



Radial Cement Bond Gamma Ray Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.		
Well	Greenleaf 30N-2HZ		
Field	Wattenberg		
County	Weld		
State	Colorado		
Location:		API # : 05-123-40619	Other Services Gauge ring MIT
SEC 2 TWP 2N RGE 65W			
Permanent Datum	Ground Level	Elevation	4855'
Log Measured From	Kelly Bushing	13 FT	
Drilling Measured From	Kelly Bushing		K.B. 4868' D.F. 4867' G.L. 4855'

Date	25-Feb-2015		
Run Number	Two		
Depth Driller	11531 FT		
Depth Logger	7196 FT		
Bottom Logged Interval	7190 FT		
Top Log Interval	Surface		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lbm/gal		
Max. Recorded Temp.	223°F		
Estimated Cement Top	Surface		
Time Well Ready	R.O.A.		
Time Logger on Bottom	8:45		
Equipment Number	HD-0119		
Location	Ft. Lupton, CO		
Recorded By	A. Olmsted	B. Kalkwarf	
Witnessed By	Rick Dunford		

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	Surface	1314 FT		
Intermediate #1	7	26	HCP-110	Surface	7556 FT		
Intermediate #2							
Liner	4-1/2	11.6	HCP-110	6507 FT	11531 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 reference to Casing Tally reported liner top at 6507 FT.
Adjusted -22 FT to correlate to liner top.
Gauge Ring/Junk Basket ran to 7478 FT.
Log ran from as deep as possible in heel to surface.
Log ran with 2800 PSI surface induced pressure.
Logging tools were clean and free of debris upon completion of operations.

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

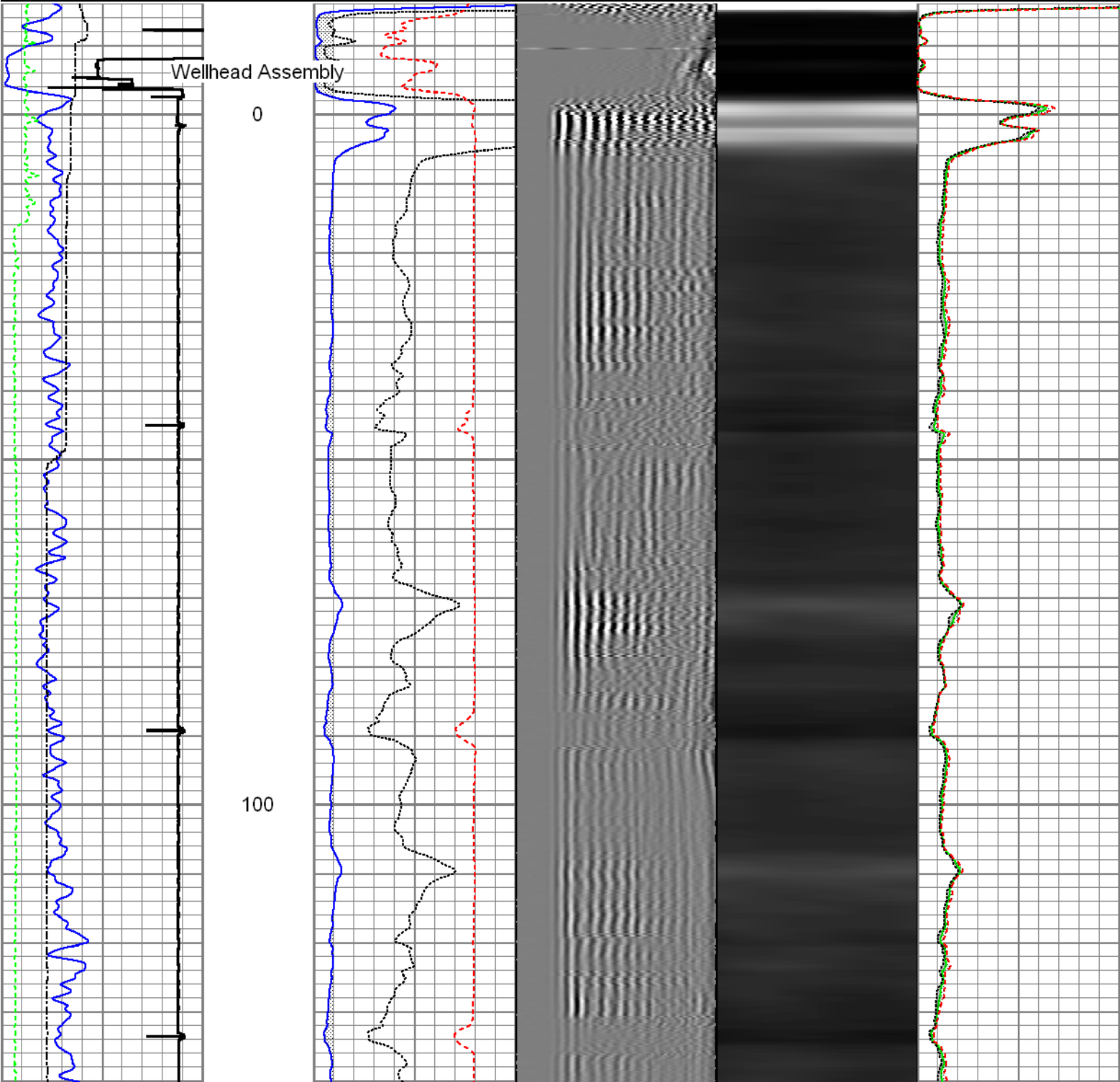


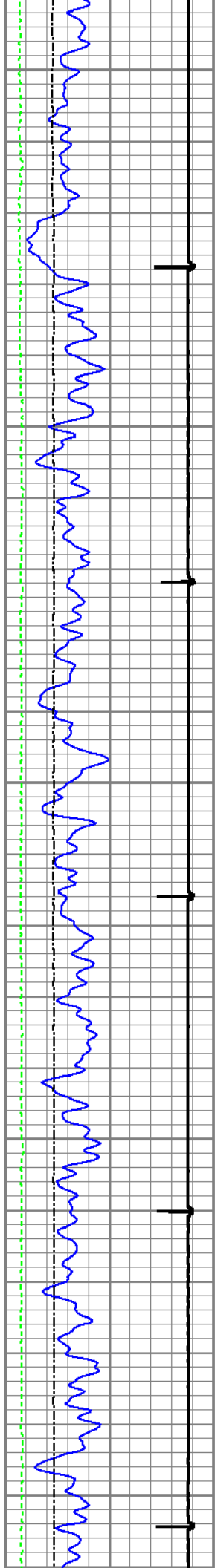
7" Main Pass

Recorded at 2800 PSI Surface Induced Pressure

Database File: 0512340619_anadarko_greenleaf 30n-2hz_02-25-15_mit_rbl.db
Dataset Pathname: pass9
Presentation Format: rbt4_mit
Dataset Creation: Wed Feb 25 09:12:43 2015 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

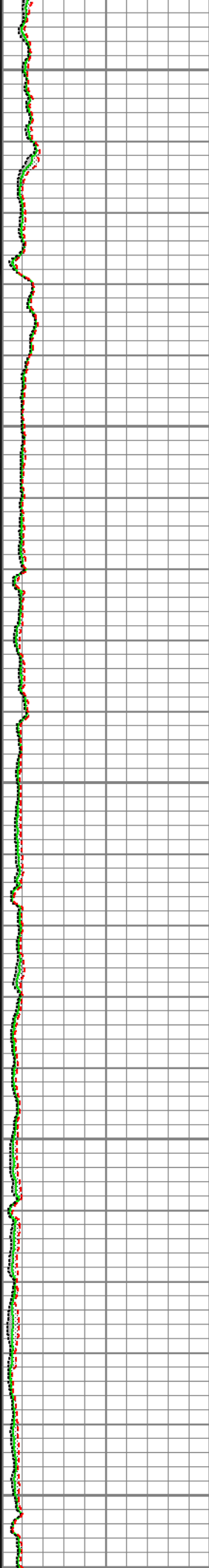
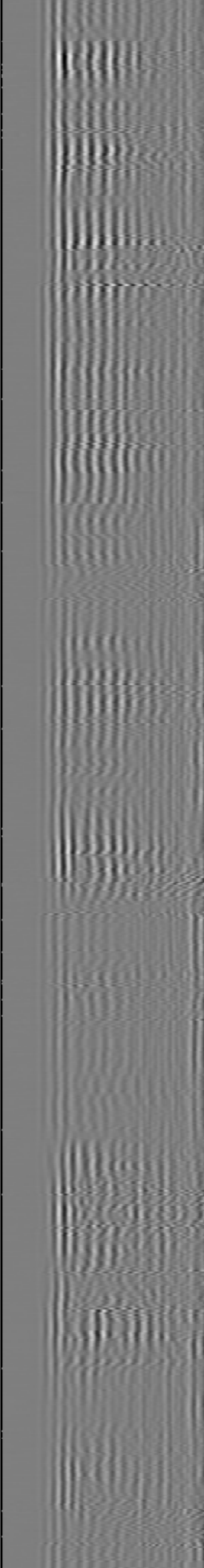
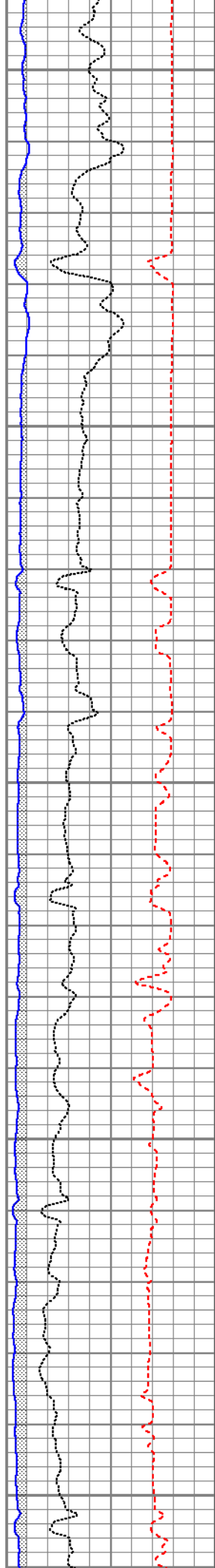
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120		0 (mV) 100	200 1200		0 100
Line Speed		3' Amplitude x 5			Minimum Amplitude
-100 (ft/min) 100		0 (mV) 20			0 100
Line Tension		3' Travel Time			Maximum Amplitude
0 (lb) 2000		650 (usec) 150			0 100
Casing Collar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

