



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Aggregate State 16N-16HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # :			
Permanent Datum				SHL: 2,389' FSL 910' FEL			
Log Measured From				Lat / Long: 40.15193 / -104.776028			
Drilling Measured From				SEC 9 TWP 2N RGE 66W			
Ground Level				Elevation			
Kelly Bushing				4,925'			
Kelly Bushing				12 FT			
Elevation				K.B. 4,937'			
Elevation				D.F. ---			
Elevation				G.L. 4,925'			
Date				14-MAY-14			
Run Number				One			
Depth Driller				14,698 FT			
Depth Logger				7,090 FT			
Bottom Logged Interval				7,090 FT			
Top Log Interval				Surface			
Open Hole Size				8,750"			
Type Fluid				Water			
Density / Viscosity				8,34 lbm/gal			
Max. Recorded Temp.				228°F			
Estimated Cement Top				140 FT			
Time Well Ready				ROA			
Time Logger on Bottom				12:00			
Equipment Number				HD-0119			
Location				Fort Lupton, CO			
Recorded By				Erick Vaughn			
Witnessed By				Trevor Daniel			
Borehole Record				Tubing Record			
Run Number				Bit			
From				To			
Size				Weight			
From				To			
Casing Record				Size (in)			
Surface Casing				Wgt (lbs/ft)			
Intermediate #1				Grade			
Intermediate #2				Top			
Liner				Bottom			
4 1/2"				7 7/16 FT			
11.6				14,661 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 PBR top @ 6,697 FT.
Adjusted log 2 FT to correlate with Liner Top.
Log ran to surface.
Log ran with 2800 PSI surface induced pressure.
No debris found on logging tools upon completion of operations.

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



Main Pass 7"

Logged with 2800 PSI Surface Induced Pressure

Database File: 0512338330_anadarko_aggregate state 16n-16hz_05-14-14_mit_rbl.db

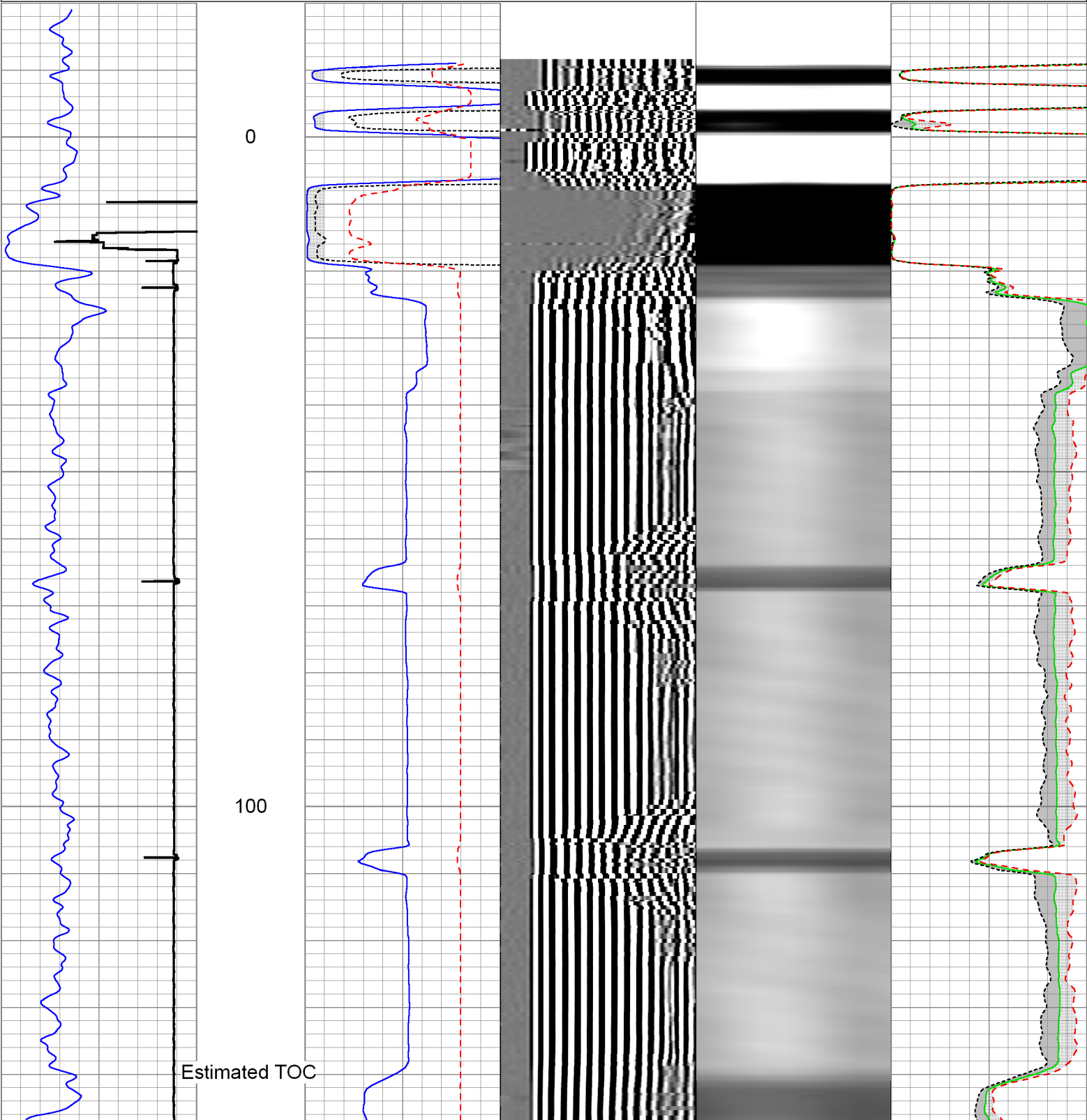
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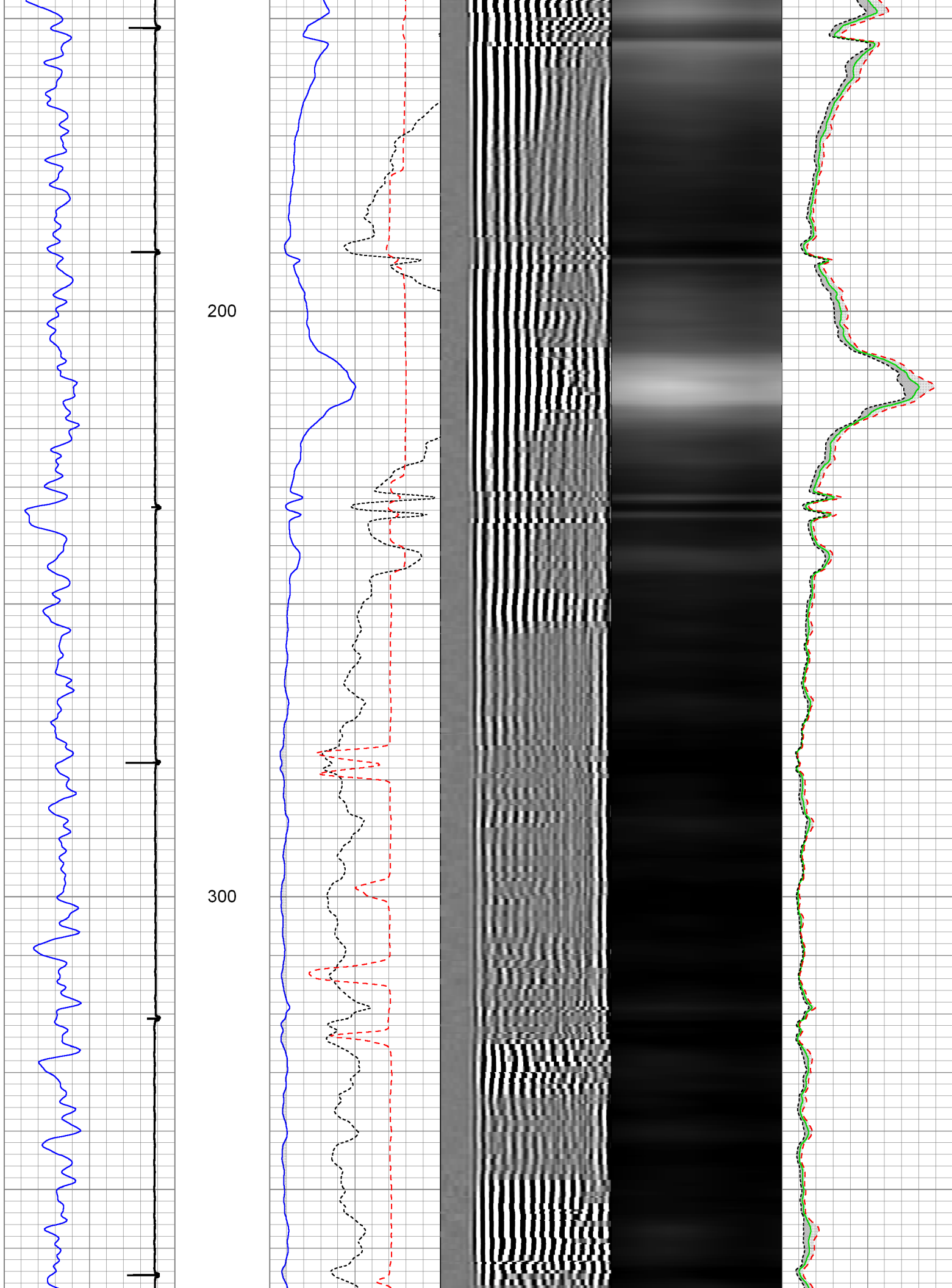
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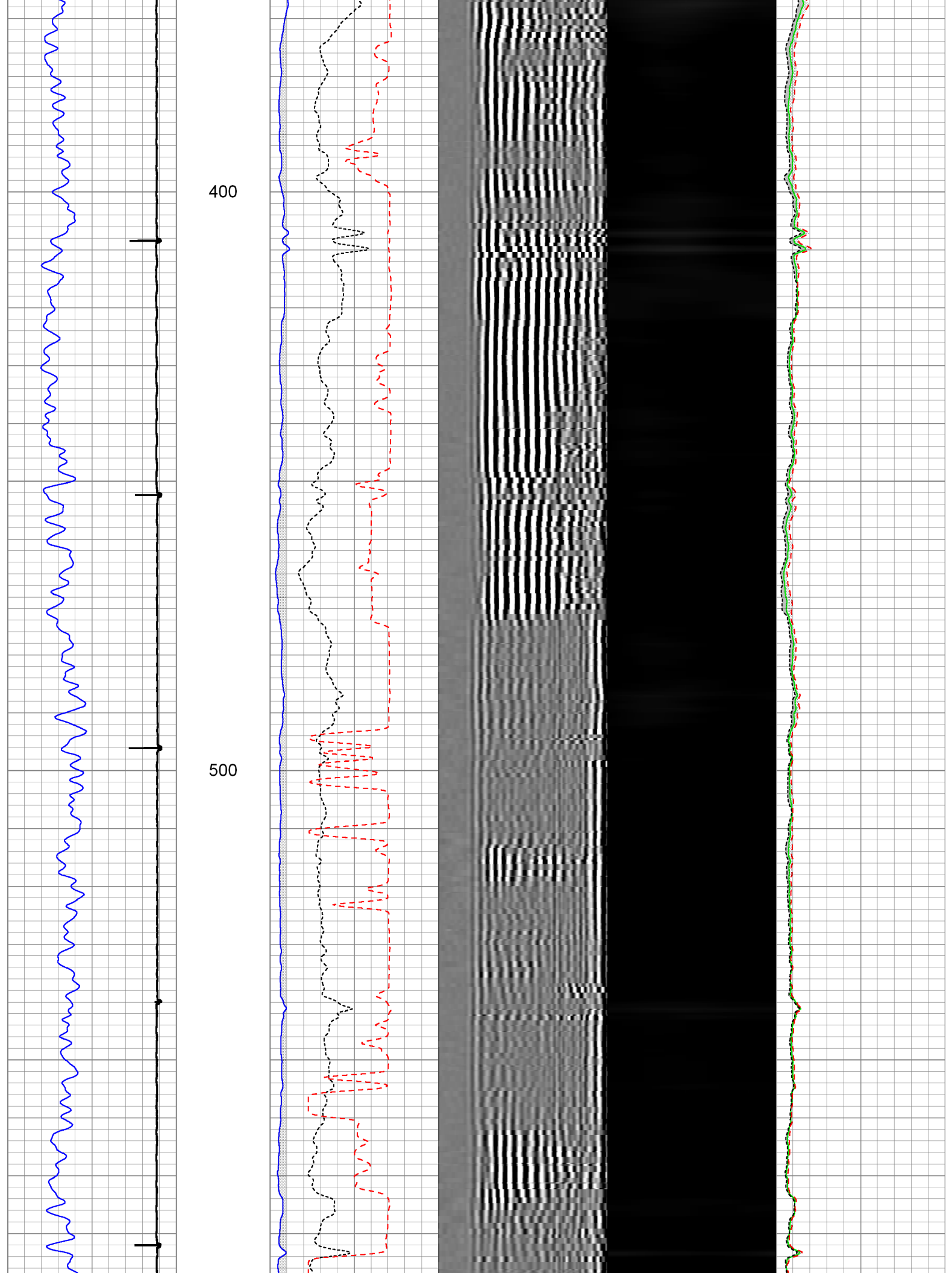
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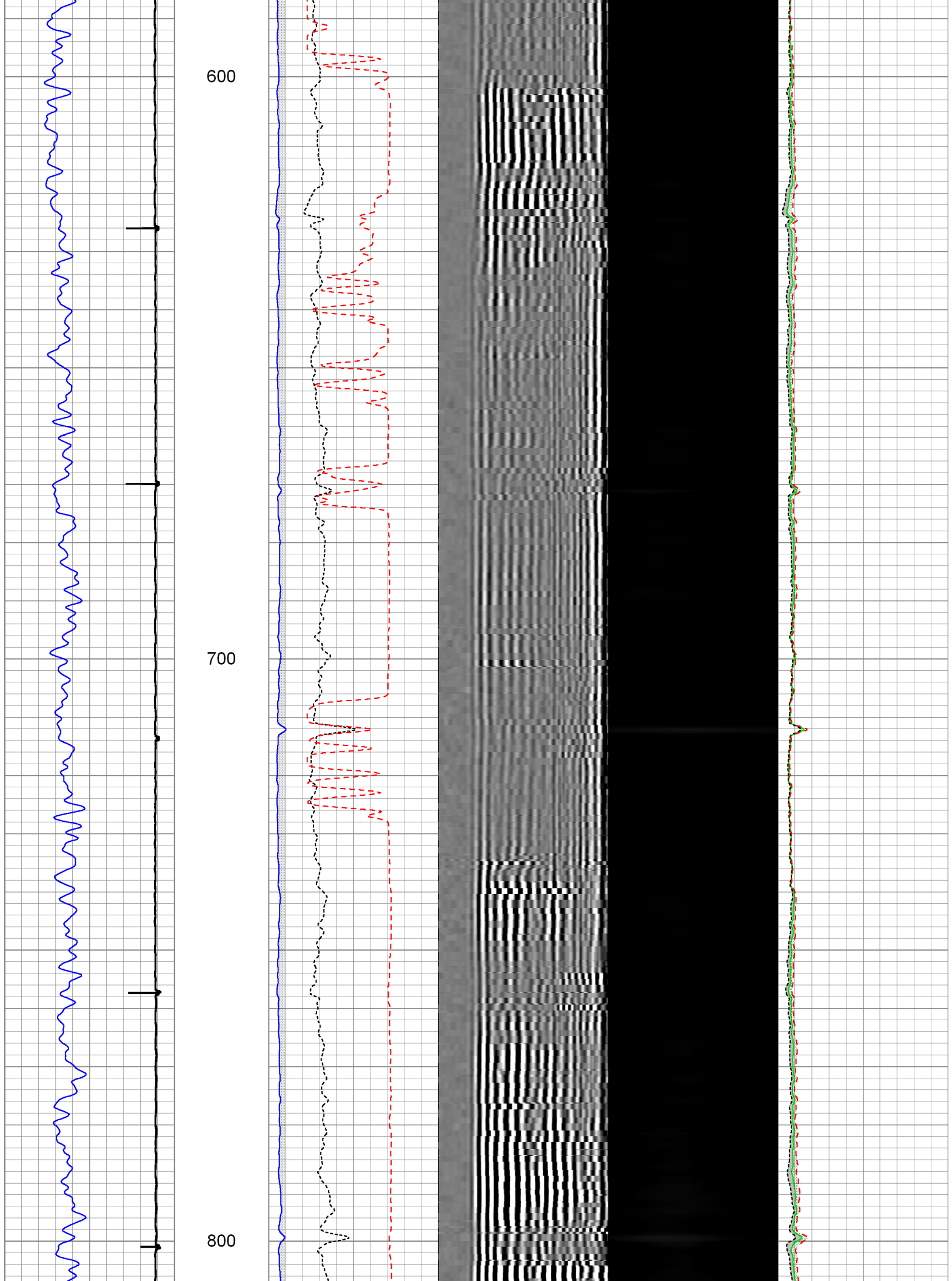
Charted by: Depth in Feet scaled 1:240

