



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.			
Well	Whiston 16N-33HZ			
Field	Wattenberg			
County	Weld			
State	Colorado			
Location:	API # : 05-123-44030			Other Services
SEC 4 TWP 2N RGE 67W	Permanent Datum	Ground Level	Elevation	Gauge Ring
	Log Measured From	Kelly Bushing	20 FT	
	Drilling Measured From	Kelly Bushing		

Date	17-MAY-2017
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Run Number	Two
Depth Driller	13343 FT
Depth Logger	7670 FT
Bottom Logged Interval	7666 FT
Top Log Interval	Surface
Open Hole Size	7.88"
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	10:47
Equipment Number	HD-0343
Location	Fort Lupton, CO
Recorded By	J. Fresquez
Witnessed By	B. 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	J-55	Surface	1860 FT
Intermediate #1	5 1/2	17	HC P110	Surface	13334 FT
Intermediate #2					
Liner					

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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
Depth referenced to Casing Tally reported Marker Joint at 6711 FT
Adjusted -4 FT to correlate with Marker Joint
Gauge Ring/Junk Basket ran to 7720 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

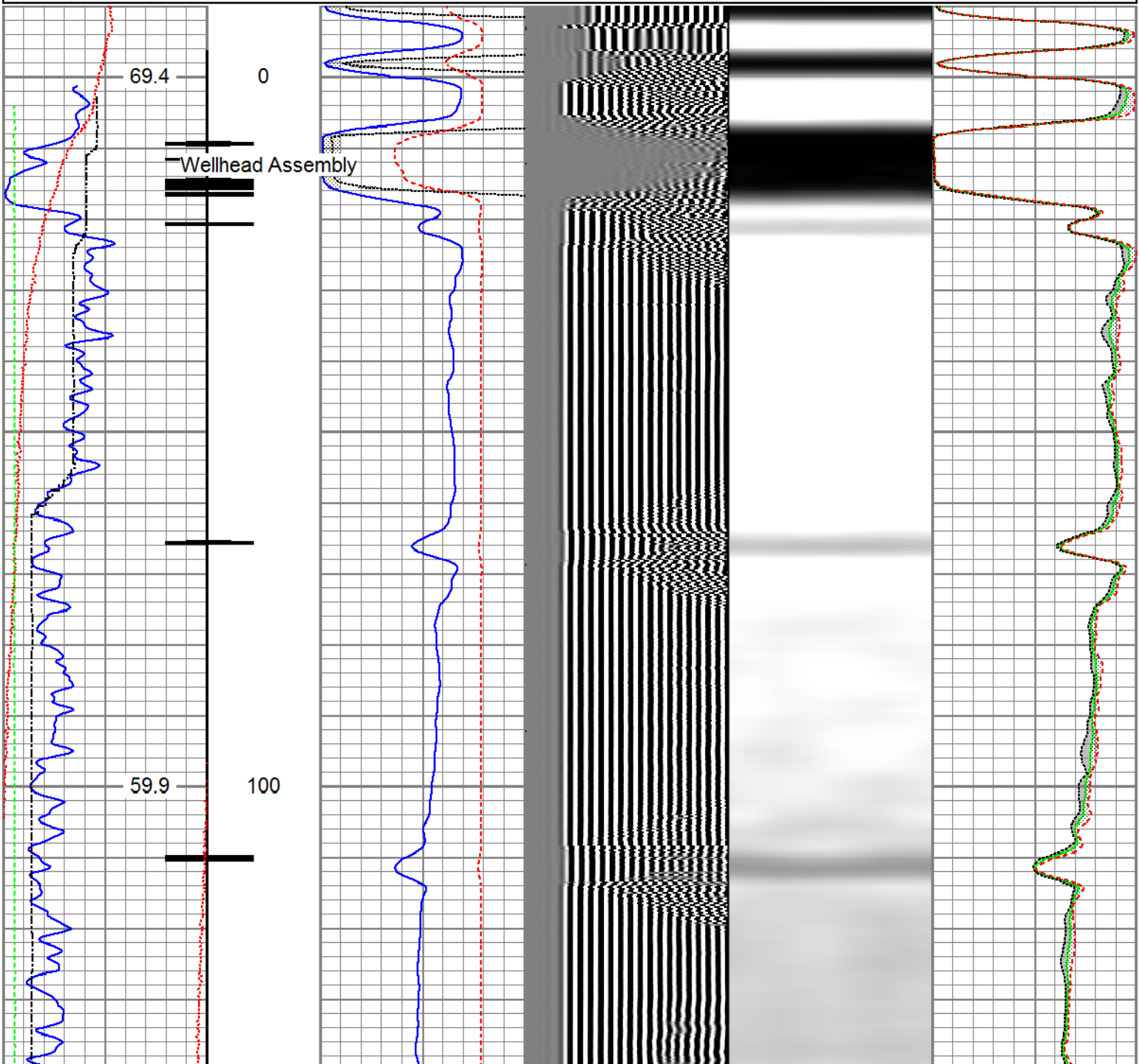
Thank you for choosing Reliance Oilfield Services, LLC!!

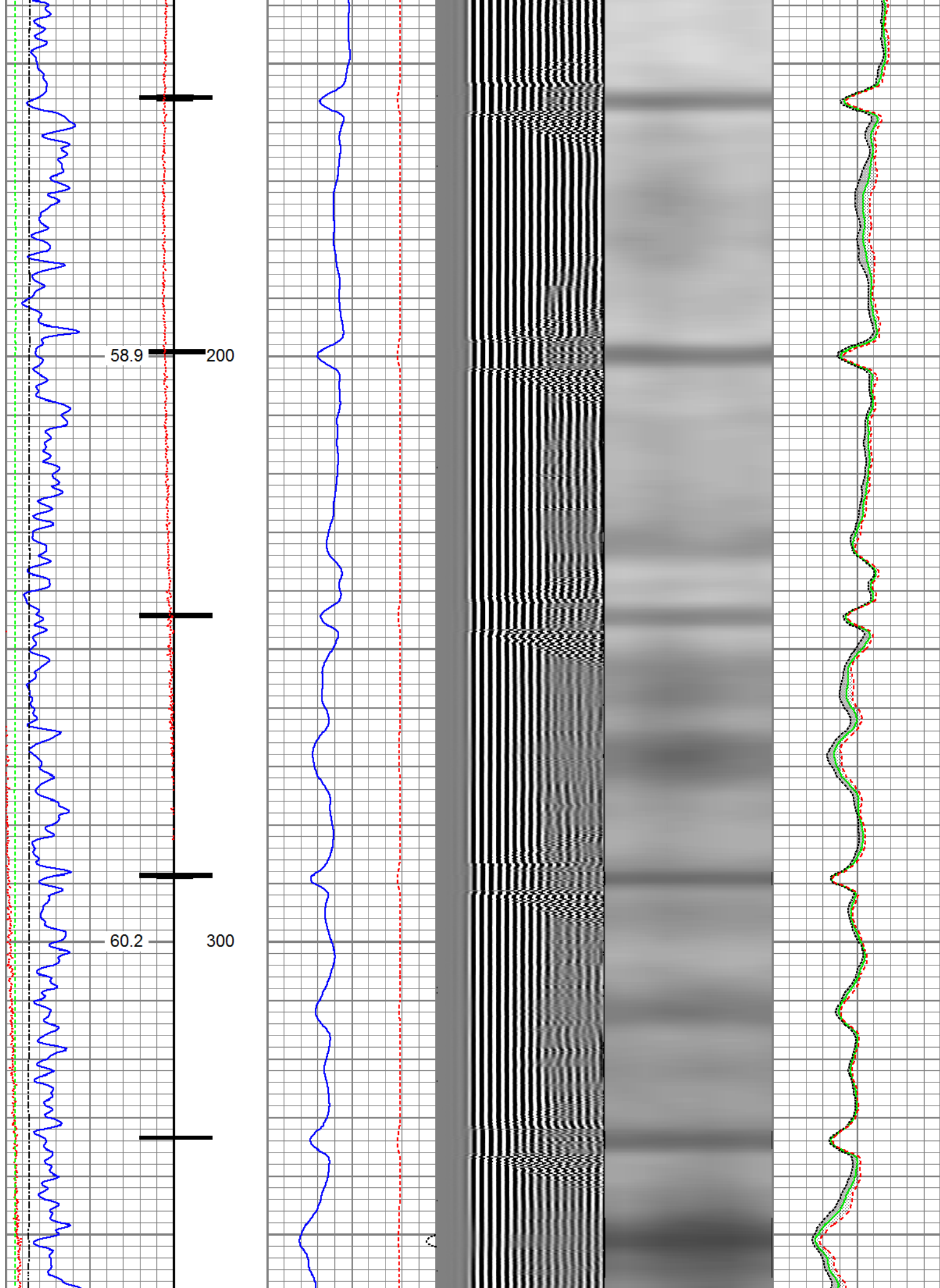


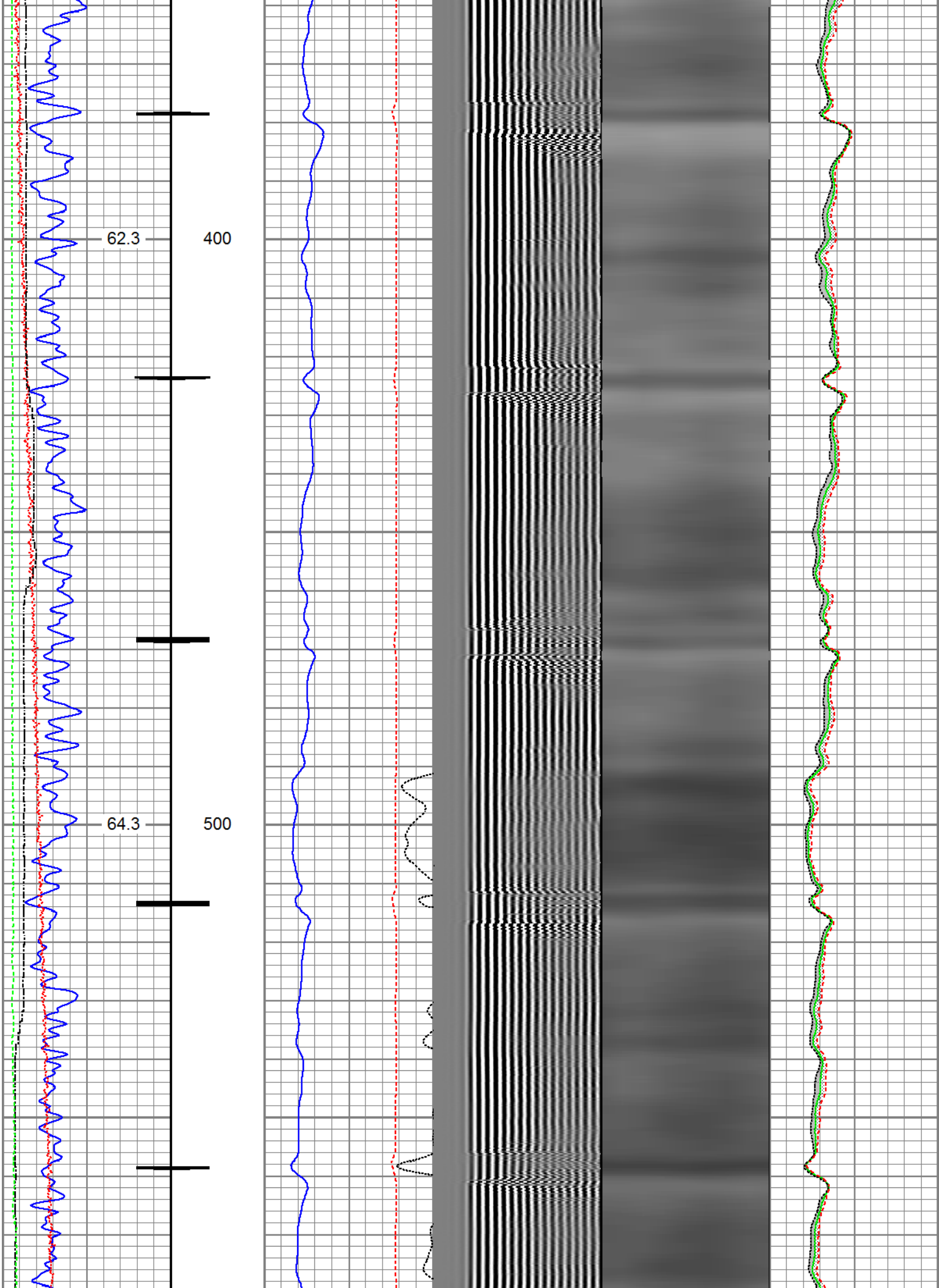
Main Pass

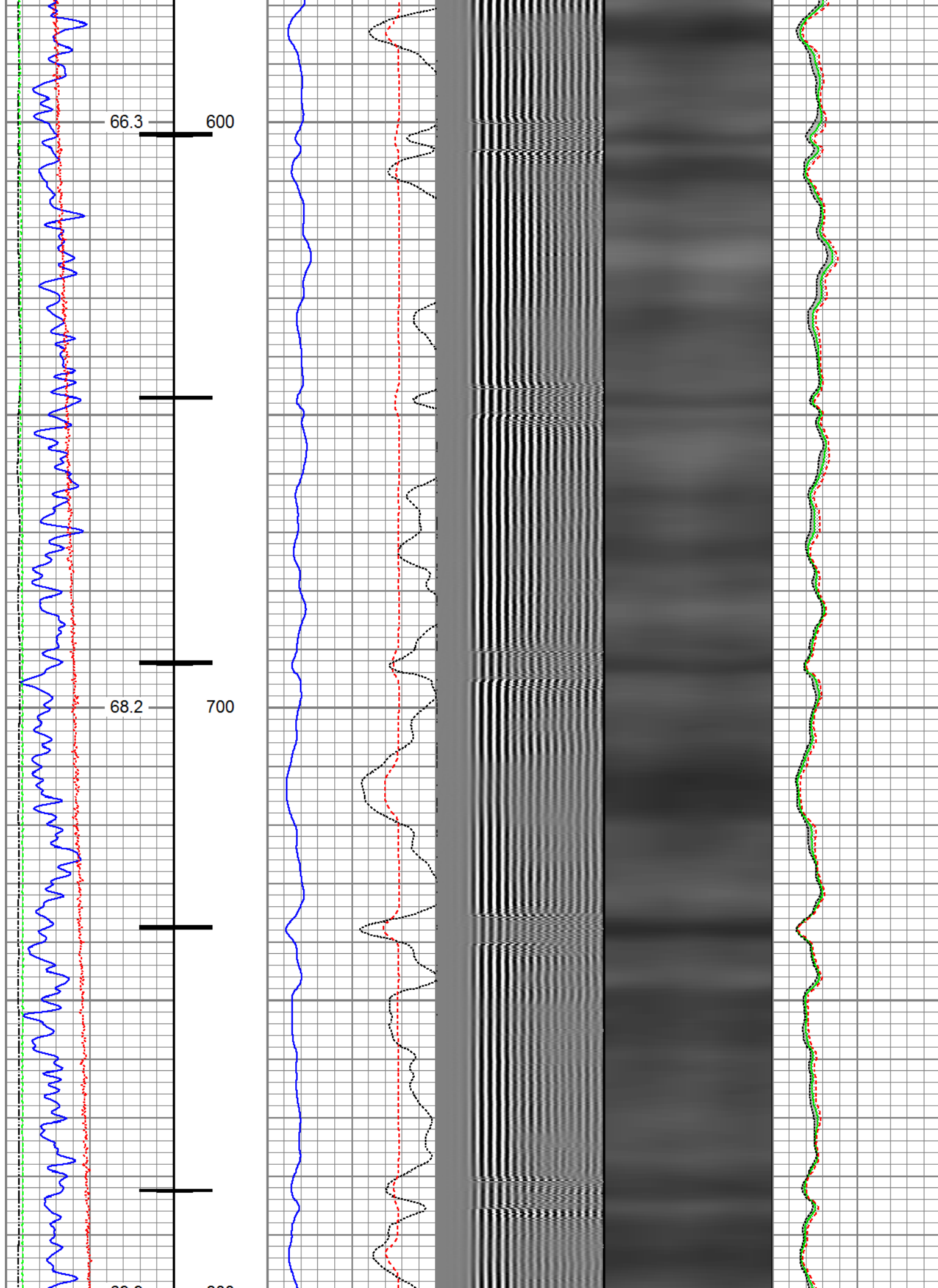
Recorded With 2800 PSI Surface Induced Pressure

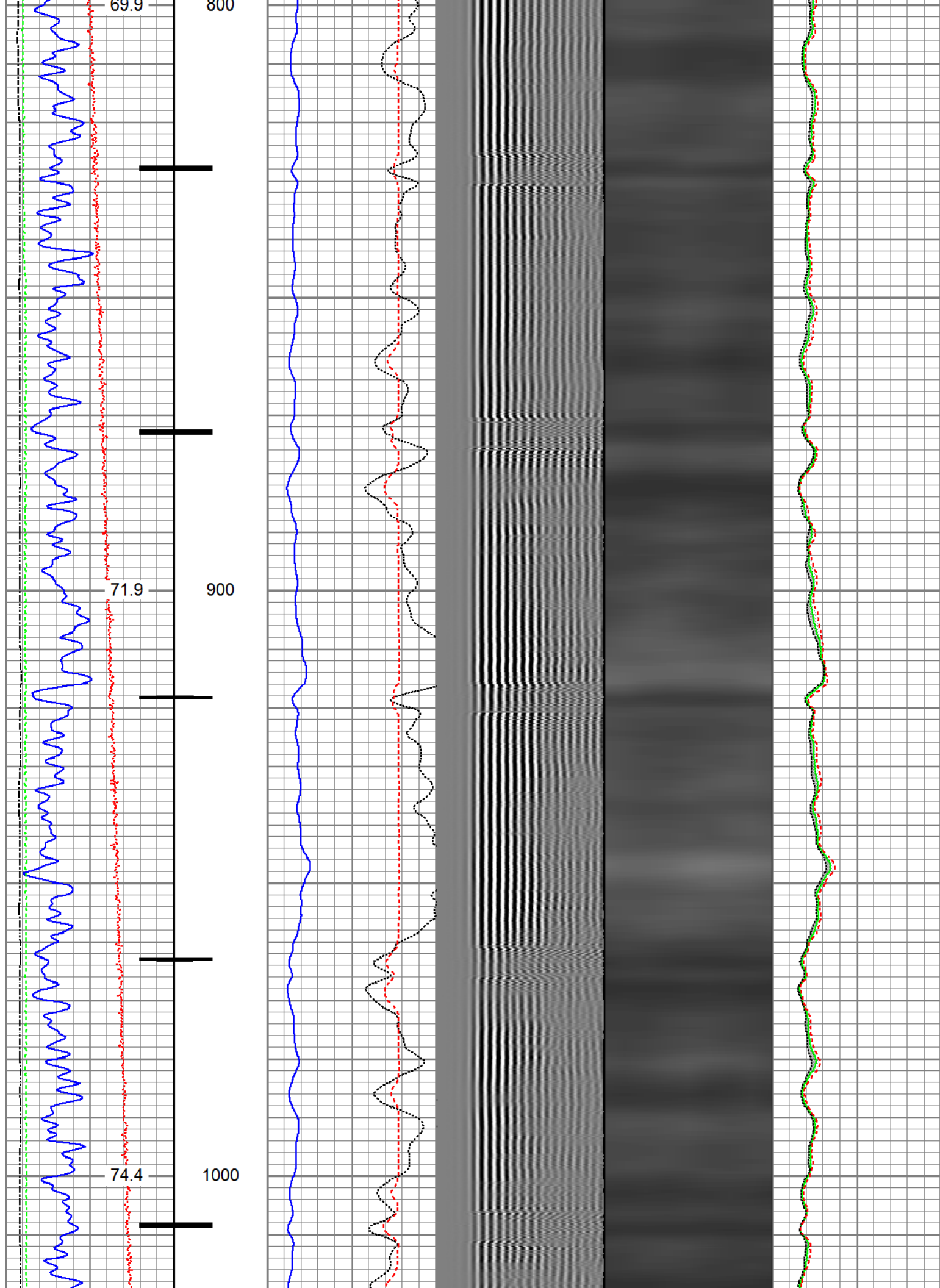
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 100
Temperature	3' Travel Time			Maximum Amplitude
0 (degF) 20	650 (usec) 150			0 100
Line Speed				
-150 (ft/min)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

