

Radial Cement Bond Gamma Ray Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Sickler 27N - 34HZ
Field Wattenberg
County Weld
State Colorado

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Location: API #: 05-123-39301
SHL: 363' FSL 149' FEL SW/SE
Lat / Long: 40.088506 / -104.873022
SEC 34 TWP 2N RGE 67W
Permanent Datum Ground Level Elevation 4950'
Log Measured From Kelly Bushing 16 FT
Drilling Measured From Kelly Bushing
Other Services
MIT
Gauge ring
Set RBP
Elevation
K.B. 4966'
D.F. 4965'
G.L. 4950'

Date	17-August-2014
Run Number	One
Depth Driller	12965 FT
Depth Logger	6908 FT
Bottom Logged Interval	6905 FT
Top Log Interval	Surface
Open Hole Size	8.765"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	237°F
Estimated Cement Top	54 FT
Time Well Ready	ROA
Time Logger on Bottom	15:00
Equipment Number	HD-0324
Location	Fort Lupton, CO
Recorded By	J. Houim
Witnessed By	Trevor Daniels

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	1289 FT		
Intermediate #1	7"	26	HCP-110 LTC	Surface	7817 FT		
Intermediate #2							
Liner	4 1/2"	11.6	HCP -110	6830 FT	12965 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 6830 FT.
Adjusted log (+2) FT from KB zero to correlate with Liner Top.
Log ran from just below liner top to surface.
Log ran with 2800 PSI surface induced pressure.
Estimated Cement Top: 54FT

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

Database File:0512339301_anadarko_sickler 27n-34hz_08-17-14_mit_rbl.db

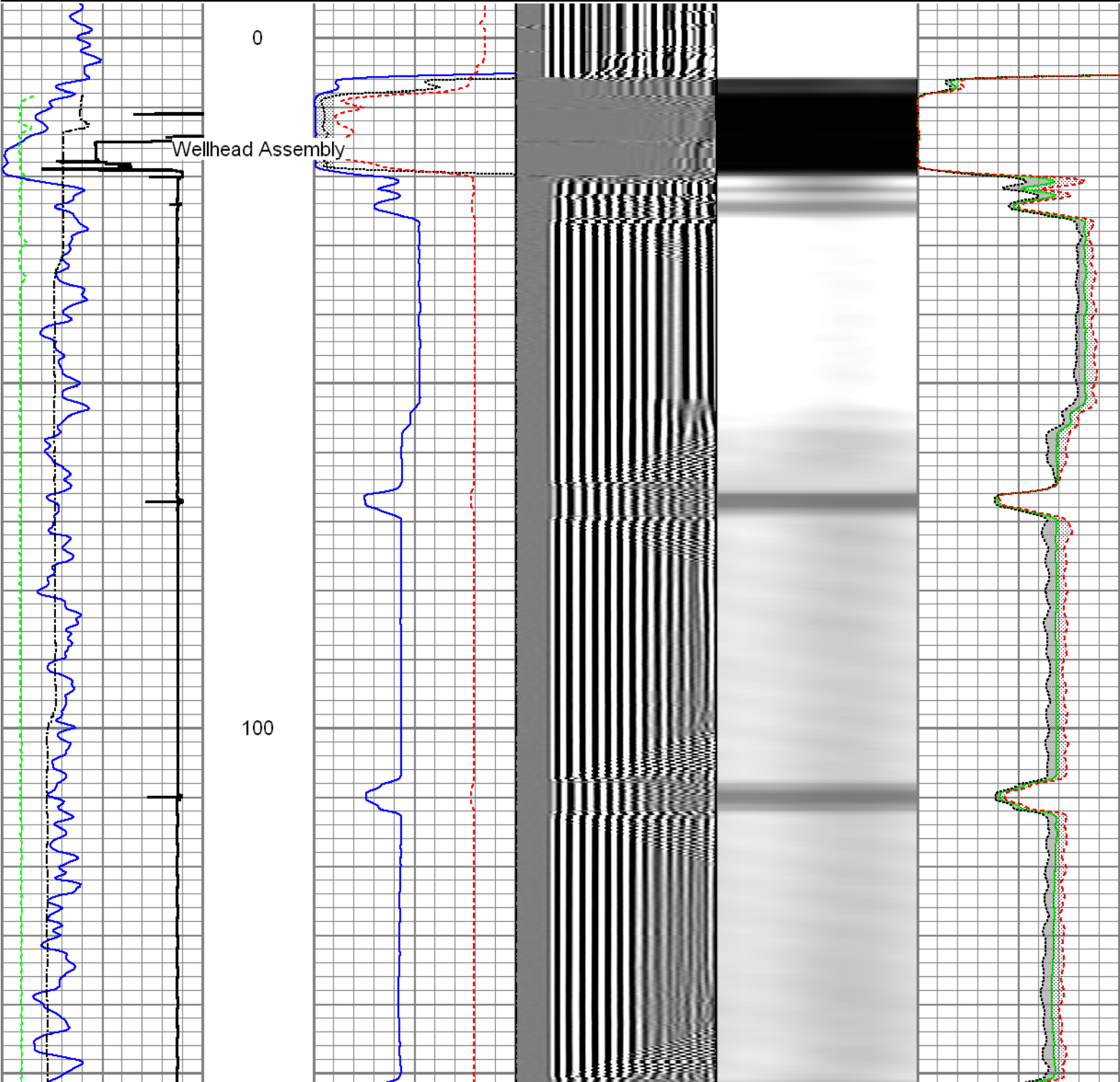
Dataset Pathname:pass28

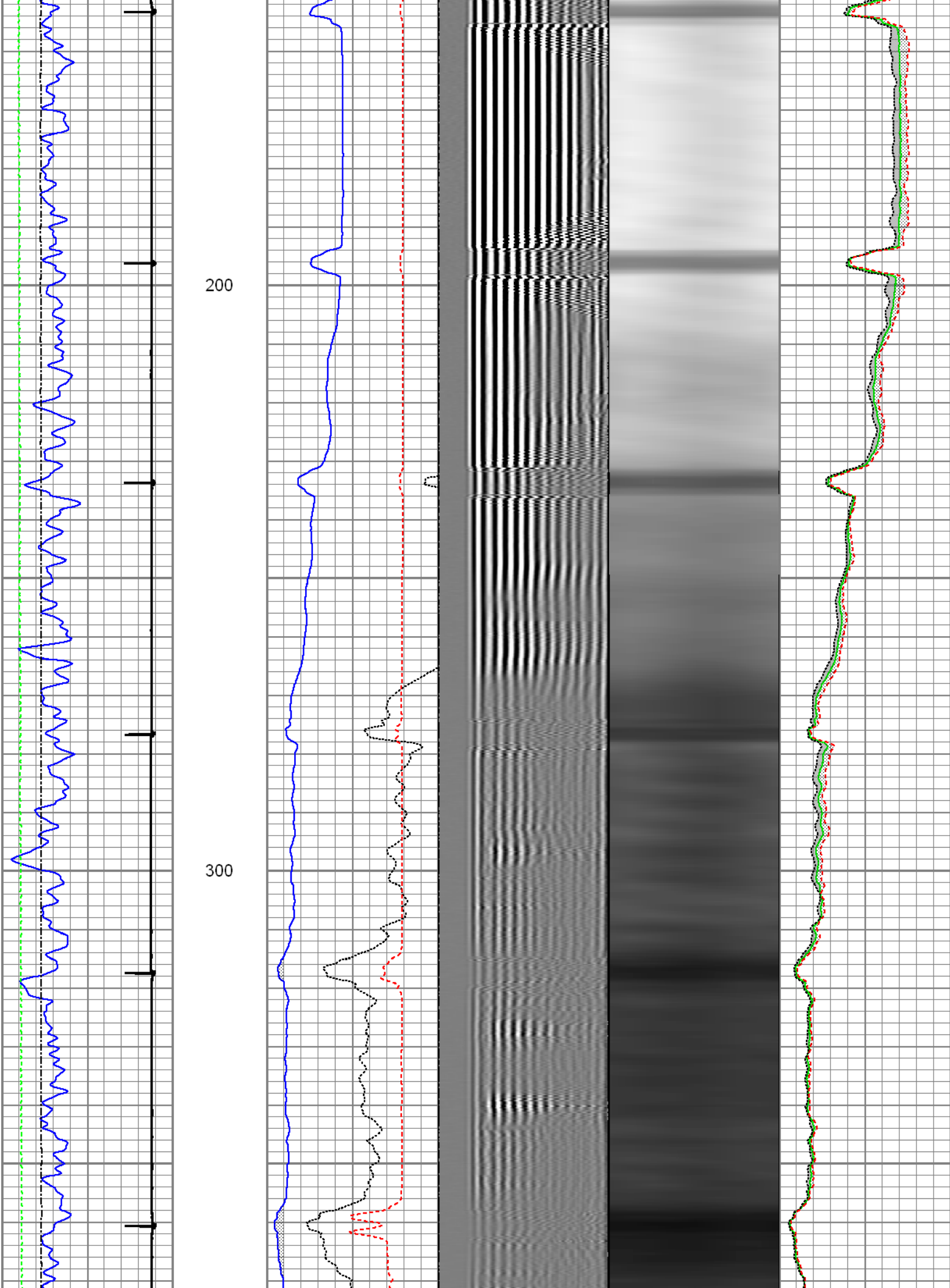
Presentation Format:rbt4_mit

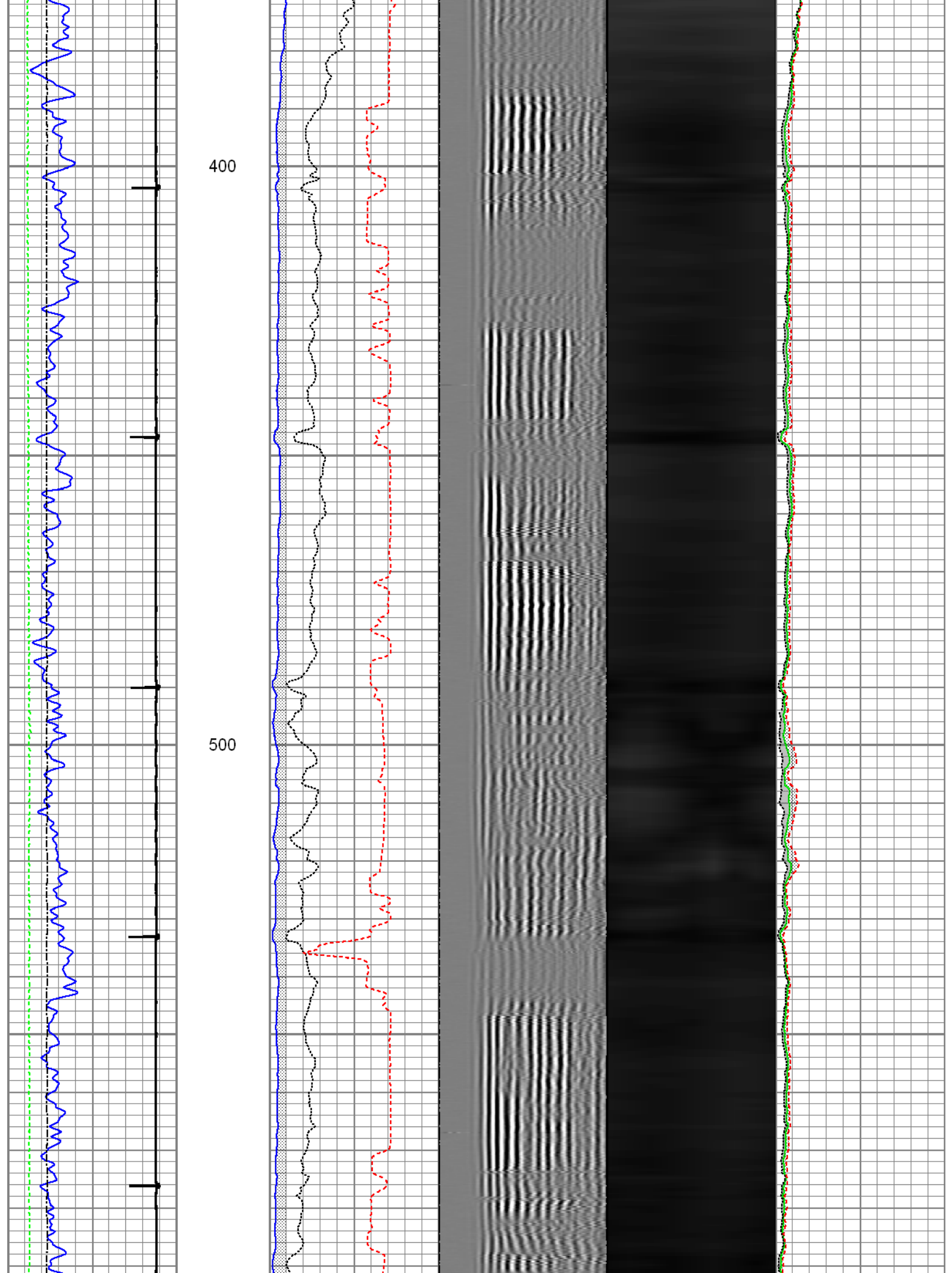
Dataset Creation:Sun Aug 17 15:12:33 2014 by Log 7.0 B1