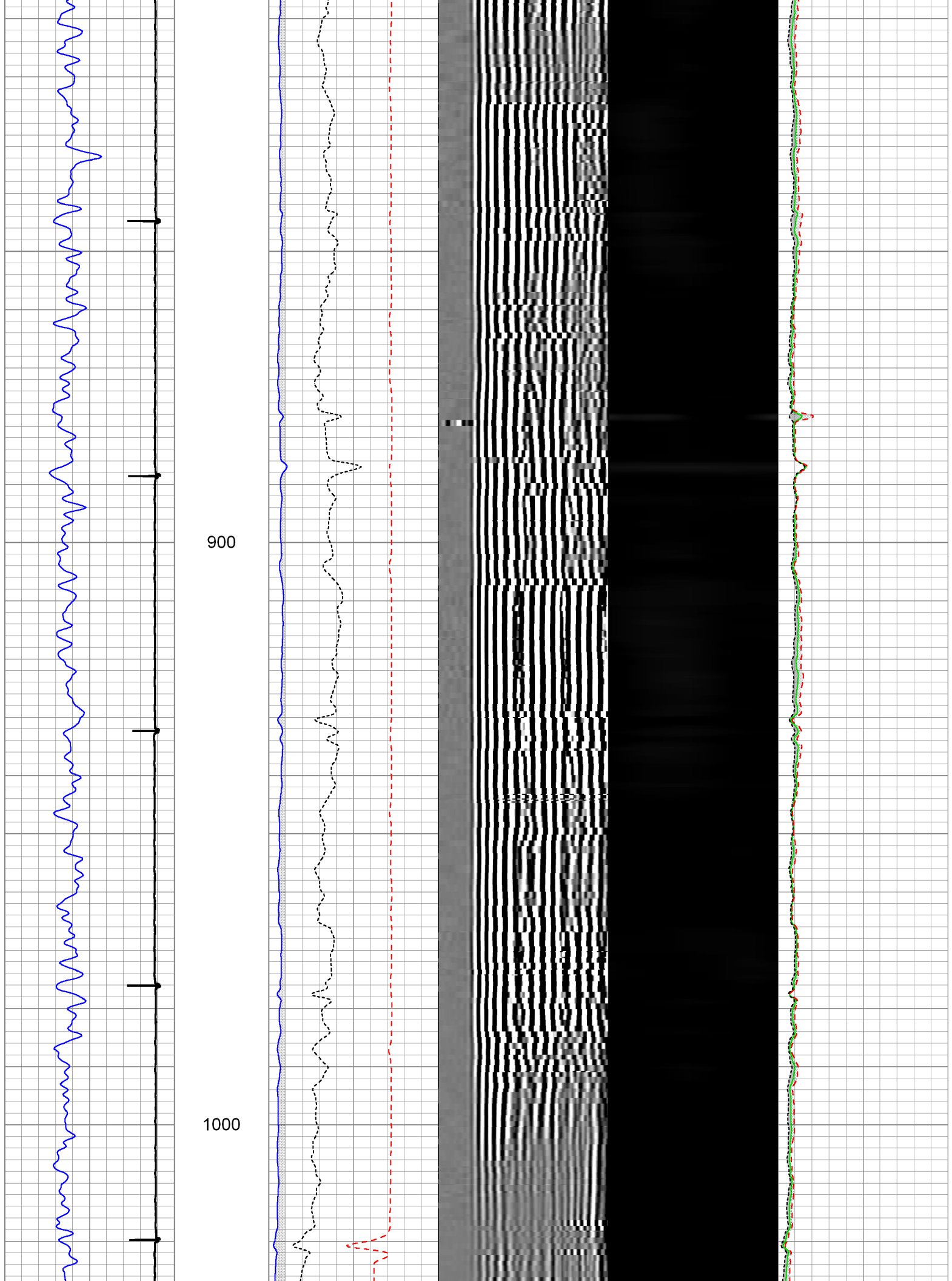
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
	0 (mV) 20			0 100
	3' Travel Time			Maximum Amplitude
	650 (usec) 150			0 100

