



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Cook 1N-16HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-42238	
SEC 16 TWP 2N RGE 65W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4878'	
Gauge Ring		Elevation	
K.B. 4903'		D.F. 4902'	
G.L. 4878'			
Date		3-August-2016	
Run Number		Two	
Depth Driller		12490 FT	
Depth Logger		7391 FT	
Bottom Logged Interval		7386 FT	
Top Log Interval		Surface	
Open Hole Size		7.875"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		240 °F	
Estimated Cement Top		Surface	
Time Well Ready		ROA	
Time Logger on Bottom		14:45	
Equipment Number		HD-0343	
Location		Fort Lupton, CO	
Recorded By		Wayne Wacker	
Witnessed By		Kelly Wieser	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9.625	
Intermediate #1		5.5	
Intermediate #2		17	
Liner		HCP 110	
Grade		J-55	
Top		Surface	
Bottom		1939 FT	
12480 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

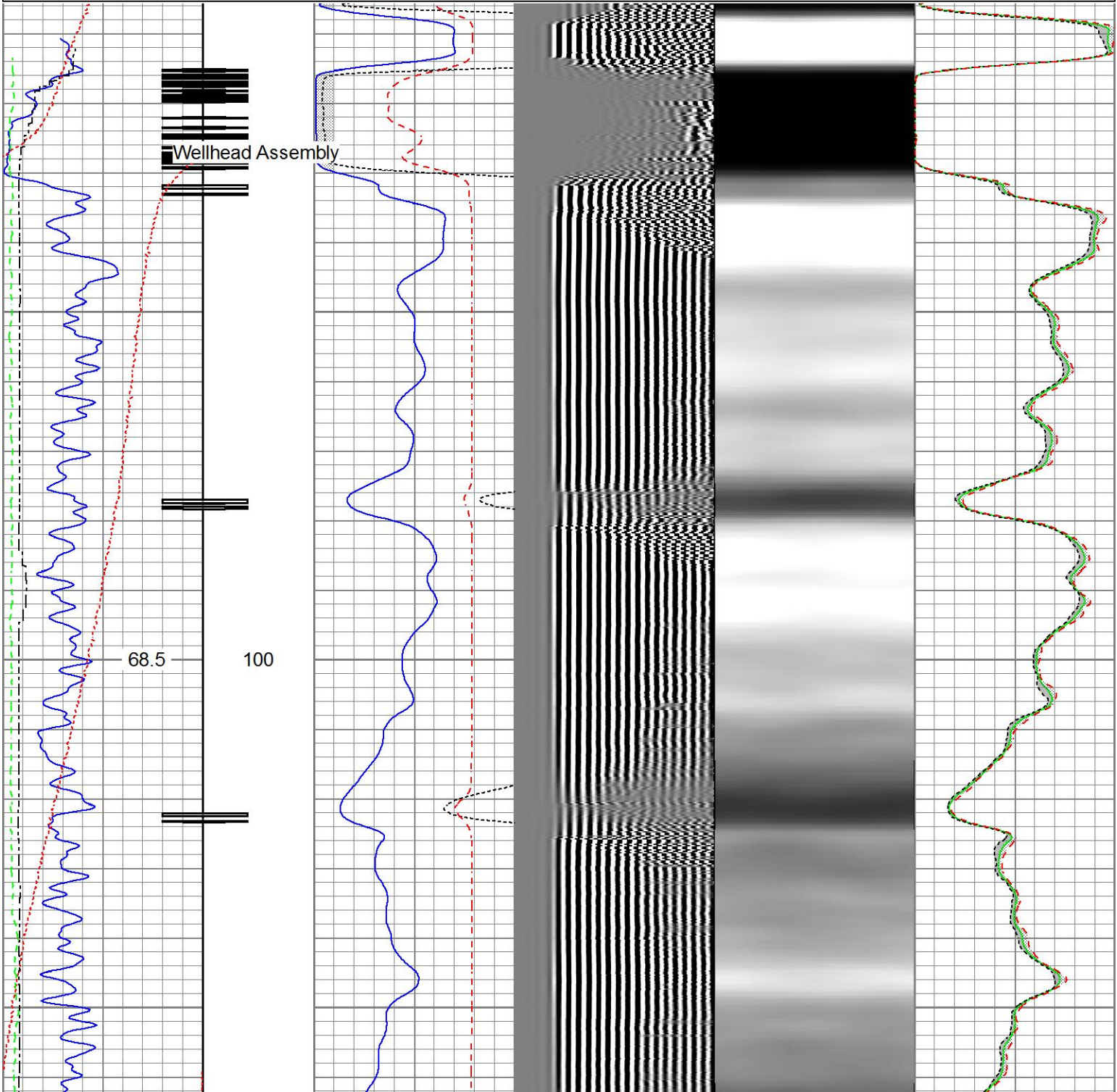
Log ran as per customer request  
Depth referenced to Casing Tally reported Marker Joint at 6497 FT  
Adjusted log +10 FT to correlate to Marker Joint  
Log ran from 7386 FT to surface  
Log ran with 2800 PSI surface induced pressure  
Logging tools were clean and free of any debris upon completion of operations  
  
Thank you for choosing Reliance Oilfield Services, LLC!!



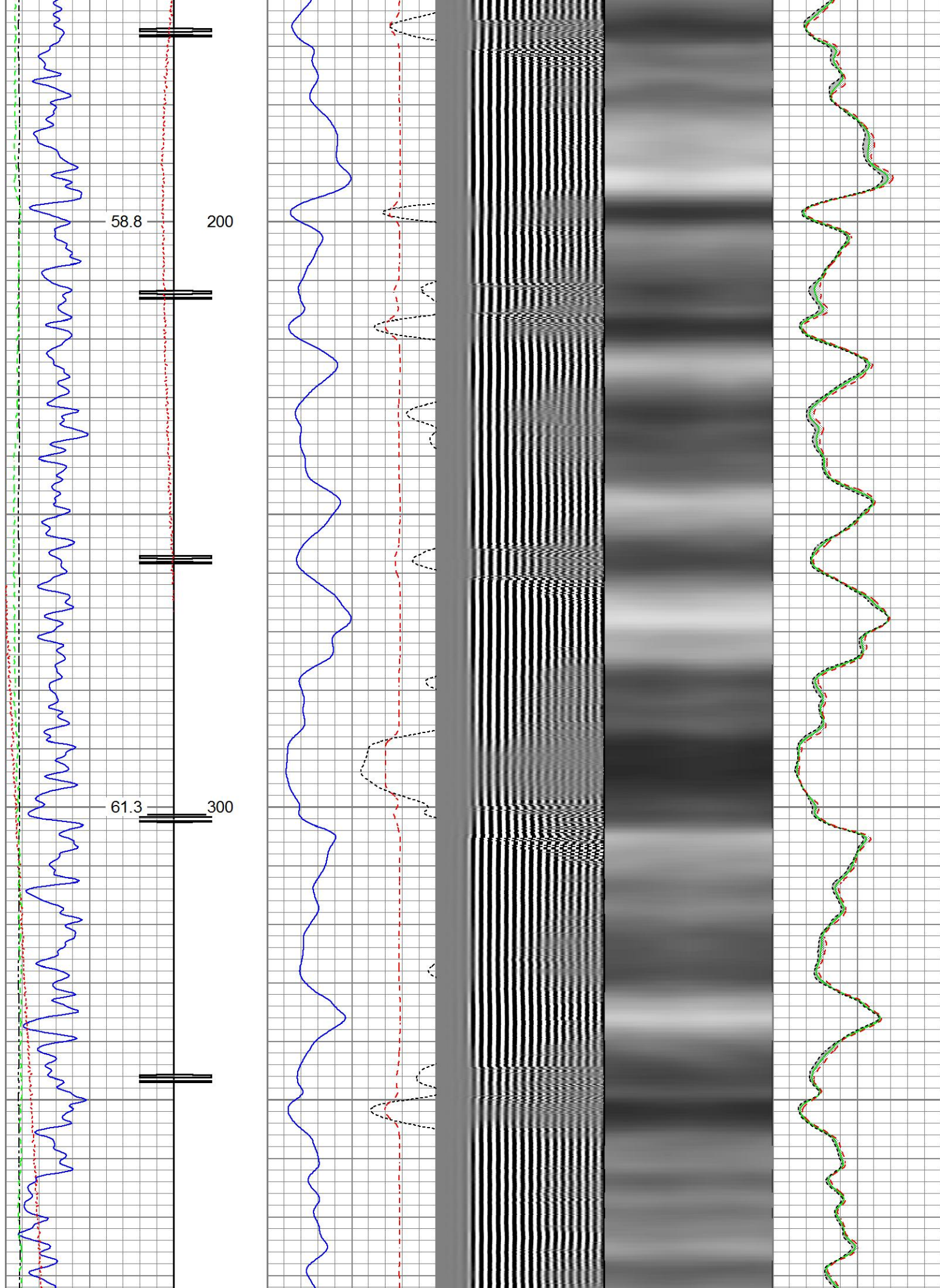
Main Pass

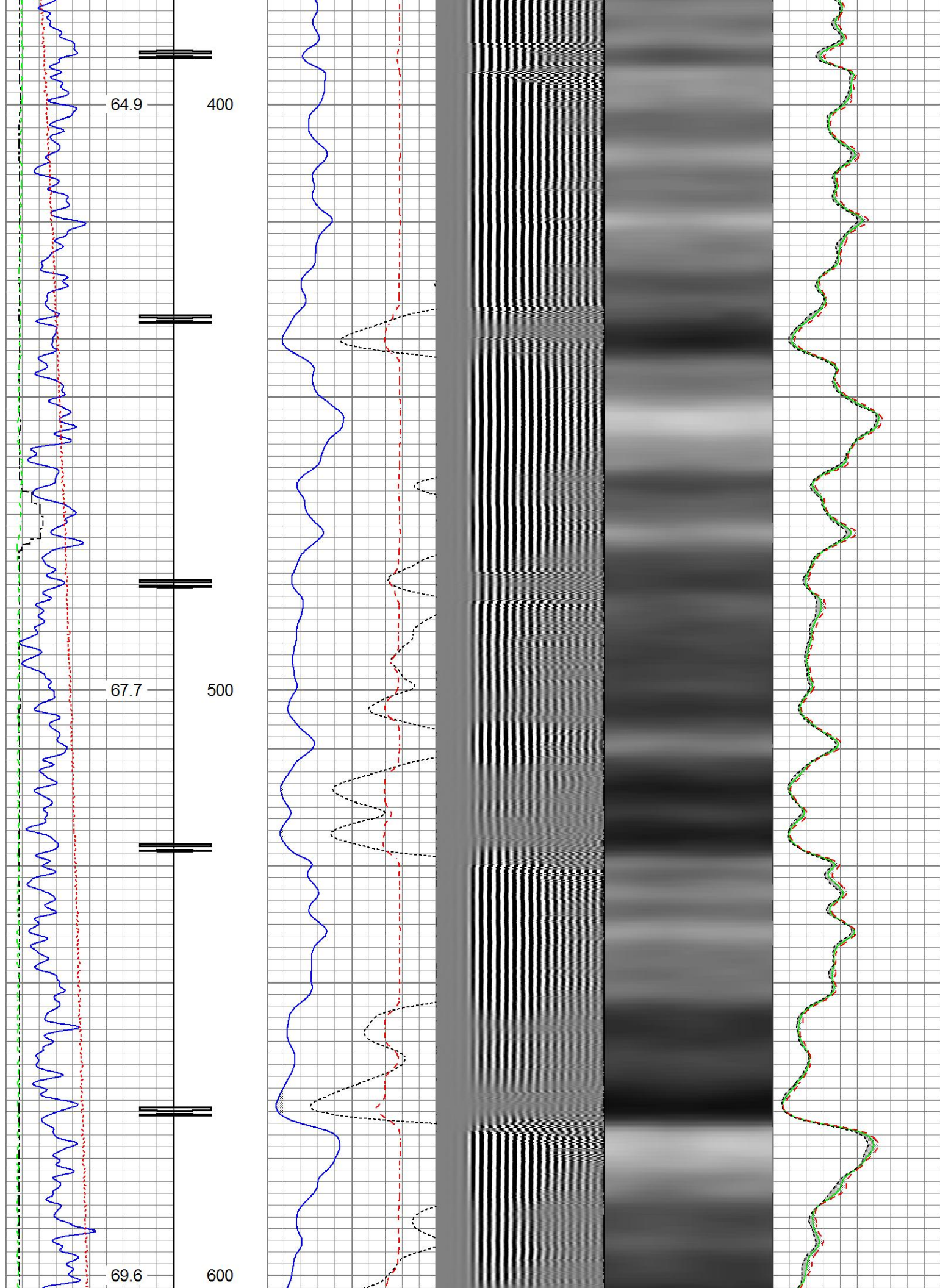
Recorded With 2800 PSI Surface Induced Pressure

Gamma Ray			3' Amplitude			5' Variable Density Log		Sector Map	Average Amplitude		
0	(GAPI)	120	0	(mV)	100	200	1200		0	100	
CCL			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 Tension											
-150	(ft/min)	150									
Line Tension											
0	(lb)	2000									