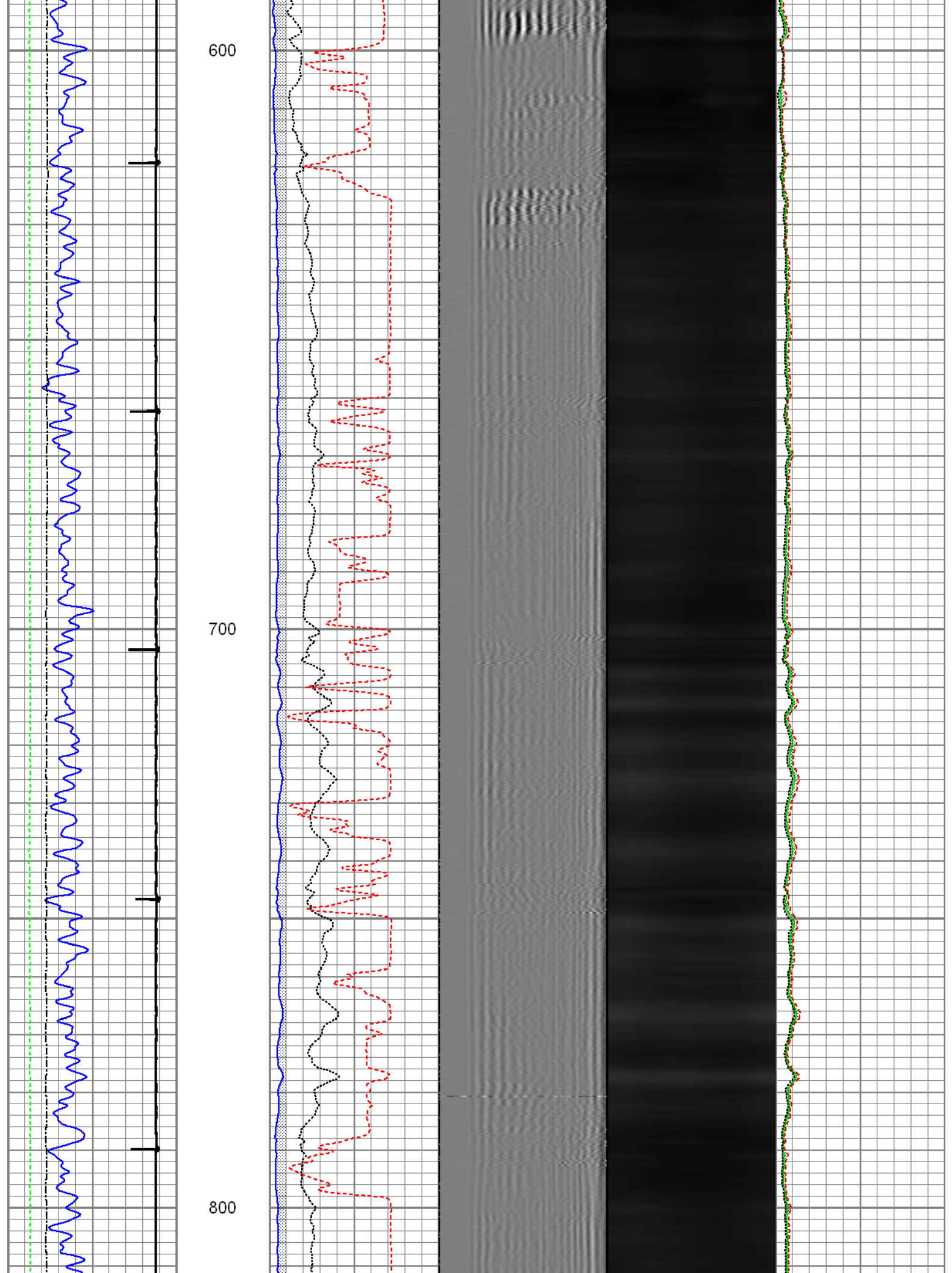
Charted by:Depth in Feet scaled 1:240

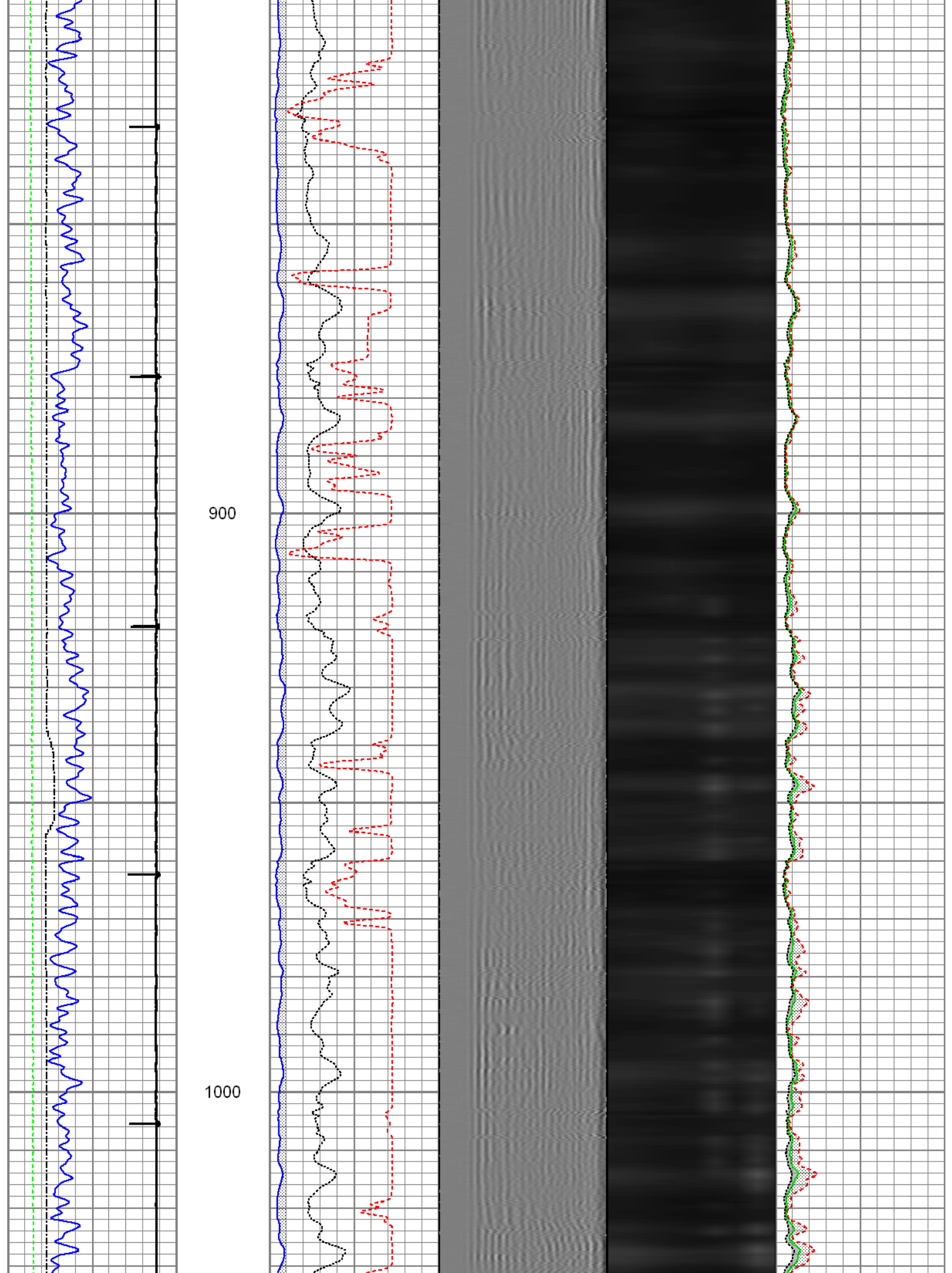
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				

