

# Radial Cement Bond Gamma Ray Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Sparboe 8N-3HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-36238-00	
SEC 34		TWP 2N RGE 65W	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Other Services		PLUG	
Elevation		K.B. 4995 D.F. NA G.L. 4970	
Date		08-March-2013	
Run Number		One	
Depth Driller		14,199	
Depth Logger		6394	
Bottom Logged Interval		6391	
Top Log Interval		62	
Open Hole Size		9.625"	
Type Fluid		Water	
Density / Viscosity		8.34 LB/GAL	
Max. Recorded Temp.		242 F	
Estimated Cement Top		1066	
Time Well Ready		ROA	
Time Logger on Bottom		---	
Equipment Number		HD 0255	
Location		Fort Lupton, CO	
Recorded By		Greg Jackson	
Witnessed By		Van Franke	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size	
Surface String		Wgt/Ft	
Prot. String		36	
Production String		Top	
Liner		Bottom	
4 1/2		Surface	
7		Surface	
26		7462	
11.6		14,199	

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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.

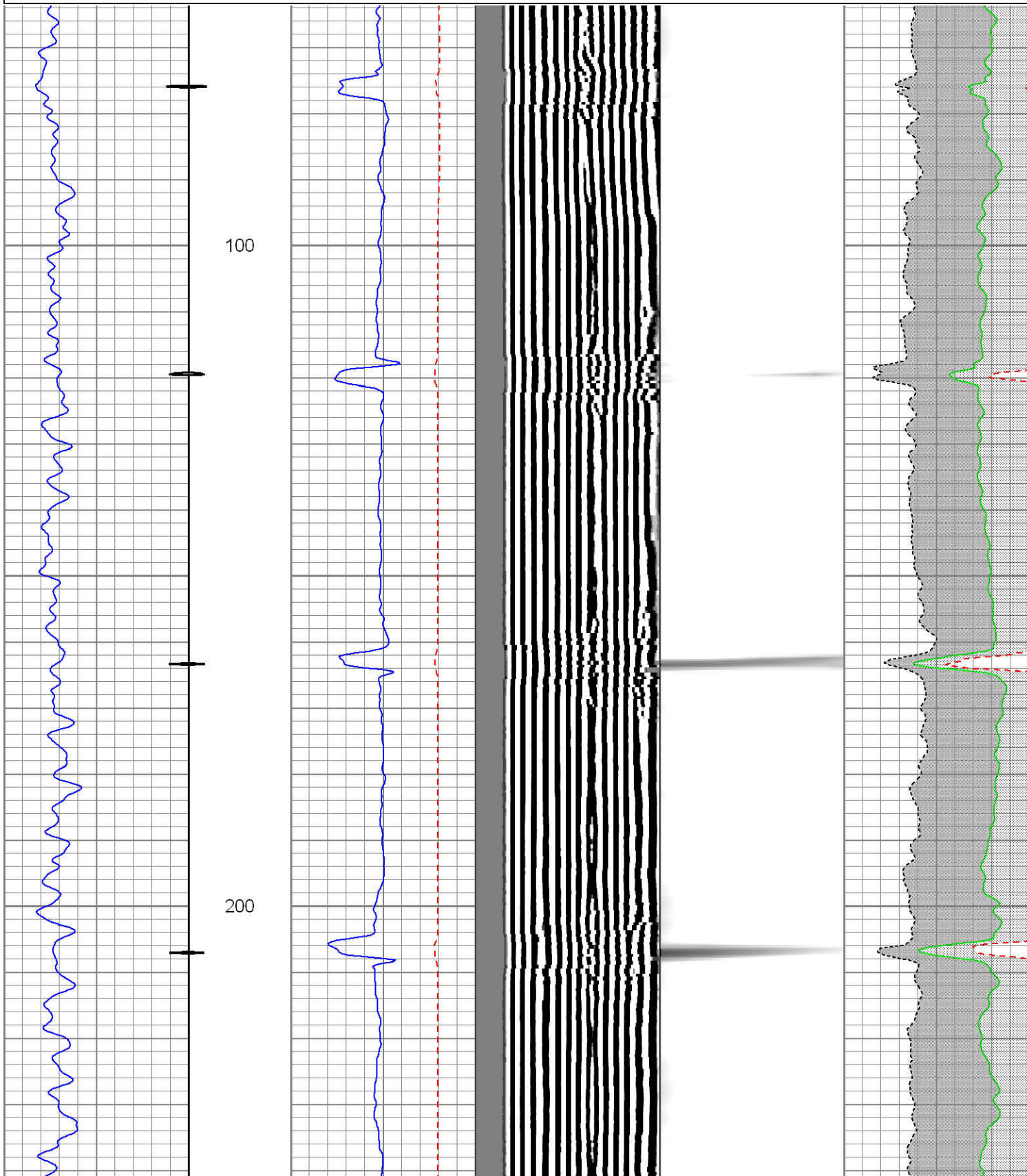
## Comments

Radial Cement Bond is Primary Log  
NOTCorrelated to Casing Tally Reported Liner Top @ 6379  
Wireline measured liner top was 6331  
liner top was left at wireline measured depth as per customer request  
Run RBL from just below Liner Top to Surface  
RBL Logged with 2800 PSI Induced pressure @ surface  
Estimated Top of Cement @ 1066  
Corrected 0' @ Liner Top with zero @ KB

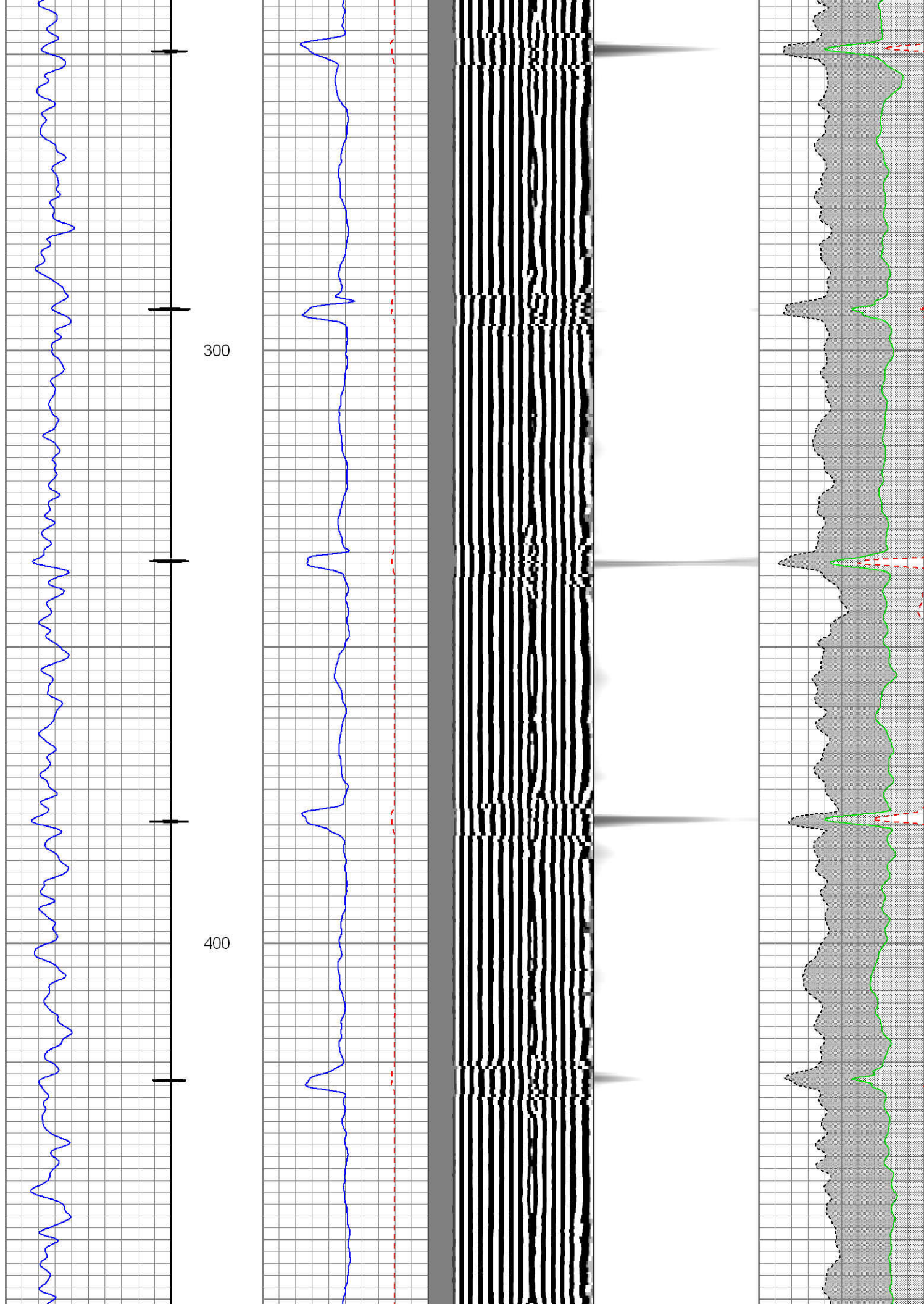
Thank you for choosing FMC Technologies Completion Services

# Main Pass @ 2800 psi

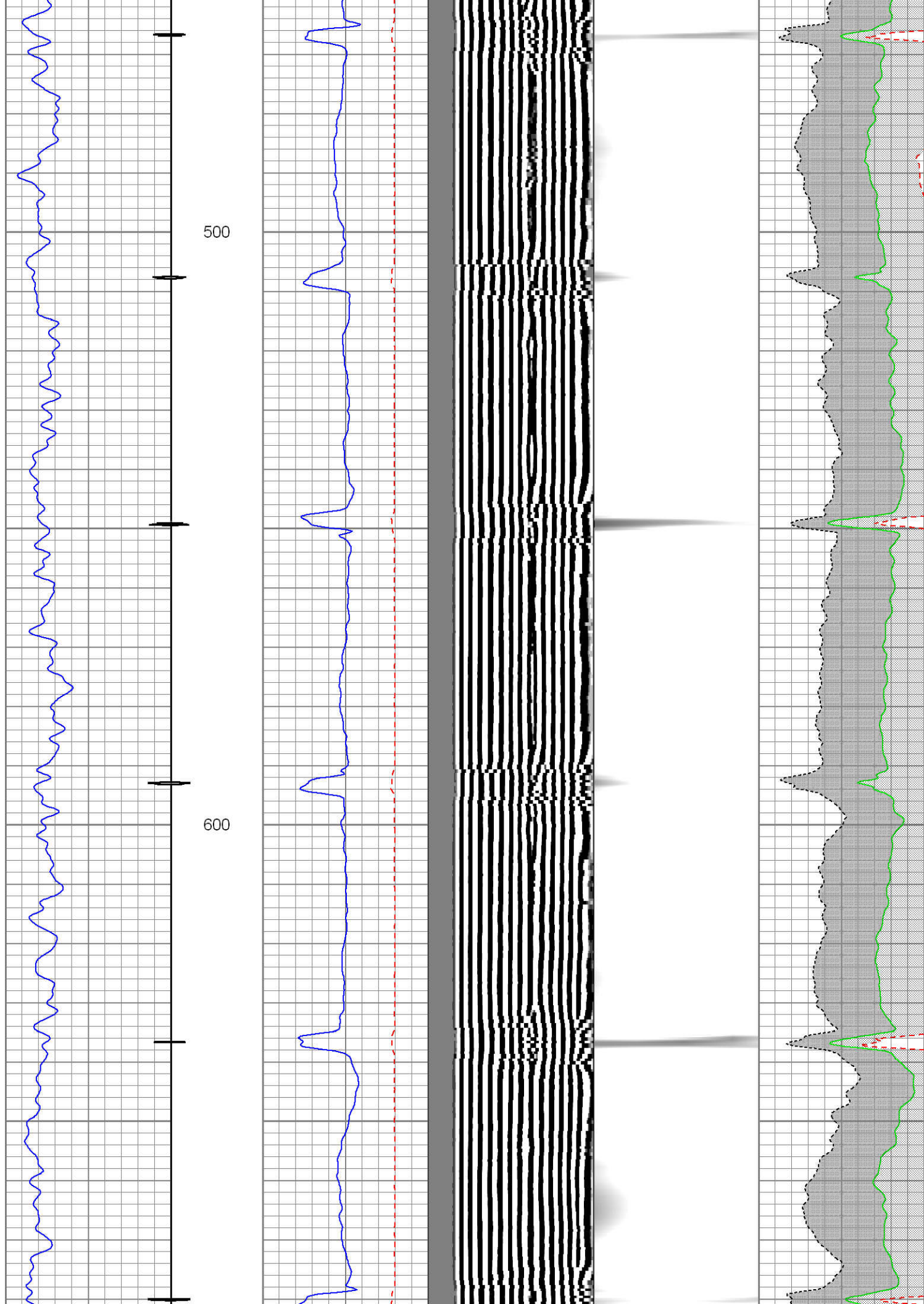
0	Gamma Ray 150	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
	Collar Locator	0 (mV) 100	200 1200		0 100
		3' Amplitude x 5			Minimum Amplitude
		0 (mV) 20			0 100
		3' Travel Time			Maximum Amplitude
		650 (usec) 150			0 100



