

Radial Cement Bond Gamma Ray Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Miracle 9C-11HZ
Field	Wattenberg
County	Larimer
State	Colorado
Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Miracle 9C-11HZ
Field	Wattenberg
County	Larimer
State	Colorado
Location:	API #: 05-069-06471
Permanent Datum	SEC 12 TWP 5N RGE 68W
Log Measured From	Ground Level Kelly Bushing
Drilling Measured From	Kelly Bushing
Elevation	4948'
Other Services	JB/GR
K.B.	4964'
D.F.	4963'
G.L.	4948'

Date	14-AUG-2015
Run Number	One
Depth Driller	13682 FT
Depth Logger	7600 FT
Bottom Logged Interval	7596 FT
Top Log Interval	Surface
Open Hole Size	7.875"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	226°F
Estimated Cement Top	Surface
Time Well Ready	ROA
Time Logger on Bottom	10:15 AM
Equipment Number	HD-0119
Location	Ft. Lupton, CO
Recorded By	R. Cameron
Witnessed By	DJ Anderson
Borehole Record	
Run Number	Bit
From	To
Size	Weight
From	To
Tubing Record	
Run Number	Bit
From	To
Size	Weight
From	To
Casing Record	
Surface Casing	9 5/8
Intermediate #1	5 1/2
Intermediate #2	
Liner	
Wgt (lbs/ft)	36
Grade	J-55
Top	Surface
Bottom	1864 FT
HCP-110	Surface
13670 FT	

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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.

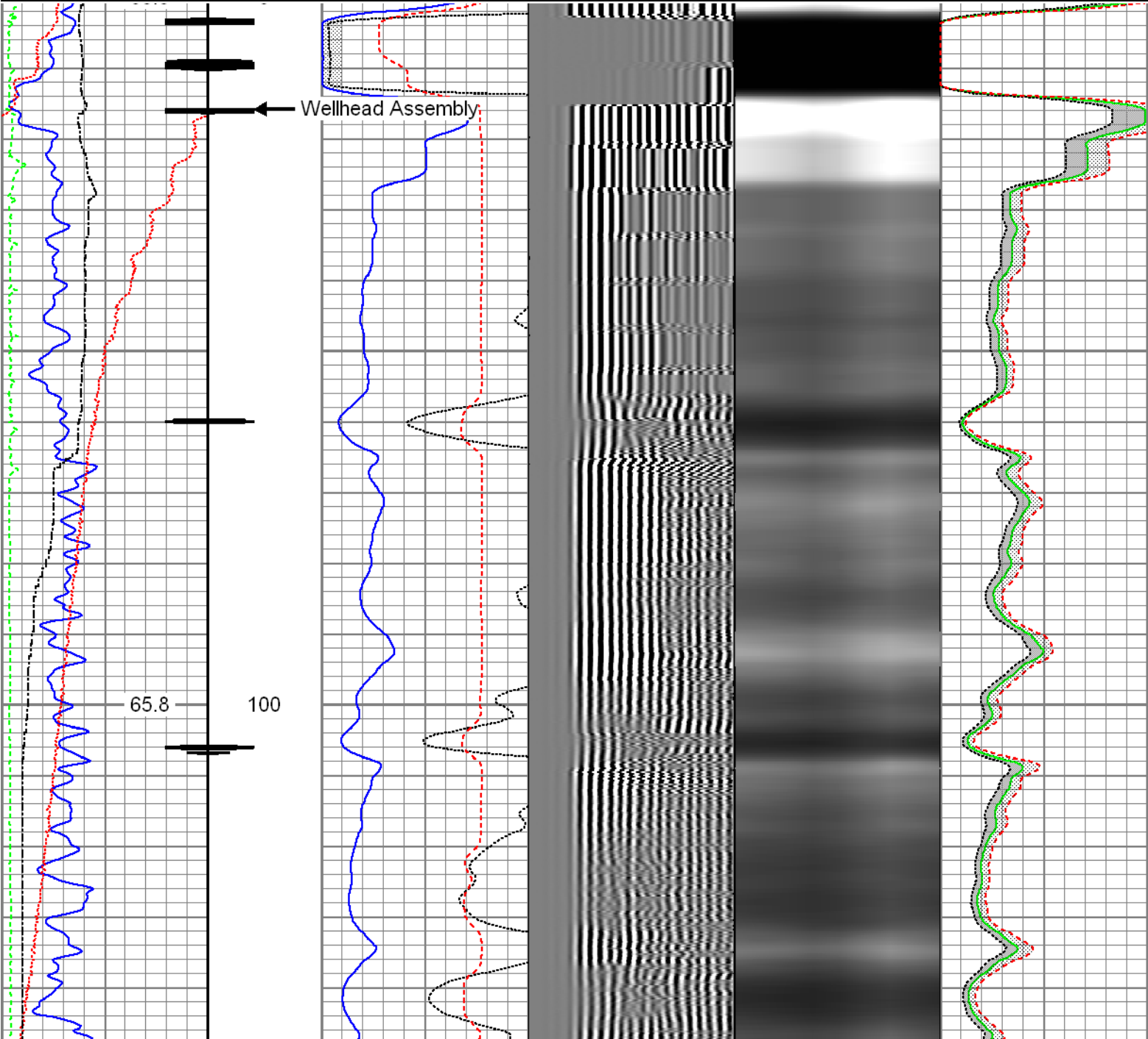
Comments

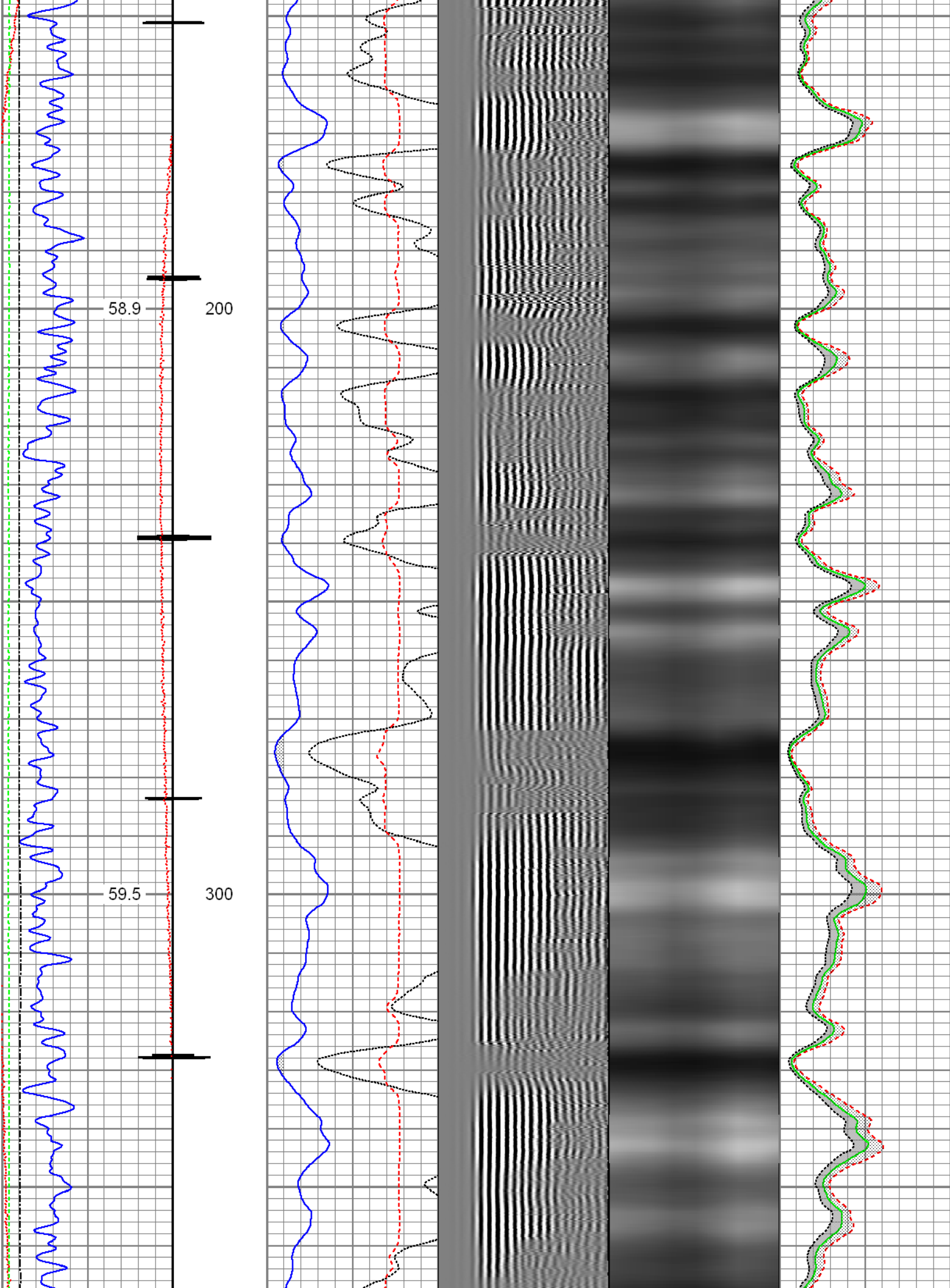
Log ran as per customer request
Casing Tally Reported Marker Joint at 6644 FT
Recorded Marker Joint at 6656-6678 FT
Gauge Ring/Junk Basket Ran to 7710 FT With No Debris Retrieved
Logged Ran as Deep as Possible in Heel to Surface
Recorded with 2800 PSI surface induced pressure
Logging tools were clean and free of debris upon completion of operations

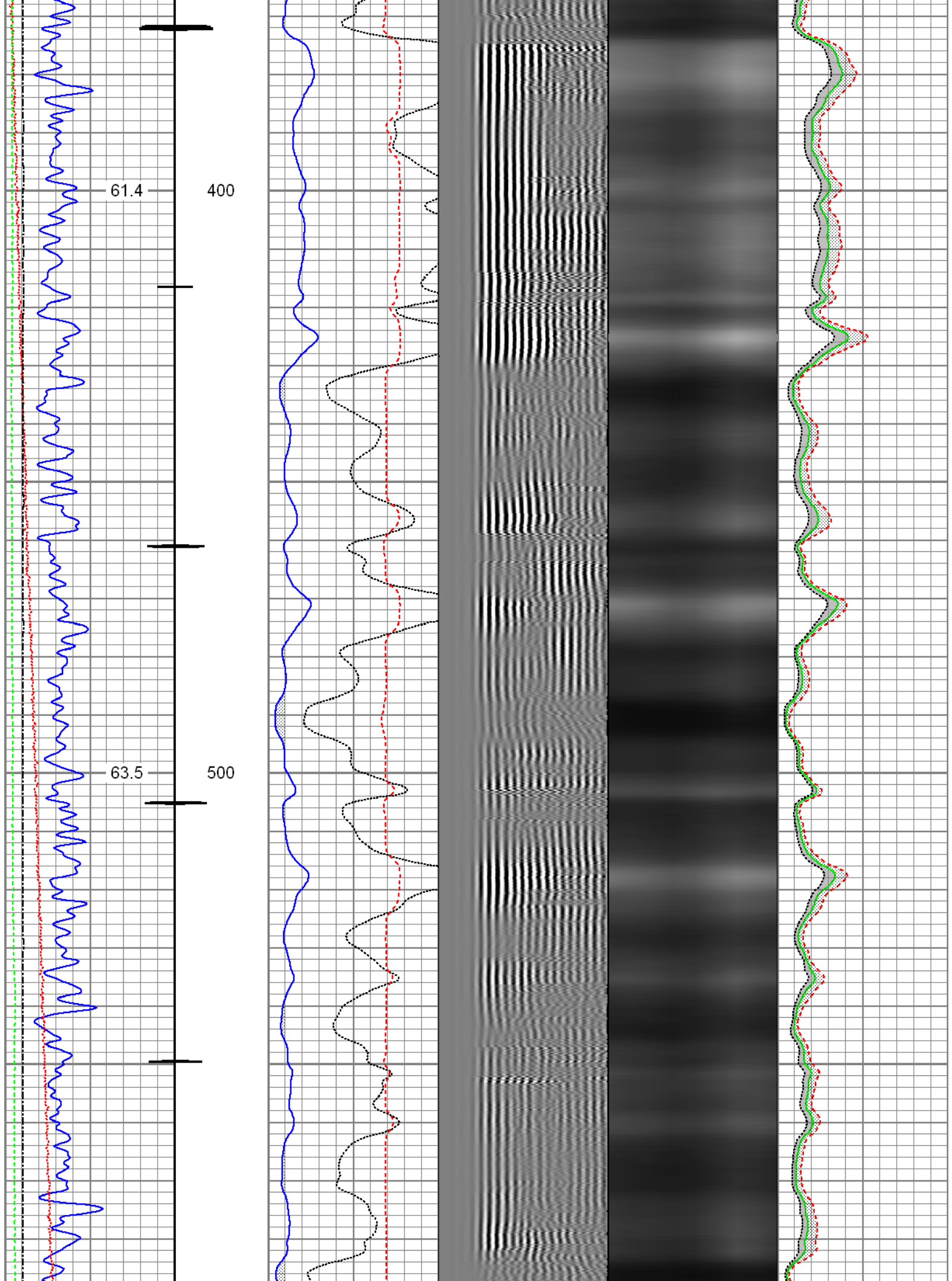
Thank you for choosing FMC Technologies Completion Services, Inc.!!

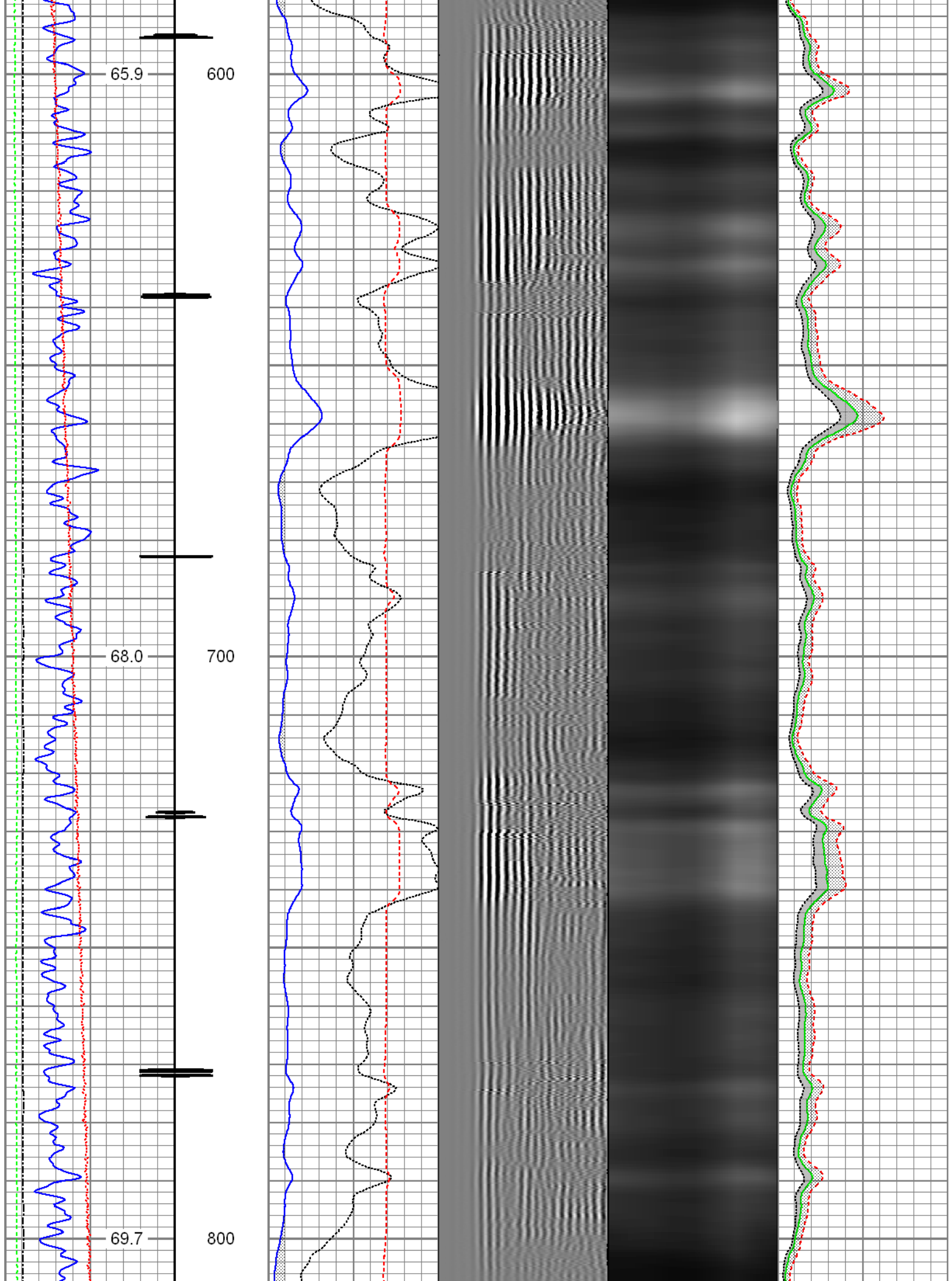
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Dataset Pathname: pass5
Presentation Format: radii
Dataset Creation: Fri Aug 14 10:21:26 2015 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

