

Radial Cement Bond Gamma Ray Casing Collar Log

Company	Whiting Oil & Gas Corporation	Company	Whiting Oil & Gas Corporation
Well	Razor 330-2811	Well	Razor 330-2811
Field	Wildcat	Field	Wildcat
County	Weld	County	Weld
State	Colorado	State	Colorado
Location:	API #: 05-123-39308		
Permanent Datum	SEC 33 TWP 10N RGE 58W	Ground Level	Elevation 4715'
Log Measured From	Kelly Bushing	21 FT	Elevation 4715'
Drilling Measured From	Kelly Bushing		Elevation 4715'
		Other Services	Gauge Ring Set RBP MIT

Date	21-Jan-2015
Run Number	Three
Depth Driller	13146 FT
Depth Logger	5038 FT
Bottom Logged Interval	5033 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	196°F
Estimated Cement Top	62 FT
Time Well Ready	ROA
Time Logger on Bottom	15:50
Equipment Number	HD-0119
Location	Ft. Lupton, CO
Recorded By	J. Houim
Witnessed By	Gary Chandler

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	1549 FT		
Intermediate #1	7	29	P-110	Surface	5973 FT		
Intermediate #2							
Liner	4.5	11.6	P-110	5013 FT	13146 FT		

<<< Fold Here >>>

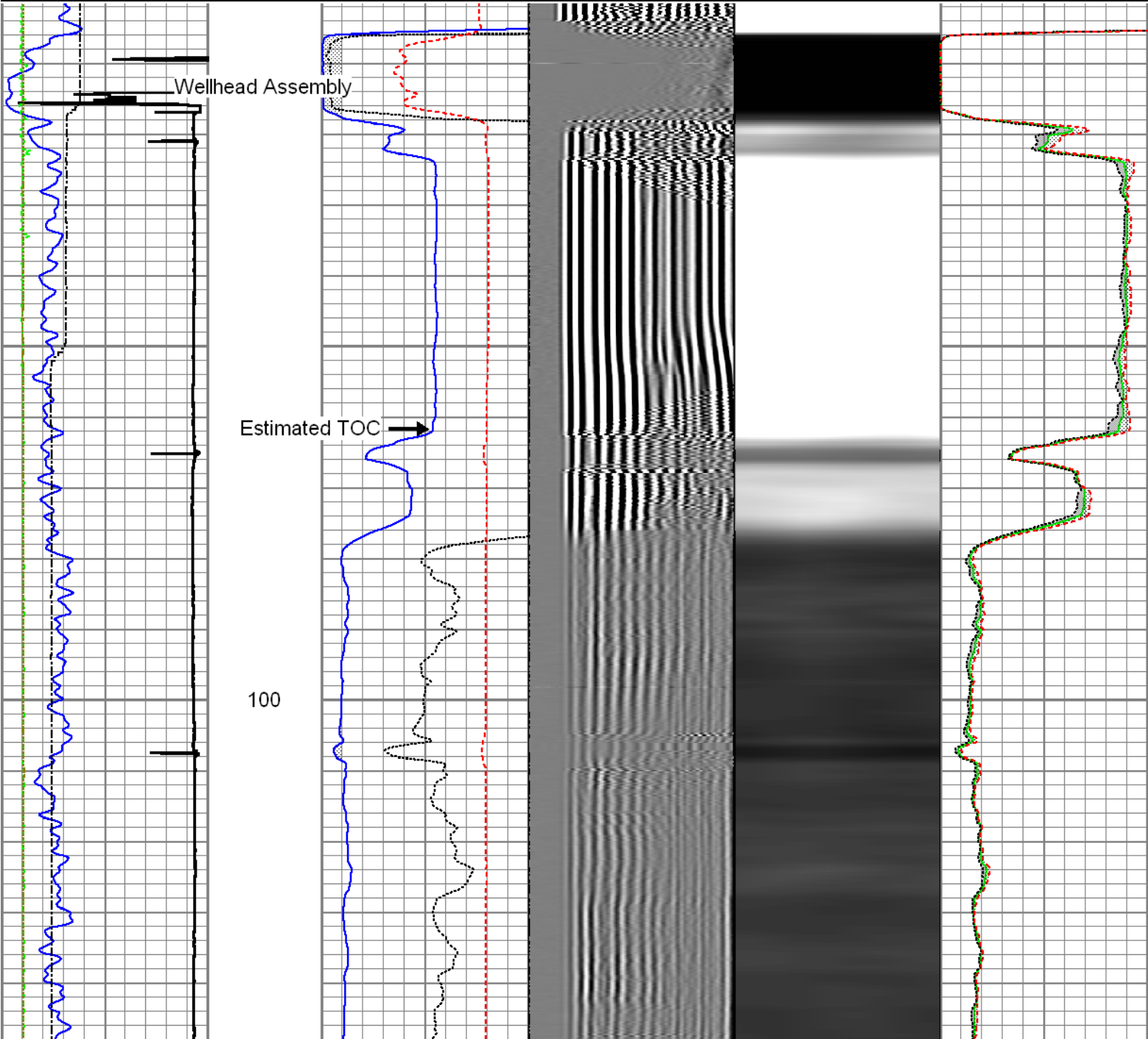
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

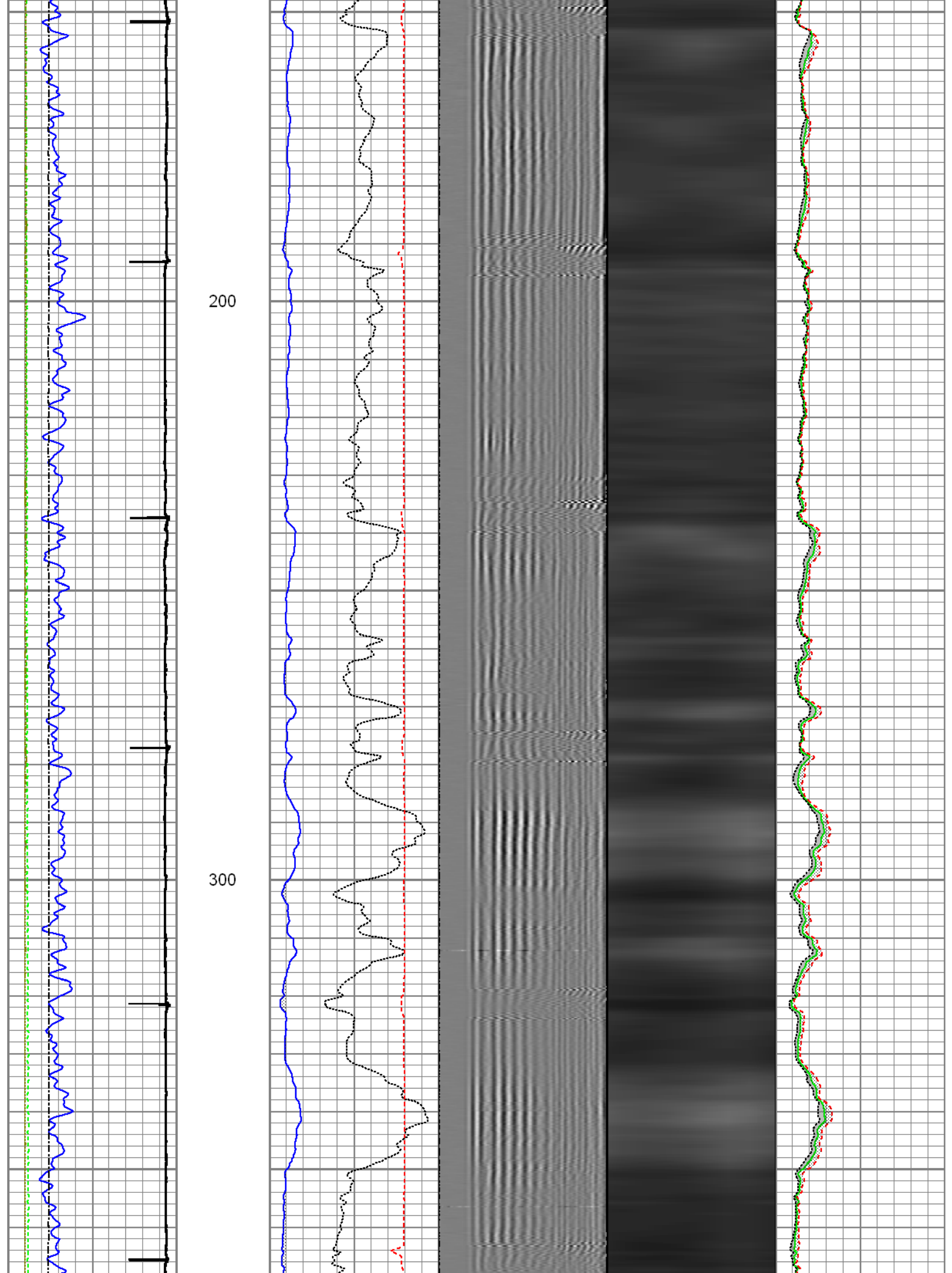
Comments

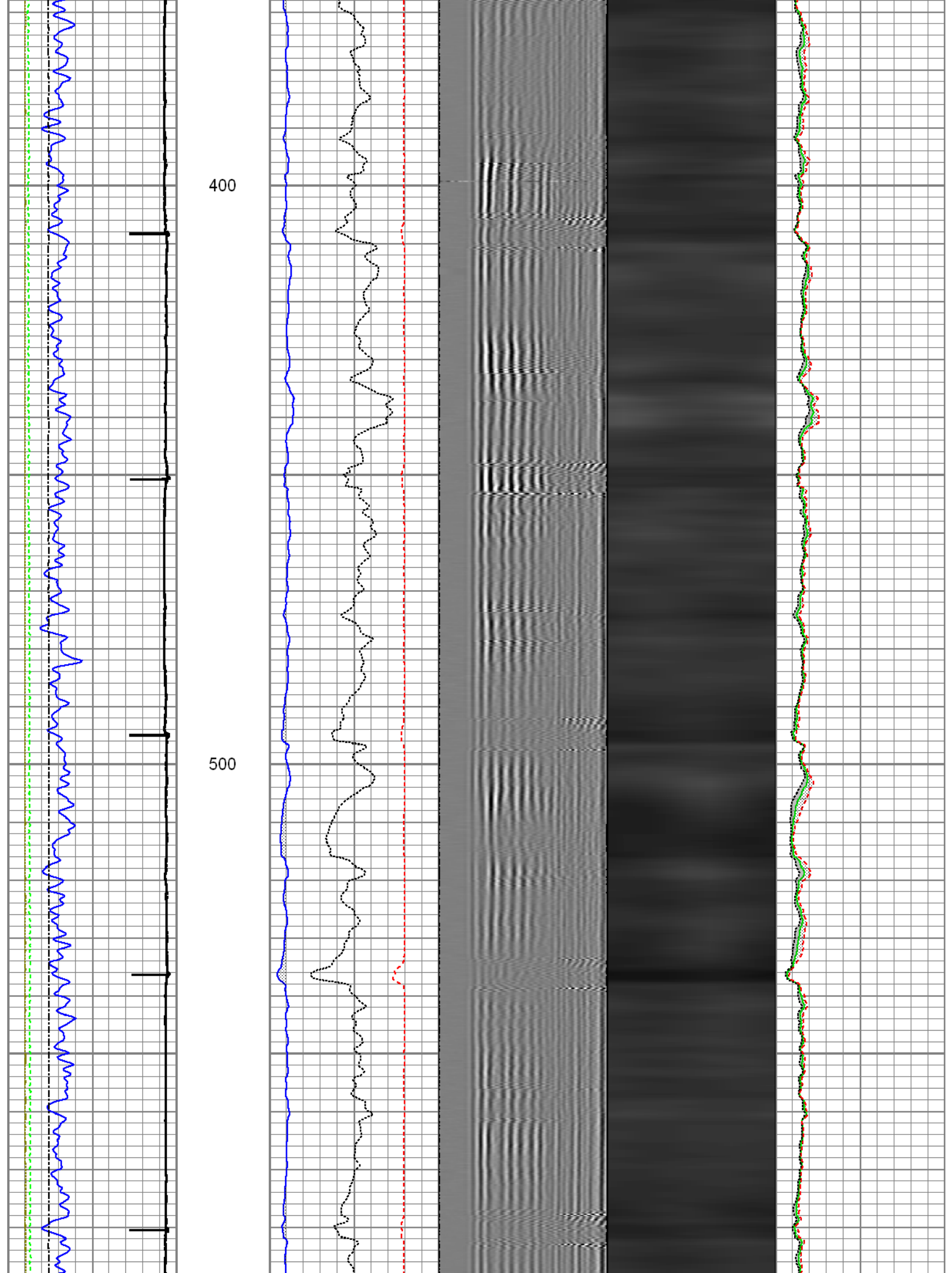
Log ran as per customer request.
 Depth referenced to Casing Tally reported Liner Top at 5013 FT.
 Adjusted -5 FT to correlate with Liner Top.
 Gauge Ring/Junk Basket ran to 5241 FT, had no debris found prior to log run.
 Retrievable Bridge Plug set at 5090 FT prior to log run.
 Log ran from just above RBP to surface.
 Log ran with 1500 PSI surface induced pressure.
 Logging tools were clean and free of any debris upon completion of operations.
 Thank you for choosing FMC Technologies Completion Services, Inc.!!

