



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Puma Fed 13N-35HZ
Field Wattenberg
County Weld
State Colorado

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Location: API #: 05-123-42569

SEC 23 TWP 1N RGE 67W

Permanent Datum Ground Level Elevation 4991'

Log Measured From Kelly Bushing 32 FT

Drilling Measured From Kelly Bushing

Other Services
Gauge Ring

Elevation

K.B. 5023'

D.F. ---

G.L. 4991'

Date 15-MAY-2017

Run Number Two

Depth Driller 17790 FT

Depth Logger 7700 FT

Bottom Logged Interval 7696 FT

Top Log Interval Surface

Open Hole Size 8.50"

Type Fluid Water

Density / Viscosity 8.34 lb/gal

Max. Recorded Temp. 233°F

Estimated Cement Top See Log

Time Well Ready ROA

Time Logger on Bottom 7:00 AM

Equipment Number HD-0343

Location Fort Lupton, CO

Recorded By J. Fresquez

Witnessed By B. Jolly

Borehole Record

Run Number

Bit

From

To

Size

Weight

From

Tubing Record

Run Number

Bit

From

To

Size

Weight

From

Casing Record

Run Number

Bit

From

To

Size

Weight

From

Surface Casing

Run Number

Bit

From

To

Size

Weight

From

Intermediate #1

Run Number

Bit

From

To

Size

Weight

From

Intermediate #2

Run Number

Bit

From

To

Size

Weight

From

Liner

Run Number

Bit

From

To

Size

Weight

From

Comments

Log ran as per customer request
Depth referenced to Casing Tally reported Marker Joint at 6736 FT
Adjusted +8 FT to correlate with Marker Joint
Gauge Ring/Junk Basket ran to 7756 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 any debris upon completion of operations
Thank you for choosing Reliance Oilfield Services, LLC!!

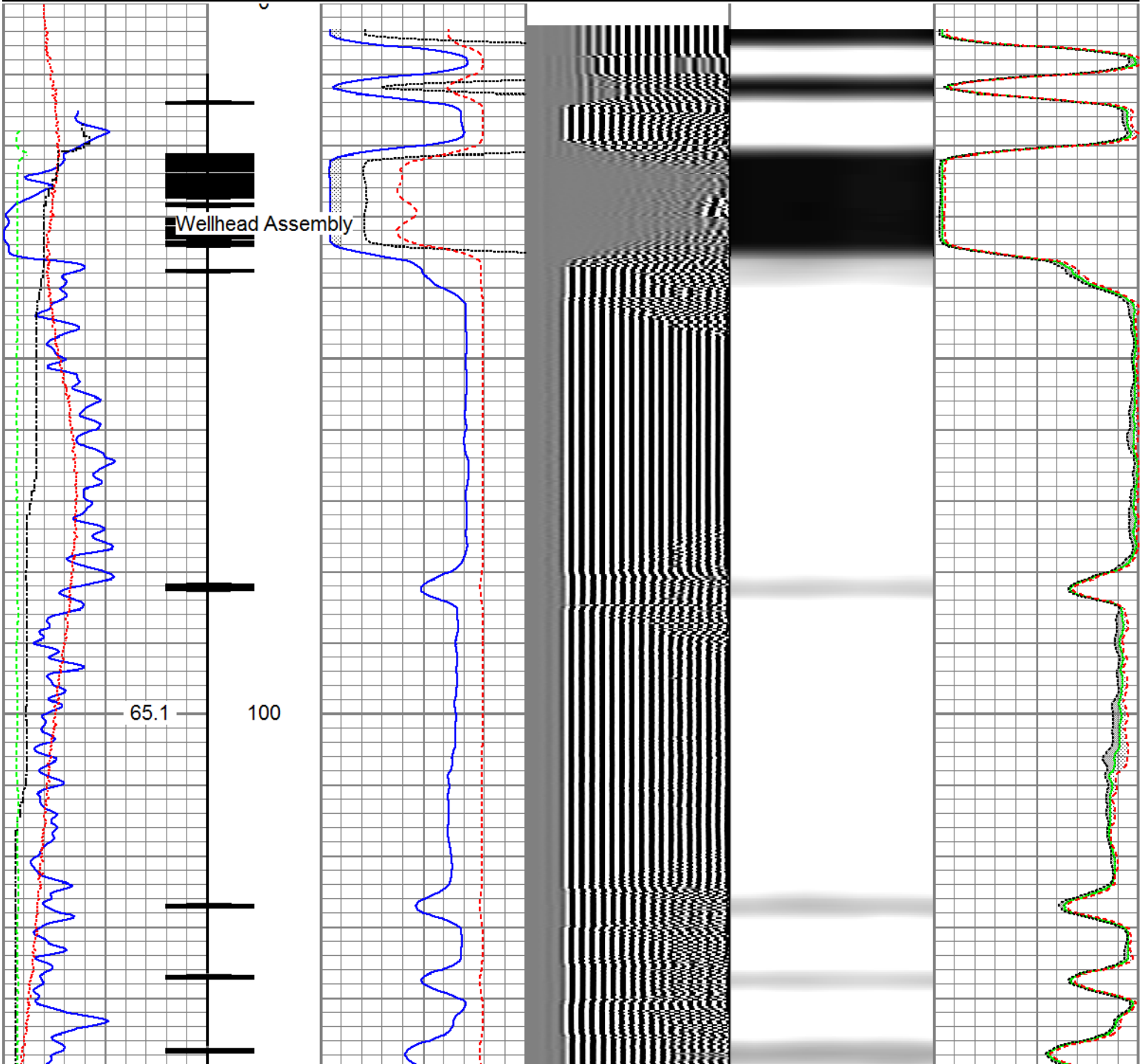
Main Pass

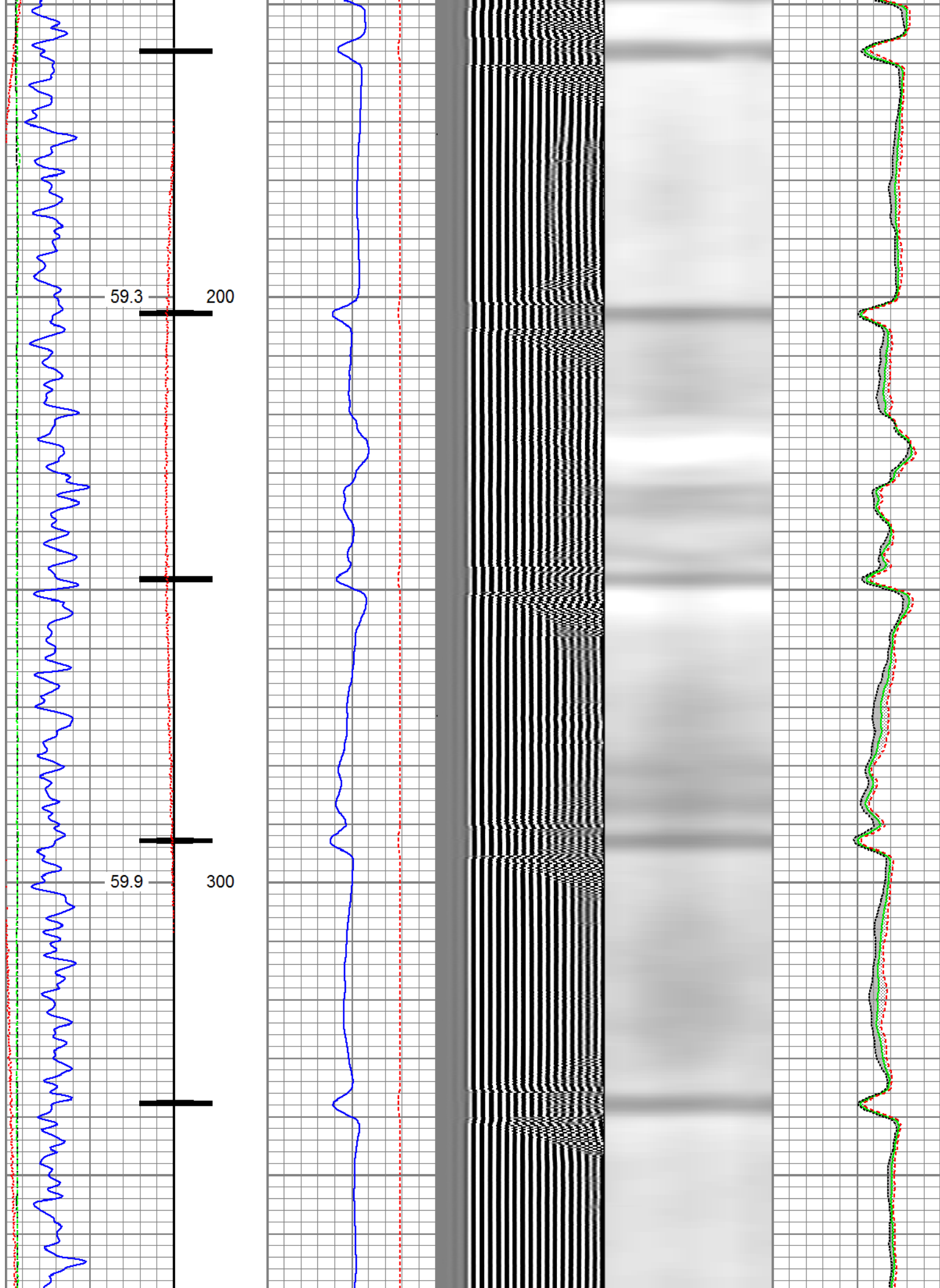
Recorded With 2800 PSI of Surface Induced Pressure

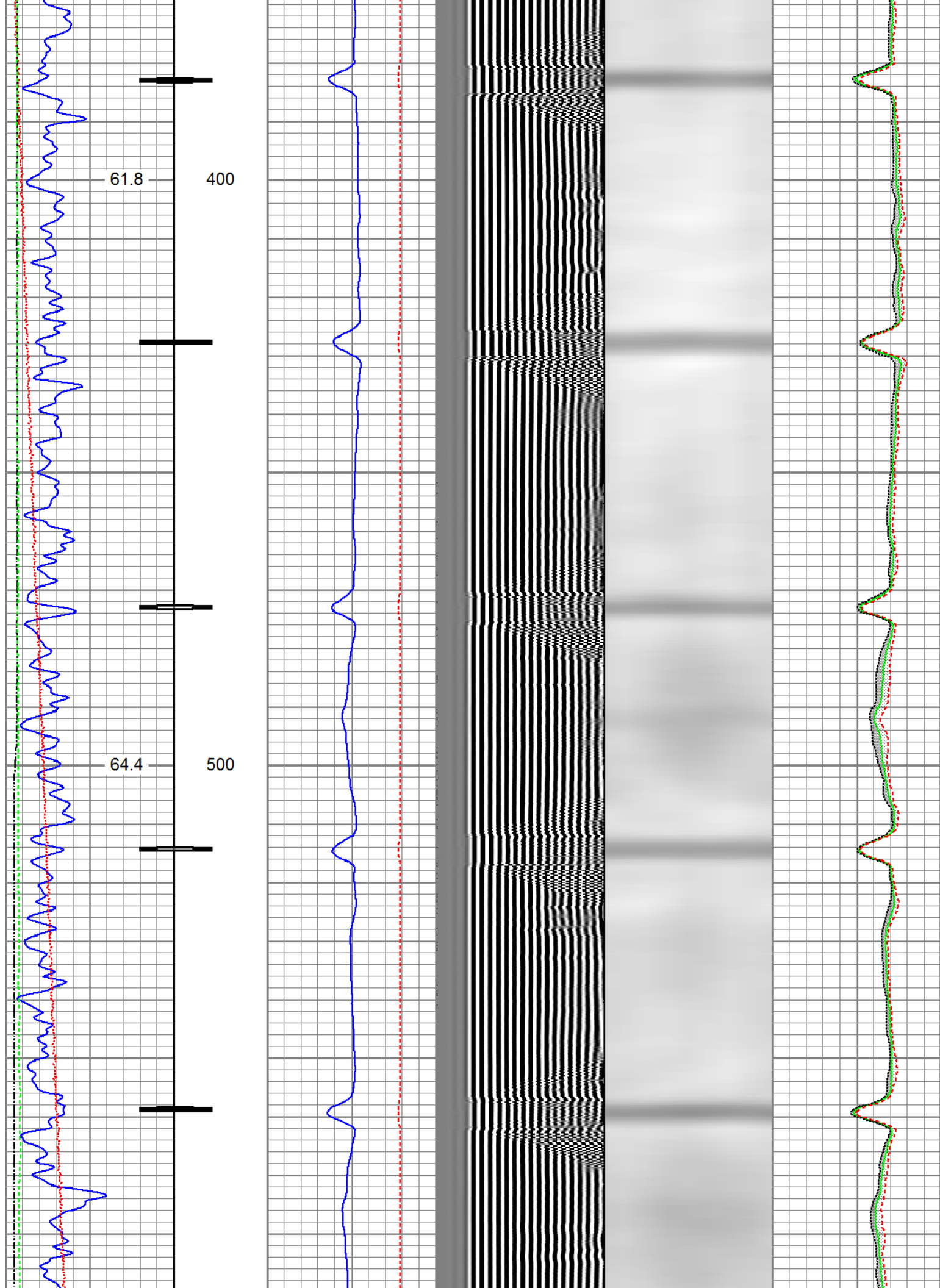


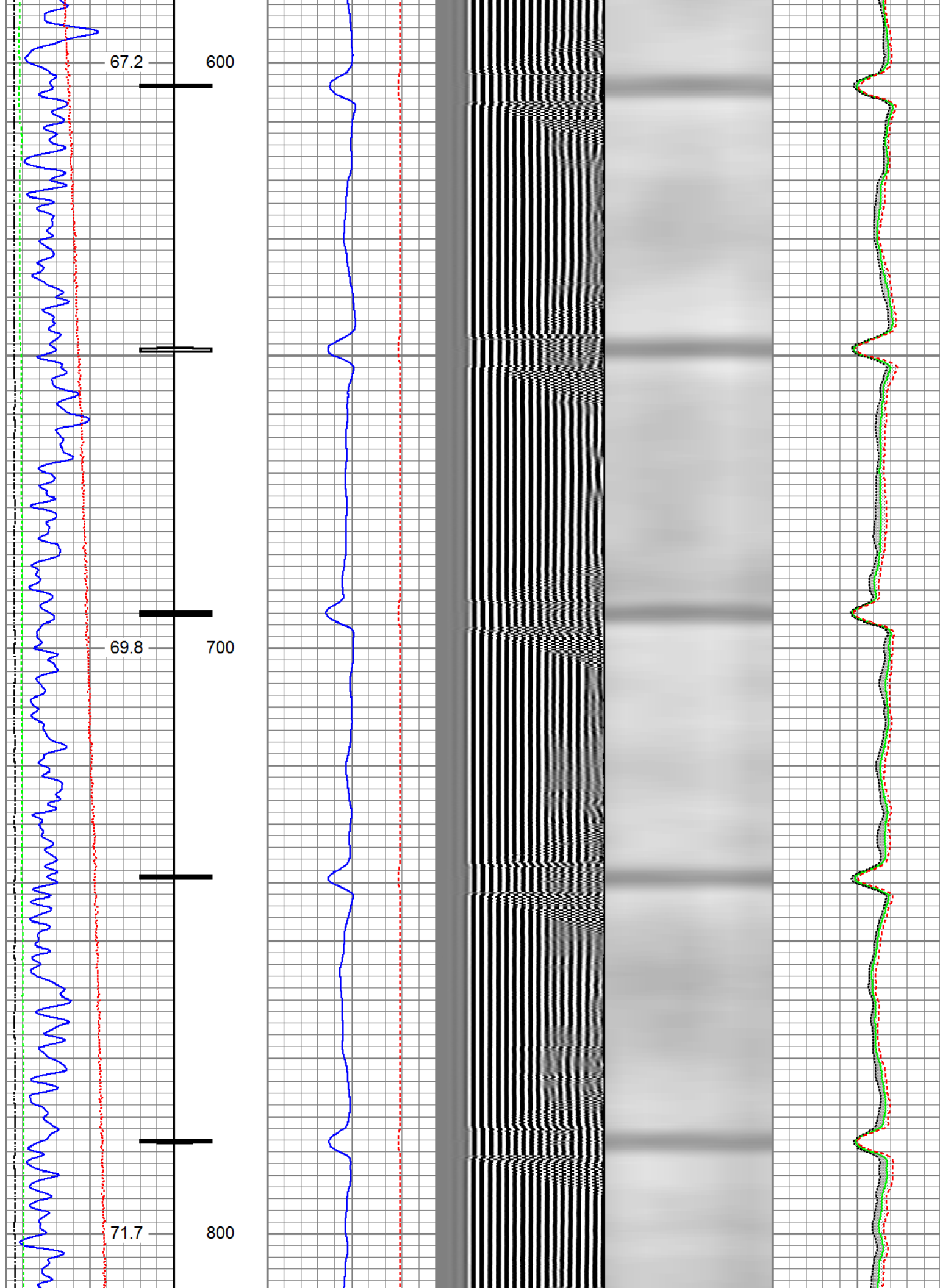
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Dataset Pathname	pass6.1
Presentation Format	ros_radri
Dataset Creation	Mon May 15 08:08:09 2017
Charted by	Depth in Feet scaled 1:240

