

Radial Cement Bond Gammay Ray Casing Collar Log

Company	Whiting Oil & Gas Corporation	Company	Whiting Oil & Gas Corporation
Well	Razor 21 SWD 1	Well	Razor 21 SWD 1
Field	Wildcat	Field	Wildcat
County	Weld	County	Weld
State	Colorado	State	Colorado
Location:	API #: 05-123-40777	Other Services	---
SEC 21	TWP 10N	RGE 58W	Elevation
Permanent Datum	Ground Level	Elevation	4819'
Log Measured From	Kelly Bushing	23 FT	K.B. 4842'
Drilling Measured From	Kelly Bushing		D.F. 4841'
			G.L. 4819'

Date	15-APR-2015
Run Number	One
Depth Driller	8550 FT
Depth Logger	8388 FT
Bottom Logged Interval	8388 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.4 ibbl/gal
Max. Recorded Temp.	266°F
Estimated Cement Top	1176 FT
Time Well Ready	2:30 PM
Time Logger on Bottom	3:10 PM
Equipment Number	HD-0119
Location	Ft. Lupton, CO
Recorded By	J. Amidei
Witnessed By	D. Norris

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	---	---		
Intermediate #1	7	29	P-110	---	---		
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.

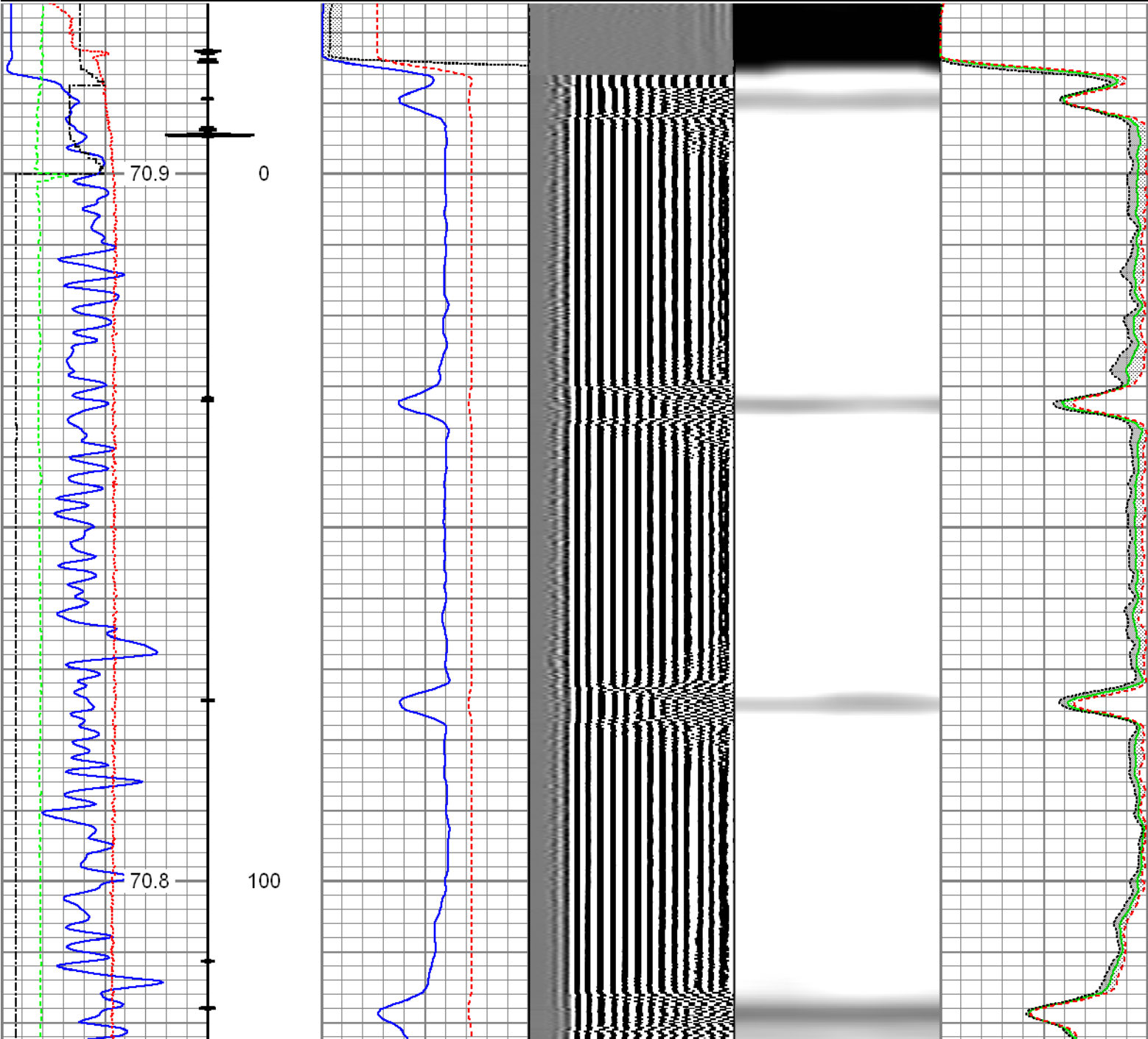
Comments

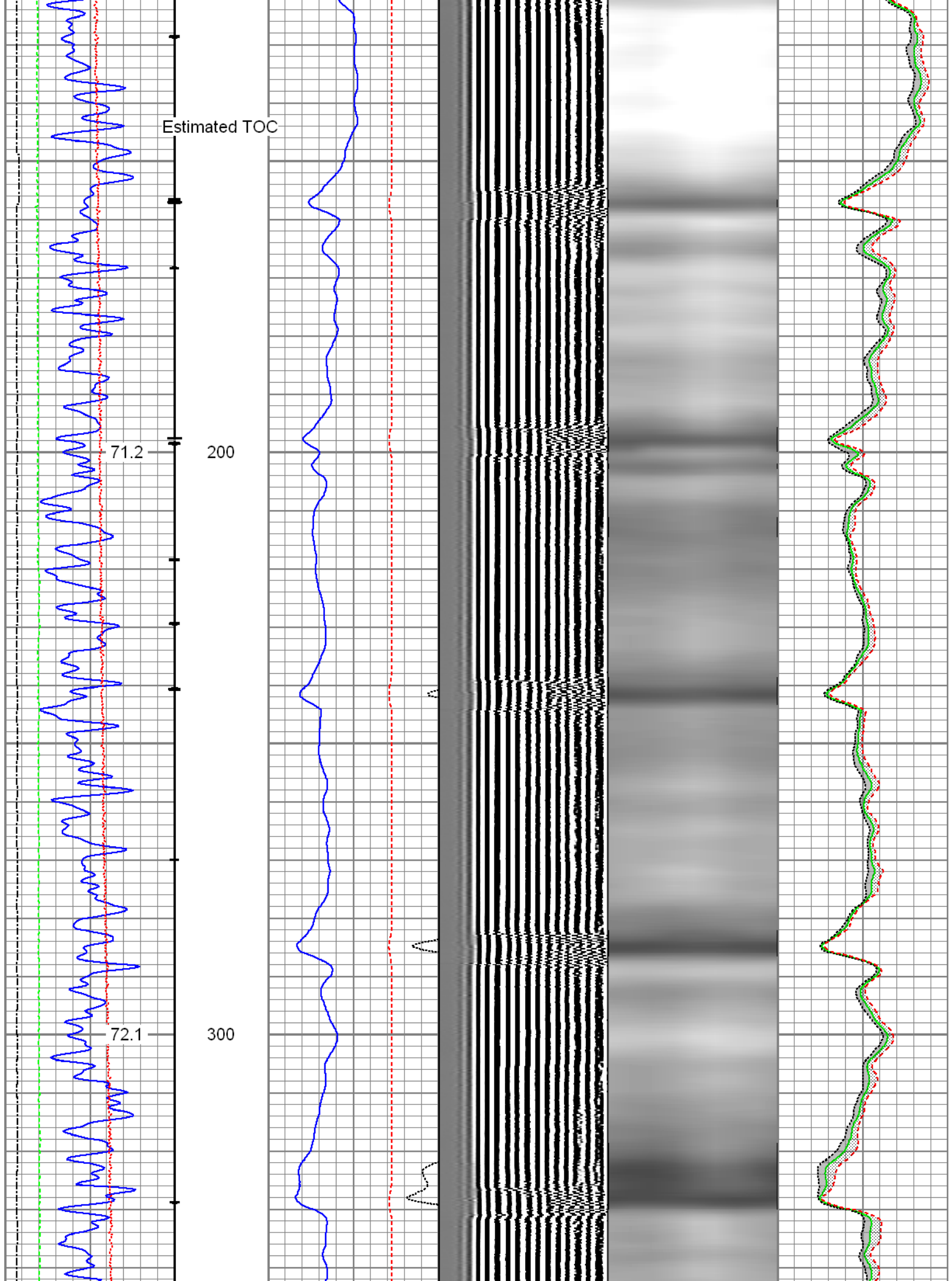
Log ran as per Customer request
Depth referenced to Open Hole Log at 6416'
Adjusted log + 8 FT to correlate with Open Hole Log
Log ran from 8388 FT to surface
Log ran with 1500 PSI surface induced pressure

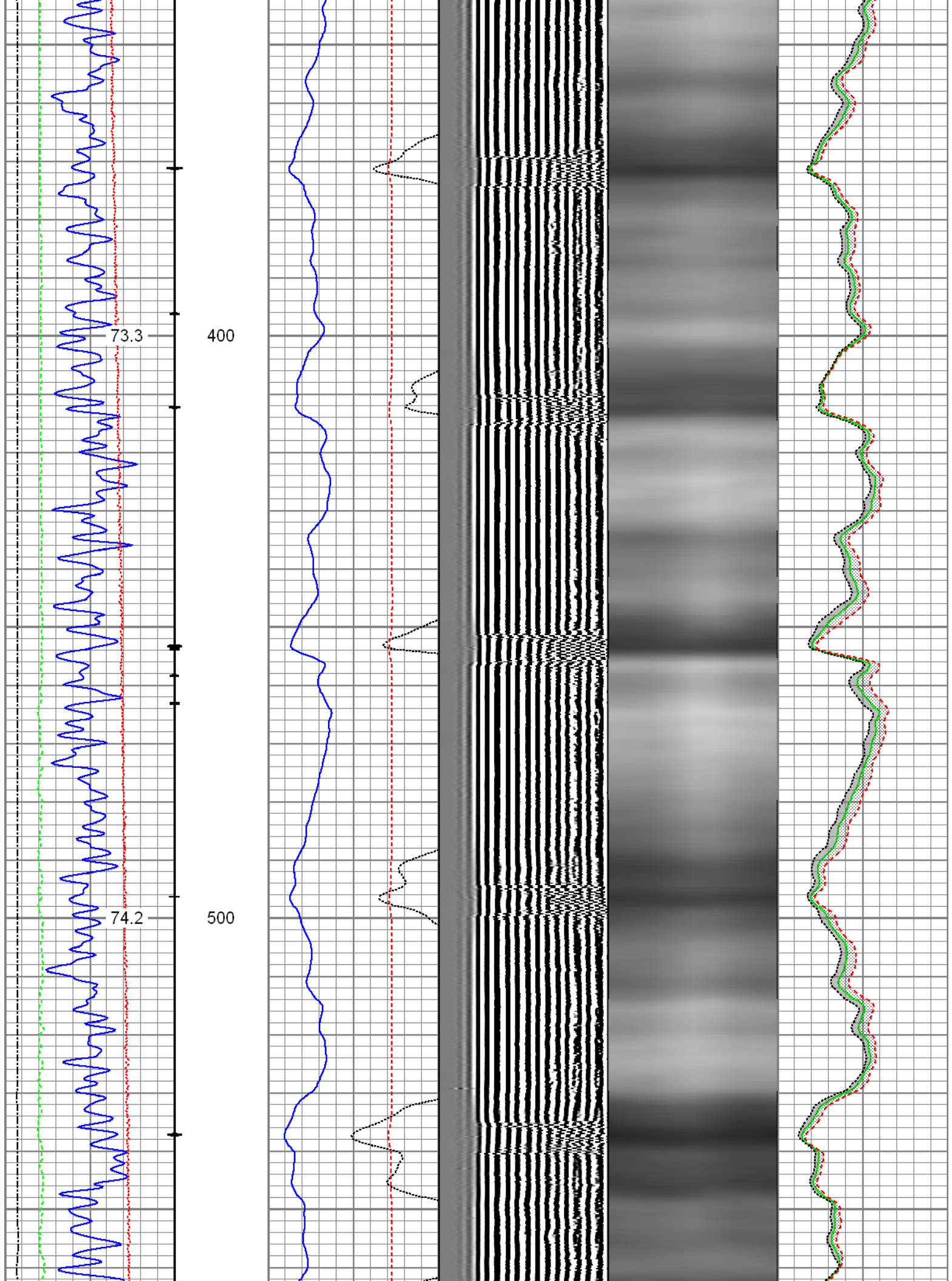
Thank you for choosing FMC Technologies Completion Services, Inc.

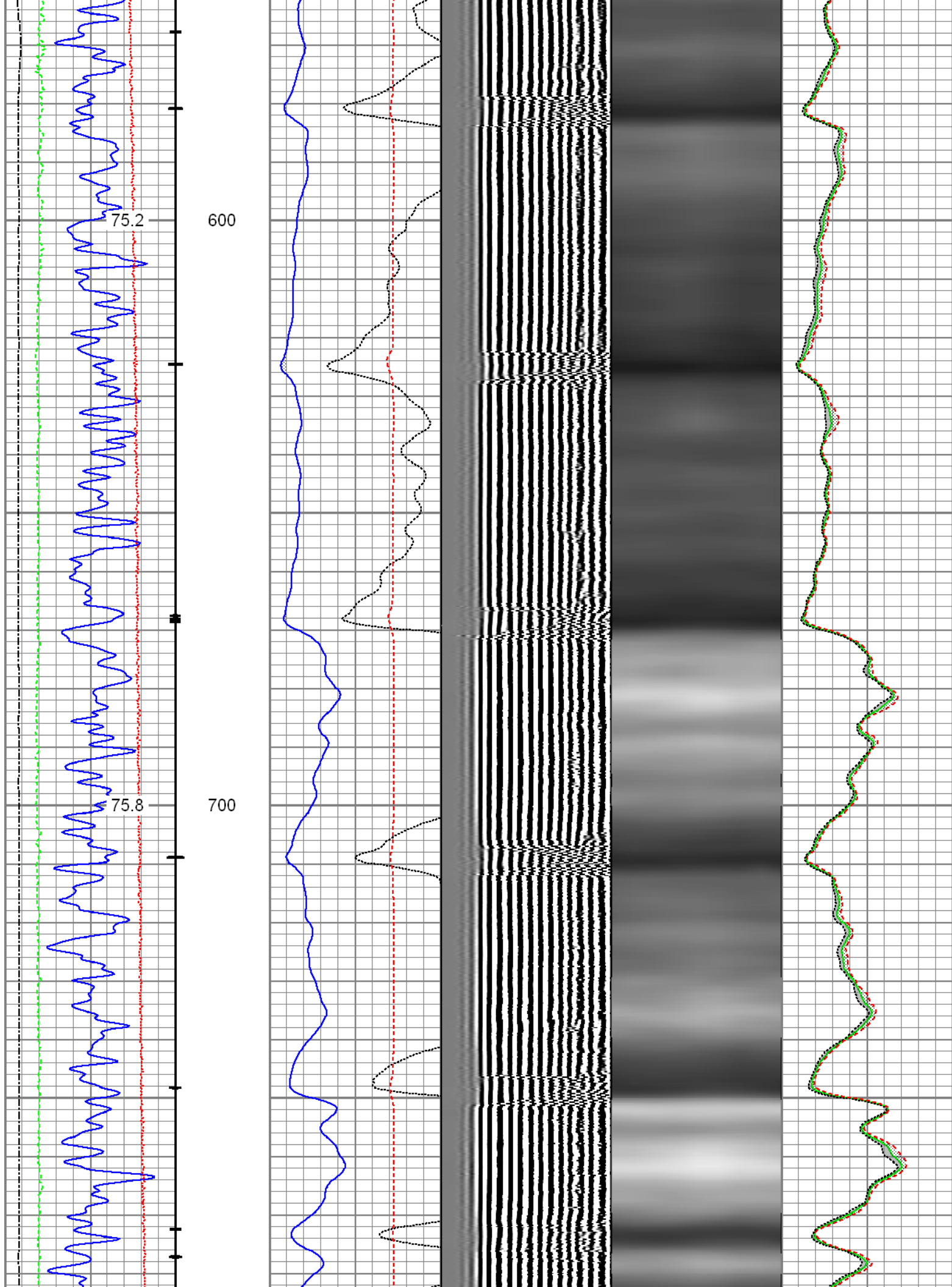
Database File: 04-15-15_whiting_razor 21 swd 1_rbl.db
Dataset Pathname: pass8.1
Presentation Format: radii
Dataset Creation: Fri Apr 17 13:43:58 2015 by Calc SCH 120430
Charted by: Depth in Feet scaled 1:240

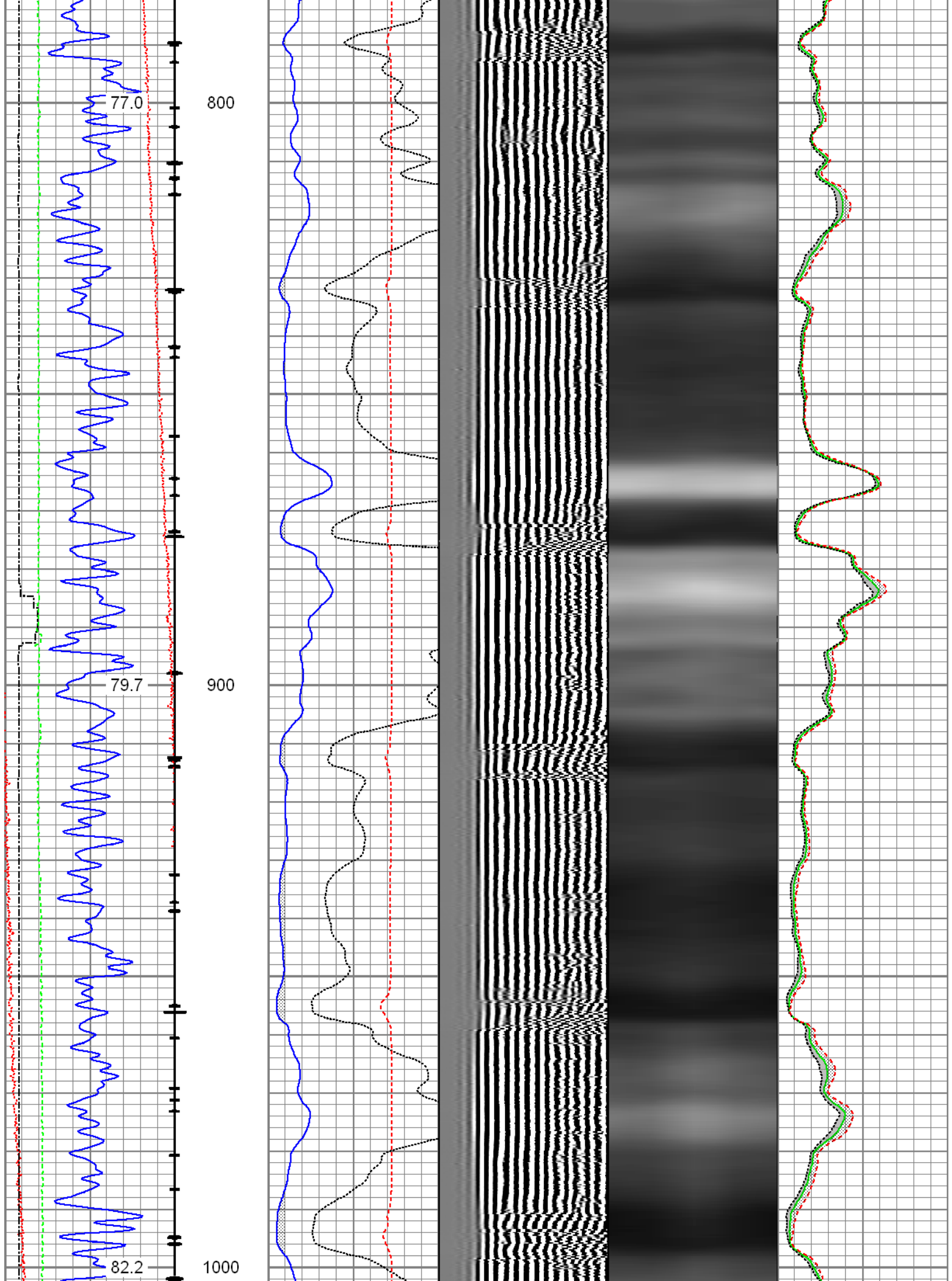
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Temperature (2°/Div)	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min)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