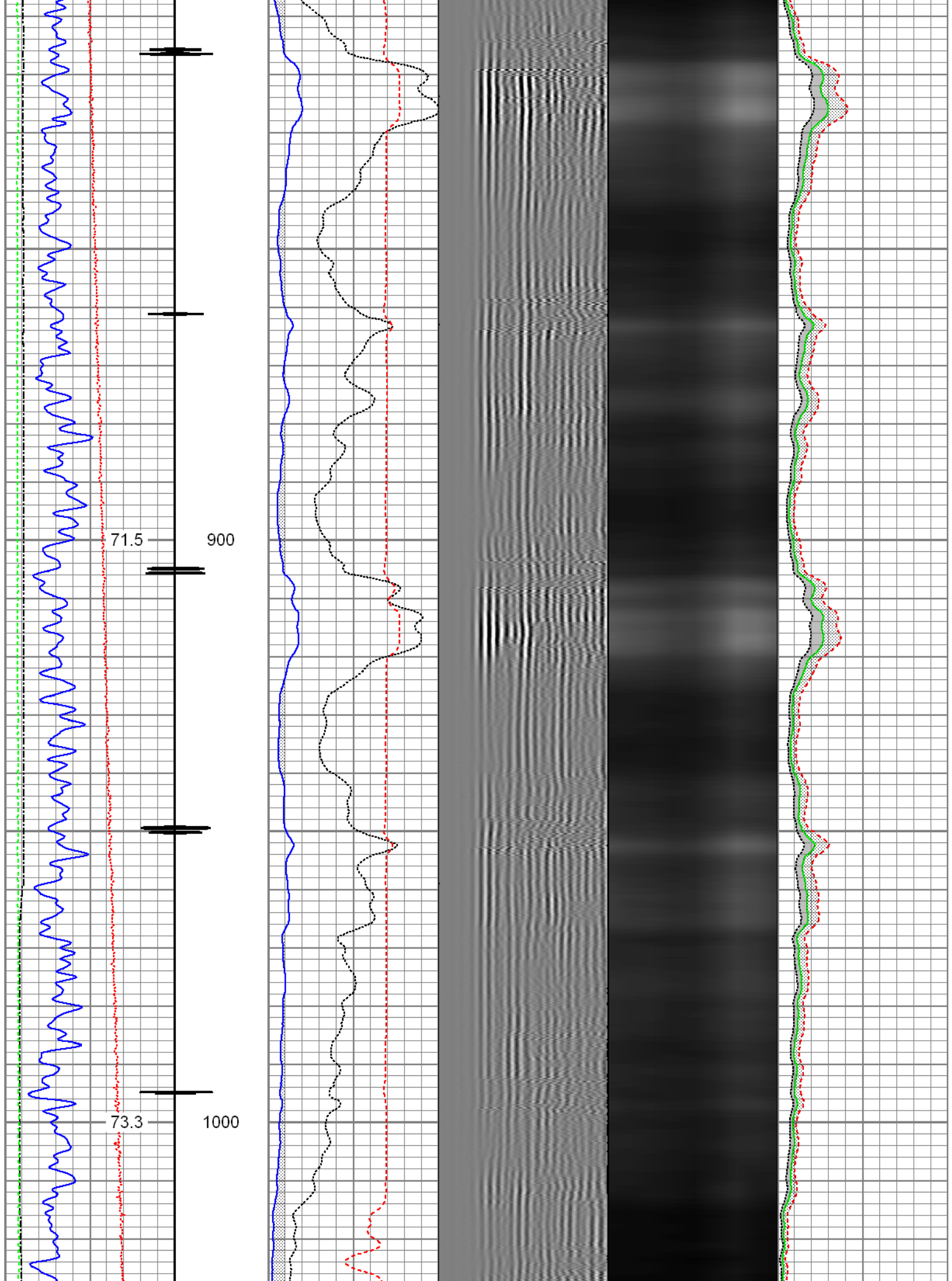
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150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

