



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company		Kerr-McGee Oil & Gas Onshore, L.P.	
Well		Goodin 37N - A6HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-40751	
SEC 7		TWP 1N	
RGE 65W		Other Services	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		K.B. 5005'	
Elevation		D.F. 5004'	
Elevation		G.L. 4980'	
Date		26-JUN-2015	
Run Number		Two	
Depth Driller		13.355 FT	
Depth Logger		7.341 FT	
Bottom Logged Interval		7.326 FT	
Top Log Interval		Surface	
Open Hole Size		8.750"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		233°F	
Estimated Cement Top		Surface	
Time Well Ready		ROA	
Time Logger on Bottom		9.45 A.M.	
Equipment Number		HD-0119	
Location		Ft. Lupton, CO	
Recorded By		A. Olmsted	
Witnessed By		Levi McArthur	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		9 5/8	
Intermediate #1		7	
Intermediate #2		4 1/2	
Liner		11.6	
P-110 LTC/DOX		6,672 FT	
Bottom		13,351 FT	

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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 referenced to casing tally reported liner top at 6,672 FT  
Adjusted +4 FT to correlate to liner top  
Gauge Ring/Junk Basket ran to 7,355 FT  
Log ran from as deep as possible in heel to surface  
Logging tools were clean and free of debris upon completion of operations  
  
Thank you for choosing FMC Technologies Completion Services, Inc.!!



Main Pass

Recorded with 2800 PSI Surface Induced Pressure

Database File: c:\warrior\data\anadarko\_goodin 37n-a6hz\0512340751\_anadarko\_goodin 37n-a6hz\_06-26-15\_mit\_r

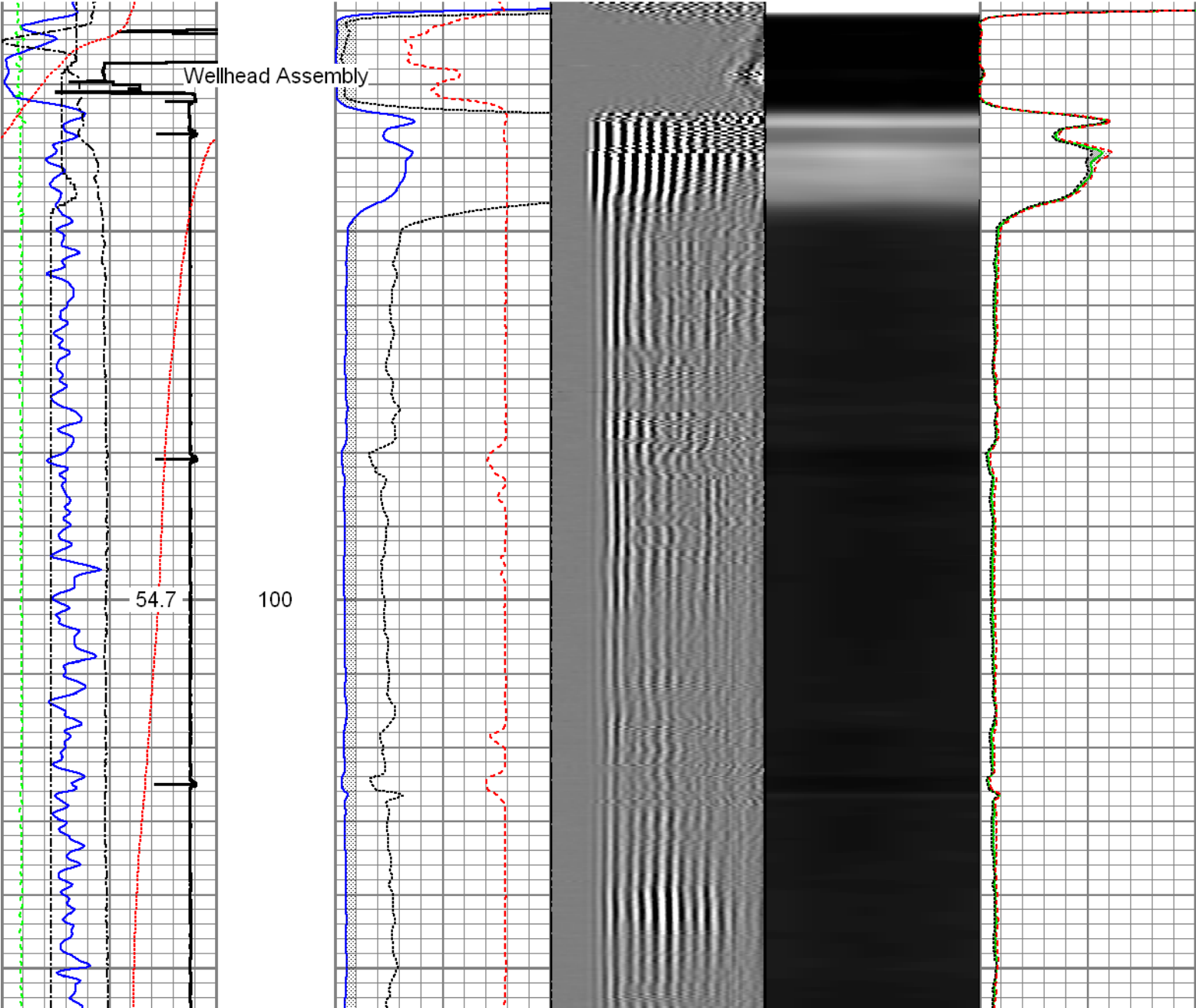
Dataset Pathname: pass6

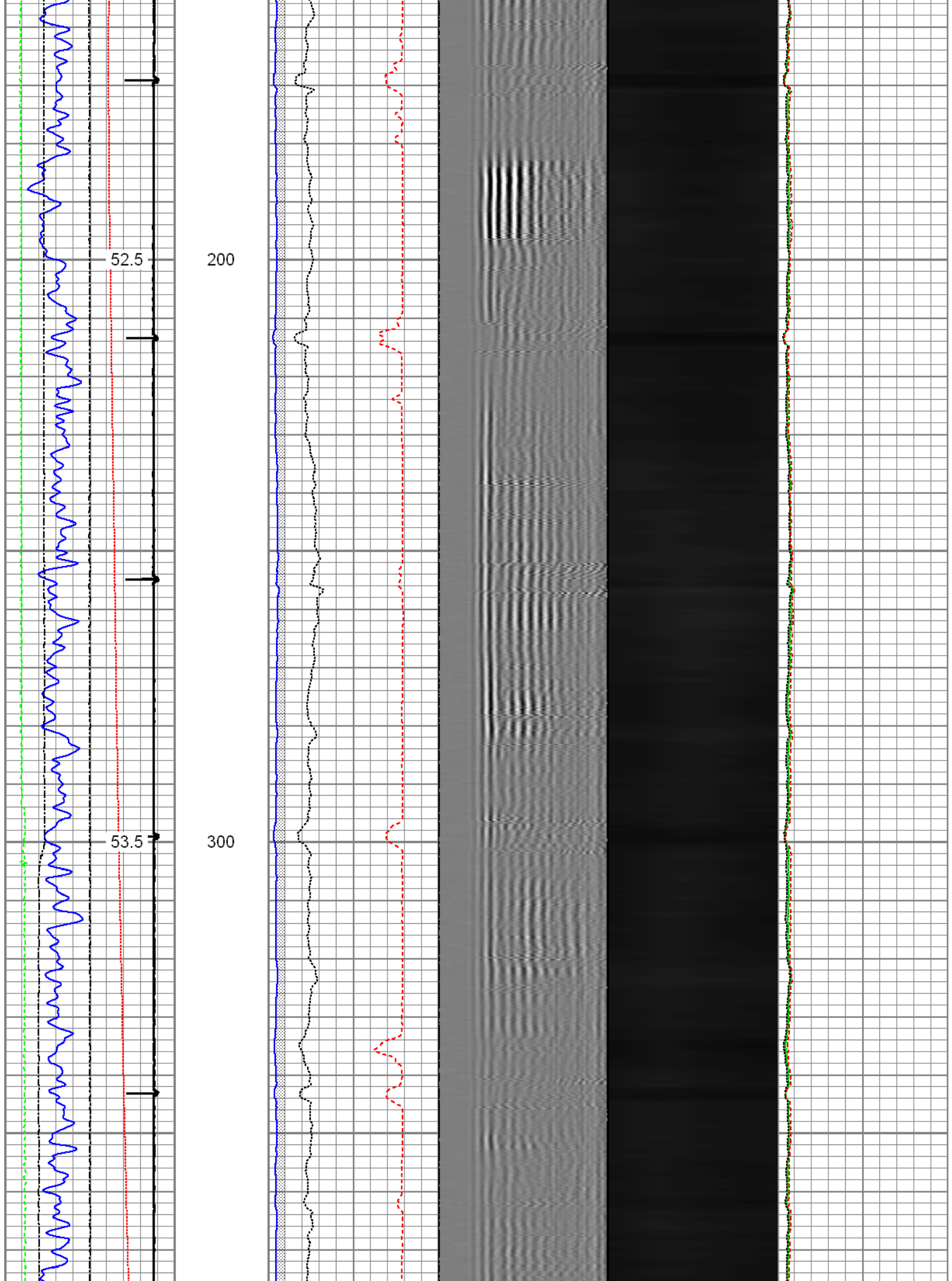
Presentation Format: rbt4\_mit

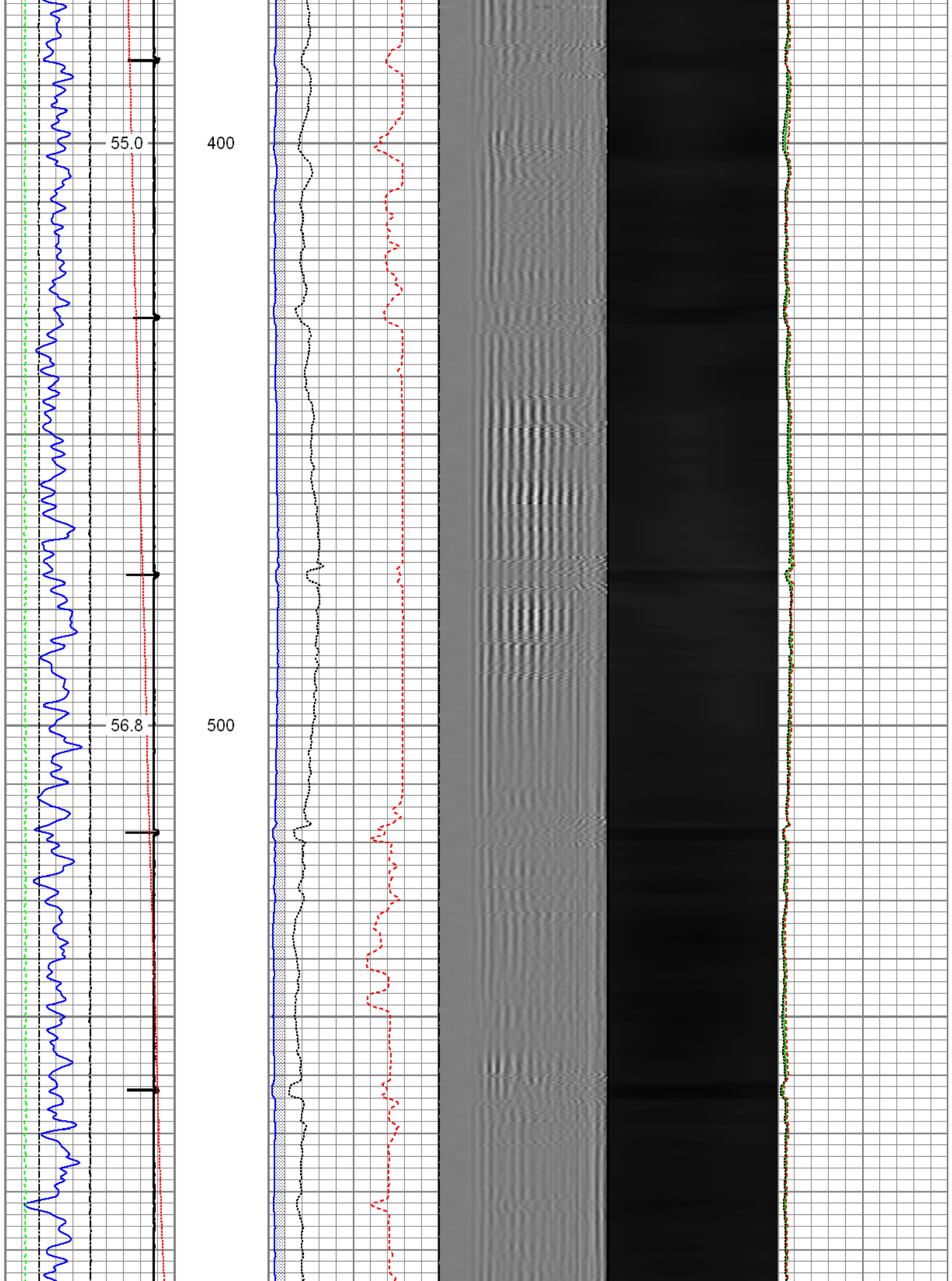
Dataset Creation: Fri Jun 26 09:41:56 2015 by Log 7.0 B1

Charted by: Depth in Feet scaled 1:240

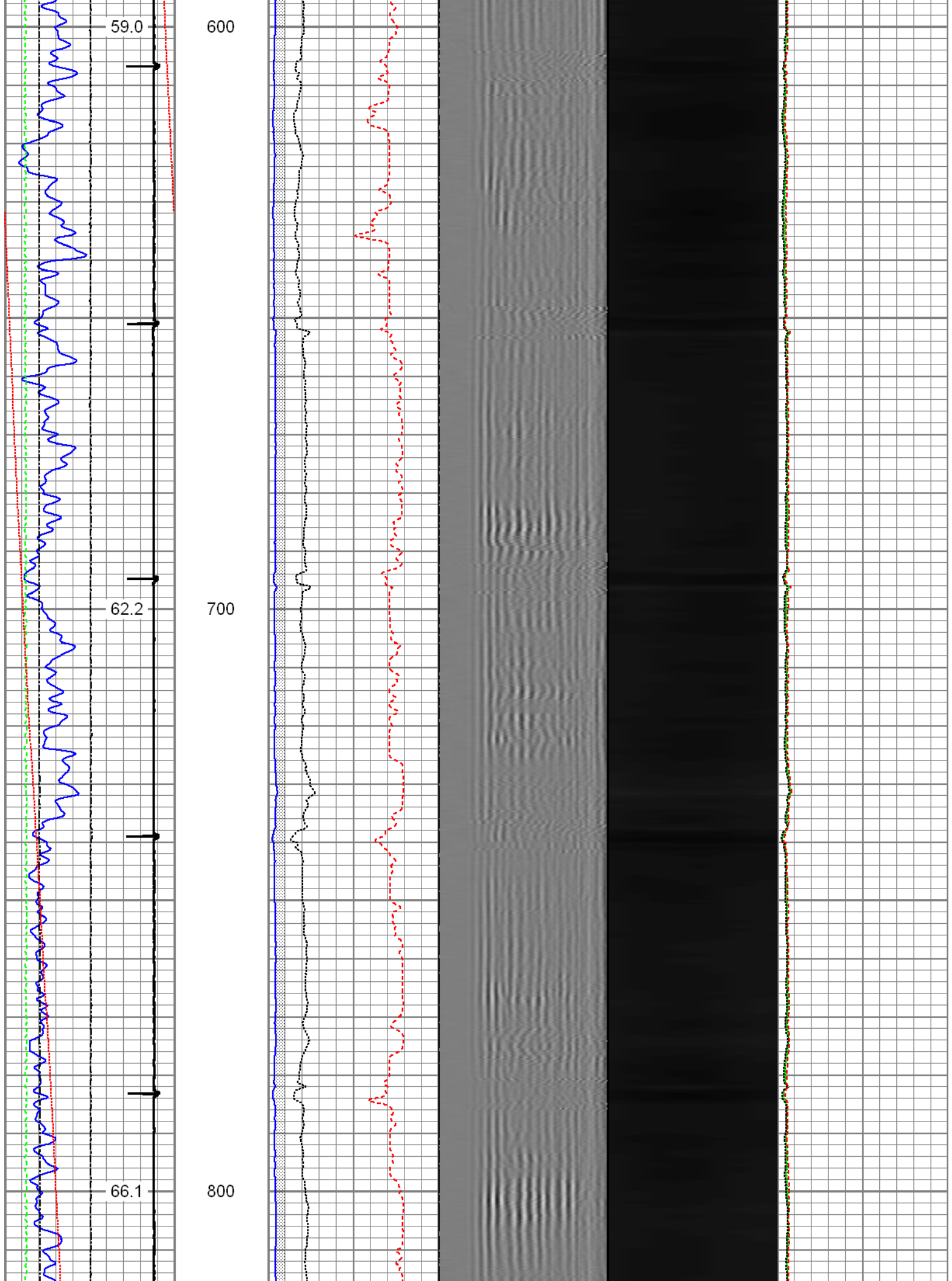
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				