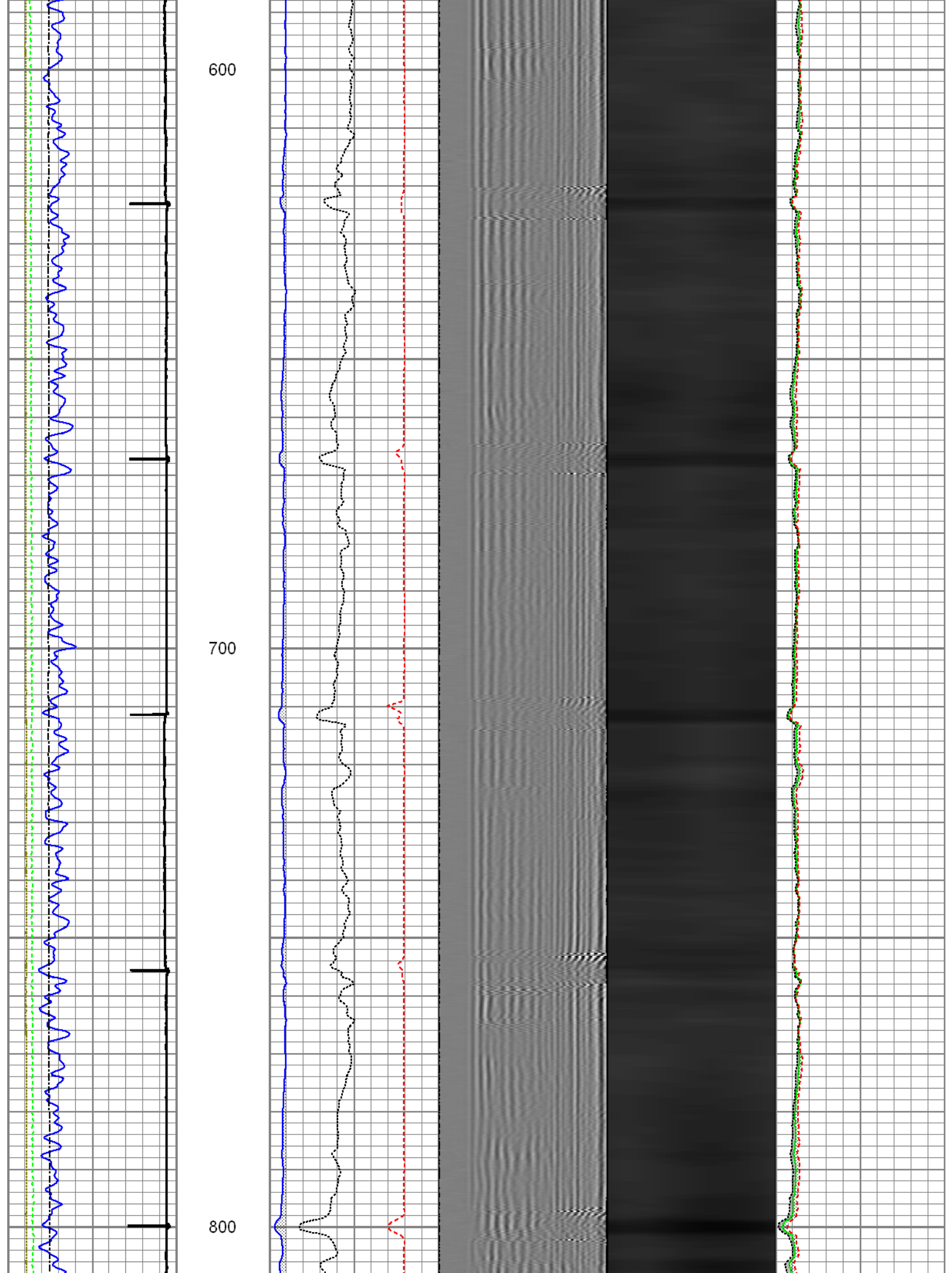
Database File: 01-21-15_whiting_razor 33o-2811_mit_rbl.db
Dataset Pathname: pass2
Presentation Format: rbt4_mit
Dataset Creation: Wed Jan 21 16:00:04 2015 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

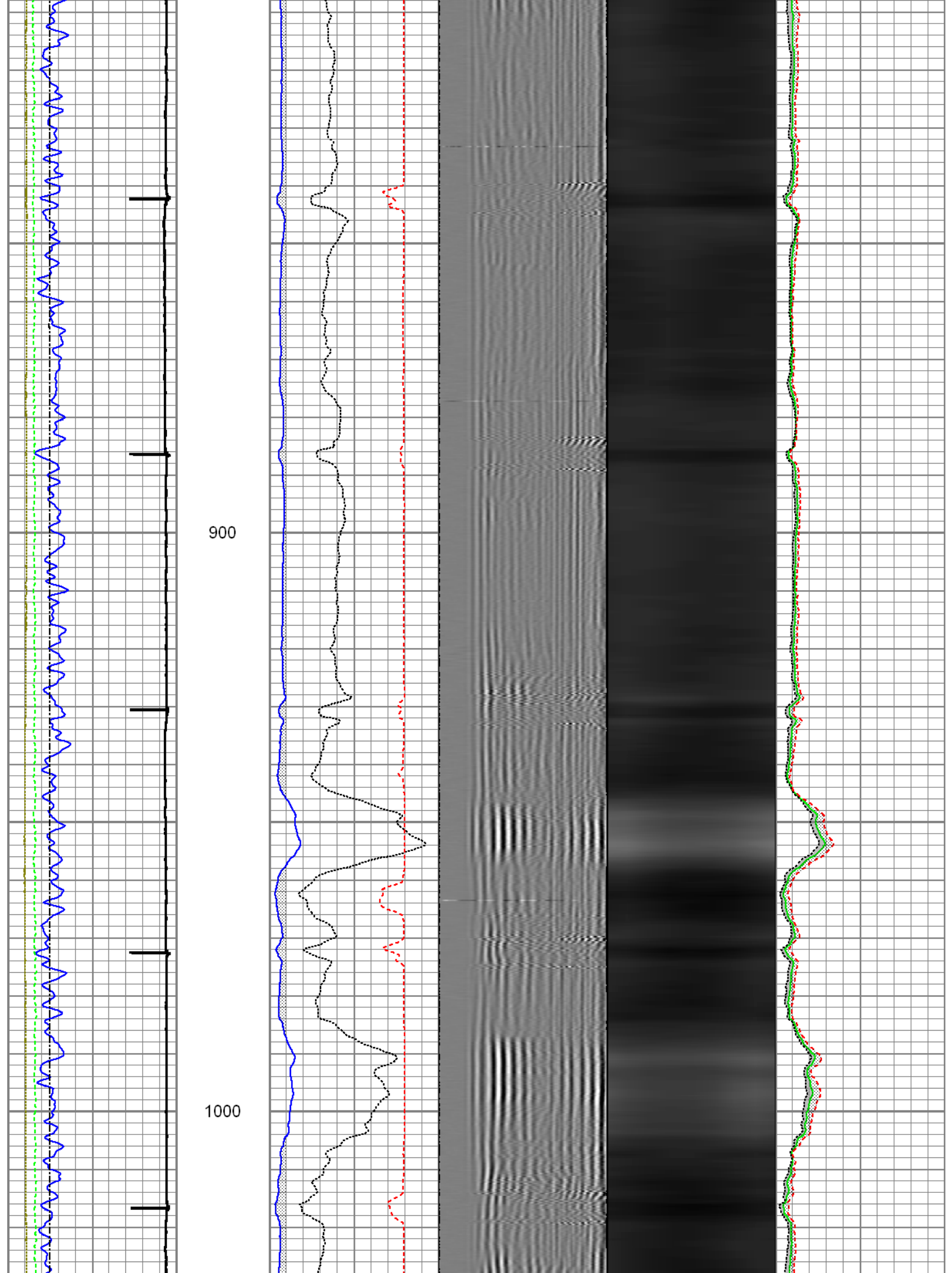
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				
Wellbore Deviation				
-10 (°) 90				

