



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.				Company Kerr-McGee Oil & Gas Onshore, L.P.			
Well Aggregate State 15N-16HZ				Well Aggregate State 15N-16HZ			
Field Wattenberg				Field Wattenberg			
County Weld				County Weld			
State Colorado				State Colorado			
Location:				API # : 05-123-38329			
SHL: 2389' FSL & 970' FEL Lat/Long: 40.15193/-104.776243				Other Services Gauge Ring MIT			
SEC 9 TWP 2N RGE 66W				Elevation			
Permanent Datum		Ground Level		Elevation		4924'	
Log Measured From		Kelly Bushing		13 FT			
Drilling Measured From		Kelly Bushing					
Date 05-MAY-2014							
Run Number		Two					
Depth Driller		14780 FT					
Depth Logger		7443 FT					
Bottom Logged Interval		7439 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		14 FT					
Time Well Ready		12:00					
Time Logger on Bottom		14:30					
Equipment Number		HD 119					
Location		Fort Lupton, CO					
Recorded By		J. Raby					
Witnessed By		Trevor Daniel					
Borehole Record				Tubing Record			
Run Number		Bit		From		To	
Casing Record		Size (in)		Wgt (lbs/ft)		Grade	
Surface Casing		9 5/8"		36		J-55 LTC	
Intermediate #1							
Intermediate #2		7"		26		P-110 LTC DQX	
Liner		4 1/2"		11.6		P-110 LTC DQX	

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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 6599 FT.
Adjusted log -20 FT to correlate with Liner Top.
Gauge ring/Junk Basket run to 7515 FT with no debris found in the basket prior to log run.
Log ran from as deep as possible in heel.
Log ran with 2600 PSI surface induced pressure.
No debris found on logging tools upon completion of operations.

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



7" Main Pass

Database File: 0512338329_anadarko_aggregate state 15n-16hz_05-05-14_mit_rbl.db

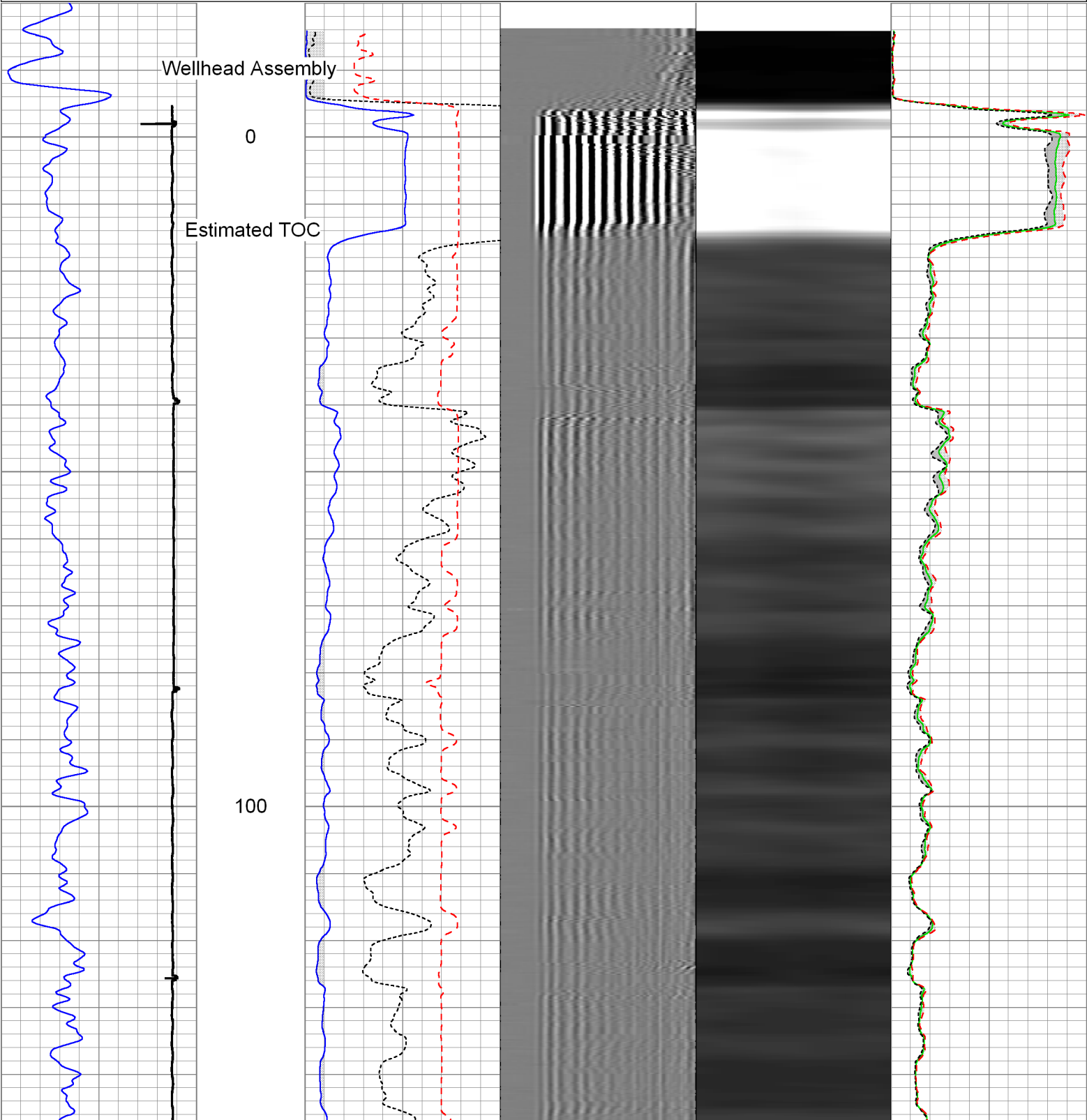
Dataset Pathname: pass7

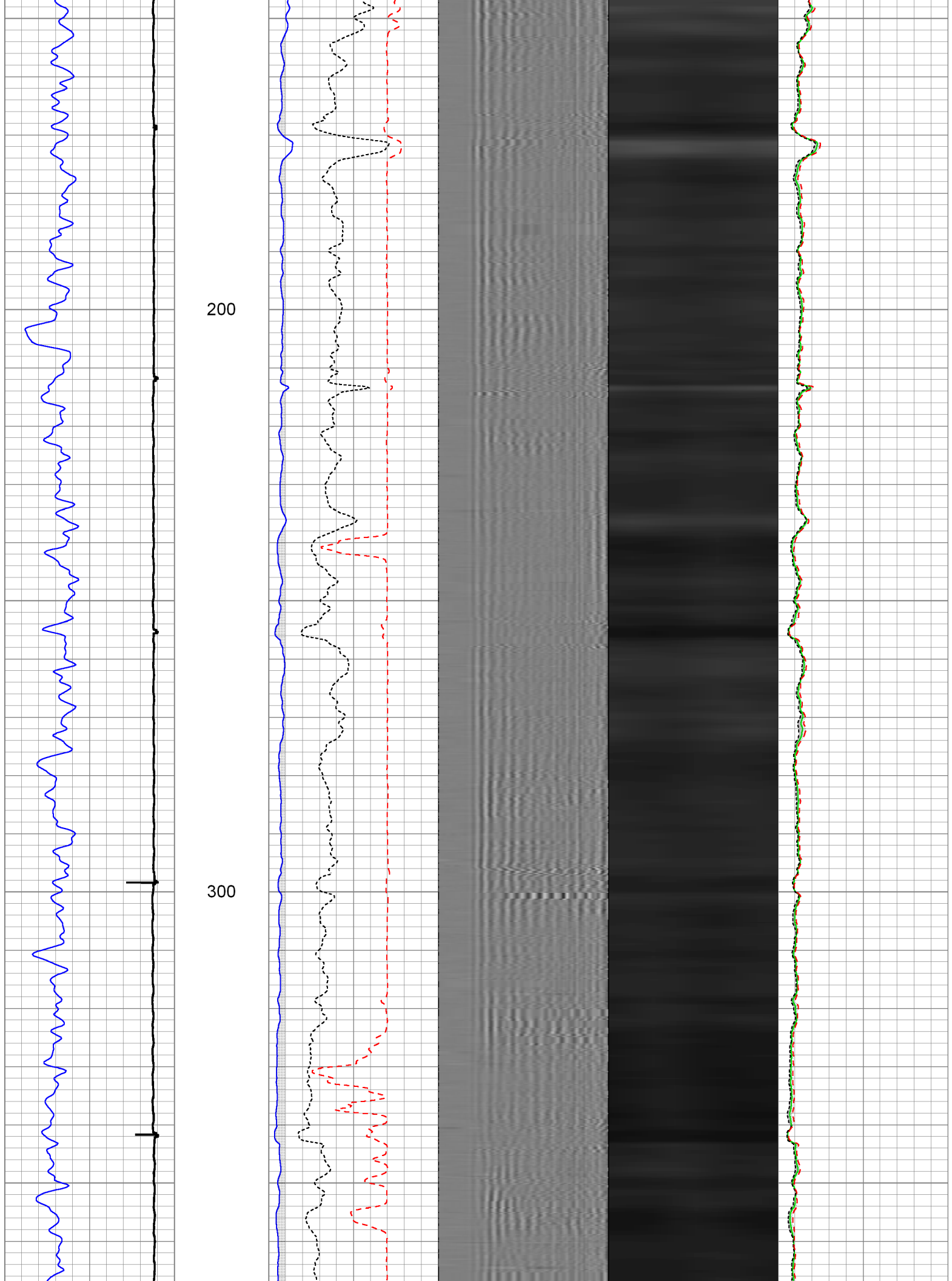
Presentation Format: rbt007

Dataset Creation: Mon May 05 15:00:55 2014 by Log Sondex V7.03

Charted by: Depth in Feet scaled 1:240

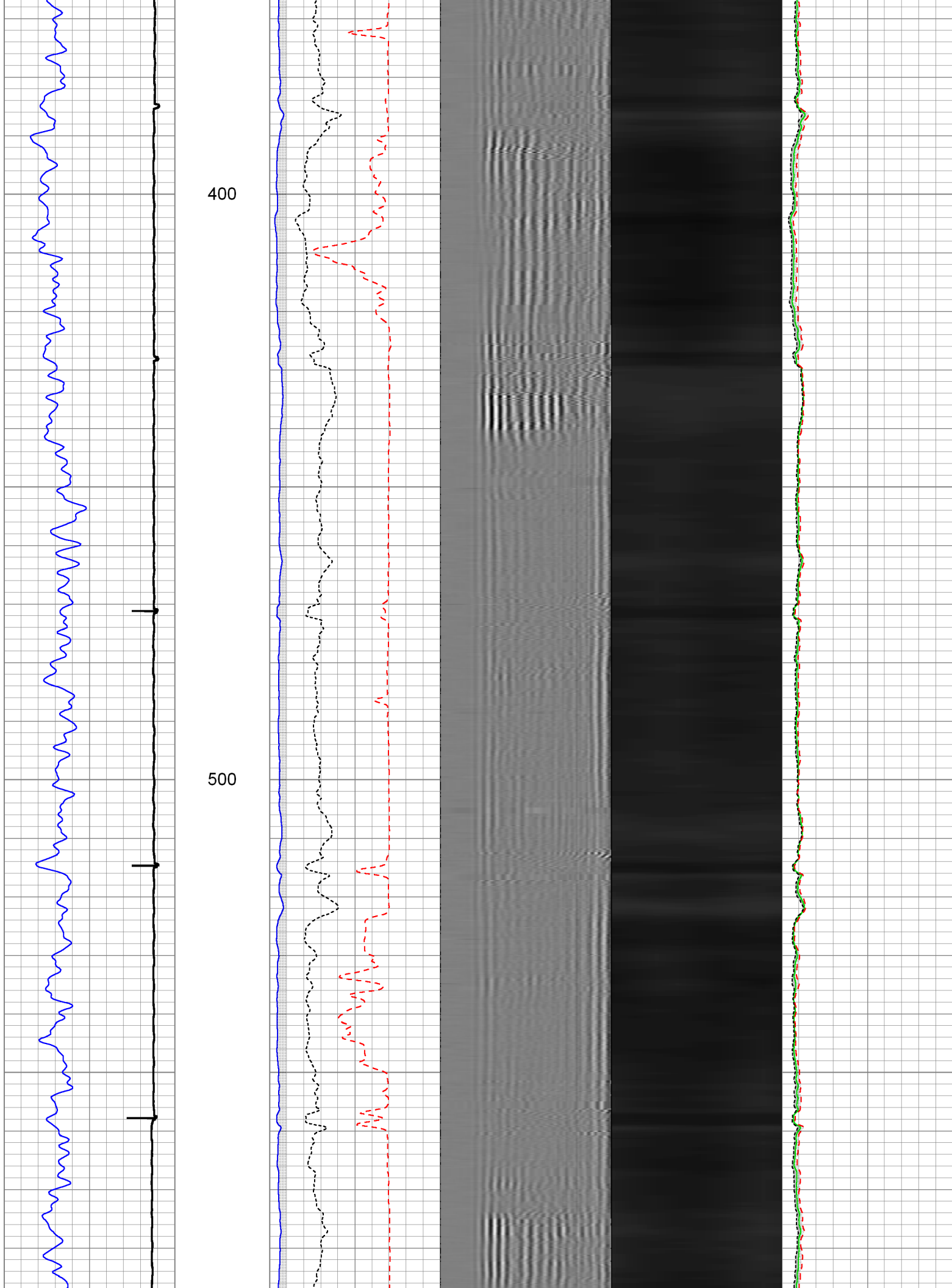
Gamma Ray			3' Amplitude			5' Variable Density Log	Sector Map	Average Amplitude	
0	(GAPI)	120	0	(mV)	100			0	100
Collar Locator			3' Amplitude x 5					Minimum Amplitude	
			0	(mV)	20			0	100
			3' Travel Time					Maximum Amplitude	
			650	(usec)	150			0	100