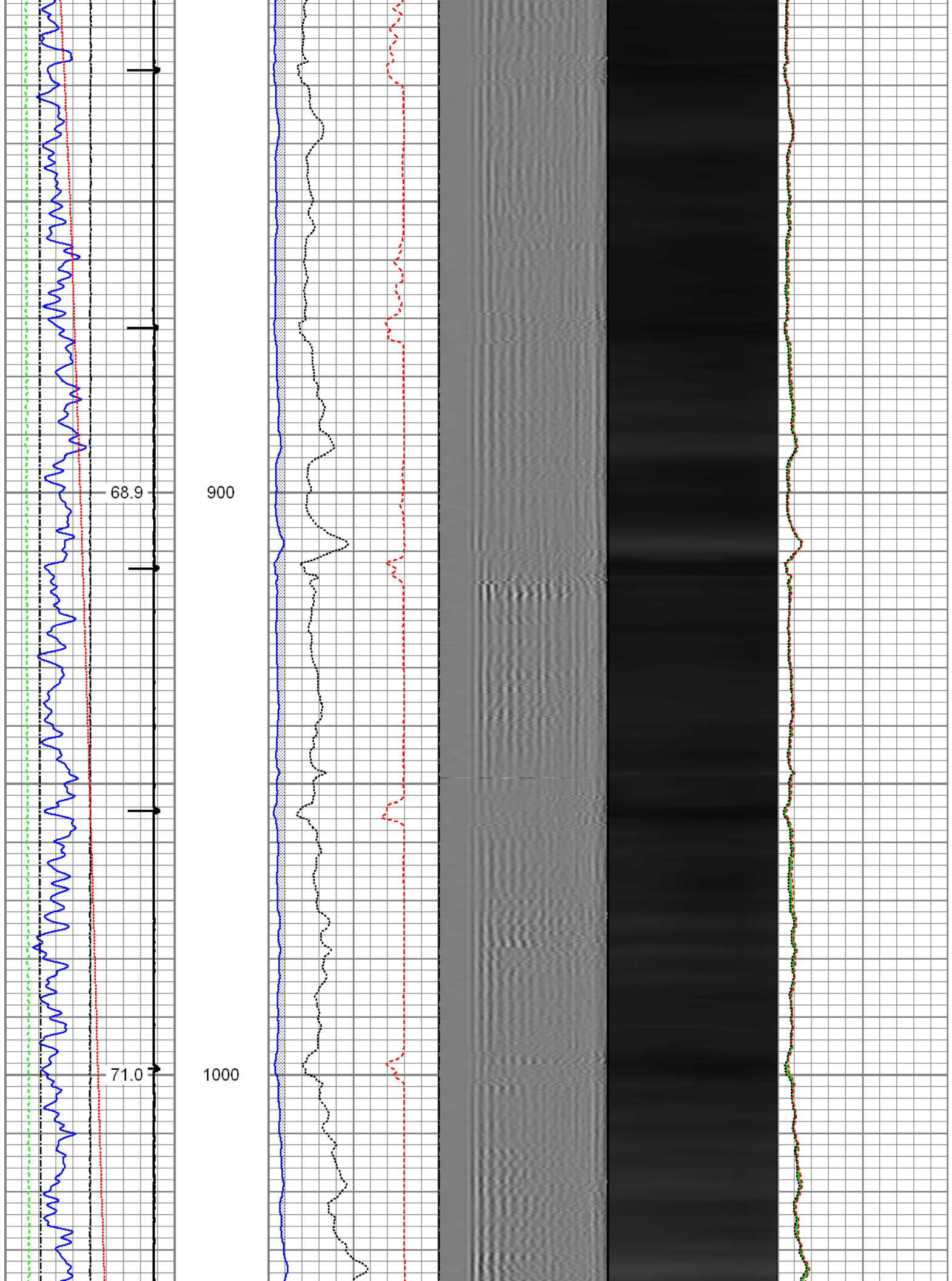


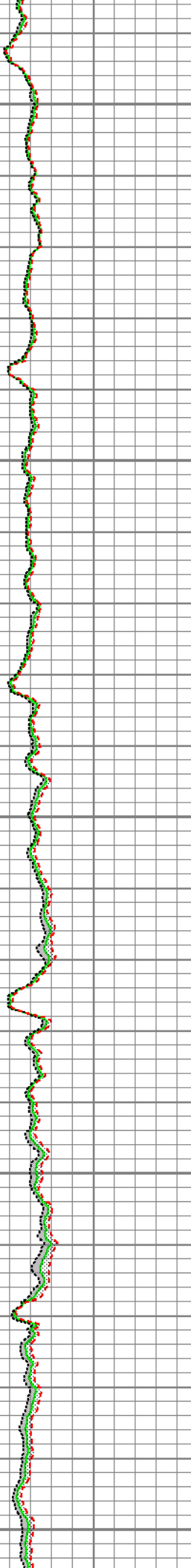
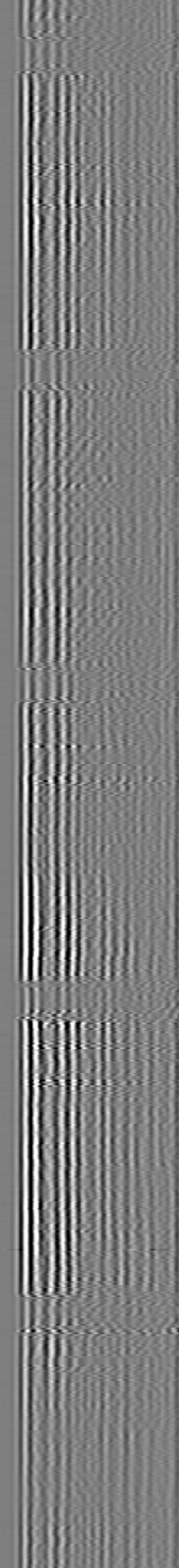
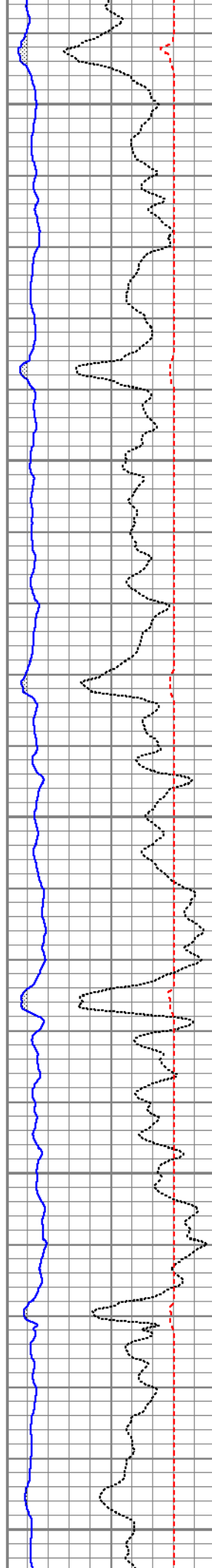
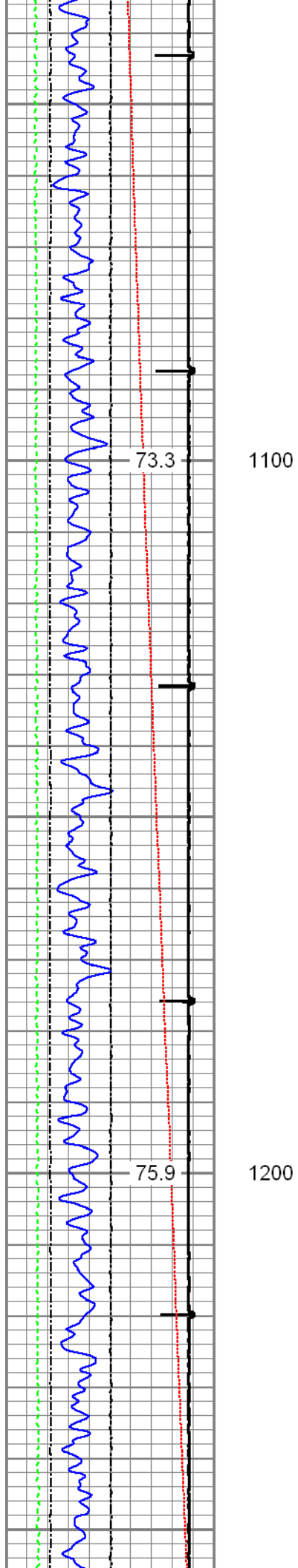


