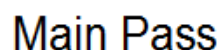




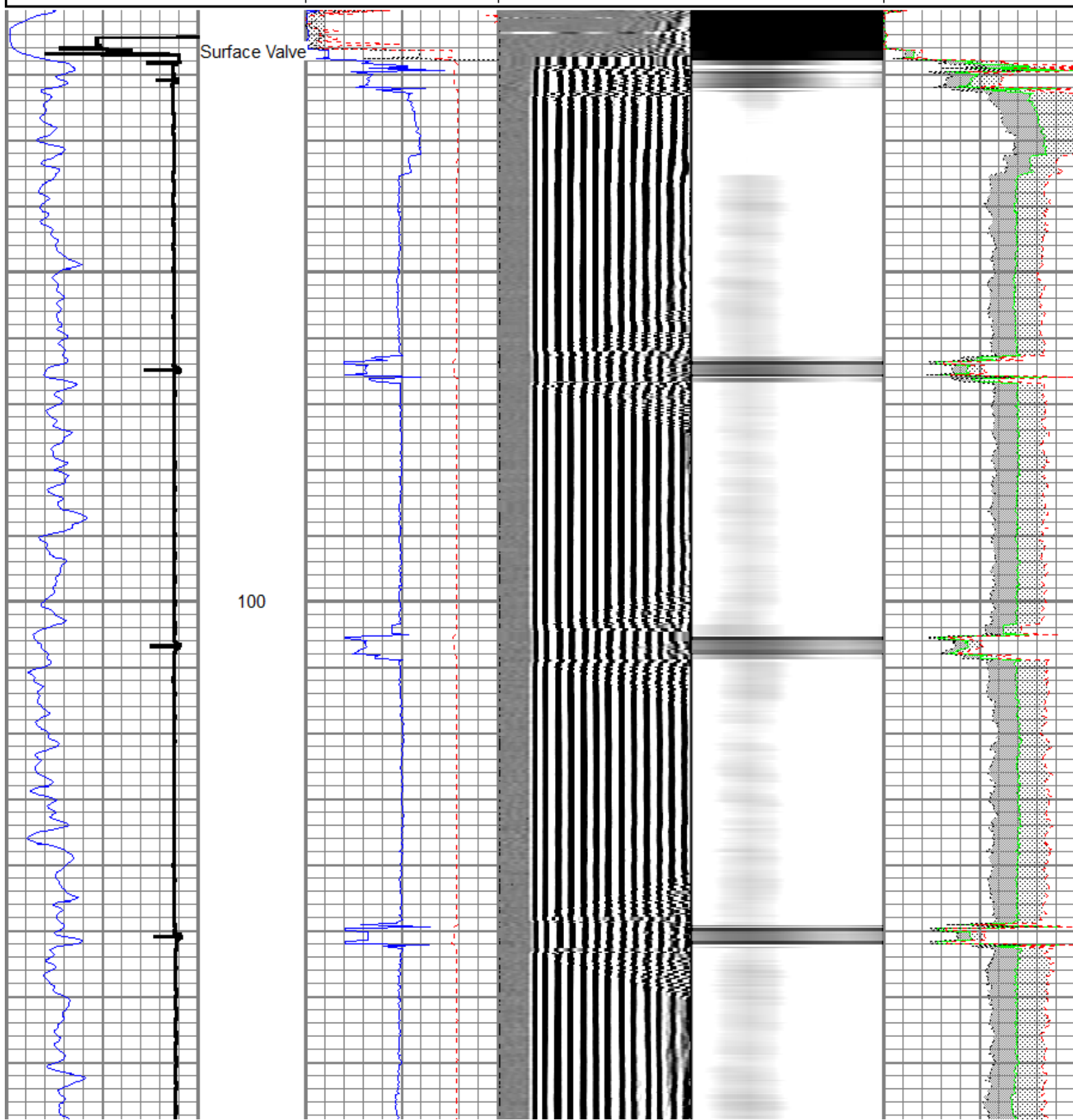
<<< Fold Here >>>
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible 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. Depth reference to Casing Tally reported Top of Liner at 7360'. Adjusted .20' for liner top at 7360' from a KB zero RCBL-CIL ran at 2800 PSI surface induced pressure. Estimated Cement Top recorded at 410'
Thank you for choosing FMC Technologies Completion Services!!

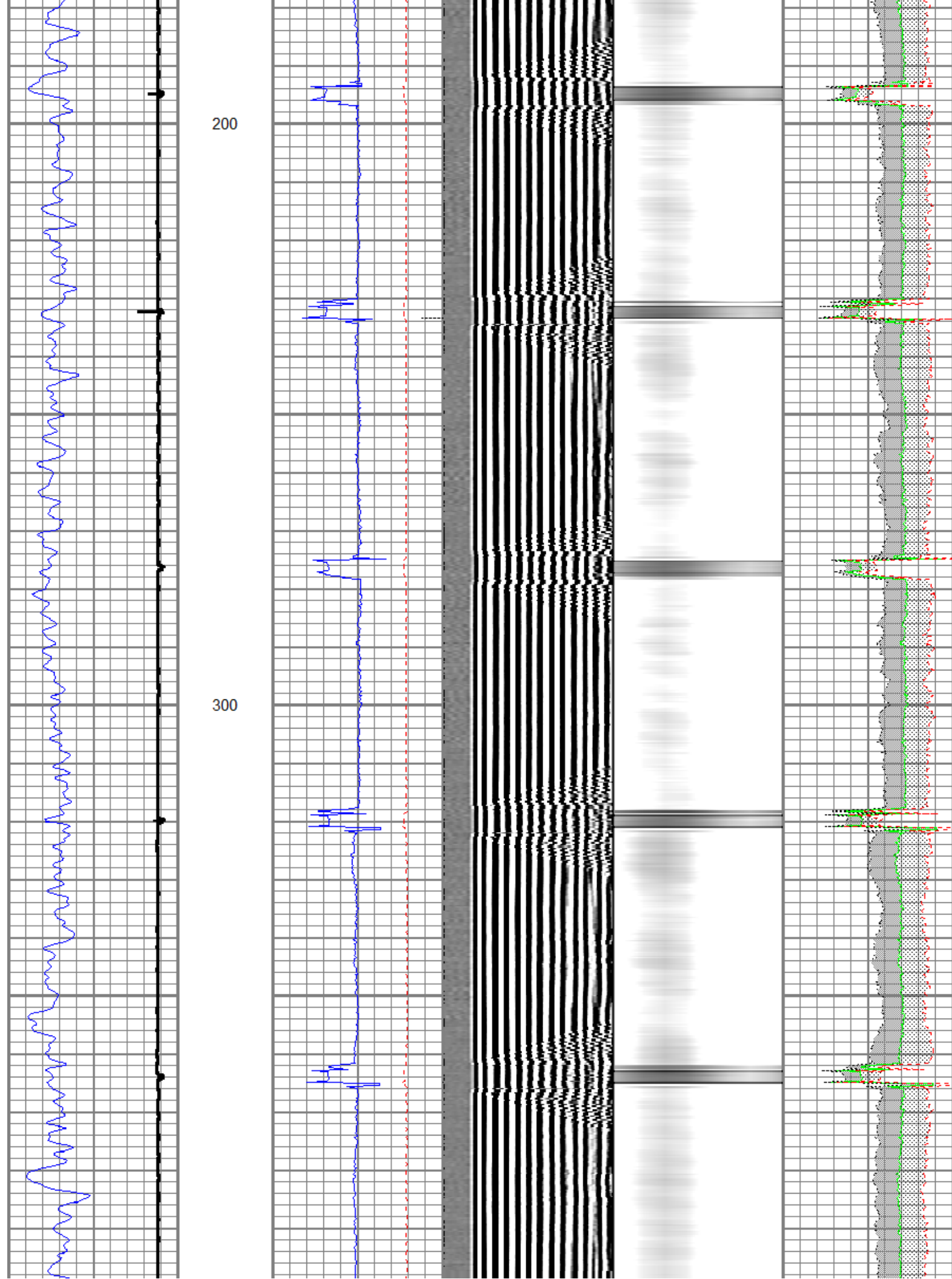


Recorded with 2800 PSI Surface induced Pressure

Database File: anadarko_howard 30c-28hz_20-nov-2013_rcbl-mit.db
Dataset Pathname: pass3
Presentation Format: rib
Dataset Creation: Wed Nov 20 13:08:09 2013 by Log Sondex V7.03
Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	120	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
	CCL		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



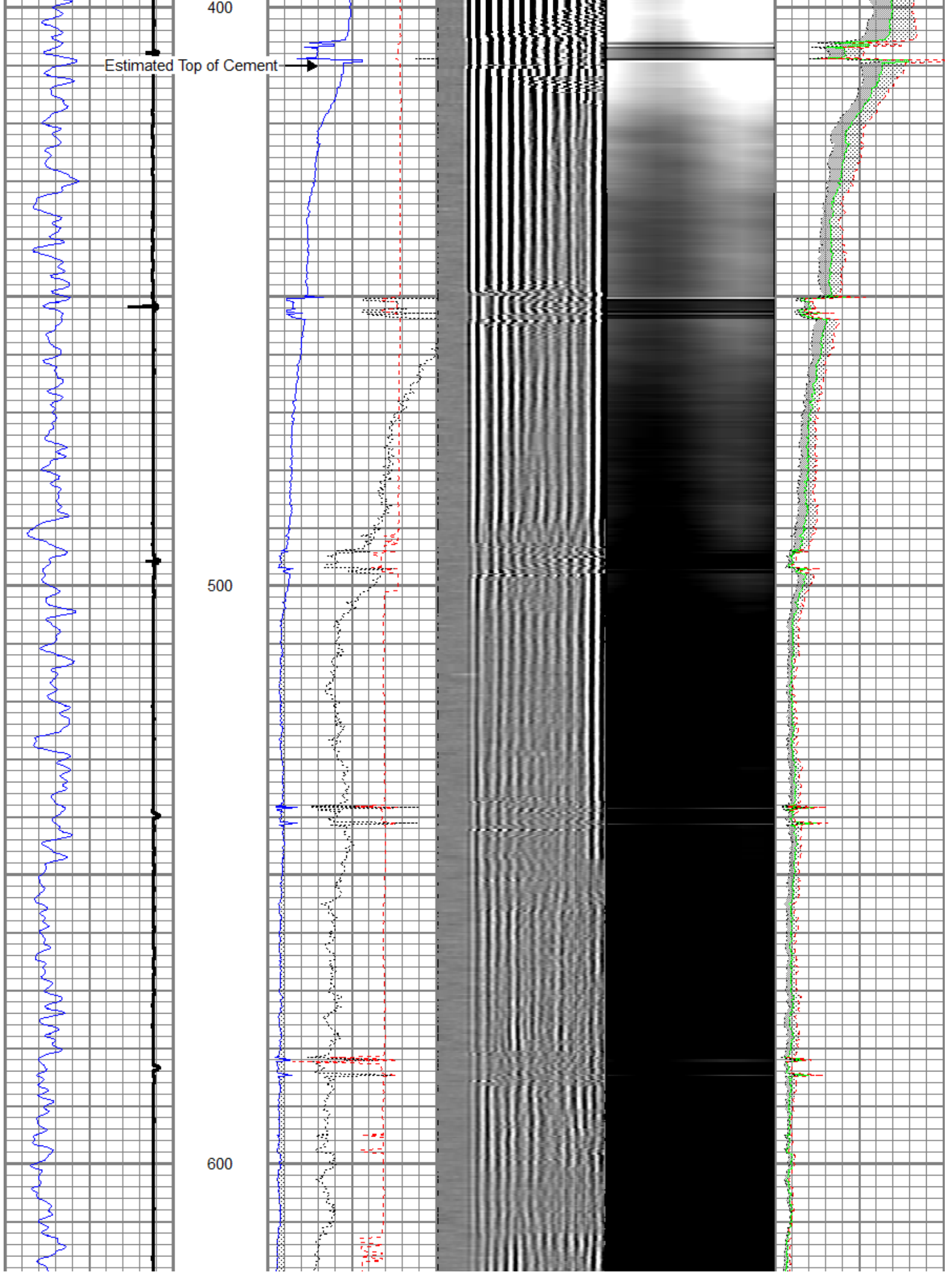


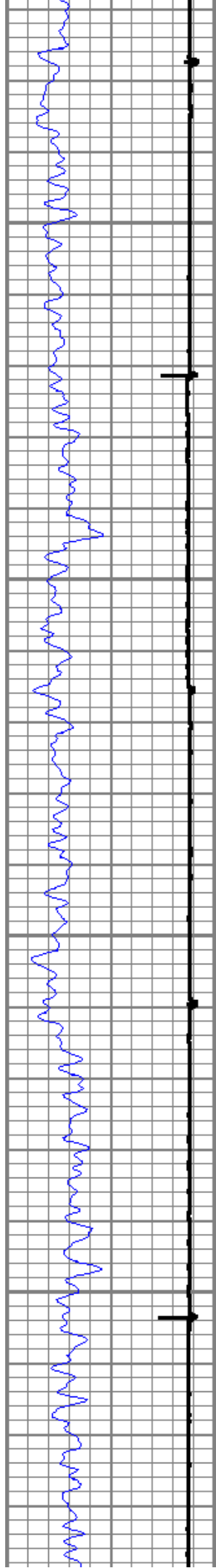
400

Estimated Top of Cement

500

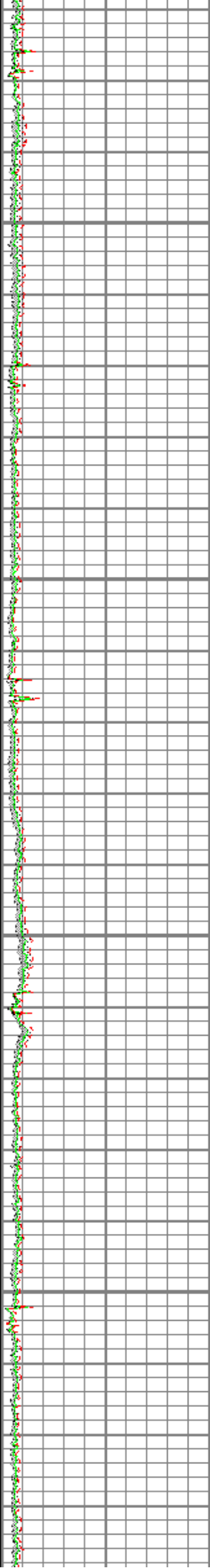
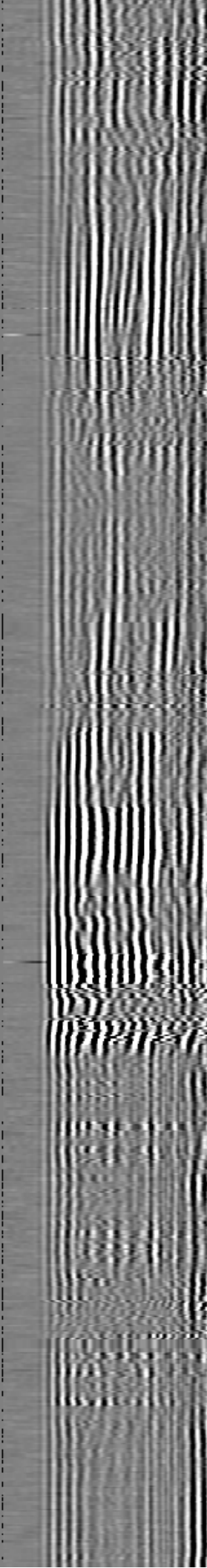
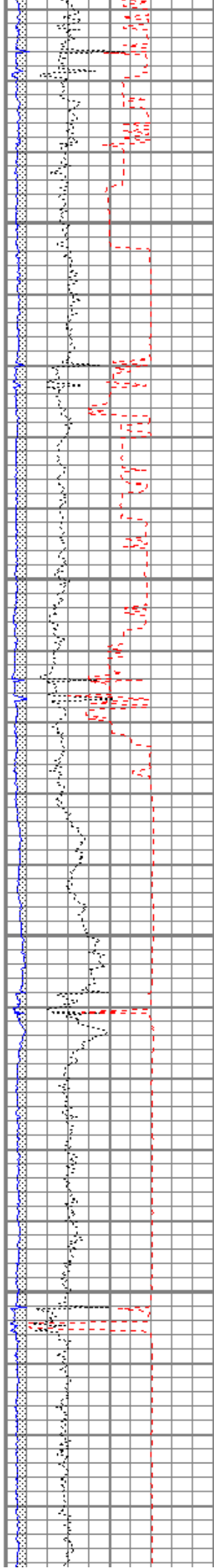
600