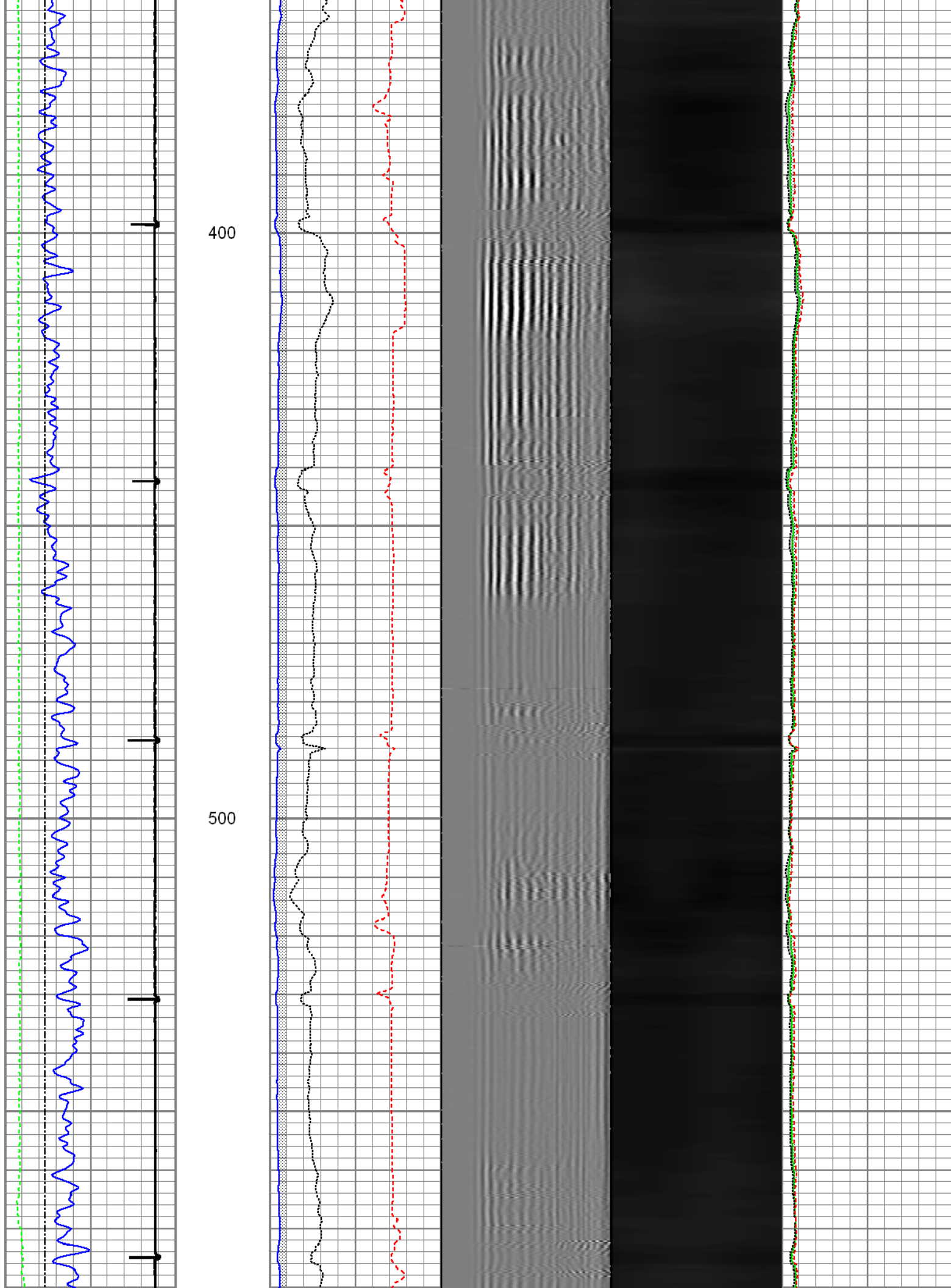


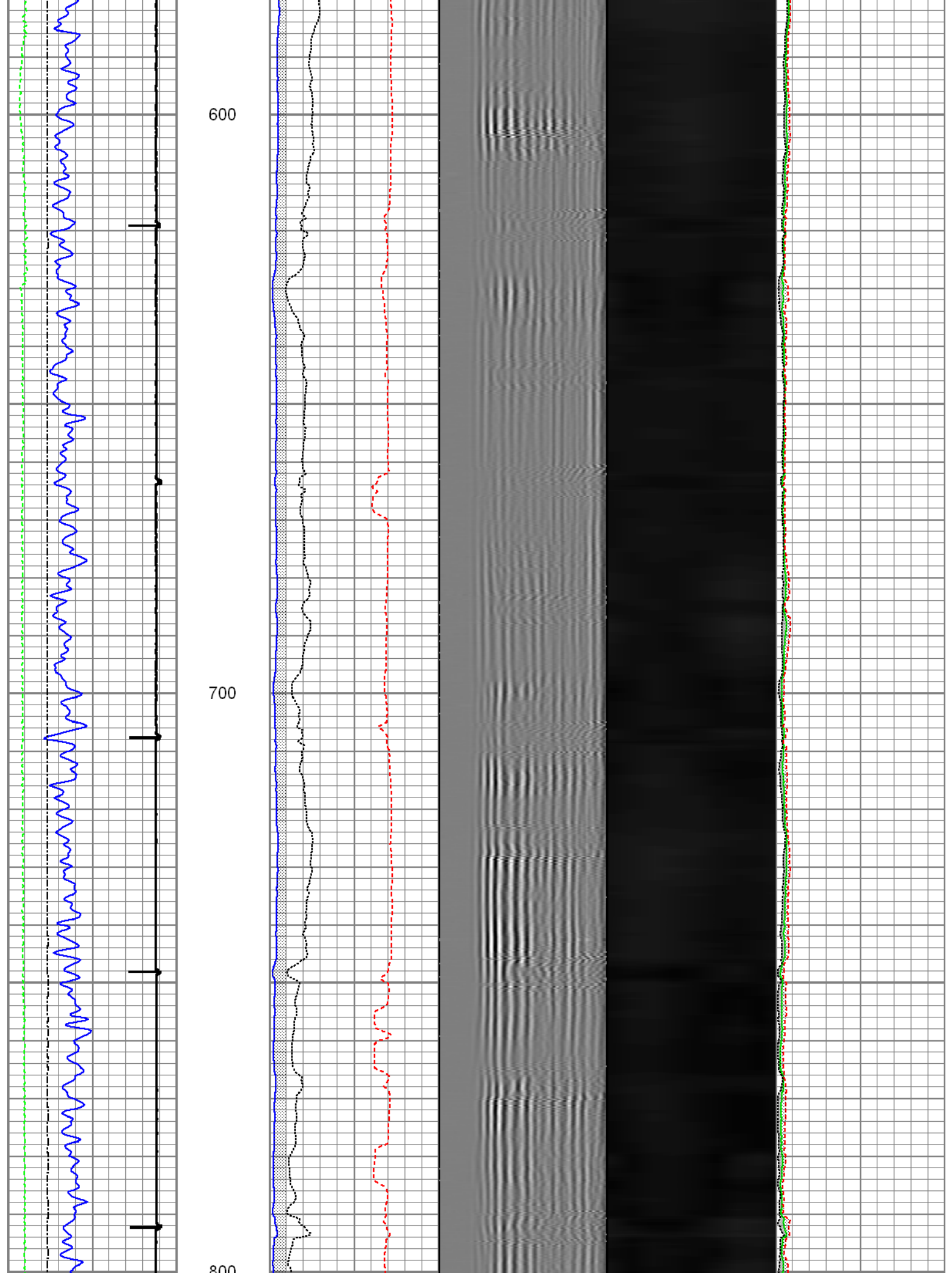


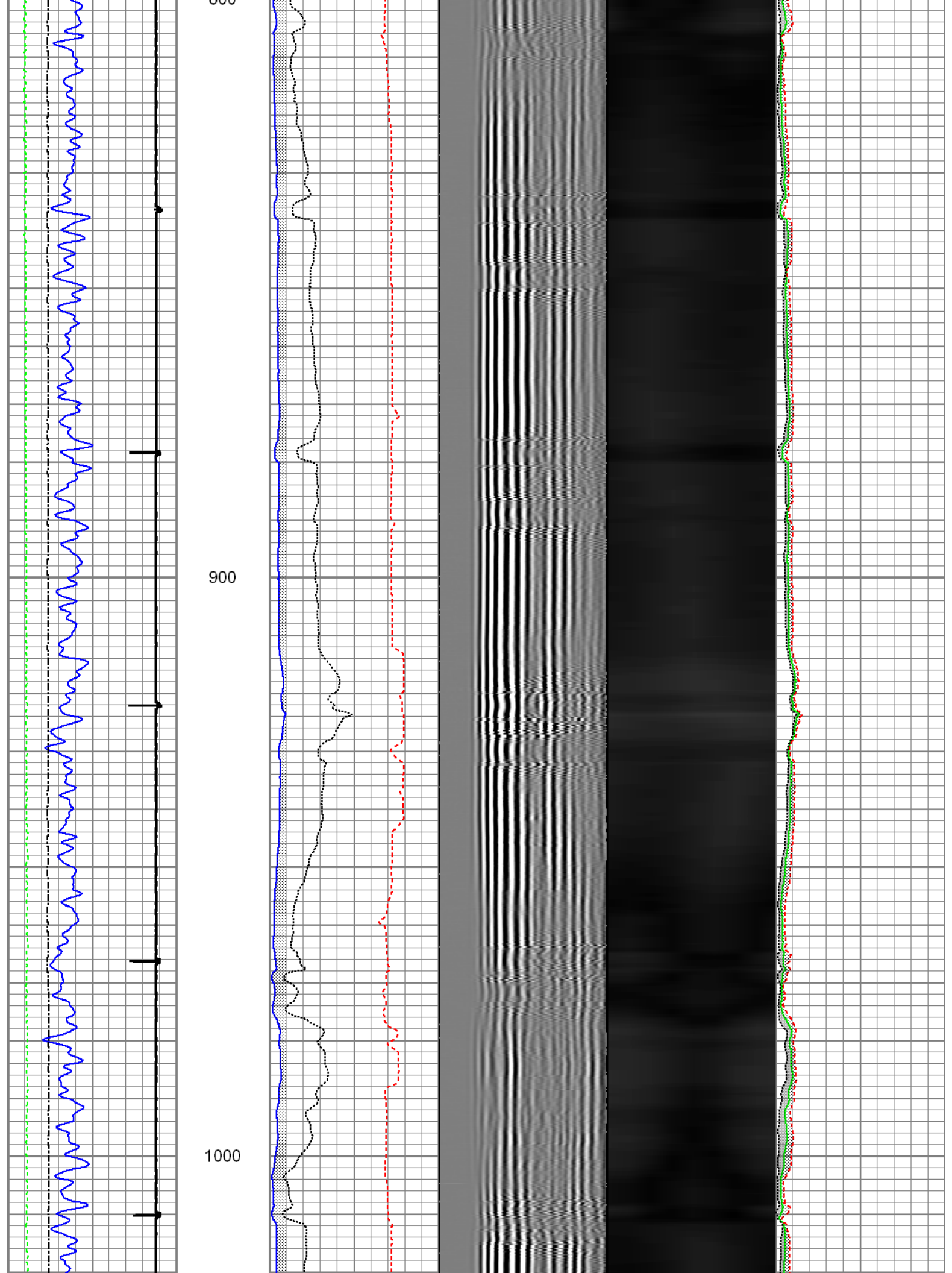
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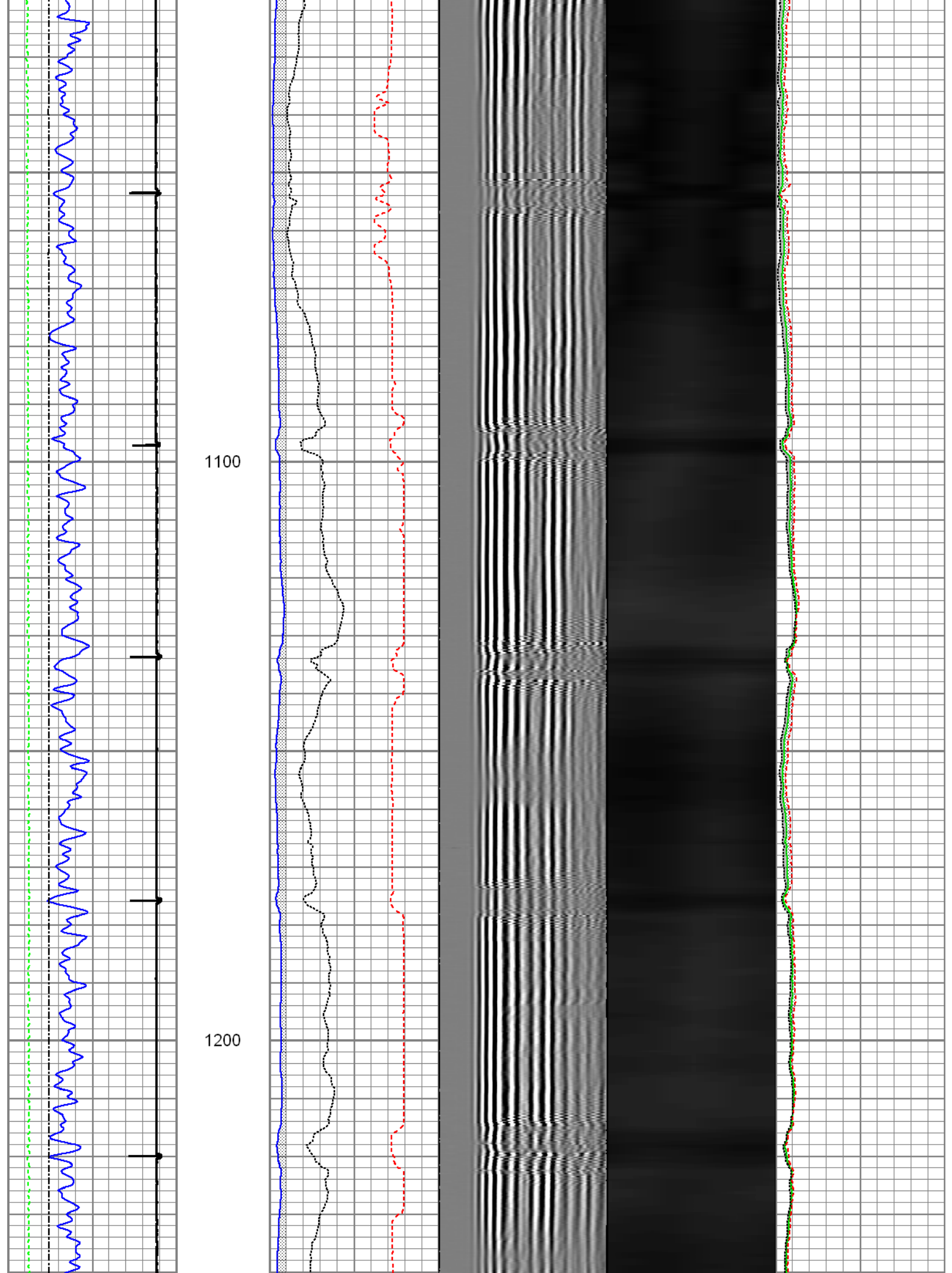
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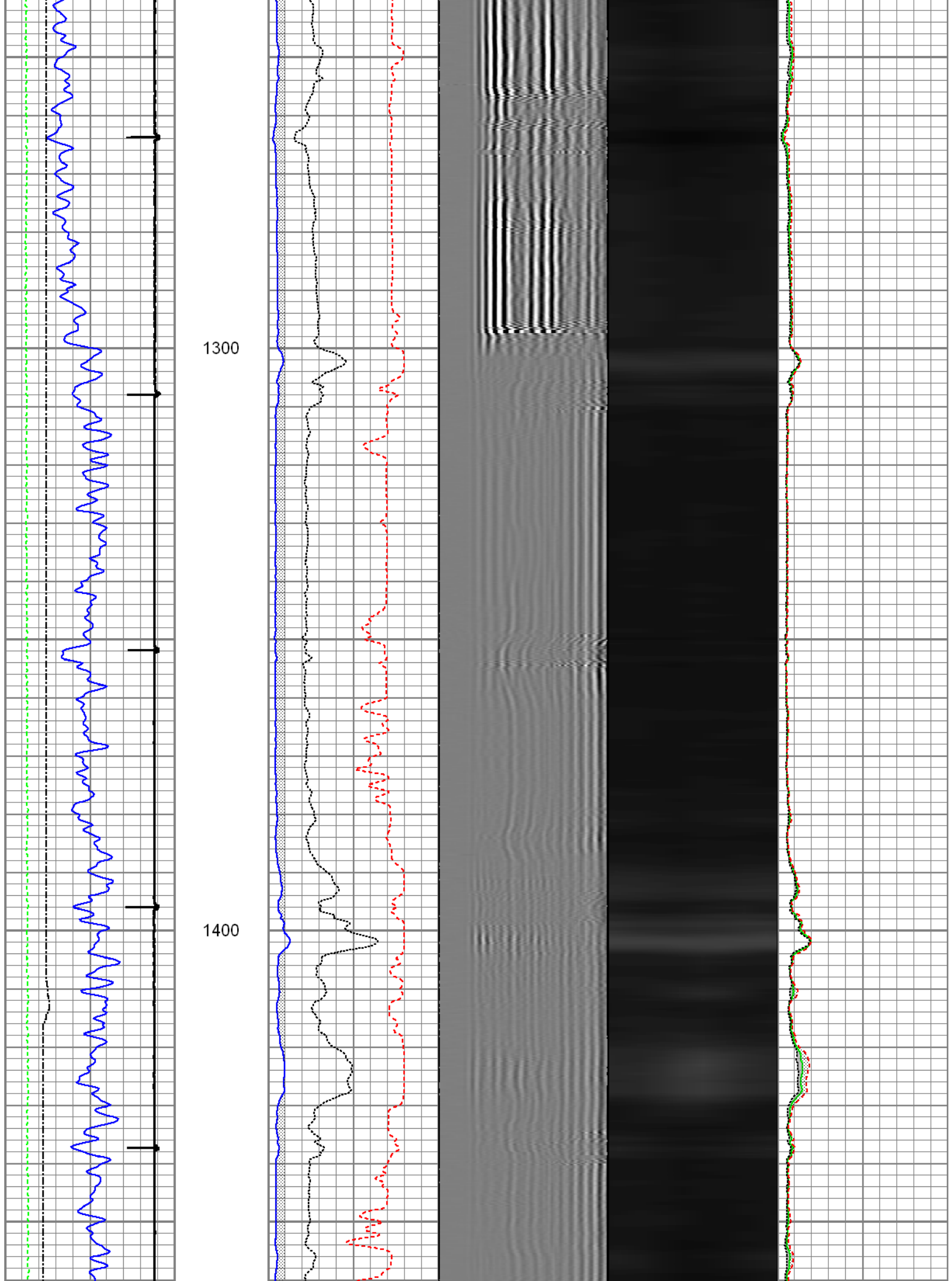