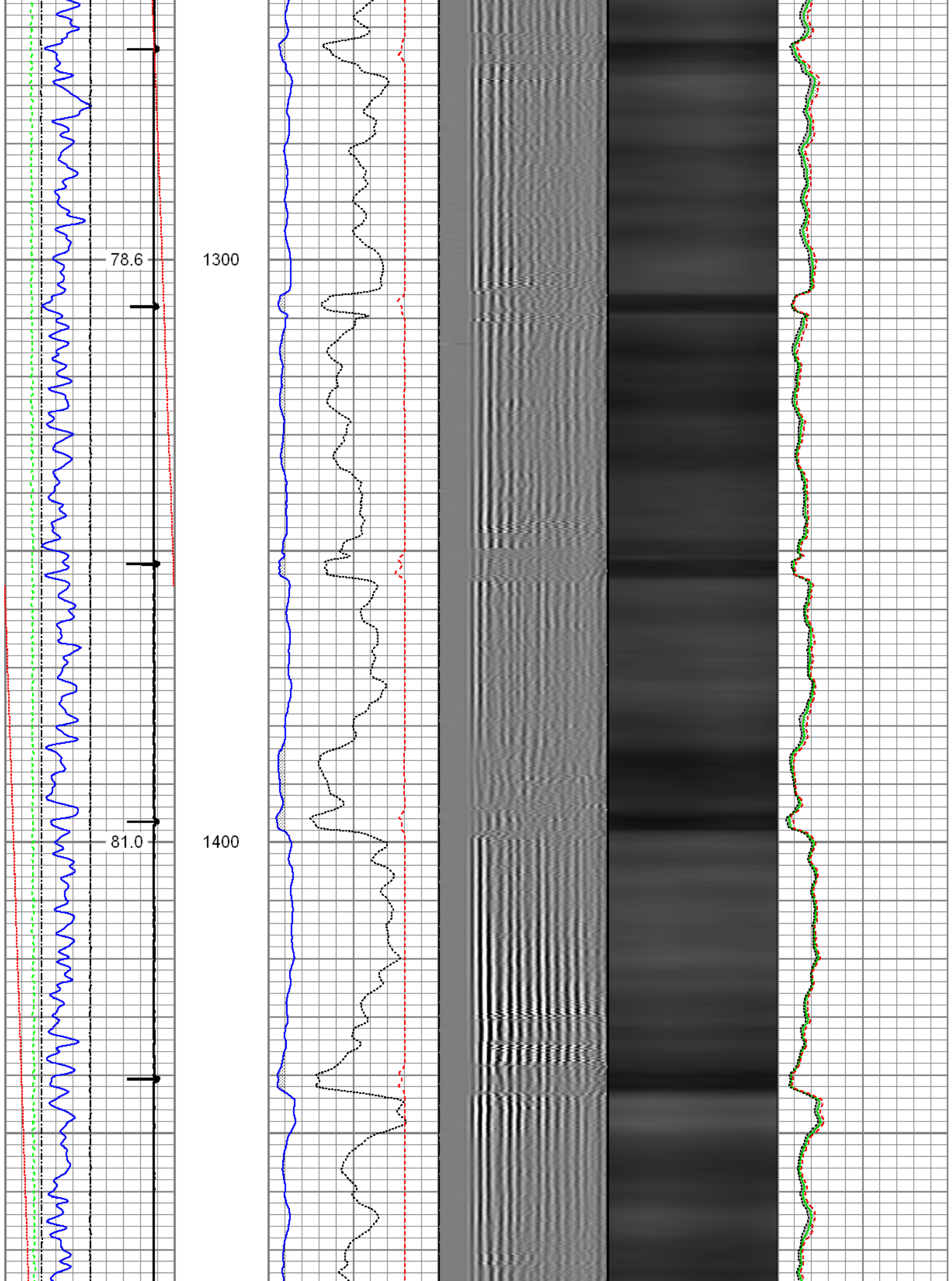


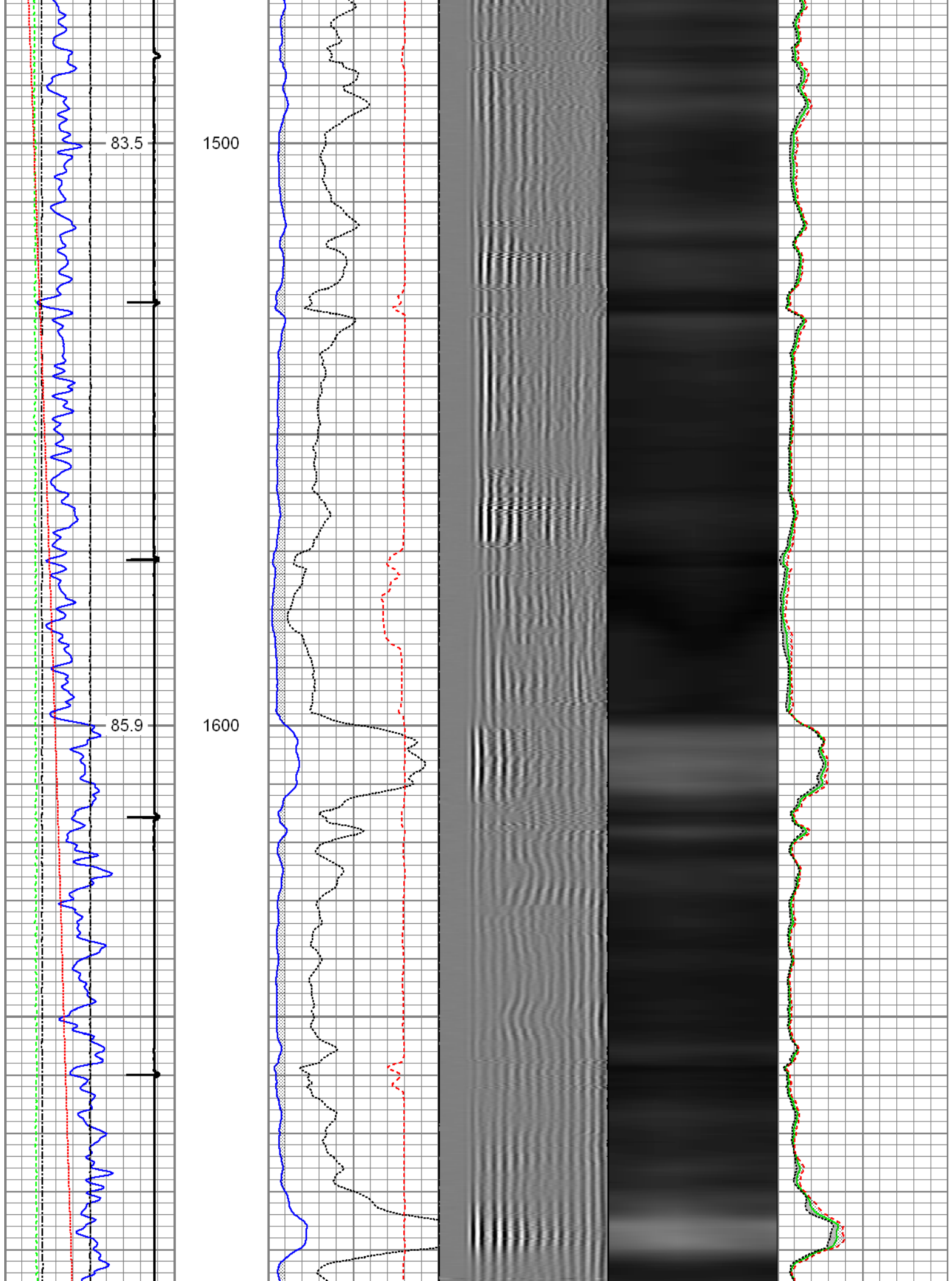




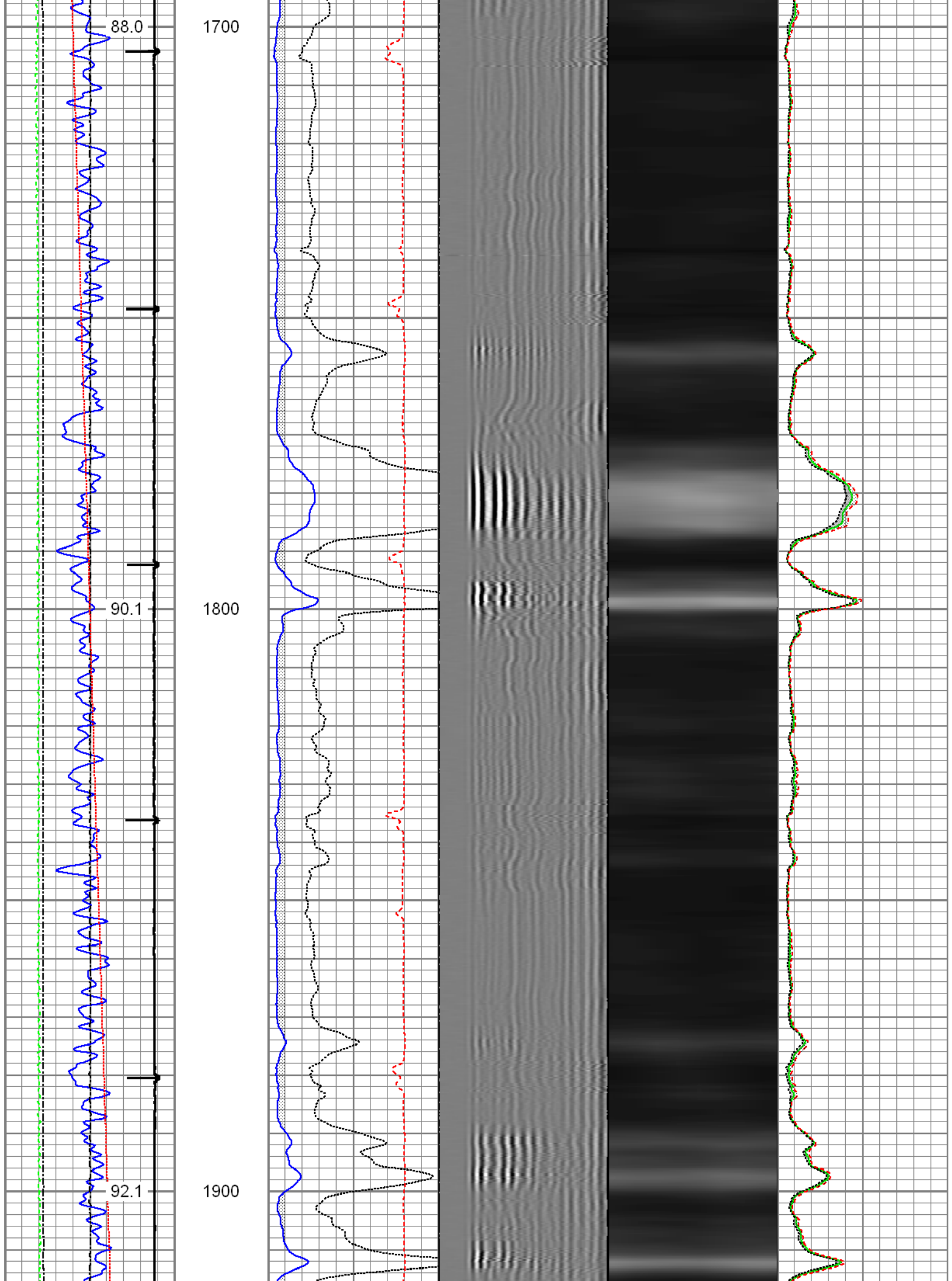


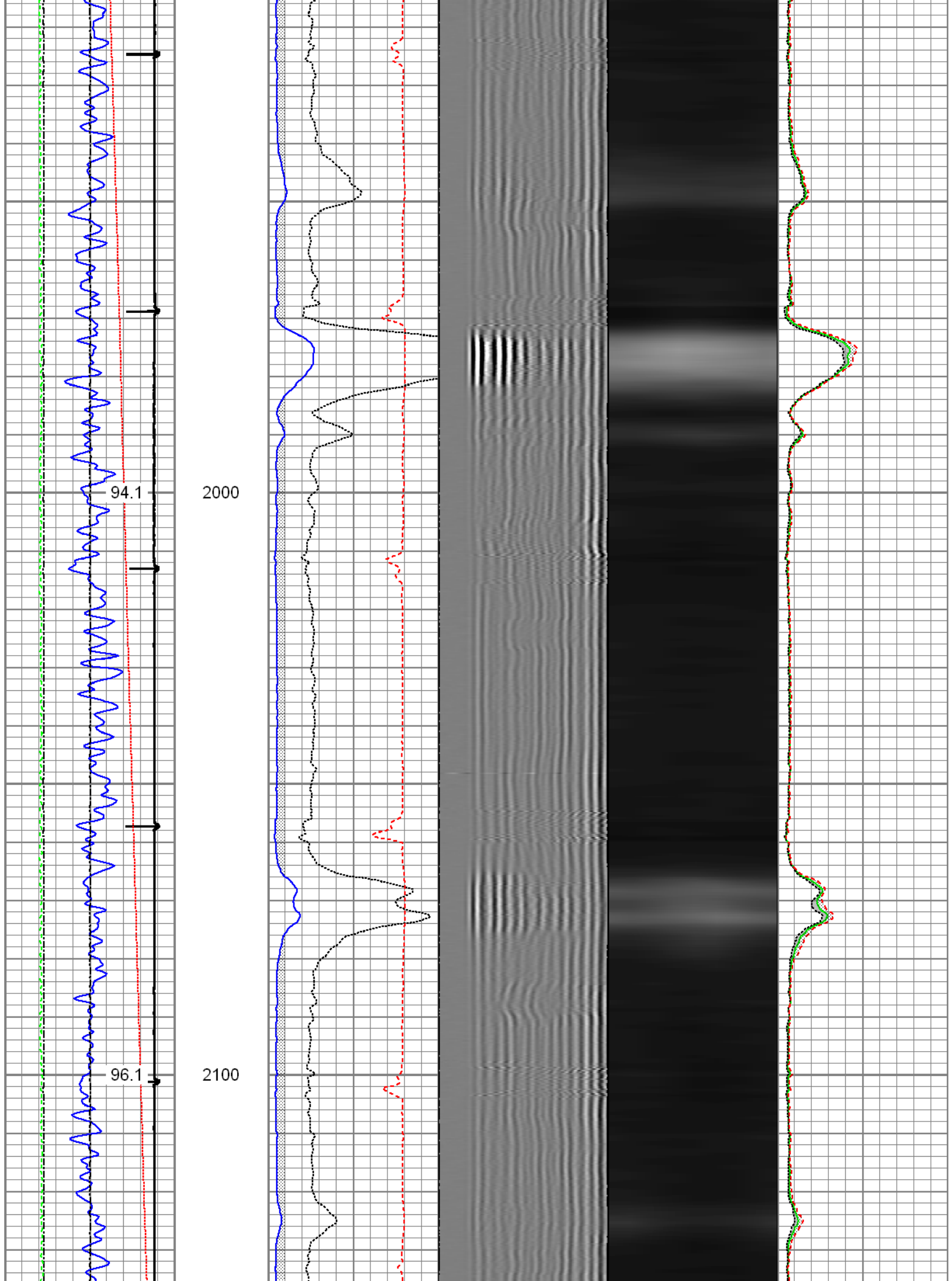


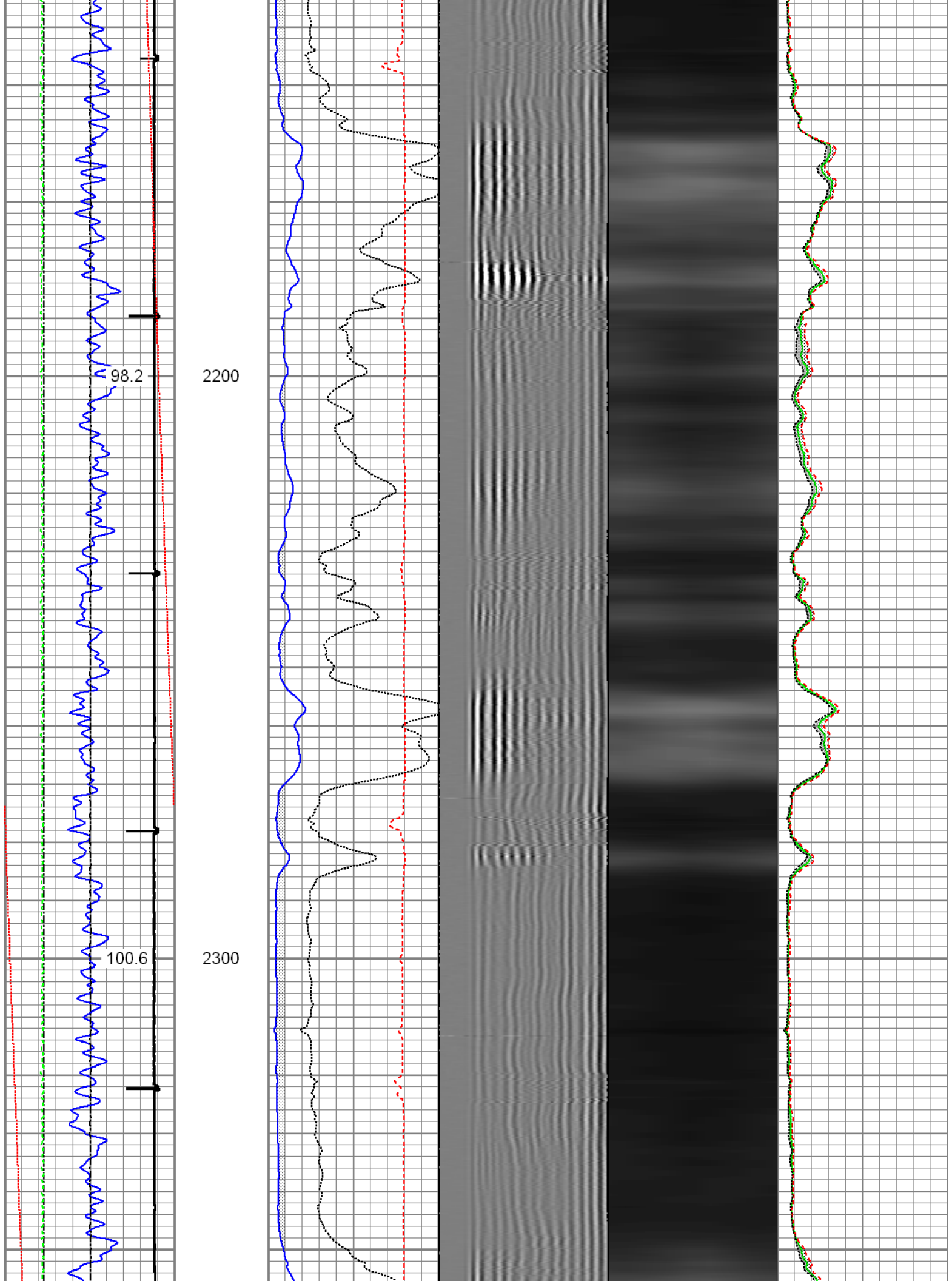


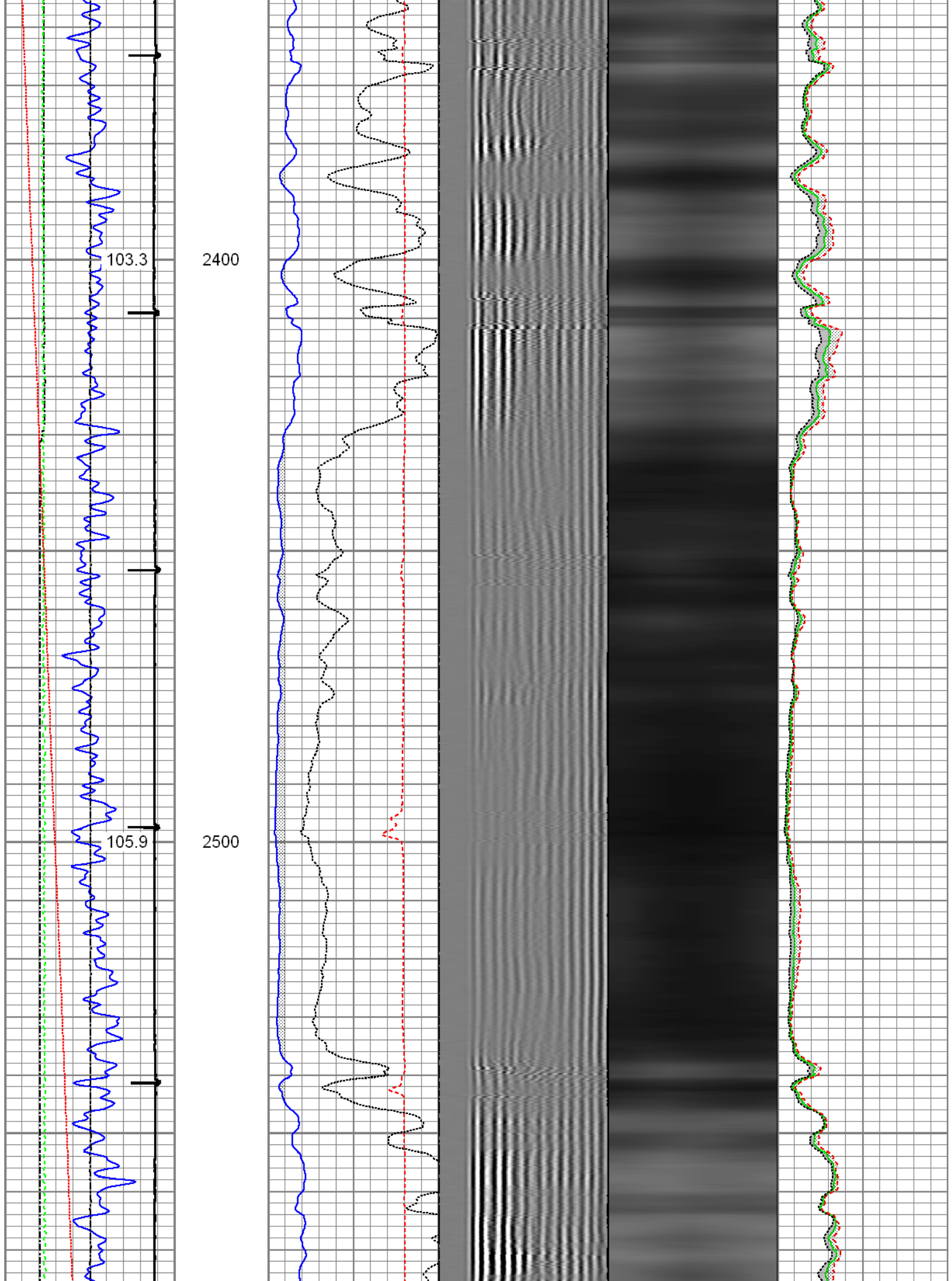


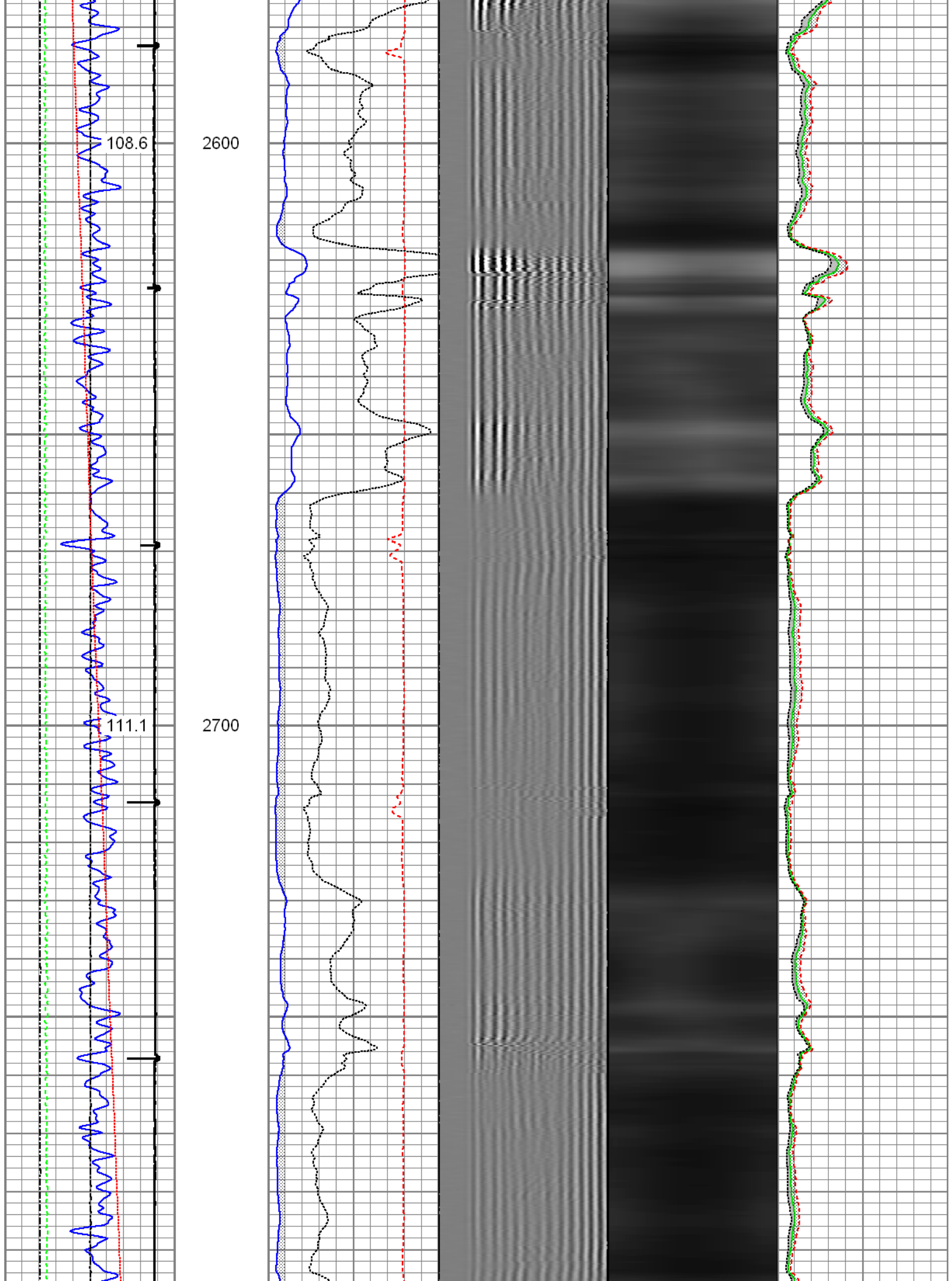




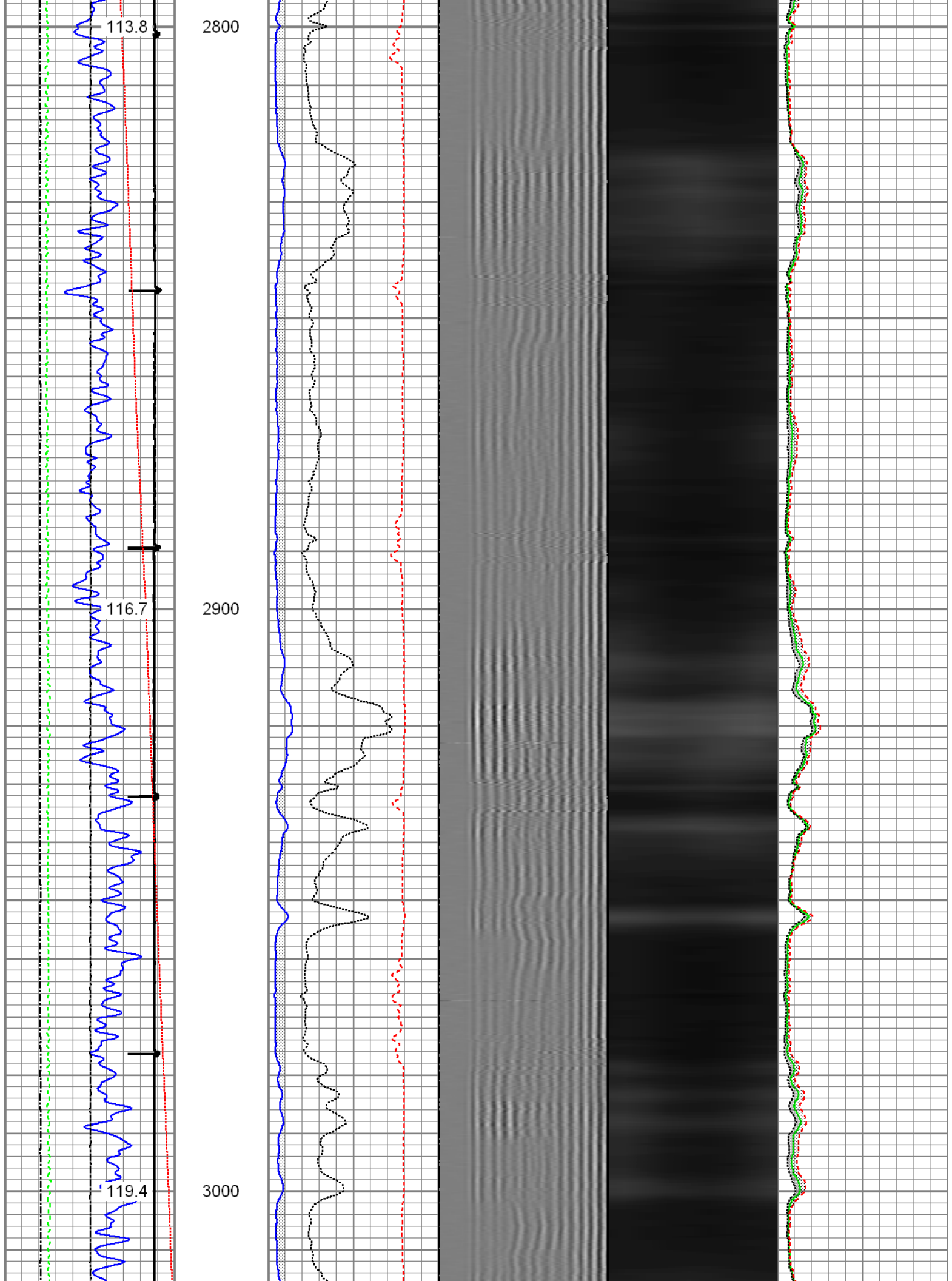


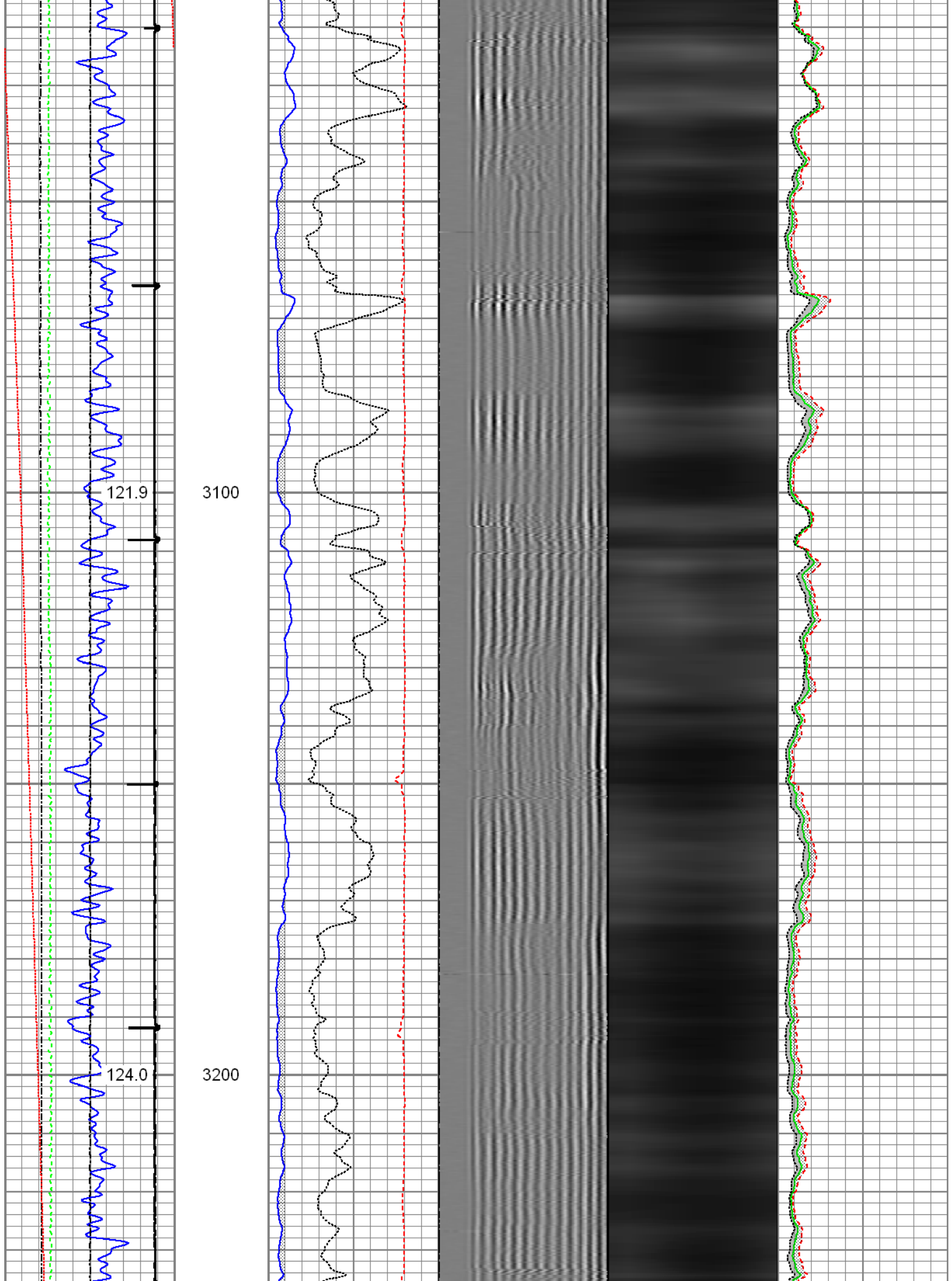


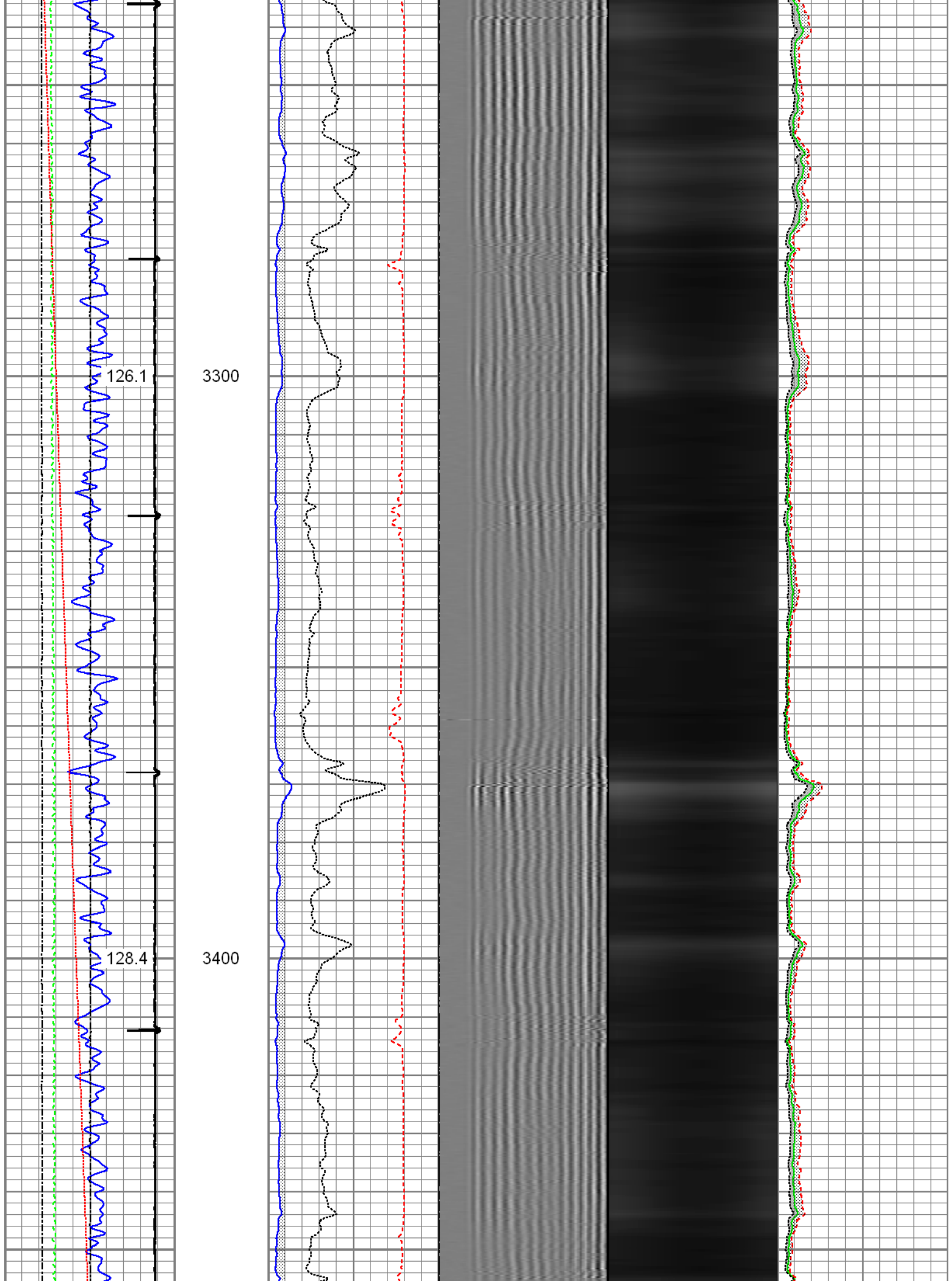


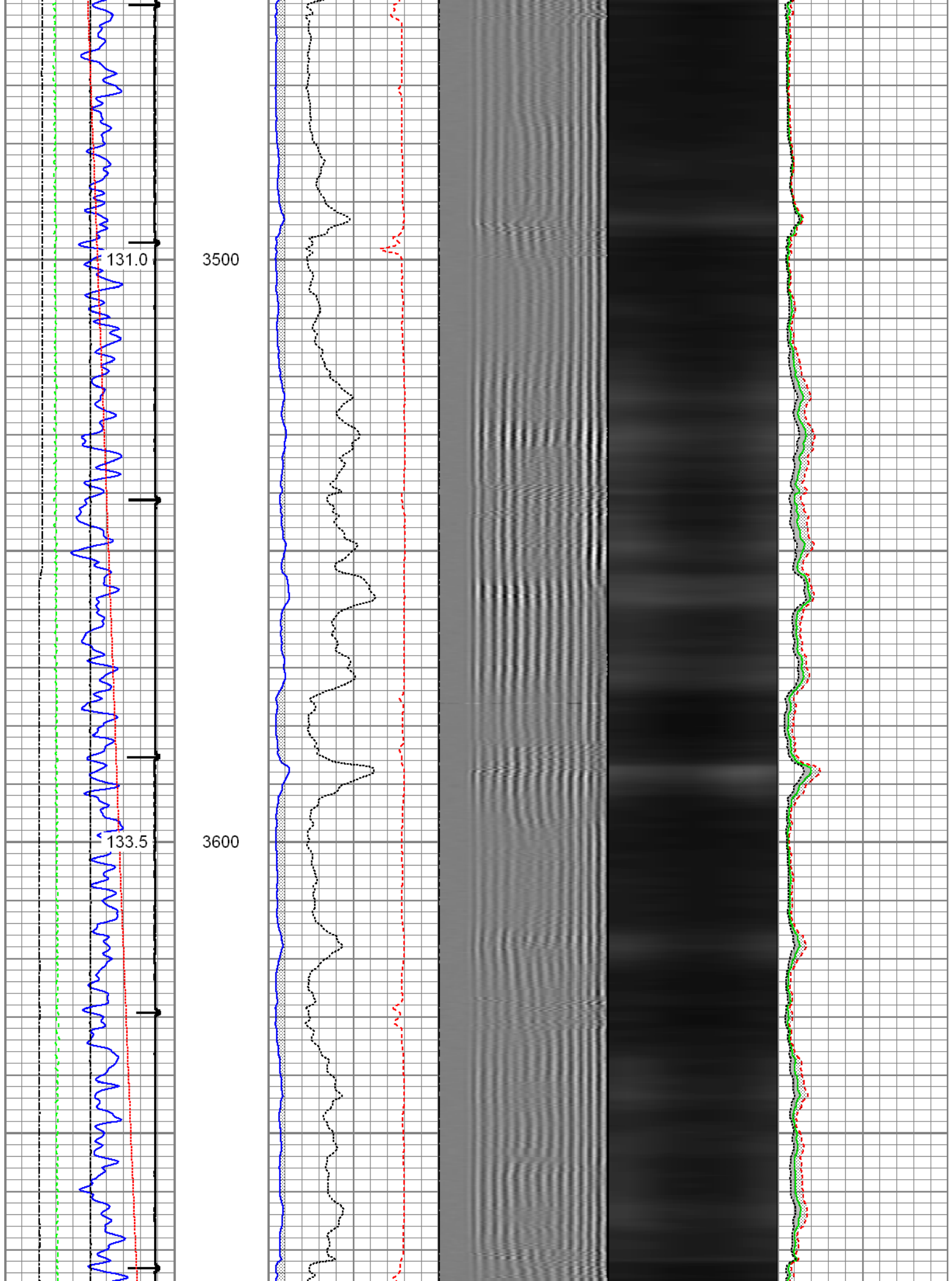




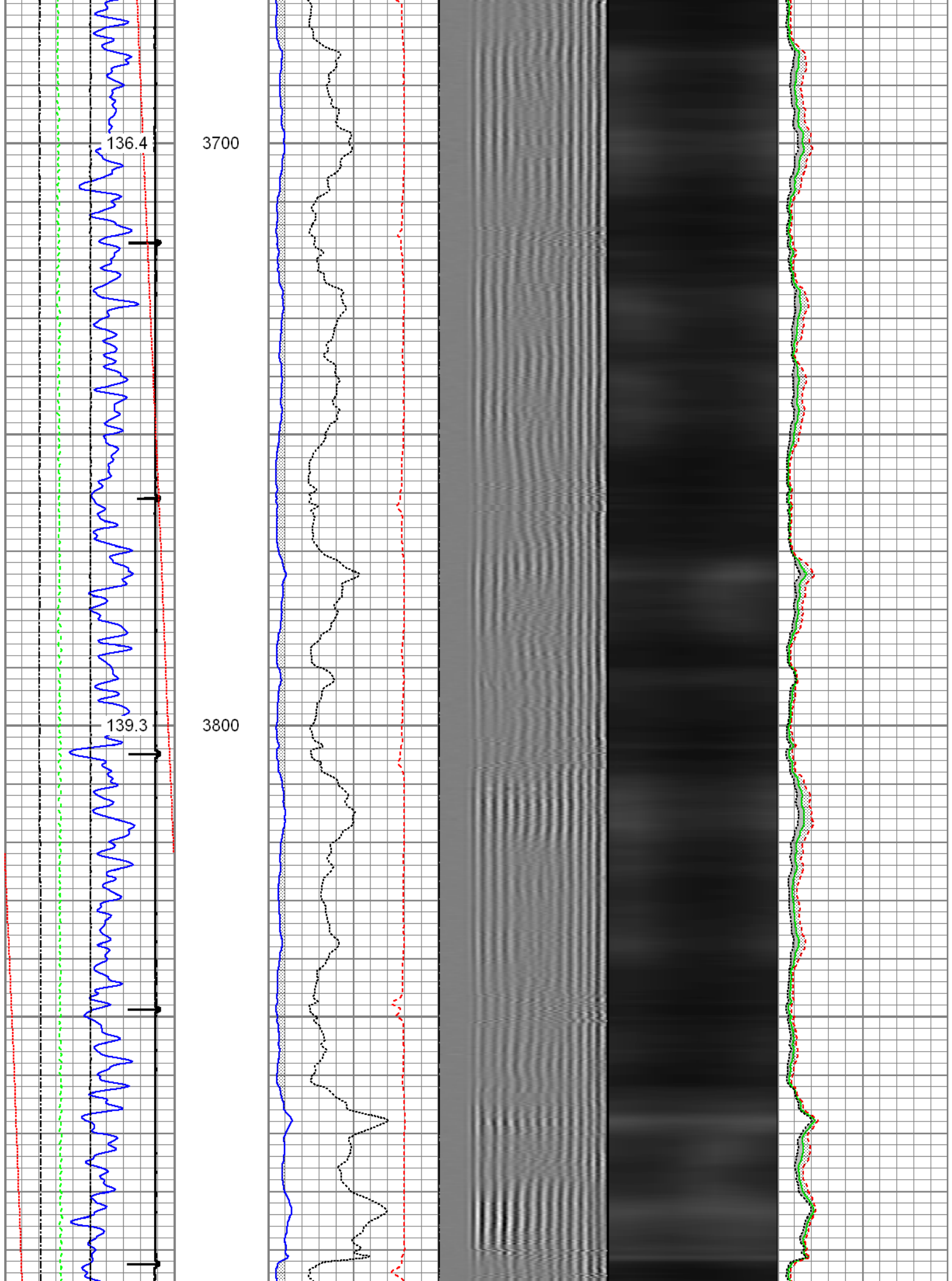




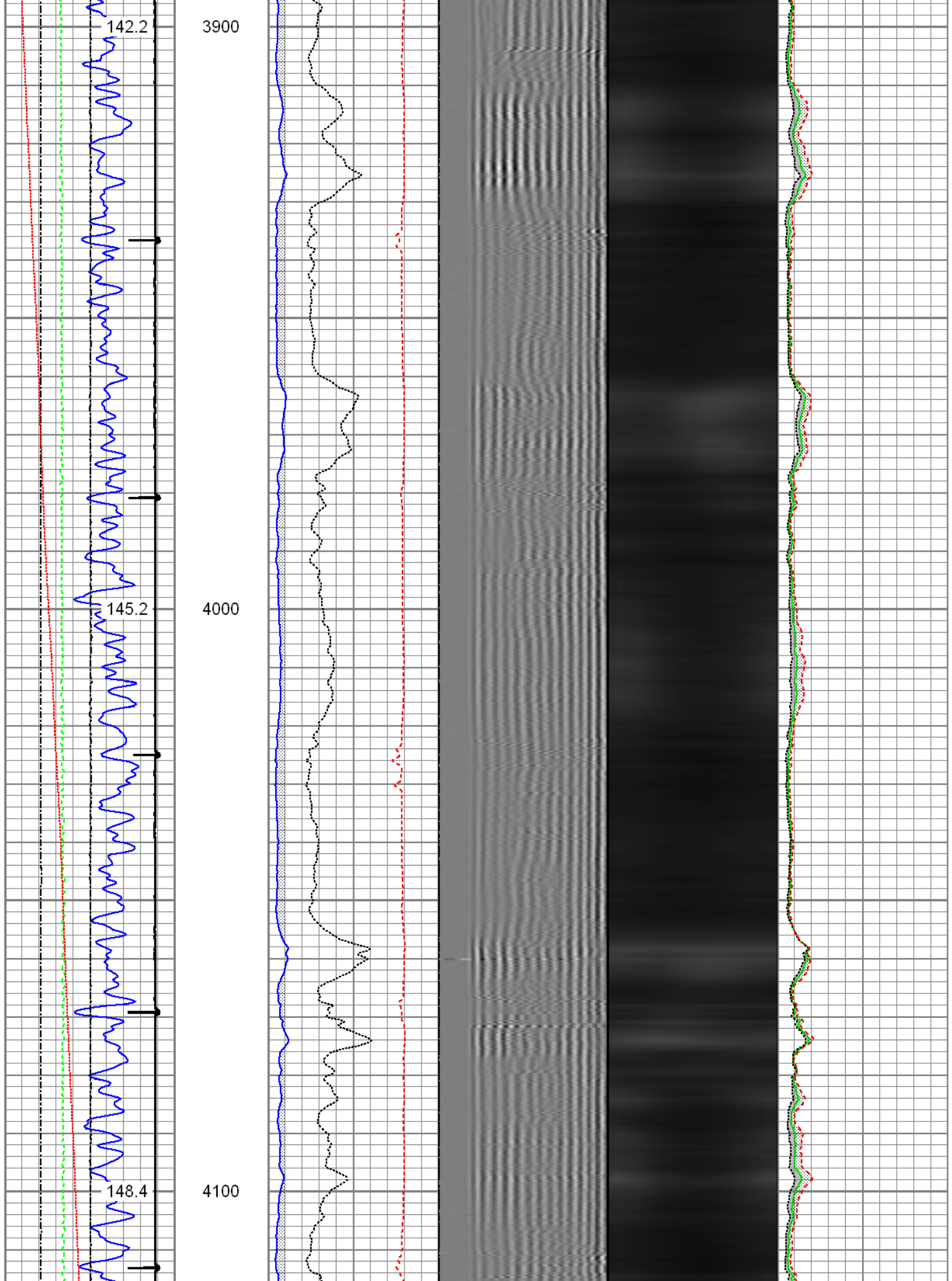


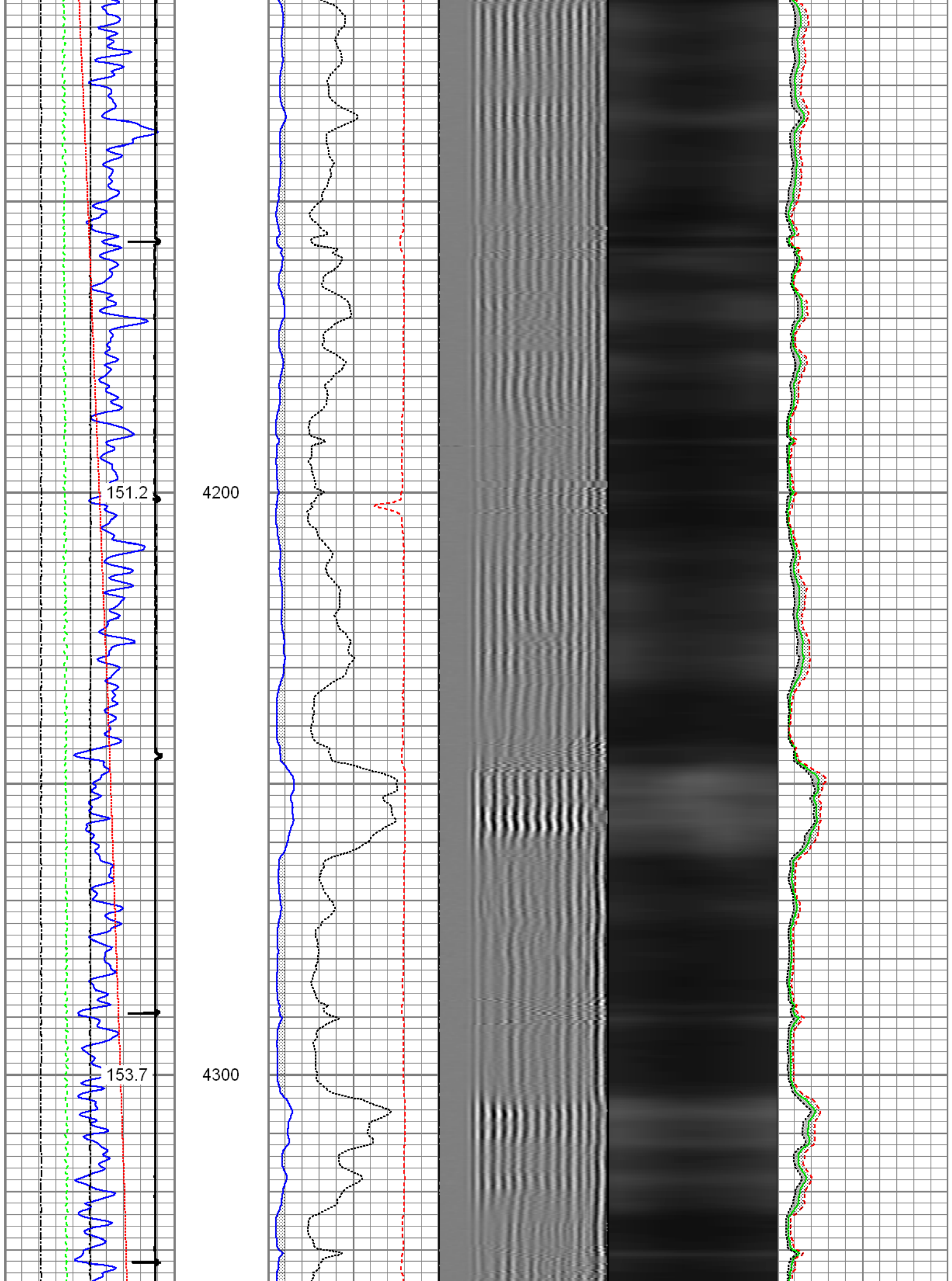


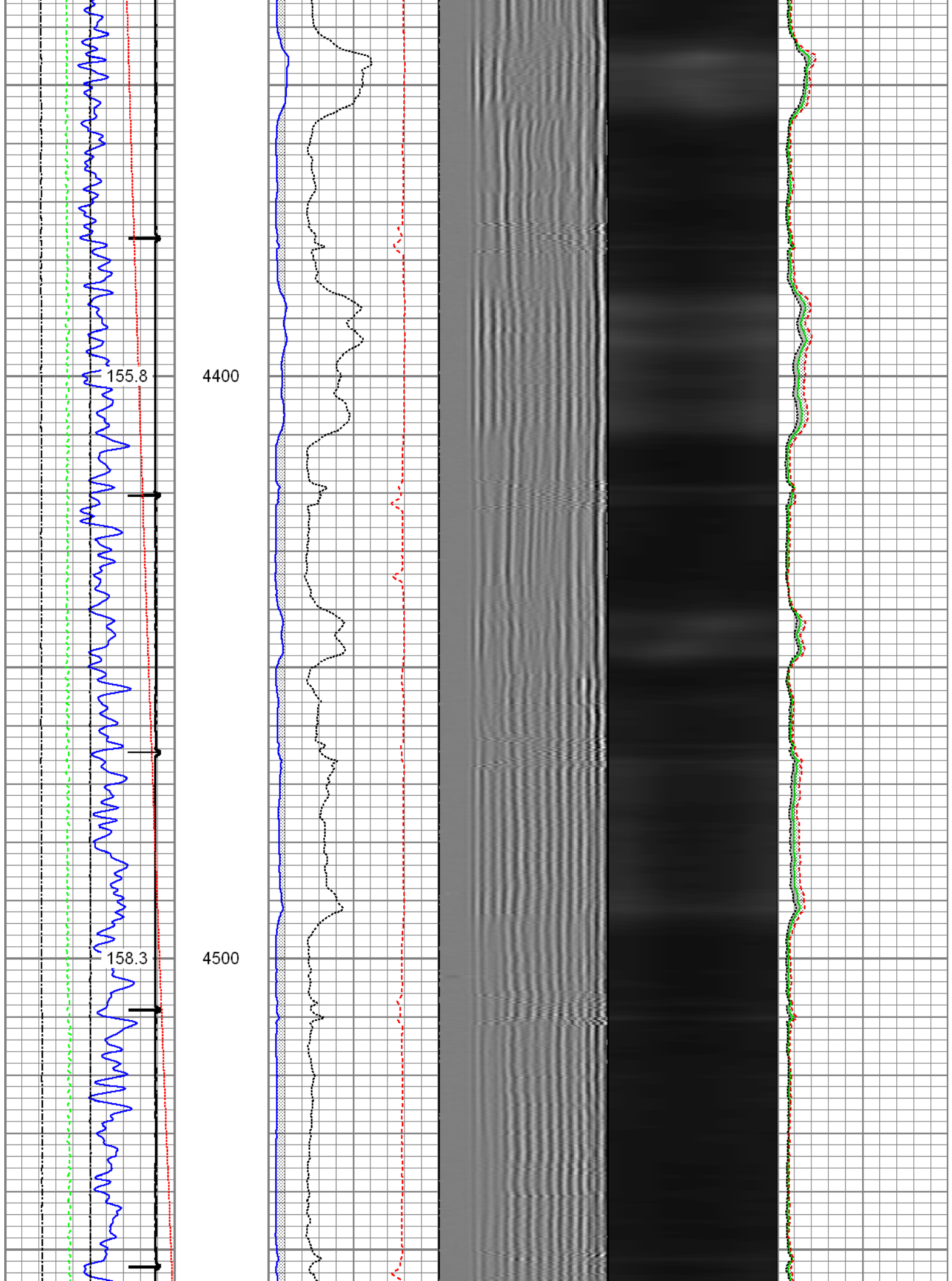


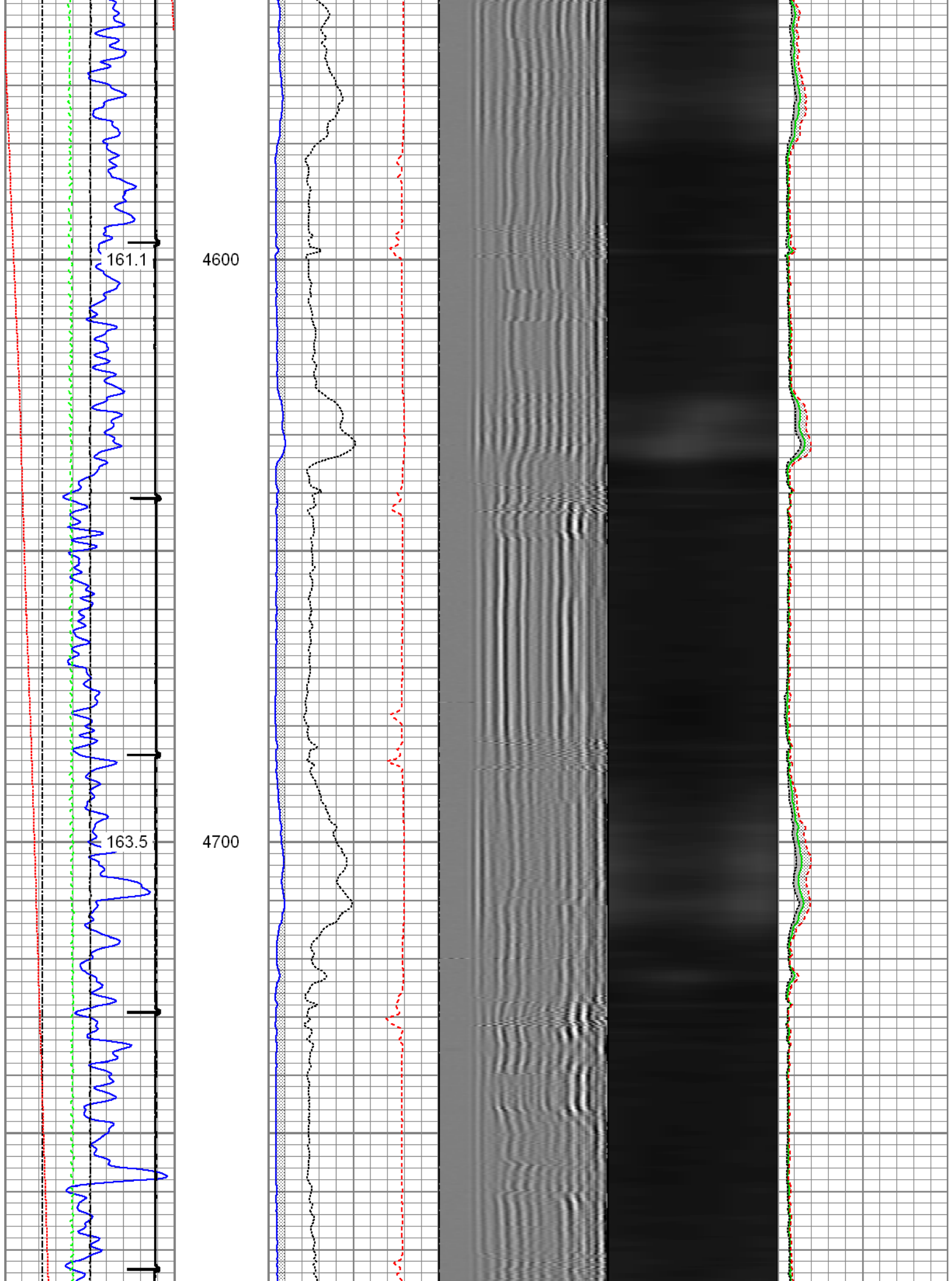




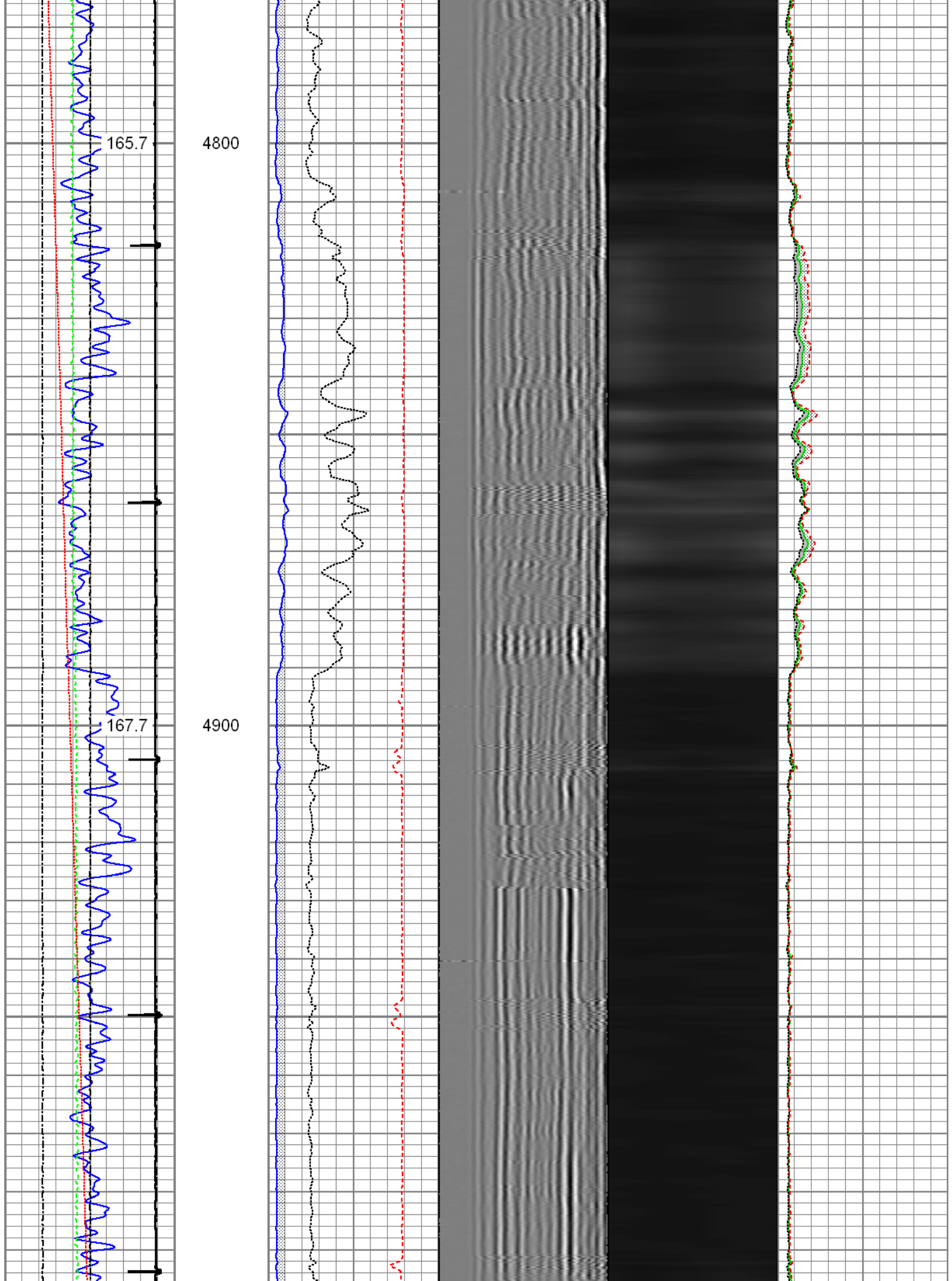




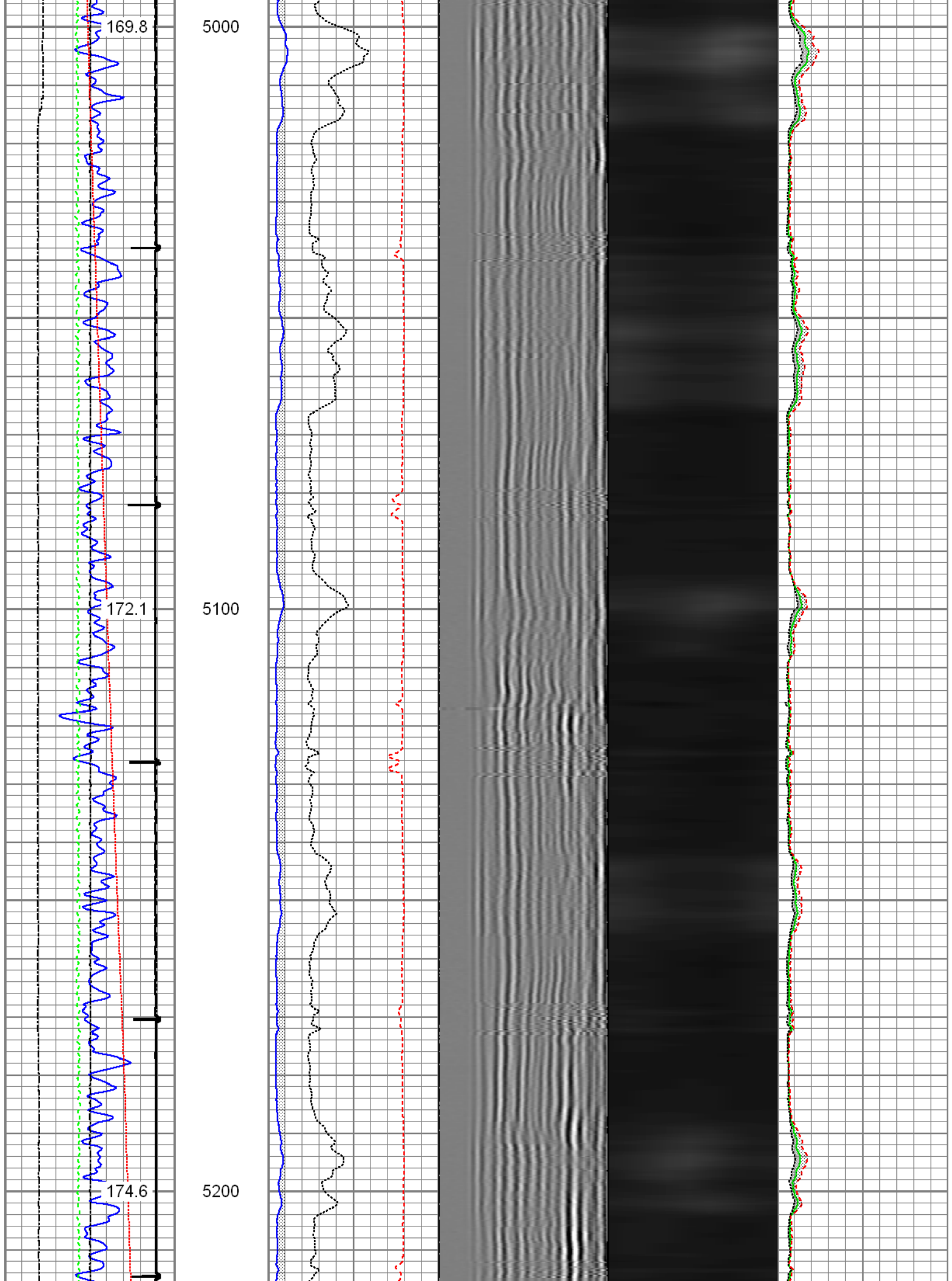


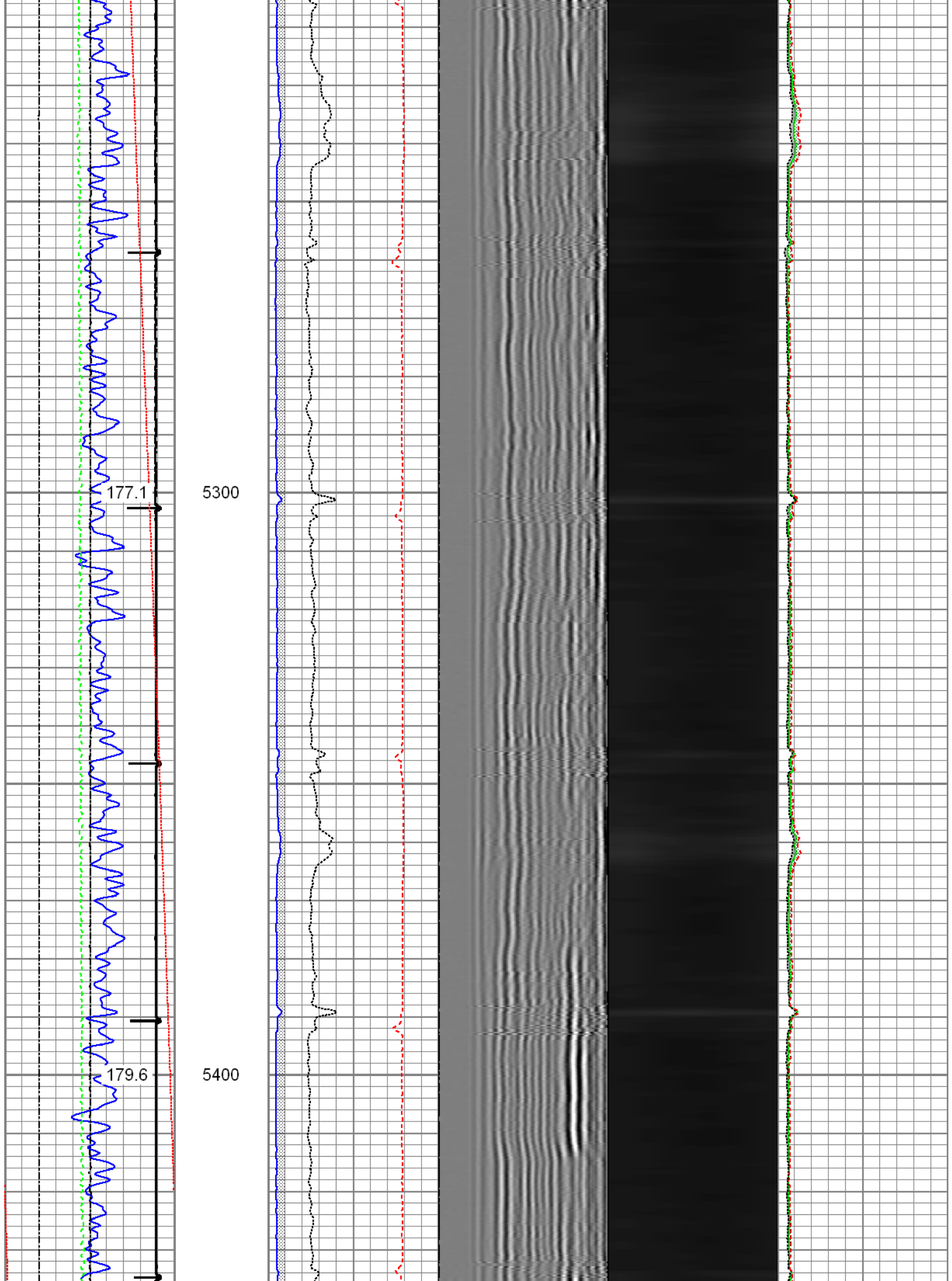


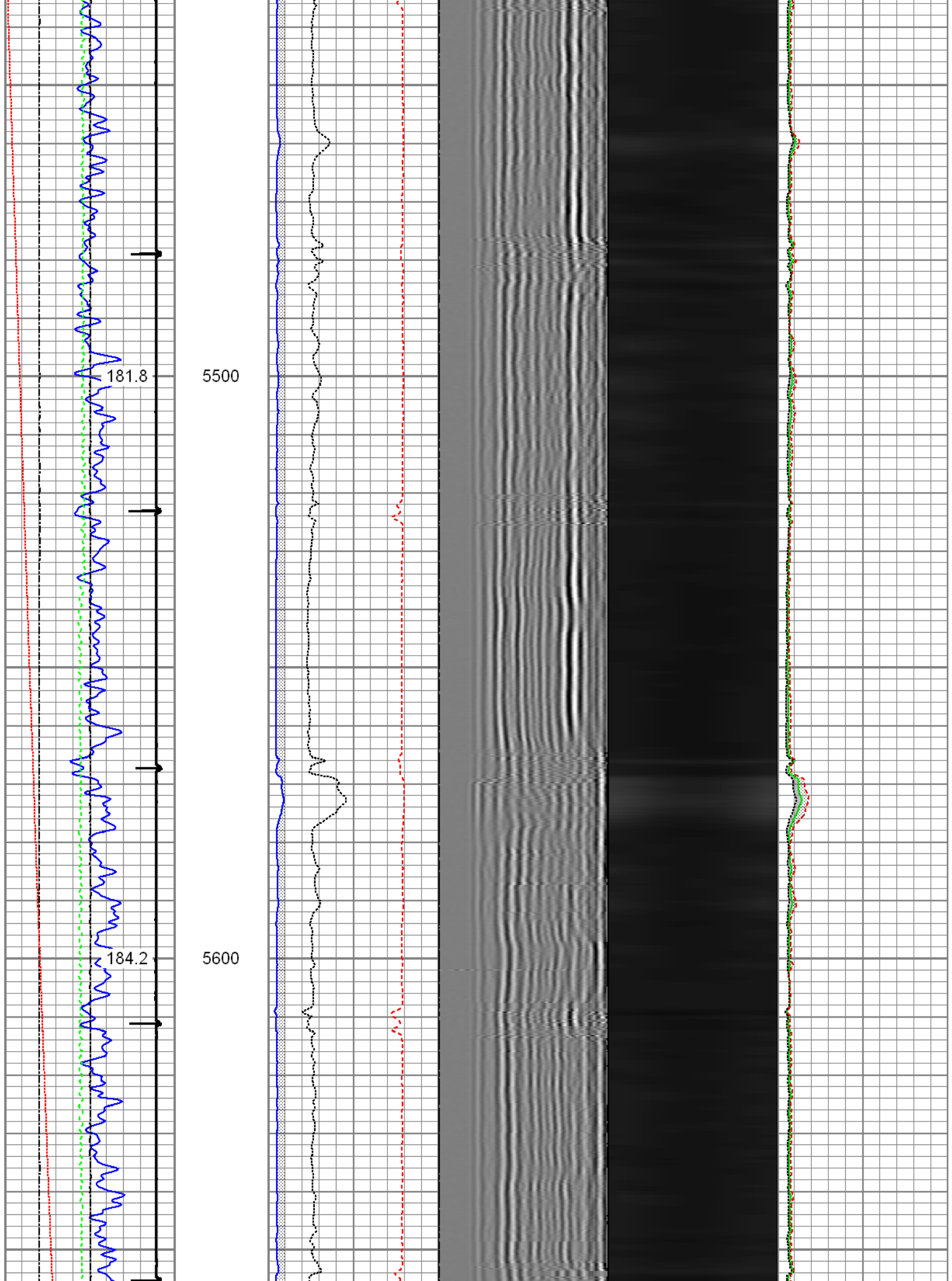


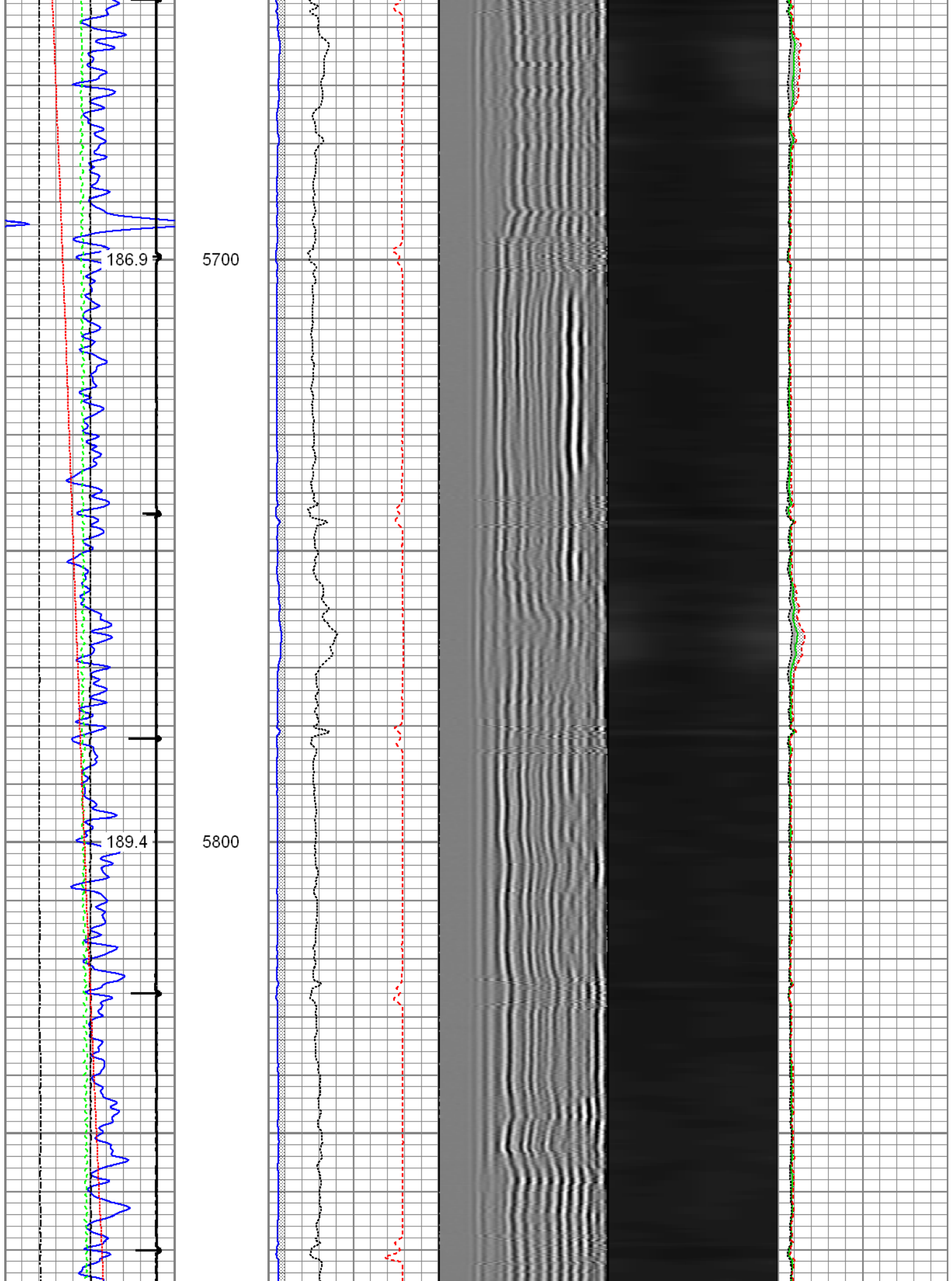


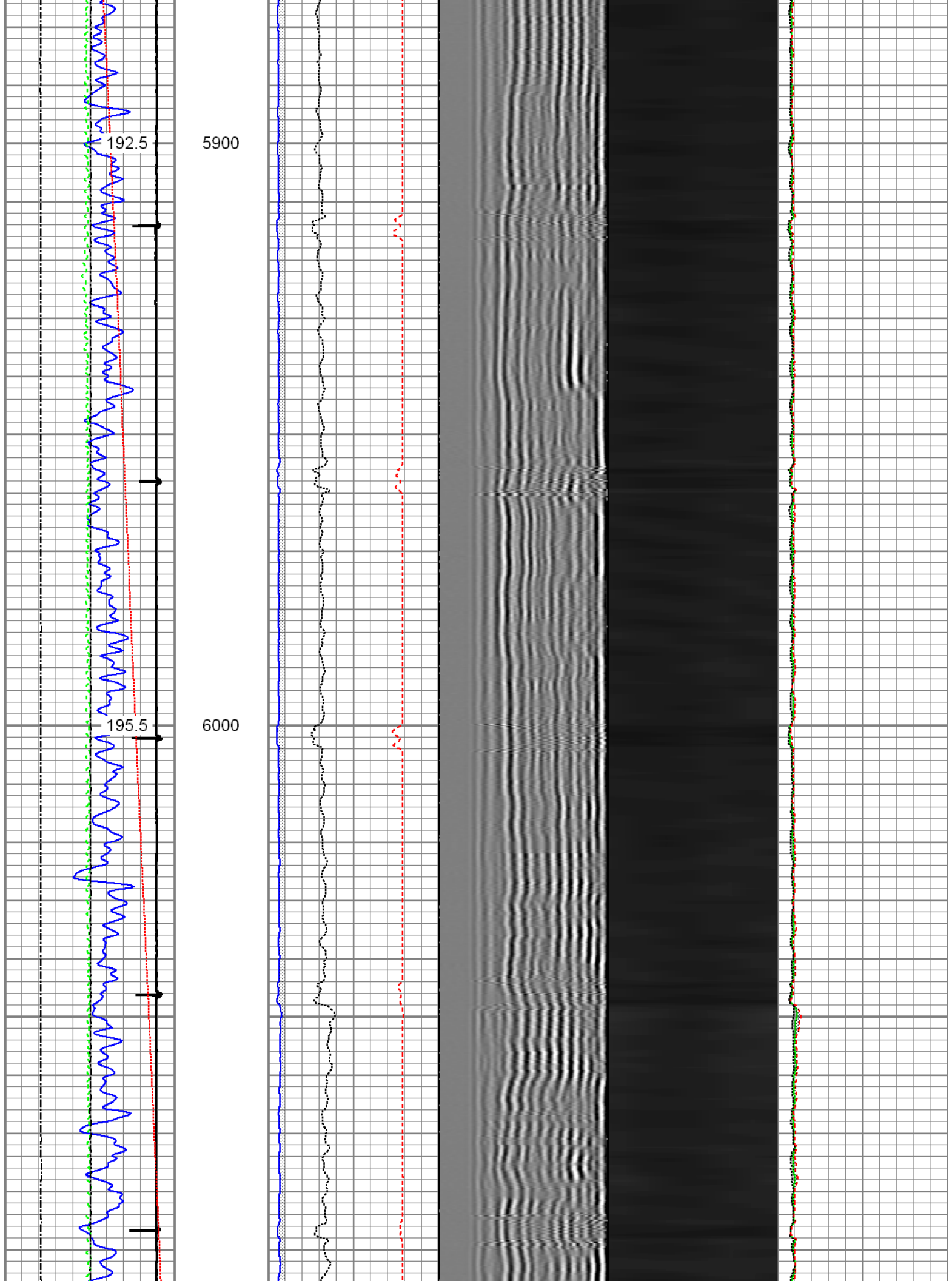




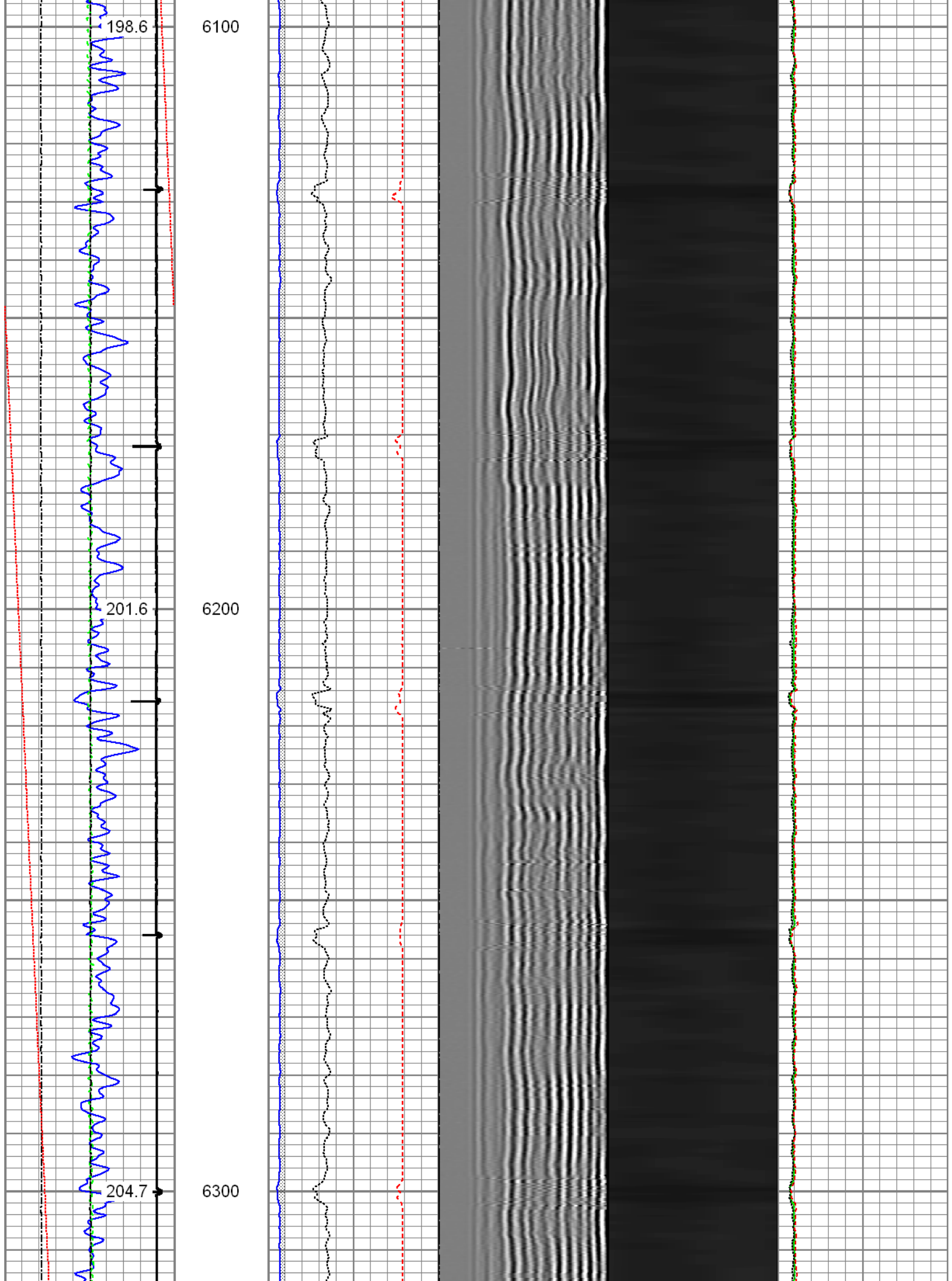


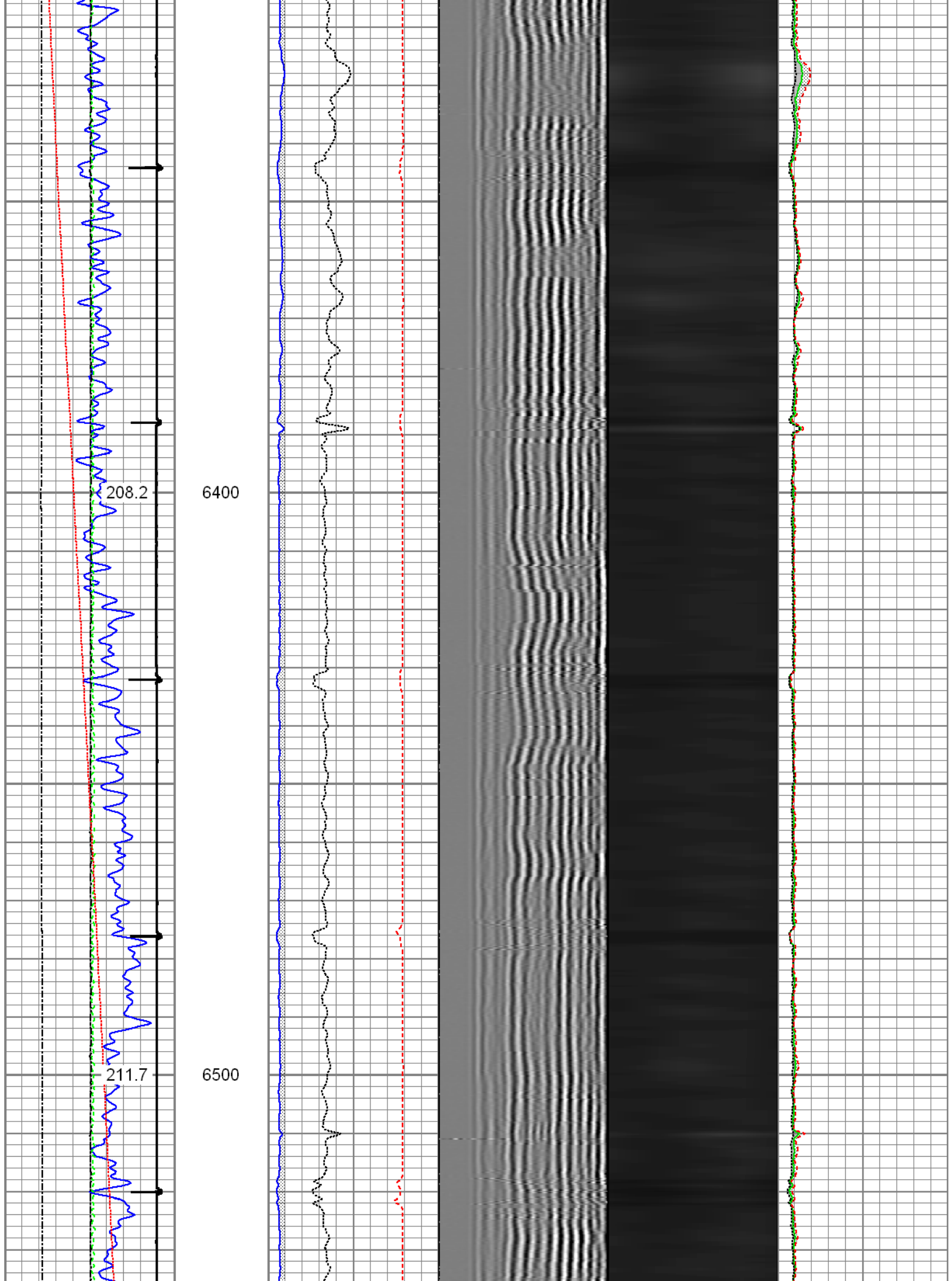


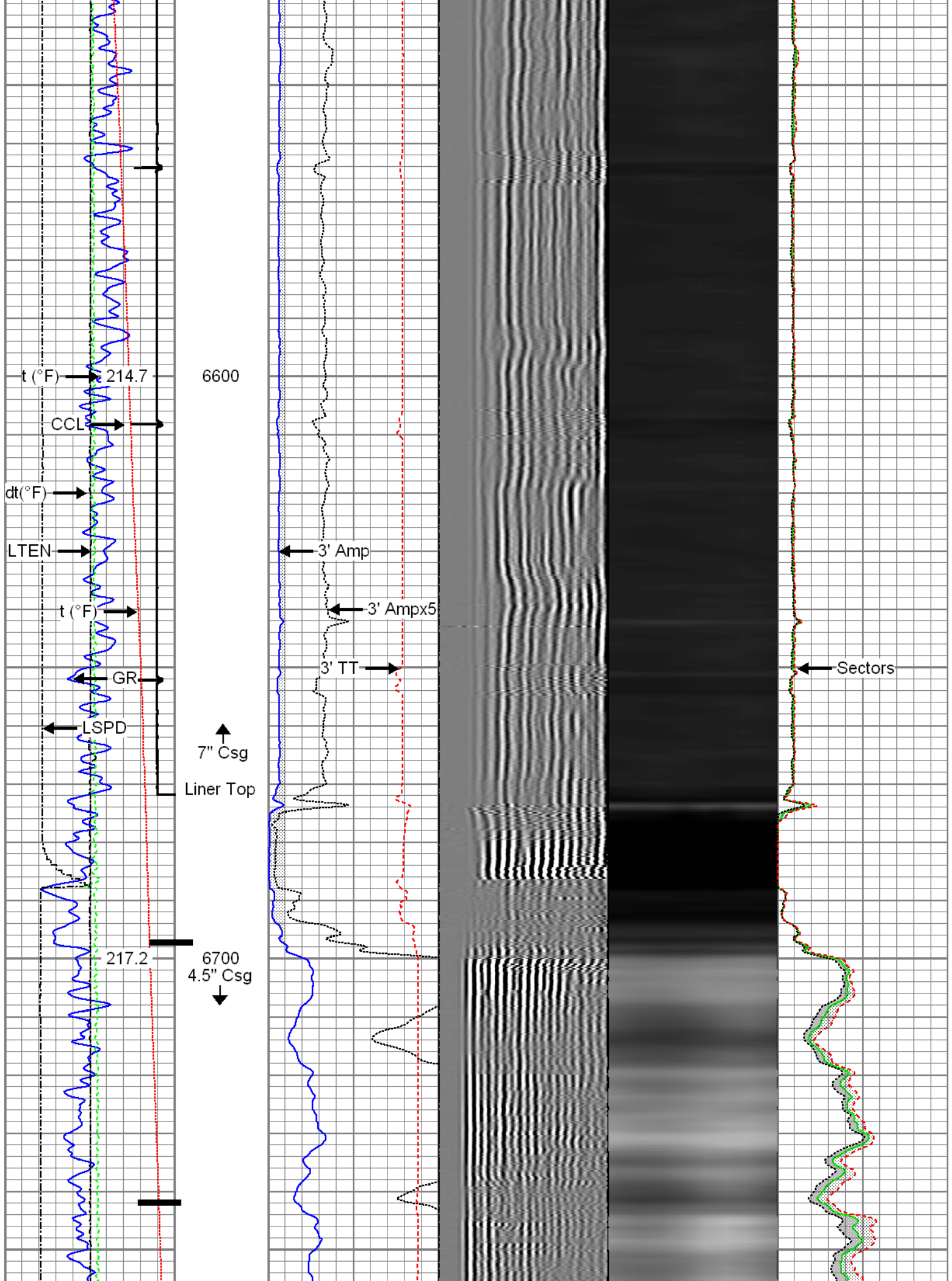


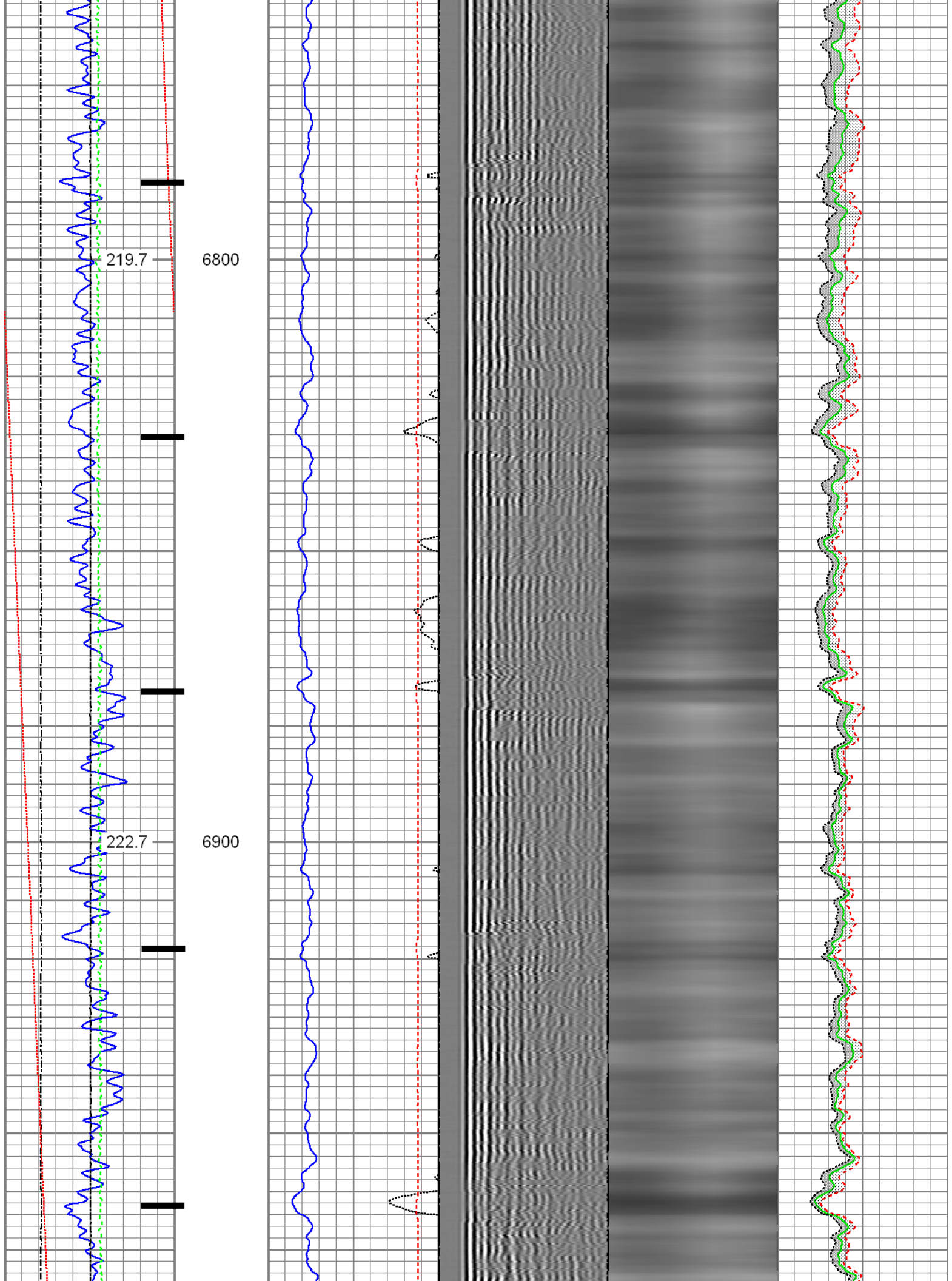




