



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.			Location:	API # : 05-123-41312	Other Services
Well	Wilson Ranch 32N-S27HZ					Gauge Ring
Field	Wattenberg					
County	Weld					
State	Colorado					
Permanent Datum	SEC 26	TWP 4N	RGE 68W			
Log Measured From	Kelly Bushing			Elevation	5061'	
Drilling Measured From	Kelly Bushing					
						Elevation K.B. 5041' D.F. 5040' G.L. 5061'

Date	01-FEB-2017					
Run Number	Two					
Depth Driller	16948 FT					
Depth Logger	7530 FT					
Bottom Logged Interval	7450 FT					
Top Log Interval	Surface					
Open Hole Size	7.875"					
Type Fluid	Water					
Density / Viscosity	8.34 lb/gal					
Max. Recorded Temp.	224°F					
Estimated Cement Top	Surface					
Time Well Ready	ROA					
Time Logger on Bottom	14:18					
Equipment Number	HD-0324					
Location	Fort Lupton, CO					
Recorded By	Robert Fogarty					
Witnessed By	Brian Jolly					

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top	Bottom		
Surface Casing	9 5/8	36	J55 LTC	Surface	1850 FT		
Intermediate #1	5 1/2	17	HCP-110	Surface	16495 FT		
Intermediate #2							
Liner							

<<< 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

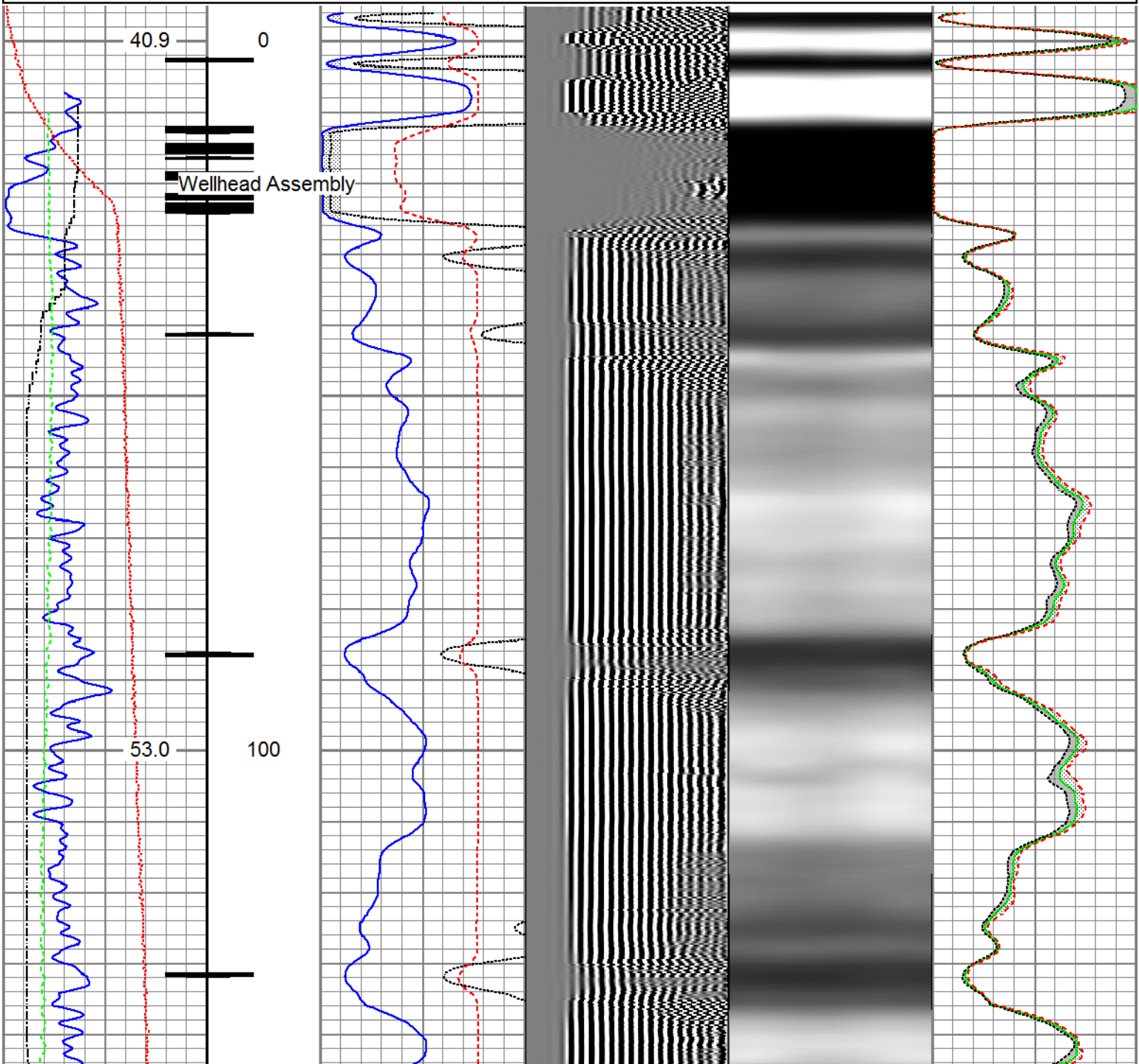
Log ran as per customer request  
Depth referenced to Marker Joint Top reported at 6264 FT  
Adjusted Log +2 FT to correlate with Marker Joint Top  
Log ran from 7450 FT to surface  
Log ran with 2800 PSI surface induced pressure  
Logging tools were clean and free of any debris upon completion of operations  
  
Thank you for choosing Reliance Oilfield Services, LLC!!

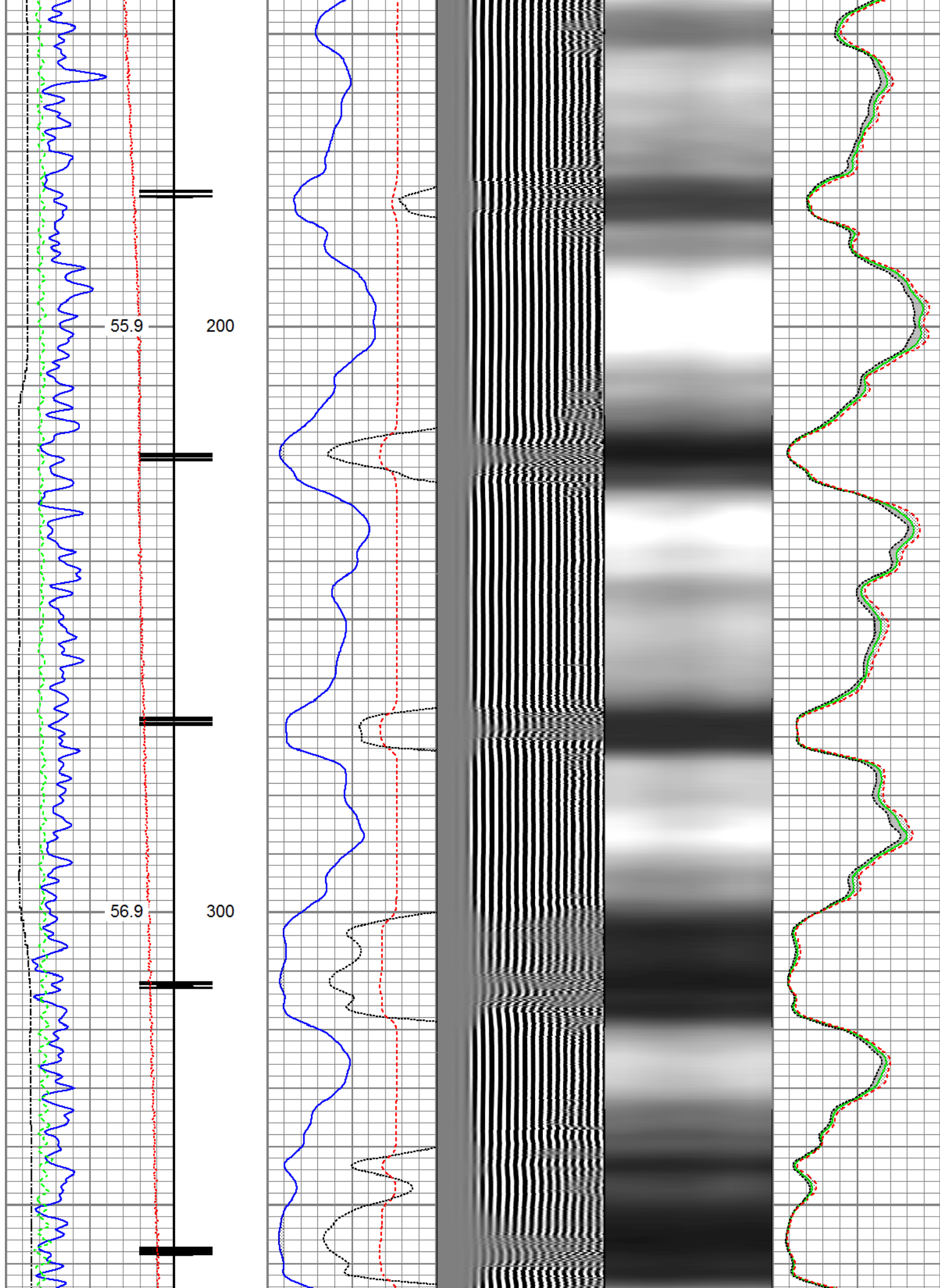


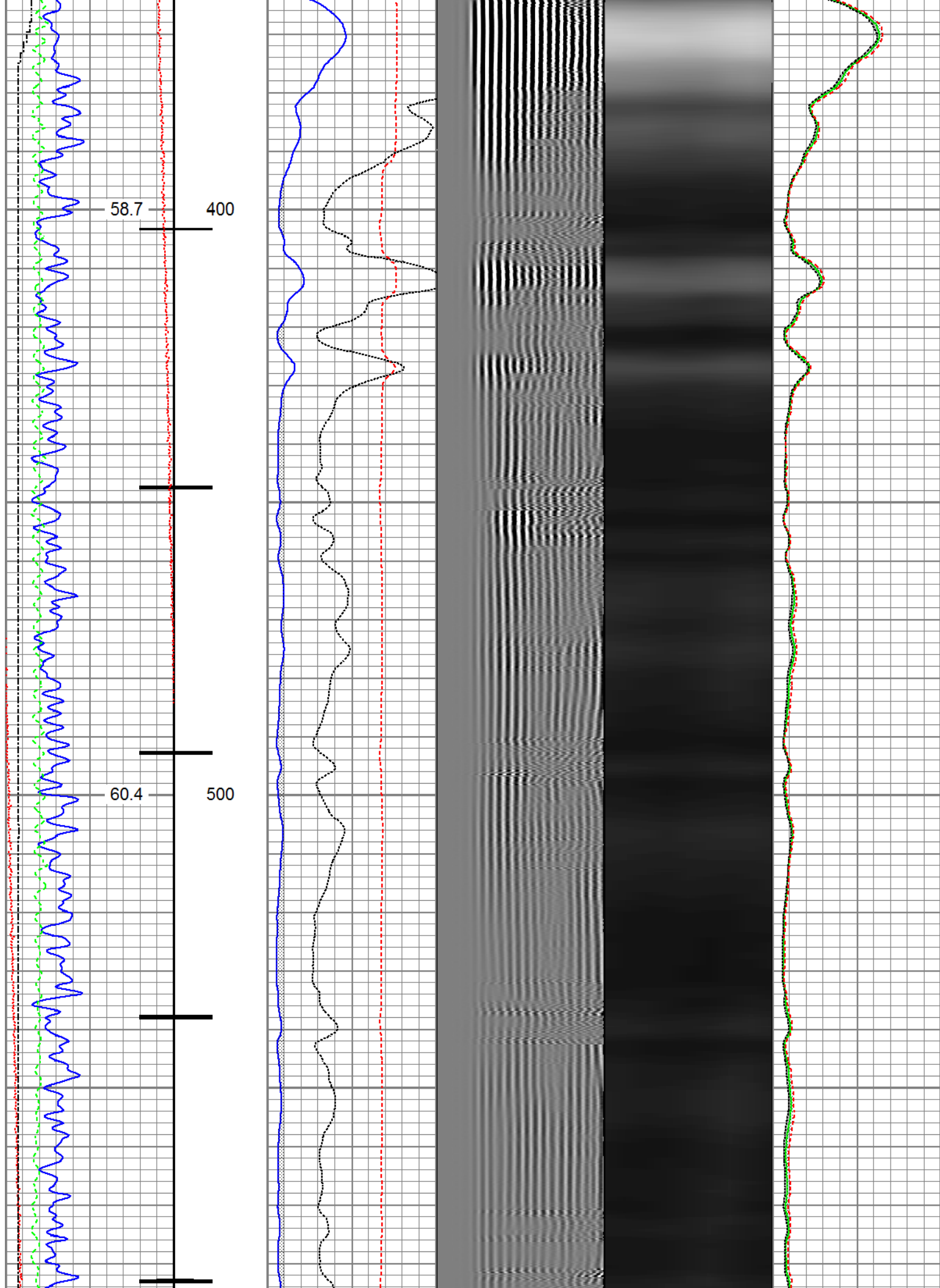
Main Pass

Recorded with 2800 PSI Surface Induced Pressure

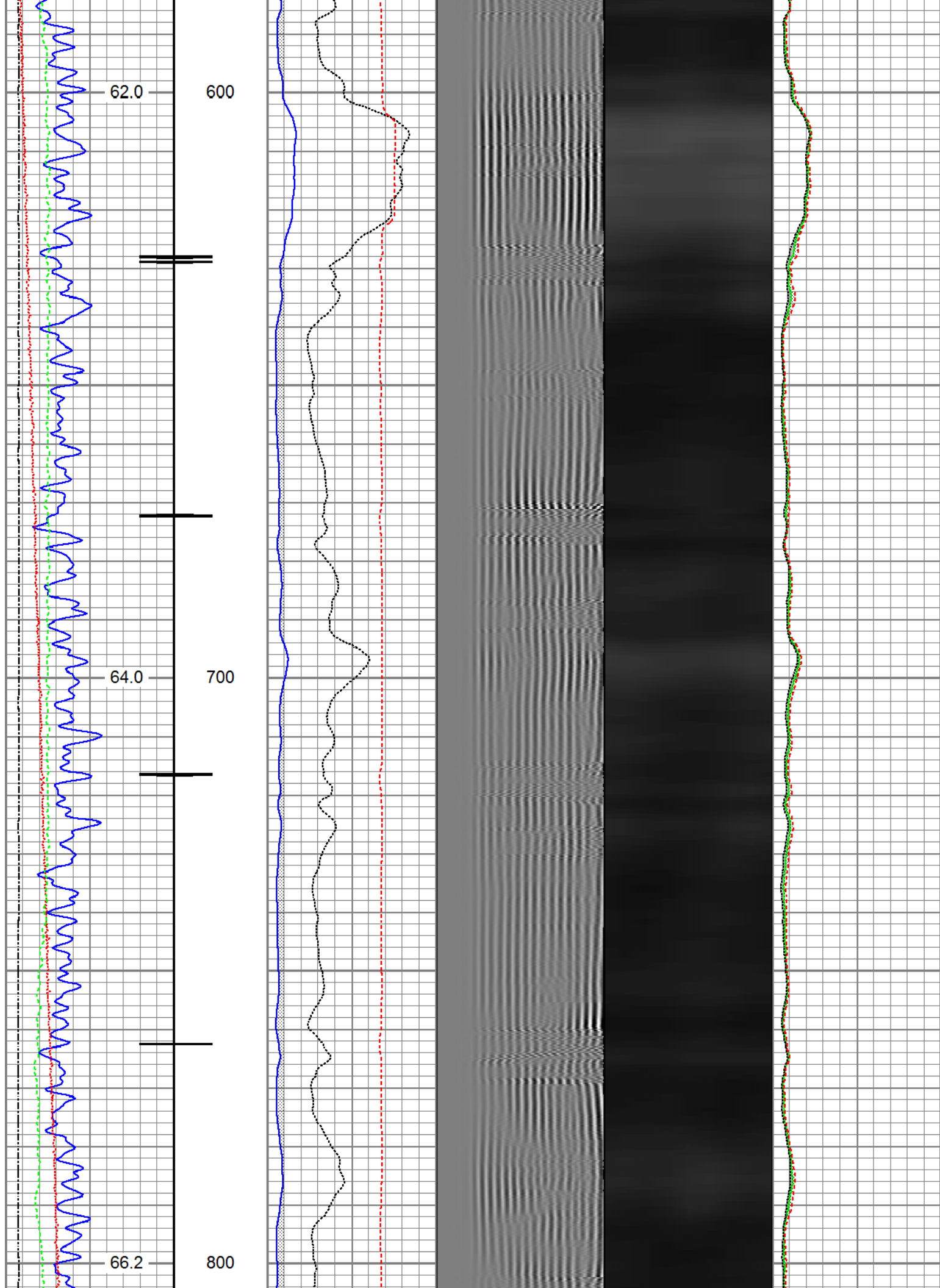
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 100
Temperature	3' Travel Time			Maximum Amplitude
0 (degF) 20	650 (usec) 150			0 100
Line Speed				
-150 (ft/min)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