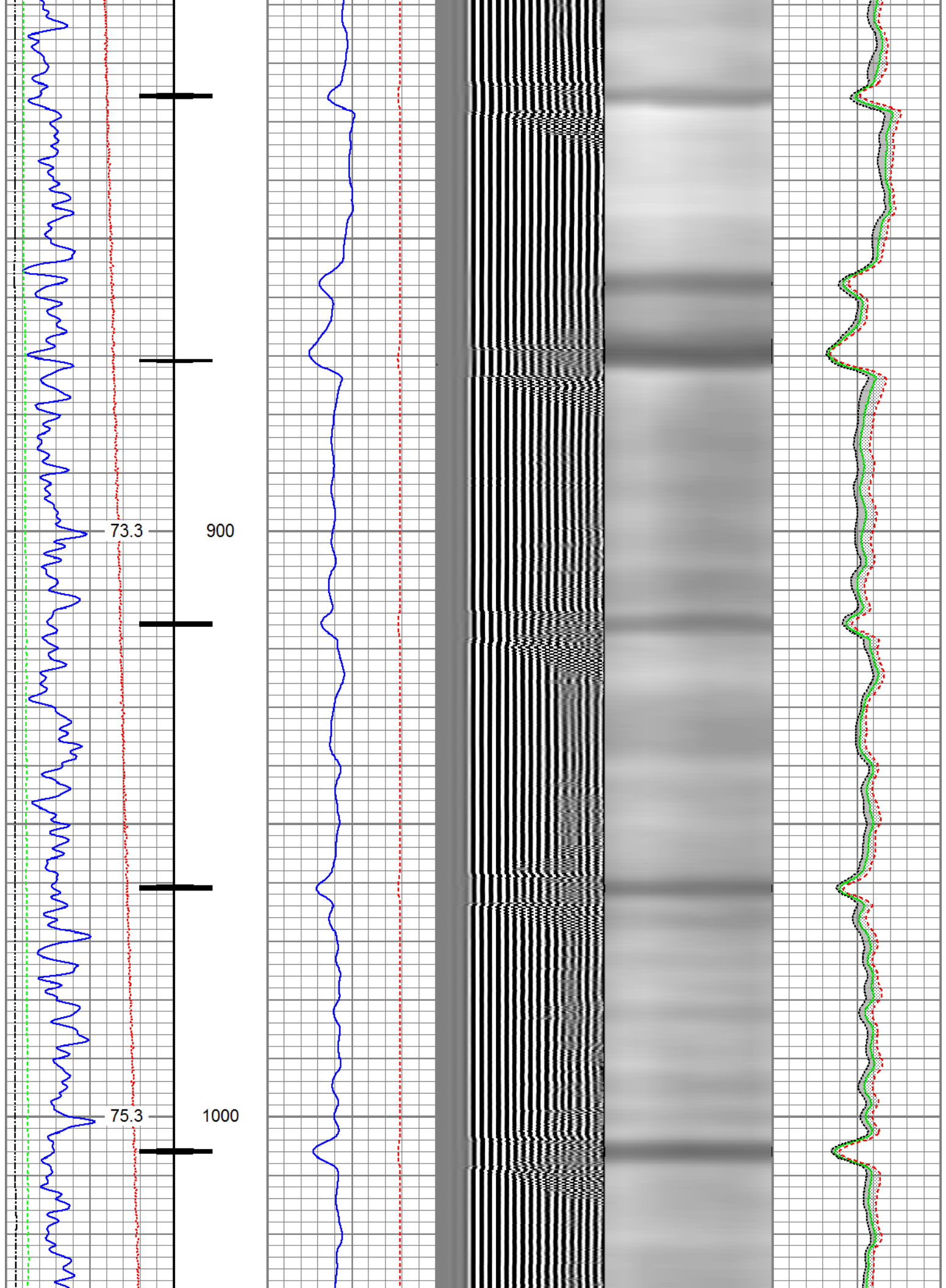
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 100
Temperature	3' Travel Time			Maximum Amplitude
0 (degF) 20	650 (usec) 150			0 100
Line Speed				
-150 (ft/min)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