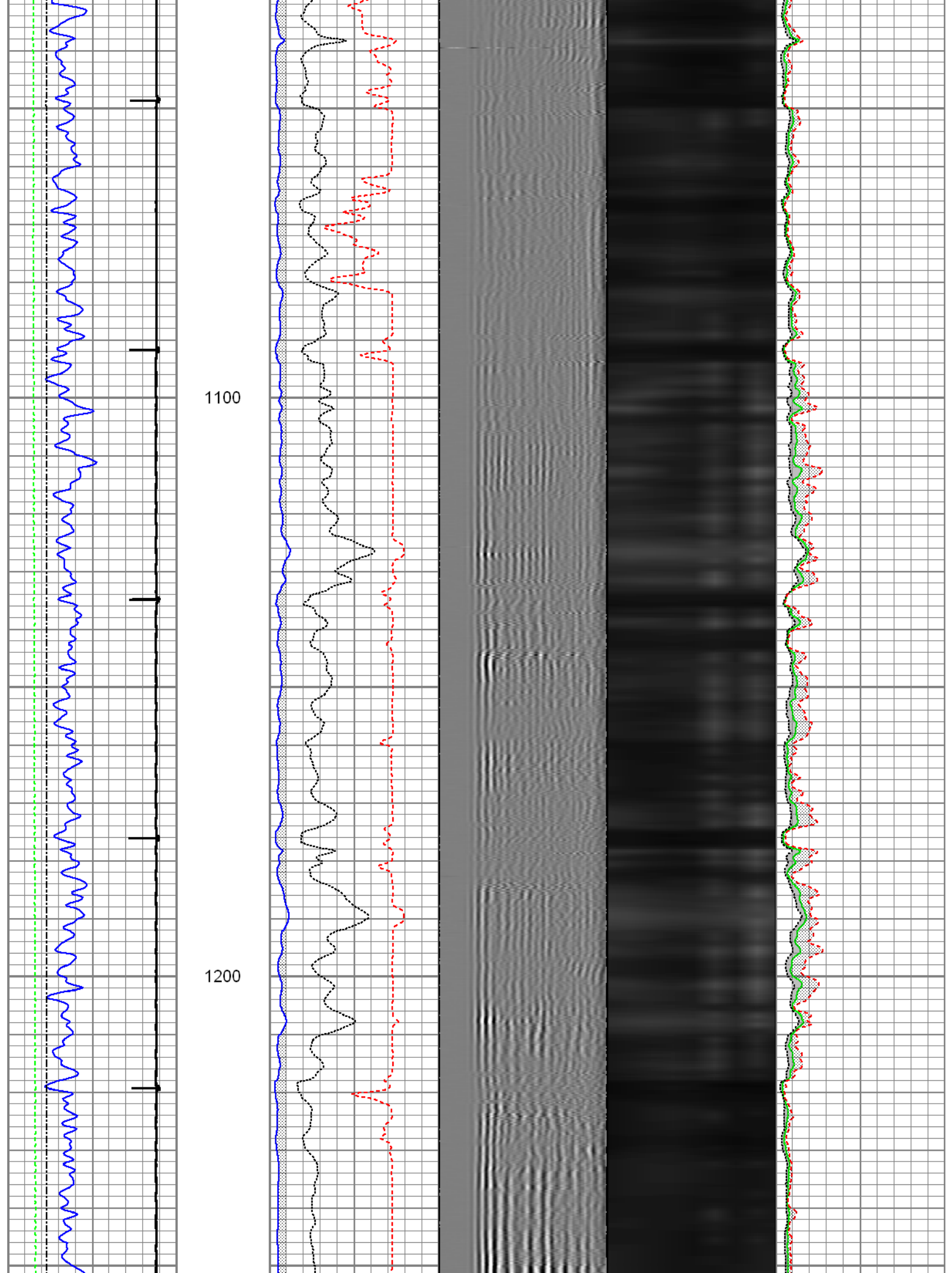


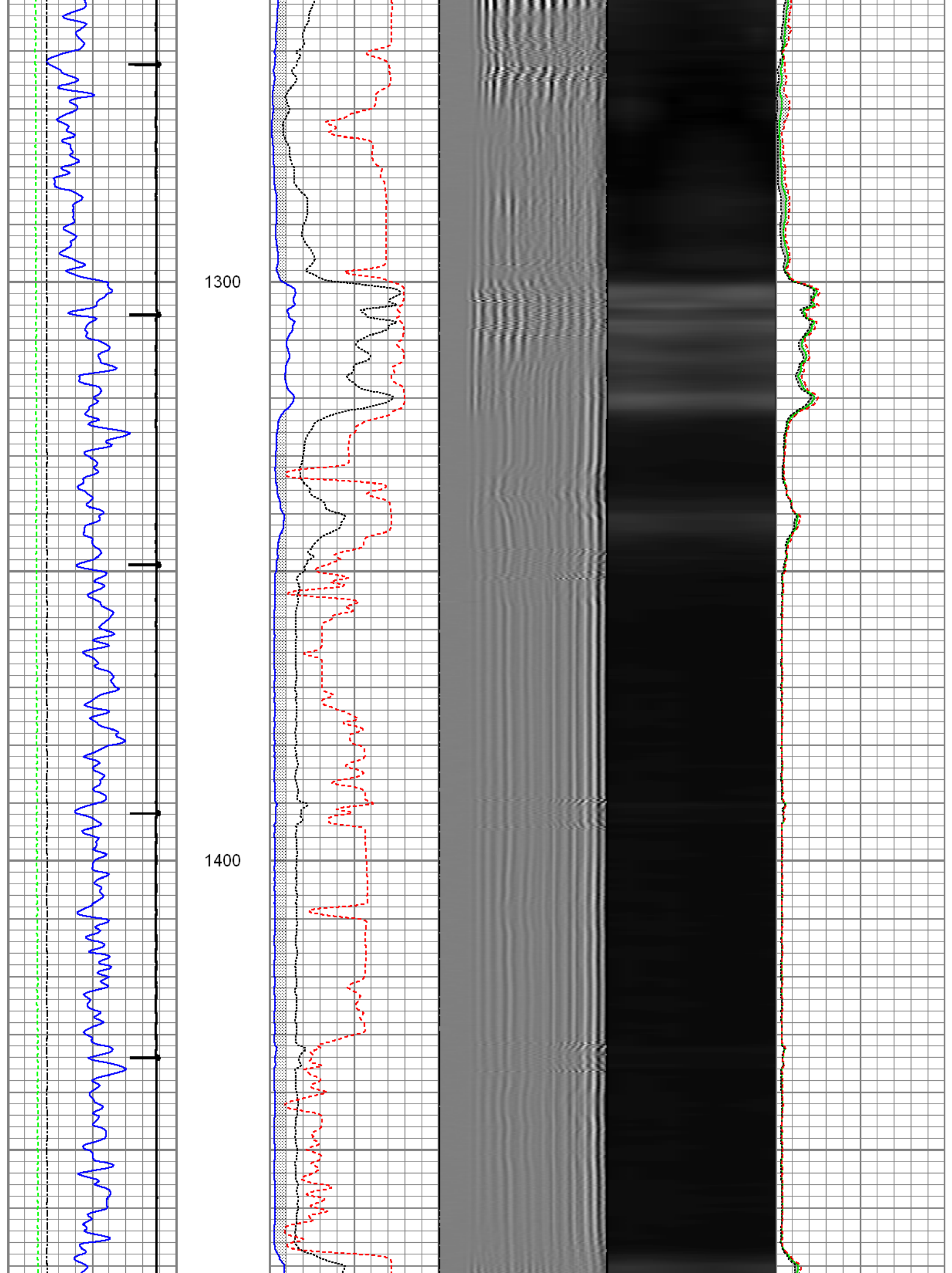


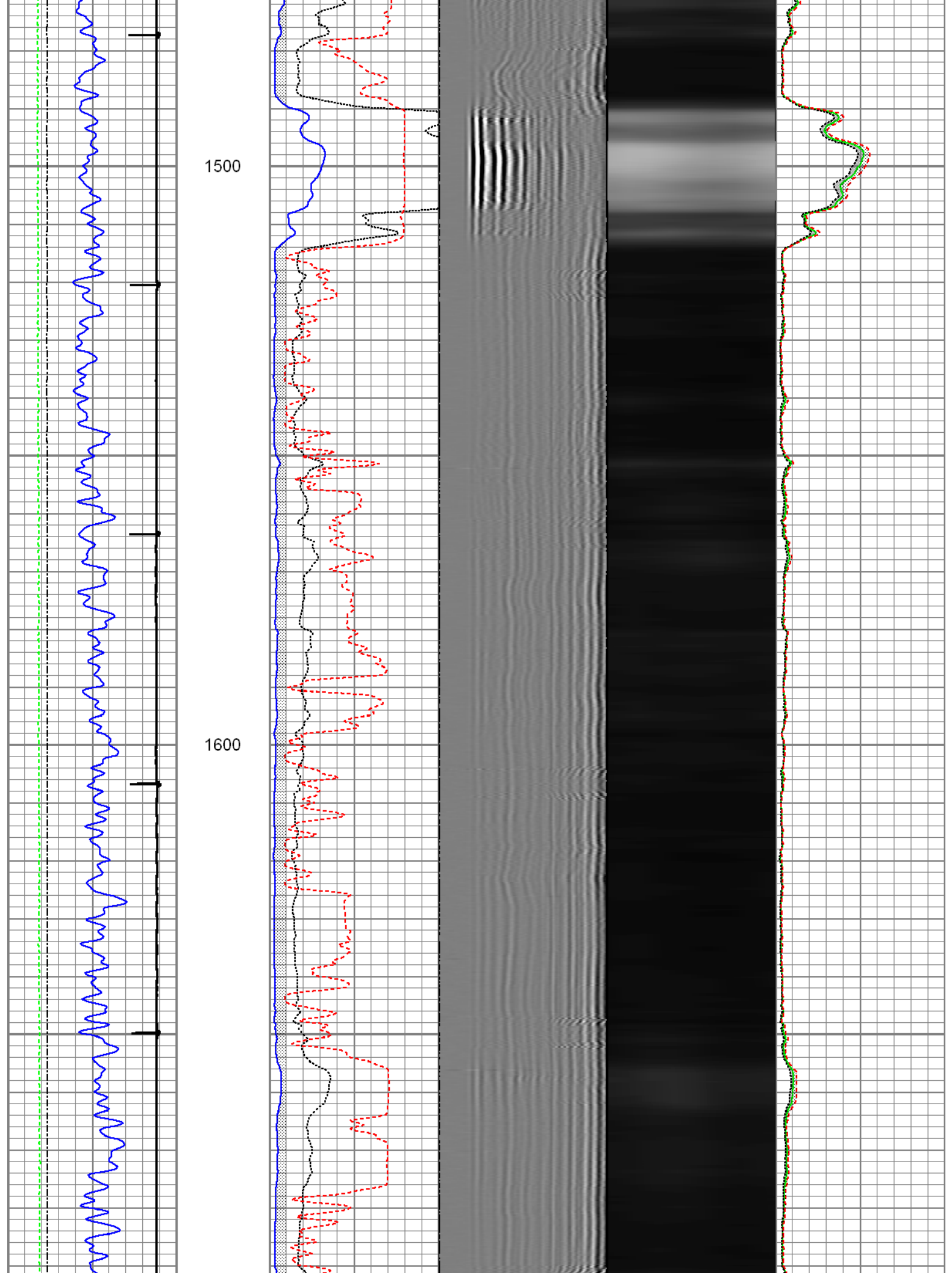


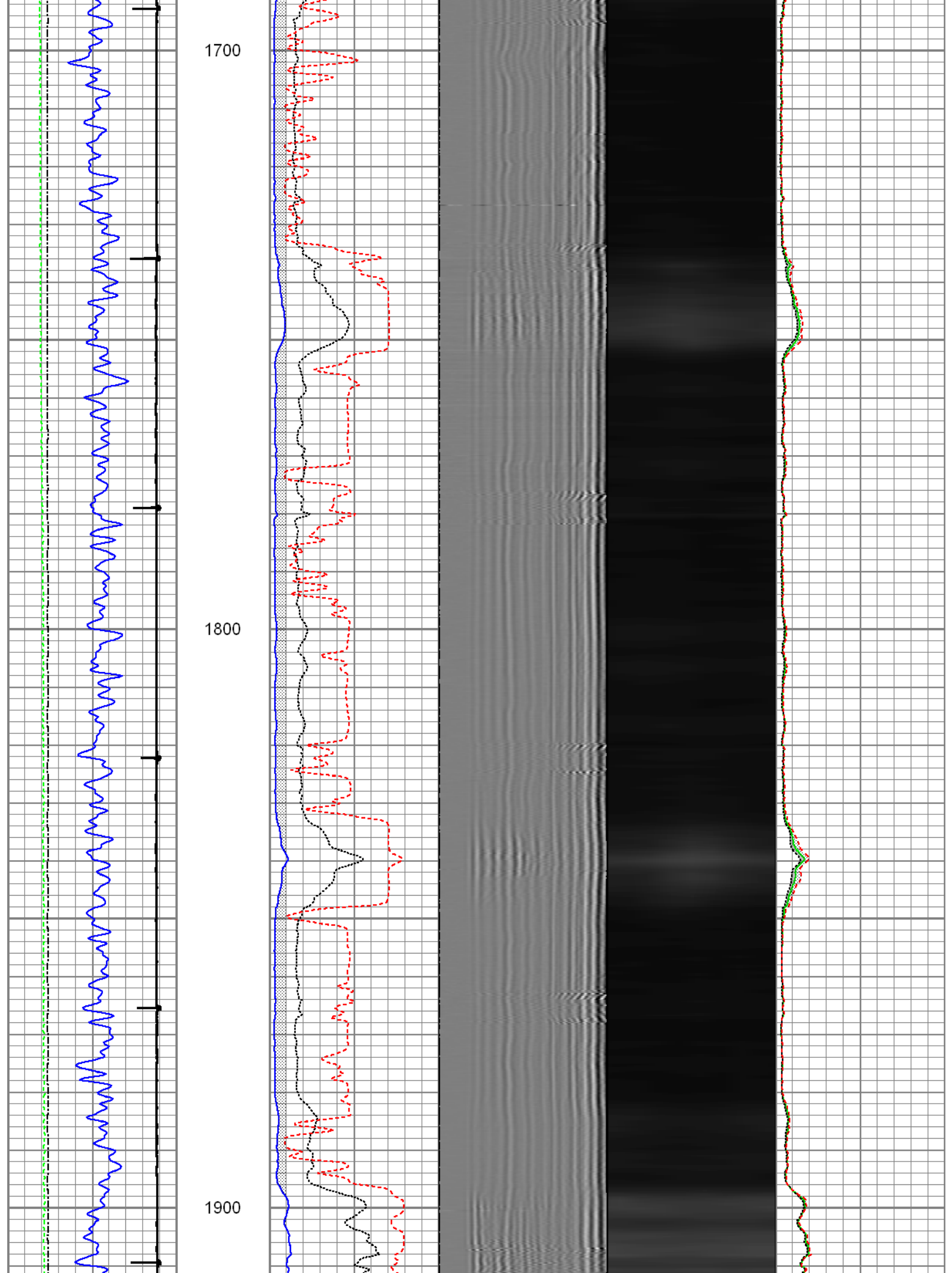


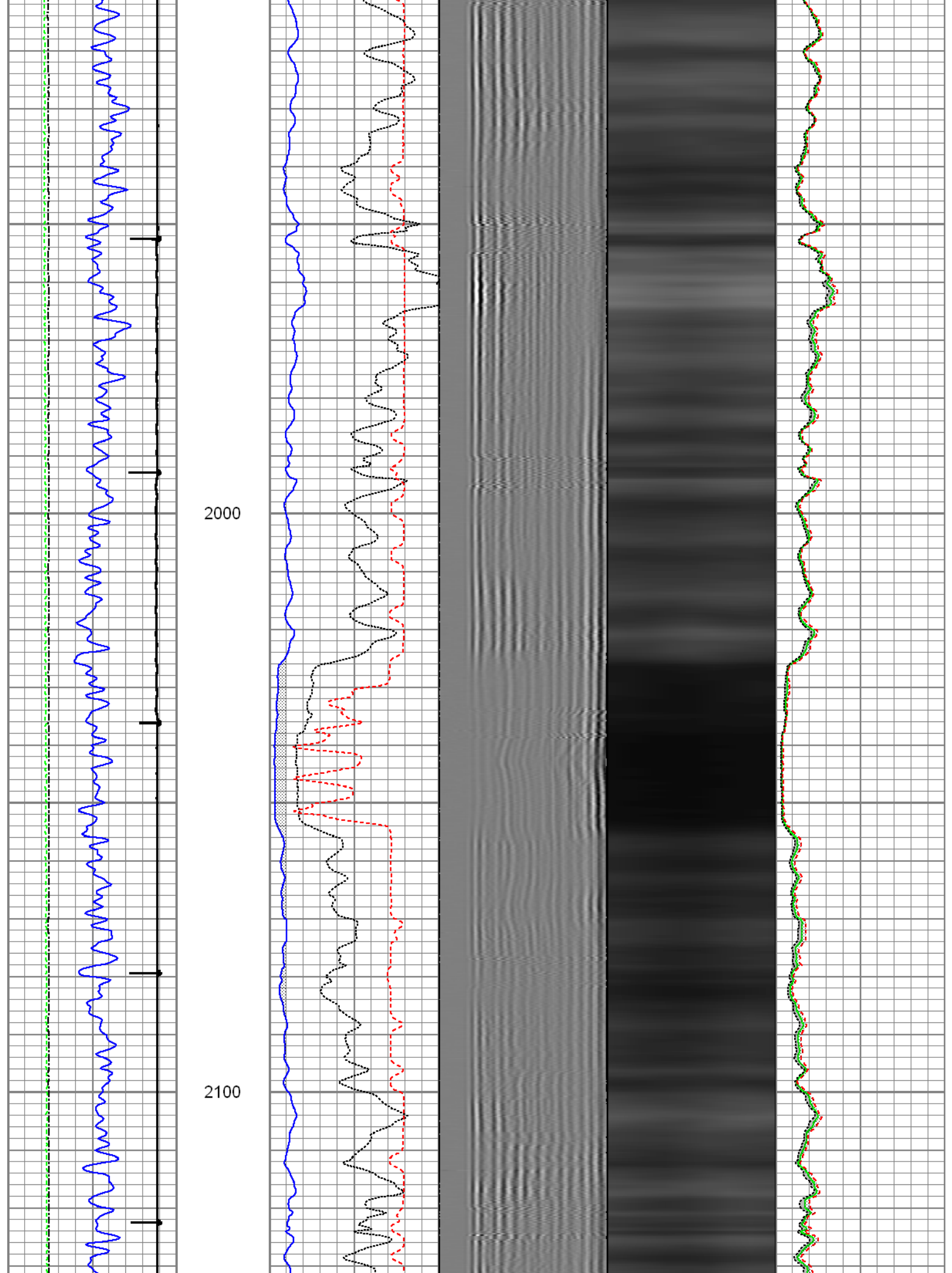


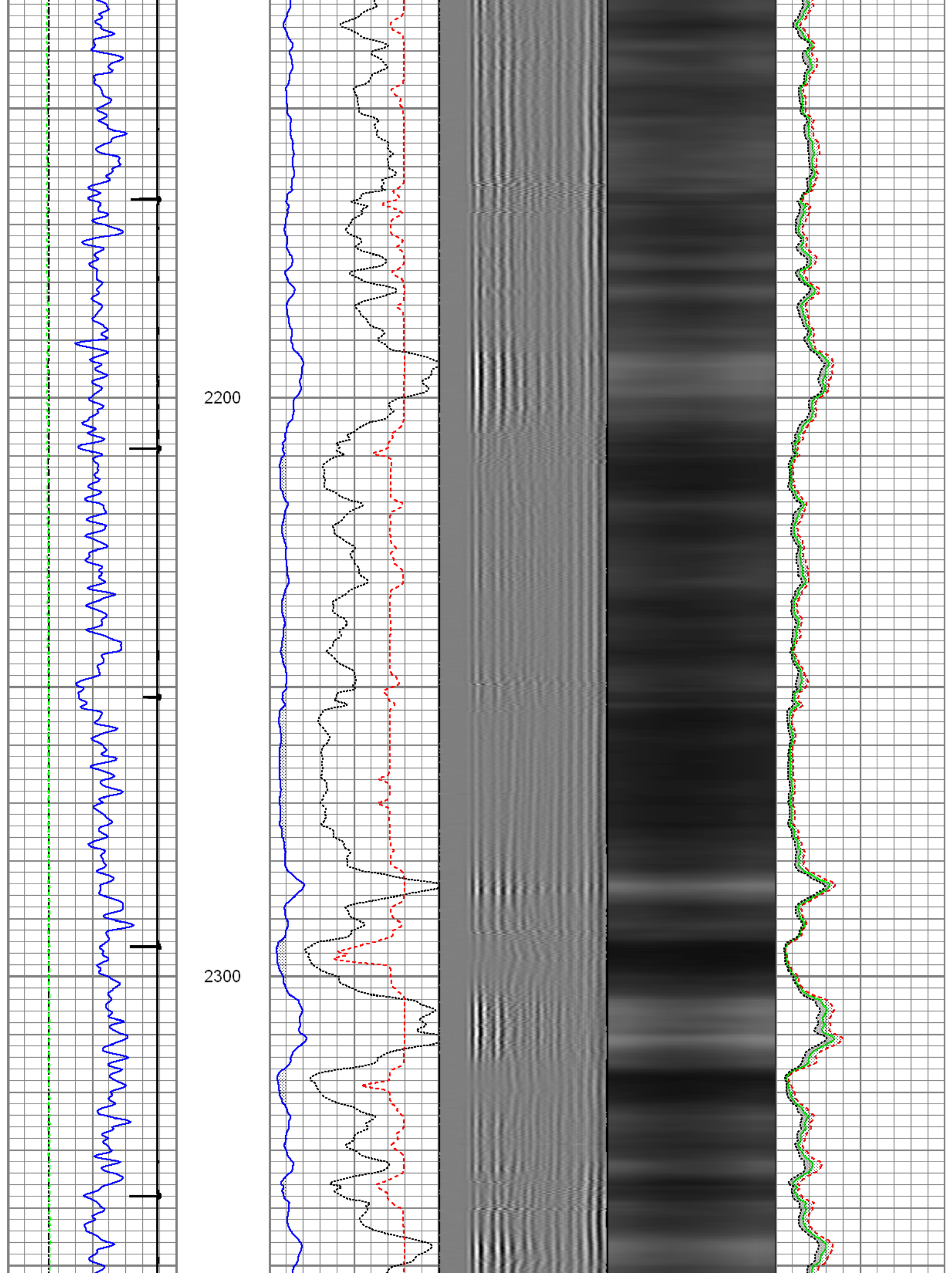


