



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.		Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Howard 38C-33HZ		Well		Howard 38C-33HZ	
Field		Wattenberg		Field		Wattenberg	
County		Weld		County		Weld	
State		Colorado		State		Colorado	
Location:		API # : 05-123-38030		Other Services		Gauge Run	
SHL: 1575' FSL 1351' FEL		Lat/Long: 40.019146/-104.890888		CIL		Elevation	
SEC 28 TWP 1N RGE 67W		Ground Level		Elevation		K.B. 5037'	
Permanent Datum		Kelly Bushing		16 FT		D.F. 5036'	
Log Measured From		Kelly Bushing				G.L. 5021'	
Drilling Measured From							
Date		01-March-2014					
Run Number		Two					
Depth Driller		13151 FT					
Depth Logger		7346 FT					
Bottom Logged Interval		7341 FT					
Top Log Interval		Surface					
Open Hole Size		9.625"					
Type Fluid		Water					
Density / Viscosity		8.34 LB/GAL					
Max. Recorded Temp.		228 F					
Estimated Cement Top		Surface					
Time Well Ready		ROA					
Time Logger on Bottom		13:45					
Equipment Number		HD 255					
Location		Fort Lupton, CO					
Recorded By		J. Raby					
Witnessed By		Trevor Daniel					
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		P-110	

<<< 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 - Caliper Log is the first recorded log in hole.
Depth reference to Casing Talley reported Liner Top at 7295 FT.
Adjusted 28 FT to Liner Top at 7295 FT from a 16 FT KB zero.
RCBL-CIL ran with 2800 PSI surface induced pressure.
Estimated Cement Top recorded at Surface

Thank you for choosing FMC Technologies Completion Services, Inc.



Main Pass

Database File: c:\warrior\data\anadarko_howard 38c-33hz\0512338030_anadarko_howard 38c-33hz_03-01-14_

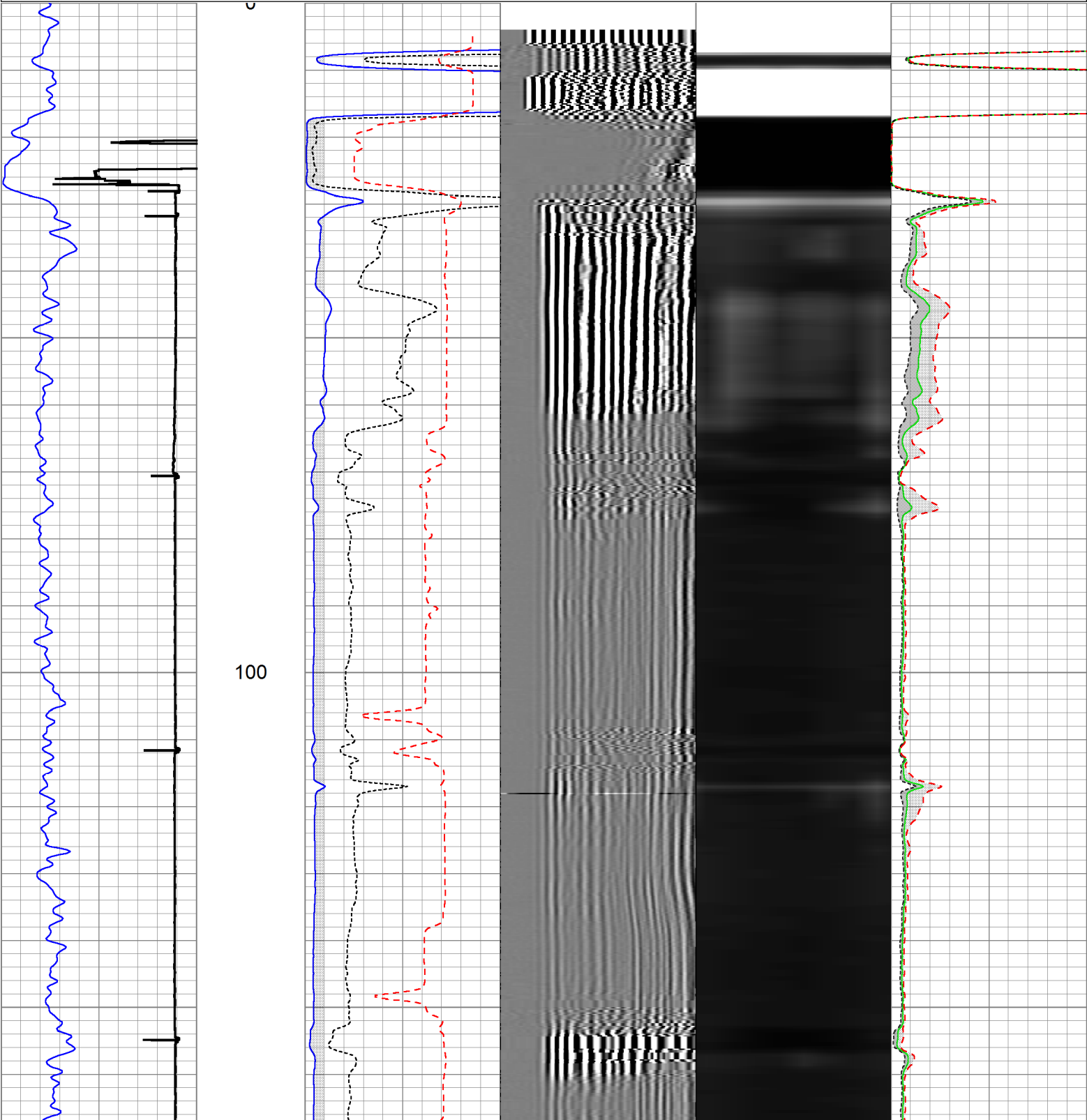
Dataset Pathname: mainrdv

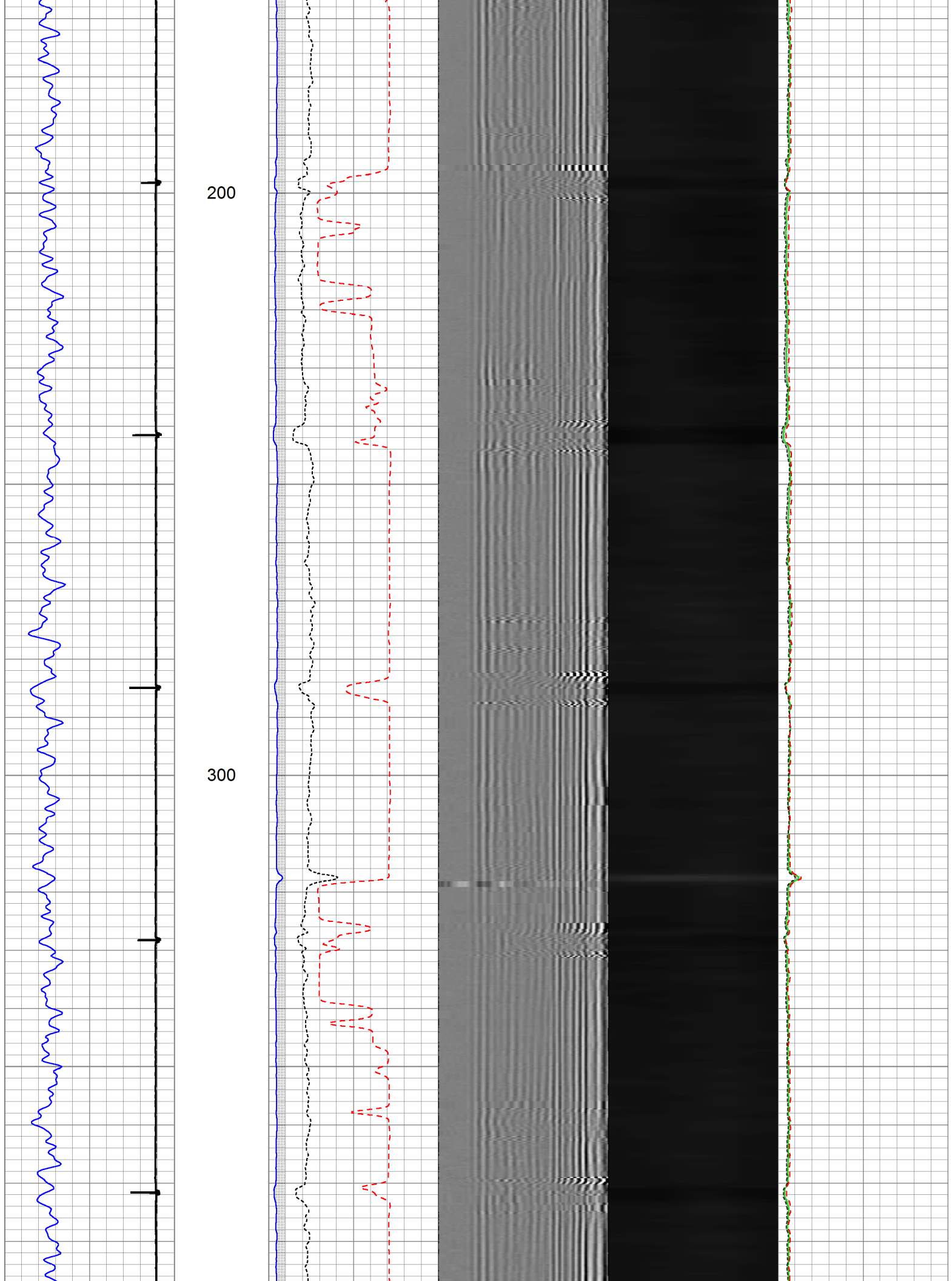
Presentation Format: rbl_w_te

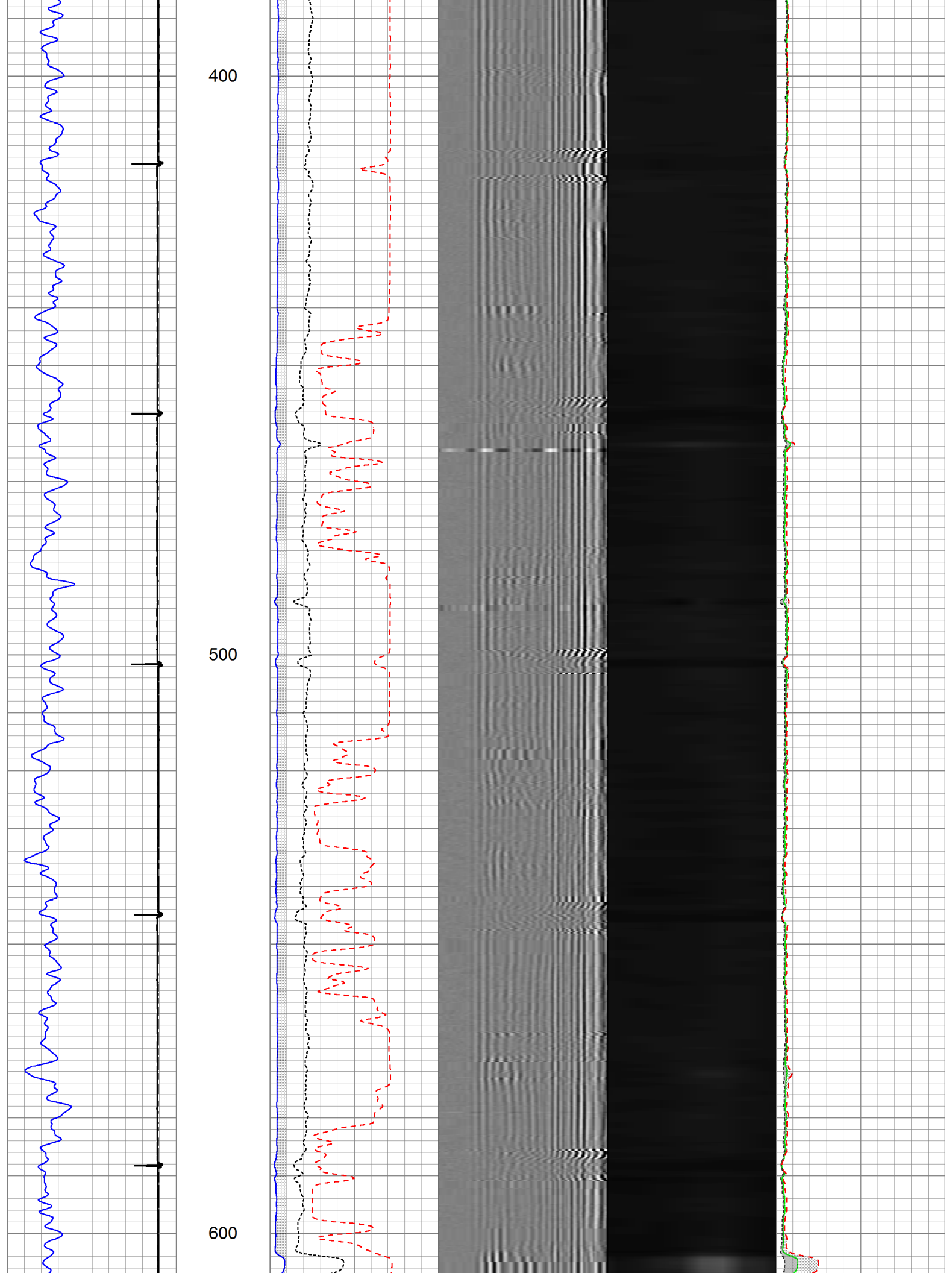
Dataset Creation: Tue Mar 04 15:30:12 2014 by Calc SCH 120126

