



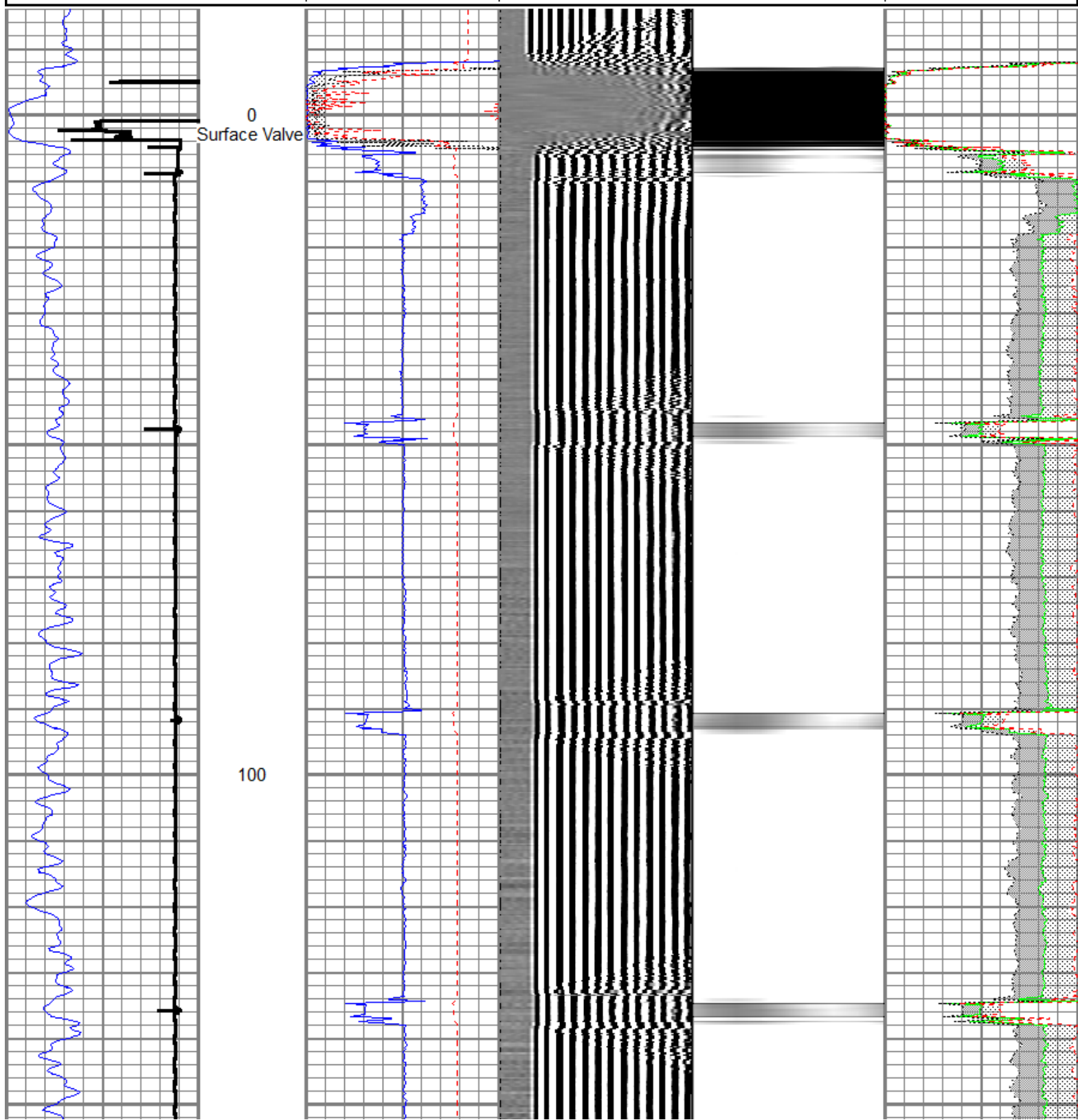
<<< Fold Here >>>
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible 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
<p>Radial Cement Bond Log - Casing Inspection Log is first recorded log in hole. Depth reference to Casing Tally reported Top of Liner at 7222'. Adjusted 13' for liner top at 7222' from a 16' KB zero RCBL-CIL ran at 2800 PSI surface induced pressure. Estimated Cement Top recorded at 590'</p> <p>Thank you for choosing FMC Technologies Completion Services!!</p>

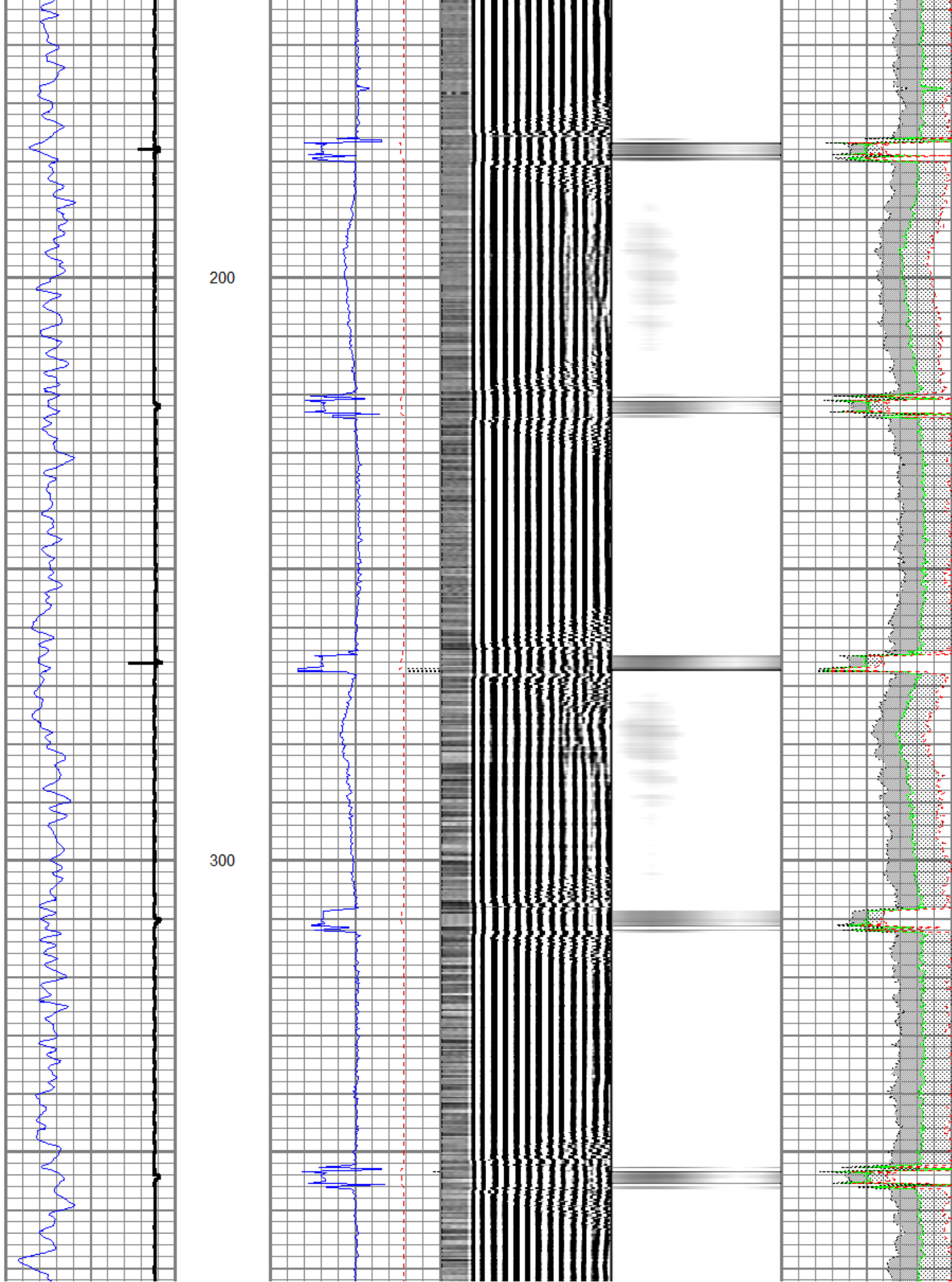


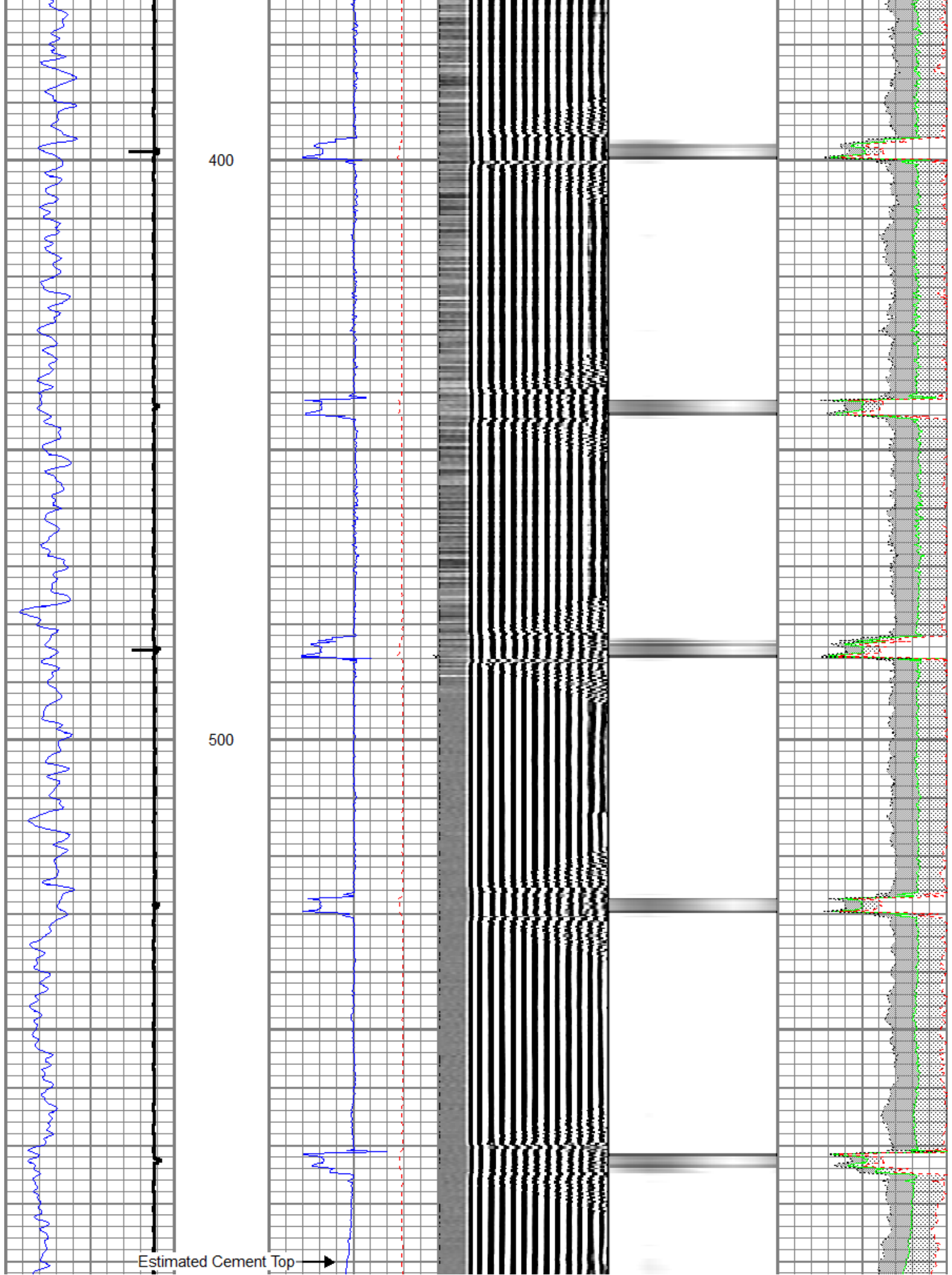
Recorded with 2800 PSI Surface Induced Pressure

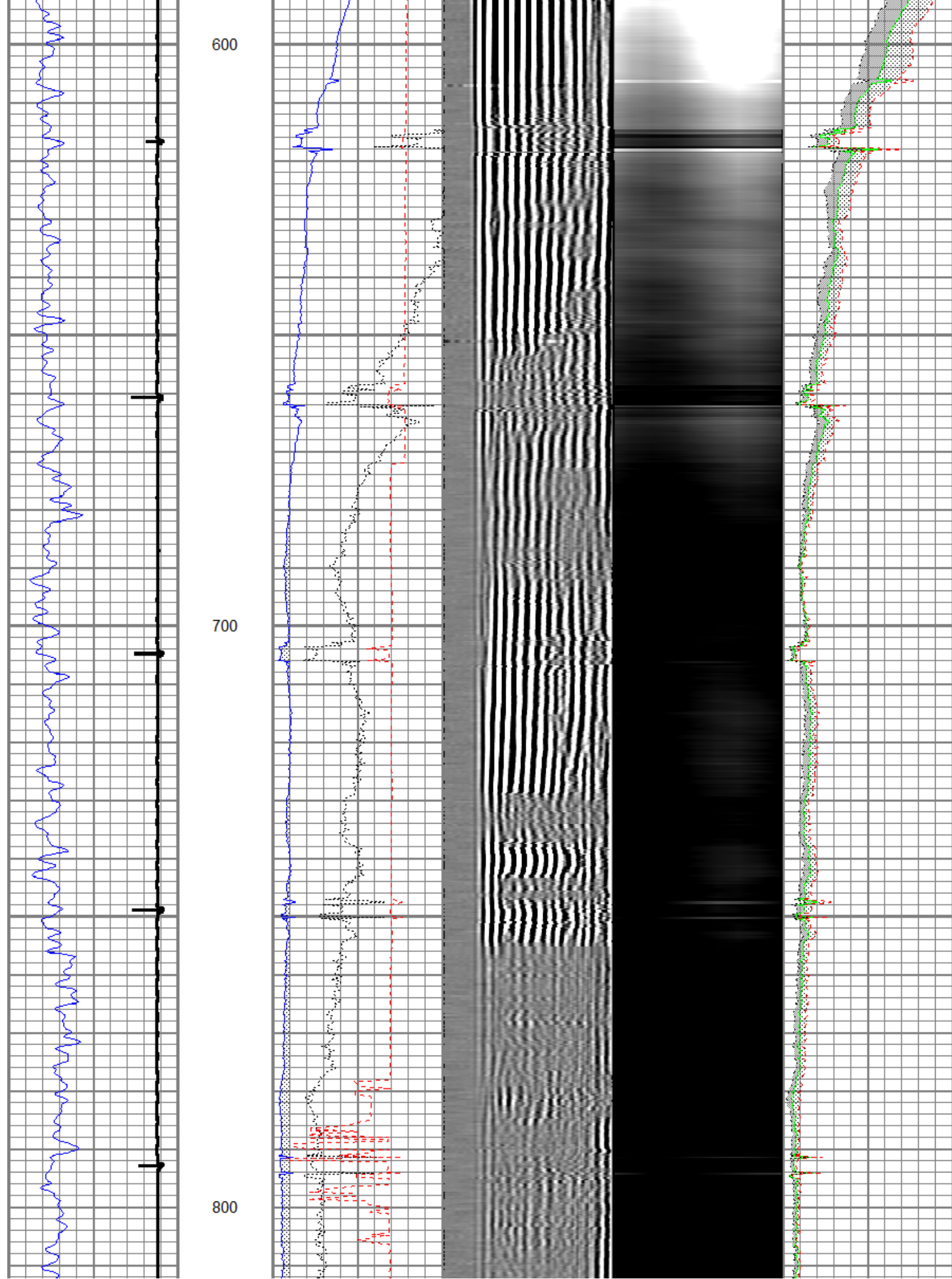
Database File: anadarko_howard 4n-28hz_20-nov-2013_rcbl mit.db
 Dataset Pathname: pass3
 Presentation Format: rib
 Dataset Creation: Wed Nov 20 16:13:04 2013 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

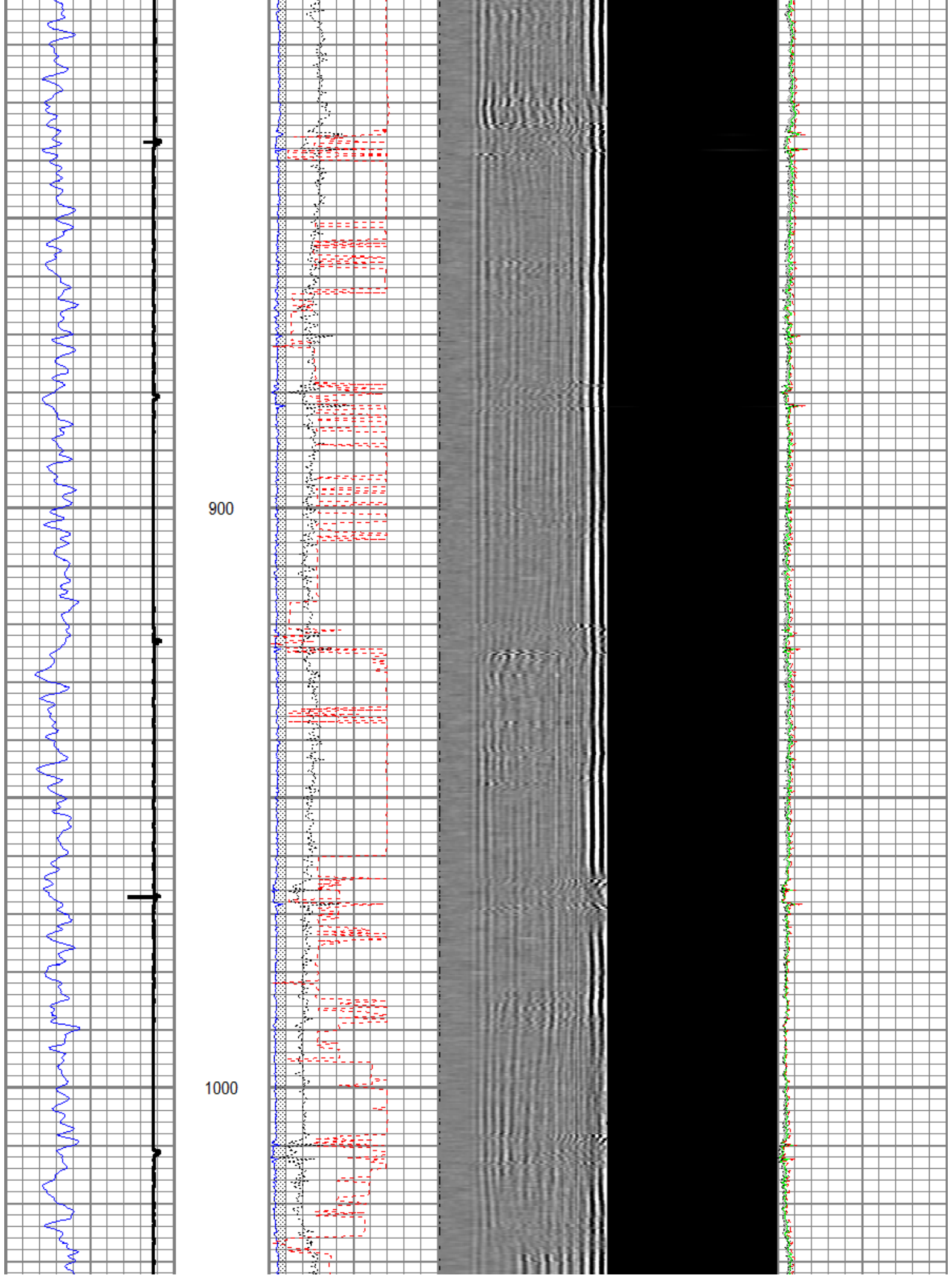
0	GR (GAPI)	120	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
	CCL		0 (mV) 100	200 1200		0 100
			3' Amplitude x 5			Minimum Amplitude
			0 (mV) 20			0 100
			3' Travel Time			Maximum Amplitude
			650 (usec) 150			0 100