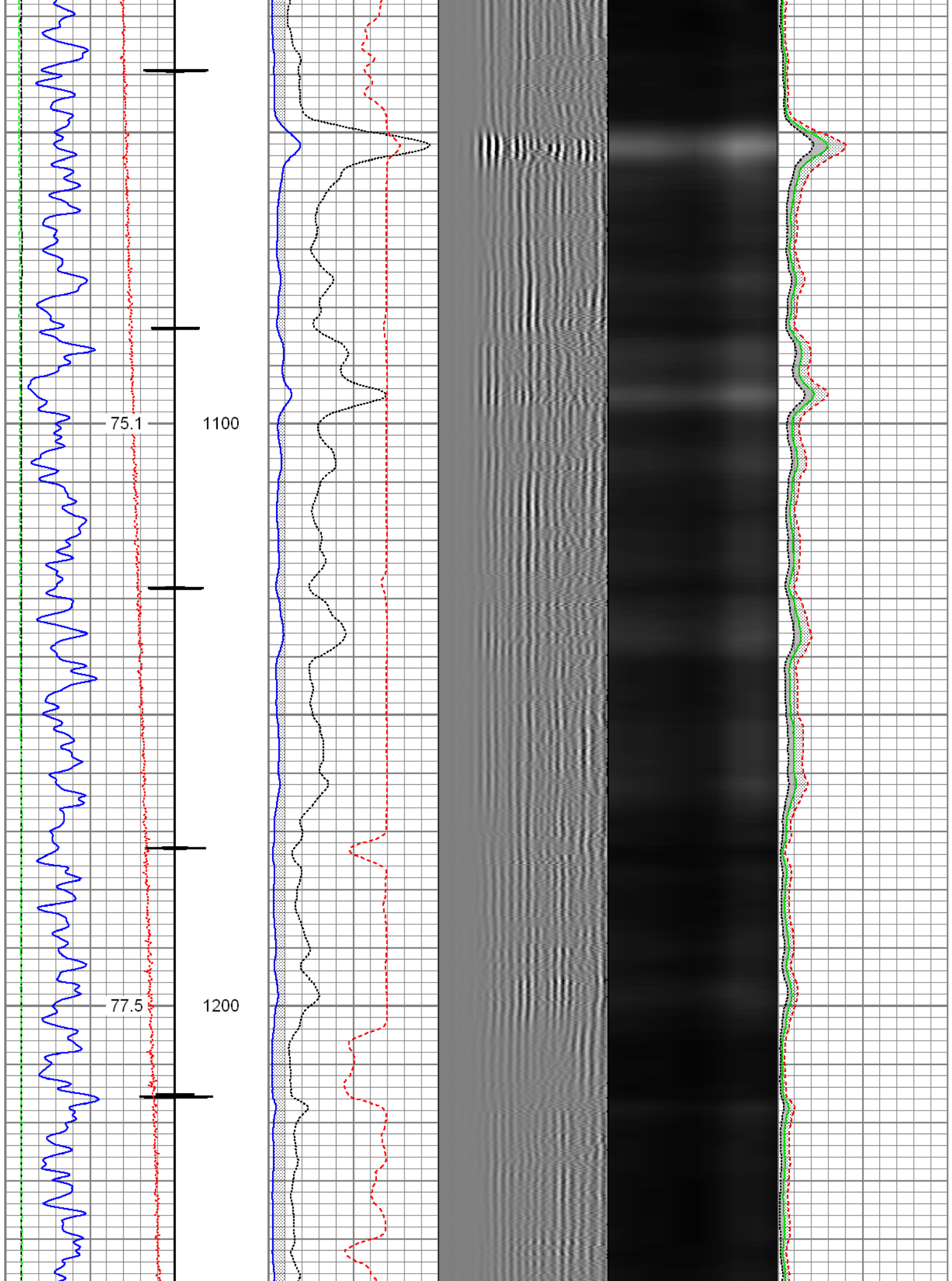


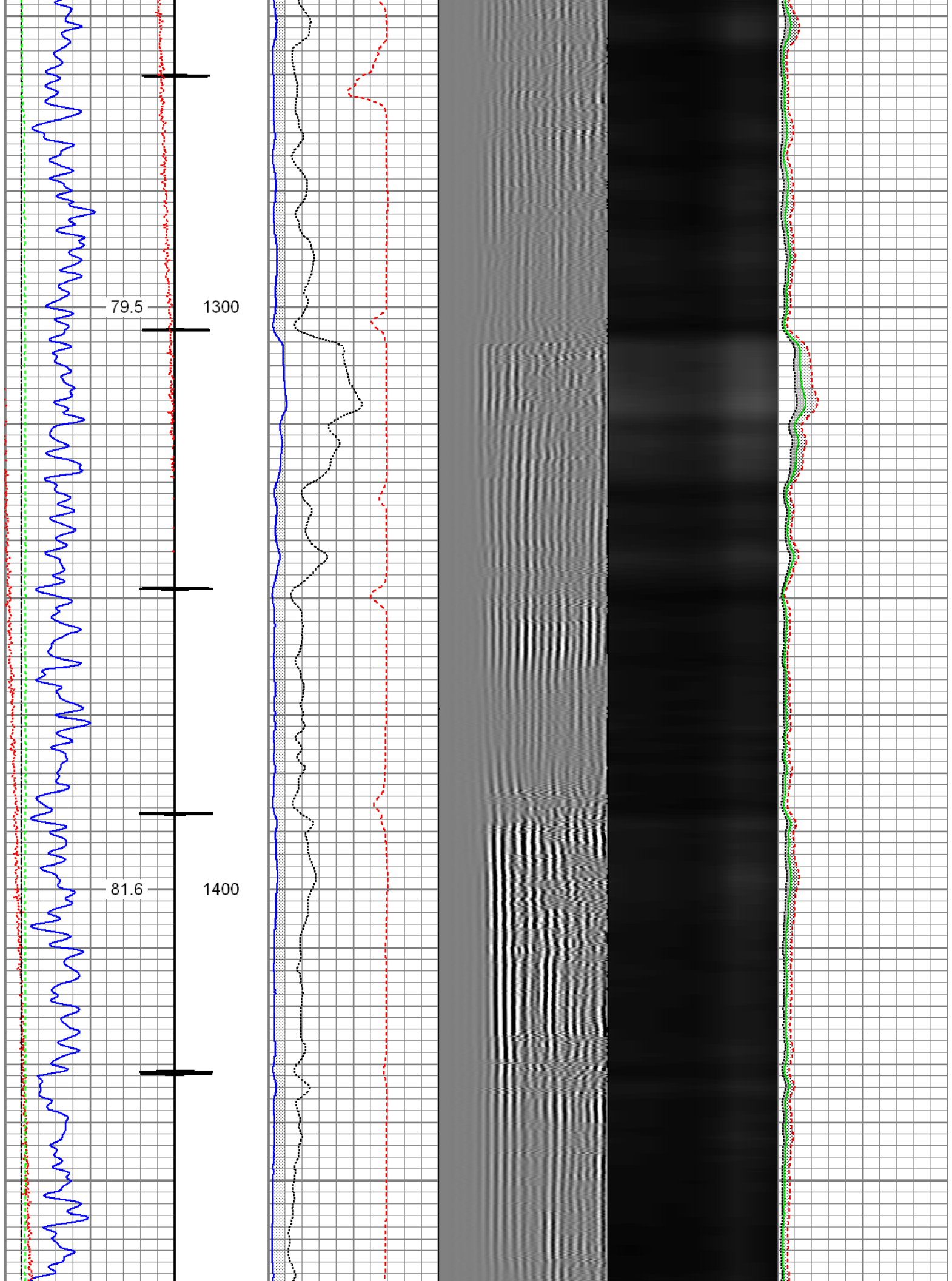


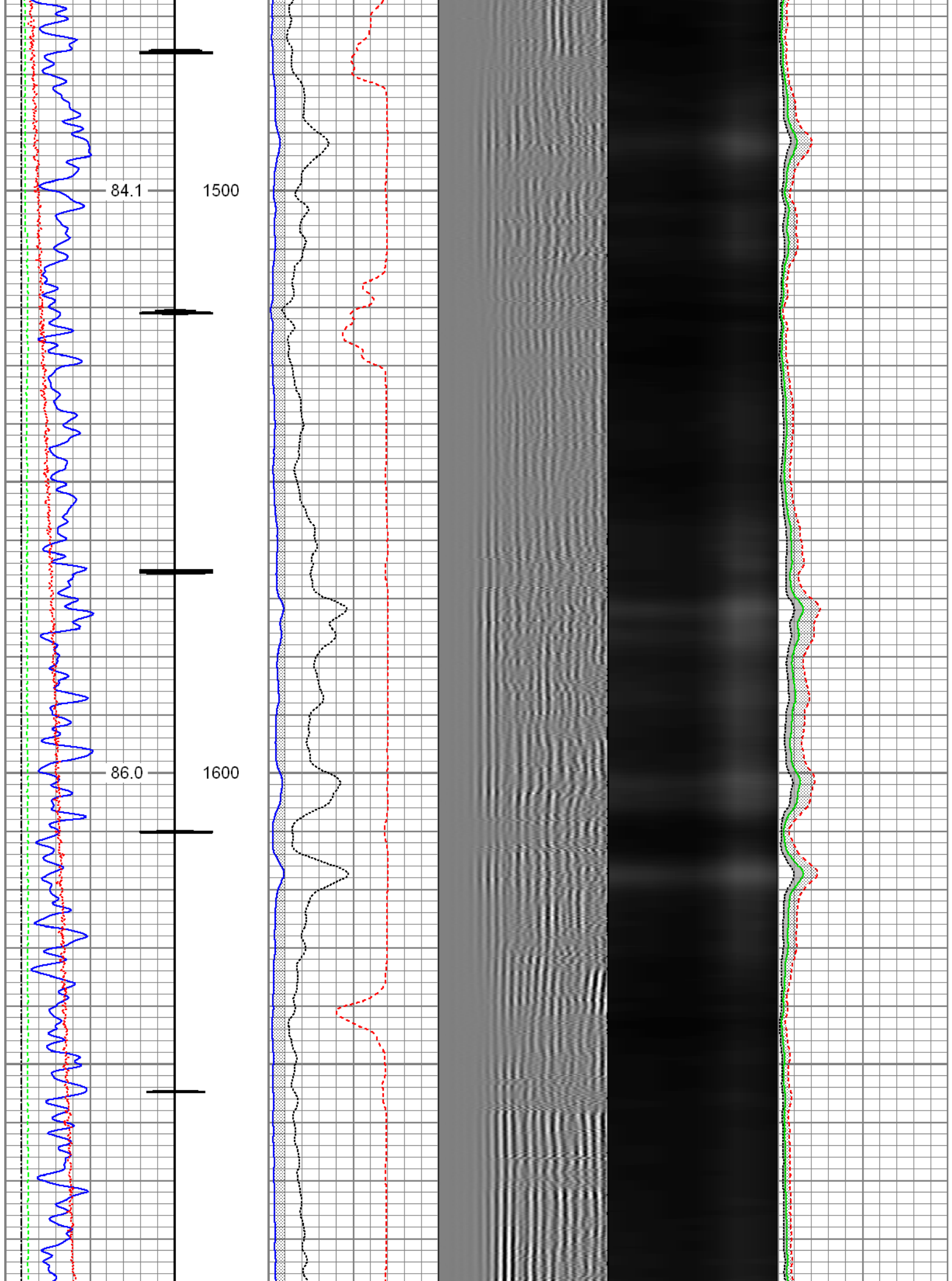


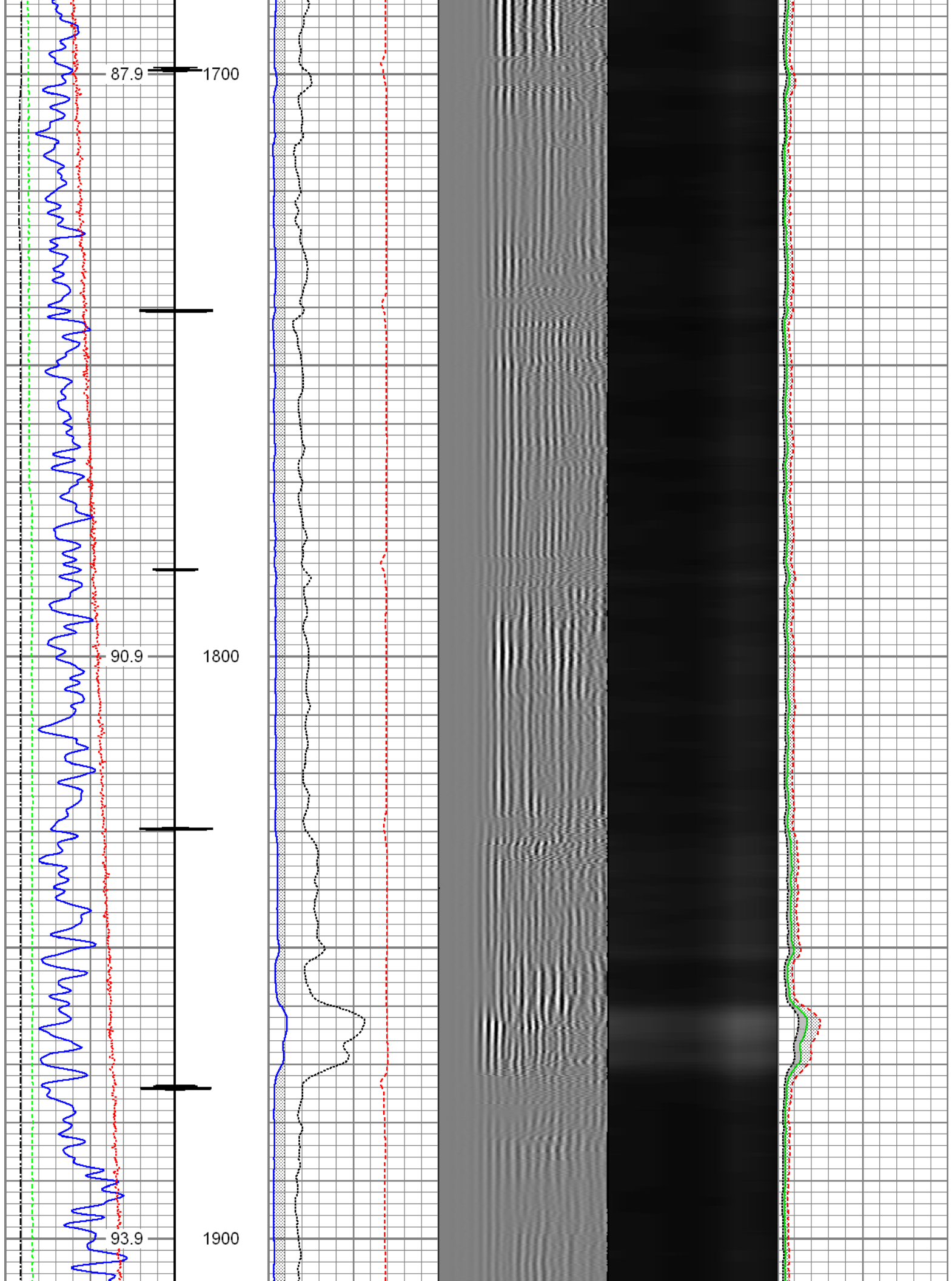


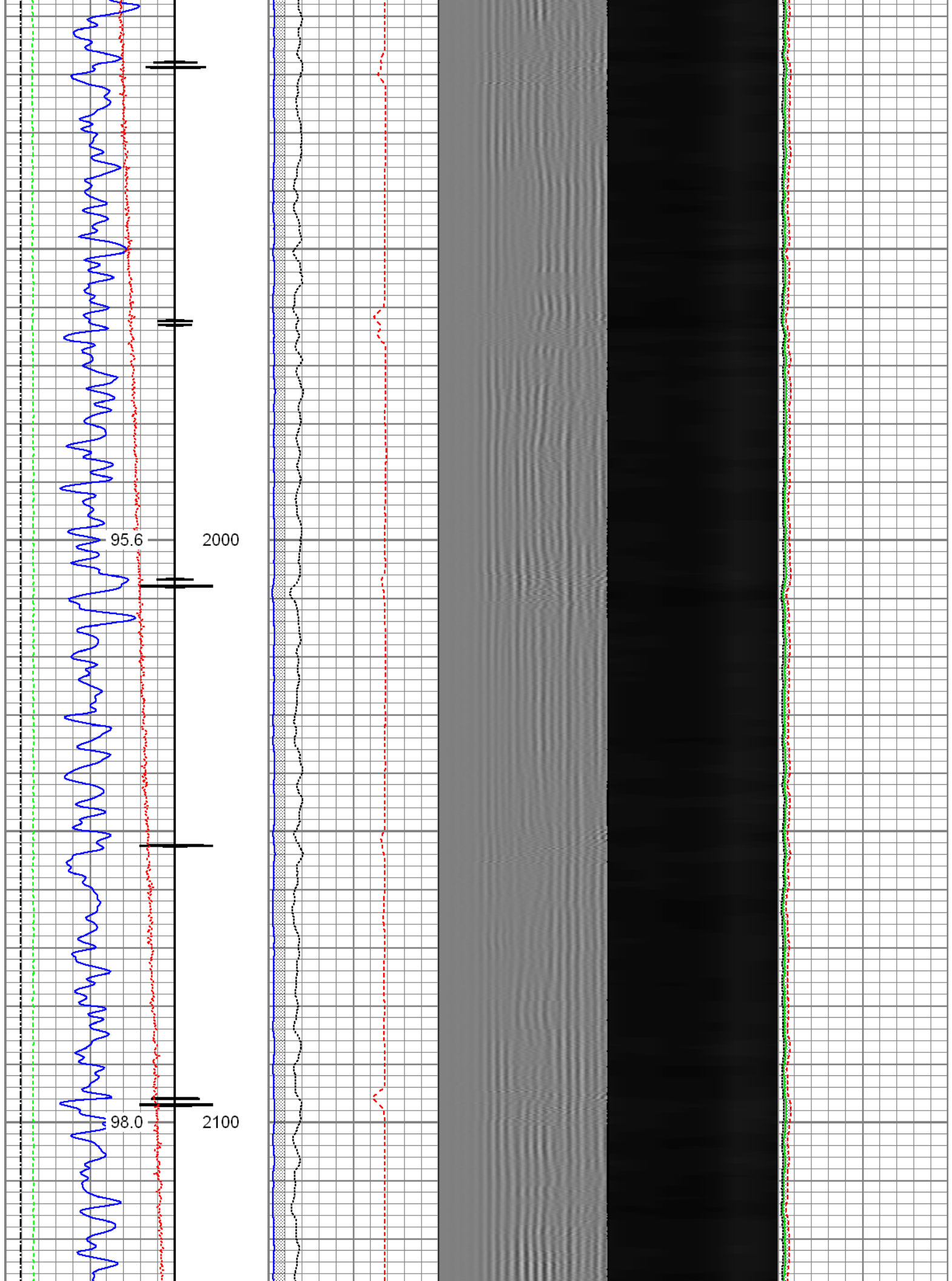


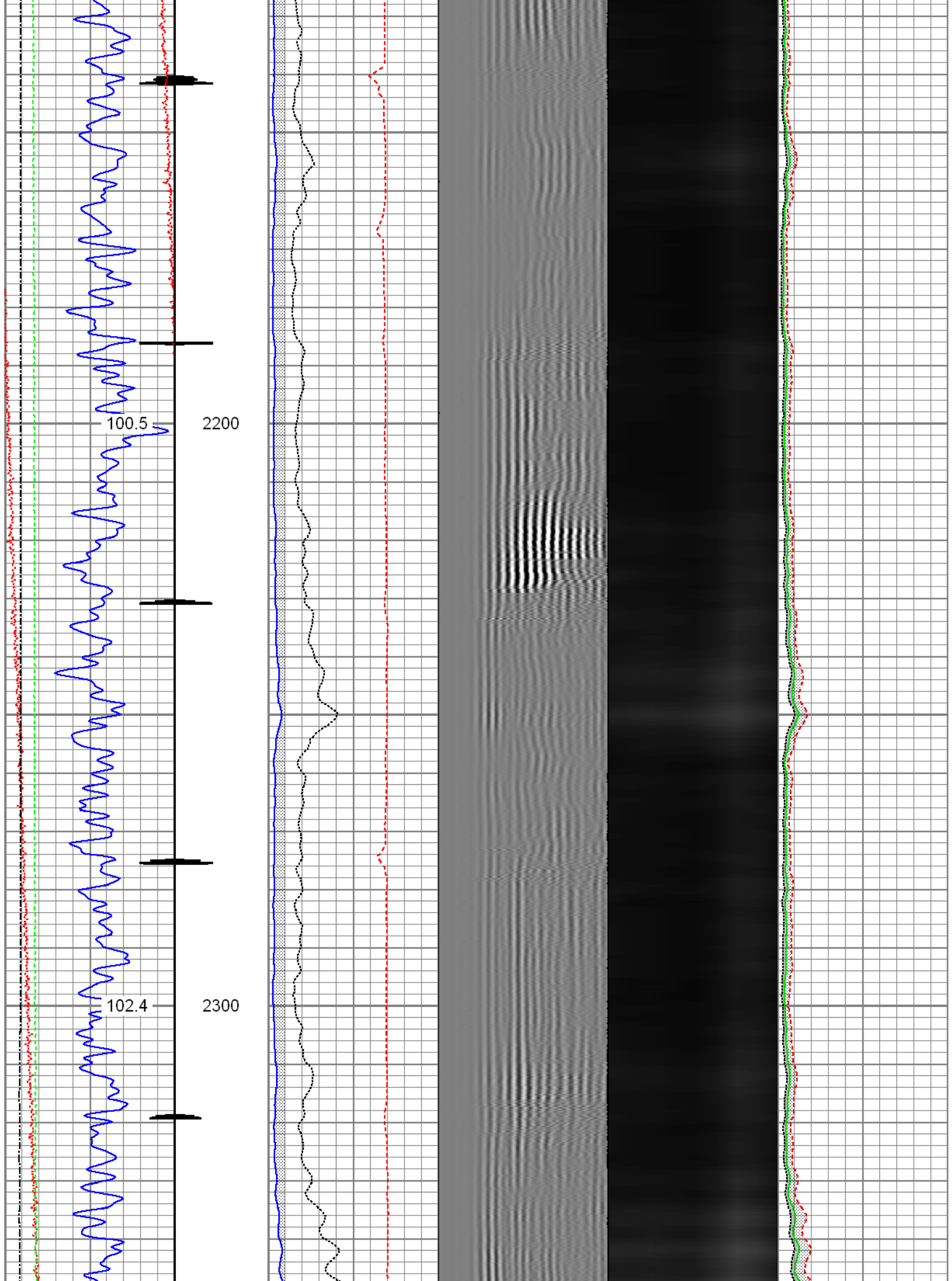


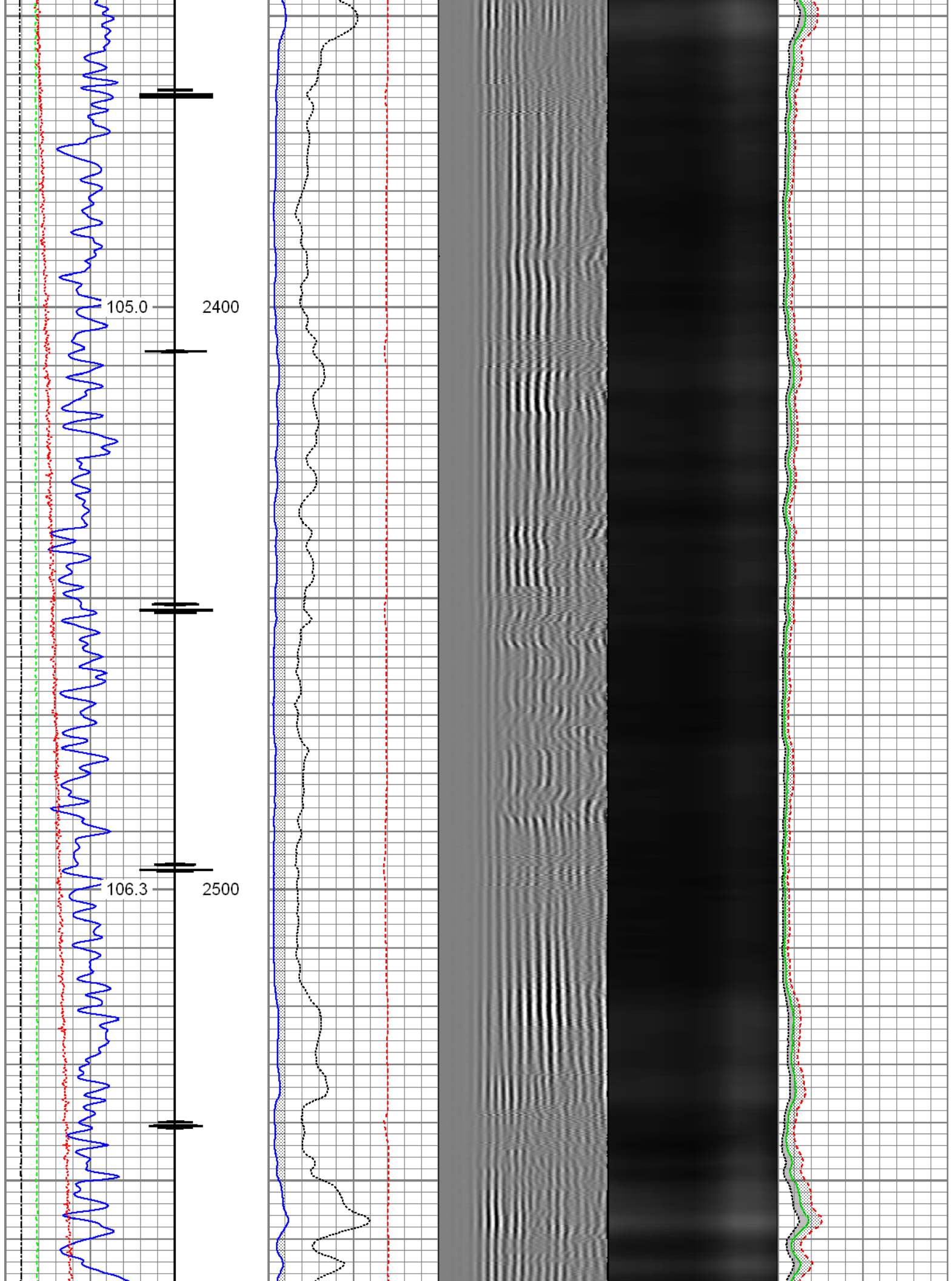


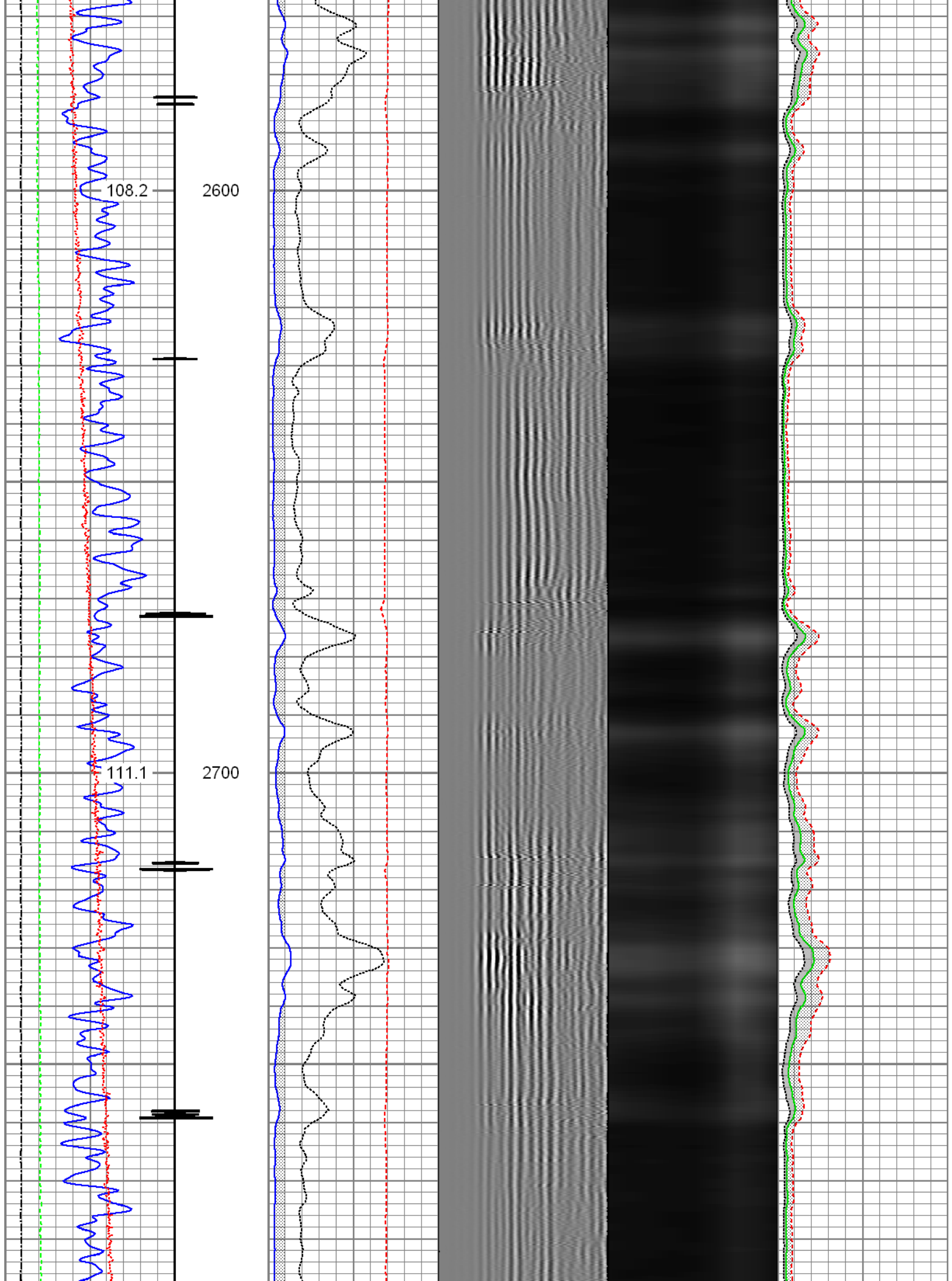


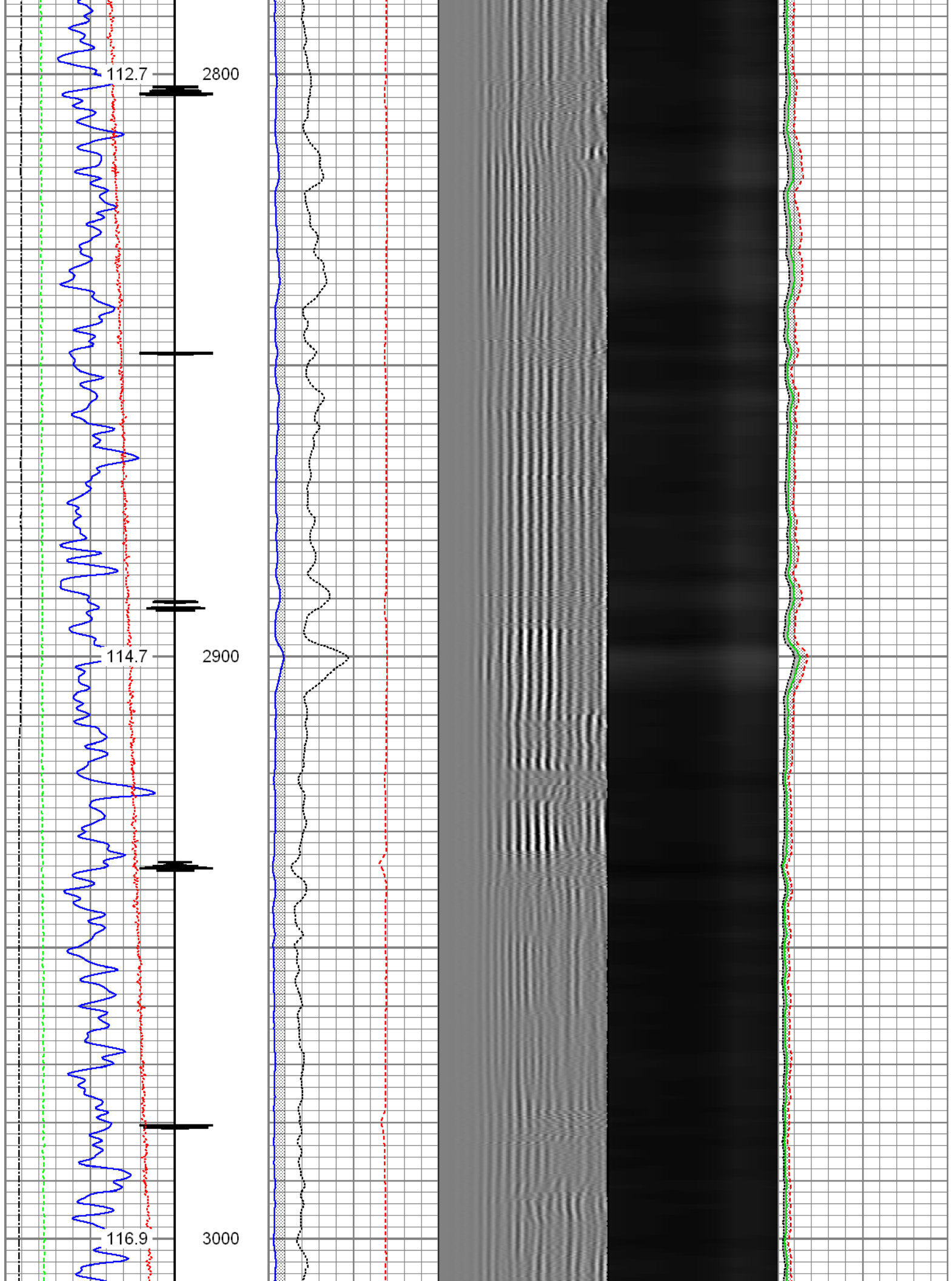


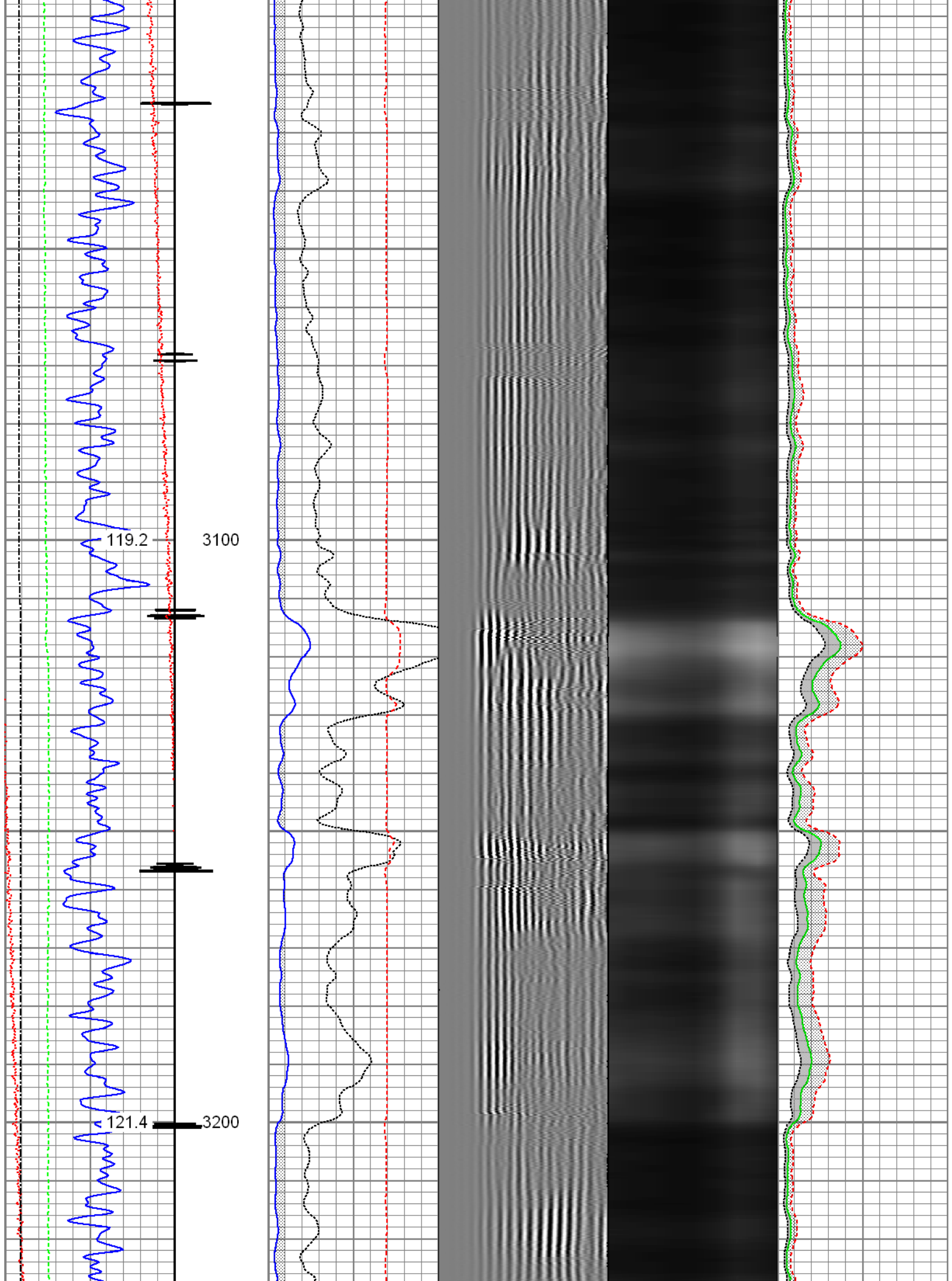


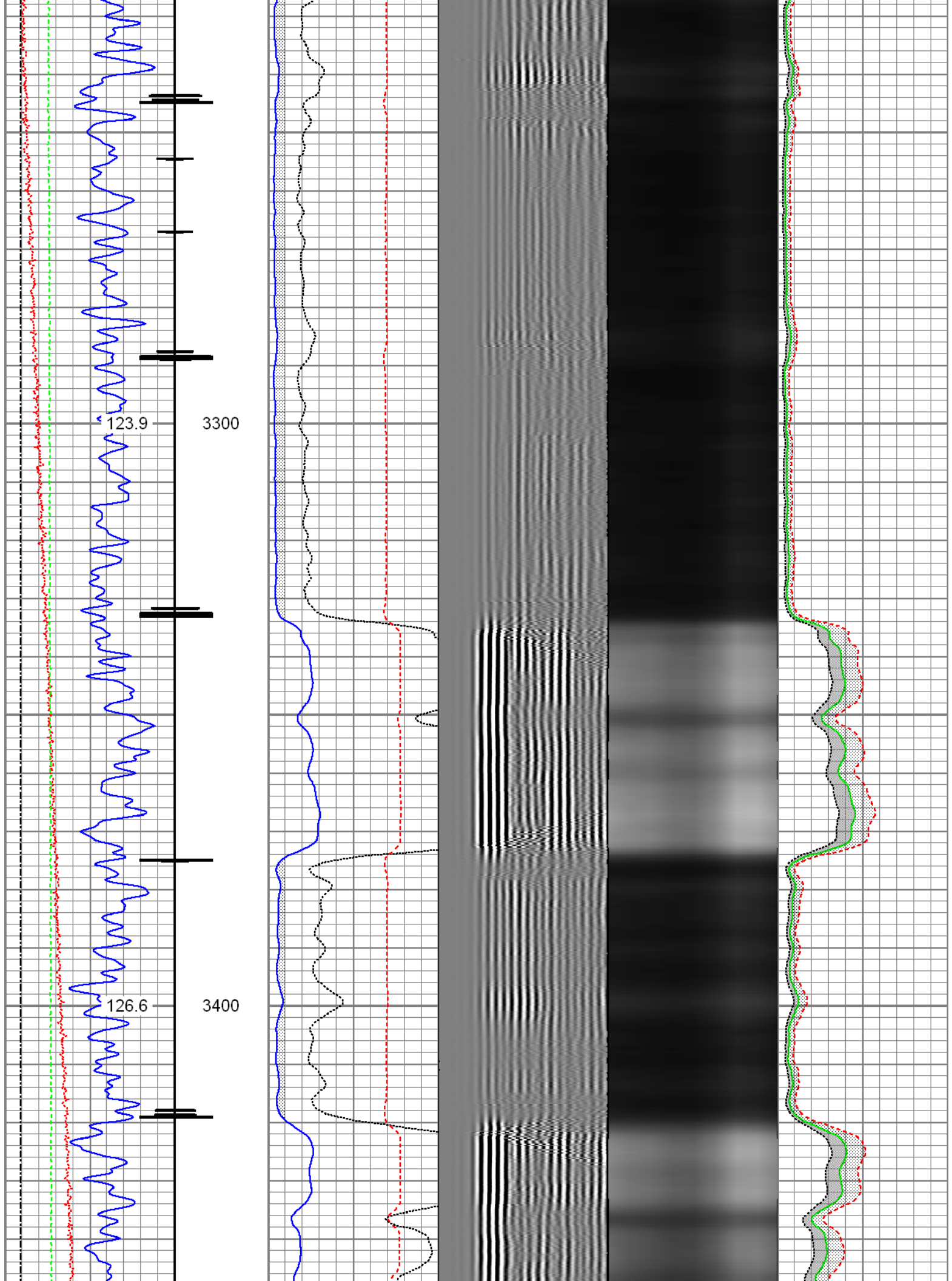


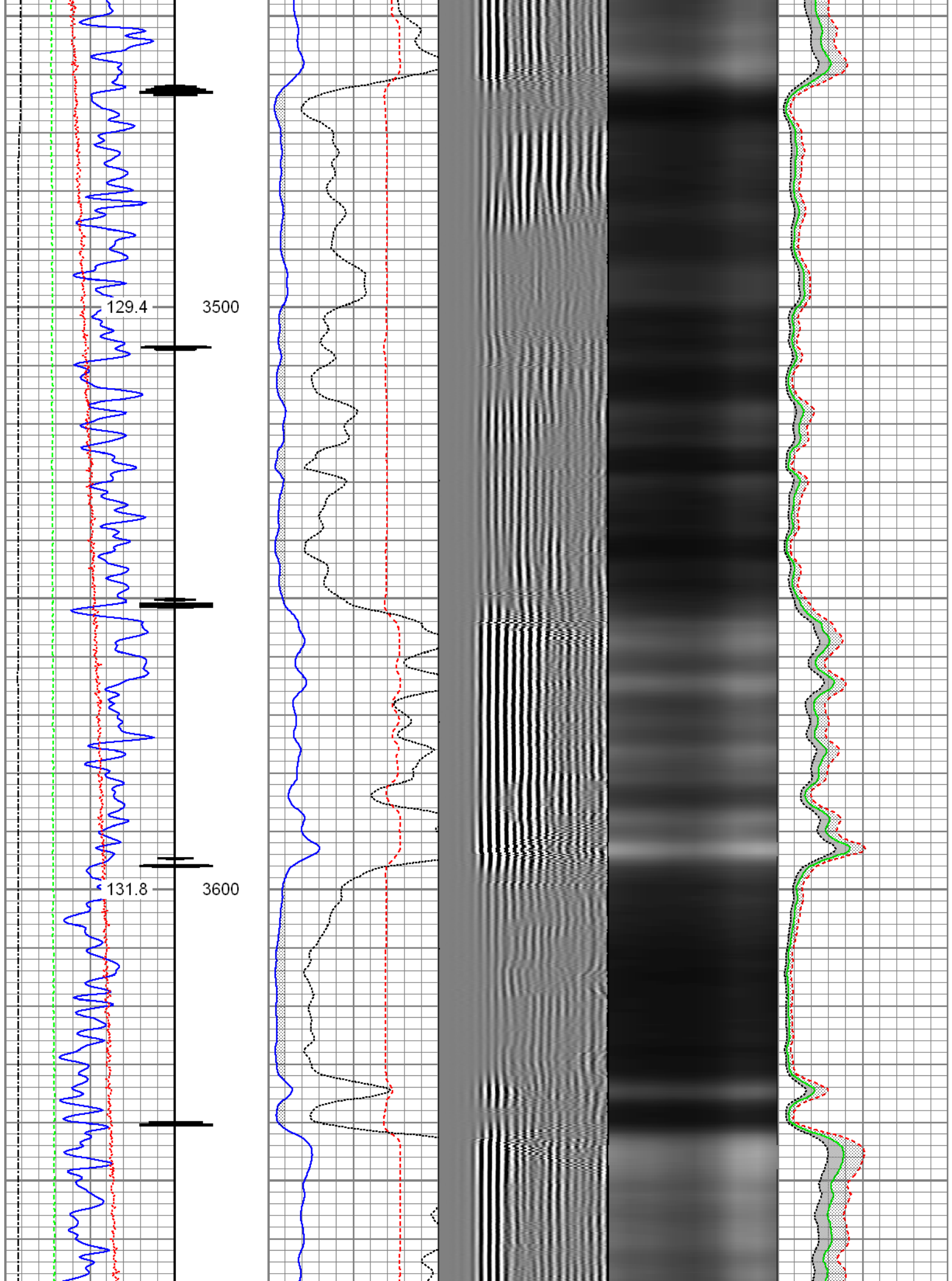


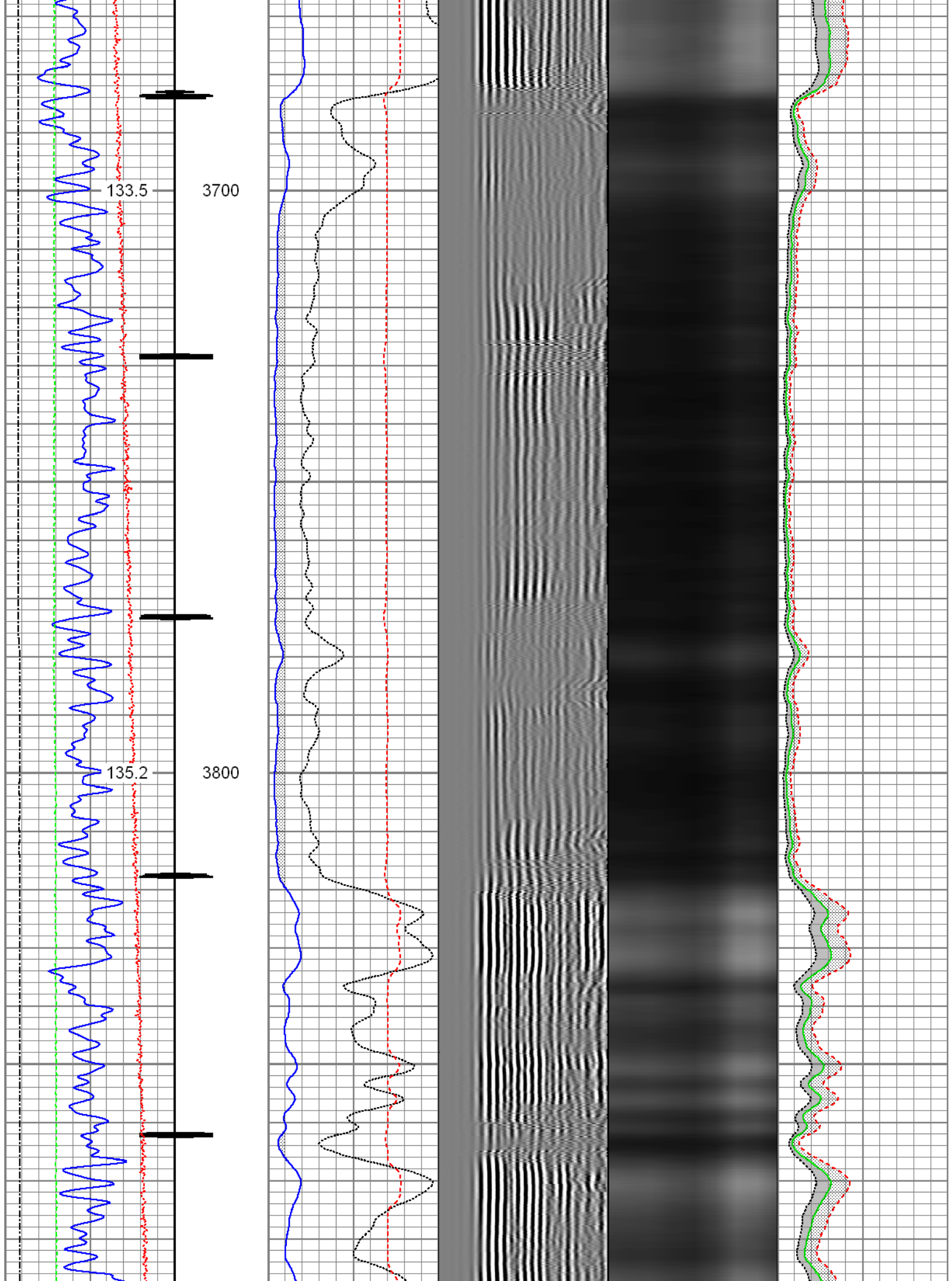


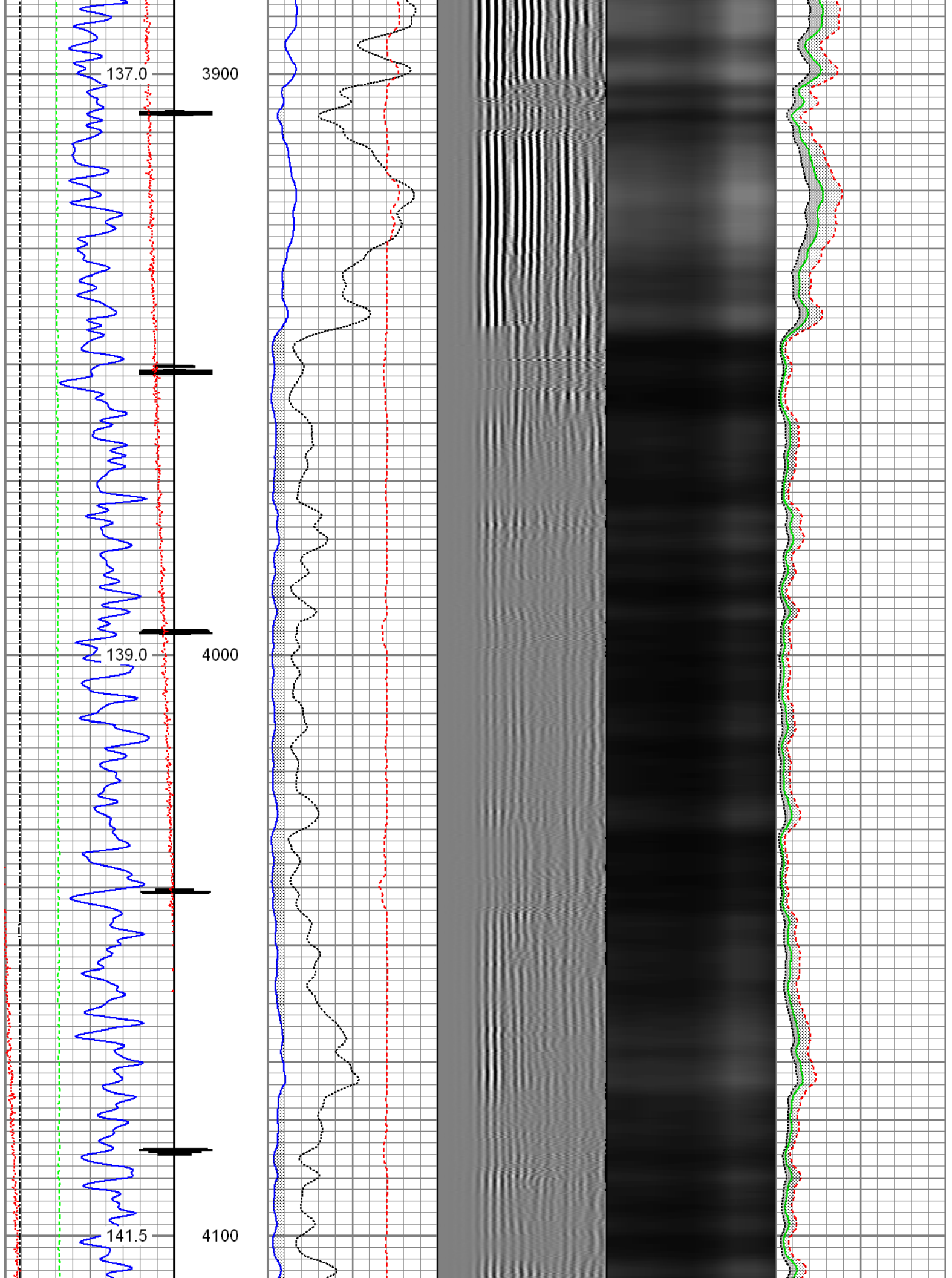


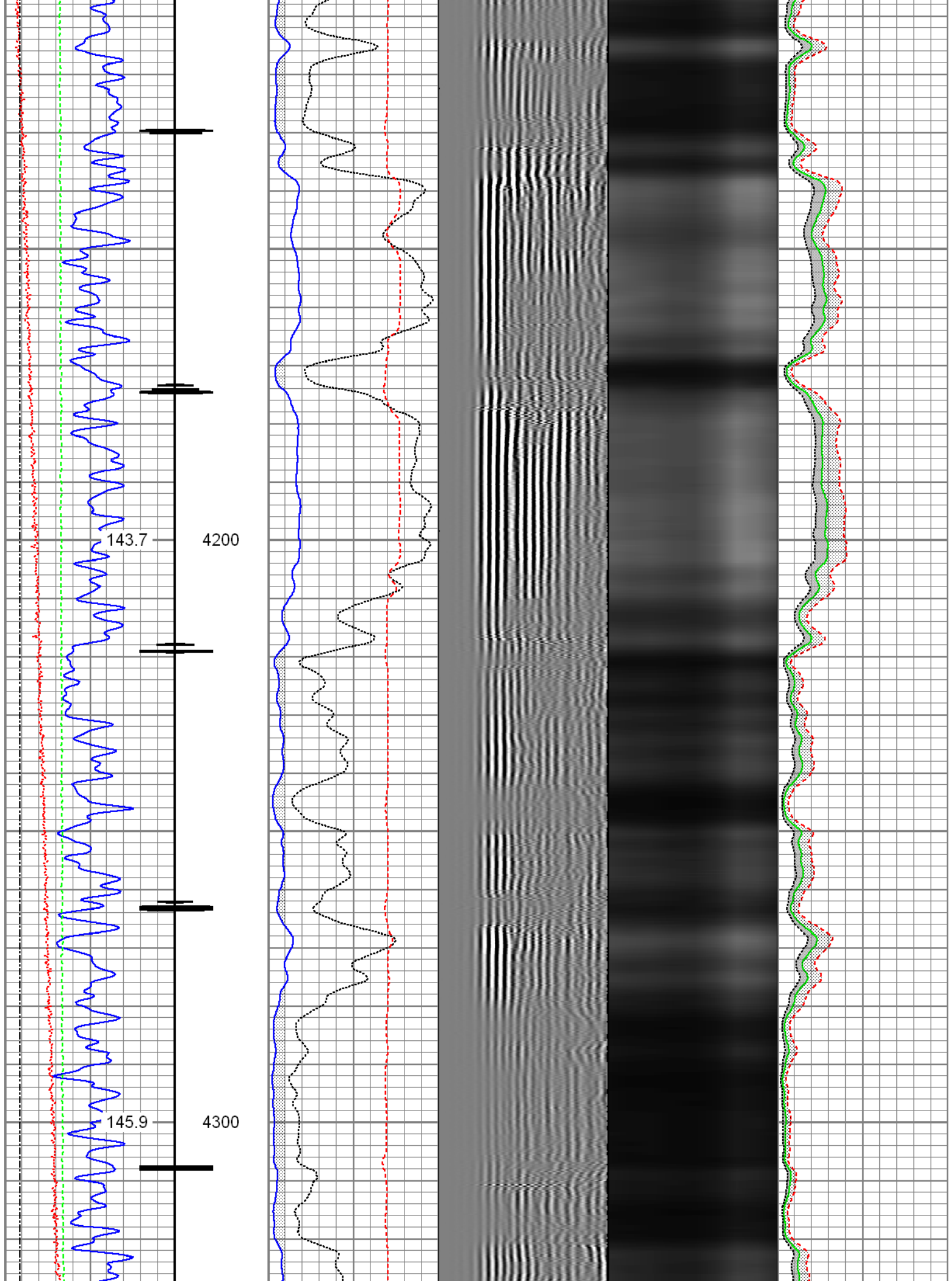


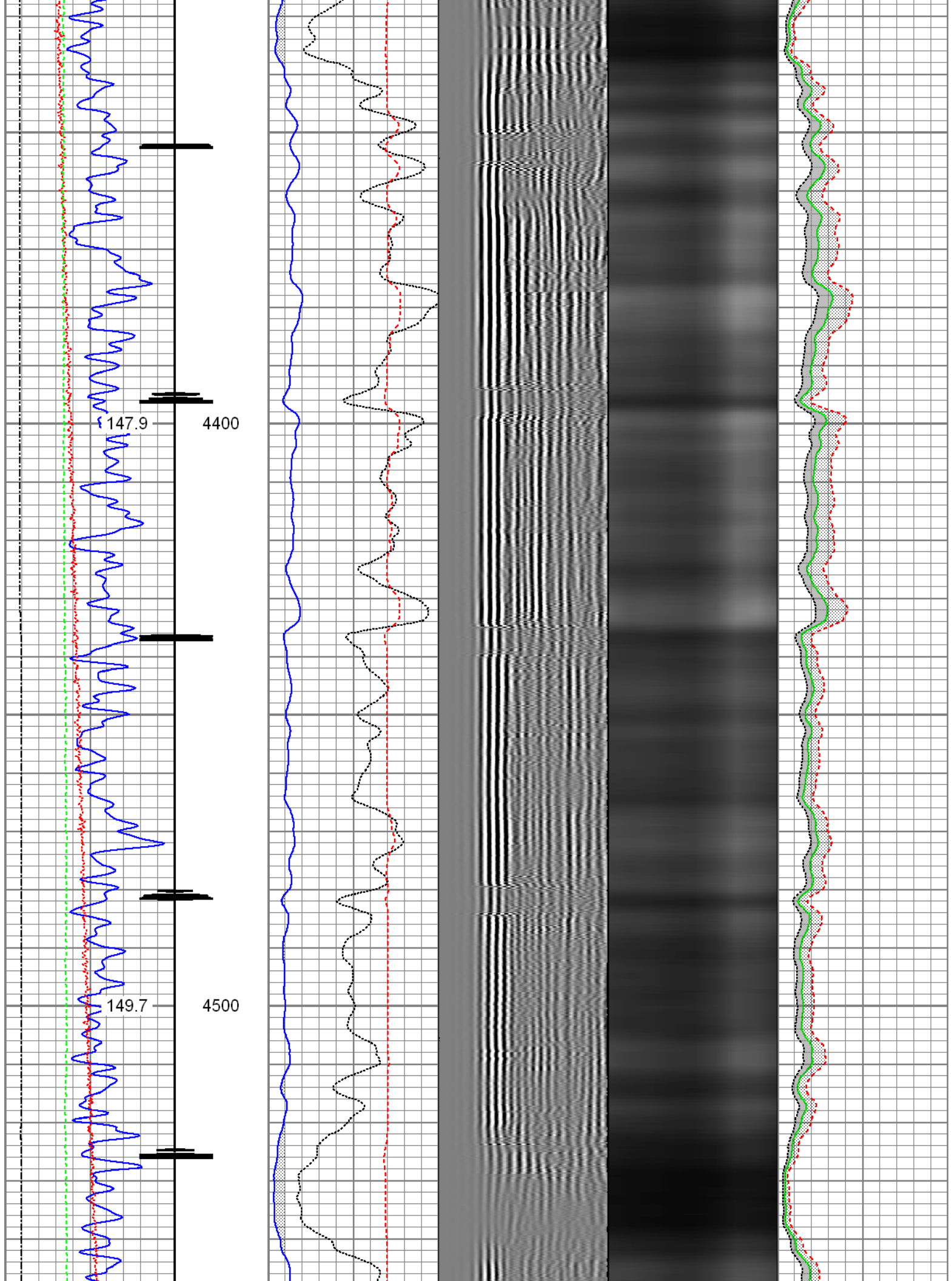