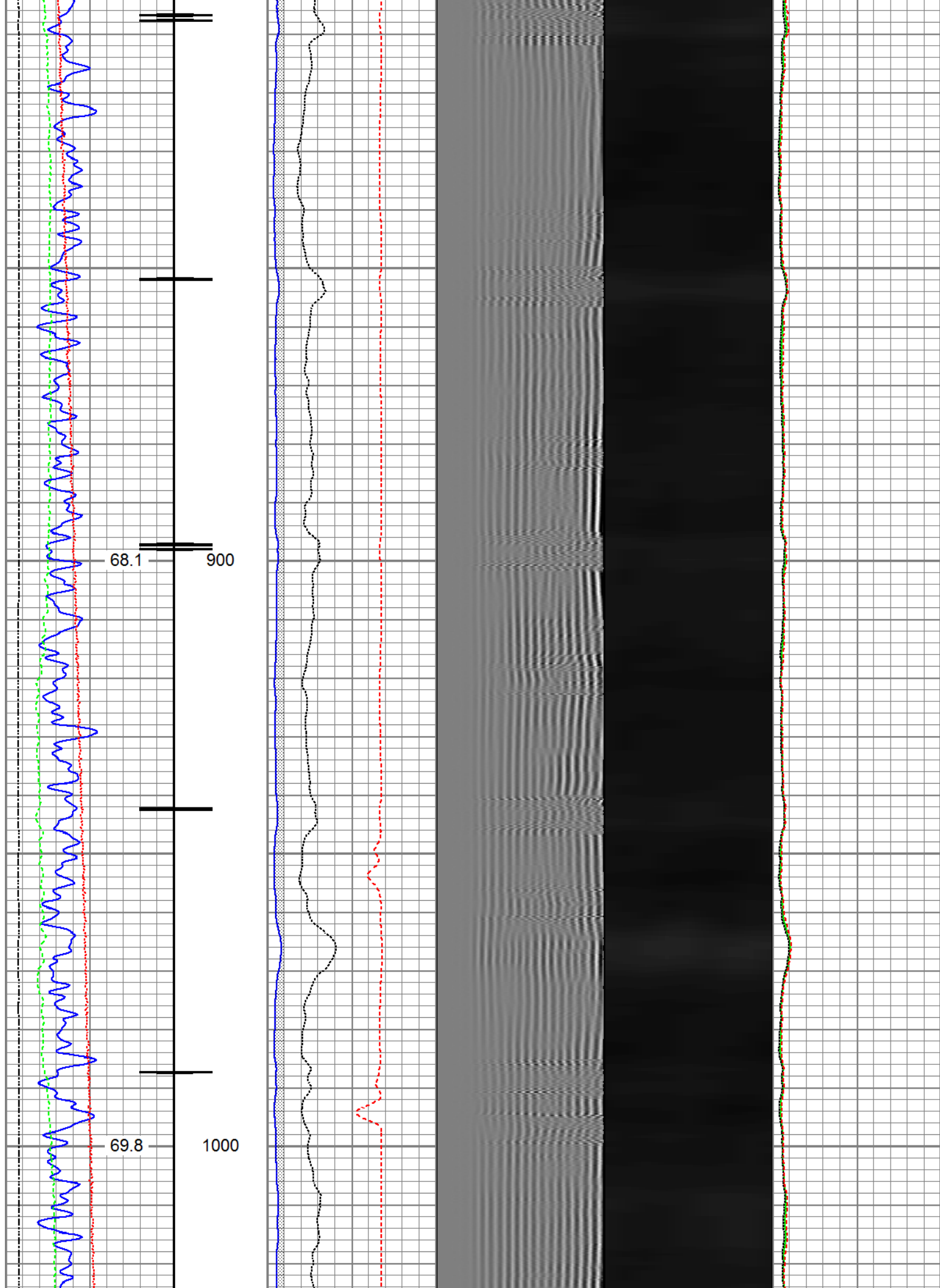


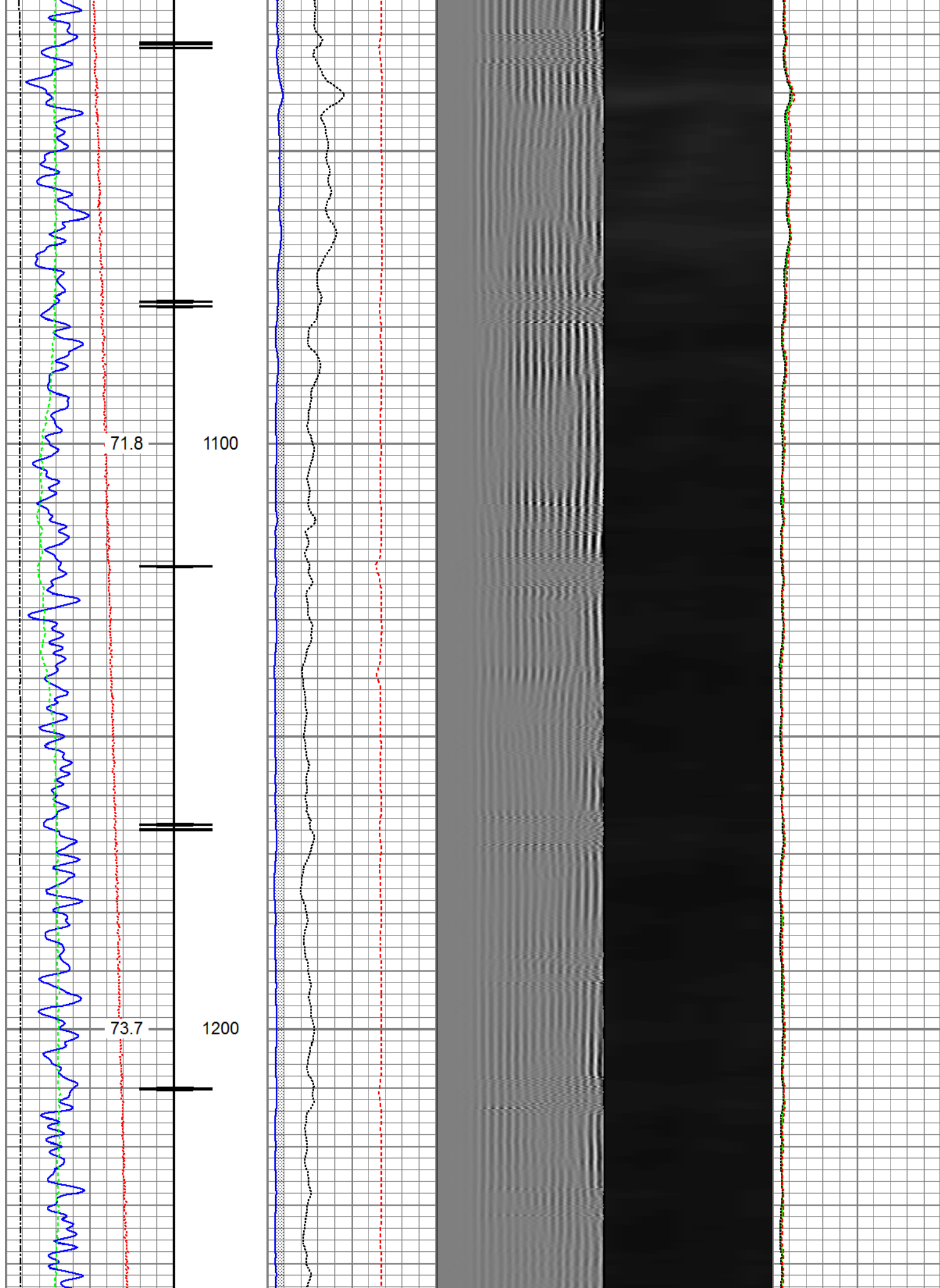


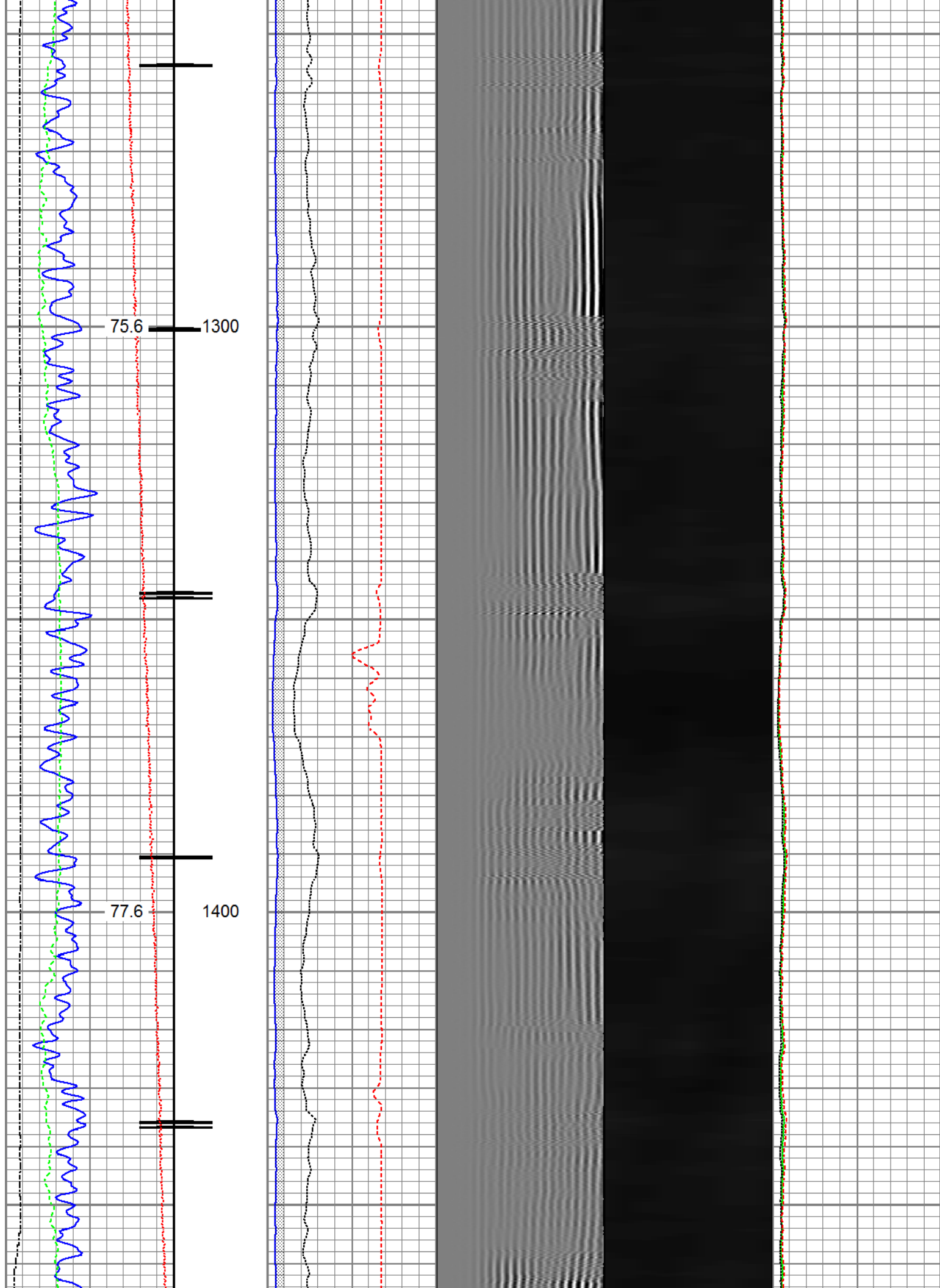




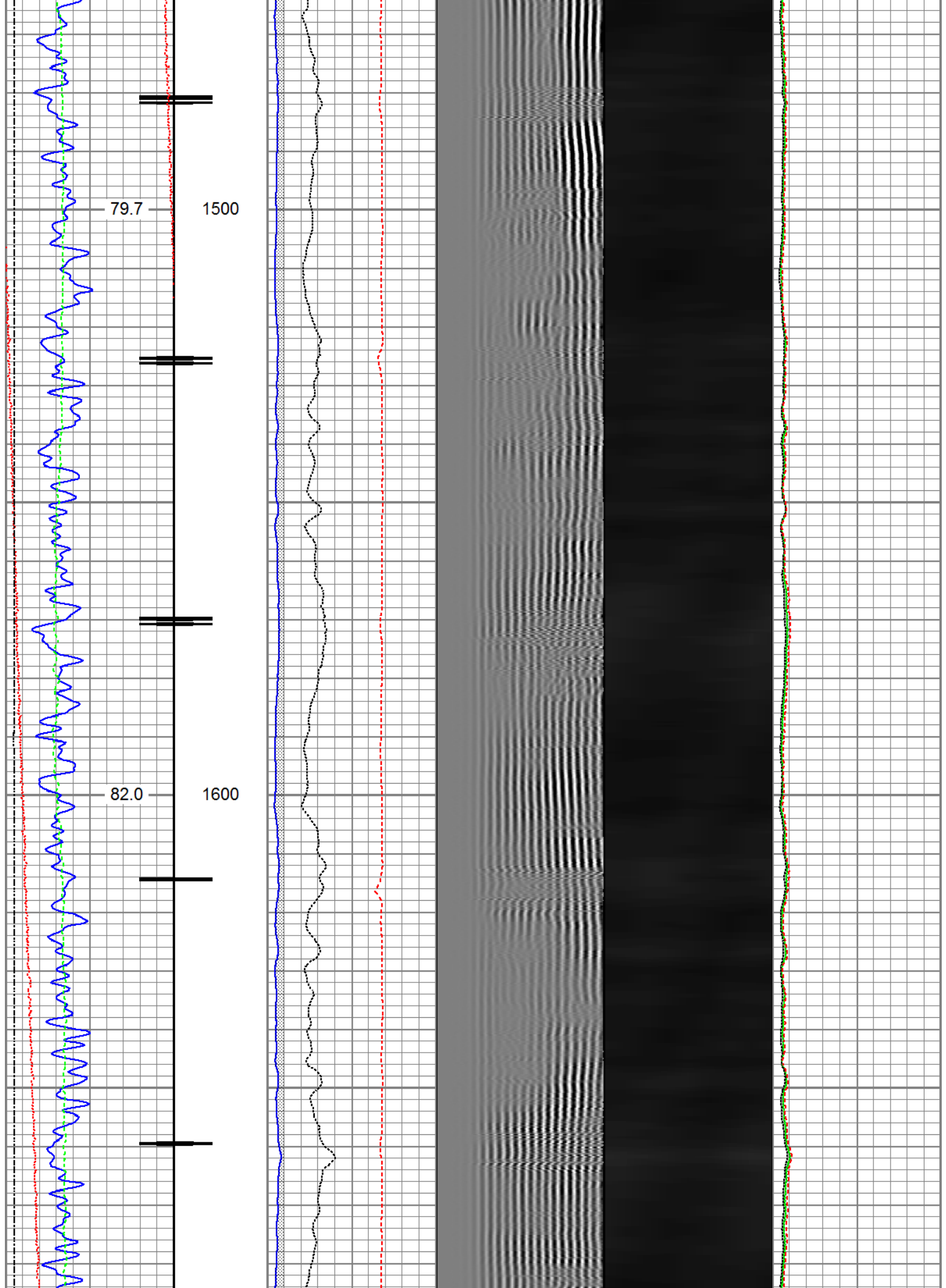


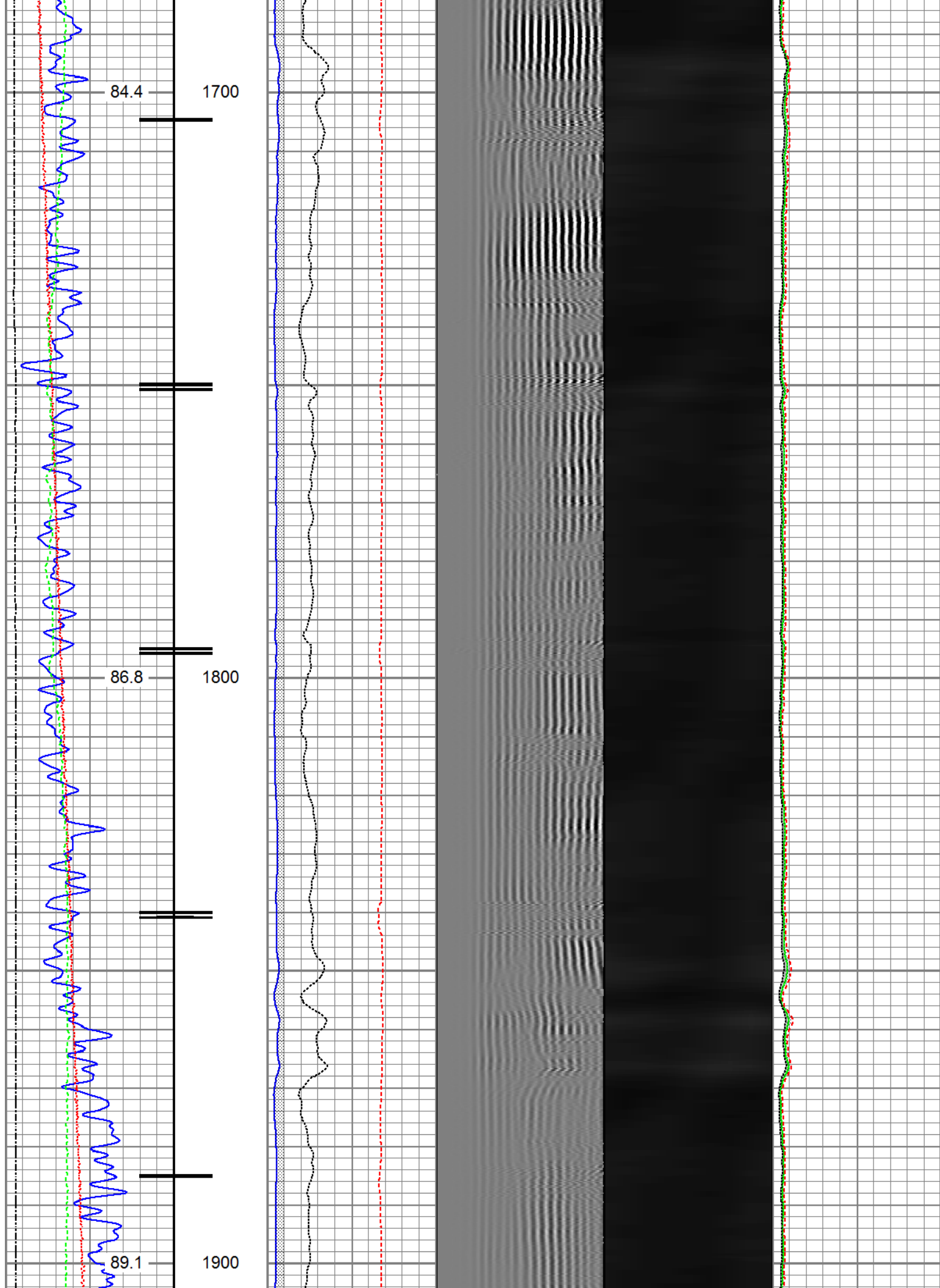


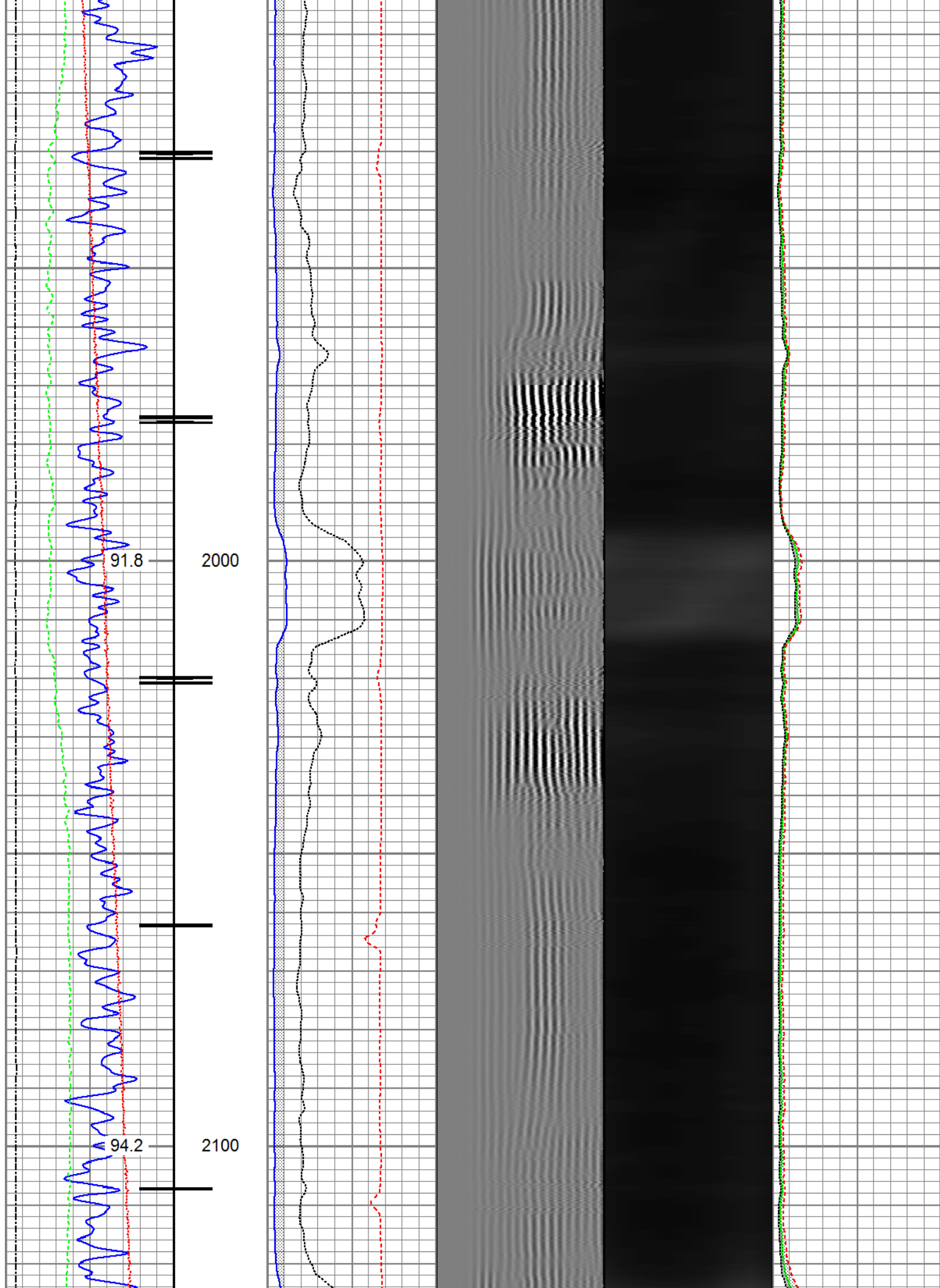


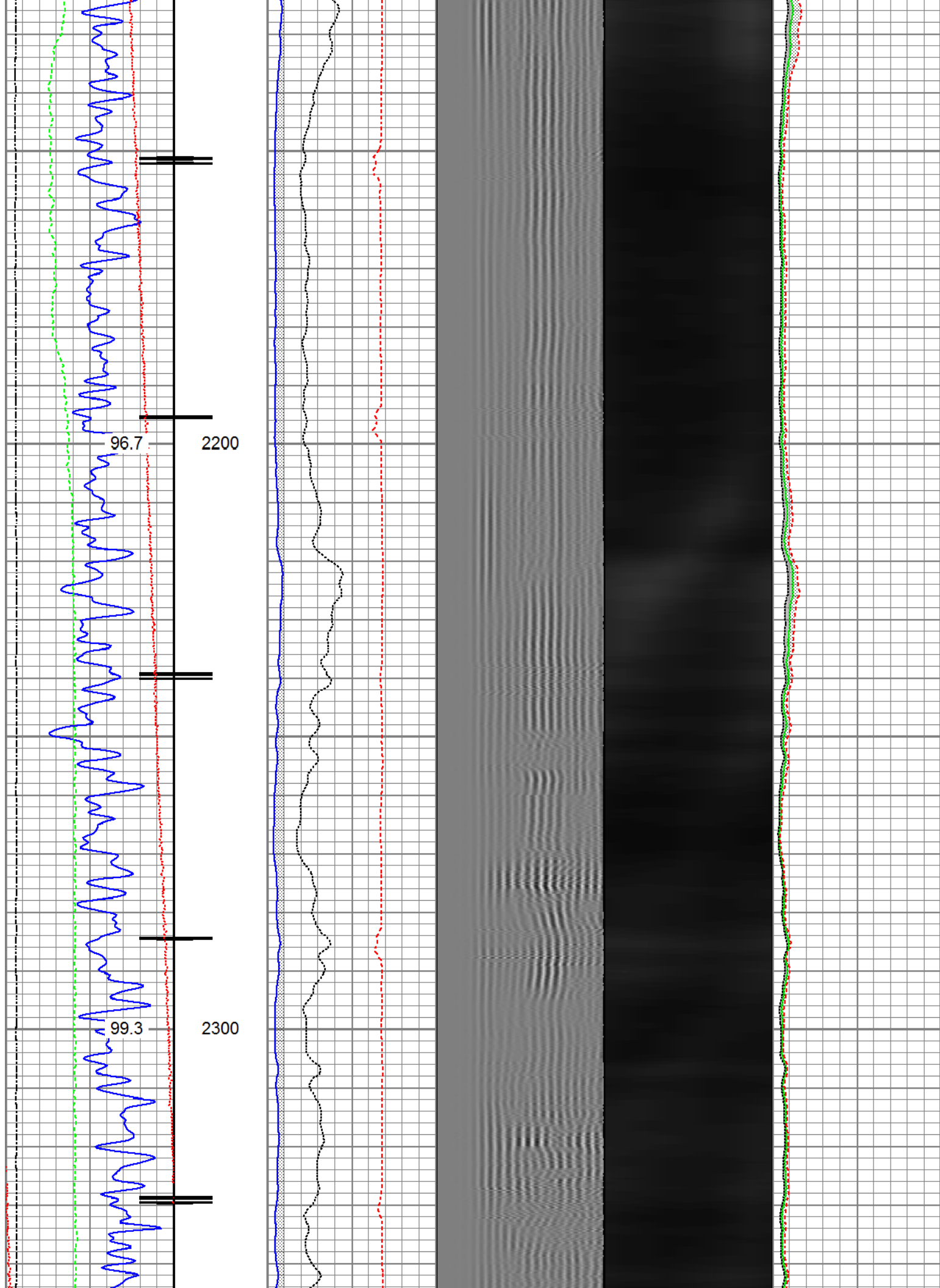




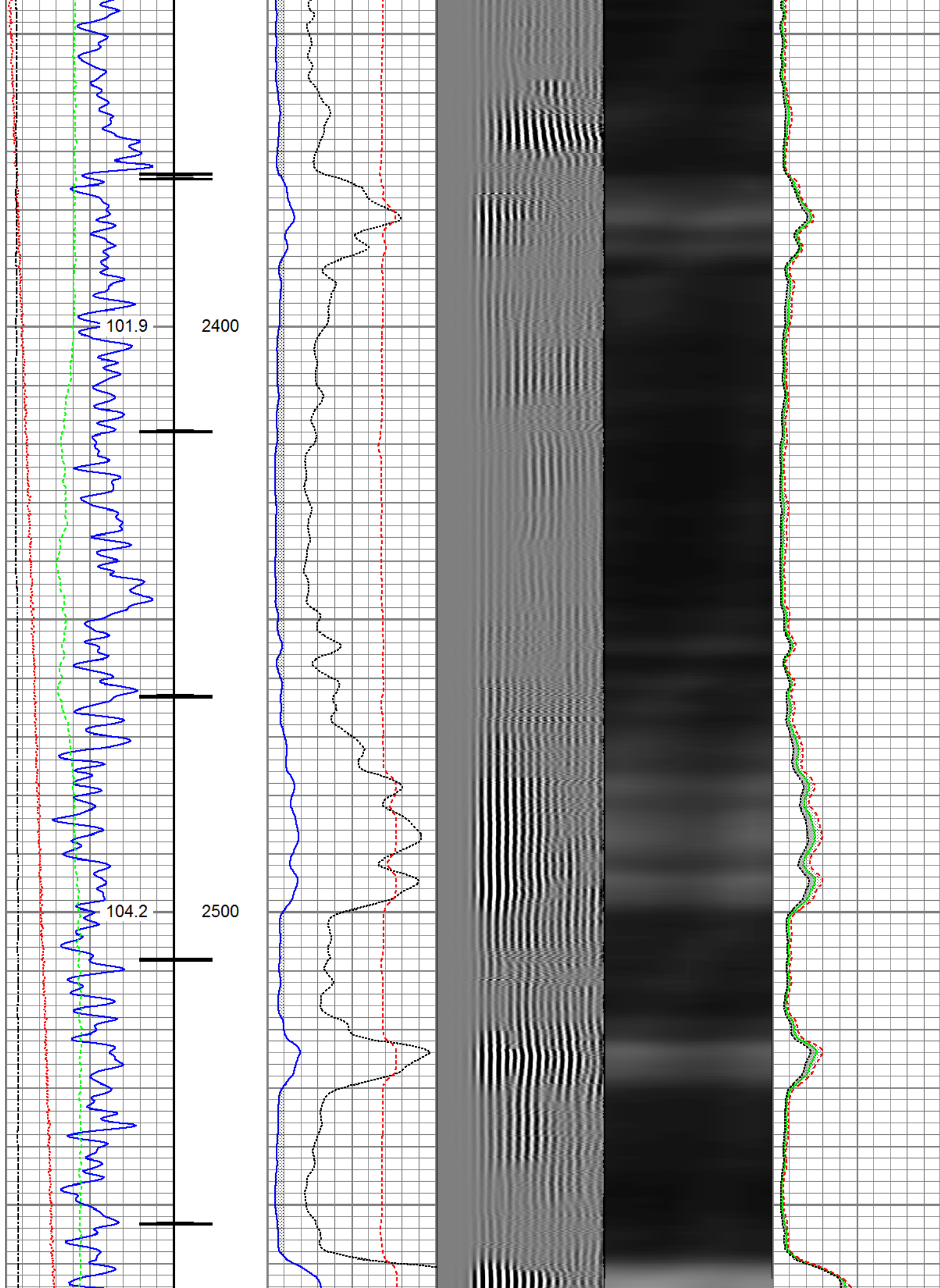


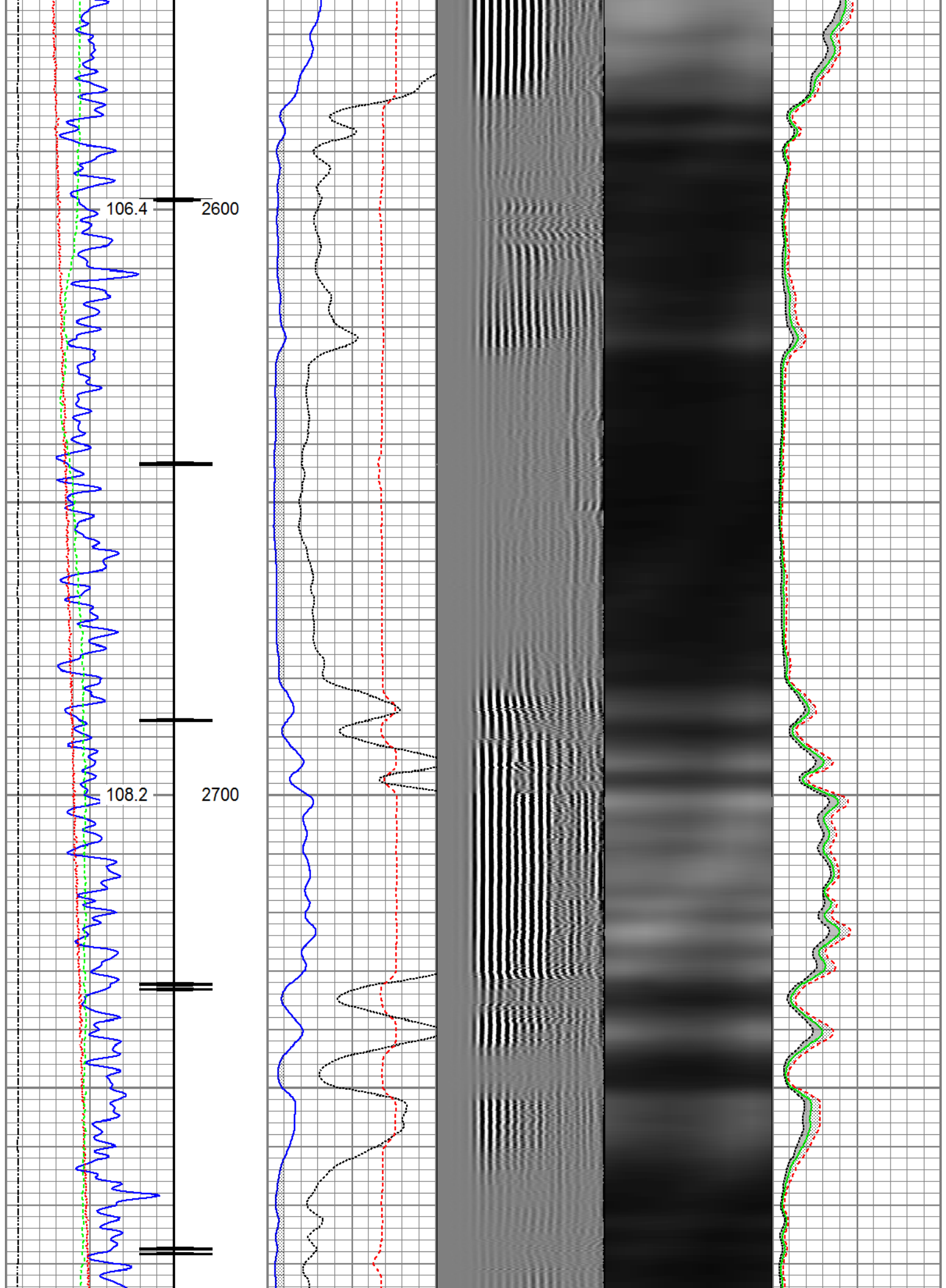


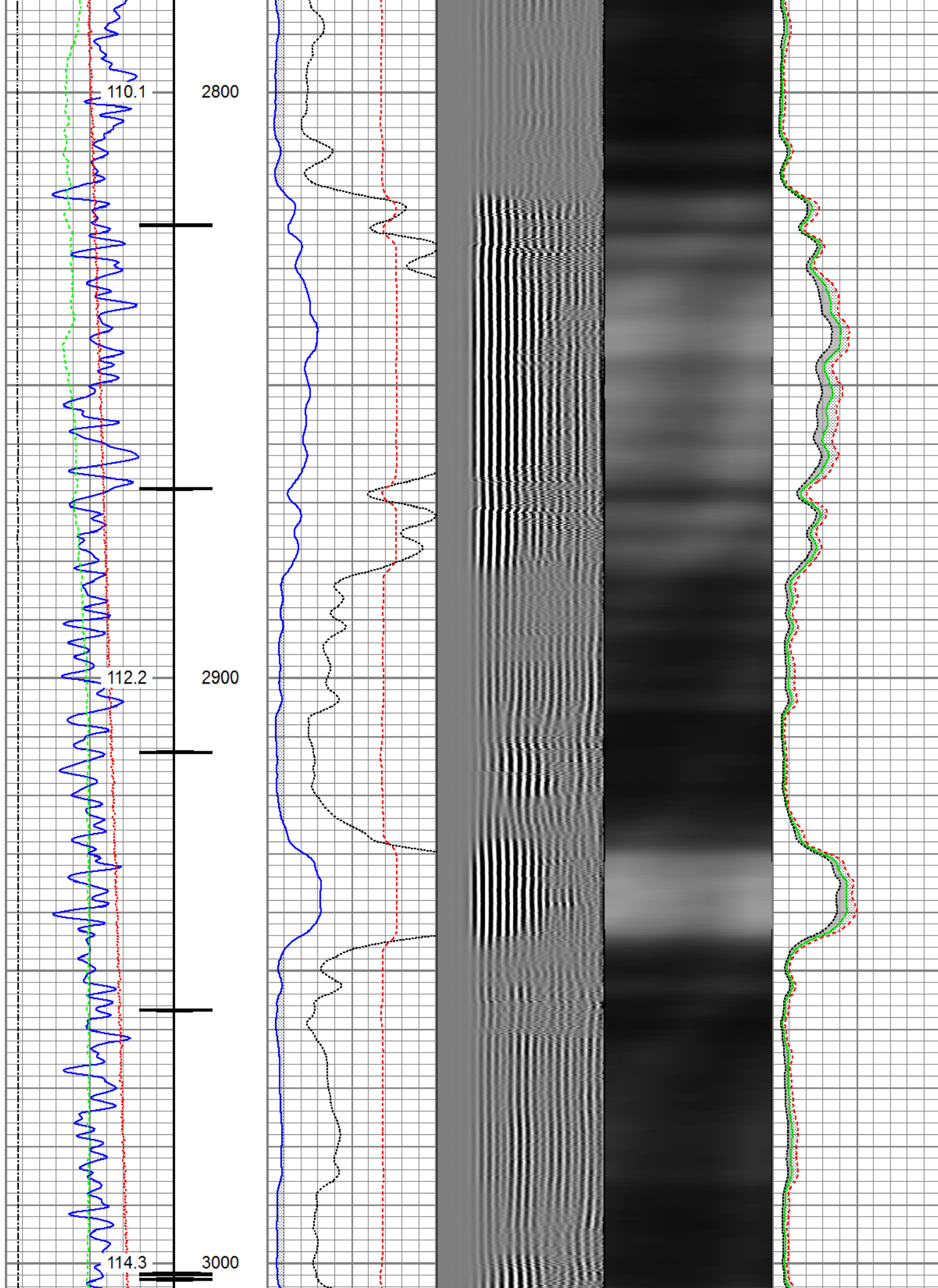


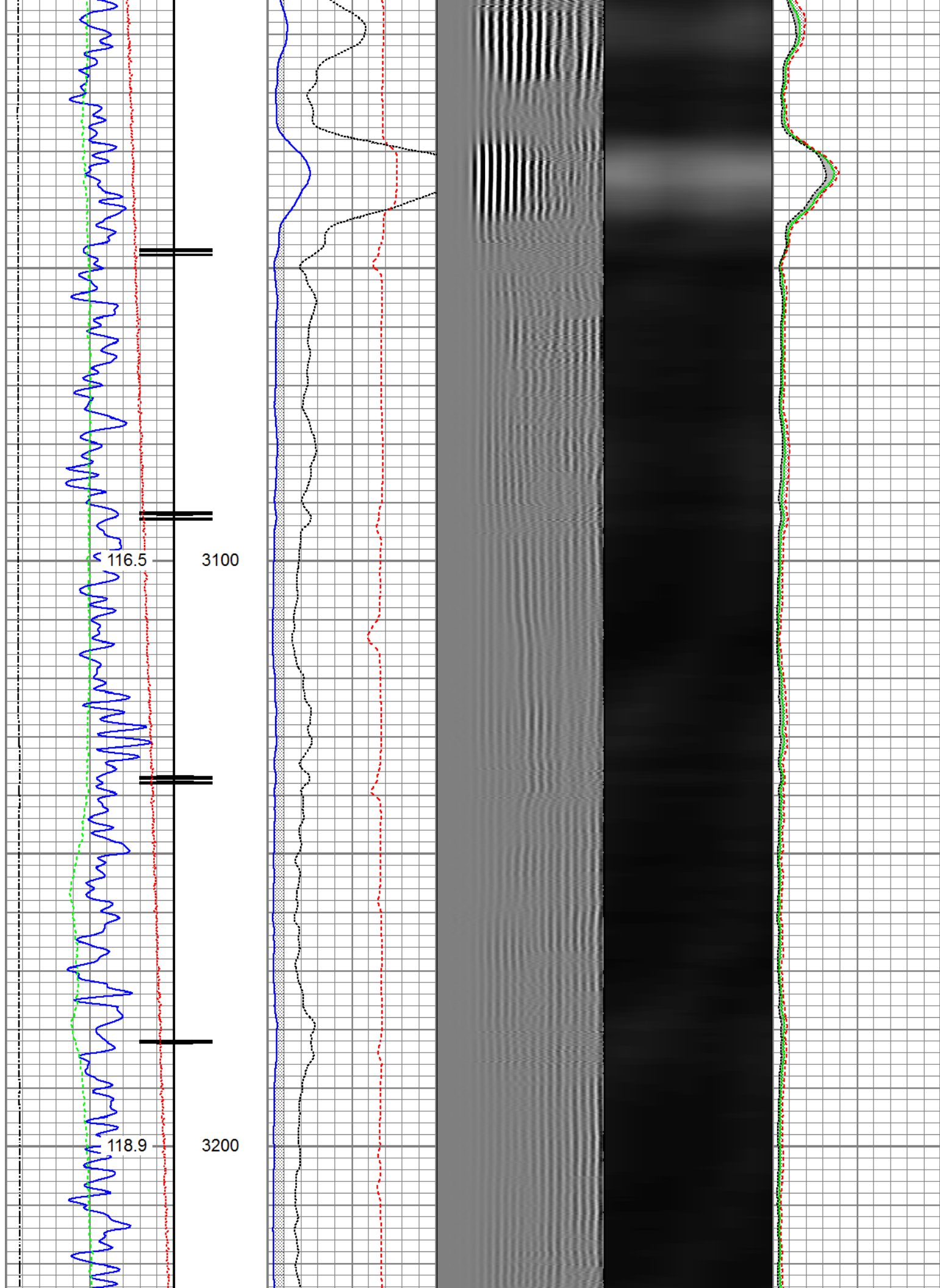




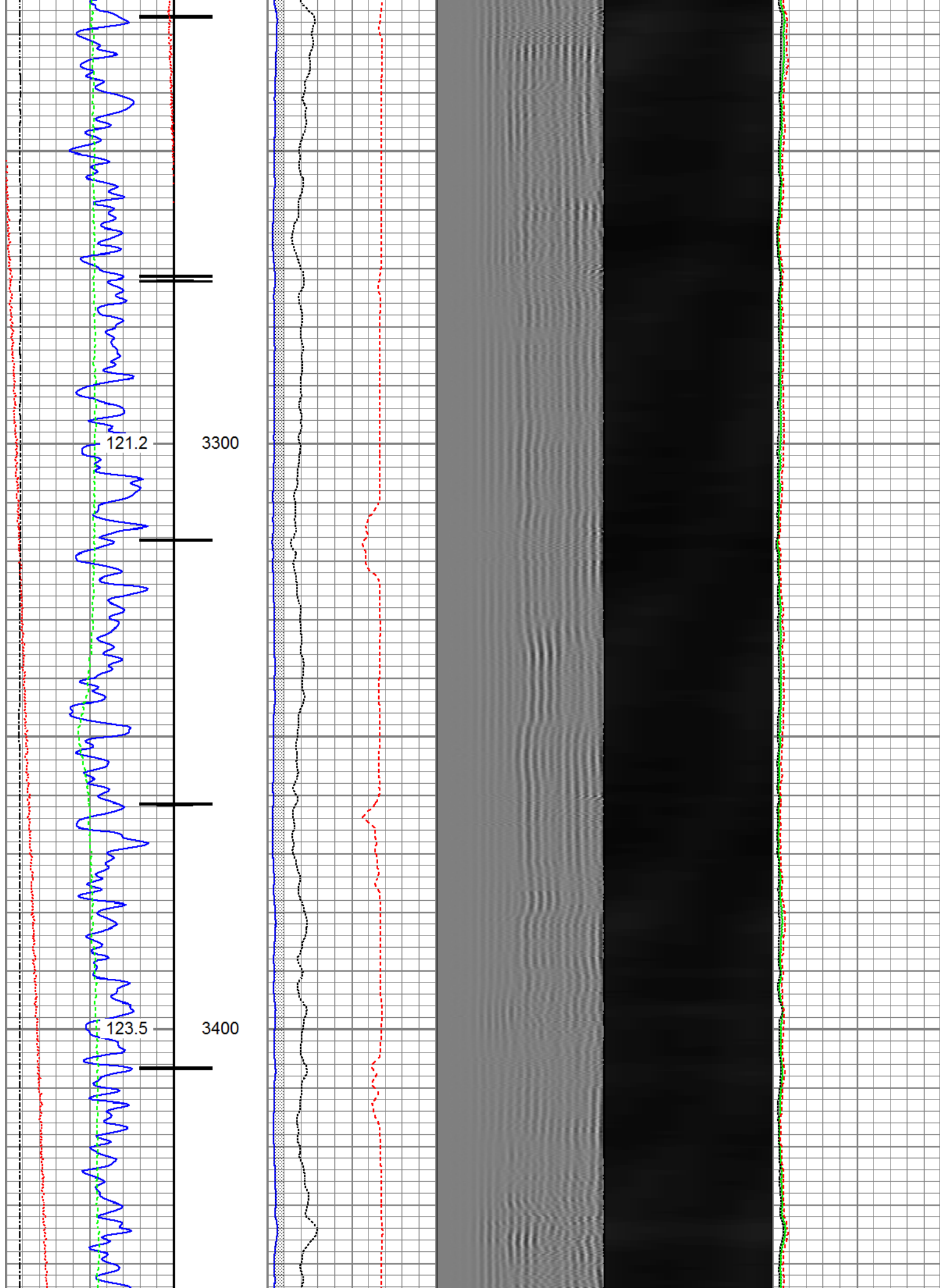


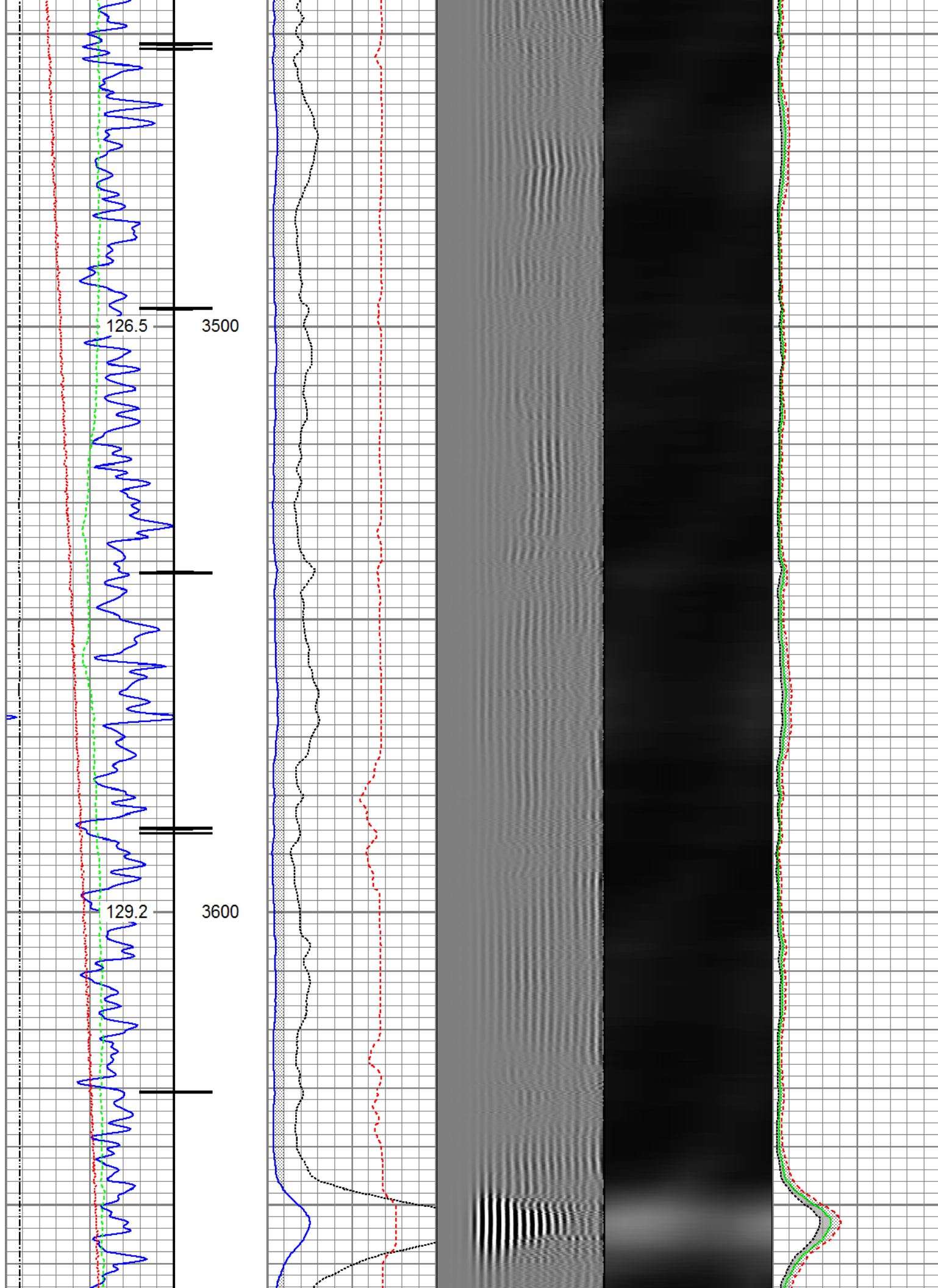


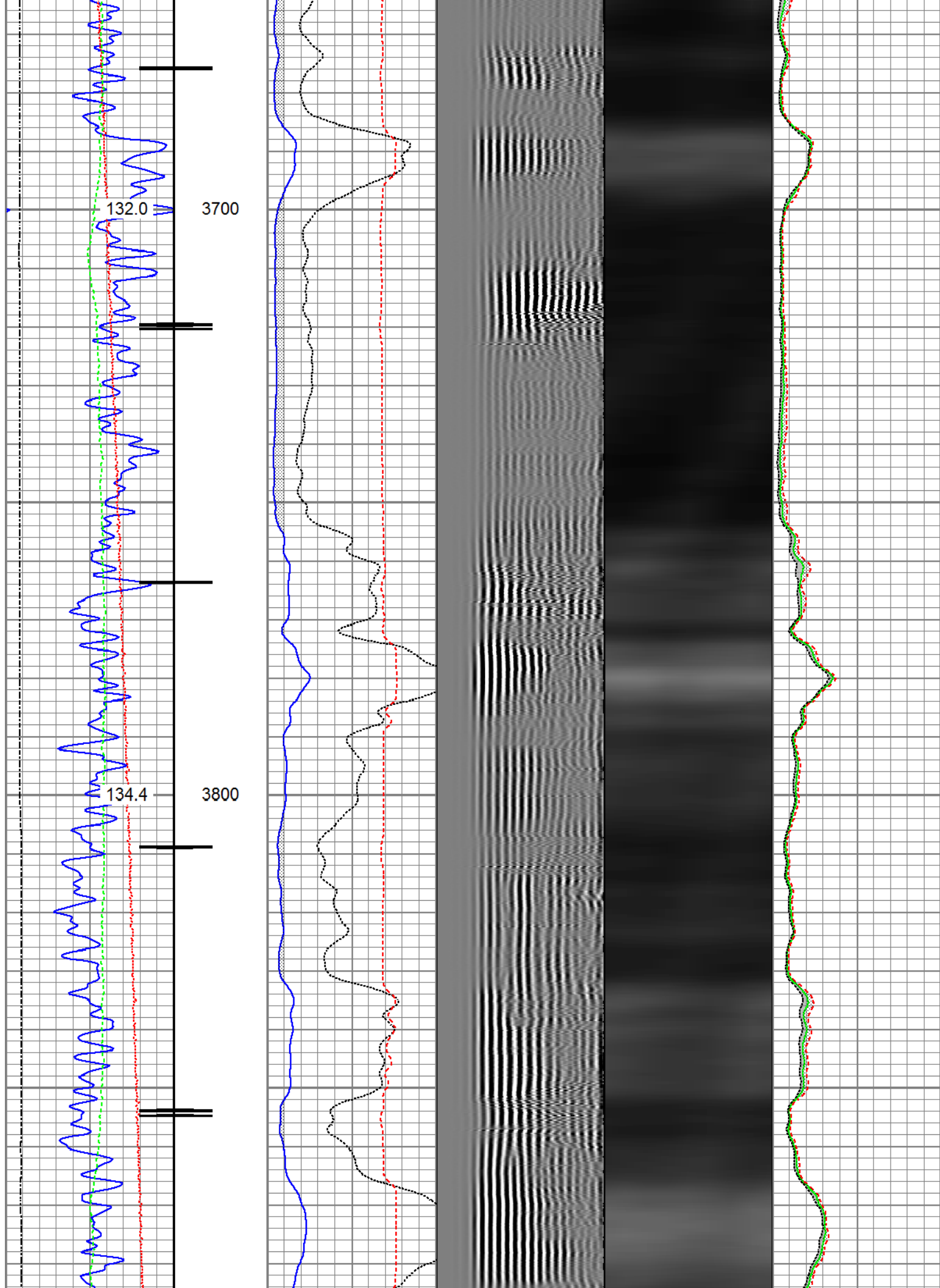


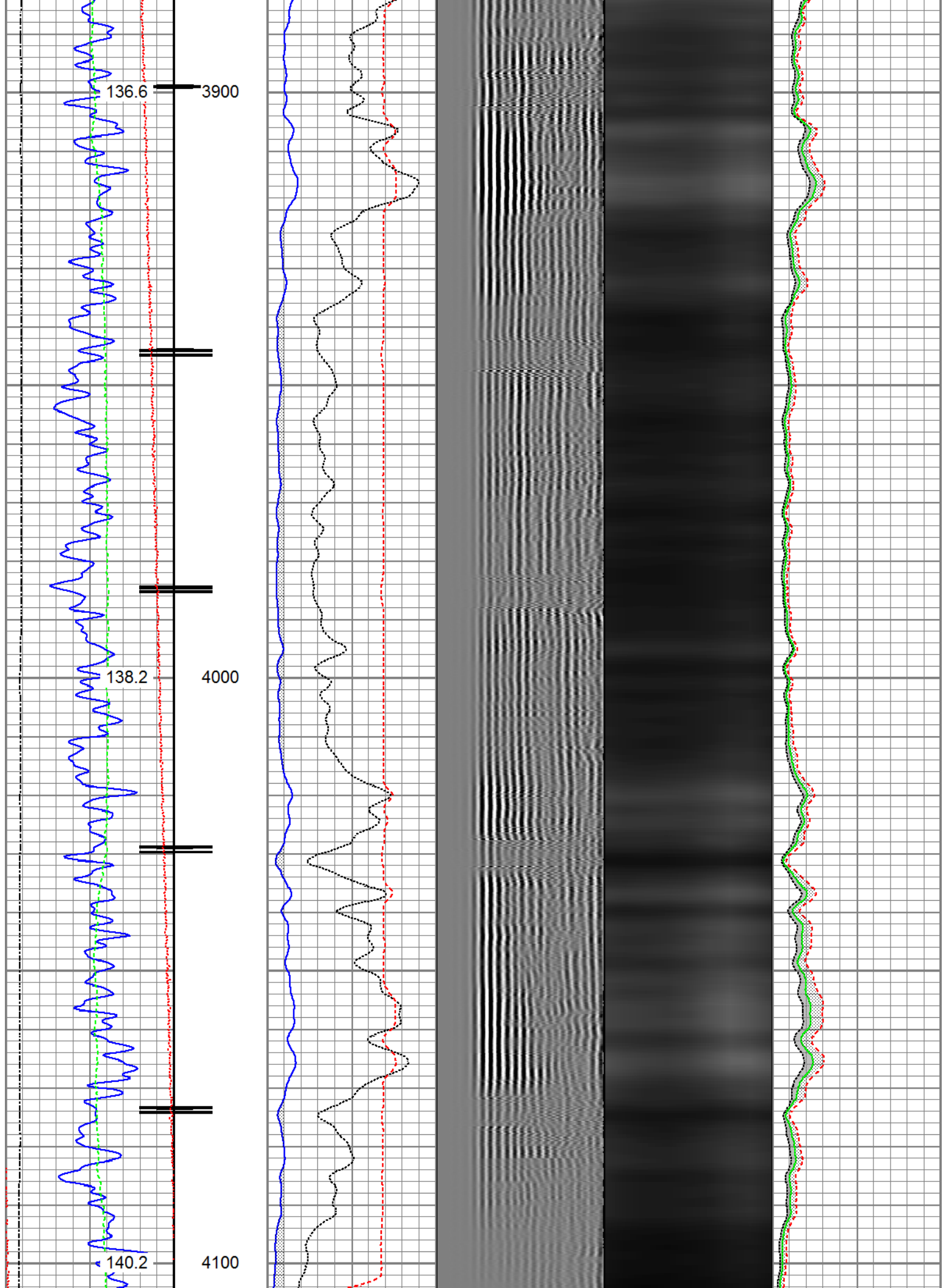