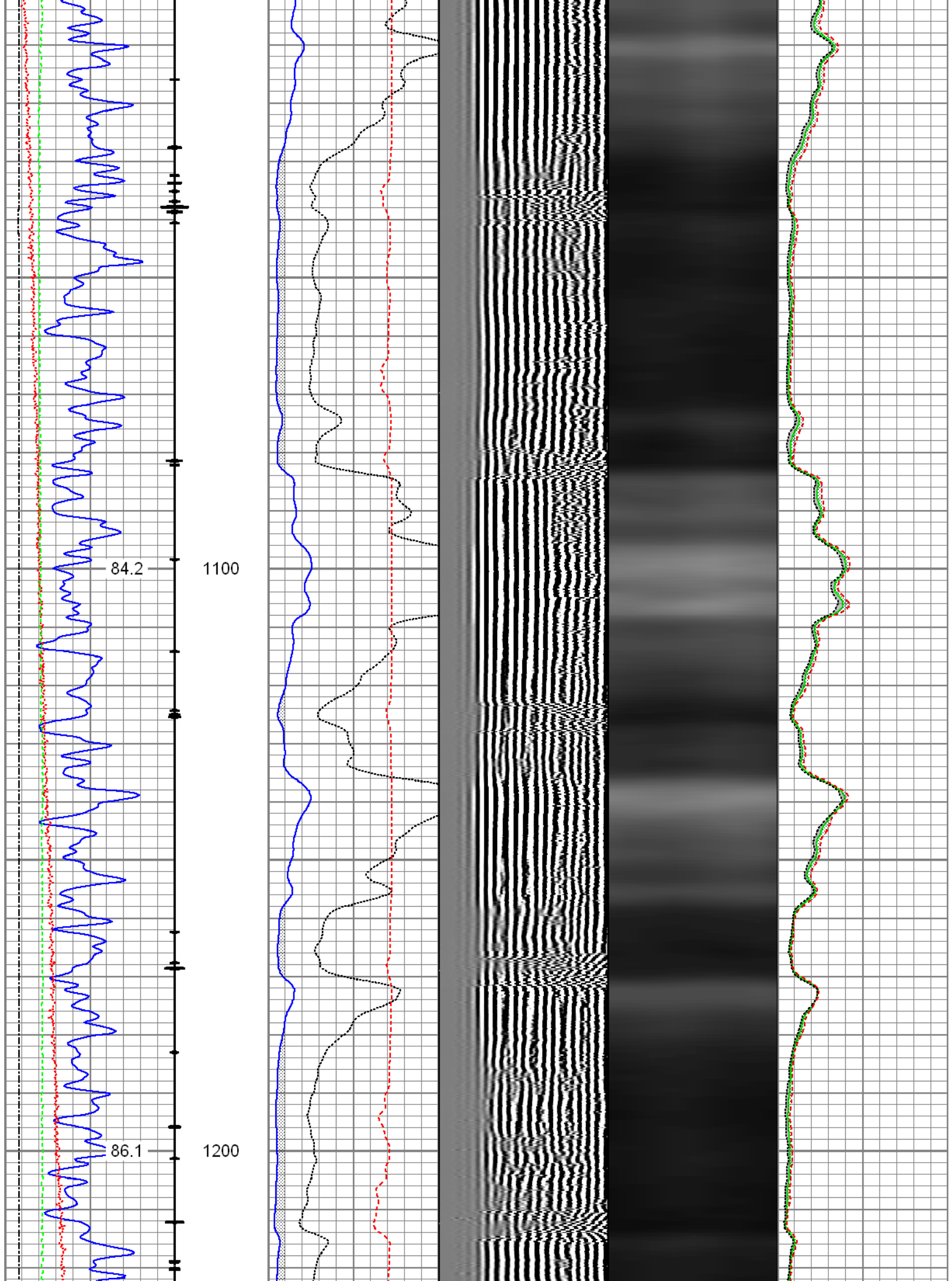


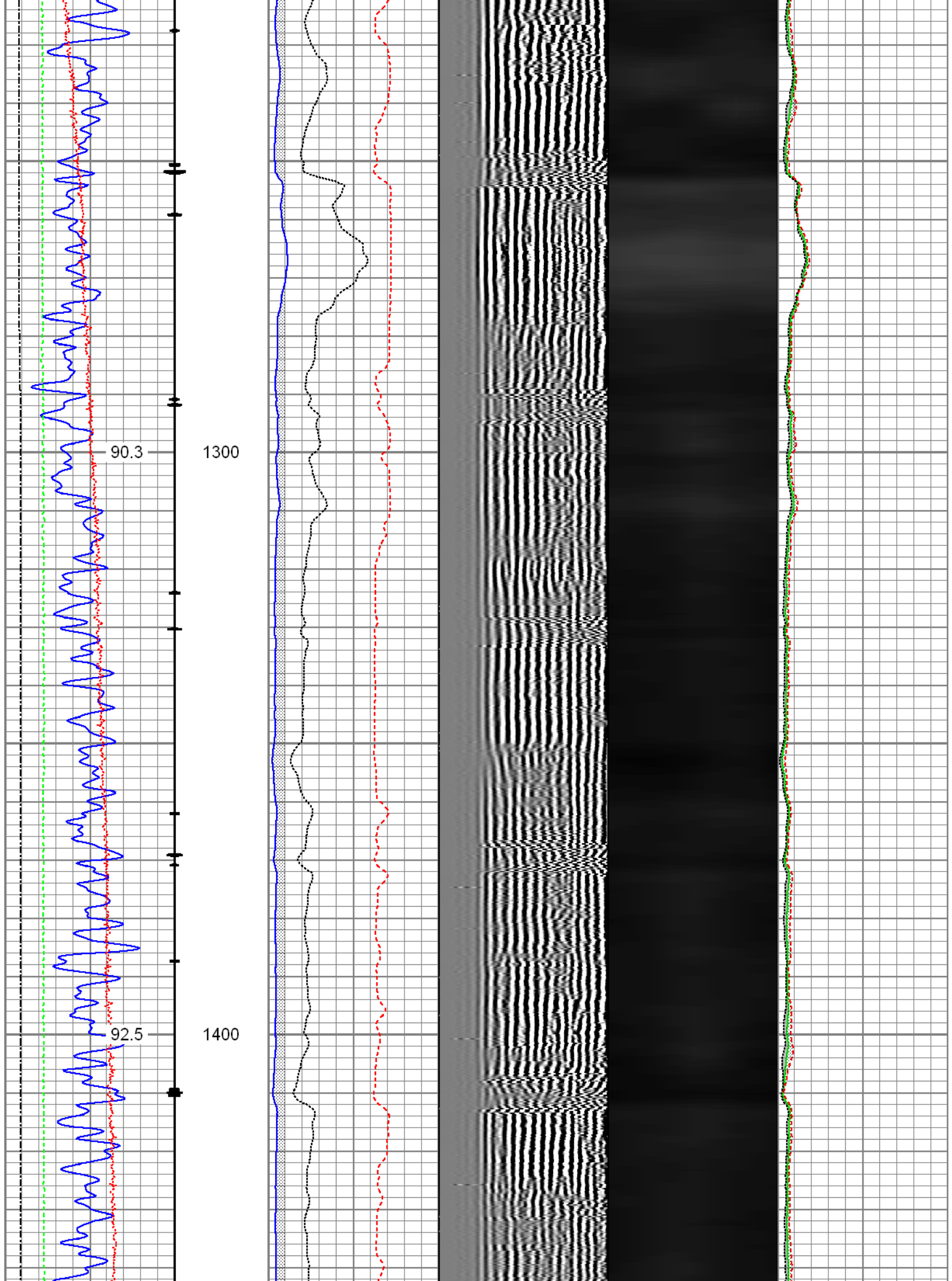


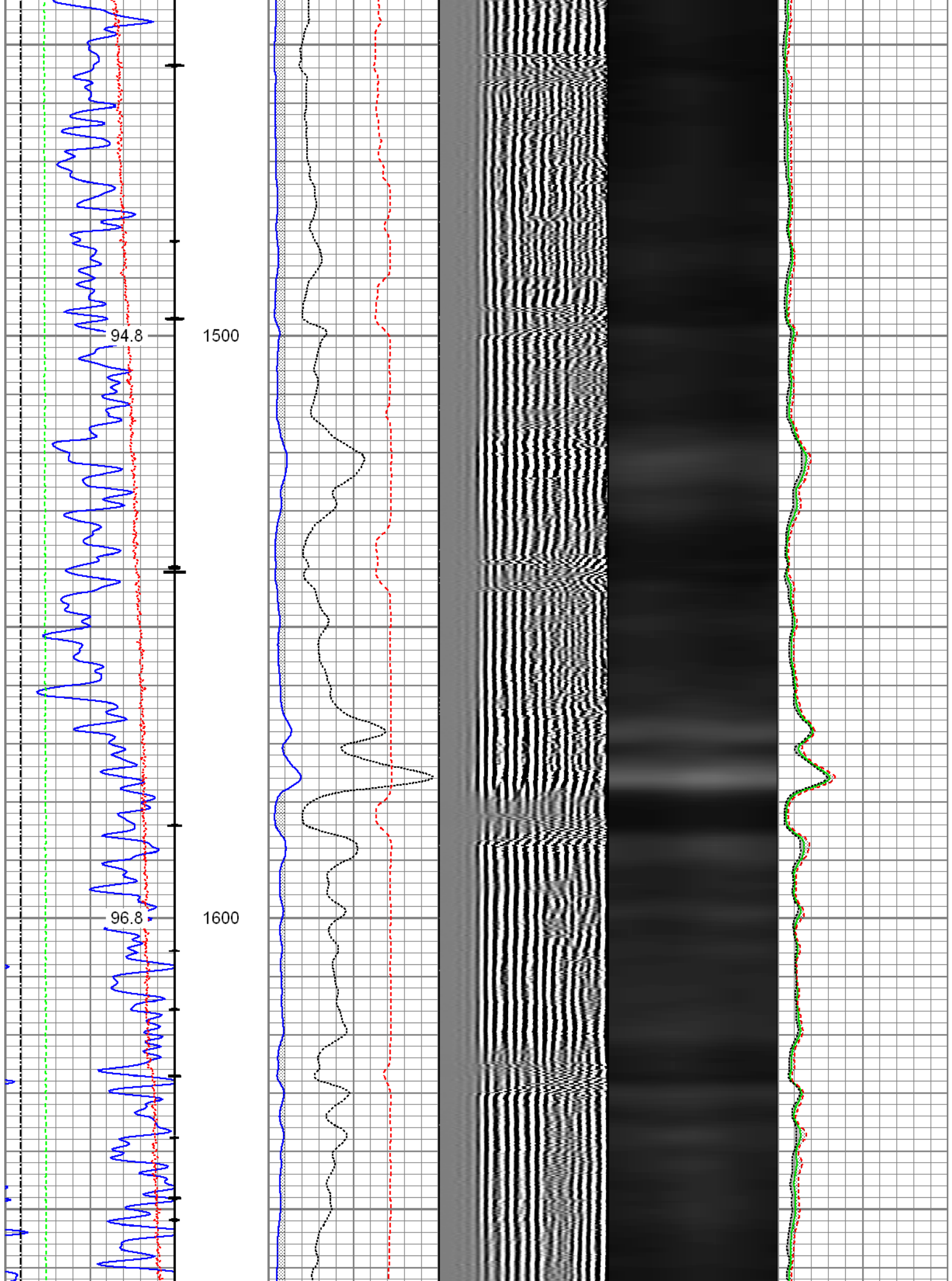


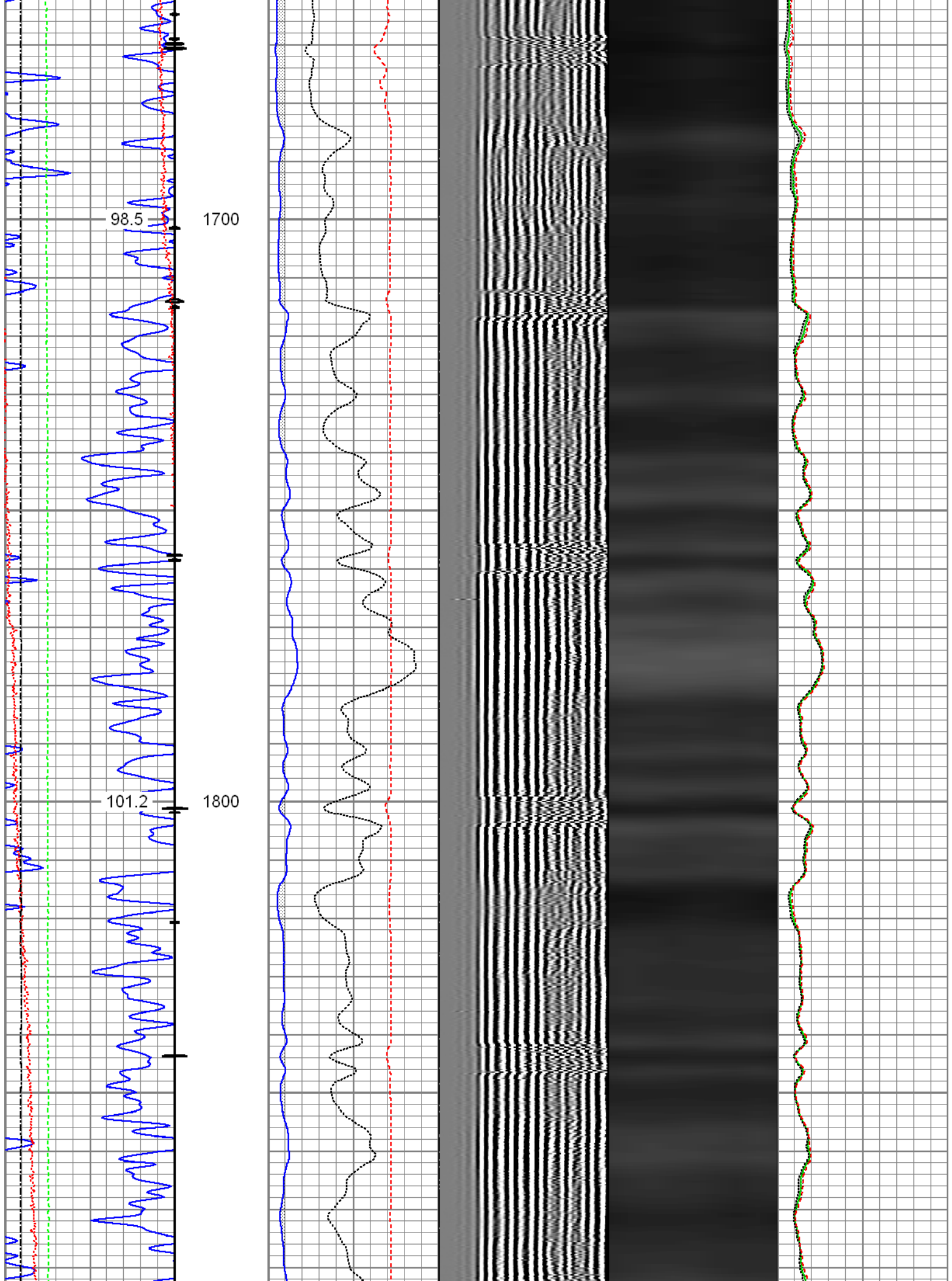


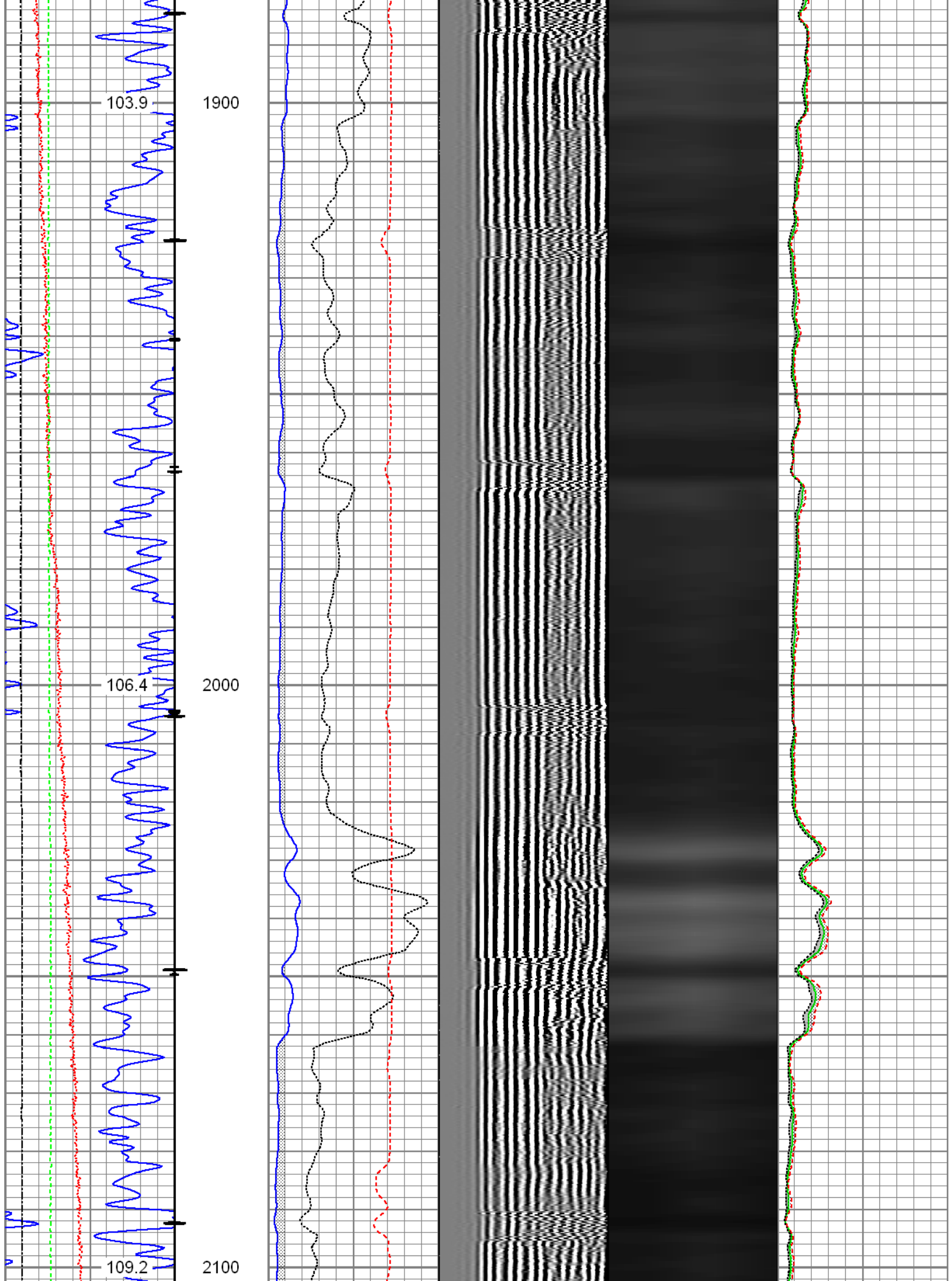


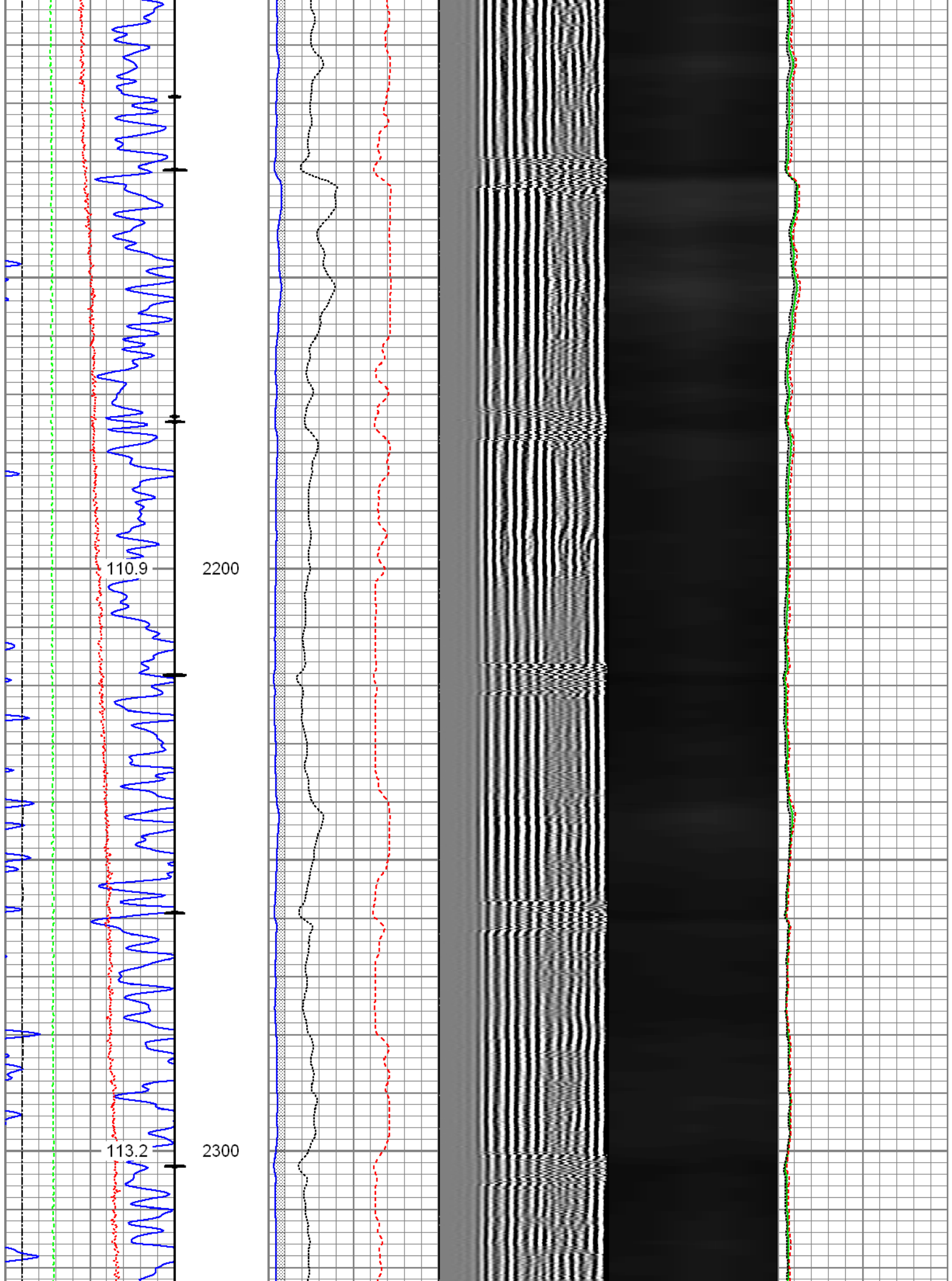


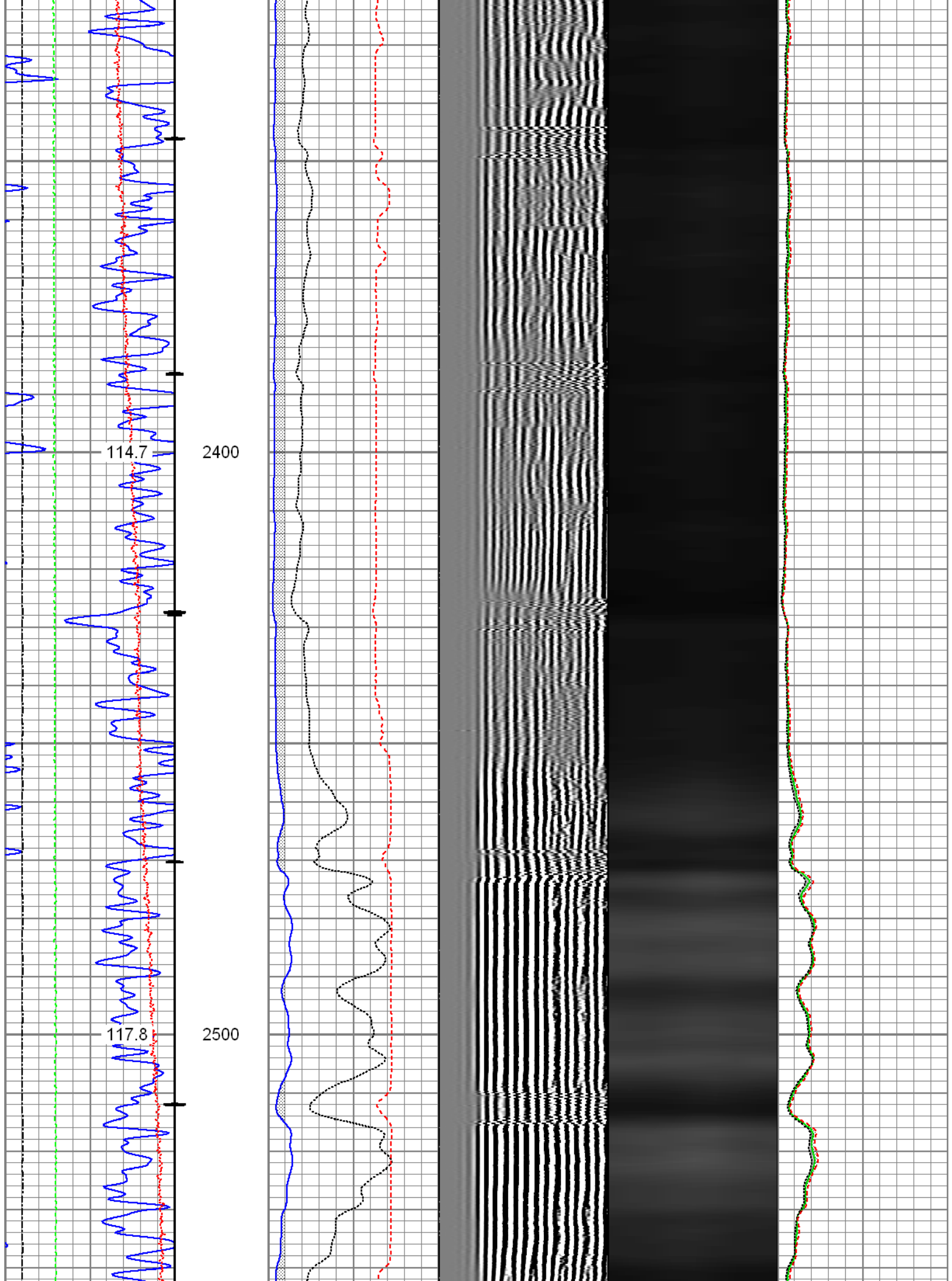


