



County Weld State Colorado

Drilling Measured From	Kelly Bushing	G.L. 4944
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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.

Log ran as per customer request  
Depth referenced to Casing Tally reported Marker Joint at 6239 FT  
Adjusted -18 FT to correlate with Marker Joint  
Gauge Ring/Junk Basket ran to 7350 FT with no debris  
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 debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

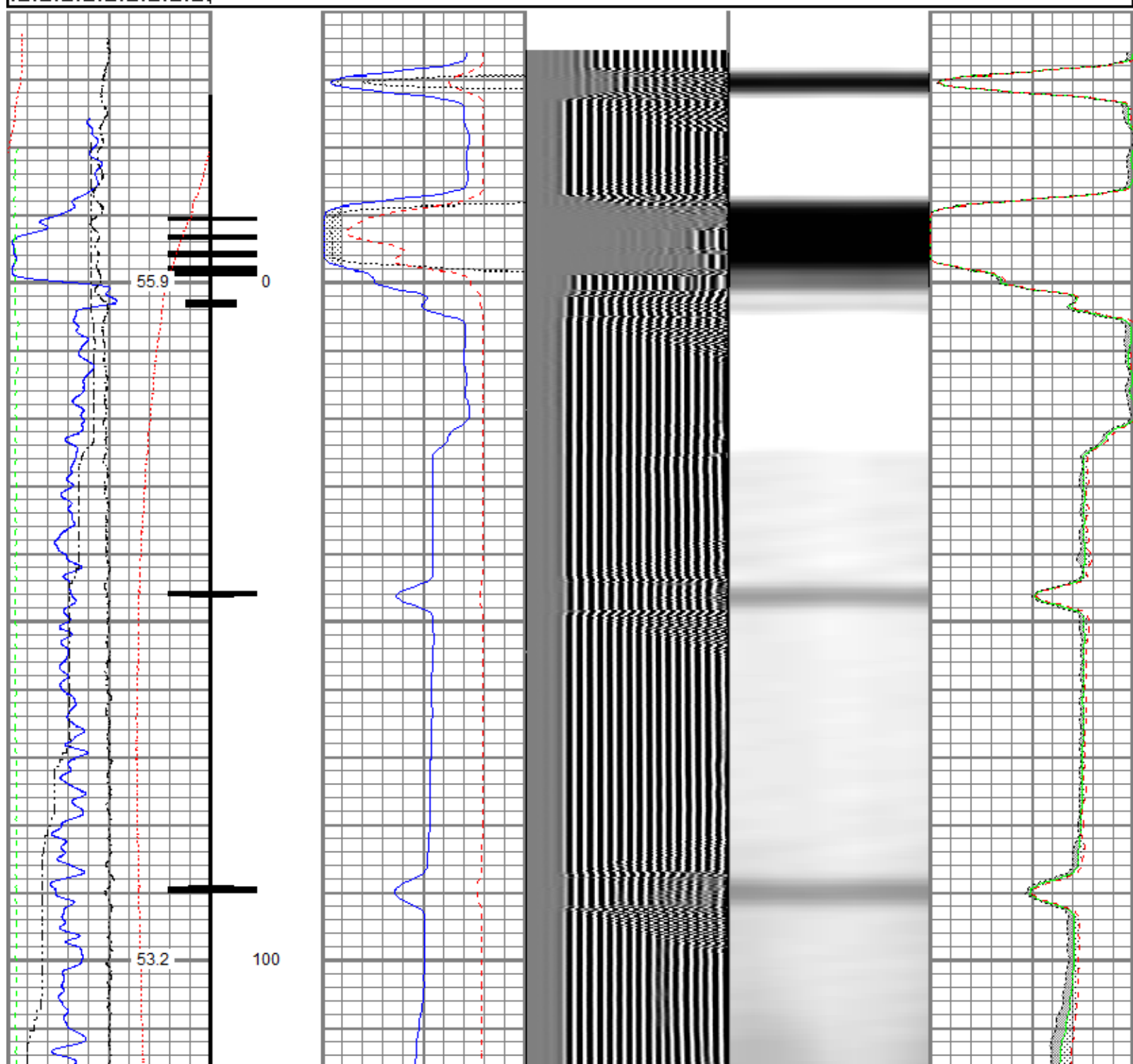
## Main Pass

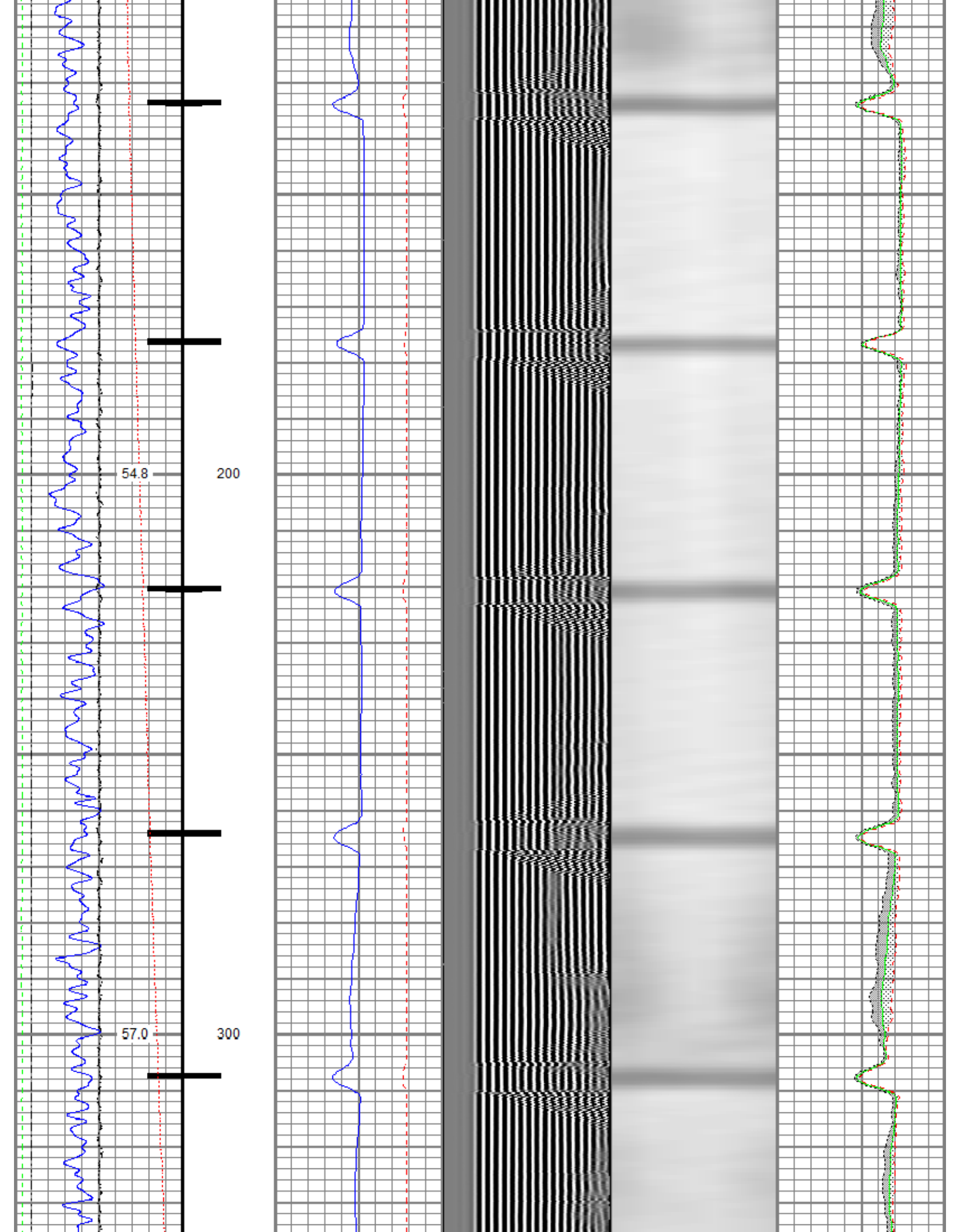


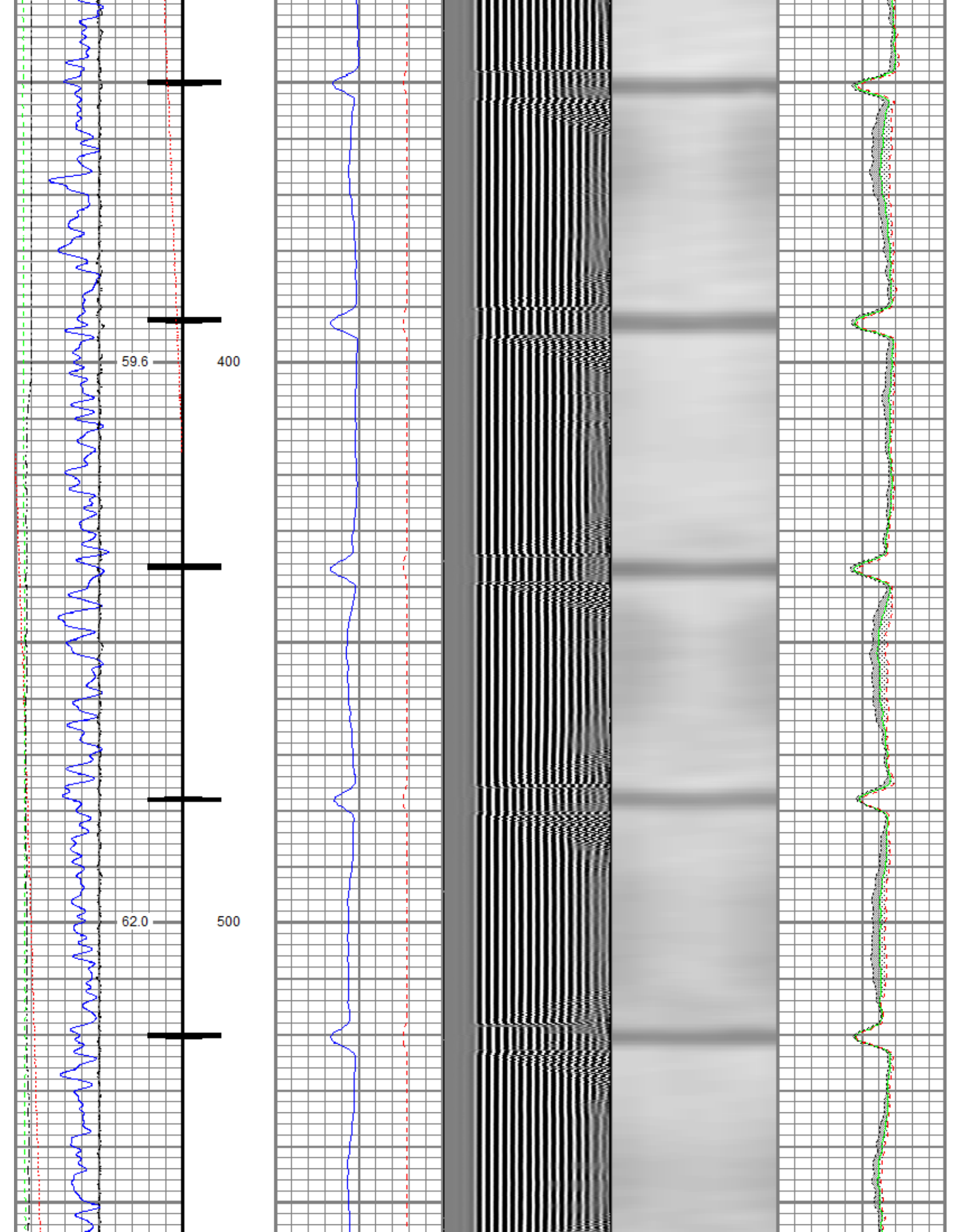
Recorded With 2800 PSI Surface Induced Pressure

Database File anadarko\_hergenreder 22n2-4hz\0512345862\_anadarko\_hergenreder 22n2-4hz\_rbl\_04-07-18.db  
 Dataset Pathname pass9  
 Presentation Format ros\_radri  
 Dataset Creation Sun Apr 08 09:15:43 2018  
 Charted by Depth in Feet scaled 1:240

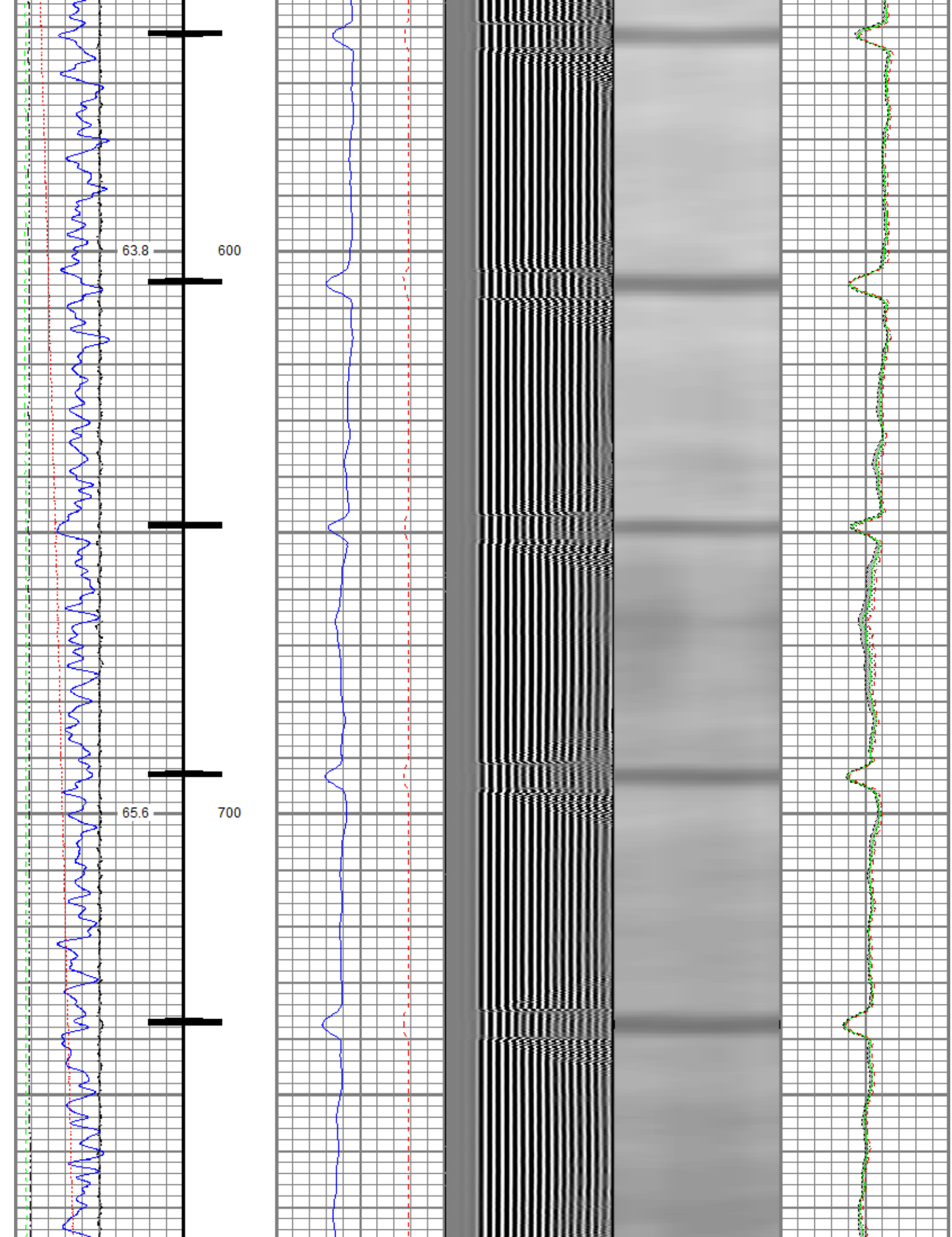
Gamma Ray	0	3' Amplitude (mV)	100	5' Variable Density Log	Sector Map	0	Average Amplitude	100
(GAPI)	120	3' Amplitude x 5	200	1200			Minimum Amplitude	
Casing Collar Locator		(mV)	20			0	100	
Temperature (degF)	20	3' Travel Time					Maximum Amplitude	
Line Speed		(usec)	150			0	100	
(ft/min)	150					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