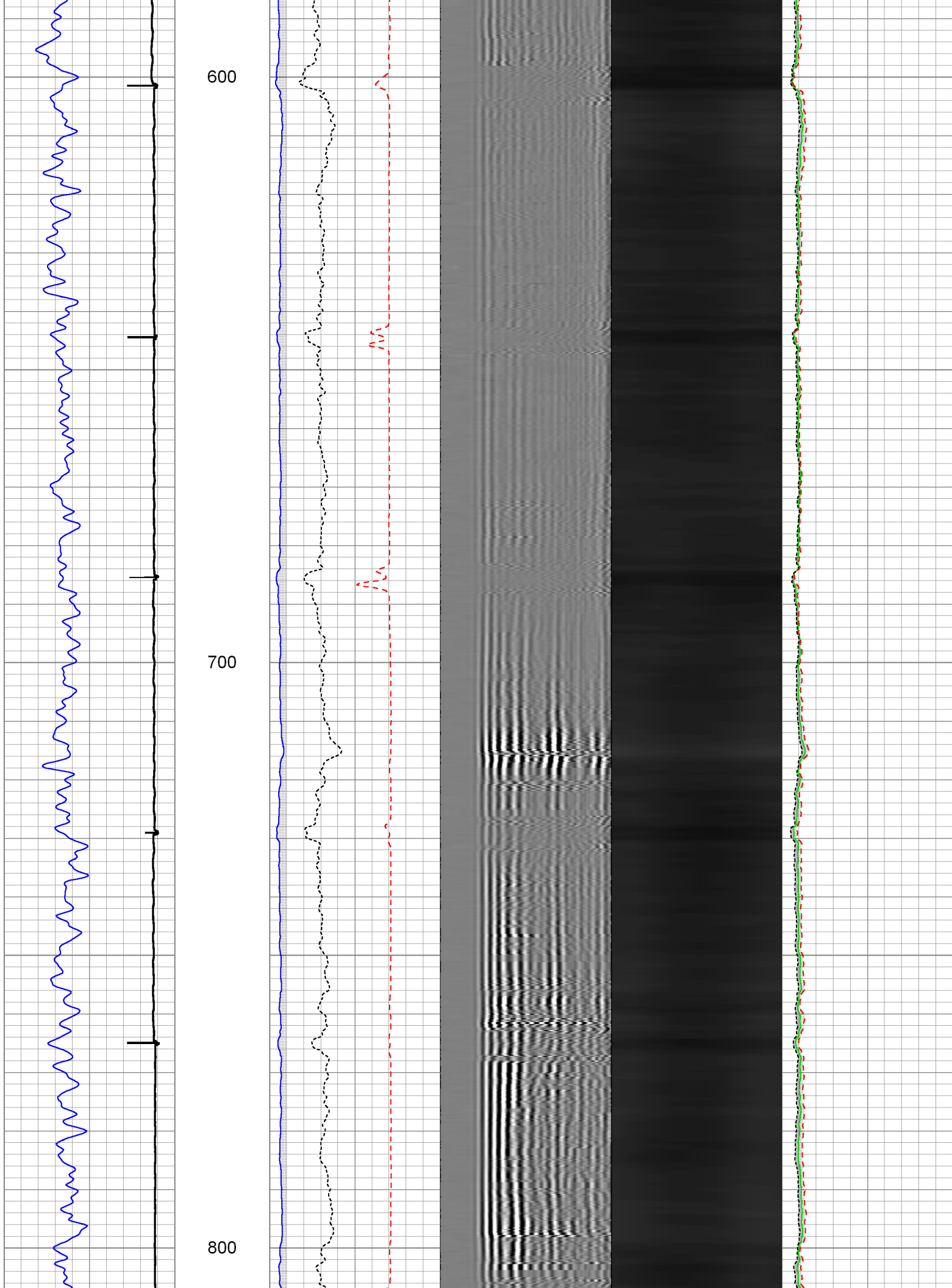


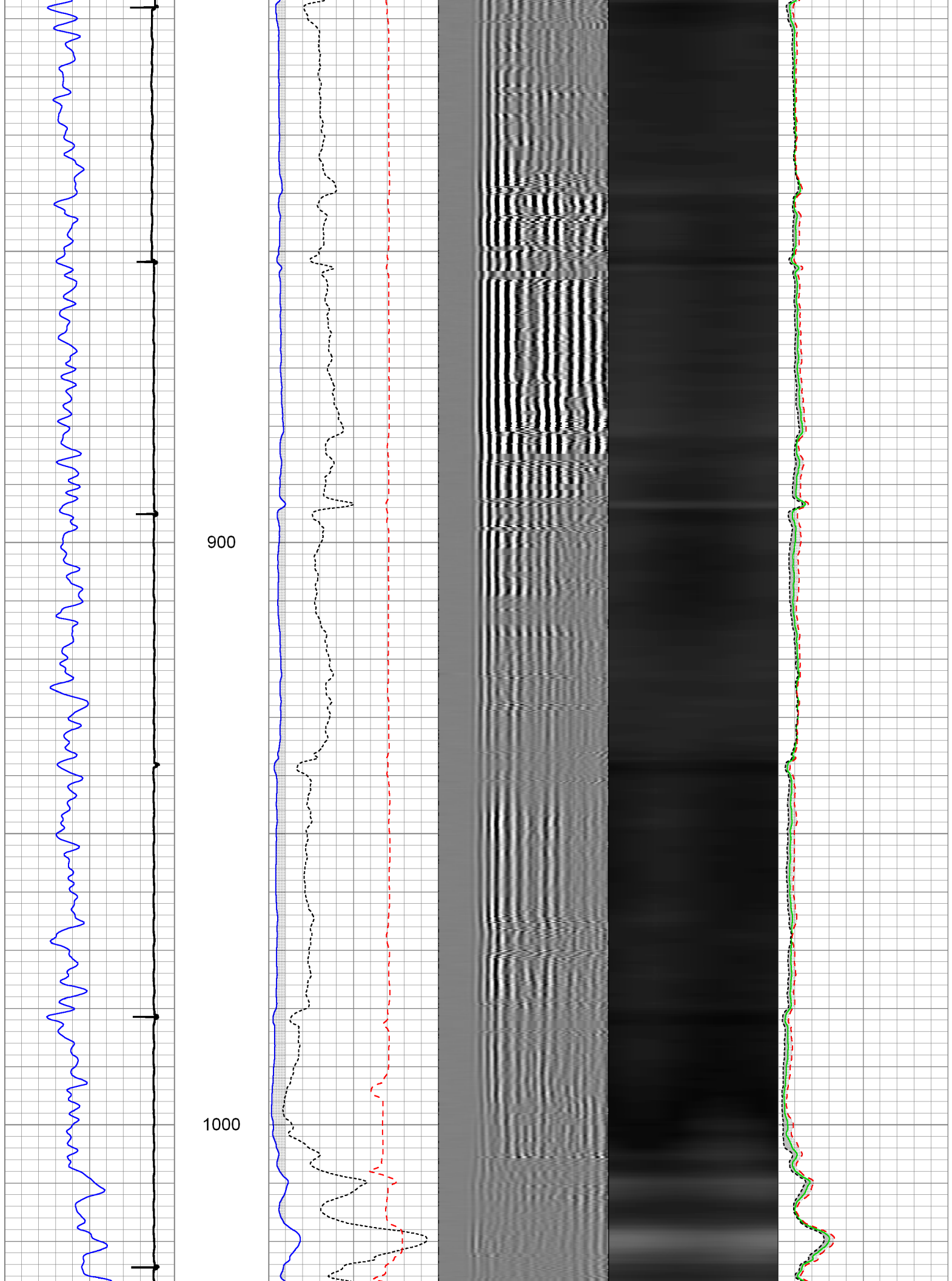


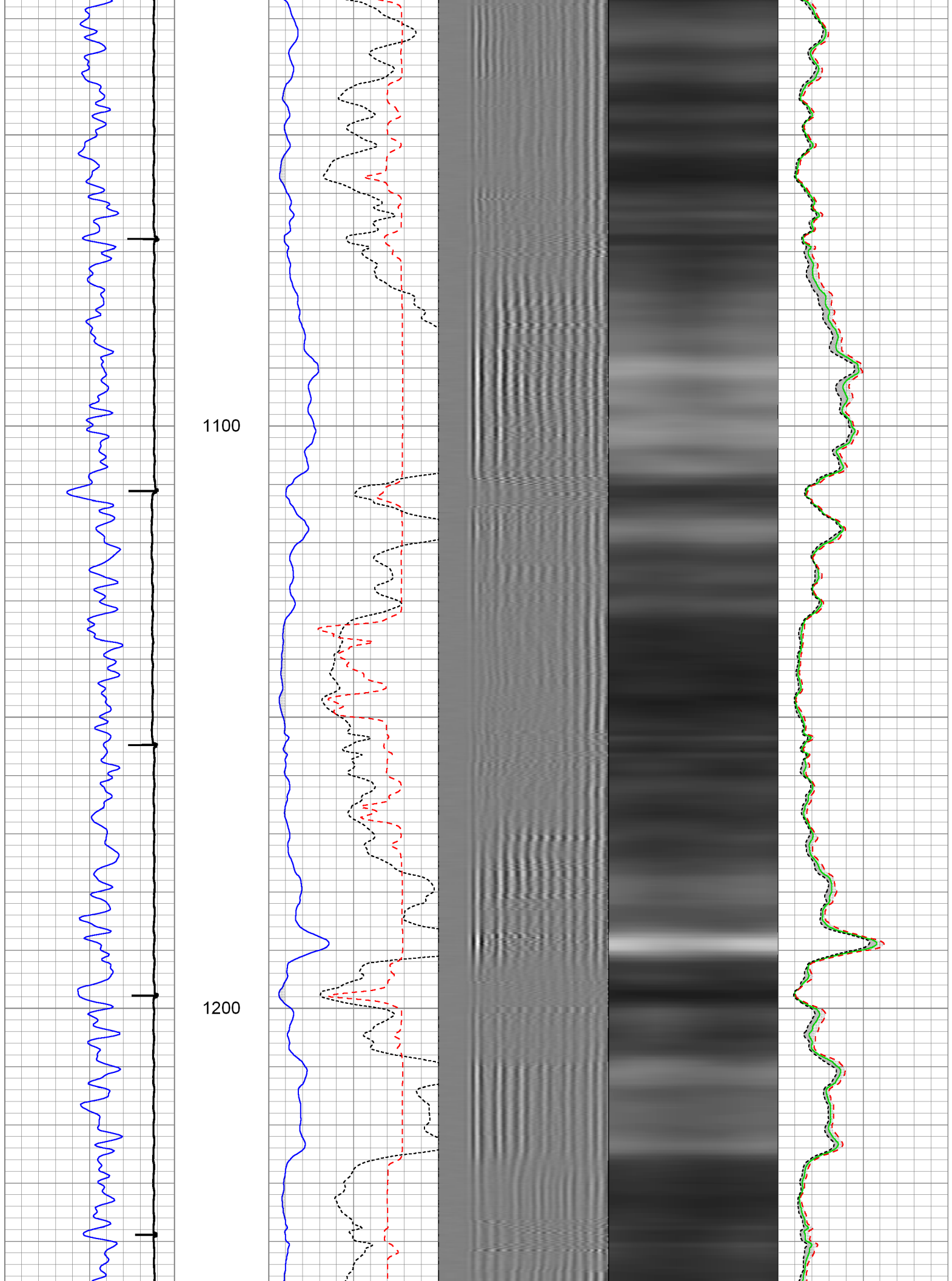
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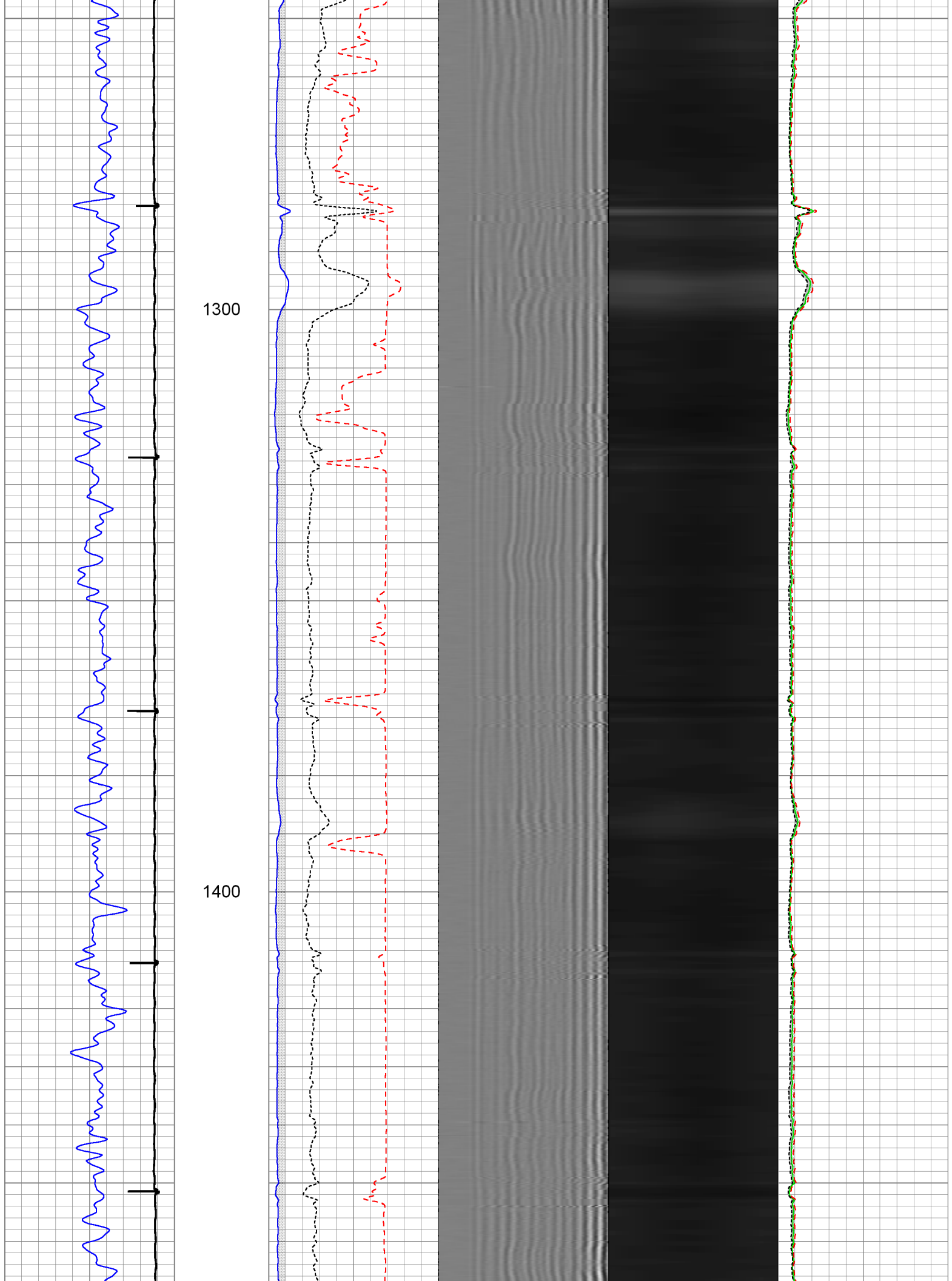
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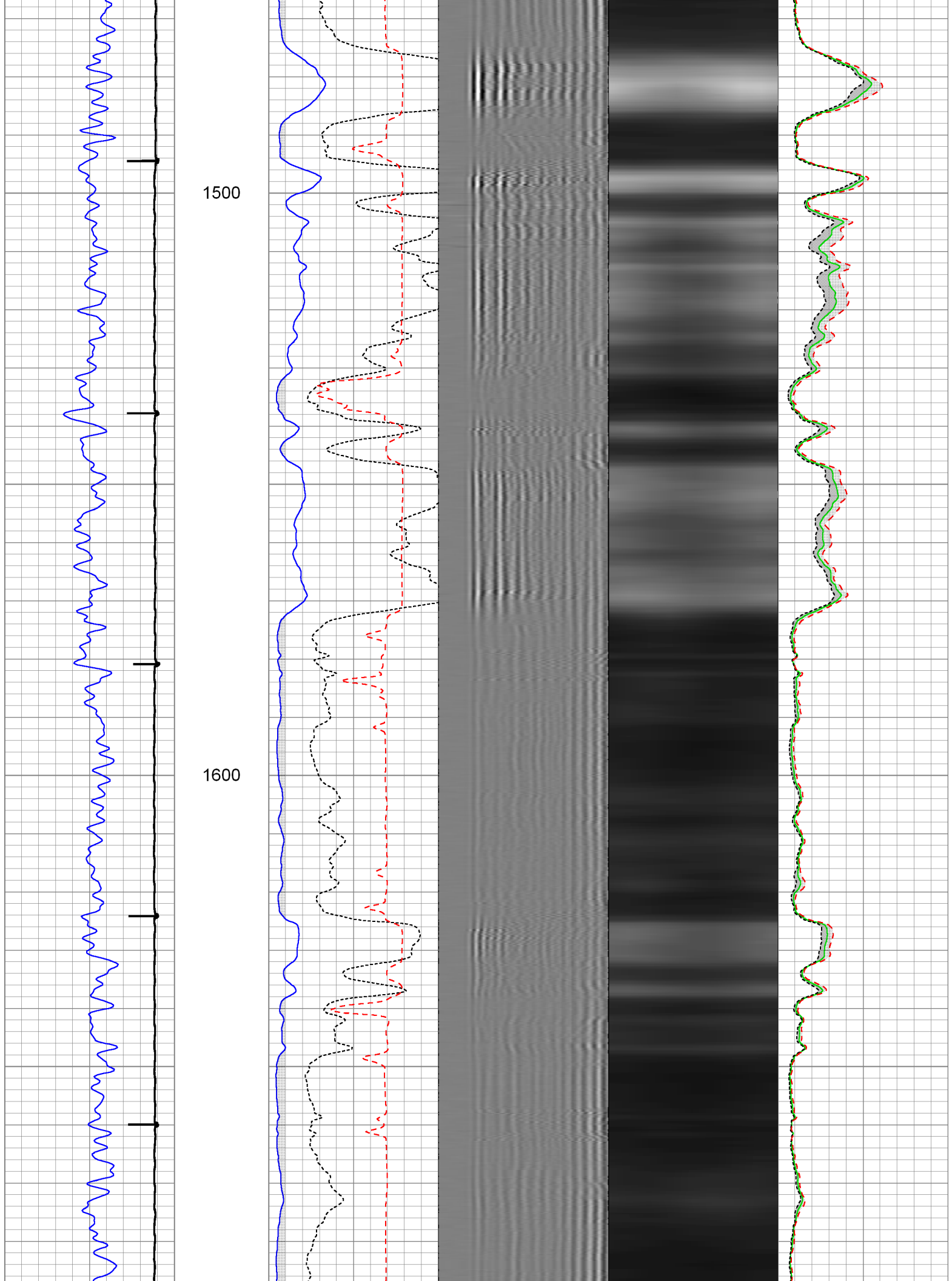