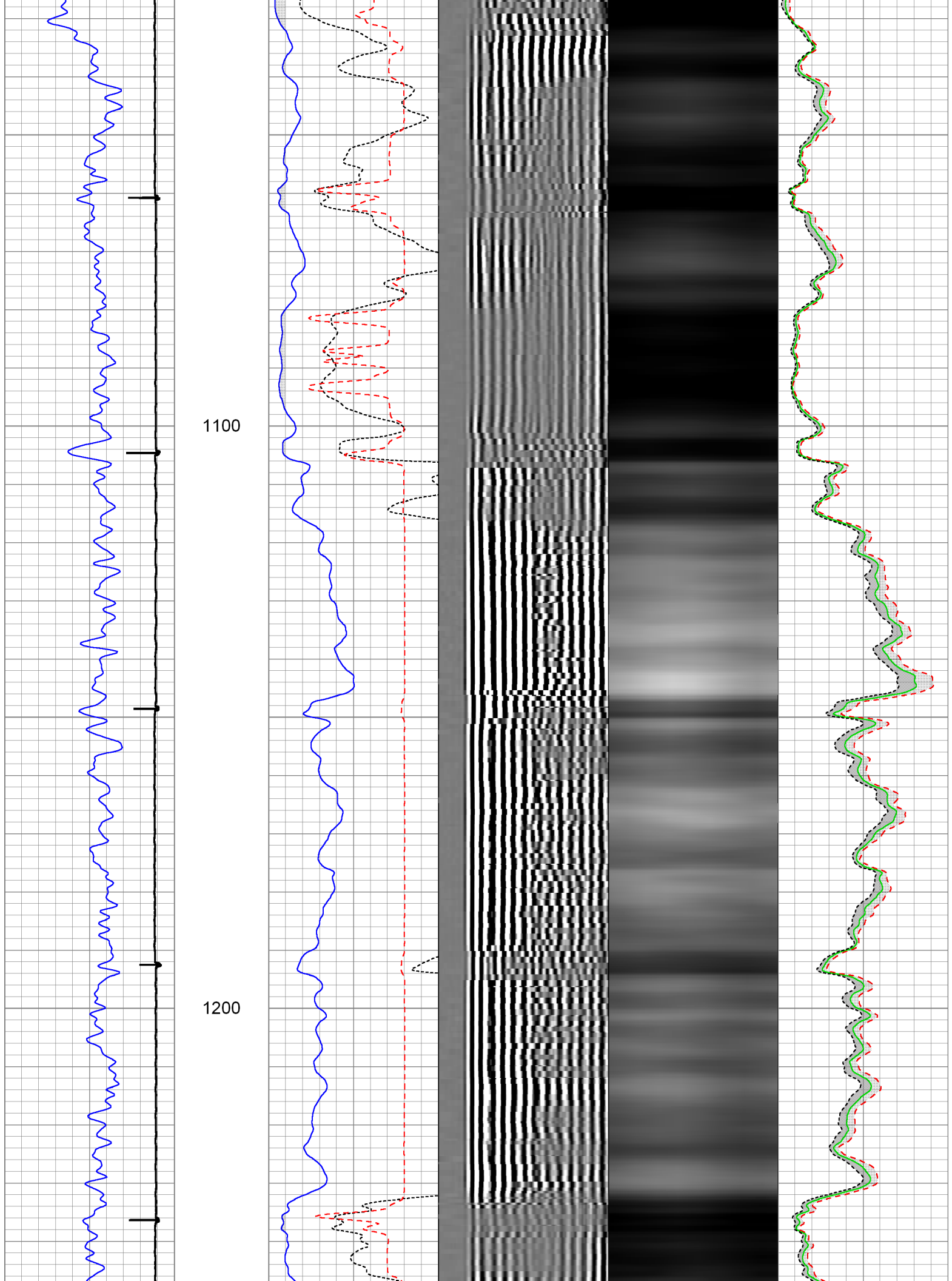


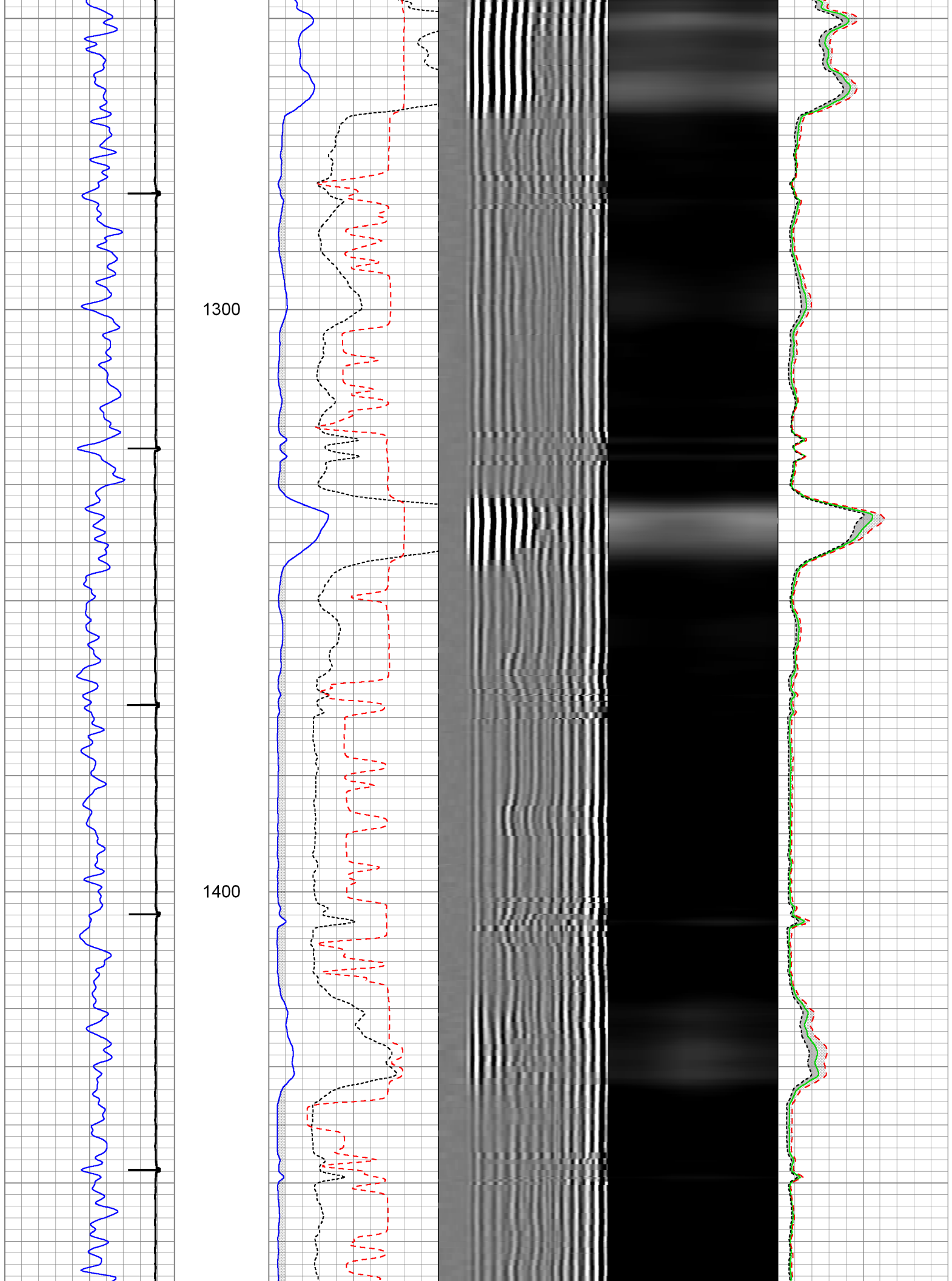


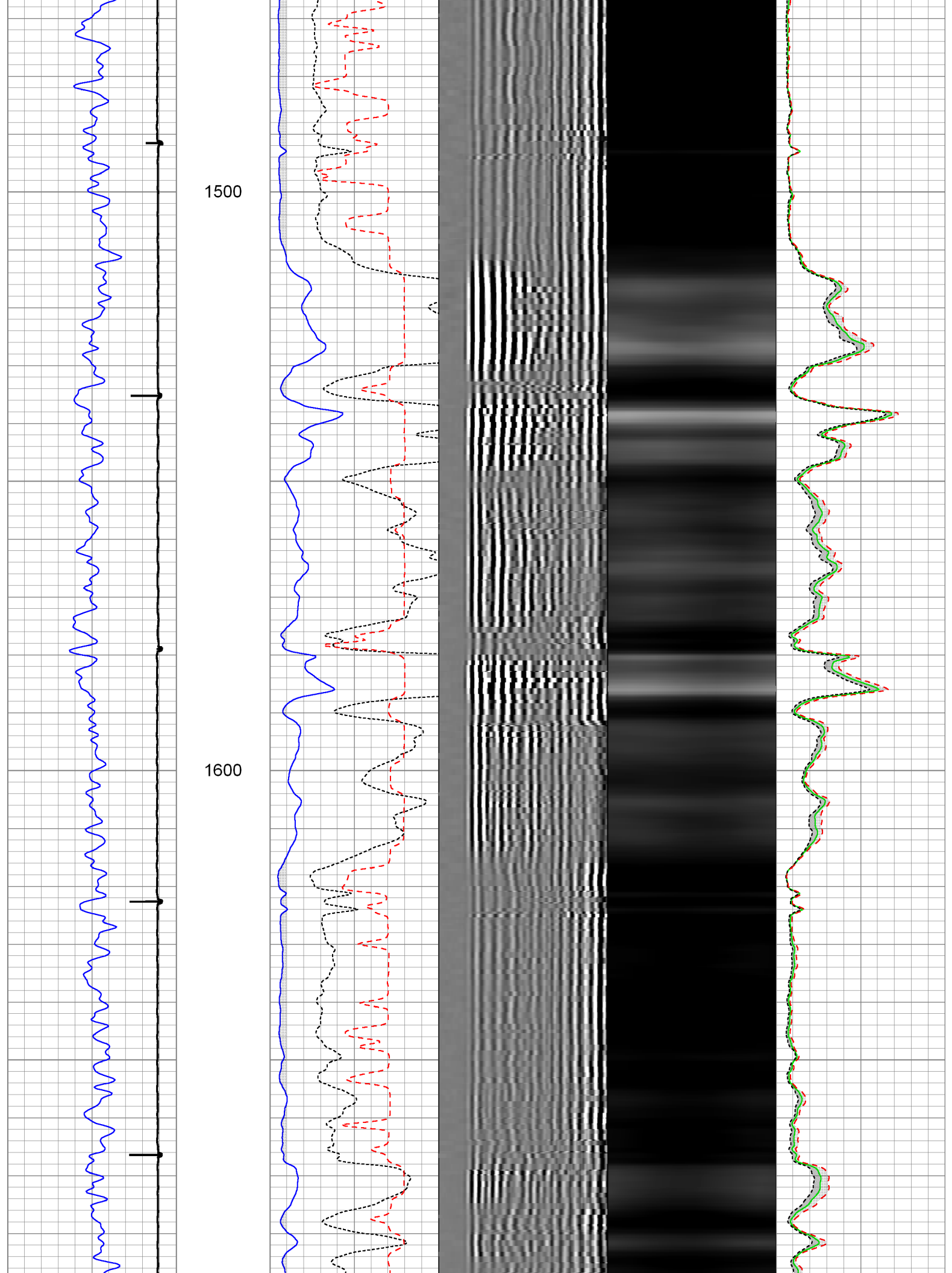


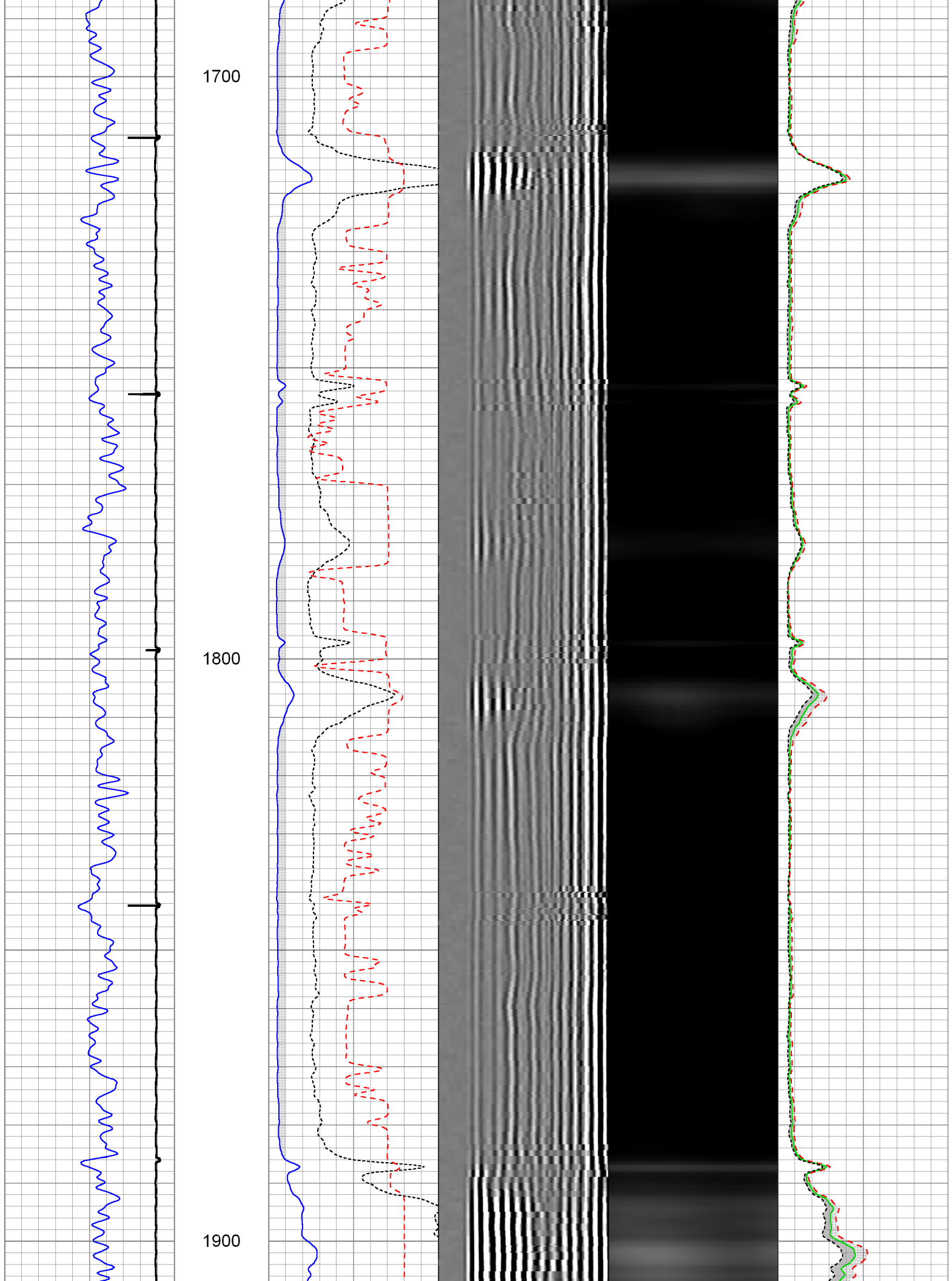


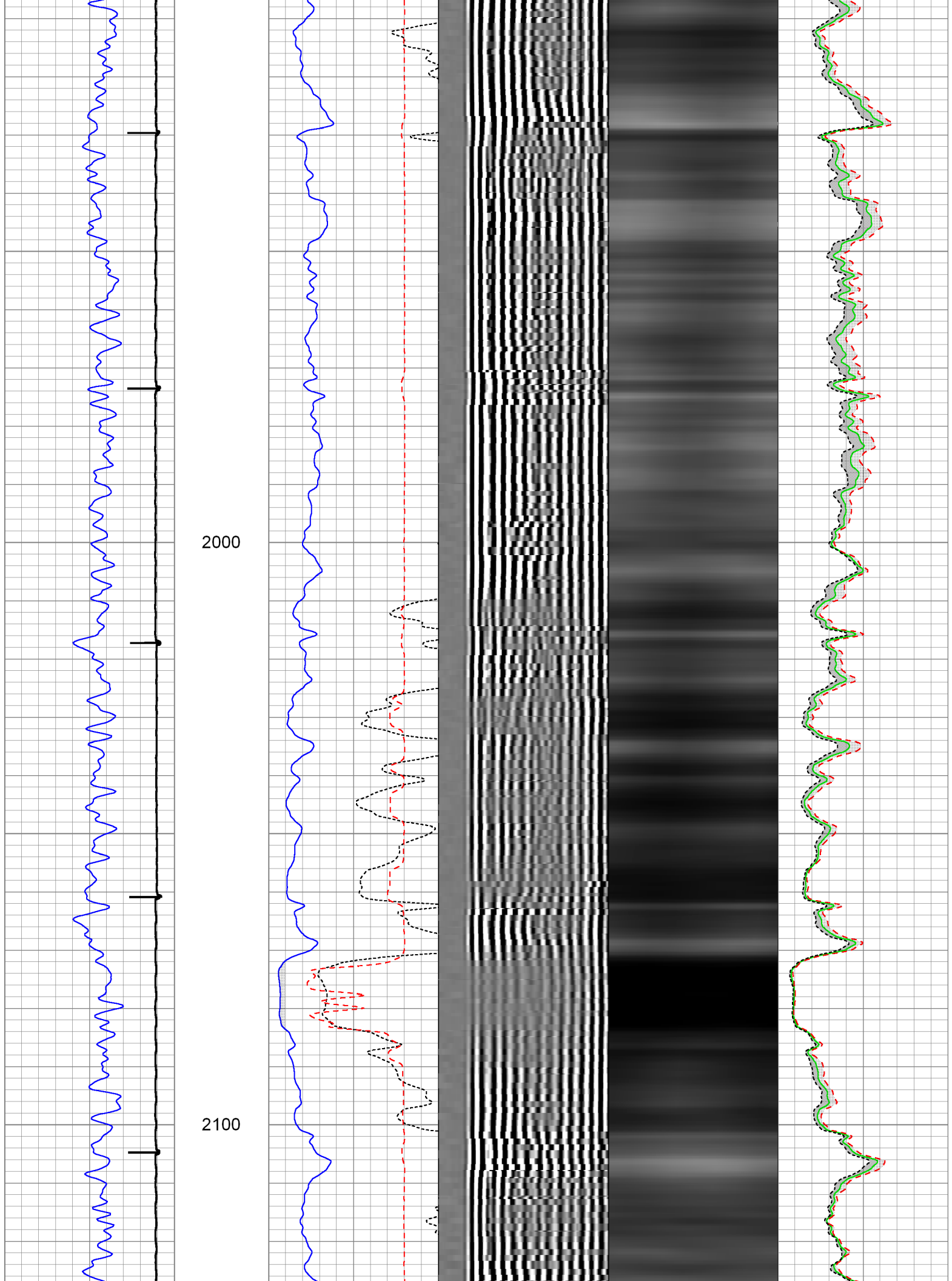


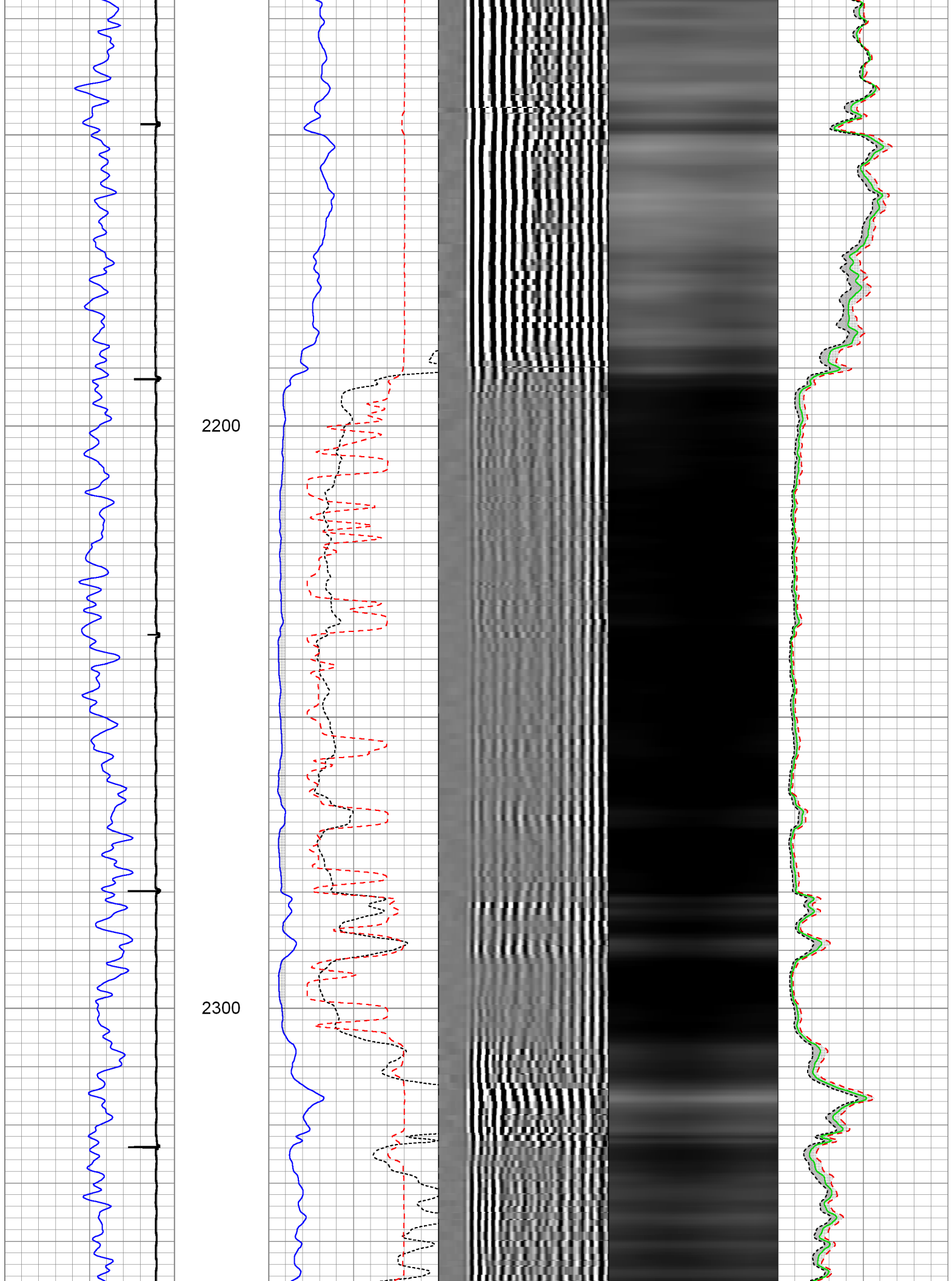


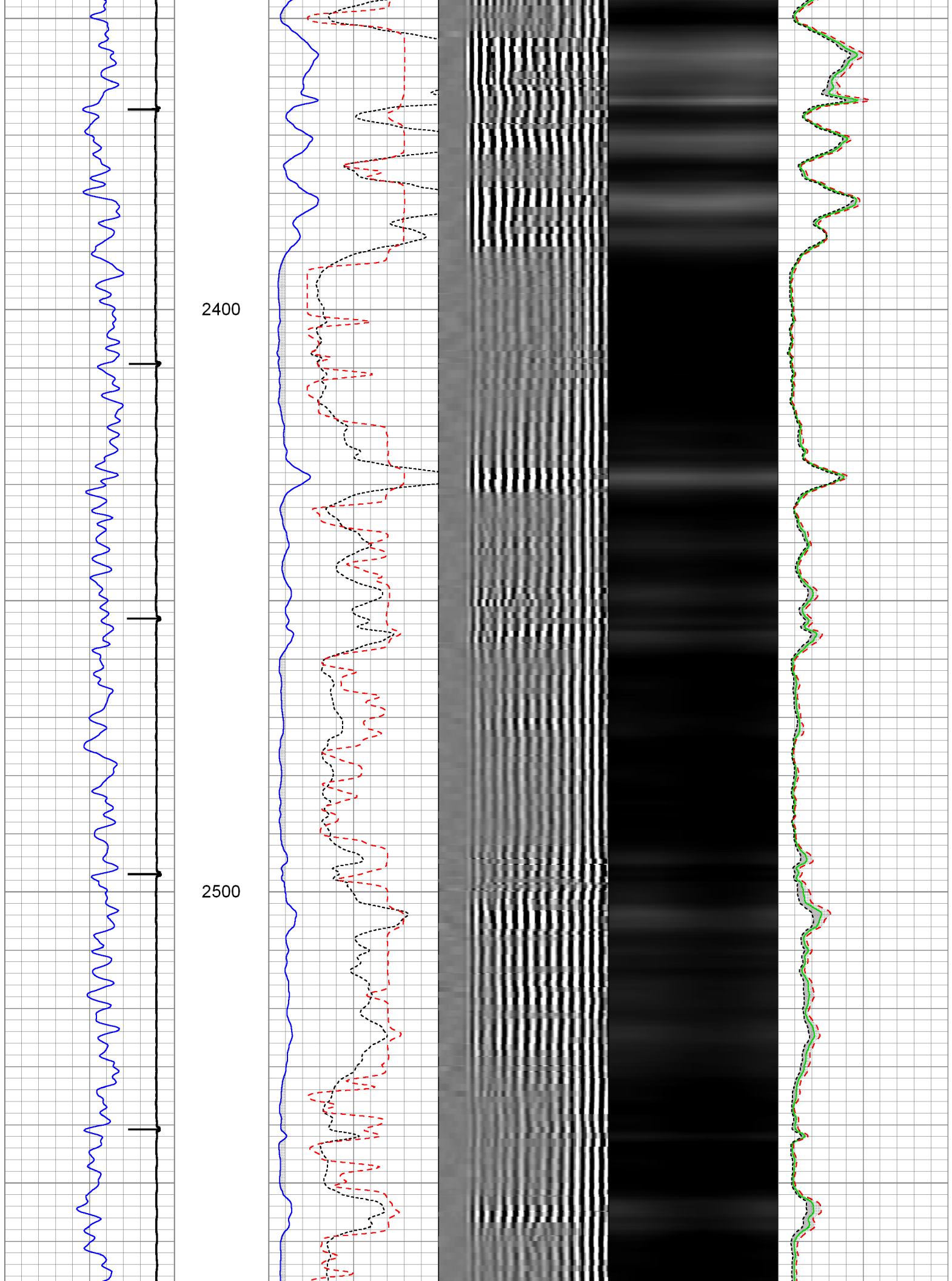






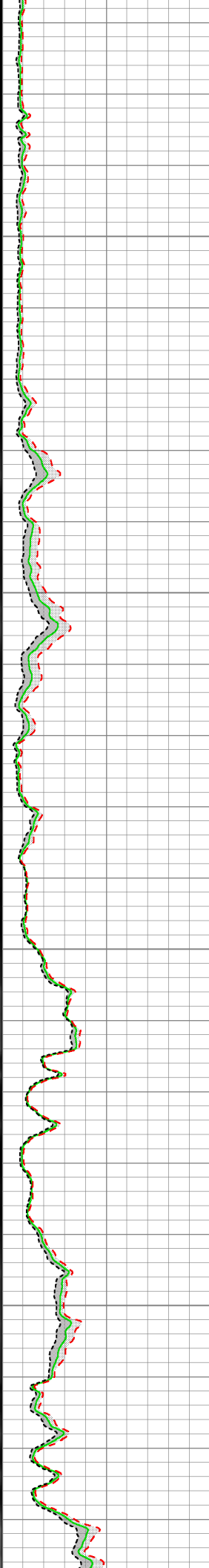
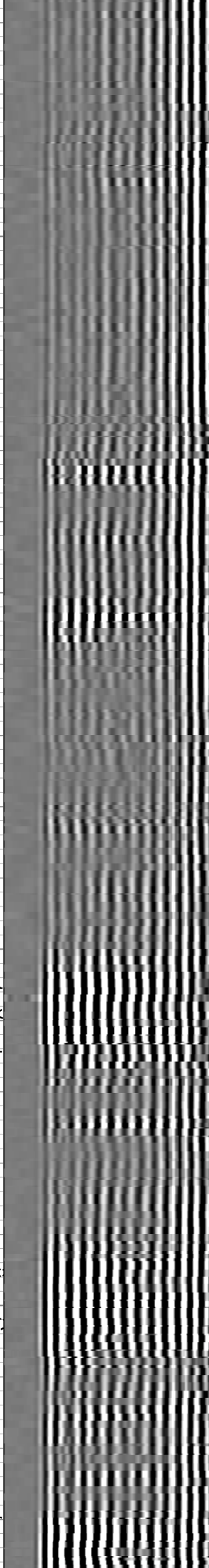
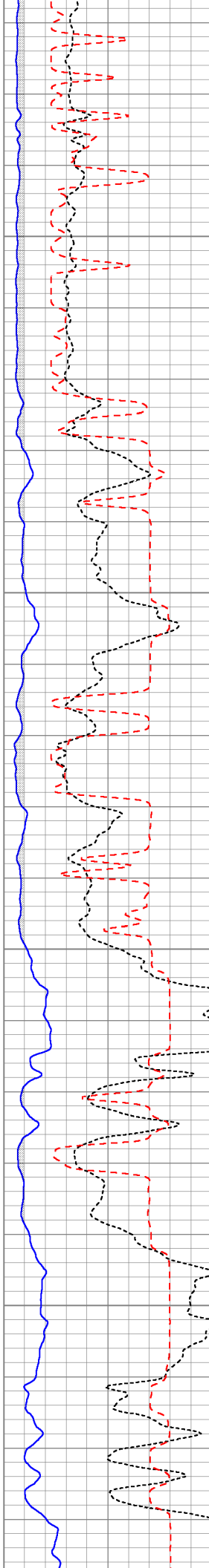






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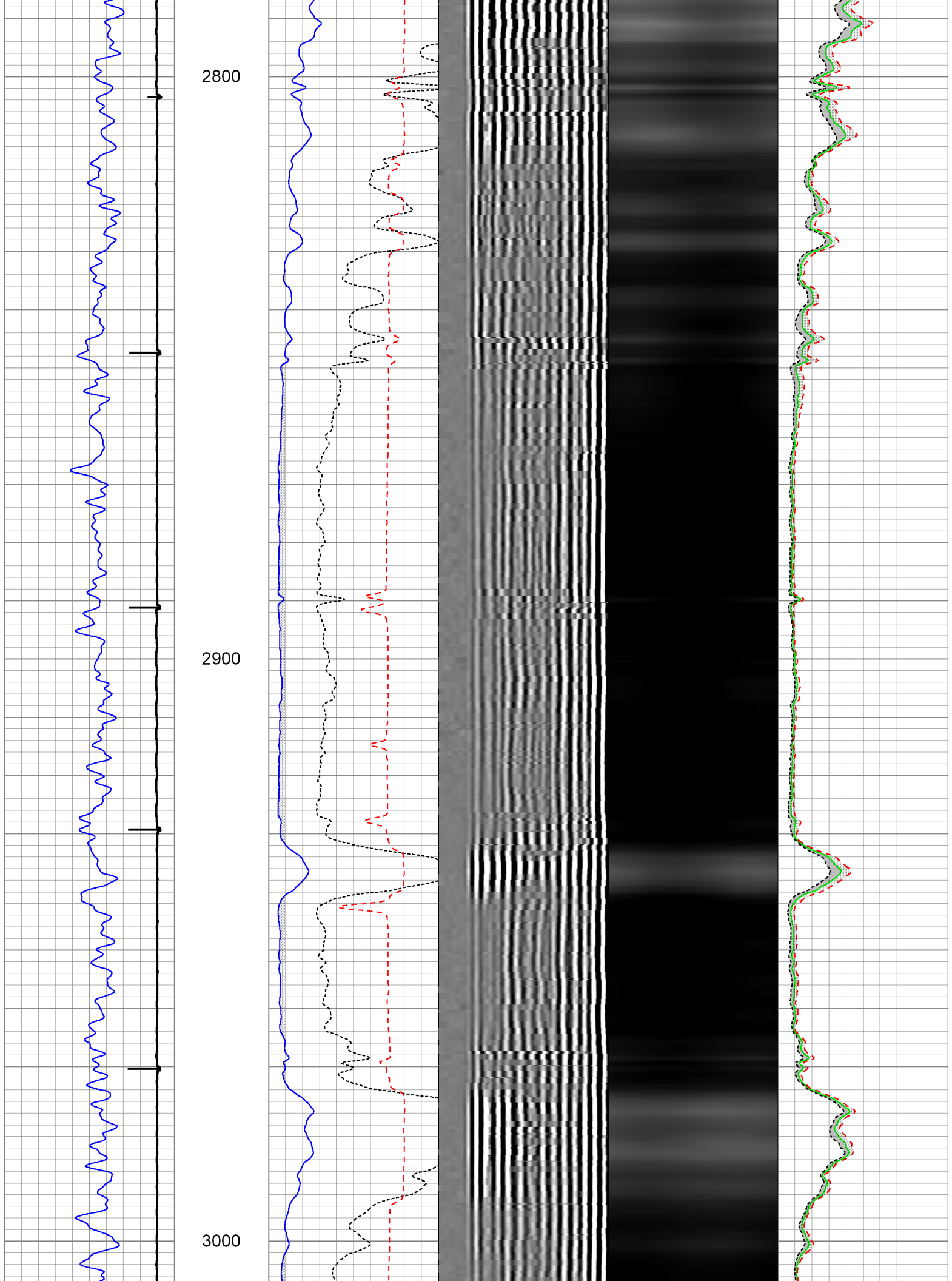
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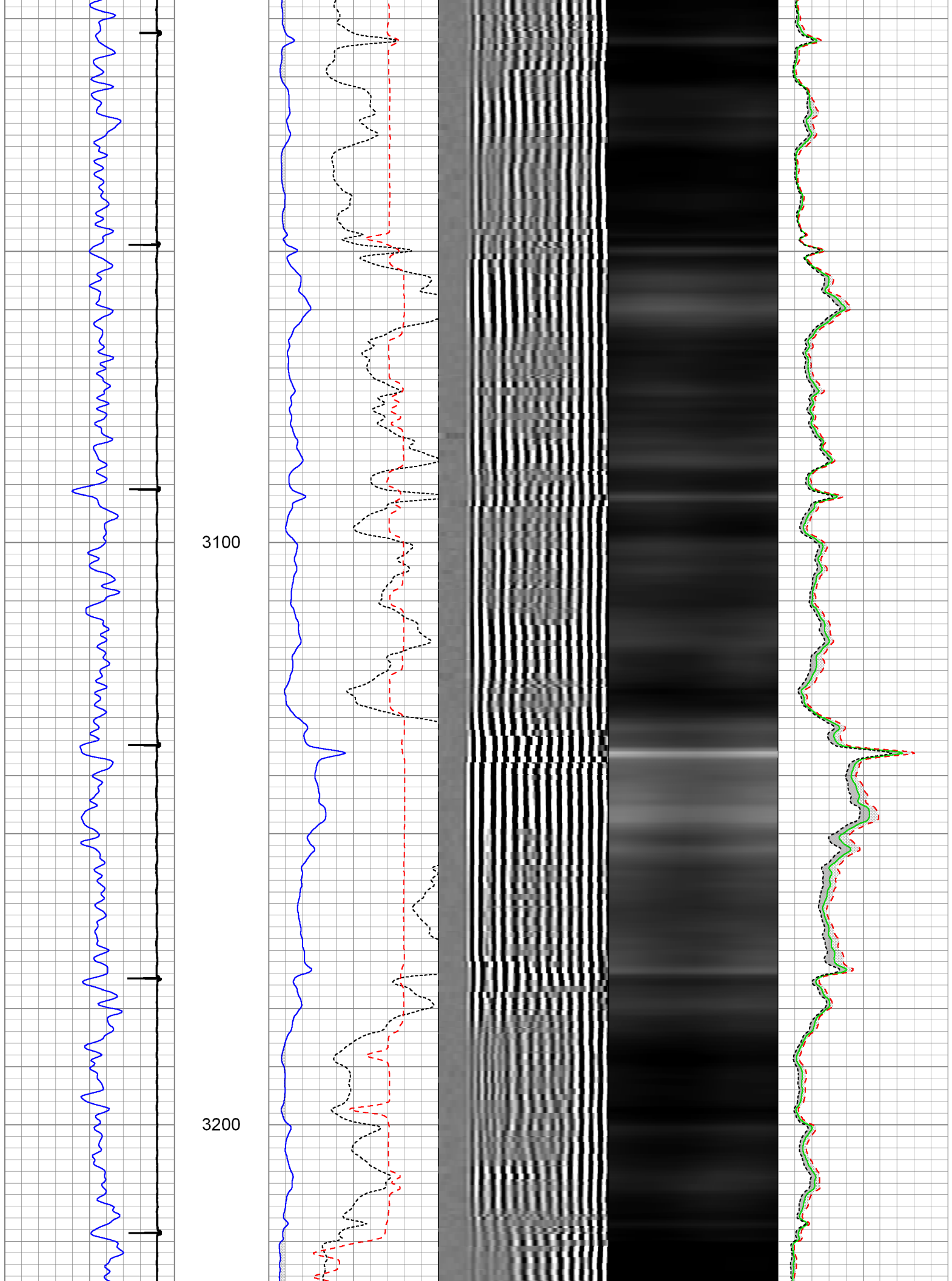