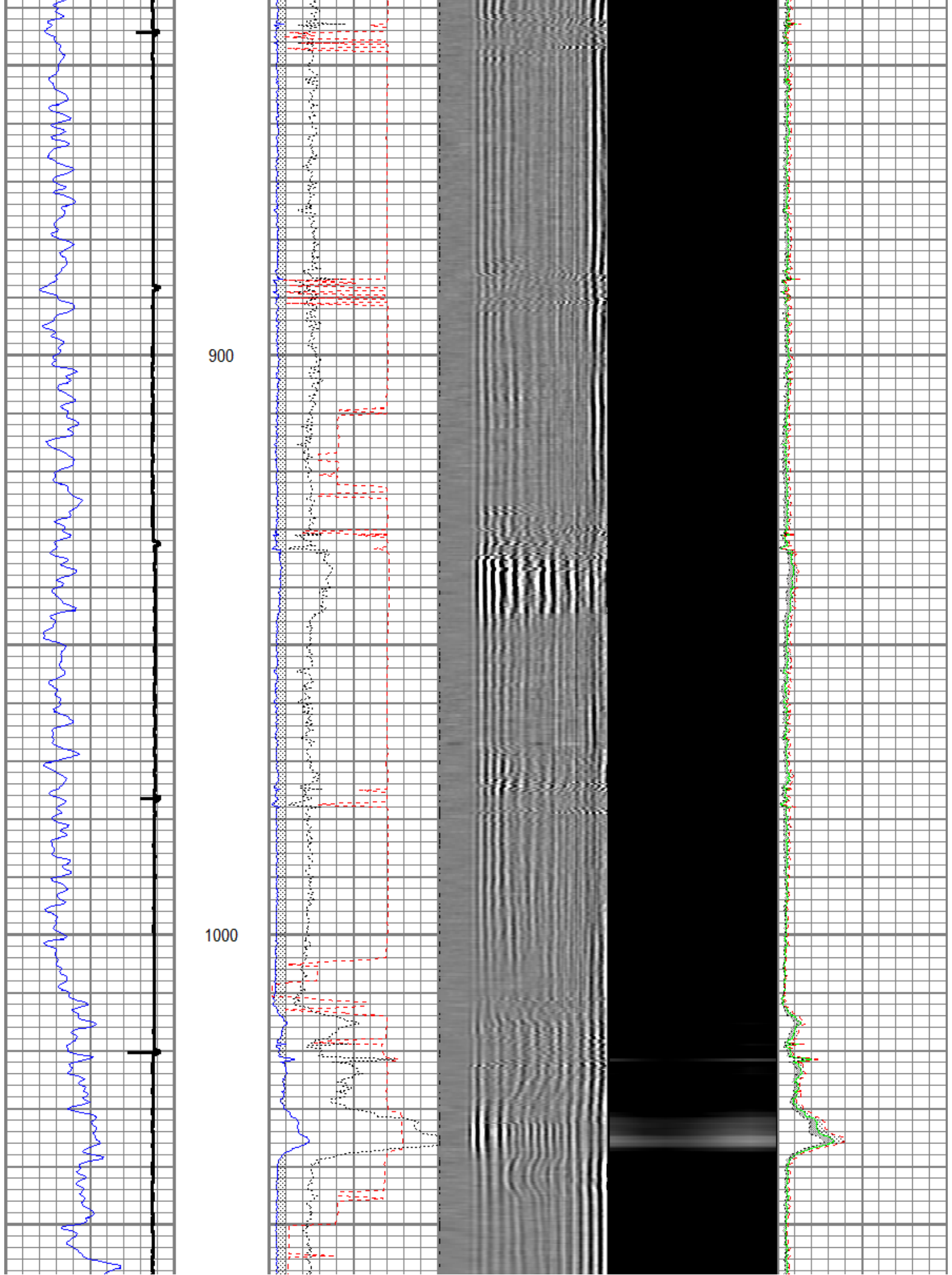


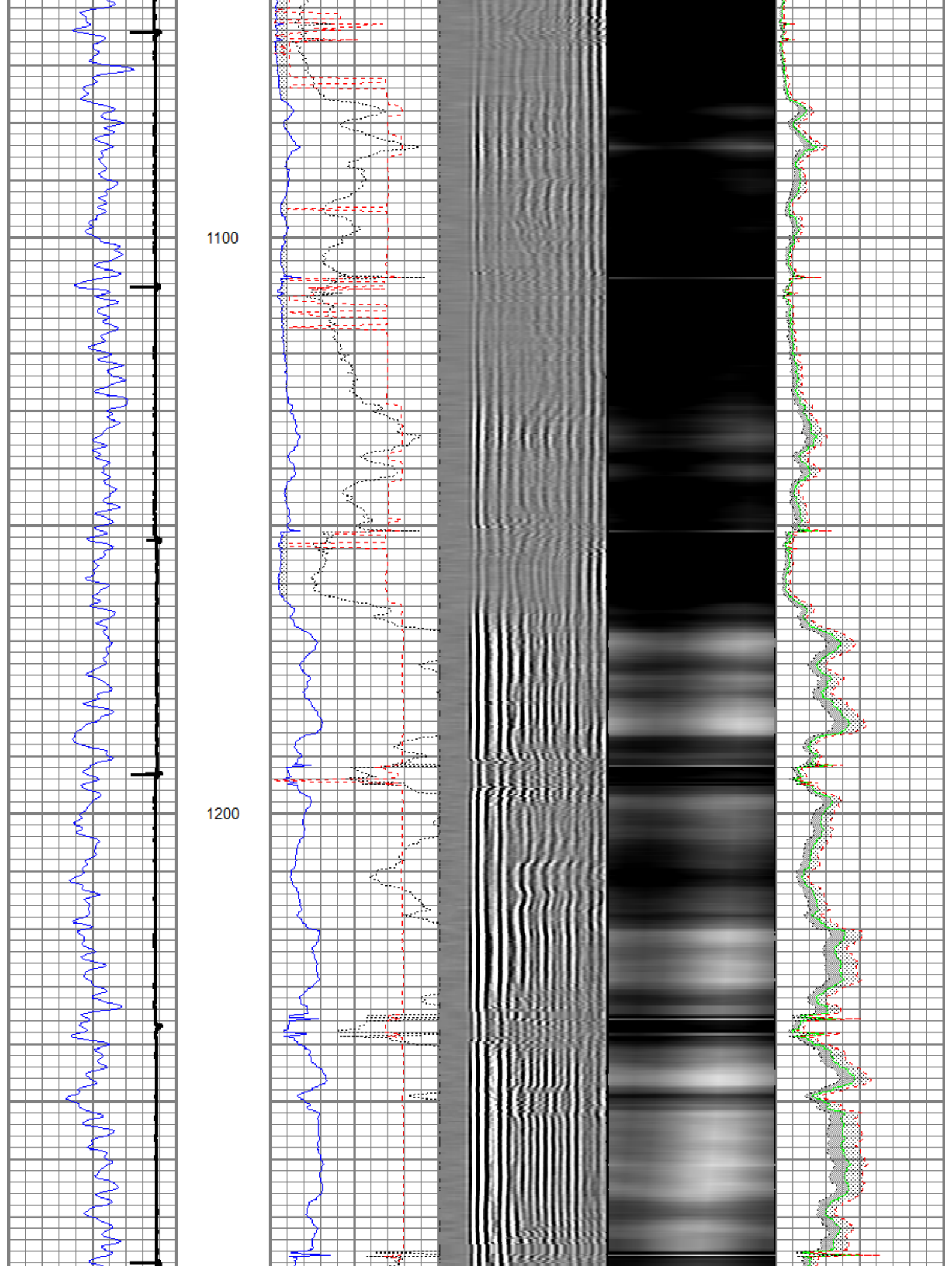


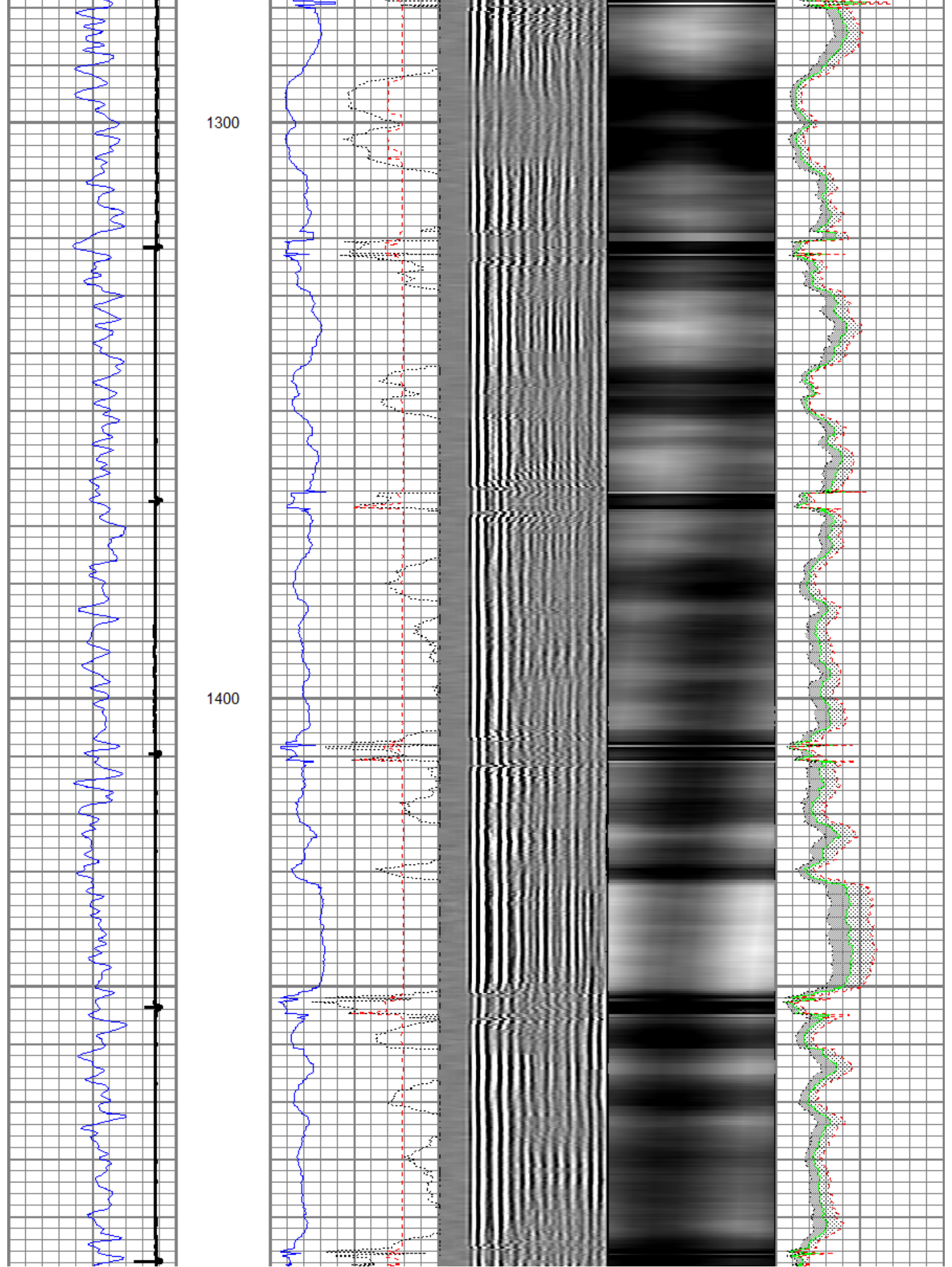
700

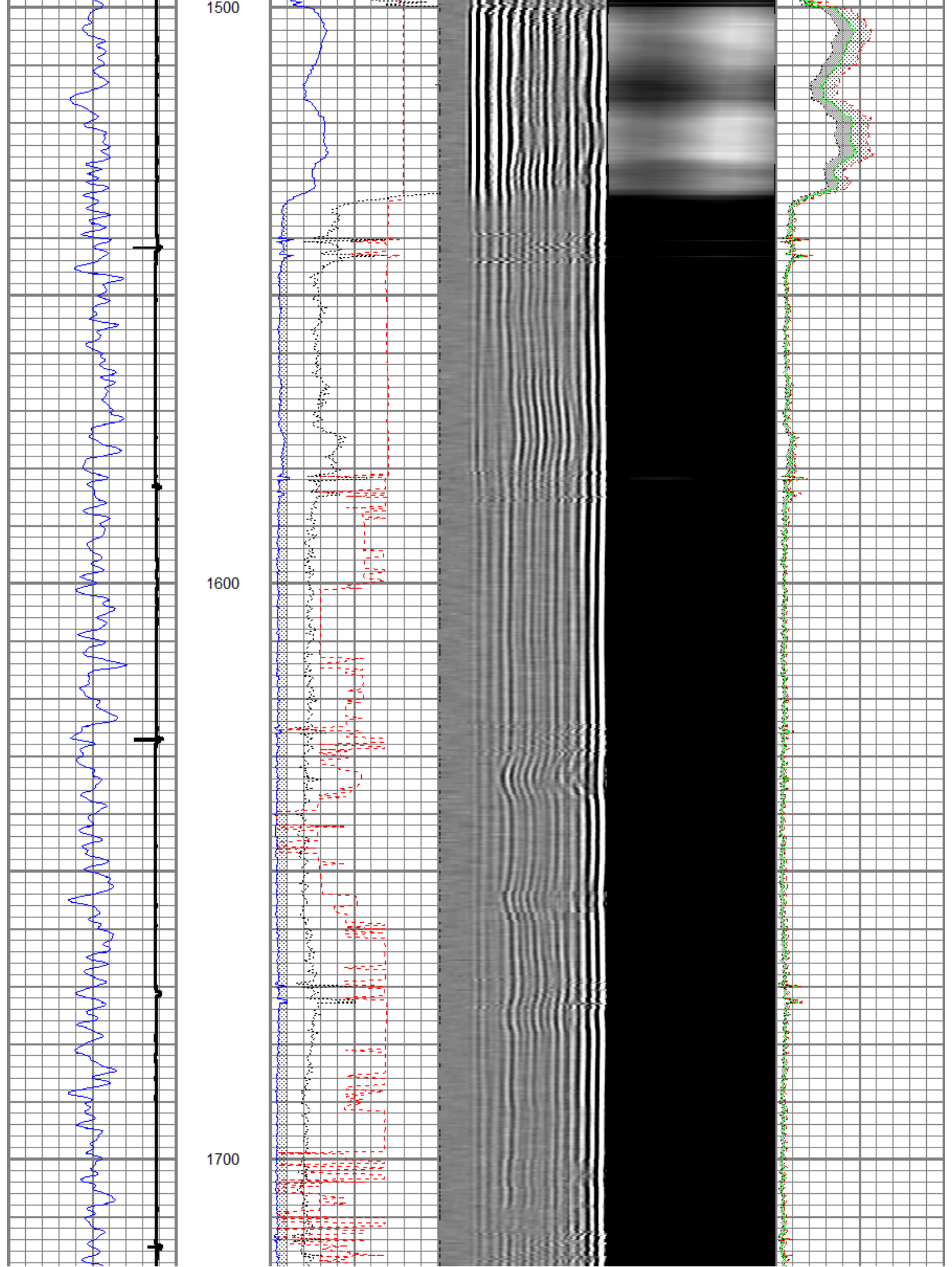
800

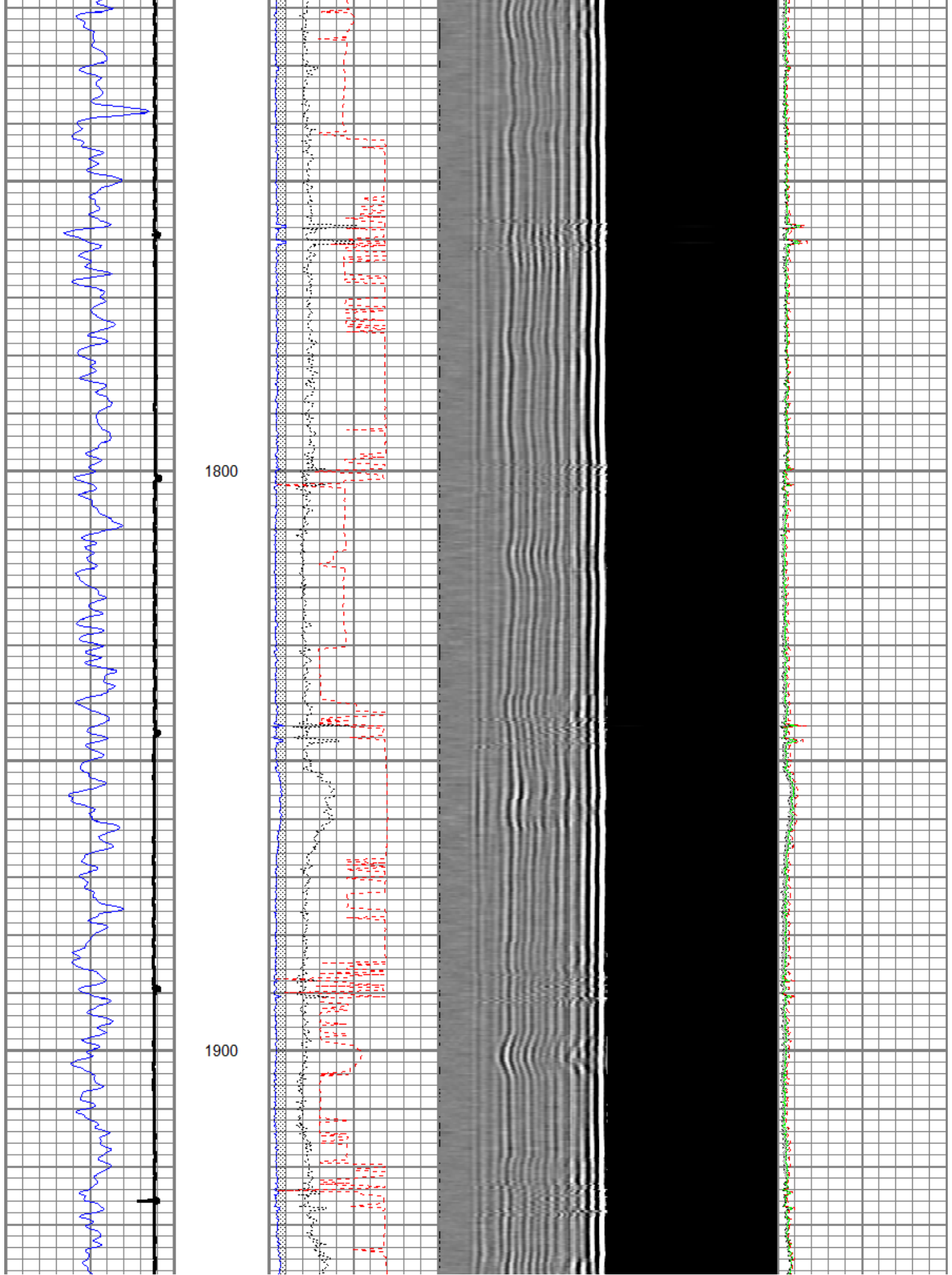


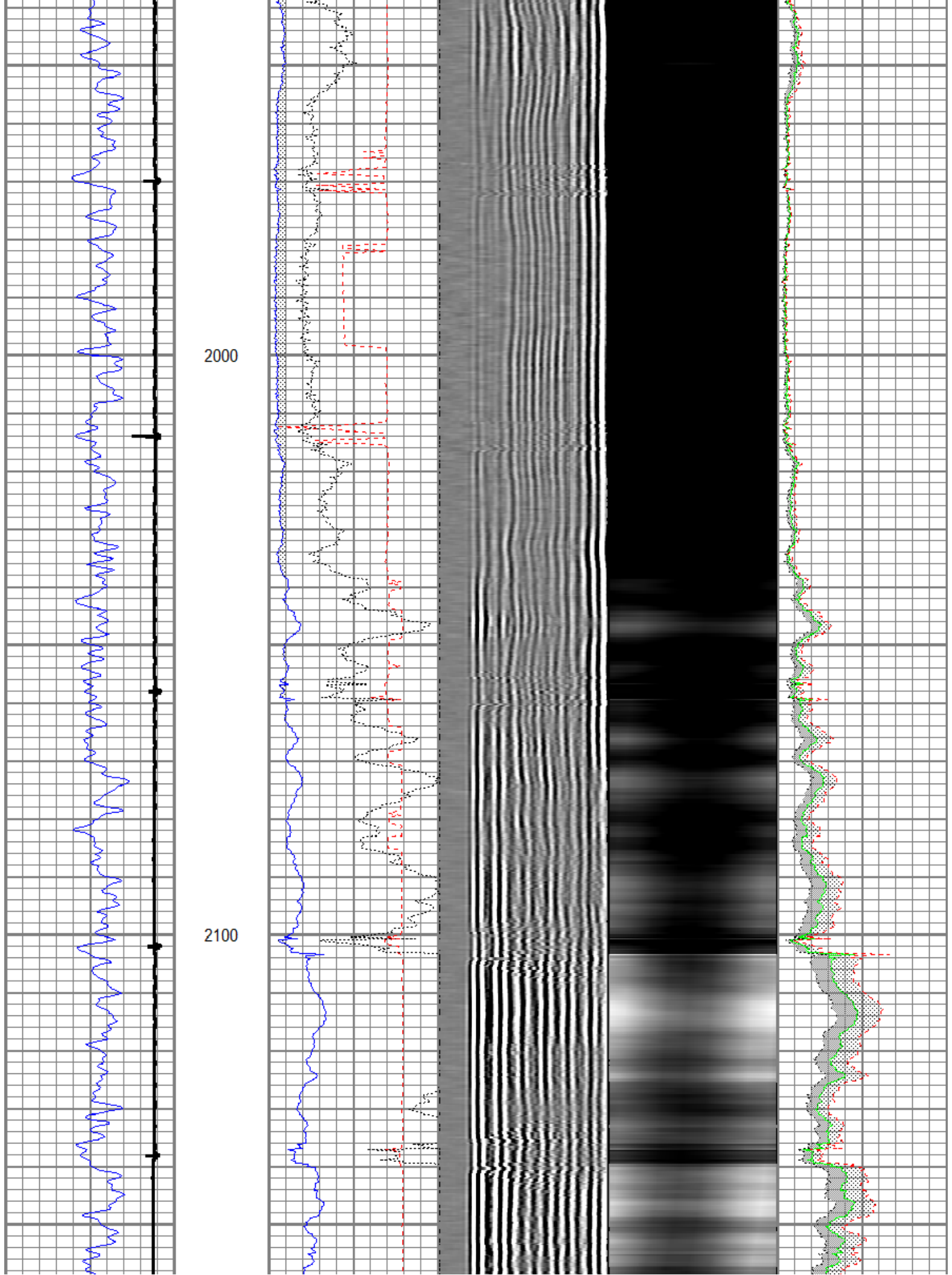


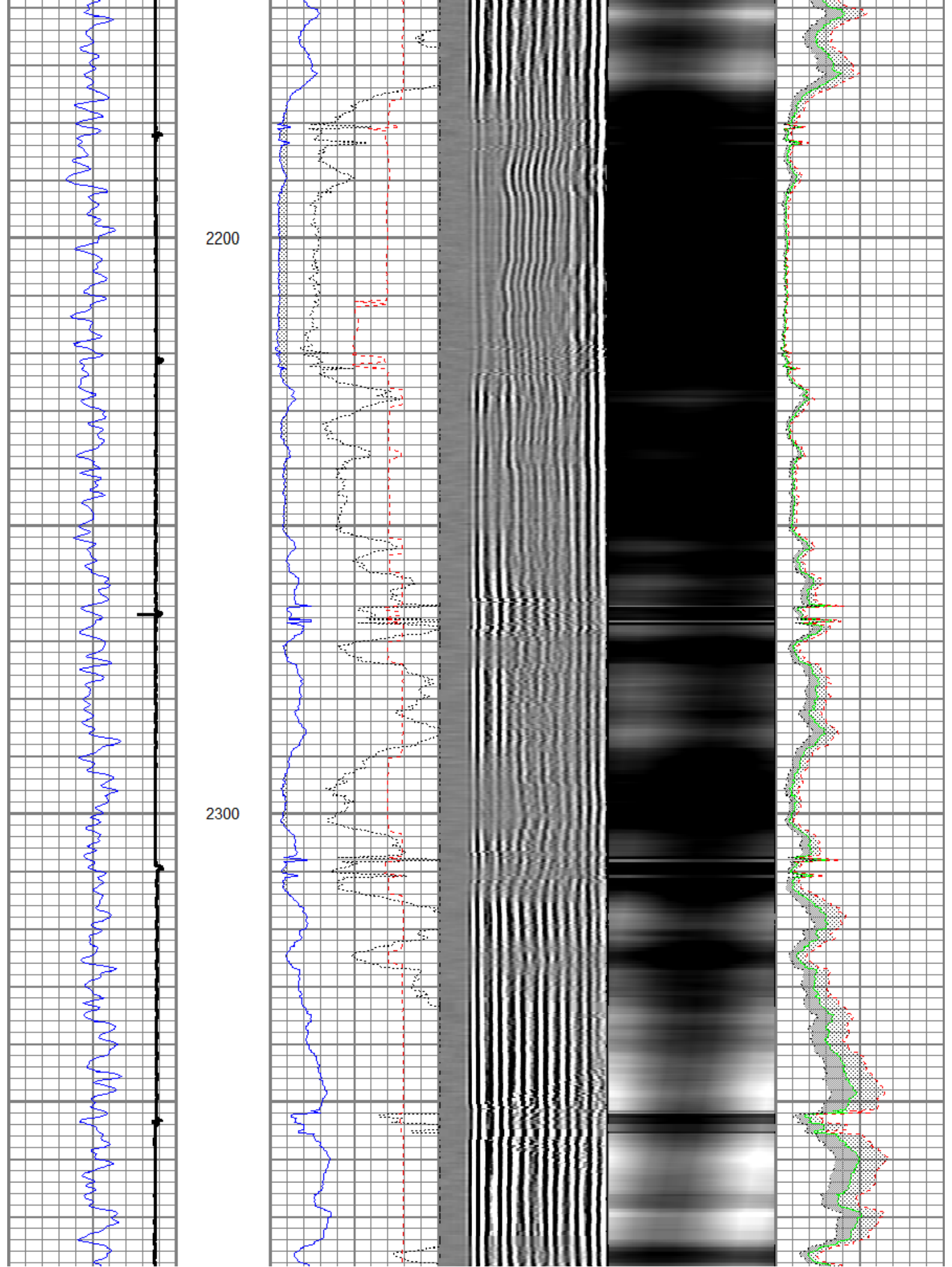