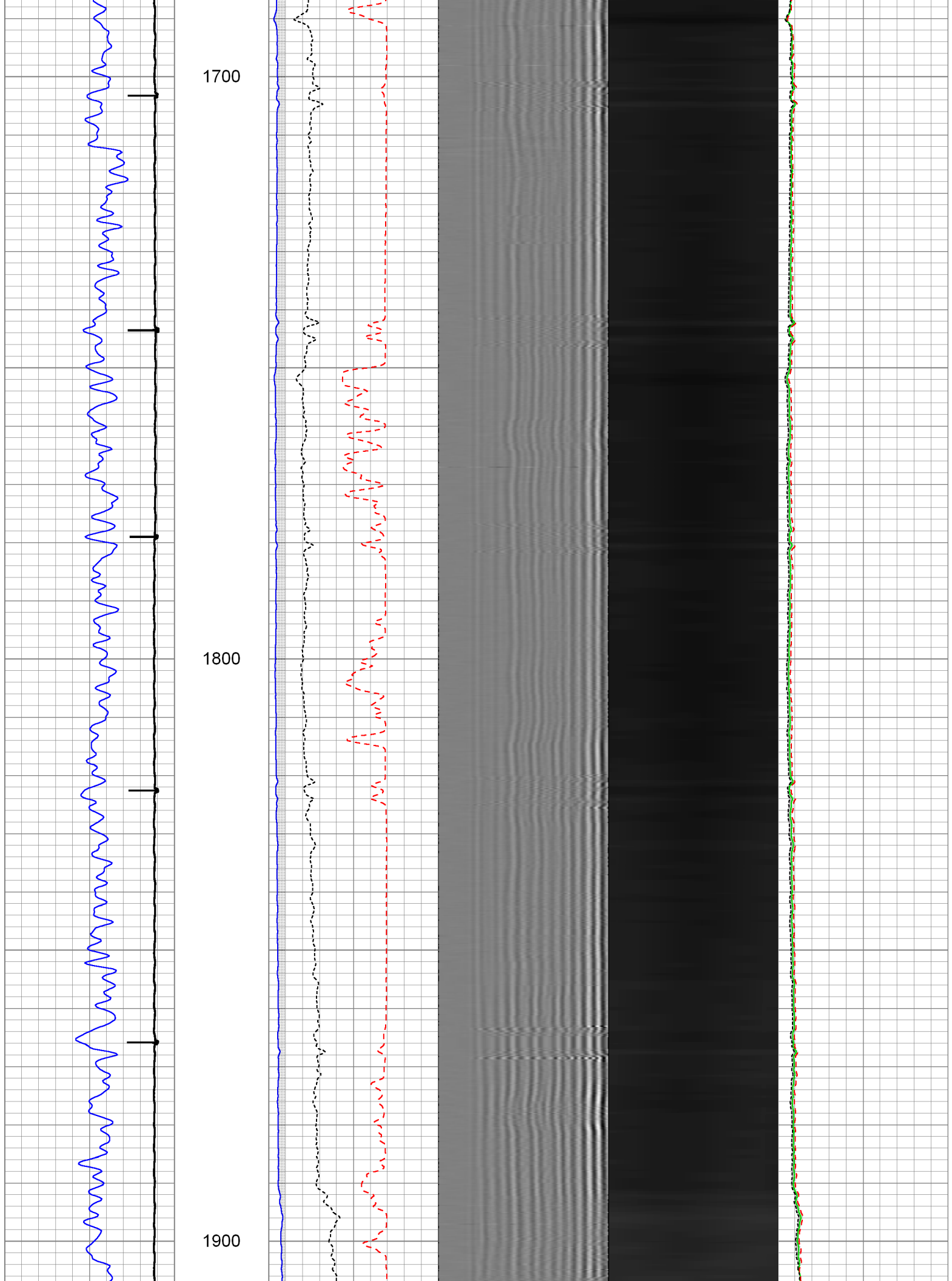


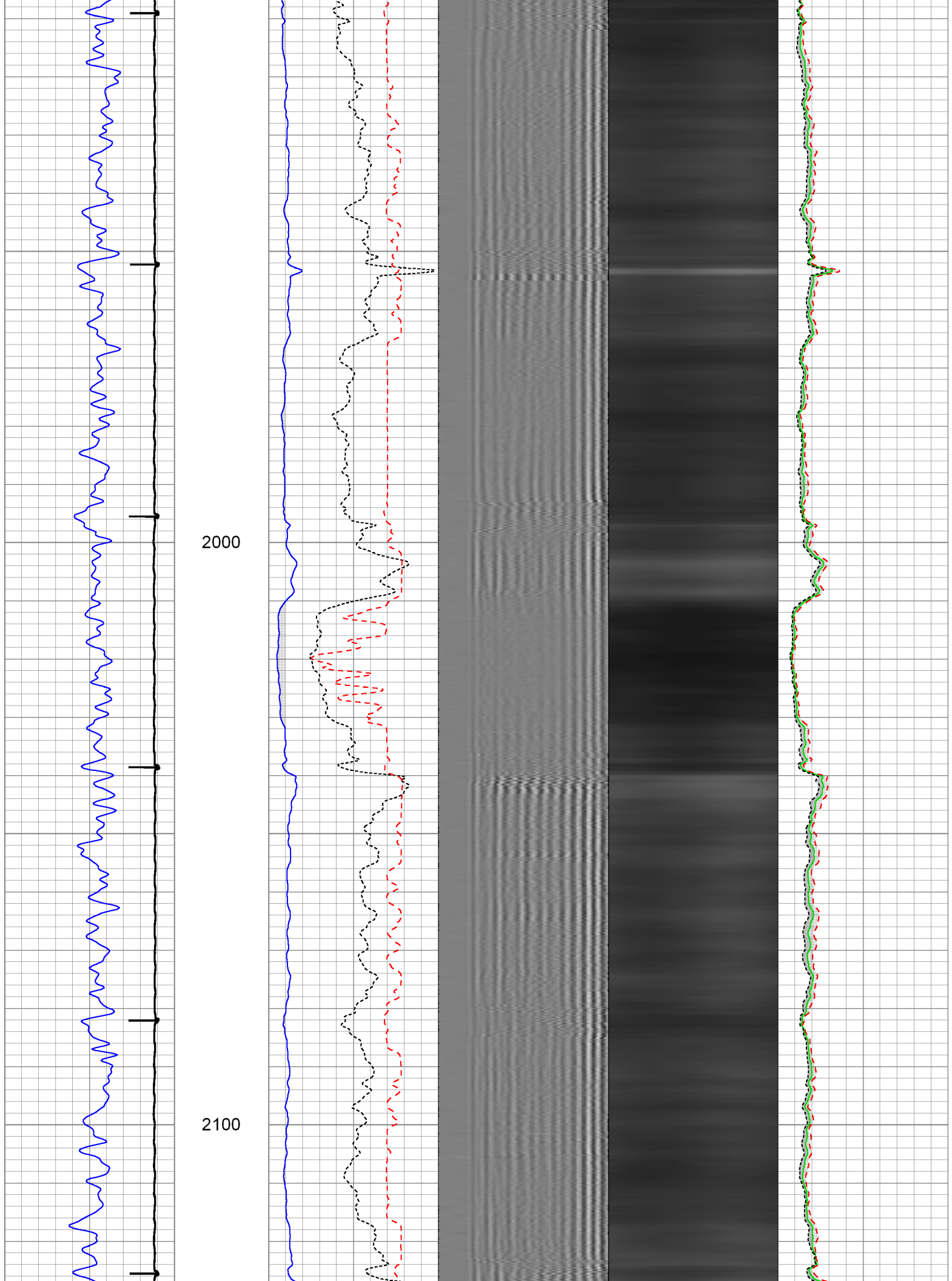


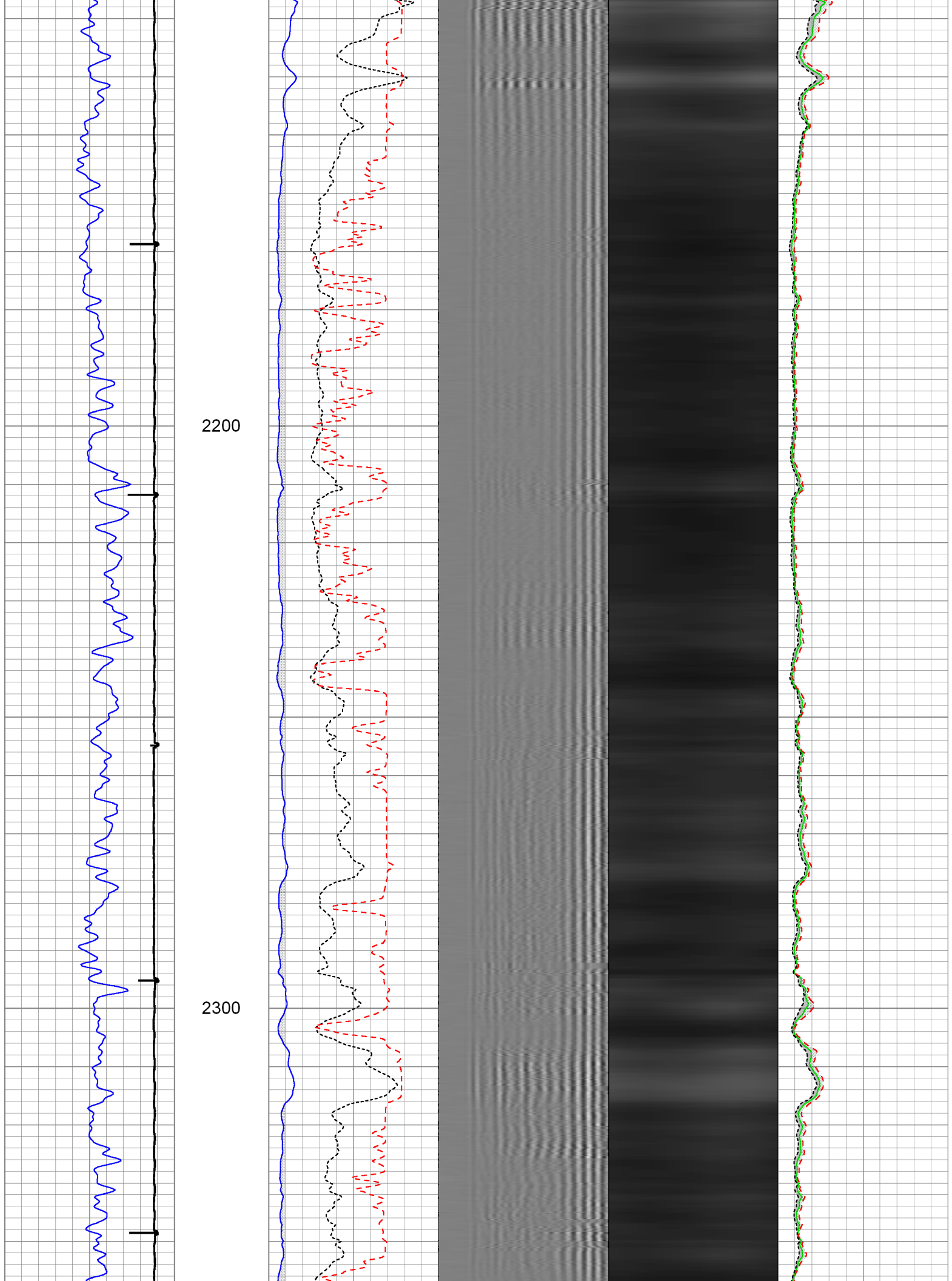


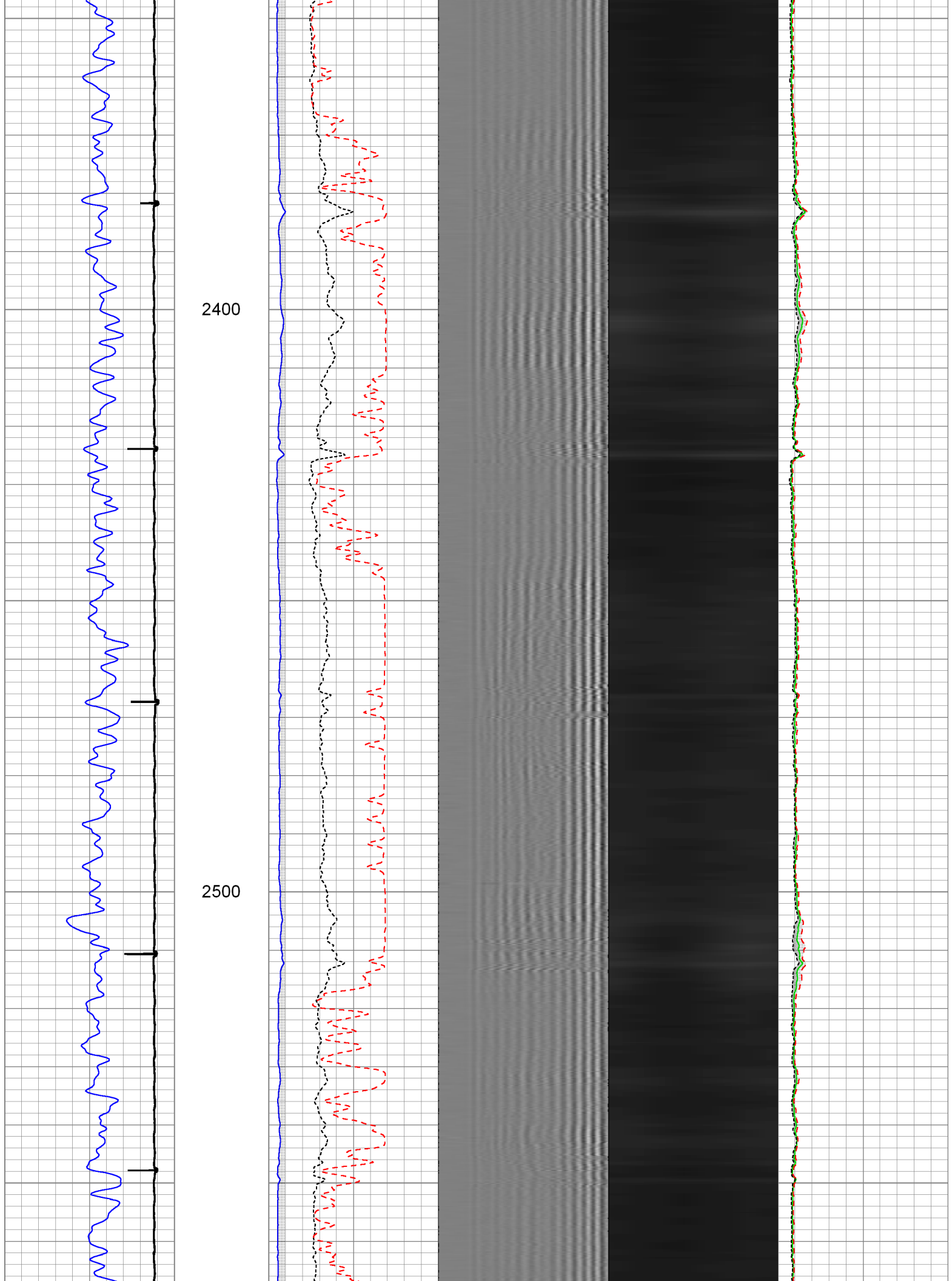


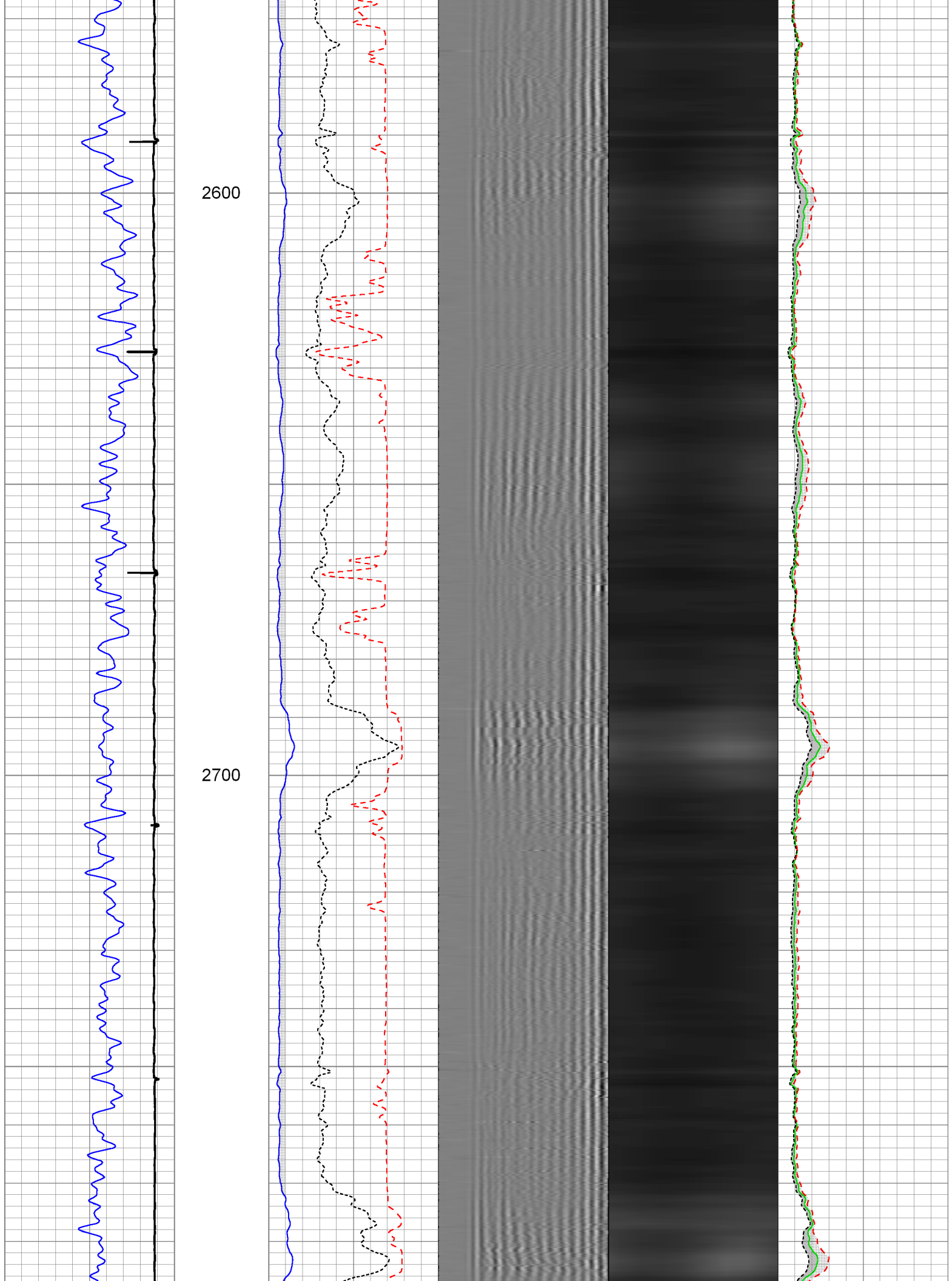