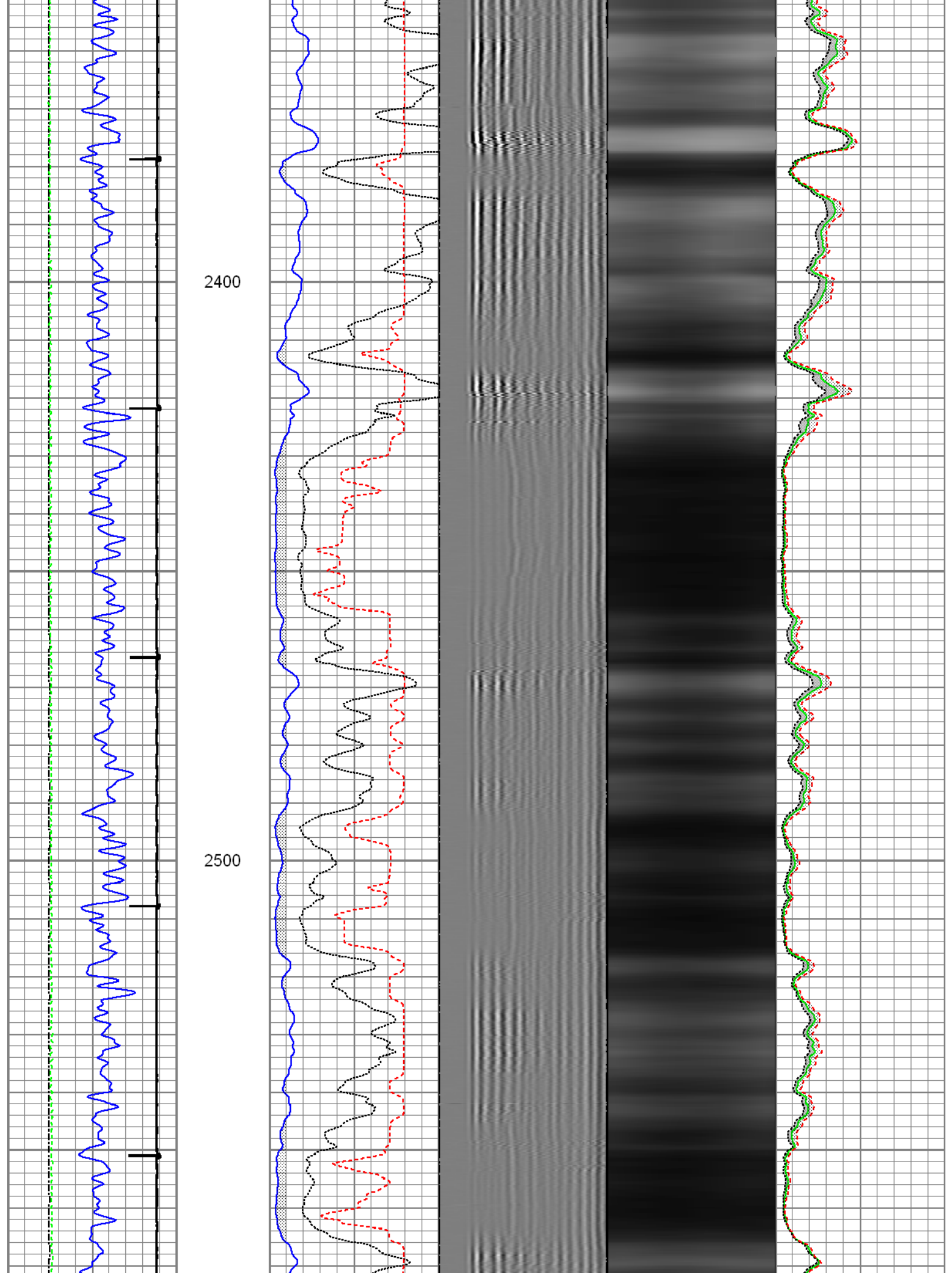


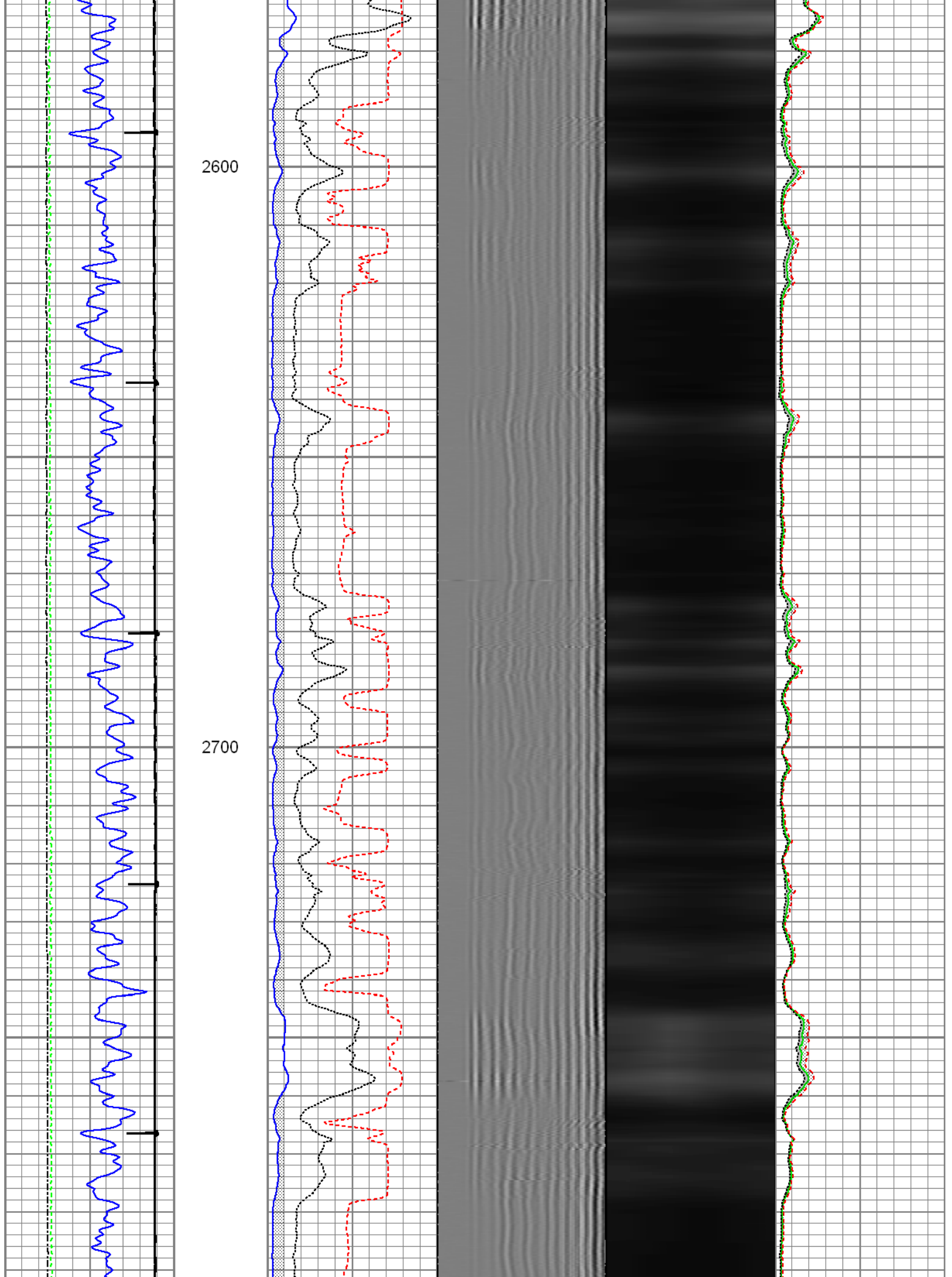








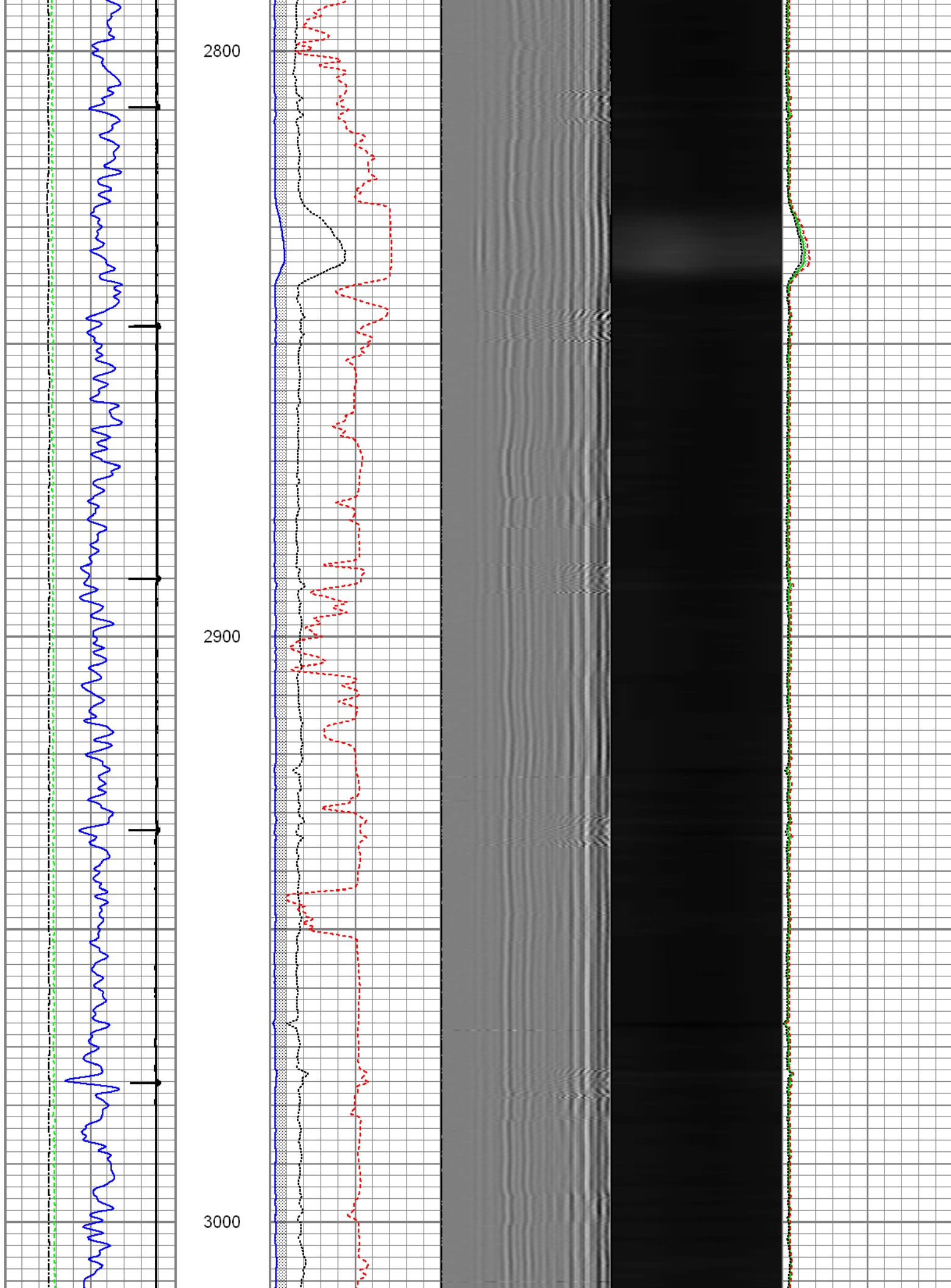


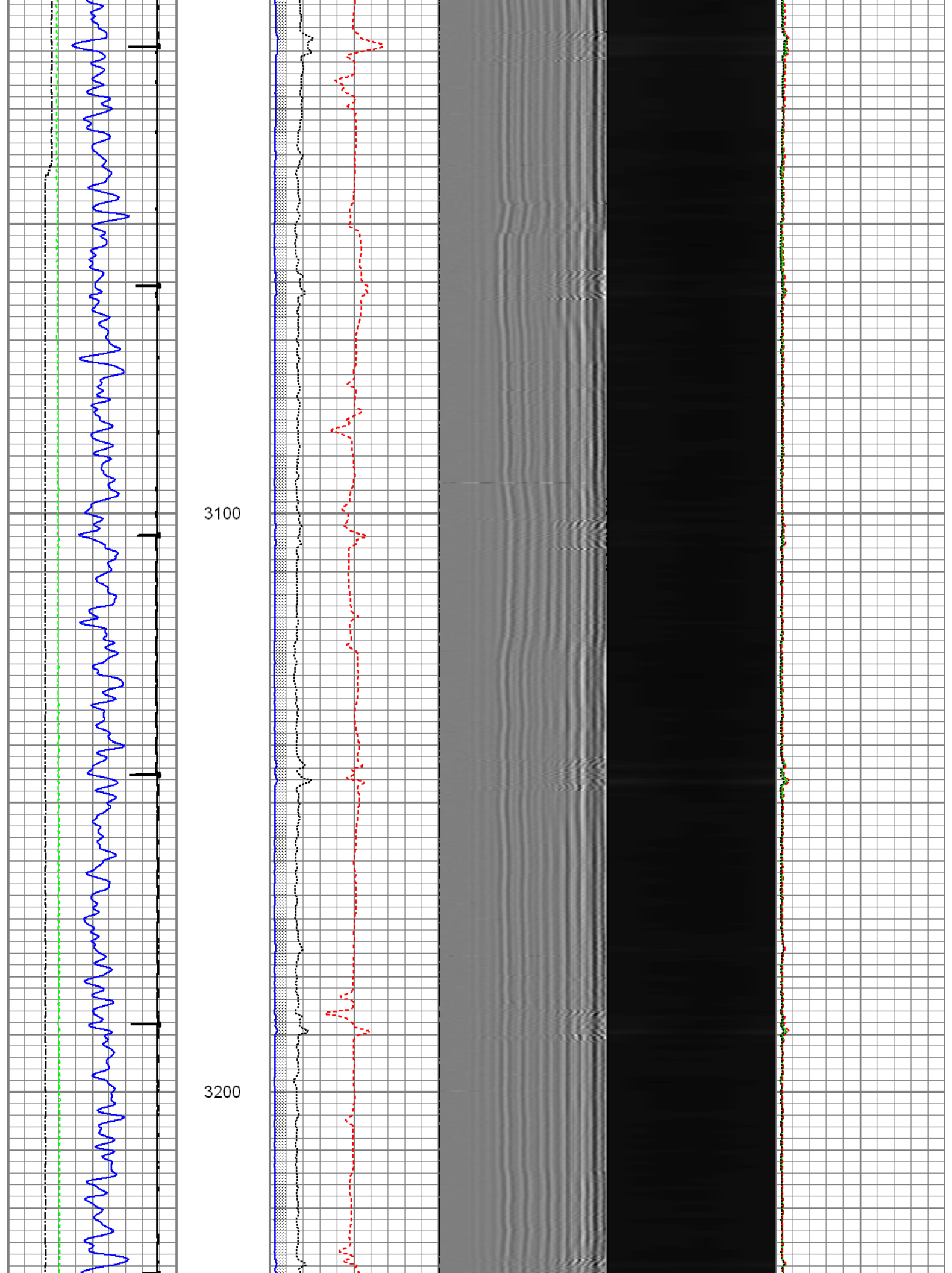


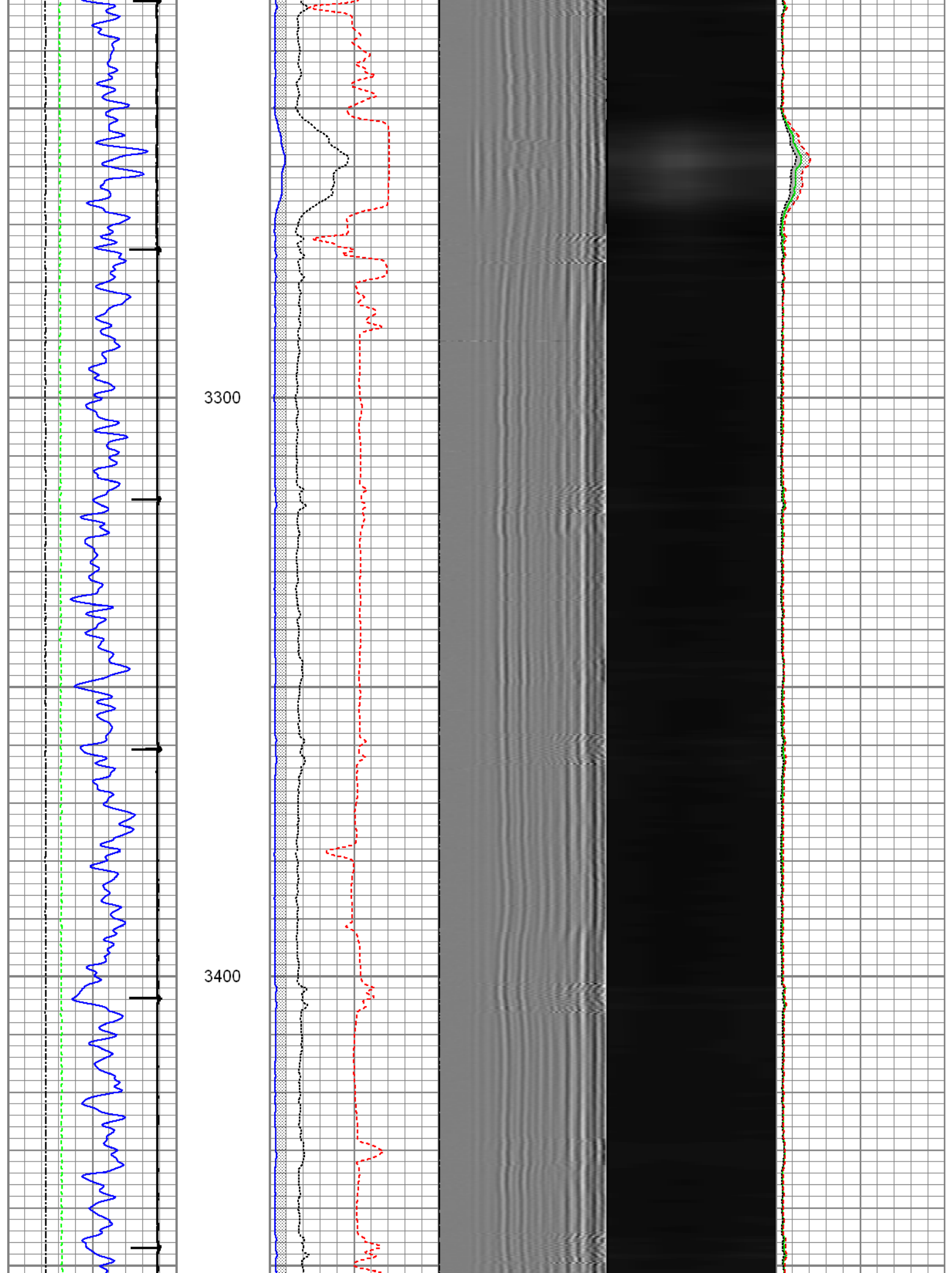