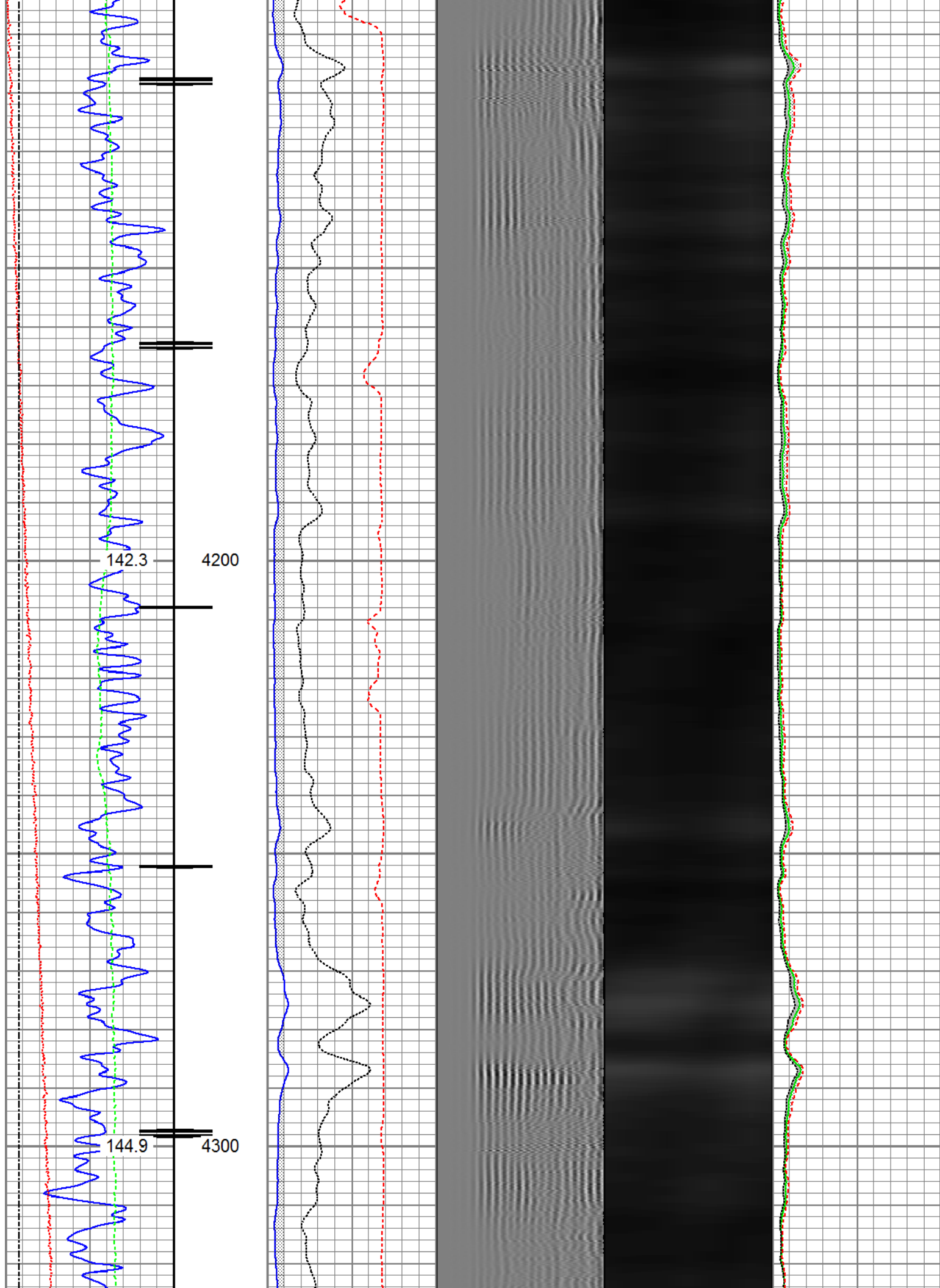


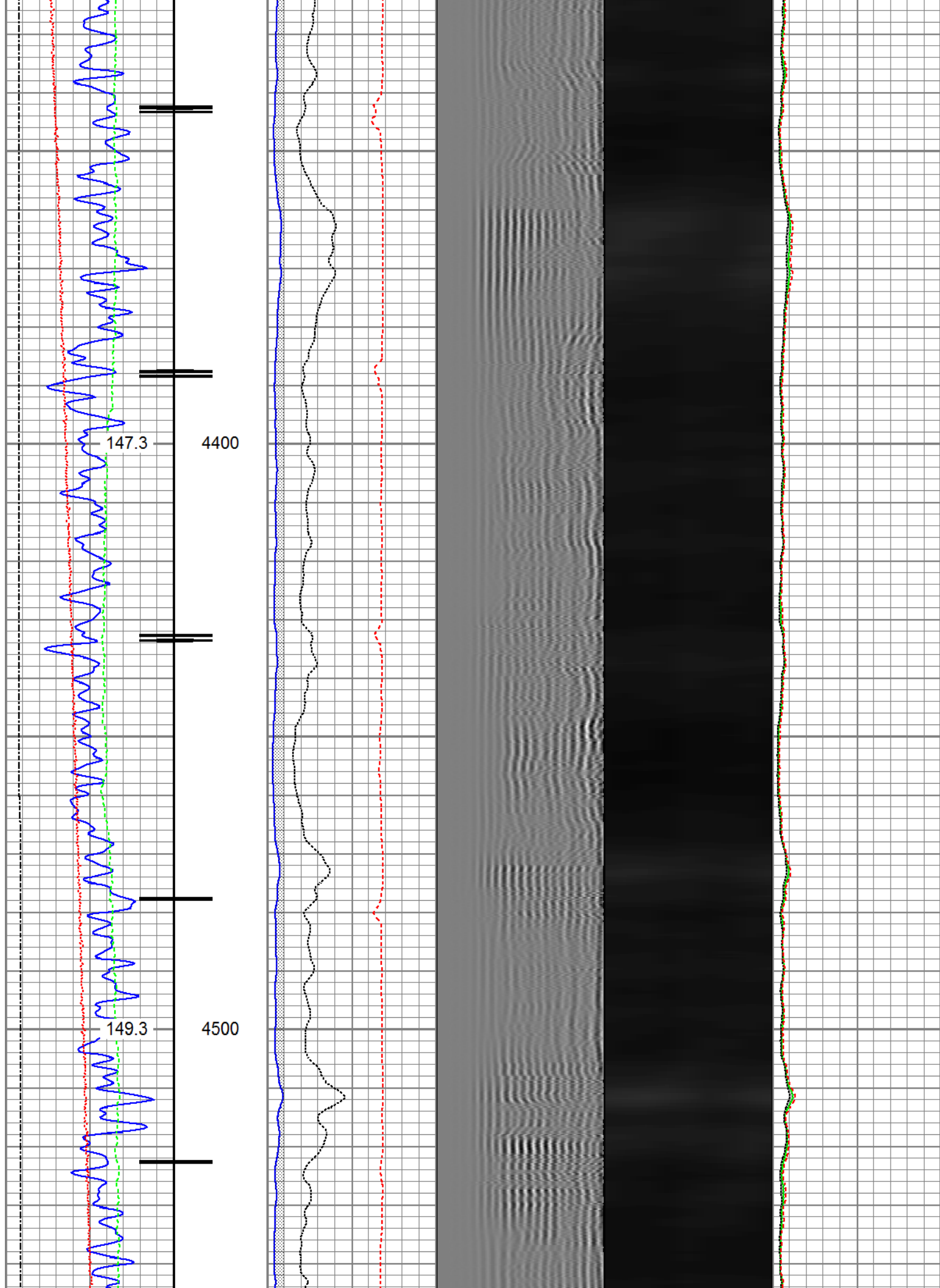


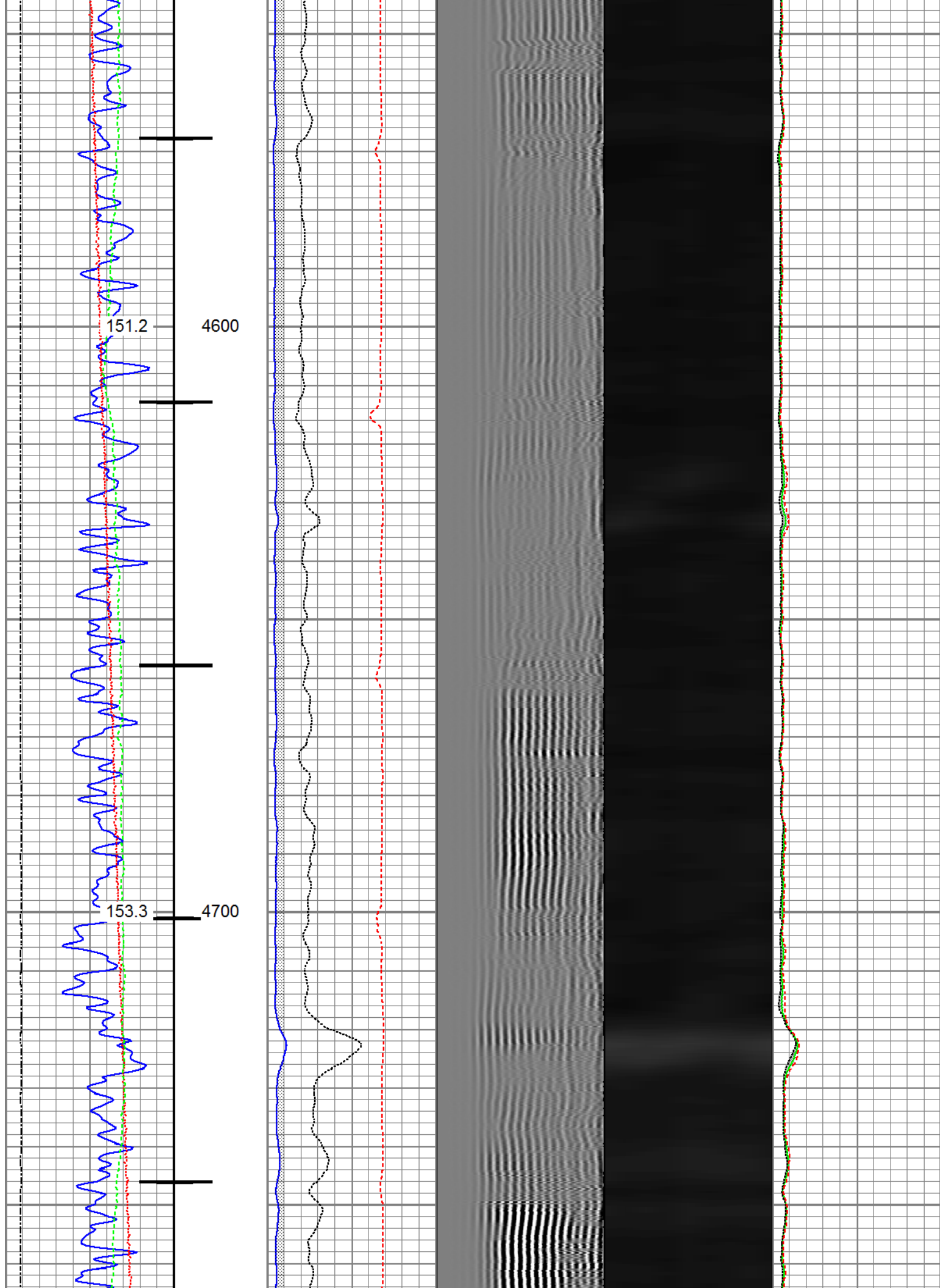


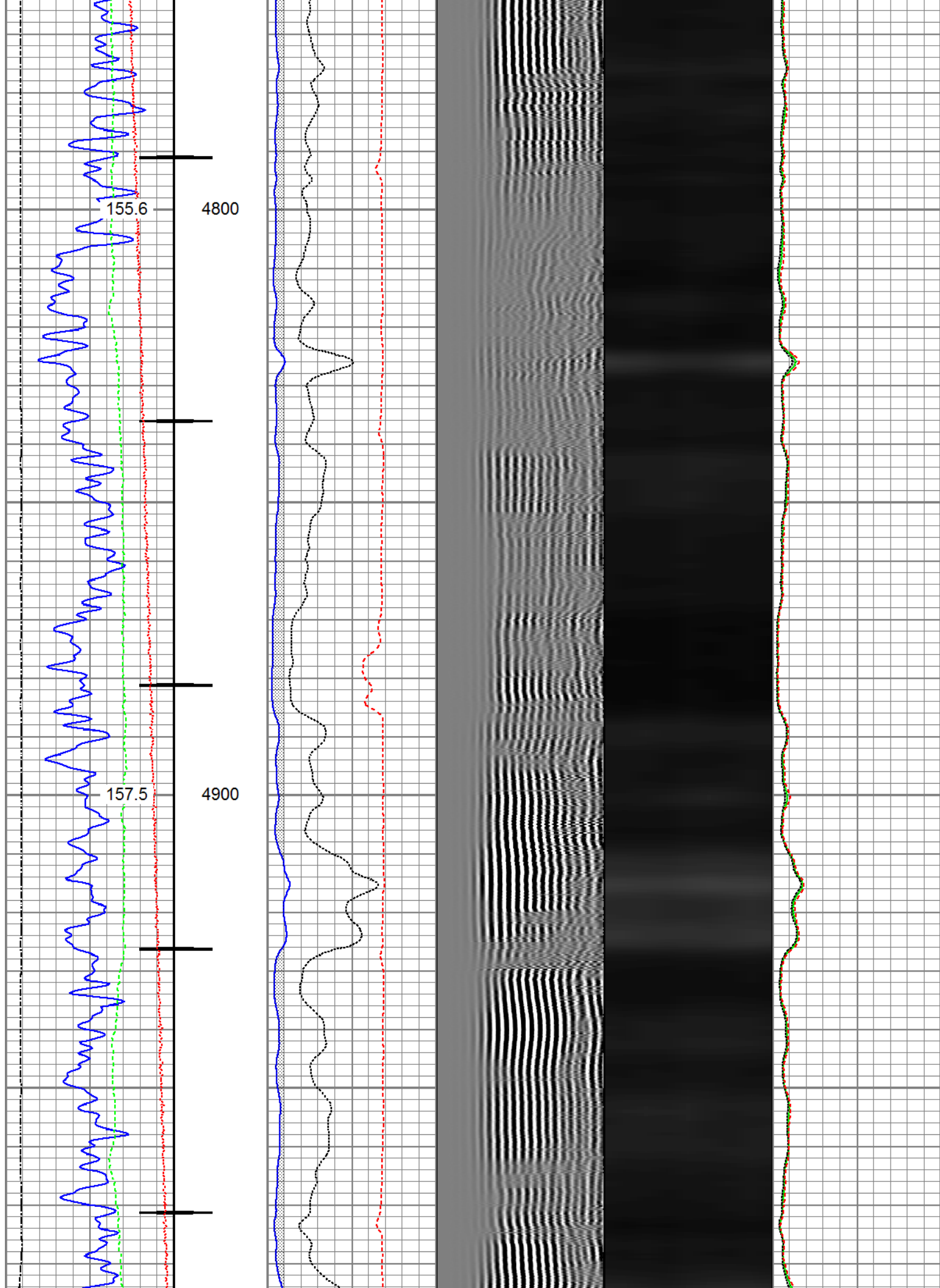




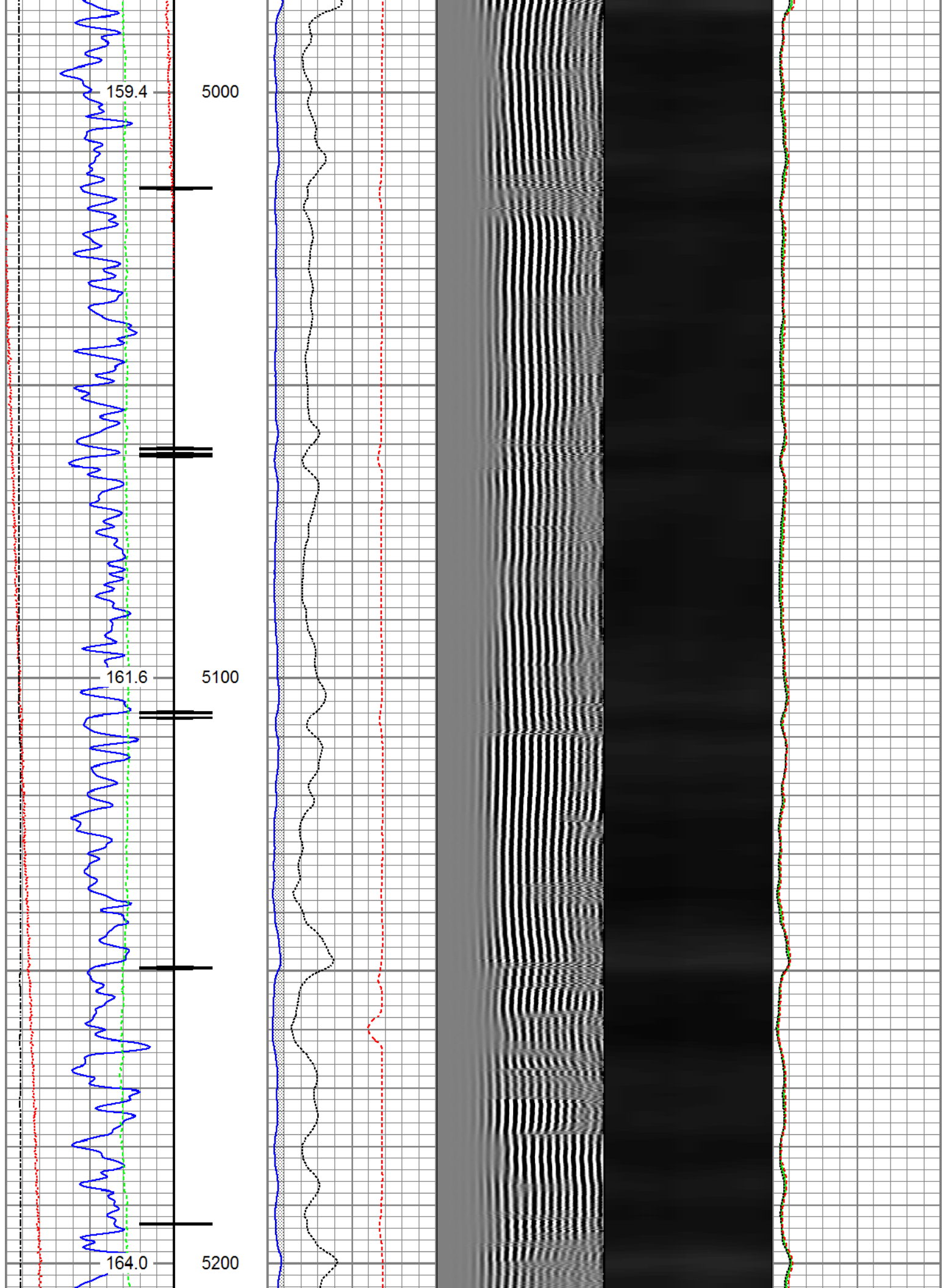


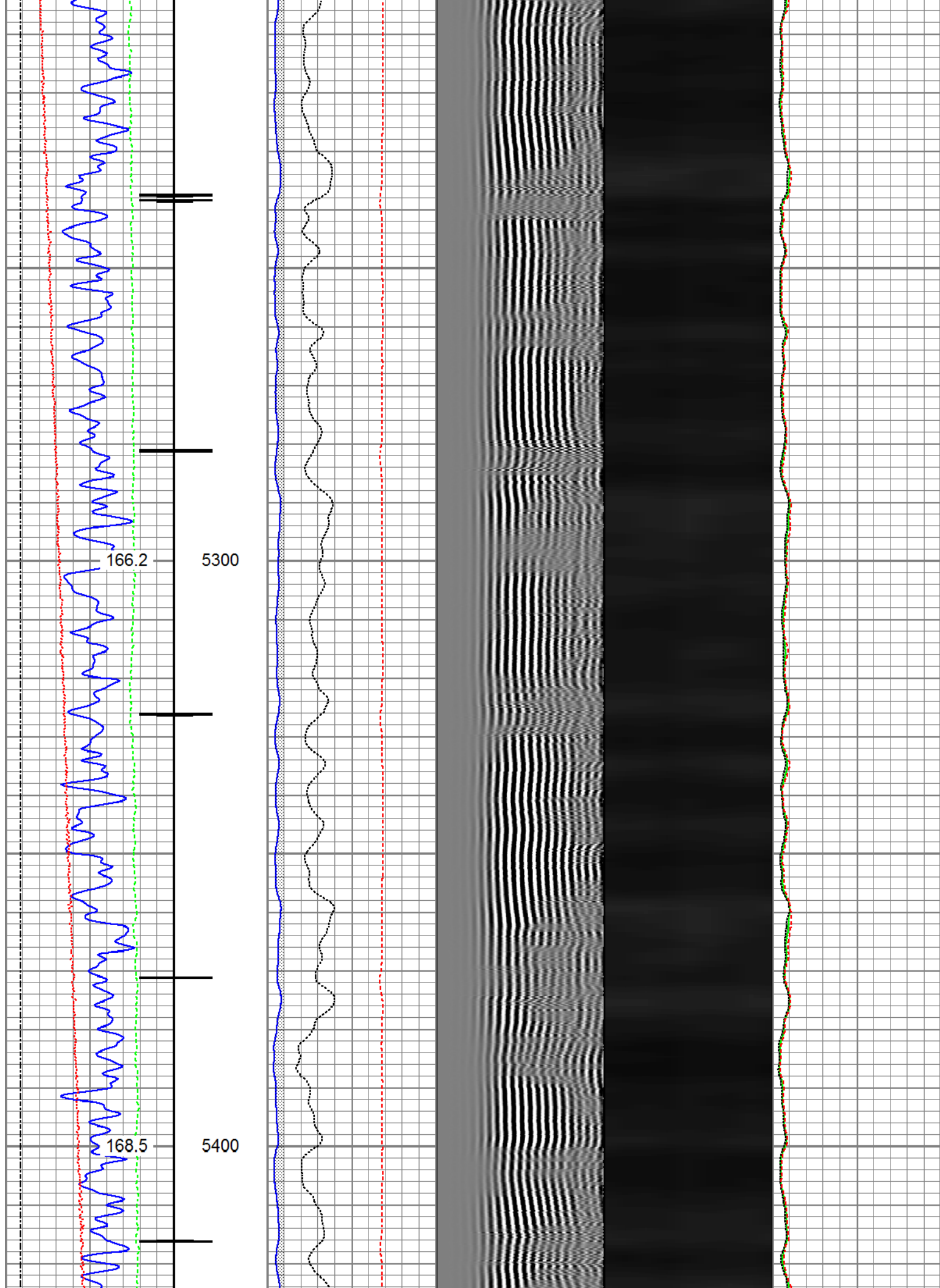


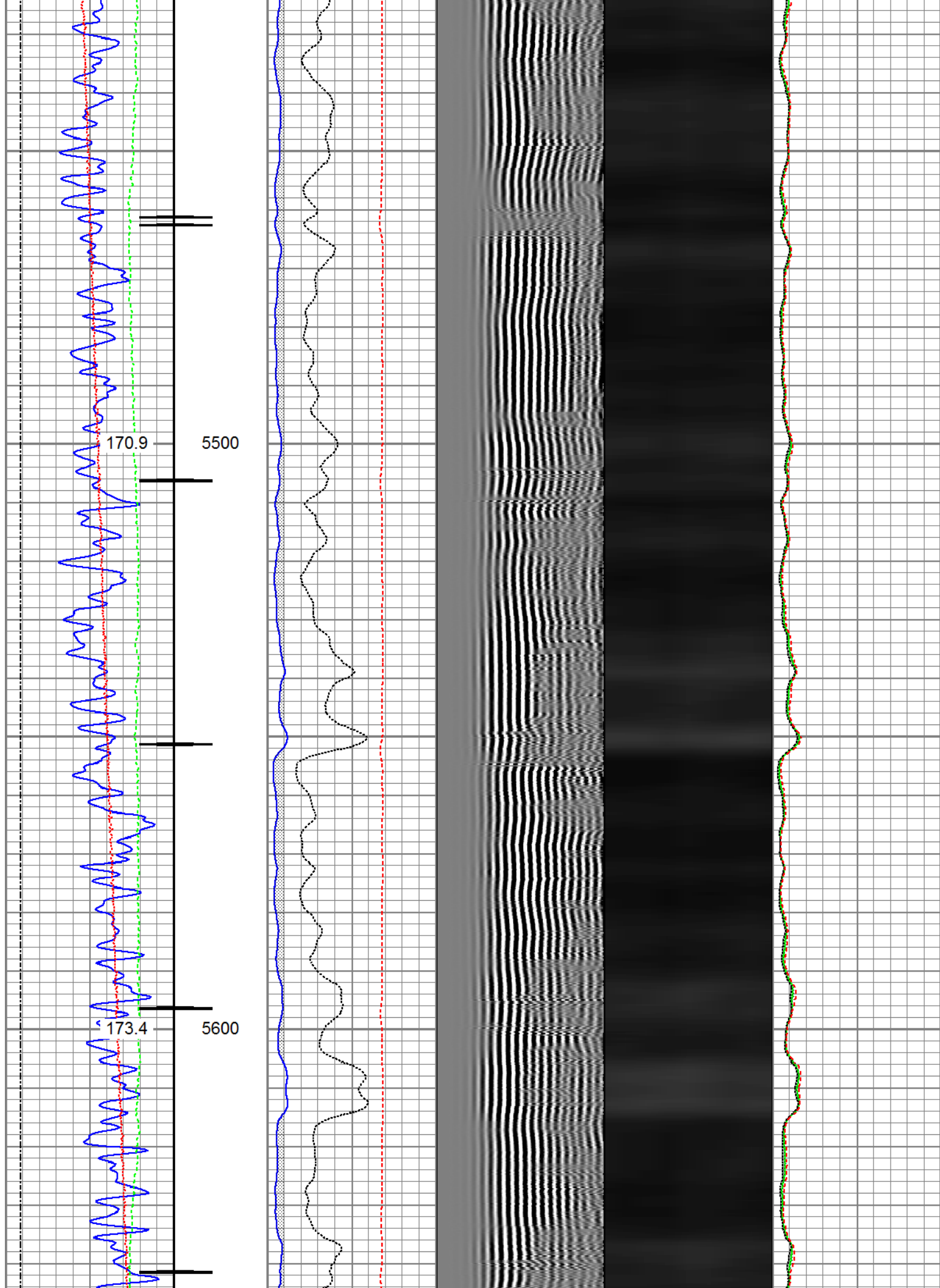


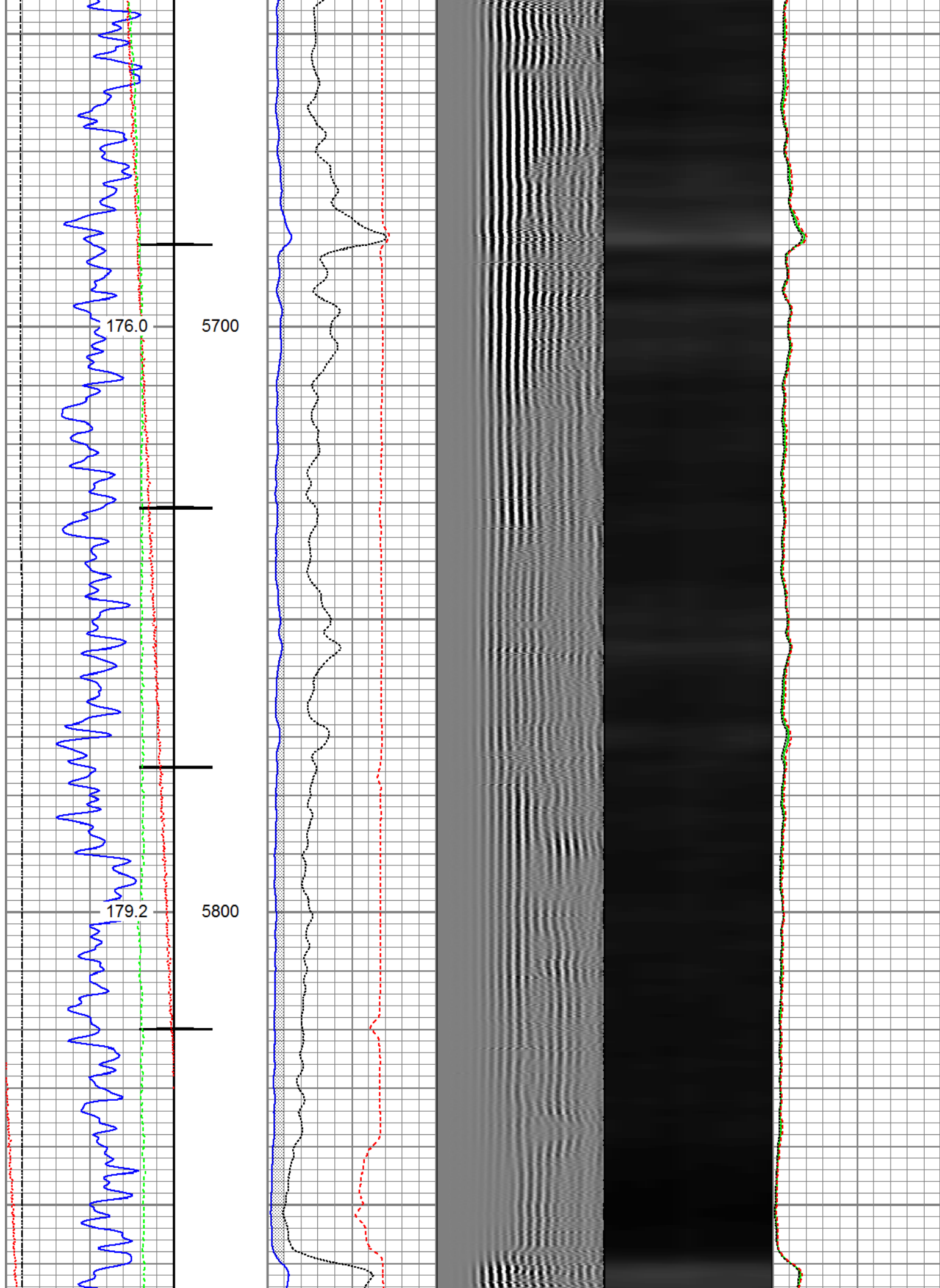




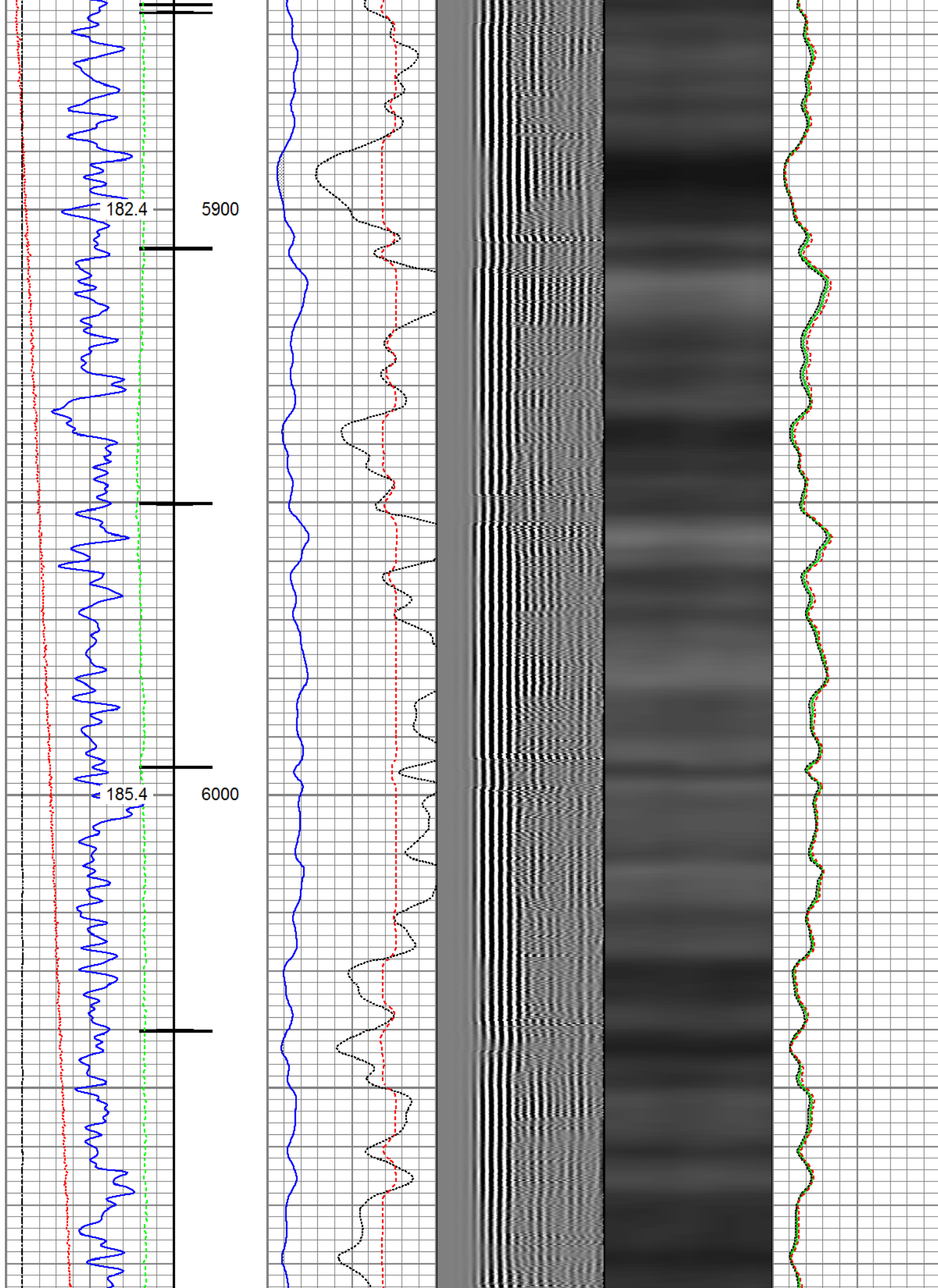


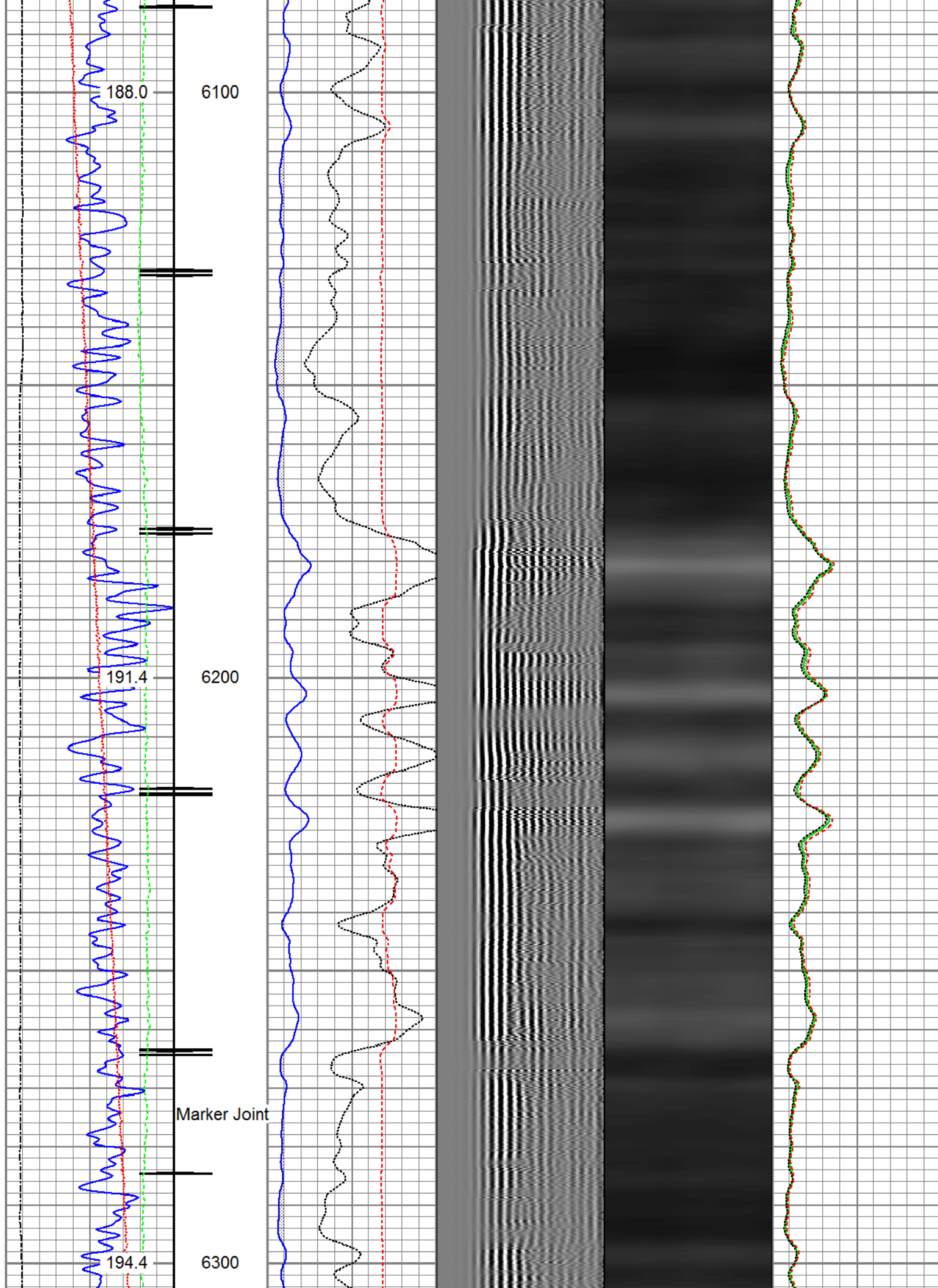


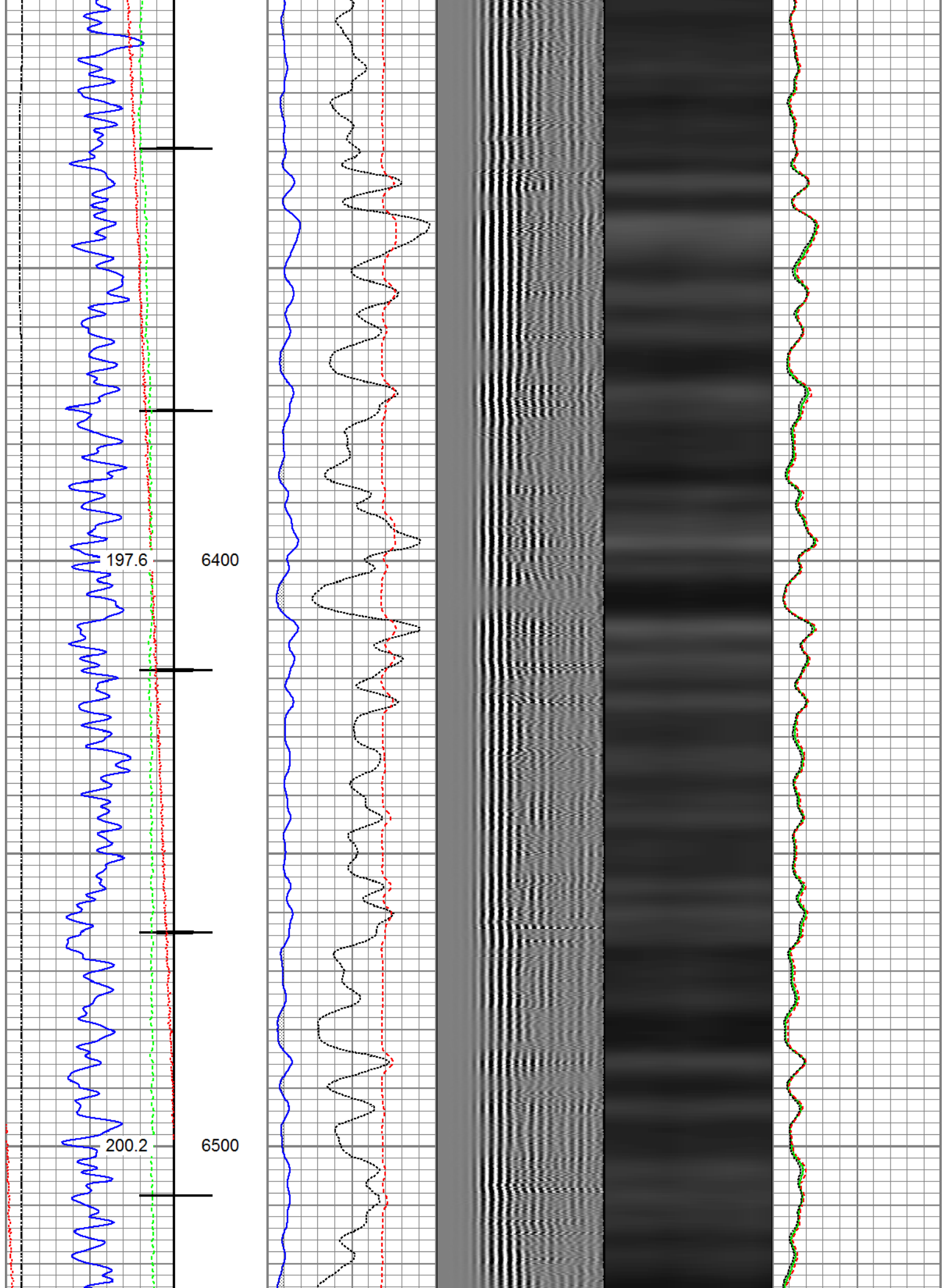


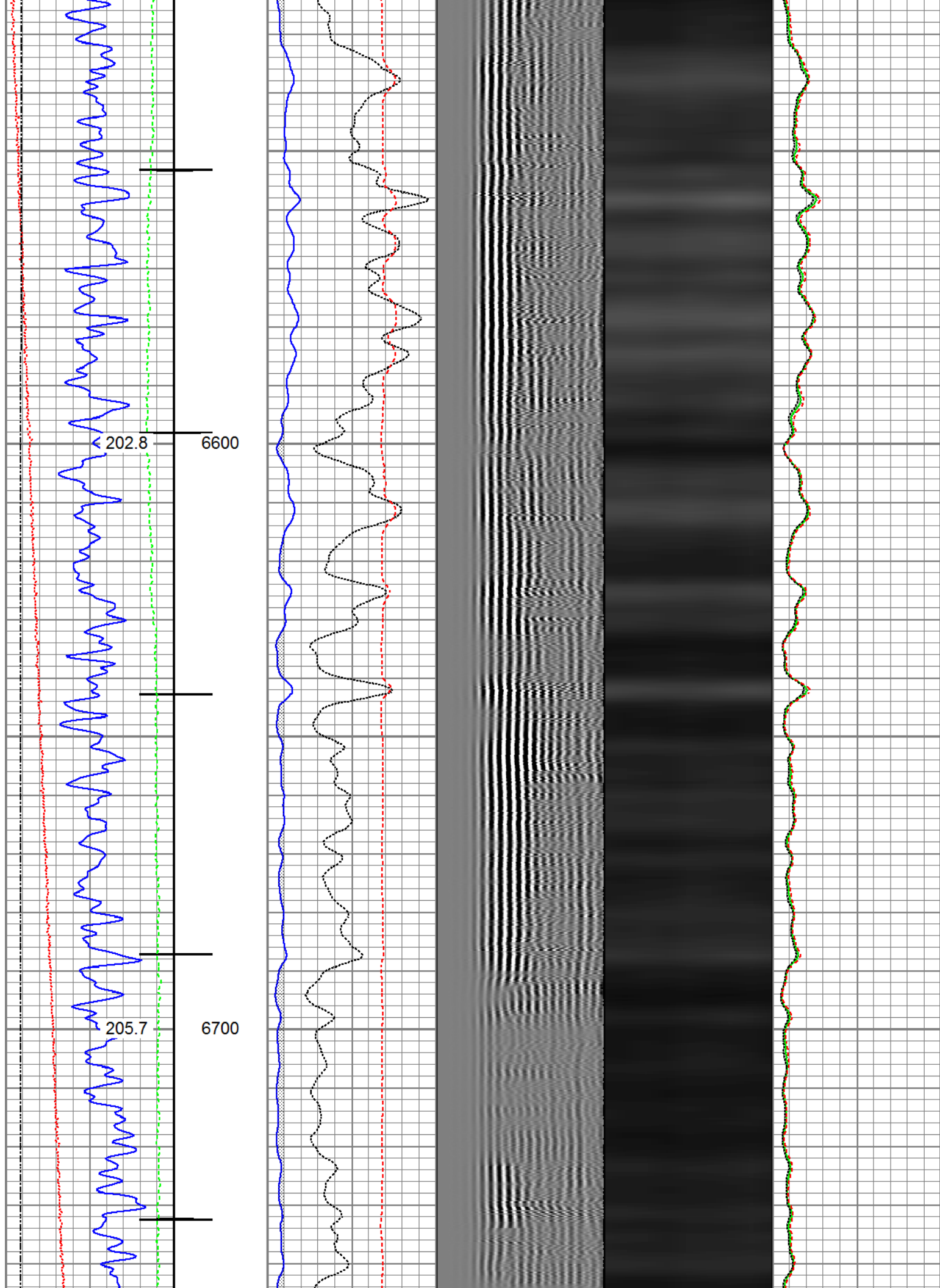




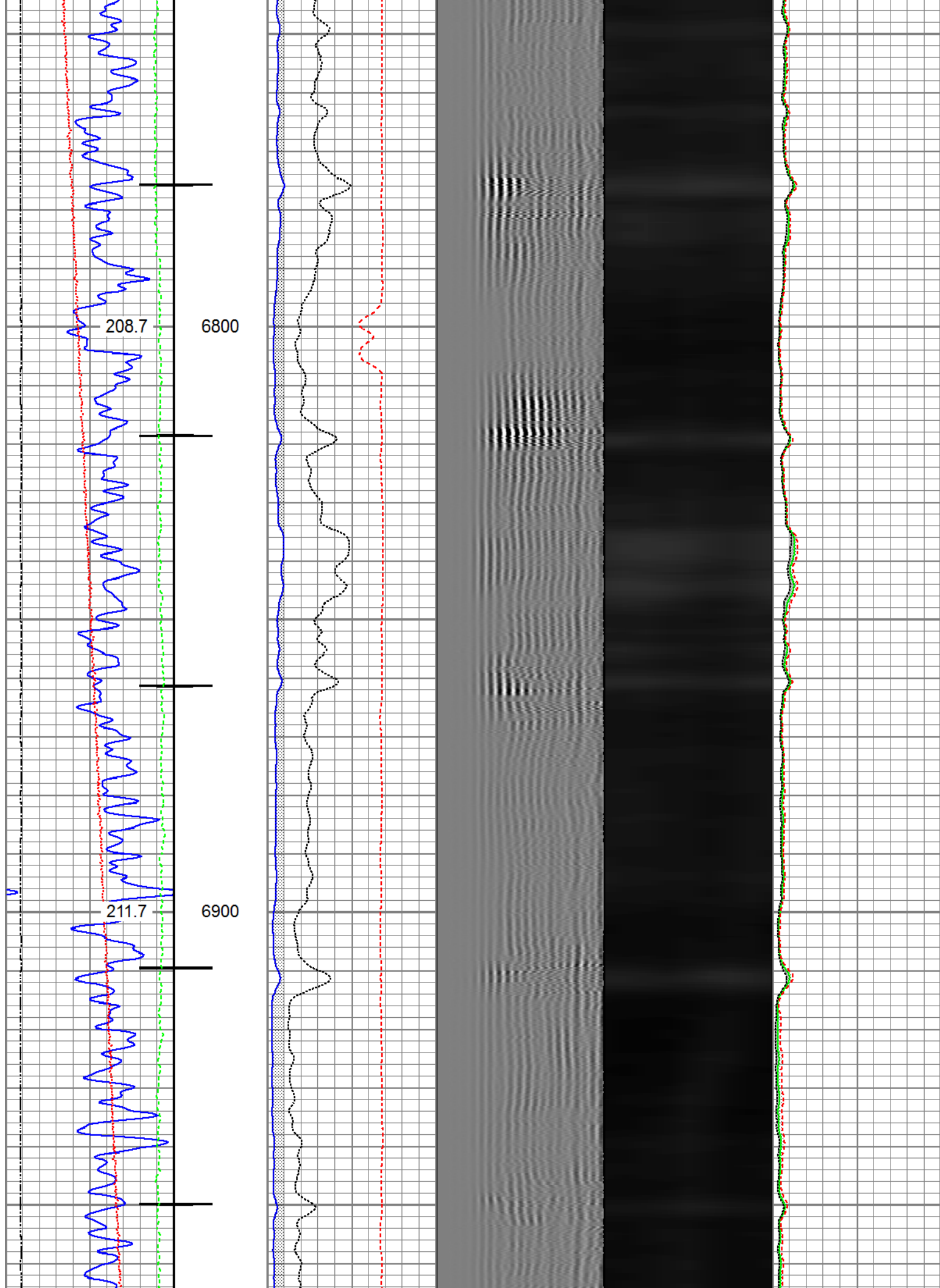


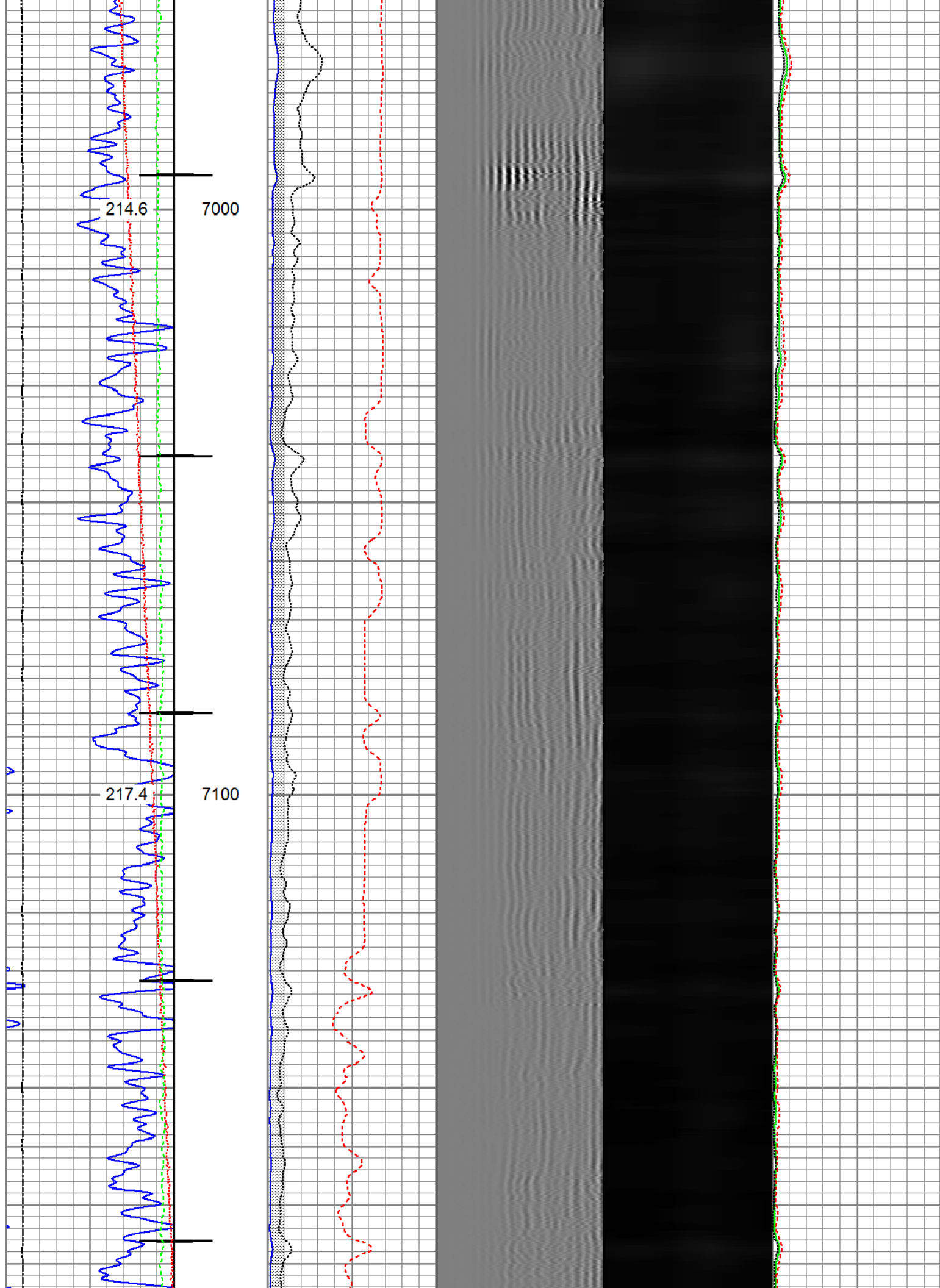


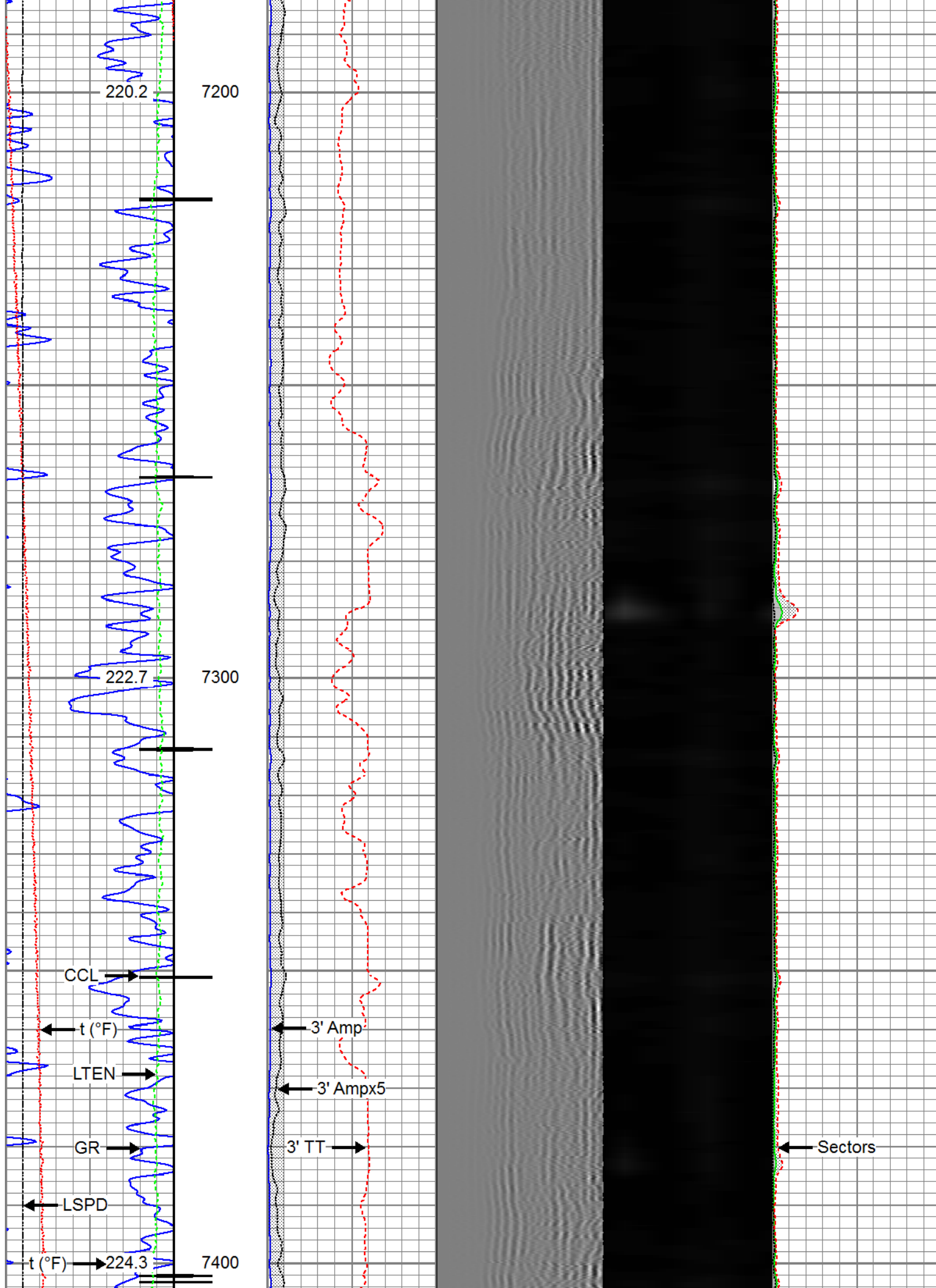


