



**Radial Cement Bond  
Gamma Ray  
Casing Collar Log**

**Company** Kerr-McGee Oil & Gas Onshore, L.P.  
**Well** Carson 1-8HZ  
**Field** Wattenberg  
**County** Weld  
**State** Colorado

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**Location:** SEC 1 TWP 1N RGE 68W  
 API #: 05-123-48108  
 GR/JB RBP  
 Other Services  
 Permanent Datum Ground Level Elevation 5012'  
 Log Measured From Ground Level  
 Drilling Measured From Kelly Bushing  
 Elevation  
 K.B. 5032'  
 D.F. ---  
 G.L. 5012'

Date	18-AUG-2019						
Run Number	One						
Depth Driller	18035 FT						
Depth Logger	7090 FT						
Bottom Logged Interval	7075 FT						
Top Log Interval	Surface						
Open Hole Size	7.875"						
Type Fluid	Water						
Density / Viscosity	8.34 lb/gal						
Max. Recorded Temp.	219°F						
E. estimated Cement Top	See Log						
Time Well Ready	ROA						
Time Logger on Bottom	08:20						
E. equipment Number	HD-0363						
Location	Platteville, CO						
Recorded By	M Hayes						
Witnessed By	Justin McMillin						
<b>Borehole Record</b>							
Run Number	Bit	From	To	Size	Weight	From	To
<b>Tubing Record</b>							
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top	Bottom		
Surface Casing	9.5/8	36	J-55	Surface	1841 FT		
Intermediate #1	5.1/2	17	HCP-110	Surface	18026 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 7015 FT**  
**Adjusted 14 FT to correlate with Marker Joint**  
**Gauge Ring/Junk Basket ran to 8090 FT**  
**Retrievable Bridge Plug set at 7115 FT**  
**Log ran with 0 PSI Surface Induced Pressure**  
**Logging tools were clean and free of debris upon completion of operations**  
  
**Thank you for choosing Reliance Oilfield Services, LLC!!**

**Main Pass**

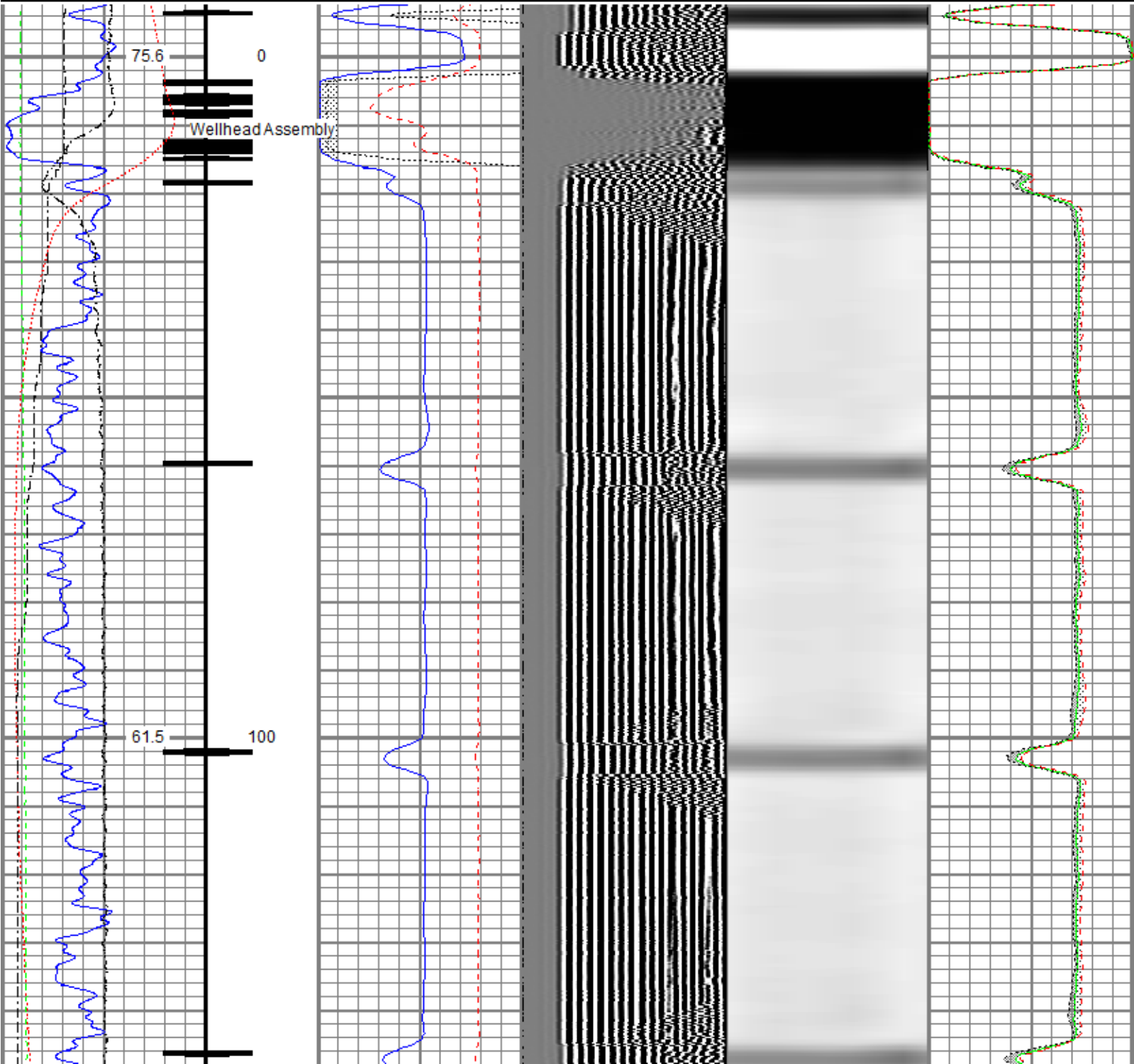


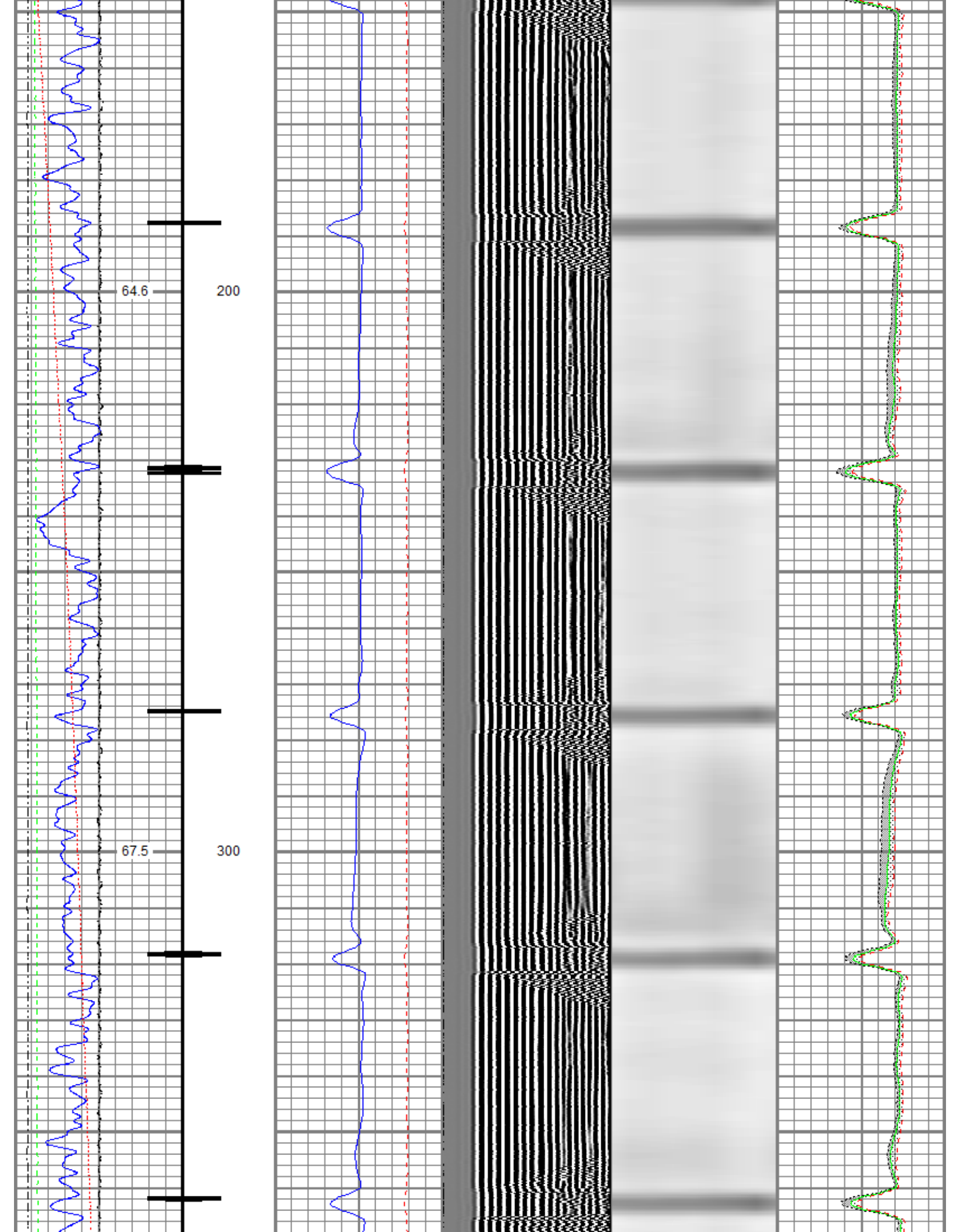
Recorded With 0 PSI Surface Induced Pressure

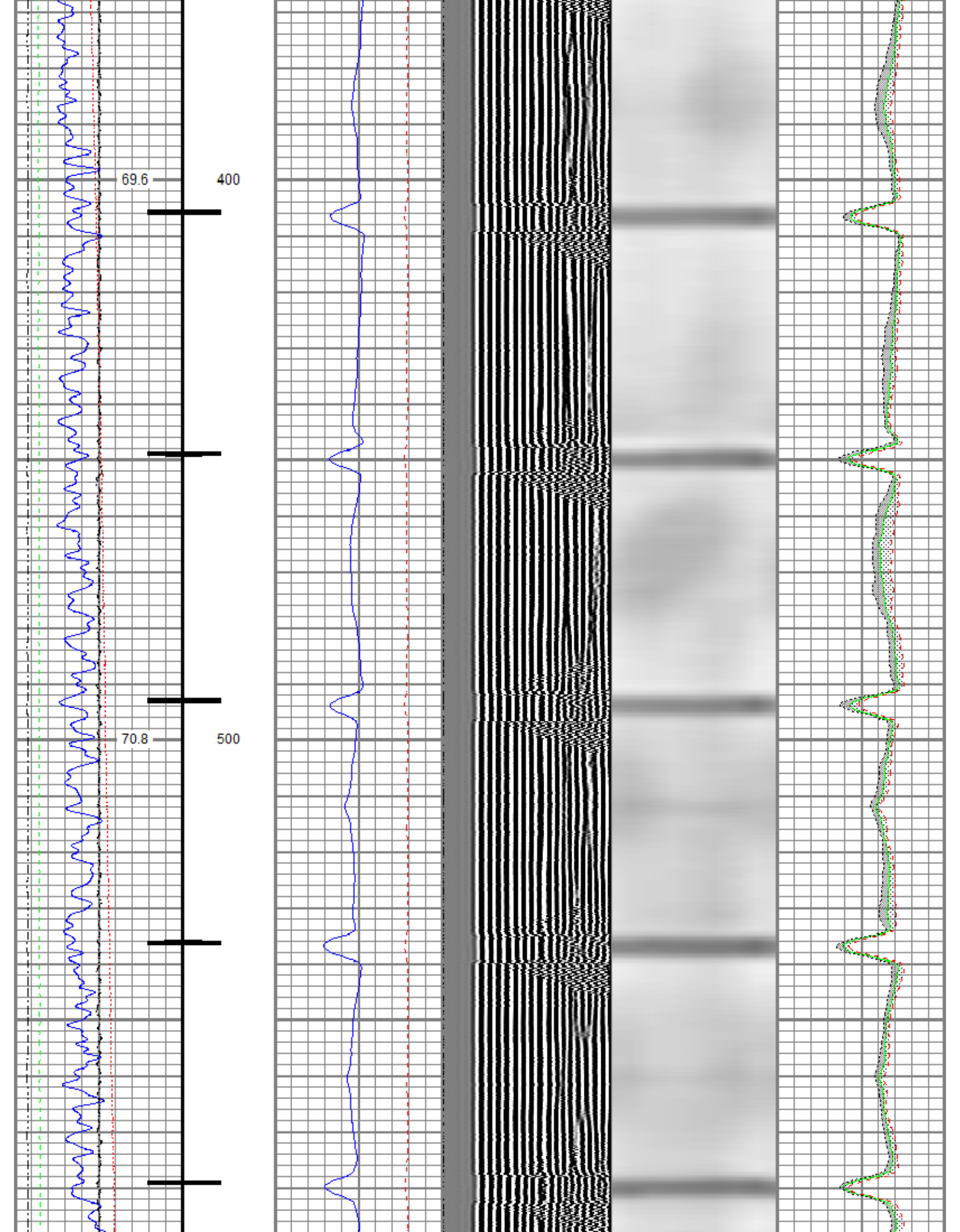
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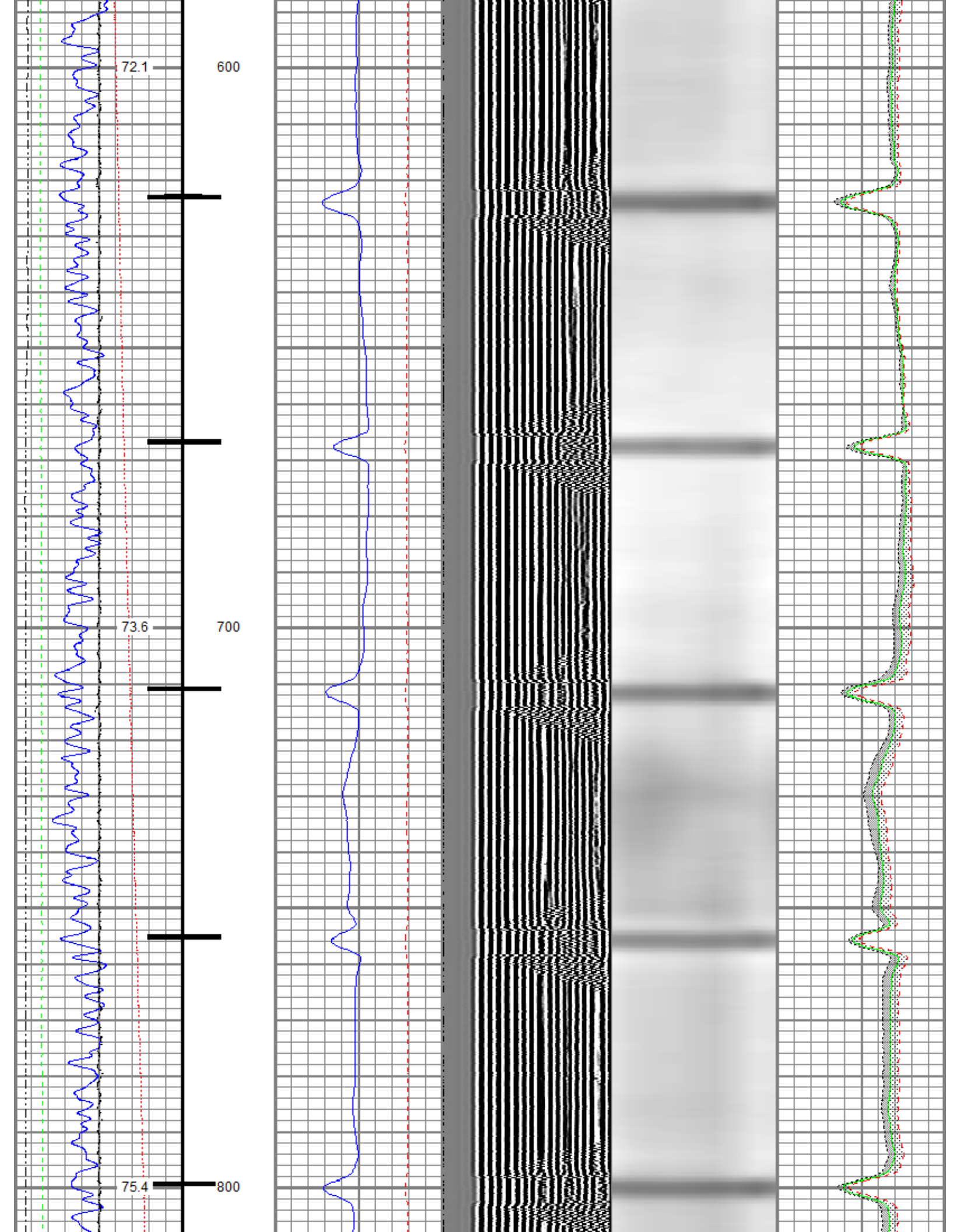
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Dataset Pathname	run_1/pass6.2
Presentation Format	ros_radrii
Dataset Creation	Sun Aug 18 09:28:21 2019
Charted by	Depth in Feet scaled 1:240