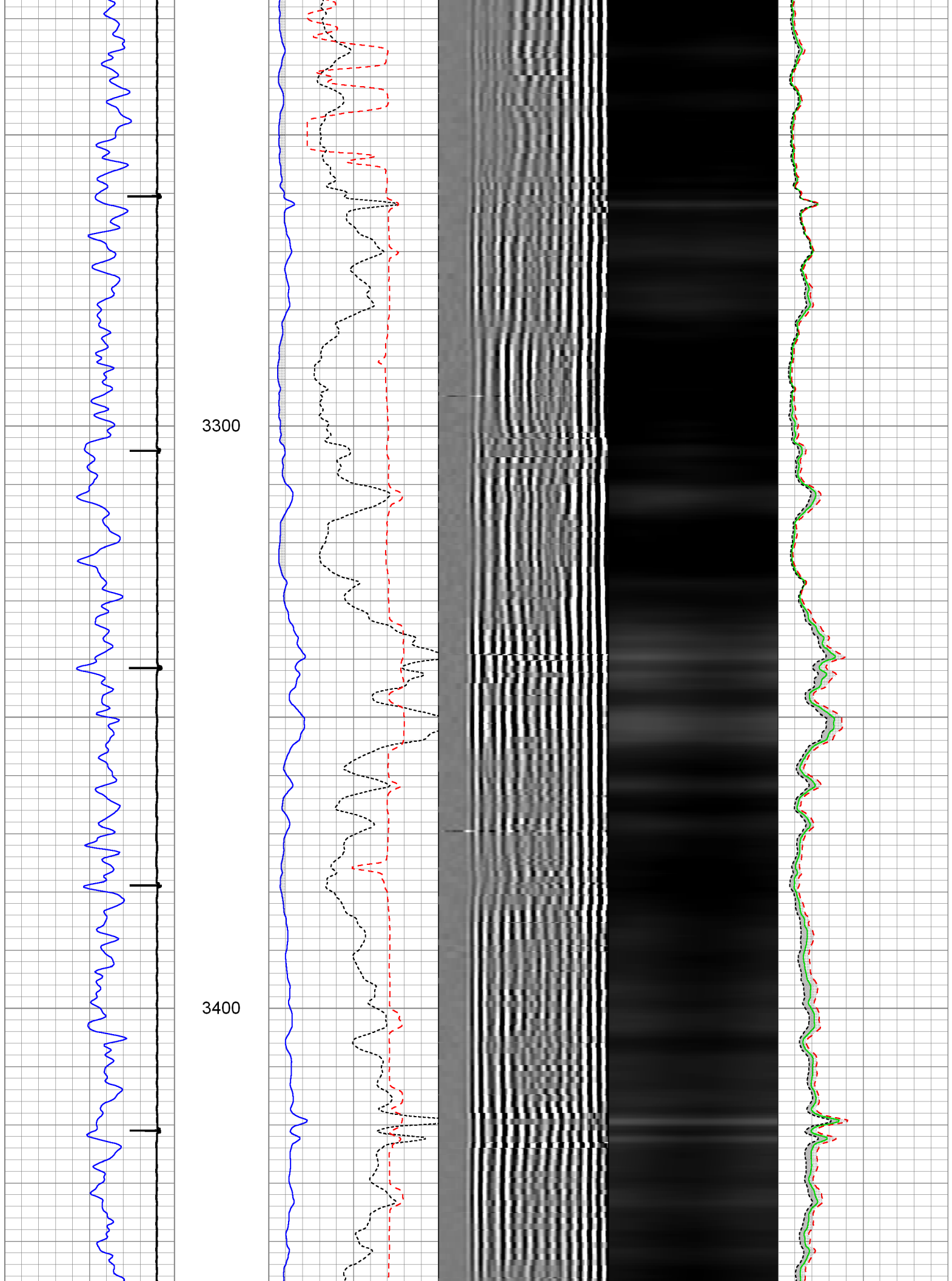
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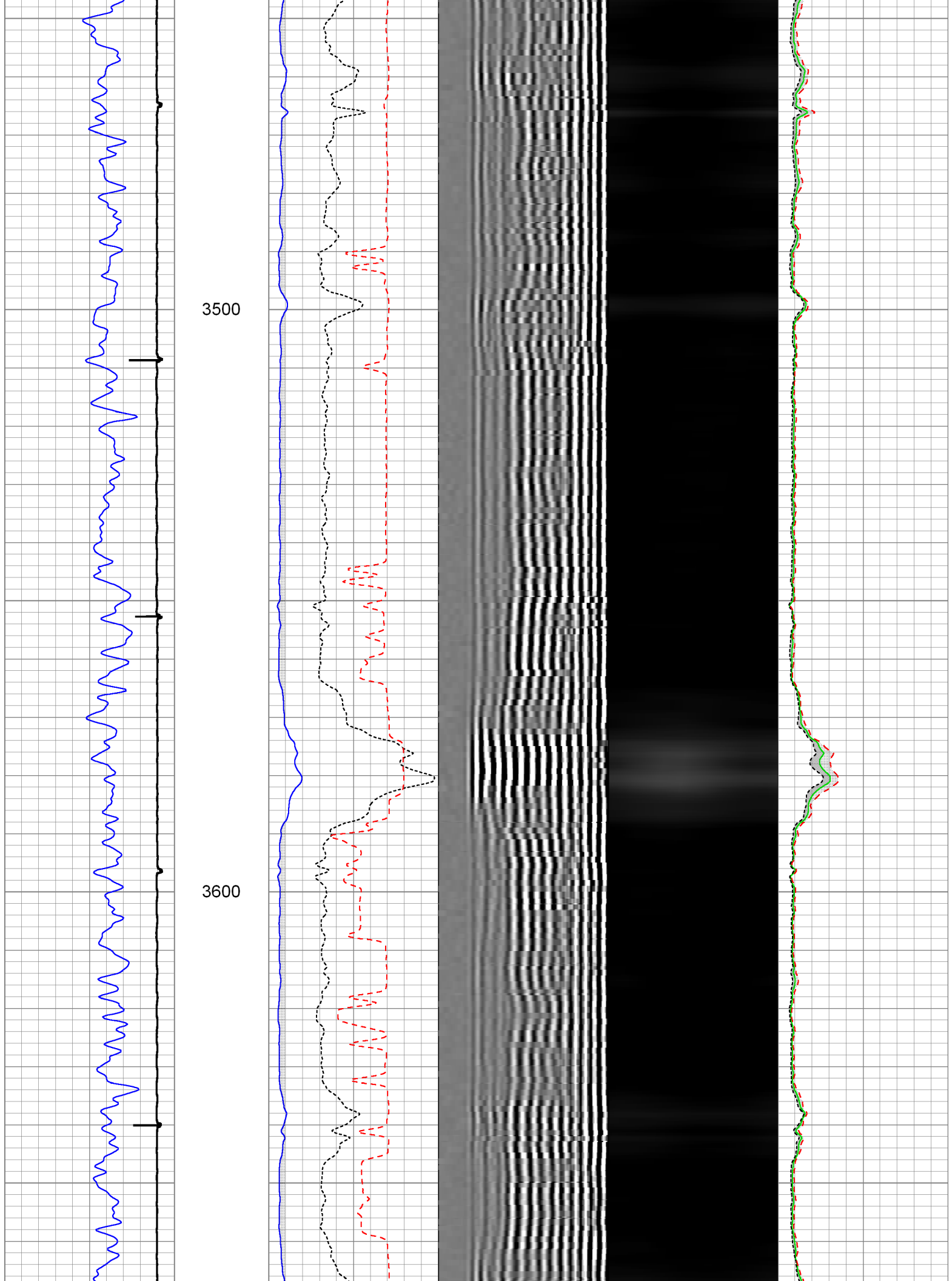
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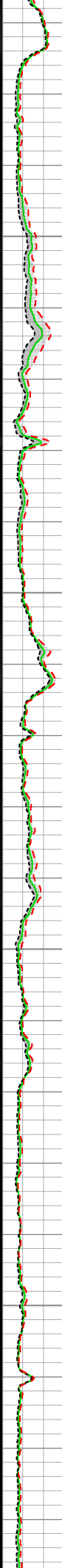
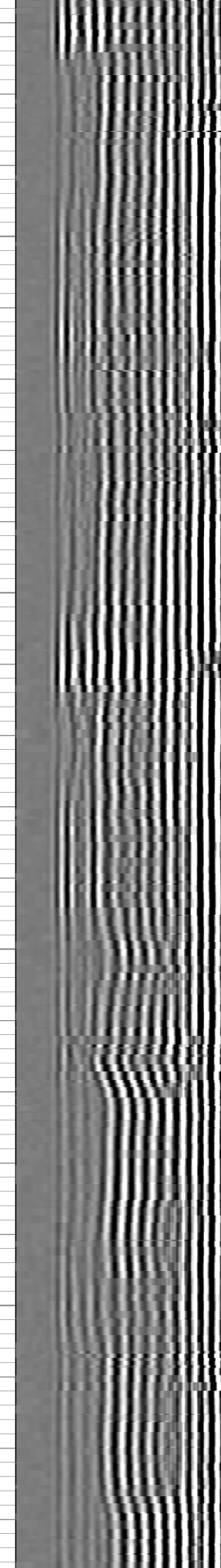
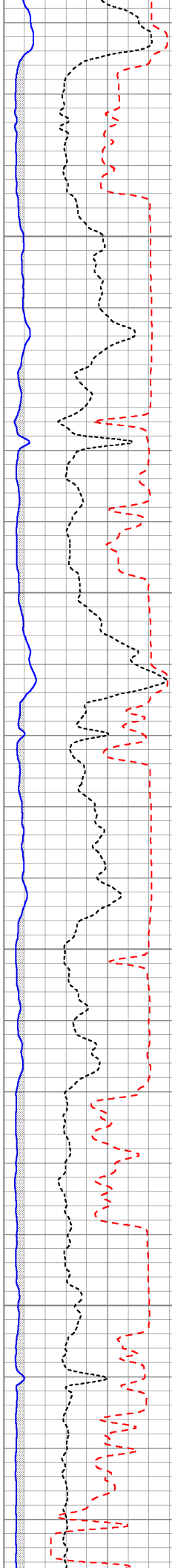