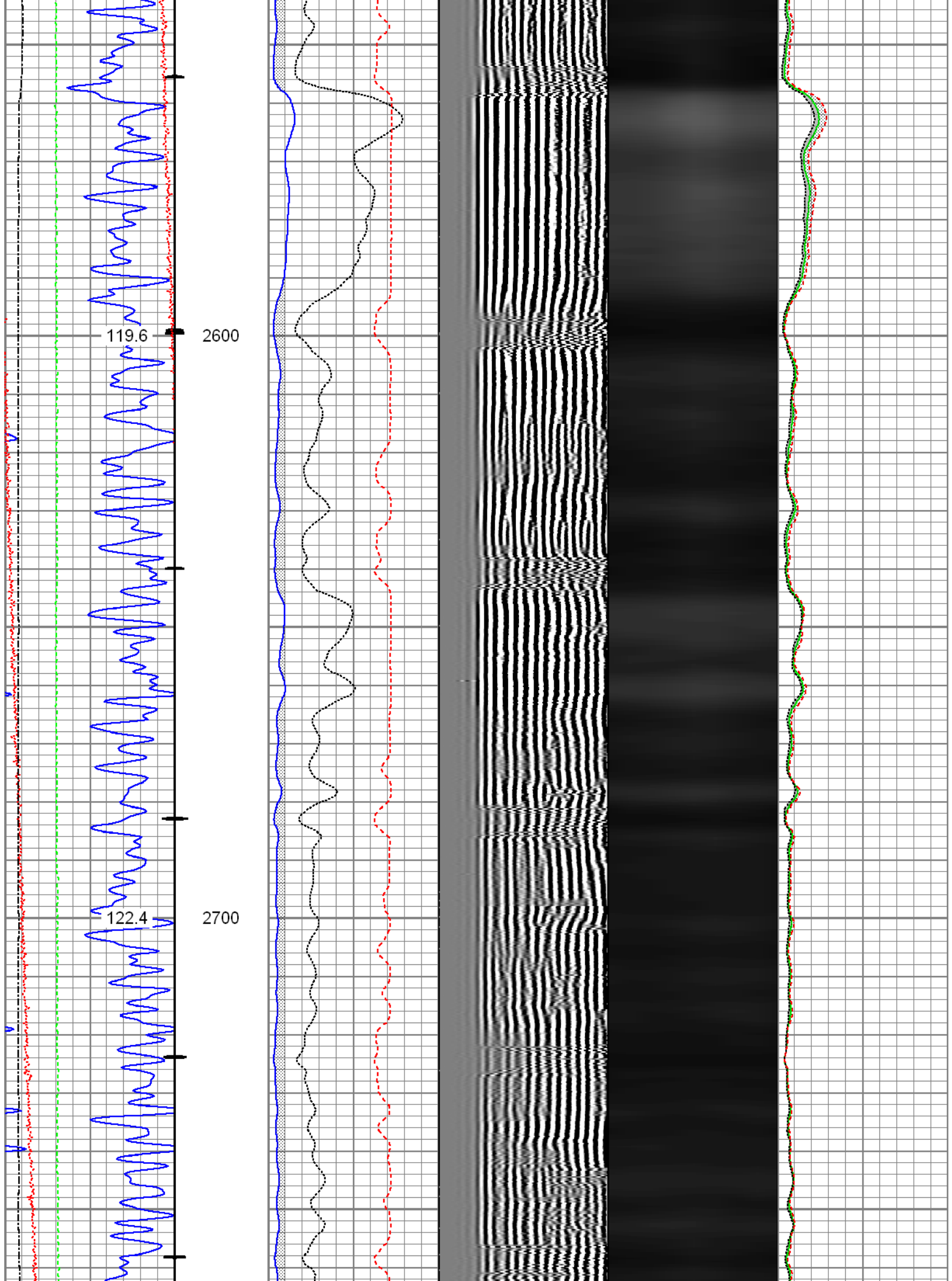


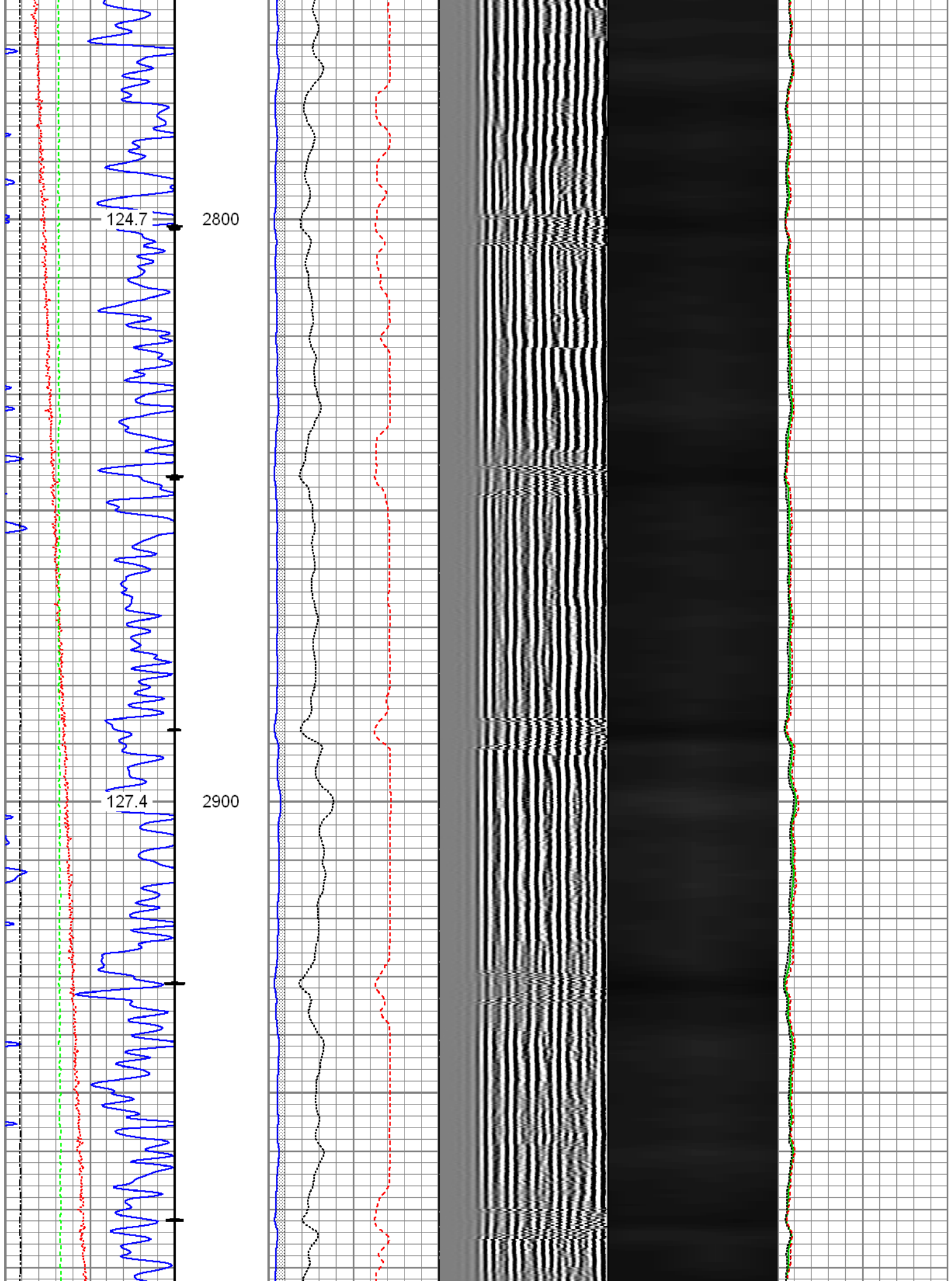


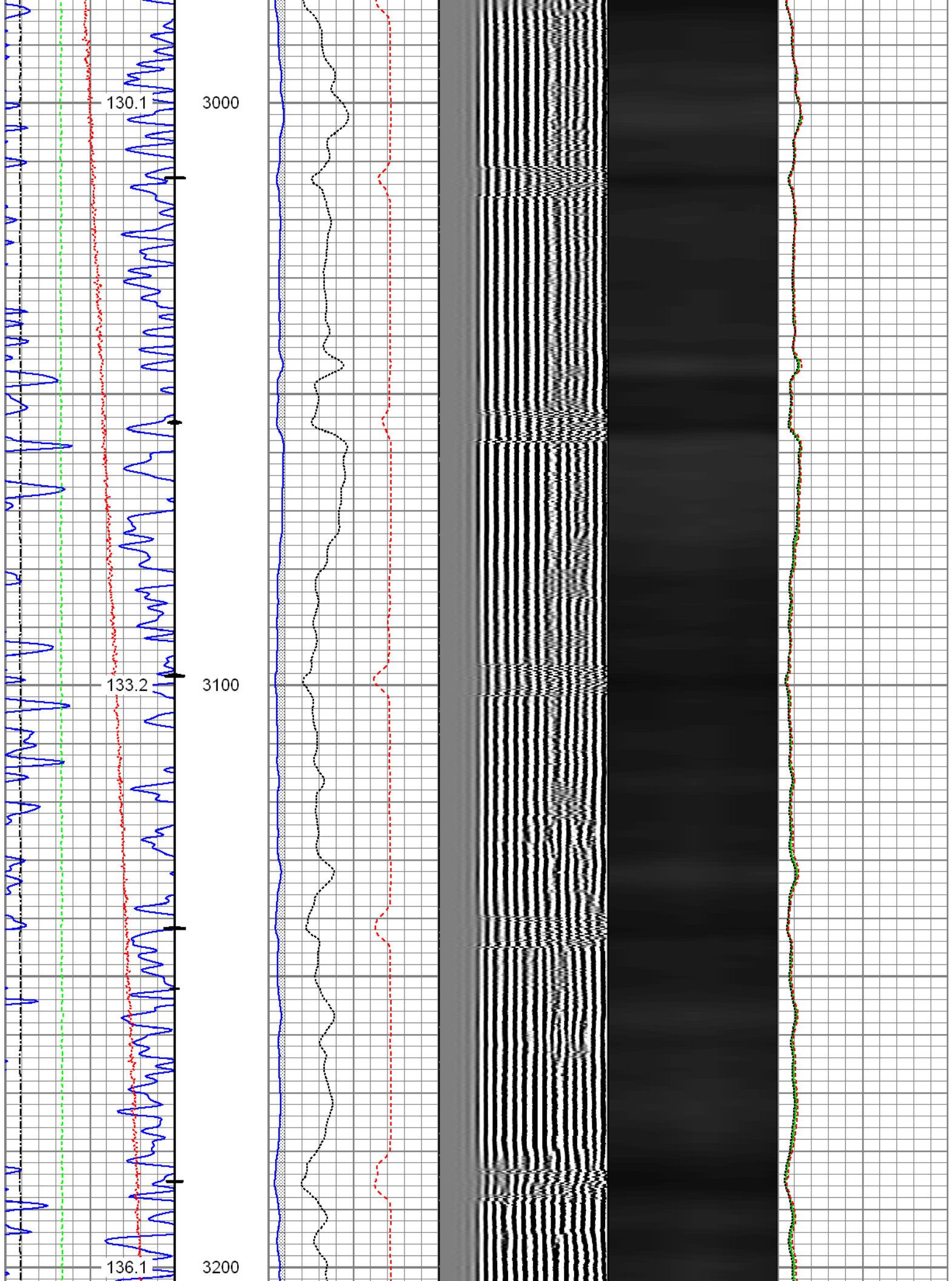


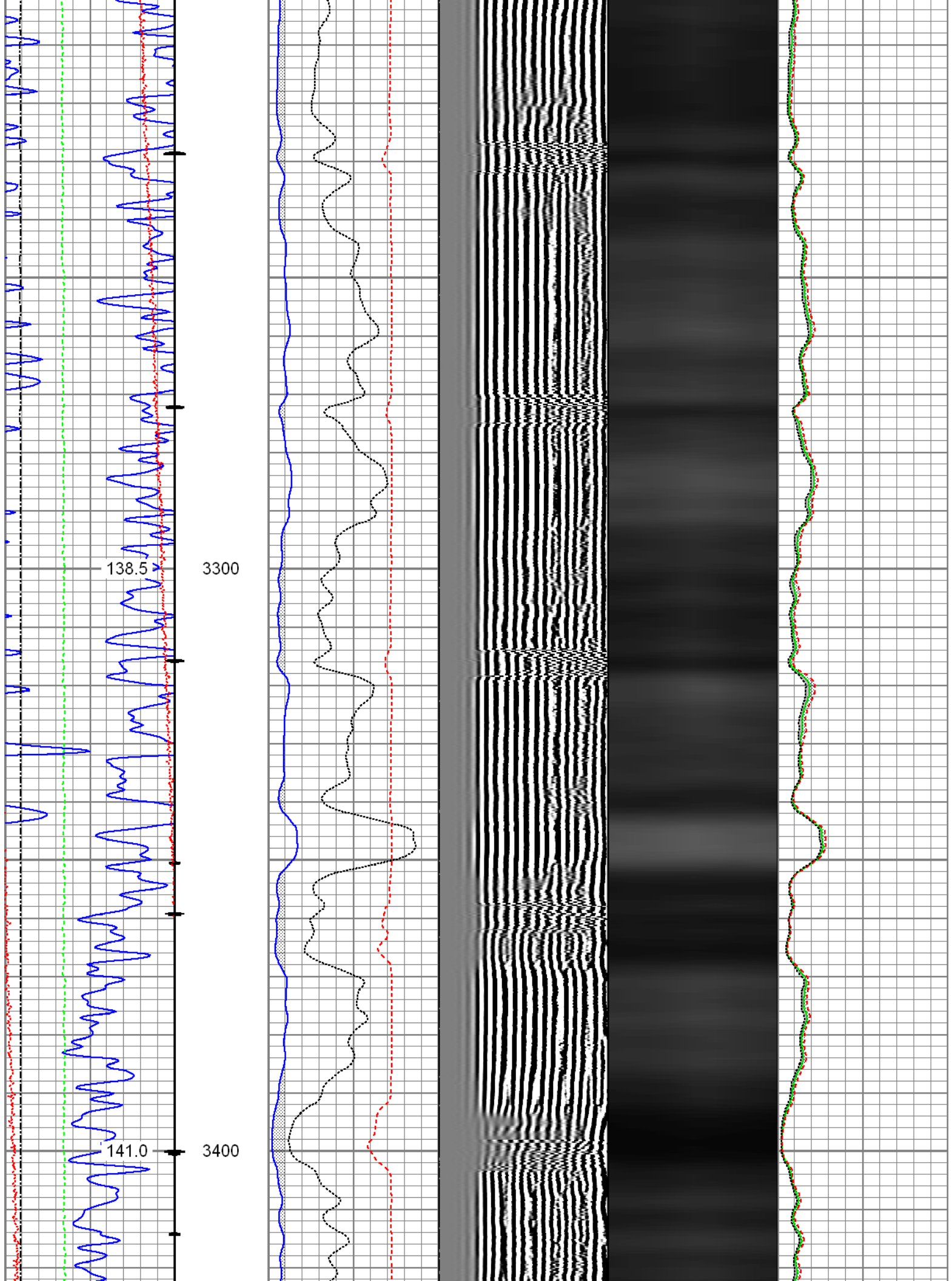


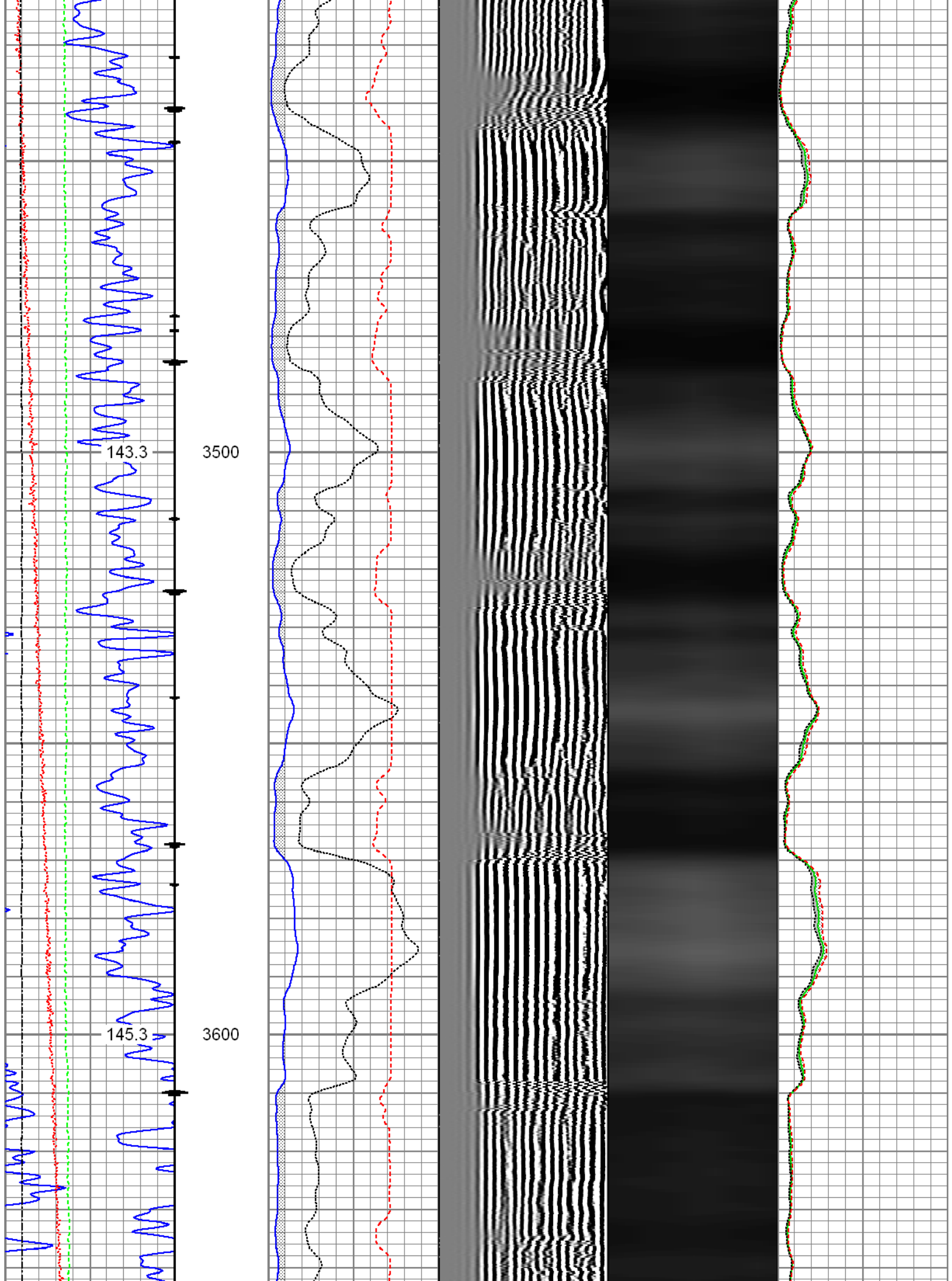


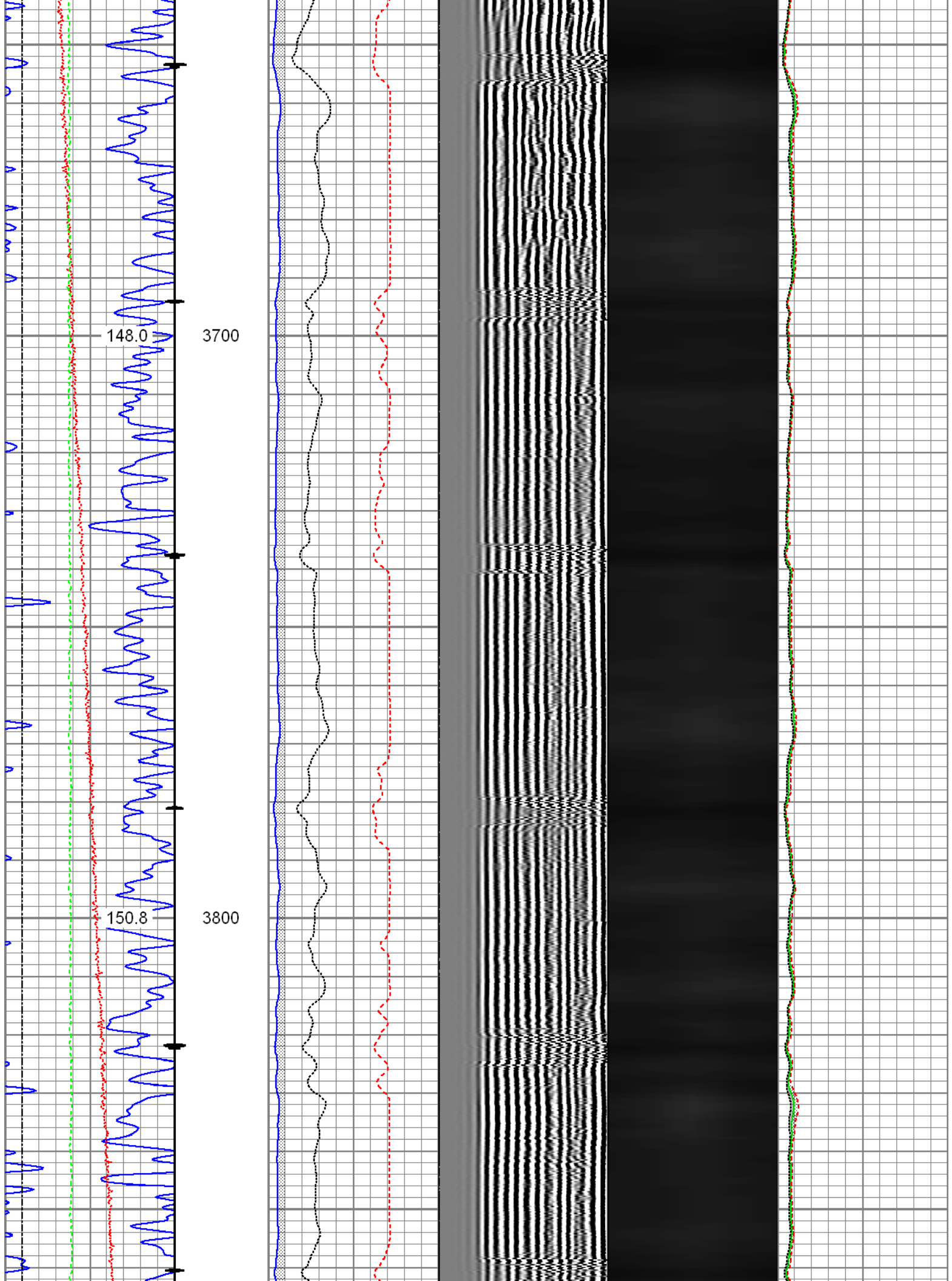