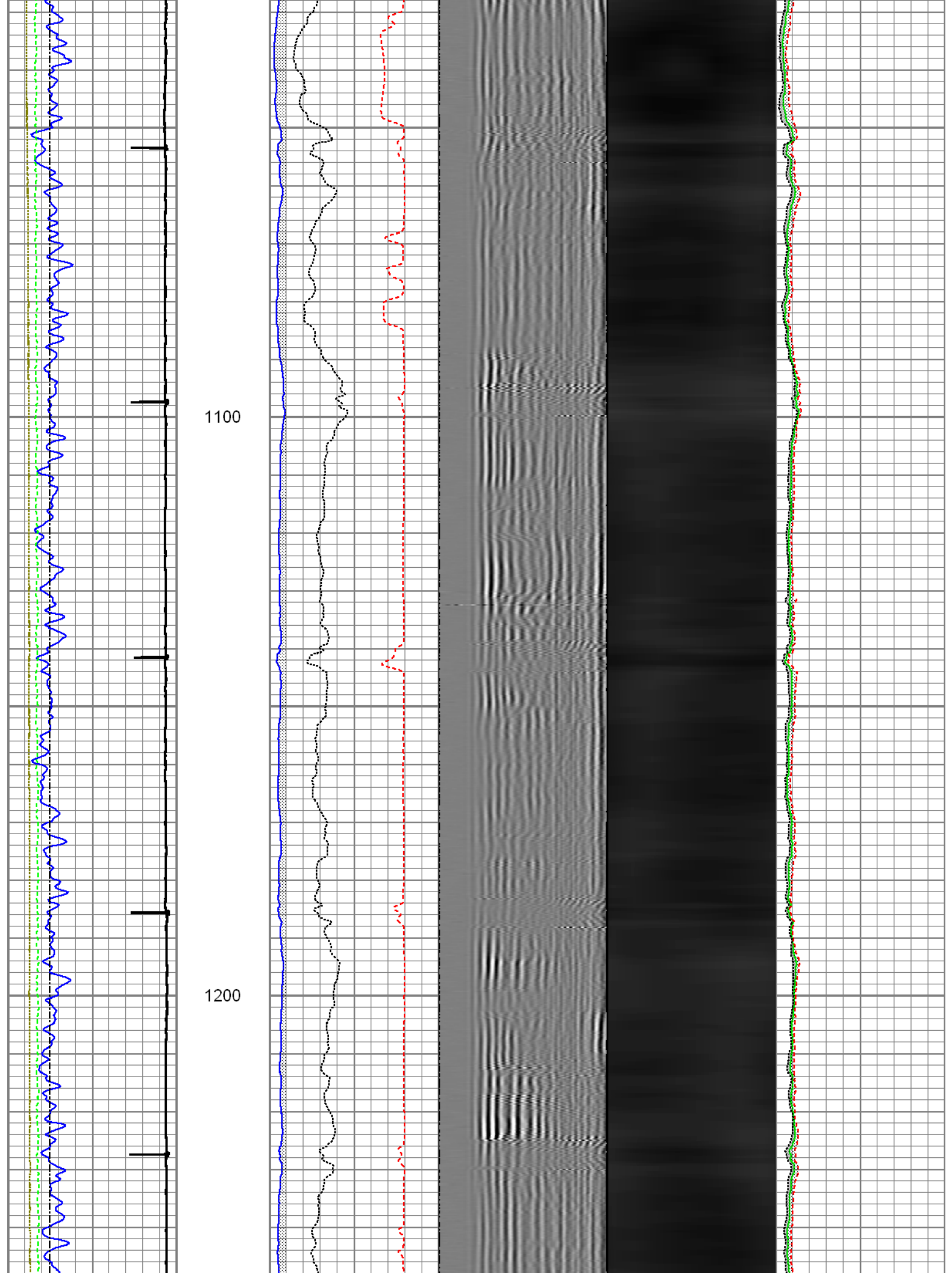


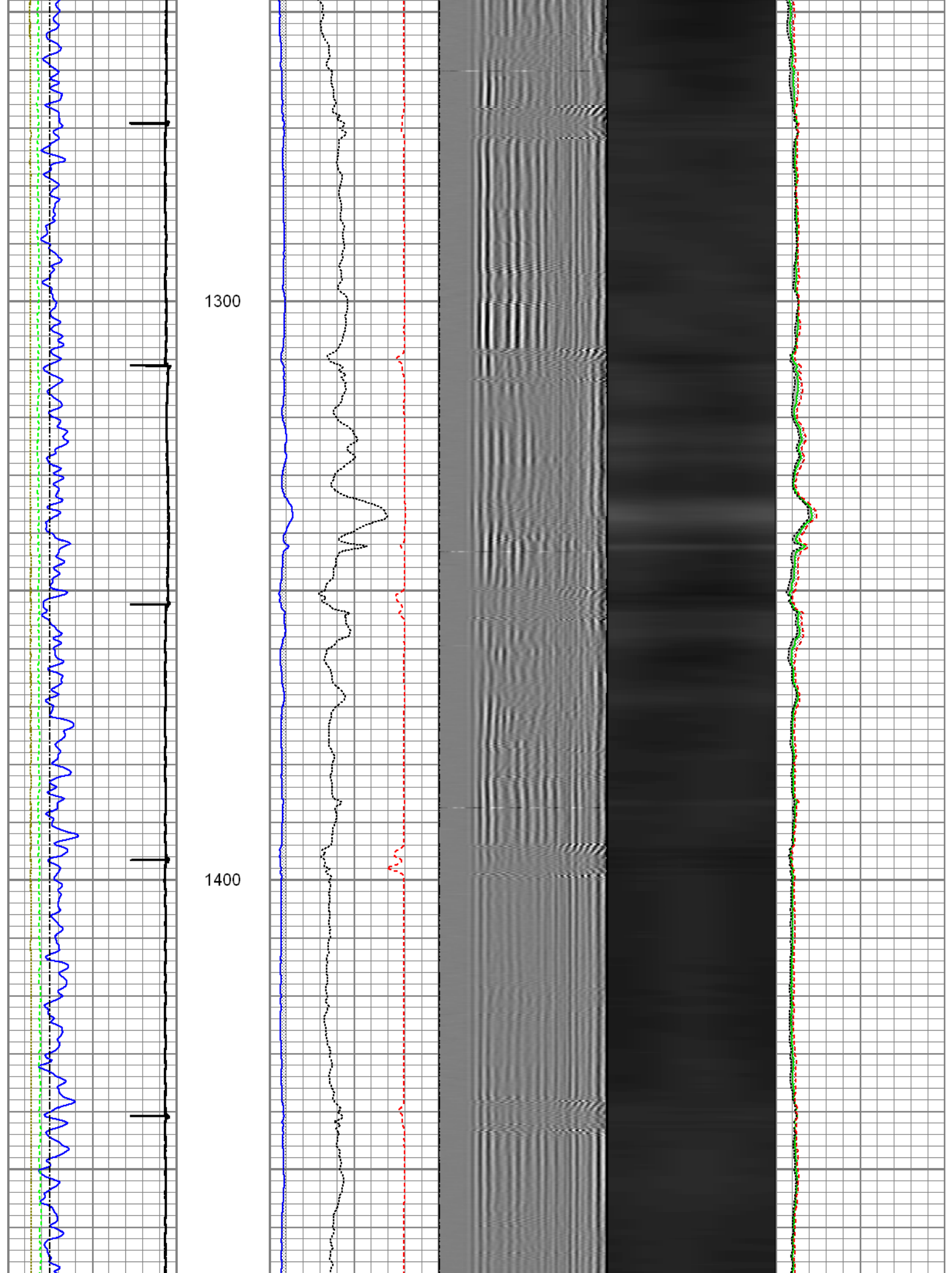


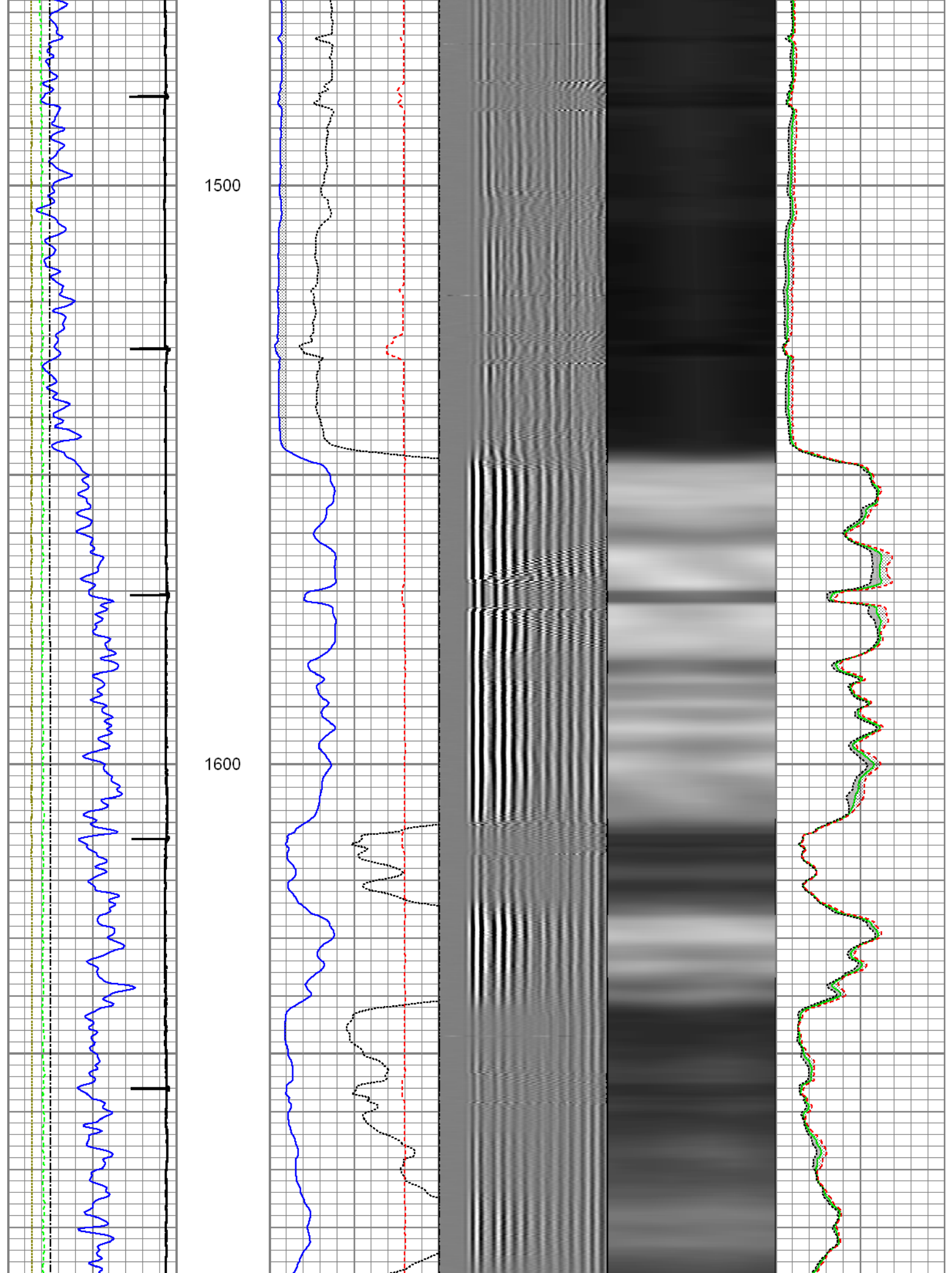


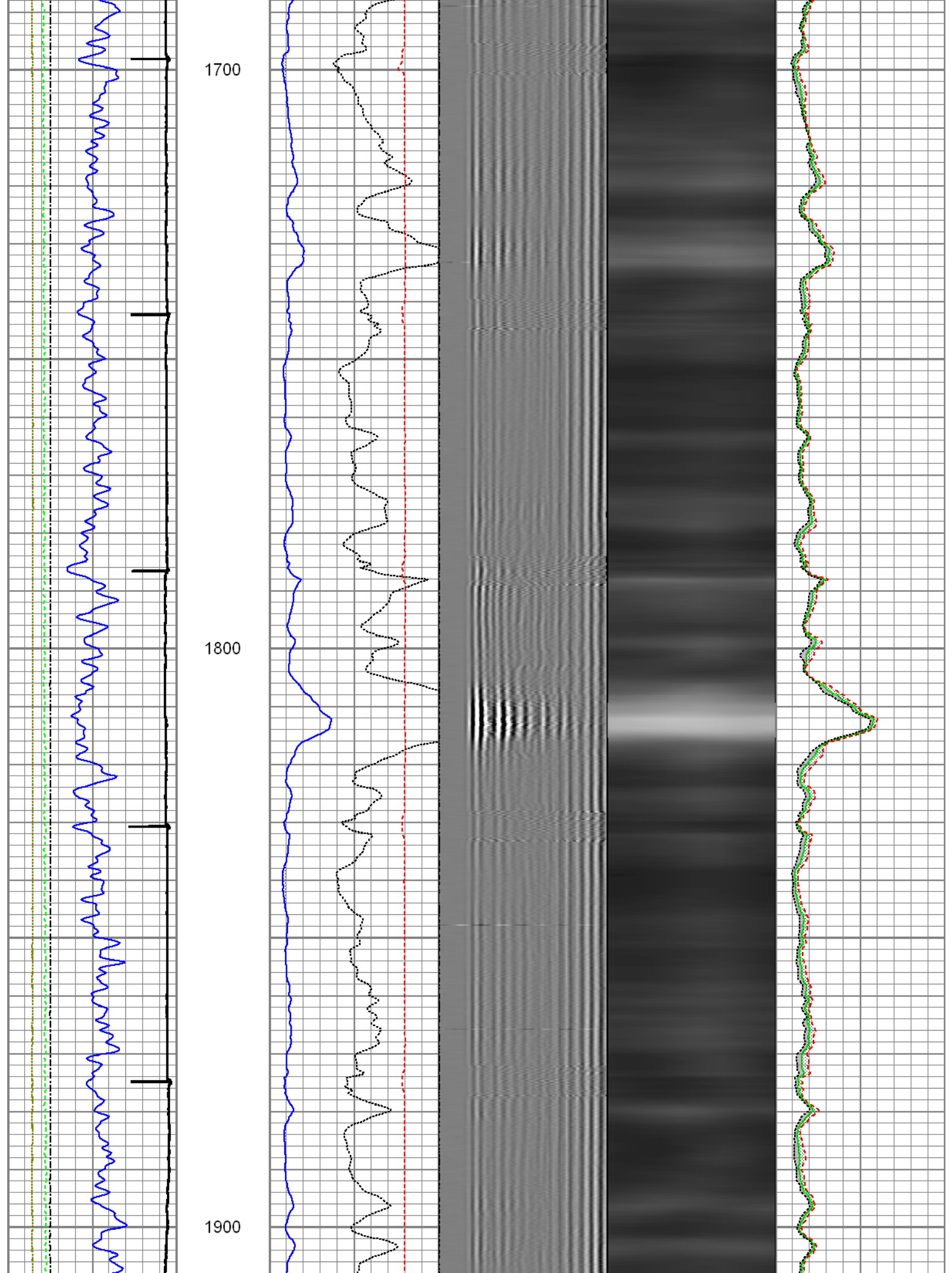


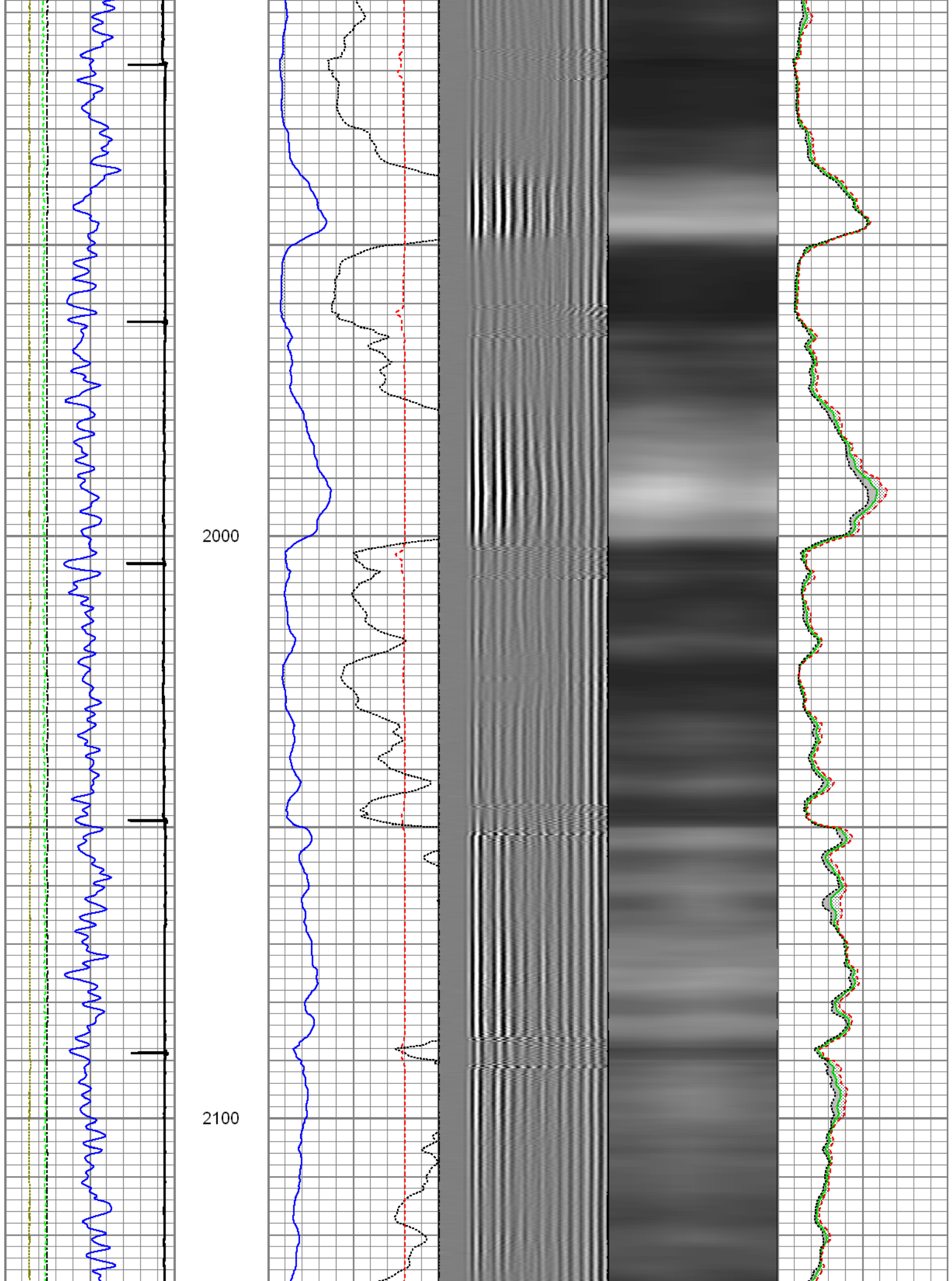