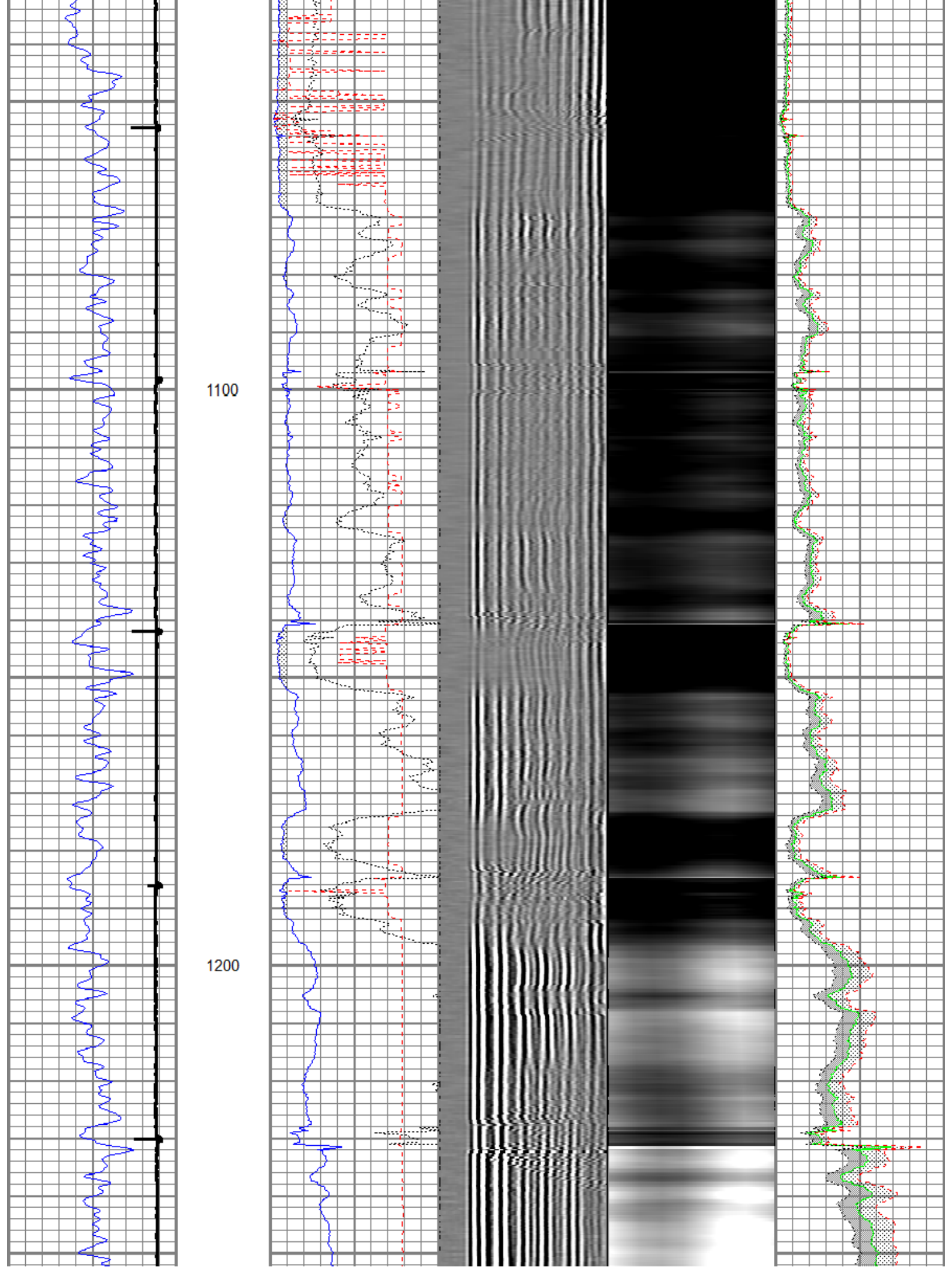


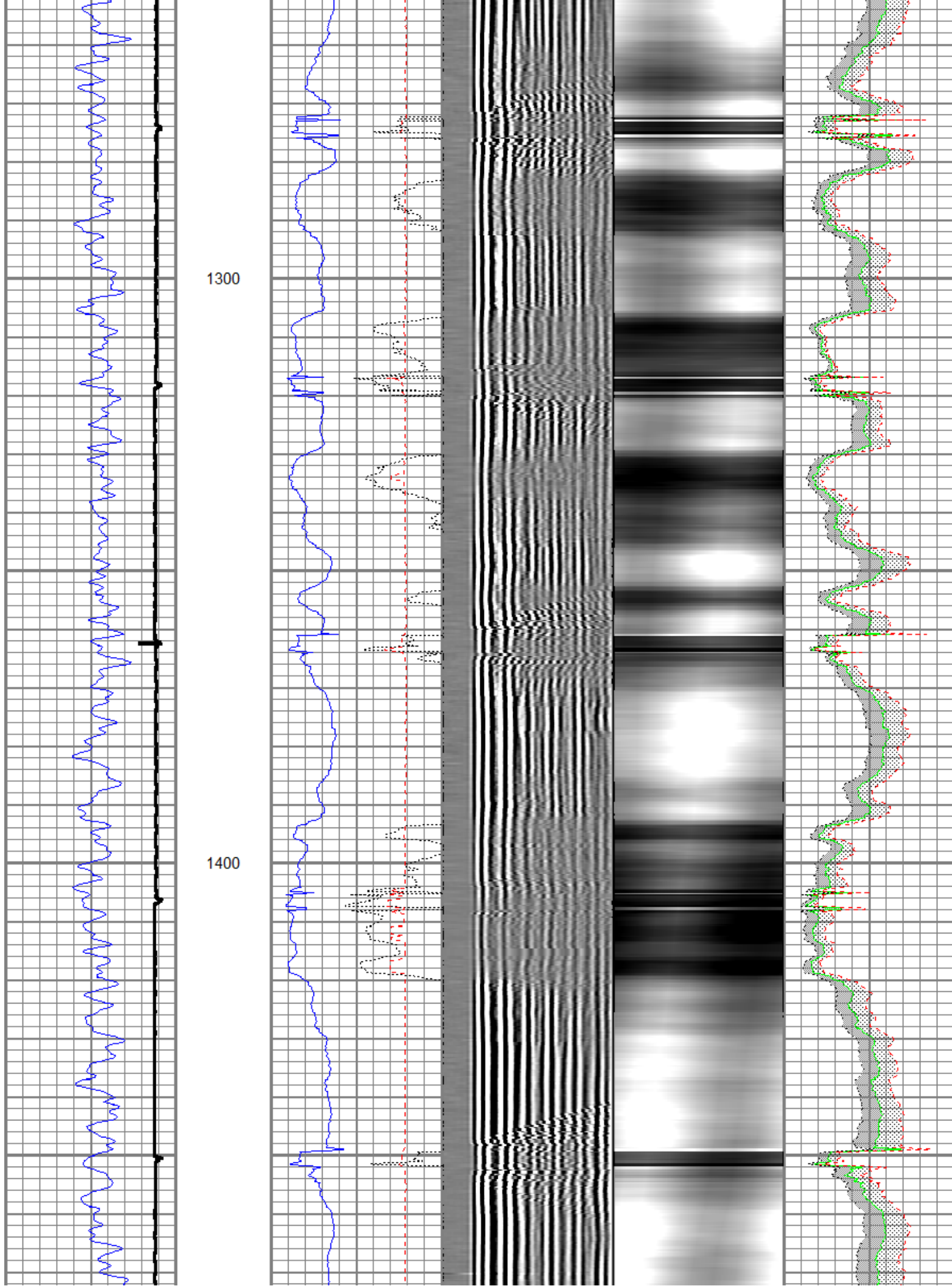


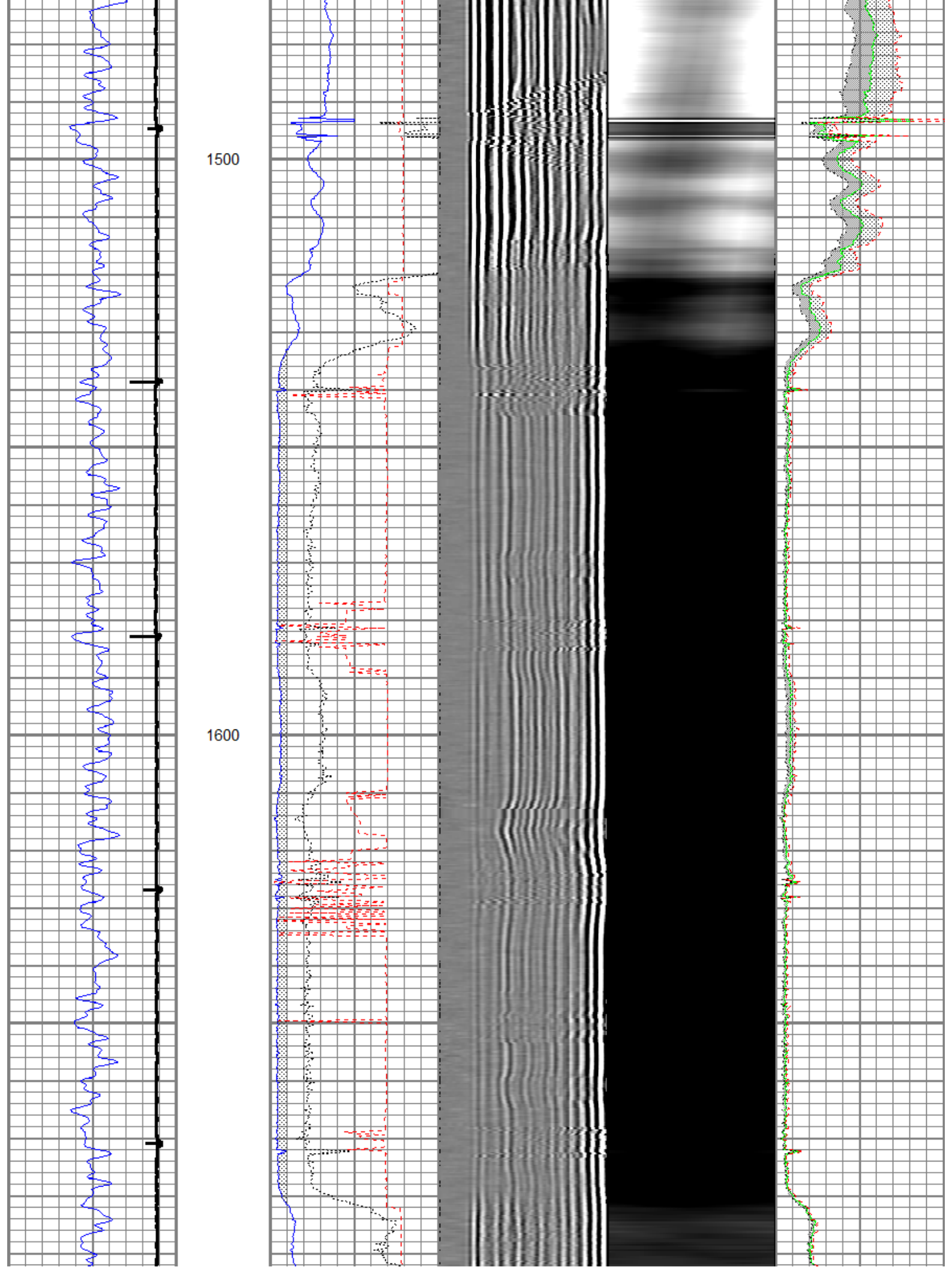


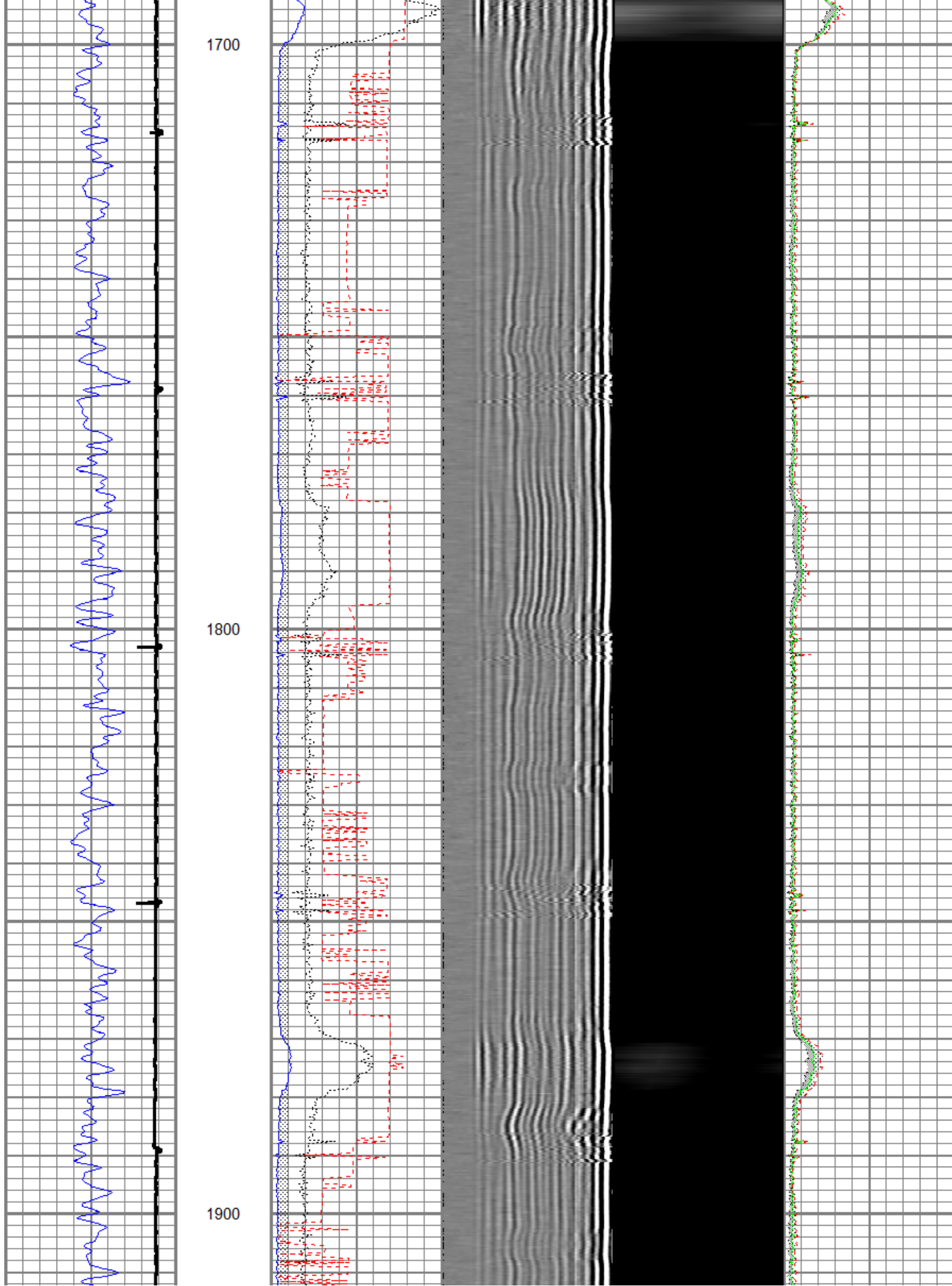


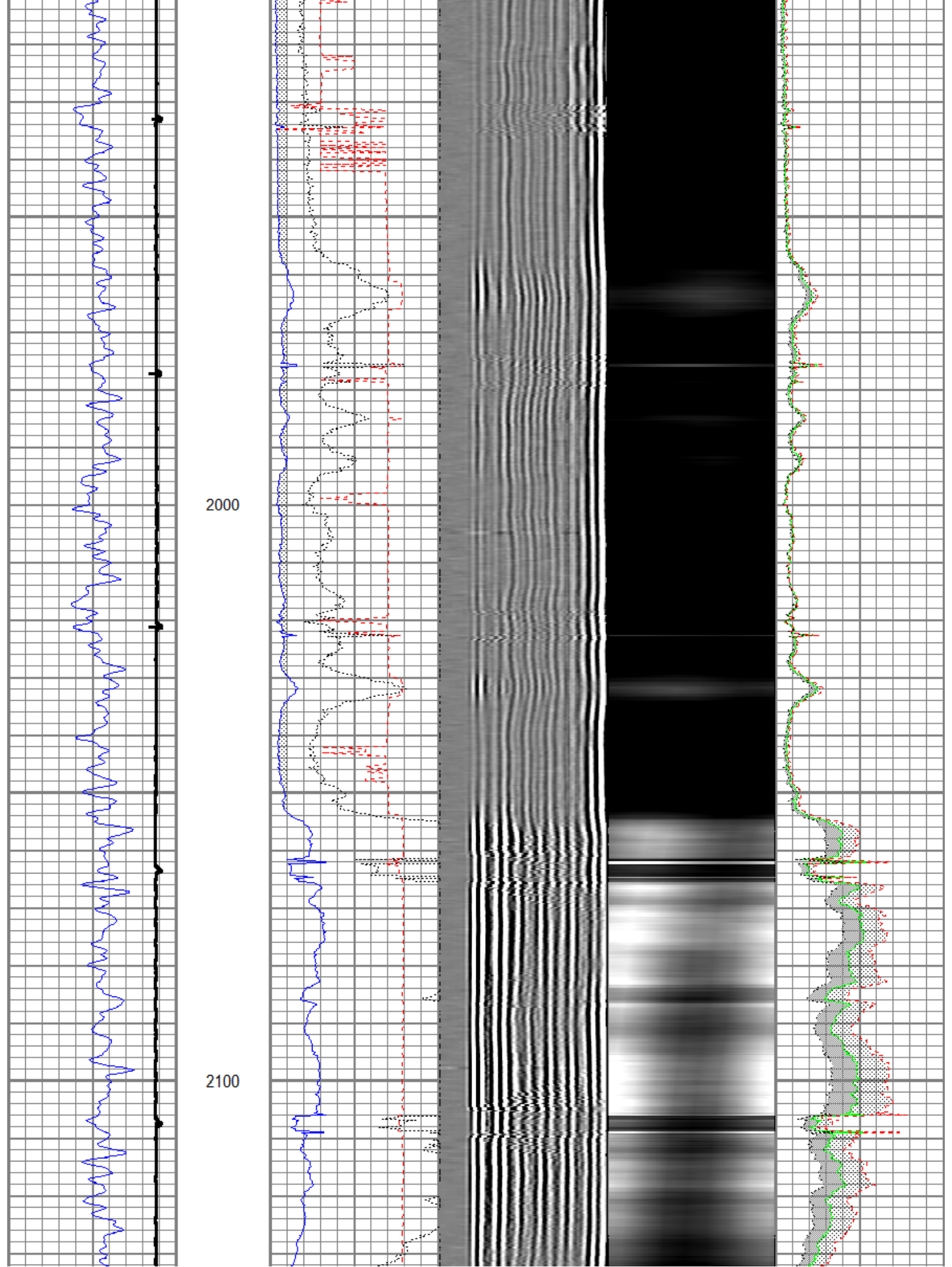


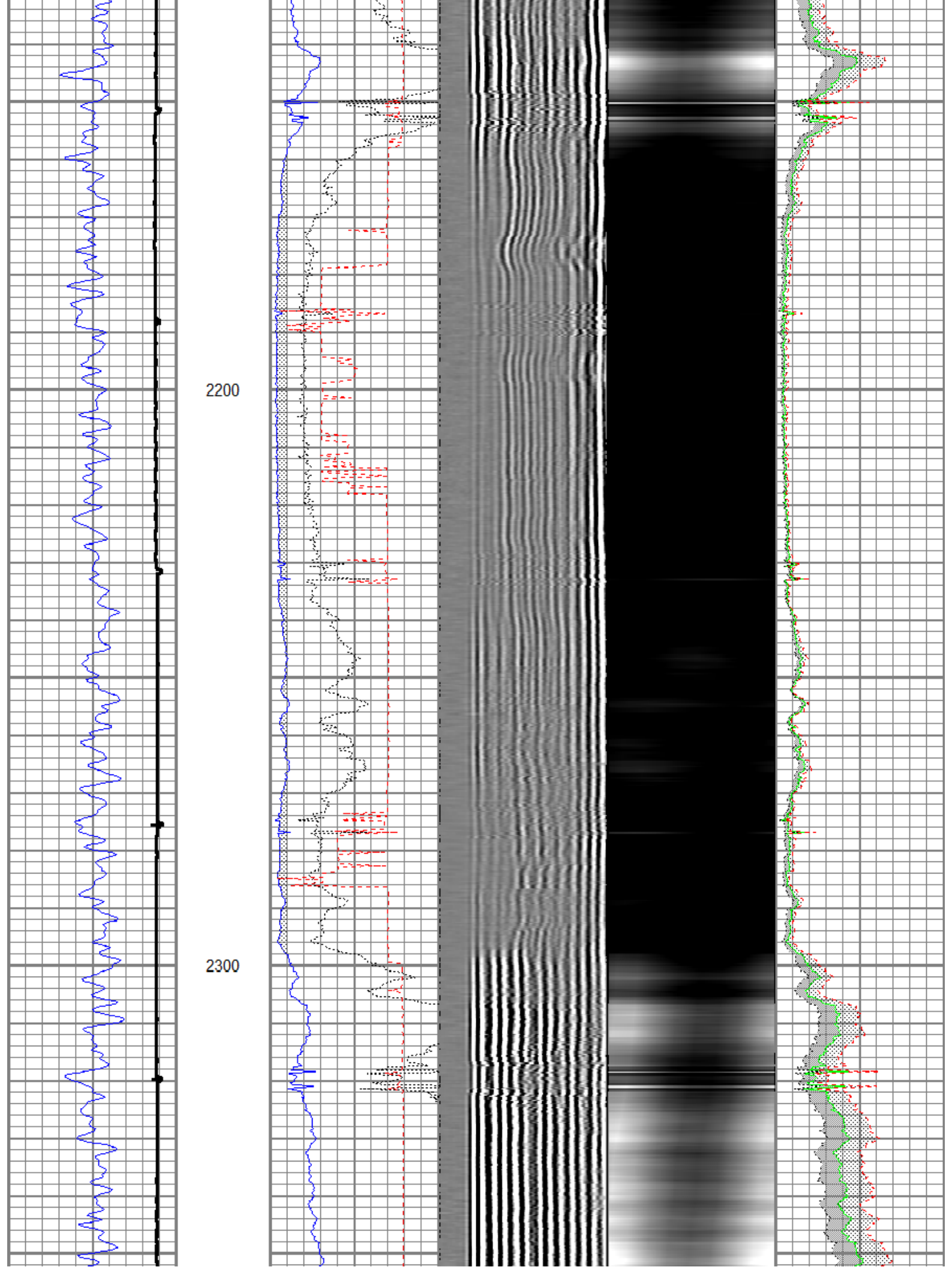