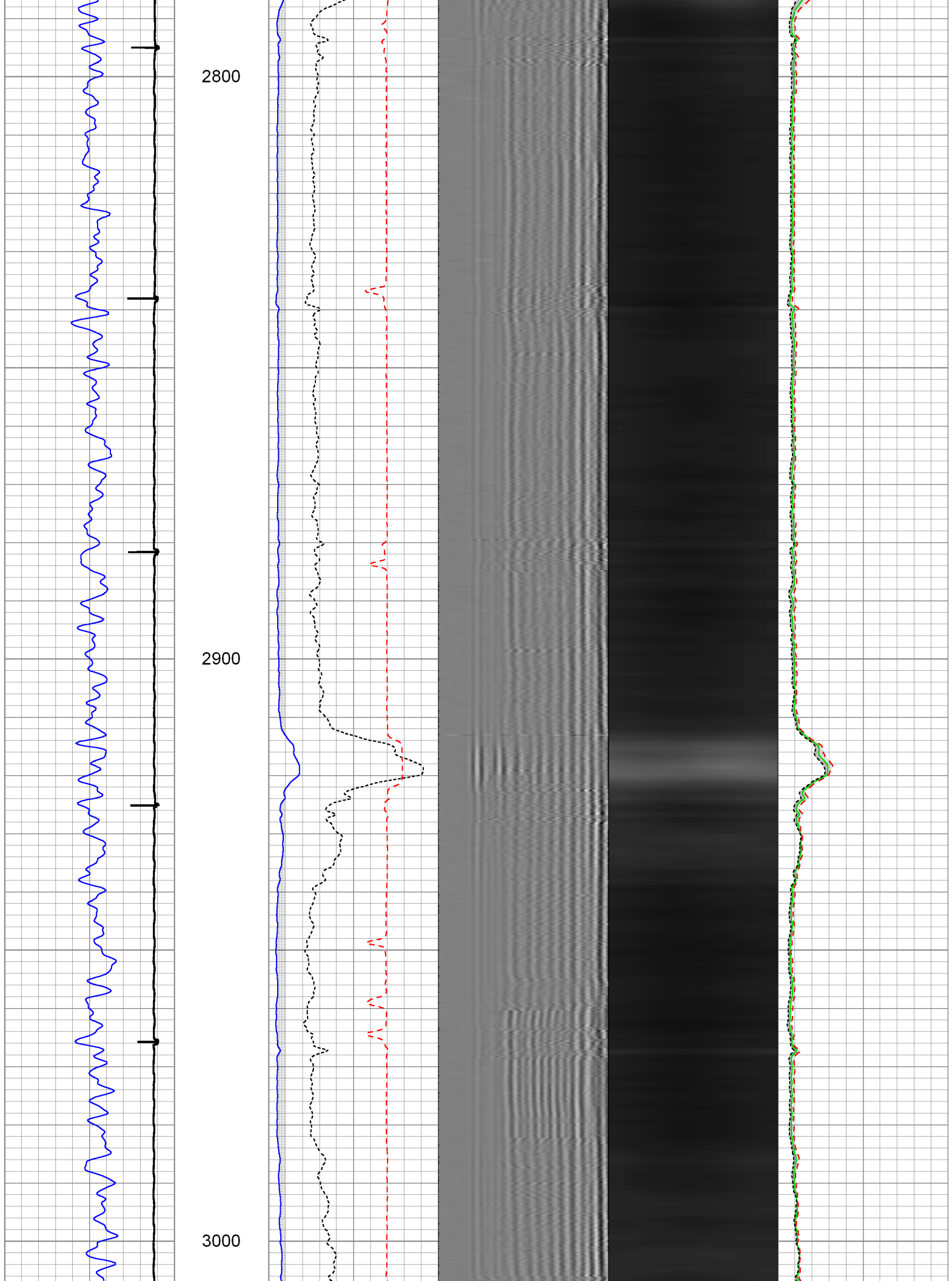


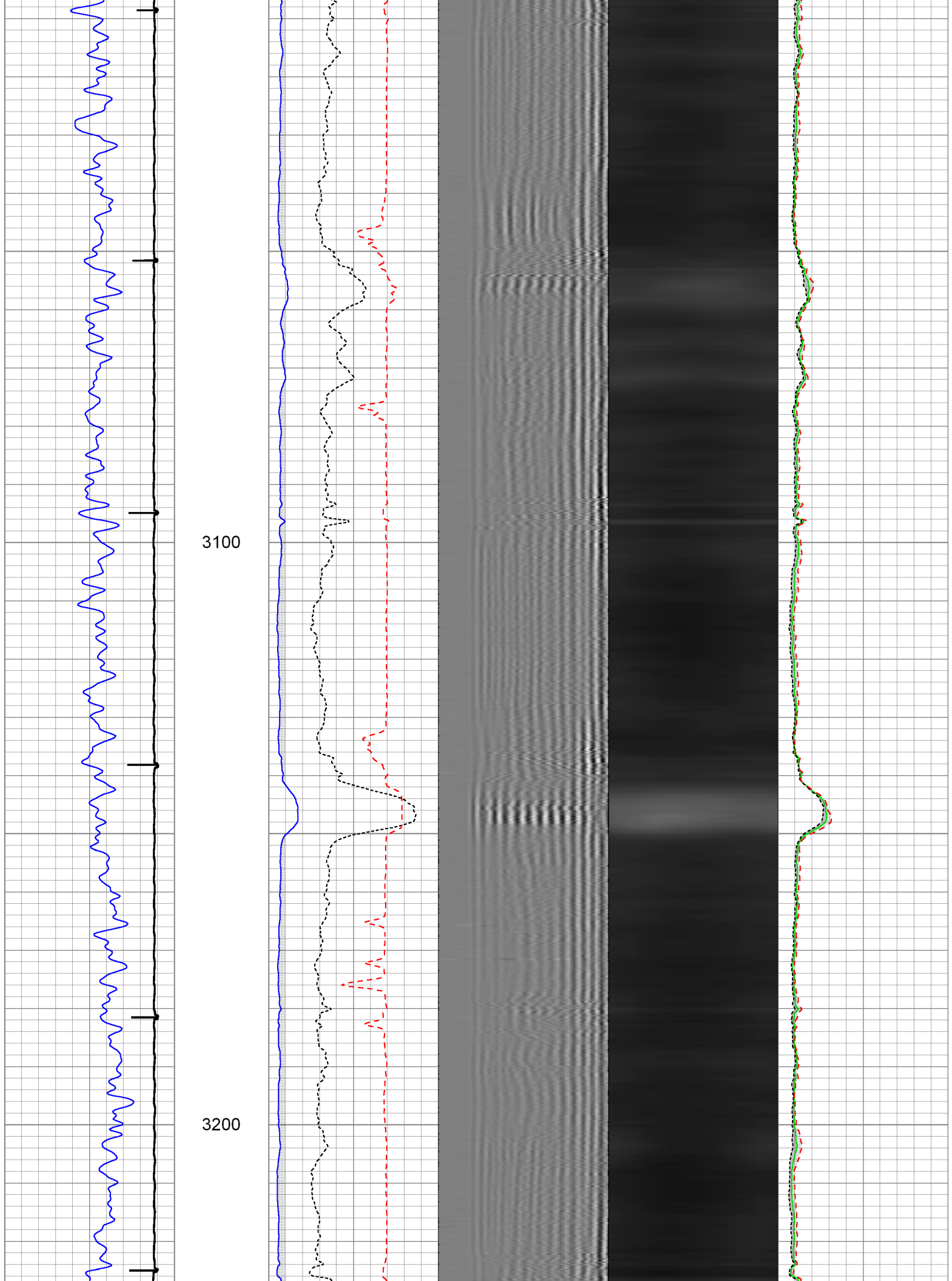


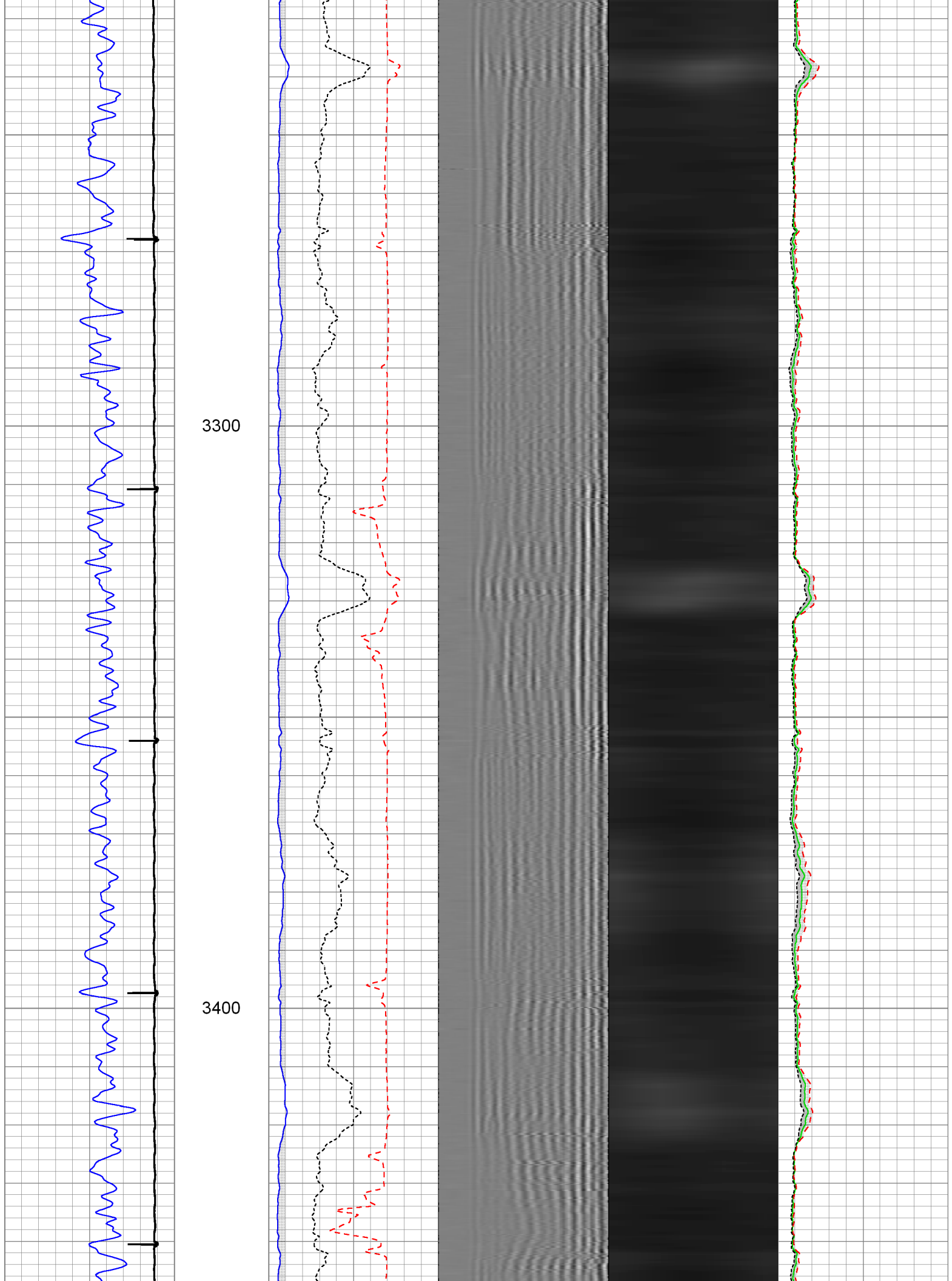


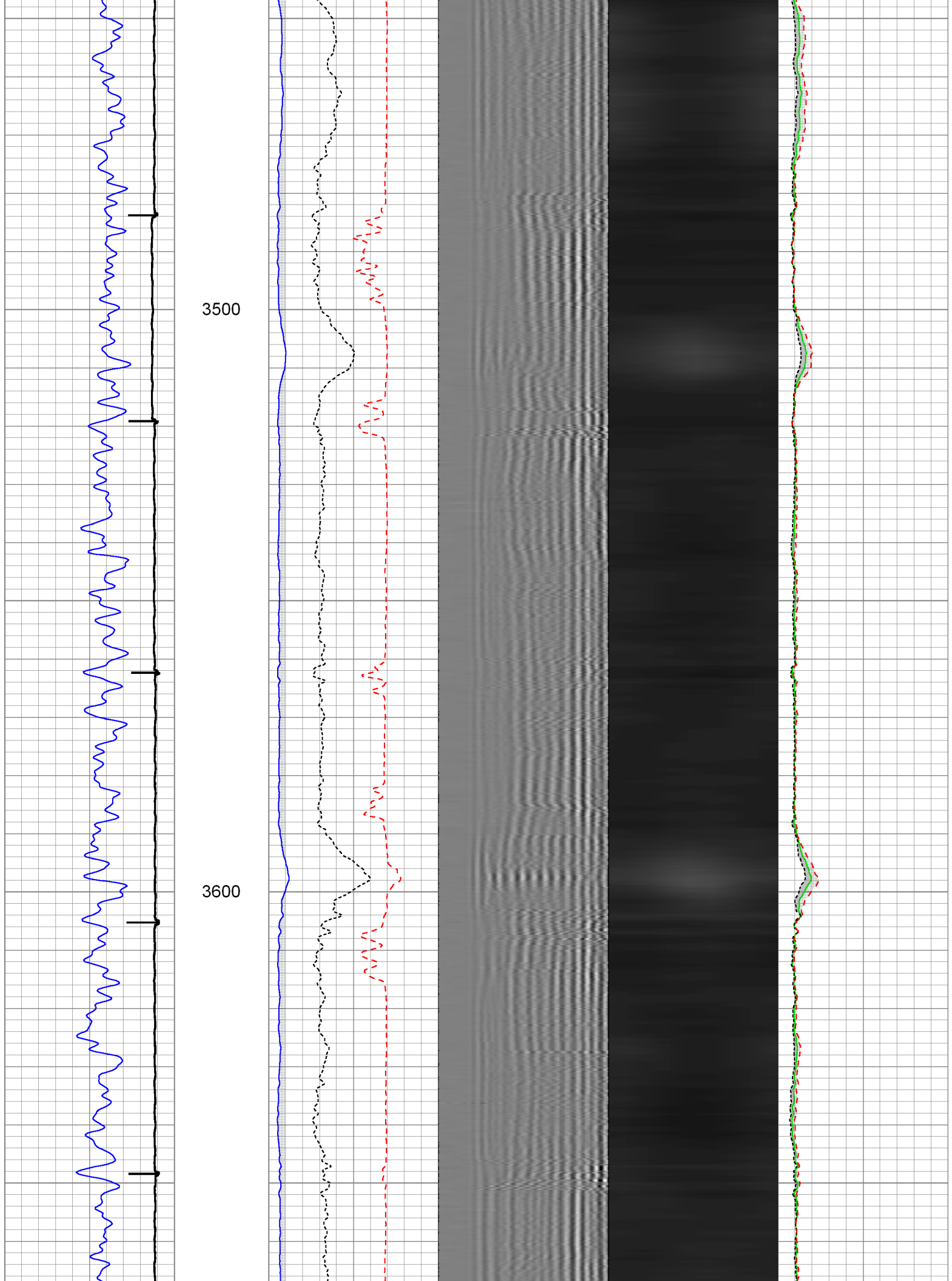






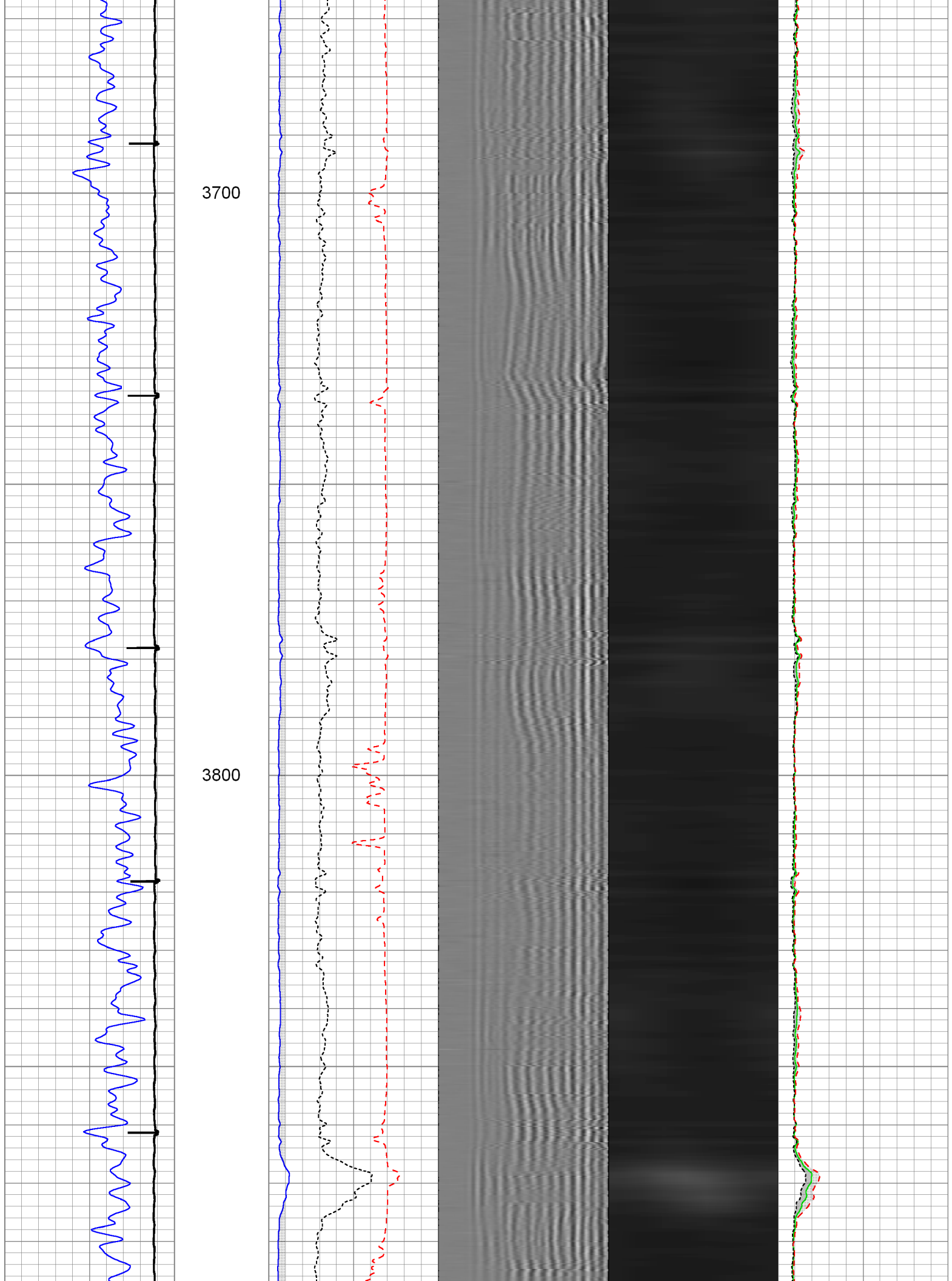