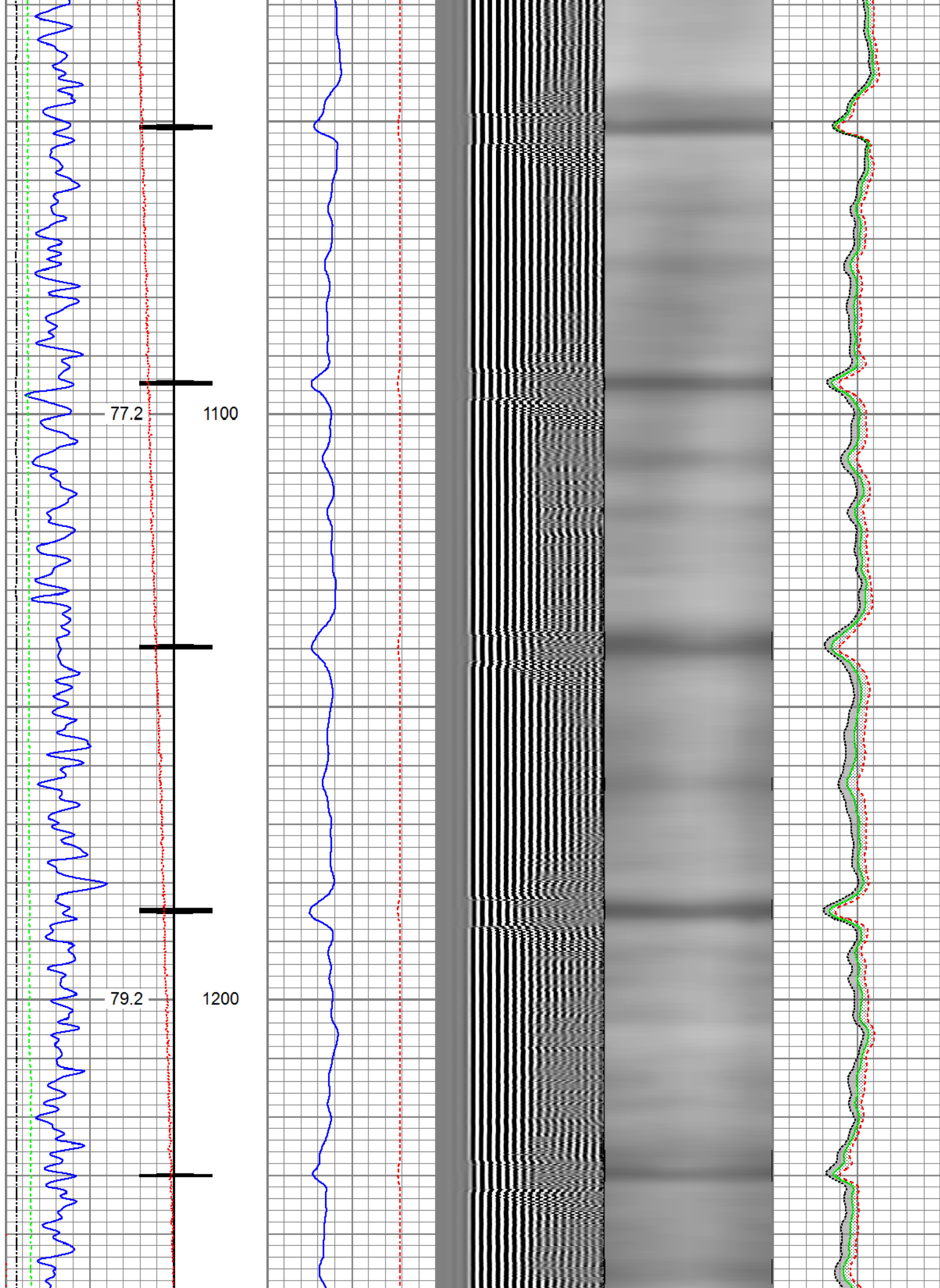


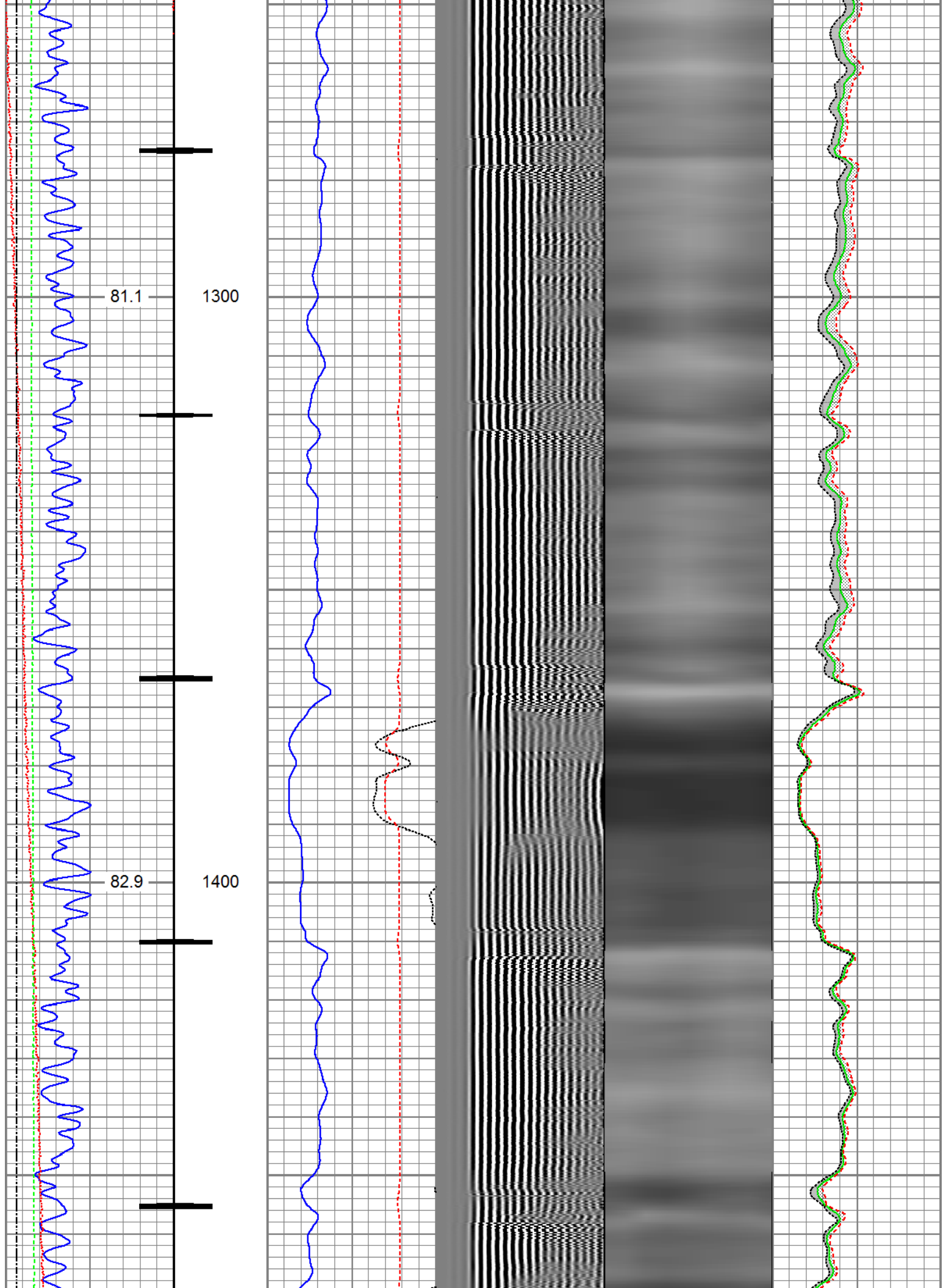


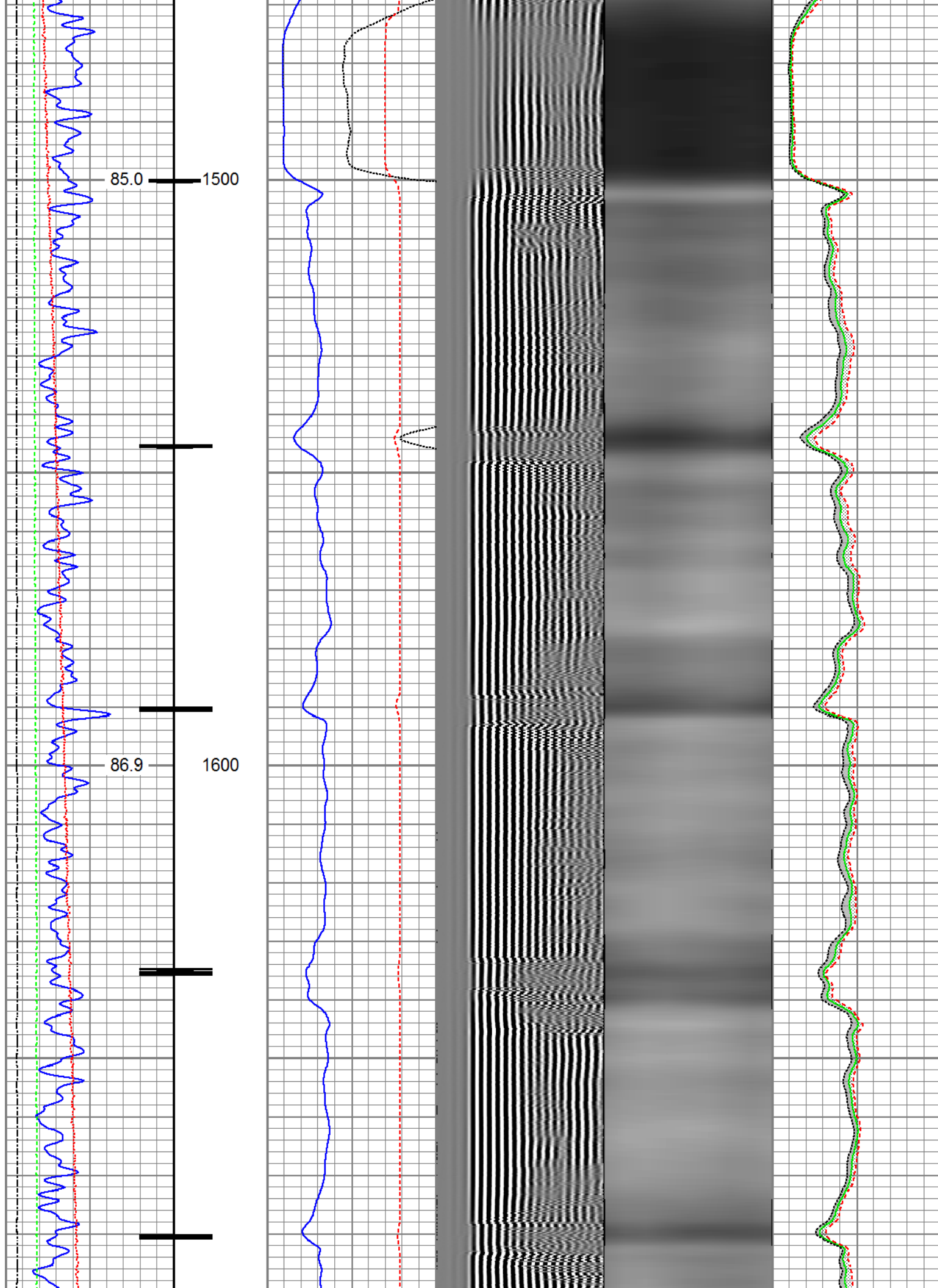


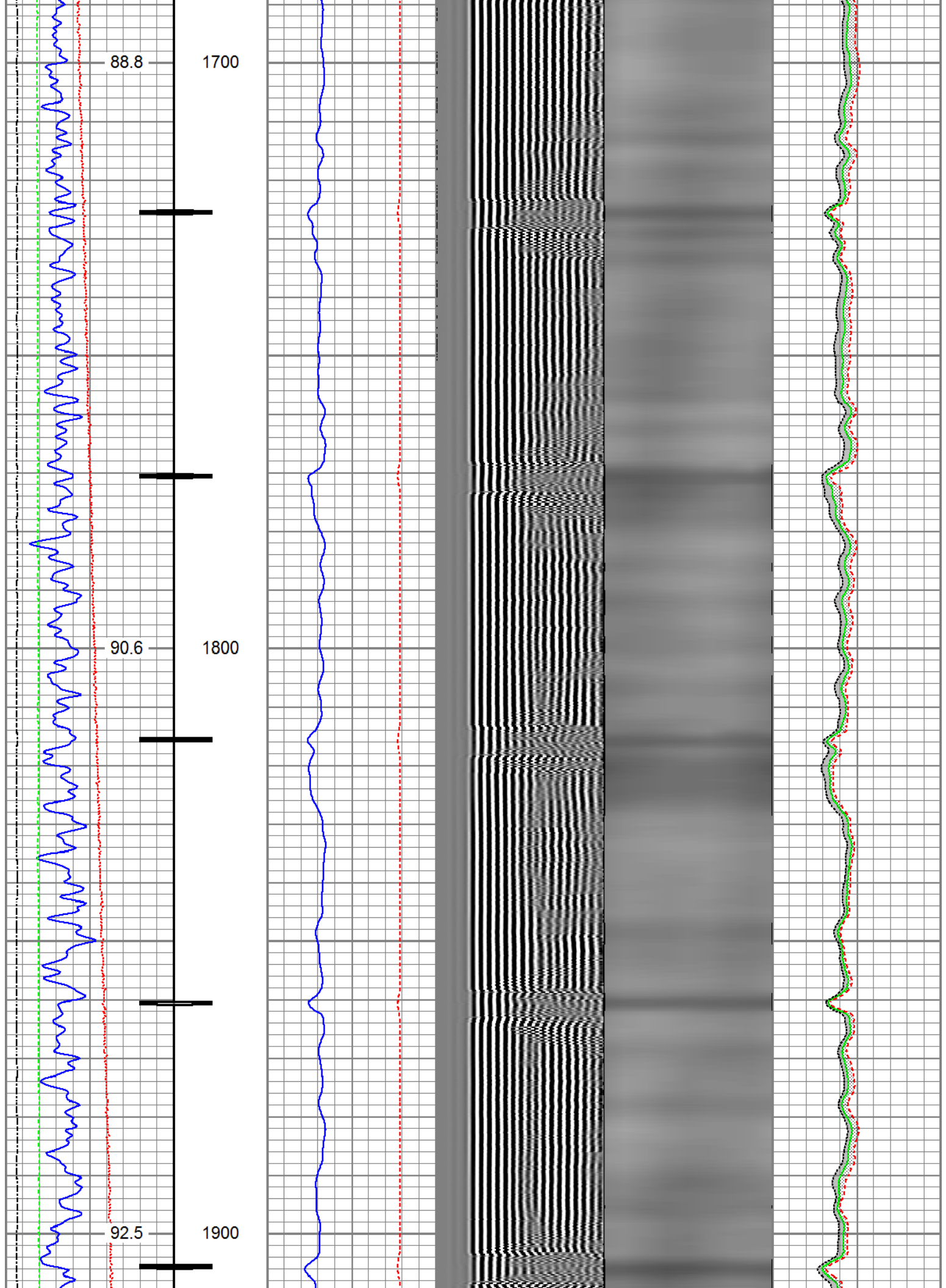


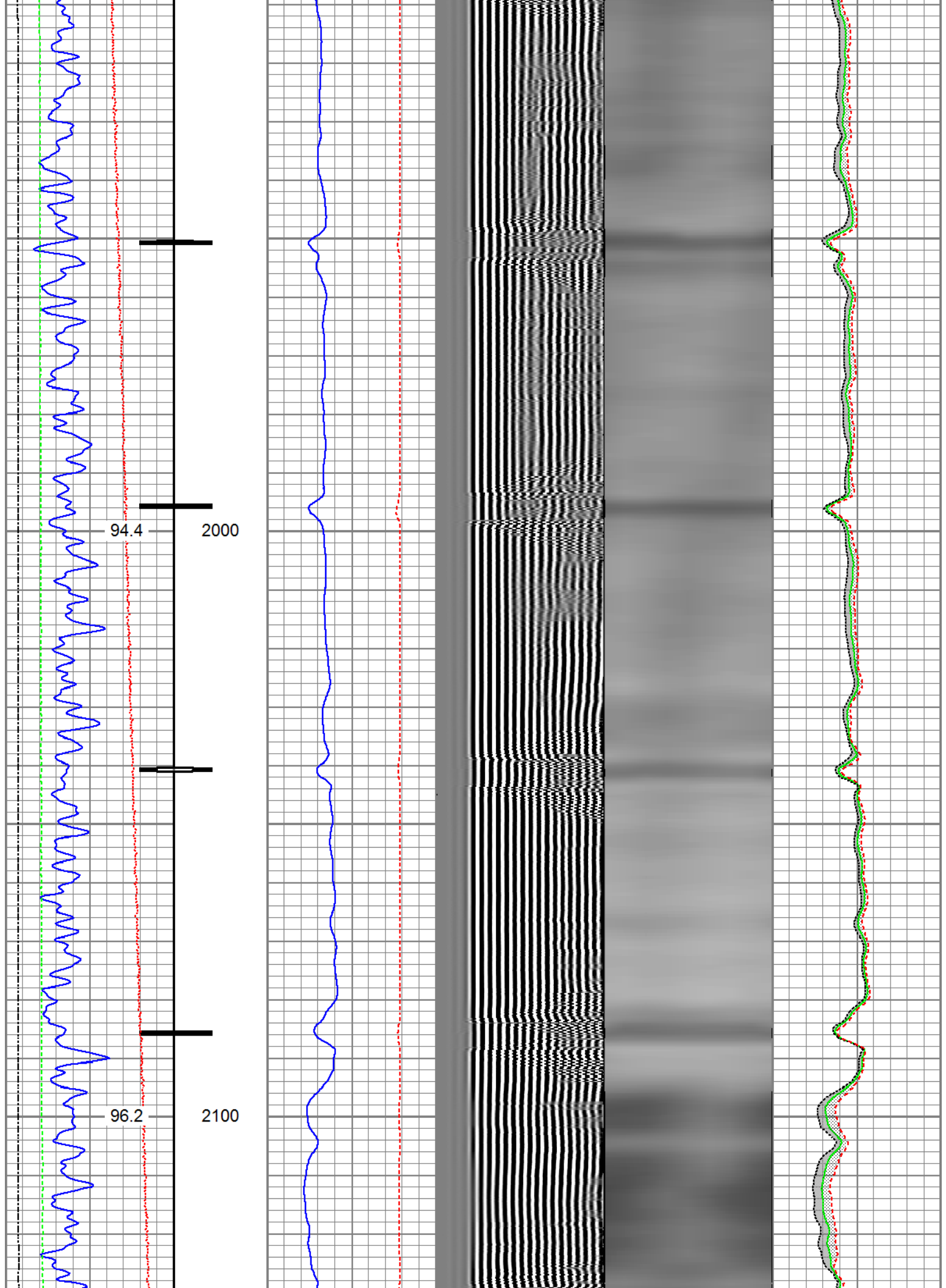


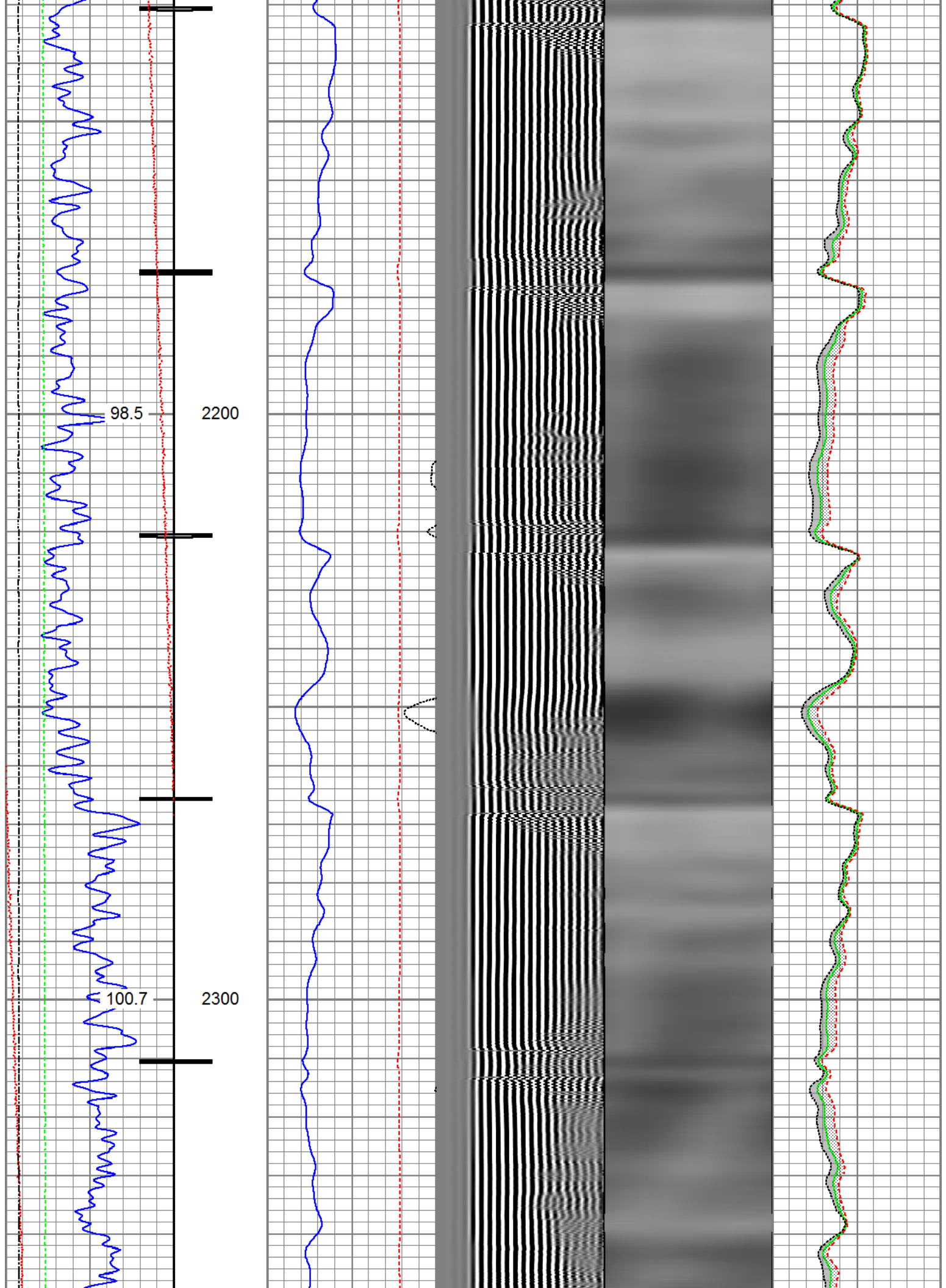


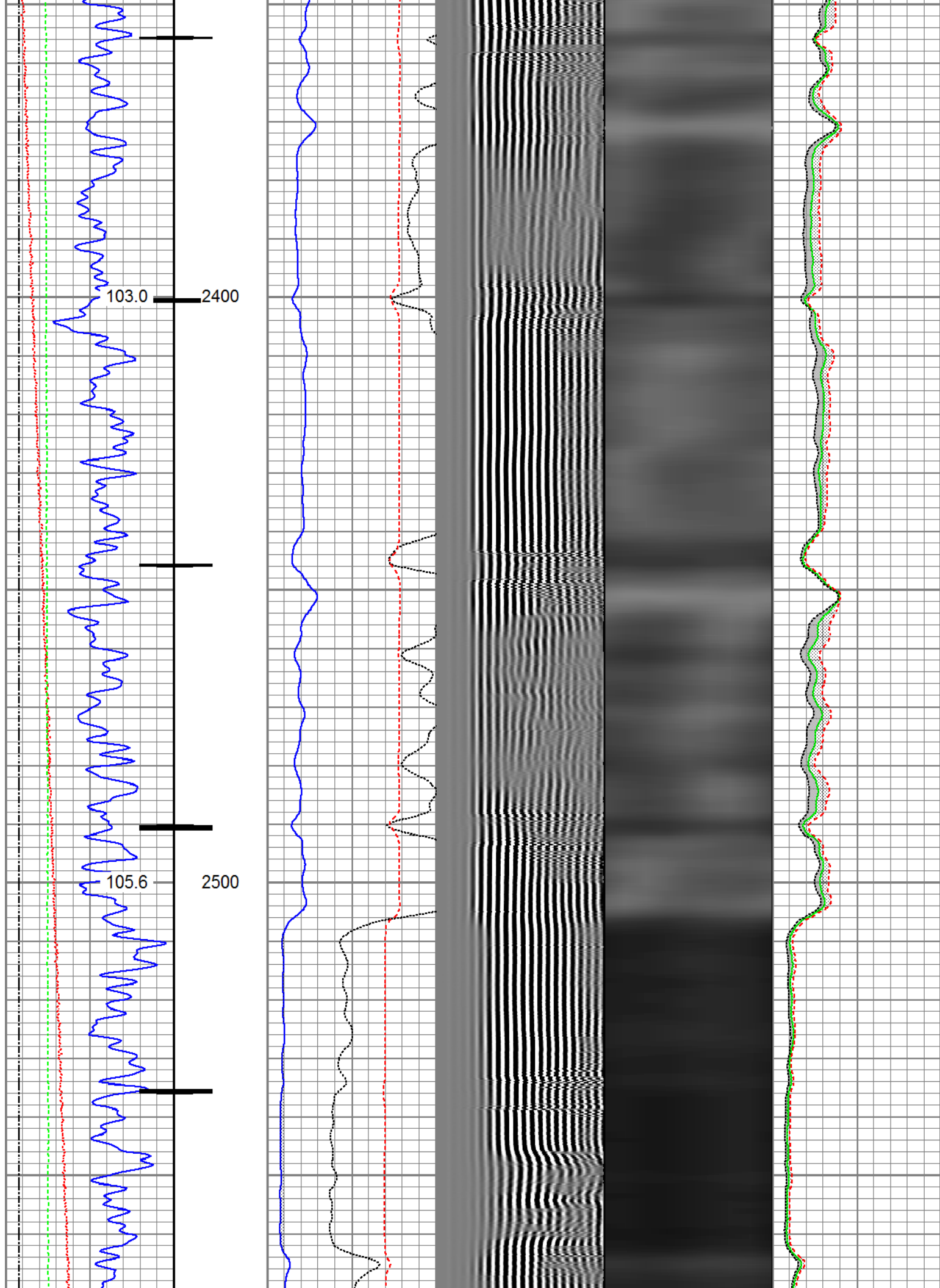


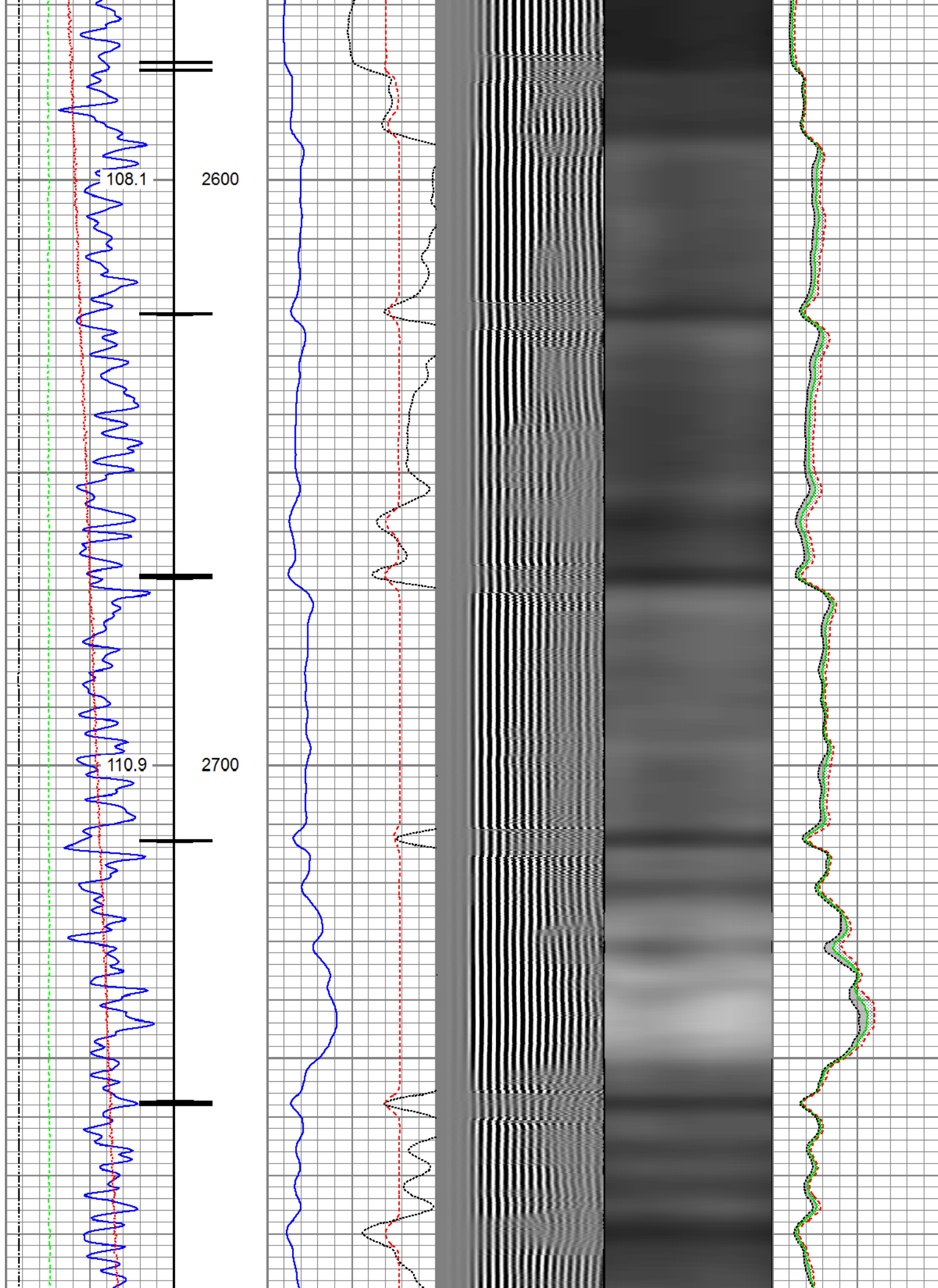


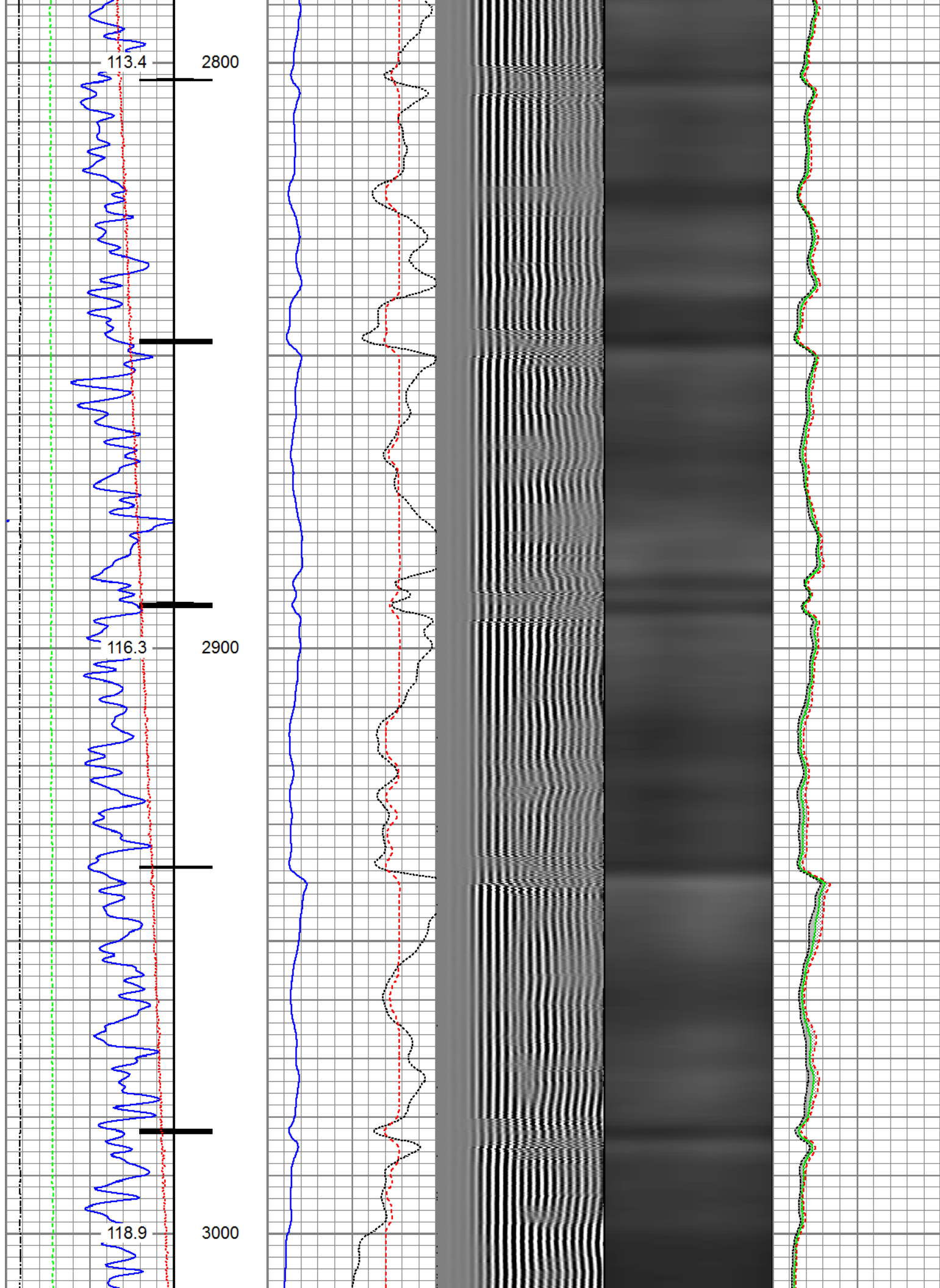


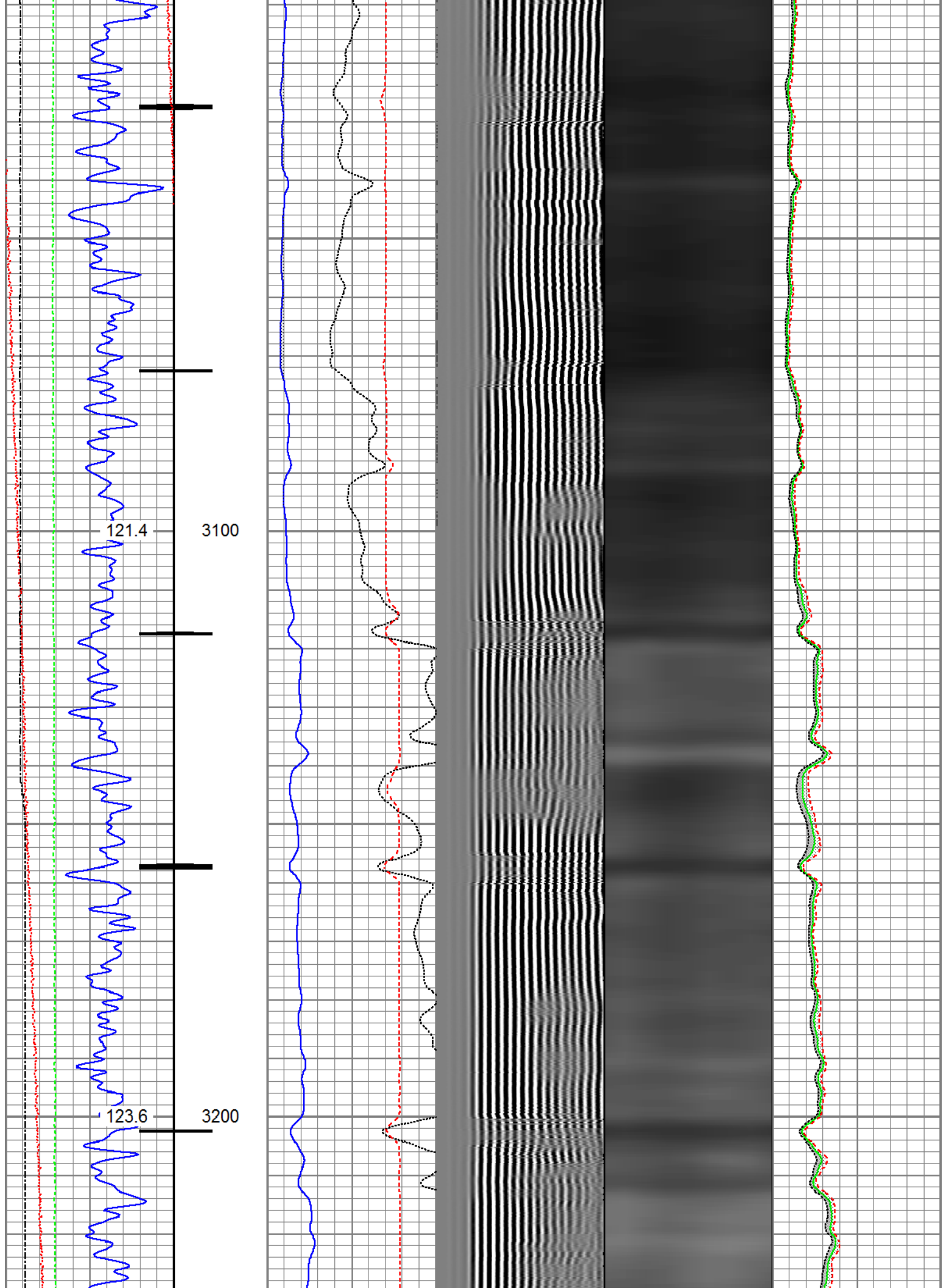


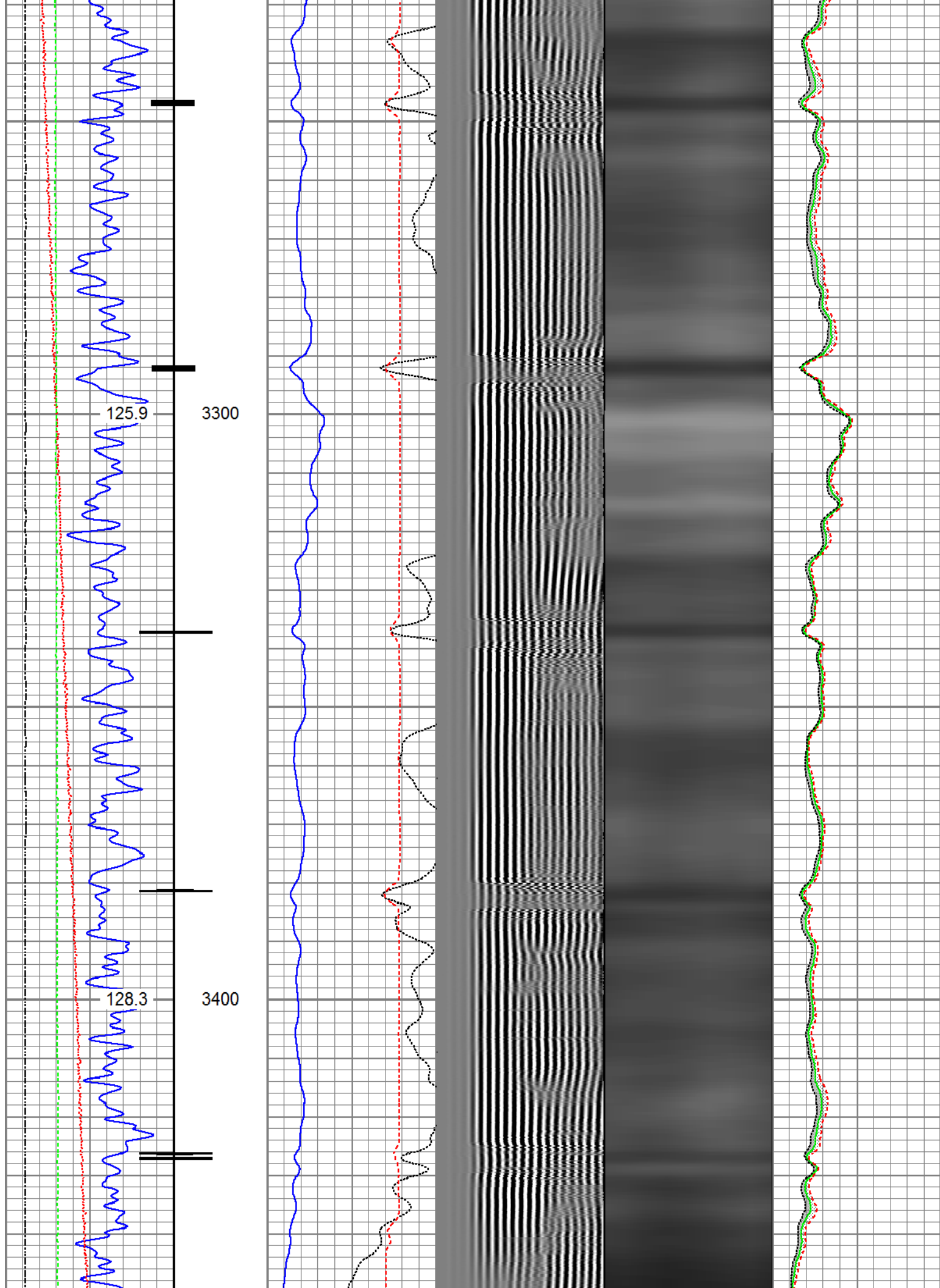


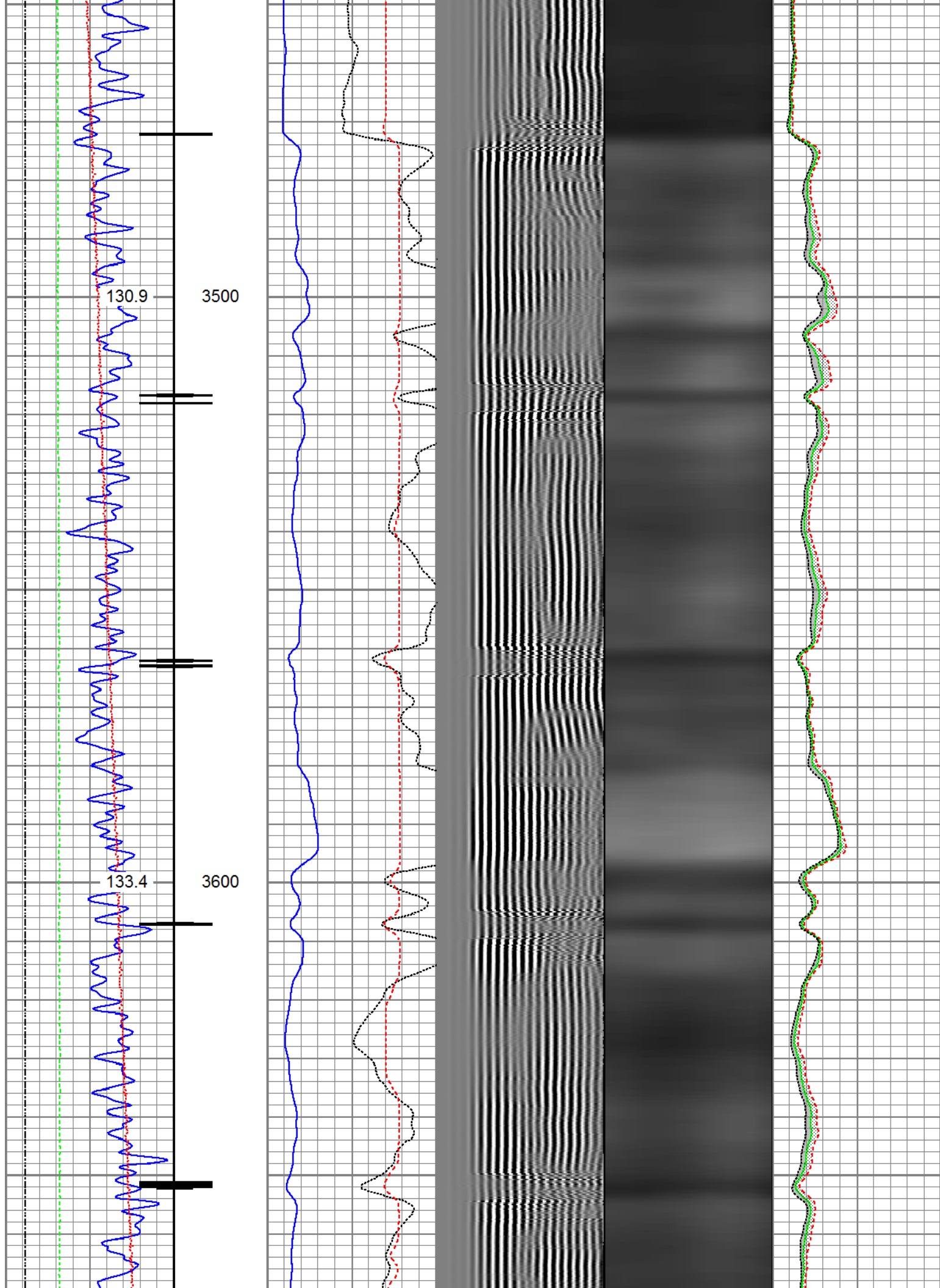


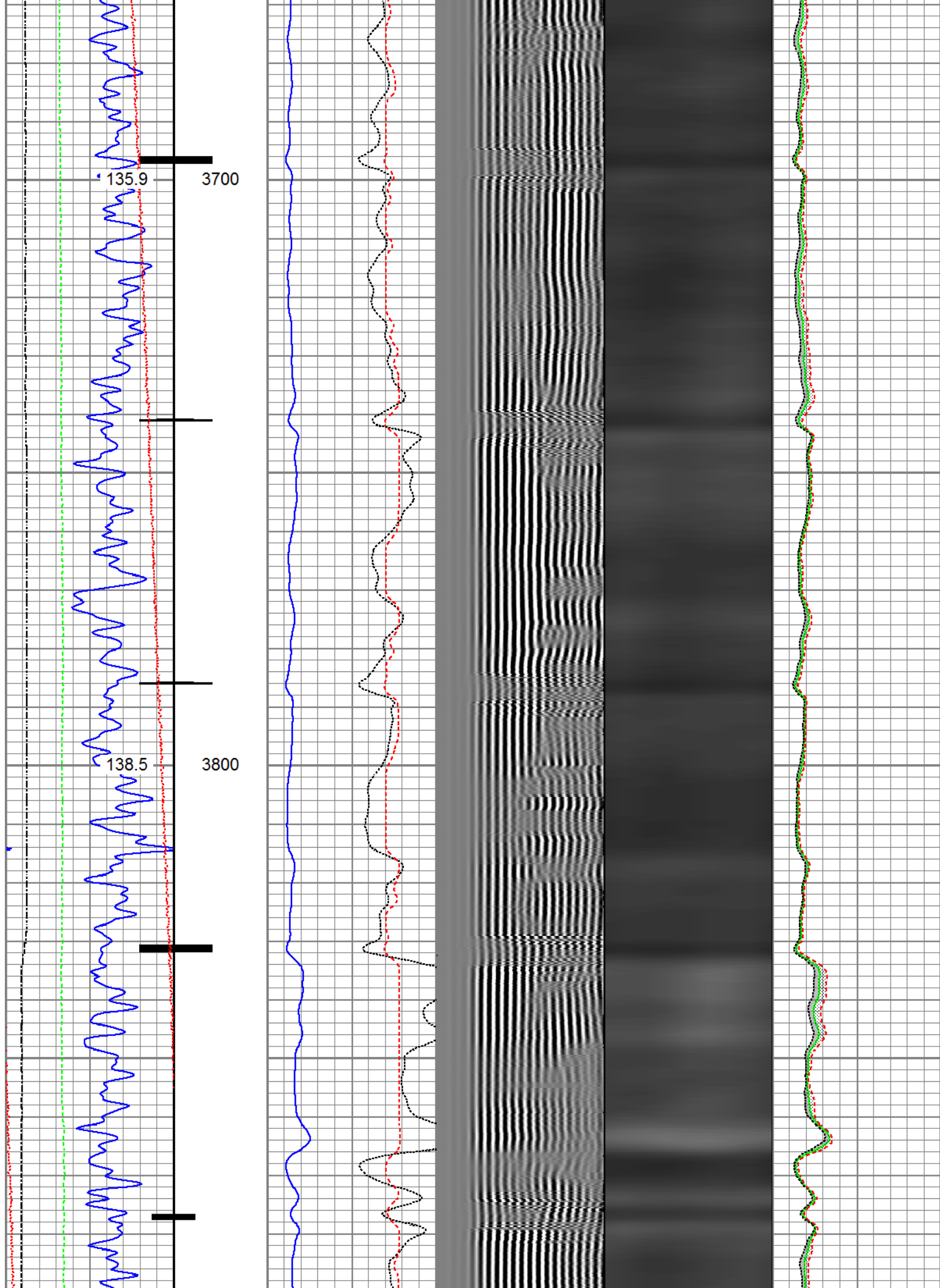


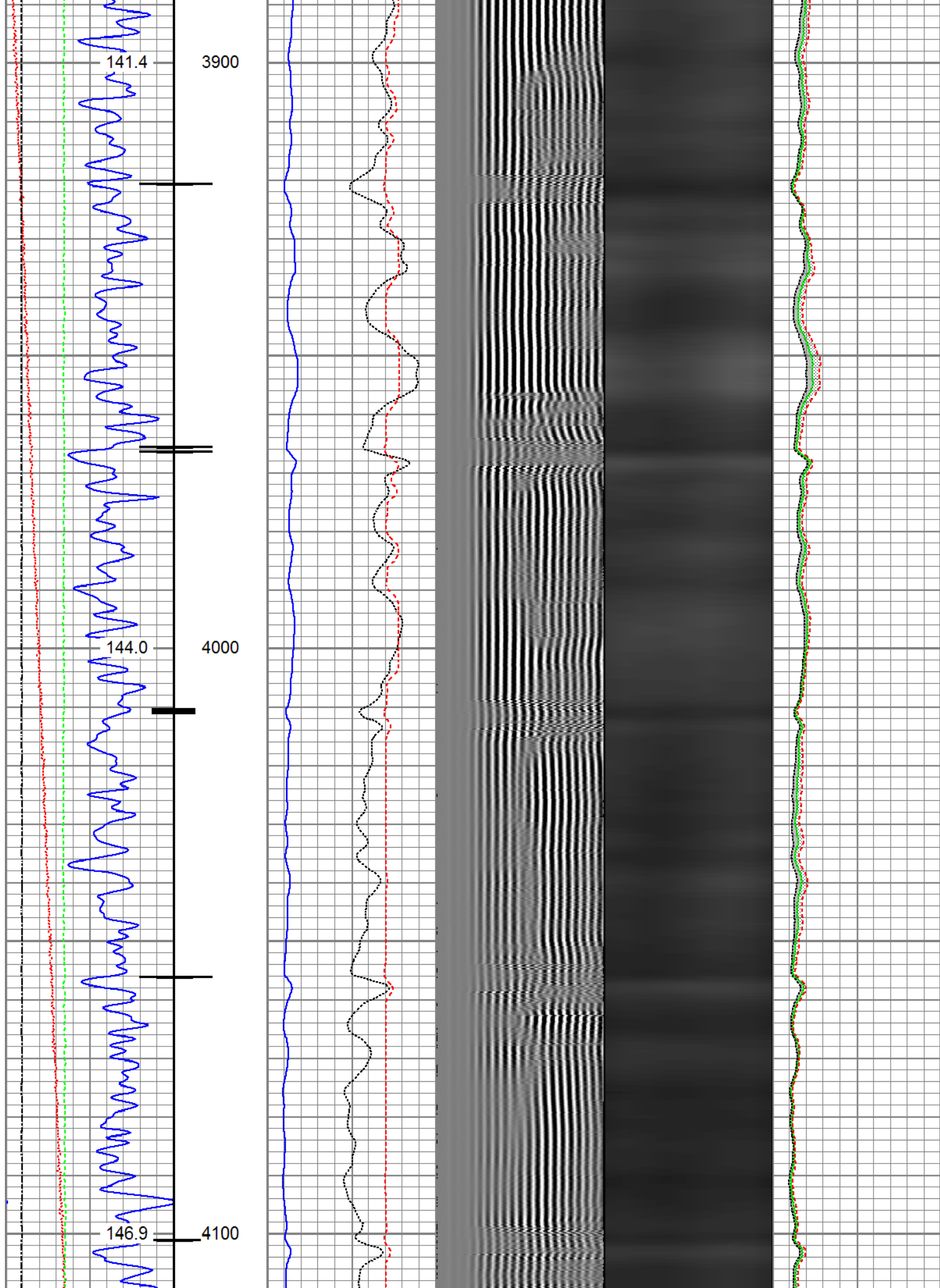


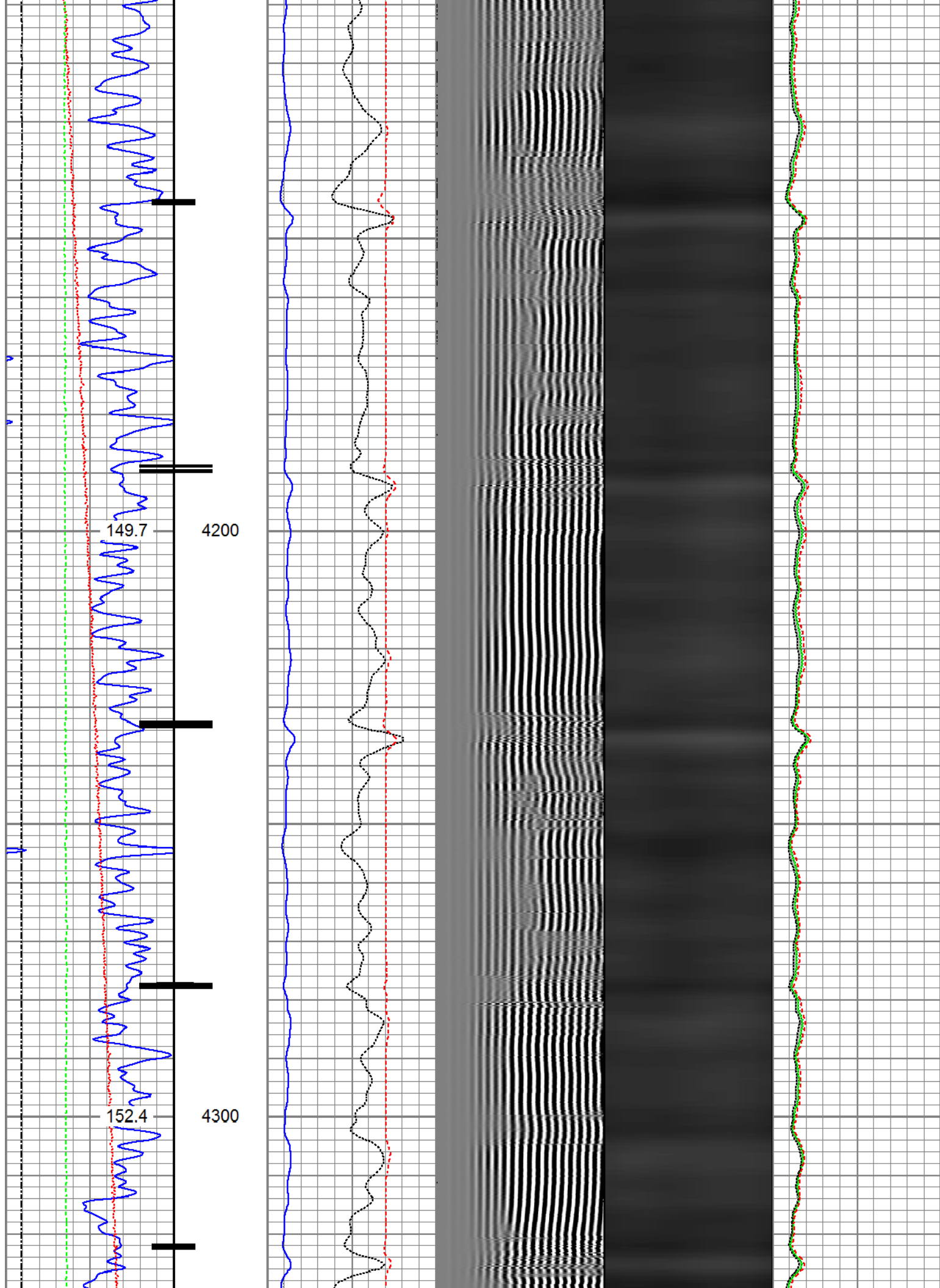


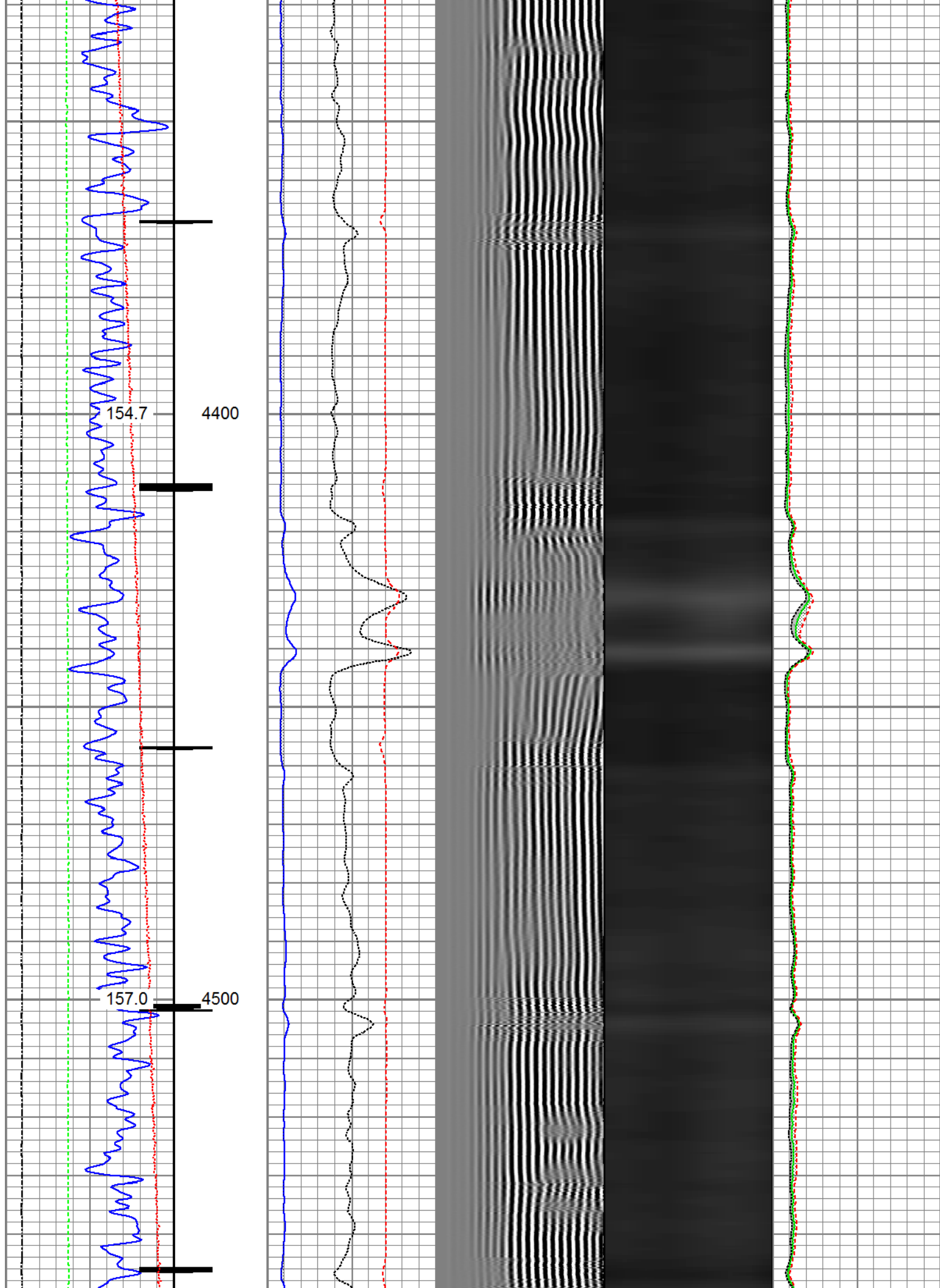