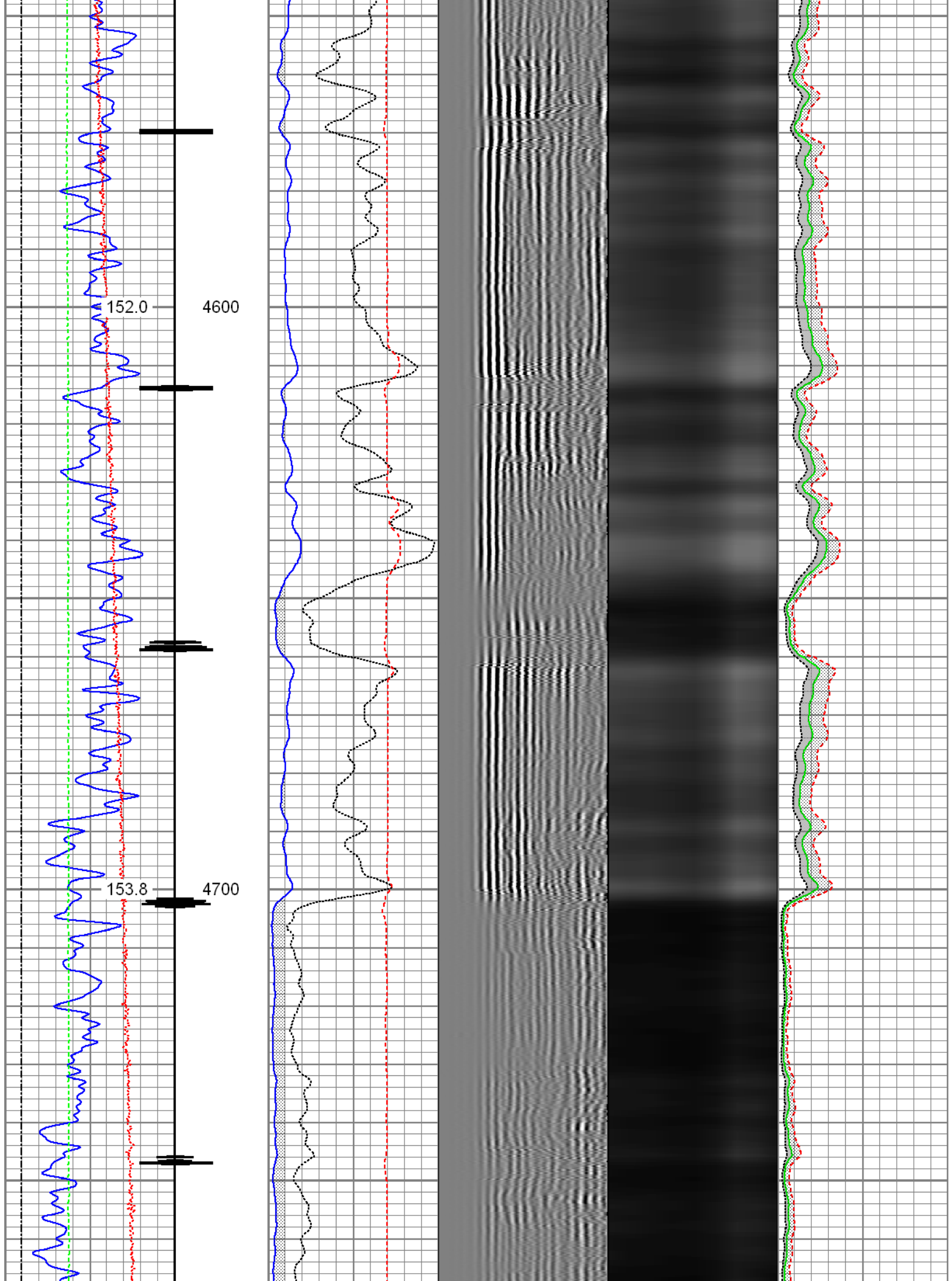


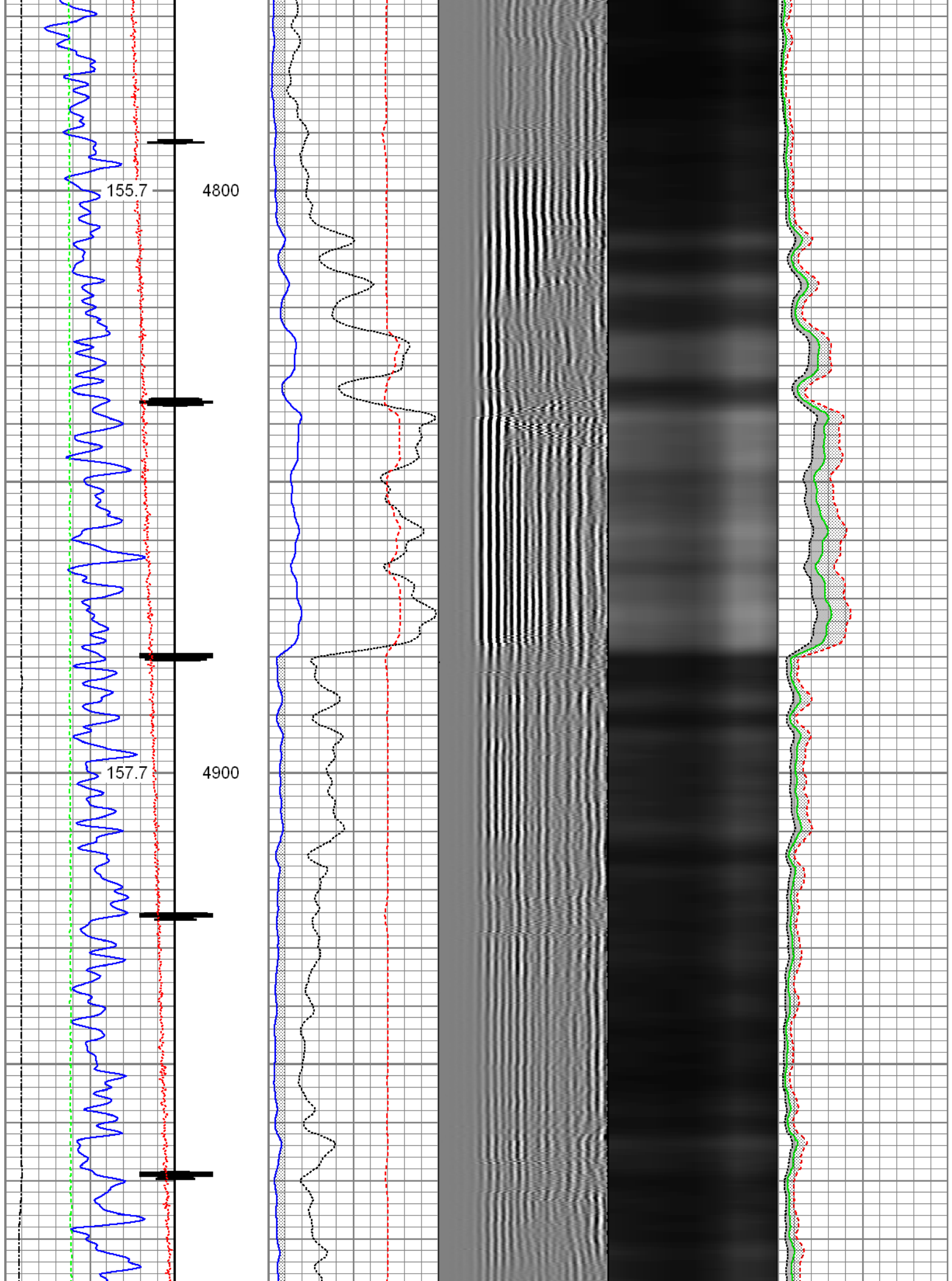


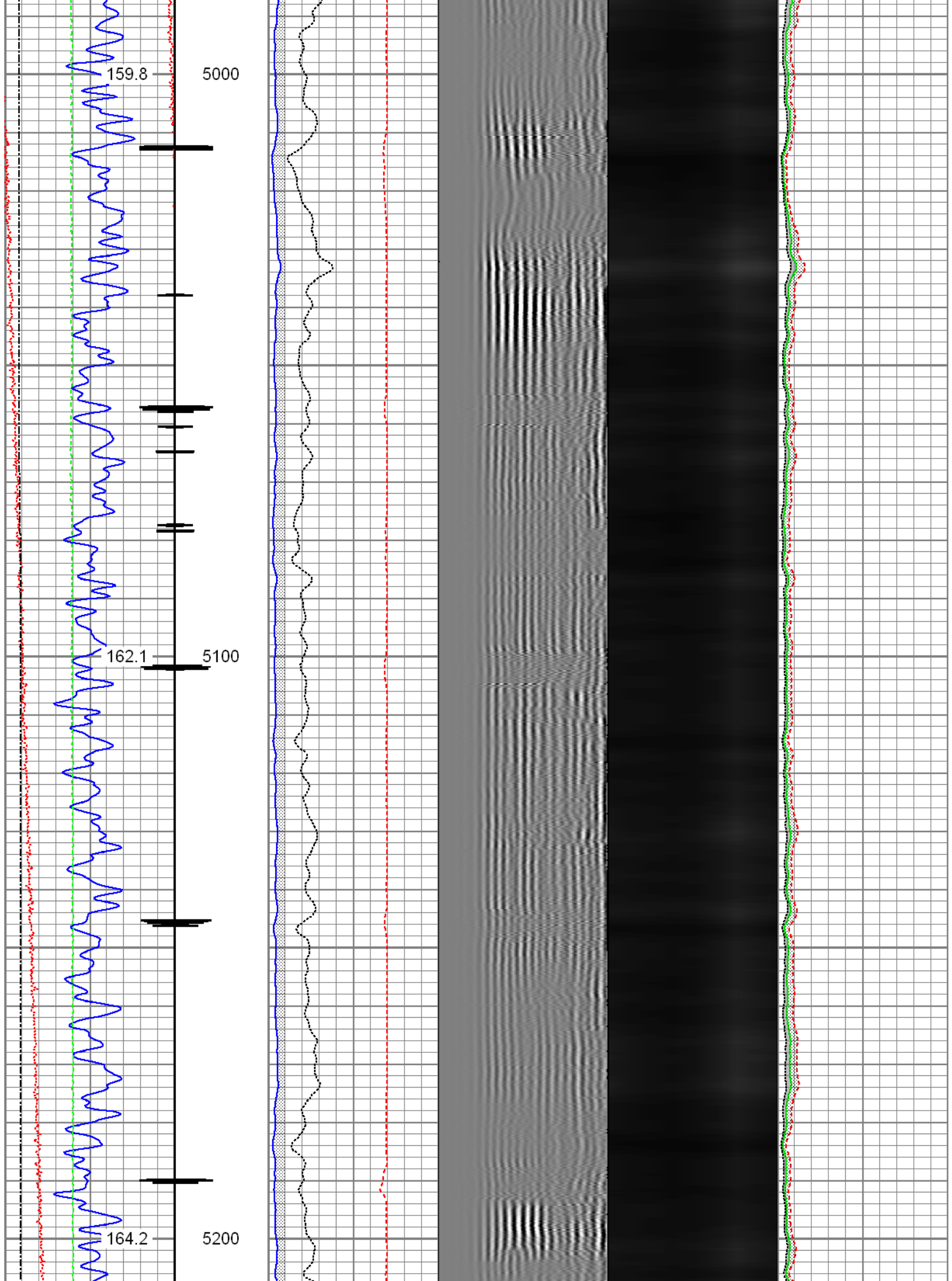


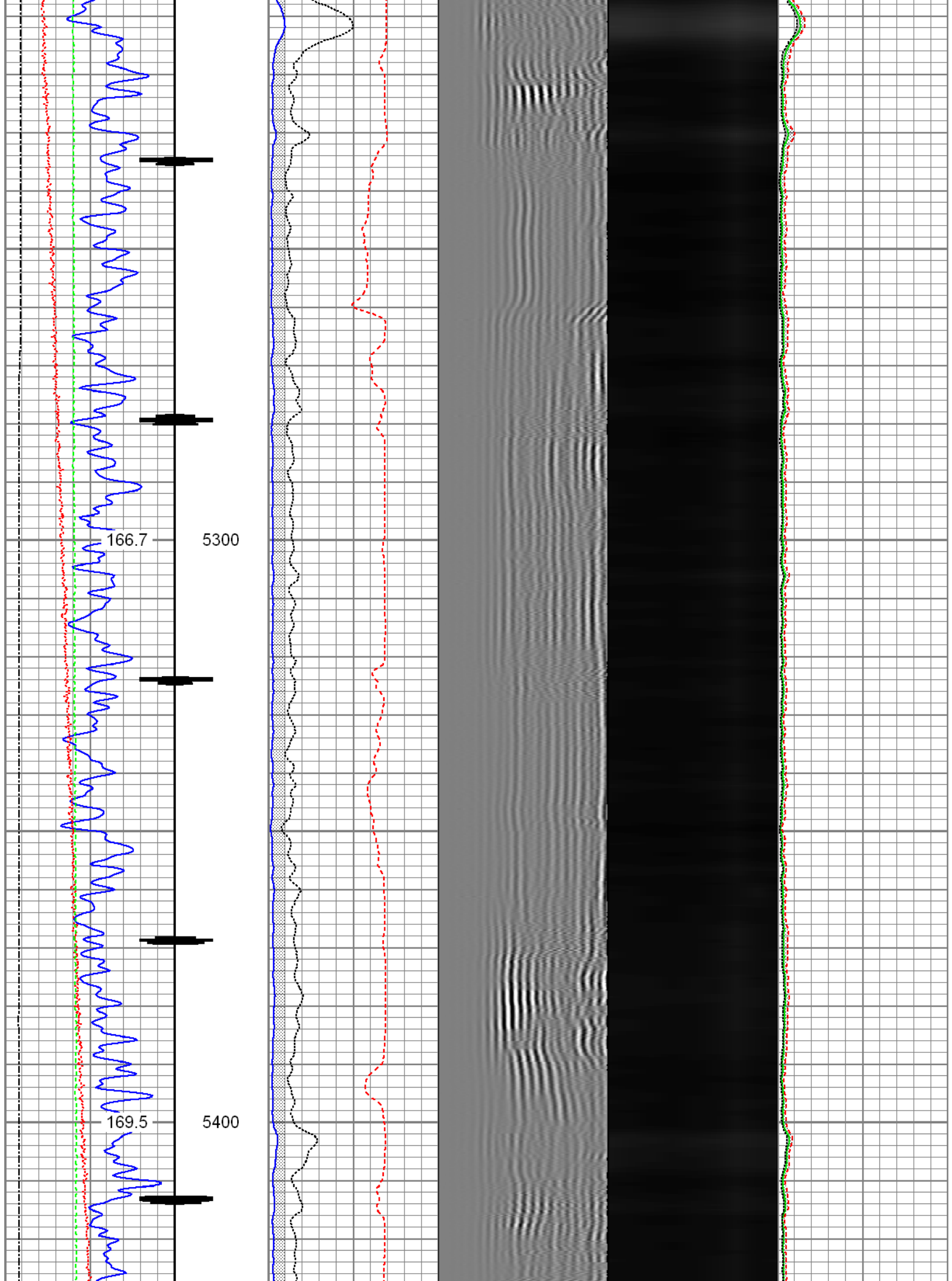


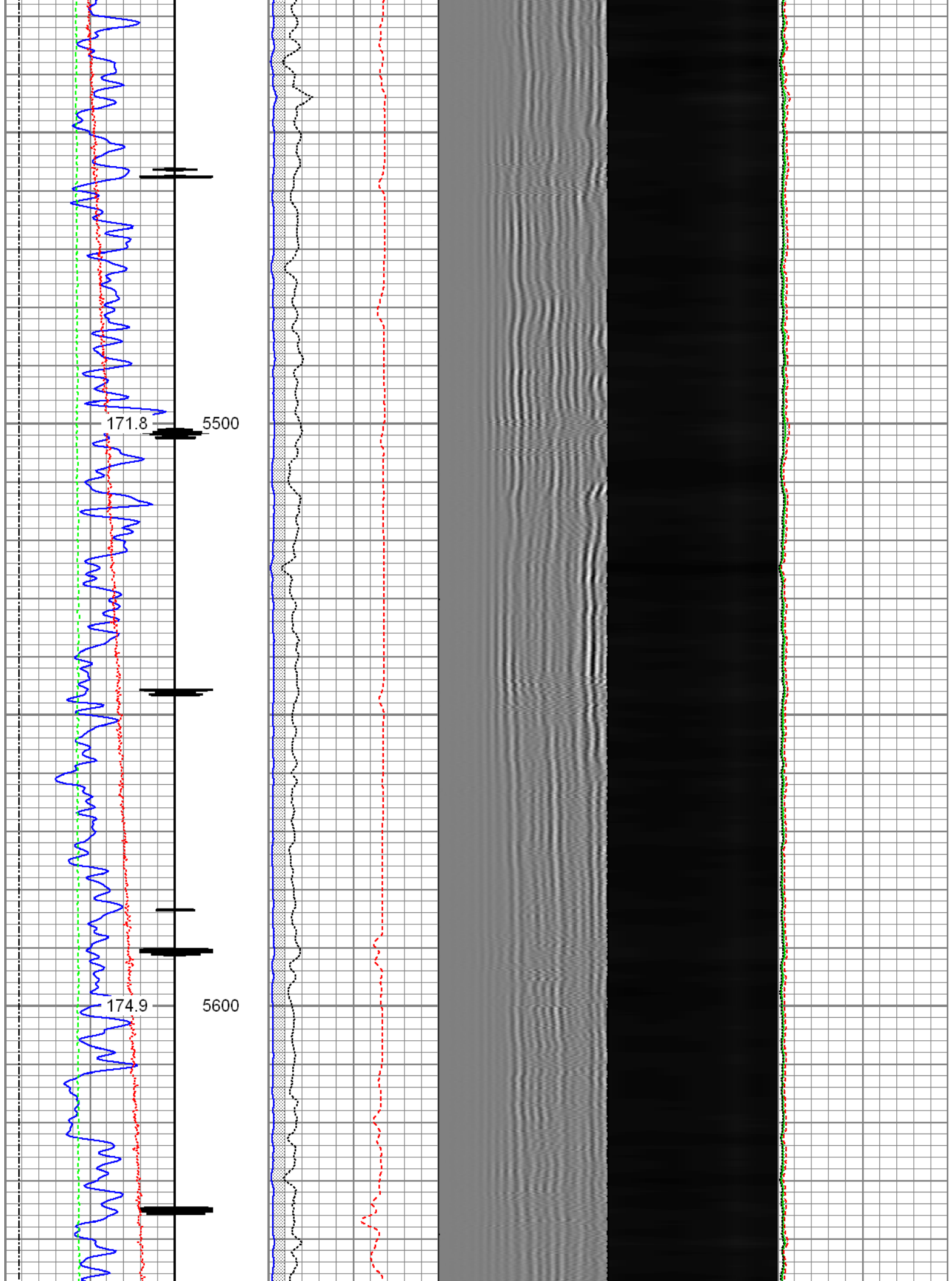


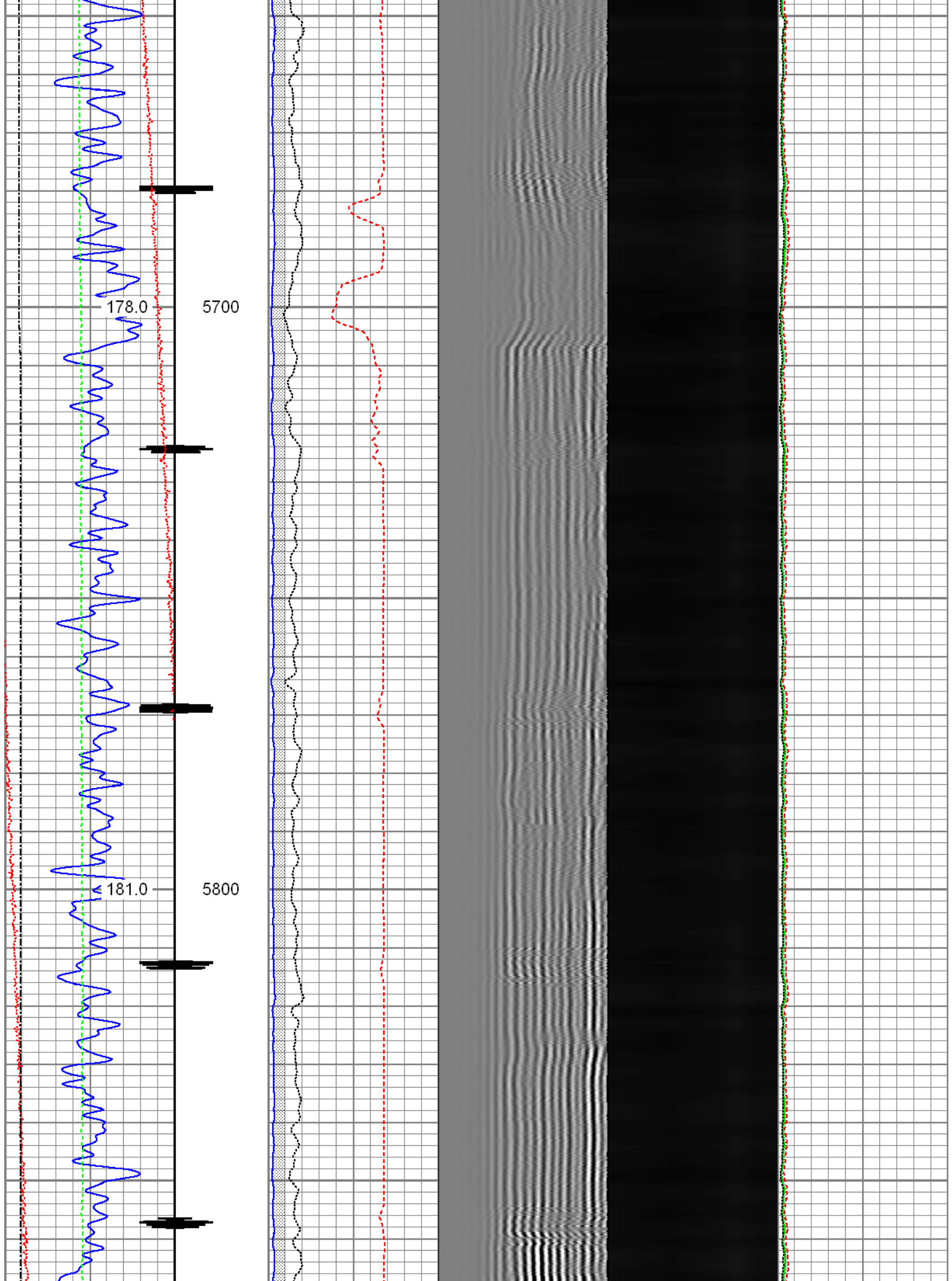


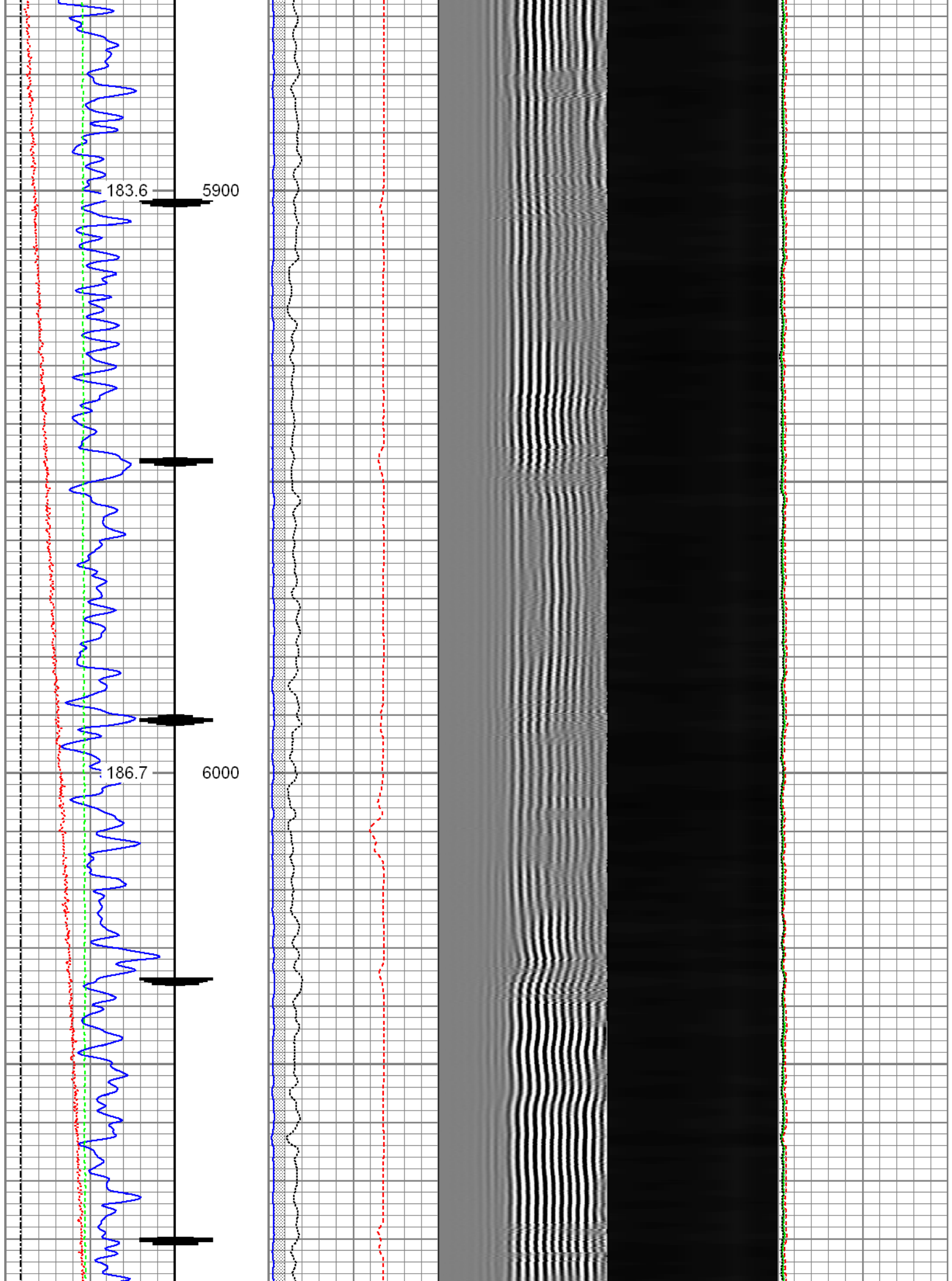


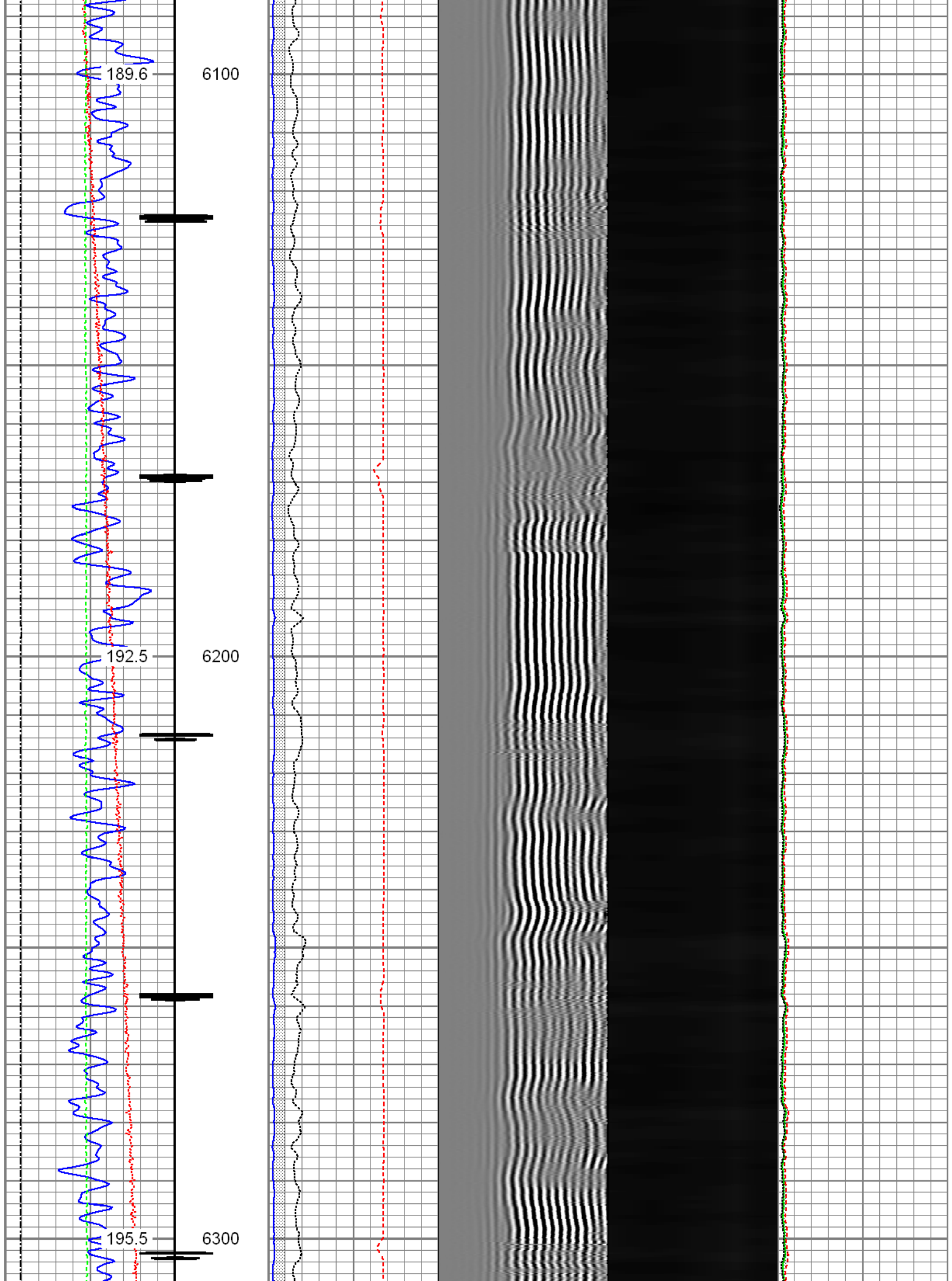


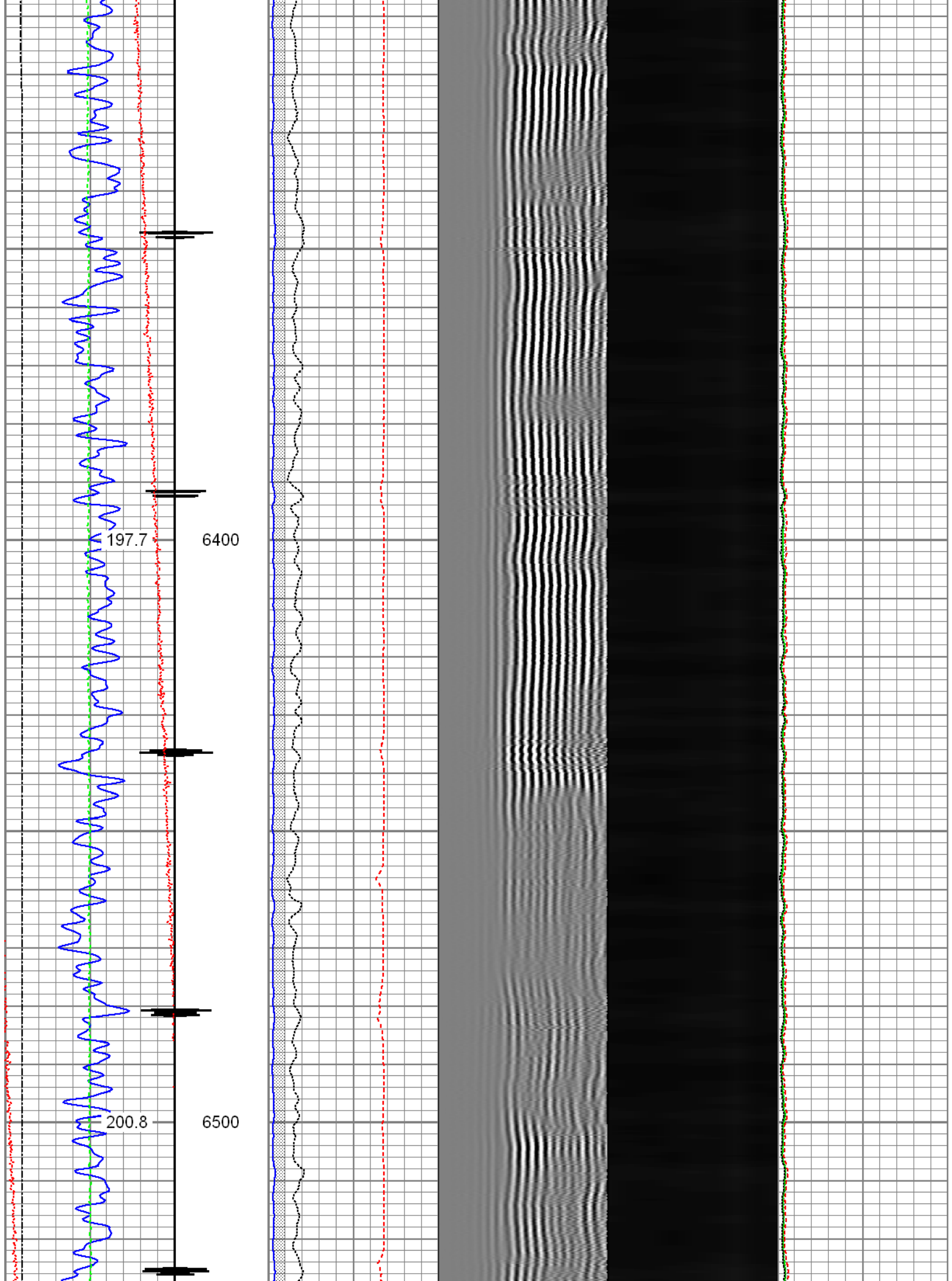


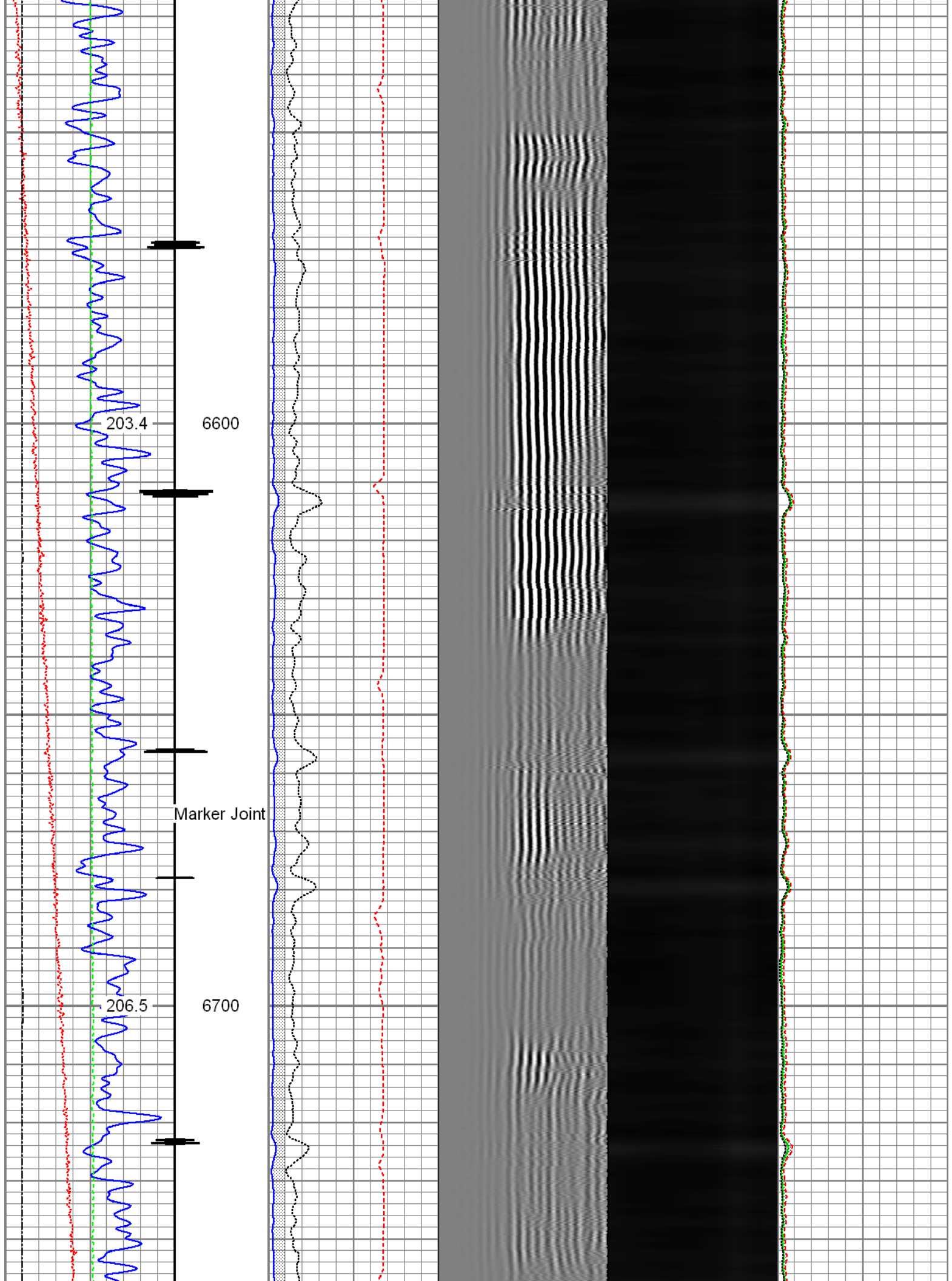


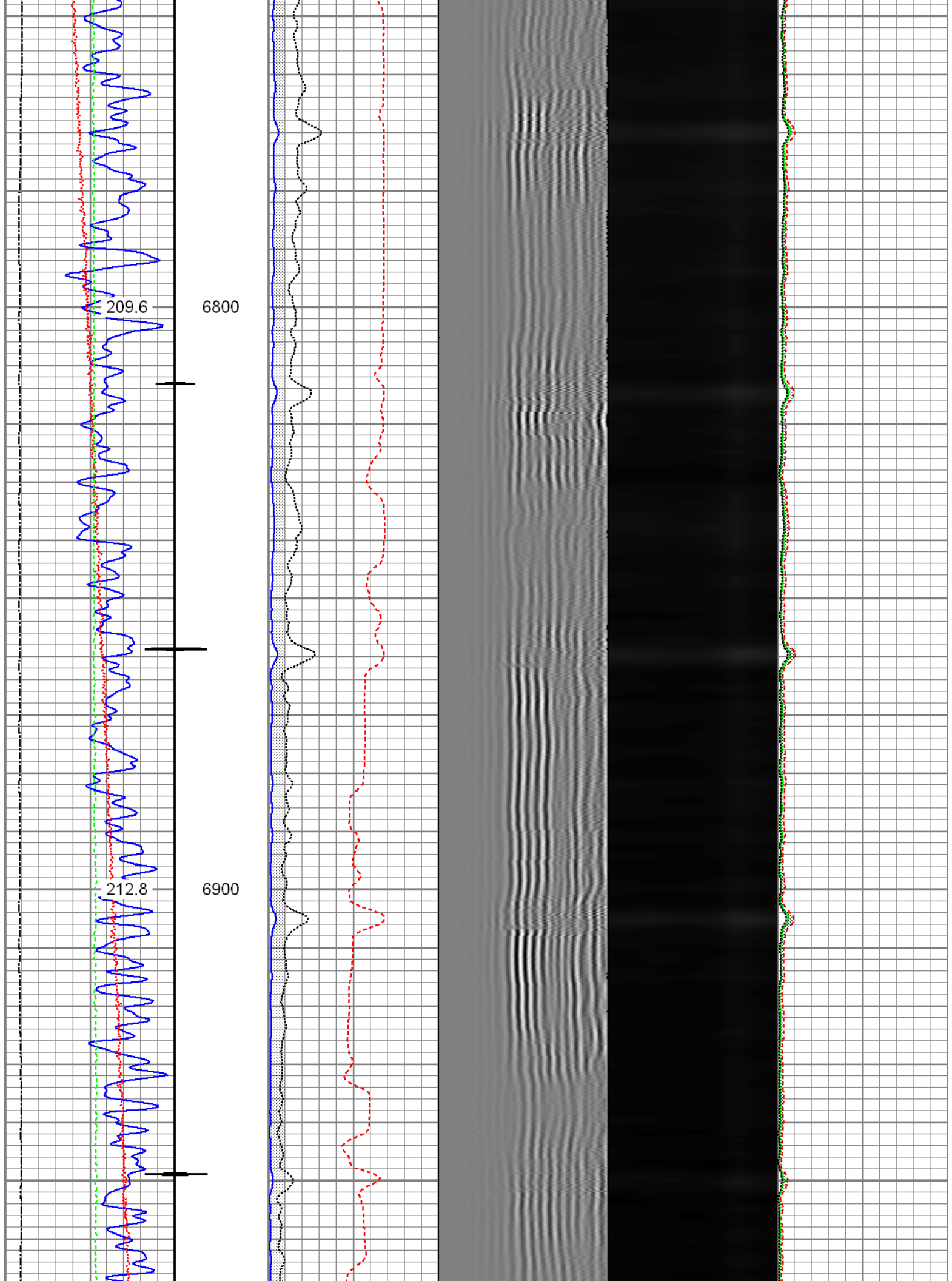


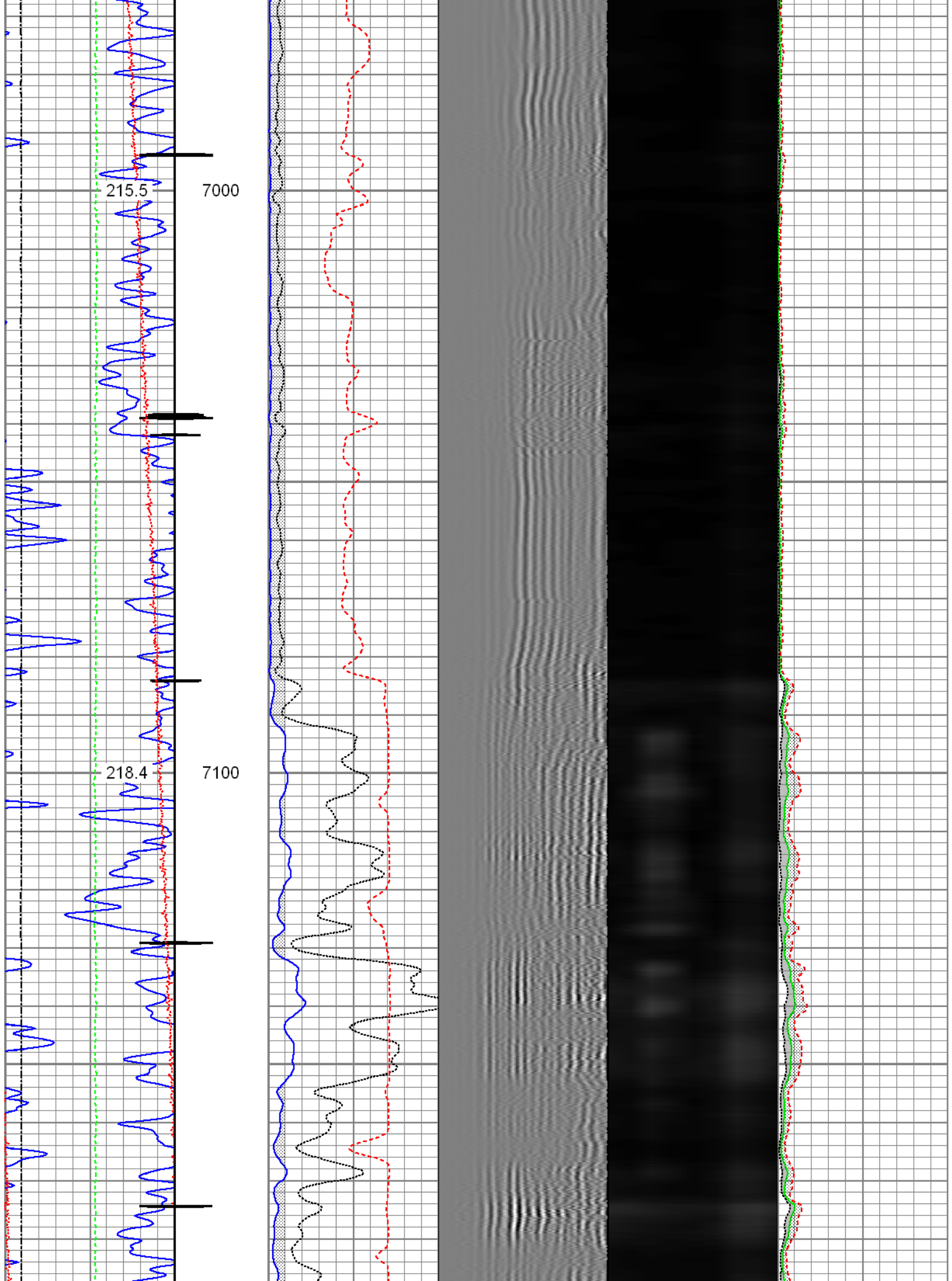


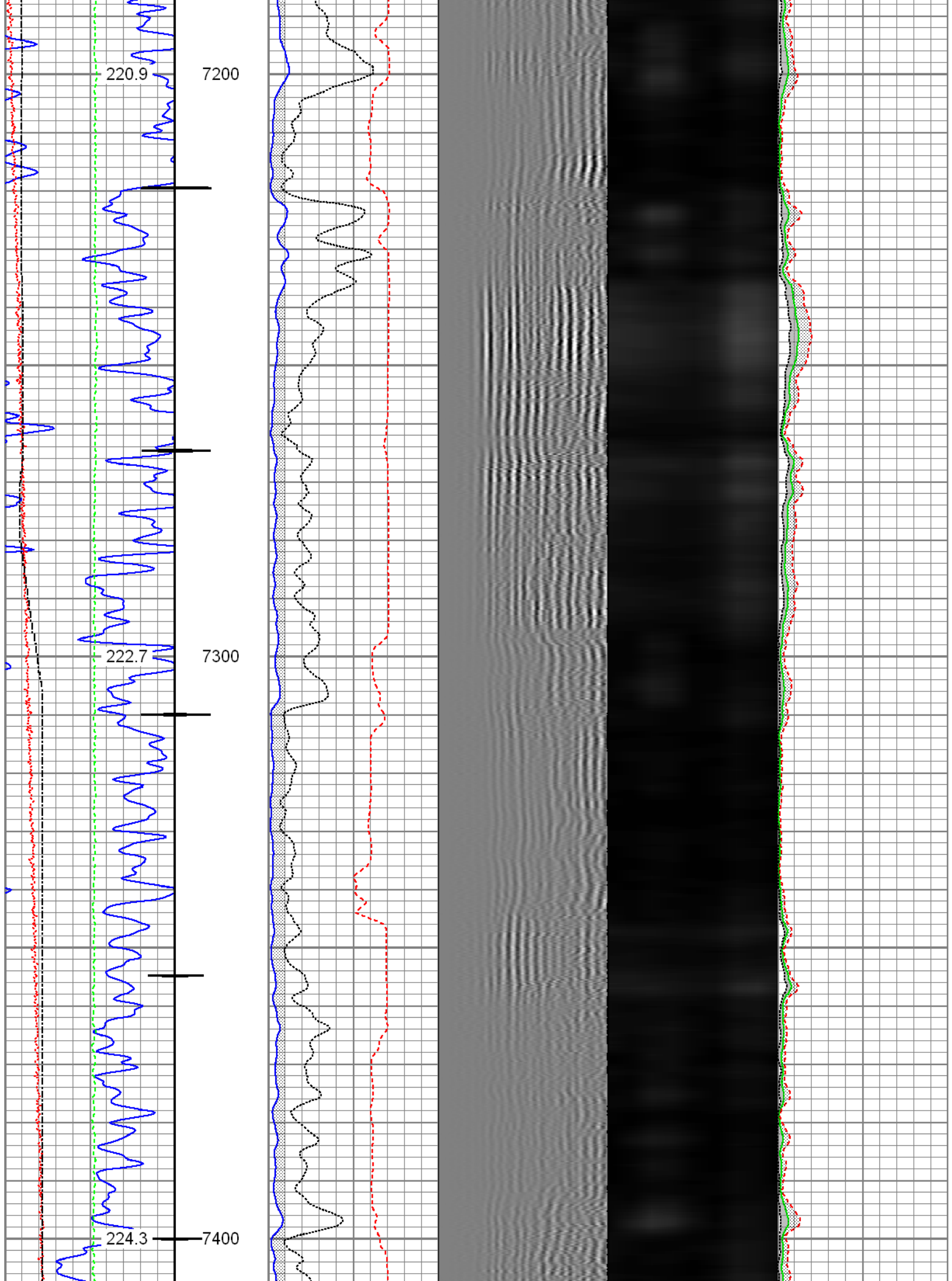


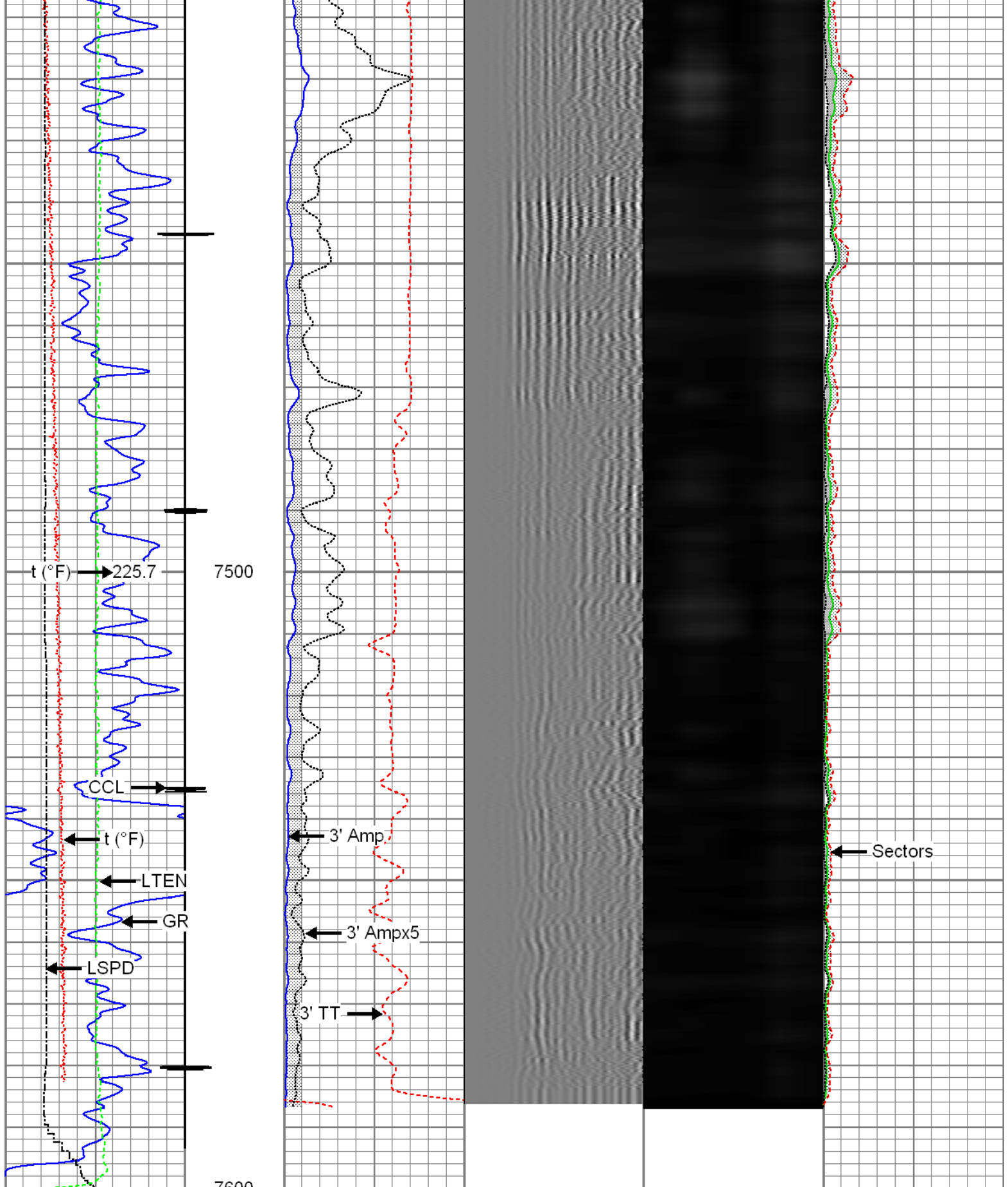












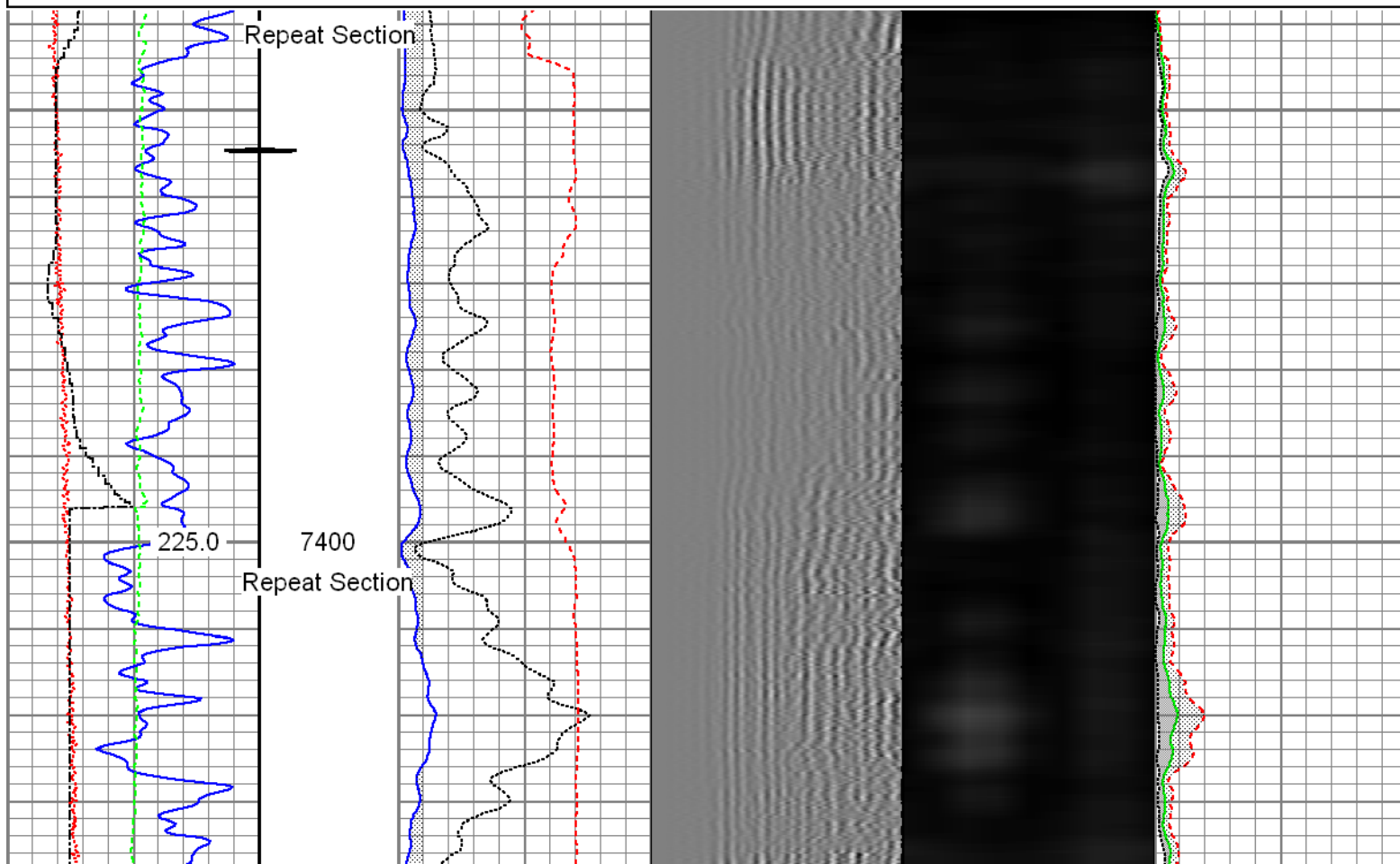