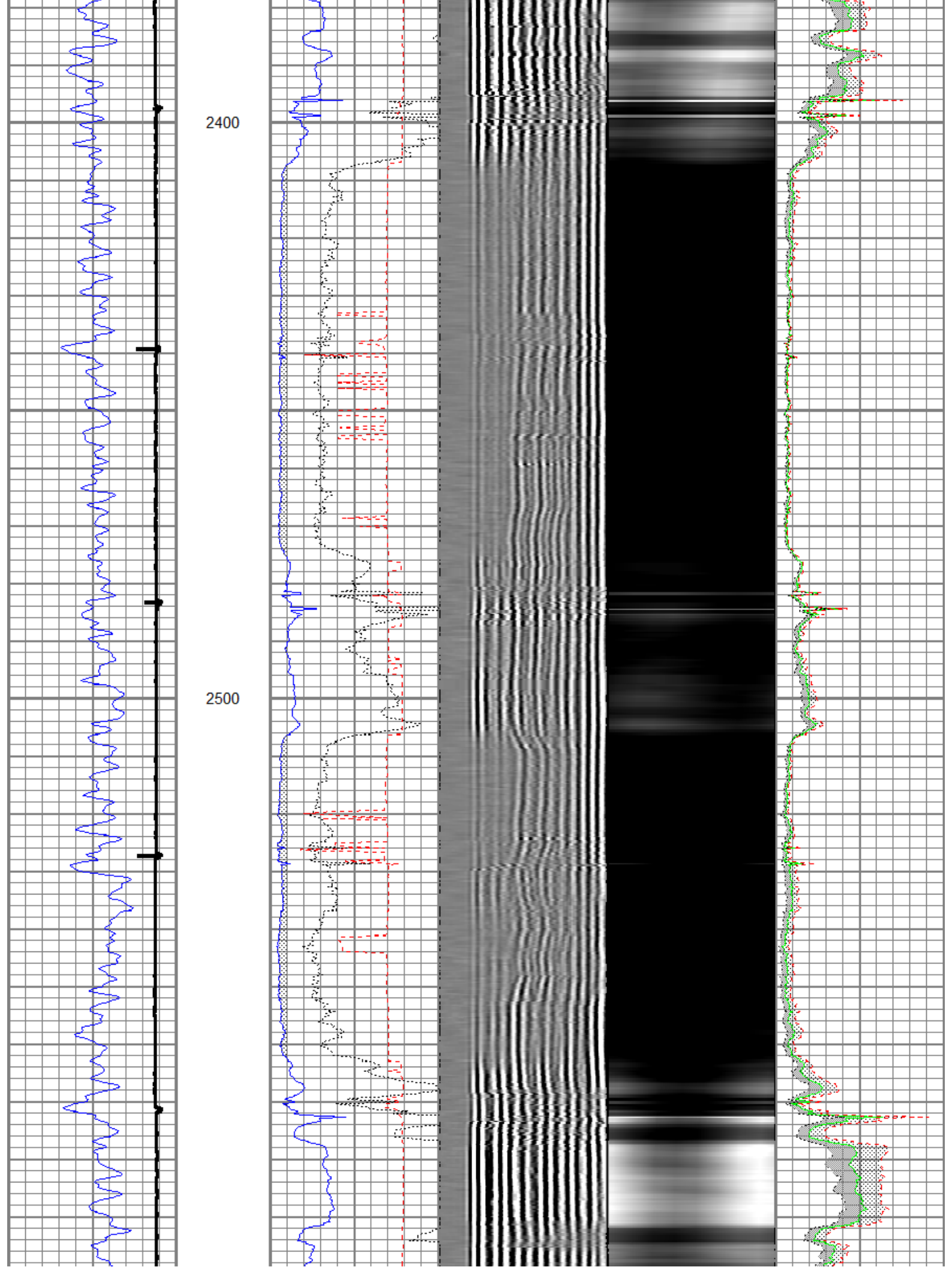


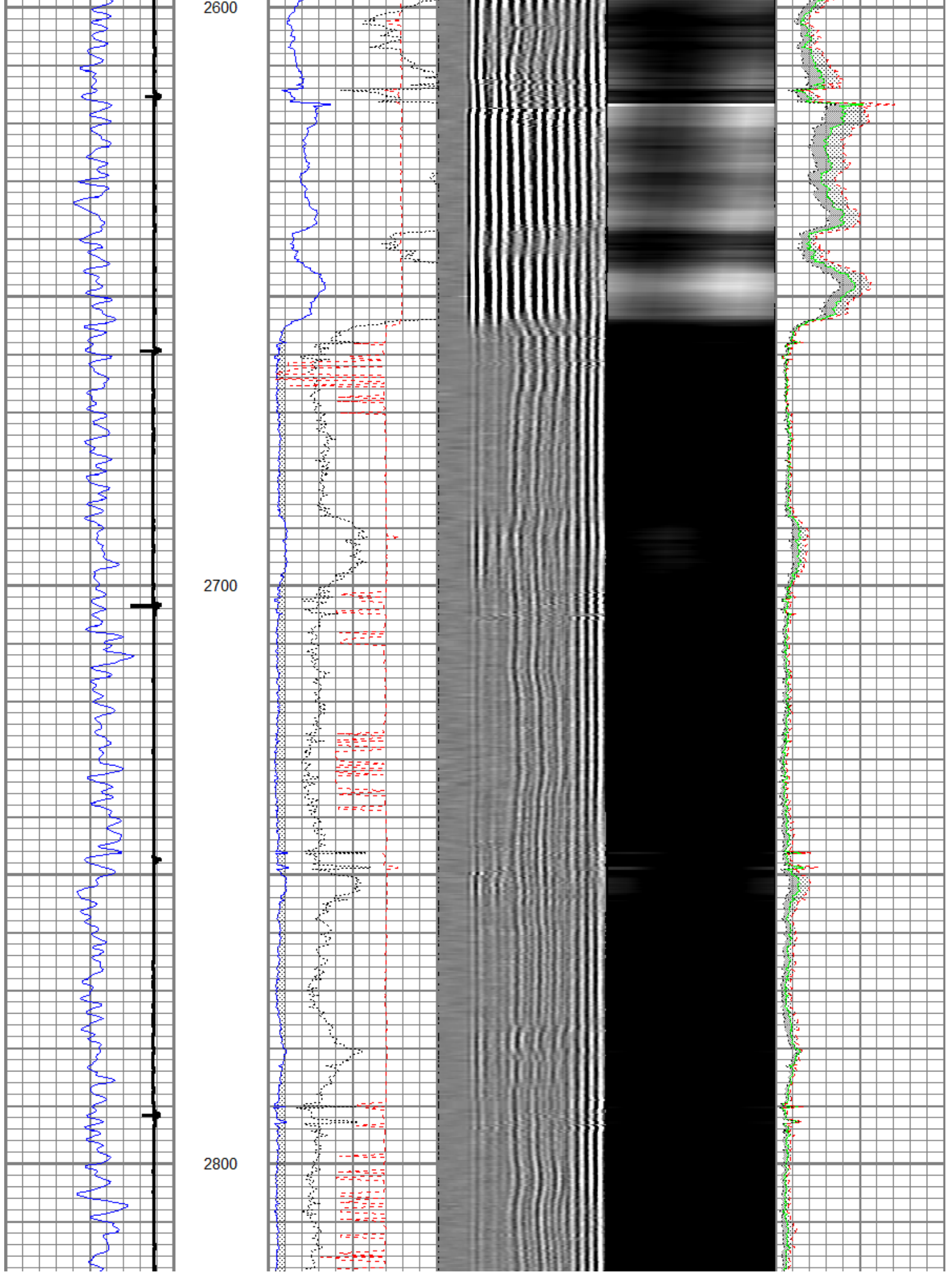


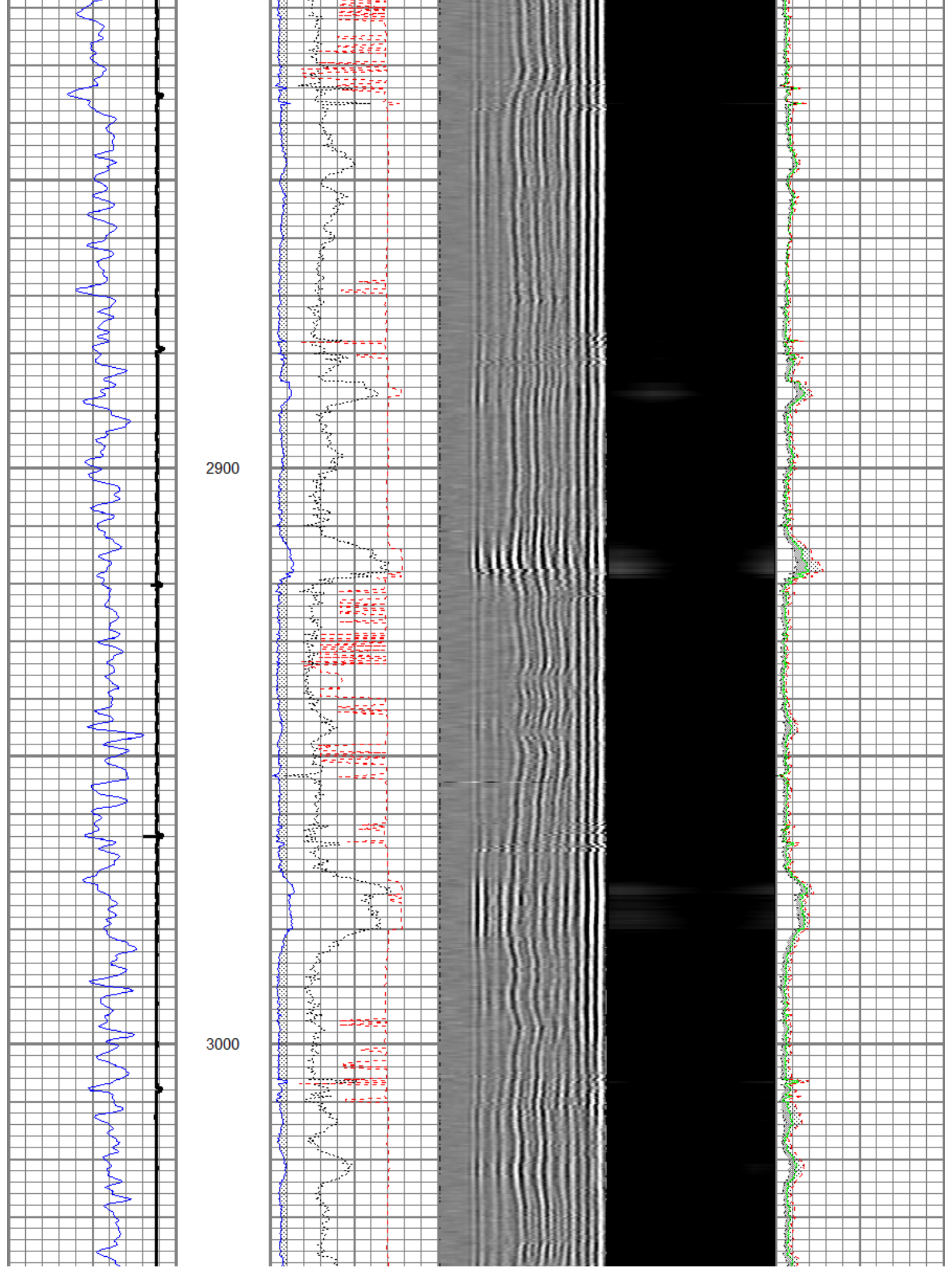


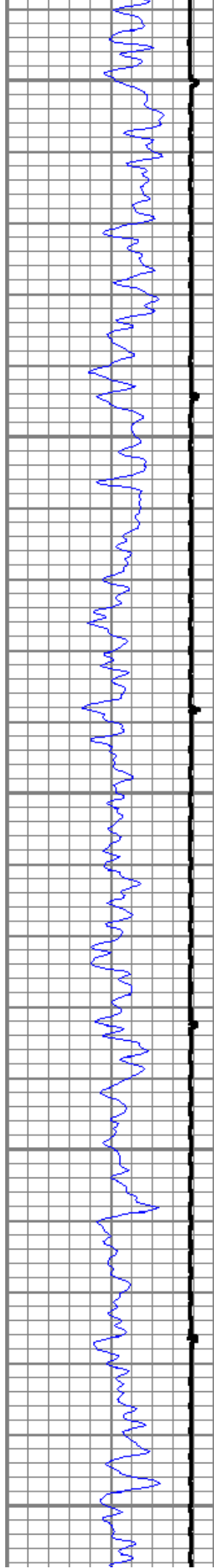






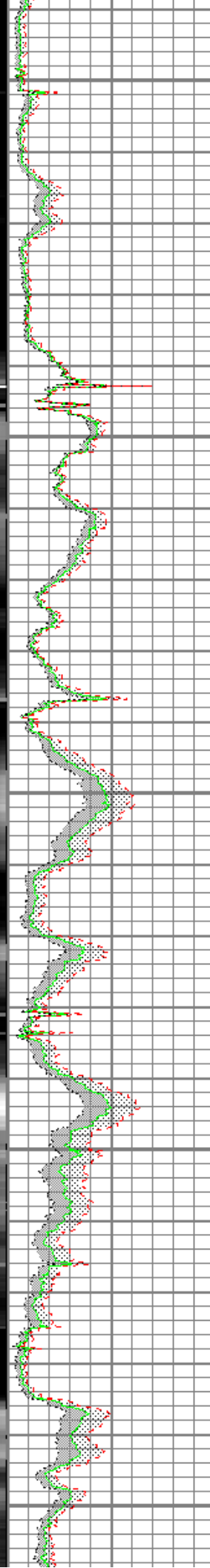
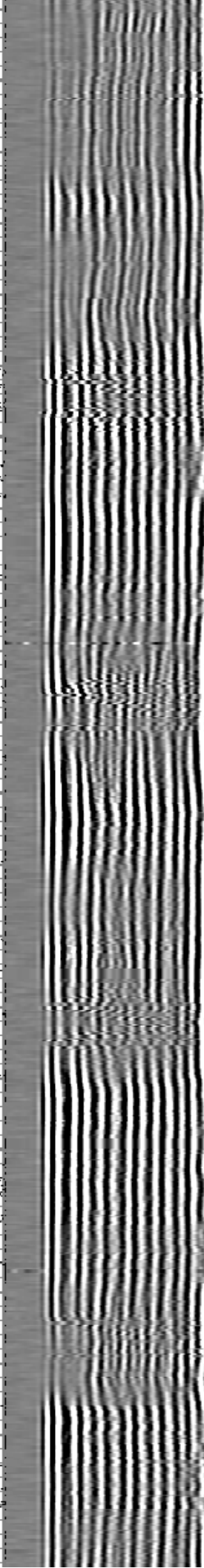
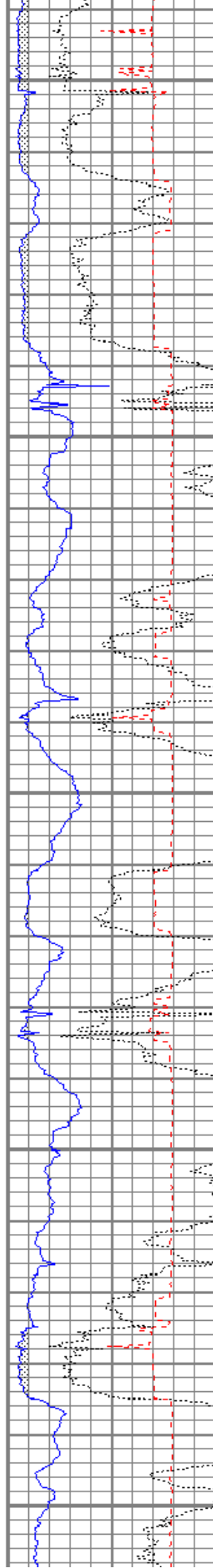