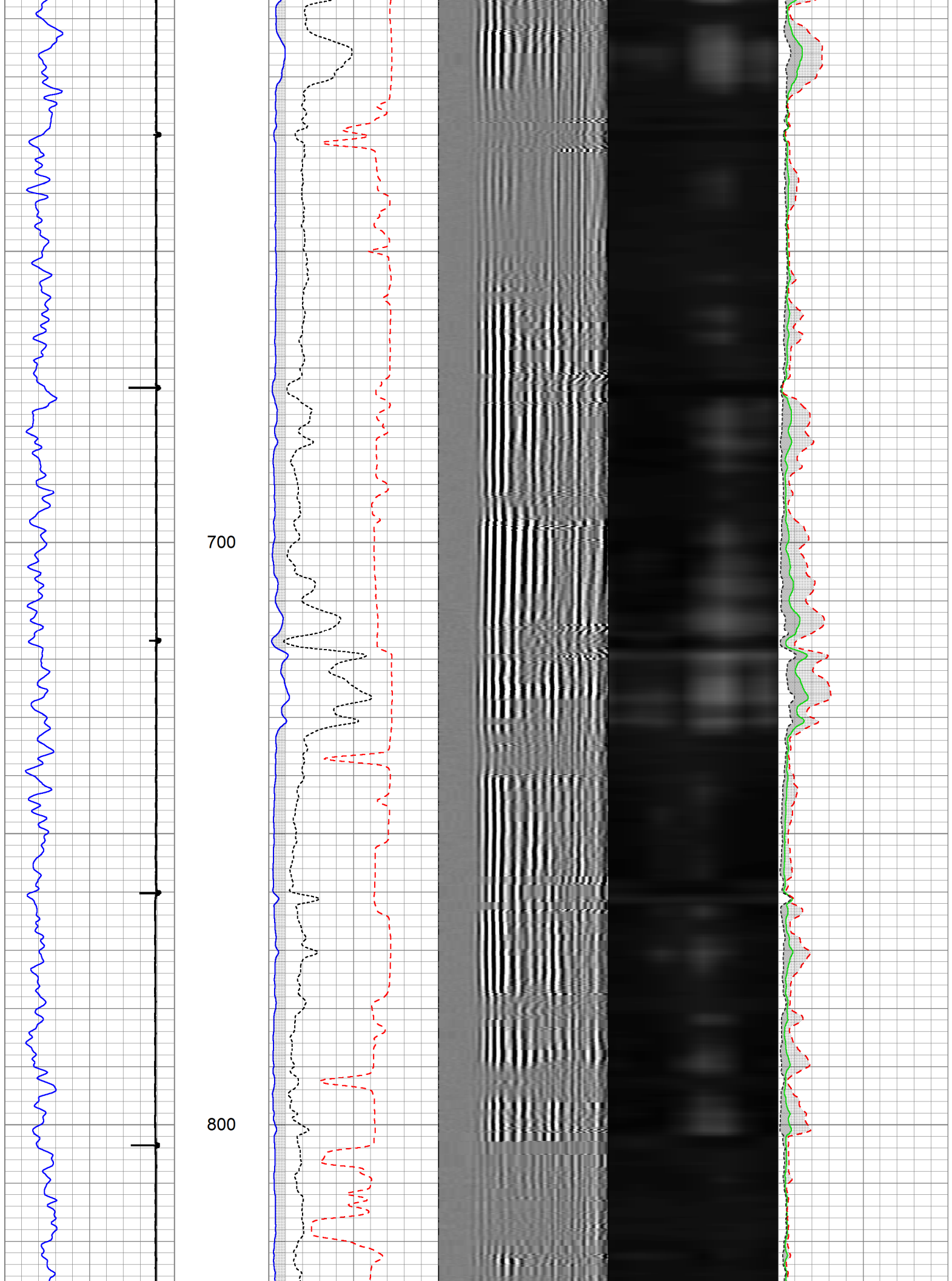
Charted by: Depth in Feet scaled 1:240

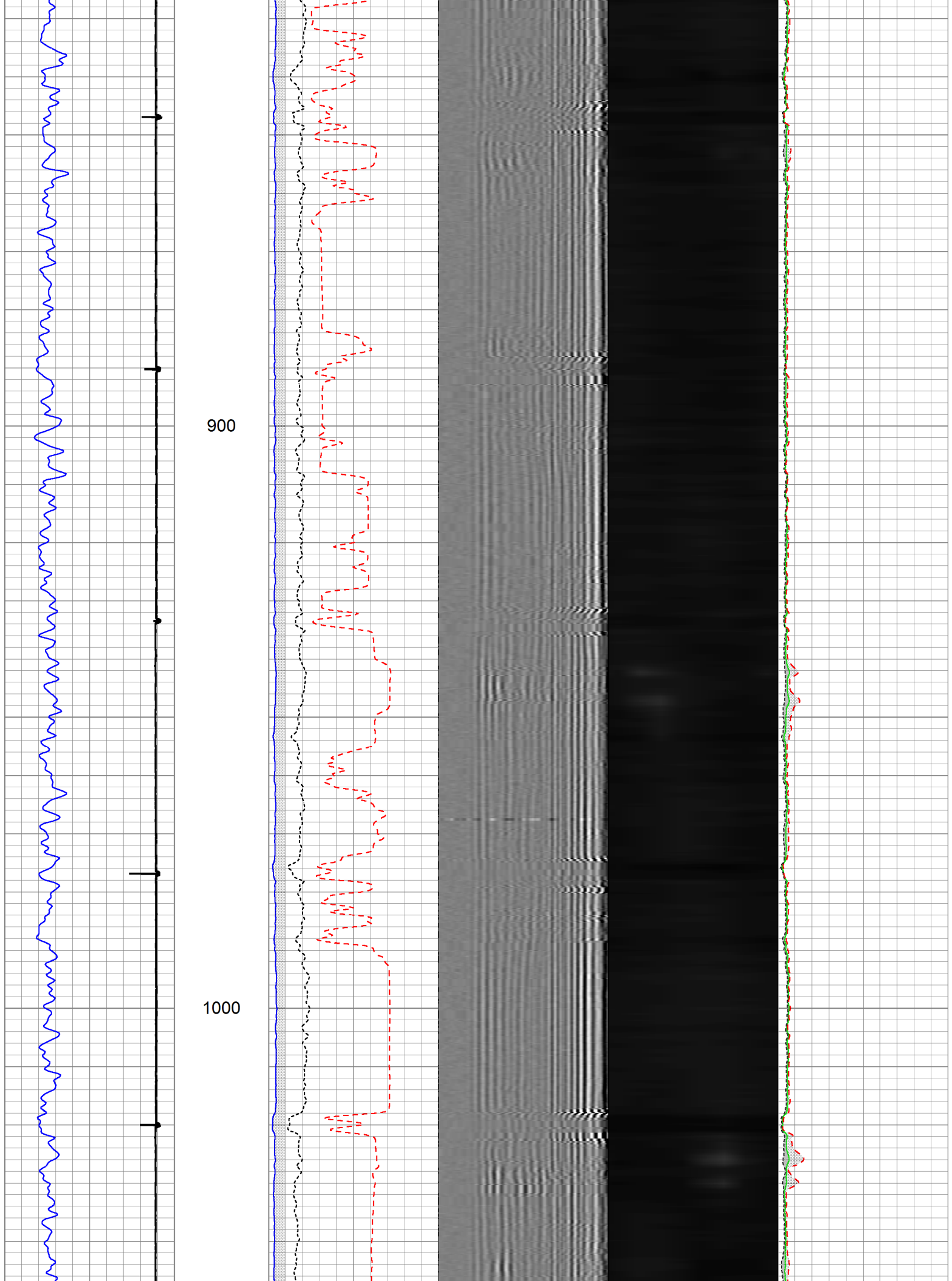
Gamma Ray			3' Amplitude			5' Variable Density Log		Sector Map		Average Amplitude	
0	(GAPI)	150	0	(mV)	100					0	100
CCL			3' Amplitude x 5			200	1200	Minimum Amplitude			
			0	(mV)	20			0	100		
			3' Travel Time					Maximum Amplitude			
			650	(usec)	150			0	100		