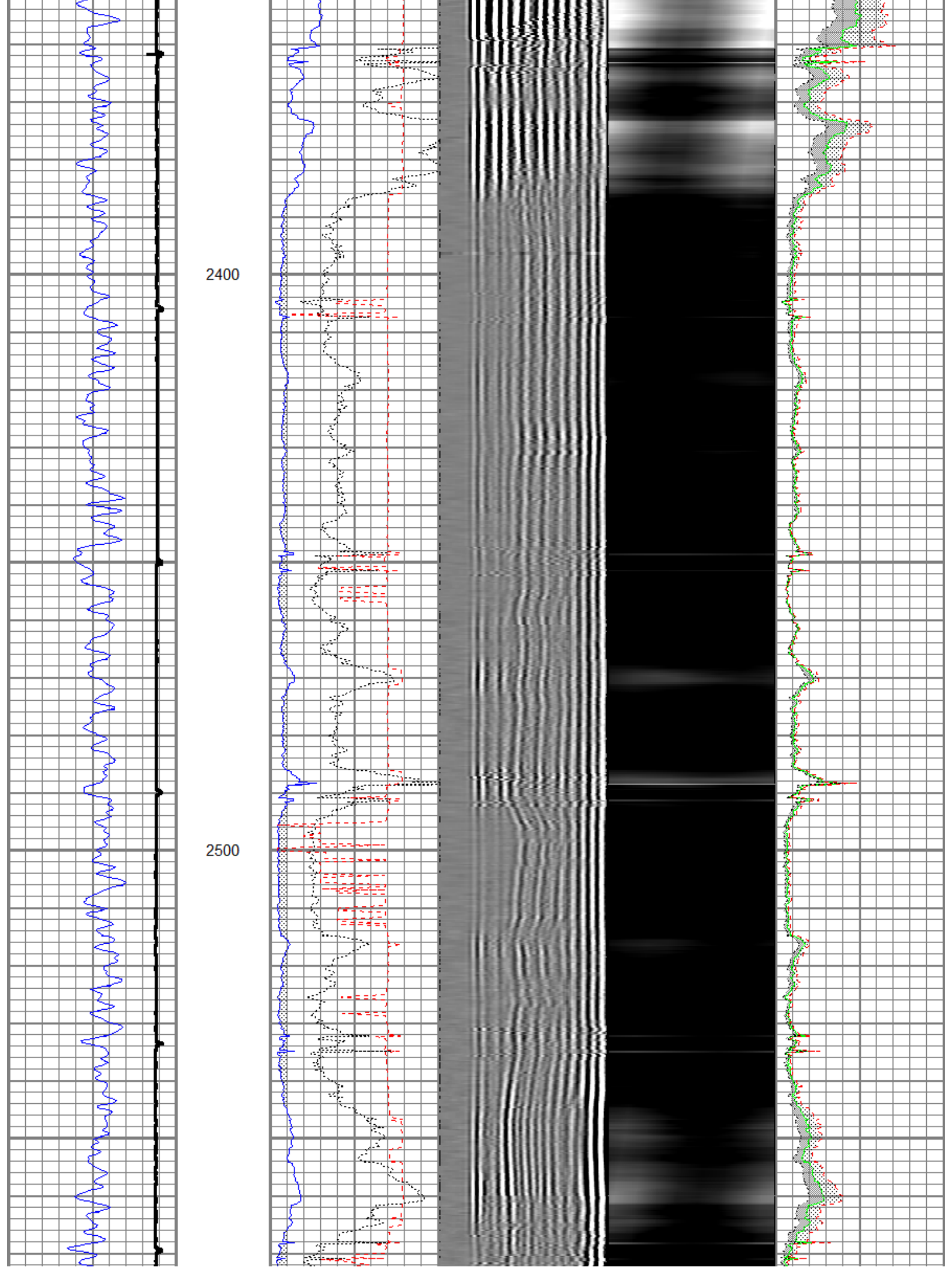


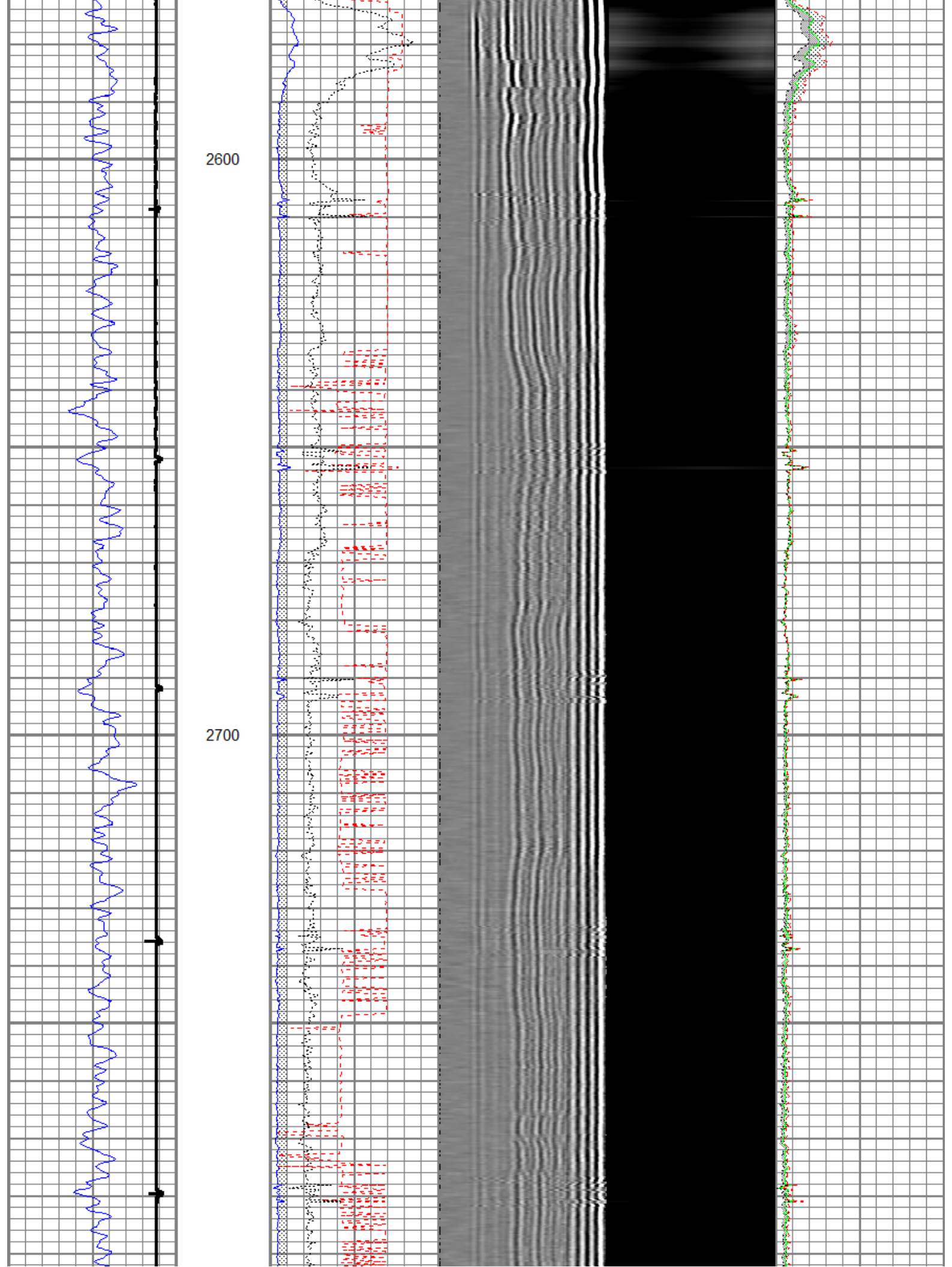


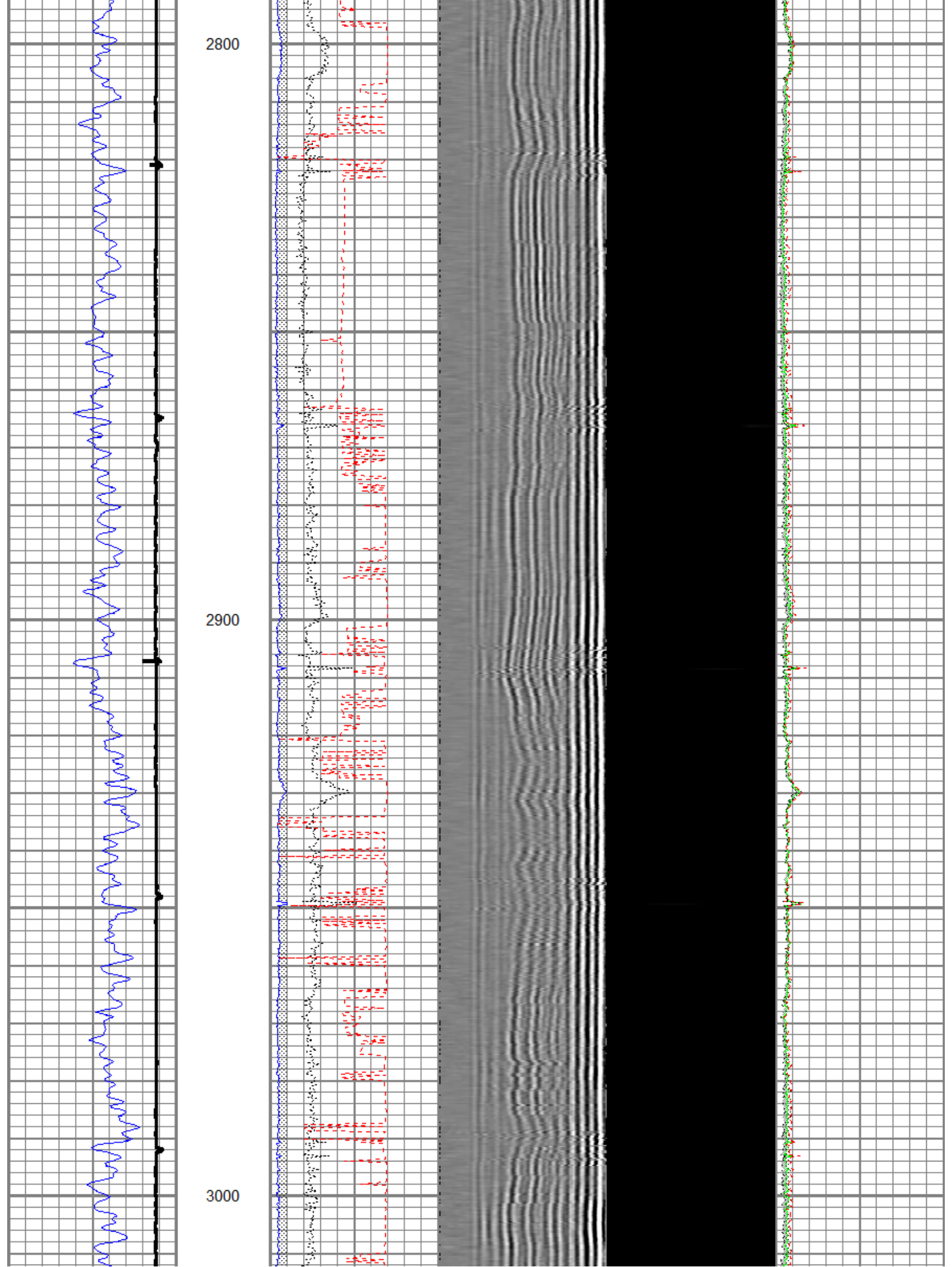


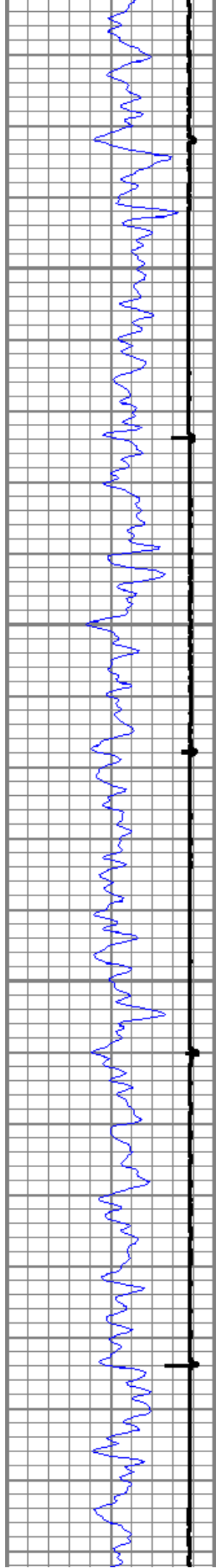






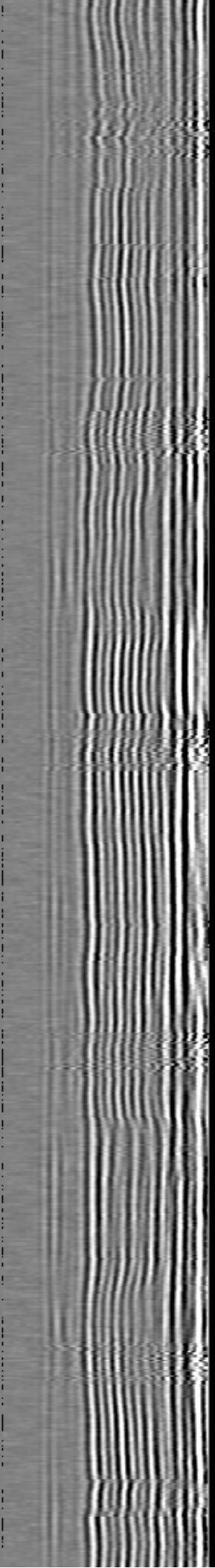
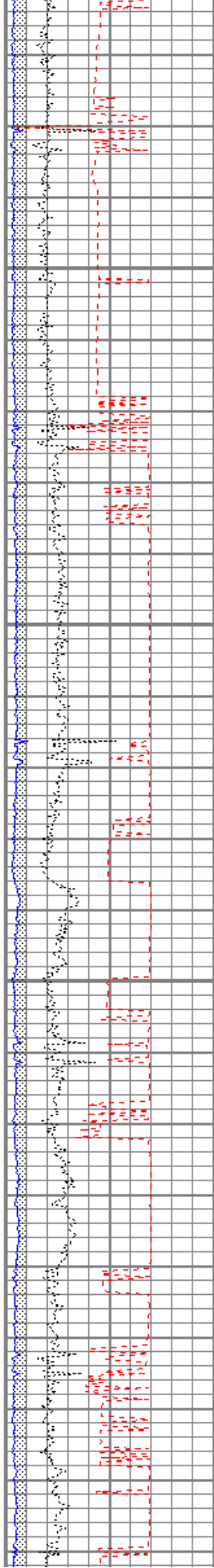