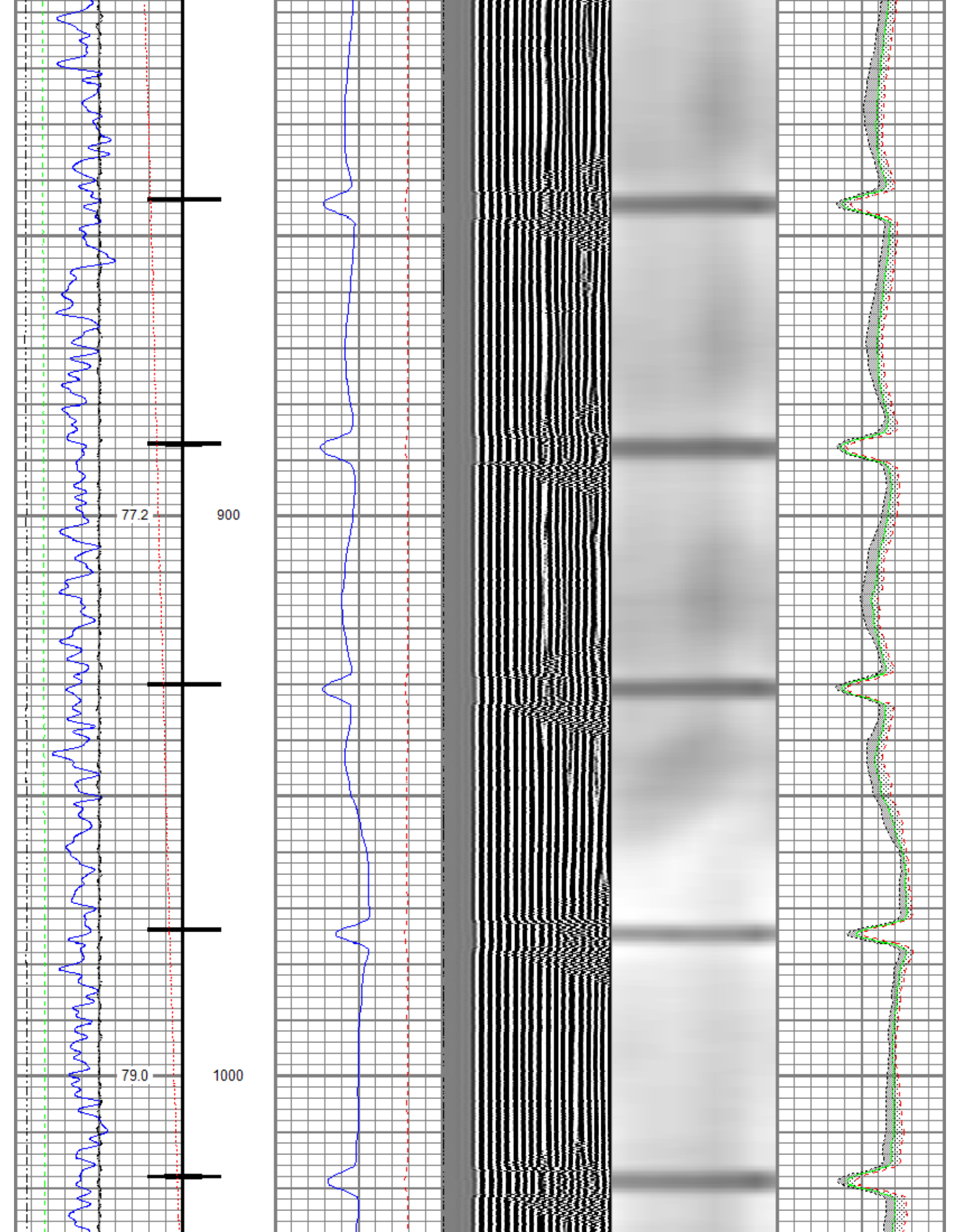
Gamma Ray 0 (GAPI) 120 <hr/> Casing Collar Locator 0 Temperature (degF) 20 <hr style="border-top: 1px dashed red;"/> Line Speed -150 (ft/min) 150 <hr style="border-top: 1px dashed green;"/> Line Tension (lb) 2000 Differential Temperature -2 (degF) 2	0 3' Amplitude (mV) 100 <hr/> 3' Amplitude x 5 0 (mV) 20 <hr style="border-top: 1px dashed black;"/> 3' Travel Time 650 (usec) 150 <hr style="border-top: 1px dashed red;"/>	5' Variable Density Log 200 (usec) 1200	Sector Map	0 Average Amplitude 100 <hr/> Minimum Amplitude 0 100 <hr style="border-top: 1px dashed black;"/> Maximum Amplitude 0 100 <hr style="border-top: 1px dashed red;"/>
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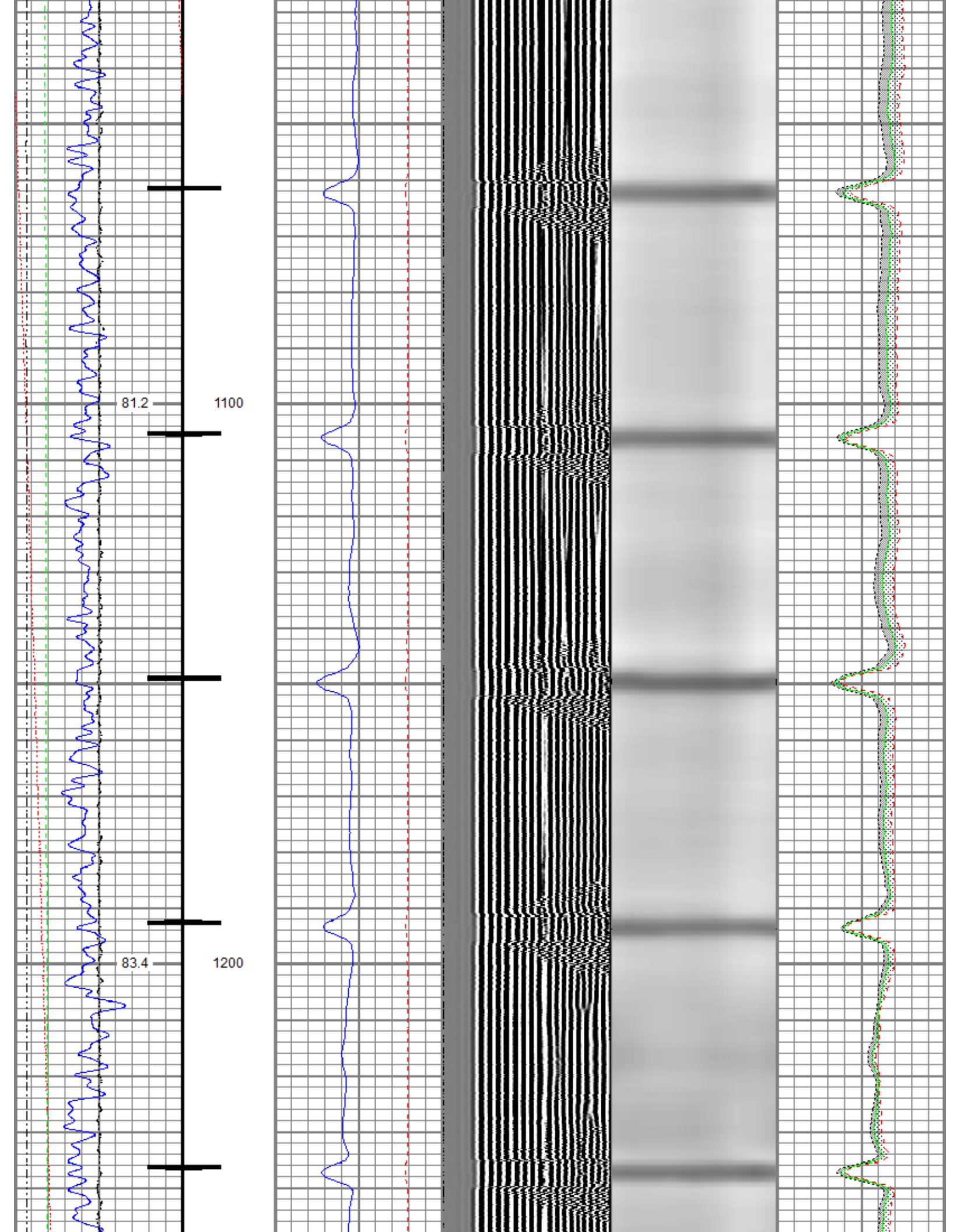