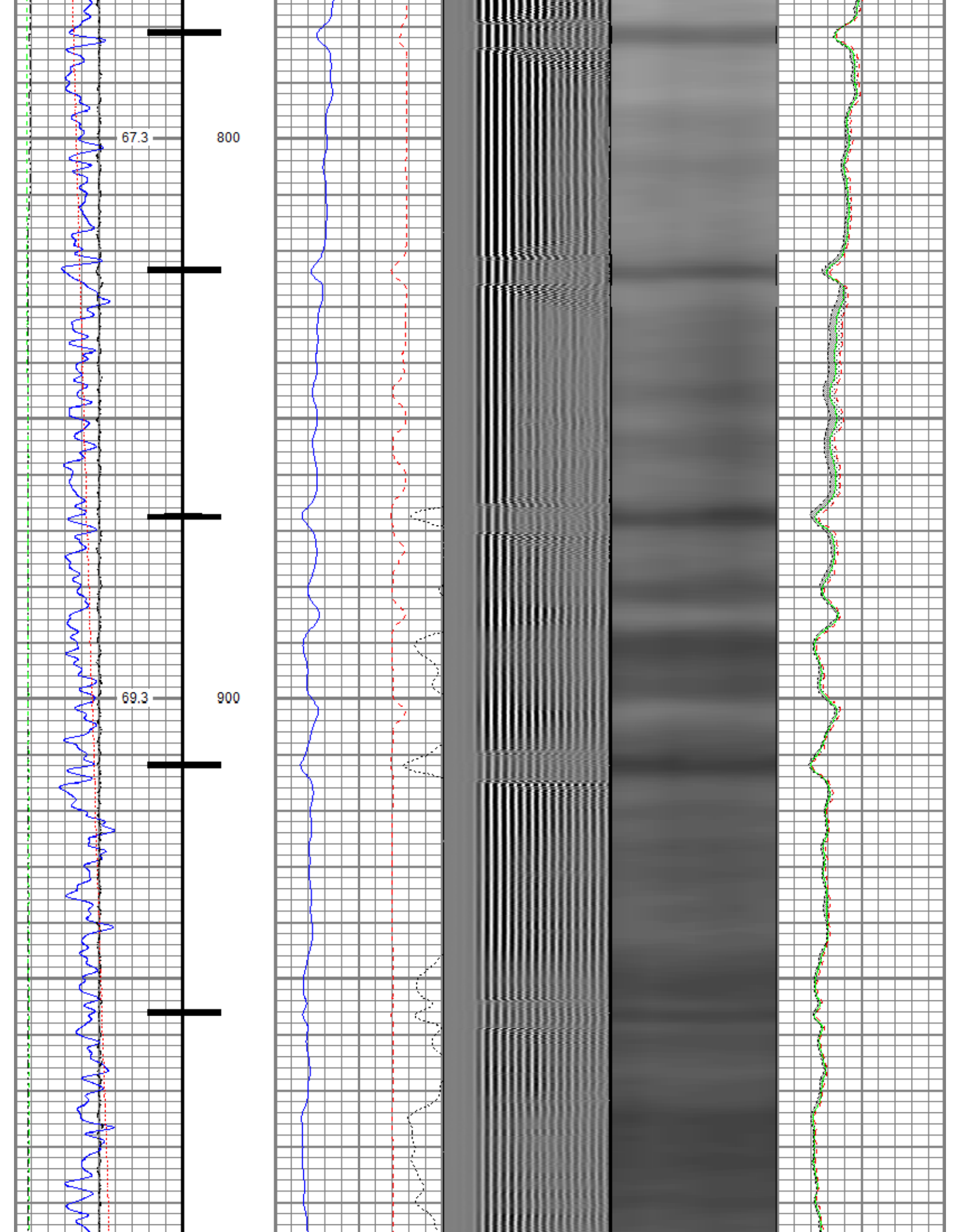


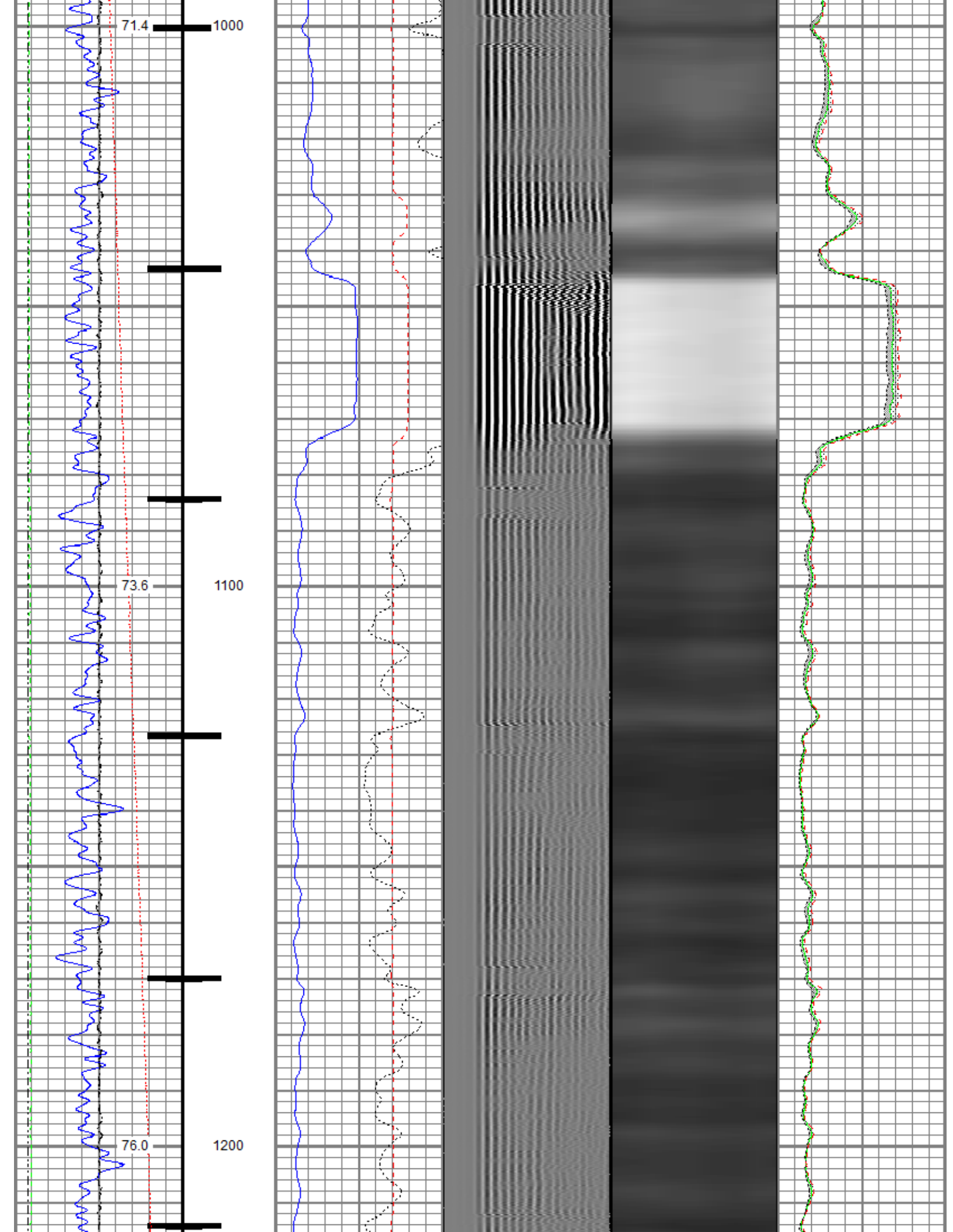


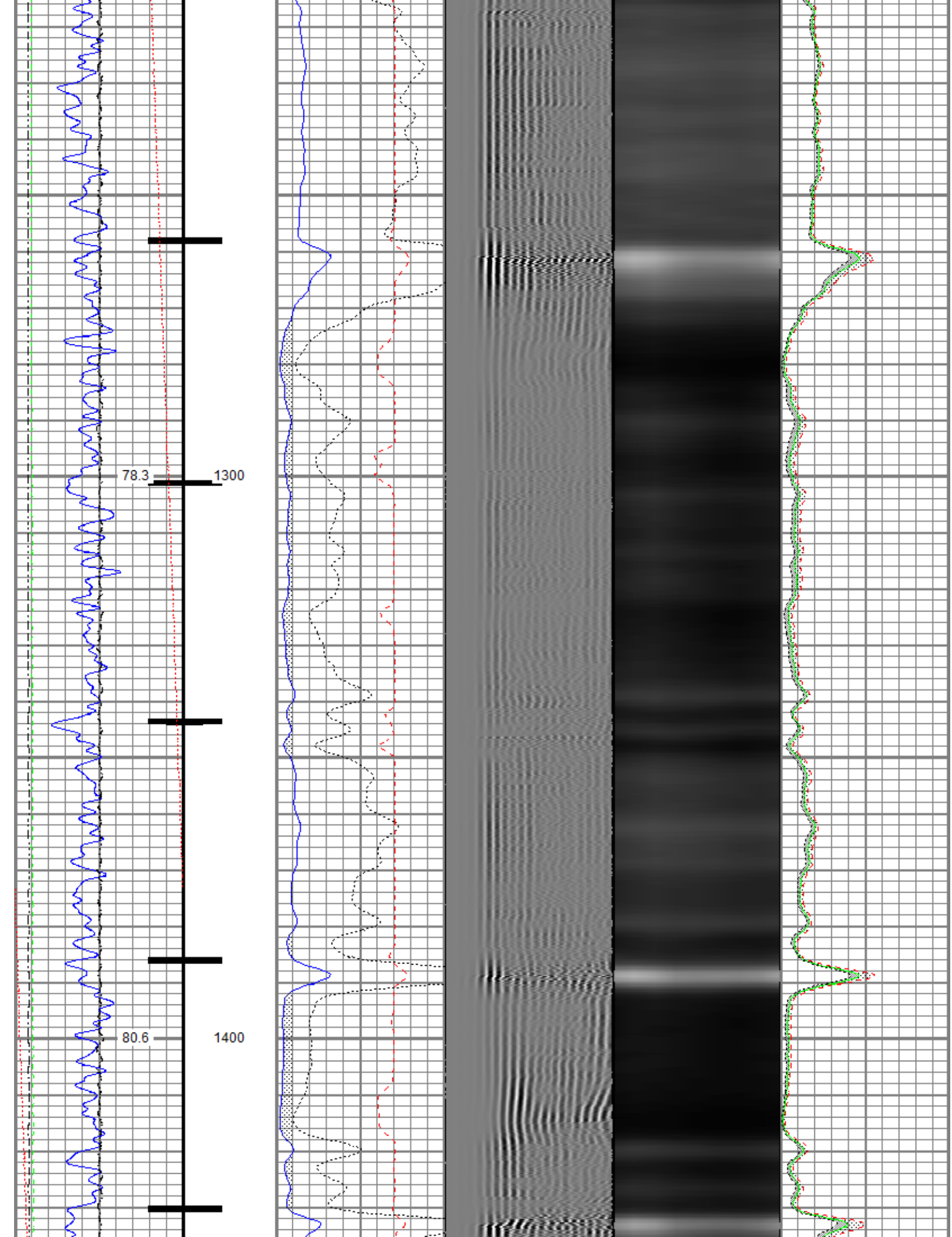




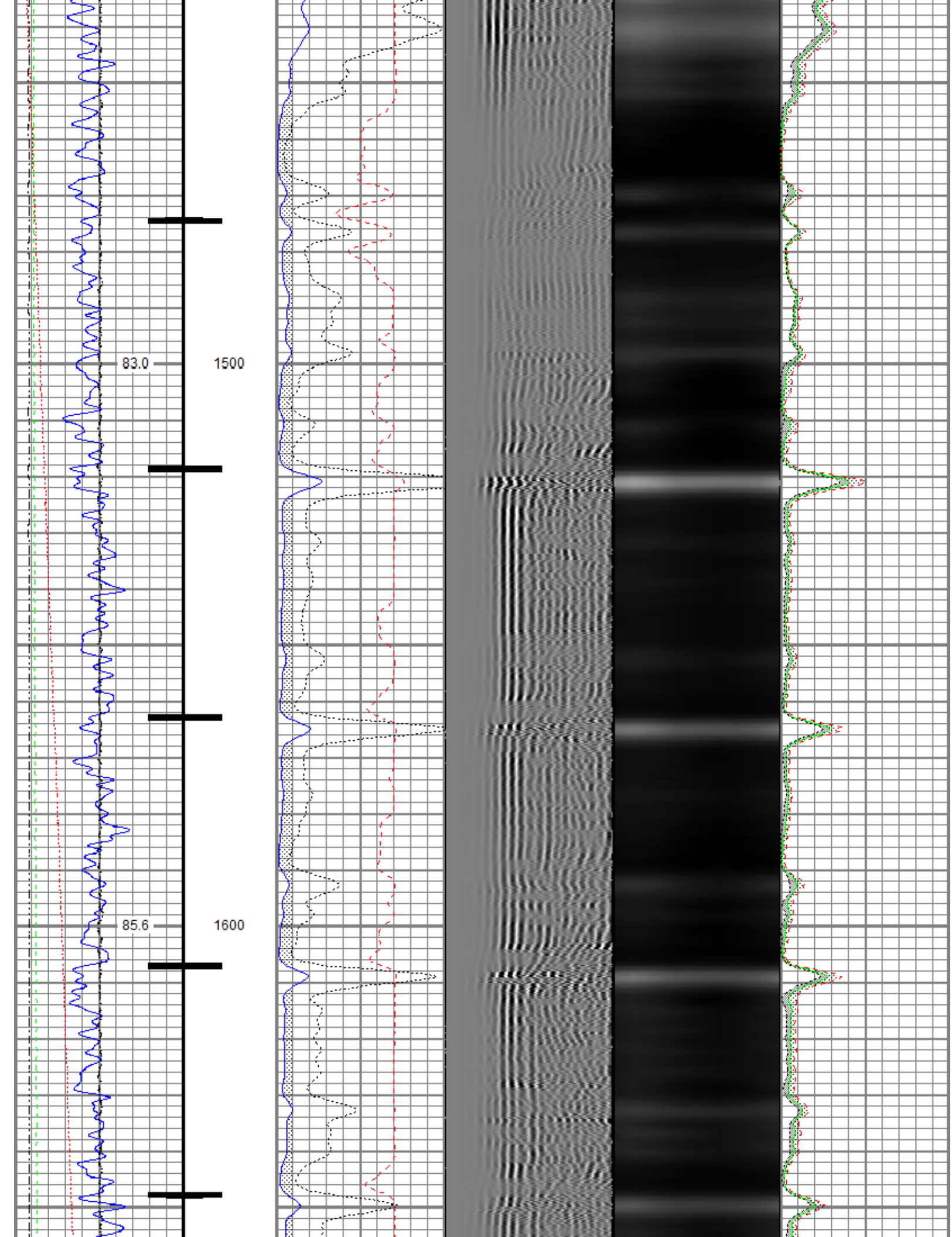


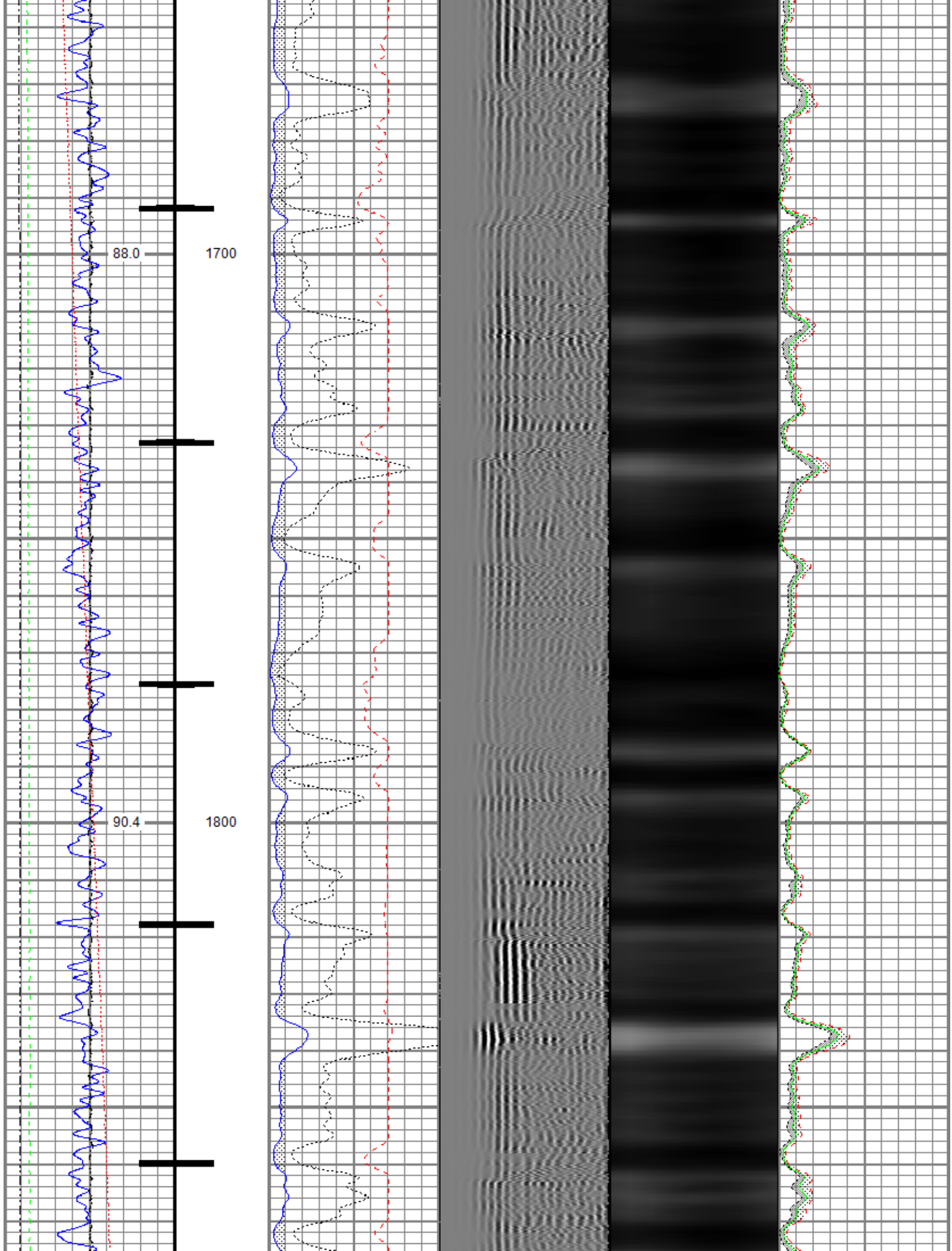


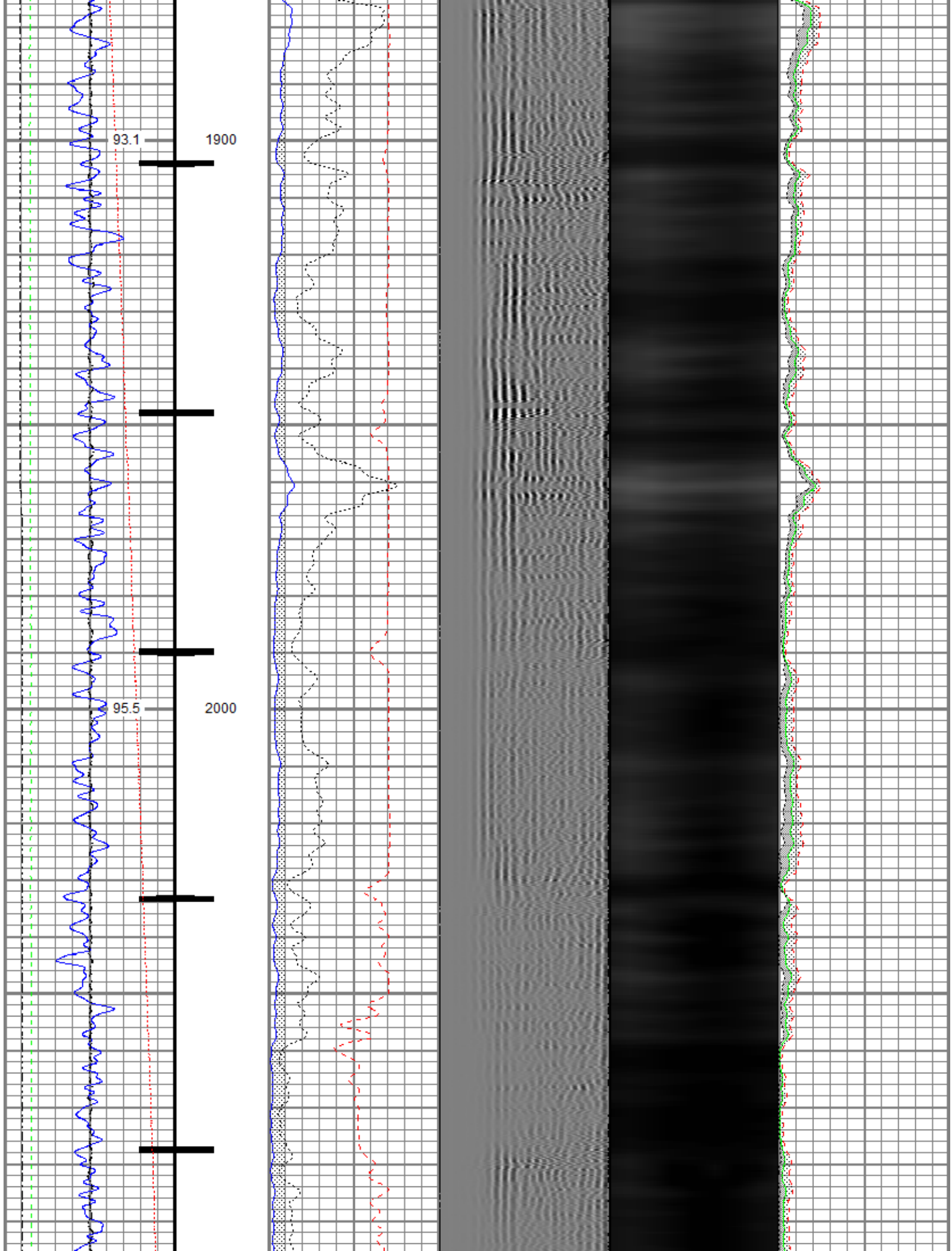


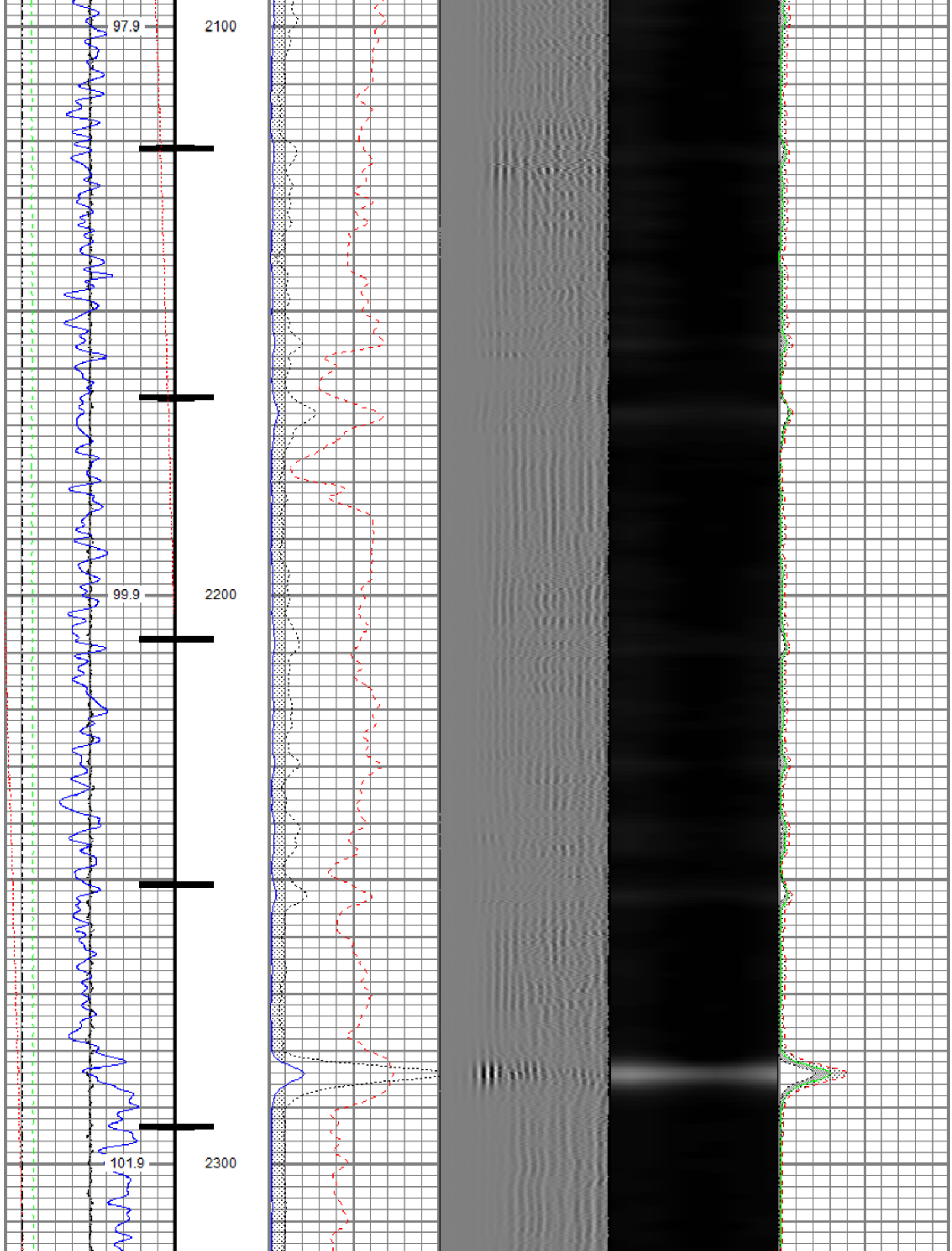




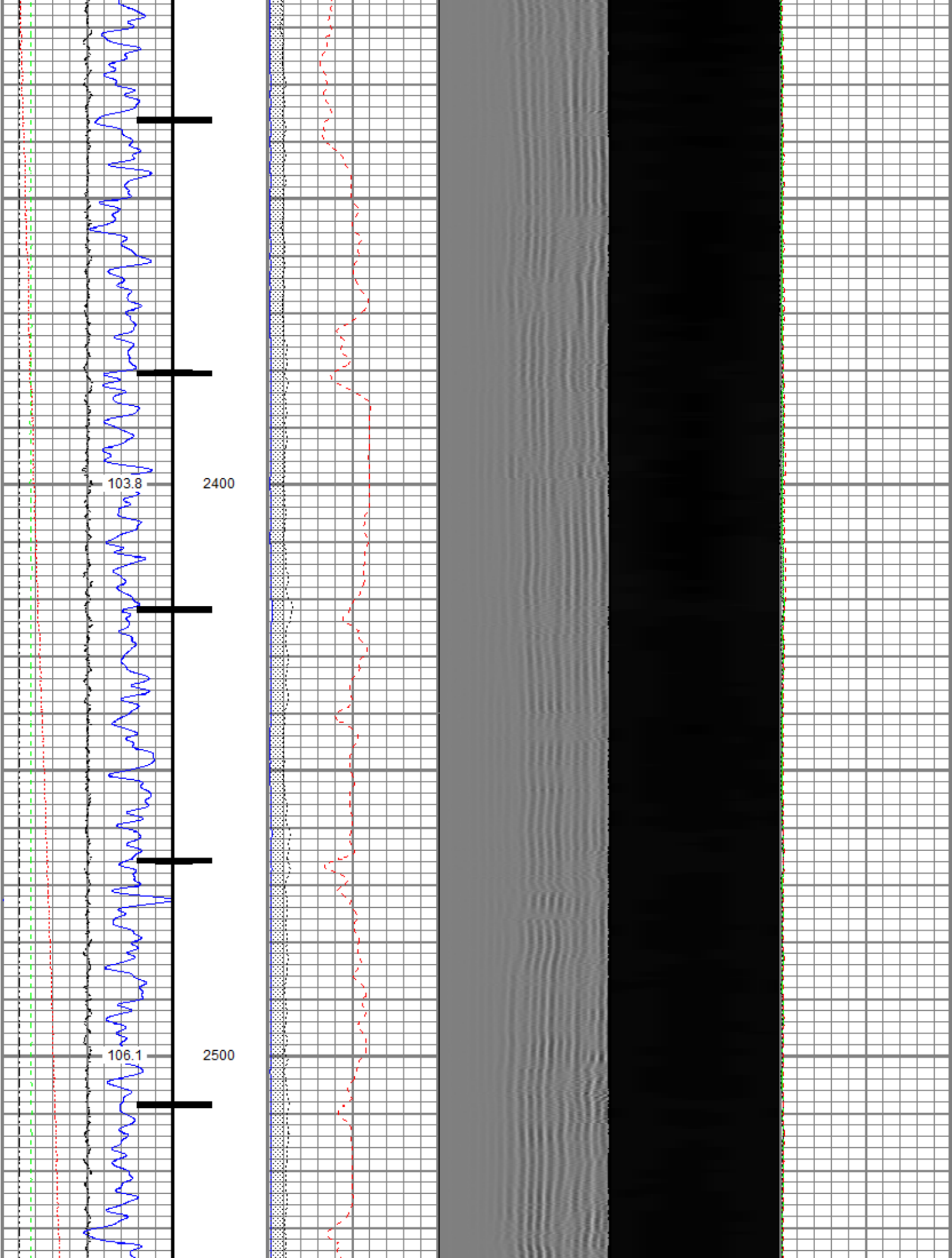


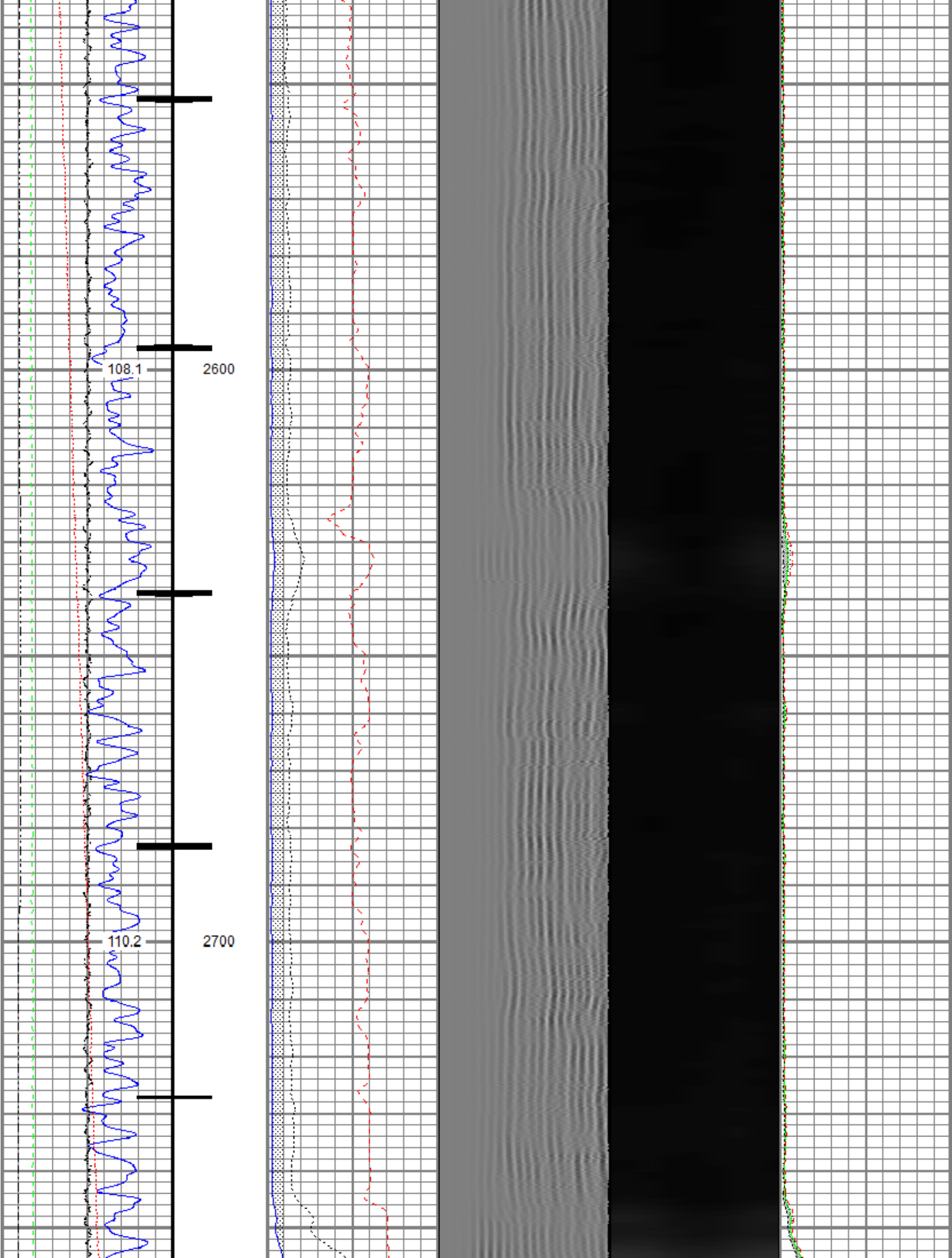


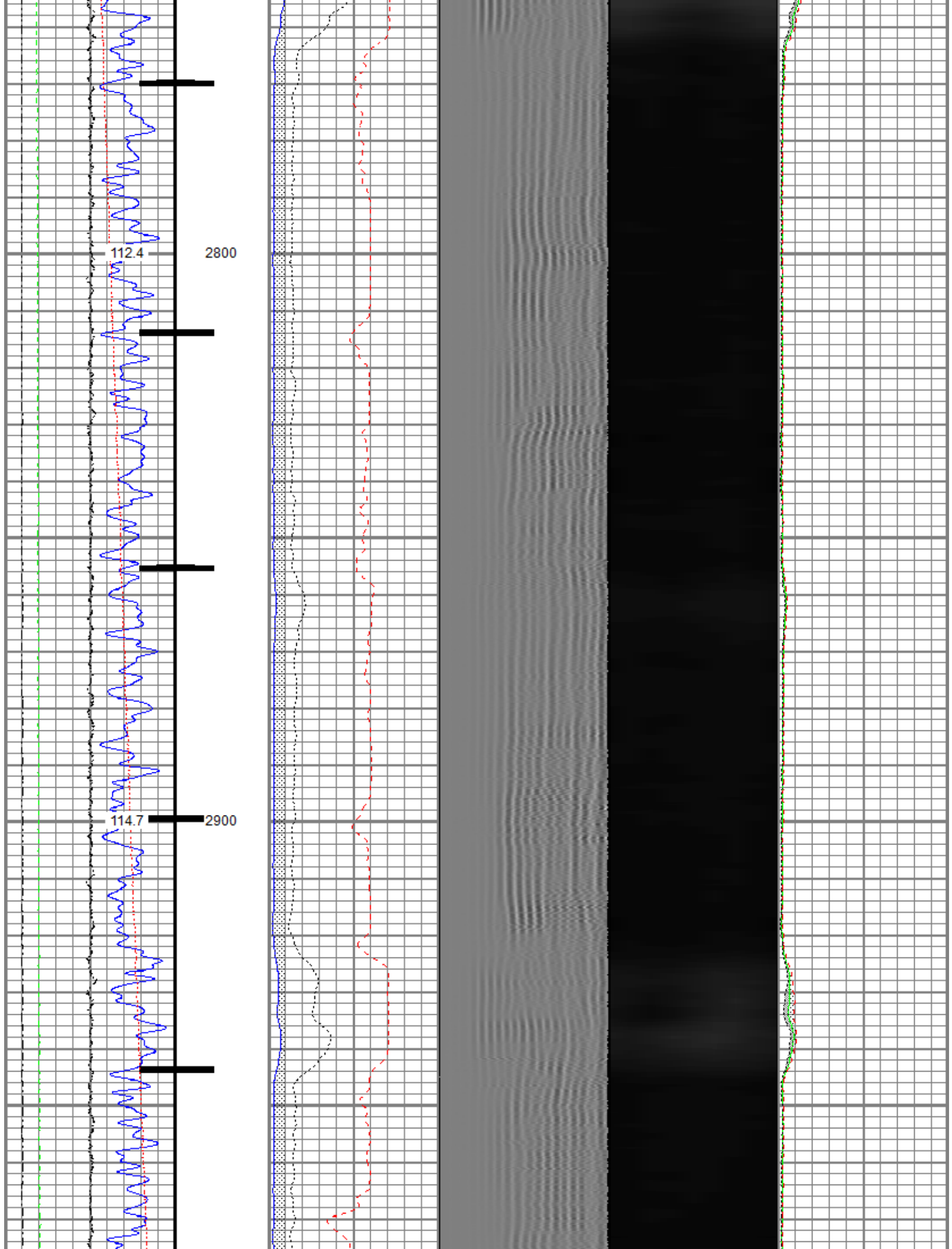


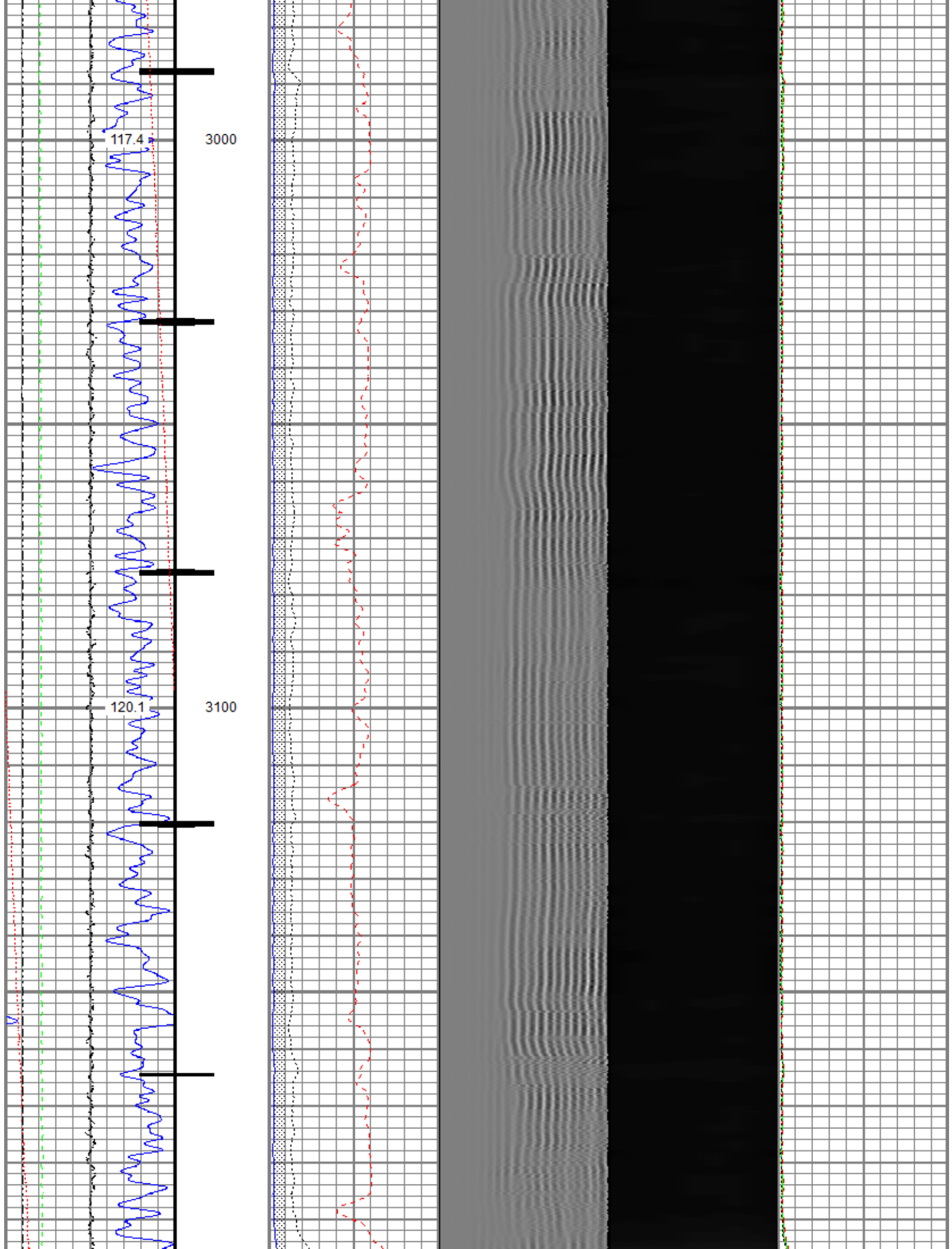




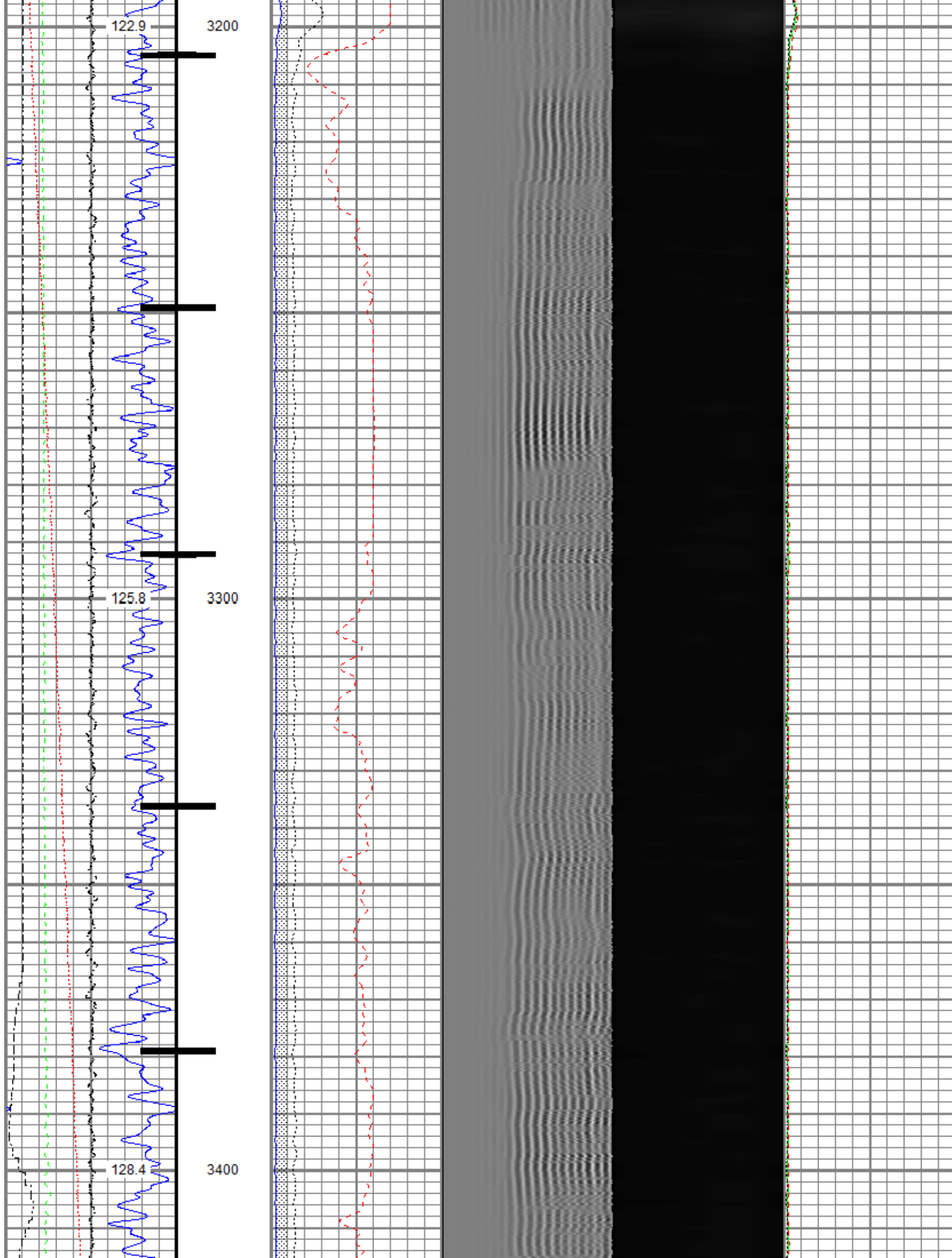


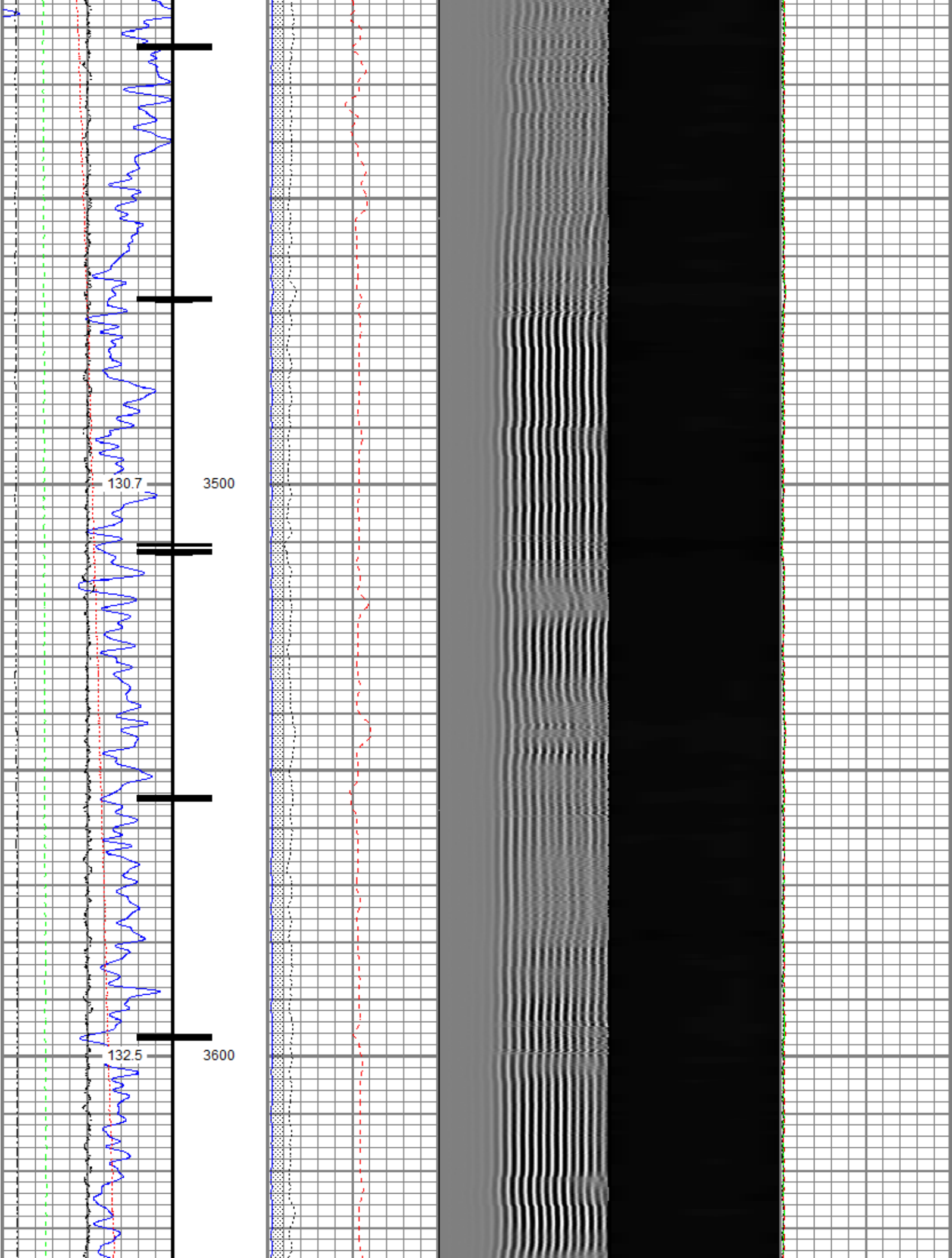


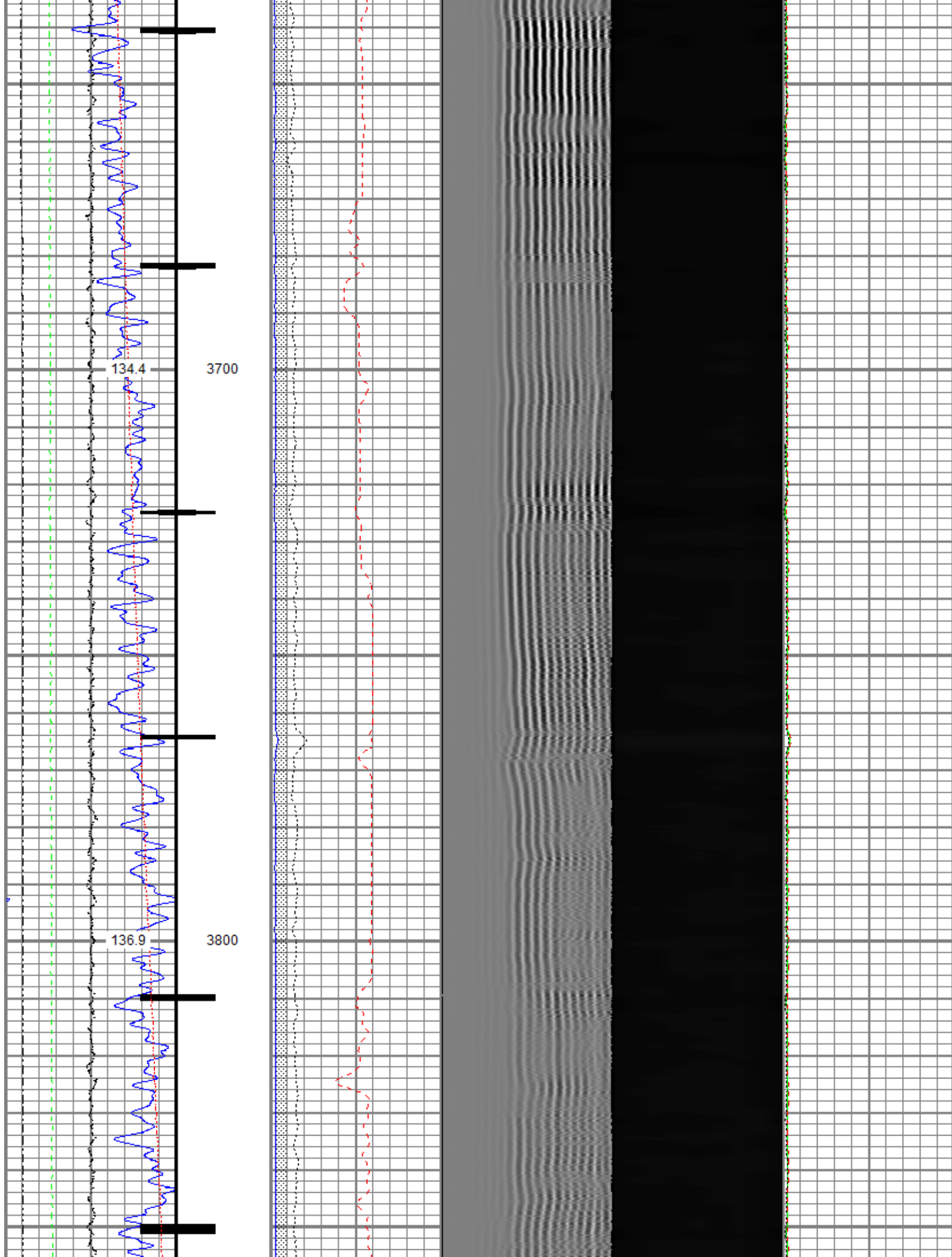