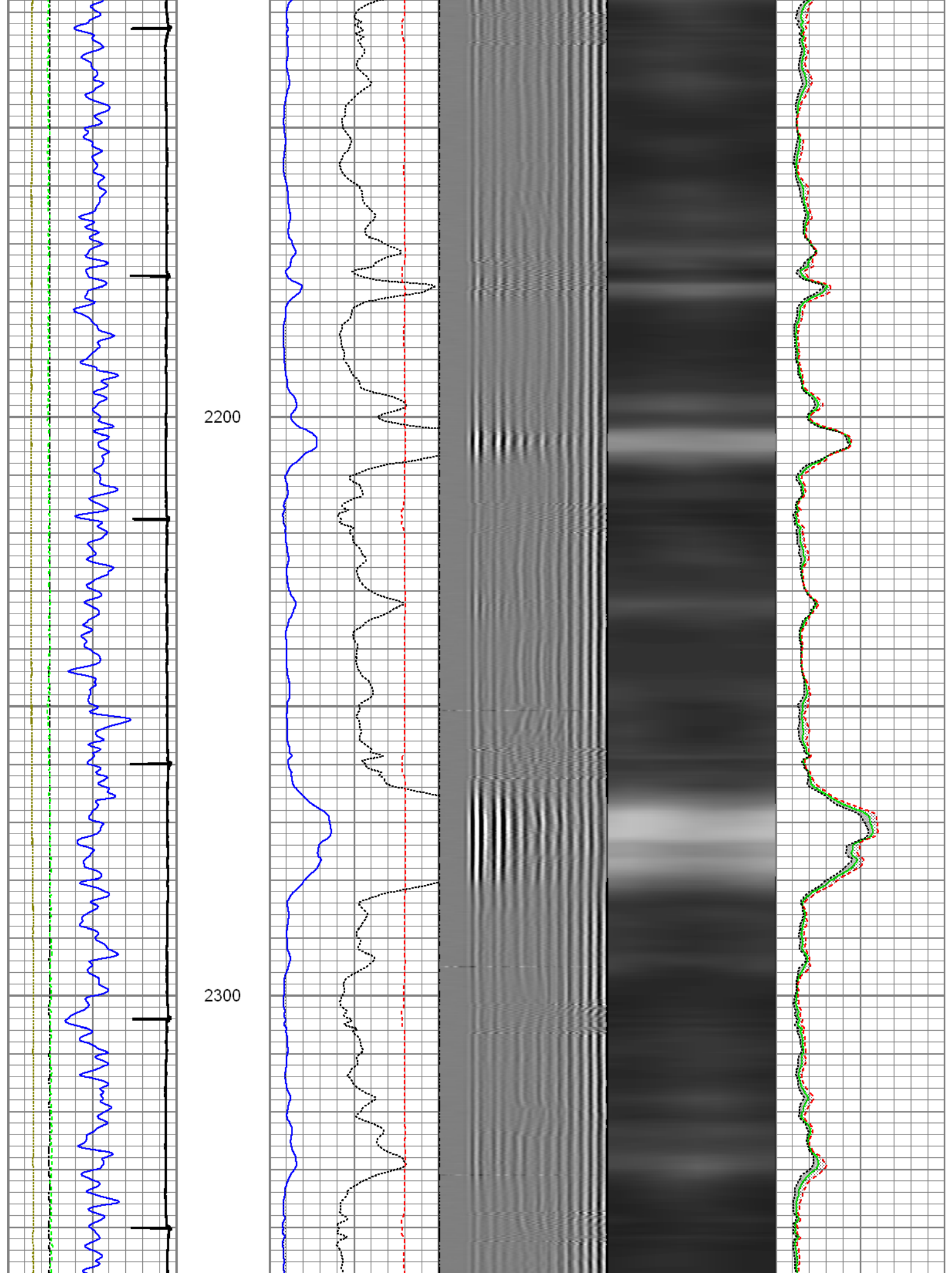


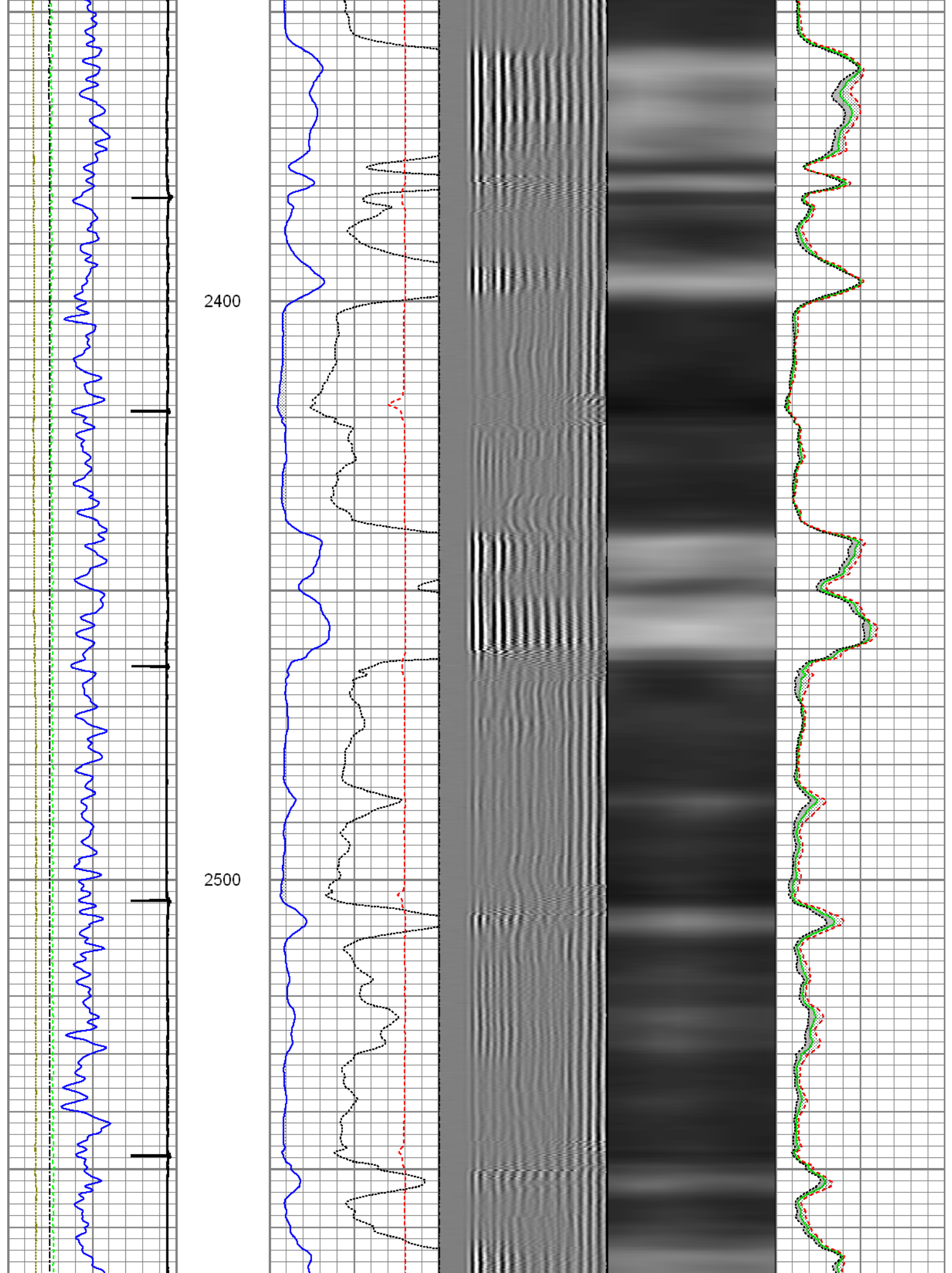


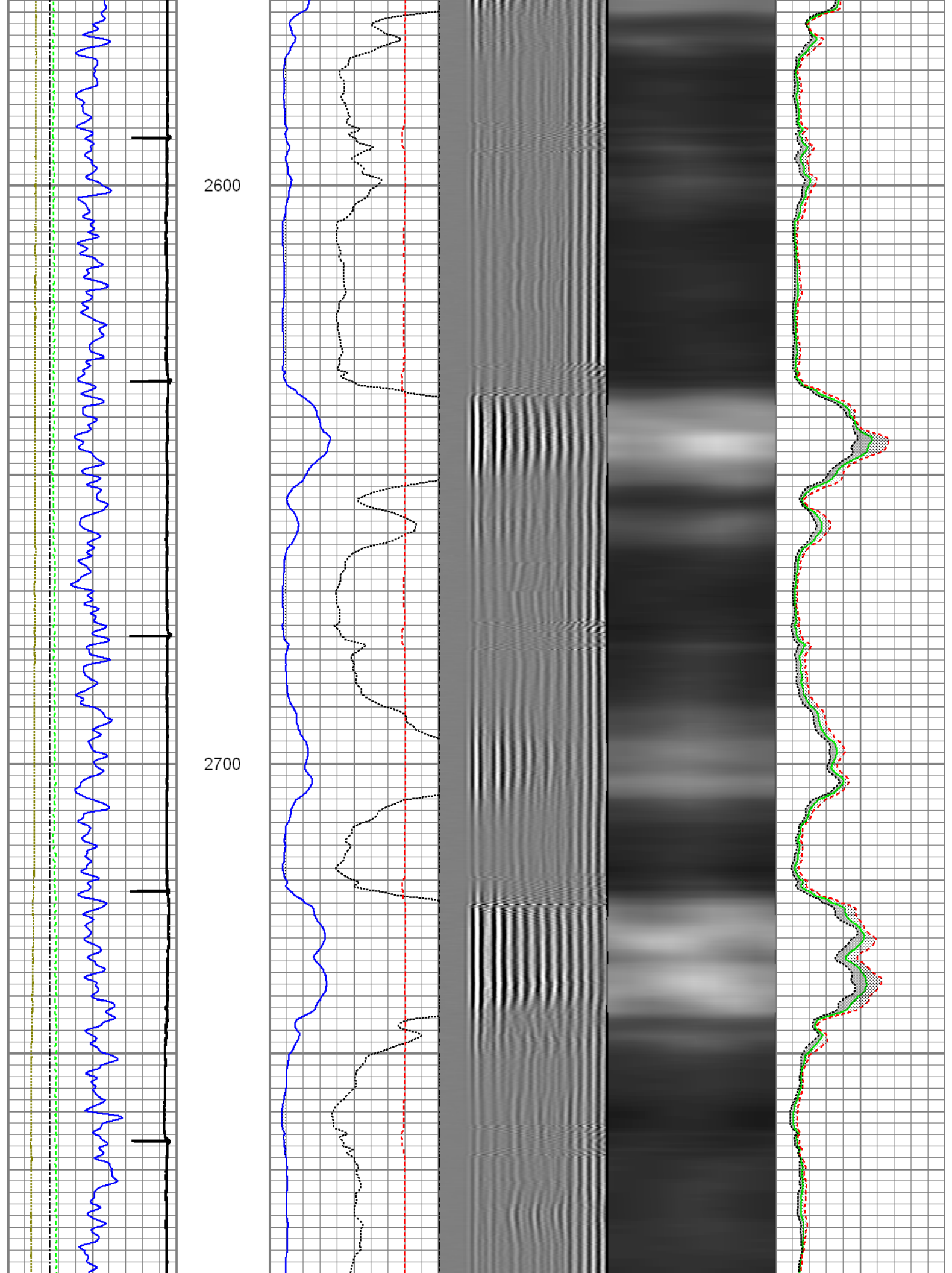


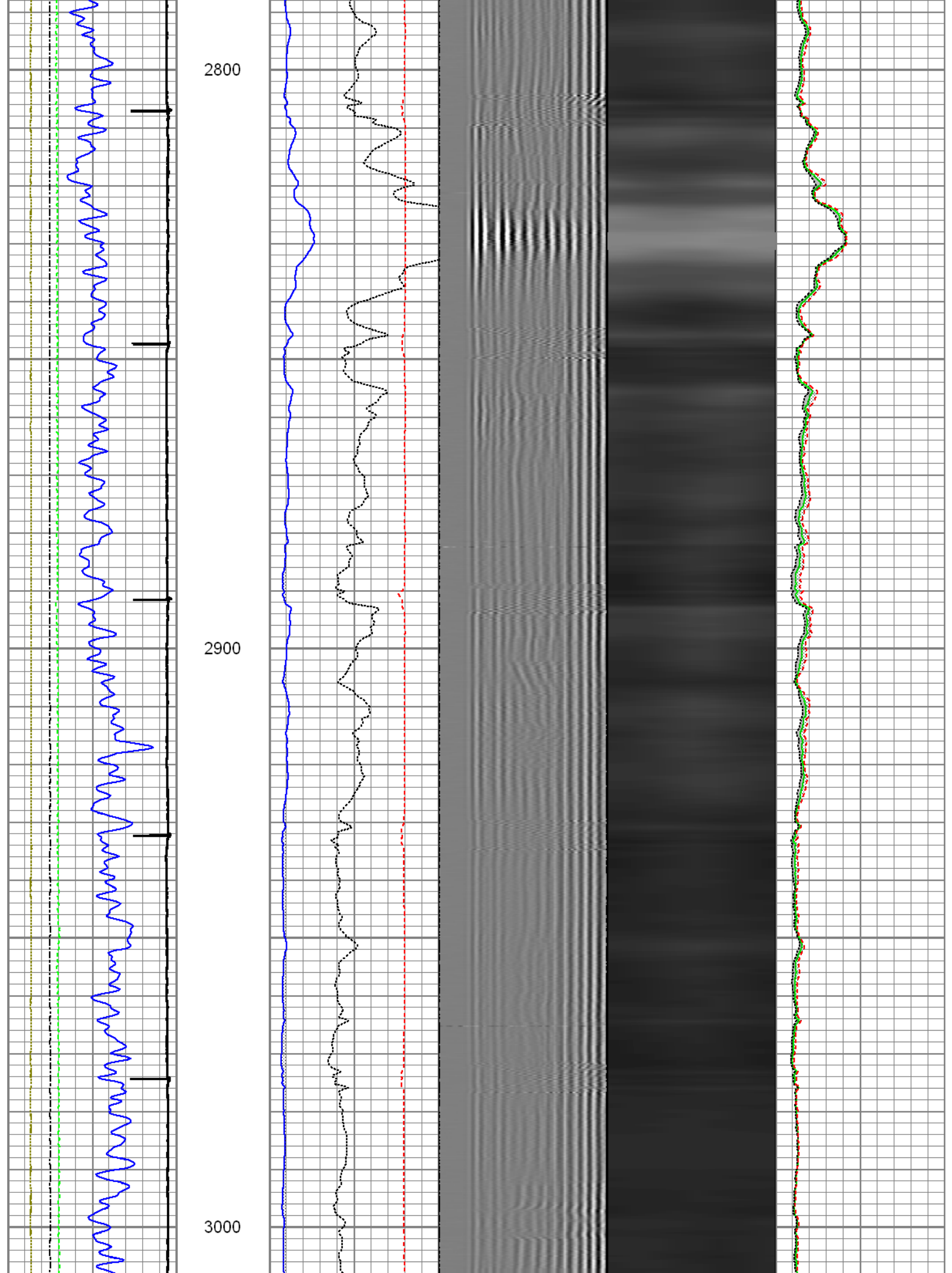


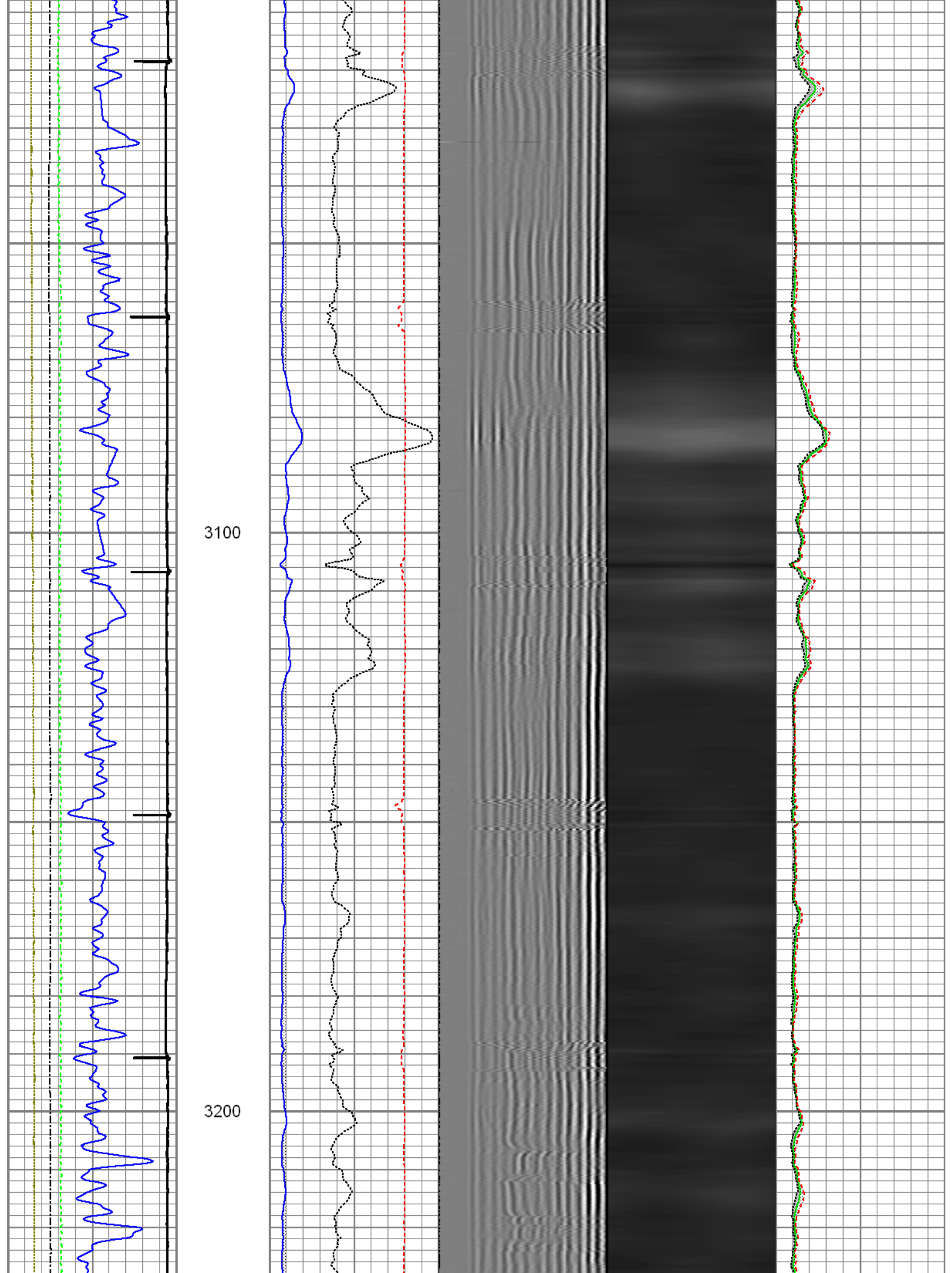