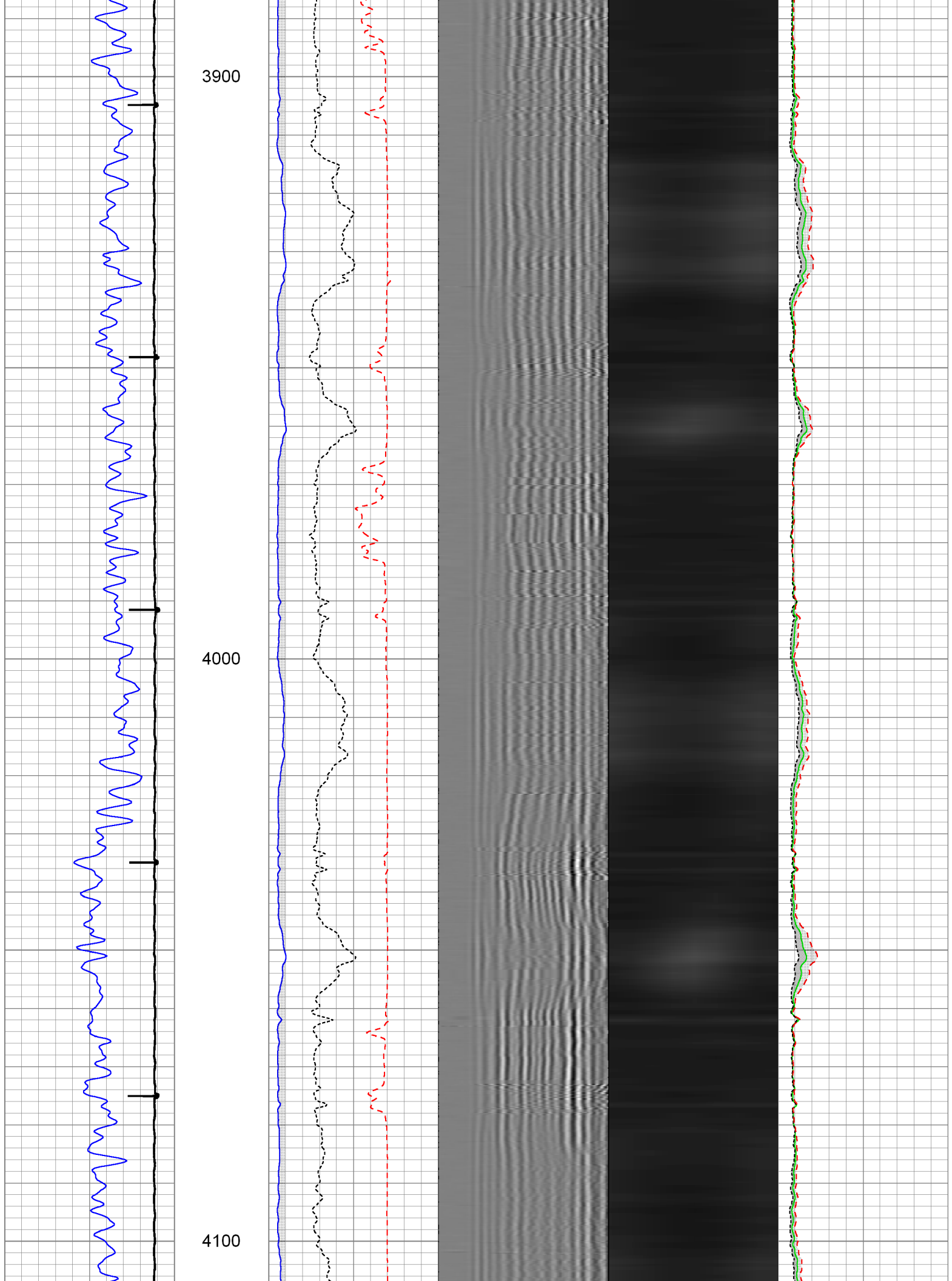


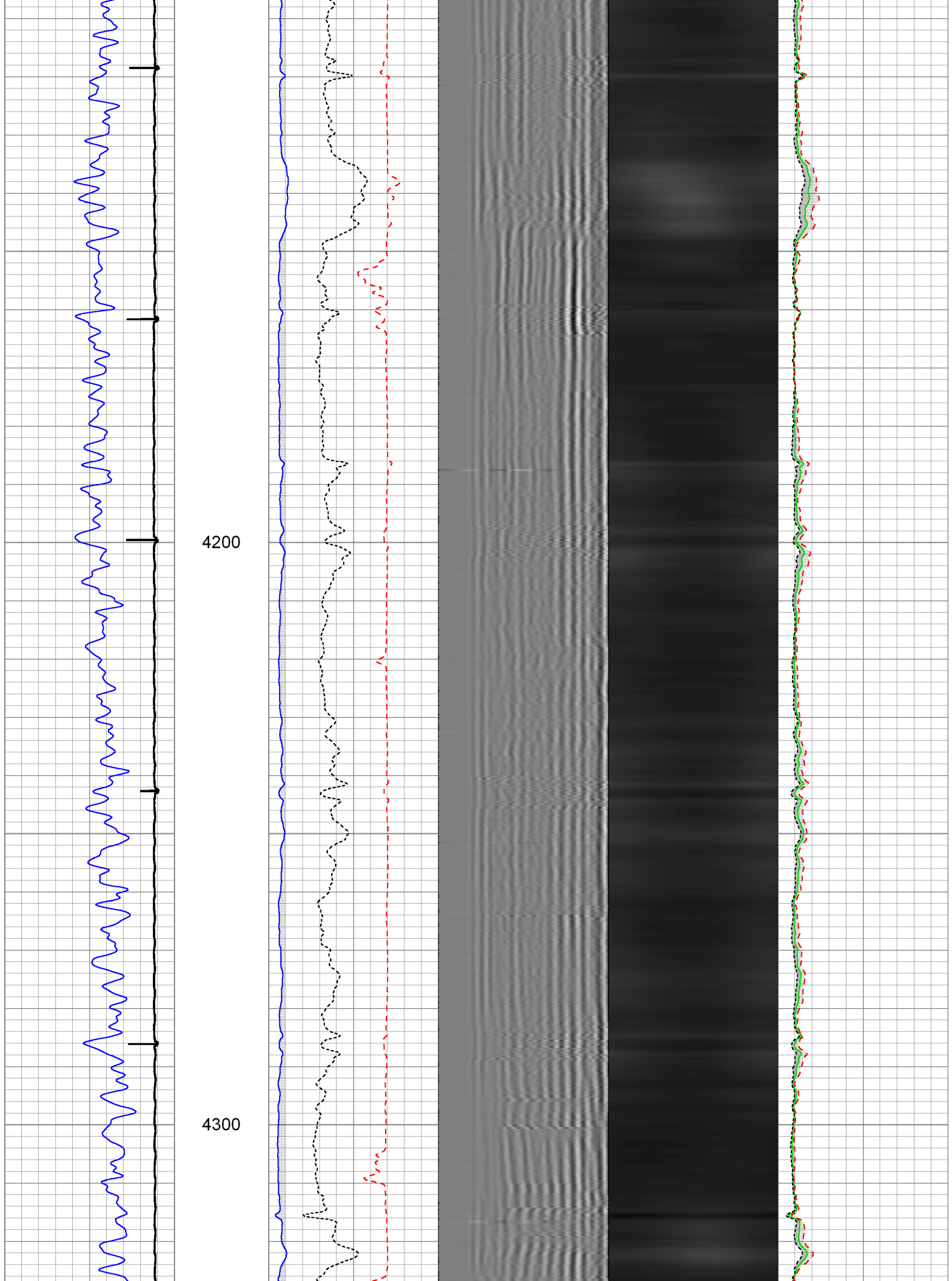


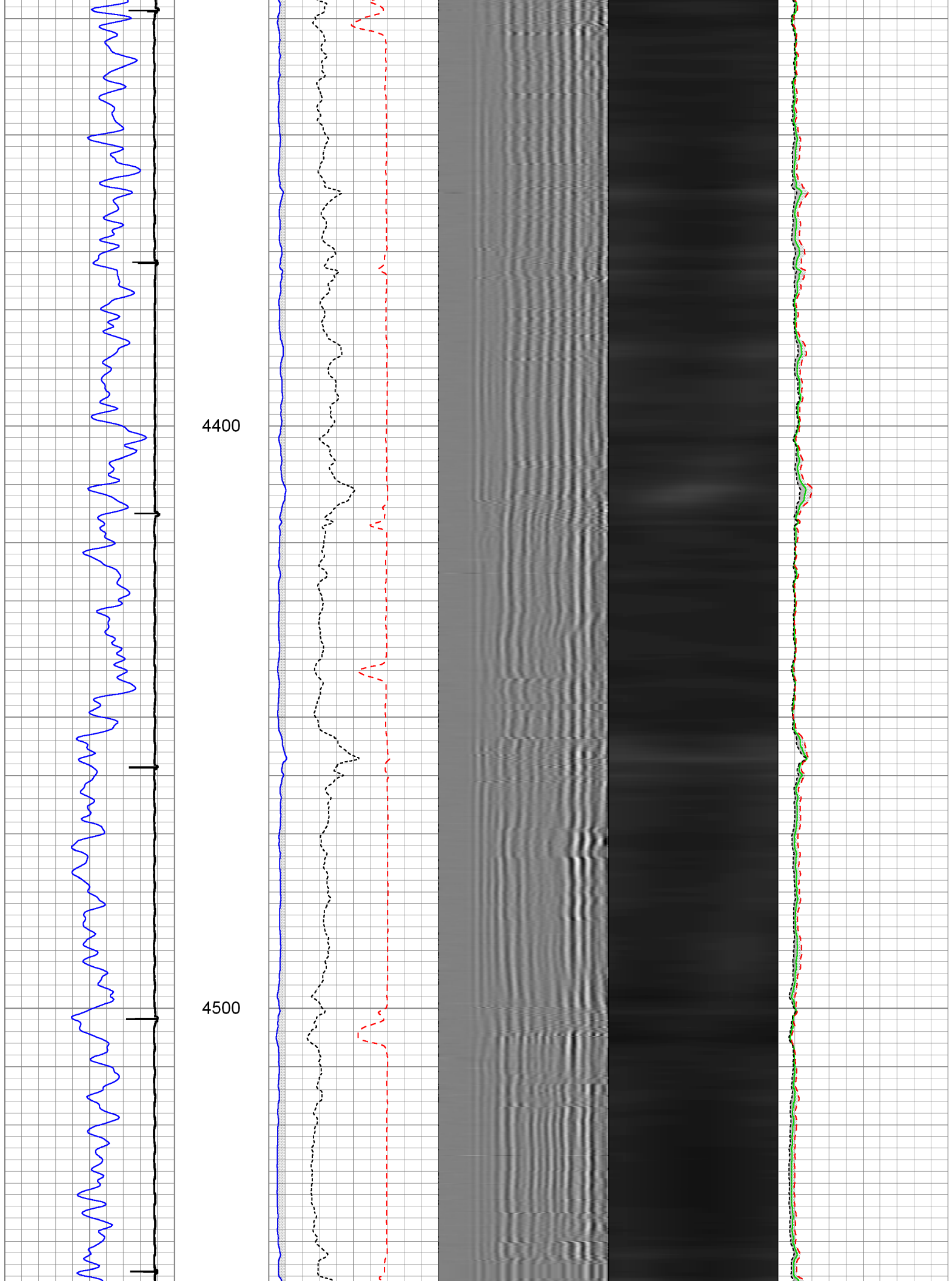
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3800