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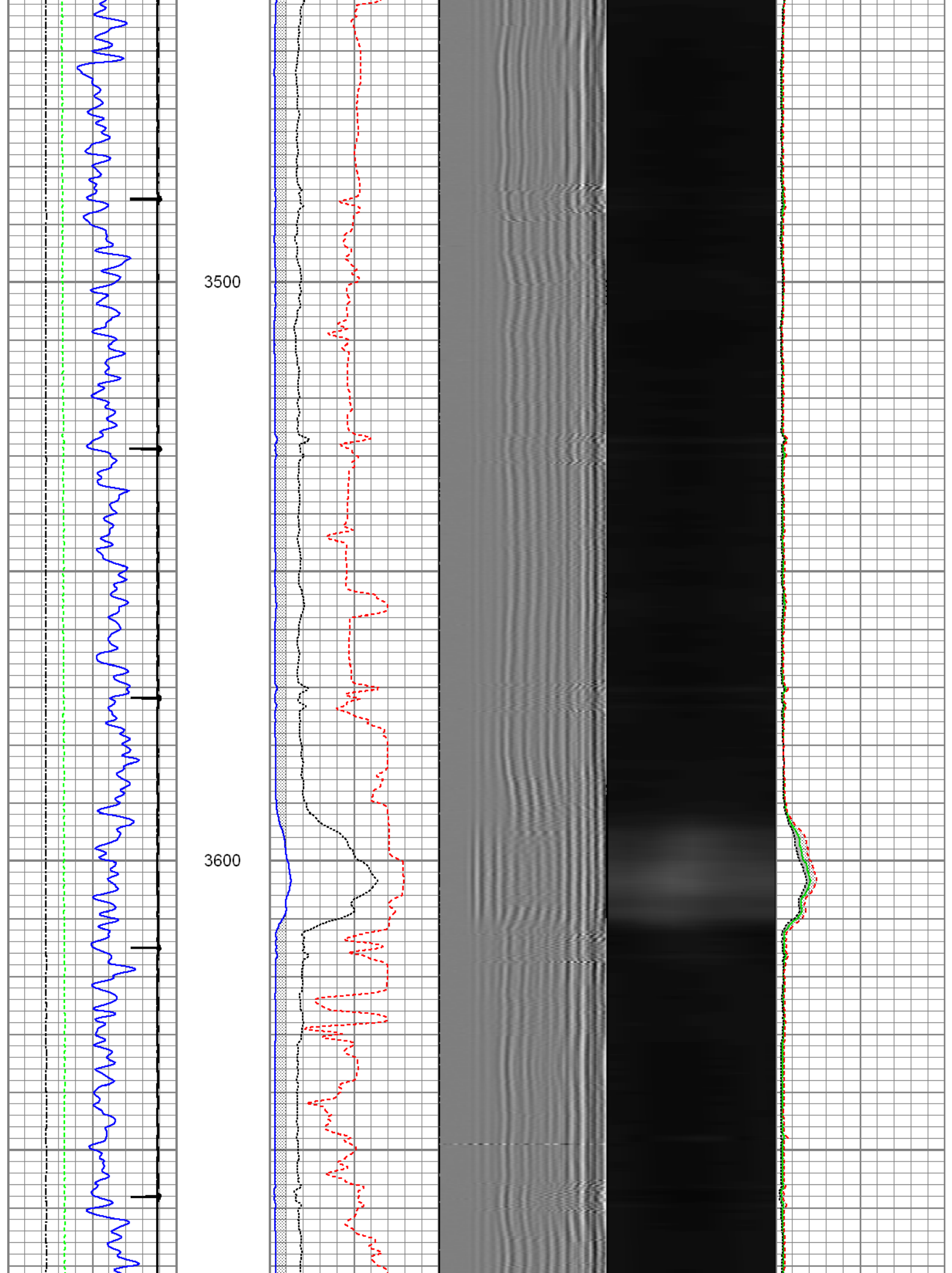
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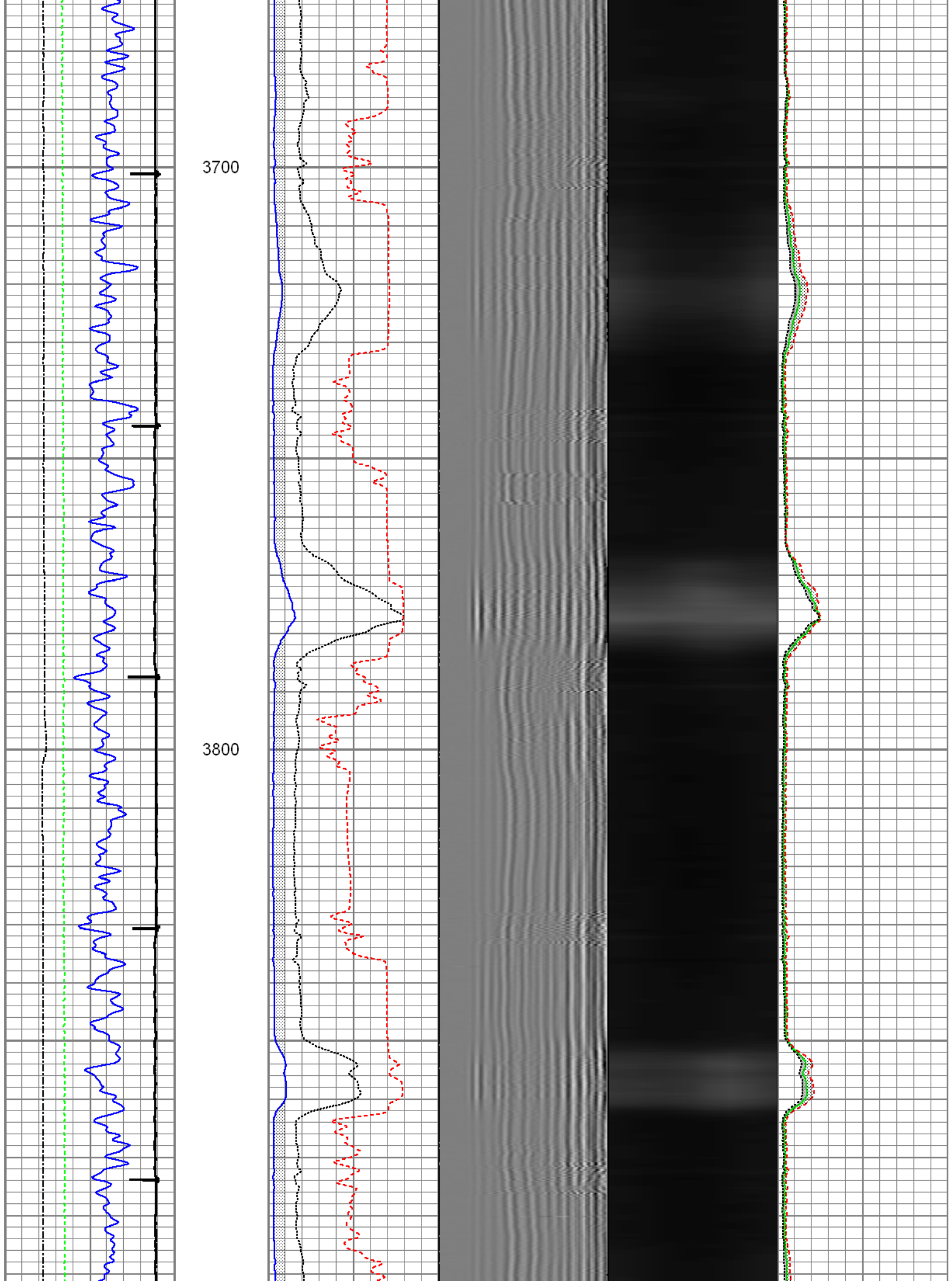
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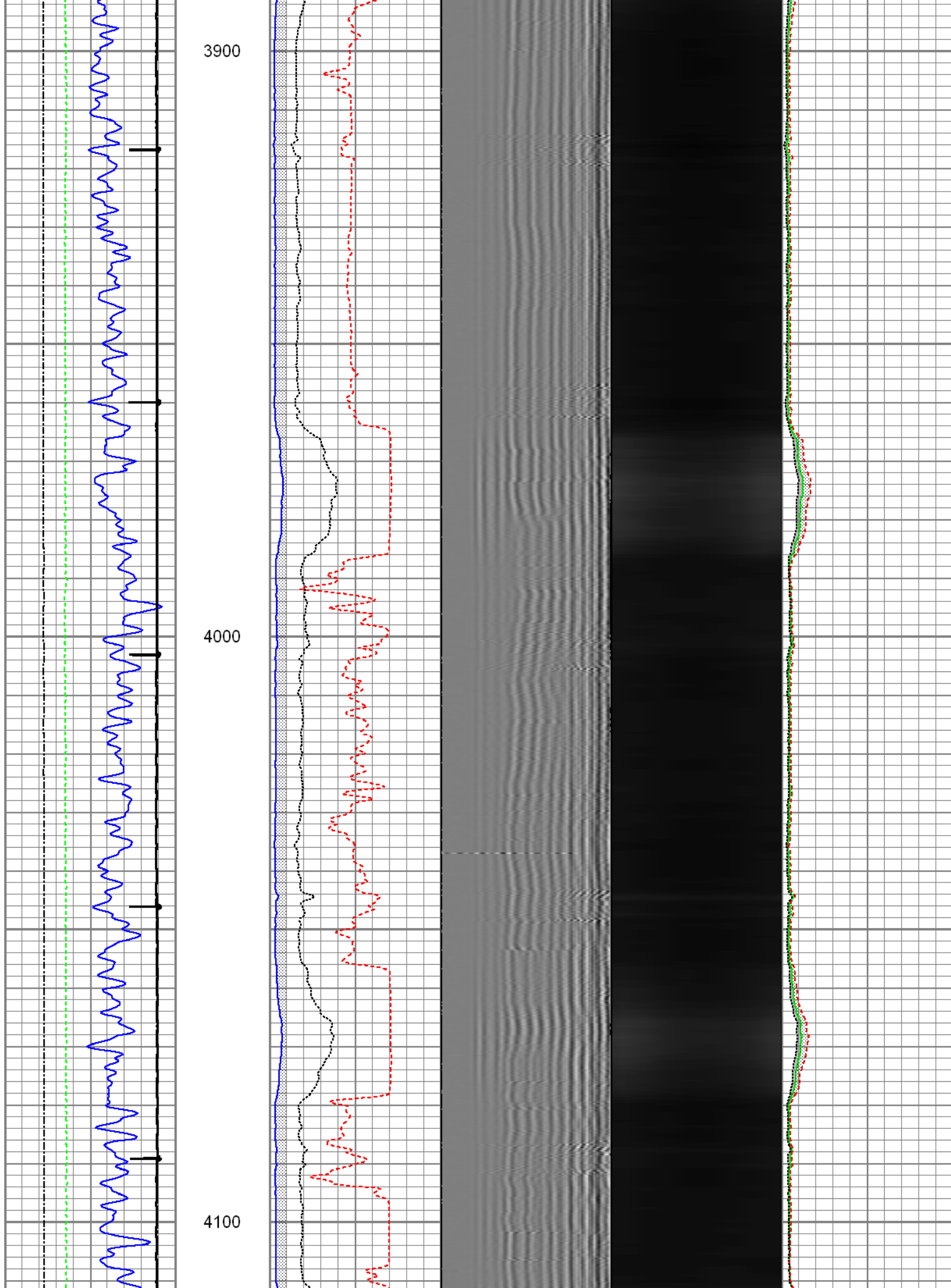