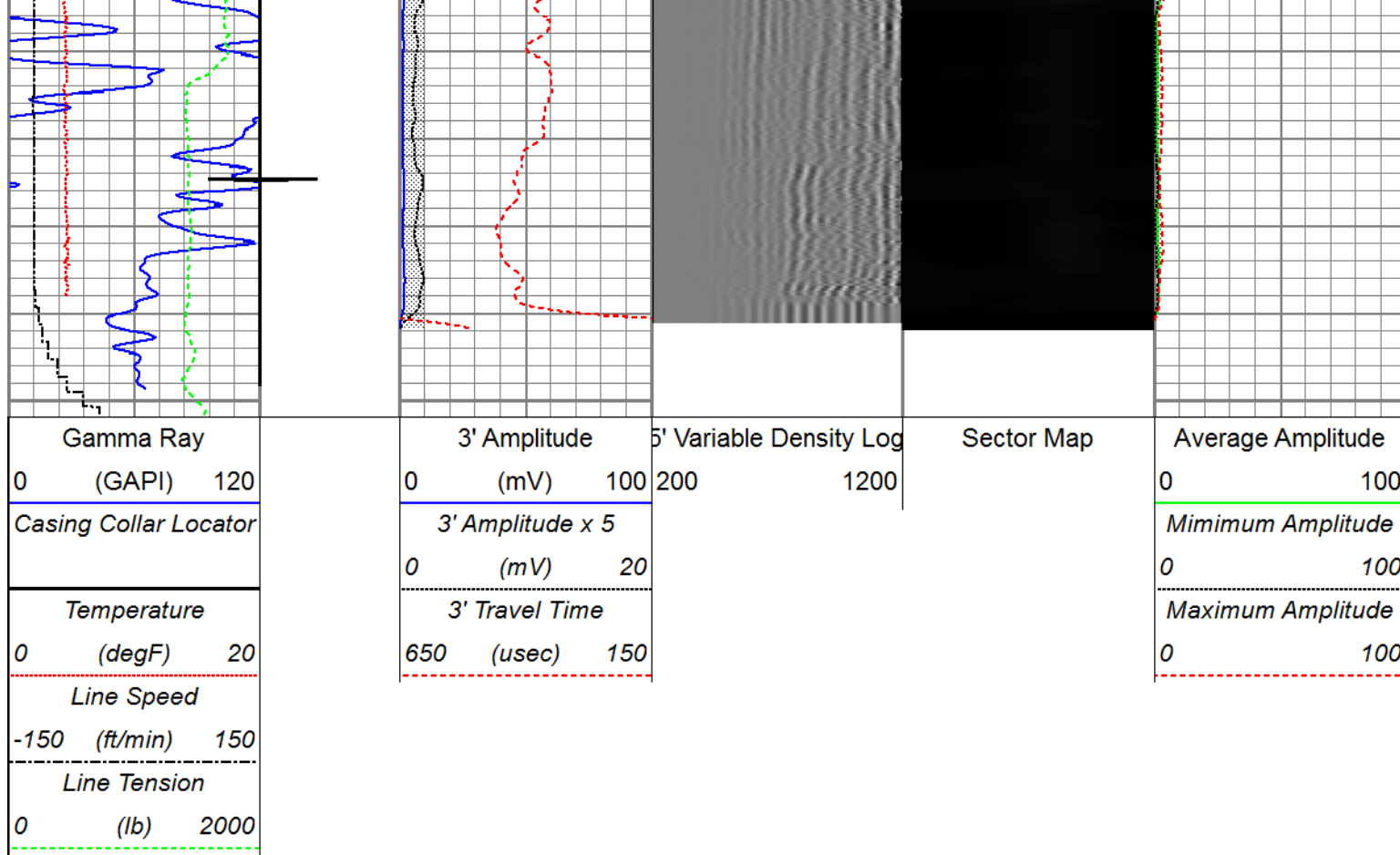








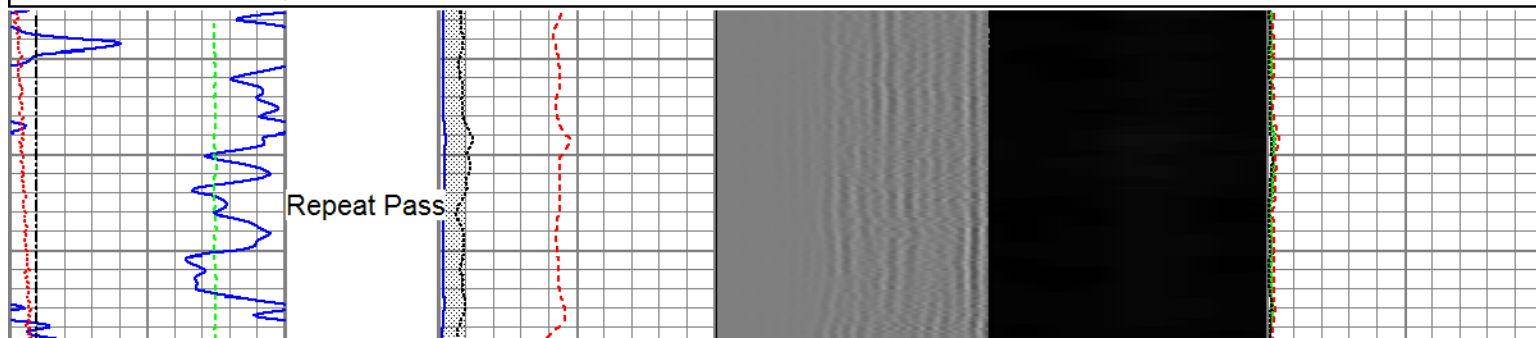
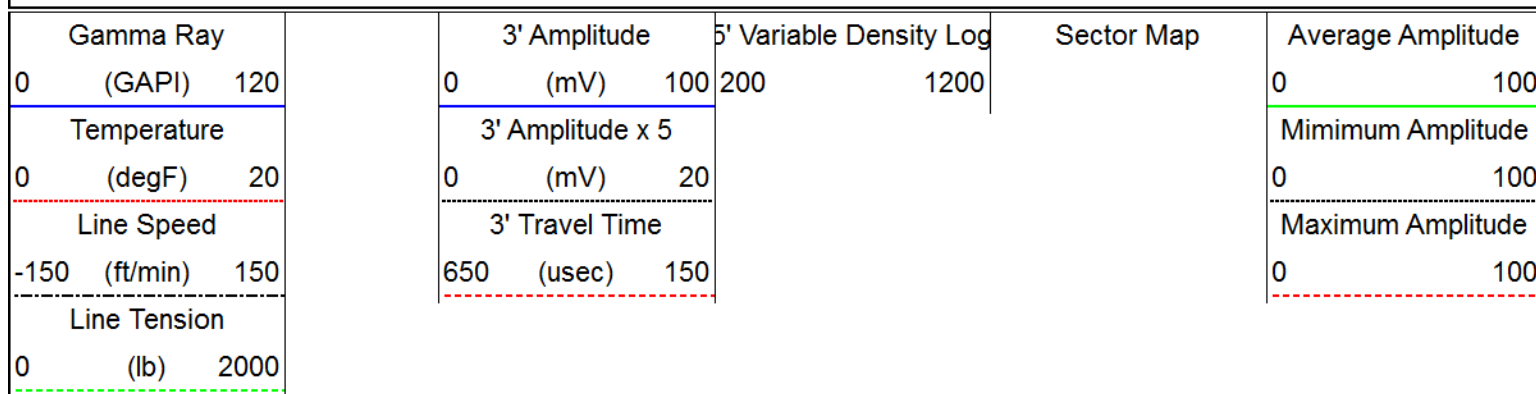




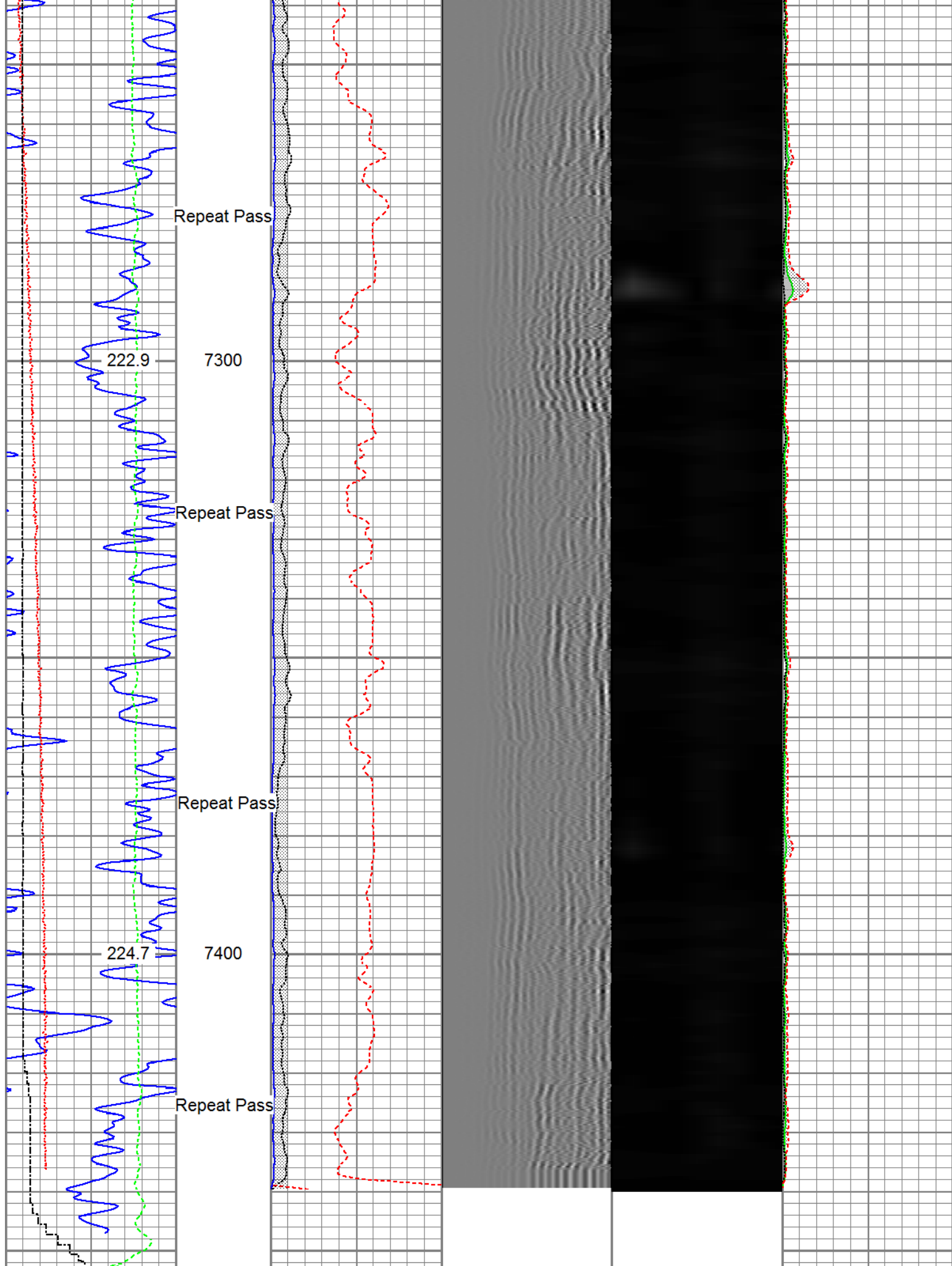
## Repeat Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File anadarko\_wilson\_ranch\_32n\_s27hz\_rcbl\_1\_feb\_2017\processed\_0512341312\_anadarko\_wilson ranch  
 Dataset Pathname pass1  
 Presentation Format ros\_radri  
 Dataset Creation Wed Feb 01 14:14:18 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	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)
			Titan_Electric_Cable_Heads-Titan_1-11/16" 1.03 Electric Cable Head with 1" Fishing Neck	1.03	1.69	5.40