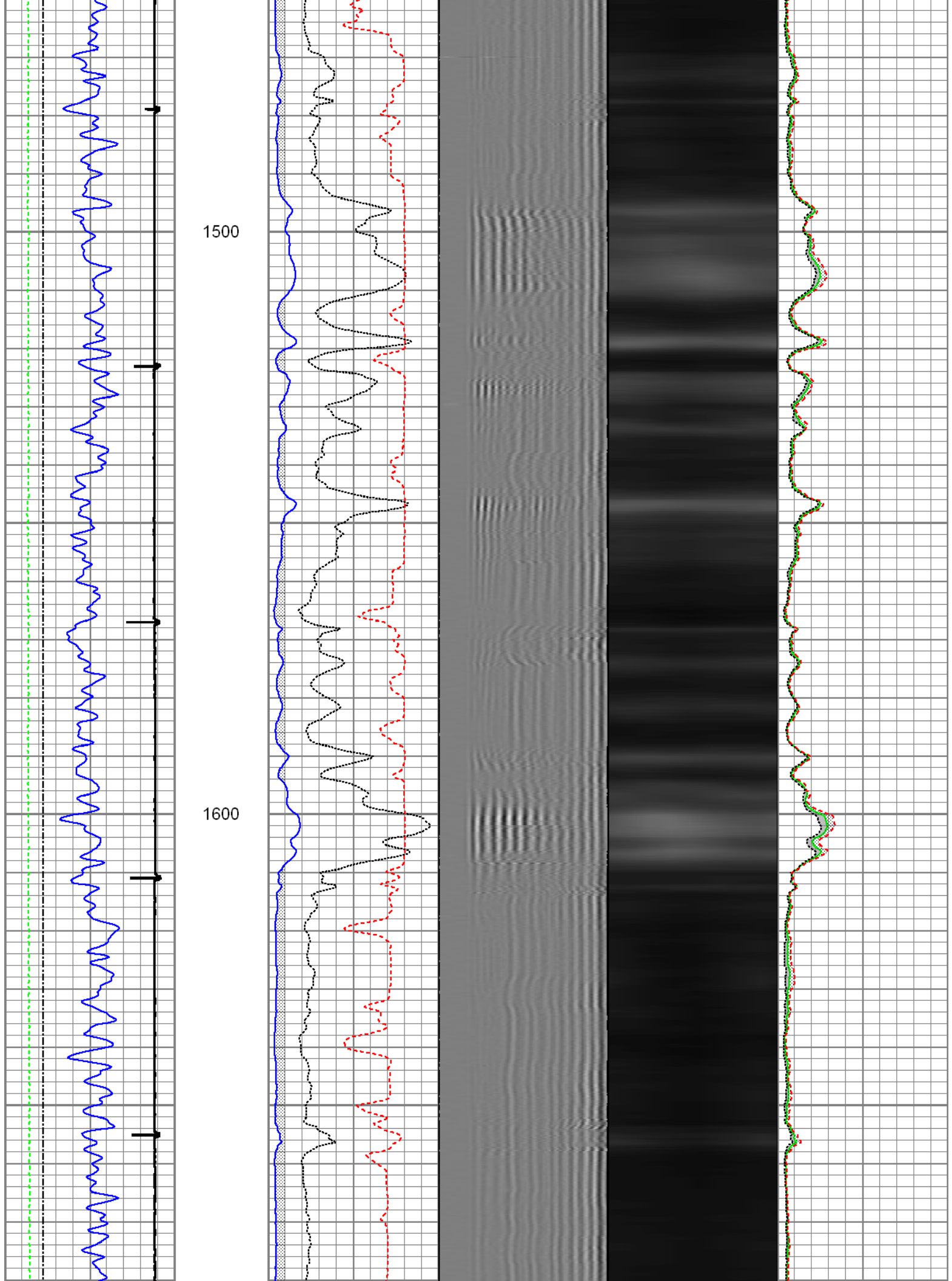


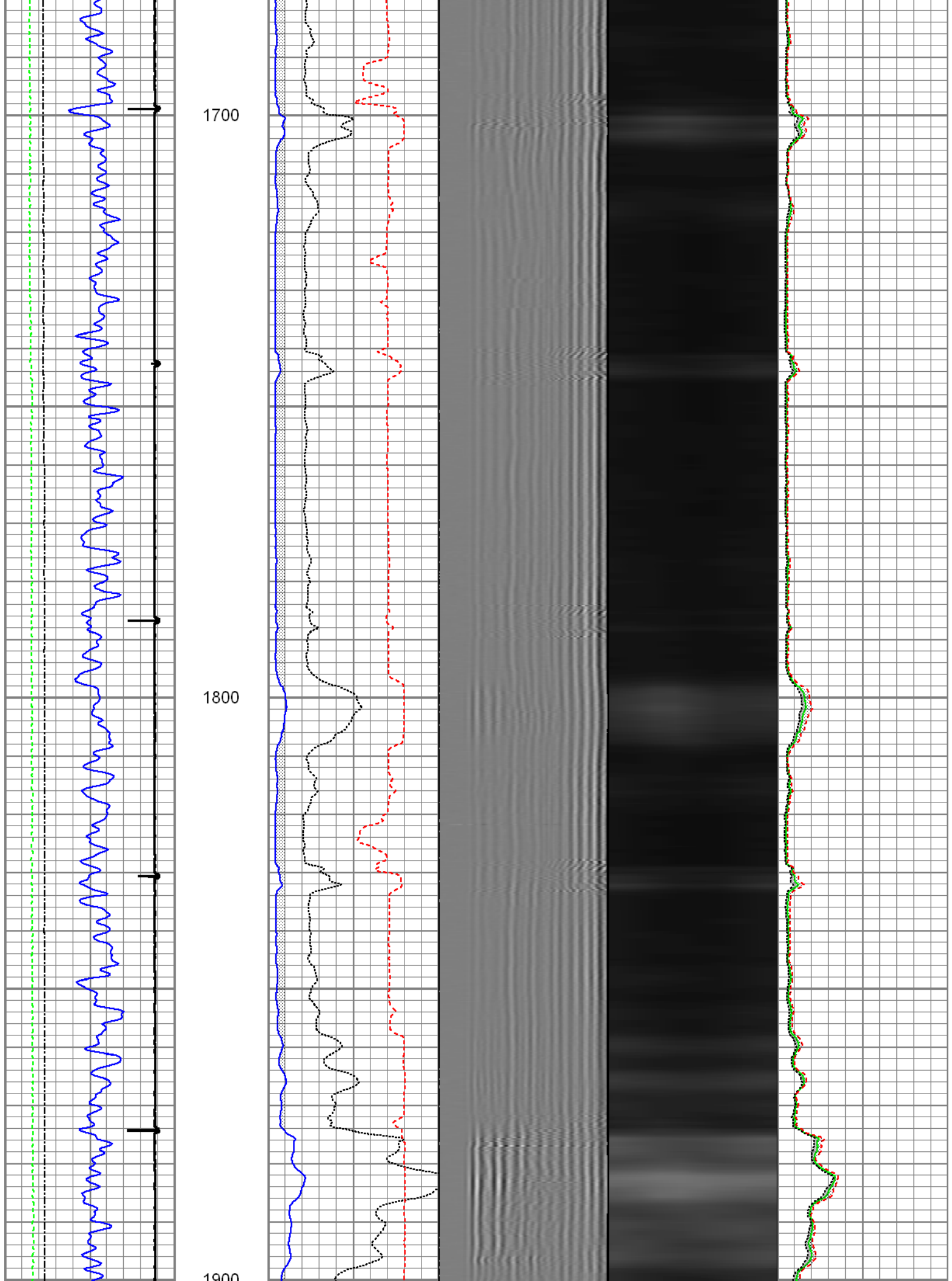


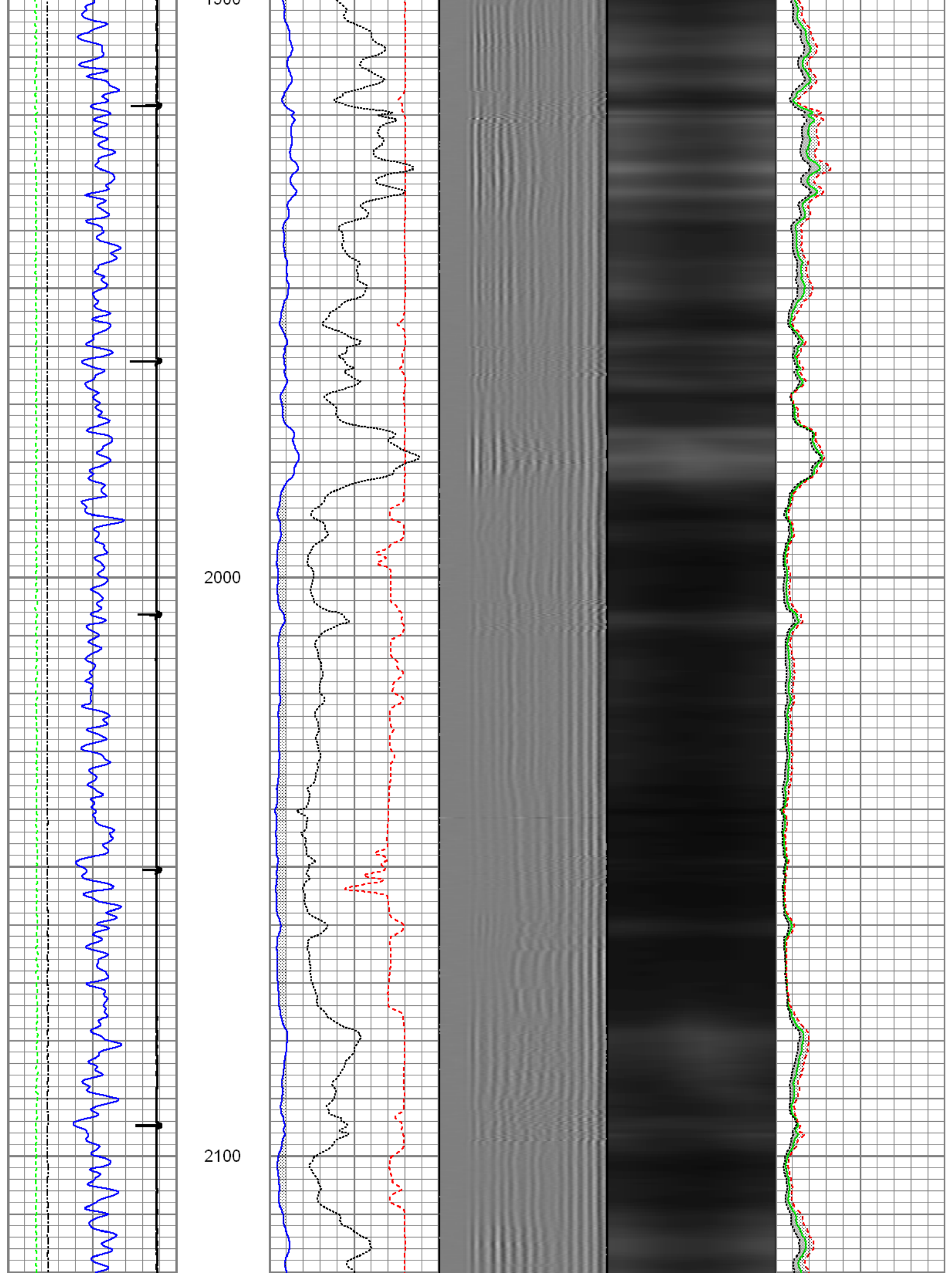






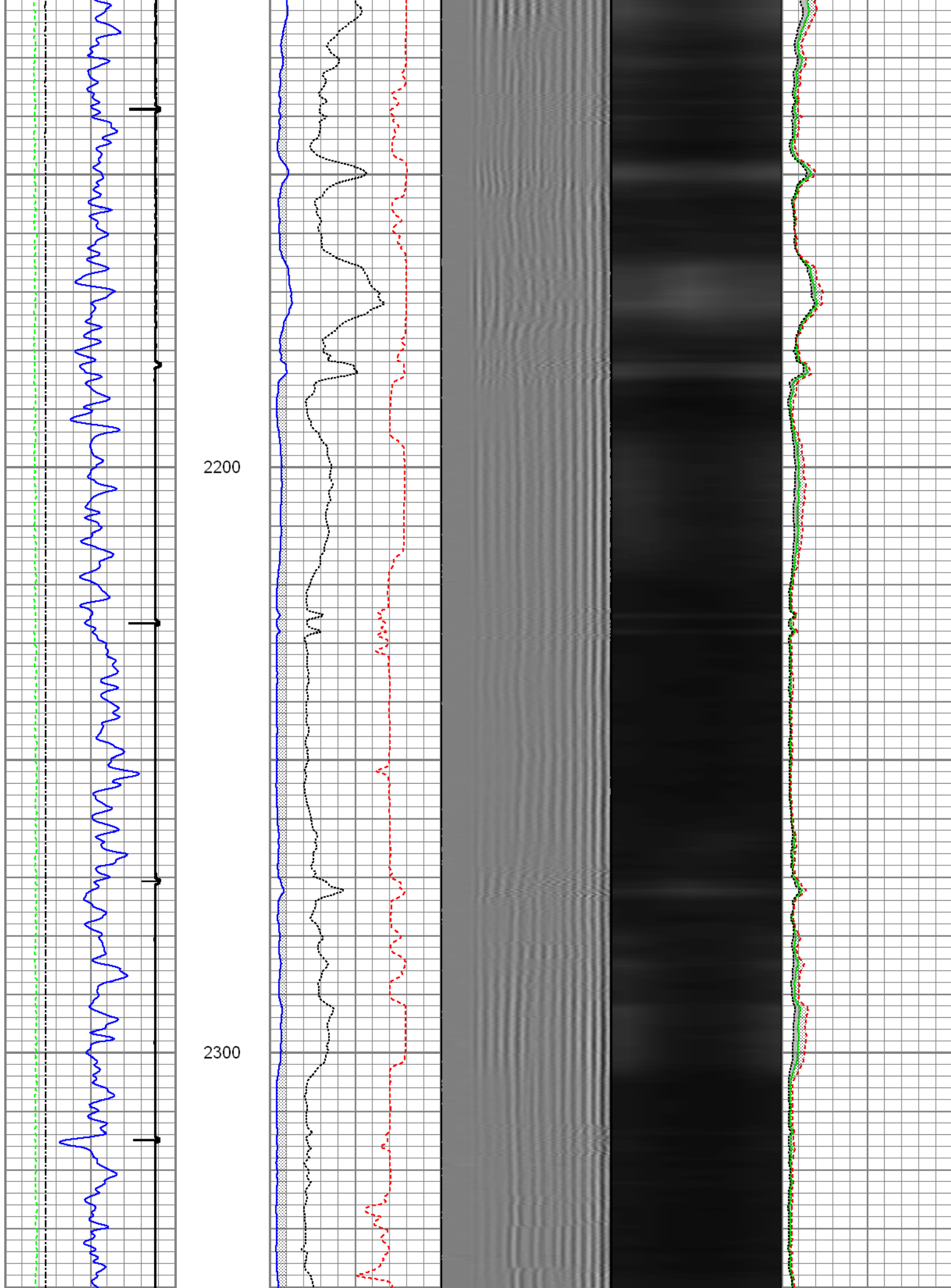


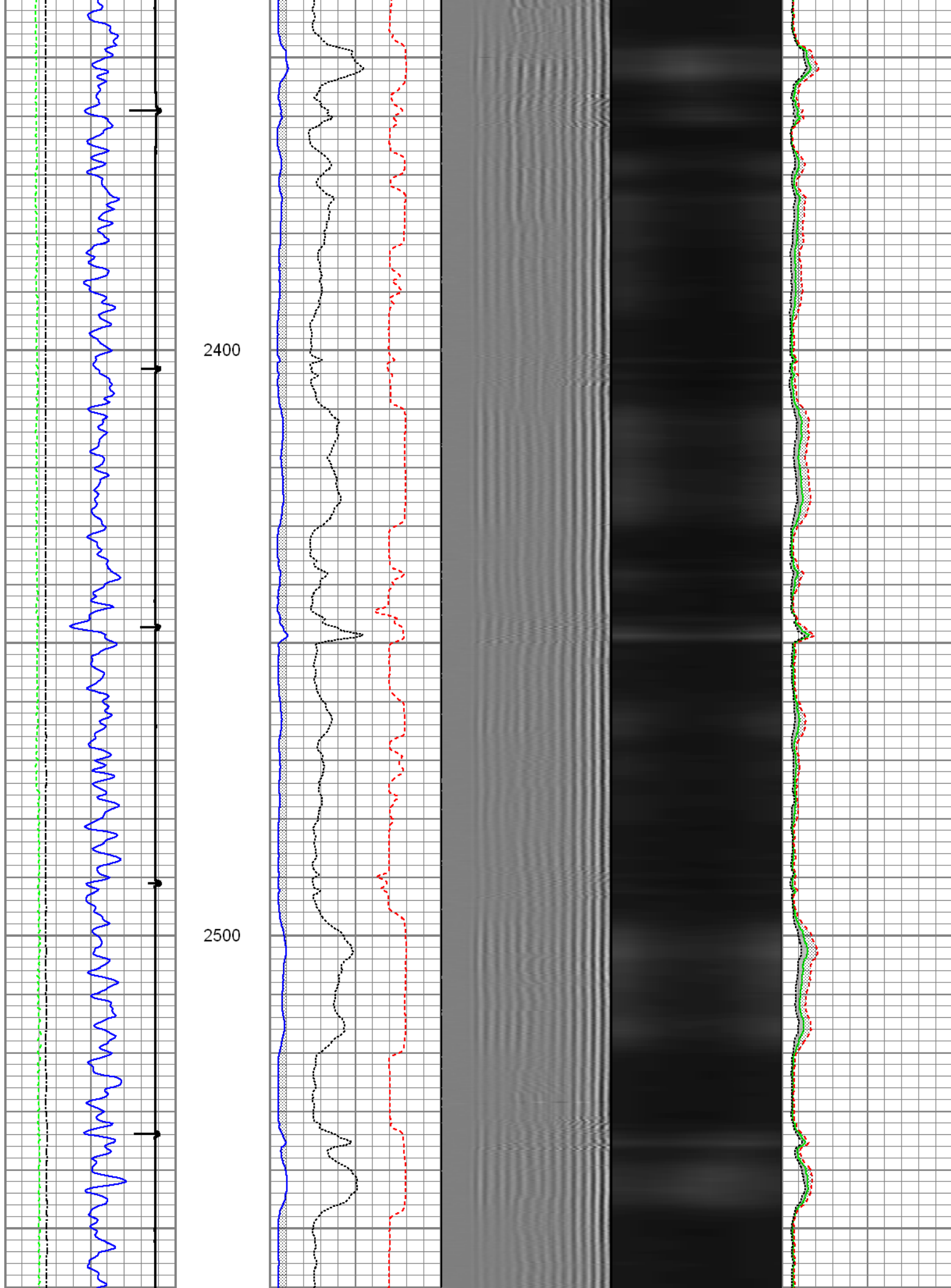


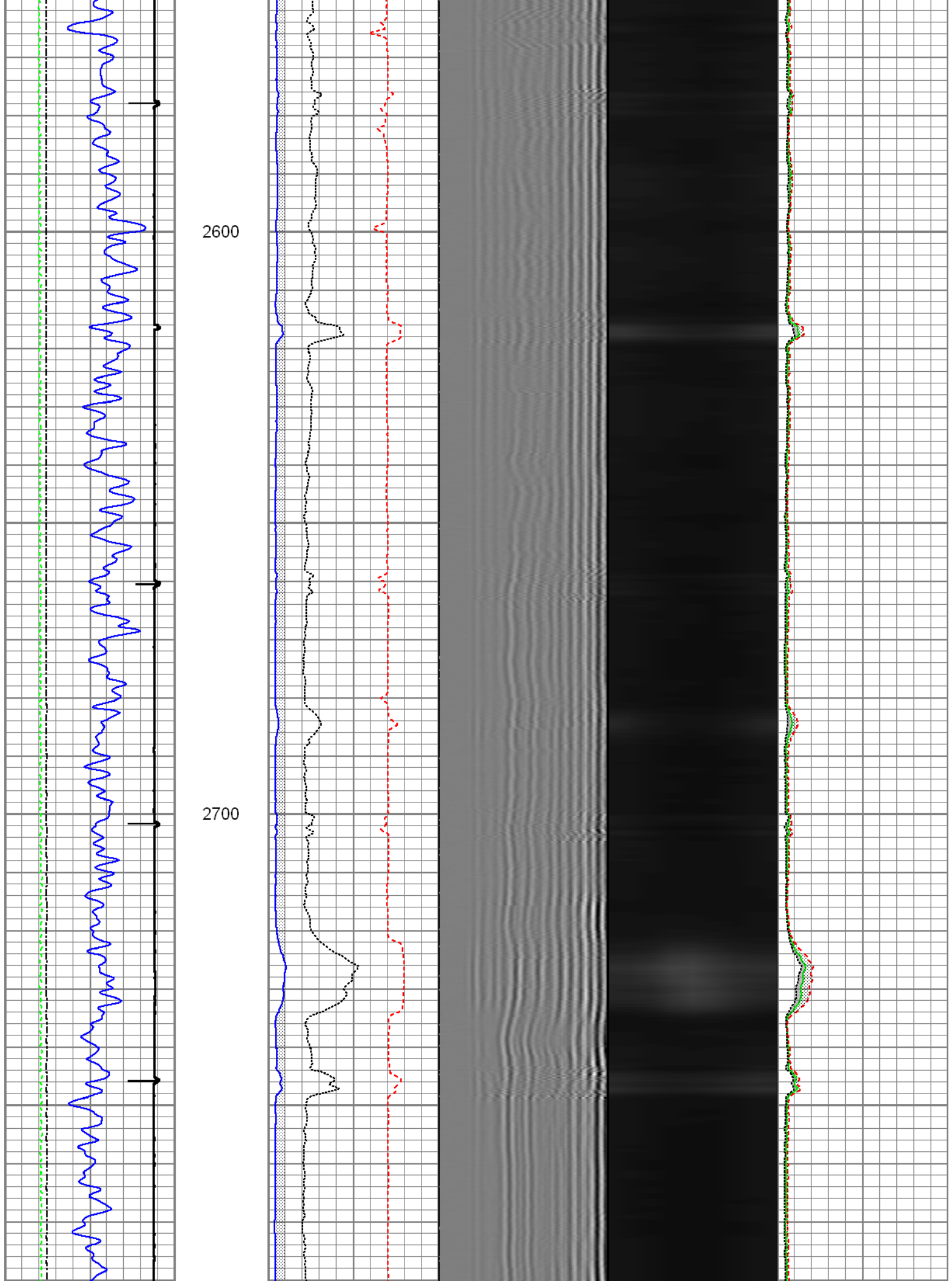


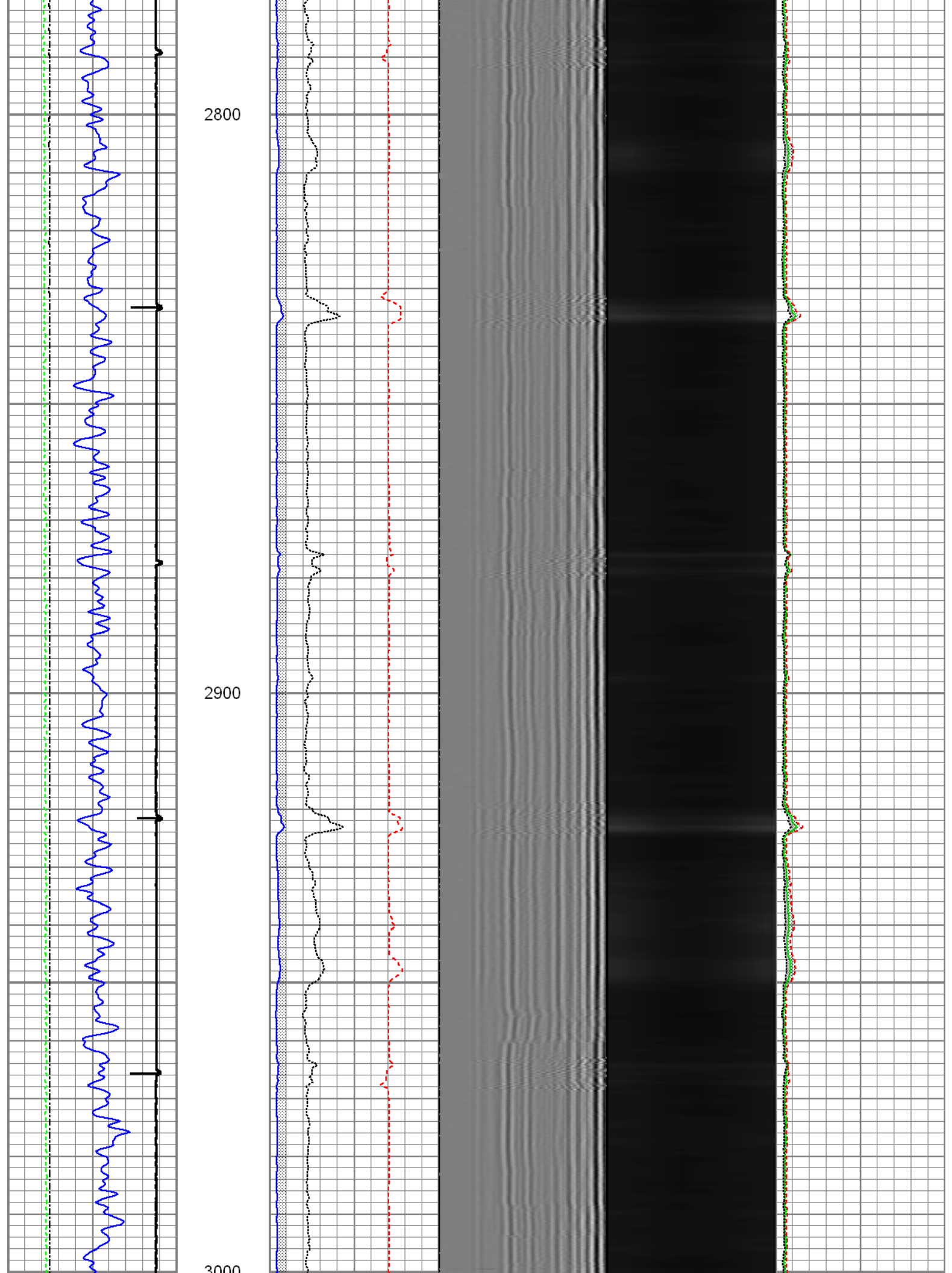
2200

2300





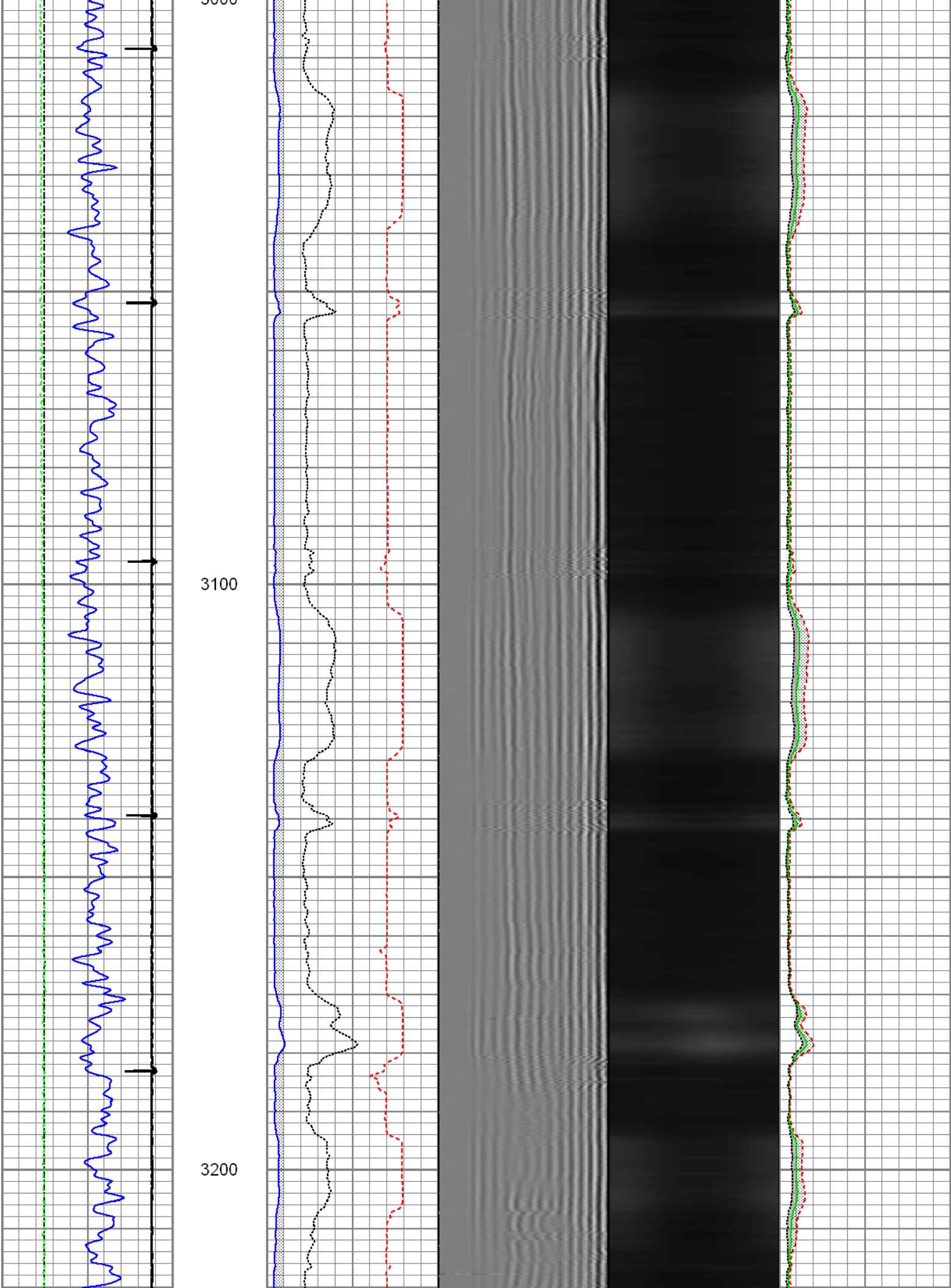