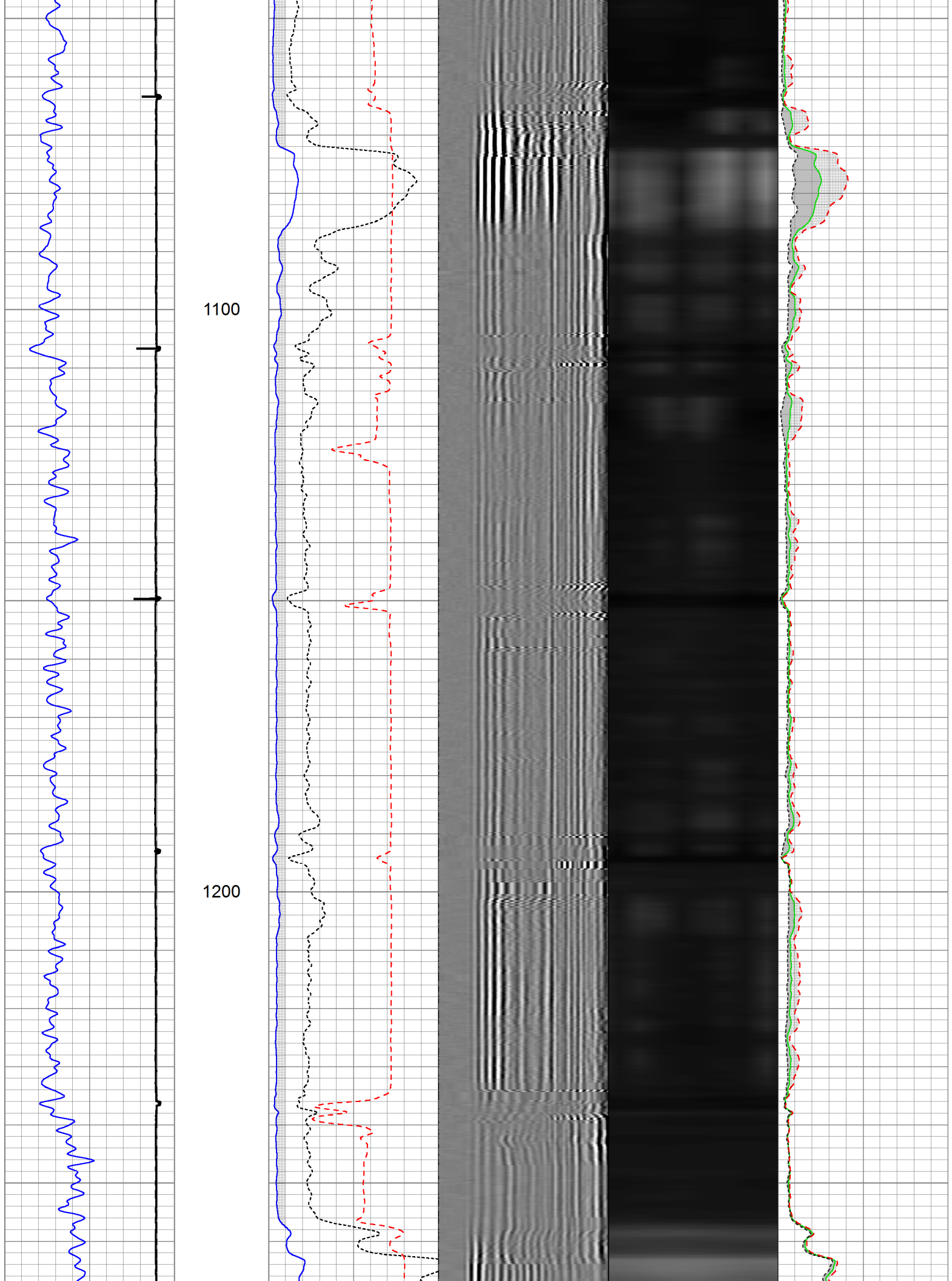


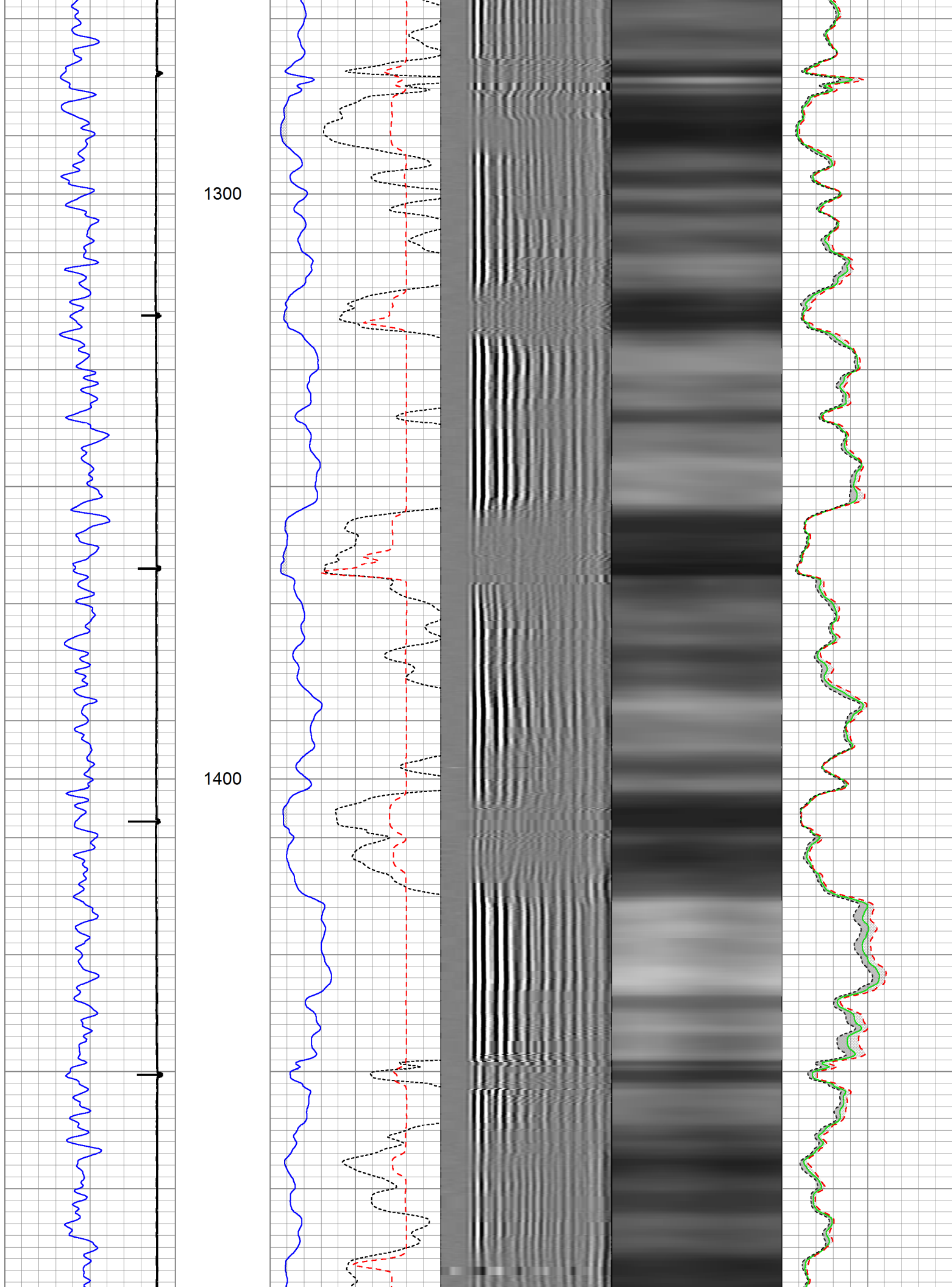


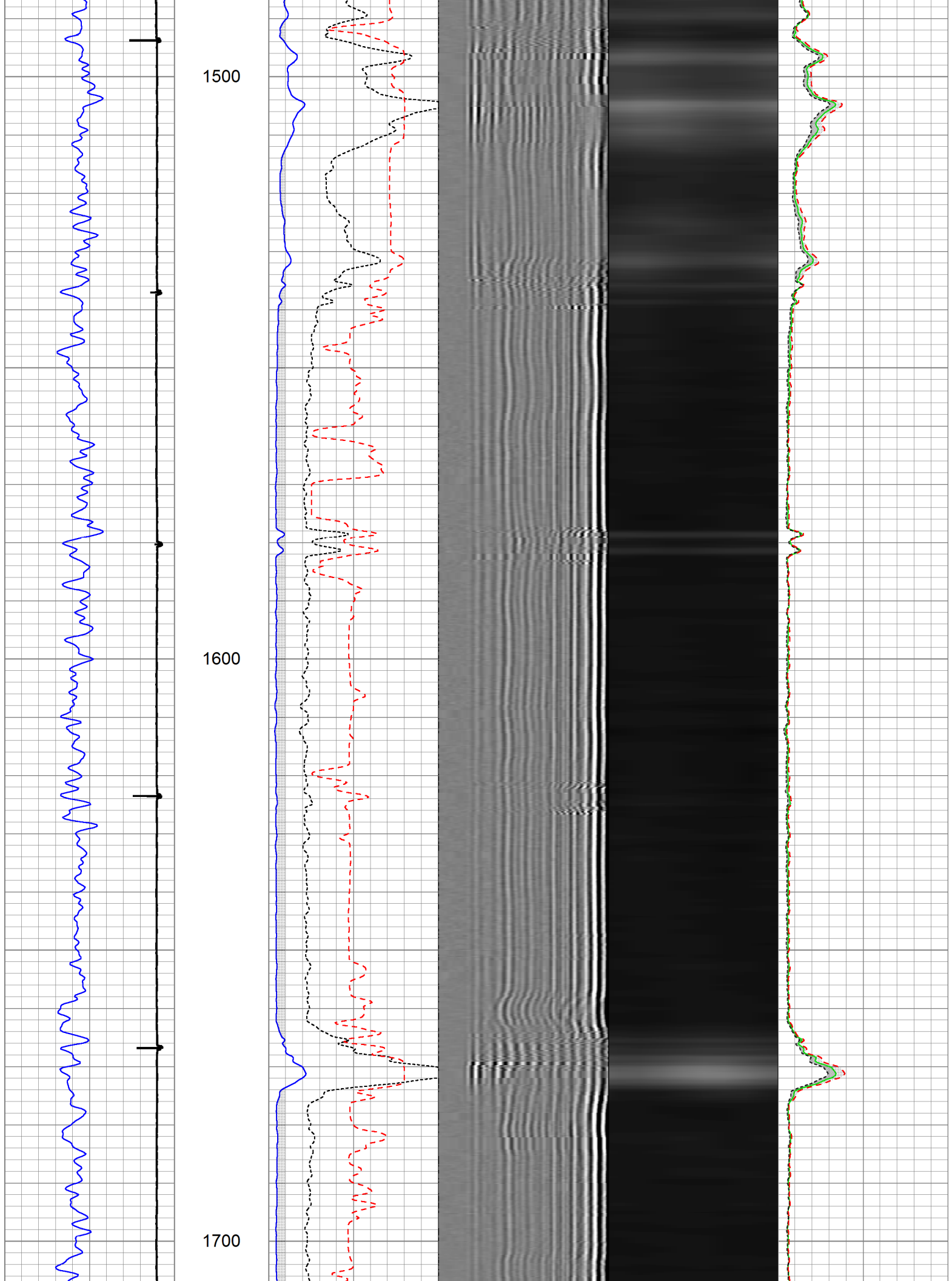


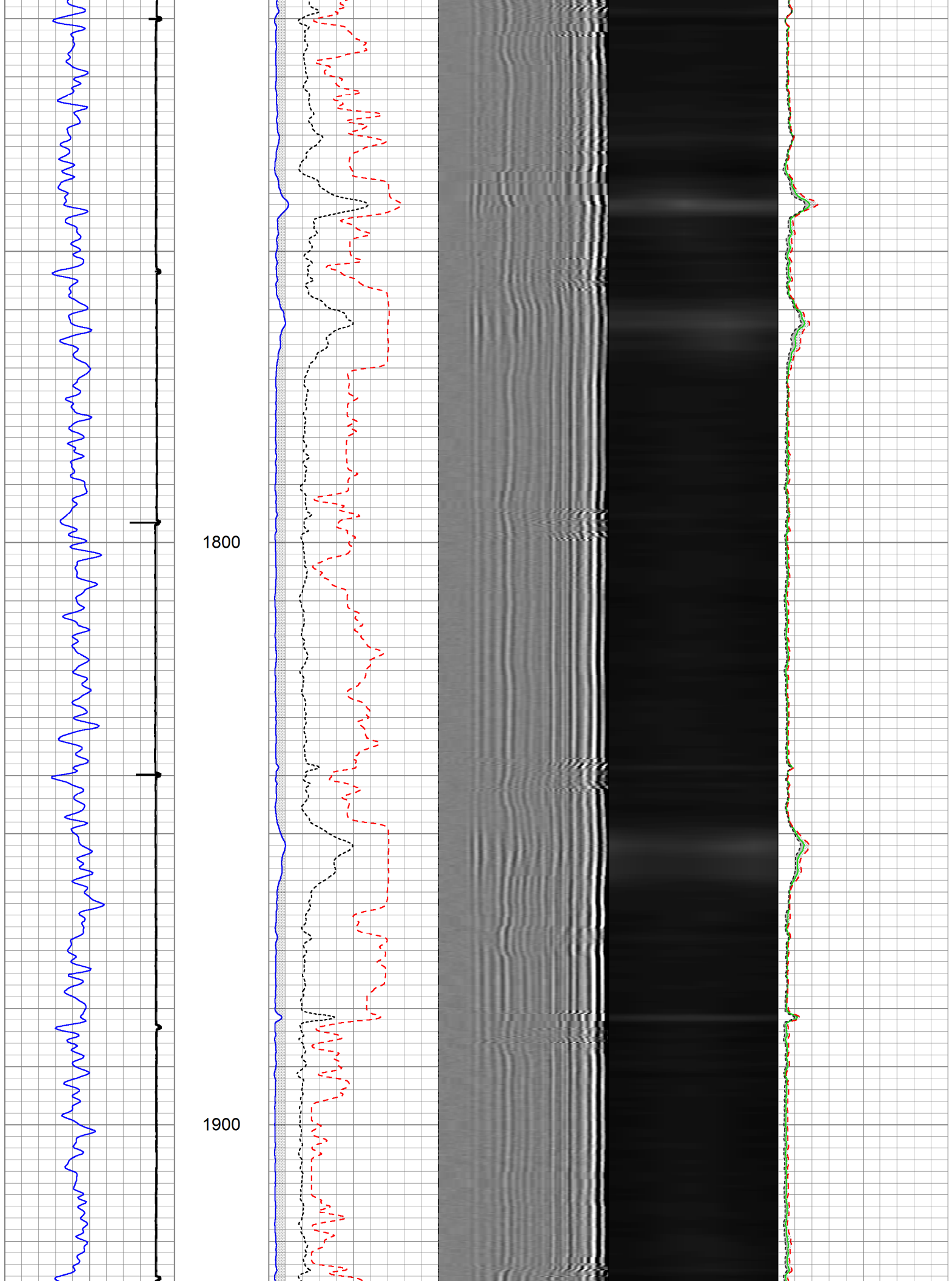


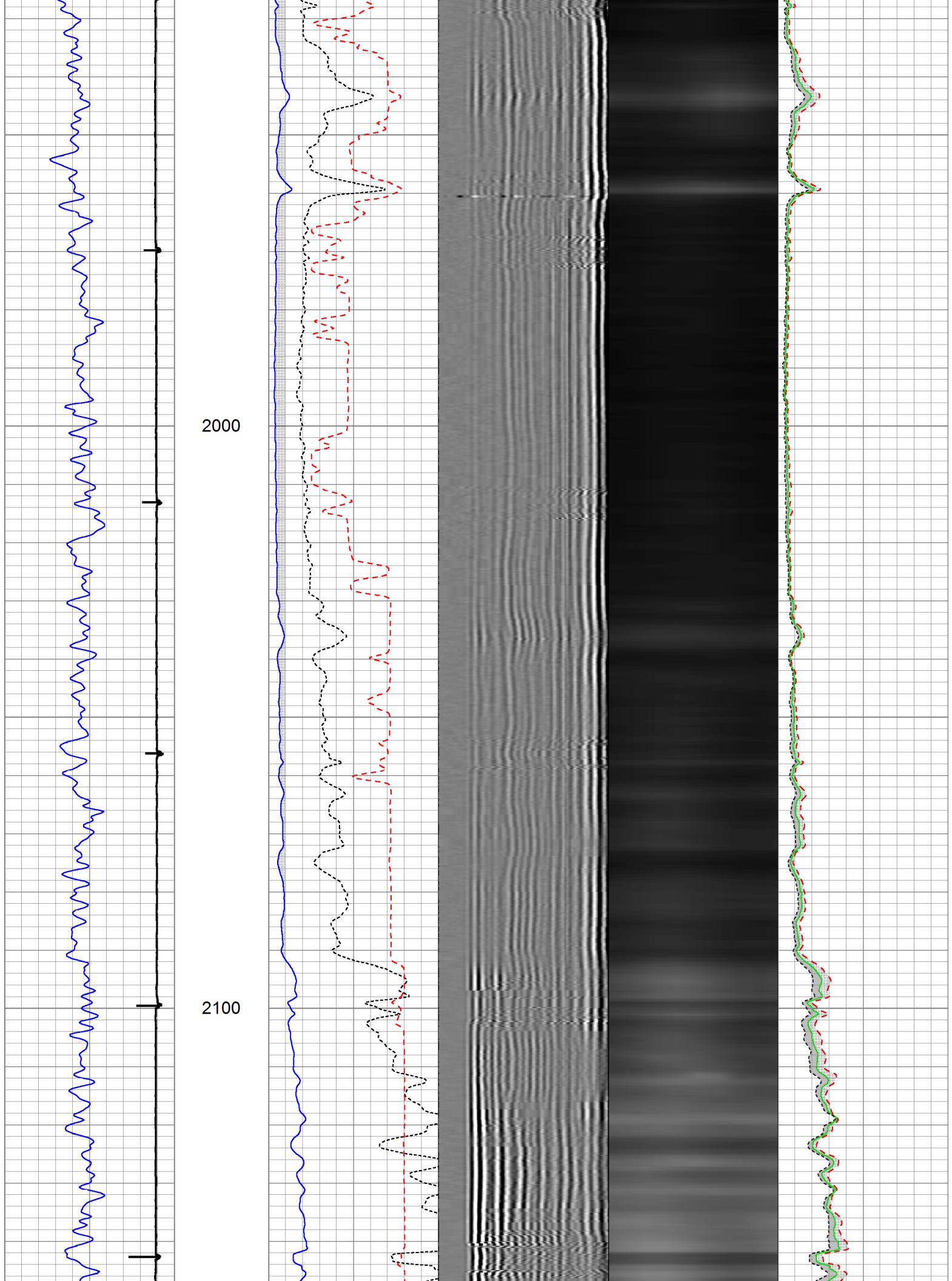






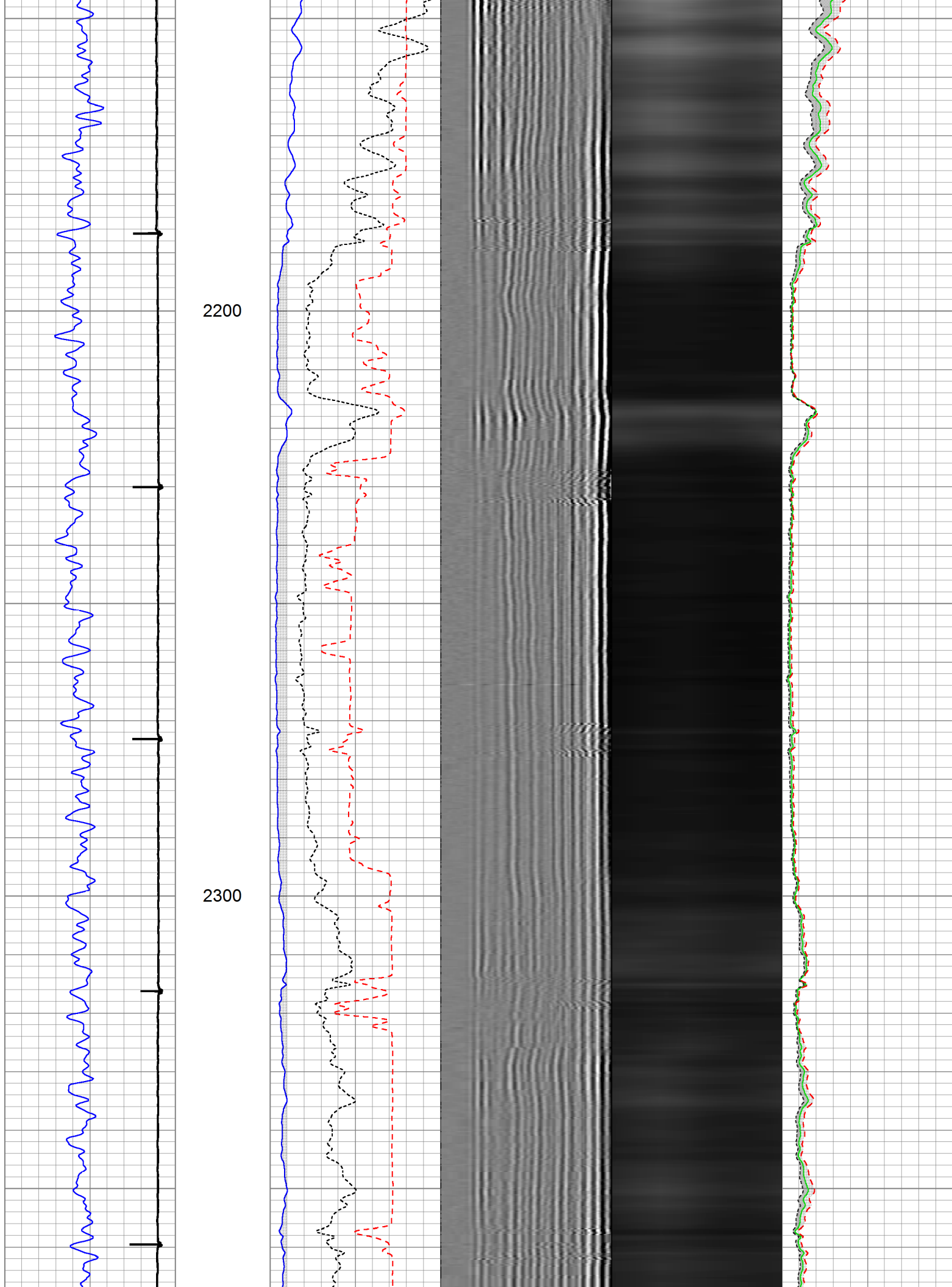


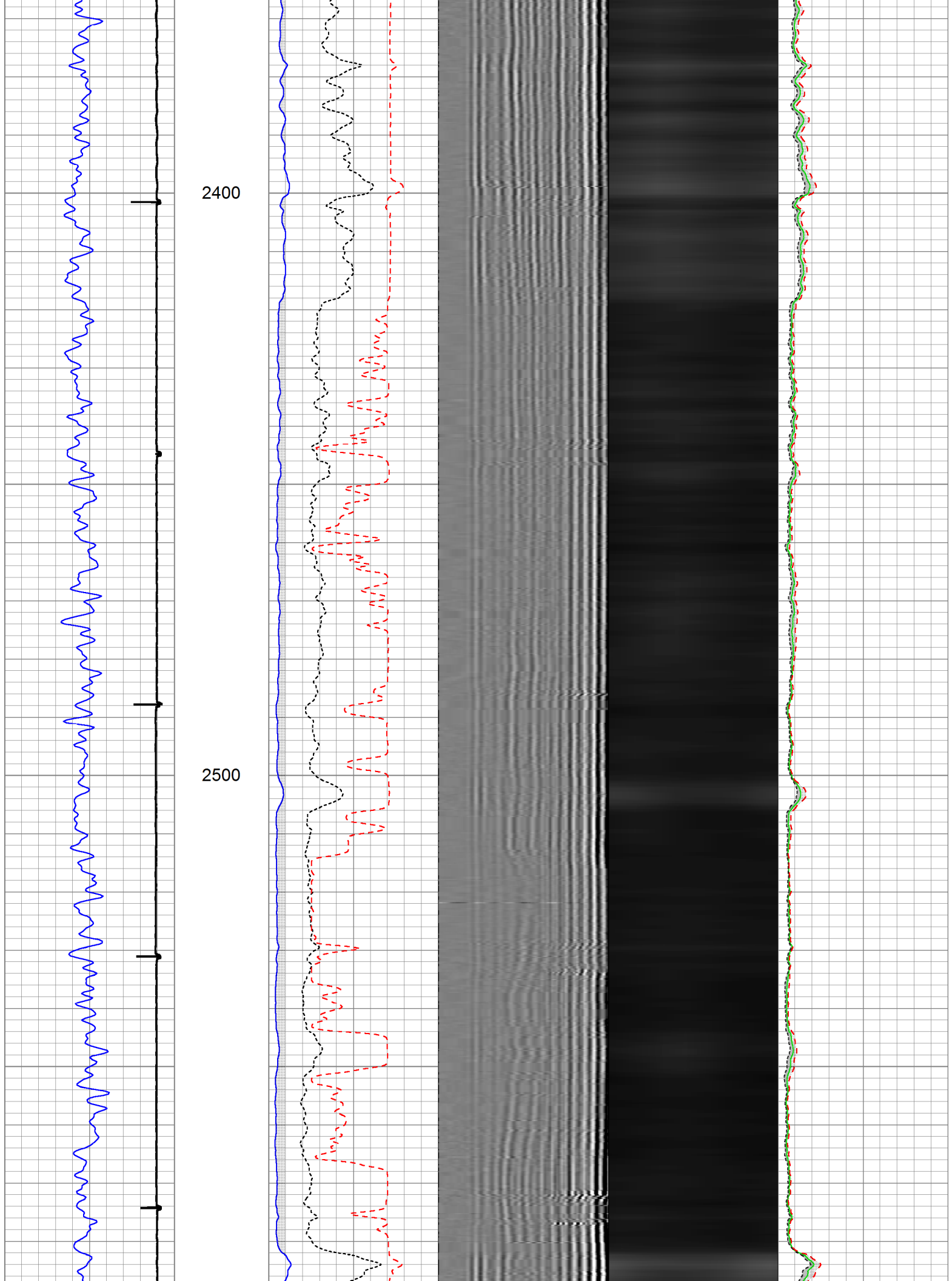


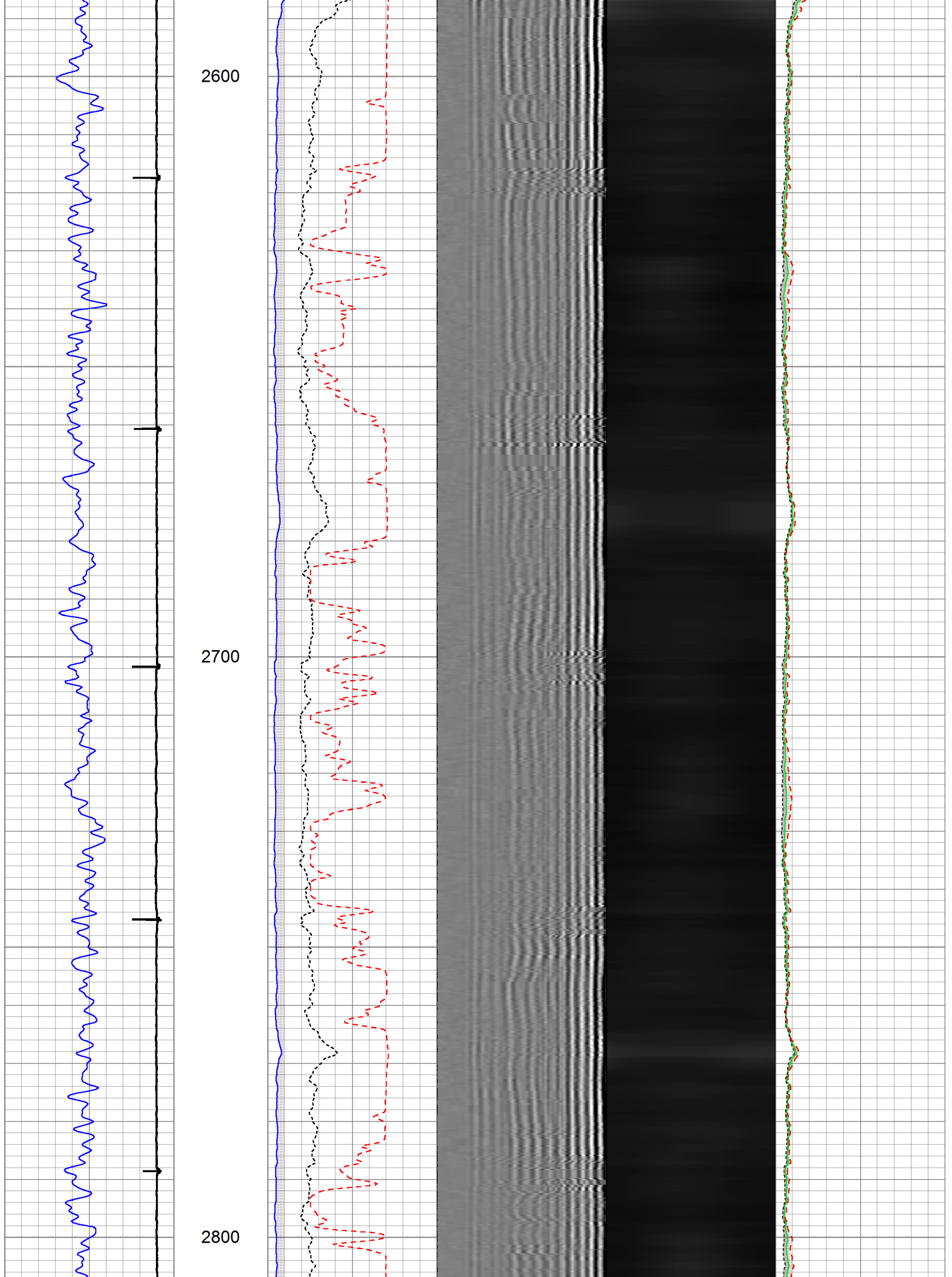


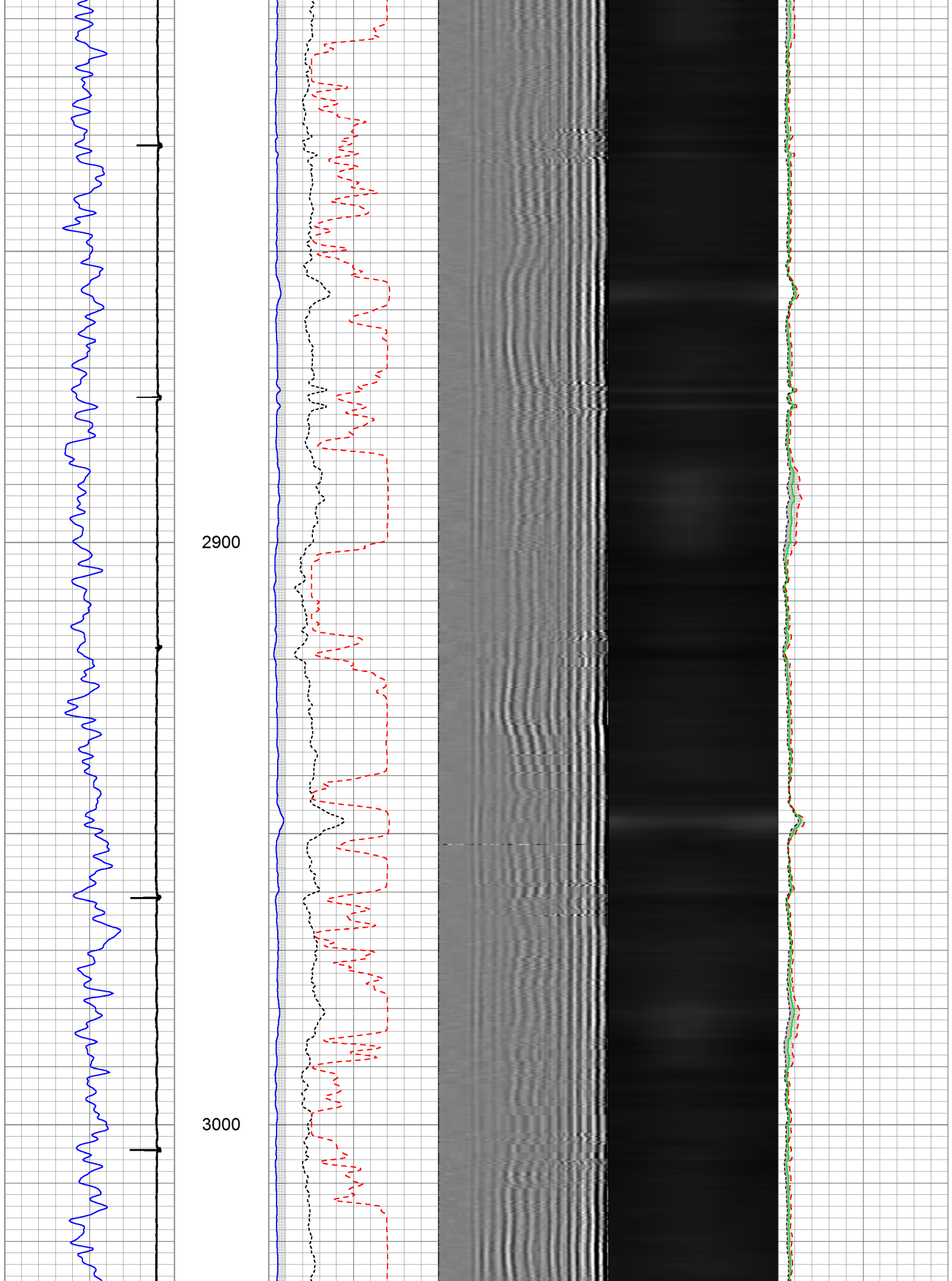
2200

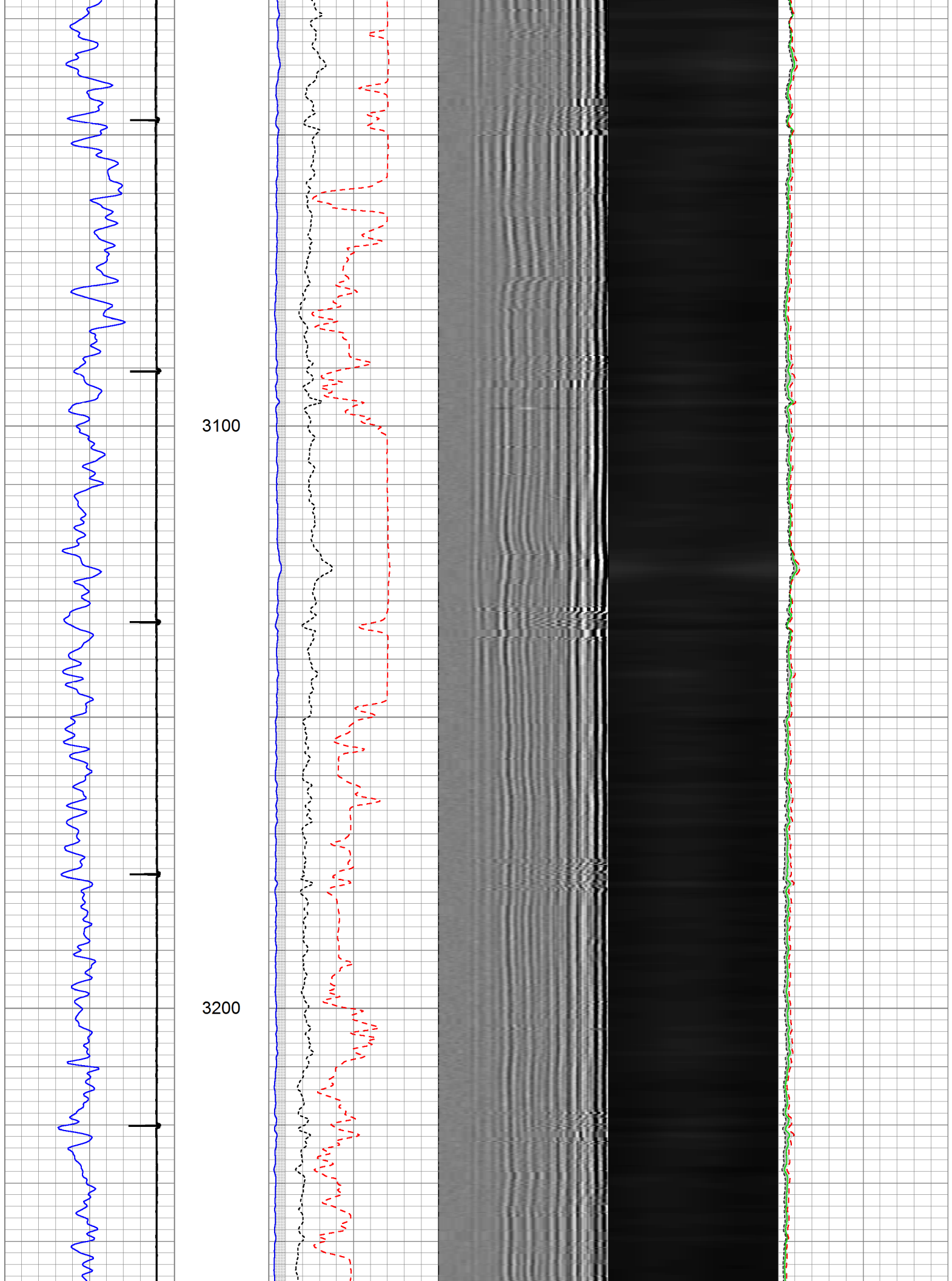
2300

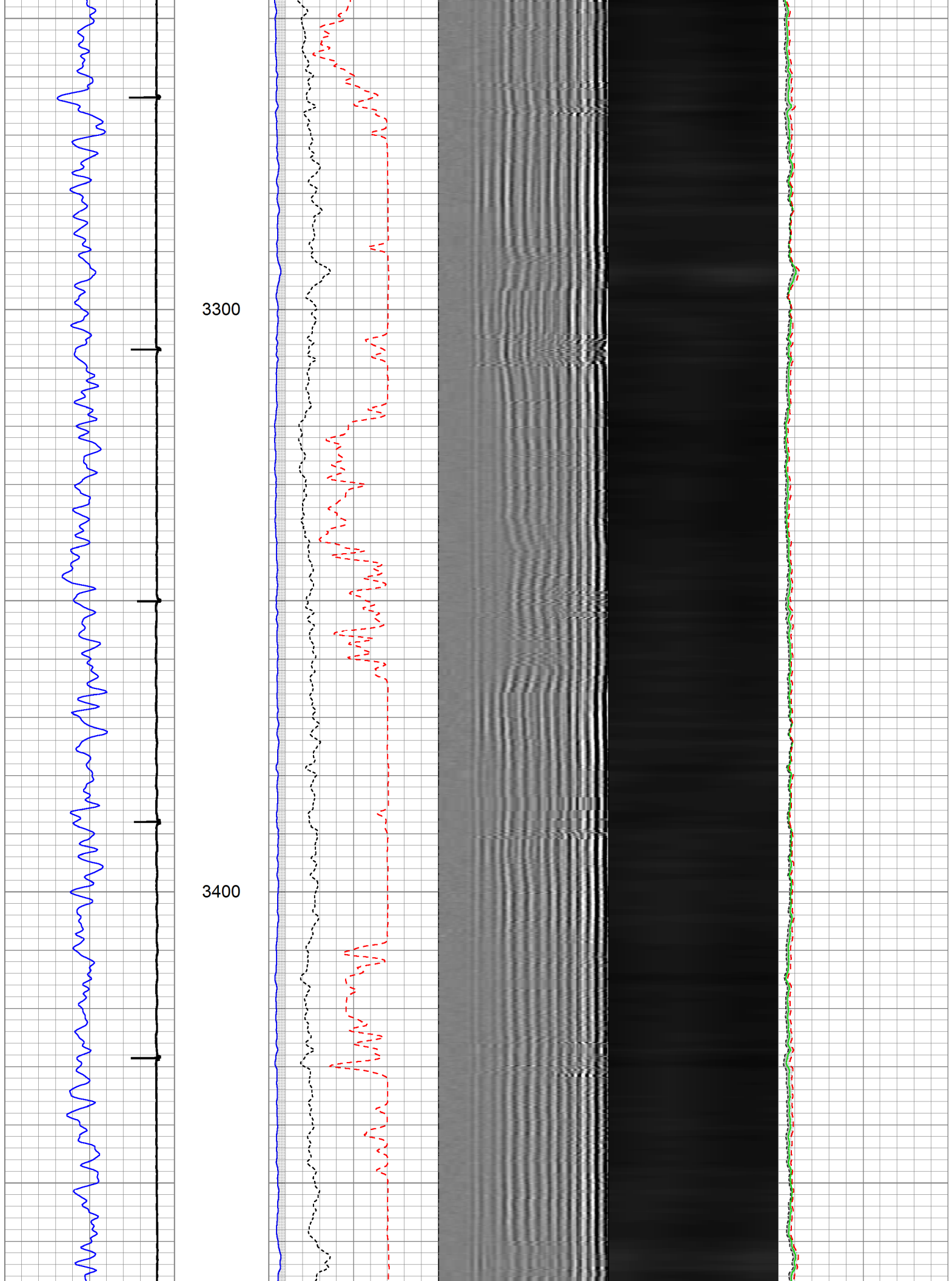


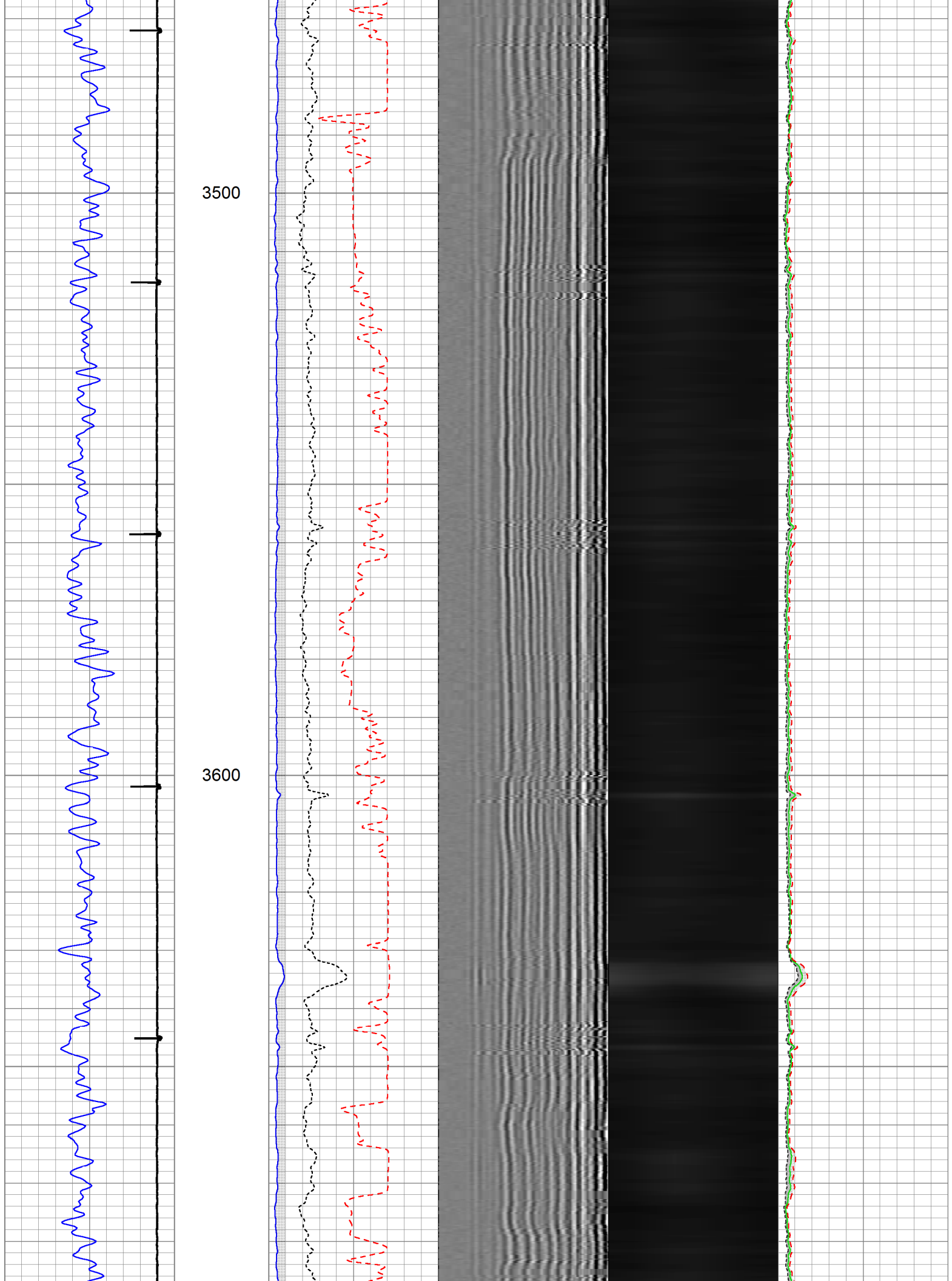








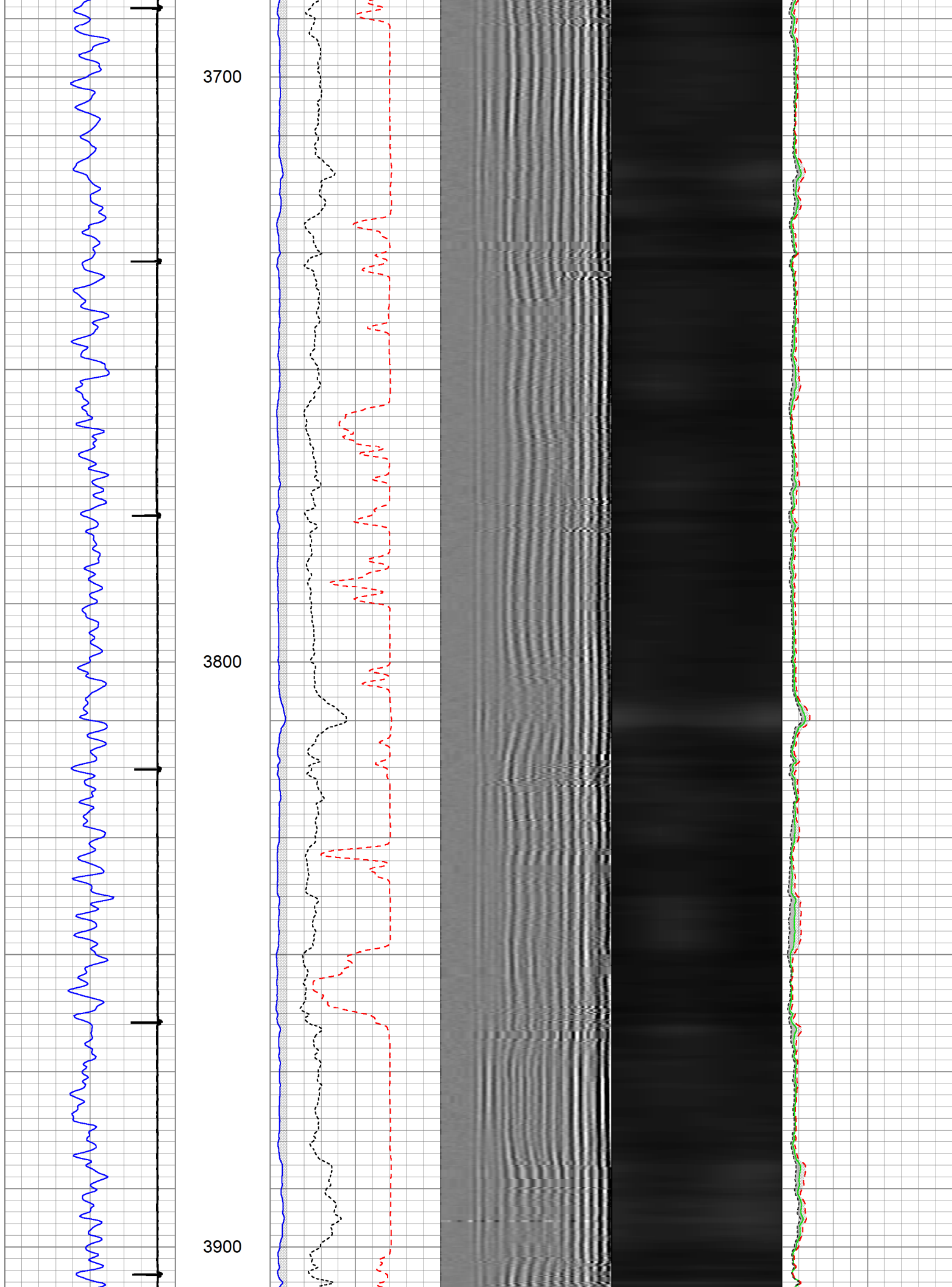


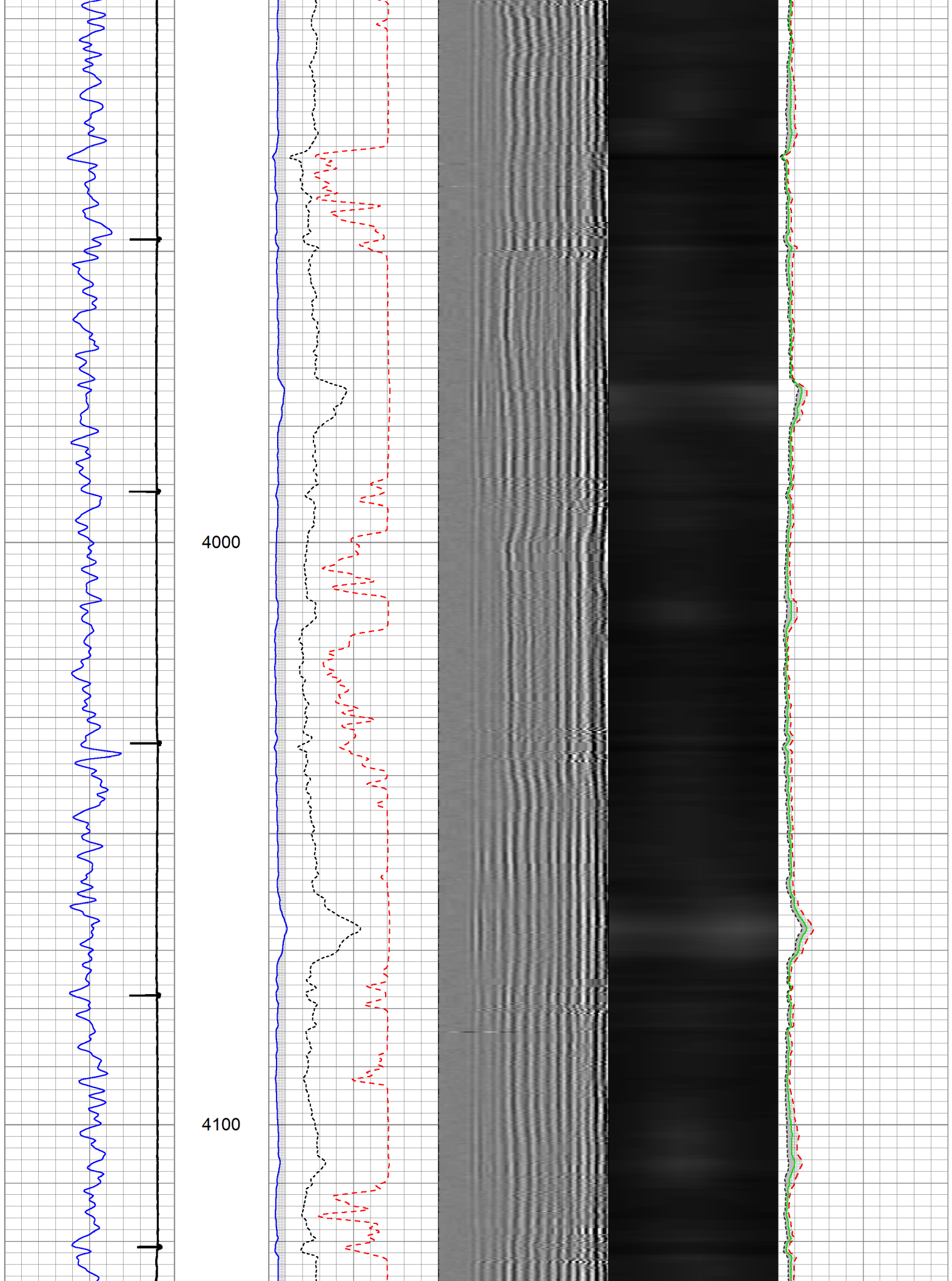


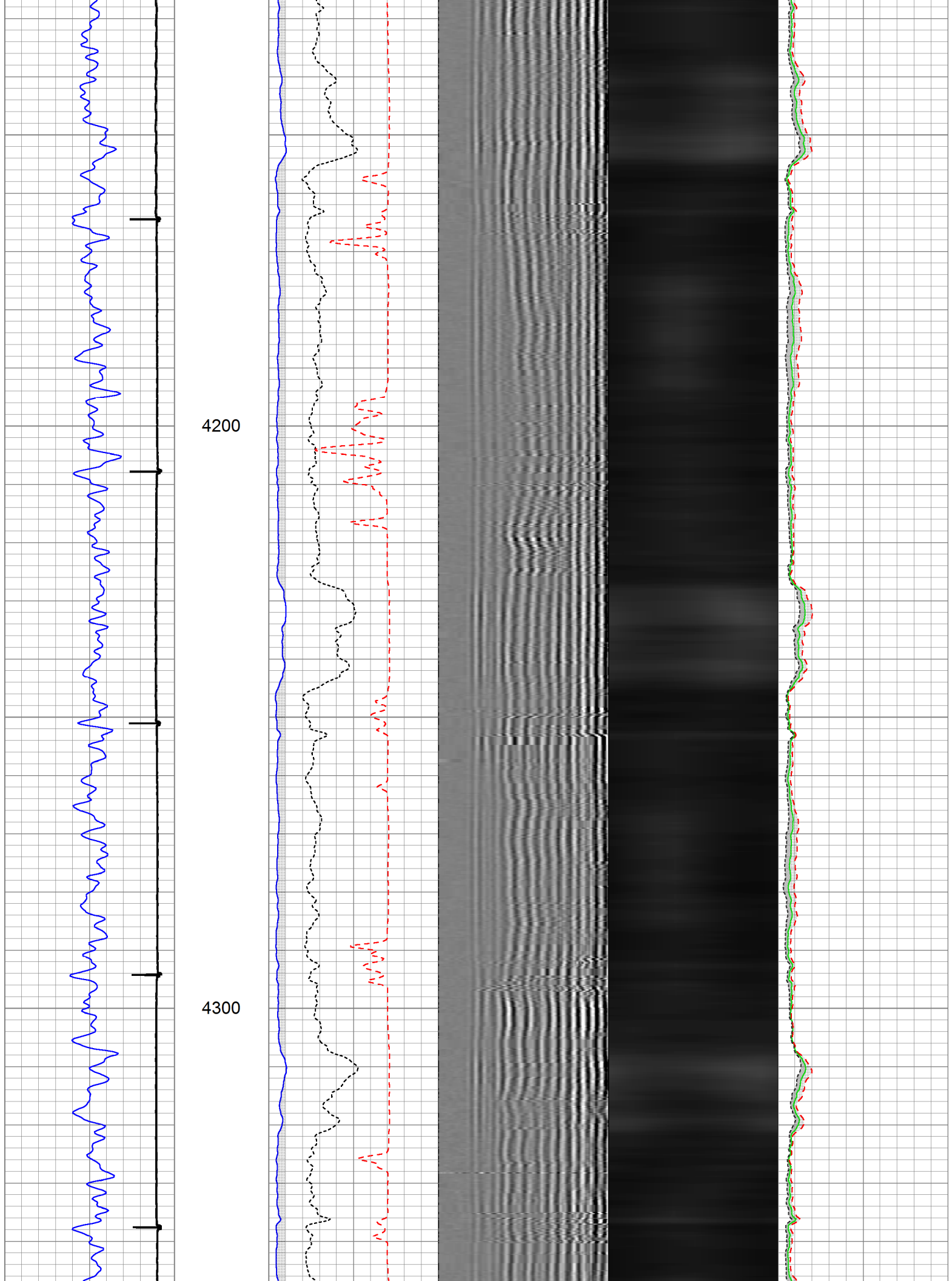
3700

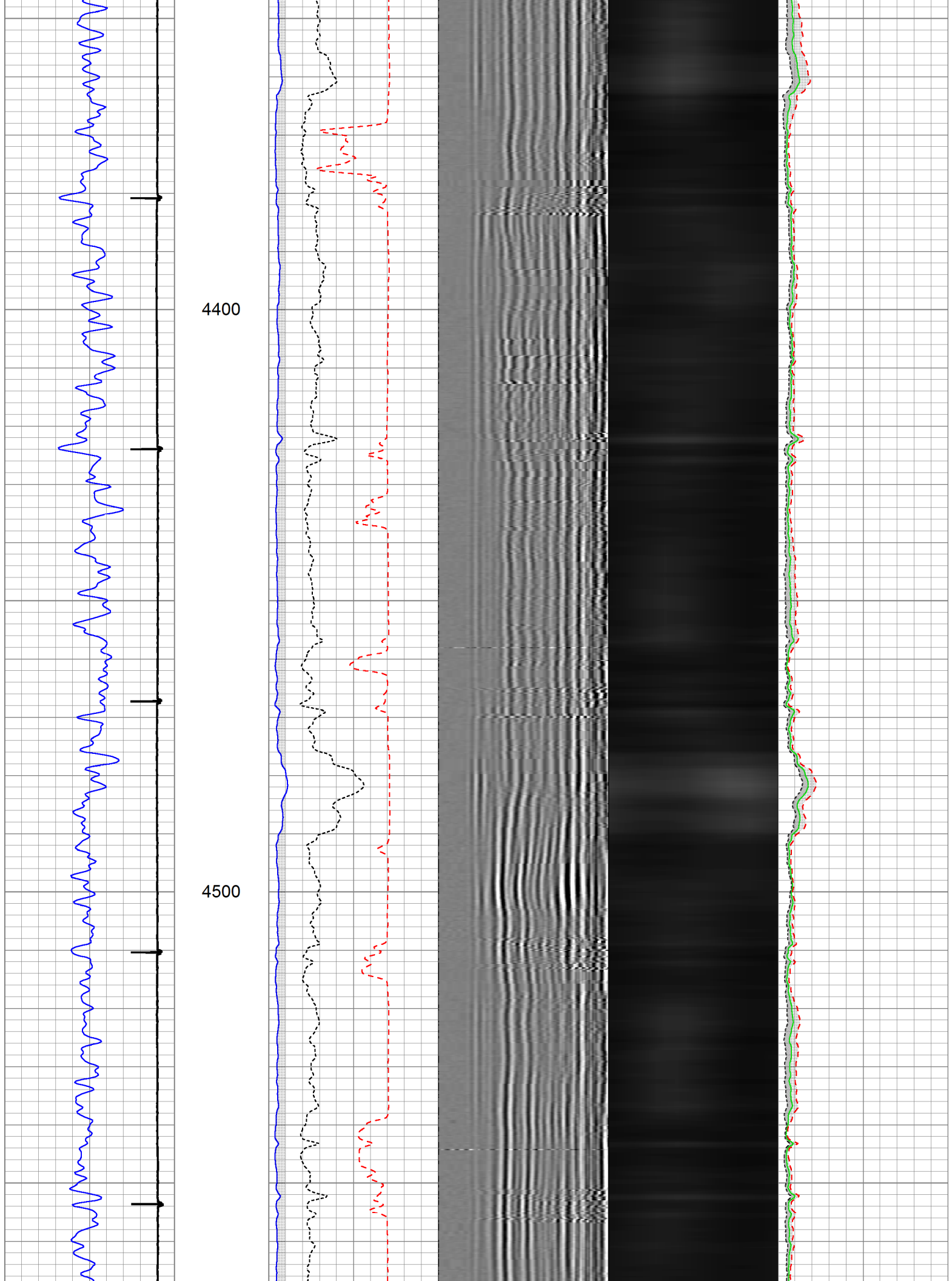
3800

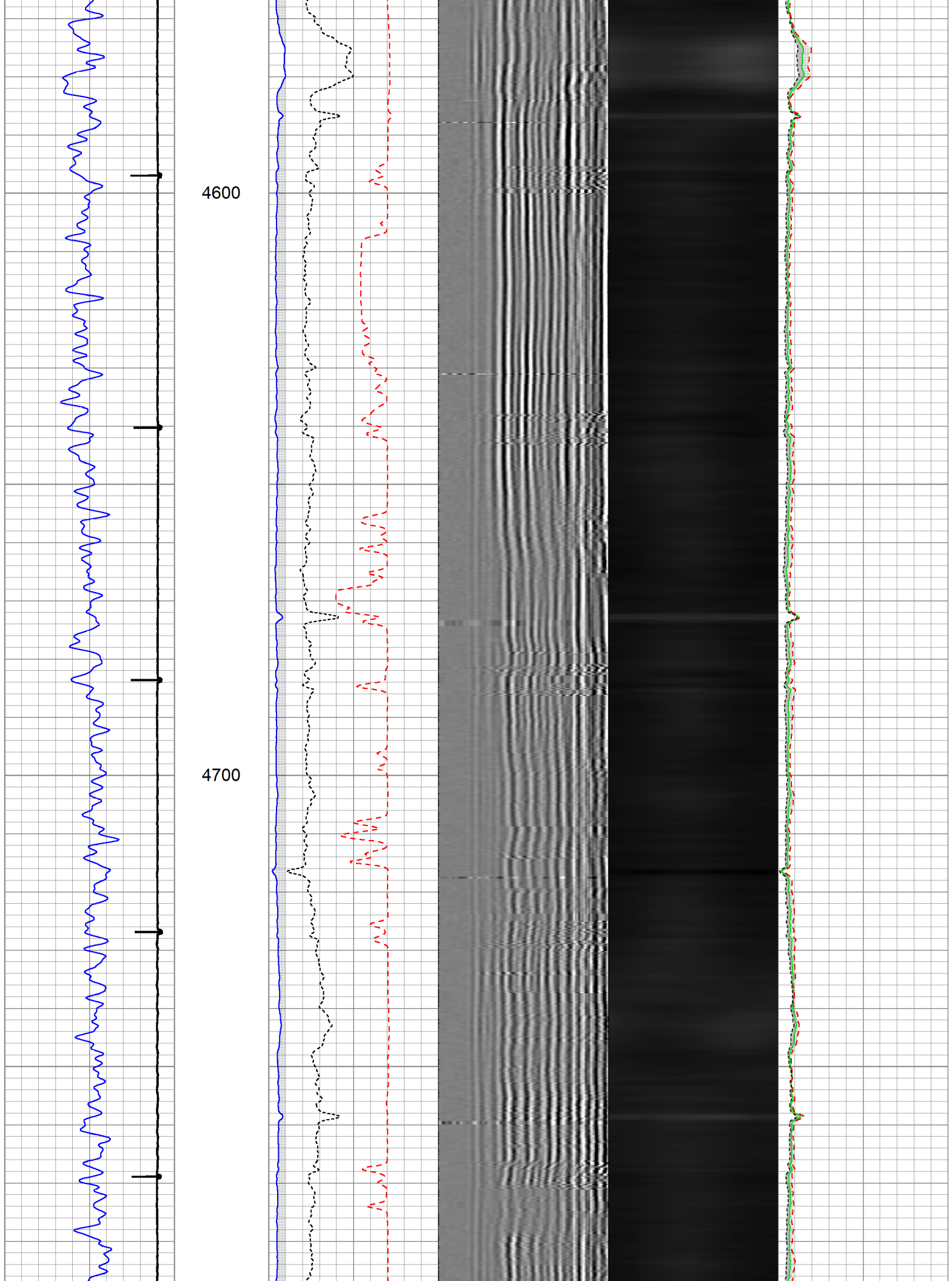
3900

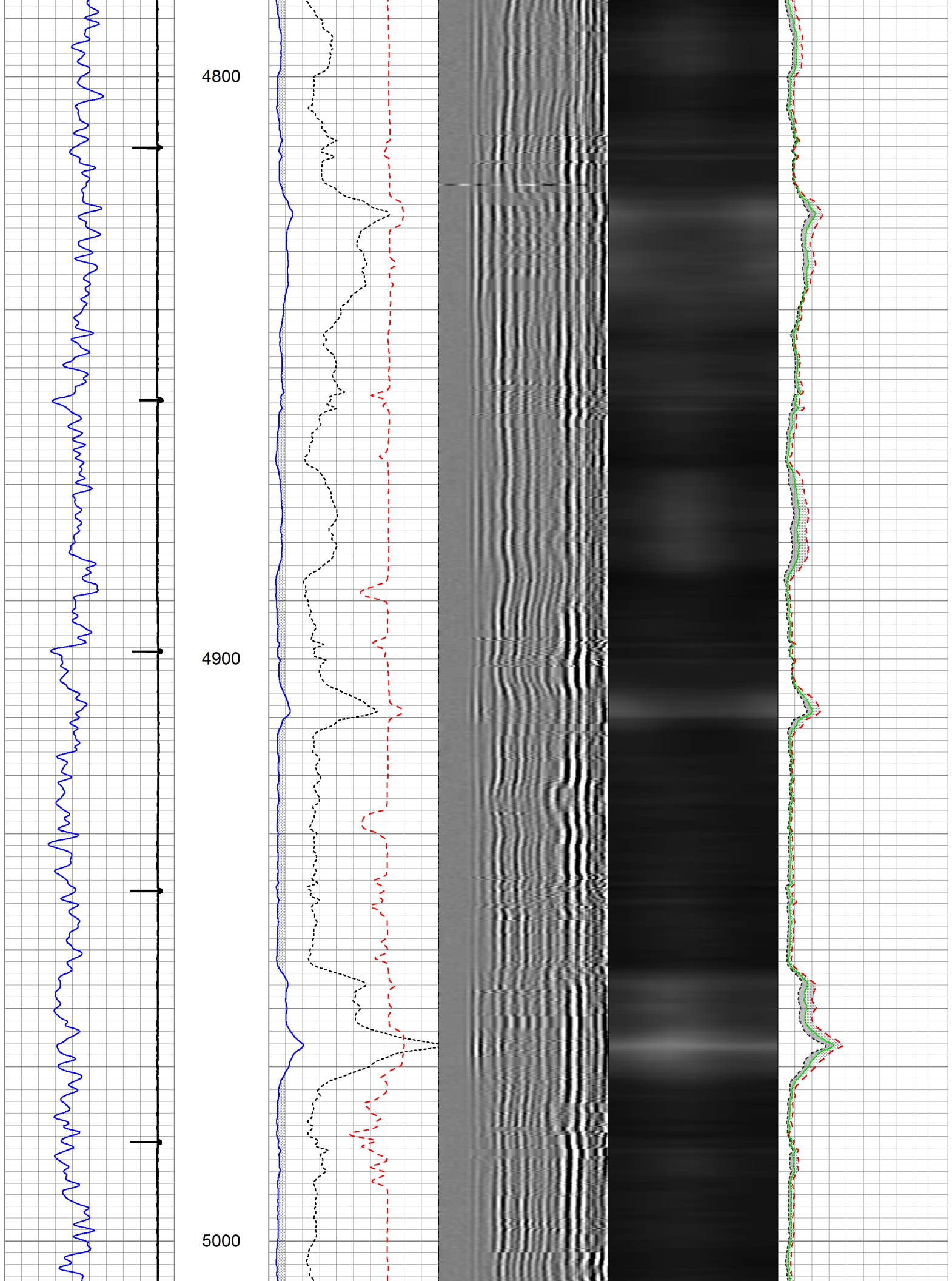


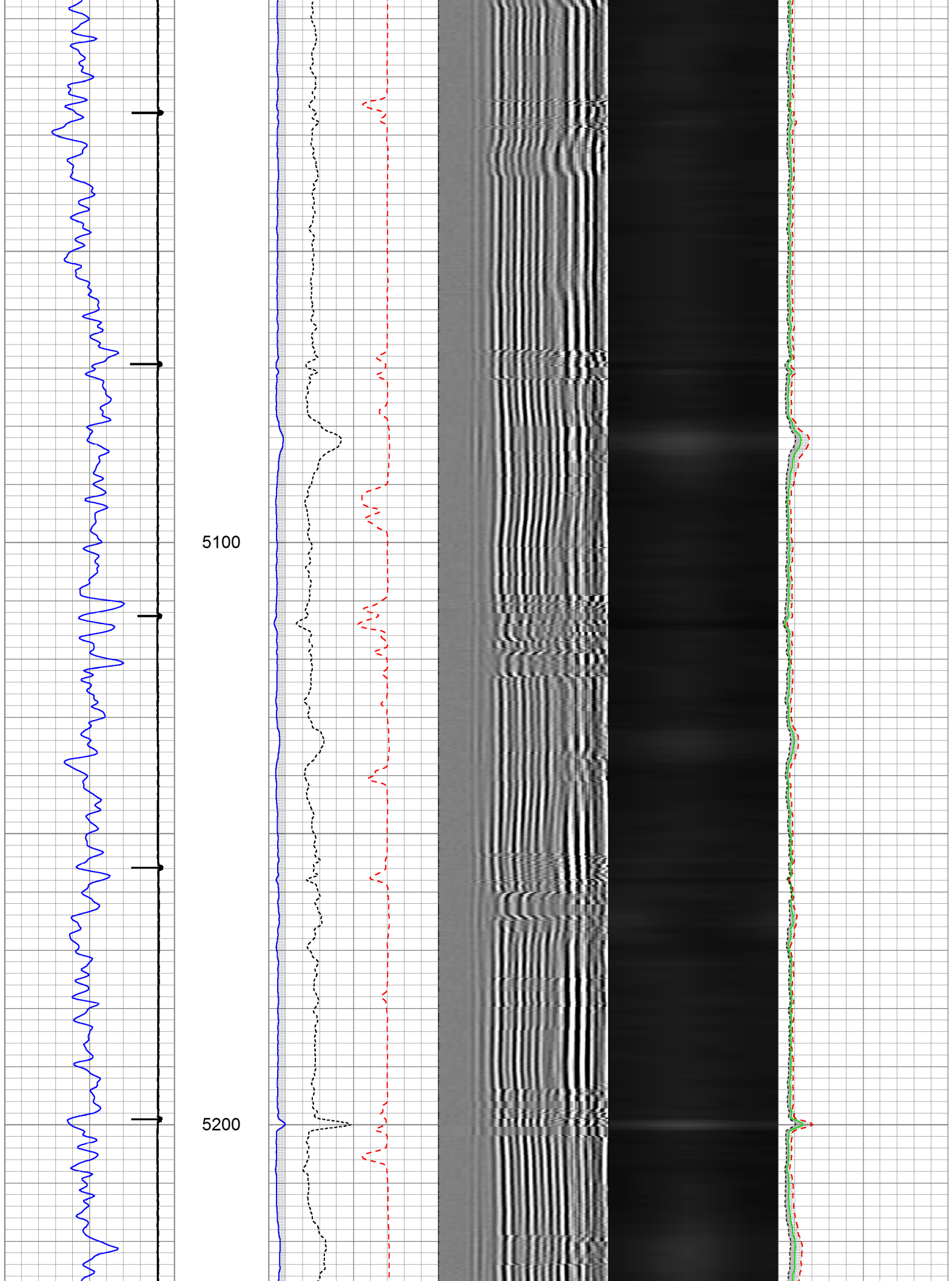


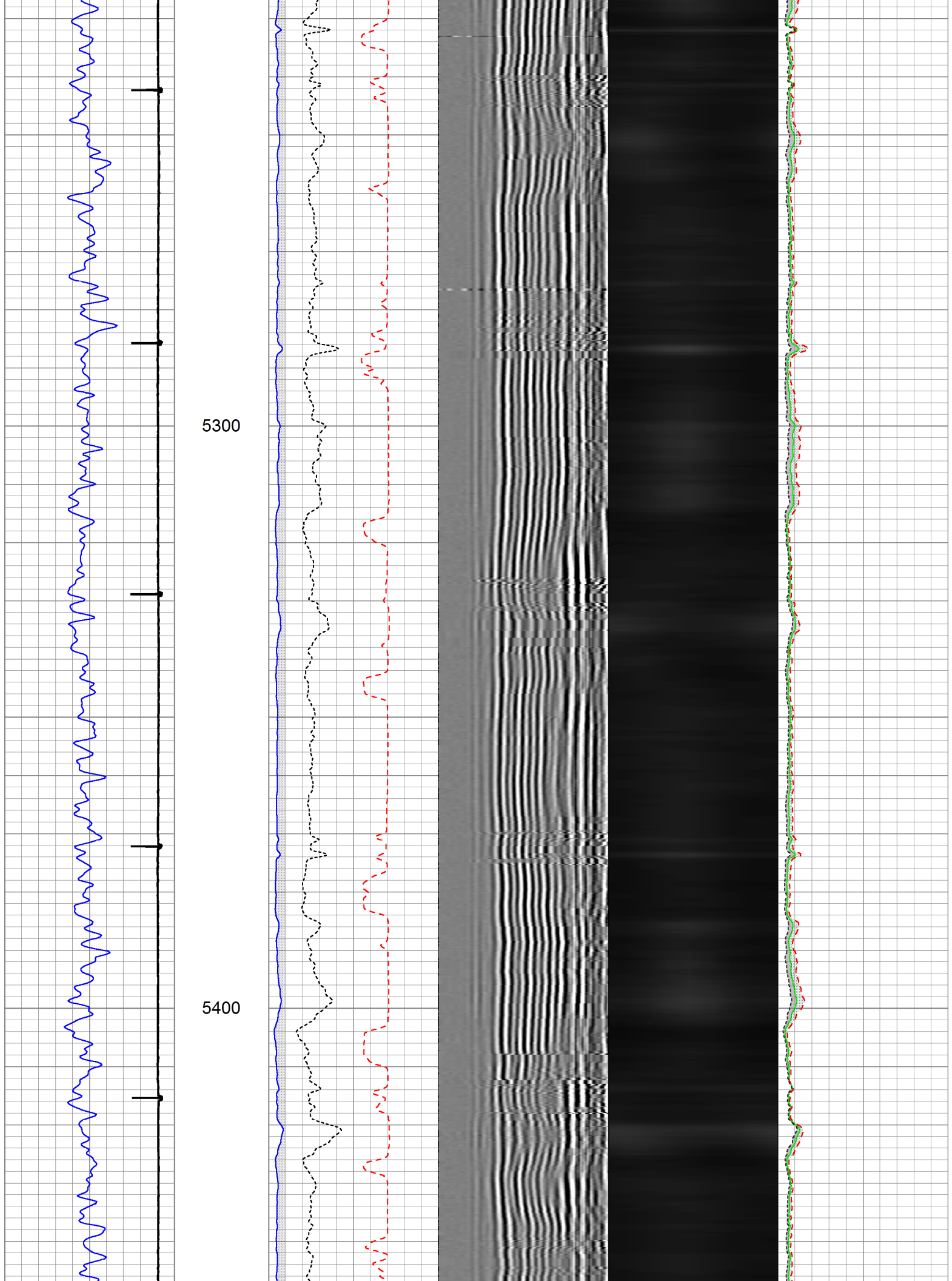


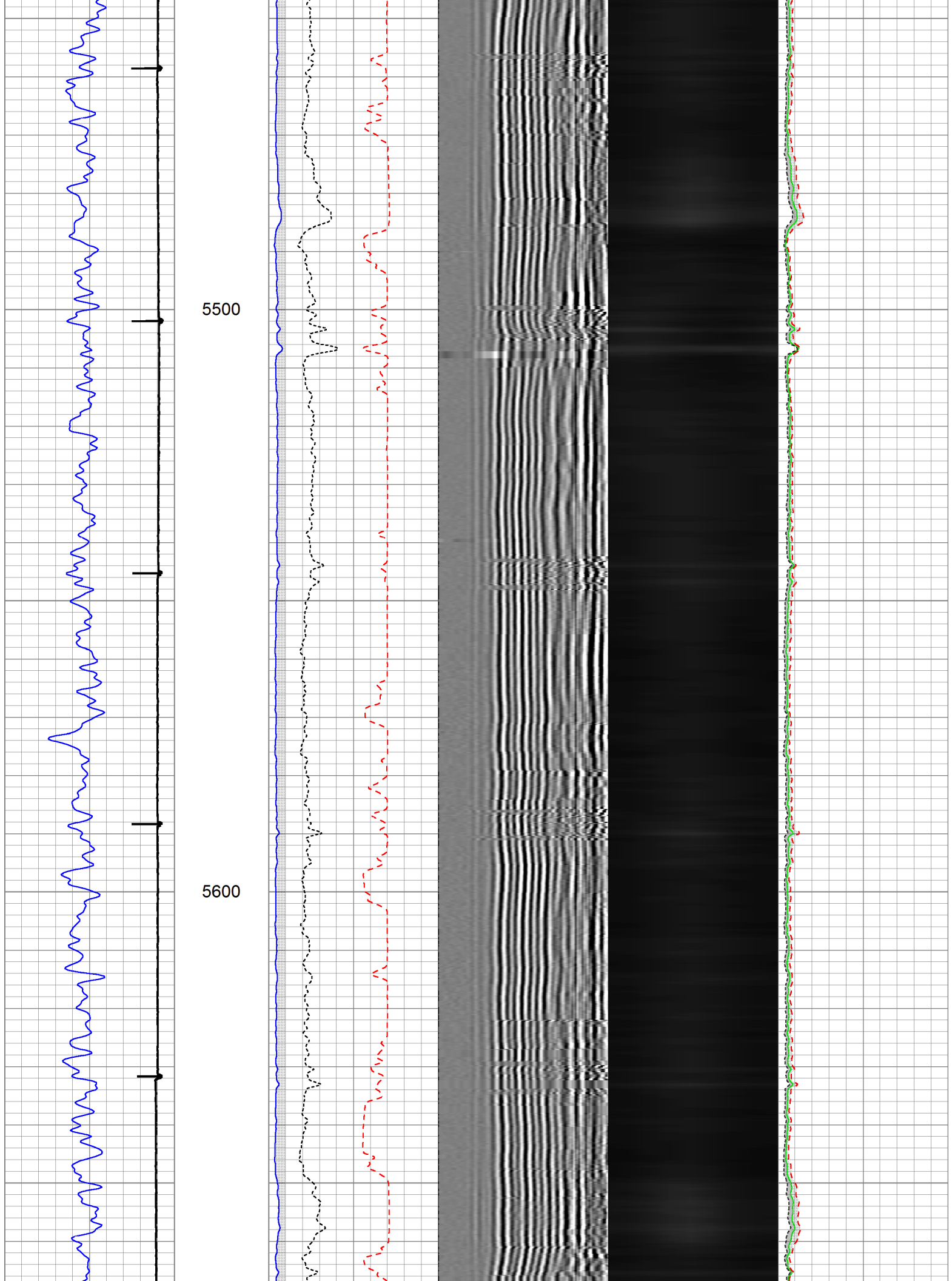






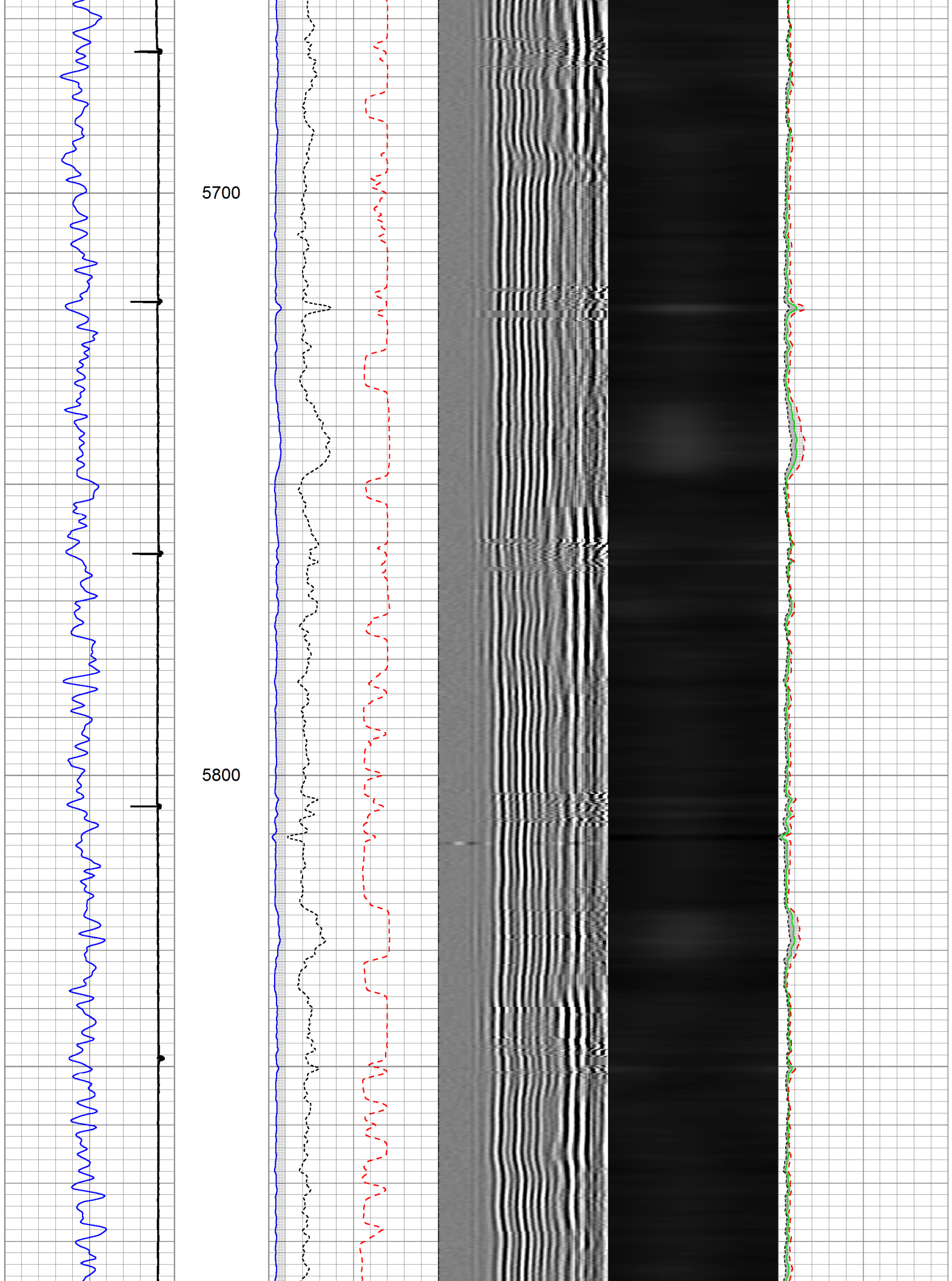


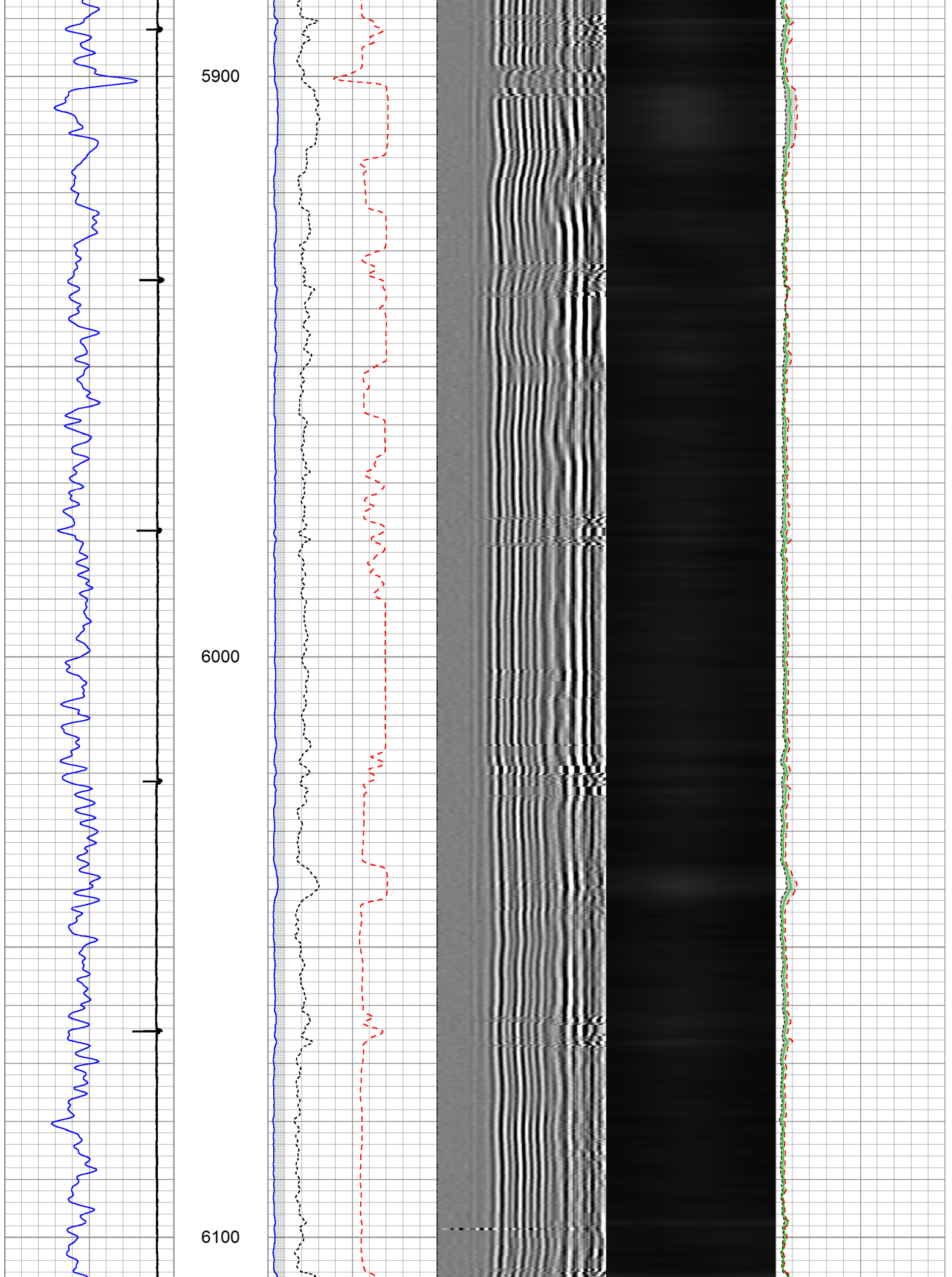


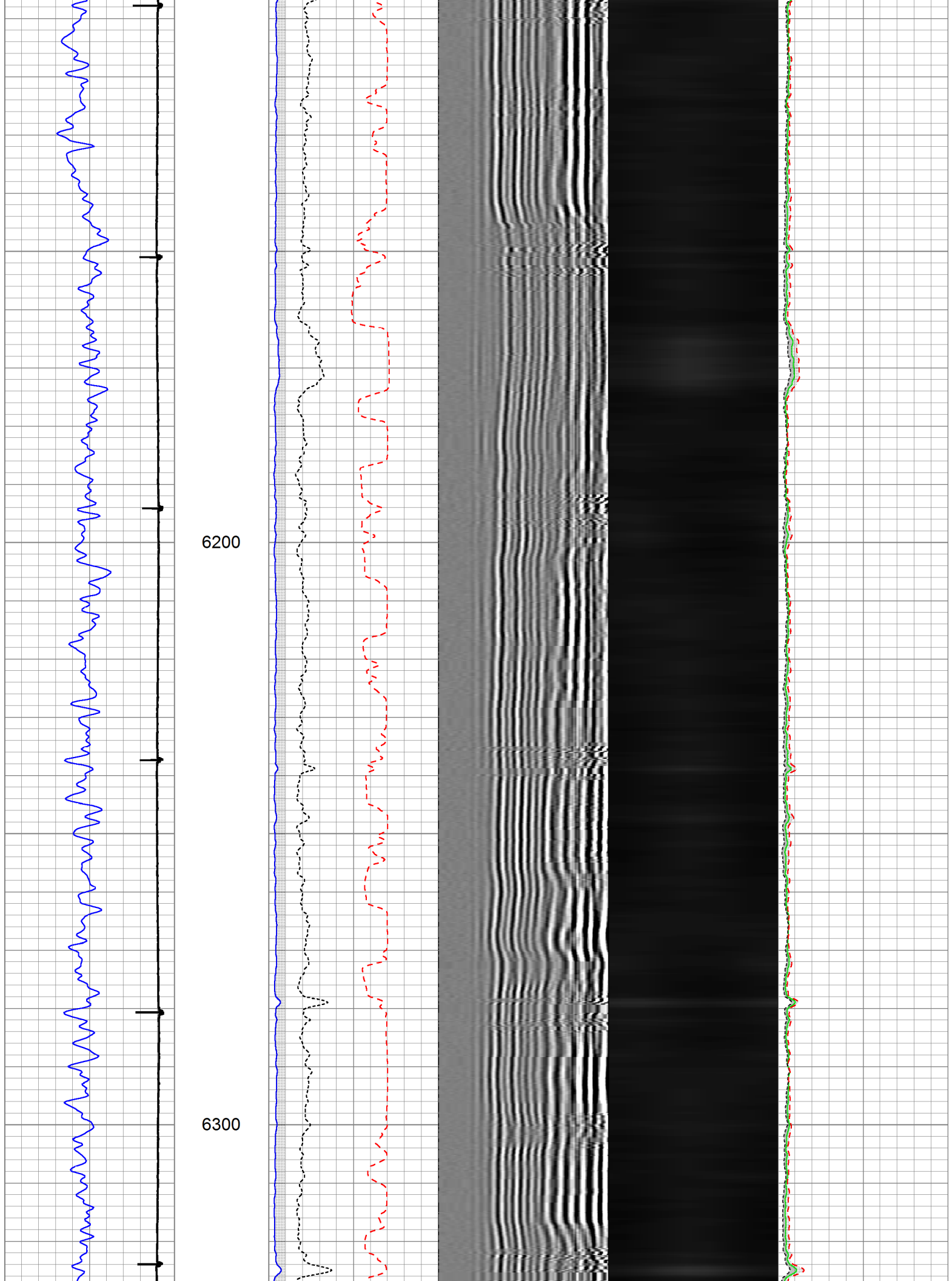


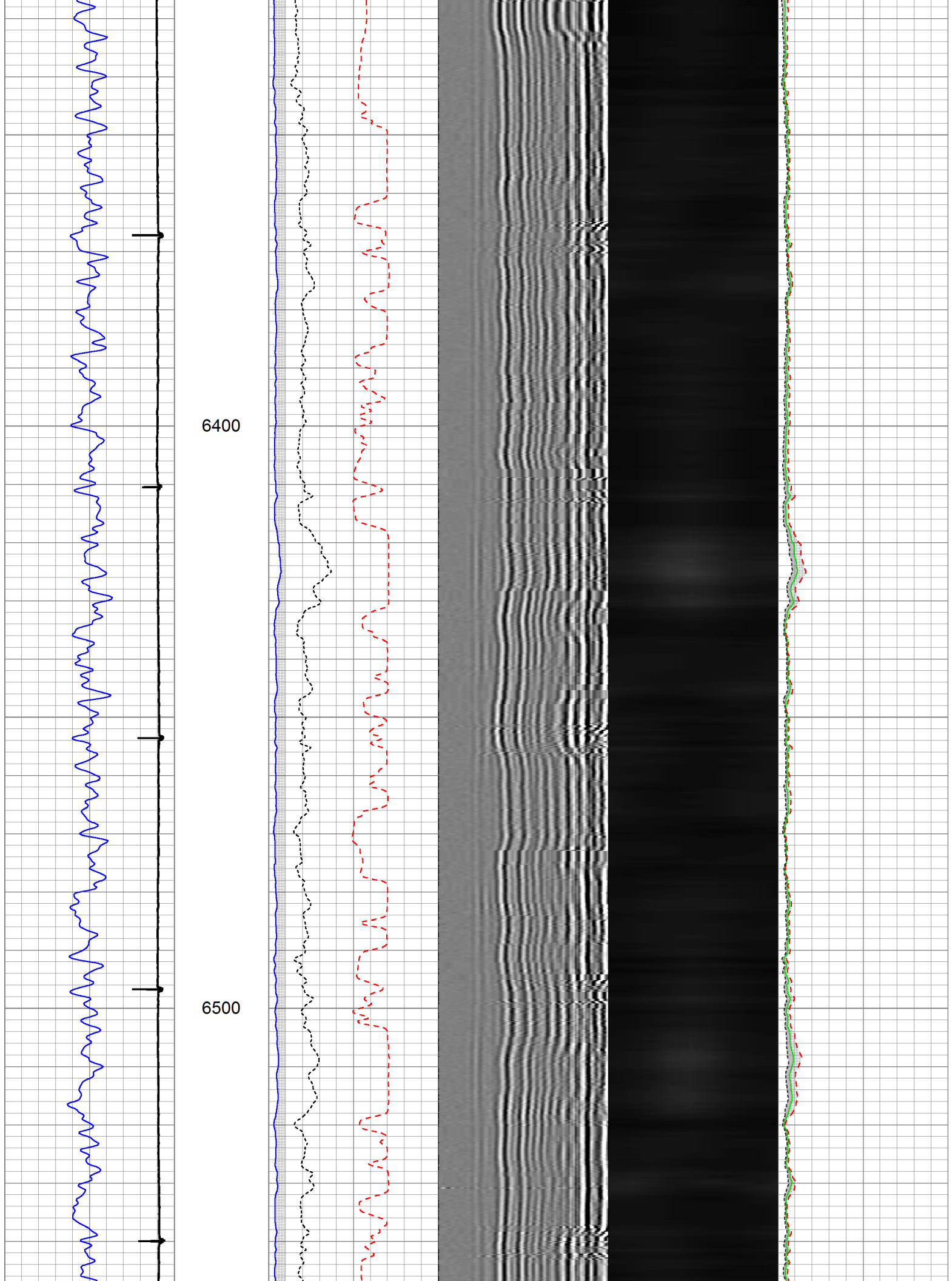
