

Radial Cement Bond Gamma Ray Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Houston 33N-8HZ
Field	Wattenberg
County	Weld
State	Colorado
Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Houston 33N-8HZ
Field	Wattenberg
County	Weld
State	Colorado
Location:	API #: 05-123-38948
Permanent Datum	SHL: 1750' FSL, 594' FEL, NESE
Log Measured From	Lat / Long: 40.237885 / -104.906903
Drilling Measured From	SEC 8 TWP 3N RGE 67W
Ground Level	Elevation 4807'
Kelly Bushing	17 FT
Other Services	Gauge Ring Set RBP MIT
Elevation	K.B. 4824' D.F. 4823' G.L. 4807'

Date	20-June-2014
Run Number	Three
Depth Driller	11743 FT
Depth Logger	6405 FT
Bottom Logged Interval	6401 FT
Top Log Interval	Surface
Open Hole Size	8.765"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	208°F
Estimated Cement Top	32 FT
Time Well Ready	ROA
Time Logger on Bottom	11:45
Equipment Number	HD-0119
Location	Fort Lupton, CO
Recorded By	J. Raby
Witnessed By	Jim Adams

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top	Bottom		
Surface Casing	9 5/8"	36	J-55 LTC	Surface	823 FT		
Intermediate #1	7"	26	HCP-110 LTC	Surface	7383 FT		
Intermediate #2							
Liner	4 1/2"	11.6	P-110 DOX/LTC	6376 FT	11733 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.

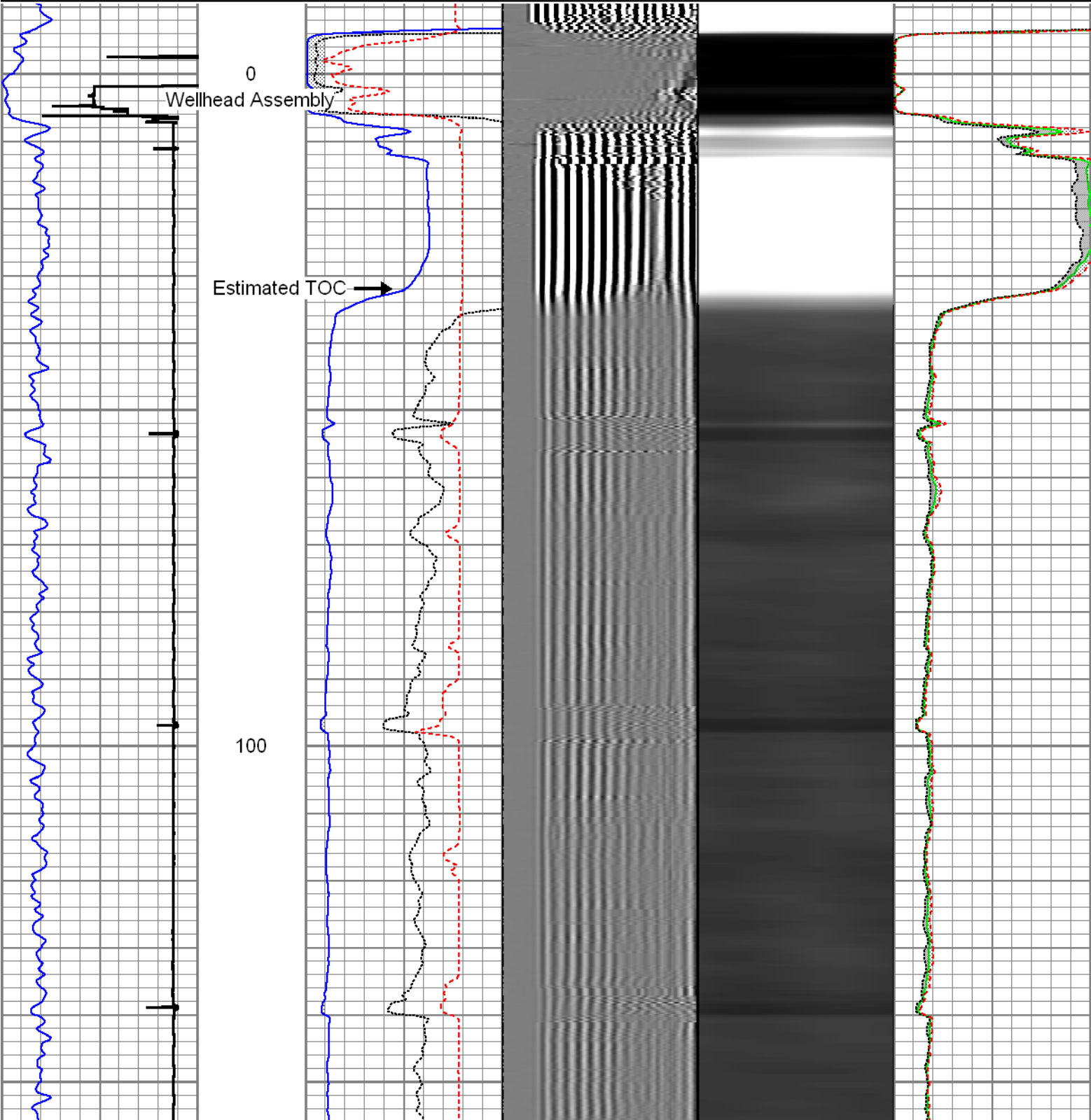
Comments

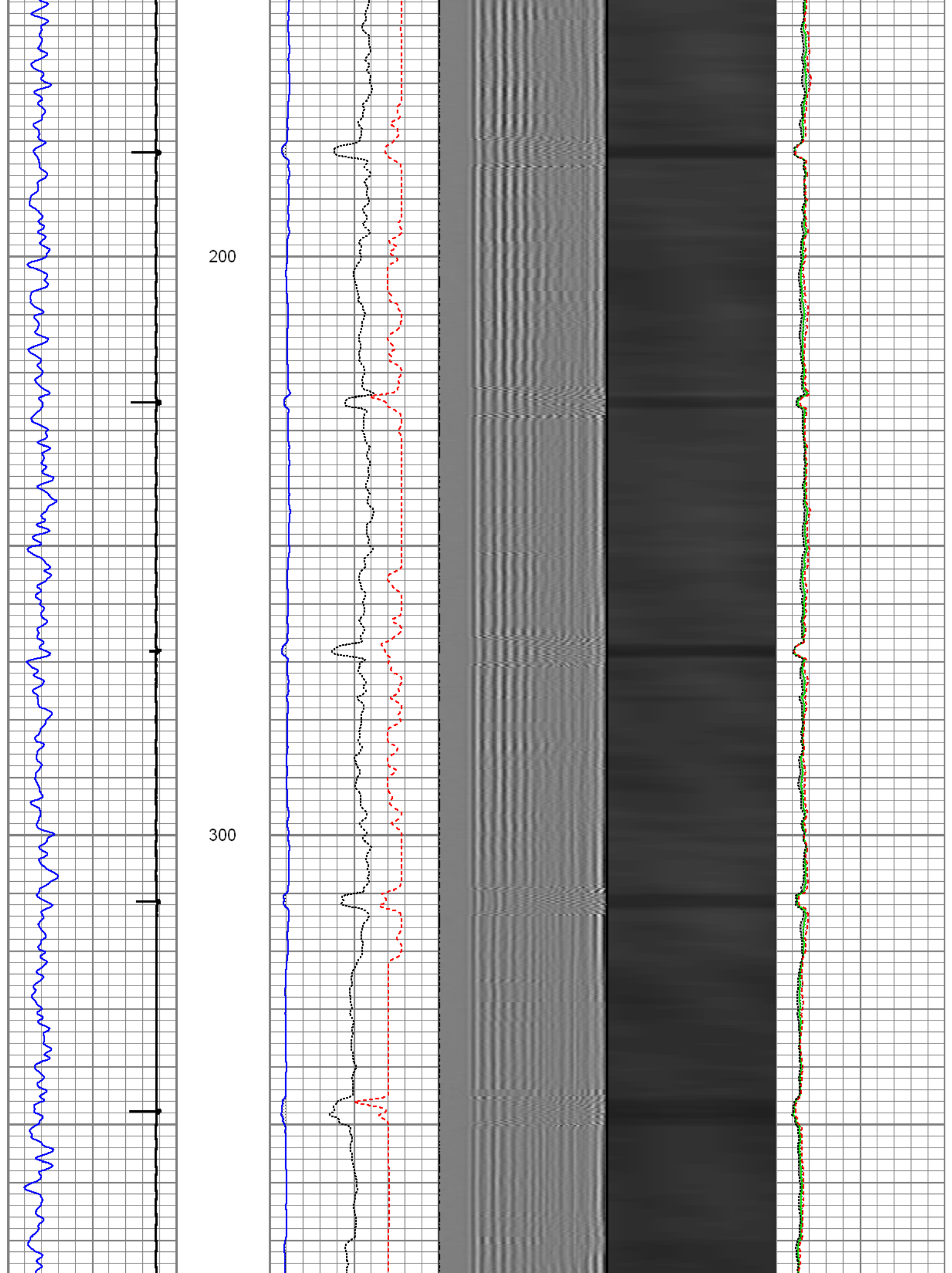
Log ran as per Customer request.
Depth reference to Casing Tally reported Liner Top at 6376 FT.
Adjusted log -4 FT from KB zero to correlate with Liner Top.
Retrievable Bridge Plug set at 6430 FT.
Log ran from below Liner Top to surface.
Log ran with 2800 PSI surface induced pressure.

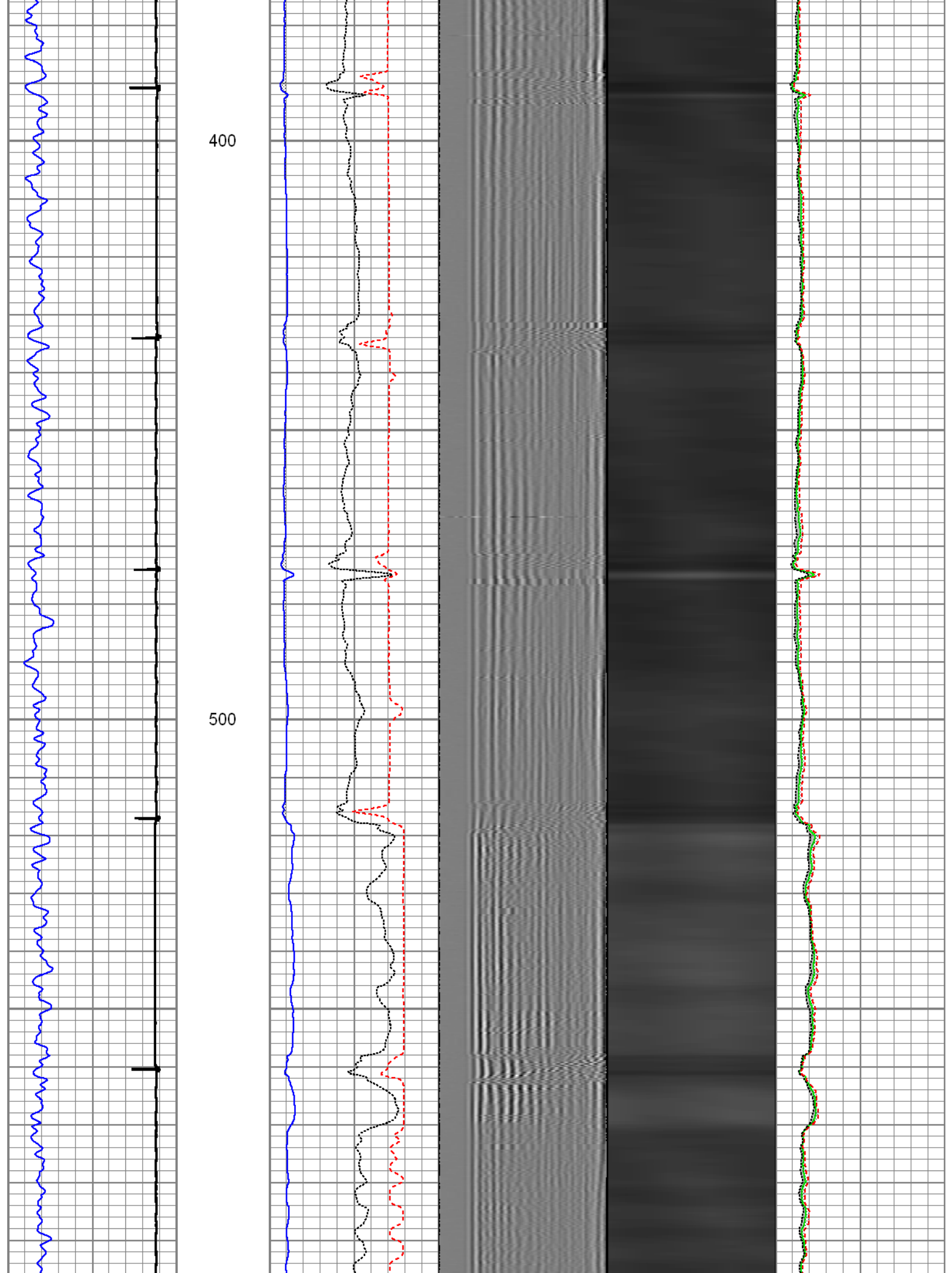
Thank you for choosing FMC Technologies Completion Services, Inc.!!

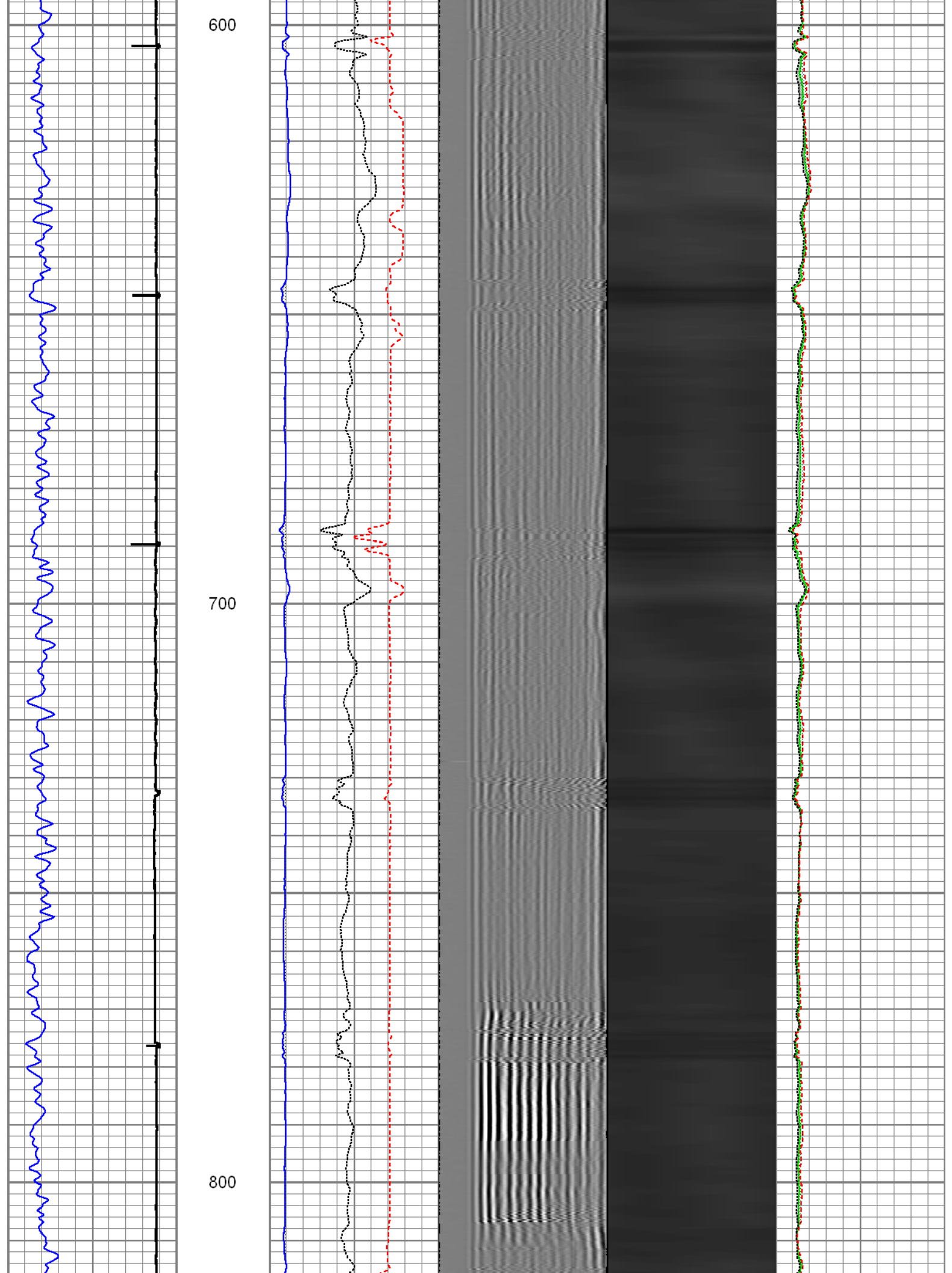
Database File: 0512338948_anadarko_houston 33n-8hz_06-20-14_mit_rbl.db
Dataset Pathname: pass7
Presentation Format: rbt4_mit
Dataset Creation: Fri Jun 20 11:54:58 2014 by Log SCH 111116
Charted by: Depth in Feet scaled 1:240