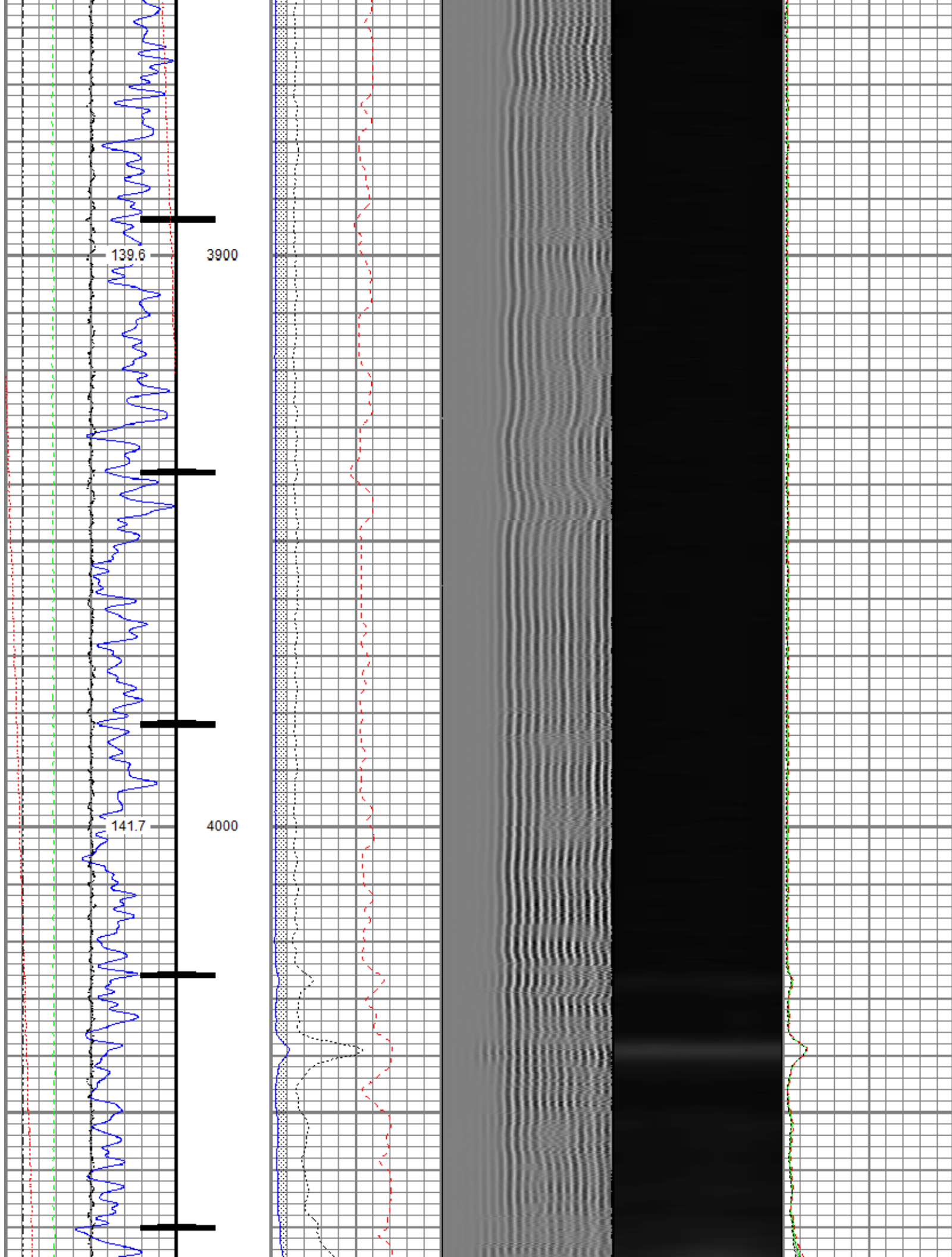




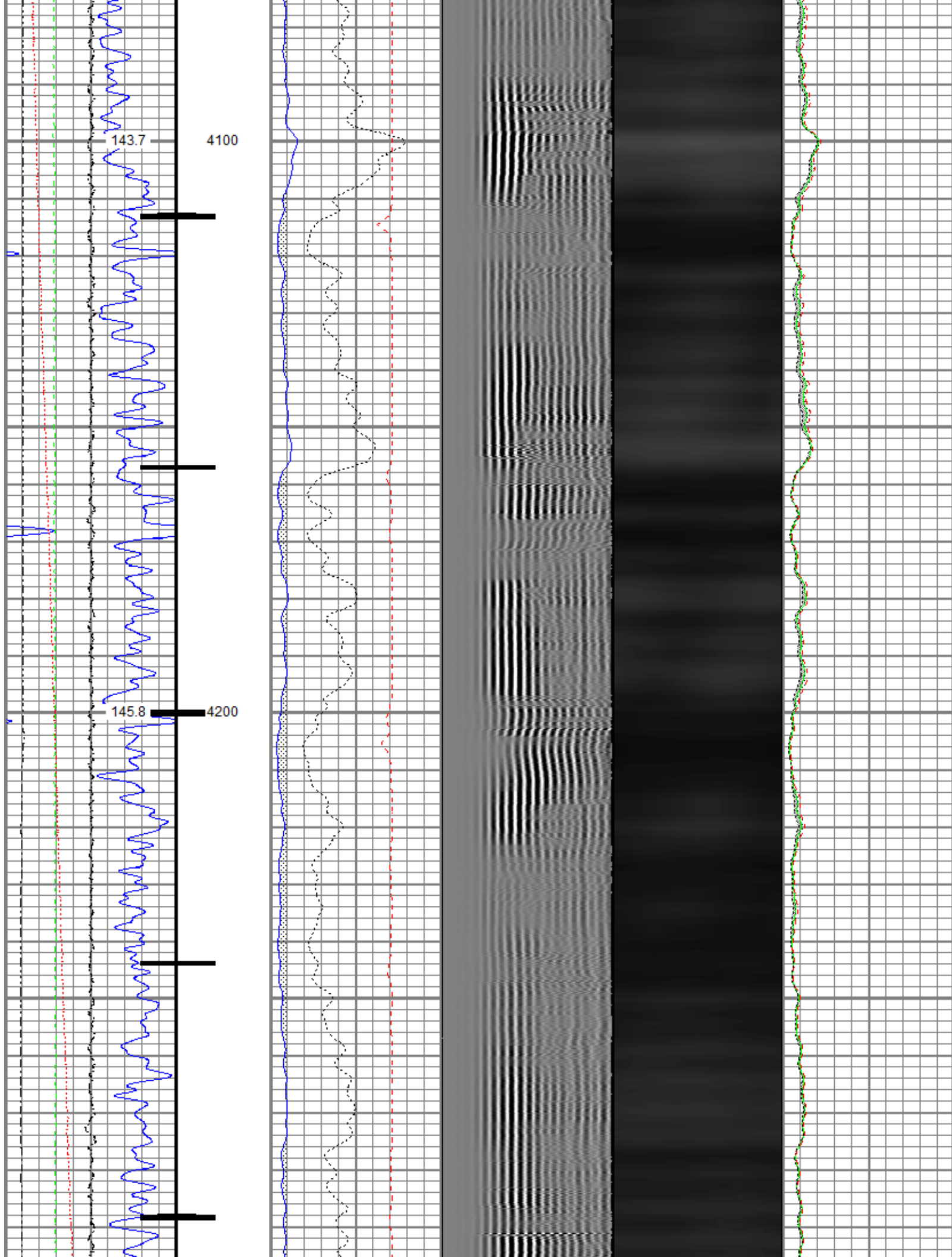


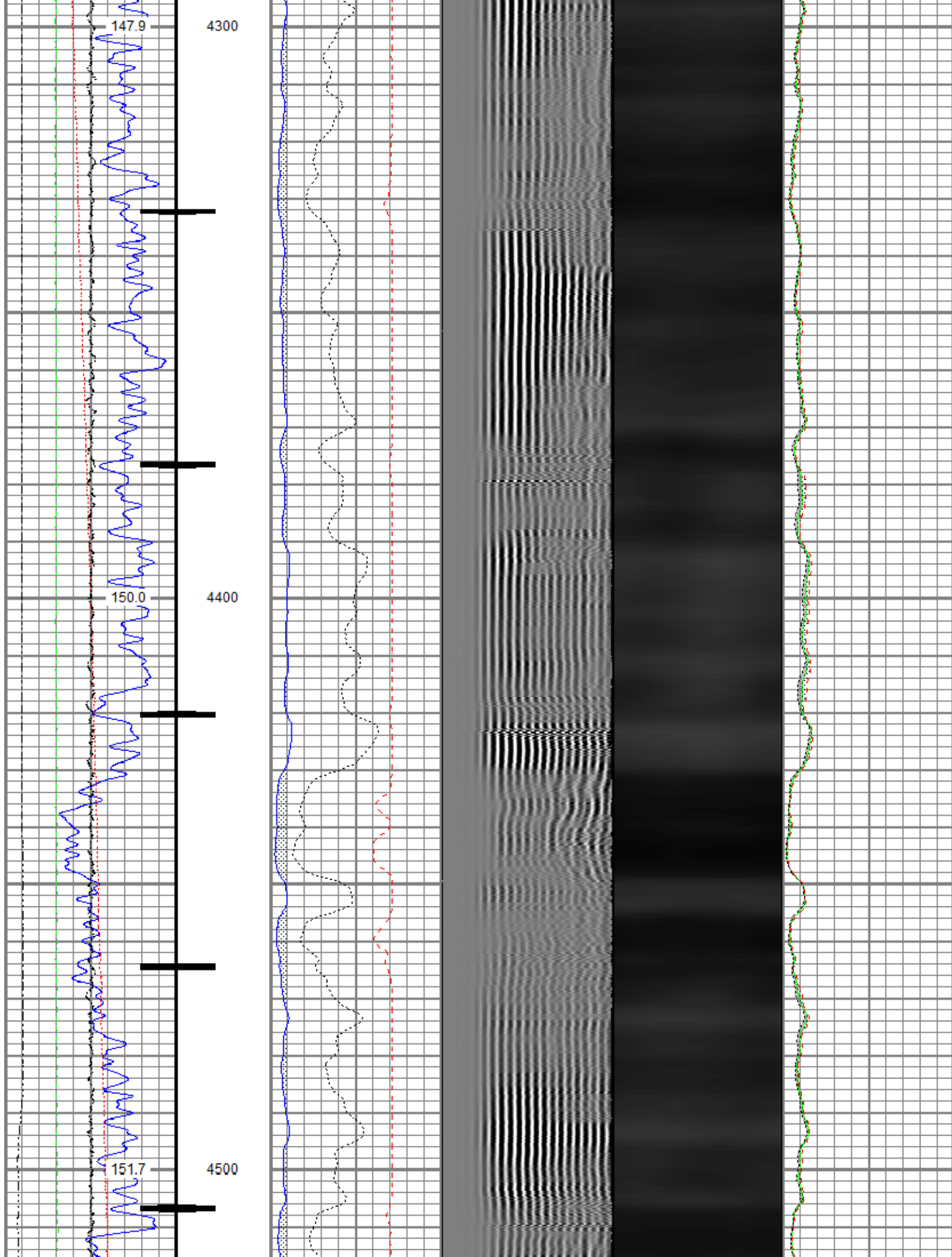


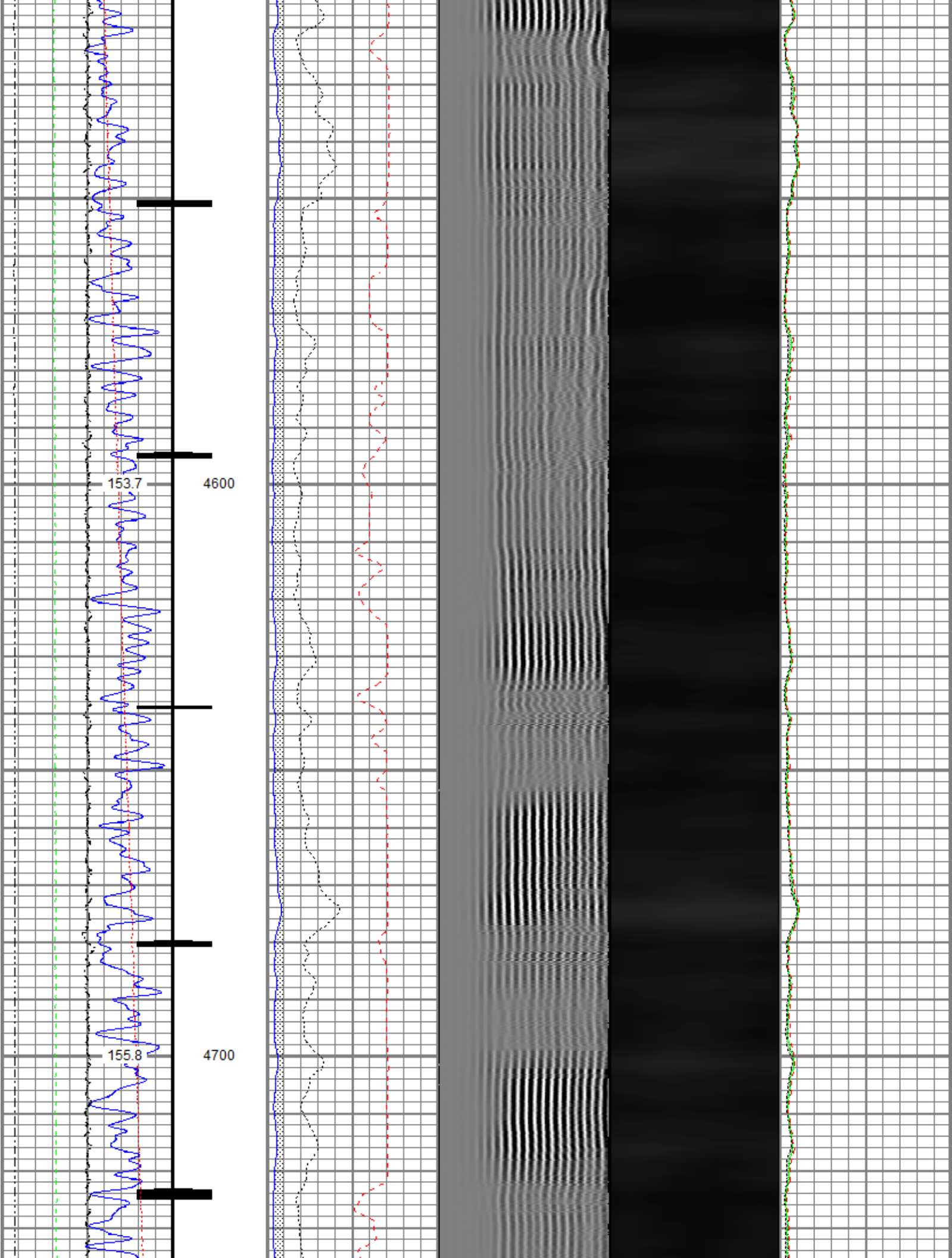


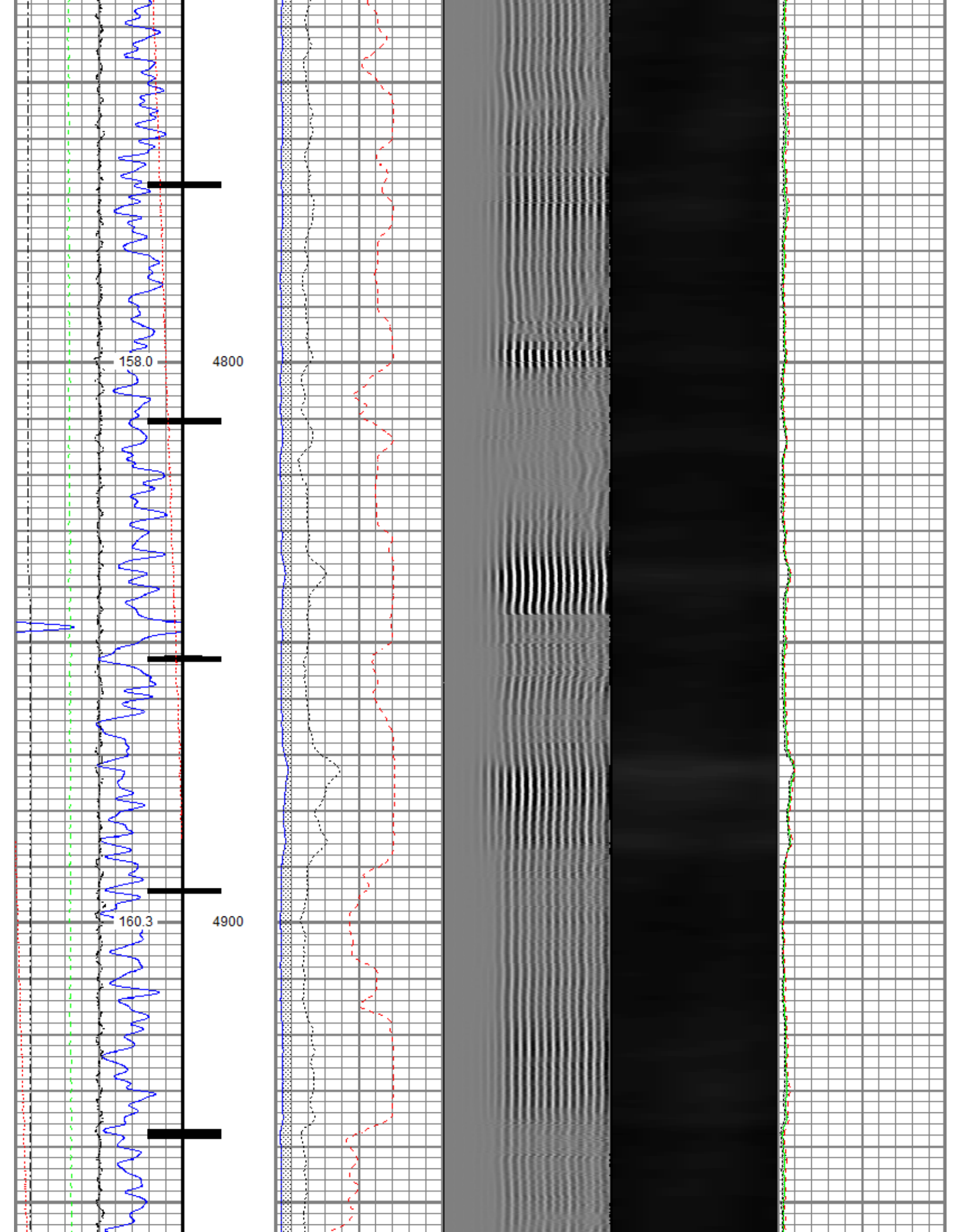




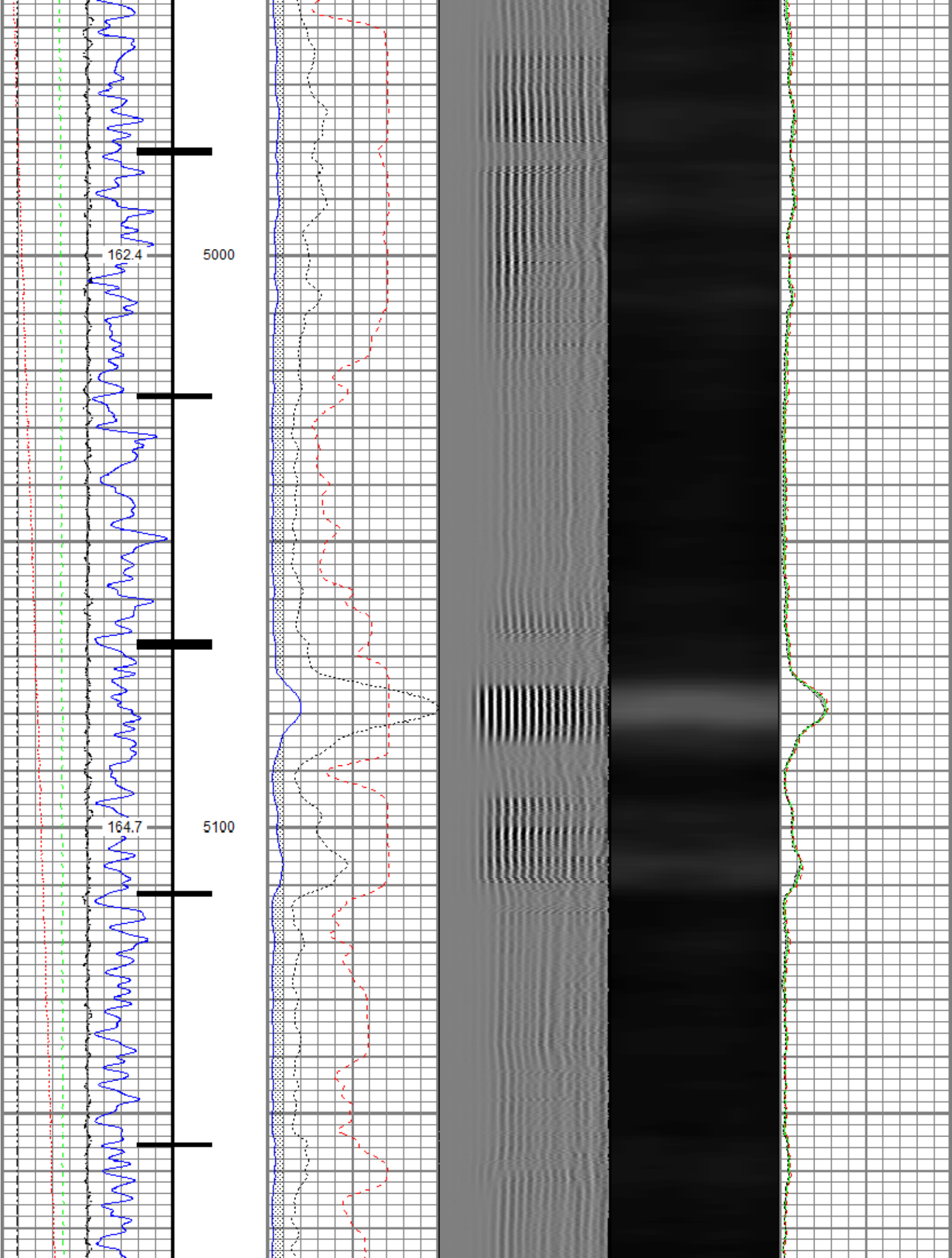


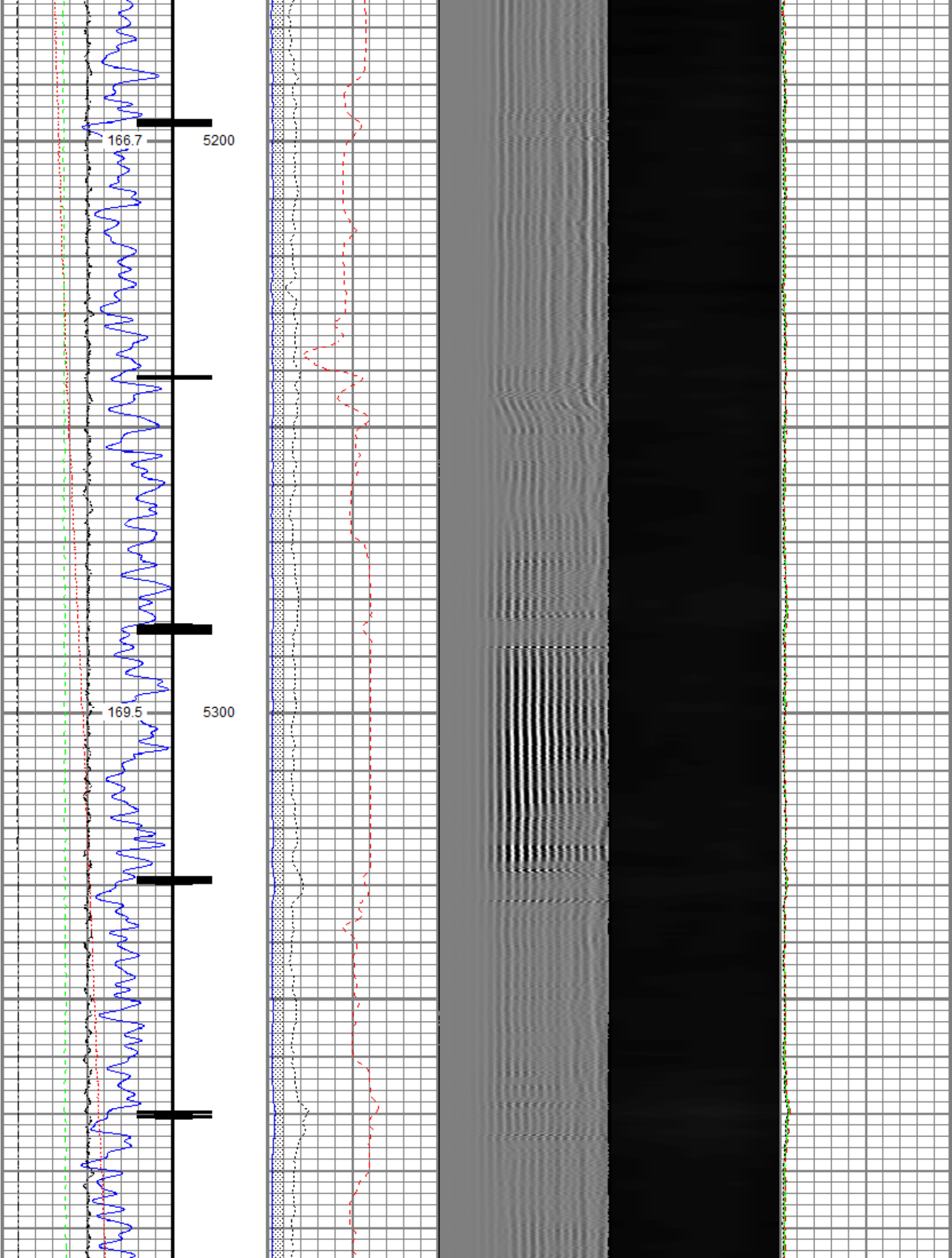


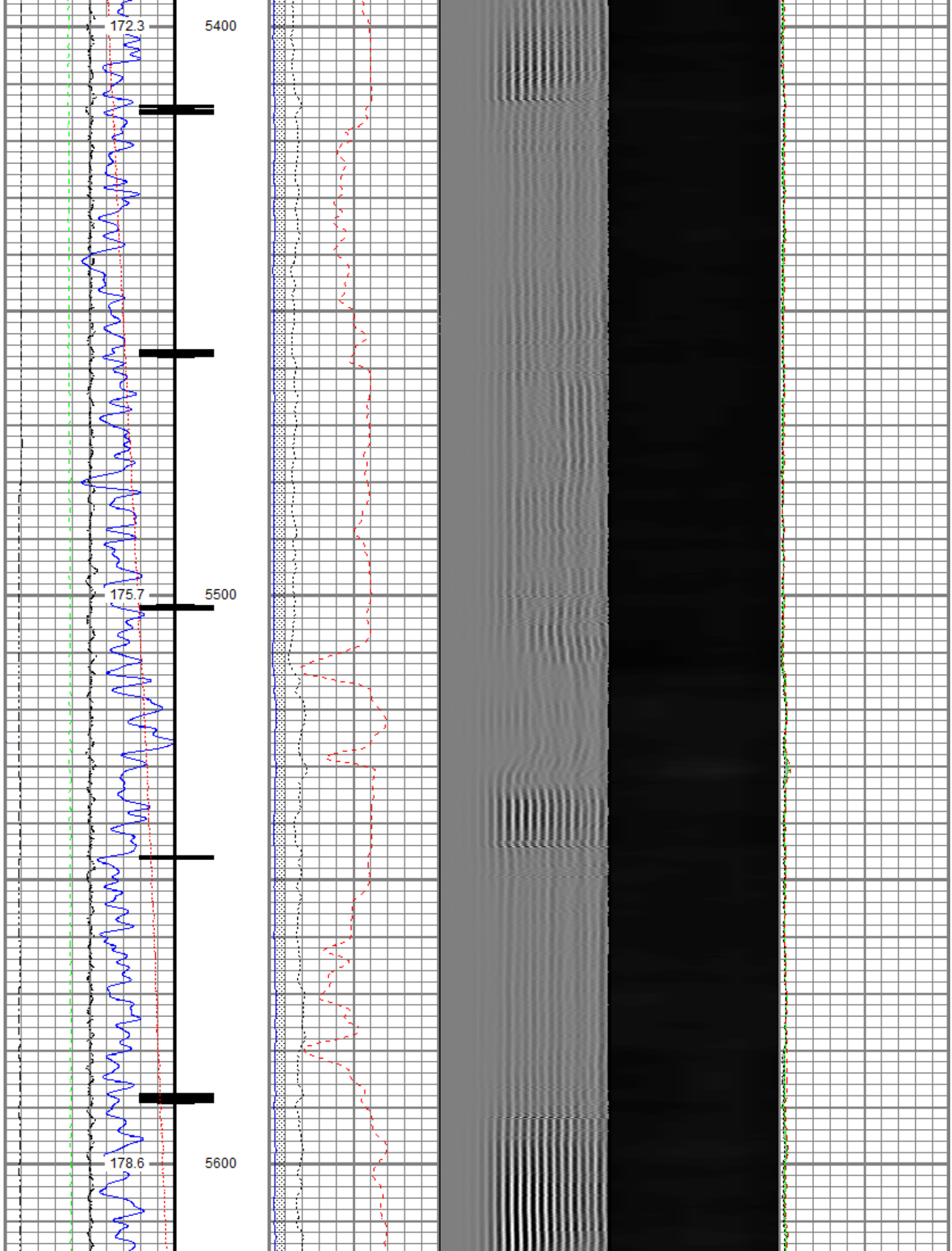


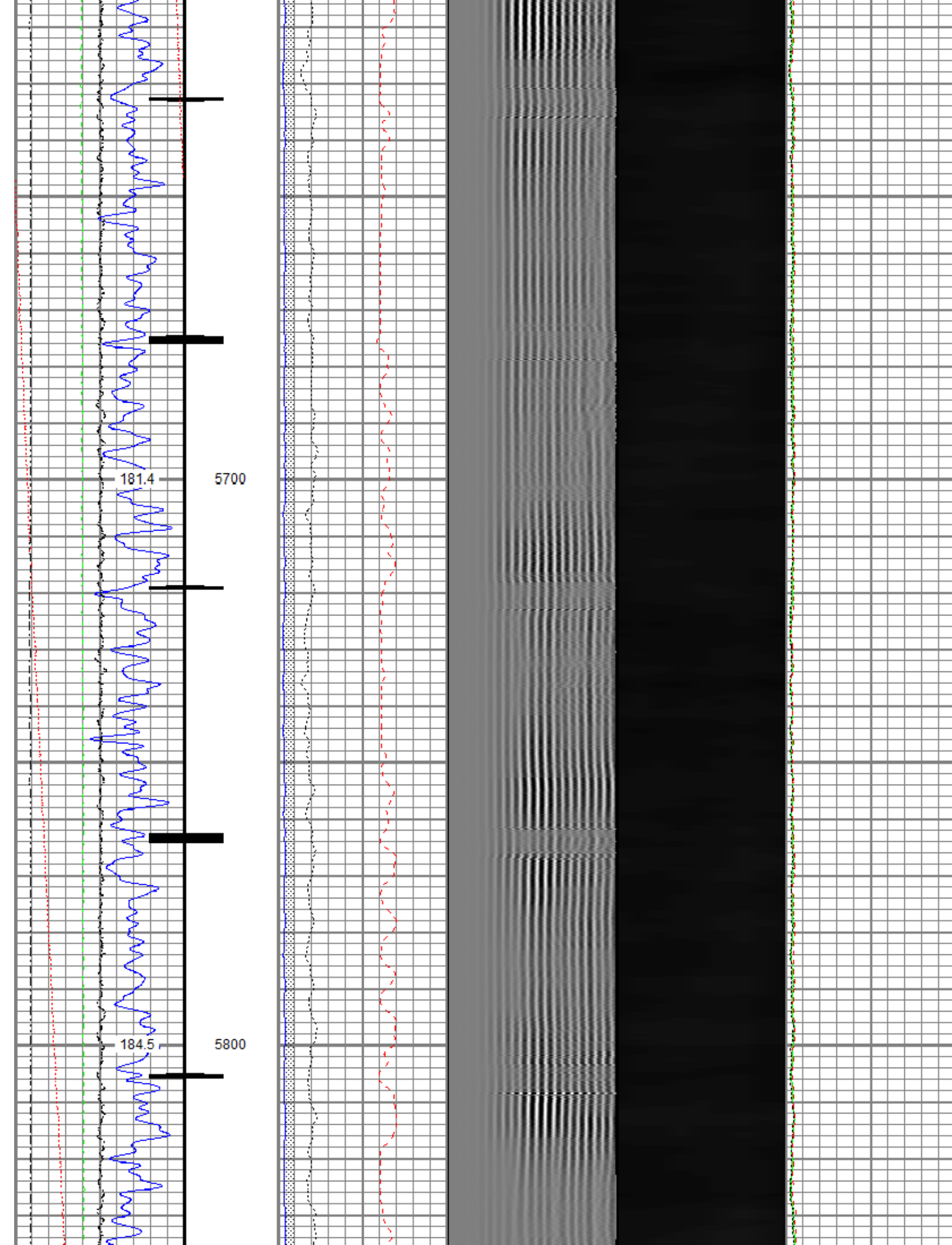




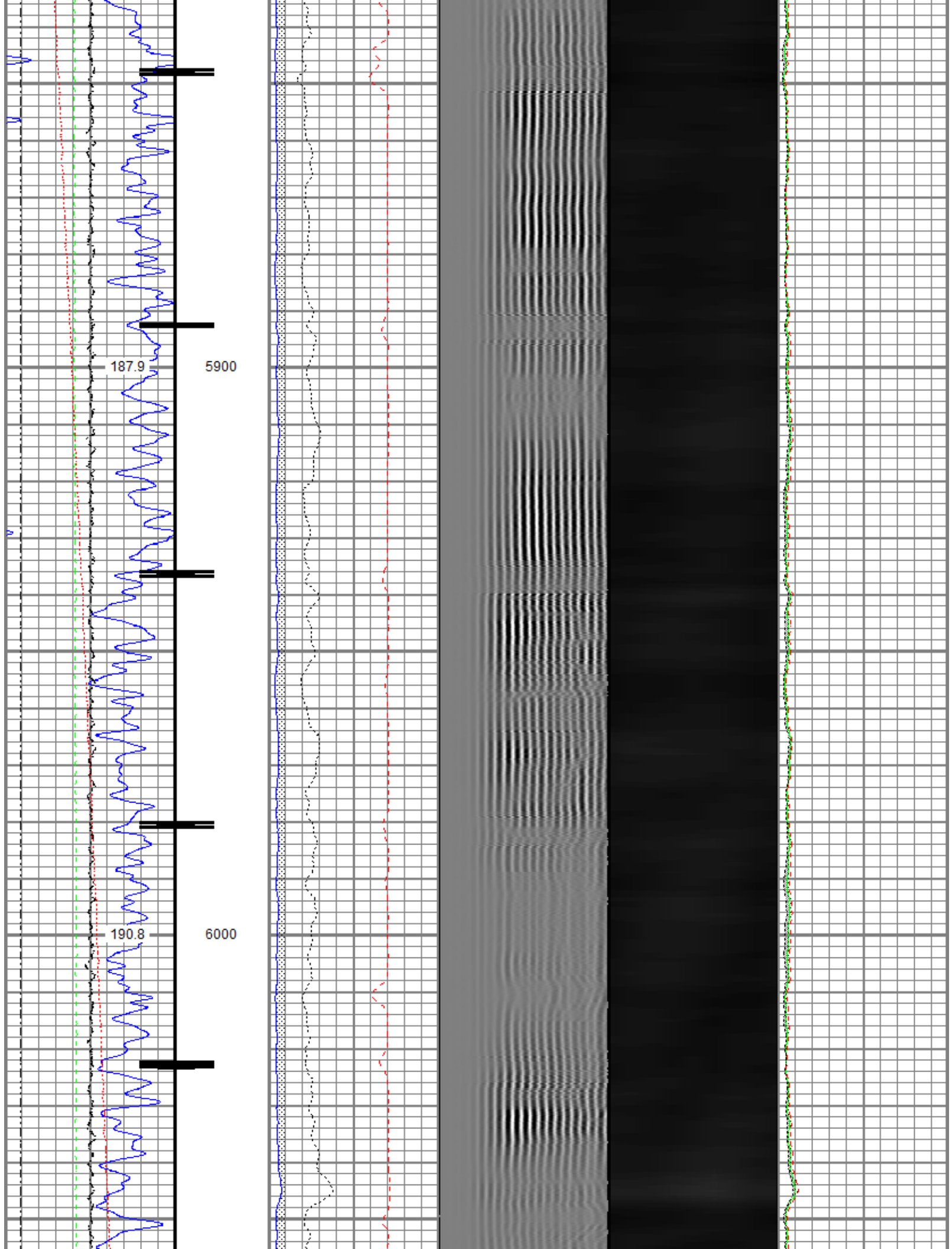


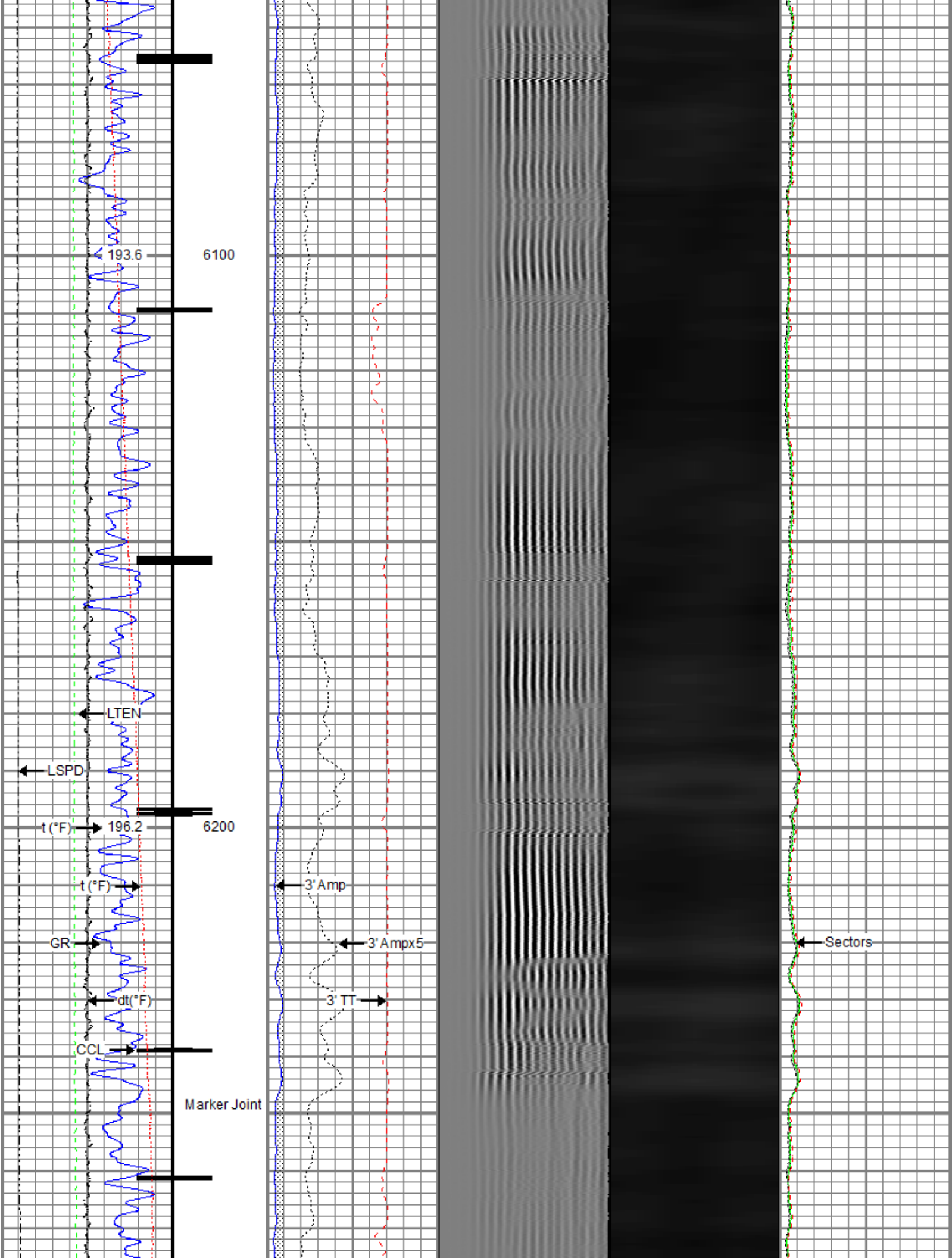


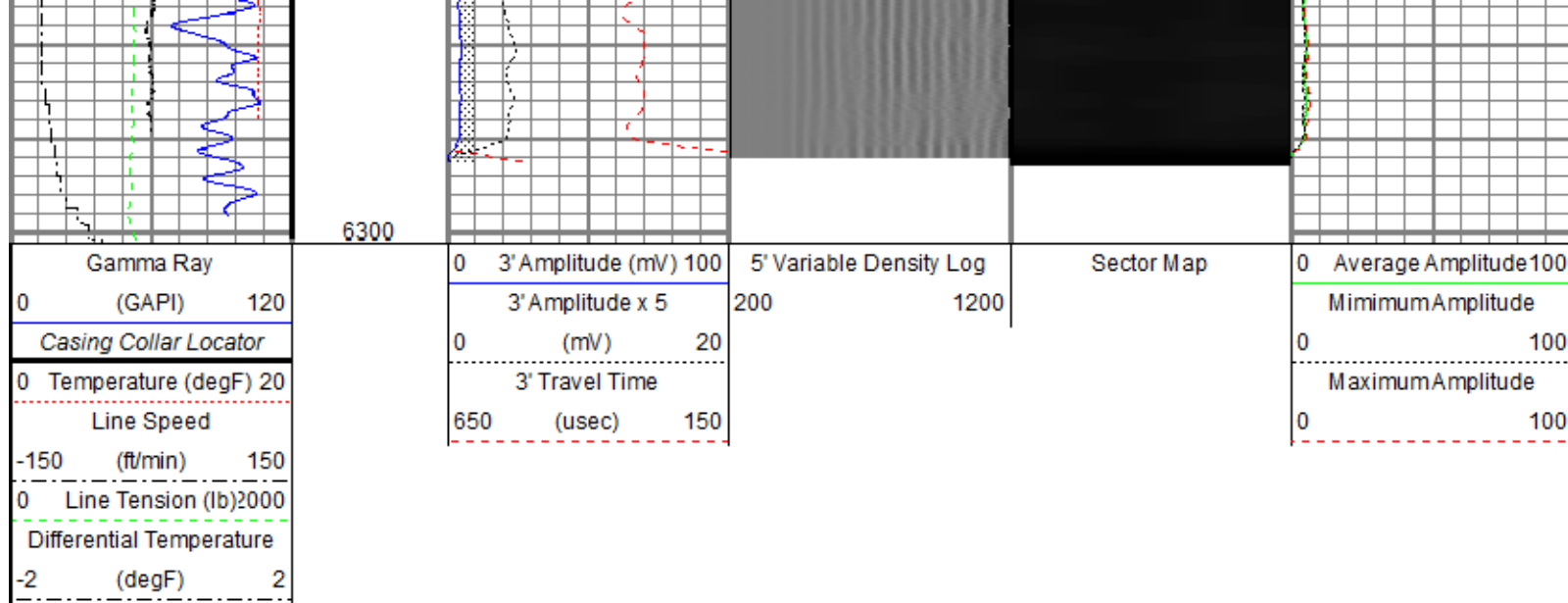








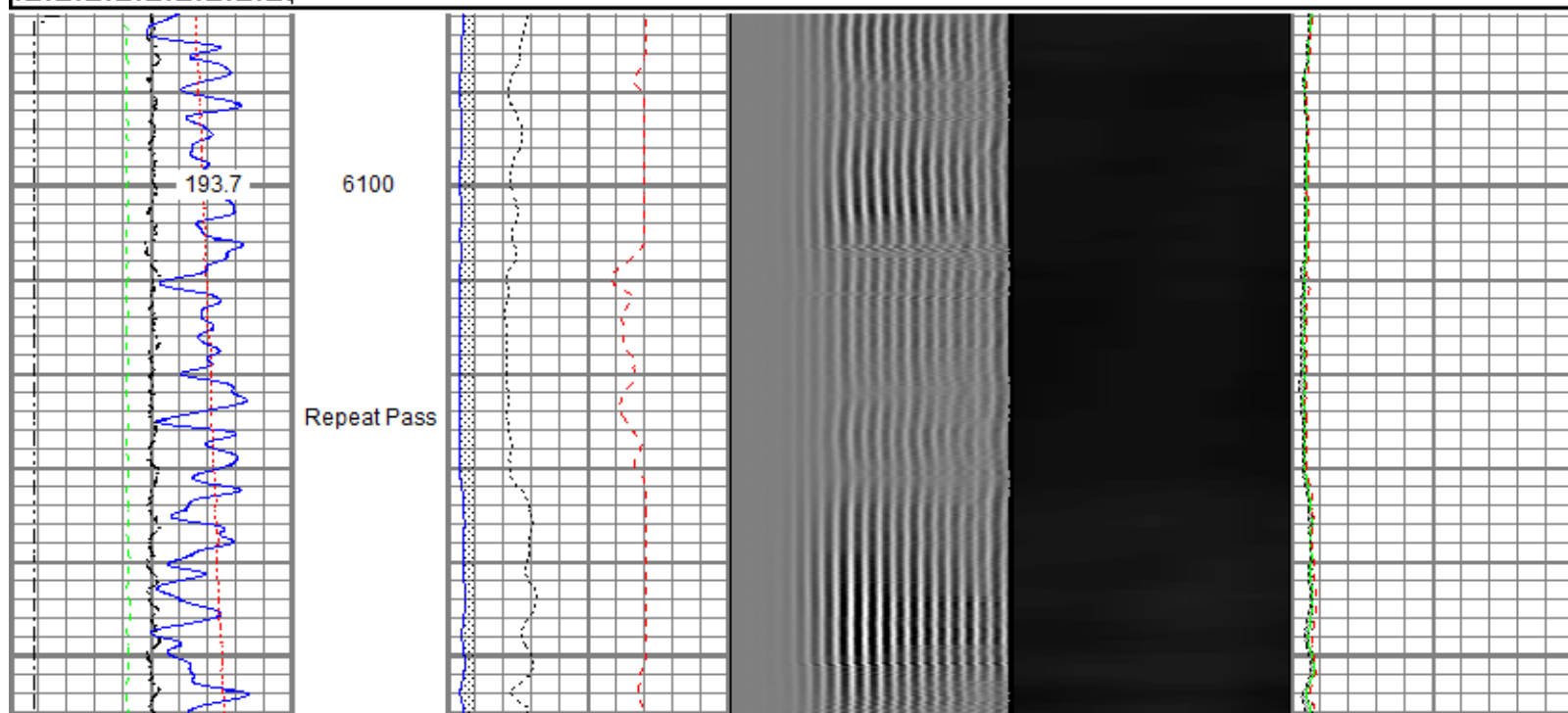
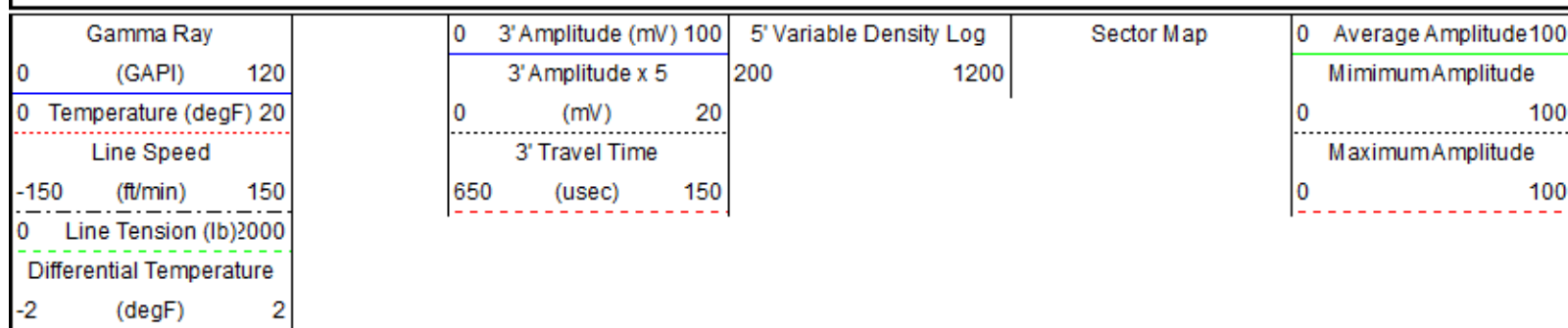