5700

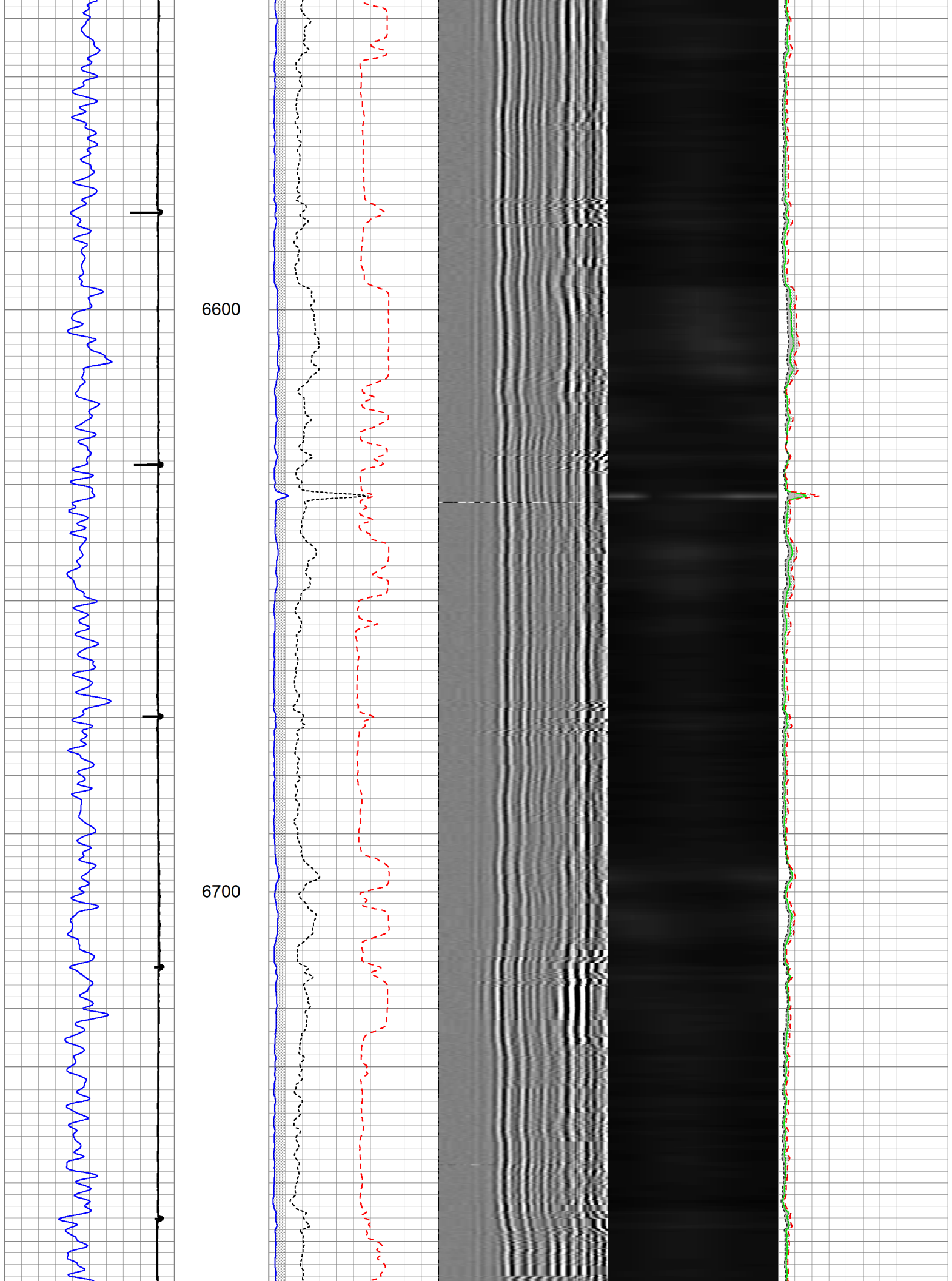
5800

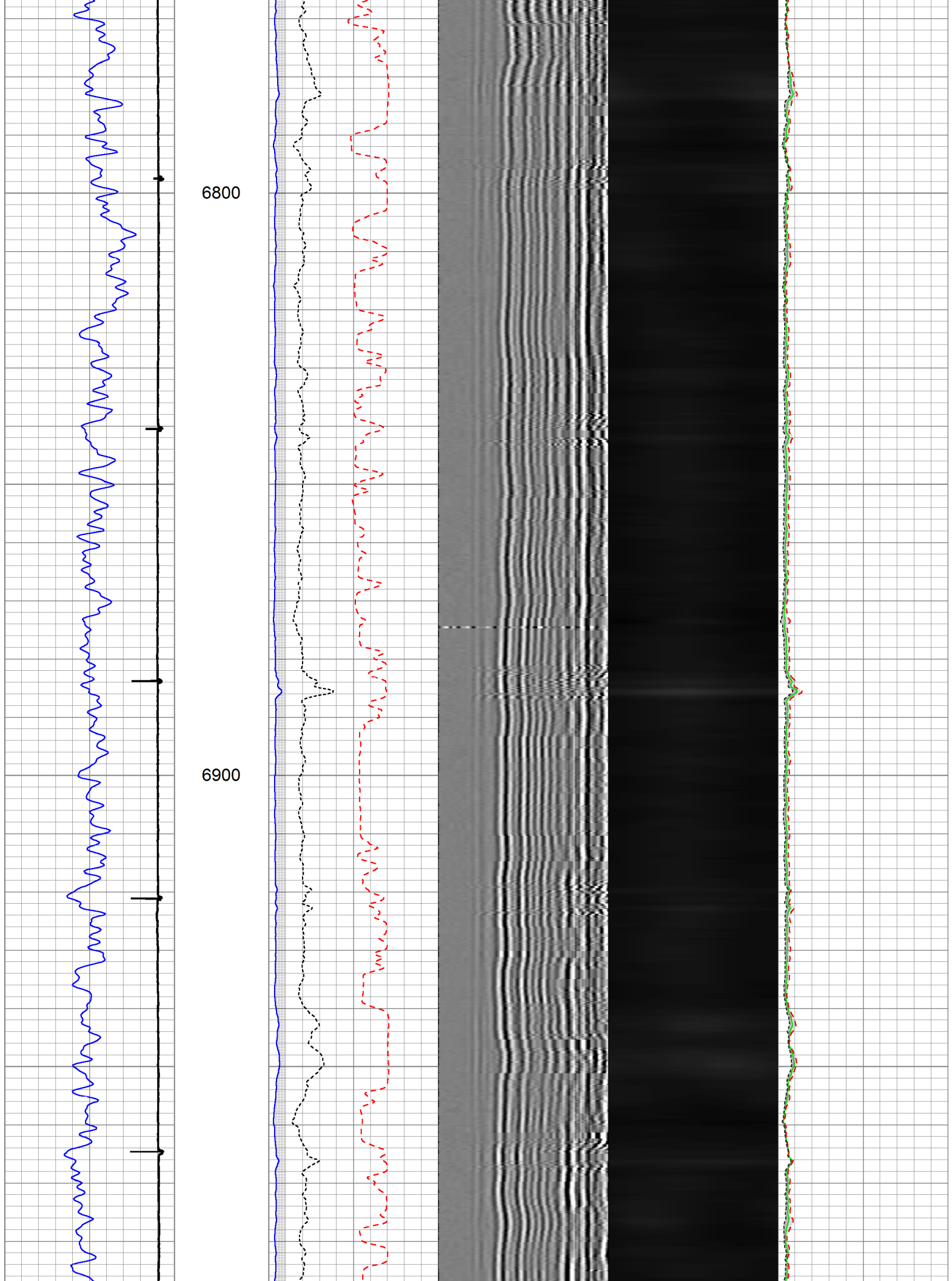


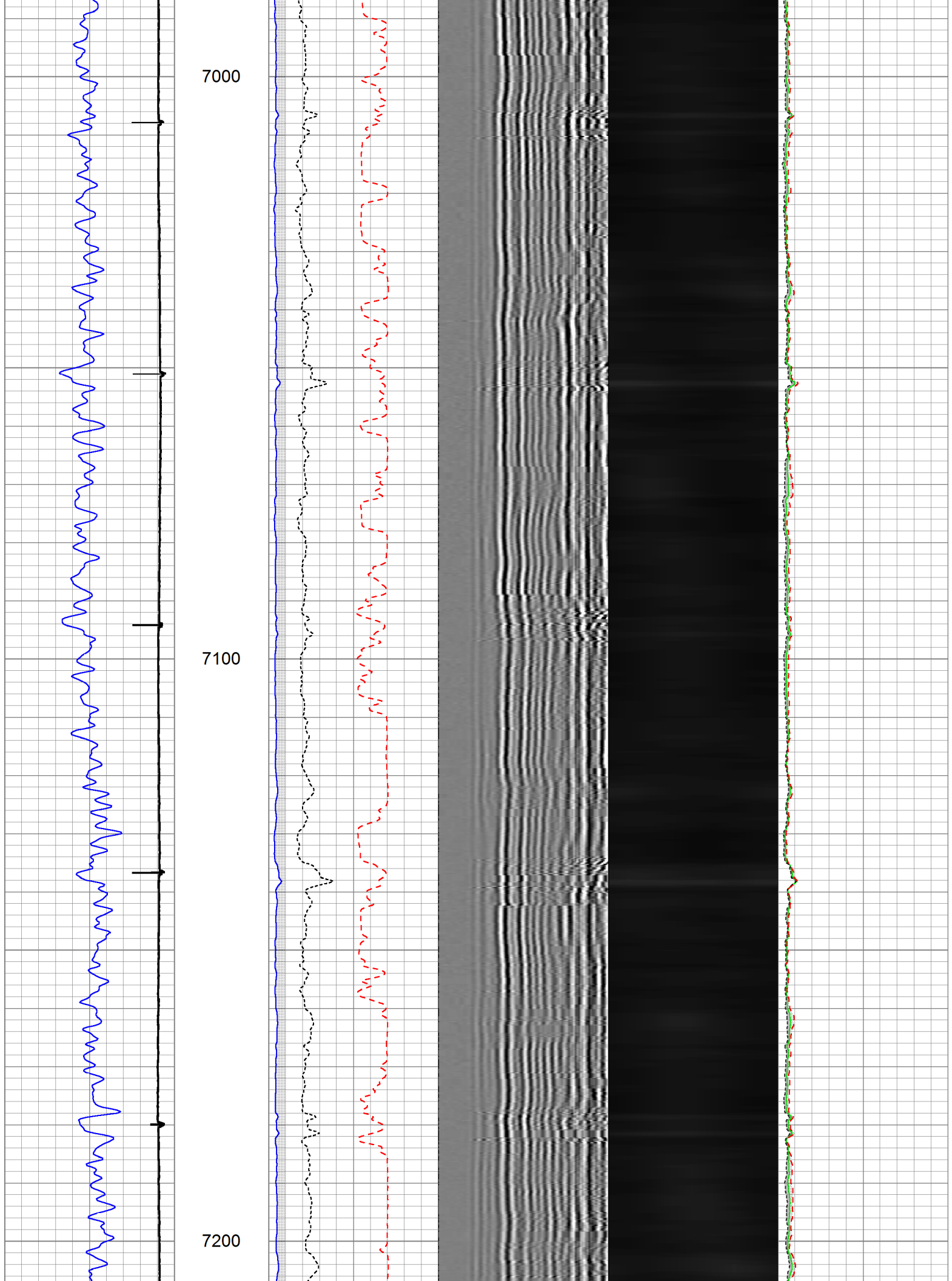


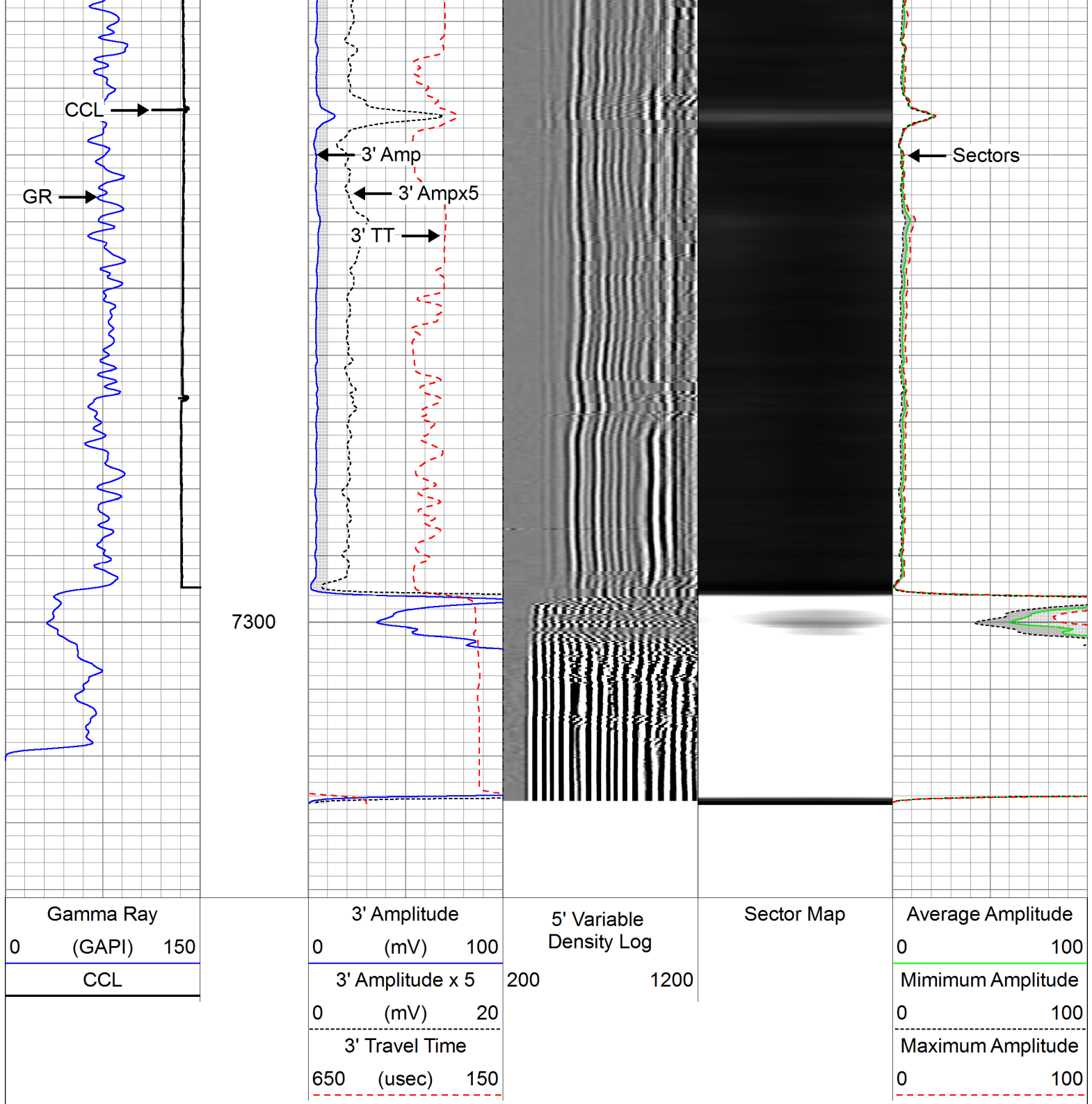










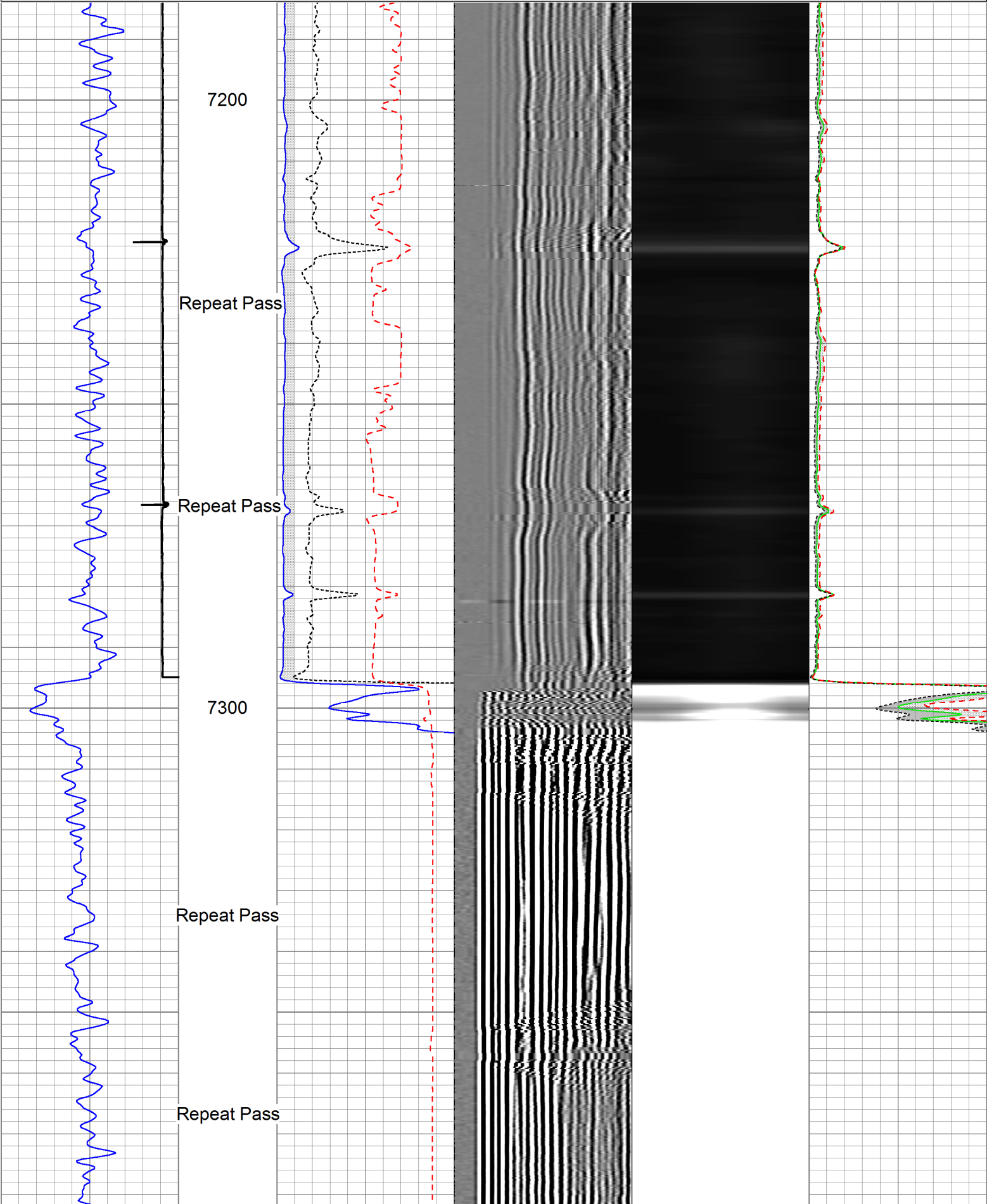


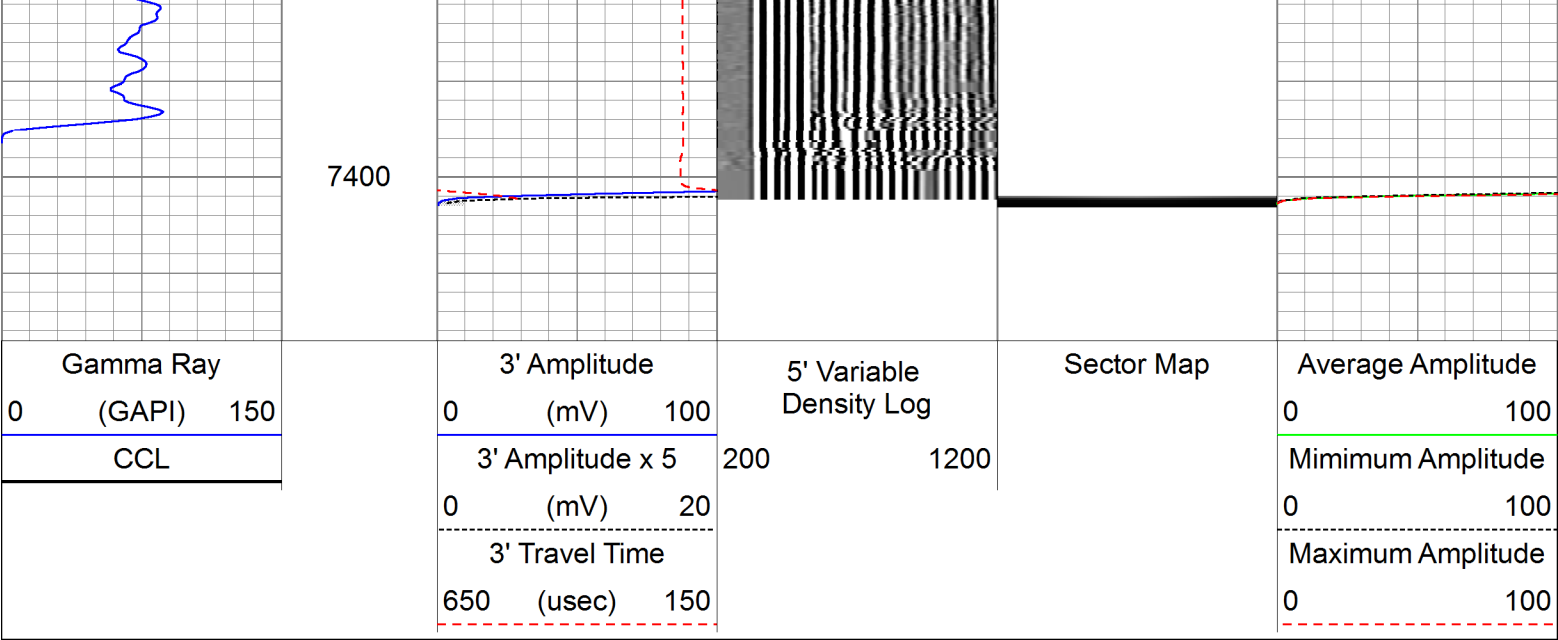
Repeat Pass

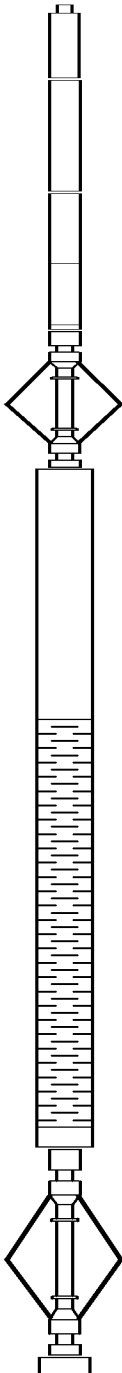
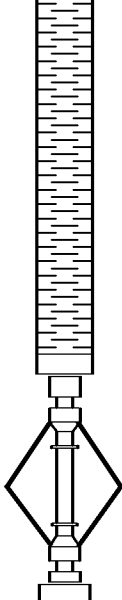
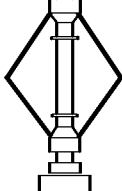
Database File: c:\warrior\data\anadarko_howard 38c-33hz\0512338030_anadarko_howard 38c-33hz_03-01-14
 Dataset Pathname: passrdv
 Presentation Format: rbl_w_te
 Dataset Creation: Tue Mar 04 15:35:24 2014 by Calc SCH 120126
 Charted by: Depth in Feet scaled 1:240

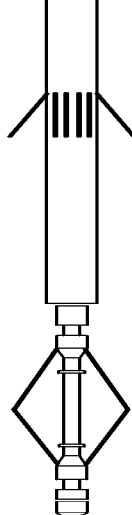


CCL	3' Amplitude x 5	200	1200	Minimum Amplitude
	0 (mV) 20			0 100
	3' Travel Time			Maximum Amplitude
	650 (usec) 150			0 100





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	22.30		CHD-AES (000001) Cable Head	1.04	1.69	2.00
			XTU-001 (000001) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			PGR-020 (000001) Production Gamma Ray	1.93	1.69	9.50