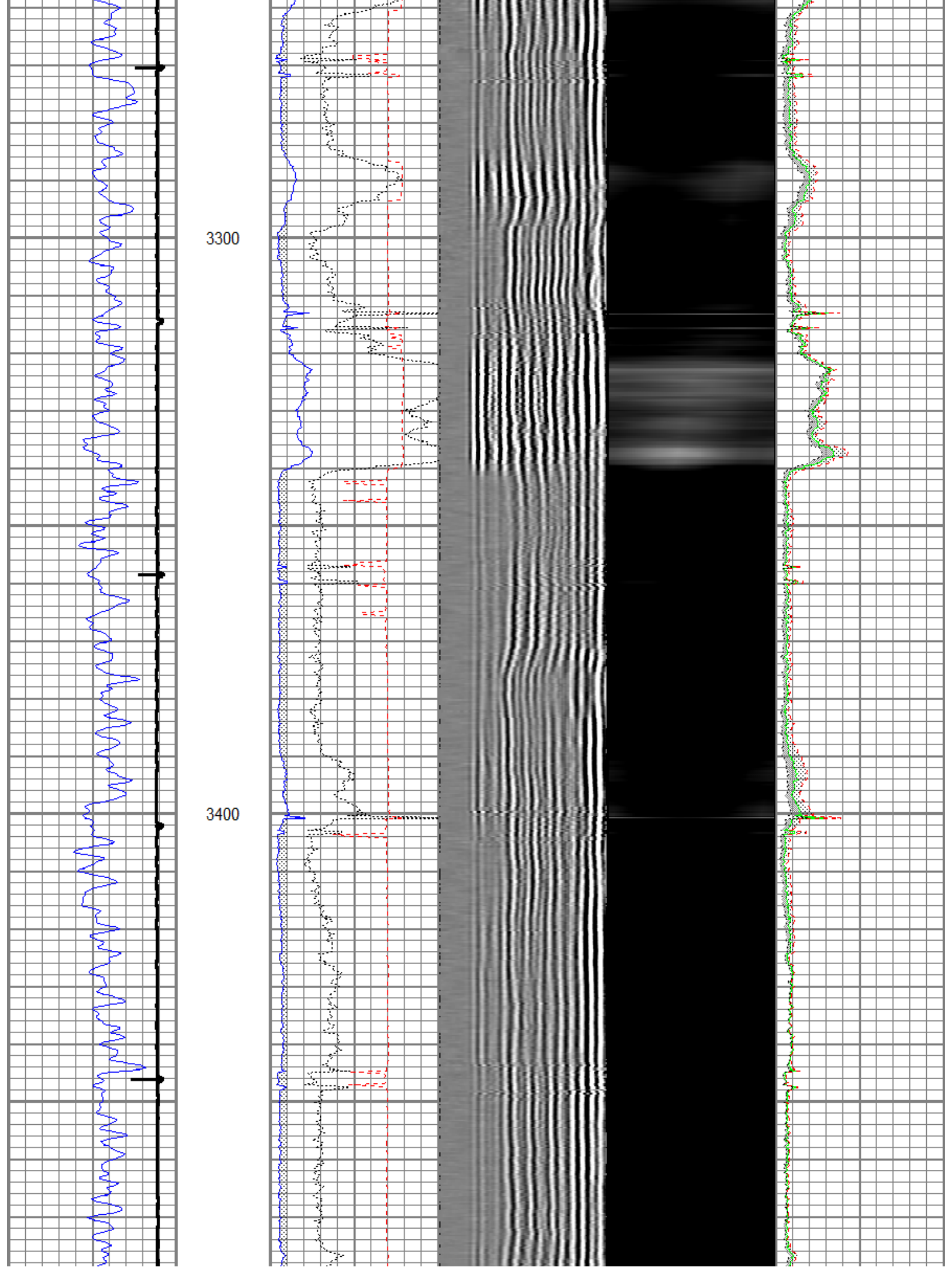


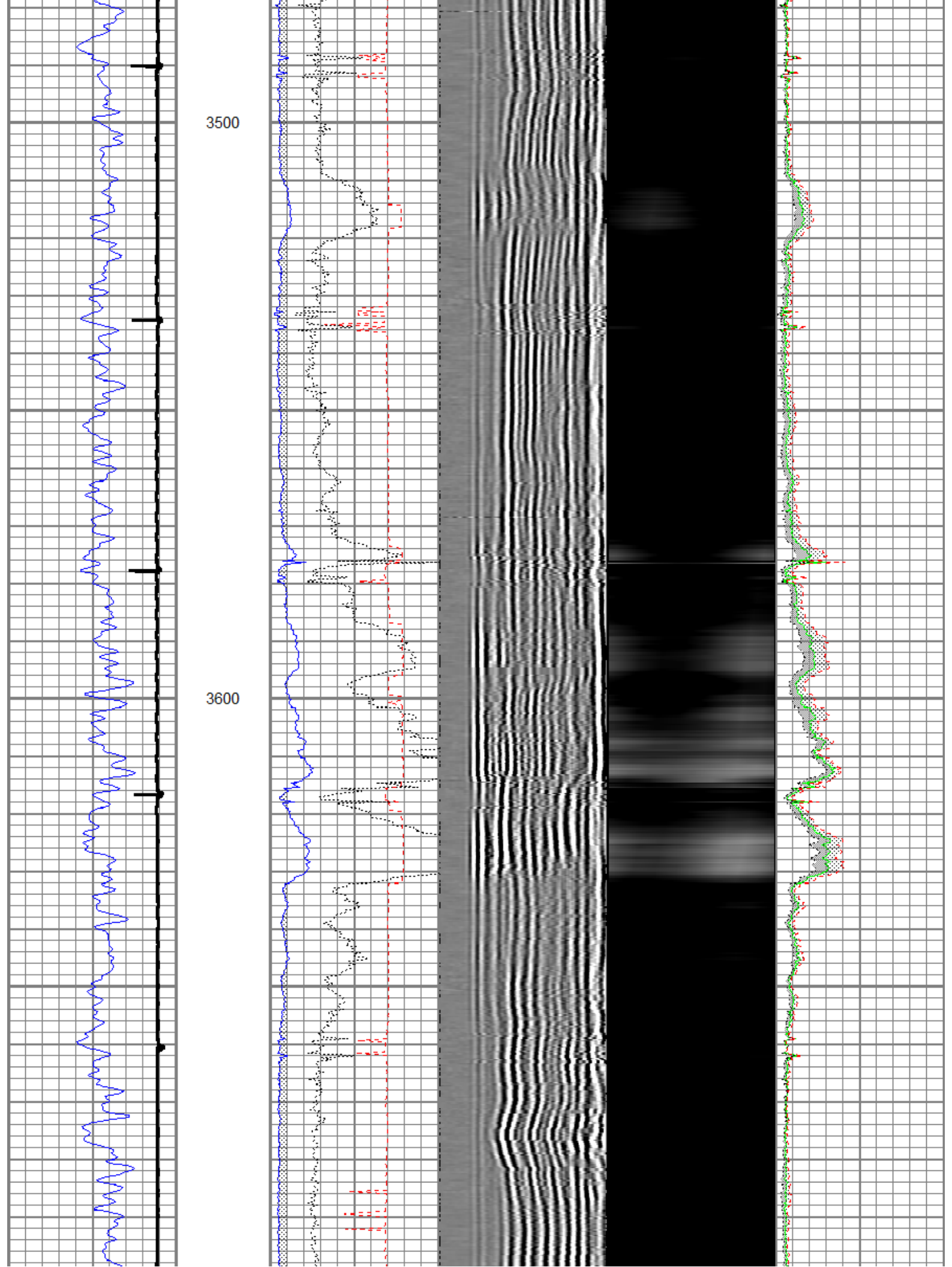


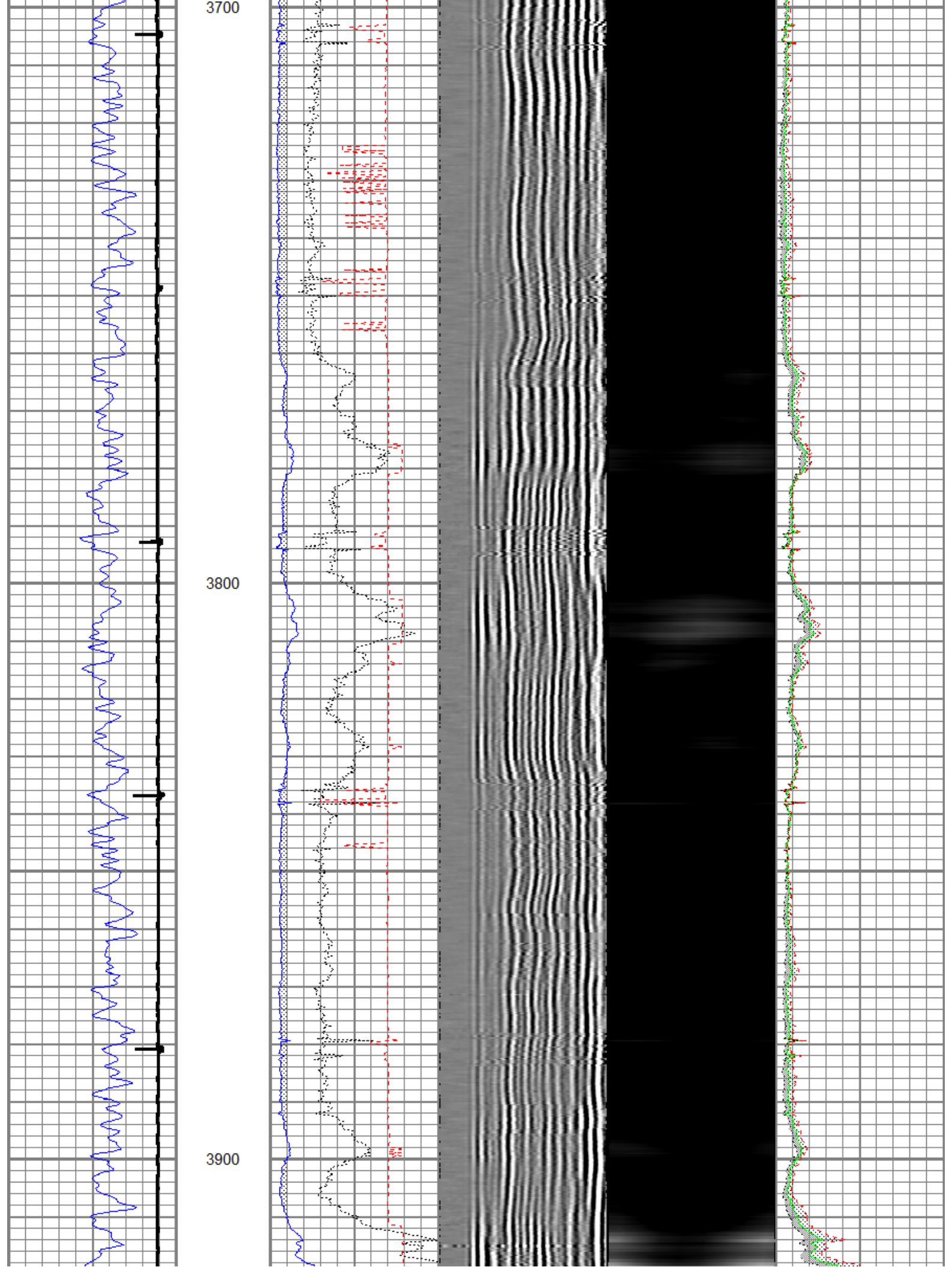
3100

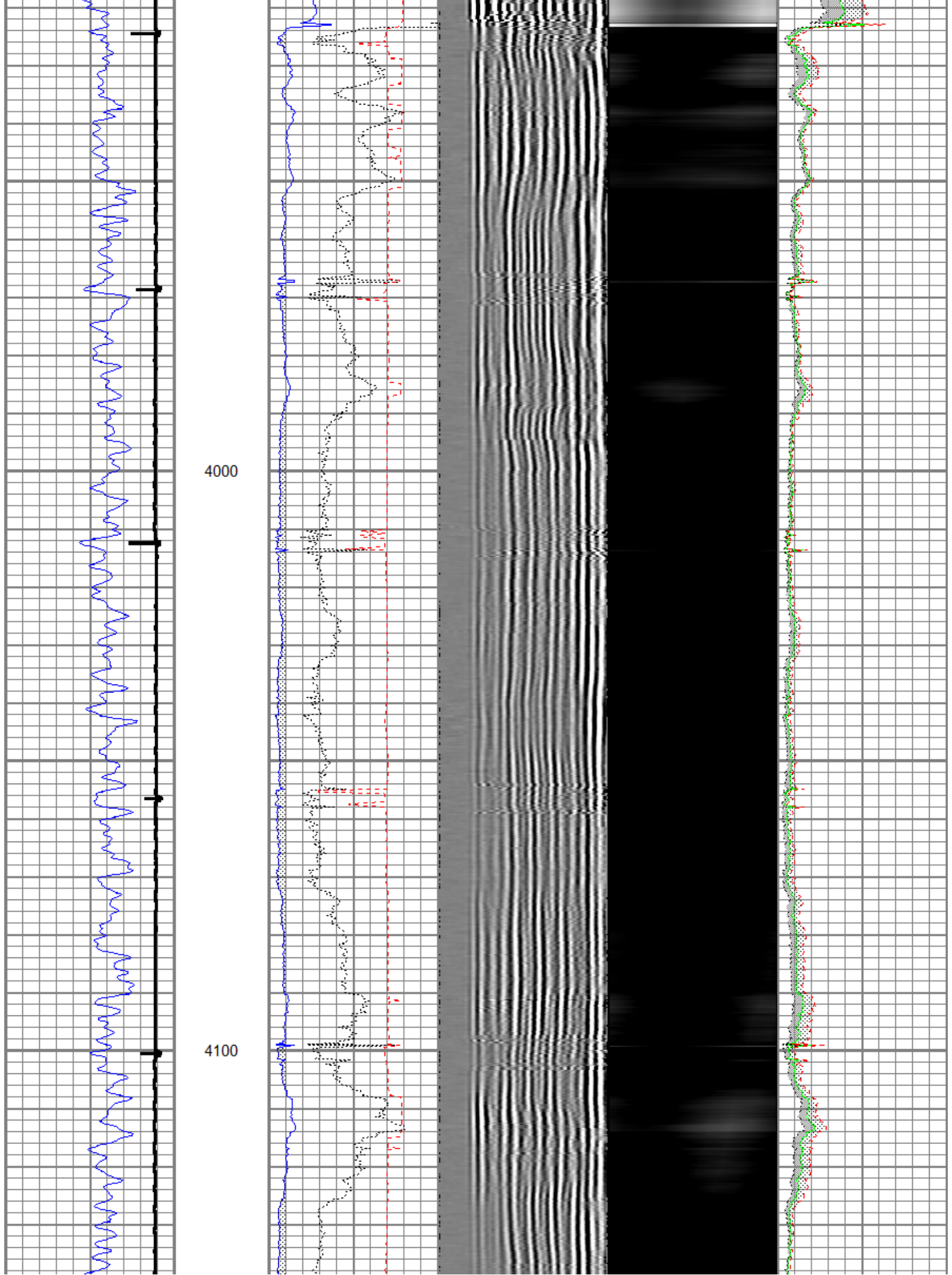
3200

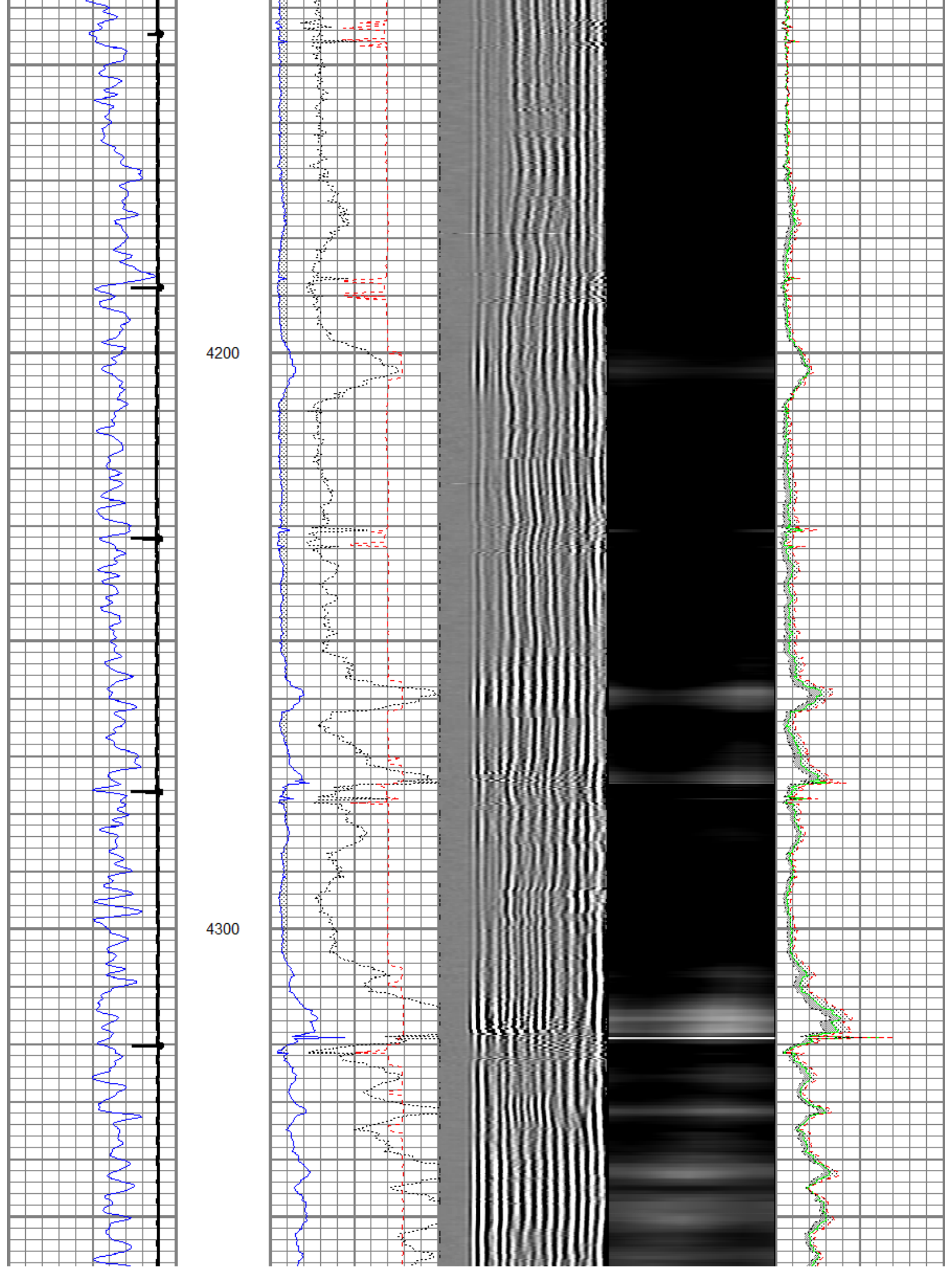


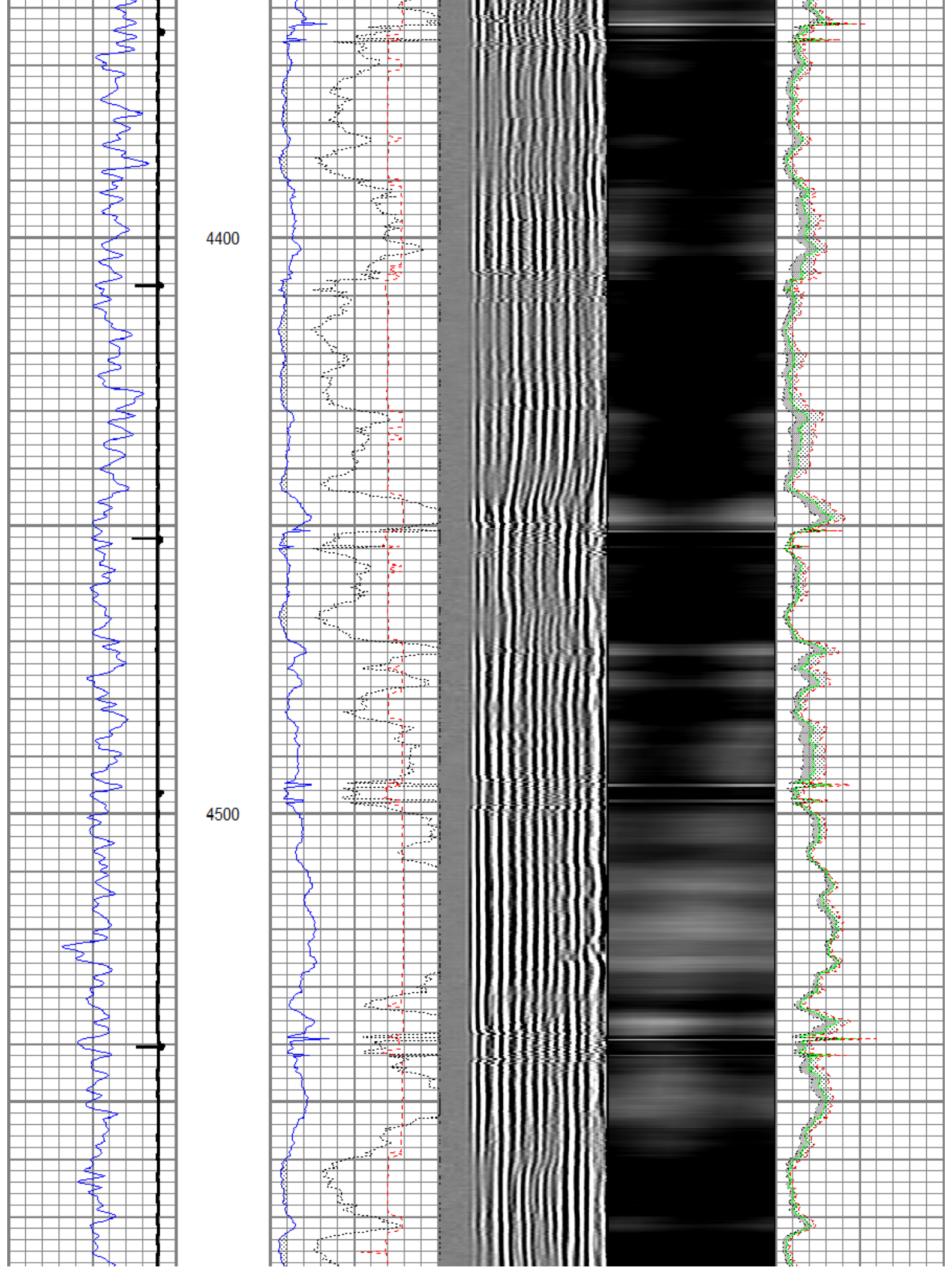


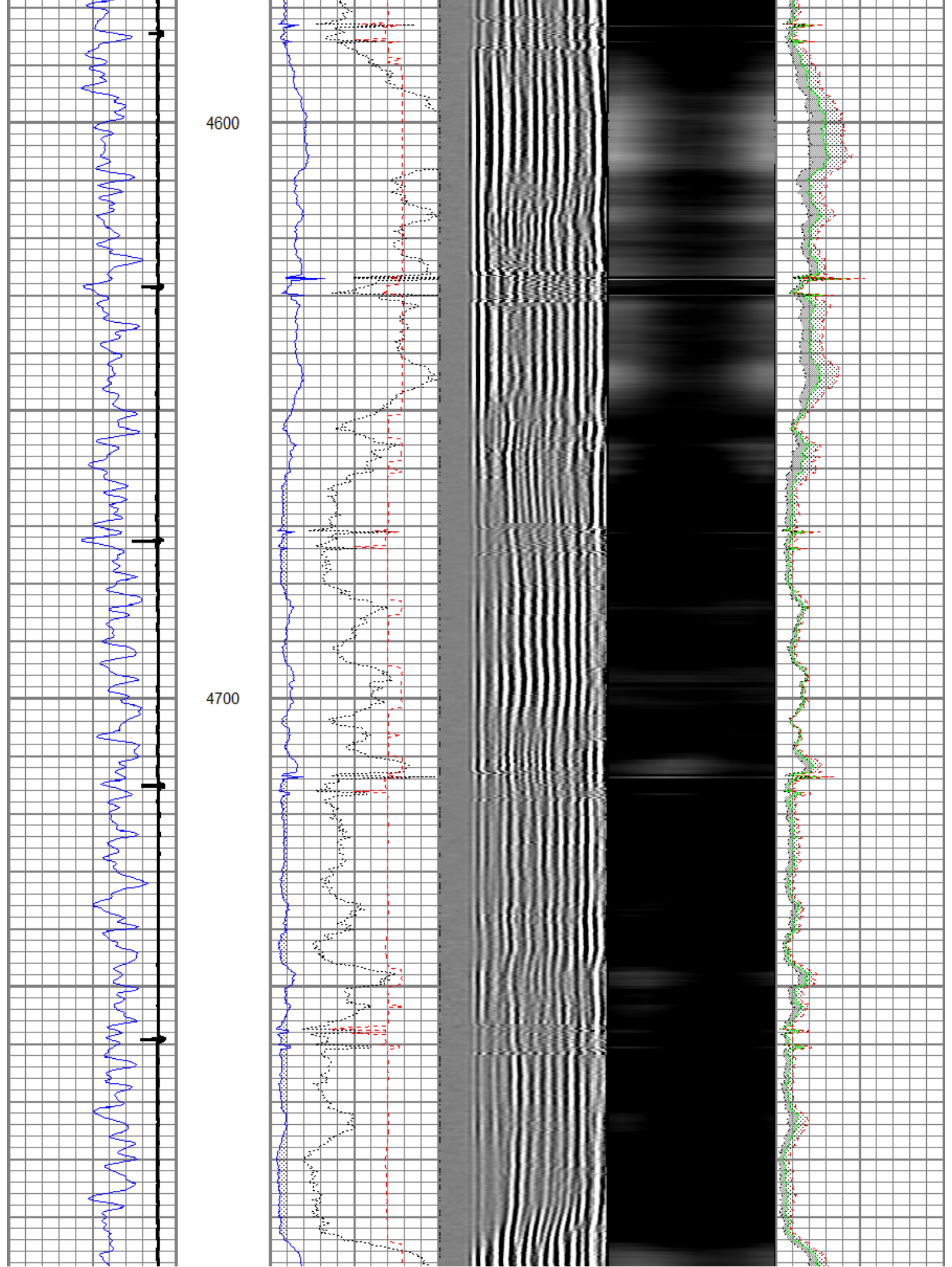


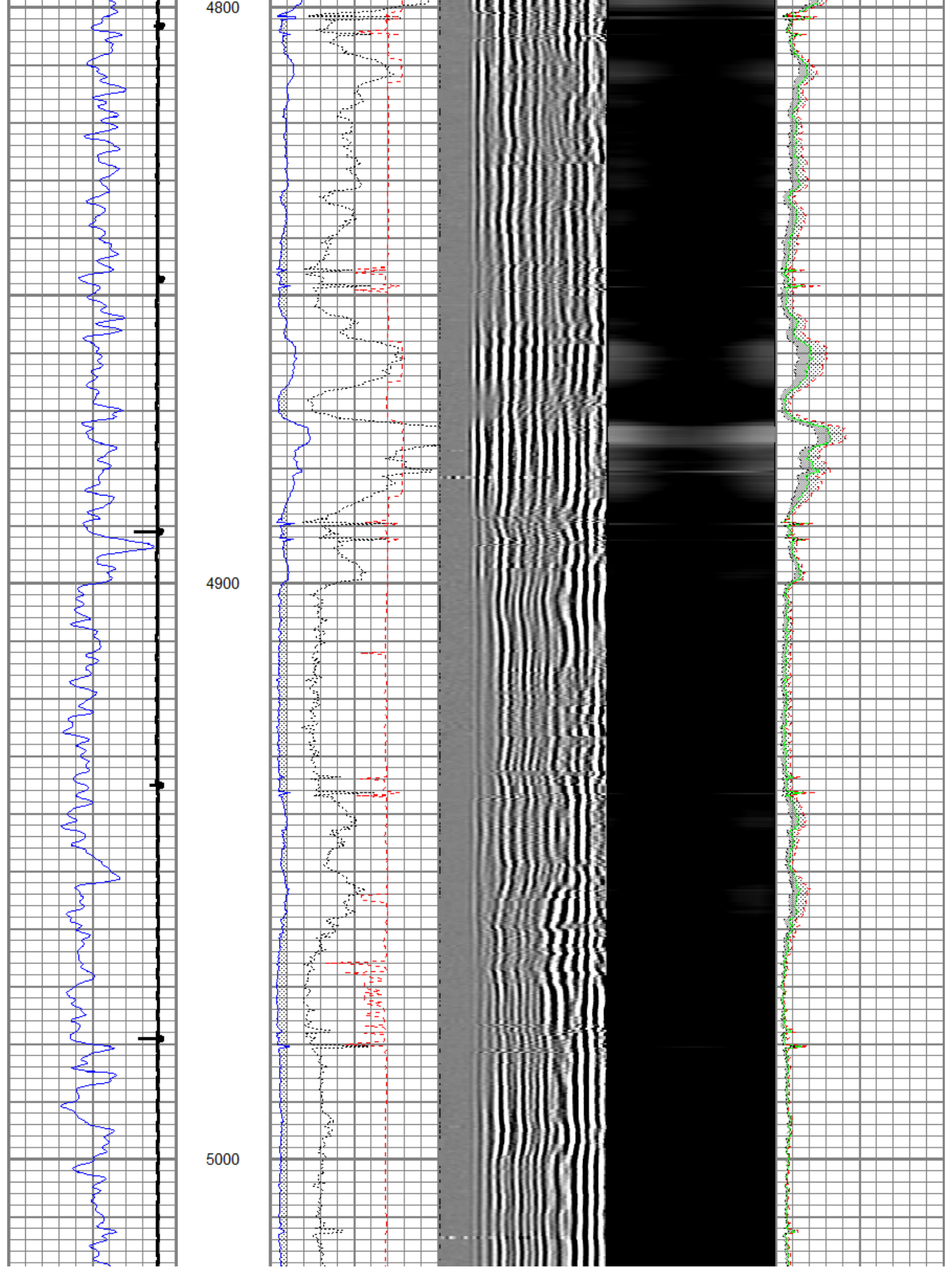


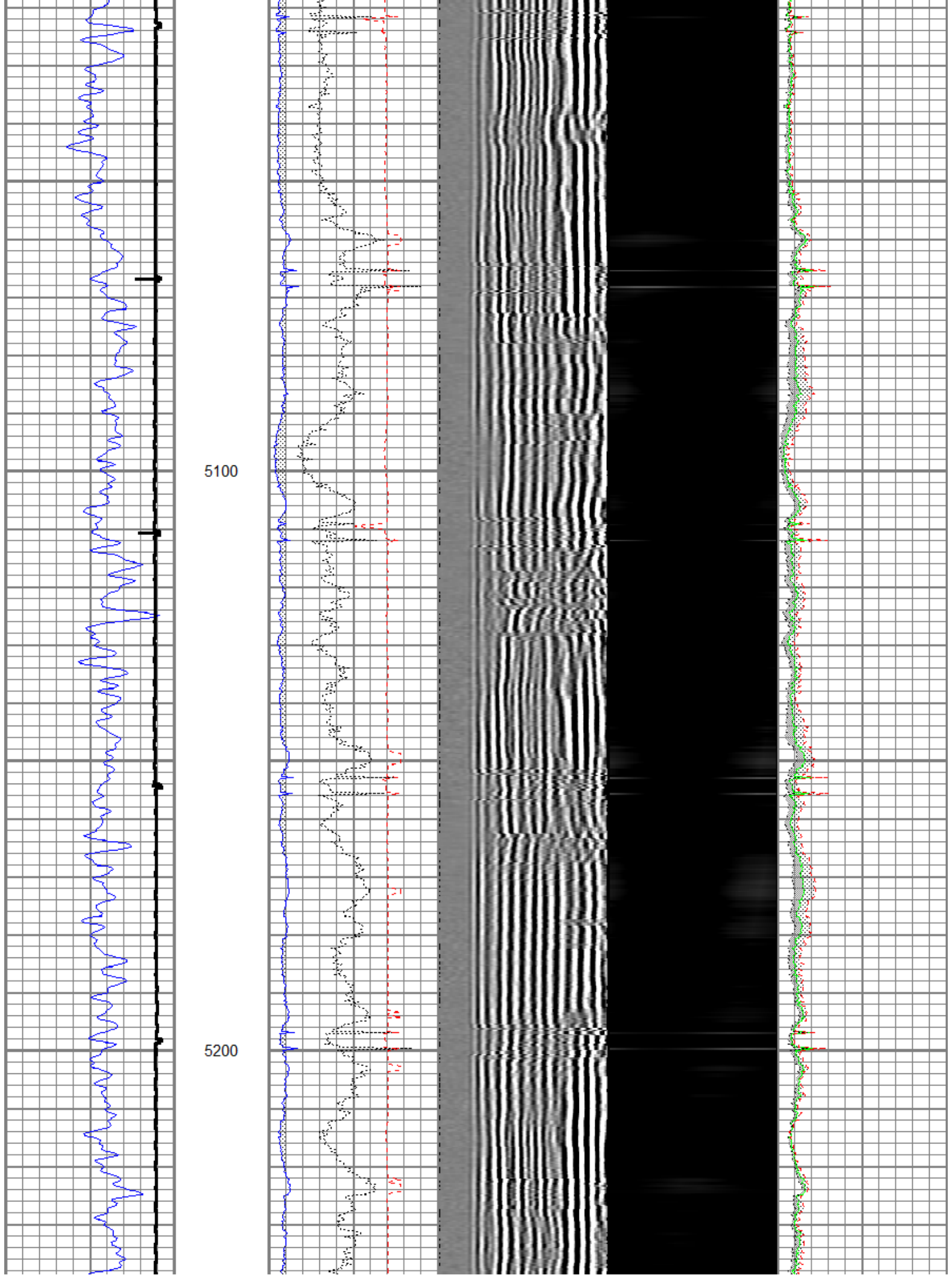


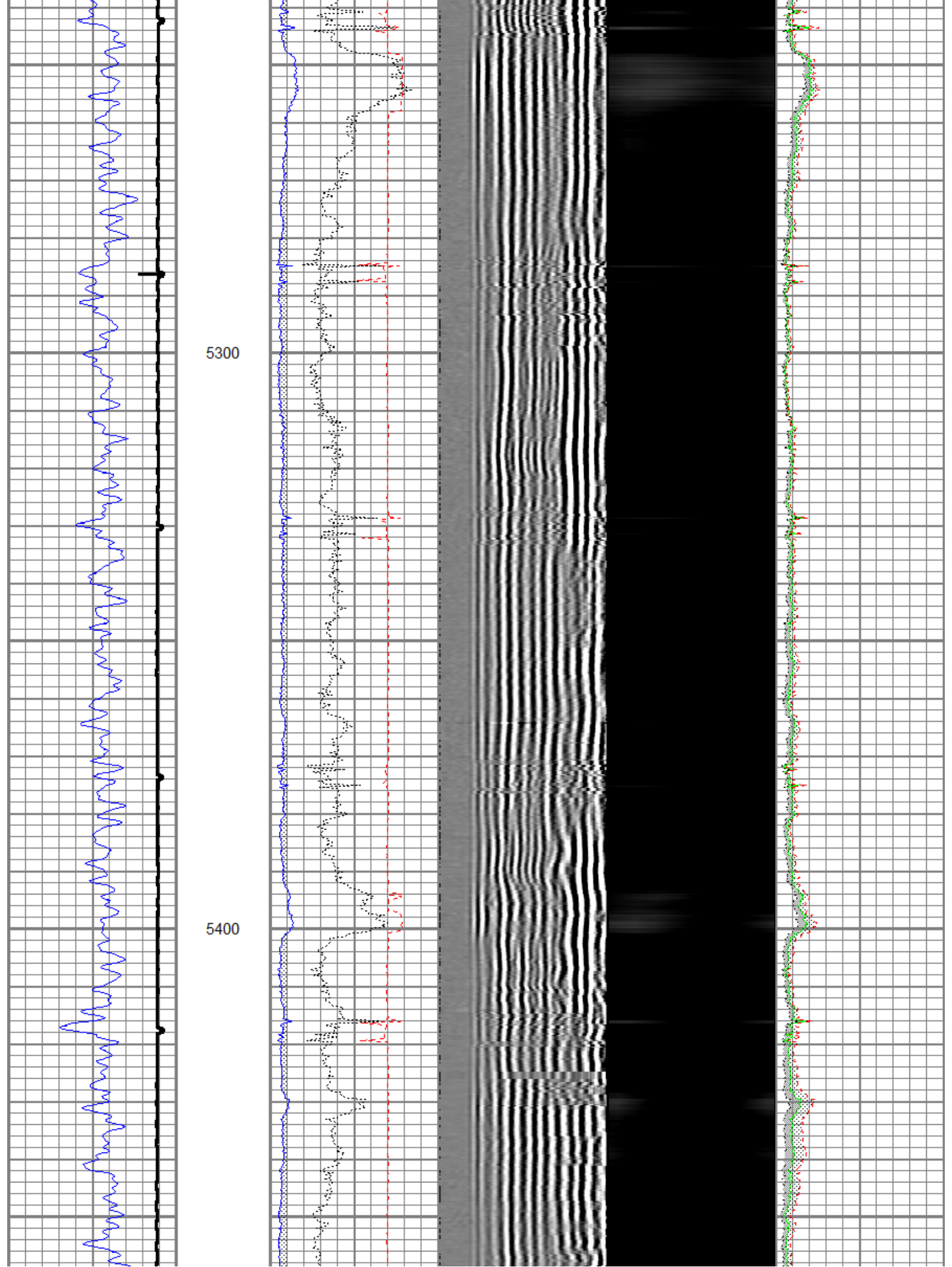


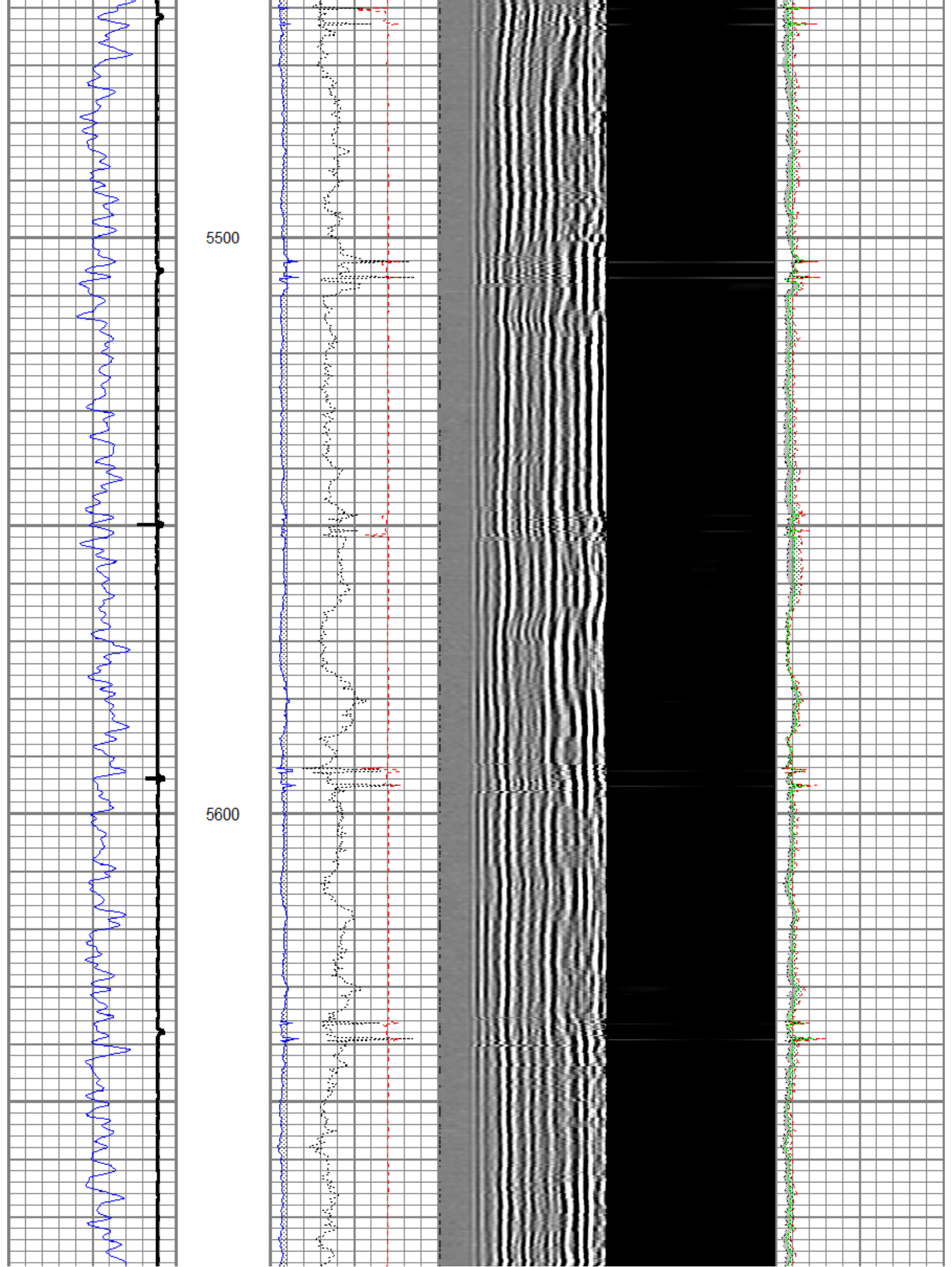


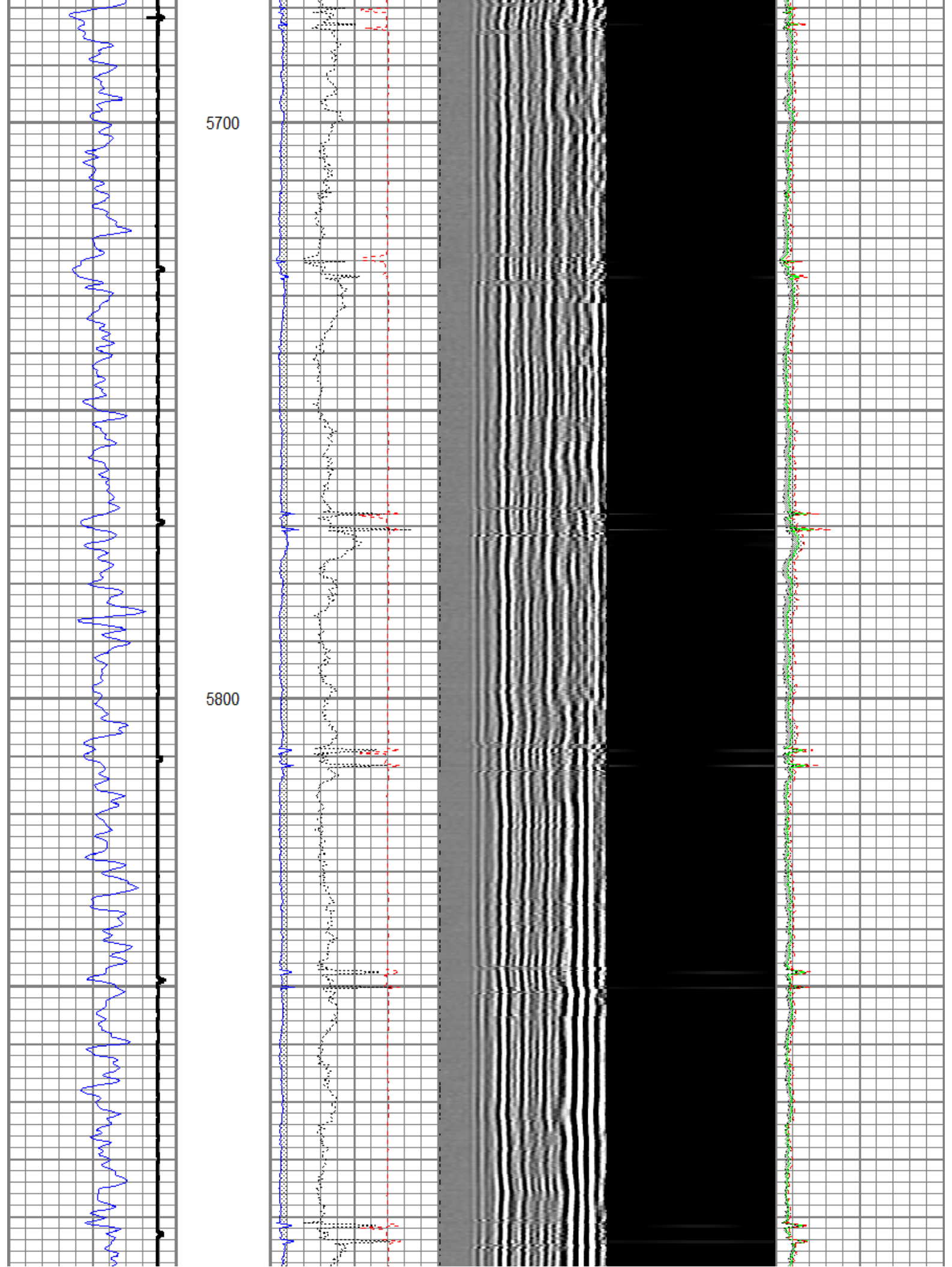


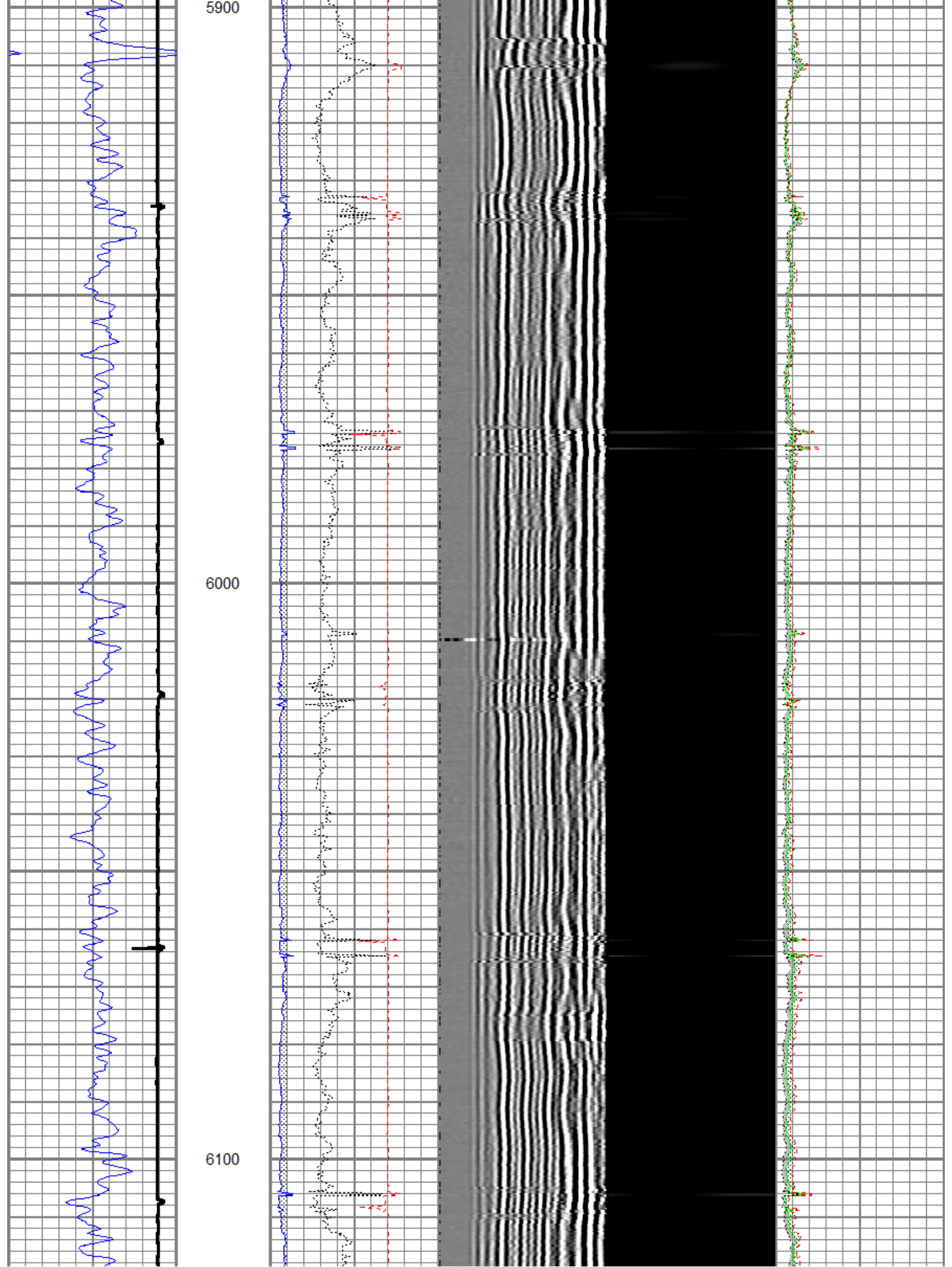


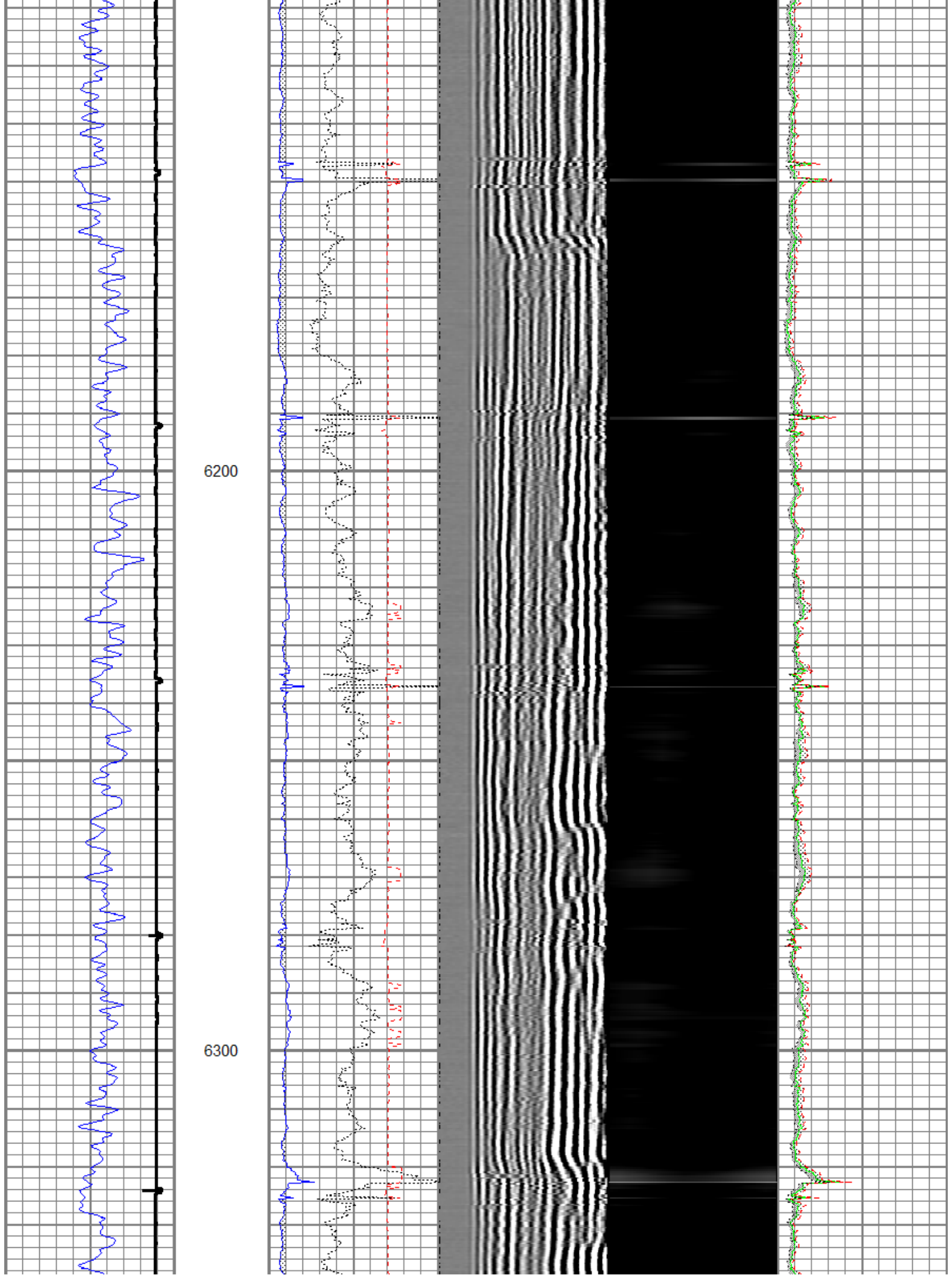


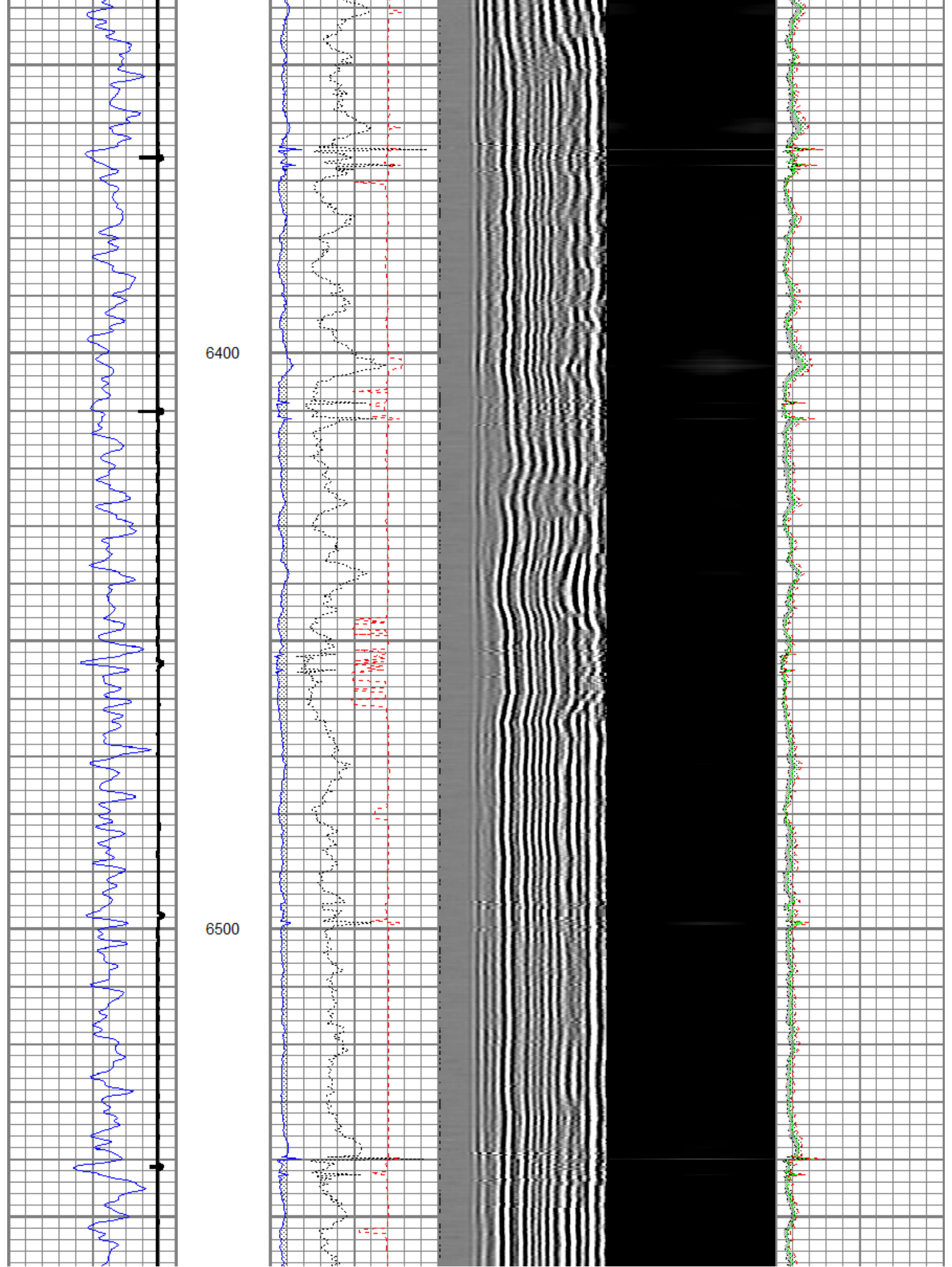


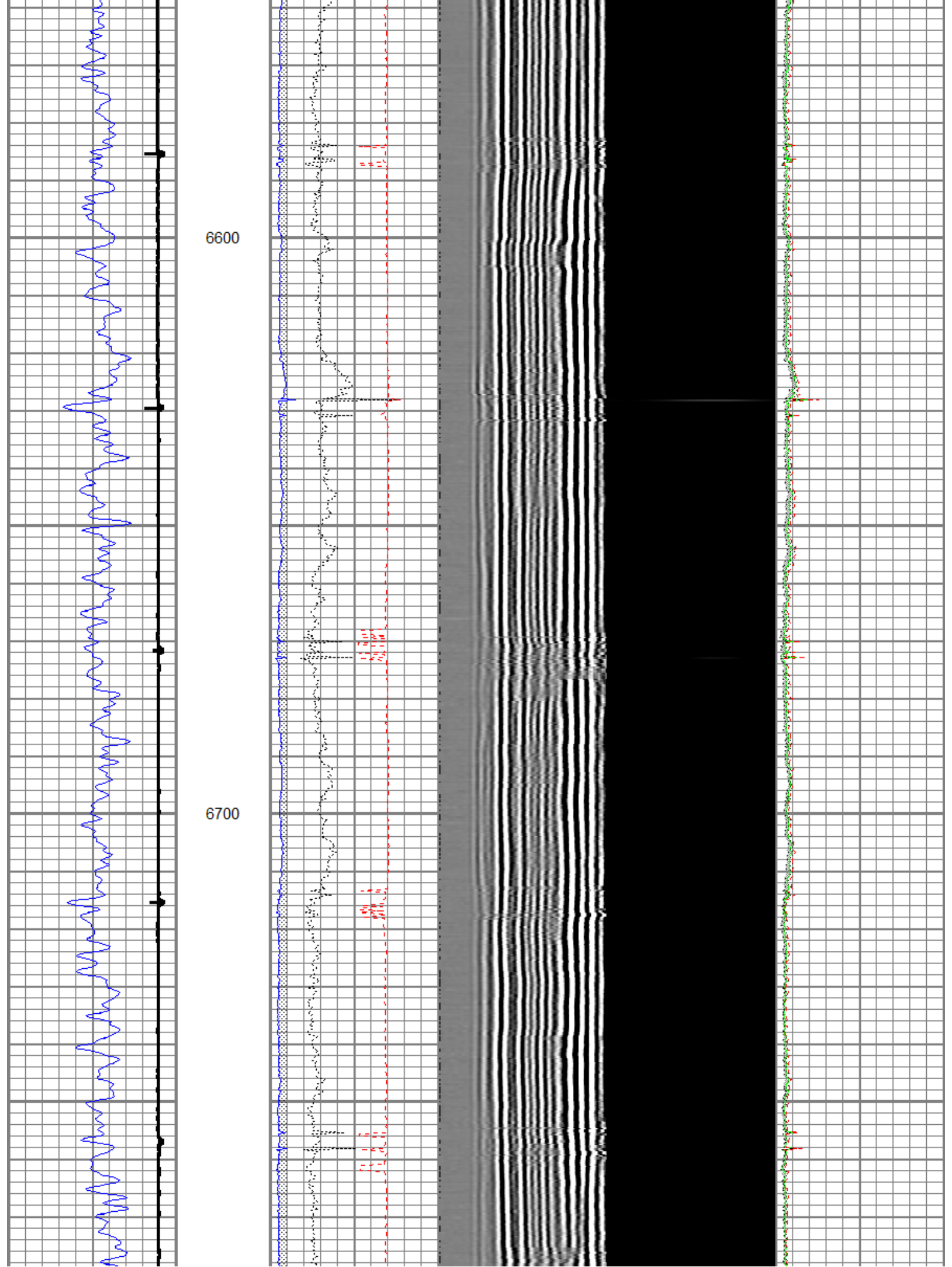


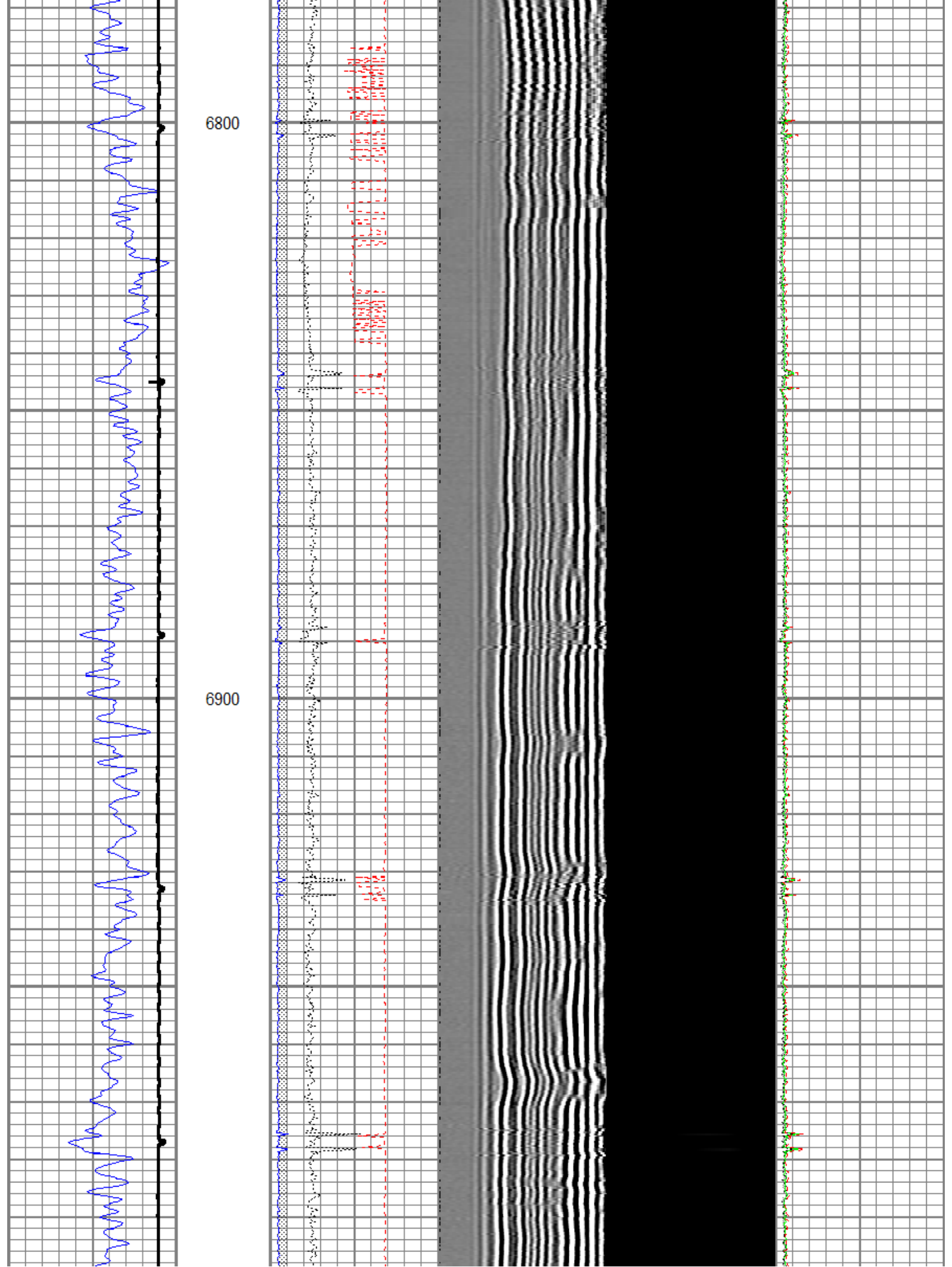


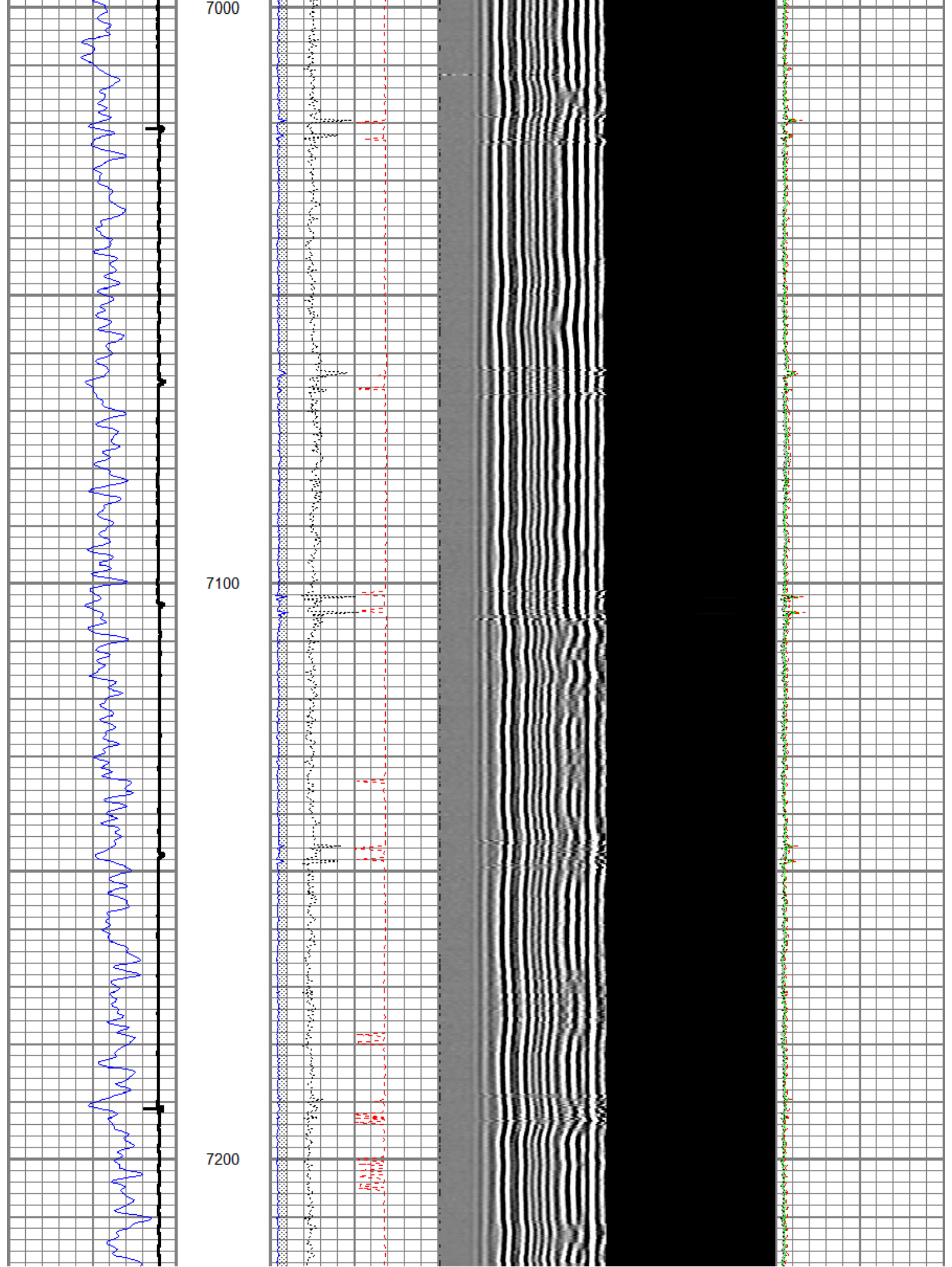


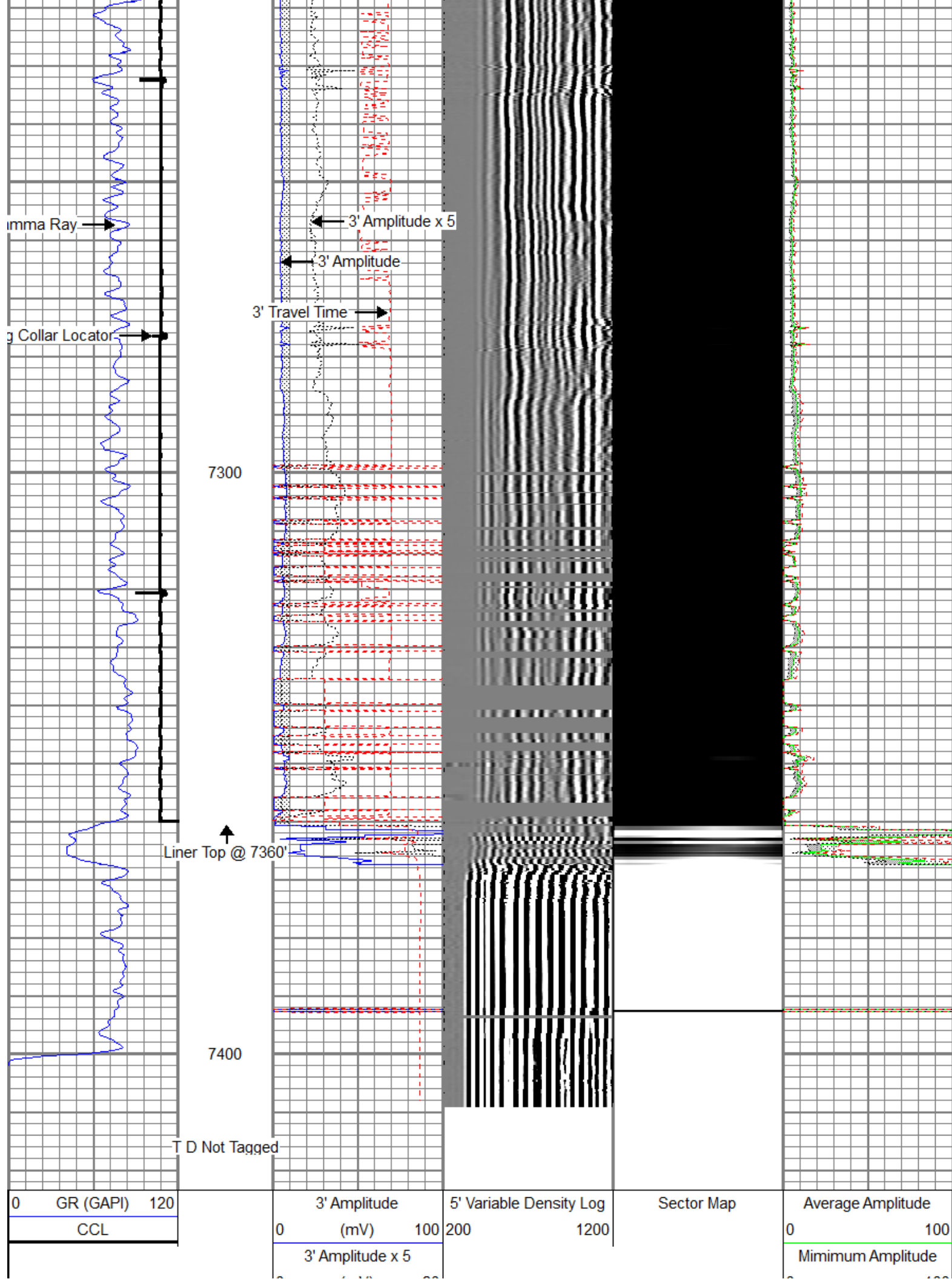












0	(mV)	20
3' Travel Time		
650	(usec)	150

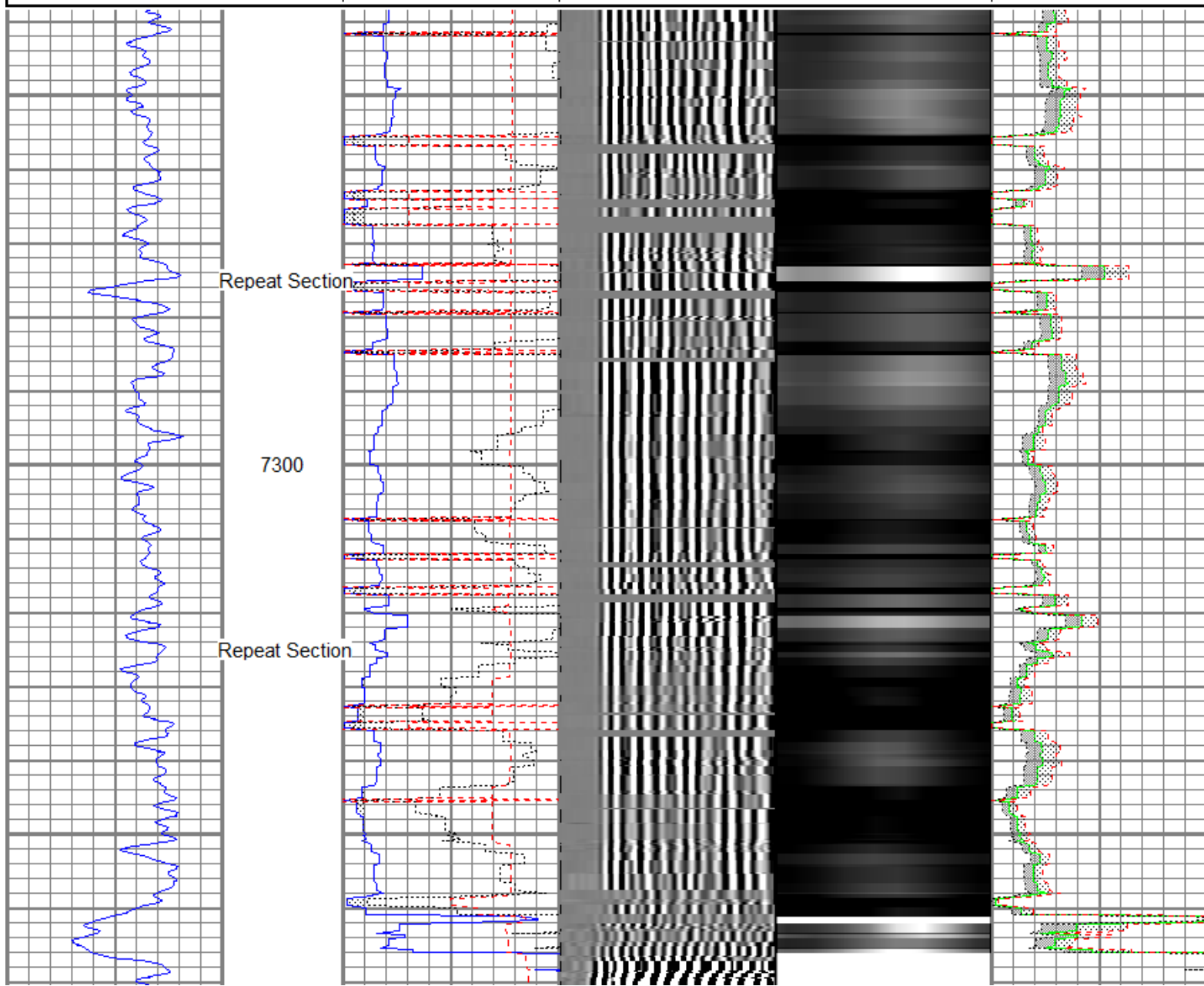
0	100
Maximum Amplitude	
0	100

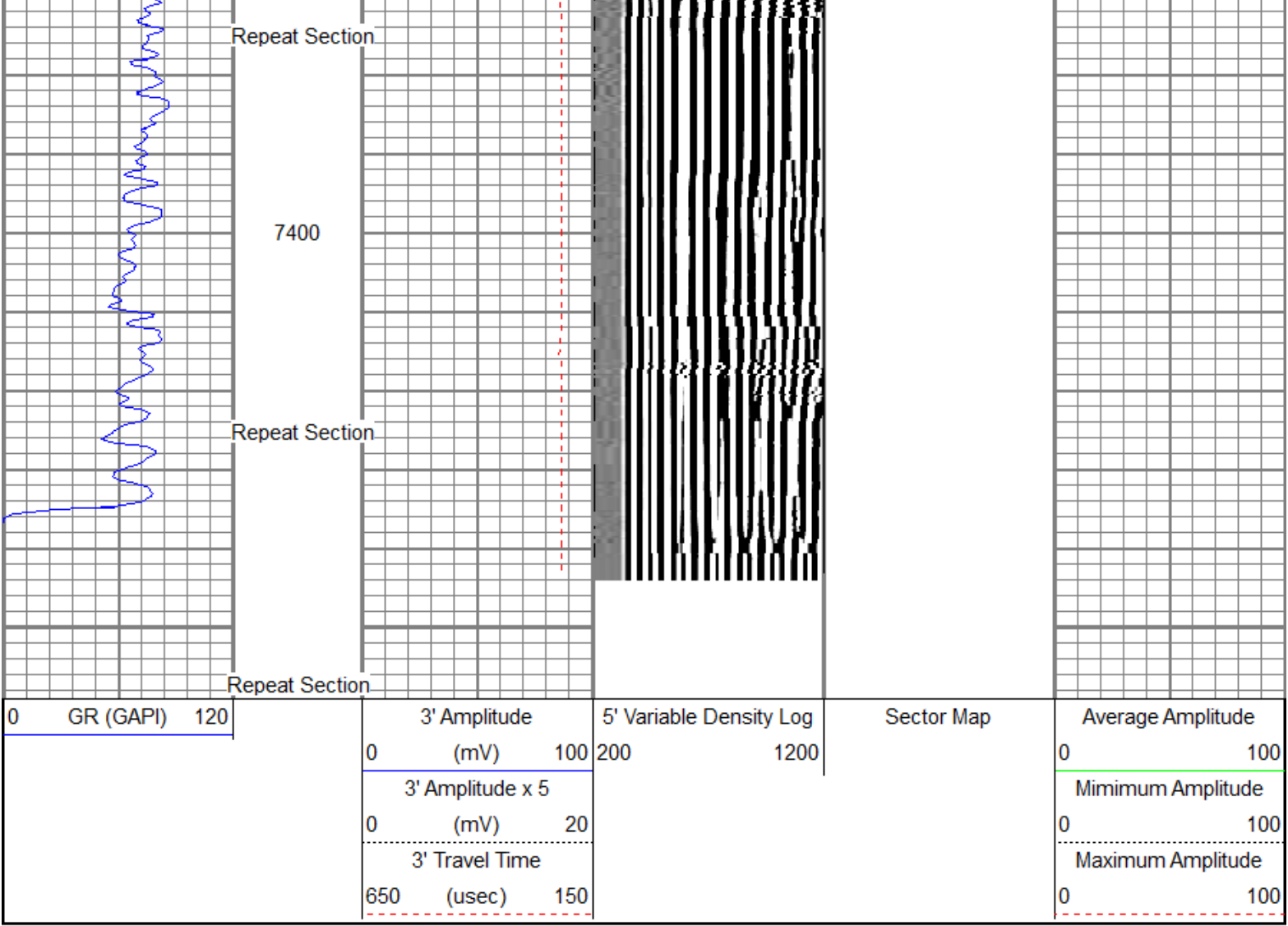


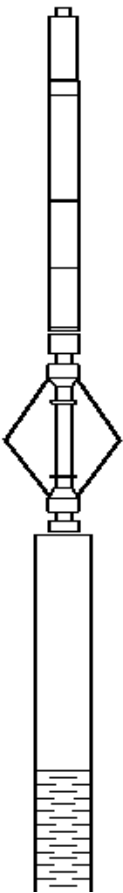

Repeat Pass 0 PSI

Database File: anadarko_howard 30c-28hz_20-nov-2013_rcbl-mit.db
Dataset Pathname: pass2
Presentation Format: rib
Dataset Creation: Wed Nov 20 12:59:52 2013 by Log Sondex V7.03
Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	120	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
			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)
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 (051219) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			PGR-020 (10013899) Production Gamma Ray	1.93	1.69	9.50
			PRC-057 (1037) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