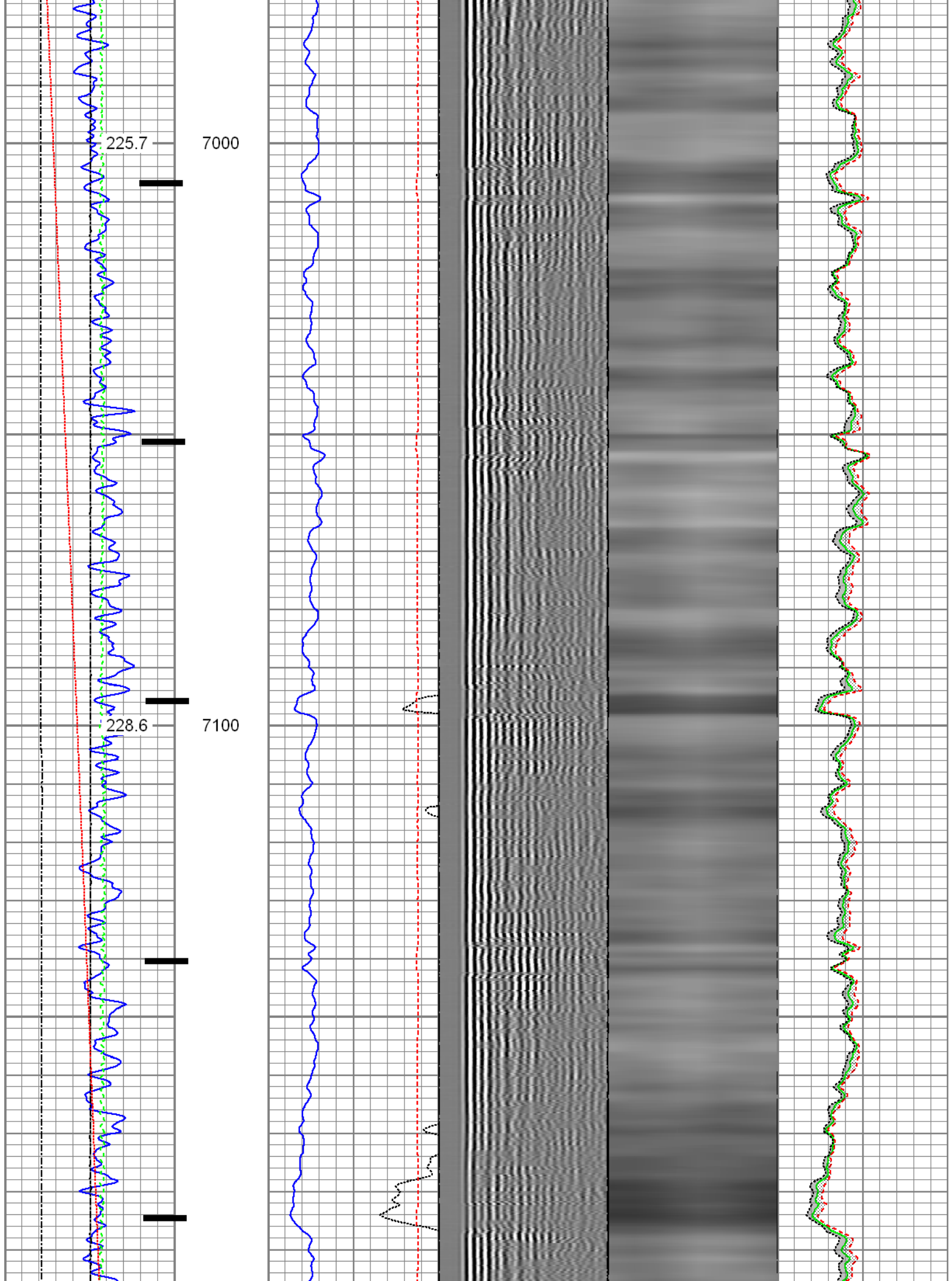




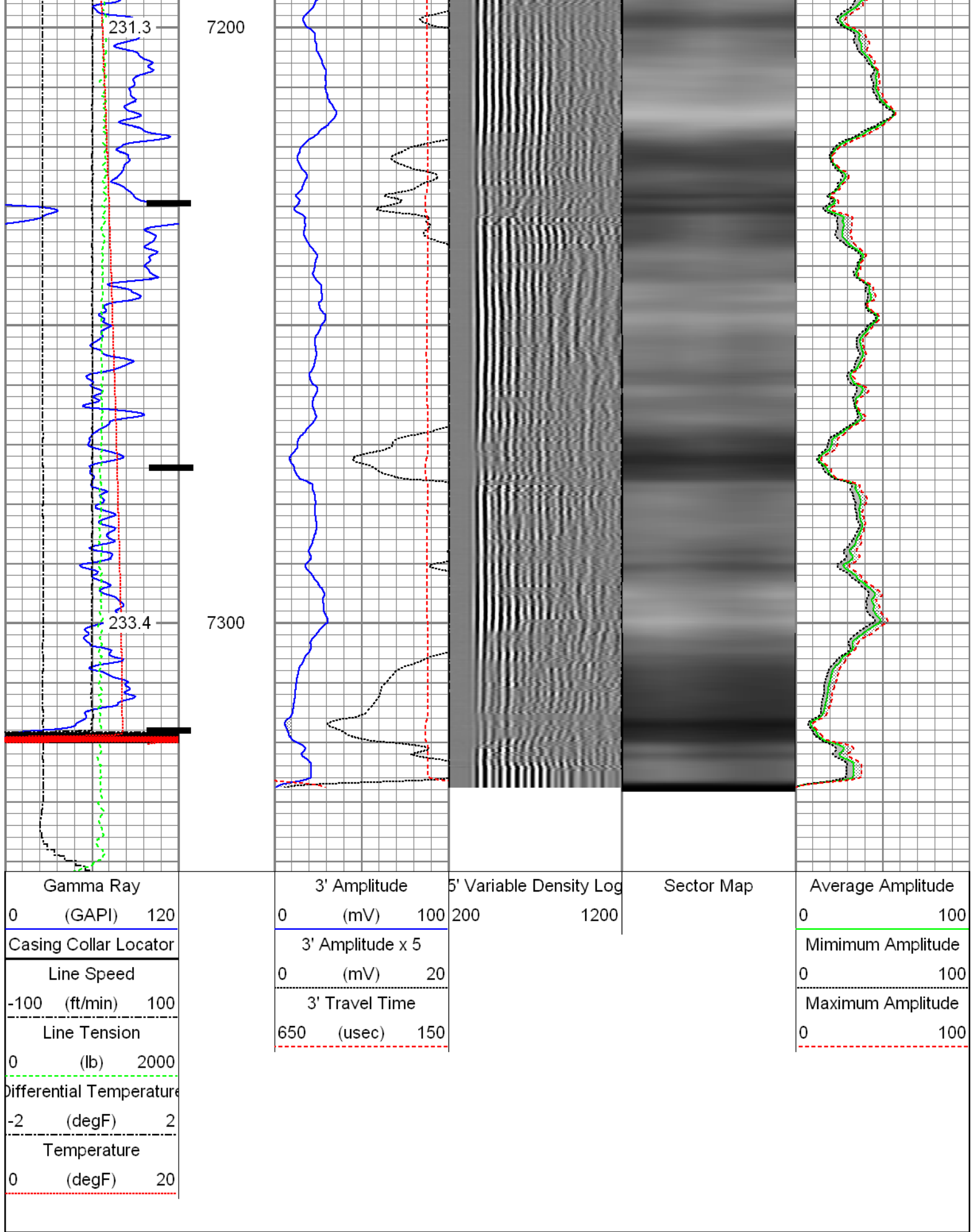






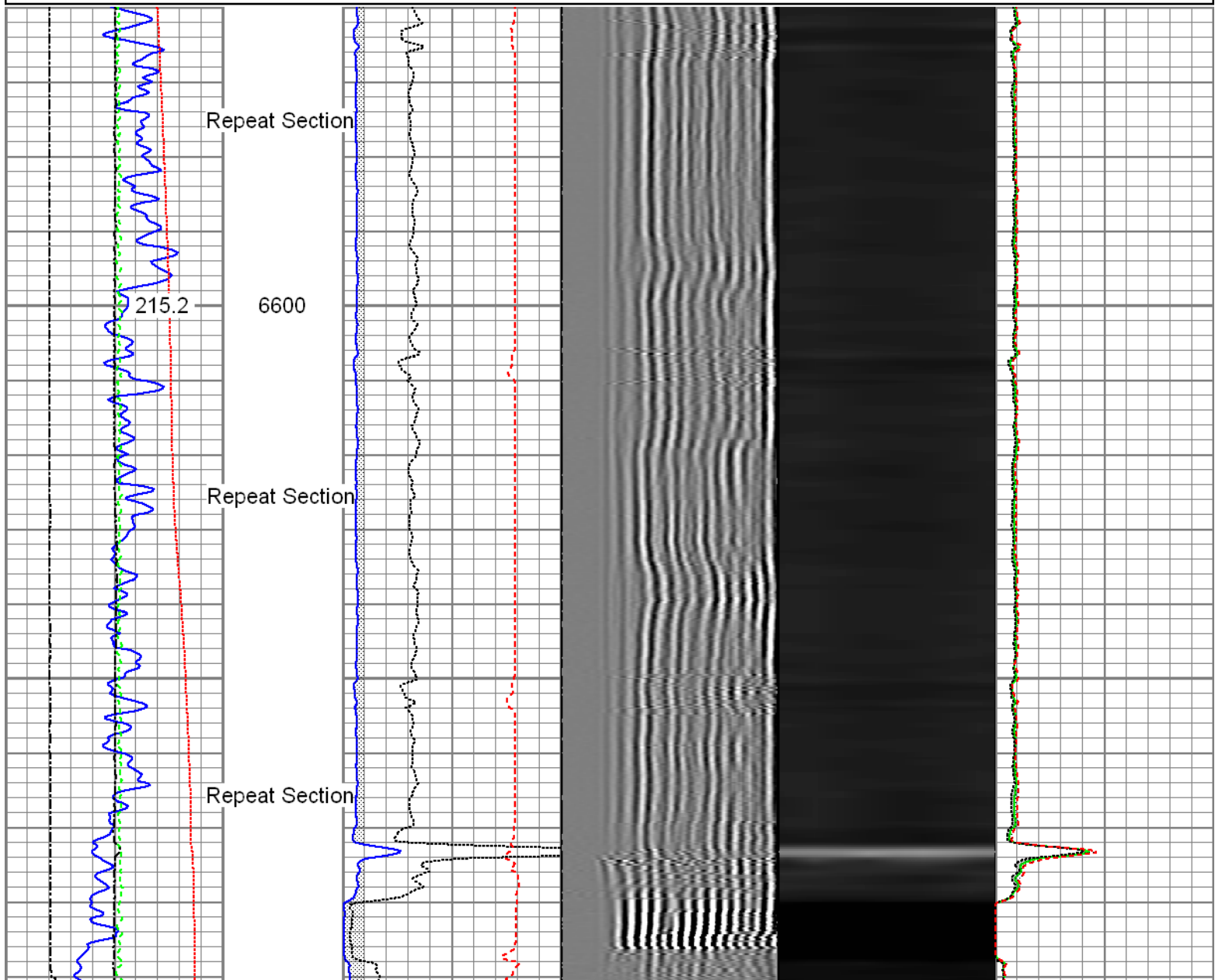


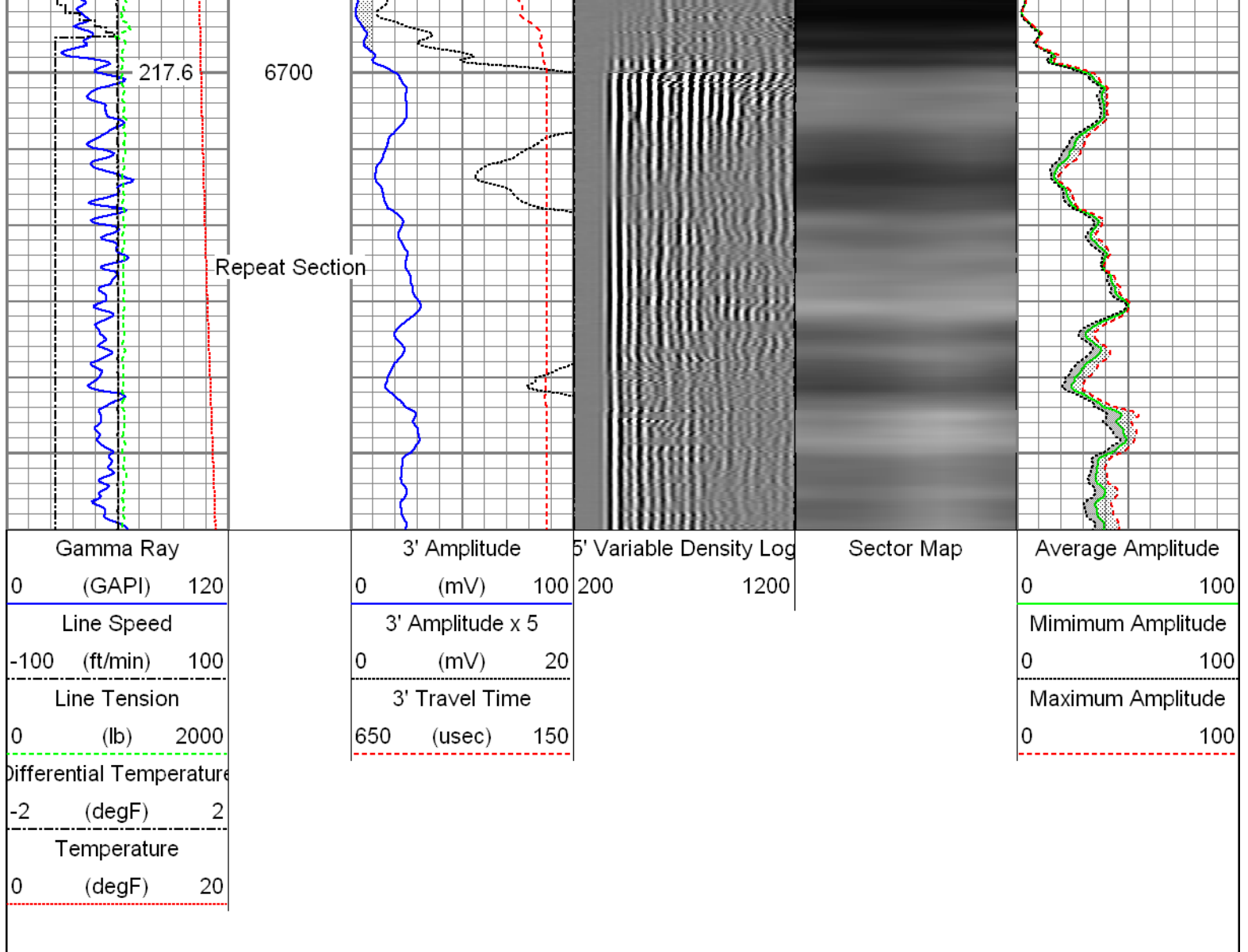


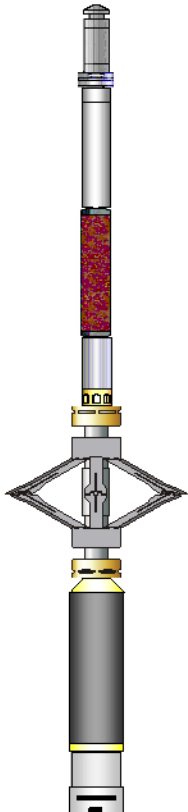


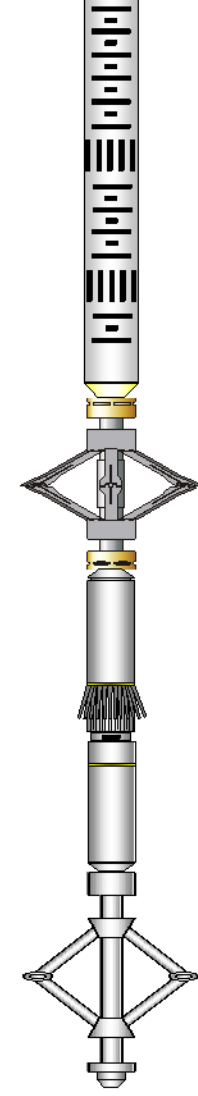
Database File: c:\warrior\data\anadarko\_goodin 37n-a6hz\0512340751\_anadarko\_goodin 37n-a6hz\_06-26-15\_mit\_r  
 Dataset Pathname: pass2  
 Presentation Format: rbt4\_mit  
 Dataset Creation: Fri Jun 26 09:16:19 2015 by Log 7.0 B1  
 Charted by: Depth in Feet scaled 1:240

Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0 120	0 100	200 1200		0 100
Line Speed (ft/min)	3' Amplitude x 5 (mV)			Minimum Amplitude
-100 100	0 20			0 100
Line Tension (lb)	3' Travel Time (usec)			Maximum Amplitude
0 2000	650 150			0 100
Differential Temperature (degF)				
-2 2				
Temperature (degF)				
0 20				





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	23.85		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			GOpin-GOpin 2" GO Pin to GO Pin Connection	0.23	2.00	5.00
			UW_AGS-UW_AGS_001 (218874) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (218874) 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