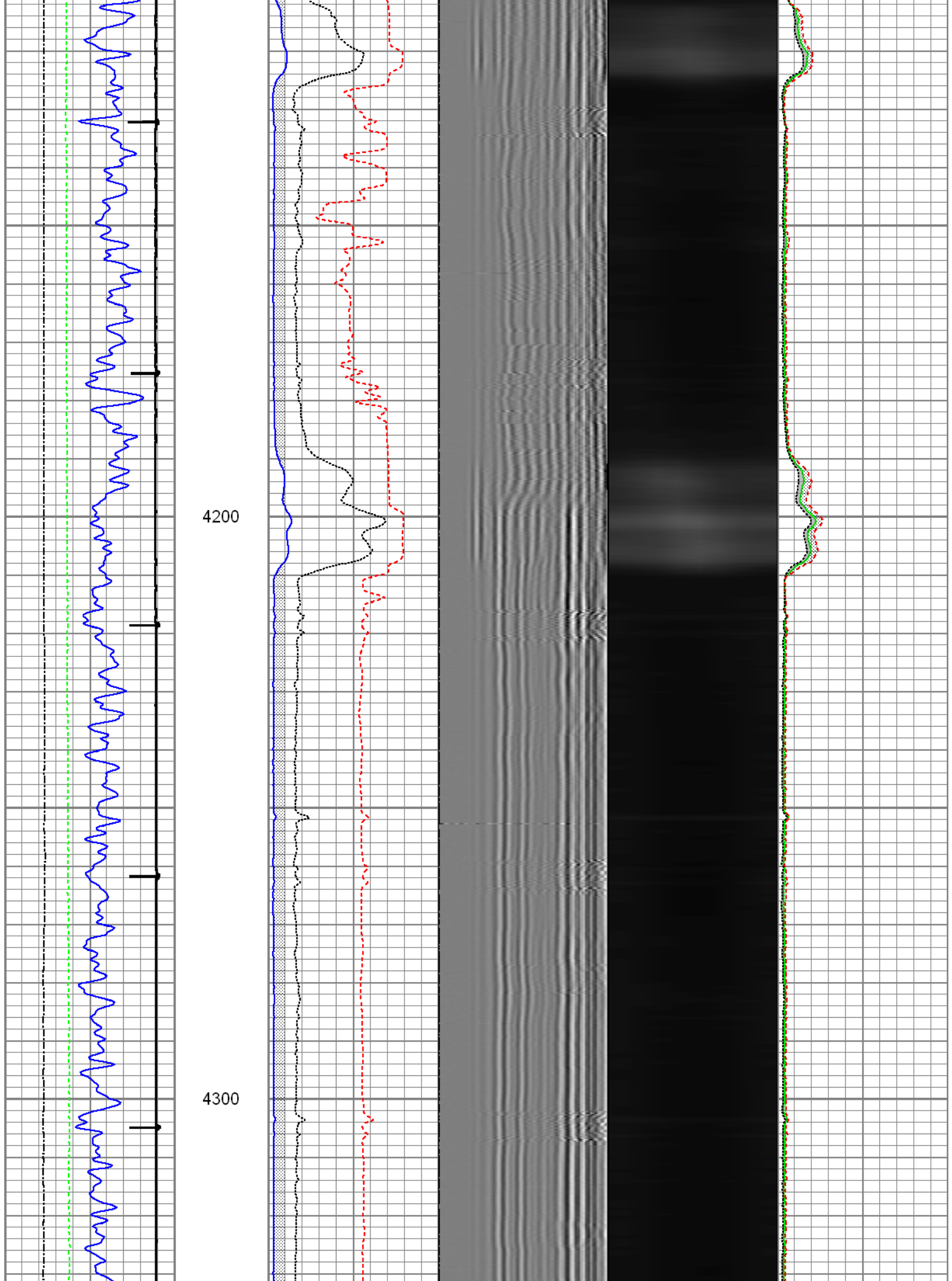


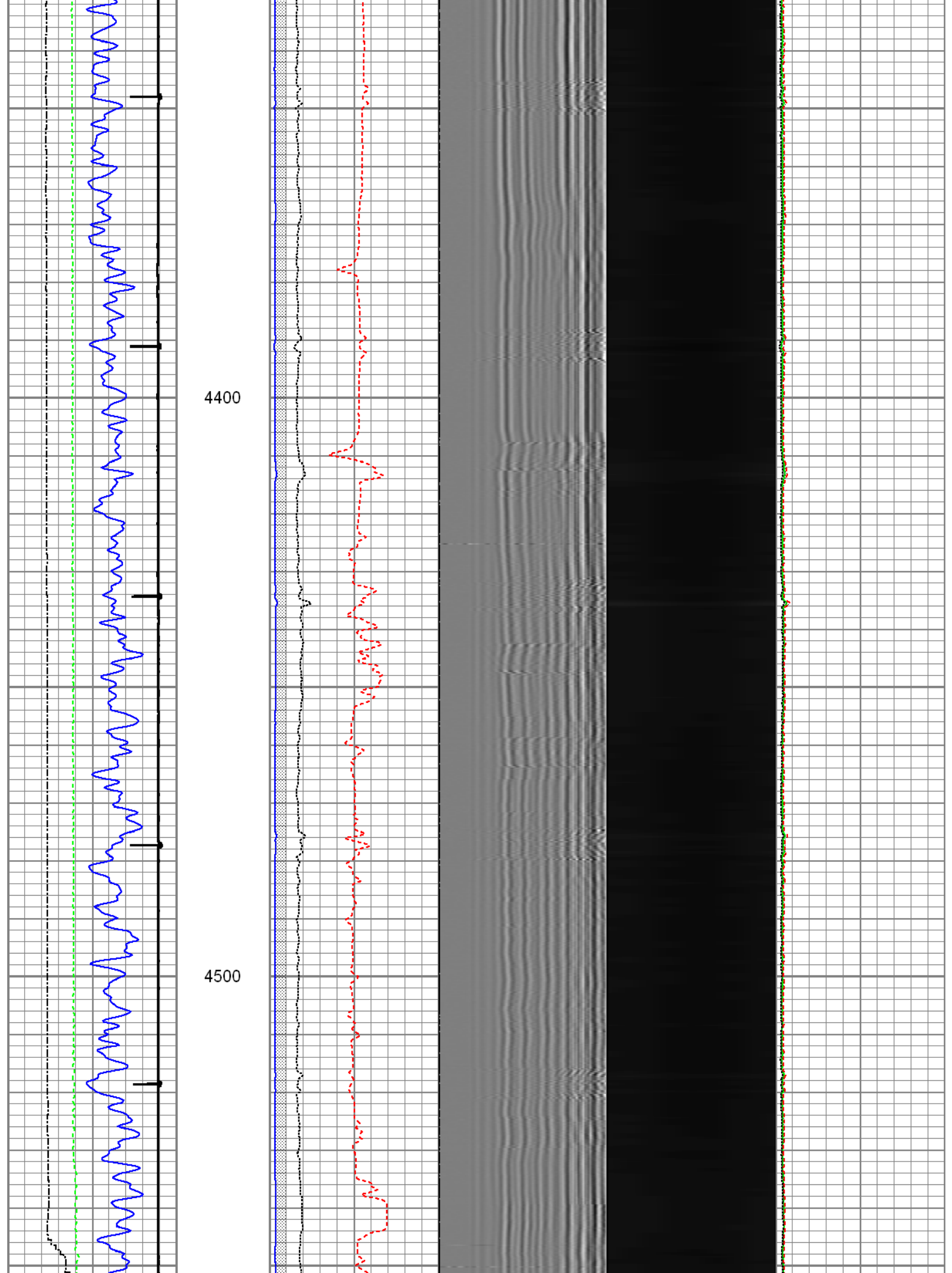
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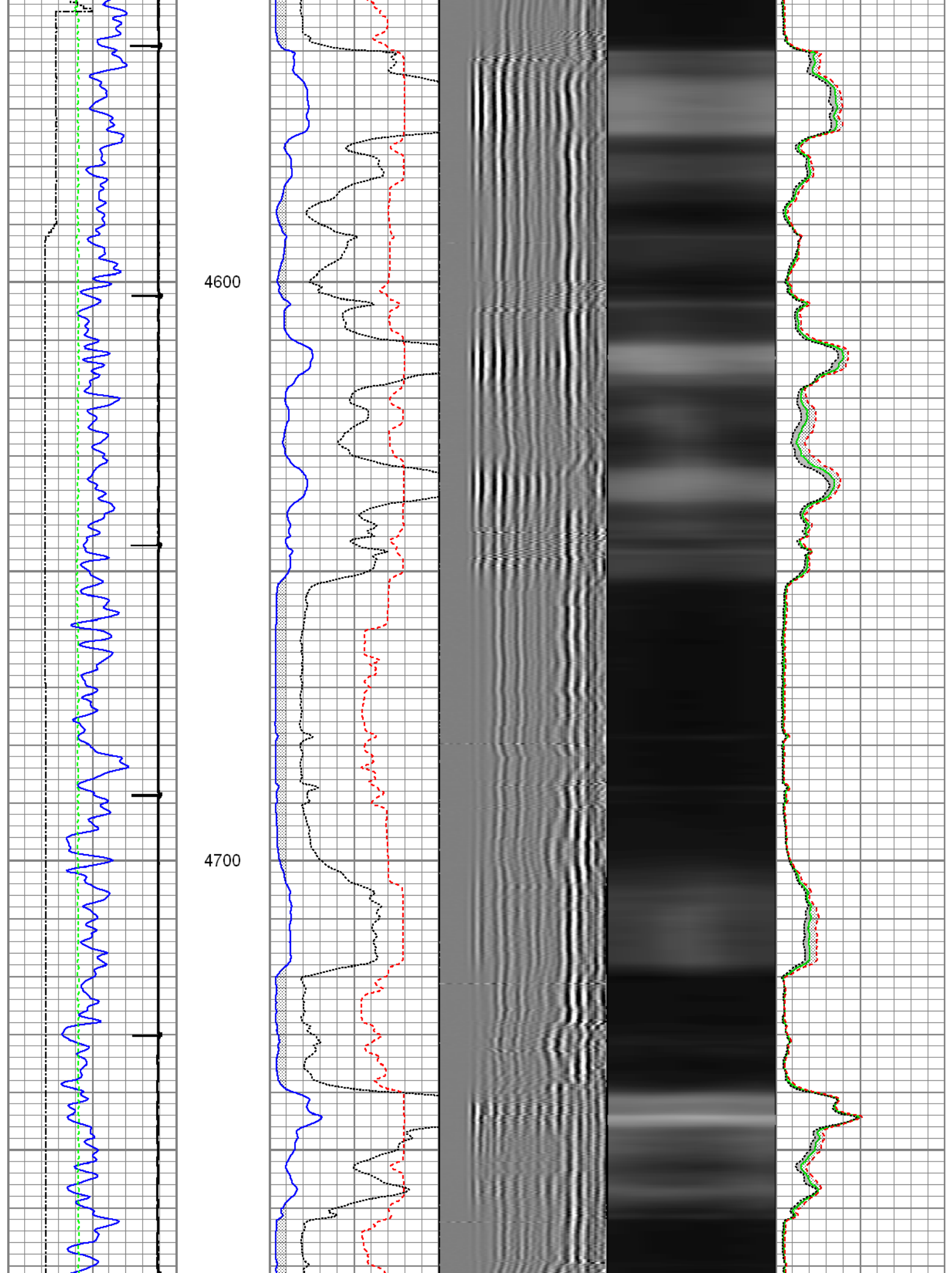
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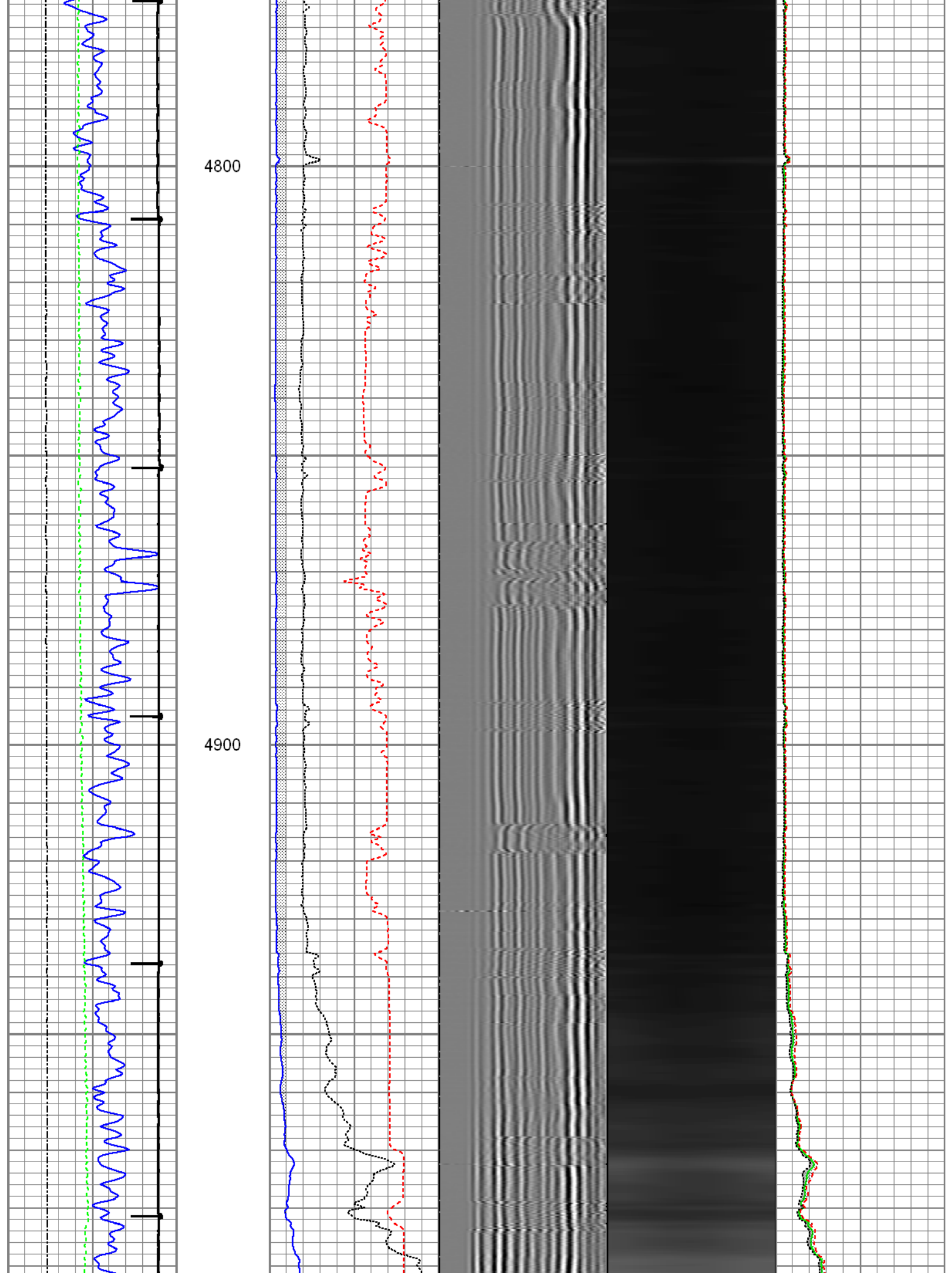
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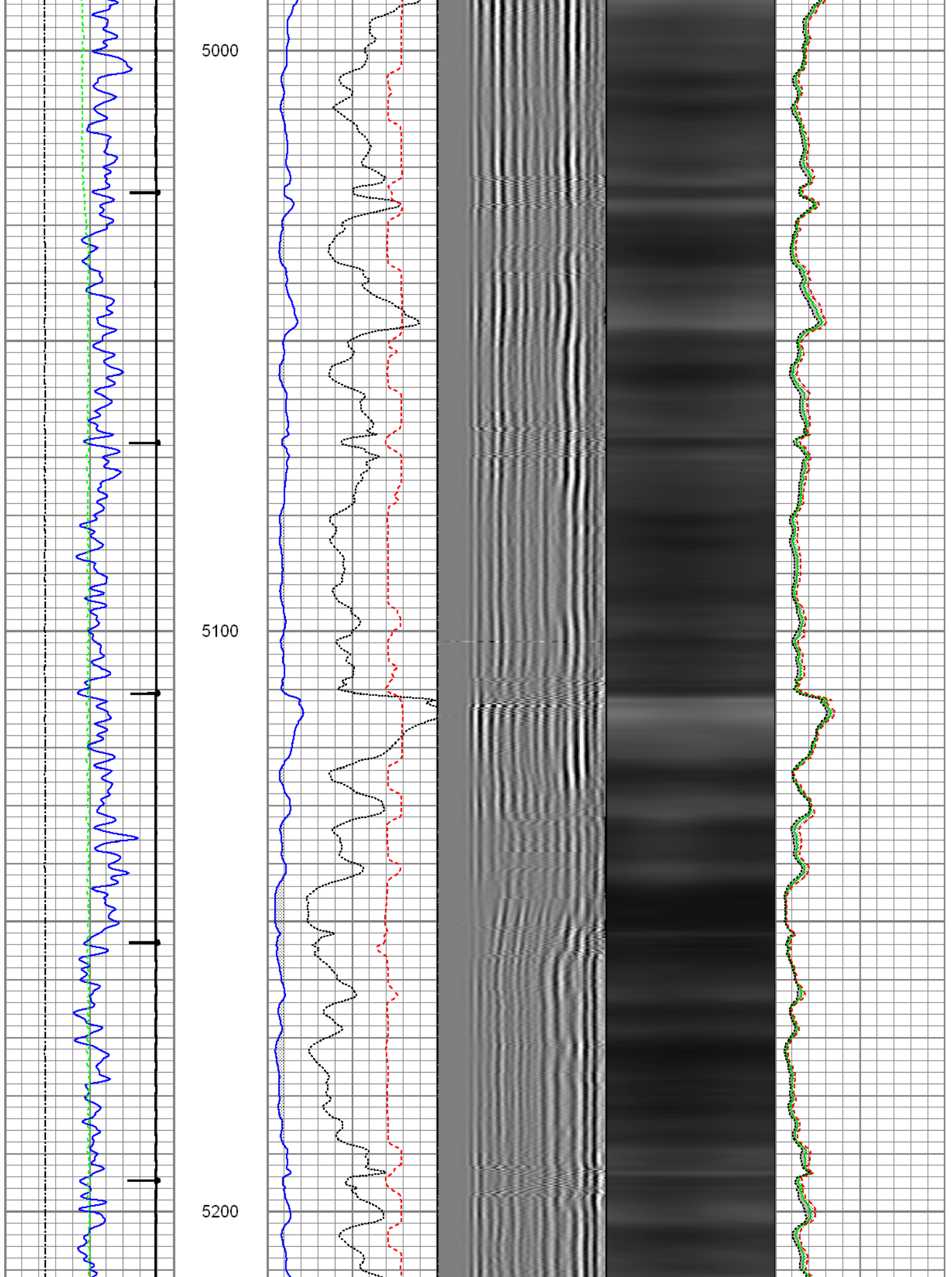