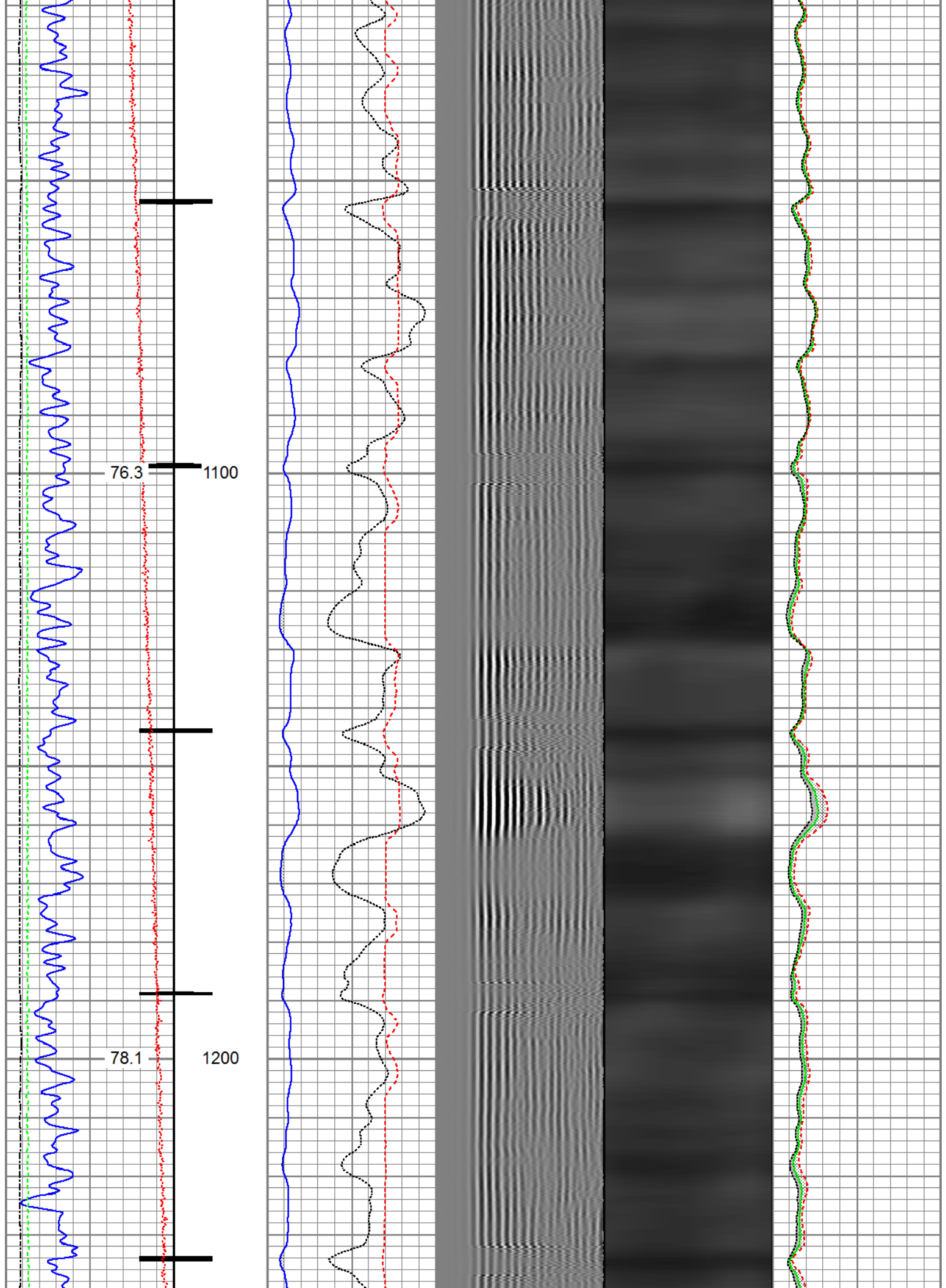


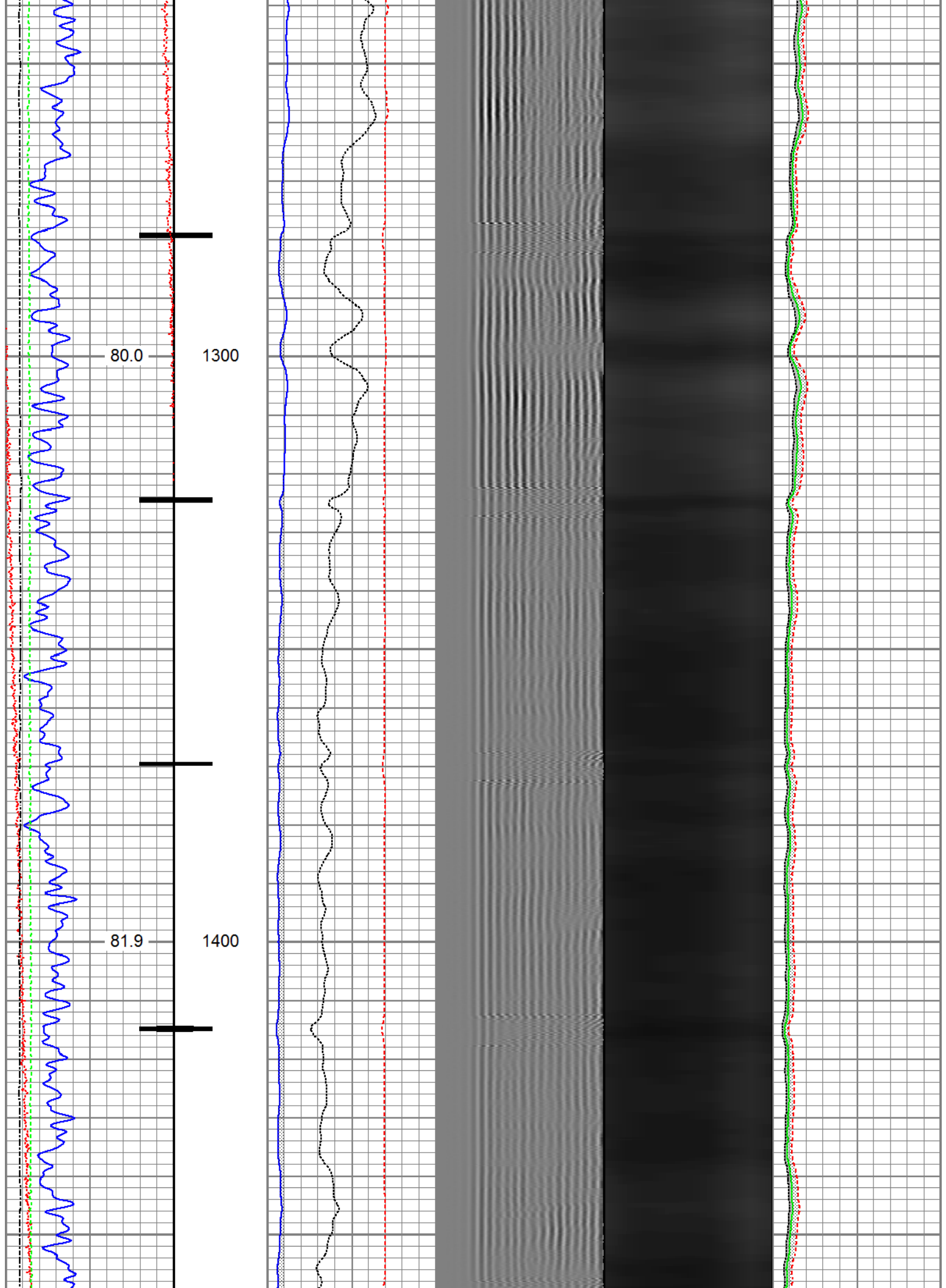


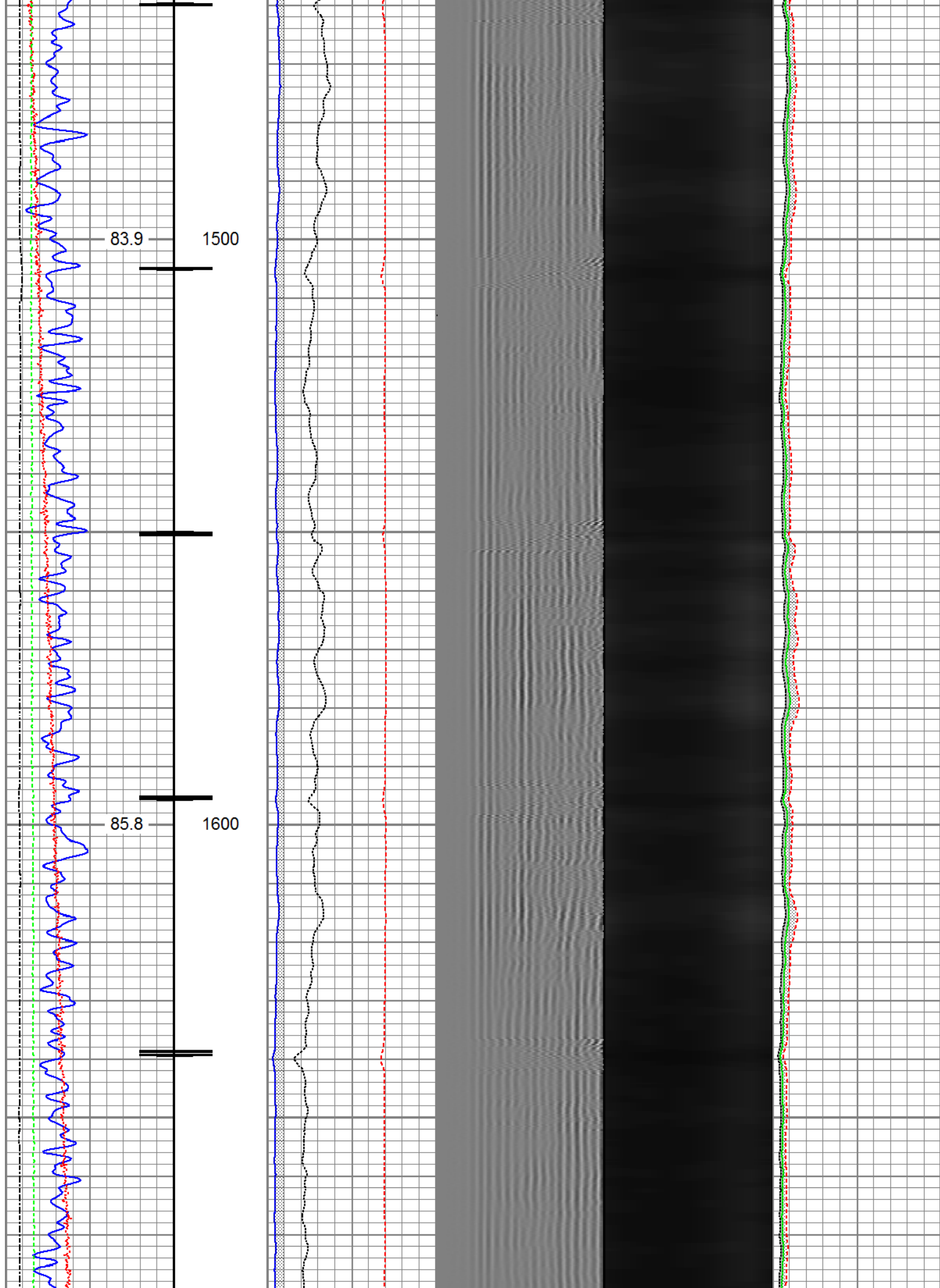


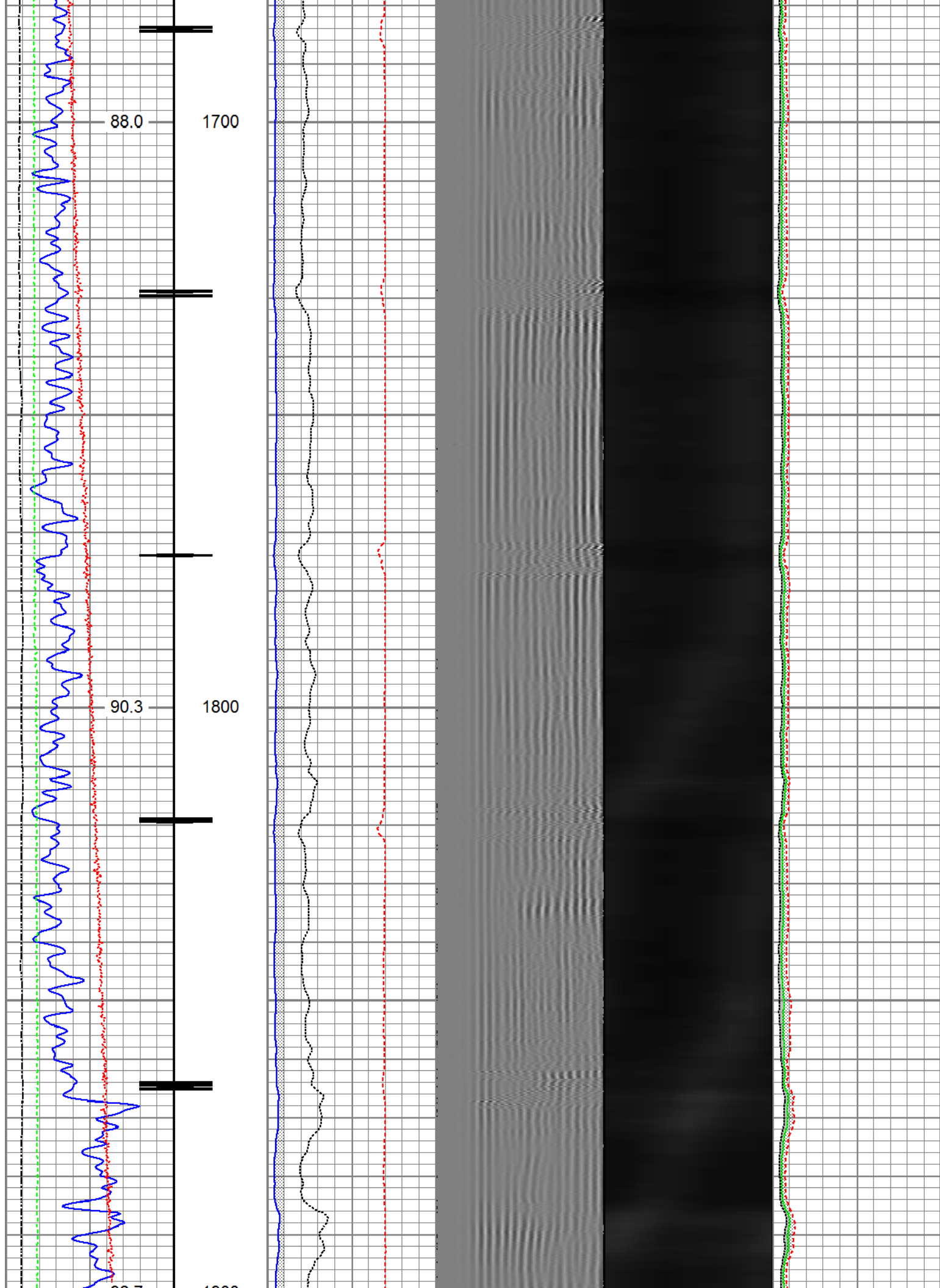


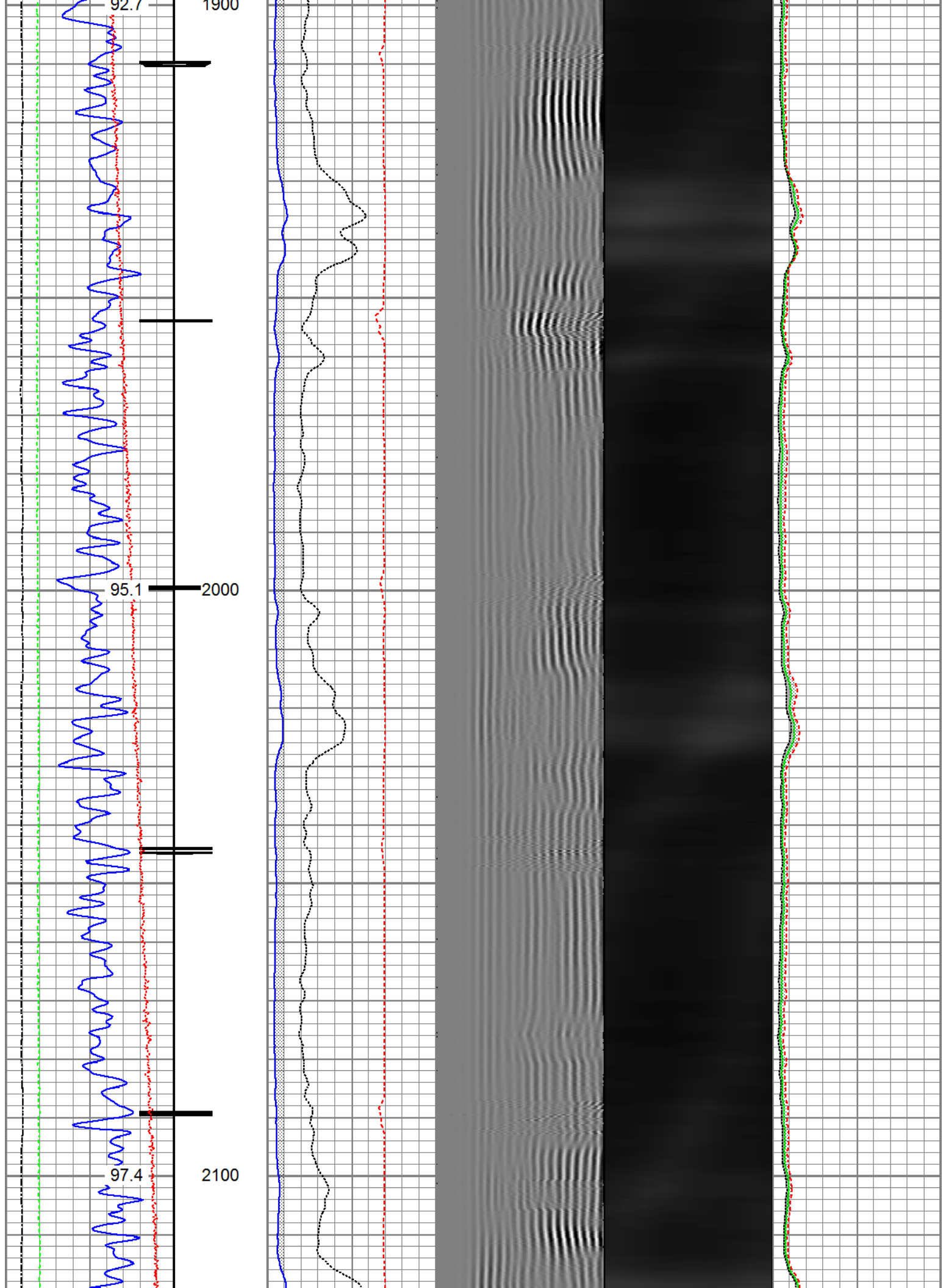


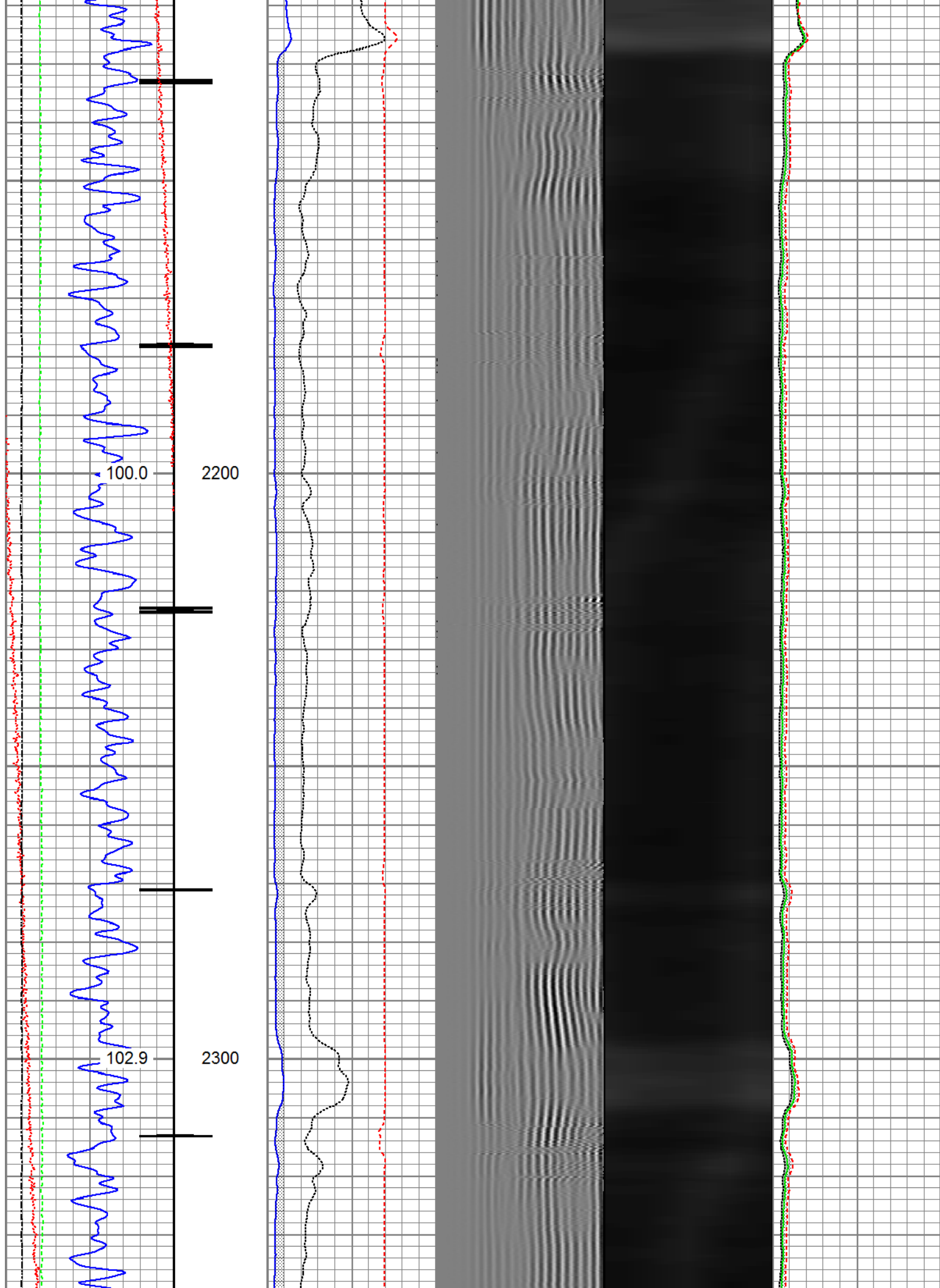


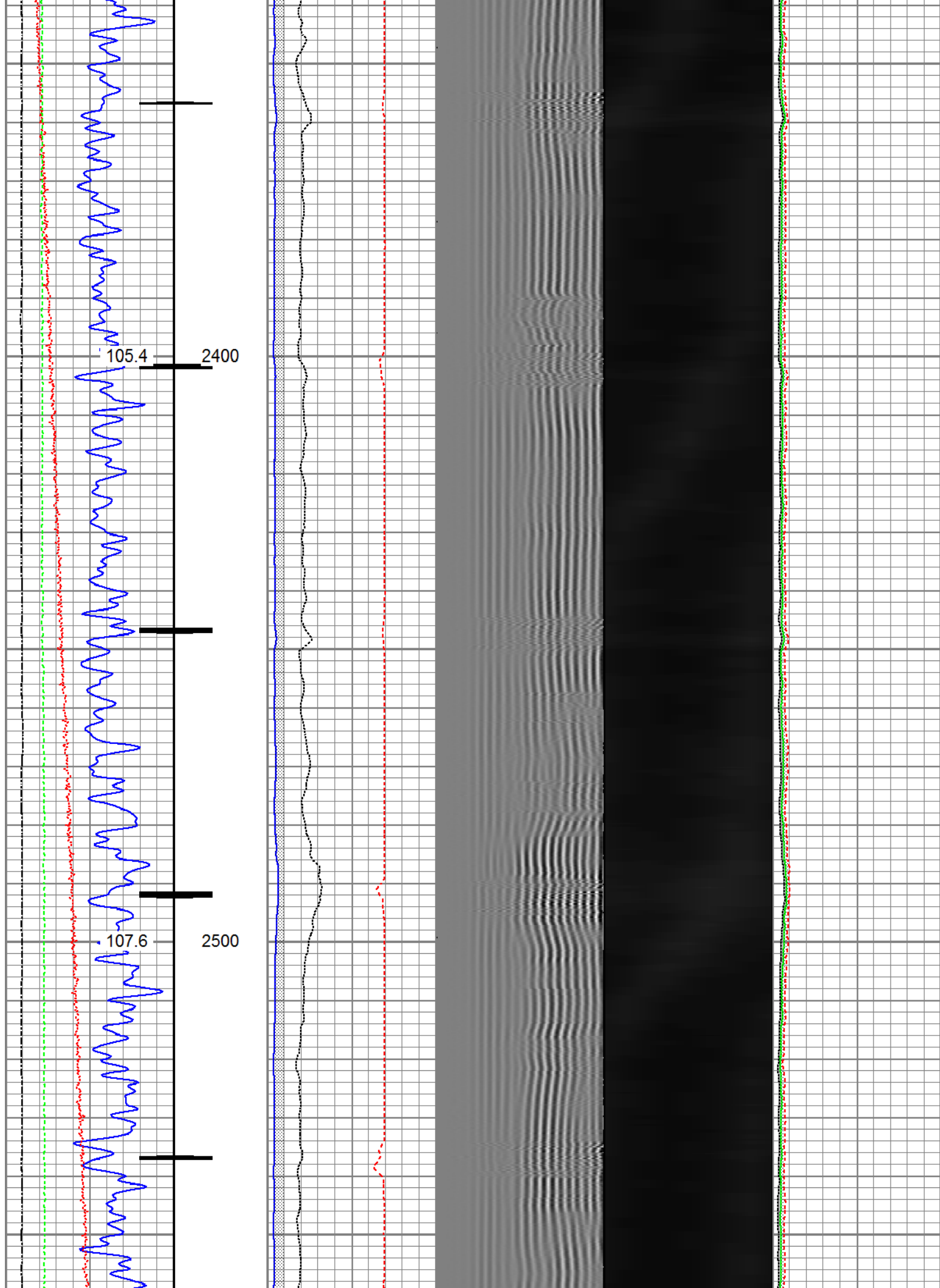


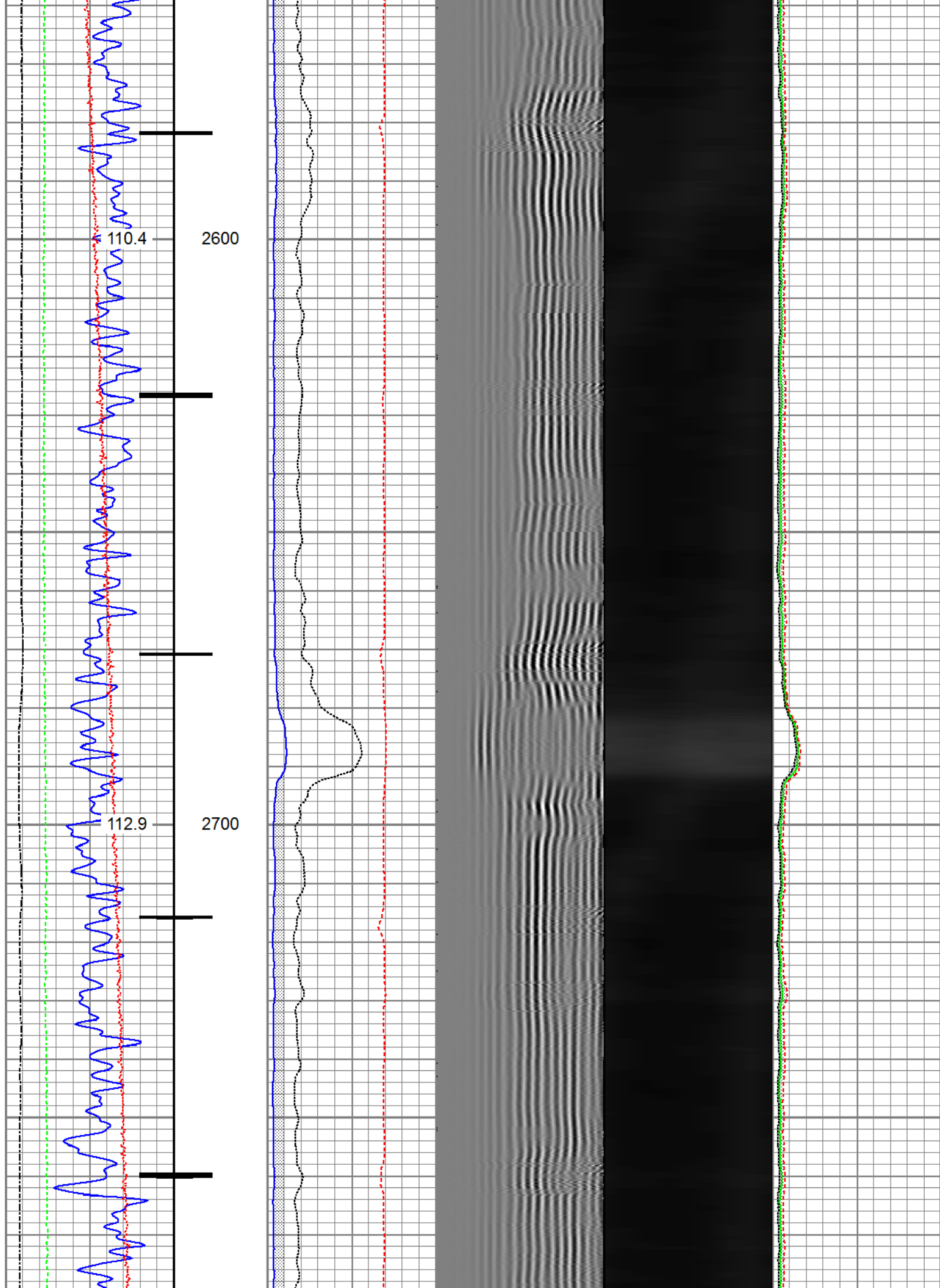


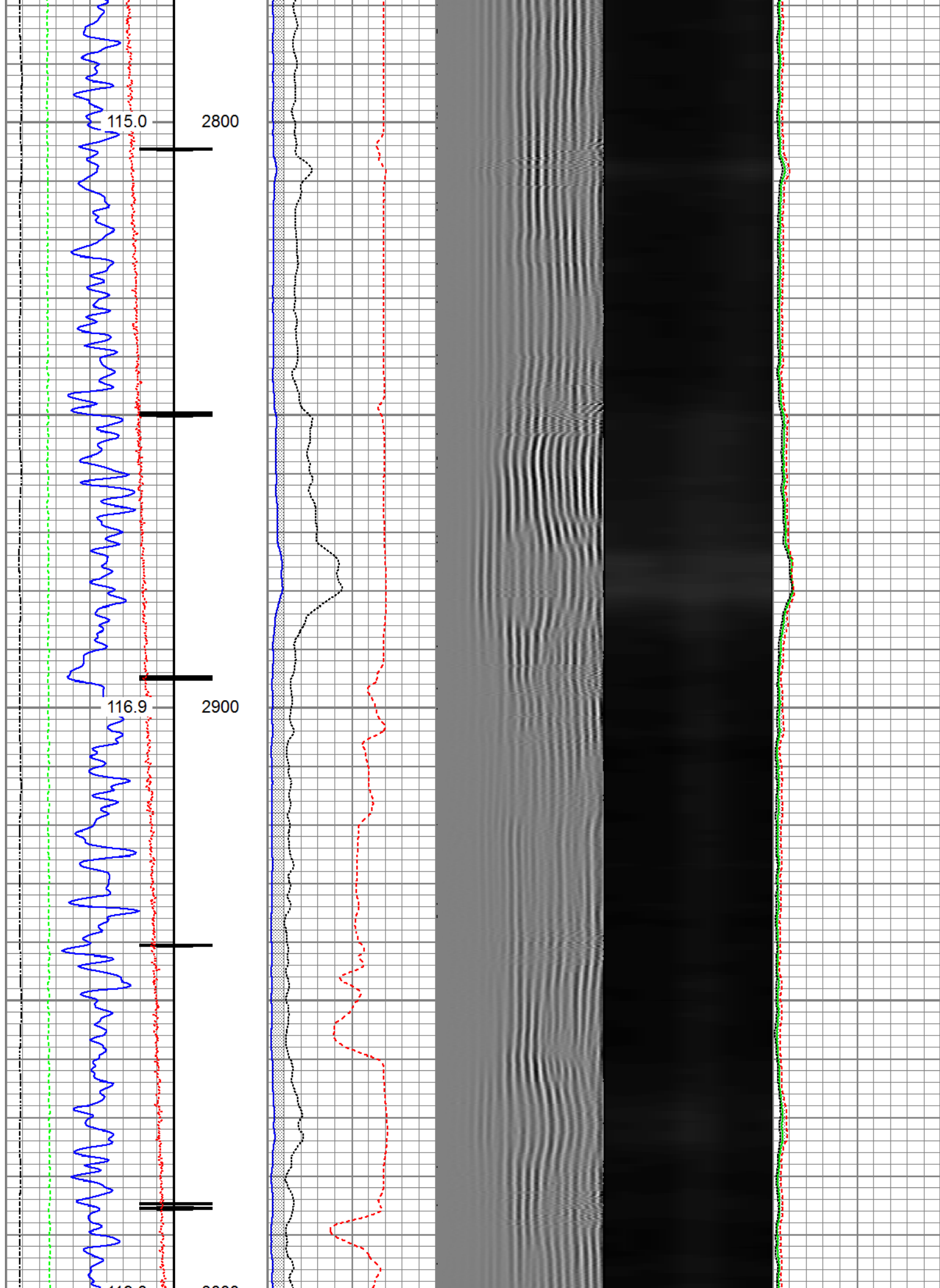


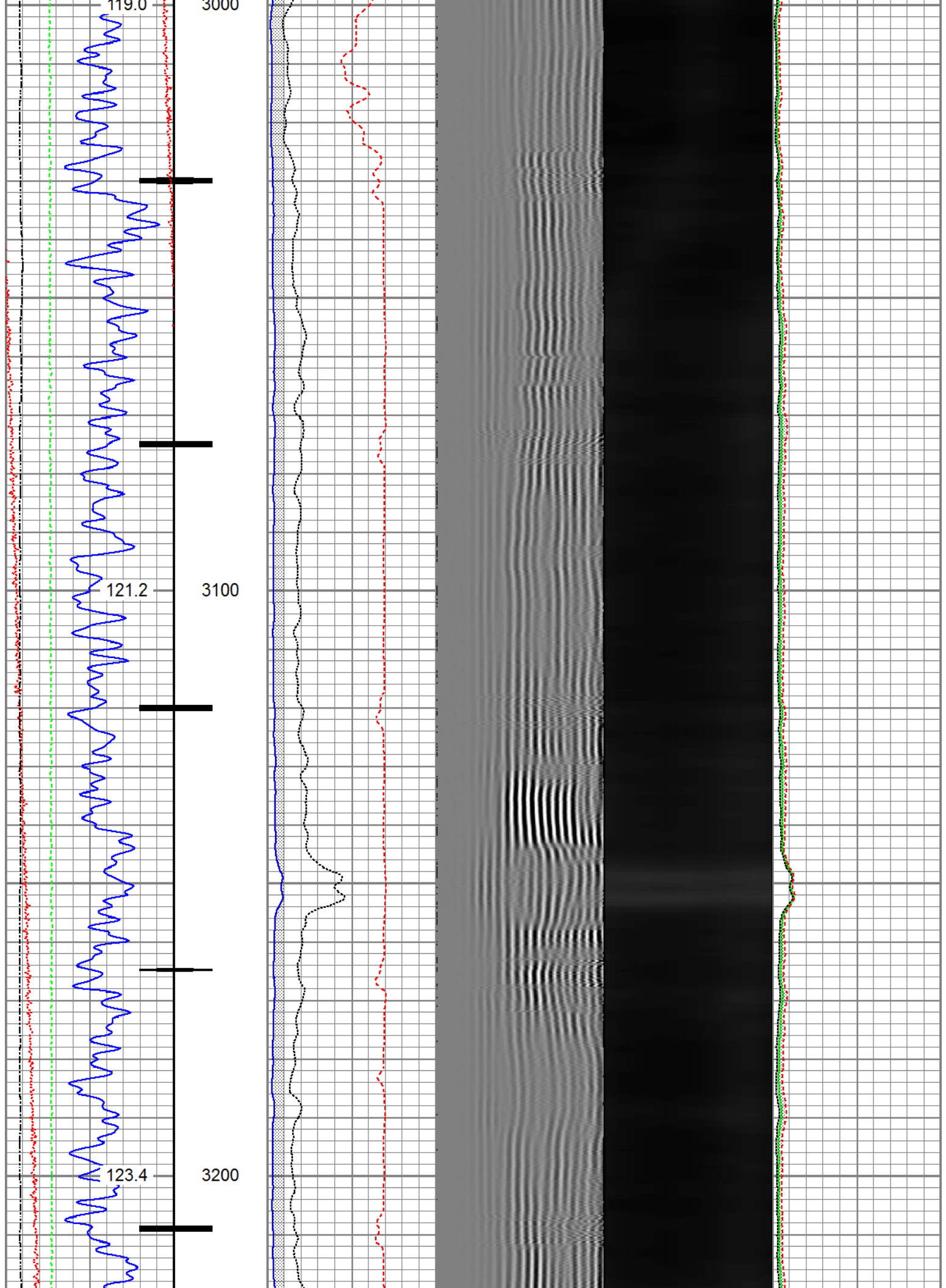


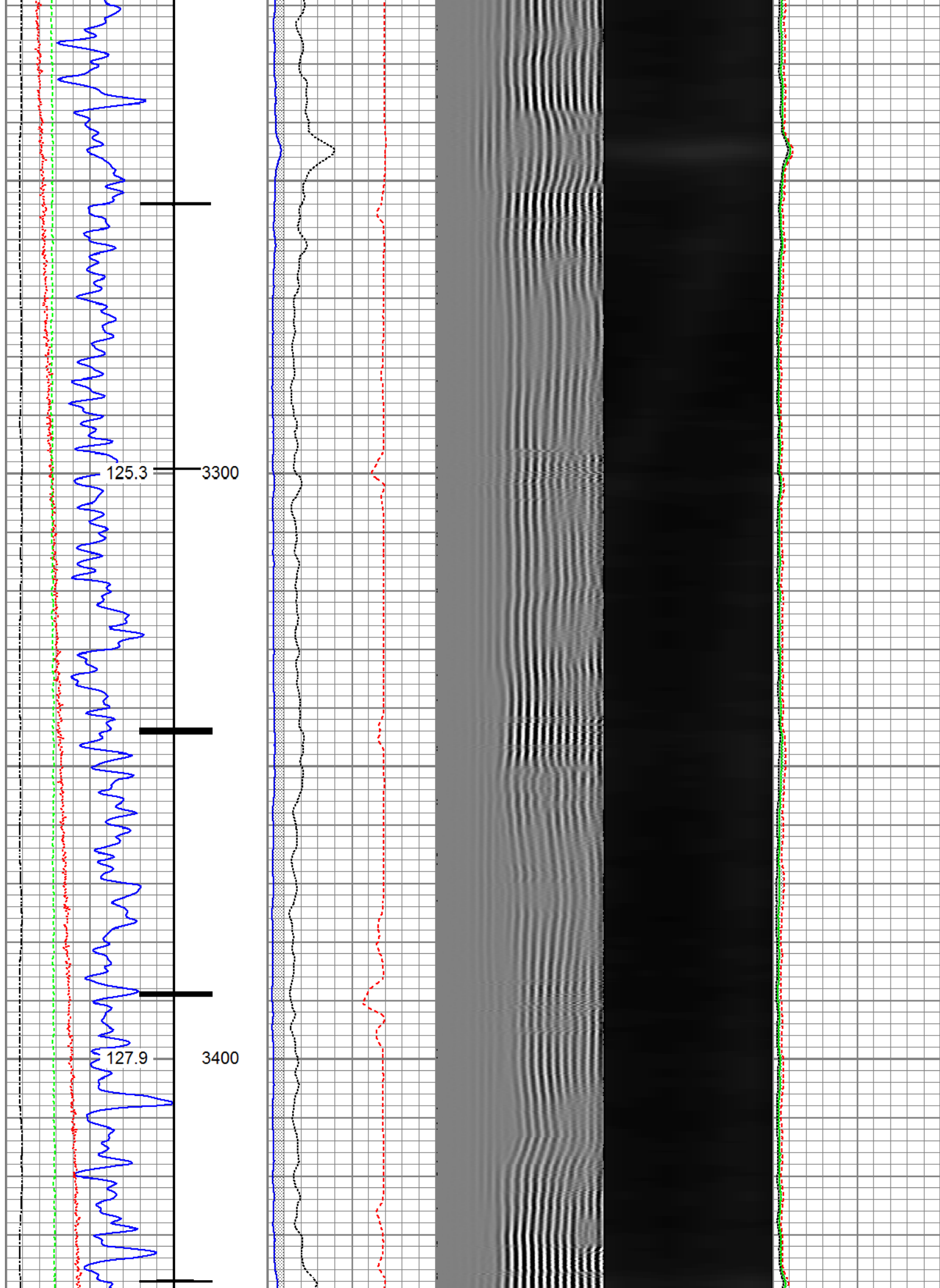


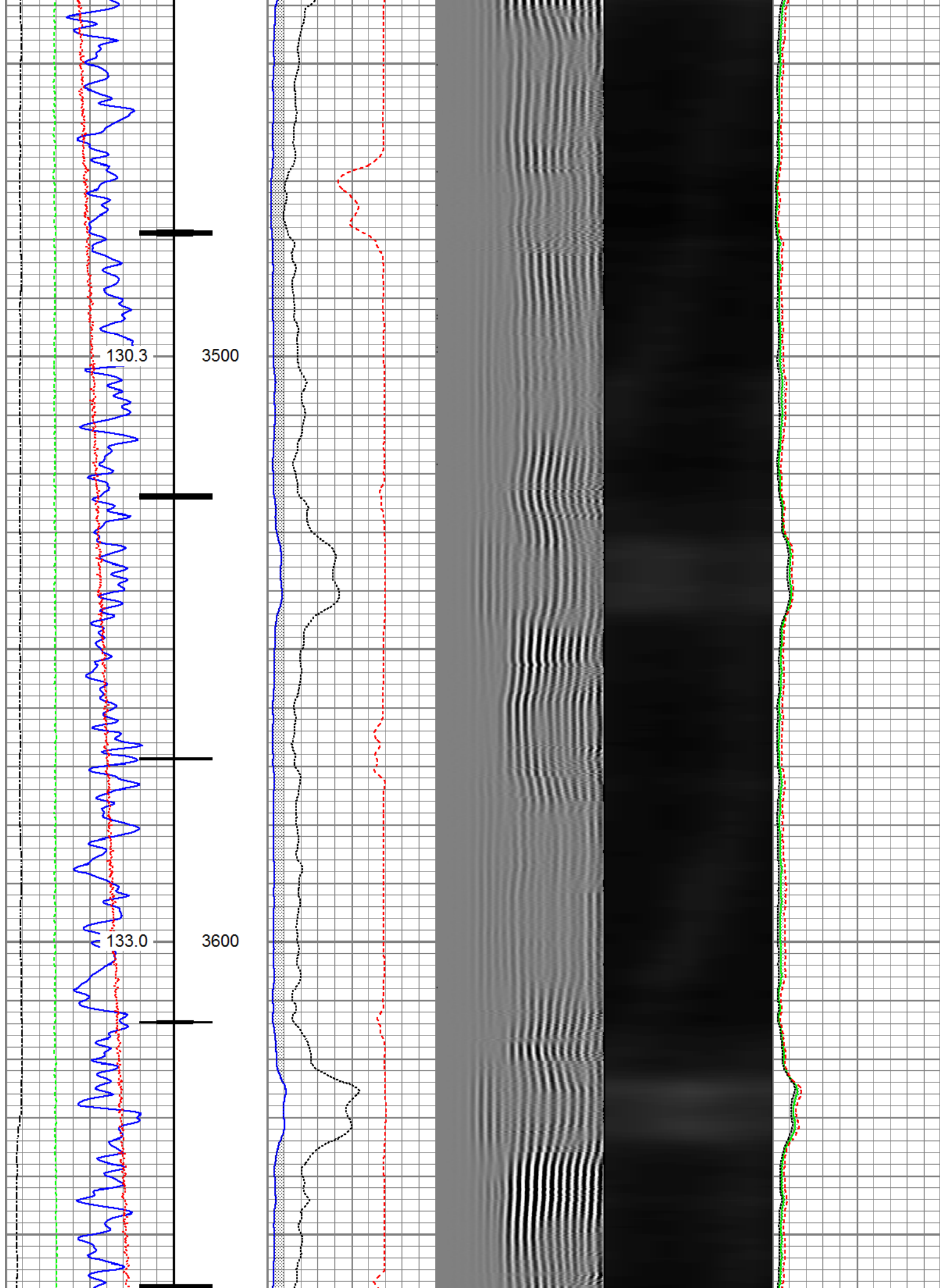


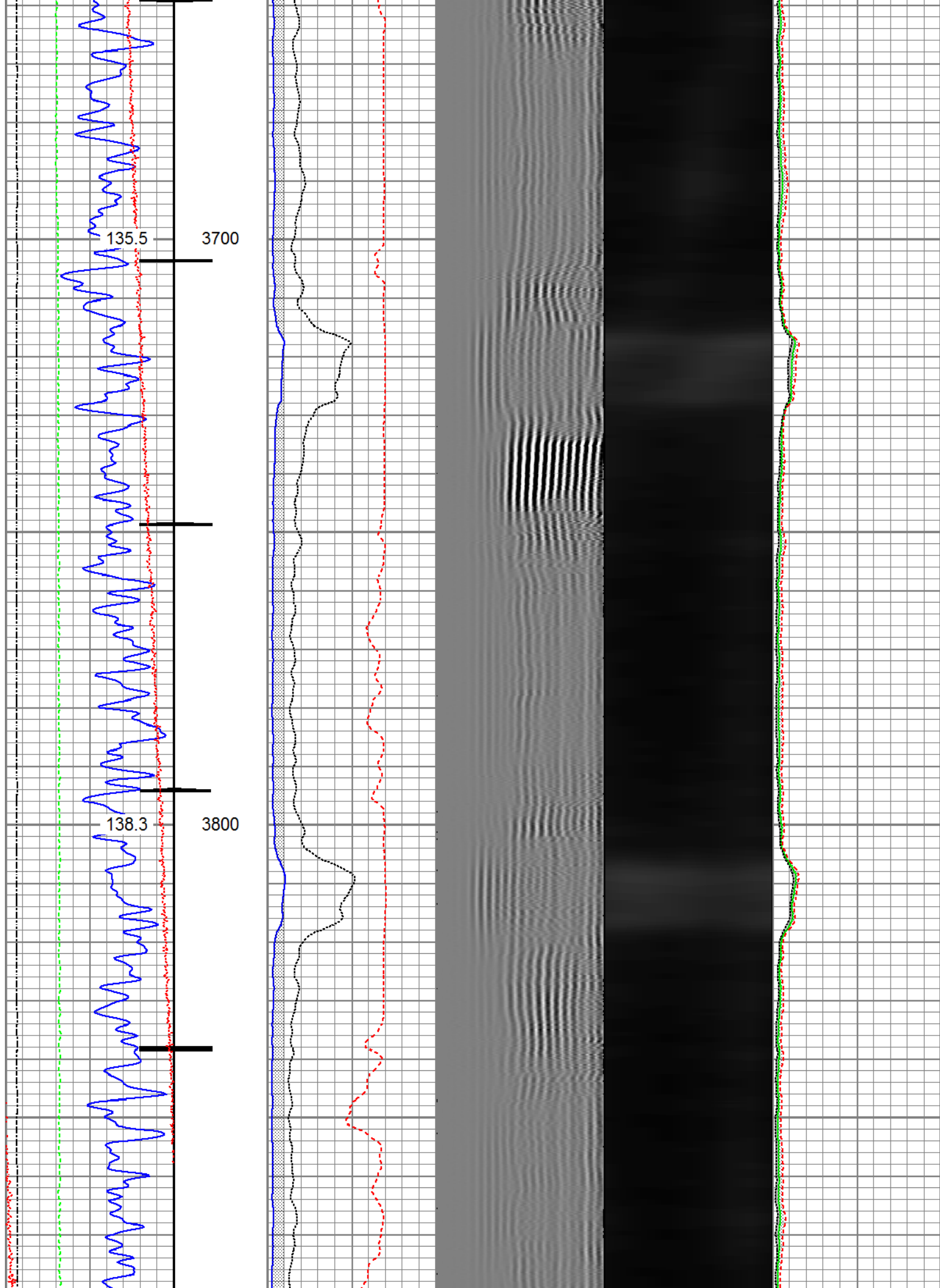


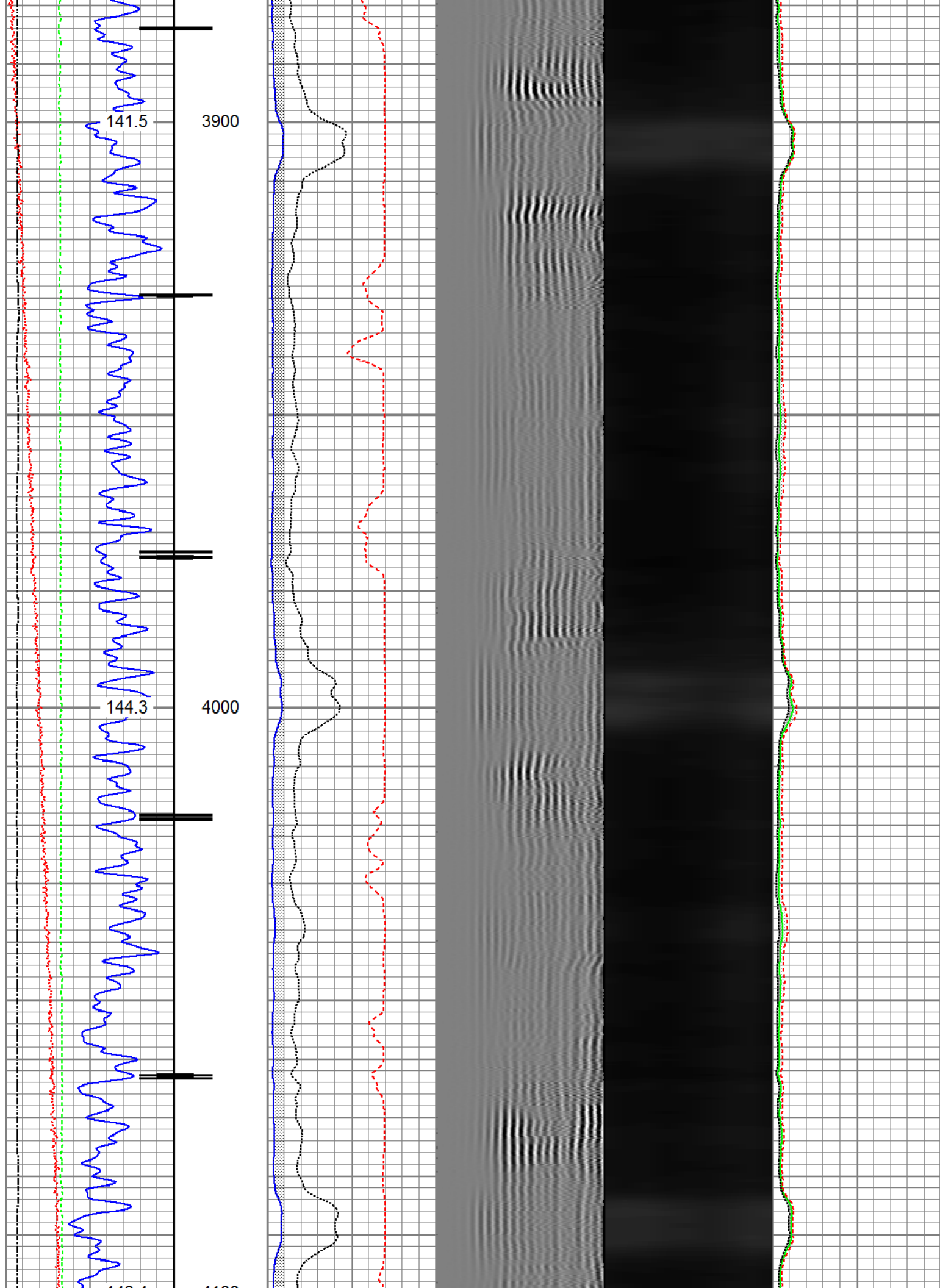