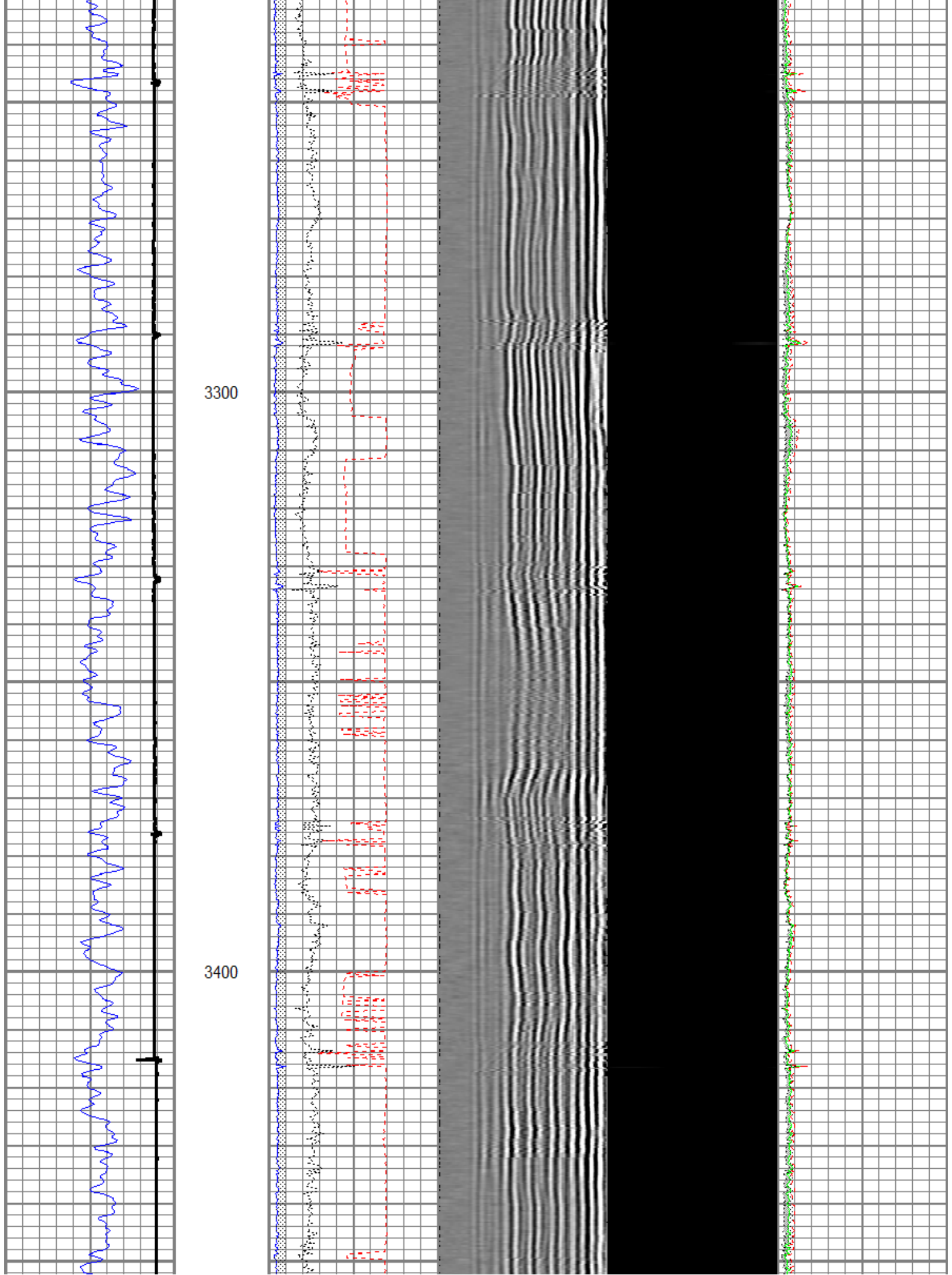


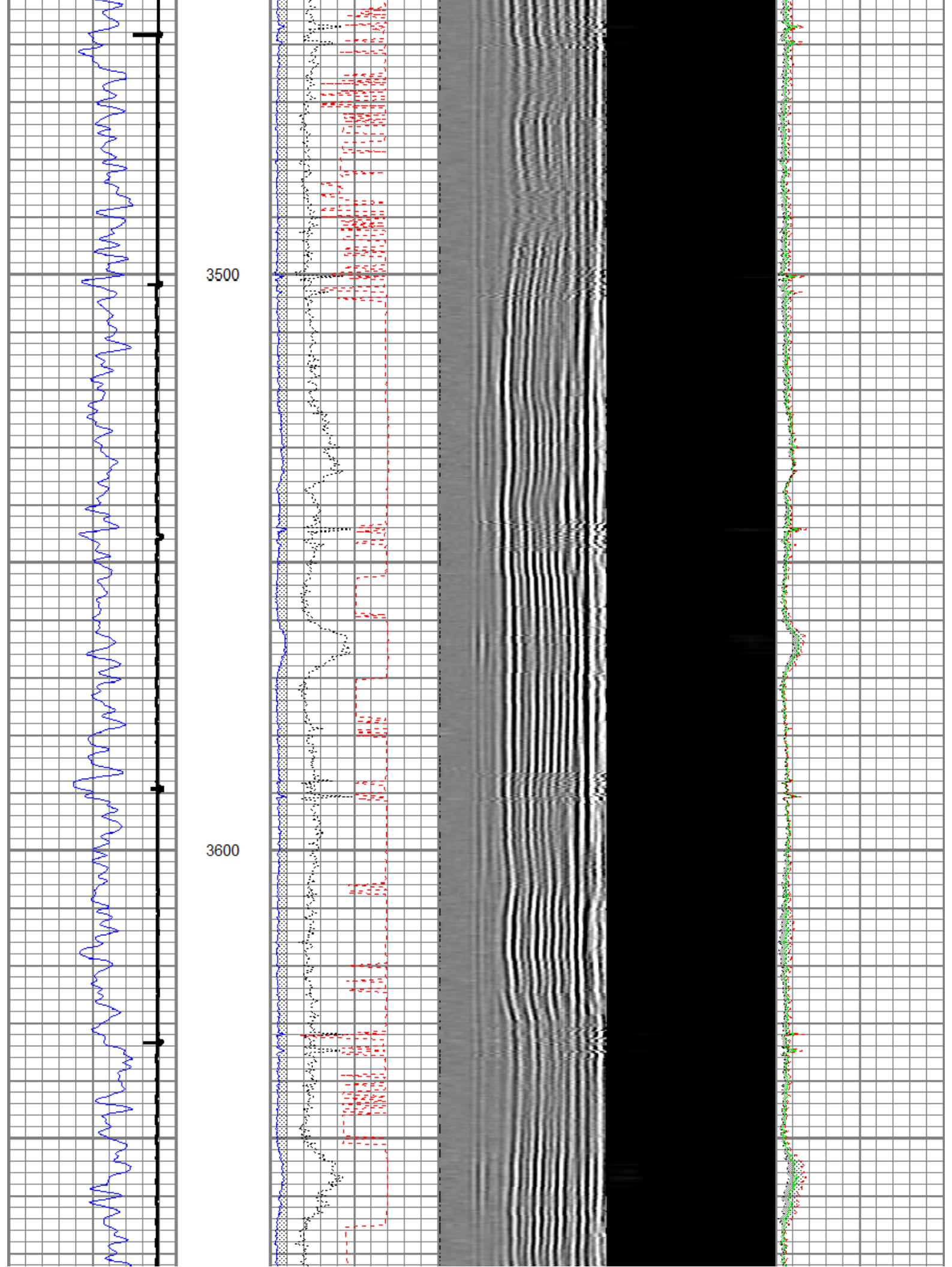


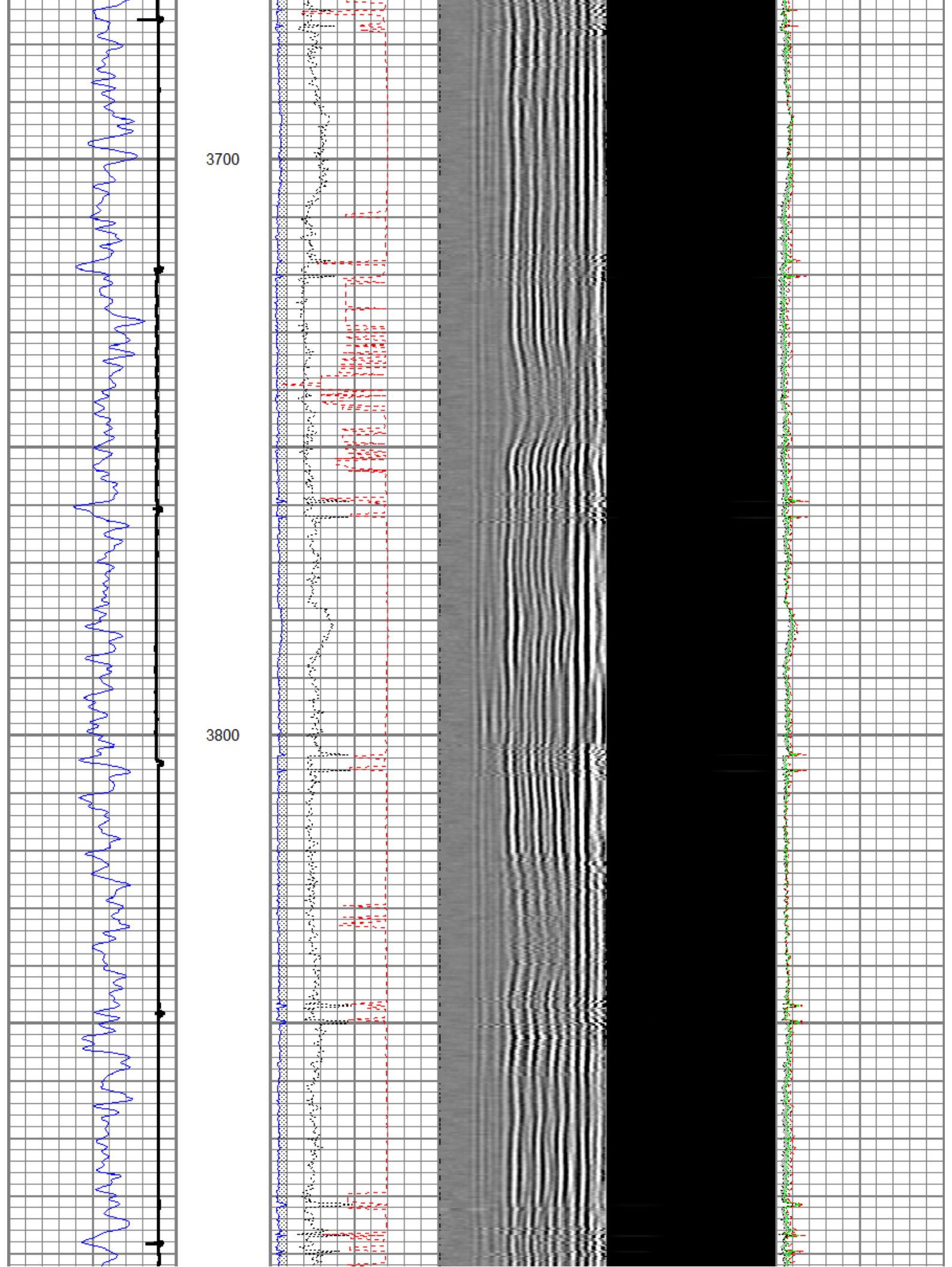
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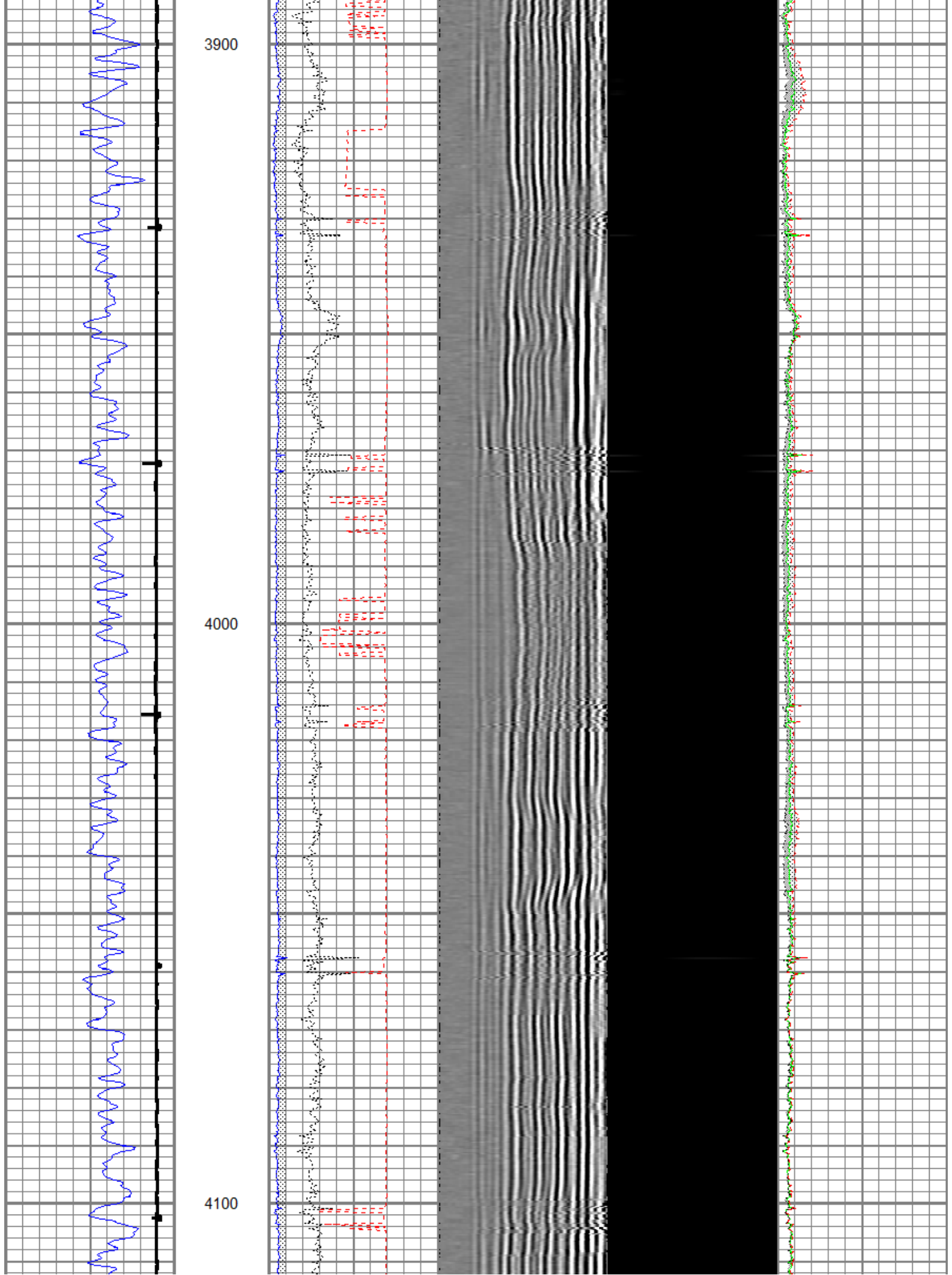
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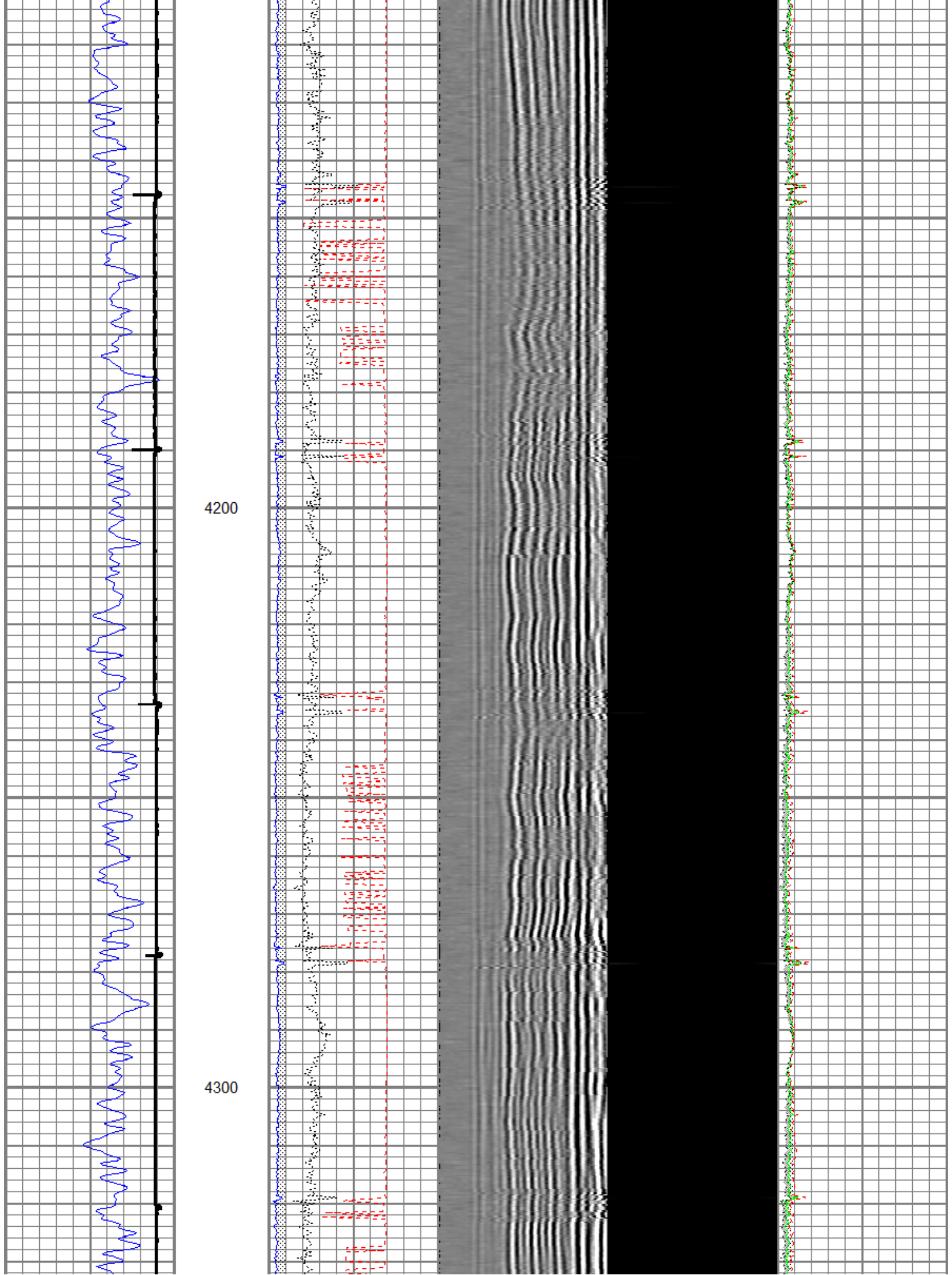