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0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100

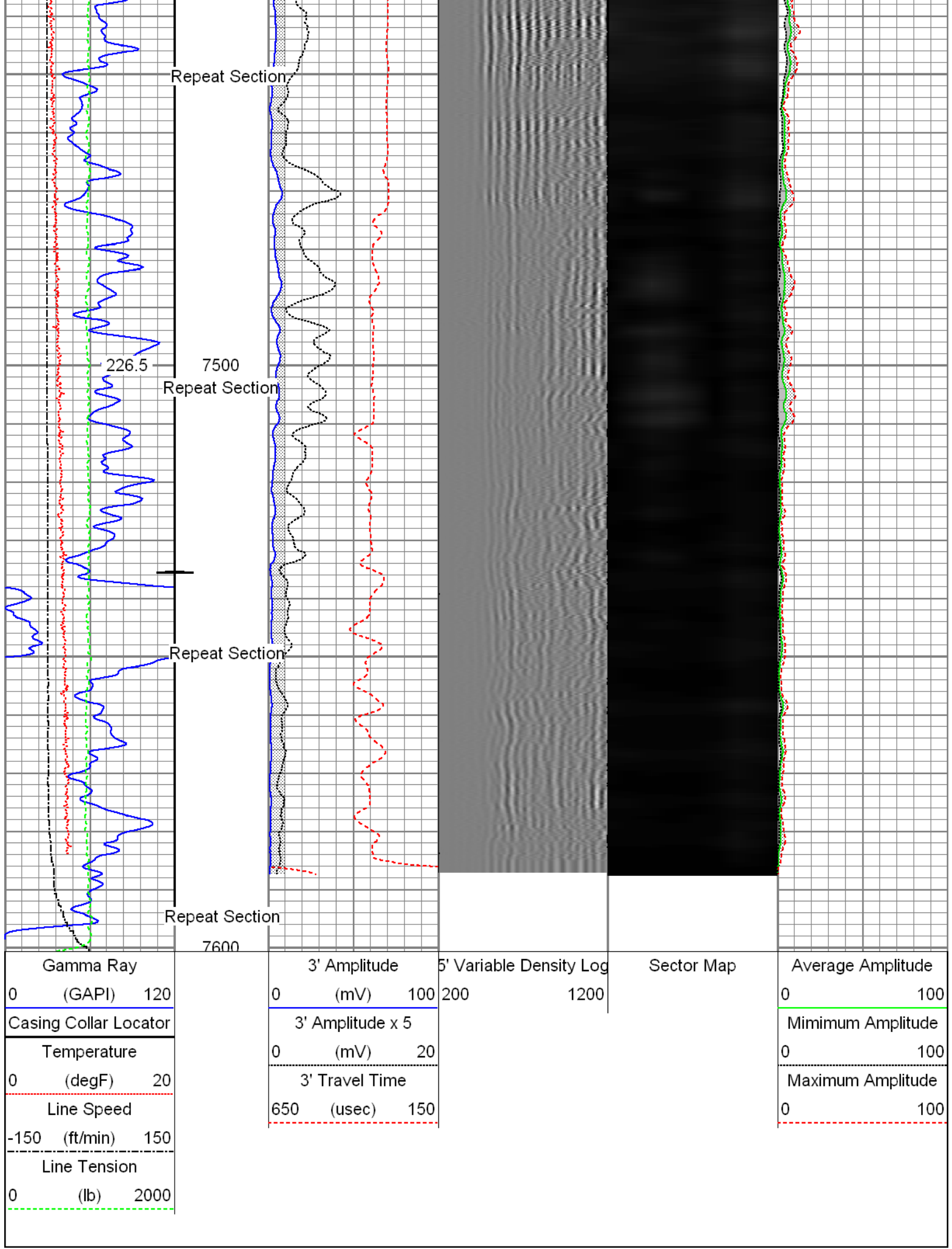
Line Speed	650 (usec)	150	0	100
-150 (ft/min)	150			
Line Tension				
0 (lb)	2000			

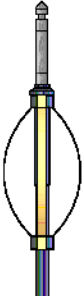

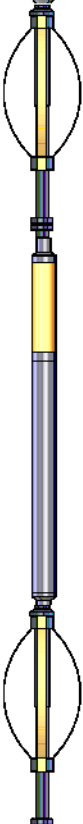
FMC Technologies	Repeat Pass
	Recorded with 2800 PSI Surface Induced Pressure

Database File: 0506906471_anadarko_miracle 9c-11hz_08-14-15_rbl.db
 Dataset Pathname: pass2
 Presentation Format: radii
 Dataset Creation: Fri Aug 14 10:10:33 2015 by Log 7.0 B1
 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			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				