			PRC-001 (000001) Production Roller Centraliser (3 Arm)	1.92	1.69	7.00
WVF3FT	15.54		RBT-004 (1066in7) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS1	15.54					
WVFS2	15.54					
WVFS3	15.54					
WVFS4	15.54					
WVFS5	15.54					
WVFS6	15.54					
WVFS7	15.54					
WVFS8	15.54					
CBLTEMP	15.54		PRC-034 (000006) Production Roller Centraliser (4 Arm)	2.91	1.69	13.00
CBLROT	15.54					
WVF5FT	14.54					

MIT	5.30		MIT-027 (211111) Multifinger Imaging Tool (UW 40F)	4.54	2.75	61.10
TSTAMP	0.00		PRC-057 (000007) Production Roller Centraliser (4 Arm)	2.74	2.75	32.00
ITEMPX	0.00		BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
HVOLTX	0.00					
Dataset: 0512338030_anadarko_howard 38c-33hz_03-01-14_mit_rbl.db: field/well/run1/mainrdv Total Length: 26.35 ft Total Weight: 272.30 lb O.D. 3.13 in						

Calibration Report	
Database File:	c:\warrior\data\anadarko_howard 38c-33hz\0512338030_anadarko_howard 38c-33hz_03-01-14_m
Dataset Pathname:	mainrdv
Dataset Creation:	Tue Mar 04 15:30:12 2014 by Calc SCH 120126

Multi-finger Imaging Tool Calibration Report	
Serial Number:	211111
Number of Fingers:	40
Tool Model:	027