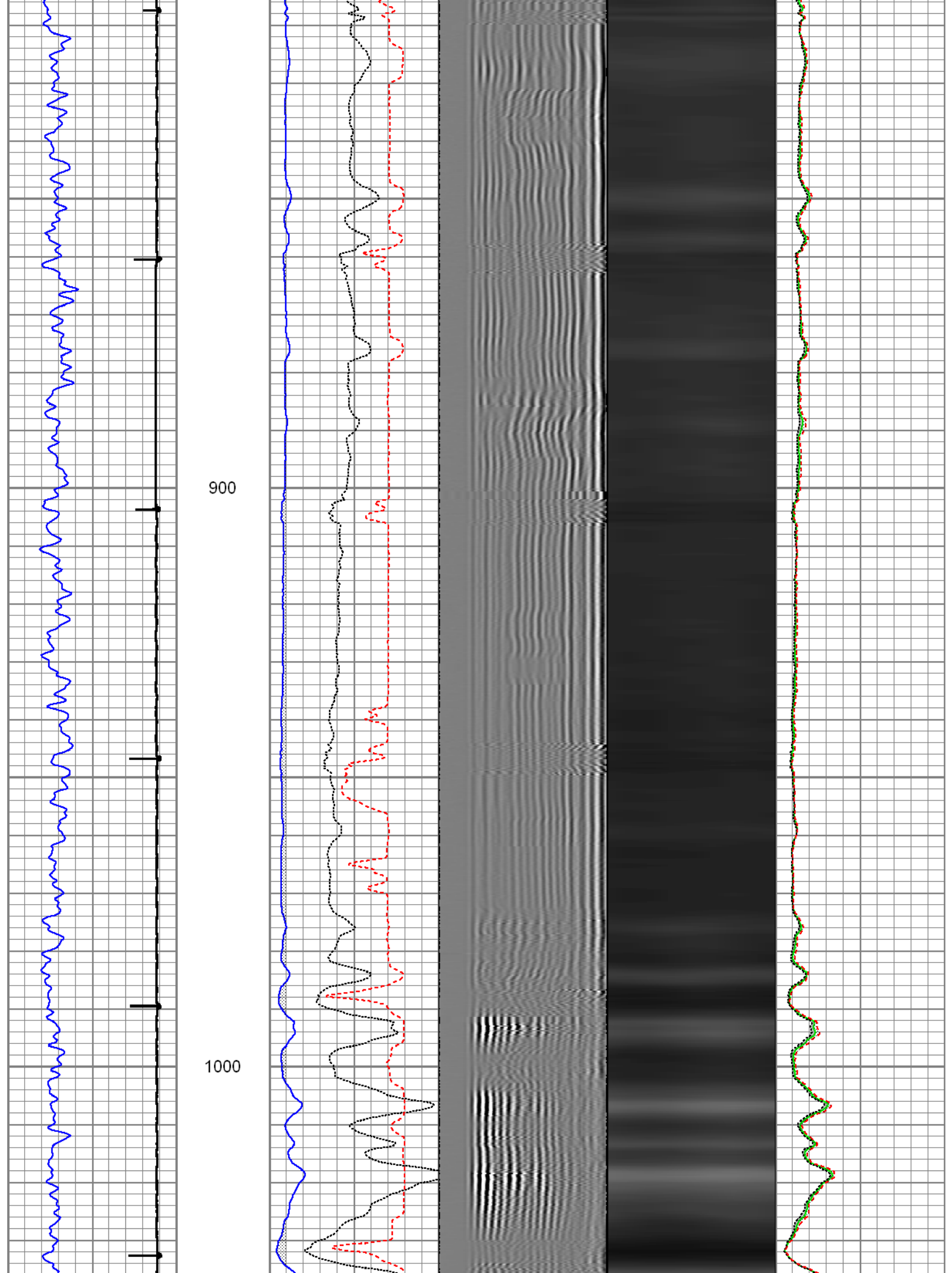
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
	0 (mV) 20			0 100
	3' Travel Time			Maximum Amplitude
	650 (usec) 150			0 100