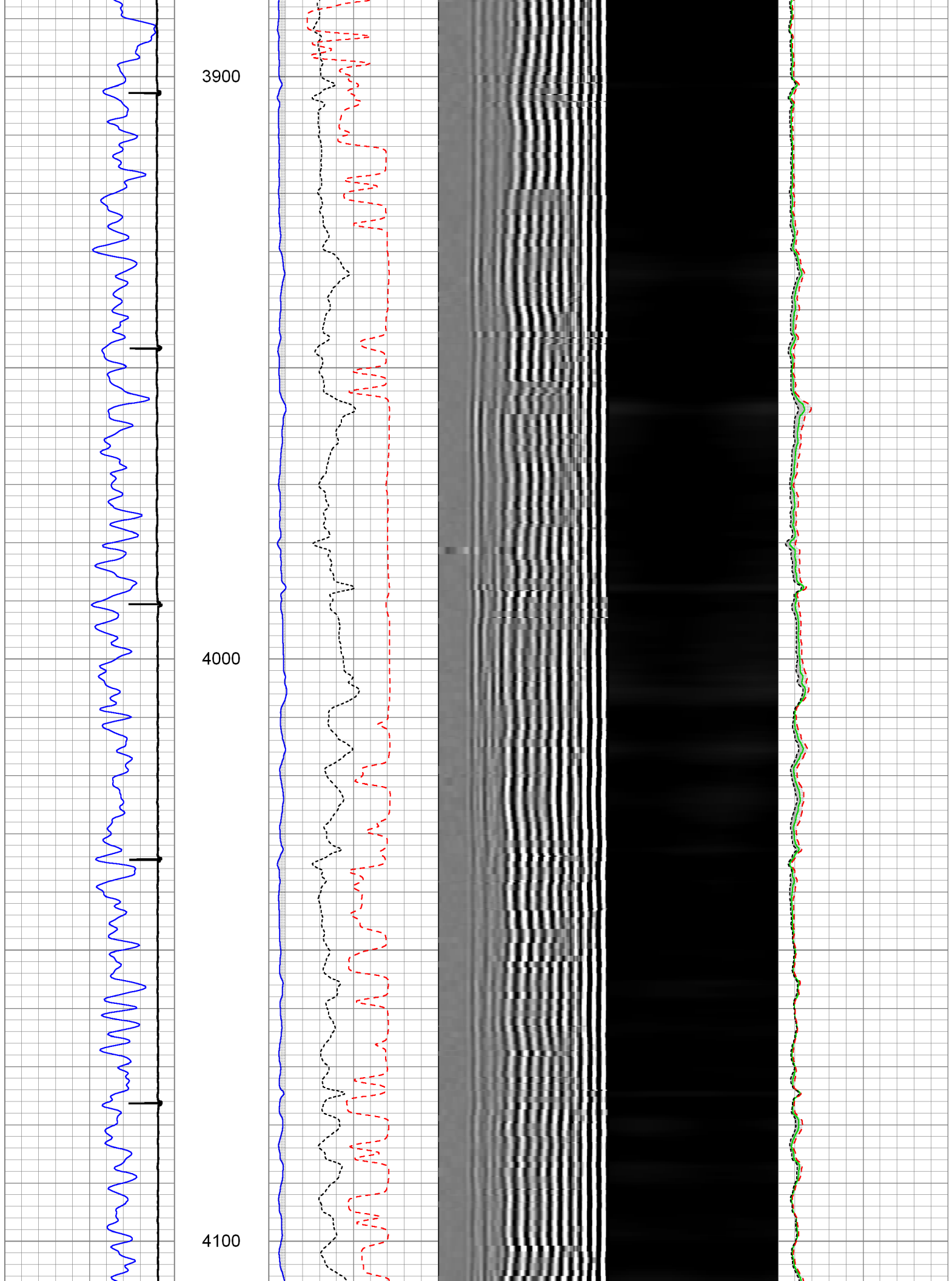


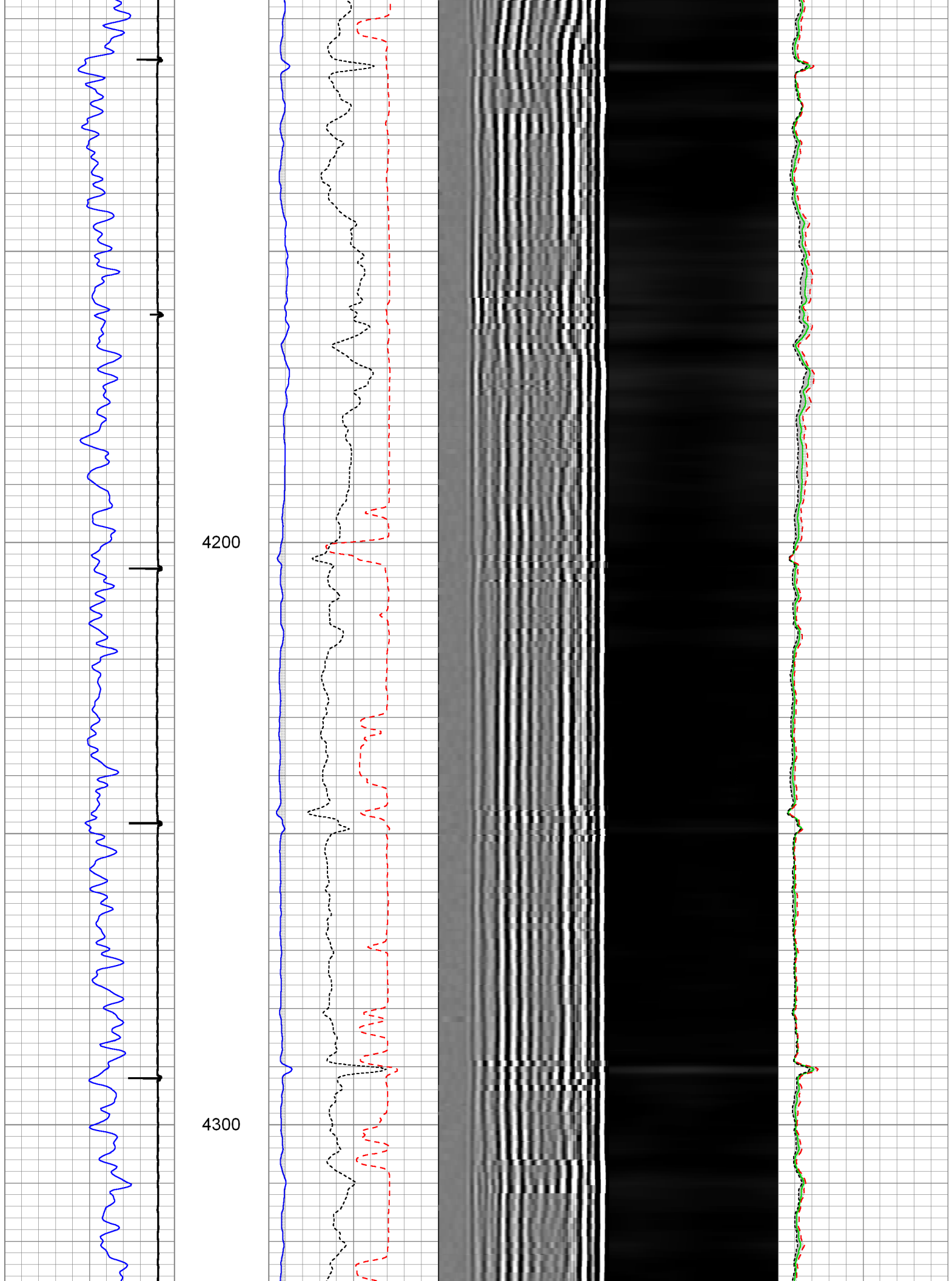


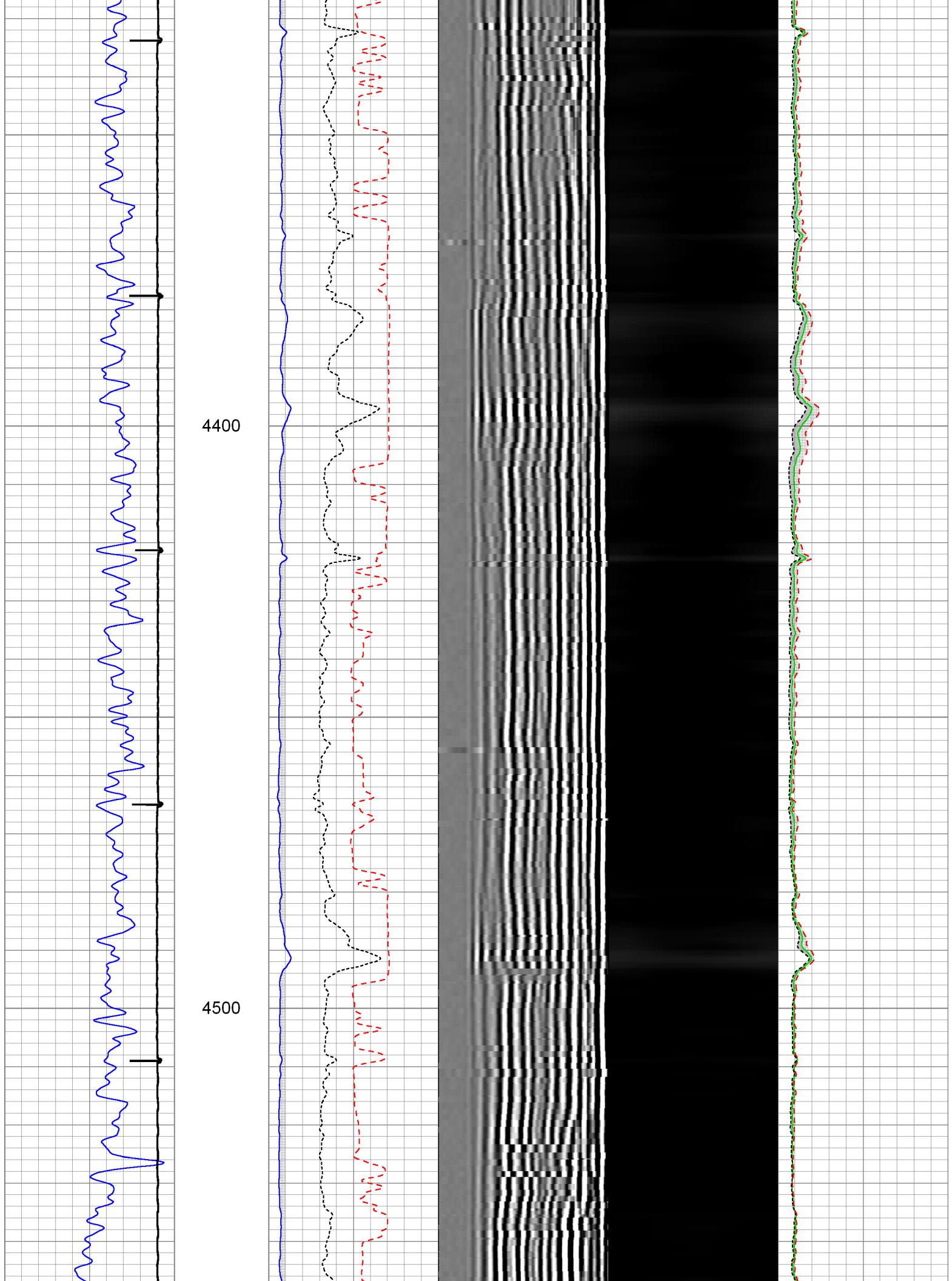
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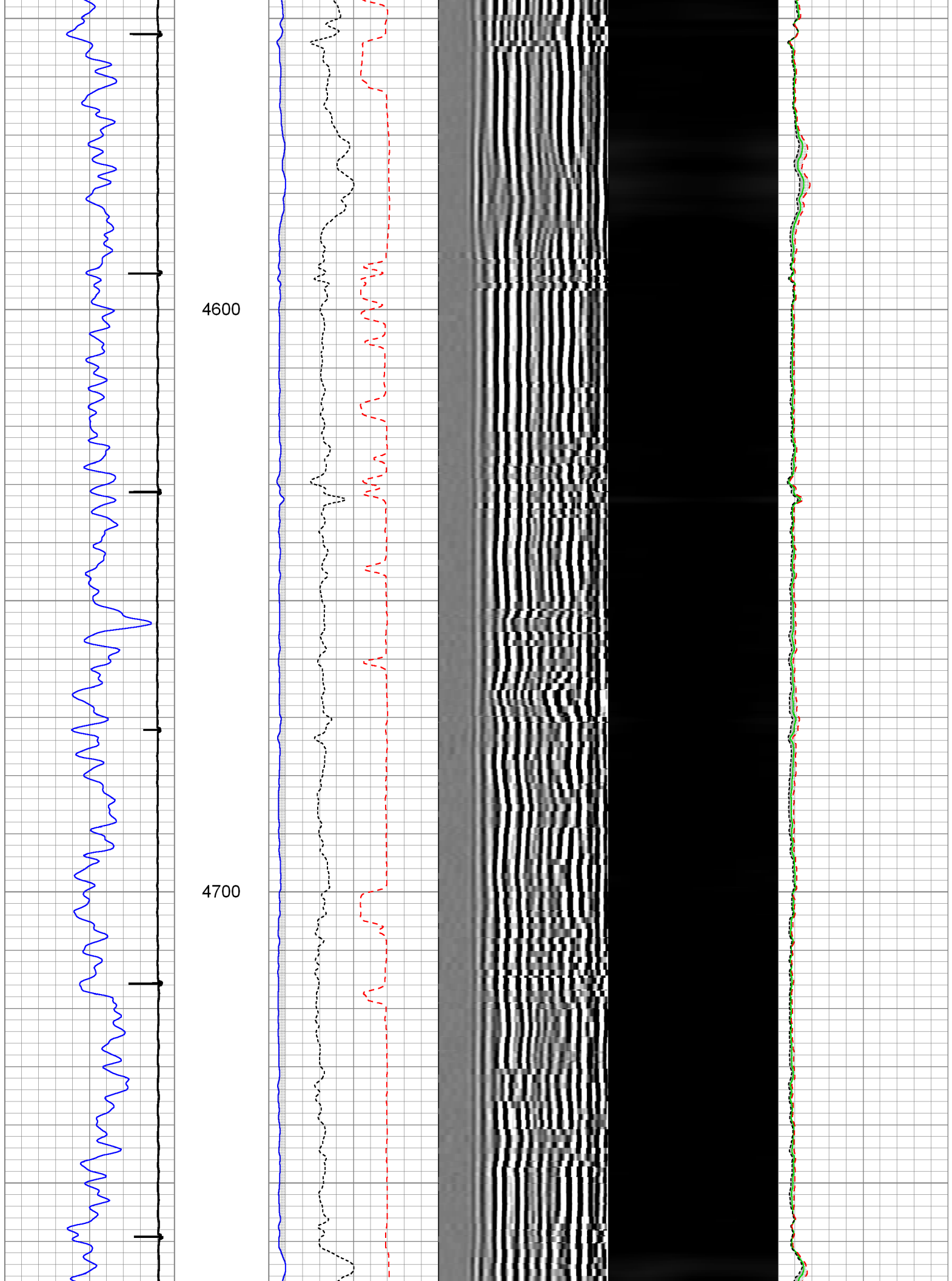
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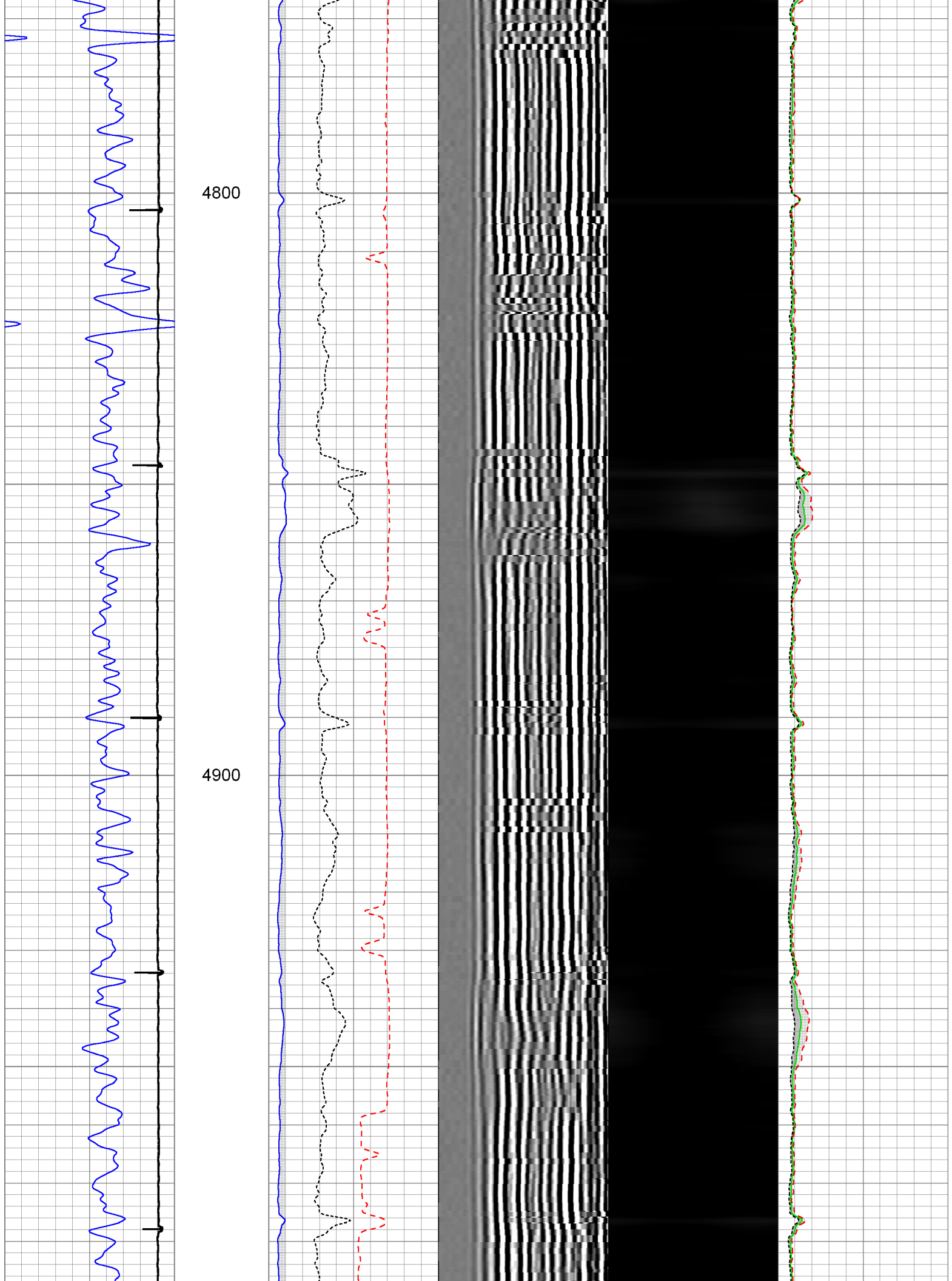