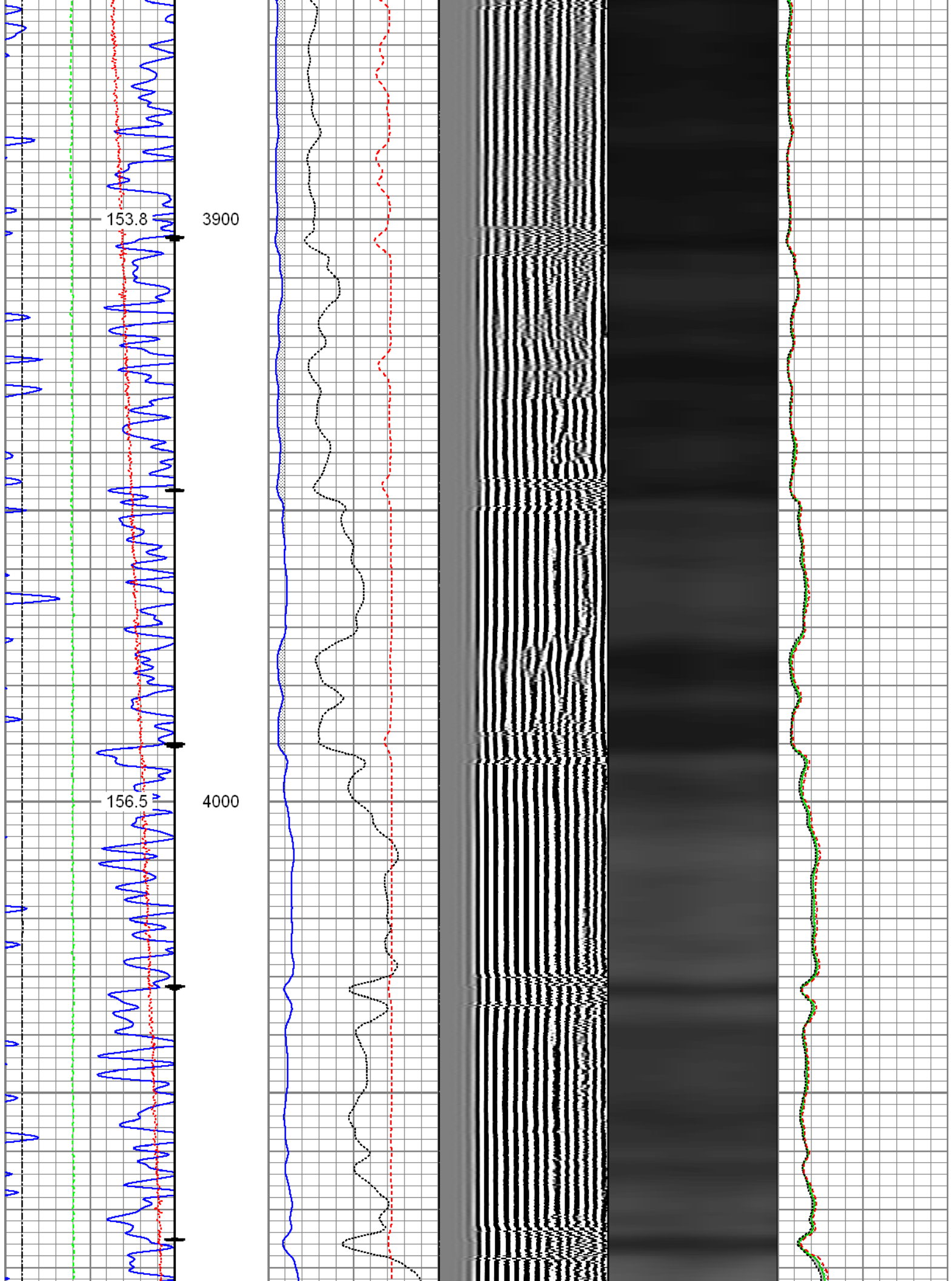


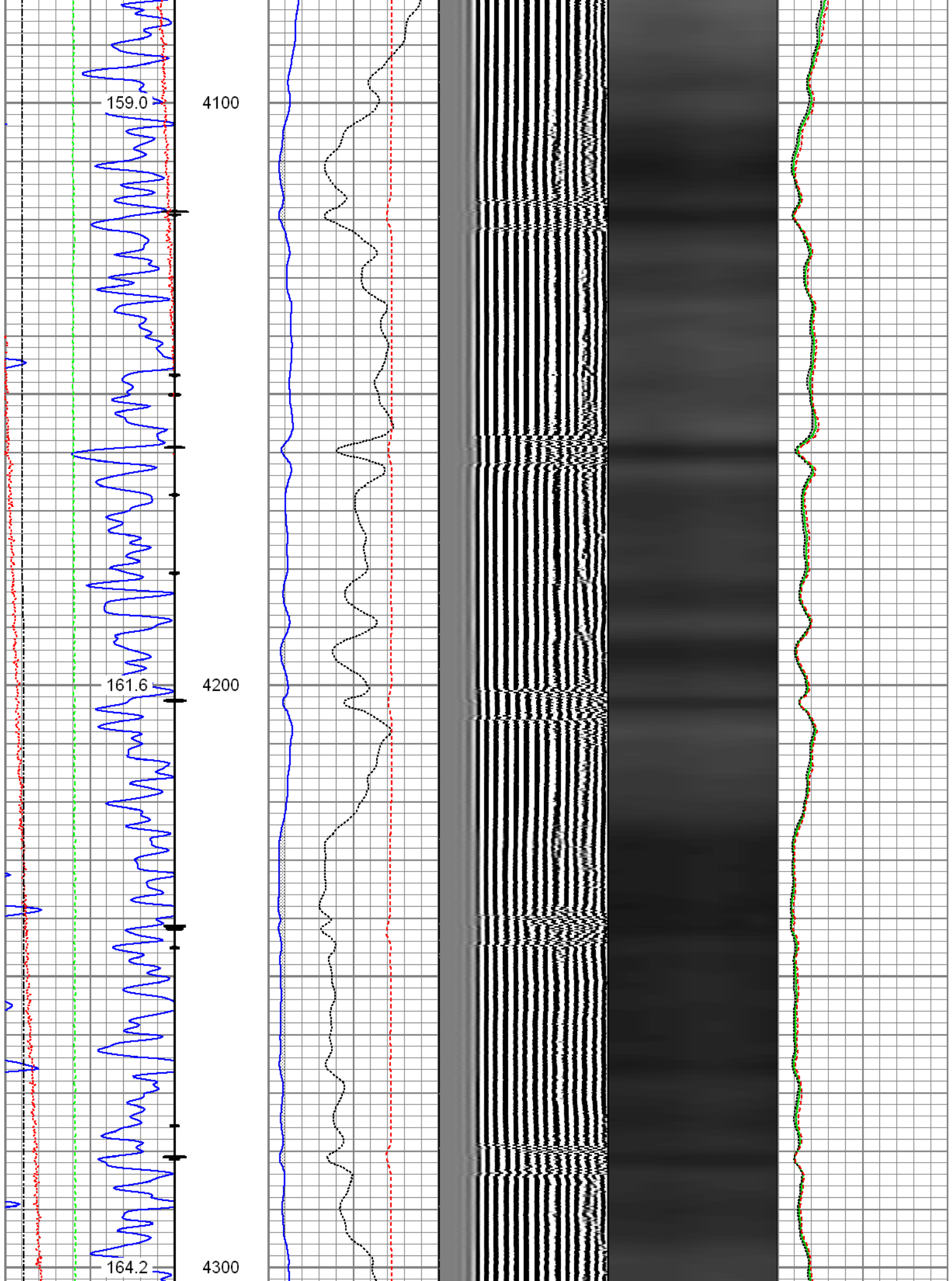


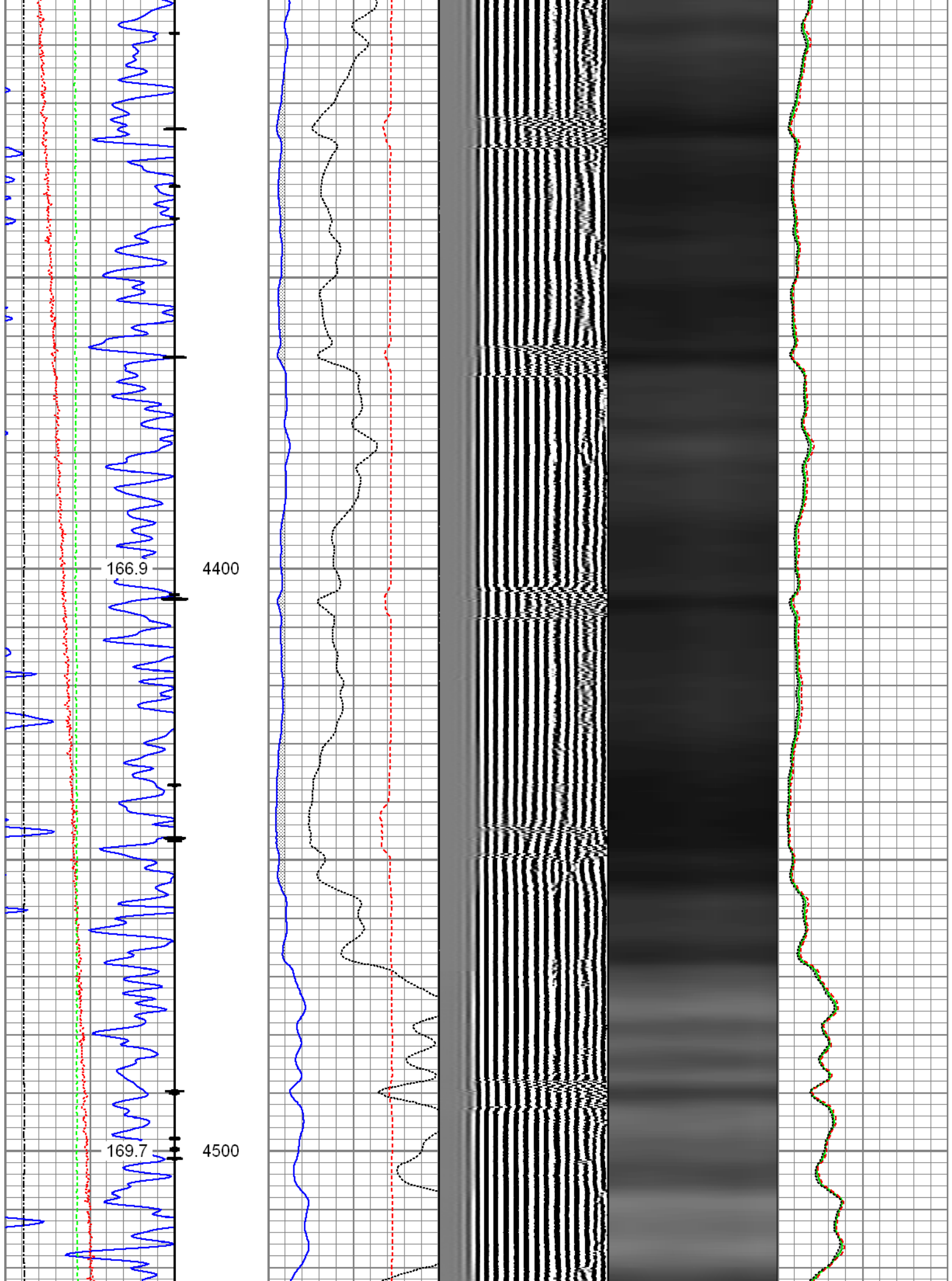


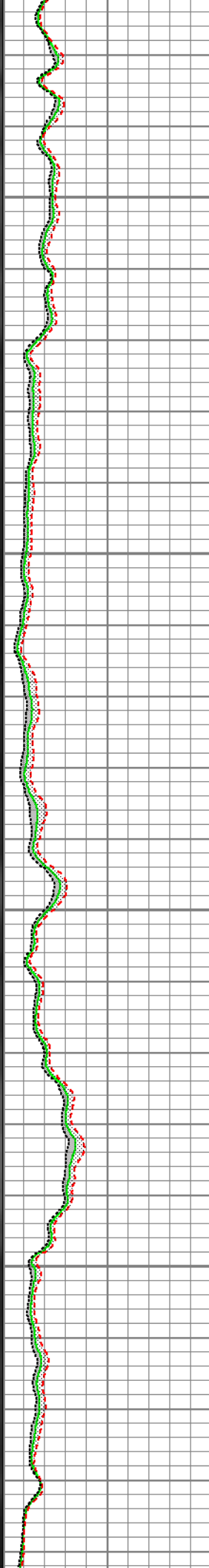
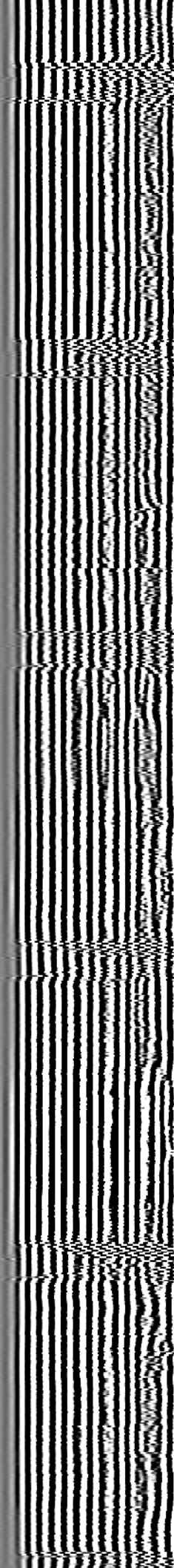
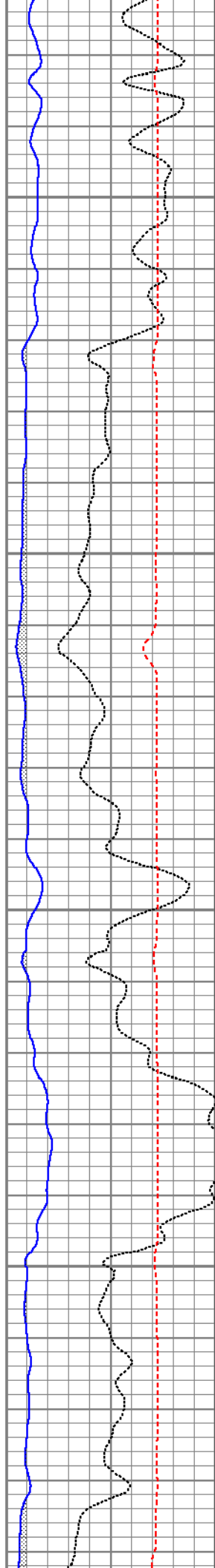
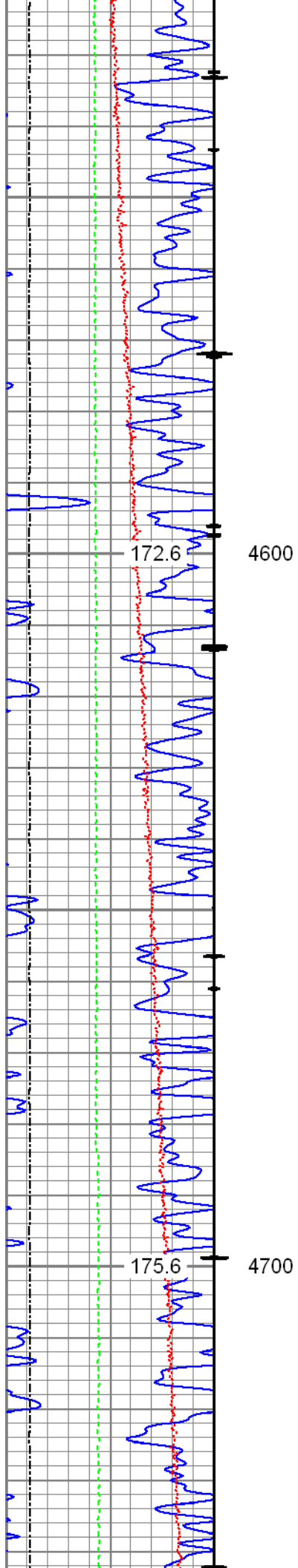