TEMP	22.45		UW_PRT-UW_PRT_016 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20
			UW_PRC-DSSRAC (084) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00

WVF3FT	15.42		UW_RBT-UW_RBT_004 (1063) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00		
WVFS1	15.42		UW_PRC-DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00		
WVFS2	15.42			UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10	
WVFS3	15.42				UW_PRC #4 -UW_PRC_057 (1101) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
WVFS4	15.42					0.22	1.69	1.20
WVFS5	15.42				UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
WVFS6	15.42							
WVFS7	15.42							
WVFS8	15.42							
CBLTEMP	15.42	MIT	UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10		
CBLROT	15.42			UW_PRC #4 -UW_PRC_057 (1101) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00	
WVF5FT	14.42				0.22	1.69	1.20	
TSTAMP	0.00							
Dataset: 0512340751_Anadarko_Goodin 37N-A6HZ_06-26-15_MIT_RBL.db: field/well/run1/pass6 Total Length: 28.32 ft Total Weight: 329.50 lb O.D. 3.13 in								

Calibration Report			
Database File:	c:\warrior\data\anadarko_goodin 37n-a6hz\0512340751_anadarko_goodin 37n-a6hz_06-26-15_mit_rbl		
Dataset Pathname:	pass6		
Dataset Creation:	Fri Jun 26 09:41:56 2015 by Log 7.0 B1		
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 26 08:25:46 2015

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1091	366.0	1457	376.0	1833	410.0	2243
Finger 02:	1049	374.0	1423	388.0	1811	434.0	2245
Finger 03:	1063	373.0	1436	380.0	1816	427.0	2243
Finger 04:	997	374.0	1371	399.0	1770	448.0	2218
Finger 05:	1025	356.0	1381	373.0	1754	415.0	2169
Finger 06:	1026	369.0	1395	388.0	1783	432.0	2215
Finger 07:	1025	366.0	1391	382.0	1773	423.0	2196
Finger 08:	1003	370.0	1373	398.0	1771	439.0	2210
Finger 09:	1072	374.0	1446	387.0	1833	413.0	2246
Finger 10:	1036	368.0	1404	391.0	1795	420.0	2215
Finger 11:	1018	368.0	1386	394.0	1780	425.0	2205
Finger 12:	1101	362.0	1463	375.0	1838	390.0	2228
Finger 13:	1049	365.0	1414	389.0	1803	422.0	2225
Finger 14:	1031	375.0	1406	408.0	1814	429.0	2243
Finger 15:	989	371.0	1360	414.0	1774	433.0	2207
Finger 16:	1046	365.0	1411	402.0	1813	416.0	2229
Finger 17:	1079	361.0	1440	394.0	1834	399.0	2233
Finger 18:	1114	364.0	1478	395.0	1873	398.0	2271