WVF3FT WVFS1	15.85 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 (1102) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
MIT	5.41		MIT-042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			PRC-057 (1101) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			BUL-006 (219228) Bullnose Terminator	0.22	1.69	1.20
Dataset: anadarko_howard 30c-28hz_20-nov-2013_rcbl-mit.db: field/well/run1/pass3 Total Length: 27.97 ft Total Weight: 316.30 lb O.D.: 3.13 in						

Calibration Report						
Database File:		anadarko_howard 30c-28hz_20-nov-2013_rcbl-mit.db				
Dataset Pathname:		pass4				
Dataset Creation:		Wed Nov 20 15:22:15 2013 by Log Sondex V7.03				
Multi-finger Imaging Tool Calibration Report						
Serial Number:		10014703				
Number of Fingers:		40				
Tool Model:		042				
Inclinometer Calibration Report						
Performed:		Fri Sep 20 11:47:48 2013				
Calibration Angle:		45				
Vertical:		Inc X		Inc Y		
Finger 1 up:		1963		1960		
Finger 31 up:		1748		1727		
Finger 21 up:		2195		1742		
Finger 11 up:		2178		2188		
Sensitivity ratio:		1.00706		2173		
X-axis angle:		132.825				
Deviation const.:		317.775				
Finger Calibration Report						
Performed:		Wed Nov 20 12:21:38 2013				
Ring size:	4	5	6	7		

(in)		Sens		Sens		Sens	
Finger 01:	1214	390.0	1604	347.0	1951	399.0	2350
Finger 02:	1151	395.0	1546	362.0	1908	428.0	2336
Finger 03:	1180	378.0	1558	354.0	1912	418.0	2330
Finger 04:	1127	385.0	1512	373.0	1885	445.0	2330
Finger 05:	1202	369.0	1571	351.0	1922	418.0	2340
Finger 06:	1150	372.0	1522	364.0	1886	435.0	2321
Finger 07:	1174	360.0	1534	362.0	1896	427.0	2323
Finger 08:	1123	357.0	1480	379.0	1859	449.0	2308
Finger 09:	1198	347.0	1545	368.0	1913	420.0	2333