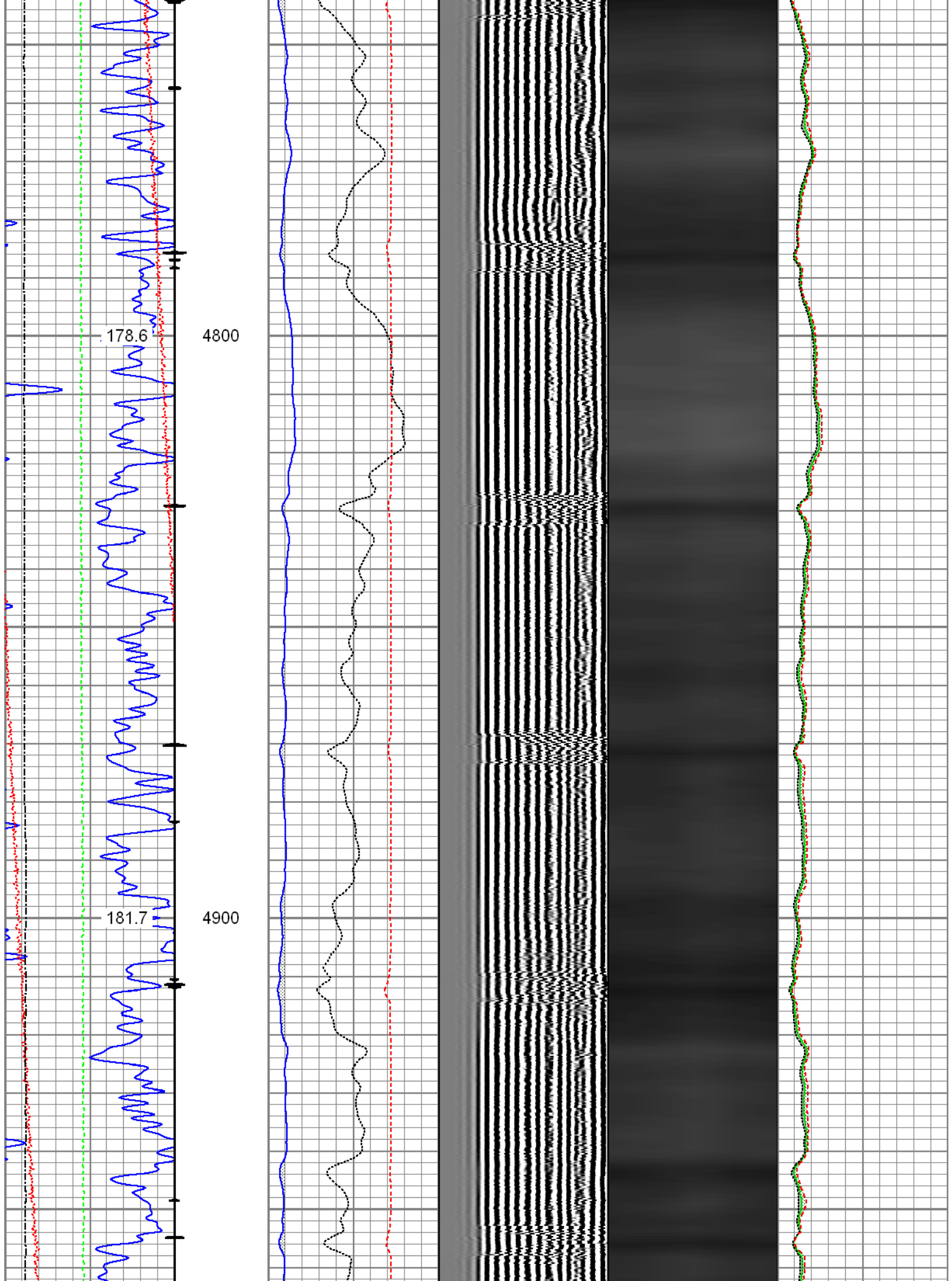


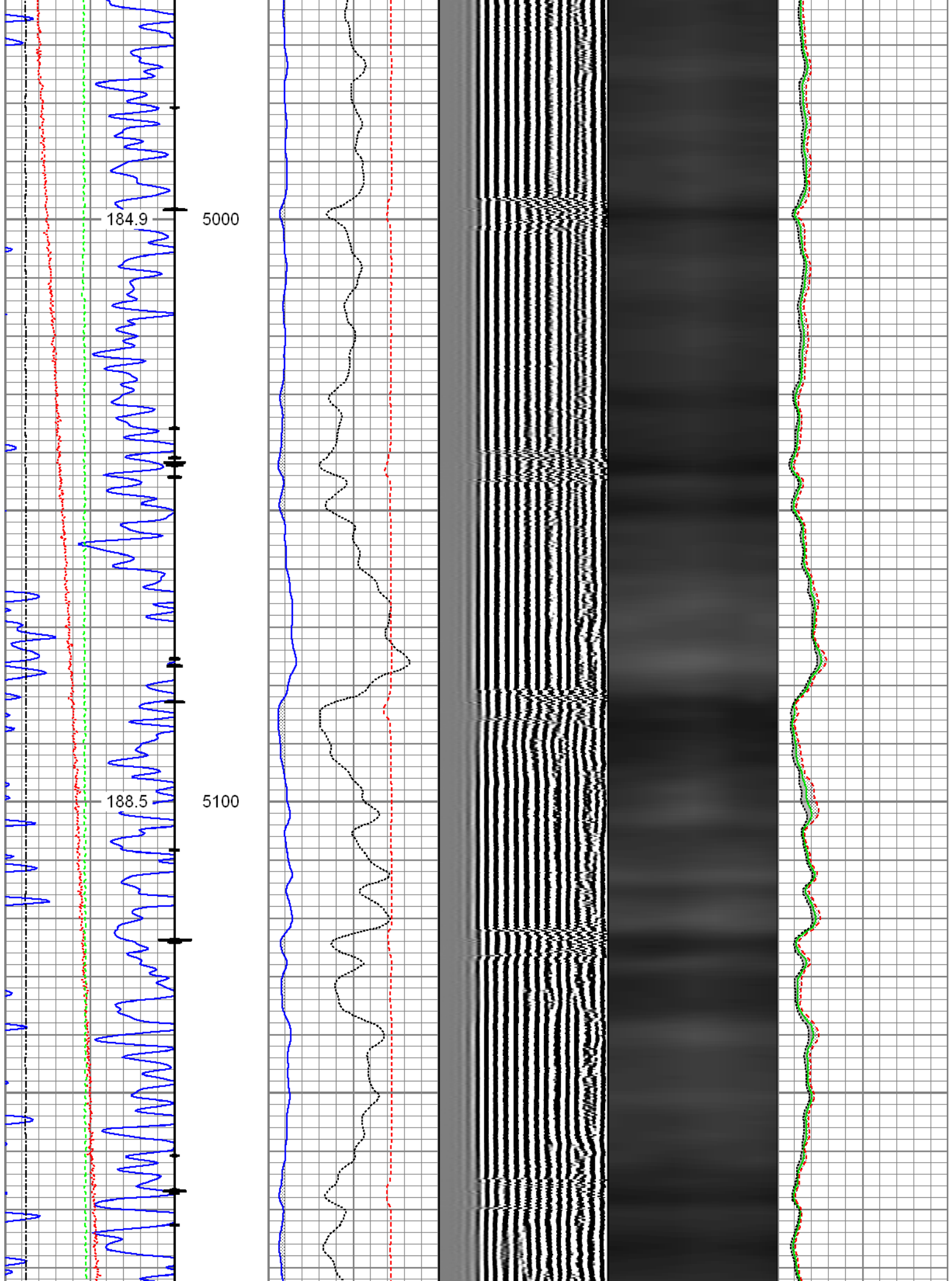


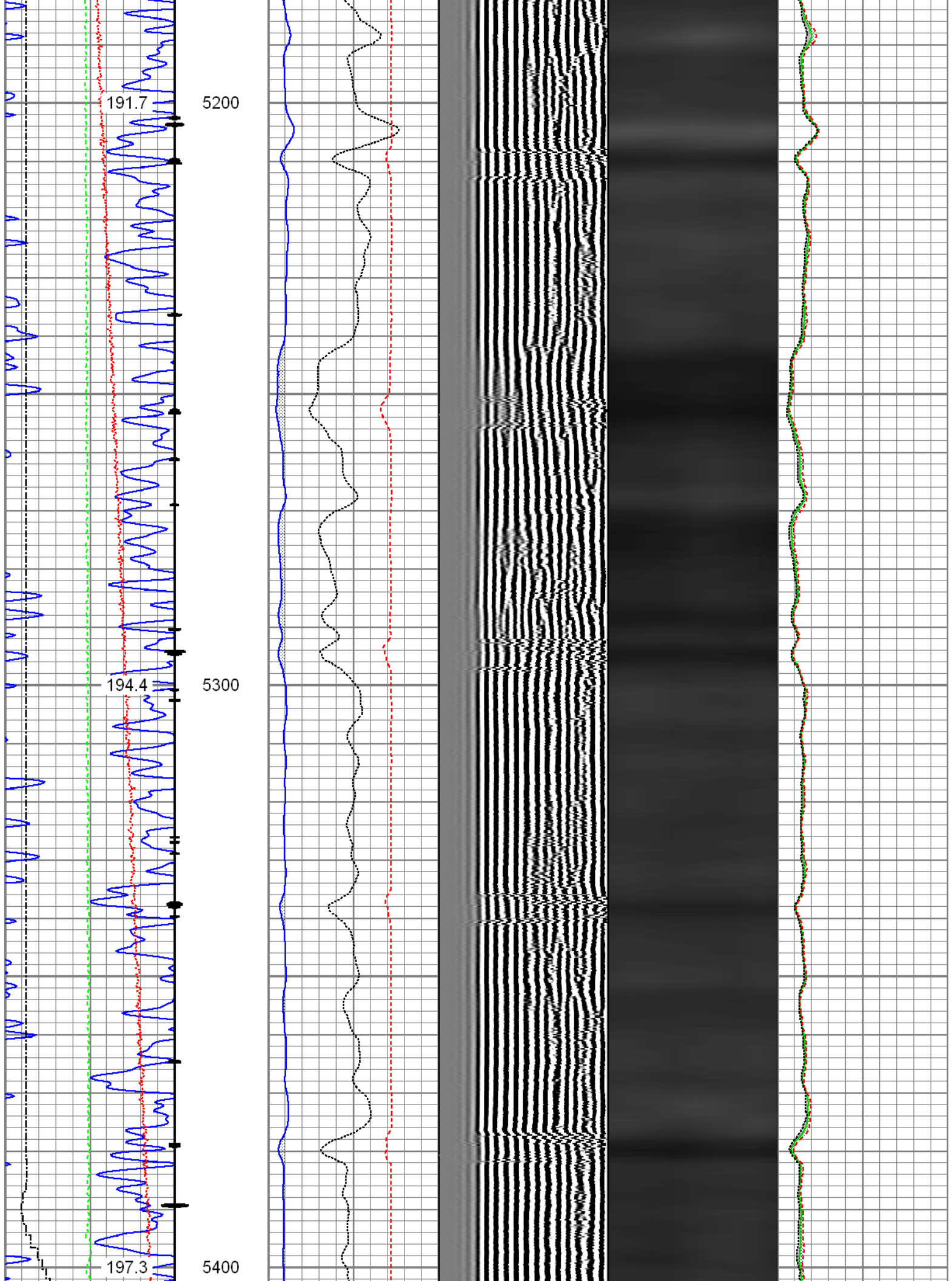


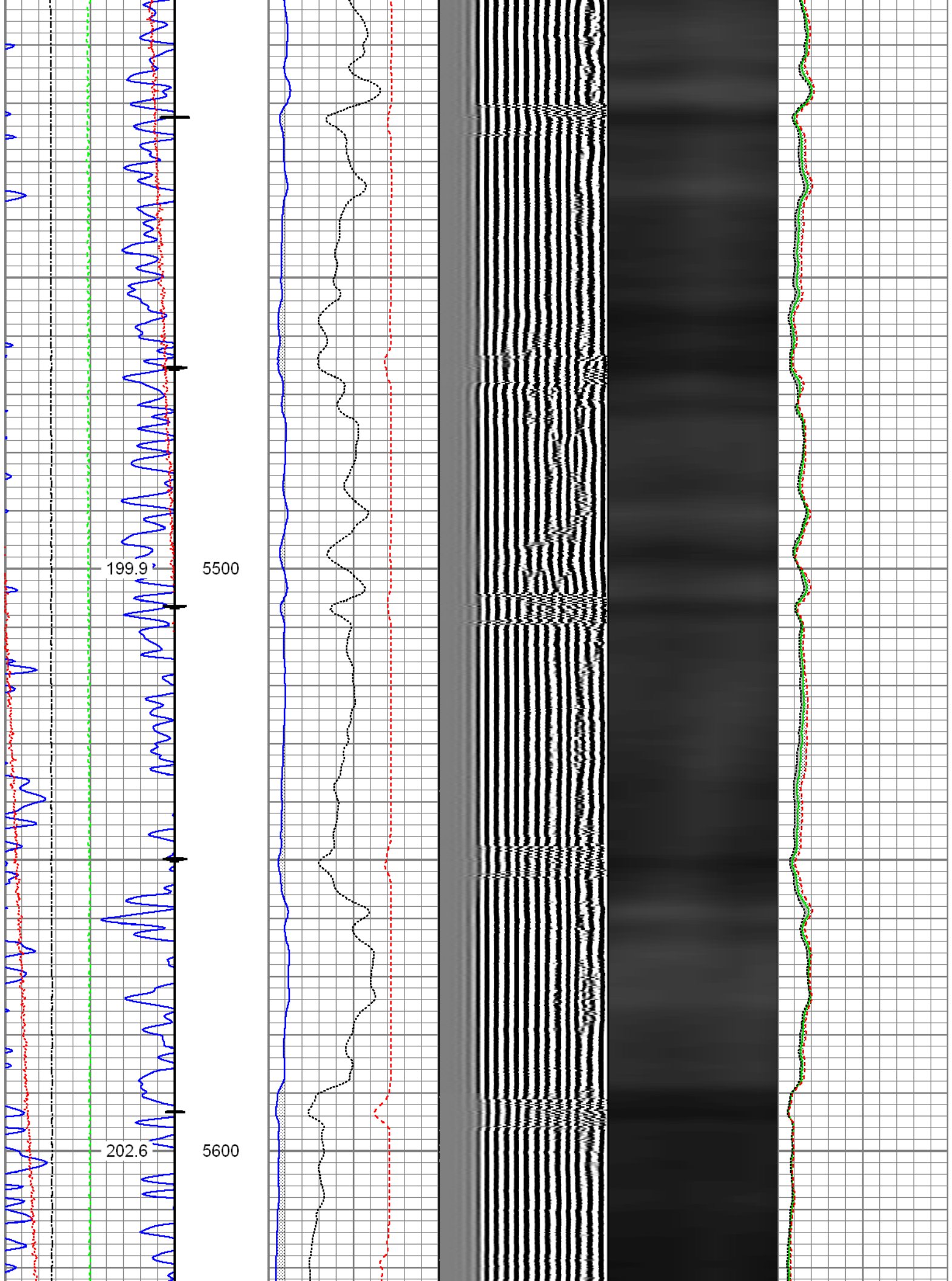


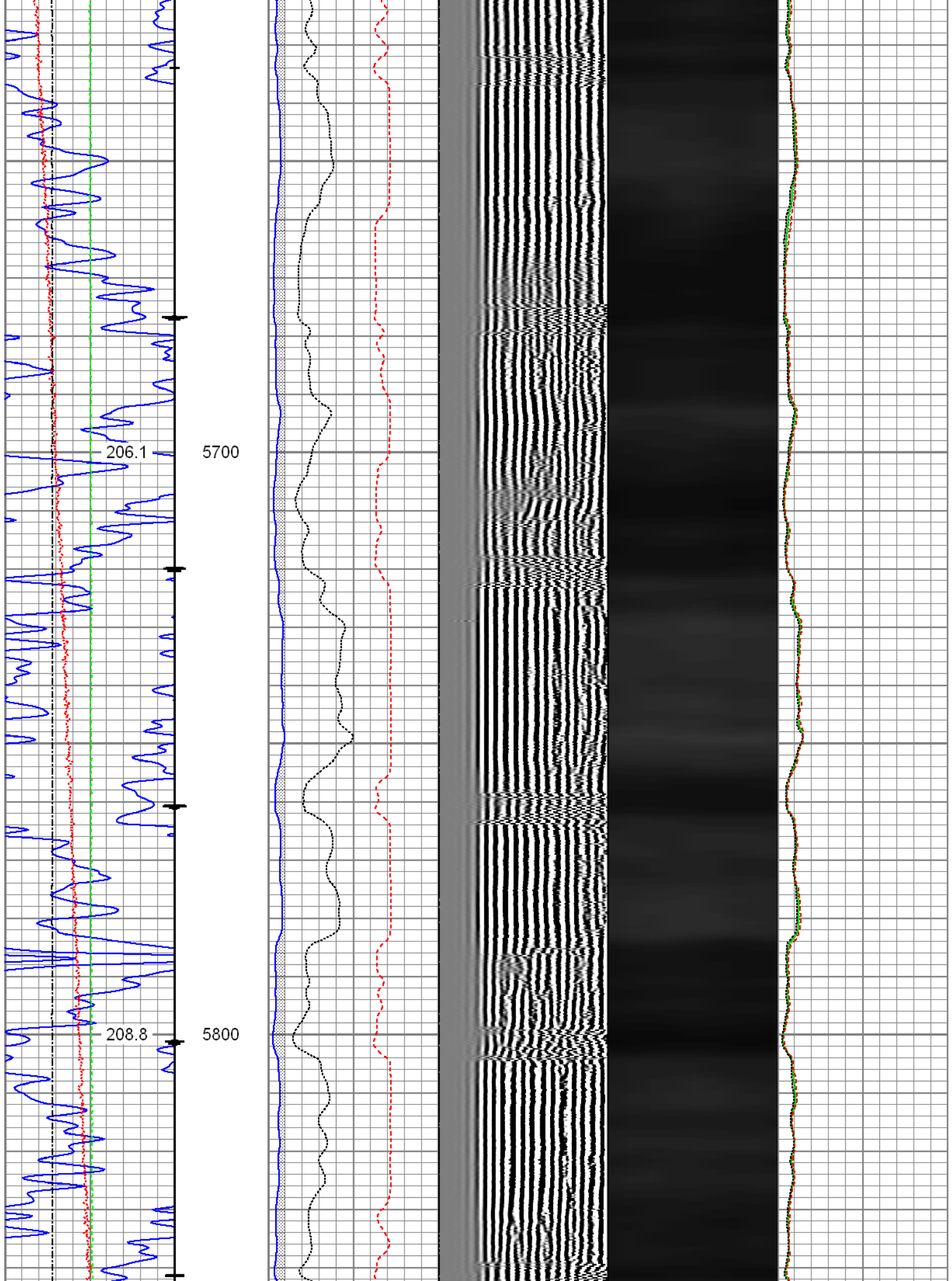


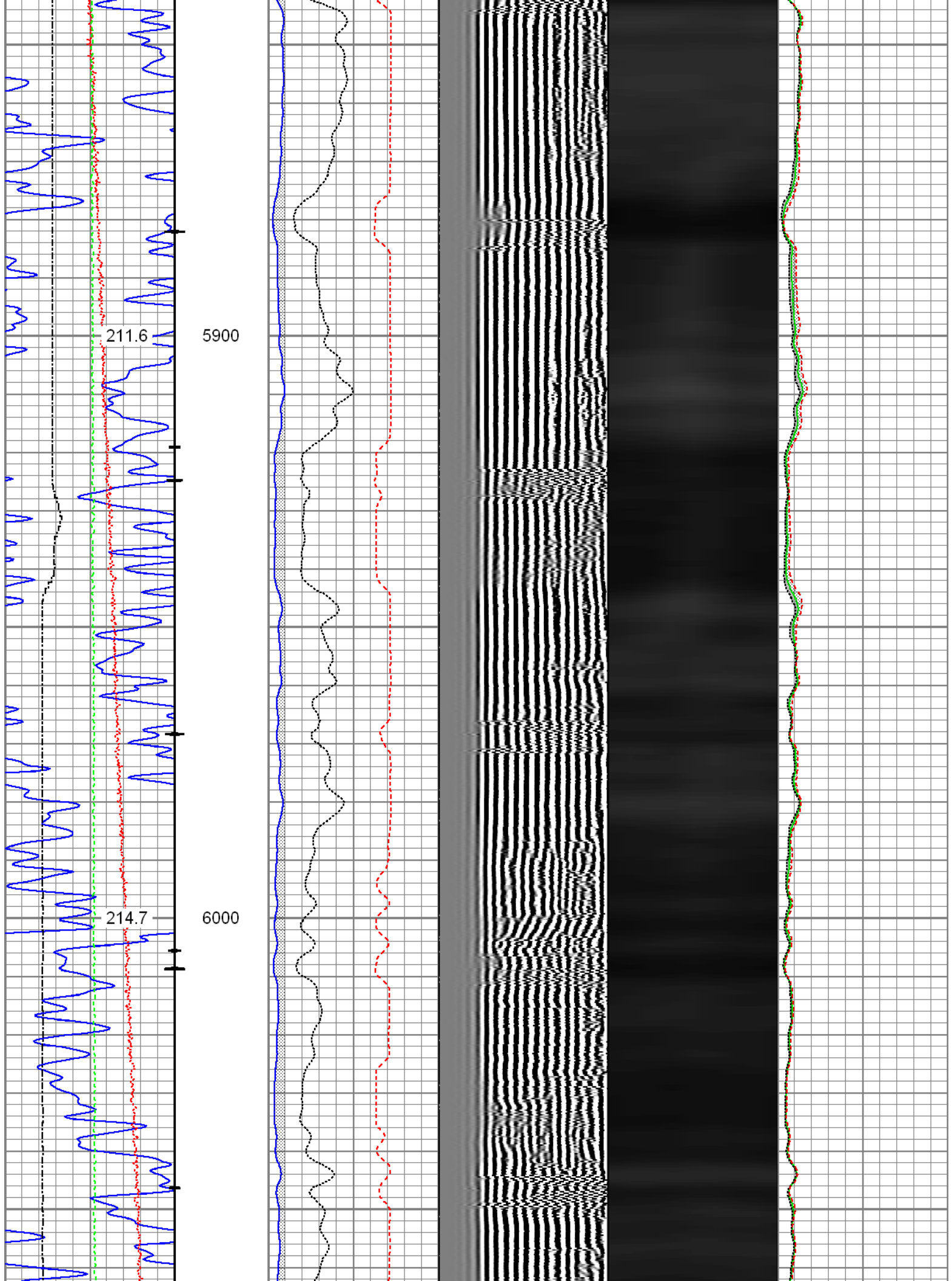


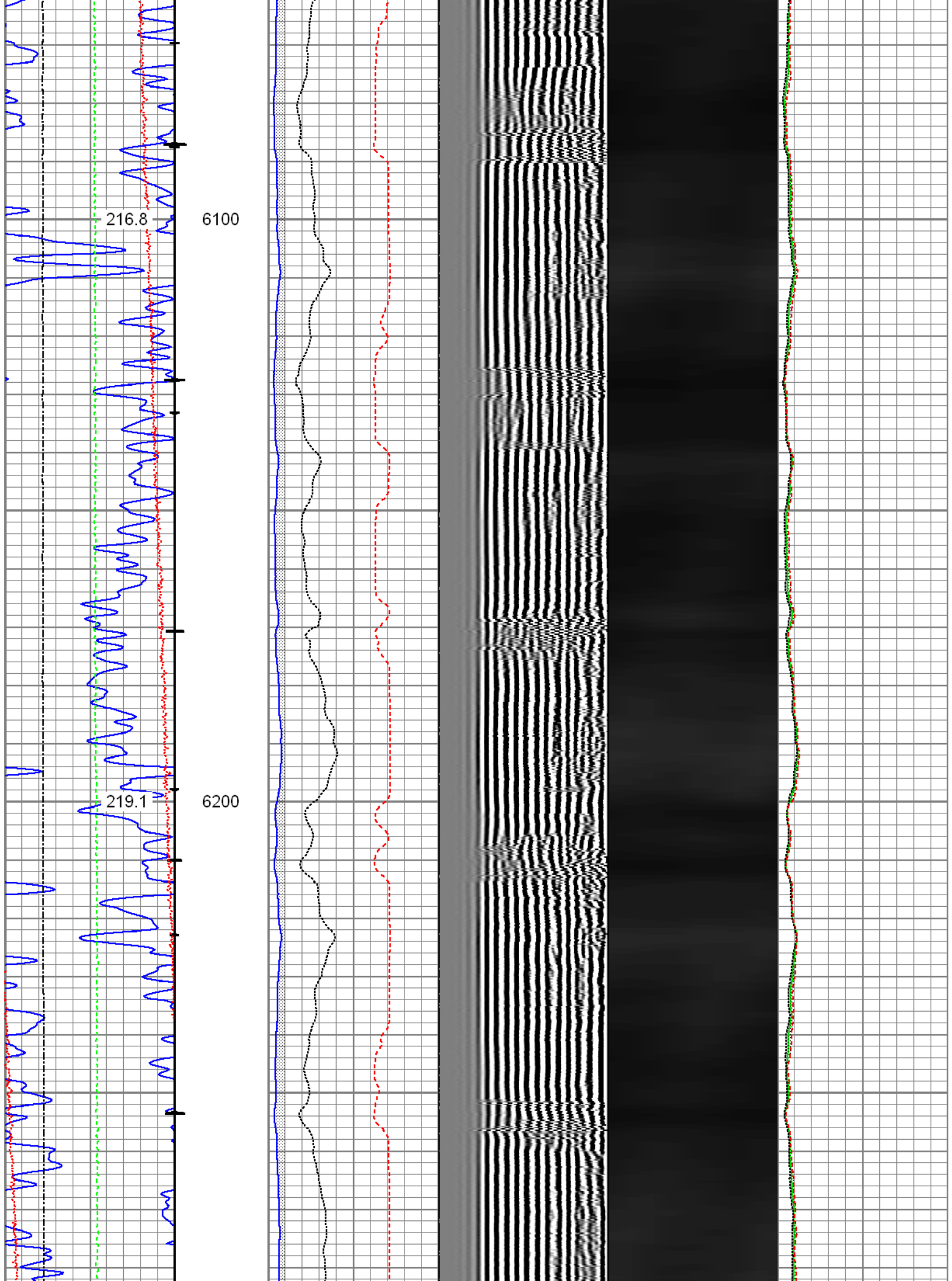


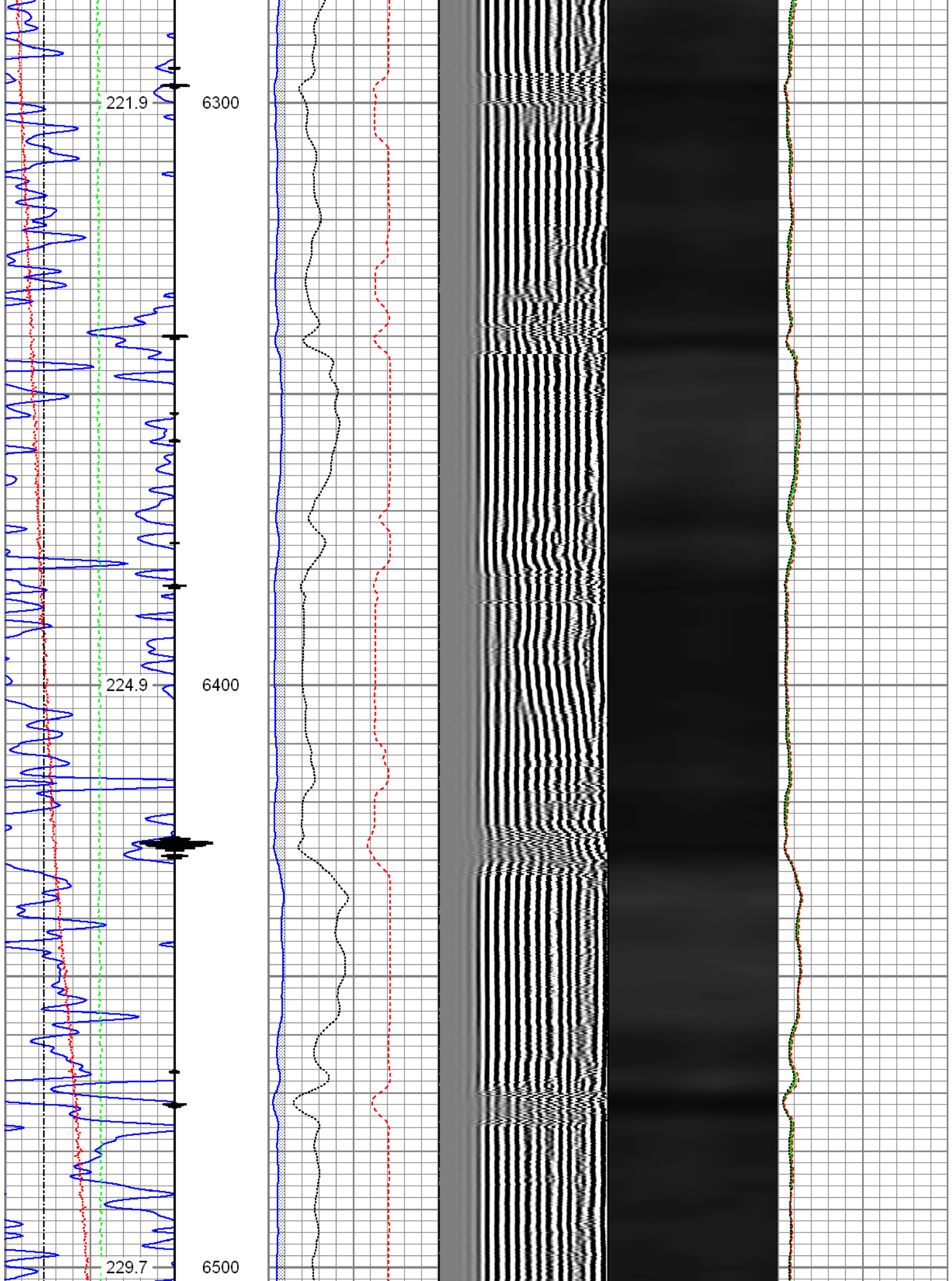


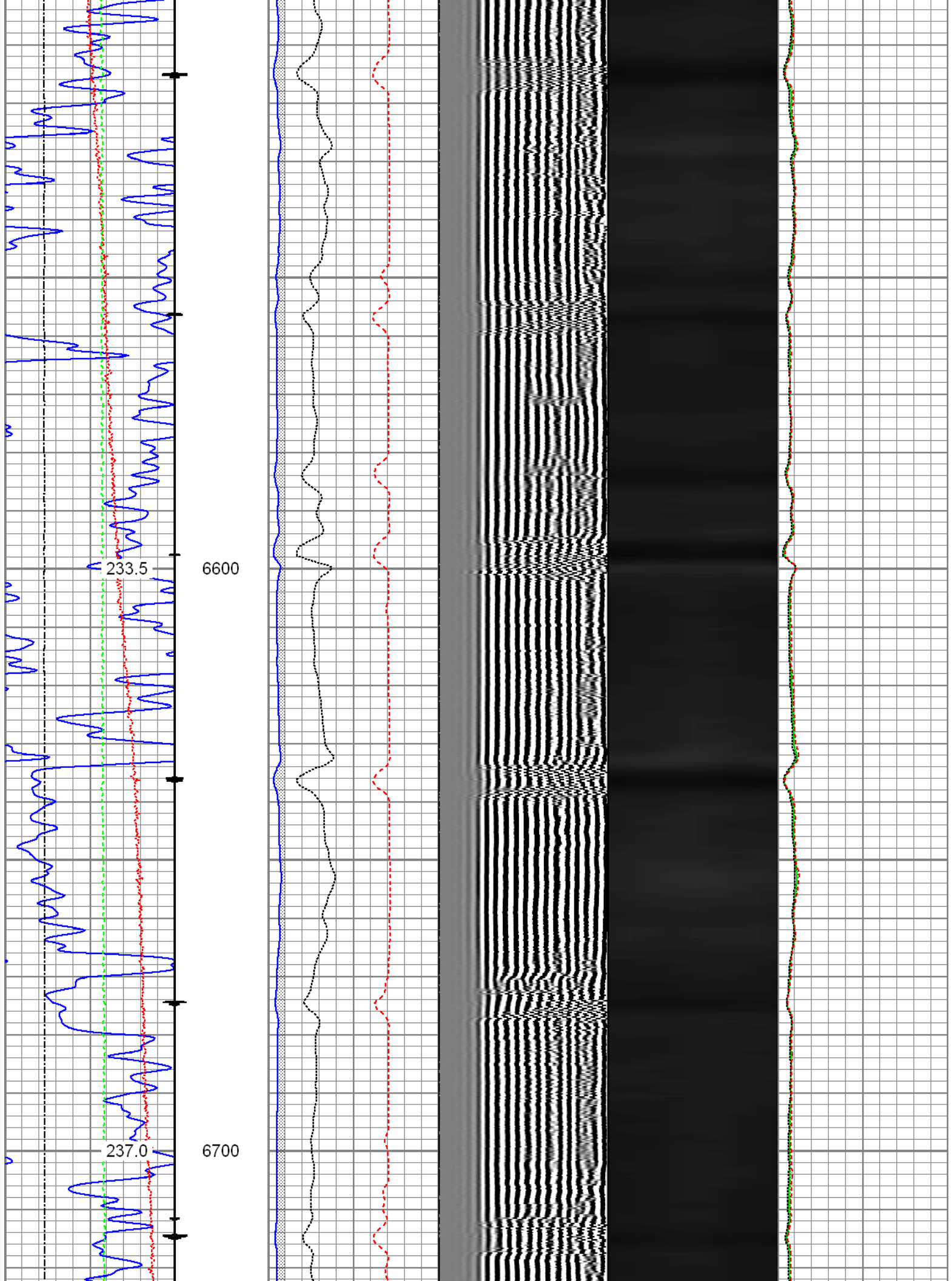


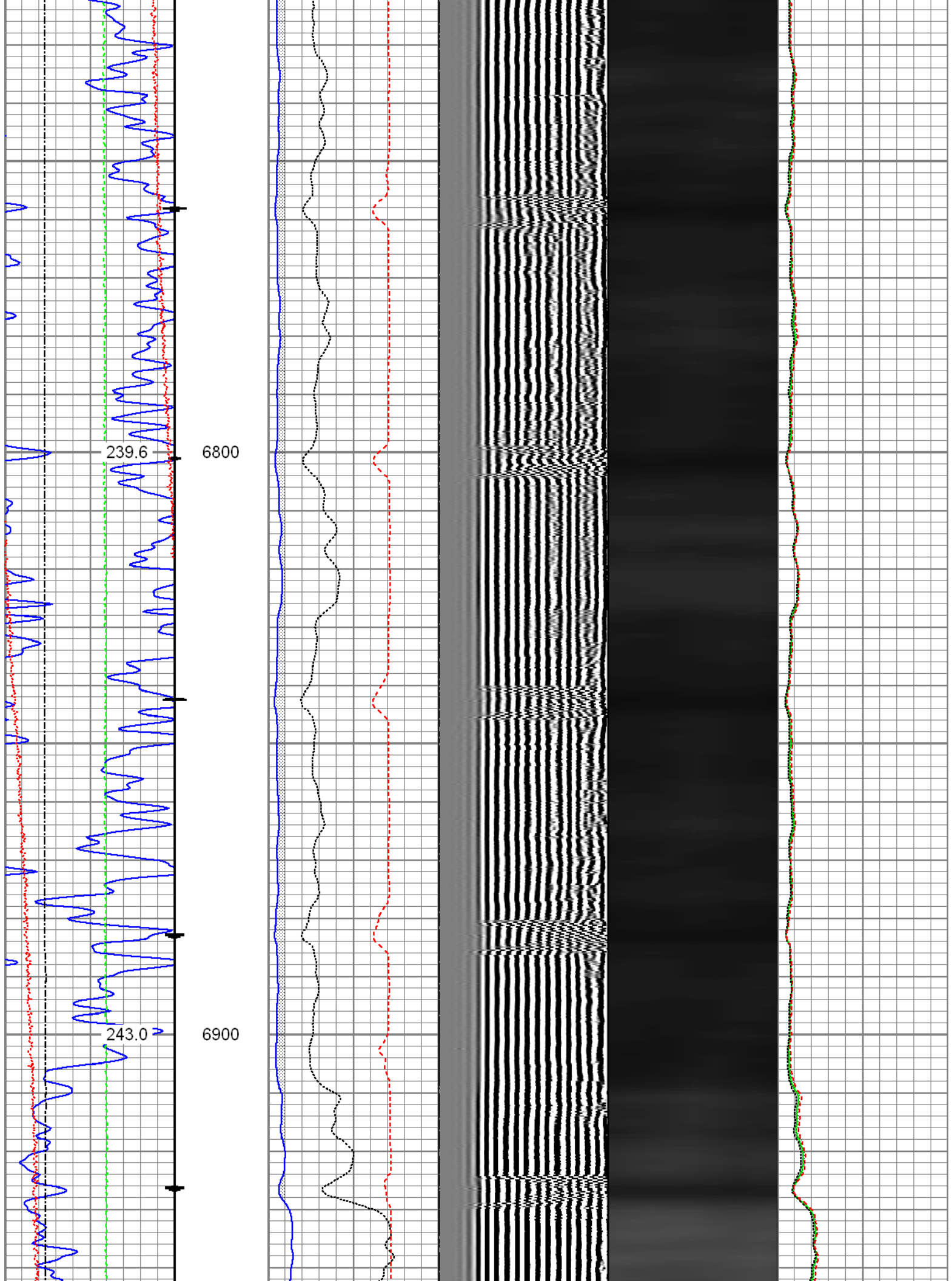


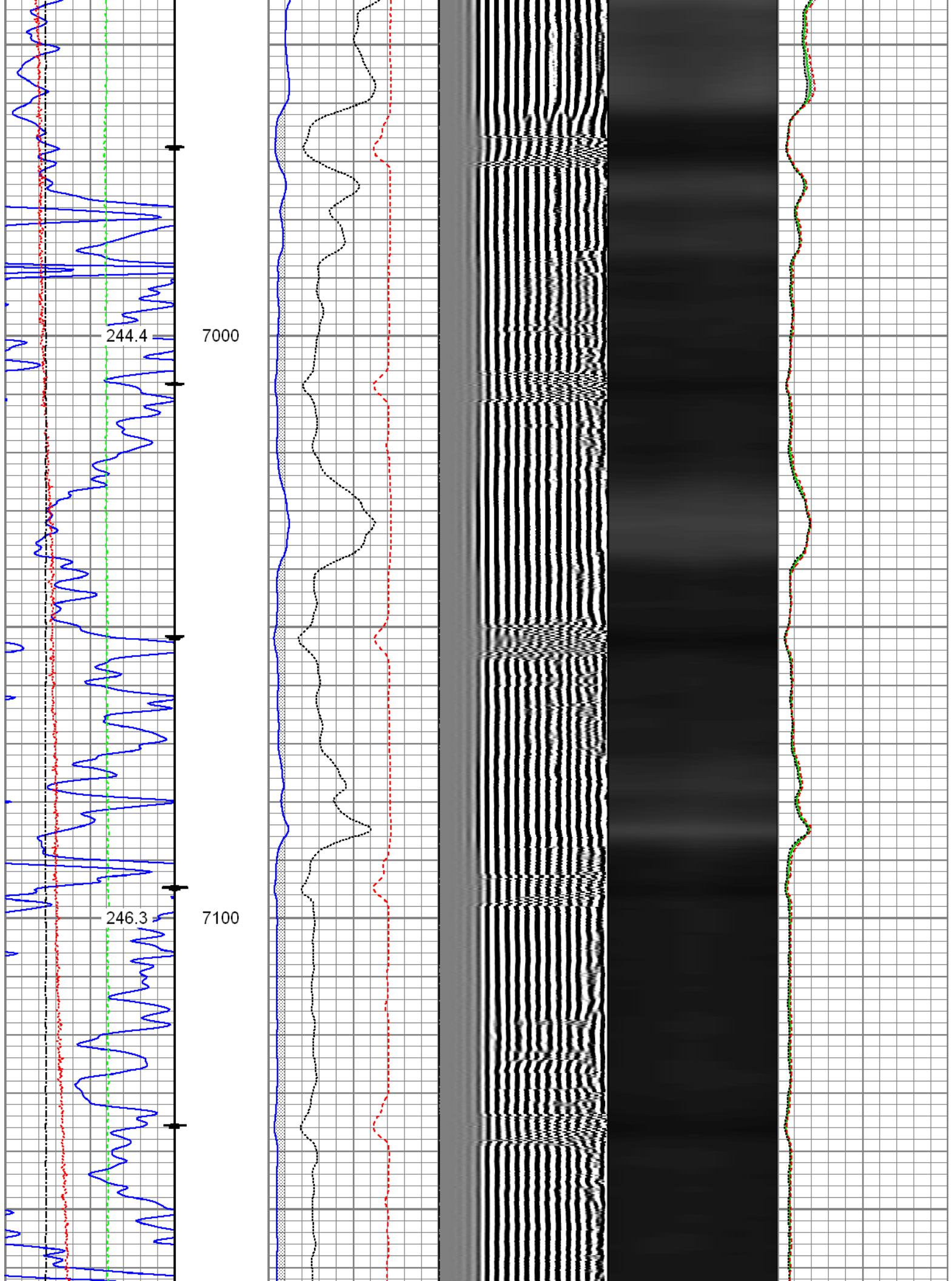


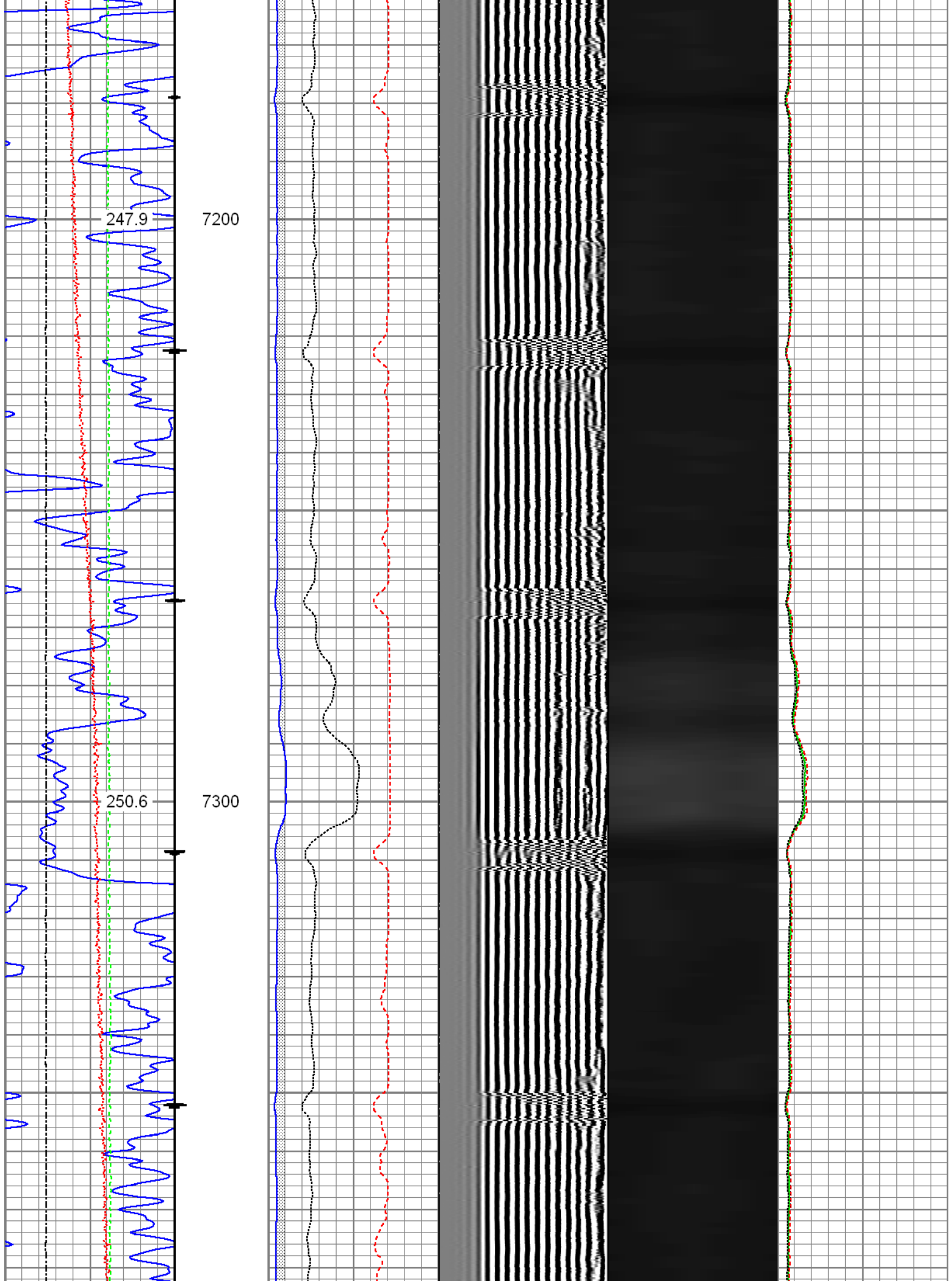


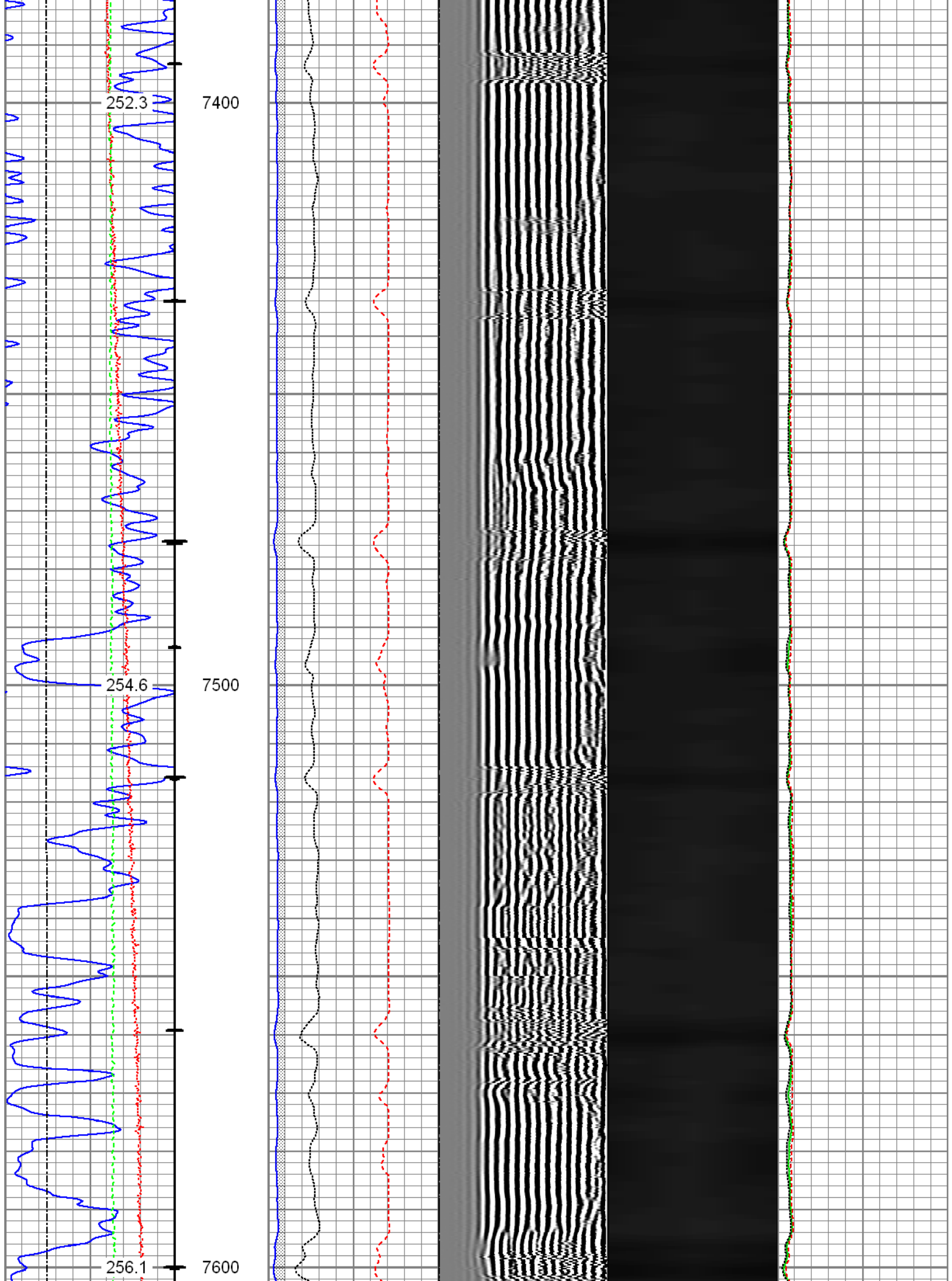


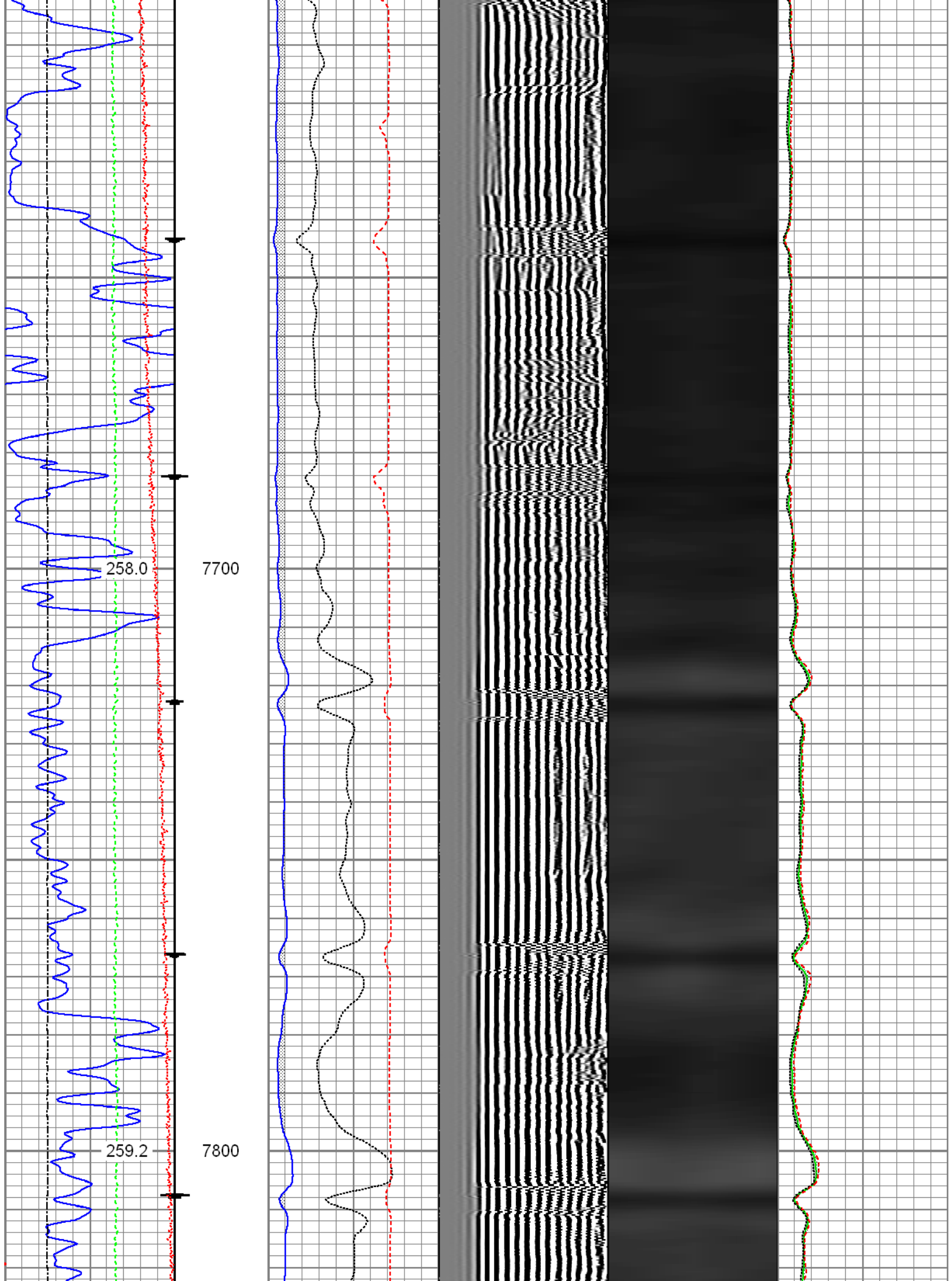


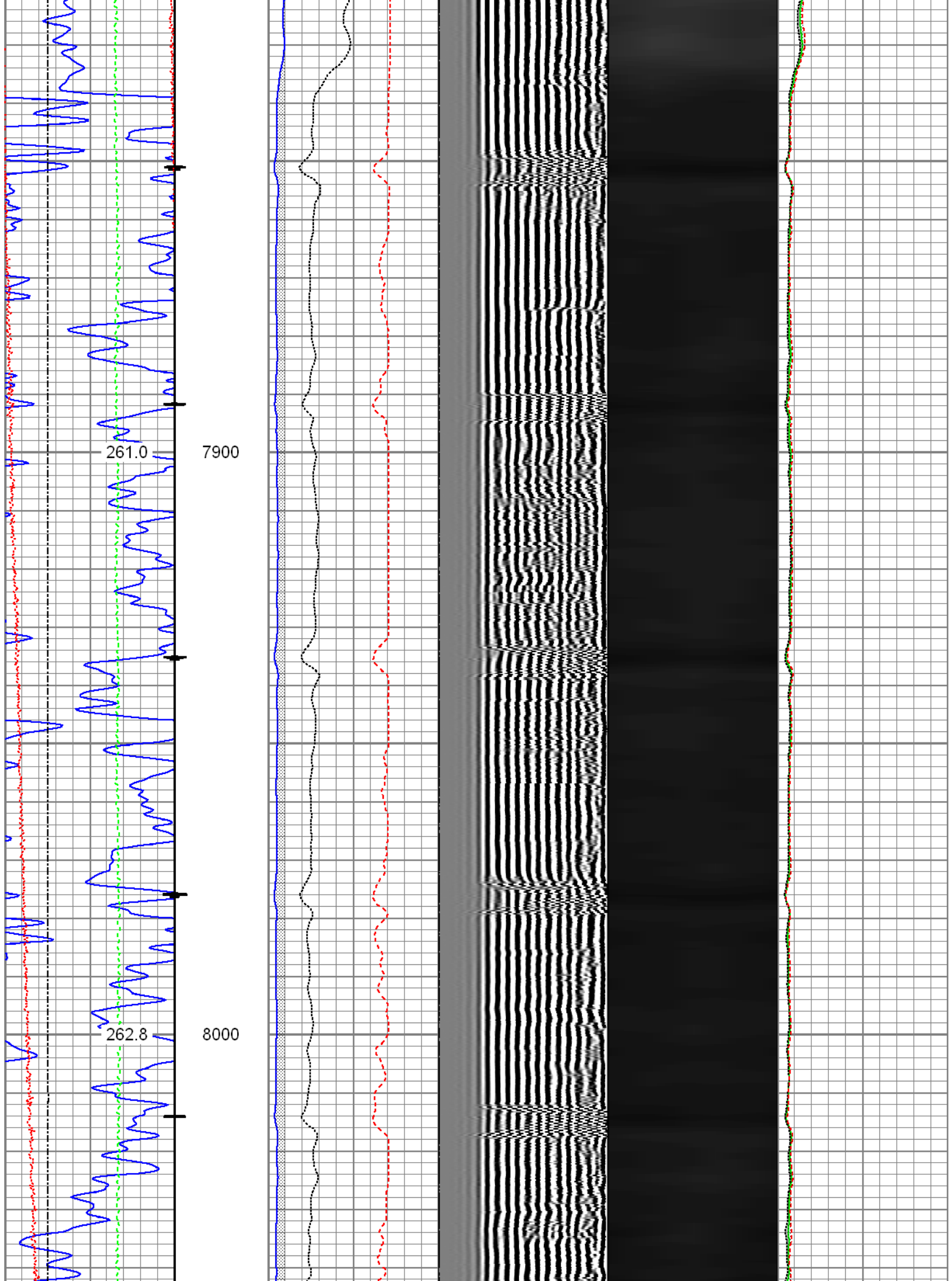


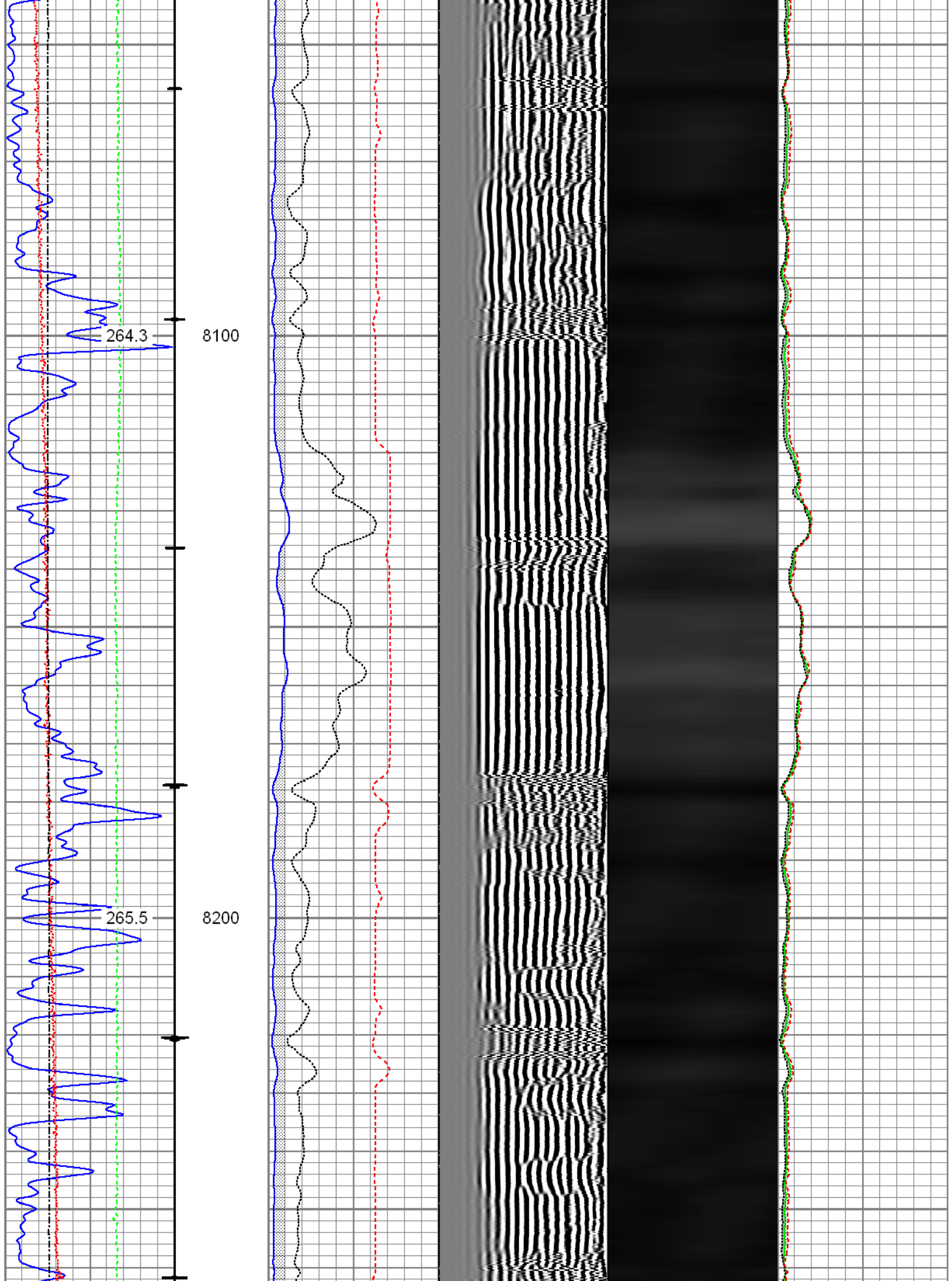


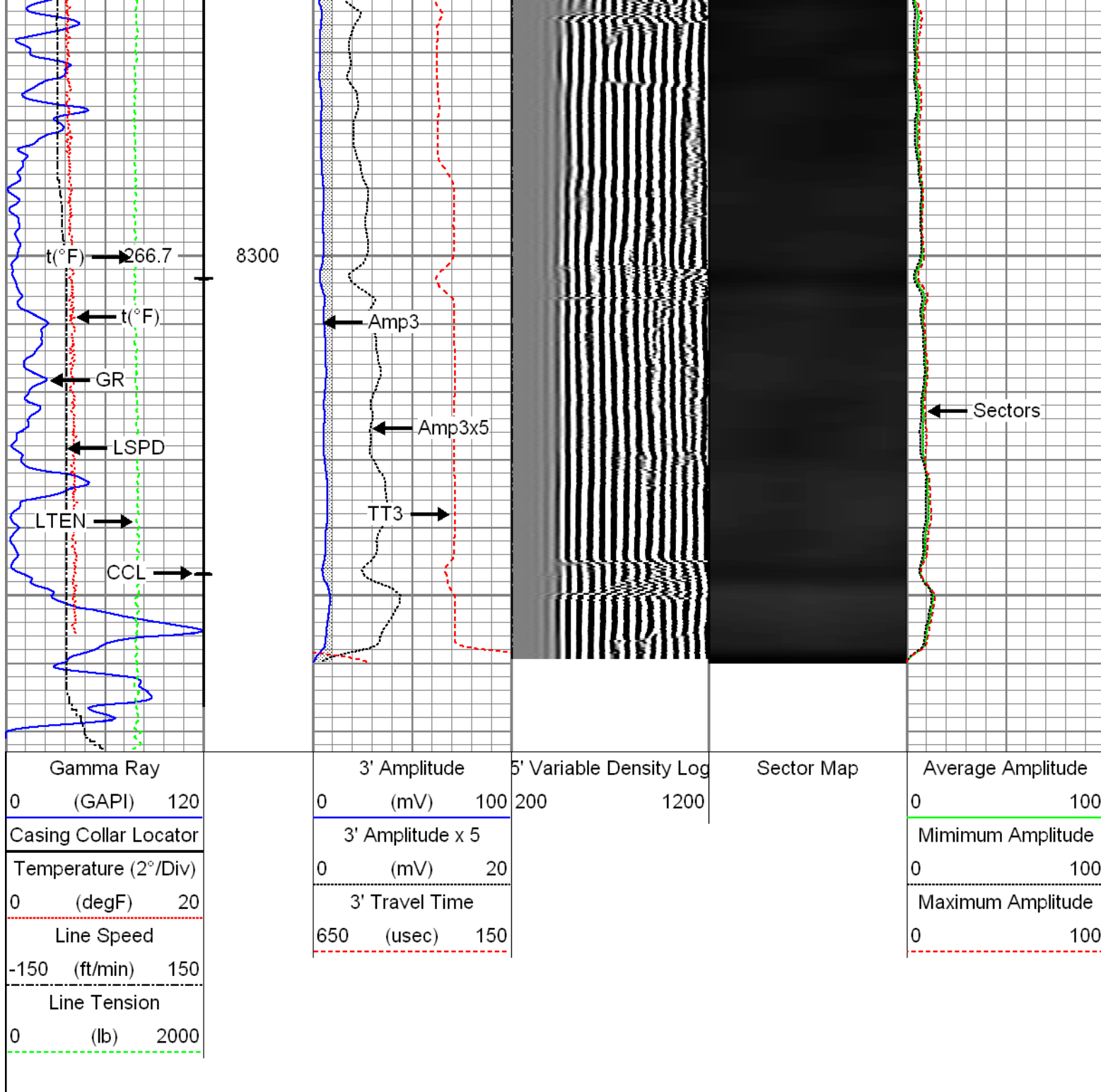





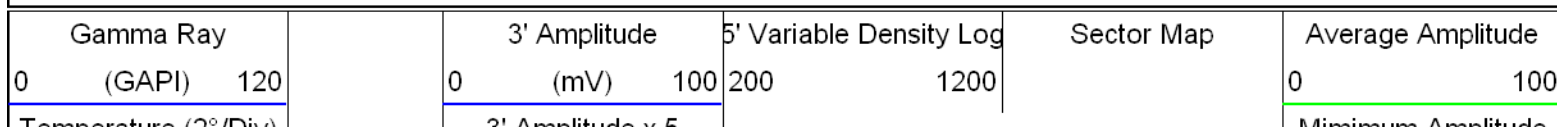


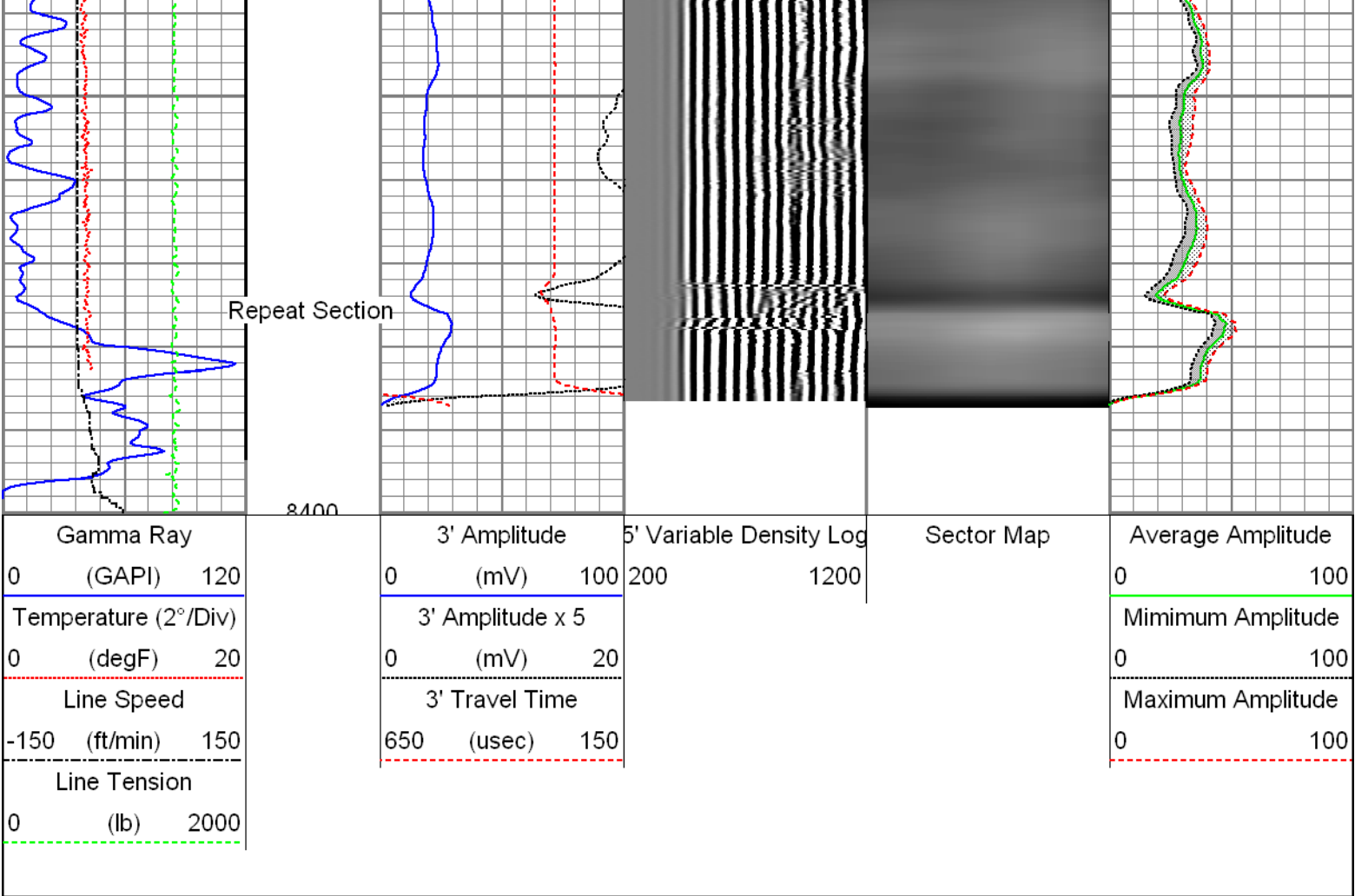






	<div>Repeat Pass</div> <div>Recorded with -0- Psi surface induced pressure</div>