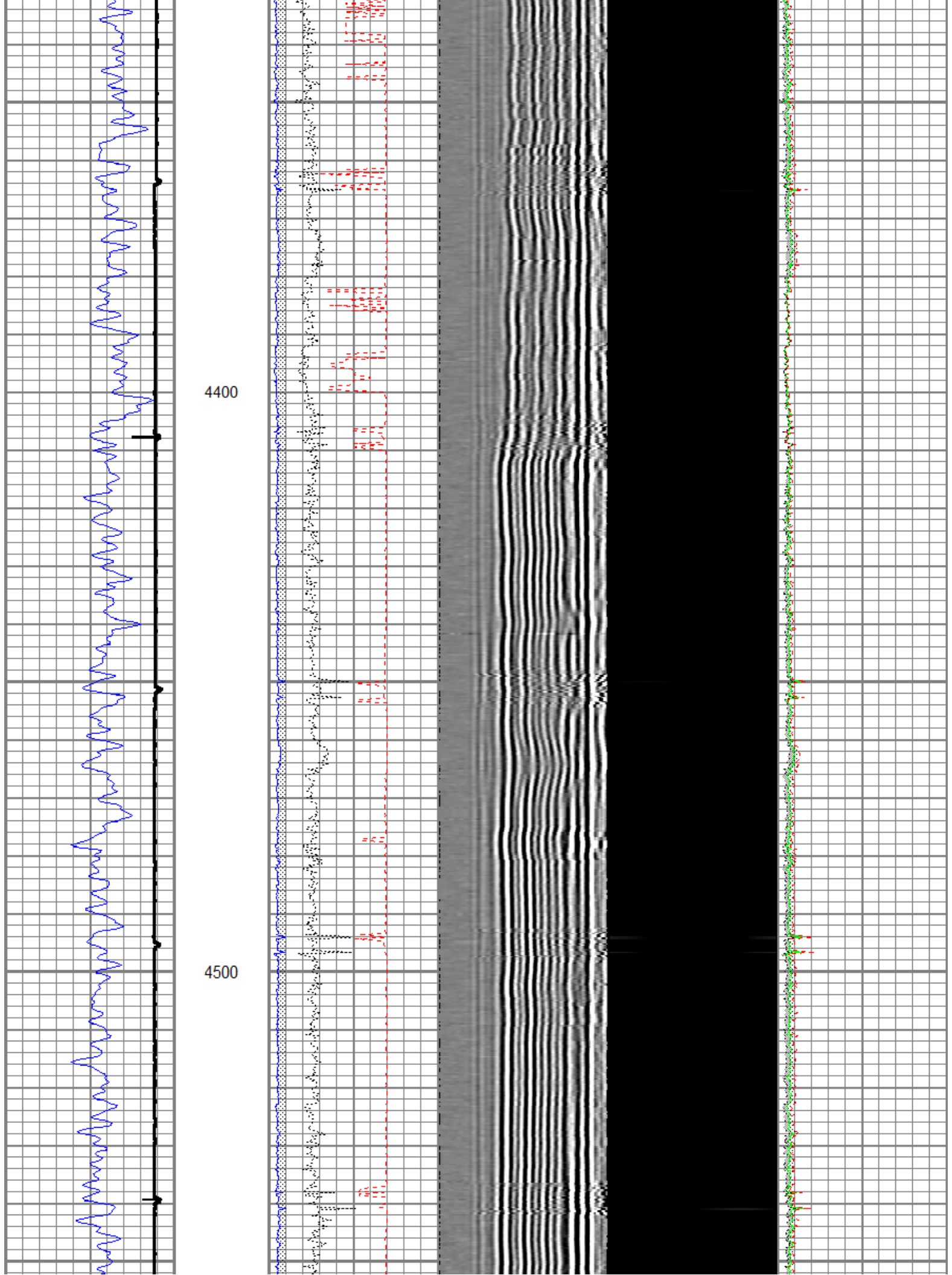


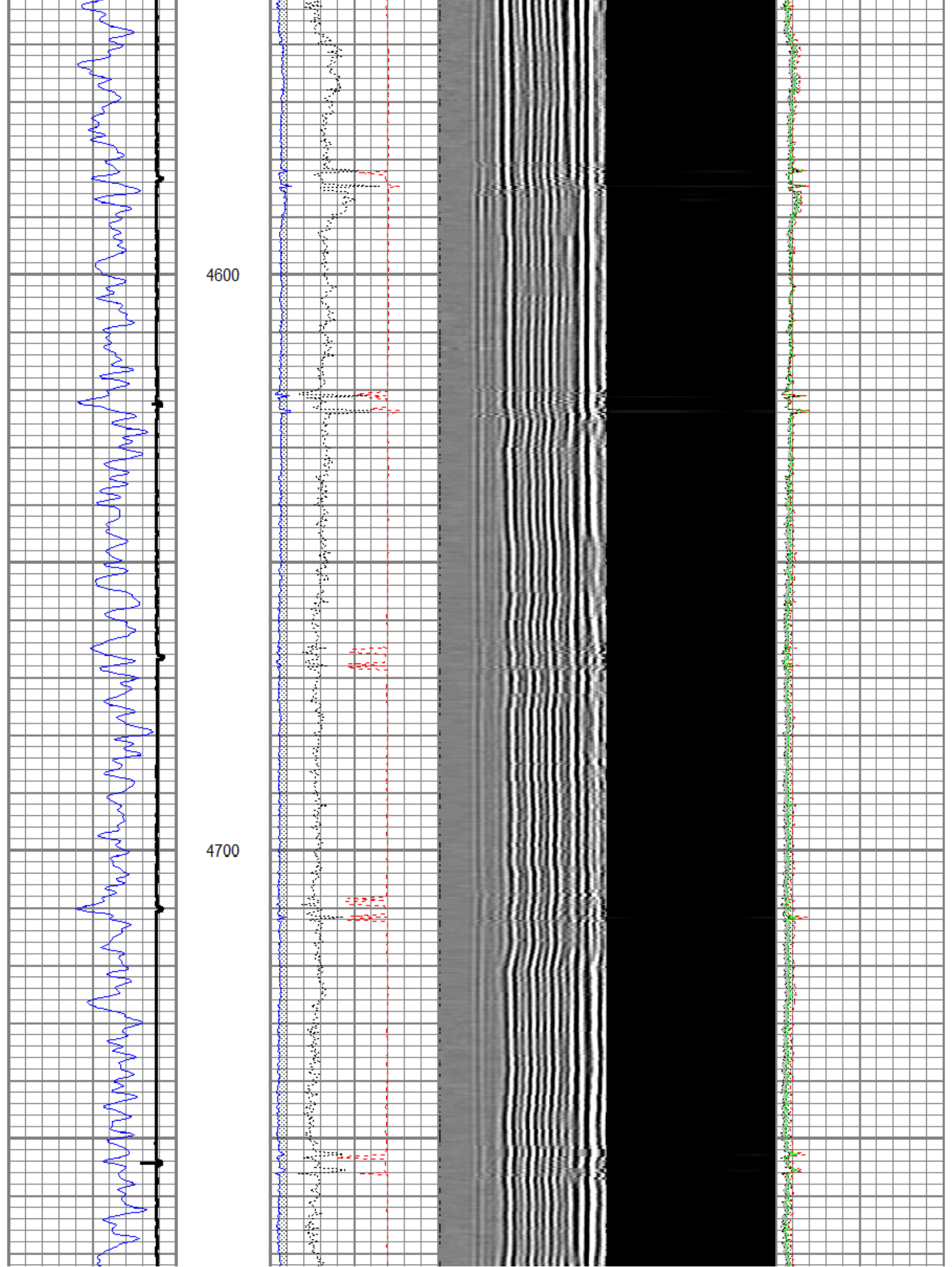


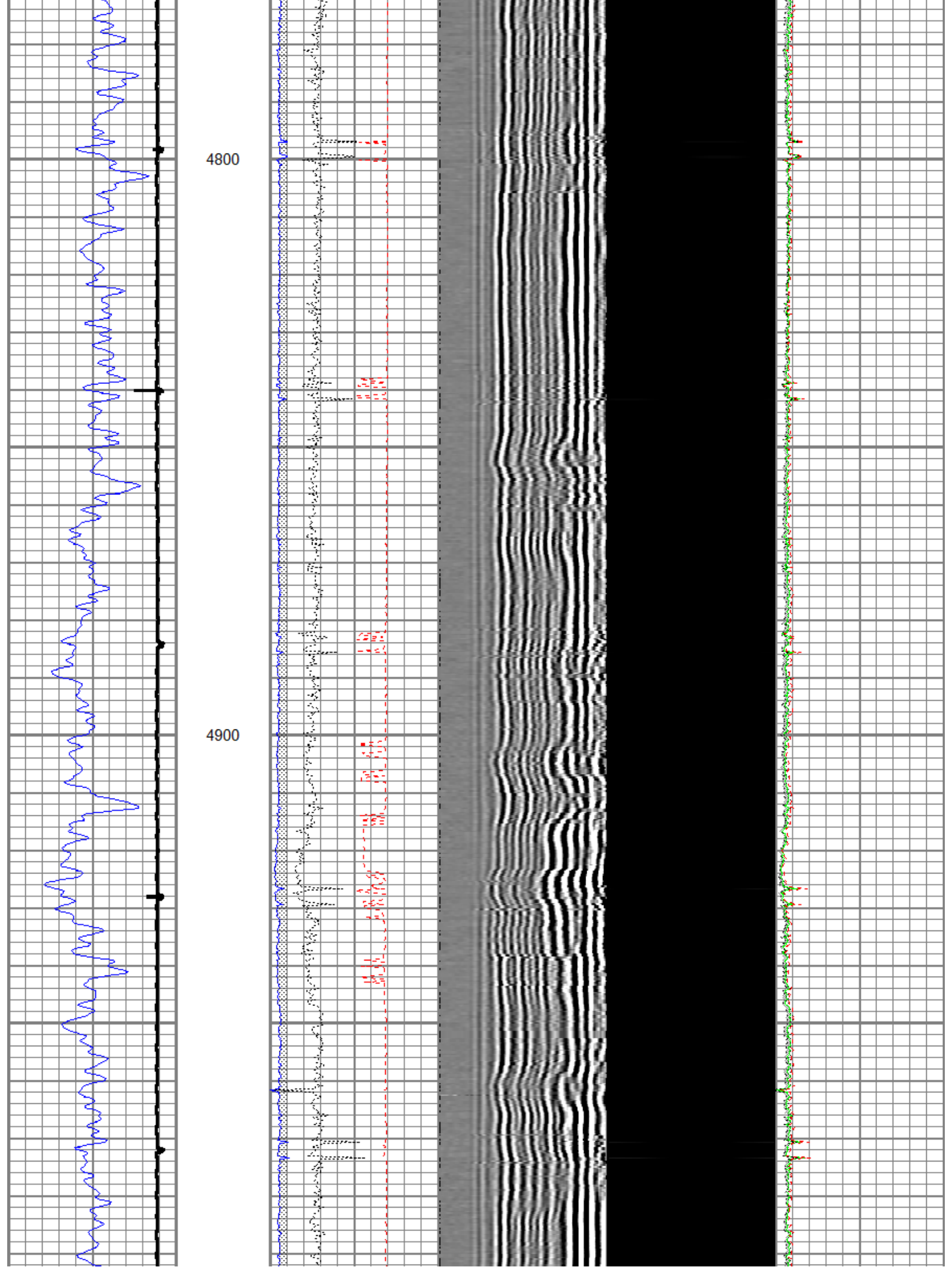


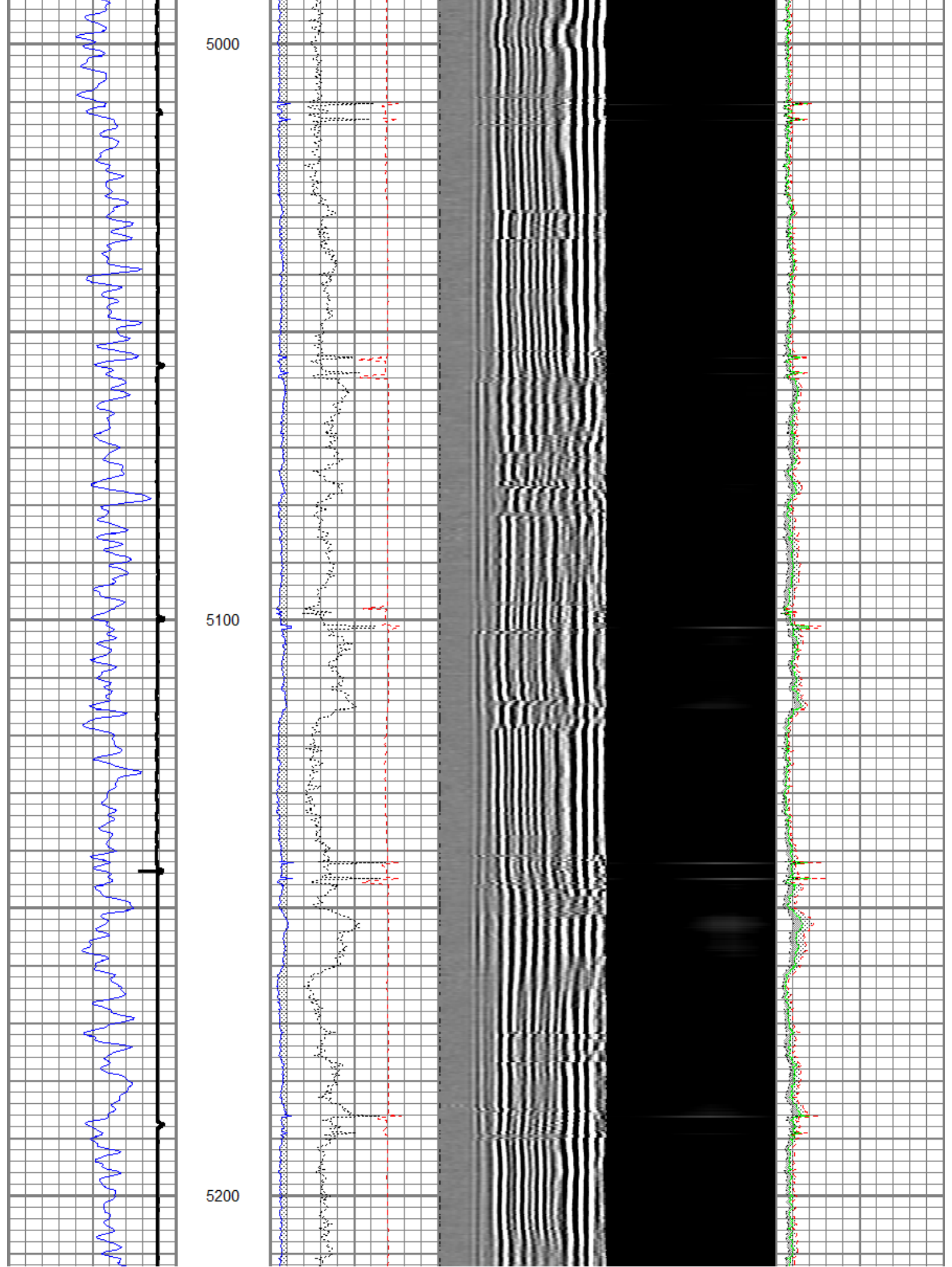


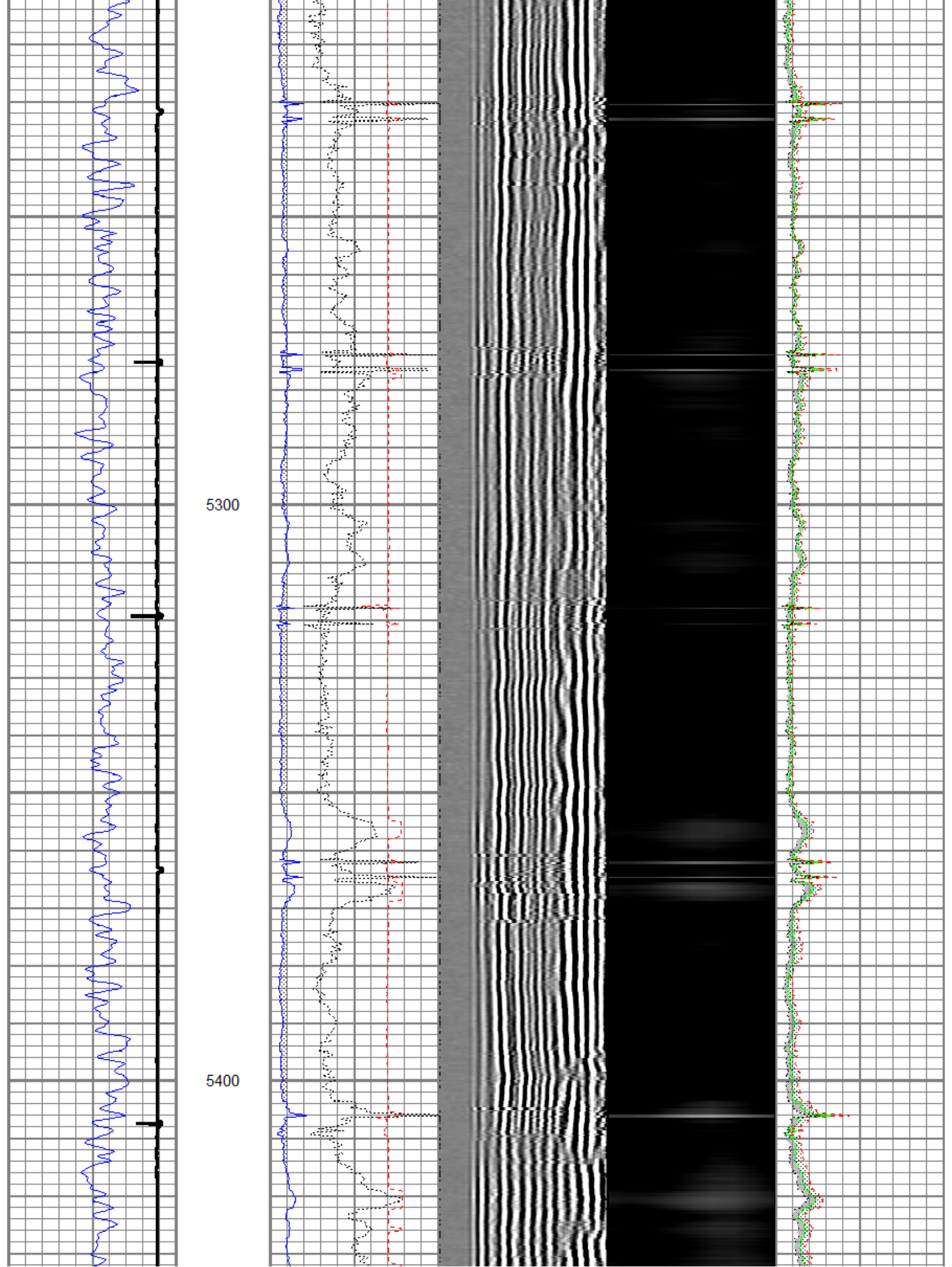