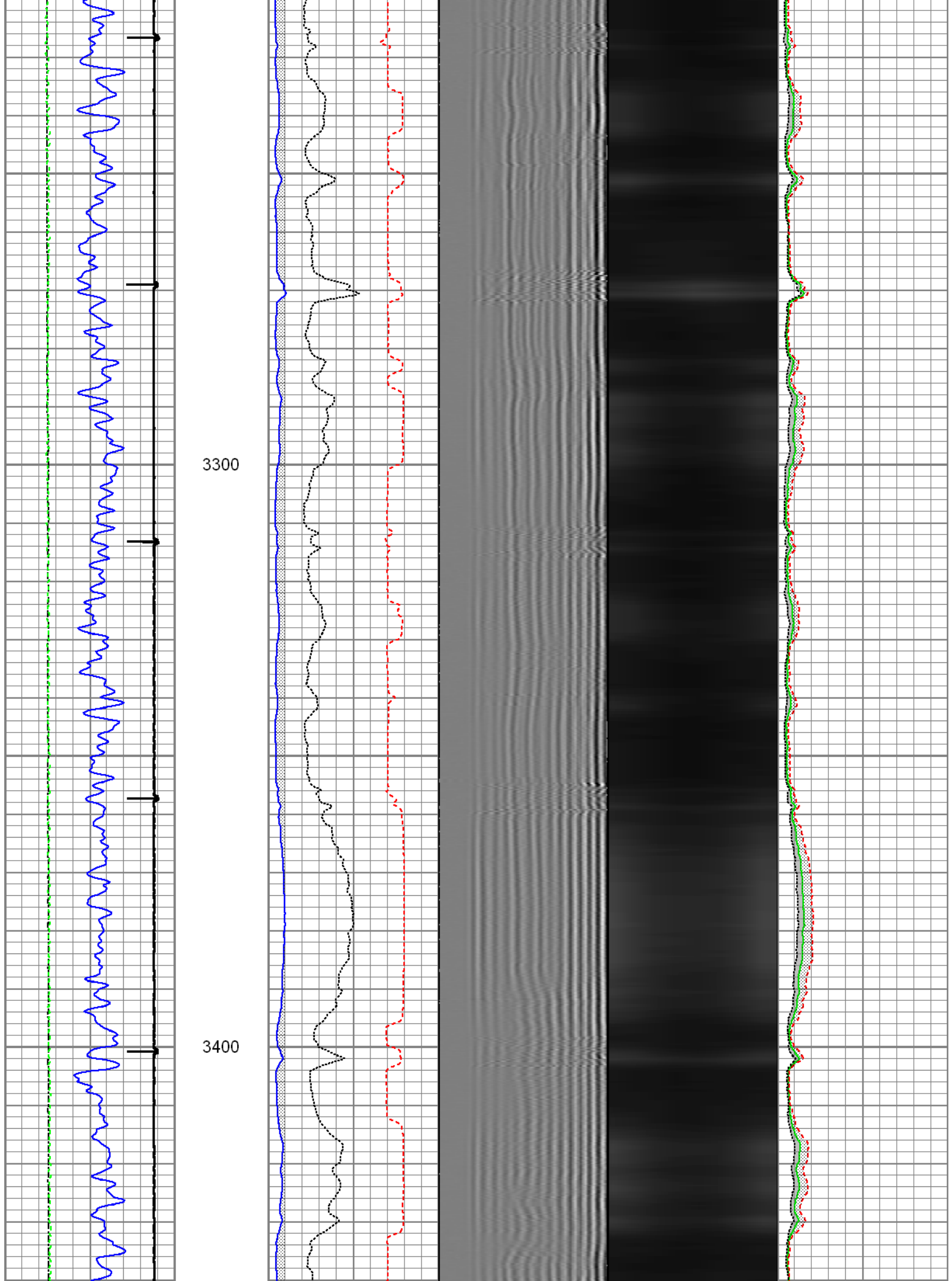


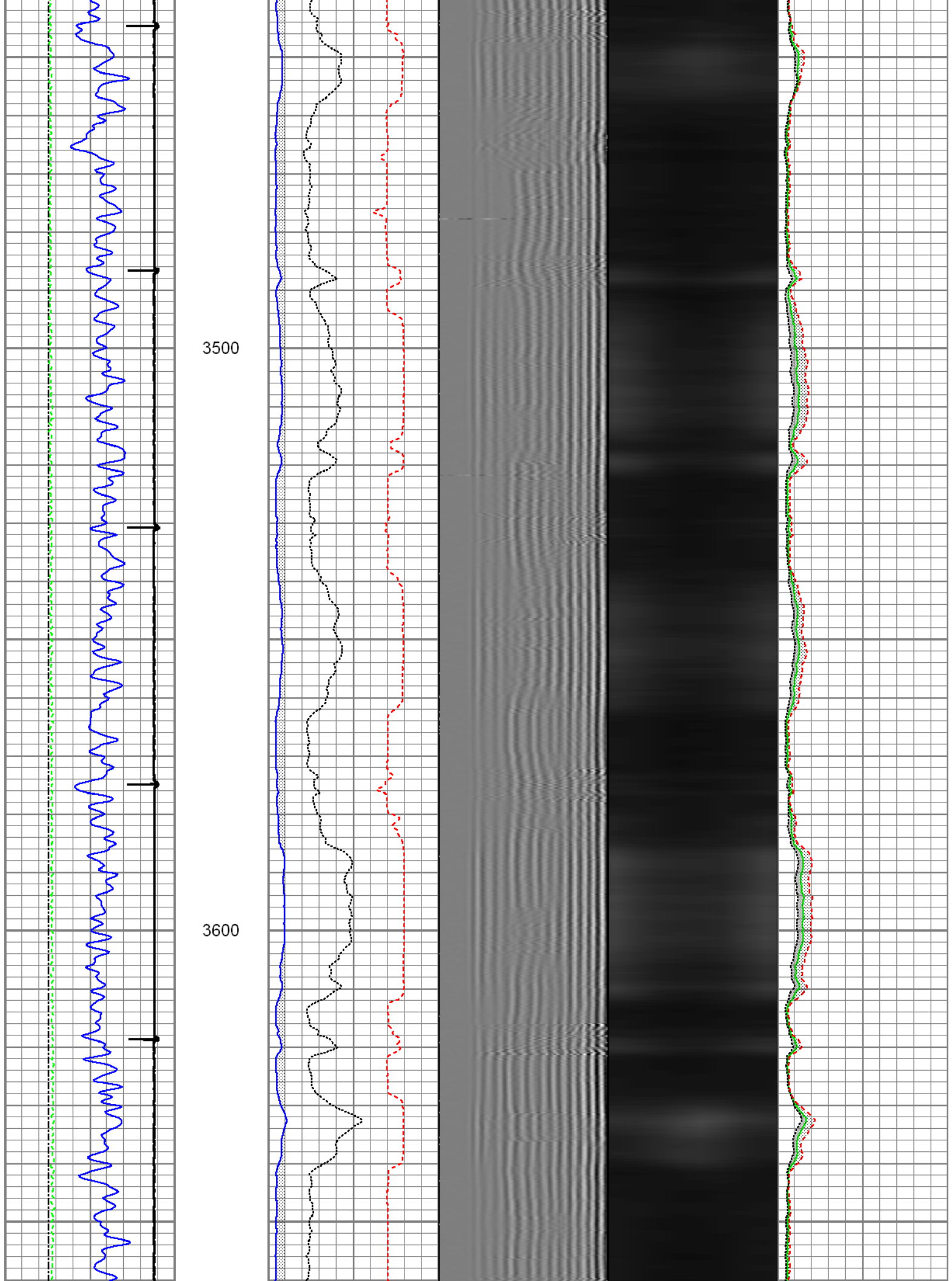
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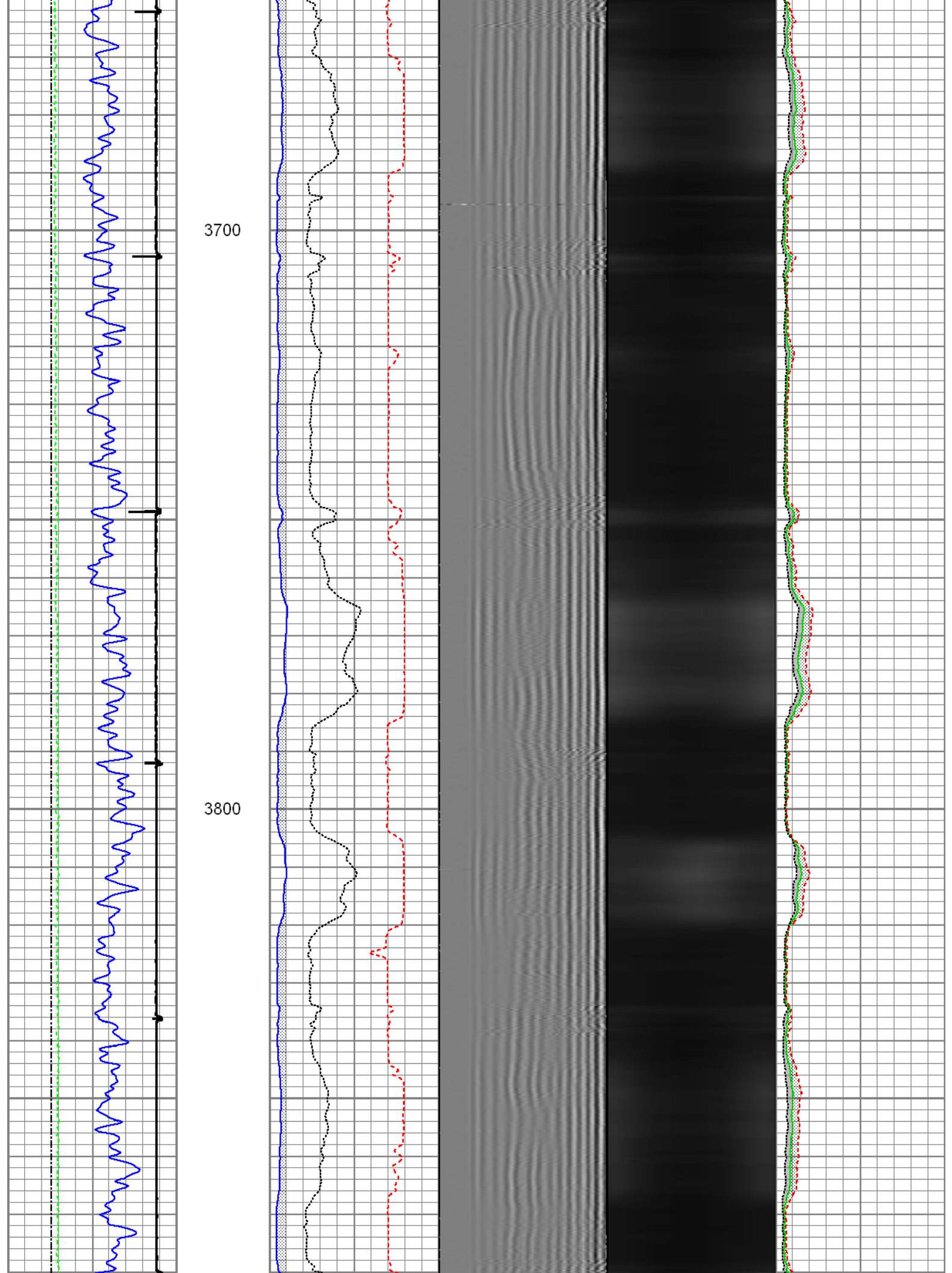
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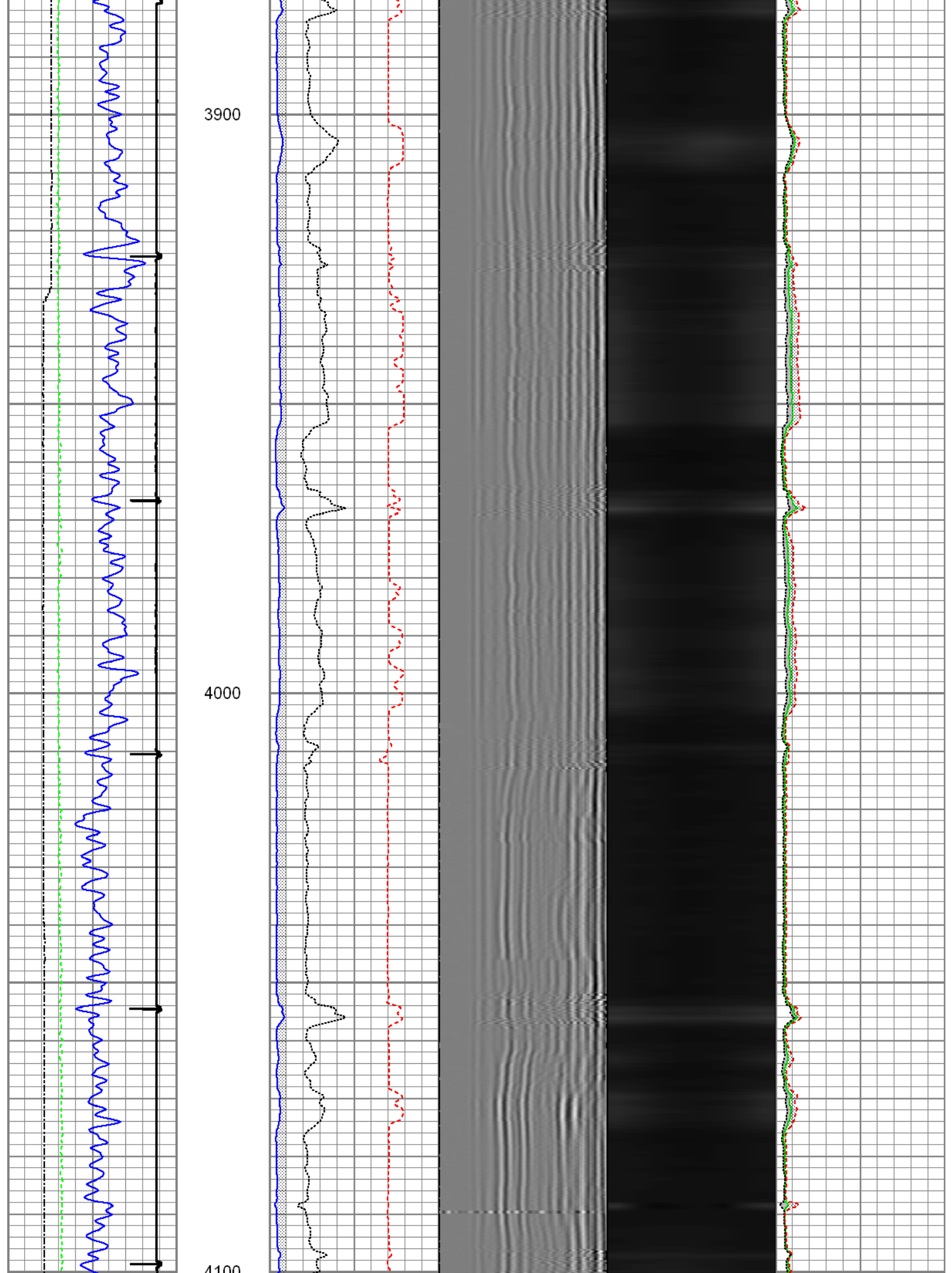
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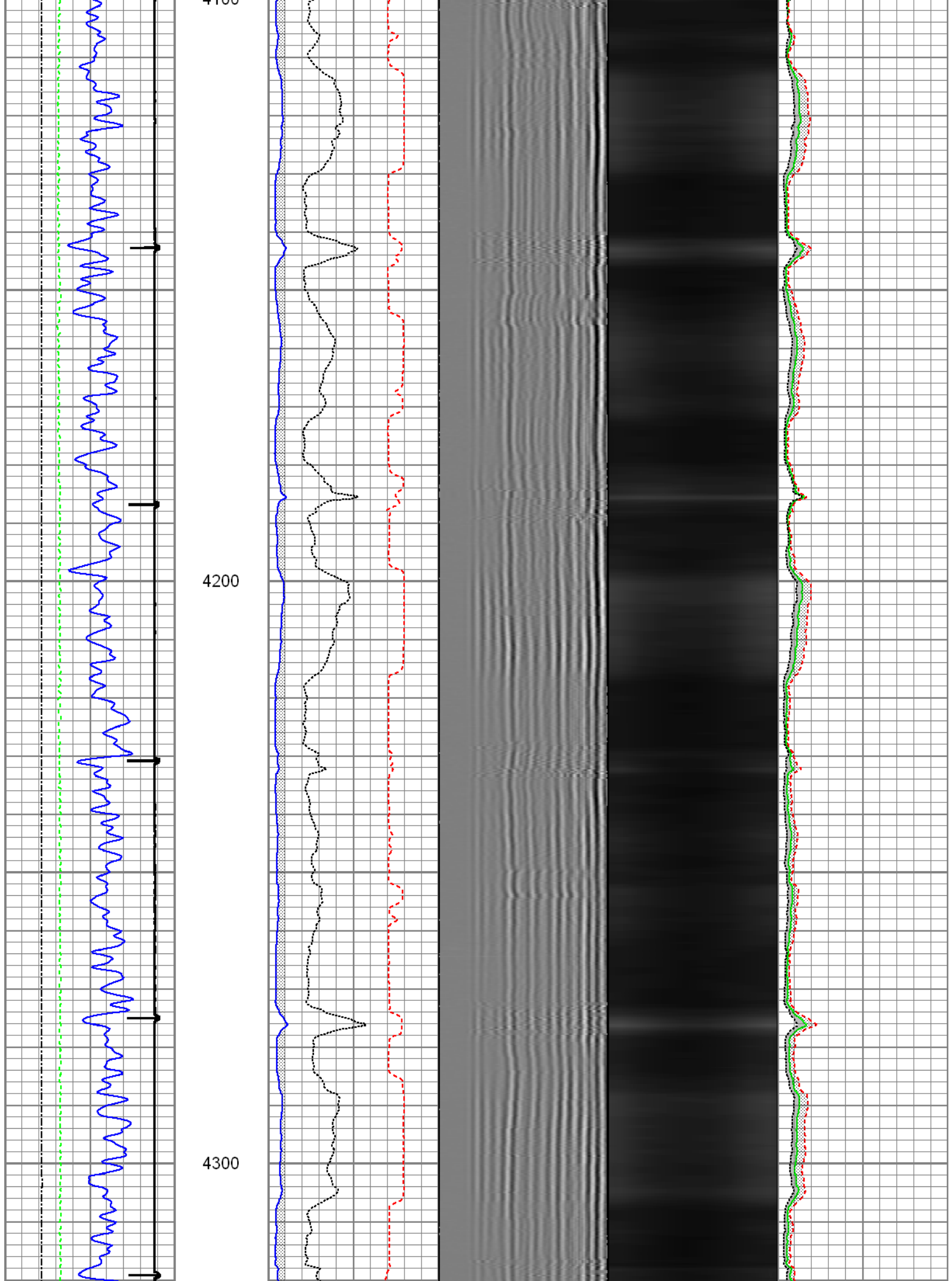