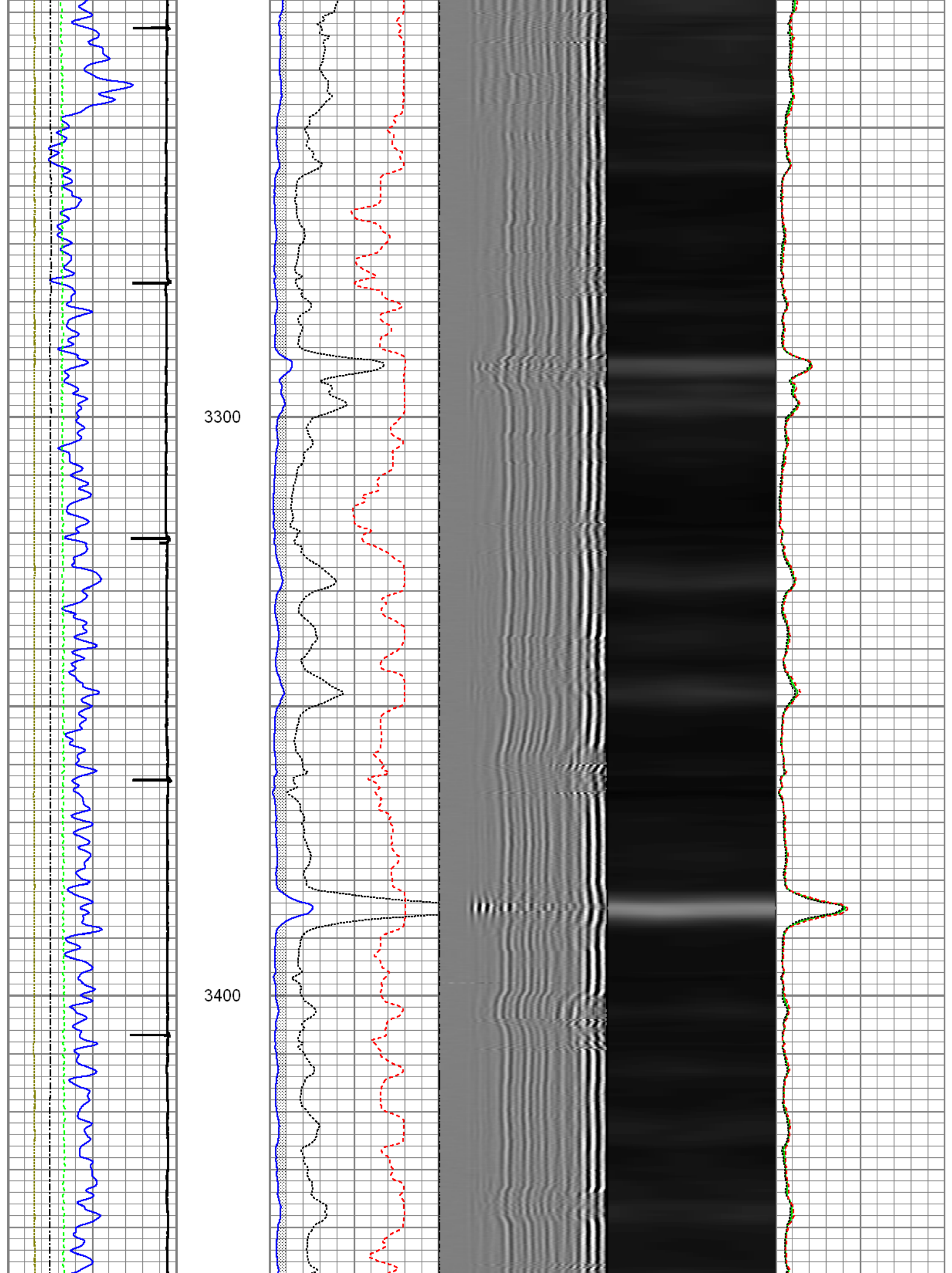


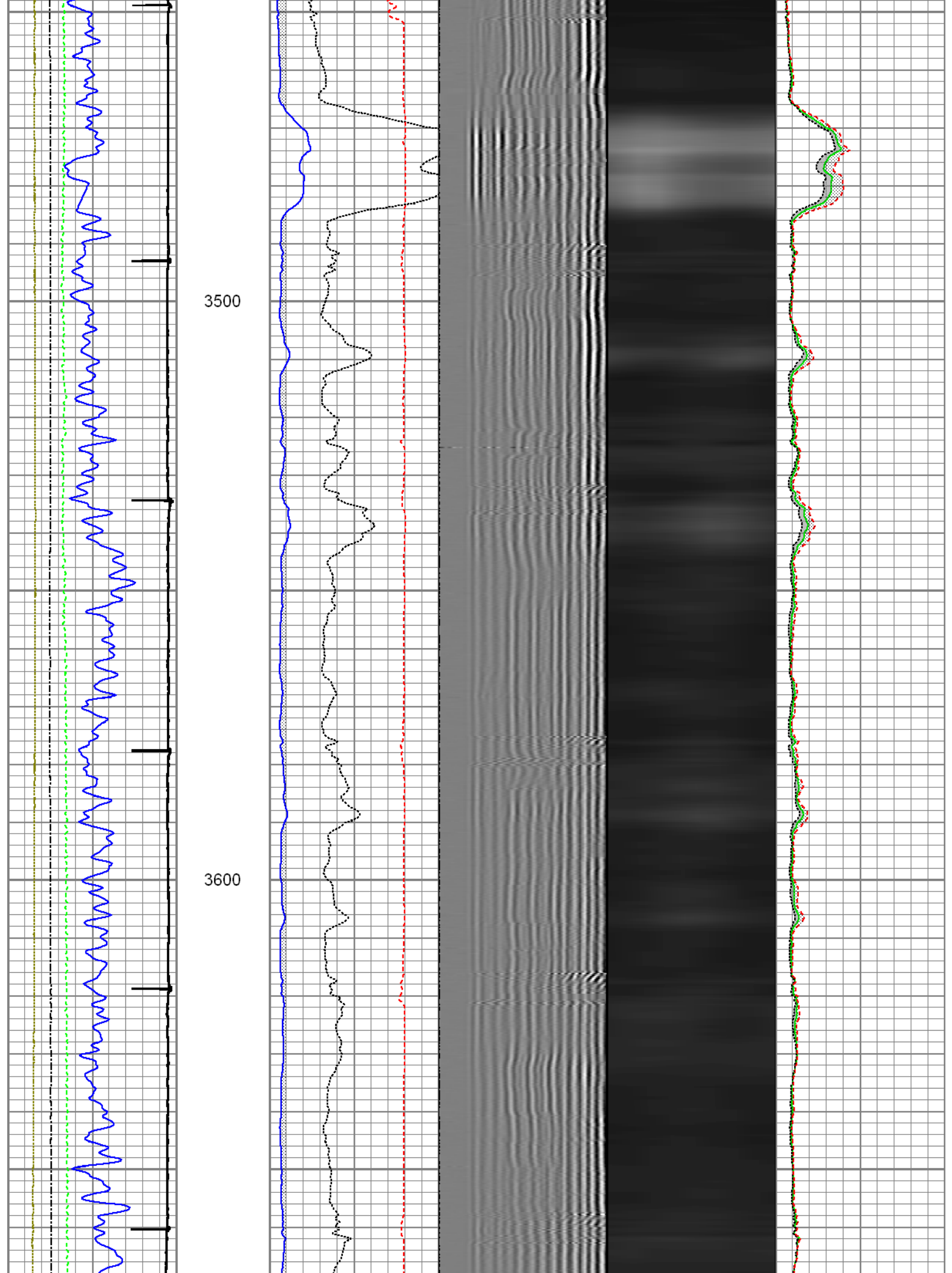


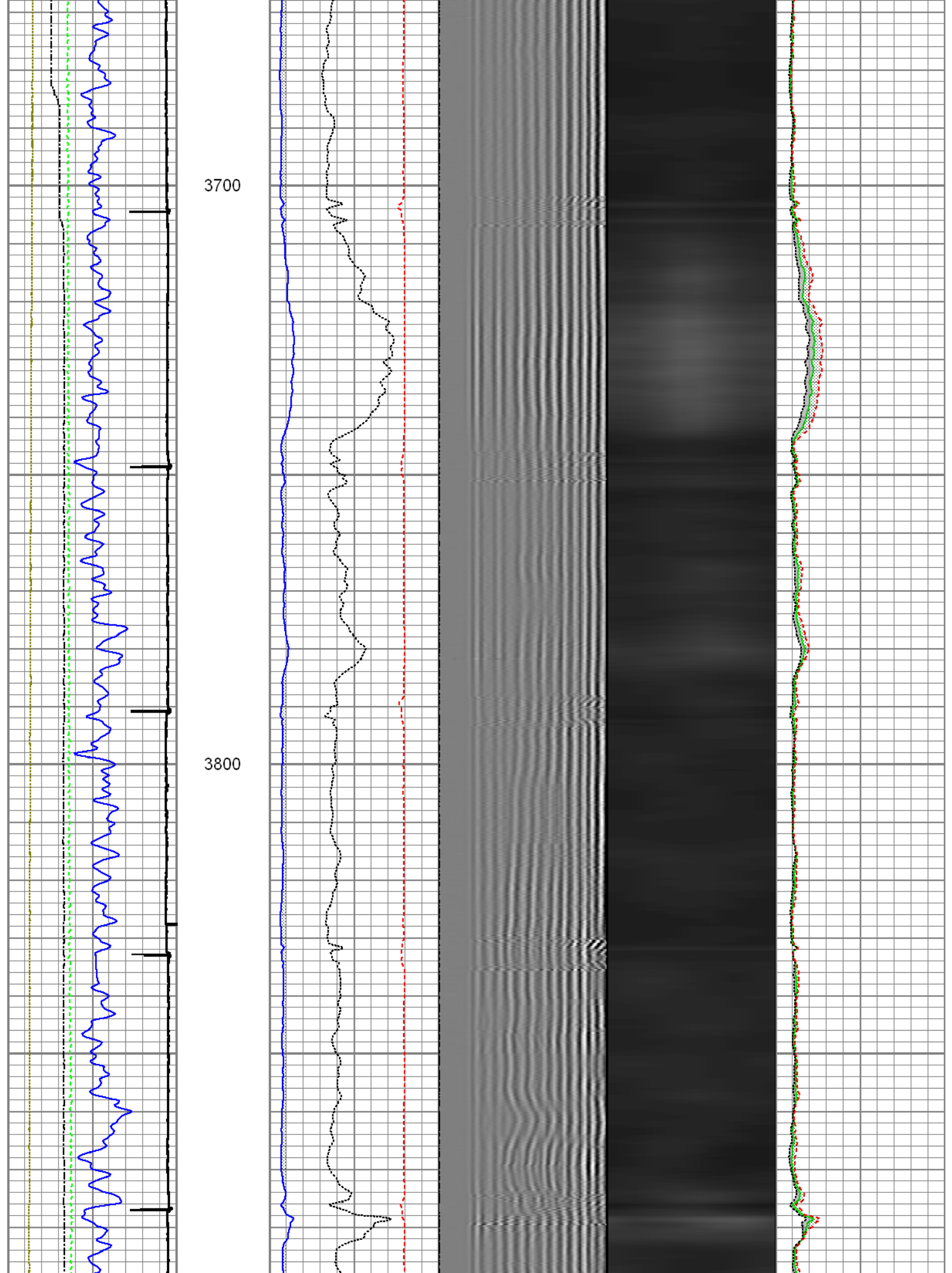








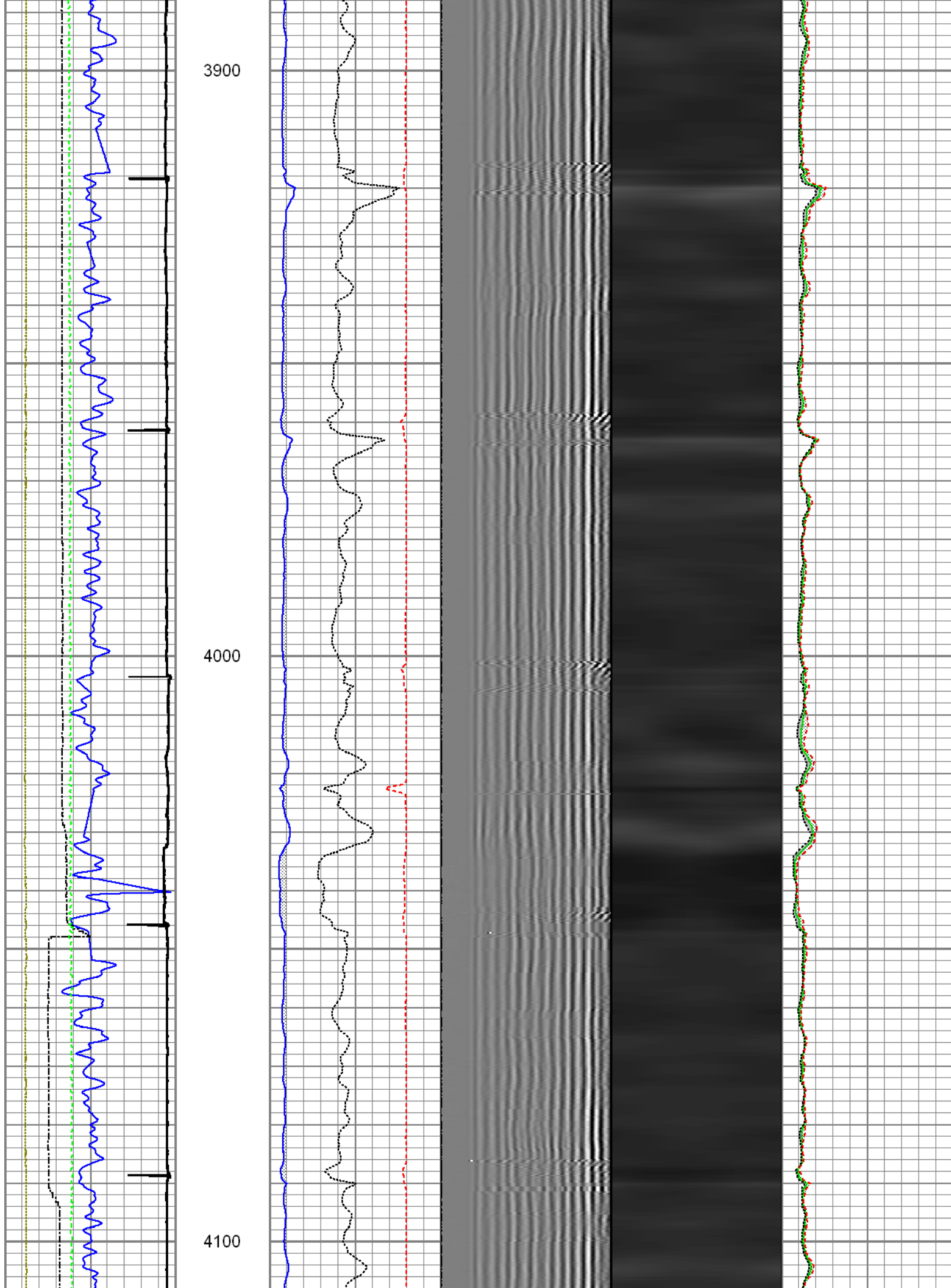


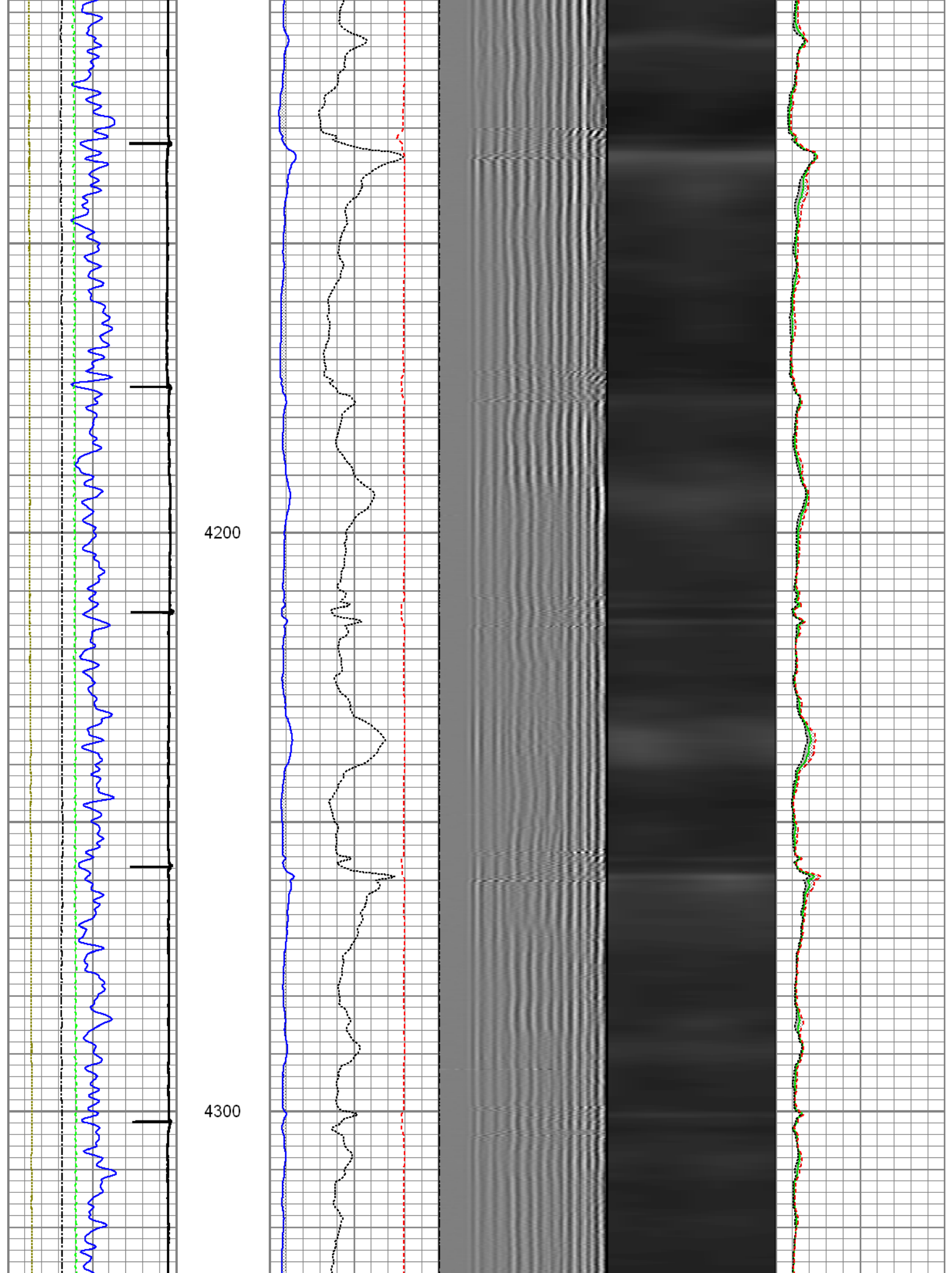