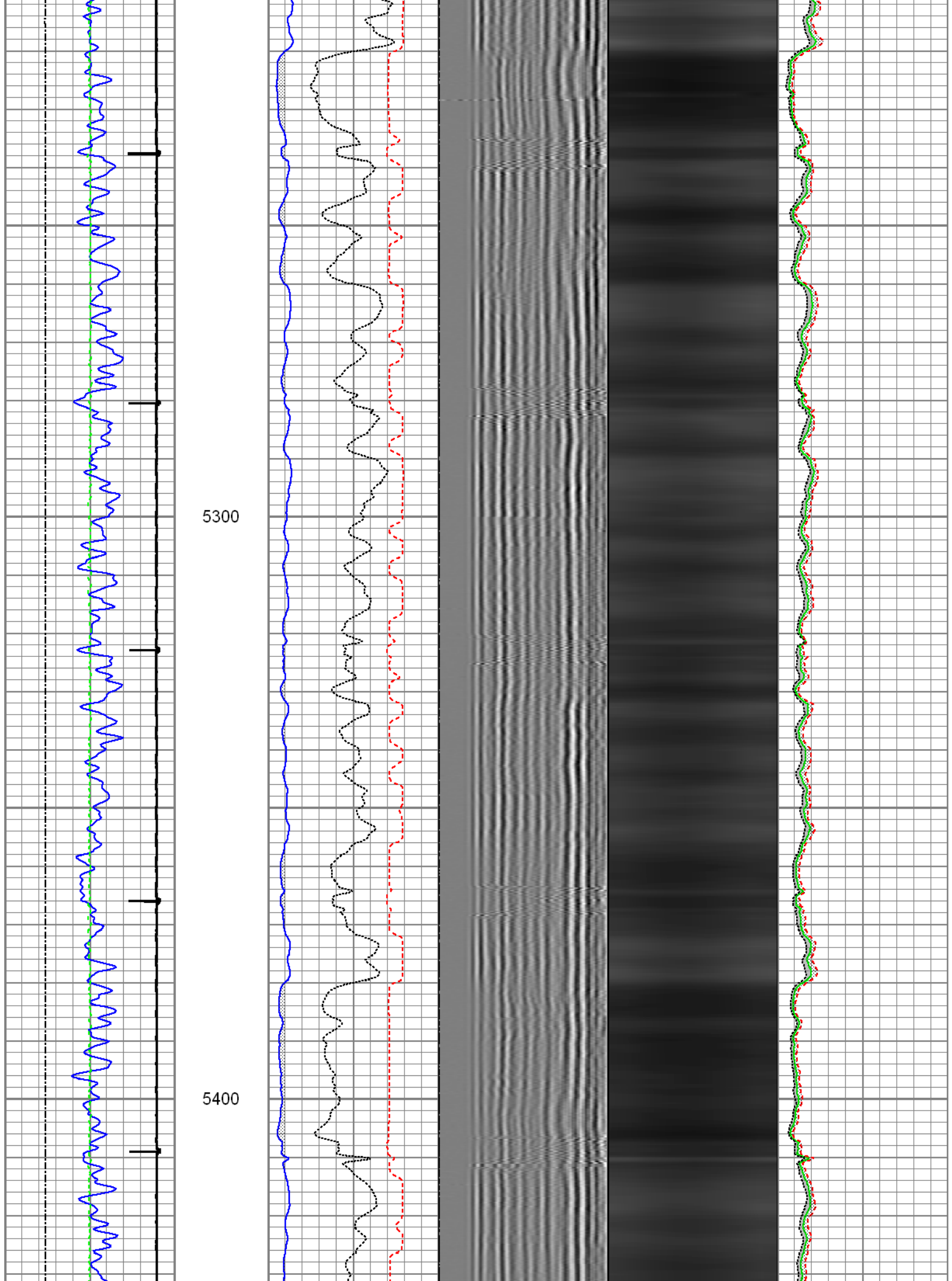


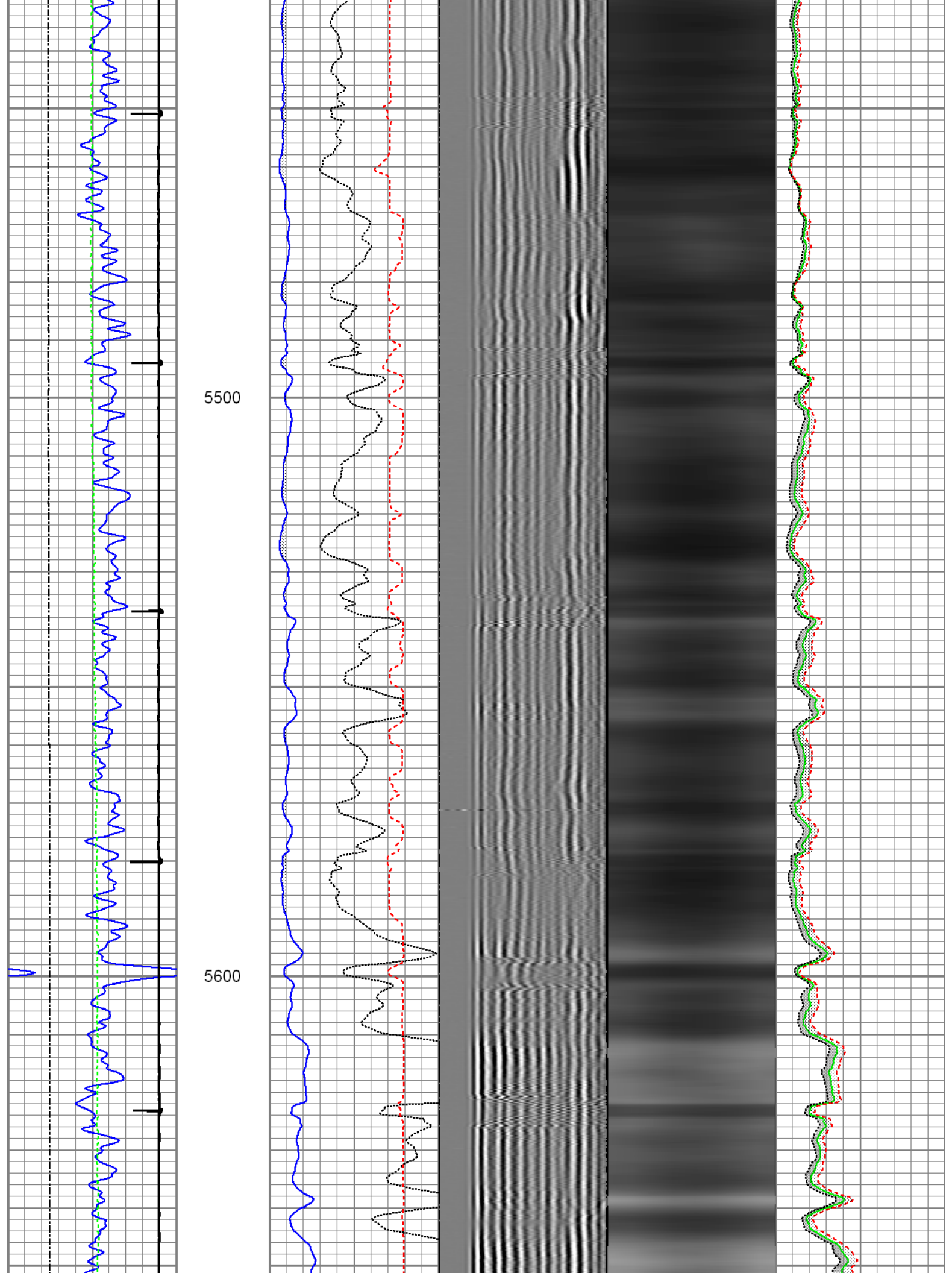


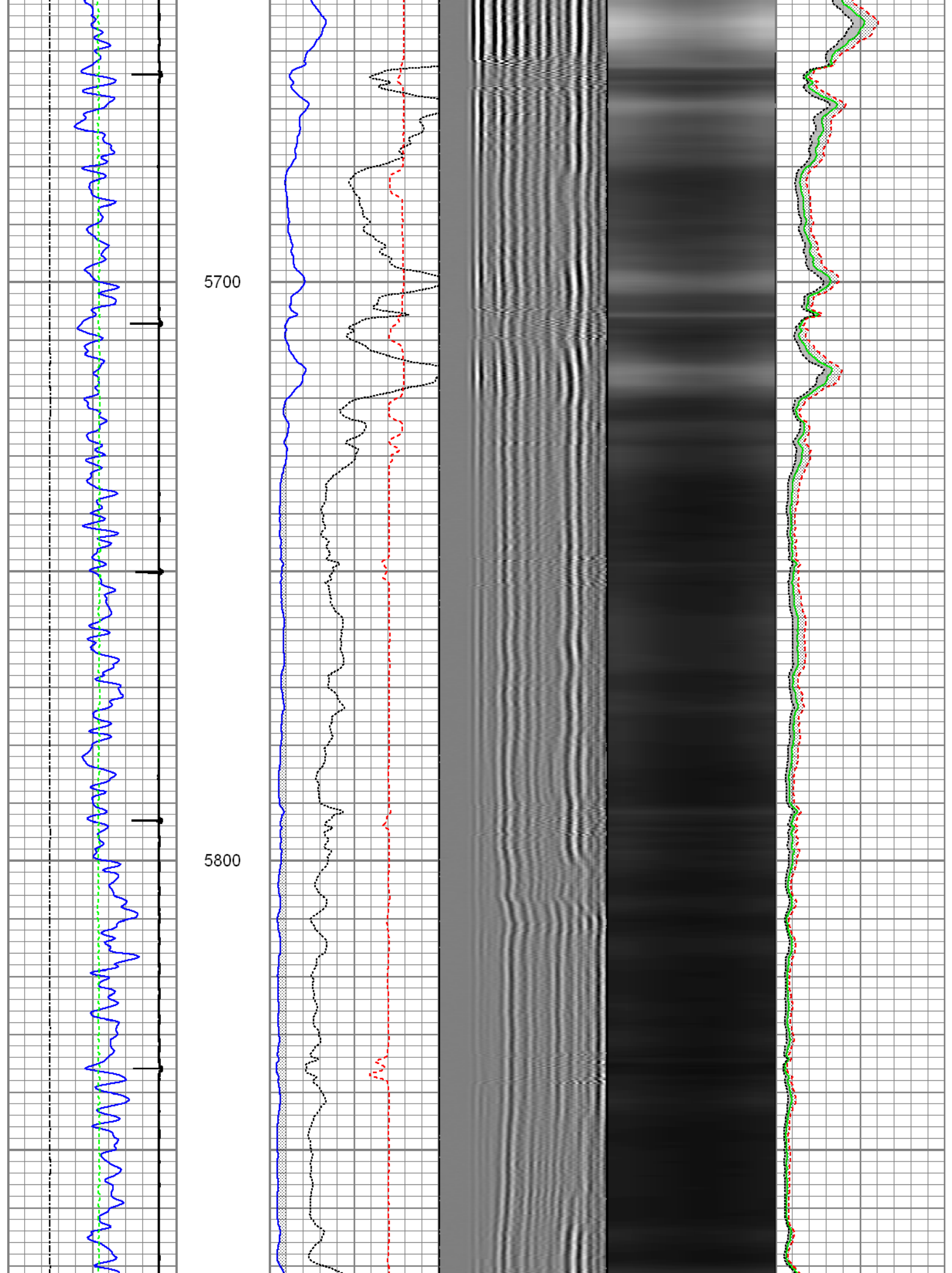


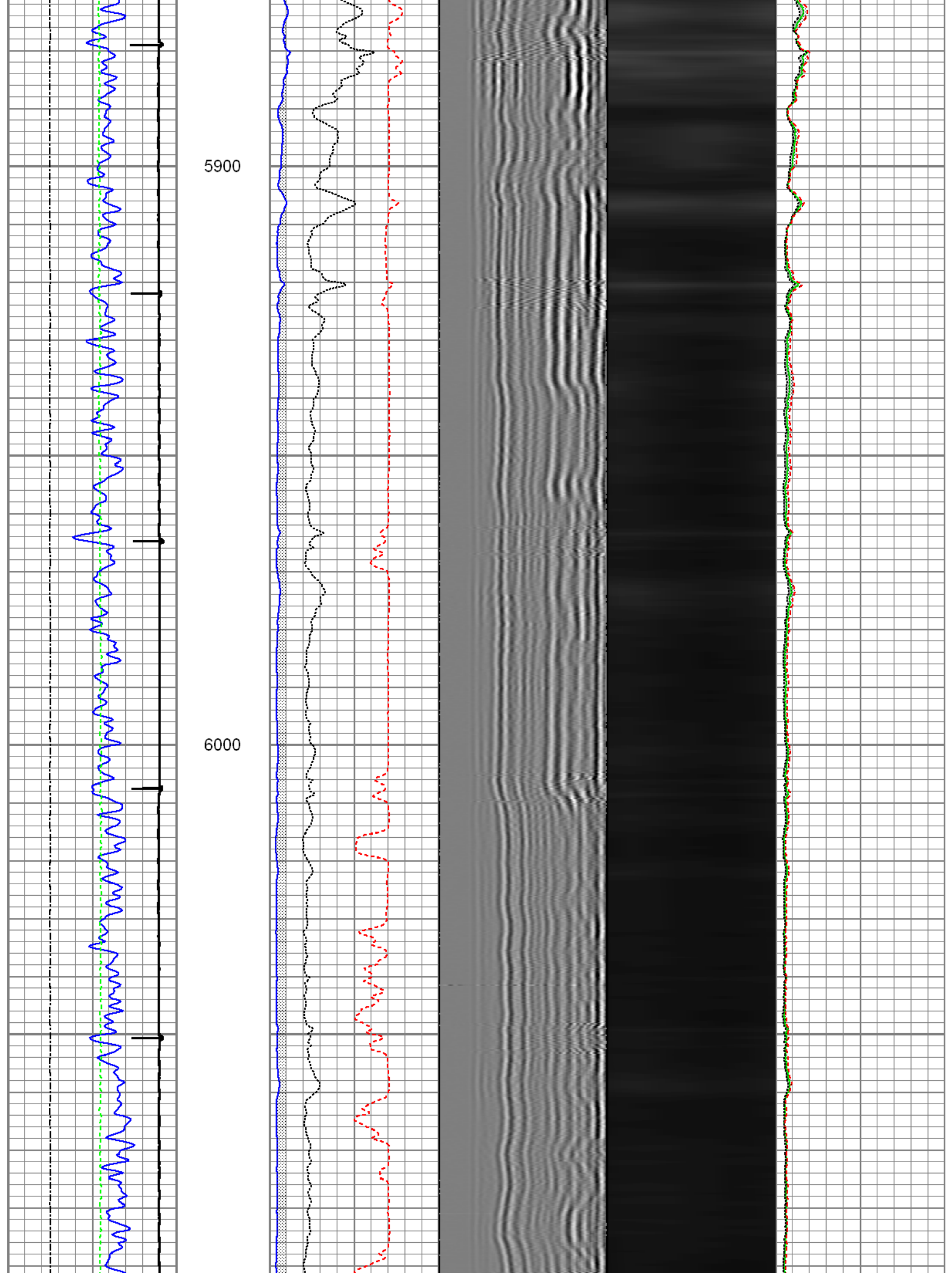








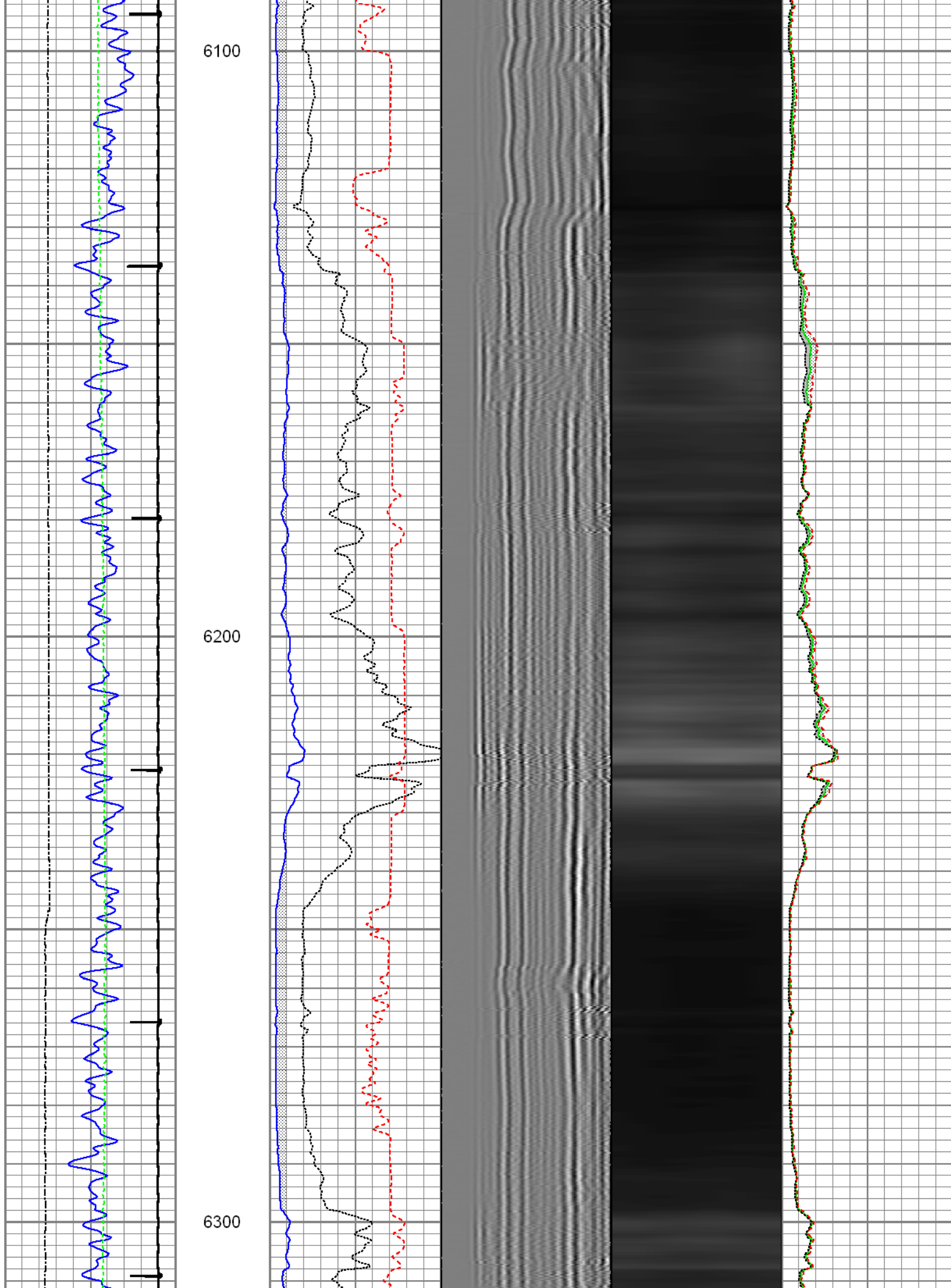


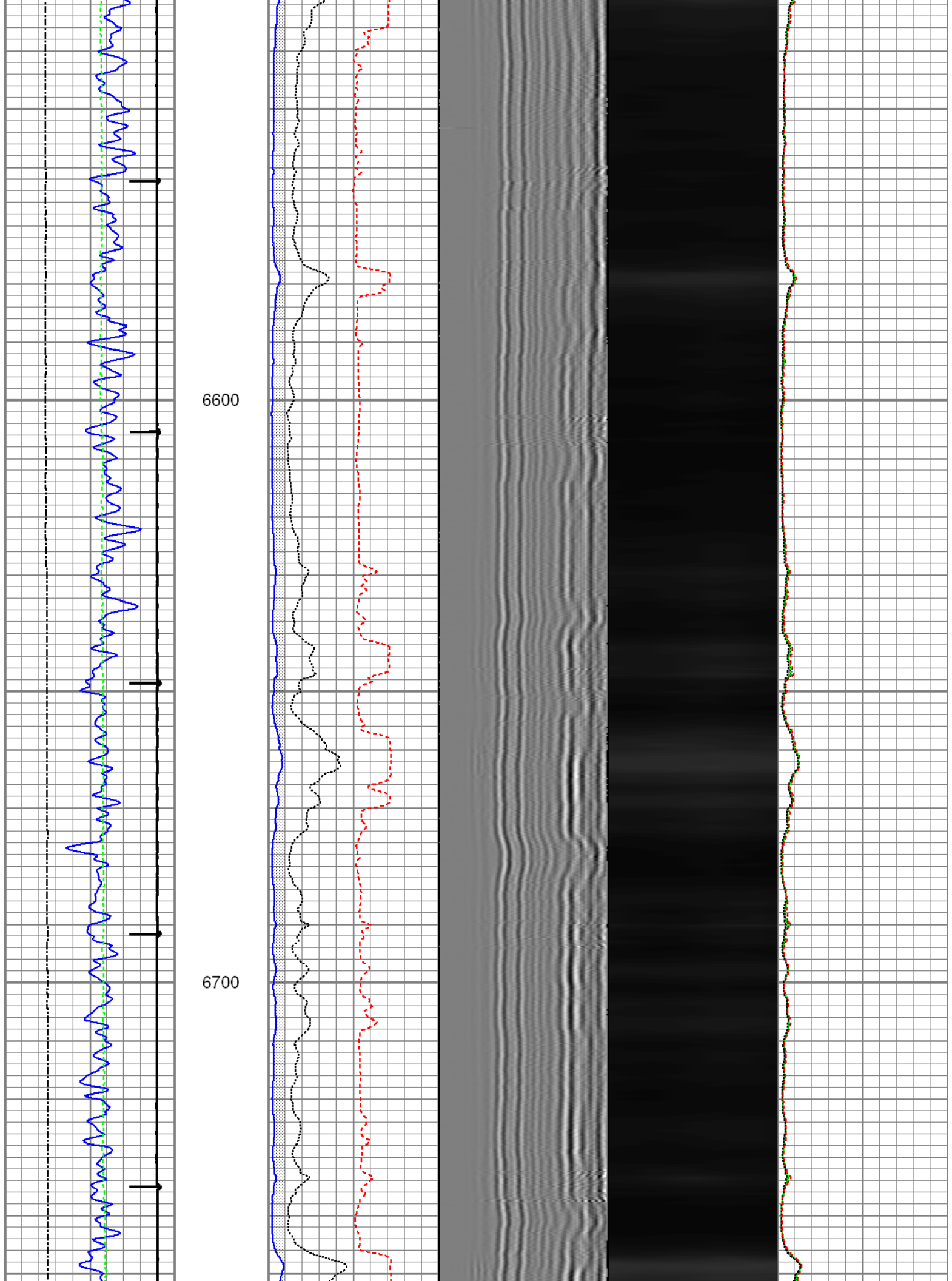


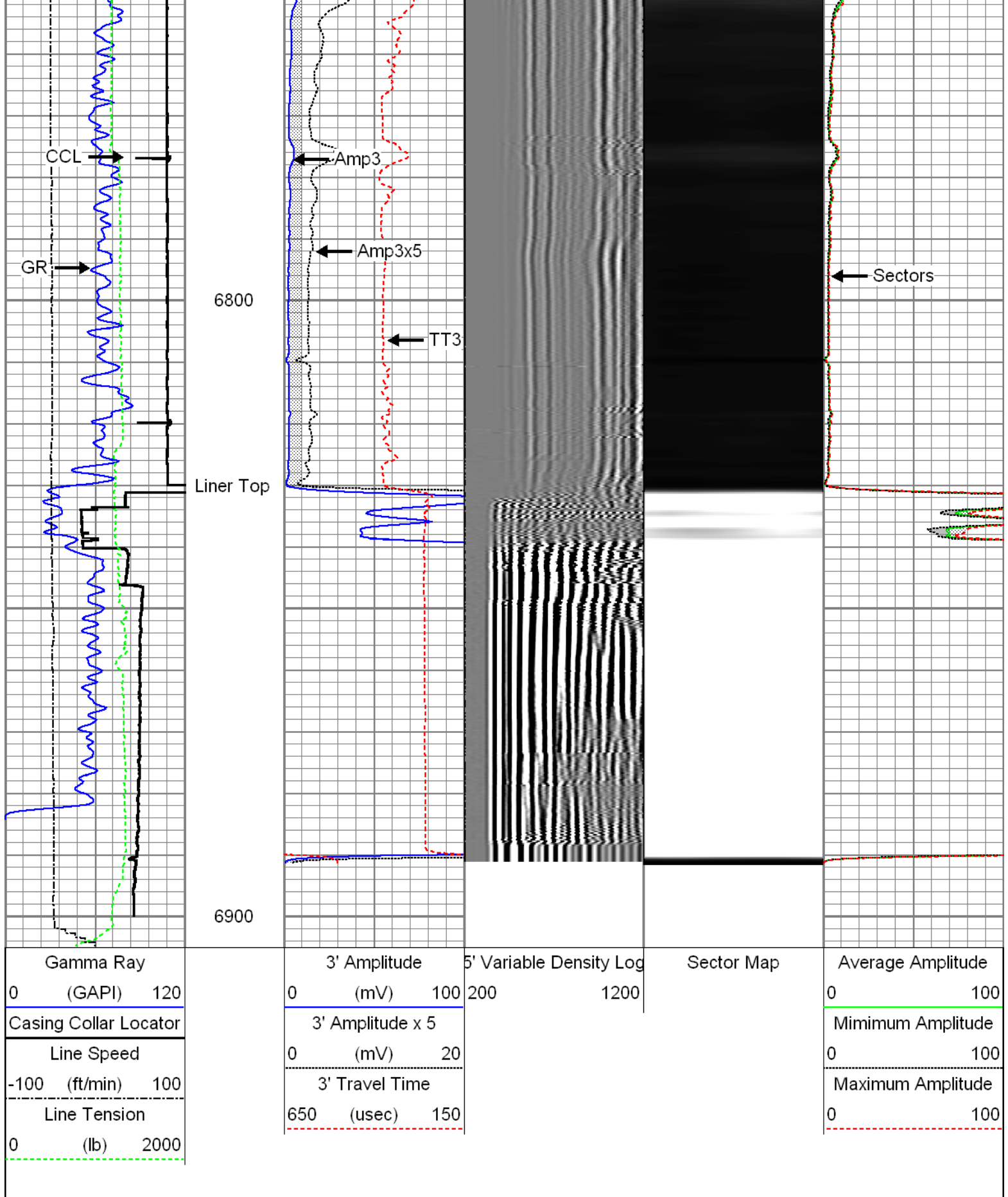
6100

6200

6300

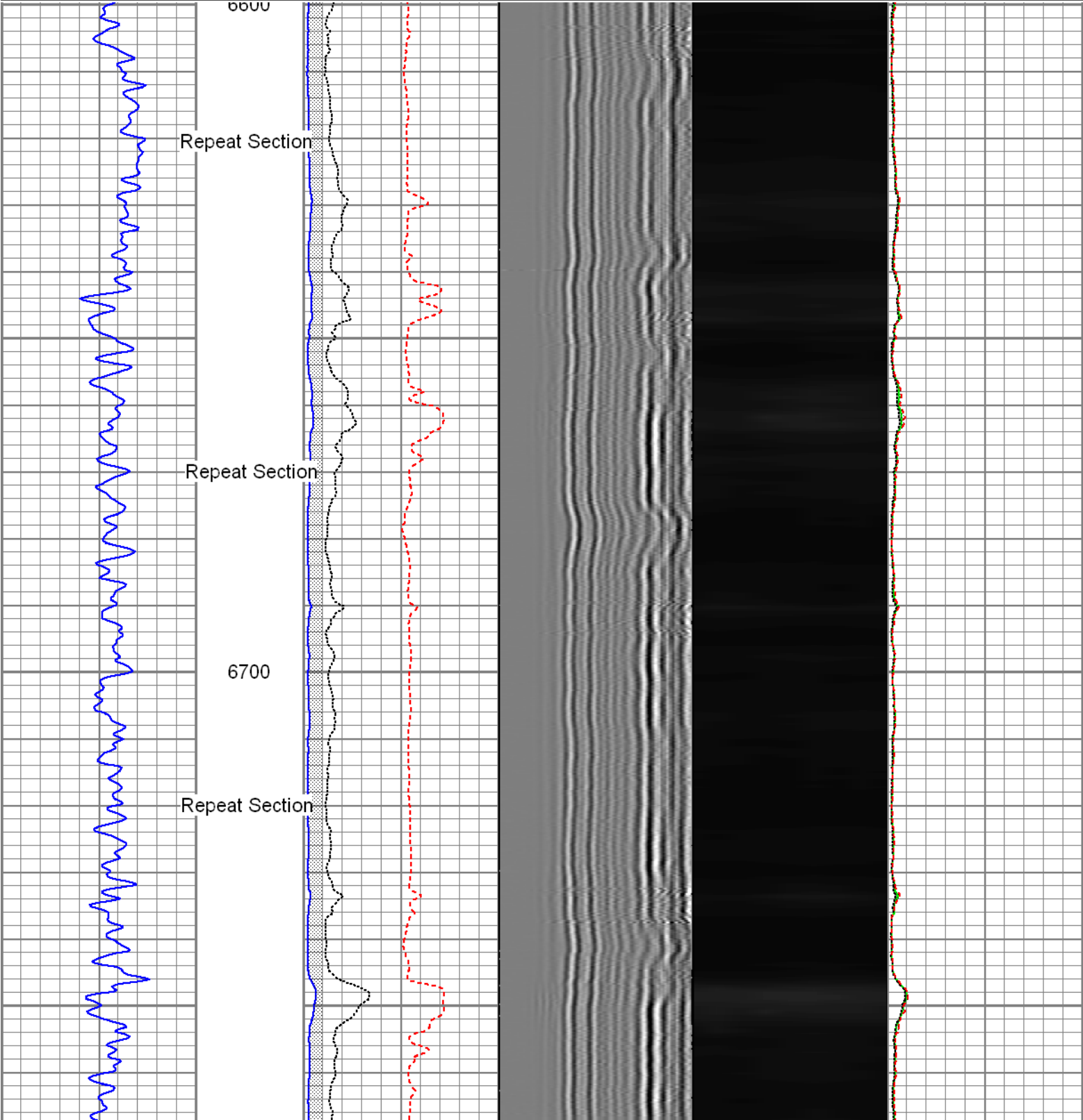


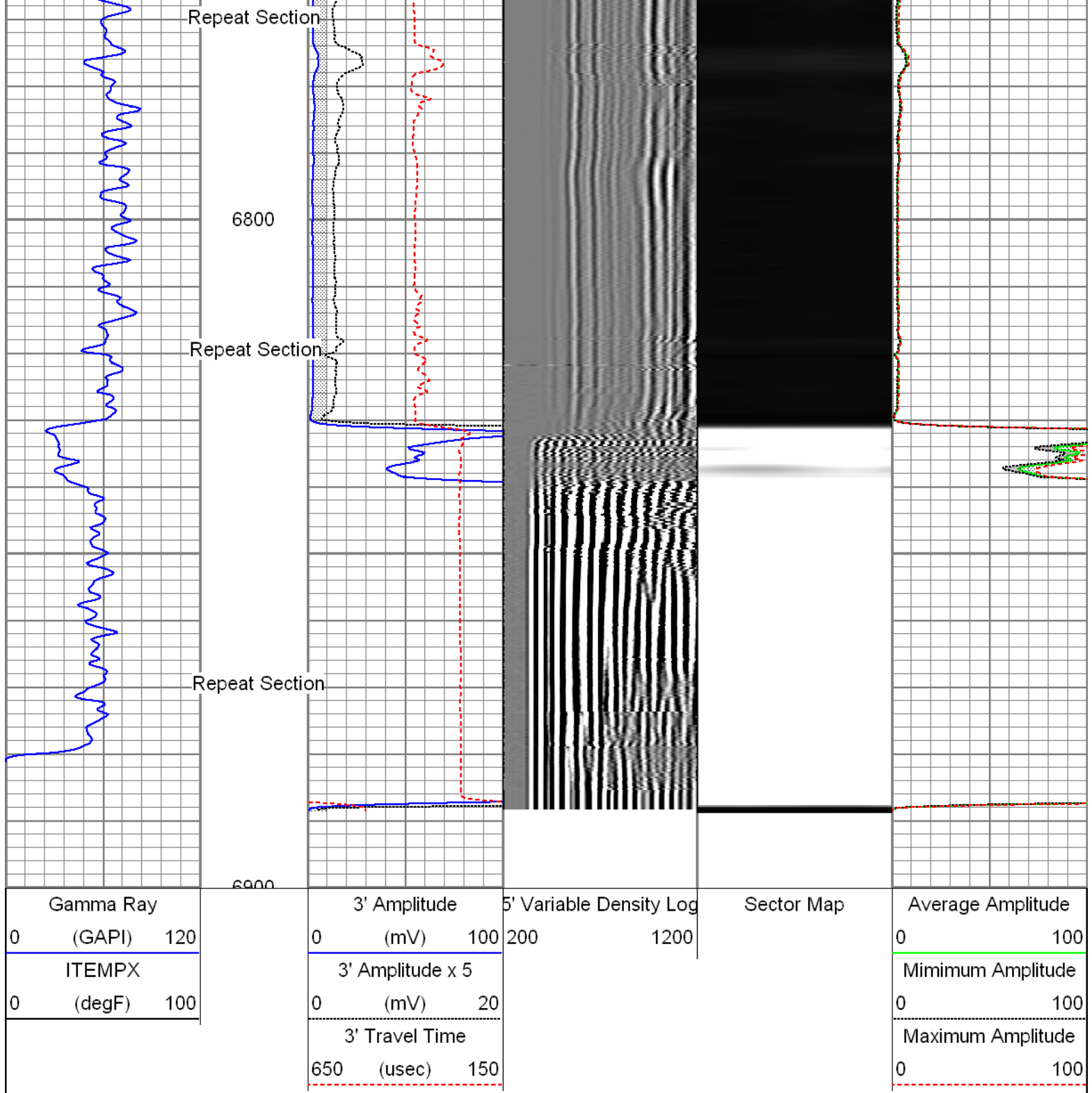




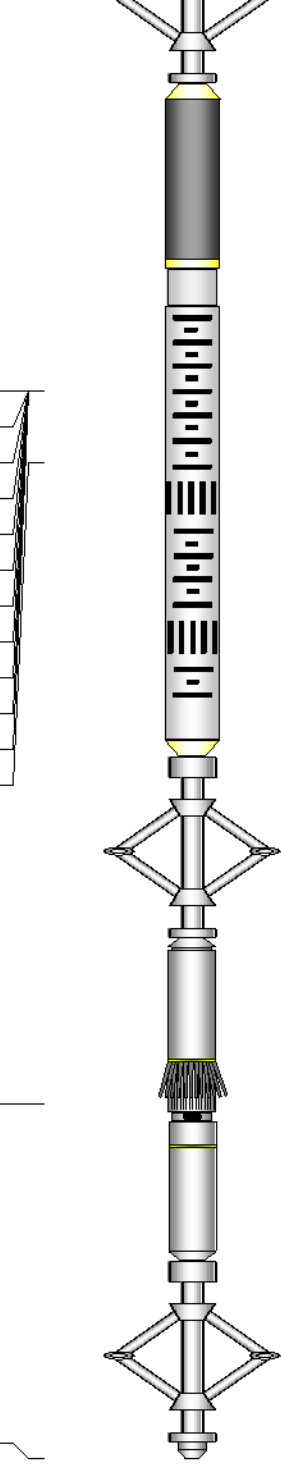
Database File: 0512339301_anadarko_sickler 27n-34hz_08-17-14_mit_rbl.db
Dataset Pathname: pass27
Presentation Format: rbt4_mit
Dataset Creation: Sun Aug 17 14:58:53 2014 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

Gamma Ray			3' Amplitude			5' Variable Density Log		Sector Map		Average Amplitude	
0	(GAPI)	120	0	(mV)	100	200	1200			0	100
ITEMPX			3' Amplitude x 5							Minimum Amplitude	
0	(degF)	100	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	22.37		T_CH14375_1_GO	1.03	1.44	4.00
			Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck			
			UW_AGS-UW_AGS_001 (215017)	0.21	1.69	1.00
			Sondex Adapter - GO Box to Sondex Pin			
			UW_XTU-UW_XTU_002 (10010519)	1.58	1.69	6.50
			Crossover Ultrawire Toolbus to Ultralink			
			UW_PGR-UW_PGR_020 (211727)	1.93	1.69	9.50
			Production Gamma Ray			
			UW_PRC #3 -DSSRAC (080)	2.55	2.75	32.00

			2-3/4" DSS 5 Arm Roller Centralizer			
WVF3FT	14.99		UW_RBT-UW_RBT_004 (1063) 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					
			UW_PRC #4 -DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
MIT	4.97		UW_MIT-UW_MIT40_027 (218950) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC-DSSRAC (084) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
TSTAMP	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512339301_Anadarko_Sickler 27N-34HZ_08-17-14_MIT_RBL.db: field/well/run1/pass28 Total Length: 26.62 ft Total Weight: 319.30 lb O.D. 3.13 in						

Calibration Report	
Database File:	0512339301_Anadarko_Sickler 27N-34HZ_08-17-14_MIT_RBL.db
Dataset Pathname:	pass29
Dataset Creation:	Sun Aug 17 18:01:08 2014 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:	Wed Apr 23 11:10:45 2014

Vertical:		Inc X	Inc Y
Finger 1 up:		1983	1966
Finger 31 up:		2225	2223
Finger 21 up:		1727	2194
Finger 11 up:		1746	1724
		2256	1730
Sensitivity ratio:	1.04732		
X-axis angle:	312.539		
Deviation const.:	344.577		

Finger Calibration Report

Performed: Sun Aug 17 13:46:33 2014

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1450	280.0	1730	290.0	2020	300.0	2320
Finger 02:	1553	252.0	1805	257.0	2062	263.0	2325
Finger 03:	1412	281.0	1693	290.0	1983	302.0	2285
Finger 04:	1434	283.0	1717	293.0	2010	298.0	2308
Finger 05:	1466	273.0	1739	279.0	2018	287.0	2305
Finger 06:	1404	283.0	1687	293.0	1980	307.0	2287
Finger 07:	1405	280.0	1685	292.0	1977	302.0	2279
Finger 08:	1432	276.0	1708	287.0	1995	297.0	2292
Finger 09:	1417	279.0	1696	295.0	1991	304.0	2295
Finger 10:	1441	272.0	1713	289.0	2002	296.0	2298
Finger 11:	1413	273.0	1686	292.0	1978	306.0	2284
Finger 12:	1394	281.0	1675	297.0	1972	312.0	2284
Finger 13:	1499	261.0	1760	274.0	2034	284.0	2318
Finger 14:	1429	272.0	1701	289.0	1990	303.0	2293
Finger 15:	1429	277.0	1706	298.0	2004	309.0	2313
Finger 16:	1447	272.0	1719	294.0	2013	305.0	2318
Finger 17:	1428	278.0	1706	297.0	2003	309.0	2312
Finger 18:	1467	266.0	1733	284.0	2017	298.0	2315
Finger 19:	1467	269.0	1736	294.0	2030	298.0	2328
Finger 20:	1463	268.0	1731	294.0	2025	301.0	2326
Finger 21:	1442	279.0	1721	306.0	2027	314.0	2341
Finger 22:	1474	262.0	1736	284.0	2020	292.0	2312
Finger 23:	1477	268.0	1745	289.0	2034	295.0	2329
Finger 24:	1482	270.0	1752	289.0	2041	292.0	2333
Finger 25:	1469	268.0	1737	291.0	2028	294.0	2322
Finger 26:	1467	272.0	1739	294.0	2033	299.0	2332
Finger 27:	1500	267.0	1767	286.0	2053	287.0	2340
Finger 28:	1492	275.0	1767	291.0	2058	291.0	2349
Finger 29:	1551	259.0	1810	274.0	2084	278.0	2362