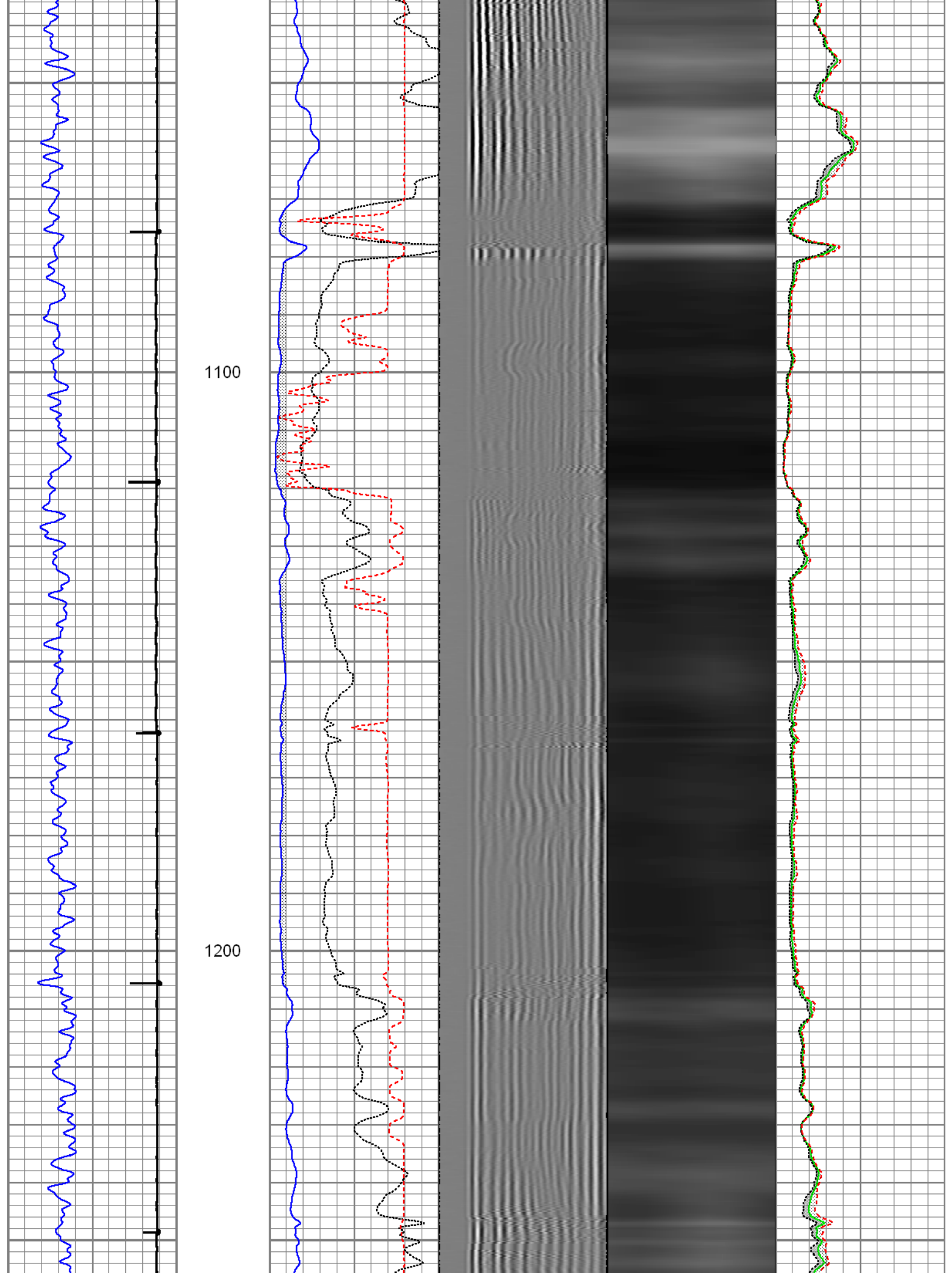


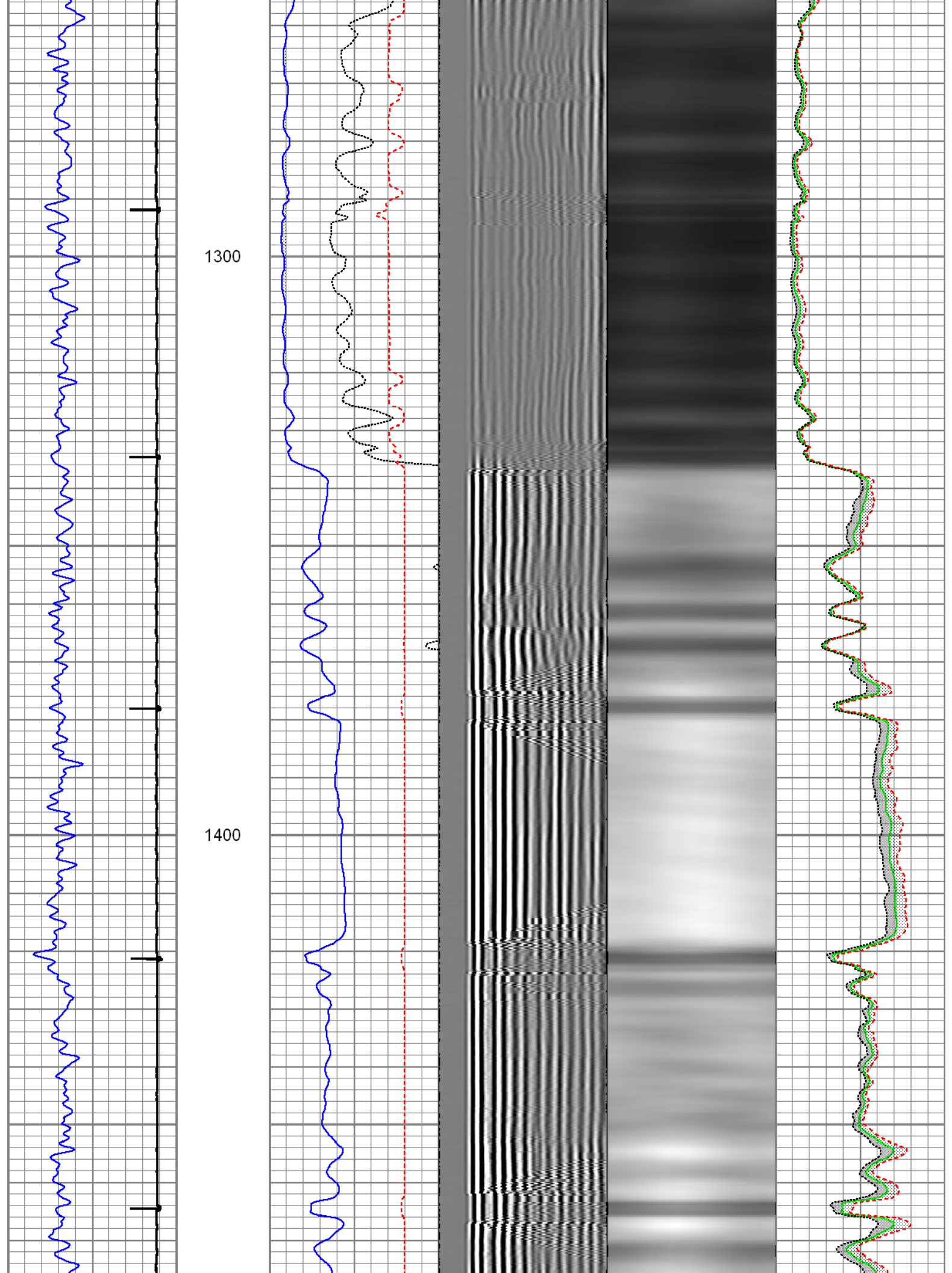


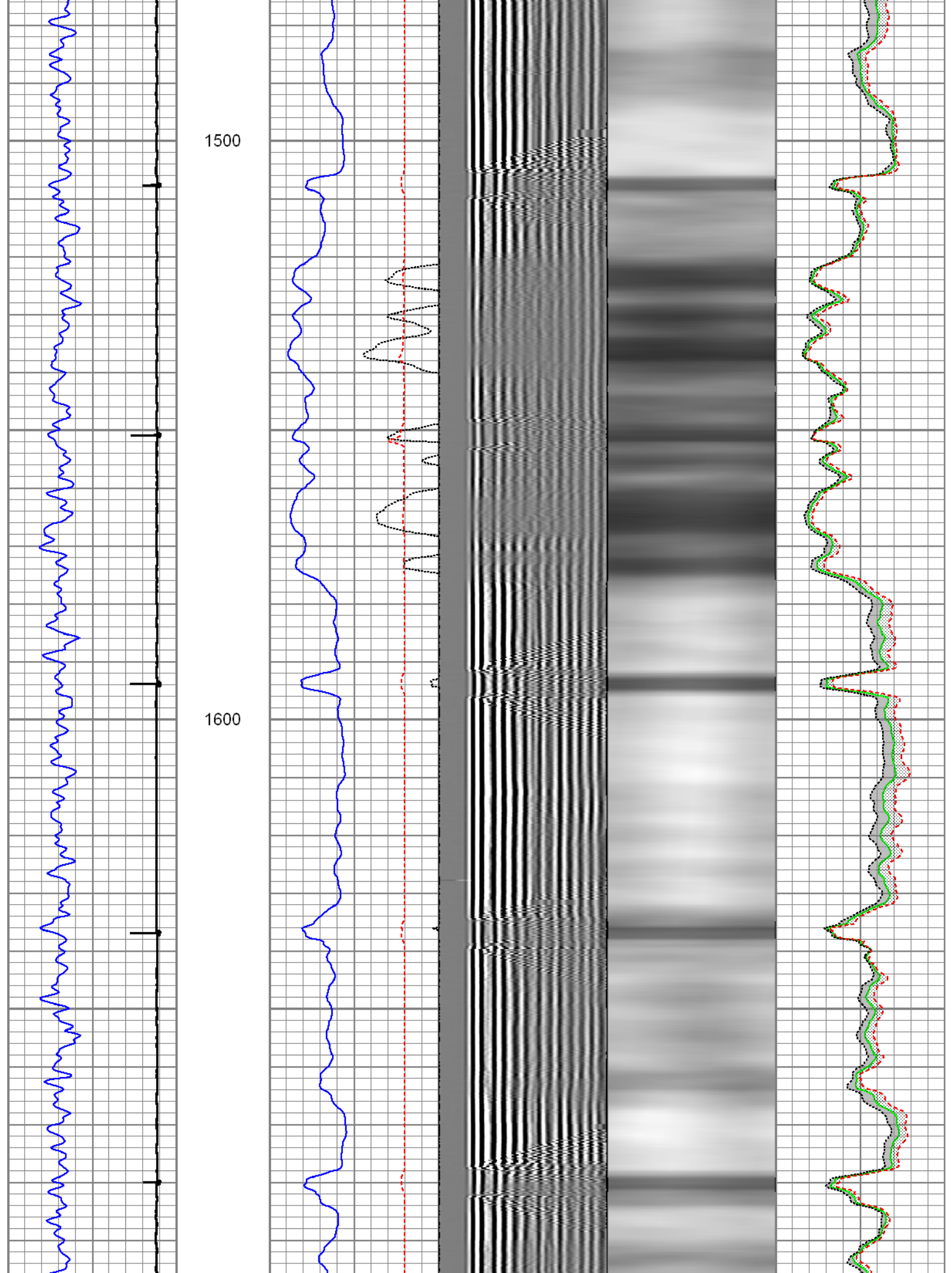


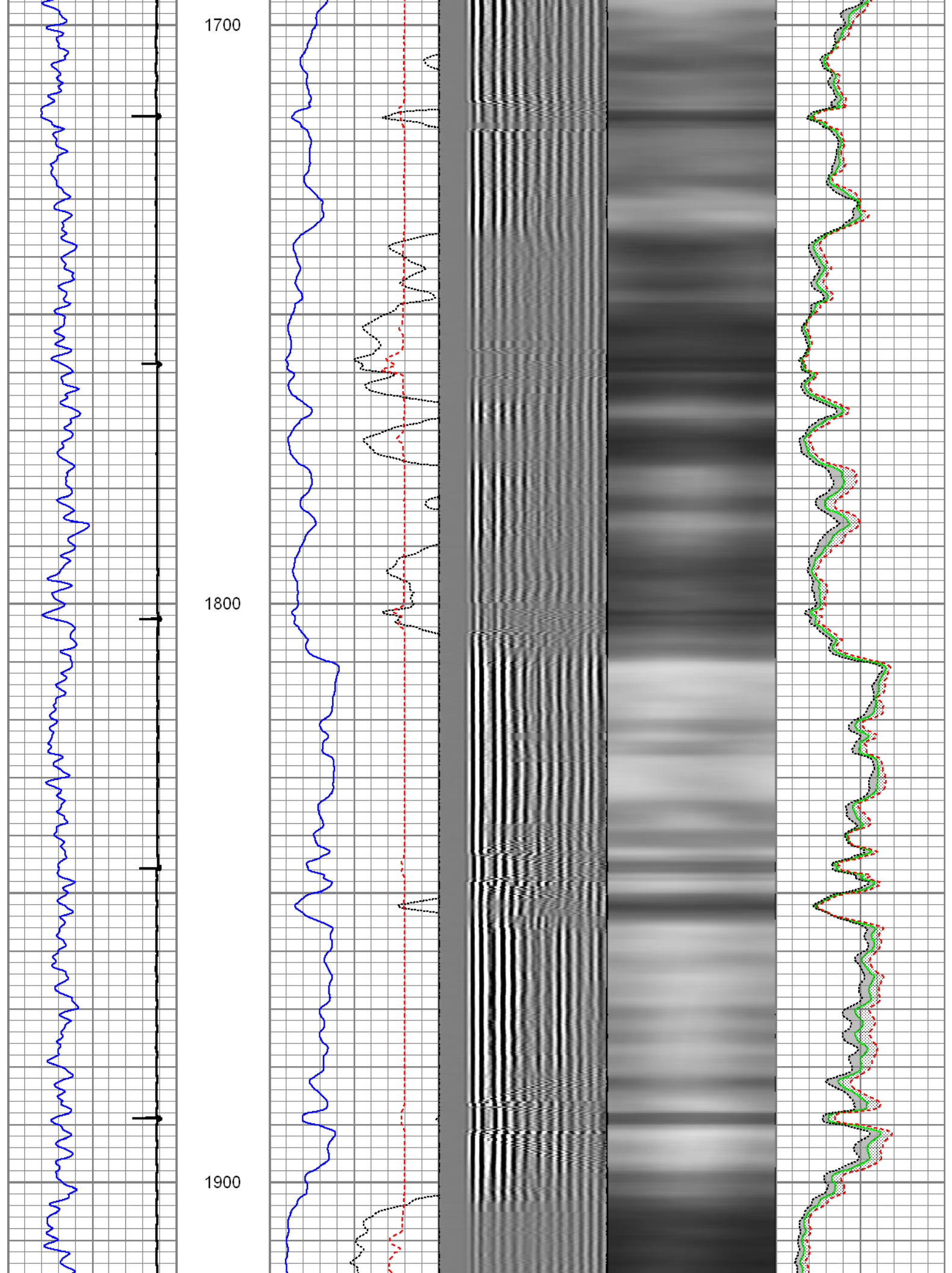






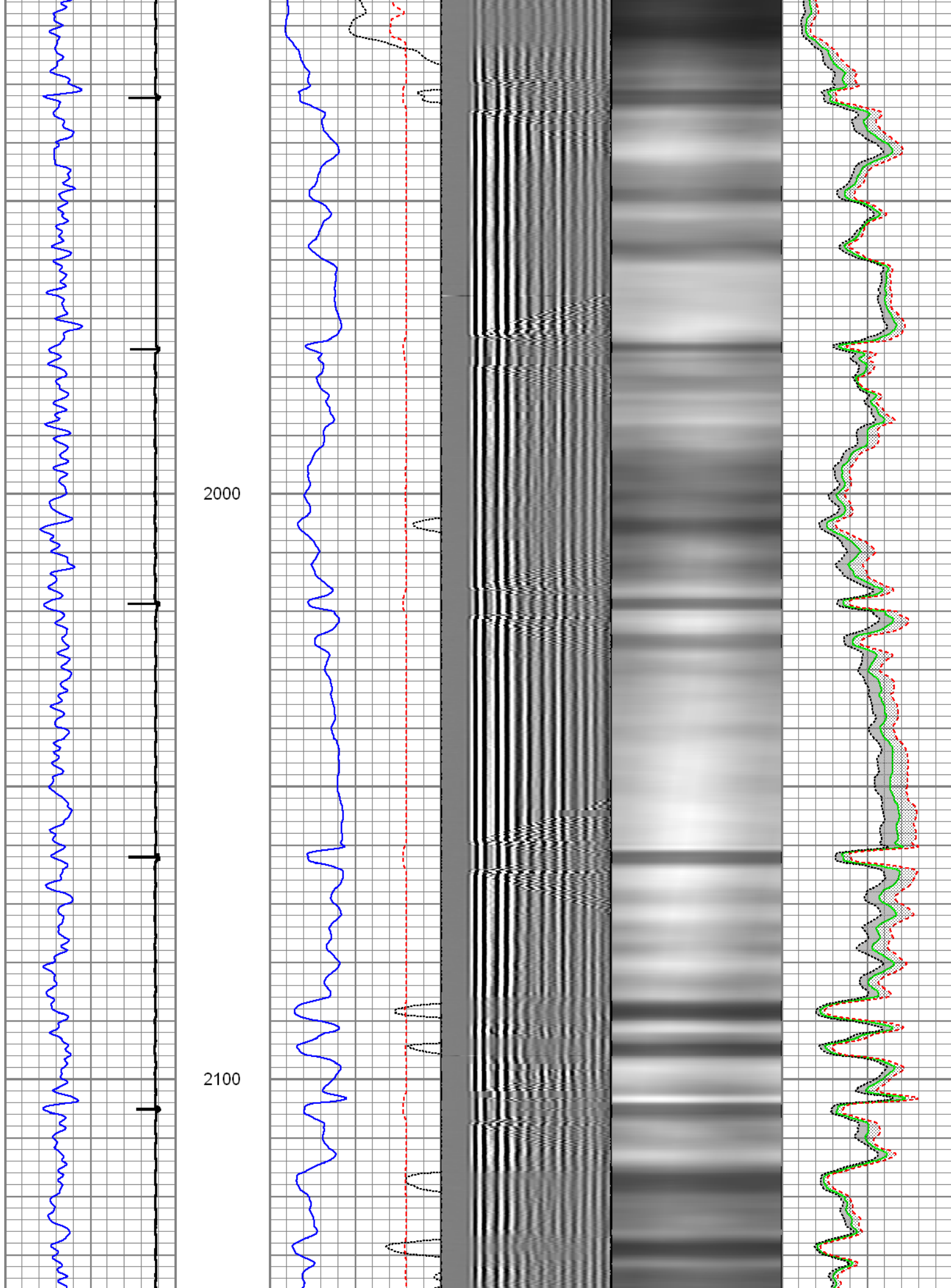






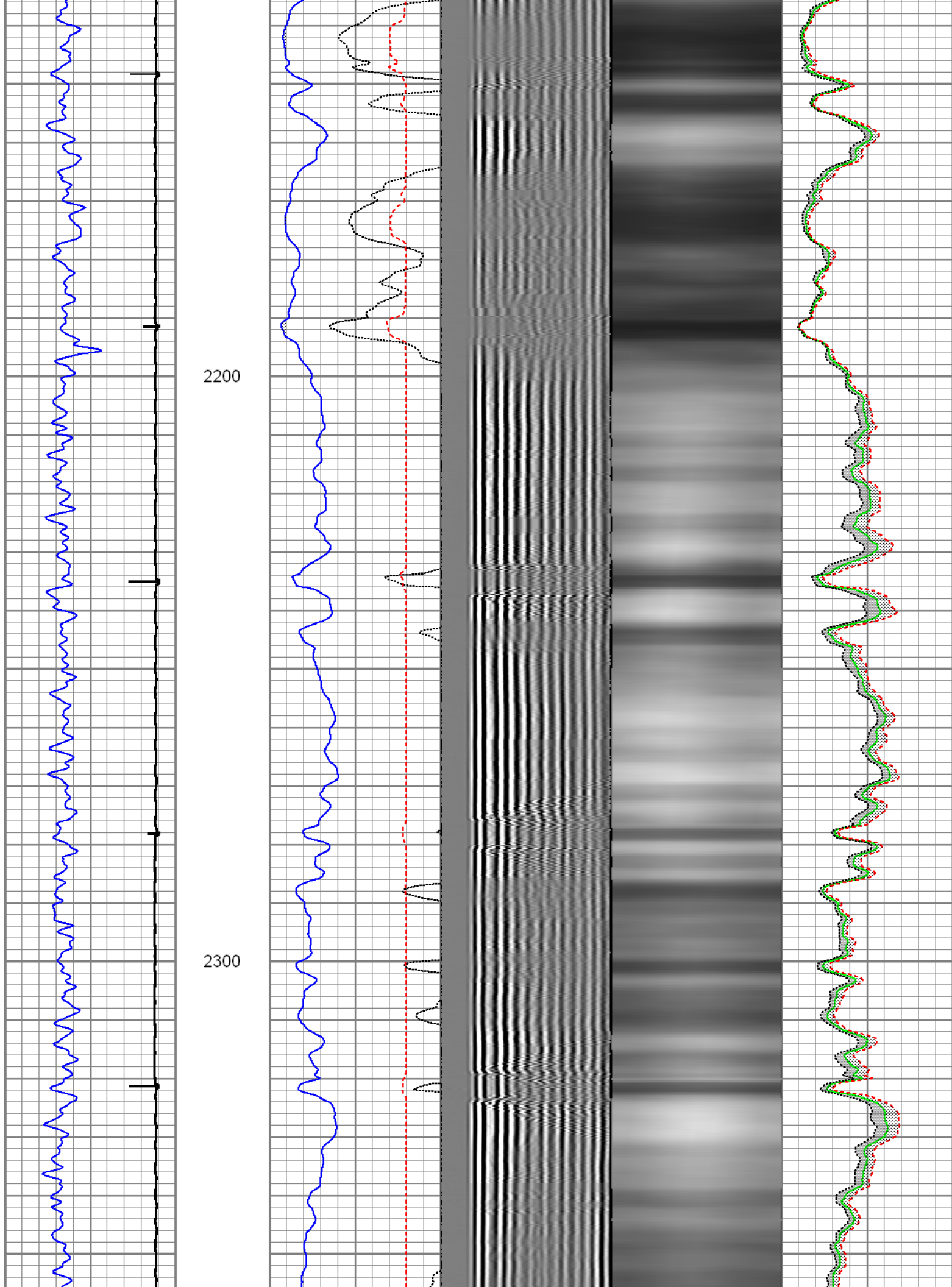