Finger 10:	1164	341.0	1505	375.0	1880	428.0	2308
Finger 11:	1138	332.0	1470	385.0	1855	439.0	2294
Finger 12:	1219	326.0	1545	370.0	1915	400.0	2315
Finger 13:	1144	321.0	1465	393.0	1858	433.0	2291
Finger 14:	1105	330.0	1435	419.0	1854	439.0	2293
Finger 15:	1081	327.0	1408	423.0	1831	445.0	2276
Finger 16:	1126	322.0	1448	414.0	1862	427.0	2289
Finger 17:	1152	317.0	1469	407.0	1876	407.0	2283
Finger 18:	1164	314.0	1478	408.0	1886	401.0	2287
Finger 19:	1137	325.0	1462	424.0	1886	408.0	2294
Finger 20:	1073	334.0	1407	445.0	1852	422.0	2274
Finger 21:	1134	321.0	1455	423.0	1878	393.0	2271
Finger 22:	1127	334.0	1461	432.0	1893	396.0	2289
Finger 23:	1207	319.0	1526	403.0	1929	365.0	2294
Finger 24:	1111	349.0	1460	441.0	1901	393.0	2294
Finger 25:	1115	349.0	1464	435.0	1899	393.0	2292
Finger 26:	1142	354.0	1496	424.0	1920	374.0	2294
Finger 27:	1159	351.0	1510	413.0	1923	375.0	2298
Finger 28:	1116	371.0	1487	427.0	1914	385.0	2299
Finger 29:	1102	381.0	1483	430.0	1913	395.0	2308
Finger 30:	1111	385.0	1496	423.0	1919	392.0	2311
Finger 31:	1154	383.0	1537	400.0	1937	371.0	2308
Finger 32:	1121	396.0	1517	407.0	1924	393.0	2317
Finger 33:	1125	399.0	1524	398.0	1922	389.0	2311
Finger 34:	1114	405.0	1519	401.0	1920	400.0	2320
Finger 35:	1181	391.0	1572	367.0	1939	376.0	2315
Finger 36:	1130	405.0	1535	382.0	1917	401.0	2318
Finger 37:	1226	384.0	1610	349.0	1959	376.0	2335
Finger 38:	1197	394.0	1591	356.0	1947	391.0	2338
Finger 39:	1163	399.0	1562	362.0	1924	409.0	2333
Finger 40:	1108	407.0	1515	375.0	1890	432.0	2322

Post Survey Calibration Check								
Performed: Wed Nov 20 15:22:03 2013								
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.011	0.006	4.989	-0.006	6.005	0.003	6.992	-0.004