Inclinometer Calibration Report		
Performed:	Wed Nov 30 15:23:46 2005	
Calibration Angle:	45	
	Inc X	Inc Y
Vertical:	1934	1950
Finger 1 up:	1958	2277
Finger 31 up:	1593	1959
Finger 21 up:	1908	1606
Finger 11 up:	2263	1911
Sensitivity ratio:	0.998734	
X-axis angle:	274.18	
Deviation const.:	335.932	

Finger Calibration Report							
Performed:				Sat Mar 01 12:54:01 2014			
Ring size:	4	5	6	7			
(in)							
	Sens	Sens	Sens				
Finger 01:	1048 392.0	1440 380.0	1820 445.0	2265			
Finger 02:	1051 386.0	1437 382.0	1819 438.0	2257			
Finger 03:	1083 374.0	1457 384.0	1841 427.0	2268			
Finger 04:	1047 378.0	1425 395.0	1820 437.0	2257			
Finger 05:	1058 372.0	1430 397.0	1827 428.0	2255			
Finger 06:	1046 372.0	1418 409.0	1827 433.0	2260			
Finger 07:	1178 331.0	1509 372.0	1881 388.0	2269			
Finger 08:	1086 351.0	1437 416.0	1853 415.0	2268			
Finger 09:	1061 357.0	1418 426.0	1844 420.0	2264			
Finger 10:	1074 357.0	1431 432.0	1863 417.0	2280			
Finger 11:	1084 356.0	1440 435.0	1875 412.0	2287			
Finger 12:	1241 317.0	1558 385.0	1943 350.0	2293			
Finger 13:	1149 324.0	1499 422.0	1919 394.0	2299			

