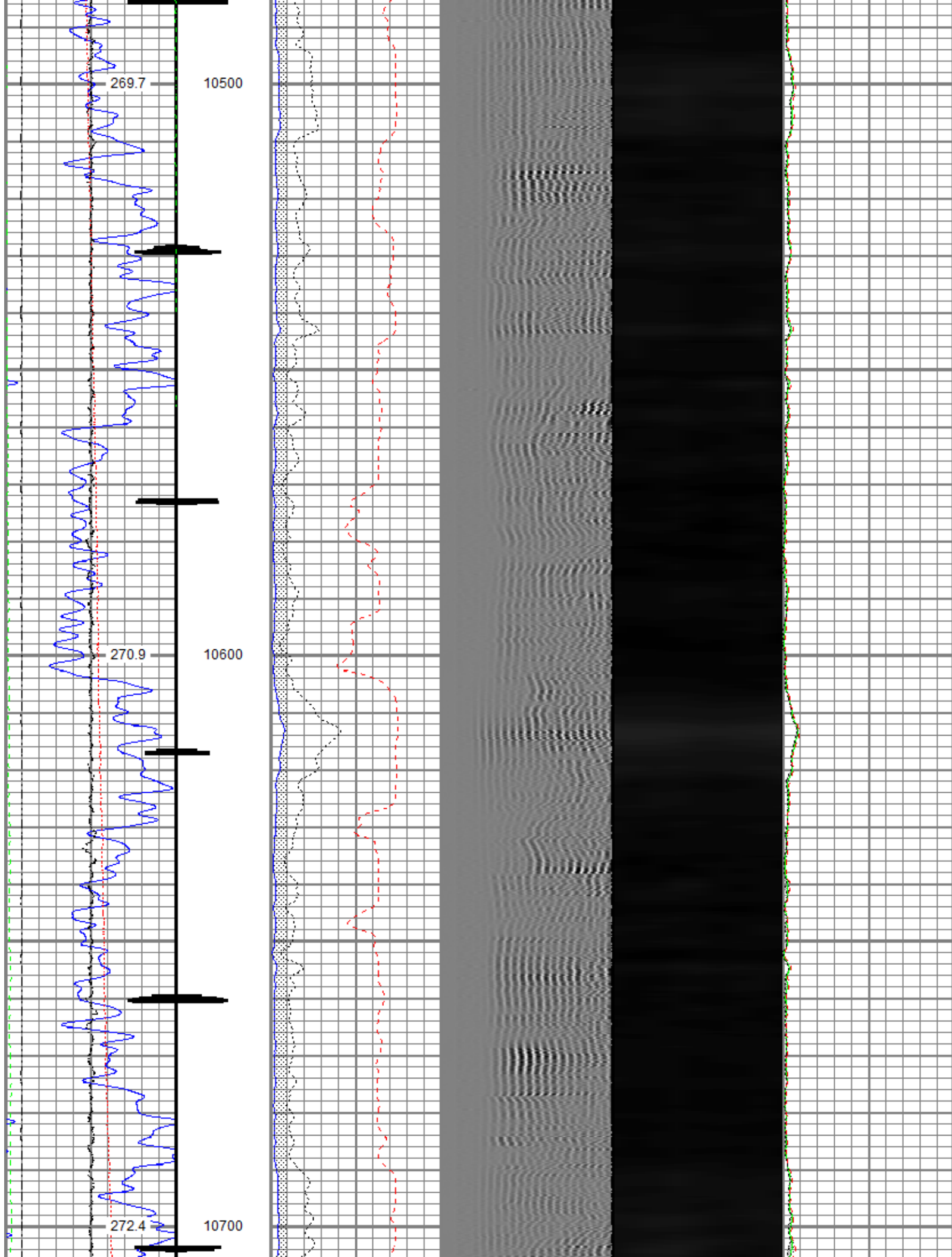




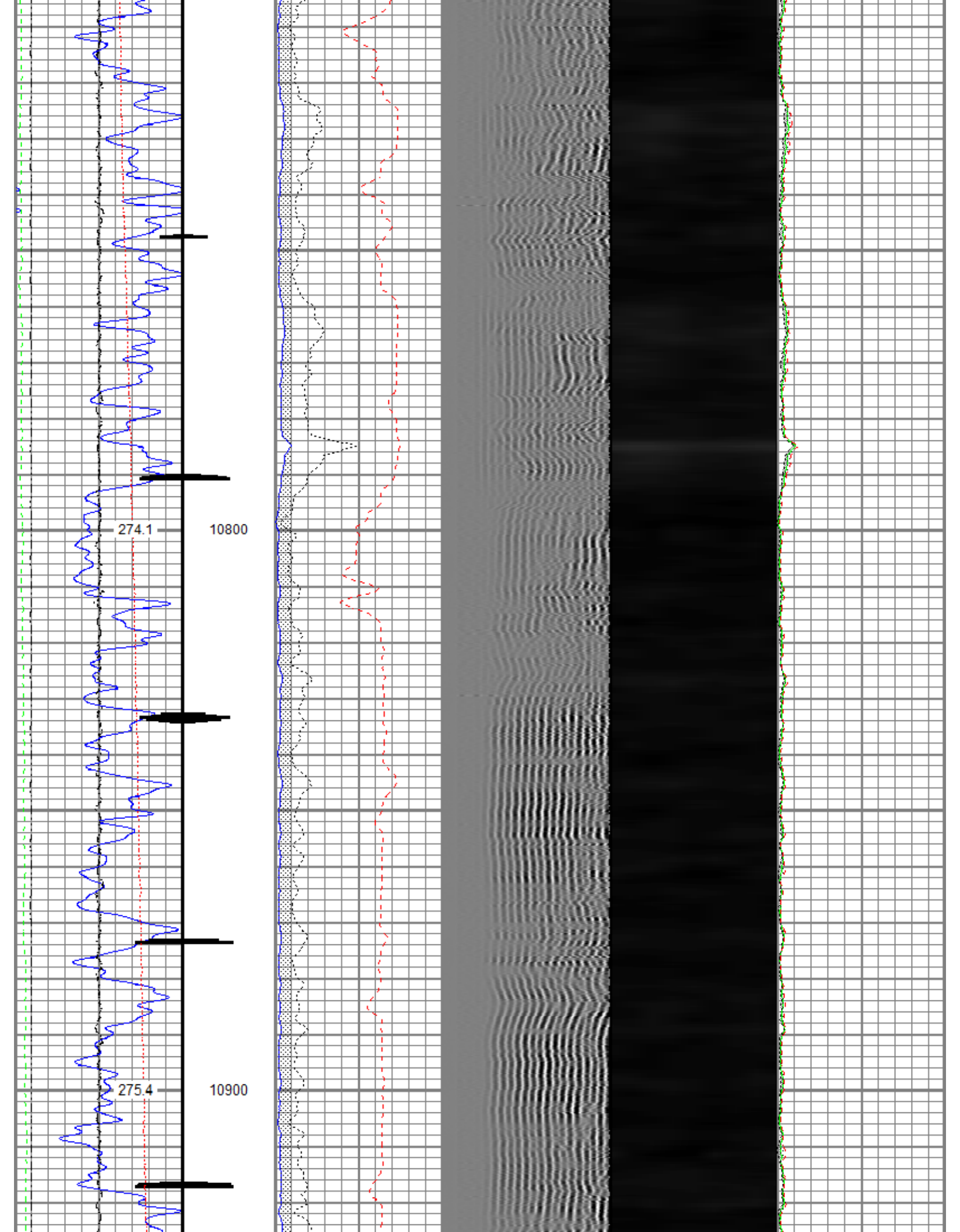


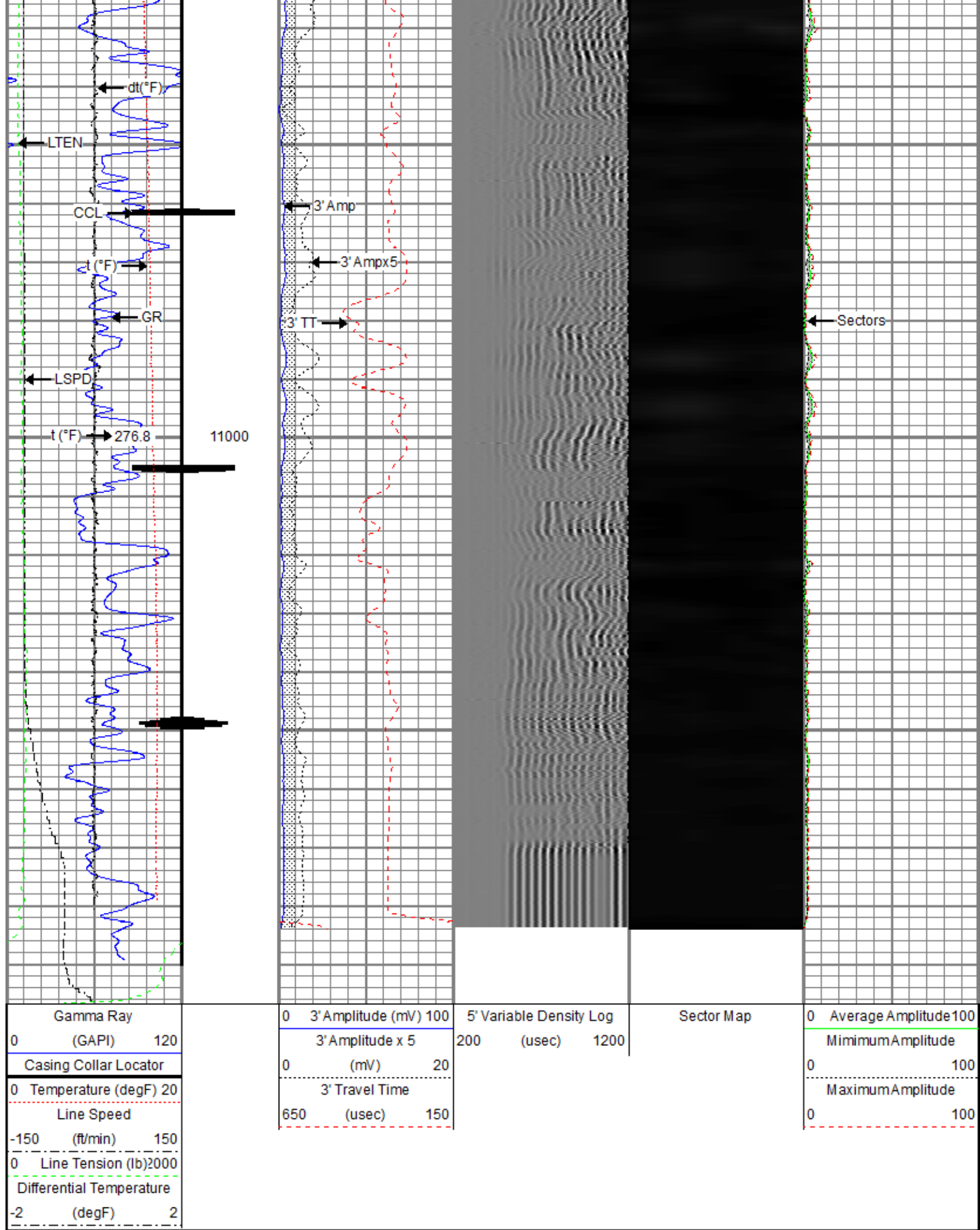






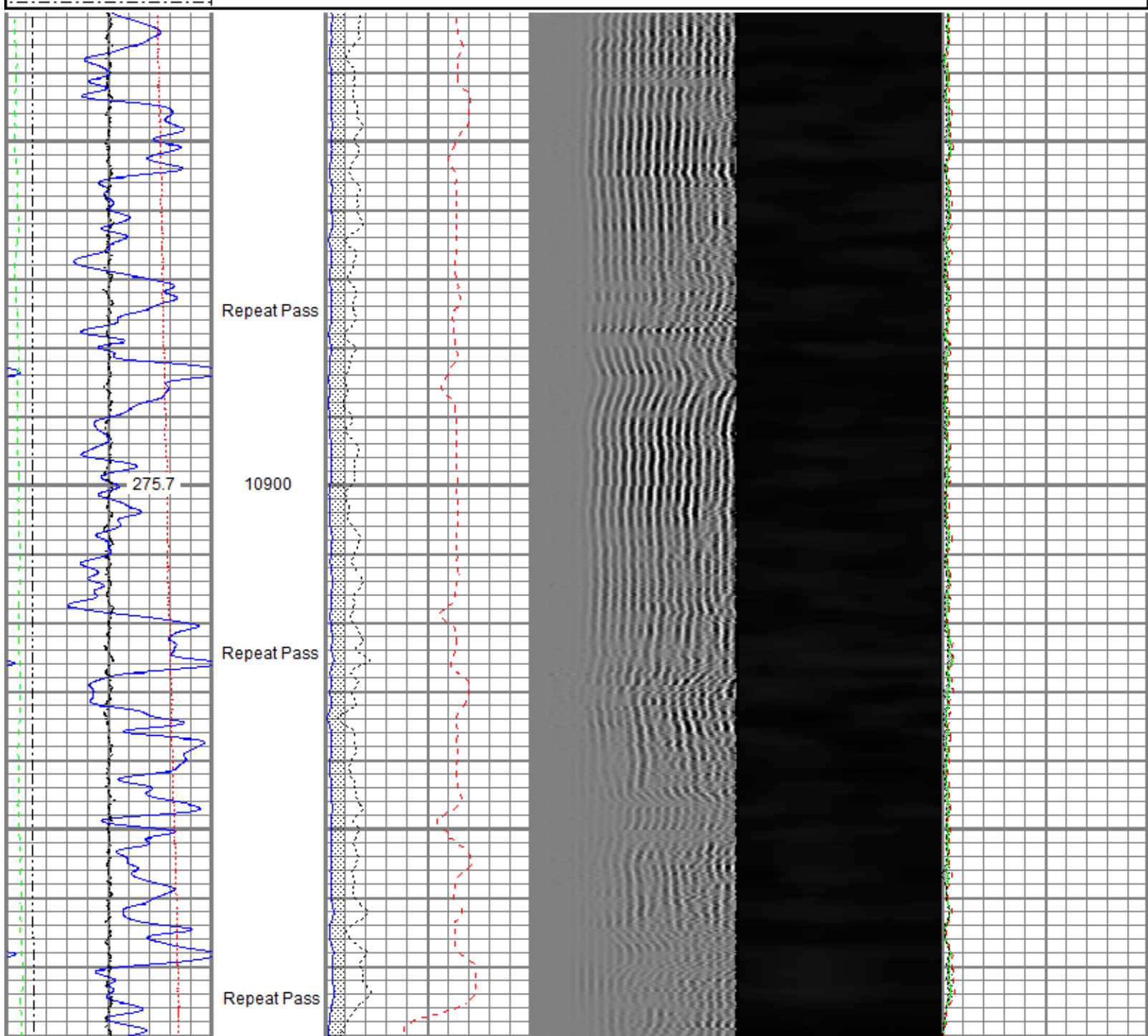




