



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Henrickson Federal 14N-18HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # : 05-123-37671			
SHL: 1855' FSL & 2078' FWL NE/SW				Other Services			
SEC 7 TWP 3N RGE 66W				Gauge Ring			
Permanent Datum		Ground Level		Elevation		4794'	
Log Measured From		Kelly Bushing		(16 FT)		K.B. 4810'	
Drilling Measured From		Kelly Bushing				D.F. 4809'	
						G.L. 4794'	
Date		16-OCT-2013					
Run Number		One					
Depth Driller		13,923 FT					
Depth Logger		6513 FT					
Bottom Logged Interval		6510 FT					
Top Log Interval		Surface					
Open Hole Size		8.750"					
Type Fluid		Water					
Density / Viscosity		8.34 lbm/gal					
Max. Recorded Temp.		244 F					
Estimated Cement Top		Surface					
Time Well Ready		ROA					
Time Logger on Bottom		08:10					
Equipment Number		HD-0301					
Location		Fort Lupton, CO					
Recorded By		Greg Jackson					
Witnessed By		Rick Dunford					
Borehole Record				Tubing Record			
Run Number		Bit		From		To	
Casing Record		Size (in)		Wgt (lbs/ft)		Grade	
Surface Casing		9-5/8"		36# - J-55			
Intermediate #1		7"		26# - P-110			
Intermediate #2							
Liner		4-1/2"		11.6# - HCP-110		6464 FT	
						13,908 FT	

<<< Fold Here >>>

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 Log - Casing Inspection Log is first recorded log in hole.
Adjusted -26' for liner top at 6464" with 16' KB
RCBL-CIL ran at 2200 PSI surface induced pressure.
Estimated Cement Top recorded at Surface

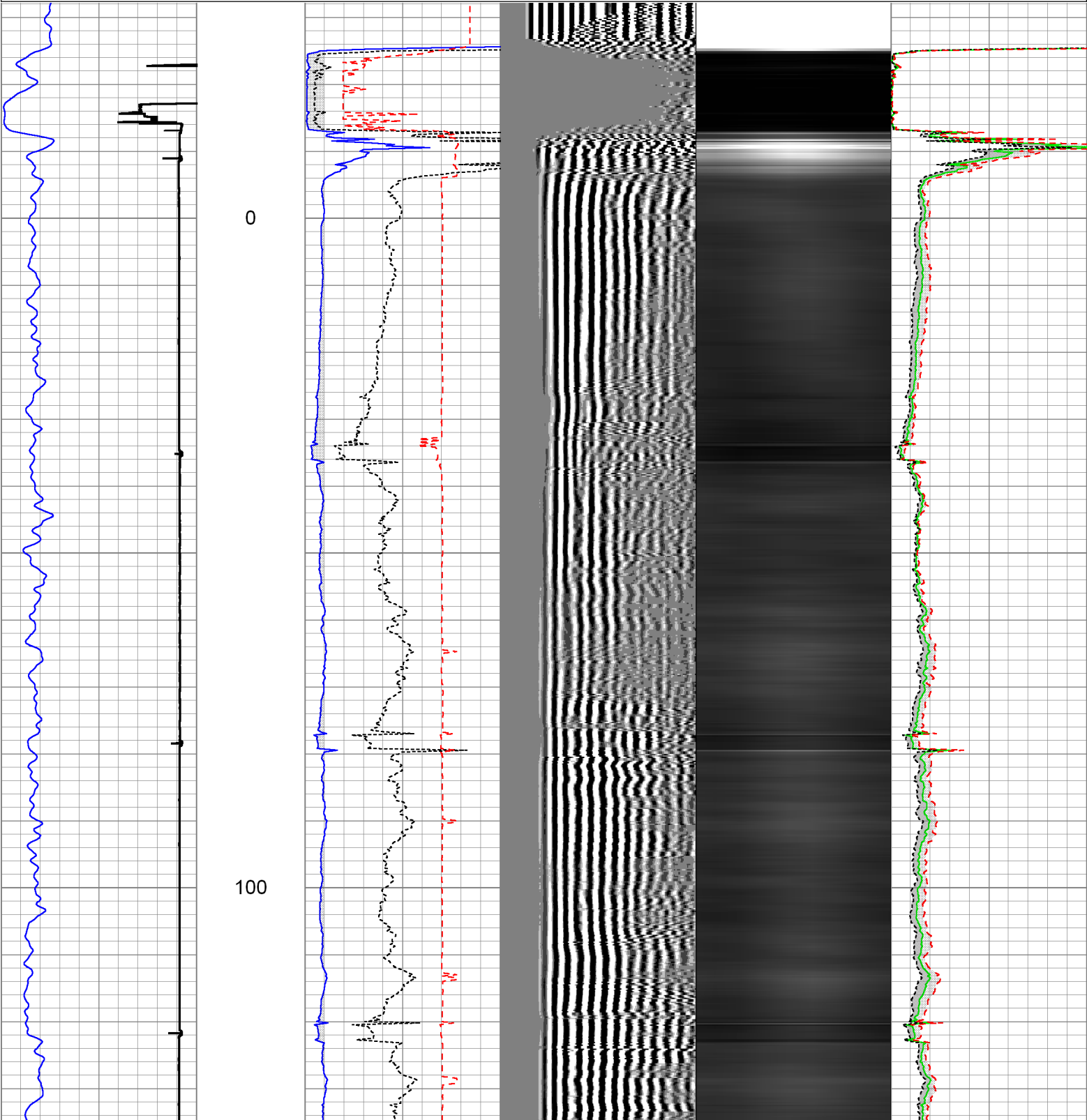
Thank you for choosing FMC Technologies Completion Services, Inc.

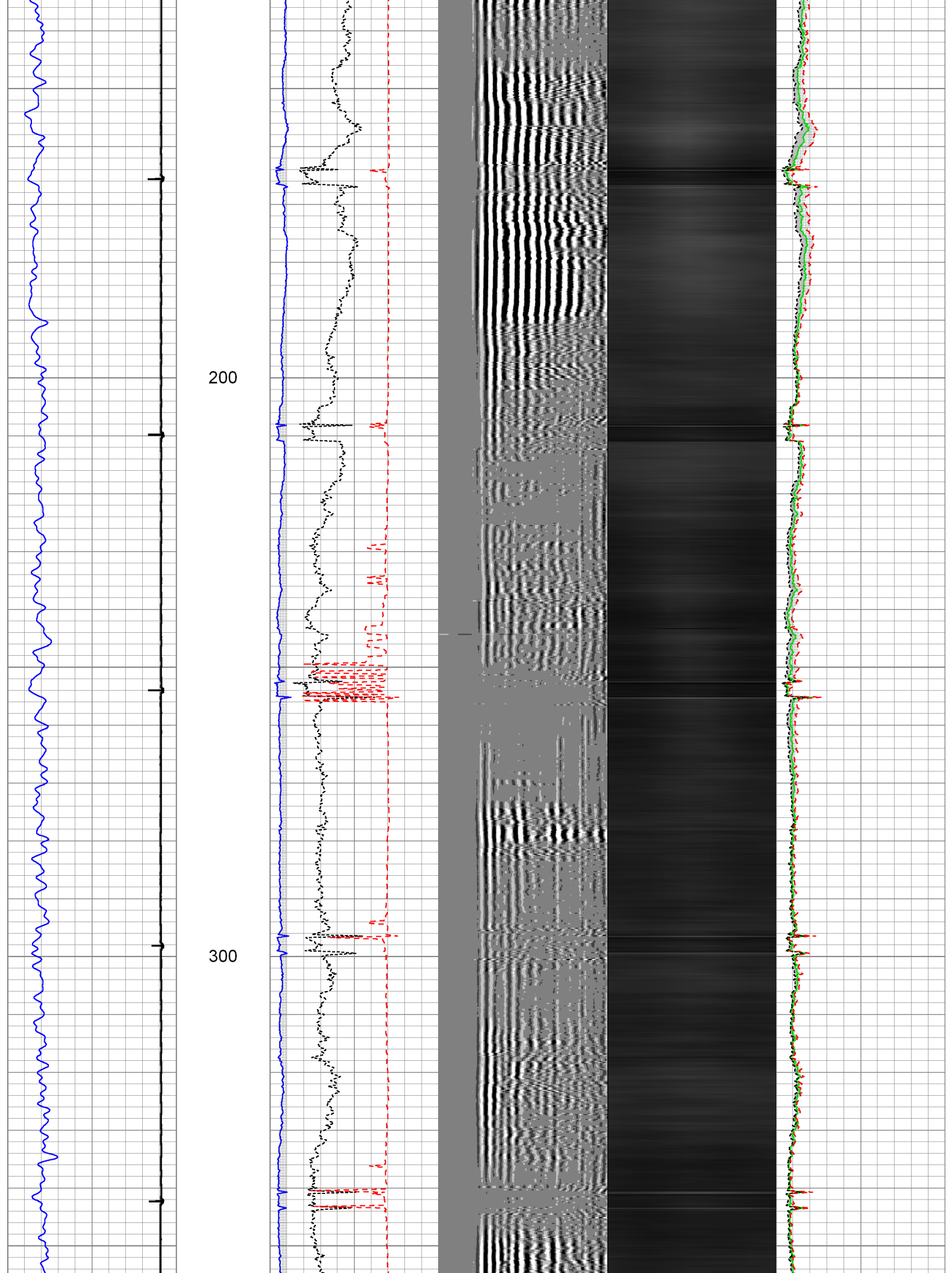
Main Pass

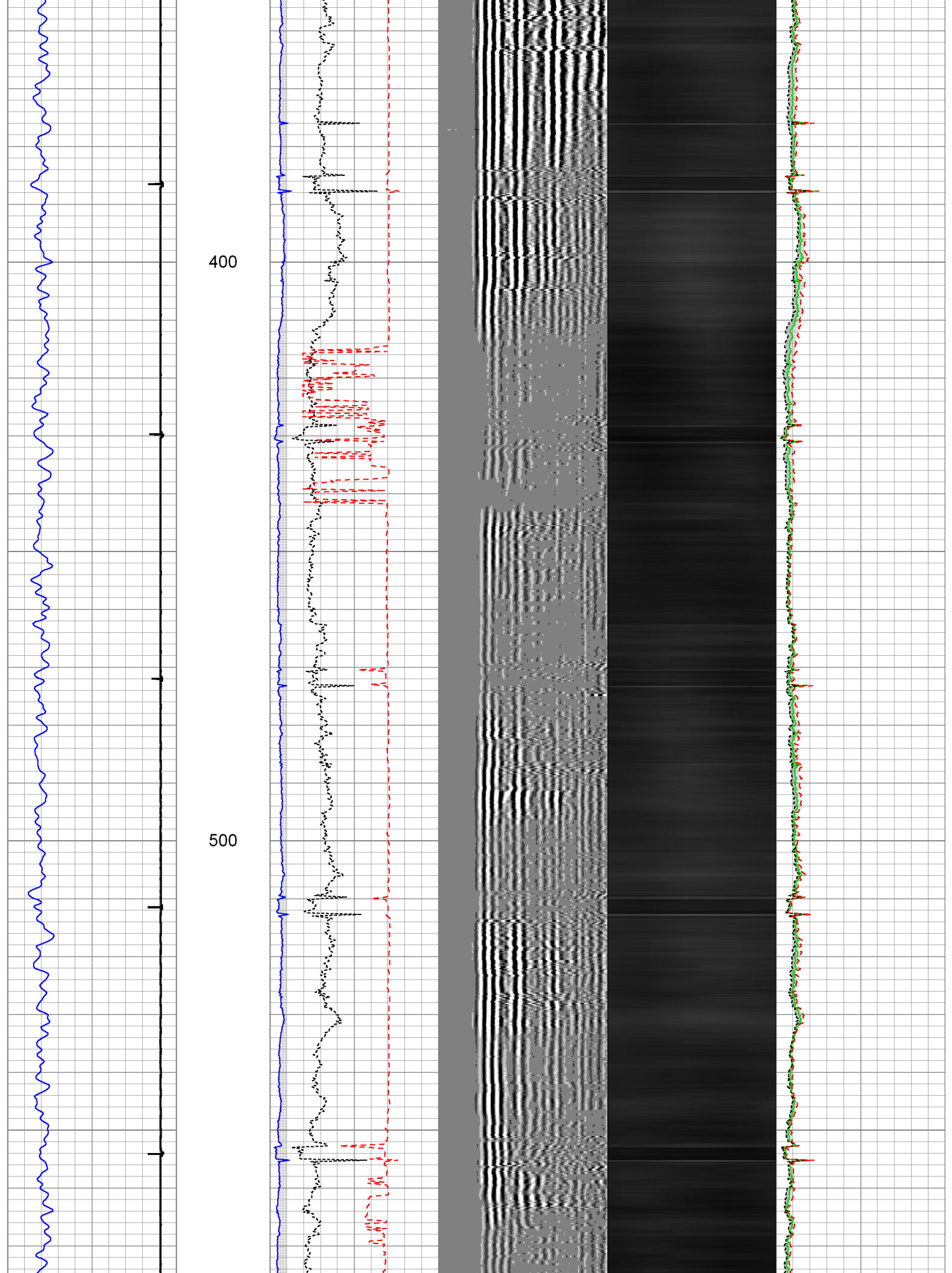


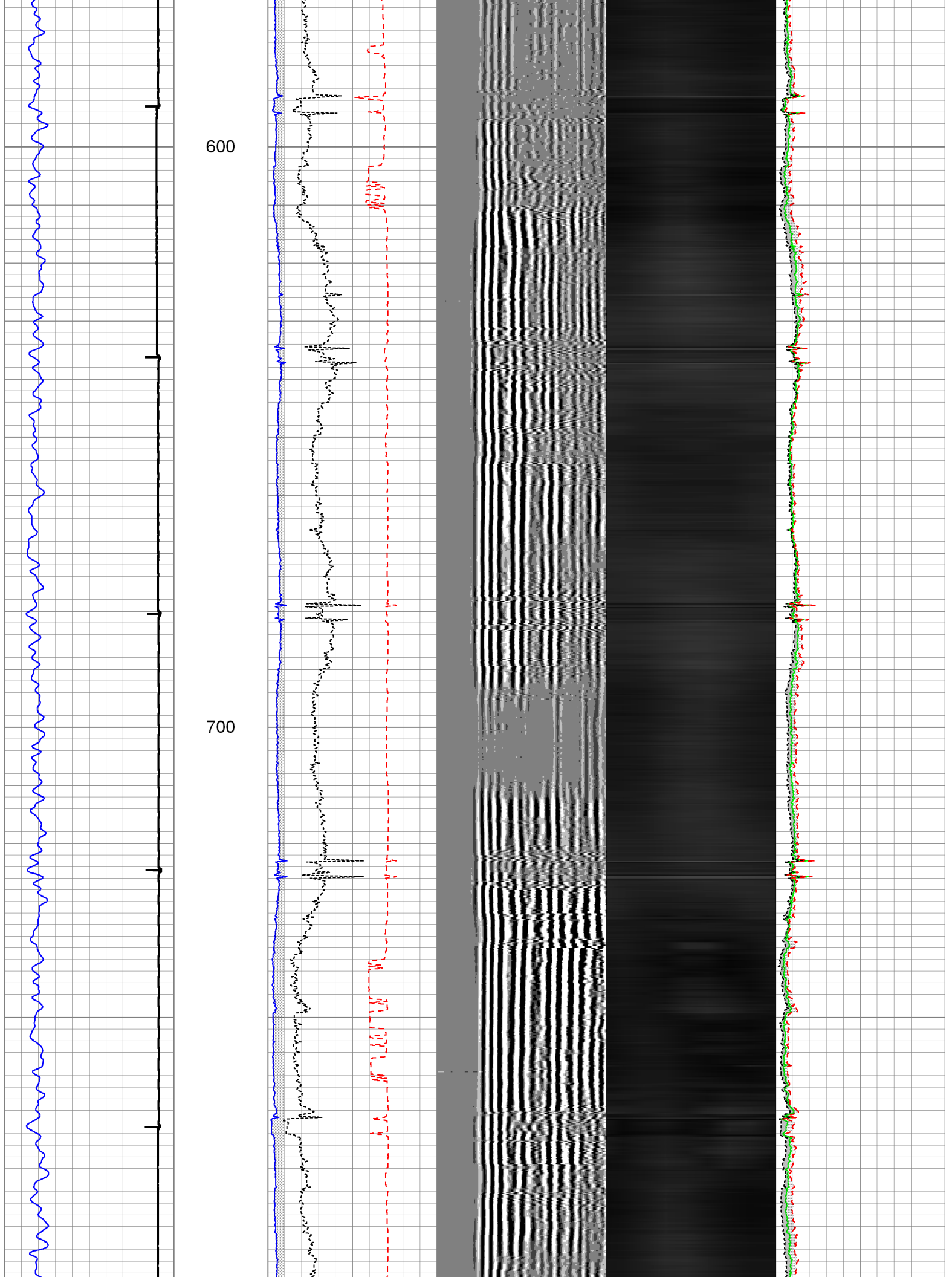
Logged with 2200 PSI Induced Surface Pressure