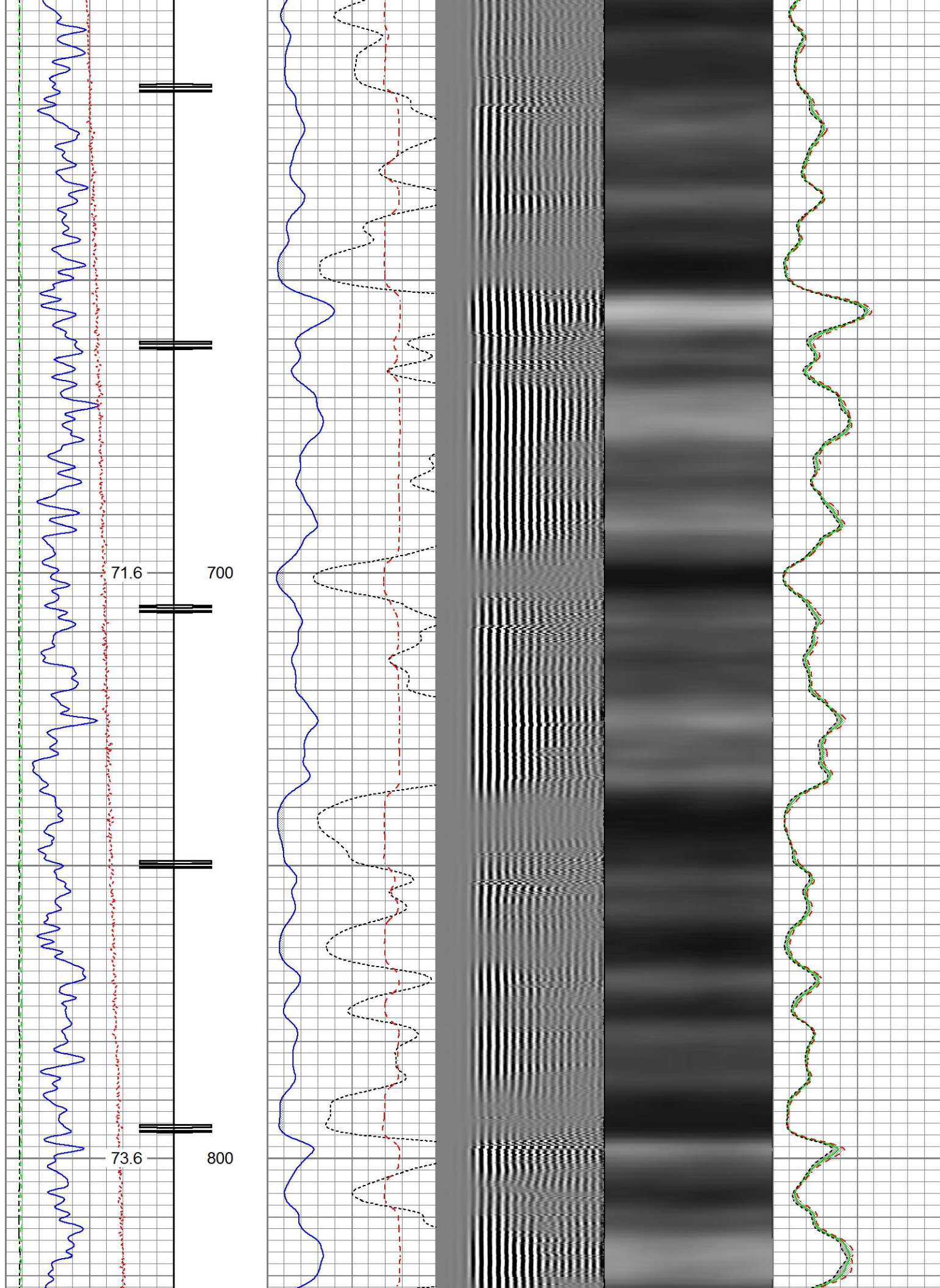


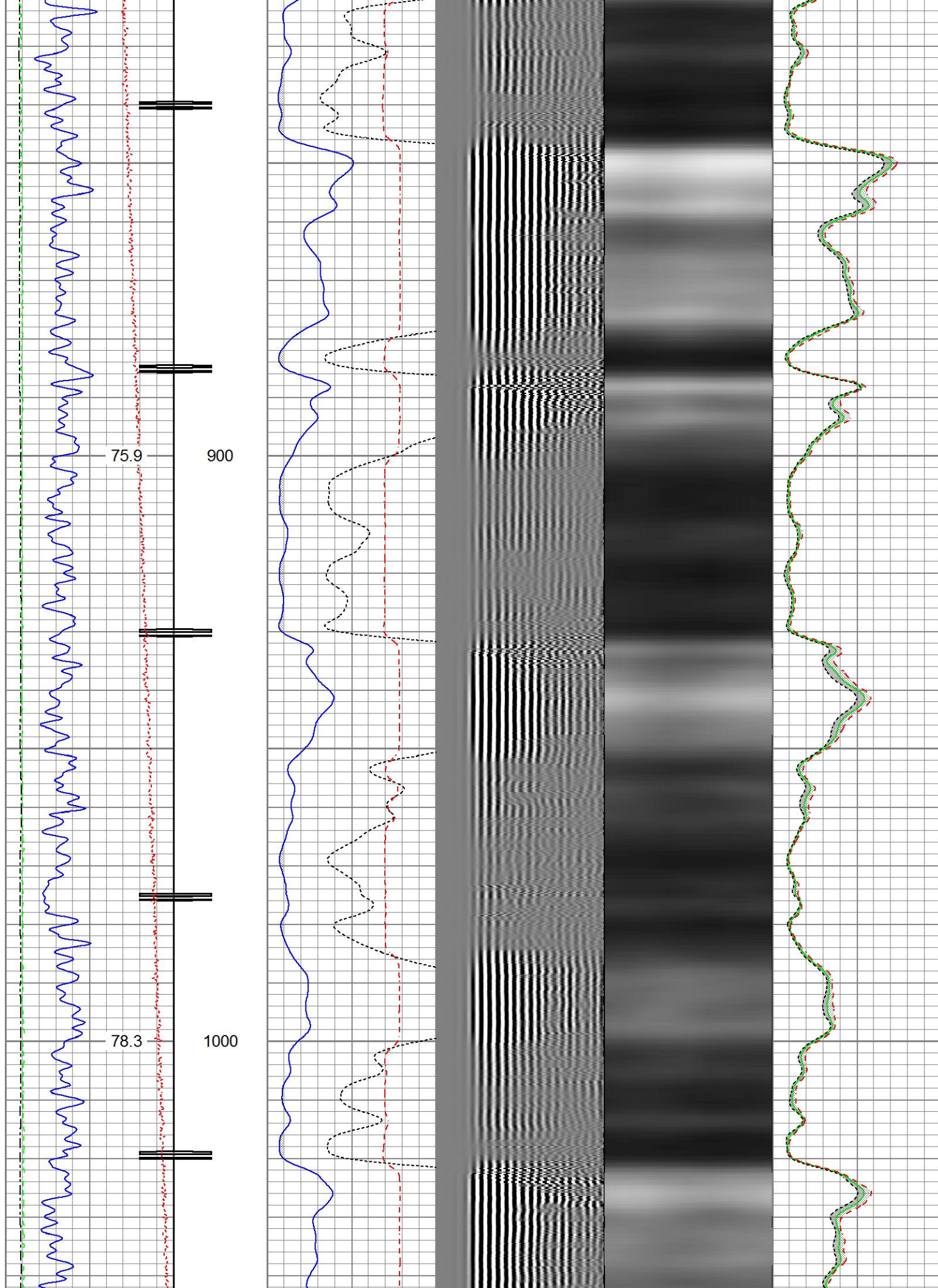




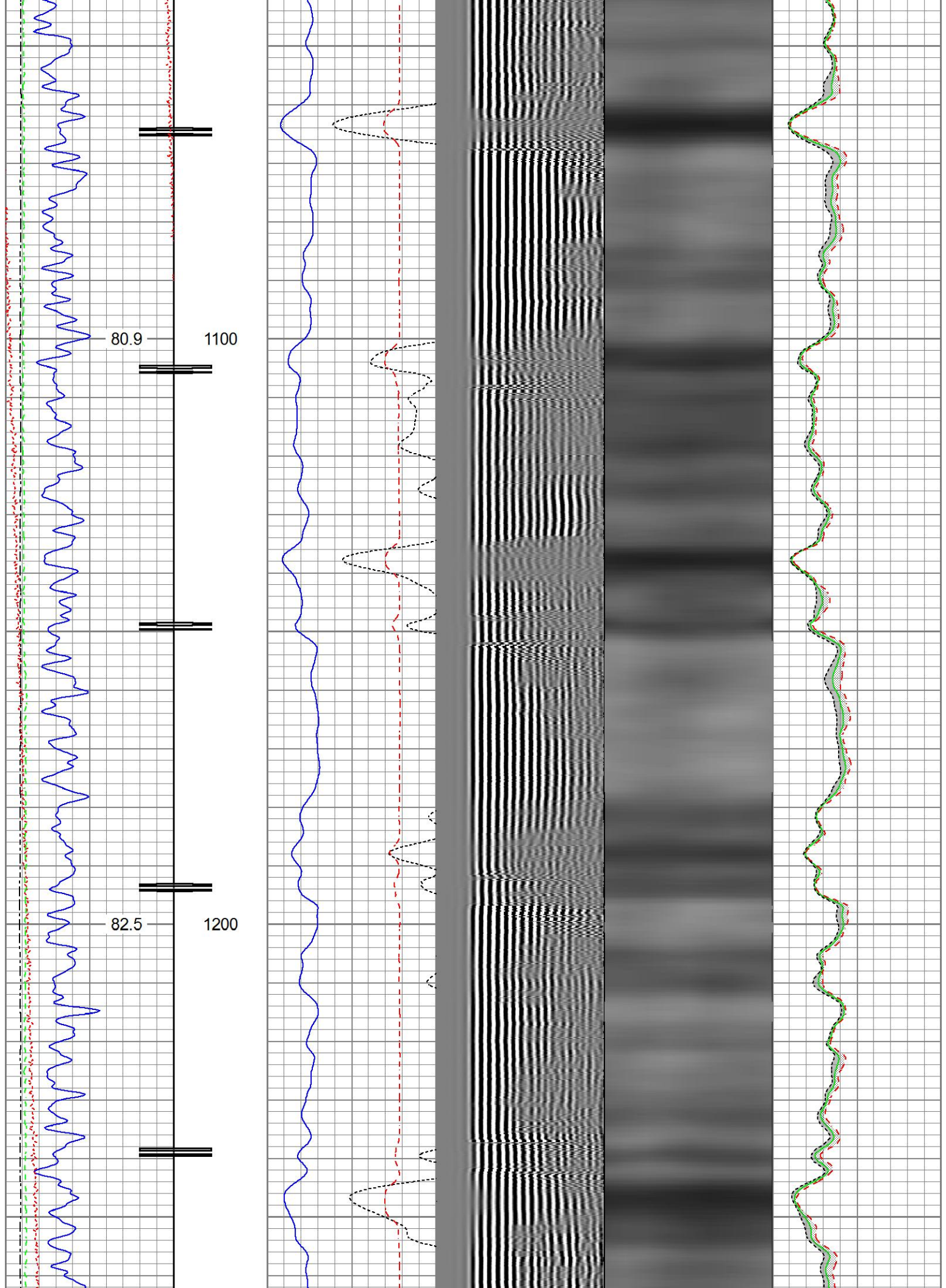


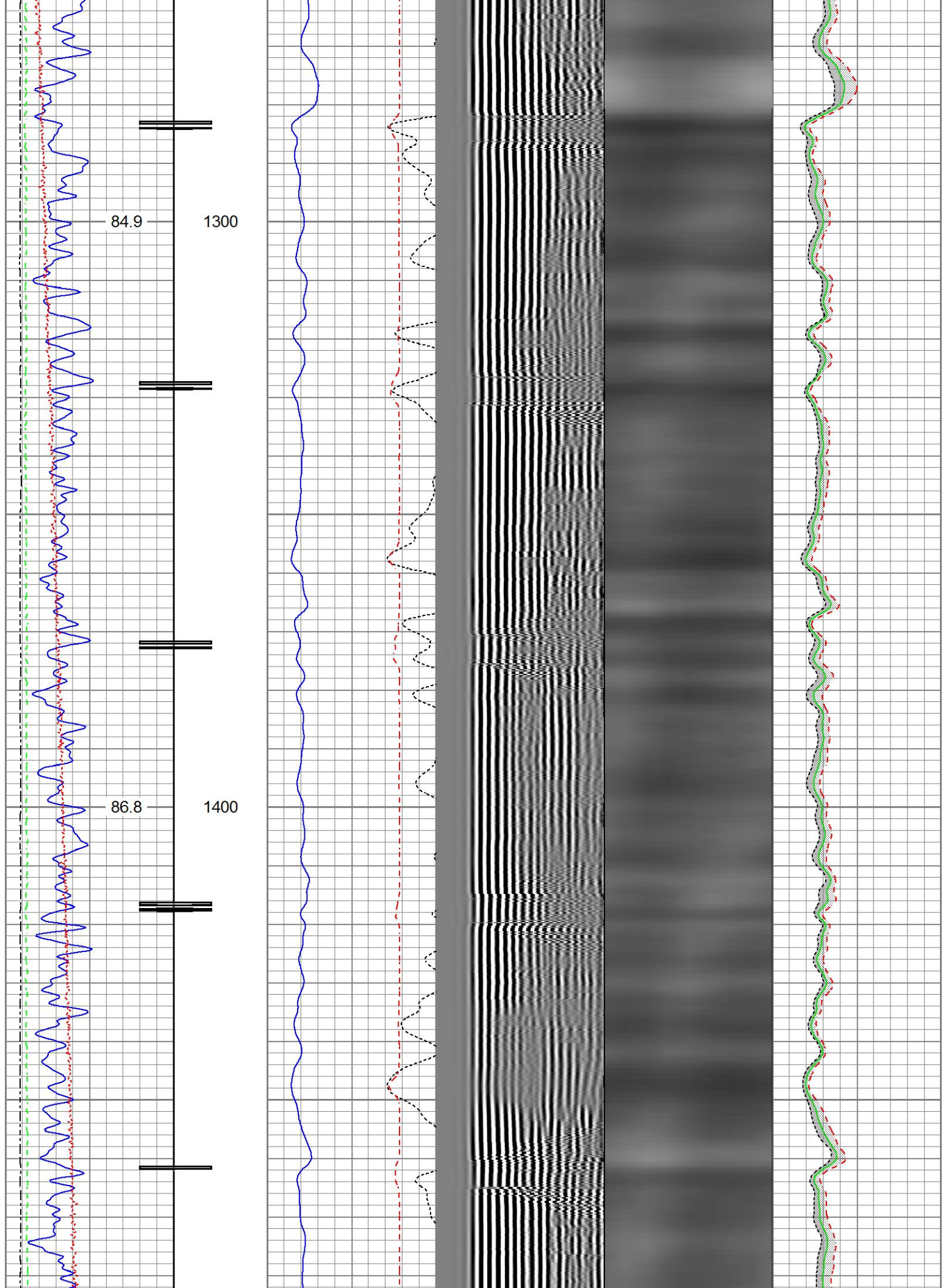




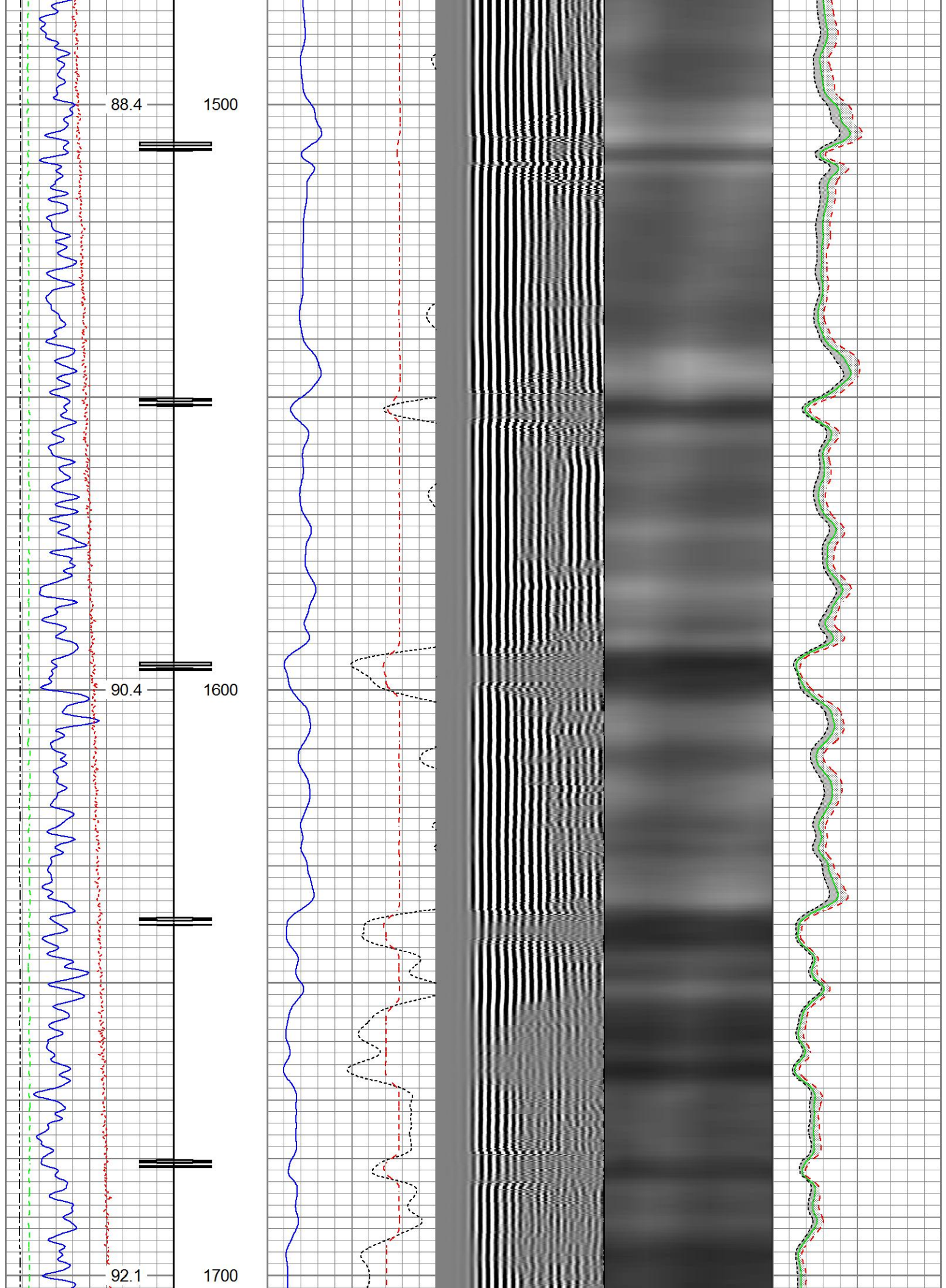


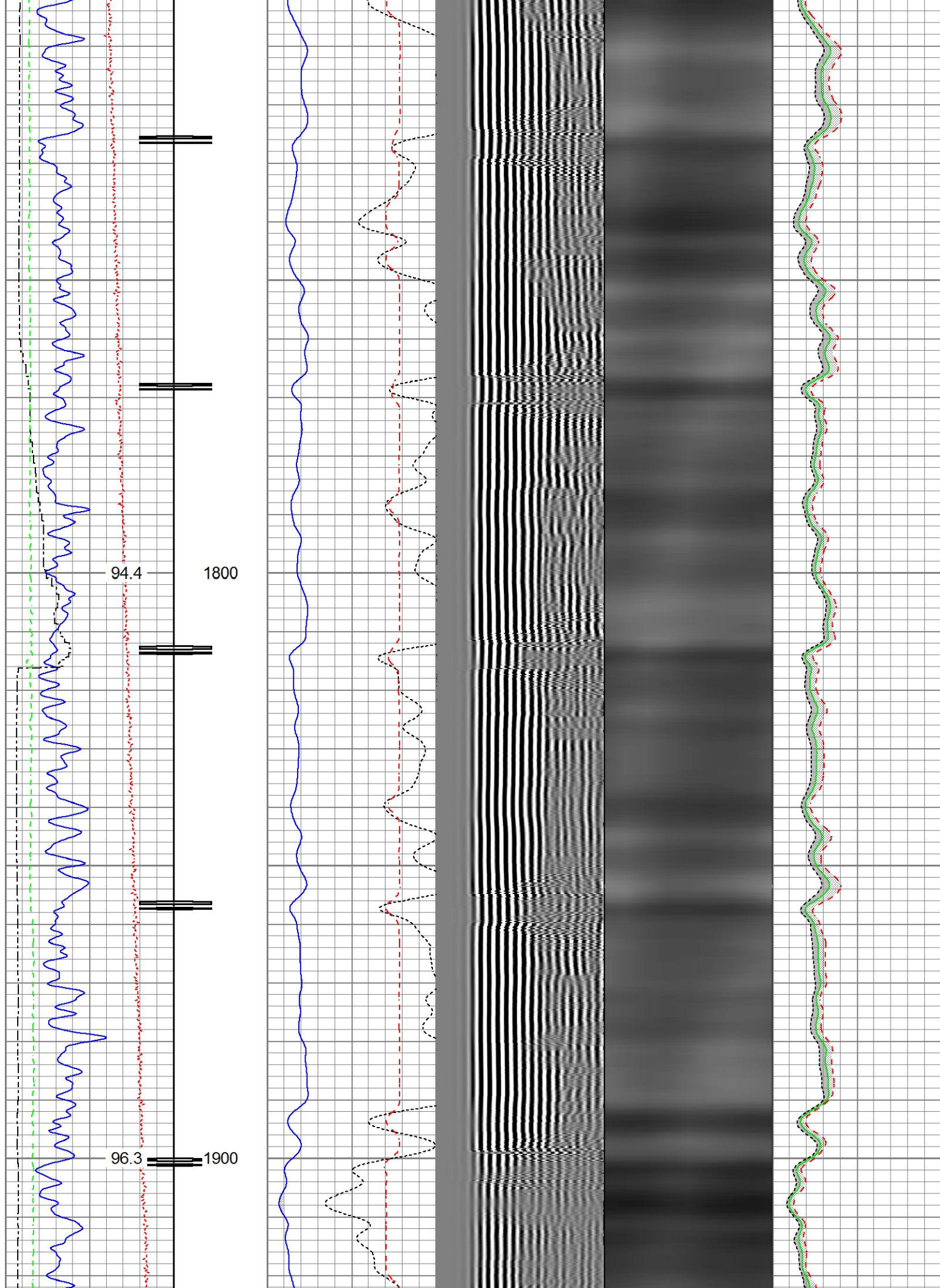