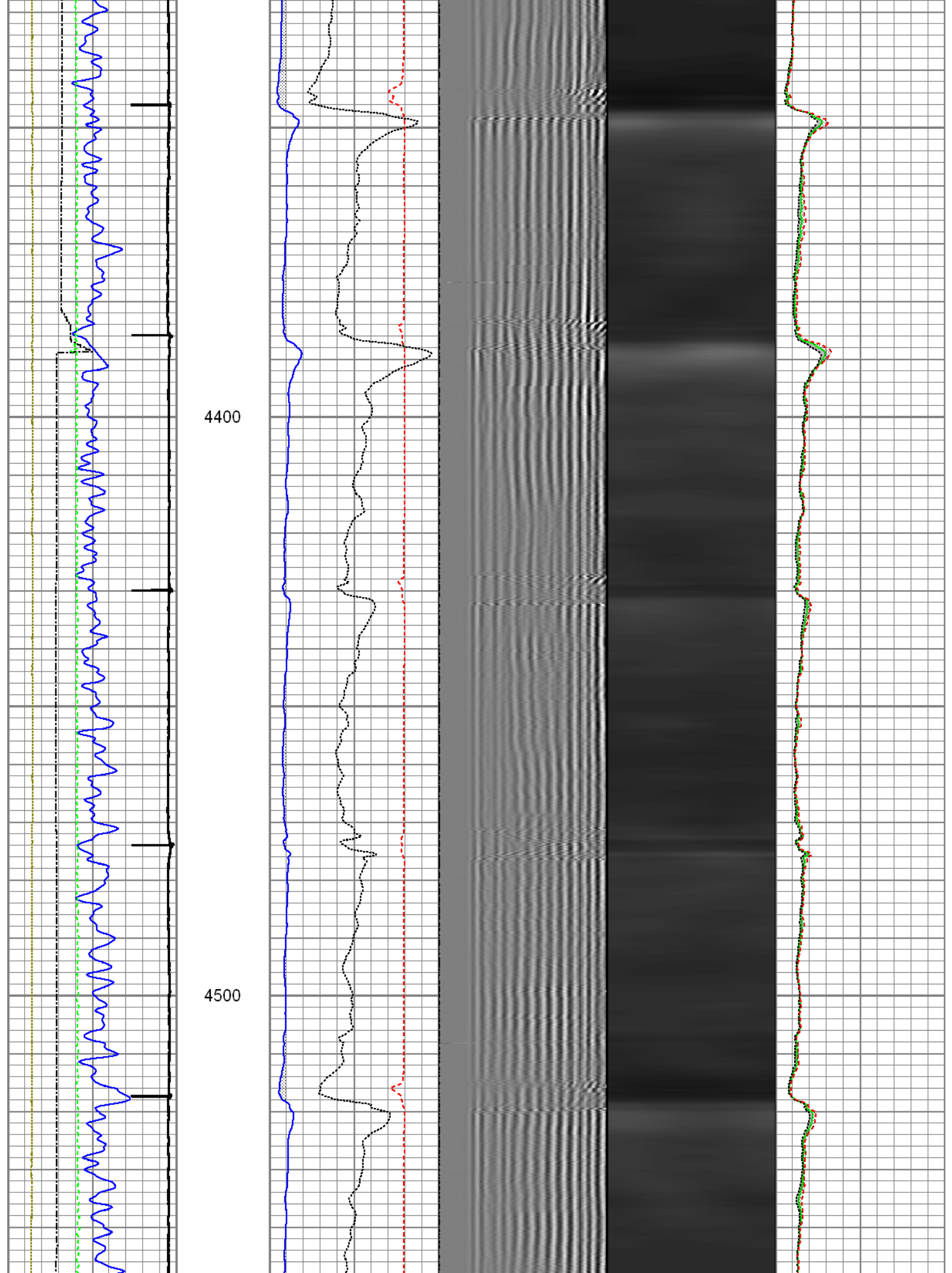
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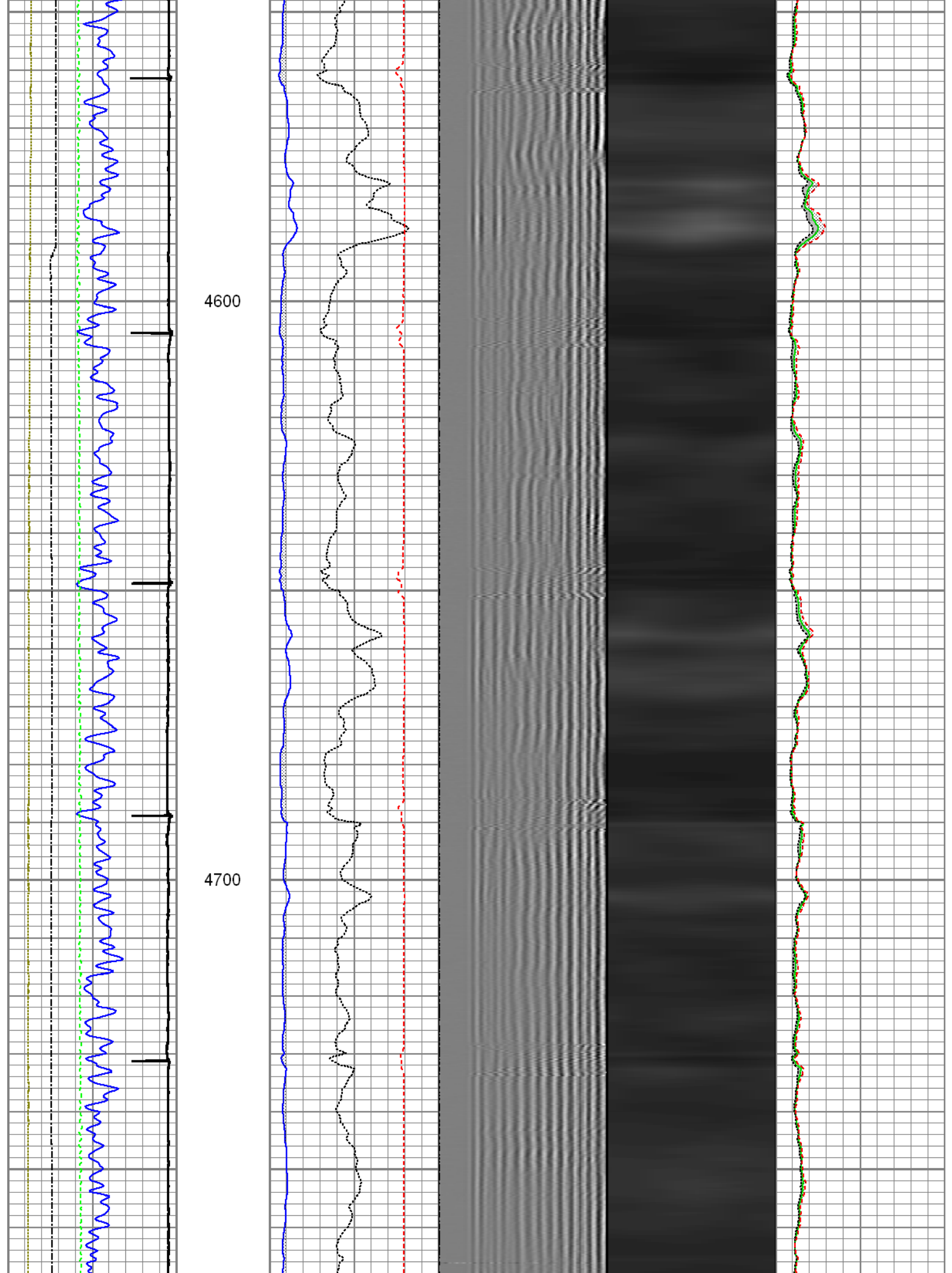
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4100