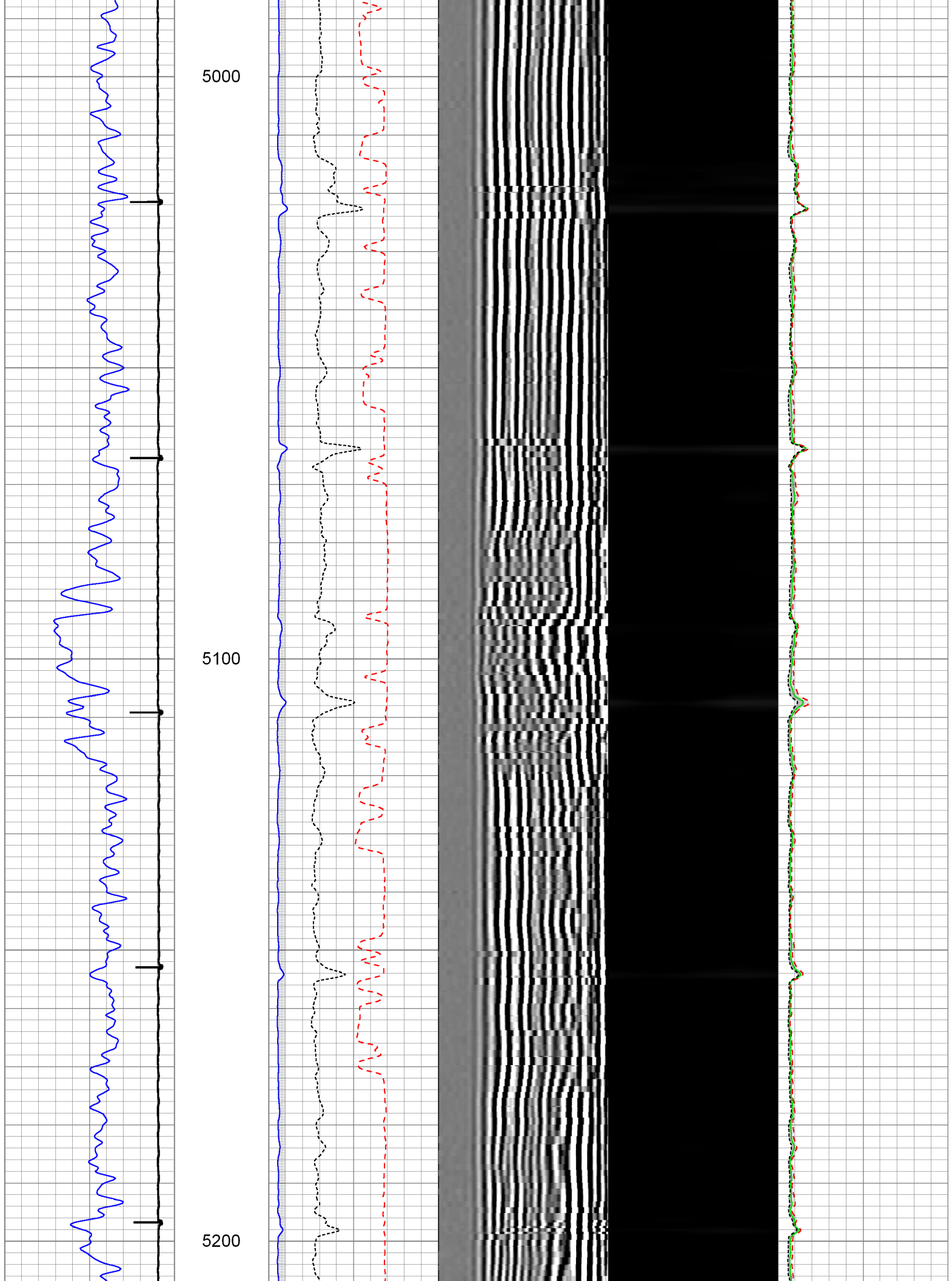


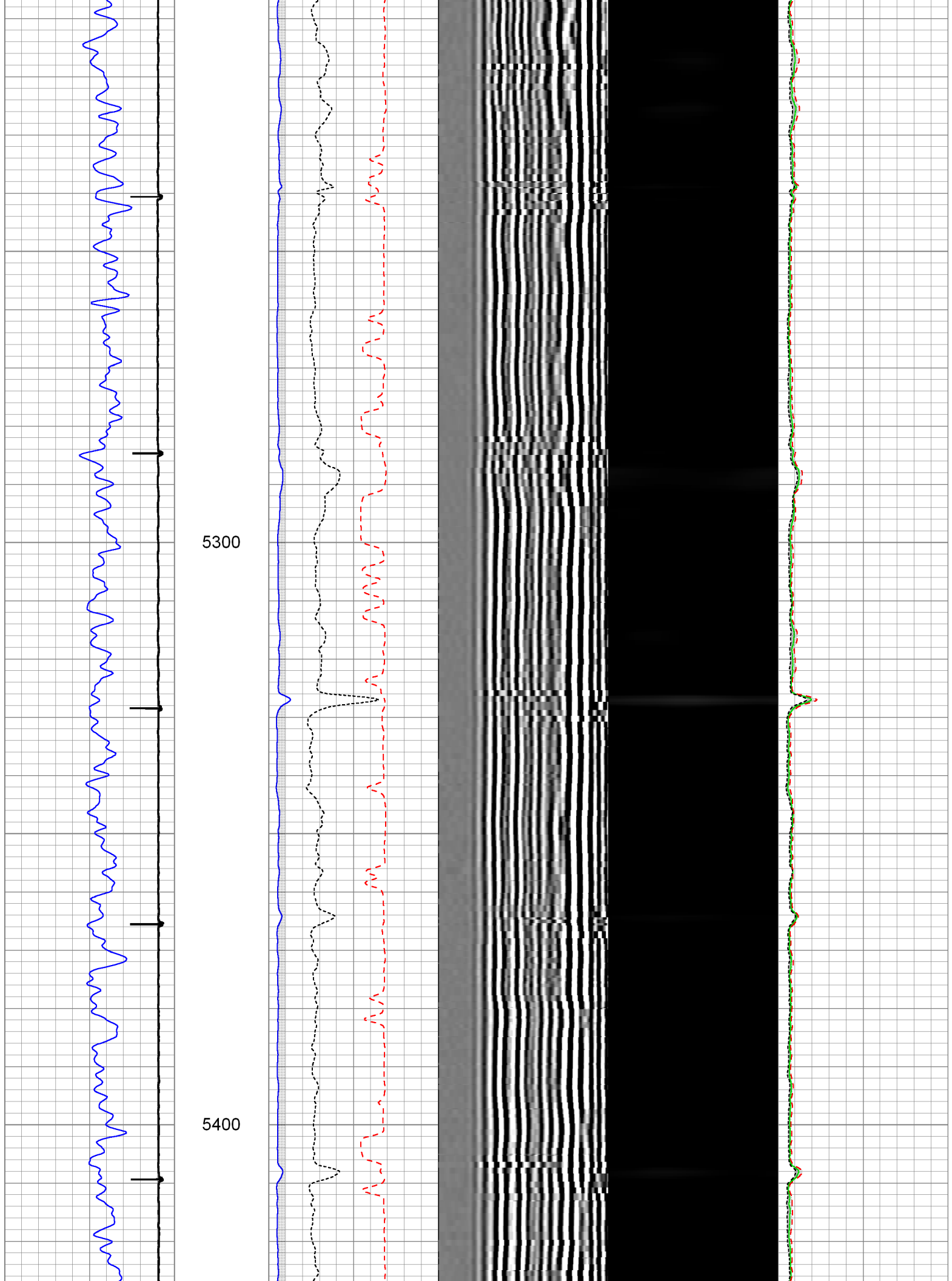


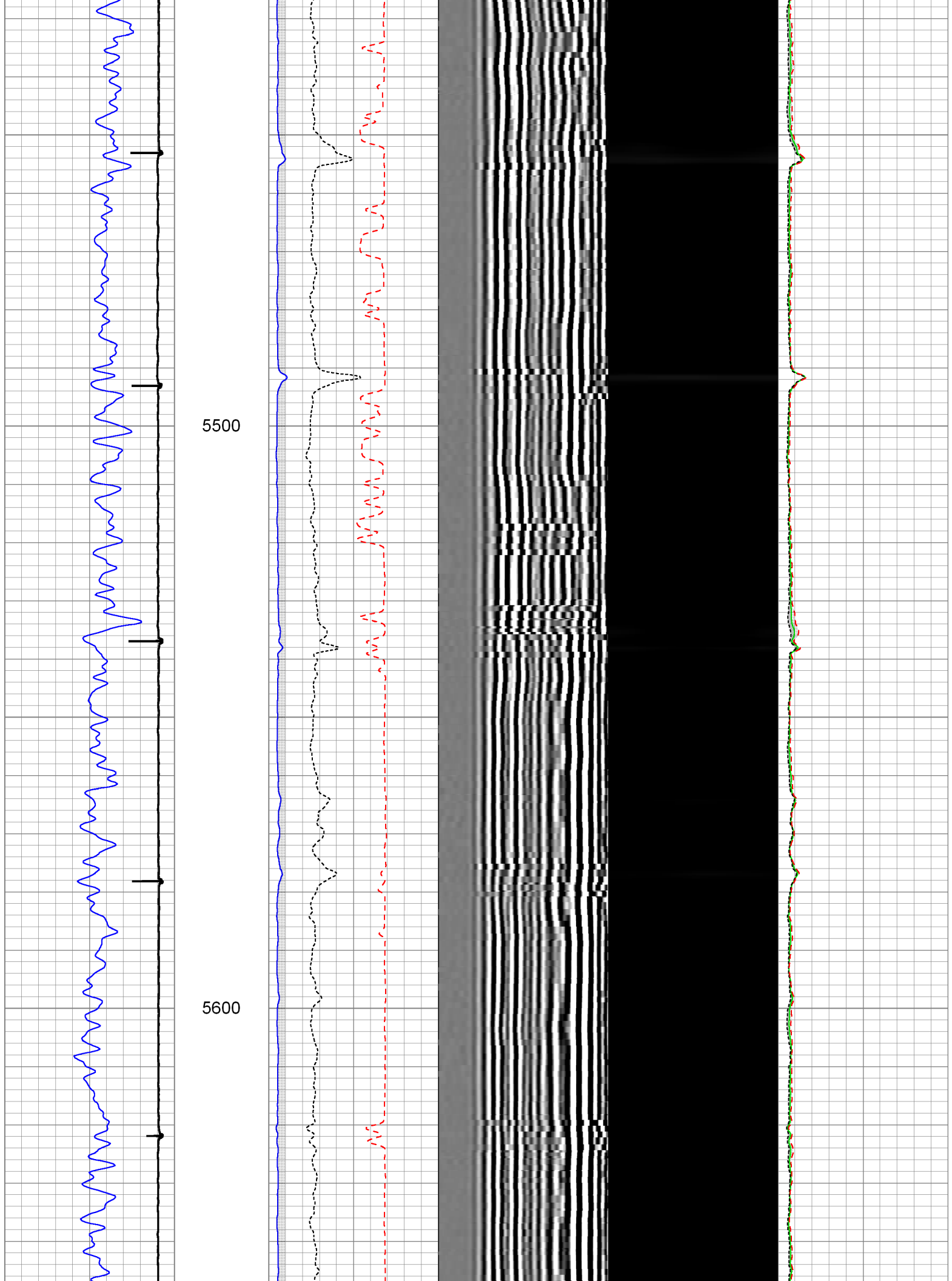


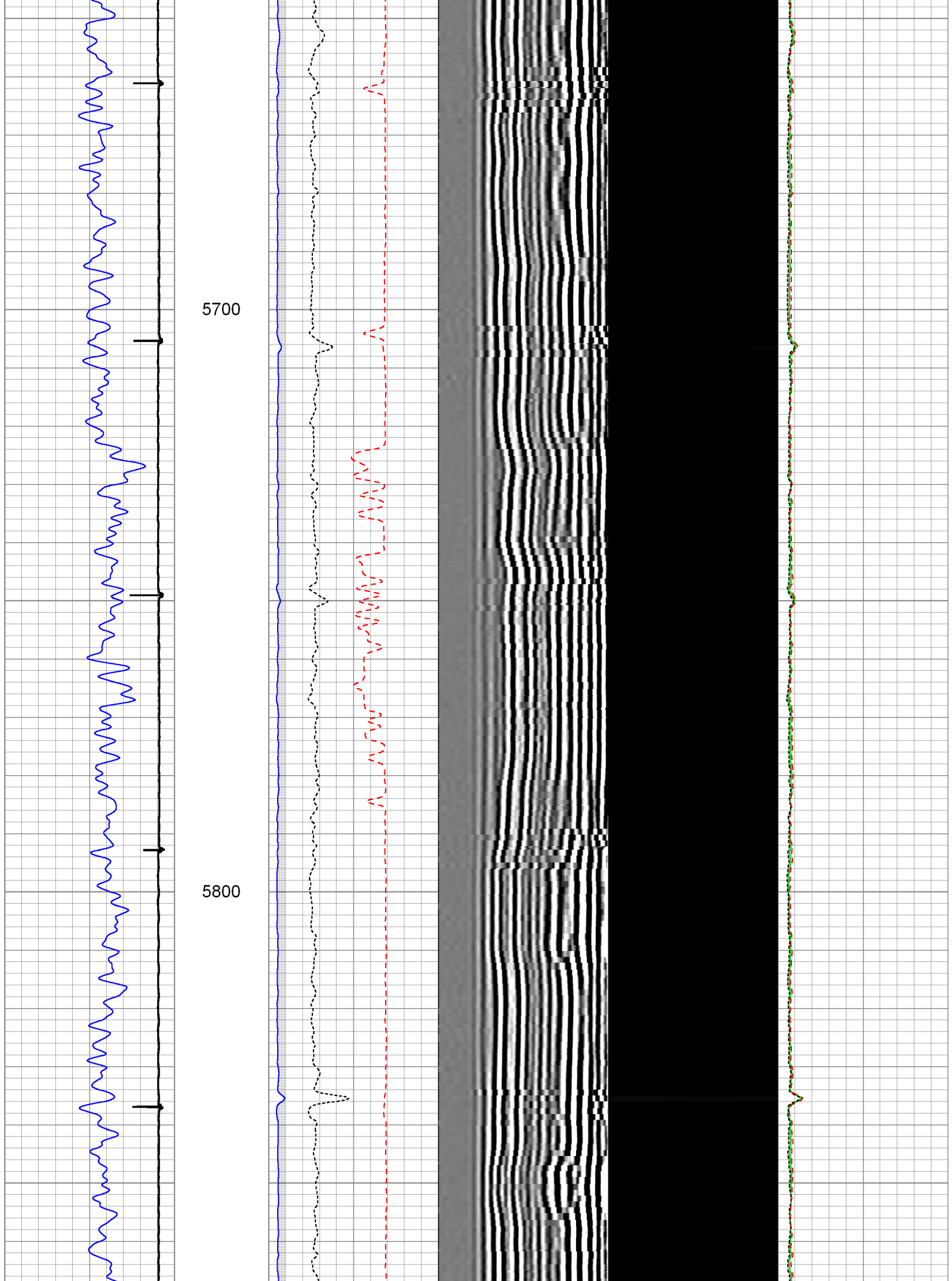






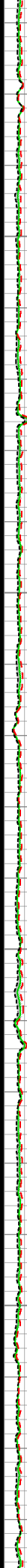
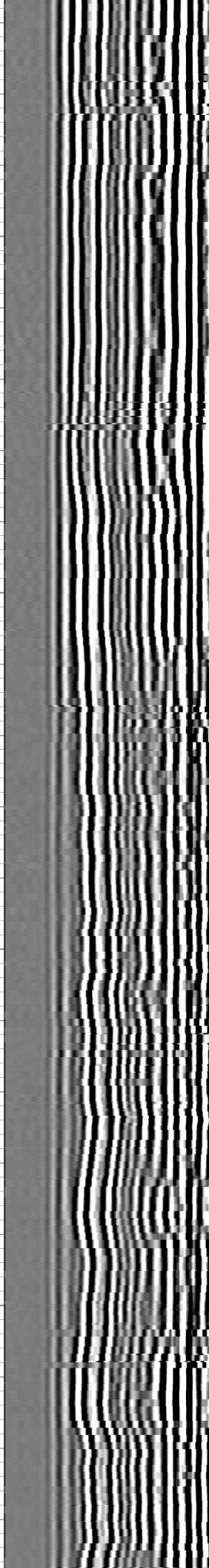
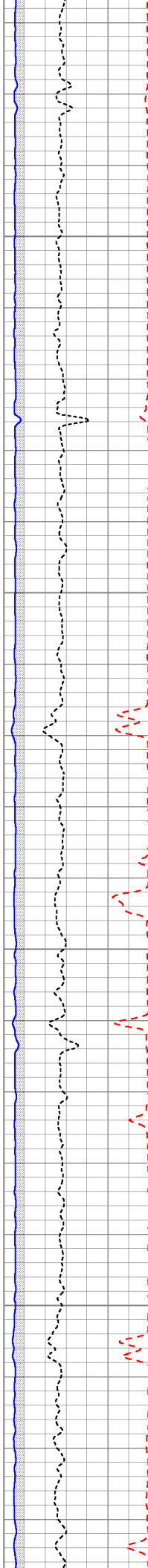


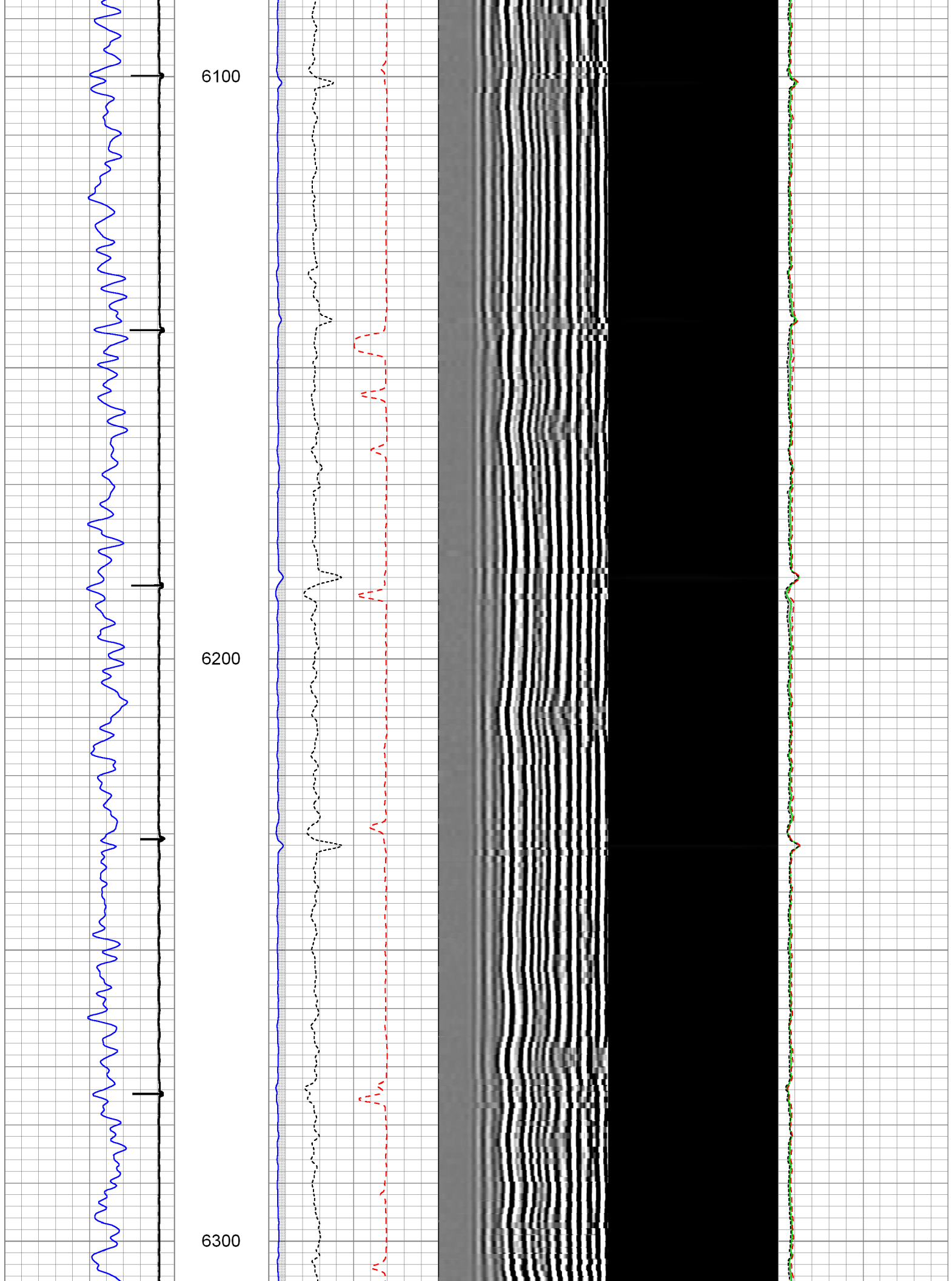




5900

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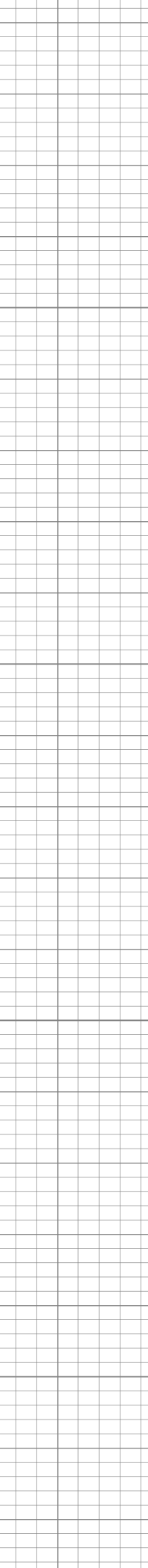
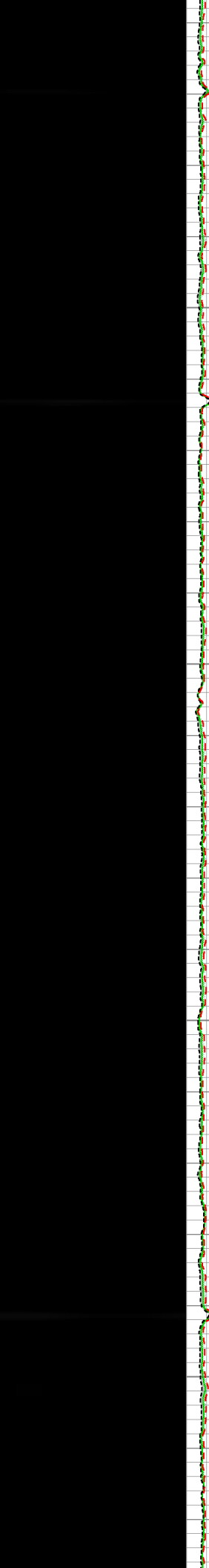
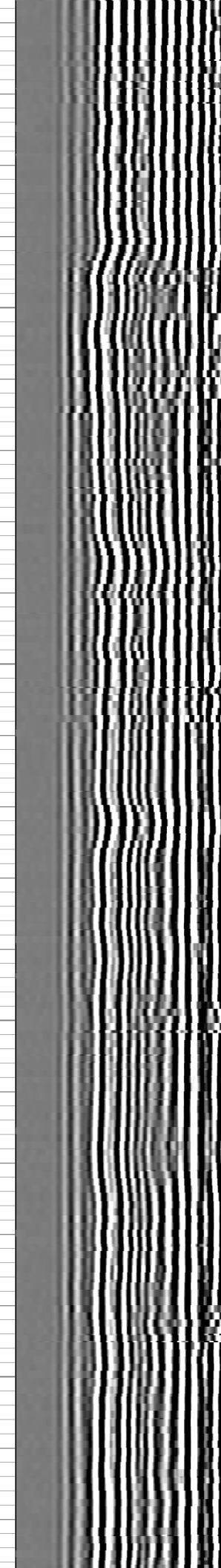
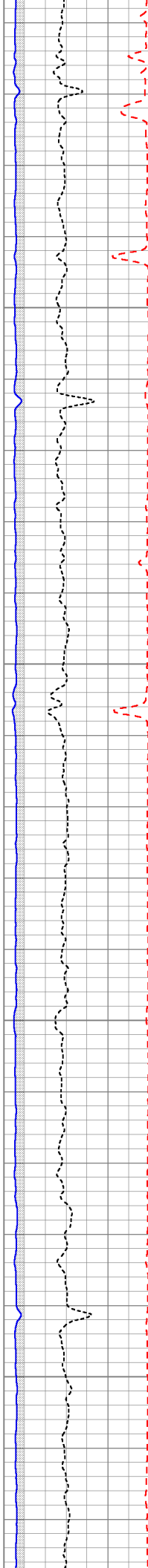