Finger 02:	4.020	0.010	5.007	0.003	6.007	0.003	6.997	-0.002
Finger 03:	4.009	0.004	4.999	-0.001	5.999	-0.001	6.992	-0.004
Finger 04:	4.006	0.003	4.995	-0.002	5.995	-0.002	6.989	-0.005
Finger 05:	4.012	0.006	4.989	-0.006	5.996	-0.002	6.992	-0.004
Finger 06:	4.020	0.010	4.996	-0.002	5.994	-0.003	6.995	-0.003
Finger 07:	4.015	0.007	5.002	0.001	5.992	-0.004	6.990	-0.005
Finger 08:	4.010	0.005	5.014	0.007	5.996	-0.002	6.995	-0.003
Finger 09:	4.003	0.002	5.009	0.005	5.995	-0.003	6.997	-0.001
Finger 10:	3.998	-0.001	4.999	-0.000	5.994	-0.003	6.995	-0.002
Finger 11:	3.996	-0.002	5.007	0.003	5.992	-0.004	7.004	0.002
Finger 12:	3.996	-0.002	5.009	0.004	5.990	-0.005	6.990	-0.005
Finger 13:	3.994	-0.003	5.007	0.004	5.995	-0.003	7.002	0.001
Finger 14:	3.999	-0.000	5.002	0.001	5.978	-0.011	6.994	-0.003
Finger 15:	4.000	-0.000	5.004	0.002	5.992	-0.004	6.995	-0.002
Finger 16:	4.002	0.001	5.000	-0.000	6.005	0.002	7.004	0.002
Finger 17:	4.003	0.002	4.998	-0.001	6.004	0.002	6.994	-0.003
Finger 18:	4.004	0.002	4.994	-0.003	6.000	0.000	6.998	-0.001
Finger 19:	4.004	0.002	4.992	-0.004	6.000	0.000	6.992	-0.004
Finger 20:	4.006	0.003	4.979	-0.010	6.005	0.002	6.997	-0.001
Finger 21:	4.017	0.009	5.001	0.000	6.001	0.000	6.995	-0.002
Finger 22:	4.012	0.006	4.996	-0.002	6.002	0.001	6.992	-0.004
Finger 23:	4.010	0.005	4.996	-0.002	6.006	0.003	6.997	-0.002
Finger 24:	4.014	0.007	4.999	-0.001	5.999	-0.000	6.994	-0.003

Finger 25:	4.014	0.007	5.006	0.003	6.000	-0.000	6.995	-0.003
Finger 26:	4.009	0.005	5.001	0.000	5.995	-0.002	7.007	0.003
Finger 27:	4.001	0.001	5.001	0.001	5.997	-0.001	6.996	-0.002