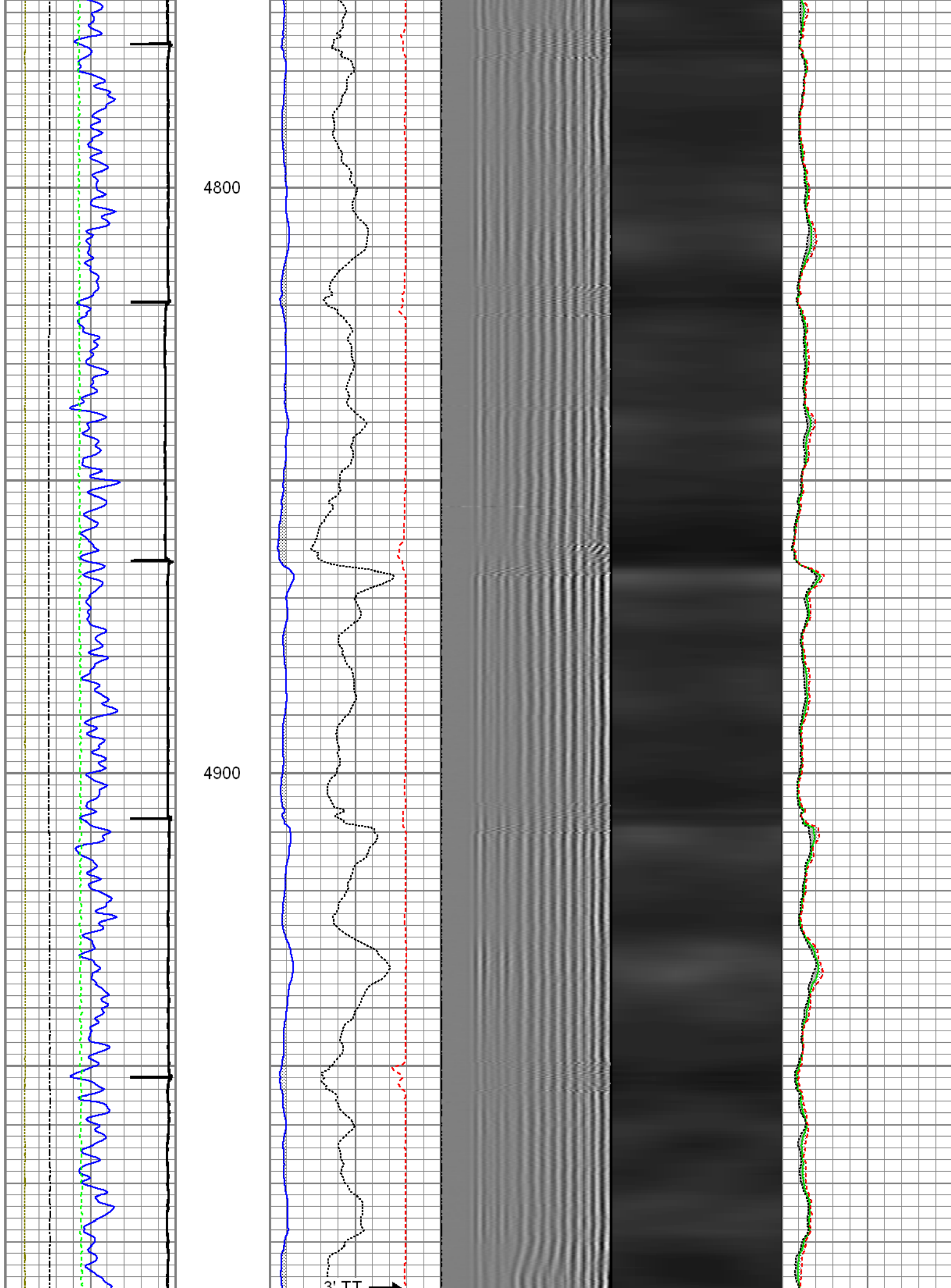


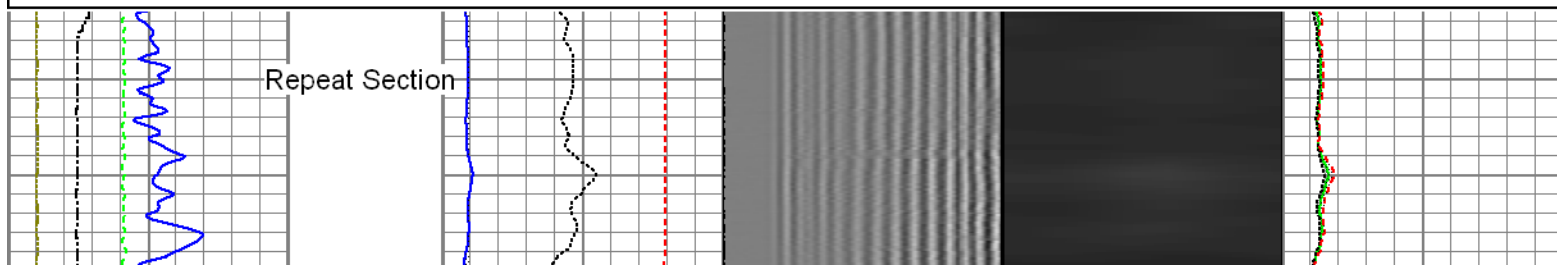
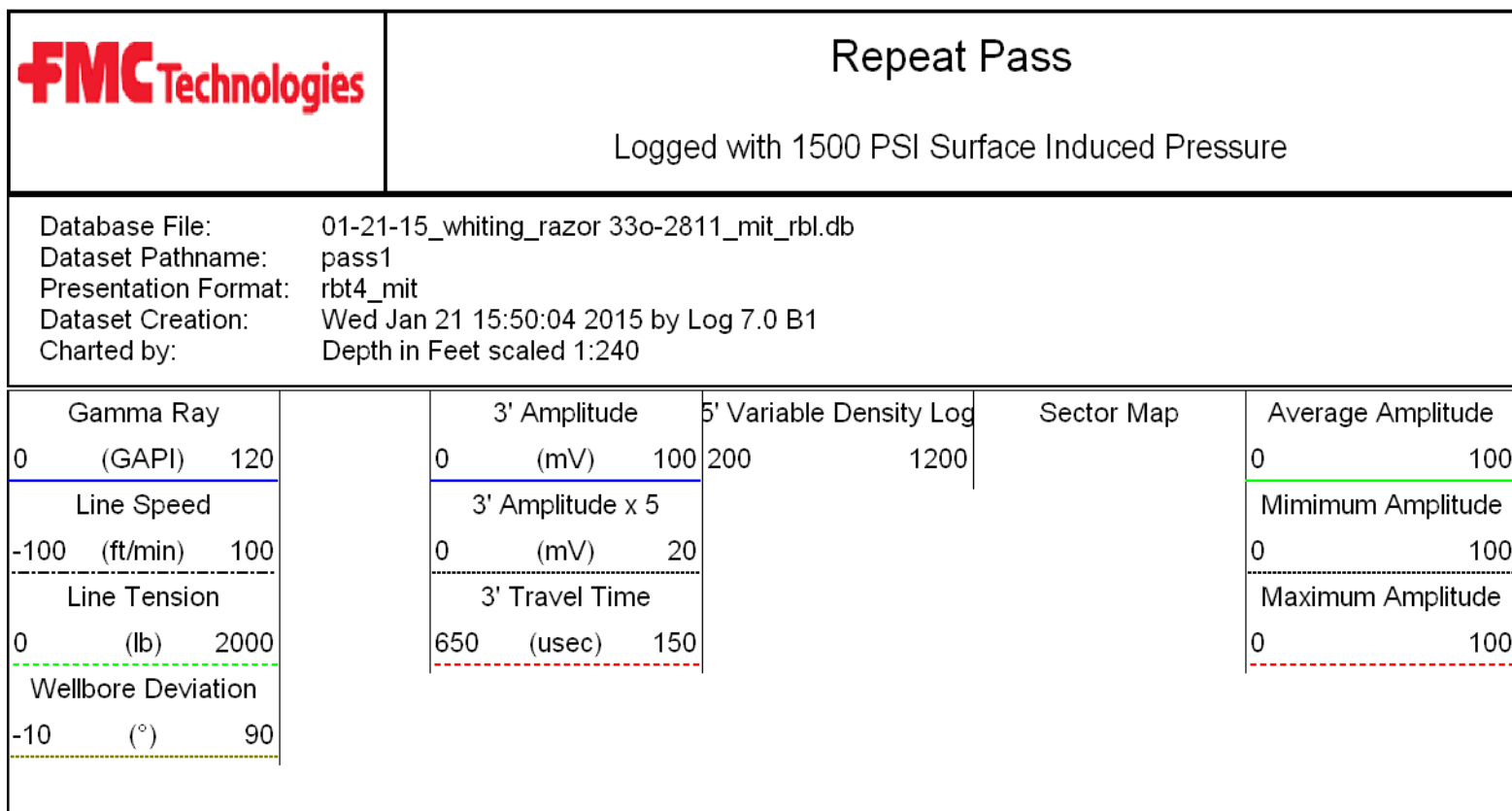
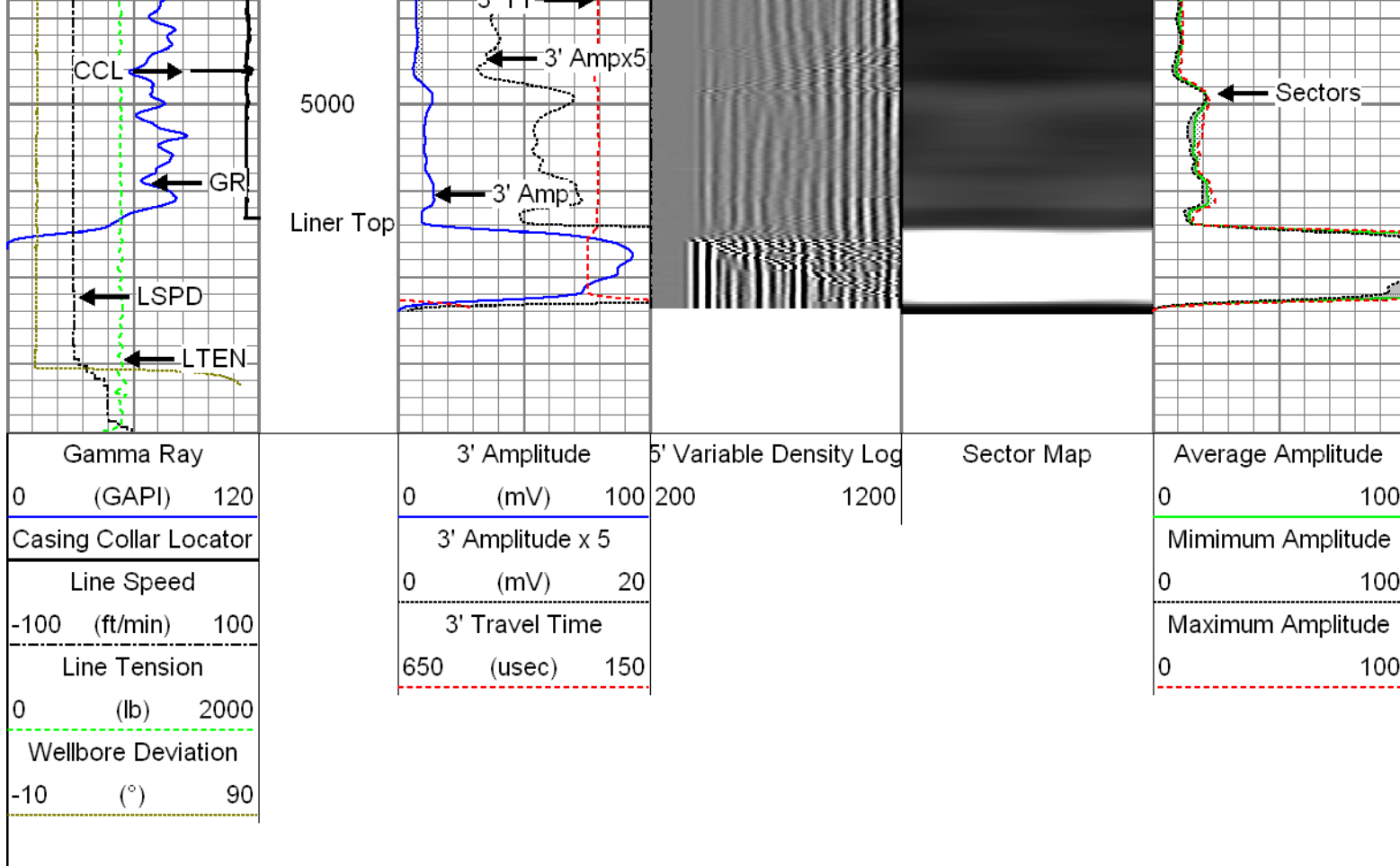