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
HeadVolt	19.49		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Temp	16.72		Probe_RADII-C-2-3/4" (FW1305-098) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00
WVF3FT	14.55					
WVFCAL	14.55					
WVFS1	14.55					
WVFS2	14.55					
WVFS3	14.55					
WVFS4	14.55					
WVFS5	14.55					
WVFS6	14.55					
WVFS7	14.55					
WVFS8	14.55					
WVF5FT	13.55					
CCL DCCL	6.51		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
	6.51					
GR	3.77		Probe_CCL_GR-2.75"Digital (FW1307-038) Probe 2-3/4" Digital CCL / Gamma Ray Combined	4.54	2.75	55.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00

Calibration Report

Database File: 0506906471_Anadarko_Miracle 9C-11HZ_08-14-15_RBL.db
 Dataset Pathname: pass5
 Dataset Creation: Fri Aug 14 10:21:26 2015 by Log 7.0 B1

Gamma Ray Calibration Report

Serial Number: FW1307-038
 Tool Model: 2.75"Digital
 Performed: Mon Aug 03 07:59:17 2015

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1305-098
 Tool Model: 2-3/4"

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 4.900 ft

Master Calibration, performed Fri Aug 14 09:36:05 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.002	0.624	0.800	71.921	113.632	0.991
CAL	0.703	0.695				
5'	0.001	0.507	0.800	71.921	140.533	0.668
SUM						
S1	-0.003	0.556	0.000	100.000	178.868	0.622
S2	-0.001	0.575	0.000	100.000	173.611	0.225
S3	-0.001	0.623	0.000	100.000	160.250	0.180
S4	-0.001	0.722	0.000	100.000	138.297	0.149
S5	-0.001	0.776	0.000	100.000	128.716	0.143
S6	-0.002	0.715	0.000	100.000	139.528	0.209
S7	-0.001	0.618	0.000	100.000	161.438	0.169
S8	-0.002	0.568	0.000	100.000	175.666	0.296

Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.703	0.695	1.000	0.000

Air Zero Calibration, performed Fri Aug 14 09:34:56 2015:

	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

	Company	Kerr-McGee Oil & Gas Onshore, L.P.
	Well	Miracle 9C-11HZ
	Field	Wattenberg
	County	Larimer
	State	Colorado