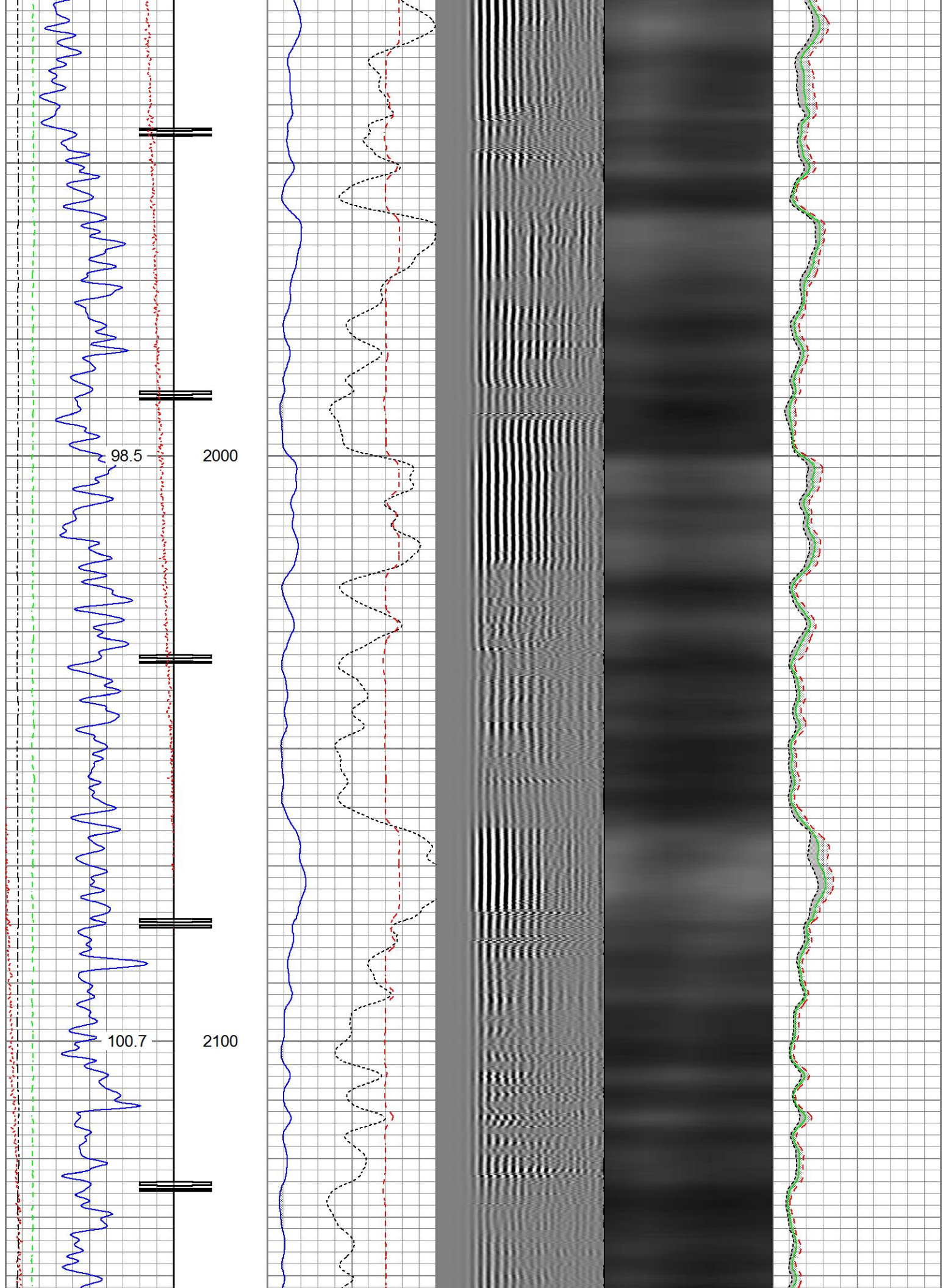


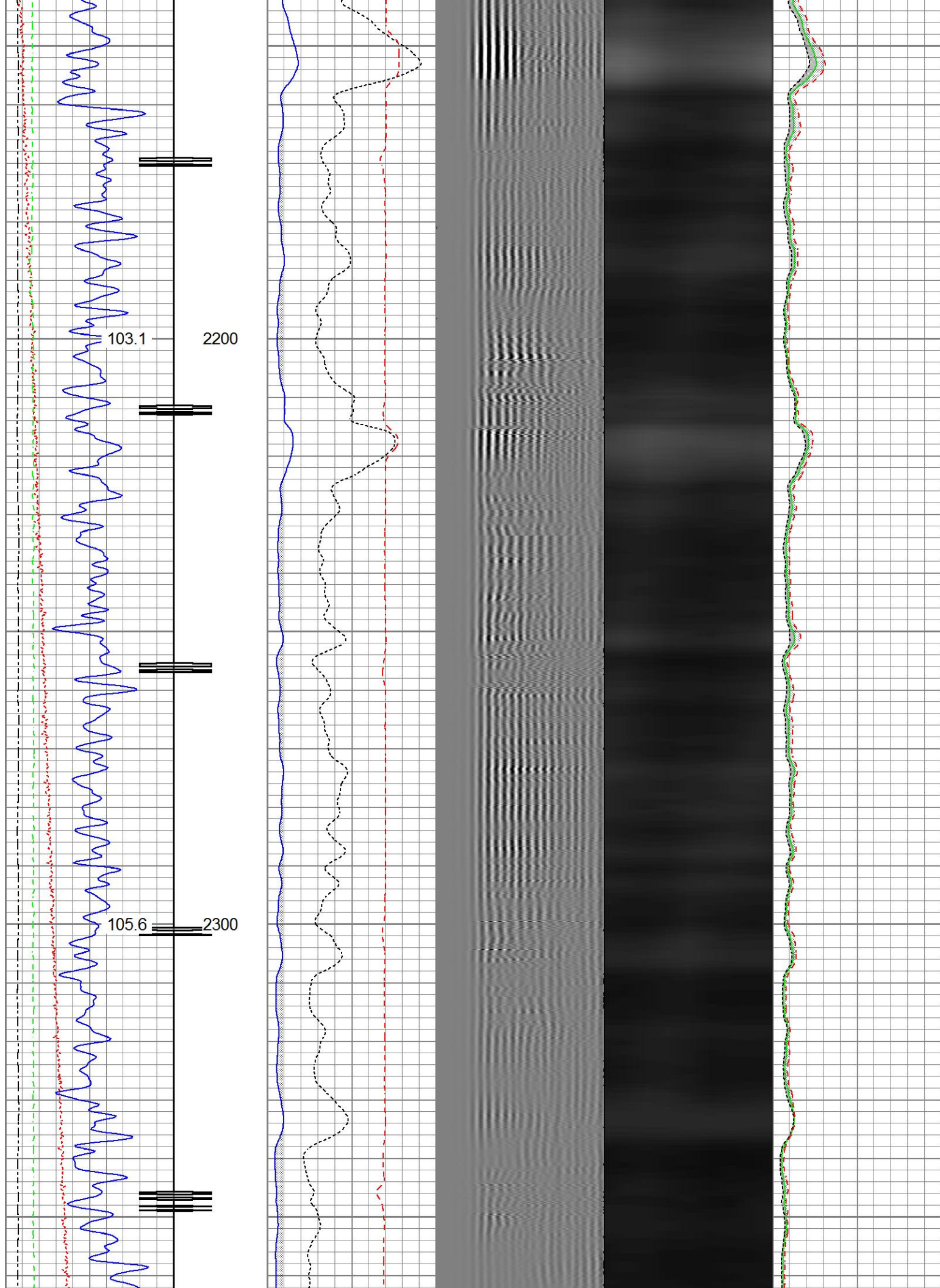




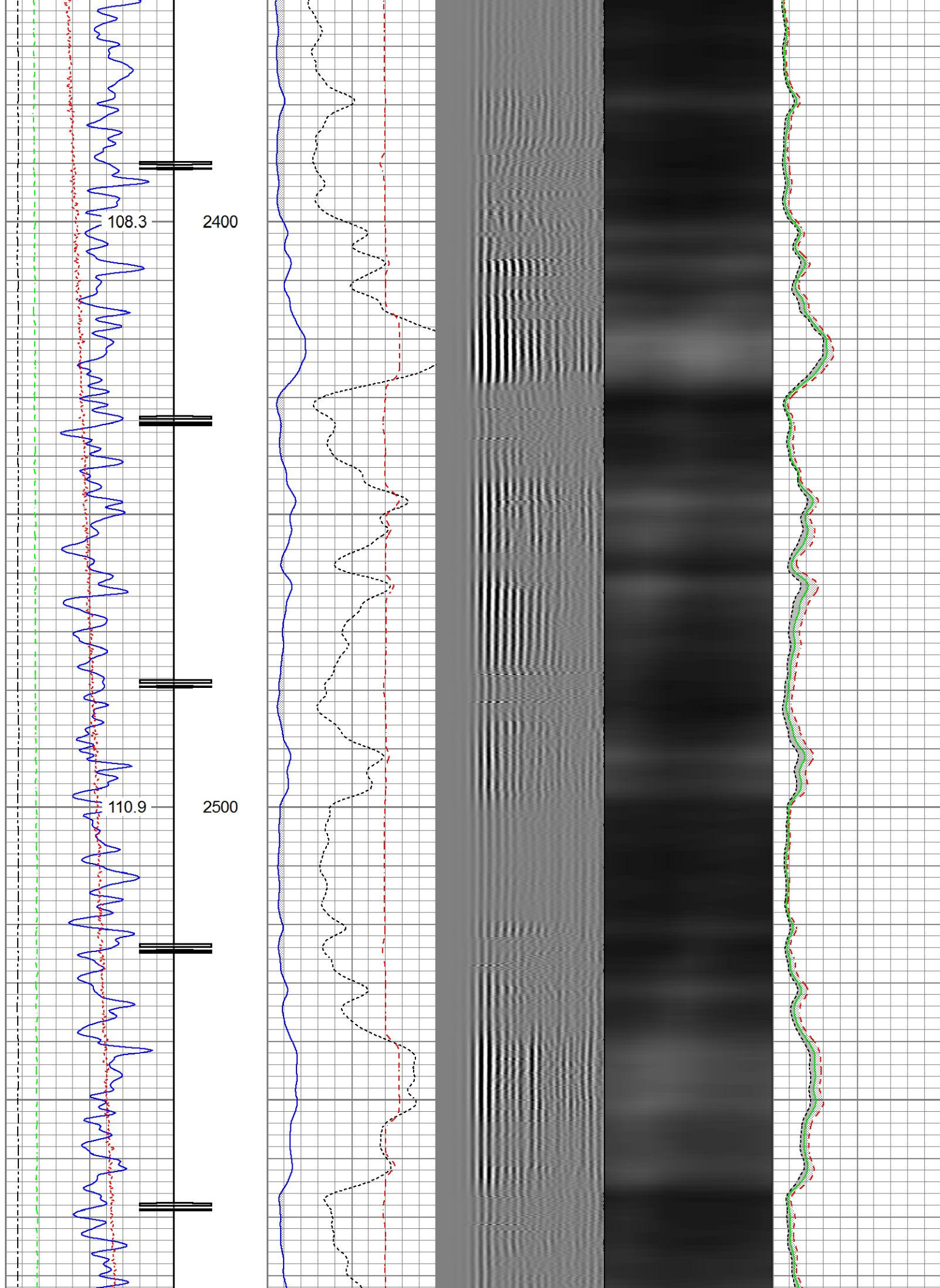


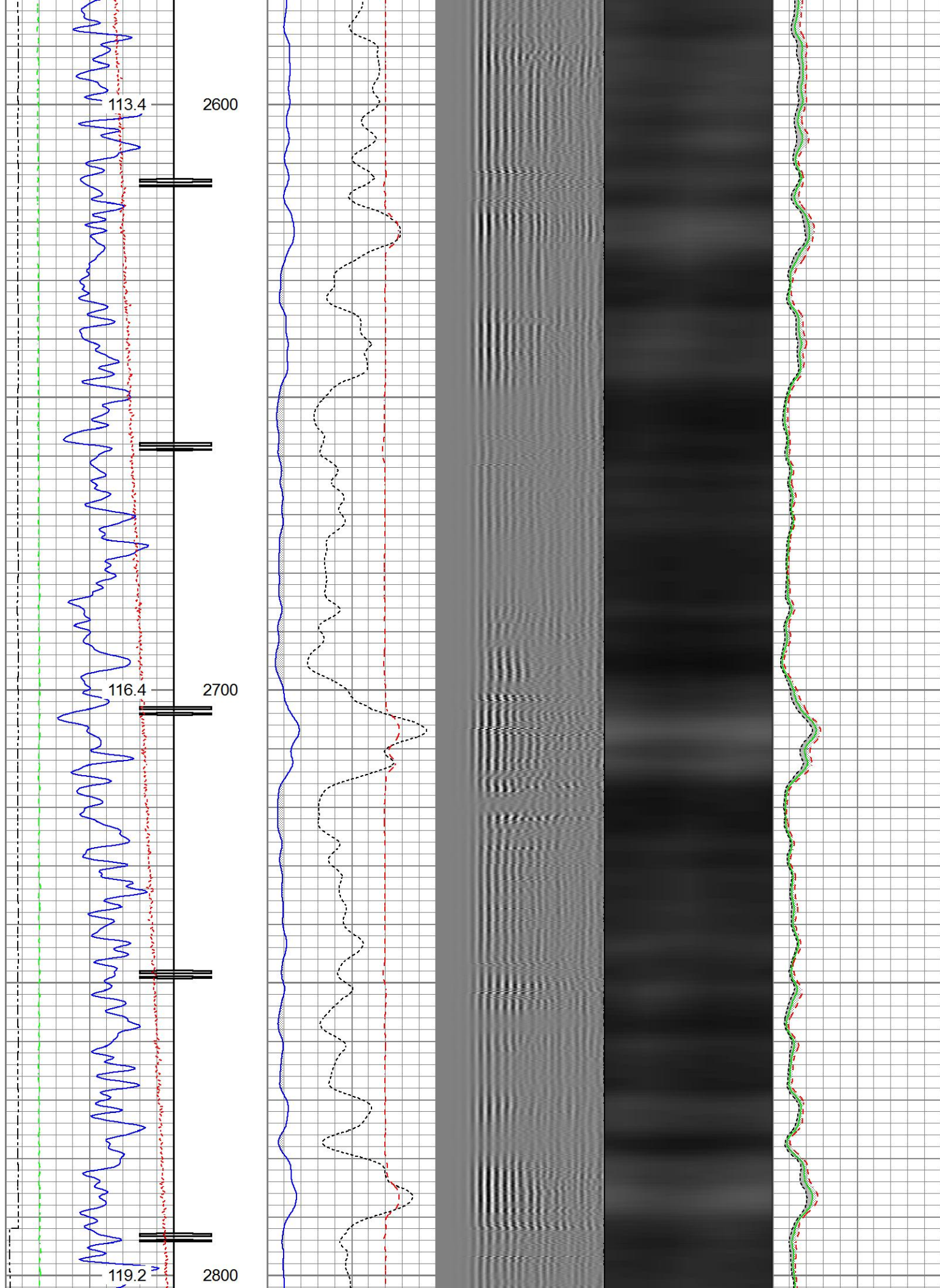




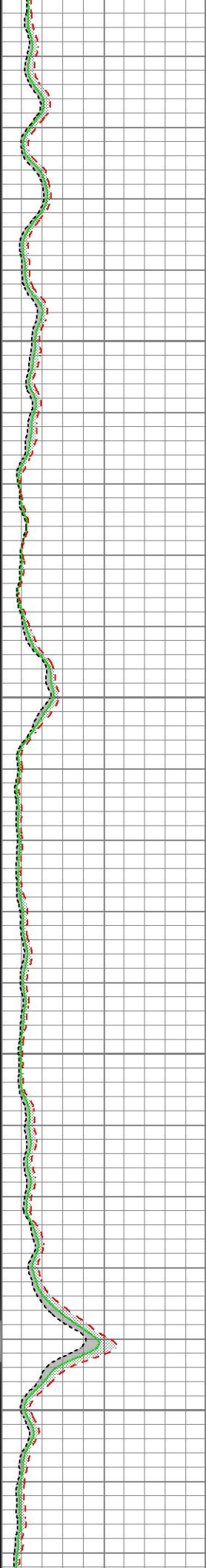
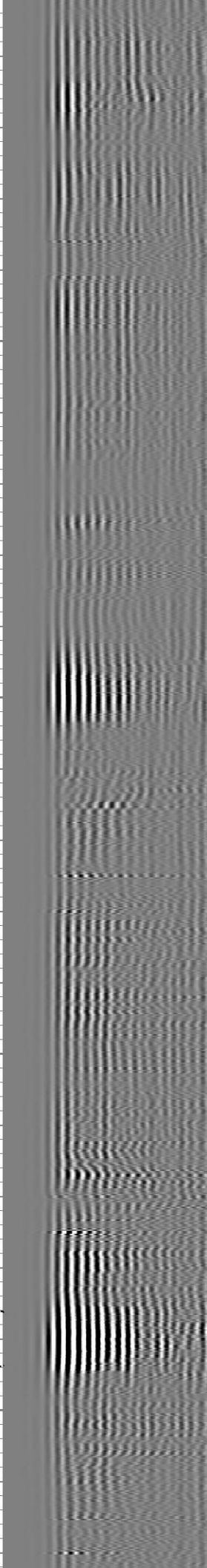
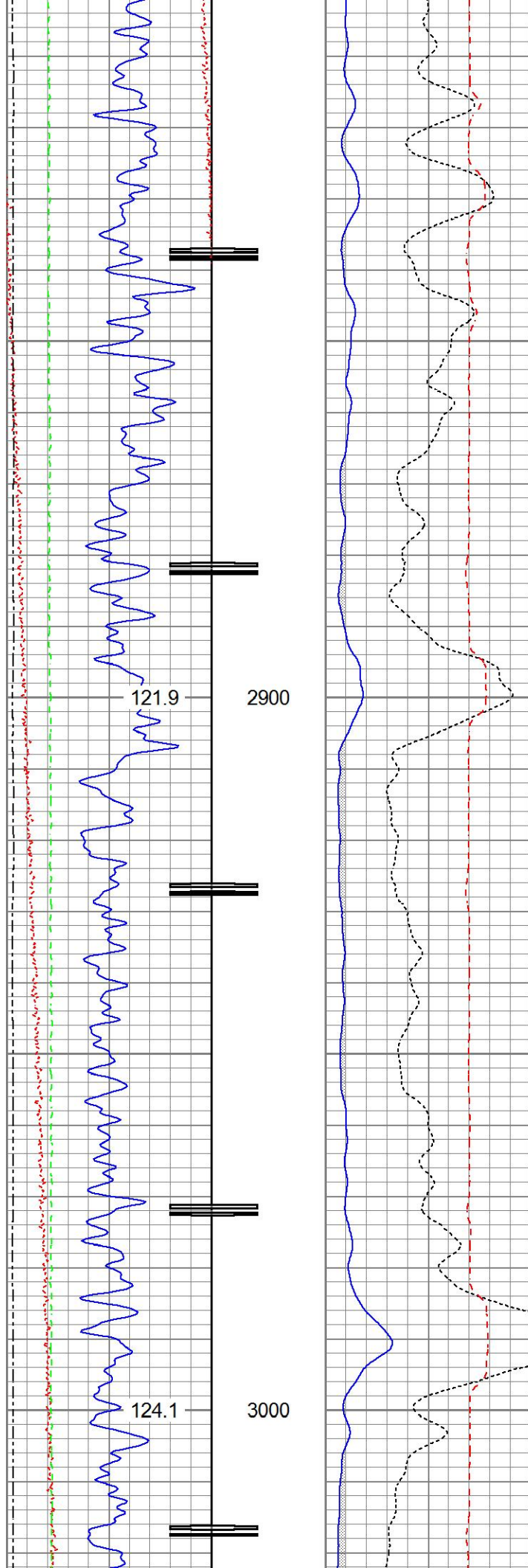