			Probe_ELine_BowSpring_Centralizer-P_EB2.8875 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.8875	2.75	20.00
HeadVolt	19.51					
Temp	16.72					
WVFS8	14.55		Probe_RADII-C-P_RBT_2750 (FW1302-0029.19 Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	29.19	2.75	105.00
WVFS7	14.55					
WVFS6	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_EB2.8875 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.8875	2.75	20.00
DCCL	6.51					
CCL	6.51					
			Probe_GR_CCL-P_CGR_2750_S (FW12114.54) Probe 2-3/4" Digital CCL / Gamma Ray Combined	14.54	2.75	55.00
GR	3.77					



Probe\_ELine\_BowSpring\_Centralizer-P\_EB52.8875  
Probe 2-3/4" Electric Inline Bowspring Centralizer

2.75

20.00

Dataset: PROCESSED\_0512341312\_Anadarko\_Wilson Ranch 32N-S27HZ\_02-01-17\_RBL.db: field/well/run1/pass2  
Total length: 23.40 ft  
Total weight: 225.40 lb  
O.D.: 2.75 in

### Calibration Report

Database File C:\ProgramData\Warrior\Data\anadarko\_wilson\_ranch\_32n\_s27hz\_rcbl\_1\_feb\_2017\PROCESSED\_0  
Dataset Pathname pass2  
Dataset Creation Wed Feb 01 14:17:39 2017

### Gamma Ray Calibration Report

Serial Number: FW1211-081  
Tool Model: P\_CGR\_2750\_S  
Performed: Sat Jan 07 07:43:48 2017  
  
Calibrator Value: 1.0 GAPI  
  
Background Reading: 0.0 cps  