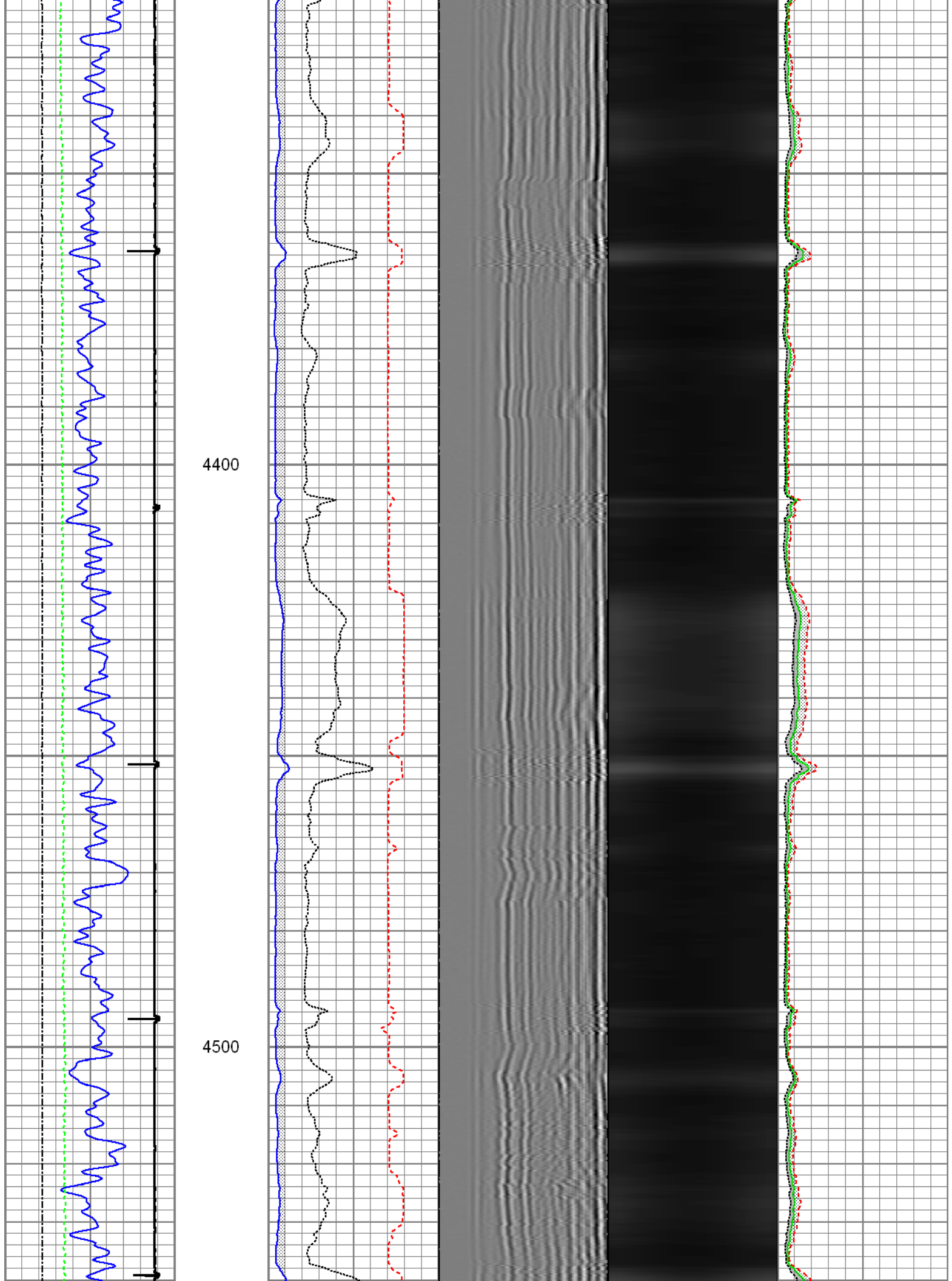


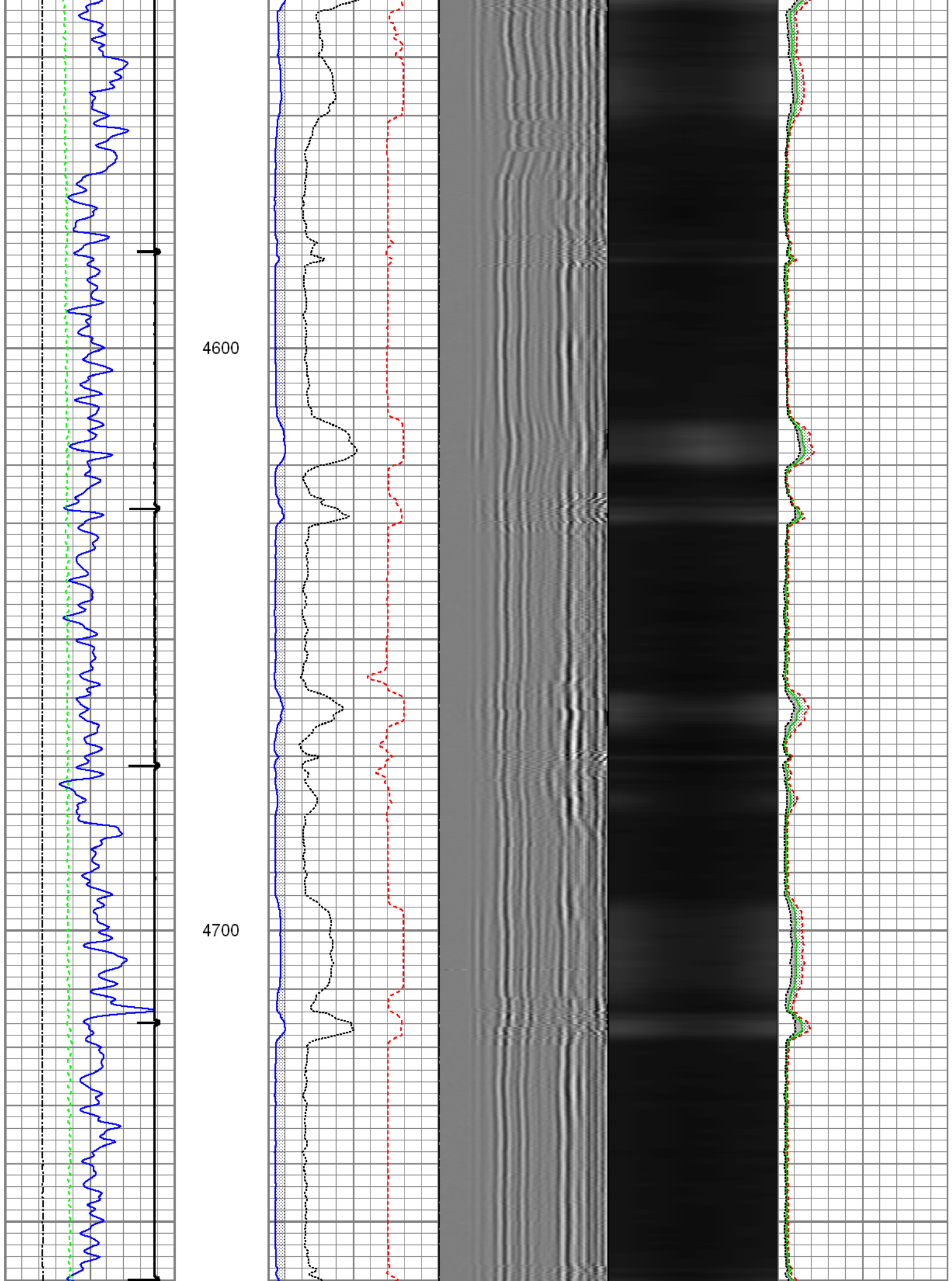
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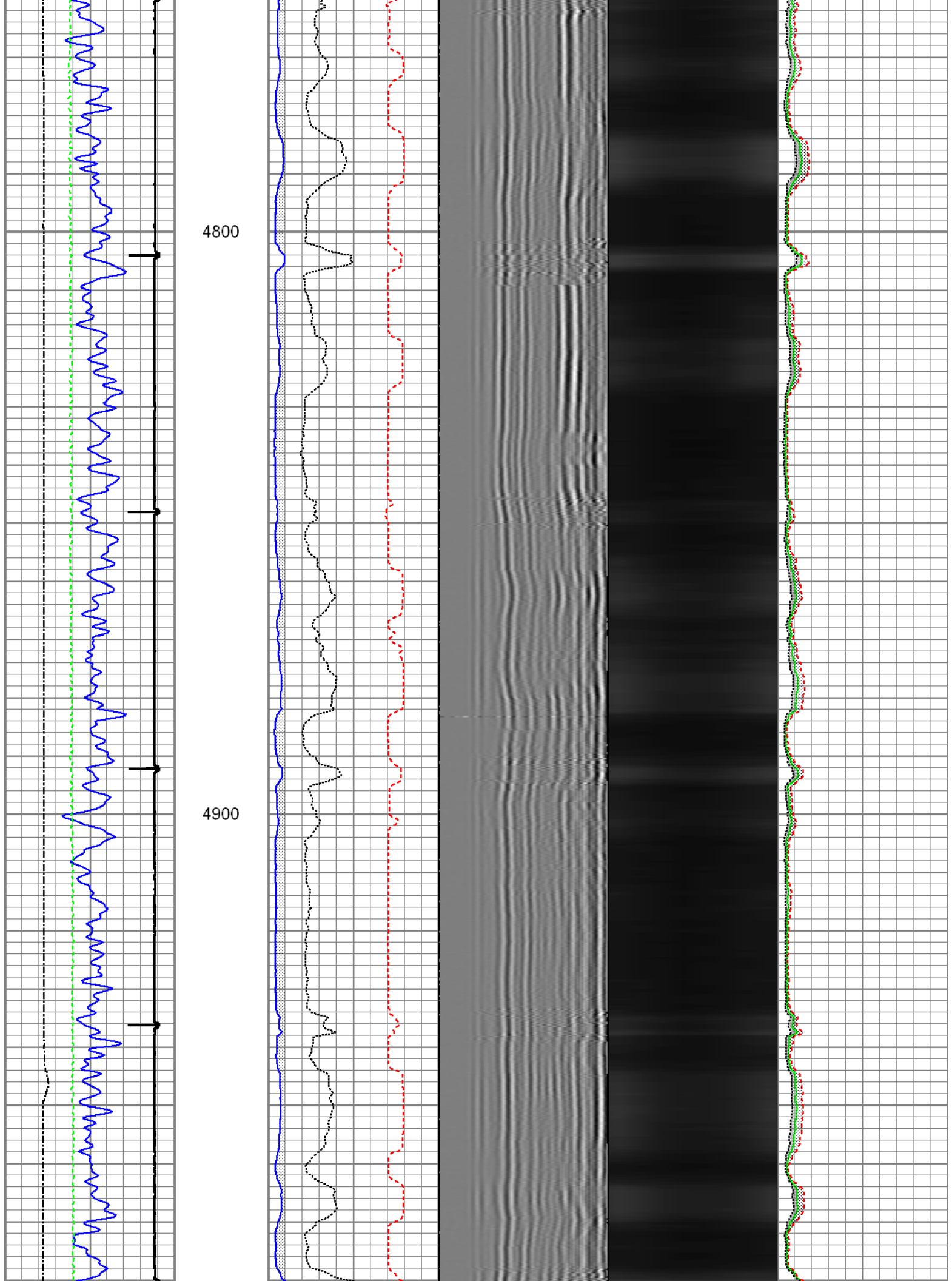
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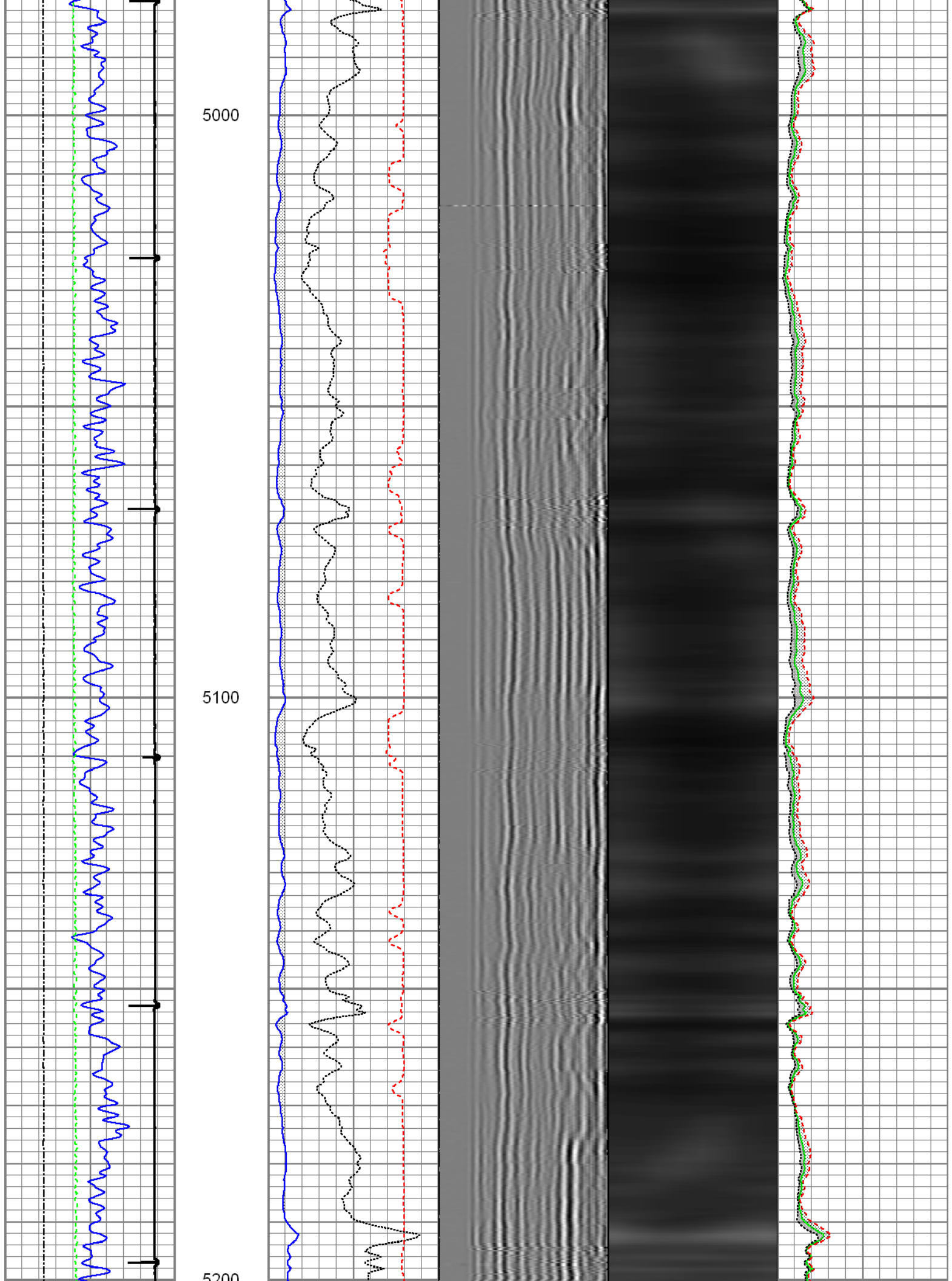
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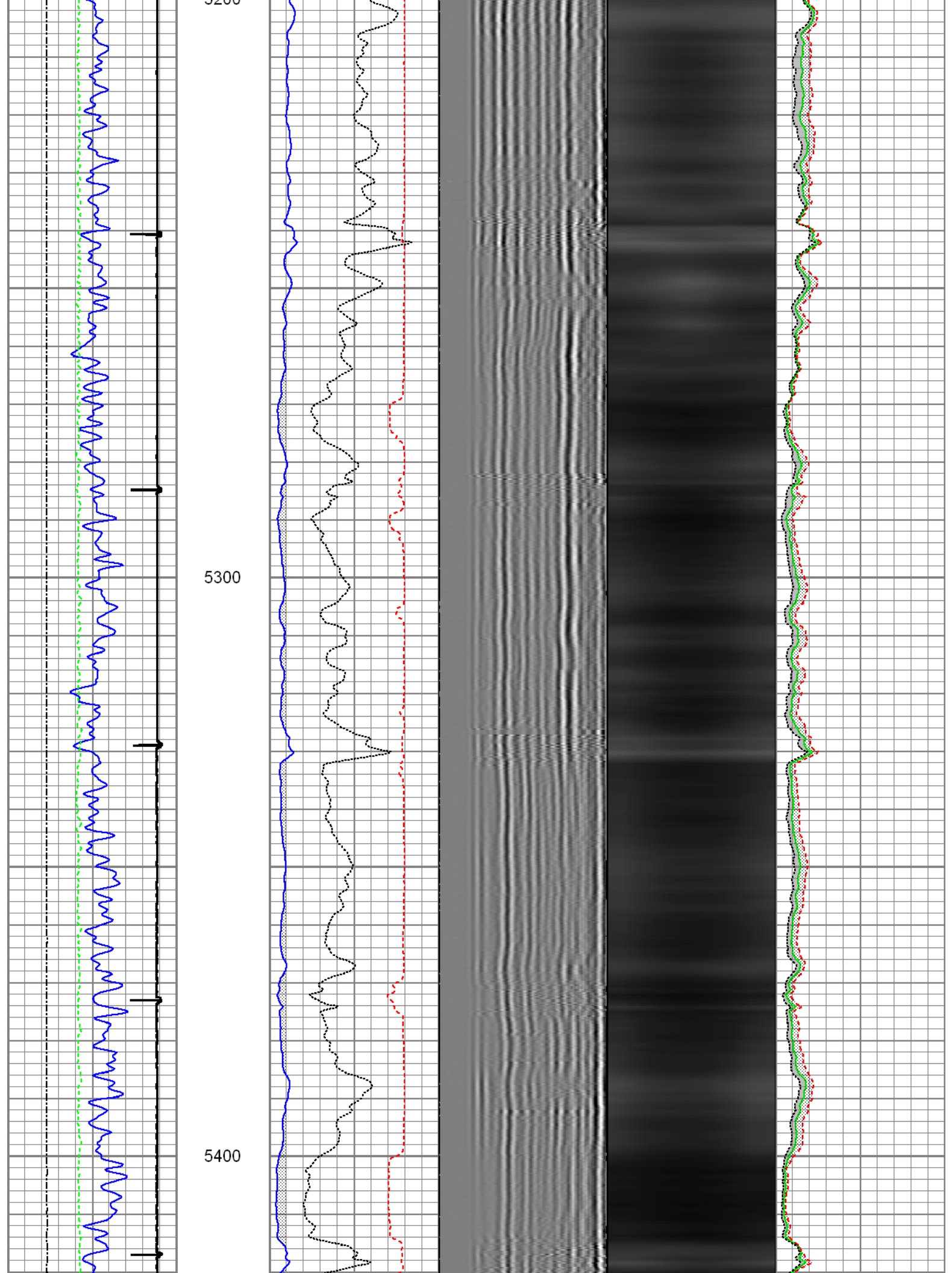