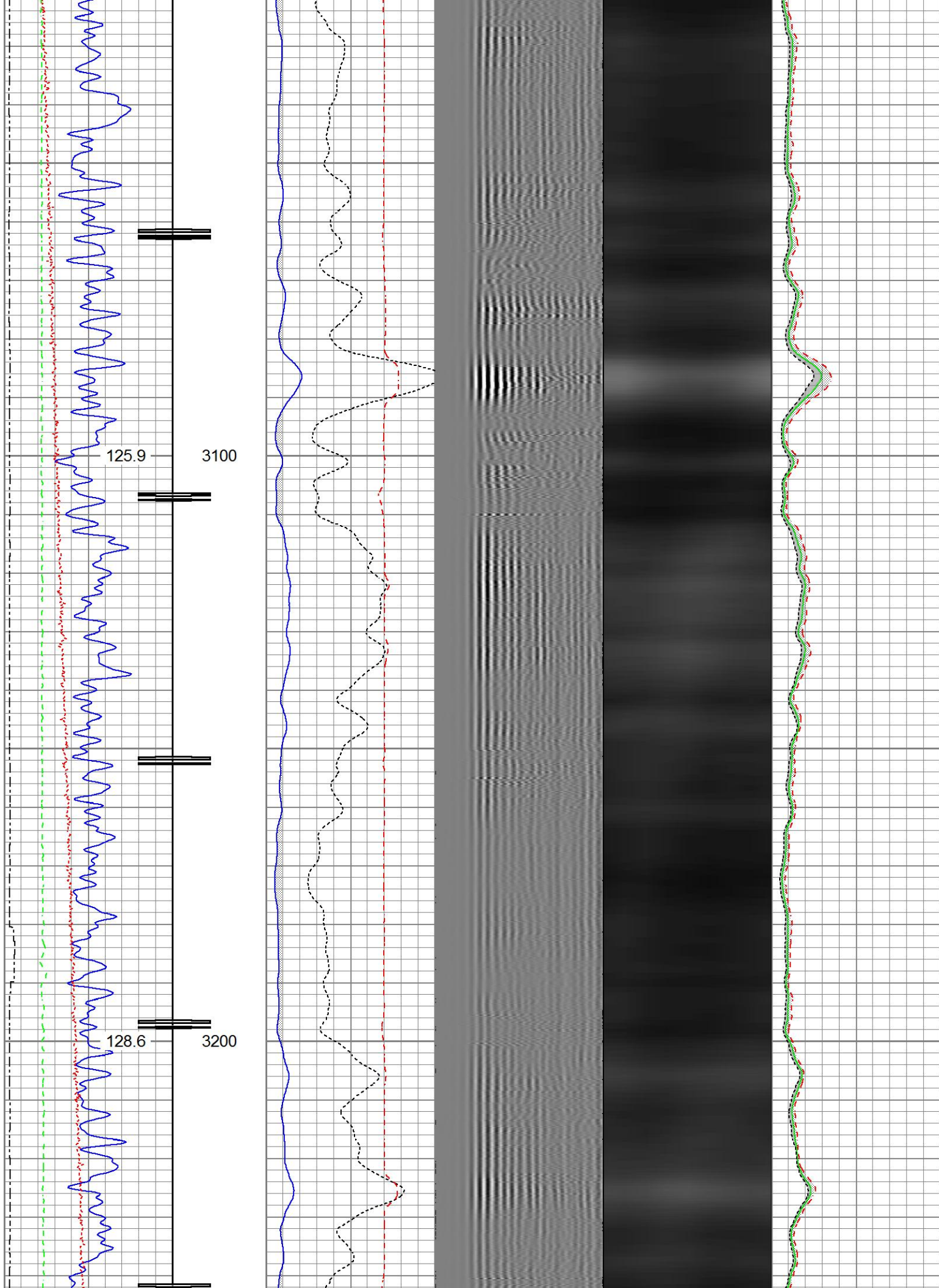




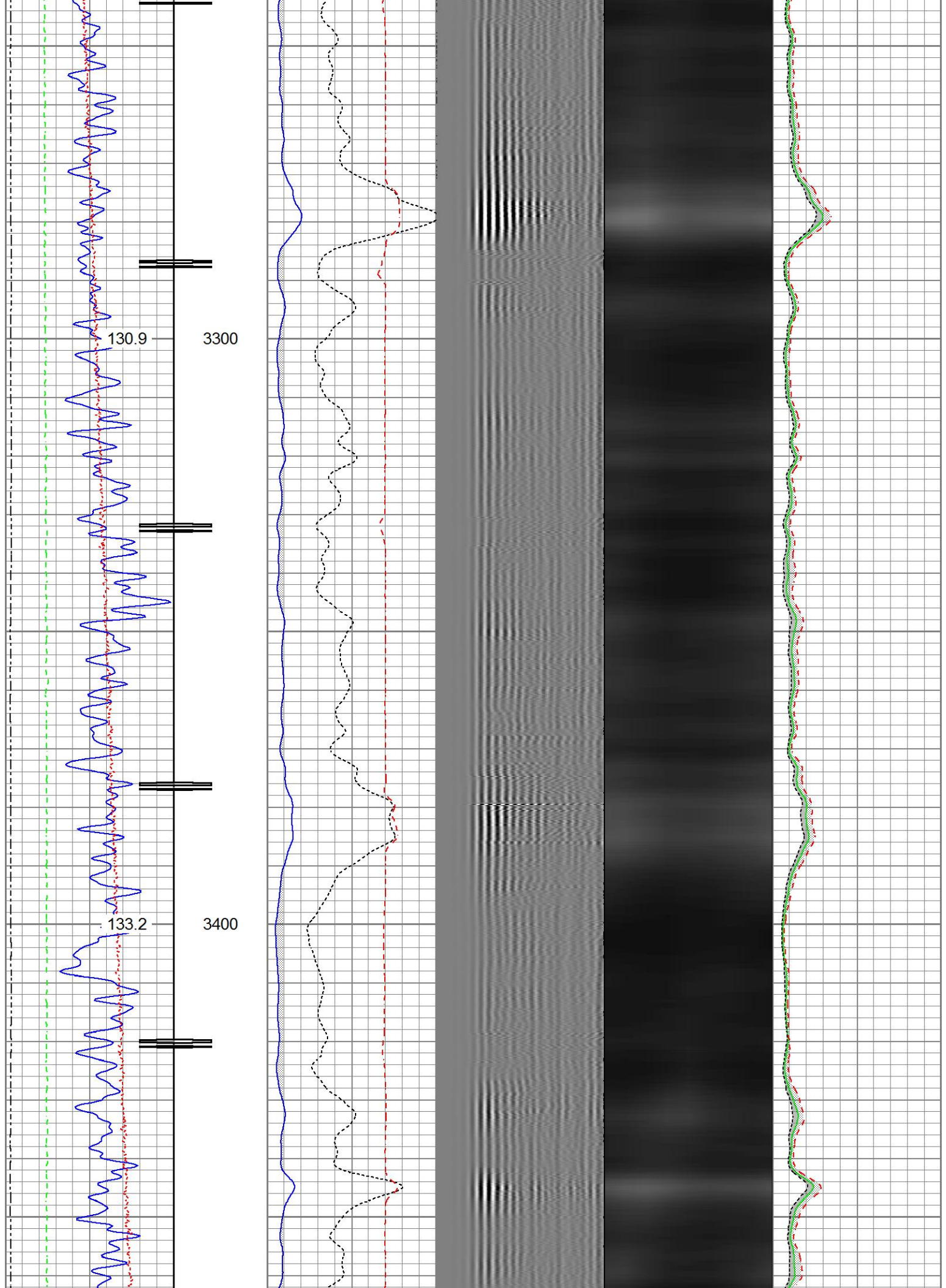


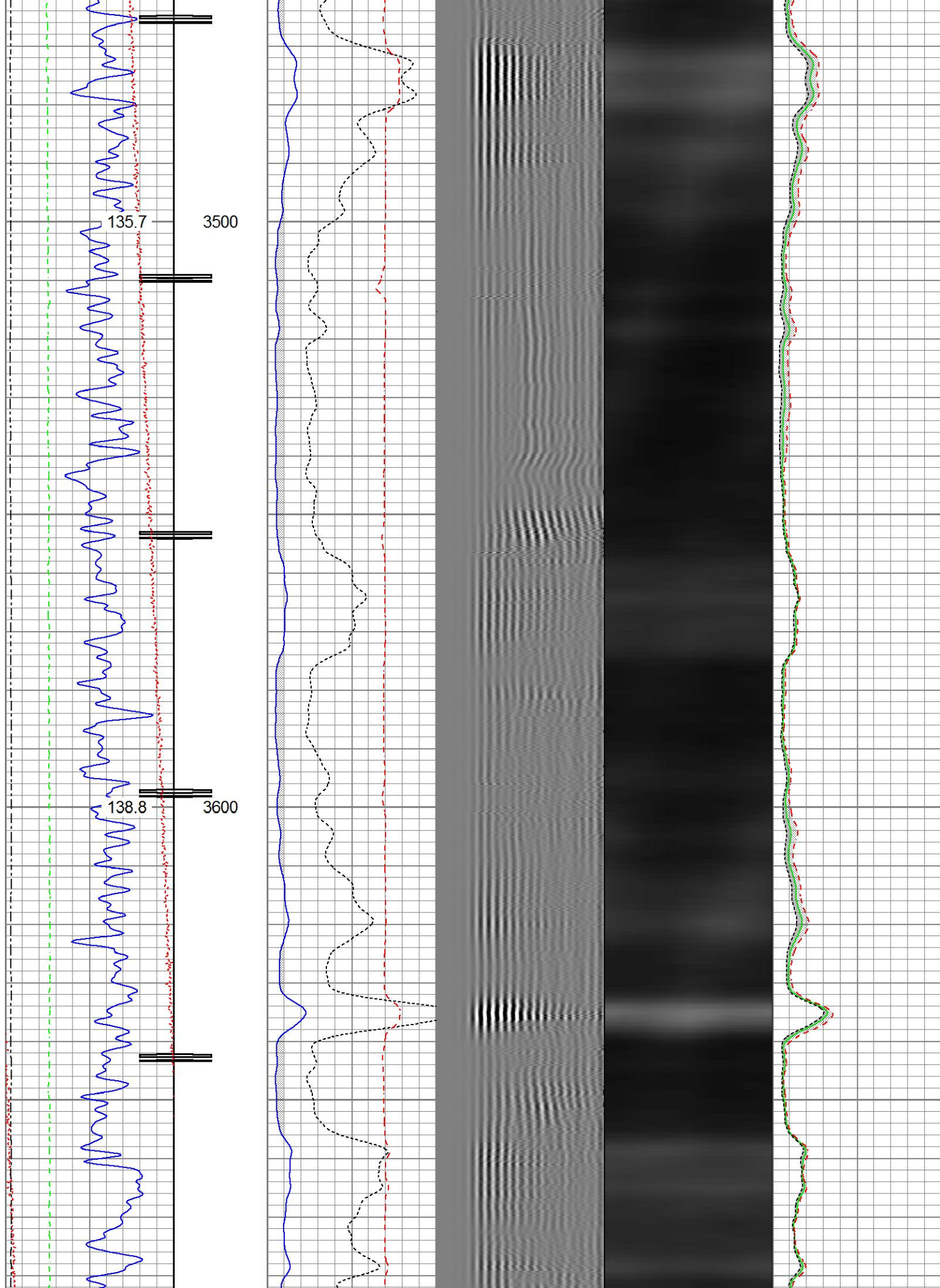




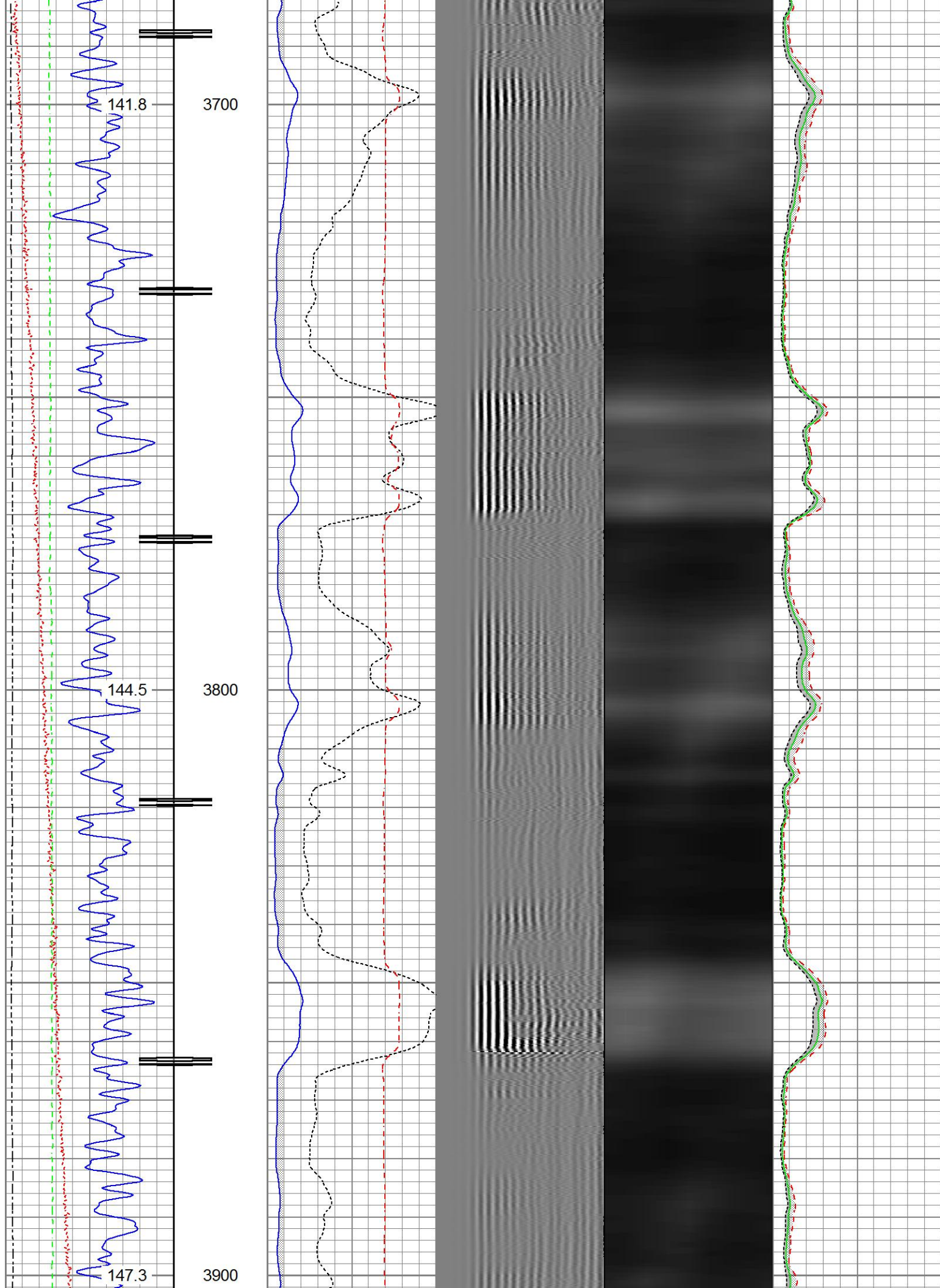


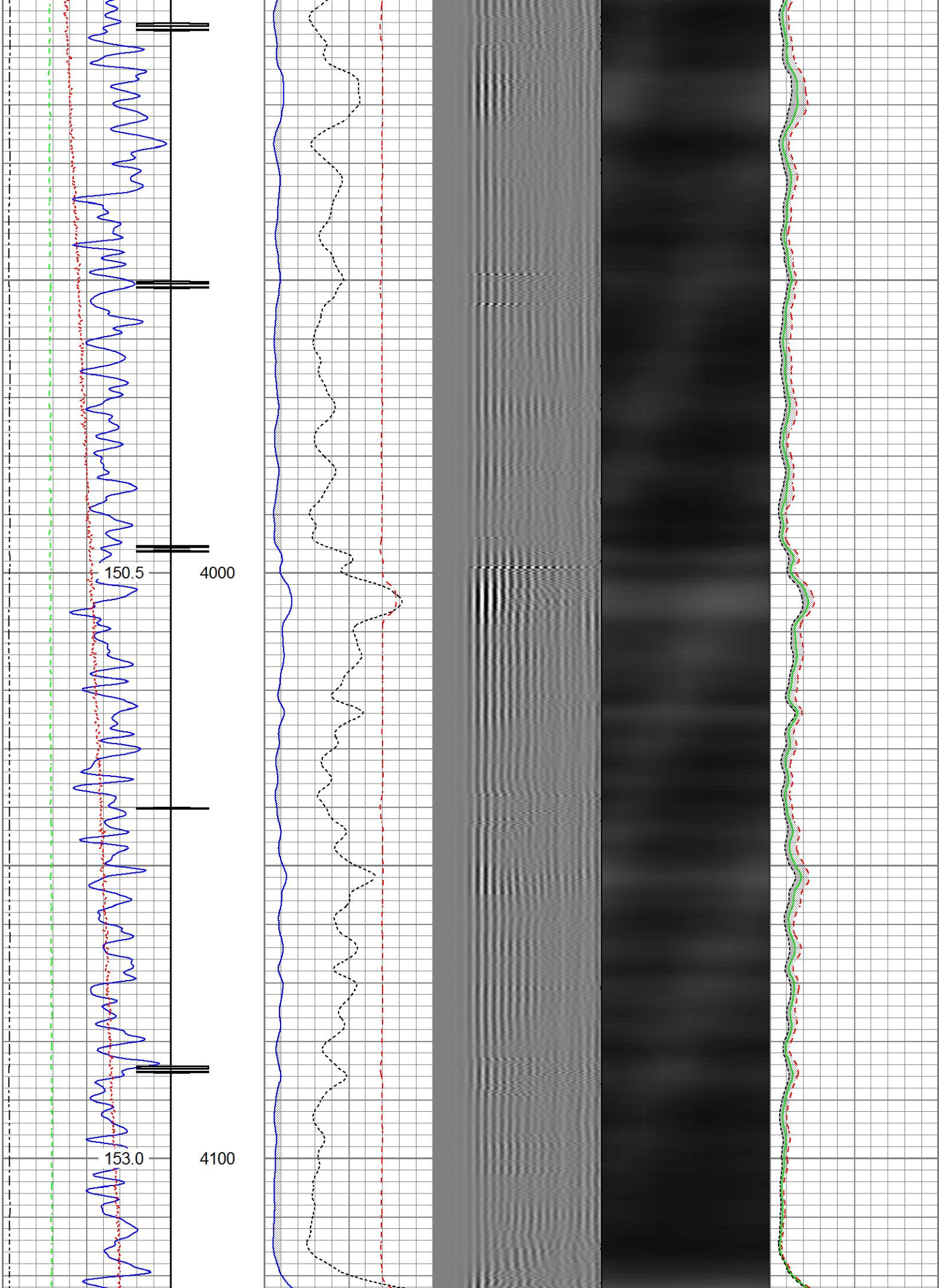




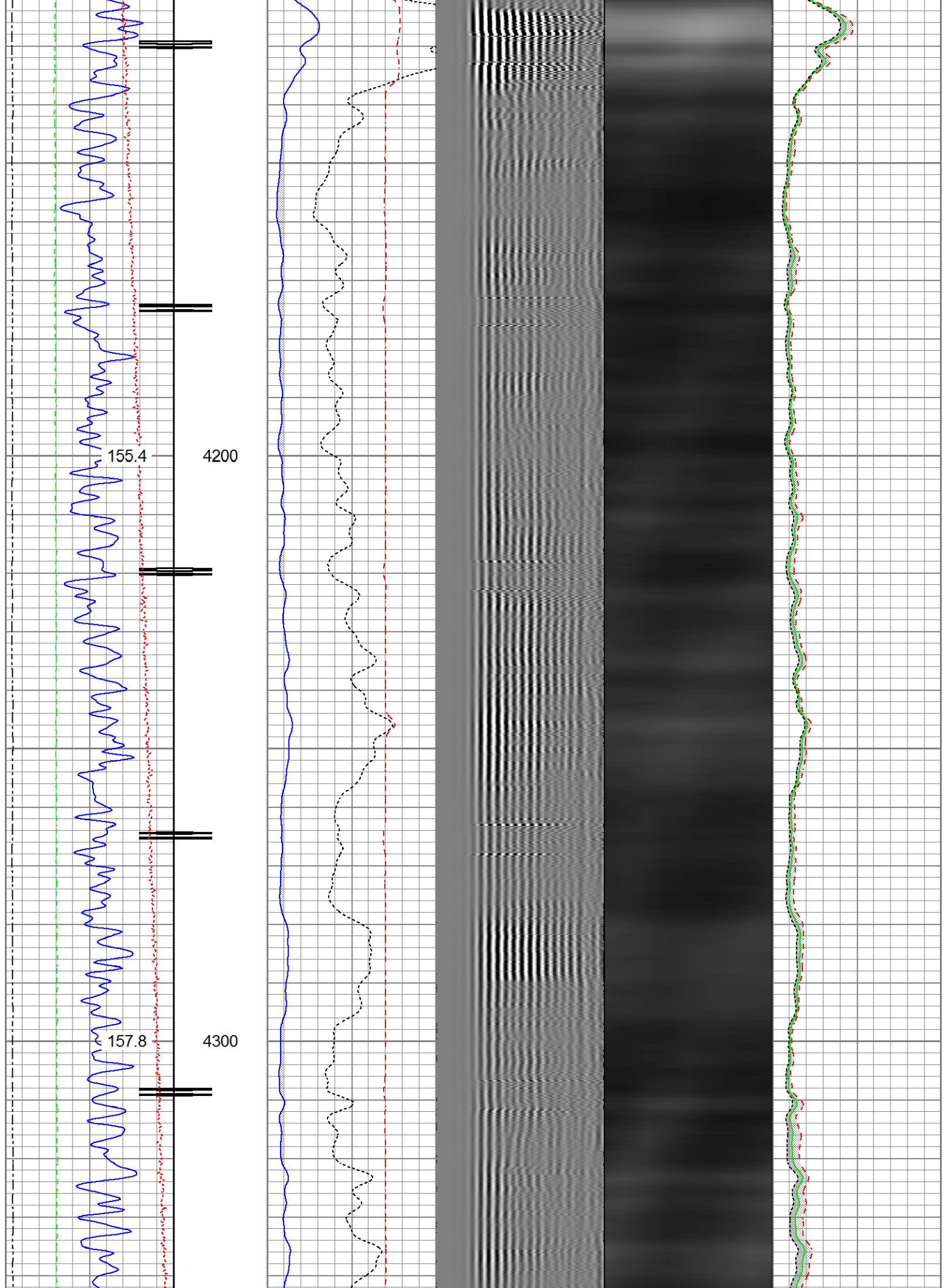


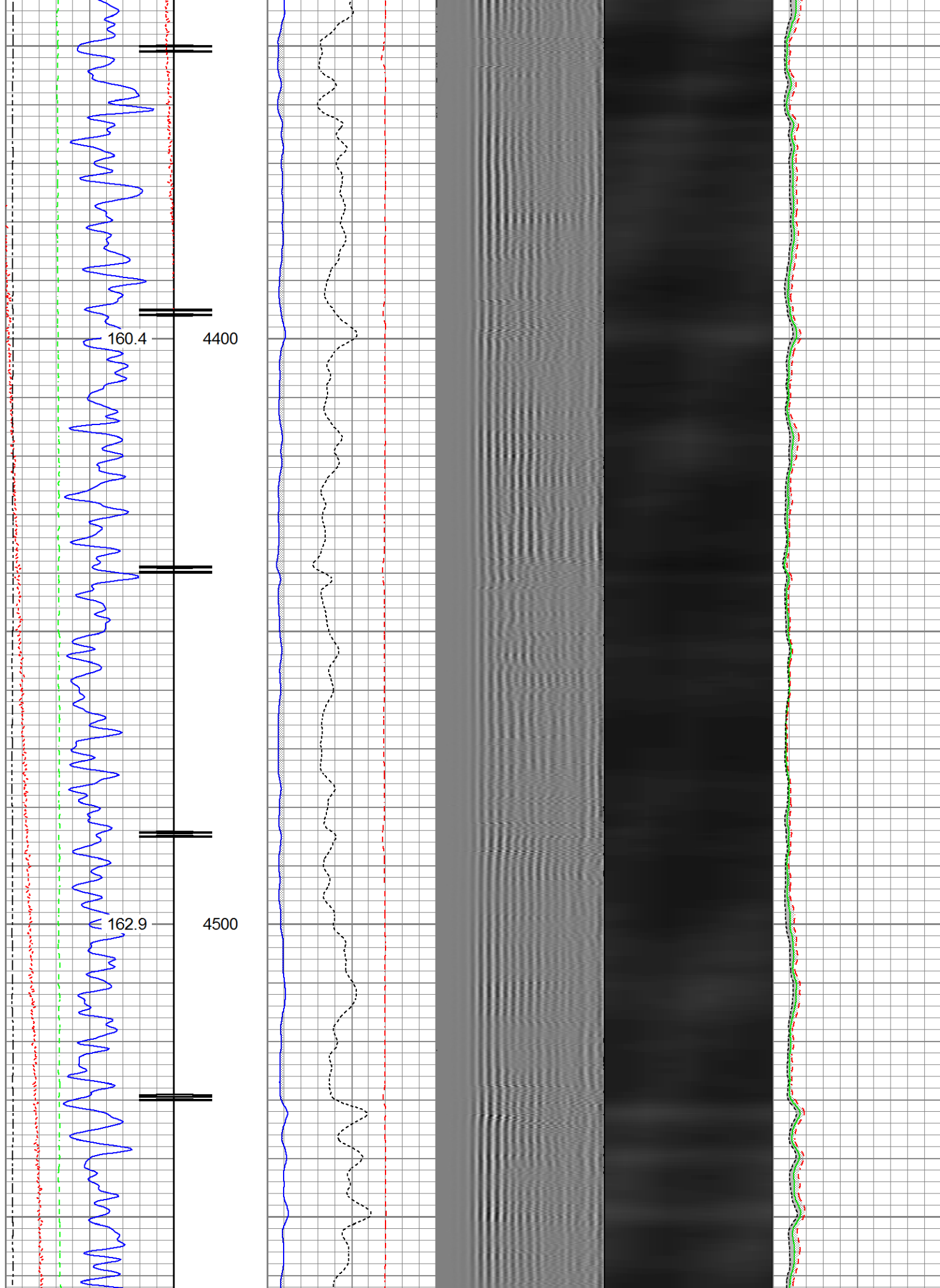




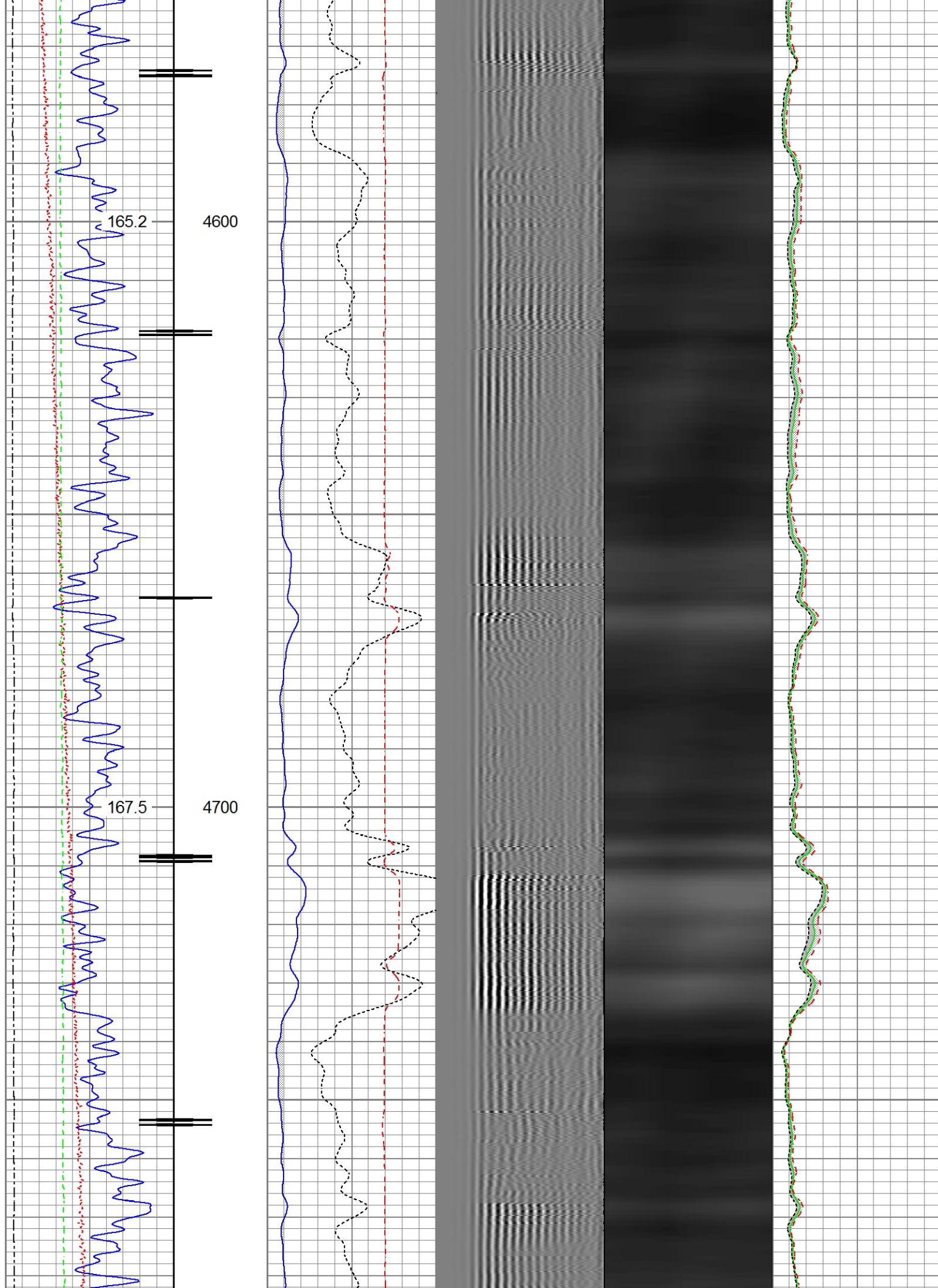


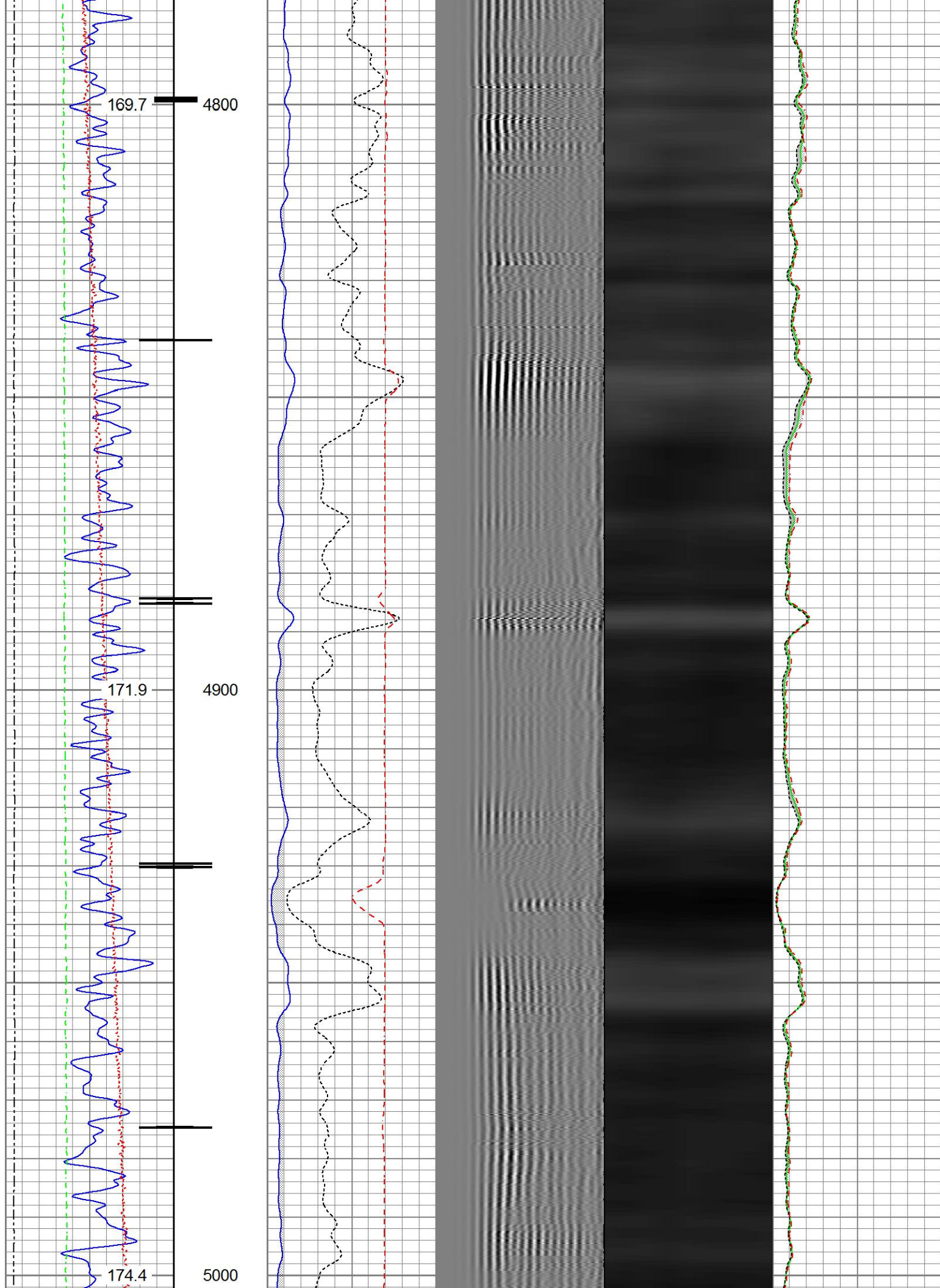




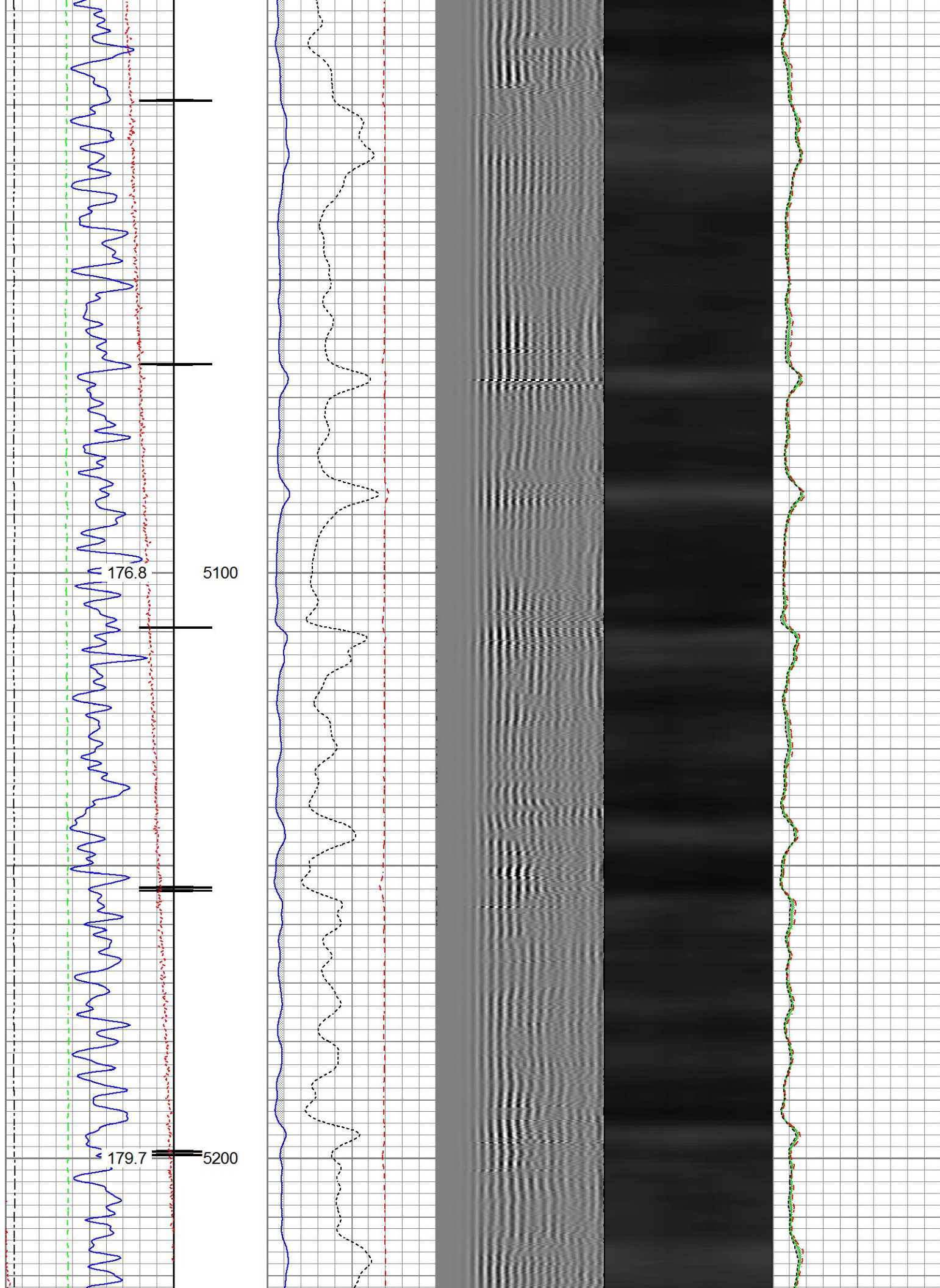


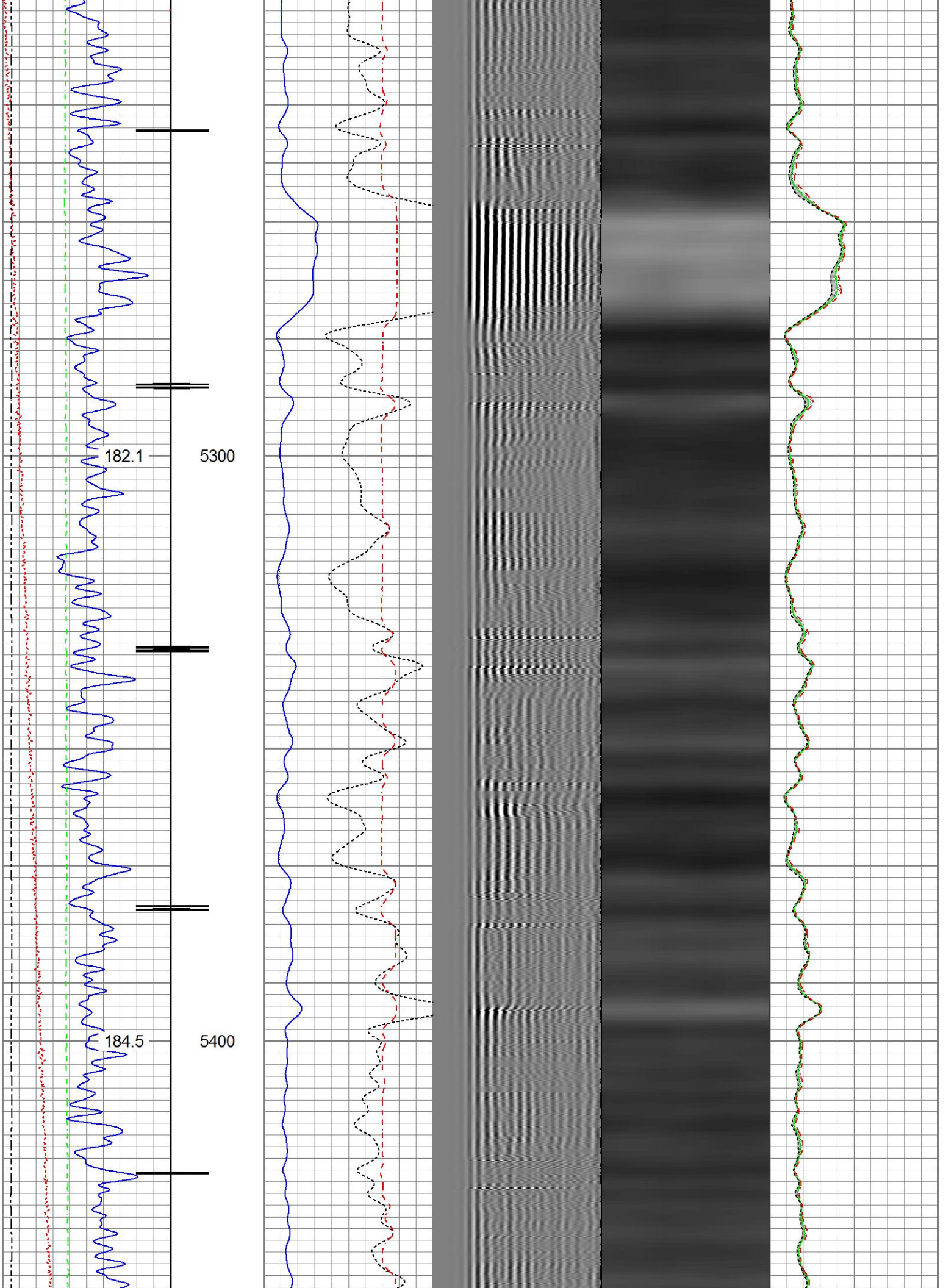




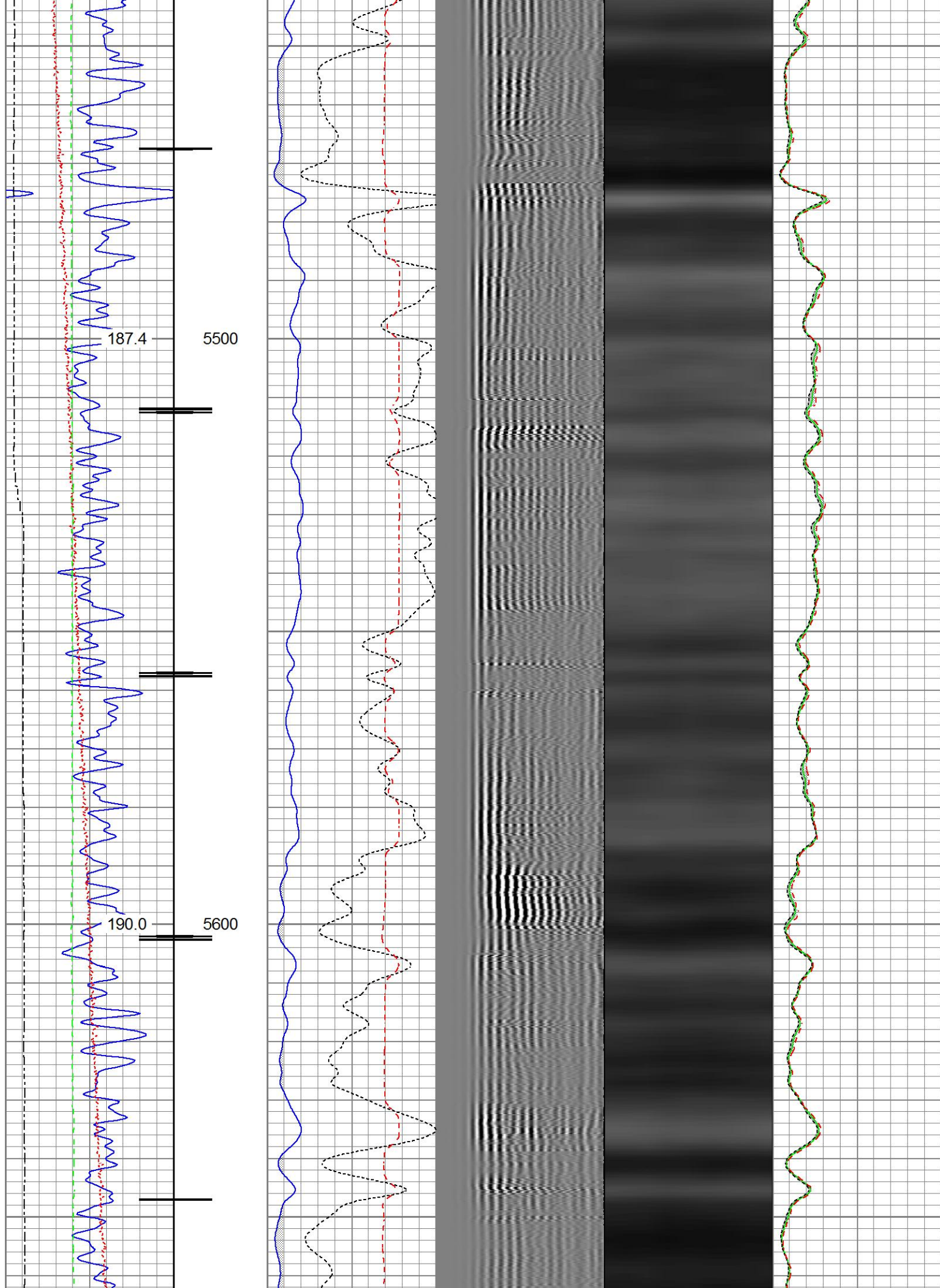


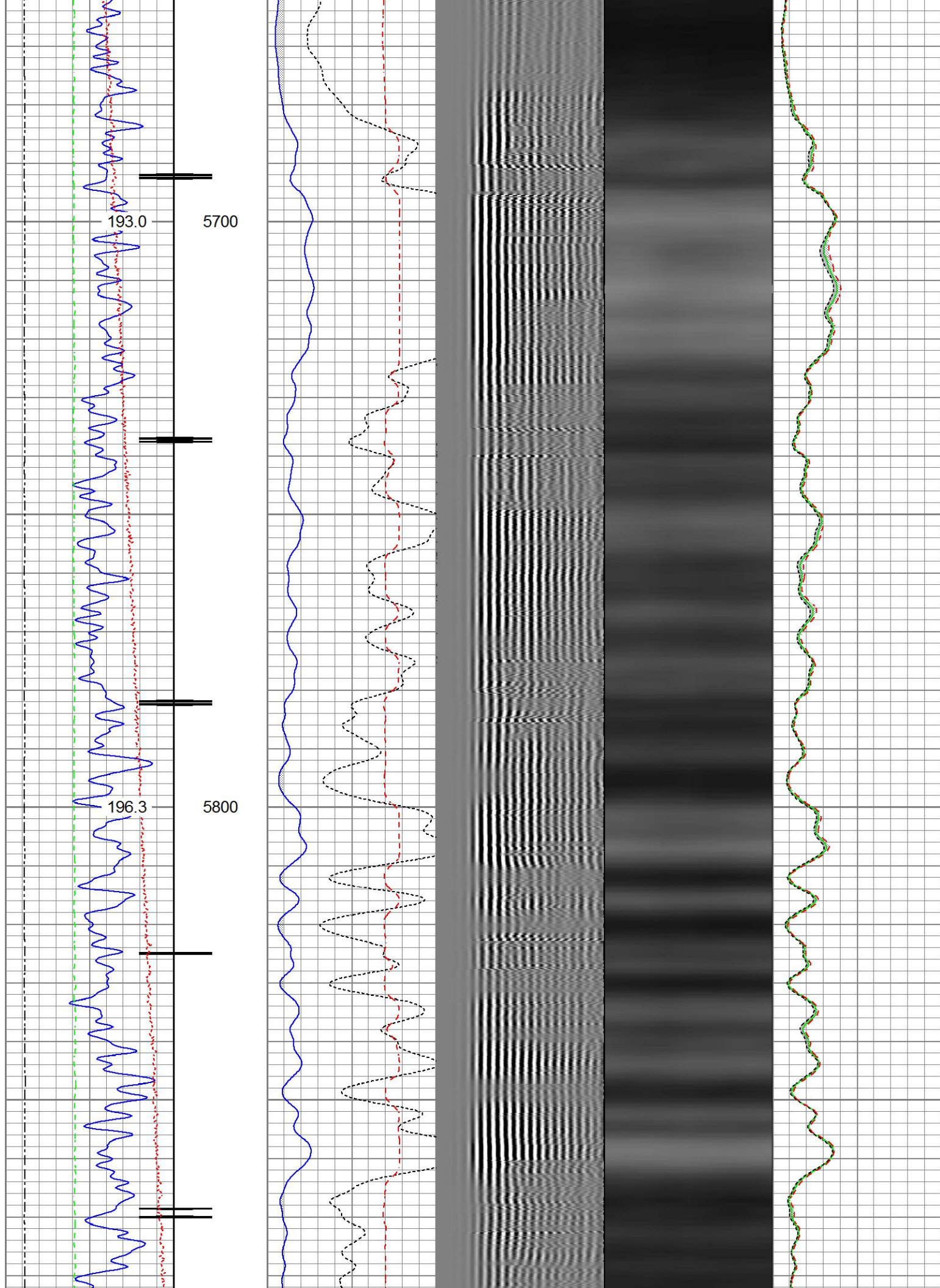




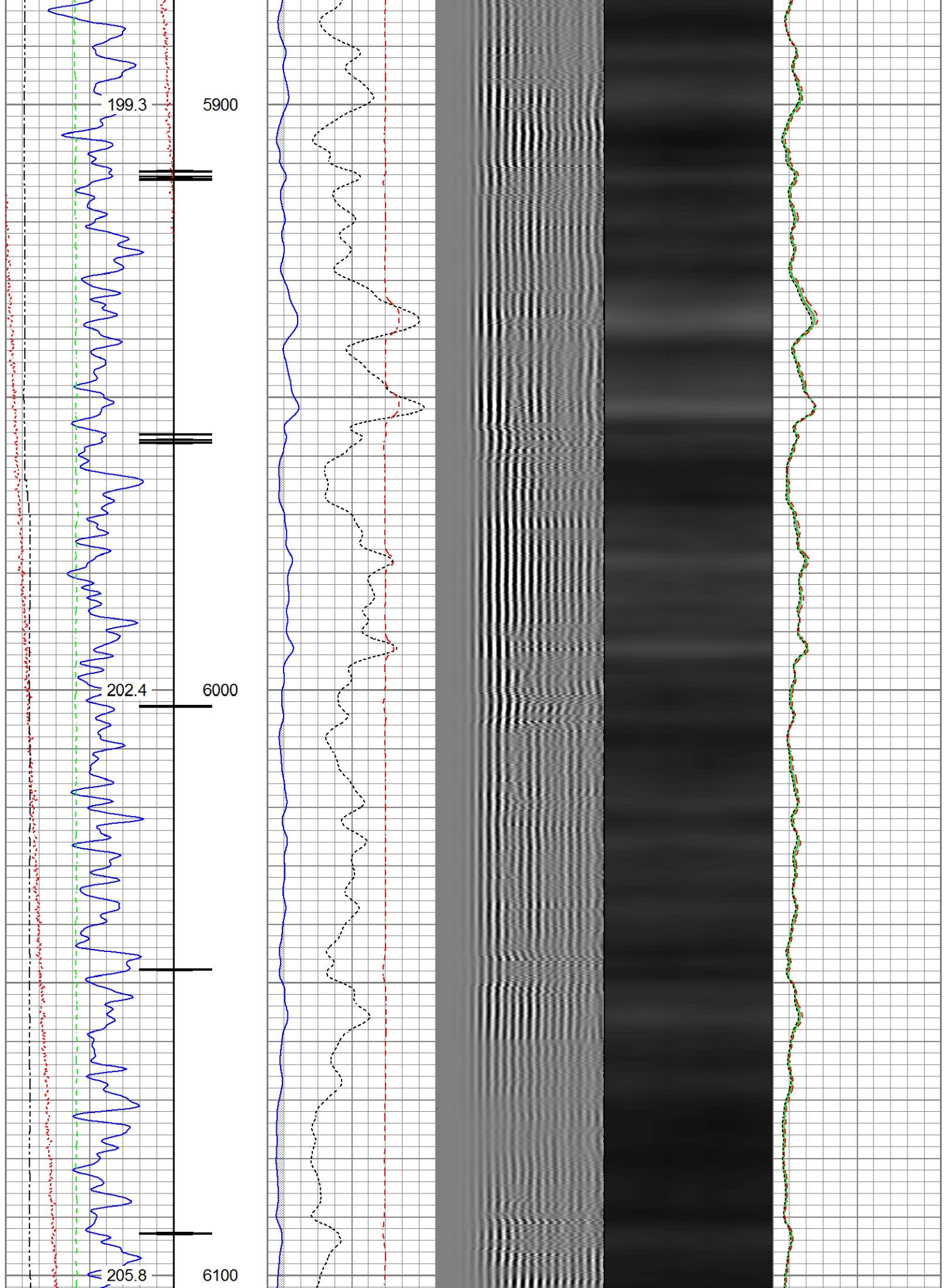


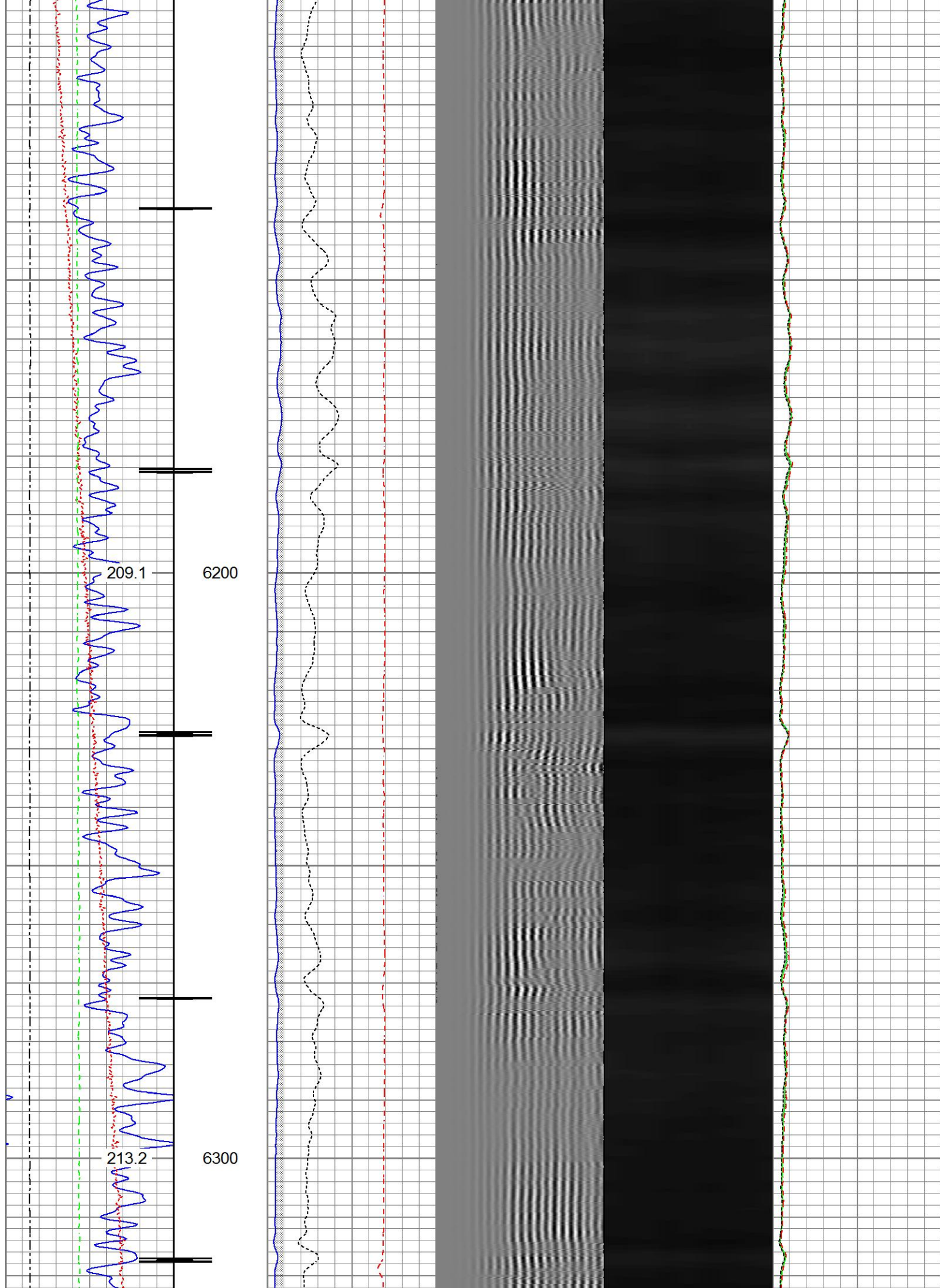




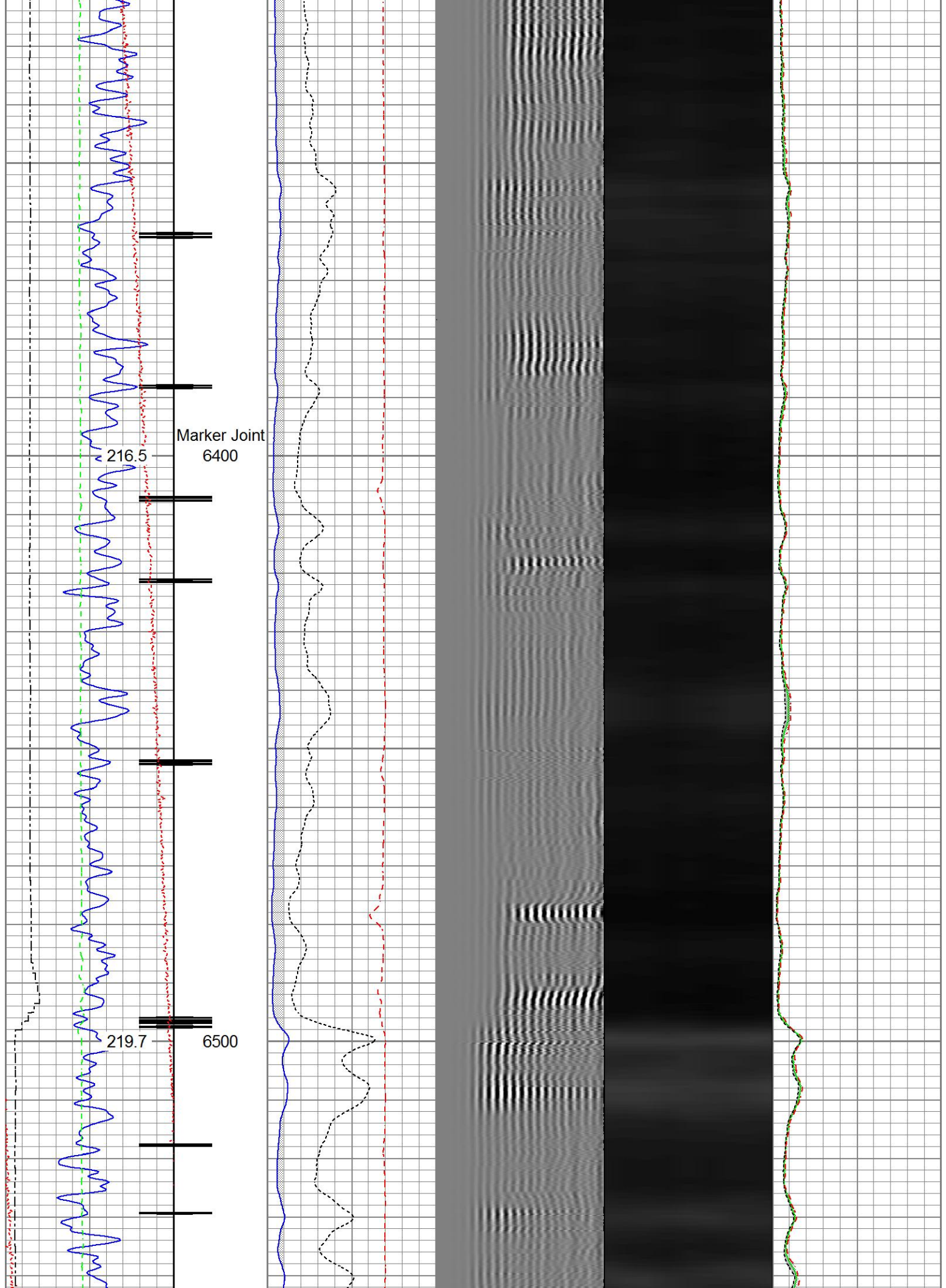


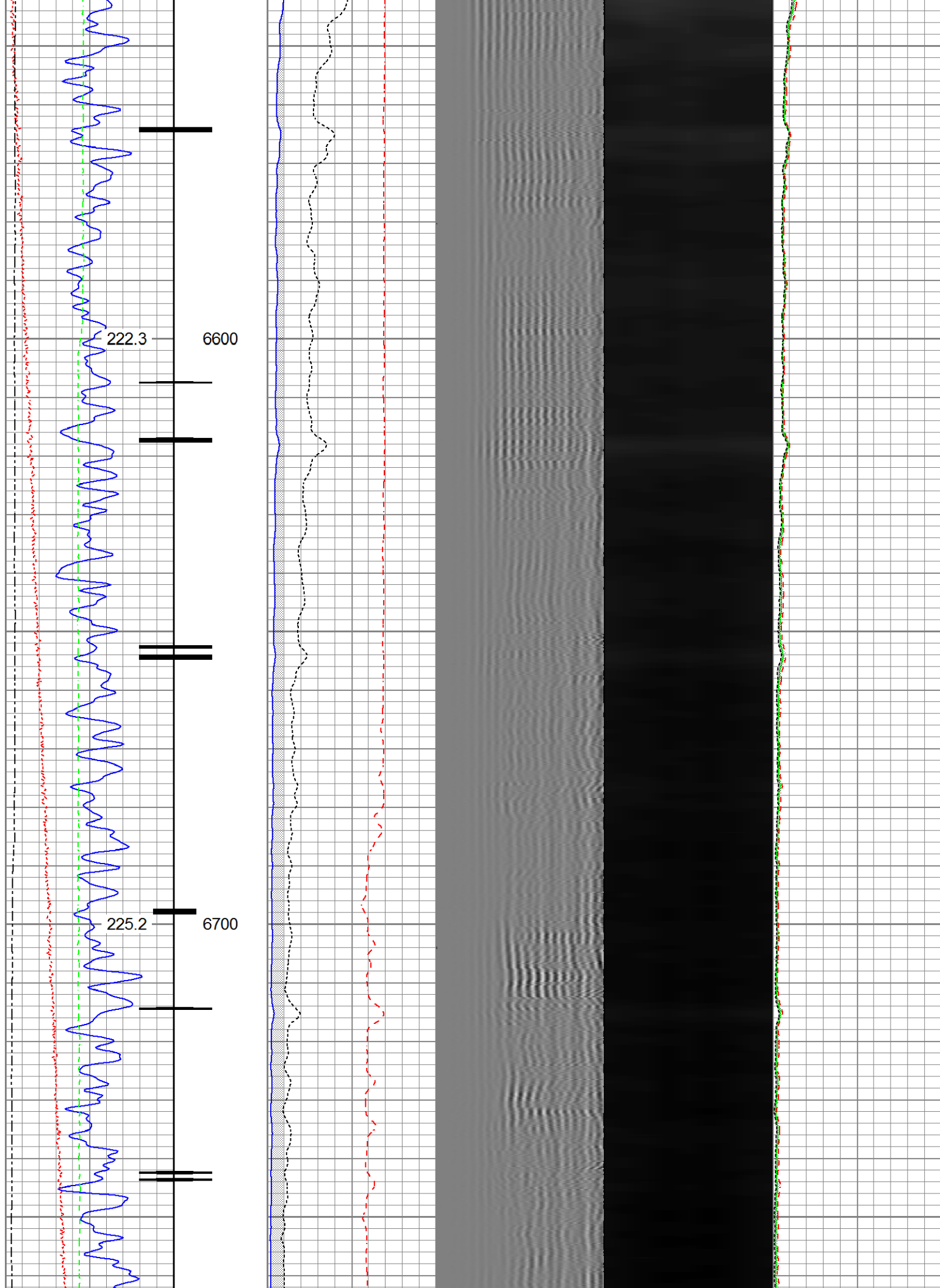




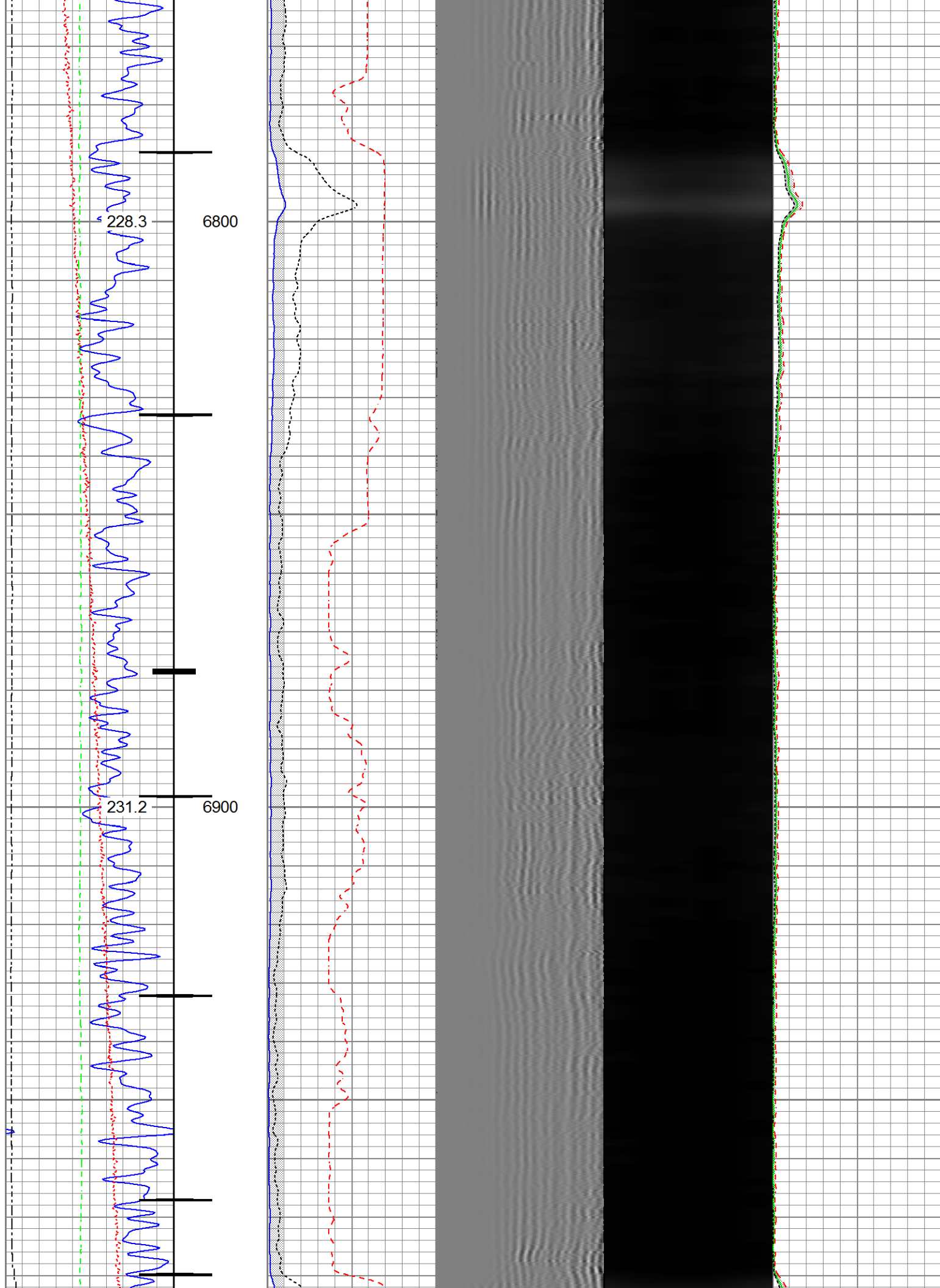


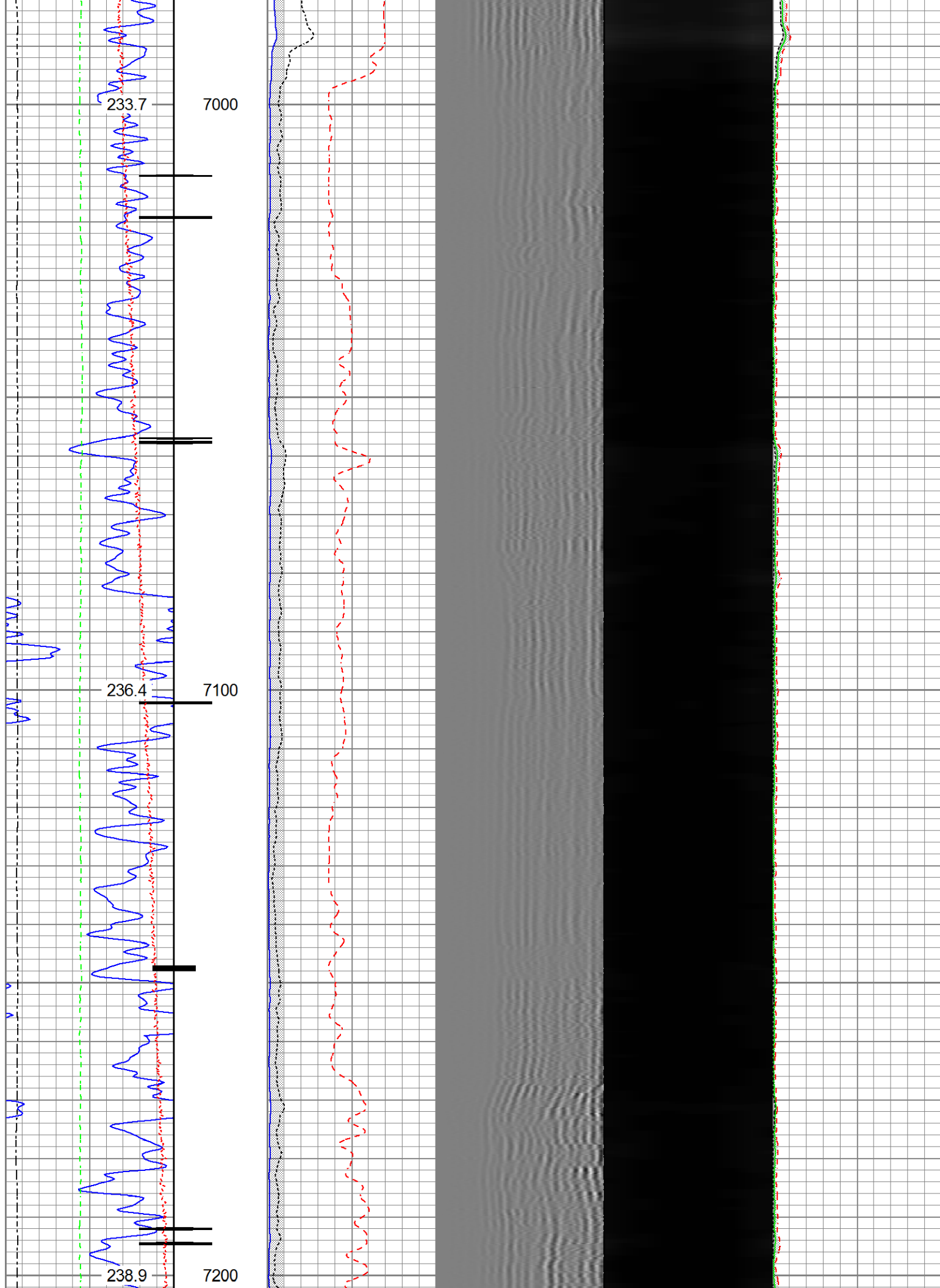