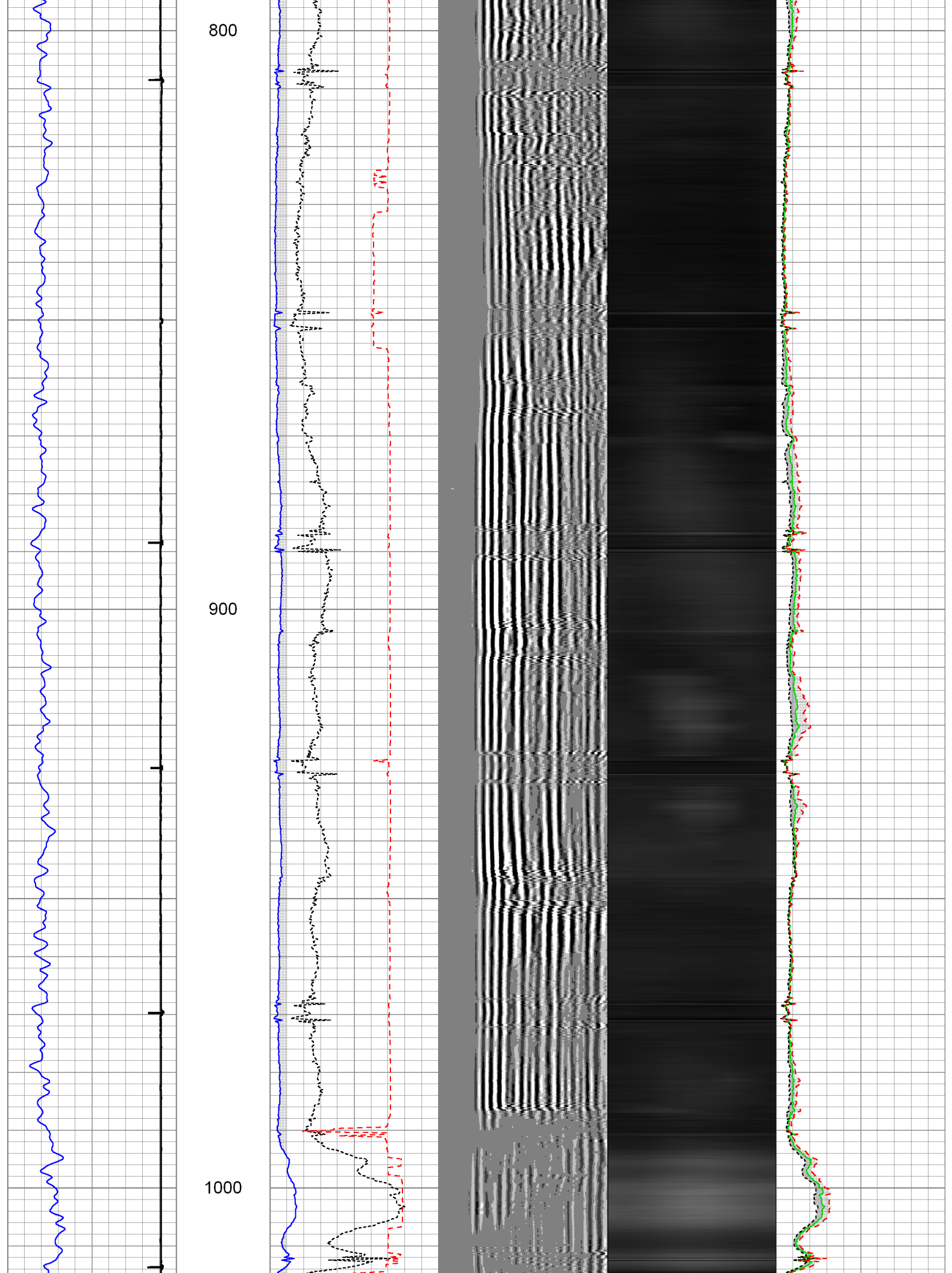
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 1200		0 100
Collar Locator		3' Amplitude x 5			Minimum Amplitude
		0 (mV) 20			0 100
		3' Travel Time			Maximum Amplitude
		650 (usec) 150			0 100