2000

2100



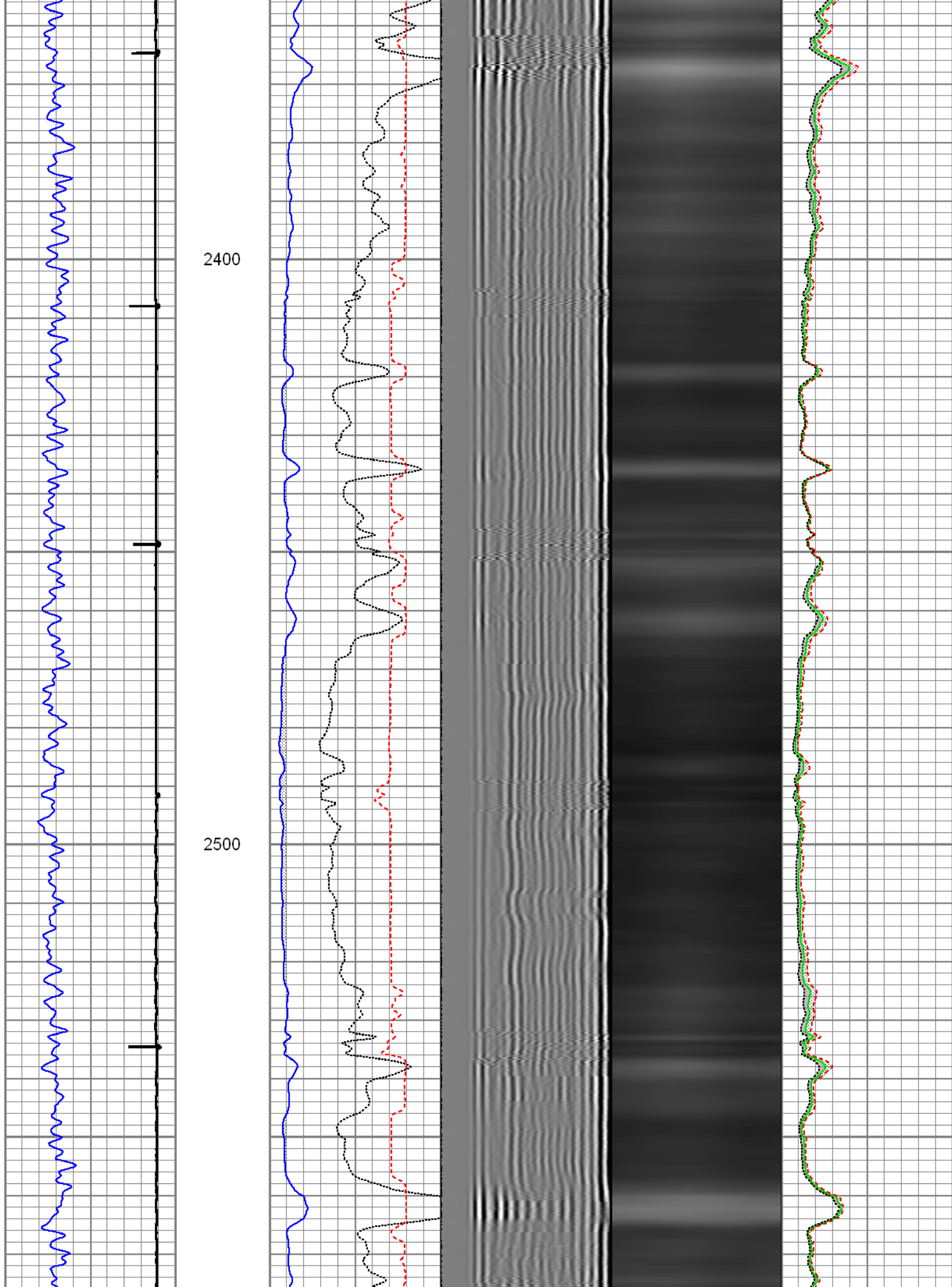
2200

2300



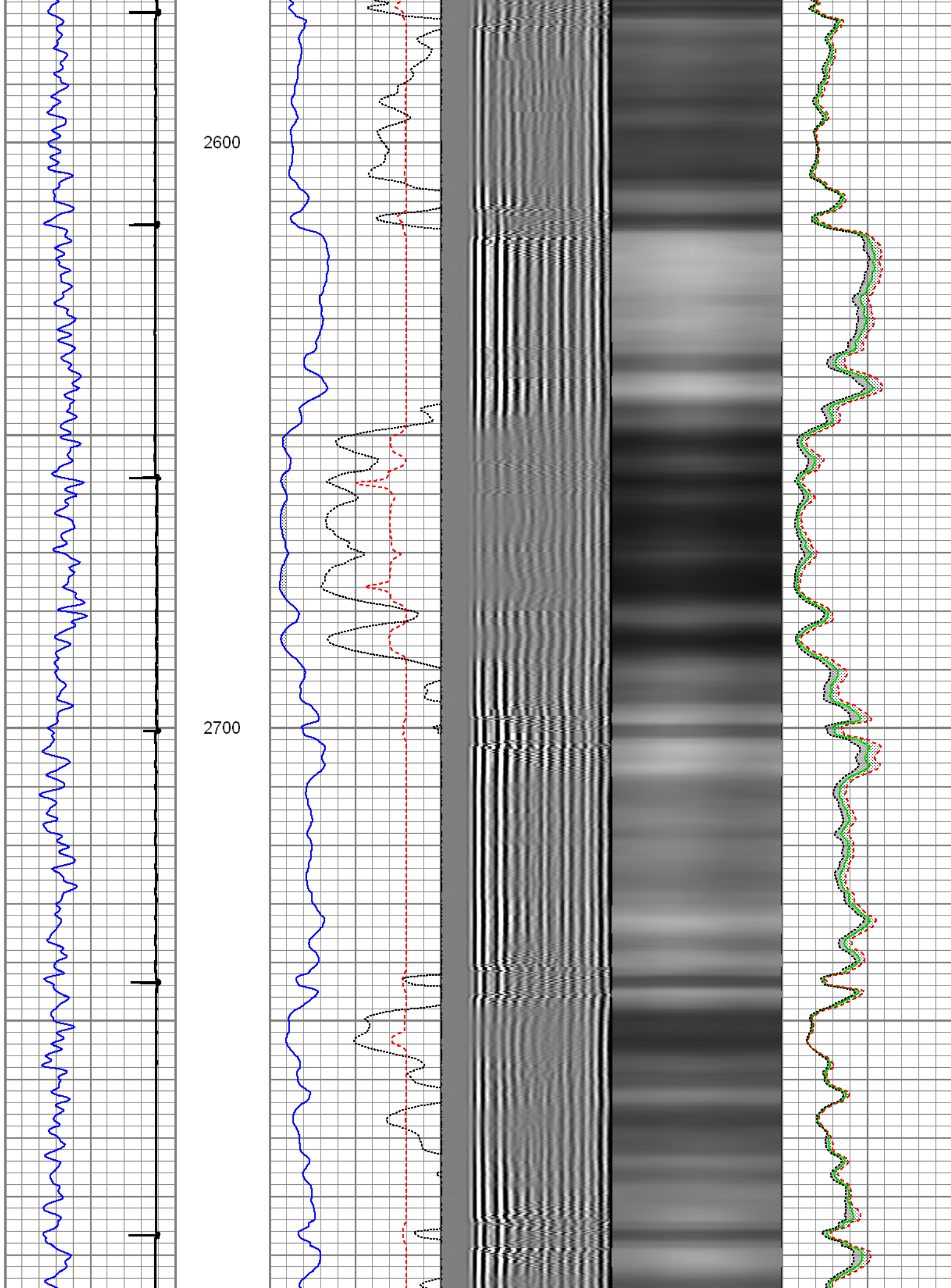
2400

2500



2600

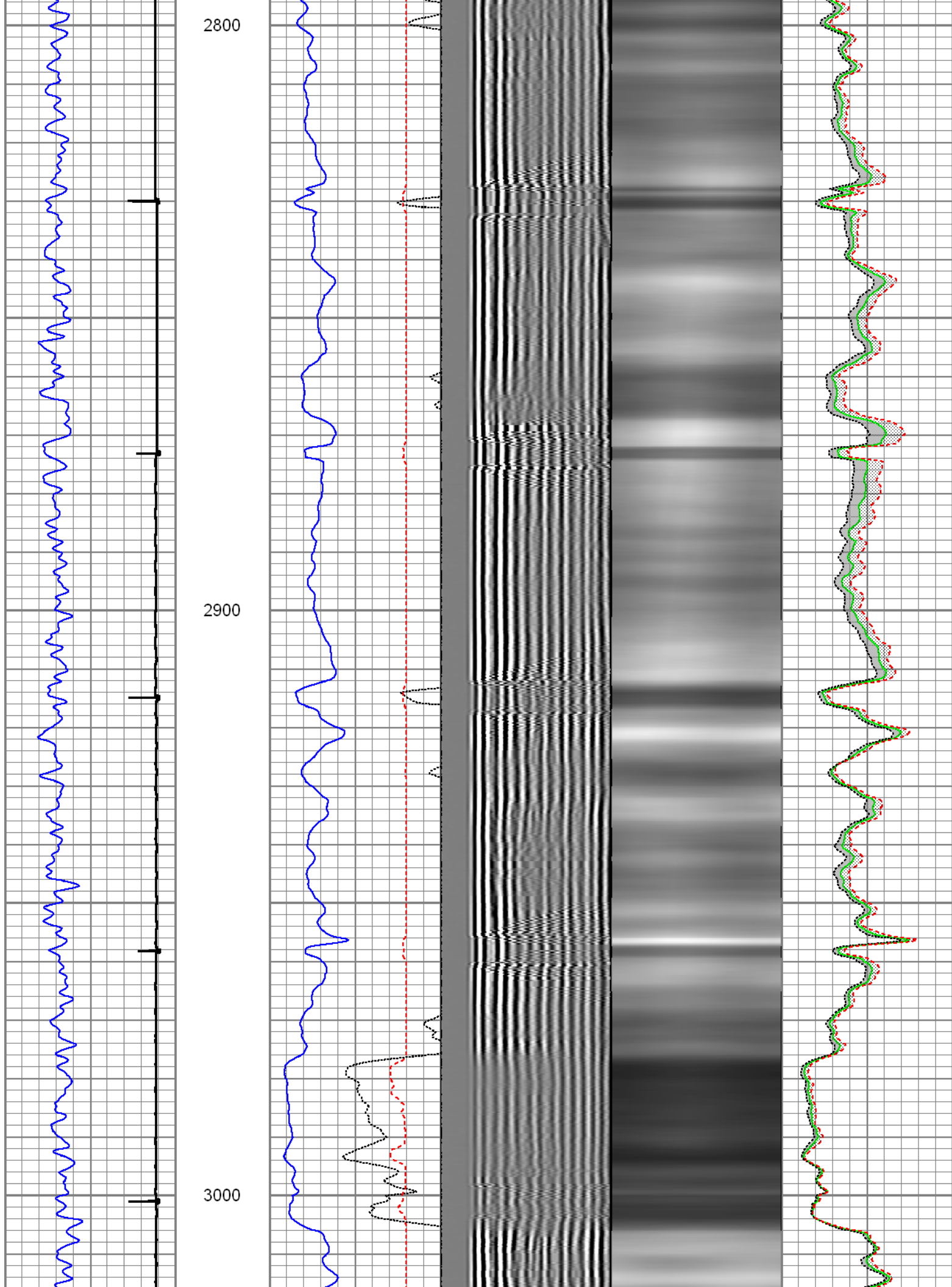
2700

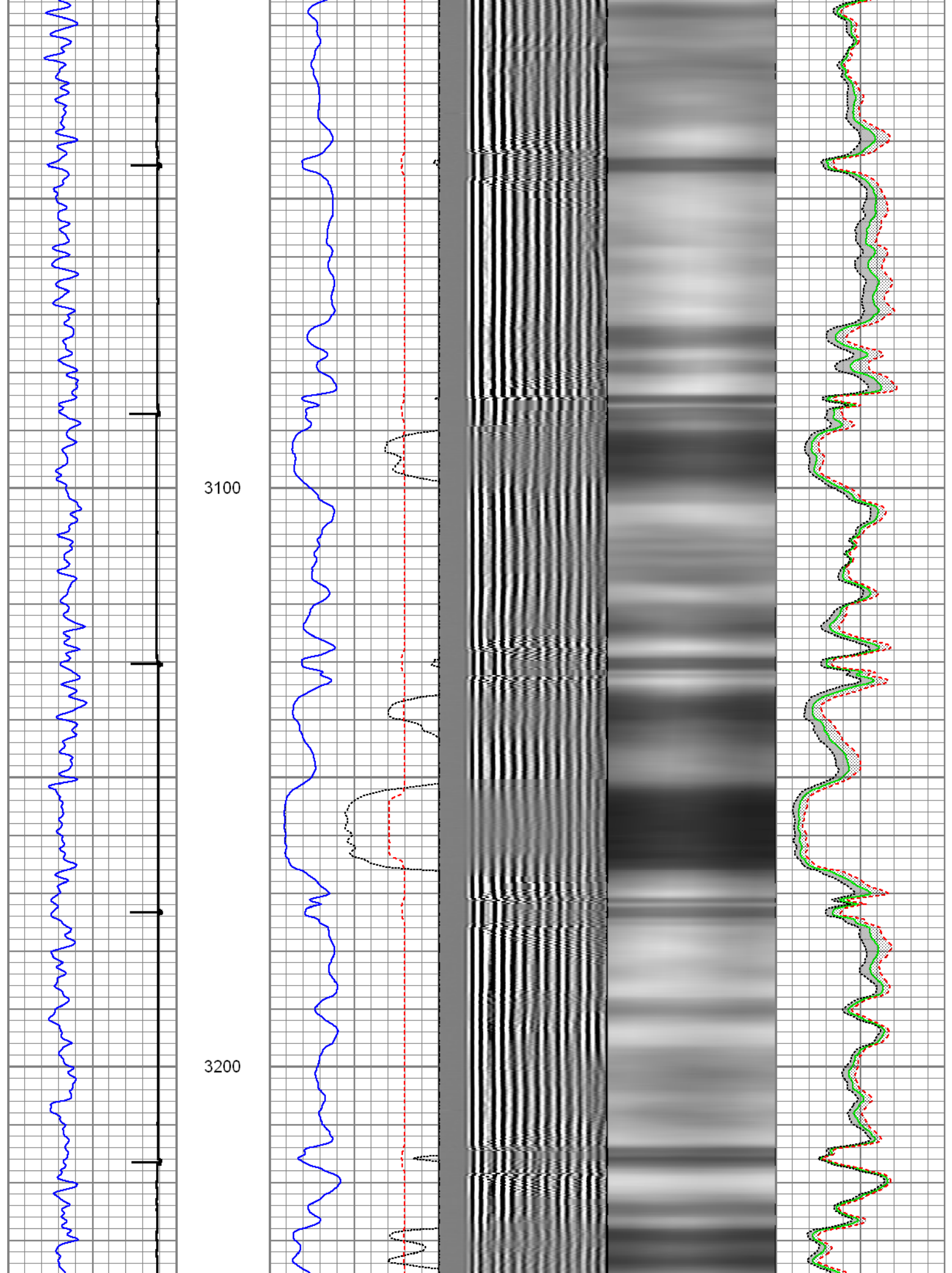


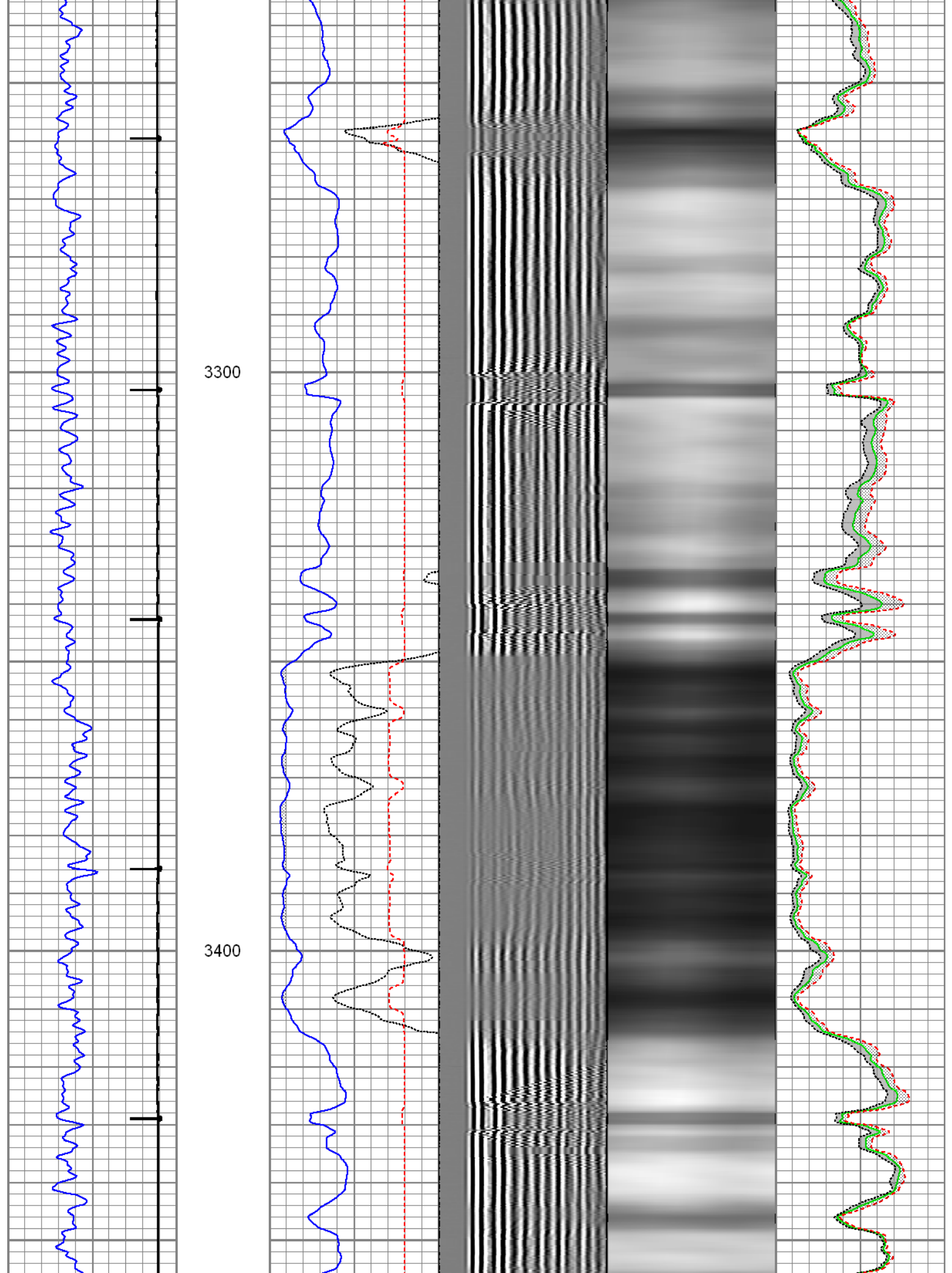