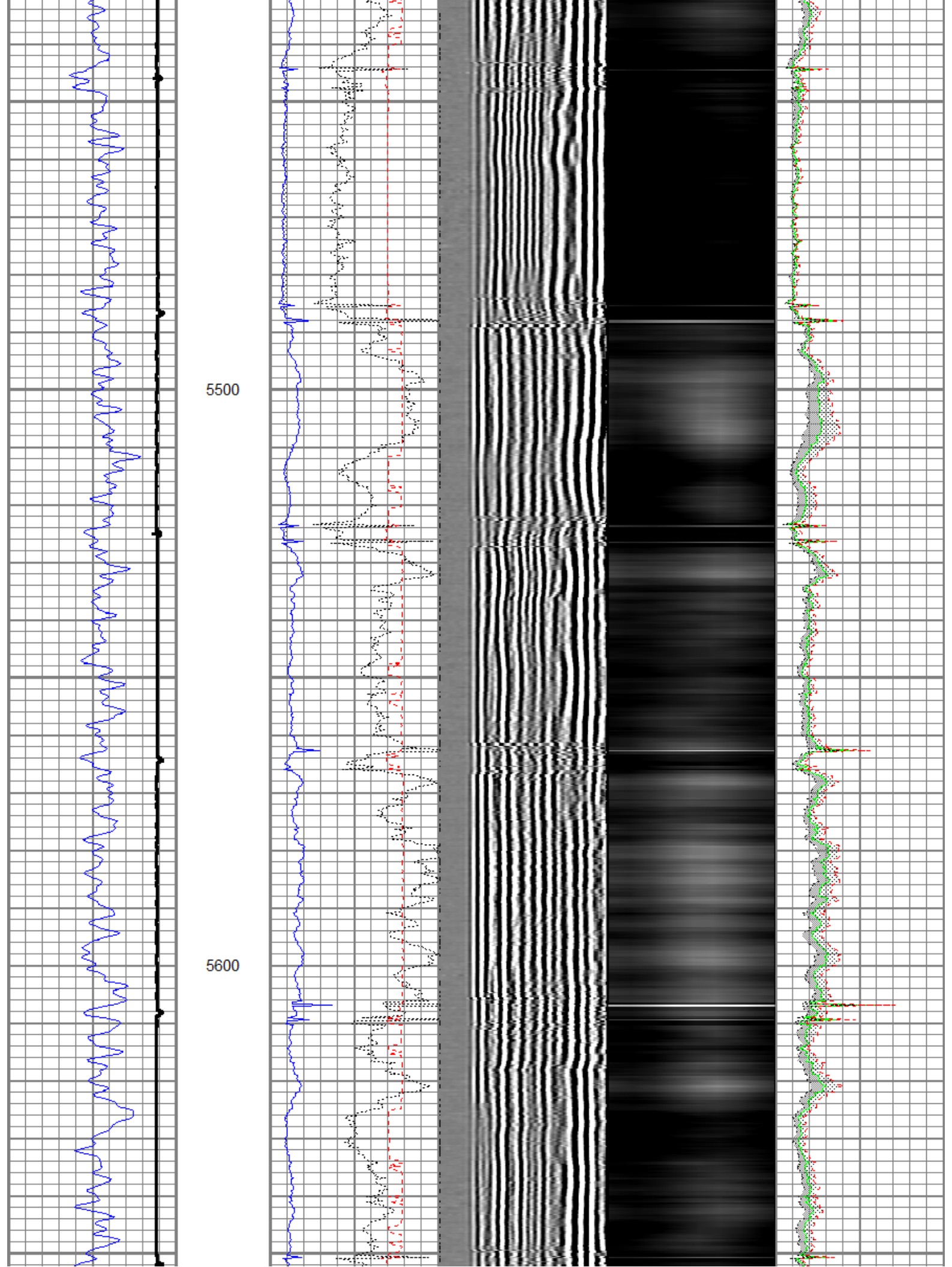


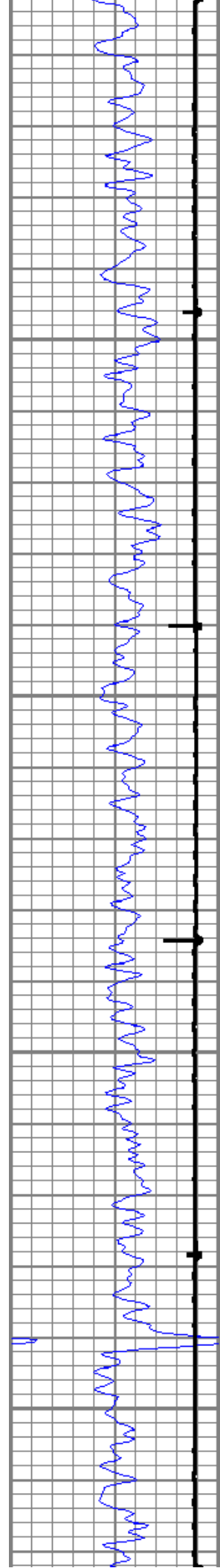






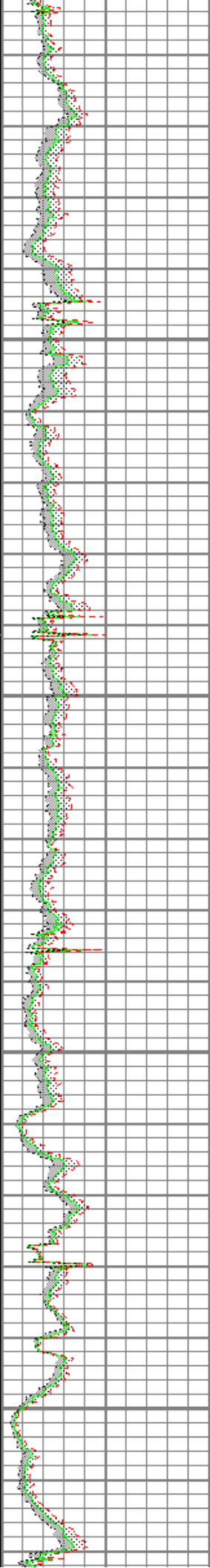
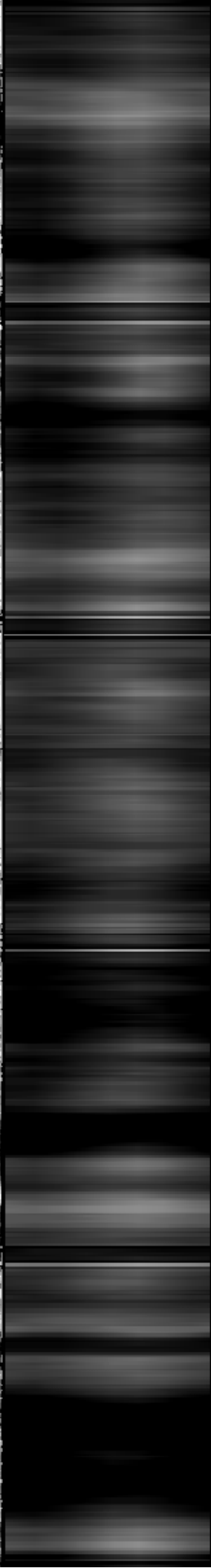
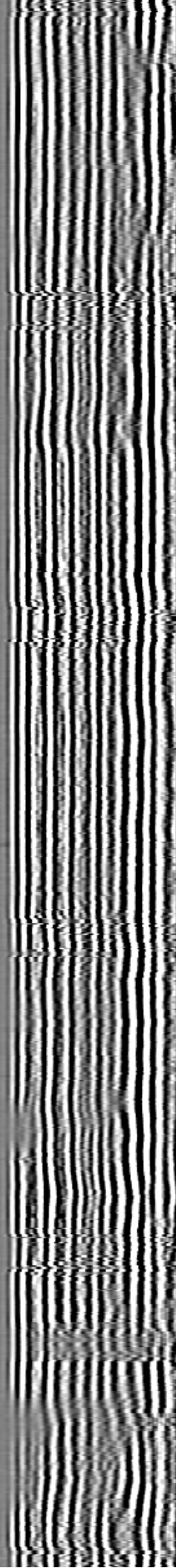
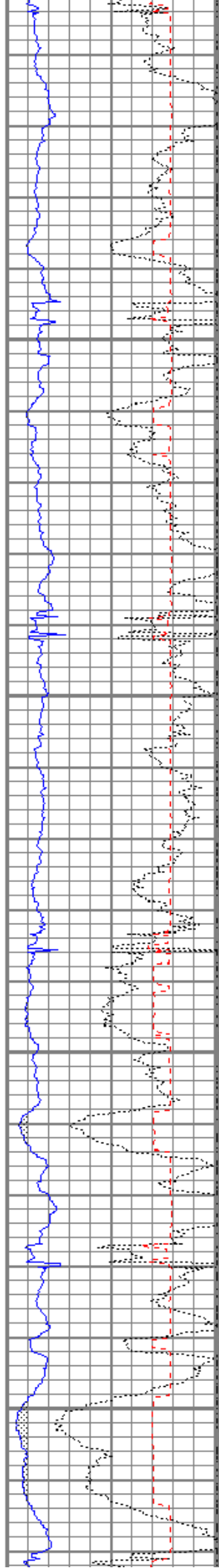