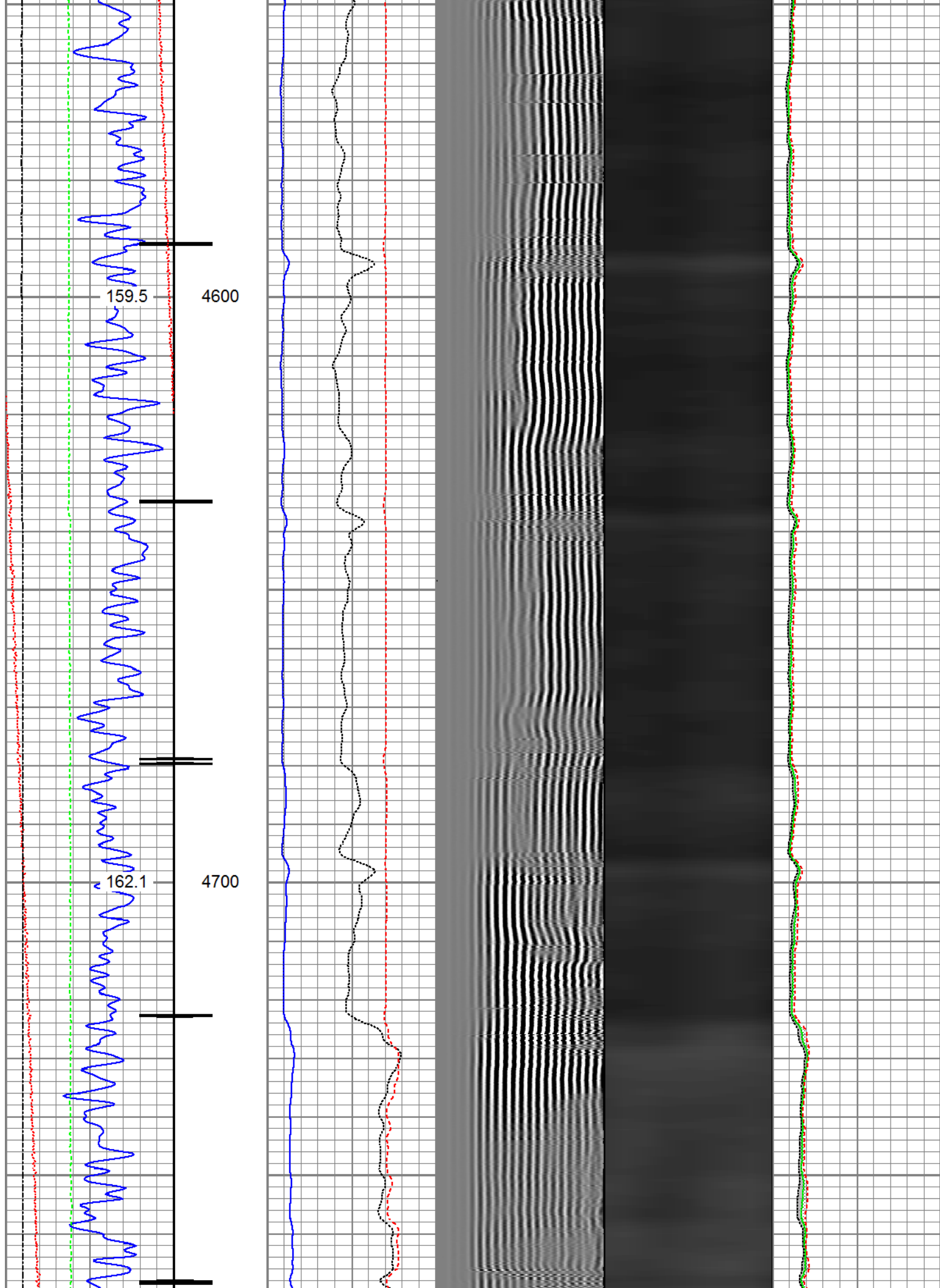


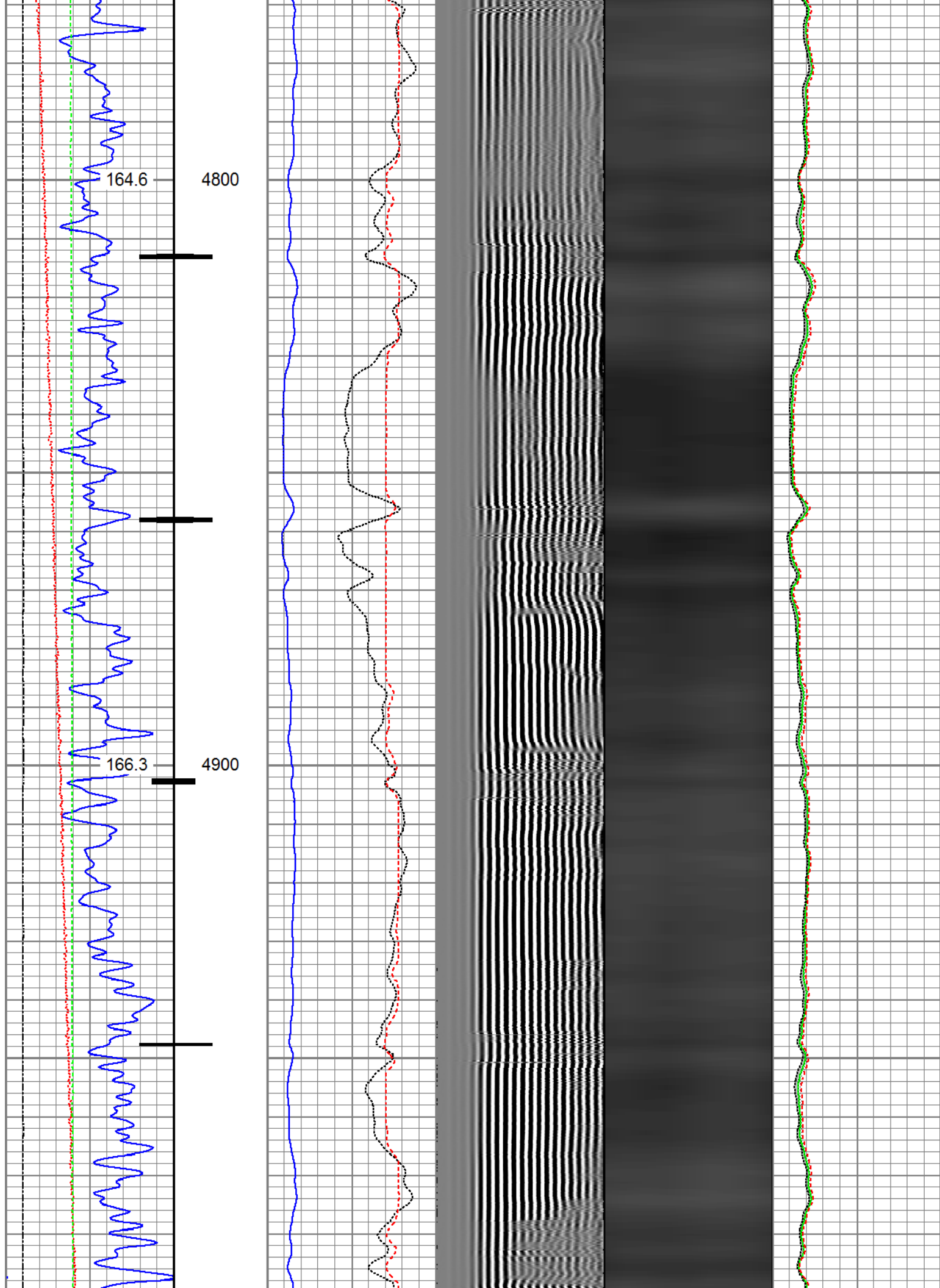


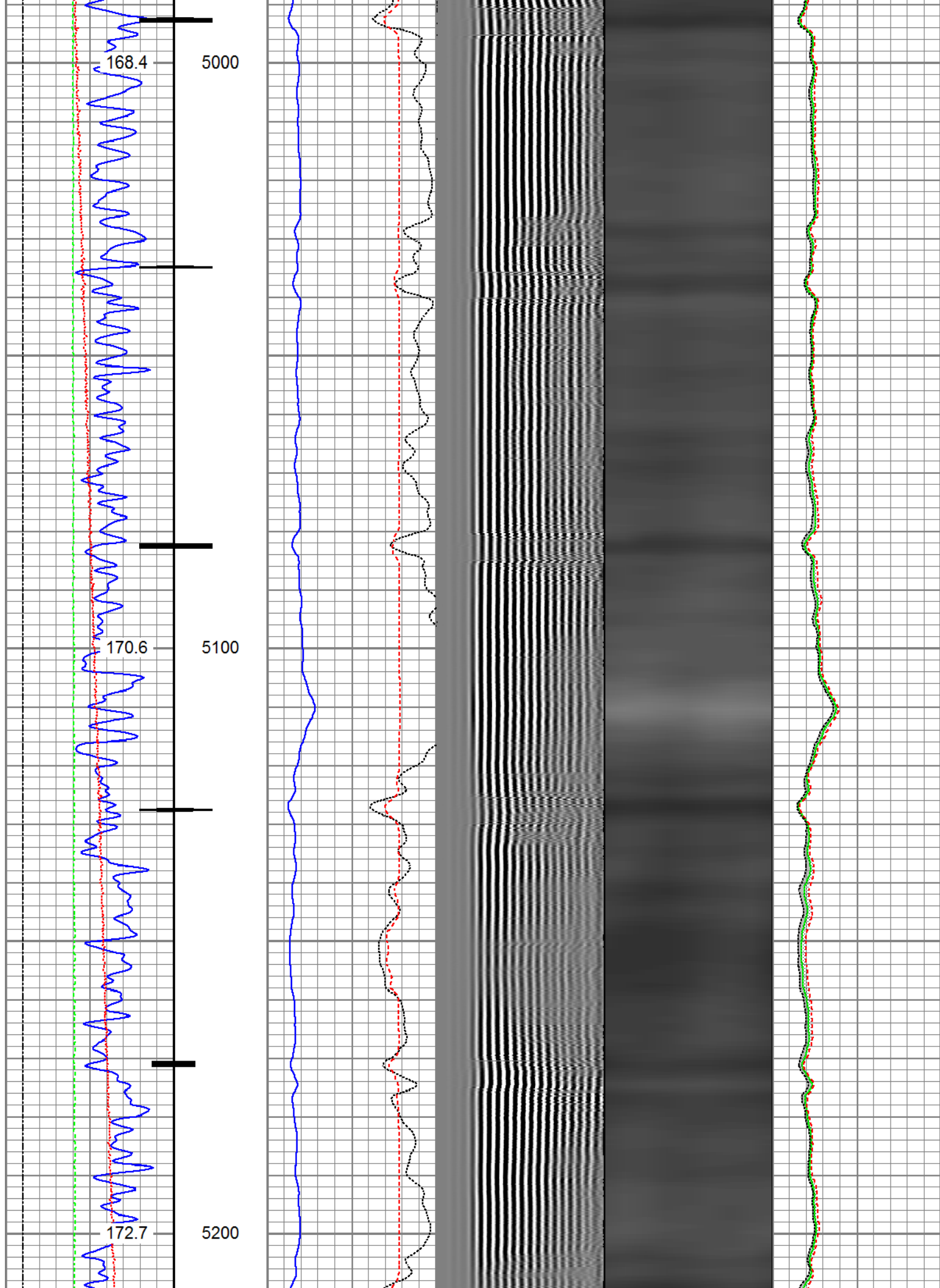


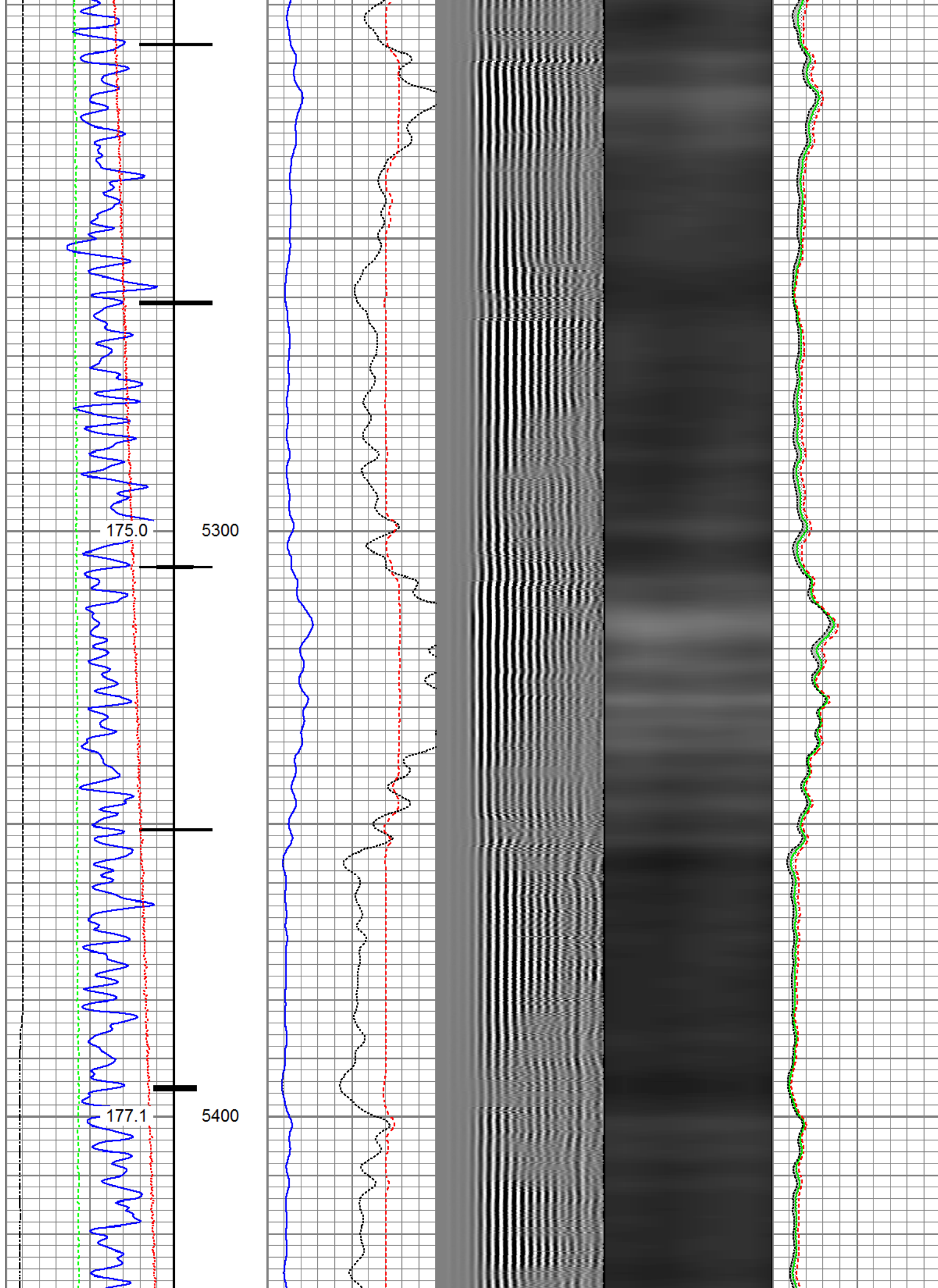


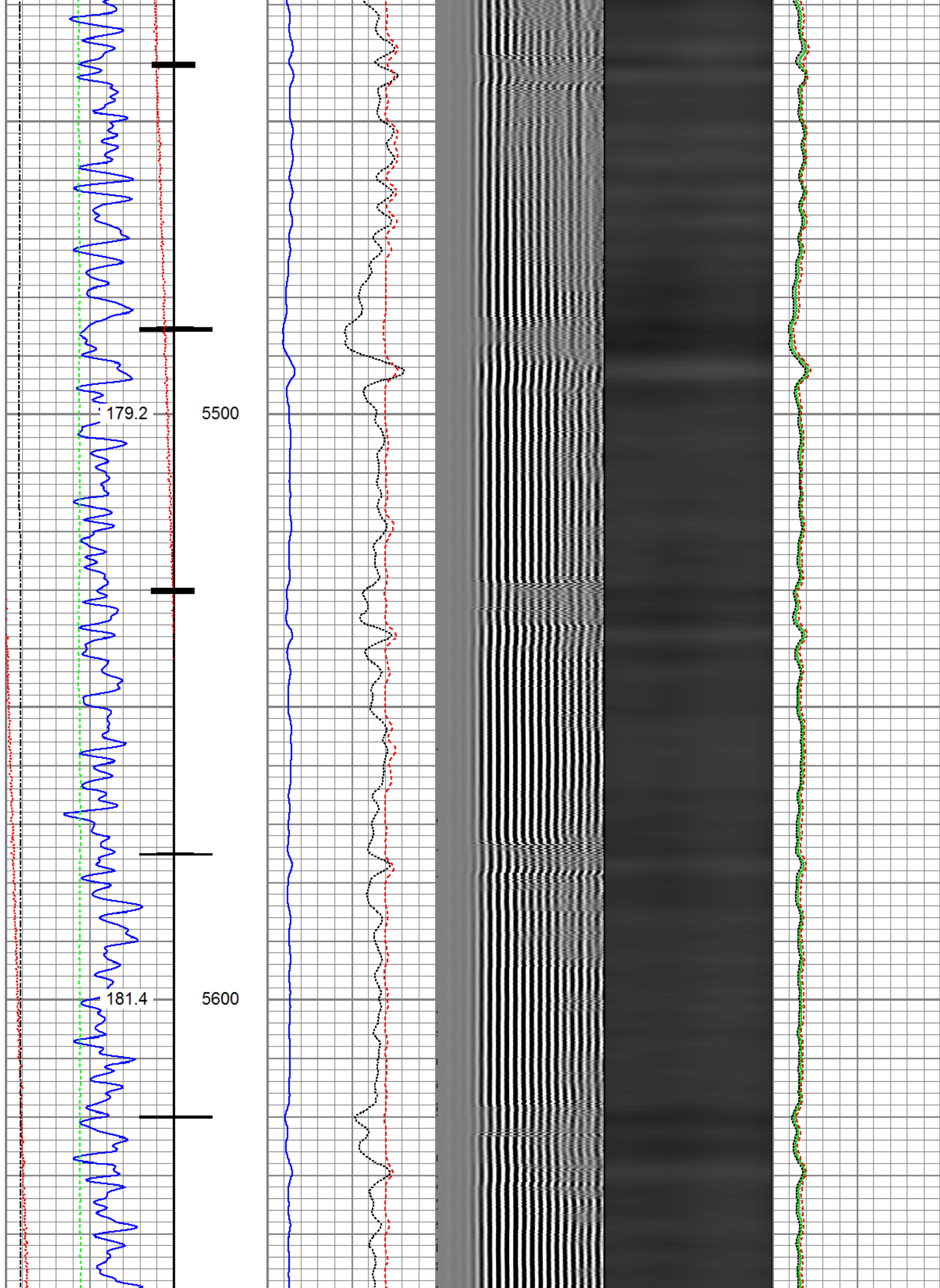


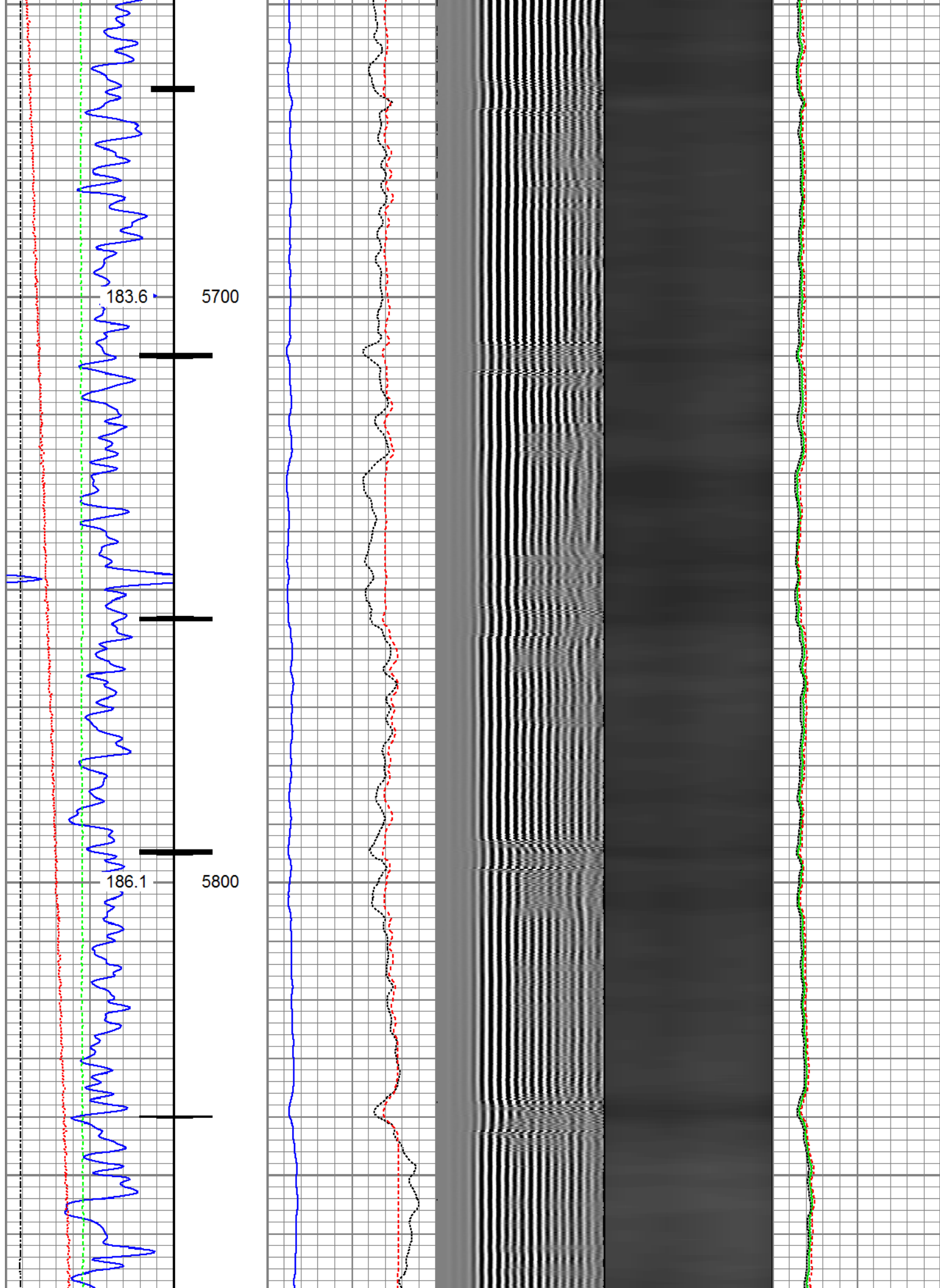


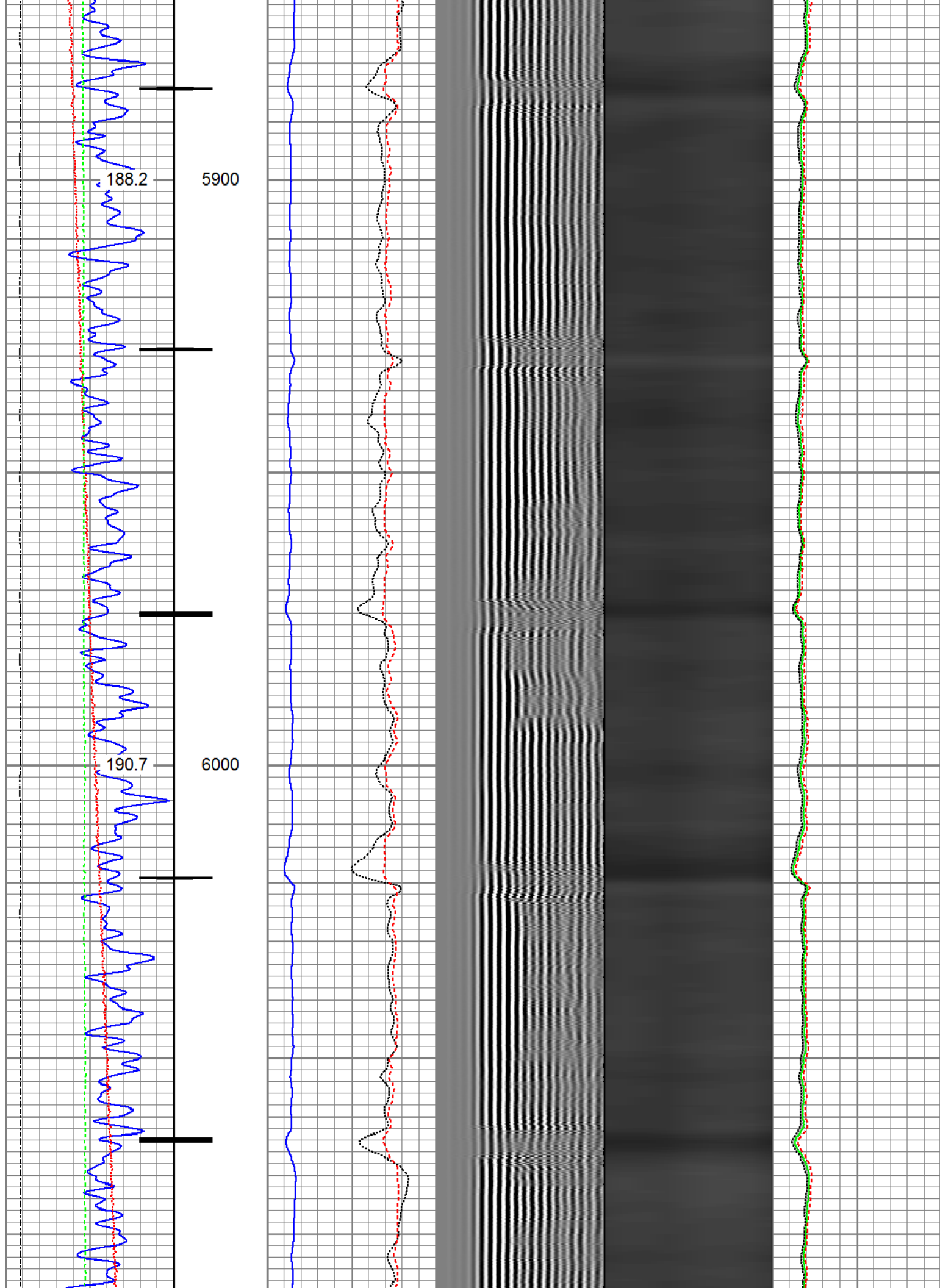


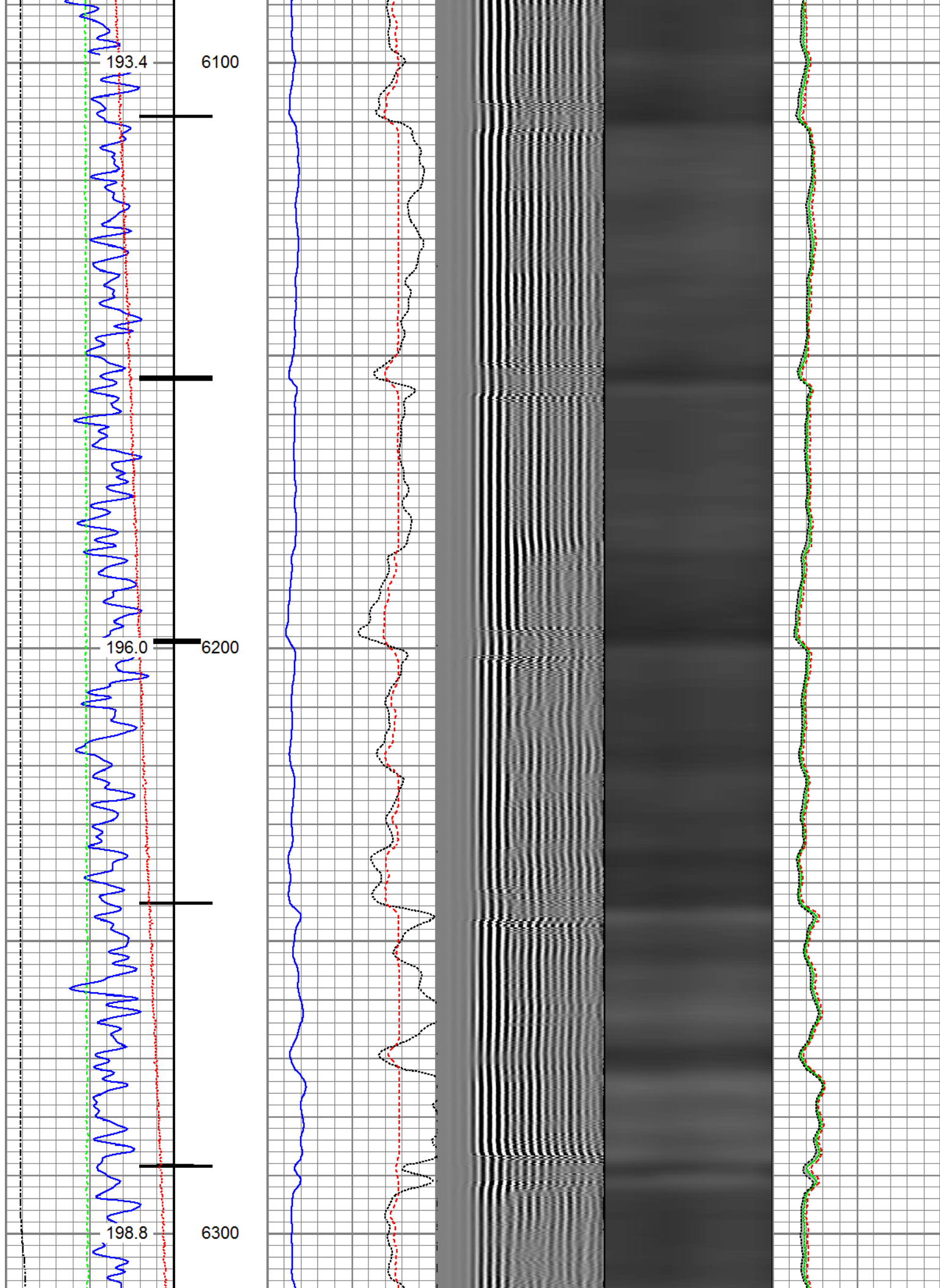


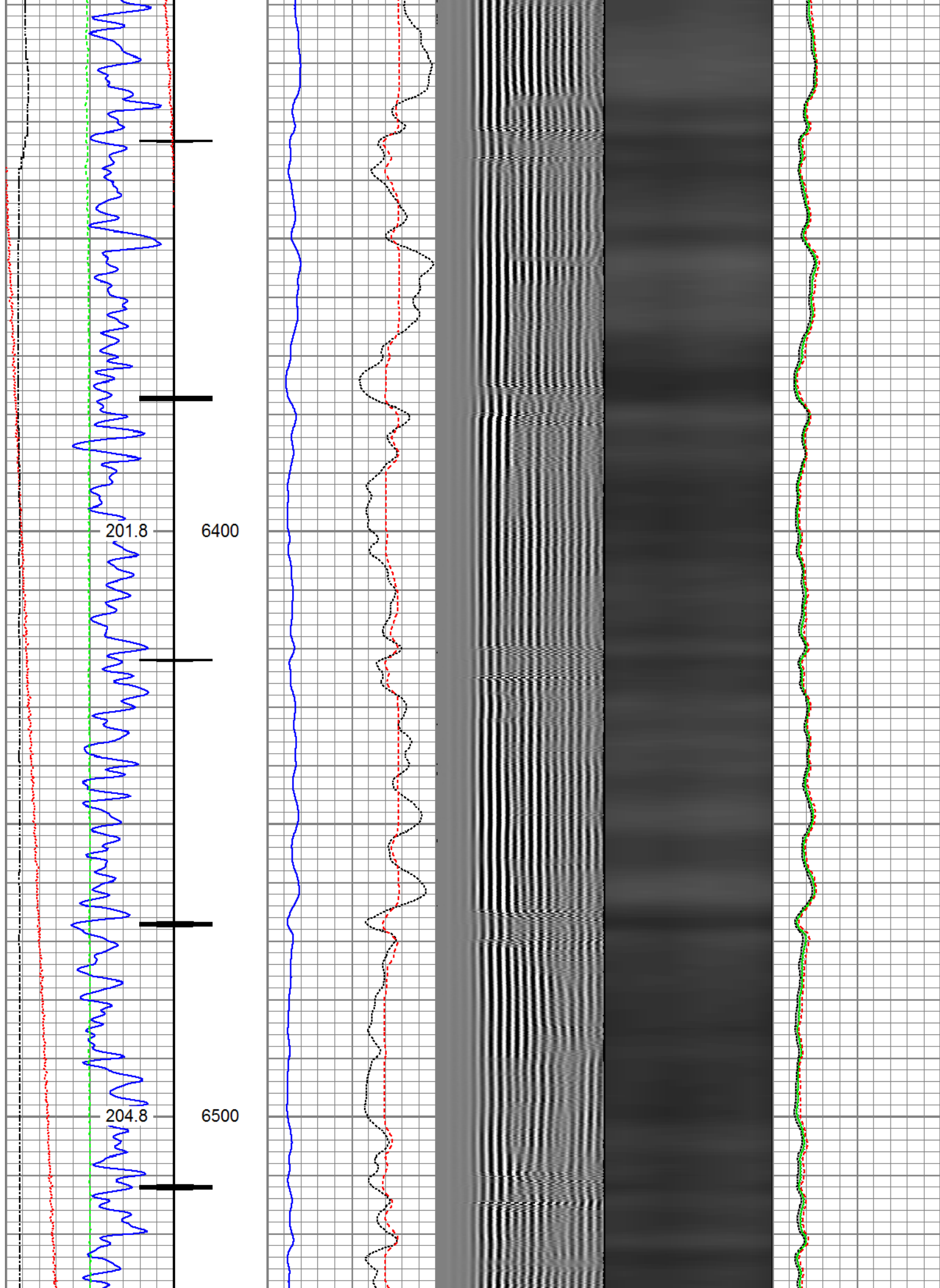


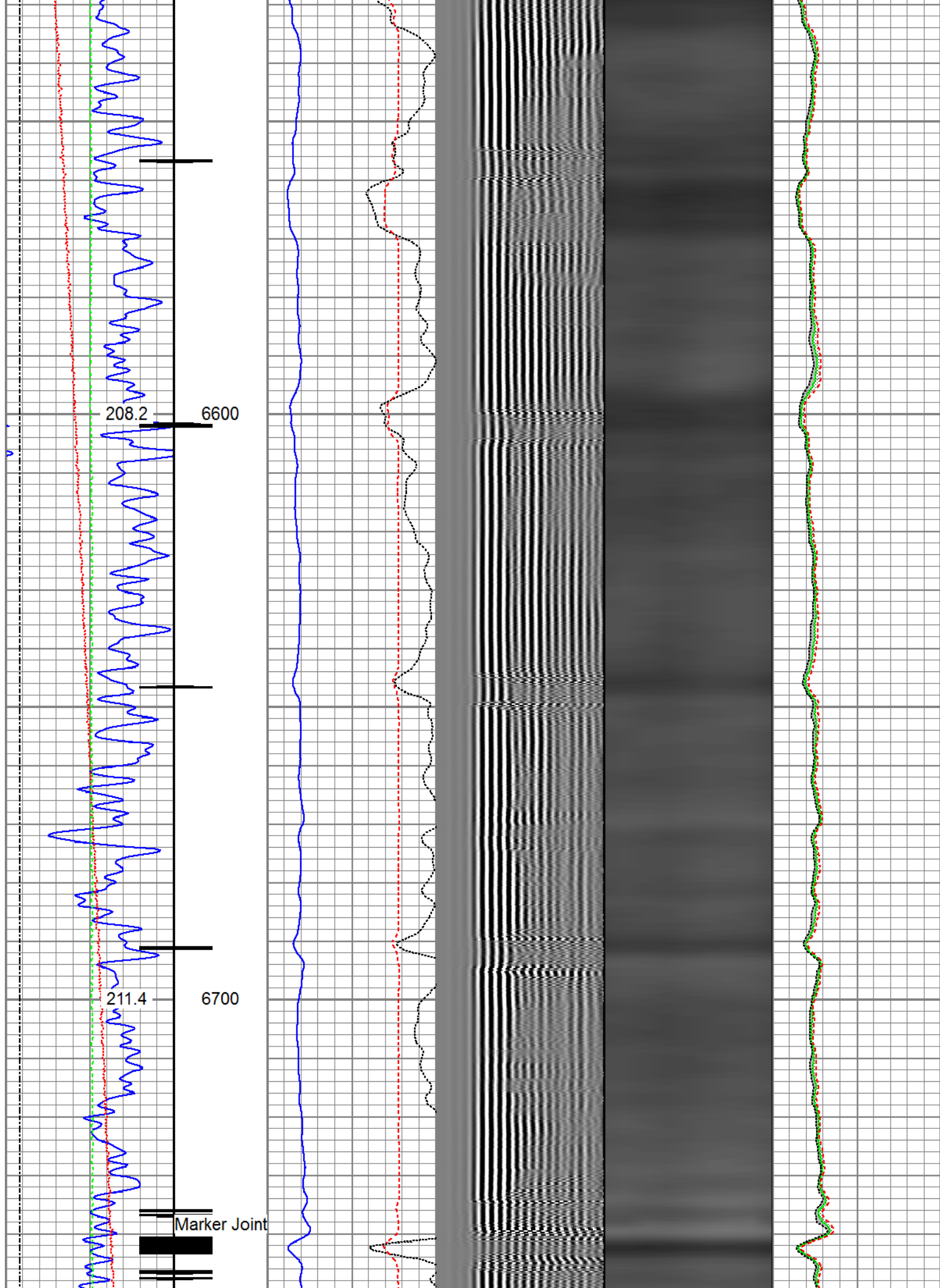


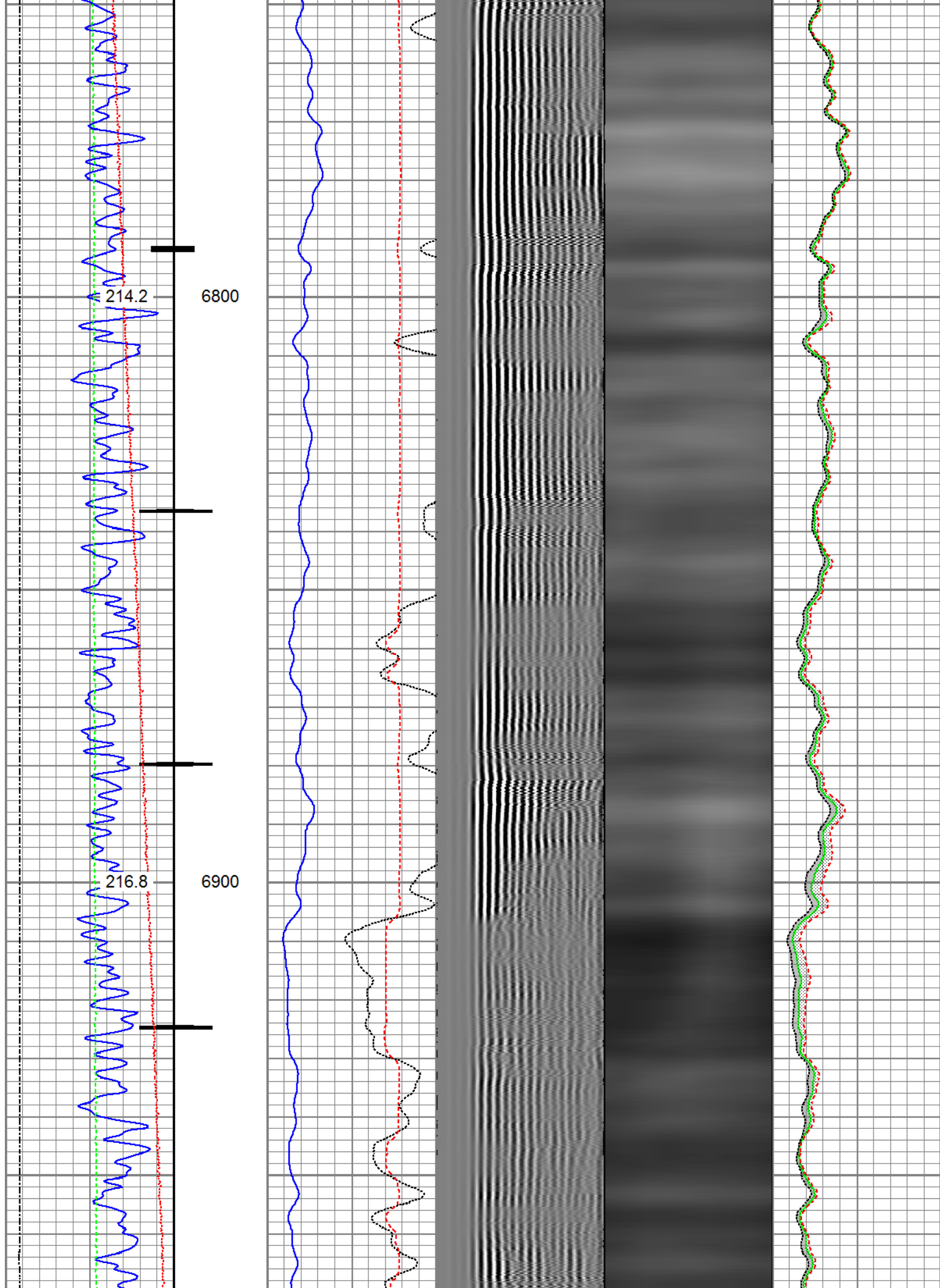


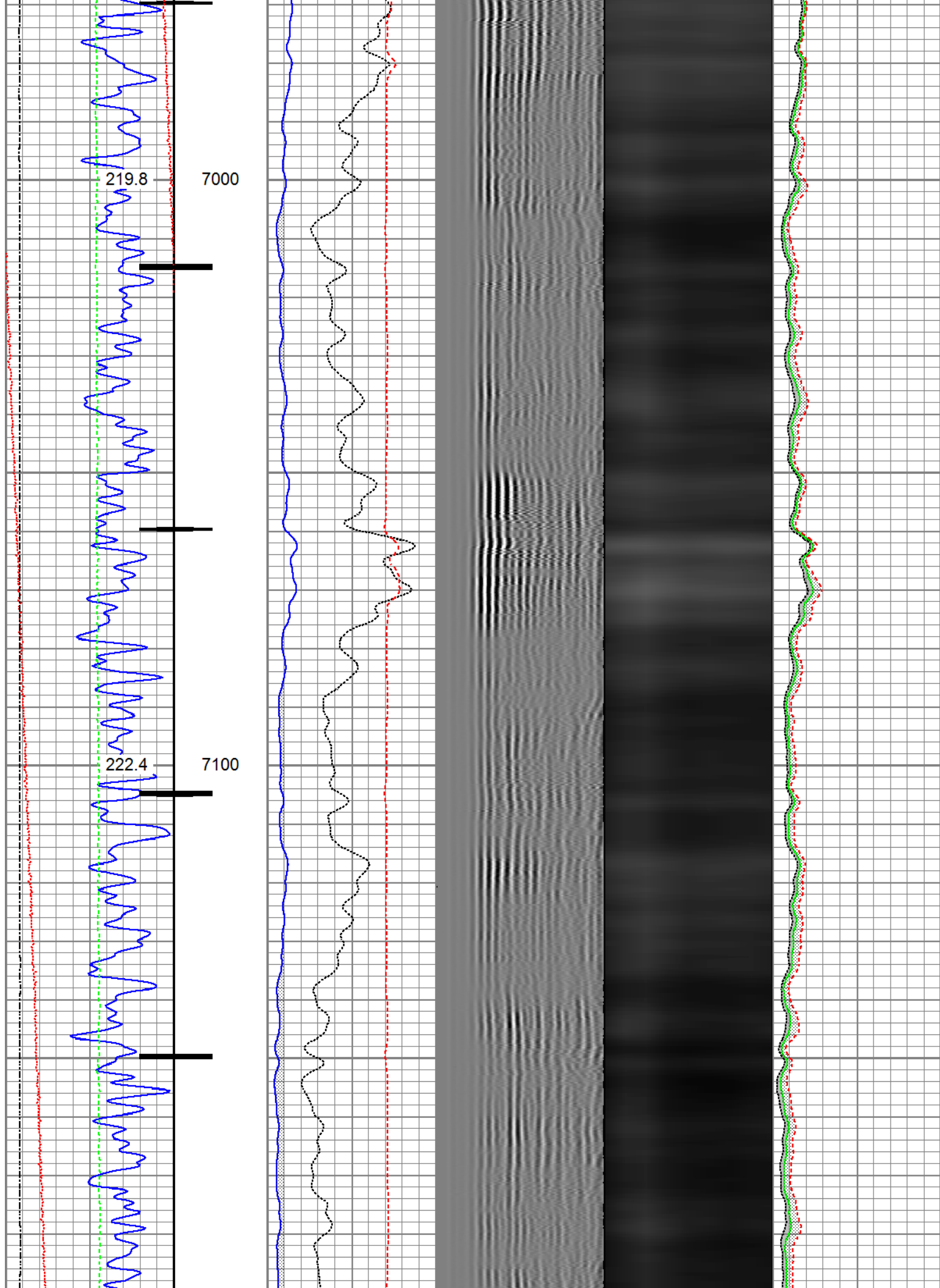


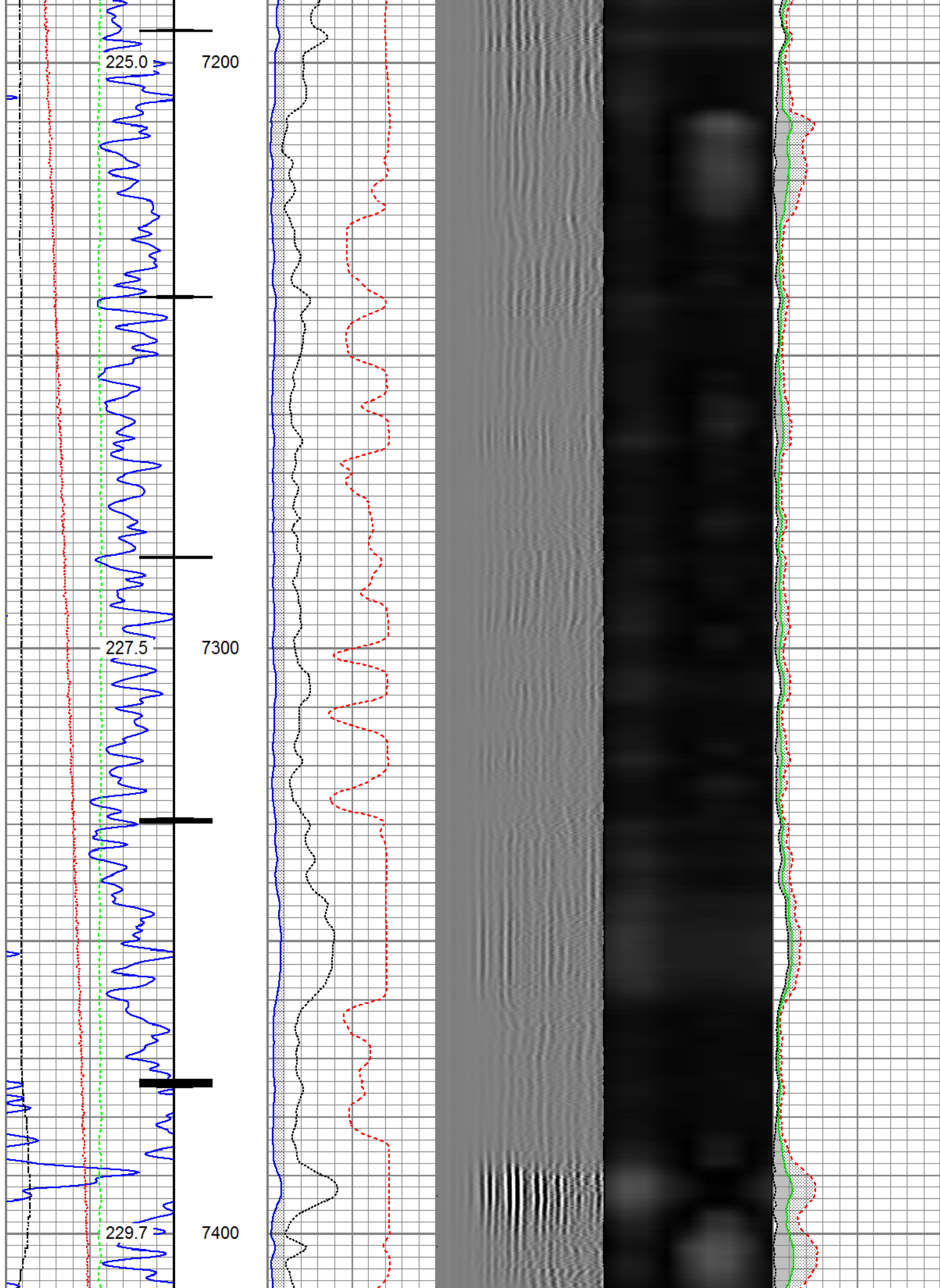


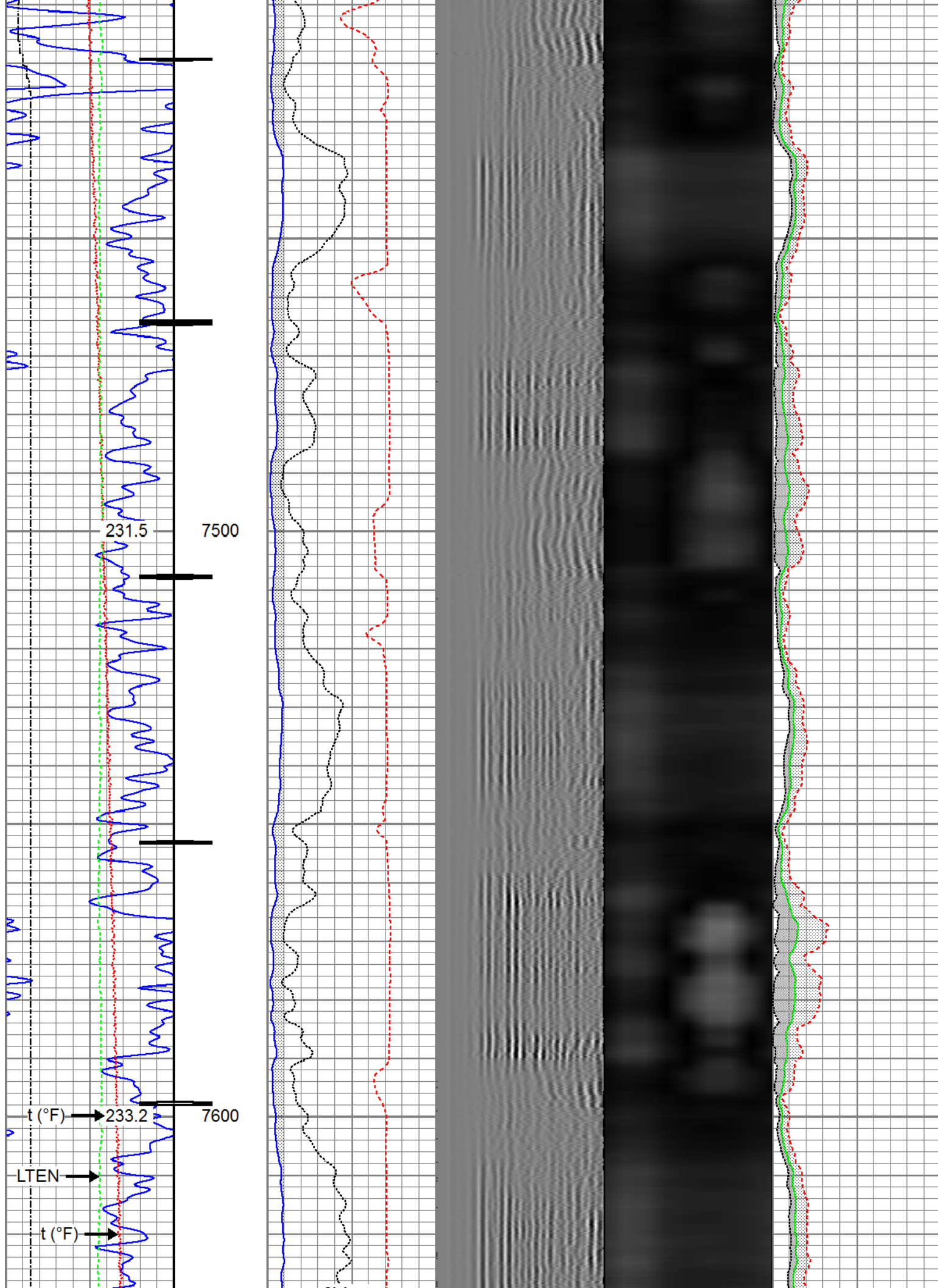


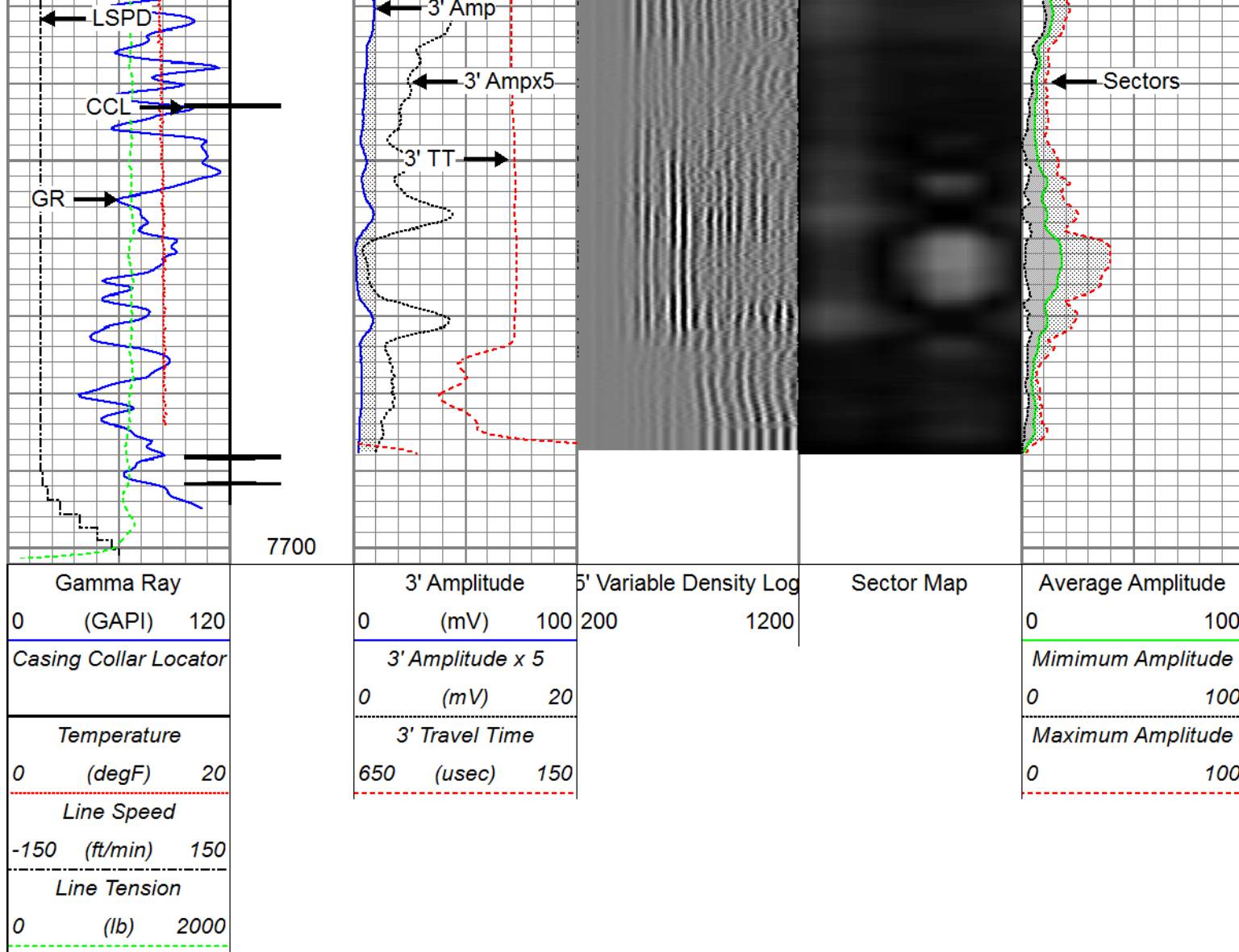