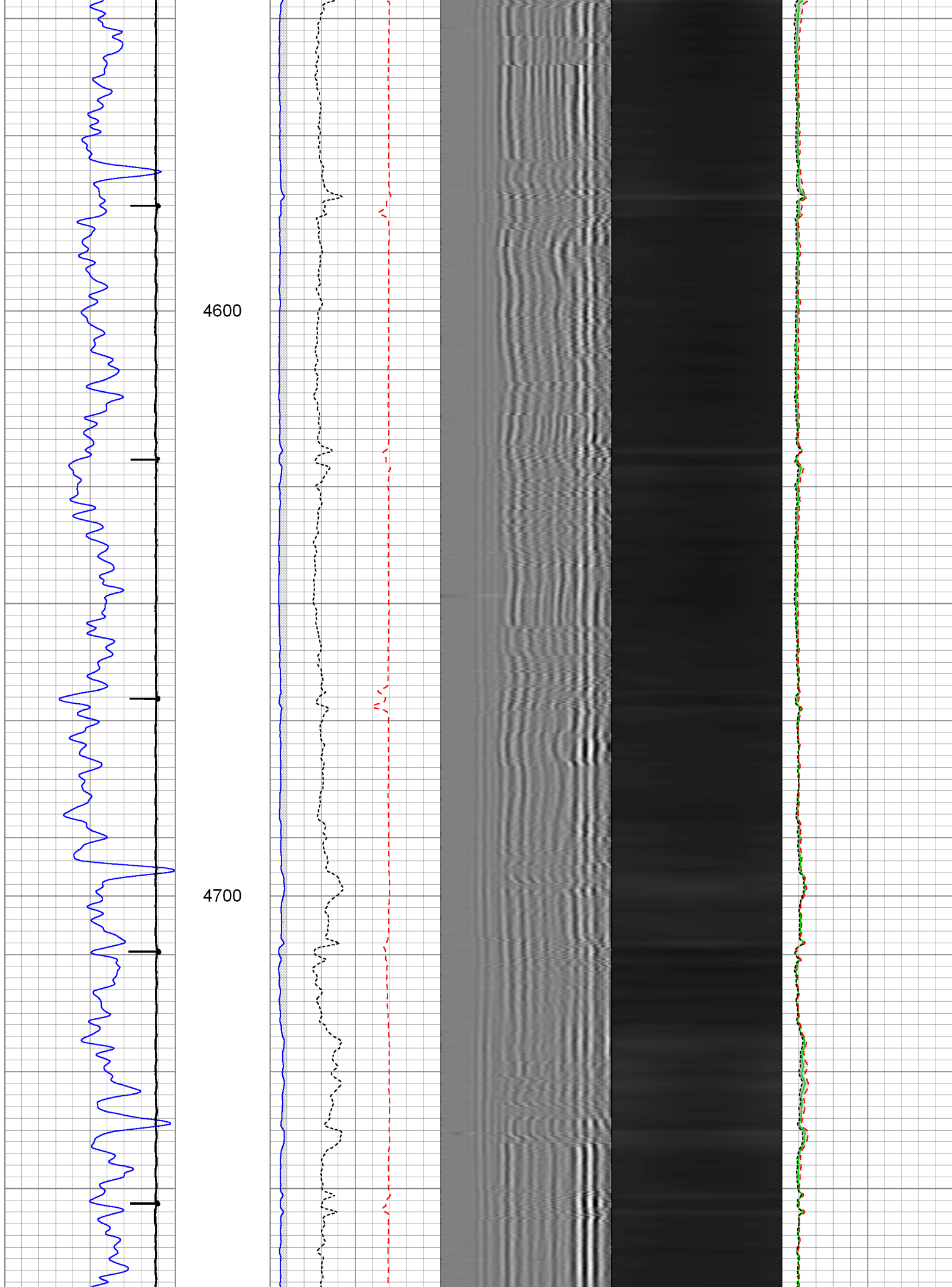


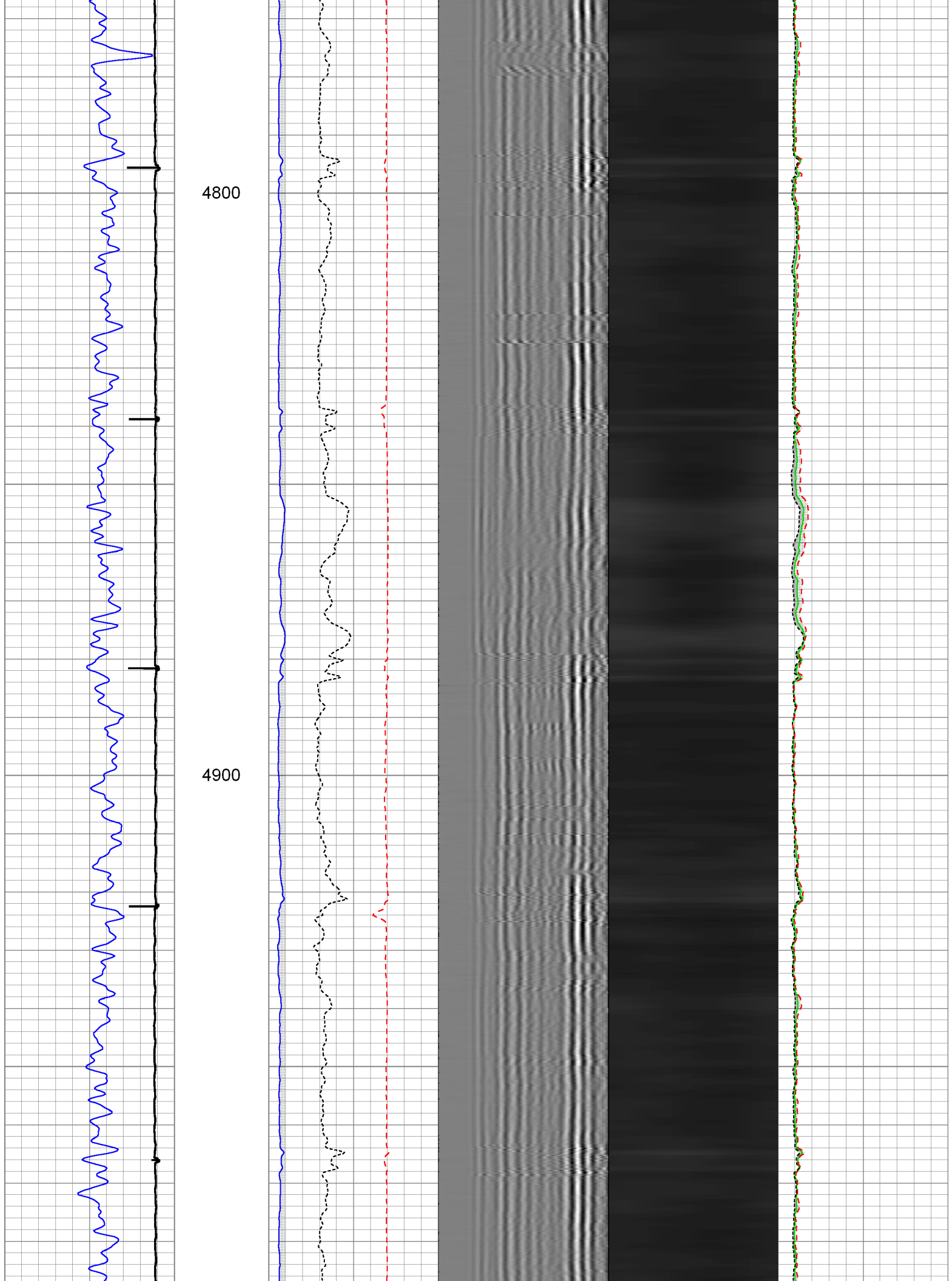


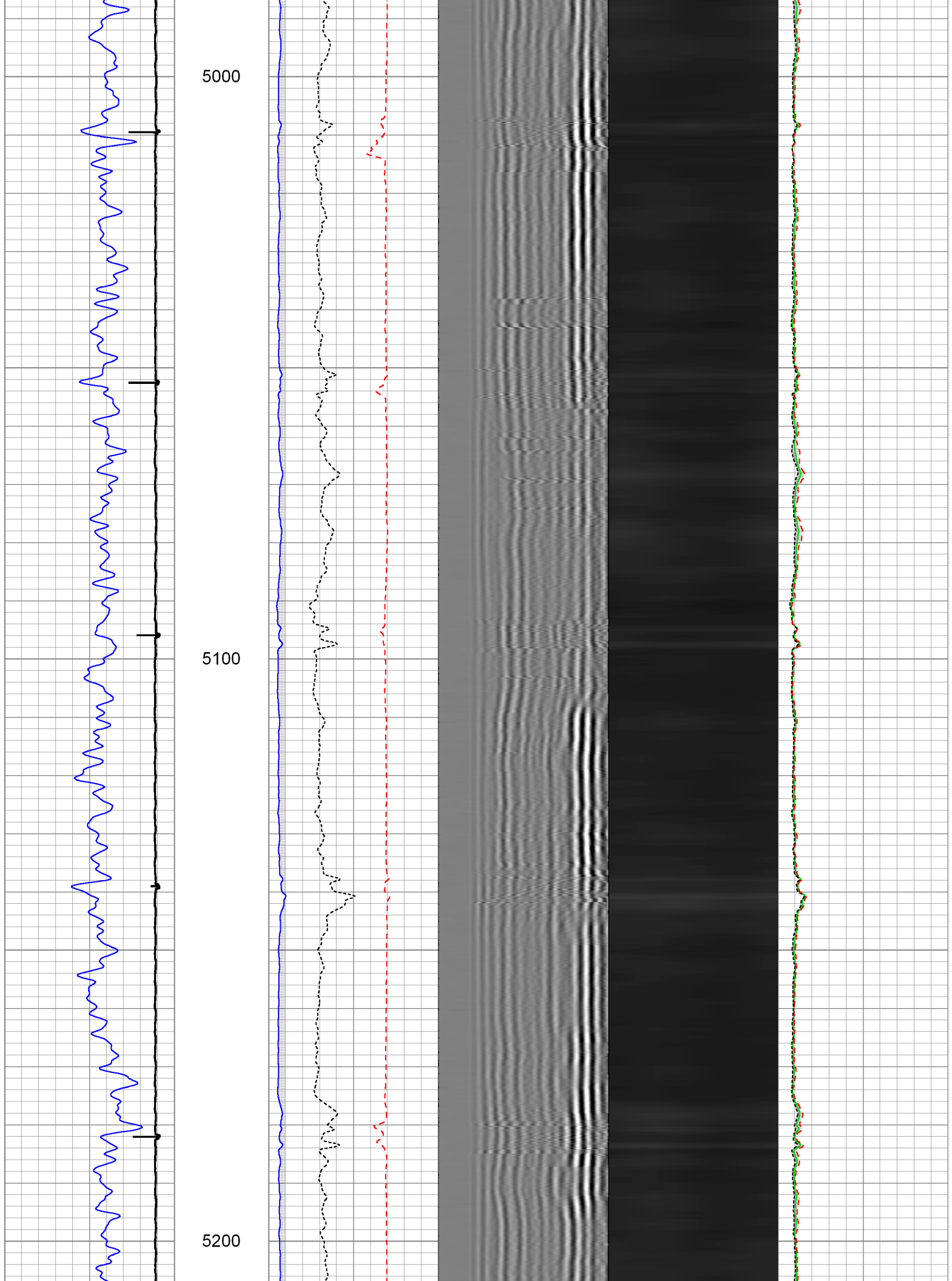


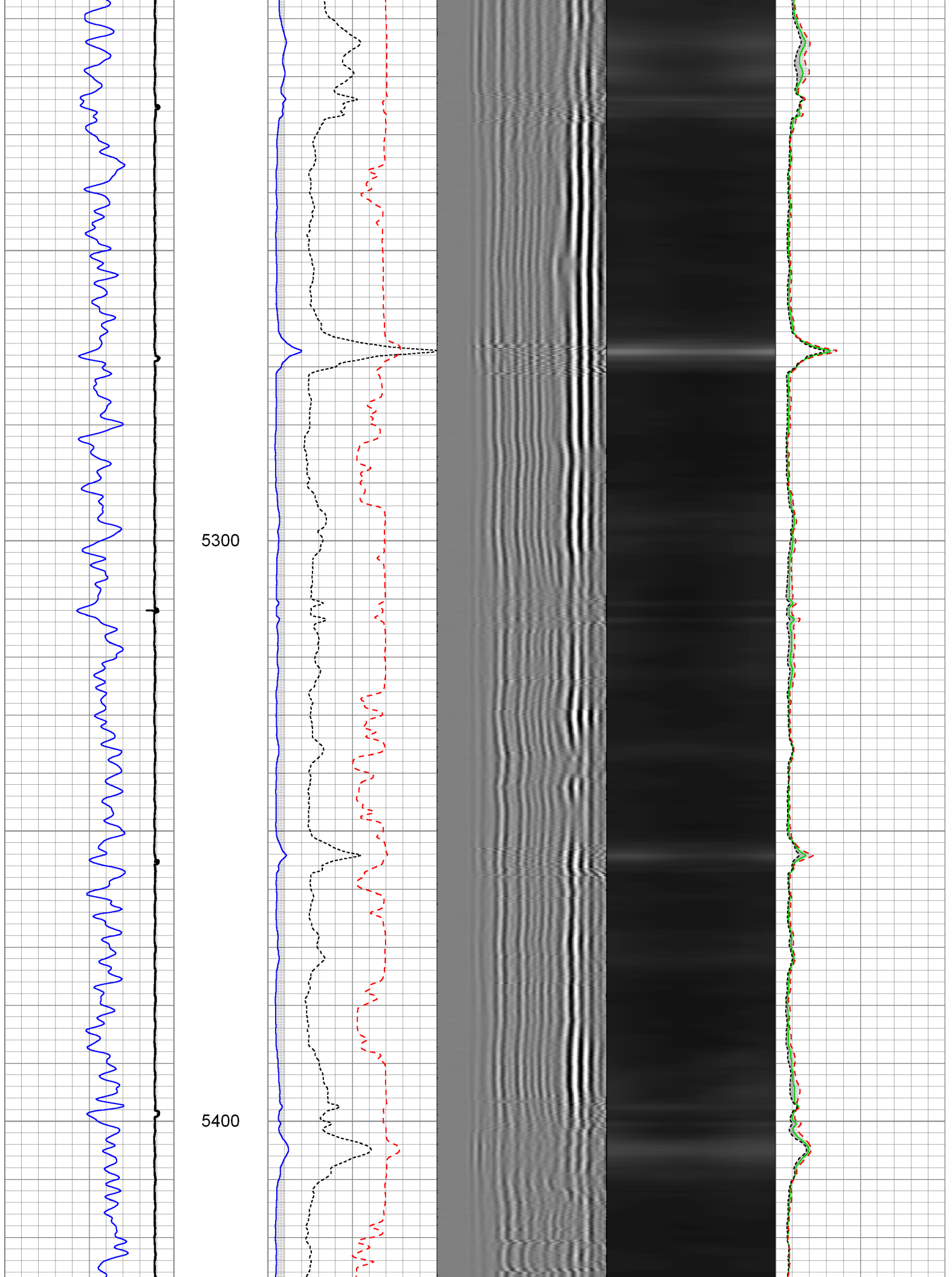
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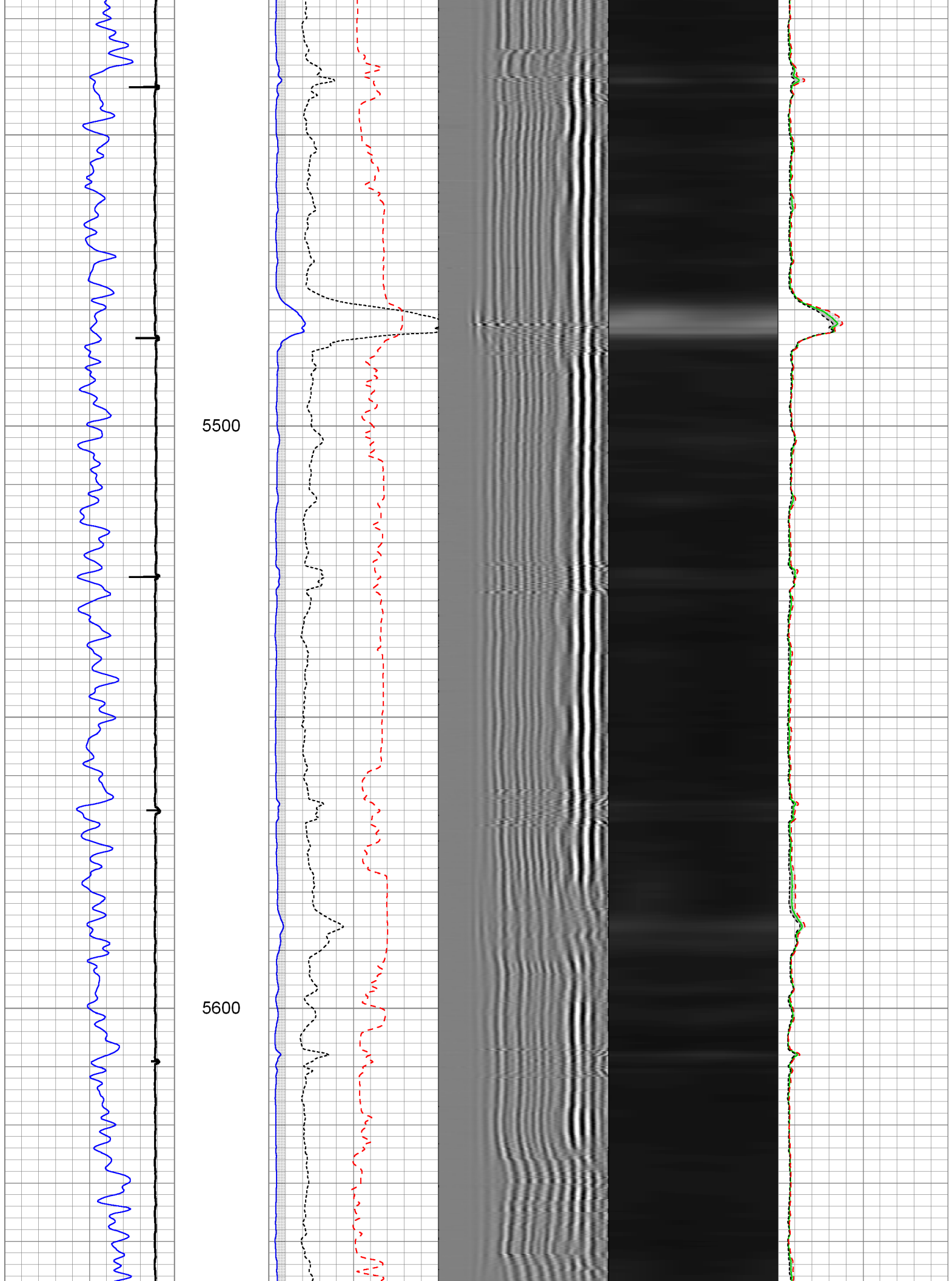
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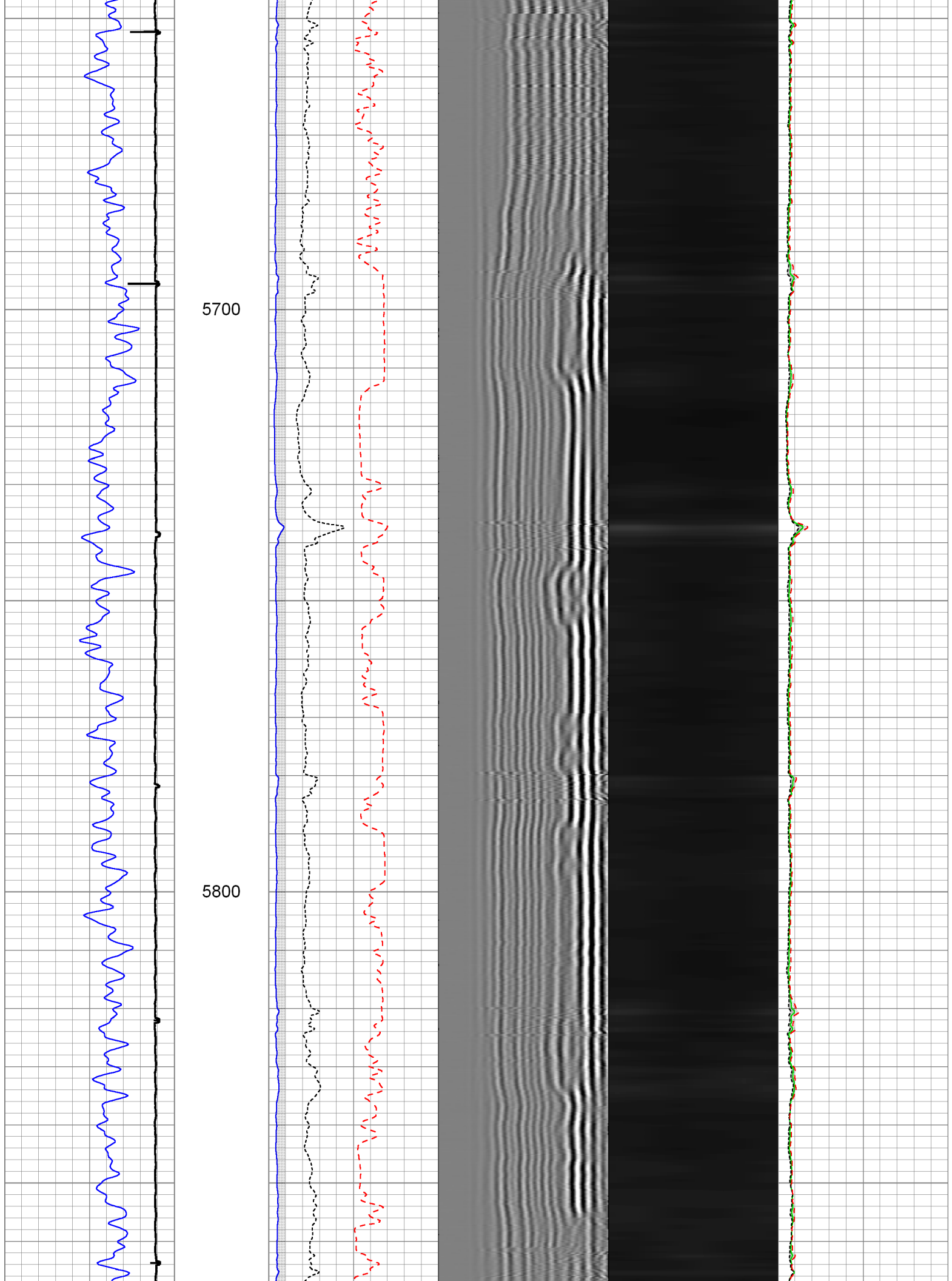








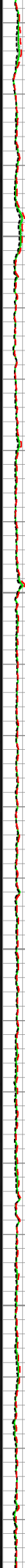
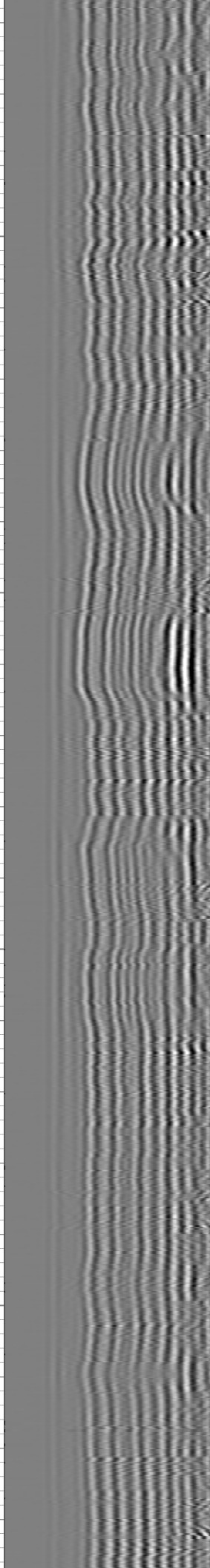
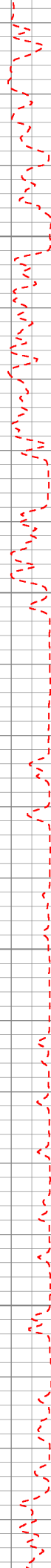
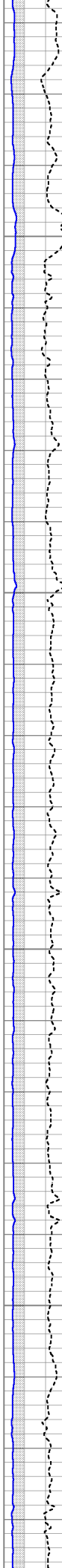






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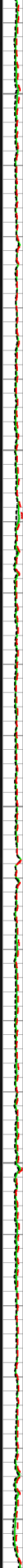
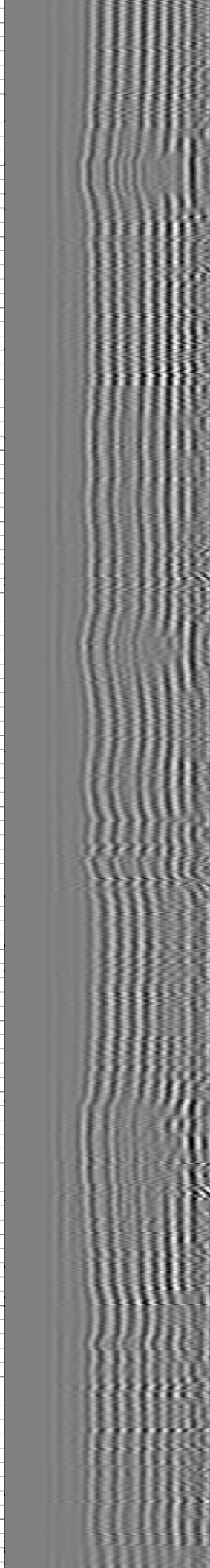
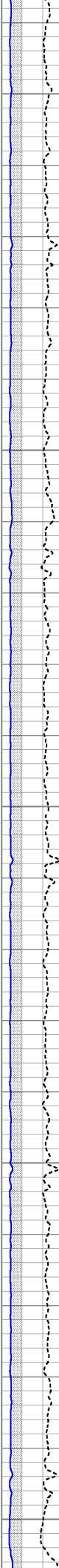
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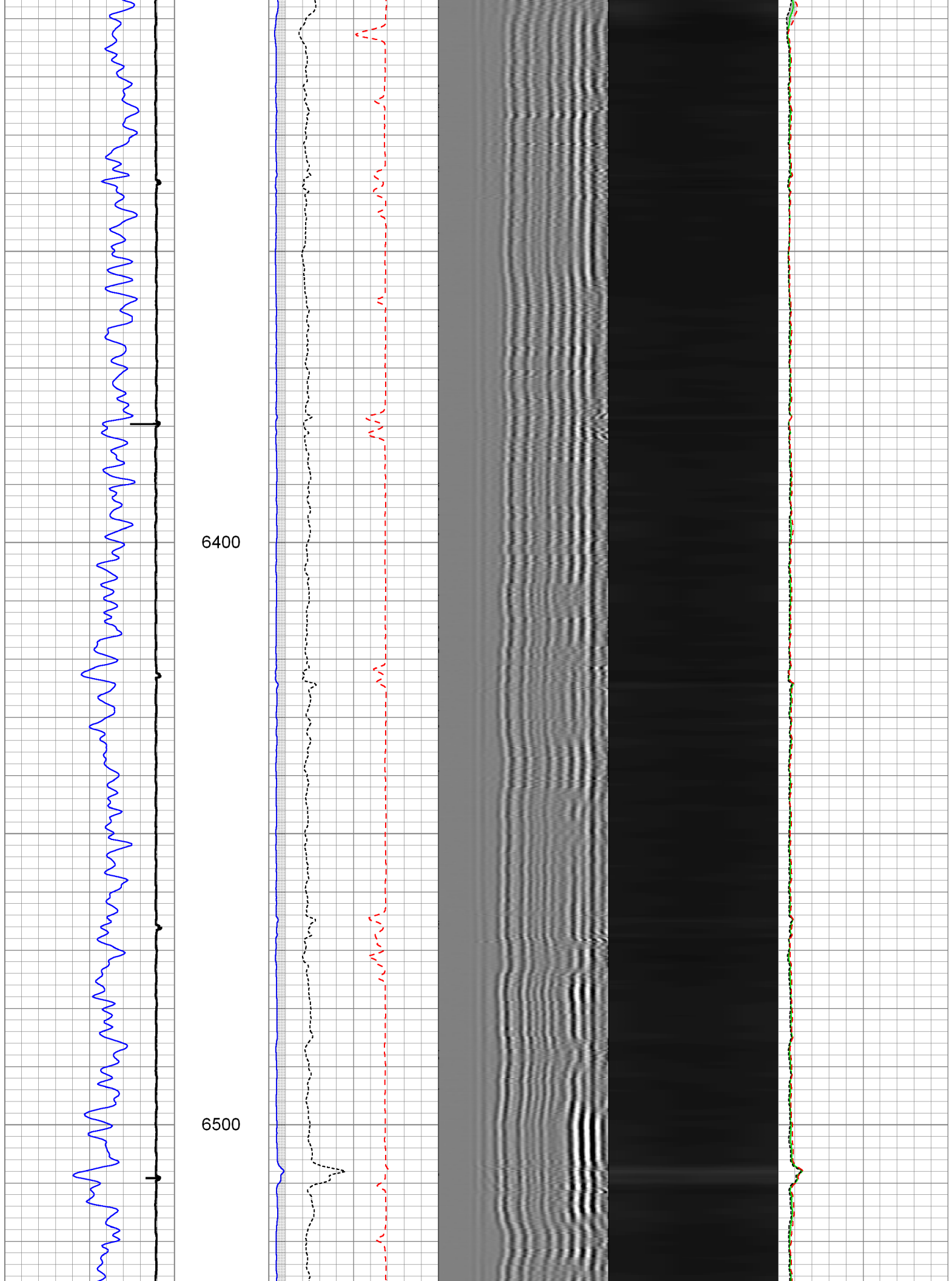