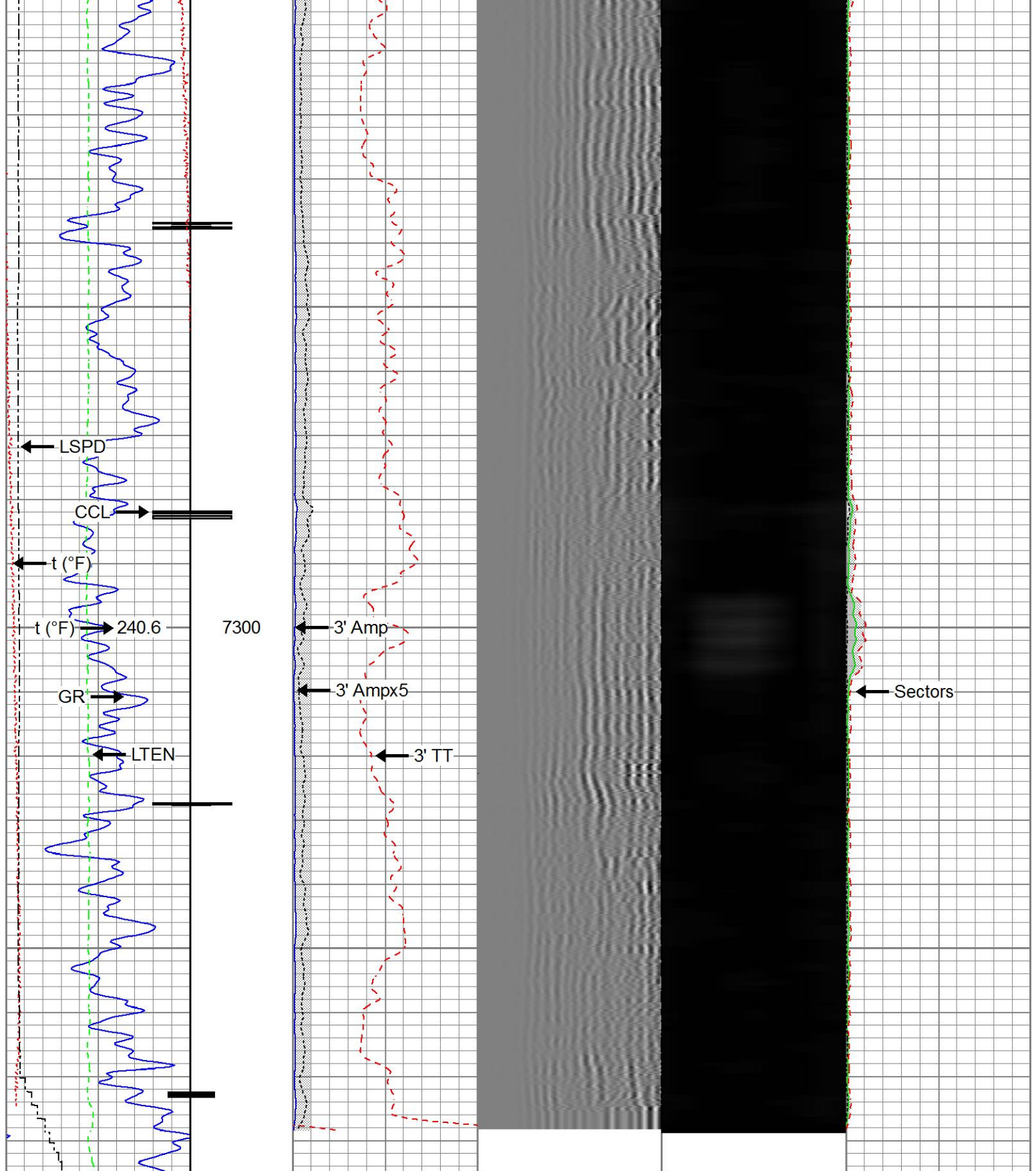












Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0120	0100	2001200		0100
CCL	3' Amplitude x 5 (mV)			Minimum Amplitude
020	020			0100
Temperature (degF)	3' Travel Time (usec)			Maximum Amplitude
020	650150			0100
Line Speed (ft/min)				
-150150				
Line Tension				

0 (lb) 2000

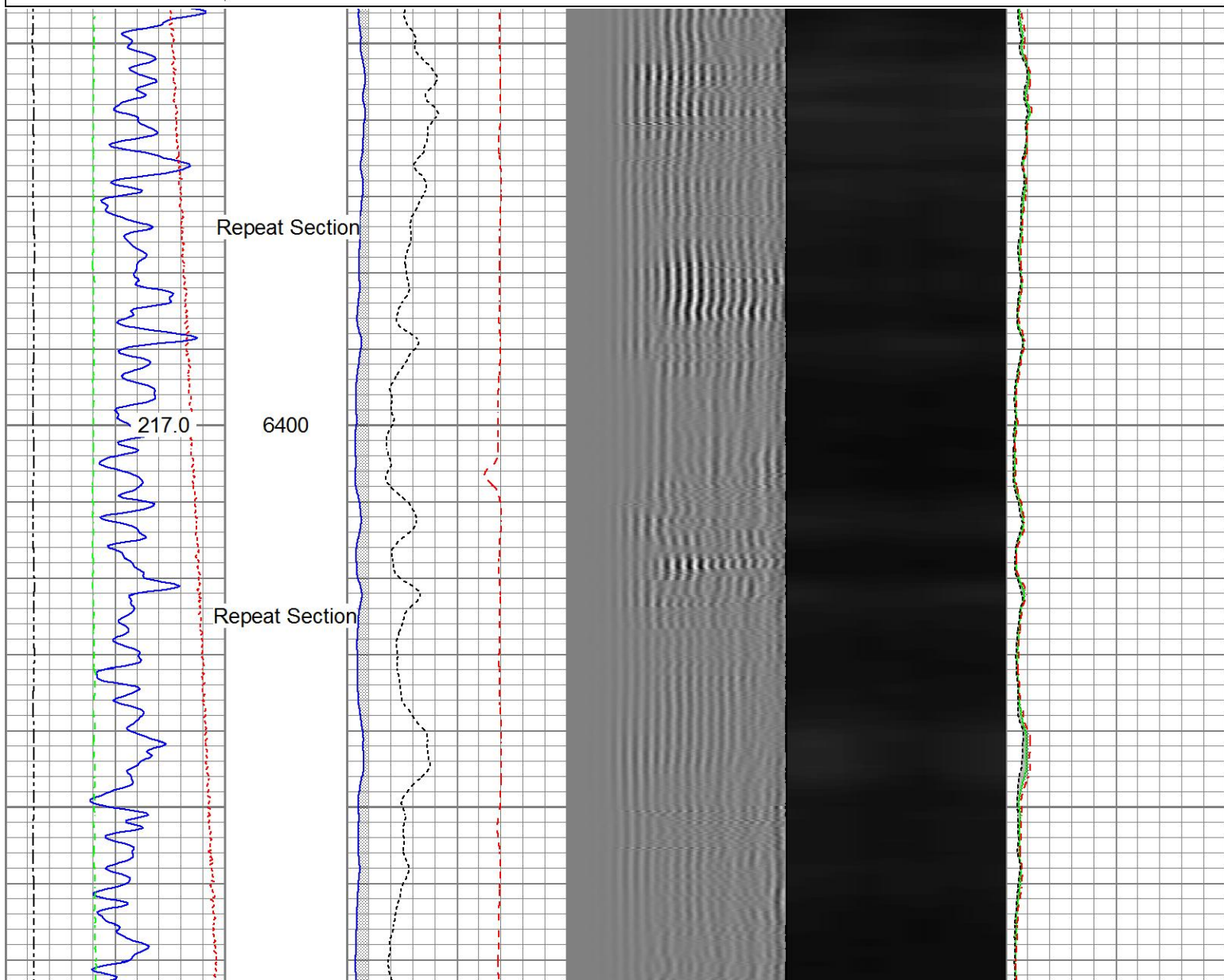


## Repeat Pass

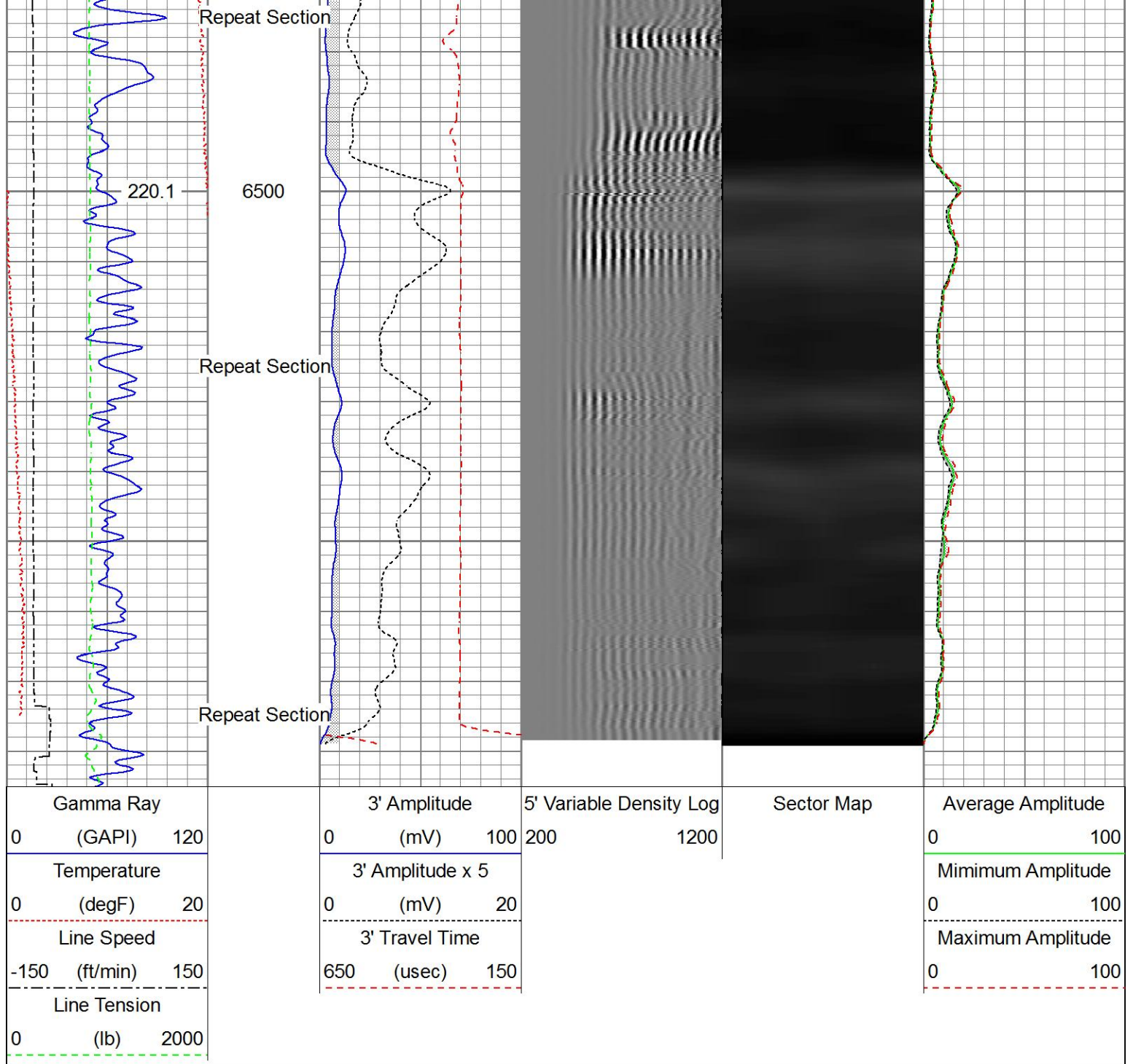
Recorded With 2800 PSI Surface Induced Pressure

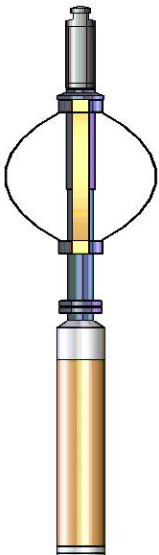
Database File 0512342238\_anadarko\_cook\_1n-16hz\_08-03-16\_rbl\_w8.db  
Dataset Pathname repeat.1  
Presentation Format ros\_radrii  
Dataset Creation Thu Aug 04 11:18:58 2016  
Charted by Depth in Feet scaled 1:240

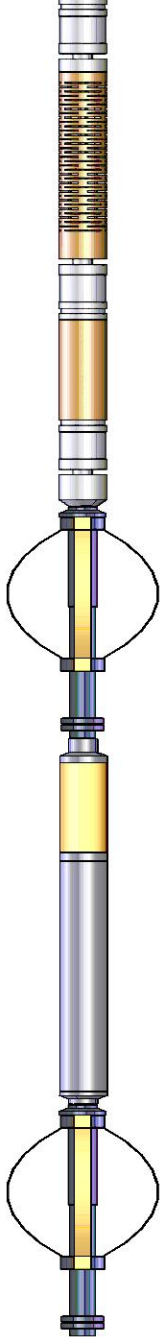
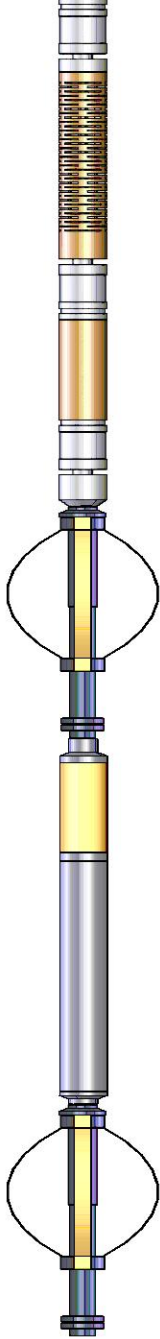
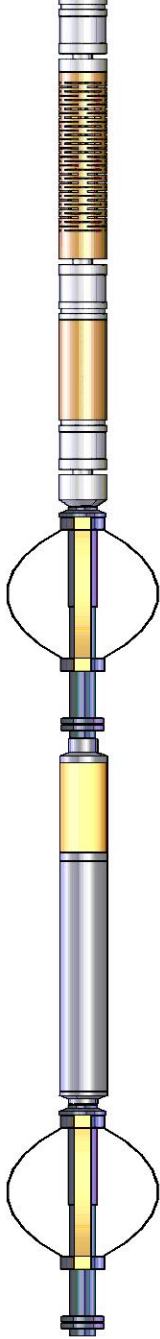