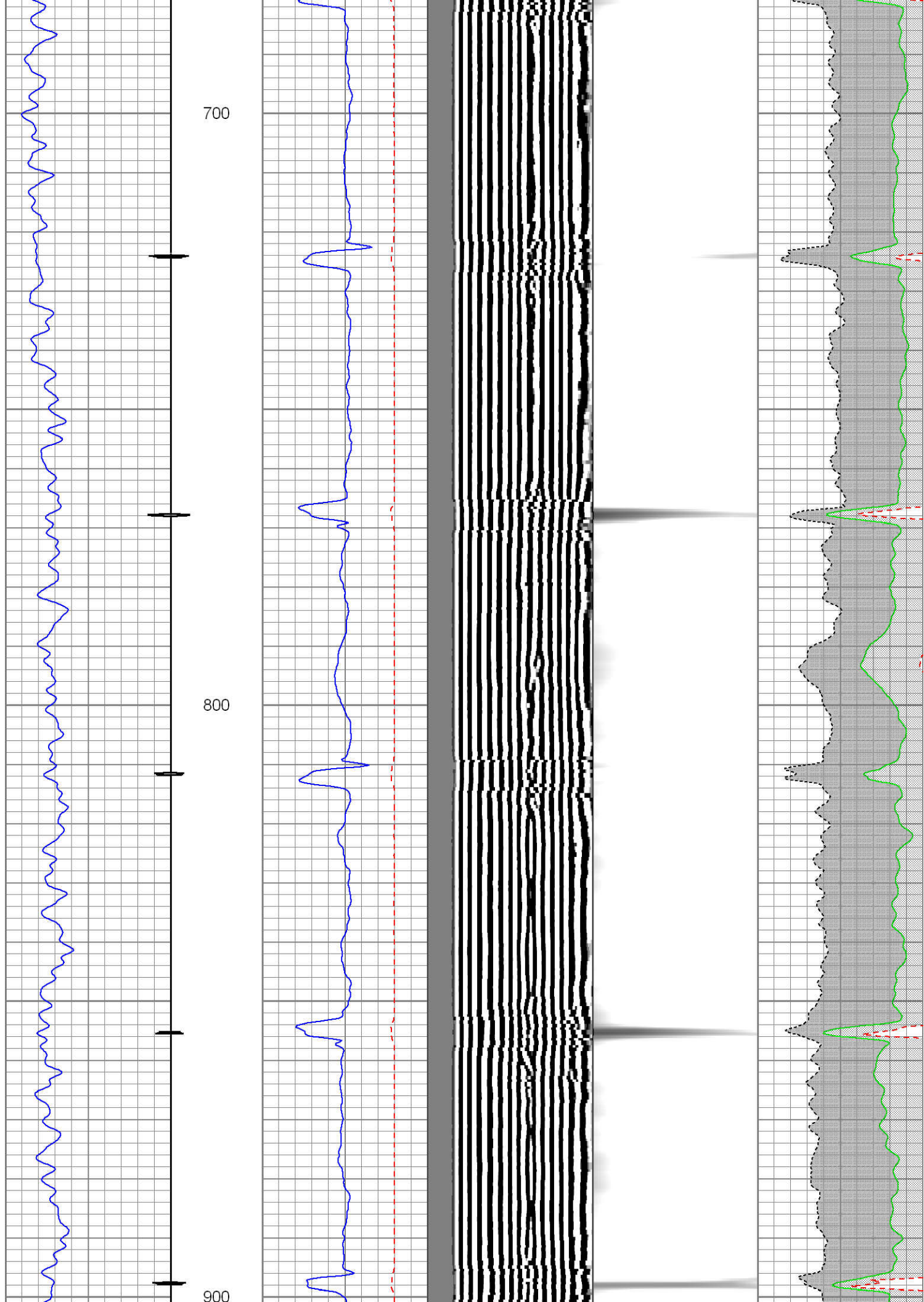




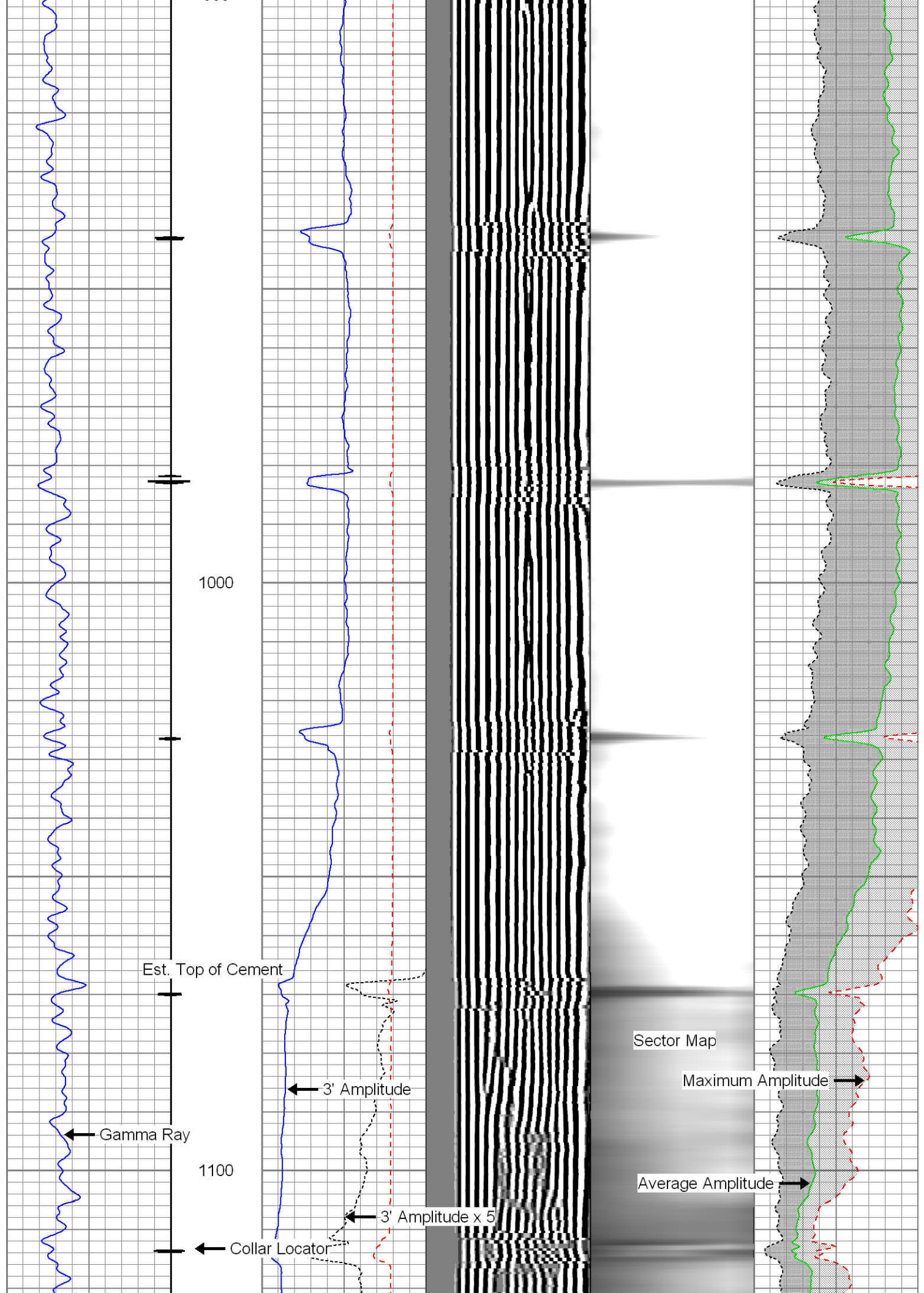




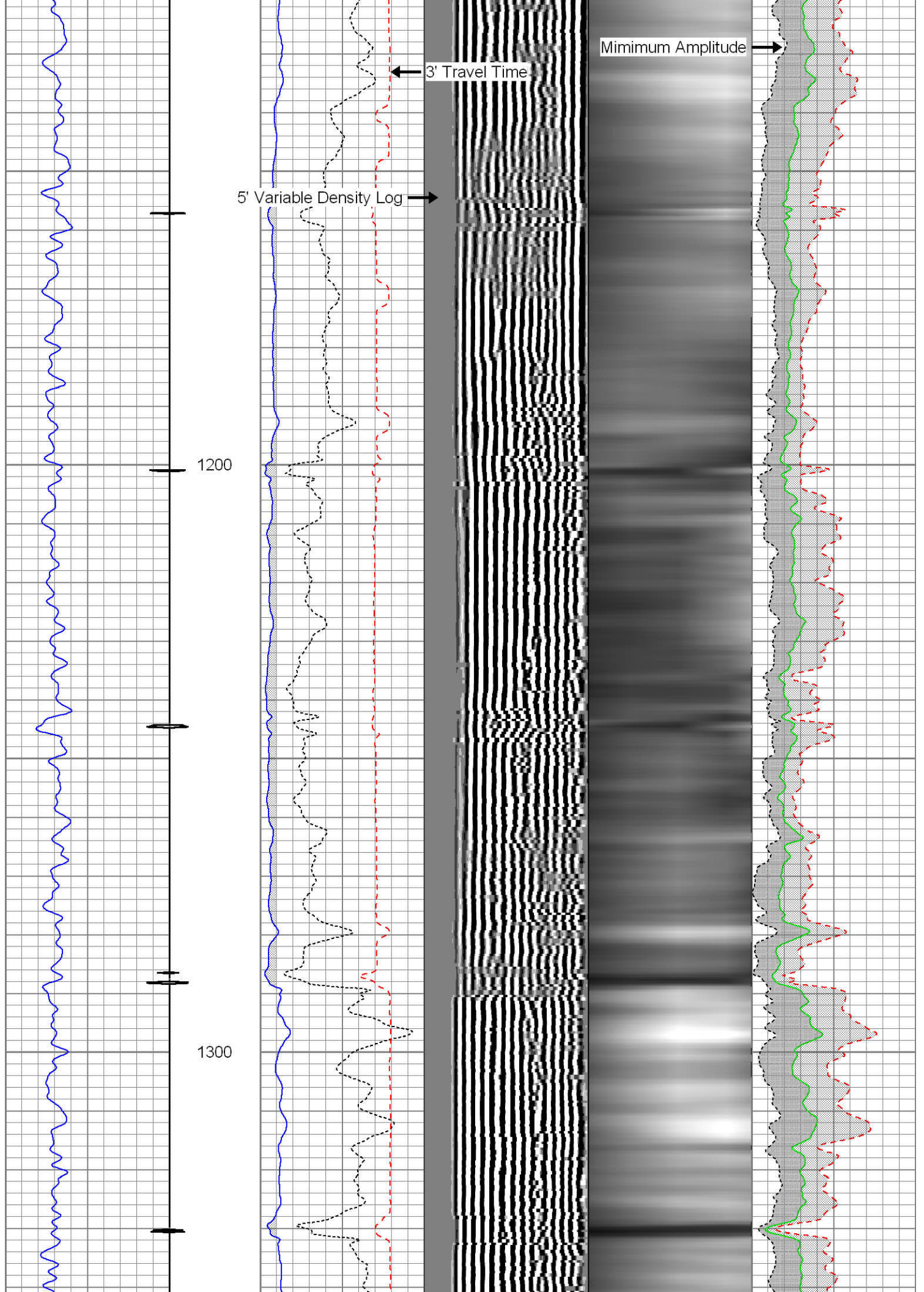




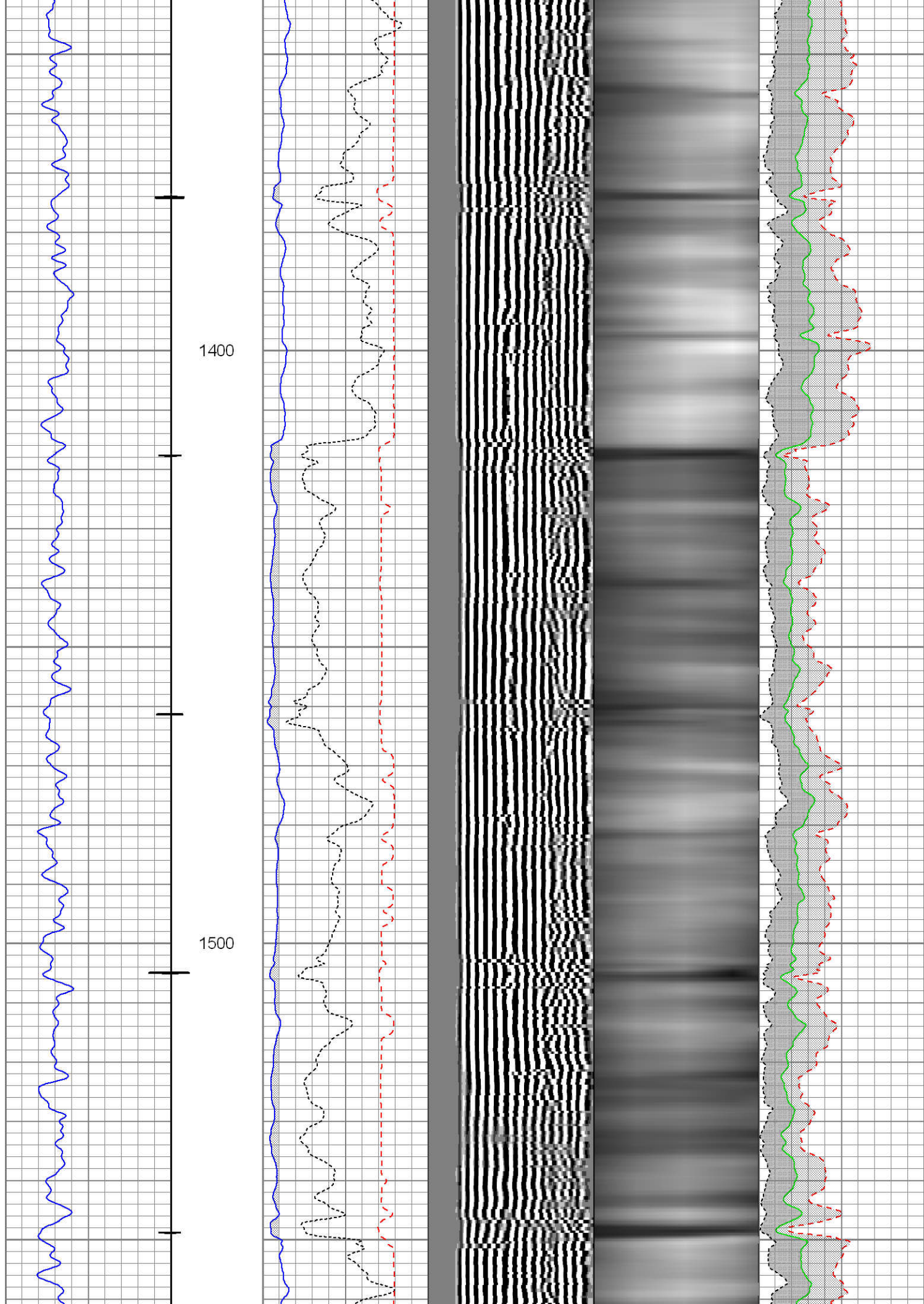




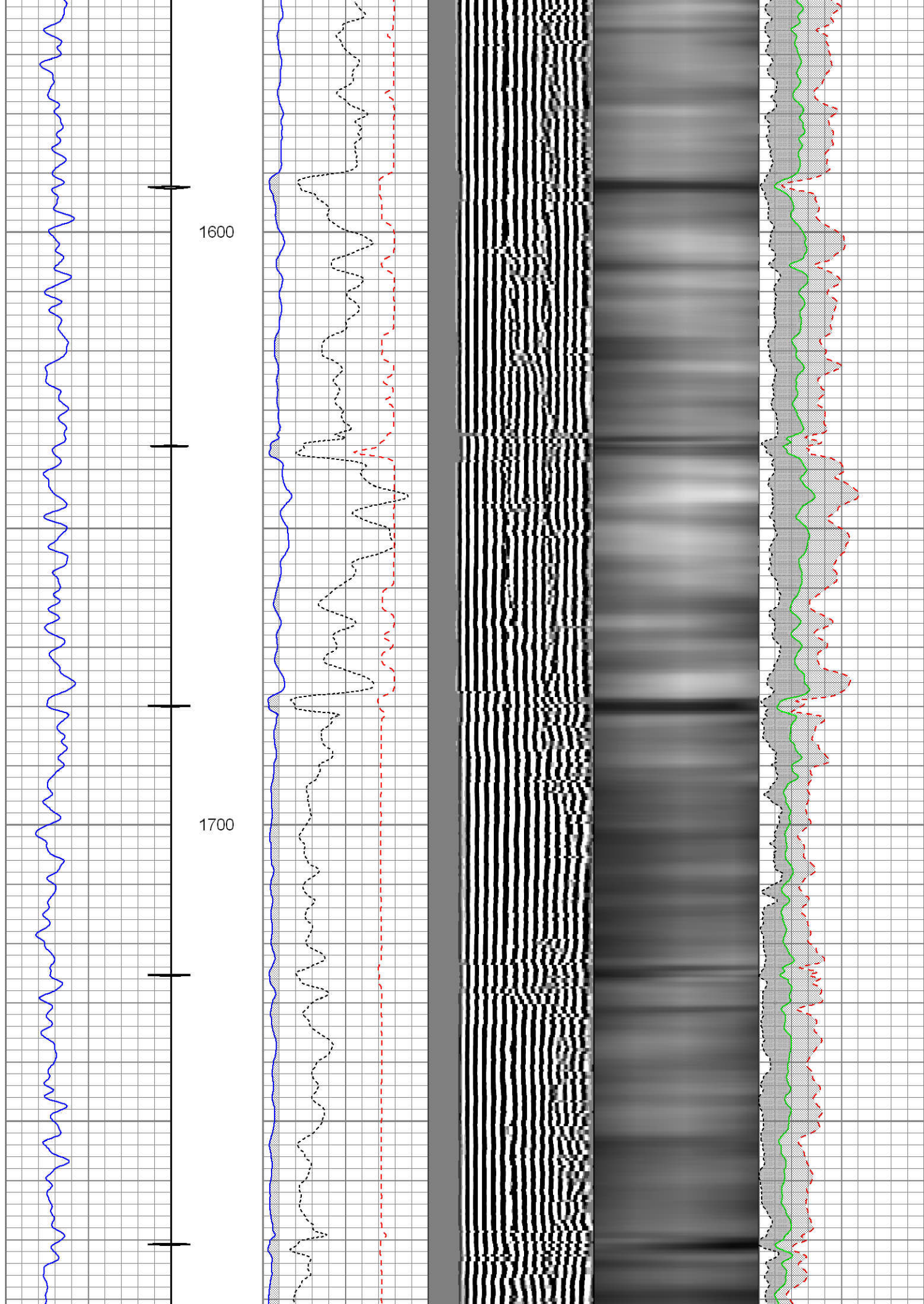


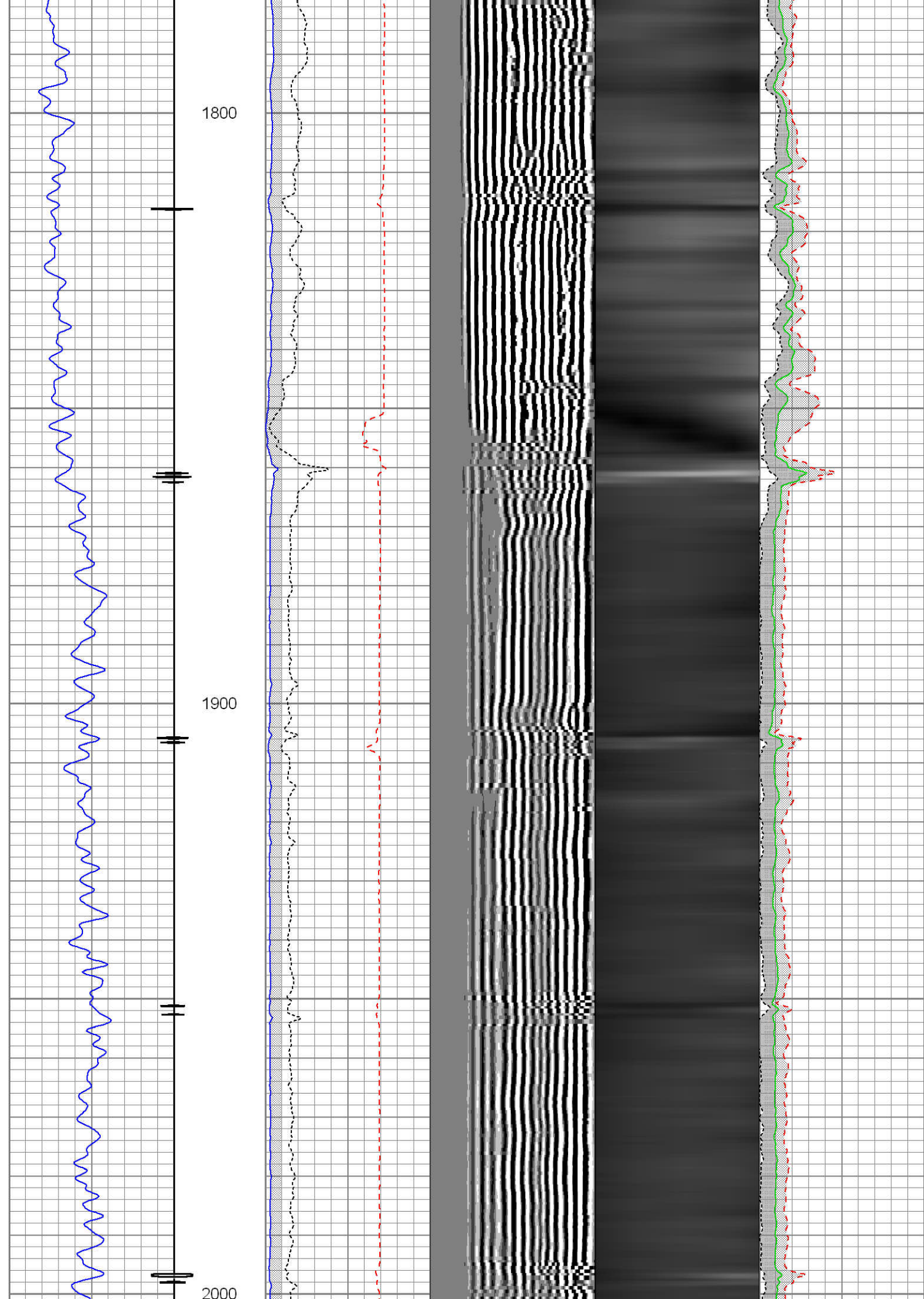




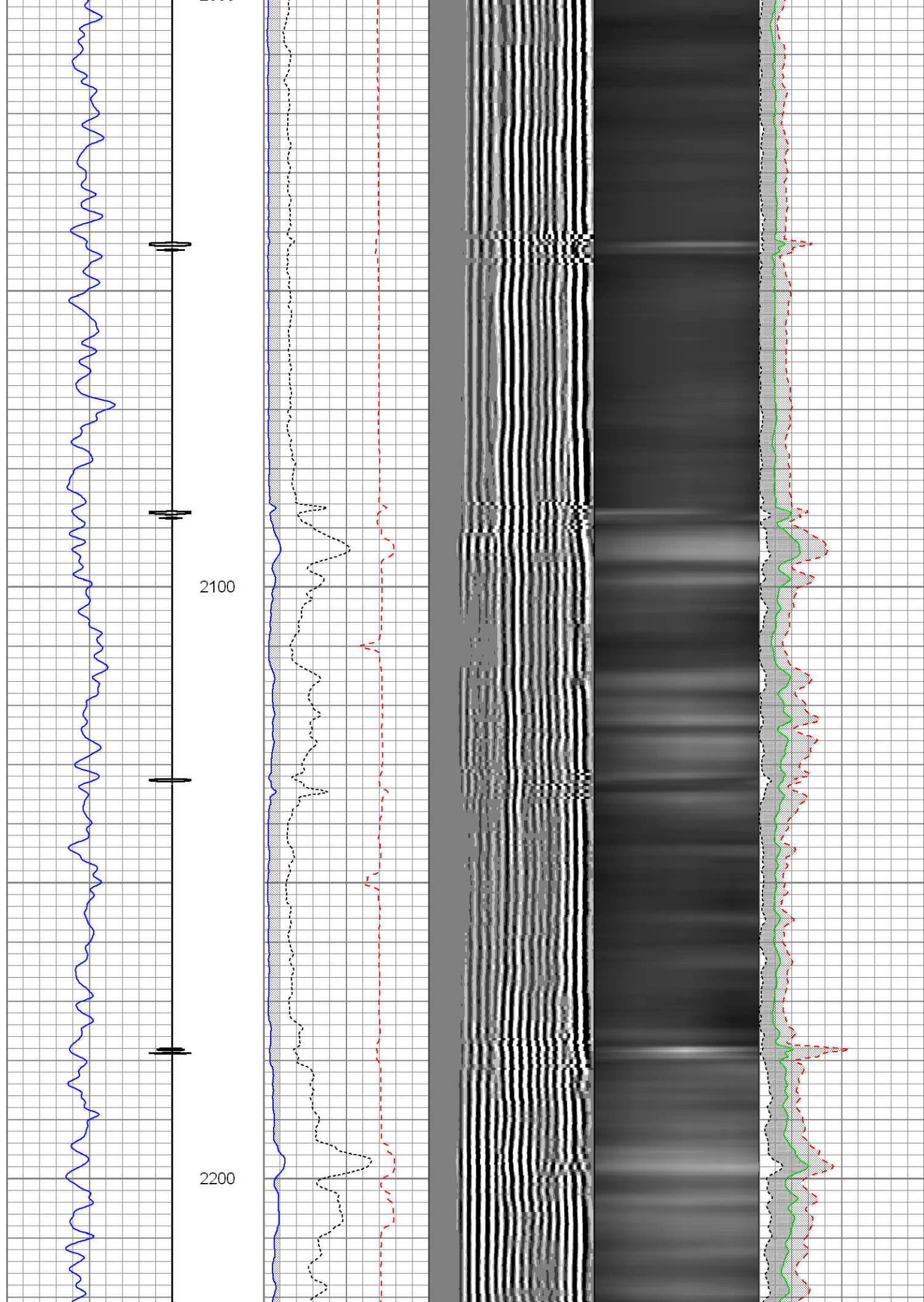


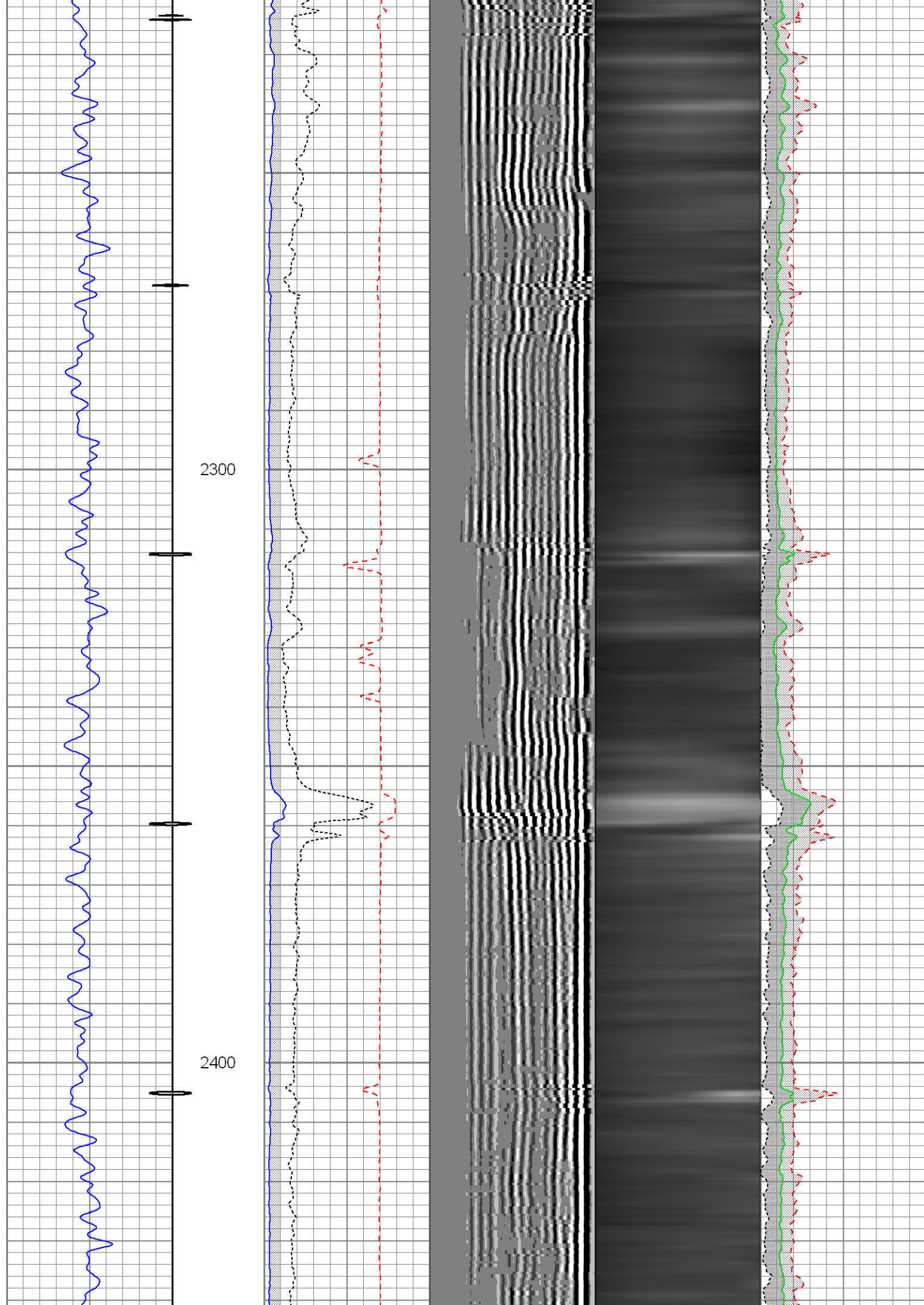




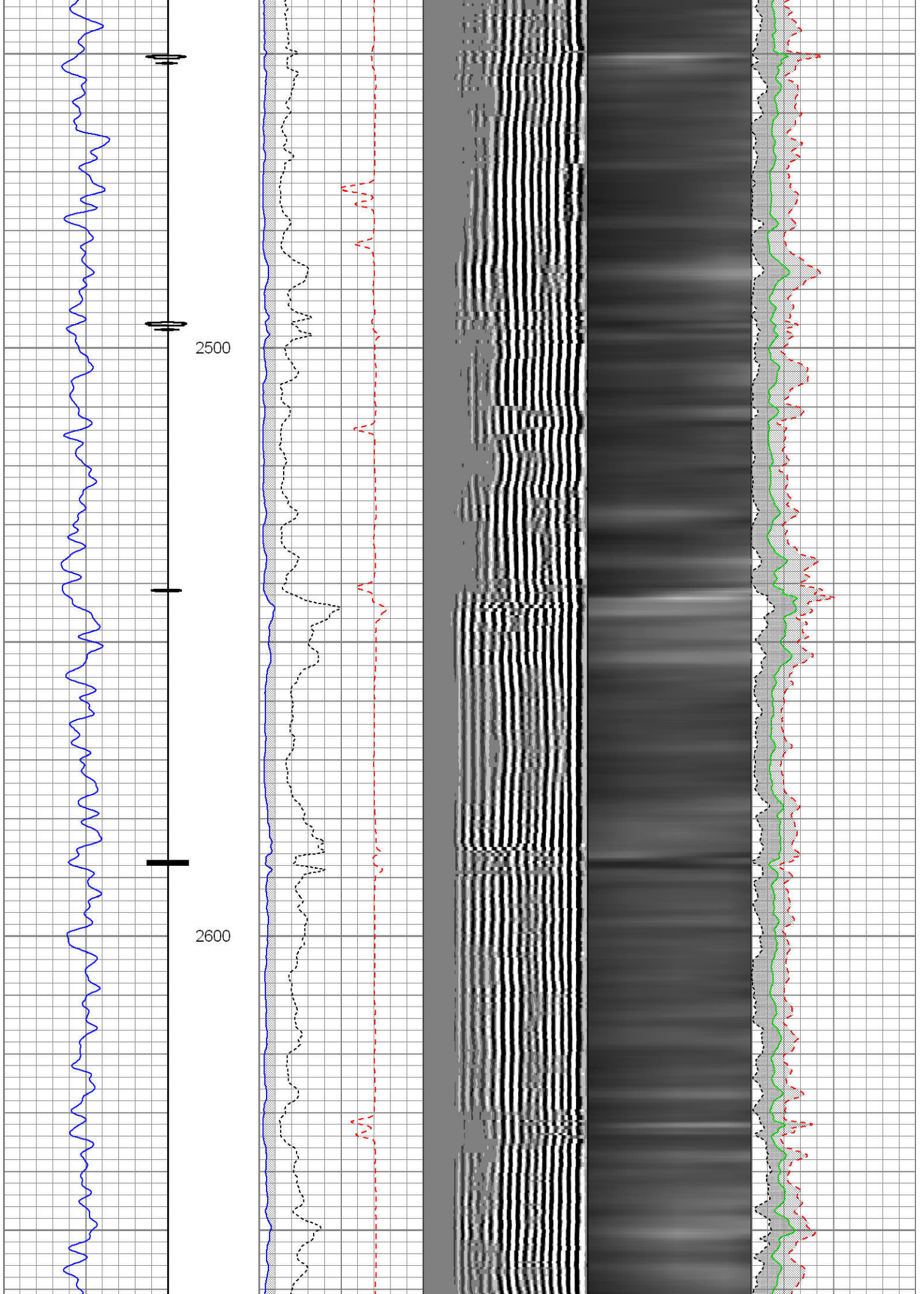


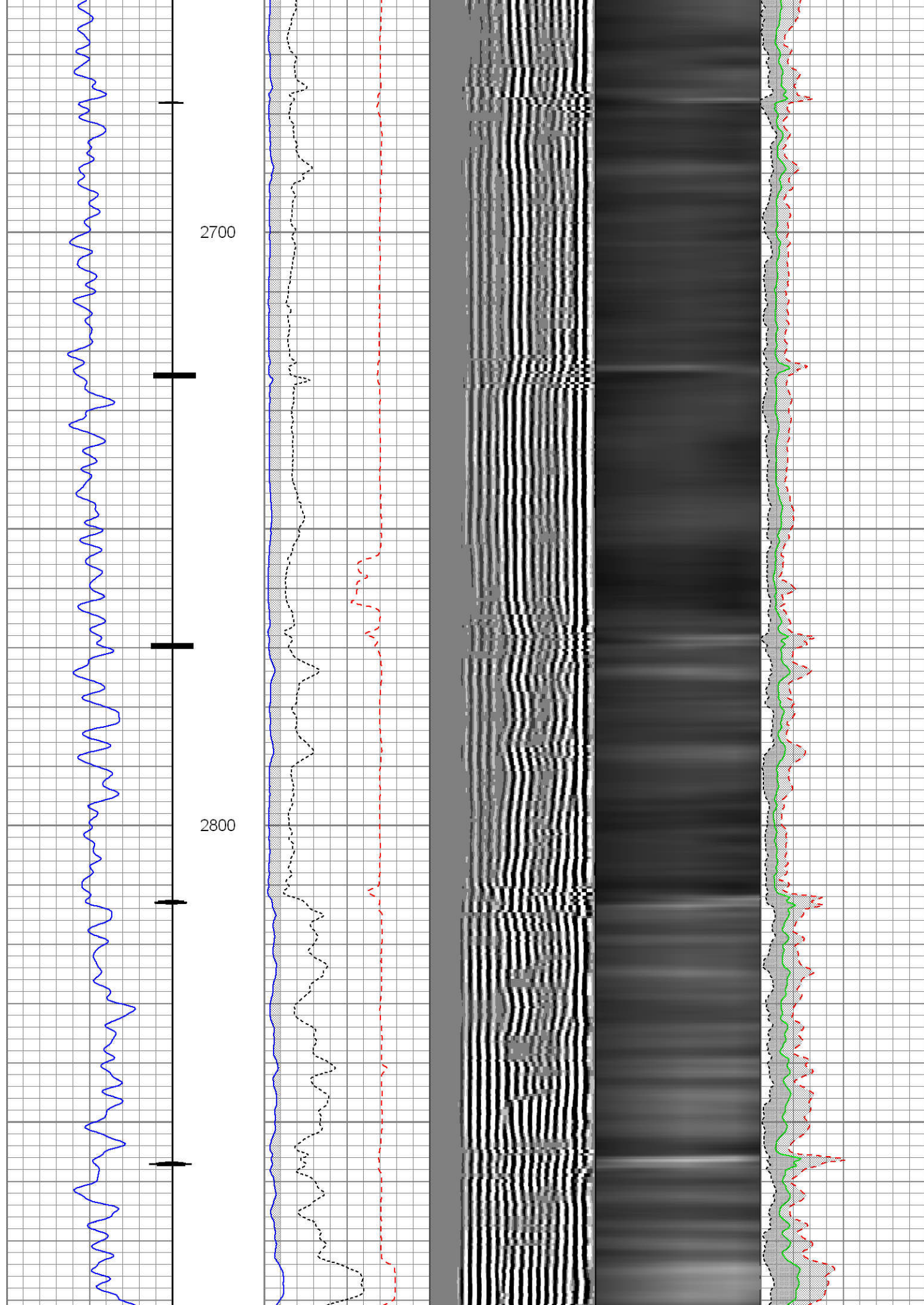




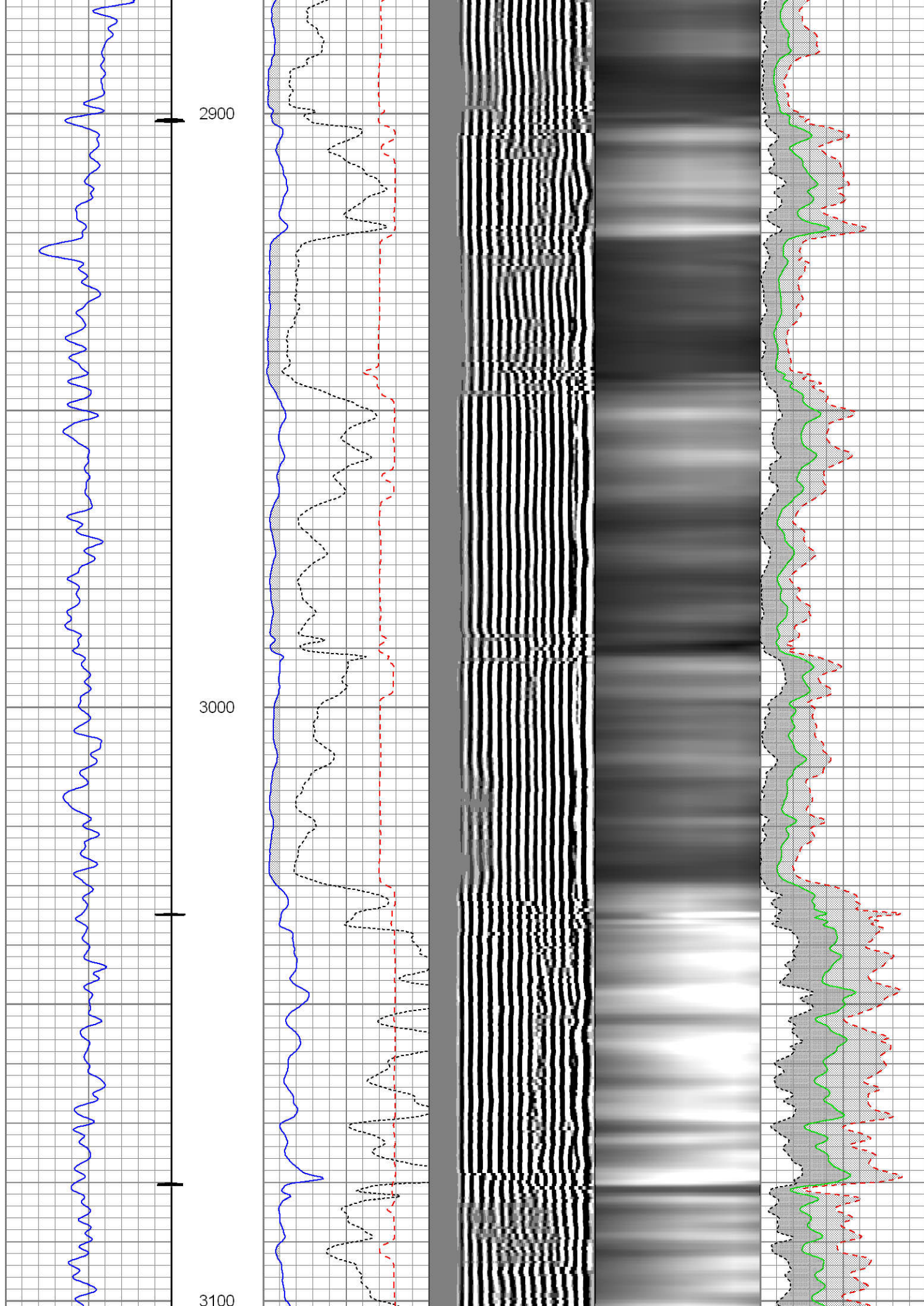




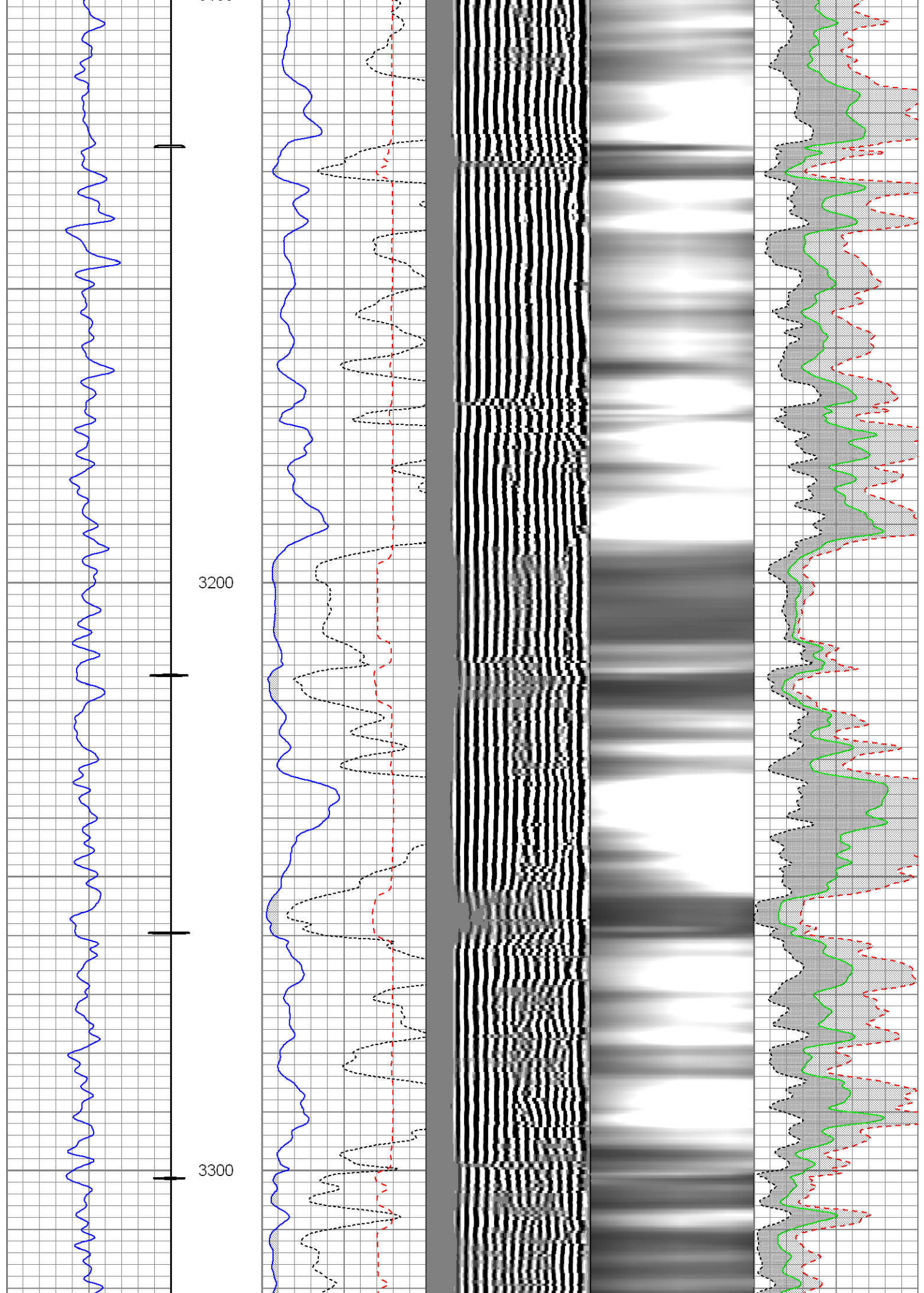