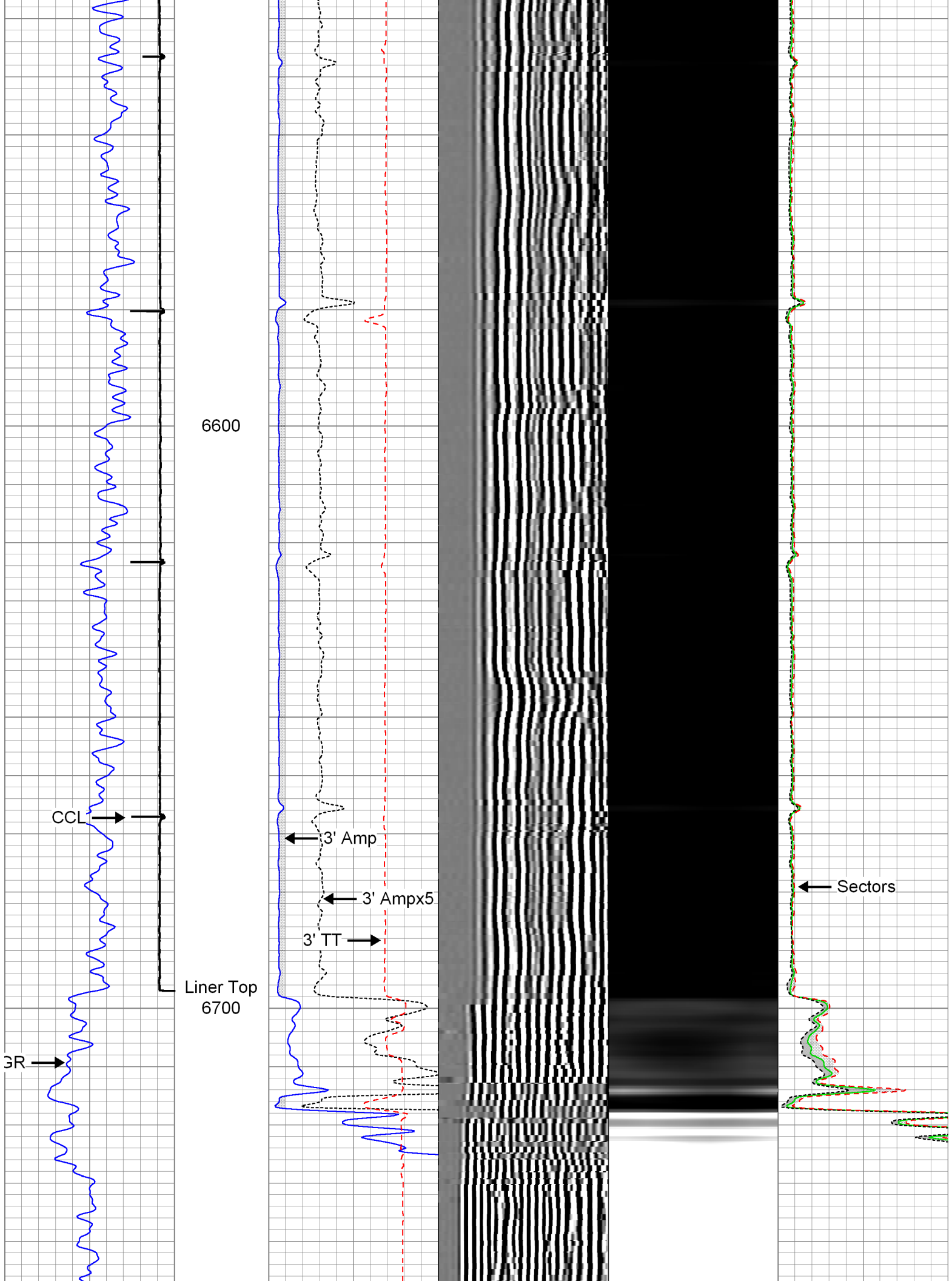


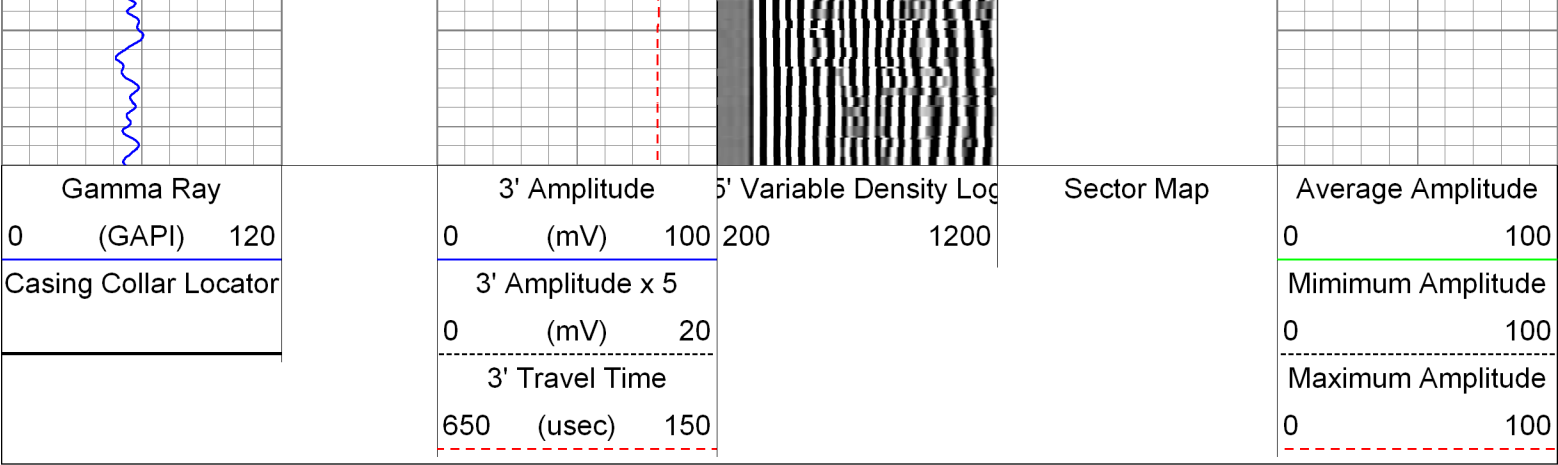



6400

6500

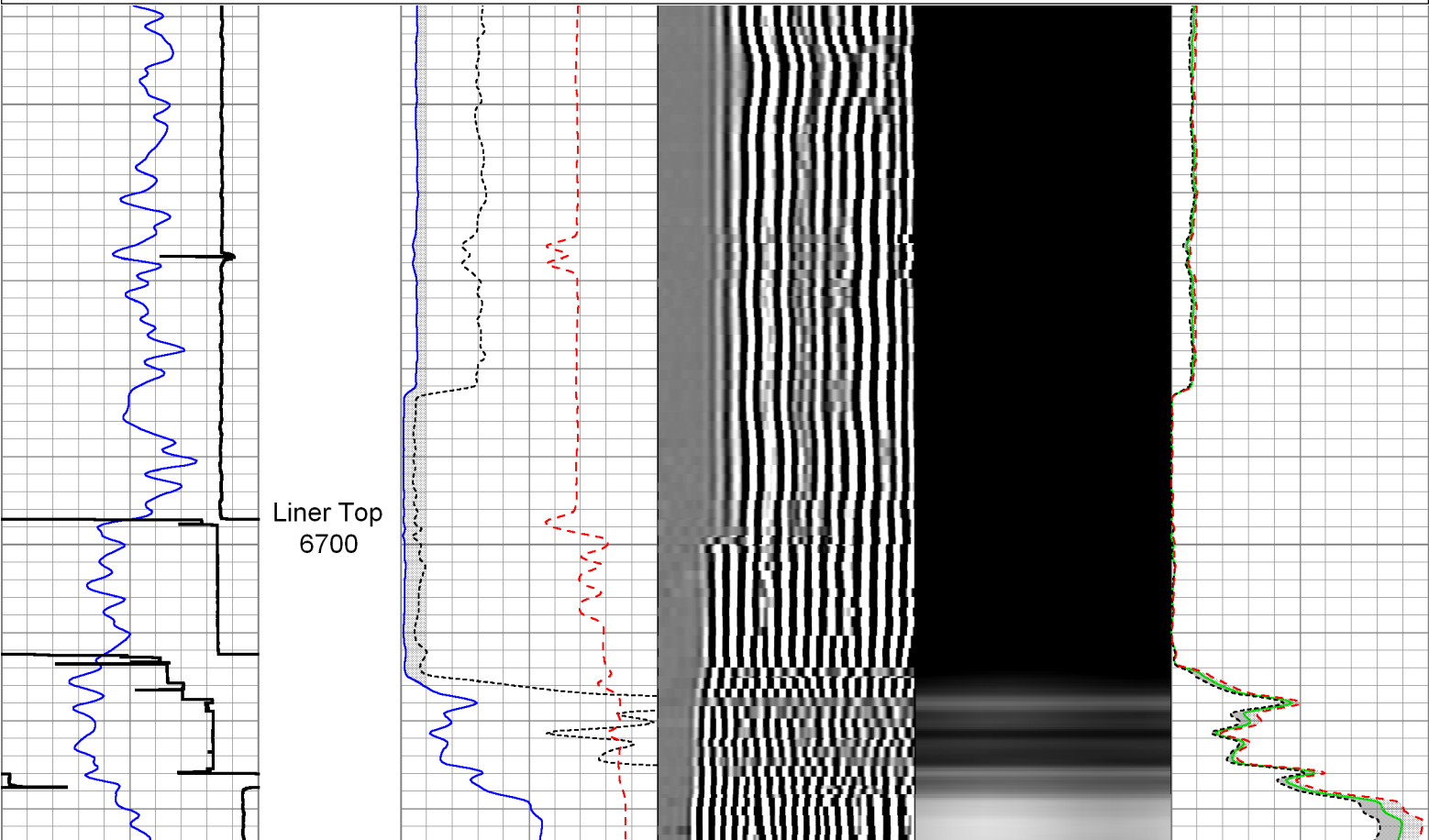
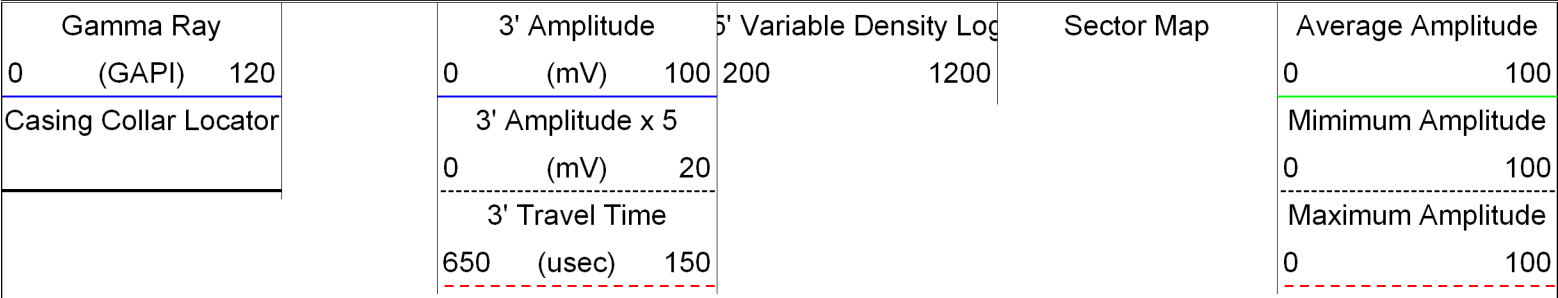






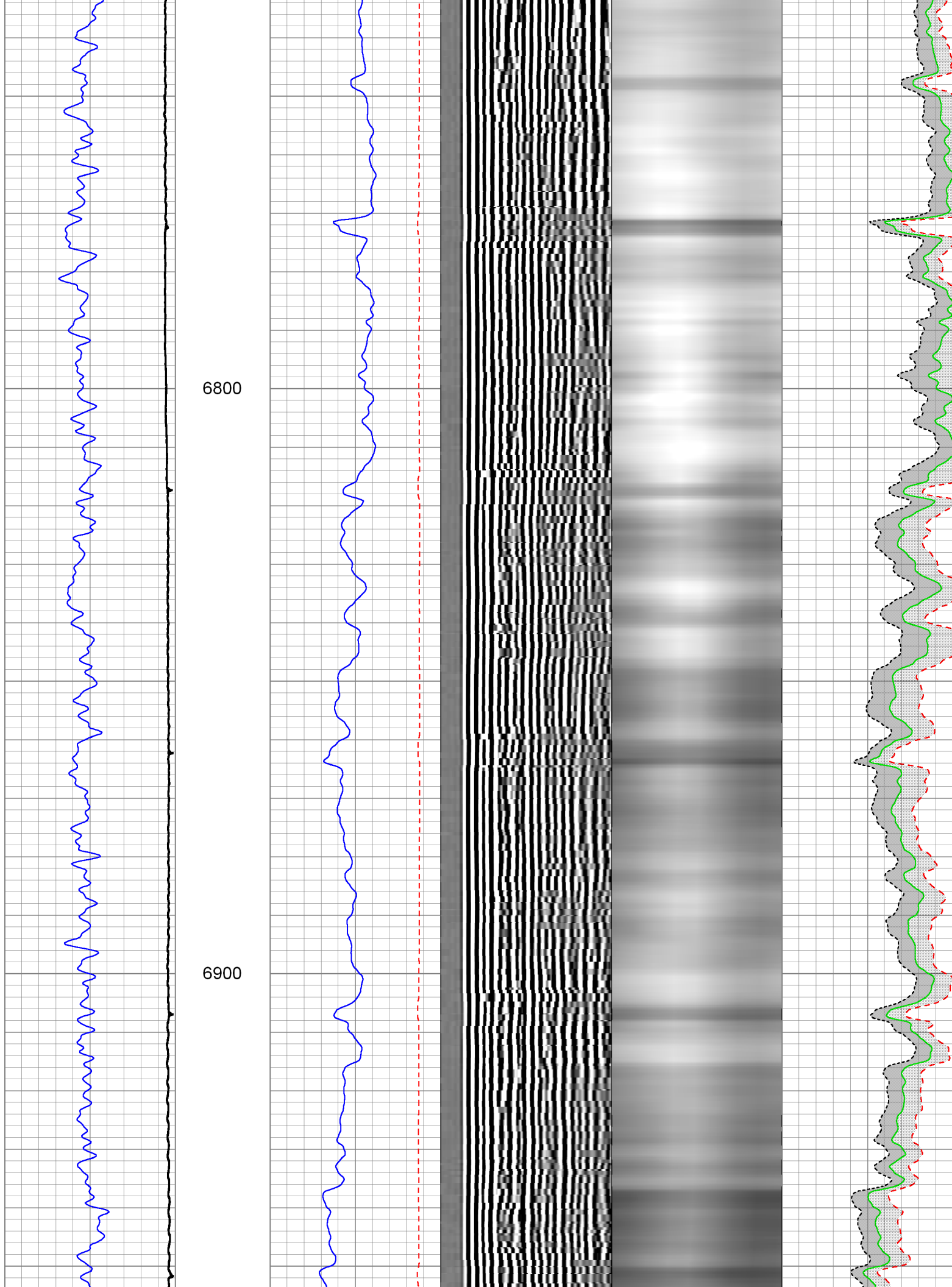
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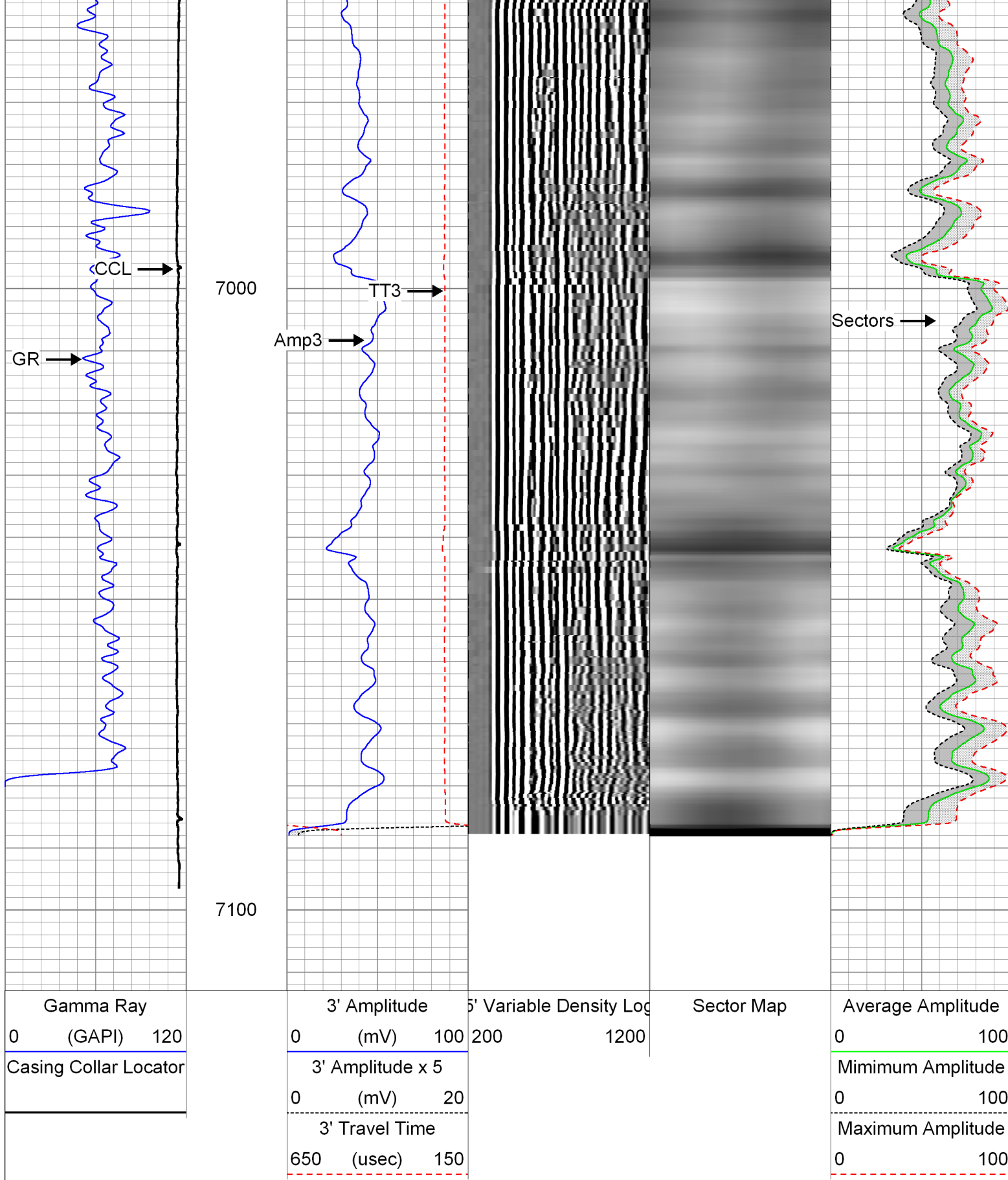
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6800