2800

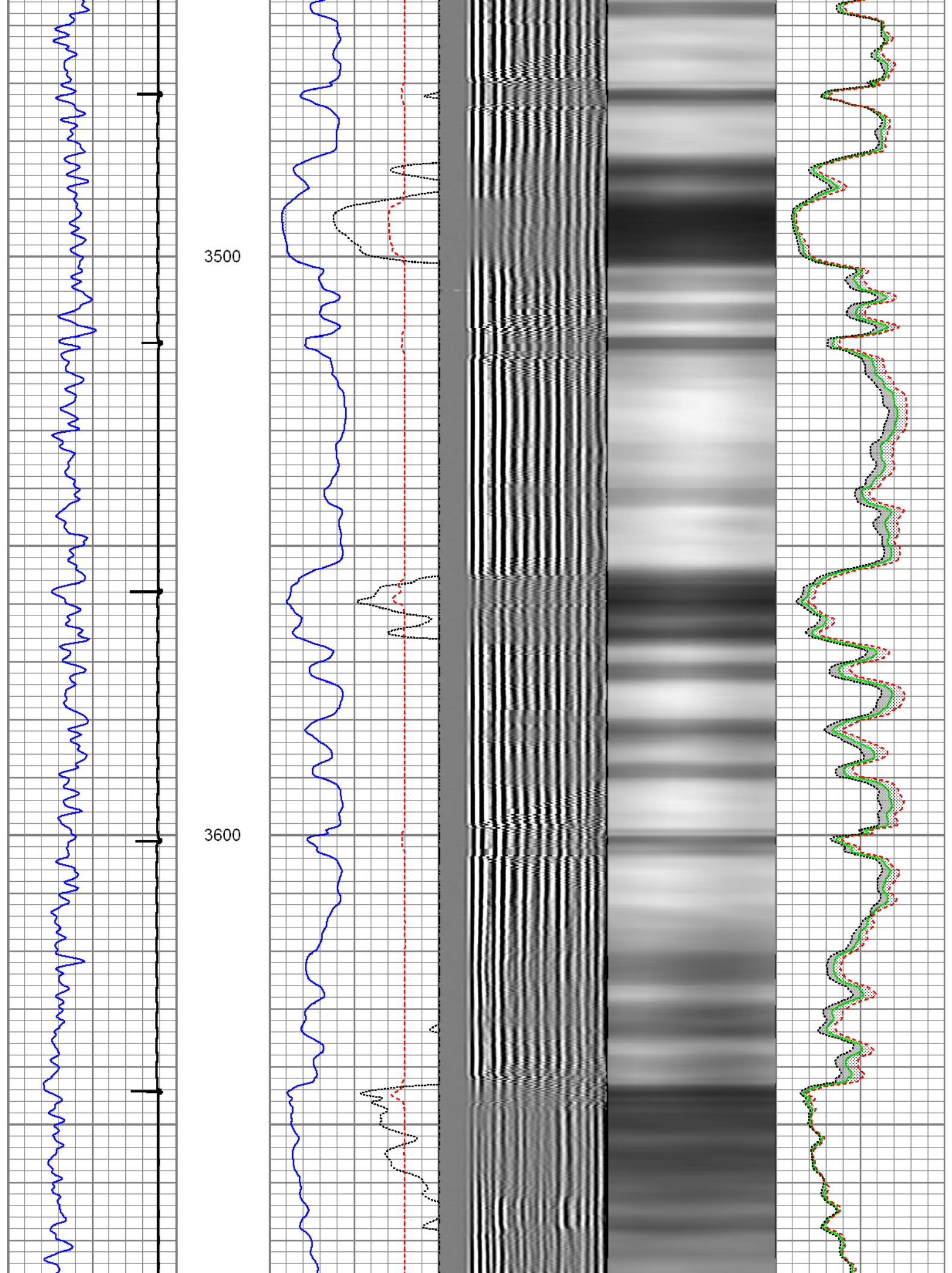
2900

3000



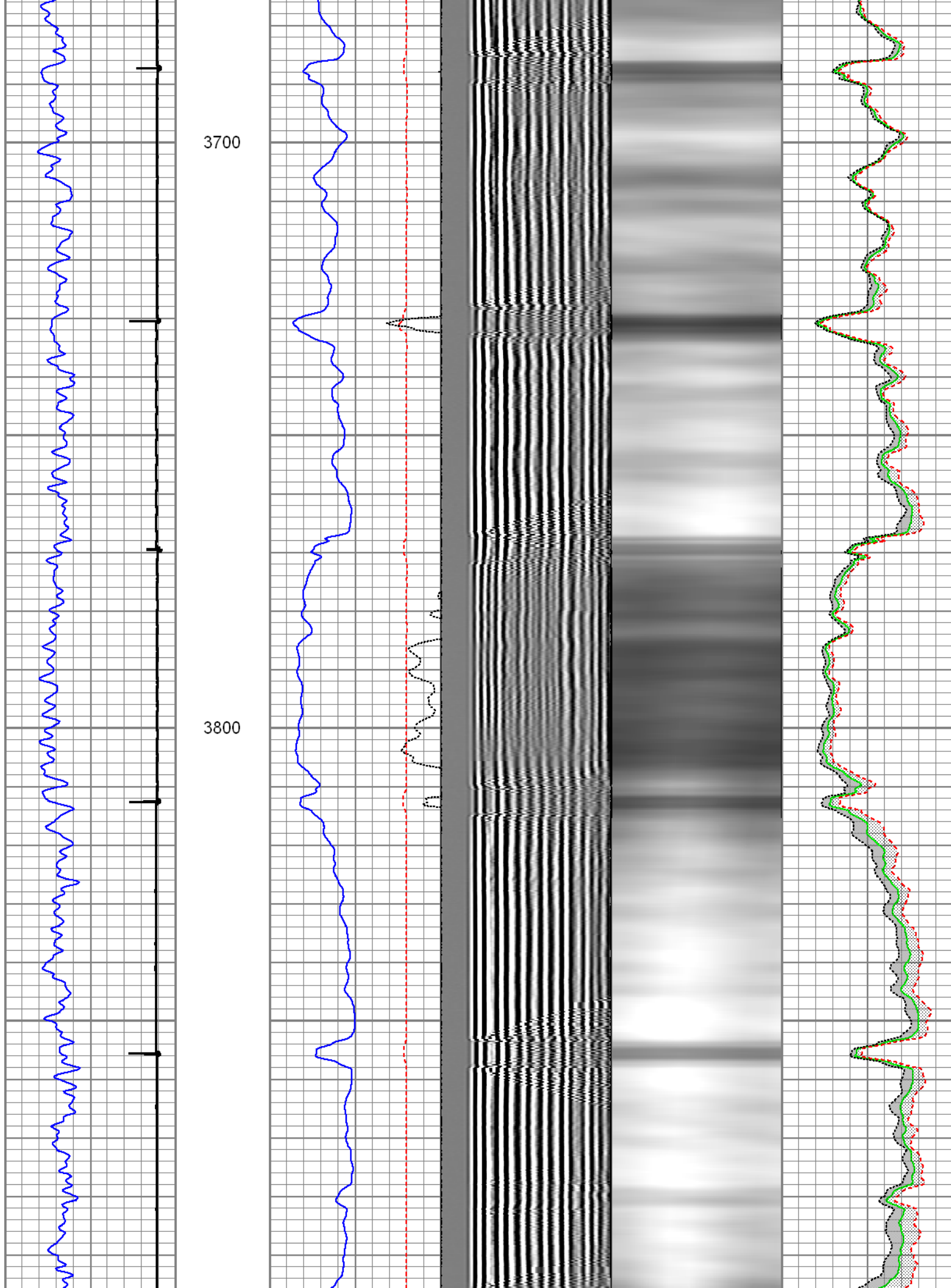


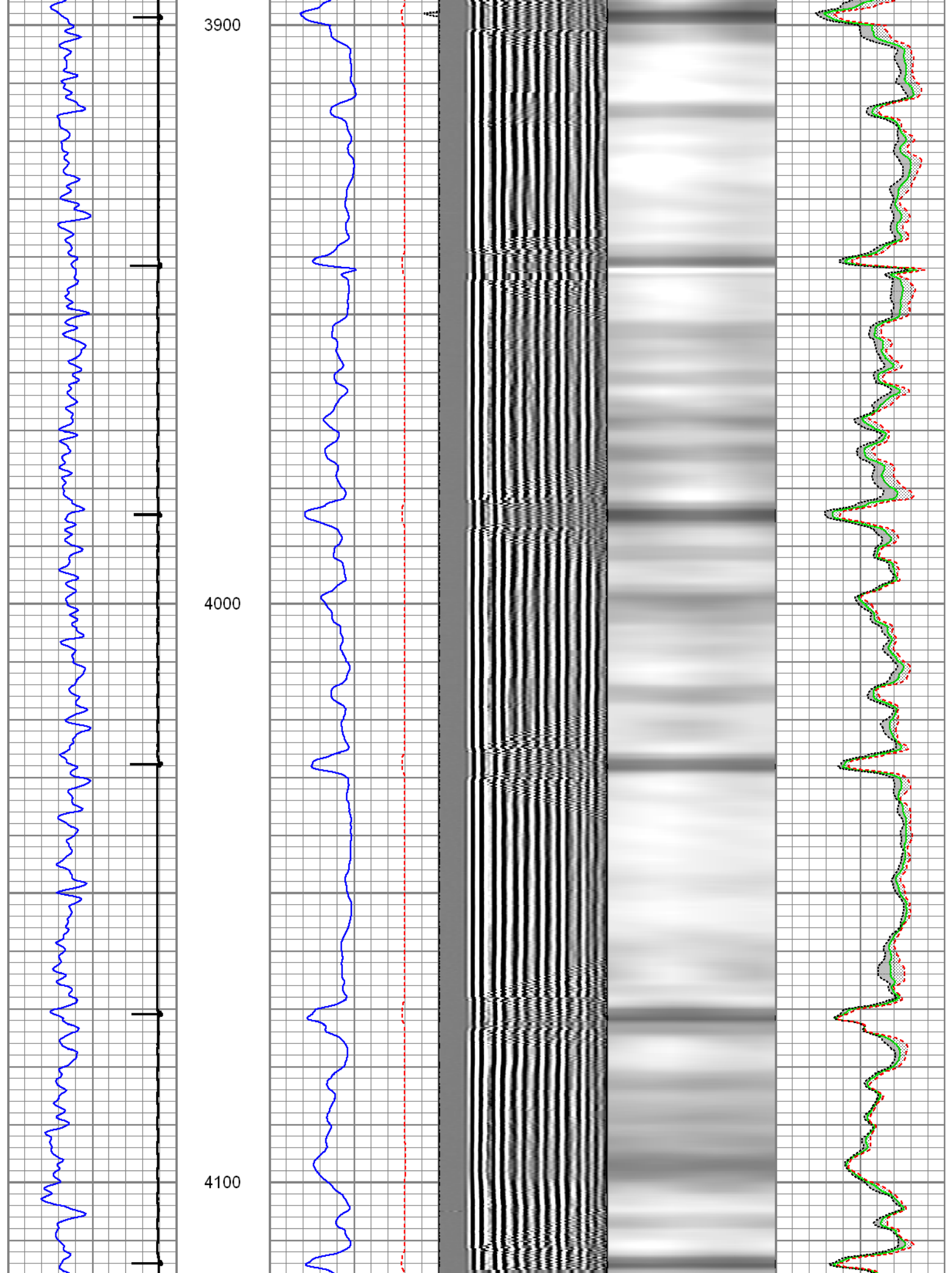


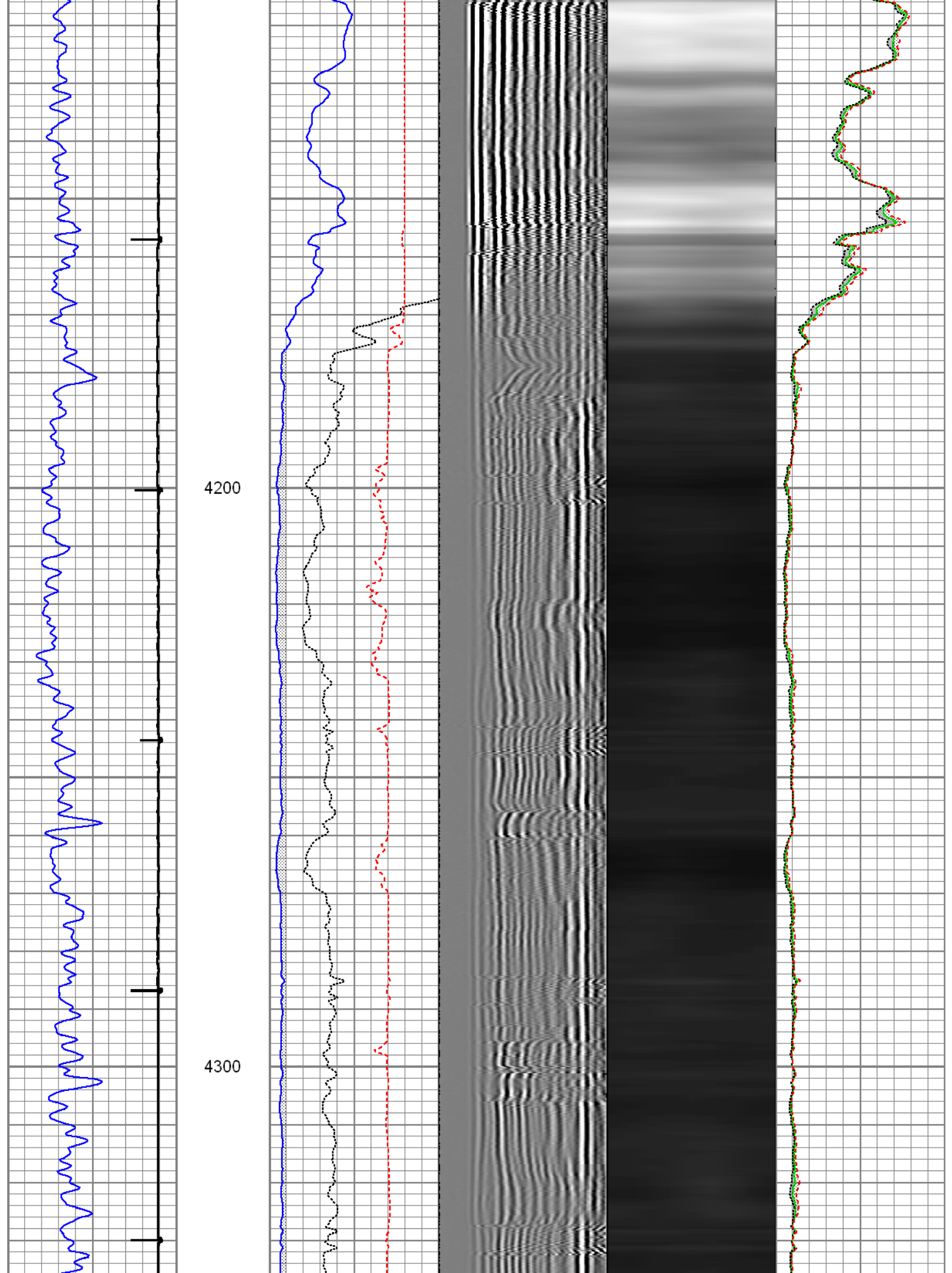


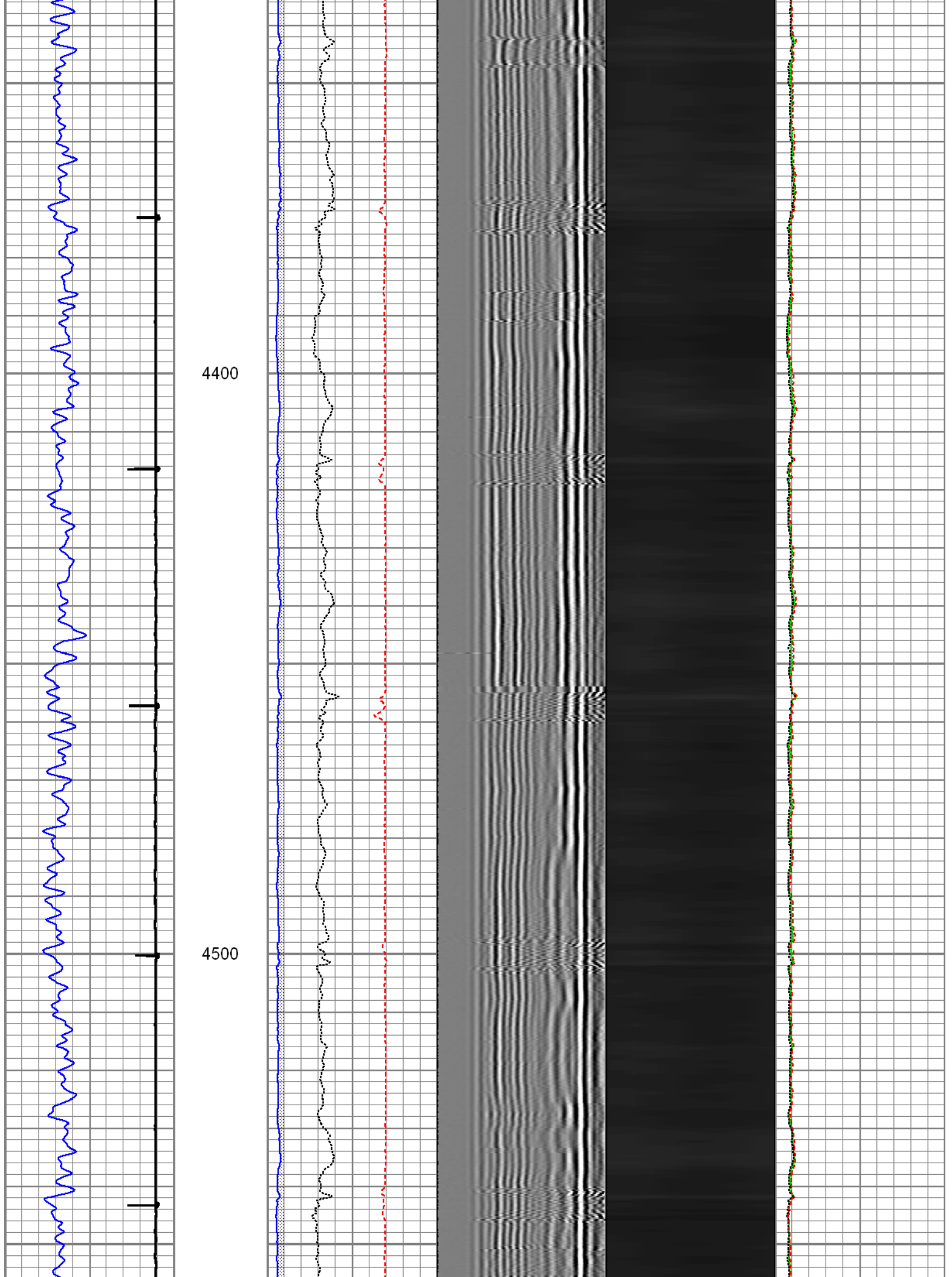