Finger 30:	1459	272.0	1731	292.0	2023	299.0	2322
Finger 31:	1475	279.0	1754	296.0	2050	299.0	2349
Finger 32:	1530	265.0	1795	277.0	2072	278.0	2350
Finger 33:	1470	281.0	1751	302.0	2053	302.0	2355
Finger 34:	1455	274.0	1729	295.0	2024	305.0	2329
Finger 35:	1516	257.0	1773	269.0	2042	273.0	2315
Finger 36:	1496	266.0	1762	282.0	2044	289.0	2333
Finger 37:	1461	280.0	1741	293.0	2034	300.0	2334
Finger 38:	1520	252.0	1772	262.0	2034	272.0	2306
Finger 39:	1476	271.0	1747	285.0	2032	287.0	2319
Finger 40:	1411	287.0	1698	300.0	1998	307.0	2305

Post Survey Calibration Check

Performed: Sun Aug 17 17:59:51 2014

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.021	0.011	5.010	0.005	6.009	0.004	7.007	0.004
Finger 02:	4.019	0.009	5.015	0.007	6.005	0.003	7.001	0.001
Finger 03:	4.016	0.008	5.008	0.004	6.010	0.005	7.006	0.003

Finger 04:	4.018	0.009	5.011	0.006	6.011	0.006	7.005	0.003
Finger 05:	4.012	0.006	5.008	0.004	6.010	0.005	7.005	0.003
Finger 06:	4.019	0.009	5.018	0.009	6.016	0.008	7.013	0.007
Finger 07:	4.017	0.008	5.011	0.006	6.003	0.002	7.011	0.005
Finger 08:	4.013	0.006	5.009	0.004	6.007	0.003	7.008	0.004
Finger 09:	4.012	0.006	5.009	0.005	6.007	0.003	7.008	0.004
Finger 10:	4.017	0.009	5.015	0.007	6.009	0.004	7.006	0.003
Finger 11:	4.015	0.007	5.024	0.012	6.013	0.006	7.007	0.003
Finger 12:	4.012	0.006	5.009	0.005	6.014	0.007	7.008	0.004
Finger 13:	4.013	0.006	5.009	0.005	6.010	0.005	7.001	0.000
Finger 14:	4.044	0.022	5.019	0.009	6.015	0.007	7.009	0.004
Finger 15:	4.013	0.007	5.011	0.006	6.004	0.002	7.002	0.001
Finger 16:	4.034	0.017	5.020	0.010	6.018	0.009	7.011	0.006
Finger 17:	4.028	0.014	5.016	0.008	6.016	0.008	7.010	0.005
Finger 18:	4.017	0.009	5.013	0.007	6.013	0.007	6.991	-0.004
Finger 19:	4.017	0.009	5.011	0.006	6.003	0.002	7.006	0.003
Finger 20:	4.015	0.008	5.015	0.007	6.003	0.001	7.007	0.003
Finger 21:	4.014	0.007	5.015	0.007	6.009	0.005	7.007	0.004
Finger 22:	4.015	0.007	5.015	0.007	6.012	0.006	7.005	0.002
Finger 23:	4.014	0.007	5.013	0.006	6.013	0.006	7.010	0.005
Finger 24:	4.019	0.009	5.009	0.004	6.005	0.003	6.998	-0.001
Finger 25:	4.010	0.005	5.011	0.006	6.008	0.004	7.012	0.006
Finger 26:	4.011	0.006	5.013	0.006	6.009	0.005	7.006	0.003
Finger 27:	4.021	0.011	5.013	0.006	6.009	0.005	7.009	0.005
Finger 28:	4.024	0.012	5.013	0.006	6.013	0.007	7.009	0.004
Finger 29:	4.020	0.010	5.010	0.005	6.009	0.004	7.005	0.002
Finger 30:	4.017	0.008	5.016	0.008	6.015	0.008	7.017	0.009
Finger 31:	4.016	0.008	5.011	0.005	6.010	0.005	7.010	0.005
Finger 32:	4.017	0.009	5.012	0.006	6.013	0.006	7.007	0.003
Finger 33:	4.022	0.011	5.012	0.006	6.007	0.003	7.005	0.003
Finger 34:	4.016	0.008	5.016	0.008	6.011	0.006	6.998	-0.001
Finger 35:	4.019	0.009	5.015	0.008	6.008	0.004	7.000	0.000
Finger 36:	4.020	0.010	5.019	0.009	6.009	0.005	7.007	0.003
Finger 37:	4.023	0.011	5.008	0.004	6.011	0.005	7.007	0.003
Finger 38:	4.024	0.012	5.022	0.011	6.014	0.007	7.004	0.002
Finger 39:	4.020	0.010	5.021	0.011	6.012	0.006	7.005	0.003
Finger 40:	4.017	0.009	5.012	0.006	6.010	0.005	7.009	0.005
Average:	4.018	0.009	5.013	0.007	6.010	0.005	7.006	0.003

Segmented Cement Bond Log Calibration Report						
Serial Number:		1063				
Tool Model:		UW_RBT_004				
Calibration Casing Diameter:		7.000	in			
Calibration Depth:		3666.299	ft			
Master Calibration, performed Sun Aug 17 14:23:14 2014:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	0.812	0.800	62.165	75.339	0.997
5FT	-0.005	0.781	0.800	62.165	78.060	1.181
S1	-0.004	0.779	0.000	100.000	127.747	0.449
S2	-0.004	0.789	0.000	100.000	126.124	0.462
S3	-0.003	0.806	0.000	100.000	123.593	0.374
S4	-0.004	0.850	0.000	100.000	117.104	0.429
S5	-0.002	0.860	0.000	100.000	116.000	0.283
S6	-0.003	0.841	0.000	100.000	118.490	0.369
S7	-0.003	0.818	0.000	100.000	121.811	0.306
S8	-0.003	0.788	0.000	100.000	126.451	0.340

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	Sickler 27N - 34HZ
Field	Wattenberg
County	Weld
State	Colorado