Finger 13:	1148	334.0	1482	430.0	1912	394.0	2306
Finger 14:	1234	316.0	1550	402.0	1952	361.0	2313
Finger 15:	1094	355.0	1449	464.0	1913	422.0	2335
Finger 16:	1183	340.0	1523	438.0	1961	386.0	2347
Finger 17:	1118	356.0	1474	457.0	1931	422.0	2353
Finger 18:	1094	366.0	1460	462.0	1922	434.0	2356
Finger 19:	1105	365.0	1470	459.0	1929	437.0	2366
Finger 20:	1184	359.0	1543	431.0	1974	415.0	2389
Finger 21:	1161	373.0	1534	446.0	1980	430.0	2410
Finger 22:	1156	374.0	1530	437.0	1967	429.0	2396
Finger 23:	1138	371.0	1509	444.0	1953	450.0	2403
Finger 24:X	1291	342.0	1633	377.0	2010	389.0	2399
Finger 25:	1247	361.0	1608	390.0	1998	401.0	2399
Finger 26:	1292	356.0	1648	362.0	2010	376.0	2386
Finger 27:	1273	356.0	1629	364.0	1993	398.0	2391
Finger 28:	1301	362.0	1663	350.0	2013	389.0	2402
Finger 29:	1295	355.0	1650	342.0	1992	384.0	2376
Finger 30:	1276	357.0	1633	340.0	1973	402.0	2375
Finger 31:	1289	370.0	1659	337.0	1996	401.0	2397
Finger 32:	1299	360.0	1659	320.0	1979	385.0	2364
Finger 33:	1132	396.0	1528	371.0	1899	458.0	2357
Finger 34:	1191	385.0	1576	349.0	1925	425.0	2350
Finger 35:X	1265	377.0	1642	307.0	1949	417.0	2366