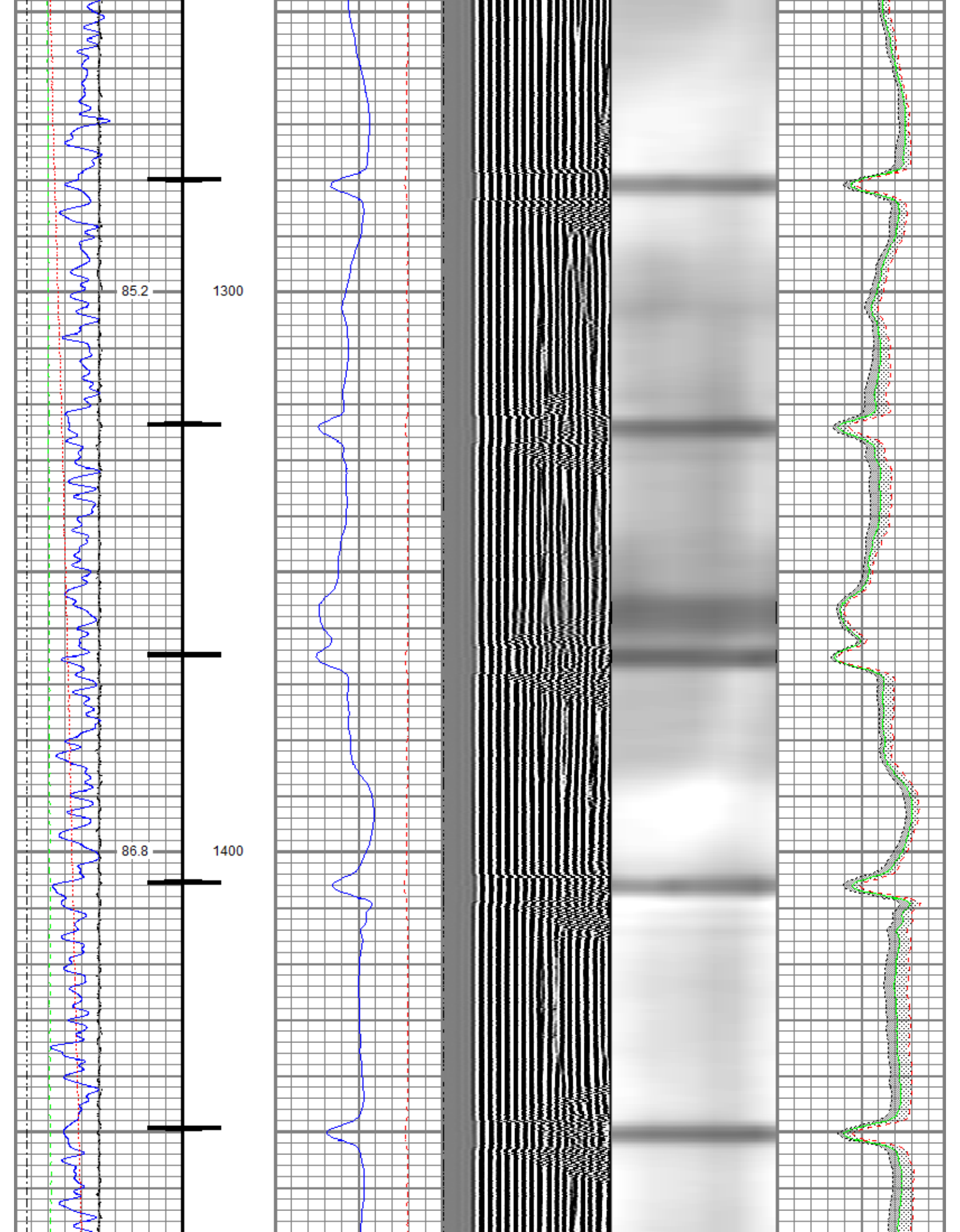


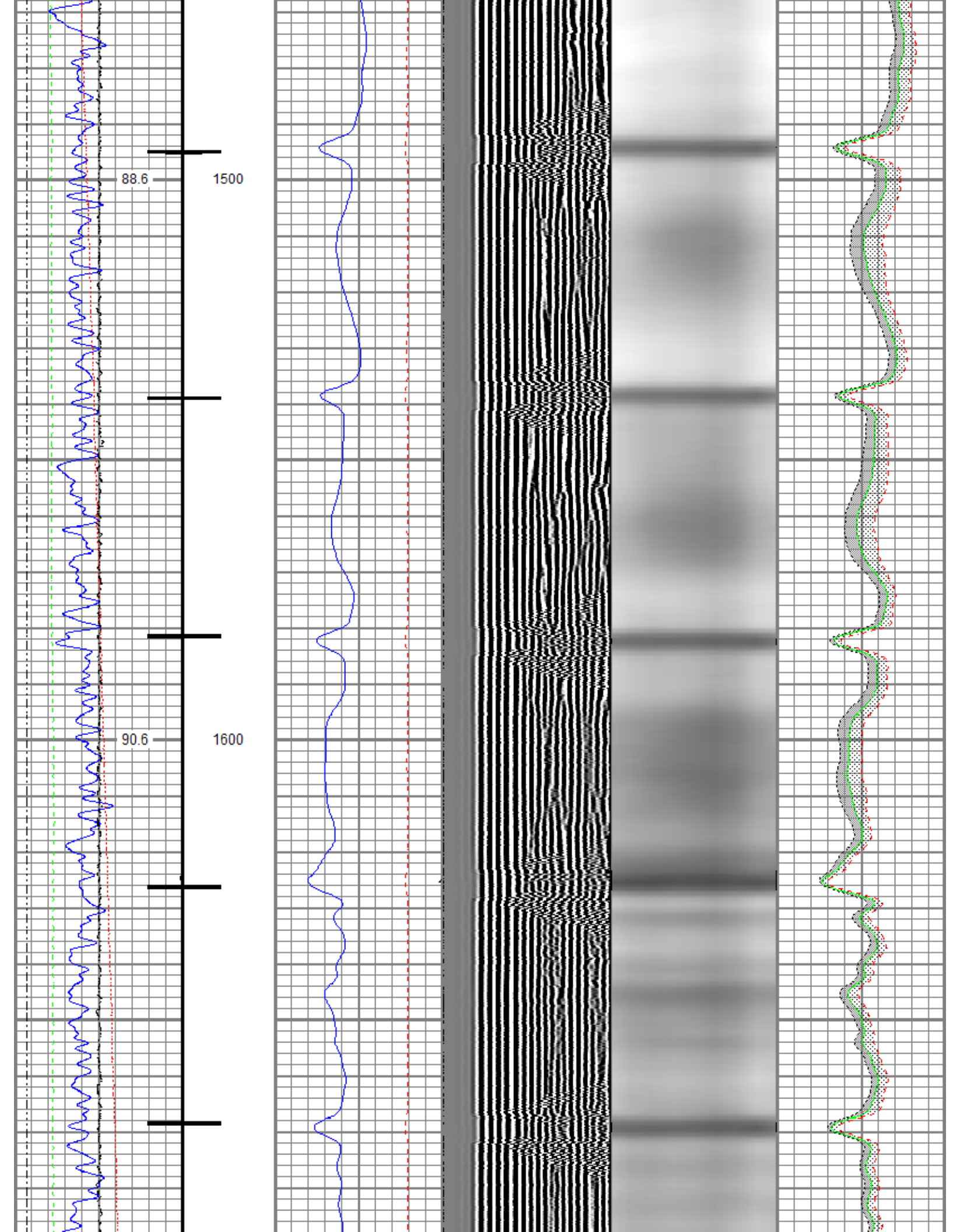


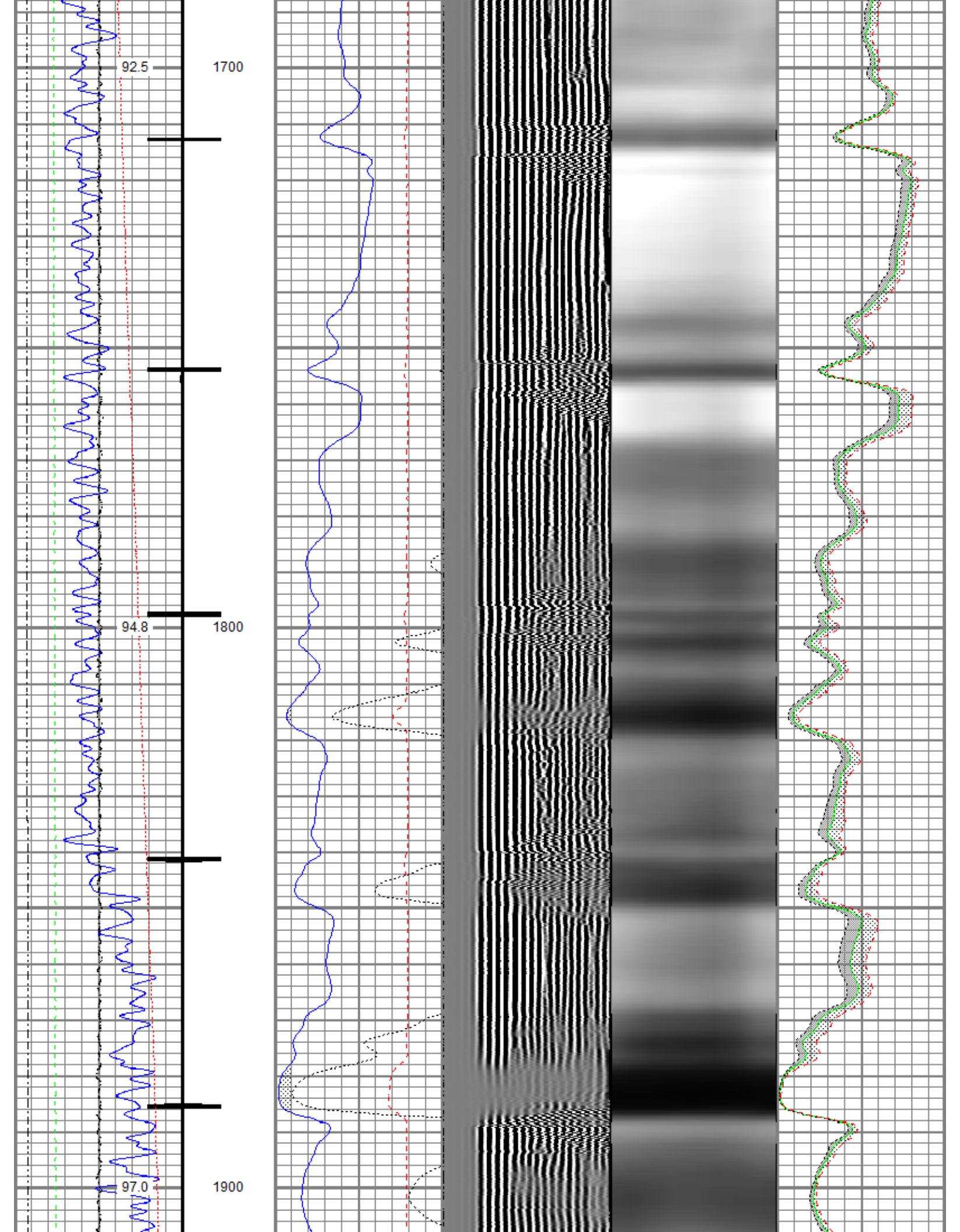


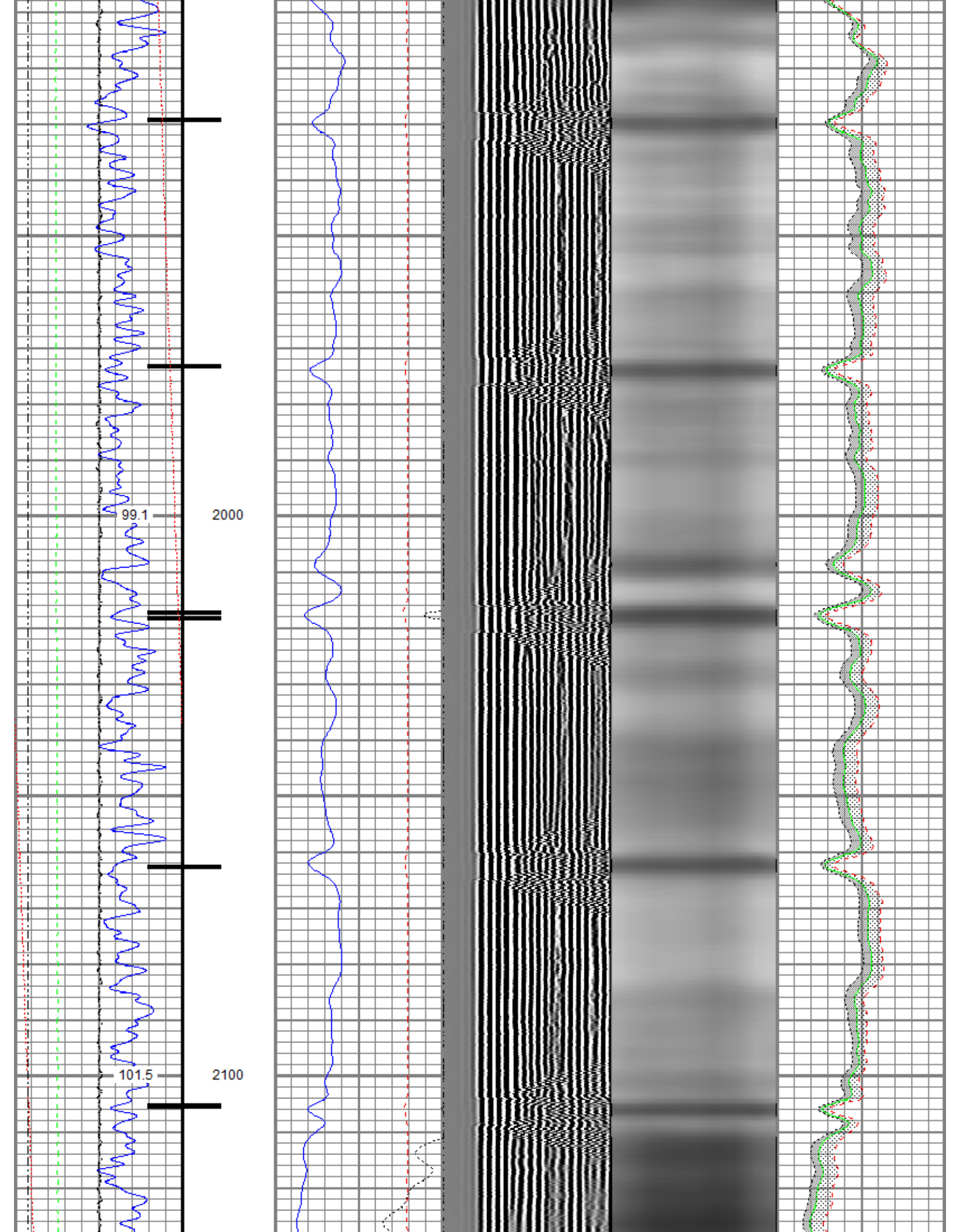


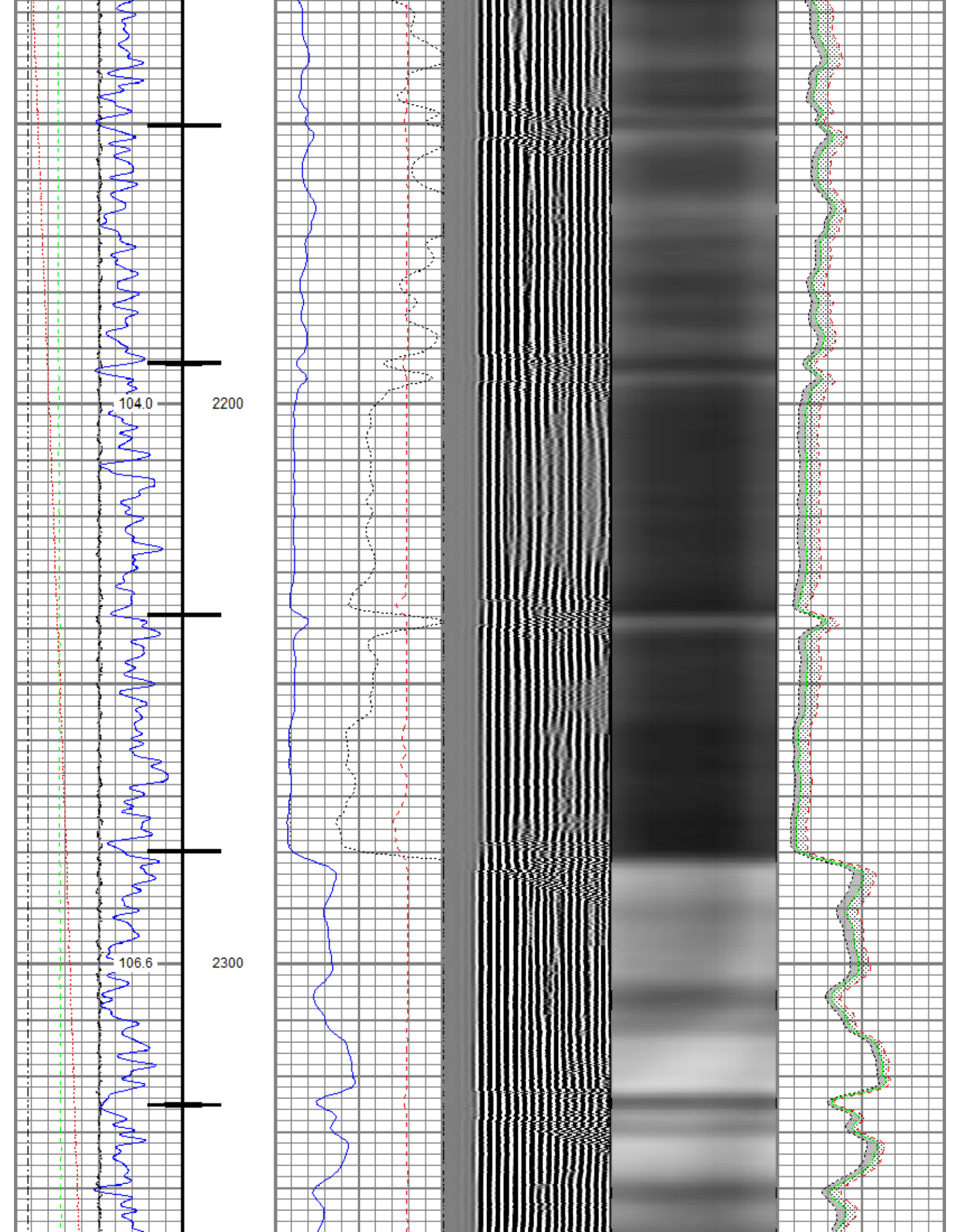




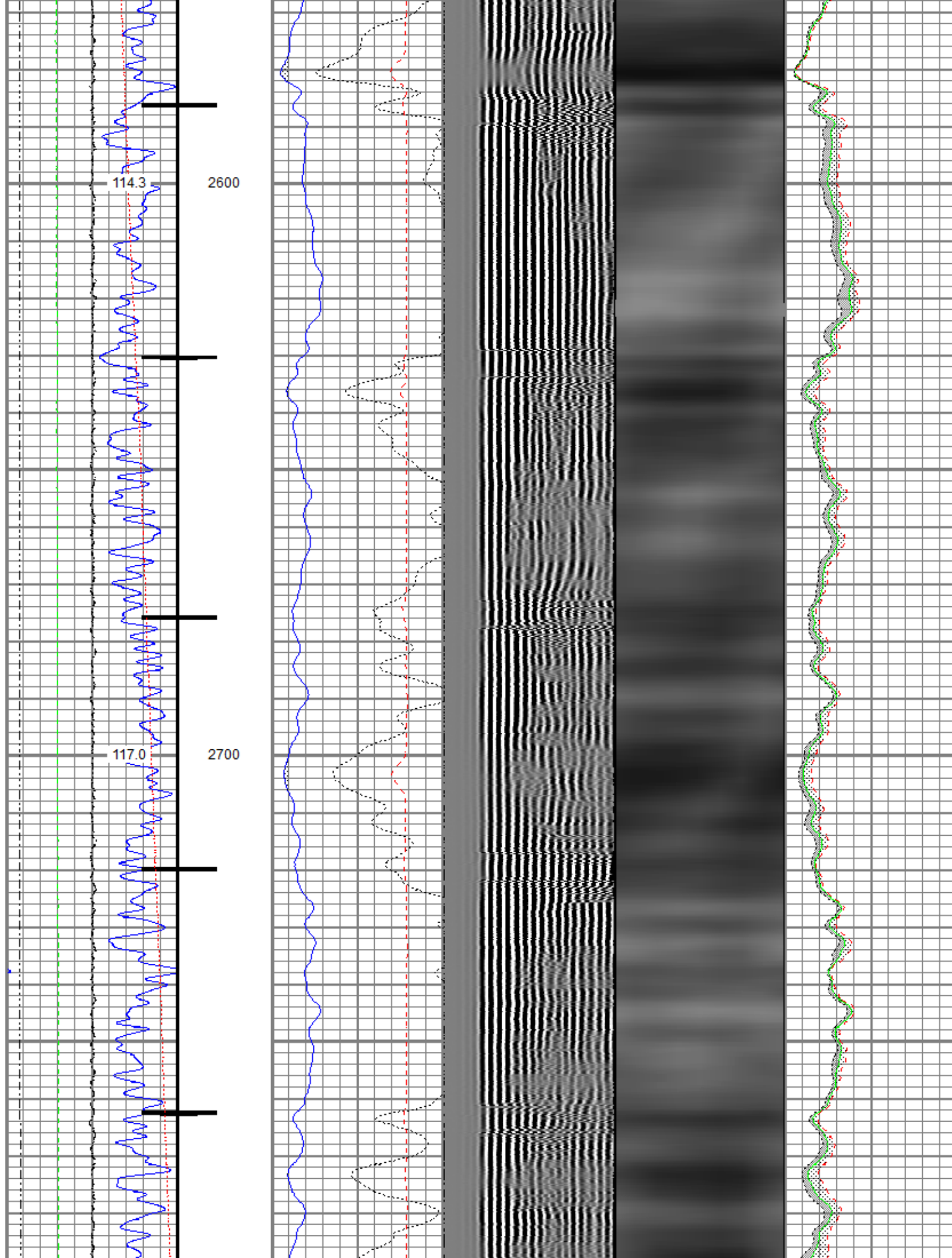


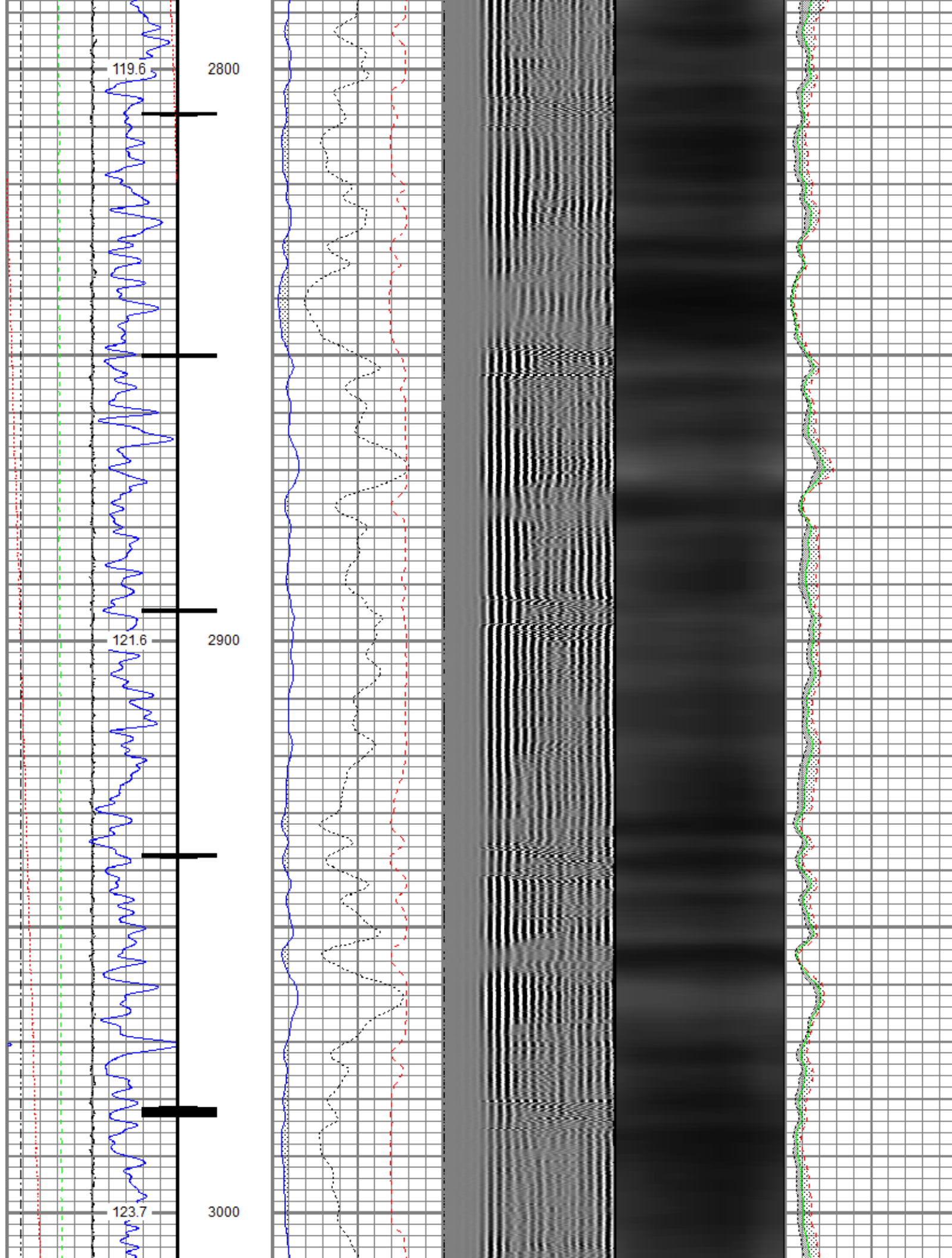


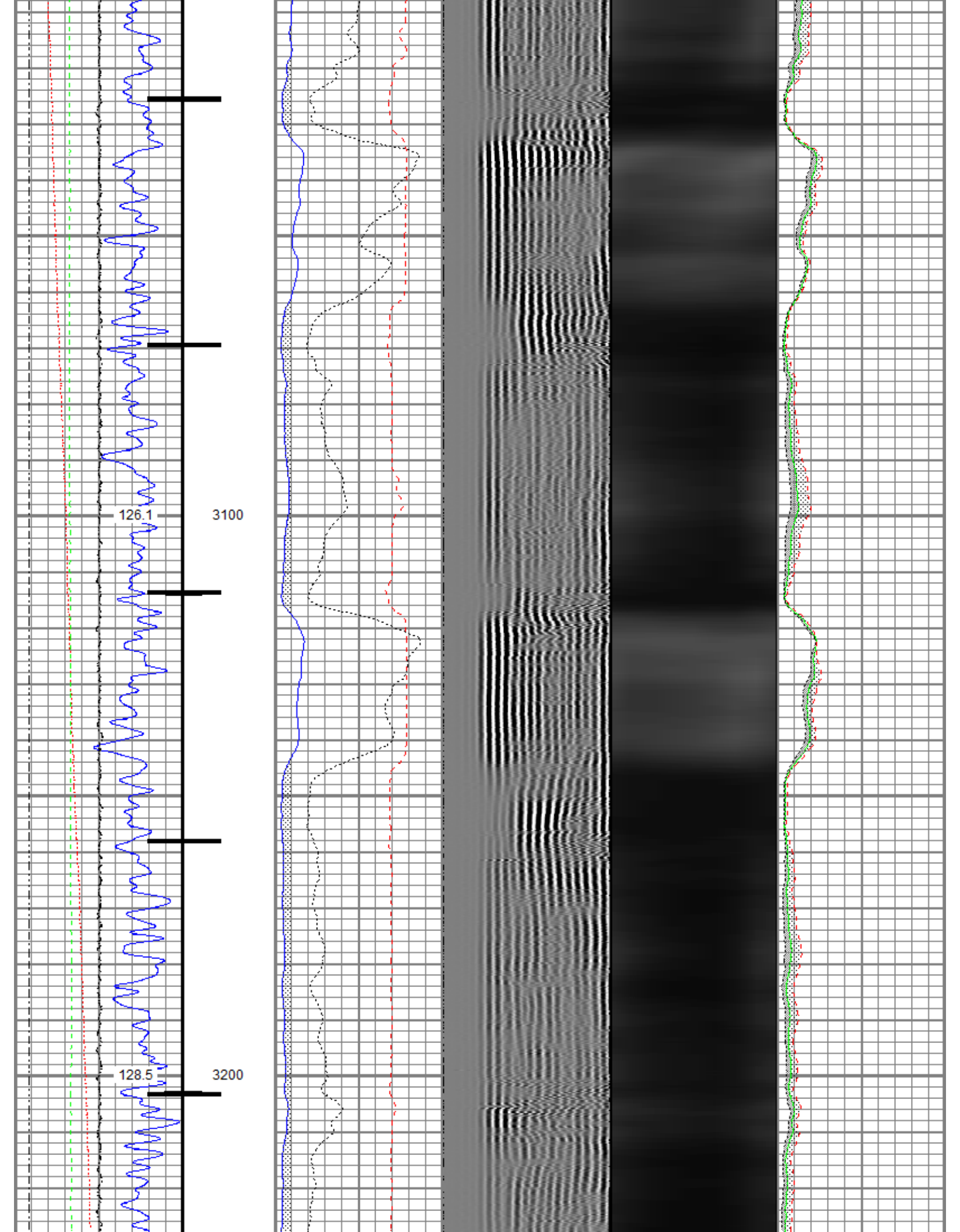


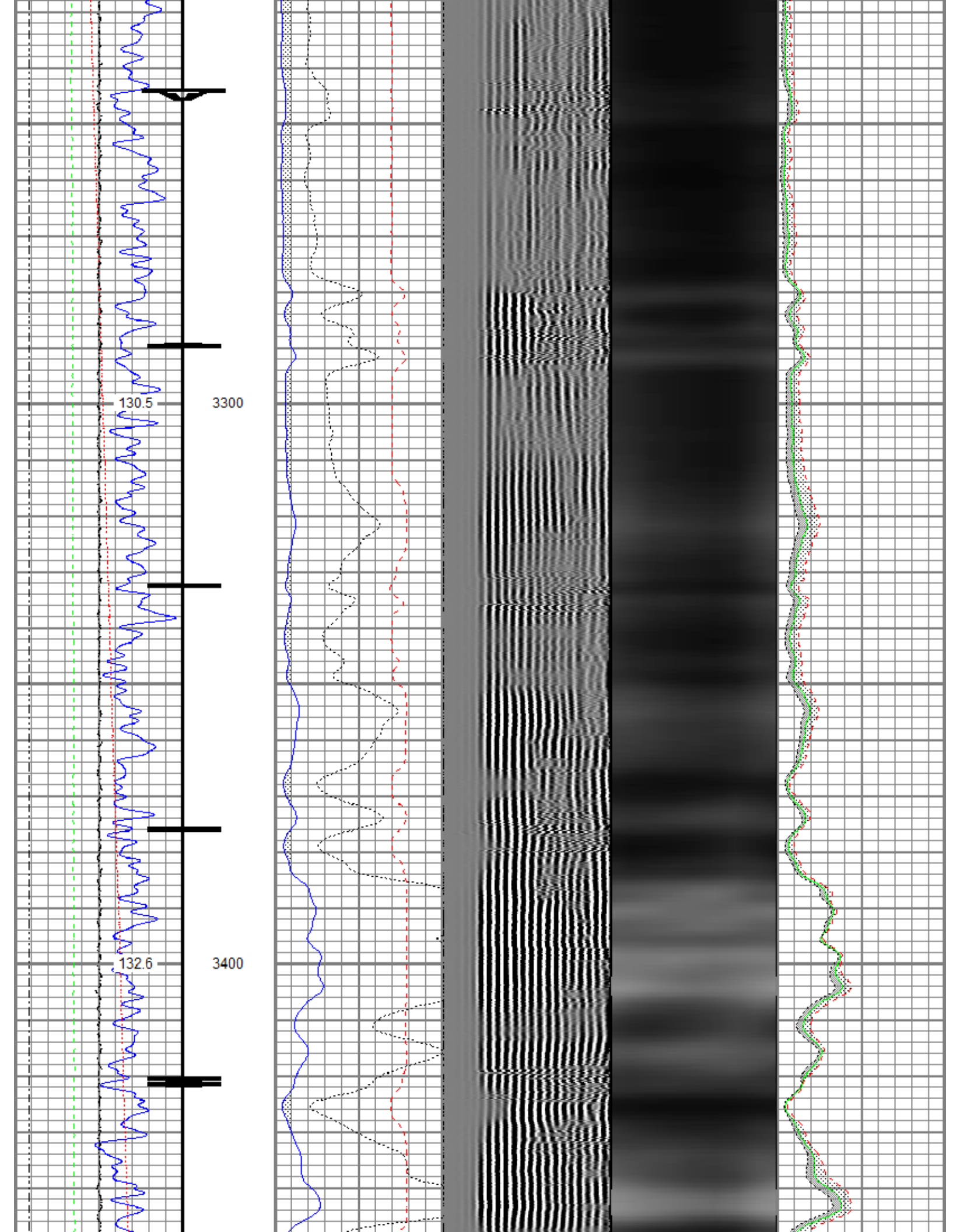


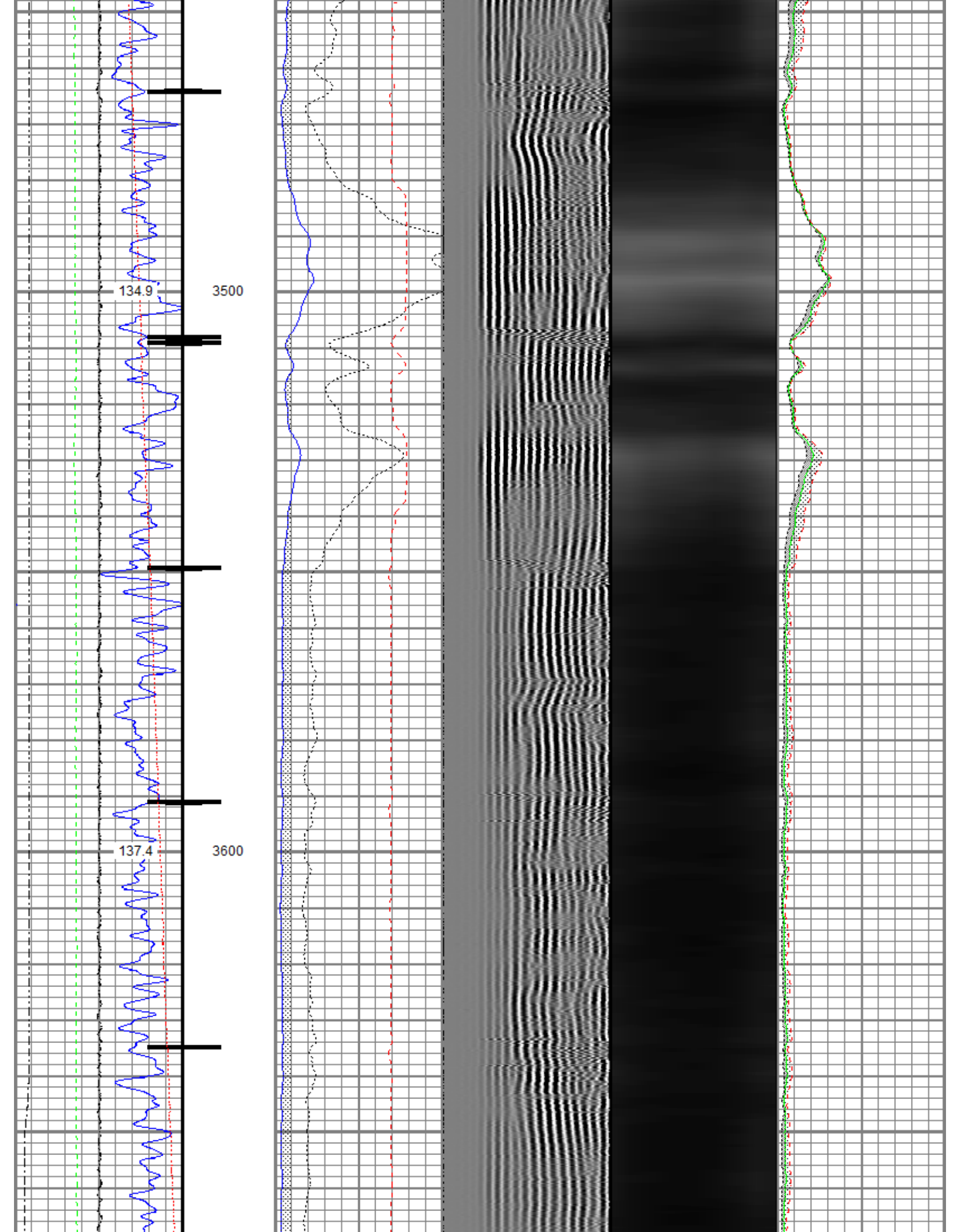


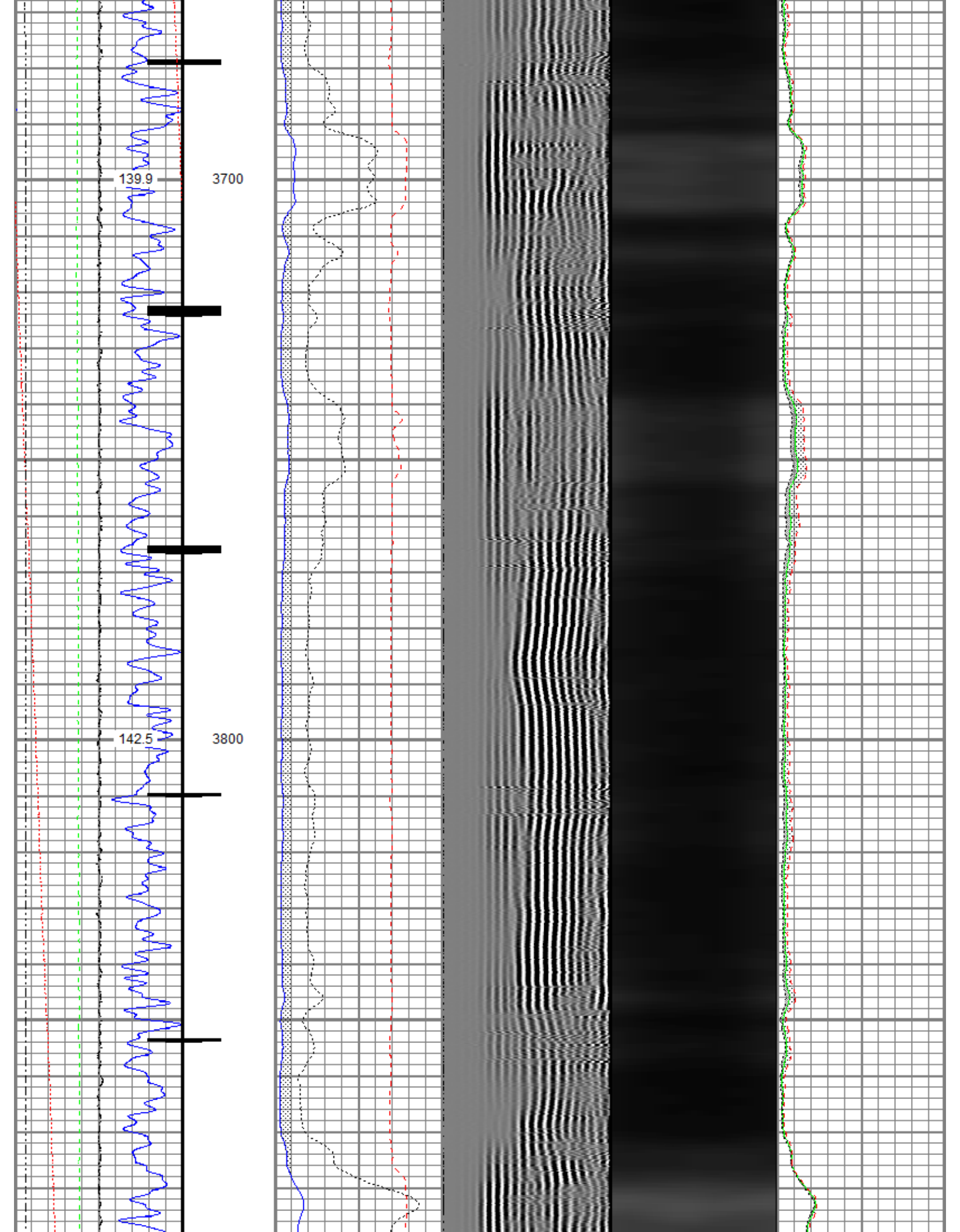


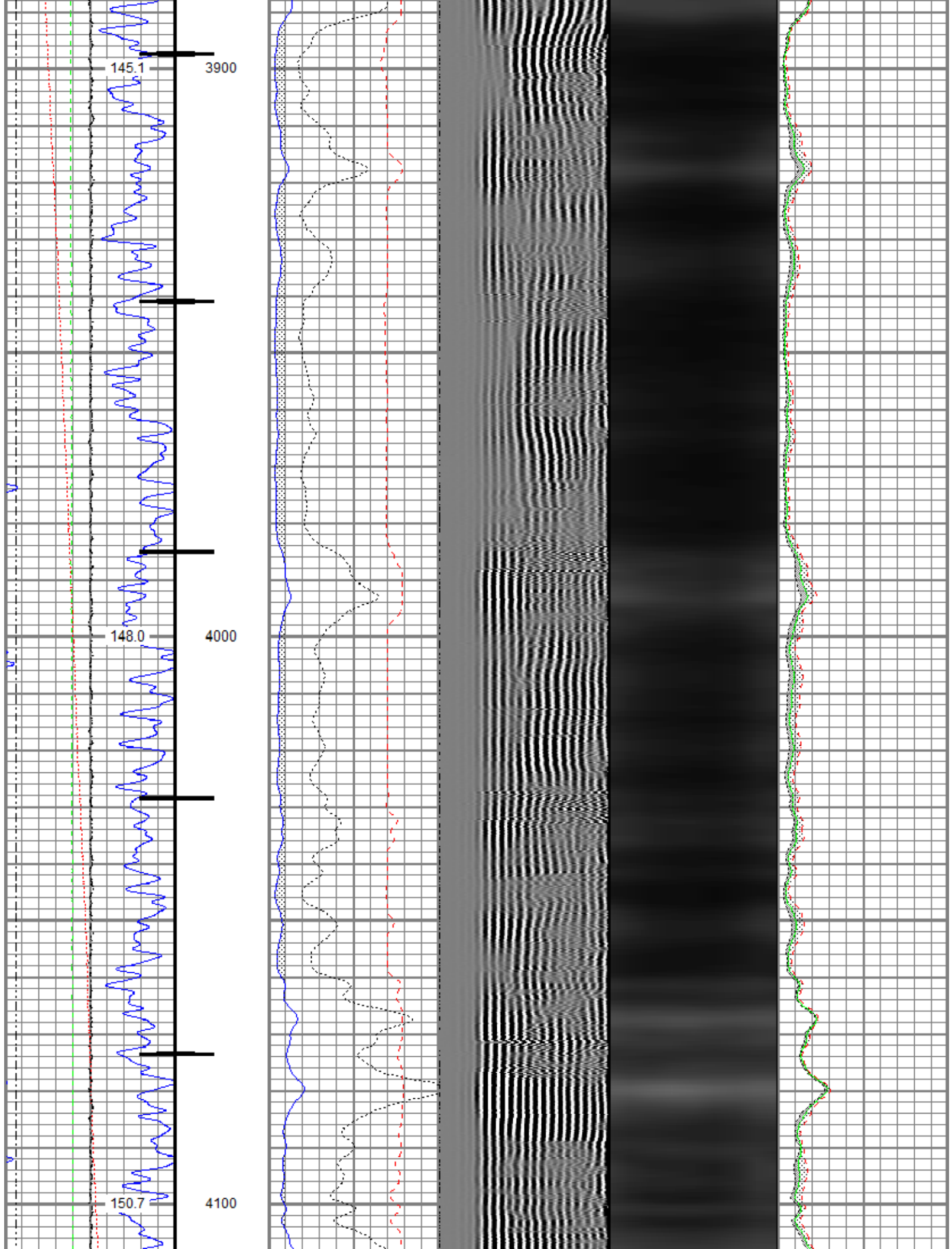


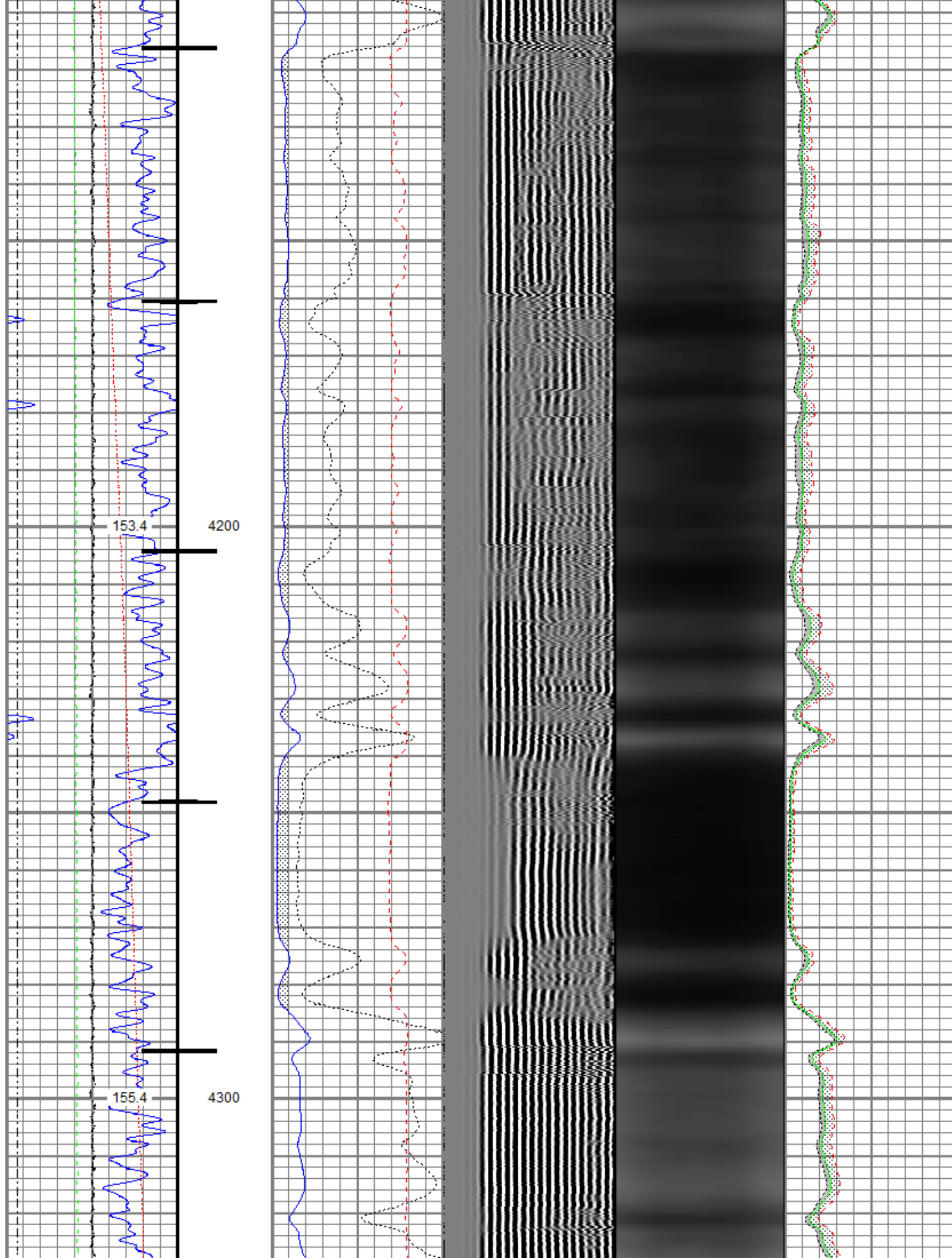




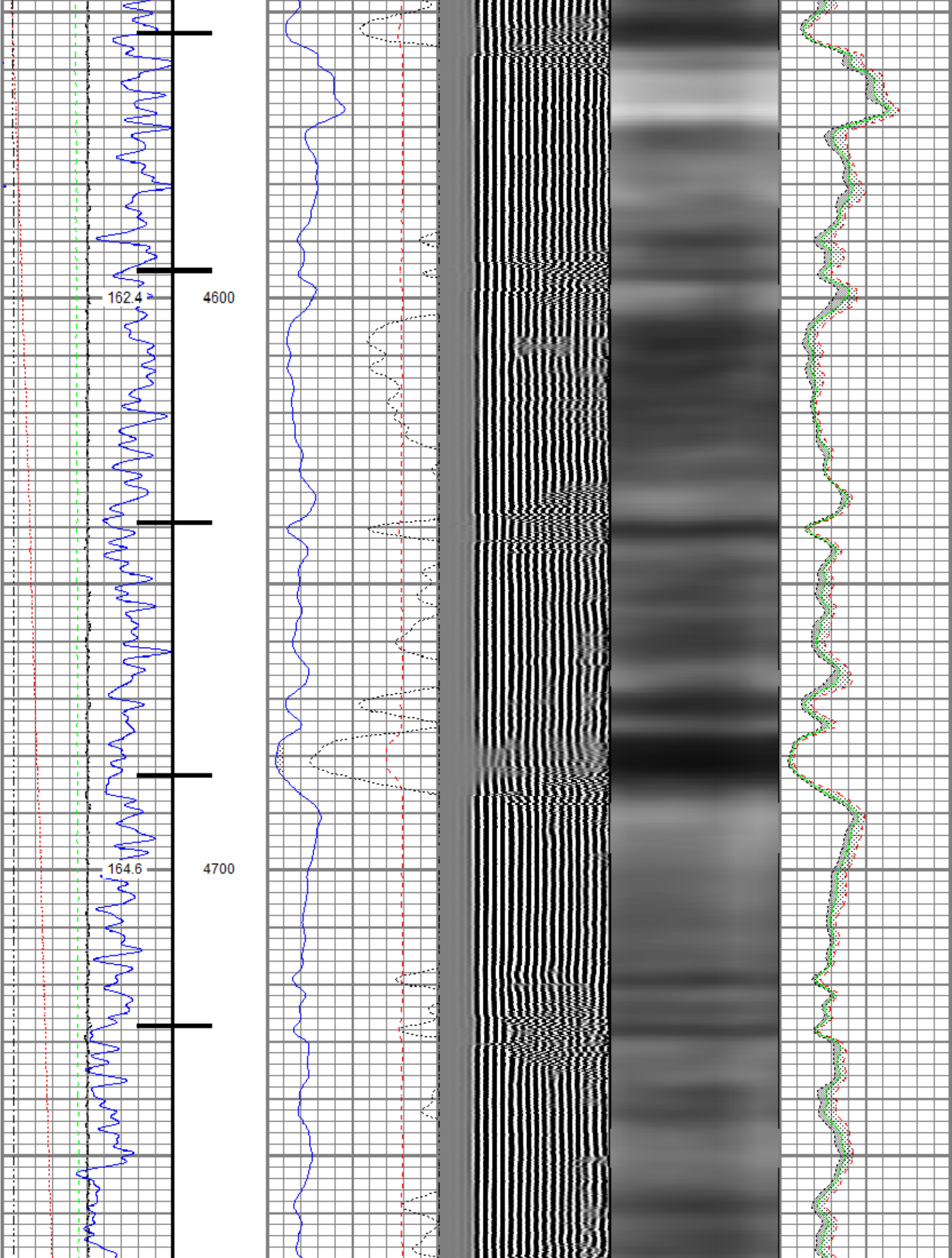


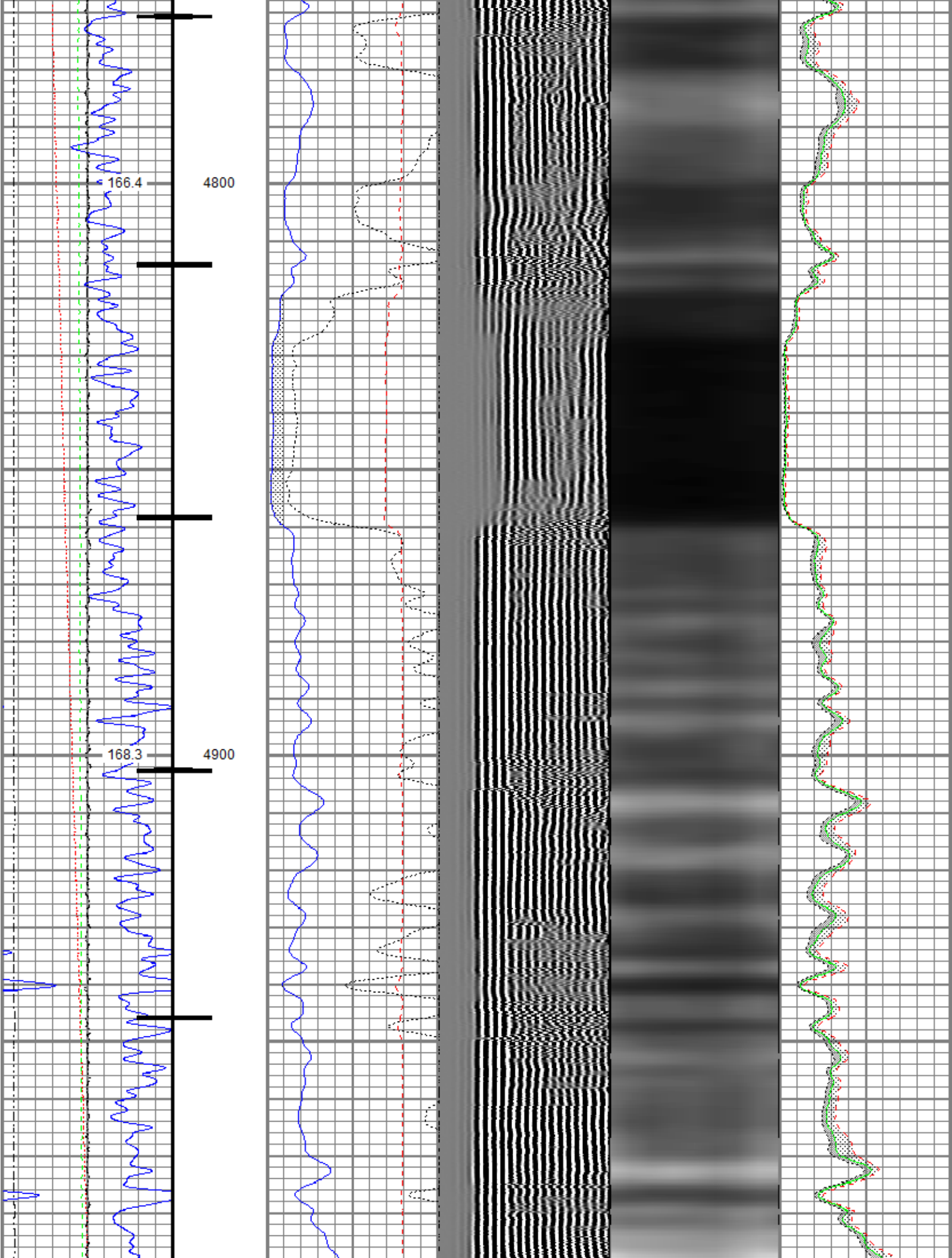


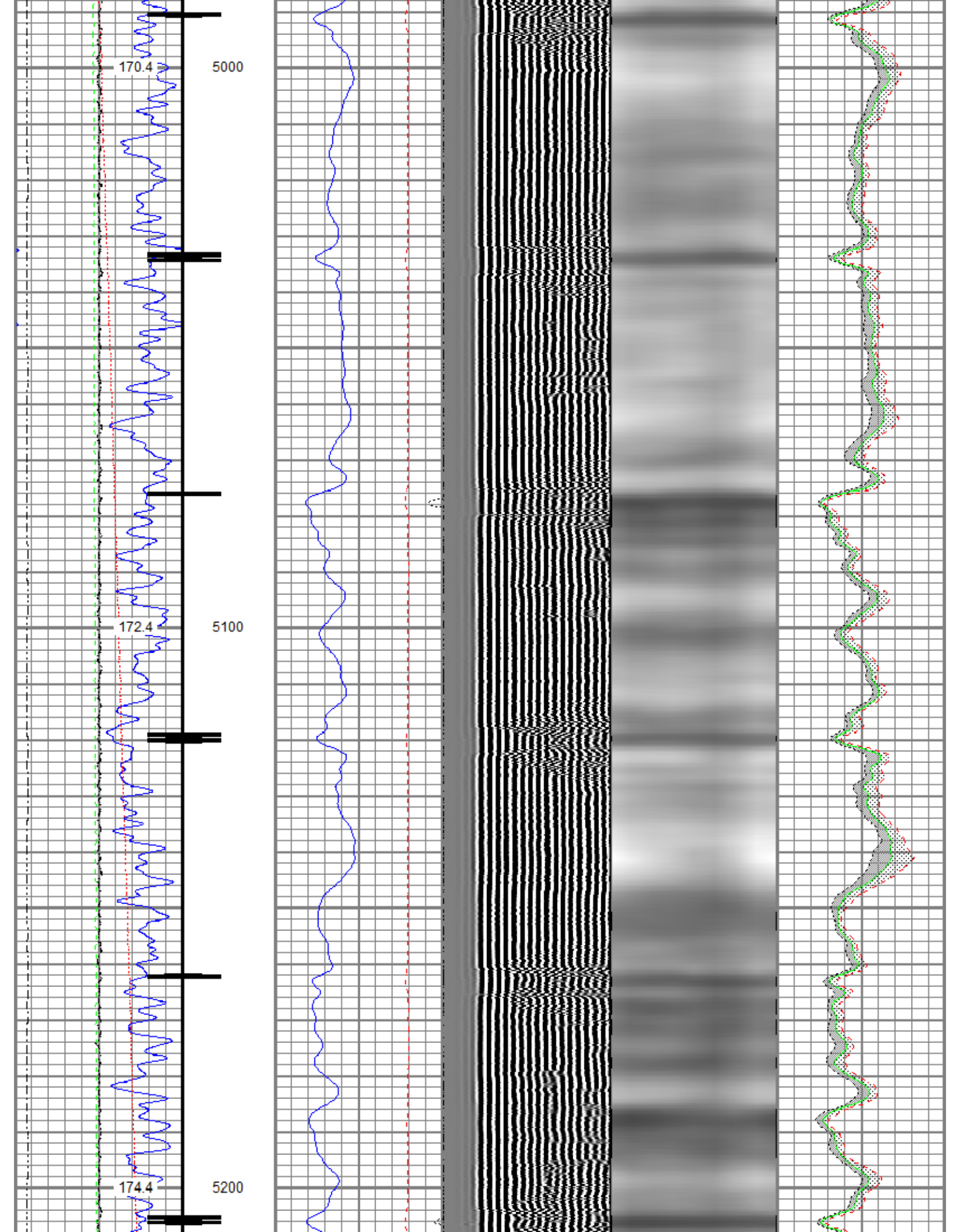


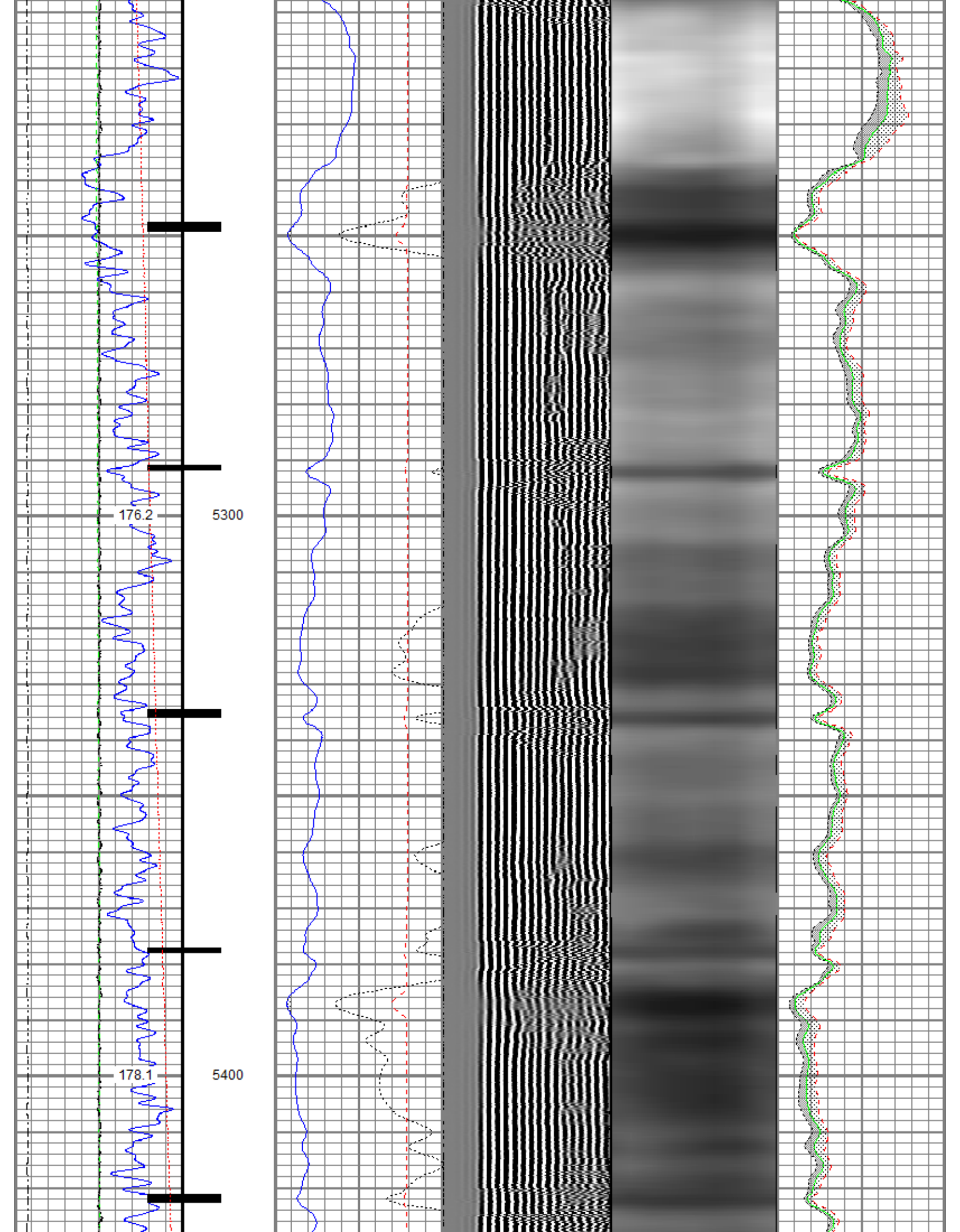


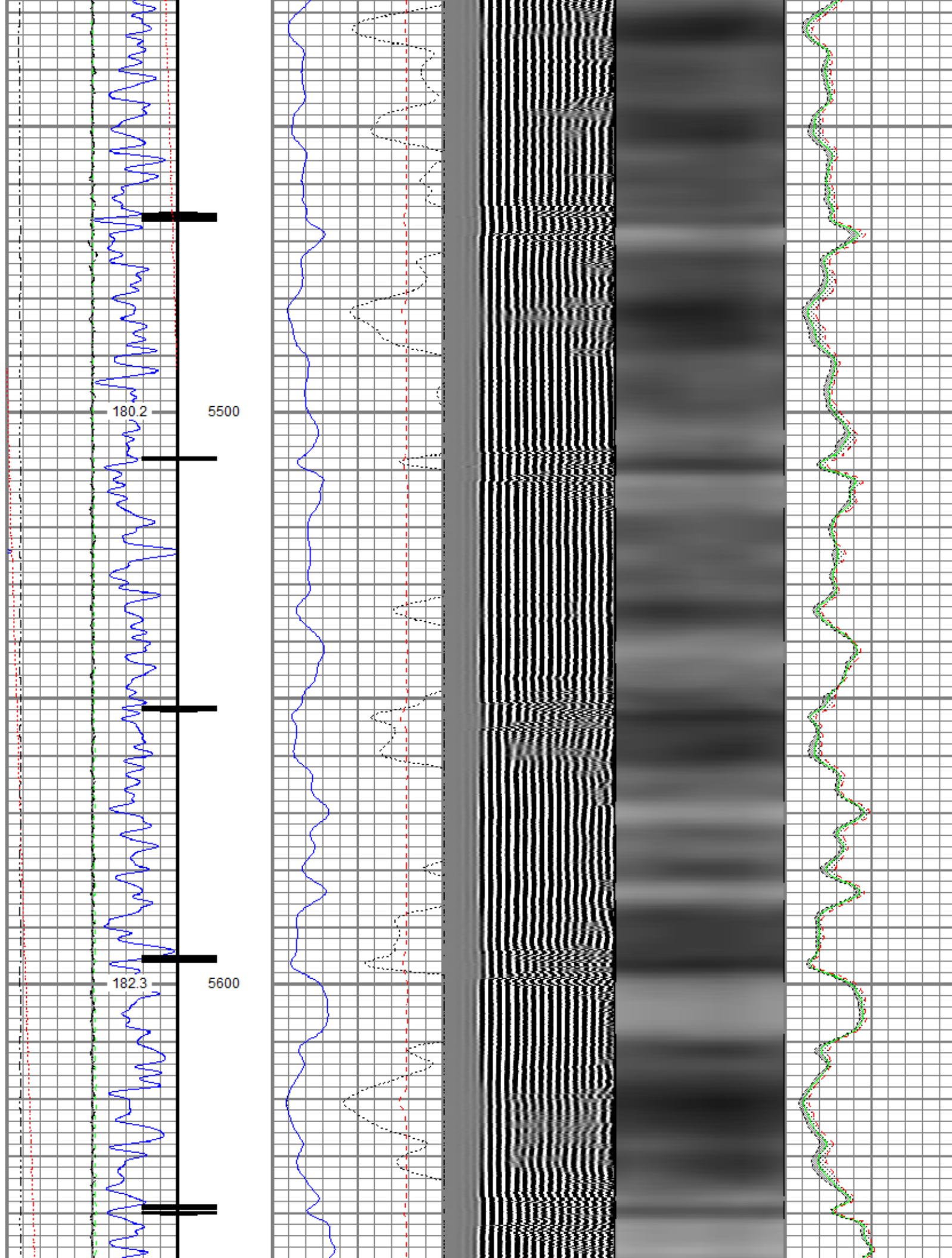


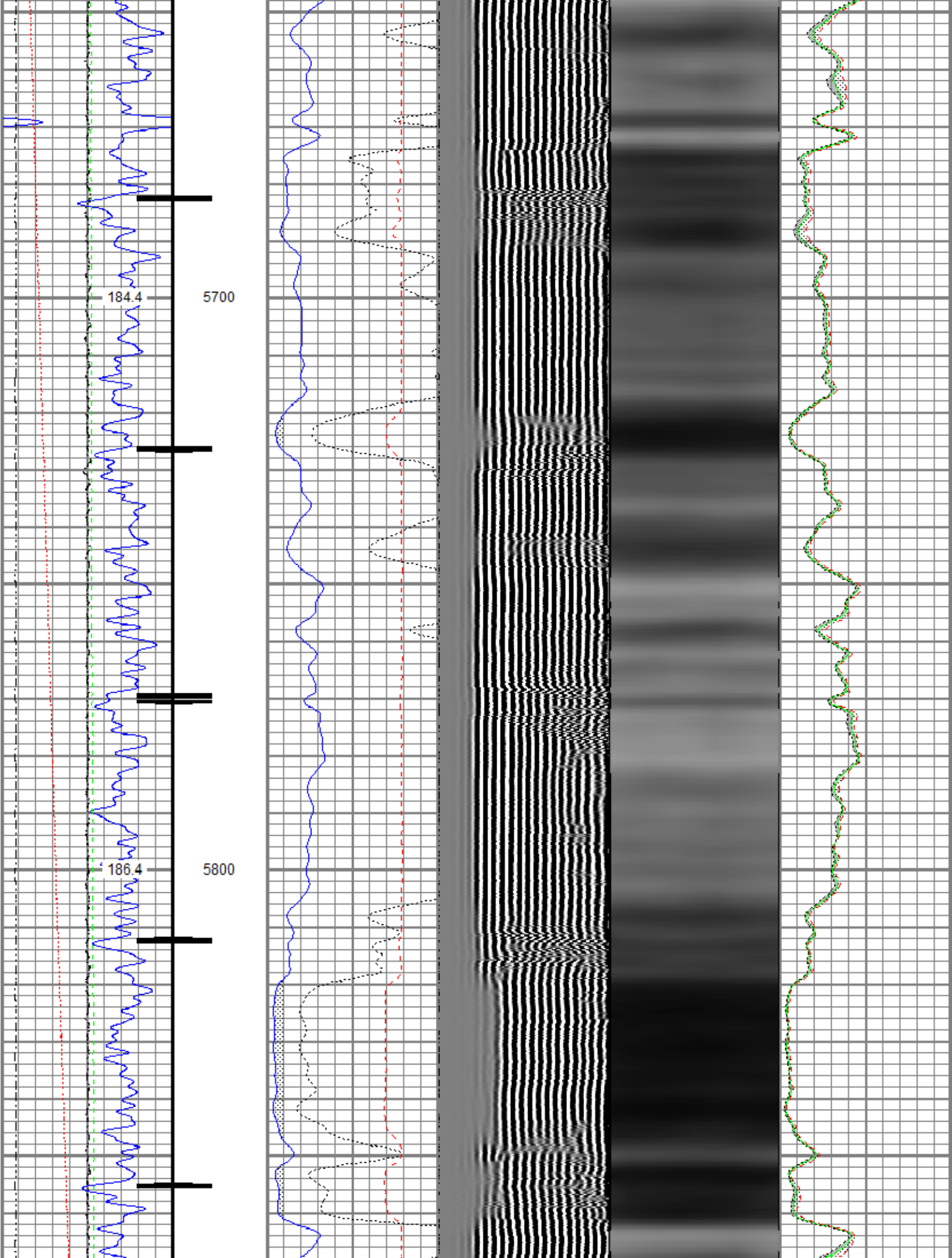






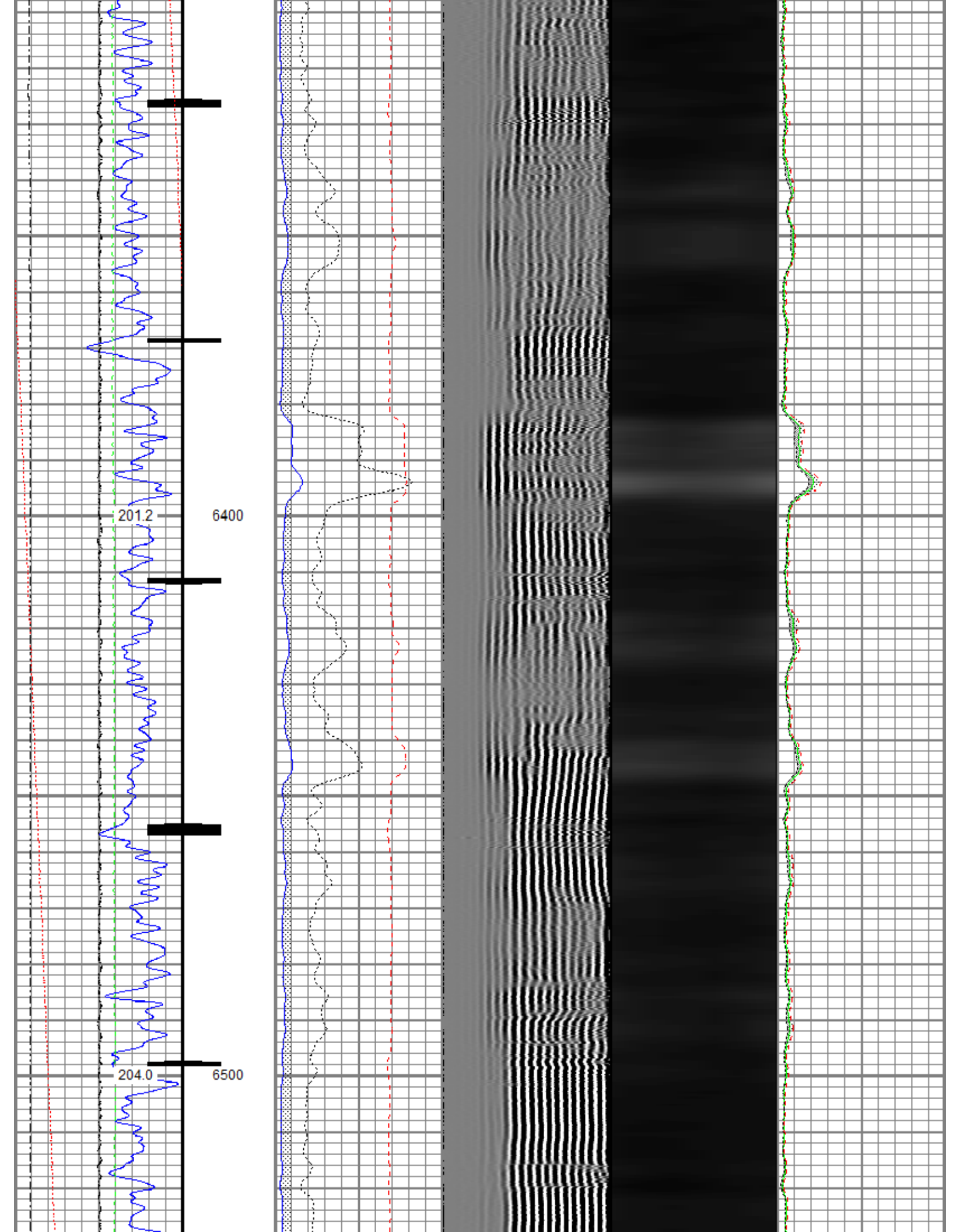