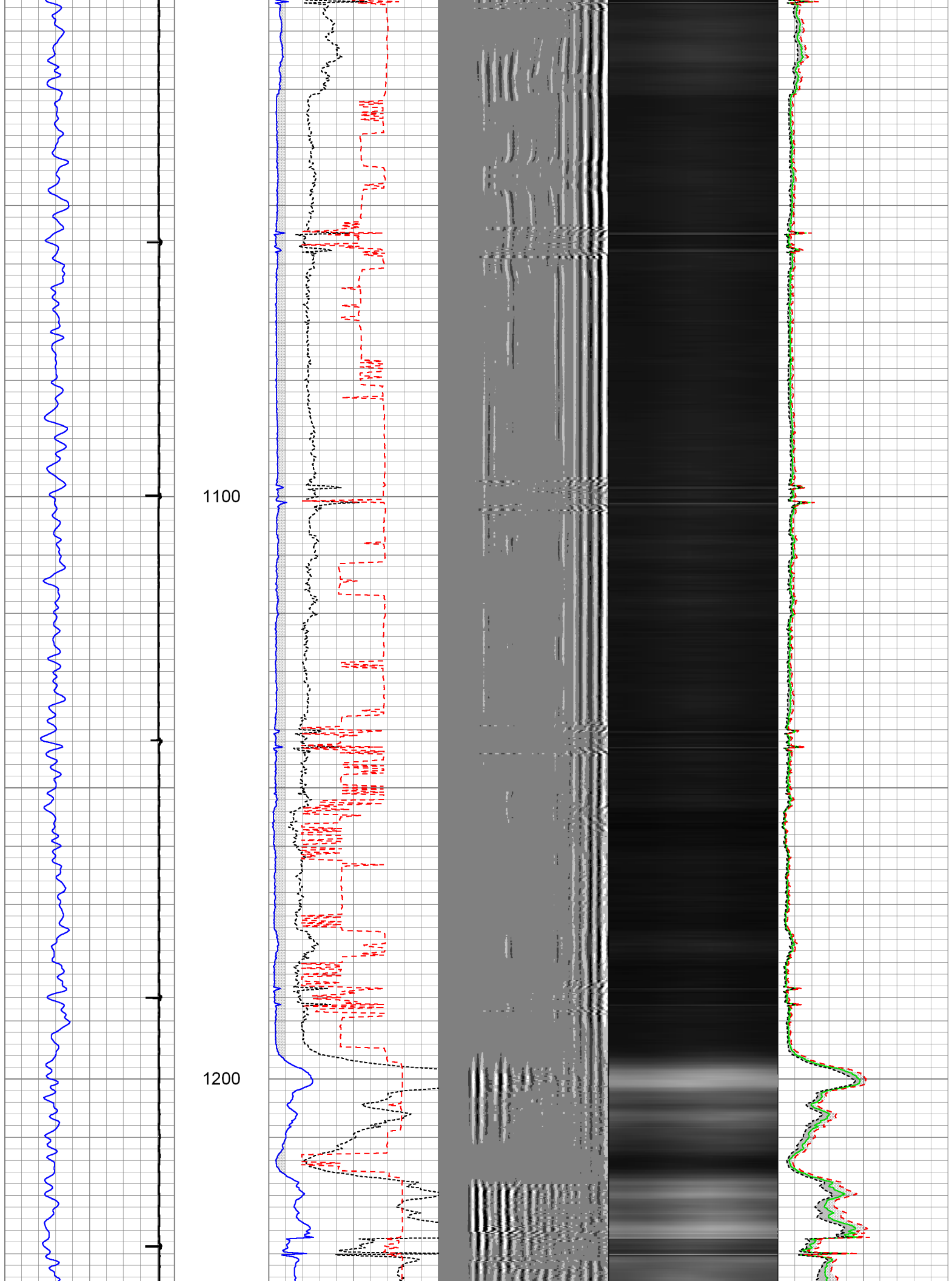






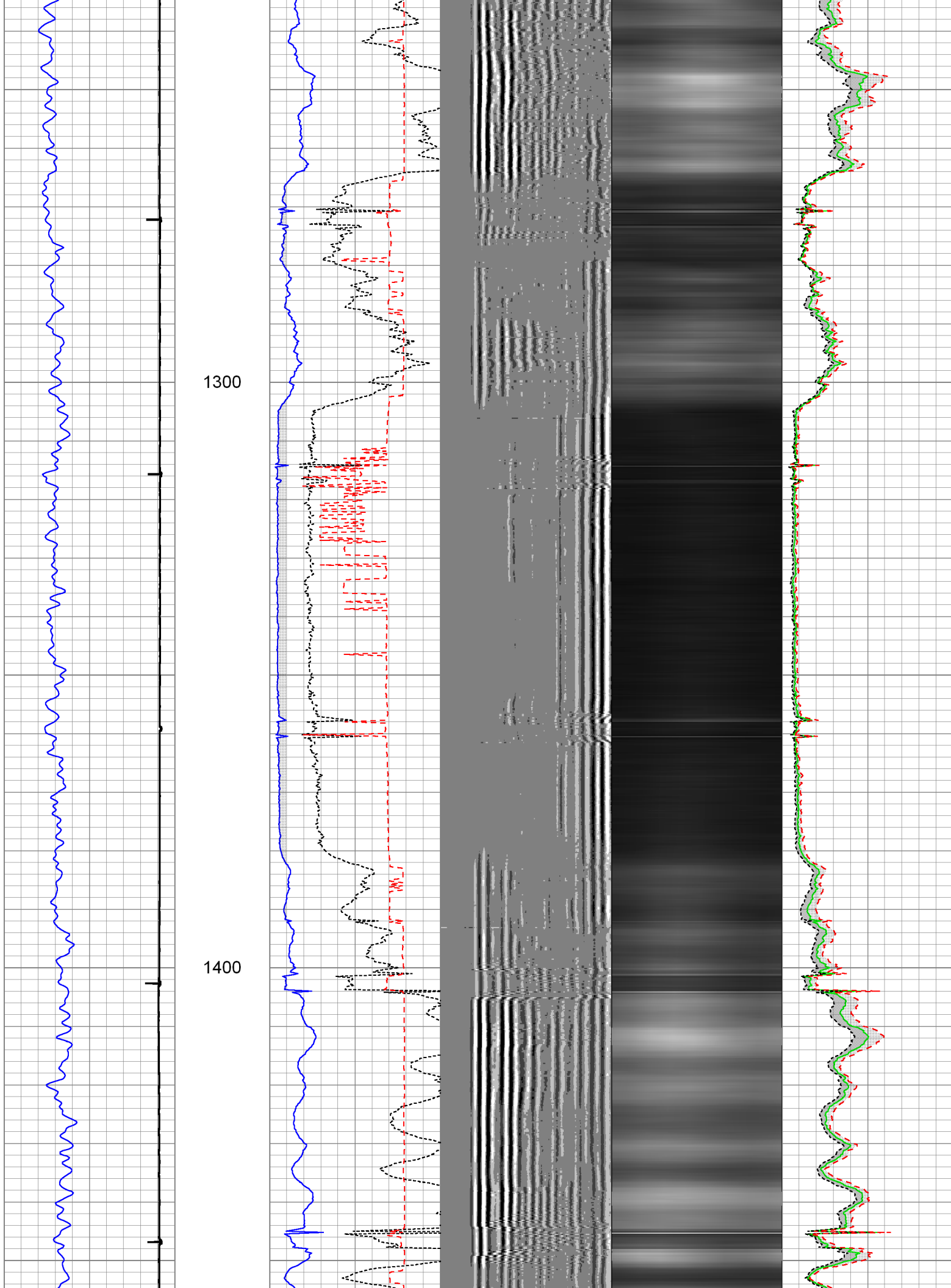


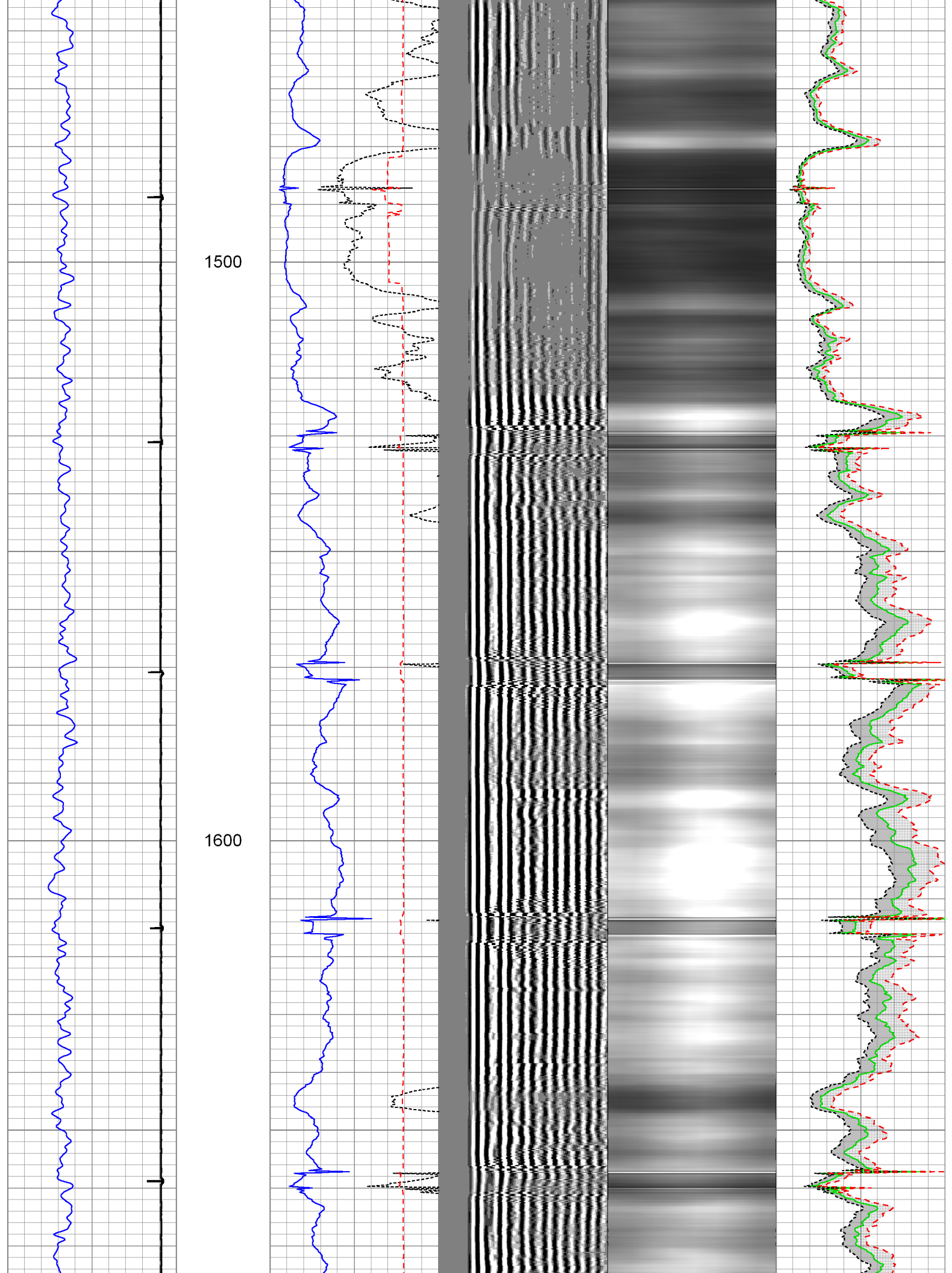


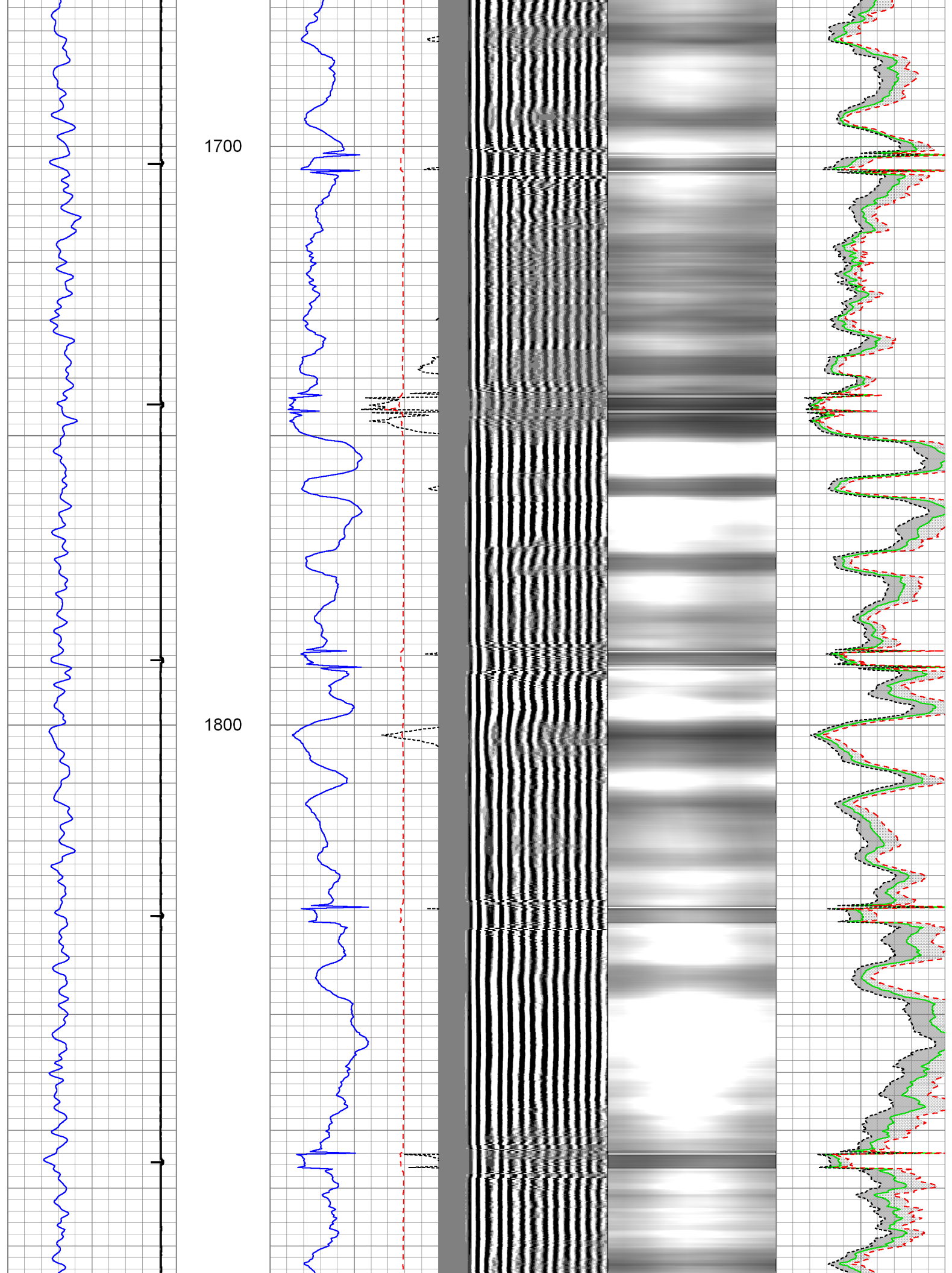


1300

1400



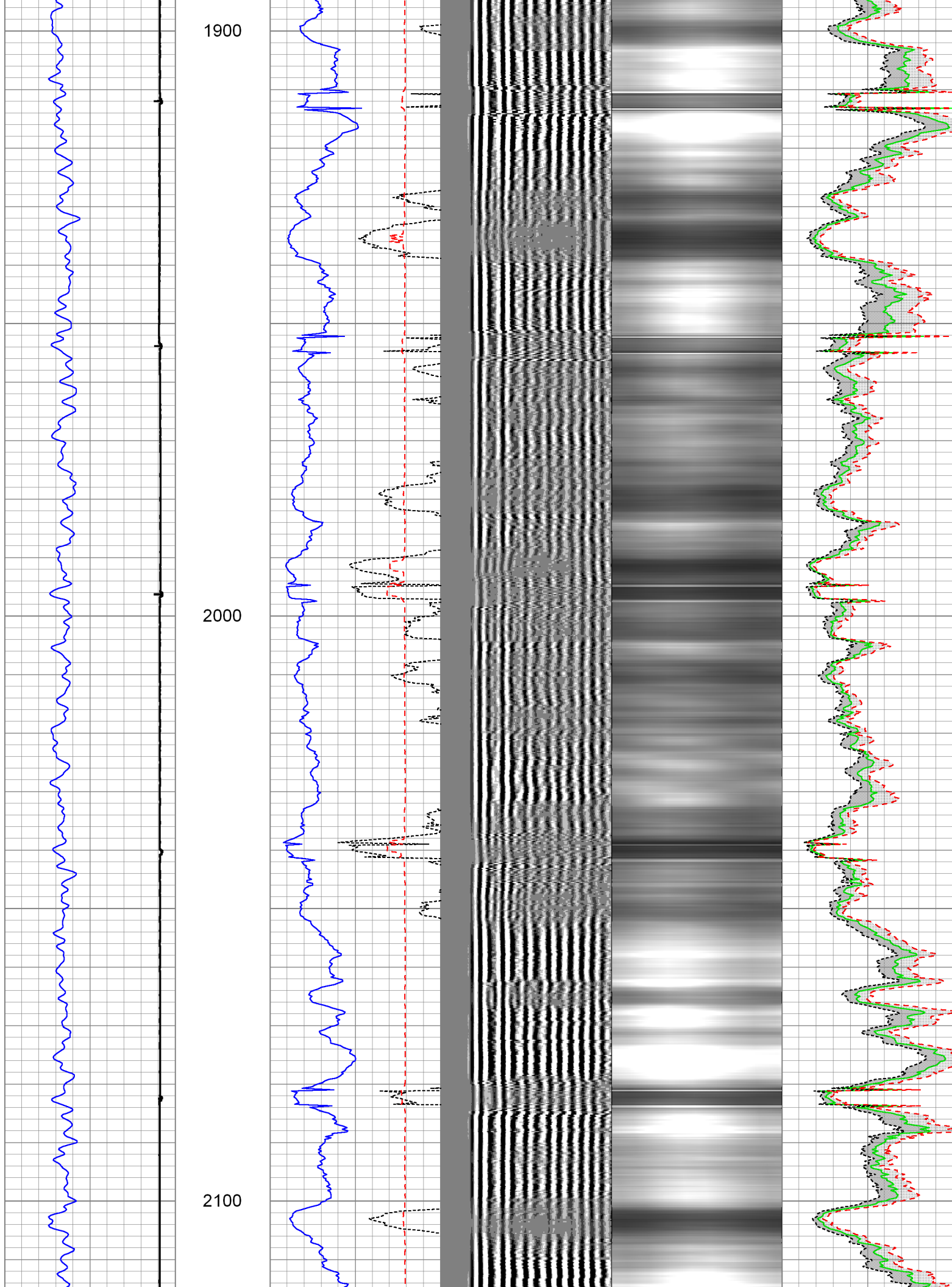




1900

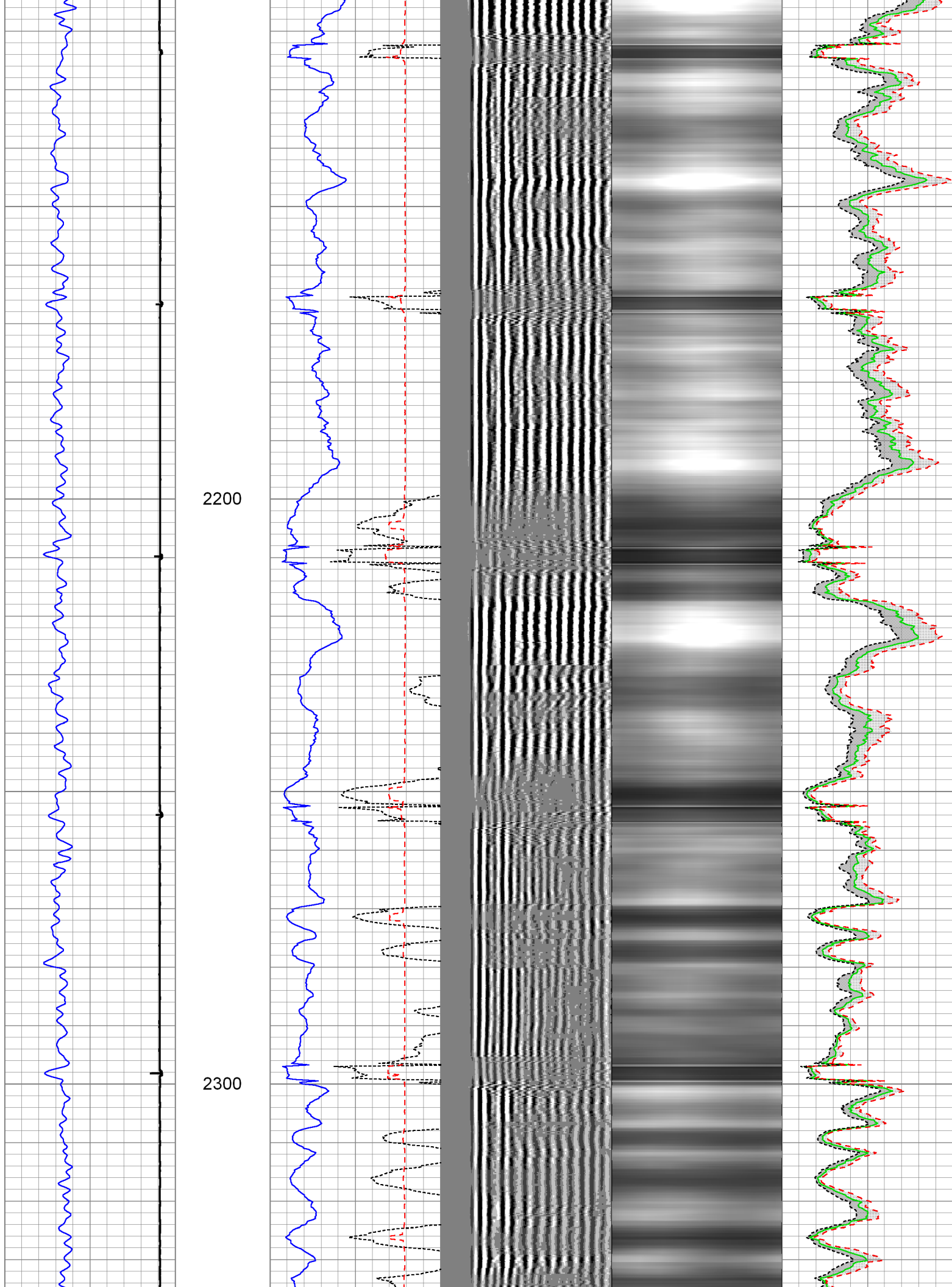
2000

2100



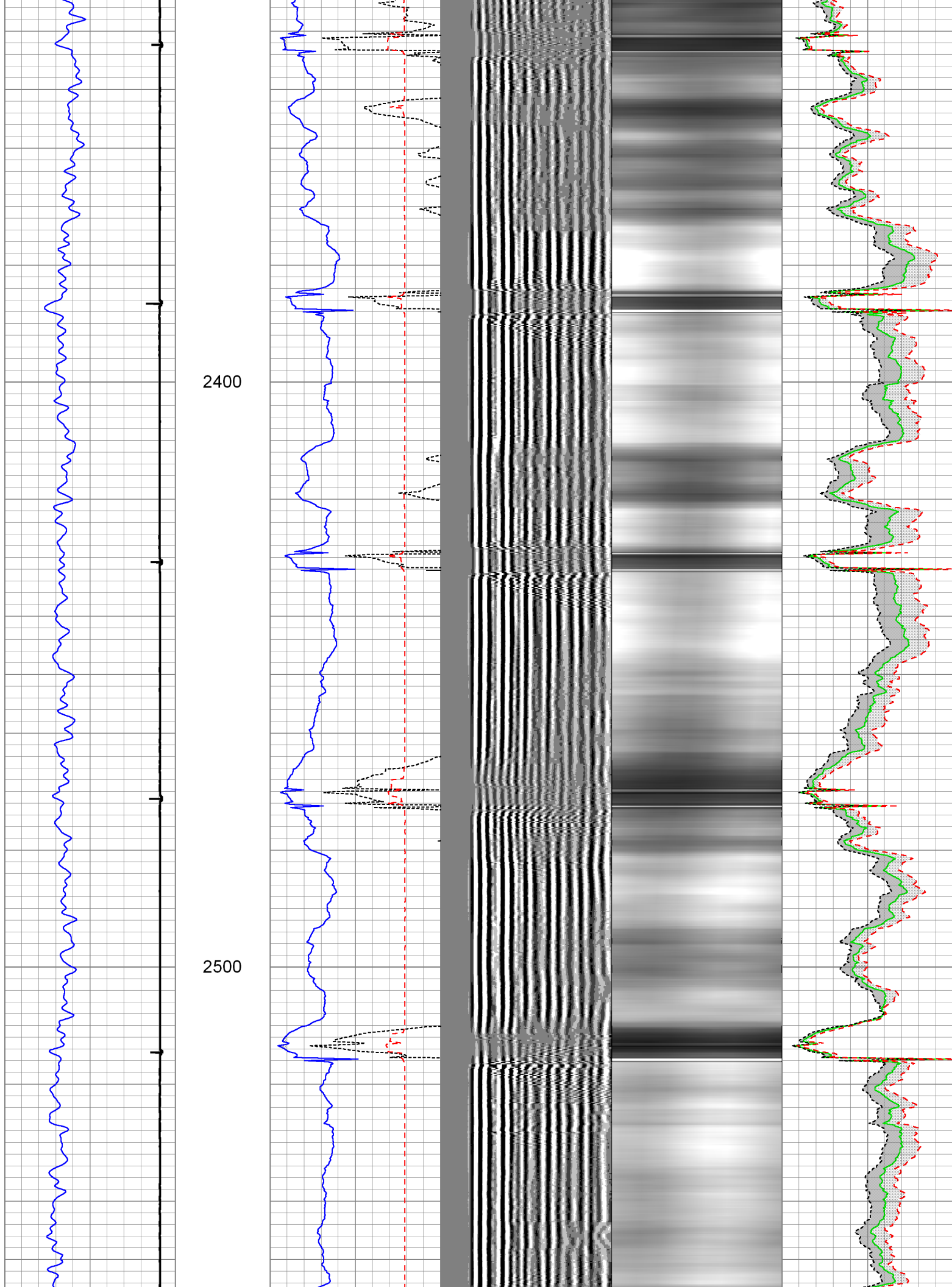
2200

2300



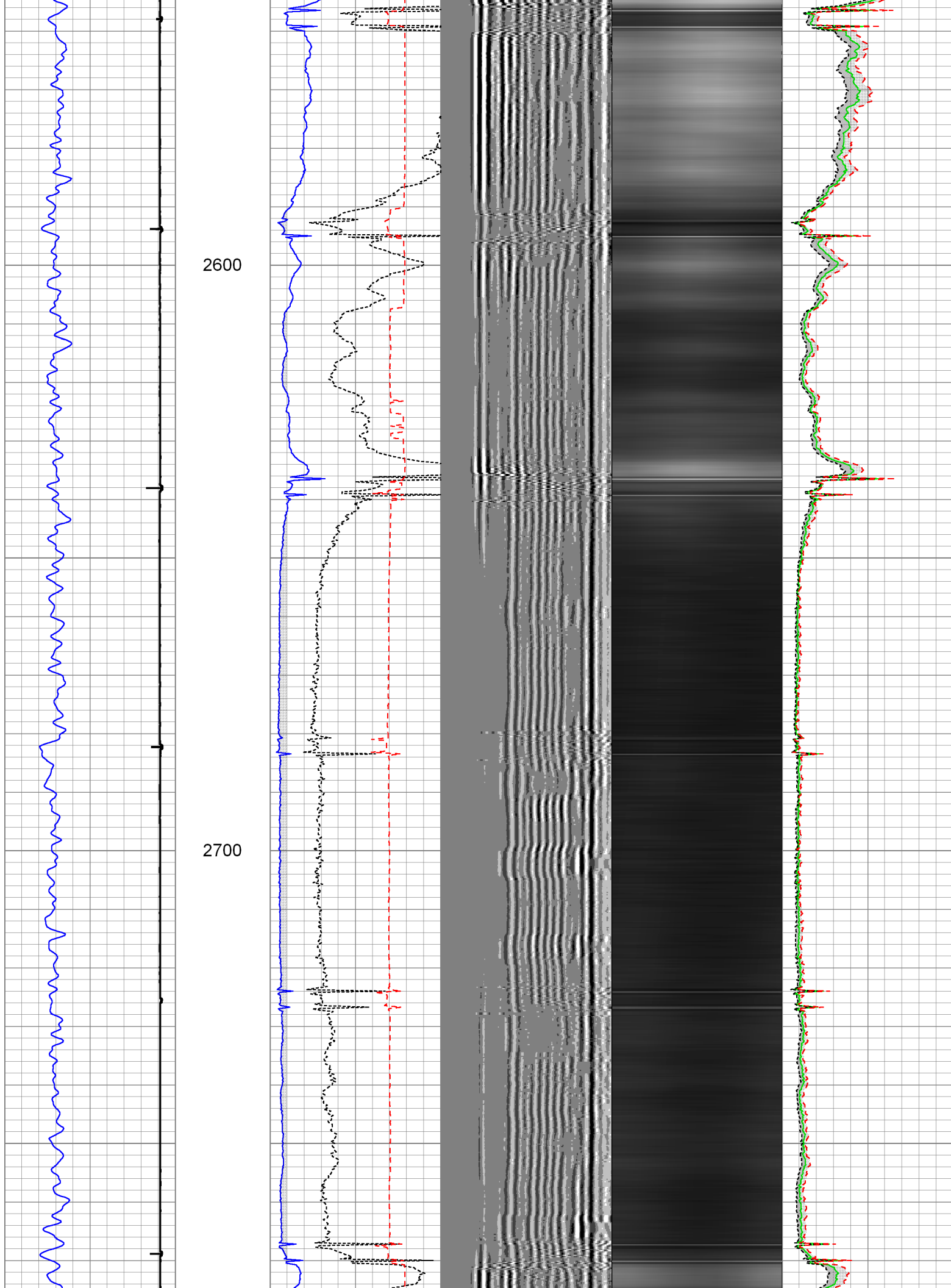
2400

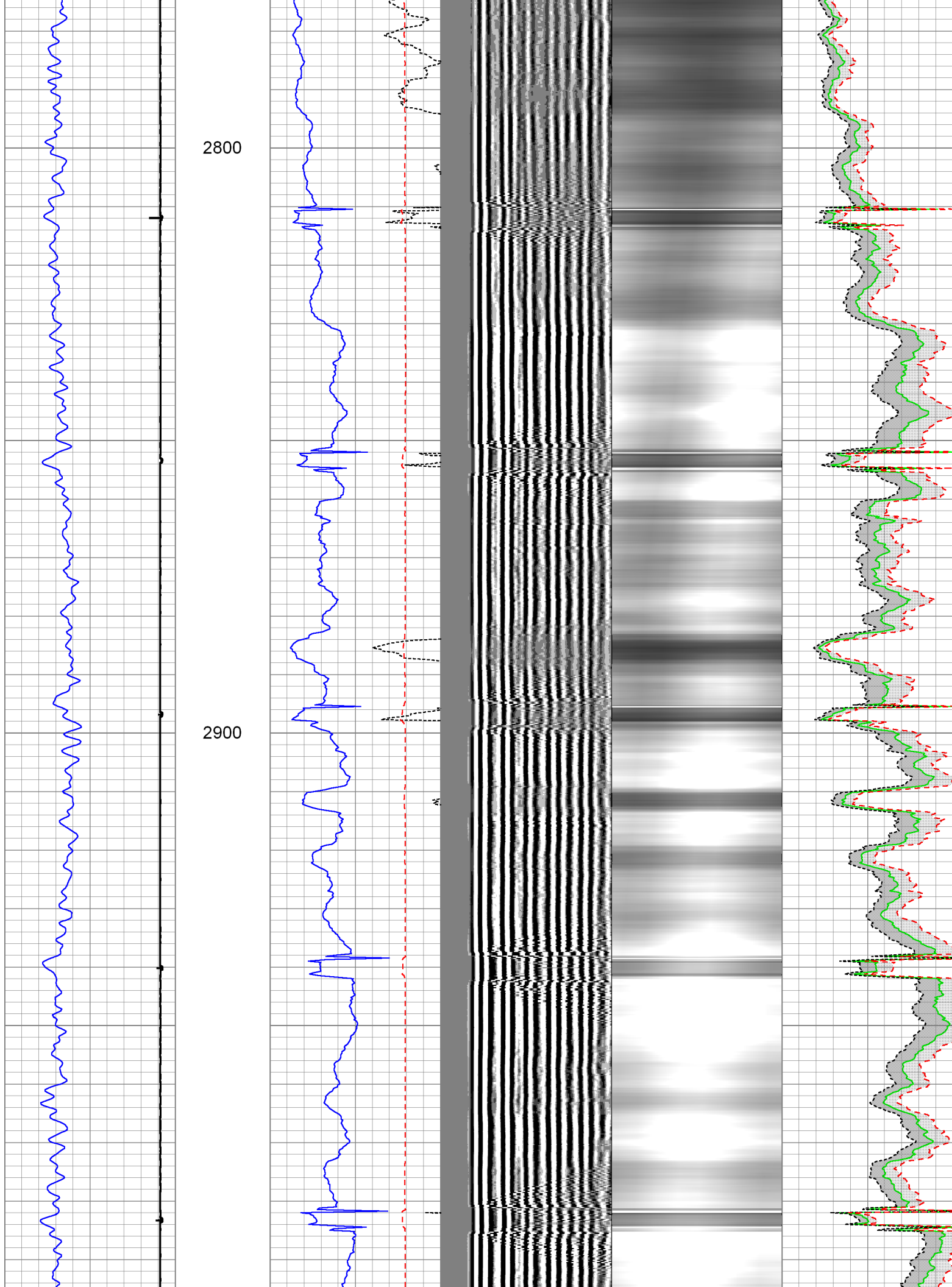
2500



2600

2700

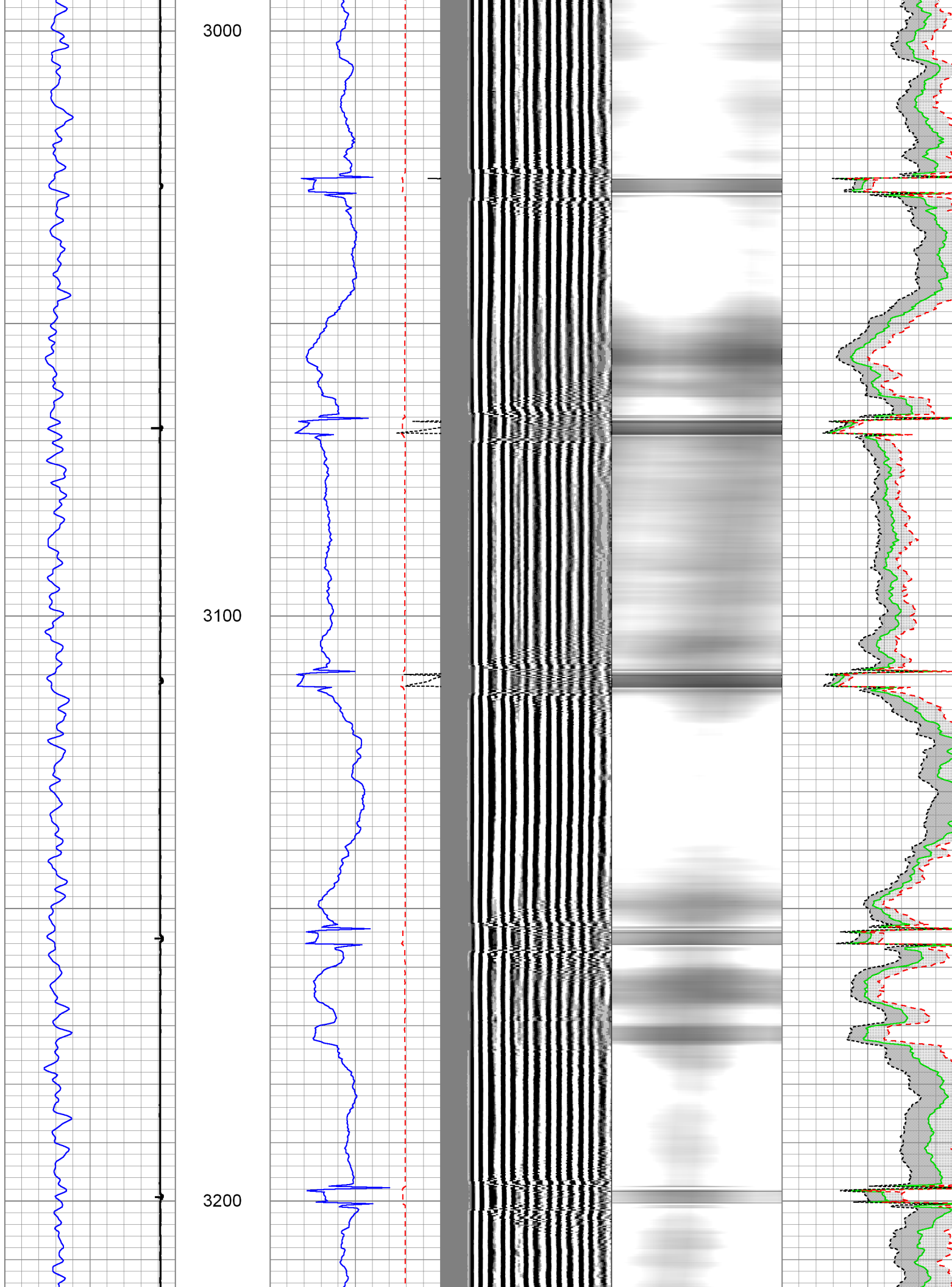




3000

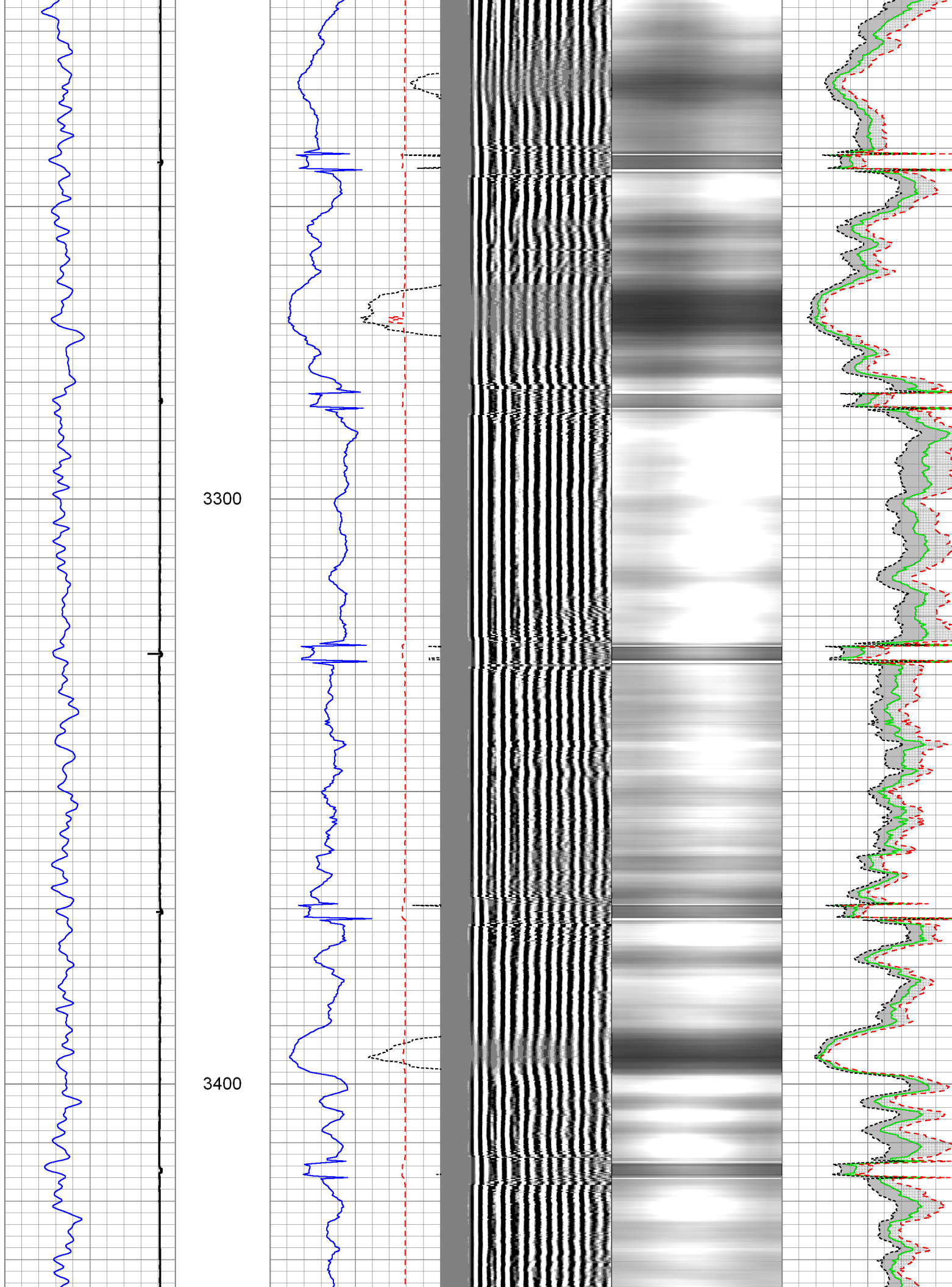
3100

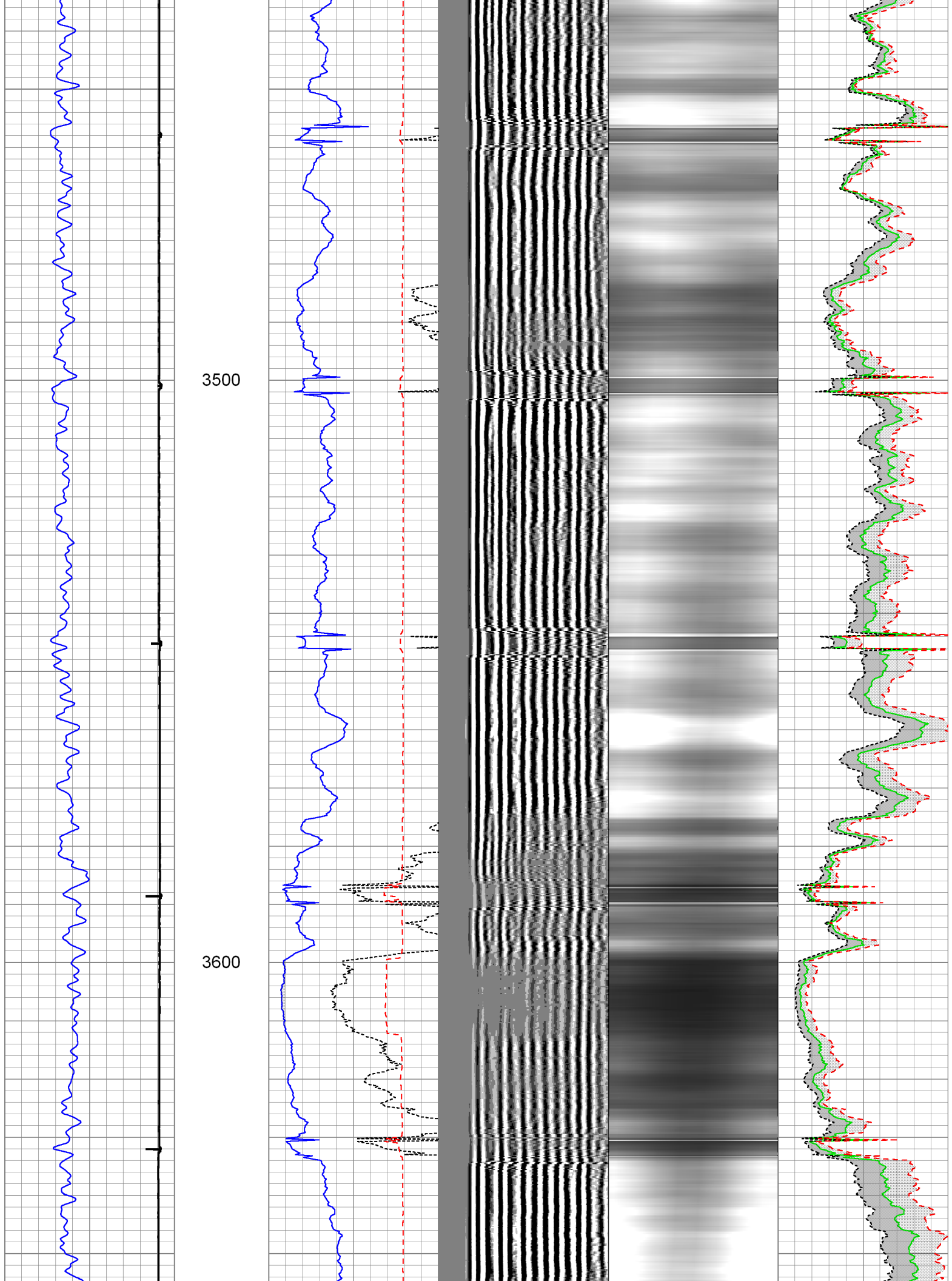
3200



3300

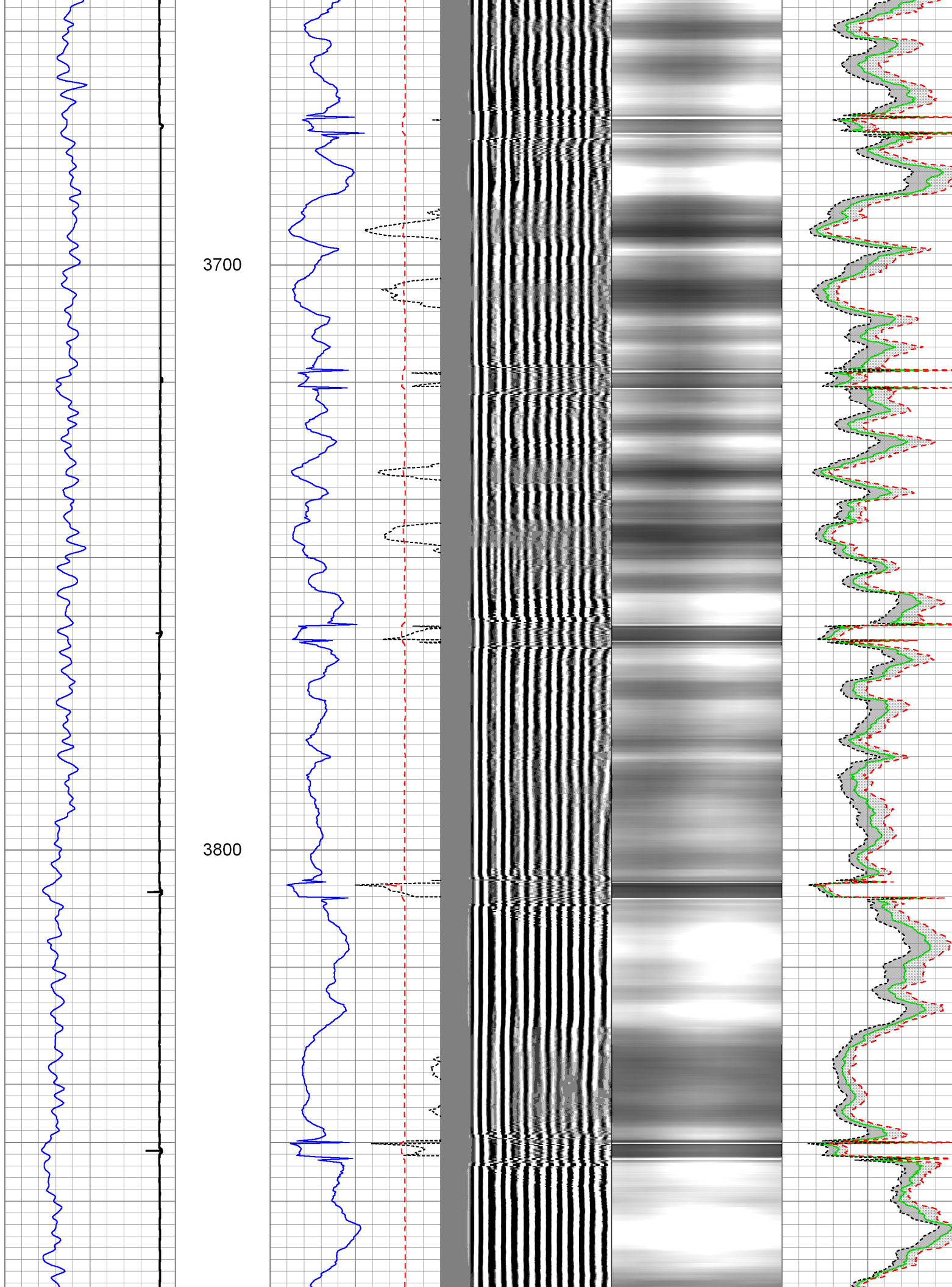
3400





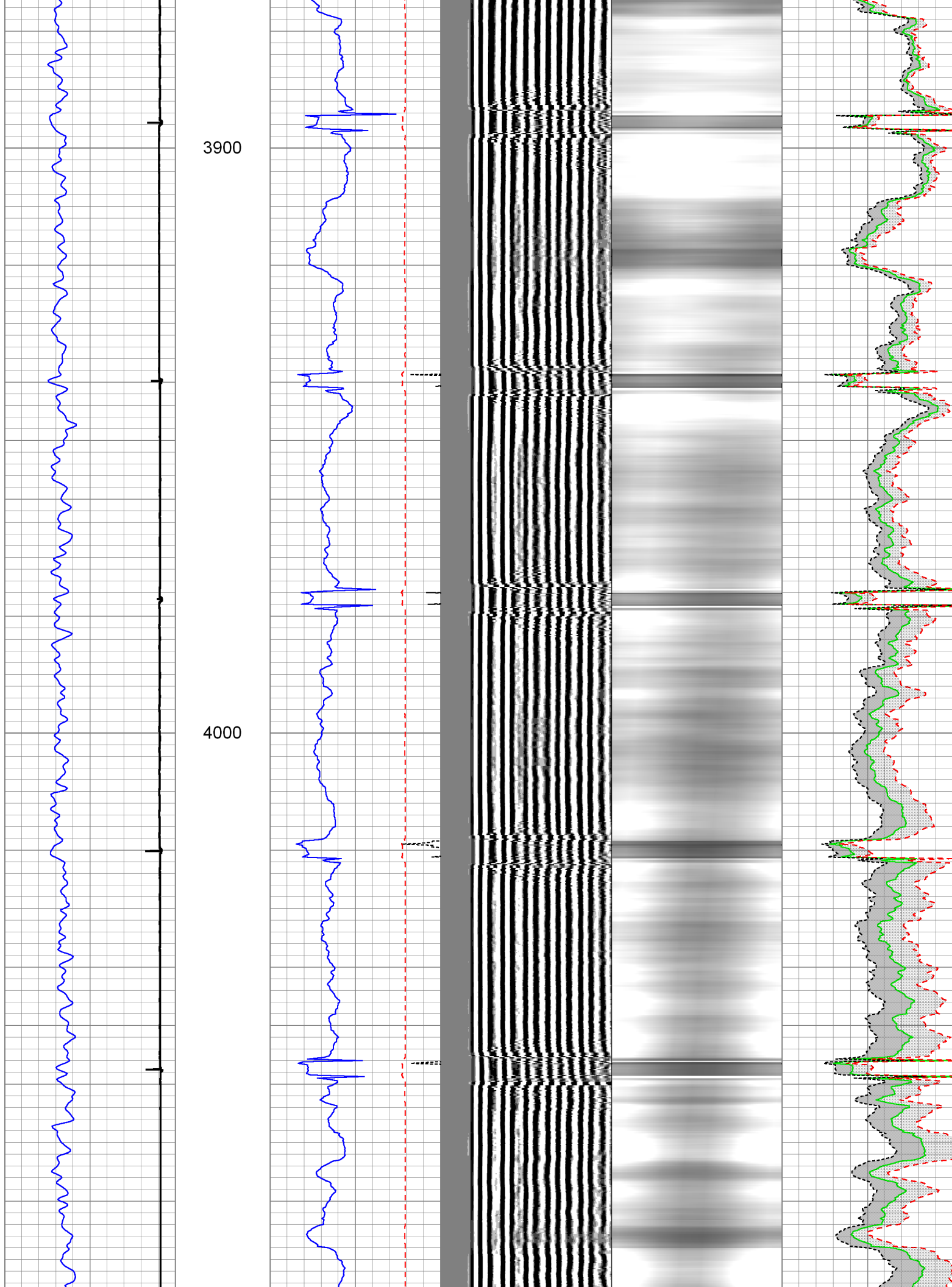
3700

3800



3900

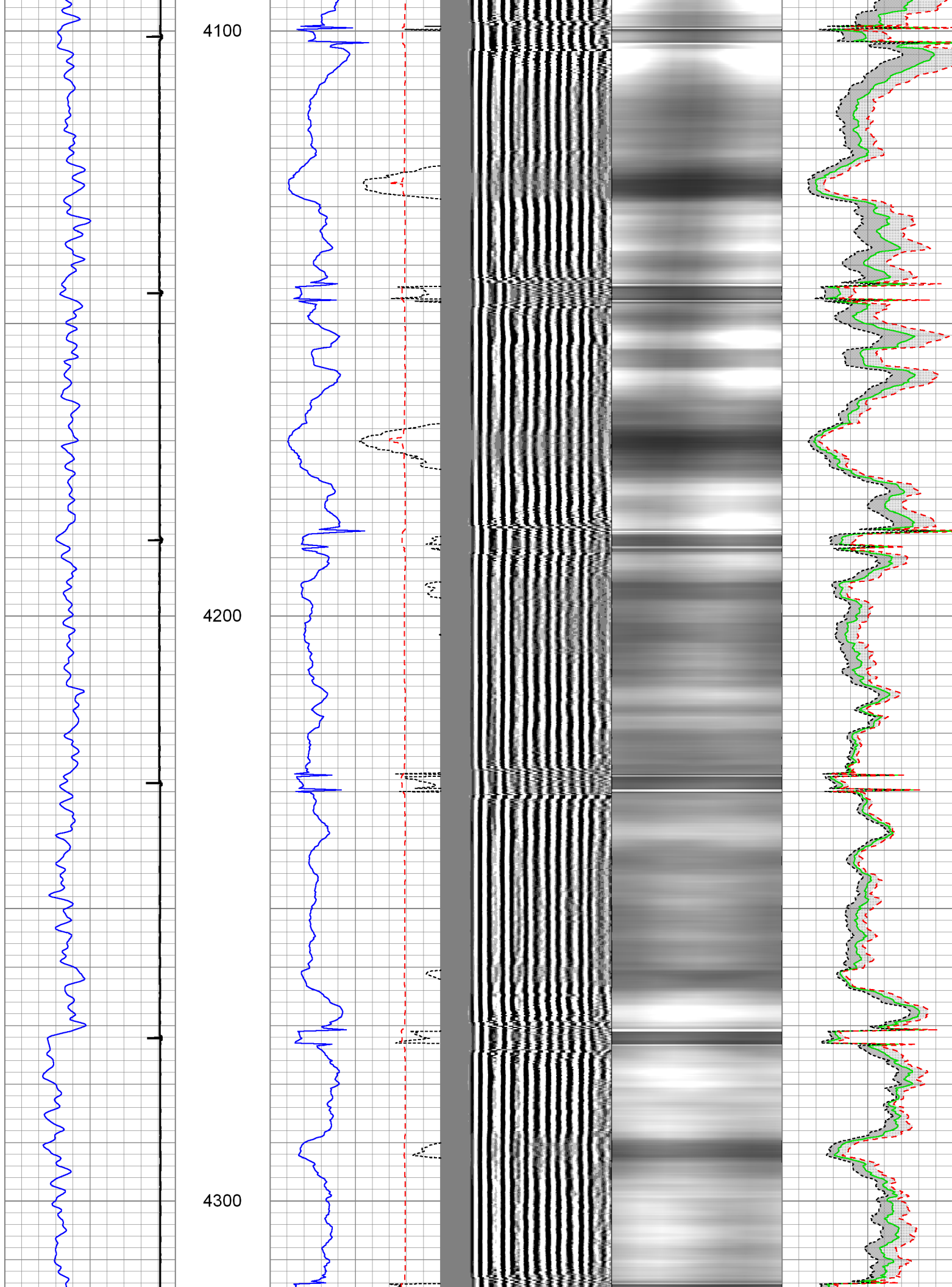
4000



4100

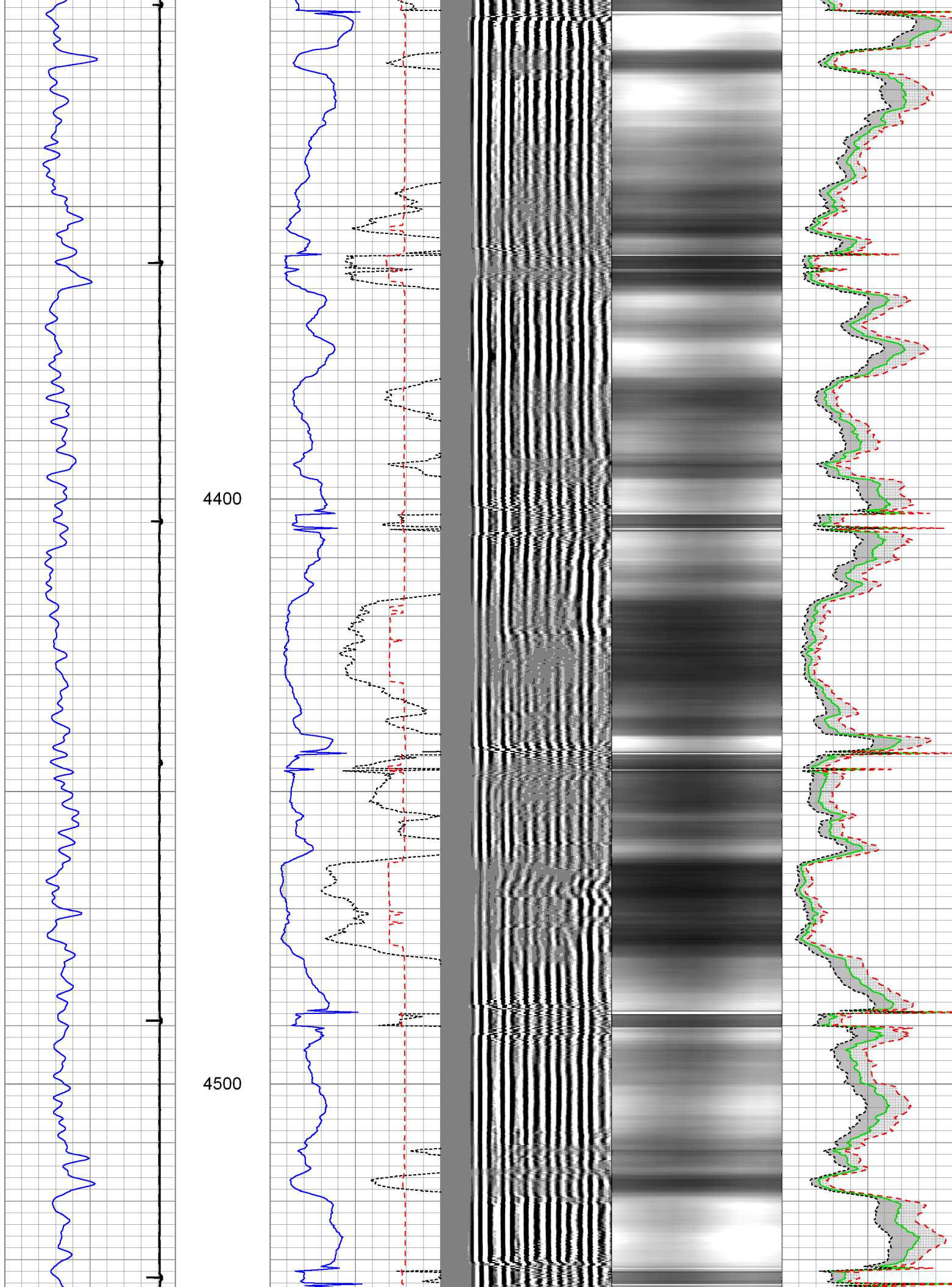
4200

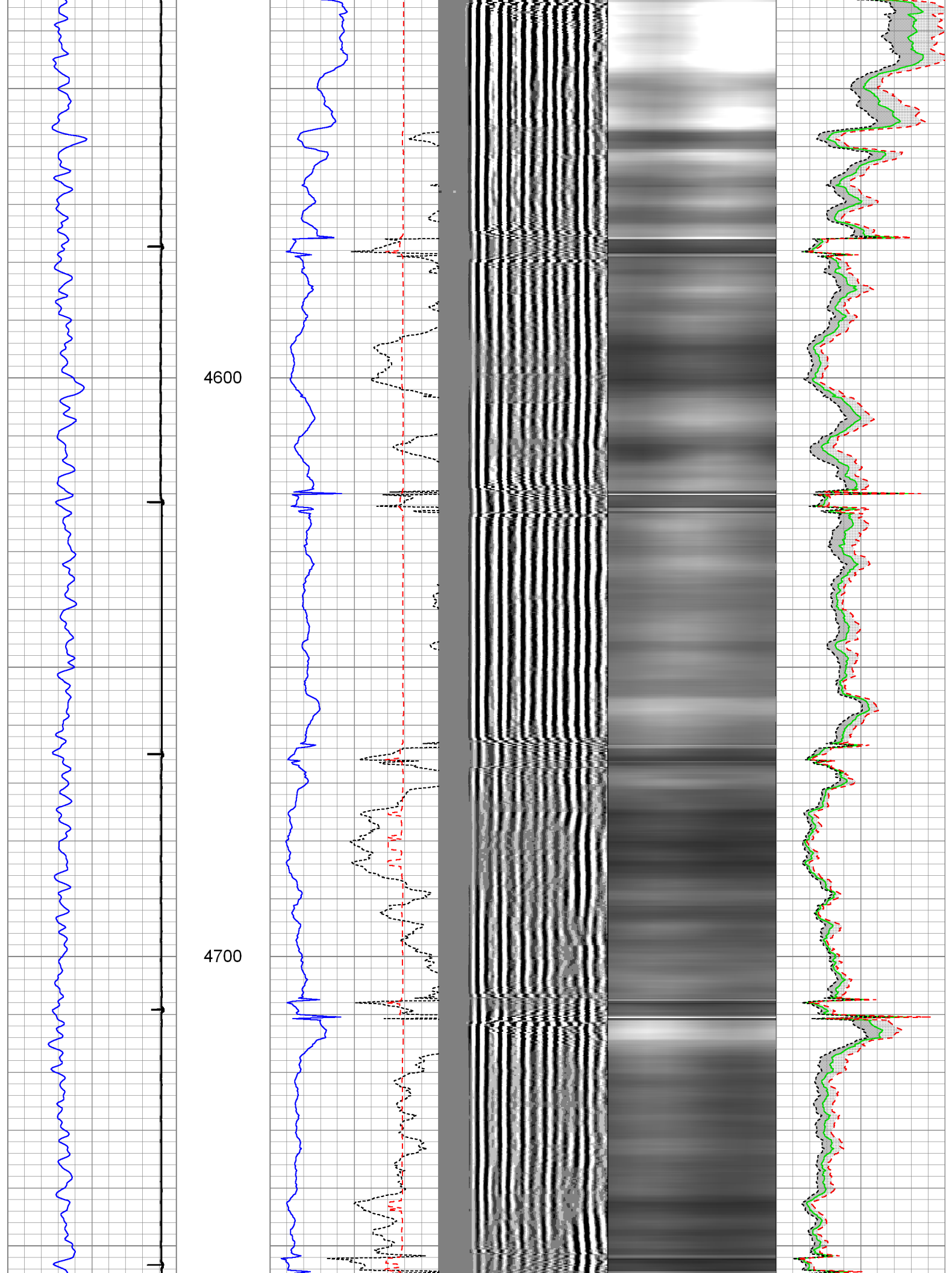
4300



4400

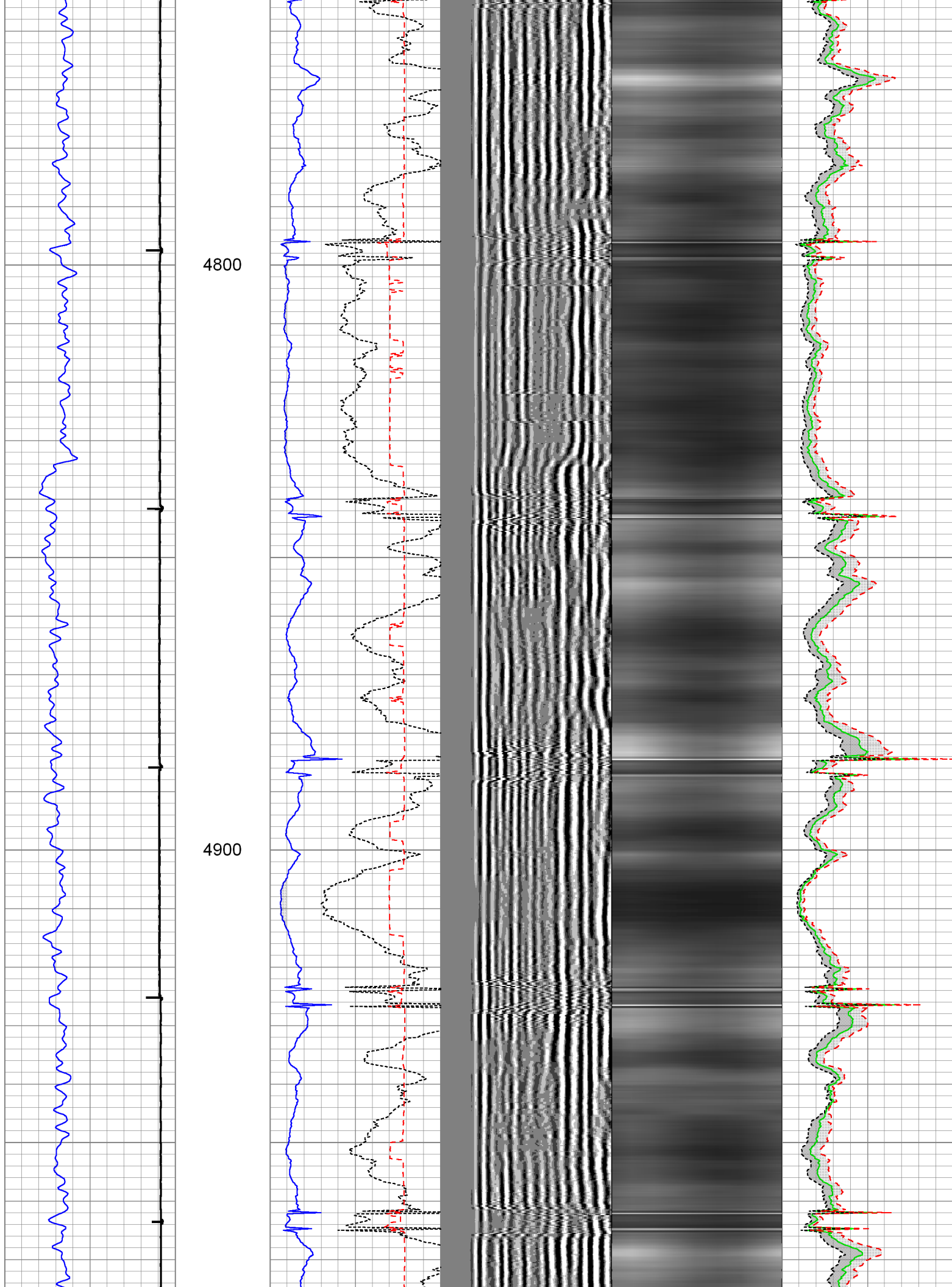
4500





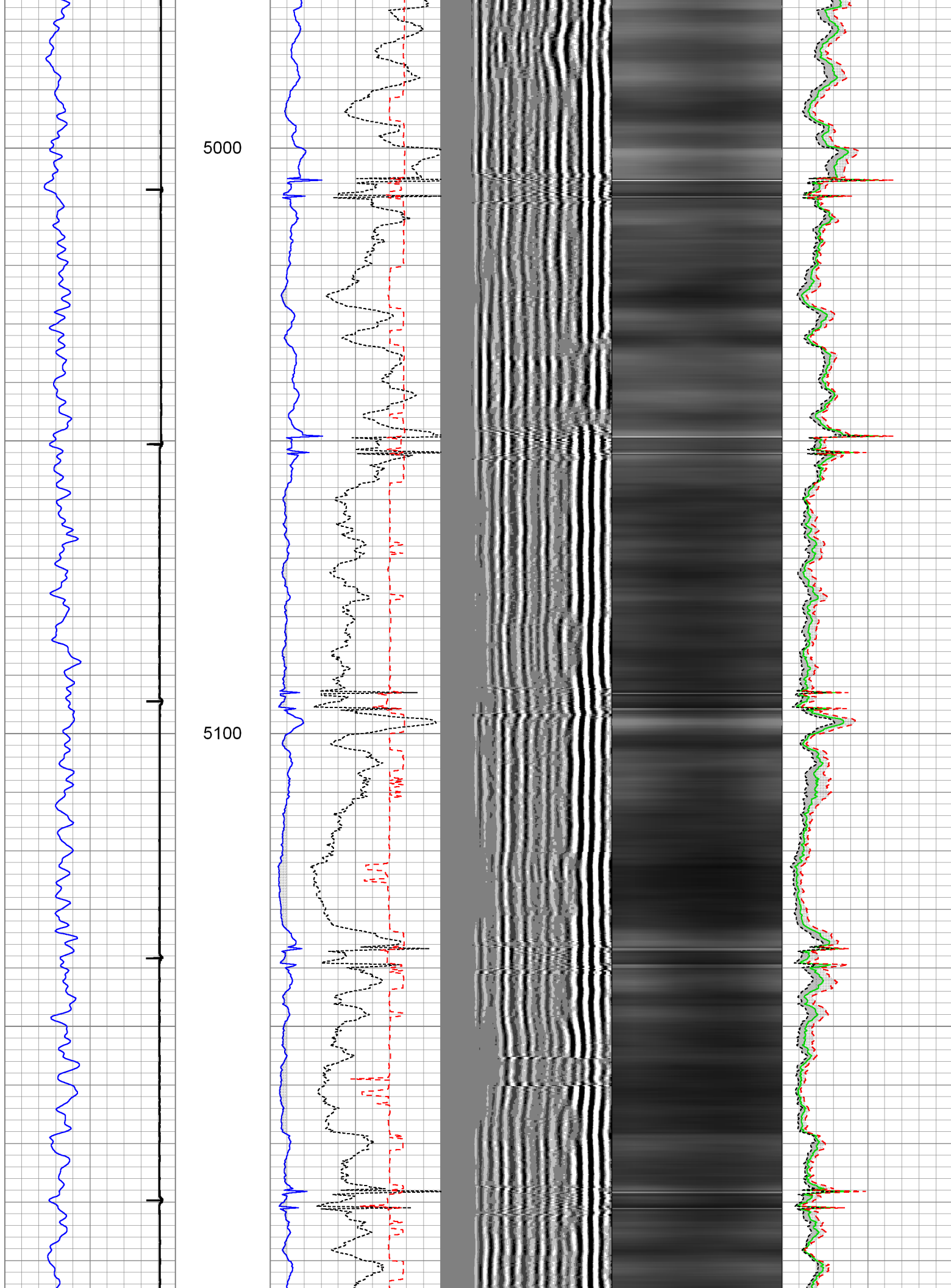
4800

4900



5000

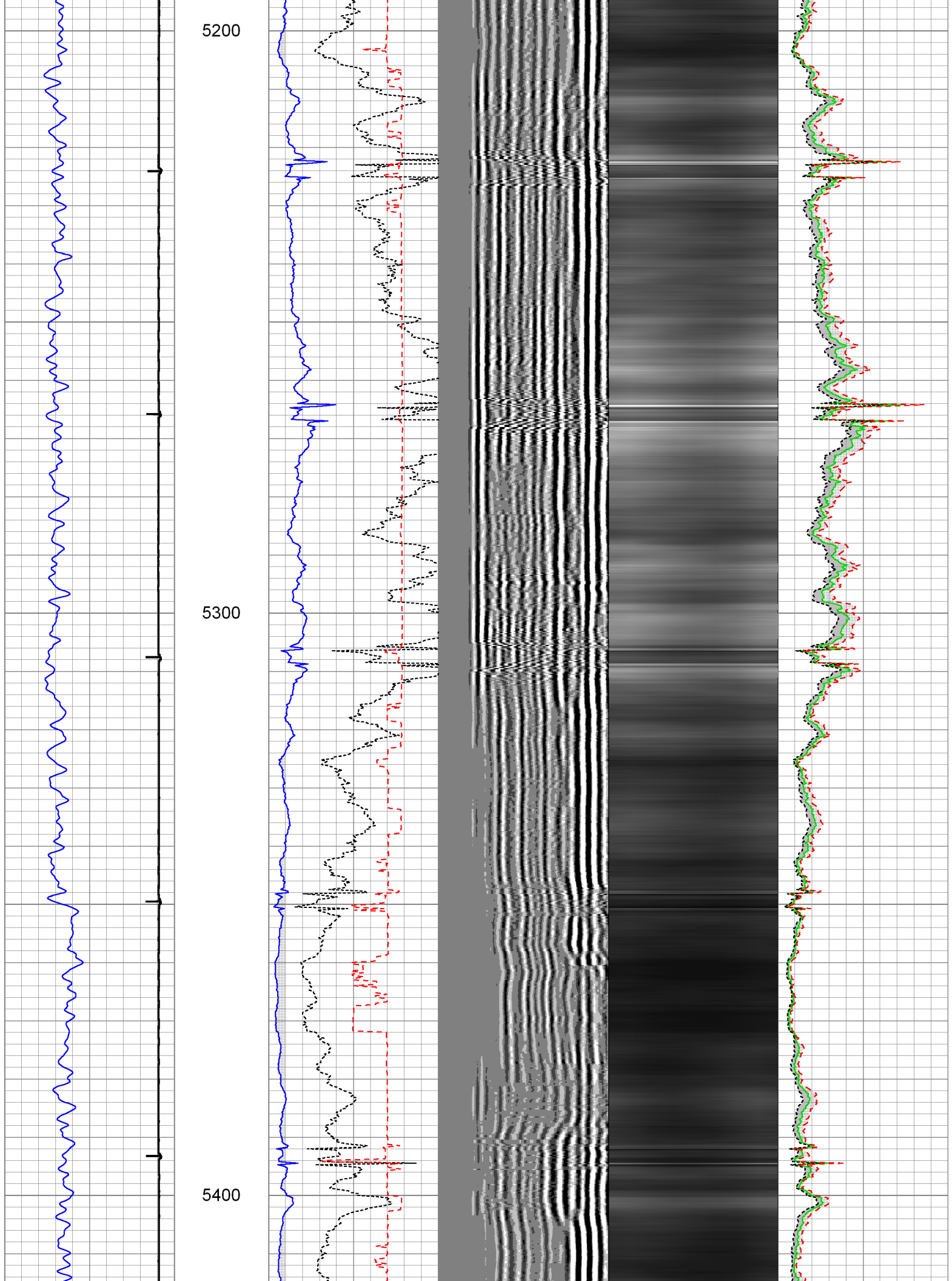
5100



5200

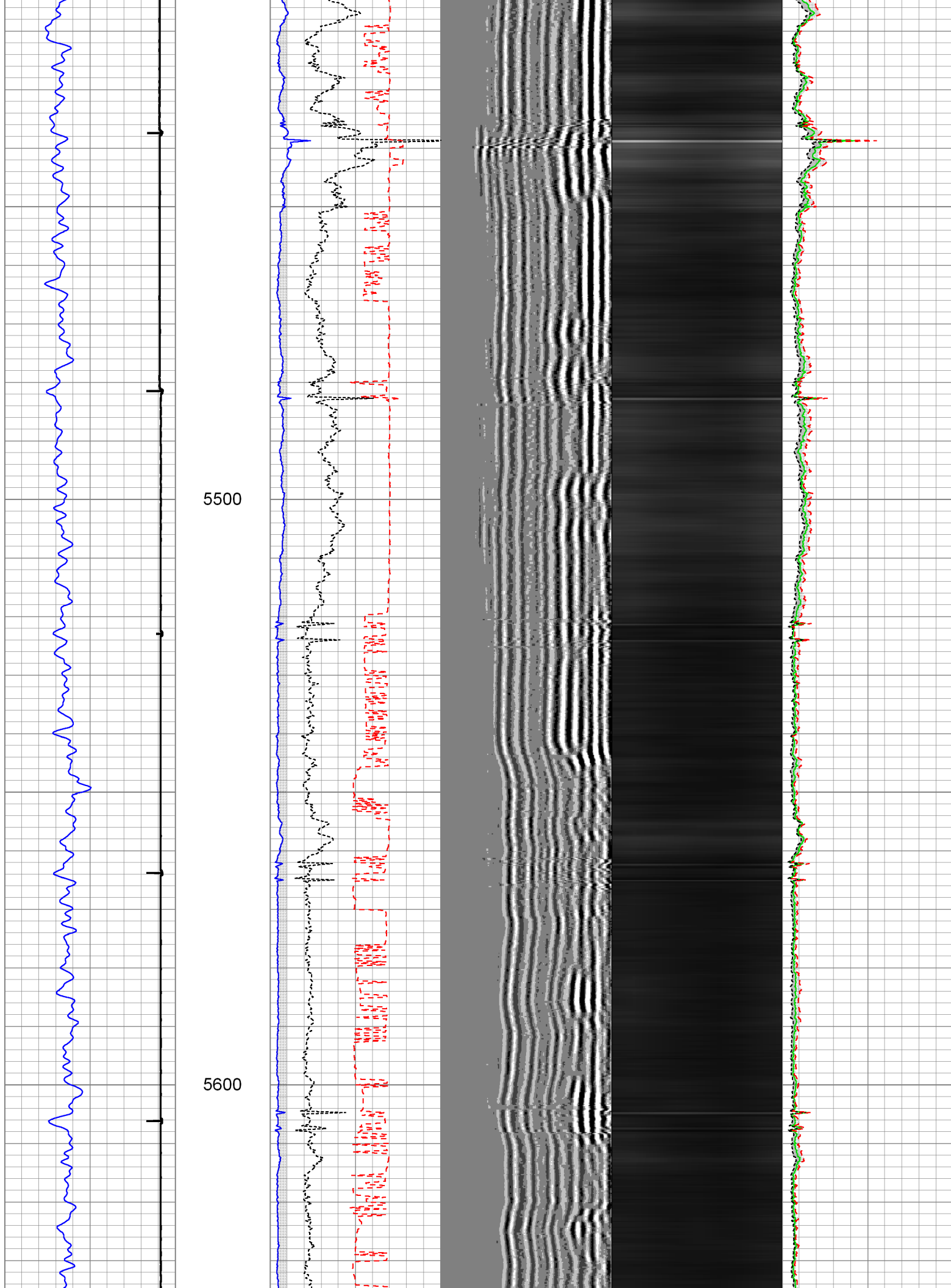
5300

5400