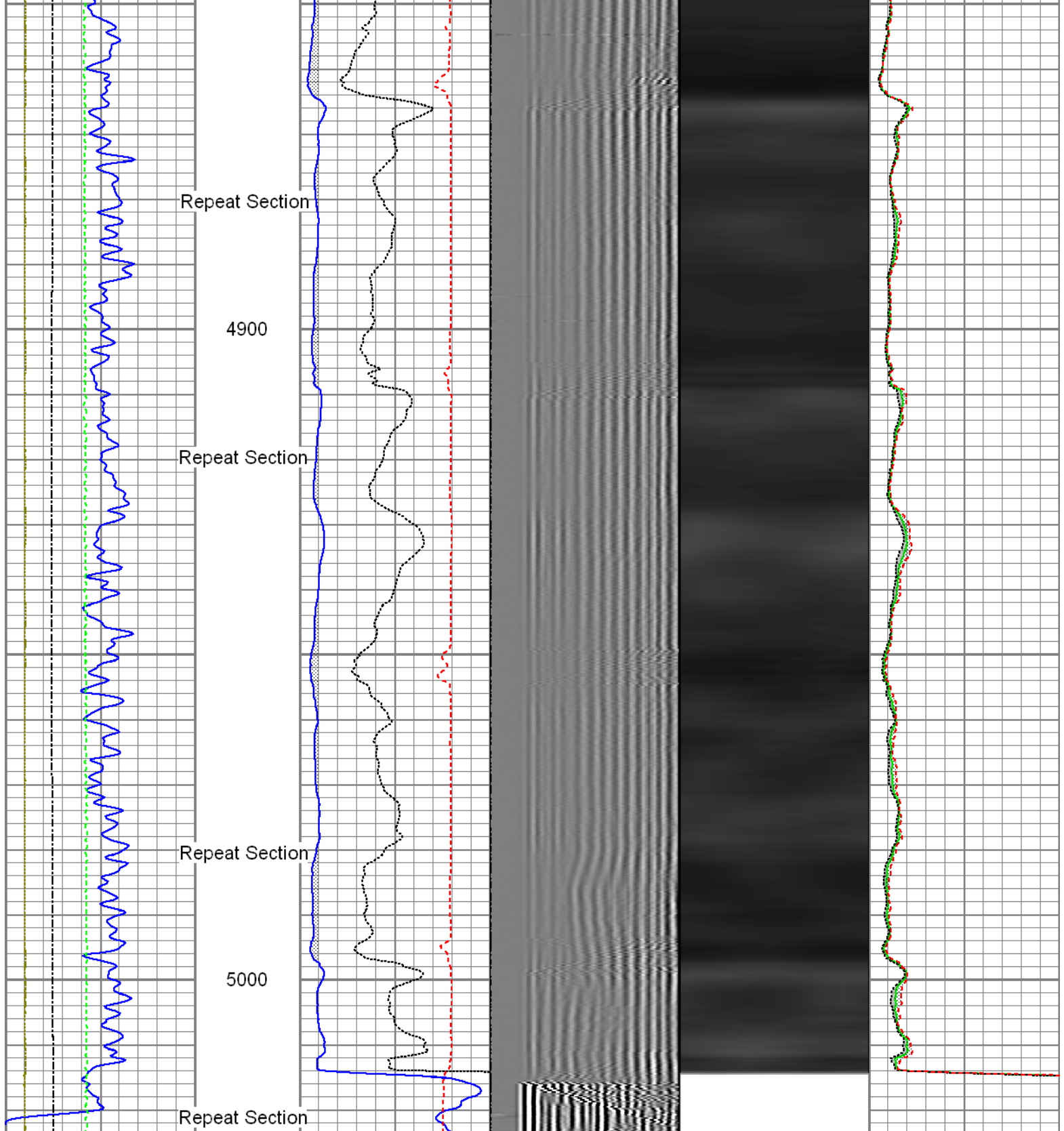
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4900

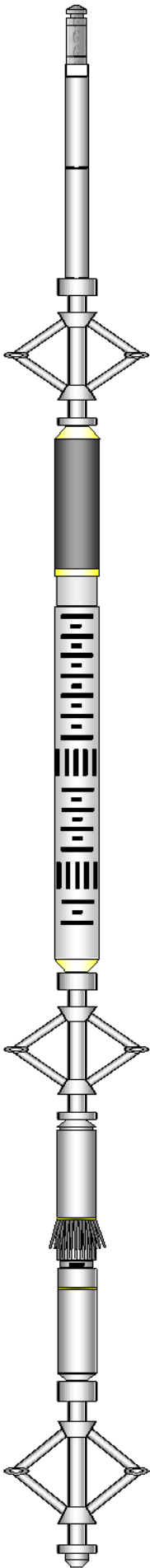
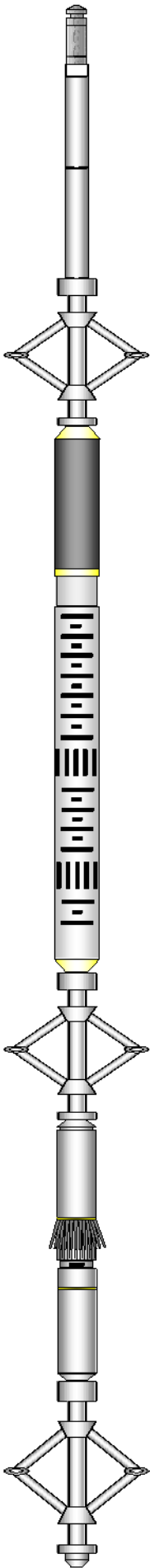
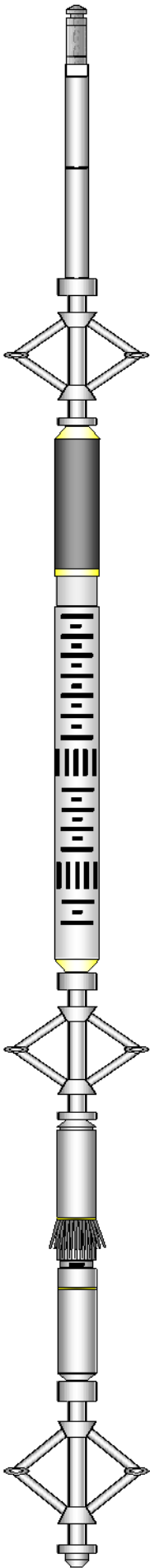
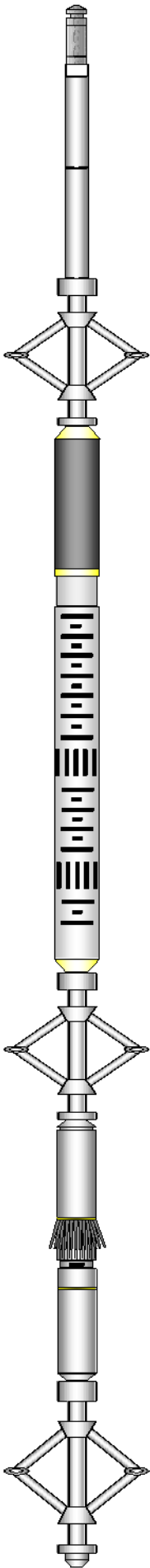
2' TT







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
Wellbore Deviation (°)				
-10 90				

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	22.81		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 (10024281) 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 (10019072) 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	15.42		UW_RBT-UW_RBT_004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	15.42					
WVFS2	15.42					
WVFS3	15.42					
WVFS4	15.42					
WVFS5	15.42					
WVFS6	15.42					
WVFS7	15.42					
WVFS8	15.42					
CBLTEMP	15.42					
CBLROT	15.42					
WVFS5FT	14.42					
MIT	5.41		UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
			UW_MIT-UW_MIT40_027 (218950) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #3 -UW_PRC_057 (1102) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
TSTAMP	0.00		UW_BUL-UW_BUL_006 (10022928) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20

Dataset: 01-21-15_whiting_razor 33o-2811_mit_rbl.db: field/well/run1/pass2
 Total Length: 27.05 ft
 Total Weight: 319.30 lb

Calibration Report

Database File: 01-21-15_whiting_razor 33o-2811_mit_rbl.db
 Dataset Pathname: pass2
 Dataset Creation: Wed Jan 21 16:00:04 2015 by Log 7.0 B1

Multi-finger Imaging Tool Calibration Report

Serial Number: 218950
 Number of Fingers: 40
 Tool Model: UW_MIT40_027

Inclinometer Calibration Report

Performed: Fri, Oct, 10 10:41:51 2008
 Calibration Angle: 45

		Inc X	Inc Y
Vertical:		1996	1975
Finger 1 up:		2238	2226
Finger 31 up:		1760	2216
Finger 21 up:		1769	1745
Finger 11 up:		2250	1738
Sensitivity ratio:	1.00023		
X-axis angle:	314.283		
Deviation const.:	339.139		

Finger Calibration Report

Performed: Wed Jan 21 15:16:13 2015

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1496	277.0	1773	265.0	2038	286.0	2324
Finger 02:	1552	250.0	1802	239.0	2041	250.0	2291
Finger 03:	1456	276.0	1732	277.0	2009	286.0	2295
Finger 04:	1492	273.0	1765	277.0	2042	276.0	2318
Finger 05:	1536	261.0	1797	270.0	2067	265.0	2332
Finger 06:	1441	272.0	1713	296.0	2009	288.0	2297
Finger 07:	1453	268.0	1721	296.0	2017	285.0	2302
Finger 08:	1471	262.0	1733	294.0	2027	277.0	2304
Finger 09:	1456	265.0	1721	308.0	2029	288.0	2317
Finger 10:	1472	251.0	1723	298.0	2021	276.0	2297
Finger 11:	1453	260.0	1713	311.0	2024	285.0	2309
Finger 12:	1423	264.0	1687	322.0	2009	297.0	2306
Finger 13:	1503	241.0	1744	293.0	2037	271.0	2308
Finger 14:	1462	248.0	1710	310.0	2020	287.0	2307
Finger 15:	1487	266.0	1753	315.0	2068	293.0	2361
Finger 16:	1466	255.0	1721	318.0	2039	297.0	2336
Finger 17:	1506	263.0	1769	322.0	2091	302.0	2393
Finger 18:	1428	258.0	1686	317.0	2003	302.0	2305
Finger 19:	1480	262.0	1742	320.0	2062	302.0	2364
Finger 20:	1463	265.0	1728	316.0	2044	314.0	2358
Finger 21:	1402	277.0	1679	330.0	2009	330.0	2339
Finger 22:	1460	262.0	1722	300.0	2022	305.0	2327
Finger 23:	1452	274.0	1726	305.0	2031	315.0	2346
Finger 24:	1486	273.0	1759	294.0	2053	304.0	2357
Finger 25:	1482	279.0	1761	296.0	2057	315.0	2372
Finger 26:	1436	285.0	1721	298.0	2019	323.0	2342
Finger 27:	1491	277.0	1768	282.0	2050	304.0	2354
Finger 28:	1485	287.0	1772	284.0	2056	319.0	2375
Finger 29:	1538	271.0	1809	261.0	2070	292.0	2362
Finger 30:	1452	289.0	1741	275.0	2016	321.0	2337
Finger 31:	1487	296.0	1783	275.0	2058	316.0	2374
Finger 32:	1519	277.0	1796	254.0	2050	290.0	2340
Finger 33:	1522	285.0	1785	271.0	2022	312.0	2372

Finger 33:	1500	295.0	1795	271.0	2066	310.0	2376
Finger 34:	1502	288.0	1790	266.0	2056	305.0	2361
Finger 35:	1560	269.0	1829	241.0	2070	274.0	2344
Finger 36:	1530	277.0	1807	253.0	2060	288.0	2348
Finger 37:	1502	288.0	1790	267.0	2057	294.0	2351
Finger 38:	1594	257.0	1851	231.0	2082	264.0	2346
Finger 39:	1512	277.0	1789	256.0	2045	273.0	2318
Finger 40:	1453	288.0	1741	276.0	2017	296.0	2313

Segmented Cement Bond Log Calibration Report

Serial Number:	1066
Tool Model:	UW_RBT_004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	-2.693 ft

Master Calibration, performed Wed Jan 21 15:18:04 2015:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.000	0.861	0.800	62.165	71.262	0.810
5FT	-0.006	0.773	0.800	62.165	78.727	1.281
S1	-0.001	0.811	0.000	100.000	123.224	0.074
S2	-0.001	0.829	0.000	100.000	120.443	0.115
S3	-0.001	0.849	0.000	100.000	117.549	0.148
S4	-0.001	0.877	0.000	100.000	113.816	0.139
S5	-0.001	0.894	0.000	100.000	111.759	0.130
S6	-0.001	0.901	0.000	100.000	110.814	0.108
S7	-0.001	0.892	0.000	100.000	112.074	0.064
S8	-0.000	0.845	0.000	100.000	118.313	0.036

Gamma Ray Calibration Report

Serial Number:	10019072
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	Whiting Oil & Gas Corporation
Well	Razor 33O - 2811
Field	Wildcat
County	Weld
State	Colorado