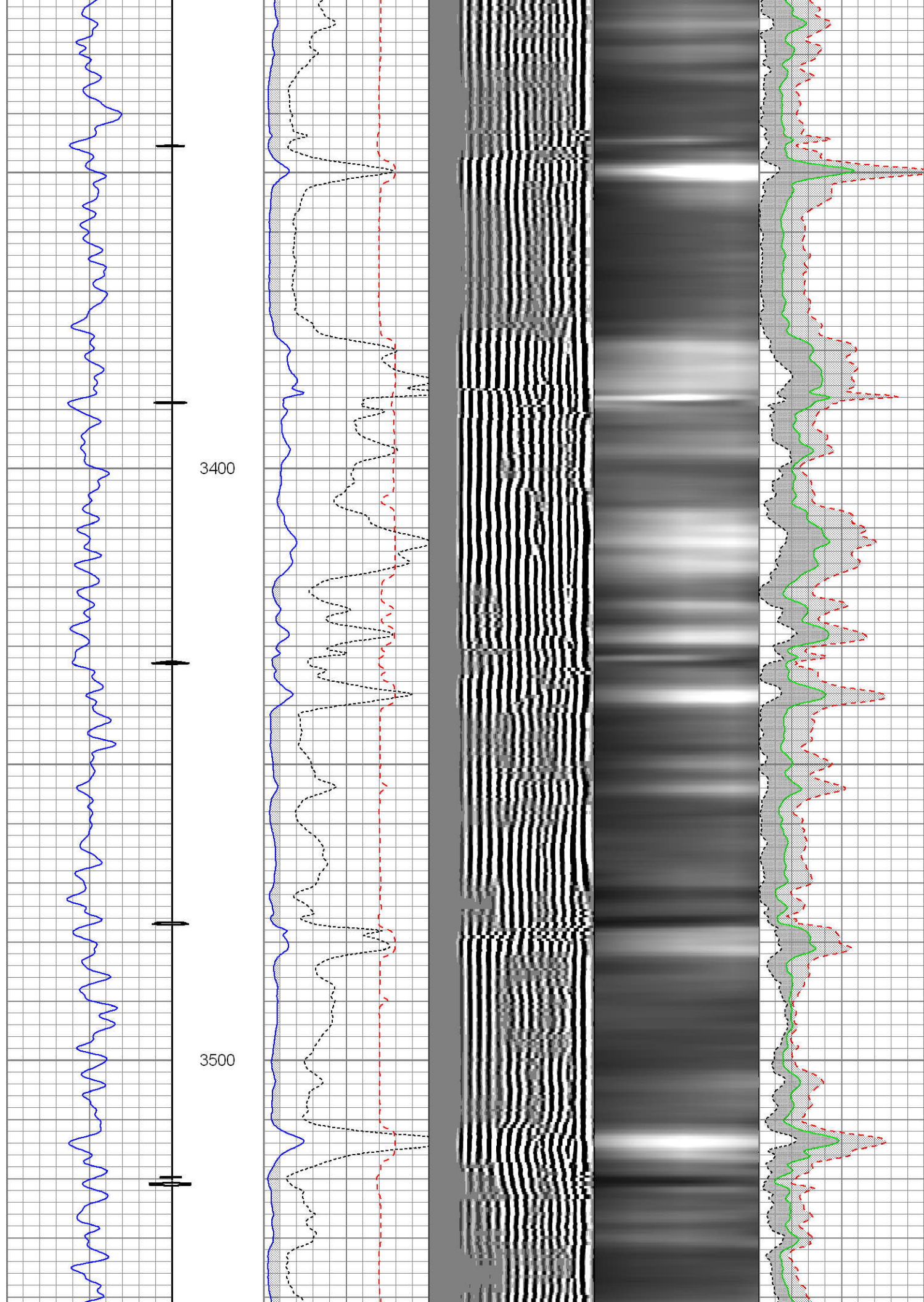




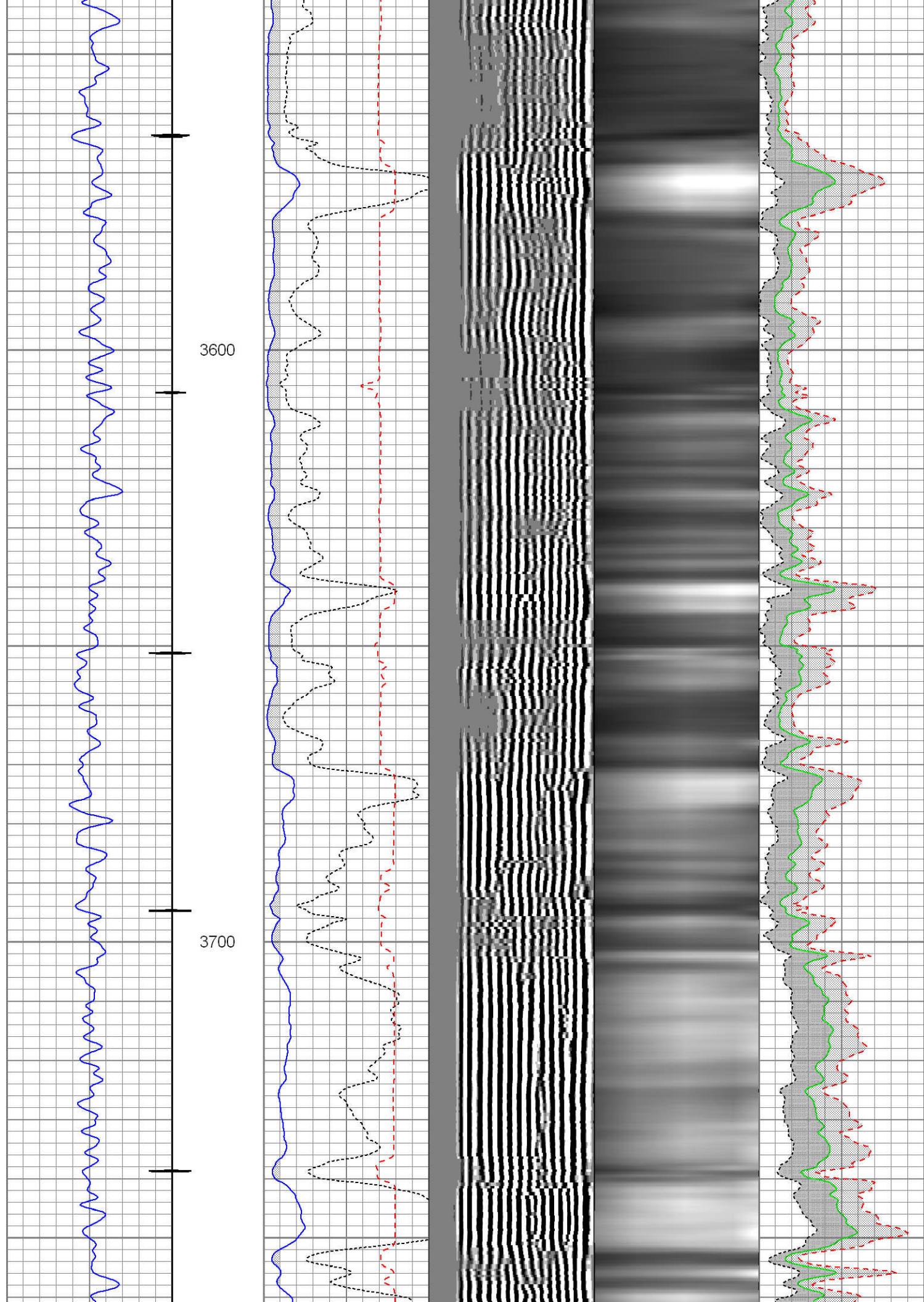




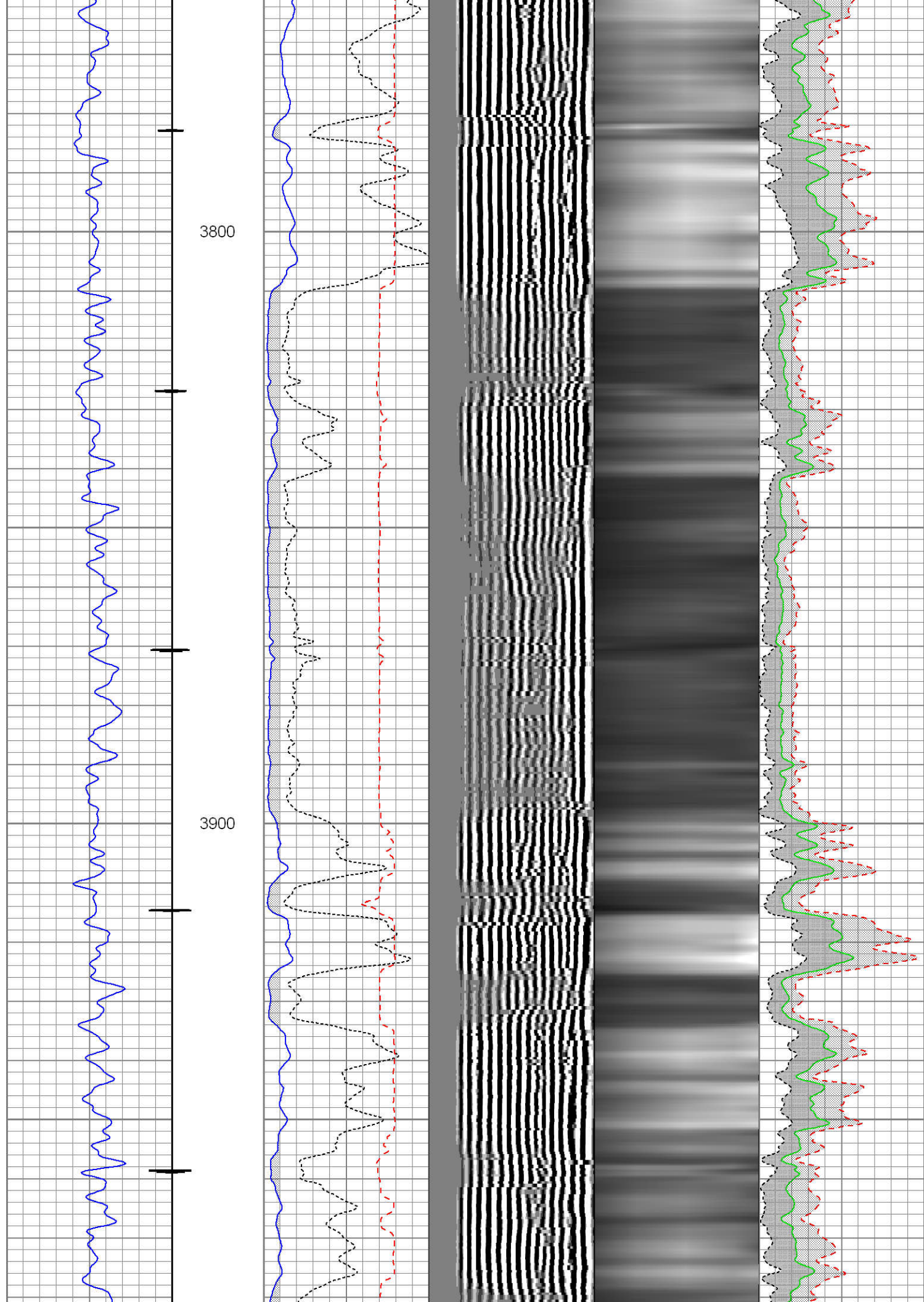




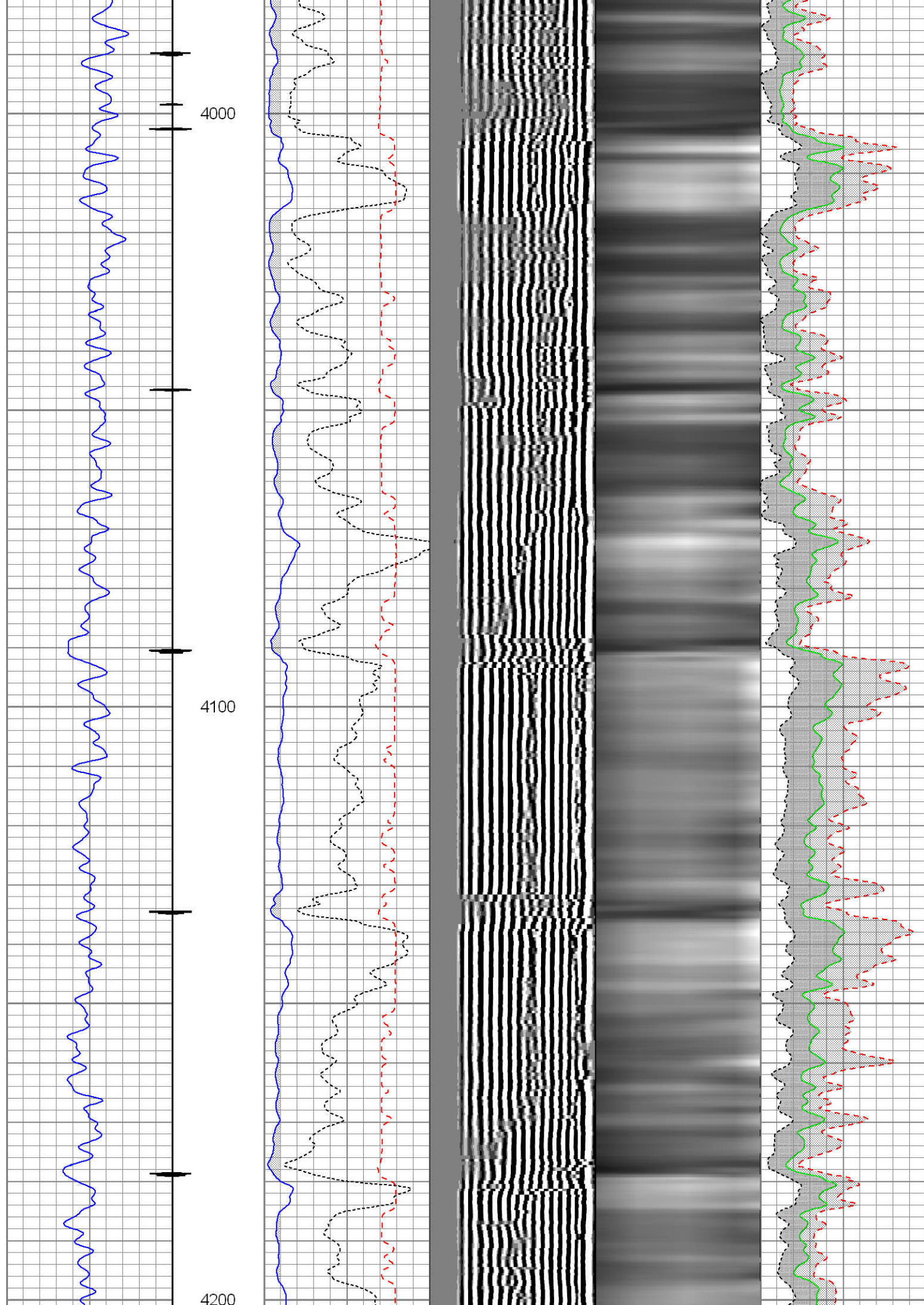




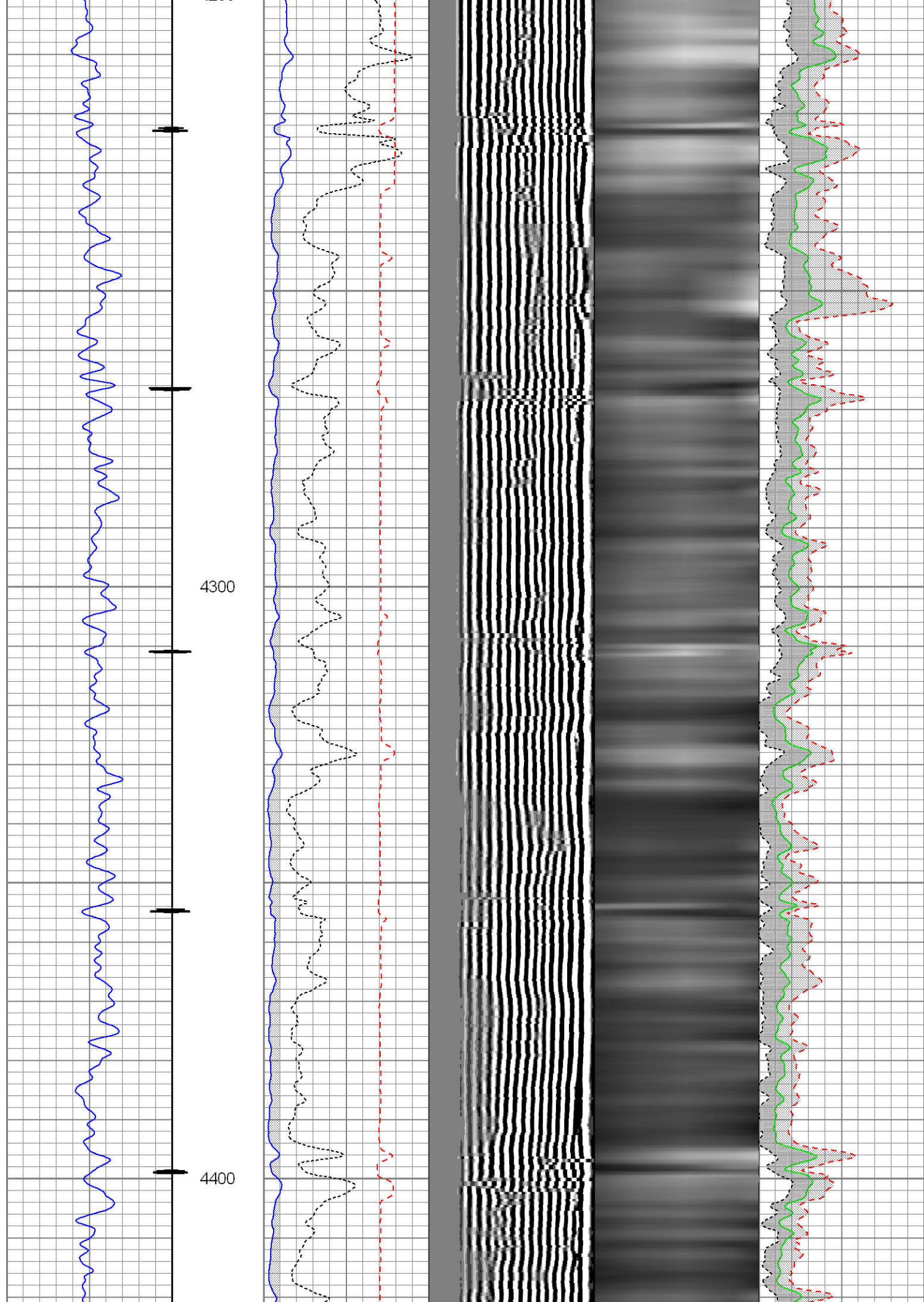


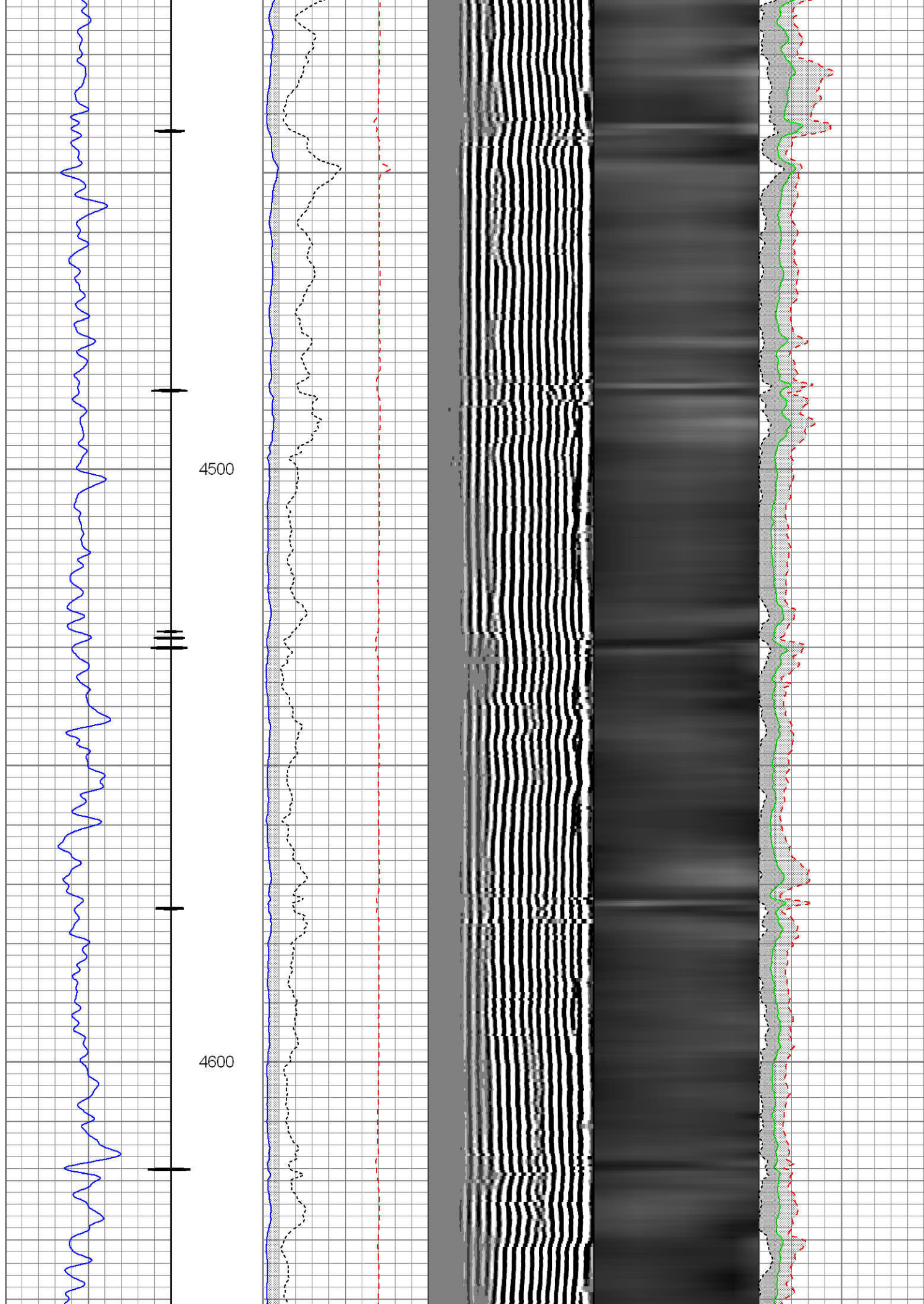




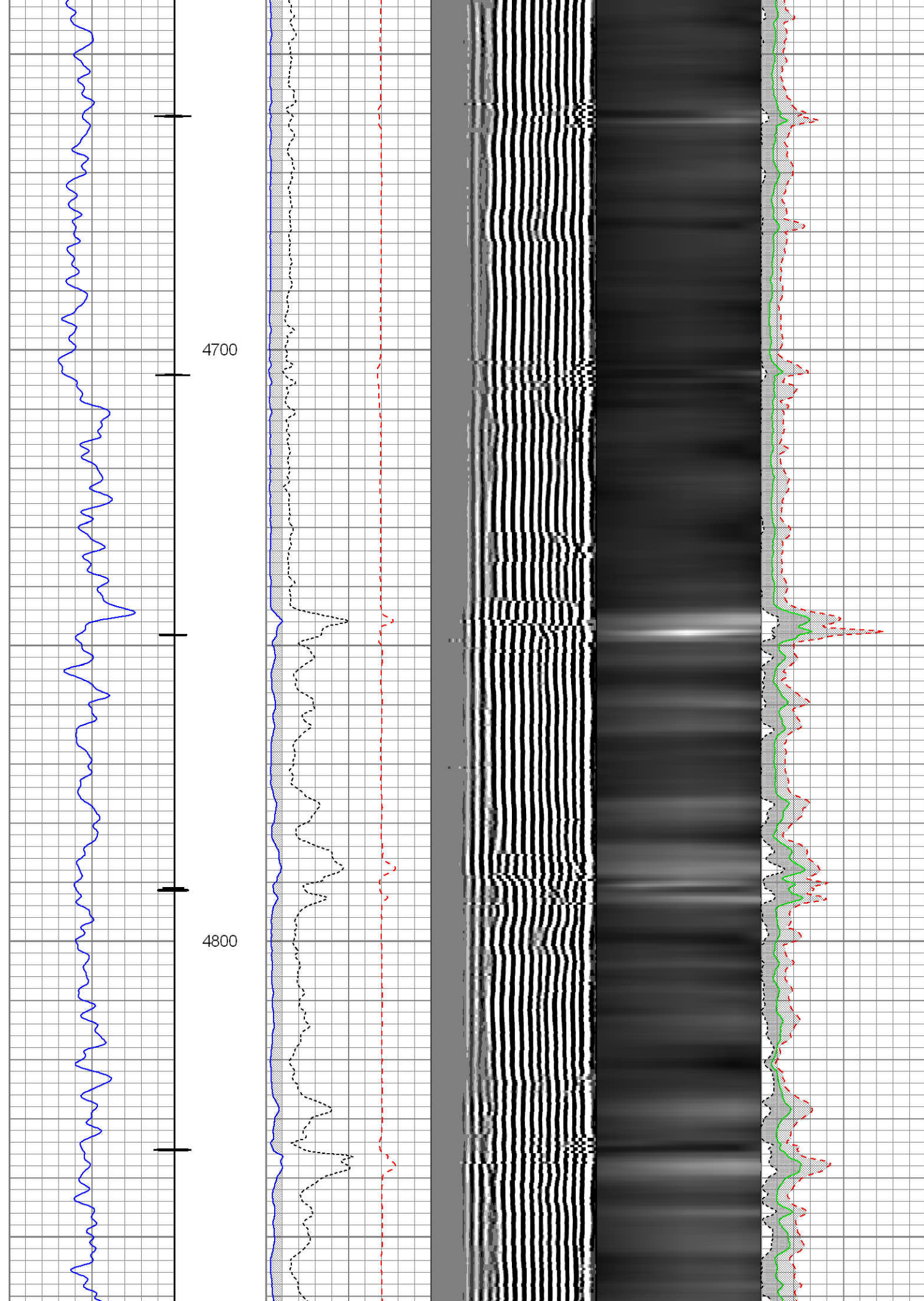


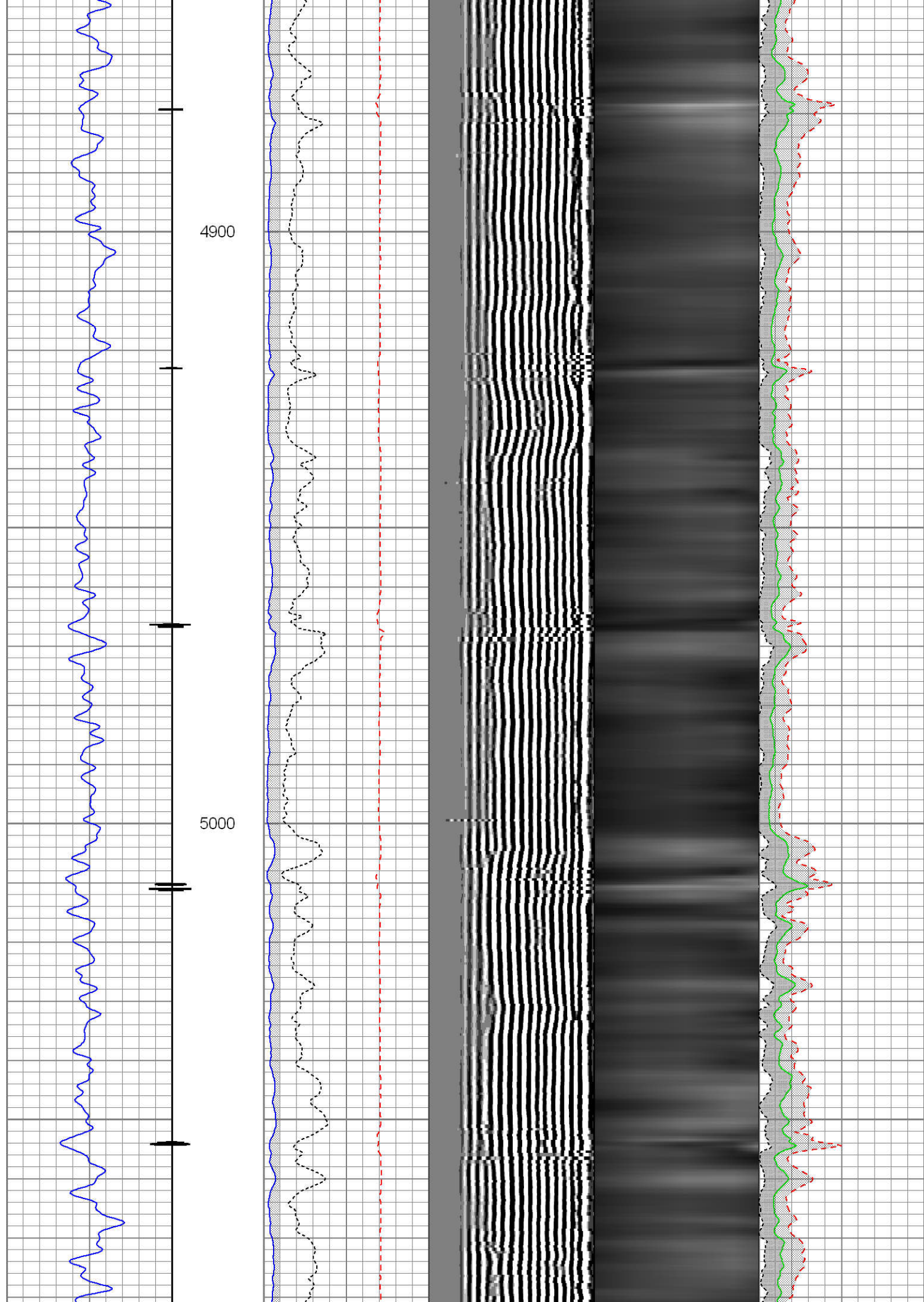




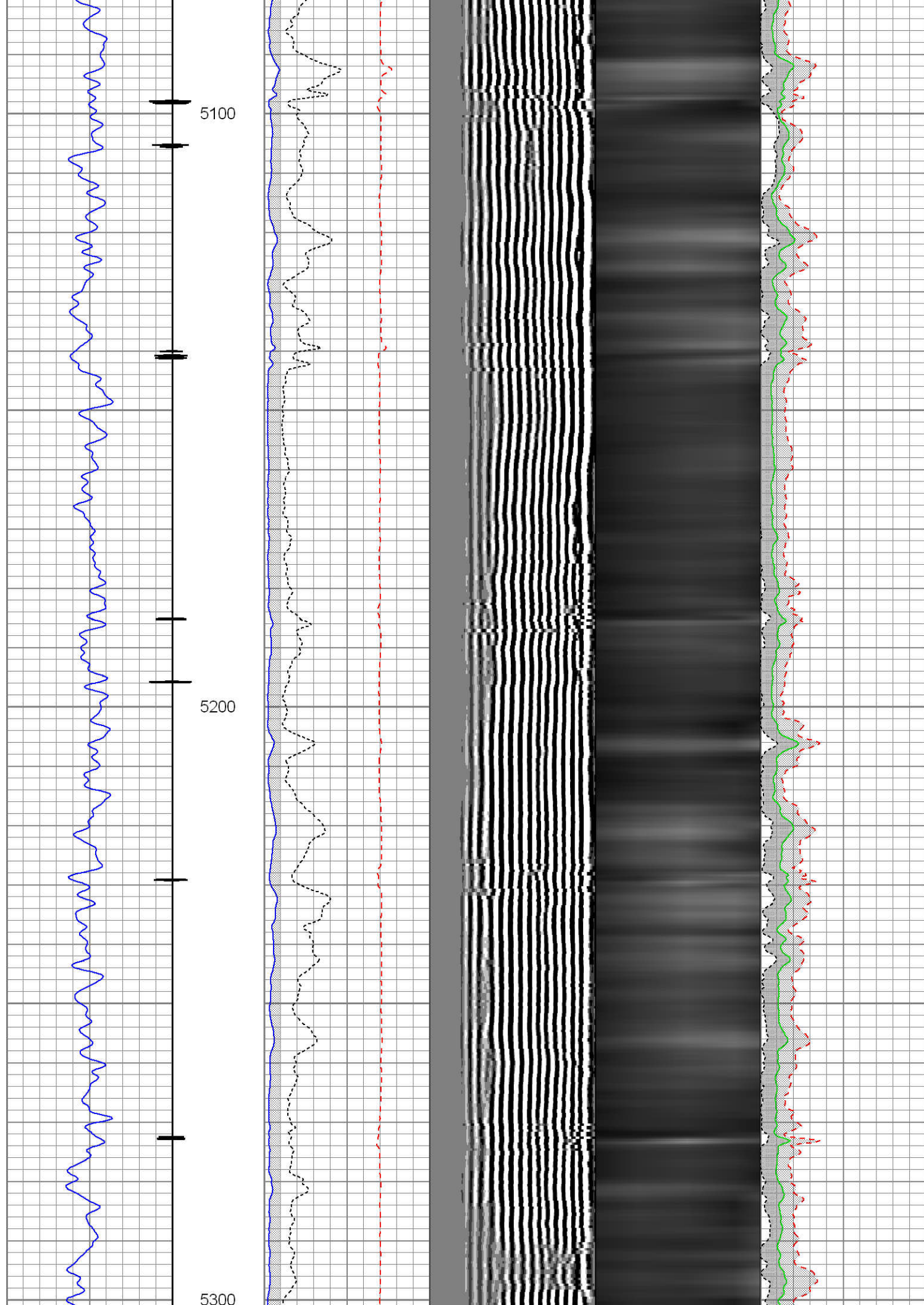


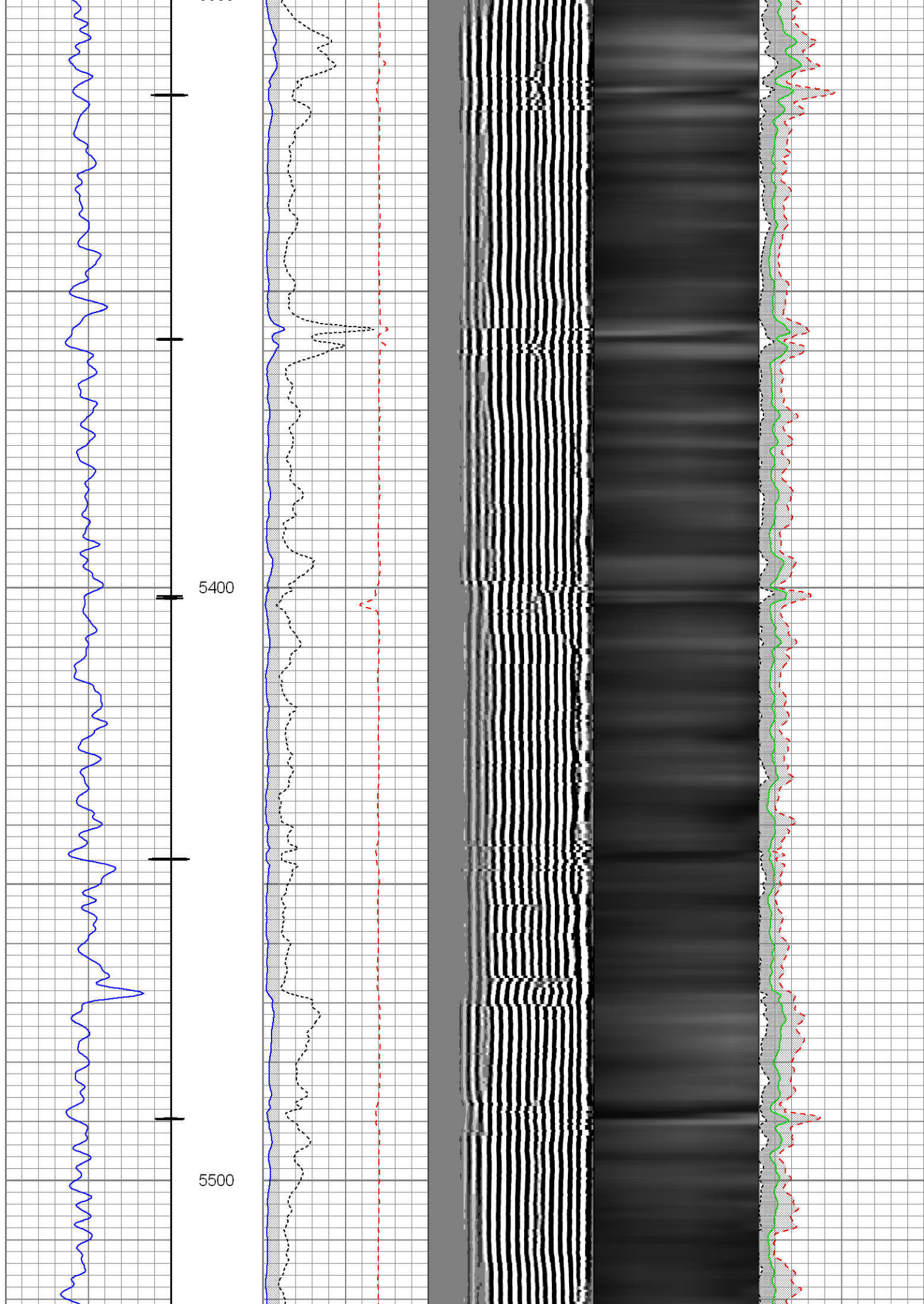




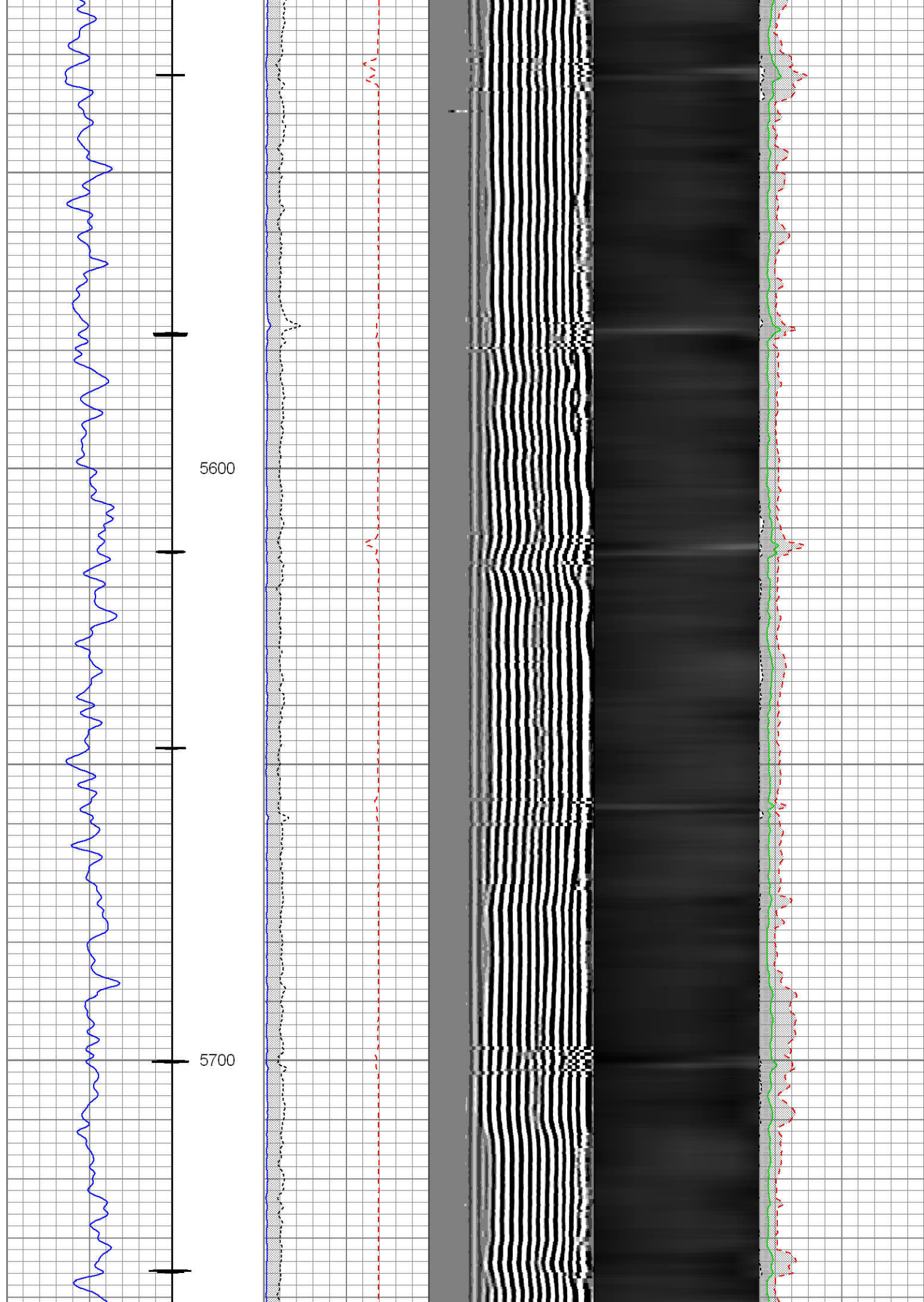


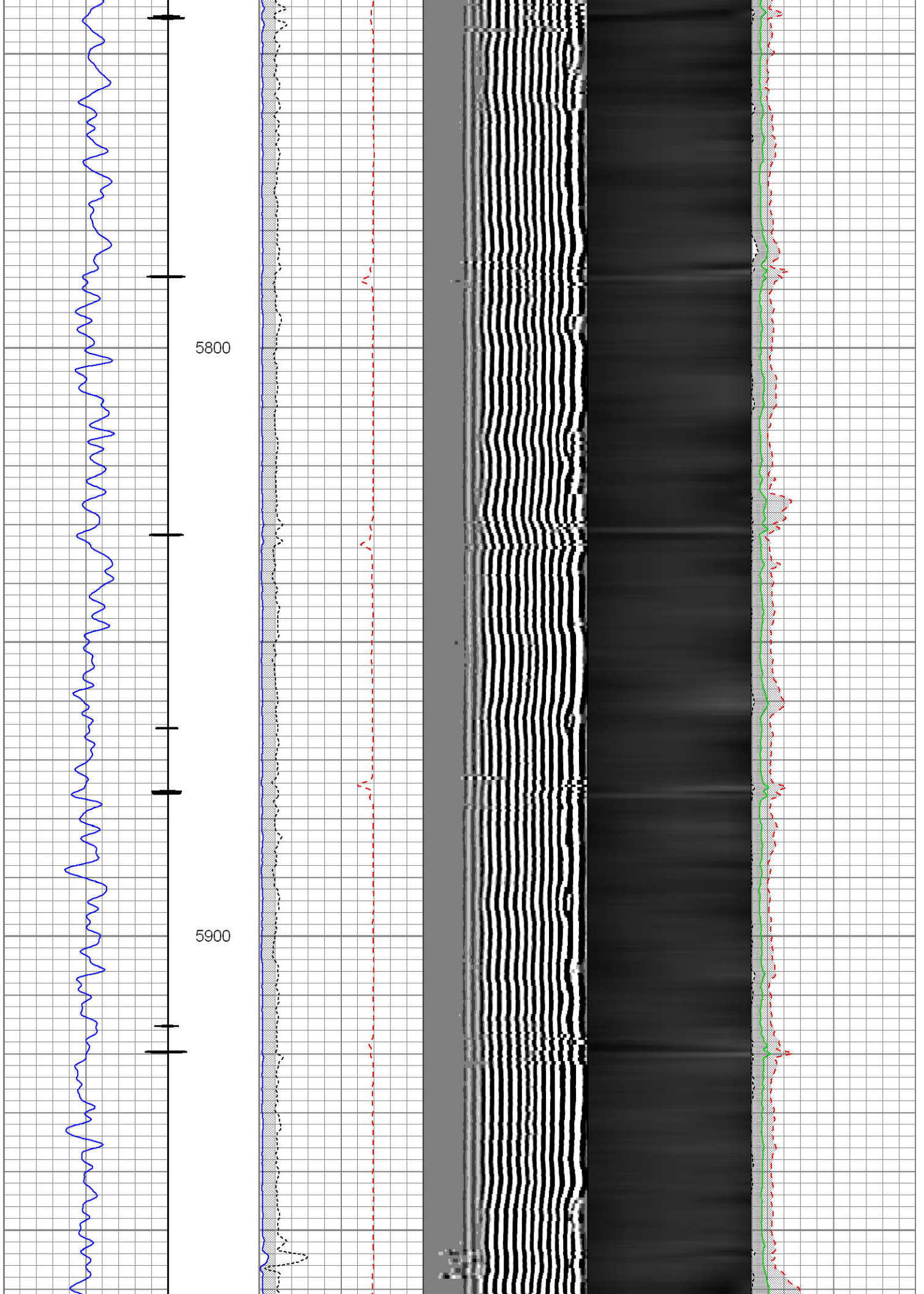