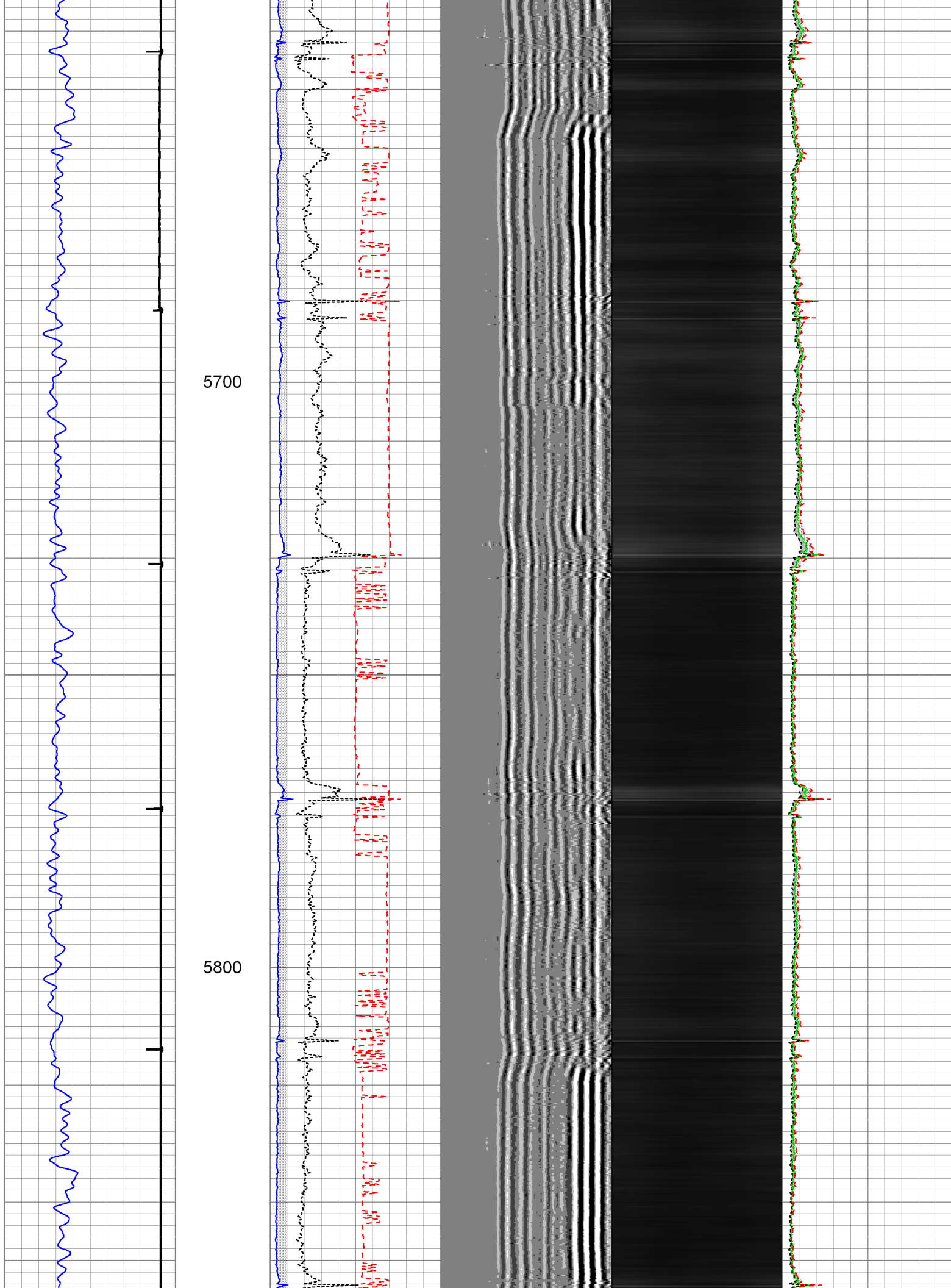
5500

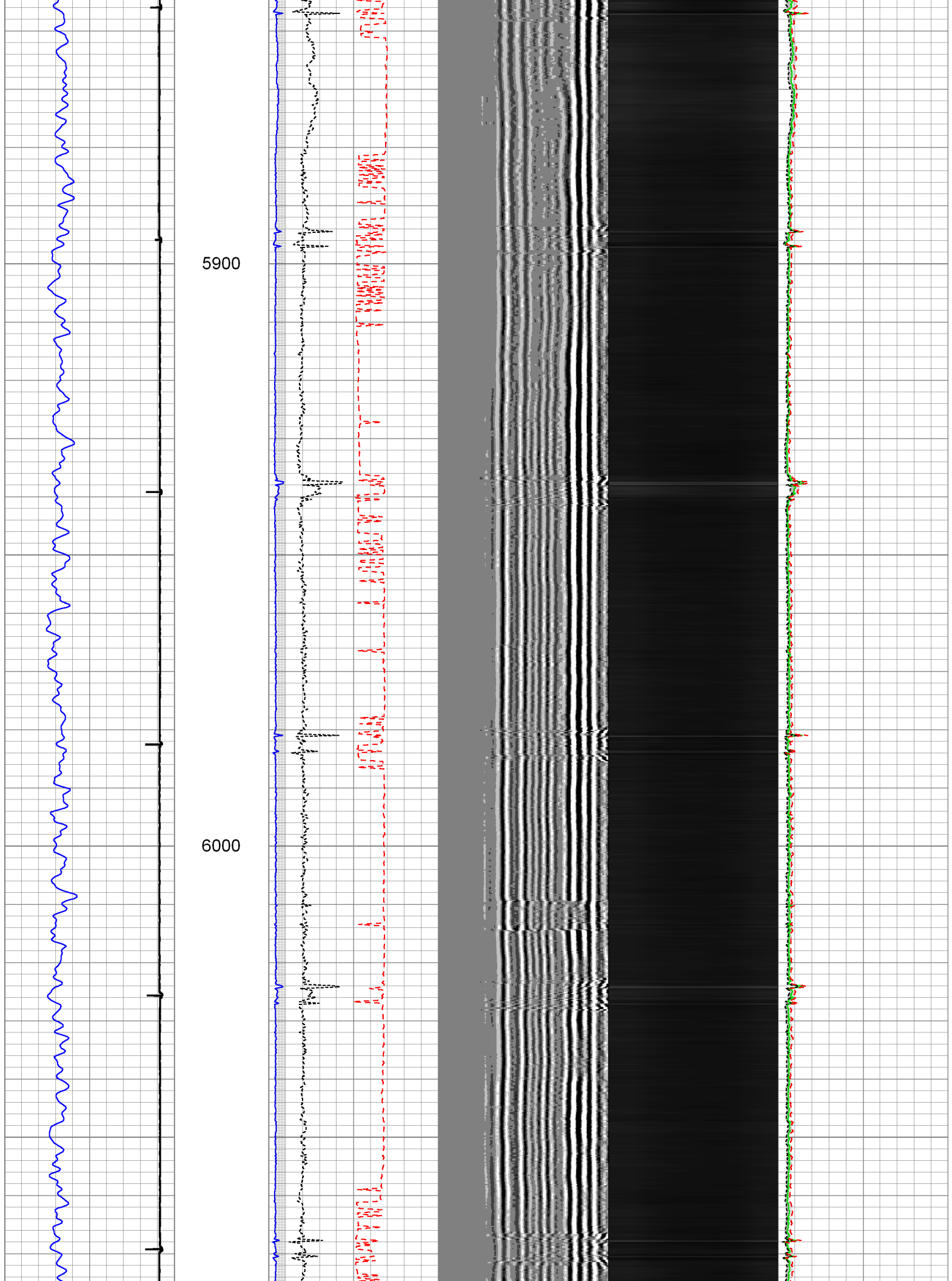
5600



5700

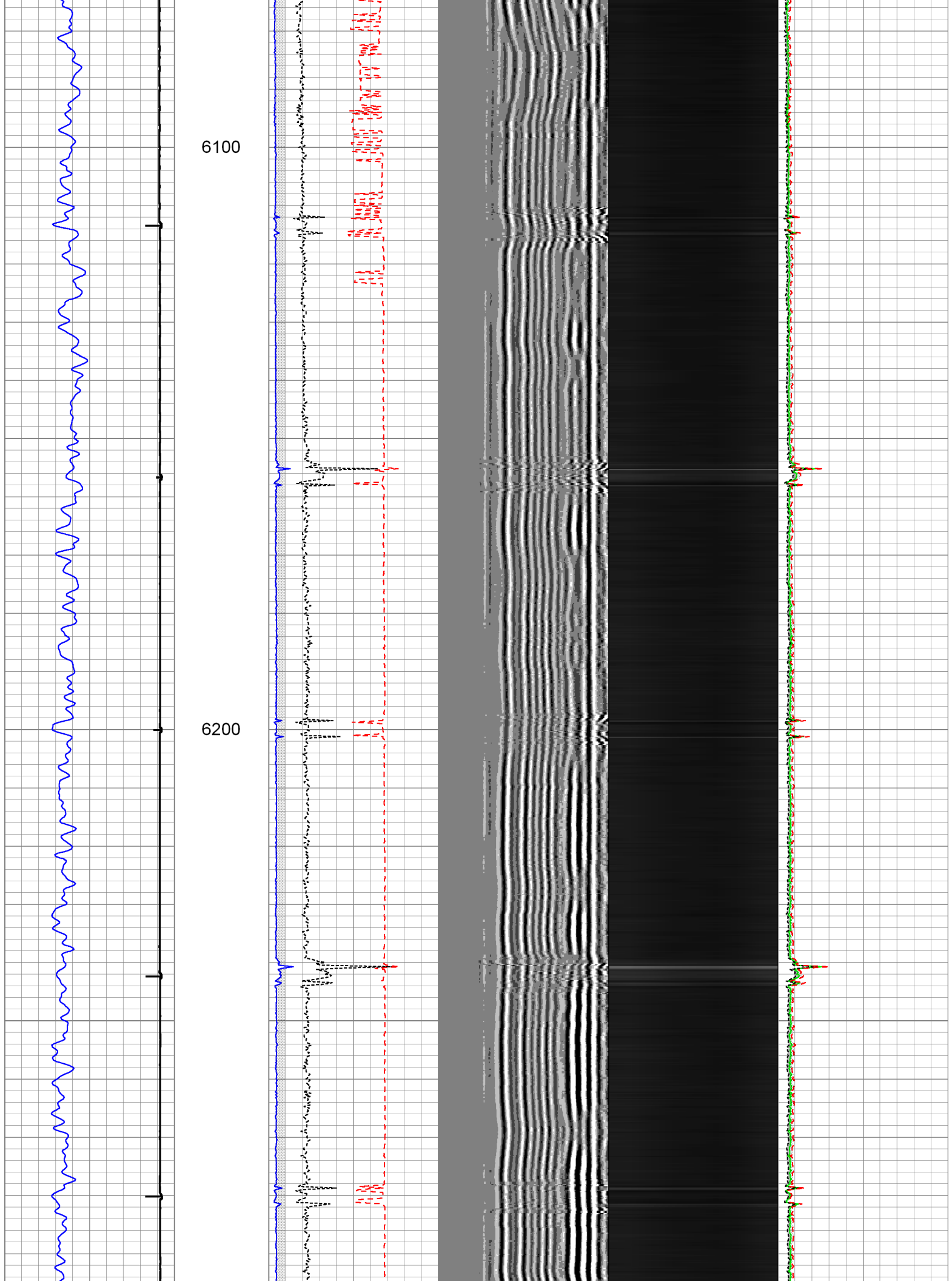
5800





6100

6200



6300

6400

6500

CCL →

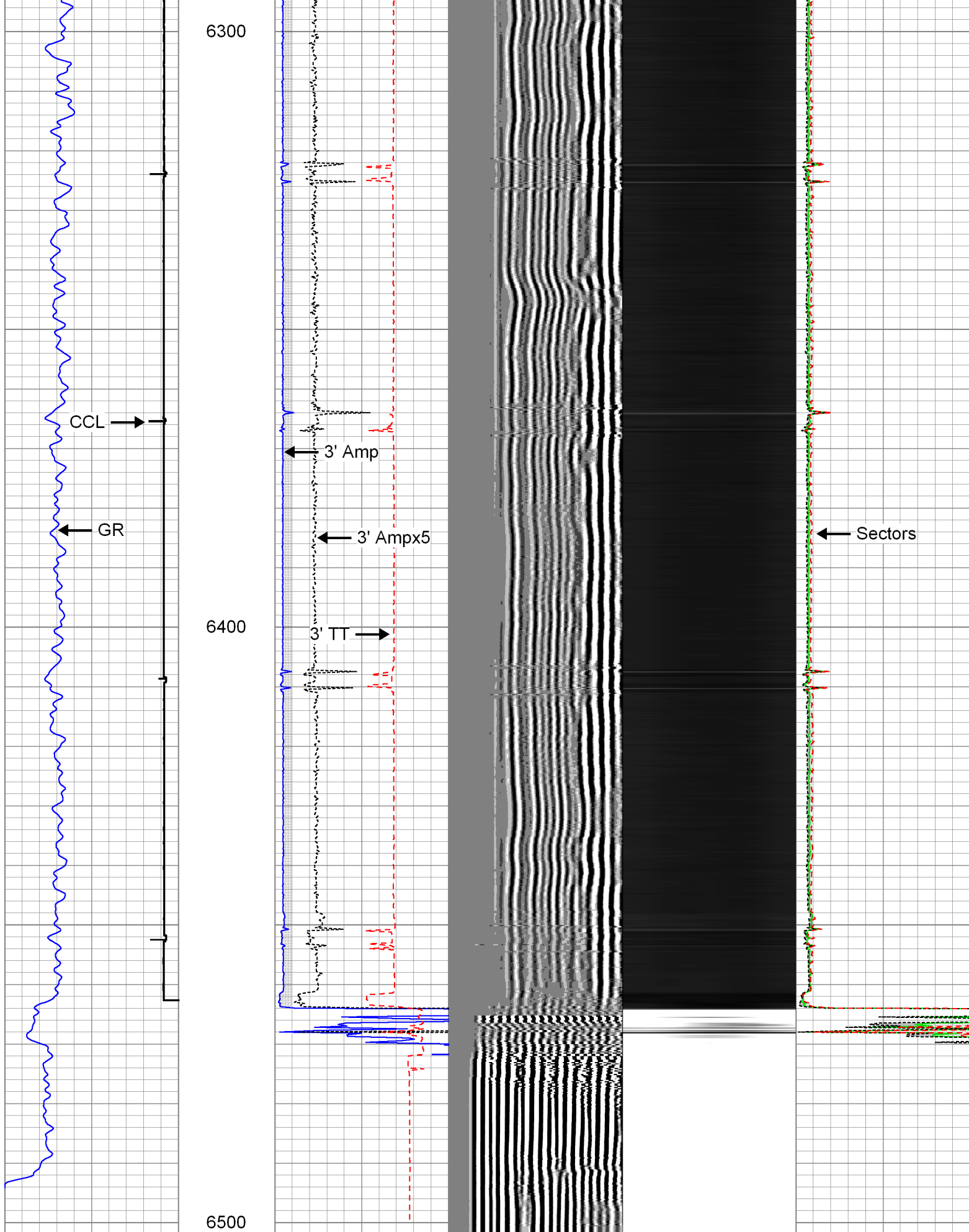
← GR

← 3' Amp


← 3' Ampx5

3' TT →

← Sectors



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



Repeat Pass

Database File: 05-123-37671_kmg_henrickson fed 14n-18hz_rbt_mit_10-16-13.db

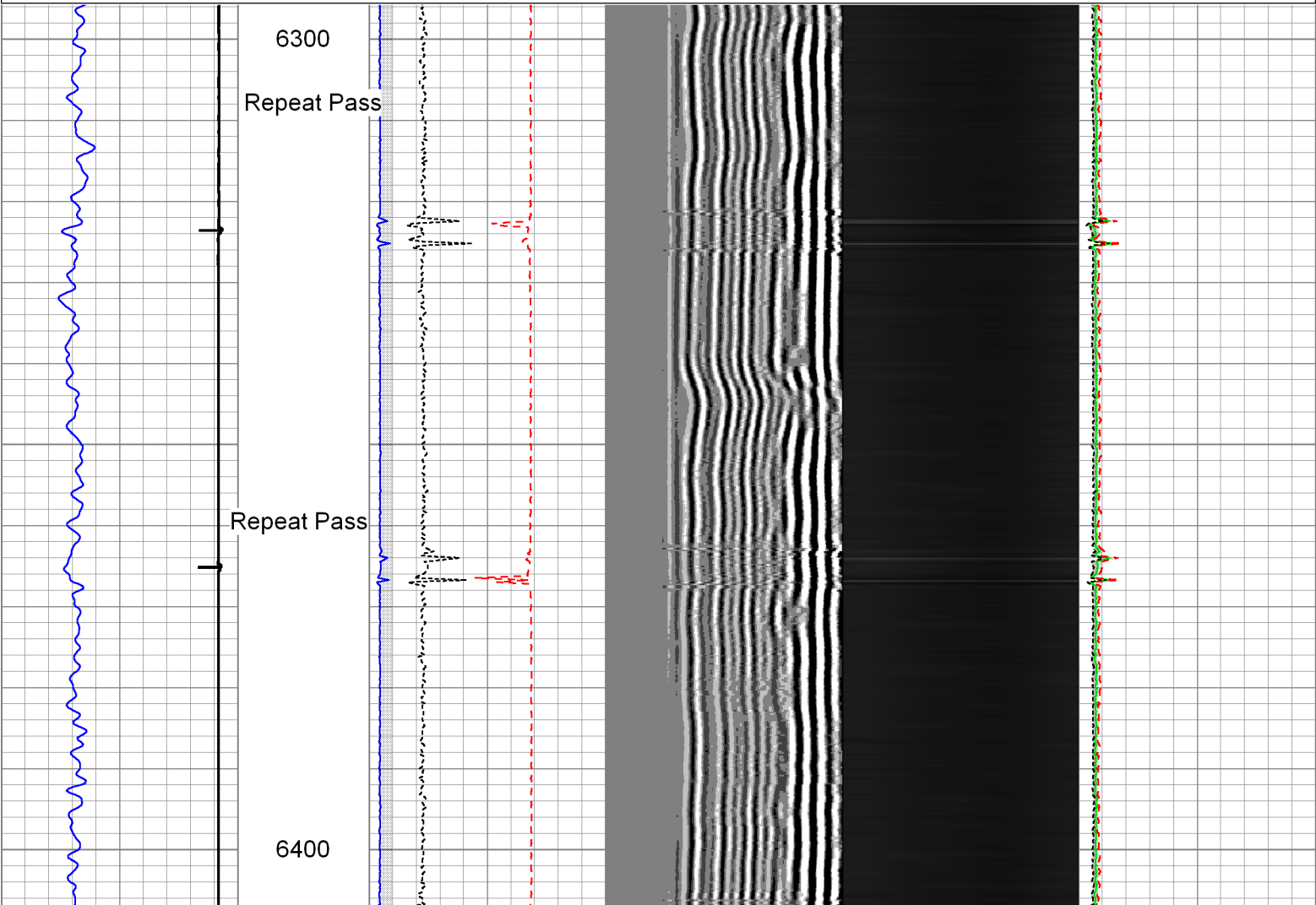
Dataset Pathname: pass1

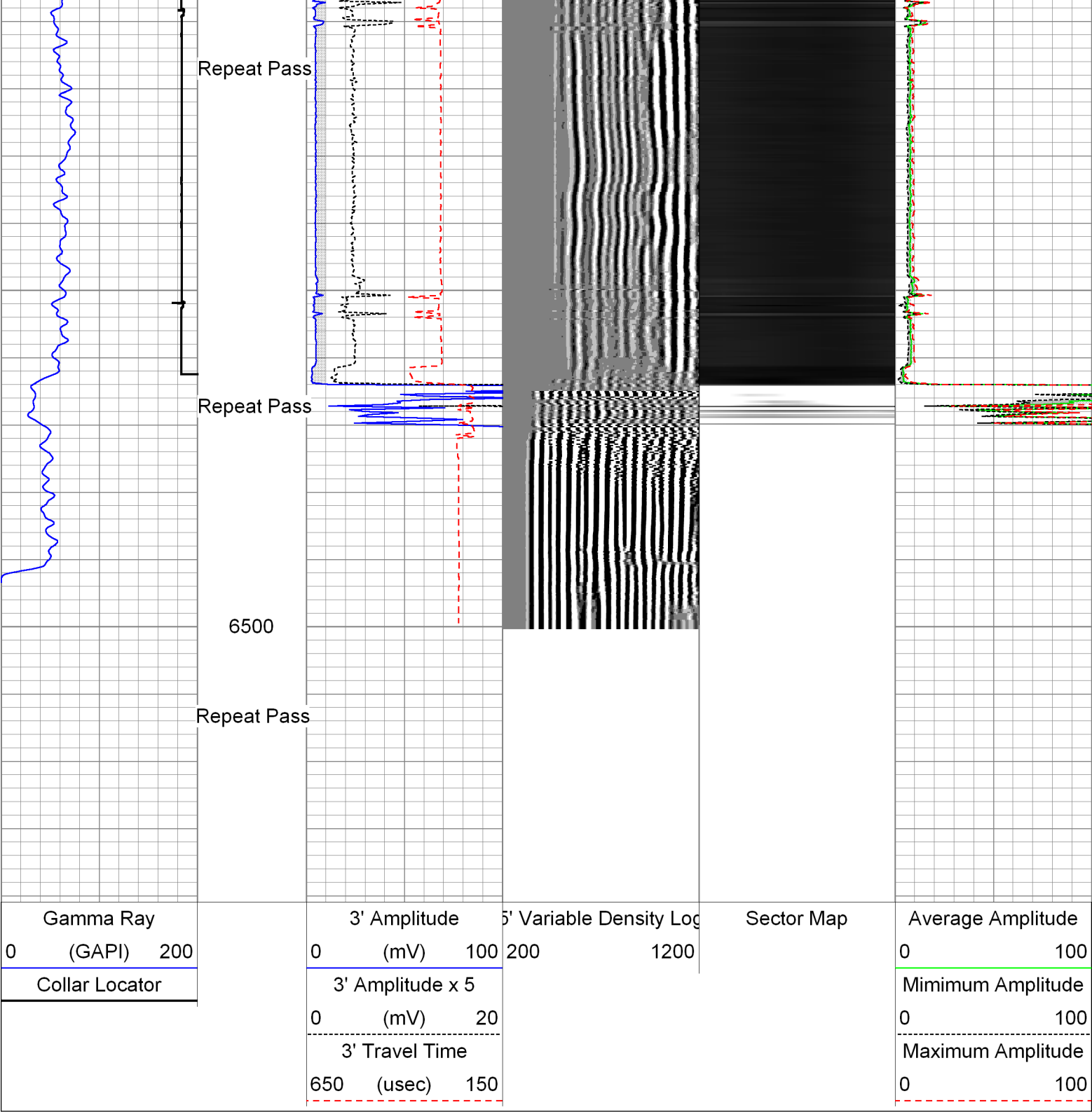
Presentation Format: rbt007

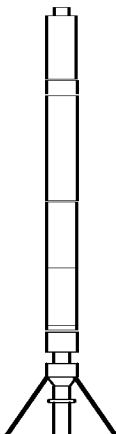
Dataset Creation: Wed Oct 16 08:07:01 2013 by Log Sondex V7.03

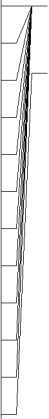
Charted by: Depth in Feet scaled 1:240

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200		0 100
Collar Locator	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)
GR	23.67		AES 1-7/16" Cablehead	1.08	1.44	1.00
			AGS-001 (219135) Adaptor GO to Sondex	0.21	1.69	1.00
			XTU-002 (219135) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			PGR-020 (211727) Production Gamma Ray	1.93	1.69	9.50