Finger 28:	4.004	0.002	5.002	0.001	5.990	-0.005	6.989	-0.005
Finger 29:	4.008	0.004	5.006	0.003	5.990	-0.005	6.983	-0.008
Finger 30:	4.005	0.002	5.007	0.004	5.987	-0.007	6.991	-0.005
Finger 31:	4.002	0.001	5.008	0.004	5.988	-0.006	6.995	-0.002
Finger 32:	3.999	-0.001	5.006	0.003	5.994	-0.003	6.996	-0.002
Finger 33:	3.997	-0.001	5.003	0.001	5.992	-0.004	6.998	-0.001
Finger 34:	4.002	0.001	5.004	0.002	5.993	-0.003	7.001	0.000
Finger 35:	3.995	-0.003	5.000	-0.000	5.995	-0.003	7.000	-0.000
Finger 36:	4.000	-0.000	4.999	-0.000	6.004	0.002	7.004	0.002
Finger 37:	4.001	0.000	4.994	-0.003	5.993	-0.003	6.996	-0.002
Finger 38:	4.004	0.002	4.999	-0.001	6.001	0.000	6.999	-0.000
Finger 39:	4.004	0.002	4.993	-0.003	6.002	0.001	6.999	-0.001
Finger 40:	4.002	0.001	4.993	-0.004	6.006	0.003	6.997	-0.002
Average:	4.005	0.003	5.000	0.000	5.997	-0.002	6.996	-0.002

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454in7
Tool Model: 004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 3122.921 ft

Master Calibration, performed Sun Nov 03 08:37:59 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	0.732	0.800	62.165	83.579	1.024
5FT	-0.005	0.767	0.800	62.165	79.514	1.188
S1	-0.003	0.701	0.000	100.000	142.181	0.361
S2	-0.004	0.770	0.000	100.000	129.234	0.516
S3	-0.004	0.819	0.000	100.000	121.511	0.445
S4	-0.005	0.816	0.000	100.000	121.775	0.664
S5	-0.003	0.759	0.000	100.000	131.083	0.456
S6	-0.003	0.695	0.000	100.000	143.370	0.396
S7	-0.002	0.646	0.000	100.000	154.243	0.382
S8	-0.004	0.653	0.000	100.000	152.155	0.613

Gamma Ray Calibration Report

Serial Number: 10013899
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 30C-28HZ
Field Wattenberg
County Weld
State Colorado