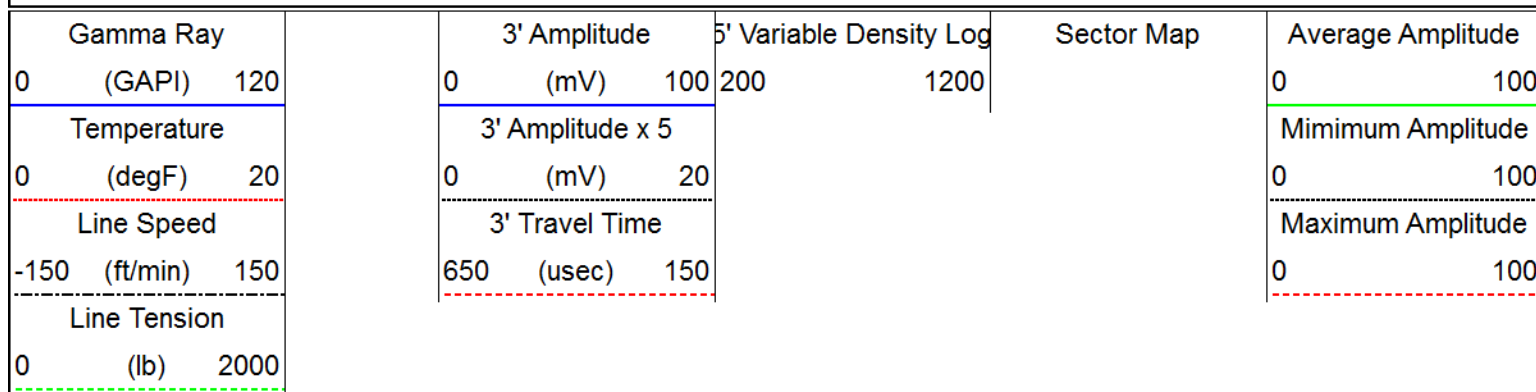


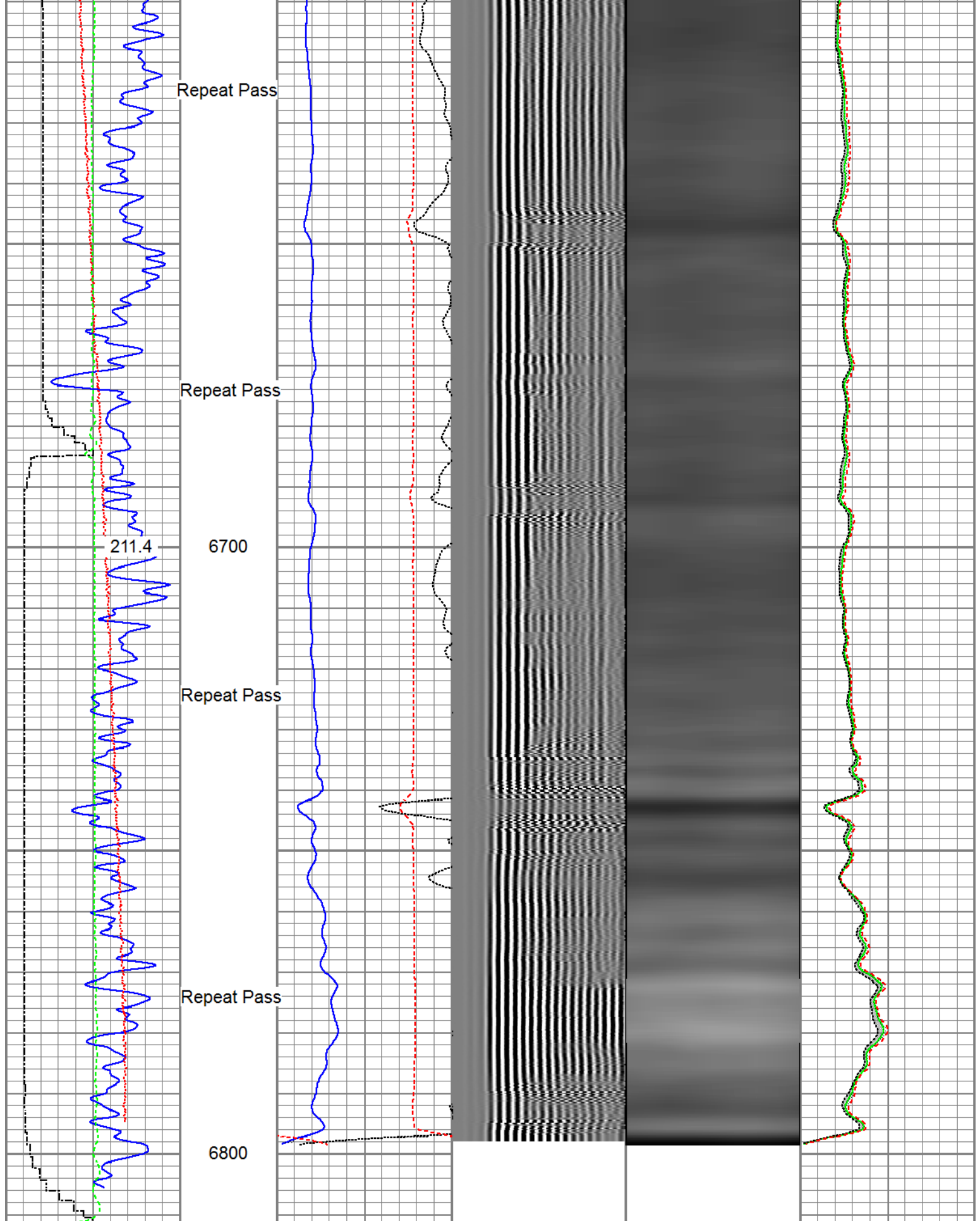


Repeat Pass

Recorded With 2800 PSI Surface Induced Pressure

Database File anadarko_puma fed 13n-35hz_15-may-2017_rbl\processed_0512342569_anadarko_puma fed 13n-
 Dataset Pathname pass4.1
 Presentation Format ros_radrii
 Dataset Creation Wed May 17 12:42:17 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_EB\$2.8875 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.8875	2.75	20.00
Temp	16.75					
			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
WVFS8	14.58					
WVFS7	14.58					
WVFS6	14.58					
WVFS5	14.58					
WVFS4	14.58					
WVFS3	14.58					
WVFS2	14.58					
WVFS1	14.58					