			PRC-057 (1037)	2.98	2.75	32.00

			PRC-057 (1031) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
WVF3FT	15.85					
WVFS1	15.85		RBT-004 (10013454in7) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS2	15.85					
WVFS3	15.85					
WVFS4	15.85					
WVFS5	15.85					
WVFS6	15.85					
WVFS7	15.85					
WVFS8	15.85					
CBLTEMP	15.85					
CBLROT	15.85					
WVF5FT	14.85		PRC-057 (1101) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
MIT	5.41		MIT-027 (218949) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			PRC-057 (1102) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
TSTAMP	0.00		BUL-006 (218707) Bullnose Terminator	0.22	1.69	1.20
Dataset: 05-123-37671_kmg_henrickson fed 14n-18hz_rbt_mit_10-16-13.db: field/well/run1/pass2 Total Length: 27.97 ft Total Weight: 316.30 lb O.D. 3.13 in						

Calibration Report	
Database File:	05-123-37671_kmg_henrickson fed 14n-18hz_rbt_mit_10-16-13.db
Dataset Pathname:	pass2
Dataset Creation:	Wed Oct 16 08:21:25 2013 by Log Sondex V7.03
Multi-finger Imaging Tool Calibration Report	
Serial Number:	218949
Number of Fingers:	40
Tool Model:	027

Inclinometer Calibration Report	
Performed:	Mon. Oct. 06 14:03:04 2008

Calibration Angle: 45

		Inc X	Inc Y
Vertical:		1996	1984
Finger 1 up:		1780	1738
Finger 31 up:		2235	1756
Finger 21 up:		2216	2228
Finger 11 up:		1736	2196
Sensitivity ratio:	1.0062		
X-axis angle:	131.534		
Deviation const.:	331.322		

Finger Calibration Report

Performed: Wed Oct 16 07:15:45 2013

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1445	255.0	1700	264.0	1964	282.0	2246
Finger 02:	1433	265.0	1698	269.0	1967	287.0	2254
Finger 03:	1403	268.0	1671	276.0	1947	302.0	2249
Finger 04:	1385	277.0	1662	280.0	1942	309.0	2251
Finger 05:	1399	278.0	1677	278.0	1955	309.0	2264
Finger 06:	1384	277.0	1661	275.0	1936	307.0	2243
Finger 07:	1433	267.0	1700	263.0	1963	292.0	2255
Finger 08:	1393	284.0	1677	279.0	1956	311.0	2267
Finger 09:	1449	271.0	1720	261.0	1981	292.0	2273
Finger 10:	1429	278.0	1707	269.0	1976	295.0	2271
Finger 11:	1418	259.0	1677	292.0	1969	301.0	2270
Finger 12:	1412	272.0	1684	271.0	1955	294.0	2249
Finger 13:	1462	264.0	1726	256.0	1982	281.0	2263
Finger 14:	1383	285.0	1668	280.0	1948	305.0	2253