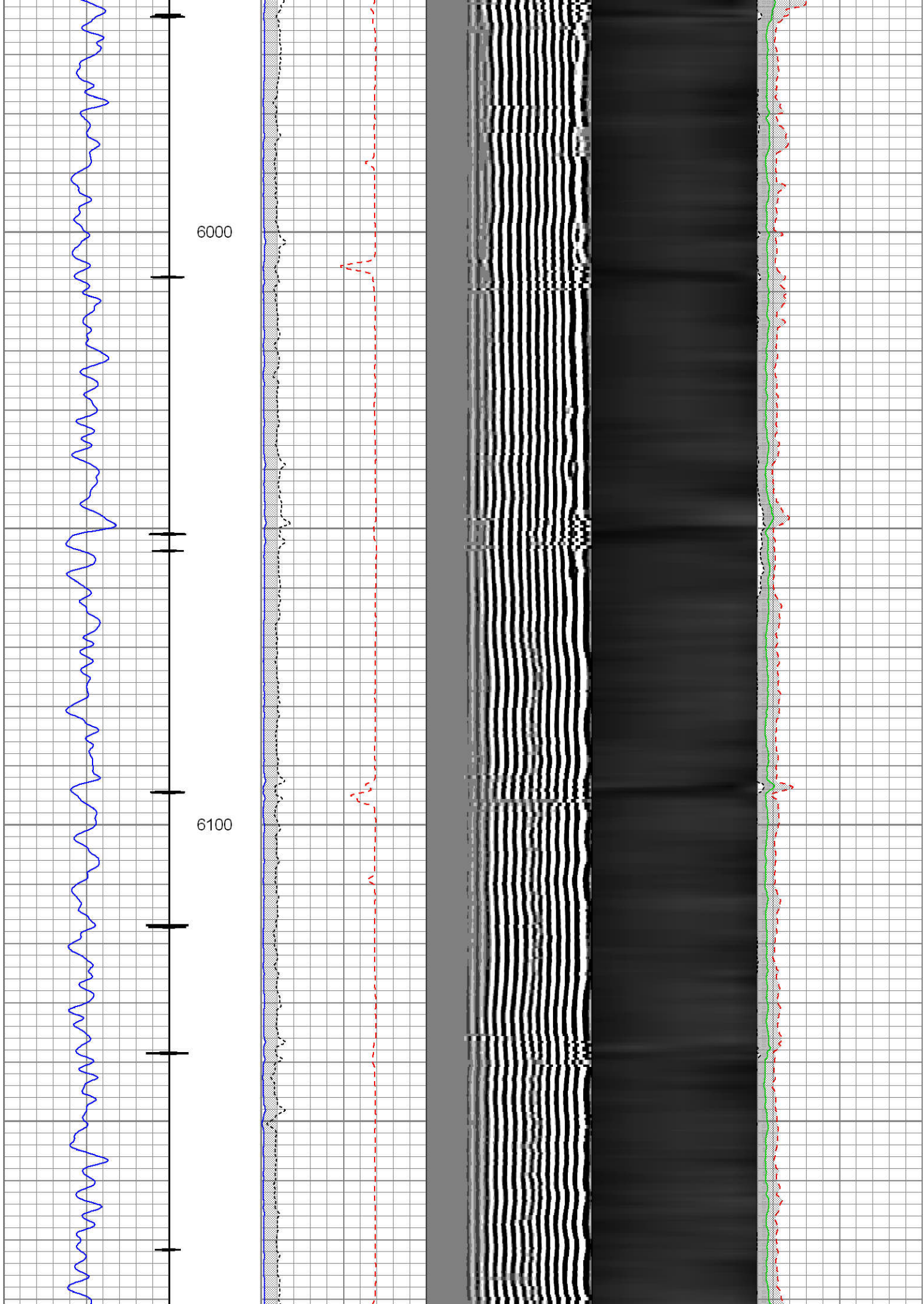


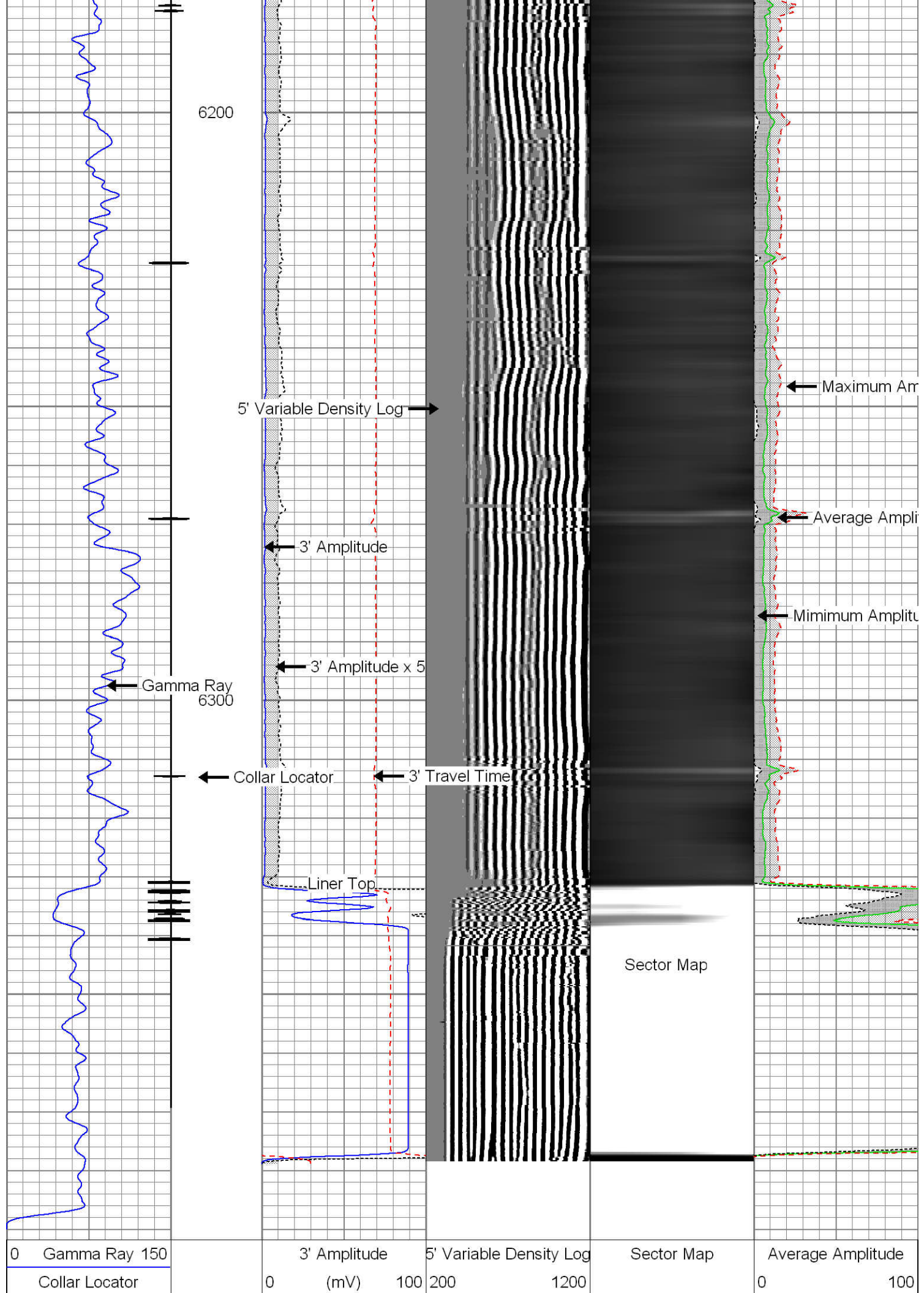












0	Gamma Ray 150	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
Collar Locator		(mV)			
		0 100	200 1200		0 100

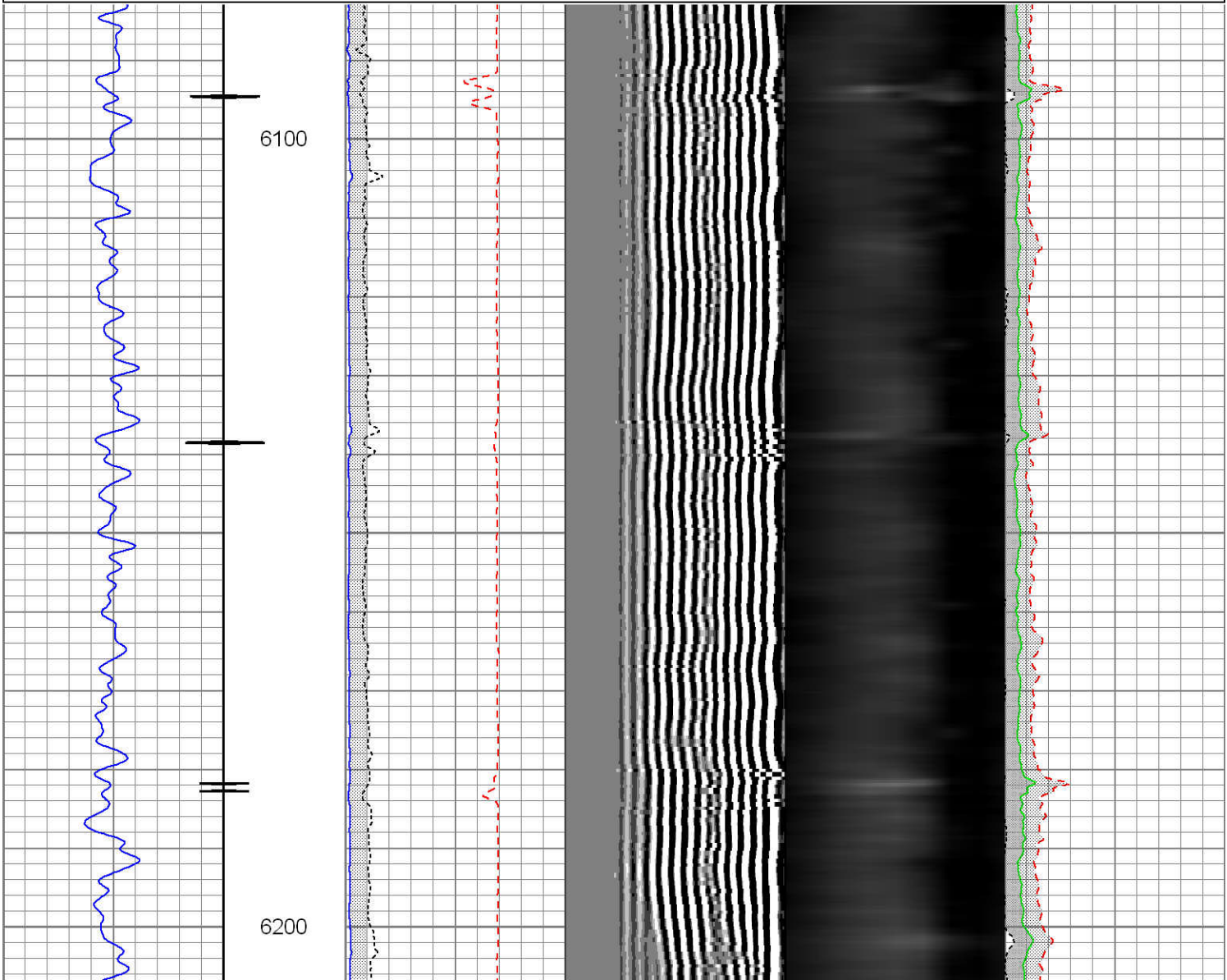


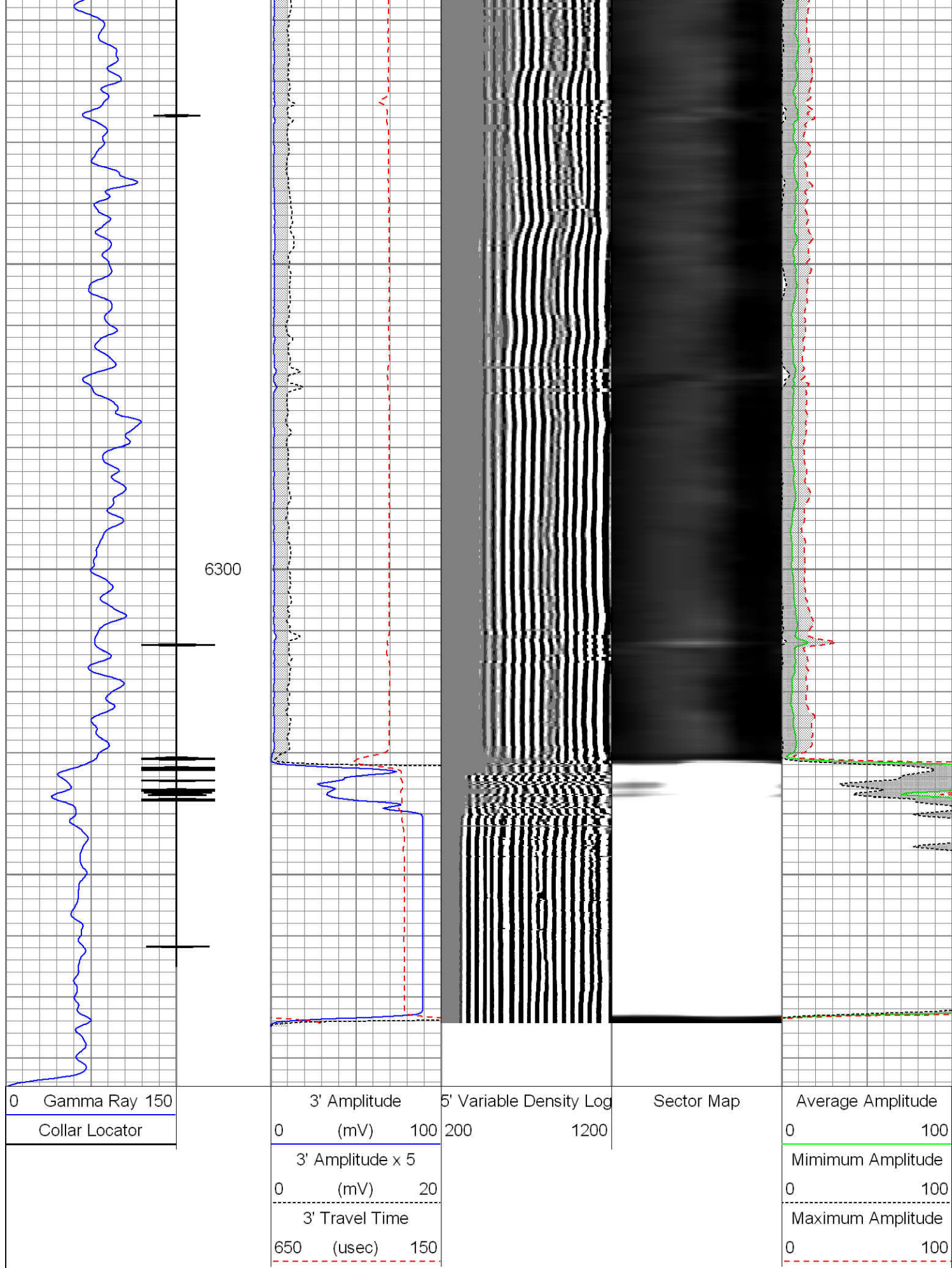
		3' Amplitude x 5	Minimum Amplitude
0	(mV)	20	0
		3' Travel Time	Maximum Amplitude
650	(usec)	150	0
			100

# Repeat Section @ 2800 psi

Database File:	kmg_sparboe 8n-3hz_cbl.db
Dataset Pathname:	pass2
Presentation Format:	rib