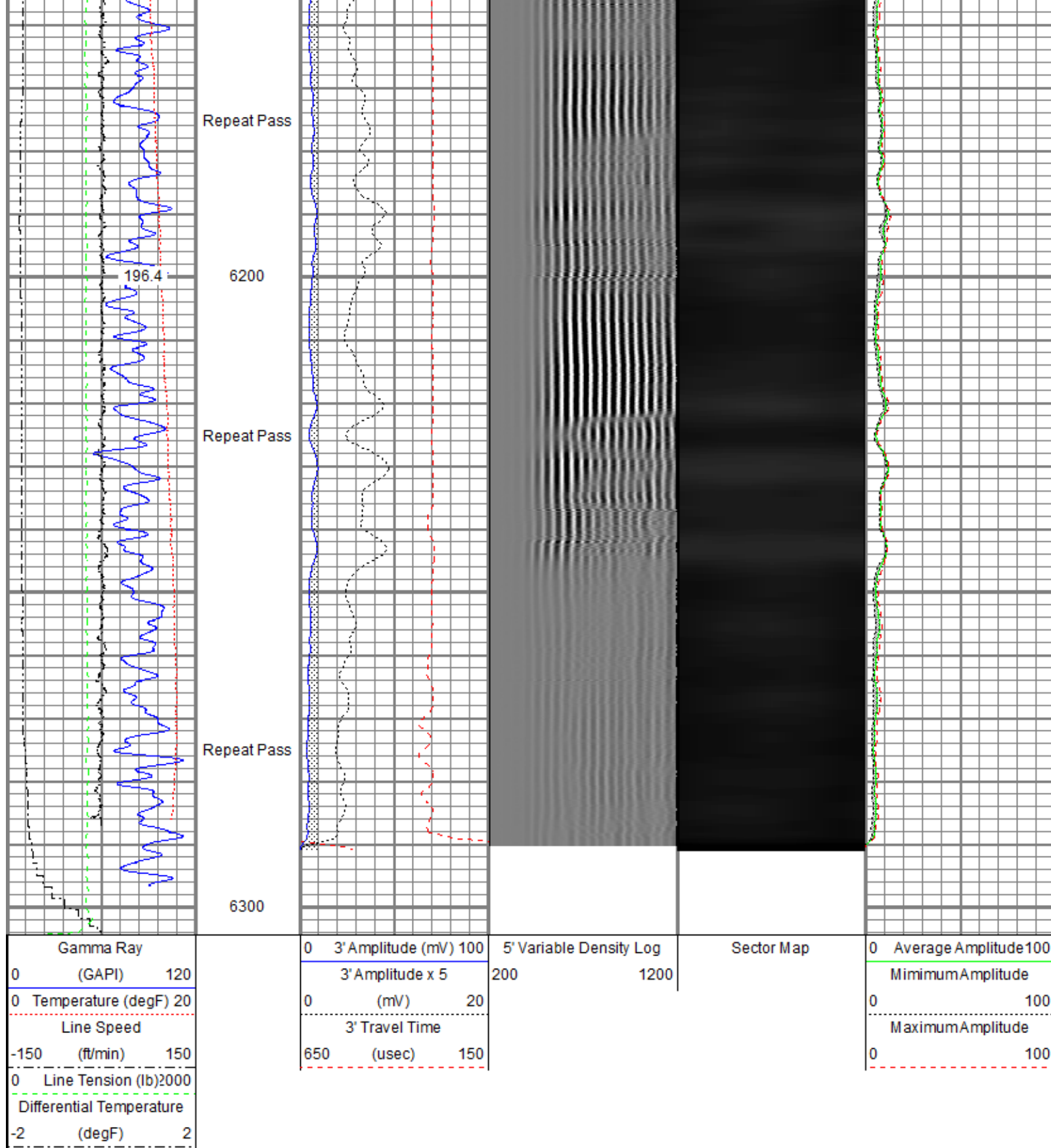


## Repeat Pass

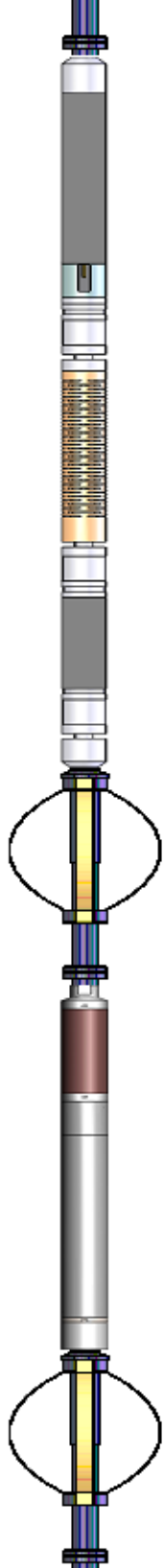
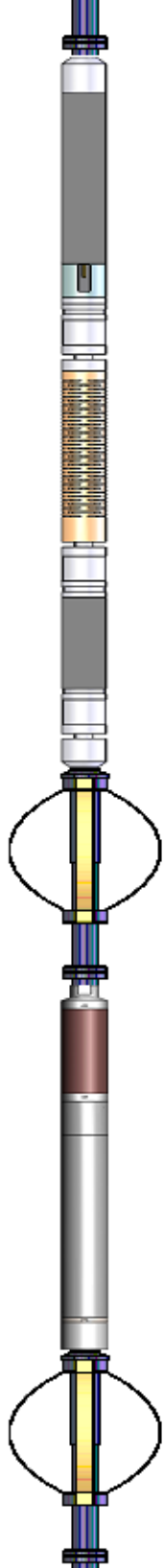
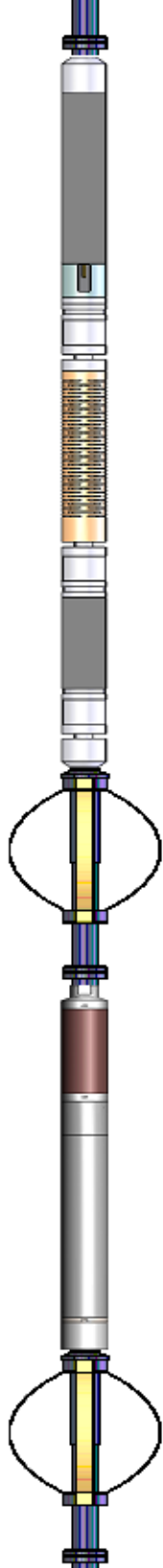
Recorded With 2800 PSI Surface Induced Pressure

Database File: anadarko\_hergenreder 22n2-4hz\0512345862\_anadarko\_hergenreder 22n2-4hz\_rbl\_04-07-18.db  
 Dataset Pathname: pass7  
 Presentation Format: ros\_radrii  
 Dataset Creation: Sun Apr 08 09:03:45 2018  
 Charted by: Depth in Feet scaled 1:240







TEMP	17.04		Probe Rapii-2750 RBT (FW0712-020) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS8	14.81					