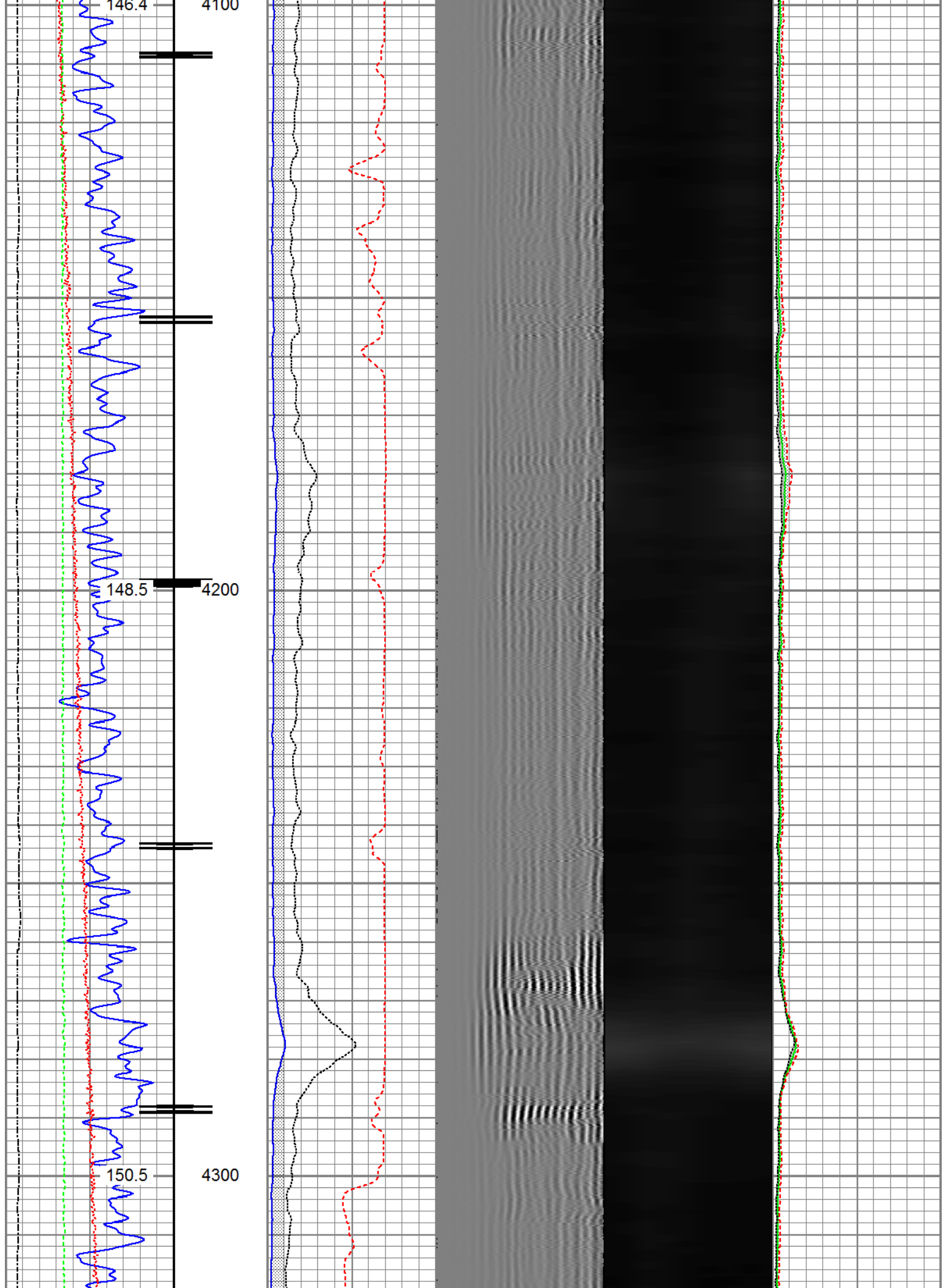


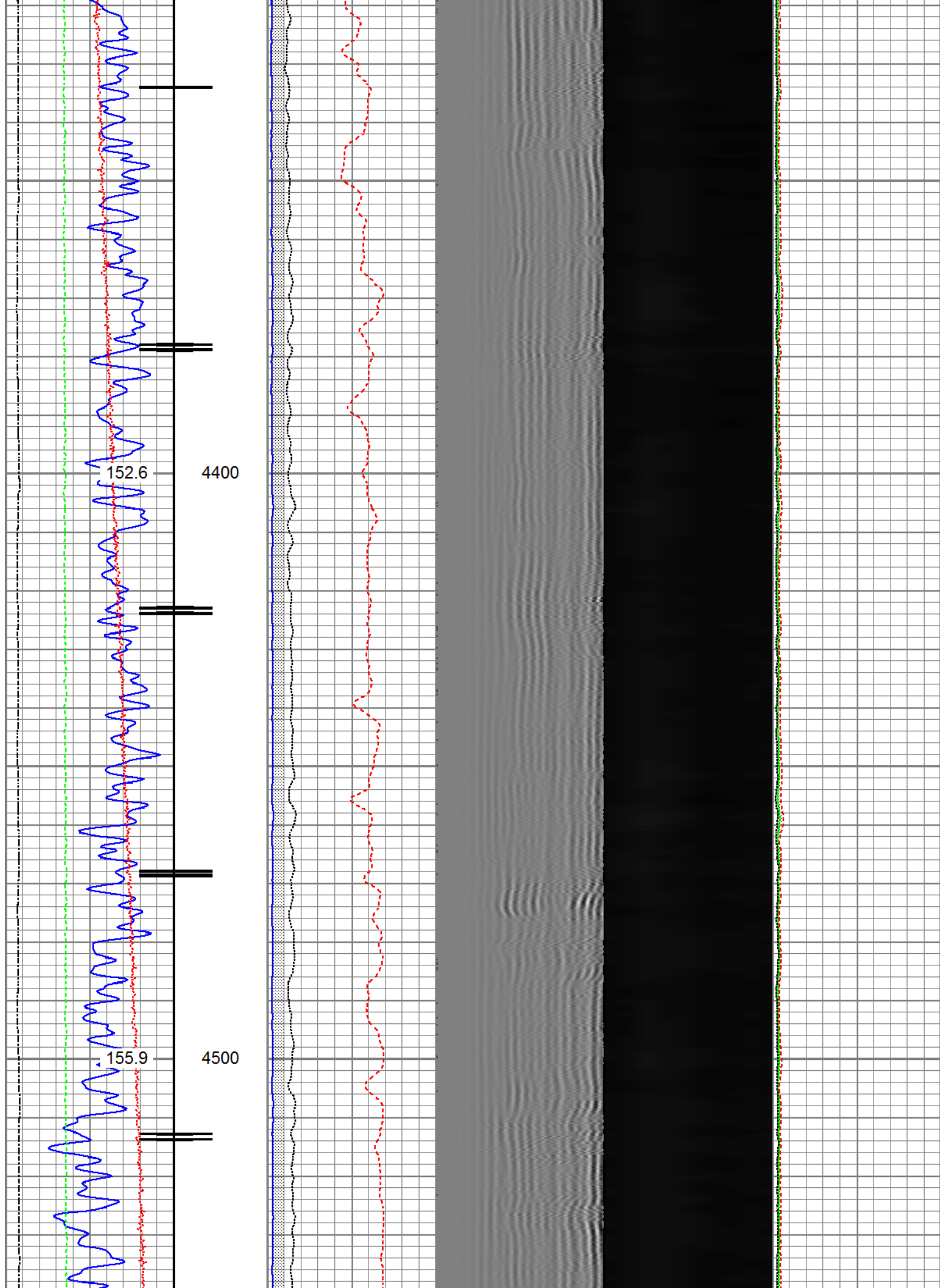


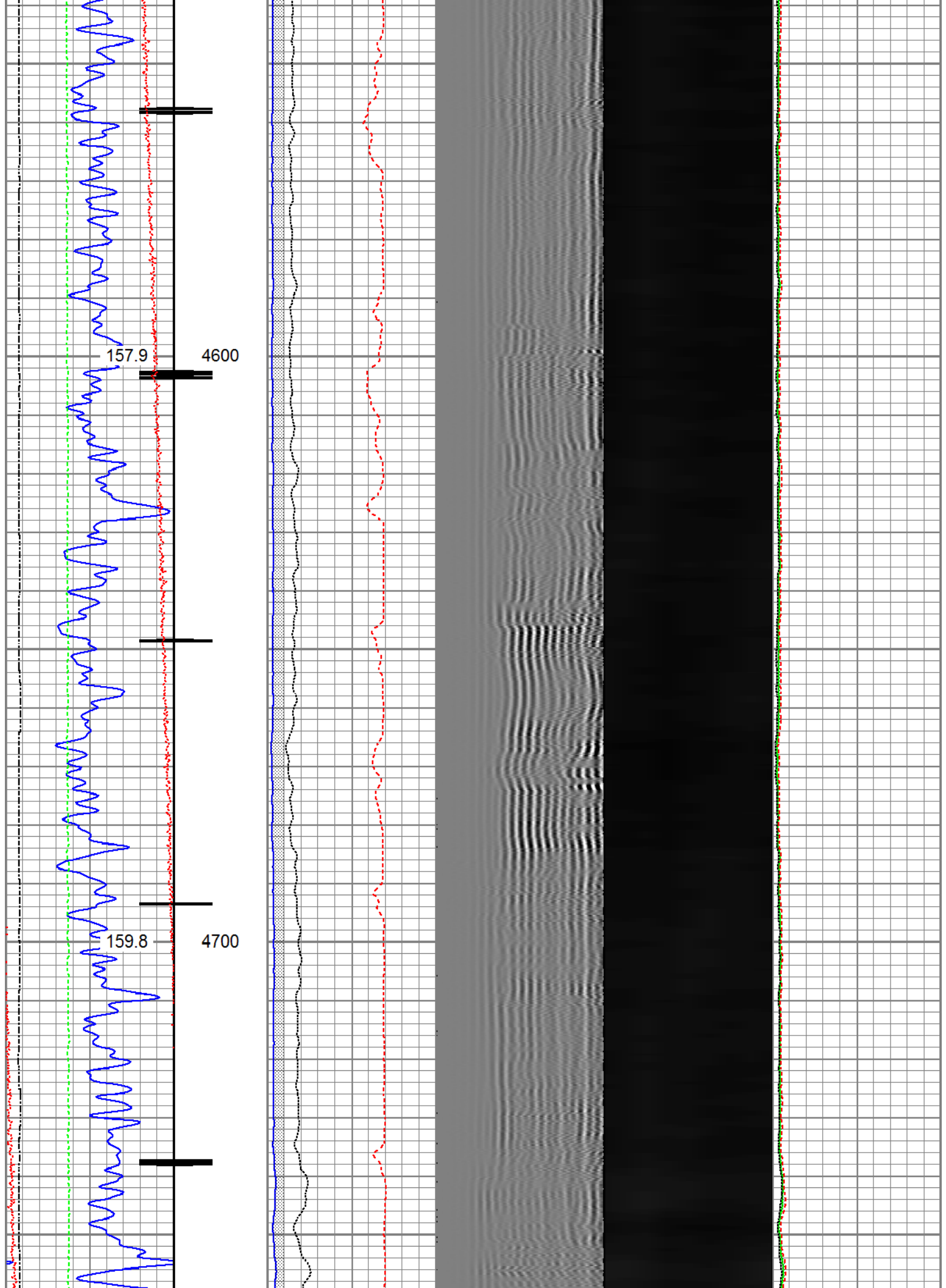


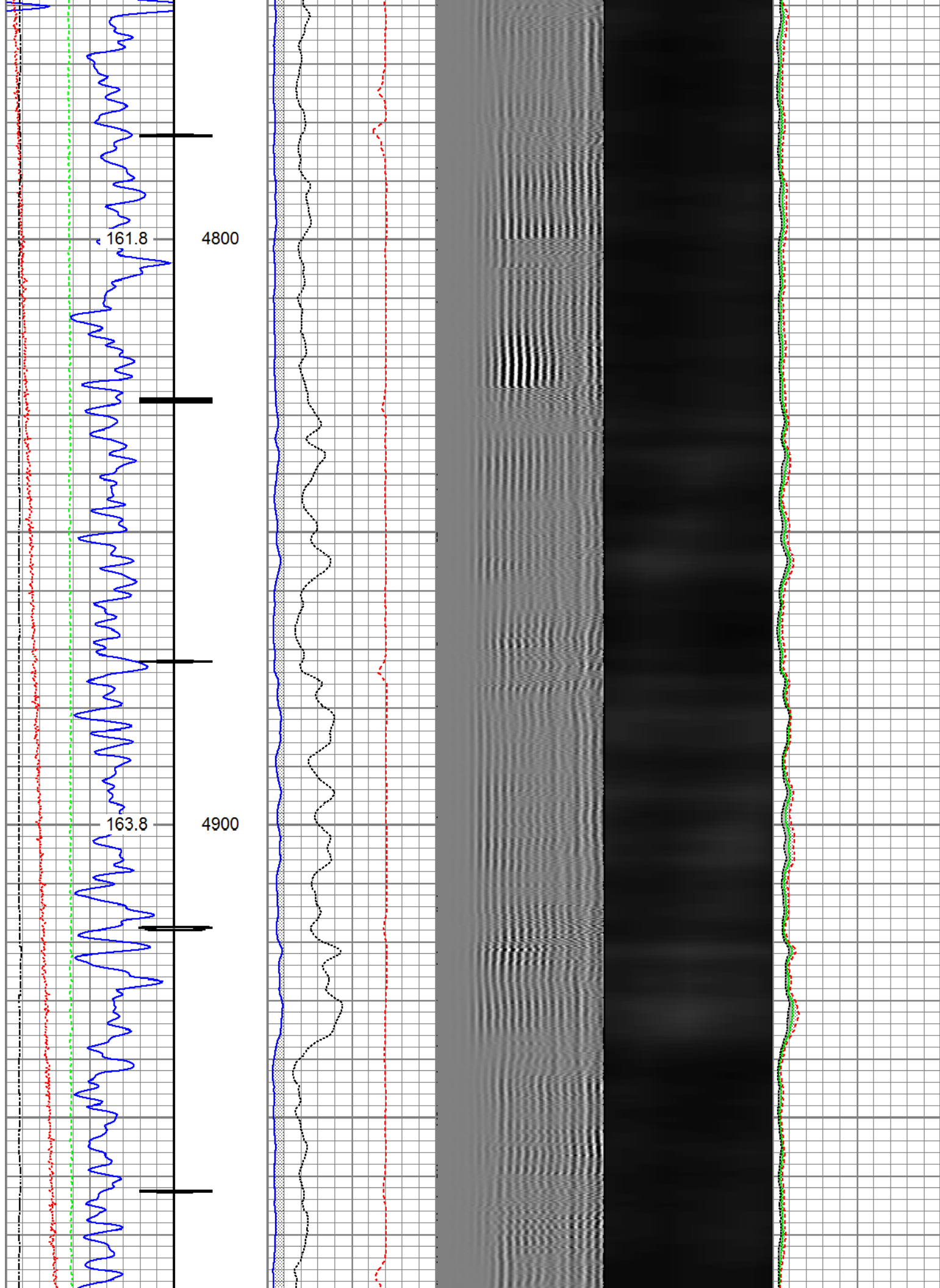


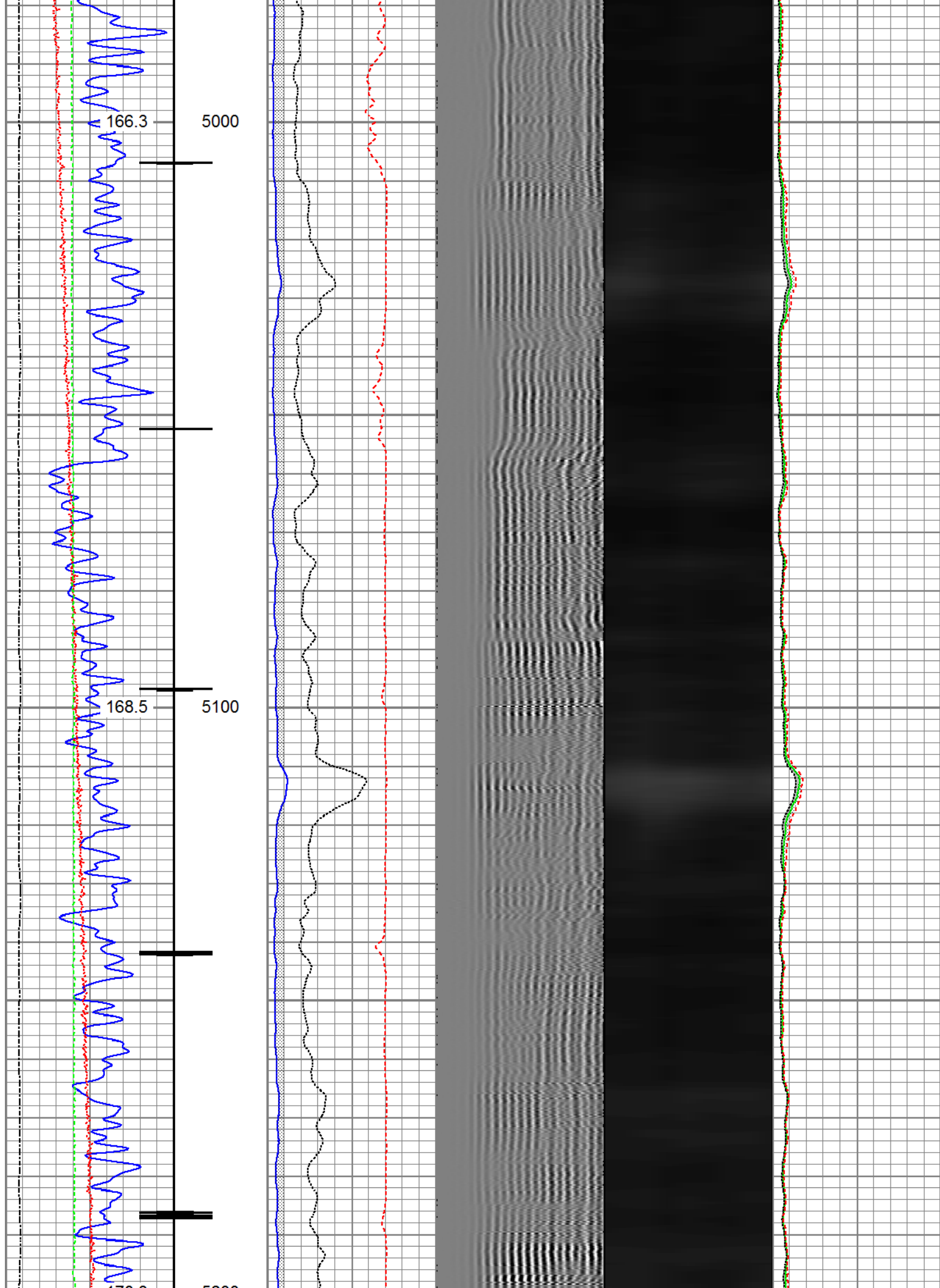


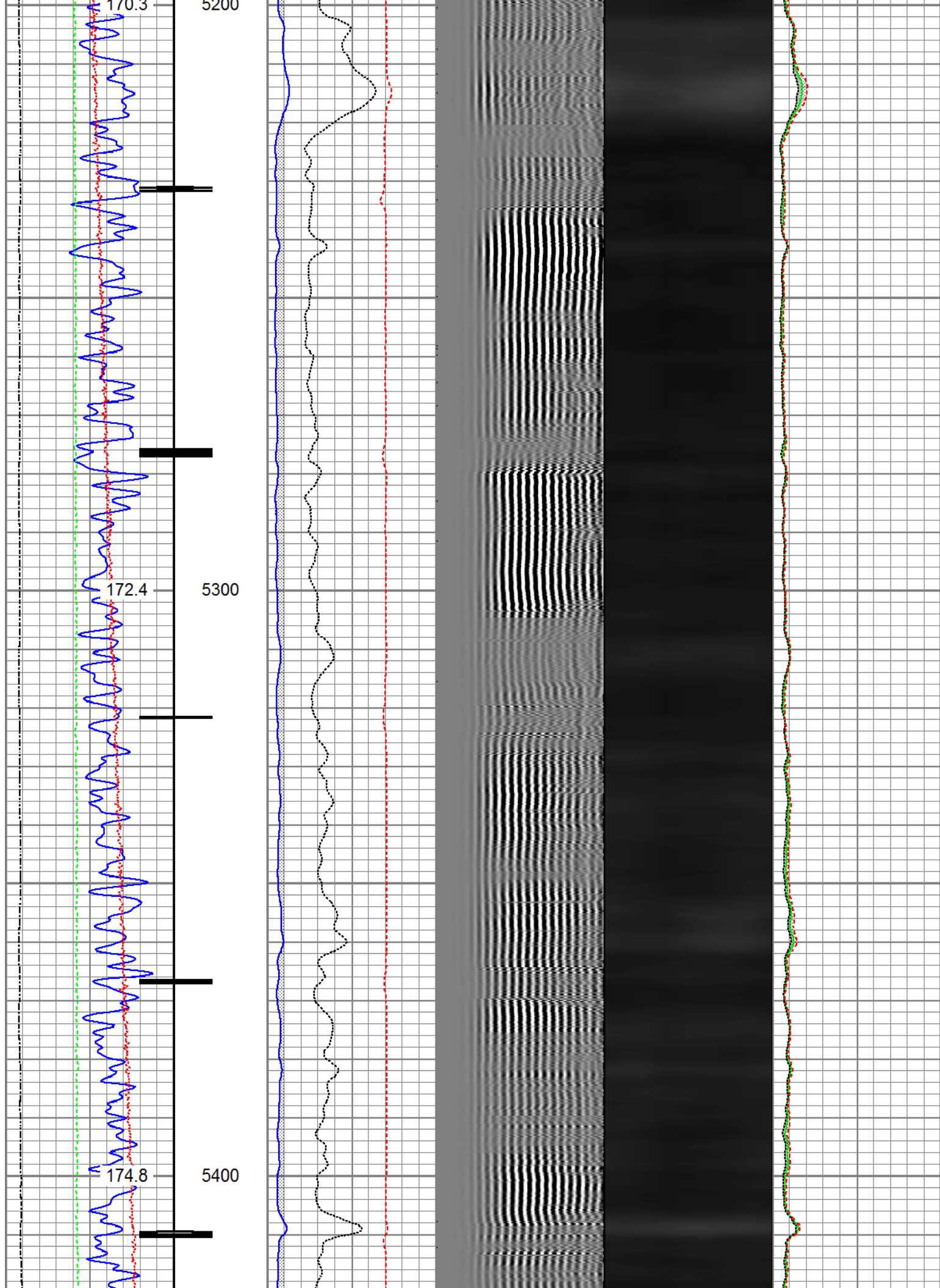


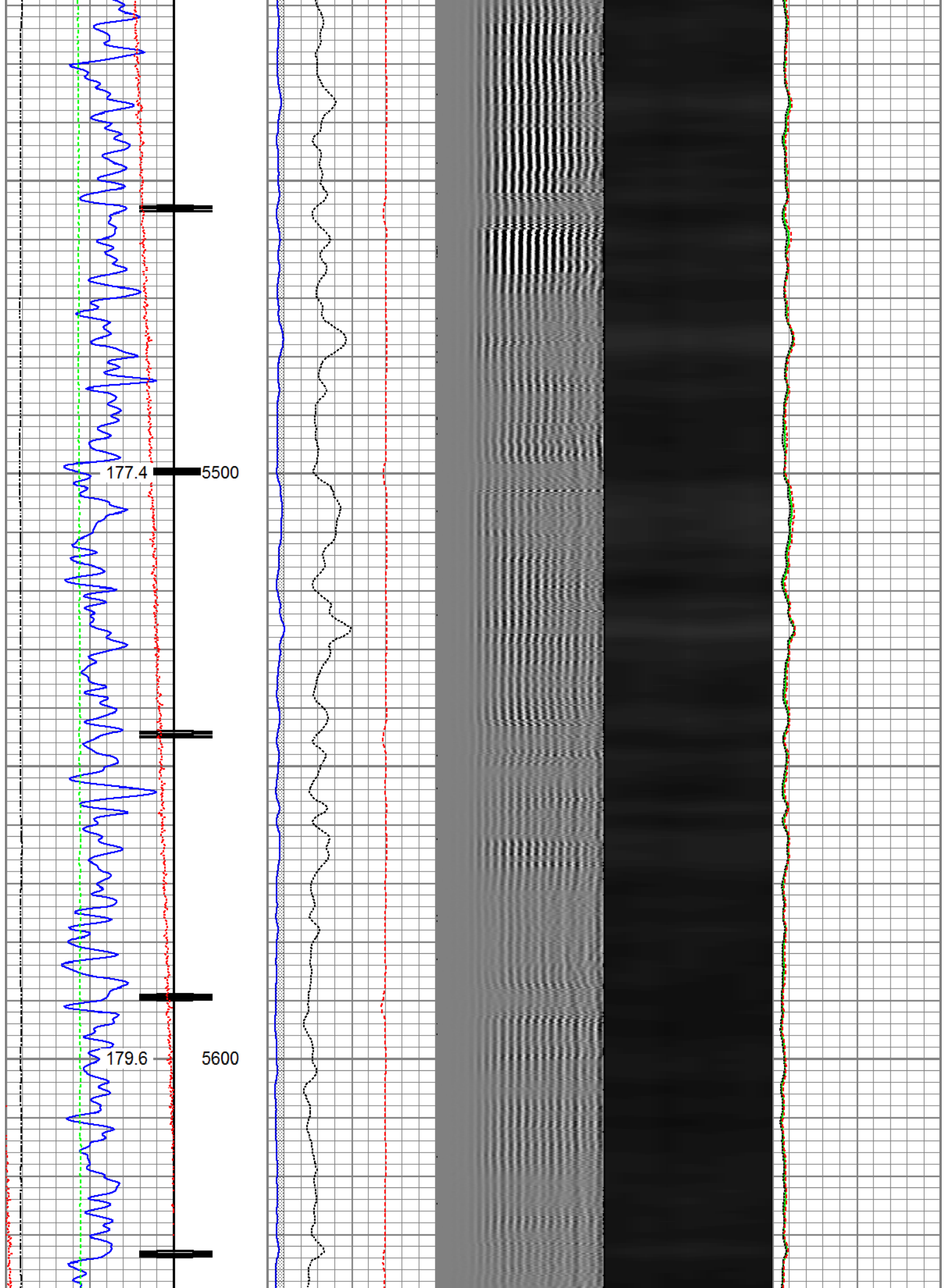


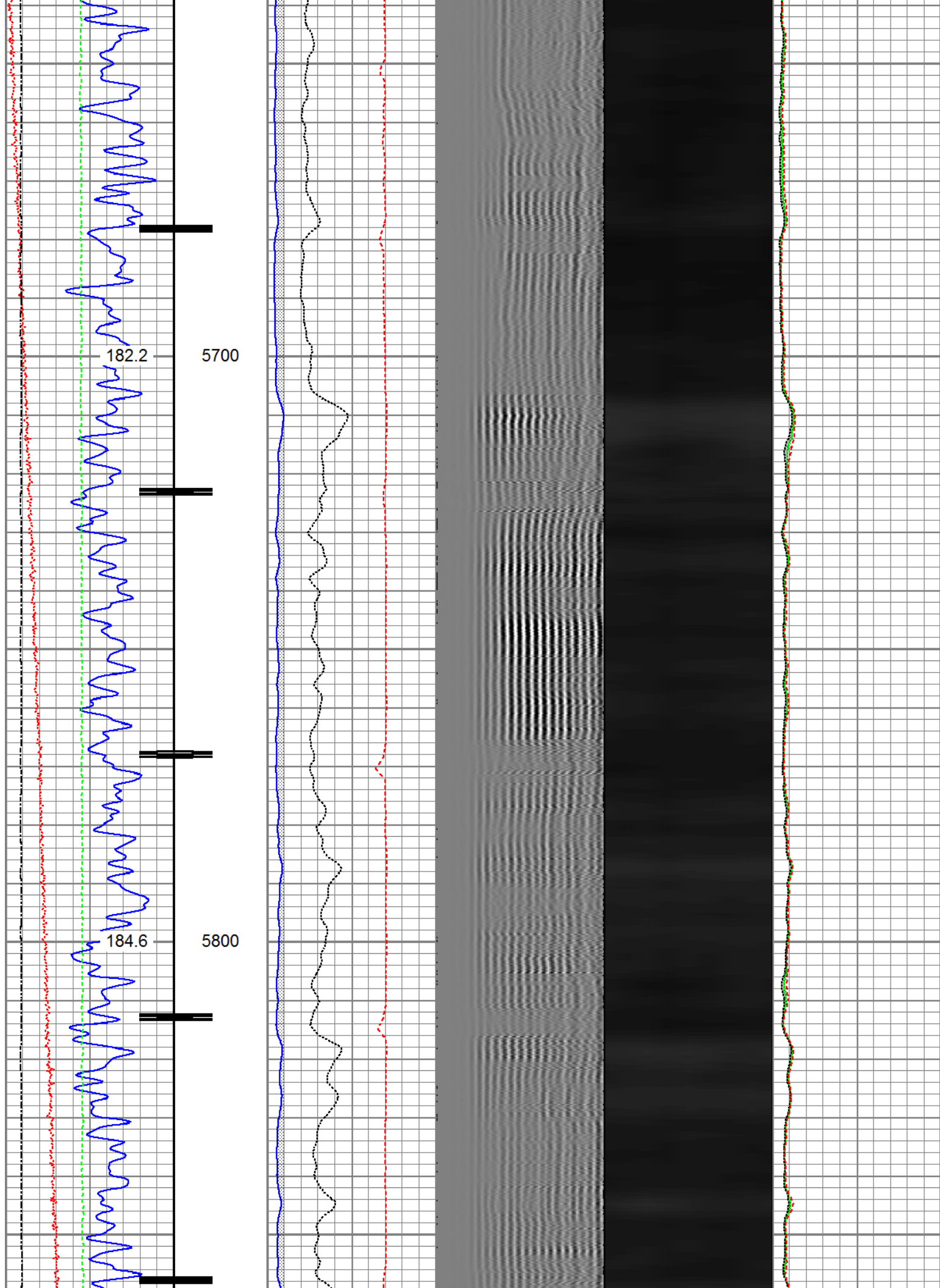


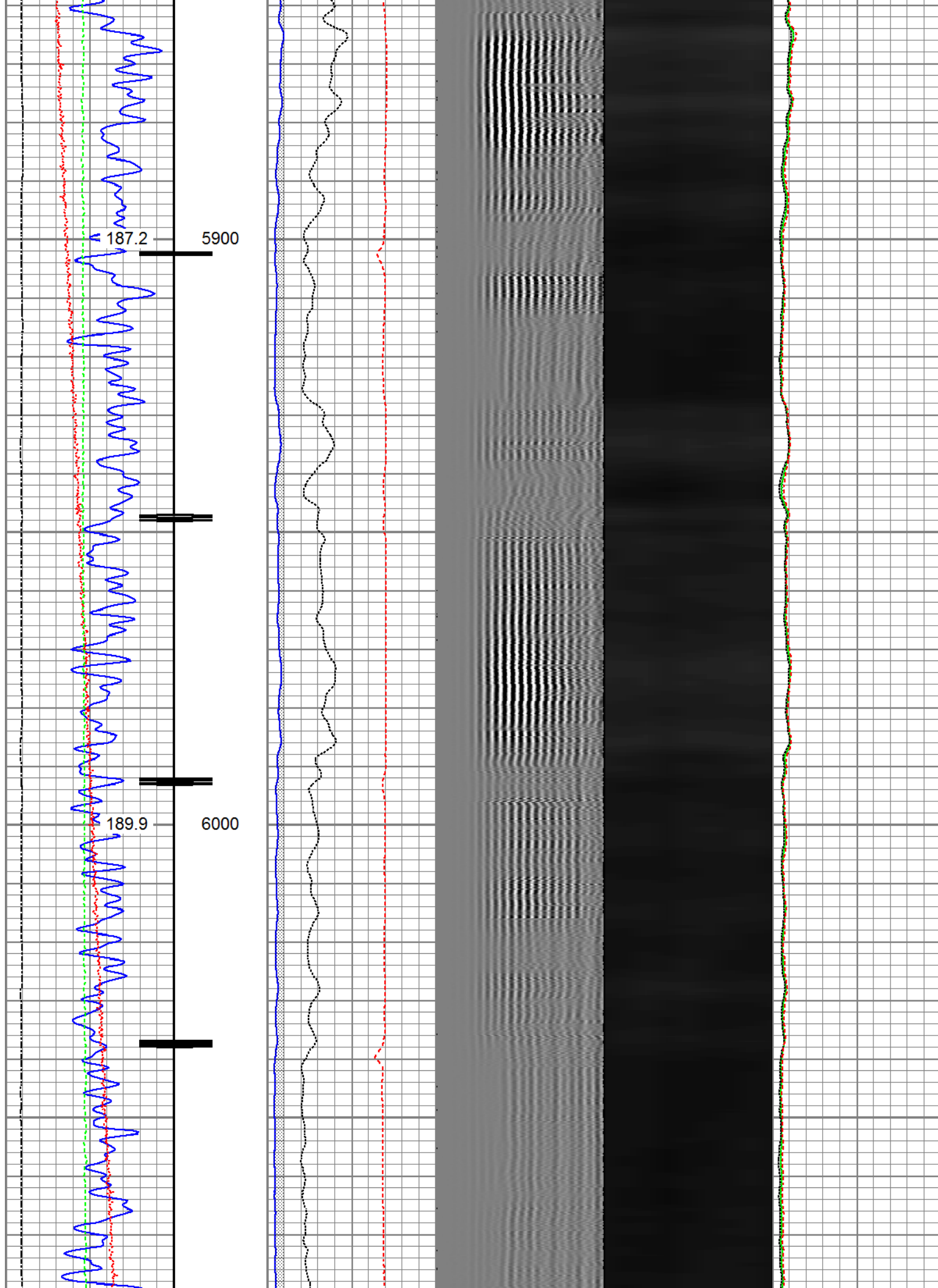


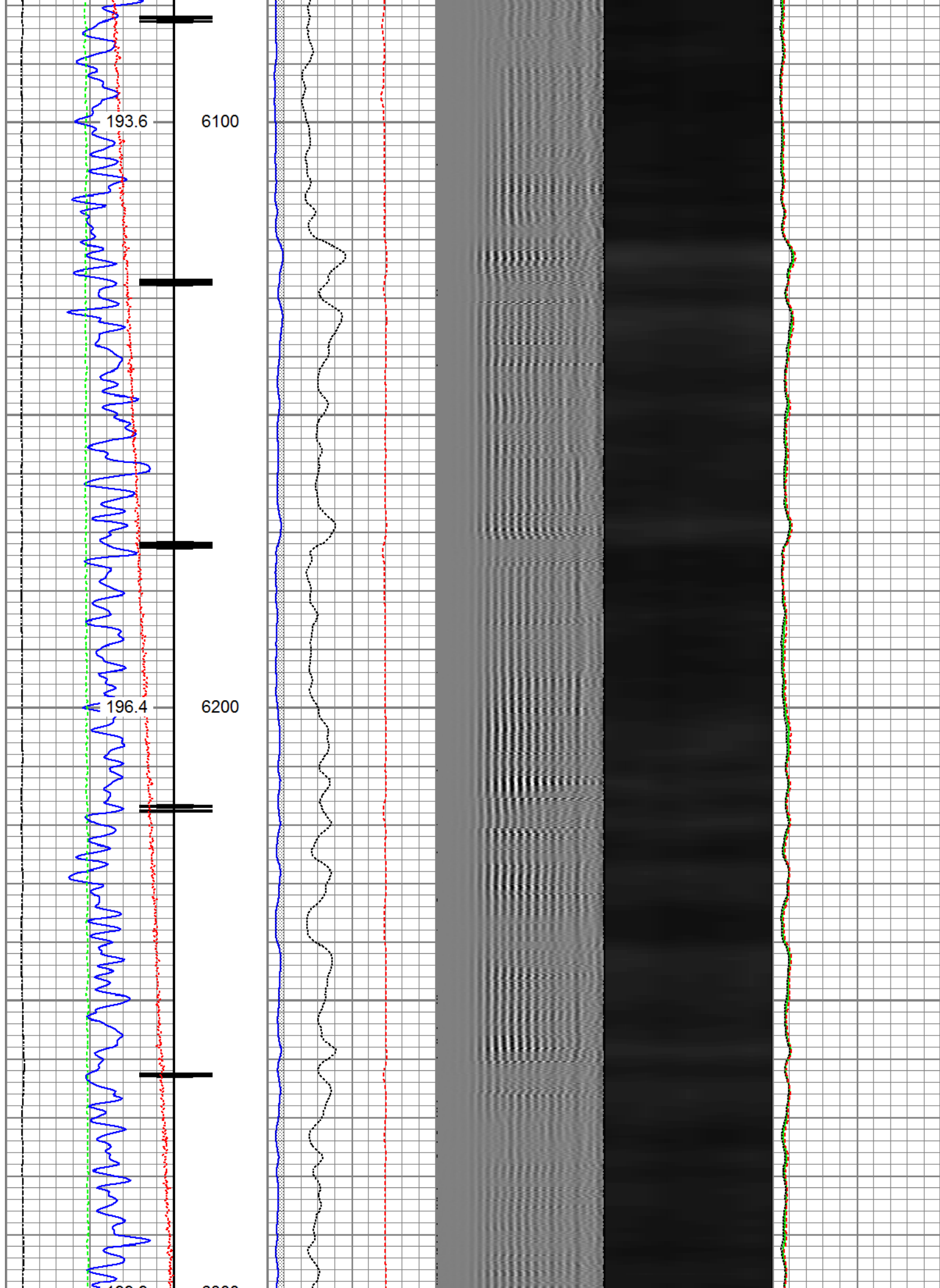


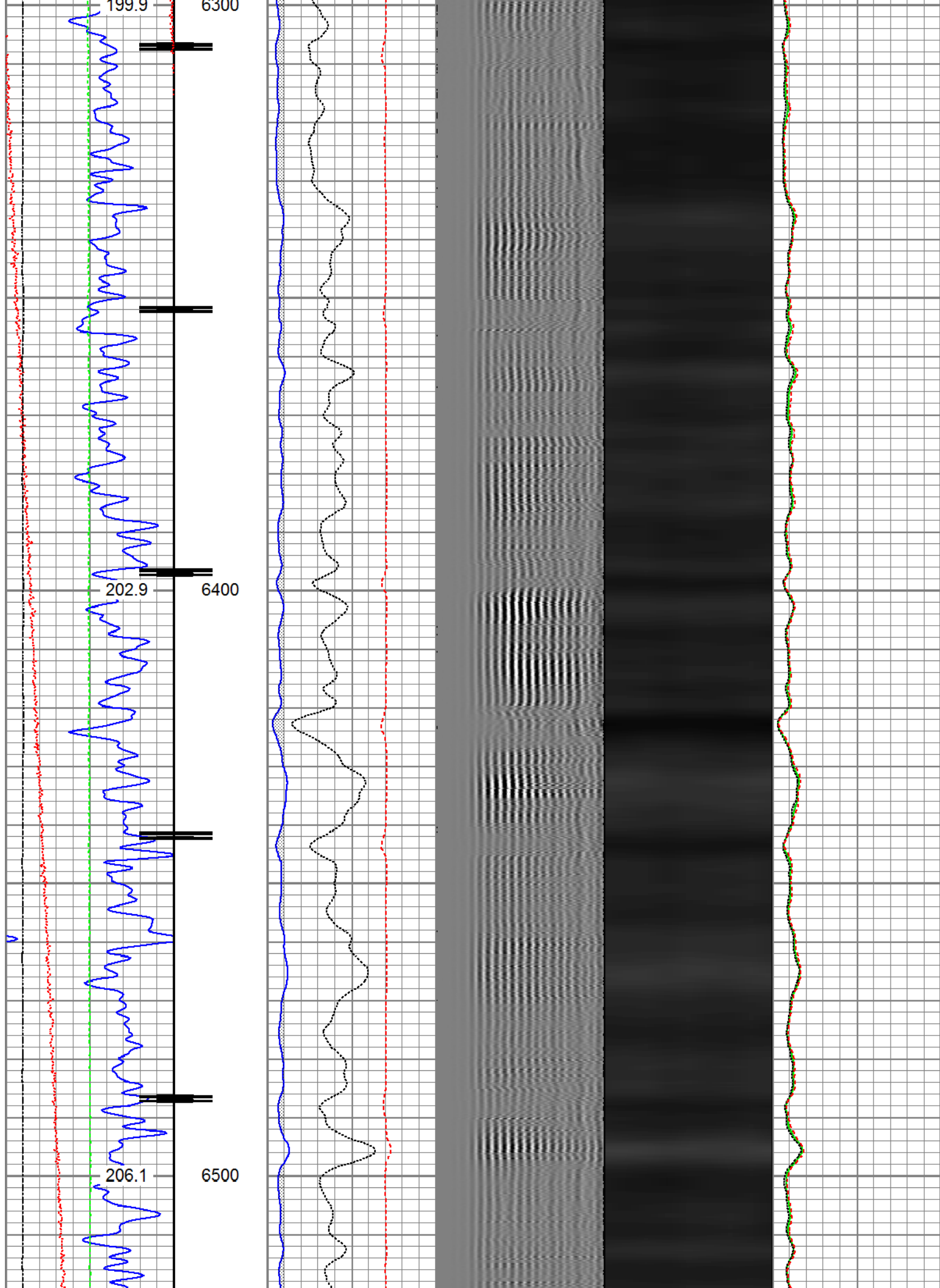


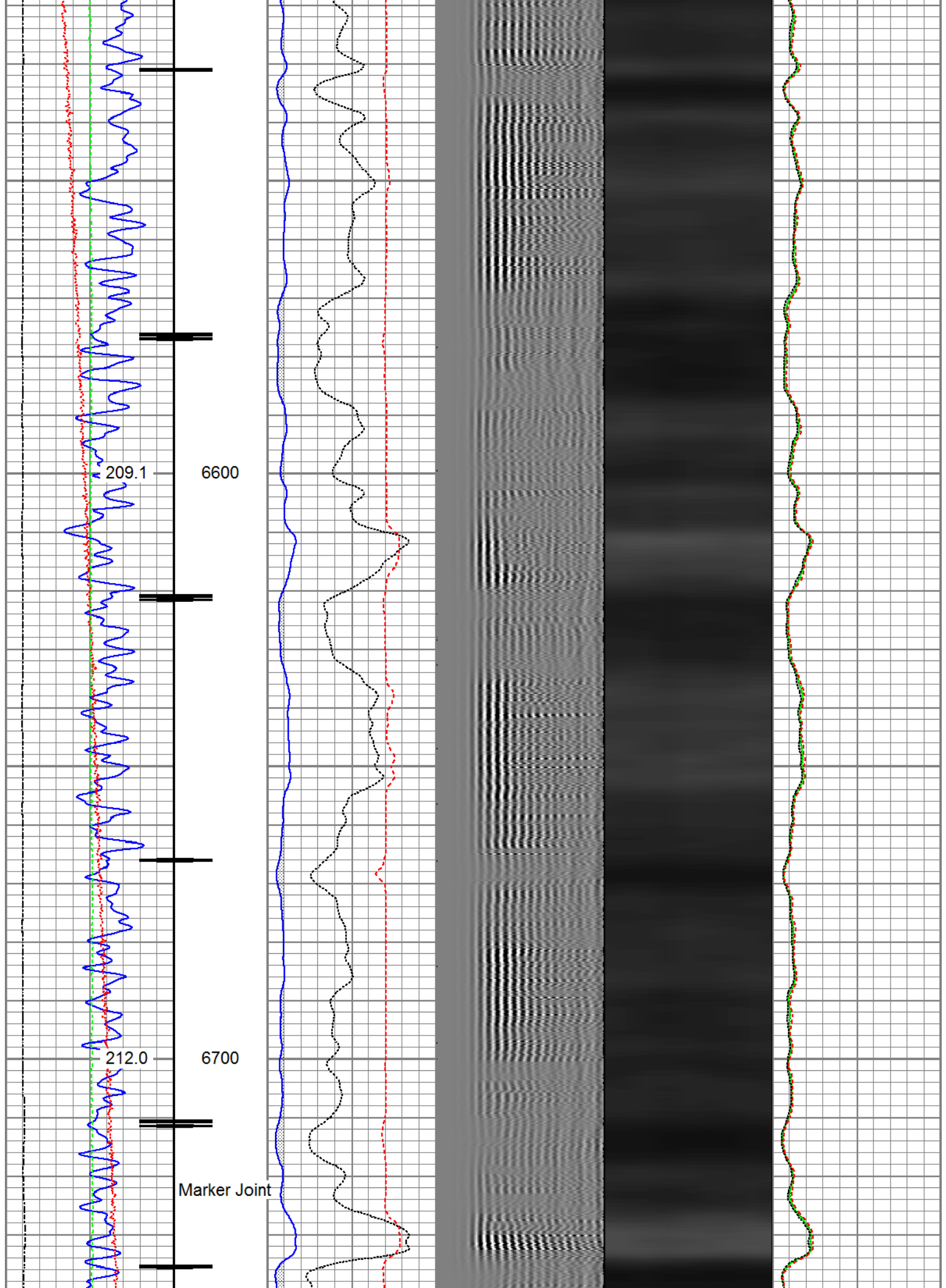


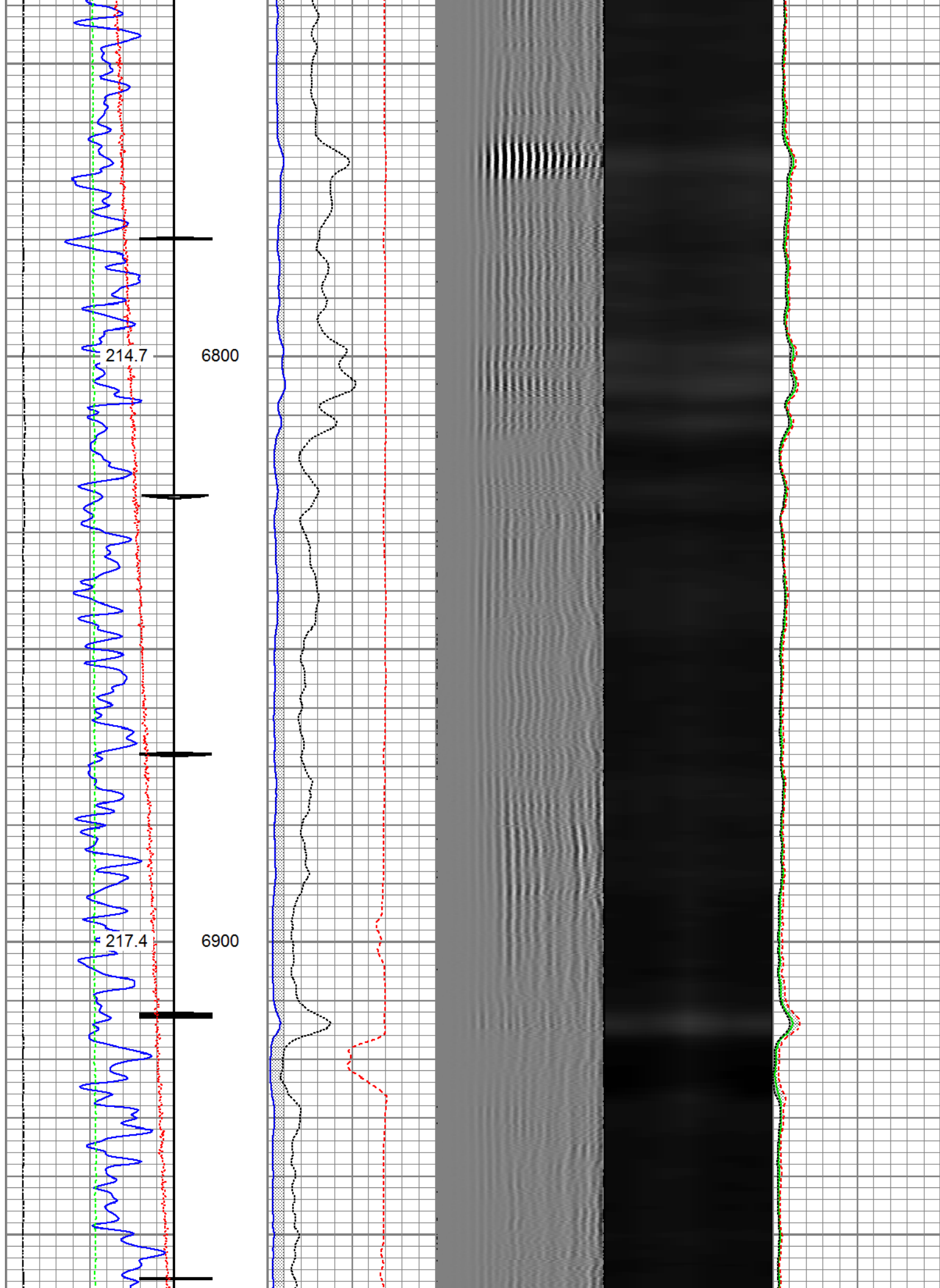