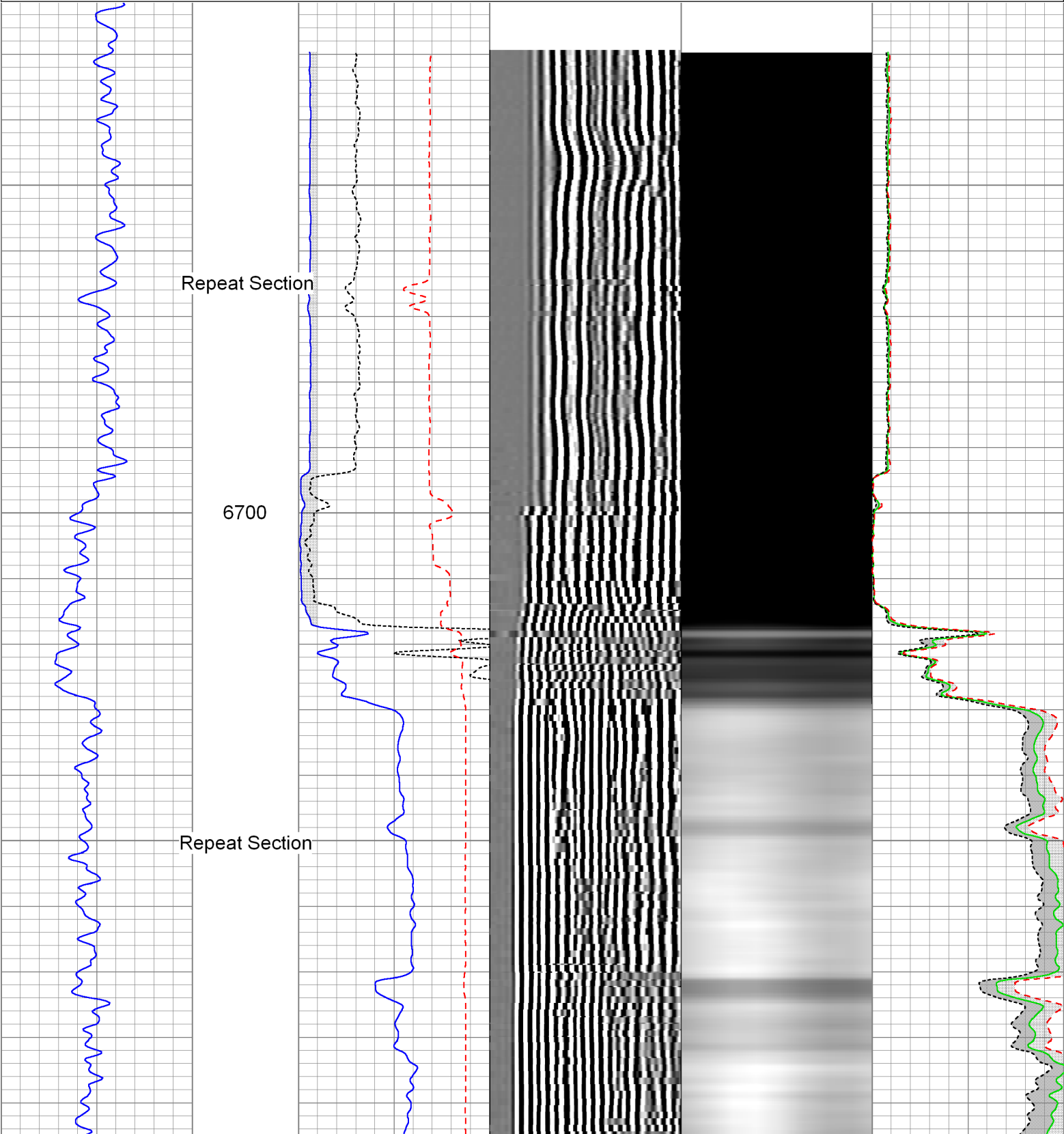
6900





Repeat Section

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



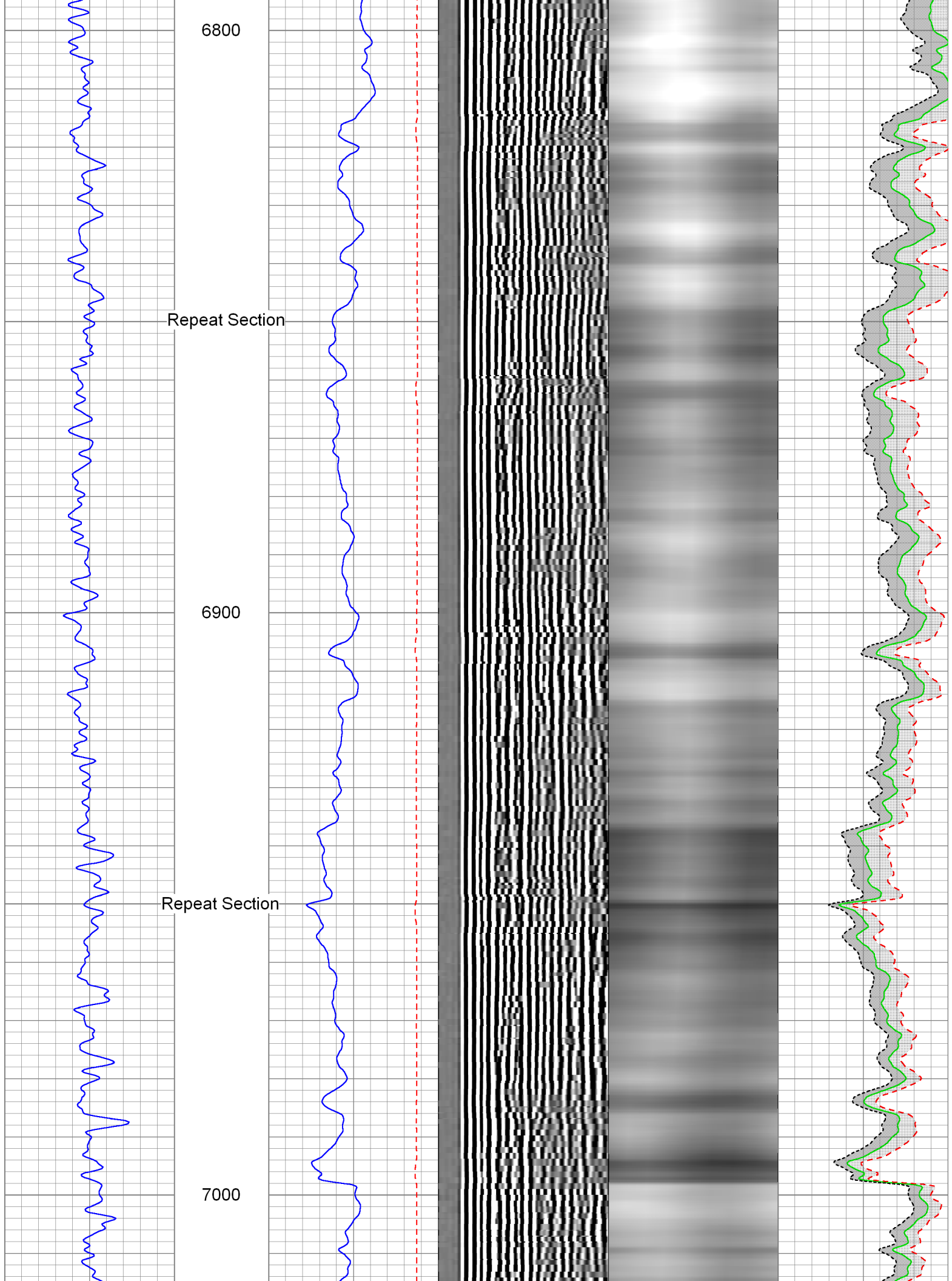
6800

Repeat Section

6900

Repeat Section

7000



WVF3FT	14.99		RBT-004 (1063) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVF51	14.99					
WVF52	14.99					
WVF53	14.99					
WVF54	14.99					
WVF55	14.99					
WVF56	14.99					
WVF57	14.99					
WVF58	14.99					
CBLTEMP	14.99		PRC-RAC.20 (20082) Roller Arm Centralizer (5 Arm)	2.55	2.75	32.00
CBLROT	14.99					
WVF5FT	13.99					
MIT	5.11	MIT-027 (10012912) 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	
		BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20	
TSTAMP	0.00					
Dataset: 0512338330_Anadarko_Aggregate State 16N-16HZ_05-14-14_MIT_RBL.db: field/well/run1/main7 Total Length: 27.33 ft Total Weight: 322.40 lb O.D. 3.13 in						

Calibration Report			
Database File:	0512338330_Anadarko_Aggregate State 16N-16HZ_05-14-14_MIT_RBL.db		
Dataset Pathname:	postcal		
Dataset Creation:	Wed May 14 15:37:45 2014 by Log Sondex V7.03		
Multi-finger Imaging Tool Calibration Report			
Serial Number:		10012912	
Number of Fingers:		40	
Tool Model:		027	
Inclinometer Calibration Report			
Performed:		Mon, Oct, 06 14:03:04 2008	
Calibration Angle:		45	
		Inc X	Inc Y
Vertical:		1996	1984
Finger 1 up:		1780	1738
Finger 31 up:		2235	1756
Finger 21 up:		2216	2228
Finger 11 up:		1736	2196
Sensitivity ratio:	1.0062		
X-axis angle:	131.534		
Deviation const.:	331.322		

Finger Calibration Report
Performed: Wed May 14 11:09:21 2014

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1070	342.0	1412	391.0	1803	409.0	2212
Finger 02:	1199	351.0	1550	394.0	1944	404.0	2348
Finger 03:	1088	356.0	1444	410.0	1854	428.0	2282
Finger 04:	1102	341.0	1443	398.0	1841	419.0	2260
Finger 05:	1111	350.0	1461	405.0	1866	421.0	2287
Finger 06:	1102	349.0	1451	406.0	1857	419.0	2276
Finger 07:	1098	352.0	1450	409.0	1859	420.0	2279
Finger 08:	1120	346.0	1466	403.0	1869	418.0	2287
Finger 09:	1111	351.0	1462	402.0	1864	415.0	2279
Finger 10:	1107	349.0	1456	399.0	1855	416.0	2271
Finger 11:	1119	349.0	1468	397.0	1865	413.0	2278
Finger 12:	1111	348.0	1459	397.0	1856	413.0	2269
Finger 13:	1121	350.0	1471	390.0	1861	407.0	2268
Finger 14:	1095	357.0	1452	401.0	1853	417.0	2270
Finger 15:	1059	362.0	1421	408.0	1829	427.0	2256
Finger 16:	1071	363.0	1434	407.0	1841	427.0	2268
Finger 17:	1042	363.0	1405	403.0	1808	433.0	2241
Finger 18:	1127	356.0	1483	387.0	1870	408.0	2278
Finger 19:	1084	360.0	1444	390.0	1834	415.0	2249
Finger 20:	1051	365.0	1416	400.0	1816	426.0	2242
Finger 21:	1073	372.0	1445	395.0	1840	409.0	2249
Finger 22:	1032	369.0	1401	400.0	1801	424.0	2225
Finger 23:	1004	373.0	1377	405.0	1782	434.0	2216
Finger 24:	1061	366.0	1427	385.0	1812	399.0	2211
Finger 25:	1021	371.0	1392	400.0	1792	428.0	2220
Finger 26:	1147	359.0	1506	374.0	1880	389.0	2269
Finger 27:	1086	371.0	1457	393.0	1850	411.0	2261
Finger 28:	1115	365.0	1480	377.0	1857	400.0	2257
Finger 29:	1067	373.0	1440	396.0	1836	426.0	2262
Finger 30:	1085	368.0	1453	390.0	1843	411.0	2254
Finger 31:	1110	364.0	1474	385.0	1859	406.0	2265
Finger 32:	1097	372.0	1469	399.0	1868	418.0	2286
Finger 33:	1157	361.0	1518	373.0	1891	385.0	2276
Finger 34:	1131	354.0	1485	384.0	1869	404.0	2273
Finger 35:	1067	371.0	1438	412.0	1850	433.0	2283
Finger 36:	1089	363.0	1452	397.0	1849	422.0	2271
Finger 37:	1126	359.0	1485	392.0	1877	411.0	2288
Finger 38:	1155	350.0	1505	386.0	1891	395.0	2286
Finger 39:	1152	346.0	1498	386.0	1884	401.0	2285
Finger 40:	1108	356.0	1464	400.0	1864	416.0	2280

Post Survey Calibration Check
Performed: Wed May 14 15:36:09 2014

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.002	0.001	5.005	0.003	6.000	0.000	7.001	0.000
Finger 02:	4.004	0.002	5.007	0.003	5.999	-0.001	6.998	-0.001
Finger 03:	4.009	0.004	5.005	0.003	6.007	0.004	7.006	0.003
Finger 04:	4.001	0.001	5.005	0.003	6.001	0.001	7.001	0.001
Finger 05:	4.003	0.001	5.005	0.003	6.007	0.003	7.008	0.004
Finger 06:	4.006	0.003	5.011	0.005	6.005	0.003	7.006	0.003
Finger 07:	4.004	0.002	5.004	0.002	6.004	0.002	7.010	0.005
Finger 08:	4.008	0.004	5.009	0.005	6.007	0.003	7.010	0.005
Finger 09:	4.003	0.001	5.007	0.003	6.003	0.001	7.006	0.003
Finger 10:	3.998	-0.001	5.003	0.001	6.002	0.001	7.004	0.002
Finger 11:	4.007	0.004	5.009	0.005	6.008	0.004	7.004	0.002
Finger 12:	4.005	0.003	5.003	0.002	6.004	0.002	7.008	0.004
Finger 13:	4.000	0.000	5.001	0.001	6.008	0.004	7.002	0.001
Finger 14:	4.004	0.002	5.004	0.002	6.005	0.002	7.003	0.002

Finger 15:	4.002	0.001	5.004	0.002	6.004	0.002	7.005	0.002
Finger 16:	4.001	0.001	5.003	0.001	6.004	0.002	7.010	0.005
Finger 17:	4.006	0.003	5.004	0.002	6.004	0.002	7.000	0.000
Finger 18:	4.000	0.000	5.009	0.004	6.007	0.004	7.002	0.001
Finger 19:	4.005	0.003	5.005	0.002	6.008	0.004	7.006	0.003
Finger 20:	4.005	0.003	5.004	0.002	6.003	0.002	7.002	0.001
Finger 21:	4.000	0.000	5.000	0.000	6.000	-0.000	7.004	0.002
Finger 22:	4.006	0.003	5.009	0.004	6.005	0.003	7.004	0.002
Finger 23:	4.007	0.004	5.005	0.002	6.000	-0.000	7.003	0.002
Finger 24:	4.006	0.003	5.007	0.003	6.004	0.002	7.004	0.002
Finger 25:	4.003	0.001	5.002	0.001	6.000	0.000	7.001	0.001
Finger 26:	3.999	-0.000	5.013	0.007	6.005	0.002	7.007	0.003
Finger 27:	4.006	0.003	5.007	0.004	6.004	0.002	7.004	0.002
Finger 28:	4.003	0.002	5.002	0.001	6.003	0.001	7.001	0.001
Finger 29:	4.005	0.003	5.008	0.004	6.014	0.007	7.004	0.002
Finger 30:	3.997	-0.002	5.007	0.003	5.998	-0.001	7.001	0.001
Finger 31:	4.004	0.002	5.003	0.001	5.997	-0.001	7.003	0.001
Finger 32:	4.009	0.005	5.012	0.006	6.022	0.011	7.033	0.017
Finger 33:	4.003	0.001	4.998	-0.001	6.001	0.001	7.005	0.002
Finger 34:	4.004	0.002	5.006	0.003	6.005	0.002	7.006	0.003
Finger 35:	4.003	0.002	5.001	0.001	6.001	0.000	7.002	0.001
Finger 36:	4.002	0.001	5.005	0.002	6.010	0.005	7.000	-0.000
Finger 37:	4.005	0.003	5.003	0.002	6.003	0.001	6.999	-0.001
Finger 38:	4.000	-0.000	5.004	0.002	6.007	0.004	7.007	0.004
Finger 39:	4.005	0.003	5.008	0.004	6.007	0.003	7.004	0.002
Finger 40:	4.003	0.001	5.001	0.001	5.999	-0.001	6.998	-0.001
Average:	4.004	0.002	5.005	0.003	6.004	0.002	7.005	0.002

Segmented Cement Bond Log Calibration Report

Serial Number:	1063
Tool Model:	004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	-1.529 ft

Master Calibration, performed Wed May 14 11:15:17 2014:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	0.659	1.000	62.165	92.436	1.291
5FT	-0.005	0.720	1.000	62.165	84.363	1.412
S1	-0.004	0.648	0.000	100.000	153.506	0.568
S2	-0.006	0.615	0.000	100.000	161.118	0.977
S3	-0.002	0.603	0.000	100.000	165.065	0.403
S4	-0.005	0.633	0.000	100.000	156.821	0.739
S5	-0.002	0.668	0.000	100.000	149.266	0.364
S6	-0.003	0.698	0.000	100.000	142.591	0.444
S7	-0.002	0.713	0.000	100.000	139.724	0.341
S8	-0.002	0.685	0.000	100.000	145.439	0.302

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 16N-16HZ
Field	Wattenberg
County	Weld
State	Colorado