WVFS7	14.81					
WVFS6	14.81					
WVFS5	14.81					
WVFS4	14.81					
WVFS3	14.81					
WVFS2	14.81					
WVFS1	14.81					
WVFCAL	14.81					
WVF3FT	14.81					
WVF5FT	13.81					
HEADVOLT	10.56					
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
CCL\$2	6.80					
CCL\$1	6.80					
GR	5.46	Probe GR-CCL-2750 6PB (101001) Probe 2-3/4" rev.1 Digital Scintillation Gamma Ray/CCL Combined with 6 Pin Bottom for CNT	4.80	2.75	55.00	
						
		Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00	
Dataset: 0512345862_Anadarko_Hergenreder 22N2-4HZ_RBL_04-07-18.db: field/well/run1/pass9 Total length: 23.86 ft Total weight: 223.60 lb O.D.: 2.75 in						

Calibration Report	
Database File	C:\ProgramData\Warrior\Data\Anadarko_Hergenreder 22N2-4HZ\0512345862_Anadarko_Hergenreder 22N2-4HZ_RBL_04-07-18
Dataset Pathname	pass9
Dataset Creation	Sun Apr 08 09:15:43 2018
Gamma Ray Calibration Report	
Serial Number:	101001

Tool Model:	2750 6PB	
Performed:	Sun Nov 12 11:25:32 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	100.6	cps
Calibrator Reading:	981.1	cps
Sensitivity:	0.7235	GAPI/cps

### Segmented Cement Bond Log Calibration Report

Serial Number:	FW0712-020	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-0.199	ft