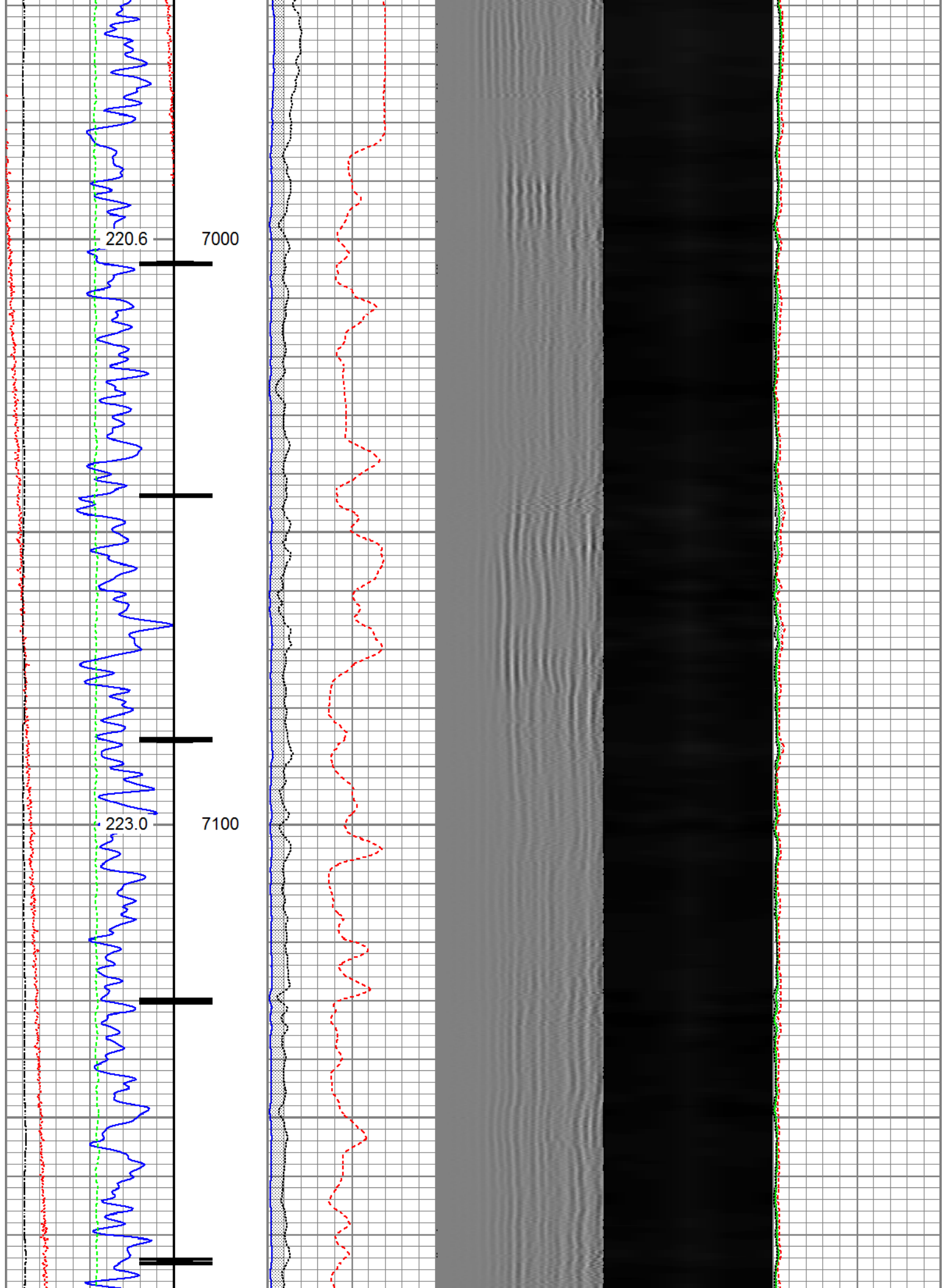


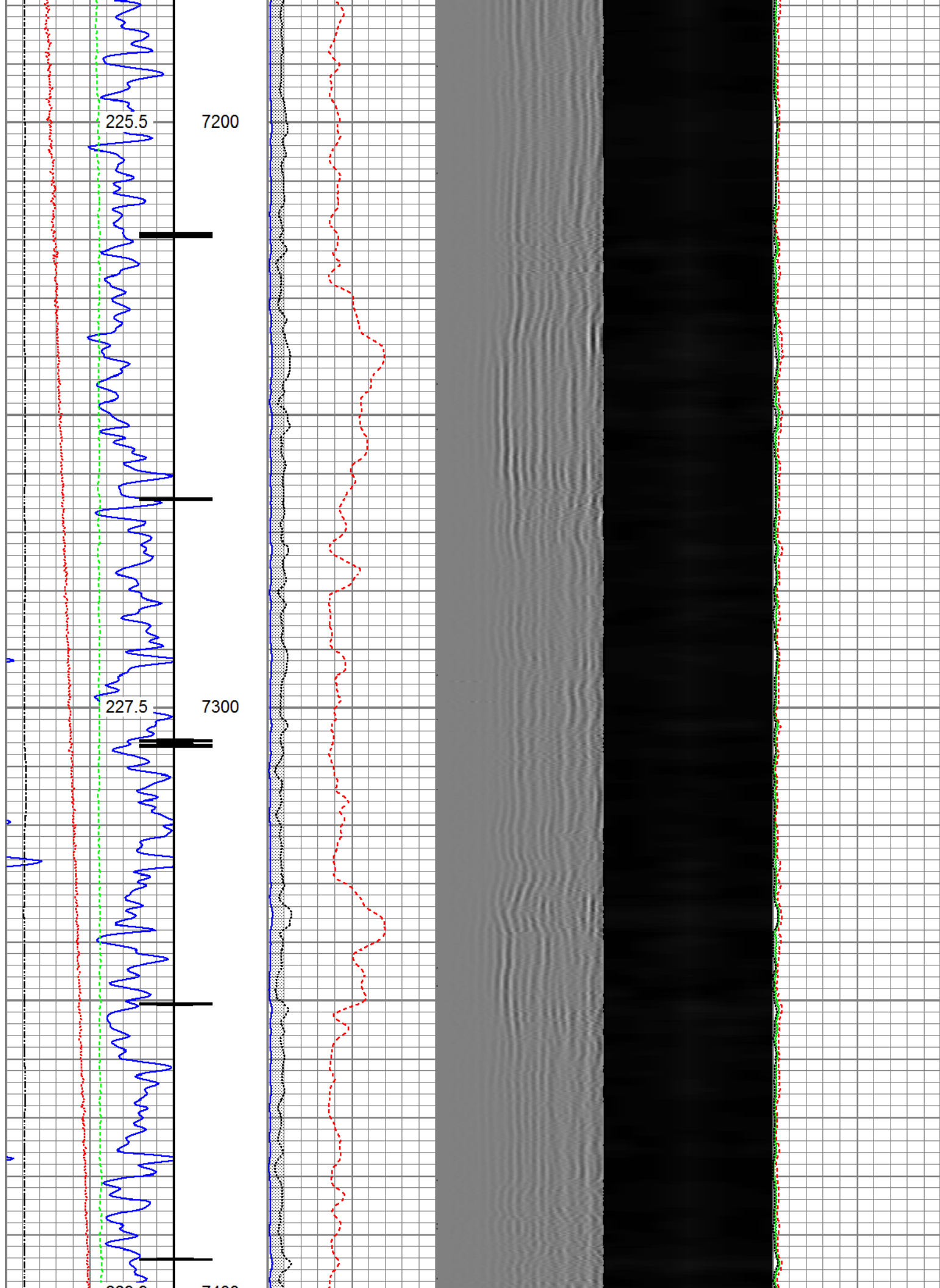


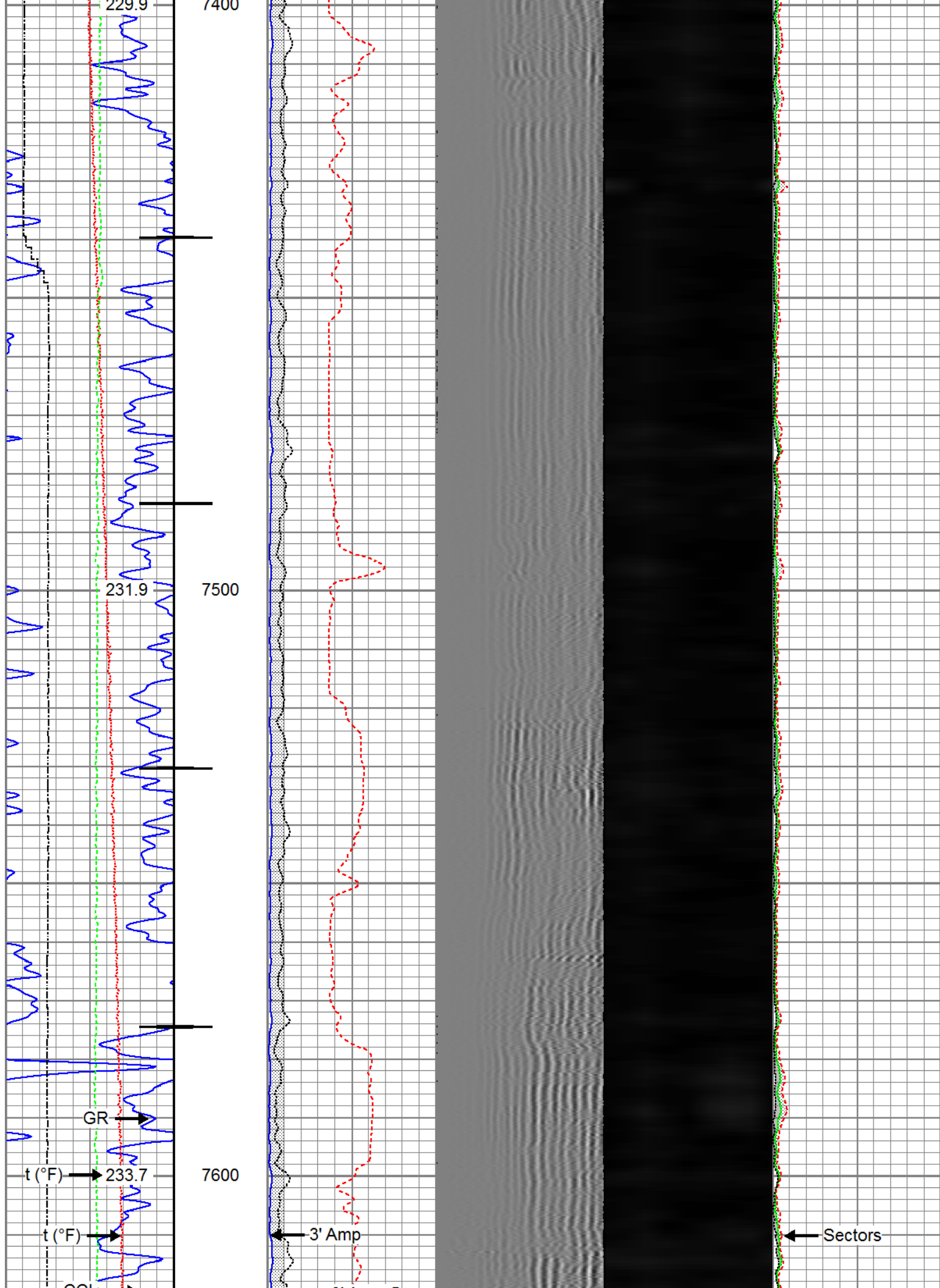


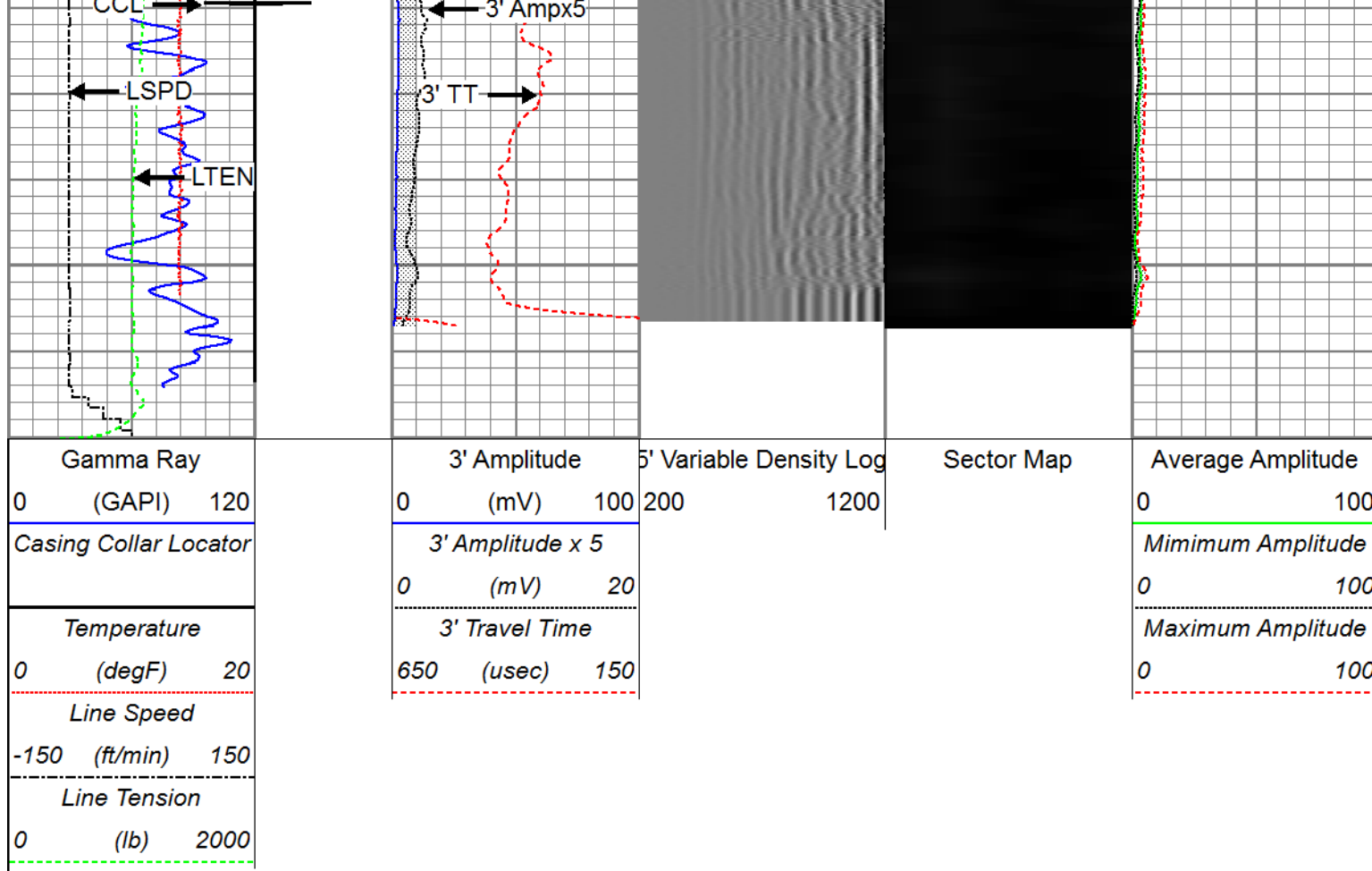








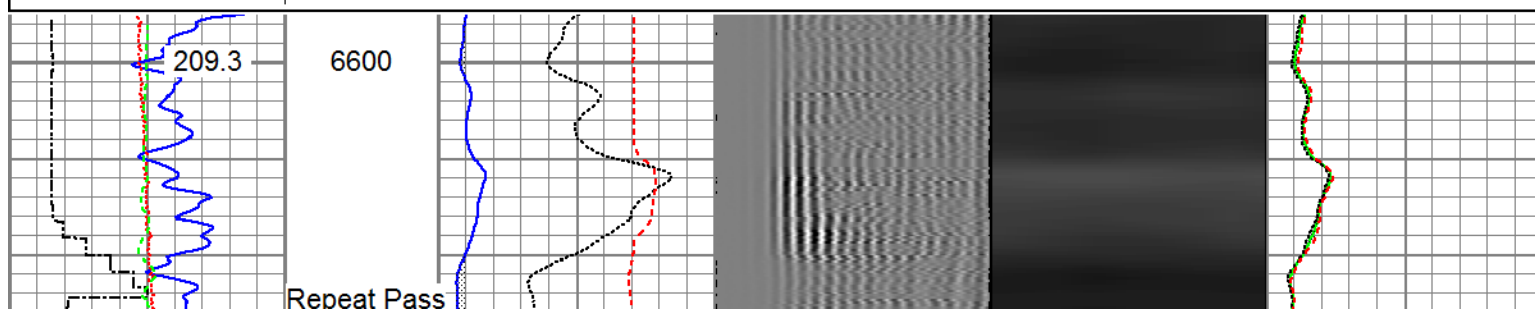
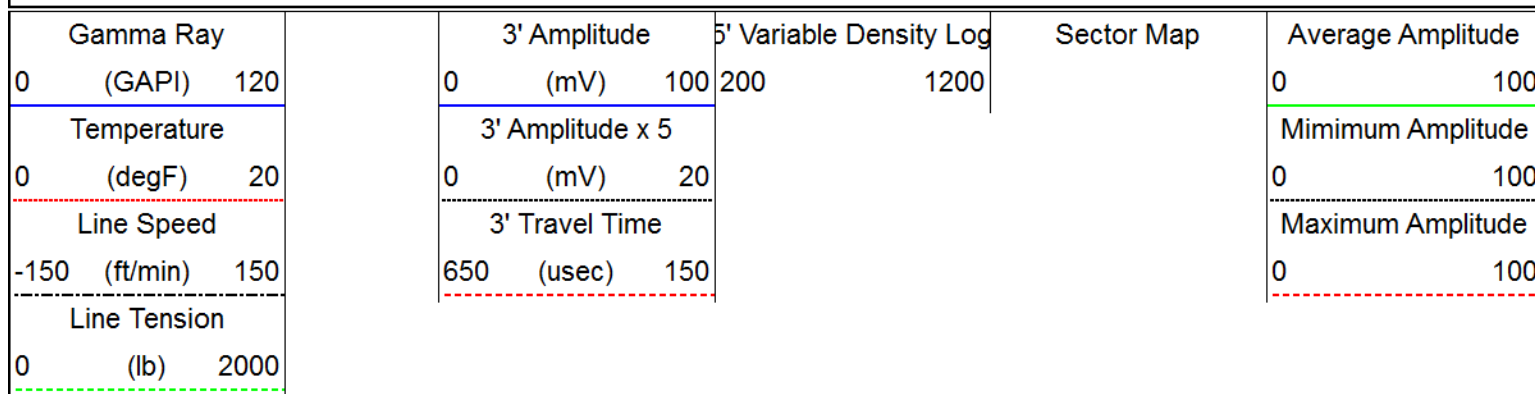


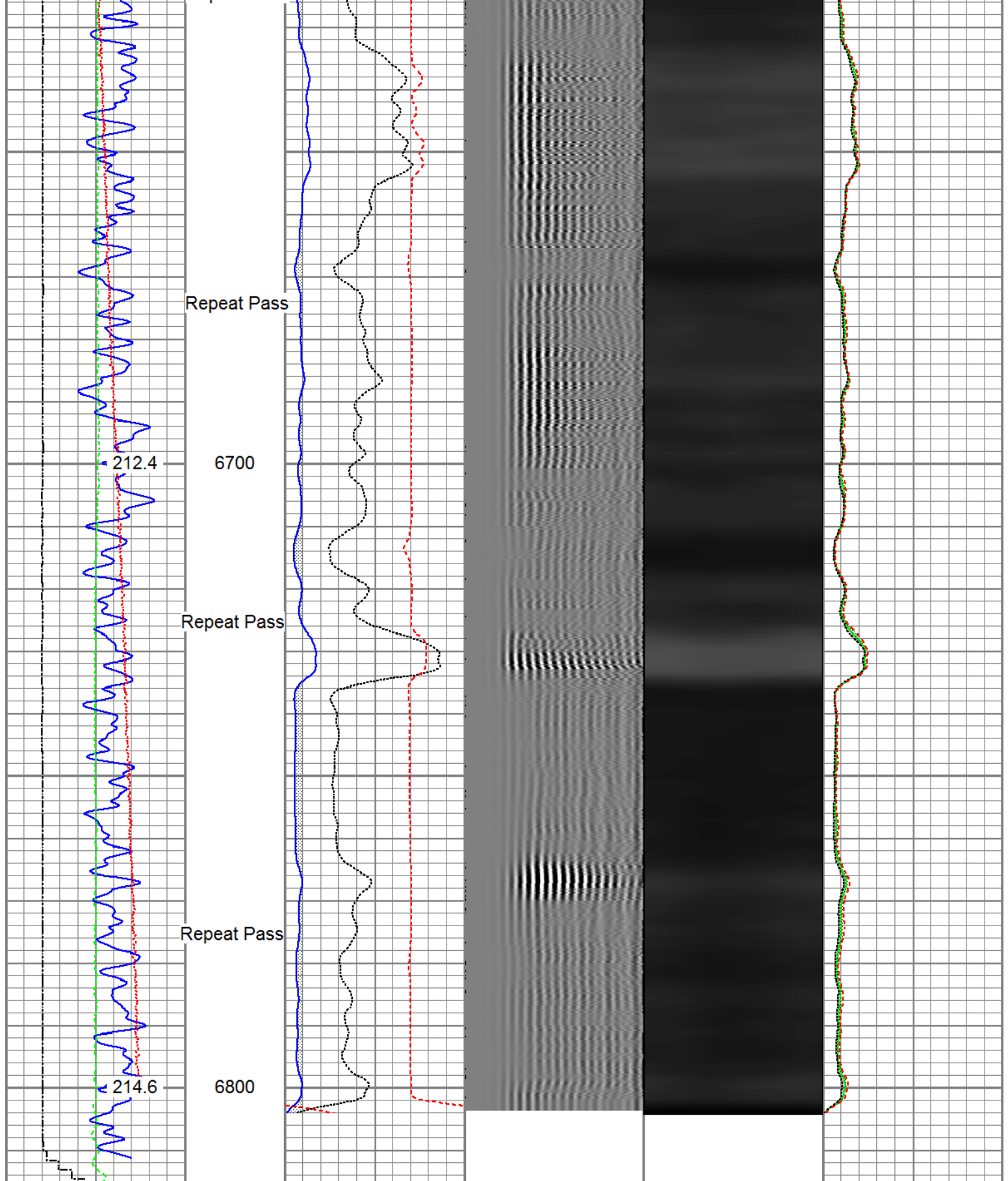


Repeat Pass

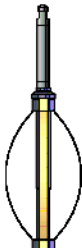

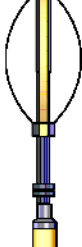

Recorded With 2800 PSI Surface Induced Pressure

Database File: anadarko_whiston 16n-33hz_17-may-2017_rbl\processed_0512344030_anadarko_whiston 16n-33hz
 Dataset Pathname: pass4
 Presentation Format: ros_radrii