Finger 36:	1224	371.0	1595	328.0	1923	404.0	2327
Finger 37:	1118	396.0	1514	356.0	1870	441.0	2311
Finger 38:	1130	386.0	1516	347.0	1863	428.0	2291
Finger 39:	1053	396.0	1449	368.0	1817	455.0	2272
Finger 40:	1065	389.0	1454	366.0	1820	442.0	2262

Segmented Cement Bond Log Calibration Report

Serial Number: 1066in7
Tool Model: 004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 295.291 ft

Master Calibration, performed Sat Mar 01 13:07:13 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.004	0.718	0.800	62.165	85.866	0.486
5FT	-0.002	0.717	0.800	62.165	85.256	0.999
S1	0.004	0.681	0.000	100.000	147.652	-0.541
S2	0.002	0.704	0.000	100.000	142.569	-0.343
S3	0.004	0.725	0.000	100.000	138.657	-0.498
S4	0.002	0.746	0.000	100.000	134.483	-0.328
S5	0.004	0.747	0.000	100.000	134.551	-0.493
S6	0.004	0.740	0.000	100.000	135.758	-0.484
S7	0.004	0.728	0.000	100.000	138.020	-0.500
S8	0.004	0.696	0.000	100.000	144.544	-0.535

Gamma Ray Calibration Report

Serial Number: 000001
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	Howard 38C-33HZ
Field	Wattenberg
County	Weld
State	Colorado