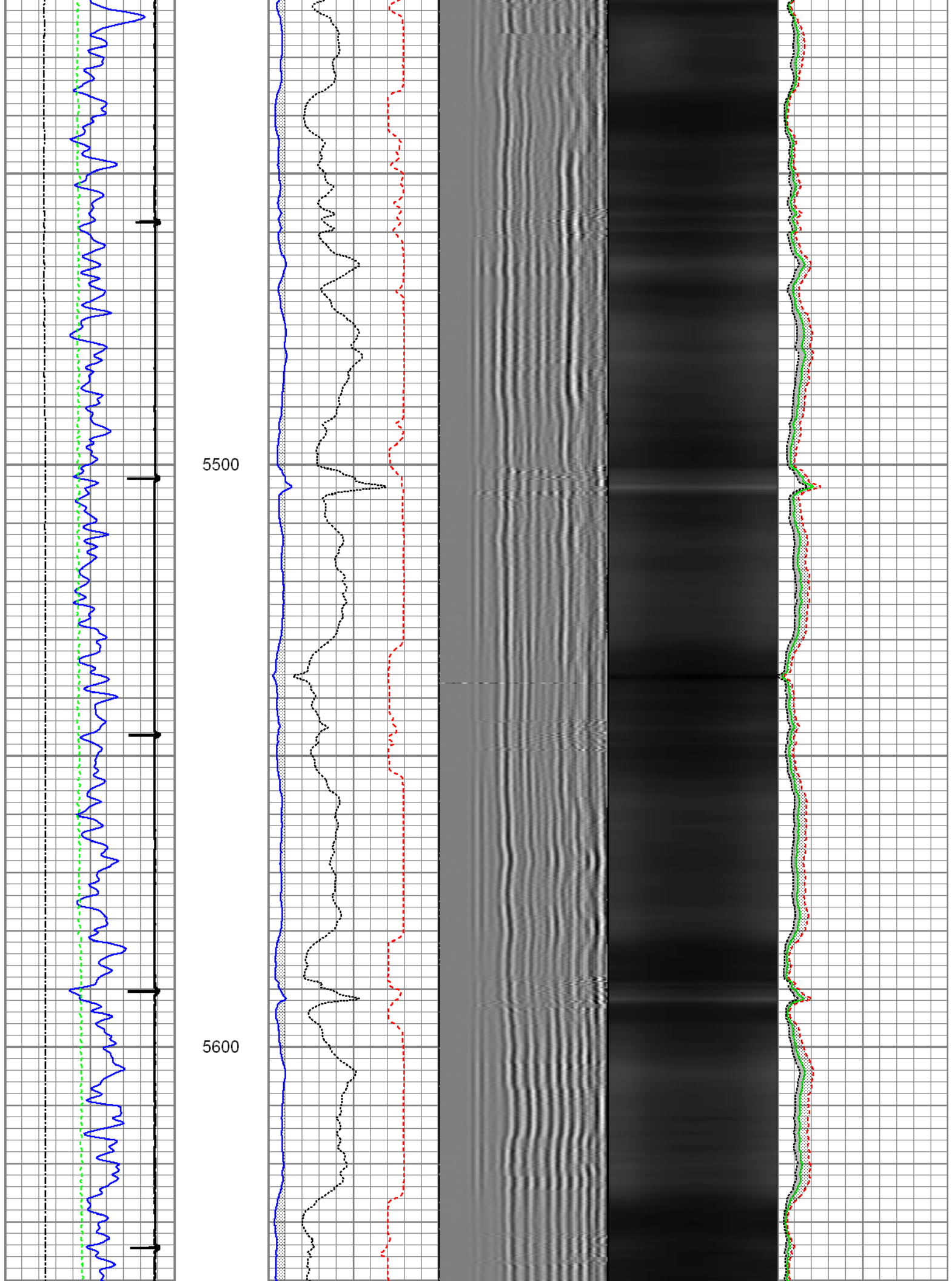


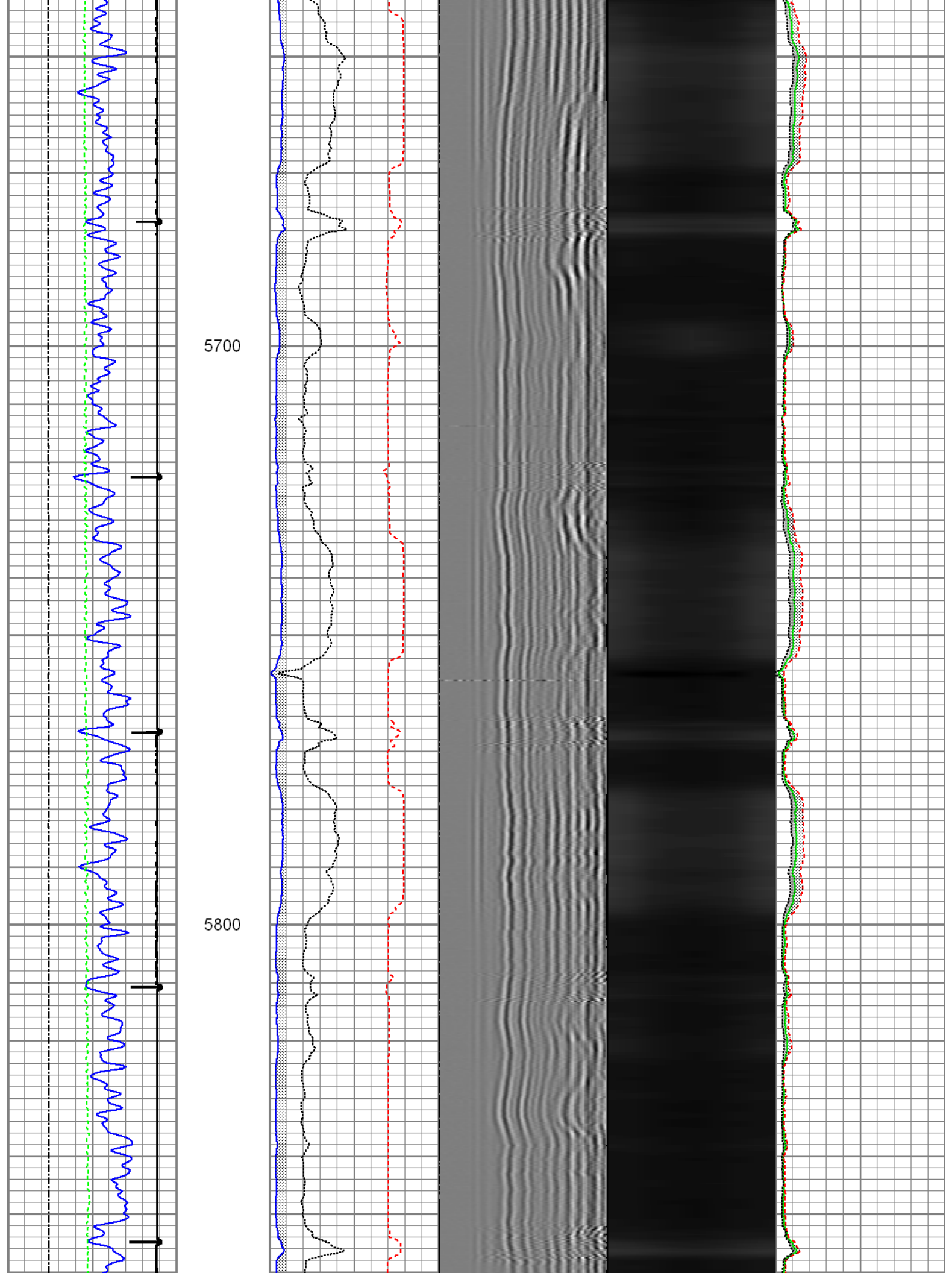


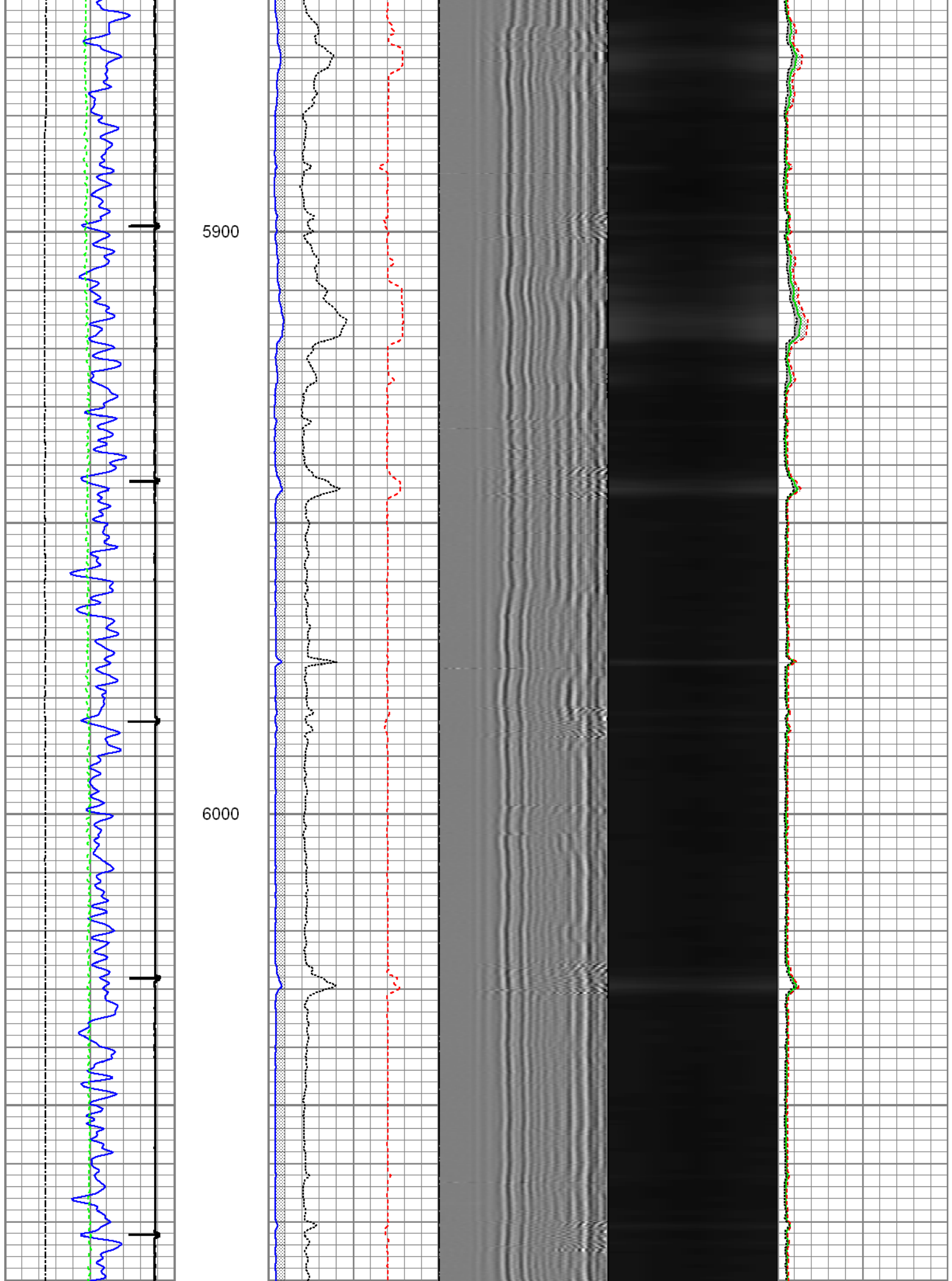


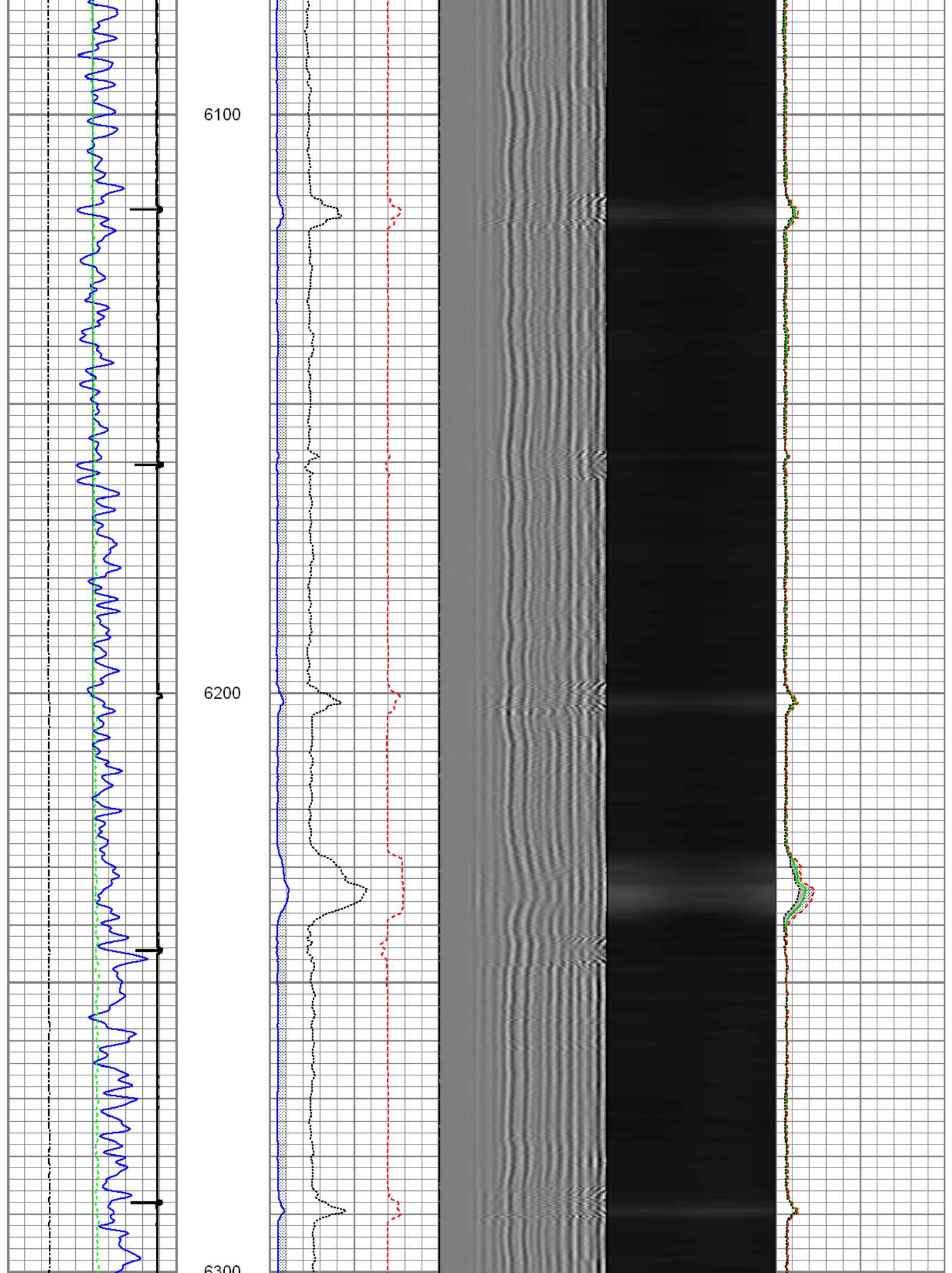


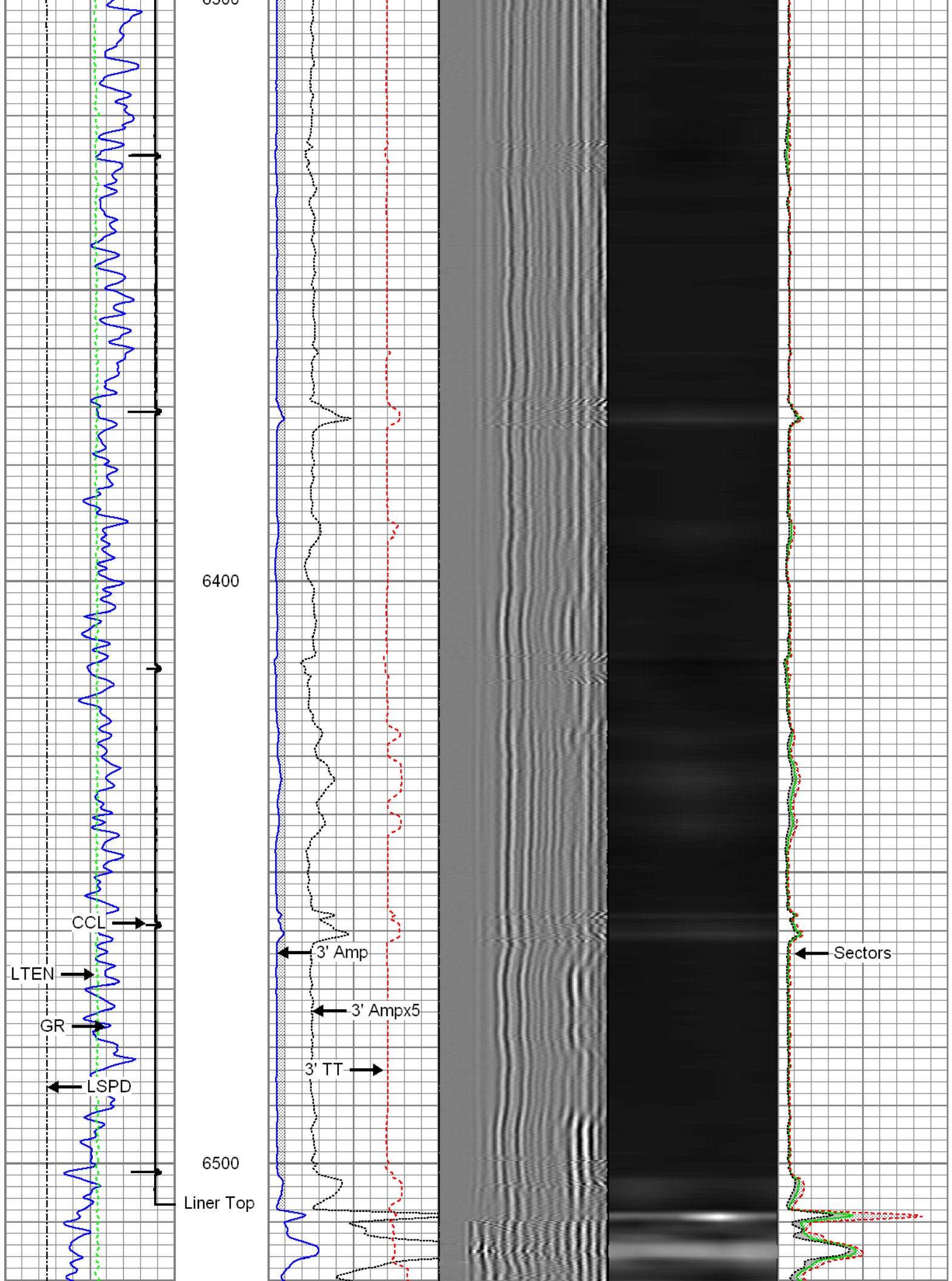


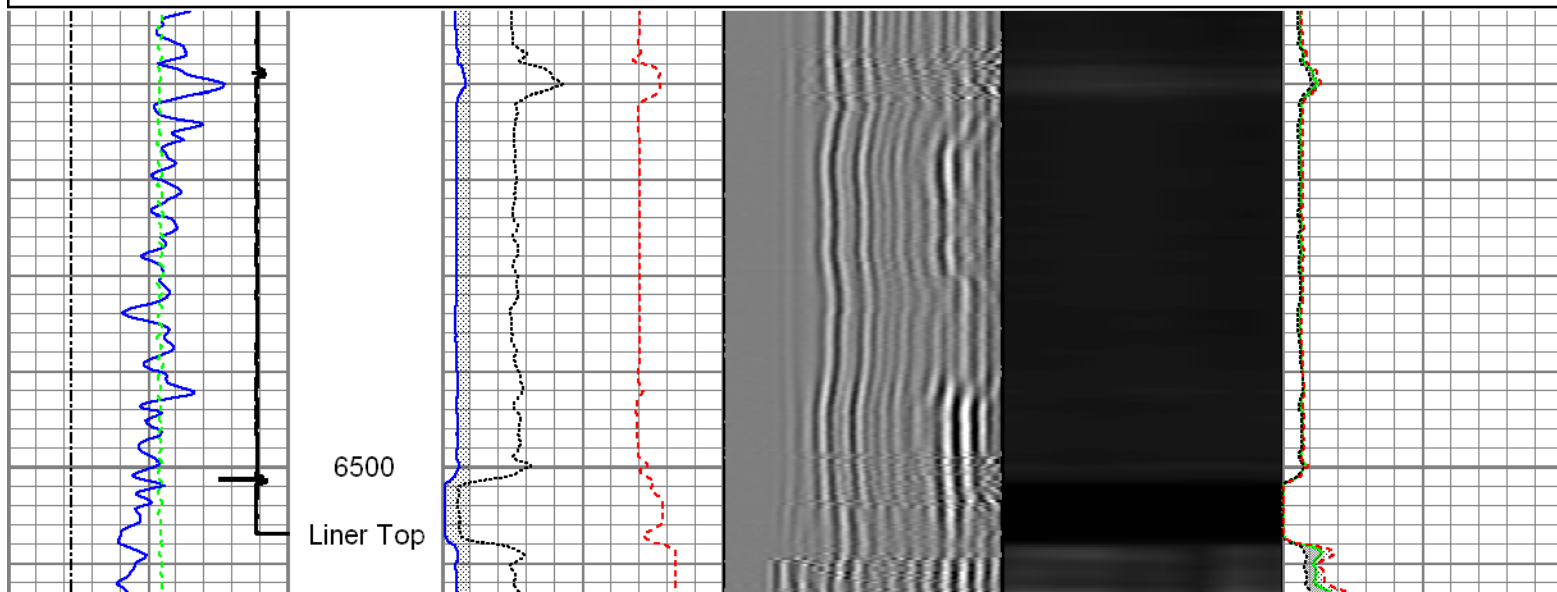
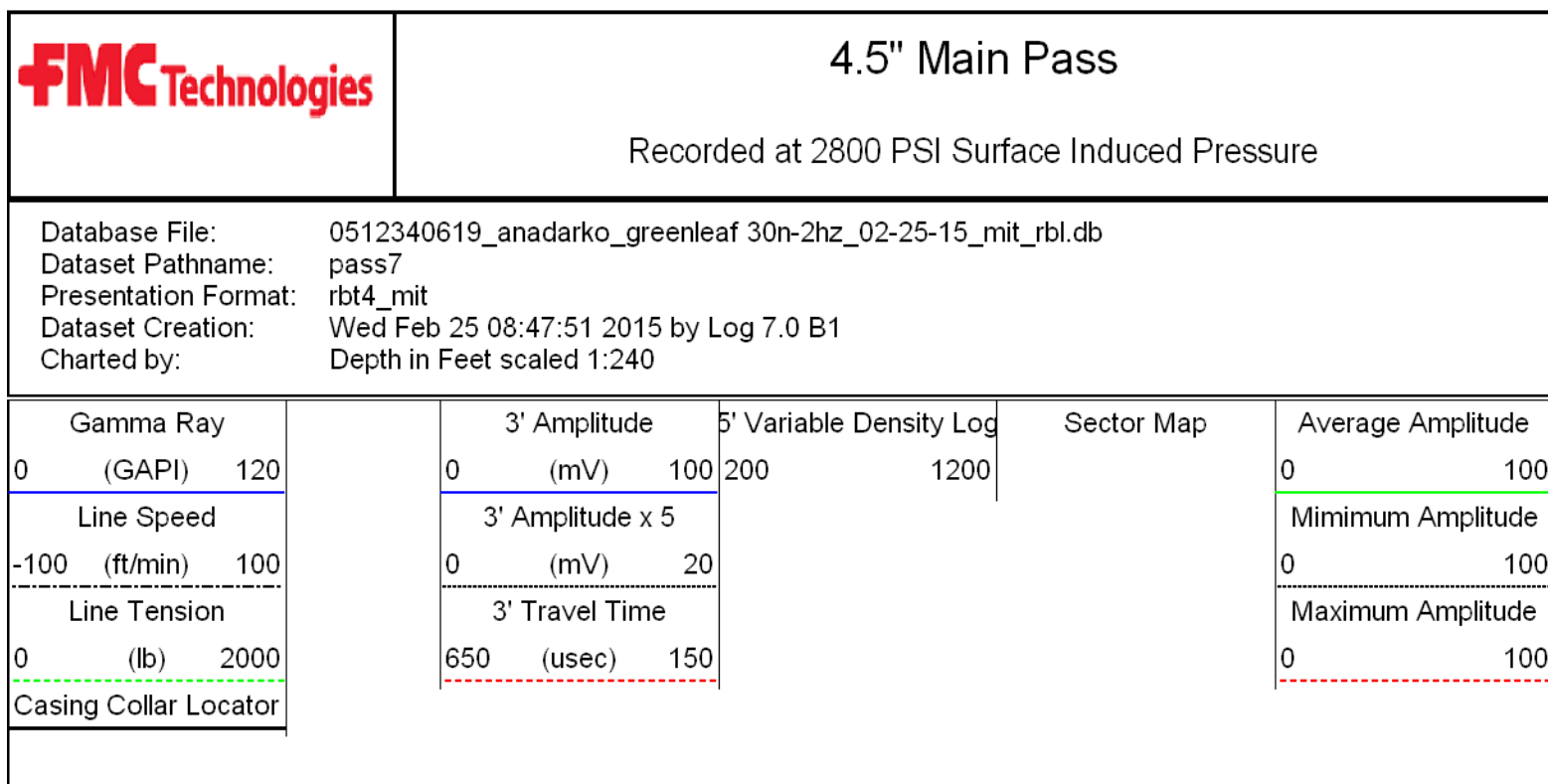
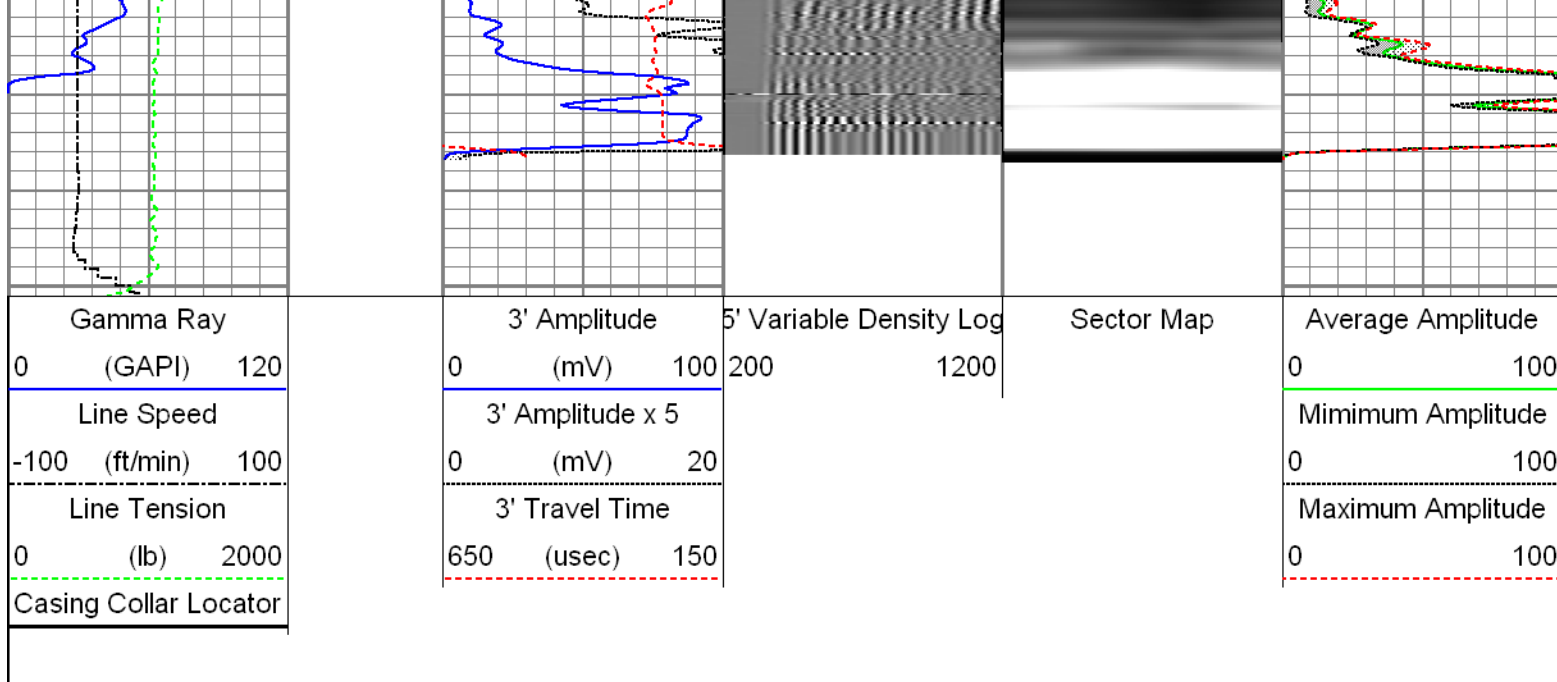