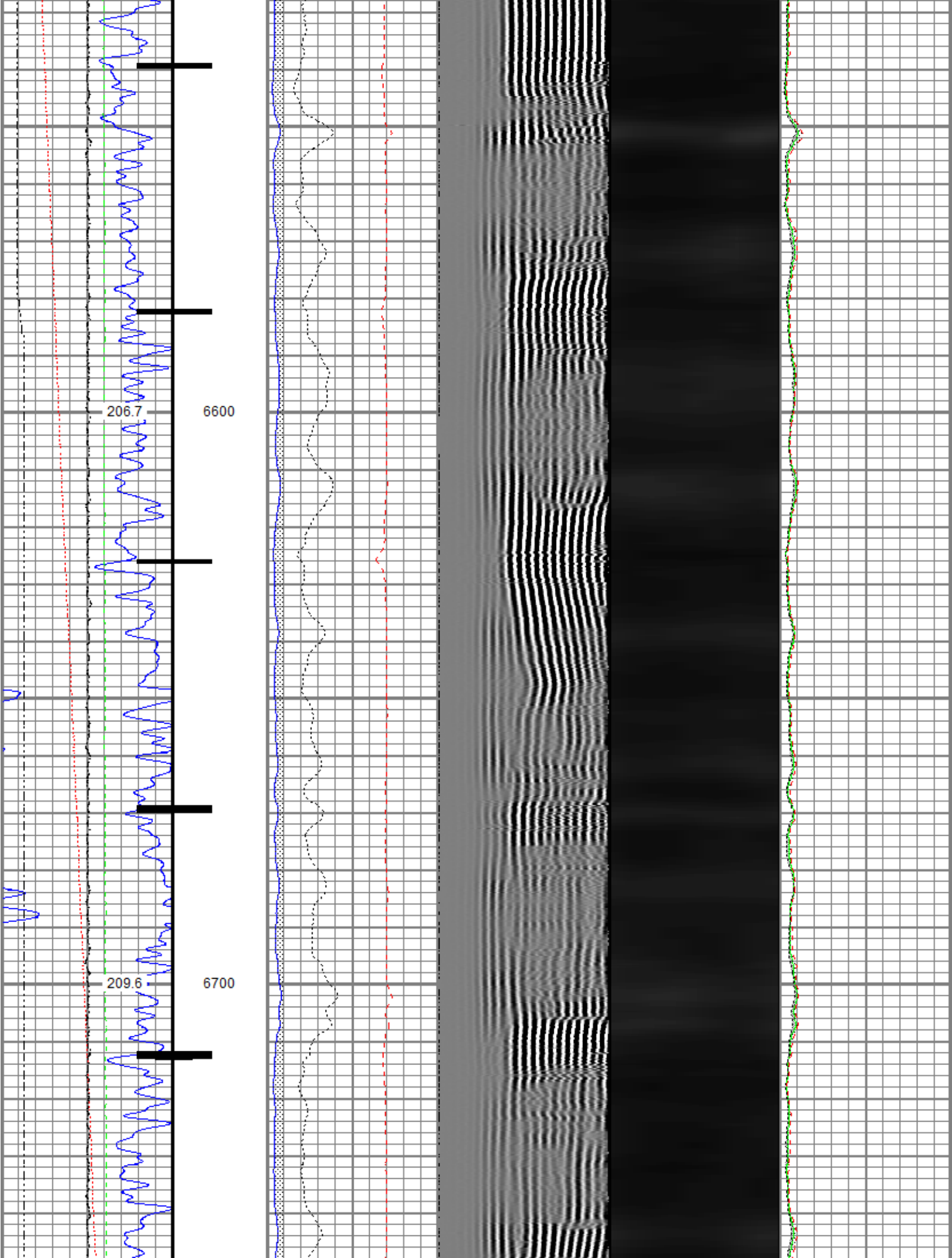


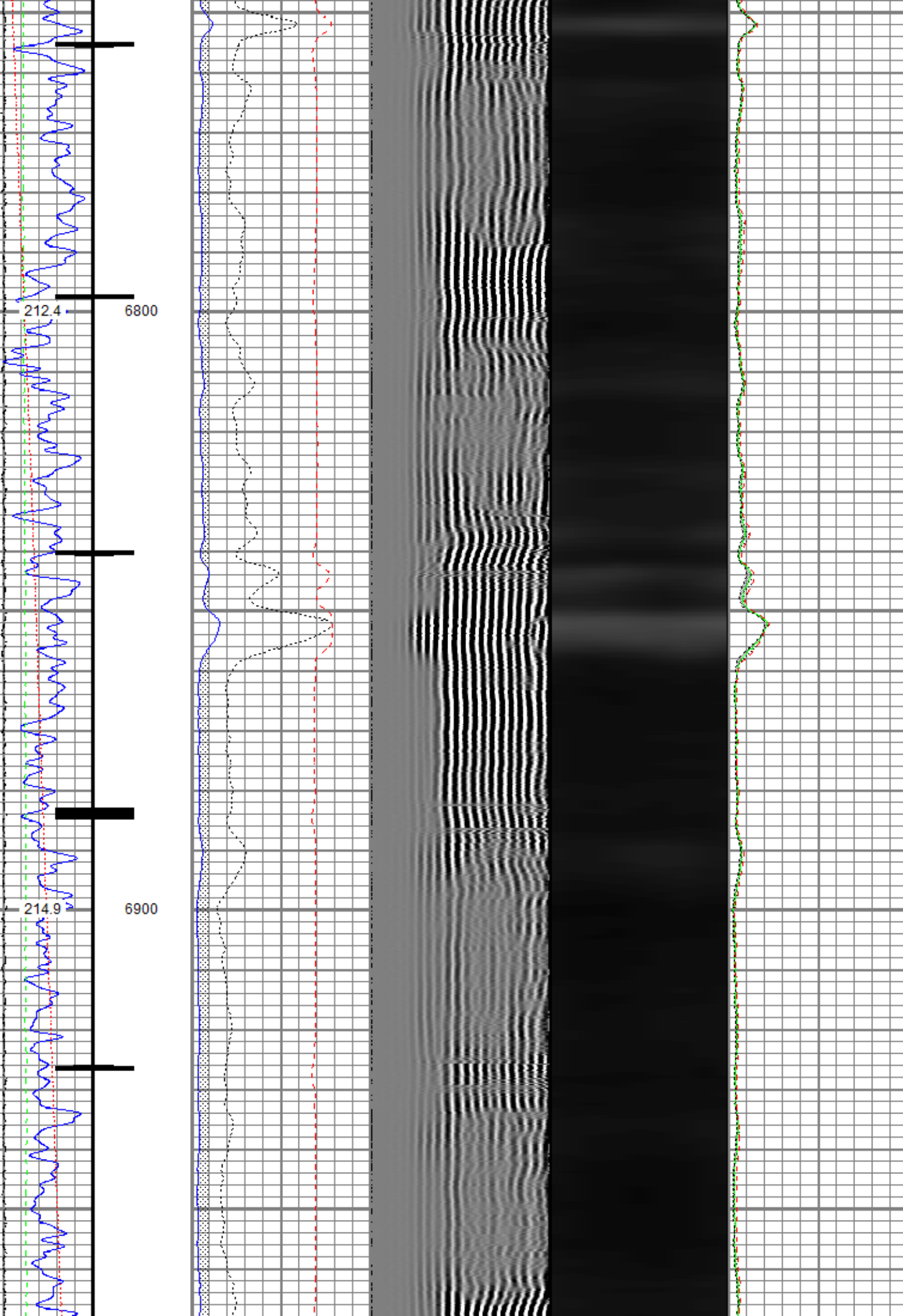


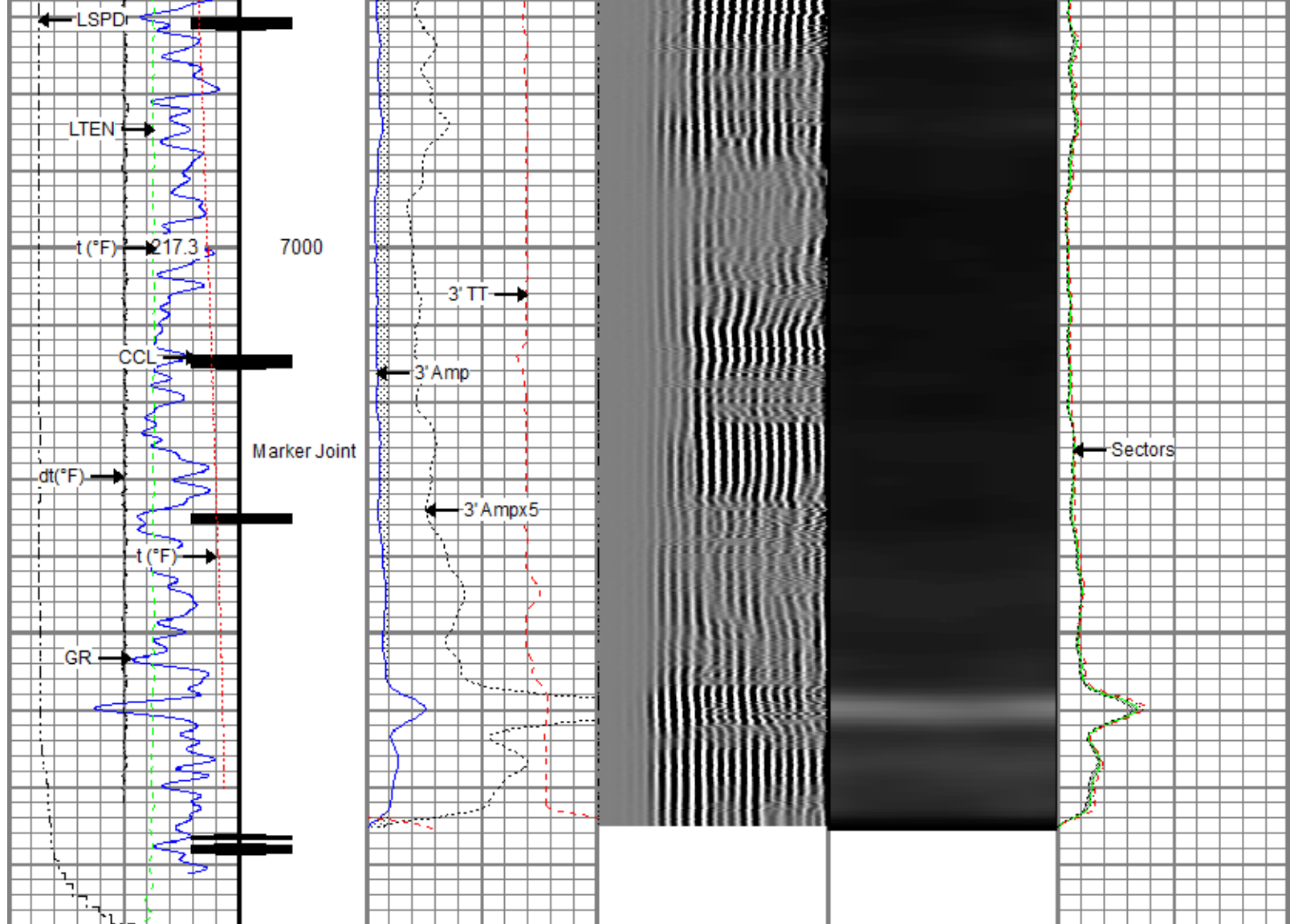












Gamma Ray (GAPI)	0	120	3' Amplitude (mV)	0	100	5' Variable Density Log (usec)	200	1200	Sector Map	Average Amplitude	0	100
Casing Collar Locator												
Temperature (degF)	0	20	3' Amplitude x 5 (mV)	0	20	3' Travel Time (usec)	650	150		Minimum Amplitude	0	100
Line Speed (ft/min)	-150	150										
Line Tension (lb)	0	2000										
Differential Temperature (degF)	-2	2										



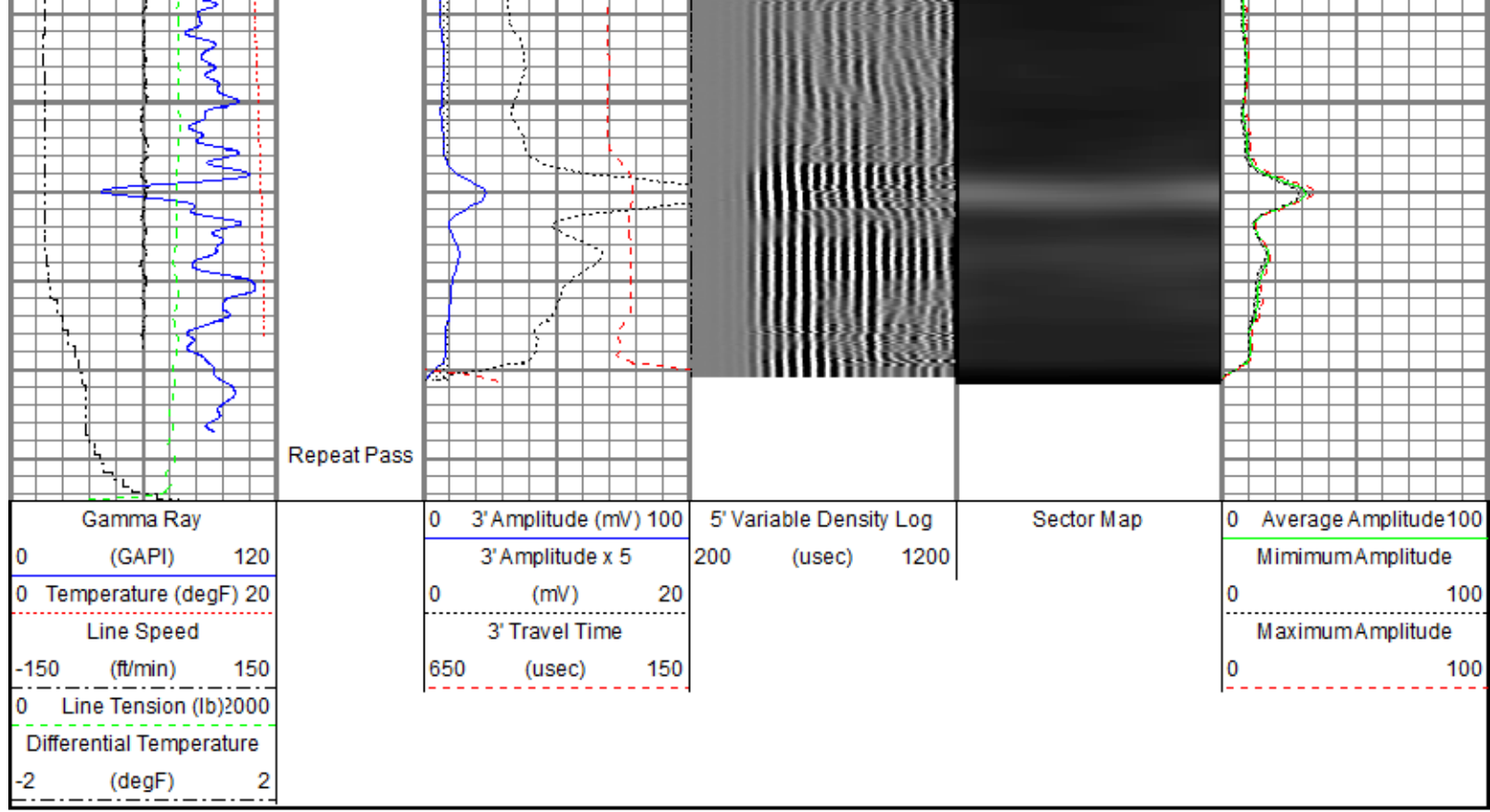
## Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File: anadarko\0512348108\_anadarko\_carson 1-8hz\_rbl\_08-18-19\processed\_0512348108\_anadarko\_carson 1-8hz\_rbl\_08-18-19  
 Dataset Pathname: run\_1/pass4.1  
 Presentation Format: ros\_radrii  
 Dataset Creation: Mon Aug 19 15:07:24 2019  