3700

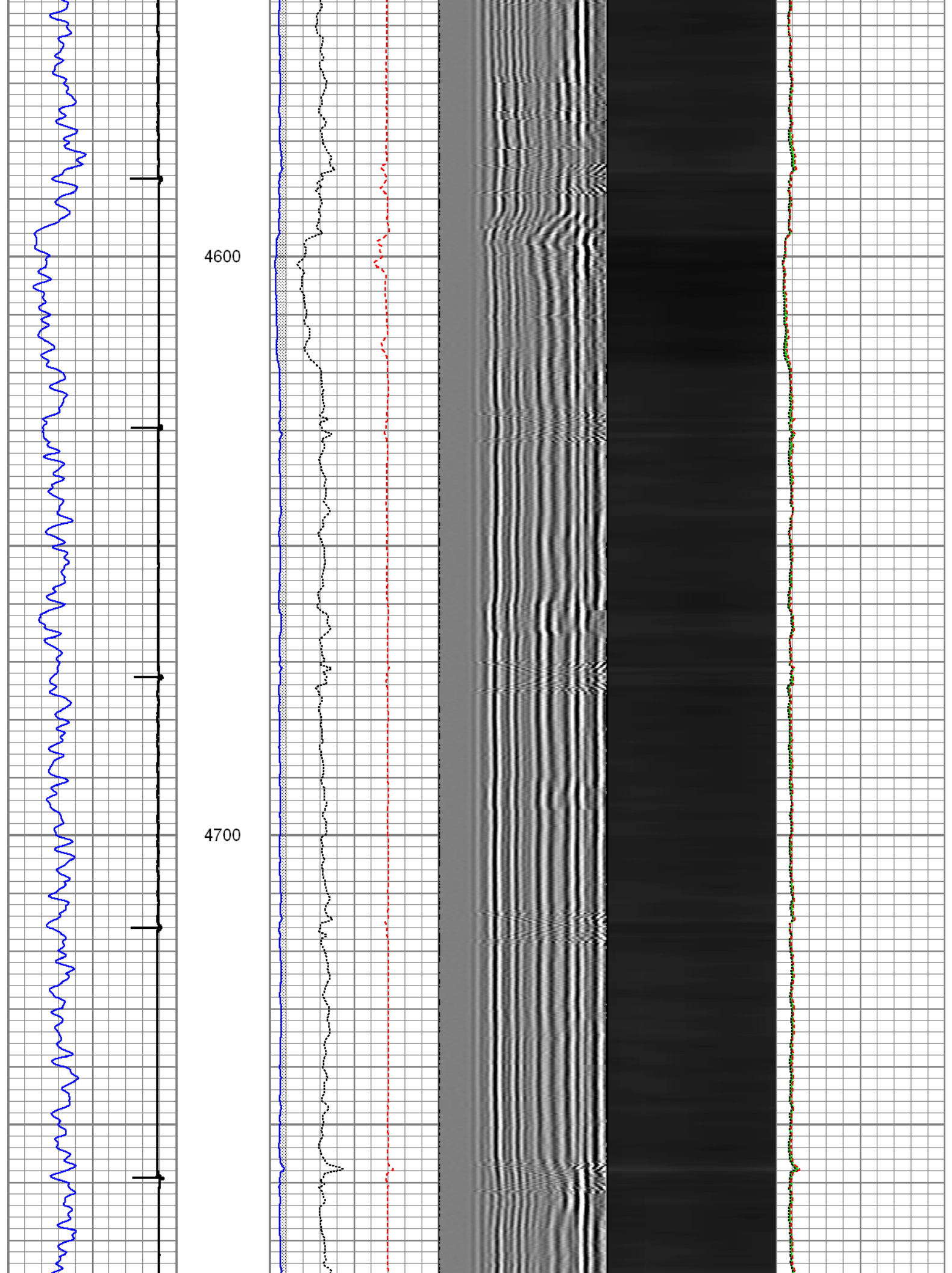
3800





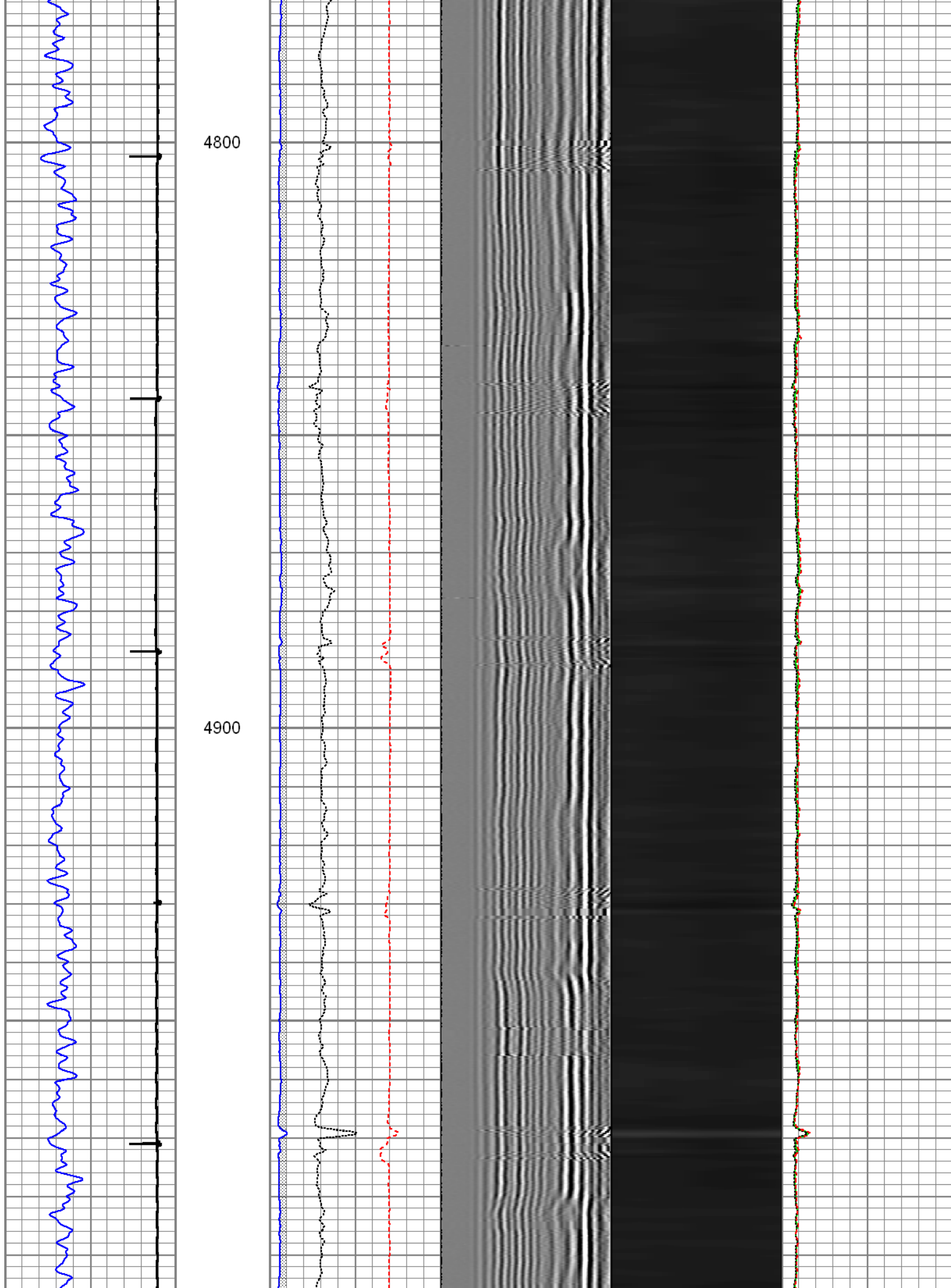


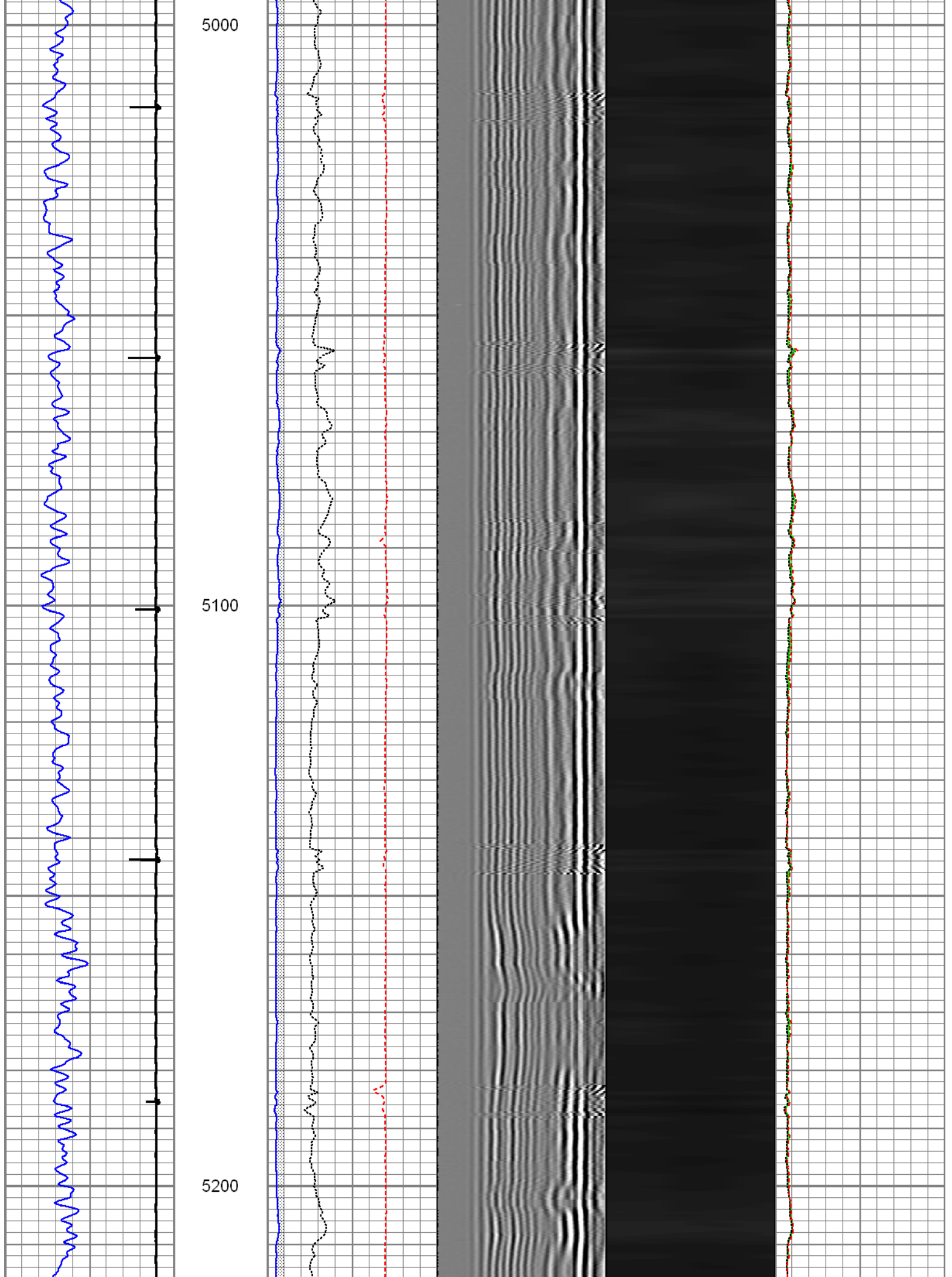


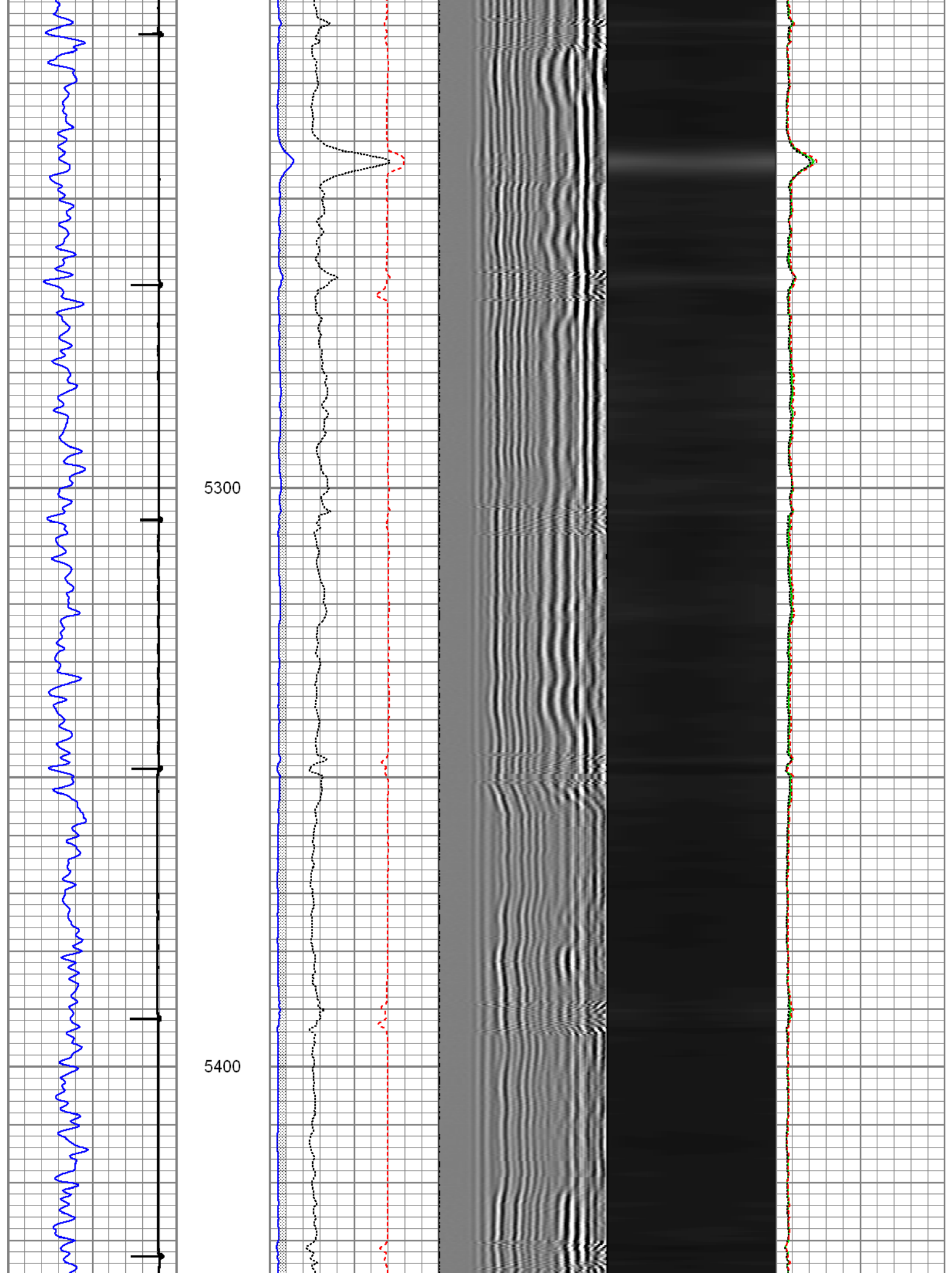


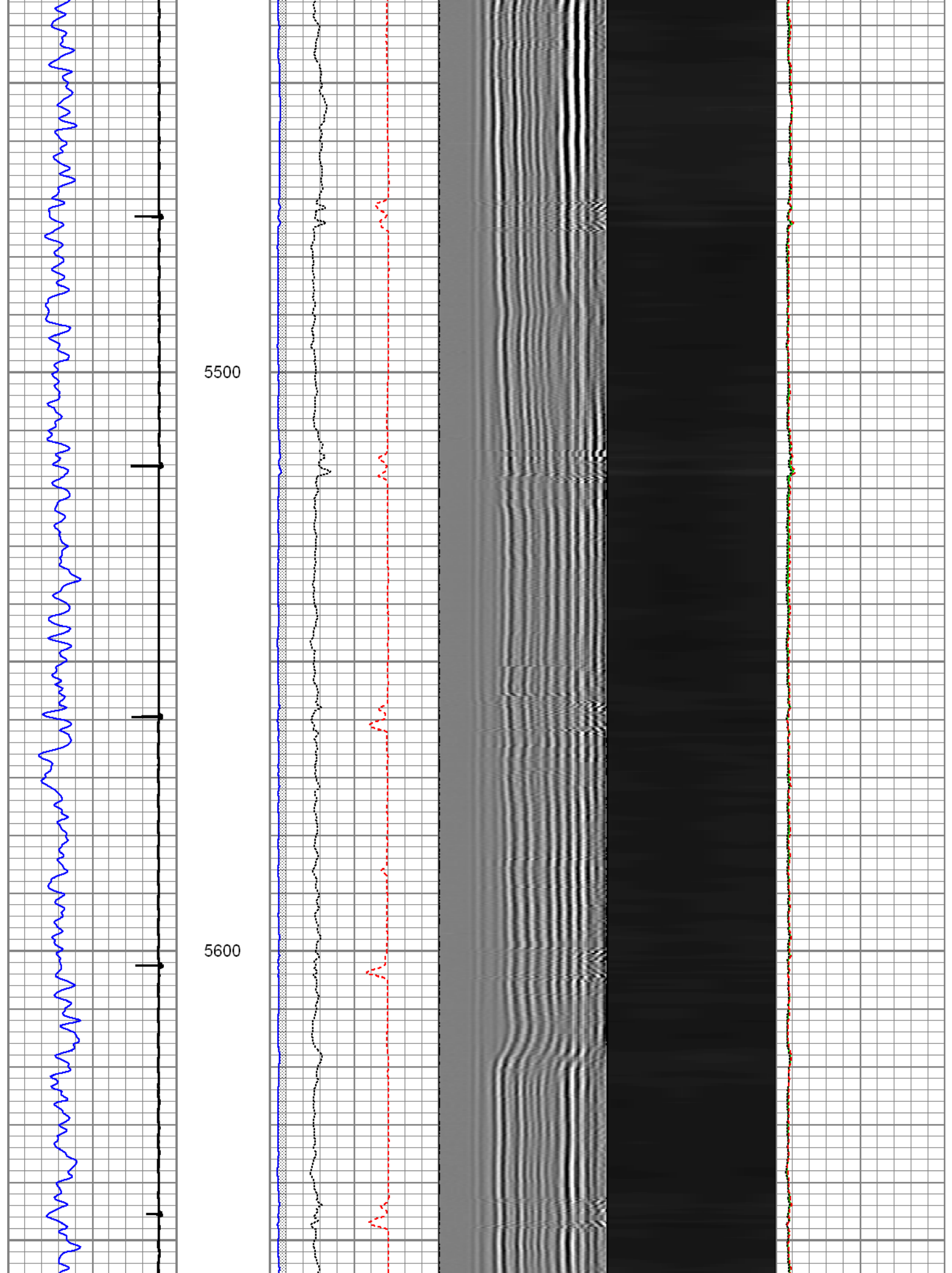
4800

4900