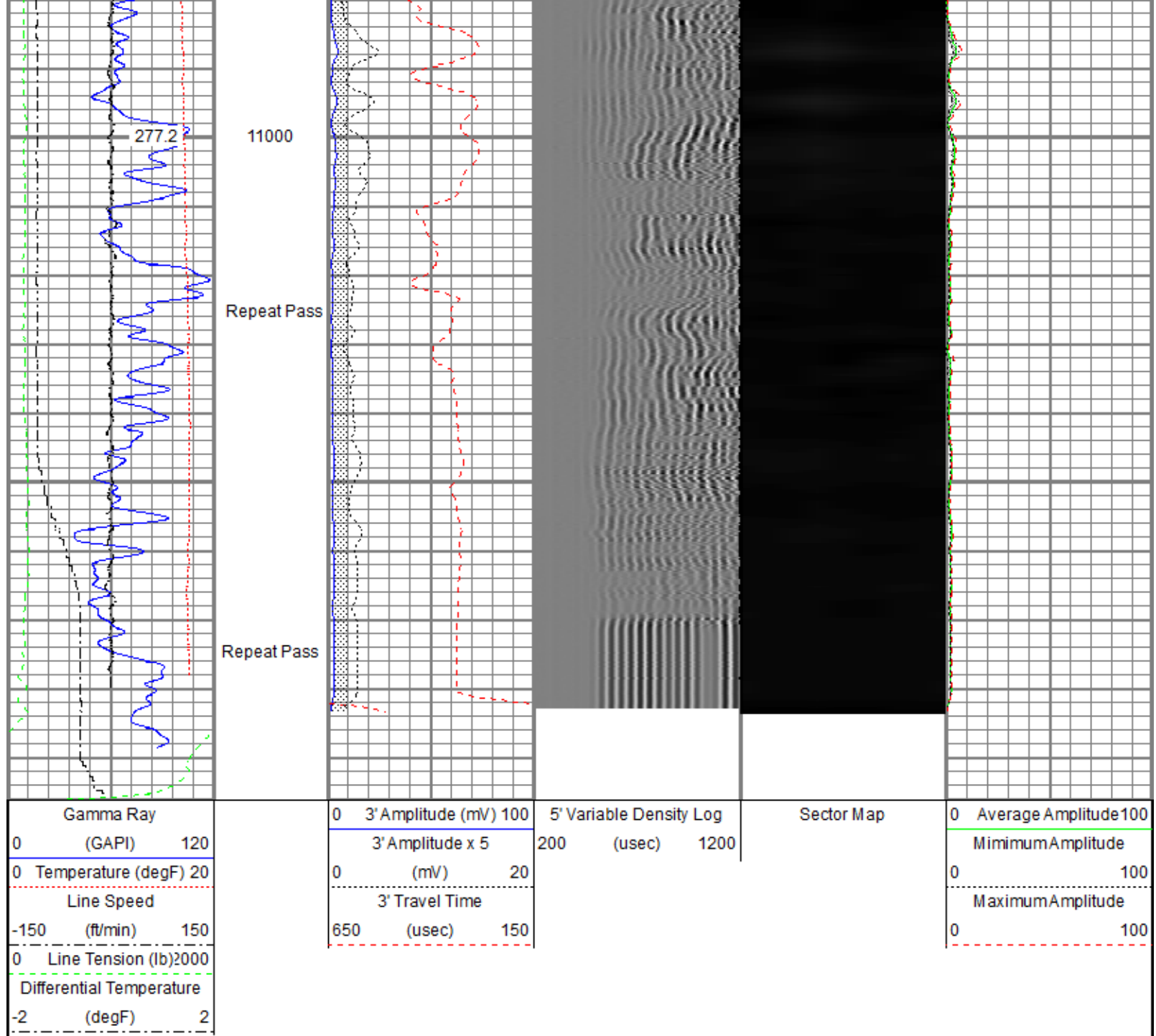


Database File      ursa\_boies ranch b-19n fed 23a  
 Dataset Pathname    ursa\_boies ranch b-19n fed 23a-19-2-97\_rbl\_11-30-18.db  
 Presentation Format    ros\_radil  