Finger 15:	1421	285.0	1706	280.0	1986	299.0	2285
Finger 16:	1402	287.0	1689	287.0	1976	304.0	2280
Finger 17:	1456	265.0	1721	266.0	1987	277.0	2264
Finger 18:	1460	270.0	1730	275.0	2005	285.0	2290
Finger 19:	1436	278.0	1714	284.0	1998	290.0	2288
Finger 20:	1482	268.0	1750	271.0	2021	270.0	2291
Finger 21:	1434	279.0	1713	292.0	2005	291.0	2296
Finger 22:	1449	261.0	1710	279.0	1989	276.0	2265
Finger 23:	1518	242.0	1760	257.0	2017	251.0	2268
Finger 24:	1450	269.0	1719	293.0	2012	287.0	2299
Finger 25:	1477	250.0	1727	278.0	2005	270.0	2275
Finger 26:	1422	267.0	1689	297.0	1986	287.0	2273
Finger 27:	1507	248.0	1755	278.0	2033	264.0	2297
Finger 28:	1496	240.0	1736	266.0	2002	255.0	2257
Finger 29:	1481	253.0	1734	284.0	2018	268.0	2286
Finger 30:	1219	262.0	1481	304.0	1785	300.0	2085
Finger 31:	1435	233.0	1668	263.0	1931	252.0	2183
Finger 32:	1453	262.0	1715	295.0	2010	283.0	2293
Finger 33:	1364	275.0	1639	314.0	1953	311.0	2264
Finger 34:	1513	240.0	1753	257.0	2010	249.0	2259
Finger 35:	1477	247.0	1724	272.0	1996	271.0	2267
Finger 36:	1474	253.0	1727	280.0	2007	278.0	2285