 Dataset Creation: Wed May 17 10:40:21 2017
 Charted by: Depth in Feet scaled 1:240





<div>Gamma Ray</div> <div>(GAPI)</div> <div>0120</div>	<div>3' Amplitude</div> <div>(mV)</div> <div>0100</div>	<div>5' Variable Density Log</div> <div>2001200</div>	<div>Sector Map</div>	<div>Average Amplitude</div> <div>0100</div>
<div>Temperature</div> <div>(degF)</div> <div>020</div>	<div>3' Amplitude x 5</div> <div>(mV)</div> <div>020</div>			<div>Minimum Amplitude</div> <div>0100</div>
<div>Line Speed</div> <div>(ft/min)</div> <div>-150150</div>	<div>3' Travel Time</div> <div>(usec)</div> <div>650150</div>			<div>Maximum Amplitude</div> <div>0100</div>

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
HeadVolt	19.54		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	2.75	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					
DCCL CCL	6.51		Probe_ELine_BowSpring_Centralizer-P_EB&2.8875 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.8875	2.75	20.00
			Probe_GR_CCL-P_CGR_2750_S (FW12124.57) Probe 2-3/4" Digital CCL / Gamma Ray Combined	2.75	2.75	55.00
GR	3.77		Probe_ELine_BowSpring_Centralizer-P_EB&2.8875 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.8875	2.75	20.00