Calibrator Reading: 1.0 cps  
  
Sensitivity: 0.6061 GAPI/cps

### Segmented Cement Bond Log Calibration Report

Serial Number: FW1302-002  
Tool Model: P\_RBT\_2750  
  
Calibration Casing Diameter: 5.500 in  
Calibration Depth: 1.417 ft

Master Calibration, performed Wed Feb 01 10:07:38 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	0.683	0.800	71.921	105.331	0.005
CAL	0.729	0.740				
5'	0.009	0.604	0.800	71.921	119.353	-0.215
SUM						
S1	0.006	0.643	0.000	100.000	157.153	-0.988
S2	0.008	0.612	0.000	100.000	165.534	-1.358
S3	0.008	0.630	0.000	100.000	160.842	-1.261
S4	0.008	0.680	0.000	100.000	148.791	-1.186
S5	0.008	0.761	0.000	100.000	132.763	-1.053
S6	0.008	0.794	0.000	100.000	127.241	-1.025
S7	0.008	0.757	0.000	100.000	133.511	-1.027
S8	0.008	0.700	0.000	100.000	144.544	-1.198

Internal Reference Calibration, performed Wed Sep 14 11:34:04 2016:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset

CAL	0.000	0.000	0.729	0.740	1.000	0.000
-----	-------	-------	-------	-------	-------	-------

Air Zero Calibration, performed Wed Feb 01 10:04:43 2017:

	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



**RELIANCE**  
DILFIELD SERVICES

Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Wilson Ranch 32N-S27HZ
Field	Wattenberg
County	Weld
State	Colorado