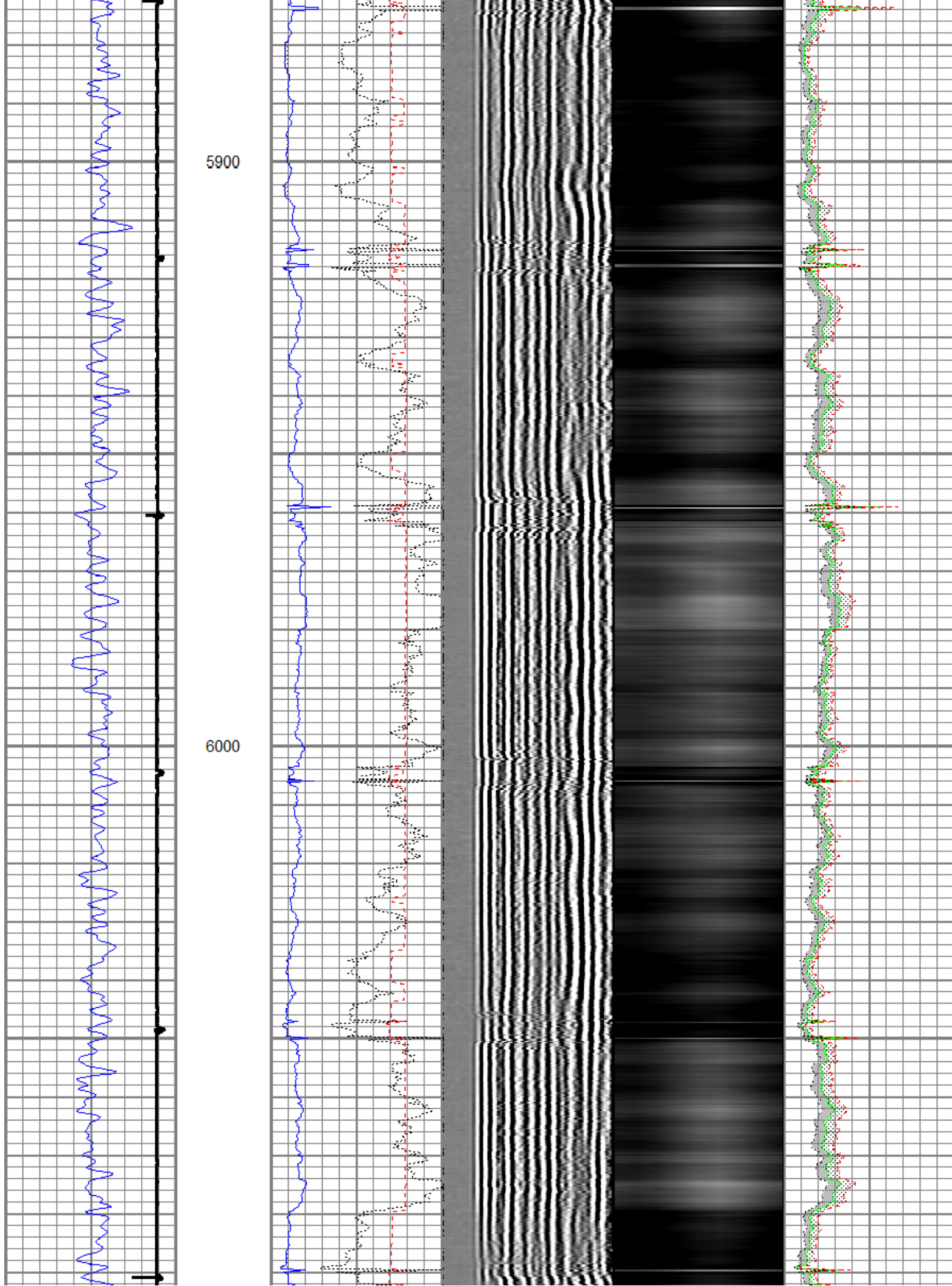


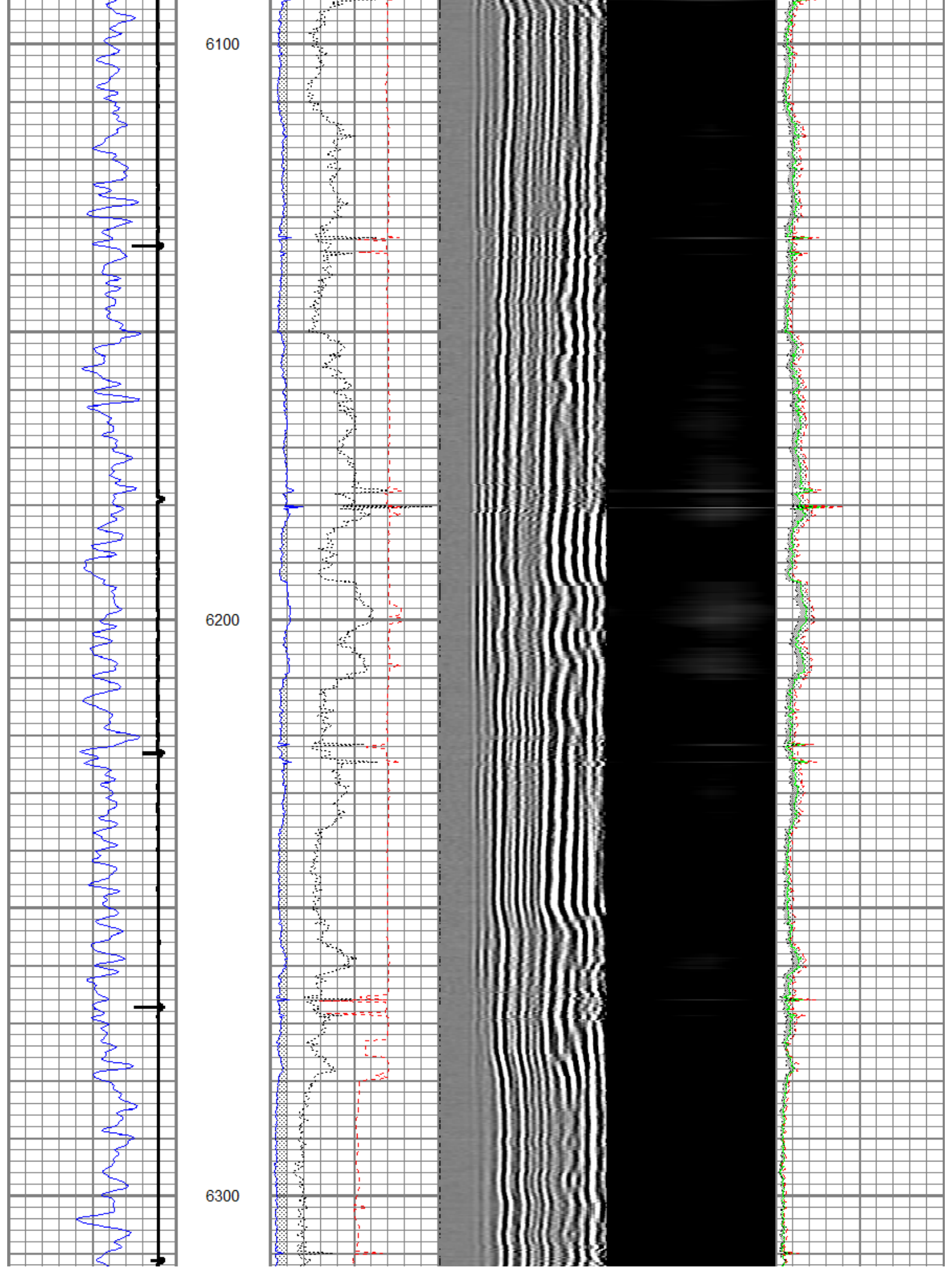


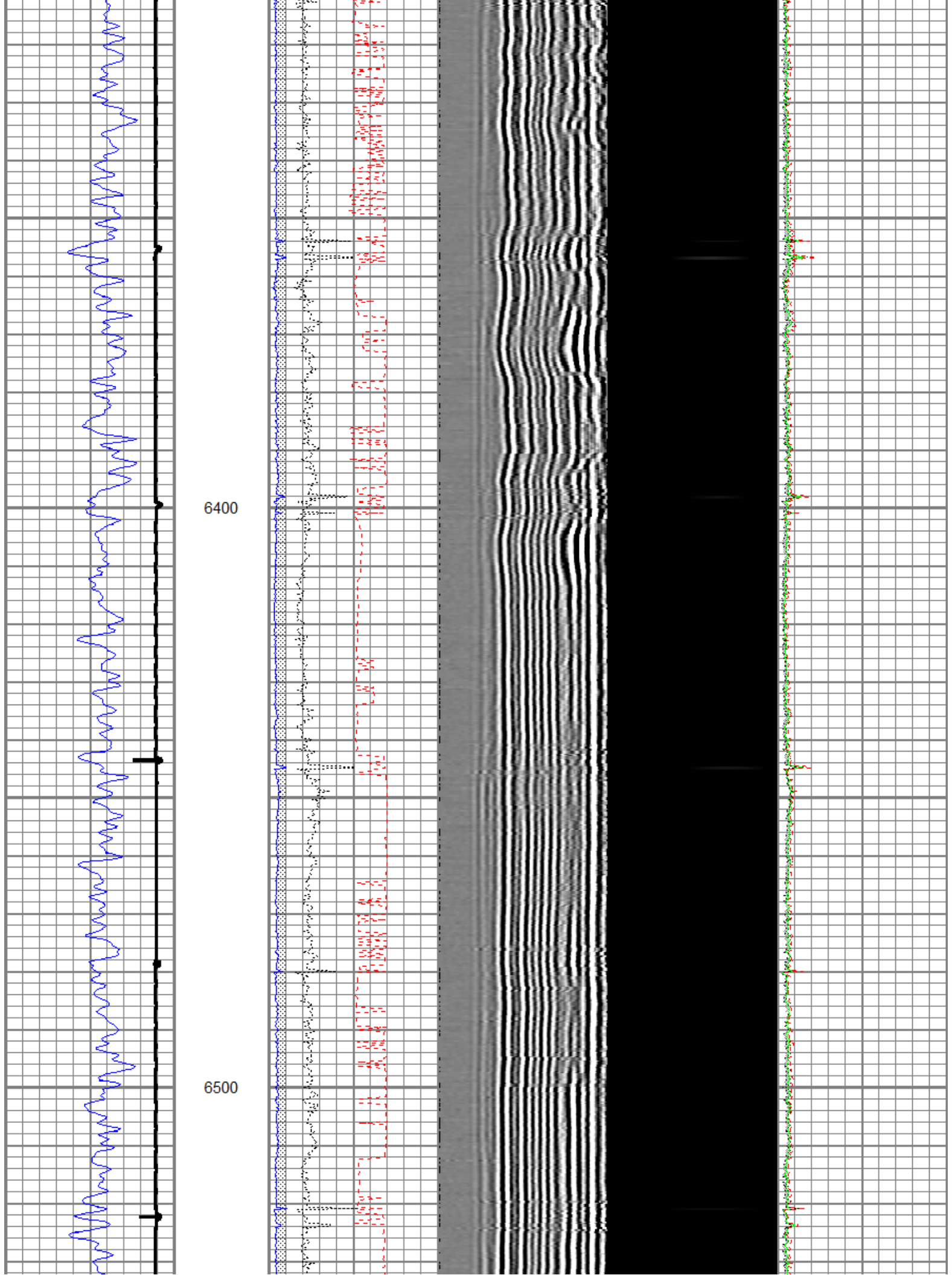
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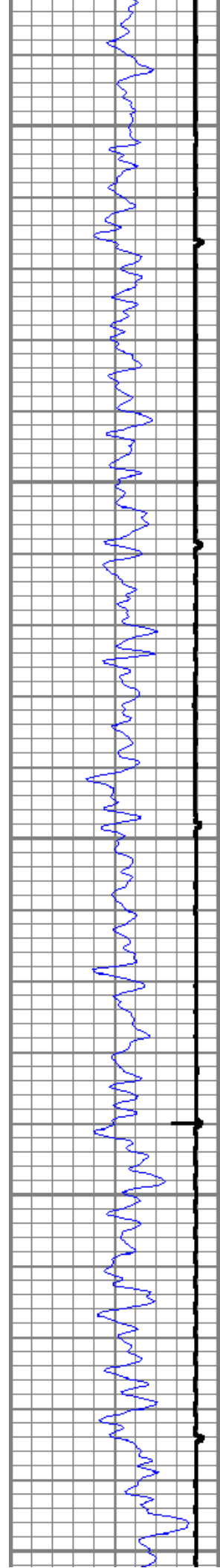
5800





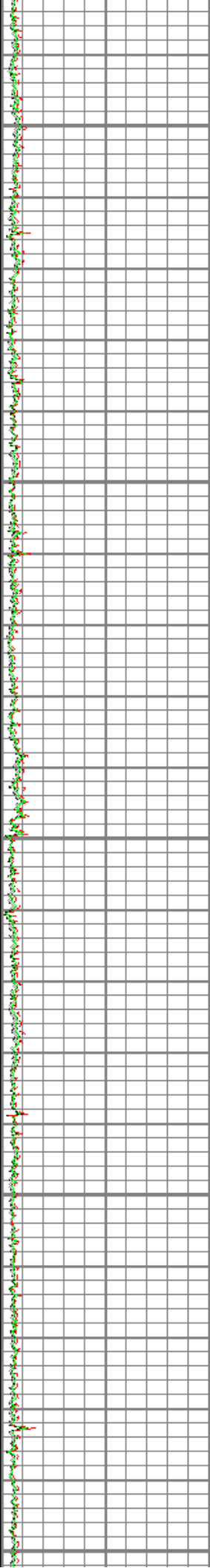
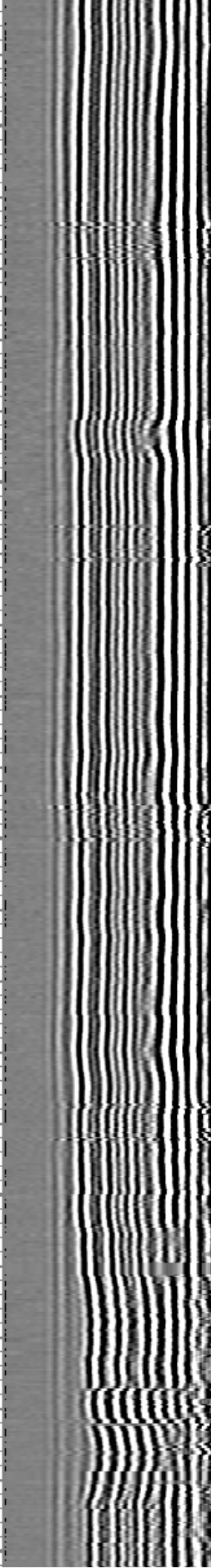
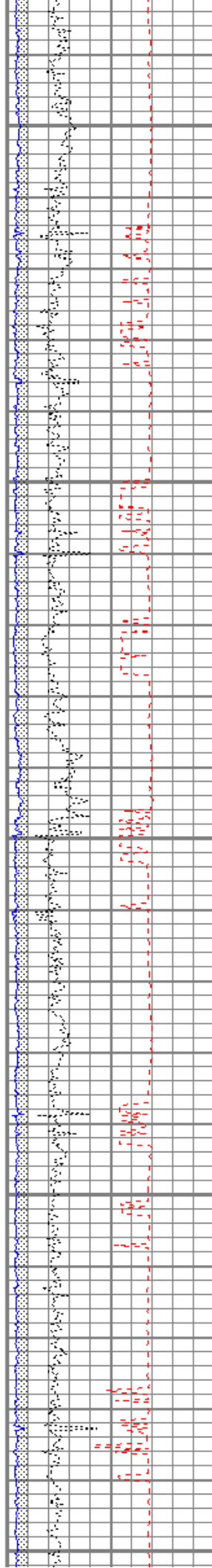


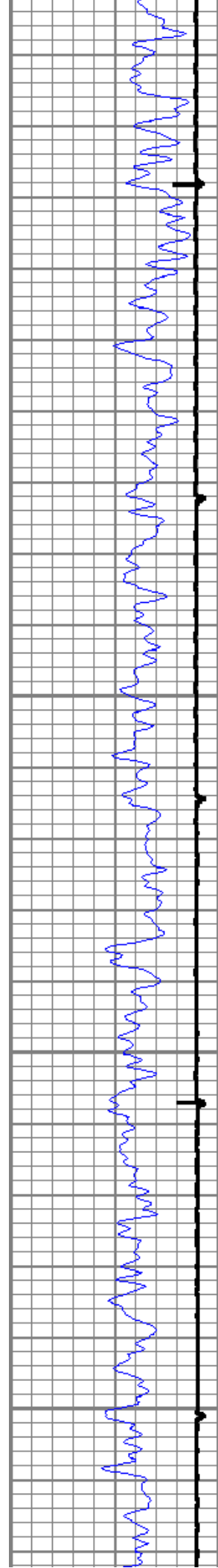




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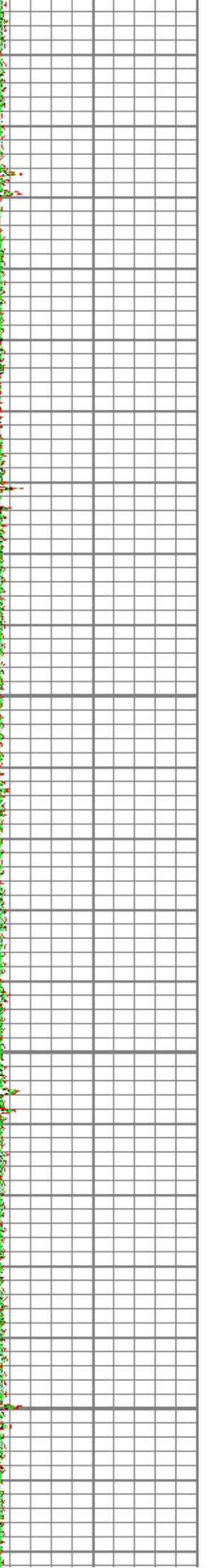
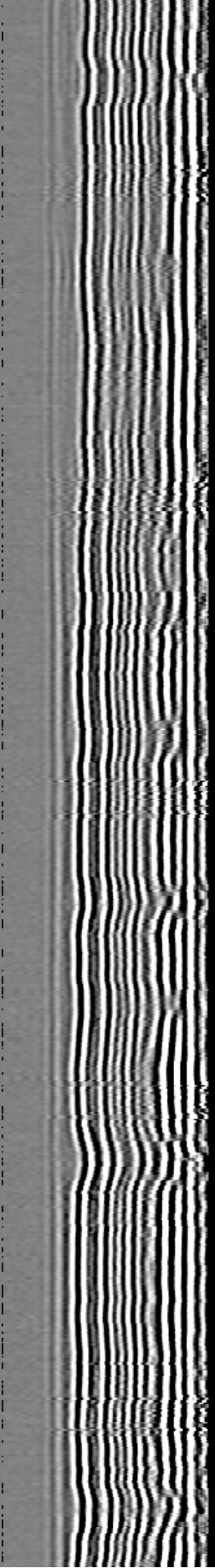
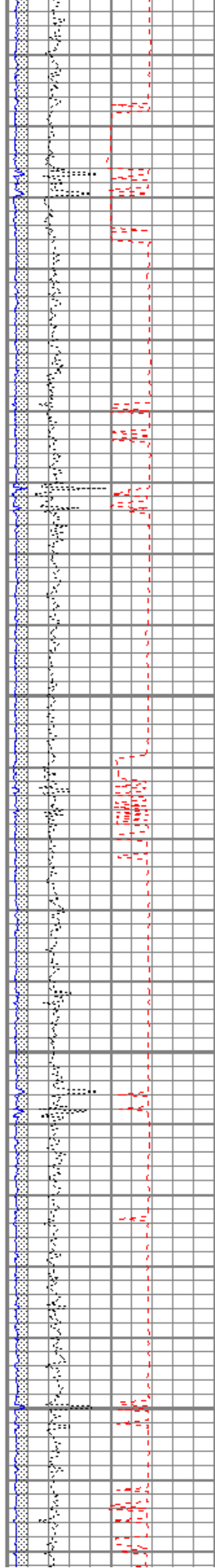
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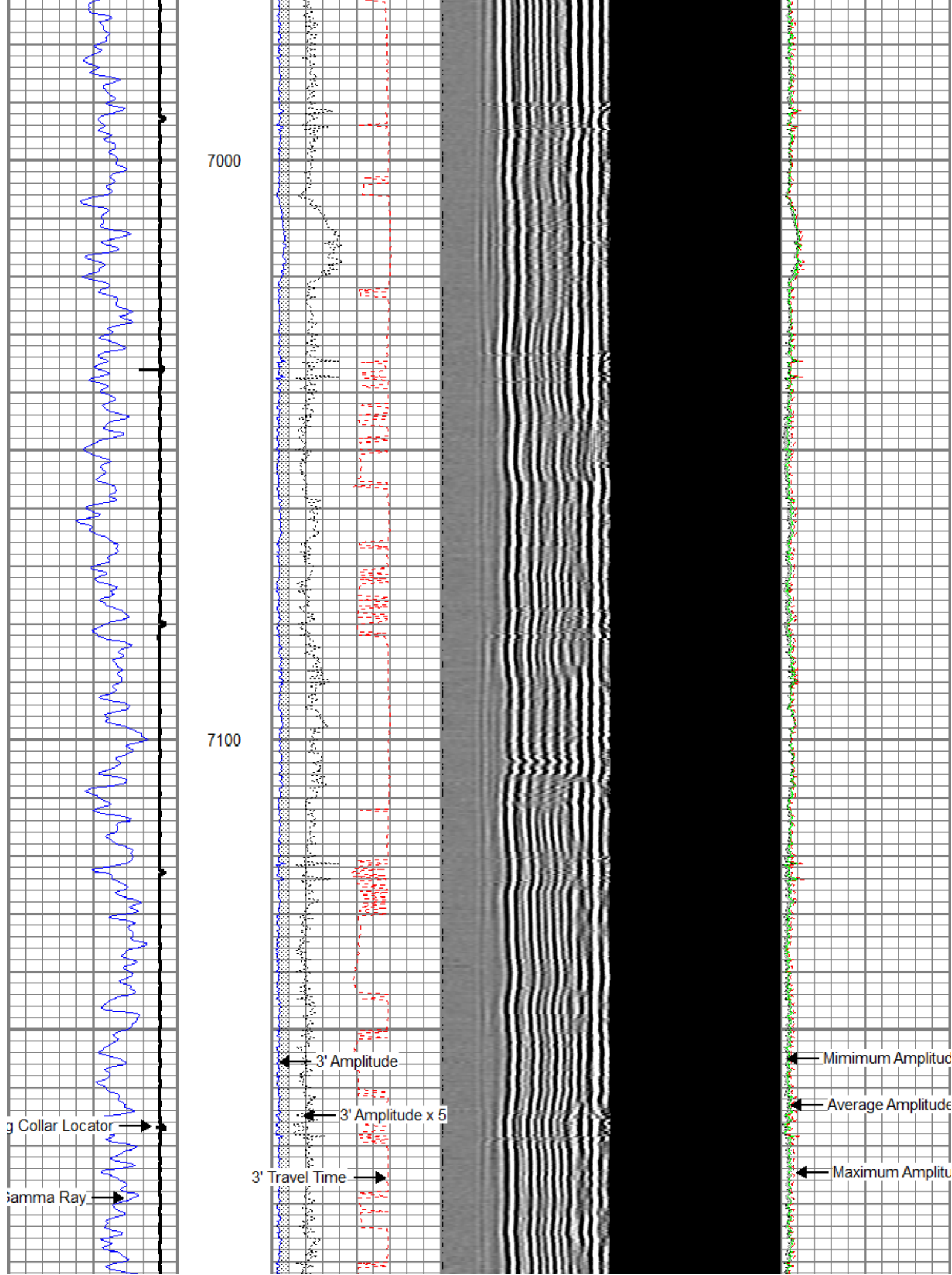