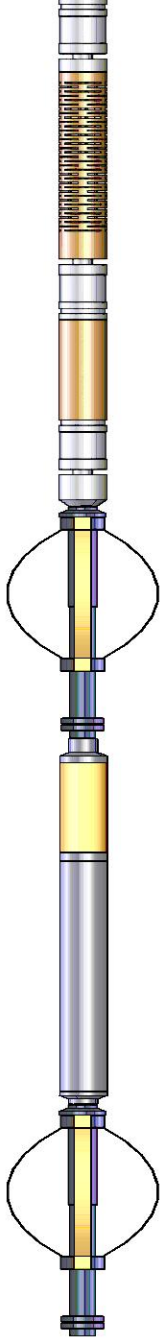
Gamma Ray 0 (GAPI) 120	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map	Average Amplitude 0 100
Temperature 0 (degF) 20	3' Amplitude x 5 0 (mV) 20			Minimum Amplitude 0 100
Line Speed -150 (ft/min) 150	3' Travel Time 650 (usec) 150			Maximum Amplitude 0 100
Line Tension 0 (lb) 2000				







Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan_Electric_Cable_Heads-Titan_1-11/161.03 Electric Cable Head with 1" Fishing Neck	1.69	1.69	5.40
			Probe_ELine_BowSpring_Centralizer-P_EE2.88.275 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	2.75	20.00
Temp	16.72					

WVFS8	14.55		Probe_RADII-C-P_RBT_2750 (FW1302-009.19) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe		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					
DCCL	6.51		Probe_ELine_BowSpring_Centralizer-P-EE2.88.275 Probe 2-3/4" Electric Inline Bowspring Centralizer		2.75	20.00