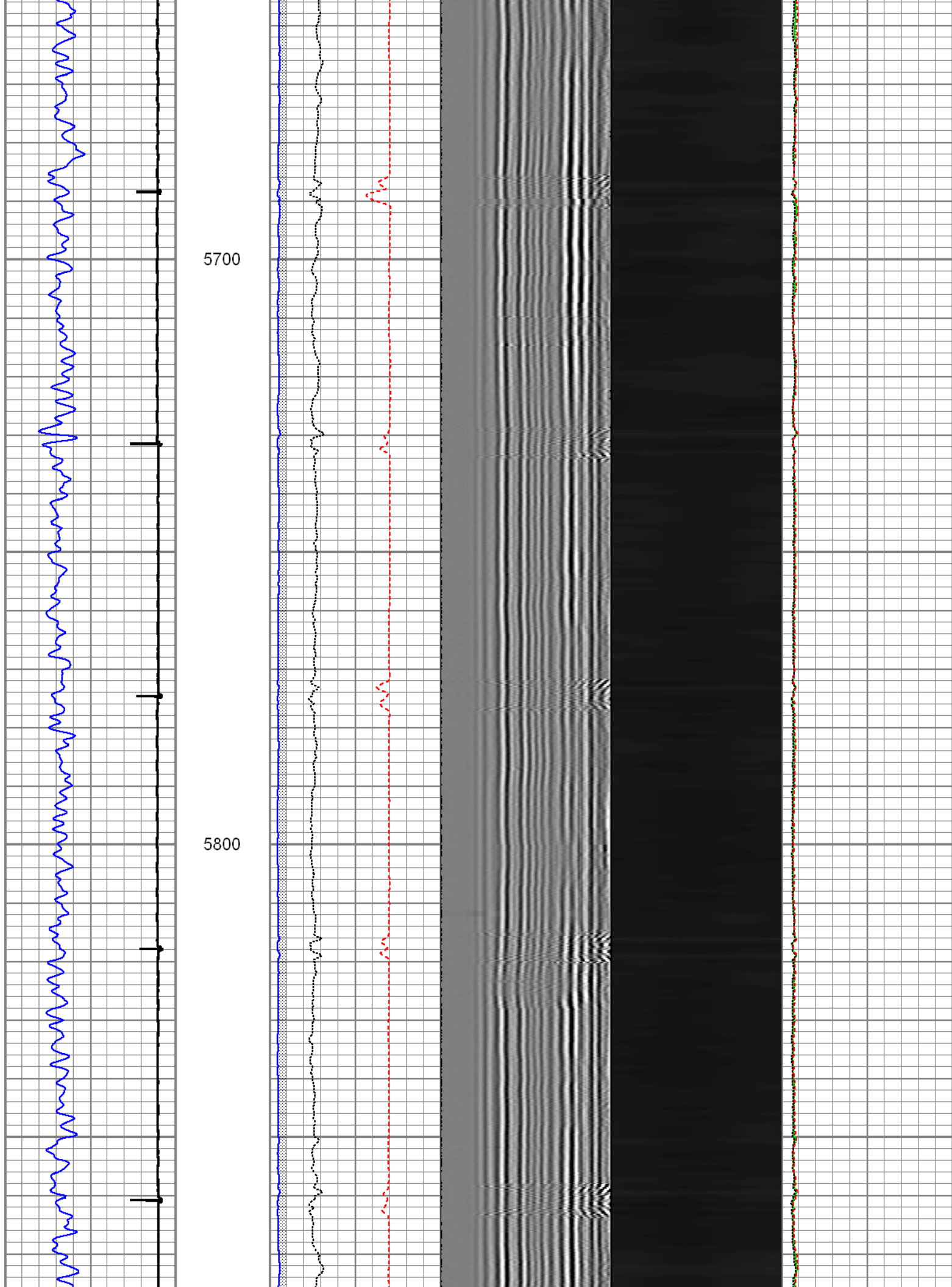


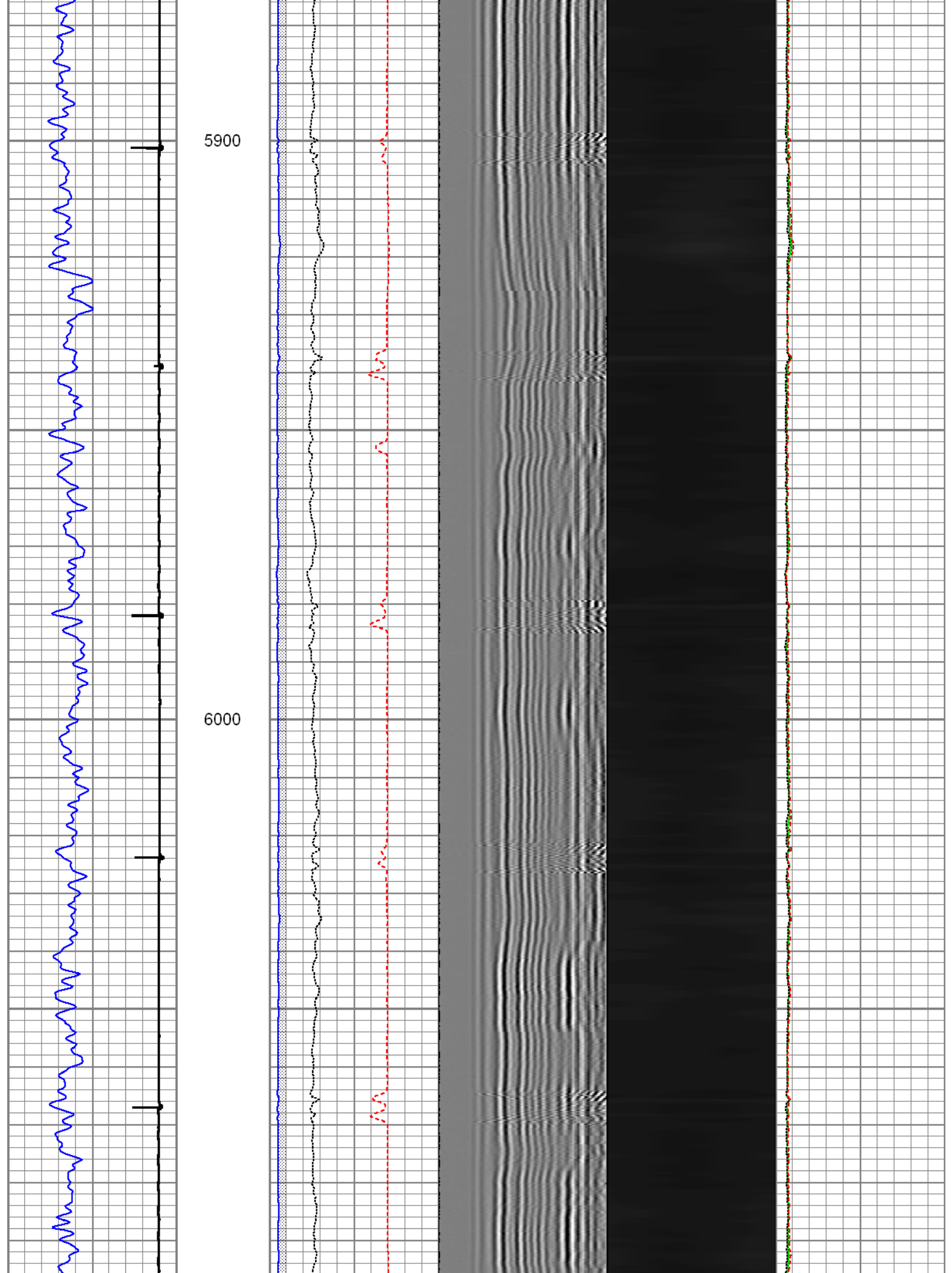




5700

5800

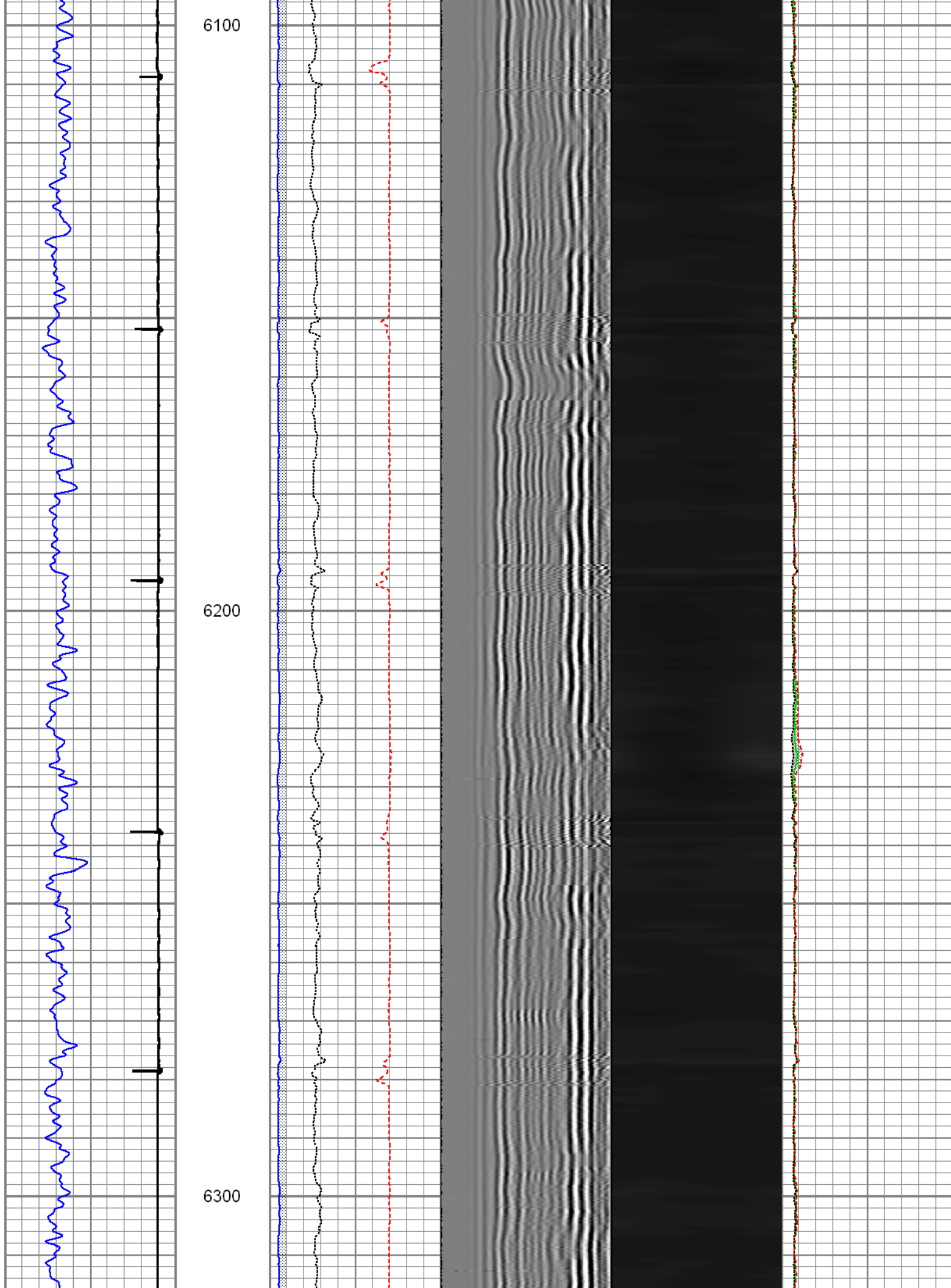


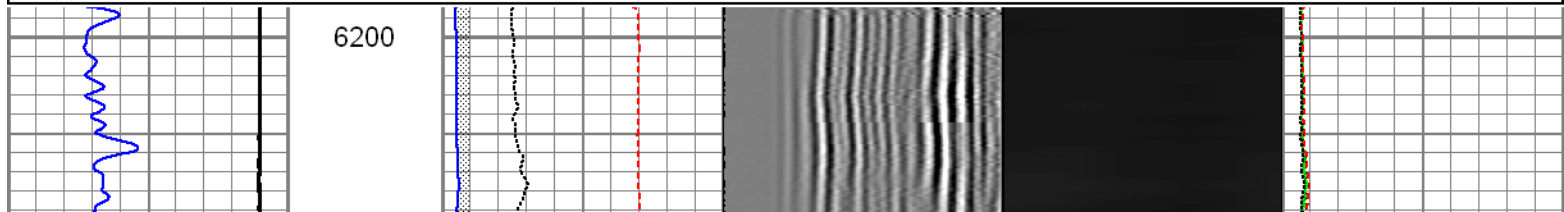
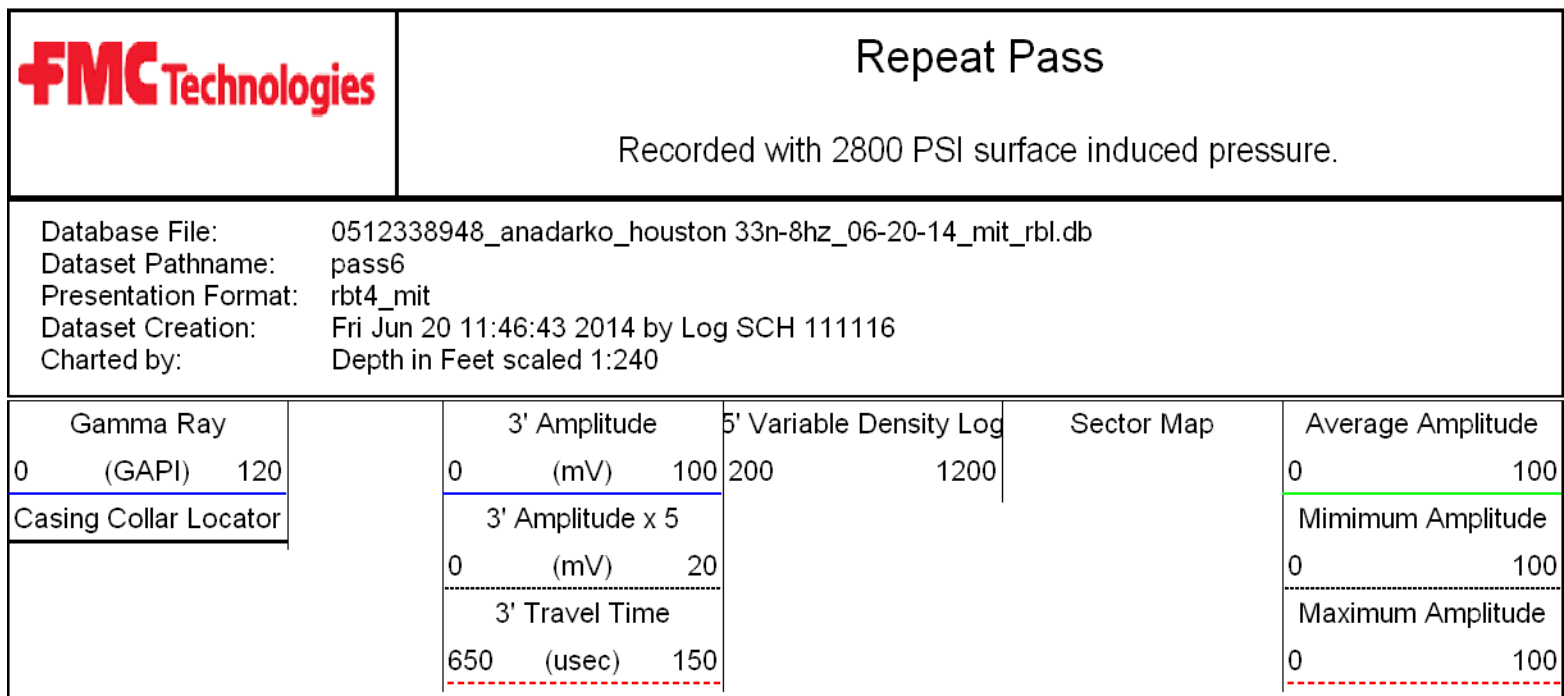
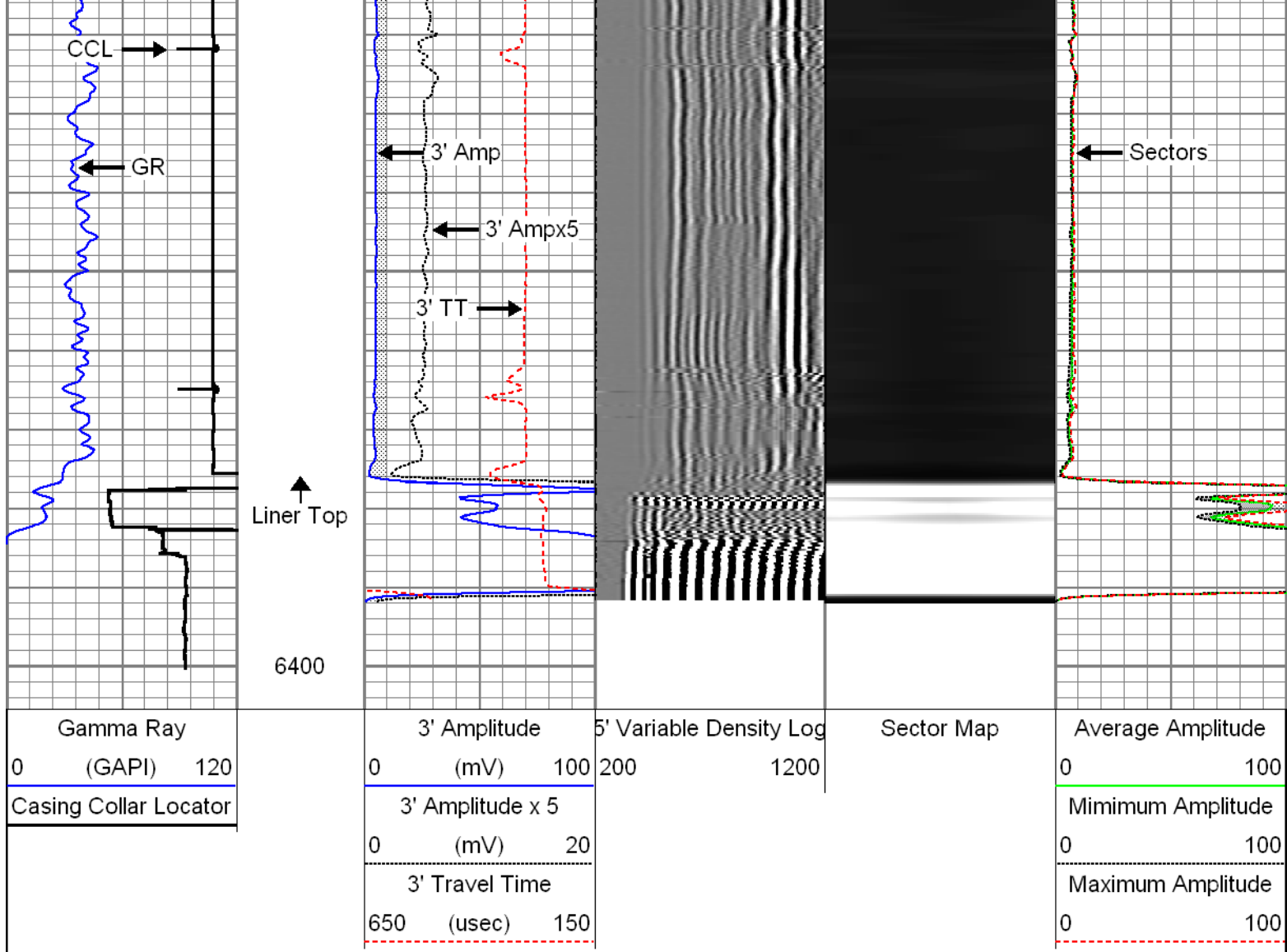