Finger 19:	1077	367.0	1444	403.0	1847	407.0	2254
Finger 20:	995	364.0	1359	412.0	1771	420.0	2191
Finger 21:	1092	362.0	1454	394.0	1848	400.0	2248
Finger 22:	1076	362.0	1438	404.0	1842	405.0	2247
Finger 23:	1115	365.0	1480	402.0	1882	402.0	2284
Finger 24:	1082	332.0	1414	374.0	1788	385.0	2173
Finger 25:	1092	364.0	1456	407.0	1863	404.0	2267
Finger 26:	1055	349.0	1404	396.0	1800	402.0	2202
Finger 27:	1224	373.0	1597	395.0	1992	396.0	2388
Finger 28:	1097	342.0	1439	382.0	1821	396.0	2217
Finger 29:	1043	351.0	1394	397.0	1791	409.0	2200
Finger 30:	1028	352.0	1380	399.0	1779	419.0	2198
Finger 31:	1245	380.0	1625	409.0	2034	415.0	2449
Finger 32:	1015	351.0	1366	380.0	1746	400.0	2146
Finger 33:	1112	375.0	1487	408.0	1895	431.0	2326
Finger 34:	985	352.0	1337	383.0	1720	417.0	2137
Finger 35:	1148	380.0	1528	400.0	1928	428.0	2356
Finger 36:	1020	405.0	1425	361.0	1786	398.0	2184
Finger 37:	1129	383.0	1512	397.0	1909	432.0	2341
Finger 38:	1095	357.0	1452	372.0	1824	407.0	2231
Finger 39:	1085	352.0	1437	362.0	1799	397.0	2196
Finger 40:	995	376.0	1371	404.0	1775	446.0	2221

Segmented Cement Bond Log Calibration Report

Serial Number: 1063  