 Charted by: Depth in Feet scaled 1:240

Gamma Ray (GAPI)	0	120	3' Amplitude (mV)	0	100	5' Variable Density Log (usec)	200	1200	Sector Map	Average Amplitude	0	100
Temperature (degF)	0	20	3' Amplitude x 5 (mV)	0	20	3' Travel Time (usec)	650	150		Minimum Amplitude	0	100
Line Speed (ft/min)	-150	150										
Line Tension (lb)	0	2000										
Differential Temperature (degF)	-2	2										





Gamma Ray (GAPI)	0 120	3' Amplitude (mV)	0 100	5' Variable Density Log (usec)	200 1200	Sector Map	0	Average Amplitude	100
Temperature (degF)	0 20	3' Amplitude x 5 (mV)	0 20				0	Minimum Amplitude	100
Line Speed (ft/min)	-150 150	3' Travel Time (usec)	650 150				0	Maximum Amplitude	100
Line Tension (lb)	0 2000								
Differential Temperature (degF)	-2 2								

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
			Probe Radii-2750 RBT (FW0712-020) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
TEMP	17.04					
WVFS8	14.81					
WVFS7	14.81					
WVFS6	14.81					
WVFS5	14.81					
WVFS4	14.81					
WVFS3	14.81					
WVFS2	14.81					
WVFS1	14.81					
WVFCAL	14.81					
WV3FT	14.81					
WV5FT	13.81					

			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
CCL\$2	6.80					
CCL\$1	6.80					
GR	5.46		Probe GR-CCL-2750 6PB (101001) Probe 2-3/4" rev.1 Digital Scintillation Gamma Ray/CCL Combined with 6 Pin Bottom for CNT	4.80	2.75	55.00
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
Dataset: processed_0512348108_anadarko_carson 1-8hz_rbl_08-18-19.db: field/well/run_1/pass6.2 Total length: 23.86 ft Total weight: 223.60 lb O.D.: 2.75 in						

Calibration Report	
Database File	c:\programdata\warrior\data\anadarko\0512348108_anadarko_carson 1-8hz_rbl_08-18-19\processed_0512348108_anadarko_c
Dataset Pathname	run_1/pass6.2