Dataset:	PROCESSED_0512344030_Anadarko_Whiston 16N-33HZ_05-17-17_RBL.db: field/well/run1/pass6
Total length:	23.43 ft
Total weight:	225.40 lb
O.D.:	2.75 in

Calibration Report

Database File	C:\ProgramData\Warrior\Data\Anadarko_Whiston 16N-33HZ_17-MAY-2017_RBL\PROCESSED_051
Dataset Pathname	pass6
Dataset Creation	Wed May 17 10:47:44 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'	0.000	0.754	0.800	71.921	94.291	0.793
CAL	0.002	0.821				
5'	-0.002	0.640	0.800	71.921	110.692	1.033
SUM						
S1	-0.005	0.760	0.000	100.000	130.599	0.706
S2	-0.002	0.754	0.000	100.000	132.220	0.256
S3	-0.001	0.758	0.000	100.000	131.756	0.142
S4	-0.000	0.746	0.000	100.000	133.959	0.019
S5	0.000	0.751	0.000	100.000	133.212	-0.012
S6	-0.001	0.761	0.000	100.000	131.243	0.129
S7	-0.001	0.764	0.000	100.000	130.565	0.192
S8	-0.003	0.772	0.000	100.000	128.983	0.410


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
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	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

	Company	Kerr-McGee Oil & Gas Onshore, L.P.
	Well	Whiston 16N-33HZ
	Field	Wattenberg
	County	Weld
	State	Colorado