6100

6200

6300

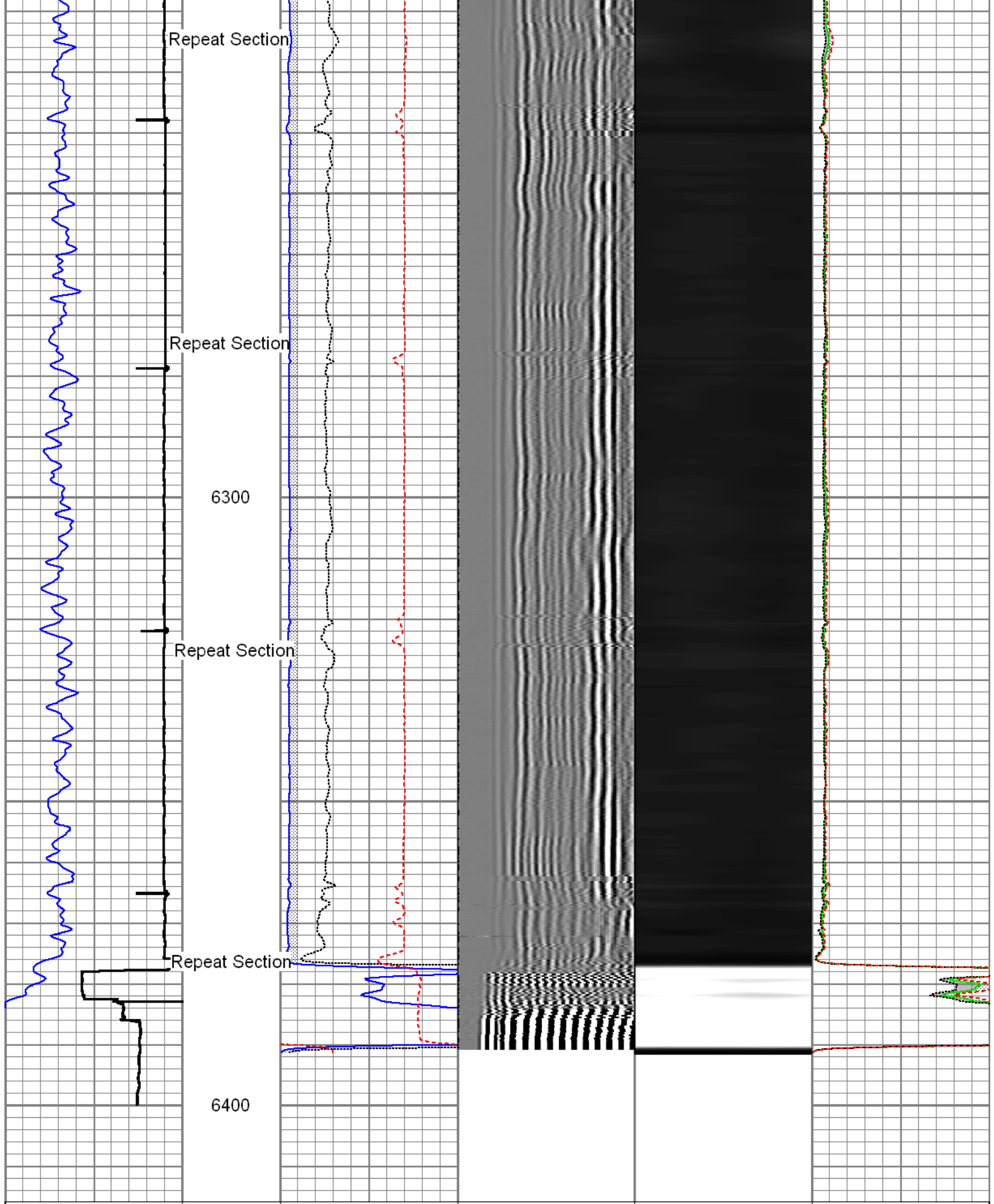




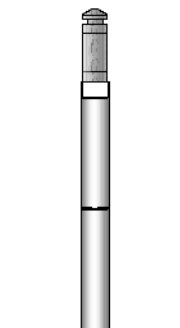
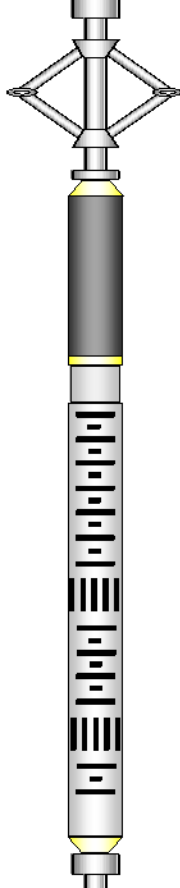
Repeat Pass

Recorded with 2800 PSI surface induced pressure.

Database File: 0512338948_anadarko_houston 33n-8hz_06-20-14_mit_rbl.db
 Dataset Pathname: pass6
 Presentation Format: rbt4_mit
 Dataset Creation: Fri Jun 20 11:46:43 2014 by Log SCH 111116
 Charted by: Depth in Feet scaled 1:240



Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
	0 (mV) 20			0 100
	3' Travel Time			Maximum Amplitude

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	22.37		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (211461) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10013899) Production Gamma Ray	1.93	1.69	9.50
			UW_PRC #4 -DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	14.99		UW_RBT-UW_RBT_004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	14.99					
WVFS2	14.99					
WVFS3	14.99					
WVFS4	14.99					
WVFS5	14.99					
WVFS6	14.99					
WVFS7	14.99					
WVFS8	14.99					
CBLTEMP	14.99					
CBLROT	14.99					
WVF5FT	13.99					
MIT	4.97		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
			UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
TSTAMP	0.00	UW_PRC #3 -DSSRAC (084) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00	
		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20	

Dataset: 0512338948_Anadarko_Houston 33N-8HZ_06-20-14_MIT_RBL.db: field/well/run1/pass7
Total Length: 26.62 ft
Total Weight: 319.30 lb
O.D. 3.13 in

Calibration Report

Database File: 0512338948_Anadarko_Houston 33N-8HZ_06-20-14_MIT_RBL.db
Dataset Pathname: pass8
Dataset Creation: Fri Jun 20 14:24:49 2014 by Log SCH 111116

Multi-finger Imaging Tool Calibration Report

Serial Number: 10014703
Number of Fingers: 40
Tool Model: UW_MIT40_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: Fri Jun 20 10:56:52 2014

Ring size:	4	5	6	7
(in)	Sens	Sens	Sens	
Finger 01:	1199 348.0	1547 384.0	1931 393.0	2324
Finger 02:	1142 361.0	1503 408.0	1911 417.0	2328
Finger 03:	1148 352.0	1500 392.0	1892 405.0	2297
Finger 04:	1097 364.0	1461 421.0	1882 432.0	2314
Finger 05:	1110 342.0	1452 392.0	1844 397.0	2241
Finger 06:	1113 356.0	1469 410.0	1879 414.0	2293
Finger 07:	1140 347.0	1487 395.0	1882 402.0	2284
Finger 08:	1095 355.0	1450 410.0	1860 418.0	2278
Finger 09:	1172 357.0	1529 399.0	1928 394.0	2322
Finger 10:	1111 352.0	1463 396.0	1859 395.0	2254
Finger 11:	1114 351.0	1465 402.0	1867 407.0	2274
Finger 12:	1188 351.0	1539 380.0	1919 373.0	2292
Finger 13:	1137 351.0	1488 394.0	1882 405.0	2287
Finger 14:	1111 363.0	1474 407.0	1881 417.0	2298
Finger 15:	1075 363.0	1438 409.0	1847 424.0	2271
Finger 16:	1148 358.0	1506 392.0	1898 404.0	2302
Finger 17:	1157 350.0	1507 381.0	1888 391.0	2279
Finger 18:	1210 351.0	1561 377.0	1938 391.0	2329
Finger 19:	1159 359.0	1518 383.0	1901 404.0	2305
Finger 20:	1073 366.0	1439 393.0	1832 417.0	2249
Finger 21:	1155 353.0	1508 375.0	1883 405.0	2288
Finger 22:	1150 357.0	1507 378.0	1885 405.0	2290
Finger 23:	1242 337.0	1579 353.0	1932 377.0	2309
Finger 24:	1159 364.0	1523 384.0	1907 409.0	2316
Finger 25:	1156 356.0	1512 381.0	1893 412.0	2305
Finger 26:	1195 358.0	1553 373.0	1926 398.0	2324
Finger 27:	1198 347.0	1545 366.0	1911 400.0	2311
Finger 28:	1162 361.0	1523 384.0	1907 413.0	2320
Finger 29:	1142 363.0	1505 391.0	1896 424.0	2320
Finger 30:	1144 358.0	1502 386.0	1888 421.0	2309

Finger 30:	1141	353.0	1502	368.0	1888	421.0	2300
Finger 31:	1197	352.0	1549	371.0	1920	395.0	2315
Finger 32:	1140	362.0	1502	387.0	1889	423.0	2312
Finger 33:	1142	358.0	1500	389.0	1889	420.0	2309
Finger 34:	1128	362.0	1490	398.0	1888	423.0	2311
Finger 35:	1187	347.0	1534	376.0	1910	398.0	2308
Finger 36:	1127	357.0	1484	397.0	1881	419.0	2300
Finger 37:	1189	343.0	1532	374.0	1906	398.0	2304
Finger 38:	1218	346.0	1564	378.0	1942	392.0	2334
Finger 39:	1121	350.0	1471	396.0	1867	414.0	2281
Finger 40:	1074	365.0	1439	420.0	1859	438.0	2297

Post Survey Calibration Check								
Performed: Fri Jun 20 14:24:40 2014								
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	3.996	-0.002	5.005	0.003	6.013	0.006	6.997	-0.002
Finger 02:	3.996	-0.002	4.999	-0.000	6.004	0.002	7.002	0.001
Finger 03:	3.996	-0.002	5.008	0.004	6.009	0.005	7.009	0.005
Finger 04:	3.988	-0.006	4.990	-0.005	5.994	-0.003	6.995	-0.003
Finger 05:	3.995	-0.002	5.002	0.001	6.000	0.000	7.001	0.000
Finger 06:	3.993	-0.004	4.995	-0.002	5.996	-0.002	6.998	-0.001
Finger 07:	4.010	0.005	5.005	0.003	6.002	0.001	7.002	0.001
Finger 08:	3.998	-0.001	4.999	-0.000	6.005	0.002	7.003	0.002
Finger 09:	3.989	-0.005	4.995	-0.002	5.996	-0.002	7.000	-0.000
Finger 10:	3.995	-0.003	4.994	-0.003	5.998	-0.001	7.004	0.002
Finger 11:	3.995	-0.003	5.000	0.000	6.002	0.001	7.005	0.003
Finger 12:	3.994	-0.003	4.995	-0.002	6.000	0.000	7.005	0.002
Finger 13:	3.997	-0.002	4.999	-0.000	6.004	0.002	7.003	0.002
Finger 14:	3.997	-0.002	5.002	0.001	6.005	0.002	7.004	0.002
Finger 15:	3.997	-0.002	4.997	-0.001	6.001	0.000	7.003	0.002
Finger 16:	4.002	0.001	5.003	0.001	6.004	0.002	7.003	0.001
Finger 17:	3.996	-0.002	5.011	0.006	5.993	-0.004	7.002	0.001
Finger 18:	3.996	-0.002	4.999	-0.001	6.006	0.003	7.002	0.001
Finger 19:	3.999	-0.001	4.999	-0.000	6.005	0.002	7.001	0.001
Finger 20:	4.001	0.001	5.000	-0.000	6.008	0.004	7.025	0.012
Finger 21:	3.996	-0.002	5.000	-0.000	6.002	0.001	6.993	-0.003
Finger 22:	3.993	-0.003	5.000	-0.000	6.004	0.002	6.998	-0.001
Finger 23:	3.996	-0.002	5.001	0.001	6.007	0.003	7.007	0.003
Finger 24:	3.996	-0.002	5.002	0.001	6.002	0.001	7.001	0.001
Finger 25:	4.002	0.001	5.005	0.003	6.007	0.003	7.009	0.004
Finger 26:	3.991	-0.005	4.995	-0.002	5.995	-0.003	6.995	-0.003
Finger 27:	4.002	0.001	5.004	0.002	6.008	0.004	7.006	0.003
Finger 28:	4.002	0.001	5.007	0.004	6.005	0.003	7.001	0.001
Finger 29:	3.991	-0.004	4.994	-0.003	5.996	-0.002	6.995	-0.002
Finger 30:	3.983	-0.009	4.988	-0.006	5.987	-0.006	6.984	-0.008
Finger 31:	3.986	-0.007	4.988	-0.006	5.988	-0.006	6.997	-0.001
Finger 32:	4.000	0.000	4.995	-0.003	6.009	0.004	7.013	0.006
Finger 33:	4.006	0.003	5.008	0.004	6.006	0.003	7.016	0.008
Finger 34:	4.000	0.000	5.001	0.000	6.000	-0.000	7.003	0.001
Finger 35:	3.995	-0.003	5.003	0.001	6.004	0.002	7.006	0.003
Finger 36:	3.998	-0.001	5.000	-0.000	5.998	-0.001	7.000	-0.000
Finger 37:	3.998	-0.001	5.004	0.002	6.017	0.009	7.015	0.008
Finger 38:	4.001	0.001	5.001	0.001	5.999	-0.001	7.008	0.004
Finger 39:	4.001	0.001	5.006	0.003	6.003	0.001	7.006	0.003
Finger 40:	3.996	-0.002	4.997	-0.001	6.000	-0.000	6.997	-0.001
Average:	3.996	-0.002	5.000	-0.000	6.002	0.001	7.003	0.001

Segmented Cement Bond Log Calibration Report
--

Serial Number:	1066
Tool Model:	UW_RBT_004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	286.526 ft

Master Calibration, performed Fri Jun 20 11:19:58 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	0.767	0.800	62.165	79.687	1.060
5FT	-0.007	0.749	0.800	62.165	81.139	1.394
S1	-0.006	0.736	0.000	100.000	134.937	0.745
S2	-0.006	0.773	0.000	100.000	128.438	0.765
S3	-0.005	0.795	0.000	100.000	125.027	0.614
S4	-0.006	0.803	0.000	100.000	123.644	0.708
S5	-0.005	0.786	0.000	100.000	126.514	0.618
S6	-0.006	0.763	0.000	100.000	130.133	0.753
S7	-0.005	0.752	0.000	100.000	132.091	0.706
S8	-0.006	0.737	0.000	100.000	134.567	0.757

Gamma Ray Calibration Report

Serial Number:	10013899	
Tool Model:	UW_PGR_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	Houston 33N-8HZ
Field	Wattenberg
County	Weld
State	Colorado