Dataset Creation	Sun Aug 18 09:28:21 2019

Gamma Ray Calibration Report		
Serial Number:	101001	
Tool Model:	2750 6PB	
Performed:	Mon Oct 01 11:32:32 2018	
Calibrator Value:	637.0	GAPI
Background Reading:	100.6	cps
Calibrator Reading:	981.1	cps
Sensitivity:	0.7235	GAPI/cps

Segmented Cement Bond Log Calibration Report		
Serial Number:	FW0712-020	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-19.427	ft

Master Calibration, performed (Derived):						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.003	1.155	0.800	71.921	61.745	0.618
CAL	0.004	1.008				
5'	-0.005	1.052	0.800	71.921	67.271	1.142
SUM						
S1	0.004	1.126	0.000	100.000	89.134	-0.329
S2	0.002	1.107	0.000	100.000	90.552	-0.203

S3	0.002	1.138	0.000	100.000	88.078	-0.196
S4	0.002	1.179	0.000	100.000	84.968	-0.205
S5	0.003	1.205	0.000	100.000	83.173	-0.244
S6	0.003	1.220	0.000	100.000	82.153	-0.249
S7	0.004	1.230	0.000	100.000	81.579	-0.307
S8	0.004	1.176	0.000	100.000	85.277	-0.328

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.004	1.008	1.000	0.000

Air Zero Calibration, performed Sun Aug 18 07:58:15 2019:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.004		0.000		-0.000	
5'	0.004		0.000		0.000	
SUM						
S1	0.005		0.000		0.000	
S2	0.004		0.000		0.000	
S3	0.004		0.000		-0.000	
S4	0.004		0.000		-0.000	
S5	0.004		0.000		0.000	
S6	0.004		0.000		-0.000	
S7	0.004		0.000		-0.000	
S8	0.004		0.000		-0.000	

Temperature Calibration Report

Serial Number: FW0712-020  
Tool Model: 2750 RBT  
Performed: Mon Oct 01 11:32:14 2018

	Reference	Reading
Low Reference:	100.00 degF	109.43 degF
High Reference:	350.00 degF	405.87 degF

Gain: 0.84  
Offset: 7.72  
Delta Spacing: 1



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