Master Calibration, performed Sun Apr 08 06:39:48 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	0.359	0.800	71.921	201.635	-0.509
CAL	0.006	0.383				
5'	0.006	0.323	0.800	71.921	224.544	-0.614
SUM						
S1	0.006	0.355	0.000	100.000	286.915	-1.839
S2	0.007	0.360	0.000	100.000	282.824	-1.844
S3	0.006	0.359	0.000	100.000	283.588	-1.790
S4	0.006	0.356	0.000	100.000	285.615	-1.792
S5	0.006	0.359	0.000	100.000	283.303	-1.740
S6	0.006	0.361	0.000	100.000	281.415	-1.731
S7	0.006	0.361	0.000	100.000	281.415	-1.728
S8	0.006	0.360	0.000	100.000	282.600	-1.818

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.006	0.383	1.000	0.000

Air Zero Calibration, performed Sun Apr 08 06:38:45 2018:

	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	

### Temperature Calibration Report

Serial Number:	FW0712-020
Tool Model:	2750 RBT
Performed:	Thu Dec 21 07:48:40 2017

Reference	Reading
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Low Reference:	100.00	degF	109.43	degF
High Reference:	350.00	degF	405.87	degF
Gain:	0.84			
Offset:	7.72			
Delta Spacing	1			



<b>Company</b>	Kerr-McGee Oil & Gas Onshore, L.P.
<b>Well</b>	Hergenreder 22N2-4HZ
<b>Field</b>	Wattenberg
<b>County</b>	Weld
<b>State</b>	Colorado