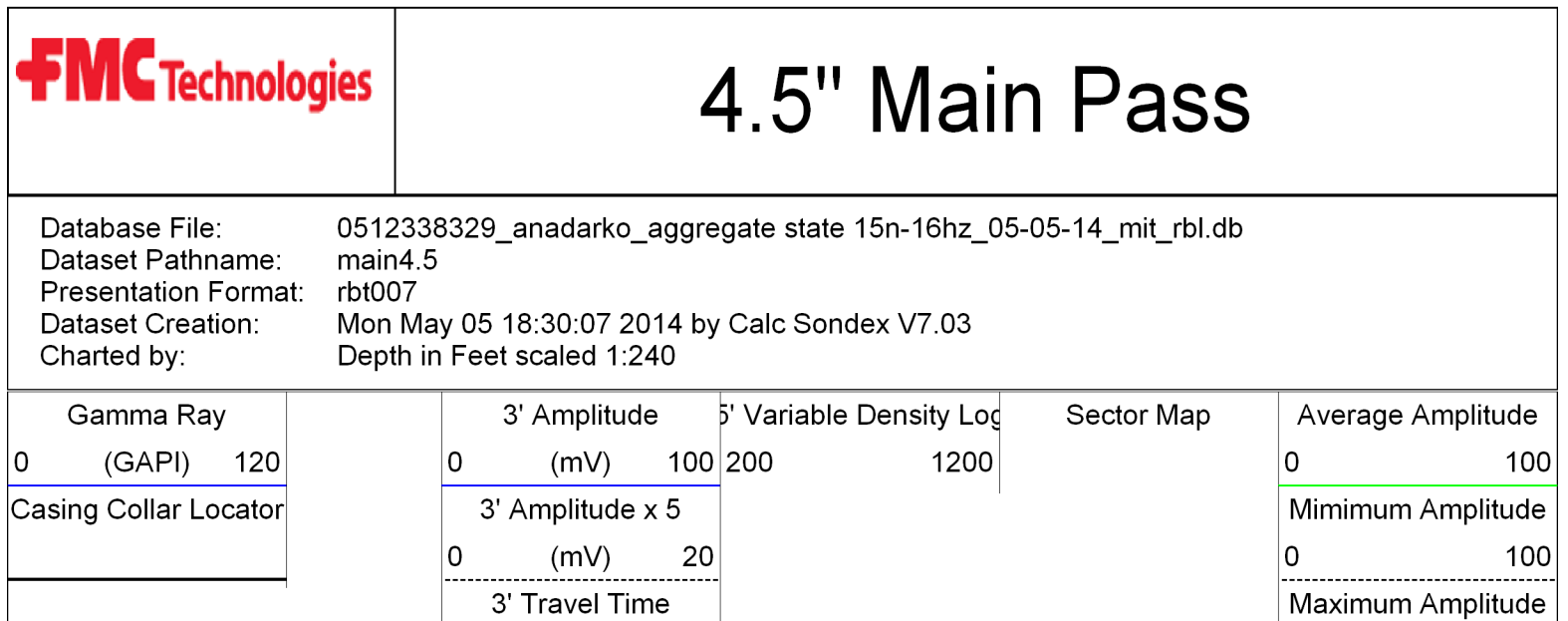
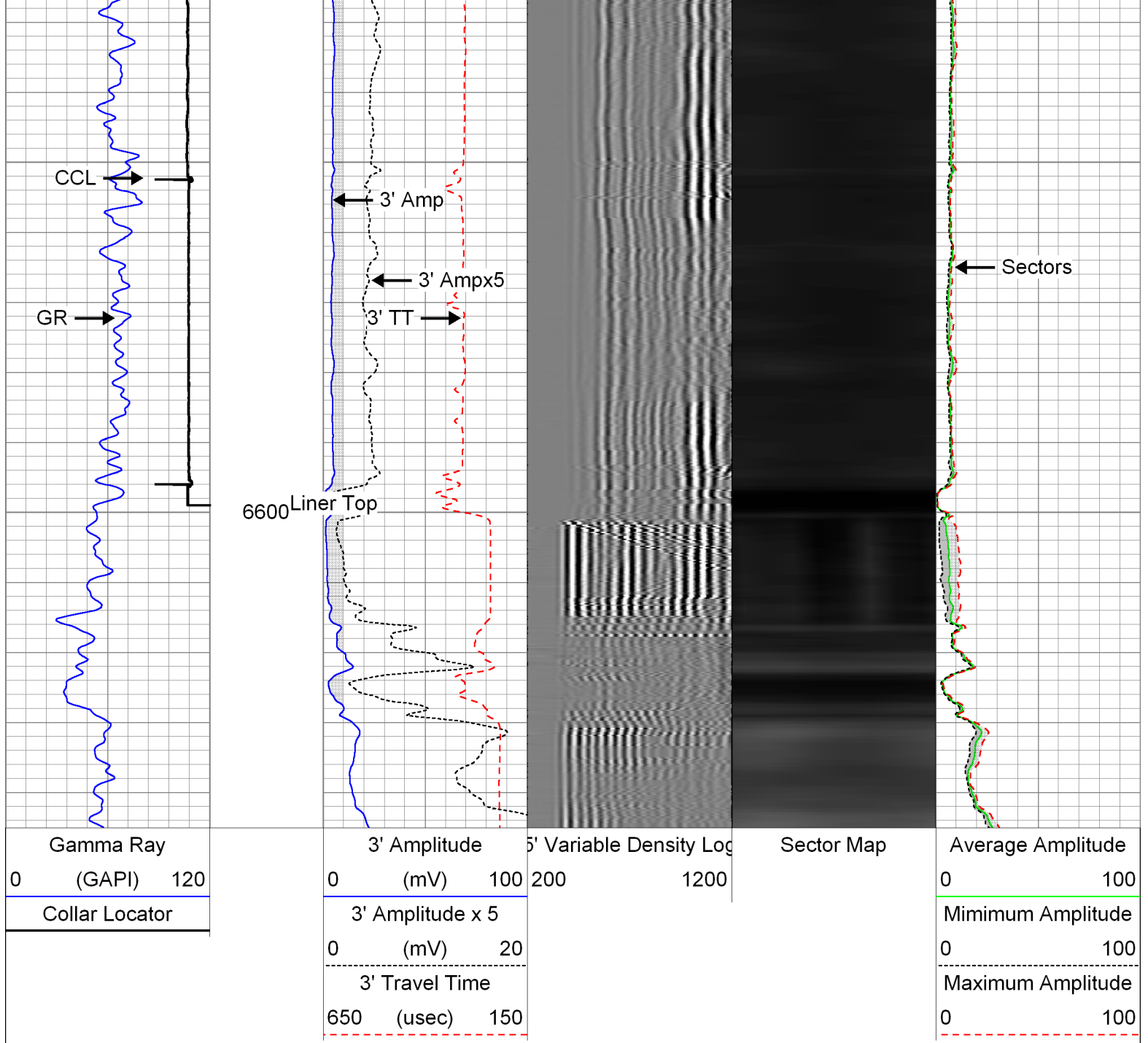
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6300







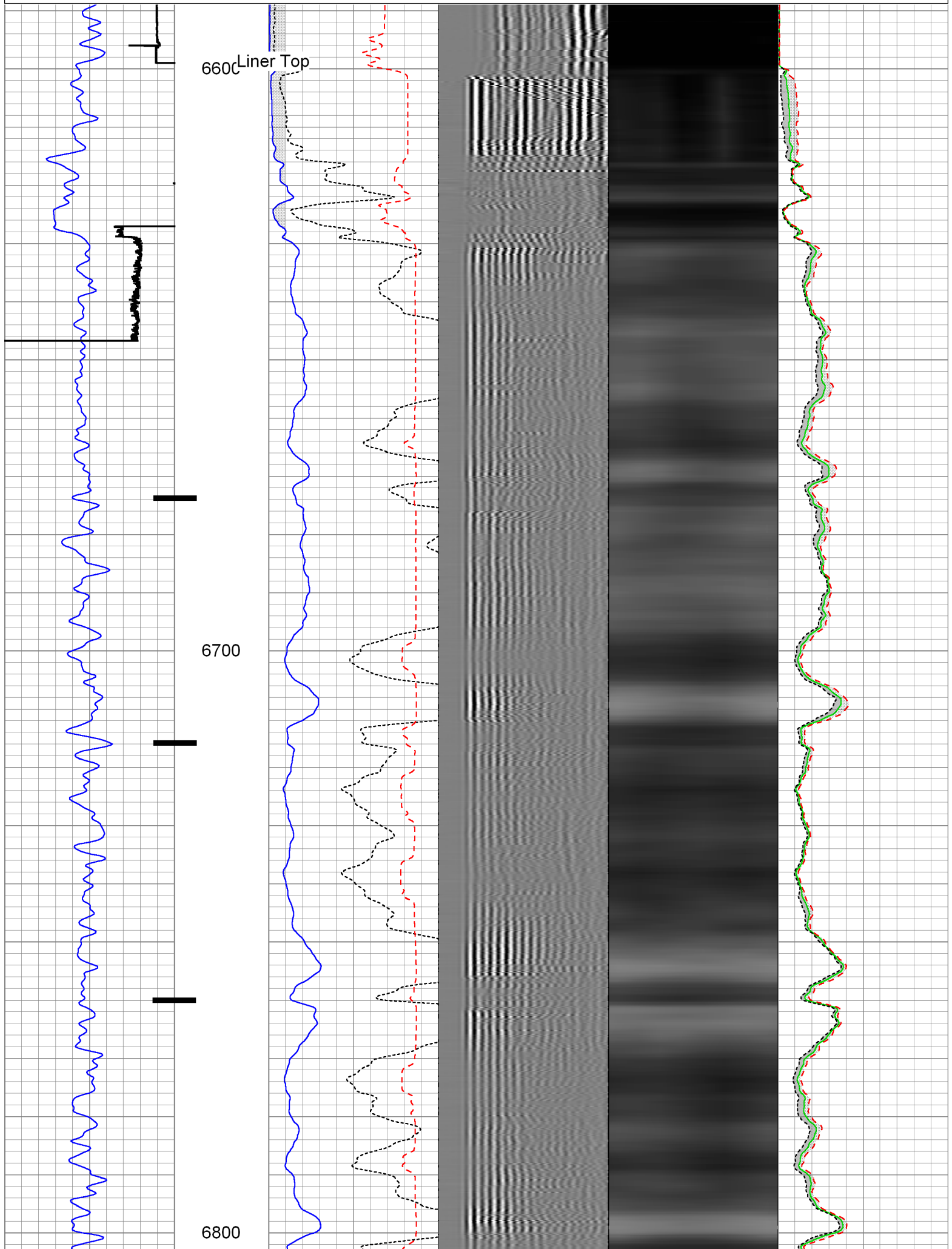
650 (usec) 150

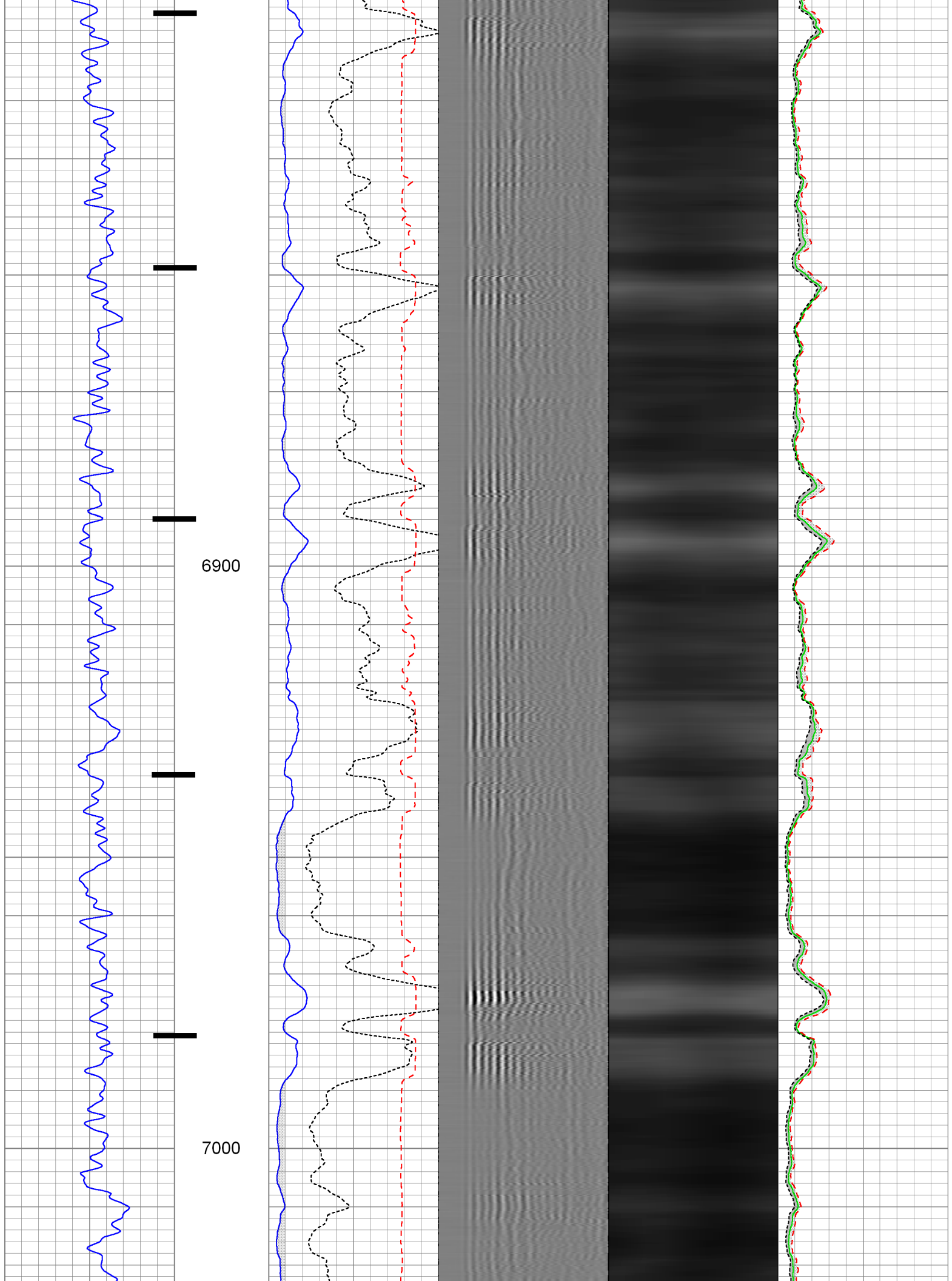
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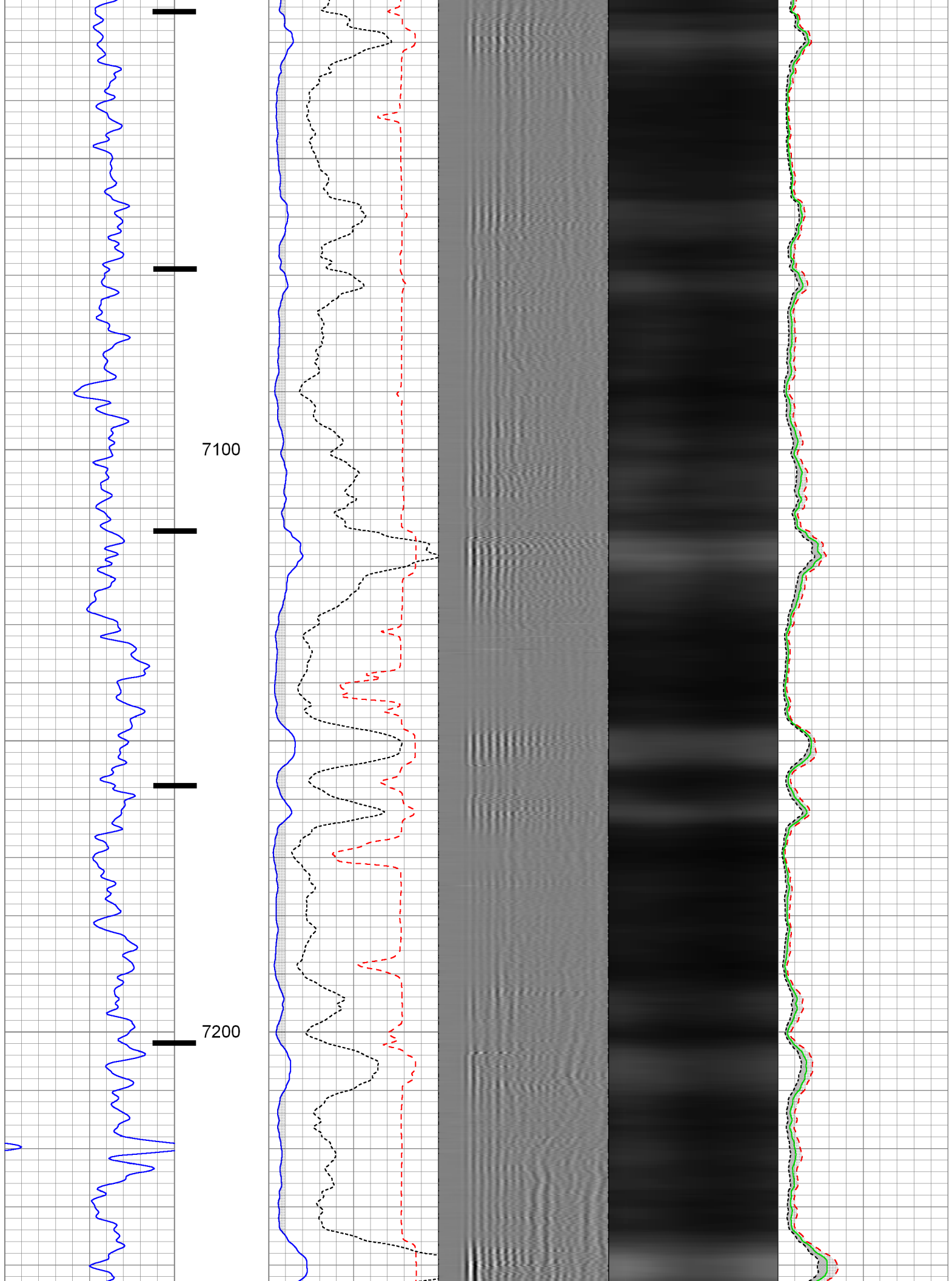
660C Liner Top

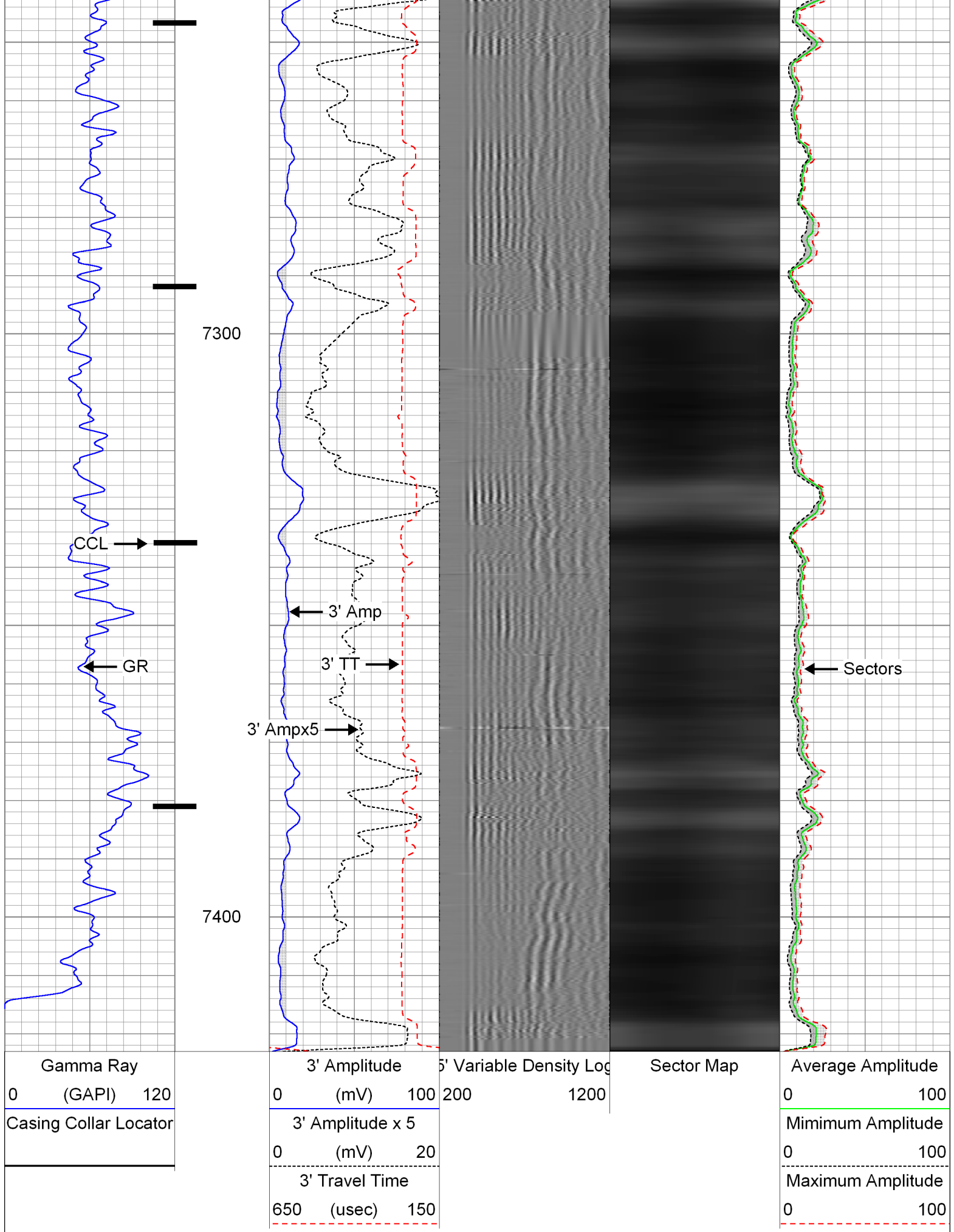
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6800