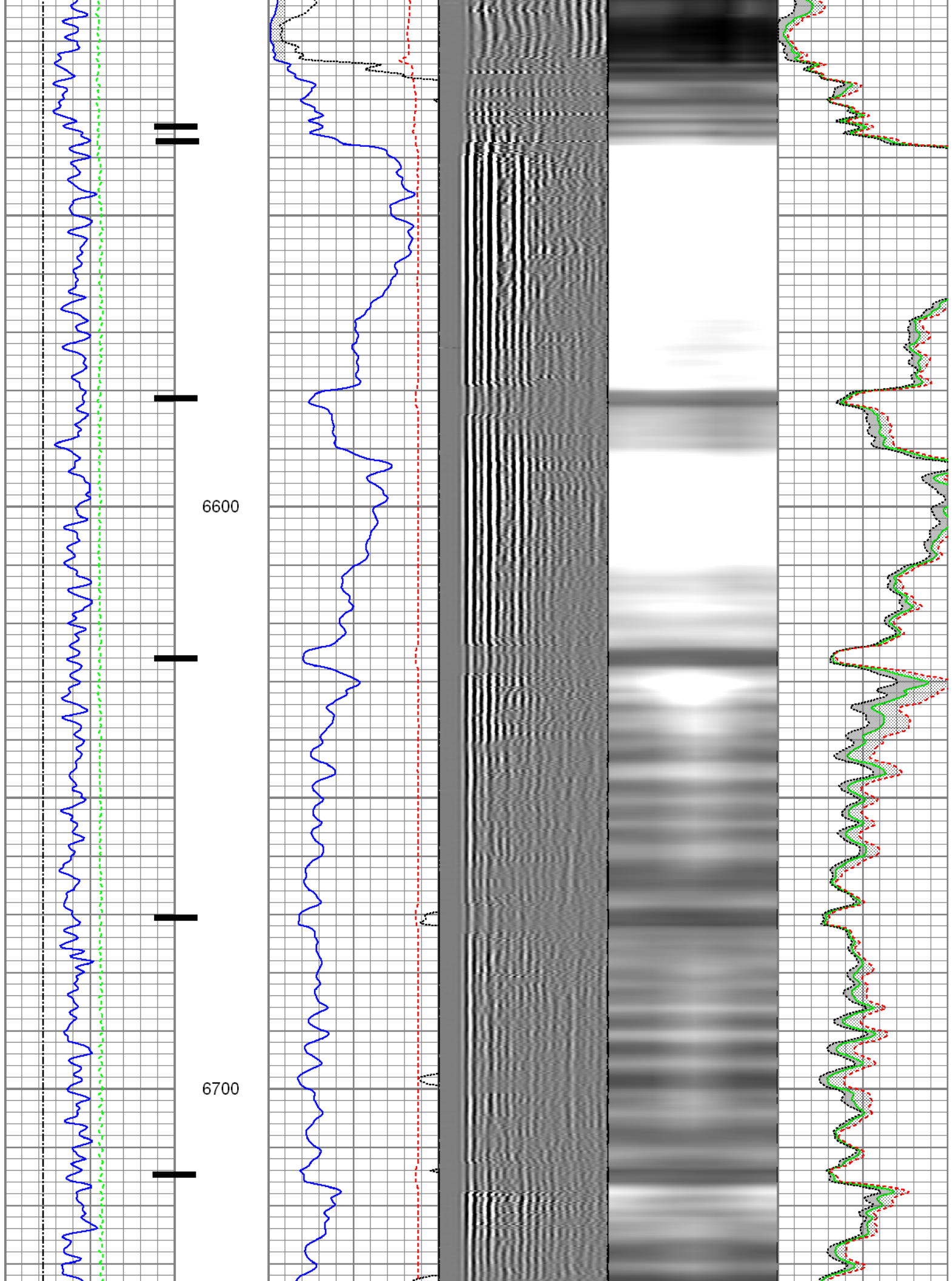


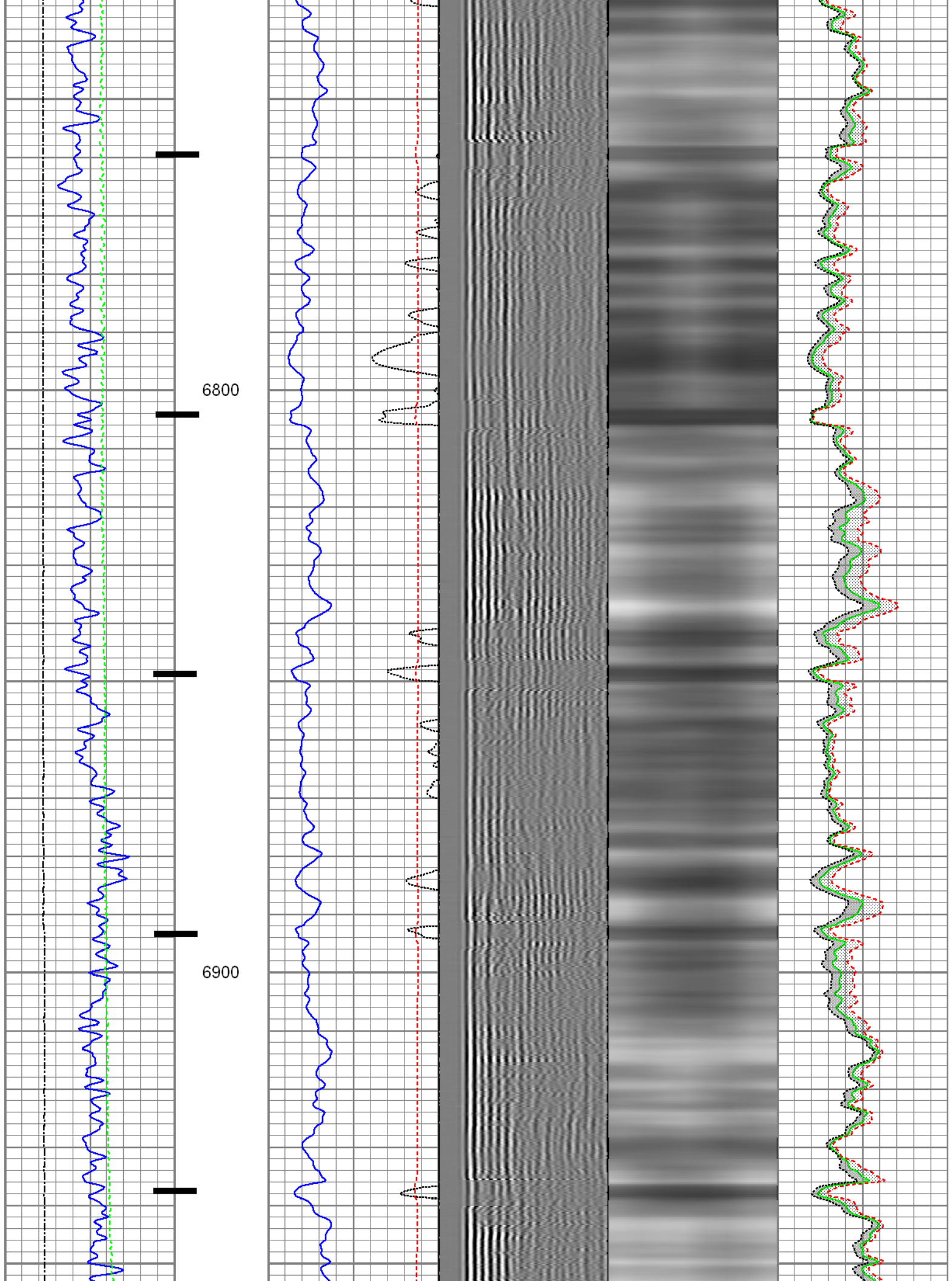


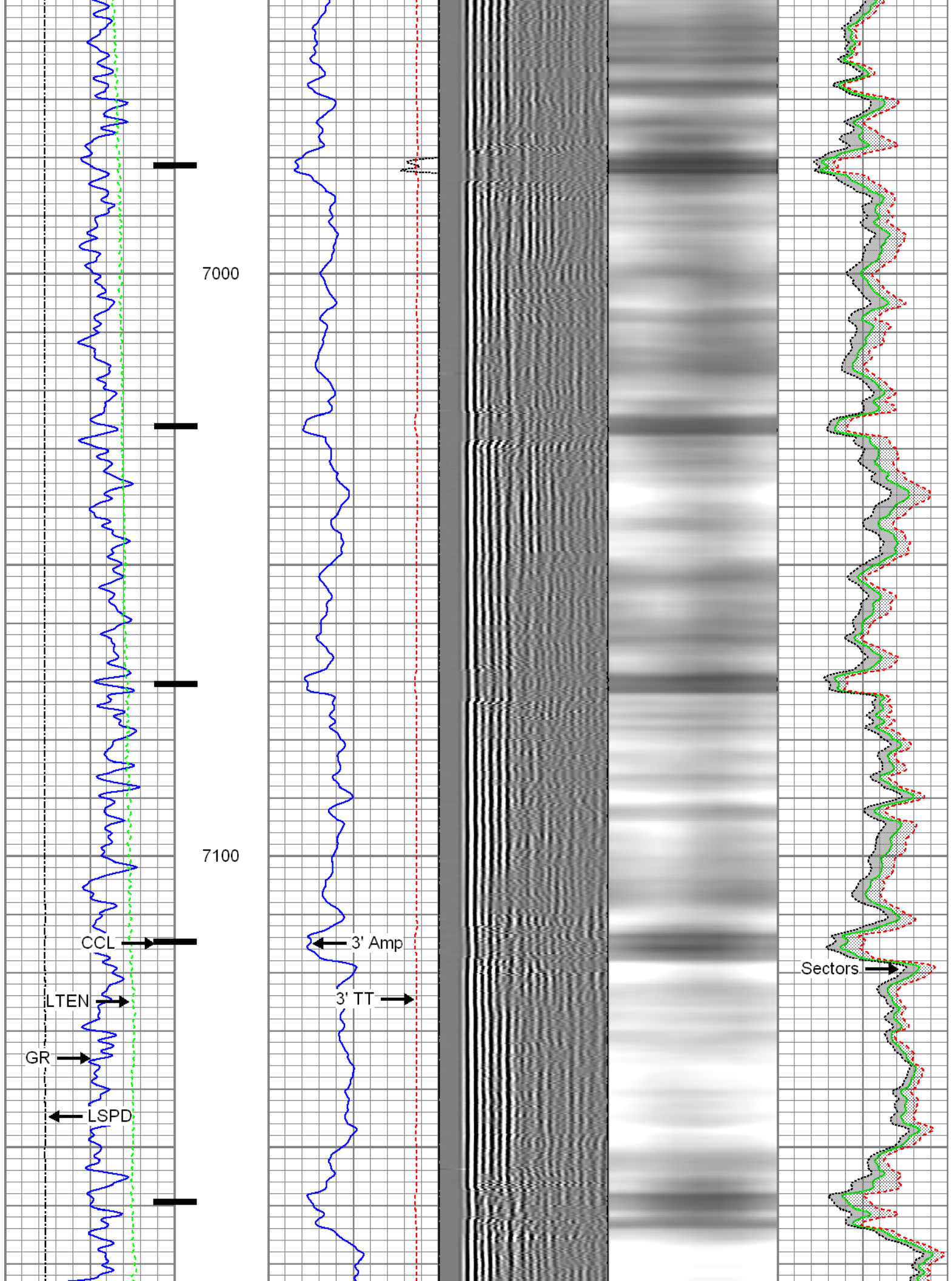


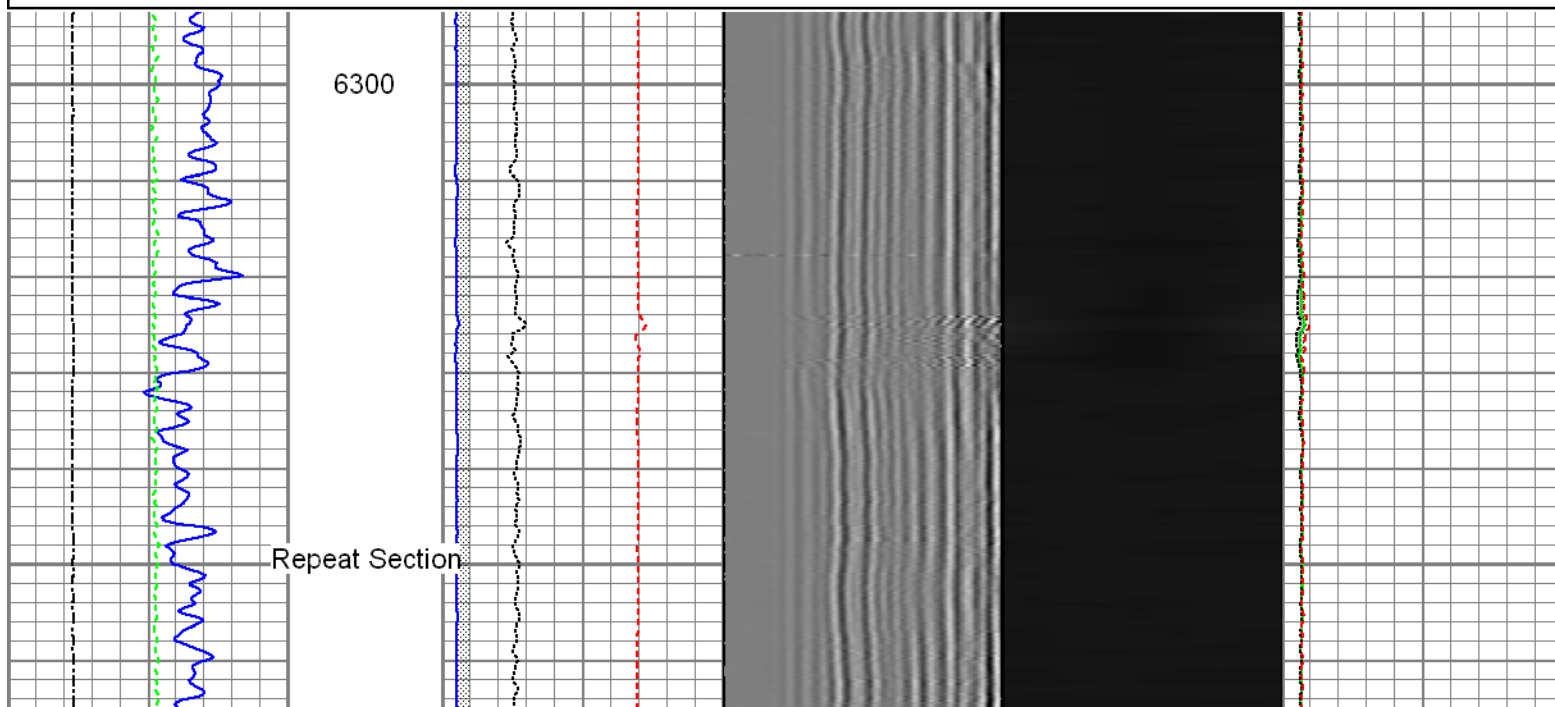
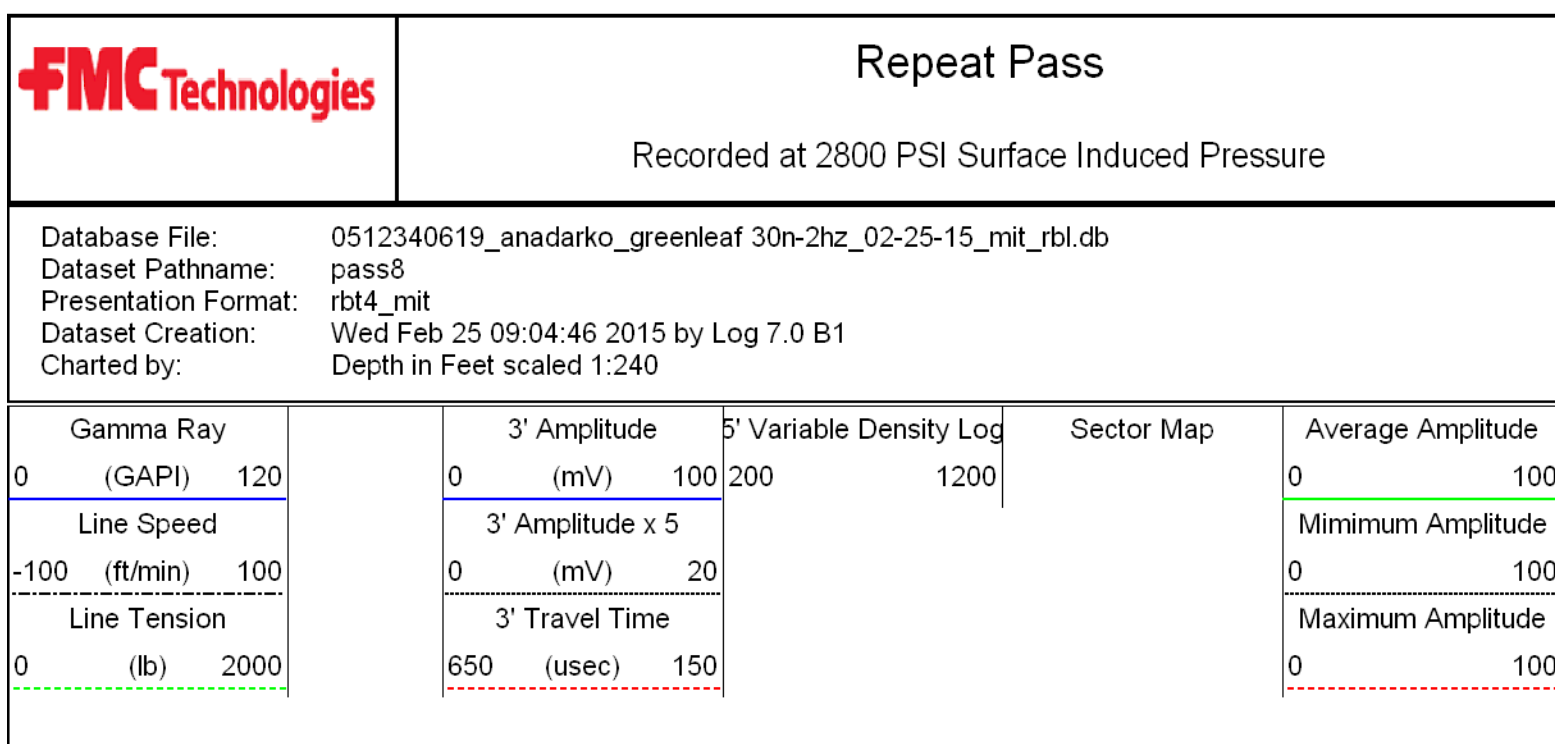
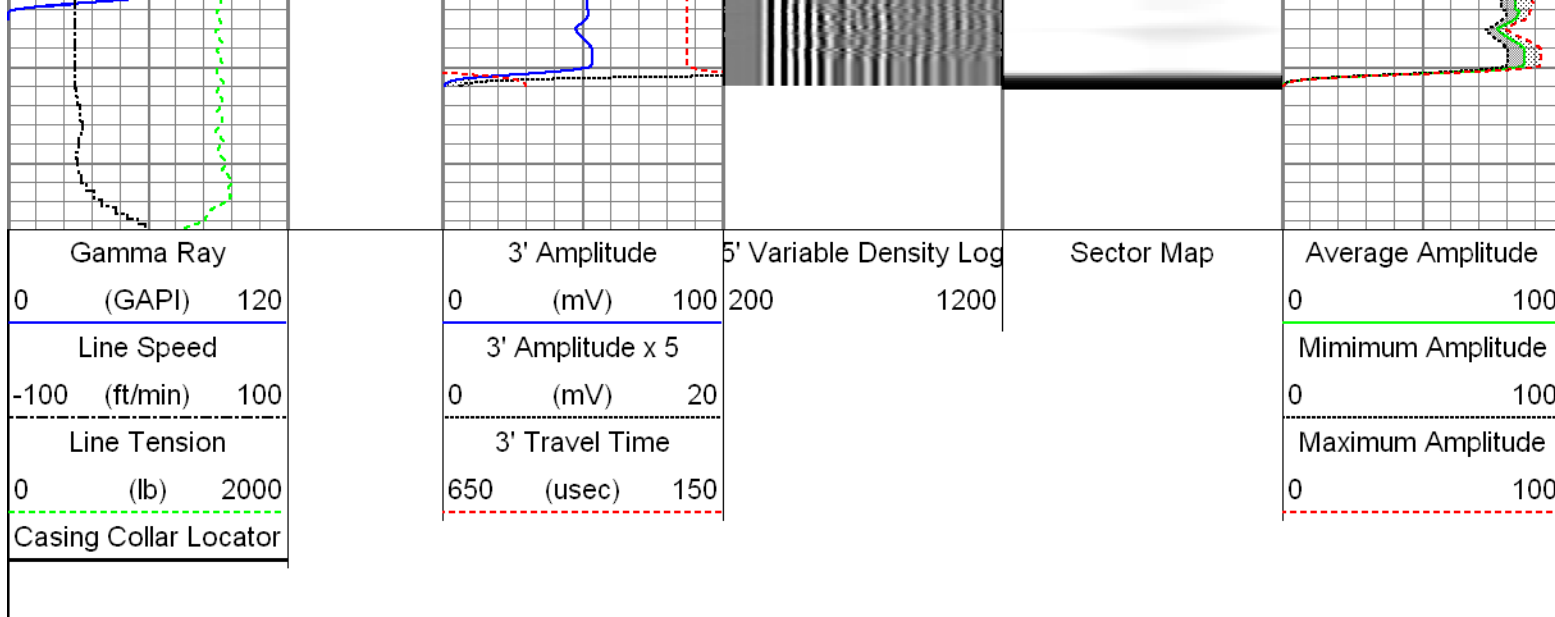


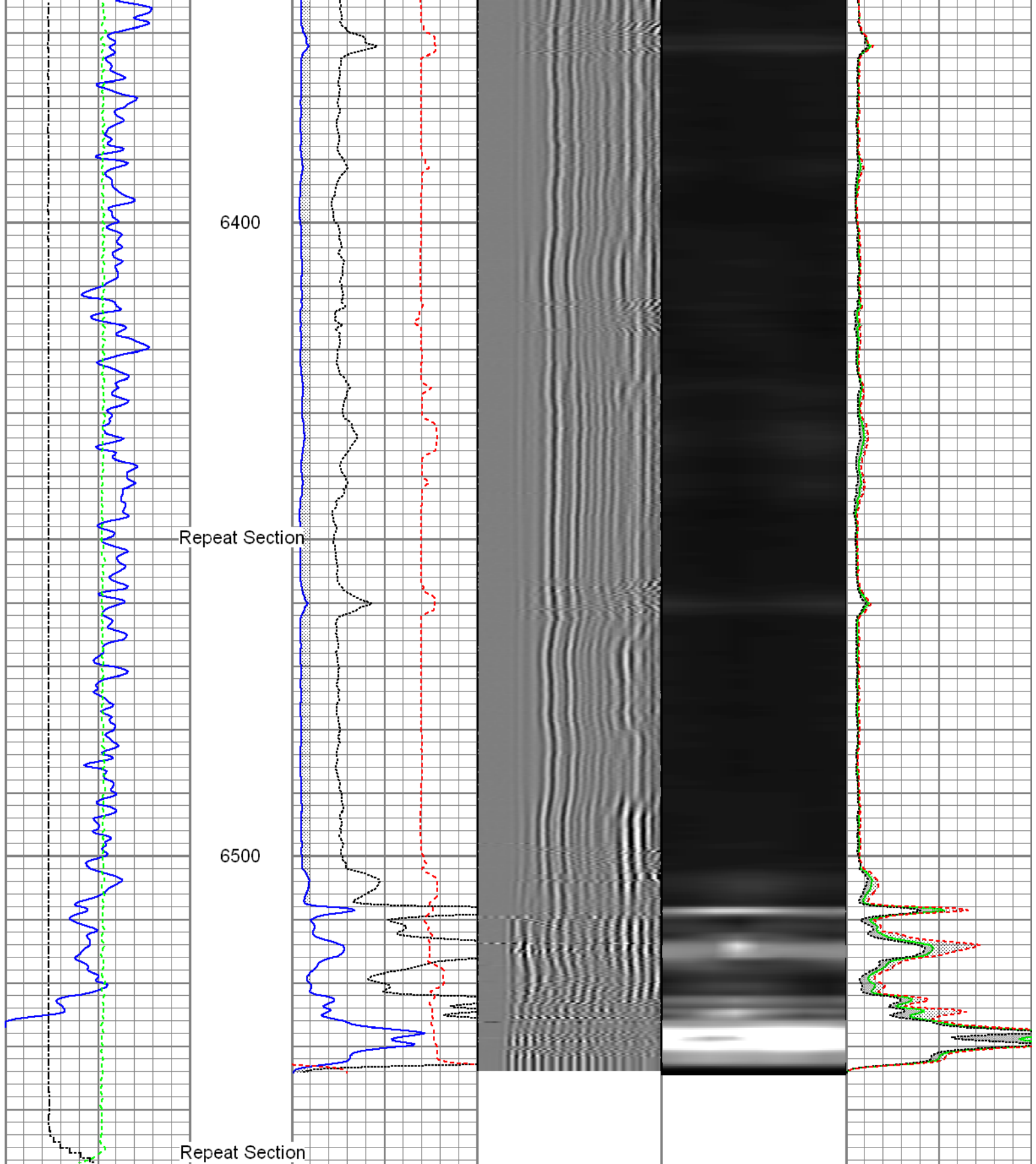




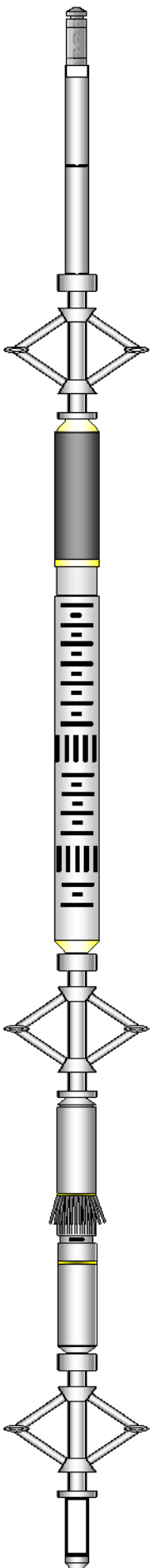
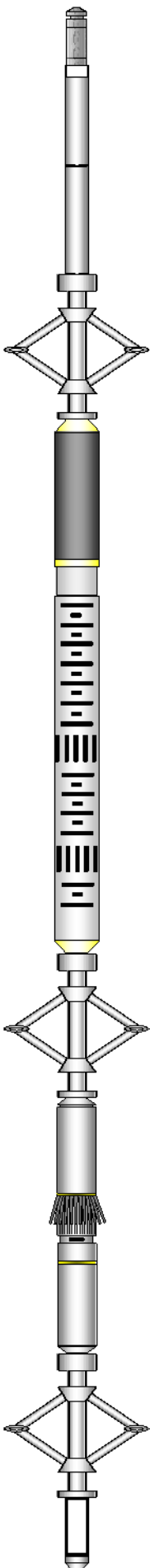
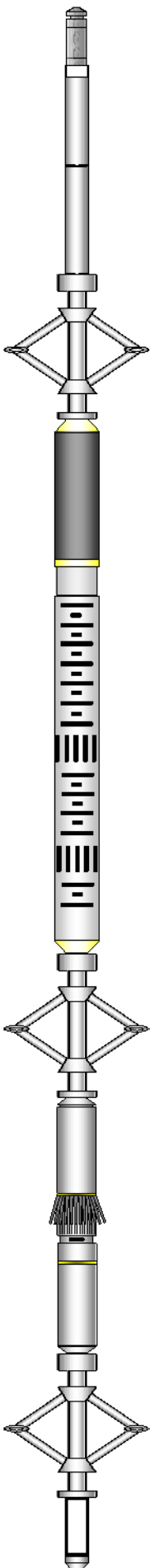
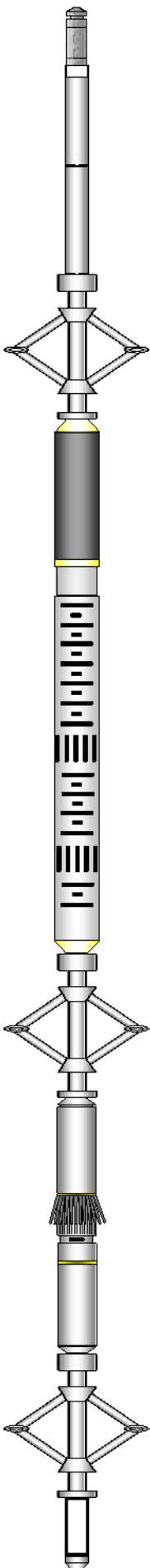








Gamma Ray		3' Amplitude		5' Variable Density Log		Sector Map		Average Amplitude	
0	(GAPI) 120	0	(mV) 100	200	1200			0	100
Line Speed		3' Amplitude x 5						Minimum Amplitude	
-100	(ft/min) 100	0	(mV) 20					0	100
Line Tension		3' Travel Time						Maximum Amplitude	
0	(lb) 2000	650	(usec) 150					0	100

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	23.41		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 (10010519) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (211727) 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
WVFS3FT	16.03		UW_RBT-UW_RBT_004 (1063) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	16.03					
WVFS2	16.03					
WVFS3	16.03					
WVFS4	16.03					
WVFS5	16.03					
WVFS6	16.03					
WVFS7	16.03					
WVFS8	16.03					
CBLTEMP	16.03					
CBLROT	16.03					
WVFS5FT	15.03					
MIT	6.02		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
			UW_PRC #3 -DSSRAC (084) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
TEMP	0.37		UW_PRT-UW_PRT_016 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20
TSTAMP	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20

Total Weight: 0.24.00 lb
O.D. 3.13 in

Calibration Report

Database File: 0512340619_anadarko_greenleaf 30n-2hz_02-25-15_mit_rbl.db
Dataset Pathname: pass9
Dataset Creation: Wed Feb 25 09:12:43 2015 by Log 7.0 B1

Temperature Calibration Report

Serial Number: 10025097
Tool Model: UW_PRT_016
Performed: Wed Feb 11 13:44:44 2015

Point #	Reading		Reference
1	13053.00	cps	68.00 degF
2	18014.00	cps	104.00 degF
3	29668.00	cps	176.00 degF
4	41181.00	cps	248.00 degF
5	52983.00	cps	320.00 degF
6	58931.00	cps	356.00 degF
7		cps	degF
8		cps	degF
9		cps	degF
10		cps	degF

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: Wed Feb 25 07:37:23 2015

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1086	365.0	1451	385.0	1836	399.0	2235
Finger 02:	1039	373.0	1412	400.0	1812	424.0	2236
Finger 03:	1041	363.0	1404	386.0	1790	414.0	2204
Finger 04:	1011	379.0	1390	407.0	1797	437.0	2234
Finger 05:	1016	360.0	1376	381.0	1757	408.0	2165
Finger 06:	1026	377.0	1403	395.0	1798	424.0	2222