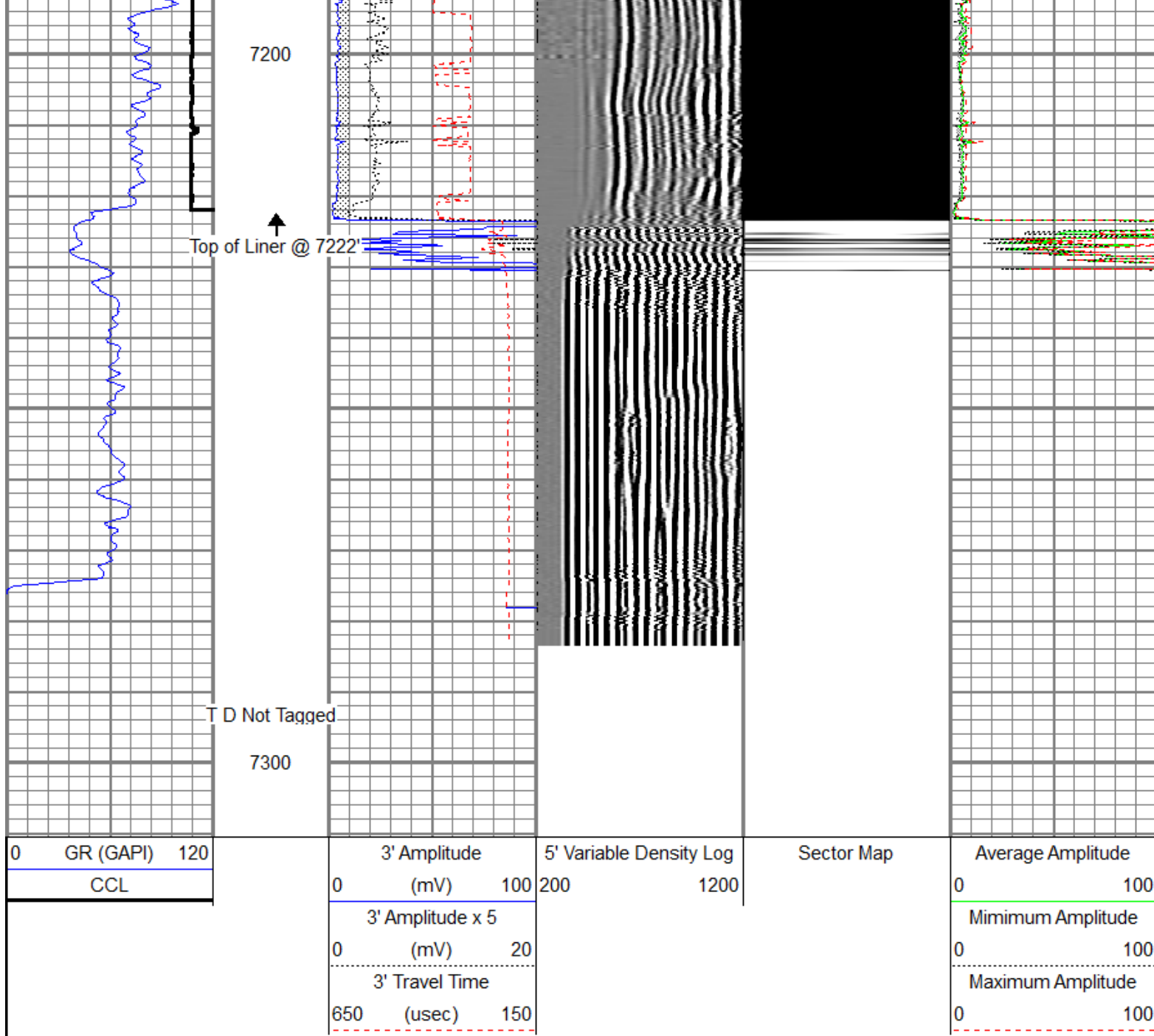


6800

6900

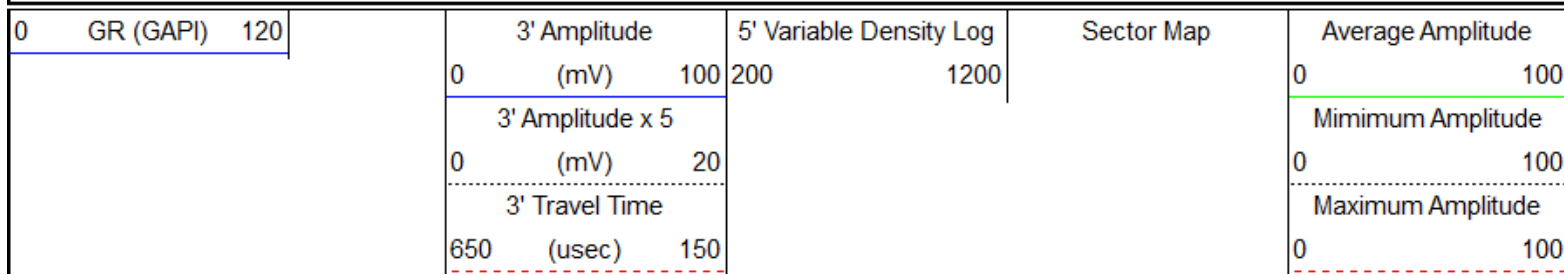


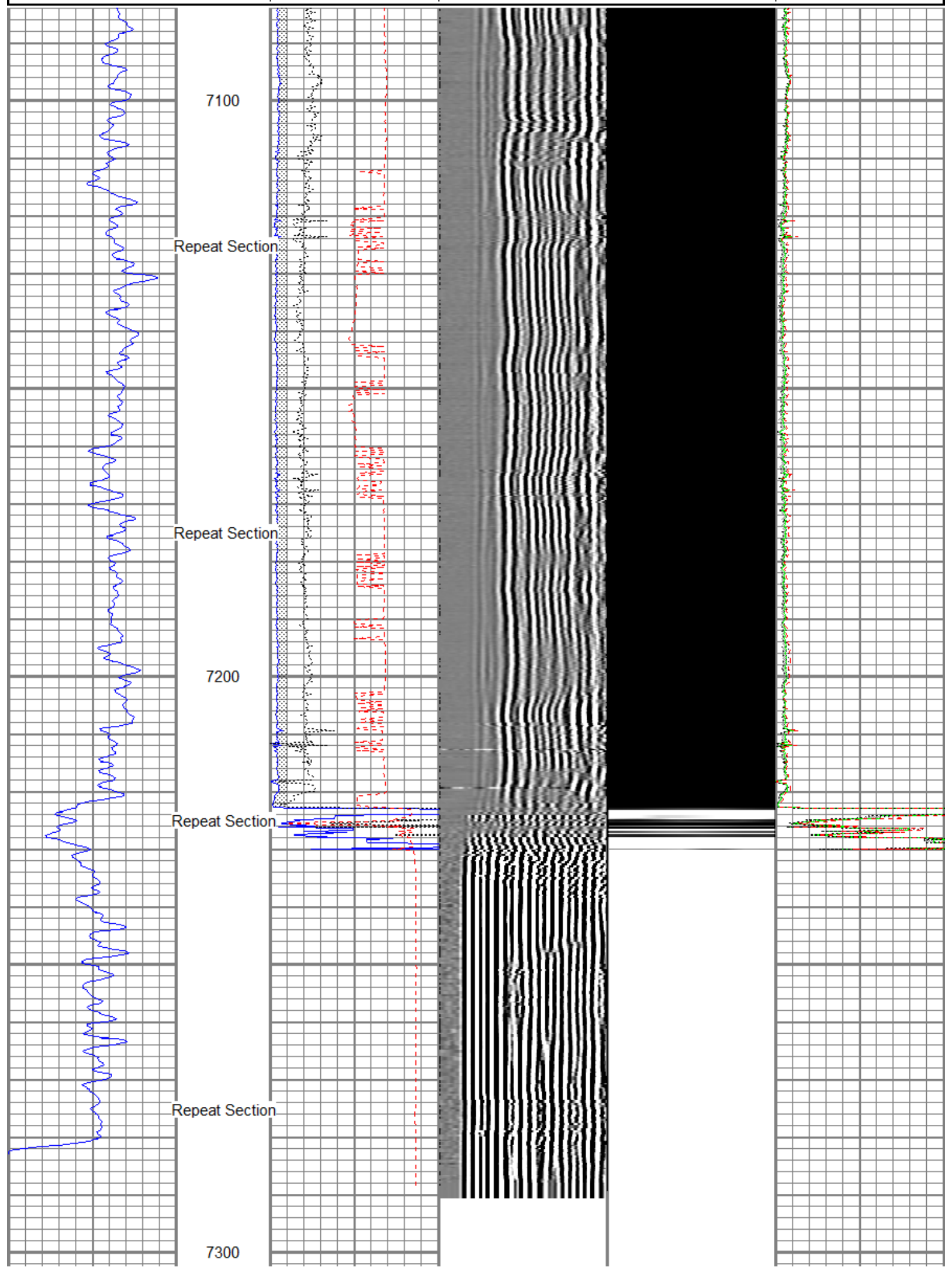




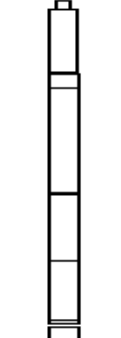
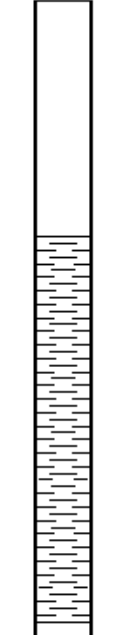

Repeat Pass 0 PSI

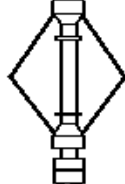
Database File: anadarko_howard 4n-28hz_20-nov-2013_rcbl mit.db
 Dataset Pathname: pass2
 Presentation Format: rib
 Dataset Creation: Wed Nov 20 16:04:38 2013 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240





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	15.85		RBT-004 (10013454in7) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS1	15.85					
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					
MIT	5.41		PRC-057 (1102) 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			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 4n-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 4n-28hz_20-nov-2013_rcbl mit.db
Dataset Pathname: pass4
Dataset Creation: Wed Nov 20 18:16:30 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

	Inc X	Inc Y
Vertical:	1963	1960
Finger 1 up:	1748	1727
Finger 31 up:	2195	1742
Finger 21 up:	2178	2188
Finger 11 up:	1727	2173
Sensitivity ratio:	1.00706	
X-axis angle:	132.825	
Deviation const.:	317.775	

Finger Calibration Report

Performed: Wed Nov 20 15:26:53 2013

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1192	397.0	1589	373.0	1962	384.0	2346
Finger 02:	1129	408.0	1537	387.0	1924	412.0	2336
Finger 03:	1155	401.0	1556	371.0	1927	405.0	2332
Finger 04:	1100	414.0	1514	387.0	1901	432.0	2333
Finger 05:	1176	402.0	1578	362.0	1940	409.0	2349
Finger 06:	1128	408.0	1536	369.0	1905	427.0	2332
Finger 07:	1151	404.0	1555	359.0	1914	423.0	2337
Finger 08:	1103	405.0	1508	376.0	1884	443.0	2327
Finger 09:	1179	399.0	1578	357.0	1935	416.0	2351
Finger 10:	1147	392.0	1539	361.0	1900	426.0	2326
Finger 11:	1125	384.0	1509	366.0	1875	439.0	2314
Finger 12:	1212	373.0	1585	348.0	1933	400.0	2333
Finger 13:	1139	368.0	1507	369.0	1876	436.0	2312
Finger 14:	1106	371.0	1477	386.0	1863	449.0	2312
Finger 15:	1086	365.0	1451	392.0	1843	452.0	2295
Finger 16:	1135	351.0	1486	385.0	1871	437.0	2308
Finger 17:	1166	339.0	1505	377.0	1882	417.0	2299
Finger 18:	1180	329.0	1509	379.0	1888	411.0	2299
Finger 19:	1157	333.0	1490	394.0	1884	419.0	2303
Finger 20:	1096	336.0	1432	416.0	1848	435.0	2283
Finger 21:	1160	316.0	1476	398.0	1874	402.0	2276
Finger 22:	1157	317.0	1474	406.0	1880	406.0	2286
Finger 23:	1235	299.0	1534	381.0	1915	375.0	2290
Finger 24:	1143	319.0	1462	420.0	1882	403.0	2285
Finger 25:	1146	317.0	1463	415.0	1878	403.0	2281
Finger 26:	1171	315.0	1486	412.0	1898	381.0	2279
Finger 27:	1186	308.0	1494	407.0	1901	380.0	2281

Finger 28:	1142	324.0	1466	422.0	1888	390.0	2278
Finger 29:	1125	330.0	1455	431.0	1886	396.0	2282
Finger 30:	1135	329.0	1464	430.0	1894	392.0	2286
Finger 31:	1170	332.0	1502	413.0	1915	370.0	2285
Finger 32:	1133	345.0	1478	425.0	1903	389.0	2292
Finger 33:	1131	351.0	1482	421.0	1903	385.0	2288
Finger 34:	1116	362.0	1478	426.0	1904	394.0	2298
Finger 35:	1178	355.0	1533	395.0	1928	368.0	2296
Finger 36:	1122	374.0	1496	413.0	1909	392.0	2301
Finger 37:	1214	361.0	1575	380.0	1955	364.0	2319
Finger 38:	1183	377.0	1560	387.0	1947	379.0	2326
Finger 39:	1145	389.0	1534	392.0	1926	396.0	2322
Finger 40:	1086	406.0	1492	406.0	1898	417.0	2315

Post Survey Calibration Check

Performed:

Wed Nov 20 18:16:20 2013

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.009	0.005	4.994	-0.003	6.001	0.000	6.999	-0.000
Finger 02:	4.008	0.004	4.993	-0.003	5.994	-0.003	6.999	-0.000
Finger 03:	4.012	0.006	4.997	-0.002	6.001	0.001	7.000	0.000
Finger 04:	4.012	0.006	4.995	-0.003	6.003	0.001	7.008	0.004
Finger 05:	4.013	0.006	4.993	-0.003	6.008	0.004	7.004	0.002
Finger 06:	4.017	0.008	4.994	-0.003	6.003	0.001	7.004	0.002
Finger 07:	4.018	0.009	4.993	-0.004	5.999	-0.001	7.000	-0.000
Finger 08:	4.016	0.008	5.003	0.001	5.999	-0.000	7.003	0.002
Finger 09:	4.006	0.003	4.995	-0.003	5.998	-0.001	7.005	0.002
Finger 10:	4.013	0.006	4.999	-0.000	5.997	-0.002	7.003	0.002
Finger 11:	4.008	0.004	5.002	0.001	5.997	-0.002	6.999	-0.000
Finger 12:	4.006	0.003	5.010	0.005	6.001	0.000	7.007	0.003
Finger 13:	4.007	0.004	5.008	0.004	5.995	-0.003	7.006	0.003
Finger 14:	4.008	0.004	5.011	0.006	5.998	-0.001	6.998	-0.001
Finger 15:	4.007	0.003	5.010	0.005	5.995	-0.003	7.003	0.002
Finger 16:	4.003	0.001	5.009	0.005	5.993	-0.003	6.998	-0.001
Finger 17:	4.004	0.002	5.010	0.005	5.994	-0.003	6.999	-0.000
Finger 18:	4.009	0.005	5.010	0.005	5.995	-0.003	6.997	-0.002
Finger 19:	4.008	0.004	5.003	0.001	5.993	-0.004	6.994	-0.003
Finger 20:	4.011	0.005	5.001	0.000	5.989	-0.005	6.996	-0.002
Finger 21:	4.010	0.005	4.999	-0.000	6.000	-0.000	6.994	-0.003
Finger 22:	4.005	0.002	4.994	-0.003	6.000	-0.000	7.004	0.002
Finger 23:	4.010	0.005	4.994	-0.003	5.999	-0.000	7.000	-0.000
Finger 24:	4.013	0.007	4.993	-0.003	5.999	-0.000	7.001	0.001
Finger 25:	4.009	0.004	4.983	-0.008	6.002	0.001	7.006	0.003
Finger 26:	4.022	0.011	4.993	-0.004	6.001	0.000	7.005	0.002
Finger 27:	4.012	0.006	4.994	-0.003	6.001	0.001	7.002	0.001
Finger 28:	4.014	0.007	4.996	-0.002	6.004	0.002	7.001	0.000
Finger 29:	4.014	0.007	4.998	-0.001	6.002	0.001	7.001	0.001
Finger 30:	4.002	0.001	5.002	0.001	6.001	0.000	7.011	0.006
Finger 31:	4.012	0.006	5.006	0.003	6.001	0.001	7.002	0.001
Finger 32:	4.012	0.006	5.022	0.011	6.000	0.000	7.006	0.003
Finger 33:	4.009	0.005	5.011	0.006	5.993	-0.004	7.002	0.001
Finger 34:	4.002	0.001	5.005	0.002	5.991	-0.004	7.000	0.000
Finger 35:	4.009	0.004	5.010	0.005	5.997	-0.002	7.004	0.002
Finger 36:	4.006	0.003	5.007	0.004	5.992	-0.004	6.997	-0.002
Finger 37:	4.005	0.002	5.005	0.002	5.986	-0.007	6.996	-0.002
Finger 38:	4.006	0.003	5.008	0.004	5.992	-0.004	6.994	-0.003
Finger 39:	4.006	0.003	5.001	0.000	5.994	-0.003	6.993	-0.004
Finger 40:	4.008	0.004	5.001	0.001	5.999	-0.000	6.998	-0.001
Average:	4.010	0.005	5.001	0.001	5.998	-0.001	7.001	0.001

Segmented Cement Bond Log Calibration Report

Serial Number: 10013454in7
Tool Model: 004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 3122.921 ft

	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 4N-28HZ
Field	Wattenberg
County	Weld
State	Colorado