<div>Database File: 04-15-15_whiting_razor 21 swd 1_rbl.db</div> <div>Dataset Pathname: pass7</div> <div>Presentation Format: radii</div> <div>Dataset Creation: Wed Apr 15 14:48:39 2015 by Log 7.0 B1</div> <div>Charted by: Depth in Feet scaled 1:240</div>	





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
HeadVolt	19.51		Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Temp	16.64		Probe_RADII-C-2-3/4" (FW1302-002) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.21	2.75	100.00
WVF3FT	14.53					
WVFCAL	14.53					
WVFS1	14.53					
WVFS2	14.53					
WVFS3	14.53					
WVFS4	14.53					
WVFS5	14.53					
WVFS6	14.53					

WVFS7	14.53					
WVFS8	14.53					
WVF5FT	13.53					
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
CCL	6.51					
			Probe_CCL_GR-2.75"Digital (FW1304-131) Probe 2-3/4" Digital CCL / Gamma Ray Combined	4.54	2.75	55.00
GR	3.77					
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
Dataset: 04-15-15_Whiting_Razor 21 SWD 1_RBL.db: field/well/run1/pass8 Total Length: 23.42 ft Total Weight: 189.00 lb O.D. 2.75 in						

Calibration Report						
Database File:	04-15-15_whiting_razor 21 swd 1_rbl.db					
Dataset Pathname:	Main.3					
Dataset Creation:	Mon Apr 20 10:11:07 2015 by Calc SCH 120430					
Gamma Ray Calibration Report						
Serial Number:	FW1304-131					
Tool Model:	2.75"Digital					
Performed:	Sun Jun 13 13:33:21 1993					
Calibrator Value:	1.0	GAPI				
Background Reading:	0.0	cps				
Calibrator Reading:	1.0	cps				
Sensitivity:	1.0000	GAPI/cps				
Segmented Cement Bond Log Calibration Report						
Serial Number:	FW1302-002					
Tool Model:	2-3/4"					
Calibration Casing Diameter:	7.000	in				
Calibration Depth:	1150.442	ft				
Master Calibration, performed Mon Apr 20 10:10:44 2015:						
Raw (v)		Calibrated (mv)			Results	

	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	1.884	0.800	62.165	32.634	0.676
CAL	0.007	1.006				
5'	0.003	1.962	0.800	62.165	31.313	0.714
SUM						
S1	0.003	1.686	0.000	100.000	59.444	-0.195
S2	0.003	1.667	0.000	100.000	60.110	-0.199
S3	0.003	1.761	0.000	100.000	56.882	-0.188
S4	0.004	1.948	0.000	100.000	51.449	-0.205
S5	0.005	2.153	0.000	100.000	46.555	-0.224
S6	0.005	2.202	0.000	100.000	45.514	-0.221
S7	0.004	2.051	0.000	100.000	48.868	-0.209
S8	0.004	1.837	0.000	100.000	54.553	-0.211

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	0.007	1.006	1.000	0.000

Air Zero Calibration, performed Mon Sep 08 13:52:56 2014:

	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 Whiting Oil & Gas Corporation
Well Razor 21 SWD 1
Field Wildcat
County Weld
State Colorado