Finger 07:	1034	373.0	1407	388.0	1795	415.0	2210
Finger 08:	1004	373.0	1377	400.0	1777	433.0	2210
Finger 09:	1081	381.0	1462	388.0	1850	404.0	2254
Finger 10:	1070	381.0	1451	394.0	1845	417.0	2262
Finger 11:	1014	376.0	1390	395.0	1785	423.0	2208
Finger 12:	1125	374.0	1499	372.0	1871	386.0	2257
Finger 13:	1070	372.0	1442	391.0	1833	418.0	2251

Finger 14:	1041	383.0	1424	407.0	1831	431.0	2262
Finger 15:	1014	378.0	1392	408.0	1800	437.0	2237
Finger 16:	1053	371.0	1424	400.0	1824	423.0	2247
Finger 17:	1102	363.0	1465	386.0	1851	402.0	2253
Finger 18:	1147	366.0	1513	389.0	1902	411.0	2313
Finger 19:	1096	368.0	1464	398.0	1862	416.0	2278
Finger 20:	1025	367.0	1392	404.0	1796	425.0	2221
Finger 21:	1086	355.0	1441	389.0	1830	412.0	2242
Finger 22:	1078	358.0	1436	395.0	1831	415.0	2246
Finger 23:	1134	359.0	1493	394.0	1887	411.0	2298
Finger 24:	1101	333.0	1434	363.0	1797	384.0	2181
Finger 25:	1121	362.0	1483	400.0	1883	414.0	2297
Finger 26:	1068	345.0	1413	389.0	1802	409.0	2211
Finger 27:	1241	369.0	1610	398.0	2008	407.0	2415
Finger 28:	1111	339.0	1450	380.0	1830	406.0	2236
Finger 29:	1054	349.0	1403	394.0	1797	417.0	2214
Finger 30:	1021	344.0	1365	396.0	1761	422.0	2183
Finger 31:	1246	379.0	1625	409.0	2034	414.0	2448
Finger 32:	1030	346.0	1376	384.0	1760	404.0	2164
Finger 33:	1214	385.0	1599	419.0	2018	433.0	2451
Finger 34:	994	346.0	1340	389.0	1729	414.0	2143
Finger 35:	1142	373.0	1515	408.0	1923	424.0	2347
Finger 36:	1036	336.0	1372	371.0	1743	391.0	2134
Finger 37:	1082	364.0	1446	395.0	1841	418.0	2259
Finger 38:	1090	352.0	1442	380.0	1822	399.0	2221
Finger 39:	1068	343.0	1411	367.0	1778	390.0	2168
Finger 40:	991	373.0	1364	410.0	1774	441.0	2215

Segmented Cement Bond Log Calibration Report

Serial Number: 1063
Tool Model: UW_RBT_004

Calibration Casing Diameter: 5.500 in
Calibration Depth: 938.903 ft

Master Calibration, performed Wed Feb 25 08:17:41 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.004	0.693	1.000	62.200	87.836	1.309
5FT	-0.006	0.717	1.000	62.200	84.694	1.517
S1	-0.004	0.704	0.000	100.000	141.308	0.586
S2	-0.004	0.720	0.000	100.000	138.180	0.506
S3	-0.005	0.716	0.000	100.000	138.683	0.648
S4	-0.005	0.723	0.000	100.000	137.445	0.641
S5	-0.004	0.702	0.000	100.000	141.667	0.541
S6	-0.004	0.681	0.000	100.000	146.002	0.535
S7	-0.005	0.677	0.000	100.000	146.697	0.668
S8	-0.005	0.679	0.000	100.000	146.169	0.714

Gamma Ray Calibration Report

Serial Number: 211727
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	Greenleaf 30N-2HZ
Field	Wattenberg
County	Weld
State	Colorado