WVFCAL	14.58					
WVF3FT	14.58					
WVF5FT	13.58					
HeadVolt	10.33					
			Probe_ELine_BowSpring_Centralizer-P_EB\$2.8875 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 (FW12124.57) Probe 2-3/4" Digital CCL / Gamma Ray Combined	124.57	2.75	55.00
GR	3.77					
			Probe_ELine_BowSpring_Centralizer-P_EB\$2.8875	2.8875	2.75	20.00



Probe 2-3/4" Electric Inline Bowspring Centralizer

Dataset: PROCESSED_0512342569_Anadarko_Puma Fed 13N-35HZ_05-15-17_RBL.db: field/well/run1/pass6.1
Total length: 23.43 ft
Total weight: 225.40 lb
O.D.: 2.75 in

Calibration Report

Database File C:\ProgramData\Warrior\Data\Anadarko_Puma Fed 13N-35HZ_15-MAY-2017_RBL\PROCESSED_0
Dataset Pathname pass6.1
Dataset Creation Mon May 15 08:08:09 2017

Gamma Ray Calibration Report

Serial Number: FW1212-026
Tool Model: P_CGR_2750_S
Performed: Mon Aug 15 10:19:05 2016

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.6 cps

Sensitivity: 0.6000 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: 45.102 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.013	0.757	0.800	71.921	92.327	2.003
CAL	0.002	0.821				
5'	-0.009	0.629	0.800	71.921	111.374	1.841
SUM						
S1	-0.000	0.768	0.000	100.000	130.091	0.058
S2	0.001	0.755	0.000	100.000	132.539	-0.120
S3	0.002	0.754	0.000	100.000	132.991	-0.215
S4	-0.000	0.750	0.000	100.000	133.340	0.012
S5	-0.006	0.757	0.000	100.000	131.093	0.775
S6	-0.016	0.761	0.000	100.000	128.706	2.041
S7	-0.016	0.763	0.000	100.000	128.409	2.067
S8	-0.014	0.788	0.000	100.000	124.707	1.760

Internal Reference Calibration, performed Wed Aug 03 10:40:08 2016:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.002	0.821	1.000	0.000

Air Zero Calibration, performed Sat May 13 09:53:02 2017:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.001	0.000	0.000
5'	0.001	0.000	-0.000
SUM			
S1	0.001	0.000	-0.001
S2	0.000	0.000	0.000
S3	0.001	0.000	0.001
S4	0.002	0.000	-0.000
S5	0.001	0.000	-0.000
S6	0.001	0.000	-0.000
S7	0.001	0.000	0.000
S8	0.001	0.000	0.000



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