 Tool Model: UW\_RBT\_004  
  
 Calibration Casing Diameter: 7.000 in  
 Calibration Depth: -18.163 ft

Master Calibration, performed Fri Jun 26 08:29:08 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	1.000	0.800	62.165	61.210	0.955
5FT	-0.006	1.000	0.800	62.165	60.993	1.172
S1	-0.004	1.000	0.000	100.000	99.635	0.365
S2	-0.004	1.000	0.000	100.000	99.635	0.365
S3	-0.004	1.000	0.000	100.000	99.635	0.365



S3	-0.004	1.000	0.000	100.000	99.635	0.365
S4	-0.004	1.000	0.000	100.000	99.635	0.365
S5	-0.002	1.000	0.000	100.000	99.764	0.236
S6	-0.003	1.000	0.000	100.000	99.725	0.275
S7	-0.002	1.000	0.000	100.000	99.756	0.244
S8	-0.003	1.000	0.000	100.000	99.746	0.254

#### Temperature Calibration Report

Serial Number: 10025100  
Tool Model: UW\_PRT\_016  
Performed: Wed Feb 11 13:47:59 2015

Point #	Reading	Reference
1	13249.00 cps	68.00 degF
2	18454.00 cps	104.00 degF
3	29735.00 cps	176.00 degF
4	41457.00 cps	248.00 degF
5	52851.00 cps	320.00 degF
6	59128.00 cps	356.00 degF
7	cps	degF
8	cps	degF
9	cps	degF
10	cps	degF

#### 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 Goodin 37N - A6HZ  
Field Wattenberg  
County Weld  
State Colorado