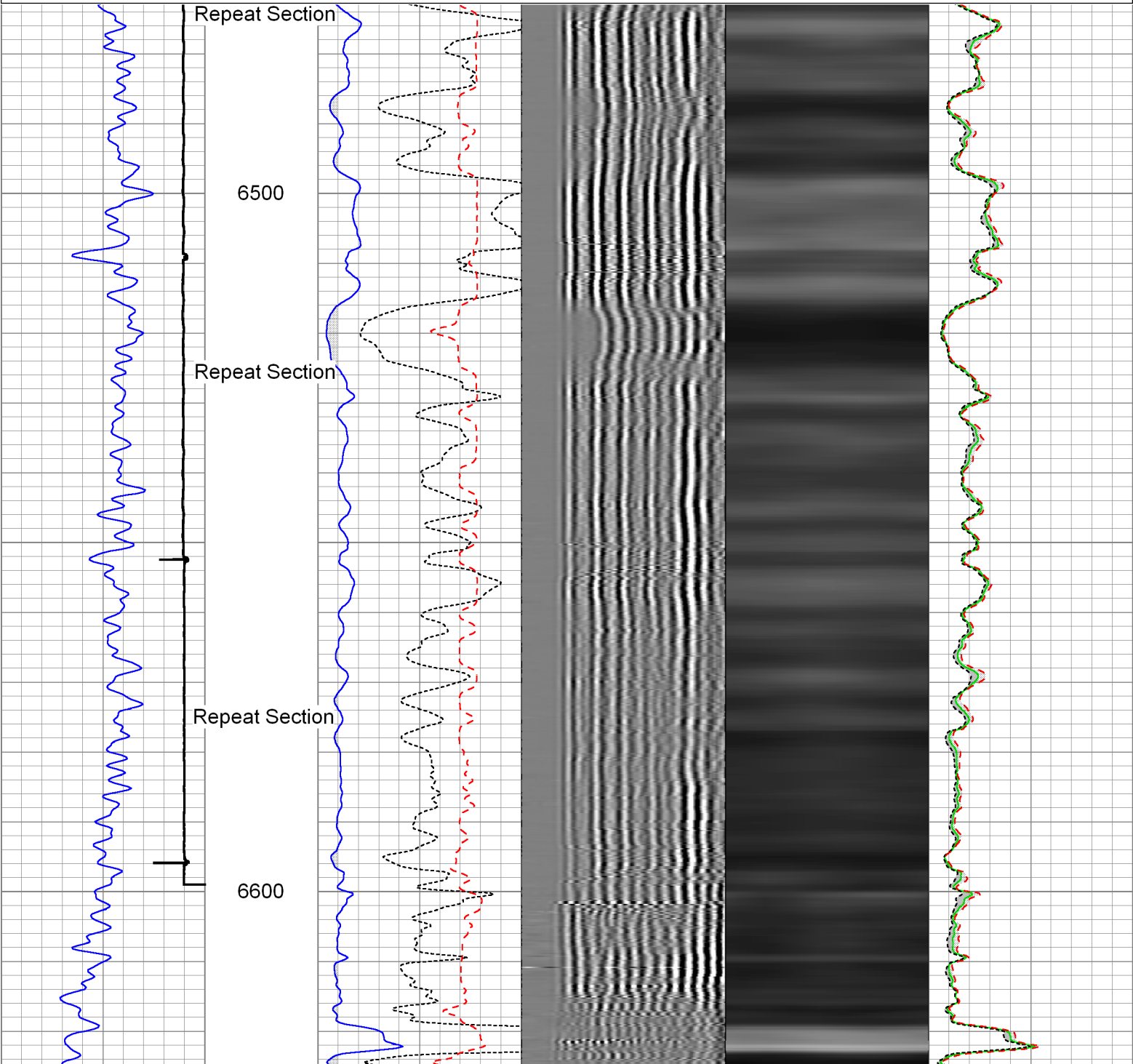


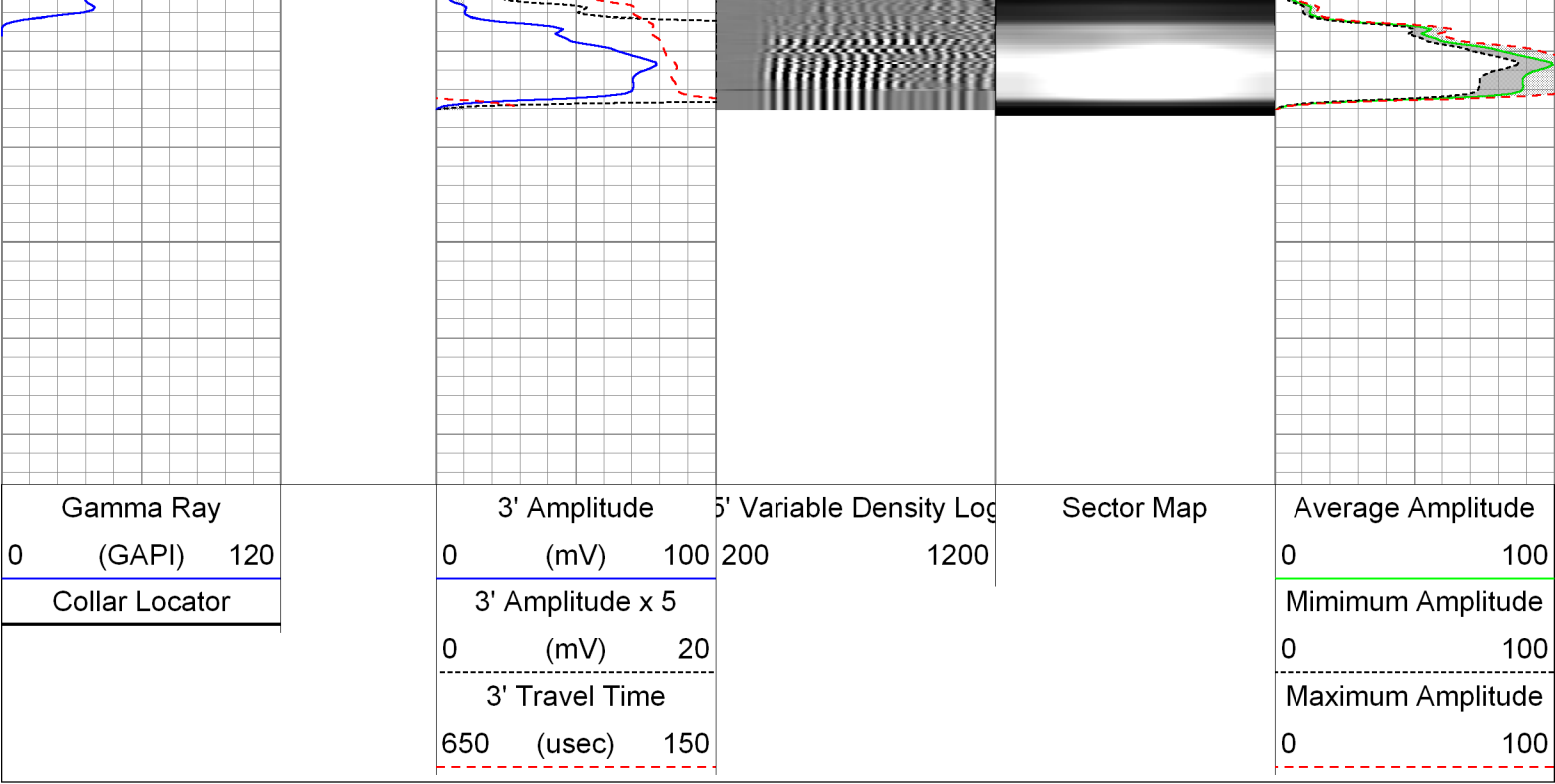


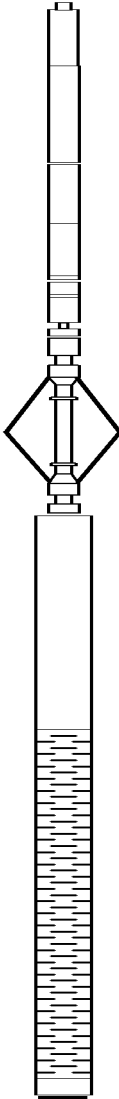

Database File:
Dataset Pathname:
Presentation Format:
Dataset Creation:
Charted by:

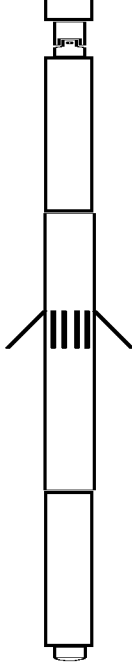
0512338329_anadarko_aggregate state 15n-16hz_05-05-14_mit_rbl.db
pass4
rbt007
Mon May 05 14:35:59 2014 by Log Sondex V7.03
Depth in Feet scaled 1:240

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Collar Locator	3' Amplitude x 5			Minimum Amplitude
	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	26.74		CHD-AES (000001) Cable Head	1.04	1.69	2.00
			XTU-001 (000001) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			PGR-020 (000001) Production Gamma Ray	1.93	1.69	9.50
			PSJ-008 (000001) Production Swivel Joint	0.91	1.69	6.10
			PRC-057 (000010) Production Roller Centralizer (4 Arm)	2.90	2.75	32.00
WV3FT	18.10		RBT-004 (3454) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS1	18.10					
WVFS2	18.10					
WVFS3	18.10					
WVFS4	18.10					
WVFS5	18.10					
WVFS6	18.10					
WVFS7	18.10					
WVFS8	18.10					
CBLTEMP	18.10		PRC-RAC.20 (20082) Roller Arm Centralizer (5 Arm)	2.55	2.75	32.00
CBLROT	18.10					
WV5FT	17.10					

MIT	5.11		PKJ-013 (000001) Production Knuckle Joint	0.57	1.69	3.50
			PRC-RAC.20 (20081) Roller Arm Centralizer (5 Arm)	2.55	2.75	32.00
			MIT-027 (211111) Multifinger Imaging Tool (UW 40F)	4.54	2.75	61.10
			PRC-RAC.20 (20080) Roller Arm Centralizer (5 Arm)	2.55	2.75	32.00
TSTAMP	0.00		BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512338329_Anadarko_Aggregate State 15N-16HZ_05-05-14_MIT_RBL.db: field/well/run1/pass7 Total Length: 30.79 ft Total Weight: 357.90 lb O.D. 3.13 in						

Calibration Report	
Database File:	0512338329_Anadarko_Aggregate State 15N-16HZ_05-05-14_MIT_RBL.db
Dataset Pathname:	pass8
Dataset Creation:	Mon May 05 18:12:17 2014 by Log Sondex V7.03

Multi-finger Imaging Tool Calibration Report

Serial Number:	211111
Number of Fingers:	40
Tool Model:	027

Inclinometer Calibration Report		
Performed:	Wed Nov 30 15:23:46 2005	
Calibration Angle:	45	
	Inc X	Inc Y
Vertical:	1934	1950
Finger 1 up:	1958	2277
Finger 31 up:	1593	1959
Finger 21 up:	1908	1606
Finger 11 up:	2263	1911
Sensitivity ratio:	0.998734	
X-axis angle:	274.18	
Deviation const.:	335.932	

Finger Calibration Report
Performed: Mon May 05 13:57:31 2014

Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	985	366.0	1351	403.0	1754	445.0	2199
Finger 02:	1012	363.0	1375	401.0	1776	440.0	2216
Finger 03:	999	357.0	1356	397.0	1753	438.0	2191
Finger 04:	990	357.0	1347	399.0	1746	448.0	2194
Finger 05:	1005	361.0	1366	392.0	1758	434.0	2192
Finger 06:	984	357.0	1341	410.0	1751	445.0	2196
Finger 07:	1106	327.0	1433	374.0	1807	409.0	2216
Finger 08:	1021	352.0	1373	398.0	1771	436.0	2207

Finger 09:	1001	362.0	1363	400.0	1763	434.0	2197
Finger 10:	1002	362.0	1364	398.0	1762	431.0	2193
Finger 11:	993	360.0	1353	400.0	1753	426.0	2179
Finger 12:	1190	331.0	1521	352.0	1873	369.0	2242
Finger 13:	1087	352.0	1439	388.0	1827	416.0	2243
Finger 14:	1178	339.0	1517	369.0	1886	381.0	2267
Finger 15:	1025	374.0	1399	421.0	1820	433.0	2253
Finger 16:	1122	370.0	1492	399.0	1891	408.0	2299
Finger 17:	1033	372.0	1405	411.0	1816	425.0	2241
Finger 18:	1013	378.0	1391	418.0	1809	425.0	2234
Finger 19:	1030	378.0	1408	421.0	1829	432.0	2261
Finger 20:	1105	370.0	1475	399.0	1874	406.0	2280
Finger 21:	1088	384.0	1472	416.0	1888	430.0	2318
Finger 22:	1091	378.0	1469	411.0	1880	422.0	2302
Finger 23:	1058	374.0	1432	421.0	1853	438.0	2291
Finger 24:	1239	348.0	1587	372.0	1959	385.0	2344
Finger 25:	1185	368.0	1553	392.0	1945	400.0	2345
Finger 26:	1197	350.0	1547	368.0	1915	375.0	2290
Finger 27:	1185	349.0	1534	381.0	1915	389.0	2304
Finger 28:	1243	355.0	1598	374.0	1972	376.0	2348
Finger 29:	1217	349.0	1566	366.0	1932	380.0	2312
Finger 30:	1230	340.0	1570	368.0	1938	387.0	2325
Finger 31:	1234	351.0	1585	373.0	1958	389.0	2347
Finger 32:	1216	339.0	1555	366.0	1921	374.0	2295
Finger 33:	1057	366.0	1423	411.0	1834	448.0	2282
Finger 34:	1085	357.0	1442	393.0	1835	428.0	2263
Finger 35:	1180	328.0	1508	372.0	1880	396.0	2276
Finger 36:	1132	341.0	1473	368.0	1841	401.0	2242
Finger 37:	1057	363.0	1420	390.0	1810	430.0	2240
Finger 38:	1036	353.0	1389	385.0	1774	417.0	2191
Finger 39:	1021	364.0	1385	408.0	1793	444.0	2237
Finger 40:	989	359.0	1348	396.0	1744	442.0	2186

Post Survey Calibration Check								
Performed:					Mon May 05 18:12:10 2014			
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.025	0.012	5.021	0.010	6.023	0.011	7.014	0.007
Finger 02:	4.018	0.009	5.019	0.009	6.022	0.011	7.019	0.009
Finger 03:	4.025	0.012	5.020	0.010	6.024	0.012	7.015	0.007
Finger 04:	4.021	0.010	5.017	0.009	6.025	0.012	7.012	0.006
Finger 05:	4.028	0.014	5.015	0.008	6.027	0.013	7.017	0.008
Finger 06:	4.011	0.005	5.015	0.007	6.017	0.009	7.010	0.005
Finger 07:	4.028	0.014	5.030	0.015	6.012	0.006	7.000	-0.000
Finger 08:	4.037	0.018	5.028	0.014	6.023	0.012	7.018	0.009
Finger 09:	4.025	0.012	5.021	0.010	6.023	0.012	7.022	0.011
Finger 10:	4.023	0.011	5.016	0.008	6.028	0.014	7.024	0.012
Finger 11:	4.018	0.009	5.015	0.007	6.020	0.010	7.016	0.008
Finger 12:	4.022	0.011	5.016	0.008	6.016	0.008	7.007	0.004
Finger 13:	4.036	0.018	5.033	0.017	6.021	0.011	7.018	0.009
Finger 14:	4.022	0.011	5.013	0.006	6.008	0.004	7.000	-0.000
Finger 15:	4.019	0.009	5.016	0.008	6.010	0.005	7.015	0.008
Finger 16:	4.027	0.013	5.010	0.005	6.009	0.004	6.991	-0.005
Finger 17:	4.029	0.014	5.017	0.008	6.019	0.009	7.014	0.007
Finger 18:	4.023	0.011	5.017	0.008	6.017	0.008	7.018	0.009
Finger 19:	4.028	0.014	5.020	0.010	6.016	0.008	7.026	0.013
Finger 20:	4.030	0.015	5.020	0.010	6.019	0.009	7.030	0.015
Finger 21:	4.029	0.014	5.025	0.013	6.022	0.011	7.021	0.010
Finger 22:	4.015	0.008	5.015	0.008	6.024	0.012	7.011	0.006
Finger 23:	4.030	0.015	5.014	0.007	6.024	0.012	7.011	0.005
Finger 24:	4.021	0.011	5.011	0.006	6.014	0.007	7.005	0.002
Finger 25:	4.033	0.016	5.018	0.009	6.022	0.011	7.012	0.006
Finger 26:	4.020	0.010	5.019	0.009	6.029	0.015	7.011	0.005
Finger 27:	4.018	0.009	5.028	0.014	6.028	0.014	7.016	0.008
Finger 28:	4.029	0.014	5.042	0.021	6.024	0.012	7.020	0.010

Finger 29:	4.023	0.011	5.012	0.006	6.019	0.009	7.009	0.005
Finger 30:	4.019	0.010	5.020	0.010	6.014	0.007	7.015	0.007
Finger 31:	4.024	0.012	5.013	0.007	6.016	0.008	7.010	0.005
Finger 32:	4.040	0.020	5.012	0.006	6.014	0.007	7.012	0.006
Finger 33:	4.031	0.016	5.013	0.007	6.014	0.007	7.015	0.007
Finger 34:	4.021	0.011	5.019	0.010	6.023	0.012	7.016	0.008
Finger 35:	4.005	0.003	5.023	0.011	6.007	0.003	7.006	0.003
Finger 36:	4.026	0.013	5.023	0.012	6.019	0.009	7.007	0.003
Finger 37:	4.031	0.015	5.015	0.007	6.023	0.012	7.028	0.014
Finger 38:	4.030	0.015	5.027	0.014	6.017	0.008	7.020	0.010
Finger 39:	4.021	0.010	5.009	0.004	6.004	0.002	7.004	0.002
Finger 40:	4.044	0.022	5.012	0.006	6.020	0.010	7.016	0.008
Average:	4.025	0.013	5.019	0.009	6.019	0.009	7.014	0.007

Segmented Cement Bond Log Calibration Report

Serial Number: 3454
Tool Model: 004

Calibration Casing Diameter: 7.000 in
Calibration Depth: 1173.842 ft

Master Calibration, performed Mon May 05 14:16:34 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.000	0.719	0.000	62.165	86.404	0.036
5FT	-0.002	0.719	0.000	62.165	86.179	0.210
S1	-0.000	0.736	0.000	100.000	135.769	0.040
S2	-0.002	0.737	0.000	100.000	135.289	0.330
S3	-0.002	0.722	0.000	100.000	138.208	0.211
S4	-0.002	0.705	0.000	100.000	141.420	0.345
S5	-0.001	0.688	0.000	100.000	145.141	0.177
S6	-0.002	0.692	0.000	100.000	144.061	0.352
S7	-0.001	0.704	0.000	100.000	141.843	0.184
S8	-0.001	0.725	0.000	100.000	137.614	0.190

Gamma Ray Calibration Report

Serial Number: 000001
Tool Model: 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 Aggregate State 15N-16HZ
Field Wattenberg
County Weld
State Colorado