Dataset Creation:	Fri Mar 08 15:56:25 2013 by Log SCH 111116
Charted by:	Depth in Feet scaled 1:240

0	Gamma Ray	150	3' Amplitude		5' Variable Density Log	Sector Map	Average Amplitude		
Collar Locator			0	(mV)	100	200	1200	0	100
			3' Amplitude x 5					Minimum Amplitude	
			0	(mV)	20			0	100
			3' Travel Time					Maximum Amplitude	
			650	(usec)	150			0	100





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)





## Calibration Report

Database File: kmg\_sparboe 8n-3hz\_cbl.db  
 Dataset Pathname: pass3  
 Dataset Creation: Fri Mar 08 16:02:28 2013 by Log SCH 111116

## Gamma Ray Calibration Report

Serial Number: CCCC  
 Tool Model: TypeC  
 Performed: Mon Feb 11 09:32:56 2013

Calibrator Value: 1.0

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 0.8500 /cps

## Segmented Cement Bond Log Calibration Report

Serial Number: AAAA  
 Tool Model: Type\_A

Calibration Casing Diameter: 7.000 in  
 Calibration Depth: 1929.312 ft

Master Calibration, performed Mon Mar 04 12:24:41 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.021	1.740	0.800	62.165	35.699	0.052
CAL	1.449	1.390				
5'	-0.006	1.958	0.800	62.165	31.247	0.996
SUM						
S1	0.073	1.907	0.000	100.000	54.538	-3.997
S2	0.083	2.333	0.000	100.000	44.440	-3.693
S3	0.074	2.204	0.000	100.000	46.945	-3.458
S4	0.084	1.764	0.000	100.000	59.505	-4.976
S5	0.069	1.174	0.000	100.000	90.429	-6.197
S6	0.031	0.905	0.000	100.000	114.436	-3.551
S7	0.061	0.933	0.000	100.000	114.625	-6.958
S8	0.080	1.320	0.000	100.000	80.623	-6.445

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	1.449	1.390	1.000	0.000

Air Zero Calibration, performed Mon Mar 04 08:53:23 2013:

	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	



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

### Temperature Calibration Report

Serial Number: AAAA  
Tool Model: Type\_A  
Performed: Sat Feb 16 10:19:03 2013

	Reference	Reading
Low Reference:	75.00 degF	300.00 usec
High Reference:	400.00 degF	1282.00usec

Gain: 0.40  
Offset: -24.29  
Delta Spacing 1



**Company** Kerr-McGee Oil & Gas Onshore, L.P.  
**Well** Sparboe 8N-3HZ  
**Field** Wattenberg  
**County** Weld  
**State** Colorado