CCL	6.51					
GR	3.77					
			Probe_GR_CCL-P_CGR_2750_S (FW1214.543) Probe 2-3/4" Digital CCL / Gamma Ray Combined		2.75	55.00
			Probe_ELine_BowSpring_Centralizer-P-EE2.88.275 Probe 2-3/4" Electric Inline Bowspring Centralizer		2.75	20.00
Dataset: 0512342238_anadarko_cook_1n-16hz_08-03-16_rbl_w8.db: field/well/run1/main.1						
Total length: 23.40 ft						
Total weight: 225.40 lb						
O.D.: 2.75 in						

Calibration Report		
Database File	0512342238_anadarko_cook_1n-16hz_08-03-16_rbl_w8.db	
Dataset Pathname	main.1	
Dataset Creation	Thu Aug 04 11:04:50 2016	

Gamma Ray Calibration Report
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Serial Number:	FW1212-026	
Tool Model:	P_CGR_2750_S	
Performed:	Wed Jul 20 06:55:20 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: 51.690 ft

## Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	0.667	0.800	71.921	107.259	0.423
CAL	0.001	0.743				
5'	0.006	0.490	0.800	71.921	146.794	-0.054
SUM						
S1	0.002	0.622	0.000	100.000	161.220	-0.260
S2	0.003	0.636	0.000	100.000	157.962	-0.531
S3	0.003	0.674	0.000	100.000	149.110	-0.467
S4	0.004	0.699	0.000	100.000	143.909	-0.600
S5	0.004	0.708	0.000	100.000	142.045	-0.573
S6	0.006	0.687	0.000	100.000	146.759	-0.893
S7	0.005	0.659	0.000	100.000	152.875	-0.690
S8	0.004	0.644	0.000	100.000	156.357	-0.672

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

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.001	0.741	0.001	0.743	1.003	-0.000

## Air Zero Calibration, performed Wed Aug 03 10:39:25 2016:

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



Company Kerr-McGee Oil & Gas Onshore, L.P.  
 Well Cook 1N-16HZ  
 Field Wattenberg  
 County Weld  
 State Colorado