Finger 37:	1582	264.0	1846	286.0	2132	288.0	2420
Finger 38:	1333	243.0	1576	262.0	1838	274.0	2112
Finger 39:	1417	260.0	1677	282.0	1959	293.0	2252
Finger 40:	1459	254.0	1713	265.0	1978	280.0	2258

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454in7
Tool Model: 004

Calibration Casing Diameter: 5.500 in
Calibration Depth: 33.435 ft

Master Calibration, performed Wed Oct 16 07:07:05 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	0.773	0.800	62.200	79.199	1.013
5FT	-0.005	0.785	0.800	62.200	77.764	1.180
S1	-0.003	0.874	0.000	100.000	114.059	0.290
S2	-0.004	0.796	0.000	100.000	124.979	0.499
S3	-0.004	0.702	0.000	100.000	141.652	0.519
S4	-0.005	0.659	0.000	100.000	150.445	0.821
S5	-0.003	0.675	0.000	100.000	147.283	0.512
S6	-0.003	0.740	0.000	100.000	134.571	0.371
S7	-0.002	0.826	0.000	100.000	120.643	0.299
S8	-0.004	0.887	0.000	100.000	112.263	0.452

Gamma Ray Calibration Report

Serial Number: 211727
 Tool Model: 020
 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



Company Kerr-McGee Oil & Gas Onshore, L.P.
 Well Henrickson Federal 14N-18HZ
 Field Wattenberg
 County Weld
 State Colorado