 Dataset Creation      Sat Dec 01 13:52:43 2018  
 Charted by            Depth in Feet scaled 1:240

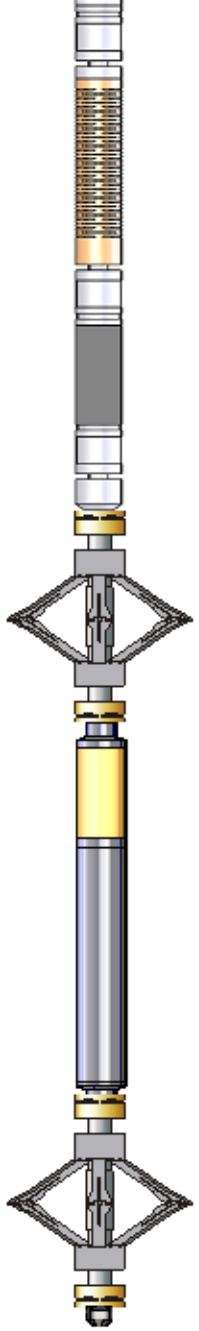
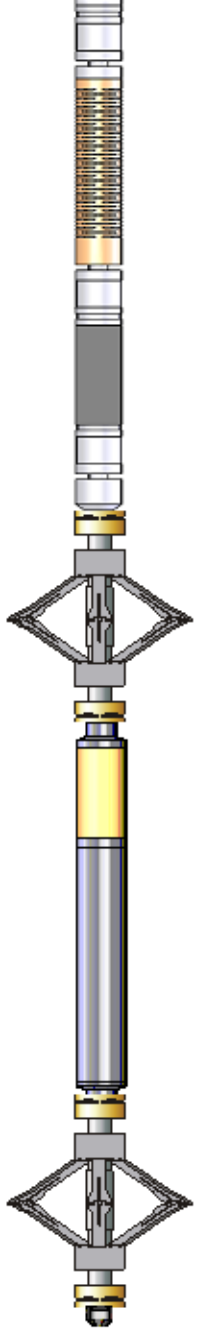
Gamma Ray	0	3' Amplitude (mV)	100	5' Variable Density Log	Sector Map	0	Average Amplitude	100
(GAPI)	120	3' Amplitude x 5	200	(usec)			Minimum Amplitude	
0 Temperature (degF)	20	0 (mV)	20			0		100
Line Speed		3' Travel Time					Maximum Amplitude	
-150 (ft/min)	150	650 (usec)	150			0		100
0 Line Tension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







Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	16.33		Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00

WVFS8	14.10		Probe Radii-2750 RBT (101013) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS7	14.10					
WVFS6	14.10					
WVFS5	14.10					
WVFS4	14.10					
WVFS3	14.10					
WVFS2	14.10					
WVFS1	14.10					
WVFCAL	14.10					
WVF3FT	14.10					
WVF5FT	13.10					
CCL\$2	6.42		DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
CCL\$1	6.42					
GR	5.18		Probe GR-CCL-2750 GOB (FW1211-081) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined	4.51	2.75	55.00
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
			GO BN-14375 GO 1.7/16" Bull Nose with Go Box Top	0.25	1.44	1.00
Dataset: ursa_boies ranch b-19n fed 23a-19-2-97_rbl_11-30-18.db: field/well/run1/main.1 Total length: 22.82 ft Total weight: 260.60 lb O.D.: 2.75 in						

Calibration Report		
Database File	c:\programdata\warrior\data\ursa_boies ranch b-19n fed 23a\ursa_boies ranch b-19n fed 23a-19-2-97_rbl_11-30-18.db	
Dataset Pathname	main.1	
Dataset Creation	Sat Dec 01 13:45:20 2018	
Gamma Ray Calibration Report		
Serial Number:	FW1211-081	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:22:44 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	112.4	cps
Calibrator Reading:	1008.7	cps
Sensitivity:	0.7107	GAPI/cps

Serial Number: 101013  
Tool Model: 2750 RBT

Calibration Casing Diameter: 4.500 in  
Calibration Depth: 28.421 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.005	0.681	0.800	81.196	117.186	1.381
CAL	-0.005	0.779				
5'	-0.003	0.580	0.800	81.196	138.002	1.159
SUM						
S1	-0.005	0.678	0.000	100.000	146.361	0.702
S2	-0.002	0.666	0.000	100.000	149.690	0.361
S3	-0.003	0.631	0.000	100.000	157.874	0.445
S4	-0.003	0.651	0.000	100.000	152.772	0.506
S5	-0.004	0.673	0.000	100.000	147.728	0.614
S6	-0.004	0.683	0.000	100.000	145.649	0.573
S7	-0.006	0.692	0.000	100.000	143.335	0.849
S8	-0.006	0.712	0.000	100.000	139.402	0.790

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.005	0.779	1.000	0.000

Air Zero Calibration, performed Fri Nov 30 14:51:35 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.004	0.000	0.000
5'	-0.003	0.000	0.000
SUM			
S1	-0.004	0.000	0.001
S2	-0.004	0.000	0.000
S3	-0.003	0.000	0.000
S4	-0.004	0.000	0.001
S5	-0.003	0.000	-0.000
S6	-0.003	0.000	-0.000
S7	-0.004	0.000	-0.000
S8	-0.004	0.000	0.000

Temperature Calibration Report

Serial Number: 101013  
Tool Model: 2750 RBT  
Performed: Sun Nov 12 13:21:13 2017

	Reference	Reading
Low Reference:	100.00 degF	112.30 degF
High Reference:	350.00 degF	394.75 degF

Gain: 0.89  
Offset: 0.60  
Delta Spacing: 1





Company  
Well  
Field  
County  
State

Orsa Operating Company LLC  
Boies Ranch B-19N FED 23A-19-2-97  
Sulphur Creek  
Rio Blanco  
Colorado